Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

FINAL
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
AND
RESPONSES TO COMMENTS

State Clearinghouse Number

2026040188

June 2026

Lead Agency:

Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

Prepared by:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2525 Warren Drive
Rocklin, California 95677

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NOTICE OF DETERMINATION

TO:	FROM:
Office of Planning and Research 1400 10th Street Sacramento, CA 95814	Calaveras County Water District 120 Toma Court San Andreas, CA 95249

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 of the Public Resources Code

PROJECT TITLE: Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

State Clearinghouse Number	Contact Person	Telephone Number
2026040188	Kevin Williams	209-754-3184

Project Approval

The Calaveras County Water District (CCWD) adopted the Initial Study/Mitigated Negative Declaration and approved the CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project on June 24, 2026.

Project Location

The CCWD La Contenta WWTF Phase 3 Project (Project) is located southeast of the Community of Valley Springs, south and west of Hogan Dam Road, north of Vista del Lago Drive, and east of East Eberhardt Drive, within Calaveras County.

Summary Project Description

The Proposed Project would replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity.

CCWD, as the Lead Agency, has approved the above-described Project and has made the following determinations:

There is no substantial evidence that the Proposed Project will have a significant effect on the environment;

In accordance with the California Environmental Quality Act (CEQA), a Mitigated Negative Declaration for the Proposed Project was prepared. The Mitigated Negative Declaration has been adopted by CCWD which is the Lead Agency for the Proposed Project. The Mitigated Negative Declaration and record of project approval may be examined at the following website:

https://www.ccwd.org/

Mitigation measures were required to be made a condition of approval of the Proposed Project;

A Statement of Overriding Considerations was not required to be adopted for the Proposed Project; and

A Mitigation Monitoring and Reporting Plan was adopted for the Proposed Project.

This is to certify that the Final Initial Study/Mitigated Negative Declaration including comments and responses, the mitigation monitoring and reporting plan, and record of Project approval is available to the general public at:

https://www.ccwd.org/

Kevin Williams, District Engineer
Calaveras County Water District

Date

Date Received for Filing at OPR: _____

Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
IS	Initial Study
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
OPR	Office and Planning and Research

FINAL MITIGATED NEGATIVE DECLARATION CALAVERAS COUNTY WATER DISTRICT LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 PROJECT

Summary

Lead Agency: Calaveras County Water District

Project Location:

The CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project (Project) is located southeast of the Community of Valley Springs, south and west of Hogan Dam Road, north of Vista del Lago Drive, and east of East Eberhardt Drive, within Calaveras County.

Summary Project Description:

The Proposed Project would replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity.

Finding:

Based on the information contained in the attached Initial Study, CCWD finds that there would not be a significant effect on the environment because the mitigation measures described herein would be incorporated as part of the Proposed Project.

Mitigation Measures Incorporated into the Project to Avoid Significant Effects

Biological Resources

BIO-1: **Special-Status Plant Surveys.** A special-status plant survey shall be conducted according to California Department of Fish and Wildlife (CDFW), California Native Plant Society, and U.S. Fish and Wildlife Service (USFWS) protocols prior to Project ground-disturbing or vegetation disturbing activities. The survey shall be conducted by a qualified biologist (as defined per agency protocols) throughout all potential habitat for special-status plants within the Project Area. The survey shall be timed according to the identifiable period for special-status plant species with potential to occur (typically the blooming period). To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found and the survey is still considered recent as per CDFW and USFWS protocols at the time of Project implementation, no further measures pertaining to special-status plants are necessary. If a special-status plant is found, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not result in significant impacts to the species, meaning Project-related activities won't eliminate, substantially reduce the number of, or restrict the range of the species, and won't conflict with any local policies or ordinances protecting special-status plant species. If impacts may occur to a federally or state listed species, USFWS and/or CDFW shall be consulted to determine appropriate

avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat, or compensatory mitigation in the form of mitigation bank credits. Impacts to a state listed plant species also requires incidental take permit authorization from CDFW**.**

BIO-2: **Crotch's Bumble Bee Preconstruction Survey.** If Crotch's bumble bee is still a candidate or is listed under the California Endangered Species Act (ESA) at the time of construction, the following measures shall be implemented to avoid potential take of the species:

- If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for California ESA Candidate Bumble Bee Species, it is recommended that three Crotch's bumble bee surveys be conducted at two- to four-week intervals during the colony active period (April-August) if possible. If surveys are conducted during the queen flight season (February-March) it's recommended that three surveys be conducted spaced one to two weeks apart during acceptable weather conditions with the final survey occurring within one week of construction initiation.
- If Crotch's bumble bees are detected, any remaining surveys will focus on nest location. If no nests are found but the species is observed during preconstruction surveys or appropriate floral resources are present, work crews should be informed of the possibility of Crotch's bumble bees or their nests being present within the Study Area. If a Crotch's bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

BIO-3: **California Red-Legged Frog Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Study Area in areas where California red-legged frogs are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages of California red-legged frog.

If California red-legged frog(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California red-legged frog.

If California red-legged frogs are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-4: **California Tiger Salamander Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Project Area in areas where California tiger salamanders are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages during this survey.

If California Tiger Salamander(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California tiger salamander.

If California tiger salamanders are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify USFWS and CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-5: **Northwestern Pond Turtle Preconstruction Survey.** A qualified biologist shall perform a preconstruction clearance survey within 48 hours of the initiation of Project activities. If northwestern pond turtles are found within the Project Area, they will be allowed to move out of the Study Area on their own volition or relocated by a qualified biologist to suitable nearby habitat in coordination with CDFW.

BIO-6: **Nesting Bird Preconstruction Survey.** A preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction. The preconstruction nesting bird survey shall include accessible areas within 100 feet of the Project boundaries, including any temporary disturbance areas. For raptors, including bald eagle, the preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project Area boundary. If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with CDFW, shall establish a buffer distance. The buffer shall be maintained until the nestlings have fledged (e.g., are capable of flight and become independent of the nest), to be determined by a qualified biologist. The avoidance buffer can be removed, and no further measures are necessary once the young have fledged or the nest is no longer occupied, as determined by a qualified biologist.

BIO-7: **Bat Preconstruction Survey.** If the Project will remove structures or trim/remove trees, a qualified bat biologist shall conduct a bat habitat assessment to identify suitable bat

roosting habitat within or adjacent to the Project boundary. The habitat assessment shall be conducted one year prior to construction, if feasible, and no less than 30 days prior to the initiation of construction activities. If no suitable bat roosting habitat is identified, no further measures are necessary.

If the Project will impact identified structures with bat roosting habitat and evidence of current or previous bat occupation, a qualified bat biologist shall conduct a focused bat emergence survey prior to the start of construction. The focused bat emergence survey shall adhere to industry standard protocols and survey methods for bat emergence surveys.

If an active bat roost is identified in a structure that will be removed, a qualified bat biologist will prepare a Bat Management Plan that includes specific avoidance and minimization measures to reduce impacts to roosting bats. The Bat Management Plan will be submitted to CDFW for approval prior to the eviction of bats from occupied habitat. The Bat Management Plan shall include timing and methodology for passive exclusion of bats and/or removal of the structure, as applicable. If a structure with confirmed maternity roosting will be permanently removed, then species-specific replacement roosting habitat may be recommended in the Bat Management Plan. If temporary impacts to maternity roosting habitat are expected, then temporary exclusion measures, a phased approach to bat exclusion, and biological monitoring of exclusion activities may be appropriate.

The following shall apply to removal or trimming of trees with identified bat roosting habitat:

- To the extent feasible, removal or trimming of trees with suitable bat roosting habitat shall be scheduled to occur outside of the maternity roosting season, during seasonal periods of bat activity (September 1 to October 15, or March 1 to April 15). Tree removal may occur after October 15 if evening temperatures are above 45 degrees Fahrenheit and rain is not over 0.5 inch in 24 hours. No tree removal shall occur after April 15 unless surveys are conducted to confirm active maternity roosts are not present.
- As much as feasible, vegetation and trees within the area that are not suitable for roosting bats will be removed first to provide a disturbance that may reduce the likelihood of bats using the habitat.
- If removal of trees with suitable roosting habitat must occur during the maternity season (April 15 to August 31), a qualified bat biologist shall conduct a focused emergence survey of the tree within 48 hours prior to disturbance. If an active bat roost is located, whether solitary or colonial, that roost will remain undisturbed until after the maternity season or until a qualified bat biologist has determined the roost is no longer active, at which point the twostep tree removal process described below will be utilized to remove the tree.
- The two-step tree removal process will occur over two consecutive days under the supervision of a qualified bat biologist. On Day 1, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees (or outer

fronds, in the case of palm trees), as identified by a qualified bat biologist, shall be removed first, using chainsaws only (i.e., no dozers, backhoes). The following day (Day 2), the remainder of the tree is to be felled/removed. The intention of this method is to disturb the tree on Day 1. This should cause day-roosting bats to abandon the roost tree after they emerge for nighttime foraging. Removing the tree quickly the next consecutive day should avoid reoccupation of the tree.

- Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag shall be left undisturbed onsite for the next 48 hours.

BIO-8: **Sensitive Natural Community Survey.** Sensitive natural communities within the Project Area shall be mapped during the special-status plant survey. If no sensitive natural communities with State Rarity of S1 are identified, no further measures are recommended. If Ione manzanita chaparral or any sensitive natural communities with State Rarity of S1 are identified within or adjacent to the Project Area, the Project proponent shall consult with USFWS and/or CDFW to determine appropriate avoidance and minimization measures. These measures may include onsite or offsite restoration and/or permanent preservation of the sensitive natural community.

BIO-9: **Aquatic Resources.** The Project shall avoid aquatic resources to the extent feasible. Avoided aquatic resources will be designated as Environmentally Sensitive Areas and protected with a minimum 50-foot buffer, to the extent feasible. The Environmentally Sensitive Areas shall be clearly demarcated with orange construction fencing or other visible barrier, and no Project-related activities shall be permitted within the Environmentally Sensitive Areas.

To minimize potential indirect effects, the applicant shall prepare and implement an Erosion and Sediment Control Plan to avoid and minimize erosion and runoff to wetlands and other waters that are to remain within or adjacent to the Project Area.

If the Project will disturb at least 1 acre of land, the Project applicant shall obtain coverage under the General Construction Storm Water Permit from the Regional Water Quality Control Board (RWQCB) by preparing a Stormwater Pollution Prevention Plan and implementing Best Management Practices to reduce water quality effects during construction.

Authorization under Clean Water Act Section 404 must be obtained from the U.S. Army Corps of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. Mitigation for permanent impacts to Waters of the U.S. is typically required at a minimum 1:1 ratio; however, final mitigation requirements will be developed in consultation with USACE.

If temporary impacts to Waters of the U.S. or State will occur, the applicant shall prepare a site restoration plan describing the methods that will be used to restore impacted aquatic features to pre-Project conditions. The restoration plan will include, at a minimum, the

proposed methods for stabilizing and revegetating the site, any maintenance requirements (e.g., watering, invasive species control), the expected timeframe for restoration.

If discharges will occur to Waters of the U.S., Section 401 Water Quality Certification must be obtained from RWQCB before a 404 Permit can be issued. An application for a 401 Water Quality Certification will be prepared and submitted to RWQCB in accordance with the State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State.

If discharges to Waters of the State that are not also Waters of the U.S. will occur, the applicant shall obtain waste discharge requirements or a waiver of waste discharge requirements from RWQCB as required pursuant to the Porter-Cologne Water Quality Control Act.

If alteration of the bed, channel, or bank of Ditch-01 will occur, the applicant shall notify CDFW of the Proposed Project activities and obtain a Lake or Streambed Alteration Agreement, if required, prior to Project implementation.

Cultural Resources

CUL-1: **Unanticipated Discoveries.** If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the lead agencies. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under the California Environmental Quality Act (CEQA), as defined by CEQA or a Historic Property under National Historic Preservation Act Section 106, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, they shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Calaveras

County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code (PRC), and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Paleontological Resources

GEO-1: **Unanticipated Discovery of Paleontological Resources.** If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area, and the area shall be isolated using orange or yellow fencing until CCWD is notified and the area is cleared for future work. A qualified paleontologist shall be retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resources. If CCWD resumes work in a location where paleontological remains have been discovered and cleared, CCWD will have a paleontologist onsite to confirm that no additional paleontological resources are in the area.

Noise

NOI-1: **Hours of Construction.** Project construction shall be limited to the Calaveras County standard exempted hours of 7:00 a.m. through 6:00 p.m.

Tribal Cultural Resources

TRANS-1: **Unanticipated Discovery of Tribal Cultural Resources.** If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by CCWD, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native

American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until CCWD, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

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1.0 INTRODUCTION

This document is the Final Initial Study and Mitigated Negative Declaration (Final IS/MND) including the Responses to Comments and the Mitigation Monitoring and Reporting Plan for the Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project. It has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resource Code Section 21000 et. seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.) as amended. This Final IS/MND and Responses to Comments document supplements and updates the Draft Initial Study/Mitigated Negative Declaration (Draft IS/MND) released for public review on April 1, 2026.

CCWD is the Lead Agency for the Proposed Project. On April 1, 2026, the CCWD distributed the Draft IS/MND for the Project to public agencies and the general public for review and comment. In accordance with the State CEQA Guidelines, a 30-day review period, which ended on May 1, 2026, was completed. During the public review period, two comment letters were received.

This Final IS/MND is organized as follows:

Section 1.0 provides a discussion of the purpose of the document and discusses the structure of the document;

Section 2.0 contains a summary of the Project Description, and a discussion of why recirculation of the Draft IS/MND is not required;

Section 3.0 includes the comment letters received and responses to these comments;

Section 4.0 includes corrections and revisions made to the Draft IS/MND in response to comments;

Section 5.0 includes the Proposed Project's Mitigation Monitoring and Reporting Program (MMRP), prepared pursuant to Public Resources Code Section 21081.6; and

Section 6.0 includes the Notice of Intent, Proof of Publication, Environmental Filing Receipt, and the Draft IS/MND.

This Final MND document and the Draft IS/MND together constitute the environmental document for the proposed Project. As a result of comments received on the Draft IS/MND, minor revisions were required to the Draft IS/MND text, however, there were no substantial revisions that would require recirculation of the document. A substantial revision according to Section 15073.5 of the *2021 CEQA Statute Guidelines* shall mean:

"(1) A new, avoidable significant effect is identified and mitigation measures or project revisions must be added in order to reduce the effect to insignificance, or

(2) The lead agency determines that the proposed mitigation measures or project revisions will not reduce potential effects to less than significance and new measures or revisions must be required."

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2.0 PROJECT OVERVIEW

2.1 Project Location

The Proposed Project Area consists of approximately 26 acres of land located in Sections 24 and 25 of Township 4 North, Range 10 East, Mount Diablo Base and Meridian, as depicted on the 1962 U.S. Geological Survey Valley Springs, California 7.5-minute topographic map. The Proposed Project Area includes the La Contenta WWTF and the proposed Treated Effluent Pipeline (TEP), comprising an easement area to the south of the Upper Effluent Storage Pond (UESP) for approximately 0.2 mile, and its intersection with East Eberhard Drive continues southward for approximately 0.2 mile until the pipeline terminates at the Lower Effluent Storage Pond (LESP).

2.2 Project Description Summary

The Project proposes to replace and/or improve facilities at the existing approximately 26.4-acre La Contenta WWTF due to existing age deterioration and limited capacity.

2.3 Decision Not to Recirculate Draft MND

According to Section 15073.5 of the State CEQA Guidelines, "A lead agency is required to recirculate a negative declaration when the document must be substantially revised after public notice of its availability has been given pursuant to Section 15072 but prior to its adoption."

Because no revisions were proposed, this Final MND does not meet the criteria for recirculation provided in Section 15073.5 (c) of the CEQA Guidelines. These criteria are provided below, along with an explanation regarding the reasons why the changes to the Project do not require recirculation.

Recirculation is not required under the following circumstances:

(1) Mitigation measures are replaced with equal or more effective measures pursuant to Section 15074.1.

a. No mitigation measures have been replaced.

(2) New Project revisions are added in response to written or verbal comments on the Project's effects identified in the proposed negative declaration which are not new avoidable significant effects.

a. No revisions to the Project as described in the Draft IS/MND have been made.

(3) Measures or conditions of Project approval are added after circulation of the negative declaration, which is not required by CEQA, which do not create new significant environmental effects, and are not necessary to mitigate an avoidable significant effect.

a. As discussed, two new mitigation measures were added. However, the project findings with incorporation of the new mitigation is less than significant.

(4) New information is added to the negative declaration which merely clarifies, amplifies, or makes insignificant modifications to the negative declaration.

a. No new information has been added to the MND.

3.0 COMMENTS AND RESPONSES

This section of the document contains copies of the comment letters received during the 30-day public review period, which began on April 1, 2026 and ended on May 1, 2026. In conformance with Section 15088(a) of the State CEQA Guidelines, CCWD has considered comments on environmental issues from reviewers of the Draft IS/MND and has prepared written responses. Two comment letters were received via email during the 30-day comment period. These letters, and the responses to the comments contained in the letters are provided in this section.

A list of public agencies, organizations, and individuals that provided comments on the Draft IS/MND is presented below. The letter and response to comments follow this page

3.1 List of Comment Letters

Letter Number	Sender	Date Received
1	Gregoria Ponce, Department of Transportation (Caltrans)	April 28, 2026
2	Morgan Kilgour, California Department of Fish and Wildlife	April 29, 2026

Letter 1 (Caltrans) – Gregoria Ponce, Received April 28, 2026

CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, GOVERNOR

California Department of Transportation

OFFICE OF THE DISTRICT 10 PLANNING
P.O. BOX 2048 | STOCKTON, CA 95201
(209) 948-7325 | FAX (209) 948-7164 TTY 711
www.dot.ca.gov

April 28 , 2026

Mr. Kevin Williams
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

CAL-26-PM 9.697
Wastewater Treatment Facility Phase 3 Initial Study – La Contenta – SCH 2026040188

Mr. Williams,

The California Department of Transportation (Caltrans) appreciates the opportunity to review and comment on the proposed La Contenta Wastewater Treatment Facility (WWTF) Phase 3 project. The project would replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity. The Calaveras County Water District (CCWD) published the La Contenta Wastewater Collection System Improvement Project and WWTF Phase 3 Improvement Project Predesign Report, which established the key objectives and existing deficiencies at the La Contenta WWTF. Caltrans-1

This project is located southeast of Valley Springs and north of New Hogan Dam Reservoir.

Caltrans has the following comments:
Caltrans suggests that the Calaveras County continue to coordinate with Caltrans in identifying and addressing potential pedestrian safety and cumulative transportation impacts from this project and other developments near this location. This will assist Caltrans in ensuring that pedestrian, traffic safety, and quality standards are maintained for the traveling public on existing and future state transportation facilities in Calaveras County. Caltrans-2

Environmental
It does not appear that this project will encroach onto the State Highway System. However, if there are any construction related activities that will encroach into Caltrans Right of Way (ROW) as a result of the project, the project proponent must apply for an Encroachment Permit with the Caltrans District 10 Encroachment Permit Office. All California Environmental Quality Act (CEQA) documentation, including the final Initial Study and Mitigated Negative Declaration, with supporting technical studies, must be submitted with the Encroachment Permit Application. These studies may include an analysis of potential impacts to any cultural sites, historic properties, biological resources, Caltrans-3

"Improving lives and communities through transportation."

hazardous waste/materials, scenic highways, and/or other environmental resources within Caltrans Right of Way, at the project site(s). Evidence of consultation with local Native American tribes and interested parties will need to be presented within the technical documents for approval of encroachment in the Caltrans ROW. If there are impacts to water resources within Caltrans ROW, Caltrans will need to review the applicant's correspondence and/or permits with the regulatory agency(ies) (California Department of Fish and Wildlife [CDFW], United States Army Corps of Engineers, Regional Water Quality Control Board) to the start of any construction in Caltrans ROW. If there are impacts to any special status species, critical habitat, or Essential Fish Habitat that exist within Caltrans ROW, evidence of consultation with CDFW, U.S. Fish & Wildlife Service, and/or National Marine Fisheries Service shall be provided to Caltrans with the Encroachment Permit application.

Caltrans-3 Continued

Encroachment Permits

If any project activities encroach into Caltrans ROW, the project proponent must submit an application for an Encroachment Permit to the Caltrans District 10 Encroachment Permit Office. Appropriate environmental studies must be submitted with this application. For more information, please visit the Caltrans Website at: https://dot.ca.gov/programs/traffic-operations/ep/applications

If you have any questions or concerns, please contact Shiferaw Jemberie (209) 986-9635 (email: Shiferaw.jemberie@dot.ca.gov) or me at (209) 639 -8832 (email: Gregoria.ponce@dot.ca.gov).

Caltrans-4

Sincerely,

Gregoria Ponce'

Gregoria Ponce', Chief
Office of Rural Planning

c: Bret Sampson, Director, Calaveras County Planning Department
State Clearinghouse

"Improving lives and communities through transportation."

Response to Comment Caltrans-1:

Comment Caltrans-1 is introductory and summarizes the Project description. The comment is hereby noted.

Response to Comment Caltrans-2:

Comment Caltrans-2 states that Calaveras County should continue to coordinate with Caltrans in identifying pedestrian safety and cumulative traffic impacts within Calaveras County. The comment is hereby noted, however, the lead agency for the Proposed Project is Calaveras County Water District (CCWD). CCWD does not have authority over Calaveras County transportation requirements.

Response to Comment Caltrans-3:

Comment Caltrans-3 states that any construction related activities that will encroach into Caltrans Right of Way (ROW), will require an encroachment permit. The rest of the comment outlines what information would be required when submitting an encroachment permit application, including biological surveys and tribal consultation records. The comment is hereby noted. The Project will comply with all applicable regulatory requirements.

Response to Comment Caltrans-4:

Comment Caltrans-4 states that any construction related activities that will encroach into Caltrans Right of Way (ROW), will require an encroachment permit. The comment is hereby noted. The Project will comply with all applicable regulatory requirements.

Response to Comment Caltrans-5:

Comment Caltrans-4 provides additional information encroachment permits and a link. The comment also provides contact information. The comment is hereby noted.

Letter 2 (CDFW) – Morgan Kilgour, Received April 29, 2026

Docusign Envelope ID: 079A9937-5CEB-4225-8802-0FEAB23DBC3E

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
MEGHAN HERTEL, Director

April 29, 2026

Kevin Williams
District Engineer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249
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Subject: CALAVERAS COUNTY WATER DISTRICT – LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3
MITIGATED NEGATIVE DECLARATION (MND)
SCH NO. 2026040188

Dear Kevin Williams:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Intent to Adopt an MND from the Calaveras County Water District for the Calaveras County Water District – La Contenta Wastewater Treatment Facility Phase 3 (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

CDFW-1

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

CDFW-1 Continued

PROJECT DESCRIPTION SUMMARY

The Project site is 26 acres of land in Calaveras County, located in Sections 24 and 25 of Township 4 North, Range 10 East, Mount Diablo Base and Meridian, as depicted on the 1962 U.S. Geological Survey Valley Springs, California 7.5-minute topographic map. The Project Area includes the La Contenta Wastewater Treatment Facility and the proposed Treatment Effluent Pipeline. The pipeline runs through an easement area to the south of the Upper Effluent Storage Pond for 0.2 miles, and at its intersection with East Eberhard Drive, continues southward for 0.2 miles until it terminates at Lower Effluent Storage Pond.

The Project consists of the following replacement and/or improvement of facilities at the existing 26 acres La Contenta Wastewater Treatment Facility.

CDFW-2

Treatment Process Upgrades
The existing aeration and clarification process for the treatment plant is a Biolac system, located immediately east of the existing holding pond, and north of the Upper Effluent Storage Pond (UESP). The Project will add a new extended aeration activated sludge basin with an integral clarifier to provide additional treatment capacity to the existing Biolac treatment system for projected flows. Construction of the new sludge basin will require excavation, shoring, and backfill.

The Project will also include a new UESP pump station to allow the full volume of the UESP to be utilized for seasonal storage of final effluent. The pump station construction and installation will include floating pump platforms, pipe floats, submersible pumps, valves, flow meter, instrumentation, piping, and appurtenances.

Additionally, the Project will install new aeration system blowers in the existing treatment plant building for the new active sludge aeration basin.

Electrical Upgrades
The Project will improve yard piping, power distribution utility power supply, instrumentation, and internal system controls.

Treated Effluent Pipeline Replacement
The existing pipeline consists of a 12-inch pipeline exiting the Parshall flume which transitions to an 8-inch pipeline outside the perimeter berm of the UESP. The 8-inch pipeline interconnects with the UESP valve assembly located south of the UESP,

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comprising 1,100 feet of piping. The effluent is conveyed south to the Lower Effluent Storage Pond (LESP) via 2,700 feet of pipeline. To accommodate existing and future peak hour flows, the Project will install a replacement pipeline to convey a minimum of 2 million gallons of effluent per day to the LESP, increasing capacity from the existing 0.73 million gallons per day. The total run of the new pipeline will be 3,800 feet.

CDFW-2 Continued

Construction Staging Area

Temporary staging will occur onsite at the La Contenta Wastewater Treatment Facility within areas that have already been paved or are highly disturbed.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist Calaveras County Water District in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

CDFW-3

COMMENT 1: California Tiger Salamander and California Endangered Species Act

Issue: CDFW is primarily concerned with potential Project impacts to the Central Valley Distinct Population Segment (DPS) of the California tiger salamander (*Ambystoma californiense pop. 1, CTS*), a species listed as Threatened under both the Federal Endangered Species Act and California Endangered Species Act. The IS/MND on page 4-26 states "these activities could result in direct injury or mortality of California tiger salamander, or temporary avoidance of suitable habitat areas." Even with the proposed biological mitigation measures, including BIO-4 which specifies preconstruction surveys for CTS, CDFW believes that take of CTS is possible.

Evidence: According to page 4-26 of the IS/MND, "the seasonal wetlands and southern pond within the Study Area provide marginally suitable habitat for CTS." The IS/MND also states that there are several known occurrences of CTS within the vicinity of the Study Area. There are several other aquatic features that are visible on aerial imagery within the approximate 1.3-mile dispersal range for CTS from the Project site. Due to the Project containing suitable habitat for CTS, several known occurrences of CTS within the vicinity of the Study Area, and a close proximity of a number of potential breeding ponds, it is probable that CTS are dispersed throughout the Project site and could be killed or injured during Project activities, as stated on page 4-26 of the IS/MND. Lastly, the United States Fish and Wildlife Service has designated critical habitat for Central Valley DPS CTS; the grasslands and open woodland habitats within the Project vicinity are comparable to these identified critical habitats.

CDFW-4

BIO-4 describes that a qualified biologist will conduct a preconstruction survey within the Project area where CTS are most likely to be impacted by Project activities within 48 hours of the start of construction. Based on CTS life history, CDFW does not find BIO-4 to protect against the risk of take. CTS is a lowland inhabitant restricted to grasslands and

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open woodland habitats within approximately 1.3 miles of breeding ponds where small mammal burrows are available. CTS spend much of their lives in underground refuges, often in burrowing mammal (ground squirrel, pocket gopher, and other burrowing mammal) burrows (USFWS, 2004). Because CTS spend much of their lives in underground retreat, CDFW considers BIO-4 to be inadequate to mitigate potential impacts to CTS. CTS' potential year-around presence in underground burrows indicates a year-round risk of take for this Project that will disturb subsurface potential habitat and require the use of heavy equipment over and around burrow systems that could result in burrow collapse and entombment of CTS.

A preconstruction survey 48 hours in advance of construction for a project that is expected to take 12-14 months to complete is not adequate based on the life cycle for CTS. CTS are active on the surface of the terrestrial habitat during juvenile dispersal into the uplands, adult breeding in fall and winter rain events, and when metamorphs emerge from the pond in the spring and summer (Searcy and Shaffer, 2011). Dimmit and Ruibal (1980) found that western spadefoot toads, used as a proxy for CTS when analyzing construction impacts for their comparable life histories, relied primarily on vibration from rain falling on the ground at their burrows, rather than increased moisture in the soil from rainfall, as the trigger to emerge from underground refuges. Dimmit and Ruibal (1980) also found that sound-induced vibration from violent, rainless thunderstorms would also produce the emergence response from western spadefoot toads, suggesting other events simulating rain vibrations may trigger CTS to leave their burrows absent rain. An example of this would be when the use of water trucks during project activities such as dust abatement trigger CTS to leave their burrows prematurely. Although no study similar to Dimmit and Ruibal's has been applied to CTS, similarities between western spadefoot toad and CTS emergence triggers, habitat, and breeding requirements suggest that the two species are comparable for the purposes of developing conservation strategies and protective measures. Provided that CTS may exit burrows absent a significant rain event suggests that a preconstruction survey does not sufficiently reduce the risk of take to exposed CTS and recommends more consistent biomonitoring (see Recommendations below).

CDFW-4
Continued

Mitigation Measure BIO-4 will not likely eliminate the potential for take of CTS, as CTS may go undetected during surveys by inhabiting underground burrows within the Project site that are not affected until after 'initial ground-disturbing activities', and/or move into the Project site after ground disturbance begins. Based on CTS life history, it is highly unlikely any CTS would be found during pre-construction surveys unless the surveys include actions such as burrow excavation, pitfall traps, and drift fencing over multiple seasons, if authorized under CESA. For example, CDFW staff could find no record of adult or juvenile CTS found in Calaveras County during pre-construction surveys or habitat assessment surveys *except* those conducted at breeding ponds; however, there are several known CTS populations in Calaveras County. Therefore, it is insufficient to conclude based on pre-construction surveys alone that because no CTS were found during a pre-construction survey, there are no CTS present and/or the risk of impacts to CTS is low. Further, immature salamanders may not migrate to a breeding pond and instead remain in the upland until they are sexually mature, which can take between 3-5 years, so these young salamanders would be undetected in a pre-construction survey and could be killed or

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injured during Project ground-disturbing activities at any point during construction without ever being seen. CDFW finds Mitigation Measure BIO-4 to not be protective enough for CTS since they may go undetected during pre-construction surveys. Accordingly, CDFW recommends more consistent biomonitoring during *all* ground disturbing activities and securing CTS take coverage (see Recommendations below).

CDFW-4 Continued

Recommendations: CDFW recommends that the Project proponent assume presence of CTS over the entire Project site and obtain federal and state take authorities in advance of Project implementation which will require compensatory mitigation for impacts to listed species. Seeking take authorization close to the start of Project construction could result in significant delays in Project implementation, therefore it is recommended to seek take authorization well in advance of construction.

CDFW also recommends a qualified biologist be present on-site during all ground disturbing activities to better identify and avoid impacts to any emerged CTS.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

CDFW-5

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CDFW-6

CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW-7

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CDFW appreciates the opportunity to comment on the MND for the Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project to assist the Calaveras County Water District in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Will Kanz, Environmental Scientist at 916-880-8981 or by email at Will.Kanz@wildlife.ca.gov.

Sincerely,

Morgan Kilgour
Regional Manager

ec: Briana Seapy, Senior Environmental Scientist (Supervisor)
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Office of Land Use and Climate Innovation, State Clearinghouse, Sacramento

CDFW-7
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REFERENCES

Dimmitt, Mark A. and Rodolfo Ruibal. 1980. Environmental correlates of emergence in spadefoot toads (*Scaphiopus*). Journal of herpetology 14(1):1-29.

Searcy, C.A. and H.B. Shaffer. 2011. Determining the migration distance of a vagile vernal pool specialist: How much land is required for conservation of California tiger salamanders? Pages 73-87 in D.G. Alexander and R.A. Schlising (Eds.), Research and Recovery in Vernal Pool Landscapes. Studies from the Herbarium, Number 16. California State University, Chico, CA.

U. S. Fish and Wildlife Service. 2004. Determination of threatened status for the California tiger salamander; and special rule exemption for existing routine ranching activities; Final Rule. Federal Register, Vol. 69:47212-47248.

CDFW-7
Continued

Response to Comment CDFW-1:

Comment CDFW-1 states that the California Department of Fish and Wildlife (CDFW) has reviewed the CCWD La Contenta WWTF Phase 3 Project and describes CDFW's role and responsibility as a Trustee Agency for fish and wildlife in that review. Additionally, CDFW states the regulatory authority it has with the potential permits that may be required. The comment is hereby noted.

Response to Comment CDFW-2:

This comment reiterates the Project description. The comment is hereby noted.

Response to Comment CDFW-3:

This comment outlines the proposed recommendations from CDFW. The comment is hereby noted.

Response to Comment CDFW-4:

CDFW 5 cites that the project site contains suitable habitat and is located near known CTS populations and potential breeding ponds (within their 1.3-mile dispersal range). They dispute the effectiveness of a one-time preconstruction survey based on the following biological factors: underground lifestyle and vibration triggers. CDFW recommends the following recommends the following actions: assume presence, obtain take authorization, and enhanced biomonitoring activities.

While we understand CDFW's concerns if the project were to be in construction for 12-14 months; however, the listed 12-14 for completion, that is an overall project timeline. Construction activities for this project are only anticipated to take 3-4 days with 7 days being the absolute maximum for construction activities.

The closest documented occurrence of CTS is located 1.73 miles to the west of the project area. The project is located between two existing man-made basins/ponds which are maintained. The La Contenta Golf Club and associated managed ponds and residential community is located due west and south of the project area and New Hogan Reservoir lies directly (approximately 1000 feet) to the east. Given the project area's location in proximity to areas supporting known CTS predators such as introduced fishes and bullfrogs, combined with the fact that few ground burrows were encountered during biological surveys, the likelihood of CTS in the area is considered low. To help assess the presence of CTS in project ponds, ECORP can perform an eDNA analysis. This analysis will be performed by collecting samples from each project reservoir and submitting samples to Cramer fish for a CTS focused assay test and metabar coding for other aquatic organisms including bullfrogs and fish. If eDNA analyses detect the presence of CTS, CDFW and USFWS will be notified to determine measures to mitigate the potential to take. During actual construction, which will take place for an estimated 3-4 days (7 days max), a qualified CTS biological monitor will be present during ground work in the unlikely event CTS are identified, in which case work will be stopped and CDFW and USFWS will be contacted immediately.

Response to Comment CDFW-5:

CDFW-5 cites the requirement to report any special-status species and natural communities detected during surveys conducted in support of preparing of this IS/MND. In response to the comment, occurrences of listed species and communities were submitted as required for all surveys conducted to date as part of the CEQA review process for the proposed Project and will be submitted following preconstruction surveys and monitoring during project implementation.

Response to Comment CDFW-6:

Comment CDFW-6 lists the filing fee requirements for any Notice of Determination for the Final IS/MND. The comment is noted.

Response to Comment CDFW-7:

CDFW requests written notification of proposed actions and pending decisions regarding the project and provides an address for the notifications. The comment also expresses appreciation for the opportunity to comment. The comment is hereby noted and forwarded to the CCWD Board for consideration.

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4.0 REVISIONS TO THE DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

During the 30-day public review period, April 1, 2026, through May 1, 2026. Two comment letters were received. However, no revisions to the document were necessary and recirculation of the document is not necessary.

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5.0 MITIGATION MONITORING AND REPORTING PLAN

5.1 Introduction

In accordance with CEQA, an MND that identifies adverse impacts related to construction and operation of the Project was prepared. The MND identifies mitigation measures that would reduce or eliminate these impacts.

Section 21081.6 of the Public Resources Code and Sections 15091(d) and 15097 of the State CEQA Guidelines require public agencies to adopt a reporting and monitoring program for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. An MMRP is required for the proposed Project because the IS/MND identified potentially significant adverse impacts related to construction and operation of the proposed Project, and mitigation measures have been identified to mitigate these impacts. Adoption of the MMRP will occur along with approval of the proposed Project.

5.2 Purpose of the Mitigation Monitoring and Reporting Plan

This MMRP has been prepared to ensure that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner during the construction and operation of the Proposed Project, as required. The MMRP may be modified by CCWD during Project implementation, as necessary, in response to changing conditions or other Project refinements. Table 5-1 has been prepared to assist the responsible parties in implementing the MMRP. This table identifies the category of significant environmental impact(s), individual mitigation measures, monitoring and mitigation timing, responsible person/agency for implementing the measure, monitoring, and reporting procedure, and notation space to confirm implementation of the mitigation measures. The numbering of the mitigation measures follows the numbering sequence in the IS/MND.

5.3 Roles and Responsibilities

CCWD t is responsible for oversight of compliance of the mitigation measures in the MMRP.

5.4 Mitigation Monitoring and Reporting Plan

The column categories identified in Table 5-1 are described below.

Mitigation Measure – This column lists the mitigation measures by number.

Monitoring Activity/Timing/Frequency/Schedule – This column lists the activity to be monitored for each mitigation measure, the timing of each activity, and the frequency/schedule of monitoring for each activity.

Implementation Responsibility/Verification – This column identifies the entity responsible for complying with the requirements of the mitigation measure and provides space for verification initials and date.

Responsibility for Oversight of Compliance/Verification – This column provides the agency responsible for oversight of the mitigation implementation and is to be dated and initialed by the agency representative based on the documentation provided by the construction contractor or through personal verification by agency staff.

Outside Agency Coordination – This column lists any agencies with which CCWD may coordinate for implementation of the mitigation measure.

Comments – This column provides space for written comments, if necessary.

Table 5-1.
Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project
Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
Biological Resources					
BIO-1: Special-Status Plant Surveys. A special-status plant survey shall be conducted according to California Department of Fish and Wildlife (CDFW), California Native Plant Society, and U.S. Fish and Wildlife Service (USFWS) protocols prior to Project ground-disturbing or vegetation disturbing activities. The survey shall be conducted by a qualified biologist (as defined per agency protocols) throughout all potential habitat for special-status plants within the Project Area. The survey shall be timed according to the identifiable period for special-status plant species with potential to occur (typically the blooming period). To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found and the survey is still considered recent as per CDFW and USFWS protocols at the time of Project implementation, no further measures pertaining to special-status plants are necessary. If a special-status plant is found, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not result in significant impacts to the species, meaning Project-related activities won't eliminate, substantially reduce the number of, or restrict the range of the species, and won't	**Action**: Conduct a special-status plant survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials Date	Construction Manager / Project Biologists / CCWD Initials Date	Possible consultation with CDFW and USFWS depending on outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
conflict with any local policies or ordinances protecting special-status plant species. If impacts may occur to a federally or state listed species, USFWS and/or CDFW shall be consulted to determine appropriate avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat, or compensatory mitigation in the form of mitigation bank credits. Impacts to a state listed plant species also requires incidental take permit authorization from CDFW.					
BIO-2: Crotch's Bumble Bee Preconstruction Survey. If Crotch's bumble bee is still a candidate or is listed under the California Endangered Species Act (ESA) at the time of construction, the following measures shall be implemented to avoid potential take of the species: ▪ If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for California ESA Candidate Bumble Bee Species, it is recommended that three Crotch's bumble bee surveys be conducted at two- to four-week intervals during the colony active period (April-August) if possible. If surveys are conducted during the queen flight season (February-	**Action**: Conduct a Crotch Bumble Bee preconstruction survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials Date	Construction Manager / Project Biologists / CCWD Initials Date	Possible consultation with CDFW and USFWS depending on outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
March) it's recommended that three surveys be conducted spaced one to two weeks apart during acceptable weather conditions with the final survey occurring within one week of construction initiation. ▪ If Crotch's bumble bees are detected, any remaining surveys will focus on nest location. If no nests are found but the species is observed during preconstruction surveys or appropriate floral resources are present, work crews should be informed of the possibility of Crotch's bumble bees or their nests being present within the Study Area. If a Crotch's bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.					

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
BIO-3: California Red-Legged Frog Preconstruction Survey. A qualified biologist shall conduct a preconstruction survey within the Study Area in areas where California red-legged frogs are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages of California red-legged frog. If California red-legged frog(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California red-legged frog. If California red-legged frogs are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence. Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.	**Action**: Conduct a California Red-Legged Frog preconstruction survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials Date	Construction Manager / Project Biologists / CCWD Initials Date	Possible consultation with CDFW and USFWS depending on outcome of survey	
BIO-4: California Tiger Salamander Preconstruction Survey. A qualified biologist shall conduct a preconstruction survey within the Project Area in areas where California tiger salamanders are most likely to be impacted by Project	**Action**: Conduct a California Tiger Salamander preconstruction survey. **Timing**:	Construction Manager / Project Biologists	Construction Manager / Project Biologists / CCWD	Possible consultation with CDFW and USFWS depending on	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
activities within 48 hours of the start of construction. The biologist will search for all life stages during this survey. If California Tiger Salamander(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California tiger salamander. If California tiger salamanders are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify USFWS and CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence. Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.	Prior to Construction.	Initials Date	Initials Date	outcome of survey	
BIO-5: Northwestern Pond Turtle Preconstruction Survey. A qualified biologist shall perform a preconstruction clearance survey within 48 hours of the initiation of Project activities. If northwestern pond turtles are found within the Project Area, they will be allowed to move out of the Study Area on their own volition or relocated by a qualified biologist to suitable nearby habitat in coordination with CDFW.	**Action**: Conduct a Northwestern Pond Turtle preconstruction survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials	Construction Manager / Project Biologists / CCWD Initials	Possible consultation with CDFW and USFWS depending on outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
		Date	Date		
BIO-6: Nesting Bird Preconstruction Survey. A preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction. The preconstruction nesting bird survey shall include accessible areas within 100 feet of the Project boundaries, including any temporary disturbance areas. For raptors, including bald eagle, the preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project Area boundary. If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with CDFW, shall establish a buffer distance. The buffer shall be maintained until the nestlings have fledged (e.g., are capable of flight and become independent of the nest), to be determined by a qualified biologist. The avoidance buffer can be removed, and no further measures are necessary once the young have fledged or the nest is no longer occupied, as determined by a qualified biologist.	**Action**: Conduct a nesting bird preconstruction survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials Date	Construction Manager / Project Biologists / CCWD Initials Date	Possible consultation with CDFW and USFWS depending on outcome of survey	
BIO-7: Bat Preconstruction Survey. If the Project will remove structures or trim/remove trees, a qualified bat biologist shall conduct a bat habitat assessment to identify suitable bat roosting habitat within or adjacent to the Project boundary. The habitat assessment shall be conducted one	**Action**: Conduct a bat preconstruction survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists	Construction Manager / Project Biologists / CCWD	Possible consultation with CDFW and USFWS depending on	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
year prior to construction, if feasible, and no less than 30 days prior to the initiation of construction activities. If no suitable bat roosting habitat is identified, no further measures are necessary. If the Project will impact identified structures with bat roosting habitat and evidence of current or previous bat occupation, a qualified bat biologist shall conduct a focused bat emergence survey prior to the start of construction. The focused bat emergence survey shall adhere to industry standard protocols and survey methods for bat emergence surveys. If an active bat roost is identified in a structure that will be removed, a qualified bat biologist will prepare a Bat Management Plan that includes specific avoidance and minimization measures to reduce impacts to roosting bats. The Bat Management Plan will be submitted to CDFW for approval prior to the eviction of bats from occupied habitat. The Bat Management Plan shall include timing and methodology for passive exclusion of bats and/or removal of the structure, as applicable. If a structure with confirmed maternity roosting will be permanently removed, then species-specific replacement roosting habitat may be recommended in the Bat Management Plan. If temporary impacts to maternity roosting habitat are expected, then temporary exclusion measures, a phased approach to bat		Initials Date	Initials Date	outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
exclusion, and biological monitoring of exclusion activities may be appropriate. The following shall apply to removal or trimming of trees with identified bat roosting habitat: ▪ To the extent feasible, removal or trimming of trees with suitable bat roosting habitat shall be scheduled to occur outside of the maternity roosting season, during seasonal periods of bat activity (September 1 to October 15, or March 1 to April 15). Tree removal may occur after October 15 if evening temperatures are above 45 degrees Fahrenheit and rain is not over 0.5 inch in 24 hours. No tree removal shall occur after April 15 unless surveys are conducted to confirm active maternity roosts are not present. ▪ As much as feasible, vegetation and trees within the area that are not suitable for roosting bats will be removed first to provide a disturbance that may reduce the likelihood of bats using the habitat. ▪ If removal of trees with suitable roosting habitat must occur during the maternity season (April 15 to August 31), a qualified bat biologist shall conduct a focused emergence survey of the tree within 48 hours prior to disturbance. If an active bat roost is located, whether solitary or colonial, that roost will remain undisturbed until after the maternity season or until a qualified bat biologist has determined the roost is no longer active, at					

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
which point the twostep tree removal process described below will be utilized to remove the tree. ▪ The two-step tree removal process will occur over two consecutive days under the supervision of a qualified bat biologist. On Day 1, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees (or outer fronds, in the case of palm trees), as identified by a qualified bat biologist, shall be removed first, using chainsaws only (i.e., no dozers, backhoes). The following day (Day 2), the remainder of the tree is to be felled/removed. The intention of this method is to disturb the tree on Day 1. This should cause day-roosting bats to abandon the roost tree after they emerge for nighttime foraging. Removing the tree quickly the next consecutive day should avoid reoccupation of the tree. ▪ Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag shall be left undisturbed onsite for the next 48 hours.					
BIO-8: Sensitive Natural Community Survey. Sensitive natural communities within the Project Area shall be mapped during the special-status plant survey. If no sensitive natural communities with State Rarity of S1 are identified, no further measures are recommended. If Ione manzanita chaparral or any sensitive natural communities with State Rarity of S1 are	**Action**: Conduct a sensitive natural community survey. **Timing**: Prior to Construction.	Construction Manager / Project Biologists	Construction Manager / Project Biologists / CCWD	Possible consultation with CDFW and USFWS depending on outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
identified within or adjacent to the Project Area, the Project proponent shall consult with USFWS and/or CDFW to determine appropriate avoidance and minimization measures. These measures may include onsite or offsite restoration and/or permanent preservation of the sensitive natural community.		Initials Date	Initials Date		
BIO-9: Aquatic Resources. The Project shall avoid aquatic resources to the extent feasible. Avoided aquatic resources will be designated as Environmentally Sensitive Areas and protected with a minimum 50-foot buffer, to the extent feasible. The Environmentally Sensitive Areas shall be clearly demarcated with orange construction fencing or other visible barrier, and no Project-related activities shall be permitted within the Environmentally Sensitive Areas. To minimize potential indirect effects, the applicant shall prepare and implement an Erosion and Sediment Control Plan to avoid and minimize erosion and runoff to wetlands and other waters that are to remain within or adjacent to the Project Area. If the Project will disturb at least 1 acre of land, the Project applicant shall obtain coverage under the General Construction Storm Water Permit from the Regional Water Quality Control Board (RWQCB) by preparing a Stormwater Pollution Prevention Plan and implementing Best	**Action**: Avoid aquatic resources, and if not possible, procure the required regulatory permits. **Timing**: Prior to Construction.	Construction Manager / Project Biologists Initials Date	Construction Manager / Project Biologists / CCWD Initials Date	Possible consultation with CDFW and USFWS depending on outcome of survey	

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
Management Practices to reduce water quality effects during construction. Authorization under Clean Water Act Section 404 must be obtained from the U.S. Army Corps of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. Mitigation for permanent impacts to Waters of the U.S. is typically required at a minimum 1:1 ratio; however, final mitigation requirements will be developed in consultation with USACE. If temporary impacts to Waters of the U.S. or State will occur, the applicant shall prepare a site restoration plan describing the methods that will be used to restore impacted aquatic features to pre-Project conditions. The restoration plan will include, at a minimum, the proposed methods for stabilizing and revegetating the site, any maintenance requirements (e.g., watering, invasive species control), the expected timeframe for restoration. If discharges will occur to Waters of the U.S., Section 401 Water Quality Certification must be obtained from RWQCB before a 404 Permit can be issued. An application for a 401 Water Quality Certification will be prepared and submitted to RWQCB in accordance with the State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State.					

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
If discharges to Waters of the State that are not also Waters of the U.S. will occur, the applicant shall obtain waste discharge requirements or a waiver of waste discharge requirements from RWQCB as required pursuant to the Porter-Cologne Water Quality Control Act. If alteration of the bed, channel, or bank of Ditch-01 will occur, the applicant shall notify CDFW of the Proposed Project activities and obtain a Lake or Streambed Alteration Agreement, if required, prior to Project implementation.					
Cultural Resources					
CUL-1: Unanticipated Discoveries. If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find: ▪ If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.	**Action:** Implement unanticipated discovery and human remains protocol. **Timing:** Ongoing and as needed during construction activities.	Construction Manager/Qualified Professional Archeologist. _____ Initials _____ Date	CCWD _____ Initials _____ Date		

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
▪ If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the lead agencies. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under the California Environmental Quality Act (CEQA), as defined by CEQA or a Historic Property under National Historic Preservation Act Section 106, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction. ▪ If the find includes human remains, or remains that are potentially human, they shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Calaveras County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code (PRC), and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant					

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
(MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.					
Paleontological Resources					
PALEO-1: Discovery of Unknown Resources. If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area, and the area shall be isolated using orange or yellow fencing until CCWD is notified and the area is cleared for future work. A qualified paleontologist shall be	**Action:** Notify CCWD and Qualified Paleontologist in the event of a discovery. Implement appropriate treatment of found materials. **Timing:**	Project Paleontologist/ Construction Manager Initials	CCWD Initials		

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resources. If CCWD resumes work in a location where paleontological remains have been discovered and cleared, CCWD will have a paleontologist onsite to confirm that no additional paleontological resources are in the area.	Ongoing and as needed during construction activities.	Date	Date		
Noise					
NOI-1: Hours of Construction. Project construction shall be limited to the Calaveras County standard exempted hours of 7:00 a.m. through 6:00 p.m.	**Action:** Construction noise mitigation. **Timing:** Ongoing and as needed during construction activities.	Construction Manager Initials Date	CCWD Initials Date		
Tribal Cultural Resources					
TCR-1: Unanticipated Discovery of Tribal Cultural Resources. If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes	**Action:** Unanticipated discovery protocol. **Timing:** Ongoing and as needed during construction activities.	Construction Manager Initials	Construction Manager/ CCWD		

Mitigation Measure	Implementation Actions and Timing	Implementation Responsibility	Responsibility for Oversight of Compliance/ Verification	Agency Coordination	Comments
that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by CCWD, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until CCWD, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.		Date	Initials Date		

To be signed when all mitigation measures have been completed:

Calaveras County Water District

Signature

Printed Name Date

6.0 LIST OF APPENDICES

Appendix A – Notice of Intent

Appendix B – Proof of Publication

Appendix C – CDFW Filing Fee Receipt

Appendix D – Draft Initial Study and Mitigated Negative Declaration for the City of Piedmont Sewer Rehabilitation Phase 6 Project

APPENDIX A

Notice of Intent

DATE: April 1, 2026
TO: Responsible Agencies, Interested Parties, and Organizations
SUBJECT: **Calaveras County Water District – La Contenta Wastewater Treatment Facility Phase 3 Project, CALAVERAS COUNTY**

The Calaveras County Water District (CCWD) is the California Environmental Quality Act (CEQA) Lead Agency for the proposed La Contenta Wastewater Treatment Facility Phase 3 Project. CCWD has directed the preparation of an Initial Study (IS) Mitigated Negative Declaration (MND) in compliance with CEQA.

Project Location: The CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project (Project) is located southeast of the Community of Valley Springs, south and west of Hogan Dam Road, north of Vista del Lago Drive, and east of East Eberhardt Drive, within Calaveras County.

Project Description: The Proposed Project would replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity.

Potentially Significant Environmental Impacts: Potentially significant impacts to biological resources, cultural resources, paleontological resources, and tribal cultural resources were identified in the Initial Study. All impacts would be reduced to a less than significant level with the implementation of identified mitigation measures.

Hazardous Waste Sites: Pursuant to Section 15087(c)(6) of the Guidelines for California Environmental Quality Act, CCWD acknowledges the non-existence of hazardous waste sites within the project area reviewed by this Mitigated Negative Declaration (MND).

IS/MND Document Review and Availability: The public review and comment period for the IS/MND will extend for 30 days **starting April 1, 2026 and ending May 1, 2026**. The Draft IS/MND can be viewed and/or downloaded at the following website:

https://www.ccwd.org/

Comments/Questions: Comments and/or questions regarding the IS/MND may be directed to:

Calaveras County Water District
cc: Kevin Williams
120 Toma Court
San Andreas, California 95249

APPENDIX B

Proof of Publication

APPENDIX C

CDFW Filing Fee Receipt

To Be Provided Upon Filing Of Final Document

APPENDIX D

Draft Initial Study and Mitigated Negative Declaration
for the
Draft Initial Study and Mitigated Negative Declaration for the Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

DRAFT

Initial Study and Mitigated Negative Declaration

Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

Calaveras County, California

Lead Agency:

Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

Prepared By:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS
2525 Warren Drive
Rocklin, CA

April 2026

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DRAFT MITIGATED NEGATIVE DECLARATION

Lead Agency: Calaveras County Water District (CCWD)

Project Location: The CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project (Project) is located southeast of the Community of Valley Springs, south and west of Hogan Dam Road, north of Vista del Lago Drive, and east of East Eberhardt Drive, within Calaveras County.

Project Description: The Proposed Project would replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity.

Public Review Period: April 1, 2026 to May 1, 2026

Mitigation Measures Incorporated into the Proposed Project to Avoid Significant Effects:

Biological Resources

BIO-1: **Special-Status Plant Surveys.** A special-status plant survey shall be conducted according to California Department of Fish and Wildlife (CDFW), California Native Plant Society, and U.S. Fish and Wildlife Service (USFWS) protocols prior to Project ground-disturbing or vegetation disturbing activities. The survey shall be conducted by a qualified biologist (as defined per agency protocols) throughout all potential habitat for special-status plants within the Project Area. The survey shall be timed according to the identifiable period for special-status plant species with potential to occur (typically the blooming period). To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found and the survey is still considered recent as per CDFW and USFWS protocols at the time of Project implementation, no further measures pertaining to special-status plants are necessary. If a special-status plant is found, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not result in significant impacts to the species, meaning Project-related activities won't eliminate, substantially reduce the number of, or restrict the range of the species, and won't conflict with any local policies or ordinances protecting special-status plant species. If impacts may occur to a federally or state listed species, USFWS and/or CDFW shall be consulted to determine appropriate avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat, or compensatory mitigation in the form of mitigation bank credits. Impacts to a state listed plant species also requires incidental take permit authorization from CDFW.

BIO-2: **Crotch's Bumble Bee Preconstruction Survey.** If Crotch's bumble bee is still a candidate or is listed under the California Endangered Species Act (ESA) at the time of construction, the following measures shall be implemented to avoid potential take of the species:

- If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for California ESA Candidate Bumble Bee Species, it is recommended that three Crotch's bumble bee surveys be conducted at two- to four-week intervals during the colony active period (April-August) if possible. If surveys are conducted during the queen flight season (February-March) it's recommended that three surveys be conducted spaced one to two weeks apart during acceptable weather conditions with the final survey occurring within one week of construction initiation.
- If Crotch's bumble bees are detected, any remaining surveys will focus on nest location. If no nests are found but the species is observed during preconstruction surveys or appropriate floral resources are present, work crews should be informed of the possibility of Crotch's bumble bees or their nests being present within the Study Area. If a Crotch's bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

BIO-3: **California Red-Legged Frog Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Study Area in areas where California red-legged frogs are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages of California red-legged frog.

If California red-legged frog(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California red-legged frog.

If California red-legged frogs are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-4: **California Tiger Salamander Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Project Area in areas where California tiger salamanders are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages during this survey.

If California Tiger Salamander(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California tiger salamander.

If California tiger salamanders are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify USFWS and CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-5: **Northwestern Pond Turtle Preconstruction Survey.** A qualified biologist shall perform a preconstruction clearance survey within 48 hours of the initiation of Project activities. If northwestern pond turtles are found within the Project Area, they will be allowed to move out of the Study Area on their own volition or relocated by a qualified biologist to suitable nearby habitat in coordination with CDFW.

BIO-6: **Nesting Bird Preconstruction Survey.** A preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction. The preconstruction nesting bird survey shall include accessible areas within 100 feet of the Project boundaries, including any temporary disturbance areas. For raptors, including bald eagle, the preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project Area boundary. If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with CDFW, shall establish a buffer distance. The buffer shall be maintained until the nestlings have fledged (e.g., are capable of flight and become independent of the nest), to be determined by a qualified biologist. The avoidance buffer can be removed, and no further measures are necessary once the young have fledged or the nest is no longer occupied, as determined by a qualified biologist.

BIO-7: **Bat Preconstruction Survey.** If the Project will remove structures or trim/remove trees, a qualified bat biologist shall conduct a bat habitat assessment to identify suitable bat roosting habitat within or adjacent to the Project boundary. The habitat assessment shall be conducted one year prior to construction, if feasible, and no less than 30 days prior to the initiation of construction activities. If no suitable bat roosting habitat is identified, no further measures are necessary.

If the Project will impact identified structures with bat roosting habitat and evidence of current or previous bat occupation, a qualified bat biologist shall conduct a focused bat

emergence survey prior to the start of construction. The focused bat emergence survey shall adhere to industry standard protocols and survey methods for bat emergence surveys.

If an active bat roost is identified in a structure that will be removed, a qualified bat biologist will prepare a Bat Management Plan that includes specific avoidance and minimization measures to reduce impacts to roosting bats. The Bat Management Plan will be submitted to CDFW for approval prior to the eviction of bats from occupied habitat. The Bat Management Plan shall include timing and methodology for passive exclusion of bats and/or removal of the structure, as applicable. If a structure with confirmed maternity roosting will be permanently removed, then species-specific replacement roosting habitat may be recommended in the Bat Management Plan. If temporary impacts to maternity roosting habitat are expected, then temporary exclusion measures, a phased approach to bat exclusion, and biological monitoring of exclusion activities may be appropriate.

The following shall apply to removal or trimming of trees with identified bat roosting habitat:

- To the extent feasible, removal or trimming of trees with suitable bat roosting habitat shall be scheduled to occur outside of the maternity roosting season, during seasonal periods of bat activity (September 1 to October 15, or March 1 to April 15). Tree removal may occur after October 15 if evening temperatures are above 45 degrees Fahrenheit and rain is not over 0.5 inch in 24 hours. No tree removal shall occur after April 15 unless surveys are conducted to confirm active maternity roosts are not present.
- As much as feasible, vegetation and trees within the area that are not suitable for roosting bats will be removed first to provide a disturbance that may reduce the likelihood of bats using the habitat.
- If removal of trees with suitable roosting habitat must occur during the maternity season (April 15 to August 31), a qualified bat biologist shall conduct a focused emergence survey of the tree within 48 hours prior to disturbance. If an active bat roost is located, whether solitary or colonial, that roost will remain undisturbed until after the maternity season or until a qualified bat biologist has determined the roost is no longer active, at which point the twostep tree removal process described below will be utilized to remove the tree.
- The two-step tree removal process will occur over two consecutive days under the supervision of a qualified bat biologist. On Day 1, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees (or outer fronds, in the case of palm trees), as identified by a qualified bat biologist, shall be removed first, using chainsaws only (i.e., no dozers, backhoes). The following day (Day 2), the remainder of the tree is to be felled/removed. The intention of this method is to disturb the tree on Day 1. This should cause day-roosting bats to abandon the roost tree after they emerge for nighttime foraging. Removing the tree quickly the next consecutive day should avoid reoccupation of the tree.

- Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag shall be left undisturbed onsite for the next 48 hours.

BIO-8: **Sensitive Natural Community Survey.** Sensitive natural communities within the Project Area shall be mapped during the special-status plant survey. If no sensitive natural communities with State Rarity of S1 are identified, no further measures are recommended. If Ione manzanita chaparral or any sensitive natural communities with State Rarity of S1 are identified within or adjacent to the Project Area, the Project proponent shall consult with USFWS and/or CDFW to determine appropriate avoidance and minimization measures. These measures may include onsite or offsite restoration and/or permanent preservation of the sensitive natural community.

BIO-9: **Aquatic Resources.** The Project shall avoid aquatic resources to the extent feasible. Avoided aquatic resources will be designated as Environmentally Sensitive Areas and protected with a minimum 50-foot buffer, to the extent feasible. The Environmentally Sensitive Areas shall be clearly demarcated with orange construction fencing or other visible barrier, and no Project-related activities shall be permitted within the Environmentally Sensitive Areas.

To minimize potential indirect effects, the applicant shall prepare and implement an Erosion and Sediment Control Plan to avoid and minimize erosion and runoff to wetlands and other waters that are to remain within or adjacent to the Project Area.

If the Project will disturb at least 1 acre of land, the Project applicant shall obtain coverage under the General Construction Storm Water Permit from the Regional Water Quality Control Board (RWQCB) by preparing a Stormwater Pollution Prevention Plan and implementing Best Management Practices to reduce water quality effects during construction.

Authorization under Clean Water Act Section 404 must be obtained from the U.S. Army Corps of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. Mitigation for permanent impacts to Waters of the U.S. is typically required at a minimum 1:1 ratio; however, final mitigation requirements will be developed in consultation with USACE.

If temporary impacts to Waters of the U.S. or State will occur, the applicant shall prepare a site restoration plan describing the methods that will be used to restore impacted aquatic features to pre-Project conditions. The restoration plan will include, at a minimum, the proposed methods for stabilizing and revegetating the site, any maintenance requirements (e.g., watering, invasive species control), the expected timeframe for restoration.

If discharges will occur to Waters of the U.S., Section 401 Water Quality Certification must be obtained from RWQCB before a 404 Permit can be issued. An application for a 401 Water Quality Certification will be prepared and submitted to RWQCB in accordance with the State

Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State.

If discharges to Waters of the State that are not also Waters of the U.S. will occur, the applicant shall obtain waste discharge requirements or a waiver of waste discharge requirements from RWQCB as required pursuant to the Porter-Cologne Water Quality Control Act.

If alteration of the bed, channel, or bank of Ditch-01 will occur, the applicant shall notify CDFW of the Proposed Project activities and obtain a Lake or Streambed Alteration Agreement, if required, prior to Project implementation.

Cultural Resources

CUL-1: **Unanticipated Discoveries.** If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the lead agencies. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under the California Environmental Quality Act (CEQA), as defined by CEQA or a Historic Property under National Historic Preservation Act Section 106, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, they shall ensure reasonable protection measures are taken to protect the discovery from disturbance (Assembly Bill [AB] 2641). The archaeologist shall notify the Calaveras County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California Public Resources Code (PRC), and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the

PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Geology and Soils

PALEO-1: **Discovery of Unknown Resources.** If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area, and the area shall be isolated using orange or yellow fencing until CCWD is notified and the area is cleared for future work. A qualified paleontologist shall be retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological resources. If CCWD resumes work in a location where paleontological remains have been discovered and cleared, CCWD will have a paleontologist onsite to confirm that no additional paleontological resources are in the area.

Noise

NOI-1: **Hours of Construction.** Project construction shall be limited to the Calaveras County standard exempted hours of 7:00 a.m. through 6:00 p.m.

Tribal Cultural Resources

TCR-1: **Unanticipated Discovery of Tribal Cultural Resources.** If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by CCWD, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until CCWD, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

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Appendix G – La Contenta WWTF Project Noise Analysis, ECORP Consulting, Inc. February 2026

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
°F	degrees Fahrenheit
AB	Assembly Bill
ANSI	American National Standards Institute
AP Zone Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	Area of Potential Effects
BERD	Built Environment Resource Directory
BMP	Best Management Practice
BRA	Biological Resources Assessment
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal-Co-Fire	Calaveras Consolidated Fire Protection District
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CBRS	Coastal Barrier Resources System
CCAIC	Central California Information Center
CCAPCD	Calaveras County Air Pollution Control District
CCOG	Calaveras Council of Governments
CCR	California Code of Regulations
CCWD	Calaveras County Water District
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission

Term	Definition
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CHL	California Historical Landmark
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COS	Conservation and Open Space
County	Calaveras County
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
dB	decibels
dBA	A-weighted decibels
DOC	California Department of Conservation
DPM	Diesel Particulate Matter
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
ECORP	ECORP Consulting, Inc.
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FPPA	Farmland Protection Policy Act
FTA	Federal Transit Administration
GHG	Greenhouse Gas
IBC	International Building Code
IEPR	Integrated Energy Policy Report

Term	Definition
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
kWh	kilowatt-hours
L_{dn}	Day-Night Average Noise Level
L_{eq}	Equivalent Continuous Noise Level
LESP	Lower Effluent Storage Pond
LU	Land Use
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
MCC	Motor Control Center
MCV	Manual of California Vegetation
MGD	million gallons per day
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
MSA	Magnuson-Stevens Fishery Conservation and Management Act
N/A	Not Applicable
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWSRS	National Wild and Scenic Rivers System
O_3	ozone
OHP	California Office of Historic Preservation
OHWM	Ordinary High Water Mark
PG&E	Pacific Gas and Electric Company

Term	Definition
PLC	Programmable Logic Controller Pump
PM	Particulate Matter
PM_{10}	Particulate Matter Less than 10 Microns in Diameter
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns in Diameter
PPV	Peak Particle Velocity
PRC	Public Resources Code
Project	CCWD La Contenta WWTF Phase 3 Project
RHA	River and Harbors Act
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLF	Sacred Lands File
SO_2	sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCR	tribal cultural resource
TEP	Treated Effluent Pipeline
UBC	Uniform Building Code
UESP	Upper Effluent Storage Pond
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compound
WWTF	Wastewater Treatment Facility

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1.0 BACKGROUND

1.1 Summary

Project Title: Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

Lead Agency Name and Address: Calaveras County Water District
120 Toma Court
San Andreas, California 95249

Contact Person and Phone Number: Kevin Williams
(209) 754-3543

Project Location: 12525 Campbell Court
Valley Springs, California 95252

General Plan Designation: Public/Institutional

Zoning: Public Service

1.2 Introduction

The Calaveras County (County) Water District (CCWD) is the Lead Agency for this California Environmental Quality Act (CEQA) Initial Study. This Initial Study has been prepared to identify and assess the anticipated environmental impacts of the CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project (Proposed Project) to satisfy CEQA (Public Resources Code [PRC], Section 21000 et seq.) and state CEQA Guidelines (Title 14, California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all state and local government agencies consider the environmental consequences before approving those projects. CCWD will use this CEQA Initial Study to determine which CEQA document is appropriate for the Proposed Project: Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report (EIR).

In accordance with CEQA, this Initial Study/Mitigated Negative Declaration (IS/MND) will be circulated for a 30-day public review and comment period. Written comments on the Draft IS/MND should be submitted to:

Kevin Williams, District Engineer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249
Kevinw@ccwd.org

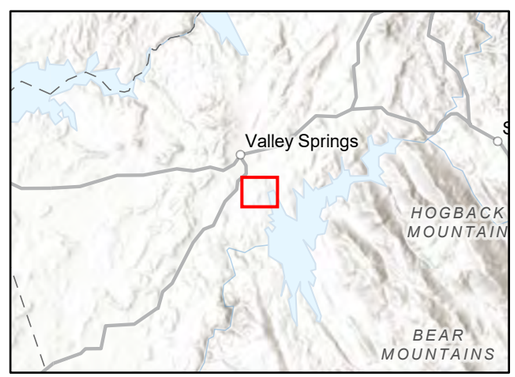
1.3 Proposed Project Location

The Proposed Project Area consists of approximately 26 acres of land located in Sections 24 and 25 of Township 4 North, Range 10 East, Mount Diablo Base and Meridian, as depicted on the 1962 U.S. Geological Survey Valley Springs, California 7.5-minute topographic map (Figure 1-1). The Proposed Project Area includes the La Contenta WWTF and the proposed Treated Effluent Pipeline (TEP), comprising an easement area to the south of the Upper Effluent Storage Pond (UESP) for approximately 0.2 mile, and its intersection with East Eberhard Drive continues southward for approximately 0.2 mile until the pipeline terminates at the Lower Effluent Storage Pond (LESP).

Map Contents

Project Area - 26.4 acres

Sources: Esri, Vantor, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Location_Vicinity\CCWD_LaCantenta_Location.aprx - CCWD_Aerial_20251111 (jcorbridge - 11/11/2025)

Map Date: 11/11/2025

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 500

Figure 1-1. Project Aerial Map

2025-018 CCWD La Contenta WWTF Phase 3 Project

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2.0 PROJECT DESCRIPTION

2.1 Project Background

CCWD, a California special district, is a water utility based in San Andreas, California. The primary purpose of the not-for-profit CCWD, formed in 1946, is the provisions of water and sewer service to the residents of Calaveras County. CCWD is also engaged in the development of hydroelectric power for financial support and development of water supplies. CCWD includes all of Calaveras County; its boundaries encompass approximately 1,037 square miles of land, ranging from the San Joaquin Valley floor in the west to the crest of Sierra Nevada range. CCWD provides water service to about 13,080 municipal and residential / commercial customers in six service areas, and sewer service to about 4,848 customers in 12 service areas, distributed throughout the County.

In 2024, CCWD published the La Contenta Wastewater Collection System Improvement Project and WWTF Phase 3 Improvement Project Predesign Report (CCWD 2024), which established the key objectives and existing deficiencies at the La Contenta WWTF. The findings were as follows:

- The existing La Contenta WWTF is undersized for the projected Phase 3 flows.
- The existing Biolac system occasionally fails to meet effluent water quality criteria. This is suspected to arise from the shortcomings of the integral clarifier design, which utilizes a curtain wall to separate the biological process from the clarification process. High flows passing through the curtain wall openings cause short-circuiting and impact setting, resulting in excessive turbidity and total suspended solids.
- The existing integral clarifier is difficult to maintain because it can't be isolated, shut down, and drained. Divers must be used for repairs.
- The existing process fails to adequately remove nitrogen to meet a potential future discharge permit limitation of 10 milligrams per liter total nitrogen.
- The existing airlift Return Activated Sludge (RAS) pump is difficult to control and has no flowmeter.
- UESP is currently serving as a holding pond for non-compliant effluent. Effluent is pumped back to headworks for a second pass through treatment when flow capacity allows. This is done with a portable submersible pump and a hose, which is labor intensive.
- The existing motor control center (MCC) is old and located in an operations and lab workspace which does not meet current electrical codes.
- The existing programmable logic controller pump (PLC) control panel is old and should be replaced.
- The existing pipeline from the treatment plant to the LESP is undersized for Phase 3 and Buildout flows.

Additional to the findings listed above, CCWD desires a permanent UESP pump station and to eliminate the incidences of non-compliant effluent so that the UESP can be returned to seasonal storage of recycled water that is fully compliant with Title 22.

2.2 Proposed Project

The Project proposes to replace and/or improve facilities at the existing approximately 26.4-acre La Contenta WWTF due to existing age deterioration and limited capacity. See Appendix A for the Preliminary Design Report and Appendix B for the La Contenta Wastewater Treatment Facility Phase 3 Improvement Plans. Details of the Proposed Project improvements are listed below.

2.2.1 Proposed Treatment Process Upgrades

The existing aeration and clarification process for the treatment plant is a Biolac system, located immediately east of the existing holding pond, and north of the UESP. The Proposed Project would add a new extended aeration activated sludge basin with an integral clarifier to provide additional treatment capacity to the existing Biolac treatment system for projected flows. This would include excavation, shoring, and backfill.

The Proposed Project would also include a new UESP pump station to allow the full volume of the UESP to be utilized for seasonal storage of final effluent. The pump station would include floating pump platforms, pipe floats, submersible pumps, valves, flow meter, instrumentation, piping, and appurtenances.

Additionally, the Proposed Project would include new aeration system blowers in the existing treatment plant building for the new active sludge aeration basin. This would include a new concrete equipment pad in the existing blower room and the required piping, power, and controls tie-ins.

2.2.2 Proposed Electrical

The Proposed Project would include improvements to yard piping, power distribution utility power supply, instrumentation, and PLC/Supervisory Control and Data Acquisition System controls. The improvements would include a new masonry electrical building to house the new Motor Control Center (MCC) equipment with provisions for future expansion. The electrical portion of the Proposed Project would include a replacement of the existing power distribution and standby power systems for the entire La Contenta WWTF.

2.2.3 Proposed Treated Effluent Pipeline

The existing pipeline consists of a 12-inch pipeline exiting the Parshall flume and transitions to an 8-inch pipeline that is outside the perimeter berm of the UESP. The 8-inch pipeline interconnects with the UESP valve assembly located south of the UESP, comprising approximately 1,100 foot of piping. The effluent is conveyed south to the LESP across approximately 2,700 feet of pipeline.

To accommodate existing and future peak hour flows, the Proposed Project would install a replacement pipeline that has been designed to convey a minimum of 2.00 million gallons per day (MGD) to the LESP,

which increases capacity from the existing 0.73 MGD. The total run of the new pipeline would be approximately 3,800 feet.

Installation of the pipeline would include dewatering, flow bypassing, temporary piping/valves, pipe stubs, tie-ins of new piping to existing piping and structures. Some existing pipeline segments deviating from the alignment of the replacement pipe would be abandoned in place.

2.2.4 Construction Staging Area

Temporary staging would occur onsite at the La Contenta WWTF, within areas that are already paved or highly disturbed. Following establishment of staging areas, construction equipment and supplies would be mobilized to the site. The contractor may also establish a temporary construction trailer for onsite contractor administrative functions. During construction, any contractor trailer and all equipment and materials would be stored within the designated Construction Staging Area to be established and environmentally cleared by the contractor and approved by CCWD.

2.2.5 Construction Schedule and Approach

The majority of the Project improvements will be completed while the existing treatment plant is in operation. Facility improvements will be fully constructed up to the connection points. Tie ins at the connection points will be coordinated with facility shutdowns and will allow time for dewatering, tie-in, and testing prior to coming back online. These are expected to be dry weather flow shutdowns.

Project construction is scheduled for spring 2027 and is expected to take 12-14 months to complete. Construction activities would take place mostly between 7:00 a.m. and 7:00 p.m. Monday through Friday and between 8:00 a.m. and 7:00 p.m. Saturday and Sunday. Prior to construction, mobilization of equipment and supplies, the first order of work would include establishment of construction limits and installation of protections (i.e., temporary construction fencing) for any identified onsite Environmentally Sensitive Areas.

This schedule may be extended pending approval of the construction contract and issuance of a notice of award, and for potential extended supply times for materials. Also, current supply chain issues have increased lead times for some materials (pipe and fittings) and may delay the start date for groundbreaking. See Table 2.2-1 for a detailed breakdown of anticipated construction activities and approximate timeframe to completion.

Table 2.2-1 Construction Operations	
Description of Activity	**Duration**
Excavation Operations*	
• Rubber tired backhoe loader(s) (sized up to Cat 450) • Trench excavator(s) (mini X [Cat 303]) • Wheel loader(s) (likely no larger than Cat 938) • Trenching machines (not expected) • Rock removal by hydraulic hammer on excavator (not expected to be required or very limited based on geotechnical investigation) • Compaction via in-trench hand compaction (wacker, vibraplate) • Sweeper • Air Compressor(s)	Approximately 4-6 months
Hauling Operations*	
• Rubber tired dump truck(s) • l transfer truck and trailers • Semi bottom and end dumps possible but not likely considering narrow and winding access	Approximately 3 months
Pipelines and Utilities	
• Excavators • Trench boxes/shoring • Pipe handling equipment • Welding or fusion equipment • Small cranes or boom trucks	Approximately 3-5 months
Structural Concrete and Basin Construction	
• Concrete trucks • Concrete pumps • Cranes (small to medium) • Vibrators and finishing tools	Approximately 4-6 months
Mechanical Equipment Installation	
• Cranes • Forklifts • Welding equipment • Hand and power tools	Approximately 3-4 months
Electrical Building Construction and Electrical Work	
• Cranes • Trenching equipment • Cable pullers • Portable generators	Approximately 4-6 months

Table 2.2-1 Construction Operations	
Description of Activity	**Duration**
Instrumentation, Controls, and Supervisory Control and Data Acquisition System	
• Service vehicles • Hand tools • Test equipment	Approximately 2-3 months
Startup, Testing, and Commissioning	
• Portable testing equipment • Temporary bypass piping or pumps (as needed)	Approximately 1-2 months
Final Paving Operations	
• Roller compactor(s) • Pavers • Asphalt grinders • Asphalt cutters • Concrete saw • Sweeper	Approximately 1 months
Other Equipment*	
• Sprayers • Air compressor • Portable generator	Approximately 3 months
Total Duration*:	**Approximately 12-14 months**

Notes: *Some of these activities will be performed concurrently

2.3 Regulatory Requirements, Permits, and Approvals

The following approvals and regulatory permits would be required for implementation of the Proposed Project:

- California Regional Water Quality Control Board (RWQCB) - CCWD must obtain a National Pollutant Discharge Elimination System (NPDES) Construction Activities Stormwater General Permit. The permit requires that the Project applicant prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to any construction activities.
- Acquire easements for some right-of-way through private property, only if needed to complete construction.
- U.S. Fish and Wildlife Service (USFWS): Consultation for endangered species and possible take permits, if needed.
- Clean Water Act (CWA) Section 404, if needed.

- CWA Section 401 Water Quality Certification, if needed.

2.4 Consultation with California Native American Tribe(s)

Assembly Bill (AB) 52 requires that prior to the release of a CEQA document for a project, an agency begin consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a project if:

1. the California Native American tribe requested to the lead agency, in writing, to be informed by the Lead Agency through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and,
2. the California Native American tribe responds in writing, within 30 days of receipt of the formal notification, and requests the consultation.

Further information on potential tribal cultural resources (TCRs) within the Project Area is provided in Section 4.18.

2.5 Compliance with Federal Regulations

CCWD is seeking funding for the Proposed Project under the State Water Resources Control Board's (SWRCB's) Clean Water State Revolving Fund (CWSRF) Program, which is partially funded through the U.S. Environmental Protection Agency (USEPA). Because of the federal nexus with USEPA, projects seeking funding through the CWSRF Program are subject to federal laws and regulations (e.g., federal "cross-cutters"). Under the CWSRF Program, SWRCB uses a project's CEQA document along with federal cross-cutting documentation in place of a National Environmental Policy Act (NEPA) document; this document is termed a "CEQA-Plus" document. Section 5.0 addresses the Project's compliance with federal laws and regulations to satisfy the CEQA-Plus requirements.

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED AND DETERMINATION

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact that is a *Potentially Significant Impact,* as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Hazards/Hazardous Materials	☐ Recreation
☐ Agriculture and Forestry Resources	☐ Hydrology/Water Quality	☐ Transportation
☐ Air Quality	☐ Land Use and Planning	☐ Tribal Cultural Resources
☐ Biological Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☐ Cultural Resources	☐ Noise	☐ Wildfire
☐ Energy	☐ Paleontological Resources	☐ Mandatory Findings of Significance
☐ Geology and Soils	☐ Population and Housing	
☐ Greenhouse Gas Emissions	☐ Public Services	

Determination

On the basis of this initial evaluation:

I find that the Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

I find that although the Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☐

I find that the Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. ☐

I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Project, nothing further is required. ☐

Agency Representative Name Date

Title

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4.0 ENVIRONMENTAL CHECKLIST AND DISCUSSION

4.1 Aesthetics

4.1.1 Environmental Setting

4.1.1.1 Regional Setting

State Scenic Highways

The California Scenic Highway Program protects and enhances the scenic beauty of California's highways and adjacent corridors. The California Department of Transportation (Caltrans) can designate a highway as scenic based on how much natural beauty can be seen by users of the highway, the quality of the scenic landscape, and if development impacts the enjoyment of the view.

State Route (SR) 49 is not officially designated as a State Scenic Highway, the highway is listed as an eligible State Scenic Highway. The road traverses Calaveras County north–south and passes through the communities of Carson Hill, Angel's Camp, San Andreas and Mokelumne Hill. The Proposed Project is approximately 7 miles west of SR-49 (Caltrans 2025).

4.1.1.2 Visual Character of the Project Area

The Proposed Project Area is located on gently rolling terrain in a rural area within Calaveras County. The Proposed Project Area is situated at an elevational range of approximately 695 to 772 feet above mean sea level in the Northern Sierra Foothills.

The Proposed Project Area comprises the La Contenta WWTF and associated effluent storage ponds. The Proposed Project Area is surrounded primarily by a mix of foothill oak woodland, pastureland, and rural development. New Hogan Lake is located to the east. Gravel roads crossing through Proposed Project Area are frequently maintained by the Pacific Gas and Electric Company (PG&E) and CCWD.

4.1.2 Regulatory Setting

4.1.2.1 Local Regulations

Calaveras County General Plan – Land Use Element

The Calaveras County General Plan (County 2019) includes policies and associated programs that are intended to protect the County's aesthetic resources from the impacts of future development. The Land Use (LU) Element of the Draft General Plan includes the following goals and policies related to protection of scenic vistas and natural resources:

Goal LU-4 *Community Character and Design* – High quality, well-designed development that is compatible with surrounding uses and is integrated with the community and the physical environment in which it is located.

Policy LU 4.1 New development shall be designed to be compatible with the natural, scenic, and historic resources of Calaveras County.

Policy LU-5.3 Recognize the county's unique recreational, scenic, cultural, historic and agricultural resources as strong economic generators and encourage their retention and expansion.

Calaveras County General Plan – Conservation and Open Space Element

The Conservation and Open Space (COS) Element of the Draft General Plan includes the following goals, policies, and implementation measures related to scenic vistas and natural resources.

Goal COS-5 *Scenic Resources* – Abundant scenic resources that preserve rural character, quality of life, and tourism-based economic development, while protecting property rights.

Policy COS 5.1 Encourage the conservation of natural and historic landscapes and important landmarks as scenic resources important to the County's rural character, scenic beauty and the tourism component of the economy.

Policy COS 5.3 Proposed new development shall consider the scenic qualities of the natural resources in the design of the project.

Calaveras County Code of Ordinances

The Calaveras County Code of Ordinances reflects legislation adopted by the County. The Code provides a means of implementing the policies of the Calaveras County General Plan and sets forth development standards for the County. Such development standards often involve limits on the allowable size of structures, required setbacks, and design guidelines.

Title 17 – Zoning – of the Calaveras County Code of Ordinances includes numerous standards relating to aesthetic resources. Section 17.70.090 includes requirements that lighting provided in conjunction with parking areas is installed, directed, and shielded to limit direct rays of light to the boundaries of such facilities.

4.1.3 Aesthetics (I) Environmental Checklist and Discussion

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Less than Significant Impact.

A scenic vista is a viewpoint that provides a distant view of highly valued natural or manufactured landscape features for the benefit of the general public. Typical scenic vistas are locations where views of

rivers, ocean, hillsides, and open space areas can be obtained as well as locations where valued urban landscape features can be viewed in the distance. While there are no officially designated scenic vistas surrounding the Proposed Project Area, there are views of the natural rolling terrain, which are important components of the region's visual character.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. All improvements to the La Contenta WWTF would not impact any vistas. Once the Proposed Project is completed, there would be no change in the visual character or quality of public views of the site. Therefore, implementation of the Proposed Project would have a less than significant impact to a visual scenic vista.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

No Impact.

There are no officially or eligible designated state or county scenic highways or any highways eligible for such designation within or proximate to the Proposed Project. Therefore, implementation of the Proposed Project would not have the potential to impact scenic resources within a scenic highway and there would be no impact.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project is within the existing La Contenta WWTF and is adjacent to an urbanized, residential community (see Figure 1-1). Project construction activities would introduce equipment, including light trucks, backhoes, winch, bursting head, generator, and other similar machinery into the viewshed of all viewer groups, creating temporary effects on views of and from the Proposed Project Area during construction. Once the Proposed Project is completed, there will be no change in the visual character or

quality of public views of the site and surroundings. Additionally, the Proposed Project would not conflict with zoning and other regulations governing scenic quality. Any impacts would be less than significant.

Except as provided in Public Resources Code Section 21099, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Would the Project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. Once construction of the pipeline installation and the improvements to the La Contenta WWTF are complete, any additional light or glare from construction activities would be removed. New exterior lighting upgrades will be added to structures at the La Contenta WWTF to improve the quality of life for operators on-site during low-light conditions and increase overall site security. The lighting improvements will include a collection of lights at areas such as the site entrance, building entrances, and the operations area. However, the new lighting would be restricted to just the La Contenta WWTF, which is a private facility. The new lighting would not impact day or nighttime views of the area. The Proposed Project would comply with Title 17 of the Calaveras County Code of Ordinances, which include specific regulations requiring shielding of exterior lighting, limiting of light spillage in parking lot areas, and minimization of light and glare. Therefore, any impacts would be less than significant.

4.1.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.2 Agriculture and Forestry Resources

4.2.1 Environmental Setting

A wide variety of agricultural products are grown and produced in Calaveras County, which allows the County to add to the rich agricultural tradition of California. Many fruit and nut crops, including wine grapes, field crops, vegetable crops, apiary products, nursery crops, livestock and poultry, and timber are part of the Calaveras agricultural industry. Cattle and calves are the County's leading farm commodity. In addition to cattle and calves, wine grapes and poultry are major contributors to agricultural production.

4.2.1.1 Important Farmland

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program identifies lands that have agriculture value and maintains a statewide map of these lands called the Important Farmlands Inventory. Important Farmland maps classify land into one of eight categories, which are defined as follows:

- *Prime Farmland* – Land that has the best combination of features for the production of agricultural crops.
- *Farmland of Statewide Importance* – Land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops.
- *Unique Farmland* – Land of lesser quality soils used for the production of the state's leading agricultural cash crops.
- *Farmland of Local Importance* – Land that is of importance to the local agricultural economy.
- *Grazing Land* – Land with existing vegetation that is suitable for grazing.
- *Urban and Built-up Lands* – Land occupied by structures with a density of at least one dwelling unit per 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public utility structures, and other developed purposes.
- *Land Committed to Nonagricultural Use* – Vacant areas; existing lands that have a permanent commitment to development but have an existing land use of agricultural or grazing lands.
- *Other Lands* – Land that does not meet the criteria of the remaining categories.

According to the DOC online Important Farmland Finder Map (DOC 2025a), the Proposed Project and the surrounding area is classified as both Grazing Land and Other Land.

4.2.1.2 Williamson Act Contracts

The California Land Conservation Act of 1965, commonly known as the Williamson Act, enables local governments to enter into agreements with private landowners to restrict parcels for agricultural or related open space use. In return, landowners receive property tax assessments that are based on farming and open space uses instead of full market value.

There are lands within Calaveras County that are under the Williamson Act, but the Proposed Project Area is not zoned for agriculture or forestry use and is not under Williamson Act contract (DOC 2025b).

4.2.2 Regulatory Setting

There are no local regulations relevant to the Proposed Project.

4.2.3 Agriculture and Forestry Resources (II) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact.

As discussed above, the California Important Farmland Finder Map identifies the Proposed Project Area as Grazing Land and Other Land. Therefore, the Proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. There would be no impact and mitigation is not required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project Area and surrounding parcels are not under Williamson Act contracts (DOC 2025b). The Proposed Project would not conflict with existing zoning for agricultural uses or a Williamson Act contract.

Implementation of the Proposed Project would not change the existing use of the Proposed Project Area and would not result in any land use designation or zoning change. Therefore, any impact would be less than significant, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

No Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. As described previously in item a), the Proposed Project does not involve properties zoned for forest land, timberland or Timberland Production, and therefore would not conflict with existing zoning codes. No impact would occur and no mitigation measures are required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

See discussion under item c). No impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact.

See discussion under item a), the Proposed Project would not result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest. No impact would occur and no mitigation measures are required.

4.2.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.3 Air Quality

This section is based in part on the results of the Air Quality and Greenhouse Gas (GHG) Assessment performed by ECORP Consulting, Inc. (ECORP) in February 2026 (ECORP 2026a; Appendix C). The purpose of this assessment is to estimate criteria air pollutants attributable to the Proposed Project and determine the level of impact the Proposed Project would have on the environment.

4.3.1 Environmental Setting

The Proposed Project is located in the Census Designated Place of Valley Springs. The California Air Resource Board (CARB) has divided California into regional air basins according to topographic features. Calaveras County is located in a region identified as the Mountain Counties Air Basin (MCAB). MCAB lies along the northern Sierra Nevada range, close to or contiguous with the Nevada border and includes portions of Amador, Calaveras, El Dorado, Mariposa, Nevada, Placer, Plumas, Sierra, and Tuolumne counties. The climate of MCAB varies considerably with elevation and proximity to mountains. Precipitation is greater and temperatures are lower at higher elevations. Summer temperatures in the Proposed Project Area range from the mid- to upper nineties, while winter temperatures range from the upper thirties to lower forties.

The local air quality regulating authority in the portion of the County encompassing the Proposed Project Area is the Calaveras County Air Pollution Control District (CCAPCD). CCAPCD's primary responsibility is to ensure that the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are attained and maintained in the County portion of MCAB. The CCAPCD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities.

The following is a list of noteworthy CCAPCD rules that would be applicable to the Proposed Project (CARB 2026):

- *Rule 202. Visible Emissions:* Prohibits the discharge of air containments for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker in shade as that designated as Number 1 on the Ringlemann Chart or of such opacity as to obscure an observer's view to a degree equal to or greater to shade Number 1 on the Ringlemann Chart.
- *Rule 205. Nuisance:* Prohibits the discharge of air containments which cause injury, detriment, nuisance, or annoyance.
- *Rule 207. Particulate Matter:* A person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of 0.1 grains per cubic foot of dry exhaust gas at standard conditions.
- *Rule 210. Specific Contaminants:* Limits the amount of sulfur dioxide released into the atmosphere.

4.3.2 Ambient Air Quality

Both USEPA and CARB have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria

documents. The six criteria pollutants are ozone (O_3), carbon monoxide (CO), Particulate Matter (PM), nitrogen oxides (NO_x), sulfur dioxide, and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The attainment status for the County portion of MCAB, which encompasses the Proposed Project Area, is included in Table 4.3-1.

Table 4.3-1. Attainment Status for the Calaveras County Portion of the Mountain Counties Air Basin

Pollutant	Federal Designation	State Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Unclassified/Attainment	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Unclassified/Attainment
CO	Unclassified/Attainment	Unclassified/Attainment
NO_2	Unclassified/Attainment	Unclassified/Attainment
SO_2	Unclassified/Attainment	Unclassified/Attainment

Notes: CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = Particulate Matter Less than 10 Microns in Diameter; $PM_{2.5}$ = Particulate Matter Less than 2.5 Microns in Diameter; SO_2 = sulfur dioxide

The determination of whether an area meets the federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. The County portion of MCAB, which encompasses the Proposed Project Area, is designated as a nonattainment area for the federal O_3 (marginal nonattainment) standard and is designated as a nonattainment area for the state standards of O_3 (transitional nonattainment) and Particulate Matter Less than 10 Microns in Diameter (PM_{10}; also known as *coarse particulate matter*) (CARB 2023; USEPA 2025).

4.3.3 Air Quality (III) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Less than Significant Impact.

As part of its enforcement responsibilities, USEPA requires states with designated nonattainment areas to prepare and submit a State Implementation Plan (SIP) demonstrating how federal air quality standards will be achieved. A SIP integrates federal, state, and local planning components and regulations and identifies specific pollution control measures for nonattainment areas through a combination of performance

standards and market-based programs. Similarly, the California Clean Air Act requires the preparation of an air quality attainment plan for areas designated as nonattainment with respect to the NAAQS and CAAQS. These attainment plans establish emissions limits and control measures to achieve and maintain applicable standards by the earliest practicable date.

CCAPCD is responsible for enforcing applicable federal and state air quality requirements and for adopting air quality rules and regulations. CCAPCD works to attain and maintain acceptable air quality conditions in the County through a comprehensive program of planning, regulation, enforcement, technical innovation, and public outreach. In coordination with the Calaveras Council of Governments (CCOG), CCAPCD develops regional pollution control measures. CCOG is responsible for transportation planning and the administration of transportation projects and programs within the County. Projects that propose development exceeding that anticipated in adopted local plans or CCOG's growth projections could potentially conflict with the SIP and regional air quality strategies.

The Proposed Project consists of upgrades to an existing water treatment plant and does not include residential development. As a result, the Proposed Project would not induce population or employment growth beyond that accounted for in CCOG's regional growth forecasts and planning efforts. Therefore, the Proposed Project would not conflict with or impede implementation of CCAPCD's regional air quality plans. In addition, as discussed further below, construction- and operation-related emissions associated with the Proposed Project would not exceed CCAPCD significance thresholds for criteria air pollutants. Accordingly, impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less than Significant Impact.

This section evaluates whether the Proposed Project would result in a cumulatively considerable net increase of criteria air pollutants for which the Project region is designated as nonattainment or maintenance under applicable federal or state ambient air quality standards, pursuant to CEQA and NEPA.

Air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, that project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

For CEQA purposes, CCAPCD has established regional emission thresholds of significance for construction and operational activities. These thresholds, expressed in pounds per day and summarized in Table 4.3-2,

are used to determine whether the Proposed Project's emissions would result in a cumulatively considerable impact.

Table 4.3-2. CCAPCD Regional Significance Thresholds – Pounds per Day

Air Pollutant	Construction Activities	Operations
ROG	150	150
NO_x	150	150
PM_{10}	150	150

Notes: CCAPCD = Calaveras County Air Pollution Control District; NO_x = nitrogen oxides; PM_{10} = Particulate Matter Less than 10 Microns in Diameter; ROG = Reactive Organic Gases

Source: Calaveras County 2018

For NEPA purposes, this analysis also addresses federal General Conformity requirements under the Clean Air Act. General Conformity ensures that the actions taken by federal agencies do not interfere with a state's plans to attain and maintain national standards for air quality. A conformity determination would be required if the annual emissions of nonattainment pollutants generated by the Proposed Project were to exceed the General Conformity *de minimis* thresholds for the County region. The *de minimis* limits represent a level of emissions that USEPA has determined will have only *de minimis* impacts to the air quality of an area and are thus exempted from the General Conformity Rule. If the overall predicted increase in emissions of a criteria pollutant, due to the Proposed Project, exceeds *de minimis* limits as shown in Table 4.3-3, the lead federal agency is required to make a conformity determination. As previously described, the Proposed Project Area is located in the County portion of MCAB. Table 4.3-3 lists the attainment status for each criteria air pollutant and the *de minimis* threshold based on the County's NAAQS designation and classification.

Table 4.3-3. Federal General Conformity *De Minimis* Emissions Levels in Calaveras County

Pollutant	Attainment Status	Classification	USEPA General Conformity Threshold (tons/year)
O_3	Nonattainment	Marginal	50
PM_{10}	Unclassified/Attainment	N/A	100
$PM_{2.5}$	Unclassified/Attainment	N/A	100
CO	Unclassified/Attainment	N/A	100
NO_2	Unclassified/Attainment	N/A	100
SO_2	Unclassified/Attainment	N/A	100

Notes: CO = carbon monoxide; N/A = Not Applicable; NO_2 = nitrogen dioxide; O3 = ozone; PM_{10} = Particulate Matter Less than 10 Microns in Diameter; $PM_{2.5}$ = Particulate Matter Less than 2.5 Microns in Diameter; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency

Source: USEPA 2025

The impact analysis presented below evaluates construction and operational emissions of the Proposed Project against both the CCAPCD regional significance thresholds and the USEPA General Conformity de minimis thresholds to determine whether the Project would result in a cumulatively considerable air quality impact or require a General Conformity determination.

4.3.3.1 Project Construction Emissions

Emissions associated with Proposed Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during excavation. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts.

Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. CalEEMod provides the ability to analyze a project based on California air quality standards. Project air pollutant emissions generated during proposed construction activities were primarily calculated using CalEEMod model defaults for the County along with construction equipment, phasing and timing provided by the Project proponent. The Proposed Project would expand wastewater treatment and conveyance capacity to accommodate projected flows at the existing approximate 26.4-acre La Contenta WWTF. Improvements include construction of a new extended aeration activated sludge basin with an integral clarifier, a new pump station, and new aeration system blowers within the existing treatment plant building. Supporting work includes excavation, structural improvements, new equipment pads, and associated piping, power, instrumentation, and control system upgrades, including a new electrical building. The Proposed Project would also upgrade effluent conveyance by installing a new parallel pipeline to the LESP. The new pipeline would increase maximum flow capacity from 0.73 MGD to 2.00 MGD and extend approximately 3,515 feet. Construction would involve dewatering, flow bypassing, and tie-ins to existing infrastructure, with the existing pipeline abandoned in place. It is noted that the CalEEMod model cannot specifically account for the construction of a wastewater treatment facility due to the limited land uses available within the model and therefore such activity is modeled as a combination of "non-asphalt surface" as well as "manufacturing" to account for operational energy usage in the CalEEMod Model.

See Appendix C, La Contenta WWTF Project Emissions Analysis, for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Regional Construction Significance Analysis

Predicted average daily construction-generated emissions for the Proposed Project are summarized in Table 4.3-4. Construction-generated emissions are short-term and of temporary duration, lasting only as

long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceed CCAPCD's thresholds of significance.

Table 4.3-4. Construction-Related Emissions (Regional Analysis)

Construction Year	Pollutant (average pounds per day)					
	ROG	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Construction Calendar Year One	67.75	45.27	57.16	0.11	21.61	11.42
CCAPCD Potentially Significant Impact Threshold	*150*	*150*	–	–	*150*	–
Exceed CCAPCD Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: CCAPCD = Calaveras County Air Pollution Control District; NO_x = nitrogen oxides; CO = carbon monoxide; PM_{10} = Particulate Matter Less than 10 Microns in Diameter; $PM_{2.5}$ = Particulate Matter Less than 2.5 Microns in Diameter; ROG = Reactive Organic Gases; SO_2 = sulfur dioxide
Construction timing, phasing and equipment provided by the Project proponent and informed by model defaults for Calaveras County. Emission calculations account for dust from material movement for the proposed removal of the existing holding pond material as well as excavation for the proposed aeration sludge basin and pipeline.

Source: California Emissions Estimator Model, version 2022.1. Refer to Appendix C for Model Data Outputs.

As shown in Table 4.3-4, emissions generated during Project construction would not exceed CCAPCD's numeric thresholds of significance during construction. This impact is less than significant and criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable state ambient air quality standard.

U.S. Environmental Protection Agency Conformity Determination Thresholds

As previously described, the Proposed Project Area is located in Calaveras County region, which is designated as a nonattainment area for the federal O_3 standards. Emissions generated during Proposed Project implementation would be short term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the Conformity Determination thresholds. Predicted maximum annual construction-generated emissions for the Proposed Project are summarized in Table 4.3-5 and compared against the USEPA Conformity Determination thresholds.

As shown in Table 4.3-5, emissions from construction of the Proposed Project would not exceed the USEPA Conformity Determination thresholds for the region.

Table 4.3-5. Construction-Related Emissions (USEPA Conformity Determination Analysis)						
Activity	**VOC/ROG**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Maximum Pollutants (tons per year)						
Construction Calendar Year 1	0.91	1.92	2.14	0.00	0.80	0.40
USEPA Conformity Determination Thresholds (40 CFR 93.153)	*50*	*100*	*100*	*100*	*100*	*100*
Exceed USEPA Conformity Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: CFR = Code of Federal Regulations; CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = Particulate Matter Less than 10 Microns in Diameter; $PM_{2.5}$ = Particulate Matter Less than 2.5 Microns in Diameter; ROG = Reactive Organic Gases; SO_2 = sulfur dioxide; USEPA = U.S. Environmental Protection Agency; VOC = volatile organic compound
Construction timing, phasing and equipment provided by the Project proponent and informed by model defaults for Calaveras County. Emission calculations account for dust from material movement for the proposed removal of the existing holding pond material as well as excavation for the proposed aeration sludge basin and pipeline.

Source: California Emissions Estimator Model, version 2020.4.0. Refer to Appendix C for Model Data Outputs.

As shown in Table 4.3-5, the Proposed Project emissions resulting from construction would not exceed the USEPA Conformity Determination thresholds.

4.3.3.2 Project Operational Emissions

The Proposed Project would result in a slight increase in operational air pollutant emissions associated with expanded wastewater treatment operations at the existing La Contenta WWTF. Operational emissions would be generated by stationary and area sources related to treatment processes, including aeration system blowers, pumping operations at the UESP pump station, and operation of an emergency generator. These sources would emit criteria air pollutants, including Reactive Organic Gases (ROG), NO_x, CO, PM_{10}, and Particulate Matter Less than 2.5 Microns in Diameter ($PM_{2.5}$; also known as *fine particulate matter*).

To conservatively assess operational emissions, the Proposed Project was modeled using a manufacturing land use to represent the scale of operational activity at the La Contenta WWTF, and included emissions associated with the annual maintenance required for emergency generator operation. CCAPCD has established operational significance thresholds of 150 pounds per day for ROG, NO_x, and PM_{10}. Maximum daily operational emissions were estimated at approximately 5.88 pounds per day of ROG, 22.02 pounds per day of NO_x, and 0.73 pounds per day of PM_{10}. These emissions are well below the applicable CCAPCD operational significance thresholds. Therefore, the Proposed Project would not result in a cumulatively considerable increase in criteria air pollutant emissions, and operational air quality impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less than Significant Impact.

4.3.3.3 Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of Diesel Particulate Matter (DPM), ROG, NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of MCAB that encompasses the Proposed Project Area is designated as a nonattainment area for the federal O_3 standard and is designated as a nonattainment area for the state standards for O_3 and PM_{10} (CARB 2023; USEPA 2025). Thus, existing O_3 and PM_{10} levels in MCAB are at unhealthy levels during certain periods. However, as shown in Table 4.3-4 and 4.3-5, the Proposed Project would not exceed the applicable significance thresholds for emissions.

The health effects associated with O_3 are generally associated with reduced lung function. O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of ROG and NO_x in the presence of sunlight. The reactivity of O_3 causes health problems because it damages lung tissue, reduces lung function and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O_3 not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O_3 for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

Studies show associations between short-term O_3 exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to O_3 may increase the risk of respiratory-related deaths. The concentration of O_3 at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of O_3 and a 50 percent decrement in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum O_3 concentration reaches 80 parts per billion. Because the Proposed Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_x) in excess of the CCAPCD thresholds, which are set to be protective of human health and account for cumulative emissions in MCAB, the Proposed Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

PM (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. PM exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary toxic air contaminant of concern. PM_{10} exhaust is considered a surrogate for DPM as it contains $PM_{2.5}$ as a subset and all diesel exhaust is considered to be DPM. As with O_3 and NO_x, the Proposed Project would not generate emissions of PM_{10} that would exceed CCAPCD's thresholds. The increases of these pollutants generated by the Proposed Project would not on their own generate an increase in the number of days exceeding NAAQS or CAAQS. Therefore, PM_{10} emissions, when combined with the existing PM emitted regionally, would have minimal health effect on people located in the immediate vicinity of the Proposed Project Area. Additionally, the Project's PM_{10} emissions are not expected to cause any increase in related regional health effects from these pollutants.

In summary, the Proposed Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

4.3.3.4 Operational Air Contaminants

Toxic Air Contaminants

Implementation of the Proposed Project would not result in the development of any substantial sources of air toxics. The Proposed Project would not attract heavy-duty trucks, a substantial source of DPM emissions, which spend long periods queuing and idling at the site. While the Project is proposing an emergency backup, diesel-powered generator, this generator would not be operational during the majority of days and would only operate during short periods of maintenance testing or in the case of an emergency involving a power outage. The Proposed Project would not be a source of toxic air contaminants. The Proposed Project would not result in a high carcinogenic or non-carcinogenic risk during operation. A less than significant impact would occur.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly stringent in the last 20 years. Currently, the allowable CO emissions standard in

California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in MCAB is designated as in attainment. Detailed modeling of the Proposed Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million or the eight-hour standard of 9 parts per million were to occur. In a study conducted by the Bay Area Air Quality Management District, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact. As the Project is proposing improvements to an existing use, it is anticipated that it would result in a minimal contribution to traffic trips in the Proposed Project Area. Thus, the Proposed Project would not generate traffic volumes of more than 44,000 vehicles per hour. There is no likelihood of the Project traffic exceeding CO values.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less than Significant Impact.

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or

recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

During construction, the Proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the construction area. Therefore, construction odors would not adversely affect a substantial number of people to odor emissions.

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project proposes to improve and replace infrastructure at an existing wastewater treatment plant. The La Contenta WWTF would continue to operate as a public utility facility consistent with existing land use, and odors would continue to be managed in accordance with applicable regulations as currently done. Therefore, the Proposed Project would not expose sensitive receptors to objectionable odors and would result in a less than significant impact.

4.3.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.4 Biological Resources

This section is based on the analysis and recommendations presented in the Biological Resources Assessment (BRA) prepared for the Proposed Project (ECORP 2026b; Appendix D). The approximate 26.4-acre Study Area included all areas where the Proposed Project-related activities may result in impacts to sensitive biological resources.

4.4.1 Environmental Setting

The Proposed Project Area is located on gently rolling terrain in a rural area. The Study Area is situated at an elevational range of approximately 695 to 772 feet above mean sea level in the Northern Sierra Foothills District of the California floristic province. The average winter low temperature is 48.7 degrees Fahrenheit (°F), and the average summer high temperature is 76.8°F; the average annual precipitation is approximately 22.86 inches at the Camp Pardee station, which is approximately 5 miles from the Proposed Project Area.

The Proposed Project Area comprises the La Contenta WWTF and associated effluent storage ponds. The Proposed Project Area is surrounded primarily by a mix of foothill oak woodland, pastureland, and rural development. New Hogan Lake is located to the east. Gravel roads crossing through Proposed Project Area are frequently maintained by PG&E or CCWD.

4.4.1.1 Vegetation Communities and Land Cover Types

The following sections describe vegetation communities and land cover types within the Study Area as observed during the site reconnaissance. A list of plants incidentally observed within the Study Area during the site reconnaissance can be found in Appendix D. The approximate extent of vegetation communities and land cover types are depicted. The approximate extent of vegetation communities and land cover types are depicted in Figure 4.4-1.

Annual Grassland

The annual grassland community is found in the northwestern and southern portions of the Study Area. The annual grassland within the Study Area is dominated by nonnative annual grasses including Italian ryegrass (*Festuca perennis*), medusahead grass (*Elymus caput-medusae*), and soft brome (*Bromus hordeaceus*).

The annual grassland within the Study Area can be characterized as the Lolium perenne Herbaceous semi-natural alliance. Semi-natural alliances are strongly dominated by nonnative plants that have become naturalized in the State, do not have state rarity rankings, and are not considered sensitive natural communities.

Blue Oak Woodland

The blue oak woodland community is found scattered along the boundaries of the Study Area. This community has an overstory of blue oak (*Quercus douglasii*) with a sparse shrub layer dominated by manzanita (*Arctostaphylos* sp.) and buck brush (*Ceanothus cuneatus* var. *cuneatus*). The herbaceous understory resembles the annual grassland found onsite.

The blue oak woodland community can be characterized as the *Quercus douglasii* Forest and Woodland Alliance as classified by the Manual of California Vegetation (MCV). This alliance has a state rarity ranking of S4 and is not considered a sensitive natural community. The blue oak woodland within the Study Area does not resemble any known sensitive associations and is not considered a sensitive natural community.

Gray Pine Woodland

The gray pine woodland community is found in the northeast corner of the Study Area. Gray pine (*Pinus sabiniana*) is dominant in the canopy. The woody understory is sparsely populated with a mix of buck brush, manzanita, and chamise (*Adenostoma fasciculatum*). The herbaceous understory is composed of annual grasses similar to the annual grassland found onsite.

The gray pine woodland community can be characterized as the Pinus sabiniana Woodland Alliance as classified by MCV. This alliance has a state rarity ranking of S4 and is not considered a sensitive natural community. The gray pine woodland within the Study Area does not resemble any known sensitive associations and is not considered a sensitive natural community.

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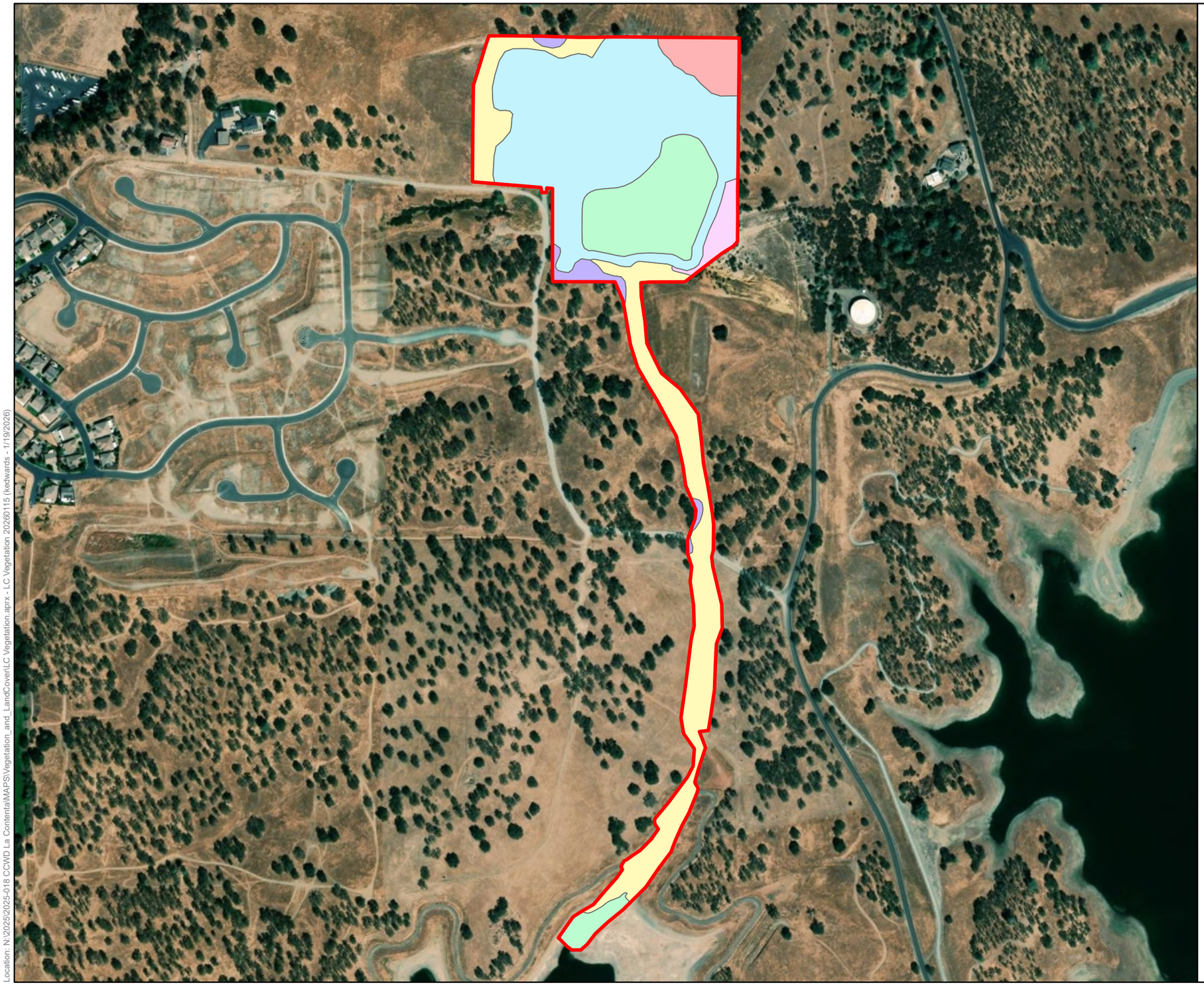


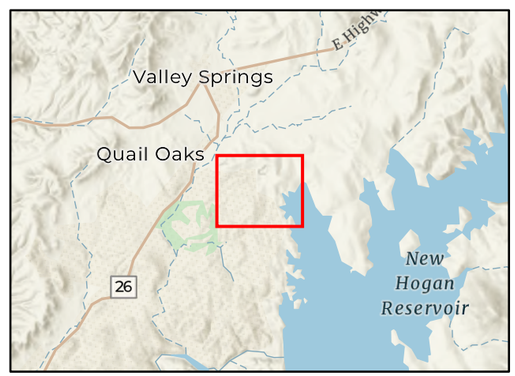
Map Contents

Study Area - 26.4 acres

Vegetation Type

- Annual Grassland - 7.56 ac.
- Blue Oak Woodland - 0.65 ac.
- Disturbed/Developed - 11.68 ac.
- Gray Pine Woodland - 1.23 ac.
- Lacustrine - 4.56 ac.
- Manzanita Chaparral - 0.69 ac.

Sources: Esri Imagery, Vantor (2022)



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Vegetation_and_LandCover\LC Vegetation.aprx - LC Vegetation 20260115 (kedwards - 1/19/2026)

Map Date: 1/19/2026

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Scale in Feet
0 400

Figure 4.4-1. Vegetation Communities and Land Cover Types

2025-018 CCWD La Contenta WWTF Phase 3 Project

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Lacustrine

The lacustrine land cover type is associated with the two effluent storage ponds. These areas are largely devoid of vegetation with scattered rough cockle-bur (*Xanthium orientale*), Bermuda grass (*Cynodon dactylon*), and non-native annual grasses.

Gray Pine Woodland

Manzanita chaparral is found in the western portion of the Study Area and is dominated by manzanita with chamise and buck brush. Trees, including blue oak and gray pine, are sparsely scattered throughout this community.

The dominant manzanita could not be accurately identified to species due to the timing of the survey. It is believed to be *Arctostaphylos manzanita*, which would correlate with the *Arctostaphylos (canescens, manzanita, stanfordiana*) Shrubland Alliance as classified by MCV. This alliance has a state rarity ranking of S3 and is considered a sensitive natural community.

Developed/Disturbed

The disturbed or developed land cover type is found in the northern portion within the Study Area and is composed of the La Contenta WWTF, maintenance buildings, and roads. These areas are either devoid of vegetation or dominated by nonnative ruderal herbaceous species, including stinkwort (*Dittrichia graveolens*) and Bermuda grass.

4.4.1.2 Aquatic Resources

ECORP conducted an Aquatic Resources Delineation for the Study Area (ECORP 2026e; Appendix E). A total of 4.806 acres of aquatic resources were mapped within the Study Area. The aquatic features identified include seasonal wetlands, drainage ditches, ditches, and the La Contenta WWTF effluent storage ponds (Appendix E, Figure 5). These features are further described in the following sections.

Seasonal Wetland

Seasonal wetlands are ephemerally or intermittently wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short, and seasonal wetlands are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. ECORP mapped several seasonal wetlands within the northern and southern portions of the Study Area.

Seasonal wetlands mapped within the northern portion of the Study Area consist of depressional features ponded by stormwater runoff, nuisance runoff, or groundwater and appear to have been created incidentally by erosion or La Contenta WWTF operations.

The seasonal wetlands in the southern portion of the Study Area consist of shallow depressions within the annual grassland or along road shoulders. Plant species present in these features include common spikerush (*Eloecharis palustris*), hyssop loosestrife (*Lythrum hyssopifolia*), and tall flatsedge (*Cyperus eragrostis*).

Drainage Ditch

The drainages ditches mapped within the Study Area are constructed or excavated linear features, which rapidly drain stormwater or managed water from existing La Contenta WWTF infrastructure. The drainage ditches within the Study Area are riprap lined and appear to be ephemeral based on its position of the sloping topography. These ditches are primarily unvegetated within the channel, however scattered plant species observed within the channel consist of Mediterranean barley (*Hordeum marinum*) and Italian ryegrass.

Ditch

Other existing ditches within the La Contenta WWTF displayed more hydric conditions and a longer hydroperiod based on vegetation and soil indicators observed at the Ordinary High Water Mark (OHWM). These ditches appear to share similar ground or surface water influences as the adjacent seasonal wetlands and primarily function to drain water out of the northern portion of the Study Area. Dominant plants species observed above the OHWM include stinkwort (*Dittrichia graveolens*), and dominant species below the OHWM include tall flatsedge and prostrate knotweed (*Polygonum aviculare*).

La Contenta Wastewater Treatment Facility Effluent Storage Ponds

The La Contenta WWTF effluent storage ponds are basins constructed to temporarily store La Contenta WWTF effluent prior to discharge or recirculation for additional treatment in the La Contenta WWTF. The ponds within the Study Area are sparsely vegetated, constructed basins created by excavation within the landscape. The ponds are influenced by surrounding wastewater infrastructure and are permanently or seasonally inundated. ECORP identified two effluent storage ponds within the Study Area. The UESP mapped within the northern portion of the Study Area is a constructed, plastic and riprap-lined detention basin for the La Contenta WWTF that utilizes several pumps or gates to control flow in and out of the pond. The LESP (WTP-01) is a constructed, earthen basin located in the southern portion of the Study Area. WTP-01 receives controlled releases from the UESP (WTP-02) located within the La Contenta WWTF. These features are dominated by rough cocklebur (*Xanthium orientale*) and Italian ryegrass.

4.4.1.3 Wildlife

The Study Area provides habitat for a variety of wildlife species. Wildlife species observed onsite include red-eared slider (*Trachemys scripta elegans*), green heron (*Butorides virescens*), red-winged blackbird (*Agelaius phoeniceus*), and red-tailed hawk *(Buteo jamaicensis*). Special-status species observed onsite include oak titmouse (Baeolophus inornatus) and Nuttall's woodpeckers (*Dryobates nuttallii*). A large platform stick nest was observed just south of the Study Area boundary, indicating raptor nesting activity is likely to occur onsite. Other species typically associated with the habitat types found within the Study Area include osprey (*Pandion haliaetus*), barn swallow (*Hirundo rustica*), and California quail (*Callipepla californica*). No ground squirrels or other burrows were observed during the site reconnaissance. A full list of wildlife species observed within the Study Area is provided in Appendix D.

4.4.1.4 Critical Habitat or Essential Fish Habitat

There is no designated critical habitat mapped within the Study Area. Based on the literature review, anadromous fish critical habitat for California Central Valley Steelhead Critical Habitat and Essential Fish Habitat (EFH) for chinook salmon may be present in the Valley Springs, California 7.5-minute quadrangle. However, there is no suitable habitat for special-status fish within the Study Area. Therefore, there is no anadromous fish critical habitat or EFH within the Study Area.

4.4.1.5 Wildlife Movement Corridors

The Study Area does not fall within an Essential Habitat Connectivity area or an identified natural habitat block. However, the Study Area does fall within a small natural area that could support ecological value. The southern portion of the Study Area, south of the La Contenta WWTF, may provide opportunities for local wildlife movement between New Hogan Reservoir and surrounding undeveloped woodlands.

No nursery sites have been documented within the Study Area, and none were observed within the Study Area during the site reconnaissance. However, a large platform nest was observed approximately 650 feet southwest of the Study Area.

4.4.2 Biological Resources (IV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

Special-Status Plant Species

The Study Area supports potential habitat for special-status plants, as identified in Appendix D, Table 2. Protocol-level surveys have not been conducted for the Study Area. If special-status plants occur in or near the Proposed Project development area, the Proposed Project direct impacts could include damage or loss of individual plants and Project indirect impacts could include loss of suitable habitat, disturbance from human encroachment, and changes in habitat quality due to introduction or spread of non-native invasive plants, alteration of hydrology, erosion, and transport of soil, debris or pollutants into occupied habitat from adjacent to the Proposed Project areas. Implementation of Mitigation Measure BIO-1, which identifies the need to do a protocol-level survey and establish any avoidance areas, would reduce impacts to special-status plants to less than significant.

Special-Status Insect Species

The Study Area contains potentially suitable habitat for Crotch's bumble bee. If present, individual Crotch's bumble bees could be injured or killed, particularly if a nest site is encountered or damaged by machinery or heavy equipment during Proposed Project activities. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-2, which would minimize potential impacts to the Crotch's bumble bee to less than significant.

Special-Status Amphibian Species

The ponds within the Study Area provide potentially suitable habitat for California red-legged frog. The Proposed Project would preserve these features within proposed open space areas, and they would continue to provide potential aquatic habitat for California red-legged frog. If present within the Study Area, California red-legged frog could be impacted during construction by equipment and vehicles operating onsite, construction-related noise, and human disturbance. These activities could result in direct injury or mortality of California red-legged frogs, or temporary avoidance of suitable habitat areas. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-3, which would minimize potential impacts to the California Red-Legged Frog to less than significant.

The seasonal wetlands and southern pond within the Study Area provide marginally suitable habitat for California tiger salamander. If present within the Study Area, California tiger salamander could be impacted during construction by equipment and vehicles operating onsite, construction-related noise, and human disturbance. These activities could result in direct injury or mortality of California tiger salamanders, or temporary avoidance of suitable habitat areas. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-4, which would minimize potential impacts to the California Tiger Salamander to less than significant.

Special-Status Reptile Species

The Proposed Project Area provides marginally suitable habitat for the northwestern pond turtle, and, therefore, could be impacted by construction activities including operation of construction equipment and vehicles, noise, and human encroachment. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-5, which would minimize potential impacts to the northwestern pond turtle to less than significant.

Special-Status Bird Species

The Study Area contains suitable nesting and/or wintering and foraging habitat for several special-status birds and other birds protected under the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA), as well as the state-listed bald eagle. If the Proposed Project-related activities occur during the nesting season, the removal of active nests or disruption of nesting activities could lead to "take" of a protected bird, or an active nest with eggs or young, which would be considered a significant impact under CEQA and a violation of California Fish and Game Code. Removal of an active bald eagle nest or disturbance leading to nest abandonment would be considered a take under the California Endangered Species Act (ESA). The Proposed Project is only expected to impact a small amount of foraging habitat for

special-status birds, so potential impacts to wintering and foraging habitat would not be considered significant under CEQA. However, the special-status birds and other birds protected under the California ESA, California Fish and Game Code, and MBTA (and their nests) may be impacted. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-6, which would minimize potential impacts to nesting birds to less than significant.

Special-Status Mammal Species

Large cavities in the large oak trees within and immediately adjacent to the Study Area represent potential roosting habitat for Townsend's big-eared bat. If occupied bat roosts are present, removal of the habitat feature could result in direct mortality or injury to Townsend's big-eared bats. Removal during the maternity roosting season could result in the loss of an established maternity roosting site and injury or mortality of pups that are not yet able to fly. Removal of a roost site during the winter season could also result in direct injury or death of individual bats, particularly during time periods of colder weather or heavy rain, when bats are more likely to be in torpor. Impacts to Townsend's big-eared bats or bat maternity roost sites are considered potentially significant under CEQA. Therefore, the Proposed Project would incorporate Mitigation Measure BIO-7, which would minimize potential impacts to nesting birds to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

The manzanita chaparral within the Study Area may be a sensitive natural community. The Proposed Project direct impacts may include removal of the manzanita chaparral within the Proposed Project Area. The Proposed Project indirect impacts to the manzanita chaparral could include disturbance from human encroachment and changes in habitat quality due to introduction or spread of non-native invasive plants, alteration of hydrology, erosion, and transport of soil, debris or pollutants into occupied habitat from adjacent the Proposed Project areas. However, the Proposed Project impacts to the manzanita chaparral would be minimal. There is approximately 0.65 acre of manzanita chaparral within the Study Area, and an abundance of manzanita chaparral in the larger vicinity. Impacts to a small amount of manzanita chaparral would not significantly affect the abundance of manzanita chaparral in the larger vicinity. If the manzanita chaparral is a sensitive natural community, impacts are not likely to be significant under CEQA unless the community is determined to be Ione manzanita chaparral (*Arctostaphylos myrtifolia* Shrubland Alliance; State Rarity S1). Implementation of Mitigation Measure BIO-8, which requires that during the special-status plant survey, Ione manzanita chaparral be identified, would reduce impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated

The UESP and drainages ditches within the Study Area are artificial features constructed as part of the La Contenta WWTF and have been continuously operated and maintained for use as part of the La Contenta WWTF; these features are therefore not likely considered federal or state jurisdictional aquatic resources. The LESP is part of a waste treatment system designed to meet the requirements of the CWA and, as such, would not be considered Waters of the U.S. However, the LESP appears to have been created by a modification of a Water of the State and is therefore likely considered a jurisdictional Water of the State. The seasonal wetlands within the Study Area are considered potential jurisdictional waters of the U.S. and/or State, and as such, are regulated by CWA Sections 404 and 401 and/or the Porter-Cologne Water Quality Control Act. Ditch-01 appears to have relatively permanent flow and is likely a tributary to the San Joaquin River via a relatively short, piped segment to Cosgrove Creek and then Calaveras River. As such, Ditch-01 may be considered a jurisdictional waters of the U.S. and/or State, and could also be subject to regulation under Section 1602 of the California Fish and Game Code.

Jurisdictional aquatic resources within the Study Area could be directly or indirectly impacted by the Proposed Project activities. Direct impacts to aquatic resources would include any grading, trenching, excavation, or placement of temporary or permanent fill within a regulated feature. Indirect impacts may include inadvertent encroachments, changes in hydrology, and runoff and erosion from the Study Area.

Therefore, implementation of Mitigation Measure BIO-9 will reduce impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐

Less than Significant Impact.

There are no known wildlife movement corridors or wildlife nursery sites present within the Study Area. Proposed Project implementation may temporarily disturb and displace wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically

for the duration of construction. Following construction, wildlife use of the area is expected to return to pre-Proposed Project conditions. Measures have been recommended above for protection of bird nests and bat roosting sites. Therefore, the Proposed Project is not expected to substantially interfere with wildlife movements, wildlife corridors, or nursery sites. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

Less than Significant Impact.

With implementation of the previously identified mitigation measures recommended within Section 4.4, the Proposed Project would be consistent with Chapter 6 of the Calaveras County General Plan policies pertaining to biological resources and would not conflict with any local policies or ordinances protecting biological resources. Therefore, any impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

No Impact.

The Study Area is not subject to any local, regional, or state conservation plans; therefore, the Proposed Project would not have the potential to conflict with any such plans. Therefore, no impact would occur.

4.4.3 Mitigation Measures

BIO-1: **Special-Status Plant Surveys.** A special-status plant survey shall be conducted according to California Department of Fish and Wildlife (CDFW), California Native Plant Society, and U.S. Fish and Wildlife Service (USFWS) protocols prior to Project ground-disturbing or vegetation disturbing activities. The survey shall be conducted by a qualified biologist (as defined per agency protocols) throughout all potential habitat for special-status plants within the Project Area. The survey shall be timed according to the identifiable period for special-status plant species with potential to occur (typically the blooming period). To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found and the survey is still considered recent as per CDFW and USFWS protocols at the time of Project

implementation, no further measures pertaining to special-status plants are necessary. If a special-status plant is found, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not result in significant impacts to the species, meaning Project-related activities won't eliminate, substantially reduce the number of, or restrict the range of the species, and won't conflict with any local policies or ordinances protecting special-status plant species. If impacts may occur to a federally or state listed species, USFWS and/or CDFW shall be consulted to determine appropriate avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat, or compensatory mitigation in the form of mitigation bank credits. Impacts to a state listed plant species also requires incidental take permit authorization from CDFW.

BIO-2: **Crotch's Bumble Bee Preconstruction Survey.** If Crotch's bumble bee is still a candidate or is listed under the California Endangered Species Act (ESA) at the time of construction, the following measures shall be implemented to avoid potential take of the species:

- If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's Survey Considerations for California ESA Candidate Bumble Bee Species, it is recommended that three Crotch's bumble bee surveys be conducted at two- to four-week intervals during the colony active period (April-August) if possible. If surveys are conducted during the queen flight season (February-March) it's recommended that three surveys be conducted spaced one to two weeks apart during acceptable weather conditions with the final survey occurring within one week of construction initiation.
- If Crotch's bumble bees are detected, any remaining surveys will focus on nest location. If no nests are found but the species is observed during preconstruction surveys or appropriate floral resources are present, work crews should be informed of the possibility of Crotch's bumble bees or their nests being present within the Study Area. If a Crotch's bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

BIO-3: **California Red-Legged Frog Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Study Area in areas where California red-legged frogs are

most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages of California red-legged frog.

If California red-legged frog(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California red-legged frog.

If California red-legged frogs are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-4: **California Tiger Salamander Preconstruction Survey.** A qualified biologist shall conduct a preconstruction survey within the Project Area in areas where California tiger salamanders are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages during this survey.

If California Tiger Salamander(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California tiger salamander.

If California tiger salamanders are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify USFWS and CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.

Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

BIO-5: **Northwestern Pond Turtle Preconstruction Survey.** A qualified biologist shall perform a preconstruction clearance survey within 48 hours of the initiation of Project activities. If northwestern pond turtles are found within the Project Area, they will be allowed to move out of the Study Area on their own volition or relocated by a qualified biologist to suitable nearby habitat in coordination with CDFW.

BIO-6: **Nesting Bird Preconstruction Survey.** A preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction. The preconstruction nesting bird survey shall include accessible areas within 100 feet of the Project boundaries, including any temporary disturbance areas. For raptors, including bald eagle, the preconstruction nesting bird survey shall include accessible areas within 500 feet of the Project Area boundary. If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with CDFW, shall establish a buffer distance. The buffer

shall be maintained until the nestlings have fledged (e.g., are capable of flight and become independent of the nest), to be determined by a qualified biologist. The avoidance buffer can be removed, and no further measures are necessary once the young have fledged or the nest is no longer occupied, as determined by a qualified biologist.

BIO-7: **Bat Preconstruction Survey.** If the Project will remove structures or trim/remove trees, a qualified bat biologist shall conduct a bat habitat assessment to identify suitable bat roosting habitat within or adjacent to the Project boundary. The habitat assessment shall be conducted one year prior to construction, if feasible, and no less than 30 days prior to the initiation of construction activities. If no suitable bat roosting habitat is identified, no further measures are necessary.

If the Project will impact identified structures with bat roosting habitat and evidence of current or previous bat occupation, a qualified bat biologist shall conduct a focused bat emergence survey prior to the start of construction. The focused bat emergence survey shall adhere to industry standard protocols and survey methods for bat emergence surveys.

If an active bat roost is identified in a structure that will be removed, a qualified bat biologist will prepare a Bat Management Plan that includes specific avoidance and minimization measures to reduce impacts to roosting bats. The Bat Management Plan will be submitted to CDFW for approval prior to the eviction of bats from occupied habitat. The Bat Management Plan shall include timing and methodology for passive exclusion of bats and/or removal of the structure, as applicable. If a structure with confirmed maternity roosting will be permanently removed, then species-specific replacement roosting habitat may be recommended in the Bat Management Plan. If temporary impacts to maternity roosting habitat are expected, then temporary exclusion measures, a phased approach to bat exclusion, and biological monitoring of exclusion activities may be appropriate.

The following shall apply to removal or trimming of trees with identified bat roosting habitat:

- To the extent feasible, removal or trimming of trees with suitable bat roosting habitat shall be scheduled to occur outside of the maternity roosting season, during seasonal periods of bat activity (September 1 to October 15, or March 1 to April 15). Tree removal may occur after October 15 if evening temperatures are above 45 degrees Fahrenheit and rain is not over 0.5 inch in 24 hours. No tree removal shall occur after April 15 unless surveys are conducted to confirm active maternity roosts are not present.
- As much as feasible, vegetation and trees within the area that are not suitable for roosting bats will be removed first to provide a disturbance that may reduce the likelihood of bats using the habitat.
- If removal of trees with suitable roosting habitat must occur during the maternity season (April 15 to August 31), a qualified bat biologist shall conduct a focused emergence survey of the tree within 48 hours prior to disturbance. If an active bat roost is located, whether solitary or colonial, that roost will remain undisturbed until

after the maternity season or until a qualified bat biologist has determined the roost is no longer active, at which point the twostep tree removal process described below will be utilized to remove the tree.

- The two-step tree removal process will occur over two consecutive days under the supervision of a qualified bat biologist. On Day 1, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees (or outer fronds, in the case of palm trees), as identified by a qualified bat biologist, shall be removed first, using chainsaws only (i.e., no dozers, backhoes). The following day (Day 2), the remainder of the tree is to be felled/removed. The intention of this method is to disturb the tree on Day 1. This should cause day-roosting bats to abandon the roost tree after they emerge for nighttime foraging. Removing the tree quickly the next consecutive day should avoid reoccupation of the tree.
- Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag shall be left undisturbed onsite for the next 48 hours.

BIO-8: **Sensitive Natural Community Survey.** Sensitive natural communities within the Project Area shall be mapped during the special-status plant survey. If no sensitive natural communities with State Rarity of S1 are identified, no further measures are recommended. If Ione manzanita chaparral or any sensitive natural communities with State Rarity of S1 are identified within or adjacent to the Project Area, the Project proponent shall consult with USFWS and/or CDFW to determine appropriate avoidance and minimization measures. These measures may include onsite or offsite restoration and/or permanent preservation of the sensitive natural community.

BIO-9: **Aquatic Resources.** The Project shall avoid aquatic resources to the extent feasible. Avoided aquatic resources will be designated as Environmentally Sensitive Areas and protected with a minimum 50-foot buffer, to the extent feasible. The Environmentally Sensitive Areas shall be clearly demarcated with orange construction fencing or other visible barrier, and no Project-related activities shall be permitted within the Environmentally Sensitive Areas.

To minimize potential indirect effects, the applicant shall prepare and implement an Erosion and Sediment Control Plan to avoid and minimize erosion and runoff to wetlands and other waters that are to remain within or adjacent to the Project Area.

If the Project will disturb at least 1 acre of land, the Project applicant shall obtain coverage under the General Construction Storm Water Permit from the Regional Water Quality Control Board (RWQCB) by preparing a Stormwater Pollution Prevention Plan and implementing Best Management Practices to reduce water quality effects during construction.

Authorization under Clean Water Act Section 404 must be obtained from the U.S. Army Corps of Engineers (USACE) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit

process to ensure no net loss of wetland function and values. Mitigation for permanent impacts to Waters of the U.S. is typically required at a minimum 1:1 ratio; however, final mitigation requirements will be developed in consultation with USACE.

If temporary impacts to Waters of the U.S. or State will occur, the applicant shall prepare a site restoration plan describing the methods that will be used to restore impacted aquatic features to pre-Project conditions. The restoration plan will include, at a minimum, the proposed methods for stabilizing and revegetating the site, any maintenance requirements (e.g., watering, invasive species control), the expected timeframe for restoration.

If discharges will occur to Waters of the U.S., Section 401 Water Quality Certification must be obtained from RWQCB before a 404 Permit can be issued. An application for a 401 Water Quality Certification will be prepared and submitted to RWQCB in accordance with the State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State.

If discharges to Waters of the State that are not also Waters of the U.S. will occur, the applicant shall obtain waste discharge requirements or a waiver of waste discharge requirements from RWQCB as required pursuant to the Porter-Cologne Water Quality Control Act.

If alteration of the bed, channel, or bank of Ditch-01 will occur, the applicant shall notify CDFW of the Proposed Project activities and obtain a Lake or Streambed Alteration Agreement, if required, prior to Project implementation.

4.5 Cultural Resources

ECORP prepared a Cultural Resources Inventory and Architectural History Evaluation Report (ECORP 2026c) for the Proposed Project to determine if cultural resources were present in or adjacent to the Proposed Project Area and assess the sensitivity of the Proposed Project Area for undiscovered or buried cultural resources. Cultural resources include prehistoric archaeological sites, historic archaeological sites, and historic structures, and generally consist of artifacts, food waste, structures, and facilities made by people in the past. Prehistoric archaeological sites are places that contain the material remains of activities carried out by the native population of the area (i.e., Native Americans) prior to the arrival of Europeans in Southern California. Places that contain the material remains of activities carried out by people during the period when written records were produced after the arrival of Europeans are considered historic archaeological sites. Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, and other structures and facilities that are more than 50 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, privies, refuse deposits, and foundations of former outbuildings.

The information provided below is an abridged version of the Historic Property Identification Report and is included here to provide a brief context of the potential cultural resources in the Proposed Project Area. Due to the sensitive nature of cultural resources and their records and documentation, which are restricted from public distribution by state and federal law, the IS/MND appendices do not include the

cultural resources report; however, all pertinent information necessary for impact determinations is included in this section.

A survey of the Proposed Project's Area of Potential Effects (APE) was required to identify potentially eligible cultural resources (i.e., archaeological sites and historic buildings, structures, and objects) that could be affected by the Proposed Project. The APE includes the La Contenta WWTF and the proposed Treated Effluent Pipeline (TEP) area, comprising an easement area to the south of the Upper Effluent Storage Reservoir (UESP) for approximately 0.2 mile, and its intersection with East Eberhard Drive continues southward for approximately 0.2 mile until the pipeline terminates at the Lower Effluent Storage Pond.

4.5.1 Environmental Setting

4.5.1.1 Calaveras County History

The history of Calaveras County is closely tied to the Gold Rush of the 1850s, as the County is situated within the California Mother Lode. The area that became the town of Valley Springs was first settled by George Late, who arrived in 1849 after a voyage around Cape Horn. In 1854, he erected a limestone house quarried from local stone. Valley Springs developed primarily as a logistical stop for goods and people moving in and out of the nearby gold fields. As early as 1849, thousands of people sought the opportunity to mine for gold and other natural resources along the waterways of the Sierra Nevada foothills, and the western portion of the County was considered the gateway to the Mother Lode. Due to the economic development of various industries in the County, three railroads provided commercial connections to nearby railways and to railways throughout the Western U.S. The Stockton and Copperopolis Railroad and the San Joaquín and Sierra Nevada Railroad served the communities near the APE. The Stockton and Copperopolis Railroad's western terminus was in Milton, which is approximately 9 miles south of the APE. It was originally intended to be a connection to the copper mines, but it became a stage line for several boomtowns throughout the County. The San Joaquin and Sierra Nevada railroad's eastern terminus was in Valley Springs. Valley Springs served as a supply town and access point to the mines and other industries. In the early years of the Gold Rush, placer mining was the most widely used method along the Calaveras River, and later, hydraulic mining was introduced at the tail end of the 19th century. Gold dredging was the mining method from 1903 until 1940, when the U.S. entered World War II.

4.5.1.2 Calaveras County Water District History

CCWD was established in 1946 as a county water district to deliver water and sewer services to County residents. As a political subdivision of California, CCWD operates independently from the County government and is governed by a five-member elected Board of Directors. It functions as a not-for-profit public agency and serves as a California special district dedicated to providing public water, developing water supplies, planning, wastewater treatment, disposal, and recycling.

CCWD covers all of Calaveras County in the central Sierra Nevada foothills, located in the northeastern part of the State. It spans about 1,037 square miles (640,000 acres), from the western edge of the San Joaquin Valley to the eastern Sierra Nevada. CCWD serves around 13,080 municipal and

residential/commercial customers across six service areas and provides sewer service to about 4,848 customers in 12 service areas throughout the County. CCWD owns and operates six major wastewater treatment plants and six small, isolated wastewater systems. La Contenta WWTF is CCWD's second major wastewater treatment plant.

4.5.1.3 La Contenta Wastewater Treatment Facility

La Contenta WWTF treated the wastewater generated from CCWD's New Hogan and La Contenta service area, a neighborhood of Valley Springs that includes La Contenta Lakes Development, La Contenta Golf Club, and an annexed area west of Highway 26 (CCWD 2018). Prior to 1991, La Contenta WWTF was located on Huckleberry Lane and treated wastewater from the La Contenta Lakes Development and Golf Club. In 1990, an assessment district (AD) 604 was established to support the new development within the New Hogan and La Contenta service area. In 1991, the new La Contenta WWTF was constructed at 1525 Campbell Court.

4.5.2 Research Methods

ECORP requested a records search for the Proposed Project Area at the Central California Information Center (CCAIC) of the California Historical Resources Information System at California State University, Stanislaus on November 24, 2025 (CCAIC File No. 13572J). The purpose of the records search is to determine the extent of previous surveys within a 0.5-mile (800-meter) radius of the Proposed Project Area, in addition to whether previously documented pre-contact or historic archaeological sites, architectural resources, or traditional cultural properties exist within this area. CCAIC staff completed and returned the records search to ECORP on November 25, 2025.

In addition to the official records and maps for archaeological sites and surveys in Calaveras County, ECORP reviewed the following historical references: Built Environment Resource Directory (BERD) for Calaveras County; the National Register Information System; California Office of Historic Preservation (OHP), California Historical Landmarks (CHL); California Points of Historical Interest; Caltrans Local Bridge Survey; Caltrans State Bridge Survey; and Historic Spots in California.

ECORP reviewed aerial photographs from 1941, 1944, 1959, 1984, 1998, 2002, 2005, and every 2 years from 2009 to 2025 for any indications of the Proposed Project Area usage and built environment.

ECORP requested an Archaeological Resources Directory listing for the County, and CCAIC did not have one available at the time this document was prepared.

ECORP conducted a search of a local historical registry and found that the County does not have one publicly available.

In addition to the records search, ECORP contacted the California Native American Heritage Commission (NAHC) on December 18, 2025 to request a search of the Sacred Lands File (SLF) for the Proposed Project Area. This search determines whether the California Native American tribes within the Proposed Project Area have recorded Sacred Lands in the SLF, which is populated by members of the Native American community with knowledge about the locations of TCRs.

Per SWRCB requirements, ECORP sent letters on January 20, 2026, via certified mail to each of the contacts provided by NAHC. The letters provided a Project Description and a map depicting the Proposed Project Area and requested information on any known resources associated with tribes that have a current or ancestral relationship to the land.

ECORP sent a letter to the Calaveras County Historical Society and Museum on December 18, 2025 to solicit comments or obtain historical information that the repository might have regarding events, people, or resources of historical significance in the area.

ECORP subjected the Proposed Project Area to an intensive pedestrian survey on December 16, 2025, under the guidance of the Secretary of the Interior's Standards for the Identification of Historic Properties, using 15meter transects. At the time, ECORP archaeologists examined the ground surface for indications of surface or subsurface cultural resources and inspected the general morphological characteristics of the ground surface for indications of subsurface deposits that may be manifested on the surface, such as circular depressions or ditches. Whenever possible, the archaeologists examined the locations of subsurface exposures caused by such factors as rodent activity, water or soil erosion, or vegetation disturbances for artifacts or for indications of buried deposits. ECORP did not conduct any subsurface investigations or artifact collections during the pedestrian survey.

Standard professional practice requires that all cultural resources encountered during the survey be recorded using California Department of Parks and Recreation (DPR) 523-series forms approved by OHP. The resources are usually photographed, mapped using a handheld GPS receiver, and sketched, as necessary, to document their presence using appropriate DPR forms.

4.5.3 Research Results

OHP's BERD for Calaveras County (dated September 23, 2022) listed one built environment resource within 0.5 mile of the Proposed Project Area: New Hogan Dam and Appurtenances. This resource was determined not eligible for listing in the National Register of Historic Places (NRHP) ("6Y, 01/23/2019, COE_2014_0813_002").

The National Register Information System did not reveal eligible or listed properties within the Proposed Project Area.

ECORP reviewed resources listed as CHLs by OHP on November 17, 2025, and did not identify any CHLs within the Proposed Project Area.

The Handbook of North American Indians lists the nearest Native American village as Apautawilü, located along the northern banks of the Calaveras River, approximately 5 miles south of the Proposed Project Area.

A search of the SLF by NAHC returned a negative result for sacred lands in their search area.

The Caltrans Bridge Local and State Inventories did not list any historic bridges within or adjacent to the APE.

Historic Spots in California mentions that Calaveras County was one of the original 27 counties in California.

Per SWRCB guidelines, ECORP sent letters via certified mail to potentially interested tribes identified by NAHC on January 26, 2026. ECORP sent follow-up emails to the tribe on February 3, 2026. ECORP received a response from Chicken Ranch Rancheria of Me-Wuk Indians stating that the Tribe has no comments, concerns, or questions regarding the Proposed Project.

ECORP surveyed the APE for cultural resources on December 16, 2025. The APE encompasses the existing La Contenta WWTF and the proposed TEP, both of which are located on CCWD-owned property. The La Contenta WWTF consists of a developed lot with existing wastewater infrastructure and facilities, along with gravel access roads. The proposed TEP area begins within the existing La Contenta WWTF and continues onto an easement south of the UESP. The proposed TEP area consists mostly of grassland with sparse oaks in the northern portion, and a gravel access road with two metal fences that provide access to the LESP in the southern portion. The northern and southern portions of the proposed pipeline are separated by Eberhard Drive. ECORP observed cattle grazing in the southern portion of the proposed TEP area, which increased ground surface visibility in that area. Overall, ground visibility ranged from 20 to 60 percent in grassland areas and 0 percent in areas with impervious surfaces, such as gravel roadways and existing structures. ECORP did not observe any cultural resources during the field survey.

4.5.4 Cultural Resources (V) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐

Less than Significant Impact.

As mentioned above in Section 4.5.3, the records search and the 2025 field survey did not reveal any previously recorded survey. OHP's BERD for Calaveras County (dated September 23, 2022) listed one built environment resource within 0.5 mile of the Proposed Project Area: New Hogan Dam and Appurtenances. This resource was determined not eligible for listing in the NRHP. Therefore, no Historic Properties under National Historic Preservation Act (NHPA) Section 106 or Historical Resources under CEQA would be affected by the Proposed Project. Any impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

The Proposed Project Area has a low potential for buried archaeological deposits because the age of the underlying soil is older than 1 million years, long before human occupation in the area. Additionally, indigenous groups typically lived near waterways to obtain valuable resources, increasing the likelihood that pre-contact archaeological resources would be located along perennial waterways. The nearest water resources to the Proposed Project Area are Cosgrove Creek and the Calaveras River, which are located approximately 0.5 mile east and 1.30 miles north of the Proposed Project Area, respectively.

The likelihood of buried pre-contact archaeological deposits within the Proposed Project Area is low, given that the distance to the Calaveras River and Cosgrove Creek exceeds 0.5 mile from the Proposed Project Area. Additionally, the age of the underlying geology and the absence of documented pre-contact resources within a 0.5-mile radius of the Proposed Project Area further indicate a generally low likelihood of buried pre-contact resources. The construction activities related to the La Contenta WWTF would have disturbed any existing surface expression of cultural resources; these impacts collectively support a low likelihood of discovering intact, buried, pre-contact resources at the surface.

The likelihood of buried historic-era deposits within the Proposed Project Area is low because there is no evidence of historic-era activity in the Proposed Project Area other than roads, which are not typically associated with buried deposits, and any refuse would have been removed offsite.

However, there always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources; therefore, with implementation of CUL-1, impacts to archaeological resources will remain less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

There are no known burial or dedicated cemetery sites within the Proposed Project Area; however, as stated above in b) there always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources or human remains; therefore, with implementation of CUL-1, impacts to human remains will remain less than significant.

4.5.5 Mitigation Measures

CUL-1: **Unanticipated Discoveries.** If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the

no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, the archaeologist shall immediately notify the lead agencies. The agencies shall consult on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be a Historical Resource under CEQA, as defined by CEQA or a Historic Property under NHPA Section 106, if applicable. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not a Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction.
- If the find includes human remains, or remains that are potentially human, they shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Calaveras County Coroner (per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the coroner determines the remains are Native American and not the result of a crime scene, the coroner will notify NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the Project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with NAHC or the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

4.6 Energy

4.6.1 Environmental Setting

Energy consumption is analyzed according to the potential direct and indirect environmental impacts associated with the construction and operation of the Proposed Project. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emissions of pollutants during

the construction phase and the use of electricity during normal operations. The impact analysis focuses on the sources of energy that are relevant to the Proposed Project, which includes the equipment fuel necessary for Proposed Project construction, the diesel fuel consumed by the emergency backup diesel-powered generator, and the approximate electricity consumed to treat water during operations of the La Contenta WWTF. It is noted that the Proposed Project's operations would generate minimal vehicle trips above existing conditions, so the contribution to fuel consumption would be negligible and therefore it was not considered further in this analysis. More information can be found in the La Contenta WWTF Energy Consumption Analysis (ECORP 2026d; Appendix F).

4.6.1.1 Electricity Types and Sources

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with most of its electricity followed by renewables, large hydroelectric and nuclear. PG&E provides electricity and natural gas to Calaveras County. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield and Barstow to near the Oregon, Nevada, and Arizona State Line. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. In 2022, approximately 40 percent of PG&E's electricity came from renewable resources including biopower, geothermal, small hydroelectric, solar, and wind power. Overall 95 percent of the company's delivered electricity comes from GHG emission-free sources, including renewables, nuclear, and hydropower (PG&E 2022a).

The California Public Utilities Commission regulates PG&E. The California Public Utilities Commission has developed energy efficiency programs such as smart meters, low-income programs, distribution generation programs, self- generation incentive programs, and a California solar initiative. Additionally, the California Energy Commission (CEC) maintains a power plant database that describes all the operating power plants in the state by county.

4.6.1.2 Energy Consumption

Electricity use is typically measured in kilowatt-hours (kWh). Fuel use in internal-combustion engine vehicles is typically measured in gallons (e.g., of gasoline or diesel fuel) and energy use in electric vehicles is measured in kWh.

Table 4.6-1 shows the electricity consumption associated with all non-residential uses in California from 2020 to 2024. As shown, electricity demand has increased since 2020.

Table 4.6-1. Non-Residential Electricity Consumption in California from 2020 to 2024

Year	Non-Residential Electricity Consumption (kilowatt-hours)
2024	182,902,348,759
2023	181,653,160,949
2022	183,621,894,559

Table 4.6-1. Non-Residential Electricity Consumption in California from 2020 to 2024	
Year	**Non-Residential Electricity Consumption (kilowatt-hours)**
2021	177,881,518,684
2020	173,285,424,740

Source: California Energy Commission 2025

Table 4.6-2 shows automotive fuel consumption in California from 2020 to 2024. Fuel consumption has increased since 2020.

Table 4.6-2. Fuel Consumption in California from 2020 to 2024		
Year	**Total Gasoline Consumption (gallons)**	**Total Diesel Consumption (gallons)**
2024	14,071,323,791	3,195,349,324
2023	14,328,140,640	3,189,559,232
2022	14,495,634,625	3,173,523,653
2021	14,585,747,353	3,145,590,839
2020	12,871,108,374	3,053,798,686

Source: California Air Resources Board 2025

4.6.2 Energy (VI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	☐	☐	☒	☐

Less than Significant Impact.

This impact analysis focuses on the sources of energy that are relevant to the Proposed Project: the equipment fuel necessary for the Proposed Project construction and material hauling (construction), the electricity consumed during the operation of the La Contenta WWTF, and the fuel consumed by the emergency backup diesel-powered generator. It is noted that the Proposed Project's operations would generate minimal vehicle trips above existing conditions. Addressing energy impacts requires an agency to determine what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use project. For the purposes of this analysis, the amount of gasoline and diesel fuel necessary for the Proposed Project construction is calculated and compared to all fuel consumed in California. Additionally, the amount of electricity necessary to run the La Contenta WWTF compared to the respective nonresidential consumption in the State. Lastly, the amount of diesel fuel consumed by the

emergency backup diesel-powered generator during annual maintenance has been calculated and compared to all fuel consumed in the State. Electricity and fuel consumption associated with the Proposed Project are summarized in Table 4.6-3.

Table 4.6-3. Proposed Project Fuel Consumption

Activity	Annual Energy Consumption	Percentage Increase Statewide
Electricity Consumption*		
Water Treatment Facility Operations	168,853 kilowatt-hours	0.001 percent
Backup Diesel-Powered Emergency Generator Maintenance Fuel Consumption†		
Backup Generator Diesel Fuel Consumption	7 gallons	<0.000 percent
Construction Equipment Fuel Consumption‡		
Construction Diesel Fuel Consumption	254,887 gallons	0.0074 percent
Construction Gasoline Fuel Consumption	1,603 gallons	0.0000 percent

Notes: The Project increases in electricity consumption are compared with all of the nonresidential usage in the State in 2024, the latest year of data available. The Project increase in construction fuel consumption is compared with the Statewide fuel consumption in 2024.

Source: *California Emissions Estimator Model (California Air Pollution Control Officers Association 2022);
†Generator fuel consumption was calculated using the methodology provided in Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2 (U.S. Environmental Protection Agency 2021).
‡EMFAC2025 (California Air Resources Board 2025). See Appendix F.

The Proposed Project would result in a slight increase in operational air pollutant emissions associated with expanded wastewater treatment capacity and the installation of new mechanical and electrical equipment at the existing La Contenta WWTF. Operational emissions would primarily be generated from the use of new aeration system blowers, submersible pumps at the UESP pump station, and upgraded electrical infrastructure required to support increased treatment flows and improved process reliability. The Proposed Project would increase maximum effluent conveyance capacity from approximately 0.73 MGD to 2.00 MGD, resulting in increased energy demand compared to existing conditions. As shown in Table 4.6-3, the increase in electricity usage as a result of the Proposed Project operations would constitute a negligible increase in the typical annual electricity consumption attributable to non-residential uses in the State. Due to the low increase in electricity consumption as a result of the Proposed Project and its objective to treat wastewater for the service area, the Proposed Project would not result in the inefficient, wasteful, or unnecessary consumption of electricity.

Accounting for 12 hours of operation for annual maintenance at full capacity, the emergency backup diesel-powered generator would be expected to consume approximately 7 gallons of diesel fuel annually, which represents an increase of less than 0.0000 percent. This estimation was calculated using the methodology provided in Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2 (USEPA 2021) (See Appendix F).

Fuel necessary for Project construction would be required for the operation and maintenance of construction equipment and the transportation of materials to the Proposed Project Area. The fuel expenditure necessary to construct the physical building and infrastructure would be temporary, lasting only as long as Project construction. As shown in Table 4.6-3, the Project's gasoline fuel consumption during construction is estimated to be 1,603 gallons, which would increase the annual statewide gasoline fuel use by 0.0000 percent. Additionally, the Proposed Project is estimated to consume 254,887 gallons of diesel fuel, which would be 0.0074 percent of the State's annual diesel fuel consumption. As such, the Proposed Project's construction would have a nominal effect on energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency, combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Proposed Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects similar in nature.

For these reasons, this impact would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

No Impact.

Senate Bill (SB) 1389 (Bowen, Chapter 568, Statutes of 2002) requires CEC to prepare a biennial Integrated Energy Policy Report (IEPR) that assesses major energy trends and issues facing California's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety (PRC Section 25301a). Each biennial IEPR takes into account various factors such as energy supply, demand, infrastructure, environmental considerations, and economic impacts. The report aims to address key energy challenges and provide recommendations to achieve a reliable, affordable, and sustainable energy system for California (CEC 2023a).

Some of the key areas typically covered in the report include renewable energy, energy efficiency, grid modernization, transportation, climate change mitigation, energy resilience, economic impacts and equity. CEC prepares these assessments and associated policy recommendations every two years, with updates on alternate years, as part of the IEPR. The 2023 IEPR focuses on next steps for transforming transportation energy use in California. The 2023 IEPR addresses the role of transportation in meeting state climate, air quality, and energy goals; the transportation fuel supply; the Alternative and Renewable Fuel and Vehicle Technology Program; current and potential funding mechanisms to advance

transportation policy; transportation energy demand forecasts; the status of statewide plug-in electric vehicle infrastructure; challenges and opportunities for electric vehicle infrastructure (CEC 2023b).

Electricity would be provided to the Proposed Project by PG&E. PG&E's Energy Efficiency 2024-2031 Strategic Business Plan builds on existing state programs and policies that support the IEPR goals of improving electricity, natural gas, and transportation fuel energy use in California. PG&E's Energy Efficiency 2024-2032 Strategic Business Plan supports the State's goals of zero-carbon electricity and economy-wide carbon neutrality and moving towards a climate-resilient economy. PG&E's Energy Efficiency portfolio can address climate change by both delivering solutions that help to decarbonize customer's homes and buildings and by supporting the use of clean and renewable energy resources powering our electric system (PG&E 2022b). Thus, because PG&E is consistent with the 2023 IEPR and the Proposed Project would procure its energy from PG&E, the Proposed Project is consistent with and would not otherwise interfere with or obstruct implementation of the goals presented in the 2023 IEPR.

The Proposed Project would be built to the Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6 of the CCR. The Proposed Project's mandatory compliance with all applicable building standards would result in the Proposed Project not obstructing any state or local plan for renewable energy or energy efficiency.

In addition to the energy efficiency requirements in Title 24, Part 6 of the CCR, the Proposed Project would also comply with the California Green Building Standards Code (CALGreen), adopted in January 2010 and incorporated as Part 11 of Title 24 of the CCR. CALGreen establishes mandatory green building standards for all new construction in California and is updated every three years. The most recent 2022 CALGreen update took effect on January 1, 2023, and addresses five key areas applicable to the Proposed Project: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. For water infrastructure projects, CALGreen emphasizes measures such as efficient water distribution, leak detection systems, and the use of sustainable construction materials to minimize environmental impacts and improve long-term sustainability.

With these energy and sustainability standards in place, the Proposed Project would align with and support state and local goals for renewable energy, energy efficiency, and water conservation. Therefore, no impact would occur.

4.6.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.7 Geology and Soils

4.7.1 Environmental Setting

Calaveras County is located within the Sierra Nevada foothills. The terrain ranges from low rolling foothills in the western portion of the County to rugged high mountains, with elevations over 8,000 feet, in the east. The Proposed Project Area lies within the geologic region of California referred to as the Sierra

Nevada geomorphic province. The Sierra Nevada geomorphic province is a tilted fault block approximately 400 miles long that extends from the eastern slope to the western slope of the Sierra Nevada. The Sierra Nevada geomorphic province overlies metamorphic bedrock that contains gold-bearing veins in the northwest trending Mother Lode. The Mother Lode region in the Sierra Nevada extends through Calaveras County and ends in Mariposa County (DOC 2025c).

4.7.1.1 Geomorphic Setting

Calaveras County is situated on the western slope of the Sierra Nevada, which is characterized by steep ridges and gentle foothills that transition into nearly flat valleys (Rosenthal and Meyer 2004). The regional geology of the County has been shaped by mountain uplift and volcanic activity, leading to significant weathering and erosion that created diverse volcanic formations and sedimentary deposits from the late Jurassic period through the Quaternary (Rosenthal and Meyer 2004). Mountain uplift and weathering during the late Quaternary caused extensive erosion, dissection of existing deposits, and the entrenchment of stream and river channels within deep bedrock canyons. These processes transported eroded material to the eastern and central parts of the San Joaquin Valley during the Pleistocene and Holocene (Rosenthal and Meyer 2004).

The California Geological Survey Map (DOC 2015) identifies the underlying geology of the Proposed Project Area as marine sedimentary and meta-sedimentary rocks dating to the Jurassic period. This underlying geology is composed of shale, sandstone, minor conglomerate, chert, slate, limestone, and minor pyroclastic rocks.

4.7.1.2 Geologic Hazards

Geologic hazards, including fault zones, soil erosion, expansive soils, and landslides, are discussed in detail below.

Regional Seismicity and Fault Zones

A fault is defined as a fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. A fault zone is a zone of related faults that commonly are braided and subparallel but may be branching or divergent. Most faults are the result of repeated displacements over a long period of time. Movement within a fault causes an earthquake. When movement occurs along a fault, the energy generated is released as waves that cause ground shaking. Ground shaking intensity varies with the magnitude of the earthquake, the distance from the epicenter, and the type of rock or sediment through which the seismic waves move.

Major faulting along the east flank of the Sierra Nevada has had a profound influence on the geologic history of Calaveras County. Faulting occurred on the east flank during the end of the Pliocene epoch and at the beginning of the Pleistocene epoch, creating the elevation of the Sierra Nevada, which became asymmetrical in form, with a broad, gently dipping western slope and short, steeply dipping eastern slope.

According to DOC, the nearest faults to Proposed Project Area is the Waters Peak Fault, which is part of the Foothills Fault System (DOC 2015). It is quaternary fault that is bisects the Proposed Project Area.

Soil Erosion

Soil erosion occurs when soil materials are worn away and transported to another area either by wind or water. Rates of erosion can vary depending on the soil material, structure placement, and the general level of human activity. Soil containing high amounts of sand and silt could be easily eroded while clay soils are less susceptible. Calaveras County contains a wide range of soils that have varying levels of susceptibility to erosion, ranging from slight to extremely high.

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) Web Soil Survey website (NRCS 2025), six soil units are mapped within the Project Area (Table 4.7-1).

Table 4.7-1. Soil Units within the Project Area

Map Unit Symbol	Map Unit Name	Depth to Bedrock	Soil Description	Drainage Classification	Portion of the Project Area	
					(acres)	(%)
5015	Firebrick-Mokelumne complex, 2 to 30 percent slopes	Para-lithic bedrock: 10 to 20 inches	Slope alluvium derived from sandstone over residuum weathered by sandstone	Well-drained	2.1	8.0
7076	Bonanza-Loafercreek-Gopherridge complex, 15 to 30 percent slopes	Para-lithic bedrock: 10 to 20 inches Lithic Bedrock: 14 to 30 inches	Colluvium over residuum derived from metavolcanics	Well-drained	3.6	13.7
7085	Bonanza-Loafercreek complex, 3 to 15 percent slope	Para-lithic bedrock: 10 to 20 inches Lithic Bedrock: 14 to 30 inches	Residuum weathered from metavolcanics	Well-drained	0.1	0.6
8034	Copperopolis-Whiterock complex, 3 to 15 percent slopes, rocky	Lithic Bedrock: 6 to 20 inches	Residuum weathered from slate	Well-drained	0.2	0.8
8036	Copperopolis-Whiterock complex, 15 to 30 percent slope, rocky	Lithic Bedrock: 6 to 20 inches	Residuum weathered from slate	Well-drained	19.3	73.0
W	Water	–	–	–	1.0	3.9
				Total	**26.4**	**100.0**

Notes: Para-lithic Bedrock = soil material consisting of partially weathered or weakly consolidated bedrock

Source: Natural Resources Conservation Service 2025

Expansive Soils

Expansive soils possess a shrink-swell characteristic. Structural damage could result over a long period of time, usually resulting from inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Expansive soils are largely comprised of clay, which expand in volume when water is absorbed and shrink when dried.

As shown above in Table 4.7-1, the soils within the Project Area are well-drained and are not comprised of clay.

Landslides

Ground failure, including landslides, is dependent on slope and geology as well as the amount of rainfall, excavation, or seismic activities. A landslide is a mass of rock, soil, and debris displaced down a slope by sliding, flowing, or falling. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas. Debris flows consist of a loose mass of rocks and other granular material that, if present on a steep slope and saturated, can move down slope. The rate of rock and soil movements can vary from a slow creep over many years to sudden mass movements. Landslides occur throughout the State of California, but the density of incidents increases in zones of active faulting. Because Calaveras County is not located in a seismic hazard zone, the County is not considered to be at risk from landslides as a result of active faulting (County 2018).

Liquefaction

Liquefaction is the sudden temporary loss of shear strength in saturated, loose to medium-dense, granular sediments subjected to ground shaking. Liquefaction generally occurs when seismically induced ground shaking causes soil pore water pressure to increase to a point equal to the overburden pressure.

Liquefaction causes foundation failure of buildings and other structures due to the reduction of foundation bearing strength. The potential for liquefaction depends on the duration and intensity of earthquake shaking, particle size distribution of the soil, density of the soil, and elevation of the groundwater. Areas at risk due to the effects of liquefaction are typically those with a high groundwater table and underlying loose to medium-dense, granular sediments, particularly younger alluvium and artificial fill. Because Calaveras County is not located in a seismic hazard zone, the County is not considered to be at risk from liquefaction hazards (County 2018).

4.7.1.3 Paleontological Resources

Per the University of California Museum of Paleontology database, Calaveras County has yielded paleontological (fossil) resources. Based on past finds and the age of various geological formations in the County, it is likely that such resources will continue to be encountered in the County, especially in association with caves, limestone formations, and the Mehrten (geological) formation (County 2018).

4.7.2 Regulatory Setting

4.7.2.1 Federal Regulations

Federal Earthquake Hazards Reduction Act

Passed by Congress in 1977, the Federal Earthquake Hazards Reduction Act is intended to reduce the risks to life and property from future earthquakes. The Federal Earthquake Hazards Reduction Act established the National Earthquake Hazards Reduction Program; the goals of this program are to educate and improve the knowledge base for predicting seismic hazards, improve land use practices and building codes, and to reduce earthquake hazards through improved design and construction techniques.

Uniform Building Code

The Uniform Building Code (UBC) was first published in 1927 by the International Council of Building Officials and is intended to promote public safety and provide standardized requirements for safe construction. UBC was replaced in 2000 by the new International Building Code (IBC), published by the International Code Council, which is a merger of the International Council of Building Officials' UBC, Building Officials and Code Administrators International's National Building Code, and the Southern Building Code Congress International's Standard Building Code. The intention of IBC is to provide more consistent standards for safe construction and eliminate any differences between the three preceding codes. All State building standard codes are based on the federal building codes.

4.7.2.2 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The 1972 Alquist-Priolo Earthquake Fault Zoning Act (AP Zone Act) was passed to prevent the new development of buildings and structures for human occupancy on the surface of active faults. The Act is directed at the hazards of surface fault rupture and does not address other forms of earthquake hazards. The locations of active faults are established into fault zones by the AP Zone Act. Local agencies regulate any new developments within the appropriate zones in their jurisdiction.

The AP Zone Act regulates development near active faults so as to mitigate the hazard of surface fault rupture. The AP Zone Act requires that the State Geologist (Chief of the California Department of Mines and Geology) delineate "special study zones" along known active faults in California. Cities and counties affected by these zones must regulate certain development projects within these zones. The AP Zone Act prohibits the development of structures for human occupancy across the traces of active faults. According to the AP Zone Act, active faults have experienced surface displacement during the last 11,000 years. Potentially active faults are those that show evidence of surface displacement during the last 1.6 million years. A fault may be presumed to be inactive based on satisfactory geologic evidence; however, the evidence necessary to prove inactivity sometimes is difficult to obtain and locally may not exist.

Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (California PRC Section 1690-2699.6) addresses non-surface rupture earthquake hazards, including liquefaction, induced landslides, and subsidence. A mapping program is also established by this Act, which identifies areas within California that have the potential to be affected by such non-surface rupture hazards. The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Standards Code

The State of California regulates development within the State through a variety of tools that reduce or mitigate potential hazards from earthquakes or other geologic hazards. The 2013 California Building Code (CBC), CCR, Title 24, governs the design and construction of all building occupancies and associated facilities and equipment throughout California. In addition, CBC governs development in potentially seismically active areas and contains provisions to safeguard against major structural failures or loss of life caused by earthquakes or other geologic hazards. The California building standards include building standards in IBC, building standards adapted from IBC to meet California conditions, and building standards adopted to address particular California concerns.

4.7.2.3 Local Regulations

Calaveras County Code of Ordinances

The Calaveras County Code of Ordinances consists of all the regulatory and penal ordinances and a portion of the administrative ordinances of the County, codified pursuant to Government Code Sections 50022.1 through 50022.8 and 50022.10.

Chapter 15.04, Uniform Codes, provides the exclusive source of regulations for all new construction and repair or modification of existing structures within the County. Section 3403.5.1.1.1 of the Code provides specific procedures for seismic evaluation and design and incorporates the CBC regulations related to seismic hazards. Chapter 15.05 of the Code includes the County's Grading and Drainage Ordinance. The Grading and Drainage Ordinance supplements the regulations from the California Building Standards Code, which addresses standards for all grading construction. The Ordinance helps to maintain safe grading conditions and erosion control to avoid potentially harmful impacts related to property, the public, and environmental health.

4.7.3 Geology and Soils (VII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐

Less than Significant Impact.

i) There are no known active or potentially active faults, or Alquist-Priolo Earthquake Fault Zones, located within the Proposed Project Area. However, there are numerous faults located in the region and the Proposed Project Area could experience considerable ground shaking generated by faults outside of the area.

The Proposed Project would be required to comply with all provisions of the CBC, which requires development projects to: perform geotechnical investigations in accordance with State law, engineer improvements to address potential seismic and ground failure issues and use earthquake-resistant construction techniques to address potential earthquake loads when constructing buildings and improvements.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. As such, the Proposed Project would not directly or indirectly result in the construction of occupied structures. For this reason, and because Calaveras County is located within an area with relatively low seismic activity, the Proposed Project is not anticipated to have significant effects that could result in risk of loss, injury, or death due to fault rupture or strong seismic ground shaking. Any impacts would be less than significant, and no mitigation measures are required.

ii) See the above discussion i). Any impacts that would result in ground shaking would be less than significant and no mitigation measures are required.

iii) Liquefaction is a phenomenon whereby granular material (i.e., silt and sand) is transformed from a stable state into a freely moving liquid-like state as a result of an increase in pore-water (water between the grains) pressure due to an earthquake. The Proposed Project Area is underlain by soils with a low depth to rock (generally less than 40 inches), and, therefore, is not at high risk for liquefaction. In addition, the Proposed Project would comply with applicable State seismic safety standards to minimize risk from liquefaction. Lastly, as described in Items i and ii above, the Proposed Project would not directly or indirectly result in the construction of occupied structures. For these reasons, and because Calaveras County is located within an area with relatively low seismic activity, the Proposed Project would have no adverse effects that could result in risk of loss, injury, or death due to liquefaction that may occur during a seismic event. Any impacts would be less than significant.

iv) Landslides refer to a wide variety of processes that result in the perceptible downward and outward movement of soil, rock, and vegetation under gravitational influence.

Construction of the piping and associated improvements at the La Contenta WWTF would require excavation activities within a relatively flat area along or within existing roads and would have little possibility to result in increased incidence of erosion and site instability due to landslides. BMPs would be included as part of the SWPPP prepared for the Proposed Project and would be implemented to manage erosion and the loss of topsoil during construction-related activities (see Section 4.10.3). With the implementation of the SWPPP, soils erosion during construction, the Proposed Project staging and the construction of related facilities would be minimized. With limited erosion anticipated from the Project Area due to the relatively flat nature of the site, the potential for Project-induced landslides is considered less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less than Significant Impact.

The Calaveras County Multi-Jurisdictional Hazard Mitigation Plan illustrates erosion and landslide hazards that occur within the County. According to the illustration, erosion and landslide potential for soil types on the Project Area is considered low (County 2021).

As mentioned above within Table 4.7-1 there is six different types of soil located within the Project Area: Firebrick-Mokelumne complex, 2 to 30 percent slope; Bonanza-Loafer creek-Gopherridge complex, 15 to 30 percent slopes; Bonanza-Loafer-creek complex, 3 to 15 percent slope; Copperopolis-Whiterock complex, 3 to 15 percent slopes, rocky; Copperopolis Whiterock complex, 15 to 30 percent slope, rocky; and water. During construction, trenching and fill on the Project Area could create locally unstable soil conditions that could result in a localized increase in wind- or water- related soil erosion.

All excavation activities, grading, and construction would be conducted according to standard construction practices and building codes. An NPDES permit would be required for construction activities from RWQCB, requiring a SWPPP. Implementation of the SWPPP, including the use of stormwater quality BMPs, would prevent erosion of soil in storm water runoff during construction of the Proposed Project (See Section 4.10). Once construction is completed, soils would be stabilized and monitored according to the SWPPP until a Notice of Termination for the NPDES construction permit is filed with RWQCB. Consequently, the Proposed Project would not result in substantial erosion and/or unstable earth conditions from Project construction or operation. This is applicable to all proposed phases of construction. For these reasons, erosion-related impacts are considered to be less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

Less than Significant Impact.

For reasons discussed in items a) and b) above, adequate measures would be employed during Project construction, construction staging and the construction of related facilities to control and limit on and off-site soil erosion. With the limited potential for on- and off-site erosion and low depth to bedrock at the Project Area, the potential for Project-induced landslides, lateral spreading, subsidence, liquefaction, and collapse is minimal. The impact, therefore, is considered less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Less than Significant Impact.

"Shrink-swell potential" is the potential for volume changes in a soil with a loss or gain in moisture. If the shrink-swell potential is rated moderate to high, damage to buildings, roads, and other structures can occur. These limitations can vary substantially over short distances. Some clayey soils tend to expand when wet and contract upon drying, which can cause structural damage if not accounted for in construction designs. Soils within the Project Area have a "minimal" potential for shrink-swell behavior, or

expansiveness. The Proposed Project is required to comply with the existing CBC. Thus, the Proposed Project would result in a less than significant impact and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The Proposed Project would not directly or indirectly result in the installation of any new septic systems or alternative wastewater disposal systems. Any impacts would be less than significant. No mitigation required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

Ground disturbance will take place during construction of the aeration basin, piping, and associated site improvements. Although the proposed excavation depth would be limited, excavations may result in penetration of the underlying rock. As noted above, paleontological resources occur within bedrock geologic deposits that may or may not underly the soil layer and are almost exclusively preserved in sedimentary rocks; however, in rare cases, fossils can also be preserved in volcanic rocks and low-grade metamorphic rocks under certain conditions.

Therefore, construction of the Proposed Project may damage or destroy unknown paleontological resources. This potential impact can be mitigated to a less than significant level with the implementation of Mitigation Measure PALEO-1.

4.7.4 Mitigation Measures

PALEO-1: **Discovery of Unknown Resources.** If any paleontological resources (i.e., fossils) are found during Project construction, construction shall be halted immediately in the subject area, and the area shall be isolated using orange or yellow fencing until CCWD is notified and the area is cleared for future work. A qualified paleontologist shall be retained to evaluate the find and recommend appropriate treatment of the inadvertently discovered paleontological

resources. If CCWD resumes work in a location where paleontological remains have been discovered and cleared, CCWD will have a paleontologist onsite to confirm that no additional paleontological resources are in the area.

4.8 Greenhouse Gas Emissions

This section is based in part on the results of the Air Quality and GHG Assessment conducted for the Proposed Project (ECORP 2026a; Appendix C). The purpose of this assessment is to estimate the Proposed Project-generated GHG emissions and to determine the level of impact the Project would have on the environment.

4.8.1 Environmental Setting

GHG emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps more than 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The local air quality agency regulating MCAB, including the Project Area, is CCAPCD, the regional air pollution control officer for the basin. CCAPCD has not yet adopted thresholds of significance for the analysis of GHG emissions related to implementation of proposed projects in the County. For the purposes of this analysis, the Proposed Project GHG emissions are quantified and compared to the thresholds issued by the California Air Pollution Control Officers Association (CAPCOA), which is an association of air pollution control officers representing all 35 local air quality agencies across California, including CCAPCD. CAPCOA has instituted a GHG significance threshold of 900 metric tons of CO_2e annually for the evaluation of proposed land use development projects. This threshold, indicating a 90 percent capture rate, encompasses projects representing approximately 90 percent of GHG emissions from new sources. The 900 metric tons of CO_2e per year threshold is typically utilized to classify small projects within California as inconsequential, as it accounts for less than one percent of the future 2050 statewide GHG emissions target. CAPCOA considers the 900 metric ton threshold sufficiently low to capture a significant portion of future residential and nonresidential development necessary for accommodating statewide population and economic growth. Simultaneously, it establishes the emission threshold at a level that excludes small projects contributing a relatively minor fraction of cumulative

statewide GHG emissions. The Proposed Project is compared to the CAPCOA significance threshold of 900 metric tons annually.

In the 2015 California Supreme Court *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227 (Newhall Ranch) decision, following its review of various potential GHG thresholds proposed in an academic study (Crocket 2011), the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, PRC Section 21003(f) provides it is a policy of the state that:

> …[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment.

The Supreme Court-reviewed study noted:

> …[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts (Crocket 2011).

Thus, the use of the CAPCOA numeric GHG significance threshold of 900 metric tons of CO_2e annually is appropriate.

4.8.2 Greenhouse Gas Emissions (VIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less than Significant Impact.

GHG emissions were modeled using CalEEMod, version 2022.1. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. CalEEMod provides the ability to analyze a project based on California emission standards. Project construction generated GHG emissions were calculated using CalEEMod model defaults for the County along with construction equipment, phasing and timing provided by the Project proponent. The Proposed Project would expand wastewater treatment and conveyance capacity to accommodate projected flows at the existing approximate 26.4-acre La

Contenta WWTF. Improvements include construction of a new extended aeration activated sludge basin with an integral clarifier, a new pump station, and new aeration system blowers within the existing treatment plant building. Supporting work includes excavation, structural improvements, new equipment pads, and associated piping, power, instrumentation, and control system upgrades, including a new electrical building. The Proposed Project would also upgrade effluent conveyance by installing a new parallel pipeline to the LESP. The new pipeline would increase maximum flow capacity from 0.73 MGD to 2.00 MGD and extend approximately 3,515 feet. Construction would involve dewatering, flow bypassing, and tie-ins to existing infrastructure, with the existing pipeline abandoned in place. It is noted that the CalEEMod model cannot specifically account for the construction of a wastewater treatment facility due to the limited land uses available within the model and therefore such activity is modeled as a combination of "non-asphalt surface" as well as "manufacturing" to account for operational energy usage in the CalEEMod Model. Additionally, an emergency backup, diesel-powered generator was included in the modeling.

4.8.2.1 Construction-Related Greenhouse Gas Emissions

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project Area, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 4.8-1 illustrates the specific construction generated GHG emissions that would result from construction of the Proposed Project. Once construction is complete, the generation of these GHG emissions would cease.

Table 4.8-1. Construction-Related Greenhouse Gas Emissions

Emission Source	CO_2e (Metric Tons/Year)
Construction Calendar Year One	440
CAPCOA Significance Threshold	*900*
Exceed Significant Impact Threshold?	**No**

Notes: CAPCOA = California Air Pollution Control Officers Association; CO_2e = carbon dioxide equivalent
Construction timing, phasing and equipment provided by the Project proponent and informed by model defaults for Calaveras County. Emission calculations account for dust from material movement for the proposed removal of the existing holding pond material as well as excavation of the proposed aeration sludge basin and pipeline.

Source: California Emissions Estimator Model, version 2022.1.1. Refer to Appendix C for Model Data Outputs.

As shown in Table 4.8-1, the Proposed Project construction would result in the generation of 440 metric tons of CO_2e during the first calendar year of construction. This is below the CAPCOA significance threshold of 900 metric tons of CO_2e. Once construction is complete, the generation of these GHG emissions would cease. Furthermore, GHG emissions generated by the construction sector have been declining in recent years. For instance, construction equipment engine efficiency has continued to improve year after year. The first federal standards (Tier 1) for new off-road diesel engines were adopted in 1994 for engines over 50 horsepower (hp) and were phased in from 1996 to 2000. In 1996, a Statement of Principles pertaining to off-road diesel engines was signed between USEPA, CARB, and engine makers

(including Caterpillar, Cummins, Deere, Detroit Diesel, Deutz, Isuzu, Komatsu, Kubota, Mitsubishi, Navistar, New Holland, Wis-Con, and Yanmar). On August 27, 1998, USEPA signed the final rule reflecting the provisions of the Statement of Principles. The 1998 regulation introduced Tier 1 standards for equipment under 50 hp and increasingly more stringent Tier 2 and Tier 3 standards for all equipment with phase-in schedules from 2000 to 2008. As a result, all off-road, diesel-fueled construction equipment manufactured in 2006 or later has been manufactured to Tier 3 standards. Tier 3 engine standards reduce precursor and subset GHG emissions such as NO_x by as much as 60 percent. On May 11, 2004, USEPA signed the final rule introducing Tier 4 emission standards, which were phased in over the period of 2008-2015. The Tier 4 standards require that emissions of NO_x be further reduced by about 90 percent. All off-road, diesel-fueled construction equipment manufactured in 2015 or later will be manufactured to Tier 4 standards. This impact is less than significant.

4.8.2.2 Operational Greenhouse Gas Emissions

Operational GHG emissions associated with the Proposed Project would be limited to stationary and area sources related to wastewater treatment processes. To conservatively estimate these emissions, the Proposed Project was modeled as a manufacturing land use to represent the scale of operational activity associated with the expanded treatment capacity, and the model included operation of an emergency generator. As modeled, the Proposed Project would not generate substantial GHG emissions (approximately 33 tons of CO_2e per year) which is well below the CAPCOA significance threshold for GHG emissions. Therefore, impacts related to GHG emissions would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

No Impact.

California promulgates several mandates and goals to reduce statewide GHG emissions, including SB 32 which aims to reduce statewide GHG emissions to 40 percent below 1990 levels by the year 2030 (California SB 32) and Executive Order S-3-05, which sets a goal of reducing statewide GHG emissions to 80 percent below 1990 levels by the year 2050. In addition, AB 1279, the California Climate Crisis Act, was signed into law in 2022 and establishes a statewide policy to achieve carbon neutrality as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. AB 1279 further requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85 percent below 1990 levels and directs CARB to identify measures necessary to achieve these long-term reduction and neutrality targets through its Climate Change Scoping Plan. In response, CARB adopted the Final 2022 Climate Change Scoping Plan Update, which builds upon previous Scoping Plans and identifies a technologically feasible, cost-effective, and equity-focused path for achieving both the SB 32 target of 40 percent below 1990 levels by 2030 and the AB 1279 requirement of carbon neutrality by 2045. The

2022 Scoping Plan emphasizes reducing reliance on fossil fuels, accelerating clean energy transitions, advancing carbon capture and storage technologies, and utilizing natural and working lands to both reduce emissions and sequester carbon.

The Proposed Project is subject to compliance with statewide GHG reduction requirements, including those established by SB 32 and AB 1279. Although the CAPCOA GHG significance thresholds were originally developed prior to the adoption of SB 32 and AB 1279, they were based on consistency with California's long-term climate framework and remain a widely accepted method for evaluating whether a project would substantially contribute to cumulative GHG emissions. Further, CAPCOA expressly noted that its thresholds were derived to be consistent with the State's long-term climate stabilization goals identified in AB 32 and Executive Order S-3-05 (CAPCOA 2008). Since the Proposed Project-generated GHG emissions would not surpass the CAPCOA GHG significance threshold, which was developed in consideration of statewide GHG reduction goals, the Proposed Project would not conflict with the state's adopted framework for achieving GHG reductions, including the long-term carbon neutrality mandate under AB 1279.

For these reasons, the Proposed Project would not conflict with any applicable plan, policy, or regulation related to the reduction in GHG emissions. No impact would occur.

4.8.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.9 Hazards and Hazardous Materials

4.9.1 Environmental Setting

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined by the California Health and Safety Code, Section 25501 as follows:

> "Hazardous material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. "Hazardous materials" include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

A hazardous material is defined in 22 CCR Section 662601.10 as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or

environment when improperly treated, stored, transported or disposed of or otherwise managed.

Transporters of hazardous waste in California are subject to several federal and state regulations. They must register with the California Department of Health Services and ensure that vehicle and waste container operators have been trained in the proper handling of hazardous waste. Vehicles used for the transportation of hazardous waste must pass an annual inspection by the California Highway Patrol. Transporters must allow the California Highway Patrol or California Department of Health Services to inspect its vehicles and must make certain required inspection records available to both agencies. The transport of hazardous materials that are not wastes is regulated by the U.S. Department of Transportation through national safety standards.

Other risks resulting from hazardous materials include the use of these materials in local industry, businesses, and agricultural production. The owner or operator of any business or entity that handles a hazardous material above threshold quantities is required by state and federal laws to submit a business plan to the local Certified Unified Program Agency (CUPA). The Calaveras County Environmental Health Department is designated by the State Secretary for Environmental Protection as the CUPA for the County in order to focus the management of specific environmental programs at the local government level. The CUPA program is designed to consolidate, coordinate, and uniformly and consistently administer permits and conduct inspection and enforcement activities throughout the County. This approach strives to reduce overlapping and sometimes conflicting requirements of different governmental agencies independently managing these programs. The County will refer large cases of hazardous materials contamination or violations to the Central Valley RWQCB (Region 5) and the California Department of Toxic Substances Control (DTSC). It is not uncommon for other agencies, such as federal and state Occupational Safety and Health Administrations, to become involved when issues of hazardous materials arise.

Under Government Code Section 65962.5, both DTSC and SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. The Project Area is not listed by DTSC as a hazardous substances site on the list of hazardous waste sites compiled pursuant to Government Code § 65962.5 (Cortese List) (DTSC 2026), nor on the SWRCB Cortese List (SWRCB 2026).

4.9.2 Regulatory Setting

4.9.2.1 Federal Regulations

Federal agencies that regulate hazardous materials include USEPA, the Occupational Safety and Health Administration, the U.S. Department of Transportation, and the National Institute of Health. The following federal laws and guidelines govern hazardous materials:

- Federal Water Pollution Control
- Clean Air Act
- Occupational Safety and Health Act

- Federal Insecticide, Fungicide, and Rodenticide Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Guidelines for Carcinogens and Biohazards
- Superfund Amendments and Reauthorization Act Title III
- Resource Conservation and Recovery Act
- Safe Drinking Water Act (SDWA)
- Toxic Substances Control Act

4.9.2.2 State Regulations

Public Safety (California Code of Regulations – Title 19)

Title 19 - Public Safety of the CCR includes regulations related to fire safety, emergency services, and seismic safety. Division One of Title 19 is known as the Regulations of the State Fire Marshal, which constitutes the basic building design and construction standards of the State Fire Marshal. The Regulations of the State Fire Marshal have been prepared and adopted for the purpose of establishing minimum standards for the prevention of fire and for the protection of life and property against fire, explosion, and panic.

California Fire Code (California Code of Regulations – Title 24, Part 9)

The purpose of the California Fire Code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations.

California Building Code (California Code of Regulations – Title 24, Part 2)

The purpose of the CBC is to establish the minimum requirements to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.

4.9.2.3 Local Regulations

Calaveras County Code Chapter 8.08 – Hazardous Fire Areas

The County identifies that some uses of grass, grain, brush, or forest-covered lands can cause fire hazards, which pose a threat to life and property from fire and resulting erosion. As such, Chapter 8.08 of the County's Code of Ordinances establishes safeguards and regulations related to recreational, residential,

commercial, industrial, and other activities, which could increase the threat of fire hazard. For instance, Chapter 8.08 prohibits smoking, open flames, and outdoor fires in certain situations, and allows the County fire warden to prohibit entry into hazardous fire areas. Penalty for violations of such regulations are considered misdemeanors, which are punishable by fine, imprisonment, or both.

Calaveras County Code Chapter 8.12.240 – Hazardous Waste

Section 8.12.240 of the County's Code of Ordinances regulates the disposal of hazardous wastes throughout the County by prohibiting the disposal of hazardous wastes except in compliance with the CUPA requirements and other land use regulations.

4.9.3 Hazards and Hazardous Materials (IX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. There is the potential for construction related hazards that could be created during the course of construction within the Project Area. Construction of the Proposed Project may include the use of hazardous materials, given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, state, and federal law.

The Proposed Project does involve demolition of some existing equipment; however, this would not include the demolition of buildings and therefore would not pose a hazard regarding asbestos- and/or lead-containing materials that would trigger a hazardous building materials analysis.

Once constructed, the Proposed Project would not require the routine transport, use, or disposal of hazardous materials from what the existing La Contenta WWTF is currently experiencing. Therefore, implementation of the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Any impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project does include expanding the chemical storage on site to reduce the number of trip deliveries. However, chemical storage already exists onsite at the La Contenta WWTF and expansion and improvements would be consistent with regulatory standards. Additionally, during construction, the Proposed Project would use hazardous materials. The potential risk associated with accidental discharge associated with use and storage of equipment-related hazardous materials during tank replacement is considered low because the handling of any such materials would be addressed through the implementation of BMPs associated with the SWPPP required for the Project. Impacts would be less than significant, and no mitigation would be required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

Less than Significant Impact.

The La Contenta WWTF is approximately 1.0 mile southwest of the Valley Springs Elementary School in the community of Valley Springs. The Proposed Project does not involve the development of a use that would emit hazardous materials, substances, or waste during operations beyond what is currently being utilized. The use of heavy equipment and activities involving hazardous materials would be limited to the construction phase, would be confined to construction areas and be primarily within existing roadways, and would cease upon completion of the Proposed Project. The use, transport, storage, and disposal of hazardous materials during the Proposed Project's construction phase would be regulated by health and safety requirements under federal, state, and local laws, including handling, storage, and disposal of the materials, as well as emergency spill response. The construction and operation of the Proposed Project would not pose a significant threat to human health, and impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No Impact.

Under Government Code Section 65962.5, both DTSC and SWRCB are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the of the DTSC and SWRCB lists identified that the Proposed Project Area is not located on a hazardous material site. SWRCB showed that there are sites within 0.5 miles of the Project Area, however, there are no identified sites within or immediately adjacent to the Project Area. Given that there are no existing hazardous waste sites within the Project Area, the Proposed Project would have no impact in this area, and no mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project Area?	☐	☐	☐	☒

No Impact.

The Project Area is located approximately 9.25 miles northwest of the Calaveras County Airport and 8 miles southeast of the Howard Private Airport and the Camanche Skypark Airport. No portion of the Proposed Project Area is within an airport land use plan. Therefore, there would be no impact, and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Less than Significant Impact.

All communities face the possibility of disasters and emergency situations, whether they are of natural or human-related causes. Citizens and first responders must be prepared to react to such an emergency. Calaveras County adopted a Local Hazard Mitigation Plan in 2023 (County 2023), which is considered the primary document when determining how disasters will be managed within the County. Additionally, the County adopted the Emergency Operations Plan (County 2024), which implements strategies and procedures in the event of an emergency evacuation.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. All of the Project construction activities would occur on-site. Construction activities would not impede the use of surrounding roadways. Therefore, implementation of the Proposed Project would not impair or physically interfere with any emergency evacuation plan, and any impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Less than Significant Impact.

The Project Area is located in a state responsibility area and has been identified by the California Department of Forestry and Fire Protection (CAL FIRE) as a high fire severity zone per the (CAL FIRE 2026). However, the Proposed Project does not include any new development, structures, or would involve any new employees to be stationed permanently at the site on a daily basis beyond existing conditions. Therefore, the Proposed Project would not expose people or structures to a significant loss, injury or death due to wildfires. Any impact would be less than significant.

4.9.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.10 Hydrology and Water Quality

4.10.1 Environmental Setting

4.10.1.1 Regional Hydrology

Surface Water

Calaveras County contains three major rivers – Mokelumne, Calaveras, and Stanislaus. The rivers carry runoff from the western slopes of the Sierra Nevada westward across the County, and into the Central Valley. All three rivers are dammed at one or more locations. The lower stretches of the rivers provide

irrigation water for valley agriculture and are used for municipal water supply within the County and the surrounding areas. The Proposed Project is located within the Calaveras River Watershed.

The Calaveras River originates in the Sierra Nevada Mountains, extends west-southwest approximately 60 miles toward and through the Stockton metropolitan area, and terminates at the San Joaquin River, outside of the County. Within the County, the Calaveras River runs in two forks (North and South). The river is fed almost entirely by rainfall and encompasses approximately 550 square miles. In the Upper Calaveras watershed, above New Hogan Dam and within the County, the primary tributaries are Esperanza, Jesus Maria, Calaveritas, San Antonio, and San Domingo Creeks. Below New Hogan Dam, in the Lower Calaveras watershed, the main tributaries conveying runoff in the County are the Cosgrove, Indian, and South Gulch Creeks.

The Proposed Project Area is adjacent to the New Hogan Reservoir. The New Hogan Reservoir is owned and managed by USACE, was completed in 1964 for purposes of flood control and water supply and receives water from the Calaveras River. The reservoir is located 28 miles northeast of Stockton along the Calaveras River. Storage capacity of the reservoir is 317,000 af, which supplies irrigation water to the Stockton East Water District and CCWD.

Groundwater

Groundwater is used by local water purveyors and individuals to meet domestic and agricultural demands. A portion of western Calaveras County overlies the Eastern San Joaquin groundwater sub-basin, which is a part of the larger San Joaquin Valley groundwater basin. The sub-basin extends from the western corner of the County to west of the cities of Stockton and Lodi. Use of water from the Eastern San Joaquin groundwater sub-basin for irrigation and municipal purposes has resulted in a continuous decline of available groundwater over the past 40 years. As of 1990, annual groundwater extractions in San Joaquin County exceeded the estimated safe yield. Overdraft of the groundwater in the sub-basin has created groundwater depressions below Stockton, east of Stockton, and east of Lodi.

Although groundwater resources occur in other parts of the County, officially delineated groundwater basins do not exist to define such areas. According to the CCWD 2015 Urban Water Management Plan, local groundwater systems within Sierra Nevada foothill areas occur mostly in poorly permeable fractured rock, within which groundwater storage is limited to the small volume represented by the fracture openings. Natural recharge occurs seasonally from the deep percolation of precipitation during the winter.

4.10.1.2 Site Hydrology and Onsite Drainage

On behalf of CCWD, ECORP conducted an Aquatic Resources Delineation for the approximately 26.4-acre Study Area for the Proposed Project (ECORP 2026e; Appendix E). The report describes aquatic resources identified within the Study Area that may be regulated on a state of federal level.

ECORP mapped a total of 4.806-acres of aquatic resources within the Study Area (Table 4.10-1):

Table 4.10-1. Aquatic Resources within the Study Area	
Type	**Acreage**
Wetlands	
Seasonal Wetland	0.081
Other Waters	
Wastewater Treatment Pond	4.579
Drainage Ditch	0.132
Ditch	0.015
Total	**4.806**

Notes: The acreage value for each aquatic resource type has been rounded to the nearest 1/1000 decimal place. Acreages represent a calculated estimation and are subject to modification following the U.S. Army Corps of Engineers verification process.

Seasonal Wetland

Seasonal wetlands are ephemerally or intermittently wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short, and seasonal wetlands are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. ECORP mapped several seasonal wetlands within the northern and southern portions of the Study Area.

Seasonal wetlands mapped within the northern portion of the Study Area consist of depressional features ponded by stormwater runoff, nuisance runoff, or groundwater and appear to have been created incidentally by erosion or La Contenta WWTF operations.

The seasonal wetlands in the southern portion of the Study Area consist of shallow depressions within the annual grassland or along road shoulders. Plant species present in these features include common spikerush (*Eloecharis palustris*), hyssop loosestrife (*Lythrum hyssopifolia*), and tall flatsedge (*Cyperus eragrostis*).

Drainage Ditch

The drainages ditches mapped within the Study Area are constructed or excavated linear features, which rapidly drain stormwater or managed water from existing La Contenta WWTF infrastructure. The drainage ditches within the Study Area are riprap lined and appear to be ephemeral based on its position of the sloping topography. These ditches are primarily unvegetated within the channel, however scattered plant species observed within the channel consist of Mediterranean barley (Hordeum marinum) and Italian ryegrass.

Ditch

Other existing ditches within the La Contenta WWTF displayed more hydric conditions and a longer hydroperiod based on vegetation and soil indicators observed at the OHWM. These ditches appear to

share similar ground or surface water influences as the adjacent seasonal wetlands and primarily function to drain water out of the northern portion of the Study Area. Dominant plants species observed above the OHWM include stinkwort (Dittrichia graveolens), and dominant species below the OHWM include tall flatsedge and prostrate knotweed (Polygonum aviculare).

La Contenta Wastewater Treatment Facility Effluent Storage Ponds

The La Contenta WWTF effluent storage ponds are basins constructed to temporarily store La Contenta WWTF effluent prior to discharge or recirculation for additional treatment in the La Contenta WWTF. The ponds within the Study Area are sparsely vegetated, constructed basins created by excavation within the landscape. The ponds are influenced by surrounding wastewater infrastructure and are permanently or seasonally inundated. ECORP identified two effluent storage ponds within the Study Area. The UESP mapped within the northern portion of the Study Area is a constructed, plastic and riprap-lined detention basin for the La Contenta WWTF that utilizes several pumps or gates to control flow in and out of the pond. The LESP (WTP-01) is a constructed, earthen basin located in the southern portion of the Study Area. WTP-01 receives controlled releases from the UESP (WTP-02) located within the La Contenta WWTF. These features are dominated by rough cocklebur (*Xanthium orientale*) and Italian ryegrass.

4.10.2 Regulatory Setting

4.10.2.1 Federal Regulations

Clean Water Act

CWA is the primary federal law that governs and authorizes water quality control activities by USEPA, the lead federal agency responsible for water quality management. By establishing water quality standards, issuing permits, monitoring discharges, and managing polluted runoff, CWA seeks to restore and maintain the chemical, physical, and biological integrity of surface waters to support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." USEPA is the federal agency with primary authority for implementing regulations adopted pursuant to CWA and has delegated the state of California as the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 described below.

Water Quality Criteria and Standards

USEPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (CFR). CWA Section 303 requires states to adopt water quality standards for all surface waters of the United States. As defined by CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question and (2) criteria that protect the designated uses. Section 304(a) requires USEPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Section 303(d) mandates the creation of a list of waterbodies and associated pollutants that exceed water quality criteria.

National Pollutant Discharge Elimination System Permit Program

The NPDES permit program was established to regulate municipal and industrial discharges to surface waters of the United States. Federal NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

Section 401 Water Quality Certification or Waiver

Under CWA Section 401, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirements is delegated by SWRCB to the nine RWQCBs.

U.S. Army Corps of Engineers

USACE is responsible for issuing permits for discharge of dredged or fill material into Waters of the U.S. These permits are required under CWA Sections 401 and 404. Water supply projects that involve instream construction, such as dams or other types of diversion structures, trigger the need for these permits and related environmental reviews by USACE. USACE is also responsible for flood control planning and assisting state and local agencies with the design and funding of local flood control projects.

4.10.2.2 State Regulations

State Water Resources Control Board

In California, SWRCB has broad authority over water-quality control issues for the State. SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under CWA. Other state agencies with jurisdiction over water quality regulation in California include California Department of Public Health (for drinking-water regulations), the California Department of Pesticide Regulation, CDFW, and the Office of Environmental Health and Hazard Assessment. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt Basin Plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or "criteria" under CWA) are found in the Basin Plans adopted by SWRCB and each of the nine RWQCBs. The Central Valley RWQCB is responsible for Calaveras County.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California's statutory authority for the protection of water quality. Under the act, the state must adopt water quality policies, plans, and objectives that protect the State's waters for

the use and enjoyment of the people. The act sets forth the obligations of SWRCB and the RWQCBs to adopt and periodically update Basin Plans. Basin Plans are the regional water quality control plans required by both CWA and the Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of their activities through the filing of Reports of Waste Discharge and authorizes SWRCB and the RWQCBs to issue and enforce Waste Discharge Requirements, NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to Reports of Waste Discharge and/or Waste Discharge Requirements for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

California General Construction Activity Storm Water Permit

USEPA and SWRCB regulate point sources of pollution, such as construction sites, that have the potential to discharge pollutants into the waters of the United States. This is accomplished through the issuance of NPDES storm water discharge permits. NPDES Phase II regulations took effect in March 2003, requiring that applicants proposing construction activities involving disturbance of from one to five acres, and associated storm water discharge, must obtain an NPDES permit from the State. Construction activities larger than five acres were already regulated, under NPDES Phase I (1990). (Phase II also required that small [population of less than 100,000] MS4 operators obtain an NPDES permit.) Landowners are responsible for applying for coverage under the permit and complying with permit requirements but may delegate specific duties to developers and contractors by mutual consent.

Permit applicants are required to prepare, and retain at the construction site, a SWPPP, which describes the site, erosion and sediment controls, means of waste disposal, implementation of local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-storm water management control. Dischargers are also required to inspect construction sites before and after storms to identify storm water discharge from construction activity, and to identify and implement.

4.10.2.3 Local Regulations

Calaveras County Grading and Drainage Ordinance

According to Section 15.05.170 of the County's Grading and Drainage Ordinance, regardless of whether or not a grading permit is required, all grading and earthwork activities within unincorporated Calaveras County shall employ BMPs to minimize erosion and to control sediment discharges to the maximum extent practicable in accordance with the Calaveras County Grading, Drainage, and Erosion Control Design Manual and as required by the most recently adopted version of SWRCB's General Permit for Discharges of Storm Water Associated with Construction Activities. In addition, according to Section 5.5 of the Grading, Drainage, and Erosion Control Design Manual, all grading plans must include an erosion and sediment control plan designed to reduce the offsite discharge of sediment to the maximum extent practicable. Section 15.05.180, Drainage Control Measures, states that, for engineered grading projects, the peak off-site storm water discharge from the Project Area shall not exceed pre-construction

conditions unless the applicant demonstrates that downstream stormwater conveyance systems have sufficient capacity to handle the increased flow rate without exceeding established design standards.

Calaveras County Emergency Operations Plan

The Calaveras County Emergency Operations Plan outlines the functions, responsibilities, and regional risk assessments of the County for large scale emergencies, including flooding, and sets forth the planned response for managing such incidents. The Calaveras County Emergency Operations Plan addresses initial and extended emergency response and the recovery process.

4.10.3 Hydrology and Water Quality (X) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐

Less than Significant Impact.

While no creeks, streams or rivers exist on the Project Area, a ditch, drainage ditch, and seasonal wetland are located within the Proposed Project boundaries.

In accordance with NPDES regulations, the State of California requires that any construction activity affecting 1 acre or more, or discharges from smaller sites that are part of a larger common plan of development or sale, obtain a General Construction Activity Stormwater Permit to minimize the potential effects of construction runoff on receiving water quality. As described previously, the Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The General Permit requires the development and implementation of a SWPPP. The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Proposed Project. The SWPPP must list BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs.

General Permit applicants are required to submit Permit Registration Documents for the Proposed Project to the appropriate RWQCB, which include a Notice of Intent, risk assessment, site map, signed certification statement, an annual fee, and a SWPPP. The SWPPP includes pollution prevention measures (i.e., erosion and sediment control measures and measures to control non-stormwater discharges and hazardous spills), demonstration of compliance with all applicable local and regional erosion and sediment control standards, identification of responsible parties, and a detailed construction timeline. The SWPPP must also include implementation of BMPs to reduce construction effects on receiving water quality by implementing erosion control measures and reducing or eliminating non-stormwater discharges.

Examples of typical construction BMPs included in SWPPPs include, but are not limited to, using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutants from discharging to the drainage system or receiving waters. SWPPP BMPs are recognized as effective methods to prevent or minimize the potential releases of pollutants into drainages, surface water, or groundwater. Strict SWPPP compliance, coupled with the use of appropriate BMPs, would reduce potential water quality impacts during construction activities.

The Proposed Project would be required to prepare and comply with an approved SWPPP. Compliance with these requirements would reduce the potential water quality impacts to less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Less than Significant Impact.

Construction and operation of the Proposed Project would in no way alter current use of groundwater within the CCWD service area. Due to the existing conditions of the construction area and construction details any localized effects of the Proposed Project on groundwater recharge would be unsubstantial. Therefore, this impact is less than significant. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
i) result in substantial erosion or siltation onsite or offsite;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or	☐	☐	☒	☐

planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) impede or redirect flood flows? ☐ ☐ ☒ ☐

Less than Significant Impact.

Construction of the Proposed Project would not alter the existing drainage pattern of the area, nor will it alter the course of a stream or river through addition of impervious surfaces. Project construction and staging activities will result in soil disturbances of at least one acre of total land area. As such, an NPDES Construction General Permit will be required prior to the start of construction. Additionally, coverage will not occur until an adequate SWPPP has been prepared.

As noted, required elements of a SWPPP include (1) site description addressing the elements and characteristics specific to the site; (2) descriptions of BMPs for erosion and sediment controls; (3) BMPs for construction waste handling and disposal; (4) implementation of approved local plans; (5) proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and (6) non-stormwater management.

Excavation and grading activities associated with the Proposed Project would expose bare soil surfaces making these surfaces more susceptible to erosion and sediment transport. To comply with the requirements of the NPDES Construction General Permit CCWD will be required to file a Notice of Intent with the State of California and submit a SWPPP defining BMPs for construction and post-construction related control of the Proposed Project Area runoff and sediment transport. Requirements for the SWPPP include incorporation of both erosion and sediment control BMPs. The SWPPP should include the following applicable elements:

- diversion of offsite run-off away from the construction area;
- prompt revegetation of proposed landscaped areas;
- perimeter straw wattles or silt fences and/or temporary basins to trap sediment before it leaves the site;
- regular sprinkling of exposed soils to control dust during construction during the dry season;
- installation of a minor retention basin(s) to alleviate discharge of increased flows;
- specifications for construction waste handling and disposal;
- erosion control measures maintained throughout the construction period;
- preparation of stabilized construction entrances to avoid trucks from imprinting debris on surrounding roadways;
- contained wash out and vehicle maintenance areas;
- training of subcontractors on general construction area housekeeping;

- construction scheduling to minimize soil disturbance during the wet weather season; and
- regular maintenance and storm event monitoring.

Note that the SWPPP is a "live" document and should be kept current by the person responsible for its implementation. Preparation of, and compliance with a required SWPPP would effectively prevent Proposed Project on-site erosion and sediment transport off-site. This will reduce potential runoff, erosion, and siltation associated with construction and operation of the Proposed Project. The effects of the Proposed Project on on-site and off-site erosion and siltation, therefore, would be less than significant and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	☐	☐	☐	☒

No Impact.

According to the Federal Emergency Management Agency (FEMA) floodplain mapping, the Proposed Project is not located within an area that experiences floods or tsunamis (FEMA 2026). Therefore, no impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Less than Significant Impact.

As discussed under a) and c) above, with acquisition of the required SWPPP, and compliance with standard permit measures for the control and management of construction-related erosion and polluted runoff, the Proposed Project impacts on the quality and quantity of runoff during construction would be less than significant. With restoration of the Project Area to pre-Project conditions relative to topography and cover after Project completion, the long-term impact of the Proposed Project on water quality is less than significant and no mitigation is required.

4.10.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.11 Land Use and Planning

4.11.1 Environmental Setting

Calaveras County encompasses approximately 662,791 acres in the central Sierra Nevada region of California. The County is bordered by Amador County to the north, Alpine County to the east, Tuolumne County to the south, and San Joaquin and Stanislaus Counties to the west. The general plan land use designation for the La Contenta WWTF is public/institutional, and the zoning designation is public service.

4.11.2 Regulatory Setting

4.11.2.1 State Regulations

California law requires each city to adopt a comprehensive, long-term general plan to guide the physical development of the incorporated city and land outside city boundaries that bears a relationship to its planning activities. The city may adopt a general plan in the format that best fits its unique circumstances in an integrated, internally consistent, and compatible statement of development policies. Together, the seven mandated elements of a general plan form a comprehensive set of planning policies. In accordance with California Government Code Section 65302, the Ione General Plan addresses the issues of land use, circulation, housing, noise, safety, conservation, and open space.

The general plan also addresses additional topics of special and unique interest, including community character, economic development, historic and cultural resources, and municipal services. These topics reflect additional issues that are important to the community. While optional elements are not required by state law, once they are adopted by a city, optional elements are as legally binding and valid as the required elements. The City of Ione has chosen to adopt a General Plan that consolidates some of the mandatory elements and includes two optional elements (Economic Development and Public Facilities).

By law, the general plan is the primary document a city utilizes to regulate land use. It provides the city with a consistent framework for land use decision-making. Once a general plan is adopted, its maps, diagrams, and development policies form the basis for city zoning, subdivision, and public works actions. Therefore, the zoning ordinance, specific plans, planned development master plans, and individual public and private development proposals must be consistent with the general plan goals, policies, and standards. Under California law, no specific plan, area plan, zoning, subdivision map, or public works project may be approved unless the city finds that it is consistent with the adopted general plan.

4.11.2.2 Local Regulations

Calaveras County Zoning Ordinance

The Calaveras County Zoning Ordinance (Title 17 of the Calaveras County Code of Ordinances) regulates land use. The County has several designated zoning districts (e.g., agriculture, residential, planned development, industrial, historic site, highway frontage, commercial, and specific plan). California planning and development law requires zoning in all counties and general law cities to be consistent with their adopted general plans.

Calaveras County Housing Element

State law recognizes the vital role local governments play in the supply and affordability of housing. For this reason, each local government in California is required to adopt a housing element as part of its comprehensive, long-term general plan. As noted above, the County adopted the 2014 Housing Element in 2015. Under California law, the housing element must include the County's goals, policies, quantified objectives, and housing programs for the maintenance, improvement, and development of housing.

4.11.3 Land Use and Planning (XI) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The Proposed Project would not physically divide and established community. A less than significant impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would be consistent with the County plans and polices; therefore, the Proposed Project would not conflict with any applicable land use plan, policy, or regulation. A less than significant impact would occur and no mitigation is required.

4.11.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.12 Mineral Resources

4.12.1 Environmental Setting

Minerals are defined as any naturally occurring chemical elements or compounds formed by inorganic processes and organic substances. Minable minerals are defined as a deposit of ore or minerals having a

value materially in excess of the cost of developing, mining, and processing the mineral and reclaiming the Project Area. The conservation, extraction, and processing of mineral resources is essential to meeting the needs of society.

The Surface Mining and Reclamation Act of 1975 states that cities and counties shall adopt ordinances "...that establish procedures for the review and approval of reclamation plans and financial assurances and the issuance of a permit to conduct surface mining operations..." (PRC Section 2774). The intent of this legislation is to ensure the prevention or mitigation of the adverse environmental impacts of mining, the reclamation of mined lands, and the production and conservation of mineral resources are consistent with recreation, watershed, wildlife, and public safety objectives (PRC Section 2712).

The Surface Mining and Reclamation Act requires the State Geologist to classify land into Mineral Resource Zones (MRZs) according to the known or inferred mineral potential of that land. The process is based solely on geology, without regard to existing land use or land ownership. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land use decisions, which could preclude mining, are made. Areas subject to California mineral land classification studies are divided into the following MRZ categories that reflect varying degrees of mineral potential:

- *MRZ-1* – Areas of no mineral resource significance
- *MRZ-2* – Areas of identified mineral resource significance
- *MRZ-3* – Areas of undetermined mineral resource significance
- *MRZ-4* – Areas of unknown mineral resource significance

The Project Area has been designated as MRZ-4, which as stated above, is considered of areas of unknown mineral resources significance (County 2018).

4.12.2 Regulatory Setting

4.12.2.1 Local Regulations

Chapter 17.56 of the County Code of Ordinances has been adopted by the County pursuant to the California's Surface Mining and Reclamation Act of 1975 (PRC Sections 2710 et seq.), as amended. The chapter includes provisions related to surface mining operations and land reclamation that are intended to prevent and/or minimize adverse effects on the environment and protect public health and safety.

4.12.3 Mineral Resources (XII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project is located within an MRZ classification as MRZ-4. As defined above in 4.12.1 Environmental Setting, MRZ-4 is known as "Areas of unknown mineral resource significance". Although mineral resources exist within Calaveras County, construction and operation of the Proposed Project does not preclude the extraction of these mineral resources in the future. Therefore, implementation of the Proposed Project would not result in the loss of availability of a known mineral resource. A less than significant impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project is not located within a current locally important mineral resources recovery site, and it has not been historically mined (County 2018). As described in item a), the Proposed Project Area is classified as MRZ-4. As such, a less than significant impact would occur. No mitigation is required.

4.12.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.13 Noise

4.13.1 Environmental Setting

A Noise Analysis was conducted for the Proposed Project (ECORP 2026f; Appendix G).

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Decibels (dB) are a logarithmic unit used to measure the intensity of sound. Because the dB scale is logarithmic, a small increase represents a noticeable increase in loudness; for example, an increase of 10 dB is generally perceived as roughly a doubling of sound level. A-weighted decibels (dBA) adjust measured sound to reflect how the human ear actually hears noise, giving less weight to very low and very high frequencies. As a result, dBA is the most commonly used unit in environmental noise studies and regulatory standards because it better represents human perception of loudness.

The selection of a proper noise descriptor for a specific source is dependent on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise include the Equivalent Continuous Noise Level (L_{eq}), the Day-Night Average Noise Level (L_{dn}), and the Community Noise Equivalent Level (CNEL). L_{eq} is a

measure of ambient noise, while L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- *L_{eq}* is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- *L_{dn}* is a 24-hour average L_{eq} with a 10-dBA "weighting" added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
- *CNEL* is a 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 pm to 10:00 pm and a 10-dBA weighting added to noise during the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB (dBA) for each doubling of distance from a stationary or point source (Federal Highway Administration [FHWA] 2017a). Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2017a). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2017a).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 5 to 10 dBA (FHWA 2017b). According to the FHWA, noise barriers can reduce noise levels by 15 dBA in certain instances (FHWA 2017b); however, this level of noise reduction is very difficult to achieve. To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson

Inc. 2006). Generally, in exterior noise environments ranging from 60 dBA CNEL to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typical residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class 28. Sound Transmission Class is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations. In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments experiencing less than 75 dBA CNEL with proper wall construction techniques following CBC methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

4.13.1.1 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL or L_{dn} is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Sensitive Noise Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in risks to individuals, as well as places where quiet is an essential element of their intended purpose. Examples of noise-sensitive receptors include hospitals, convalescent homes, schools, and libraries. Residential dwellings are also of concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Sensitive receptors in the Project Area consist of single-family residences, the closest of which is located approximately 871 feet north of the La Contenta WWTF.

4.13.1.2 Vibration Fundamentals

Ground vibration can be measured several ways to quantify the amplitude of vibration produced, including through Peak Particle Velocity (PPV) or root mean square velocity. These velocity measurements measure maximum particle at one point or the average of the squared amplitude of the signal, respectively. Vibration impacts on people can be described as the level of annoyance and can vary depending on an individual's sensitivity. Generally, low-level vibrations may cause window rattling but do not pose any threats to the integrity of buildings or structures.

4.13.1.3 Existing Ambient Noise Environment

The Project Area is a linear site spanning through a portion of Calaveras County and is impacted by noise sources typical of a sparse residential area. The American National Standards Institute (ANSI) Standard 12.9-2013/Part 3 *Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present* provides a table of approximate background sound levels in L_{dn}, daytime L_{eq}, and nighttime L_{eq}, based on land use and population density (ANSI 2013). The ANSI standard estimation divides land uses into six distinct categories. Descriptions of these land use categories, along with the typical daytime and nighttime levels, are provided in Table 4.13-1. At times, one could reasonably expect the occurrence of periods that are both louder and quieter than the levels listed in the table. ANSI notes, "*95% prediction interval [confidence interval] is on the order of ±10 dB*." The majority of the Project Area would be considered ambient noise Category 5.

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-Weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
1	Noisy Commercial & Industrial Areas and Very Noisy Residential Areas	Very heavy traffic conditions, such as in busy, downtown commercial areas; at intersections for mass transportation or other vehicles, including elevated trains, heavy motor trucks, and other heavy traffic; and at street corners where many motor buses and heavy trucks accelerate.	63,840	67	66	58
2	Moderate Commercial & Industrial Areas and Noisy Residential Areas	Heavy traffic areas with conditions similar to Category 1, but with somewhat less traffic; routes of relatively heavy or fast automobile traffic, but where heavy truck traffic is not extremely dense.	20,000	62	61	54
3	Quiet Commercial, Industrial Areas and Normal Urban & Noisy Suburban Residential Areas	Light traffic conditions where no mass-transportation vehicles and relatively few automobiles and trucks pass, and where these vehicles generally travel at moderate speeds; residential areas and commercial streets, and intersections, with little traffic, compose this category.	6,384	57	55	49
4	Quiet Urban & Normal Suburban Residential Areas	These areas are similar to Category 3, but for this group, the background is either distant traffic or is unidentifiable; typically, the population density is one-third the density of Category 3.	2,000	52	50	44
5	Quiet Residential Areas	These areas are isolated, far from significant sources of sound, and may be situated in shielded areas, such as a small, wooded valley.	638	47	45	39

Table 4.13-1. ANSI Standard 12.9-2013/Part 3 A-Weighted Sound Levels Corresponding to Land Use and Population Density

Category	Land Use	Description	People per Square Mile	dBA		
				Typical L_{dn}	Daytime L_{eq}	Nighttime L_{eq}
6	Very Quiet Sparse Suburban or rural Residential Areas	These areas are similar to Category 4 but are usually in sparse suburban or rural areas; and, for this group, there are few if any nearby sources of sound.	200	42	40	34

Notes: ANSI = American National Standards Institute; dBA = A-weighted decibels; L_{dn} = Day-Night Average Noise Level; L_{eq} = Equivalent Continuous Noise Level

Source: ANSI 2013

For the purposes of this analysis the ambient noise environment affecting the Project Area is considered to be 47 dBA L_{dn} with daytime and nighttime noise levels of 45 dBA L_{eq} and 39 dBA L_{eq}, respectively.

4.13.2 Noise (XIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Sensitive receptors in the Project Area consist of single-family residences, the closest of which is located approximately 871 feet north of the Proposed Project.

The applicable County noise regulations are included in the County's General Plan Noise Element and the County's Municipal Code. Section 9.02.060 of the County's Municipal Code exempts temporary construction noise, provided that all construction in or adjacent to residential areas is limited to daytime hours (7:00 a.m. to 6:00 p.m.). Accordingly, construction noise impacts are assessed with consideration of their temporary nature and compliance with allowable work hours. Operational noise impacts are evaluated using the significance criteria established in the County's Noise Element. Table N-3 in the County's Noise Element establishes maximum allowable noise exposure from stationary noise sources to noise-sensitive land uses, specifically at outdoor activity areas, defined as areas located outside of the

immediate structure where formal or informal activities are likely to happen. For example, anywhere on a residential property could be an outdoor activity area. These standards are 55 dBA L_{eq} during daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during nighttime hours (10:00 p.m. to 7:00 a.m.) (County 2019). Ground-borne vibration impacts are evaluated based on County policy limiting vibration from construction activities to a PPV of 0.2 inches per second (in/sec) at the nearest sensitive receptor (County 2019). This threshold is intended to protect nearby structures and occupants, particularly in areas where vibration-intensive construction equipment may be used. These standards provide the basis for evaluating potential noise and vibration impacts from construction and operation of the Proposed Project.

4.13.2.1 Onsite Project Construction Noise

Construction noise associated with the Proposed Project would be temporary and would vary depending on the specific nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, paving, excavation.) Noise generated by construction equipment, including earth movers (e.g., dozers and excavators), can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

Section 9.02.060 of the County's Municipal Code exempts temporary construction noise, provided that all construction in or adjacent to residential areas is limited to daytime hours (7:00 a.m. to 6:00 p.m.). As shown in Table 4.13-2 below, in order to remain compliant with the County's limit of 55 dBA L_{eq} during daytime hours, the Proposed Project would be required to limit construction to the hours when construction noise is exempted from this standard. Any construction performed outside of the hours when construction noise is exempted are projected to exceed the 55 dBA L_{eq} limit. Thus, Mitigation Measure NOI-1 is required to ensure that all construction occurs within the exempted hours of 7:00 a.m. to 6:00 p.m.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors, the construction equipment noise levels were calculated using FHWA's Roadway Noise Construction Model and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearest affected property.

A previous appellate court decision held that the use of an absolute noise threshold for evaluating all ambient noise impacts violated CEQA because it did not provide a "complete picture" of the noise impacts that may result from implementation of the ordinance. As such, the Proposed Project's construction noise is estimated and then added to the average daily ambient noise level in the Project Area as determined by referencing the ANSI Standard 12.9-2013/Part 3 *Quantities and Procedures for Description and Measurement of Environmental Sound* identified in Table 4.13-1 above. As identified, the majority of the Project Area would be considered ambient noise Category 5, which generally experiences 45 dBA L_{eq} during the daytime. As previously described, the dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Furthermore, when combining two separate sources where one of the noise sources is 10 dB or greater than the other noise source, the noise contribution of the quieter source is virtually obscured by the louder source.

The anticipated short-term construction noise levels generated for the necessary equipment are presented in Table 4.13-2.

Table 4.13-2. Construction Average (dBA) Noise Levels at Nearest Receptors (871 Feet Distant)

Construction Phase	Average Ambient Noise Level* (dBA L_{eq})	Existing Ambient Noise + Exterior Construction Noise Levels (dBA L_{eq})	Construction Noise Standard (dBA L_{eq})	Exceeds Standards?
Demolition	45.0	61.7	*85*	**No**
Site Preparation		62.9	*85*	**No**
Excavation Operations		63.6	*85*	**No**
Building Construction		63.4	*85*	**No**
Paving		61.8	*85*	**No**
Painting		50.4	*85*	**No**

Notes: dBA = A-weighted decibels; CalEEMod = California Emissions Estimator Model; FHWA = Federal Highway Administration
L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
*Ambient noise levels of the Project Area were estimated using the American National Standards Institute Standard 12.9-2013/ Part 3 *Quantities and Procedures for Description and Measurement of Environmental Sound* identified in Table 4.13-1 above.
Construction equipment used during construction derived from CalEEMod. CalEEMod is designed to calculate air pollutant emissions from construction activity and contains default construction equipment and usage parameters for typical construction projects based on several construction surveys conducted in order to identify such parameters.

Source: Construction noise levels were calculated by ECORP Consulting, Inc. using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix G for Model Data Outputs.

As shown in Table 4.13-2, the Proposed Project's contribution of construction noise combined with the ambient noise environment would not exceed the 85 dBA NIOSH construction noise threshold during any phase of construction at the nearby noise-sensitive receptors. It is noted that construction noise was modeled on a worst-case basis and is considered in addition to ambient noise levels currently experienced in the Project Area. It is very unlikely that all pieces of construction equipment would be operating at the same time for the various phases of Project construction.

Project construction noise would be less than significant.

4.13.2.2 Offsite Project Construction Traffic Noise

Project construction would result in additional traffic on adjacent roadways over the period that construction occurs. According to the California Emissions Estimator Model, which is used to predict the number of construction-related automotive trips, the maximum number of the Proposed Project's construction trips traveling to and from the Project Area during a single construction phase would not be expected to exceed 51 daily trips in total. According to Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol (Caltrans 2013), a doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference).

The Project Area is an existing wastewater treatment facility located in an area with limited surrounding development and is situated away from residential land uses. The Project Area would be accessible via Eberhardt Drive, Campbell Court, and Hogan Dam Road during construction, which are also used by nearby residents. The California Emissions Estimator Model, which contains the latest Institute of Transportation Engineers Trip Generation Manual, estimates that a single residence generates approximately nine trips per day. Due to the residential neighborhoods spanning the area the contribution of an additional 51 daily trips during a single construction phase for the Proposed Project would not result in a doubling of traffic on adjacent roadways, and therefore its contribution to existing traffic noise would not be perceptible. Additionally, it is noted that construction is temporary, and construction-related trips would cease upon completion of construction.

4.13.2.3 Operational Offsite Traffic Noise

The Project Area is an existing wastewater treatment facility located in an area with limited surrounding development and is situated away from residential land uses. The facility does not serve or generate traffic associated with commercial or residential uses. Operational vehicle trips associated with the facility would remain consistent with current conditions and would be limited to routine employee, maintenance, and service vehicle trips. Therefore, the Proposed Project would not result in a doubling of traffic on vicinity roadways, and therefore its contribution to existing traffic noise would not be perceptible.

4.13.2.4 Operational Onsite Noise

The Proposed Project would upgrade and expand treatment infrastructure at the existing wastewater treatment facility to address capacity and operational deficiencies. Improvements include construction of a new extended aeration activated sludge basin, installation of a new UESP pump station, addition of

aeration system blowers within the existing treatment plant building, construction of a new electrical building, and installation of a new parallel treated effluent pipeline to increase conveyance capacity.

Operational noise associated with the Proposed Project would primarily originate from equipment typical of wastewater treatment facilities, including aeration blowers and submersible pumps. These noise sources are similar in type to existing operational equipment at the facility and would be located within existing or new enclosed structures, including the existing treatment plant building and a new electrical building. The new treated effluent pipeline would be underground and would not generate operational noise. The Proposed Project would not introduce new operational activities that differ from existing La Contenta WWTF operations.

Given the nature of the proposed improvements, the enclosure of new equipment, the rural setting of the facility, and the distance to nearby noise-sensitive receptors, the Proposed Project would not result in a substantial increase in ambient noise levels or introduce new significant sources of operational noise. Therefore, operational noise impacts associated with the Proposed Project would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Result in generation of excessive ground-borne vibration or ground-borne noise levels?	☐	☐	☒	☐

Less than Significant Impact.

4.13.2.5 Construction Vibration Impacts

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Proposed Project would be primarily associated with short-term construction-related activities. Construction in the Project Area would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is not anticipated that pile drivers would be necessary during Project construction. Vibration decreases rapidly with distance, and it is acknowledged that construction activities would occur throughout the Project Area and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 4.13-3.

Table 4.13-3. Typical Construction Equipment Vibration Levels	
Equipment Type	**Peak Particle Velocity at 25 Feet (inches per second)**
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Hoe Ram	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: Federal Transit Administration 2018

Ground-borne vibration impacts are assessed in accordance with County policy, which limits vibration generated by construction activities to a PPV of 0.2 in/sec at the nearest sensitive receptor (County 2019). This criterion is intended to minimize the potential for damage to nearby structures and disturbance to occupants, particularly where vibration-intensive construction equipment may be used.

Based on the representative vibration levels presented for various construction equipment types in Table 4.13-3 and the construction vibration assessment methodology published by the Federal Transit Administration (FTA; 2018), it is possible to estimate the potential Proposed Project construction vibration levels. FTA provides the following equation:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Table 4.13-4 presents the expected Project related vibration levels at a distance of 871 feet.

Table 4.13-4. Construction Vibration Levels at 871 Feet							
Receiver Peak Particle Velocity Levels (in/sec)[1]					**Peak Vibration**	**Threshold**	**Exceed Threshold?**
Large Bulldozer, Caisson Drilling, & Hoe Ram	**Loaded Trucks**	**Jackhammer**	**Small Bulldozer/ Tractor**	**Vibratory Roller**			
0.0004	0.0004	0.0002	0.0000	0.0010	0.0010	0.2	No

Notes: in/sec = inches per second

Source: Calaveras County 2019; Federal Transit Administration 2018

As shown in Table 4.13-4, vibration as a result of onsite construction activities in the Project Area would not exceed 0.2 PPV at the nearest structure. Thus, construction of the Proposed Project would have a less than significant impact.

4.13.2.6 Project Operational Vibration

Project operations would not include the use of any large-scale, stationary equipment that would result in excessive vibration levels; therefore, the Proposed Project would not result in ground-borne vibration impacts during operations. For this reason, no impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project Area to excessive noise levels?	☐	☐	☐	☒

No Impact

The Project Area is located approximately 9.25 miles northwest of the Calaveras County Airport and 8 miles southeast of the Howard Private Airport and the Camanche Skypark Airport. The Project Area is not located within the noise contours of the neighboring airports, and the Proposed Project would not expose people visiting the Project Area to excess airport noise levels. Therefore, no impact would occur.

4.13.3 Mitigation Measures

NOI-1: **Hours of Construction**. Project construction shall be limited to the County standard exempted hours of 7:00 a.m. through 6:00 p.m.

4.14 Population and Housing

4.14.1 Environmental Setting

The Proposed Project is located within Calaveras County, within the Valley Springs community. According to the California Department of Finance, in 2024 the total population for the County was estimated to be 44,824, and in 2025 the total population was estimated to be 44,722, representing a 0.2 percent decrease in population (California Department of Finance 2025).

4.14.2 Regulatory Setting

4.14.2.1 Local Regulations

Calaveras County Housing Element

State law recognizes the vital role local governments play in the supply and affordability of housing. For this reason, each local government in California is required to adopt a housing element as part of its

comprehensive, long-term general plan. The Calaveras County Housing Element was adopted in 2019. Under California law, the housing element must include the County's goals, policies, quantified objectives, and housing programs for the maintenance, improvement, and development of housing.

4.14.3 Population and Housing (XIV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

No Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. There is the potential for construction related hazards that could be created during the course of construction within the Project Area. Implementation of the Proposed Project would not induce substantial population growth in the area, as the Proposed Project is being implemented to support previously anticipated growth within the Valley Springs Community. Furthermore, minimal operation and maintenance would be required and no permanent employees beyond those currently operating the La Contenta WWTF would be hired as a result of the Proposed Project. No impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact.

The Proposed Project would not displace any existing housing and therefore, no impact would occur and no mitigation is required.

4.14.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.15 Public Services

4.15.1 Environmental Setting

4.15.1.1 Police Services

The Calaveras County Sheriff's Department acts as the police department on a non-contract basis. Angels Camp, the only incorporated City within the County, has a police department that serves the City. Considering the exclusion of Angels Camp, the Sheriff's Department provides services for 95 percent of the County's population.

The Calaveras County Sheriff's Department consists of the main sheriff's office and County Jail located in San Andreas at the Government Center, as well as five substations:

- Valley Springs Substation
- Copperopolis Substation
- Lake Camanche South Shore Substation
- Arnold Substation
- Rail Road Flat Substation

Additionally, the Sheriff's Department runs the Office of Emergency Services, the Marine Safety, Hazardous Materials Team, and the Explosives Ordnance Disposal Unit, all located at the County Airport. Calaveras County Hazardous Materials and Explosives Ordnance Disposal team provides services for four counties: Calaveras, Amador, Tuolumne, and Alpine.

The closest substation to the Proposed Project is the Valley Springs Substation, located at 200 Highway 12 within the community of Valley Springs. It is approximately 0.9 miles away from the Project Area.

4.15.1.2 Fire Services

The County is divided into 10 different fire districts; the incorporated City of Angels Camp operates the Angels Camp Fire Department. In addition to the County districts, CAL FIRE serves the County.

The Calaveras Consolidated Fire Department serves the Project Area. The Calaveras Consolidated Fire Protection District (Cal-Co Fire) was formed on July 1, 2013 through a Joint Power Agreement between Jenny Lind and Foothill Fire Protection Districts. Cal-Co Fire covers roughly a 163-square-mile area in the western portion of the County serving the communities of Valley Springs, Burson, Wallace, Campo Seco, Milton, Rancho Calaveras, La Contenta and Jenny Lind (Cal-Co Fire 2025).

The closest fire station to the Proposed Project is located at 129 East Highway 12 within Valley Springs. It is approximately 1 mile away from the Project Area.

4.15.1.3 Schools

The Proposed Project Area is served by the Calaveras Unified School District. Calaveras Unified School District is composed of the following schools: Calaveras High School, Jenny Lind Elementary School, Mokelumne Hill Elementary School, Railroad Flat Elementary School, San Andreas Elementary School, Toyon Middle School, Valley Springs Elementary School and West Point Elementary School.

Additionally, the following Alternative Education Programs are part of this district: Gold Strike High School, Jenny Lind Alternative High School, and Sierra Hills Educational Center.

The closest school to the Project Area is the Valley Springs Elementary School, which is approximately one mile away from the Project Area.

4.15.1.4 Parks

While there are numerous open space and recreation opportunities within Calaveras County, there are only six County-owned parks and facilities dispersed throughout the County. However, there are 14 non-County local organizations that own parks that are open to the public (County 2025).

The closest public park to the Project Area is the Valley Springs Memorial Park, which is approximately 1.2-miles away. This Park is a non-county owned public park.

4.15.2 Regulatory Setting

4.15.2.1 Local Regulations

Calaveras County Code Chapter 8.08-Hazardous Fire Areas

The County identifies that some uses of grass, grain, brush, or forest-covered lands can cause fire hazards, which pose a threat to life and property from fire and resulting erosion. As such, Chapter 8.08 of the County's Code of Ordinances establishes safeguards and regulations related to recreational, residential, commercial, industrial, and other activities, which could increase the threat of fire hazard.

Calaveras County Code Chapter 8.10-Fire and Life Safety

Chapter 8.10 of the County's Code of Ordinances addresses minimum wildfire protection standards and building construction standards for developments within the unincorporated areas of the County. This chapter also incorporates the requirements of PRC Section 4290 and Title 14, Section 1270 et seq. of the CCR (State Fire Safe Regulations). The chapter applies to various permitting activities, such as the approval of new parcels or lot line adjustments, construction permit applications, use permit applications, the siting of manufactured homes, and road construction. Guidelines included in Chapter 8.10 relate to the design and construction of new structures and roadways, as well as the maintenance of defensible space, location of greenbelts, and the disposal of waste material. Additionally, the Fire and Life Safety chapter allows for the County to require new developments to prepare a fire management plan if the development would have a significant effect on the provision of fire protection services.

Calaveras County Code Title 13

Title 13 of the Calaveras County Code of Ordinances includes various chapters relating to stormwater quality, county service areas, underground utility districts, inspection of sewage, gas, and flood drainage systems, and sewage disposal.

4.15.3 Public Services (XV) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	☐	☐	☒	☐
Fire Protection?	☐	☐	☒	☐
Police Protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other Public Facilities?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would potentially result in a need for fire protection or police service to respond to any potential incidents that may occur at the site, however, this would be a small increase to protection demands and it would not result in a need for new facilities or personnel. Services can adequately be provided by existing fire protection or police service facilities.

The Proposed Project would not increase the existing student population or overall population in the community that would result in the need for additional school services or recreation facilities. A less than significant impact would occur.

4.15.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.16 Recreation

4.16.1 Environmental Setting

The County offers an abundance of outdoor recreation opportunities given the County's proximity to the Sierra Nevada Mountains and historic gold rush towns. The County is located in the foothills of the Sierra Nevada Mountains, between Sacramento and Yosemite, on SR-49, which links the towns of the California Gold Country. To the north and south, the County is bordered by two major rivers, Mokelumne and Stanislaus, respectively, and has a number of public lakes. The County also has a state park, a national forest, and a small portion of a wilderness area, as well as multiple large caverns. Yosemite National Park and Lake Tahoe, which offer additional recreational activities, are a short distance away. As a result, the County offers a variety of recreational activities including gold mining and panning, camping, biking, hiking, rafting, kayaking, horseback riding, and fishing.

Local reservoirs offer many recreational activities within the County. The Proposed Project is approximately 0.25 mile away from the New Hogan Reservoir. The New Hogan Reservoir is owned and managed by USACE. This reservoir receives water from the Calaveras River. Recreational opportunities at this reservoir include boating, swimming, fishing, picnicking, and camping.

As mentioned above in Section 4.15.1.4, the closest public park to the Project Area is the Valley Springs Memorial Park, which is approximately 1.2-miles away from the Project Area. This Park is a non-county owned public park.

4.16.2 Regulatory Setting

There are no applicable regulatory requirements for the Proposed Project.

4.16.3 Recreation (XVI) Materials Checklist

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

No Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The population would not increase as a result of the Proposed Project; and therefore, use of the existing neighborhood, regional parks, or other recreational facilities would not change from the current use. As such, the Proposed Project would not increase the use of existing recreational facilities that could cause substantial physical deterioration of the facilities. Therefore, no impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

No Impact.

See discussion under item a). No recreational facilities are proposed as part of the Proposed Project, and therefore, no impact would occur and no mitigation is required.

4.16.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.17 Transportation

4.17.1 Environmental Setting

Currently, Calaveras County contains approximately 1,100 miles of maintained roadway, including SR-4, SR-12, SR-26, and SR-49. The State Highway System represents approximately 14 percent of the maintained roadway system within the County but serves 60 percent of vehicle travel. The existing State Highways within the County, owned and maintained by Caltrans, are described below:

- SR-4 is an east/west two-lane conventional highway that travels from Stanislaus County (west of Copperopolis) to Alpine County, with an overall length of approximately 65 miles. SR-4 connects Copperopolis, City of Angels Camp, Vallecito, Murphys, Arnold, and Dorrington.
- SR-12 is an east/west two-lane conventional highway that travels from San Joaquin County (near Wallace) to SR-49 in San Andreas, with an overall length of approximately 20 miles. SR-12 connects Wallace, Valley Springs, and San Andreas.
- SR-26 is an east/west two-lane conventional highway that travels from San Joaquin County (west of Valley Springs near Ospital Road) to Amador County (north of West Point), with an overall length of about 45 miles. SR-26 connects Valley Springs, Mokelumne Hill, and West Point.
- SR-49 is a north/south two-lane conventional highway that travels from Amador County to Tuolumne County, with an overall length of about 30 miles. SR-49 connects Mokelumne Hill, San Andreas, and City of Angels Camp.

Roadways within the County, including State Highways, are generally defined by the following classifications:

- *Arterials* – Provide mobility of high traffic volumes between various parts of the County. Arterials typically link collectors and local roads to external destinations and generally have higher speeds

and more access control than collectors and local streets. Arterials generally have two travel lanes, periodic passing, climbing lanes, two-way left-turn lanes, and at-grade intersections. SR-4, SR-12, SR-26, and SR-49 serve as the County's arterials.

- *Collectors* – Provide for relatively short distance travel between arterials and generally have lower speeds and volumes than arterials. Driveways are permitted to connect directly to collectors in order to provide lot access, as opposed to arterials, where direct driveway access is typically prohibited. Collectors within the County generally have two lanes of travel.
- *Local Roads* – Provide direct roadway access to adjacent land uses and serve short distance trips within communities and neighborhoods. Traffic volumes and speeds on local streets are low. Local roadways in the County generally have two travel lanes.

The Project Area is accessed by Eberhardt Drive, which is accessed from Campbell Court or Hogan Dam Road. These roads are considered Local Roads. The closest highway to the Project Area is SR-26, which is approximately 0.5 miles away from the Project Area.

4.17.2 Regulatory Setting

4.17.2.1 Local Regulations

2015 Calaveras County Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan

The Calaveras County Regional Bicycle, Pedestrian and Safe Routes to School Master Plan identifies existing and planned bicycle facilities and is used in the assessment of significant bicycle impacts related to whether projects disrupt existing, or interfere with planned, facilities.

2025 Calaveras County Regional Transportation Plan

This comprehensive planning document serves as the framework for transportation initiatives across the County for a 20-year planning horizon. The Regional Transportation Plan focuses on all modes of transportation including roadway, bicycle and pedestrian, transit, freight, aviation, and rail. The goals and policies within the Regional Transportation Plan are designed to be consistent with the Calaveras County General Plan.

Calaveras County Code of Ordinances

Title 10, Vehicles and Traffic, in the Calaveras County Code of Ordinances contains extensive regulations related to circulation systems, including, but not limited to, speed limits, parking restrictions, terminal access routes for trucks, and weight limits for commercial vehicles. Chapter 12.02 of the Code of Ordinances contains additional regulations related to road construction and maintenance.

4.17.3 Transportation (XVII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

Less than Significant Impact.

Because the Proposed Project would not directly or indirectly introduce a new population into the region, the total number of trips generated by the Project is not expected to change significantly from existing conditions. Project construction will, however, result in temporary increases in local traffic due to the transport of construction personnel, equipment and material to the Project Area.

As noted in Section 2 of this document, the Proposed Project would be completed in approximately 12 months. Construction activities would require the use of diesel construction equipment such as cranes, excavators, loaders, cement mixers, rollers, pavers, and other paving equipment.

Project construction would have a temporary impact on traffic flow in the vicinity of the Proposed Project. Existing traffic levels would increase on the Proposed Project roadways due to deliveries of materials and equipment to the Project Area and by workers commuting to the Project Area on a daily basis. It is assumed that construction workers would travel to and from the construction site in personal vehicles.

All staging for the Proposed Project would be within the La Contenta WWTF. No road closures are proposed as part of the construction activities for the Proposed Project. Therefore, the Proposed Project would not conflict with any program, plan, ordinance, or policy addressing the local circulation system. A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐

Less than Significant Impact.

CEQA Guidelines Section 15064.3 subdivision (b) addresses the criteria for analyzing transportation impacts and establishes the vehicle miles traveled metric as the most appropriate measure of transportation impacts in a CEQA document. As noted, the Proposed Project would not directly or indirectly result in long-term increases in vehicle traffic in the Project Area or within the community of Valley Springs. As such, the Proposed Project would not be inconsistent with any adopted local or regional transportation plans or CEQA guidelines. There are no road closures recommended as part of

Project construction, and all staging areas would be within the La Contenta WWTF. A less than significant impact would occur.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Less than Significant Impact.

No long-term modifications to roadway features are proposed as part of Project implementation. Project construction would have a temporary impact on traffic flow in the vicinity of the Proposed Project, but this would be considered short-term. The Proposed Project would not substantially increase hazards due to a geometric design feature or incompatible uses. Any impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in inadequate emergency access?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. All of the Project construction activities would occur on-site. Construction activities would not impede the use of surrounding roadways. Therefore, implementation of the Proposed Project would not impair or physically interfere with any emergency access, and any impacts would be less than significant.

4.17.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.18 Tribal Cultural Resources

4.18.1 Environmental Setting

Ethnographically, the Project Area is in the traditional territory occupied by the Northern Sierra Miwok. Prior to the arrival of the Spanish, the Miwok were one of the largest native groups in California, stretching from the crest of the Sierra, across the Great Valley and Delta Region, into the Coast Range north of San Francisco. The Northern Sierra Miwok lived within the foothills and mountains of the Cosumnes and Mokelumne River drainages. They belong to the Sierra Miwok language group, which is a subset of the Utian language family. Lexicostatistical chronologies suggest that the Miwok ancestors

inhabited California's Delta Region for millennia, with expansion into the foothills occurring in the more recent past. The tribelet was the primary political unit among the Miwok.

The tribelet controlled a defined territory and all the resources within it. Tribelets were composed of several lineages that were each tied to geographical locations. Scholars suggest that the population of Sierra Miwok settlements averaged 25 persons. The village of Apautawilü, located near the Calaveras River in the vicinity of Valley Springs, was the primary Northern Sierra Miwok settlement near the Project Area.

Based on mission records, the accounts of early explores, and initial attempts at censuses, it has been estimated that the total Miwok population was around 19,500 prior to 1800. In 1904, Special Indian Agent C.E. Kelsey estimated the total population at less than 800.

Subsistence activities of the Northern Sierra Miwok closely resembled that of other inhabitants of the Sierra Foothills. As winter snows thawed, small groups moved out of the village, following deer into higher elevations. At the same time, spring greens were gathered to supplement the stored foods and meat. Seeds of many different plants, particularly grasses, were collected between May and August. Following the annual burning of the underbrush in August, the highly prized California foothill pine nuts were collected. California foothill pine nuts were also occasionally collected before they were ripe in the spring. Fall and early winter were when families would set out to collect and stockpile acorns. Hunting was a year-round activity for the Northern Sierra Miwok.

Acorns from at least seven species of oak were collected and eaten by Native Americans. While acorns from the valley oak were most important to the Plains Miwok, Sierra Miwok made the most extensive use of acorns from the interior live oak, blue oak, and black oak. They were usually collected from the ground after they had fallen from the tree, although long sticks were sometimes used to collect acorns that had yet to be released.

Nuts were also an important element of the Miwok diet and included buckeye, laurel, hazelnut, California foothill pine, and sugar pine. They also harvested wild onion and other root foods and tubers, which were eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use. Berries were eaten, although they did not comprise a substantial portion of the diet.

Animals taken by the Northern Sierra Miwok included mule deer, black bear, grizzly bear, black tailed jackrabbits, cottontails, beavers, grey and ground squirrels, wood rats, valley quail, and mountain quail. Occasional forays were made down to the valley floor to hunt antelope and tule elk, which were not available in the Sierra Foothills. Fishing was undertaken by the Sierra Miwok, yet it was not a central part of the diet. Salmon was available in the lower stretches of Sierran rivers, and trout was taken at higher elevations.

Other foods exploited by the Northern Sierra Miwok included insects such as grasshoppers and yellow jacket larvae, and shellfish such as river mussels and freshwater clam. Food taboos were observed by the Sierra Miwok and, as a result, they did not consume dogs, coyotes, skunks, eagles, great horned owls, roadrunners, snakes, or frogs.

The Sierra Miwok constructed a variety of structures for different purposes. The primary house used by the Miwok living in the foothills was the conical bark-slab house. More substantial semi-subterranean

houses were occupied during the winter months by those wealthy enough to afford such a structure. A circular brush structure was used in the summer during times of mourning. Semi-subterranean earthen lodges, measuring 40 to 50 feet in diameter, were used for social or communal gatherings. The Miwok also made use of sweathouses that varied in size from 6 to 15 feet in diameter.

Trade was important, with goods generally traveling east to west and vice versa. Items such as Olivella and Haliotis shells, salmon, and salt traveled east from the coast and valley into the Sierra and beyond. pine nuts, bows, arrows, and deer skins came down from the Sierra to the Great Valley. Precious goods such as salt and obsidian were also traded in from the Great Basin. Basketry moved in both directions in the pre-contact trade networks.

Although European contact with the Northern Sierra Miwok occurred relatively late compared to other Northern California indigenous groups, it nonetheless proved devastating. The Spanish only made occasional forays into the Central Valley beginning around 1769, with the first written description composed by Pedro Fages in 1772. José Canizares explored Miwok territory in 1776. In 1808, Gabriel Moraga again crossed through the area during an expedition to identify appropriate sites for the establishment of new missions (and to capture Native Americans who had fled missionary life). In 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River.

Despite these somewhat isolated events, regular contact didn't occur until 1848 and the beginning of the gold rush. "Gold fever" drew thousands of people from across the world into the Sierra Nevada foothills (Maniery and Dutschke 1994). Mother Lode villages sprung up throughout Calaveras County which resulted in several clashes that displaced and decimated the indigenous populations. Cumulatively, pre-contact Miwok populations are estimated to be approximately 11,000 in 1770 (Levy 1978). According to the 1930 census, only 491 individuals were recorded (AccessGenealogy.com 2026).

Today, the Northern Sierra Miwok language and traditions are enduring through the efforts of surviving Miwok peoples within the Buena Vista Rancheria of Me-Wuk Indians, Calaveras Band of Mi-Wuk Indians, California Valley Miwok Tribe, Chicken Ranch Rancheria of Me-Wuk Indians, Ione Band of Miwok Indians, and Jackson Rancheria Band of Miwuk Indians.

4.18.1.1 Summary of Consultation

On February 25, 2026, CCWD sent letters inviting three tribes to consult pursuant to Assembly Bill (AB) 52 and Section 21080.3.1(d) of the PRC. The California Valley Miwok Tribe (Sheep Ranch Rancheria of Me-Wuk Indians); Calaveras Band of Mi-Wuk Indians; and Ione Band of Miwok Indians were invited to particiate. The letter provided each tribe with a brief description of the Project and its location, the contact information for CCWD's authorized representative, and a notification that the tribe has 30 days to request consultation.

4.18.1.2 California Valley Miwok Tribe (Sheep Ranch Rancheria of Me-Wuk Indians)

The California Valley Miwok Tribe have not responded to CCWD's notification letter at this time, and therefore, the threshold for conducting tribal consultation with that tribe under PRC 21080.3.1(e) was not met. No further attempts at consultation were required by state law.

4.18.1.3 Calaveras Band of Mi-Wuk Indians

Calaveras Band of Mi-Wuk Indians have not responded to CCWD's notification letter at this time, and therefore, the threshold for conducting tribal consultation with that tribe under PRC 21080.3.1(e) was not met. No further attempts at consultation were required by state law.

4.18.1.4 Ione Band of Miwok Indians

Ione Band of Miwok Indians did not respond to CCWD's notification letter, and therefore, the threshold for conducting tribal consultation with that tribe under PRC 21080.3.1(e) was not met. No further attempts at consultation were required by state law.

4.18.2 Tribal Cultural Resources (XVIII) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

As discussed in Section 4.5, ECORP surveyed the Project Area for cultural resources on December 16, 2025. ECORP did not observe any pre-contact archaeological material during the field survey.

Additionally, according to the Handbook of North American Indians, the nearest Native American village as Apautawilü, located near the Calaveras River, more than 5 miles south of the Project Area.

A search of the SLF by NAHC returned a negative result for sacred lands in their search area. Per SWRCB guidelines, ECORP sent letters via certified mail to potentially interested tribes identified by NAHC on January 26, 2026. The purpose of the letters was to notify the tribes of the Project and solicit information outside of formal consultation and in anticipation of the SWRCB invitations to consult under Section 106 of the NHPA. ECORP sent follow-up emails to the tribe on February 3, 2026. ECORP received a response from Chicken Ranch Rancheria of Me-Wuk Indians stating that the Tribe has no comments, concerns, or questions regarding the Proposed Project.

Examination of the lines of evidence summarized above indicates that the Proposed Project would not have an impact on known TCRs. However, there exists a potential for the discovery of previously unknown TCRs during Project construction. If TCRs are encountered, the Project activity could result in a significant impact to those resources. Implementation of unanticipated discovery procedures, as provided in mitigation measure TCR-1 below, as well as the measure CUL-1, would reduce that impact to less than significant.

4.18.3 Mitigation Measures

TCR-1: **Unanticipated Discovery of Tribal Cultural Resources.** If potentially significant TCRs are discovered during ground disturbing activities, all work shall cease within 50 feet of the find. A Native American Representative from traditionally and culturally affiliated Native American Tribes that requested consultation on the Project shall be immediately contacted and invited to assess the significance of the find and make recommendations for further evaluation and treatment, as necessary. If deemed necessary by CCWD, a qualified cultural resources specialist, who meets the Secretary of Interior's Standards and Qualifications for Archaeology, may also assess the significance of the find in joint consultation with Native American representatives to ensure that tribal values are considered. Work at the discovery location cannot resume until CCWD, in consultation as appropriate and in good faith, determines that the discovery is either not a TCR, or has been subjected to culturally appropriate treatment, if avoidance and preservation cannot be accommodated.

4.19 Utilities and Service Systems

4.19.1 Environmental Setting

4.19.1.1 Water Service

CCWD is a California Special District (local government) located in Calaveras County. CCWD acts as the primary County water supplier and maintains water resources management authority for several key watersheds of the Sierra Nevada Mountains. CCWD provides water service to approximately 17,500 residential and commercial populations from six water treatment facilities each forming CCWD's independent service areas located throughout the County (CCWD 2021).

CCWD serves six different water supply service areas within the County from four different water sources: 1) Jenny Lind Service Area (Calaveras River), 2) Copper Cove/Copperopolis Service Areas (Stanislaus River), 3) Ebbetts Pass Service Area (Stanislaus River), 4) Sheep Ranch Service Area (San Antonio Creek, tributary to the Calaveras River), 5) Wallace Service Area (groundwater), and 6) West Point Service Area (Mokelumne River). These service areas are isolated from each other and do not generally share water supplies or infrastructure.

CCWD provides water supplies to its customers from four watershed sources or their tributaries: A) Calaveras River, B) Stanislaus River, C) Mokelumne River, or D) groundwater from the portions of the Subbasin underlying the County.

The Proposed Project is located within the Calaveras River sub region, which includes the Jenny Lind Service Area and Sheep Ranch Service Area, both which receive water supplies from the Calaveras River Watershed. District supplies to the Jenny Lind Service Area are based on a water supply contract with the U.S. Bureau of Reclamation for water from New Hogan Reservoir on the Calaveras River. The Sheep Ranch Service Area utilizes surface water diversion rights from San Antonio Creek, a tributary to the Calaveras River. These systems together delivered nearly 3,500 acre-feet to customers in Fiscal Year 2020. The Jenny Lind Service Area is CCWD's largest system by population, serving approximately 9,860 customers, whereas the Sheep Ranch Service Area is the smallest service area in the CCWD, serving only 89 people. Water in this sub-region is almost entirely dedicated to residential and agricultural uses. CCWD also owns a hydroelectric project at the New Hogan Reservoir, the New Hogan Power Project (Federal Energy Regulatory Commission Project No. 2903), utilizing non-consumptive hydropower water rights to generate over 3.4 megawatts at New Hogan Dam (CCWD 2021).

4.19.1.2 Wastewater

CCWD provides wastewater collection, treatment and disposal services to 14 communities in Calaveras County. The Proposed Project is part of the La Contenta WWTF. The La Contenta Wastewater Area is located in the northernmost portion of the Jenny Lind Service Area. The Assessment District 604 (AD604) that established this area was formed in 1991 and generally includes the areas directly adjacent to the east and north sides of the La Contenta Golf Course and surrounding neighborhood developments in Valley Springs. The system currently serves 1,035 connections and contains approximately 30 miles of pipeline. The remaining portion of the wastewater generated in the Jenny Lind Service Area is served by private septic systems (CCWD 2021).

4.19.1.3 Solid Waste

Several solid waste facilities and transfer stations exist within the County. Existing facilities include the Rock Creek Solid Waste Facility, as well as transfer stations at Avery, Copperopolis, Paloma, Red Hill, San Andreas, and Wilseyville.

The Rock Creek Solid Waste Facility encompasses an active Class II landfill, a transfer station, several recycling programs, and a household hazardous waste facility. Rock Creek accepts garbage, recyclable toxics, household hazardous waste (temporary storage only), and several categories of recyclables

including: appliances, cardboard, concrete and rubble, mixed construction and demolition waste, mixed recyclables (containers and paper), sheetrock, stumps, tires, and wood and yard waste. Rock Creek is open daily from 8:00 a.m. to 4:40 p.m. and accepts waste only from Calaveras and Alpine County sources.

4.19.1.4 Electricity

PG&E provides electricity and natural gas to the County. It generates or buys electricity from hydroelectric, nuclear, renewable, natural gas, and coal facilities. PG&E provides natural gas and electricity to most of the northern two-thirds of California, from Bakersfield and Barstow to near the Oregon, Nevada, and Arizona State Line. It provides 5.2 million people with electricity and natural gas across 70,000 square miles. In 2022, approximately 40 percent of PG&E's electricity came from renewable resources including biopower, geothermal, small hydroelectric, solar, and wind power. Overall 95 percent of the company's delivered electricity comes from GHG emission-free sources, including renewables, nuclear, and hydropower (PG&E 2022a).

4.19.2 Regulatory Setting

4.19.2.1 State Regulations

California Green Building Standards Code

California Green Building Standards Code, Title 24, Part 11 of the CCR is known as the California Green Building Code or CALGreen. CALGreen is a set of mandatory and/or voluntary requirements for residential and nonresidential structures. Requirements of CALGreen are focused on reducing construction waste, promoting the use of efficient materials and reducing the energy demand of new structures.

Sustainable Groundwater Management Act

The California Department of Water Resources Sustainable Groundwater Management Program will implement the new and expanded responsibilities identified in the Sustainable Groundwater Management Act. The expanded responsibilities include:

1. developing regulations to revise groundwater basin boundaries;
2. adopting regulations for evaluating and implementing Groundwater Sustainability Plans and coordination agreements;
3. identifying basins subject to critical conditions of overdraft;
4. identifying water available for groundwater replenishment; and
5. publishing Best Management Practices for the sustainable management of groundwater.

4.19.2.2 Local Regulations

Title 13 – Public Services

Title 13 of the Calaveras County Code of Ordinances includes various chapters relating to stormwater quality, county service areas, underground utility districts, inspection of sewage, gas, and flood drainage systems, and sewage disposal. The purpose of Title 13 is to protect public health, welfare, and property, while also preserving the environment and providing the County with the authority to fulfill the obligations places on the County by the Central Valley RWQCB.

4.19.3 Utilities and Service Systems (XIX) Environmental Checklist and Discussion

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The Proposed Project would actually improve the existing La Contenta WWTF to meet water demands within the Valley Springs area. Therefore, a less than significant impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	☒

No Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The Proposed Project would continue to be operated by CCWD and would improve the existing La Contenta WWTF to meet the water demands within the Valley Springs area. Therefore, no impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

No Impact.

The Proposed Project does not require wastewater services. Therefore, no Impact would occur and no mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Less than Significant Impact.

No recycling or waste disposal would be required for operation and maintenance of the Proposed Project beyond current conditions and therefore would not affect landfill capacity because the amount of construction debris requiring disposal would be minor and would only occur during the construction and demolition period. The Proposed Project contractors would be responsible for disposing of construction-related debris in local construction-material receiving areas. A less than significant impact would occur. No mitigation is required.

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less than Significant Impact.

As previously described, no recycling or waste disposal would be required for operation and maintenance of the Proposed Project beyond current conditions. CCWD contractors would be responsible for disposing of construction-related debris in local construction-material receiving facilities and would comply with all

federal, state, and local statues and regulations related to solid waste. Therefore, any impacts would be less than significant and no mitigation is required.

4.19.4 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.20 Wildfire

4.20.1 Environmental Setting

Typically, the California fire season extends from spring to late fall. Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in the air. These conditions, when combined with high winds and years of drought, increase the potential for wildfire to occur.

The State has charged CAL FIRE with the identification of Fire Hazard Severity Zones (FHSZs) within State Responsibility Areas. In addition, CAL FIRE must recommend Very High FHSZs identified within any Local Responsibility Areas. The FHSZ maps are used by the State Fire Marshall as a basis for the adoption of applicable building code standards. The Project Area is located in a state responsibility area and has been identified by CAL FIRE as a high fire severity zone (CAL FIRE 2026).

4.20.2 Wildfire (XX) Environmental Checklist and Discussion

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project is in an area identified as a High Fire Hazard Severity zone. The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. All of the Proposed Project construction activities would occur on-site. Construction activities would not impede the use of surrounding roadways. Therefore, implementation of the Proposed Project would not impair or physically interfere with any emergency evacuation plan, and any impacts would be less than significant.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from, a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. The Proposed Project would not exacerbate wildfire hazards beyond existing conditions and would not expose nearby occupants to pollutants or increased wildfire risk. Any impacts are less than significant.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐

Less than Significant Impact.

The Proposed Project would construct improvements to the existing La Contenta WWTF to meet the flow demand and construct a treated effluent pipeline to the existing storage pond on site. During construction and operation of the proposed facility, the presence of humans and associated equipment may expose the area to increased risk of fire ignition. However, staff and contractors would follow all BMPs to reduce fire risk, including avoiding smoking in non-designated areas; using spark arrestors as warranted; maintaining equipment in its proper working order; ensuring that all loads are properly secured and no chains or metal drag; avoiding work that could potentially produce sparks during red flag warnings; and adhering to all requirements for burn permits. Fire suppression equipment, including fire extinguishers and hand tools, would be available onsite for the containment of small, incipient fires if it is safe for workers to do so and they have received proper training in the use of such tools. The Proposed Project would be required to comply with CAL FIRE State Responsibility Area requirements during construction. Compliance with these requirements, along with the above measures, would reduce any impacts to less than significant.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Less than Significant Impact.

The construction of the Proposed Project would comply with the CBC requirements and would follow all recommendations outlined within the BMPs that are included as part of the SWPPP prepared for the Proposed Project. This would manage erosion and the loss of topsoil during construction-related activities (see Section 4.10.3). With the implementation of the SWPPP, soil erosion during construction, Project staging, and the construction of related facilities would be minimized. With limited erosion anticipated from the Project Area due to the relatively flat nature of the Project Area, the potential for Project-induced landslides is considered less than significant. No mitigation is required.

4.20.3 Mitigation Measures

No significant impacts were identified, and no mitigation measures are required.

4.21 Mandatory Findings of Significance

4.21.1 Mandatory Findings of Significance (XXI) Environmental Checklist and Discussion

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

As stated previously in Section 4.4, with implementation of Mitigation Measures BIO-1 through BIO-9, the Proposed Project would result in a less than significant impact on the habitat of wildlife species or

population, on any plant or animal community, and would not restrict the range of a rare or endangered plant or animal. Furthermore, as stated above in Section 4.5, with the implementation of proposed Mitigation Measures CUL-1, development of the Proposed Project would not result in significant impacts to Cultural Resources. Therefore, implementation of the Proposed Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant with previously identified mitigation.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐

Less than Significant Impact.

Project impacts would not be cumulatively considerable. No mitigation is required relevant to potential cumulative impacts.

For natural resource subjects (Aesthetics, Agriculture and Forest Resources, Biological Resources, Cultural Resources, Geology and Soils, Hydrology and Water Quality, and Mineral Resources), there would be no cumulative effects because all impacts would be less than significant or would be reduced to less than significant with mitigation incorporated.

The nature of the Proposed Project would not induce population growth or result in the development of new housing or employment-generating uses. Therefore, the Proposed Project would not result in a cumulative effect regarding increased demand or expansion for services or utilities. Furthermore, there are no approved or planned projects within proximity to the Proposed Project that would contribute to cumulative effects. Impacts would be less than significant.

Does the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated.

Direct and indirect impacts to human beings would be less than significant with the implementation of mitigation measures listed in this Initial Study.

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5.0 COMPLIANCE WITH FEDERAL REGULATIONS

CCWD is seeking funding for the Proposed Project under SWRCB's CWSRF Program, which is partially funded through USEPA. Because of the federal nexus with USEPA, projects seeking funding through the CWSRF Program are subject to federal laws and regulations (e.g., federal "cross-cutters"). Under the CWSRF Program, SWRCB uses a project's CEQA document along with federal cross-cutting documentation in place of a NEPA document; this document is termed a "CEQA-Plus" document. This section addresses the Project's compliance with federal laws and regulations to satisfy the CEQA-Plus requirements.

5.1 Federal Regulations Evaluation

5.1.1 Clean Water State Revolving Fund

The Proposed Project is being funded in part by federal money from the CWSRF Program. Because the CWSRF Program receives at least a portion of funding from the USEPA, such projects are required to comply with federal environmental regulations. The requirements in the Operating Agreement between SWRCB and USEPA that administers the State Revolving Fund federal loan program, known as CEQA Plus, require applicants to demonstrate to the satisfaction of the State Historic Preservation Officer (SHPO) that a project complies with NHPA Section 106. SWRCB is the agency responsible for NHPA Section 106 compliance. SWRCB has established standards to meet both state and federal requirements; as such, this report was prepared in compliance with the requisite federal standards.

In complying with CEQA Plus, the cultural resources investigation contributed to compliance with NHPA Section 106 and with CEQA (PRC § 21000 et seq.) The goal of NHPA and CEQA is to develop and maintain a high-quality environment that serves to identify the significant environmental effects of the actions of a proposed project and to either avoid or mitigate those significant effects where feasible. CEQA pertains to all proposed projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps. NHPA pertains to projects that entail some degree of federal funding or permit approval, or in the case of the Proposed Project, are subject to CEQA Plus.

NHPA and CEQA (Title 14, CCR Article 5, § 15064.5) apply to cultural resources of the historical and pre-contact (prehistoric) periods. Any project with an effect that may cause a substantial adverse change in the significance of a cultural resource, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources. Significant cultural resources must meet at least one of four criteria that define eligibility for listing in either the California Register of Historical Resources (CRHR) (PRC § 5024.1, Title 14, CCR, § 4852) or the NRHP (36 CFR 60.4). Cultural resources eligible for listing in the NRHP are considered Historic Properties under 36 CFR 800 and are automatically eligible for listing in the CRHR. Resources listed on or eligible for listing in the CRHR are considered Historical Resources under CEQA.

Separately, TCRs are defined in Section 21074 of the California PRC as sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with

cultural value to a California Native American tribe that are either included in or determined to be eligible for listing in the CRHR, or are included in a local register of historical resources as defined in subdivision (k) of Section 5020.1, or are a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. Section 1(b)(4) of AB 52 established that only California Native American tribes, as defined in Section 21073 of the California PRC, are experts in the identification of TCRs and impacts thereto. Because ECORP does not meet the definition of a California Native American tribe, this report only addresses information for which ECORP is qualified to identify and evaluate, and that which is needed to inform the cultural resources section of CEQA documents. This report, therefore, does not identify or evaluate TCRs. Should California Native American tribes ascribe additional importance to or interpretation of archaeological resources described herein, or provide information about non-archeological TCRs, that information is documented separately in the AB 52 tribal consultation record between the tribe(s) and lead agency, and summarized in the TCR section of the CEQA document, if applicable.

NEPA establishes national policy for the protection and enhancement of the environment. Part of the function of the federal government in protecting the environment is to "preserve important historic, cultural, and natural aspects of our national heritage." Cultural resources need not be determined eligible for listing in the NRHP through the NHPA of 1966 (as amended) to receive consideration under NEPA. NEPA is implemented by regulations of the Council on Environmental Quality (40 CFR 1500-1508).

The definition of *effects* in the NEPA regulations includes adverse and beneficial effects on historic and cultural resources (40 CFR 1508.8). Therefore, the *Environmental Consequences* section of an Environmental Impact Statement (see 40 CFR 1502.16[f]) must analyze potential effects to historic or cultural resources that could result from the proposed action and each alternative. In considering whether an alternative may "significantly affect the quality of the human environment," a federal agency must consider, among other things:

- unique characteristics of the geographic area, such as proximity to historic or cultural resources (40 CFR 1508.27[b][3]); and
- the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP (40 CFR 1508.27[b][8]).

Therefore, because historic properties are a subset of *cultural resources*, they are one aspect of the *human environment* defined by NEPA regulations.

5.1.2 National Archaeological and Historic Preservation Act

The federal law that covers cultural resources that could be affected by federal undertakings is the NHPA of 1966, as amended. NHPA Section 106 requires that federal agencies take into account the effects of a federal undertaking on properties listed in or eligible for listing in the NRHP. The agencies must afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. A federal undertaking is defined in 36 CFR 800.16(y):

> A federal undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by

> or on behalf of a federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval.

The regulations that stipulate the procedures for complying with Section 106 are found in 36 CFR 800. The Section 106 regulations require:

- definition of the APE;
- identification of cultural resources within the APE;
- evaluation of the identified resources in the APE using NRHP eligibility criteria;
- determination of whether the effects of the undertaking or project on eligible resources will be adverse; and
- agreement on and implementation of efforts to resolve adverse effects, if necessary.

The federal agency must seek comment from SHPO and, in some cases, the Advisory Council on Historic Preservation, for its determinations of eligibility, effects, and proposed mitigation measures. Section 106 procedures for a specific project can be modified by negotiation of a Memorandum of Agreement or Programmatic Agreement between the federal agency, SHPO, and, in some cases, the project proponent.

Effects to a cultural resource are potentially adverse if the lead federal agency, with SHPO's concurrence, determines the resource eligible for listing in the NRHP, making it a Historic Property, and if application of the Criteria of Adverse Effects (36 CFR 800.5[a][2] et seq.) results in the conclusion that the effects will be adverse. The NRHP eligibility criteria, contained in 36 CFR 60.4, are as follows:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess aspects of integrity of location, design, setting, materials, workmanship, feeling, association, and
>
> A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. that are associated with the lives of persons significant in our past; or
>
> C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. that have yielded, or may be likely to yield, information important in prehistory.

In addition, the resource must be at least 50 years old, barring exceptional circumstances (36 CFR 60.4). Resources that are eligible for, or listed on, the NRHP are *Historic Properties*.

Regulations implementing NHPA Section 106 (36 CFR 800.5) require that the federal agency, in consultation with SHPO, apply the Criteria of Adverse Effect to historic properties within the APE. According to 36 CFR 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association.

As mentioned in Section 4.5, there is a lack of eligible resources within the Project Area, and the Proposed Project has been found to have No Effect on Historic Properties as defined in NHPA Section 106.

5.1.3 Clean Air Act

General Conformity ensures that the actions taken by federal agencies do not interfere with a state's plans to attain and maintain national standards for air quality.

Established under the Clean Air Act (Section 176[c][4]), the General Conformity rule plays an important role in helping states improve air quality in those areas that do not meet NAAQS. Under the General Conformity rule, federal agencies must work with state and local governments in a nonattainment or maintenance area to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan. The overall purpose of the General Conformity rule is to ensure that:

- federal activities do not cause or contribute to new violations of NAAQS;
- actions do not worsen existing violations of NAAQS; and
- attainment of NAAQS is not delayed.

Predicted annual construction-generated emissions for the Proposed Project are summarized in Table 4.3-1. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, and would not be considered a significant air quality impact since the volume of pollutants generated does not exceed the Conformity Determination thresholds.

5.1.4 Coastal Barriers Resources Act

The Coastal Barrier Resources Act of 1982 designated various undeveloped coastal barriers for inclusion in the Coastal Barrier Resources System (CBRS). The Coastal Barrier Resources Act encourages the conservation of storm-prone and dynamic coastal barriers by withdrawing the availability of federal funding and financial assistance within the CBRS.

The Proposed Project is not within the CBRS because it is in the State of California. CBRS encompasses areas along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts but not the Pacific Coast. Therefore, the Coastal Barriers Resources Act does not apply to the Proposed Project.

5.1.5 Coastal Zone Management Act

The Coastal Zone Management Act was passed by Congress to encourage coastal states to develop and implement a Coastal Zone Management Program. The intents of Coastal Zone Management Programs are to: protect natural resources; manage development in high hazard areas; give development priority to coastal-dependent uses; provide public access for recreation; prioritize water-dependent uses; and coordinate state and federal actions (National Oceanic and Atmospheric Administration 2025). The federal government certified the California Coastal Management Program in 1977, the enforceable policies of which are found in Chapter 3 of the California Coastal Act of 1976, as amended (California Coastal Commission 2025).

The Proposed Project would be located in the Valley Springs Community within Calaveras County, over 115 miles east of the Pacific Coast. None of the Proposed Project's components would be located within the coastal zone; thus, the Coastal Zone Management Act does not apply to the Project.

5.1.6 Endangered Species Act, Section 7

This section is based on the analysis and recommendations presented in the BRA prepared for the Proposed Project (ECORP 2026b; Appendix D).

ESA (16 U.S. Code [USC] 1531 et seq.) and subsequent amendments establish legal requirements for the conservation of endangered and threatened species and the ecosystems upon which they depend. ESA is administered by USFWS for terrestrial species, and by the National Marine Fisheries Service for marine species and anadromous fish. Under ESA, species may be listed as either endangered or threatened. ESA Section 7(a)(2) requires that for actions authorized, funded, or carried out by a federal agency, that the agency shall consult with USFWS and/or the National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of any threatened or endangered species, or result in the destruction or adverse modification of critical habitat of the endangered or threatened species.

Potential special-status plants, invertebrates, birds, and mammals have the potential to occur within the vicinity of the Proposed Project. However, mitigation measures discussed in Section 4.4 would reduce the potential impacts to a less than significant level. Therefore, the Proposed Project would not have the potential to violate the ESA.

5.1.7 Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) is intended to minimize the contribution of federal programs to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. It does not authorize the federal government to regulate the use of private or nonfederal land, or in any way, affect the rights of property owners. Under FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

The Proposed Project is located on land designated as Grazing Land and Other Land (DOC 2025a). The Project Area is not currently used for agriculture, and no Prime or Unique Farmlands or Farmland of Statewide Importance is located within the Project Area. As such, the Proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

5.1.8 Fish and Wildlife Coordination Act

This section is based on the analysis and recommendations presented in the BRA prepared for the Proposed Project (ECORP 2026b; Appendix D).

The Fish and Wildlife Coordination Act (16 USC 661-666[e]), approved in 1934 and amended in 2020, directs USFWS to investigate and report on proposed federal actions that affect any stream or other body of water and to provide recommendations to minimize impacts on fish and wildlife resources. The provisions of Section 662(a) and Section 663(a) do not apply to those projects for the impoundment of water where the maximum surface area of such impoundments is less than ten acres, nor to activities for or in connection with programs primarily for land management and use carried out by federal lands under their jurisdiction (USFWS 2025).

There is no designated critical habitat mapped within the Study Area; therefore, the Proposed Project would have no impact.

5.1.9 Floodplain Management

EO 13690, The Federal Flood Risk Management Standard (January 30, 2015) revises EO 11988, Floodplain Management (May 24, 1977), and directs federal agencies to take the appropriate actions to reduce risk to federal investments, specifically to update their flood-risk reduction standards. The goal of this directive is to improve the resilience of communities and federal assets against the impacts of flooding. These impacts are anticipated to increase over time due to the effects of climate change and other threats. FEMA's Flood Insurance Rate Maps are official community maps that shows special flood hazard areas and risk premium zones.

FEMA Flood Insurance Rate Map Number 06009C0362F does not show the Project Area within a flood hazard zone. All of the Proposed Project improvements would not redirect or impede flood waters. Therefore, no impacts related to flood hazards or flood water flows would occur (FEMA 2026).

5.1.10 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) (Public Law 104-267) passed in 1976 and was amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297) and the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act in 2007. MSA, as amended, governs marine fisheries management in U.S. federal waters out to 200 nautical miles from shore and encourages "long-term biological and economic sustainability of our nation's marine fisheries." The goals of MSA are to prevent overfishing, to rebuild overfished stocks, to increase long-term economic and social benefits, and to ensure a safe and sustainable supply of seafood. The act is in place to protect our natural resources, to maximize the possible use of these resources, and to make sure the use of marine resources is done in a safe manner. Amendments to the 1996 MSA require the identification of EFH for federally

managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring federal authorization is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under MSA, Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 USC § 1802[10]). The EFH provisions of MSA offer resource managers a means to heighten consideration of fish habitat in resource management. Pursuant to Section 305(b)(2), federal agencies shall consult with the National Marine Fisheries Service regarding any action they authorize, fund, or undertake that might adversely affect EFH. The Proposed Project would not affect any fisheries or EFH. Therefore, MSA does not apply to the Proposed Project.

5.1.11 Migratory Bird Treaty Act of 1918

MBTA (16 USC 703-712) prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species) by USFWS. MBTA states that it applies only to migratory bird species that are native to the United States or U.S. territories, and that a native migratory bird species is one that is present as a result of natural biological or ecological processes.

As described in Section 4.4, birds protected under MBTA could nest within existing structures, shrubs, and trees on and adjacent to the Project Area. Mitigation Measure BIO-6 Preconstruction Survey for Nesting Birds requires that ground-disturbing and vegetation-disturbing work be completed during the non-nesting season to avoid impacts to nesting birds. If this is determined to be infeasible, a pre-construction survey by a qualified biologist shall be conducted prior to ground disturbing activities no more than three days in advance of vegetation clearing/ground disturbance activities. Active bird nests identified during the survey effort shall be avoided until such time that the qualified biologist has determined that the nest(s) is vacant. Depending on the location of the active nest(s), the qualified biologist may establish a no-work buffer around the active nest. Implementation of Mitigation Measure BIO-6 would ensure the Proposed Project would not violate MBTA.

5.1.12 Protection of Wetlands

The purpose of EO 11990 (May 24, 1977) is to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. To meet these objectives, EO 11990 requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided.

As described in Section 4.4 and Section 4.10, a seasonal wetland, ditch, and drainage ditch exist within the Project Area. Implementation of Mitigation Measure BIO-9 would require that all wetlands be avoided,

and in the event that avoidance is not possible, then applicable permits would be required. Therefore, implementation of the Proposed Project would adhere to the protection of wetlands.

5.1.13 Rivers and Harbors Act, Section 10

The Rivers and Harbors Act (RHA) of 1899 (33 USC Section 401 et seq.) is the initial authority for the USACE regulatory permit program to protect navigable waters in the development of harbors and other construction and excavation. Section 10 of the RHA requires authorization from the Secretary of the Army, acting through USACE, for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable water of the United States and applies to all structures. It includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction.

The Proposed Project does not include the construction of any structure in or over any navigable water of the United States and would not require a Section 10 permit. The RHA does not apply to the Proposed Project.

5.1.14 Safe Drinking Water Act

The SDWA of 1974 was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources. SDWA authorizes USEPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards. USEPA also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection of fluids. Under SDWA, Congress emphasizes preventing contamination of aquifers that are the sole source of drinking water for a community under SDWA.

The Proposed Project is located in Calaveras County, within the community of Valley Springs. Designated sole source aquifers in California are located in Fresno County, Scotts Valley, and on the California/Mexico border, none of which would be in the vicinity of the Proposed Project (USEPA 2024). Therefore, SDWA does not apply to the Proposed Project.

5.1.15 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (16 USC Section 1271 et seq.) establishes the National Wild and Scenic Rivers System (NWSRS) for the protection of certain selected rivers with important scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. These rivers shall be preserved in free-flowing conditions, and they and their immediate environments shall be protected. Rivers are classified as wild, scenic, or recreational. The Wild and Scenic Rivers Act designates specific rivers for inclusion in the

NWSRS and prescribes the methods and standards by which additional rivers may be added. Regardless of classification, each river in the NWSRS is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values.

There are no wild and scenic rivers within the vicinity of the Proposed Project. The nearest designated wild and scenic river in the NWSRS is Tuolumne River within Tuolumne County, located approximately 34 miles southwest of the Project Area (NWSRS 2026). Therefore, no portion of the Proposed Project is located within or near a designated wild and scenic river.

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7.0 REFERENCES

AccessGenealogy.com. 2026. Miwok Indians. https://accessgenealogy.com/native/miwok-indians.htm. Accessed March 30, 2026.

American National Standards Institute (ANSI). 2013. *Standard 12.9-2013/Part 3: Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-Term Measurements with an Observer Present*.

Calaveras Consolidated Fire Protection District (Cal-Co Fire). 2025. *About*. https://www.calcofire.org/about. Accessed December 18, 2025.

Calaveras County (County). 2025. *Parks and Recreation Master Plan*. March.

_____. 2024. *Calaveras County Emergency Operations Plan*. June.

_____. 2023. *Local Hazard Mitigation Plan*. August.

_____. 2021. *Multi-Jurisdictional Hazard Mitigation Plan*.

_____. 2019. *General Plan*. Adopted November 12, 2019. https://planning.calaverasgov.us/General-Plan. Accessed December 15, 2025.

_____. 2018. *Calaveras County General Plan Draft Environmental Impact Report*. https://planning.calaverasgov.us/Portals/Planning/Documents/Draft General Plan Update/CEQA/GP Draft EIR.pdf.

Calaveras County Water District (CCWD). 2024. P*reliminary Design Report La Contenta Wastewater Treatment Facility Phase 3 Improvement*. November.

_____. 2021. *2020 Urban Water Management Plan Update*. June.

_____. 2018. *La Contenta Wastewater System Master Plan*. January.

California Air Pollution Control Officers Association (CAPCOA). 2022. *California Emissions Estimator Model* (CalEEMod), version 2022.1.

_____. 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*.

California Air Resources Board (CARB). 2026. *Current Air District Rules for Calaveras County Air Pollution Control District*. https://ww2.arb.ca.gov/capp/cst/tch/current-air-district-rules. Accessed March 4, 2026.

_____. 2025. *Emission Factor Model 2025 version*.

_____. 2023. *State and Federal Area Designation Maps*. http://www.arb.ca.gov/desig/adm/adm.htm. Accessed March 4, 2026.

California Coastal Commission. 2025. Our Mission. https://www.coastal.ca.gov/whoweare.html. Accessed March 4, 2026.

California Department of Conservation (DOC). 2025a. *California Important Farmland Finder*. https://maps.conservation.ca.gov/DLRP/CIFF/. Accessed December 8, 2025.

_____. 2025b. *Williamson Act Enrollment Finder*. https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/index.html#data_s=id%3Awidget_22_output_config_default_geocode_0_0%3A0. Accessed December 8, 2025.

_____. 2025C. *The California Geotour, Sierra Nevada*. https://conservation.ca.gov/cgs/california-geotour#sierranevada. Accessed December 11, 2025.

_____. 2015. *California Regional Geologic Maps Database*. https://www.conservation.ca.gov/cgs/maps-data/rgm. Accessed December 14, 2025.

_____. 2015. *Fault Activity Map of California*. https://maps.conservation.ca.gov/cgs/fam/. Accessed December 12, 2025.

California Department of Finance. 2025. *Estimates-E1, Population and Housing Estimates for Cities, Counties, and the State – January 1, 2024 and 2025*. https://dof.ca.gov/forecasting/demographics/estimates-e1/. Accessed December 17, 2025.

California Department of Forestry and Fire Protection (CAL FIRE). 2026. *Find Your Fire Hazard Severity Zone*. https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9. Accessed February 5, 2026.

California Department of Transportation (Caltrans). 2025. *Statewide Scenic Highway*. https://experience.arcgis.com/experience/47e2009986264718a5a13a2c81382774#data_s=id%3AdataSource_2-199ba603ee3-layer-4%3A39. Accessed December 8, 2025.

_____. 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*.

_____. 2002. *California Airport Land Use Planning Handbook*.

California Department of Toxic Substances Control (DTSC). 2026. *EnviroStor*. https://www.envirostor.dtsc.ca.gov/public/map/#. Accessed February 5, 2026.

California Energy Commission (CEC). 2025. *California Electricity Consumption: Calaveras County*. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/california-energy-consumption-dashboards-0. Accessed March 4, 2026.

_____. 2023a. *Integrated Energy Policy Report – IEPR*. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report-iepr/2023-integrated-energy-policy-report. Accessed March 4, 2026.

_____. 2023b. *2023 Integrated Energy Policy Report*. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report. Accessed March 4, 2026.

Crockett, Alexander G. 2011. Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World. In *Golden Gate U. Envtl. L. J.* 4:203. July.

ECORP Consulting, Inc. (ECORP). 2026a. *La Contenta WWTF Project Emissions Analysis*. February.

_____. 2026b. *Biological Resources Assessment for the CCWD La Contenta WWTF Phase 3 Project*. February.

_____. 2026c. *Historic Property Identification Report for the CCWD La Contenta WWTF Phase 3 Project*. February.

_____. 2026d. *La Contenta WWTF Project Energy Consumption Analysis*. February.

_____. 2026e. *Aquatic Resources Delineation for the CCWD La Contenta WWTF Phase 3 Project*. February.

_____. 2026f. *La Contenta WWTF Project Noise Analysis*. February.

Federal Emergency Management Agency (FEMA). 2026. *FEMA Flood Map Service Center*. https://msc.fema.gov/portal/search?AddressQuery=12525%20Campbell%20Court%2C%20Valley%20Springs%2C%20CA. Accessed February 24, 2026.

Federal Highway Administration (FHWA). 2017a. *Construction Noise Handbook*. https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook02.cfm. Accessed March 4, 2026.

_____. 2017b. *Noise Barriers: Technical Considerations and Barrier Effectiveness*. https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide05.cfm#:~:text=Effective%20noise%20barriers%20can%20reduce%20noise%20levels%20by,%28usually%20called%20earthberms%29%20or%20from%20high%2C%20vertical%20walls. Accessed March 4, 2026.

_____. 2006. *Roadway Construction Noise Model*.

Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment*.

Maniery, J. G. and D. Dutschke. 1994. Images of Hechenu: Ethnohistorical Notes on a Northern Sierra Mewuk Village. In *American Indian Culture and Research Journal* 18(1).

Harris Miller, Miller & Hanson Inc. 2006. *Transit Noise and Vibration Impact Assessment*. May.

National Oceanic and Atmospheric Administration. 2025. *About our Agency*. https://www.noaa.gov/about-our-agency. Accessed March 4, 2026.

Natural Resources Conservation Service (NRCS) 2025. *Natural Resources Conservation Service Web Soil Survey*. http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed November 17, 2025.

National Wild and Scenic Rivers System (NWSRS). 2026. *Find a River*. https://www.rivers.gov/map. Accessed February 24, 2026.

Pacific Gas and Electric Company (PG&E). 2022a. *PG&E's Climate Strategy Report*. https://www.pge.com/en/about/corporate-responsibility-and-sustainability/taking-responsibility.html. Accessed March 4, 2026.

_____. 2022b. *PG&E Energy Efficiency 2024-2031 Strategic Business Plan*. https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2202005/4532/452751515.pdf?WT.mc_id=Vanity_eeplan2024-2031. Accessed March 4, 2026.

Rosenthal, Jeffery S. and Jack Meyer. 2004. *Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways*. Volume III: Geoarchaeological Study. Landscape Evolution and the Archaeological Record of Central California. Dated June 2004. Prepared for Caltrans District 10.

State Water Resources Control Board (SWRCB). 2026. *GeoTracker*. https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0600700017. Accessed February 5, 2026.

U.S. Army Corps of Engineers (USACE). 2026. *New Hogan Lake*. https://www.spk.usace.army.mil/Missions/Recreation/New-Hogan-Lake/. Accessed February 12, 2026.

U.S. Environmental Protection Agency (USEPA). 2025. *Nonattainment Areas for Criteria Pollutants (Green Book)*. https://www.epa.gov/green-book. Accessed March 4, 2026.

_____. 2024. *Sole Source Aquifers*. https://experience.arcgis.com/experience/1bfab371d71e4b868fc9ae7df62a16fe#data_s=id%3AdataSource_5-Sole_Source_Aquifers_August_2019_7337%3A65. Accessed March 4, 2026.

_____. 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*. https://nepis.epa.gov/Exe/ZyPDF.cgi/P1013KWQ.PDF?Dockey=P1013KWQ.PDF.

U.S. Fish and Wildlife Service (USFWS). 2025. *Fish and Wildlife Coordination Act*. https://www.fws.gov/law/fish-and-wildlife-coordination-act. Accessed March 4, 2026.

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APPENDIX A

Preliminary Design Report La Contenta Wastewater Treatment Facility Phase 3 Improvement Project, HydroScience, November 2024

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Preliminary Design Report **La Contenta Wastewater Treatment Facility Phase 3 Improvement Project**

November 2024

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SECTION 1 - INTRODUCTION

In accordance with our Scope of Services dated May 30, 2024, this Preliminary Design Report (PDR) presents the recommended criteria and configuration of Phase 3 improvements to the La Contenta Wastewater Treatment Facility (WWTF). This PDR was informed by the *La Contenta Wastewater Collection System Improvement Project and Wastewater Treatment Facility Phase 3 Improvement Project Predesign Report* (CCWD, 2024) ("2024 Predesign Report"), confirmation of design criteria by HydroScience, and review of data collected from the District and in the field. The 2024 Predesign Report is included in **Appendix A**. Our preliminary design drawings are included in **Appendix B**.

HydroScience worked collaboratively with Calaveras County Water District (District) engineering and operations staff to develop the proposed preliminary design described herein to meet the following key objectives:

- Add a new extended aeration activated sludge basin with an integral clarifier to provide additional treatment capacity to the existing Biolac treatment system for Phase 3 flows. The combined capacity of the existing and new basin and clarifiers should be suited for Buildout projected flows. The capacity of the new basin and clarifier alone should be suited for Phase 3 flows.
- Add conveyance, metering, and flow splitting of mixed liquor between the existing and new basins.
- Add additional blower capacity in the existing treatment plant building for the new activated sludge aeration basin.
- Evaluate a new separate clarifier and Return Activated Sludge and Waste Activated Sludge (RAS/WAS) pump station as an alternative to an integral clarifier.
- Add a new permanent pumping station at the Upper Effluent Storage Pond (UESP) to convey stored effluent back to the treatment process. This includes evaluating two different pump station configurations: a floating barge pump station in the pond or a wet well submersible pump station, with an option to convert the existing Return Lift Station into a combined facility for both existing process drains and the UESP.
- Perform associated improvements to yard piping, power distribution, utility power supply, instrumentation, and PLC/SCADA controls. The improvements include a new masonry electrical building to house the new MCC equipment with provisions for future expansion. The electrical portion of the project will include a wholesale replacement of the existing power distribution and standby power systems for the entire WWTF. Ageing power distribution panels in the existing control room/lab will be demolished. The utility power service will be upsized. Facilities will be designed for Phase 3 with provisions for Buildout.

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SECTION 2 - CONDITION OF EXISTING WWTP

The District previously prepared an engineering report (2024 Predesign Report) evaluating existing WWTF conditions, projecting increases to plant flows and loads, and presenting preliminary recommended facility improvements. That report provides a summary of the wastewater planning criteria, current unit processes, equipment, WWTF design criteria, expected collection and WWTF improvements, recent upgrades, and other pertinent facts about the existing facility. This section provides an overview of the findings of that report, summarizes HydroScience's evaluation of its findings, and presents updated information and recommended criteria for detailed design.

Based on an updated analysis prepared by HydroScience, **Table 2-1** presents 2023 influent wastewater flows. **Table 2-2** presents 2020-2023 average influent concentrations.

Table 2-1: 2020-2023 Influent Flows

Flow Parameter	gpd	gal/day/EDU[5]	gpm
Average Dry Weather Flow (ADWF)	154,000	137	107
Average Day Flow (ADF)	200,000[4]	180[4]	139
Maximum Day Flow (MDF)	660,000[4]	595[4]	458

Notes:
1. Based on Influent Flow Data presented in 2024 Predesign Report, augmented with data for the remainder of 2023.
2. Average Daily: The average flow occurring over a 24-hr period.
3. Max. Day: The maximum daily flow in the record examined.
4. HydroScience updated analysis identified four unusually high readings between 12/31/2022 and 01/16/2023. These readings ranged between 0.710-0.980 MGD. The high flows on those days correspond to a flooding event that impacted the collection system and has since been resolved. After discussion with the District, these readings were removed from the influent flow data analysis and the ADF and MDF were recalculated as presented in the table as well as the corresponding gal/day/EDU.
5. Number EDUs in service area for year 2023 is 1,110.

Table 2-2: 2020-2023 Influent Average Concentrations

Constituent	Concentration	units
BOD_5, mg/L	143[1]	mg/L
Total Suspended Solids (TSS), mg/L	Sampling underway[2]	mg/L
Total Kjeldahl Nitrogen (TKN), mg/L	Sampling underway[2]	mg/L
Nitrogen, N, mg/L	Sampling underway[2]	mg/L
pH	Sampling underway[2]	pH
Temperature	Sampling underway[2]	C

Notes:
1. Average value from District data from 1/1/2022 to 12/31/2023.
2. These influential concentrations are not part of the routine monitoring program. The District is gathering this data to inform the design phase of this project. Assumed values for preliminary design are discussed later in this Report.

The monitoring reports between January 2021 and March 2024 have been reviewed and the data applicable to the improvements discussed in this PDR are presented in the following tables (**Table 2-3** through **Table 2-5**):

Table 2-3: Aeration Basin Ditch Concentrations

Aeration Basin MLSS Concentration	Criteria	Units
Minimum	2,110	mg/L
Maximum	4,610	mg/L
Average	3,246	mg/L
Design Average	3,000	mg/L
Design Capacity	4,000[1]	mg/L

Notes:
1. Based on typical MLSS range for extended aeration processes of 3,000-6,000 mg/L per Metcalf & Eddy, Inc., *Wastewater Engineering: Treatment and Reuse*, 4th Ed., R. Tchobanoglous, 2003 and on design recommendations by the treatment equipment manufacturers.

Table 2-4: Current RAS System Parameters

Parameter	Criteria	Units
Average RAS Flow	0-417	gpm
Average Monthly Influent Flow	400,000	gpd
% Average RAS/ Average Influent Flow	0%	
% Peak RAS/ Average Influent Flow	150%	

Notes:
1. Based on as-built WWTF Plans, KASL Consulting Engineers, 1991. Design RAS range is 0-150% of Average Daily Flow. Design Average Daily Flow is 400,000 gpd.

Table 2-5: Current RAS/WAS MLSS Concentrations

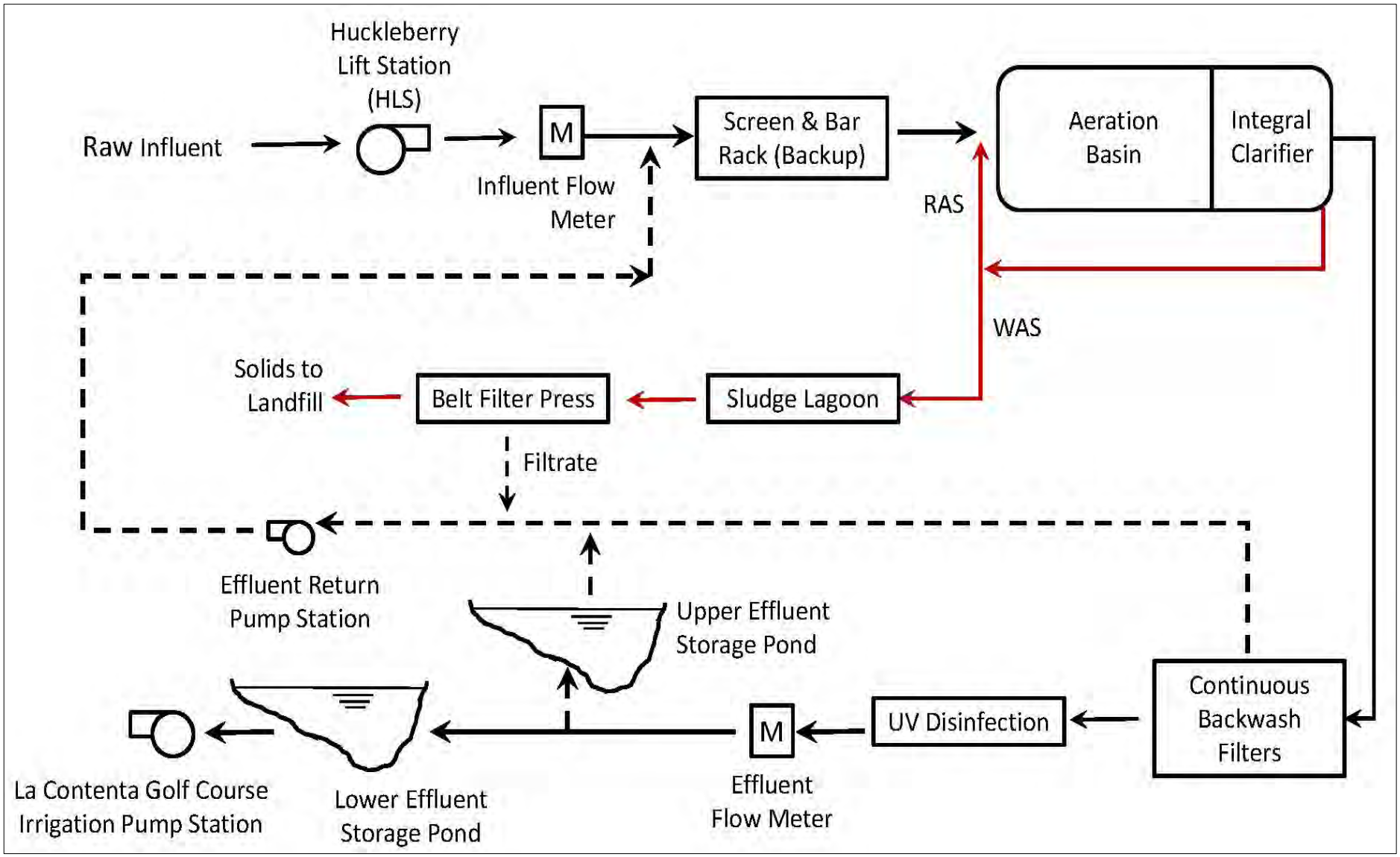
RAS MLSS Concentration	Criteria	Units
Minimum [1]	3,570	mg/L
Maximum [1]	10,060	mg/L
Average [1]	6,938	mg/L
Design	7,000	mg/L

Notes:
1. Values extract from District data running from 01/01/2022 to 12/31/2023.

A process flow diagram of the existing facility is shown in **Figure 2-1**.

The District has reported the following concerns and issues experienced with the existing WWTF that should be addressed by this project:

- The WWTF is undersized for projected Phase 3 flows.
- The existing Biolac sometimes fails to meet effluent water quality criteria. This is suspected to arise from the shortcomings of the integral clarifier design, which utilizes a curtain wall to separate the biological process from the clarification process. High flows passing through the curtain wall openings cause short-circuiting and impact settling, resulting in excessive turbidity and TSS in the clarified effluent.



Source: La Contenta Wastewater Master Plan, 2018, Kennedy Jenks Consultants

Figure 2-1: Existing WWTP Process Flow Diagram

- The existing integral clarifier is difficult to maintain because it can't be isolated, shut down, and drained. Divers must be used for repairs.
- The existing process fails to adequately remove nitrogen to meet a potential future discharge permit limitation of 10 mg/L Total Nitrogen as N.
- The existing airlift RAS pump is difficult to control and has no flowmeter.
- The UESP is currently serving as a holding pond for non-compliant effluent. Effluent is pumped back to headworks for a second pass through treatment when flow capacity allows. This is done with a portable submersible pump and a hose, which is labor intensive.
- The District desires a permanent UESP pump station.
- The District desires to eliminate the incidences of non-compliant effluent so that UESP can be returned to seasonal storage of recycled water that is fully compliant with Title 22.
- The existing MCC is old and located in an operations and lab workspace. It does not meet current electrical codes.
- The existing PLC control panel is old and should be replaced.
- The existing pipeline from the treatment plant to the LESP is undersized for Phase 3 and Buildout flows.
- There is an existing holding pond located at the proposed site of the new aeration basin containing about 500 CY of water and sludge. This Project will include dewatering and discharge to the WWTF, sludge removal and stockpiling at a designated site on-property, and overexcavation of unsuitable material in accordance with Geotechnical recommendations.

SECTION 3 - PHASE 3 AND BUILDOUT DESIGN FLOWS AND CONCENTRATIONS

This section establishes the design flow rates and preliminary influent concentrations for the Phase 3 (this Project) and Buildout (future) expansions of the WWTF. The proposed design criteria are based on the findings of the 2024 Predesign Report and additional preliminary design calculations provided by the District, modified to reflect the most recent available operating data, and incorporate consistent equivalent single-family unit (ESFU) estimates and unit flow generation factors.

HydroScience reviewed current and projected design flow data provided in the 2024 Predesign Report, preliminary design calculation spreadsheets provided by the District, and more recent flow data provided by CCWD.

The 2024 Predesign Report established the current La Contenta WWTF service area at 1,110 ESFUs. To estimate growth, the report considered the 2020 California Department of Finance population projections, current approved development, the 2020 Calaveras County General Plan, and the quantity and makeup of vacant properties within the La Contenta service area that could be developed and connected in the future. The report estimates up to an additional 1,140 ESFUs are possible within the service area at Buildout based on vacant property zoning and assumed property utilization levels for those vacant properties. It should be noted that projections utilize a unit flow generation factor (gpd/ESFU) for average dry weather and average annual flows that are more conservative than existing data indicates. If the actual unit flow generation is less than allowed for, then more units could be served.

The 2024 Predesign Report presented various estimates of average daily unit flow and peaking factors for average annual, average dry weather, maximum month, maximum day, peak hour, and minimum day flows (AAF, ADWF, MMF, MDF, PHF). The Phase 3 Design influent flows presented in the 2024 Predesign Report are shown on **Table 3-1**. The District's preliminary design calculations for Buildout are presented in **Table 3-2**.

Table 3-1: 2024 Pre-Design Report Phase 3 Design Flows

Parameter	PF	gpd/esfu	gpm	gpd
AAF	1.0	200	219	315,000
ADWF	0.8	150	165	237,000
MMF	1.5	300	328	473,000
MDF	2.5	500	548	789,000
PHF	4.0	800	876	1,262,000
Minimum Day	0.3	50	55	79,000

Source: 2024 Pre-Design Report, adapted from CCWD Water and Wastewater Design and Construction Standards.

Table 3-2: 2024 Pre-Design Report Buildout Design Flows

Parameter	PF	gpd/esfu	gpm	gpd
AAF	1.0	200	313	450,000
ADWF	0.8	150	235	338,000
MMF[1]	1.5	300	469	675,000
MDF	2.5	500	781	1,125,000[1]
PHF	4.0	800	1250	1,800,000
Minimum Day	0.3	50	78	113,000

Source: 2024 Pre-Design Report, adapted from CCWD Water and Wastewater Design and Construction Standards.
Notes:
1. MDF value was recalculated and adjusted from the 2024 Pre-Design Report. A value of 600 will be used, instead of 500 included in that report, as discussed below.

HydroScience reviewed the factors and projections presented in the 2024 Predesign Report and preliminary design calculations, and our findings are as follows:

- 2024 Predesign Report values in Table 7 of the report are consistent with calculated values as shown in Table 3-2 except for Phase 3 MDF. The unit MDF in 2023 was calculated to be 595, rounded to 600 gpd/esfu. This higher factor will be used for Phase 3 and Buildout flow projections, below.
- 2023 flow data was analyzed and revealed a few high data points. The District agreed that these values were due to unusual circumstances with creek/drainage flooding in the collection system that entered the sewers, and that these could be removed.

The District is currently implementing the design of an upgrade to the Huckleberry PS. The recommended pumping configuration and discharge flow rates are addressed in **Section 4.1**. The station is expected to be designed with a maximum discharge flow rate of 1,400 gpm (2.0 MGD). The station will further have the capability to operate in emergency mode where two high flow pumps operate at full speed to discharge approximately 1,550 gpm (2.23 MGD).

The WWTF has two primary return flow streams back to headworks for treatment: filtrate/drainage from the belt filter press, and backwash from the continuous backwash filters. These flows must be added to projected wastewater flows from the service area and pumping rates from Huckleberry Lift Station. **Table 3-3** presents estimate of the flows from these two processes:

Table 3-3: WWTF Return Streams

Source	Maximum backwash flow per cell	Number of Operating Filter Cells[3]	Total Return Stream Flow, gpm	Total Return Stream Flow, gpd
Filter Backwash – Phase 3 – MDF[1]	14 gpm	5	88	126,720
Filter Backwash – Buildout – MDF[1]	14 gpm	7	123	177,120
Belt Filter Press – Phase 3 and Buildout[2]	--	--	96	138,240
Total Return Stream Flow – Phase 3	--	--	--	**264,960**
Total Return Stream Flow – Buildout	--	--	--	**315,360**

Notes:
1. Includes 25% safety factor.
2. District to confirm that sufficient sludge processing hours are available to treat Buildout flows with the existing belt press without expansion. This is stated in the 2018 Master Plan.
3. District to confirm number of operating filter cells in each scenario.

Table 3-4 presents recommended Phase 3 design and **Table 3-5** presents the Buildout design flows. The development of design criteria for calculating the hydraulic profile and hydraulic capacities of unit processes was approached as follows:

- Flows pumped from Huckleberry PS to the WWTF influent junction box are calculated from 1577 ESFUs for Phase 3 and 2250 ESFUs for Buildout, multiplied by the flow generation factors presented previously. The exception to this is PHF.
- For PHF under the Buildout condition, the normal design peak pumping rate for Huckleberry PS is used. This rate is 1,400 gpm or 2,016,000 gpd per the Huckleberry Draft PDR. The “emergency” peak pumping rate of 1,550 gpm is not formally reflected in the design criteria. The impacts of this additional flow on process performance are expected to be minimal.
- For PHF under the Phase 3 condition, it is assumed that the Huckleberry PS peak discharge rate will be capped in the control system at a peak value of 876 gpm or 1,260,000 gpd, equal to the calculated PHF based on EDUs.
- WWTF internal return flows from filter backwash and solids dewatering (Table 3-3) are added to Huckleberry PS flows at a new influent junction box to be installed immediately upstream of the headworks screen.
- The UESP pump station is assumed to not be operating during peak flow conditions, and therefore is not factored into the hydraulic profile as an additive flow.
- RAS will normally be pumped from either the aeration basin integral clarifier or a separate secondary clarifier, depending on the option selected by the District. RAS will discharge to the influent side of each aeration basin. Each aeration/clarification process train will have its own closed RAS loop dedicated to that process train. Each aeration/clarification process train will be hydraulically sized for the sum of flows from Huckleberry PS, the filtration and solids dewatering return streams, and the RAS flow rate.
- An alternate RAS discharge point at the influent junction box is provided to facilitate transitions between process trains, but this is not the normal mode of operation. It’s assumed that when this is used, the RAS flow rate to the influent junction box will be managed to keep the overall flow rate through headworks at or below the values listed in Table 3-4 and Table 3-5.

Table 3-4: Recommended Phase 3 Design Flows (1577 esfu)

Parameter	PF	gpd/esfu	gpm	Influent Flow gpd	Return Flow[3] gpd	Total Flow gpd
AAF	1.0	200	219	315,400	--	--
ADWF	0.8	150	165	237,000	--	--
MMF	1.5	300	328	473,000	--	--
MDF[1]	2.5	600	548	950,000	264,960	1,214,960
PHF	4.0	800	876	1,260,000	264,960	1,524,960
Huckleberry LS Max Discharge Flow[2]	--	--	876	1,260,000	--	--

Notes:
1. MDF gpd/esfu changed increased to 600 based on a review of the 2024 flow records. The 2024 Pre-Design Report used a value of 500.
2. Assumes PLC controls will be programmed to limit Phase 3 peak flow to WWTF to the design PHF.
3. Return flow will occur under all flow scenarios. Only the MDF and PHF impacts are calculated here to determine the design flows for hydraulic capacities.

Table 3-5: Recommended Buildout Design Flows (2250 esfu)

Parameter	PF	gpd/esfu	gpm	Influent Flow gpd	Return Flow[3] gpd	Total Flow gpd
AAF	1.0	200	313	450,000	--	--
ADWF	0.8	150	235	338,000	--	--
MMF	1.5	300	469	675,000	--	--
MDF[1]	2.5	600	781	1,350,000	315,360	1,665,360
PHF	4.0	800	1250	1,800,000	--	--
Huckleberry LS Max Discharge Flow[2]	--	--	1,400 (1,550 emergency)	2,016,000 (2,232,000 emergency)	315,360	2,331,360

Notes:
1. MDF gpd/esfu changed increased to 600 based on a review of the 2024 flow records. The 2024 Pre-Design Report used a value of 500.
2. Emergency discharge is reserved for unusually high I/I events. WWTF facilities will be designed for the non-emergency peak and checked for acceptable short-term operations at the emergency peak.
3. Return flow will occur under all flow scenarios. Only the MDF and PHF impacts are calculated here to determine the design flows for hydraulic capacities.
4. Phase 3 design assumes that, at buildout, these design flows are split 50/50 between the new process train and the existing. The existing aeration/clarification process train will be upgraded in a future project to achieve this capacity.

For operational convenience, the new aeration basin and clarifier will be designed to handle all Phase 3 flow scenarios with the existing aeration basin and clarifier on dry standby. This strategy will avoid the need for Operations to bring the existing aeration basin and clarifier online during Phase 3 peak flows, which would involve labor-intensive biological process seeding and stabilization.

At Buildout, it is assumed that the flows will be evenly split between the existing and new aeration basins under all scenarios. Therefore, all new facilities downstream of the splitter box will be hydraulically sized for either 50% of the Buildout flow or 100% of the Phase 3 flow, whichever is higher. Required upgrades to the existing aeration basin, clarifier, blowers, and yard piping would take place in a future project.

Design influent wastewater constituent concentrations are shown in **Table 3-6**. These are based on the values stated in the 2024 Pre-Design Report that the manufacturers have provided quotations for. The measured influent BOD from 1/1/2022 to 12/31/2023 averaged 152 mg/L (Table 2-2). The District does not routinely sample influent TSS, TKN, or N. However, an influent sampling program was initiated in fall of 2024 to gather several months of this data to inform an update of the criteria prior to finalizing a technical specification for aeration basin and clarifier supply.

Table 3-6: Preliminary Design Influent Constituent Concentrations and Loads

Constituent	Concentration	Units	Phase 3 Load[1]	Units
BOD_5, mg/L	200	mg/L	789	lbs/d
Suspended Solids, mg/L	200	mg/L	789	lbs/d
Nitrogen, N, mg/L	35	mg/L	138	lbs/d
pH	6.0 – 9.0		--	--
Low Temperature	10.0	C	--	--
Design Temperature	20.0	C	--	--

Notes:
1. Based on Phase 3 MMF of 473,000 gpd. Flows above the MMF are assumed to be diluted with I/I.

SECTION 4 – WWTF IMPROVEMENTS

Recommended WWTF improvements are described in the following subsections. The preliminary design plans are referenced below and provided in **Appendix B**. The improvements addressed by this project are limited to only those Phase 3 Improvements from the 2024 Predesign Report that were selected by the District for implementation in this project.

4.1 Huckleberry Pump Station

Huckleberry PS was identified as a Phase 3 improvement which is currently in design by others. HydroScience reviewed the *Huckleberry Replacement Pump System Basis of Design Report*, September 2024, Lumos & Associates. The report recommends the following improvements to the pumping system that will convey raw wastewater to the La Contenta WWTF:

- Two low flow submersible pumps
    - Constant speed drives (District considering variable speed option)
    - 150 gpm with 1 pump operating
    - 300 gpm with 2 pumps operating
- Three high flow submersible pumps
    - Variable speed drives
    - 1,200 gpm with 1 pump operating at full speed
    - 1,400 gpm with 2 pumps operating at setpoint speed for max design flow
    - ~1,550 gpm with 2 pumps operating at max speed (emergency pumping mode)

The effect of these peak flows on the Project design criteria was discussed in Section 3.

4.2 Headworks and Pretreatment

Influent flows pumped from Huckleberry PS undergo debris removal in an existing screen channel located in between the two existing buildings. **Table 4-1** presents data on the existing screen. The screen has sufficient wastewater flow capacity to screen Phase 3 flows at or above the calculated PHF of 1.26 MGD. However, the maximum rated wastewater flow capacity is 0.08 MGD below the PHF plus internal return streams, which total 1.52 MGD. Because flows in this range will be diluted with I/I or relatively clean return stream flows, we are assuming that this small exceedance will not become an issue since the clear water capacity is higher than this value. This should be monitored as flows increase, since hydraulic capacity is affected by the volume of screenings in the wastewater.

The screen capacity is well below the Buildout PHF plus return streams total flow of 2.33 MGD. Therefore, the screen and likely the screen channel will need to be upgraded with the Buildout expansion.

Table 4-1: Existing Headworks Criteria

Criteria	Value	Units
Headworks		
Channel Width	2.0	ft
Water Depth[1]	Normal: 0.88 Max: 1.13 (approximate)	ft
Influent Pretreatment		
No. Of Units	1	Ea.
Type	Rotary Basket	
Manufacturer	HUBER Technology, Inc.	
Model	Rotamat® Ro9/400/6	
Maximum Hydraulic Capacity		
with Clear Water	2.17 (1,507)	MGD (gpm)
with Wastewater	1.44 (1,000)	MGD (gpm)

Source: Equipment cutsheets provided by District.
Notes:
1. The District provided the following approximate depth measurements upstream of the headworks screen:
    a. Normal water depth with Huckleberry PS on: 0.88 ft
    b. Max water depth based on wall discoloration: 1.13 ft (approximate)

4.3 Flow Splitting and Hydraulic Profile

Sheet **G004** in **Appendix B** presents the preliminary hydraulic profile for the project. The following discusses key considerations and features of the hydraulic design and items to be further investigated and resolved in final design. The hydraulic profile is based on the following assumptions:

- Hydraulic structures and pipelines conveying all flow that are modified or installed as part of this project will be sized for the Buildout condition (Table 3-5).
- Hydraulic structures and pipelines conveying flow downstream of the splitter box to the new aeration/clarification process train will be sized for Phase 3 total flows (Table 3-4) without splitting of flows. This flow is higher than 50% of the Buildout flow.
- Under the Buildout condition, it is assumed that flows will be equally split between the two process trains. The District will make required upgrades to the existing process train and yard piping prior to Buildout.
- Return Activated Sludge (RAS) will be pumped from either the new integral clarifier or the new independent circular clarifier back to the influent side of the new aeration basin, matching the configuration of the existing aeration basin.
- A piping branch and two valves will be provided to also allow RAS to be diverted to a new junction box upstream of headworks. This is only to be used when transitioning from one aeration basin to the other. The input point will allow re-screening of the RAS as an added benefit. The additive RAS flow impacts on headworks and the new splitter box is not included, because it is assumed that RAS will not be diverted to headworks during peak winter flows. Therefore, the PHF condition without RAS flow governs the sizing of those upstream facilities.

- The Return Pump Station peak flows from filter backwash and dewatering filtrate are added to the influent flows from Huckleberry PS to calculate plant hydraulics and drive process sizing. It is assumed that the UESP will not be drained during winter peak flow conditions.
- The HGL for the Phase 3 project is calculated backwards from the existing max water surface elevation (WSE) in the filter influent box. This is based on the as-built max WSE of 741.75 plus a 2.6 ft correction factor for the change of survey datum. This is the typical calculated difference between surveyed spot elevations around the treatment units compared to the as-built drawing elevations.
- The hydraulic design for the Phase 3 project assumes that the District will upgrade filtration (add cells) and UV (replace with two channel system) when flows increase, so that the WSE in the filter influent channel will not rise above the current maximum value. This project does not evaluate or contemplate upgrades to the hydraulic capacities of unit processes downstream of clarification or any increase in the driving head required.

The addition of a second aeration/clarification process train will require splitting of raw wastewater flows downstream of the screen. There is an existing wye-shaped splitter structure with aluminum slide gates and a pipe stub out for the future aeration basin. The splitter structure lacks any weirs for accurate management of flow split and there are no flowmeters downstream to measure flow to each unit.

Our current hydraulic profile, civil layout, and mechanical design (Sheets **G005, C104,** and **M400**) show a new flow splitter box with weirs to be installed near the existing box between the headworks channel and the aeration basins to evenly split flows. The existing box would be demolished. A challenge with this approach is that there is very little elevation fall between the headworks channel and the aeration basin. The elevation difference between the channel floor upstream of the screen and the design WSE of the existing integral clarifier is only 0.5 ft (749.1 – 748.6 ft). This provides insufficient head to allow for a flow split using weirs unless static water surface is allowed to be maintained in the headworks channel even when Huckleberry PS is not pumping. There is also insufficient head to allow full pipe magnetic flowmeter measurement downstream of the splitter box. For that reason, flowmeters are shown as future on the drawings.

The District may wish to consider deferring the splitter box improvement until Buildout, instead using the existing wye-shaped splitter structure to manage flows to aeration for Phase 3. It is designed to operate at a low liquid level. The existing box would be assessed and refurbished as necessary as part of the project, including the aluminum slide gates to provide a reliable means of isolating a basin. The lack of a weir would reduce or eliminate the static water level in the screen channel. HydroScience would update the hydraulic profile calculation to confirm the hydraulic impacts of this change.

Flow splitting would not be routinely used in Phase 3, since all flow is expected to be treated in the new aeration basin and clarifier with the existing serving as a dry standby. If the existing basin is needed, the District can operate the slide gates to either approximately split flows or to redirect all flow to the existing aeration basin.

At Buildout, a new splitter box with weirs and flowmeters can be designed in conjunction with a new, raised screening facility. The screening facility would be located north of the building in a location that is roughly equidistant to both aeration basins, resulting in similar pipe losses. The Huckleberry PS design would need to account for a few additional feet of static and dynamic head to pump to a higher channel that is located farther from the incoming force main.

During Buildout, total flow would typically be split equally between the two aeration basins, although an uneven flow split is possible by adjusting the weirs differently or installing motorized weir gates or pinch valves. The new basin will be larger than the existing in Phase 3, as discussed below, but the existing can be enlarged in the future to provide matching volume and the integral clarifier can be replaced with a separate circular clarifier.

The available elevation drop between the existing integral clarifier weir as well as the matching new clarifier weir (integral or separate) and the filter influent channel maximum water surface elevation is 4.25 ft based on the 1991 as-builts corrected for the current datum. The existing yard piping from the clarifier to the filters is 12”. The filters are designed for a maximum differential head of about 3 ft. A static mixer for coagulant injection, EMI Model F12-2E-F, is installed in a vault upstream of the individual filters. The head loss of this mixer is not available but is assumed to be 1 ft for the purposes of this PDR. This will need to be confirmed during final design.

The preliminary hydraulic profile indicates that a new integral or independent clarifier with a weir elevation matching the existing integral clarifier provides enough elevation fall to drive flow through the existing filters at the maximum differential filter head of 3 ft. This will require a 12” diameter clarified effluent pipe in the integral clarifier alternative, and a 12” diameter pipe for the stand-alone clarifier alternative. This finding is subject to confirmation of the static mixer losses and assumes the addition of future filter cells at Buildout..

4.4 Aeration Basin System With Integrated Clarifier

The existing aeration and clarification process is a Biolac system manufactured by Parkson Corporation. HydroScience coordinated with and collected budgetary proposals from Parkson and Bioworks North America, who manufactures a similar competing extended aeration product. Bioworks was started by engineers who originally worked on the Biolac product and then left to start their own venture and implement improvements to the design. Parkson has also made various improvements to their offering since the original La Contenta WWTF was built.

The preferred approach for specifying this system is to list both manufacturers in the specification and prohibit “or equals”. HydroScience has verified that both Parkson and Bioworks supply products of comparable quality and features. Bioworks provided a partial list of US installations that included 6 facilities installed from 2012 to 2018. Contact numbers were provided. Both manufacturers are able to offer a performance guarantee. Other potential equals are lesser known and may not provide a comparable product or comparable service and support.

Budgetary proposal and supporting information from both manufacturers are provided in **Appendix C**.

Both manufacturers were provided the current project design criteria, including Phase 3 and Buildout flows and loads and the intent to route all Phase 3 flows (Table 3-4) through only the new process train and to equally split the flows in Buildout (Table 3-5). The recommended process sizing provided in their proposals differed slightly but were generally in agreement with a few exceptions. **Table 4-2** provides the effluent requirements given to each manufacturer. **Table 4-3** provides the preliminary criteria that each manufacturer proposed for their systems to meet these flow, load, and effluent quality requirements. Each proposal includes a biological nutrient removal (BNR) feature to meet the desired effluent nitrogen concentration. Parkson refers to this as "Wave-Ox" and Bioworks refers to it as "DyNOX". The feature consists of sequential nitrification and denitrification by alternating air flow to the floating headers using control valves to create anoxic zones for denitrification.

Table 4-2: Effluent Requirements

Parameter	Effluent Requirement
BOD	10 mg/l
TSS	15 mg/l
TN	10 mg/l
NH_3-N	1 mg/l

Source: 2024 Predesign Report.

Table 4-3: Preliminary Aeration Basin and Integral Clarifier Sizing

Parameter	Existing Biolac	Parkson Biolac	Bioworks
Active volume	500,000 gal	620,000 gal	600,000 gal
Side slope	1.5:1	1.5:1	1.5:1
Sidewater depth	10 ft	10 ft	10 ft
At-grade dimensions	91' x 105'	94' x 148'	90' x 126'
Clarifier dimensions	50' x 23'	TBD	56' x 31.5'
Qty of floating headers	7	9	11
BNR	NO	YES	YES
Design MLSS	3,000 mg/l	3,000 mg/l	3,000 mg/l
Maximum MLSS	Typically operates at 3,600 mg/l	4,000 mg/l	4,000 mg/l
Air demand, excluding denitrification credit	880 scfm	1,185 scfm	900 scfm
Quantity of blowers	3	3	3
Size, each	510 scfm	600 scfm	450 scfm
Horsepower, each	25 hp	TBD	30 hp
VFD	NO	YES	YES

Source: Equipment supplier proposals in Appendix C.

4.4.1 Integral Clarifiers

The default integral clarifier offering from each manufacturer is configured differently. If an integral clarifier is chosen for the project, the differences will affect how the specification is written, the project is bid, and the clarifier is operated and maintained.

Parkson

Parkson's current integral clarifier design is similar to the District's existing integral clarifier, with the following improvements (see Appendix C for typical drawings):

- The curtain wall arrangement has been replaced with a reinforced concrete partition wall and an influent distribution channel to evenly distribute flows. Flow is introduced to the channel through a slide gate connecting to the basin.
- Dual cone bottoms and flocculating rake-skimmers are used.
- Both airlift and centrifugal RAS/WAS pump options are offered. We specified that pumps shall be used since the District has had challenges with the airlift pumps in the past.
- Duplex clarifiers with internal isolation can be provided if desired. These can be sized for 50% or 100% of the flow in each clarifier.

Aside from these features and options, the Parkson clarifier design is similar to the existing clarifier. It uses a flocculator rake-skimmer with chains to collect solids and carry scum to the scum beach. Sludge is collected on v-channels on the bottom of the clarifier and pulled by suction into perforated pipes cast into the v-notch.

Bioworks

Bioworks defaults to a different style of rectangular clarifier than the Parkson offering (see Appendix C for a clarifier brochure). Similar to Parkson, a concrete wall separates the biological treatment zone from the clarification zone. Bioworks utilizes a travelling bridge scum and sludge removal system. Suction headers travel along the bottom of the clarifier. Pumps remove the sludge and convey it to a channel where it flows by gravity to the inlet of the basin. Scum is removed by a skimming board attached to the bridge which conveys scum to a rotating pipe trough. Sludge is wasted via an automated valve.

If specified, Bioworks can offer an equivalent clarifier of the type that Parkson offers. Parkson does not offer a traveling bridge clarifier like Bioworks.

The differences in the clarifier styles could present some challenges to preparing a bidding specification open to both manufacturers if the District is interested in the traveling bridge style, which is more costly to manufacture than the Parkson-style clarifier. However, if the District selects an independent clarifier option, then the manufacturers would propose the basin alone and these differences would not be a factor.

Like Parkson, Bioworks can offer their integrated clarifiers in a duplex arrangement upon request.

4.4.2 Configuration

HydroScience specified that the new basins be constructed at the same 1.5:1 side slopes as existing. Our default approach for lining the basins would be to use the same reinforced concrete liner approach as the existing. This has provided good service life at this facility, allows for cleaning without liner damage, and avoids sun exposure issues compared to a synthetic liner.

HydroScience specified a 10’ sidewater depth to match existing. Bioworks has offered that if the basin were increased to 12’ depth, this would reduce the flat floor dimension to 87' x 50' and the at-grade dimensions of 108' x 92'. Air required would drop from 900 SCFM to 750 SCFM (non-denitrification), requiring proportionately less diffusers (9 chains instead of 11). However, this would make the new basin deeper than the existing and could present issues with hard rock excavation (geotechnical report is pending and will be reviewed once available). For the time being, a 10’ sidewater depth is considered the project default to match existing.

4.4.3 Comparative Equipment Costs

HydroScience requested that each supplier provide budgetary pricing for a number of configuration options. **Table 4-4** presents the costs quoted. Note that these only cover manufacturers’ scopes of supply. They do not include civil construction, concrete, or installation. Duplex clarifiers would require more concrete than a simplex clarifier.

Table 4-4: Aeration Equipment Options Budgetary Quotations

Alternative	Parkson	Bioworks
A. Single full-flow integral clarifier	$790,000	$710,000
B. Two integral clarifiers, each at 50% Q	$850,000	$900,000
C. Two integral clarifiers, each at 100% Q	$880,000	$975,000
D. Clarifier by others	$700,000	$495,000

The following summarizes our observations regarding these quotations:

- The quotations from both suppliers for Option A (the default option) are relatively similar.
- The incremental cost for a duplex clarifier, based on equipment only, ranges from 8-27% of the base cost. This excludes the additional concrete, which will add to the cost difference.
- The cost of equipment for the aeration basin alone (Option D) is 70-89% of the cost with integral clarifier. There are potentially significant savings to apply to an independent clarifier. The Bioworks quotation is 30% lower than the Parkson quotation for this option.

4.5 Aeration Blower System

The existing blower system includes three blowers with space for two additional blowers. These are installed in a room in the Treatment Plant Building. The air discharge manifold is buried beneath the building slab. Options for expanding air supply to feed the new aeration basin and the existing include installing new blowers in the available spaces in the blower room, or installing a separate blower system dedicated to the new aeration basin.

Given that the new aeration/clarification system will be sized larger than the existing to address all Phase 3 flow scenarios, the airflow requirements will be higher for the new system compared to the existing system. Additionally, the new basin will operate in BNR mode while the existing will not until it is upgraded in a future project to serve Buildout conditions. BNR mode requires finer control of basin dissolved oxygen (DO) to optimally achieve effluent quality requirements.

To optimize operations, HydroScience does not recommend expanding the existing blower facility with two new blowers so that it can serve both process units. This approach would severely limit the operator's ability to balance airflow between the two basins and independently manage the DO in each basin. Installation of an isolation valve on the existing air discharge manifold to split air control is difficult or infeasible because the manifold is buried under the slab and not accessible.

Therefore, HydroScience recommends constructing a dedicated blower facility to serve the new unit process. This would be constructed in the adjacent chlorine gas room. Chlorine gas is no longer used and that equipment has been removed. The room is currently used for storage and the District has indicated that it can be cleaned out and reused. **Sheet M600** in Appendix B shows our recommended approach. Three blowers would be installed in the adjacent room. The discharge manifold would be surface mounted on the floor and penetrate the south wall before transitioning below grade. A tie in would be made to the existing buried air supply stubout for the second aeration basin. A valve would be installed and kept normally closed to isolate the air supplies to the two basins except during abnormal operating circumstances such as if the existing blower facility fails.

The new blowers will be VFD controlled. A total of three blowers will be installed: two duty blowers and one standby blower. These will be positive displacement blowers similar to the existing blowers.

4.6 Independent Secondary Clarifier Option

For this alternative, a conventional circular secondary clarifier would be constructed to clarify mixed liquor from the new aeration basin. It would be located southwest of the aeration basin adjacent to an existing gravel access road. A RAS/WAS pump station would be constructed next to the clarifier to collect and pump sludge back to the front of the aeration basin with a side stream controlled by an actuated valve to waste a specific volume of sludge to solids dewatering. Two pump configuration options are evaluated for this station:

- Submersible centrifugal chopper pumps in deep wet well
- Double disc pumps on concrete pad similar to Arnold WWTP

The following criteria was used to evaluate the clarifier design:

1. Detention Time (DT), hrs = Tank Volume (MG) x 24 hours / Day / Flow into Tank (MGD)
2. Surface Overflow Rate (SOR), gal/d/ft^2 = Flow (gpd) / Surface Area (ft2)
3. Weir Overflow Rate (WOR), gal/d/ft = Flow (gpd) / Length of Weir (ft)
4. Solids Loading Rate (SLR), lbs/d/ft^2 = Solids (lbs/day) / Surface Area (ft2)

The same flow criteria for Phase 3 and Buildout used to size the aeration basin will be used to size the clarifier. RAS will recirculate from the clarifier to the front of the aeration basin in the same process train. Each aeration basin will have an independent clarifier and RAS/WAS pumping system. If an independent secondary clarifier is constructed for the new aeration basin as part of this project, it is assumed that the future Buildout upgrade project will include removing the existing integral clarifier and constructing a second separate secondary clarifier and RAS/WAS pump station.

Typical design values for the clarifier loading design are shown in **Table 4-5**.

Table 4-5: Typical Clarifier Loading Criteria

Clarifier Loading Criteria	Typical Design Value	Units	Condition
DT	2 - 3 hours	hours	Peak Hour Flow
SOR[1]	400 - 800	gal/d/ft^2	Maximum Day Flow
WOR	10,000	gal/d/ft	Peak Hour Flows
SLR[2]	25-30	lbs/d/ft^2	Maximum Day Flow at 4,000 mg/L

Notes:
1. Typical design for SOR of 200 - 400 gal/d/ft^2 (average) and 600 - 800 gal/d/ft^2 (peak) for secondary clarifiers settling following extended aeration is shown in Metcalf & Eddy, Inc., *Wastewater Engineering: Treatment and Reuse*, 4th Ed., R. Tchobanoglous, 2003.
2. Typical design for SLR of 4.8 - 24 lbs/d/ft^2 (average) and 33.6 lbs/d/ft^2 (peak) for secondary clarifiers following extended aeration is shown in Metcalf & Eddy, Inc., *Wastewater Engineering: Treatment and Reuse*, 4th Ed., R. Tchobanoglous, 2003.

The recommended clarifier configuration is a spiral blade clarifier as manufactured by Westech, Inc, ClearStream Environmental, RockWater Equipment, or approved equal. A budgetary proposal was solicited from Westech and is included in **Appendix D**. A premium coating system or stainless steel will be specified for all submerged metallic equipment.

At this diameter, the equipment for this clarifier would be one of the smaller units that Westech provides. It is recommended to install the launder on the outside of the basin to give space between the scum collector and the clarifier mechanism. HydroScience recommends a 12-foot clarifier depth to optimize settling performance.

A precision bearing drive design is proposed for this project. Westech has indicated that this type of bearing is only available in a grease lubrication option. The main bearing and reducer can be grease or oil lubricated. The loading criteria summary for the existing and new clarifiers are shown in **Table 4-6**. The complete process calculations are included in Appendix D.

Table 4-6: New Clarifier Loading Criteria Summary

Parameter	Value	Units
Weir Diameter	38.0	ft
Diameter	40.0	ft
Side Wall Depth	14.0	ft
Side Water Depth	12.0	ft
Volume	113,000	gal
Design MLSS	3,000	mg/L
RAS SS	7,000	mg/L
DT @ MDF	3.8	hrs
Min DT @ 10°C	3.0	hrs
SOR @ MDF	695.3	$gal/d/ft^2$
SOR Peak Typical	400-800	$gal/d/ft^2$
WOR @ PHF	10,571	$gal/d/ft^2$
Max WOR	10,000	$gal/d/ft^2$
SLR @ MDF	27.5	$lbs/d/ft^2$
SLR Typical	25-30	$lbs/d/ft^2$

A plan and section of the proposed layout is shown on **Sheet M300**. A detail for scum flushing will be developed during design.

Table 4-7 below presents the comparative costs for the independent clarifier versus an integral clarifier based on current budgetary pricing. Choosing an independent clarifier adds between $713,710 and $986,592 to the project cost after contingencies, depending on the type of RAS/WAS pump station selected.

Table 4-7: Clarifier Options Cost Comparison

Alternative	Capital Cost (Equipment, concrete, and installation)
Aeration Basin with Integral Clarifier	**$3,833,045**
Aeration Basin with Separate Clarifier and RAS/WAS Pump Station	**$4,521,405**
Aeration Basin	$2,310,797
Secondary Clarifier	$1,729,700
RAS/WAS Pump Station[1]	$332,930
Additional Yard Piping	$10,616
Additional Electrical	$137,362
Cost Difference	**$688,360**
Cost Difference with Contingencies and Time Escalation	**$986,592**

Notes:
1. The more expensive of the two options, submersible chopper pump station, is assumed. If a double-disc pump station is selected, the savings to this option would be $273,582 including contingencies and time escalation. The resulting cost adder for an independent clarifier would be $713,710

4.7 RAS/WAS Pump Station

If a separate clarifier is pursued, a separate RAS/WAS pump station will need to be constructed to recirculate settled sludge to the front end of the process train and waste the appropriate pounds of solids to the dewatering process each day. **Table 4-8** presents the estimated return flow rate based on biological concentrations in Table 2-5.

Table 4-8: Design RAS Flows (Each Clarifier)

	WWTF AAF (gpm)	RAS Multiplier	Max RAS Flow (gpm)	Max RAS Flow (gpd)
Phase 3 [2]	219	1.5	329	437,760
Buildout [3]	313	1.5	469	675,360

Notes:
1. RAS flows were estimated based on a RAS concentration of 7,000 mg/L and MLSS concentration of 4,000 mg/L.
2. RAS flow for Phase 3 is assumed to be coming from the new clarifier.
3. RAS flow at buildout is the total RAS flow from the 2 clarifiers. 50% of this RAS flow will be pumped from each clarifier separately by a dedicated RAS/WAS pump station.

Various pump station configurations are available for this facility, including at-grade and submersible pumping systems. HydroScience performed a similar comparative evaluation of RAS pumping approaches for the Arnold WWTF (*Draft Preliminary Design Report, Arnold WWTF*, November 2021, HydroScience Engineers). For that project, double disc pumps were selected to match existing, eliminate the cost of excavation and a concrete wet well, and be able to handle larger solids and debris.

A similar evaluation is presented herein. The evaluation included submersible chopper pumps, double disc pumps, and progressing cavity pumps for this application considering the installation requirements, flow range/ turndown, solids passing, maintenance requirements, and capital cost. **Table 4-9** presents these considerations and compares the pump options.

Table 4-9: RAS Pump Comparison

Parameter	Submersible Chopper	Progressing Cavity	Double Disc
Installation Requirements	Requires wet well	Seal water required; pad on grade (no wet well)	Compact layout; pad on grade (no wet well); requires pulsation dampener and discharge pressure switch
Flow Range/ Turndown	75 to 100% of pump flow capacity	50 to100% of pump flow capacity	20:1 turndown
Solids Passing	Specifically designed to pump waste solids at heavy consistencies without plugging – passes 4-inch solids	Less tolerant of grit and debris (max 0.6-inch solids)	Passes 2-inch solids
Maintenance Requirements	Typical pump maintenance	Full service-in-place design	No mechanical seals, glands, oil (zero routine maintenance)
Capital Cost (Equipment, concrete, and installation)	$332,930	Not recommended; Not priced	$190,882
Advantages	Lower equipment cost Common pump type for RAS systems Can fully drain the clarifier	Not recommended	Lower installed cost Better flow turndown Can provide up to 25 ft of suction lift for draining clarifier District operating experience at Arnold WWTF
Disadvantages	Wet well required Higher installed cost Reduced flow turndown	Vulnerable to large debris; therefore not recommended Requires below-grade vault for flooded suction or separate tank dewatering pumps	Installed at grade Higher equipment cost Requires trash pump to fully drain the clarifier

Submersible chopper pumps will require a wet well, which adds to the construction cost. The wet well should be constructed to a depth below the bottom of the clarifier to provide flooded suction while draining the tank.

Progressing cavity (PC) pumps are sometimes used for this type of application. PC pumps can be provided with easily disassembled stators for maintenance and typical have large turndown ratios. PC pumps operate on a close tolerance fit between the rotating metal rotor and the stationary rubber stator and can only pass a 0.6 inch solid. Given the following factors, there is reasonable potential for screenings and larger debris in the existing Biolac:

- The WWTF is 33 years old.
- The headworks screen was replaced and upgraded after original facility construction. It is assumed the prior headworks screen may have failed to remove all large debris at some point.
- The plant has a single process drain. The existing Biolac has probably never been drained or cleaned.

As a result, PC pumps are not recommended due to the potential presence of significant debris in the Biolac which would present risk of accelerated pump wear should this debris end up the settled sludge. Furthermore, there is risk of running the PC pumps dry unless they are installed in a below-grade vault to always assure flooded suction (including when draining the tank, unless a separate drainage system is constructed). The clarifier is expected to be constructed partially below grade. A below grade pump vault could involve confined space entry and the need for a sump pump to keep the space dry.

The remaining options for the District's consideration are double disc pumps or submersible chopper pumps. Advantages and disadvantages of each are presented in the previous table. HydroScience will incorporate the District's input into the final version of this PDR.

Sheet M500 shows the preliminary RAS/WAS pump station layout utilizing a submersible chopper pump approach. The Arnold WWTF drawings (provided separately) provide an example of a double disc arrangement. For the double disc approach, a side motor mount frame is shown, but this pump can be installed with the motor piggyback for an additional cost. A space heater is recommended for outdoor installation due to diurnal temperature swings which can cause motor condensation. Shaft grounding rings are optional. These prevent degradation of main pump bearings and shaft from possible stray electrical currents when running a pump on a VFD. These pumps require a pulsation dampener and discharge pressure switch.

The existing Biolac sets a wasting rate based on a timer that opens a motorized wasting valve. The District operates RAS flows at a fixed setpoint that does not vary with flow but is adjusted from time to time based on measured MLSS and process performance.

Table 4-10 shows the recommended design criteria based on a typical average RAS flow of 50-75% of average and a peak RAS flow of 100-150% of average flow (Wastewater Engineering Treatment and Reuse, Metcalf & Eddy, 2003) for secondary clarification with extended aeration. This sizing approach was confirmed by the aeration system manufacturers.

Table 4-10: RAS/WAS Pump Station Design Criteria

Parameter	Criteria	Units
Type of Pumps	Double Disc or Submerged	
Number of Pumps	1 Duty + 1 Standby	
Phase 3 Design Criteria, one Process Train		
Average Monthly Influent Flow	315	gpd x 1000
Average RAS Flow	197	gpd x 1000
Low RAS Flow	158	gpd x 1000
Peak RAS Flow	473	gpd x 1000
% Peak RAS Flow/ Average Influent Flow	150%	
RAS Design Flow	328	gpm
Buildout Design Criteria, per Process Train		
Average Monthly Influent Flow	225	gpd x 1000
Average RAS Flow	141	gpd x 1000
Low RAS Flow	113	gpd x 1000
Peak RAS Flow	338	gpd x 1000
% Peak RAS Flow/ Average Influent Flow	150%	
RAS Design Flow	234	gpm

The data sheets for both the submersible and double disc options are included in **Appendix E**.

4.8 Upper Effluent Storage Pond (UESP) Pump Station

Currently the District does not have an adequate permanent pumping and piping system to drain the UESP pond which currently discharges to the existing Return Lift Station (also referred to as the Effluent Return Pump Station) (RPS). The temporary system includes a portable submersible pump and above ground temporary PVC piping across the UESP west levee. Effluent is pumped to the RPS wet well and pumped back to treatment with the existing submersible pumps.

Existing data shows that the pond is currently drained during the drier months (May – September). Data provided by the District shows pumping may range from 285 – 500 gpm when the pond is drained within a one-month period. Typical open storage pumping designs allow stored effluent to be drained over several months, typically during the summer May/June through the end of September. Assuming a 5-month drainage period, pumping 8 hours per day, 5 days a week, a flow rate of 300 gpm is adequate. This pumping rate is also within the target range proposed by the District.

Several pump station alternatives were evaluated to determine the most feasible, cost-effective, and operator-friendly approach. The pump station alternatives that will be addressed in this PDR are the following:

- Option A (base option): Construct a submersible wet well pump station on the levee, fed by a deep gravity inlet pipe.
- Option B: Replace the existing RPS with a new larger submersible pump station facility sized for existing drainage flows (primarily filter backwash and solids dewatering reject flows) plus UESP flows. UESP gravity flows into the wet well would be throttled by an inlet valve to avoid overwhelming the pump station or risking a spill.
- Option C: A floating pump station barge installed in the reservoir with submersible non-clog pumps. This option would not require an inlet pipe.

For all configurations, it is proposed that a single pump will handle the design flow with a unit in standby. Option B assumes VFD driven motors to manage the rate of flow to headworks. The other options can use soft-starter constant speed drives.

HydroScience also considered an option to install self-priming pumps on a concrete pad on the levee with a shallow buried suction line to the bottom of the reservoir. This option was eliminated after calculating the high suction lift required during low UESP levels. Additionally, the District has concerns about maintaining pump prime and does not have this type of pump at any other District facility. Therefore, this option was eliminated from further consideration.

For Option B, the existing wet well peak influent flows were estimated to determine a suitable design flow with the addition of the UESP flows. Existing flows to the RPS are primarily backwash waste from the Dynasand filtration system and filtrate from the solids handling system.

The existing RPS 8” discharge force main currently ties into the 12” SFM from the Huckleberry PS prior to entering the headworks channel (adjacent to the treatment plant building). The engineer preparing the Huckleberry PS design wishes to remove all flow inputs into the Huckleberry force main to facilitate predictable pumping hydraulics for that station. Therefore, the new force main from this WWTF pump station will separately discharge to headworks at a new below-grade junction box installed immediately upstream of the headworks channel. Process controls will be configured to prevent the combined flow (Huckleberry PS plus return flows) from exceeding the design capacity of the mechanical bar screening facility or downstream processes at any time.

The three alternatives identified for further evaluation of a new UESP pump station are as follows:

Option A (base option):

The submersible pump station in a deep wet well alternative results in a deep excavation through the levee and a fully drained pond for installation of equipment. This option requires a circular 8' ID precast wet well approximately 22 feet deep and deep inlet with a strainer. A concrete pad and pipe support would be installed in the pond sump area to support the suction pipe at minimum water levels. The valving and manifold will be next to the wet well on grade for operator access. A 6" discharge force main is expected for the proposed design flow of 300 gpm. This option would also require a wider access road around the pump station and possible re-grading of the exterior pond berm to maintain the 2:1 slope. The wet well and pond will be hydrostatically connected and would maintain an equal water level throughout pumping operations.

This option is presented in civil sheet **Sheet C105A** and mechanical **Sheet M200**.

Option B:

The existing RPS is a duplex submersible wet well pump station with constant speed pumps. The pumps were configured to operate in lead-lag mode, with a single pump capacity of appx. 430 gpm (target design flow of 305 gpm). Operational staff has indicated that a single pump still runs at full capacity typically during a belt press operation. It was also noted that typical flows from the RPS are calculated at appx. 183 gpm since no flow meter currently exists at this pump station, and the pumps alternate between startups.

The existing operational volume of the wet well is insufficient to meet typical pump cycling criteria with the additional flow from the UESP (max 6 pump starts/hour). This eliminates the possibility of refurbishing the existing wet well the additional UESP flows. For the purposes of this PDR, it is assumed that a new lift station will be constructed for UESP and plant drainage flows. This would provide the District the added benefit of having a new pumping facility for existing flows.

An operational volume of approximately 4,125 gallons is needed to satisfy pumping cycles assuming an incoming peak flow of 605 gpm (RPS single pump design flow 305 gpm + UESP pond drain rate 300 gpm). The pumping rate would be designed for appx. 650 gpm output. This results in a 12' ID precast wet well approximately 14 feet deep and flooded suction inlet with a strainer. The suction line would enter the wet well at the floor bottom. The new wet well location would be constructed within the vicinity of the existing RPS for similar grade elevations. This option would require a valve at the inlet from the pond to control the flow not-to-exceed 300 gpm at any time. Additional appurtenances/equipment would be required to protect upstream processes if a suction pipe or valve failure occurs with a full reservoir.

Unlike the other options, this approach requires close operator attention on wet well levels and pumping rates when the UESP drain valve is open to verify that UESP flows do not exceed the pump station's capacity. The max WSE of the UESP is 735.3 ft and finished grade at existing RPS is 720.6 ft. Therefore, the replacement RPS if installed at the same elevation would be about 15 ft below the max UESP WSE. A throttling valve would be installed to regulate flows into the wet well, and an upstream isolation valve would be installed as a secondary safety shutoff. Valves would need to be regularly exercised to ensure proper functionality.

Existing plant drainage flows will need to be re-routed to the new lift station. This would include an additional 4-5' ID manhole and approximately 70 linear feet of 8” pipe. The invert elevation at the wet well from the plant drainage flows will set the high-level alarm elevation for the new UESP pump station to prevent backflow. An 8” discharge force main is expected for this option due to the higher flow.

For this alternative the existing RPS pump loads would be replaced with new pump loads. This option is presented in **Sheet C105B.**

Option C:

This alternative is hydraulically similar to Option A. The advantage of this option is that no deep trenching is required and the pond may be full during installation. This option would include a floating platform/barge with duplex pumps, check valves and semi-flexible discharge piping in the water with isolation valves and manifold piping on top of the berm. This requires a single concrete pad for the valve and manifold piping and trenching for the discharge manifold pipe, typically 3’-4’ below grade. This option is available with vertical turbine or submersible pumps with differences only in pump efficiency, solids handling and mounting configuration within the floating barge structure. The pumps are mounted inside the barge/structure while the discharge piping penetrates through the top center of the barge. The bottom of the barge is an open cavity for water intake. The barge is designed to withstand rocky and uneven surfaces. Access for pumps and equipment on a floating platform would require a boat or floating walkways for access. Given the nature of pond water and potential for solids/debris to accumulate, submersible non-clog pumps are preferred with a minimum 3-inch solids passing.

Another alternative to this configuration is a permanent dock with submersible pumps on rails. This configuration would require draining the pond for dock construction.

The design options are summarized in **Table 4-1** below.

Figure 4-1: UESP Pump Station Options

	A. Submersible Pumps in Wet Well at Levee	B. New Dual-Purpose Replacement Return Pump Station	C. Submersible Pumps on Floating Station Barge
Installation Requirements	Requires deep excavation for inlet and wet well, fully drained pond for construction	Requires deep excavation for suction line, fully drained pond for construction	No deep excavation required, valves and accessories at the top of levee
Wet Well Size	8 ft internal diam x 22 ft deep	12 ft internal diam x 14 ft deep	none
Pump HP Requirements	10 hp	15 hp	10 hp
Other Considerations	Re-grading of exterior pond slope and widened access road within vicinity of equipment	Flooded suction condition requires throttling valve at inlet, isolation system for possible inlet pipe breach, impacts larger area/footprint for installation	Pond does not need to be fully drained for installation
Maintenance Requirements	Typical pump maintenance	Typical pump maintenance Regular exercising and checking of pond isolation valves into wet well.	Requires boat, floating walkway or permanent dock for pump access[1]
Capital Cost (Equipment, concrete, and installation)	$586,243	$993,607	$426,341
Advantages	Moderate cost Avoids spill risk from deep pipe	Renews and upgrades an existing pumping facility and combines functionality with UESP pumping Easy to access for maintenance	Lowest cost Avoids deep excavation or need to drain UESP Avoids spill risk from deep pipe
Disadvantages	Results in an additional pumping facility at WWTF Requires deep excavation and draining UESP	Highest cost Requires deep excavation and draining UESP Spill risk if valves or pipe fails PS can be overwhelmed if flow not regulated	Results in an additional pumping facility at WWTF Barge ramp or pulling to shore required for maintenance; difficult when pond level is low Unfamiliar facility type to District

Notes:
Permanent dock would require fully drained pond for construction.

When the UESP is being pumped back to headworks, it will flow through a new dedicated force main to a new junction box installed on the influent side of the headworks. The UESP pump station will be automated and have a dedicated flowmeter. The control logic would be programmed to limit or stop UESP pumping when Huckleberry PS flow plus UESP flow would exceed the peak hydraulic capacity of the WWTF. Generally, UESP is expected to be pumped down in the summer when this would not be an issue.

4.9 Treated Effluent Pipeline to Lower Effluent Storage Pond

An evaluation of the existing pipeline was conducted in the 2024 Predesign Report and has been further refined. The existing pipeline consists of a 12-inch pipeline exiting the Parshall flume and transitions to an 8-inch pipeline that is outside the perimeter berm of the UESP. The 8-inch pipeline interconnects with the UESP valve assembly located south of the UESP, comprising approximately 1,100 ft of piping. The effluent is conveyed south to the Lower Effluent Storage Pond (LESP) across approximately 2,980 ft of pipeline. The controlling water surface elevation at the Parshall flume is 736.64 ft and the maximum elevation at the LESP was historically 700 ft but has been increased to 702.3 ft based on the recent survey data. The maximum losses in the existing pipe should not exceed the total vertical change of 34.34 ft. The existing 8-inch piping and fittings are estimated to allow a maximum of 0.73 MGD to the LESP with total head losses of 34.34 ft using the Hazen Williams equation.

To accommodate existing and future peak hour flows, a parallel pipeline has been preliminarily designed to convey a minimum of 1.40 MGD to the LESP, which would increase the total maximum flow from 0.73 MGD to 2.00 MGD or more. The pipeline varies from 10 to 12-inch nominal diameter due to the head conditions and losses in the system, which are presented in **Figure 4-2**. Due to the minimal elevation drop between the Parshall flume and the UESP valve assembly, the 1,100 ft length of piping between these components is sized to 12-inch nominal diameter to minimize head loss. Beyond the UESP valve assembly, as the pipeline elevation decreases the static head increases significantly and the pipe is reduced to 10-inch diameter for the remaining 2,415 ft (total run of 3,515 ft for the new pipeline).

As shown in the drawings Appendix B and **Appendix G**, the treated effluent pipeline has been designed with bypass capabilities at the UESP valve assembly so that either the existing or new pipeline can be bypassed. There is also an interconnection proposed at the LESP to use the lower outlet alone (to avoid bank scour when LESP levels are low) or to bypass the LESP.

When both parallel pipelines are in service, they will reach an equilibrium head condition where the flow rates will adjust until head losses in both pipelines will equal one another. The flow scenarios of the pipelines are summarized in **Table 4-11** below. At a flow rate of 2 MGD, 0.60 MGD would be conveyed in the 8-inch pipeline and 1.4 MGD in the 10-inch pipeline with total head losses of approximately 23.80 ft. The maximum flow rate of the two pipelines is 2.48 MGD which would utilize the 34.34 ft of elevation drop in the form of head losses.

Additional flows greater than 2.48 MGD may be conveyed through the parallel pipelines, however it would likely increase the upstream water surface elevation in the Parshall flume to overcome the additional head losses.

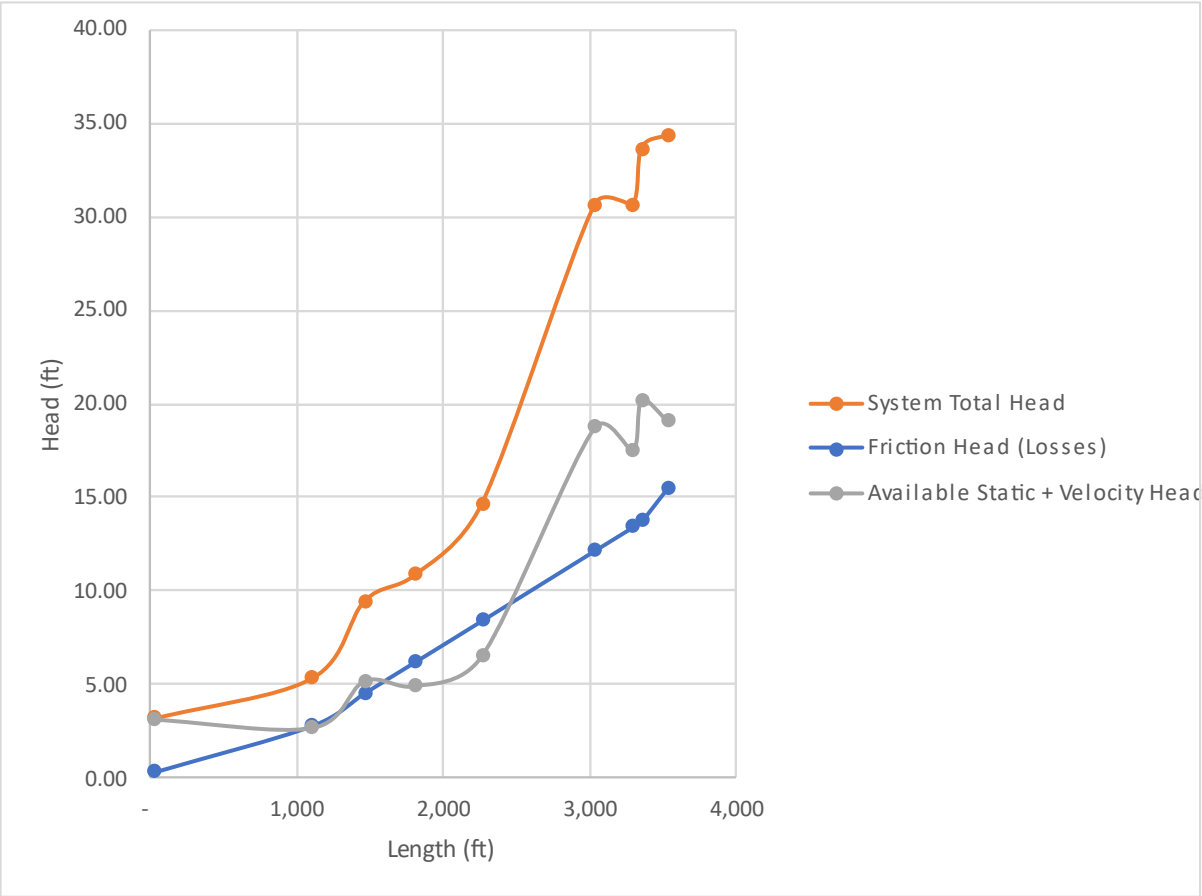


Figure 4-2: 10 inch Treated Effluent Pipeline Head Calculated Conditions at 1.40 MGD

Table 4-11: Summarized Treated Effluent Pipeline Flow Scenario Calculations

Flow Scenario	Flow Rate (MGD)	Total Head Losses (ft)	Flow Velocity (ft/s)
Existing 8 inch Pipeline Full Flow	0.73	34.34	3.25
8 inch and 10 inch Pipelines in Parallel	8 inch: 0.60 10 inch: 1.40 Total: 2.00	23.80	8 inch: 2.65 10 inch: 3.98
8 inch and 10 inch Pipelines in Parallel, Full Flow to both Outlets	8 inch: 0.73 10 inch: 1.75 Total: 2.48	34.34	8 inch: 3.25 10 inch: 4.95
8 inch and 10 inch Pipelines Full Flow to Single 8 inch Outlet	8 inch: 0.47 10 inch: 1.11 Total: 1.58	34.34	8 inch (parallel): 2.09 10 inch (parallel): 3.14 8 inch (combined): 6.99

The 10-inch pipeline outfall is proposed at the LESP at a maximum elevation of 702.3 ft to match the maximum water level. Concerns regarding the potential erosion of the LESP exist for areas where the slopes are greater than 6% or where constrictions to the flow cross sectional area may occur when the LESP is being filled by the 10-inch pipeline outfall. To prevent slope erosion and scour, the District may utilize the lower outfall of the 8 inch pipeline at 1.58 MGD until the LESP reaches 692.3 ft water surface elevation (approximately 50 Acre-feet volume). After the 692.3 ft elevation is reached, the slopes between the water surface and the outfall of the 10-inch pipeline are gentler (i.e. generally less than 6%) and less likely to erode, allowing both outfalls to be utilized to completely fill the pond to 702.3 feet water surface elevation (172 Acre-feet volume) at flow rates from 2.0 to 2.48 MGD.

4.9.1 Pipeline Replacement Alternative

Although the current design proposes a 10-inch parallel pipeline, the District may prefer to abandon in place the existing 8-inch pipeline and construct a larger singular pipeline to convey the 2 MGD of effluent to the LESP. During the evaluation of the site survey data, it became apparent that portions of the existing pipeline appear to lie outside the legal easement area which makes it difficult to legally access and maintain. A preliminary evaluation indicates a larger pipeline consisting of 1,092 LF of 14-inch and 2,423 LF of 12-inch nominal diameter pipe may be installed within the legal easement area to convey at least 2 MGD to the LESP. Because the WWTF must discharge effluent flow to the LESP at all times, the construction approach would need to keep the existing pipeline in service until the new pipeline is completed, tested, and commissioned.

4.9.2 Preliminary Evaluation of Subsurface Conditions

Four test pits (TPs) and seismic refraction lines (SRs) were completed along the proposed pipeline alignment to assess the likelihood of encountering rock to be excavated. The Draft Geotechnical Report was not available at the time of this writing but will be incorporated prior to finalizing this PDR. The Geotechnical Engineer provided this preliminary narrative:

> Based on published geologic mapping, the TP excavations, and SR surveys, we anticipate the proposed pipeline alignment generally consists of at least 1 to 6 feet of lean clay, clayey sand, and clayey gravel underlain by weathered rock (sandstone and slate). Based on the TPs and results of our SR surveys we anticipate the soil and weathered rock is generally excavatable to the anticipated pipeline depths using a large excavator such as a CAT 336D (or equivalent).
>
> Most of the thinly foliated/bedded rock (slate) will likely break down upon excavation to dimensions of 4 inches or less; however, excavation may become more difficult with depth due to the tight rock condition and increasing hardness with depth. Isolated locations of more massive rock (such as hard sandstone) may also be encountered. These isolated occurrences of harder rock may require chiseling or drilling and splitting to facilitate removal and may result in generation of large bouldery material.
>
> The actual excavation effort/progress will depend on the equipment type and methods used, experience and skill of the operator, and the amount of wear and tear and progress acceptable to the contractor. The contractor is responsible for the selection of the appropriate excavation equipment, means, and methods.

The preliminary geotechnical narrative provided above indicates that the rock is expected to be generally excavatable with a large excavator, although the presence of isolated locations of more massive rock requiring hard rock removal methods may also be encountered. The existing pipeline located by the District prior to survey shows sudden jogs in alignment at various locations including the vicinity of STA 116+00, 117+30, 125+40, and 129+00. It is possible that these jogs were made to avoid such rock formations.

The locations of the TPs and SRs are provided on the pipeline plan and profile sheets (C200 through C207). Excavation of the TPs was completed using a small backhoe which often met practical refusal at shallower depths than a full size excavator likely would.

Table 4-12

Based on the evaluated SRs and TPs, the hardened slate and sandstone materials appear more likely to be encountered where seismic velocities increase above 5,000 ft/s. The highest likelihood of encountering these materials appears to be between STA 114+50 to STA 122+00. For this 550-foot segment of pipeline the proposed burial depth transitions from 5 ft to more than 18 ft, which may require up to approximately 500 CY of rock excavation for a 2-foot-wide trench where sound rock and boulders are estimated to be encountered at a typical depth of 5 ft or greater. The characterization of the likelihood of requiring rock excavation or encountering boulders and hard sandstone is summarized in **Table 4-12** below.

Table 4-12: Preliminary Subsurface Characterization

Characteristic	SRL 1	TP 1 SR 2 & 3	TP 2 SR 3 & 4	TP 3 SR 4	TP 4
Applicable Proposed Pipeline Stationing	STA 100+00 to STA 111+00	STA 111+00 to STA 120+00	STA 120+00 to STA 126+00	STA 126+00 to STA 130+00	STA 130+00 to STA 134+00
Approx. Depth to Hard Material	10 to 15 ft	5 to 7 ft	8 to 12 ft	10 to 15 ft	>15 ft
Proposed Pipeline Burial Depth	4 to 10 ft	4 to 18 ft	4 to 5.5	4 ft	4 to 6 ft
Likelihood of Boulders or Sandstone	Moderate	High	Moderate / Low	Low	Low

Following completion and review of the geotechnical report and selection by the District of an approach to increase pipeline capacity (parallel pipes or full replacement and abandonment), HydroScience will seek opportunities to optimize the pipeline design to reduce risk of hard rock excavation. This may include realigning the pipe and/or installing in the existing pipe trench above the existing pipe. However, this would require a record boundary survey of the easement to confirm limits and possible widening of the easement to follow the existing pipe alignment. The hydraulics will need to be recalculated for a shallower pipe depth if the new pipe conflicts with the existing. HydroScience will also include a rock clause in the contract documents with an assumed quantity based on the final alignment and geotechnical report.

4.10 Electrical Power

The existing power distribution system consists of a utility power feed supplied by a PG&E pad-mounted transformer, which supplies a NEMA 3R, 480/277VAC, 1200A Main Switchboard (MSB). This MSB includes a PG&E meter, an automatic transfer switch (ATS), and a switchboard (SWB) with two feeders that supply power to SWB-E and MCC-1. Backup power is provided by a 750kW diesel generator with an above ground fuel tank.

The project includes new electrical loads to support the additional and upgraded process units and pumping facilities, which will require additional utility power and distribution capacity including breakers, conduit, and wire. The new Main Switchboard 'MSB' will be needed to handle the additional loads required for the next phases. The MSB will include a utility meter with a main breaker and a 4-pole ATS rated at 2000 Amps, 480/277VAC, 60Hz, 3-phase, 4-wire, and a 65,000 AIC rating. It will be installed in the new Electrical Building. This additional load will also require a larger generator to handle the new loads. The new diesel generator will be Tier 2 to meet Calaveras County Air Pollution Control District (APCD) requirements.

The existing 800-amp motor control center (MCC-E), located in the Operations Building, is currently supplied by a 400-amp feeder breaker from switchboard SWB-E. MCC-E distributes 480VAC, 3-phase power to most motors and equipment, along with a 75kVA, 3-phase, 480VAC to 120/208VAC transformer. The transformer feeds Panel LP-2, a 120/208VAC distribution panel that powers various electrical loads.

Due to space constraints in the Operations Building, the need to enhance safety by removing 480VAC power from occupied areas, and the need to comply with current electrical codes, the District has decided to construct a new Electrical Building. This new building will house a replacement MCC with expanded capacity and space. Moving power distribution out of the Operations Building will resolve workspace limitations and improve safety by isolating high-voltage equipment from areas occupied by staff.

The new Electrical Building will measure approximately 38' x 15' and will feature a single door at one end and a double door at the other, meeting NEC requirements for workspace and egress. The building will house transformers and VFDs, both of which generate significant heat, necessitating an AC system to maintain optimal equipment temperature. LED lighting will be installed both inside and outside. The building will also accommodate a future MCC and process control panels, with minimal openings to reduce dust and pest intrusion.

The new PG&E pad mounted transformer, generator, fuel tank, main switchboard, switchgear and MCC-2 will be installed prior to demolition of any existing electrical gear. A belly fuel tank is typically recommended to reduce installation requirements and footprint, but a separate fuel tank can instead be specified (similar to existing) if so desired by the District.

The new switchgear will have an 800A breaker installed to backfeed the existing switchgear. PG&E will power the new switchgear from the new transformer. The existing generator will be left in place to provide a backup to the existing switchgear. Once both the existing and new switchgear are energized the process of cutting the existing loads to the new MCC-2 will begin. Once all existing and new loads are wired to the new MCC-2, the existing equipment can be removed.

HydroScience has developed a preliminary one-line diagram reflecting the anticipated existing and new MCC loads. This is provided on **Sheet E010.** HydroScience has developed a preliminary layout of new electrical equipment and the Electrical Building. This layout involves grading a flat area adjacent to the new aeration basin located west of the existing electrical gear. See **Sheet E-100.**

4.11 Controls

The project includes field instrumentation to support the upgrades, which will require landing additional analog and discrete inputs/outputs (I/Os) on the Main Control Panel 'MCP' and additional PLC programming and SCADA screens to incorporate new, remote monitoring and control, and process automation.

The existing MCP is located in the Operations Building. This Panel will be demolished and replaced with a new Main Control Panel, 'MCP'. The MCP shall include as a minimum, an Allen-Bradley CompactLogix to match the PLCs at other Calaveras County Water District sites, an Uninterruptable Power Supply, and an HMI. The existing PLC and I/O modules are Schneider Electric TSX Quantum, which is an obsolete system. Similar to the MCC, the District decided to fully replace the PLC and SCADA system as part of this project. The PLC shall include enough I/O for the required amount plus an additional thirty percent as spares and empty slots to allow for future expansion. The PLC upgrade will include transfer of existing control logic from the existing PLC to the new PLC, augmented with additional control logic and modifications to support the Phase 3 upgrades based on control strategy narratives prepared by HydroScience.

A new computer and ancillary equipment to run the SCADA system shall be acquired and installed in the Operations Building to replace the original. The SCADA programming shall match the original format plus the additional equipment. The field devices, I/Os, and PLC interconnections required to support Phase 3 are included in the preliminary Process and Instrumentation Diagrams (P&IDs). See **Sheets I001-I109**.

SECTION 5 – PROJECT RECOMMENDATIONS

Table 5-1 below summarizes the key decisions needed to fully define the scope of improvements and presents our comments and initial recommendations for the District's consideration.

Table 5-1: Key Project Decisions and Initial Recommendations

Project Component	Decision Required	HydroScience Initial Recommendation	Factors/Comments
Headworks screen and channel	Confirm no upgrade to be added in this phase. Discuss upgrade plans for Buildout phase.	Replace the screen and the screen channel at Buildout. Construct new channel at higher elevation to facilitate flow split and flow measurement. Centralize facility location to provide similar length pipe runs to aeration.	Screen capacity is insufficient for Buildout flows. Channel elevation is too low for proper flow split and flow metering. Hydraulics needs to be coordinated with Huckleberry PS design.
Hydraulic grade line	Implement or defer splitter box upgrade.	Defer to Buildout after confirmation of hydraulics through existing wye-splitter	See discussion in Section 4.3
Aeration/Clarification	Construct integral clarifier or independent clarifier and RAS/WAS pump station	District preference. Choosing an independent clarifier adds between $713,710 and $986,592 to the project cost after contingencies, depending on the type of RAS/WAS pump station selected.	Separate clarifier simplifies specifications and procurement, provides District familiarity, and reliable performance
Aeration/Clarification	Allow Bioworks traveling bridge style clarifier or require Parkson style clarifier	None	Decision only pertinent if independent clarifier is not selected.
Aeration/Clarification	Construct simplex or duplex integral clarifier. If duplex, each would be either 50% or 100% of rated flow capacity.	Construct simplex clarifier and rely on the existing aeration/clarification process as a standby. Note that this will require seeding the biological unit process.	Decision only pertinent if independent clarifier is not selected.
Aeration/Clarification	Expand existing blower facility or construct a dedicated blower facility for new basin.	Construct a dedicated blower facility to avoid DO control challenges.	Tie in between headers with isolation valve provided to enhance operational flexibility.
RAS/WAS Pump Station	If independent clarifier selected, select from submersible chopper pump or double disc pump station option.	District preference	See discussion in Section 4.7
UESP Pump Station	Select type of pumping facility	District preference	See discussion in Section 4.8
Treated Effluent Pipeline	Size for parallel pipe operation or full replacement & abandonment of existing pipe	Pending geotechnical results, additional survey services, and updated costs.	

Notes:

Table 5-2 below lists design elements that are to be resolved or reconciled during the detailed design phase of the project.

Table 5-2: Design Issues to be Resolved in Detailed Design

Project Component	Issue	Comments
Aeration/Clarification	Reconcile blower size	Bioworks and Parkson air flow requirements differ more than expected
Aeration/Clarification	Reconcile basin dimensions	Select a default length to width ratio for final design
Aeration/Clarification	Field-measure weir v-notch elevation	HGL based on elevation estimated from as-builts and survey points
Aeration/Clarification	District to complete influent sampling program to inform updated design loadings.	HydroScience to reflect updated loadings in final aeration basin specifications
Filter static mixer	Confirm head losses in the mixer (provide O&M cutsheet or similar)	Affects hydraulic grade line calculations. May need to be upsized for Buildout
Return Pump Station	Confirm solids dewatering reject flow rate for Phase 3 and Buildout	An estimate is currently used
Solids Dewatering	Confirm that existing 2 meter belt press is lightly utilized and can be operated more hours per day to accommodate Phase 3 wasting rates.	Per 2024 Predesign Report and 2018 Master Plan, existing lagoons and belt filter press are lightly loaded and have sufficient capacity for expansion
Filtration	Confirm number of operating cells in Phase 3 and Buildout	Affects backwash rate calculation
Survey	Record boundary survey and possible easement adjustment	Needed to finalize plan for new pipe alignment and conveyance option
Geotech	Review final geotechnical report and confirm excavatability of rock at pipeline depths	
Construction Sequencing	District to provide input on maximum summer WWTF shutdown duration available for process and electrical/controls transitions.	

SECTION 6 - PRELIMINARY CONSTRUCTION SEQUENCING PLAN

Construction of the majority of the improvements will be completed while the existing treatment plant is in operation. Facility improvements will be fully constructed up to the connection points. Tie ins at the connection points will be coordinated with facility shutdowns and will allow time for dewatering, tie-in, and testing prior to coming back online. These are expected to be dry weather flow shutdowns. HydroScience will coordinate with the District during development of the construction sequencing specification to identify maximum allowed durations for these shutdowns based on the District's capability to hold flow at Huckleberry PS.

Construction and commissioning of the improvements will be coordinated with construction and commissioning of Huckleberry PS, depending on timing of the upgrade project. HydroScience will work with the District during detailed design to define the related sequencing requirements and reflect this in the final Contract Documents and construction schedule.

The comprehensive electrical and control upgrades included in this project will require a series of construction sequencing steps to implement. This will be the same overall approach taken on the Arnold WWTF, which is currently at the 100% design completion stage awaiting funding. The specifications for that project provide a detailed list of sequencing requirements for the contractor. These will largely be duplicated on this project. In general, the steps are summarized as follows:

1. Construct buried conduit ductbanks from the new Electrical Building to all new and existing WWTF facilities. Terminate at junction boxes adjacent to field loads.
2. Construct new Electrical Building. Install new electrical panels.
3. Install new plant control panel (CP) in the existing operations room.
4. Set the new PG&E transformer pad and wire it to the new service entrance.
5. Construct new generator pad and install the generator.
6. Pull power and control cables from MCC and CP to field devices and loads. Land cables on all new processes and equipment. At existing equipment, spool cable for future connection during planned transitions.
7. Install a temporary backfeed from the new switchboard SWB-2 to the existing Switchboard. Note: if PG&E has the capacity to energize the new transformer without deenergizing the old, then the backfeeding step can be eliminated and certain other steps can be streamlined. However, this is unlikely to be feasible.
8. Test all new equipment and conductors.
9. PG&E to energize the new transformer and deenergize the existing transformer.
10. In a stepwise fashion, transition existing unit processes from existing to new power and control cables. These will require planned shutdowns. HydroScience will develop an optimized sequence during detailed design.

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SECTION 7 - ESTIMATE OF PROBABLE CONSTRUCTION COST

The updated estimate of probable construction cost, based on the scope of improvements described in this PDR and presented in the Appendix B drawings, is included in **Appendix H**. **Table 7-1** below presents a summary of the costs.

Table 7-1: Preliminary Opinion of Probable Construction Cost Summary

Activity	Baseline Project[1]	Alternate Project[2]	Alternate Options[3]
Sitework	$ 634,277	$ 634,277	
Splitter Box	$ 105,722	$ 105,722	
Flow Meter Vaults	$ 178,438	$ 178,438	
Aeration Basin w/ Integral Clarifier	$ 3,833,045		
Aeration Basin w/o Integral Clarifier		$ 2,310,797	
Independent Clarifier		$ 1,729,700	
Baseline Integral Clarifier Yard Piping	$ 740,301		
Independent Clarifier Yard Piping		$ 750,917	
Electrical Building	$ 371,471	$ 371,471	
RAS/WAS PS (Submersible Option)		$ 332,930	
RAS/WAS PS (Double Disc Pump Option)			$ 190,882
Influent Junction Box	$ 203,579	$ 203,579	
Effluent PS (Baseline)	$ 586,243	$ 586,243	
Effluent PS (Barge Option)			$ 426,341
Effluent PS (Replacement combined Return PS)			$ 993,607
Effluent Pipeline (Operate in parallel with existing)	$ 1,303,800	$ 1,303,800	
Effluent Pipeline (Fully replace and abandon exist)			$ 1,450,000
Electrical Work (New MCC/PLC/Generator)	$ 3,112,638	$ 3,250,000	
TOTAL DIRECT COSTS	**$ 11,069,514**	**$ 11,757,874**	
CONTINGENCY (30%)	**$ 3,320,854**	**$ 3,527,362**	
ESCALATION (2 YEARS @ 5% YOY)	**$ 1,162,299**	**$ 1,234,577**	
TOTAL OPCC	**$ 15,552,667**	**$ 16,519,813**	

Notes:

1. Baseline cost assumes aeration basin with integral simplex clarifier, stand-alone UESP pump station constructed on levee, and 10-12 inch diameter effluent pipeline operating in parallel with the existing pipeline.
2. Alternate project assumes independent secondary clarifier and submersible centrifugal RAS/WAS pump station.
3. This column presents alternative costs for (1) double disc RAS/WAS pump station, (2) barge style UESP pump station, (3) a combined new Return Pump Station pumping existing plant drain and backwash flows and UESP flows, and (4) enlarged 12-14 inch effluent pipeline conveying all flows (up to 2 mgd) with abandonment of existing.

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APPENDIX A

Calaveras County Water District
Phase 3 Improvement Project Predesign Report (“2024 Predesign Report”)

LA CONTENTA

WASTEWATER COLLECTION SYSTEM IMPROVEMENT PROJECT AND WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENT PROJECT

PREDESIGN REPORT

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1. INTRODUCTION

This report was developed as a guide for miscellaneous facility improvements to the La Contenta wastewater collection system, and Phase 3 improvements to the Wastewater Treatment Facility (WWTF). This report provides an update to the ***December 2017 La Contenta Wastewater Master*** (*Master Plan*) and describes facilities which are required to serve the community at build-out. While currently the WWTF and associated sewer collection system are adequate for service demands, facility improvements will be necessary if significant growth occurs in Valley Springs. This report includes improvements to address current operational issues identified by District Operations staff.

May potential issues impact current and future sewer service in the La Contenta area. This report attempts to address these issues, including:

- Age and condition along with asset management of existing facilities.
- Known facility deficiencies.
- Probable service area buildout size and requirements.
- Rate of growth within service area.
- Inflow and Infiltration (I/I) issues, especially related to Cosgrove Creek.
- Treated effluent storage capacity required for buildout.
- Treated effluent disposal capacity required for buildout.
- Future regulatory compliance requirements.

In 2020 the District purchased a parcel approximately 408 *acres*, APN 073-042-127, located immediately north of the Lower Effluent Storage Pond (LESP) for future use as a land application disposal site and to permit expansion of the WWTF's treated effluent storage capacity. Photographs of the existing facilities and preliminary project drawings associated with this report are located in **Appendix A**.

2. WASTEWATER PLANNING CRITERIA

2.1 FACILITY SERVICE AREA

Calaveras County Water District (District) La Contenta service area is approximately 1,600 *acres* in size. The current wastewater service area is shown in **Figure 1**. However. The service area does not include Jenny Lind Elementary School, or the emergency connection to Valley Public Utility District's sewer system.

A portion of the service area is either open land or currently not zoned for development requiring sewer service. In addition, several parcels near Cosgrove Creek as identified by FEMA, see **Figure 2,** are subject to flooding. This includes the parcel where the Huckleberry Lift Station is located.

2.1.1 Existing Service Area Customers

There are currently 1,054 sewer services in La Contenta equaling 1,110 Equivalent Dwelling Units (*EDUs*). Number of EDU in the service area from 2018 to 2023 are listed in **Table 1**. Information concerning historic number of sewer services is contained in the *Master Plan*. A complete list of current sanitary sewer services, by Assessor's Parcel Number (APN), is located in **Appendix B**.

Table 1. Number EDUs in Service Area from 2018 through 2023

Year	EDU
2018	1,087
2019	1,092
2020	1,097
2021	1,101
2022	1,106
2023	1,110

2.1.2 Approved Development

In the La Contenta service area, there are three District Memorandums of Understanding (MOU) related to development and community sewer service. The MOUs concern Gold Creek Subdivision Unit 3, Homes North Vista Plaza Project, and Jenny Lind Elementary School. In addition, the District has service obligations for infill in portions of the community. The Relevant portions of each MOU including number EDUs related to each MOU is located in **Appendix C**.

2.1.3 Infill and Potential Future Development

The amount and rate of future development is difficult to determine. However, current District planning anticipates that growth in the County will continue in the area of the La Contenta.

Excluding approved development, the La Contenta service area currently contains 113 vacant residential properties which may require future sewer service. A list of vacant parcels, by APN, with associated zoning is located in **Appendix D**.

Valley Springs was identified as a Community Planning Element in the ***September 22, 2020, Calaveras County General Plan*** (*General Plan*). In the *General Plan*, various land use categories have been identified with specific zoning, occupancy density, and projected property utilization at buildout. Public lands, roads etc., zoned parks and recreation, public institutions (CCWD), were not included in this report.

Buildout service size, including existing services, approved development, and potential future development is presented in **Table 2**. Projected number of EDUs at buildout is 2,250, a reduction from the projected number of 2,695 in the *Master Plan*.

Table 2. Buildout Projection for La Contenta Wastewater Service Area

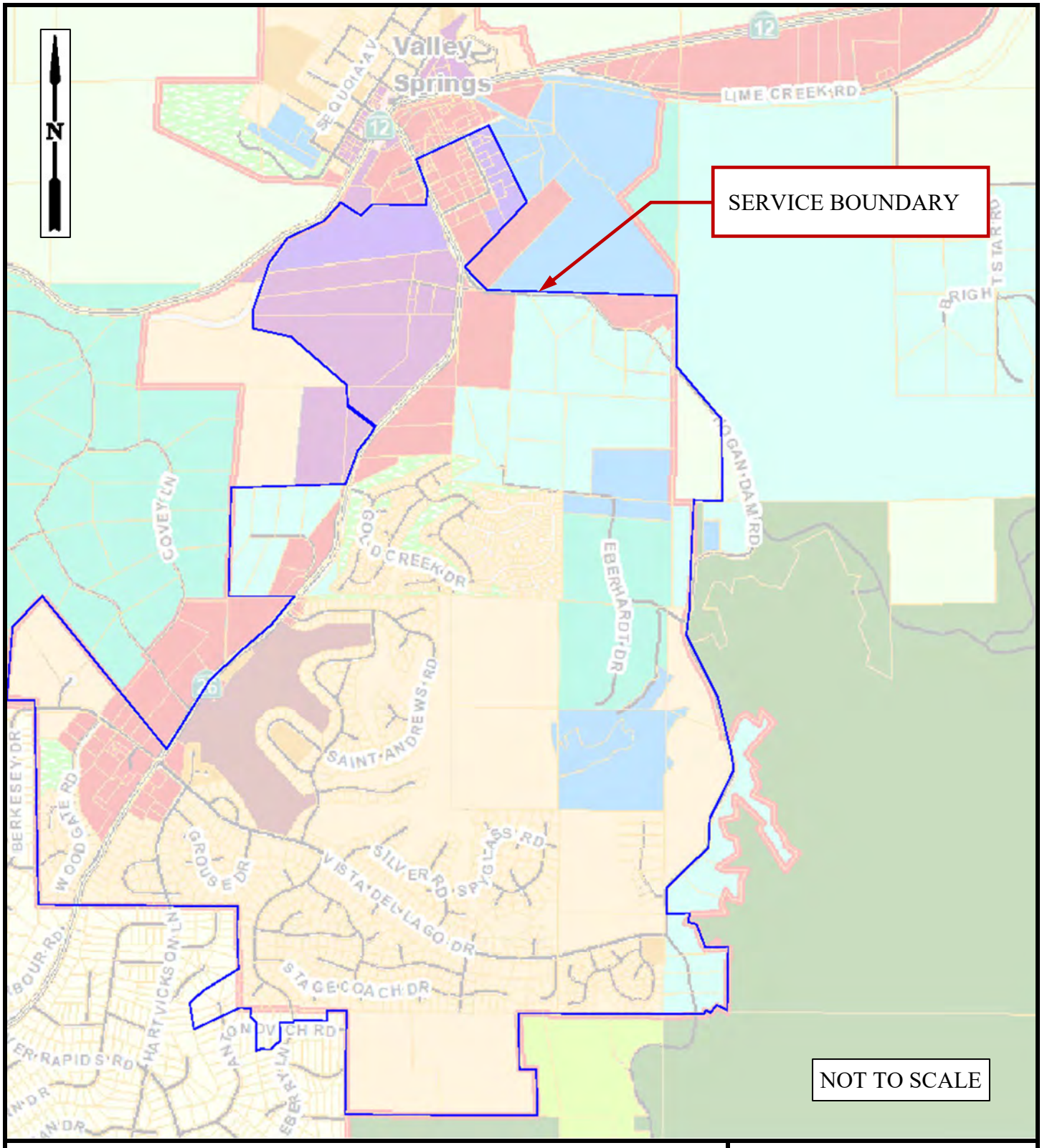
	Area, *acres*	Maximum Utilization	EDU/ *acre*	EDU
Parcel Type/Development/Service				
Existing Sewer Services	-	-	-	1,110
Residential Parcel Infill	-	100%	-	113
Approved Development (MOU)				
Gold Creek Unit 3	-	100%	-	164
North Vista Plaza Project	-	100%	-	156
Jenny Lind Elem. School	-	100%	-	34
Service Commitments				**1,577**
Potential Development Sites				
Commercial Parcels	153	20%	7.5	230
Residential Parcels	177	50%	5.0	443
Buildout/Phase 3				**2,250**

2.1.4 Calaveras County Growth and Population Projection

The California Department of Finance (CDF) 2020 County population anticipates decline of approximately 18-pecent by 2060. Impacts caused by a decrease in population in the County and related impact to the La Contenta service area are unknown. A summary of the CDF population projection for the County are presented in Table **3**.

Table 3. CDF Population Projection for Calaveras County

	2023	2030	2040	2050	2060
California Department of Finance					
Population	44,744	43,735	40,752	37,686	36,445
Change in Population	-	(1,009)	(2,983)	(3,066)	(1,241)
Percent Change	-	-2.26%	-6.82%	-7.52%	-3.29%



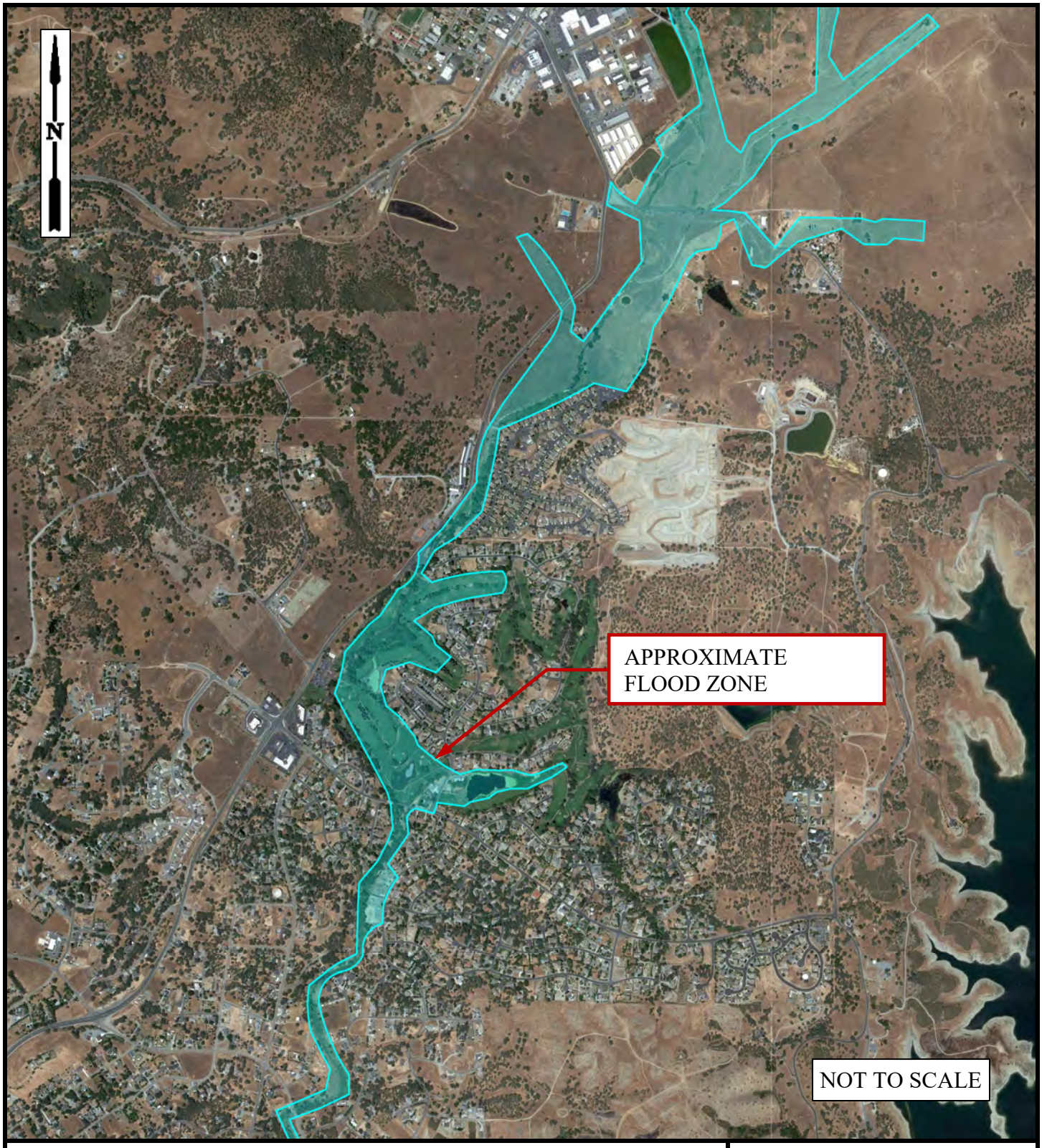
WASTEWATER SERVICE AREA

La Contenta Wastewater Treatment Facility

Calaveras County Water District / La Contenta Predesign Report

December 2023

FIGURE 1



COSGROVE CREEK FLOOD ZONE
La Contenta Wastewater Treatment Facility
Calaveras County Water District / La Contenta Predesign Report
December 2023

FIGURE 2

3. WASTEWATER CHARACTERIZATION

3.1 INFLUENT WASTEWATER FLOWRATES

The influent wastewater Average Dry Weather Flow (ADWF), July to September, in million gallons per day (*MGD*), for the La Contena service area, 2018 through 2023, is presented in **Table 4**. The average daily and maximum daily influent flowrates for the WWTF are presented in **Table 5**. The ADWF per EDU remains similar to the reported values in the *Master Plan*, *Section 2*. However, the maximum daily flowrate increased significantly in 2022-23 and exceeds District standards. Daily flowrate records associated with **Table 4** and **Table 5** are located in **Appendix E** and **Appendix F**, respectively.

Table 4. 2018 through 2023 Average Dry Weather Flow

Year	*MGD*	*gal./day/EDU*
2018	0.134	123
2019	0.148	136
2020	0.139	127
2021	0.143	130
2022	0.147	133
2023	0.152	137

Table 5. 2020 through 2023 Flowrates

Season	Average, *MGD*	Average, *gal./day/EDU*	Maximum Day, *MGD*	Maximum Day, *gal./day/EDU*
2020-21	0.154	139	0.483	435
2021-22	0.176	158	0.590	532
2022-23	0.207	187	0.980	883

3.2 INFLUENT WASTEWATER STRENGTH

For the period of October 2020 to September 2023, the Biochemical Oxygen Demand, 5-day (BOD_5) averaged 150 *mg/L*, or 251 *lbs./day*. For the subject period, monthly laboratory results for influent wastewater BOD_5 concentrations are located in **Appendix G** and summarized in **Table 6**.

Table 6. 2020 through 2023 Influent Wastewater Pollutant Loading

Influent BOD_5	*mg/L*	*lbs./day*
Average	150	259
Maximum Monthly	390	675

3.3 RECOMMENDED DESIGN CRITERIA

Based upon current flow data, recent laboratory results, and *Master Plan*, the following design recommended criteria is presented in **Table 7**. For Phase 3, the design average flow is 0.450 *MGD*.

Table 7. Recommended Phase 3 Design Criteria

Criteria	Unit Flow, *gal./day/EDU*	Ratio to Avg. Flow	Phase 3, *MGD*
Flow			
Average	200	1.00	0.450
Average Dry Weather	150	0.80	0.338
Maximum Month	300	1.50	0.675
Maximum Day	500	2.50	1.250
Peak Hour	800	4.00	1.800
Minimum Day	50	0.25	0.113
BOD_5 & TSS	*mg/L*		*lbs./day*
Average	200	1.00	841
Maximum Month	300	1.50	1,261
Maximum Day	400	2.00	1,681
TKN as Nitrogen			
Average	50	-	188

4. EVALUATION OF EXISTING WASTEWATER TREATMENT FACILITIES

This Section serves as a supplement to the *Master Plan*. Additional information and details can be found in the *Master Plan, Section 3.2*.

4.1 COLLECTION SYSTEM

Recently, beginning around 2020, wet weather flowrates have increased significantly as compared to ADWF. In 2023, the maximum daily flow was 0.980 *MGD*. Investigation into the cause of this increase is required.

4.2 HUCKLEBERRY LIFT STATION

There are currently multiple operational issues regarding the lift station. These include:

- The site of lift station is potentially subject to flooding by Cosgrove Creek.
- The inability to match influent flowrates during low flow conditions requiring frequent cycling of pumps and discharge at high flowrates.
- A high static discharge head, 186.5 – 190.5 *ft.*, limiting ability to properly operate motors and pumps with variable frequency drive (VFD) units.
- Higher than predicted dynamic head losses.
- The Area Drain (Return) Lift Station at WWTF discharging into the same forcemain.
- High discharge head and limitations of typical wastewater single open impeller, solids handling pumps to operate at required discharge pressure.
- Potential need for increased capacity to meet buildout service requirements.

Design criteria related to the lift station forcemain is provided in **Table 8**. Condition and capacity of the lift station is described in **Table 9** with additional information in the *Master Plan*. Updated hydraulic calculations for the lift station are located in **Appendix H**.

Table 8. Huckleberry Lift Station Forcemain	
Discharge Forcemain	
Diameter	12 *inches*
Length	12,350 *ft.*
Type	AWWA C900
Static Head	186.5 to 190.5 *ft.*

Table 9. Huckleberry Lift Station Pumping Criteria	
Criteria	Value
Pumps	
No. of Units (Lead-Lag/Standby)	2/1
Type	Submersible w/VFD
Manufacturer	Flygt
Model	CP-3300-462
Motor Size	88 *HP*
Pump Capacity	
One Pump (60 *Hz*)	
Flowrate	900 *gpm* (1.3 *MGD*)
Discharge Head	204 *ft.*
Two Pumps (60 *Hz*)	
Flowrate	1200 *gpm* (1.7 *MGD*)
Discharge Head	220 *ft.*

4.3 HEADWORKS AND PRETREATMENT

Since adoption of the *Master Plan*, the District has replaced the automatic screen system at the headworks. The new unit currently operates satisfactorily but may not be adequate anticipated future higher influent flow rates. Design criteria concerning the headworks and associated pretreatment system is presented in **Table 10**.

Table 10. Headworks and Influent Pretreatment	
Criteria	Value
Headworks	
Channel Width	1.50 *ft.*
Max. Water Depth	2.0 *ft.*
Velocity @ 1,200 *gpm*	0.89 *ft./min.*
Influent Pretreatment	
No. of Units	1
Type	Rotary Basket
Manufacturer	HUBER Technology, Inc.
Model	Rotamat® Ro9/400/6
Basket Size	400 *mm*
Perforation Diameter	2 *mm*
Motor Size,	1.5 *HP*
Maximum Hydraulic Capacity	
with Clear Water	1.26 *MGD* (870 *gpm*)
with Wastewater	0.72 *MGD* (500 *gpm*)

4.4 EVALUATION OF ACTIVATED SLUDGE SYSTEM

Currently the Parkson Biolac® treatment system is adequate and anticipated to be adequate for Phase 3, flowrate and waste constituents. However, the Biolac® integral clarifier doesn't currently operate satisfactorily. Potential improvements to the treatment system are discussed in the *Master Plan*. Design characteristics of the Biolac system are shown in **Table 11**. Further discussion of the activated sludge system, including clarifier are discussed in Section 5.

Table 11. Biolac® Basin and Clarifier Characteristics

Criteria	Value
Aeration Basin	
Type of Aeration	Bubbler/Diffuser
Volume	514,000 *gal.*
Surface Area	9,350 ft^2
Operating Depth	0 to 10.0 *ft.*
Integral Clarifier	
Volume	58,000 *gal.*
Operating Depth	5 to 10 *ft.*
Surface Area	1,199 ft^2
Length of Weir	90.0 *ft.*
Maximum Rate	
Solids Loading	35 $lbs./day/ft^2$
Surface Loading	0.83 gpm/ft^2
Weir Overflow	10,000 *gal/day/ft.*

4.5 TERTIARY FILTRATION SYSTEM

Tertiary treatment consists of five (5) Parkson DynaSand® filters for a total capacity of 1,000 *gpm*, when four (4) filters are operating, and one is on standby.

4.6 UV DISINFECTION SYSTEM

The capacity of the four (4) bank Trojan UV3000 Plus® UV system is 890 *gpm*, with one module in standby mode. Each UV bank consists of four (4) modules with each module containing six (6) lamps. Refer to *Master Plan Table 10* for additional information.

4.7 ADDITIONAL TREATMENT AND MISCELLANEOUS FACILITIES

4.7.1 Biosolids Stabilization and Solids Dewatering

The existing biosolids facilities, at La Contenta WWTF, are sufficient for requirements at build-out. Refer to the *Master Plan Table 10* for additional discussion.

4.7.2 Area Drain (Return) Pump Station

The piping system for the UESP drain system which discharges to the Area Drain (Return) Lift Station is not adequate are requires replacement.

4.7.3 Treated Effluent Pipeline to LESP

The existing 8-*inch* pipeline, which transitions from a 12-*inch* pipeline immediately east of the effluent Parshall flume, is not adequate current effluent flowrates to the LESP, nor adequate for Phase 3 projected flowrate. The pipeline is approximately 3,700 *ft.* in length. Capacity calculations are located in **Appendix I**.

4.8 HISTORICAL PRECIPITATION AT LA CONTENTA

Total annual precipitation at the La Contenta WWTF for the 2022-23 season measured 40.1 *inches*. This total exceeded the 200-year rainfall occurrence. Annual precipitation at the La Contenta WWTF and the New Hogan Dam (NHW) is summarized in **Table 12** and daily rainfall totals for 2020 through 2023 are contained in **Appendix J**.

Table 12. 2020 through 2023 Rainfall at La Contenta WWTF and New Hogan Dam

	Rainfall at WWTF, *inches*	Rainfall at NHW, *inches*
Season/Year		
2021	13.85	15.76
2022	18.70	19.64
2023	40.10 [1.]	45.12 [2.]
Predicted Rainfall		
Mean [1.]	20.42 [3.]	-
100-Yr. [1.] Recurrence	36.38 [3.]	-
1,000-Yr. [1.] Recurrence	43.07 [3.]	-

1. 2023 Annual rainfall measure 39.38 *inches* at the Copper Cove WWTF.
2. 2017 Annual rainfall measured 40.94 *inches* at NHW station.
3. California Department of Water Resources Bulletin No. 195, October 1976.

4.9 EFFLUENT STORAGE

Currently the effluent storage capacity at La Contenta and marginally adequate for Phase projected flowrate. Daily season treated effluent storage volume, both in the UESP and LESP, for 2020 through 2023, is located in **Appendix K**. Corresponding daily pond elevation information is located in **Appendix L**. Water balances at ADWF of 0.200 *MGD* and 0.237 *MGD* ADWF are located in **Appendix M**.

4.10 EFFLUENT DISPOSAL

Irrigation water demand at the golf course has increased. Volume of effluent and irrigation water volume totals for 2020 through 2023 are shown in **Table 13**. Daily effluent and irrigation demand for 2020 through 2023 is located in **Appendix N**.

Table 13. 2020 through 2023 Effluent Volume and Irrigation Demand

Season	Effluent, *acre-ft.*	Irrigation Demand, *acre-ft.*
2020-21	214.23	429.06
2021-22	204.41	353.82
2022-23	244.55	336.74

5. COLLECTION SYSTEM IMPROVEMENTS

5.1 SERVICE AREA COLLECTION SYSTEM IMPROVEMENTS

Evaluation of the existing collection system for the purposes of mitigating I/I impact from wet weather. A number of steps should be considered and implemented in an attempt to control I/I. These include:

- Temporarily sever service connection to the incomplete Gold Creek Unit 3 development to prevent rainfall runoff from entering the collection system.
- Monitor flows in the collection system during wet weather to isolate areas of high I/I. Potential locations for the monitoring are shown on drawings C101 and C102 located in **Appendix A**. Vendor information concerning flow monitoring equipment can be found in **Appendix 0**.
- Elevate and install additional manhole protection at locations near Cosgrove Creek potentially subject to flooding.
- Slip line sewers lines and replace service laterals at locations identified to high intrusion of I/I to the sewer collection system.

5.2 HUCKLEBERRY LIFT STATION IMPROVEMENTS

Improvements to the Huckleberry Lift Station are required to provide adequate capacity at build-out and to provide facility reliability. Existing lift station details can be found on drawings C111 and C112 along with drawing reference below are located in **Appendix A**. Improvements for consideration include:

- Installation of second wetwell adjacent to the existing pump station containing low-flow, jockey pumps to prevent frequent cycling of the primary pumping system. Operate low-flow pumps motors with variable speed/frequency drives. Refer to drawings C113 and C114 for example jockey pump installation.
- Replacement of the existing three submersible pumps with larger capacity pumps to provide a firm capacity of 1.80 *MGD* at 235.0-240.0 *ft.* TDH when two pumps operate, and the third pump is available as standby. The replacement pumps should operate at constant speed. One concern regarding installation of replacement pumps is the physical limitation of an open impellor, non-clog, single stage pump related to maximum discharge head. Required discharge TDH may exceed actual manufacturer capabilities. Therefore, it might be necessary to increase existing discharge capacity with the installation of a booster pump system comprised of additional pumps to create a two-stage pump system. An example of potential booster pump installation is shown on drawing C113.
- Upgrade and replace electrical equipment including standby power generation required for operation of two pumps at peak hourly flow of 1.80 *MGD*, and miscellaneous equipment onsite.

6. WASTEWATER TREATMENT FACILITY IMPROVEMENTS

A number of improvements are required for the facility to have necessary treatment, seasonal effluent storage, and effluent disposal capacity to meet build-out requirements. At this time, it is unclear how effluent capacity and disposal capacity can be increased sufficiently to meet build-out capacity. No location can be identified with sufficient size required for the construction of additional effluent and land application of treated effluent.

It is anticipated that future effluent water quality requirements will remain similar to the current requirements described in *WDR Order R5-2013-0133* with the exception of a nitrate limitation of 10.0 *mg/L*. Future facility design should consider the need for denitrification.

6.1 PHASE 3 PROJECT IMPROVEMENTS

A comprehensive list of improvements to the WWTF has been developed. The total number of improvements required to meet build-out capacity for the community exceeds District funding ability. Therefore, needed improvements have been prioritized with the urgent identified as part of the Phase 3 Improvement Project. Preliminary drawings are located in **Appendix A**.

6.1.1 Headworks Improvements

Modification to the existing headworks is required to meet the future peak pumping capacity of Huckleberry Lift Station. Screening facilities will have to be sufficient for a minimum flow of 1.80 *MGD*. The current headworks channel appears adequate in size. However, the existing HUBER Rotamat® screen is not adequate. A larger screen is required. Alternatively, a second parallel channel and screen must be added.

6.1.2 Influent Splitter Box and Flow Meters

The installation of a second Biolac® activated sludge secondary treatment system will require the addition of an influent splitter box and flow meters downstream of the facility. Tentative location for these additional items is shown on drawing C122.

6.1.3 Second Aerated Activated Sludge Treatment System

To provide adequate treatment of wastewater at build-out will require the construction of a second aerated activated sludge treatment system. The District has second a Parkson™ Biolac® system. Proposed location Biolac® basin is shown on drawings C122 and C122A. Preliminary design calculation from Parkson™ for basin design are located in **Appendix P** with supplemental calculations in **Appendix Q**.

6.1.4 Secondary Clarifier and RAS/WAS Pump Station

Provided funding is adequate, the District would like to utilize a circular clarifier design and independent RAS/WAS pump station for the proposed second Biolac® basin. Refer to drawing

C122A for preliminary location of the clarifier and RAS/WAS pump station. Calculations for proposed circular clarifier for basin are located in **Appendix Q**.

6.1.5 New Electrical Building and Control Systems

Replacement of facility electrical and control systems will be required. Tentative site of proposed electrical building to house new equipment is shown on drawing C122.

6.1.6 Area Drain (Return) Pump Station and UESP Drain System

Operations staff have identified the need to replace the UESP drain piping system to the Return Pump Station and make improvements to the pump station. The location of the Return Pump Station is shown drawing C121.

6.1.7 Capacity of Treated Effluent Pipeline to LESP

The current size, diameter, of the effluent pipeline between the WWTF and LESP is inadequate and either a second parallel line installed to meet minimum flowrate at build-out or replaced.

6.2 NECESSARY FUTURE IMPROVEMENTS

Future improvements, beyond those described in Section 6.1, will are required before the WWTF can provide service at community build-out. These improvements, excluding effluent storage and reuse, are shown on drawing C123 and include:

- Replacement of existing Biolac® integral clarifier system including RAS/WAS pump system is similar to the alternative clarifier design proposed for Phase 3.
- Replacement of the existing aeration equipment and conversion of the Biolac® basin system to allow denitrification.
- Secondary effluent flow equalization for operation of the tertiary filter system during low and high flow conditions
- Additional UV disinfection capacity equal to peak hourly flowrate at service area build-out.
- Additional seasonal tertiary effluent storage capacity.
- Addition recycled water reuse or other effluent disposal method.

Evaluation and design of the improvements above was not exhaustive. Further, it is not clear how the District will be able to provide sufficient treated effluent storage and water reuse needed at buildout. A step towards a solution is the increase of the LESP capacity and construction of sprayfields adjacent to the LESP shown on drawing C131. Additional analysis and design is required.

APPENDIX A

PHOTOGRAPHS AND
PRELIMINARY DESIGN DRAWINGS

APPENDIX A

LA CONTENTA WASTEWATER FACILITIES PHOTOGRAPHS

Photo: Existing Biolac® Basin and Clarifier

Photo: Tertiary Filters, Blower Bldg. and UV Disinfection System

Photo: UV Disinfection System Channel

APPENDIX A

Photo: Biosolids Dewatering Facilities

Photo: Biosolids Dewatering Filter Press

Photo: Upper Effluent Storage Pond (UESP)

APPENDIX A

Photo: Lower Effluent Storage Pond (LESP)

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/22/23
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

SANITARY SEWER GRAVITY COLLECTION SYSTEM PHASE 3 IMPROVEMENT PROJECT LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C101
DRAWING NUMBER	– OF –
SHEET NUMBER	

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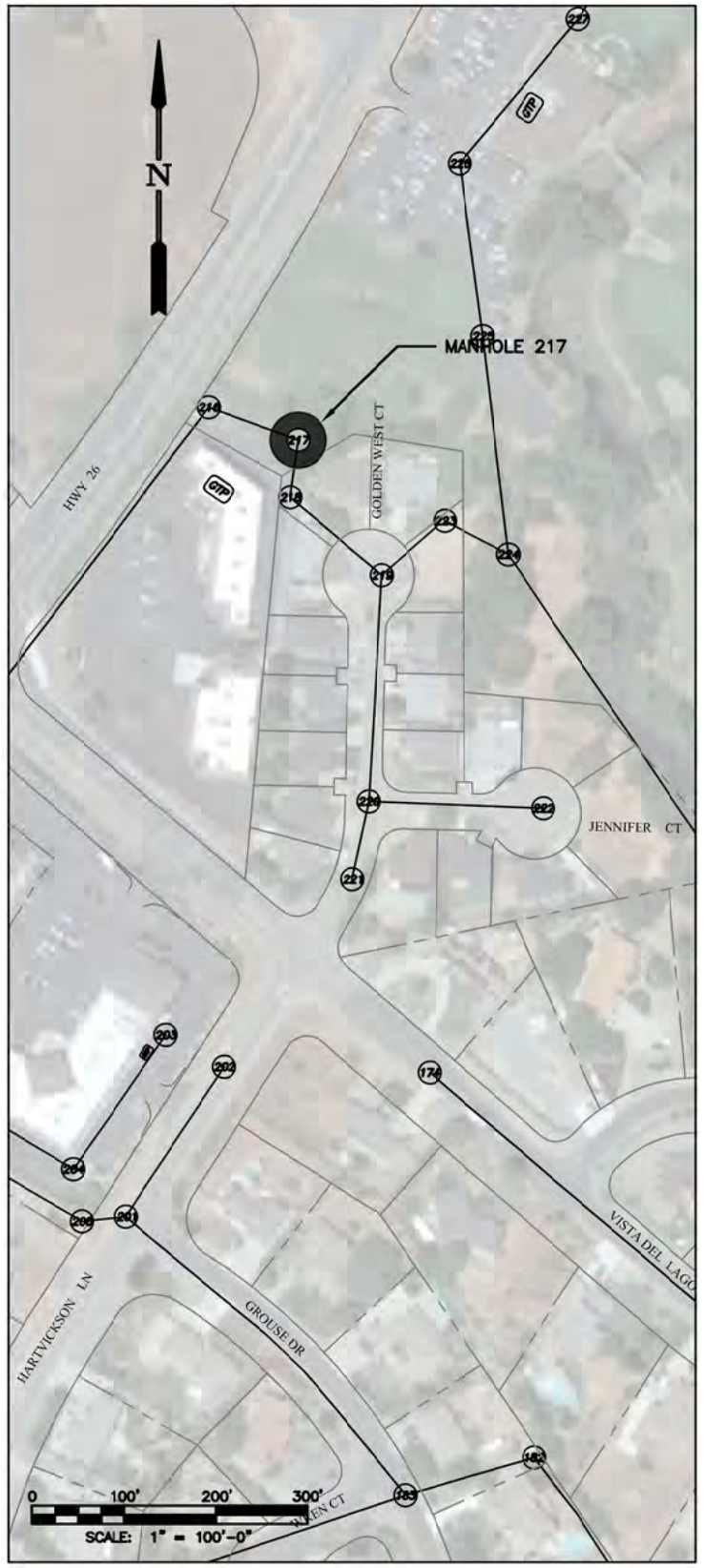
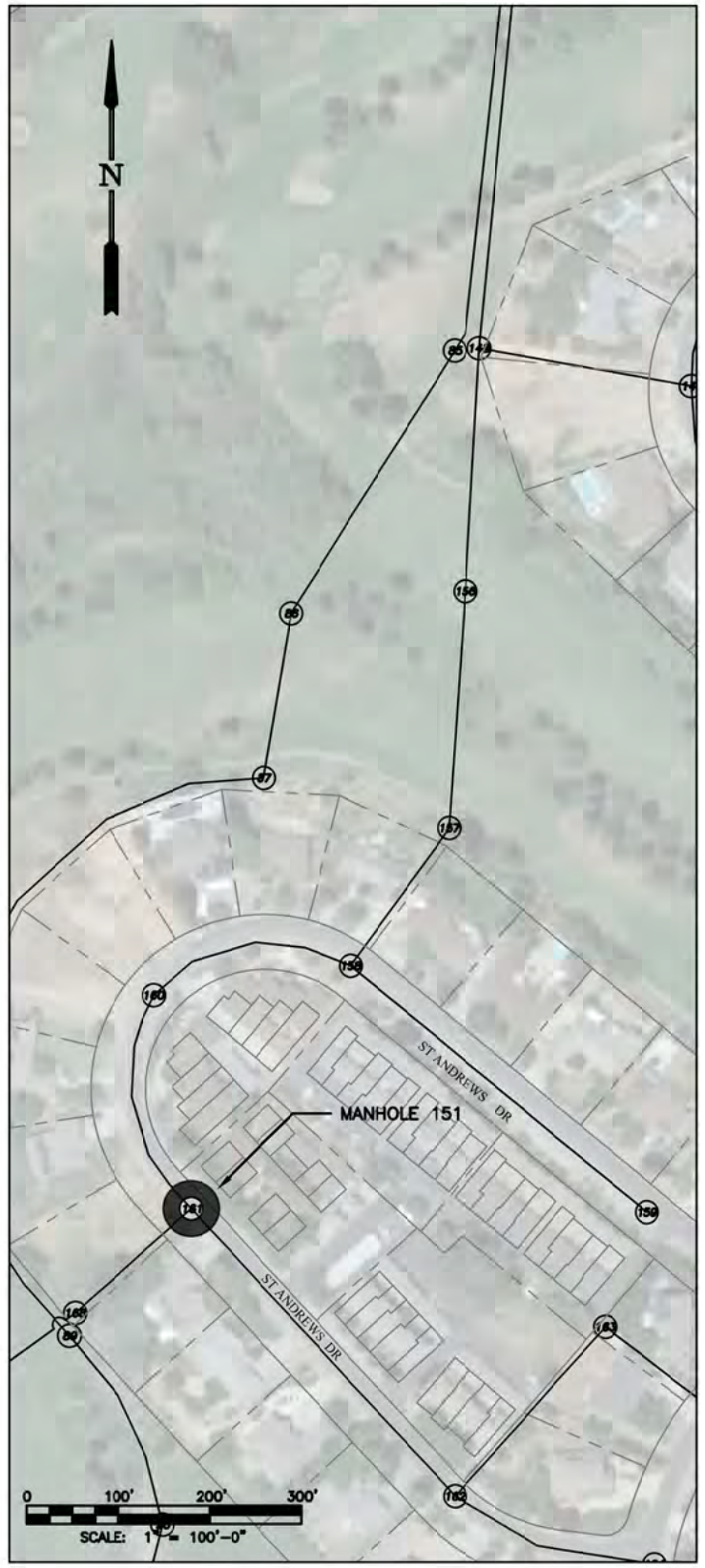
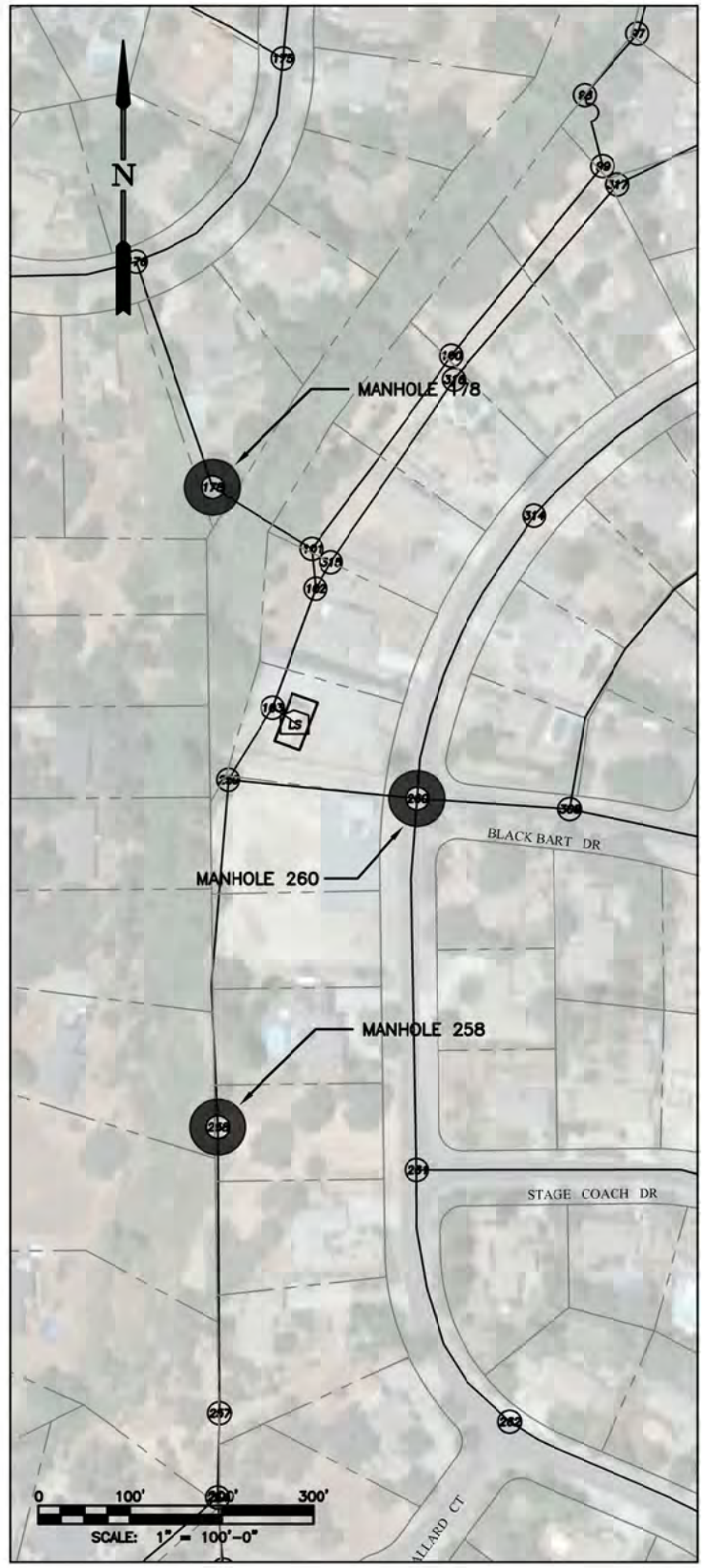
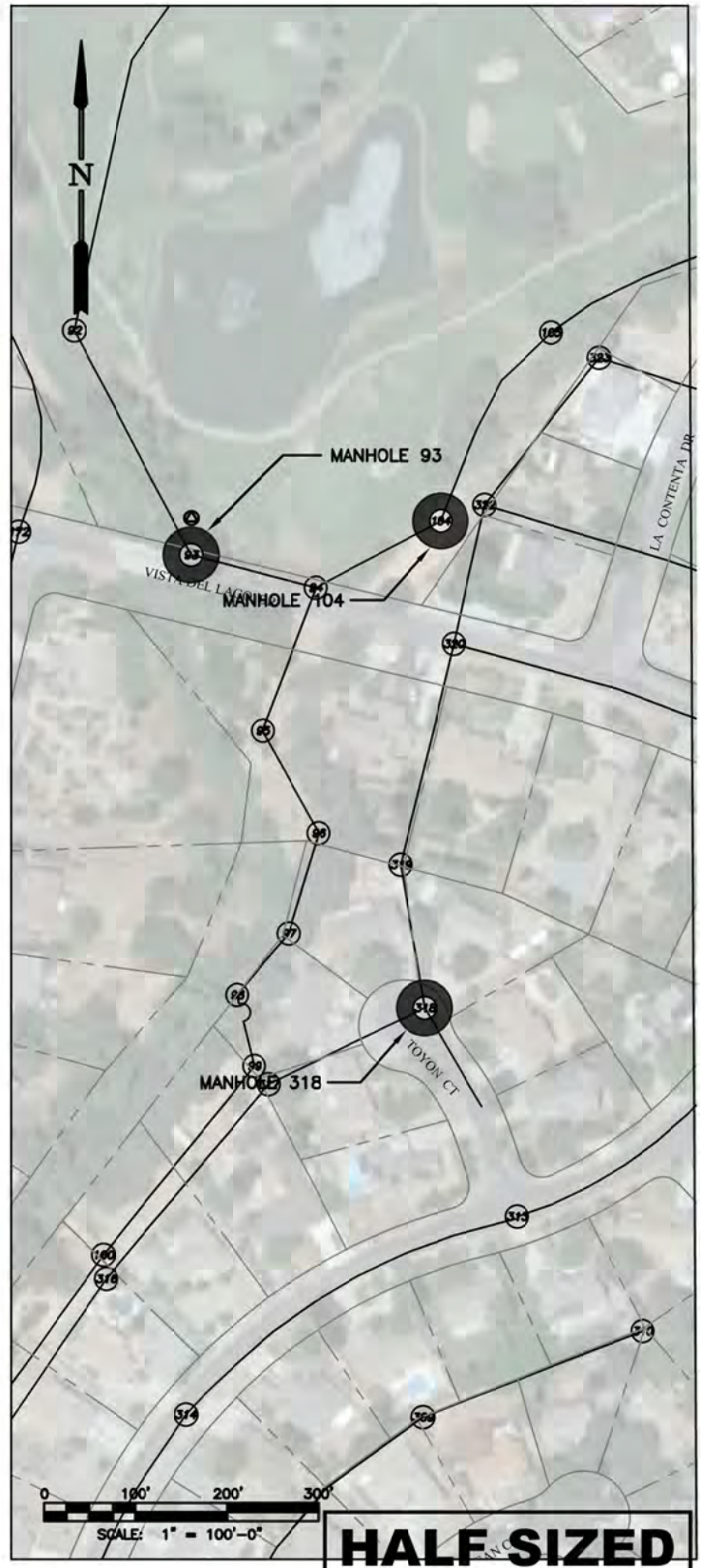








HALF SIZED

DESIGNED BY:	R. GODWIN		
DRAFTED BY:	R. GODWIN		
CHECKED BY:			
DATE:	11/22/23		
SCALE:	AS INDICATED		
BAR LENGTH ONE INCH ON SCALED DRAWING			

REVISION:	DESCRIPTION:	DATE:	BY:

CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

SANITARY SEWER MONITORING LOCATIONS
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	PROJECT NUMBER
C102	DRAWING NUMBER
– OF –	SHEET NUMBER

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C101_102_COLLECTION_SYSTEM_15097.DWG 11/24/23 2:46pm Bob Godwin

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/23/23
SCALE:	1" = 10'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

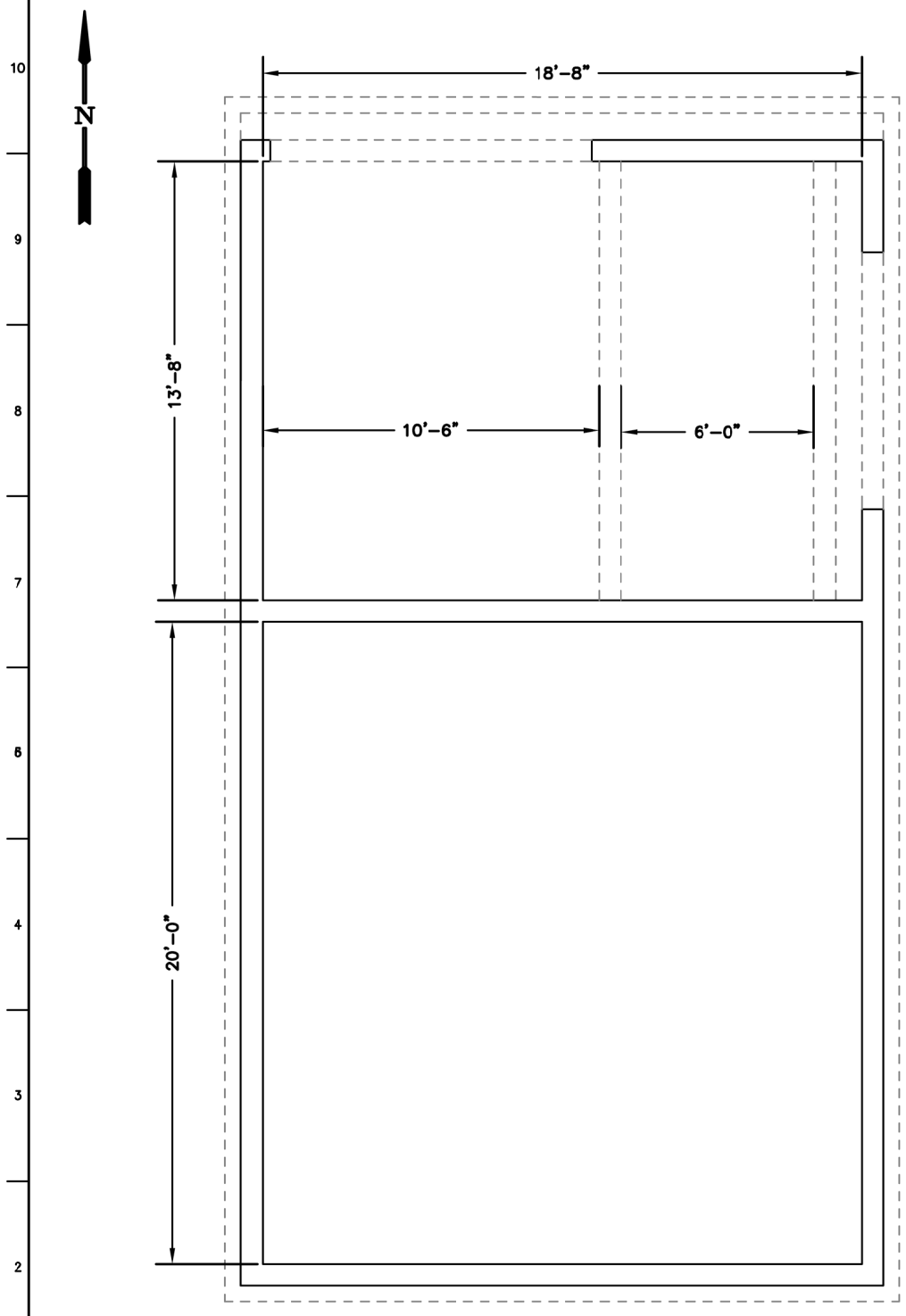
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

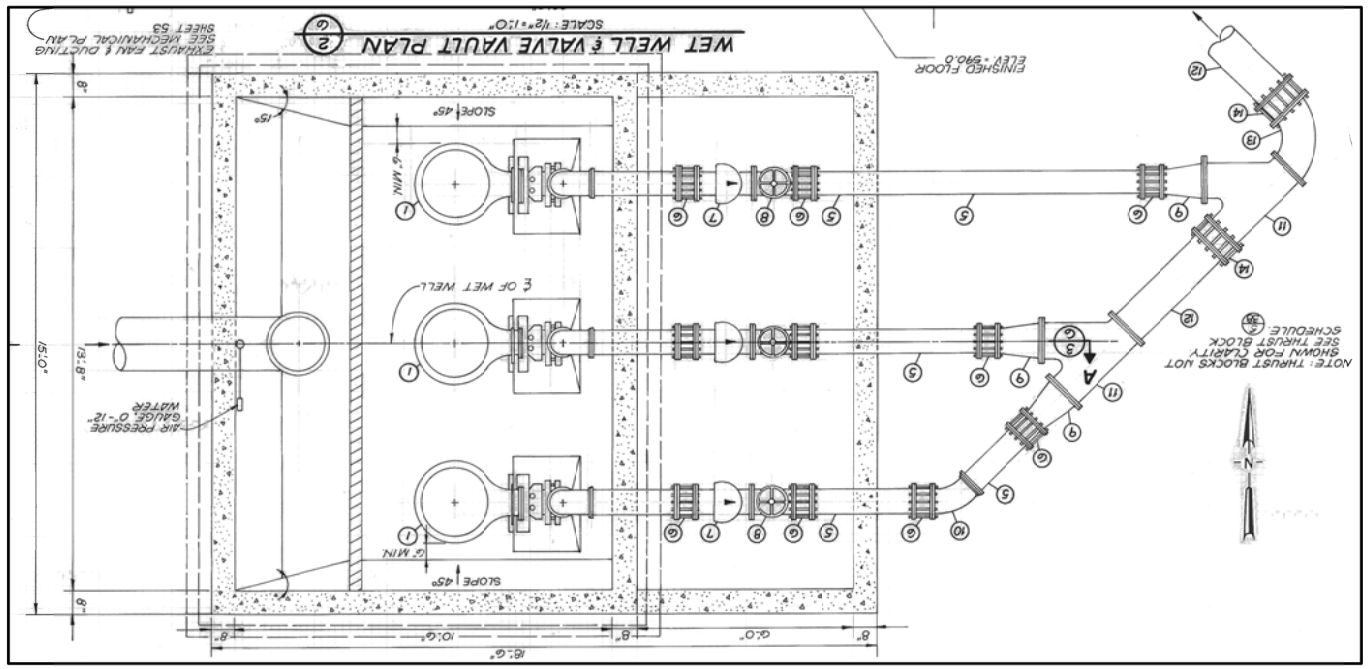
HUCKLEBERRY LIFT STATION
EXIST SITE PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

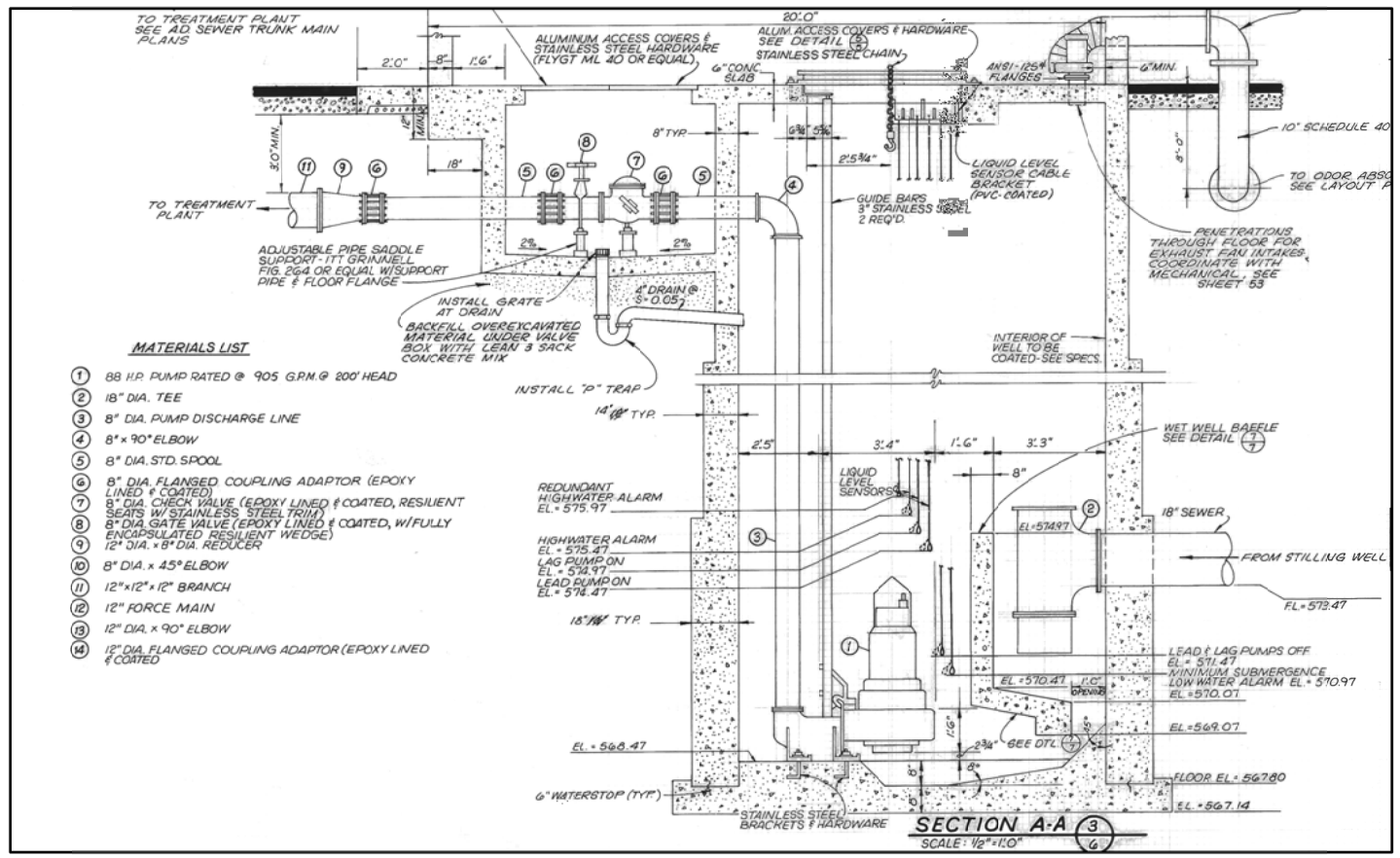
15097	
PROJECT NUMBER	C111
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_C400_15097\MASTER_COMPOSITE\MASTER\C111_HUCKLEBERRY_15097.DWG 11/24/23 2:46pm Bob Godwin



HUCKLEBERRY LIFT STATION
SCALE: 3/8" = 1'-0"





MATERIALS LIST

1. 88 H.P. PUMP RATED @ 905 G.P.M.@ 200' HEAD
2. 18" DIA. TEE
3. 8" DIA. PUMP DISCHARGE LINE
4. 8" x 90° ELBOW
5. 8" DIA. STD. SPOOL
6. 8" DIA. FLANGED COUPLING ADAPTOR (EPOXY LINED & COATED)
7. 8" DIA. CHECK VALVE (EPOXY LINED & COATED, RESILIENT SEATS W/ STAINLESS STEEL TRIM)
8. 8" DIA. GATE VALVE (EPOXY LINED & COATED, W/FULLY ENCAPSULATED RESILIENT WEDGE)
9. 12" DIA. x 8" DIA. REDUCER
10. 8" DIA. x 45° ELBOW
11. 12" x 12" x 12" BRANCH
12. 12" FORCE MAIN
13. 12" DIA. x 90° ELBOW
14. 12" DIA. FLANGED COUPLING ADAPTOR (EPOXY LINED & COATED

0 2' 4' 6' 8'
SCALE: 3/8" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/17/23
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

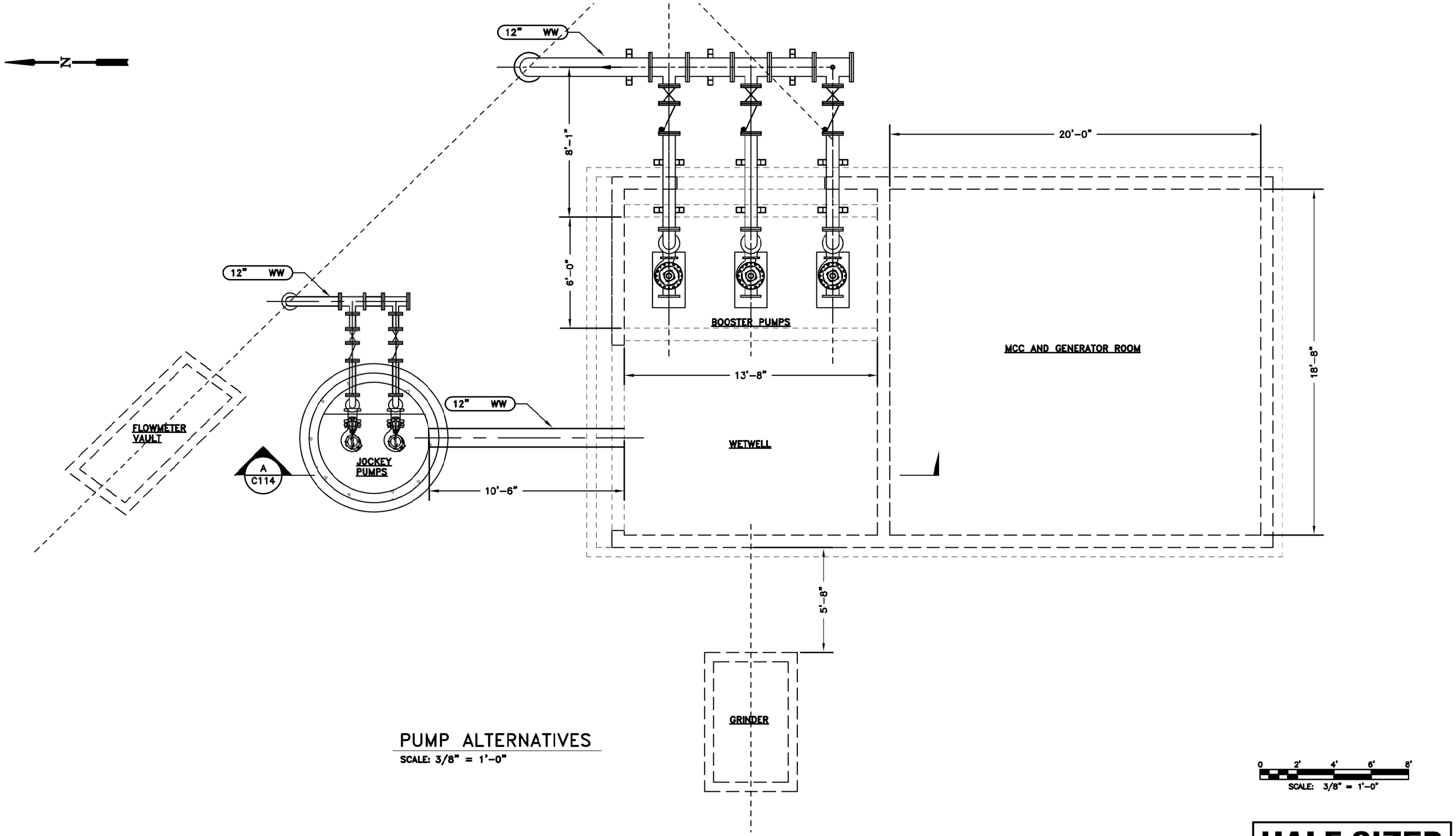
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

HUCKLEBERRY LIFT STATION
DETAILS AND SECTIONS
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097
PROJECT NUMBER
C112
DRAWING NUMBER
– OF –
SHEET NUMBER

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C112_HUCKLEBERRY_15097.DWG 11/24/23 2:54pm Bob Godwin



PUMP ALTERNATIVES

SCALE: 3/8" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/23/23
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

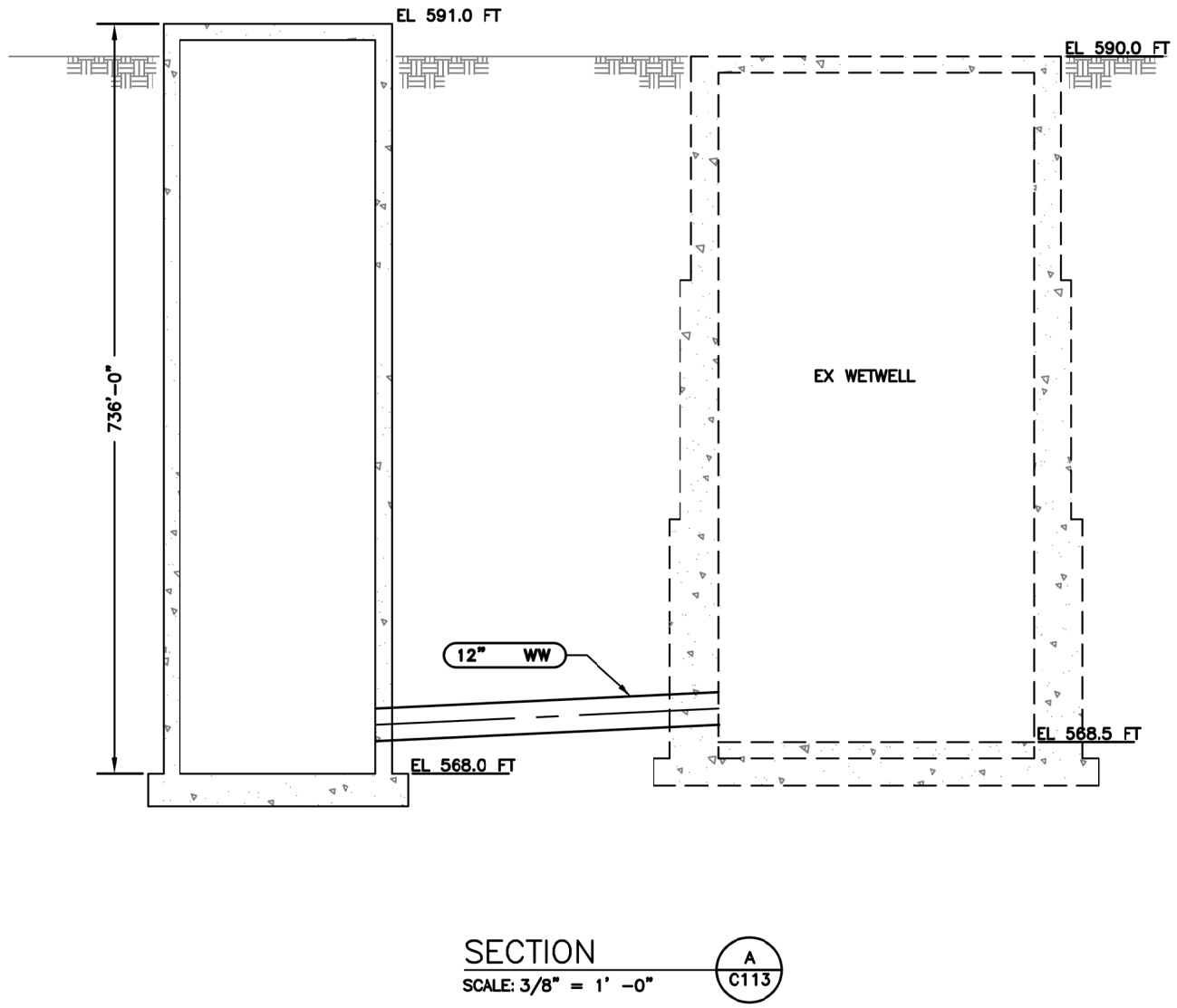
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

HUCKLEBERRY LIFT STATION
JOCKEY PUMP AND BOOSTER PUMP ALTERNATIVES
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C113
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CAD\0_15097\MASTER_COMPOSITE\MASTER\C113_HUCKLEBERRY_15097.DWG 11/23/23 2:13pm Bob Godwin



SECTION
SCALE: 3/8" = 1' -0"
A
C113

0 2' 4' 6' 8'
SCALE: 3/8" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN	REVISION:	DESCRIPTION:	DATE:	BY:
DRAFTED BY:	R. GODWIN				
CHECKED BY:					
DATE:	11/23/23				
SCALE:	AS INDICATED				
BAR LENGTH ONE INCH ON SCALED DRAWING					

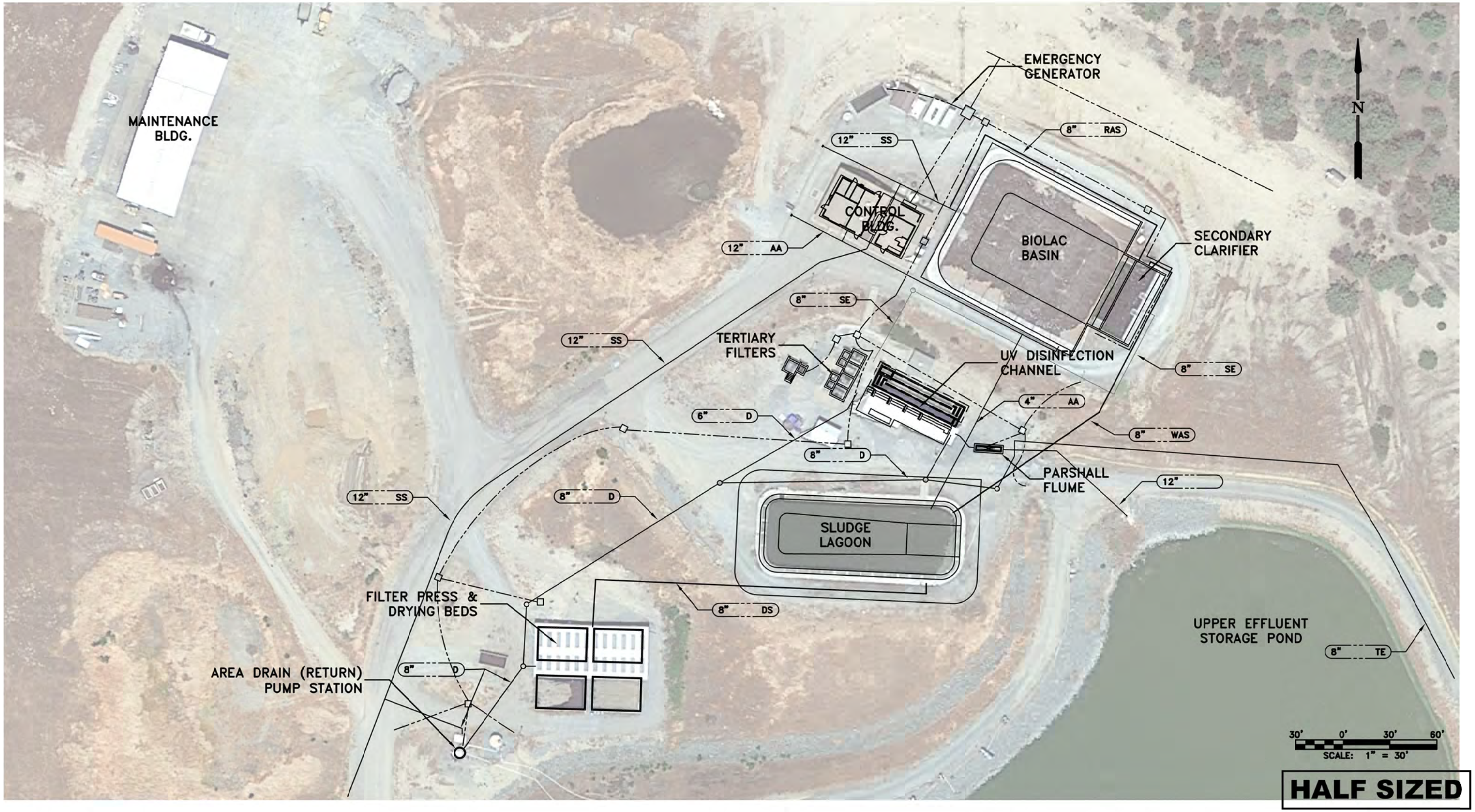
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

HUCKLEBERRY LIFT STATION
BOOSTER PUMP ALTERNATIVE SECTIONS
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C114
DRAWING NUMBER	– OF –
SHEET NUMBER	

G:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C114_HUCKLEBERRY_SECTIONS_15097.DWG 11/24/23 3:08pm Bob Godwin



DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/22/23
SCALE:	1" = 30'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

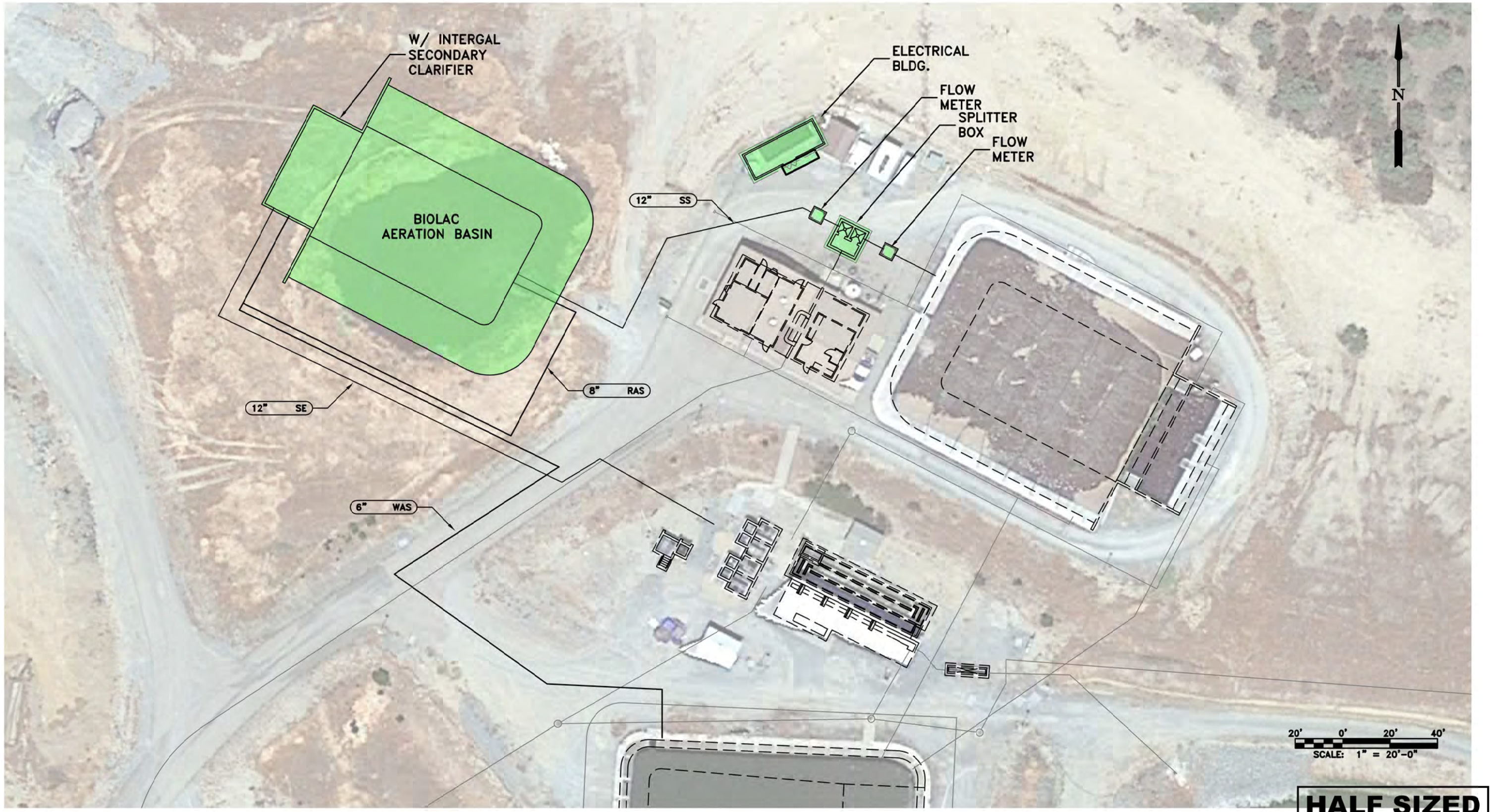
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

WASTEWATER TREATMENT FACILITY
EXISTING SITE PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	PROJECT NUMBER
C121	DRAWING NUMBER
– OF –	SHEET NUMBER

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C121_WWTF_SITE_PLAN_15097.DWG 11/22/23 2:17pm Bob Godwin



HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	1" = 20'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

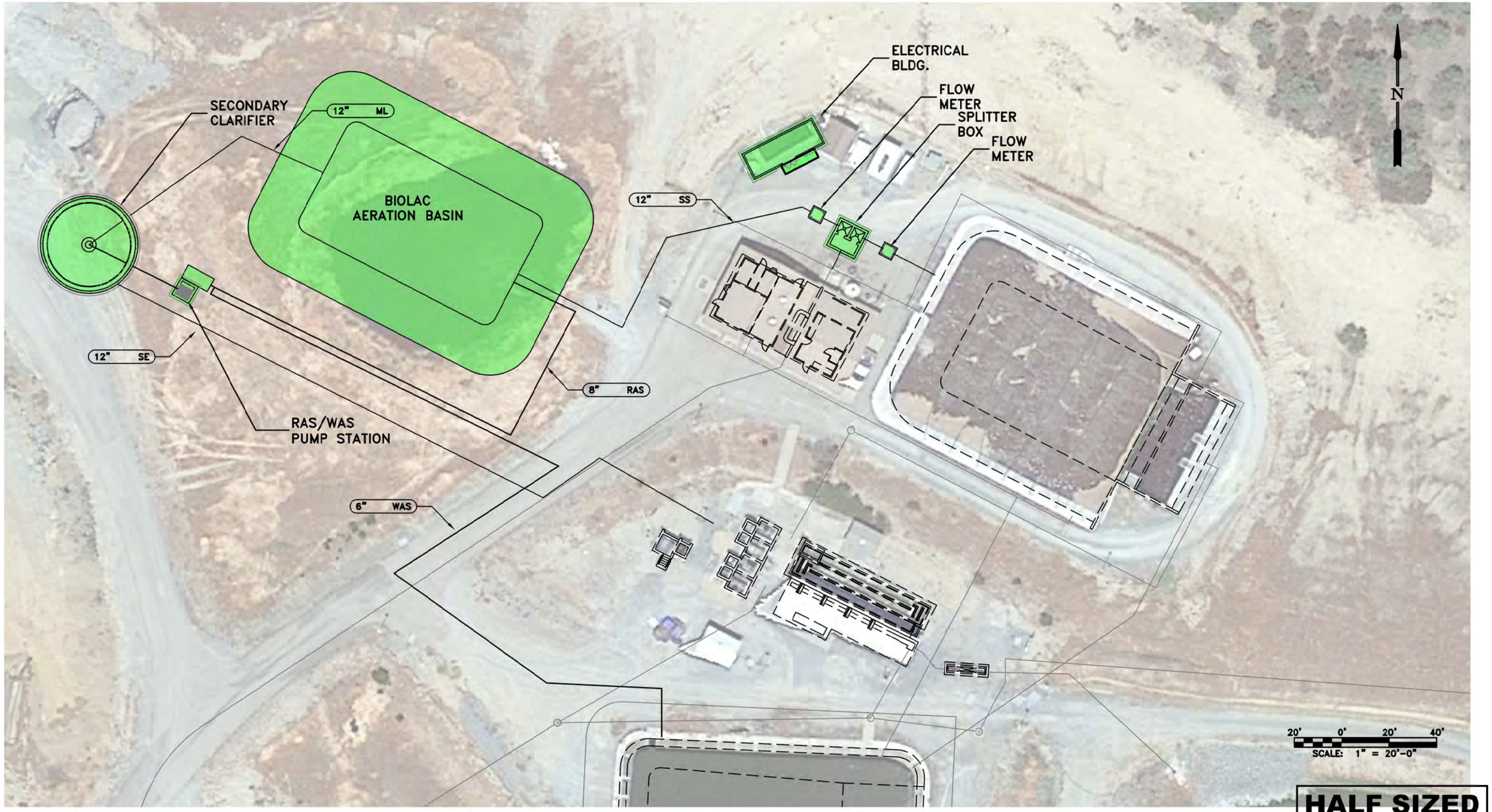
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

PHASE 3 IMPROVEMENTS SITE PLAN
PARKSON BIOLAC BASIN AND CLARIFIER
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	PROJECT NUMBER
C122	DRAWING NUMBER
– OF –	SHEET NUMBER

G:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C122_WWTF_PARKSON_PHASE_3_SITE_PLAN_150972.DWG 2/09/24 9:46pm Bob Godwin



HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	1" = 20'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

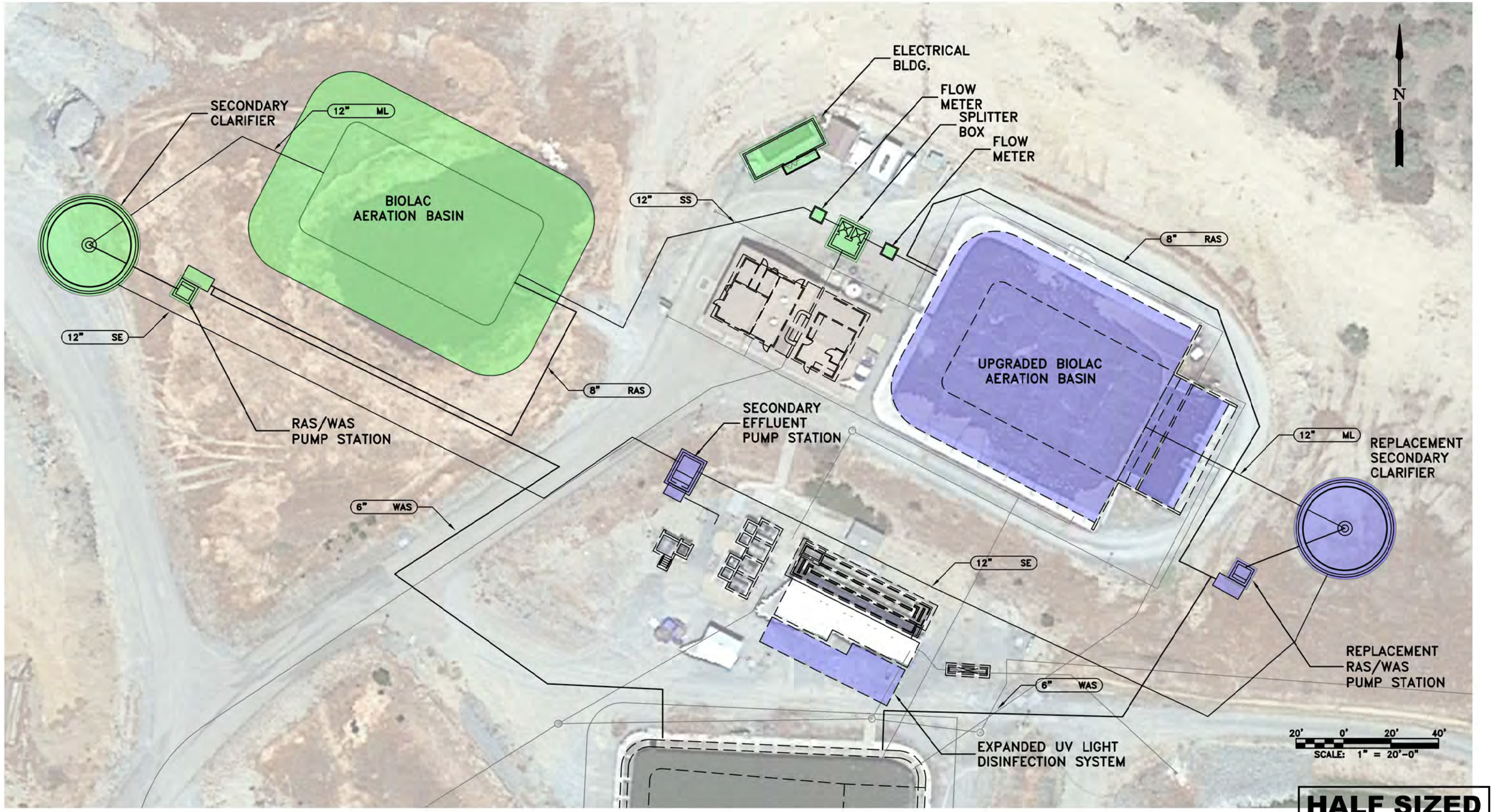
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

PHASE 3 IMPROVEMENTS
ALTERNATIVE SITE PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C122A
DRAWING NUMBER	– OF –
SHEET NUMBER	

G:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C122A_WWTF_ALT_PHASE_3_SITE_PLAN_150972.DWG 2/09/24 10:00pm Bob Godwin



HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	1" = 20'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

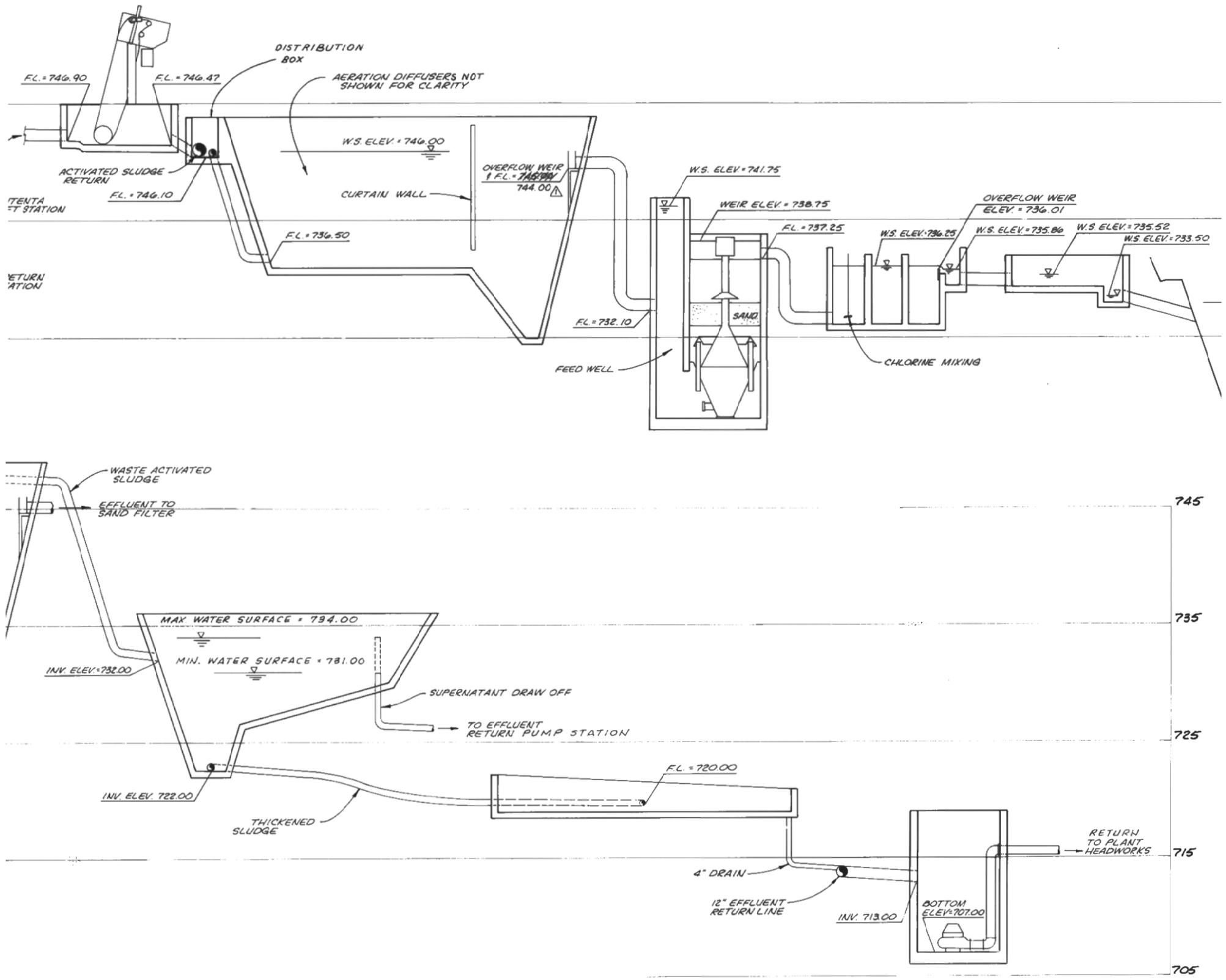
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

FACILITY AT BUILD-OUT SITE PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C123
DRAWING NUMBER	– OF –
SHEET NUMBER	

G:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C123_WWTF_SITE_PLAN_AT_BUILDOUT_150972.DWG 2/09/24 10:19pm Bob Godwin



HALF SIZED

DESIGNED BY:	R. GODWIN		
DRAFTED BY:	R. GODWIN		
CHECKED BY:			
DATE:	2/8/24		
SCALE:	NO SCALE		
BAR LENGTH ONE INCH ON SCALED DRAWING			

REVISION:	DESCRIPTION:	DATE:	BY:

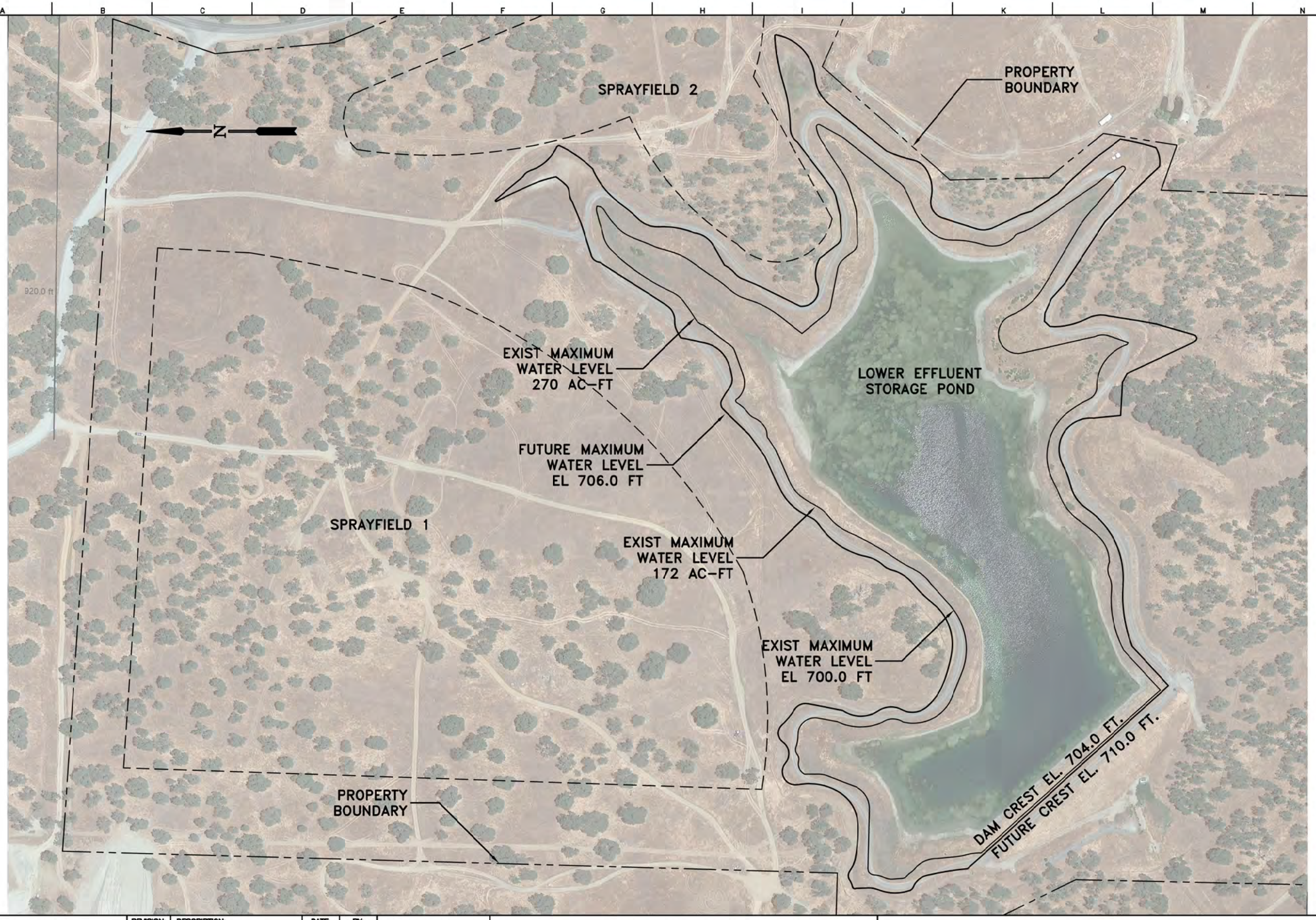
CALAVERAS COUNTY WATER DISTRICT

120 "OMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

WASTEWATER TREATMENT FACILITY
EXISTING HYDRAULIC PROFILE
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C124
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C124_EXIST_HYDRAULIC_PROFILE_15097.dwg 2/08/24 8:14pm Bob Godwin



HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	1" = 100'-0"
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

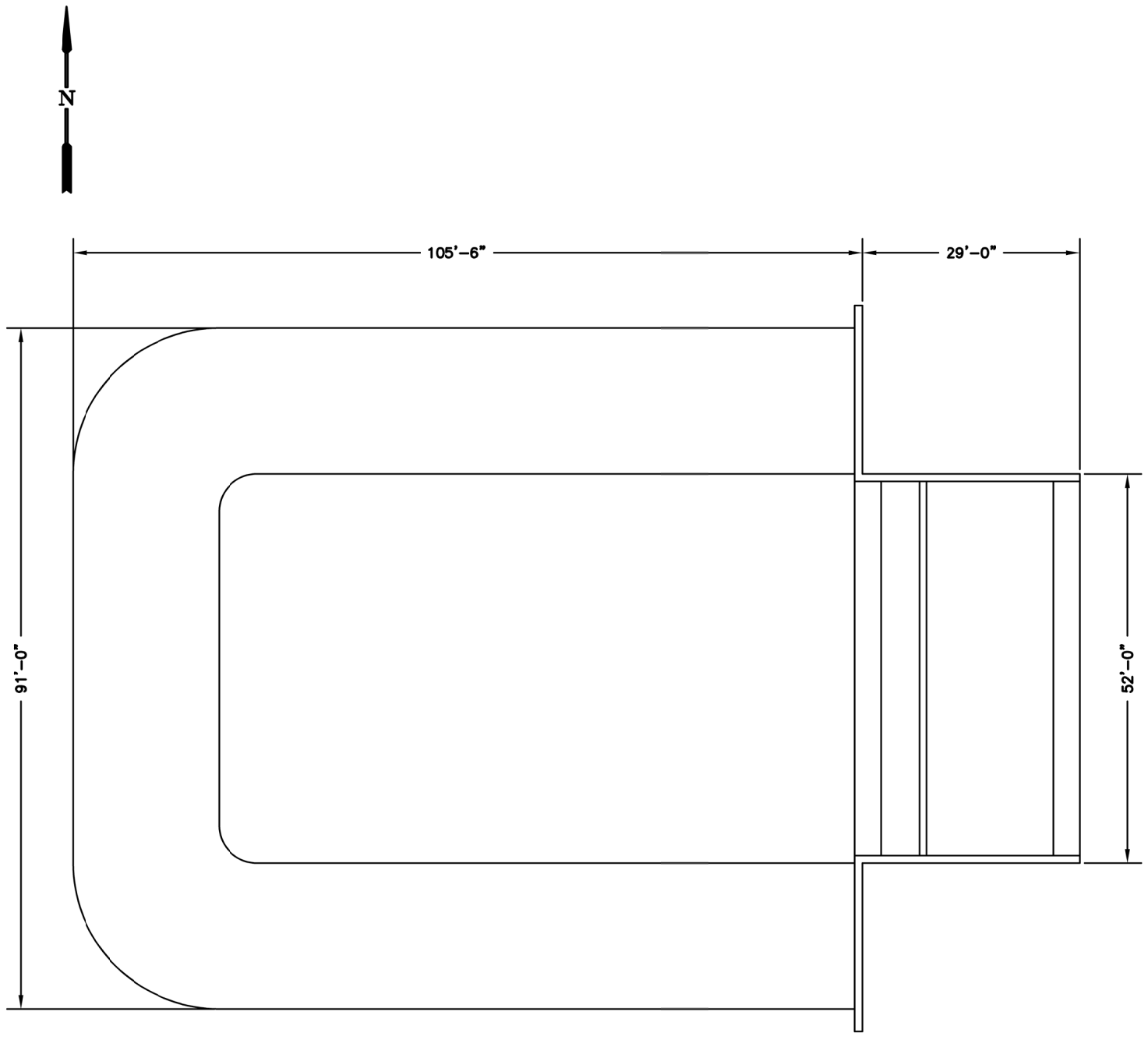
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

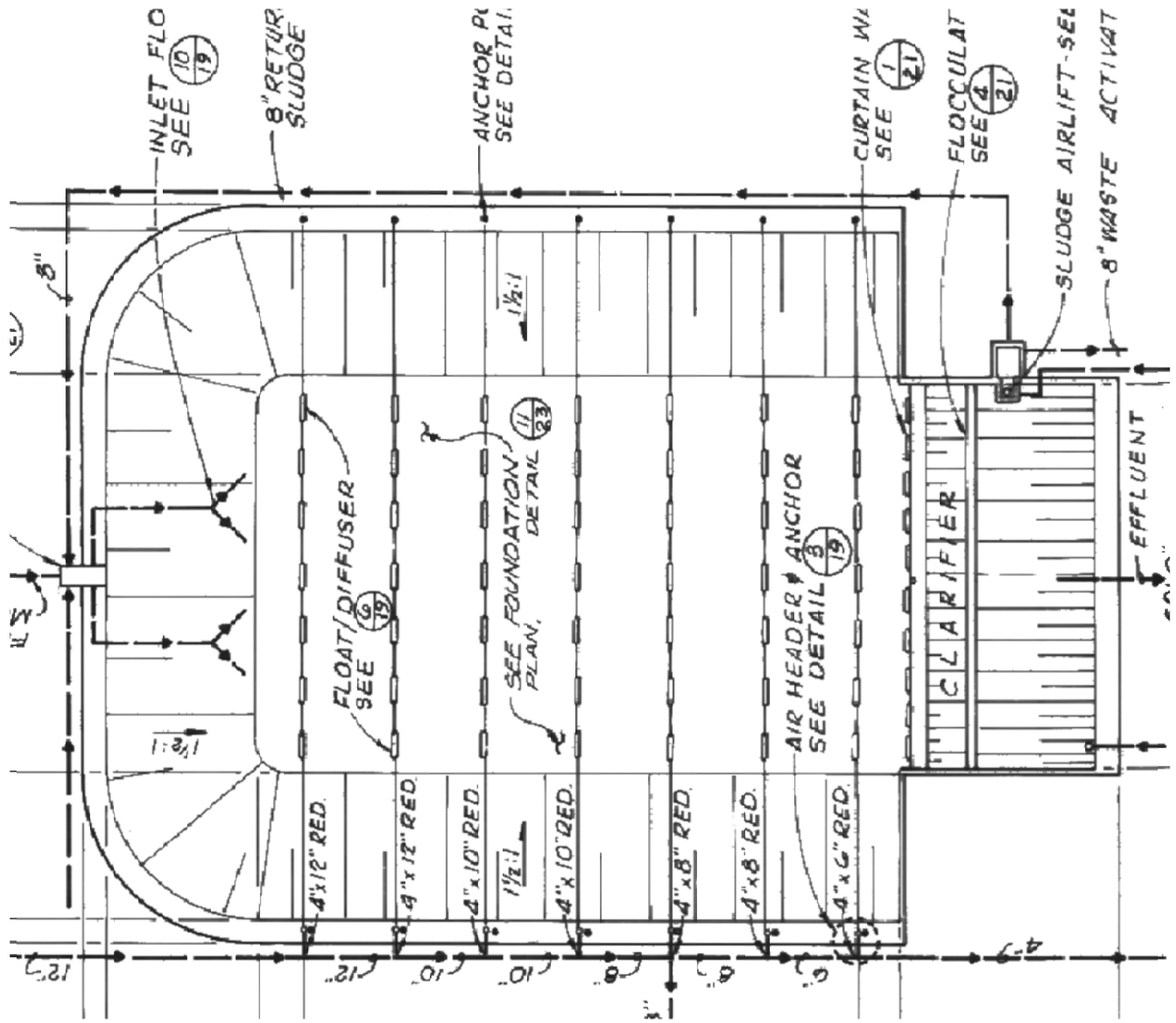
SPRAYFIELD AND LESP SITE PLAN PHASE 3 IMPROVEMENT PROJECT LA CONTENTA WASTEWATER TREATMENT FACILITY

PROJECT NUMBER	15097
DRAWING NUMBER	C131
SHEET NUMBER	- OF -

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER\C131_LESP_SITE_PLAN_15097.DWG 2/09/24 10:40pm Bob Godwin



EXISTING BIOLAC BASIN
SCALE: 1" = 10'-0"



EXISTING BIOLAC BASIN
SCALE: 1" = 10'-0"

10' 0' 10' 20'
SCALE: 1" = 10'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

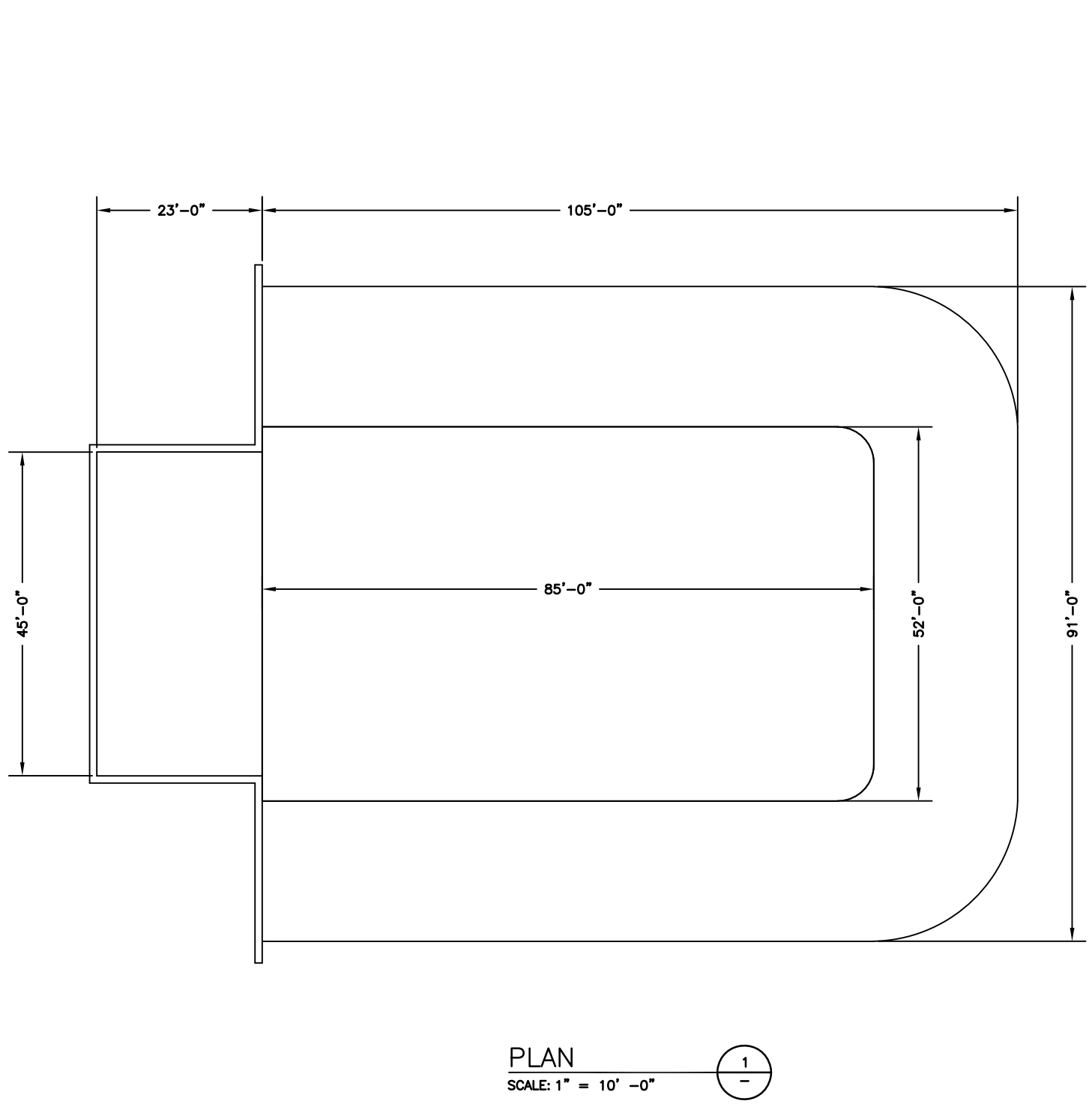
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

EXISTING BIOLAC BASIN PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C201
DRAWING NUMBER	– OF –
SHEET NUMBER	

G:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C201_BIOLAC_PLAN_15097.DWG 2/09/24 8:24pm Bob Godwin



PLAN
SCALE: 1" = 10' –0"

1
–

10' 0' 10' 20'
SCALE: 1" = 10'

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

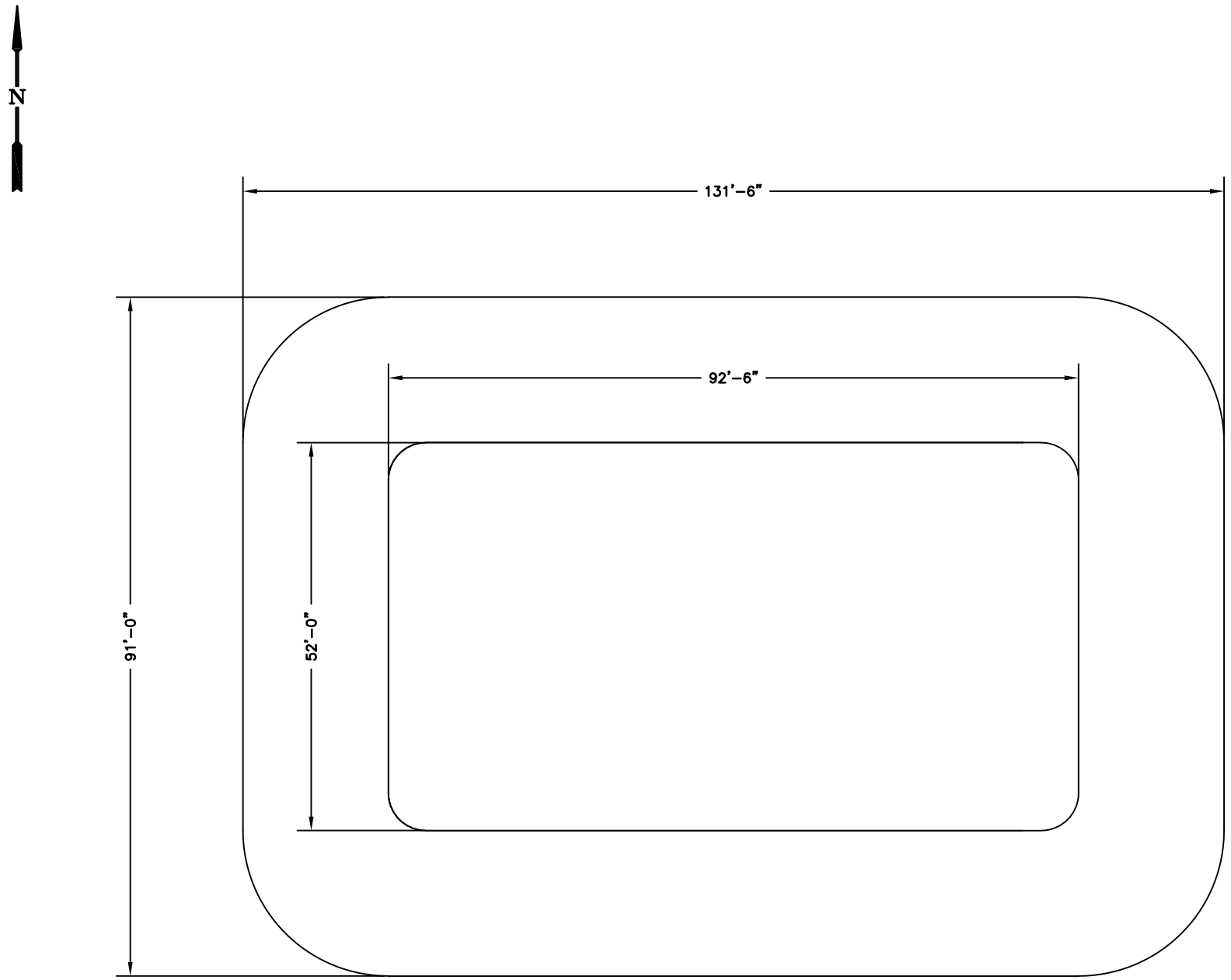
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

PARKSON BIOLAC BASIN AND CLARIFIER PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097
PROJECT NUMBER
C202
DRAWING NUMBER
– OF –
SHEET NUMBER

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_C4DD_15097\MASTER_COMPOSITE\MASTER\C202_PARKSON_BIOLAC_PLAN_15097.DWG 2/09/24 8:50pm Bob Godwin



PLAN
SCALE: 1" = 10' –0"

1
–

10' 0' 10' 20'
SCALE: 1" = 10'

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

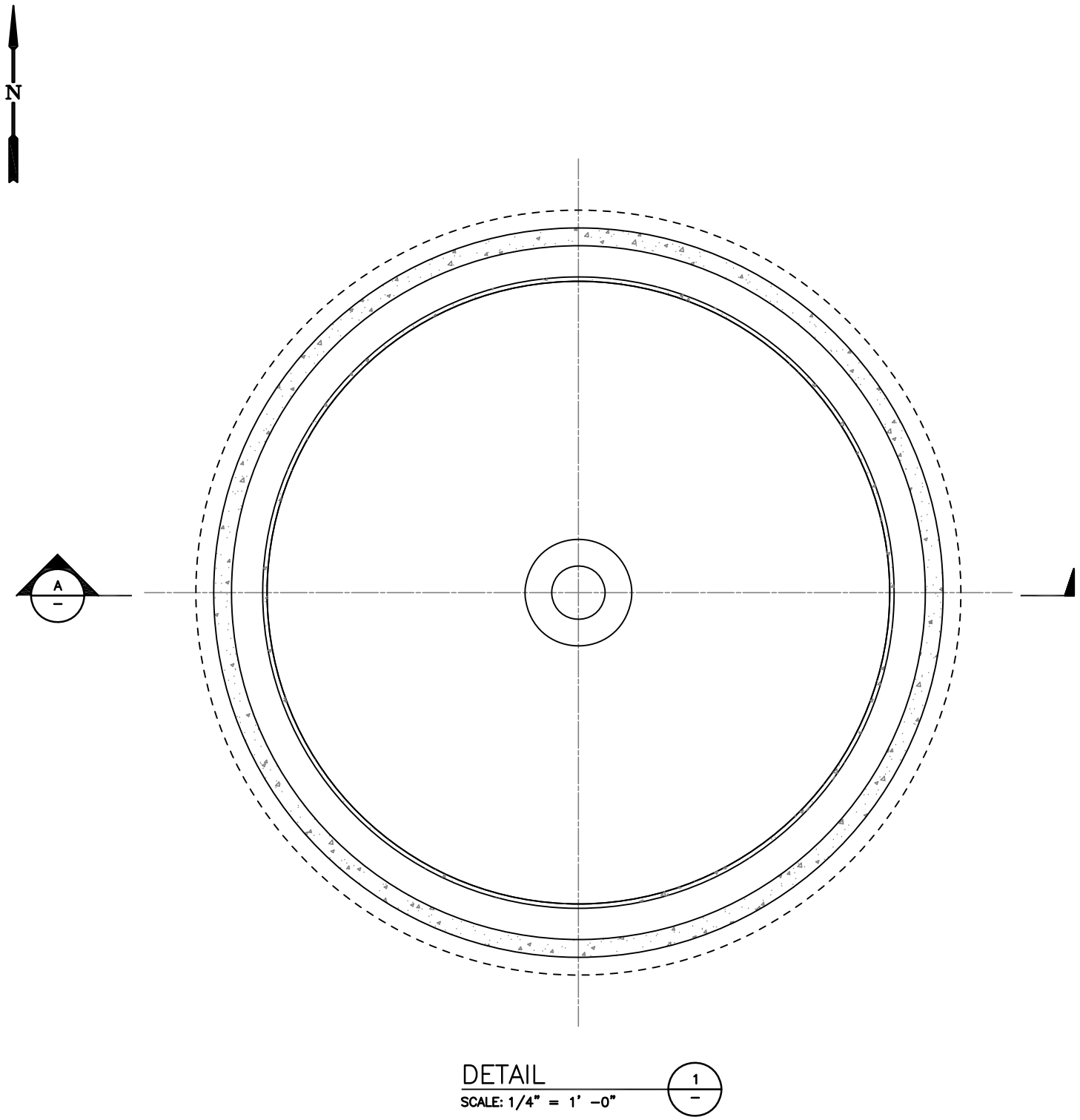
CALAVERAS COUNTY
WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

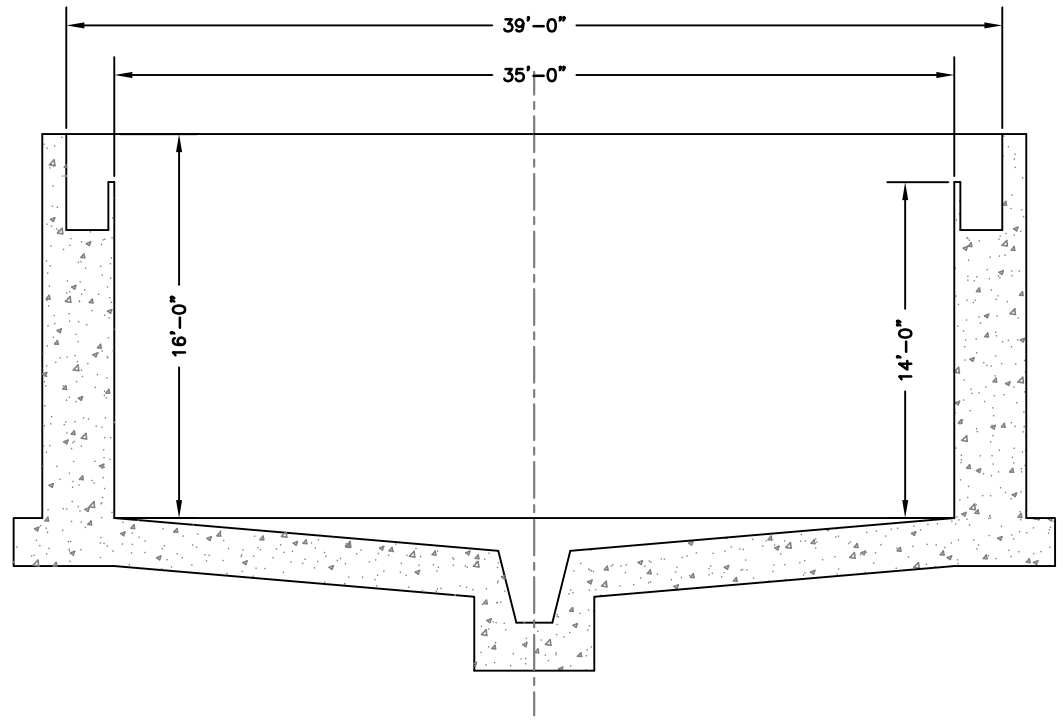
BIOLAC BASIN ALTERNATIVE PLAN
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C202A
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C202A_ALT_BIOLAC_PLAN_15097.DWG 2/09/24 8:32pm Bob Godwin



DETAIL
SCALE: 1/4" = 1' -0"
1



SECTION
SCALE: 1/4" = 1' -0"
A

0 4' 8' 12'
SCALE: 1/4" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/8/24
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

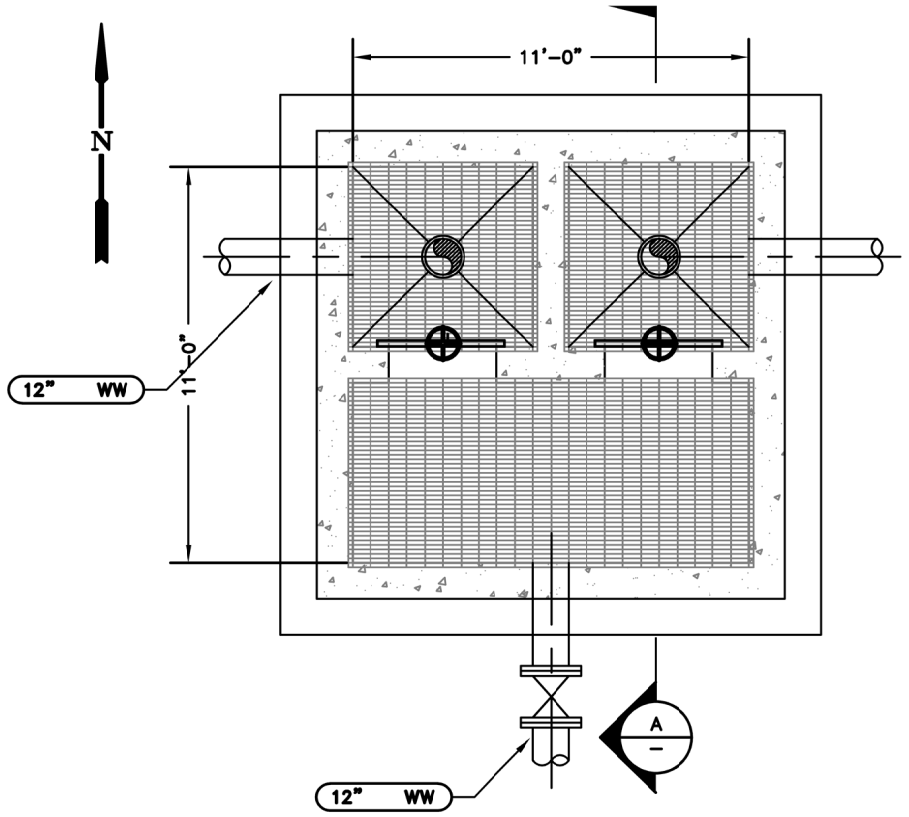
CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

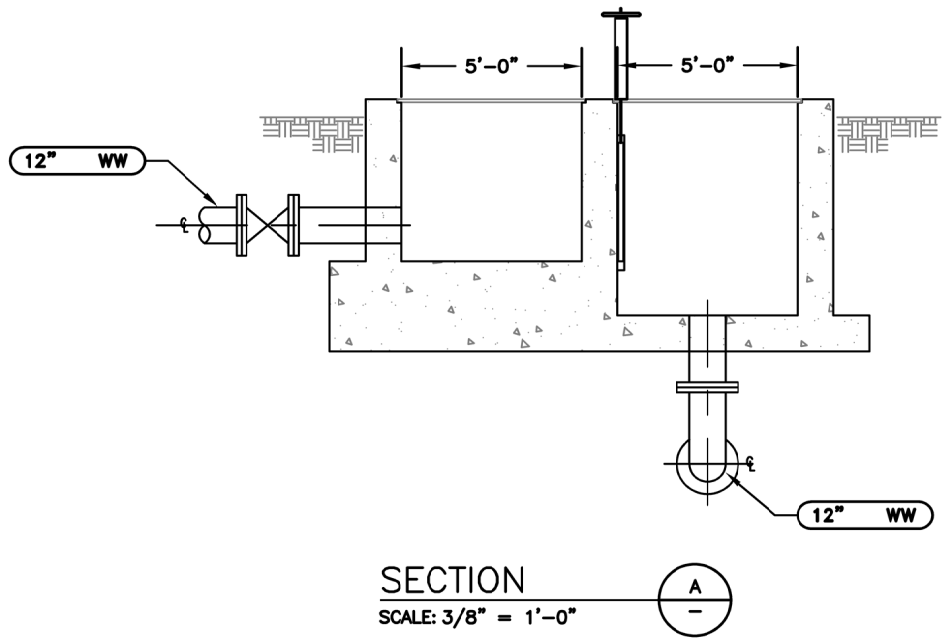
SECONDARY CLARIFIER DETAILS AND SECTION PHASE 3 IMPROVEMENT PROJECT LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C211
DRAWING NUMBER	- OF -
SHEET NUMBER	

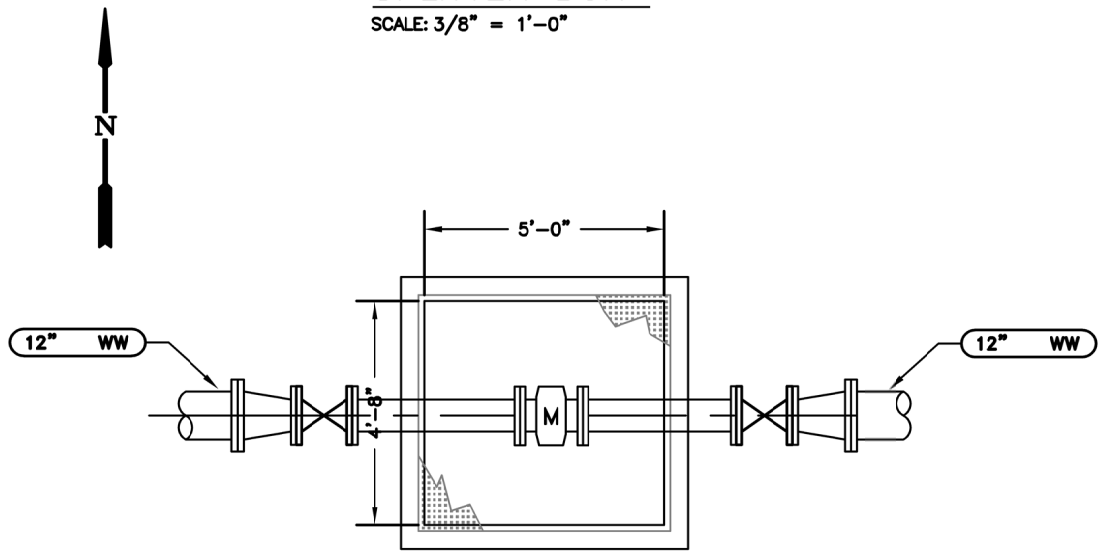
C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C211_CLARIFIER_15097.DWG 2/08/24 8:05pm Bob Godwin



SPLITTER BOX
SCALE: 3/8" = 1'-0"



SECTION
SCALE: 3/8" = 1'-0"



METERING BOX
SCALE: 1/2" = 1'-0"

0 2' 4' 6' 8'
SCALE: 3/8" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/22/23
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

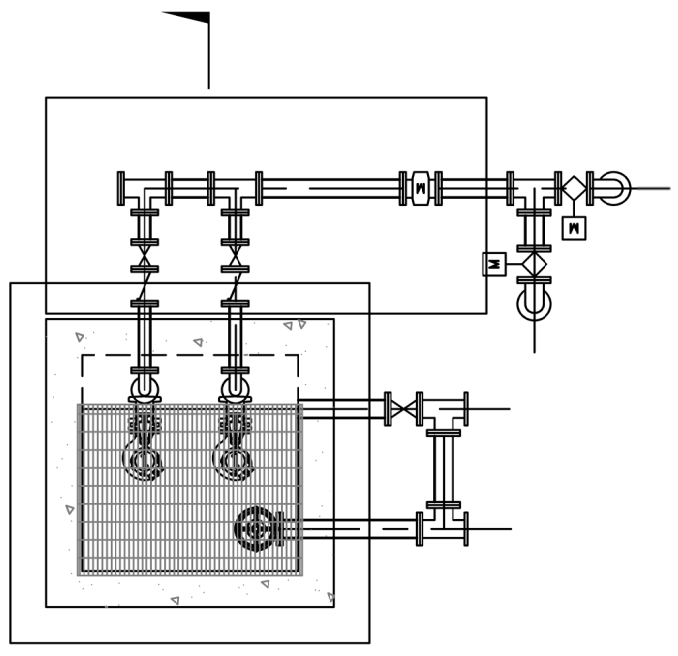
CALAVERAS COUNTY
WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

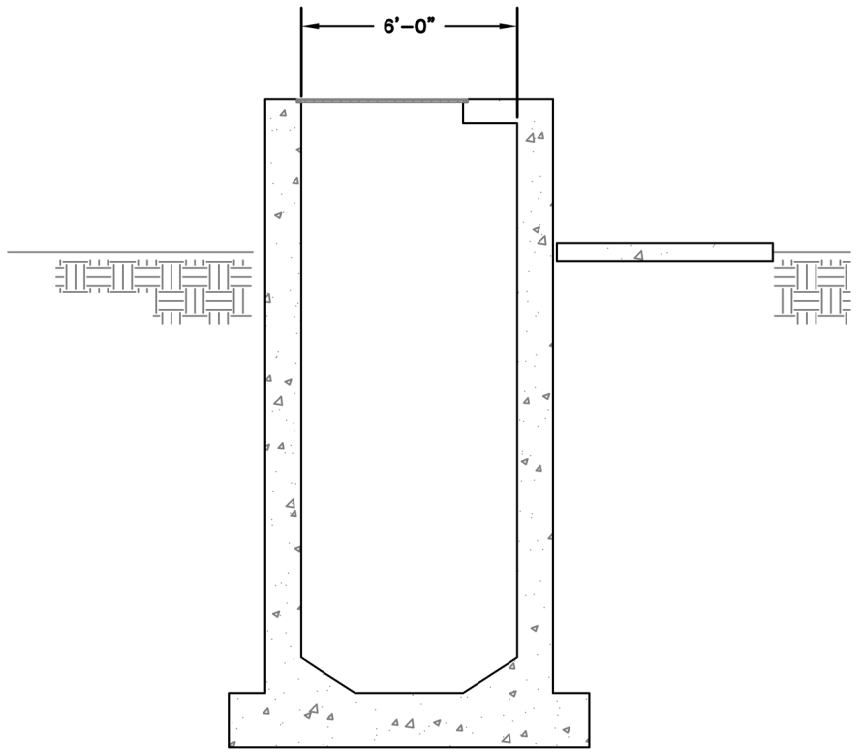
INFLUENT SPLITTER BOX AND METERING BOX
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	M151
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\M151_SPLITTER_BOX_METER_15097.DWG 11/24/23 3:44pm Bob Godwin



RAS/WAS PUMP STATION
SCALE: 3/8" = 1'-0"



SECTION
SCALE: 3/8" = 1'-0"

0 2' 4' 6' 8'
SCALE: 3/8" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	11/22/23
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

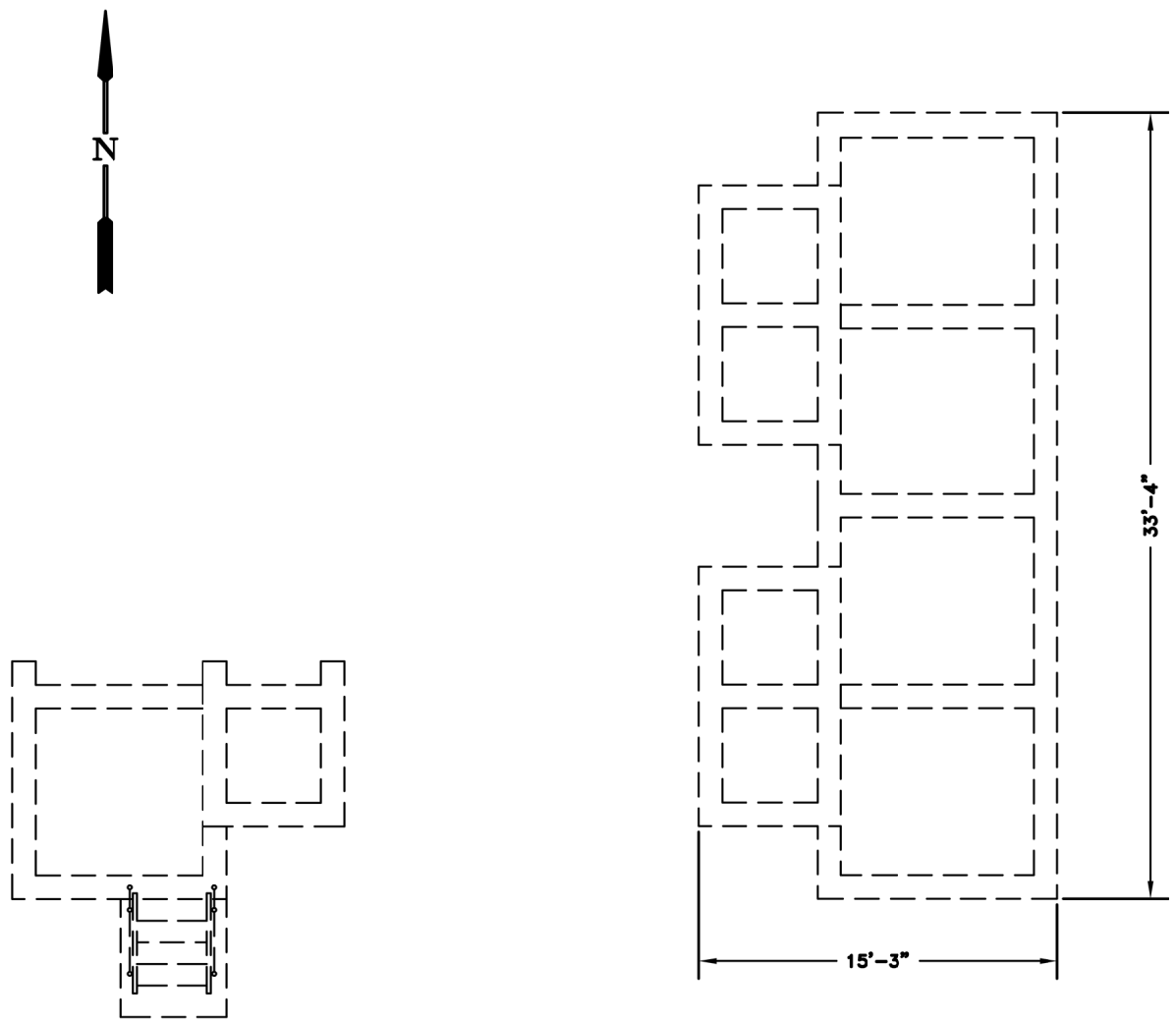
CALAVERAS COUNTY
WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

RAS/WAS PUMP STATION
PHASE 3 IMPROVEMENT PROJECT
LA CONTENTA WASTEWATER TREATMENT FACILITY

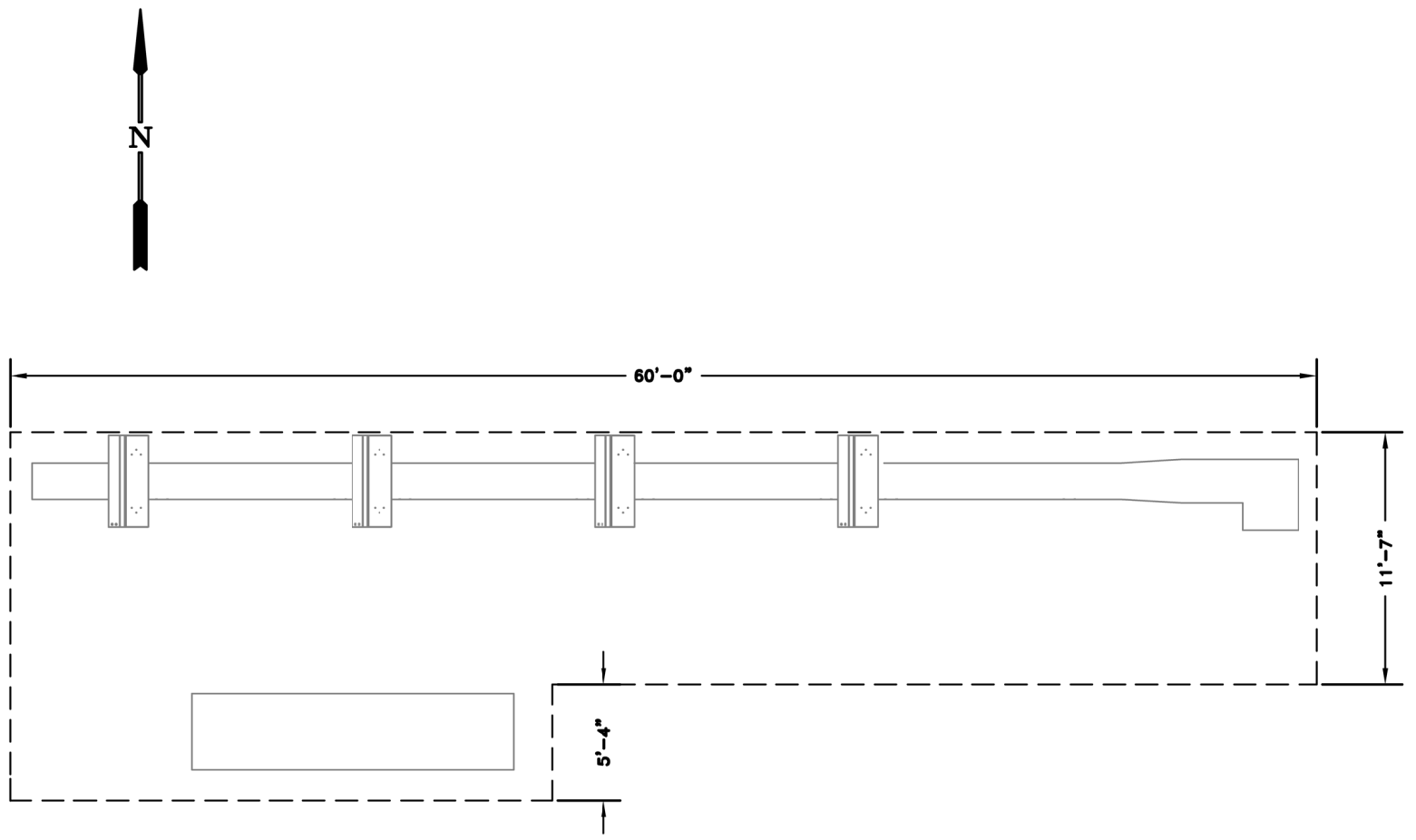
15097
PROJECT NUMBER
M251
DRAWING NUMBER
– OF –
SHEET NUMBER

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\M251_RAS_WAS_PUMP_STATION_15097.DWG 11/24/23 3:47pm Bob Godwin



TERTIARY FILTERS

SCALE: 1/4" = 1'-0"



UV DISINFECTION

SCALE: 1/4" = 1'-0"

0 4' 8' 12'

SCALE: 1/4" = 1'-0"

HALF SIZED

DESIGNED BY:	R. GODWIN
DRAFTED BY:	R. GODWIN
CHECKED BY:	
DATE:	2/9/24
SCALE:	AS INDICATED
BAR LENGTH ONE INCH ON SCALED DRAWING	

REVISION:	DESCRIPTION:	DATE:	BY:

CALAVERAS COUNTY WATER DISTRICT

120 TOMA COURT
POST OFFICE BOX 846
SAN ANDREAS, CALIFORNIA 95249
PHONE: (209) 754-3543

EXISTING TERTIARY FILTERS AND UV DISINFECTION SYSTEM PHASE 3 IMPROVEMENT PROJECT LA CONTENTA WASTEWATER TREATMENT FACILITY

15097	
PROJECT NUMBER	C301
DRAWING NUMBER	– OF –
SHEET NUMBER	

C:\Users\Bob Godwin\Documents\Calaveras County Project Files\LA_CONTENTA\15097_CADD_15097\MASTER_COMPOSITE\MASTER\C301_EXIST_TERTIARY.dwg 2/09/24 8:59pm Bob Godwin

APPENDIX B

EXISTING CUSTOMER SERVICES BY APN AND ADDRESS

APPENDIX B

APN	Street Number	Street Name	EDU
46016054	145	MANGILI RD	4.00
46016055	75	MANGILI RD	1.00
46016066	351	HWY 26	1.00
46016078	2	NOVE WAY	1.00
46016079	10	NOVE WAY	3.00
46036009	53	NOVE WAY	1.00
46036011	13	MAIN ST	1.00
46036012	25	MAIN ST	1.00
46036017	127	MAIN ST	1.00
46036018	139	MAIN ST	1.00
46036023	148	MAIN ST	1.00
46036026	94	MAIN ST	1.00
46036027	76	MAIN ST	1.00
46036028	42	MAIN ST	1.00
46036029	18	MAIN ST	1.00
46036044	65	MAIN ST	1.00
46036045	53	MAIN ST	1.00
46036047	44	JEAN ST - STE #1	1.00
46036047	44	JEAN ST - STE #2	1.00
46036047	44	JEAN ST - STE #3	1.00
46036048	44	JEAN ST - STE #4	1.00
46036048	44	JEAN ST - STE #5	1.00
46036051	161	HWY 26	1.20
46036052	50	JEAN ST	2.65
46036056	177	HWY 26	6.50
46036059	10	MAIN ST	1.00
46036060	105	MAIN ST	1.00
46036061	31	NOVE WAY	1.00
46036062	7	NOVE WAY	2.50
72010001	3531	ANTONOVICH RD	1.00
72010002	3521	ANTONOVICH RD	1.00
72010003	3497	ANTONOVICH RD	1.00
72010004	3489	ANTONOVICH RD	1.00
72010006	3455	ANTONOVICH RD	1.00
72010007	3474	ANTONOVICH RD	1.00
72010008	3484	PRISCILLA CT	1.00
72010009	3498	PRISCILLA CT	1.00
72010010	3500	PRISCILLA CT	1.00
72010011	3499	PRISCILLA CT	1.00
72010012	3481	PRISCILLA CT	1.00
72011001	3547	ANTONOVICH RD	1.00
72011002	3565	ANTONOVICH RD	1.00
72011003	3778	HUCKLEBERRY LN	1.00
72011004	3611	ANTONOVICH RD	1.00

APN	Street Number	Street Name	EDU
72011005	3627	ANTONOVICH RD	1.00
72011006	3649	ANTONOVICH RD	1.00
72011023	3538	ANTONOVICH RD	1.00
72013006	3526	ANTONOVICH RD	1.00
73042090	1653	HWY 26	4.49
73042091	1653	HWY 26	1.00
73042091	795	LA CONTENTA DR	1.00
73042091	0	ST ANDREWS DR	1.90
73042102	667	SPYGLASS RD	1.00
73042103	669	SPYGLASS RD	1.00
73042111	30	VISTA DEL LAGO WEST DR	1.00
73042114	10	VISTA DEL LAGO WEST DR A	1.90
73042114	10	VISTA DEL LAGO WEST DR B	1.00
73044015	1390	COUNTRY VIEW DR	1.00
73044016	1323	COUNTRY VIEW DR	1.00
73044016	1323	COUNTRY VIEW DR	3.00
73045001	2909	ROBIN RD	1.00
73045002	2917	ROBIN RD	1.00
73045003	2925	ROBIN RD	1.00
73045004	2908	ROBIN RD	1.00
73045005	2916	ROBIN RD	1.00
73045006	1052	MOCKINGBIRD HILL LN	1.00
73045007	1058	MOCKINGBIRD HILL LN	1.00
73045008	8	PELICAN PL	1.00
73045009	16	PELICAN PL	1.00
73045010	24	PELICAN PL	1.00
73045011	32	PELICAN PL	1.00
73045012	34	PELICAN PL	1.00
73045013	35	PELICAN PL	1.00
73045014	33	PELICAN PL	1.00
73045015	29	PELICAN PL	1.00
73045016	19	PELICAN PL	1.00
73045017	17	PELICAN PL	1.00
73045018	15	PELICAN PL	1.00
73045019	13	PELICAN PL	1.00
73045020	11	PELICAN PL	1.00
73045021	1072	MOCKINGBIRD HILL LN	1.00
73045022	1082	MOCKINGBIRD HILL LN	1.00
73045023	1094	MOCKINGBIRD HILL LN	1.00
73045024	1110	MOCKINGBIRD HILL LN	1.00
73045025	1114	MOCKINGBIRD HILL LN	1.00
73045026	1122	MOCKINGBIRD HILL LN	1.00
73045027	1125	MOCKINGBIRD HILL LN	1.00
73045028	1119	MOCKINGBIRD HILL LN	1.00

APN	Street Number	Street Name	EDU
73045029	1107	MOCKINGBIRD HILL LN	1.00
73045030	1103	MOCKINGBIRD HILL LN	1.00
73045031	1097	MOCKINGBIRD HILL LN	1.00
73045032	1089	MOCKINGBIRD HILL LN	1.00
73045033	1085	MOCKINGBIRD HILL LN	1.00
73045034	1077	MOCKINGBIRD HILL LN	1.00
73045035	1069	MOCKINGBIRD HILL LN	1.00
73045036	1061	MOCKINGBIRD HILL LN	1.00
73045037	1053	MOCKINGBIRD HILL LN	1.00
73045038	1049	MOCKINGBIRD HILL LN	1.00
73045039	1045	MOCKINGBIRD HILL LN	1.00
73046001	20	PARAKEET CT	1.00
73046002	16	PARAKEET CT	1.00
73046003	8	PARAKEET CT	1.00
73046004	1020	MOCKINGBIRD HILL LN	1.00
73046005	1016	MOCKINGBIRD HILL LN	1.00
73046006	1009	MOCKINGBIRD HILL LN	1.00
73046007	1004	MOCKINGBIRD HILL LN	1.00
73046008	17	PARAKEET CT	1.00
73046009	1040	MOCKINGBIRD HILL LN	1.00
73046010	11	PARAKEET CT	1.00
73046011	1035	MOCKINGBIRD HILL LN	1.00
73046012	1033	MOCKINGBIRD HILL LN	1.00
73046013	1029	MOCKINGBIRD HILL LN	1.00
73046014	1021	MOCKINGBIRD HILL LN	1.00
73046015	1011	MOCKINGBIRD HILL LN	1.00
73046016	1005	MOCKINGBIRD HILL LN	1.00
73046018	16	WOODPECKER CT	1.00
73046019	24	WOODPECKER CT	1.00
73046020	32	WOODPECKER CT	1.00
73046021	1128	PARADISE PEAK RD	1.00
73046022	1124	PARADISE PEAK RD	1.00
73046030	1088	PARADISE PEAK RD	1.00
73046031	1084	PARADISE PEAK RD	1.00
73046032	1076	PARADISE PEAK RD	1.00
73046036	1011	PARADISE PEAK RD	12.00
73046039	1085	PARADISE PEAK RD	1.00
73046040	1089	PARADISE PEAK RD	1.00
73046041	1091	PARADISE PEAK RD	1.00
73046043	1099	PARADISE PEAK RD	1.00
73046044	1103	PARADISE PEAK RD	1.00
73046045	1105	PARADISE PEAK RD	1.00
73046046	1111	PARADISE PEAK RD	1.00
73047001	51	WELLNESS WAY	9.50

APN	Street Number	Street Name	EDU
73047002	313	VISTA DEL LAGO WEST	1.56
73048004	2271	LAKE VIEW CIR	1.00
73048005	2247	LAKE VIEW CIR	1.00
73048006	2221	LAKE VIEW CIR	1.00
73048007	2203	LAKE VIEW CIR	1.00
73048008	2202	LAKE VIEW CIR	1.00
73048009	2220	LAKE VIEW CIR	1.00
73048010	2246	LAKE VIEW CIR	1.00
73048011	2270	LAKE VIEW CT	1.00
73048014	2355	LAKE VIEW CIR	1.00
73048015	2299	LAKE VIEW CIR	1.00
73048016	2323	LAKE VIEW CIR	1.00
73051001	127	GOLD NUGGET DR	1.00
73051002	135	GOLD NUGGET DR	1.00
73051003	141	GOLD NUGGET DR	1.00
73051004	149	GOLD NUGGET DR	1.00
73051005	157	GOLD NUGGET DR	1.00
73051006	163	GOLD NUGGET DR	1.00
73051007	169	GOLD NUGGET DR	1.00
73051008	125	NORTH BRANCH CT	1.00
73051009	133	NORTH BRANCH CT	1.00
73051010	141	NORTH BRANCH CT	1.00
73051011	117	NORTH BRANCH CT	1.00
73051012	149	NORTH BRANCH CT	1.00
73051013	157	NORTH BRANCH CT	1.00
73051014	165	NORTH BRANCH CT	1.00
73051015	173	NORTH BRANCH CT	1.00
73051016	181	NORTH BRANCH CT	1.00
73051018	176	NORTH BRANCH CT	1.00
73051019	160	NORTH BRANCH CT	1.00
73051020	111	LAST CHANCE CT	1.00
73051021	115	LAST CHANCE CT	1.00
73051022	127	LAST CHANCE CT	1.00
73051023	128	LAST CHANCE CT	1.00
73051024	122	LAST CHANCE CT	1.00
73051025	120	LAST CHANCE CT	1.00
73051026	185	GOLD NUGGET DR	1.00
73051027	191	GOLD NUGGET DR	1.00
73051028	199	GOLD NUGGET DR	1.00
73051029	205	GOLD NUGGET DR	1.00
73051030	103	GOLD KING DR	1.00
73051031	111	GOLD KING DR	1.00
73051032	119	GOLD KING DR	1.00
73051033	127	GOLD KING DR	1.00

APN	Street Number	Street Name	EDU
73051034	135	GOLD KING DR	1.00
73051035	130	GOLD KING DR	1.00
73051037	124	GOLD KING DR	1.00
73051038	118	GOLD KING DR	1.00
73051039	112	GOLD KING DR	1.00
73051040	104	GOLD KING DR	1.00
73051041	162	GOLD NUGGET DR	1.00
73051042	152	GOLD NUGGET DR	1.00
73051043	144	GOLD NUGGET DR	1.00
73051044	138	GOLD NUGGET DR	1.00
73051045	130	GOLD NUGGET DR	1.00
73052001	104	GOLD DUST DR	1.00
73052002	200	GOLD CREEK DR	1.00
73052003	194	GOLD CREEK DR	1.00
73052004	186	GOLD CREEK DR	1.00
73052005	178	GOLD CREEK DR	1.00
73052006	172	GOLD CREEK DR	1.00
73052007	164	GOLD CREEK DR	1.00
73052008	156	GOLD CREEK DR	1.00
73052009	150	GOLD CREEK DR	1.00
73052010	107	GOLD NUGGET DR	1.00
73052011	115	GOLD NUGGET DR	1.00
73052012	121	GOLD NUGGET DR	1.00
73052013	116	GOLD NUGGET DR	1.25
73052019	175	GOLD CREEK DR	1.00
73052020	179	GOLD CREEK DR	1.00
73052021	189	GOLD CREEK DR	1.00
73052022	201	GOLD CREEK DR	1.00
73052023	209	GOLD CREEK DR	1.00
73052024	217	GOLD CREEK DR	1.00
73052025	206	GOLD KING DR	1.00
73052026	200	GOLD KING DR	1.00
73052027	105	HAPPY JACK CT	1.00
73052028	111	HAPPY JACK CT	1.00
73052029	121	HAPPY JACK CT	1.00
73052030	120	HAPPY JACK CT	1.00
73052031	112	HAPPY JACK CT	1.00
73052032	106	HAPPY JACK CT	1.00
73052033	162	GOLD KING DR	1.00
73052034	154	GOLD KING DR	1.00
73052035	146	GOLD KING DR	1.00
73052036	138	GOLD KING DR	1.00
73052038	143	GOLD KING DR	1.00
73052039	151	GOLD KING DR	1.00

APN	Street Number	Street Name	EDU
73052040	159	GOLD KING DR	1.00
73052041	167	GOLD KING DR	1.00
73052042	175	GOLD KING DR	1.00
73052043	183	GOLD KING DR	1.00
73052044	191	GOLD KING DR	1.00
73052045	199	GOLD KING DR	1.00
73052046	207	GOLD KING DR	1.00
73053001	196	GOLD DUST CT	1.00
73053002	188	GOLD DUST CT	1.00
73053003	180	GOLD DUST CT	1.00
73053004	172	GOLD DUST DR	1.00
73053005	164	GOLD DUST DR	1.00
73053006	158	GOLD DUST DR	1.00
73053007	150	GOLD DUST DR	1.00
73053008	142	GOLD DUST DR	1.00
73053009	134	GOLD DUST DR	1.00
73053010	128	GOLD DUST DR	1.00
73053011	120	GOLD DUST DR	1.00
73053012	112	GOLD DUST DR	1.00
73053013	109	GOLD DUST DR	1.00
73053014	212	GOLD CREEK DR	1.00
73053015	127	GOLD DUST DR	1.00
73053016	135	GOLD DUST DR	1.00
73053017	141	GOLD DUST DR	1.00
73053018	147	GOLD DUST DR	1.00
73053019	153	GOLD DUST DR	1.00
73053020	159	GOLD DUST	1.00
73053021	280	GOLD KING DR	1.00
73053022	272	GOLD KING DR	1.00
73053023	260	GOLD KING DR	1.00
73053024	254	GOLD KING DR	1.00
73053025	246	GOLD KING DR	1.00
73053026	240	GOLD KING DR	1.00
73053027	236	GOLD KING DR	1.00
73053028	218	GOLD CREEK DR	1.00
73053029	224	GOLD KING DR	1.00
73053030	227	GOLD KING DR	1.00
73053031	233	GOLD KING DR	1.00
73053032	241	GOLD KING DR	1.00
73053033	249	GOLD KING DR	1.00
73053034	257	GOLD KING DR	1.00
73053035	263	GOLD KING DR	1.00
73053036	267	GOLD KING DR	1.00
73053037	271	GOLD KING DR	1.00

APN	Street Number	Street Name	EDU
73053038	275	GOLD KING DR	1.00
73053039	279	GOLD KING DR	1.00
73053040	283	GOLD KING DR	1.00
73053041	289	GOLD KING DR	1.00
73053042	295	GOLD KING DR	1.00
73053043	179	GOLD DUST DR	1.00
73053044	187	GOLD DUST CT	1.00
73054001	275	GOLD CREEK DR	1.00
73054002	281	GOLD CREEK DR	1.00
73054003	287	GOLD CREEK DR	1.00
73054004	293	GOLD CREEK DR	1.00
73054005	299	GOLD CREEK DR	1.00
73054006	305	GOLD CREEK DR	1.00
73054007	311	GOLD CREEK DR	1.00
73054008	317	GOLD CREEK DR	1.00
73054009	323	GOLD CREEK DR	1.00
73054010	329	GOLD CREEK DR	1.00
73054011	335	GOLD CREEK DR	1.00
73054012	341	GOLD CREEK DR	1.00
73054013	347	GOLD CREEK DR	1.00
73054014	353	GOLD CREEK DR	1.00
73054015	107	BULLION HILL DR	1.00
73054016	113	BULLION HILL DR	1.00
73054017	119	BULLION HILL DR	1.00
73054019	125	BULLION HILL DR	1.00
73054020	131	BULLION HILL DR	1.00
73054021	137	BULLION HILL DR	1.00
73054022	143	BULLION HILL DR	1.00
73054023	149	BULLION HILL DR	1.00
73054024	155	BULLION HILL DR	1.00
73054025	154	BULLION HILL DR	1.00
73054026	146	BULLION HILL DR	1.00
73054027	138	BULLION HILL DR	1.00
73054028	132	BULLION HILL DR	1.00
73054029	116	BULLION HILL DR	1.00
73054030	110	BULLION HILL DR	1.00
73054031	104	BULLION HILL DR	1.00
73054032	360	GOLD CREEK DR	1.00
73054033	354	GOLD CREEK DR	1.00
73054034	103	GOLDEN LEAF CT	1.00
73054035	109	GOLDEN LEAF CT	1.00
73054036	114	LITTLE DIPPER CT	1.00
73054037	120	LITTLE DIPPER CT	1.00
73054039	111	LITTLE DIPPER CT	1.00

APN	Street Number	Street Name	EDU
73054040	105	LITTLE DIPPER CT	1.00
73054041	133	GOLDEN LEAF CT	1.00
73054042	139	GOLDEN LEAF CT	1.00
73054043	145	GOLDEN LEAF CT	1.00
73054044	151	GOLDEN LEAF CT	1.00
73054045	157	GOLDEN LEAF CT	1.00
73054046	161	GOLDEN LEAF CT	1.00
73054047	162	GOLDEN LEAF CT	1.00
73054048	158	GOLDEN LEAF CT	1.00
73054049	154	GOLDEN LEAF CT	1.00
73054050	148	GOLDEN LEAF CT	1.00
73054051	142	GOLDEN LEAF CT	1.00
73054052	136	GOLDEN LEAF CT	1.00
73054053	130	GOLDEN LEAF CT	1.00
73054054	324	GOLD CREEK DR	1.00
73054055	316	GOLD CREEK DR	1.00
73054056	308	GOLD CREEK DR	1.00
73054057	302	GOLD CREEK DR	1.00
73054058	296	GOLD CREEK DR	1.00
73054059	290	GOLD CREEK DR	1.00
73054060	286	GOLD CREEK DR	1.00
73054061	280	GOLD CREEK DR	1.00
73054062	274	GOLD CREEK DR	1.00
73055003	208	BULLION HILL DR	1.00
73055004	202	BULLION HILL DR	1.00
73055005	196	BULLION HILL DR	1.00
73055006	105	GOLDEN STAR DR	1.00
73055007	174	BULLION HILL DR	1.00
73055008	168	BULLION HILL DR	1.00
73055009	162	BULLION HILL DR	1.00
73055011	107	GOLD STANDARD CT	1.00
73055012	113	GOLD STANDARD CT	1.00
73055013	119	GOLD STANDARD CT	1.00
73055014	123	GOLD STANDARD CT	1.00
73055015	118	GOLD STANDARD CT	1.00
73055016	112	GOLD STANDARD CT	1.00
73055017	106	GOLD STANDARD CT	1.00
73055018	165	BULLION HILL DR	1.00
73055019	169	BULLION HILL DR	1.00
73055020	173	BULLION HILL DR	1.00
73055021	179	BULLION HILL DR	1.00
73055022	185	BULLION HILL DR	1.00
73055023	191	BULLION HILL DR	1.00
73055024	197	BULLION HILL DR	1.00

APN	Street Number	Street Name	EDU
73055025	203	BULLION HILL DR	1.00
73057001	2400	LAKE VIEW CIR	1.00
73057002	2350	LAKE VIEW CIR	1.00
73057003	2302	LAKE VIEW CIR	1.00
73057004	2288	LAKE VIEW CIR	1.00
73058001	100	ROBINWOOD PL	1.00
73058002	120	ROBINWOOD PL	1.00
73058003	132	ROBINWOOD PL	1.00
73058004	138	ROBINWOOD PL	1.00
73058005	152	ROBINWOOD PL	1.00
73058006	164	ROBINWOOD PL	1.00
73058007	159	ROBINWOOD PL	1.00
73058008	125	ROBINWOOD PL	1.00
73058009	346	WOODGATE RD	1.00
73058010	362	WOODGATE RD	1.00
73058011	385	WOODGATE RD	1.00
73058012	373	WOODGATE RD	1.00
73058013	351	WOODGATE RD	1.00
73058014	319	WOODGATE RD	1.00
73058015	293	WOODGATE RD	1.00
73058016	257	WOODGATE RD	1.00
73059001	394	WOODGATE RD	1.00
73059002	116	WARMWOOD PL	1.00
73059003	130	WARMWOOD PL	1.00
73059004	138	WARMWOOD PL	1.00
73059005	156	WARMWOOD PL	1.00
73059006	157	WARMWOOD PL	1.00
73059007	151	WARMWOOD PL	1.00
73059008	143	WARMWOOD PL	1.00
73059010	488	WOODGATE RD	1.00
73059014	521	WOODGATE RD	1.00
73059015	503	WOODGATE RD	1.00
73059016	491	WOODGATE RD	1.00
73059017	475	WOODGATE RD	1.00
73059018	459	WOODGATE RD	1.00
73059019	433	WOODGATE RD	1.00
73059020	427	WOODGATE RD	1.00
73059021	415	WOODGATE RD	1.00
73059022	411	WOODGATE RD	1.00
74001009	1962	VISTA DEL LAGO DR	1.00
74001010	1957	VISTA DEL LAGO DR	1.00
74001011	2029	GREENBRIAR RD	1.00
74001012	2037	GREENBRIAR RD	1.00
74001013	2049	GREENBRIAR RD	1.00

APN	Street Number	Street Name	EDU
74001015	2060	GREENBRIAR RD	1.00
74001016	2034	GREENBRIAR RD	1.00
74001017	2023	GREENBRIAR RD	1.00
74001019	1906	VISTA DEL LAGO DR	8.46
74001020	1900	VISTA DEL LAGO DR	2.00
74001022	1919	VISTA DEL LAGO #1	1.00
74001022	1919	VISTA DEL LAGO #10	1.00
74001022	1919	VISTA DEL LAGO #11	2.40
74001022	1919	VISTA DEL LAGO #2	1.00
74001022	1919	VISTA DEL LAGO #3	1.00
74001022	1919	VISTA DEL LAGO #4	1.00
74001022	1919	VISTA DEL LAGO #5	1.47
74001022	1919	VISTA DEL LAGO #6	1.00
74001022	1919	VISTA DEL LAGO #7	1.00
74001022	1919	VISTA DEL LAGO #9A	1.00
74001022	1919	VISTA DEL LAGO #9B	1.54
74002006	2083	HWY 26	1.00
74002007	2101	HWY 26	1.00
74002008	2166	PARTRIDGE DR	1.00
74002012	2062	HARTVICKSON LN	1.00
74002013	2046	HARTVICKSON LN	1.00
74002015	2010	HARTVICKSON LN	1.00
74002016	2085	HARTVICKSON LN	1.00
74002017	2067	HARTVICKSON LN	1.00
74002018	2049	HARTVICKSON LN	1.00
74002019	2031	HARTVICKSON LN	1.00
74002020	2016	GROUSE DR	1.00
74002021	2078	WREN CT	1.00
74002022	2096	WREN CT	1.00
74002024	2097	WREN CT	1.00
74002025	2079	WREN CT	1.00
74002026	2083	GROUSE DR	1.00
74002027	2065	GROUSE DR	1.00
74002028	2047	GROUSE DR	1.00
74002029	2029	GROUSE DR	1.00
74002030	2011	GROUSE DR	1.00
74002031	2008	VISTA DEL LAGO DR	1.00
74002032	2036	VISTA DEL LAGO DR	1.00
74002033	2101	GROUSE DR	1.00
74002034	2078	HARTVICKSON LN	1.00
74002035	2130	PARTRIDGE DR	1.00
74002037	2045	HWY 26	1.00
74002038	2025	HWY 26	1.00
74002041	2065	HWY 26	1.00

APN	Street Number	Street Name	EDU
74003001	2111	HARTVICKSON LN	1.00
74003002	2127	HARTVICKSON LN	1.00
74003003	2153	HARTVICKSON LN	1.00
74003004	2333	PARTRIDGE CT	1.00
74003005	2341	PARTRIDGE CT	1.00
74003007	2342	PARTRIDGE CT	1.00
74003008	2209	HARTVICKSON LN	1.00
74003009	2300	PARTRIDGE DR	1.00
74003010	2288	PARTRIDGE DR	1.00
74003011	2274	PARTRIDGE DR	1.00
74003012	2258	PARTRIDGE DR	1.00
74003014	2226	PARTRIDGE DR	1.00
74003015	2210	PARTRIDGE DR	1.00
74003017	2178	PARTRIDGE DR	1.00
74003018	2115	HWY 26	1.00
74003019	2133	HWY 26	1.00
74003020	2151	HWY 26	1.00
74003021	2169	HWY 26	1.00
74003022	2187	HWY 26	1.00
74003024	2295	PARTRIDGE DR	1.00
74003025	2281	PARTRIDGE DR	1.00
74003026	2249	PARTRIDGE DR	1.00
74003028	2153	PARTRIDGE DR	1.00
74003029	2129	PARTRIDGE DR	1.00
74004001	2115	GROUSE DR	1.00
74004002	2108	QUAIL CT	1.00
74004003	2092	QUAIL CT	1.00
74004004	2084	QUAIL CT	1.00
74004005	2287	GROUSE DR	1.00
74004006	2275	GROUSE DR	1.00
74004007	2245	GROUSE DR	1.00
74004008	2209	GROUSE DR	1.00
74004009	2177	GROUSE DR	1.00
74004011	2099	QUAIL CT	1.00
74004012	2085	QUAIL CT	1.00
74004017	2157	QUAIL CT	1.00
74004019	2166	GROUSE DR	1.00
74004020	2182	GROUSE DR	1.00
74004021	2196	GROUSE DR	1.00
74004023	2226	GROUSE DR	1.00
74004024	2240	GROUSE DR	1.00
74004025	2254	GROUSE DR	1.00
74004026	2268	GROUSE DR	1.00
74004027	2278	GROUSE DR	1.00

APN	Street Number	Street Name	EDU
74004028	2288	GROUSE DR	1.00
74004029	2158	QUAIL CT	1.00
74004030	2168	QUAIL CT	1.00
74005001	2088	GREENBRIAR RD	1.00
74005002	2077	GREENBRIAR RD	1.00
74005003	2089	GREENBRIAR RD	1.00
74005004	2103	GREENBRIAR RD	1.00
74005006	2044	VISTA DEL LAGO	1.00
74005007	2062	VISTA DEL LAGO DR	1.00
74005008	2076	VISTA DEL LAGO DR	1.00
74005009	2090	VISTA DEL LAGO DR	1.00
74005010	2323	GROUSE DR	1.00
74005011	2322	GROUSE DR	1.00
74005012	2162	VISTA DEL LAGO DR	1.00
74005013	2202	VISTA DEL LAGO DR	1.00
74005014	2222	VISTA DEL LAGO DR	1.00
74005015	2244	VISTA DEL LAGO DR	1.00
74005016	2304	HUCKLEBERRY LN	1.00
74005017	2334	HUCKLEBERRY LN	1.00
74005018	2361	TOYON CT	1.00
74005019	2345	TOYON CT	1.00
74005020	2337	TOYON CT	1.00
74006001	2303	HUCKLEBERRY LN	1.00
74006002	2310	VISTA DEL LAGO DR	1.00
74006003	2326	VISTA DEL LAGO DR	1.00
74006005	2385	MEADOWOOD DR	1.00
74006006	2331	HUCKLEBERRY LN	1.00
74006007	2369	TOYON CT	1.00
74006008	2368	TOYON CT	1.00
74006009	2352	TOYON CT	1.00
74006010	2340	TOYON CT	1.00
74006011	2426	HUCKLEBERRY LN	1.00
74006012	2442	HUCKLEBERRY LN	1.00
74006013	2458	HUCKLEBERRY LN	1.00
74006015	2476	HUCKLEBERRY LN	1.00
74006016	2492	HUCKLEBERRY LN	1.00
74006019	2499	HUCKLEBERRY LN	1.00
74006020	2481	HUCKLEBERRY LN	1.00
74006021	2463	HUCKLEBERRY LN	1.00
74006022	2441	HUCKLEBERRY LN	1.00
74006023	2421	HUCKLEBERRY LN	1.00
74006024	2393	HUCKLEBERRY LN	1.00
74006025	2375	HUCKLEBERRY LN	1.00
74006026	2364	MEADOWOOD DR	1.00

APN	Street Number	Street Name	EDU
74006027	2380	MEADOWOOD DR	1.00
74006028	2400	MEADOWOOD DR	1.00
74006030	2439	HUB CT	1.00
74006031	2442	HUB CT	1.00
74006032	2493	HOGAN CT	1.00
74006033	2494	HOGAN CT	1.00
74006034	2502	HOGAN CT	1.00
74006035	2514	HOGAN CT	1.00
74006036	2530	HOGAN CT	1.00
74006037	2544	HOGAN CT	1.00
74006038	2547	BLACK BART DR	1.00
74006039	2523	HOGAN CT	1.00
74006040	2503	HOGAN CT	1.00
74007001	2450	MEADOWOOD DR	1.00
74007002	2472	MEADOWOOD DR	1.00
74007003	2494	MEADOWOOD DR	1.00
74007004	2693	BLACK BART DR	1.00
74007005	2679	BLACK BART DR	1.00
74007006	2661	BLACK BART DR	1.00
74007007	2643	BLACK BART DR	1.00
74007008	2615	BLACK BART DR	1.00
74007009	2581	BLACK BART DR	1.00
74007010	2539	HUCKLEBERRY LN	1.00
74007011	2524	BLACK BART DR	1.00
74007012	2544	BLACK BART DR	1.00
74007013	2566	BLACK BART DR	1.00
74007014	2582	BLACK BART DR	1.00
74007015	2600	BLACK BART DR	1.00
74007016	2620	BLACK BART DR	1.00
74007017	2638	BLACK BART DR	1.00
74007018	2656	BLACK BART DR	1.00
74007019	2676	BLACK BART DR	1.00
74007020	2694	BLACK BART DR	1.00
74007021	2712	BLACK BART DR	1.00
74007022	2726	BLACK BART DR	1.00
74007024	2574	MEADOWOOD DR	1.00
74007025	2589	GOLD RUN CT	1.00
74007026	2569	GOLD RUN CT	1.00
74007027	2553	GOLD RUN CT	1.00
74007030	2515	GOLD RUN CT	1.00
74007031	2514	GOLD RUN CT	1.00
74007032	2522	GOLD RUN CT	1.00
74007033	2536	GOLD RUN CT	1.00
74007034	2556	GOLD RUN CT	1.00

APN	Street Number	Street Name	EDU
74008002	2548	HUCKLEBERRY LN	1.00
74008004	2584	HUCKLEBERRY LN	1.00
74008005	2600	HUCKLEBERRY LN	1.00
74008006	2612	HUCKLEBERRY LN	1.00
74008008	2668	MALLARD CT	1.00
74008010	2653	MALLARD CT	1.00
74008011	2646	HUCKLEBERRY LN	1.00
74008012	2676	HUCKLEBERRY LN	1.00
74008013	2706	HUCKLEBERRY LN	1.00
74008014	2709	HUCKLEBERRY LN	1.00
74008015	2695	HUCKLEBERRY LN	1.00
74008016	2677	HUCKLEBERRY LN	1.00
74008017	2655	HUCKLEBERRY LN	1.00
74008018	2629	HUCKLEBERRY LN	1.00
74008019	2597	HUCKLEBERRY LN	1.00
74008020	2616	STAGE COACH DR	1.00
74008021	2640	STAGE COACH DR	1.00
74008022	2668	STAGE COACH DR	1.00
74008023	2686	STAGE COACH DR	1.00
74008024	2704	STAGE COACH DR	1.00
74008025	2750	TEAL CT	1.00
74008027	2757	TEAL CT	1.00
74008028	2744	STAGE COACH DR	1.00
74008029	2768	STAGE COACH DR	1.00
74008030	2570	GOLD RUN CT	1.00
74008031	2618	MEADOWOOD DR	1.00
74008032	2787	STAGE COACH DR	1.00
74008033	2767	STAGE COACH DR	1.00
74008034	2747	STAGE COACH DR	1.00
74008037	2695	STAGE COACH DR	1.00
74008038	2679	STAGE COACH DR	1.00
74008039	2661	STAGE COACH DR	1.00
74008040	2645	STAGE COACH DR	1.00
74008041	2629	STAGE COACH DR	1.00
74008042	2613	STAGE COACH DR	1.00
74008043	2593	STAGE COACH DR	1.00
74009001	2593	MEADOWOOD DR	1.00
74009002	2613	SILVERADO DR	1.00
74009003	2637	SILVERADO DR	1.00
74009004	2662	SILVERADO DR	1.00
74009005	2682	SILVERADO DR	1.00
74009006	2700	SILVERADO DR	1.00
74009007	2705	SILVERADO DR	1.00
74009008	2723	SILVERADO DR	1.00

APN	Street Number	Street Name	EDU
74009009	2737	SILVERADO DR	1.00
74009010	2761	SILVERADO DR	1.00
74009011	2796	SILVERADO DR	1.00
74009012	3011	STAGE COACH DR	1.00
74009013	2993	STAGE COACH DR	1.00
74009015	2967	STAGE COACH DR	1.00
74009016	2947	STAGE COACH DR	1.00
74009017	2931	STAGE COACH DR	1.00
74009019	2893	STAGE COACH DR	1.00
74009020	2871	STAGE COACH DR	1.00
74009021	2853	STAGE COACH DR	1.00
74009022	2833	STAGE COACH DR	1.00
74009024	2856	OAK CT	1.00
74009025	2872	OAK CT	1.00
74009027	2857	OAK CT	1.00
74009028	2880	STAGE COACH DR	1.00
74009030	2914	STAGE COACH DR	1.00
74009031	2932	STAGE COACH DR	1.00
74009032	2984	CEDAR CT	1.00
74009034	2997	CEDAR CT	1.00
74009035	2985	CEDAR CT	1.00
74009036	2992	STAGE COACH DR	1.00
74009037	3010	STAGE COACH DR	1.00
74010001	2478	VISTA DEL LAGO DR	1.00
74010002	2498	VISTA DEL LAGO	1.00
74010003	2518	VISTA DEL LAGO DR	1.00
74010004	2538	VISTA DEL LAGO DR	1.00
74010005	2560	VISTA DEL LAGO DR	1.00
74010006	2584	VISTA DEL LAGO DR	1.00
74010007	2610	VISTA DEL LAGO DR	1.00
74010008	2778	SILVERADO DR	1.00
74010009	2760	SILVERADO DR	1.00
74010010	2736	SILVERADO DR	1.00
74010011	2718	SILVERADO DR	1.00
74010012	2661	GLEN CT	1.00
74010013	2649	GLEN CT	1.00
74010014	2633	GLEN CT	1.00
74010018	2559	CREST CT	1.00
74010019	2519	MEADOWOOD DR	1.00
74010021	2551	MEADOWOOD DR	1.00
74010022	2561	MEADOWOOD DR	1.00
74010023	2630	SILVERADO DR	1.00
74010024	2644	SILVERADO DR	1.00
74010025	2660	GLEN CT	1.00

APN	Street Number	Street Name	EDU
74010026	2648	GLEN CT	1.00
74011001	2359	VISTA DEL LAGO DR	1.00
74011002	2375	VISTA DEL LAGO DR	1.00
74011003	2391	VISTA DEL LAGO DR	1.00
74011004	2407	VISTA DEL LAGO DR	1.00
74011005	2423	VISTA DEL LAGO DR	1.00
74011006	2441	VISTA DEL LAGO DR	1.00
74011007	2457	VISTA DEL LAGO DR	1.00
74011009	2489	VISTA DEL LAGO DR	1.00
74011010	2505	VISTA DEL LAGO DR	1.00
74011011	2521	VISTA DEL LAGO DR	1.00
74011012	2535	VISTA DEL LAGO DR	1.00
74011013	2549	VISTA DEL LAGO DR	1.00
74011014	2457	SNAG CT	1.00
74011015	2475	SNAG CT	1.00
74011016	2486	SNAG CT	1.00
74011017	2476	SNAG CT	1.00
74011018	2458	SNAG CT	1.00
74011019	2398	VISTA DEL LAGO DR	1.00
74011020	2378	VISTA DEL LAGO DR	1.00
74011021	2362	VISTA DEL LAGO DR	1.00
74011022	2346	VISTA DEL LAGO DR	1.00
74011023	2425	MEADOWOOD DR	1.00
74011024	2445	MEADOWOOD DR	1.00
74011025	2461	MEADOWOOD DR	1.00
74011026	2471	MEADOWOOD DR	1.00
74011027	2495	MEADOWOOD DR	1.00
74011028	2473	VISTA DEL LAGO DR	1.00
74012001	2841	VISTA DEL LAGO DR	1.00
74012002	2751	VISTA DEL LAGO DR	1.00
74012003	2723	VISTA DEL LAGO DR	1.00
74012006	2648	SHADOW LN	1.00
74012007	2625	VISTA DEL LAGO DR	1.00
74012009	2587	VISTA DEL LAGO DR	1.00
74012010	2695	VISTA DEL LAGO DR	1.00
74012011	2647	SHADOW LN	1.00
74013001	2870	CASCADE LN	1.00
74013002	2816	VISTA DEL LAGO DR	1.00
74013003	2800	VISTA DEL LAGO DR	1.00
74013004	2774	VISTA DEL LAGO DR	1.00
74013005	2742	VISTA DEL LAGO DR	1.00
74013006	2718	VISTA DEL LAGO DR	1.00
74013007	2702	VISTA DEL LAGO DR	1.00
74013008	2686	VISTA DEL LAGO DR	1.00

APN	Street Number	Street Name	EDU
74013010	2678	SHADOW LN	1.00
74013011	2698	SHADOW LN	1.00
74013012	2612	SILVERADO DR	1.00
74013013	3031	STAGE COACH CT	1.00
74013015	2709	SHADOW LN	1.00
74013016	3083	STAGE COACH CT	1.00
74013017	3099	STAGE COACH CT	1.00
74013018	3117	STAGE COACH CT	1.00
74013021	3151	STAGE COACH CT	1.00
74013023	2944	CASCADE LN	1.00
74013026	2939	CASCADE LN	1.00
74013027	2951	CASCADE LN	1.00
74013029	3136	STAGE COACH CT	1.00
74013030	3116	STAGE COACH CT	1.00
74013031	3100	STAGE COACH CT	1.00
74013032	3082	STAGE COACH CT	1.00
74013033	2767	SHADOW LN	1.00
74013035	2770	SHADOW LN	1.00
74013036	2786	SHADOW LN	1.00
74013037	3135	STAGE COACH CT	1.00
74013038	3147	STAGE COACH CT	1.00
74015001	185	ST ANDREWS RD	1.00
74015002	167	ST ANDREWS RD	1.00
74015003	151	ST ANDREWS RD	1.00
74015006	101	ST ANDREWS RD	1.00
74015007	85	ST ANDREWS RD	1.00
74015008	67	ST ANDREWS RD	1.00
74015009	43	ST ANDREWS RD	1.00
74015011	15	ST ANDREWS RD	3.00
74015017	84	ST ANDREWS RD	1.00
74015020	134	ST ANDREWS RD	1.00
74015021	150	ST ANDREWS RD	1.00
74015022	166	ST ANDREWS RD	1.00
74015023	186	ST ANDREWS RD	1.00
74015024	316	LA CONTENTA DR	1.00
74015025	346	LA CONTENTA DR	1.00
74015026	362	LA CONTENTA DR	1.00
74015027	378	LA CONTENTA DR	1.00
74015028	394	LA CONTENTA DR	1.00
74015029	410	LA CONTENTA DR	1.00
74015037	14	ST ANDREWS RD	2.25
74015039	36	ST ANDREWS RD	1.00
74015040	50	ST ANDREWS RD	1.00
74015041	66	ST ANDREWS RD	1.00

APN	Street Number	Street Name	EDU
74015042	117	ST ANDREWS RD	1.00
74015043	135	ST ANDREWS RD	1.00
74016001	201	ST ANDREWS RD	1.00
74016002	217	ST ANDREWS RD	1.00
74016003	229	ST ANDREWS RD	1.00
74016004	236	OAKMONT CT	1.00
74016005	216	OAKMONT CT	1.00
74016006	198	OAKMONT CT	1.00
74016007	184	OAKMONT CT	1.00
74016008	180	OAKMONT CT	1.00
74016009	185	OAKMONT CT	1.00
74016010	203	OAKMONT CT	1.00
74016012	295	ST ANDREWS RD	1.00
74016013	317	ST ANDREWS RD	1.00
74016015	299	AUGUSTA CT	1.00
74016016	311	AUGUSTA CT	1.00
74016017	323	AUGUSTA CT	1.00
74016019	335	AUGUSTA CT	1.00
74016020	336	AUGUSTA CT	1.00
74016021	324	AUGUSTA CT	1.00
74016022	274	ST ANDREWS RD	1.00
74016023	260	ST ANDREWS RD	1.00
74016024	238	ST ANDREWS RD	1.00
74017001	408	LA CONTENTA WY	1.00
74017002	381	LA CONTENTA DR	1.00
74017003	399	LA CONTENTA DR	1.00
74017004	425	LA CONTENTA DR	1.00
74017005	465	LA CONTENTA DR	1.00
74017006	493	LA CONTENTA DR	1.00
74017007	440	LA CONTENTA DR	1.00
74017008	538	LA CONTENTA DR	1.00
74017009	520	LA CONTENTA DR	1.00
74017010	506	LA CONTENTA DR	1.00
74017011	490	LA CONTENTA DR	1.00
74017012	476	LA CONTENTA DR	1.00
74017013	462	LA CONTENTA DR	1.00
74017014	450	LA CONTENTA DR	1.00
74017016	371	LA CONTENTA WY	1.00
74017017	387	LA CONTENTA DR	1.00
74017018	405	LA CONTENTA WY	1.00
74017019	423	LA CONTENTA DR	1.00
74017020	445	LA CONTENTA WY	1.00
74017021	543	LA CONTENTA DR	1.00
74017022	438	LA CONTENTA DR	1.00

APN	Street Number	Street Name	EDU
74017023	424	LA CONTENTA DR	1.00
74018001	561	LA CONTENTA DR	1.00
74018003	615	OLD COURSE CT	1.00
74018005	643	OLD COURSE CT	1.00
74018007	642	OLD COURSE CT	1.00
74018008	630	OLD COURSE CT	1.00
74018009	614	OLD COURSE CT	1.00
74018010	629	LA CONTENTA DR	1.00
74018011	643	LA CONTENTA DR	1.00
74018012	648	ST ANDREWS RD	1.00
74018013	628	ST ANDREWS RD	1.00
74018014	612	ST ANDREWS RD	1.00
74018016	580	ST ANDREWS RD	1.00
74018016	596	ST ANDREWS RD	1.00
74018018	548	ST ANDREWS RD	1.00
74018019	528	ST ANDREWS RD	1.00
74018020	510	ST ANDREWS RD	1.00
74018024	421	S PEBBLE BEACH CT	1.00
74018026	441	S PEBBLE BEACH CT	1.00
74018028	418	S PEBBLE BEACH CT	1.00
74018032	381	N PEBBLE BEACH CT	1.00
74018033	397	N PEBBLE BEACH CT	1.00
74018034	415	N PEBBLE BEACH CT	1.00
74018035	437	N PEBBLE BEACH CT	1.00
74018036	499	ST ANDREWS RD	1.00
74018037	515	ST ANDREWS RD	1.00
74018038	531	ST ANDREWS RD	1.00
74018039	547	ST ANDREWS RD	1.00
74019001	556	LA CONTENTA DR	1.00
74019002	576	LA CONTENTA DR	1.00
74019003	596	LA CONTENTA DR	1.00
74019005	636	LA CONTENTA DR	1.00
74019006	724	ST ANDREWS DR	1.00
74019007	746	ST ANDREWS DR	1.00
74019008	762	ST ANDREWS DR	1.00
74019009	778	ST ANDREWS DR	1.00
74019010	794	ST ANDREWS DR	1.00
74019011	808	ST ANDREWS DR	1.00
74019012	820	ST ANDREWS DR	1.00
74019013	832	ST ANDREWS DR	1.00
74019016	868	ST ANDREWS DR	1.00
74019017	880	ST ANDREWS DR	1.00
74019019	890	ST ANDREWS DR	1.00
74019020	900	ST ANDREWS DR	1.00

APN	Street Number	Street Name	EDU
74019021	910	ST ANDREWS DR	1.00
74019027	670	LA CONTENTA DR	1.00
74019028	686	LA CONTENTA DR	1.00
74019029	700	LA CONTENTA DR	1.00
74020001	926	ST ANDREWS DR	1.00
74020002	942	ST ANDREWS DR	1.00
74020003	960	ST ANDREWS DR	1.00
74020004	720	LA CONTENTA DR	1.00
74020005	740	LA CONTENTA DR	1.00
74020006	717	LA CONTENTA DR	1.00
74020007	693	LA CONTENTA DR	1.00
74020008	689	ST ANDREWS RD	1.00
74020009	671	ST ANDREWS RD	1.00
74020010	643	ST ANDREWS DR	1.00
74020011	703	BLUE HERON CT	1.00
74020012	721	BLUE HERON CT	1.00
74020013	741	BLUE HERON CT	1.00
74021001	627	ST ANDREWS RD	1.00
74021002	611	ST ANDREWS RD	1.00
74021003	595	ST ANDREWS RD	1.00
74021004	579	ST ANDREWS RD	1.00
74021005	563	ST ANDREWS RD	1.00
74021007	572	BLUE HERON CT	1.00
74021008	556	BLUE HERON CT	1.00
74021009	542	BLUE HERON CT	1.00
74021010	536	BLUE HERON CT	1.00
74021011	537	BLUE HERON CT	1.00
74021012	563	BLUE HERON CT	1.00
74021013	581	BLUE HERON CT	1.00
74021014	597	BLUE HERON CT	1.00
74021015	611	BLUE HERON CT	1.00
74021016	629	BLUE HERON CT	1.00
74021017	649	BLUE HERON CT	1.00
74021018	667	BLUE HERON CT	1.00
74021019	685	BLUE HERON CT	1.00
74022001	800	LA CONTENTA DR	1.00
74022002	822	LA CONTENTA DR	1.00
74022003	840	LA CONTENTA DR	1.00
74022004	856	LA CONTENTA DR	1.00
74022005	855	LA CONTENTA DR	1.00
74022006	2253	VISTA DEL LAGO DR	1.00
74022007	2267	VISTA DEL LAGO DR	1.00
74022008	2285	VISTA DEL LAGO DR	1.00
74022011	505	SILVER RD	1.00

APN	Street Number	Street Name	EDU
74022012	493	SILVER RD	1.00
74022013	475	SILVER RD	1.00
74023001	525	SILVER RD	1.00
74023002	531	SILVER RD	1.00
74023003	526	PINE VALLEY CT	1.00
74023004	506	PINE VALLEY CT	1.00
74023005	488	PINE VALLEY CT	1.00
74023006	470	PINE VALLEY CT	1.00
74023007	464	PINE VALLEY CT	1.00
74023009	473	PINE VALLEY CT	1.00
74023010	501	PINE VALLEY CT	1.00
74023011	525	PINE VALLEY CT	1.00
74023012	618	PEACHTREE CT	1.00
74023013	602	PEACHTREE CT	1.00
74023015	586	PEACHTREE CT	1.00
74023017	601	PEACHTREE CT	1.00
74023018	619	PEACHTREE CT	1.00
74024001	597	SILVER RD	1.00
74024002	623	SILVER RD	1.00
74024003	643	SILVER RD	1.00
74024004	652	PEACHTREE CT	1.00
74024005	634	PEACHTREE CT	1.00
74024006	641	PEACHTREE CT	1.00
74024007	679	SILVER RD	1.00
74024008	700	SPYGLASS RD	1.00
74024009	760	SILVER RD	1.00
74024010	721	SPYGLASS CT	1.00
74024012	747	SPYGLASS CT	1.00
74024013	750	SPYGLASS CT	1.00
74024014	734	SPYGLASS CT	1.00
74024017	618	SILVER RD	1.00
74024018	602	SILVER RD	1.00
74024019	588	SILVER RD	1.00
74024020	572	SILVER RD	1.00
74024021	550	SILVER RD	1.00
74024022	538	SILVER RD	1.00
74024023	528	SILVER RD	1.00
74024024	502	SILVER RD	1.00
74024025	478	SILVER RD	1.00
74024026	636	SILVER RD	1.00
74025001	679	SPYGLASS RD	1.00
74025002	731	SILVER RD	1.00
74025003	777	LODE CT	1.00
74025004	795	LODE CT	1.00

APN	Street Number	Street Name	EDU
74025006	792	LODE CT	1.00
74025007	802	LODE CT	1.00
74025009	2644	SHADOW LN	1.00
74025010	2643	SHADOW LN	1.00
74025012	622	STANFORD CT	1.00
74025013	630	STANFORD CT	1.00
74025014	623	STANFORD CT	1.00
74025015	615	STANFORD CT	1.00
74025016	603	STANFORD CT	1.00
74025017	561	OAK RIDGE RD	1.00
74025018	574	BROOKLINE CT	1.00
74025019	584	BROOKLINE CT	1.00
74025020	587	BROOKLINE CT	1.00
74025022	575	BROOKLINE CT	1.00
74025023	908	CARSON DR	1.00
74025024	892	CARSON DR	1.00
74025025	880	CARSON DR	1.00
74025026	870	CARSON DR	1.00
74025027	877	CARSON DR	1.00
74025028	891	CARSON DR	1.00
74025029	907	CARSON DR	1.00
74025030	2645	SHADOW LN	1.00
74026002	487	OAK RIDGE RD	1.00
74026003	503	OAK RIDGE RD	1.00
74026004	519	OAK RIDGE RD	1.00
74026005	531	OAK RIDGE RD	1.00
74026006	532	OAK RIDGE RD	1.00
74026007	512	OAK RIDGE RD	1.00
74026008	484	OAK RIDGE RD	1.00
74026009	537	BROOKLINE CT	1.00
74026010	534	BROOKLINE CT	1.00
74026011	593	SPYGLASS RD	1.00
74026012	609	SPYGLASS RD	1.00
74026013	538	BROOKLINE CT	1.00
74026014	622	OAK RIDGE RD	1.00
74026015	600	OAK RIDGE RD	1.00
74026016	572	OAK RIDGE RD	1.00
74026017	604	STANFORD CT	1.00
74026019	657	SPYGLASS RD	1.00
74026020	645	SPYGLASS RD	1.00
74026021	664	SPYGLASS RD	1.00
74026022	654	SPYGLASS RD	1.00
74026023	632	SPYGLASS RD	1.00
74026024	606	SPYGLASS RD	1.00

APN	Street Number	Street Name	EDU
74026025	586	SPYGLASS RD	1.00
74026027	471	OAK RIDGE RD	1.00
74027001	570	SPYGLASS RD	1.00
74027002	562	SPYGLASS RD	1.00
74027003	546	SPYGLASS RD	1.00
74027004	504	BAYWOOD CT	1.00
74027005	500	BAYWOOD CT	1.00
74027006	503	BAYWOOD CT	1.00
74027007	519	BAYWOOD CT	1.00
74027010	474	SPYGLASS RD	1.00
74027011	456	SPYGLASS RD	1.00
74027012	414	OAK RIDGE CT	1.00
74027014	384	OAK RIDGE CT	1.00
74027020	421	SPYGLASS RD	1.00
74027021	451	SPYGLASS RD	1.00
74027022	495	HAGGIN CT	1.00
74027023	503	HAGGIN CT	1.00
74027024	496	HAGGIN CT	1.00
74027025	480	HAGGIN CT	1.00
74027029	569	SPYGLASS RD	1.00
74027033	492	SPYGLASS RD	1.00
74027034	392	OAK RIDGE CT	1.00
74027035	389	OAK RIDGE CT	1.00
74027036	401	OAK RIDGE CT	1.00
74027037	419	OAK RIDGE CT	1.00
74027038	391	SPYGLASS RD	1.00
74027040	508	SPYGLASS RD	1.00
74029001	845	ST ANDREWS DR	1.00
74029002	845	ST ANDREWS DR	1.00
74029003	845	ST ANDREWS DR	1.00
74029004	845	ST ANDREWS DR	1.00
74029005	845	ST ANDREWS DR	1.00
74029006	845	ST ANDREWS DR	1.00
74029007	845	ST ANDREWS DR	1.00
74029008	845	ST ANDREWS DR	1.00
74030001	747	ST ANDREWS DR	1.00
74030002	747	ST ANDREWS DR	1.00
74030003	747	ST ANDREWS DR	1.00
74030004	747	ST ANDREWS DR	1.00
74030005	747	ST ANDREWS DR	1.00
74030006	747	ST ANDREWS DR	1.00
74030007	747	ST ANDREWS DR	1.00
74030008	747	ST ANDREWS DR	1.00
74030009	903	ST ANDREWS DR	1.00

APN	Street Number	Street Name	EDU
74030010	905	ST ANDREWS DR	1.00
74030011	907	ST ANDREWS DR	1.00
74030012	909	ST ANDREWS DR	1.00
74030013	911	ST ANDREWS DR	1.00
74030014	915	ST ANDREWS DR	1.00
74030015	915	ST ANDREWS DR	1.00
74030016	915	ST ANDREWS DR	1.00
74030017	915	ST ANDREWS DR	1.00
74030018	793	ST ANDREWS DR	1.00
74030019	791	ST ANDREWS DR	1.00
74030020	789	ST ANDREWS DR	1.00
74030021	787	ST ANDREWS DR	1.00
74030022	785	ST ANDREWS DR	1.00
74030023	781	ST ANDREWS DR	1.00
74030024	779	ST ANDREWS DR	1.00
74030025	777	ST ANDREWS DR	1.00
74030026	775	ST ANDREWS DR	1.00
74031001	891	ST ANDREWS DR	1.00
74031002	891	ST ANDREWS DR	1.00
74031003	891	ST ANDREWS DR	1.00
74031004	891	ST ANDREWS DR	1.00
74031005	891	ST ANDREWS DR	1.00
74031006	891	ST ANDREWS DR	1.00
74031007	891	ST ANDREWS DR	1.00
74031008	891	ST ANDREWS DR	1.00
74031009	891	ST ANDREWS DR	1.00
74031010	891	ST ANDREWS DR	1.00
74032001	169	GOLDEN WEST CT	1.00
74032002	165	GOLDEN WEST CT	1.00
74032003	153	GOLDEN WEST CT	1.00
74032004	143	GOLDEN WEST CT	1.00
74032005	133	GOLDEN WEST CT	1.00
74032006	121	GOLDEN WEST CT	1.00
74032007	113	GOLDEN WEST CT	1.00
74032008	10	JENNIFER CT	1.00
74032009	20	JENNIFER CT	1.00
74032010	30	JENNIFER CT	1.00
74032013	23	JENNIFER CT	1.00
74032014	130	GOLDEN WEST CT	1.00
74032015	140	GOLDEN WEST CT	1.00
74032016	150	GOLDEN WEST CT	1.00
74032018	168	GOLDEN WEST CT	1.00

APPENDIX C

MEMORANDUMS OF UNDERSTANDING

LEGEND

- SANITARY SEWER (SS) — 6" SS
- SS SERVICE LATERAL
- SANITARY SEWER MANHOLE
- WATER MAIN — 8"W
- WATER SERVICE LATERAL

171 RESIDENTIAL LOTS = 171 EDU

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

REVISIONS

REV.	DATE	DESCRIPTION
1	3/18/2019	CCPW PLAN CHECK NO. 1
2	5/31/2019	CCPW PLAN CHECK NO. 2
3	5/26/2020	CCPW PLAN CHECK NO. 3
4	7/17/2020	CCPW PLAN CHECK NO. 4

GME
GREEN MOUNTAIN ENGINEERING
1314 Paloma Ave. Stockton, CA 95209 209.478.6525

GOLD CREEK SUBDIVISION, UNIT 3

IMPROVEMENT PLANS

OVERALL SANITARY SEWER & WATER UTILITY PLANS

VALLEY SPRINGS
CALAVERAS COUNTY, CALIFORNIA

PROJECT NO:	180
DRAWN BY:	GME
DESIGN BY:	DJL
CHECK BY:	DG
SCALE:	AS SHOWN
DATE:	1/14/2019
CAD FILE:	A08_190115_IP_PC4.DWG

SHEET NO. U-3

OF 23 SHEETS

2020-07-16 180

WATER AND WASTEWATER SERVICE FACILITIES AGREEMENT

THIS AGREEMENT is executed on December 14, 2022, by and between the **CALAVERAS COUNTY WATER DISTRICT**, a County Water District organized pursuant to Water Code §§ 30000 *et seq.*, hereinafter called DISTRICT, and **LGI Homes – California, LLC,** a California limited liability company, hereinafter called OWNER.

WHEREAS, the OWNER has filed with the County of Calaveras a Final Subdivision Tract Map No. 2005-190 for 156 single family residential parcels (Assessor's Parcel Numbers APN 73-056-001, -002, -003, -009 and -013), said developed property to be known as NORTH VISTA PLAZA, hereinafter called PROJECT. Said Final Map is attached hereto and incorporated herein as **ATTACHMENT 'A'**; and

WHEREAS, OWNER has requested that DISTRICT provide water and wastewater services to the PROJECT, and DISTRICT agrees to provide such services consistent with the terms and conditions set forth herein.

IT IS MUTUALLY AGREED by and between DISTRICT and OWNER as follows:

1. INCORPORATION OF RECITALS. The foregoing recitals are hereby incorporated by reference.

2. IMPROVEMENT PLAN. Prior to construction of the PROJECT, OWNER shall prepare and submit to DISTRICT for review all design and engineering calculations, plans, specifications, cost estimates, and construction schedules for water and wastewater systems required by DISTRICT to serve the PROJECT. OWNER shall prepare and submit legal property descriptions and public utility easements intended to be dedicated to DISTRICT. Conveyance to the DISTRICT of interests in real property shall be free and clear of encumbrance, liability, or obligation other than non-lien encumbrances of record as of the date of this Agreement and encumbrances such as easements granted in connection with construction of the Improvement System. The foregoing calculations, plans, specifications, cost estimates, schedules, conveyances, and assurances, and any related submissions required by DISTRICT, are hereafter collectively referred to as the "Improvement Plans." The Improvement Plans shall be reviewed by DISTRICT for conformance with DISTRICT Improvement Standards and Standard Construction Specifications (collectively "Improvement Standards") and other DISTRICT rules in effect at the time the Improvement Plans are provided to the District in a final form for review and approval. OWNER understands and agrees that should it delay in submitting its plans and commencing construction the current Improvement Standards of District may change and OWNER may have to update its Improvement Plans. DISTRICT shall bear no responsibility for the accuracy or reliability of the Improvement Plan, design, and engineering calculations, plans, specifications, or underlying data.

The Improvement Plans will be furnished for District approval in three sets, with each set being an "Improvement Plan:

a. "On-Site Water and Sewer Utilities": the water and wastewater infrastructure depicted on the 12/3/2022 draft of improvement plans submitted by OWNER, which are attached hereto as **Attachment C**
b. "On-Site Lift Stations":
    i. Lift Station A located on Lot A which will pump wastewater flows through a 1,526-foot force main pipeline southeast up I Street, then southwest up E Street into a gravity manhole at the intersection of E Street and Vista Del Lago Dr.
c. Lift Station B located on Lot K which will pump wastewater flows through a 322-foot force main pipeline northwest up D Street, then southwest up C Street into a gravity manhole in C Street. "Off-Site Improvements": the off-site sewer improvements detailed in Attachment B #1.

The On-Site Water and Sewer Utilities, On-Site Lift Stations, and Off-Site Improvements are collectively the "Improvement System".

3. IMPROVEMENT SYSTEM. OWNER shall design, construct, and install, and modify the Improvement System in compliance with the Improvement Plans, Improvement Standards, and other DISTRICT rules, and in compliance with all other requirements of each and every governmental authority having any jurisdiction whatsoever in connection with the PROJECT. OWNER is solely responsible for ensuring that the Improvement System is in compliance with all applicable legal requirements, including the Improvement Standards and other DISTRICT rules, and DISTRICT shall have no responsibility for same. Once DISTRICT has reviewed an Improvement Plan for conformity with the Improvement Standards and other DISTRICT rules, and the Improvement Plan is "Released for Construction" per Improvement Standards § 1.2.11, OWNER shall at its sole expense construct all facilities and do all other work required by the Improvement Plan and this Agreement.

4. COSTS. OWNER shall pay (a) all costs arising from construction of the Improvement System, subject to reimbursement described in **Attachment B** #1 or as otherwise agreed in writing by both parties, and (b) its portion of the Huckleberry Impact Costs detailed in **Attachment B** #2. Where "costs," "fees," or "charges," and similar terms are referenced in this Agreement, the use of a particular term may incorporate references to other terms such as, for example, rates, fees, charges, assessments, or other levies by DISTRICT. Unless stated otherwise in this Agreement, regardless of the terminology used, in all instances OWNER is solely responsible for any and all costs associated with the Improvement Plan and Improvement System, and OWNER is solely responsible for full and timely payment of any and all costs identified by DISTRICT.

LEGEND

- SET STREET MONUMENT PER 2015 CALTRANS STANDARD PLANS DETAIL A74 TYPE D
- DIMENSION POINT, NOTHING FOUND OR SET
- FOUND MONUMENT AS NOTED
- SET 5/8" REBAR AND CAP TAGGED LS8501
- SEARCH NOT FOUND SET 5/8" REBAR AND CAP TAGGED LS8501
- SET 3/8" REBAR AND CAP TAGGED LS8501
- PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EASEMENT
- ROAD CENTERLINE
- ADJOINER PARCEL

NOTES

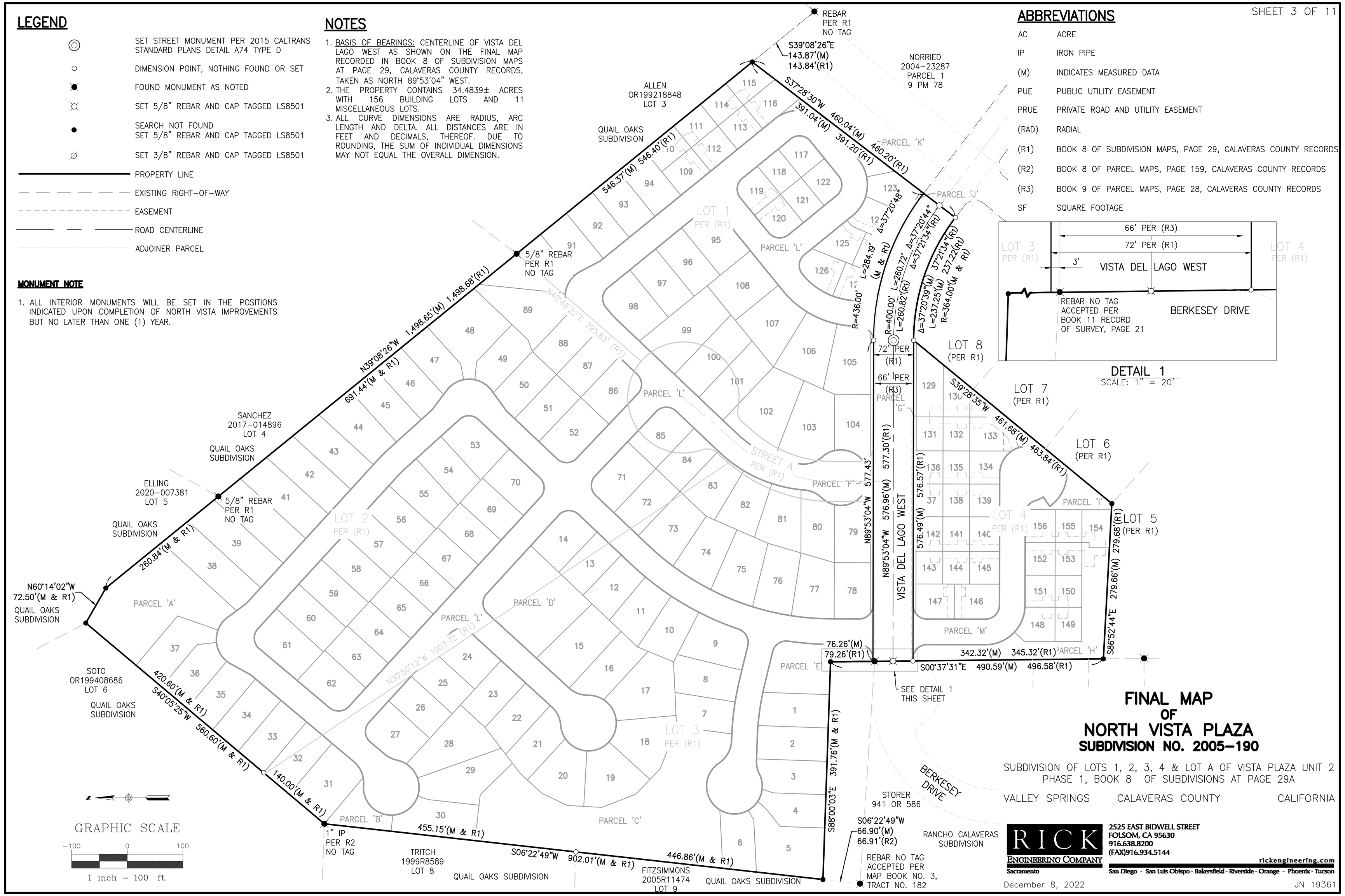
1. BASIS OF BEARINGS: CENTERLINE OF VISTA DEL LAGO WEST AS SHOWN ON THE FINAL MAP RECORDED IN BOOK 8 OF SUBDIVISION MAPS AT PAGE 29, CALAVERAS COUNTY RECORDS, TAKEN AS NORTH 89°53'04" WEST.
2. THE PROPERTY CONTAINS 34.4839± ACRES WITH 156 BUILDING LOTS AND 11 MISCELLANEOUS LOTS.
3. ALL CURVE DIMENSIONS ARE RADIUS, ARC LENGTH AND DELTA. ALL DISTANCES ARE IN FEET AND DECIMALS, THEREOF. DUE TO ROUNDING, THE SUM OF INDIVIDUAL DIMENSIONS MAY NOT EQUAL THE OVERALL DIMENSION.

MONUMENT NOTE

1. ALL INTERIOR MONUMENTS WILL BE SET IN THE POSITIONS INDICATED UPON COMPLETION OF NORTH VISTA IMPROVEMENTS BUT NO LATER THAN ONE (1) YEAR.

ABBREVIATIONS

AC	ACRE
IP	IRON PIPE
(M)	INDICATES MEASURED DATA
PUE	PUBLIC UTILITY EASEMENT
PRUE	PRIVATE ROAD AND UTILITY EASEMENT
(RAD)	RADIAL
(R1)	BOOK 8 OF SUBDIVISION MAPS, PAGE 29, CALAVERAS COUNTY RECORDS
(R2)	BOOK 8 OF PARCEL MAPS, PAGE 159, CALAVERAS COUNTY RECORDS
(R3)	BOOK 9 OF PARCEL MAPS, PAGE 28, CALAVERAS COUNTY RECORDS
SF	SQUARE FOOTAGE



DETAIL 1
SCALE: 1" = 20'

GRAPHIC SCALE
-100 0 100
1 inch = 100 ft.

FINAL MAP OF NORTH VISTA PLAZA
SUBDIVISION NO. 2005-190

SUBDIVISION OF LOTS 1, 2, 3, 4 & LOT A OF VISTA PLAZA UNIT 2 PHASE 1, BOOK 8 OF SUBDIVISIONS AT PAGE 29A

VALLEY SPRINGS CALAVERAS COUNTY CALIFORNIA

RICK ENGINEERING COMPANY
Sacramento
2525 EAST BIDWELL STREET
FOLSOM, CA 95630
916.638.8200
(FAX)916.934.5144
rickengineering.com
San Diego - San Luis Obispo - Bakersfield - Riverside - Orange - Phoenix - Tucson

December 8, 2022 JN 19361

GRAPHIC SCALE

50 0 50

1 inch = 50 ft.

OPEN SPACE		
LINE NO.	LENGTH	BEARING
L201	140.80'	S26°40'46"E
L202	51.40'	S67°08'14"E
L203	41.85'	S71°20'08"E
L204	20.22'	S17°23'10"W
L205	15.13'	S17°51'27"E
L206	30.31'	S48°55'11"E
L207	20.02'	N80°22'40"E
L208	40.99'	S32°39'23"E
L209	164.49'	S40°28'42"E
L210	60.01'	S43°02'13"E
L211	60.39'	S48°39'29"E

NOTES:

1. SEE SHEET 3 FOR NOTES, LEGEND, ABBREVIATIONS AND BASIS OF BEARINGS.
2. SEE SHEET 11 FOR LINE, CURVE, & RADIAL DATA.
3. ACCESS EASEMENTS FOR CLUSTER LOTS ARE SHOWN ON SHEETS 8 & 9.
4. ALL CURVE DIMENSIONS ARE RADIUS, ARC LENGTH AND DELTA. ALL DISTANCES SHOWN ARE GROUND DISTANCES AND ARE IN FEET AND DECIMALS THEREOF. DUE TO ROUNDING, THE SUM OF INDIVIDUAL DIMENSIONS MAY NOT EQUAL THE OVERALL DIMENSION.
5. ALL INTERIOR MONUMENTS WILL BE SET IN THE POSITIONS INDICATED UPON COMPLETION OF NORTH VISTA IMPROVEMENTS BUT NO LATER THAN ONE (1) YEAR.
6. BUILDING SETBACK FROM PROPERTY LINE SHALL BE PER EXHIBIT 7 (NORTH VISTA PLAZA VESTING TENTATIVE MAP) OF RESOLUTION NO. 08-023, PASSED AND ADOPTED ON 01/22/2008.

SEE SHEET 5

SEE SHEET 6

FINAL MAP
OF
NORTH VISTA PLAZA
SUBDIVISION NO. 2005-190

SUBDIVISION OF LOTS 1, 2, 3, 4 & LOT A OF VISTA PLAZA UNIT 2 PHASE 1, BOOK 8 OF SUBDIVISIONS AT PAGE 29A

VALLEY SPRINGS CALAVERAS COUNTY CALIFORNIA

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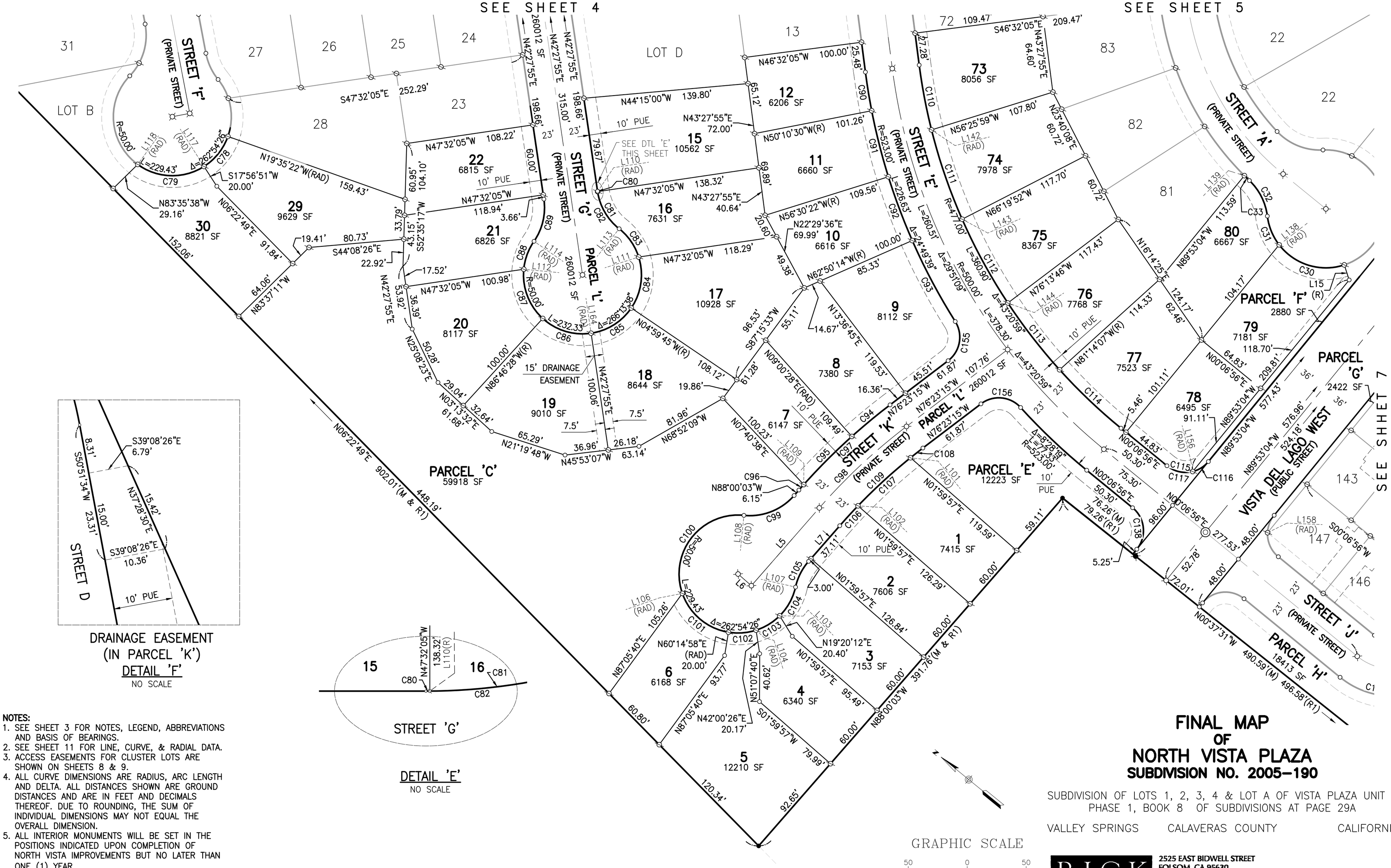
December 8, 2022 JN 19361

N39°08'26"W 1,498.65'(M & R1)
645.36'
142.49'
11.85'
N05°54'20"E(R) 156.24'
N43°27'55"E 134.10'
N70°01'49"E 22.36'
98.68'
200.86'
N39°39'19"E 43.67'
100.35'
209.83'
SEE DTL 'B' THIS SHEET
209.47'
100.00'
75.00'
N46°32'05"W 159.47'
10' PUE
N46°32'05"W 159.47'
75.00'
N46°32'05"W 139.64'
N46°32'05"W 147.42'
N46°32'05"W 131.85'
N58°25'52"W(R) 116.24'
N69°02'27"W(R) 147.88'
N59°04'03"W(R) 102.82'
N23°40'08"E 78.25'
N71°53'42"W(R) 101.65'
121.45'
26.82'
N16°14'25"E 61.71'
N89°53'04"W 113.59'
N89°53'04"W 576.96'
524.18'
N89°53'04"W 577.43'
N89°53'04"E 257.41'
S39°08'26"E 257.41'
157.41'
67.40'
60.00'
70.01'
100.00'
N39°08'26"W 1,498.65'(M & R1)
N39°08'26"W 403.84'
N39°08'26"W 423.85'
N39°08'26"W 215.85'
N39°08'26"W 263.85'
N39°08'26"W 262.94'
N39°08'26"W 162.00'
N39°08'26"W 160.00'
N39°08'26"W 112.00'
N39°08'26"W 100.00'
S39°08'26"E 58.92'
N37°28'30"E 460.04'(M) 460.20'(R1)
N50°51'34"E 214.79'
N50°51'34"E 59.16'
N50°51'34"E 81.00'
N50°51'34"E 81.00'
N50°51'34"E 81.00

SEE SHEET 4

SEE SHEET 5

SEE SHEET 7



DRAINAGE EASEMENT
(IN PARCEL 'K')
DETAIL 'F'
NO SCALE

DETAIL 'E'
NO SCALE

NOTES:

1. SEE SHEET 3 FOR NOTES, LEGEND, ABBREVIATIONS AND BASIS OF BEARINGS.
2. SEE SHEET 11 FOR LINE, CURVE, & RADIAL DATA.
3. ACCESS EASEMENTS FOR CLUSTER LOTS ARE SHOWN ON SHEETS 8 & 9.
4. ALL CURVE DIMENSIONS ARE RADIUS, ARC LENGTH AND DELTA. ALL DISTANCES SHOWN ARE GROUND DISTANCES AND ARE IN FEET AND DECIMALS THEREOF. DUE TO ROUNDING, THE SUM OF INDIVIDUAL DIMENSIONS MAY NOT EQUAL THE OVERALL DIMENSION.
5. ALL INTERIOR MONUMENTS WILL BE SET IN THE POSITIONS INDICATED UPON COMPLETION OF NORTH VISTA IMPROVEMENTS BUT NO LATER THAN ONE (1) YEAR.
6. BUILDING SETBACK FROM PROPERTY LINE SHALL BE PER EXHIBIT 7 (NORTH VISTA PLAZA VESTING TENTATIVE MAP) OF RESOLUTION NO. 08–023, PASSED AND ADOPTED ON 01/22/2008.

GRAPHIC SCALE

50 0 50

1 inch = 50 ft.

FINAL MAP
OF
NORTH VISTA PLAZA
SUBDIVISION NO. 2005–190

SUBDIVISION OF LOTS 1, 2, 3, 4 & LOT A OF VISTA PLAZA UNIT 2 PHASE 1, BOOK 8 OF SUBDIVISIONS AT PAGE 29A

VALLEY SPRINGS CALAVERAS COUNTY CALIFORNIA

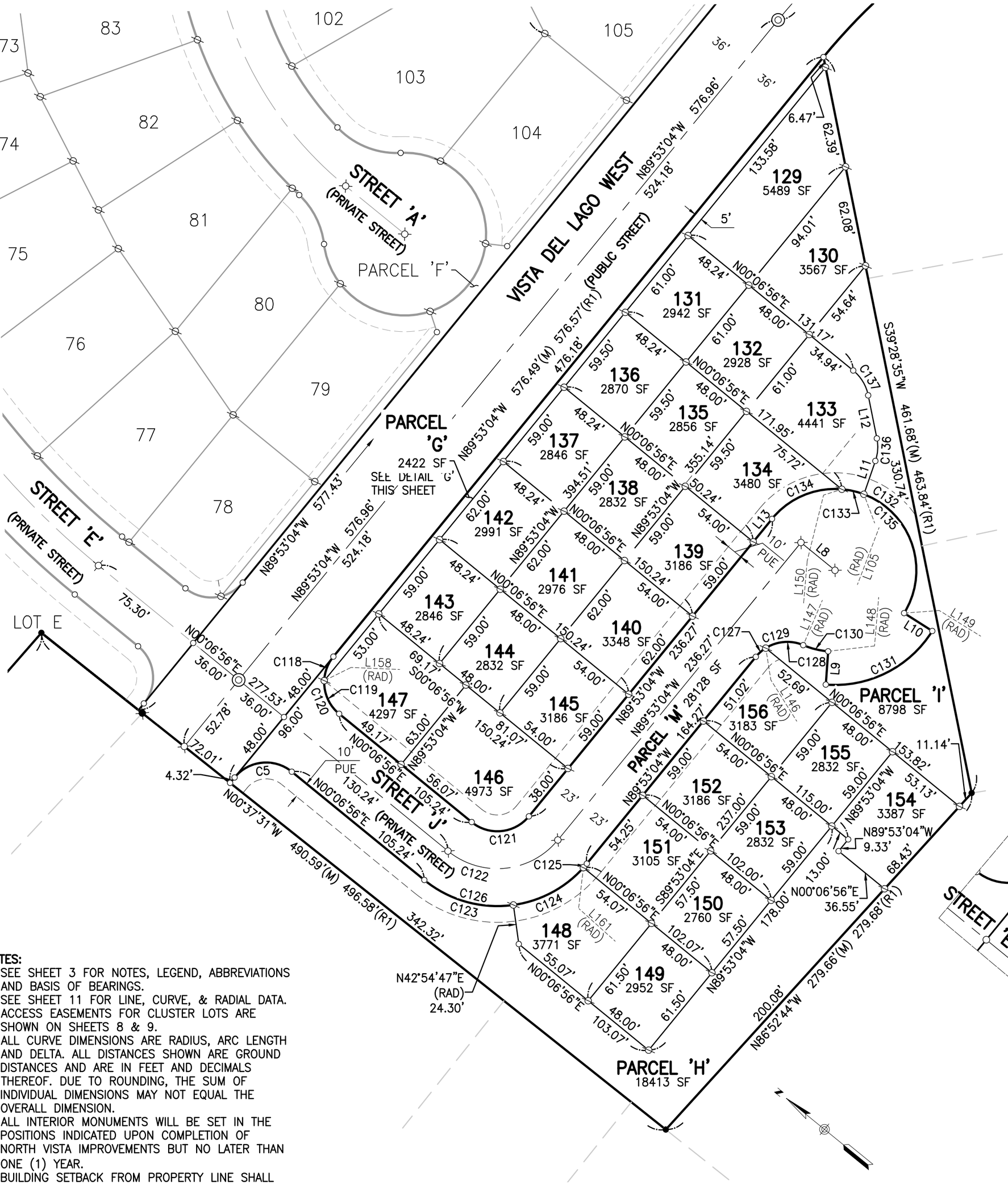
RICK ENGINEERING COMPANY
Sacramento
2525 EAST BIDWELL STREET
FOLSOM, CA 95630
916.638.8200
(FAX)916.934.5144
rickengineering.com
San Diego - San Luis Obispo - Bakersfield - Riverside - Orange - Phoenix - Tucson

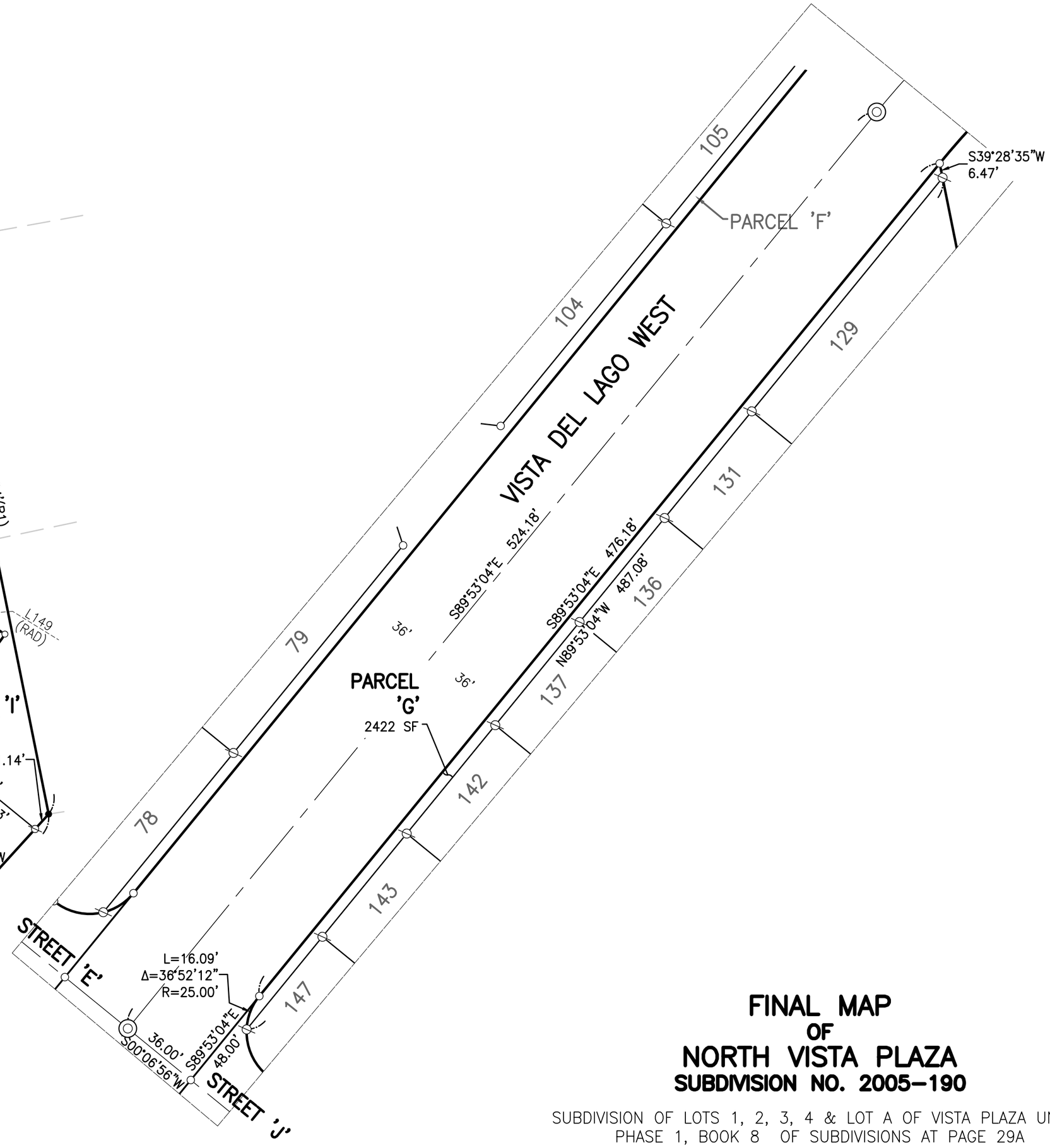
December 8, 2022

JN 19361

SEE SHEET 5

SEE SHEET 6





DETAIL 'G'
NO SCALE

NOTES:

1. SEE SHEET 3 FOR NOTES, LEGEND, ABBREVIATIONS AND BASIS OF BEARINGS.
2. SEE SHEET 11 FOR LINE, CURVE, & RADIAL DATA.
3. ACCESS EASEMENTS FOR CLUSTER LOTS ARE SHOWN ON SHEETS 8 & 9.
4. ALL CURVE DIMENSIONS ARE RADIUS, ARC LENGTH AND DELTA. ALL DISTANCES SHOWN ARE GROUND DISTANCES AND ARE IN FEET AND DECIMALS THEREOF. DUE TO ROUNDING, THE SUM OF INDIVIDUAL DIMENSIONS MAY NOT EQUAL THE OVERALL DIMENSION.
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GRAPHIC SCALE

50 0 50

1 inch = 50 ft.

FINAL MAP
OF
NORTH VISTA PLAZA
SUBDIVISION NO. 2005–190

SUBDIVISION OF LOTS 1, 2, 3, 4 & LOT A OF VISTA PLAZA UNIT 2 PHASE 1, BOOK 8 OF SUBDIVISIONS AT PAGE 29A

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December 8, 2022 JN 19361

MEMORANDUM OF UNDERSTANDING BETWEEN
CALAVERAS UNIFIED SCHOOL DISTRICT
AND
CALAVERAS COUNTY WATER DISTRICT

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is made and entered into this 13th day of December, 2018 ("Effective Date"), by and between the Calaveras Unified School District (hereinafter "CUSD"), a California public school district duly organized and existing under Chapter 1 of Division 3 of Title 2 of the Education Code of the State of California, and the Calaveras County Water District (hereinafter "CCWD"), a California water district duly organized and existing under Part 2 of Division 13 of the California Water Code (either of which is individually a "Party," and which are collectively "the Parties").

WHEREAS, CUSD owns and operates a private wastewater treatment facility on its Jenny Lind Elementary School property (hereinafter the "JLE Facility"), which meets the CUSD's wastewater treatment and disposal requirements from the Regional Water Quality Control Board (RWQCB); and

WHEREAS, the JLE Facility has reached the end of its useful life and requires significant retrofit in order to continue reliable wastewater treatment as required by the RWQCB; and

WHEREAS, CUSD is eligible to receive a grant from the State Revolving Fund (hereinafter "SRF") for 100% of the costs of all planning and construction to either retrofit the JLE Facility or to Regionalize with another publicly owned wastewater plant in the area (to an $8 million maximum); and

WHEREAS, after careful study of these two alternatives, and in close collaboration with CCWD, the CUSD's preferred approach is to regionalize with the CCWD by way of new lift stations and a new pipeline to the existing CCWD wastewater plant (hereinafter the "Project"), and ultimately removing the JLE Facility from active service; and

WHEREAS, the JLE Facility is estimated to require a maximum month average daily flow of 5,400-gpd or 36 equivalent single family units (esfu's) which CCWD requires a one-time payment by CUSD of capacity fees in the amount of $700,056 (36 esfu x $19,446/esfu) to the La Contenta system to be made in order for the Project to proceed; and

WHEREAS, the Parties contemplate that, upon completion of the Project, the CUSD would transfer the ownership of the newly constructed lift stations and pipelines to the CCWD, and CCWD would undertake all compliance and operational responsibilities attendant to the JLE Facility; and

WHEREAS, the Parties wish to collaborate in the Project in accordance with the terms and conditions set forth in this MOU.

NOW, THEREFORE, the Parties hereto agree as follows:

1. The recitals and exhibits attached hereto, if any, are hereby accepted and incorporated into this MOU.

2. CUSD shall be the lead agency for all grant funding requests and CCWD shall cooperate, as necessary and appropriate, in this process. The Project shall be contingent upon CUSD securing full funding from the SRF for all costs of the Project. Absent said funding, this MOU shall terminate without liability of either Party as to the other.

3. Each party shall designate in writing a main contact person for regular Project communications at the time this MOU is executed.

4. SRF must approve all Project contract documents in order for a funding award to be made. CUSD shall be the lead in preparing construction contract documents that are consistent with SRF guidelines.

5. All documents prepared for the procurement of a Project contractor shall be subject to approval by the respective governing bodies of CUSD and CCWD. The Parties agree that time is of the essence in obtaining said approvals throughout the term of this MOU.

6. CUSD shall retain necessary consultant(s) to design the Project. However, the Parties agree that the work of the Project shall comply with CCWD engineering standards and all applicable local, state, and federal requirements, and that CCWD shall have the right to review Project design documents and submit comments during the Project's design phase.

7. CUSD shall procure a Project contractor in accordance with applicable public project competitive bidding requirements.

8. CUSD shall, at its sole cost, provide all project management, construction management, and quality control for the Project. CCWD is welcome to attend any and all construction management meetings at its own costs.

9. Upon completion of the Project, CUSD agrees to transfer to CCWD all newly constructed assets ("Asset Transfer"), necessary access and utility easements including deeds to real property upon which sewer lift stations, pipelines and associated facilities are situated. The Parties shall in good faith prepare any documents and take all actions needed to accomplish said Asset Transfer. Such Asset Transfer, access and easements shall allow unencumbered and unobstructed access by CCWD to said facilities without prohibitions or restrictions regarding operation, maintenance, upgrades, improvements and reconstruction. CCWD will make every effort to operate and maintain said facilities in a manner that minimizes impacts and is compatible with school schedules, classroom activities and student safety. CCWD will notify CUSD in the event of any emergencies or non-routine activities relating to its work on the subject facilities.

10. Upon completion of the Asset Transfer, CCWD shall assume full and complete responsibility for the wastewater operation and infrastructure beginning at the inlet to the new lift station (i.e., the "interceptor") including new lift stations, force mains and associated buildings, equipment and electrical systems. CUSD shall have no ownership

interest in, or responsibility for, infrastructure for transmission, treatment or disposal of wastewater from the JLE. CUSD shall, however, continue to own the pre-existing private sewer lateral at the JLE. CUSD shall be responsible for all sewer collection systems within the JLE facility ground including all sewers and manholes serving all buildings and structures on the site. CUSD responsibility shall end at the point the JLE facility's on-site sewer first enters the interceptor lift station.

11. Upon completion of the transfer of assets provided for in section 9, above, CUSD will be responsible to properly abandon its regulatory permit from the RWQCB.

12. CUSD shall further relinquish any and all interest in future connections to the wastewater infrastructure that CCWD may authorize, as long as the wastewater capacity of JLE School is the primary design consideration to ensure continuous service at its full build-out along the wastewater pipeline. That is, the Parties agree that JLE School has priority rights to the full capacity assigned to it in the Project design for the new pipeline, treatment plant, and disposal and thus has a priority right to use 100% of its assigned capacity.

13. The Parties agree that CUSD shall have a right to acquire wastewater capacity from CCWD at a one-time capacity fee of $700,056 (or 36 esfu's x $19,446/esfu) based upon standard fees effective July 1, 2018 until such time as the current Project application and funding are approved by SRF. CCWD will reserve capacity for CUSD for the duration of the subject SRF project application and subsequent construction until startup and operation of the facilities. If the current Project under consideration is not approved by the SRF, CUSD will relinquish any reservation of capacity or agreed fees previously granted by CCWD.

14. CUSD shall pay standard bi-monthly rates same as other CCWD customers subject to change and increases adopted by general Prop.218 proceedings. The initial bi-monthly rate shall be based on 20 esfu's (e.g. for 2019 a bi-monthly rate of $187.23 per esfu or $3,744.60 is applicable). Thereafter, according to CCWD standard policy, commercial accounts can be periodically reviewed every two (2) years, or after improvements are made to the school, or when school enrollment significantly changes (increases or decreases), in order to adjust bi-monthly charges for wastewater usage. Unless subsequently amended by both parties in writing, the following schedule shall apply:

Max. Month Average Daily Flow (gpd)	Equivalent Single Family Unit Flow (gpd/esfu)	Equivalents (Bi-monthly Rate Factor)
3,000	150	20
3,300	150	22
3,600	150	24
3,900	150	26
4,200	150	28
4,500	150	30
4,800	150	32
5,100	150	34
5,400	150	36

15. Upon Project completion and Asset Transfer to CCWD, the Parties agree to enter into a long-term agreement for service under which CCWD will continue to provide CUSD sewer service for JLE School at its standard bi-monthly rates, as stated above. This service agreement may have a temporary provision for an initial startup and optimization period at an adjusted annual cost that takes into consideration the value, beyond normal capacity fees, and benefits of a regionalization project recognized by CCWD under this MOU. The Engineering team will continue project design discussions after the SRF funding commitment is in place (likely in spring 2019).

16. Each Party, at its sole cost and expense, shall procure and maintain such policies of general and other insurance as shall be necessary to insure its employees, agents and affiliates against any claim or claims for damages arising by reason of personal injuries or death occasioned directly or indirectly in connection with the performance of each Party's obligations under this MOU, the use of any property and facility.

17. During the project period funded by the State Revolving Fund (SRF), CCWD shall indemnify, hold harmless and defend CUSD and each of its officers, officials, employees, agents and volunteers from any and all loss, liability, fines, penalties, forfeitures, costs and damages (whether in contract, tort or strict liability, including but not limited to personal injury, death at any time and property damage) incurred by CUSD or any other person, and from any and all claims, demands and actions in law or equity (including attorney's fees and litigation expenses), arising directly or indirectly from the negligent or intentional acts or omissions of CCWD or any of its officers, directors, board members, employees, agents or volunteers in the performance of this MOU; provided nothing herein shall constitute a waiver of governmental immunities including California Government Code Section 810 et seq.

18. During the project period funded by the State Revolving Fund (SRF), CUSD shall indemnify, hold harmless and defend CCWD and each of its officers, directors, trustees, employees, agents and volunteers from any and all loss, liability, fines, penalties, forfeitures, costs and damages (whether in contract, tort or strict liability, including but not limited to personal injury, death at any time and property damage) incurred by CCWD or any other person, and from any and all claims, demands and actions in law or equity (including attorney's fees and litigation expenses), arising directly or indirectly from the negligent or intentional acts or omissions of CUSD or any of its officers, officials, employees, agents or volunteers in the performance of this MOU; provided nothing herein shall constitute a waiver of governmental immunities including California Government Code Section 810 et seq.

19. This MOU contains the entire agreement between the Parties with respect to the matters covered herein, and supersedes all prior agreements, written or oral, between the Parties. No other agreement, statement, or promise made by any Party not contained herein shall be binding or valid. This MOU shall be construed as one document and all of the agreements herein are in exchange for and in consideration of the commitments of each and all of the Parties herein as set out above.

20. This MOU may be amended only by a writing signed by the Parties.

21. Should any provision of this MOU be declared or determined by any court of competent jurisdiction to be illegal, invalid, or unenforceable, the legality, validity, and enforceability of the remaining parts, terms, or provisions shall not be affected thereby and said illegal, unenforceable, or invalid part, term, or provision shall be deemed not to be part of this MOU.

22. This MOU shall be construed, determined and enforced in accordance with the laws of the State of California with venue in Calaveras County, California.

23. The Parties agree that each Party has independently reviewed this MOU; and that any rules of construction to the effect that ambiguities are to be resolved against the drafting Party shall not apply in any interpretation of this MOU or any amendments or exhibits thereto.

24. This MOU may be executed in any number of counterparts, each of which shall be deemed an original and all of which shall constitute together one and the same instrument.

25. If either party is required to commence any proceeding or legal action to enforce or interpret any term, covenant or condition of this MOU, the prevailing party in such proceeding or action shall be entitled to recover from the other party its reasonable attorney's fees and legal expenses.

26. CUSD and CCWD are acting as independent contractors. Neither party, nor any of its officers, associates, agents, or employees shall be deemed an employee, partner, or agent of the other for any purpose.

27. Neither party shall use discriminatory practices in their respective performance under this MOU on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, and ethnicity, status as a disabled veteran or veteran of the Vietnam era.

28. The waiver by either party of a breach by the other of any provision of this MOU shall not constitute a continuing waiver or a waiver of any subsequent breach of either the same or a different provision of this MOU. No provisions of this MOU may be waived unless in writing and signed by all parties to this MOU. Waiver of any one provision herein shall not be deemed to be a waiver of any other provision herein.

29. The Parties, through their authorized representatives, have executed this MOU as of the day and year first written above.

30. All notices and other communications required hereunder or related hereto shall be directed, respectively, to:

Calaveras Unified School District Mark Campbell, Superintendent	Calaveras County Water District Jeffrey Meyer, Interim General Manager
mcampbell@calaveras.k12.ca (email)	jmeyer@ccwd.org (email)
209-754-2215 (facsimile)	209-754-1069 (facsimile)
209-754-2301 (telephone)	209-754-3028 (telephone)

IN WITNESS WHEREOF the Parties hereto have executed this MOU as of the date first above written.

DATED: December 11, 2018

CALAVERAS UNIFIED SCHOOL DISTRICT

By: Lynn M. McThorn

DATED: December 19, 2018

CALAVERAS COUNTY WATER DISTRICT

By: Deborah Hehiorc

APPROVED AS TO FORM:

Bryan G. Martin, Legal Counsel for
Calaveras Unified School District

Dave Cameron, Legal Counsel for
Calaveras County Water District

APPENDIX D

CURRENT UNSERVED PARCELS BY APN

APPENDIX D

COMMERCIAL PARCELS		
APN	Zone	Area, *acres*
46001117	C2	6.25
46001153	M4-PD	27.81
46001154	R3-PD/C1-DR	11.26
46016025	C2	13.94
46016026	C2	5.52
46016027	C2	15.91
46016052	C2	0.51
46016053	C2	0.43
46016072	C2/M4	29.79
46016080	M2-PX	2.19
46016081	M2-PX	2.40
46036010	C2	0.52
46036022	M2	0.49
46036025	M2	1.08
46036032	C2	0.33
46036046	C2-PX	0.24
46036055	C2	0.46
73042110	C2-PD-PX	1.76
73042112	C2-PD-PX	1.02
73042113	C2-PD-PX	1.00
73044010	CP	3.37
73044011	CP	2.20
73047003	C2-PD-PX	0.14
73047009	C2-PD-PX	1.26
73047010	C2-PD-PX	0.23
73047011	C2-PD-PX	0.20
73049007	C2-PD-PX	2.33
73049010	C2-PD-PX	5.45
73049011	C2-PD-PX	1.36
73049012	C2-PD-PX	1.24
73049013	C2-PD-PX	2.84
73056004	C2	1.02
73056005	C2	1.07
73056006	C2	1.18
73056010	C2	1.07
73056011	C2	1.00
73056012	C2	1.23
74001021	C1	0.45
74002014	C1	0.59
74002039	C1	0.58
74002040	C1	1.12
74015033	C1	0.18

TOTAL AREA, *acres*	153.0

RESIDENTIAL PARCELS		
Number	Zone	Area, *acres*
73042028	RR-5	45.21
73042087	R1/REC-PD	30.81
73042131	RR-5	41.05
73044002	RR-5	5.01
73044003	RR-5	5.01
73044004	RR-5	5.00
73044007	RR-5	5.01
73057005	R1/REC-PD	28.87
73057006	R1/REC-PD	11.02

TOTAL AREA, *acres*	177.0

RESIDENTIAL INFILL		
APN	Zone	Area, *acres*
72010005	RR-1	0.36
72011007	RR-0.5	0.50
73042125	R1	0.29
73045040	R1-MH-PD	0.30
73045041	R1-MH-PD	0.29
73045042	R1-MH-PD	0.44
73046017	R1-MH-PD	0.17
73046023	R1-MH-PD	0.21
73046024	R1-MH-PD	0.20
73046025	R1-MH-PD	0.19
73046026	R1-MH-PD	0.19
73046027	R1-MH-PD	0.16
73046028	R1-MH-PD	0.14
73046029	R1-MH-PD	0.16
73046033	R1-MH-PD	0.19
73046034	R1-MH-PD	0.14
73046035	R1-MH-PD	0.20
73046037	R1-MH-PD	0.31
73046038	R1-MH-PD	0.21
73046042	R1-MH-PD	0.65
73046047	R1-MH-PD	0.45
73052014	R1-MH-PD	0.15
73052015	R1-MH-PD	0.14
73052016	R1-MH-PD	0.13
73052017	R1-MH-PD	0.12
73052018	R1-MH-PD	0.13
73059009	R1	0.29
73059011	R1	0.41
73059012	R1	0.73
74001014	R1	0.26
74002009	R1	0.44
74002023	R1	0.35
74003006	R1	0.41
74003013	R1	0.88
74003016	R1	0.40
74003027	R1	0.52
74003030	R1	1.32
74004010	R1	0.33
74004013	R1	0.34
74004016	R1	0.40

RESIDENTIAL INFILL		
APN	Zone	Area, *acres*
74004018	R1	0.38
74004022	R1	0.75
74005005	R1	0.28
74006004	R1	0.40
74006029	R1	0.32
74007023	R1	0.33
74007028	R1	0.42
74007029	R1	0.30
74008003	R1	0.44
74008007	R1	0.61
74008009	R1	0.48
74008026	R1	0.38
74008035	R1	0.29
74008036	R1	0.33
74009014	R1	0.32
74009018	R1	0.30
74009023	R1	1.01
74009026	R1	0.41
74009029	R1	0.55
74009033	R1	0.42
74010015	R1	0.42
74010016	R1	0.44
74010017	R1	0.50
74010020	R1	0.46
74010027	R1	0.33
74012008	R1	0.48
74013009	R1	0.51
74013014	R1	0.41
74013022	R1	0.64
74013024	R1	0.61
74013025	R1	0.57
74013028	R1	0.90
74013034	R1	0.35
74015010	R1	0.14
74015018	R1	0.30
74015019	R1	0.30
74016011	R1	0.39
74016014	R1	0.49
74016025	R1	0.34
74016027	R1	0.61

RESIDENTIAL INFILL		
APN	Zone	Area, *acres*
74016028	R1	0.44
74018002	R1	0.52
74018004	R1	0.47
74018006	R1	0.43
74018015	R1	0.28
74018017	R1	0.28
74018021	R1	0.26
74018022	R1	0.31
74018023	R1	0.24
74018025	R1	0.24
74018027	R1	0.21
74018029	R1	0.45
74018030	R1	0.35
74018031	R1	0.56
74019004	R1	0.31
74019014	R1	0.32
74019015	R1	0.32
74019018	R1	0.32
74021006	R1	0.27
74023014	R1	0.26
74023016	R1	0.30
74024011	R1	0.35
74024015	R1	0.33
74025005	R1	0.31
74025008	R1	0.32
74025021	R1	0.30
74026018	R1	0.27
74027019	R1	0.38
74027026	R1	0.30
74027027	R1	0.33
74027028	R1	0.32
74032011	R3-PD	0.46
74032012	R3-PD	0.20
74032017	R3-PD	0.13

TOTAL LOTS	113

APPENDIX E

LA CONTENTA WWTF
2018 TO 2023 AVERAGE DRY WEATHER FLOWRATES

APPENDIX E

2018 ADWF	
Date	Influent, *MGD*
7/1/2018	0.150
7/2/2018	0.170
7/3/2018	0.158
7/4/2018	0.136
7/5/2018	0.159
7/6/2018	0.133
7/7/2018	0.141
7/8/2018	0.138
7/9/2018	0.146
7/10/2018	0.147
7/11/2018	0.139
7/12/2018	0.143
7/13/2018	0.132
7/14/2018	0.128
7/15/2018	0.138
7/16/2018	0.152
7/17/2018	0.130
7/18/2018	0.123
7/19/2018	0.135
7/20/2018	0.138
7/21/2018	0.127
7/22/2018	0.146
7/23/2018	0.139
7/24/2018	0.140
7/25/2018	0.128
7/26/2018	0.152
7/27/2018	0.114
7/28/2018	0.133
7/29/2018	0.145
7/30/2018	0.145
7/31/2018	0.136

2019 ADWF	
Date	Influent, *MGD*
7/1/2019	0.168
7/2/2019	0.157
7/3/2019	0.164
7/4/2019	0.140
7/5/2019	0.157
7/6/2019	0.152
7/7/2019	0.149
7/8/2019	0.177
7/9/2019	0.216
7/10/2019	0.114
7/11/2019	0.152
7/12/2019	0.168
7/13/2019	0.154
7/14/2019	0.152
7/15/2019	0.154
7/16/2019	0.196
7/17/2019	0.129
7/18/2019	0.150
7/19/2019	0.136
7/20/2019	0.154
7/21/2019	0.163
7/22/2019	0.141
7/23/2019	0.173
7/24/2019	0.150
7/25/2019	0.145
7/26/2019	0.151
7/27/2019	0.143
7/28/2019	0.155
7/29/2019	0.139
7/30/2019	0.182
7/31/2019	0.116

2020 ADWF	
Date	Influent, *MGD*
7/1/2020	0.104
7/2/2020	0.147
7/3/2020	0.154
7/4/2020	0.151
7/5/2020	0.145
7/6/2020	0.155
7/7/2020	0.180
7/8/2020	0.116
7/9/2020	0.151
7/10/2020	0.133
7/11/2020	0.156
7/12/2020	0.129
7/13/2020	0.130
7/14/2020	0.225
7/15/2020	0.066
7/16/2020	0.137
7/17/2020	0.151
7/18/2020	0.145
7/19/2020	0.154
7/20/2020	0.128
7/21/2020	0.171
7/22/2020	0.114
7/23/2020	0.147
7/24/2020	0.154
7/25/2020	0.137
7/26/2020	0.154
7/27/2020	0.150
7/28/2020	0.148
7/29/2020	0.145
7/30/2020	0.134
7/31/2020	0.140

2021 ADWF	
Date	Influent, *MGD*
7/1/2021	0.144
7/2/2021	0.164
7/3/2021	0.122
7/4/2021	0.152
7/5/2021	0.124
7/6/2021	0.157
7/7/2021	0.148
7/8/2021	0.131
7/9/2021	0.139
7/10/2021	0.143
7/11/2021	0.157
7/12/2021	0.137
7/13/2021	0.147
7/14/2021	0.146
7/15/2021	0.130
7/16/2021	0.140
7/17/2021	0.152
7/18/2021	0.144
7/19/2021	0.142
7/20/2021	0.147
7/21/2021	0.137
7/22/2021	0.132
7/23/2021	0.141
7/24/2021	0.123
7/25/2021	0.156
7/26/2021	0.150
7/27/2021	0.135
7/28/2021	0.131
7/29/2021	0.136
7/30/2021	0.154
7/31/2021	0.119

2022 ADWF	
Date	Influent, *MGD*
7/1/2022	0.159
7/2/2022	0.146
7/3/2022	0.177
7/4/2022	0.155
7/5/2022	0.150
7/6/2022	0.148
7/7/2022	0.150
7/8/2022	0.160
7/9/2022	0.139
7/10/2022	0.194
7/11/2022	0.121
7/12/2022	0.144
7/13/2022	0.145
7/14/2022	0.136
7/15/2022	0.150
7/16/2022	0.136
7/17/2022	0.171
7/18/2022	0.125
7/19/2022	0.156
7/20/2022	0.118
7/21/2022	0.155
7/22/2022	0.141
7/23/2022	0.136
7/24/2022	0.160
7/25/2022	0.138
7/26/2022	0.144
7/27/2022	0.131
7/28/2022	0.164
7/29/2022	0.135
7/30/2022	0.143
7/31/2022	0.153

2023 ADWF	
Date	Influent, *MGD*
7/1/2023	0.154
7/2/2023	0.190
7/3/2023	0.135
7/4/2023	0.172
7/5/2023	0.153
7/6/2023	0.160
7/7/2023	0.153
7/8/2023	0.154
7/9/2023	0.177
7/10/2023	0.167
7/11/2023	0.156
7/12/2023	0.155
7/13/2023	0.149
7/14/2023	0.165
7/15/2023	0.154
7/16/2023	0.150
7/17/2023	0.173
7/18/2023	0.154
7/19/2023	0.147
7/20/2023	0.135
7/21/2023	0.142
7/22/2023	0.145
7/23/2023	0.175
7/24/2023	0.148
7/25/2023	0.157
7/26/2023	0.136
7/27/2023	0.139
7/28/2023	0.149
7/29/2023	0.129
7/30/2023	0.187
7/31/2023	0.125

2018 ADWF	
Date	Influent, *MGD*
8/1/2018	0.126
8/2/2018	0.133
8/3/2018	0.115
8/4/2018	0.125
8/5/2018	0.138
8/6/2018	0.137
8/7/2018	0.119
8/8/2018	0.131
8/9/2018	0.129
8/10/2018	0.138
8/11/2018	0.129
8/12/2018	0.132
8/13/2018	0.148
8/14/2018	0.128
8/15/2018	0.129
8/16/2018	0.137
8/17/2018	0.131
8/18/2018	0.121
8/19/2018	0.132
8/20/2018	0.147
8/21/2018	0.144
8/22/2018	0.133
8/23/2018	0.127
8/24/2018	0.132
8/25/2018	0.122
8/26/2018	0.148
8/27/2018	0.132
8/28/2018	0.142
8/29/2018	0.145
8/30/2018	0.118
8/31/2018	0.137

2019 ADWF	
Date	Influent, *MGD*
8/1/2019	0.184
8/2/2019	0.142
8/3/2019	0.140
8/4/2019	0.150
8/5/2019	0.165
8/6/2019	0.129
8/7/2019	0.157
8/8/2019	0.143
8/9/2019	0.151
8/10/2019	0.132
8/11/2019	0.166
8/12/2019	0.145
8/13/2019	0.153
8/14/2019	0.122
8/15/2019	0.128
8/16/2019	0.157
8/17/2019	0.131
8/18/2019	0.141
8/19/2019	0.162
8/20/2019	0.164
8/21/2019	0.097
8/22/2019	0.147
8/23/2019	0.138
8/24/2019	0.130
8/25/2019	0.155
8/26/2019	0.139
8/27/2019	0.164
8/28/2019	0.118
8/29/2019	0.146
8/30/2019	0.143
8/31/2019	0.158

2020 ADWF	
Date	Influent, *MGD*
8/1/2020	0.172
8/2/2020	0.116
8/3/2020	0.145
8/4/2020	0.156
8/5/2020	0.109
8/6/2020	0.146
8/7/2020	0.136
8/8/2020	0.150
8/9/2020	0.138
8/10/2020	0.158
8/11/2020	0.150
8/12/2020	0.110
8/13/2020	0.132
8/14/2020	0.147
8/15/2020	0.146
8/16/2020	0.138
8/17/2020	0.141
8/18/2020	0.157
8/19/2020	0.108
8/20/2020	0.128
8/21/2020	0.128
8/22/2020	0.149
8/23/2020	0.150
8/24/2020	0.136
8/25/2020	0.159
8/26/2020	0.109
8/27/2020	0.134
8/28/2020	0.140
8/29/2020	0.115
8/30/2020	0.146
8/31/2020	0.137

2021 ADWF	
Date	Influent, *MGD*
8/1/2021	0.165
8/2/2021	0.148
8/3/2021	0.138
8/4/2021	0.141
8/5/2021	0.134
8/6/2021	0.149
8/7/2021	0.130
8/8/2021	0.153
8/9/2021	0.159
8/10/2021	0.141
8/11/2021	0.130
8/12/2021	0.137
8/13/2021	0.150
8/14/2021	0.153
8/15/2021	0.131
8/16/2021	0.145
8/17/2021	0.153
8/18/2021	0.157
8/19/2021	0.127
8/20/2021	0.146
8/21/2021	0.136
8/22/2021	0.149
8/23/2021	0.174
8/24/2021	0.179
8/25/2021	0.099
8/26/2021	0.134
8/27/2021	0.151
8/28/2021	0.140
8/29/2021	0.158
8/30/2021	0.179
8/31/2021	0.164

2022 ADWF	
Date	Influent, *MGD*
8/1/2022	0.159
8/2/2022	0.143
8/3/2022	0.137
8/4/2022	0.129
8/5/2022	0.144
8/6/2022	0.166
8/7/2022	0.143
8/8/2022	0.157
8/9/2022	0.160
8/10/2022	0.124
8/11/2022	0.133
8/12/2022	0.143
8/13/2022	0.149
8/14/2022	0.168
8/15/2022	0.160
8/16/2022	0.149
8/17/2022	0.130
8/18/2022	0.138
8/19/2022	0.147
8/20/2022	0.148
8/21/2022	0.130
8/22/2022	0.154
8/23/2022	0.148
8/24/2022	0.148
8/25/2022	0.123
8/26/2022	0.139
8/27/2022	0.142
8/28/2022	0.147
8/29/2022	0.159
8/30/2022	0.155
8/31/2022	0.134

2023 ADWF	
Date	Influent, *MGD*
8/1/2023	0.143
8/2/2023	0.132
8/3/2023	0.156
8/4/2023	0.144
8/5/2023	0.147
8/6/2023	0.201
8/7/2023	0.146
8/8/2023	0.146
8/9/2023	0.145
8/10/2023	0.157
8/11/2023	0.137
8/12/2023	0.139
8/13/2023	0.185
8/14/2023	0.151
8/15/2023	0.147
8/16/2023	0.154
8/17/2023	0.155
8/18/2023	0.158
8/19/2023	0.132
8/20/2023	0.192
8/21/2023	0.141
8/22/2023	0.139
8/23/2023	0.138
8/24/2023	0.149
8/25/2023	0.145
8/26/2023	0.132
8/27/2023	0.155
8/28/2023	0.178
8/29/2023	0.134
8/30/2023	0.130
8/31/2023	0.156

APPENDIX E

2018 ADWF		2019 ADWF		2020 ADWF		2021 ADWF		2022 ADWF		2023 ADWF	
Date	Influent, *MGD*	Date	Influent, *MGD*	Date	Influent, *MGD*	Date	Influent, *MGD*	Date	Influent, *MGD*	Date	Influent, *MGD*
9/1/2018	0.118	9/1/2019	0.150	9/1/2020	0.146	9/1/2021	0.133	9/1/2022	0.136	9/1/2023	0.241
9/2/2018	0.130	9/2/2019	0.136	9/2/2020	0.110	9/2/2021	0.152	9/2/2022	0.139	9/2/2023	0.133
9/3/2018	0.129	9/3/2019	0.185	9/3/2020	0.129	9/3/2021	0.142	9/3/2022	0.129	9/3/2023	0.194
9/4/2018	0.160	9/4/2019	0.133	9/4/2020	0.140	9/4/2021	0.137	9/4/2022	0.140	9/4/2023	0.107
9/5/2018	0.137	9/5/2019	0.149	9/5/2020	0.131	9/5/2021	0.147	9/5/2022	0.154	9/5/2023	0.181
9/6/2018	0.135	9/6/2019	0.146	9/6/2020	0.140	9/6/2021	0.154	9/6/2022	0.166	9/6/2023	0.139
9/7/2018	0.116	9/7/2019	0.127	9/7/2020	0.145	9/7/2021	0.157	9/7/2022	0.136	9/7/2023	0.143
9/8/2018	0.131	9/8/2019	0.151	9/8/2020	0.162	9/8/2021	0.131	9/8/2022	0.134	9/8/2023	0.139
9/9/2018	0.127	9/9/2019	0.153	9/9/2020	0.098	9/9/2021	0.140	9/9/2022	0.142	9/9/2023	0.129
9/10/2018	0.143	9/10/2019	0.153	9/10/2020	0.134	9/10/2021	0.135	9/10/2022	0.159	9/10/2023	0.161
9/11/2018	0.127	9/11/2019	0.130	9/11/2020	0.133	9/11/2021	0.134	9/11/2022	0.172	9/11/2023	0.130
9/12/2018	0.123	9/12/2019	0.140	9/12/2020	0.133	9/12/2021	0.161	9/12/2022	0.159	9/12/2023	0.185
9/13/2018	0.129	9/13/2019	0.146	9/13/2020	0.140	9/13/2021	0.141	9/13/2022	0.139	9/13/2023	0.126
9/14/2018	0.127	9/14/2019	0.126	9/14/2020	0.156	9/14/2021	0.142	9/14/2022	0.141	9/14/2023	0.142
9/15/2018	0.114	9/15/2019	0.158	9/15/2020	0.143	9/15/2021	0.129	9/15/2022	0.155	9/15/2023	0.140
9/16/2018	0.143	9/16/2019	0.156	9/16/2020	0.111	9/16/2021	0.151	9/16/2022	0.167	9/16/2023	0.146
9/17/2018	0.144	9/17/2019	0.172	9/17/2020	0.134	9/17/2021	0.113	9/17/2022	0.126	9/17/2023	0.205
9/18/2018	0.137	9/18/2019	0.120	9/18/2020	0.136	9/18/2021	0.136	9/18/2022	0.173	9/18/2023	0.121
9/19/2018	0.117	9/19/2019	0.144	9/19/2020	0.138	9/19/2021	0.157	9/19/2022	0.143	9/19/2023	0.140
9/20/2018	0.127	9/20/2019	0.153	9/20/2020	0.147	9/20/2021	0.157	9/20/2022	0.161	9/20/2023	0.145
9/21/2018	0.130	9/21/2019	0.140	9/21/2020	0.130	9/21/2021	0.137	9/21/2022	0.151	9/21/2023	0.143
9/22/2018	0.116	9/22/2019	0.141	9/22/2020	0.127	9/22/2021	0.124	9/22/2022	0.144	9/22/2023	0.149
9/23/2018	0.121	9/23/2019	0.154	9/23/2020	0.137	9/23/2021	0.137	9/23/2022	0.181	9/23/2023	0.138
9/24/2018	0.151	9/24/2019	0.155	9/24/2020	0.143	9/24/2021	0.146	9/24/2022	0.129	9/24/2023	0.153
9/25/2018	0.124	9/25/2019	0.131	9/25/2020	0.137	9/25/2021	0.133	9/25/2022	0.145	9/25/2023	0.171
9/26/2018	0.127	9/26/2019	0.132	9/26/2020	0.128	9/26/2021	0.156	9/26/2022	0.159	9/26/2023	0.149
9/27/2018	0.109	9/27/2019	0.142	9/27/2020	0.144	9/27/2021	0.158	9/27/2022	0.140	9/27/2023	0.140
9/28/2018	0.145	9/28/2019	0.128	9/28/2020	0.132	9/28/2021	0.137	9/28/2022	0.129	9/28/2023	0.158
9/29/2018	0.114	9/29/2019	0.143	9/29/2020	0.152	9/29/2021	0.137	9/29/2022	0.131	9/29/2023	0.139
9/30/2018	0.137	9/30/2019	0.154	9/30/2020	0.122	9/30/2021	0.142	9/30/2022	0.151	9/30/2023	0.132

APPENDIX F

LA CONTENTA WWTF
2020 TO 2023 DAILY FLOWRATES

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/1/2020	0.128	0.160
10/2/2020	0.126	0.154
10/3/2020	0.144	0.180
10/4/2020	0.151	0.192
10/5/2020	0.184	0.228
10/6/2020	0.117	0.149
10/7/2020	0.123	0.148
10/8/2020	0.119	0.149
10/9/2020	0.137	0.203
10/10/2020	0.128	0.172
10/11/2020	0.174	0.228
10/12/2020	0.139	0.184
10/13/2020	0.155	0.211
10/14/2020	0.108	0.150
10/15/2020	0.128	0.183
10/16/2020	0.126	0.169
10/17/2020	0.131	0.186
10/18/2020	0.136	0.193
10/19/2020	0.140	0.195
10/20/2020	0.133	0.193
10/21/2020	0.138	0.188
10/22/2020	0.114	0.156
10/23/2020	0.131	0.180
10/24/2020	0.131	0.173
10/25/2020	0.142	0.190
10/26/2020	0.152	0.204
10/27/2020	0.165	0.221

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/1/2021	0.117	0.119
10/2/2021	0.146	0.144
10/3/2021	0.152	0.123
10/4/2021	0.166	0.137
10/5/2021	0.144	0.128
10/6/2021	0.126	0.124
10/7/2021	0.150	0.139
10/8/2021	0.134	0.143
10/9/2021	0.166	0.131
10/10/2021	0.113	0.136
10/11/2021	0.165	0.158
10/12/2021	0.131	0.125
10/13/2021	0.138	0.135
10/14/2021	0.131	0.131
10/15/2021	0.135	0.140
10/16/2021	0.147	0.191
10/17/2021	0.150	0.163
10/18/2021	0.144	0.155
10/19/2021	0.160	0.164
10/20/2021	0.133	0.132
10/21/2021	0.140	0.151
10/22/2021	0.142	0.175
10/23/2021	0.158	0.143
10/24/2021	0.189	0.221
10/25/2021	0.590	0.004
10/26/2021	0.357	0.000
10/27/2021	0.249	0.048

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/1/2022	0.134	0.154
10/2/2022	0.150	0.177
10/3/2022	0.145	0.156
10/4/2022	0.137	0.174
10/5/2022	0.134	0.166
10/6/2022	0.140	0.177
10/7/2022	0.143	0.195
10/8/2022	0.186	0.220
10/9/2022	0.152	0.183
10/10/2022	0.110	0.125
10/11/2022	0.141	0.168
10/12/2022	0.143	0.173
10/13/2022	0.130	0.157
10/14/2022	0.133	0.191
10/15/2022	0.149	0.170
10/16/2022	0.151	0.169
10/17/2022	0.162	0.180
10/18/2022	0.142	0.158
10/19/2022	0.138	0.155
10/20/2022	0.138	0.161
10/21/2022	0.141	0.168
10/22/2022	0.142	0.153
10/23/2022	0.155	0.164
10/24/2022	0.162	0.171
10/25/2022	0.150	0.165
10/26/2022	0.131	0.146
10/27/2022	0.145	0.178

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/28/2020	0.099	0.137
10/29/2020	0.117	0.167
10/30/2020	0.143	0.196
10/31/2020	0.127	0.165
11/1/2020	0.183	0.226
11/2/2020	0.130	0.162
11/3/2020	0.135	0.273
11/4/2020	0.128	0.337
11/5/2020	0.114	0.137
11/6/2020	0.128	0.160
11/7/2020	0.141	0.040
11/8/2020	0.154	0.196
11/9/2020	0.146	0.178
11/10/2020	0.140	0.167
11/11/2020	0.104	0.126
11/12/2020	0.133	0.161
11/13/2020	0.136	0.185
11/14/2020	0.133	0.162
11/15/2020	0.140	0.168
11/16/2020	0.134	0.164
11/17/2020	0.146	0.195
11/18/2020	0.141	0.195
11/19/2020	0.172	0.225
11/20/2020	0.136	0.182
11/21/2020	0.141	0.185
11/22/2020	0.146	0.194
11/23/2020	0.156	0.205

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/28/2021	0.154	0.131
10/29/2021	0.186	0.194
10/30/2021	0.164	0.141
10/31/2021	0.189	0.160
11/1/2021	0.180	0.163
11/2/2021	0.172	0.152
11/3/2021	0.172	0.153
11/4/2021	0.147	0.132
11/5/2021	0.168	0.151
11/6/2021	0.160	0.141
11/7/2021	0.176	0.167
11/8/2021	0.198	0.183
11/9/2021	0.174	0.168
11/10/2021	0.157	0.151
11/11/2021	0.165	0.162
11/12/2021	0.167	0.160
11/13/2021	0.169	0.167
11/14/2021	0.176	0.160
11/15/2021	0.195	0.176
11/16/2021	0.161	0.142
11/17/2021	0.149	0.139
11/18/2021	0.152	0.139
11/19/2021	0.152	0.148
11/20/2021	0.165	0.170
11/21/2021	0.203	0.195
11/22/2021	0.161	0.148
11/23/2021	0.174	0.157

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
10/28/2022	0.137	0.194
10/29/2022	0.139	0.173
10/30/2022	0.158	0.192
10/31/2022	0.153	0.161
11/1/2022	0.183	0.203
11/2/2022	0.110	0.120
11/3/2022	0.167	0.175
11/4/2022	0.151	0.157
11/5/2022	0.138	0.155
11/6/2022	0.185	0.200
11/7/2022	0.159	0.183
11/8/2022	0.175	0.185
11/9/2022	0.243	0.223
11/10/2022	0.183	0.180
11/11/2022	0.144	0.146
11/12/2022	0.168	0.169
11/13/2022	0.177	0.182
11/14/2022	0.158	0.165
11/15/2022	0.159	0.173
11/16/2022	0.150	0.172
11/17/2022	0.148	0.162
11/18/2022	0.160	0.171
11/19/2022	0.133	0.157
11/20/2022	0.154	0.176
11/21/2022	0.165	0.186
11/22/2022	0.159	0.182
11/23/2022	0.143	0.170

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
11/24/2020	0.123	0.169
11/25/2020	0.129	0.177
11/26/2020	0.141	0.183
11/27/2020	0.142	0.188
11/28/2020	0.140	0.185
11/29/2020	0.144	0.192
11/30/2020	0.151	0.200
12/1/2020	0.120	0.168
12/2/2020	0.137	0.161
12/3/2020	0.138	0.179
12/4/2020	0.128	0.178
12/5/2020	0.125	0.158
12/6/2020	0.160	0.206
12/7/2020	0.131	0.169
12/8/2020	0.117	0.167
12/9/2020	0.139	0.197
12/10/2020	0.140	0.197
12/11/2020	0.155	0.000
12/12/2020	0.129	0.122
12/13/2020	0.147	0.189
12/14/2020	0.214	0.270
12/15/2020	0.139	0.174
12/16/2020	0.148	0.187
12/17/2020	0.156	0.194
12/18/2020	0.158	0.210
12/19/2020	0.134	0.164
12/20/2020	0.150	0.208

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
11/24/2021	0.154	0.140
11/25/2021	0.151	0.137
11/26/2021	0.193	0.177
11/27/2021	0.153	0.142
11/28/2021	0.187	0.180
11/29/2021	0.168	0.164
11/30/2021	0.161	0.149
12/1/2021	0.171	0.162
12/2/2021	0.145	0.131
12/3/2021	0.165	0.186
12/4/2021	0.146	0.174
12/5/2021	0.164	0.155
12/6/2021	0.195	0.174
12/7/2021	0.199	0.180
12/8/2021	0.109	0.097
12/9/2021	0.157	0.140
12/10/2021	0.195	0.172
12/11/2021	0.165	0.136
12/12/2021	0.177	0.158
12/13/2021	0.269	0.244
12/14/2021	0.461	0.292
12/15/2021	0.316	0.025
12/16/2021	0.271	0.242
12/17/2021	0.254	0.224
12/18/2021	0.296	0.250
12/19/2021	0.220	0.195
12/20/2021	0.210	0.179

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
11/24/2022	0.158	0.184
11/25/2022	0.160	0.196
11/26/2022	0.155	0.194
11/27/2022	0.167	0.217
11/28/2022	0.165	0.206
11/29/2022	0.160	0.174
11/30/2022	0.139	0.155
12/1/2022	0.159	0.228
12/2/2022	0.238	0.254
12/3/2022	0.162	0.200
12/4/2022	0.340	0.287
12/5/2022	0.254	0.215
12/6/2022	0.224	0.210
12/7/2022	0.187	0.160
12/8/2022	0.166	0.155
12/9/2022	0.185	0.228
12/10/2022	0.174	0.172
12/11/2022	0.526	0.106
12/12/2022	0.389	0.009
12/13/2022	0.294	0.252
12/14/2022	0.204	0.178
12/15/2022	0.206	0.185
12/16/2022	0.210	0.193
12/17/2022	0.180	0.167
12/18/2022	0.197	0.182
12/19/2022	0.213	0.188
12/20/2022	0.182	0.163

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
12/21/2020	0.164	0.233
12/22/2020	0.179	0.218
12/23/2020	0.117	0.153
12/24/2020	0.138	0.180
12/25/2020	0.147	0.194
12/26/2020	0.150	0.193
12/27/2020	0.161	0.217
12/28/2020	0.165	0.227
12/29/2020	0.146	0.196
12/30/2020	0.179	0.249
12/31/2020	0.115	0.150
1/1/2021	0.134	0.191
1/2/2021	0.143	0.195
1/3/2021	0.160	0.201
1/4/2021	0.150	0.194
1/5/2021	0.138	0.179
1/6/2021	0.138	0.199
1/7/2021	0.158	0.248
1/8/2021	0.140	0.182
1/9/2021	0.119	0.162
1/10/2021	0.178	0.230
1/11/2021	0.128	0.184
1/12/2021	0.146	0.220
1/13/2021	0.153	0.229
1/14/2021	0.140	0.182
1/15/2021	0.135	0.179
1/16/2021	0.132	0.167

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
12/21/2021	0.187	0.162
12/22/2021	0.210	0.183
12/23/2021	0.235	0.218
12/24/2021	0.469	0.071
12/25/2021	0.356	0.326
12/26/2021	0.406	0.375
12/27/2021	0.393	0.355
12/28/2021	0.451	0.305
12/29/2021	0.310	0.274
12/30/2021	0.307	0.280
12/31/2021	0.279	0.244
1/1/2022	0.263	0.226
1/2/2022	0.236	0.204
1/3/2022	0.254	0.217
1/4/2022	0.216	0.184
1/5/2022	0.214	0.192
1/6/2022	0.200	0.167
1/7/2022	0.203	0.179
1/8/2022	0.222	0.187
1/9/2022	0.208	0.186
1/10/2022	0.241	0.213
1/11/2022	0.178	0.152
1/12/2022	0.187	0.162
1/13/2022	0.205	0.148
1/14/2022	0.195	0.192
1/15/2022	0.192	0.189
1/16/2022	0.216	0.185

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
12/21/2022	0.178	0.165
12/22/2022	0.188	0.162
12/23/2022	0.184	0.180
12/24/2022	0.190	0.173
12/25/2022	0.201	0.178
12/26/2022	0.174	0.161
12/27/2022	0.342	0.202
12/28/2022	0.420	0.014
12/29/2022	0.278	0.231
12/30/2022	0.317	0.259
12/31/2022	0.980	0.098
1/1/2023	0.710	0.000
1/2/2023	0.424	0.020
1/3/2023	0.364	0.284
1/4/2023	0.302	0.277
1/5/2023	0.356	0.343
1/6/2023	0.436	0.400
1/7/2023	0.362	0.347
1/8/2023	0.338	0.310
1/9/2023	0.331	0.315
1/10/2023	0.598	0.515
1/11/2023	0.660	0.532
1/12/2023	0.417	0.391
1/13/2023	0.310	0.320
1/14/2023	0.399	0.355
1/15/2023	0.896	0.100
1/16/2023	0.920	0.374

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
1/17/2021	0.158	0.197
1/18/2021	0.141	0.180
1/19/2021	0.196	0.251
1/20/2021	0.101	0.126
1/21/2021	0.155	0.201
1/22/2021	0.126	0.161
1/23/2021	0.148	0.199
1/24/2021	0.183	0.238
1/25/2021	0.173	0.237
1/26/2021	0.177	0.213
1/27/2021	0.188	0.232
1/28/2021	0.430	0.495
1/29/2021	0.483	0.561
1/30/2021	0.229	0.263
1/31/2021	0.243	0.252
2/1/2021	0.200	0.255
2/2/2021	0.191	0.219
2/3/2021	0.232	0.216
2/4/2021	0.210	0.242
2/5/2021	0.190	0.223
2/6/2021	0.195	0.247
2/7/2021	0.196	0.210
2/8/2021	0.182	0.216
2/9/2021	0.179	0.237
2/10/2021	0.158	0.194
2/11/2021	0.162	0.202
2/12/2021	0.212	0.271

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
1/17/2022	0.190	0.160
1/18/2022	0.206	0.167
1/19/2022	0.187	0.166
1/20/2022	0.168	0.171
1/21/2022	0.208	0.207
1/22/2022	0.170	0.196
1/23/2022	0.206	0.205
1/24/2022	0.204	0.199
1/25/2022	0.163	0.161
1/26/2022	0.188	0.184
1/27/2022	0.184	0.178
1/28/2022	0.178	0.182
1/29/2022	0.169	0.214
1/30/2022	0.215	0.206
1/31/2022	0.174	0.164
2/1/2022	0.202	0.194
2/2/2022	0.159	0.150
2/3/2022	0.163	0.156
2/4/2022	0.195	0.205
2/5/2022	0.209	0.257
2/6/2022	0.166	0.170
2/7/2022	0.209	0.211
2/8/2022	0.161	0.166
2/9/2022	0.183	0.185
2/10/2022	0.158	0.157
2/11/2022	0.177	0.179
2/12/2022	0.180	0.231

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
1/17/2023	0.477	0.322
1/18/2023	0.270	0.326
1/19/2023	0.312	0.310
1/20/2023	0.319	0.353
1/21/2023	0.290	0.344
1/22/2023	0.293	0.357
1/23/2023	0.246	0.290
1/24/2023	0.288	0.368
1/25/2023	0.210	0.264
1/26/2023	0.235	0.305
1/27/2023	0.234	0.321
1/28/2023	0.210	0.299
1/29/2023	0.250	0.344
1/30/2023	0.201	0.271
1/31/2023	0.242	0.337
2/1/2023	0.216	0.307
2/2/2023	0.184	0.263
2/3/2023	0.222	0.322
2/4/2023	0.187	0.241
2/5/2023	0.212	0.249
2/6/2023	0.256	0.269
2/7/2023	0.238	0.276
2/8/2023	0.181	0.217
2/9/2023	0.202	0.242
2/10/2023	0.207	0.249
2/11/2023	0.211	0.258
2/12/2023	0.247	0.292

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
2/13/2021	0.196	0.250
2/14/2021	0.202	0.252
2/15/2021	0.200	0.253
2/16/2021	0.196	0.245
2/17/2021	0.183	0.226
2/18/2021	0.175	0.219
2/19/2021	0.170	0.216
2/20/2021	0.178	0.226
2/21/2021	0.211	0.260
2/22/2021	0.178	0.222
2/23/2021	0.159	0.201
2/24/2021	0.151	0.190
2/25/2021	0.175	0.219
2/26/2021	0.156	0.175
2/27/2021	0.167	0.216
2/28/2021	0.168	0.218
3/1/2021	0.193	0.242
3/2/2021	0.148	0.189
3/3/2021	0.160	0.205
3/4/2021	0.159	0.205
3/5/2021	0.166	0.216
3/6/2021	0.166	0.224
3/7/2021	0.168	0.213
3/8/2021	0.213	0.274
3/9/2021	0.105	0.134
3/10/2021	0.178	0.255
3/11/2021	0.156	0.231

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
2/13/2022	0.202	0.231
2/14/2022	0.180	0.199
2/15/2022	0.187	0.177
2/16/2022	0.176	0.168
2/17/2022	0.160	0.165
2/18/2022	0.168	0.223
2/19/2022	0.196	0.216
2/20/2022	0.195	0.215
2/21/2022	0.168	0.183
2/22/2022	0.177	0.169
2/23/2022	0.175	0.173
2/24/2022	0.157	0.158
2/25/2022	0.185	0.181
2/26/2022	0.186	0.222
2/27/2022	0.192	0.186
2/28/2022	0.170	0.171
3/1/2022	0.197	0.195
3/2/2022	0.181	0.179
3/3/2022	0.181	0.183
3/4/2022	0.168	0.265
3/5/2022	0.205	0.167
3/6/2022	0.166	0.118
3/7/2022	0.189	0.185
3/8/2022	0.182	0.178
3/9/2022	0.169	0.170
3/10/2022	0.155	0.163
3/11/2022	0.173	0.180

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
2/13/2023	0.177	0.198
2/14/2023	0.216	0.248
2/15/2023	0.195	0.233
2/16/2023	0.196	0.237
2/17/2023	0.200	0.254
2/18/2023	0.188	0.233
2/19/2023	0.214	0.270
2/20/2023	0.180	0.229
2/21/2023	0.197	0.247
2/22/2023	0.180	0.231
2/23/2023	0.183	0.270
2/24/2023	0.183	0.194
2/25/2023	0.314	0.333
2/26/2023	0.336	0.054
2/27/2023	0.372	0.189
2/28/2023	0.398	0.180
3/1/2023	0.538	0.461
3/2/2023	0.417	0.390
3/3/2023	0.195	0.187
3/4/2023	0.264	0.257
3/5/2023	0.277	0.271
3/6/2023	0.314	0.291
3/7/2023	0.284	0.278
3/8/2023	0.215	0.219
3/9/2023	0.258	0.263
3/10/2023	0.431	0.409
3/11/2023	0.522	0.172

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
3/12/2021	0.175	0.256
3/13/2021	0.133	0.208
3/14/2021	0.173	0.247
3/15/2021	0.186	0.346
3/16/2021	0.142	0.230
3/17/2021	0.182	0.291
3/18/2021	0.163	0.262
3/19/2021	0.213	0.265
3/20/2021	0.157	0.194
3/21/2021	0.204	0.243
3/22/2021	0.201	0.257
3/23/2021	0.148	0.184
3/24/2021	0.168	0.209
3/25/2021	0.174	0.212
3/26/2021	0.160	0.196
3/27/2021	0.145	0.216
3/28/2021	0.183	0.274
3/29/2021	0.158	0.253
3/30/2021	0.167	0.268
3/31/2021	0.142	0.198
4/1/2021	0.156	0.231
4/2/2021	0.161	0.238
4/3/2021	0.140	0.210
4/4/2021	0.191	0.286
4/5/2021	0.152	0.236
4/6/2021	0.225	0.281
4/7/2021	0.085	0.227

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
3/12/2022	0.211	0.223
3/13/2022	0.141	0.160
3/14/2022	0.201	0.214
3/15/2022	0.163	0.176
3/16/2022	0.188	0.194
3/17/2022	0.164	0.168
3/18/2022	0.175	0.176
3/19/2022	0.177	0.191
3/20/2022	0.186	0.188
3/21/2022	0.191	0.195
3/22/2022	0.186	0.209
3/23/2022	0.181	0.195
3/24/2022	0.171	0.194
3/25/2022	0.155	0.195
3/26/2022	0.178	0.200
3/27/2022	0.176	0.216
3/28/2022	0.175	0.194
3/29/2022	0.172	0.188
3/30/2022	0.161	0.180
3/31/2022	0.156	0.161
4/1/2022	0.205	0.248
4/2/2022	0.171	0.171
4/3/2022	0.188	0.199
4/4/2022	0.176	0.179
4/5/2022	0.172	0.163
4/6/2022	0.175	0.156
4/7/2022	0.150	0.206

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
3/12/2023	0.351	0.351
3/13/2023	0.505	0.463
3/14/2023	0.394	0.423
3/15/2023	0.450	0.390
3/16/2023	0.331	0.329
3/17/2023	0.290	0.303
3/18/2023	0.244	0.262
3/19/2023	0.285	0.298
3/20/2023	0.249	0.257
3/21/2023	0.232	0.239
3/22/2023	0.283	0.291
3/23/2023	0.304	0.326
3/24/2023	0.311	0.334
3/25/2023	0.236	0.255
3/26/2023	0.310	0.324
3/27/2023	0.186	0.188
3/28/2023	0.222	0.251
3/29/2023	0.344	0.356
3/30/2023	0.366	0.377
3/31/2023	0.322	0.342
4/1/2023	0.250	0.289
4/2/2023	0.290	0.331
4/3/2023	0.244	0.280
4/4/2023	0.218	0.248
4/5/2023	0.208	0.246
4/6/2023	0.230	0.367
4/7/2023	0.215	0.201

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
4/8/2021	0.146	0.213
4/9/2021	0.152	0.234
4/10/2021	0.144	0.165
4/11/2021	0.159	0.275
4/12/2021	0.158	0.121
4/13/2021	0.169	0.333
4/14/2021	0.159	0.227
4/15/2021	0.147	0.205
4/16/2021	0.152	0.218
4/17/2021	0.143	0.208
4/18/2021	0.156	0.232
4/19/2021	0.160	0.258
4/20/2021	0.146	0.195
4/21/2021	0.137	0.212
4/22/2021	0.160	0.260
4/23/2021	0.148	0.259
4/24/2021	0.146	0.246
4/25/2021	0.147	0.259
4/26/2021	0.239	0.239
4/27/2021	0.216	0.216
4/28/2021	0.224	0.224
4/29/2021	0.154	0.192
4/30/2021	0.171	0.212
5/1/2021	0.159	0.208
5/2/2021	0.214	0.273
5/3/2021	0.163	0.217
5/4/2021	0.151	0.198

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
4/8/2022	0.181	0.208
4/9/2022	0.170	0.221
4/10/2022	0.132	0.192
4/11/2022	0.238	0.224
4/12/2022	0.185	0.205
4/13/2022	0.179	0.206
4/14/2022	0.162	0.197
4/15/2022	0.179	0.211
4/16/2022	0.208	0.278
4/17/2022	0.218	0.250
4/18/2022	0.181	0.206
4/19/2022	0.203	0.235
4/20/2022	0.180	0.210
4/21/2022	0.146	0.178
4/22/2022	0.230	0.289
4/23/2022	0.207	0.229
4/24/2022	0.205	0.231
4/25/2022	0.200	0.221
4/26/2022	0.176	0.208
4/27/2022	0.177	0.208
4/28/2022	0.160	0.214
4/29/2022	0.181	0.195
4/30/2022	0.167	0.226
5/1/2022	0.189	0.224
5/2/2022	0.195	0.227
5/3/2022	0.163	0.200
5/4/2022	0.178	0.224

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
4/8/2023	0.195	0.257
4/9/2023	0.237	0.299
4/10/2023	0.216	0.269
4/11/2023	0.169	0.214
4/12/2023	0.196	0.237
4/13/2023	0.207	0.222
4/14/2023	0.188	0.208
4/15/2023	0.174	0.191
4/16/2023	0.219	0.239
4/17/2023	0.188	0.141
4/18/2023	0.191	0.278
4/19/2023	0.172	0.159
4/20/2023	0.193	0.250
4/21/2023	0.190	0.222
4/22/2023	0.165	0.202
4/23/2023	0.218	0.236
4/24/2023	0.185	0.199
4/25/2023	0.162	0.176
4/26/2023	0.177	0.197
4/27/2023	0.171	0.200
4/28/2023	0.170	0.182
4/29/2023	0.159	0.208
4/30/2023	0.190	0.212
5/1/2023	0.183	0.202
5/2/2023	0.172	0.200
5/3/2023	0.160	0.197
5/4/2023	0.170	0.195

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
5/5/2021	0.166	0.229
5/6/2021	0.160	0.222
5/7/2021	0.159	0.201
5/8/2021	0.171	0.219
5/9/2021	0.174	0.224
5/10/2021	0.151	0.190
5/11/2021	0.176	0.212
5/12/2021	0.156	0.211
5/13/2021	0.155	0.217
5/14/2021	0.136	0.192
5/15/2021	0.163	0.226
5/16/2021	0.162	0.205
5/17/2021	0.185	0.224
5/18/2021	0.152	0.185
5/19/2021	0.153	0.199
5/20/2021	0.151	0.198
5/21/2021	0.152	0.214
5/22/2021	0.160	0.258
5/23/2021	0.174	0.242
5/24/2021	0.169	0.238
5/25/2021	0.168	0.244
5/26/2021	0.145	0.177
5/27/2021	0.154	0.165
5/28/2021	0.156	0.162
5/29/2021	0.199	0.215
5/30/2021	0.140	0.167
5/31/2021	0.149	0.161

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
5/5/2022	0.145	0.188
5/6/2022	0.171	0.219
5/7/2022	0.167	0.223
5/8/2022	0.196	0.253
5/9/2022	0.174	0.228
5/10/2022	0.168	0.226
5/11/2022	0.160	0.220
5/12/2022	0.174	0.226
5/13/2022	0.177	0.214
5/14/2022	0.156	0.199
5/15/2022	0.182	0.212
5/16/2022	0.180	0.212
5/17/2022	0.181	0.208
5/18/2022	0.166	0.202
5/19/2022	0.151	0.190
5/20/2022	0.170	0.234
5/21/2022	0.166	0.215
5/22/2022	0.176	0.194
5/23/2022	0.165	0.181
5/24/2022	0.171	0.192
5/25/2022	0.158	0.184
5/26/2022	0.154	0.179
5/27/2022	0.157	0.175
5/28/2022	0.154	0.209
5/29/2022	0.177	0.193
5/30/2022	0.160	0.167
5/31/2022	0.182	0.206

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
5/5/2023	0.175	0.194
5/6/2023	0.156	0.187
5/7/2023	0.203	0.230
5/8/2023	0.194	0.226
5/9/2023	0.175	0.224
5/10/2023	0.163	0.209
5/11/2023	0.167	0.207
5/12/2023	0.163	0.211
5/13/2023	0.166	0.209
5/14/2023	0.203	0.219
5/15/2023	0.157	0.162
5/16/2023	0.173	0.201
5/17/2023	0.149	0.178
5/18/2023	0.165	0.223
5/19/2023	0.175	0.207
5/20/2023	0.160	0.202
5/21/2023	0.185	0.226
5/22/2023	0.175	0.194
5/23/2023	0.169	0.180
5/24/2023	0.142	0.175
5/25/2023	0.161	0.184
5/26/2023	0.162	0.209
5/27/2023	0.155	0.218
5/28/2023	0.198	0.241
5/29/2023	0.151	0.188
5/30/2023	0.166	0.197
5/31/2023	0.191	0.234

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/1/2021	0.165	0.178
6/2/2021	0.163	0.175
6/3/2021	0.144	0.159
6/4/2021	0.148	0.164
6/5/2021	0.197	0.204
6/6/2021	0.100	0.103
6/7/2021	0.178	0.183
6/8/2021	0.129	0.130
6/9/2021	0.164	0.151
6/10/2021	0.151	0.152
6/11/2021	0.140	0.141
6/12/2021	0.156	0.158
6/13/2021	0.160	0.167
6/14/2021	0.152	0.162
6/15/2021	0.157	0.181
6/16/2021	0.152	0.165
6/17/2021	0.134	0.142
6/18/2021	0.149	0.151
6/19/2021	0.142	0.167
6/20/2021	0.154	0.148
6/21/2021	0.170	0.167
6/22/2021	0.136	0.160
6/23/2021	0.158	0.147
6/24/2021	0.140	0.138
6/25/2021	0.128	0.126
6/26/2021	0.152	0.146
6/27/2021	0.150	0.151

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/1/2022	0.157	0.187
6/2/2022	0.165	0.196
6/3/2022	0.154	0.209
6/4/2022	0.153	0.217
6/5/2022	0.175	0.204
6/6/2022	0.179	0.206
6/7/2022	0.165	0.195
6/8/2022	0.166	0.198
6/9/2022	0.186	0.220
6/10/2022	0.179	0.193
6/11/2022	0.139	0.179
6/12/2022	0.167	0.185
6/13/2022	0.179	0.213
6/14/2022	0.152	0.202
6/15/2022	0.149	0.184
6/16/2022	0.143	0.177
6/17/2022	0.158	0.206
6/18/2022	0.147	0.187
6/19/2022	0.173	0.199
6/20/2022	0.139	0.163
6/21/2022	0.153	0.187
6/22/2022	0.156	0.193
6/23/2022	0.132	0.166
6/24/2022	0.160	0.222
6/25/2022	0.147	0.197
6/26/2022	0.172	0.203
6/27/2022	0.144	0.000

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/1/2023	0.132	0.169
6/2/2023	0.163	0.231
6/3/2023	0.153	0.250
6/4/2023	0.198	0.310
6/5/2023	0.149	0.189
6/6/2023	0.170	0.222
6/7/2023	0.140	0.188
6/8/2023	0.163	0.231
6/9/2023	0.170	0.269
6/10/2023	0.153	0.227
6/11/2023	0.175	0.250
6/12/2023	0.177	0.270
6/13/2023	0.160	0.261
6/14/2023	0.164	0.272
6/15/2023	0.167	0.288
6/16/2023	0.163	0.278
6/17/2023	0.154	0.222
6/18/2023	0.195	0.245
6/19/2023	0.153	0.202
6/20/2023	0.176	0.217
6/21/2023	0.158	0.190
6/22/2023	0.164	0.195
6/23/2023	0.165	0.236
6/24/2023	0.168	0.220
6/25/2023	0.163	0.219
6/26/2023	0.185	0.223
6/27/2023	0.170	0.232

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/28/2021	0.151	0.154
6/29/2021	0.147	0.149
6/30/2021	0.136	0.137
7/1/2021	0.144	0.147
7/2/2021	0.164	0.184
7/3/2021	0.122	0.147
7/4/2021	0.152	0.156
7/5/2021	0.124	0.121
7/6/2021	0.157	0.159
7/7/2021	0.148	0.161
7/8/2021	0.131	0.130
7/9/2021	0.139	0.159
7/10/2021	0.143	0.176
7/11/2021	0.157	0.167
7/12/2021	0.137	0.143
7/13/2021	0.147	0.158
7/14/2021	0.146	0.149
7/15/2021	0.130	0.138
7/16/2021	0.140	0.179
7/17/2021	0.152	0.173
7/18/2021	0.144	0.165
7/19/2021	0.142	0.170
7/20/2021	0.147	0.177
7/21/2021	0.137	0.163
7/22/2021	0.132	0.133
7/23/2021	0.141	0.176
7/24/2021	0.123	0.180

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/28/2022	0.164	0.000
6/29/2022	0.142	0.157
6/30/2022	0.149	0.180
7/1/2022	0.159	0.187
7/2/2022	0.146	0.173
7/3/2022	0.177	0.207
7/4/2022	0.155	0.175
7/5/2022	0.150	0.172
7/6/2022	0.148	0.167
7/7/2022	0.150	0.161
7/8/2022	0.160	0.184
7/9/2022	0.139	0.161
7/10/2022	0.194	0.207
7/11/2022	0.121	0.132
7/12/2022	0.144	0.147
7/13/2022	0.145	0.114
7/14/2022	0.136	0.206
7/15/2022	0.150	0.179
7/16/2022	0.136	0.176
7/17/2022	0.171	0.197
7/18/2022	0.125	0.153
7/19/2022	0.156	0.199
7/20/2022	0.118	0.143
7/21/2022	0.155	0.184
7/22/2022	0.141	0.169
7/23/2022	0.136	0.154
7/24/2022	0.160	0.109

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
6/28/2023	0.155	0.207
6/29/2023	0.156	0.211
6/30/2023	0.162	0.223
7/1/2023	0.154	0.202
7/2/2023	0.190	0.229
7/3/2023	0.135	0.177
7/4/2023	0.172	0.227
7/5/2023	0.153	0.203
7/6/2023	0.160	0.240
7/7/2023	0.153	0.214
7/8/2023	0.154	0.213
7/9/2023	0.177	0.206
7/10/2023	0.167	0.212
7/11/2023	0.156	0.210
7/12/2023	0.155	0.193
7/13/2023	0.149	0.190
7/14/2023	0.165	0.211
7/15/2023	0.154	0.198
7/16/2023	0.150	0.181
7/17/2023	0.173	0.206
7/18/2023	0.154	0.191
7/19/2023	0.147	0.186
7/20/2023	0.135	0.179
7/21/2023	0.142	0.184
7/22/2023	0.145	0.190
7/23/2023	0.175	0.222
7/24/2023	0.148	0.190

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
7/25/2021	0.156	0.150
7/26/2021	0.150	0.151
7/27/2021	0.135	0.134
7/28/2021	0.131	0.133
7/29/2021	0.136	0.140
7/30/2021	0.154	0.208
7/31/2021	0.119	0.126
8/1/2021	0.165	0.177
8/2/2021	0.148	0.163
8/3/2021	0.138	0.156
8/4/2021	0.141	0.157
8/5/2021	0.134	0.154
8/6/2021	0.149	0.173
8/7/2021	0.130	0.221
8/8/2021	0.153	0.267
8/9/2021	0.159	0.271
8/10/2021	0.141	0.143
8/11/2021	0.130	0.132
8/12/2021	0.137	0.135
8/13/2021	0.150	0.185
8/14/2021	0.153	0.229
8/15/2021	0.131	0.144
8/16/2021	0.145	0.164
8/17/2021	0.153	0.174
8/18/2021	0.157	0.177
8/19/2021	0.127	0.133
8/20/2021	0.146	0.149

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
7/25/2022	0.138	0.219
7/26/2022	0.144	0.171
7/27/2022	0.131	0.143
7/28/2022	0.164	0.189
7/29/2022	0.135	0.169
7/30/2022	0.143	0.176
7/31/2022	0.153	0.176
8/1/2022	0.159	0.181
8/2/2022	0.143	0.168
8/3/2022	0.137	0.171
8/4/2022	0.129	0.152
8/5/2022	0.144	0.168
8/6/2022	0.166	0.210
8/7/2022	0.143	0.174
8/8/2022	0.157	0.185
8/9/2022	0.160	0.190
8/10/2022	0.124	0.163
8/11/2022	0.133	0.175
8/12/2022	0.143	0.191
8/13/2022	0.149	0.209
8/14/2022	0.168	0.196
8/15/2022	0.160	0.183
8/16/2022	0.149	0.182
8/17/2022	0.130	0.159
8/18/2022	0.138	0.173
8/19/2022	0.147	0.210
8/20/2022	0.148	0.165

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
7/25/2023	0.157	0.218
7/26/2023	0.136	0.206
7/27/2023	0.139	0.196
7/28/2023	0.149	0.223
7/29/2023	0.129	0.178
7/30/2023	0.187	0.229
7/31/2023	0.125	0.151
8/1/2023	0.143	0.172
8/2/2023	0.132	0.170
8/3/2023	0.156	0.199
8/4/2023	0.144	0.176
8/5/2023	0.147	0.188
8/6/2023	0.201	0.258
8/7/2023	0.146	0.249
8/8/2023	0.146	0.119
8/9/2023	0.145	0.184
8/10/2023	0.157	0.189
8/11/2023	0.137	0.175
8/12/2023	0.139	0.169
8/13/2023	0.185	0.207
8/14/2023	0.151	0.162
8/15/2023	0.147	0.172
8/16/2023	0.154	0.174
8/17/2023	0.155	0.159
8/18/2023	0.158	0.174
8/19/2023	0.132	0.149
8/20/2023	0.192	0.213

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
8/21/2021	0.136	0.135
8/22/2021	0.149	0.155
8/23/2021	0.174	0.188
8/24/2021	0.179	0.152
8/25/2021	0.099	0.159
8/26/2021	0.134	0.158
8/27/2021	0.151	0.201
8/28/2021	0.140	0.166
8/29/2021	0.158	0.163
8/30/2021	0.179	0.185
8/31/2021	0.164	0.166
9/1/2021	0.133	0.142
9/2/2021	0.152	0.149
9/3/2021	0.142	0.147
9/4/2021	0.137	0.138
9/5/2021	0.147	0.155
9/6/2021	0.154	0.165
9/7/2021	0.157	0.166
9/8/2021	0.131	0.141
9/9/2021	0.140	0.148
9/10/2021	0.135	0.168
9/11/2021	0.134	0.140
9/12/2021	0.161	0.174
9/13/2021	0.141	0.150
9/14/2021	0.142	0.151
9/15/2021	0.129	0.124
9/16/2021	0.151	0.147

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
8/21/2022	0.130	0.169
8/22/2022	0.154	0.181
8/23/2022	0.148	0.189
8/24/2022	0.148	0.192
8/25/2022	0.123	0.183
8/26/2022	0.139	0.197
8/27/2022	0.142	0.205
8/28/2022	0.147	0.214
8/29/2022	0.159	0.210
8/30/2022	0.155	0.210
8/31/2022	0.134	0.175
9/1/2022	0.136	0.163
9/2/2022	0.139	0.186
9/3/2022	0.129	0.167
9/4/2022	0.140	0.179
9/5/2022	0.154	0.188
9/6/2022	0.166	0.205
9/7/2022	0.136	0.167
9/8/2022	0.134	0.164
9/9/2022	0.142	0.173
9/10/2022	0.159	0.196
9/11/2022	0.172	0.216
9/12/2022	0.159	0.190
9/13/2022	0.139	0.174
9/14/2022	0.141	0.153
9/15/2022	0.155	0.176
9/16/2022	0.167	0.187

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
8/21/2023	0.141	0.152
8/22/2023	0.139	0.162
8/23/2023	0.138	0.171
8/24/2023	0.149	0.172
8/25/2023	0.145	0.166
8/26/2023	0.132	0.158
8/27/2023	0.155	0.179
8/28/2023	0.178	0.195
8/29/2023	0.134	0.141
8/30/2023	0.130	0.157
8/31/2023	0.152	0.186
9/1/2023	0.241	0.167
9/2/2023	0.133	0.165
9/3/2023	0.194	0.226
9/4/2023	0.107	0.118
9/5/2023	0.181	0.188
9/6/2023	0.139	0.164
9/7/2023	0.143	0.163
9/8/2023	0.139	0.173
9/9/2023	0.129	0.165
9/10/2023	0.161	0.200
9/11/2023	0.130	0.165
9/12/2023	0.185	0.234
9/13/2023	0.126	0.161
9/14/2023	0.142	0.180
9/15/2023	0.140	0.179
9/16/2023	0.146	0.186

2020 - 2021 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
9/17/2021	0.113	0.114
9/18/2021	0.136	0.142
9/19/2021	0.157	0.155
9/20/2021	0.157	0.158
9/21/2021	0.137	0.138
9/22/2021	0.124	0.117
9/23/2021	0.137	0.135
9/24/2021	0.146	0.142
9/25/2021	0.133	0.125
9/26/2021	0.156	0.147
9/27/2021	0.158	0.140
9/28/2021	0.137	0.129
9/29/2021	0.137	0.093
9/30/2021	0.142	0.123

2021 - 2022 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
9/17/2022	0.126	0.138
9/18/2022	0.173	0.190
9/19/2022	0.143	0.159
9/20/2022	0.161	0.176
9/21/2022	0.151	0.162
9/22/2022	0.144	0.162
9/23/2022	0.181	0.238
9/24/2022	0.129	0.150
9/25/2022	0.145	0.169
9/26/2022	0.159	0.183
9/27/2022	0.140	0.168
9/28/2022	0.129	0.157
9/29/2022	0.131	0.159
9/30/2022	0.151	0.218

2022 - 2023 Daily Flows		
Date	Influent, *million gal*	Effluent, *million gal*
9/17/2023	0.205	0.259
9/18/2023	0.121	0.158
9/19/2023	0.140	0.181
9/20/2023	0.145	0.180
9/21/2023	0.143	0.196
9/22/2023	0.149	0.217
9/23/2023	0.138	0.168
9/24/2023	0.153	0.187
9/25/2023	0.171	0.205
9/26/2023	0.149	0.190
9/27/2023	0.140	0.177
9/28/2023	0.158	0.202
9/29/2023	0.139	0.181
9/30/2023	0.132	0.175

APPENDIX G

LA CONTENTA WWTF
OCTOBER 2020 TO SEPTEMBER 2023
LABORATORY RESULTS

Oct. 2020 - Sept. 2023		
Date	Influent BOD_5, *mg/L*	Influent BOD_5, *lbs/day*
10/8/2020	264	441
11/12/2020	101	169
12/2/2020	333	557
1/6/2021	60	100
2/4/2021	23	38
3/3/2021	94	157
4/21/2021	390	652
5/5/2021	75	125
6/17/2021	162	271
7/15/2021	357	597
8/5/2021	65	109
9/8/2021	389	650
10/13/2021	24	40
11/10/2021	107	179
12/8/2021	40	67
1/6/2022	161	269
2/3/2022	257	430
3/10/2022	130	217
4/7/2022	57	95
5/11/2022	364	609
6/2/2022	107	179
7/6/2022	81	135
8/4/2022	78	130
9/14/2022	311	520
10/6/2022	198	331
11/3/2022	232	388
12/15/2022	161	269
1/11/2023	42	70
2/1/2023	51	85
3/8/2023	39	65
4/19/2023	50	84
5/24/2023	84	140
6/8/2023	101	169
7/13/2023	199	333
8/23/2023	32	54
9/13/2023	195	326

APPENDIX H

HUCKLEBERRY LIFT STATION
PRELIMINARY HYDRAULIC CALCULATIONS

By: Bob Godwin Date: November 22, 2023 Subject: Huckleberry Lift Station

Objective: Design calculations for the Huckleberry Lift Station (La Contenta

Static Head

Static Head = Forcemain High Point - Water Level in Huckleberry Pump Station

Static Head =	762.00	feet	Static Head =	762.00	feet
High Water Level in LS =	575.50	feet	All Pumps off at LS =	571.50	feet
Total Static Head at (min) =	186.50	feet	Total Static Head at (max) =	190.50	feet

Friction Losses

For this calculation the Hazen-Williams (H-W) equation will be used.

Hazen-Williams equation: $h_f = 10.5 * L * (Q/C)^{1.85} * D^{-4.87}$ where Q = discharge, gpm

C = pipe friction coefficient

D = pipe diameter, inches

12" Pipeline - Forcemain from Huckleberry Pump Station to the La Contenta WWTF

Flow (gpm)	0	200	300	500	1,000	1,200	1,400	1,600	1,800	2,000	2,200
Flow (cfs)	0.00	0.45	0.67	1.11	2.23	2.67	3.12	3.57	4.01	4.46	4.90
Length (ft)	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300	11,300
Diameter (in)	12	12	12	12	12	12	12	12	12	12	12
Old Pipe Friction Coefficient	120	120	120	120	120	120	120	120	120	120	120
New Pipe Friction Coefficient	140	140	140	140	140	140	140	140	140	140	140
Maximum h_f (ft)	0.0	1.7	3.6	9.2	33.28	46.6	62.0	79.4	98.7	120.0	143.1
Minimum h_f (ft)	0.0	1.3	2.7	6.9	25.02	35.1	46.6	59.7	74.2	90.2	107.6

APPENDIX H

By: Bob Godwin Date: November 22, 2023 Subject: Huckleberry Lift Station

Fitting and Valve Losses

Fitting and Valve Loss, $h_{fv} = (K * v^2) /2g$ where K = headloss coefficient v = velocity, ft./s

Description	Quantity	K	Total K
45 Degree Elbow	10	0.25	2.50
Exit	1	1.00	1.00
8"x12" Reducing Tee	1	0.75	0.75
Check Valve	1	1.75	1.75
Gate Valve	5	0.30	1.50
Total			7.50

12" Fitting and Valve Losses

Flow (gpm)	0	200	300	500	1,000	1,200	1,400	1,600	1,800	2,000	2,200
Flow (cfs)	0.00	0.45	0.67	1.11	2.23	2.67	3.12	3.57	4.01	4.46	4.90
Diameter (in)	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
K	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
Area (ft^2)	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Velocity (fps)	0.00	0.57	0.85	1.42	2.84	3.40	3.97	4.54	5.11	5.67	6.24
$v^2/2g$ (ft)	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.6
h_l (ft)	**0.0**	**0.0**	**0.1**	**0.2**	**0.9**	**1.3**	**1.8**	**2.4**	**3.0**	**3.7**	**4.5**

Total Dynamic Head

Flow (gpm)	0	100	300	500	1,000	1,200	1,400	1,600	1,800	2,000	2,200
Maximum TDH (ft)	190.5	192.2	194.2	200.0	224.7	238.5	254.4	272.3	292.3	314.2	338.1
Minimum TDH (ft)	186.5	187.8	189.3	193.7	212.5	222.9	235.0	248.6	263.8	280.5	298.6

APPENDIX H

By: Bob Godwin Date: November 22, 2023 Subject: Huckleberry Lift Station

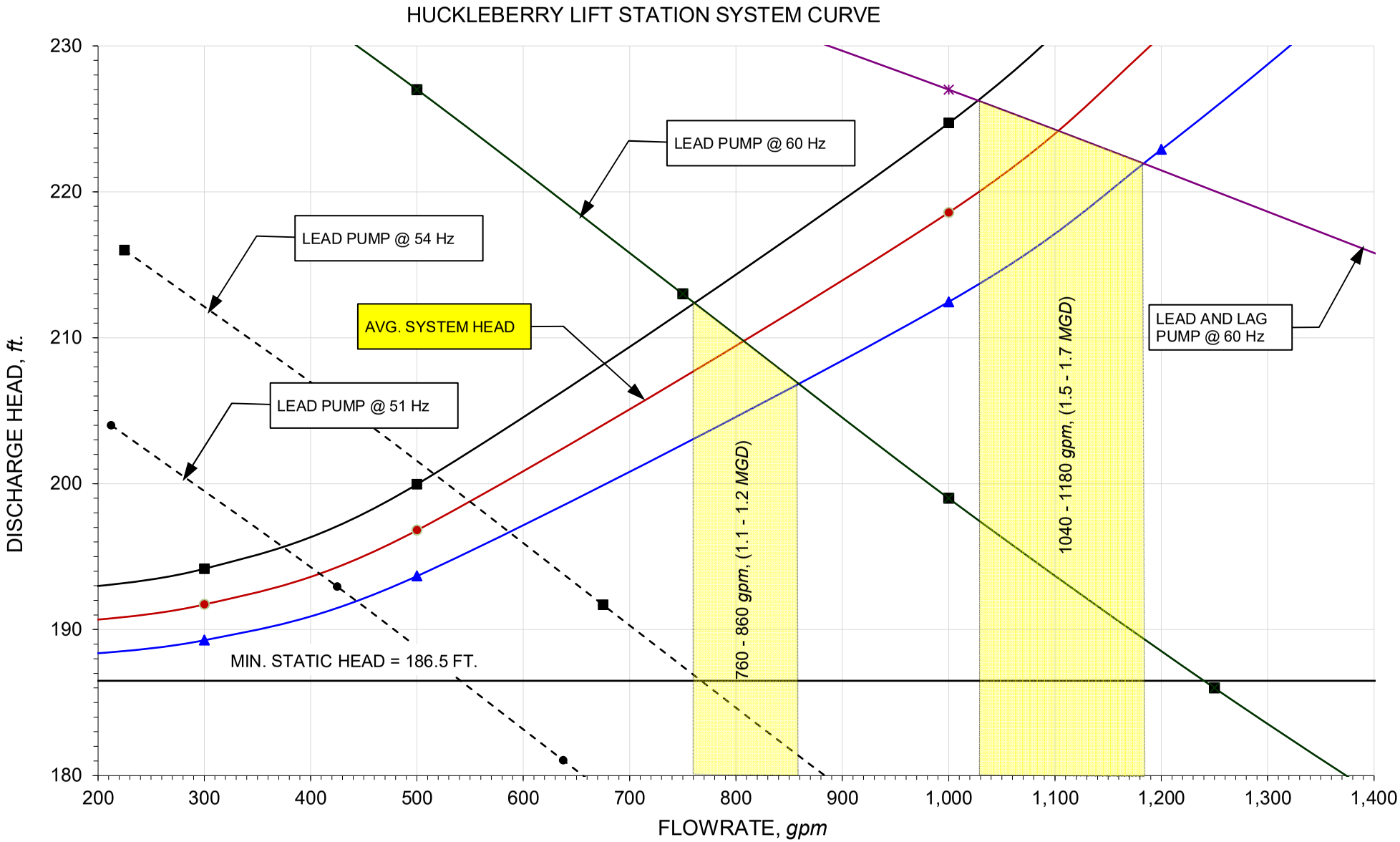
One Pump	88 HP CP3300.181 with 462 impeller								
Flow (gpm)	0	250	500	750	1,000	1,250	1,500	1,750	2,000
Head (ft)	0.0	240.0	227.0	213.0	199.0	186.0	174.0	162.0	149.0

Two Pumps									
Flow (gpm)	0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000
Head (ft)	0.0	240.0	227.0	213.0	199.0	186.0	174.0	162.0	149.0

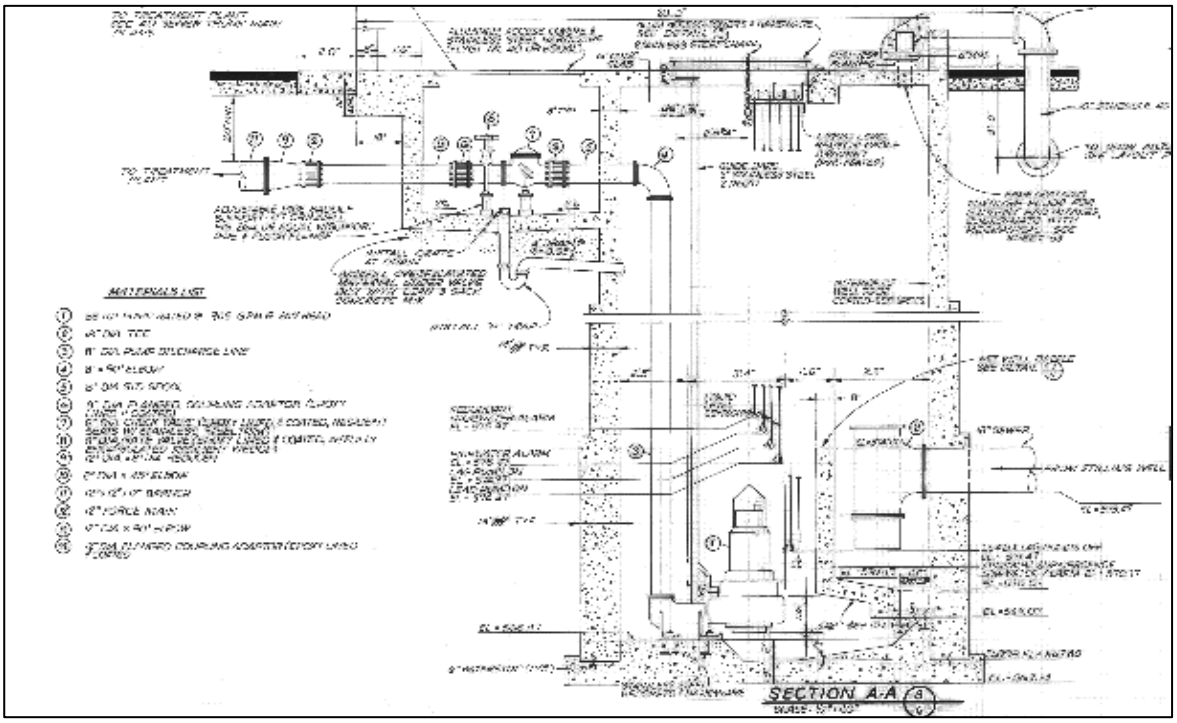
One Pump	Pump @ 54 Hz								
Flow (gpm)	0	225	450	675	900	1,125	1,350	1,575	1,800
Head (ft)	0.0	216.0	204.3	191.7	179.1	167.4	156.6	145.8	134.1

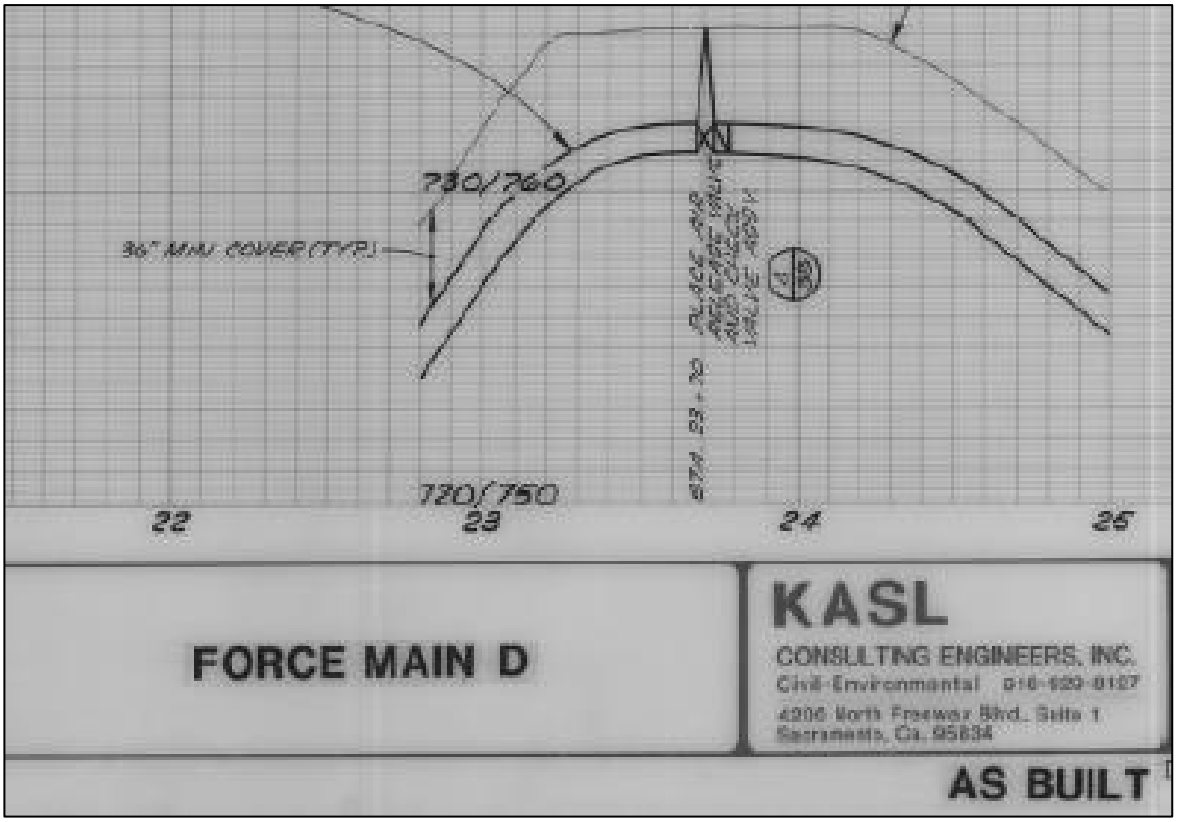
One Pump	Pump @ 51 Hz								
Flow (gpm)	0	213	425	638	850	1,063	1,275	1,488	1,700
Head (ft)	0.0	204.0	193.0	181.1	169.2	158.1	147.9	137.7	126.7

One Pump	Pump @ 48 Hz								
Flow (gpm)	0	200	400	600	800	1,000	1,200	1,400	1,600
Head (ft)	0.0	192.0	181.6	170.4	159.2	148.8	139.2	129.6	119.2


HUCKLEBERRY LIFT STATION SYSTEM CURVE
DISCHARGE HEAD, ft.
FLOWRATE, gpm
230
220
210
200
190
180
200
300
400
500
600
700
800
900
1,000
1,100
1,200
1,300
1,400
LEAD PUMP @ 60 Hz
LEAD PUMP @ 54 Hz
AVG. SYSTEM HEAD
LEAD PUMP @ 51 Hz
LEAD AND LAG PUMP @ 60 Hz
MIN. STATIC HEAD = 186.5 FT.
760 - 860 gpm, (1.1 - 1.2 MGD)
1040 - 1180 gpm, (1.5 - 1.7 MGD)

Sheet Stations, ft	Accum. Length, ft	Crown Elevation, ft	Notes
100		568.5	Bottom of wetwell
100	100	581.0	Forcemain A
1500	1,500	585.0	
0	1,500	585.0	Forcemain B
1080	2,580	615.0	
2270	3,770	621.0	
2800	4,300	626.0	
38	4,300	626.0	Forcemain C
670	4,932	687.0	
780	5,042	686.0	
1340	5,602	642.0	
1647	5,909	659.0	
2010	6,272	628.0	
2264	6,526	646.0	
2500	6,762	626.0	
2845	7,107	657.0	
100	7,107	657.0	Forcemain D
360	7,367	632.5	
1300	8,307	692.0	
1398	8,405	704.0	
2370	9,377	762.0	High Point
3000	10,007	711.5	
3350	10,357	741.0	
3760	10,767	706.0	
550	11,317	748.0	Inside treatment plant
TOTAL	**11,300**		


SECTION A-A


730/760
36" MIN COVER (TYP.)
720/750
22
23
24
25
FORCE MAIN D
KASL
CONSULTING ENGINEERS, INC.
Civil-Environmental 916-920-0127
4206 North Freeway Blvd., Suite 1
Sacramento, Ca. 95834
AS BUILT

Calaveras County Water District
Motor and Site Information

253

Site: La Contenta Main Lift Station

Address: 25118 Huckleberry, Valley Springs

Motor/Pump Information

Make/Catalog Number: Flygt 3300.091-5196 15

Serial/Model Number: 9180009 462

HP:	65KW - 88 HP	Code:		Frame:		Type:	
Shaft:		Volts/Hz	400V 60HZ	TDH:		Seal/Pack:	
RPM:	1700	Elec/Str:		Size:		GPM:	
Phase:	3	Amps:	105A	Suc/Dis:		Design:	

Upper Bearing: _____ Lower Bearing: _____

Enclosure: _____ Oil Capacity/Type: _____

Pump Manufacturer: _____

Pump Model #: _____

Information Taken By: Rudy

Location: P G & E 9T2682 60080101

Other: TA-0010 51% IEC 3471969 cl.f 1100KG

SHAPE, INC. SUBMITTAL

Submitted To: ALAN A. BRADFORD, Inc.
4970 Peabody Road
Fairfield, CA 94533

Date: 9/19/91

Submittal No: 76495-S3803-A

Project Name:
NEW HOGAN/LA CONTENTA

Engineer: NOLTE & Assoc.

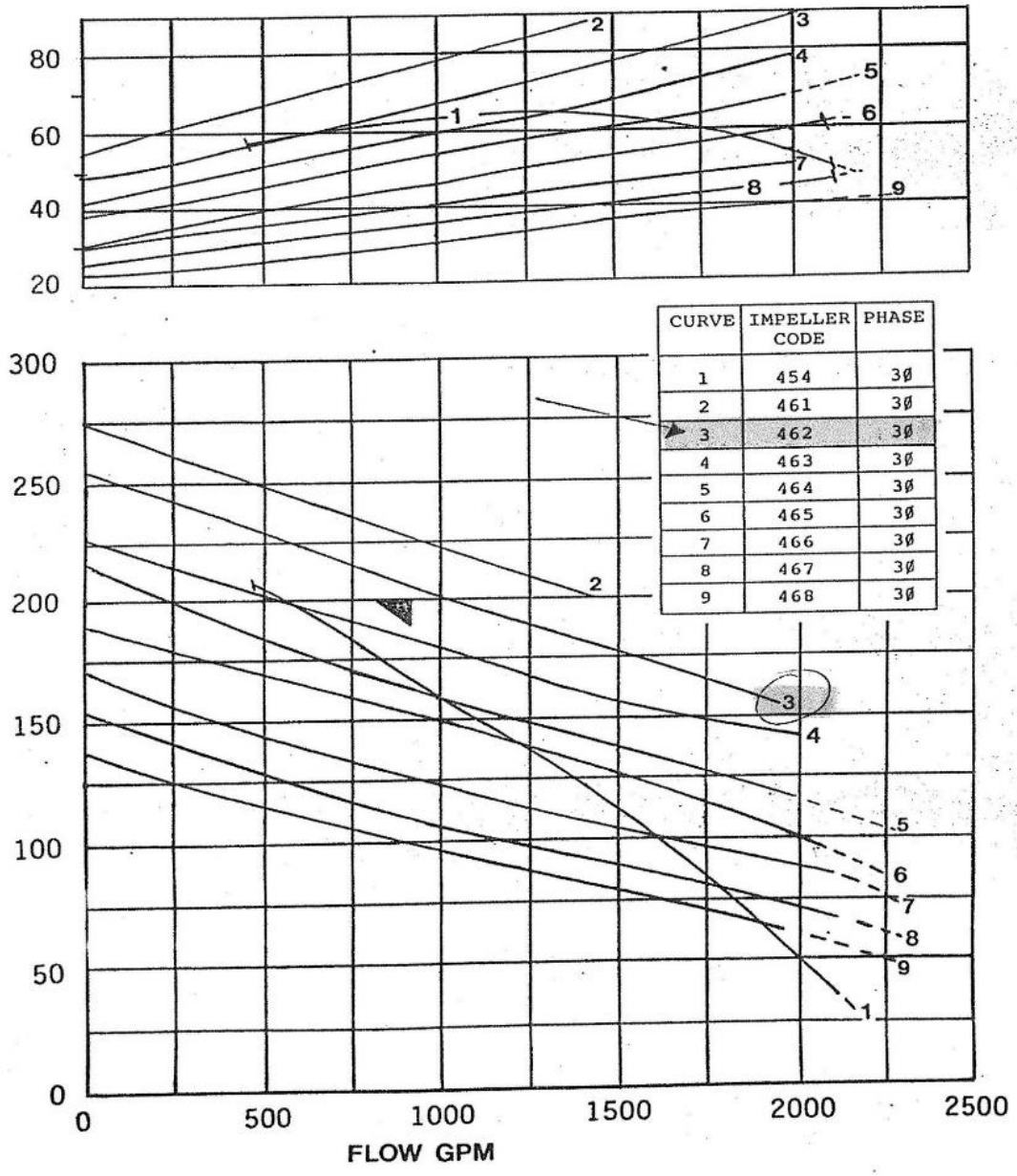
Equip. Specification Number & Name:

Salesman No.: 224

SHAPE P.O.#: 5548FL

Mark:
MAIN LIFT STATION (Triplex Station)

QTY	DESCRIPTION
3	**Pump Model:** CP-3300-462 **Manufacturer:** FLYGT **Basin Depth:** **Installation:** Explosion Proof **Design Conditions:** GPM: 905 TDH: 200 Ft. **Shut off: Ft.:** **Suction:** **Discharge:** 8 Inch, Flanged **Options:** ~~35~~ 45 Ft. Power Cord (Contractor needs to verify cord length needed).
	Motor: **Frame:** **H.P.:** 88 **Insulation:** **NEMA:** **Volts:** 460 **Phase:** 3 **Hertz:** 60 **R.P.M.:** 1750 **S.F.:** **Description:** Explosion Proof
1	**Accessories:** NO FLS SWITCHES WILL BE SUBMITTED UPON. THE PUMP WILL NOT HAVE THEM. Set of Spare Parts: (1) Upper Seal Assembly (1) Lower Seal Assembly (1) Upper Bearing (1) Lower Bearing (1) "O" Ring Kit



CURVE	IMPELLER CODE	PHASE
1	454	3Ø
2	461	3Ø
3	462	3Ø
4	463	3Ø
5	464	3Ø
6	465	3Ø
7	466	3Ø
8	467	3Ø
9	468	3Ø

APPENDIX I

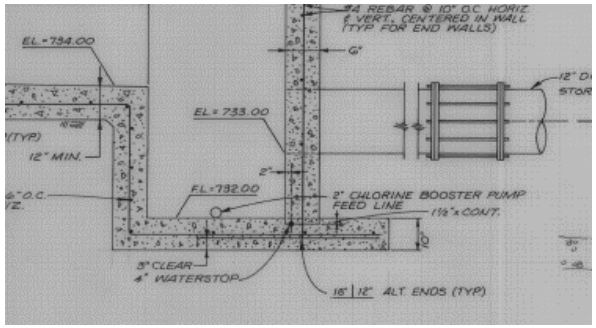
LA CONTENTA EFFLUENT PIPELINE TO LESP
PRELIMINARY HYDRAULIC CALCULATIONS

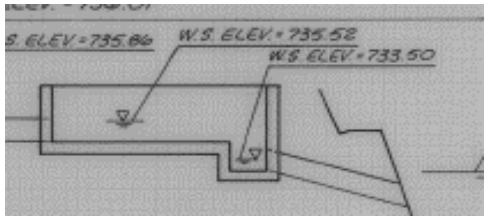
La Contenta 8-inch Diameter Tertiary Effluent Pipeline Capacity										
UV System Elev. *ft.*	LESP Elev., *ft.*	Diameter, *ft.*	Length, *ft.*	Area, A, ft^2	Wetted Perimeter, P, *ft.*	Hydraulic Radius, R, *ft.*	n, *Manning Eq.*	Slope, S, *ft./ft.*	Capacity, *gal/min.*	Capacity, *MGD*
735.5	680.0	0.67	3,700	0.349	2.094	0.167	0.010	0.015	863	1.24
735.5	700.0	0.67	3,700	0.349	2.094	0.167	0.012	0.010	575	0.83

Note: Add 20% to calculated losses for minor and unknown losses.

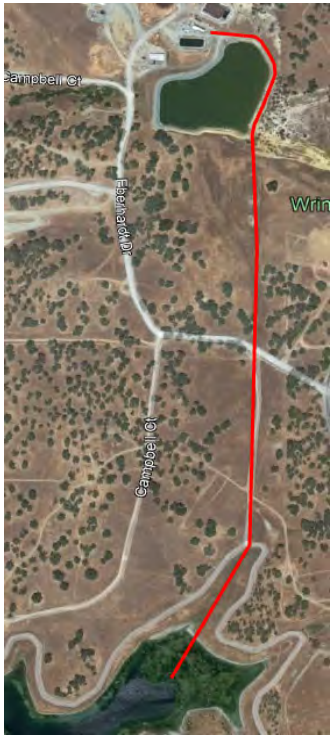
Effluent Pipeline Capacity

Q =	0.69	1.04	MGD





4/23/2023	729.7	697.7
4/24/2023	729.6	698.0
4/25/2023	729.6	698.0
4/26/2023	729.6	698.0
4/27/2023	729.6	698.0
4/28/2023	729.6	698.0
4/29/2023	729.6	698.0
4/30/2023	729.6	698.0



APPENDIX J

LA CONTENTA WWTF
2020 TO 2023 DAILY PRECIPITATION

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/1/2020	0.00	0.00
10/2/2020	0.00	0.00
10/3/2020	0.00	0.00
10/4/2020	0.00	0.00
10/5/2020	0.00	0.00
10/6/2020	0.00	0.00
10/7/2020	0.00	0.00
10/8/2020	0.00	0.00
10/9/2020	0.00	0.00
10/10/2020	0.00	0.00
10/11/2020	0.00	0.00
10/12/2020	0.00	0.00
10/13/2020	0.00	0.00
10/14/2020	0.00	0.00
10/15/2020	0.00	0.00
10/16/2020	0.00	0.00
10/17/2020	0.00	0.00
10/18/2020	0.00	0.00
10/19/2020	0.00	0.00
10/20/2020	0.00	0.00
10/21/2020	0.00	0.00
10/22/2020	0.00	0.00
10/23/2020	0.00	0.00
10/24/2020	0.00	0.00
10/25/2020	0.00	0.00
10/26/2020	0.00	0.00
10/27/2020	0.00	0.00

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/1/2021	0.00	0.00
10/2/2021	0.00	0.00
10/3/2021	0.00	0.00
10/4/2021	0.00	0.00
10/5/2021	0.00	0.00
10/6/2021	0.00	0.00
10/7/2021	0.00	0.00
10/8/2021	0.10	0.10
10/9/2021	0.00	0.10
10/10/2021	0.00	0.10
10/11/2021	0.00	0.10
10/12/2021	0.00	0.10
10/13/2021	0.00	0.10
10/14/2021	0.00	0.10
10/15/2021	0.00	0.10
10/16/2021	0.00	0.10
10/17/2021	0.00	0.10
10/18/2021	0.10	0.20
10/19/2021	0.00	0.20
10/20/2021	0.00	0.20
10/21/2021	0.05	0.25
10/22/2021	0.20	0.45
10/23/2021	0.00	0.45
10/24/2021	1.60	2.05
10/25/2021	4.60	6.65
10/26/2021	0.10	6.75
10/27/2021	0.00	6.75

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/1/2022	0.00	0.00
10/2/2022	0.00	0.00
10/3/2022	0.00	0.00
10/4/2022	0.00	0.00
10/5/2022	0.00	0.00
10/6/2022	0.00	0.00
10/7/2022	0.00	0.00
10/8/2022	0.00	0.00
10/9/2022	0.00	0.00
10/10/2022	0.00	0.00
10/11/2022	0.00	0.00
10/12/2022	0.00	0.00
10/13/2022	0.00	0.00
10/14/2022	0.00	0.00
10/15/2022	0.00	0.00
10/16/2022	0.00	0.00
10/17/2022	0.00	0.00
10/18/2022	0.00	0.00
10/19/2022	0.00	0.00
10/20/2022	0.00	0.00
10/21/2022	0.00	0.00
10/22/2022	0.00	0.00
10/23/2022	0.00	0.00
10/24/2022	0.00	0.00
10/25/2022	0.00	0.00
10/26/2022	0.00	0.00
10/27/2022	0.00	0.00

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/28/2020	0.00	0.00
10/29/2020	0.00	0.00
10/30/2020	0.00	0.00
10/31/2020	0.00	0.00
11/1/2020	0.00	0.00
11/2/2020	0.00	0.00
11/3/2020	0.00	0.00
11/4/2020	0.00	0.00
11/5/2020	0.00	0.00
11/6/2020	0.00	0.00
11/7/2020	0.00	0.00
11/8/2020	0.00	0.00
11/9/2020	0.00	0.00
11/10/2020	0.00	0.00
11/11/2020	0.00	0.00
11/12/2020	0.00	0.00
11/13/2020	0.00	0.00
11/14/2020	0.00	0.00
11/15/2020	0.00	0.00
11/16/2020	0.00	0.00
11/17/2020	0.00	0.00
11/18/2020	0.70	0.70
11/19/2020	0.60	1.30
11/20/2020	0.00	1.30
11/21/2020	0.00	1.30
11/22/2020	0.00	1.30
11/23/2020	0.00	1.30

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/28/2021	0.00	6.75
10/29/2021	0.00	6.75
10/30/2021	0.00	6.75
10/31/2021	0.00	6.75
11/1/2021	0.00	6.75
11/2/2021	0.00	6.75
11/3/2021	0.00	6.75
11/4/2021	0.00	6.75
11/5/2021	0.00	6.75
11/6/2021	0.00	6.75
11/7/2021	0.00	6.75
11/8/2021	0.00	6.75
11/9/2021	0.40	7.15
11/10/2021	0.10	7.25
11/11/2021	0.00	7.25
11/12/2021	0.00	7.25
11/13/2021	0.00	7.25
11/14/2021	0.00	7.25
11/15/2021	0.00	7.25
11/16/2021	0.00	7.25
11/17/2021	0.00	7.25
11/18/2021	0.00	7.25
11/19/2021	0.00	7.25
11/20/2021	0.00	7.25
11/21/2021	0.00	7.25
11/22/2021	0.00	7.25
11/23/2021	0.00	7.25

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
10/28/2022	0.00	0.00
10/29/2022	0.00	0.00
10/30/2022	0.00	0.00
10/31/2022	0.00	0.00
11/1/2022	0.00	0.00
11/2/2022	0.50	0.50
11/3/2022	0.30	0.80
11/4/2022	0.00	0.80
11/5/2022	0.00	0.80
11/6/2022	0.10	0.90
11/7/2022	0.50	1.40
11/8/2022	0.80	2.20
11/9/2022	0.80	3.00
11/10/2022	0.00	3.00
11/11/2022	0.00	3.00
11/12/2022	0.00	3.00
11/13/2022	0.00	3.00
11/14/2022	0.00	3.00
11/15/2022	0.00	3.00
11/16/2022	0.00	3.00
11/17/2022	0.00	3.00
11/18/2022	0.00	3.00
11/19/2022	0.00	3.00
11/20/2022	0.00	3.00
11/21/2022	0.00	3.00
11/22/2022	0.00	3.00
11/23/2022	0.00	3.00

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
11/24/2020	0.00	1.30
11/25/2020	0.00	1.30
11/26/2020	0.00	1.30
11/27/2020	0.00	1.30
11/28/2020	0.00	1.30
11/29/2020	0.00	1.30
11/30/2020	0.00	1.30
12/1/2020	0.00	1.30
12/2/2020	0.00	1.30
12/3/2020	0.00	1.30
12/4/2020	0.00	1.30
12/5/2020	0.00	1.30
12/6/2020	0.00	1.30
12/7/2020	0.00	1.30
12/8/2020	0.00	1.30
12/9/2020	0.00	1.30
12/10/2020	0.00	1.30
12/11/2020	0.00	1.30
12/12/2020	0.80	2.10
12/13/2020	0.10	2.20
12/14/2020	0.70	2.90
12/15/2020	0.00	2.90
12/16/2020	0.00	2.90
12/17/2020	0.30	3.20
12/18/2020	0.10	3.30
12/19/2020	0.00	3.30
12/20/2020	0.00	3.30

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
11/24/2021	0.00	7.25
11/25/2021	0.00	7.25
11/26/2021	0.00	7.25
11/27/2021	0.00	7.25
11/28/2021	0.00	7.25
11/29/2021	0.00	7.25
11/30/2021	0.00	7.25
12/1/2021	0.00	7.25
12/2/2021	0.00	7.25
12/3/2021	0.00	7.25
12/4/2021	0.00	7.25
12/5/2021	0.00	7.25
12/6/2021	0.00	7.25
12/7/2021	0.20	7.45
12/8/2021	0.00	7.45
12/9/2021	0.30	7.75
12/10/2021	0.20	7.95
12/11/2021	0.00	7.95
12/12/2021	0.00	7.95
12/13/2021	1.00	8.95
12/14/2021	1.50	10.45
12/15/2021	0.30	10.75
12/16/2021	0.40	11.15
12/17/2021	0.00	11.15
12/18/2021	0.00	11.15
12/19/2021	0.00	11.15
12/20/2021	0.00	11.15

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
11/24/2022	0.00	3.00
11/25/2022	0.00	3.00
11/26/2022	0.00	3.00
11/27/2022	0.00	3.00
11/28/2022	0.00	3.00
11/29/2022	0.00	3.00
11/30/2022	0.00	3.00
12/1/2022	0.05	3.05
12/2/2022	1.10	4.15
12/3/2022	0.05	4.20
12/4/2022	1.50	5.70
12/5/2022	0.00	5.70
12/6/2022	0.00	5.70
12/7/2022	0.20	5.90
12/8/2022	0.00	5.90
12/9/2022	0.10	6.00
12/10/2022	0.20	6.20
12/11/2022	2.30	8.50
12/12/2022	0.30	8.80
12/13/2022	0.00	8.80
12/14/2022	0.00	8.80
12/15/2022	0.00	8.80
12/16/2022	0.00	8.80
12/17/2022	0.00	8.80
12/18/2022	0.00	8.80
12/19/2022	0.00	8.80
12/20/2022	0.00	8.80

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
12/21/2020	0.00	3.30
12/22/2020	0.00	3.30
12/23/2020	0.00	3.30
12/24/2020	0.00	3.30
12/25/2020	0.00	3.30
12/26/2020	0.10	3.40
12/27/2020	0.00	3.40
12/28/2020	0.00	3.40
12/29/2020	0.00	3.40
12/30/2020	0.00	3.40
12/31/2020	0.10	3.50
1/1/2021	0.00	3.50
1/2/2021	0.00	3.50
1/3/2021	0.00	3.50
1/4/2021	0.10	3.60
1/5/2021	0.10	3.70
1/6/2021	0.00	3.70
1/7/2021	0.00	3.70
1/8/2021	0.00	3.70
1/9/2021	0.00	3.70
1/10/2021	0.00	3.70
1/11/2021	0.00	3.70
1/12/2021	0.00	3.70
1/13/2021	0.00	3.70
1/14/2021	0.00	3.70
1/15/2021	0.00	3.70
1/16/2021	0.00	3.70

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
12/21/2021	0.00	11.15
12/22/2021	0.30	11.45
12/23/2021	0.35	11.80
12/24/2021	0.85	12.65
12/25/2021	0.25	12.90
12/26/2021	0.50	13.40
12/27/2021	0.60	14.00
12/28/2021	0.30	14.30
12/29/2021	0.20	14.50
12/30/2021	0.20	14.70
12/31/2021	0.00	14.70
1/1/2022	0.00	14.70
1/2/2022	0.00	14.70
1/3/2022	0.00	14.70
1/4/2022	0.00	14.70
1/5/2022	0.00	14.70
1/6/2022	0.00	14.70
1/7/2022	0.00	14.70
1/8/2022	0.00	14.70
1/9/2022	0.00	14.70
1/10/2022	0.00	14.70
1/11/2022	0.00	14.70
1/12/2022	0.00	14.70
1/13/2022	0.00	14.70
1/14/2022	0.00	14.70
1/15/2022	0.00	14.70
1/16/2022	0.00	14.70

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
12/21/2022	0.00	8.80
12/22/2022	0.00	8.80
12/23/2022	0.00	8.80
12/24/2022	0.00	8.80
12/25/2022	0.00	8.80
12/26/2022	0.00	8.80
12/27/2022	1.50	10.30
12/28/2022	0.30	10.60
12/29/2022	0.25	10.85
12/30/2022	0.50	11.35
12/31/2022	2.40	13.75
1/1/2023	2.75	16.50
1/2/2023	0.00	16.50
1/3/2023	0.30	16.80
1/4/2023	0.10	16.90
1/5/2023	0.40	17.30
1/6/2023	0.50	17.80
1/7/2023	0.00	17.80
1/8/2023	0.40	18.20
1/9/2023	0.60	18.80
1/10/2023	0.75	19.55
1/11/2023	1.10	20.65
1/12/2023	0.10	20.75
1/13/2023	0.00	20.75
1/14/2023	1.10	21.85
1/15/2023	2.20	24.05
1/16/2023	2.30	26.35

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
1/17/2021	0.00	3.70
1/18/2021	0.00	3.70
1/19/2021	0.00	3.70
1/20/2021	0.00	3.70
1/21/2021	0.00	3.70
1/22/2021	0.10	3.80
1/23/2021	0.40	4.20
1/24/2021	0.00	4.20
1/25/2021	0.90	5.10
1/26/2021	0.00	5.10
1/27/2021	0.30	5.40
1/28/2021	1.90	7.30
1/29/2021	1.80	9.10
1/30/2021	0.00	9.10
1/31/2021	0.00	9.10
2/1/2021	0.00	9.10
2/2/2021	0.20	9.30
2/3/2021	0.60	9.90
2/4/2021	0.00	9.90
2/5/2021	0.00	9.90
2/6/2021	0.00	9.90
2/7/2021	0.00	9.90
2/8/2021	0.00	9.90
2/9/2021	0.00	9.90
2/10/2021	0.00	9.90
2/11/2021	0.00	9.90
2/12/2021	0.70	10.60

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
1/17/2022	0.00	14.70
1/18/2022	0.00	14.70
1/19/2022	0.00	14.70
1/20/2022	0.00	14.70
1/21/2022	0.00	14.70
1/22/2022	0.00	14.70
1/23/2022	0.00	14.70
1/24/2022	0.00	14.70
1/25/2022	0.00	14.70
1/26/2022	0.00	14.70
1/27/2022	0.00	14.70
1/28/2022	0.00	14.70
1/29/2022	0.00	14.70
1/30/2022	0.00	14.70
1/31/2022	0.00	14.70
2/1/2022	0.00	14.70
2/2/2022	0.00	14.70
2/3/2022	0.00	14.70
2/4/2022	0.00	14.70
2/5/2022	0.00	14.70
2/6/2022	0.00	14.70
2/7/2022	0.00	14.70
2/8/2022	0.00	14.70
2/9/2022	0.00	14.70
2/10/2022	0.00	14.70
2/11/2022	0.00	14.70
2/12/2022	0.00	14.70

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
1/17/2023	0.30	26.65
1/18/2023	0.00	26.65
1/19/2023	0.30	26.95
1/20/2023	0.00	26.95
1/21/2023	0.00	26.95
1/22/2023	0.00	26.95
1/23/2023	0.00	26.95
1/24/2023	0.00	26.95
1/25/2023	0.00	26.95
1/26/2023	0.00	26.95
1/27/2023	0.00	26.95
1/28/2023	0.00	26.95
1/29/2023	0.00	26.95
1/30/2023	0.00	26.95
1/31/2023	0.00	26.95
2/1/2023	0.00	26.95
2/2/2023	0.00	26.95
2/3/2023	0.00	26.95
2/4/2023	0.00	26.95
2/5/2023	0.40	27.35
2/6/2023	0.25	27.60
2/7/2023	0.00	27.60
2/8/2023	0.00	27.60
2/9/2023	0.00	27.60
2/10/2023	0.00	27.60
2/11/2023	0.00	27.60
2/12/2023	0.00	27.60

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
2/13/2021	0.10	10.70
2/14/2021	0.10	10.80
2/15/2021	0.30	11.10
2/16/2021	0.10	11.20
2/17/2021	0.00	11.20
2/18/2021	0.00	11.20
2/19/2021	0.00	11.20
2/20/2021	0.10	11.30
2/21/2021	0.20	11.50
2/22/2021	0.00	11.50
2/23/2021	0.00	11.50
2/24/2021	0.00	11.50
2/25/2021	0.00	11.50
2/26/2021	0.00	11.50
2/27/2021	0.00	11.50
2/28/2021	0.00	11.50
3/1/2021	0.00	11.50
3/2/2021	0.00	11.50
3/3/2021	0.00	11.50
3/4/2021	0.00	11.50
3/5/2021	0.00	11.50
3/6/2021	0.20	11.70
3/7/2021	0.00	11.70
3/8/2021	0.00	11.70
3/9/2021	0.00	11.70
3/10/2021	0.40	12.10
3/11/2021	0.10	12.20

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
2/13/2022	0.00	14.70
2/14/2022	0.00	14.70
2/15/2022	0.00	14.70
2/16/2022	0.00	14.70
2/17/2022	0.00	14.70
2/18/2022	0.00	14.70
2/19/2022	0.00	14.70
2/20/2022	0.00	14.70
2/21/2022	0.00	14.70
2/22/2022	0.00	14.70
2/23/2022	0.00	14.70
2/24/2022	0.00	14.70
2/25/2022	0.00	14.70
2/26/2022	0.00	14.70
2/27/2022	0.00	14.70
2/28/2022	0.00	14.70
3/1/2022	0.00	14.70
3/2/2022	0.00	14.70
3/3/2022	0.00	14.70
3/4/2022	0.00	14.70
3/5/2022	0.10	14.80
3/6/2022	0.00	14.80
3/7/2022	0.00	14.80
3/8/2022	0.00	14.80
3/9/2022	0.00	14.80
3/10/2022	0.00	14.80
3/11/2022	0.00	14.80

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
2/13/2023	0.00	27.60
2/14/2023	0.00	27.60
2/15/2023	0.00	27.60
2/16/2023	0.00	27.60
2/17/2023	0.00	27.60
2/18/2023	0.00	27.60
2/19/2023	0.00	27.60
2/20/2023	0.00	27.60
2/21/2023	0.00	27.60
2/22/2023	0.00	27.60
2/23/2023	0.00	27.60
2/24/2023	0.30	27.90
2/25/2023	1.20	29.10
2/26/2023	0.25	29.35
2/27/2023	0.40	29.75
2/28/2023	0.80	30.55
3/1/2023	0.80	31.35
3/2/2023	0.00	31.35
3/3/2023	0.00	31.35
3/4/2023	0.00	31.35
3/5/2023	0.60	31.95
3/6/2023	0.20	32.15
3/7/2023	0.05	32.20
3/8/2023	0.05	32.25
3/9/2023	0.30	32.55
3/10/2023	1.20	33.75
3/11/2023	0.40	34.15

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
3/12/2021	0.00	12.20
3/13/2021	0.00	12.20
3/14/2021	0.00	12.20
3/15/2021	0.30	12.50
3/16/2021	0.30	12.80
3/17/2021	0.00	12.80
3/18/2021	0.00	12.80
3/19/2021	0.90	13.70
3/20/2021	0.00	13.70
3/21/2021	0.00	13.70
3/22/2021	0.00	13.70
3/23/2021	0.00	13.70
3/24/2021	0.00	13.70
3/25/2021	0.00	13.70
3/26/2021	0.00	13.70
3/27/2021	0.00	13.70
3/28/2021	0.00	13.70
3/29/2021	0.00	13.70
3/30/2021	0.00	13.70
3/31/2021	0.00	13.70
4/1/2021	0.00	13.70
4/2/2021	0.00	13.70
4/3/2021	0.00	13.70
4/4/2021	0.00	13.70
4/5/2021	0.00	13.70
4/6/2021	0.00	13.70
4/7/2021	0.00	13.70

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
3/12/2022	0.00	14.80
3/13/2022	0.00	14.80
3/14/2022	0.00	14.80
3/15/2022	0.30	15.10
3/16/2022	0.20	15.30
3/17/2022	0.00	15.30
3/18/2022	0.00	15.30
3/19/2022	0.00	15.30
3/20/2022	0.10	15.40
3/21/2022	0.00	15.40
3/22/2022	0.00	15.40
3/23/2022	0.00	15.40
3/24/2022	0.00	15.40
3/25/2022	0.00	15.40
3/26/2022	0.00	15.40
3/27/2022	0.00	15.40
3/28/2022	0.30	15.70
3/29/2022	0.25	15.95
3/30/2022	0.00	15.95
3/31/2022	0.00	15.95
4/1/2022	0.00	15.95
4/2/2022	0.00	15.95
4/3/2022	0.00	15.95
4/4/2022	0.00	15.95
4/5/2022	0.00	15.95
4/6/2022	0.00	15.95
4/7/2022	0.00	15.95

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
3/12/2023	0.40	34.55
3/13/2023	0.80	35.35
3/14/2023	0.60	35.95
3/15/2023	0.30	36.25
3/16/2023	0.00	36.25
3/17/2023	0.00	36.25
3/18/2023	0.00	36.25
3/19/2023	0.15	36.40
3/20/2023	0.10	36.50
3/21/2023	0.00	36.50
3/22/2023	0.70	37.20
3/23/2023	0.30	37.50
3/24/2023	0.10	37.60
3/25/2023	0.00	37.60
3/26/2023	0.00	37.60
3/27/2023	0.00	37.60
3/28/2023	0.00	37.60
3/29/2023	1.00	38.60
3/30/2023	0.50	39.10
3/31/2023	0.00	39.10
4/1/2023	0.00	39.10
4/2/2023	0.00	39.10
4/3/2023	0.00	39.10
4/4/2023	0.00	39.10
4/5/2023	0.00	39.10
4/6/2023	0.00	39.10
4/7/2023	0.10	39.20

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
4/8/2021	0.00	13.70
4/9/2021	0.00	13.70
4/10/2021	0.00	13.70
4/11/2021	0.00	13.70
4/12/2021	0.00	13.70
4/13/2021	0.00	13.70
4/14/2021	0.00	13.70
4/15/2021	0.00	13.70
4/16/2021	0.00	13.70
4/17/2021	0.00	13.70
4/18/2021	0.00	13.70
4/19/2021	0.00	13.70
4/20/2021	0.00	13.70
4/21/2021	0.00	13.70
4/22/2021	0.00	13.70
4/23/2021	0.00	13.70
4/24/2021	0.00	13.70
4/25/2021	0.00	13.70
4/26/2021	0.15	13.85
4/27/2021	0.00	13.85
4/28/2021	0.00	13.85
4/29/2021	0.00	13.85
4/30/2021	0.00	13.85
5/1/2021	0.00	13.85
5/2/2021	0.00	13.85
5/3/2021	0.00	13.85
5/4/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
4/8/2022	0.00	15.95
4/9/2022	0.00	15.95
4/10/2022	0.00	15.95
4/11/2022	0.20	16.15
4/12/2022	0.15	16.30
4/13/2022	0.00	16.30
4/14/2022	0.05	16.35
4/15/2022	0.20	16.55
4/16/2022	0.40	16.95
4/17/2022	0.05	17.00
4/18/2022	0.00	17.00
4/19/2022	0.00	17.00
4/20/2022	0.00	17.00
4/21/2022	0.40	17.40
4/22/2022	0.70	18.10
4/23/2022	0.00	18.10
4/24/2022	0.00	18.10
4/25/2022	0.00	18.10
4/26/2022	0.00	18.10
4/27/2022	0.00	18.10
4/28/2022	0.00	18.10
4/29/2022	0.00	18.10
4/30/2022	0.00	18.10
5/1/2022	0.00	18.10
5/2/2022	0.00	18.10
5/3/2022	0.00	18.10
5/4/2022	0.00	18.10

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
4/8/2023	0.00	39.20
4/9/2023	0.00	39.20
4/10/2023	0.00	39.20
4/11/2023	0.00	39.20
4/12/2023	0.00	39.20
4/13/2023	0.00	39.20
4/14/2023	0.00	39.20
4/15/2023	0.00	39.20
4/16/2023	0.00	39.20
4/17/2023	0.00	39.20
4/18/2023	0.00	39.20
4/19/2023	0.00	39.20
4/20/2023	0.00	39.20
4/21/2023	0.00	39.20
4/22/2023	0.00	39.20
4/23/2023	0.00	39.20
4/24/2023	0.00	39.20
4/25/2023	0.00	39.20
4/26/2023	0.00	39.20
4/27/2023	0.00	39.20
4/28/2023	0.00	39.20
4/29/2023	0.00	39.20
4/30/2023	0.00	39.20
5/1/2023	0.00	39.20
5/2/2023	0.10	39.30
5/3/2023	0.00	39.30
5/4/2023	0.00	39.30

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
5/5/2021	0.00	13.85
5/6/2021	0.00	13.85
5/7/2021	0.00	13.85
5/8/2021	0.00	13.85
5/9/2021	0.00	13.85
5/10/2021	0.00	13.85
5/11/2021	0.00	13.85
5/12/2021	0.00	13.85
5/13/2021	0.00	13.85
5/14/2021	0.00	13.85
5/15/2021	0.00	13.85
5/16/2021	0.00	13.85
5/17/2021	0.00	13.85
5/18/2021	0.00	13.85
5/19/2021	0.00	13.85
5/20/2021	0.00	13.85
5/21/2021	0.00	13.85
5/22/2021	0.00	13.85
5/23/2021	0.00	13.85
5/24/2021	0.00	13.85
5/25/2021	0.00	13.85
5/26/2021	0.00	13.85
5/27/2021	0.00	13.85
5/28/2021	0.00	13.85
5/29/2021	0.00	13.85
5/30/2021	0.00	13.85
5/31/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
5/5/2022	0.00	18.10
5/6/2022	0.00	18.10
5/7/2022	0.00	18.10
5/8/2022	0.00	18.10
5/9/2022	0.00	18.10
5/10/2022	0.00	18.10
5/11/2022	0.00	18.10
5/12/2022	0.00	18.10
5/13/2022	0.00	18.10
5/14/2022	0.00	18.10
5/15/2022	0.00	18.10
5/16/2022	0.00	18.10
5/17/2022	0.00	18.10
5/18/2022	0.00	18.10
5/19/2022	0.00	18.10
5/20/2022	0.00	18.10
5/21/2022	0.00	18.10
5/22/2022	0.00	18.10
5/23/2022	0.00	18.10
5/24/2022	0.00	18.10
5/25/2022	0.00	18.10
5/26/2022	0.00	18.10
5/27/2022	0.00	18.10
5/28/2022	0.00	18.10
5/29/2022	0.00	18.10
5/30/2022	0.00	18.10
5/31/2022	0.00	18.10

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
5/5/2023	0.00	39.30
5/6/2023	0.25	39.55
5/7/2023	0.20	39.75
5/8/2023	0.00	39.75
5/9/2023	0.00	39.75
5/10/2023	0.00	39.75
5/11/2023	0.00	39.75
5/12/2023	0.00	39.75
5/13/2023	0.00	39.75
5/14/2023	0.00	39.75
5/15/2023	0.00	39.75
5/16/2023	0.00	39.75
5/17/2023	0.00	39.75
5/18/2023	0.00	39.75
5/19/2023	0.00	39.75
5/20/2023	0.00	39.75
5/21/2023	0.00	39.75
5/22/2023	0.00	39.75
5/23/2023	0.00	39.75
5/24/2023	0.00	39.75
5/25/2023	0.00	39.75
5/26/2023	0.00	39.75
5/27/2023	0.00	39.75
5/28/2023	0.00	39.75
5/29/2023	0.00	39.75
5/30/2023	0.00	39.75
5/31/2023	0.00	39.75

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/1/2021	0.00	13.85
6/2/2021	0.00	13.85
6/3/2021	0.00	13.85
6/4/2021	0.00	13.85
6/5/2021	0.00	13.85
6/6/2021	0.00	13.85
6/7/2021	0.00	13.85
6/8/2021	0.00	13.85
6/9/2021	0.00	13.85
6/10/2021	0.00	13.85
6/11/2021	0.00	13.85
6/12/2021	0.00	13.85
6/13/2021	0.00	13.85
6/14/2021	0.00	13.85
6/15/2021	0.00	13.85
6/16/2021	0.00	13.85
6/17/2021	0.00	13.85
6/18/2021	0.00	13.85
6/19/2021	0.00	13.85
6/20/2021	0.00	13.85
6/21/2021	0.00	13.85
6/22/2021	0.00	13.85
6/23/2021	0.00	13.85
6/24/2021	0.00	13.85
6/25/2021	0.00	13.85
6/26/2021	0.00	13.85
6/27/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/1/2022	0.00	18.10
6/2/2022	0.00	18.10
6/3/2022	0.00	18.10
6/4/2022	0.00	18.10
6/5/2022	0.10	18.20
6/6/2022	0.00	18.20
6/7/2022	0.00	18.20
6/8/2022	0.00	18.20
6/9/2022	0.00	18.20
6/10/2022	0.00	18.20
6/11/2022	0.00	18.20
6/12/2022	0.00	18.20
6/13/2022	0.00	18.20
6/14/2022	0.00	18.20
6/15/2022	0.00	18.20
6/16/2022	0.00	18.20
6/17/2022	0.00	18.20
6/18/2022	0.00	18.20
6/19/2022	0.00	18.20
6/20/2022	0.00	18.20
6/21/2022	0.00	18.20
6/22/2022	0.00	18.20
6/23/2022	0.00	18.20
6/24/2022	0.00	18.20
6/25/2022	0.00	18.20
6/26/2022	0.00	18.20
6/27/2022	0.00	18.20

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/1/2023	0.00	39.75
6/2/2023	0.00	39.75
6/3/2023	0.00	39.75
6/4/2023	0.00	39.75
6/5/2023	0.00	39.75
6/6/2023	0.00	39.75
6/7/2023	0.00	39.75
6/8/2023	0.00	39.75
6/9/2023	0.00	39.75
6/10/2023	0.00	39.75
6/11/2023	0.00	39.75
6/12/2023	0.00	39.75
6/13/2023	0.00	39.75
6/14/2023	0.00	39.75
6/15/2023	0.00	39.75
6/16/2023	0.00	39.75
6/17/2023	0.00	39.75
6/18/2023	0.00	39.75
6/19/2023	0.00	39.75
6/20/2023	0.00	39.75
6/21/2023	0.00	39.75
6/22/2023	0.00	39.75
6/23/2023	0.00	39.75
6/24/2023	0.00	39.75
6/25/2023	0.00	39.75
6/26/2023	0.00	39.75
6/27/2023	0.00	39.75

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/28/2021	0.00	13.85
6/29/2021	0.00	13.85
6/30/2021	0.00	13.85
7/1/2021	0.00	13.85
7/2/2021	0.00	13.85
7/3/2021	0.00	13.85
7/4/2021	0.00	13.85
7/5/2021	0.00	13.85
7/6/2021	0.00	13.85
7/7/2021	0.00	13.85
7/8/2021	0.00	13.85
7/9/2021	0.00	13.85
7/10/2021	0.00	13.85
7/11/2021	0.00	13.85
7/12/2021	0.00	13.85
7/13/2021	0.00	13.85
7/14/2021	0.00	13.85
7/15/2021	0.00	13.85
7/16/2021	0.00	13.85
7/17/2021	0.00	13.85
7/18/2021	0.00	13.85
7/19/2021	0.00	13.85
7/20/2021	0.00	13.85
7/21/2021	0.00	13.85
7/22/2021	0.00	13.85
7/23/2021	0.00	13.85
7/24/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/28/2022	0.00	18.20
6/29/2022	0.00	18.20
6/30/2022	0.00	18.20
7/1/2022	0.00	18.20
7/2/2022	0.00	18.20
7/3/2022	0.00	18.20
7/4/2022	0.00	18.20
7/5/2022	0.00	18.20
7/6/2022	0.00	18.20
7/7/2022	0.00	18.20
7/8/2022	0.00	18.20
7/9/2022	0.00	18.20
7/10/2022	0.00	18.20
7/11/2022	0.00	18.20
7/12/2022	0.00	18.20
7/13/2022	0.00	18.20
7/14/2022	0.00	18.20
7/15/2022	0.00	18.20
7/16/2022	0.00	18.20
7/17/2022	0.00	18.20
7/18/2022	0.00	18.20
7/19/2022	0.00	18.20
7/20/2022	0.00	18.20
7/21/2022	0.00	18.20
7/22/2022	0.00	18.20
7/23/2022	0.00	18.20
7/24/2022	0.00	18.20

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
6/28/2023	0.00	39.75
6/29/2023	0.00	39.75
6/30/2023	0.00	39.75
7/1/2023	0.00	39.75
7/2/2023	0.00	39.75
7/3/2023	0.00	39.75
7/4/2023	0.00	39.75
7/5/2023	0.00	39.75
7/6/2023	0.00	39.75
7/7/2023	0.00	39.75
7/8/2023	0.00	39.75
7/9/2023	0.00	39.75
7/10/2023	0.00	39.75
7/11/2023	0.00	39.75
7/12/2023	0.00	39.75
7/13/2023	0.00	39.75
7/14/2023	0.00	39.75
7/15/2023	0.00	39.75
7/16/2023	0.00	39.75
7/17/2023	0.00	39.75
7/18/2023	0.00	39.75
7/19/2023	0.00	39.75
7/20/2023	0.00	39.75
7/21/2023	0.00	39.75
7/22/2023	0.00	39.75
7/23/2023	0.00	39.75
7/24/2023	0.00	39.75

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
7/25/2021	0.00	13.85
7/26/2021	0.00	13.85
7/27/2021	0.00	13.85
7/28/2021	0.00	13.85
7/29/2021	0.00	13.85
7/30/2021	0.00	13.85
7/31/2021	0.00	13.85
8/1/2021	0.00	13.85
8/2/2021	0.00	13.85
8/3/2021	0.00	13.85
8/4/2021	0.00	13.85
8/5/2021	0.00	13.85
8/6/2021	0.00	13.85
8/7/2021	0.00	13.85
8/8/2021	0.00	13.85
8/9/2021	0.00	13.85
8/10/2021	0.00	13.85
8/11/2021	0.00	13.85
8/12/2021	0.00	13.85
8/13/2021	0.00	13.85
8/14/2021	0.00	13.85
8/15/2021	0.00	13.85
8/16/2021	0.00	13.85
8/17/2021	0.00	13.85
8/18/2021	0.00	13.85
8/19/2021	0.00	13.85
8/20/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
7/25/2022	0.00	18.20
7/26/2022	0.00	18.20
7/27/2022	0.00	18.20
7/28/2022	0.00	18.20
7/29/2022	0.00	18.20
7/30/2022	0.00	18.20
7/31/2022	0.00	18.20
8/1/2022	0.00	18.20
8/2/2022	0.00	18.20
8/3/2022	0.00	18.20
8/4/2022	0.00	18.20
8/5/2022	0.00	18.20
8/6/2022	0.00	18.20
8/7/2022	0.00	18.20
8/8/2022	0.00	18.20
8/9/2022	0.00	18.20
8/10/2022	0.00	18.20
8/11/2022	0.00	18.20
8/12/2022	0.00	18.20
8/13/2022	0.00	18.20
8/14/2022	0.00	18.20
8/15/2022	0.00	18.20
8/16/2022	0.00	18.20
8/17/2022	0.00	18.20
8/18/2022	0.00	18.20
8/19/2022	0.00	18.20
8/20/2022	0.00	18.20

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
7/25/2023	0.00	39.75
7/26/2023	0.00	39.75
7/27/2023	0.00	39.75
7/28/2023	0.00	39.75
7/29/2023	0.00	39.75
7/30/2023	0.00	39.75
7/31/2023	0.00	39.75
8/1/2023	0.00	39.75
8/2/2023	0.00	39.75
8/3/2023	0.00	39.75
8/4/2023	0.00	39.75
8/5/2023	0.00	39.75
8/6/2023	0.00	39.75
8/7/2023	0.00	39.75
8/8/2023	0.00	39.75
8/9/2023	0.00	39.75
8/10/2023	0.00	39.75
8/11/2023	0.00	39.75
8/12/2023	0.00	39.75
8/13/2023	0.00	39.75
8/14/2023	0.10	39.85
8/15/2023	0.00	39.85
8/16/2023	0.00	39.85
8/17/2023	0.00	39.85
8/18/2023	0.00	39.85
8/19/2023	0.00	39.85
8/20/2023	0.00	39.85

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
8/21/2021	0.00	13.85
8/22/2021	0.00	13.85
8/23/2021	0.00	13.85
8/24/2021	0.00	13.85
8/25/2021	0.00	13.85
8/26/2021	0.00	13.85
8/27/2021	0.00	13.85
8/28/2021	0.00	13.85
8/29/2021	0.00	13.85
8/30/2021	0.00	13.85
8/31/2021	0.00	13.85
9/1/2021	0.00	13.85
9/2/2021	0.00	13.85
9/3/2021	0.00	13.85
9/4/2021	0.00	13.85
9/5/2021	0.00	13.85
9/6/2021	0.00	13.85
9/7/2021	0.00	13.85
9/8/2021	0.00	13.85
9/9/2021	0.00	13.85
9/10/2021	0.00	13.85
9/11/2021	0.00	13.85
9/12/2021	0.00	13.85
9/13/2021	0.00	13.85
9/14/2021	0.00	13.85
9/15/2021	0.00	13.85
9/16/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
8/21/2022	0.00	18.20
8/22/2022	0.00	18.20
8/23/2022	0.00	18.20
8/24/2022	0.00	18.20
8/25/2022	0.00	18.20
8/26/2022	0.00	18.20
8/27/2022	0.00	18.20
8/28/2022	0.00	18.20
8/29/2022	0.00	18.20
8/30/2022	0.00	18.20
8/31/2022	0.00	18.20
9/1/2022	0.00	18.20
9/2/2022	0.00	18.20
9/3/2022	0.00	18.20
9/4/2022	0.00	18.20
9/5/2022	0.00	18.20
9/6/2022	0.00	18.20
9/7/2022	0.00	18.20
9/8/2022	0.00	18.20
9/9/2022	0.00	18.20
9/10/2022	0.00	18.20
9/11/2022	0.00	18.20
9/12/2022	0.00	18.20
9/13/2022	0.00	18.20
9/14/2022	0.00	18.20
9/15/2022	0.00	18.20
9/16/2022	0.00	18.20

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
8/21/2023	0.00	39.85
8/22/2023	0.00	39.85
8/23/2023	0.00	39.85
8/24/2023	0.00	39.85
8/25/2023	0.00	39.85
8/26/2023	0.00	39.85
8/27/2023	0.00	39.85
8/28/2023	0.00	39.85
8/29/2023	0.00	39.85
8/30/2023	0.00	39.85
8/31/2023	0.00	39.85
9/1/2023	0.00	39.85
9/2/2023	0.05	39.90
9/3/2023	0.10	40.00
9/4/2023	0.00	40.00
9/5/2023	0.00	40.00
9/6/2023	0.00	40.00
9/7/2023	0.00	40.00
9/8/2023	0.00	40.00
9/9/2023	0.00	40.00
9/10/2023	0.00	40.00
9/11/2023	0.00	40.00
9/12/2023	0.00	40.00
9/13/2023	0.00	40.00
9/14/2023	0.00	40.00
9/15/2023	0.00	40.00
9/16/2023	0.00	40.00

2020 - 2021 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
9/17/2021	0.00	13.85
9/18/2021	0.00	13.85
9/19/2021	0.00	13.85
9/20/2021	0.00	13.85
9/21/2021	0.00	13.85
9/22/2021	0.00	13.85
9/23/2021	0.00	13.85
9/24/2021	0.00	13.85
9/25/2021	0.00	13.85
9/26/2021	0.00	13.85
9/27/2021	0.00	13.85
9/28/2021	0.00	13.85
9/29/2021	0.00	13.85
9/30/2021	0.00	13.85

2021 - 2022 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
9/17/2022	0.00	18.20
9/18/2022	0.00	18.20
9/19/2022	0.10	18.30
9/20/2022	0.40	18.70
9/21/2022	0.00	18.70
9/22/2022	0.00	18.70
9/23/2022	0.00	18.70
9/24/2022	0.00	18.70
9/25/2022	0.00	18.70
9/26/2022	0.00	18.70
9/27/2022	0.00	18.70
9/28/2022	0.00	18.70
9/29/2022	0.00	18.70
9/30/2022	0.00	18.70

2022 - 2023 Seasonal Rainfall		
Date	Daily, *inches*	Accumulative, *inches*
9/17/2023	0.00	40.00
9/18/2023	0.00	40.00
9/19/2023	0.00	40.00
9/20/2023	0.00	40.00
9/21/2023	0.00	40.00
9/22/2023	0.00	40.00
9/23/2023	0.00	40.00
9/24/2023	0.00	40.00
9/25/2023	0.00	40.00
9/26/2023	0.00	40.00
9/27/2023	0.00	40.00
9/28/2023	0.00	40.00
9/29/2023	0.00	40.00
9/30/2023	0.10	40.10

APPENDIX K

LA CONTENTA WWTF
UESP AND LESP
2020 TO 2023 DAILY STORED VOLUMES

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
10/1/2022	7.4	1.3	8.7	212.3
10/2/2022	7.4	1.3	8.7	212.3
10/3/2022	7.4	1.3	8.7	212.3
10/4/2022	7.4	1.3	8.7	212.3
10/5/2022	7.4	1.3	8.7	212.3
10/6/2022	7.4	1.3	8.7	212.3
10/7/2022	7.4	1.3	8.7	212.3
10/8/2022	7.4	1.3	8.7	212.3
10/9/2022	7.4	1.3	8.7	212.3
10/10/2022	7.4	1.3	8.7	212.3
10/11/2022	7.4	1.3	8.7	212.3
10/12/2022	7.4	1.3	8.7	212.3
10/13/2022	7.4	1.3	8.7	212.3
10/14/2022	7.4	1.3	8.7	212.3
10/15/2022	7.4	1.3	8.7	212.3
10/16/2022	7.4	1.3	8.7	212.3
10/17/2022	7.4	2.8	10.2	210.8
10/18/2022	7.4	2.8	10.2	210.8
10/19/2022	7.4	2.8	10.2	210.8
10/20/2022	7.4	2.8	10.2	210.8
10/21/2022	7.4	2.8	10.2	210.8
10/22/2022	7.4	2.8	10.2	210.8
10/23/2022	7.4	2.8	10.2	210.8
10/24/2022	7.4	4.5	11.9	209.1
10/25/2022	7.4	4.5	11.9	209.1
10/26/2022	7.4	4.5	11.9	209.1
10/27/2022	7.4	4.5	11.9	209.1
10/28/2022	7.4	4.5	11.9	209.1
10/29/2022	7.4	4.5	11.9	209.1
10/30/2022	7.4	4.5	11.9	209.1
10/31/2022	7.4	4.5	11.9	209.1
11/1/2022	7.4	4.5	11.9	209.1
11/2/2022	7.4	4.5	11.9	209.1
11/3/2022	7.4	4.5	11.9	209.1
11/4/2022	7.4	4.5	11.9	209.1
11/5/2022	7.4	4.5	11.9	209.1
11/6/2022	7.4	4.5	11.9	209.1
11/7/2022	7.4	7.2	14.6	206.4
11/8/2022	7.4	7.2	14.6	206.4

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
11/9/2022	7.4	7.2	14.6	206.4
11/10/2022	7.4	7.2	14.6	206.4
11/11/2022	7.4	7.2	14.6	206.4
11/12/2022	7.4	7.2	14.6	206.4
11/13/2022	7.4	7.2	14.6	206.4
11/14/2022	7.4	7.2	14.6	206.4
11/15/2022	7.4	7.2	14.6	206.4
11/16/2022	7.4	7.2	14.6	206.4
11/17/2022	7.4	7.2	14.6	206.4
11/18/2022	7.4	7.2	14.6	206.4
11/19/2022	7.4	7.2	14.6	206.4
11/20/2022	7.4	7.2	14.6	206.4
11/21/2022	7.4	10.8	18.2	202.8
11/22/2022	7.4	10.8	18.2	202.8
11/23/2022	7.4	10.8	18.2	202.8
11/24/2022	7.4	10.8	18.2	202.8
11/25/2022	7.4	10.8	18.2	202.8
11/26/2022	7.4	10.8	18.2	202.8
11/27/2022	7.4	10.8	18.2	202.8
11/28/2022	7.4	10.8	18.2	202.8
11/29/2022	7.4	10.8	18.2	202.8
11/30/2022	7.4	10.8	18.2	202.8
12/1/2022				
12/2/2022				
12/3/2022				
12/4/2022				
12/5/2022				
12/6/2022				
12/7/2022				
12/8/2022				
12/9/2022				
12/10/2022				
12/11/2022				
12/12/2022				
12/13/2022				
12/14/2022				
12/15/2022				
12/16/2022				
12/17/2022				

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
12/18/2022				
12/19/2022				
12/20/2022				
12/21/2022				
12/22/2022				
12/23/2022				
12/24/2022				
12/25/2022				
12/26/2022				
12/27/2022				
12/28/2022				
12/29/2022				
12/30/2022				
12/31/2022				
1/1/2023	20.6	26.3	46.9	174.1
1/2/2023	20.6	26.3	46.9	174.1
1/3/2023	20.6	26.3	46.9	174.1
1/4/2023	20.6	26.3	46.9	174.1
1/5/2023	20.6	26.3	46.9	174.1
1/6/2023	20.6	26.3	46.9	174.1
1/7/2023	20.6	26.3	46.9	174.1
1/8/2023	20.6	26.3	46.9	174.1
1/9/2023	20.6	26.3	46.9	174.1
1/10/2023	20.6	26.3	46.9	174.1
1/11/2023	24.4	40.7	65.1	155.9
1/12/2023	24.4	40.7	65.1	155.9
1/13/2023	24.4	40.7	65.1	155.9
1/14/2023	24.4	40.7	65.1	155.9
1/15/2023	24.4	40.7	65.1	155.9
1/16/2023	24.4	40.7	65.1	155.9
1/17/2023	24.4	40.7	65.1	155.9
1/18/2023	32.1	53.9	86.0	135.0
1/19/2023	32.1	53.9	86.0	135.0
1/20/2023	32.1	53.9	86.0	135.0
1/21/2023	32.1	53.9	86.0	135.0
1/22/2023	32.1	53.9	86.0	135.0
1/23/2023	32.1	53.9	86.0	135.0
1/24/2023	32.1	53.9	86.0	135.0
1/25/2023	32.1	53.9	86.0	135.0

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
1/26/2023	32.1	53.9	86.0	135.0
1/27/2023	32.1	53.9	86.0	135.0
1/28/2023	32.1	53.9	86.0	135.0
1/29/2023	32.1	53.9	86.0	135.0
1/30/2023	32.1	53.9	86.0	135.0
1/31/2023	32.1	53.9	86.0	135.0
2/1/2023	28.2	53.9	82.0	139.0
2/2/2023	28.2	53.9	82.0	139.0
2/3/2023	28.2	53.9	82.0	139.0
2/4/2023	28.2	53.9	82.0	139.0
2/5/2023	28.2	53.9	82.0	139.0
2/6/2023	28.2	70.0	98.2	122.8
2/7/2023	28.2	70.0	98.2	122.8
2/8/2023	28.2	70.0	98.2	122.8
2/9/2023	28.2	70.0	98.2	122.8
2/10/2023	28.2	70.0	98.2	122.8
2/11/2023	28.2	70.0	98.2	122.8
2/12/2023	28.2	70.0	98.2	122.8
2/13/2023	28.2	70.0	98.2	122.8
2/14/2023	28.2	70.0	98.2	122.8
2/15/2023	28.2	70.0	98.2	122.8
2/16/2023	28.2	70.0	98.2	122.8
2/17/2023	28.2	70.0	98.2	122.8
2/18/2023	28.2	70.0	98.2	122.8
2/19/2023	28.2	70.0	98.2	122.8
2/20/2023	28.2	70.0	98.2	122.8
2/21/2023	28.2	70.0	98.2	122.8
2/22/2023	28.2	70.0	98.2	122.8
2/23/2023	28.2	70.0	98.2	122.8
2/24/2023	28.2	70.0	98.2	122.8
2/25/2023	28.2	70.0	98.2	122.8
2/26/2023	28.2	70.0	98.2	122.8
2/27/2023	28.2	70.0	98.2	122.8
2/28/2023	28.2	70.0	98.2	122.8
3/1/2023	28.2	88.5	116.7	104.4
3/2/2023	28.2	88.5	116.7	104.4
3/3/2023	28.2	88.5	116.7	104.4
3/4/2023	28.2	88.5	116.7	104.4
3/5/2023	28.2	88.5	116.7	104.4

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
3/6/2023	28.2	88.5	116.7	104.4
3/7/2023	28.2	88.5	116.7	104.4
3/8/2023	28.2	88.5	116.7	104.4
3/9/2023	28.2	88.5	116.7	104.4
3/10/2023	28.2	88.5	116.7	104.4
3/11/2023	28.2	88.5	116.7	104.4
3/12/2023	28.2	88.5	116.7	104.4
3/13/2023	32.1	98.5	130.6	90.4
3/14/2023	32.1	98.5	130.6	90.4
3/15/2023	32.1	98.5	130.6	90.4
3/16/2023	32.1	98.5	130.6	90.4
3/17/2023	32.1	98.5	130.6	90.4
3/18/2023	32.1	98.5	130.6	90.4
3/19/2023	32.1	98.5	130.6	90.4
3/20/2023	32.1	98.5	130.6	90.4
3/21/2023	32.1	98.5	130.6	90.4
3/22/2023	32.1	98.5	130.6	90.4
3/23/2023	32.1	98.5	130.6	90.4
3/24/2023	32.1	98.5	130.6	90.4
3/25/2023	32.1	98.5	130.6	90.4
3/26/2023	32.1	98.5	130.6	90.4
3/27/2023	32.1	109.2	141.3	79.7
3/28/2023	32.1	109.2	141.3	79.7
3/29/2023	32.1	109.2	141.3	79.7
3/30/2023	32.1	109.2	141.3	79.7
3/31/2023	32.1	109.2	141.3	79.7
4/1/2023	32.1	120.5	152.6	68.4
4/2/2023	32.1	120.5	152.6	68.4
4/3/2023	32.1	120.5	152.6	68.4
4/4/2023	32.1	120.5	152.6	68.4
4/5/2023	32.1	120.5	152.6	68.4
4/6/2023	32.1	120.5	152.6	68.4
4/7/2023	32.1	120.5	152.6	68.4
4/8/2023	32.1	120.5	152.6	68.4
4/9/2023	32.1	120.5	152.6	68.4
4/10/2023	32.1	120.5	152.6	68.4
4/11/2023	32.1	120.5	152.6	68.4
4/12/2023	32.1	120.5	152.6	68.4
4/13/2023	32.1	120.5	152.6	68.4

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
4/14/2023	32.1	120.5	152.6	68.4
4/15/2023	32.1	120.5	152.6	68.4
4/16/2023	32.1	120.5	152.6	68.4
4/17/2023	32.1	120.5	152.6	68.4
4/18/2023	32.1	120.5	152.6	68.4
4/19/2023	32.1	120.5	152.6	68.4
4/20/2023	32.1	120.5	152.6	68.4
4/21/2023	32.1	120.5	152.6	68.4
4/22/2023	32.1	120.5	152.6	68.4
4/23/2023	32.1	120.5	152.6	68.4
4/24/2023	32.1	134.4	166.5	54.5
4/25/2023	32.1	134.4	166.5	54.5
4/26/2023	32.1	134.4	166.5	54.5
4/27/2023	32.1	134.4	166.5	54.5
4/28/2023	32.1	134.4	166.5	54.5
4/29/2023	32.1	134.4	166.5	54.5
4/30/2023	32.1	134.4	166.5	54.5
5/1/2023	32.1	120.5	152.6	68.4
5/2/2023	32.1	120.5	152.6	68.4
5/3/2023	32.1	120.5	152.6	68.4
5/4/2023	32.1	120.5	152.6	68.4
5/5/2023	32.1	120.5	152.6	68.4
5/6/2023	32.1	120.5	152.6	68.4
5/7/2023	32.1	120.5	152.6	68.4
5/8/2023	32.1	120.5	152.6	68.4
5/9/2023	32.1	120.5	152.6	68.4
5/10/2023	32.1	120.5	152.6	68.4
5/11/2023	32.1	120.5	152.6	68.4
5/12/2023	32.1	120.5	152.6	68.4
5/13/2023	32.1	120.5	152.6	68.4
5/14/2023	32.1	120.5	152.6	68.4
5/15/2023	32.1	109.2	141.3	79.7
5/16/2023	32.1	109.2	141.3	79.7
5/17/2023	32.1	109.2	141.3	79.7
5/18/2023	32.1	109.2	141.3	79.7
5/19/2023	32.1	109.2	141.3	79.7
5/20/2023	32.1	109.2	141.3	79.7
5/21/2023	32.1	109.2	141.3	79.7
5/22/2023	28.2	98.5	126.7	94.3

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
5/23/2023	28.2	98.5	126.7	94.3
5/24/2023	28.2	98.5	126.7	94.3
5/25/2023	28.2	98.5	126.7	94.3
5/26/2023	28.2	98.5	126.7	94.3
5/27/2023	28.2	98.5	126.7	94.3
5/28/2023	28.2	98.5	126.7	94.3
5/29/2023	28.2	88.5	116.7	104.4
5/30/2023	28.2	88.5	116.7	104.4
5/31/2023	28.2	88.5	116.7	104.4
6/1/2023	28.2	88.5	116.7	104.4
6/2/2023	28.2	88.5	116.7	104.4
6/3/2023	28.2	88.5	116.7	104.4
6/4/2023	28.2	88.5	116.7	104.4
6/5/2023	28.2	88.5	116.7	104.4
6/6/2023	28.2	88.5	116.7	104.4
6/7/2023	28.2	88.5	116.7	104.4
6/8/2023	28.2	88.5	116.7	104.4
6/9/2023	28.2	88.5	116.7	104.4
6/10/2023	28.2	88.5	116.7	104.4
6/11/2023	28.2	88.5	116.7	104.4
6/12/2023	24.4	70.0	94.4	126.6
6/13/2023	24.4	70.0	94.4	126.6
6/14/2023	24.4	70.0	94.4	126.6
6/15/2023	24.4	70.0	94.4	126.6
6/16/2023	24.4	70.0	94.4	126.6
6/17/2023	24.4	70.0	94.4	126.6
6/18/2023	24.4	70.0	94.4	126.6
6/19/2023	24.4	70.0	94.4	126.6
6/20/2023	24.4	70.0	94.4	126.6
6/21/2023	24.4	70.0	94.4	126.6
6/22/2023	24.4	70.0	94.4	126.6
6/23/2023	24.4	70.0	94.4	126.6
6/24/2023	24.4	70.0	94.4	126.6
6/25/2023	24.4	70.0	94.4	126.6
6/26/2023	20.6	53.9	74.5	146.5
6/27/2023	20.6	53.9	74.5	146.5
6/28/2023	20.6	53.9	74.5	146.5
6/29/2023	20.6	53.9	74.5	146.5
6/30/2023	20.6	53.9	74.5	146.5

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
7/1/2023	20.6	53.9	74.5	146.5
7/2/2023	20.6	53.9	74.5	146.5
7/3/2023	20.6	53.9	74.5	146.5
7/4/2023	20.6	53.9	74.5	146.5
7/5/2023	20.6	53.9	74.5	146.5
7/6/2023	20.6	53.9	74.5	146.5
7/7/2023	20.6	53.9	74.5	146.5
7/8/2023	20.6	53.9	74.5	146.5
7/9/2023	20.6	53.9	74.5	146.5
7/10/2023	20.6	40.7	61.3	159.7
7/11/2023	20.6	40.7	61.3	159.7
7/12/2023	20.6	40.7	61.3	159.7
7/13/2023	20.6	40.7	61.3	159.7
7/14/2023	20.6	40.7	61.3	159.7
7/15/2023	20.6	40.7	61.3	159.7
7/16/2023	20.6	40.7	61.3	159.7
7/17/2023	20.6	30.6	51.2	169.8
7/18/2023	20.6	30.6	51.2	169.8
7/19/2023	20.6	30.6	51.2	169.8
7/20/2023	20.6	30.6	51.2	169.8
7/21/2023	20.6	30.6	51.2	169.8
7/22/2023	20.6	30.6	51.2	169.8
7/23/2023	20.6	30.6	51.2	169.8
7/24/2023	20.6	30.6	51.2	169.8
7/25/2023	20.6	30.6	51.2	169.8
7/26/2023	20.6	30.6	51.2	169.8
7/27/2023	20.6	30.6	51.2	169.8
7/28/2023	20.6	30.6	51.2	169.8
7/29/2023	20.6	30.6	51.2	169.8
7/30/2023	20.6	30.6	51.2	169.8
7/31/2023	20.6	26.3	46.9	174.1
8/1/2023	20.6	22.4	43.1	178.0
8/2/2023	20.6	22.4	43.1	178.0
8/3/2023	20.6	22.4	43.1	178.0
8/4/2023	20.6	22.4	43.1	178.0
8/5/2023	20.6	22.4	43.1	178.0
8/6/2023	20.6	22.4	43.1	178.0
8/7/2023	20.6	22.4	43.1	178.0
8/8/2023	20.6	22.4	43.1	178.0

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
8/9/2023	20.6	22.4	43.1	178.0
8/10/2023	20.6	22.4	43.1	178.0
8/11/2023	20.6	22.4	43.1	178.0
8/12/2023	20.6	22.4	43.1	178.0
8/13/2023	20.6	22.4	43.1	178.0
8/14/2023	20.6	10.8	31.4	189.6
8/15/2023	20.6	10.8	31.4	189.6
8/16/2023	20.6	10.8	31.4	189.6
8/17/2023	20.6	10.8	31.4	189.6
8/18/2023	20.6	10.8	31.4	189.6
8/19/2023	20.6	10.8	31.4	189.6
8/20/2023	20.6	10.8	31.4	189.6
8/21/2023	20.6	3.6	24.2	196.8
8/22/2023	20.6	3.6	24.2	196.8
8/23/2023	20.6	3.6	24.2	196.8
8/24/2023	20.6	3.6	24.2	196.8
8/25/2023	20.6	3.6	24.2	196.8
8/26/2023	20.6	3.6	24.2	196.8
8/27/2023	20.6	3.6	24.2	196.8
8/28/2023	20.6	0.0	20.6	200.4
8/29/2023	20.6	0.0	20.6	200.4
8/30/2023	20.6	0.0	20.6	200.4
8/31/2023	20.6	0.0	20.6	200.4
9/1/2023				
9/2/2023				
9/3/2023				
9/4/2023				
9/5/2023				
9/6/2023				
9/7/2023				
9/8/2023				
9/9/2023				
9/10/2023				
9/11/2023				
9/12/2023				
9/13/2023				
9/14/2023				
9/15/2023				
9/16/2023				

2022 - 2023 Seasonal Pond Storage Condition				
Date	UESP Volume, *AF*	LESP Volume, *AF*	Total Volume, *AF*	Avail. Vol., *AF*
9/17/2023				
9/18/2023				
9/19/2023				
9/20/2023				
9/21/2023				
9/22/2023				
9/23/2023				
9/24/2023				
9/25/2023				
9/26/2023				
9/27/2023				
9/28/2023				
9/29/2023				
9/30/2023				

APPENDIX L

LA CONTENTA WWTF
UESP AND LESP
2020 TO 2023 DAILY WATER LEVELS

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/1/2020	726.6	684.0
10/2/2020	726.6	684.0
10/3/2020	726.6	684.0
10/4/2020	726.6	684.0
10/5/2020	726.6	684.0
10/6/2020	726.6	684.0
10/7/2020	726.6	684.0
10/8/2020	726.6	684.0
10/9/2020	726.6	684.0
10/10/2020	726.6	684.0
10/11/2020	726.6	684.0
10/12/2020	726.6	684.0
10/13/2020	726.6	684.0
10/14/2020	726.6	684.0
10/15/2020	726.6	684.0
10/16/2020	726.8	685.0
10/17/2020	726.8	685.0
10/18/2020	726.8	685.0
10/19/2020	726.8	685.0
10/20/2020	726.8	685.0
10/21/2020	727.0	686.0
10/22/2020	727.0	686.0
10/23/2020	727.0	686.0
10/24/2020	727.0	686.0
10/25/2020	727.0	686.0
10/26/2020	727.0	686.0
10/27/2020	727.0	686.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/1/2021	726.6	684.0
10/2/2021	726.6	684.0
10/3/2021	726.6	684.0
10/4/2021	726.6	684.0
10/5/2021	726.6	684.0
10/6/2021	726.6	684.0
10/7/2021	726.6	684.0
10/8/2021	726.6	684.0
10/9/2021	726.6	684.0
10/10/2021	726.6	684.0
10/11/2021	726.6	684.0
10/12/2021	726.6	684.0
10/13/2021	726.6	684.0
10/14/2021	726.6	684.0
10/15/2021	726.6	684.0
10/16/2021	726.8	685.0
10/17/2021	726.8	685.0
10/18/2021	726.8	685.0
10/19/2021	726.8	685.0
10/20/2021	726.8	685.0
10/21/2021	727.0	686.0
10/22/2021	727.0	686.0
10/23/2021	727.0	686.0
10/24/2021	727.0	686.0
10/25/2021	727.0	686.0
10/26/2021	727.0	686.0
10/27/2021	727.0	686.0

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/1/2022	722.7	673.5
10/2/2022	722.7	673.5
10/3/2022	722.7	673.5
10/4/2022	722.7	673.5
10/5/2022	722.7	673.5
10/6/2022	722.7	673.5
10/7/2022	722.7	673.5
10/8/2022	722.7	673.5
10/9/2022	722.7	673.5
10/10/2022	722.6	673.0
10/11/2022	722.6	673.0
10/12/2022	722.6	673.0
10/13/2022	722.6	673.0
10/14/2022	722.6	673.0
10/15/2022	722.6	673.0
10/16/2022	722.6	673.0
10/17/2022	722.6	674.0
10/18/2022	722.6	674.0
10/19/2022	722.6	674.0
10/20/2022	722.6	674.0
10/21/2022	722.6	674.0
10/22/2022	722.6	674.0
10/23/2022	722.6	674.0
10/24/2022	722.5	676.0
10/25/2022	722.5	676.0
10/26/2022	722.5	676.0
10/27/2022	722.5	676.0

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/28/2020	727.3	687.0
10/29/2020	727.3	687.0
10/30/2020	727.3	687.0
10/31/2020	727.3	687.0
11/1/2020	723.8	675.0
11/2/2020	723.8	675.0
11/3/2020	723.8	675.0
11/4/2020	723.8	675.0
11/5/2020	723.8	675.0
11/6/2020	723.8	675.0
11/7/2020	723.8	675.0
11/8/2020	723.8	675.0
11/9/2020	724.7	675.0
11/10/2020	724.7	675.0
11/11/2020	724.7	675.0
11/12/2020	724.7	675.0
11/13/2020	724.7	675.0
11/14/2020	724.7	675.0
11/15/2020	724.7	675.0
11/16/2020	724.6	677.0
11/17/2020	724.6	677.0
11/18/2020	724.6	677.0
11/19/2020	724.6	677.0
11/20/2020	724.6	677.0
11/21/2020	724.6	677.0
11/22/2020	724.6	677.0
11/23/2020	724.5	679.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/28/2021	727.3	687.0
10/29/2021	727.3	687.0
10/30/2021	727.3	687.0
10/31/2021	727.3	687.0
11/1/2021	726.0	680.0
11/2/2021	726.0	680.0
11/3/2021	726.0	680.0
11/4/2021	726.0	680.0
11/5/2021	726.0	680.0
11/6/2021	726.0	680.0
11/7/2021	726.2	680.0
11/8/2021	726.2	680.5
11/9/2021	726.2	680.5
11/10/2021	726.2	680.5
11/11/2021	726.2	680.5
11/12/2021	726.2	680.5
11/13/2021	726.2	680.5
11/14/2021	726.2	680.5
11/15/2021	726.2	681.0
11/16/2021	726.2	681.0
11/17/2021	726.2	681.0
11/18/2021	726.2	681.0
11/19/2021	726.2	681.0
11/20/2021	726.2	681.0
11/21/2021	726.2	681.0
11/22/2021	726.2	682.0
11/23/2021	726.2	682.0

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
10/28/2022	722.5	676.0
10/29/2022	722.5	676.0
10/30/2022	722.5	676.0
10/31/2022	722.5	676.0
11/1/2022	722.5	677.5
11/2/2022	722.5	677.5
11/3/2022	722.5	677.5
11/4/2022	722.5	677.5
11/5/2022	722.5	677.5
11/6/2022	722.5	677.5
11/7/2022	722.5	678.5
11/8/2022	722.5	678.5
11/9/2022	722.5	678.5
11/10/2022	722.5	678.5
11/11/2022	722.5	678.5
11/12/2022	722.5	678.5
11/13/2022	722.5	678.5
11/14/2022	722.6	679.5
11/15/2022	722.6	679.5
11/16/2022	722.6	679.5
11/17/2022	722.6	679.5
11/18/2022	722.6	679.5
11/19/2022	722.6	679.5
11/20/2022	722.6	679.5
11/21/2022	722.5	680.8
11/22/2022	722.5	680.8
11/23/2022	722.5	680.8

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
11/24/2020	724.5	679.0
11/25/2020	724.5	679.0
11/26/2020	724.5	679.0
11/27/2020	724.5	679.0
11/28/2020	724.5	679.0
11/29/2020	724.5	679.0
11/30/2020	724.5	680.0
12/1/2020	724.5	680.0
12/2/2020	724.5	680.0
12/3/2020	724.5	680.0
12/4/2020	724.5	680.0
12/5/2020	724.5	680.0
12/6/2020	724.5	680.0
12/7/2020	724.5	680.5
12/8/2020	724.5	680.5
12/9/2020	724.5	680.5
12/10/2020	724.5	680.5
12/11/2020	724.5	680.5
12/12/2020	724.5	680.5
12/13/2020	724.5	680.5
12/14/2020	724.7	681.0
12/15/2020	724.7	681.0
12/16/2020	724.7	681.0
12/17/2020	724.7	681.0
12/18/2020	724.7	681.0
12/19/2020	724.7	681.0
12/20/2020	724.7	681.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
11/24/2021	726.2	682.0
11/25/2021	726.2	682.0
11/26/2021	726.2	682.0
11/27/2021	726.2	682.0
11/28/2021	726.2	682.0
11/29/2021	726.2	683.0
11/30/2021	726.2	683.0
12/1/2021	726.3	685.0
12/2/2021	726.3	685.0
12/3/2021	726.3	685.0
12/4/2021	726.3	685.0
12/5/2021	726.3	685.0
12/6/2021	726.3	685.0
12/7/2021	726.3	685.0
12/8/2021	726.3	685.0
12/9/2021	726.3	685.0
12/10/2021	726.3	685.0
12/11/2021	726.3	685.0
12/12/2021	726.3	685.0
12/13/2021	726.5	685.5
12/14/2021	726.5	685.5
12/15/2021	726.5	685.5
12/16/2021	726.5	685.5
12/17/2021	726.5	685.5
12/18/2021	726.5	685.5
12/19/2021	726.5	685.5
12/20/2021	726.7	686.0

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
11/24/2022	722.5	680.8
11/25/2022	722.5	680.8
11/26/2022	722.5	680.8
11/27/2022	722.5	680.8
11/28/2022	722.5	681.8
11/29/2022	722.5	681.8
11/30/2022	722.5	681.8
12/1/2022	733.0	
12/2/2022	733.0	
12/3/2022	733.0	
12/4/2022	733.0	
12/5/2022	733.0	
12/6/2022	733.0	
12/7/2022	733.0	
12/8/2022	733.0	
12/9/2022	733.0	
12/10/2022	733.0	
12/11/2022	733.0	
12/12/2022	733.0	
12/13/2022	733.0	
12/14/2022	733.0	
12/15/2022	733.0	
12/16/2022	733.0	
12/17/2022	733.0	
12/18/2022	733.0	
12/19/2022	733.0	
12/20/2022	733.0	

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
12/21/2020	724.7	681.5
12/22/2020	724.7	681.5
12/23/2020	724.7	681.5
12/24/2020	724.7	681.5
12/25/2020	724.7	681.5
12/26/2020	724.7	681.5
12/27/2020	724.7	681.5
12/28/2020	724.7	682.0
12/29/2020	724.7	682.0
12/30/2020	724.7	682.0
12/31/2020	724.7	682.0
1/1/2021	726.6	684.0
1/2/2021	726.6	684.0
1/3/2021	726.6	684.0
1/4/2021	726.6	684.0
1/5/2021	726.6	684.0
1/6/2021	726.6	684.0
1/7/2021	726.6	684.0
1/8/2021	726.6	684.0
1/9/2021	726.6	684.0
1/10/2021	726.6	684.0
1/11/2021	726.6	684.0
1/12/2021	726.6	684.0
1/13/2021	726.6	684.0
1/14/2021	726.6	684.0
1/15/2021	726.6	684.0
1/16/2021	726.8	685.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
12/21/2021	726.7	686.0
12/22/2021	726.7	686.0
12/23/2021	726.7	686.0
12/24/2021	726.7	686.0
12/25/2021	726.7	686.0
12/26/2021	726.7	686.0
12/27/2021	726.7	686.0
12/28/2021	726.7	686.0
12/29/2021	727.3	686.5
12/30/2021	727.3	686.5
12/31/2021	727.3	686.5
1/1/2022	727.6	687.0
1/2/2022	727.6	687.0
1/3/2022	727.6	687.0
1/4/2022	727.6	687.0
1/5/2022	727.6	687.0
1/6/2022	727.6	687.0
1/7/2022	727.6	687.0
1/8/2022	727.6	687.0
1/9/2022	727.6	687.0
1/10/2022	727.7	687.5
1/11/2022	727.7	687.5
1/12/2022	727.7	687.5
1/13/2022	727.7	687.5
1/14/2022	727.7	687.5
1/15/2022	727.7	687.5
1/16/2022	727.7	687.5

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
12/21/2022	733.0	
12/22/2022	733.0	
12/23/2022	733.0	
12/24/2022	733.0	
12/25/2022	733.0	
12/26/2022	733.0	
12/27/2022	733.0	
12/28/2022	733.0	
12/29/2022	733.0	
12/30/2022	733.0	
12/31/2022	733.0	
1/1/2023	726.8	685.5
1/2/2023	726.8	685.5
1/3/2023	726.8	685.5
1/4/2023	726.8	685.5
1/5/2023	726.8	685.5
1/6/2023	726.8	685.5
1/7/2023	726.8	685.5
1/8/2023	726.8	685.5
1/9/2023	726.8	685.5
1/10/2023	726.8	685.5
1/11/2023	727.8	688.7
1/12/2023	727.8	688.7
1/13/2023	727.8	688.7
1/14/2023	727.8	688.7
1/15/2023	727.8	688.7
1/16/2023	727.8	688.7

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
1/17/2021	726.8	685.0
1/18/2021	726.8	685.0
1/19/2021	726.8	685.0
1/20/2021	726.8	685.0
1/21/2021	727.0	686.0
1/22/2021	727.0	686.0
1/23/2021	727.0	686.0
1/24/2021	727.0	686.0
1/25/2021	727.0	686.0
1/26/2021	727.0	686.0
1/27/2021	727.0	686.0
1/28/2021	727.3	687.0
1/29/2021	727.3	687.0
1/30/2021	727.3	687.0
1/31/2021	727.3	687.0
2/1/2021	726.3	686.5
2/2/2021	726.3	686.5
2/3/2021	726.3	686.5
2/4/2021	726.3	686.5
2/5/2021	726.3	686.5
2/6/2021	726.3	686.5
2/7/2021	726.3	686.5
2/8/2021	726.8	687.1
2/9/2021	726.8	687.1
2/10/2021	726.8	687.1
2/11/2021	726.8	687.1
2/12/2021	726.8	687.1

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
1/17/2022	727.7	687.5
1/18/2022	727.7	687.5
1/19/2022	727.7	688.0
1/20/2022	727.7	688.0
1/21/2022	727.7	688.0
1/22/2022	727.7	688.0
1/23/2022	727.7	688.0
1/24/2022	727.6	688.3
1/25/2022	727.6	688.3
1/26/2022	727.6	688.3
1/27/2022	727.6	688.3
1/28/2022	727.6	688.3
1/29/2022	727.6	688.3
1/30/2022	727.6	688.3
1/31/2022	727.6	688.3
2/1/2022	727.5	688.7
2/2/2022	727.5	688.7
2/3/2022	727.5	688.7
2/4/2022	727.5	688.7
2/5/2022	727.5	688.7
2/6/2022	727.5	688.7
2/7/2022	727.4	689.3
2/8/2022	727.4	689.3
2/9/2022	727.4	689.3
2/10/2022	727.4	689.3
2/11/2022	727.4	689.3
2/12/2022	727.4	689.3

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
1/17/2023	727.8	688.7
1/18/2023	729.7	690.2
1/19/2023	729.7	690.2
1/20/2023	729.7	690.2
1/21/2023	729.7	690.2
1/22/2023	729.7	690.2
1/23/2023	729.7	690.2
1/24/2023	729.7	690.2
1/25/2023	729.8	690.8
1/26/2023	729.8	690.8
1/27/2023	729.8	690.8
1/28/2023	729.8	690.8
1/29/2023	729.8	690.8
1/30/2023	729.8	690.8
1/31/2023	729.8	690.8
2/1/2023	728.9	691.6
2/2/2023	728.9	691.6
2/3/2023	728.9	691.6
2/4/2023	728.9	691.6
2/5/2023	728.9	691.6
2/6/2023	728.5	692.1
2/7/2023	728.5	692.1
2/8/2023	728.5	692.1
2/9/2023	728.5	692.1
2/10/2023	728.5	692.1
2/11/2023	728.5	692.1
2/12/2023	728.5	692.1

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
2/13/2021	726.8	687.1
2/14/2021	726.8	687.1
2/15/2021	727.0	687.8
2/16/2021	727.0	687.8
2/17/2021	727.0	687.8
2/18/2021	727.0	687.8
2/19/2021	727.0	687.8
2/20/2021	727.0	687.8
2/21/2021	727.0	687.8
2/22/2021	727.0	688.1
2/23/2021	727.0	688.1
2/24/2021	727.0	688.1
2/25/2021	727.0	688.1
2/26/2021	727.0	688.1
2/27/2021	727.0	688.1
2/28/2021	727.0	688.1
3/1/2021	726.8	688.4
3/2/2021	726.8	688.4
3/3/2021	726.8	688.4
3/4/2021	726.8	688.4
3/5/2021	726.8	688.4
3/6/2021	726.8	688.4
3/7/2021	726.8	688.4
3/8/2021	726.9	688.7
3/9/2021	726.9	688.7
3/10/2021	726.9	688.7
3/11/2021	726.9	688.7

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
2/13/2022	727.4	689.3
2/14/2022	727.3	689.7
2/15/2022	727.3	689.7
2/16/2022	727.3	689.7
2/17/2022	727.3	689.7
2/18/2022	727.3	689.7
2/19/2022	727.3	689.7
2/20/2022	727.3	689.7
2/21/2022	727.2	690.2
2/22/2022	727.2	690.2
2/23/2022	727.2	690.2
2/24/2022	727.2	690.2
2/25/2022	727.2	690.2
2/26/2022	727.2	690.2
2/27/2022	727.2	690.2
2/28/2022	727.2	690.2
3/1/2022	727.2	690.4
3/2/2022	727.2	690.4
3/3/2022	727.2	690.4
3/4/2022	727.2	690.4
3/5/2022	727.2	690.4
3/6/2022	727.2	690.4
3/7/2022	727.1	690.6
3/8/2022	727.1	690.6
3/9/2022	727.1	690.6
3/10/2022	727.1	690.6
3/11/2022	727.1	690.6

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
2/13/2023	728.4	692.5
2/14/2023	728.4	692.5
2/15/2023	728.4	692.5
2/16/2023	728.4	692.5
2/17/2023	728.4	692.5
2/18/2023	728.4	692.5
2/19/2023	728.4	692.5
2/20/2023	728.4	692.5
2/21/2023	728.4	692.5
2/22/2023	728.4	692.5
2/23/2023	728.3	693.1
2/24/2023	728.3	693.1
2/25/2023	728.3	693.1
2/26/2023	728.3	693.1
2/27/2023	728.2	693.7
2/28/2023	728.2	693.7
3/1/2023	728.9	694.5
3/2/2023	728.9	694.5
3/3/2023	728.9	694.5
3/4/2023	728.9	694.5
3/5/2023	728.9	694.5
3/6/2023	728.9	694.5
3/7/2023	728.9	694.5
3/8/2023	728.9	694.5
3/9/2023	728.9	694.5
3/10/2023	728.9	694.5
3/11/2023	728.9	694.5

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
3/12/2021	726.9	688.7
3/13/2021	726.9	688.7
3/14/2021	726.9	688.7
3/15/2021	727.7	688.8
3/16/2021	727.7	688.8
3/17/2021	727.7	688.8
3/18/2021	727.7	688.8
3/19/2021	727.7	688.8
3/20/2021	727.7	688.8
3/21/2021	727.7	688.8
3/22/2021	728.5	689.0
3/23/2021	728.5	689.0
3/24/2021	728.5	689.0
3/25/2021	728.5	689.0
3/26/2021	728.5	689.0
3/27/2021	728.5	689.0
3/28/2021	728.5	689.0
3/29/2021	728.9	689.4
3/30/2021	728.9	689.4
3/31/2021	728.9	689.4
4/1/2021	728.8	689.8
4/2/2021	728.8	689.8
4/3/2021	728.8	689.8
4/4/2021	728.8	689.8
4/5/2021	728.8	689.8
4/6/2021	728.8	689.8
4/7/2021	728.8	689.8

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
3/12/2022	727.1	690.6
3/13/2022	727.1	690.6
3/14/2022	727.1	691.0
3/15/2022	727.1	691.0
3/16/2022	727.1	691.0
3/17/2022	727.1	691.0
3/18/2022	727.1	691.0
3/19/2022	727.1	691.0
3/20/2022	727.1	691.0
3/21/2022	727.0	691.4
3/22/2022	727.0	691.4
3/23/2022	727.0	691.4
3/24/2022	727.0	691.4
3/25/2022	727.0	691.4
3/26/2022	727.0	691.4
3/27/2022	727.0	691.4
3/28/2022	727.0	691.8
3/29/2022	727.0	691.8
3/30/2022	727.0	691.8
3/31/2022	727.0	691.8
4/1/2022	726.9	692.2
4/2/2022	726.9	692.2
4/3/2022	726.9	692.2
4/4/2022	726.9	692.2
4/5/2022	726.9	692.2
4/6/2022	726.9	692.2
4/7/2022	726.9	692.2

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
3/12/2023	728.9	694.5
3/13/2023	729.5	695.2
3/14/2023	729.5	695.2
3/15/2023	729.5	695.2
3/16/2023	729.5	695.2
3/17/2023	729.5	695.2
3/18/2023	729.5	695.2
3/19/2023	729.5	695.2
3/20/2023	729.7	695.9
3/21/2023	729.7	695.9
3/22/2023	729.7	695.9
3/23/2023	729.7	695.9
3/24/2023	729.7	695.9
3/25/2023	729.7	695.9
3/26/2023	729.7	695.9
3/27/2023	729.7	696.5
3/28/2023	729.7	696.5
3/29/2023	729.7	696.5
3/30/2023	729.7	696.5
3/31/2023	729.7	696.5
4/1/2023	729.7	697.0
4/2/2023	729.7	697.0
4/3/2023	729.7	697.0
4/4/2023	729.7	697.0
4/5/2023	729.7	697.0
4/6/2023	729.7	697.0
4/7/2023	729.7	697.0

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
4/8/2021	728.8	689.8
4/9/2021	728.8	689.8
4/10/2021	728.8	689.8
4/11/2021	728.8	689.8
4/12/2021	728.7	690.1
4/13/2021	728.7	690.1
4/14/2021	728.7	690.1
4/15/2021	728.7	690.1
4/16/2021	728.7	690.1
4/17/2021	728.7	690.1
4/18/2021	728.7	690.1
4/19/2021	728.6	690.4
4/20/2021	728.6	690.4
4/21/2021	728.6	690.4
4/22/2021	728.6	690.4
4/23/2021	728.6	690.4
4/24/2021	728.6	690.4
4/25/2021	728.6	690.4
4/26/2021	728.6	690.7
4/27/2021	728.6	690.7
4/28/2021	728.6	690.7
4/29/2021	728.6	690.7
4/30/2021	728.6	690.7
5/1/2021	728.8	689.8
5/2/2021	728.8	689.8
5/3/2021	728.8	689.8
5/4/2021	728.8	689.8

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
4/8/2022	726.9	692.2
4/9/2022	726.9	692.2
4/10/2022	726.9	692.5
4/11/2022	726.9	692.5
4/12/2022	726.9	692.5
4/13/2022	726.9	692.5
4/14/2022	726.9	692.5
4/15/2022	726.9	692.5
4/16/2022	726.9	692.5
4/17/2022	726.8	692.5
4/18/2022	726.8	692.8
4/19/2022	726.8	692.8
4/20/2022	726.8	692.8
4/21/2022	726.8	692.8
4/22/2022	726.8	692.8
4/23/2022	726.8	692.8
4/24/2022	726.8	692.8
4/25/2022	726.8	693.1
4/26/2022	726.8	693.1
4/27/2022	726.8	693.1
4/28/2022	726.8	693.1
4/29/2022	726.8	693.1
4/30/2022	726.8	693.1
5/1/2022	726.7	693.4
5/2/2022	726.7	693.4
5/3/2022	726.7	693.4
5/4/2022	726.7	693.4

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
4/8/2023	729.7	697.0
4/9/2023	729.7	697.0
4/10/2023	729.7	697.4
4/11/2023	729.7	697.4
4/12/2023	729.7	697.4
4/13/2023	729.7	697.4
4/14/2023	729.7	697.4
4/15/2023	729.7	697.4
4/16/2023	729.7	697.4
4/17/2023	729.7	697.7
4/18/2023	729.7	697.7
4/19/2023	729.7	697.7
4/20/2023	729.7	697.7
4/21/2023	729.7	697.7
4/22/2023	729.7	697.7
4/23/2023	729.7	697.7
4/24/2023	729.6	698.0
4/25/2023	729.6	698.0
4/26/2023	729.6	698.0
4/27/2023	729.6	698.0
4/28/2023	729.6	698.0
4/29/2023	729.6	698.0
4/30/2023	729.6	698.0
5/1/2023	729.4	697.5
5/2/2023	729.4	697.5
5/3/2023	729.4	697.5
5/4/2023	729.4	697.5

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
5/5/2021	728.8	689.8
5/6/2021	728.8	689.8
5/7/2021	728.8	689.8
5/8/2021	728.8	689.8
5/9/2021	728.8	689.8
5/10/2021	728.6	689.0
5/11/2021	728.6	689.0
5/12/2021	728.6	689.0
5/13/2021	728.6	689.0
5/14/2021	728.6	689.0
5/15/2021	728.6	689.0
5/16/2021	728.6	689.0
5/17/2021	728.4	687.6
5/18/2021	728.4	687.6
5/19/2021	728.4	687.6
5/20/2021	728.4	687.6
5/21/2021	728.4	687.6
5/22/2021	728.4	687.6
5/23/2021	728.4	687.6
5/24/2021	728.2	687.0
5/25/2021	728.2	687.0
5/26/2021	728.2	687.0
5/27/2021	728.2	687.0
5/28/2021	728.2	687.0
5/29/2021	728.2	687.0
5/30/2021	728.2	687.0
5/31/2021	728.0	687.3

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
5/5/2022	726.7	693.4
5/6/2022	726.7	693.4
5/7/2022	726.7	693.4
5/8/2022	726.7	693.4
5/9/2022	726.6	693.6
5/10/2022	726.6	693.6
5/11/2022	726.6	693.6
5/12/2022	726.6	693.6
5/13/2022	726.6	693.6
5/14/2022	726.6	693.6
5/15/2022	726.6	693.6
5/16/2022	726.5	693.8
5/17/2022	726.5	693.8
5/18/2022	726.5	693.8
5/19/2022	726.5	693.8
5/20/2022	726.5	693.8
5/21/2022	726.5	693.8
5/22/2022	726.5	693.8
5/23/2022	726.3	694.0
5/24/2022	726.3	694.0
5/25/2022	726.3	694.0
5/26/2022	726.3	694.0
5/27/2022	726.3	694.0
5/28/2022	726.3	694.0
5/29/2022	726.3	694.0
5/30/2022	726.1	694.2
5/31/2022	726.1	694.2

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
5/5/2023	729.4	697.5
5/6/2023	729.4	697.5
5/7/2023	729.4	697.5
5/8/2023	729.2	697.0
5/9/2023	729.2	697.0
5/10/2023	729.2	697.0
5/11/2023	729.2	697.0
5/12/2023	729.2	697.0
5/13/2023	729.2	697.0
5/14/2023	729.2	697.0
5/15/2023	729.0	696.4
5/16/2023	729.0	696.4
5/17/2023	729.0	696.4
5/18/2023	729.0	696.4
5/19/2023	729.0	696.4
5/20/2023	729.0	696.4
5/21/2023	729.0	696.4
5/22/2023	728.8	695.7
5/23/2023	728.8	695.7
5/24/2023	728.8	695.7
5/25/2023	728.8	695.7
5/26/2023	728.8	695.7
5/27/2023	728.8	695.7
5/28/2023	728.8	695.7
5/29/2023	728.5	694.9
5/30/2023	728.5	694.9
5/31/2023	728.5	694.9

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/1/2021	728.0	687.3
6/2/2021	728.0	687.3
6/3/2021	728.0	687.3
6/4/2021	728.0	687.3
6/5/2021	728.0	687.3
6/6/2021	728.0	687.3
6/7/2021	727.8	687.5
6/8/2021	727.8	687.5
6/9/2021	727.8	687.5
6/10/2021	727.8	687.5
6/11/2021	727.8	687.5
6/12/2021	727.8	687.5
6/13/2021	727.8	687.5
6/14/2021	727.6	686.2
6/15/2021	727.6	686.2
6/16/2021	727.6	686.2
6/17/2021	727.6	686.2
6/18/2021	727.6	686.2
6/19/2021	727.6	686.2
6/20/2021	727.6	686.2
6/21/2021	727.4	686.1
6/22/2021	727.4	686.1
6/23/2021	727.4	686.1
6/24/2021	727.4	686.1
6/25/2021	727.4	686.1
6/26/2021	727.4	686.1
6/27/2021	727.4	686.1

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/1/2022	725.9	692.6
6/2/2022	725.9	692.6
6/3/2022	725.9	692.6
6/4/2022	725.9	692.6
6/5/2022	725.9	692.6
6/6/2022	725.9	692.6
6/7/2022	725.9	692.6
6/8/2022	725.9	692.6
6/9/2022	725.9	692.6
6/10/2022	725.9	692.6
6/11/2022	725.9	692.6
6/12/2022	725.9	692.6
6/13/2022	725.8	691.8
6/14/2022	725.8	691.8
6/15/2022	725.8	691.8
6/16/2022	725.8	691.8
6/17/2022	725.8	691.8
6/18/2022	725.8	691.8
6/19/2022	725.8	691.8
6/20/2022	725.7	691.4
6/21/2022	725.7	691.4
6/22/2022	725.7	691.4
6/23/2022	725.7	691.4
6/24/2022	725.7	691.4
6/25/2022	725.7	691.4
6/26/2022	725.7	691.4
6/27/2022	725.5	690.8

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/1/2023	728.0	694.2
6/2/2023	728.0	694.2
6/3/2023	728.0	694.2
6/4/2023	728.0	694.2
6/5/2023	728.0	694.2
6/6/2023	728.0	694.2
6/7/2023	728.0	694.2
6/8/2023	728.0	694.2
6/9/2023	728.0	694.2
6/10/2023	728.0	694.2
6/11/2023	728.0	694.2
6/12/2023	727.5	693.6
6/13/2023	727.5	693.6
6/14/2023	727.5	693.6
6/15/2023	727.5	693.6
6/16/2023	727.5	693.6
6/17/2023	727.5	693.6
6/18/2023	727.5	693.6
6/19/2023	727.5	693.6
6/20/2023	727.5	693.6
6/21/2023	727.0	692.9
6/22/2023	727.0	692.9
6/23/2023	727.0	692.9
6/24/2023	727.0	692.9
6/25/2023	727.0	692.9
6/26/2023	726.9	691.4
6/27/2023	726.9	691.4

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/28/2021	727.2	685.1
6/29/2021	727.2	685.1
6/30/2021	727.2	685.1
7/1/2021	727.0	684.0
7/2/2021	727.0	684.0
7/3/2021	727.0	684.0
7/4/2021	727.0	684.0
7/5/2021	727.0	684.0
7/6/2021	727.0	684.0
7/7/2021	727.0	684.0
7/8/2021	727.0	684.0
7/9/2021	727.0	684.0
7/10/2021	727.0	684.0
7/11/2021	727.0	684.0
7/12/2021	726.8	684.0
7/13/2021	726.8	684.0
7/14/2021	726.8	684.0
7/15/2021	726.8	684.0
7/16/2021	726.8	685.0
7/17/2021	726.8	685.0
7/18/2021	726.8	685.0
7/19/2021	726.6	685.0
7/20/2021	726.6	685.0
7/21/2021	726.6	686.0
7/22/2021	726.6	686.0
7/23/2021	726.6	686.0
7/24/2021	726.6	686.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/28/2022	725.5	690.8
6/29/2022	725.5	690.8
6/30/2022	725.5	690.8
7/1/2022	725.2	691.0
7/2/2022	725.2	691.0
7/3/2022	725.2	691.0
7/4/2022	725.2	691.0
7/5/2022	725.2	691.0
7/6/2022	725.2	691.0
7/7/2022	725.2	691.0
7/8/2022	725.2	691.0
7/9/2022	725.2	691.0
7/10/2022	725.2	691.0
7/11/2022	724.9	689.8
7/12/2022	724.9	689.8
7/13/2022	724.9	689.8
7/14/2022	724.9	689.8
7/15/2022	724.9	689.8
7/16/2022	724.9	689.8
7/17/2022	724.9	689.8
7/18/2022	724.7	688.5
7/19/2022	724.7	688.5
7/20/2022	724.7	688.5
7/21/2022	724.7	688.5
7/22/2022	724.7	688.5
7/23/2022	724.7	688.5
7/24/2022	724.7	688.5

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
6/28/2023	726.9	691.4
6/29/2023	726.9	691.4
6/30/2023	726.9	691.4
7/1/2023	726.9	690.4
7/2/2023	726.9	690.4
7/3/2023	726.9	690.4
7/4/2023	726.9	690.4
7/5/2023	726.9	690.4
7/6/2023	726.9	690.4
7/7/2023	726.9	690.4
7/8/2023	726.9	690.4
7/9/2023	726.9	690.4
7/10/2023	726.8	688.8
7/11/2023	726.8	688.8
7/12/2023	726.8	688.8
7/13/2023	726.8	688.8
7/14/2023	726.8	688.8
7/15/2023	726.8	688.8
7/16/2023	726.8	688.8
7/17/2023	726.7	687.2
7/18/2023	726.7	687.2
7/19/2023	726.7	687.2
7/20/2023	726.7	687.2
7/21/2023	726.7	687.2
7/22/2023	726.7	687.2
7/23/2023	726.7	687.2
7/24/2023	726.6	686.5

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
7/25/2021	726.6	686.0
7/26/2021	726.4	686.0
7/27/2021	726.4	686.0
7/28/2021	726.4	687.0
7/29/2021	726.4	687.0
7/30/2021	726.4	687.0
7/31/2021	726.4	687.0
8/1/2021	726.2	676.0
8/2/2021	726.2	676.0
8/3/2021	726.2	676.0
8/4/2021	726.2	676.0
8/5/2021	726.2	676.0
8/6/2021	726.2	676.0
8/7/2021	726.2	676.0
8/8/2021	726.2	676.0
8/9/2021	725.7	677.5
8/10/2021	725.7	677.5
8/11/2021	725.7	677.5
8/12/2021	725.7	677.5
8/13/2021	725.7	677.5
8/14/2021	725.7	677.5
8/15/2021	725.7	677.5
8/16/2021	725.5	672.0
8/17/2021	725.5	672.0
8/18/2021	725.5	672.0
8/19/2021	725.5	672.0
8/20/2021	725.5	672.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
7/25/2022	724.7	688.5
7/26/2022	724.7	688.5
7/27/2022	724.4	687.0
7/28/2022	724.4	687.0
7/29/2022	724.4	687.0
7/30/2022	724.4	687.0
7/31/2022	724.4	687.0
8/1/2022	724.1	686.5
8/2/2022	724.1	686.5
8/3/2022	724.1	686.5
8/4/2022	724.1	686.5
8/5/2022	724.1	686.5
8/6/2022	724.1	686.5
8/7/2022	724.1	686.5
8/8/2022	723.8	686.0
8/9/2022	723.8	686.0
8/10/2022	723.8	686.0
8/11/2022	723.8	686.0
8/12/2022	723.8	686.0
8/13/2022	723.8	686.0
8/14/2022	723.8	686.0
8/15/2022	723.6	685.5
8/16/2022	723.6	685.5
8/17/2022	723.6	685.5
8/18/2022	723.6	685.5
8/19/2022	723.6	685.5
8/20/2022	723.6	685.5

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
7/25/2023	726.6	686.5
7/26/2023	726.6	686.5
7/27/2023	726.6	686.5
7/28/2023	726.6	686.5
7/29/2023	726.6	686.5
7/30/2023	726.6	686.5
7/31/2023	726.6	685.5
8/1/2023	726.4	684.0
8/2/2023	726.4	684.0
8/3/2023	726.4	684.0
8/4/2023	726.4	684.0
8/5/2023	726.4	684.0
8/6/2023	726.4	684.0
8/7/2023	726.4	684.0
8/8/2023	726.4	684.0
8/9/2023	726.4	684.0
8/10/2023	726.4	684.0
8/11/2023	726.4	684.0
8/12/2023	726.4	684.0
8/13/2023	726.4	684.0
8/14/2023	726.3	680.0
8/15/2023	726.3	680.0
8/16/2023	726.3	680.0
8/17/2023	726.3	680.0
8/18/2023	726.3	680.0
8/19/2023	726.3	680.0
8/20/2023	726.3	680.0

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
8/21/2021	725.5	672.0
8/22/2021	725.5	672.0
8/23/2021	725.5	672.0
8/24/2021	725.5	672.0
8/25/2021	725.5	672.0
8/26/2021	725.5	674.0
8/27/2021	725.5	674.0
8/28/2021	725.5	674.0
8/29/2021	725.5	674.0
8/30/2021	725.5	674.0
8/31/2021	725.3	675.0
9/1/2021	725.3	677.5
9/2/2021	725.3	677.5
9/3/2021	725.3	677.5
9/4/2021	725.3	677.5
9/5/2021	725.3	677.5
9/6/2021	725.3	677.5
9/7/2021	725.3	677.5
9/8/2021	725.3	677.5
9/9/2021	725.3	677.5
9/10/2021	725.3	677.5
9/11/2021	725.3	677.5
9/12/2021	725.3	677.5
9/13/2021	725.3	679.0
9/14/2021	725.3	679.0
9/15/2021	725.3	679.0
9/16/2021	725.3	679.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
8/21/2022	723.6	685.5
8/22/2022	723.3	684.0
8/23/2022	723.3	684.0
8/24/2022	723.3	684.0
8/25/2022	723.3	684.0
8/26/2022	723.3	684.0
8/27/2022	723.3	684.0
8/28/2022	723.3	684.0
8/29/2022	723.0	682.0
8/30/2022	723.0	682.0
8/31/2022	723.0	682.0
9/1/2022	722.7	677.0
9/2/2022	722.7	677.0
9/3/2022	722.7	677.0
9/4/2022	722.7	677.0
9/5/2022	722.7	677.0
9/6/2022	722.7	677.0
9/7/2022	722.7	677.0
9/8/2022	722.7	677.0
9/9/2022	722.7	677.0
9/10/2022	722.7	677.0
9/11/2022	722.7	677.0
9/12/2022	722.7	678.0
9/13/2022	722.7	678.0
9/14/2022	722.7	678.0
9/15/2022	722.7	678.0
9/16/2022	722.7	678.0

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
8/21/2023	726.1	675.5
8/22/2023	726.1	675.5
8/23/2023	726.1	675.5
8/24/2023	726.1	675.5
8/25/2023	726.1	675.5
8/26/2023	726.1	675.5
8/27/2023	726.1	675.5
8/28/2023	726.0	670.0
8/29/2023	726.0	670.0
8/30/2023	726.0	670.0
8/31/2023	726.0	670.0
9/1/2023	733.0	
9/2/2023	733.0	
9/3/2023	733.0	
9/4/2023	733.0	
9/5/2023	733.0	
9/6/2023	733.0	
9/7/2023	733.0	
9/8/2023	733.0	
9/9/2023	733.0	
9/10/2023	733.0	
9/11/2023	733.0	
9/12/2023	733.0	
9/13/2023	733.0	
9/14/2023	733.0	
9/15/2023	733.0	
9/16/2023	733.0	

2020 - 2021 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
9/17/2021	725.3	679.0
9/18/2021	725.3	679.0
9/19/2021	725.3	674.0
9/20/2021	725.2	674.0
9/21/2021	725.2	674.0
9/22/2021	725.2	674.0
9/23/2021	725.2	674.0
9/24/2021	725.2	674.0
9/25/2021	725.2	674.0
9/26/2021	725.2	674.0
9/27/2021	725.2	672.0
9/28/2021	725.2	672.0
9/29/2021	725.2	672.0
9/30/2021	725.2	672.0

2021 - 2022 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
9/17/2022	722.7	678.0
9/18/2022	722.7	678.0
9/19/2022	722.7	678.0
9/20/2022	722.7	679.0
9/21/2022	722.7	679.0
9/22/2022	722.7	679.0
9/23/2022	722.7	679.0
9/24/2022	722.7	679.0
9/25/2022	722.7	679.0
9/26/2022	722.7	675.0
9/27/2022	722.7	675.0
9/28/2022	722.7	675.0
9/29/2022	722.7	675.0
9/30/2022	722.7	675.0

2022 - 2023 Seasonal Pond Water Elevation		
Date	UESP Elev., *ft.*	LESP Elev., *ft.*
9/17/2023	733.0	
9/18/2023	733.0	
9/19/2023	733.0	
9/20/2023	733.0	
9/21/2023	733.0	
9/22/2023	733.0	
9/23/2023	733.0	
9/24/2023	733.0	
9/25/2023	733.0	
9/26/2023	733.0	
9/27/2023	733.0	
9/28/2023	733.0	
9/29/2023	733.0	
9/30/2023	733.0	

APPENDIX M

LA CONTENTA WWTF
WATER BALANCES

APPENDIX M

NORMAL - PRECIPATION
WATER BALANCE FOR EFFLUENT STORAGE AND DISPOSAL
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW			STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	200,000	19.0	2.2	21.2	1.1	1.1	3.7	2.6	21.2	2.1	23.3	21.6	5.9	27.5	0.0	221.0
Nov	30	200,000	18.4	4.8	23.2	2.5	2.5	1.8	0.0	23.2	4.7	51.2	0.0	2.9	30.4	20.9	200.1
Dec	31	200,000	19.0	5.9	24.9	3.1	3.1	0.9	0.0	24.9	5.7	81.9	0.0	1.5	31.8	50.1	170.9
Jan	31	200,000	19.0	7.3	26.3	3.8	3.8	1.2	0.0	26.3	7.1	115.3	0.0	2.0	33.8	81.5	139.5
Feb	28	200,000	17.2	6.6	23.8	3.4	3.4	2.0	0.0	23.8	6.4	145.6	0.0	3.1	36.9	108.7	112.3
Mar	31	200,000	19.0	6.3	25.4	3.3	3.3	3.4	0.1	25.4	6.2	177.1	1.0	5.4	43.3	133.8	87.2
Apr	30	200,000	18.4	3.5	21.9	1.8	1.8	5.1	3.3	21.9	3.4	202.4	27.4	8.1	78.8	123.7	97.3
May	31	200,000	19.0	1.5	20.5	0.8	0.8	6.8	6.0	20.5	1.5	224.4	50.3	10.8	139.9	84.6	136.4
Jun	30	200,000	18.4	0.5	18.9	0.2	0.2	7.8	7.6	18.9	0.5	243.8	63.0	12.4	215.2	28.6	192.4
Jul	31	200,000	19.0	0.1	19.1	0.0	0.0	8.1	8.0	19.1	0.1	263.0	66.8	12.8	294.8	0.0	221.0
Aug	31	200,000	19.0	0.1	19.1	0.1	0.1	7.1	7.1	19.1	0.1	282.2	58.9	11.3	365.0	0.0	221.0
Sep	30	200,000	18.4	0.6	19.0	0.3	0.3	5.4	5.1	19.0	0.5	301.7	42.6	8.6	416.1	0.0	221.0
Total	365		224.0	39.4	263.4	20.4	20.4	53.4	39.8	263.4	38.3	301.7	331.6	84.5	416.1		

Storage Pond Areas and Capacities				
Criteria	Units	LESP	UESP	Total
Surface Area	*acres*	14.5	4.5	19.0
Catchment Areas	*acres*	17.0	5.5	22.5
Storage Capacities	*AF*	172.0	49.0	221.0

Irrigation Areas		
Site	Units	Total
Golf Course	*acres*	100.0

I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
Mean	*inches/yr.*	20.4	100%

APPENDIX M

100 YR - PRECIPATION
WATER BALANCE FOR EFFLUENT STORAGE AND DISPOSAL
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW			STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	200,000	19.0	3.9	22.9	1.1	2.0	3.7	1.7	22.9	3.8	26.7	14.3	5.9	20.2	6.5	214.5
Nov	30	200,000	18.4	8.6	27.0	2.5	4.5	1.8	0.0	27.0	8.4	62.0	0.0	2.9	23.0	39.0	182.0
Dec	31	200,000	19.0	10.5	29.5	3.1	5.4	0.9	0.0	29.5	10.2	101.8	0.0	1.5	24.5	77.3	143.7
Jan	31	200,000	19.0	13.0	32.0	3.8	6.7	1.2	0.0	32.0	12.6	146.4	0.0	2.0	26.5	120.0	101.0
Feb	28	200,000	17.2	11.8	29.0	3.4	6.1	2.0	0.0	29.0	11.5	186.9	0.0	3.1	29.6	157.3	63.7
Mar	31	200,000	19.0	11.3	30.3	3.3	5.9	3.4	0.0	30.3	11.0	228.2	0.0	5.4	35.0	193.3	27.7
Apr	30	200,000	18.4	6.2	24.6	1.8	3.2	5.1	1.9	24.6	6.1	258.9	15.6	8.1	58.6	200.3	20.7
May	31	200,000	19.0	2.7	21.7	0.8	1.4	6.8	5.4	21.7	2.6	283.3	45.2	10.8	114.6	168.6	52.4
Jun	30	200,000	18.4	0.8	19.2	0.2	0.4	7.8	7.4	19.2	0.8	303.3	61.4	12.4	188.4	114.9	106.1
Jul	31	200,000	19.0	0.1	19.2	0.0	0.1	8.1	8.0	19.2	0.1	322.6	66.6	12.8	267.7	54.9	166.1
Aug	31	200,000	19.0	0.2	19.2	0.1	0.1	7.1	7.0	19.2	0.2	342.0	58.6	11.3	337.6	4.5	216.5
Sep	30	200,000	18.4	1.0	19.4	0.3	0.5	5.4	4.9	19.4	1.0	362.4	40.6	8.6	386.8	0.0	221.0
Total	365		224.0	70.2	294.2	20.4	36.4	53.4	36.3	294.2	68.2	362.4	302.3	84.5	386.8		

Storage Pond Areas and Capacities				
Criteria	Units	LESP	UESP	Total
Surface Area	*acres*	14.5	4.5	19.0
Catchment Areas	*acres*	17.0	5.5	22.5
Storage Capacities	*AF*	172.0	49.0	221.0

Irrigation Areas		
Site	Units	Total
Golf Course	*acres*	100.0

I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
Mean	*inches/yr.*	20.4	100%

APPENDIX M

2022-23 - RAINFALL AND 152,000 *gal/day* ADWF
WATER BALANCE FOR EFFLUENT STORAGE AND DISPOSAL
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW			STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	152,000	14.5	0.0	14.5	1.1	0.0	3.7	3.7	14.5	0.0	14.5	31.0	5.9	36.9	0.0	214.0
Nov	30	152,000	14.0	0.8	14.8	2.5	3.0	1.8	0.0	14.8	5.6	34.9	0.0	2.9	2.9	32.0	182.0
Dec	31	152,000	14.5	10.5	25.0	3.1	10.8	0.9	0.0	25.0	20.2	80.0	0.0	1.5	4.3	75.7	138.3
Jan	31	152,000	14.5	22.1	36.5	3.8	13.2	1.2	0.0	36.5	24.8	141.3	0.0	2.0	6.3	135.0	79.0
Feb	28	152,000	13.1	6.3	19.3	3.4	3.6	2.0	0.0	19.3	6.8	167.4	0.0	3.1	9.4	158.0	56.0
Mar	31	152,000	14.5	7.9	22.3	3.3	8.6	3.4	0.0	22.3	16.0	205.8	0.0	5.4	14.8	191.0	23.0
Apr	30	152,000	14.0	14.8	28.8	1.8	0.1	5.1	5.0	28.8	0.2	234.8	41.7	8.1	64.5	170.3	43.7
May	31	152,000	14.5	4.5	19.0	0.8	0.6	6.8	6.3	19.0	1.0	254.8	52.3	10.8	127.6	127.2	86.8
Jun	30	152,000	14.0	3.8	17.8	0.2	0.0	7.8	7.8	17.8	0.0	272.6	65.0	12.4	204.9	67.7	146.3
Jul	31	152,000	14.5	3.9	18.3	0.0	0.0	8.1	8.1	18.3	0.0	290.9	67.2	12.8	284.9	6.1	207.9
Aug	31	152,000	14.5	1.6	16.0	0.1	0.1	7.1	7.0	16.0	0.2	307.1	58.6	11.3	354.7	0.0	214.0
Sep	30	152,000	14.0	1.2	15.2	0.3	0.3	5.4	5.2	15.2	0.5	322.8	42.9	8.6	406.2	0.0	214.0
Total	365		170.3	77.4	247.6	20.4	40.1	53.4	43.0	247.6	75.2	322.8	358.6	84.5	406.2		

Storage Pond Areas and Capacities				
Criteria	Units	LESP	UESP	Total
Surface Area	*acres*	14.5	4.5	19.0
Catchment Areas	*acres*	17.0	5.5	22.5
Storage Capacities	*AF*	172.0	42.0	214.0

I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
2022-23 Precipitation	*inches/yr.*	40.1	196%
Mean	*inches/yr.*	20.4	100%

Irrigation Areas		
Site	Units	Total
Golf Course	*acres*	100.0

2022-23 ADWF, Actual Influent Volume, Rainfall, and Effluent Storage						
Month	Days	ADWF, *AF*	Influent, *AF*	I&I, *AF*	Rainfall, *inches*	*Avail. Vol., AF*
October	31	14.4	13.7	0.0	0.00	209.1
November	30	14.0	14.8	0.8	3.00	202.8
December	31	14.4	25.0	10.5	10.75	-
January	31	14.4	36.5	22.1	13.20	135.0
February	28	13.0	19.3	6.3	3.60	122.8
March	31	14.4	22.3	7.9	8.55	79.7
April	30	14.0	28.8	14.8	0.10	54.5
May	31	14.4	18.9	4.5	0.55	104.4
June	30	14.0	17.8	3.8	0.00	146.5
July	31	14.4	18.3	3.9	0.00	174.1
August	31	14.4	16.0	1.6	0.10	200.4
September	30	14.0	15.2	1.2	0.25	-

2022-23 I/I and Rainfall Summary		
	I&I, *AF*	Rainfall, *inches*
Total	77.37	40.10

APPENDIX M

NORMAL - PRECIPATION
PHASE 3
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW				STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation Golf Course, *AF*	Irrigation Sprayfield, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	237,000	22.5	2.2	24.7	1.1	1.1	3.7	2.6	24.7	4.9	29.6	21.6	9.3	5.9	36.8	0.0	221.0
Nov	30	237,000	21.8	4.8	26.7	2.5	2.5	1.8	0.0	26.7	11.0	67.2	0.0	4.5	2.9	44.2	23.1	197.9
Dec	31	237,000	22.5	5.9	28.4	3.1	3.1	0.9	0.0	28.4	13.4	109.0	0.0	2.3	1.5	48.0	61.1	159.9
Jan	31	237,000	22.5	7.3	29.8	3.8	3.8	1.2	0.0	29.8	16.6	155.4	0.0	3.1	2.0	53.0	102.4	118.6
Feb	28	237,000	20.4	6.6	27.0	3.4	3.4	2.0	0.0	27.0	15.0	197.5	0.0	4.9	3.1	61.0	136.4	84.6
Mar	31	237,000	22.5	6.3	28.9	3.3	3.3	3.4	0.1	28.9	14.4	240.8	1.0	8.5	5.4	75.9	164.8	56.2
Apr	30	237,000	21.8	3.5	25.3	1.8	1.8	5.1	3.3	25.3	7.9	274.0	27.4	12.8	8.1	124.2	149.8	71.2
May	31	237,000	22.5	1.5	24.1	0.8	0.8	6.8	6.0	24.1	3.4	301.5	50.3	17.1	10.8	202.3	99.2	121.8
Jun	30	237,000	21.8	0.5	22.3	0.2	0.2	7.8	7.6	22.3	1.1	324.8	63.0	19.5	12.4	297.1	27.7	193.3
Jul	31	237,000	22.5	0.1	22.6	0.0	0.0	8.1	8.0	22.6	0.2	347.6	66.8	20.2	12.8	396.9	0.0	221.0
Aug	31	237,000	22.5	0.1	22.7	0.1	0.1	7.1	7.1	22.7	0.3	370.6	58.9	17.8	11.3	484.9	0.0	221.0
Sep	30	237,000	21.8	0.6	22.4	0.3	0.3	5.4	5.1	22.4	1.3	394.2	42.6	13.5	8.6	549.5	0.0	221.0
Total	365		265.5	39.4	304.9	20.4	20.4	53.4	39.8	304.9	89.3	394.2	331.6	133.4	84.5	549.5		

Storage Pond Areas and Capacities					
Criteria	Units	LESP	UESP	Sprayfield	Total
Surface Area	*acres*	14.5	4.5		19.0
Catchment Areas	*acres*	17.0	5.5	30.0	52.5
Storage Capacities	*AF*	172.0	49.0		221.0

Irrigation Areas		
Site	Units	Total
Sprayfield	*acres*	30.0

I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
Mean	*inches/yr.*	20.4	100%

APPENDIX M

NORMAL - PRECIPATION
PHASE 3
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW				STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation Golf Course, *AF*	Irrigation Sprayfield, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	237,000	22.5	2.2	24.7	1.1	1.1	3.7	2.6	24.7	4.9	29.6	21.6	9.3	5.9	36.8	0.0	221.0
Nov	30	237,000	21.8	4.8	26.7	2.5	2.5	1.8	0.0	26.7	11.0	67.2	0.0	4.5	2.9	44.2	23.1	197.9
Dec	31	237,000	22.5	5.9	28.4	3.1	3.1	0.9	0.0	28.4	13.4	109.0	0.0	2.3	1.5	48.0	61.1	159.9
Jan	31	237,000	22.5	7.3	29.8	3.8	3.8	1.2	0.0	29.8	16.6	155.4	0.0	3.1	2.0	53.0	102.4	118.6
Feb	28	237,000	20.4	6.6	27.0	3.4	3.4	2.0	0.0	27.0	15.0	197.5	0.0	4.9	3.1	61.0	136.4	84.6
Mar	31	237,000	22.5	6.3	28.9	3.3	3.3	3.4	0.1	28.9	14.4	240.8	1.0	8.5	5.4	75.9	164.8	56.2
Apr	30	237,000	21.8	3.5	25.3	1.8	1.8	5.1	3.3	25.3	7.9	274.0	27.4	12.8	8.1	124.2	149.8	71.2
May	31	237,000	22.5	1.5	24.1	0.8	0.8	6.8	6.0	24.1	3.4	301.5	50.3	17.1	10.8	202.3	99.2	121.8
Jun	30	237,000	21.8	0.5	22.3	0.2	0.2	7.8	7.6	22.3	1.1	324.8	63.0	19.5	12.4	297.1	27.7	193.3
Jul	31	237,000	22.5	0.1	22.6	0.0	0.0	8.1	8.0	22.6	0.2	347.6	66.8	20.2	12.8	396.9	0.0	221.0
Aug	31	237,000	22.5	0.1	22.7	0.1	0.1	7.1	7.1	22.7	0.3	370.6	58.9	17.8	11.3	484.9	0.0	221.0
Sep	30	237,000	21.8	0.6	22.4	0.3	0.3	5.4	5.1	22.4	1.3	394.2	42.6	13.5	8.6	549.5	0.0	221.0
Total	365		265.5	39.4	304.9	20.4	20.4	53.4	39.8	304.9	89.3	394.2	331.6	133.4	84.5	549.5		

Storage Pond Areas and Capacities					
Criteria	Units	LESP	UESP	Sprayfield	Total
Surface Area	*acres*	14.5	4.5		19.0
Catchment Areas	*acres*	17.0	5.5	30.0	52.5
Storage Capacities	*AF*	172.0	49.0		221.0

Irrigation Areas		
Site	Units	Total
Sprayfield	*acres*	30.0

I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
Mean	*inches/yr.*	20.4	100%

APPENDIX M

100 YR - PRECIPATION
PHASE 3
LA CONTENTA WASTEWATER TREATMENT FACILITY

YEAR		INFLUENT FLOW				CLIMATE DATA				INFLOW			OUTFLOW				STORAGE	
Month	Days	ADWF, *gal/day*	ADWF, *AF*	I&I, *AF*	ADWF + I&I, *AF*	Mean Rainfall, *inches*	Design Rainfall, *inches*	Eto Zone 12, *inches*	Net ETo *inches*	Flow Q + I&I *AF*	Pond Precip., *AF*	Accum. Inflow, *AF*	Irrigation Golf Course, *AF*	Irrigation Sprayfield, *AF*	Pond Evap., *AF*	Accum. Outflow, *AF*	Net Storage, *AF*	Avail. Storage, *AF*
Oct	31	237,000	22.5	3.9	26.4	1.1	2.0	3.7	1.7	26.4	3.8	30.2	14.3	9.3	5.9	29.5	0.7	220.3
Nov	30	237,000	21.8	8.6	30.4	2.5	4.5	1.8	0.0	30.4	8.4	69.0	0.0		2.9	32.3	36.6	184.4
Dec	31	237,000	22.5	10.5	33.0	3.1	5.4	0.9	0.0	33.0	10.2	112.2	0.0		1.5	33.8	78.4	142.6
Jan	31	237,000	22.5	13.0	35.6	3.8	6.7	1.2	0.0	35.6	12.6	160.4	0.0		2.0	35.8	124.6	96.4
Feb	28	237,000	20.4	11.8	32.2	3.4	6.1	2.0	0.0	32.2	11.5	204.0	0.0		3.1	38.9	165.2	55.8
Mar	31	237,000	22.5	11.3	33.9	3.3	5.9	3.4	0.0	33.9	11.0	248.9	0.0		5.4	44.3	204.6	16.4
Apr	30	237,000	21.8	6.2	28.1	1.8	3.2	5.1	1.9	28.1	6.1	283.0	15.6	12.8	8.1	80.7	202.3	18.7
May	31	237,000	22.5	2.7	25.2	0.8	1.4	6.8	5.4	25.2	2.6	310.9	45.2	17.1	10.8	153.7	157.1	63.9
Jun	30	237,000	21.8	0.8	22.6	0.2	0.4	7.8	7.4	22.6	0.8	334.3	61.4	19.5	12.4	247.0	87.3	133.7
Jul	31	237,000	22.5	0.1	22.7	0.0	0.1	8.1	8.0	22.7	0.1	357.1	66.6	20.2	12.8	346.5	10.7	210.3
Aug	31	237,000	22.5	0.2	22.7	0.1	0.1	7.1	7.0	22.7	0.2	380.1	58.6	17.8	11.3	434.1	0.0	221.0
Sep	30	237,000	21.8	1.0	22.8	0.3	0.5	5.4	4.9	22.8	1.0	403.9	40.6	13.5	8.6	496.8	0.0	221.0
Total	365		265.5	70.2	335.7	20.4	36.4	53.4	36.3	335.7	68.2	403.9	302.3	110.1	84.5	496.8		

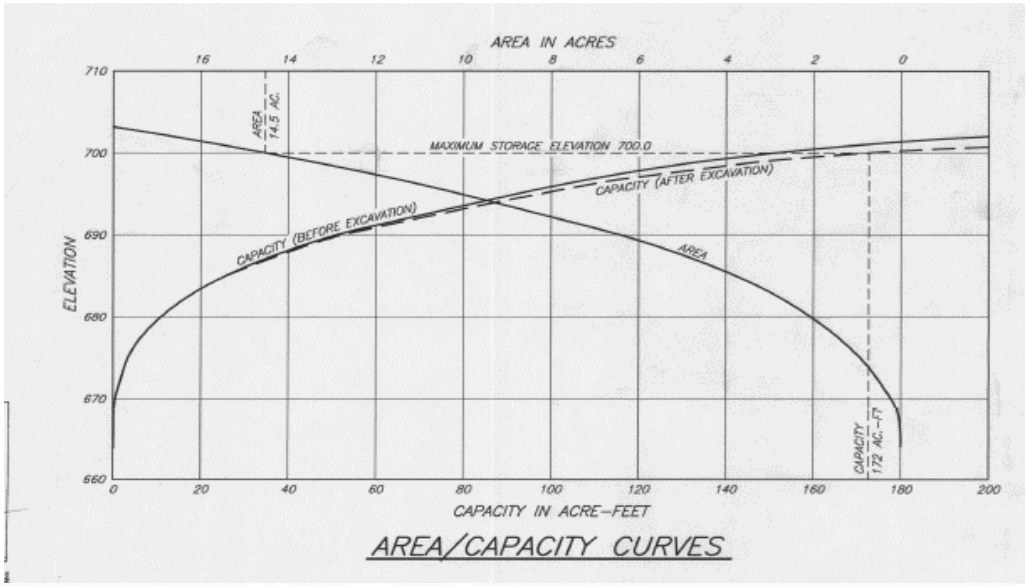
Storage Pond Areas and Capacities					
Criteria	Units	LESP	UESP	Sprayfield	Total
Surface Area	*acres*	14.5	4.5		19.0
Catchment Areas	*acres*	17.0	5.5	0.0	22.5
Storage Capacities	*AF*	172.0	49.0		221.0

Irrigation Areas		
Site	Units	Total
Sprayfield	*acres*	30.0

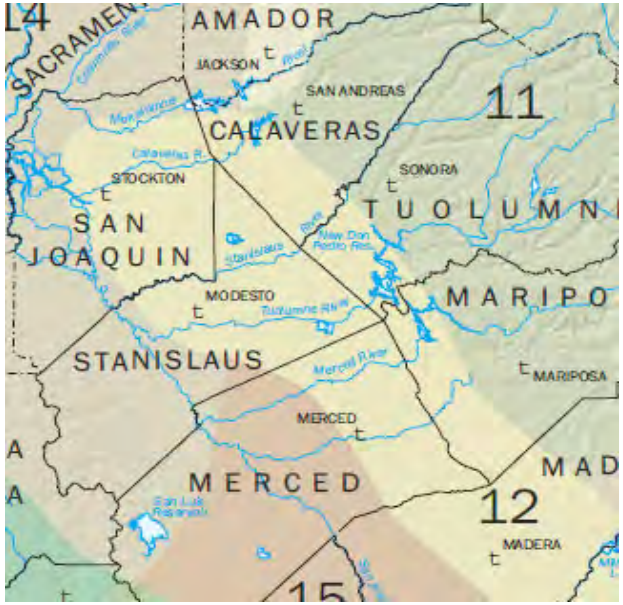
I/I from Rainfall	
Rainfall, *inch*	I/I, *AF*
1	1.93

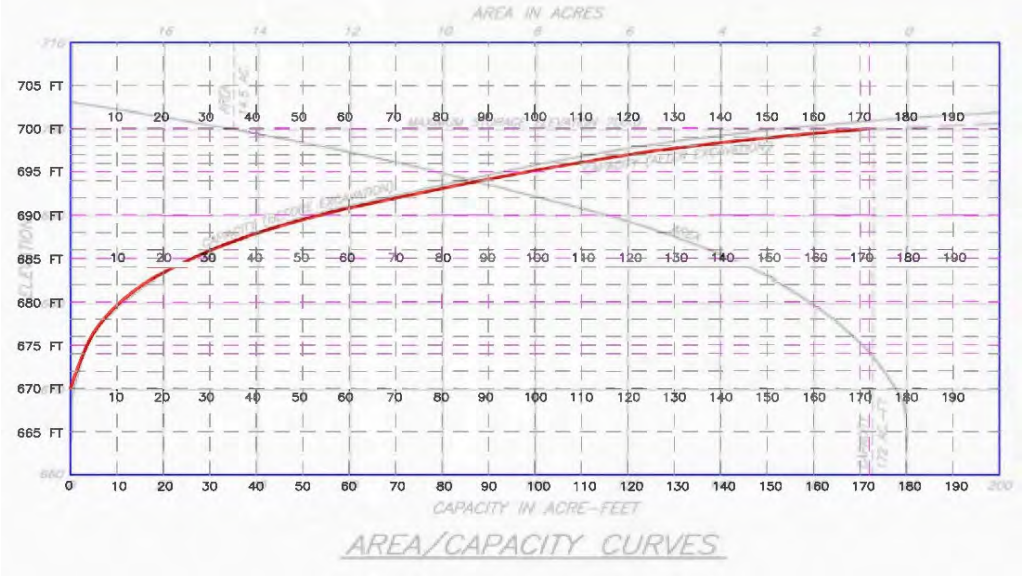
New Hogan Dam Rainfall			
Return Period	Units	Rainfall	% Normal
200-Yr.	*inches/yr.*	38.5	188%
100-Yr.	*inches/yr.*	36.4	178%
Mean	*inches/yr.*	20.4	100%

APPENDIX M



AREA/CAPACITY CURVES





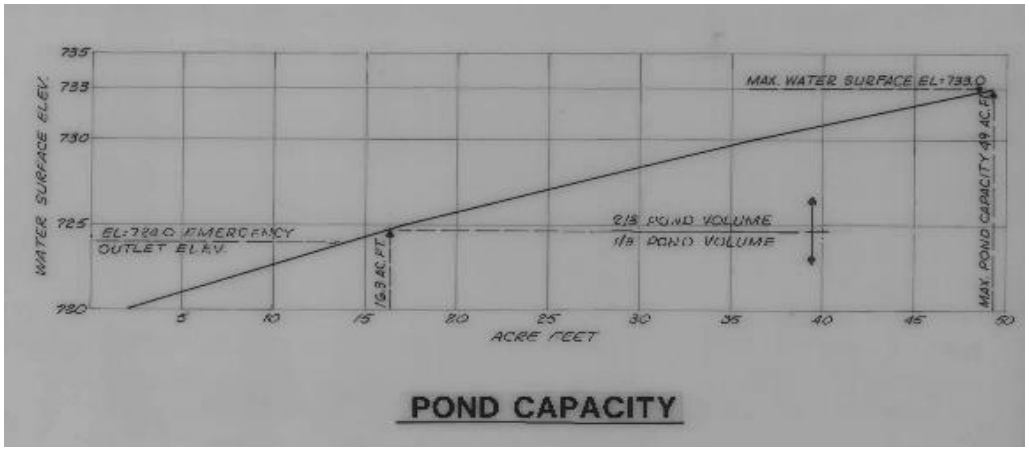
AREA/CAPACITY CURVES

CALIFORNIA

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

	PERIOD OF RECORD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
ANTIOCH PUMP PLANT 3	1955-2005	1.17	1.99	4.25	6.27	8.96	10.84	11.60	10.06	7.77	4.91	2.07	1.22	71.11
AUBURN DAM PROJECT	1972-1984	1.42	1.99	3.13	4.89	7.73	10.08	11.66	10.70	8.08	5.00	1.97	1.36	67.91
AVENAL 9 SSE	1955-1961	1.80	2.96	6.22	9.39	12.96	16.73	18.67	16.37	12.61	8.05	3.89	2.44	112.01
BACKUS RANCH	1948-1963	2.85	3.96	6.77	9.80	12.69	15.93	16.92	15.95	12.19	8.01	4.25	2.98	112.20
BEAUMONT PUMPING PLANT	1948-1975	2.90	3.29	4.08	5.03	6.40	8.15	10.64	9.97	7.90	5.87	3.22	2.50	70.35
BEAUMONT 1 E	1948-2001	3.10	3.73	4.99	5.23	7.60	9.31	10.97	10.66	8.85	6.53	5.16	3.95	80.08
BERRYESSA LAKE	1957-1970	1.53	2.15	3.79	5.82	8.90	11.00	13.22	12.06	8.67	5.72	3.48	1.66	77.00
BOCA	1948-2005	0.00	0.00	0.00	0.00	6.83	8.52	10.01	9.09	6.48	4.32	0.00	0.00	45.25
BRANNAN ISLAND	1968-1977	1.15	1.74	4.36	7.03	10.49	12.39	13.51	12.02	9.03	4.80	1.83	1.08	79.43
CACHUMA LAKE	1952-2005	2.44	3.53	4.41	6.01	7.55	8.56	9.50	8.99	7.00	5.42	3.49	2.79	69.68
CAMP PARDEE	1948-2005	0.72	1.12	2.32	4.18	7.04	9.43	11.17	9.50	6.51	3.77	1.40	0.72	57.88
CHICO EXPERIMENT STN	1906-2005	1.26	2.13	3.82	5.63	8.28	10.11	11.48	9.71	7.36	4.46	2.09	1.30	67.63
CHULA VISTA	1948-2005	2.81	3.45	5.03	6.06	6.76	6.96	7.63	7.48	6.21	5.02	3.58	2.78	63.77
COW CREEK	1948-1961	3.21	5.62	9.78	13.98	17.25	21.37	21.89	20.17	15.36	10.71	4.91	3.05	148.10
DAVIS 1 WSW	1917-2005	1.49	2.34	4.54	7.13	10.19	12.17	12.77	11.28	9.08	6.35	2.89	1.45	81.68
DEATH VALLEY	1961-2005	3.93	5.38	9.10	13.00	16.76	19.11	20.98	18.86	13.95	9.78	5.54	3.75	140.14
DUTCHS LANDING	1955-1977	1.42	2.09	3.87	5.70	7.74	9.34	9.34	8.27	6.75	4.65	2.25	1.46	62.88
FALL RIVER MILLS INTAKE	1948-2005	0.00	0.00	2.47	5.80	7.54	9.48	12.14	10.57	7.59	3.78	1.14	0.00	60.51
FERNDALE 2 NW	1963-1973	0.70	1.17	2.26	3.21	3.95	4.38	4.49	4.07	3.59	2.06	1.04	0.72	31.64
FOLSOM DAM	1955-1993	0.92	1.90	3.47	5.21	8.07	9.91	11.12	9.93	7.45	4.89	2.06	1.25	66.18
FRIANT GOVERNMENT CAMP	1948-2005	1.46	2.12	3.82	5.89	9.42	12.07	13.96	12.47	9.00	5.76	2.61	1.37	79.95
GRIZZLY ISLAND REFUGE	1971-1977	1.45	2.25	4.00	5.72	8.07	9.82	10.69	9.93	6.88	4.33	2.10	1.55	65.79
HETCH HETCHY	1931-2005	0.00	0.00	0.00	3.84	5.31	7.34	8.78	7.86	5.85	3.23	1.74	0.00	43.95
INDIO FIRE STATION	1927-2005	2.85	4.38	7.15	9.98	12.73	14.85	14.95	13.59	10.80	7.60	3.98	2.49	105.35
KETTLEMAN CITY 1 SSW	1955-2005	1.73	2.99	5.80	8.32	11.75	14.27	16.11	14.74	10.82	7.30	3.46	1.74	99.03
KNIGHTS FERRY 2 ESE	1959-1977	1.00	1.69	3.14	5.65	8.54	10.14	11.60	10.31	7.74	4.62	2.69	1.00	68.12
LAKE PILLSBURY 2	1964-1970	0.58	1.42	3.01	4.62	7.41	8.38	10.31	9.35	6.93	3.61	1.19	0.87	57.68
LAKESHORE 2	1948-1972	1.09	1.68	2.97	4.78	6.15	7.43	9.71	8.79	6.44	3.40	1.41	0.95	54.80
LAKE SOLANO	1975-2005	1.48	2.37	4.28	6.66	9.24	11.24	11.53	9.86	7.58	5.26	2.59	1.67	73.76
LAKE SPAULDING	1914-2003	0.00	0.00	0.00	0.00	4.57	6.52	8.16	6.78	4.54	1.98	0.00	0.00	32.55
LAKE SPAULDING DAM	1955-1971	0.00	0.00	0.00	0.00	7.20	9.98	12.38	11.85	8.94	6.64	0.00	0.00	56.99
LITTLE PANOCHE DET DAM	1968-1975	1.77	2.89	5.87	9.39	14.56	16.31	18.45	16.63	12.46	7.60	3.04	1.78	110.75
LODI	1948-2005	1.19	1.95	3.82	6.01	9.60	9.92	10.63	9.11	6.68	4.08	1.96	1.07	64.92
LOS BANOS DET RESV	1968-2005	1.57	2.71	5.44	9.34	14.18	16.58	17.85	15.63	11.87	7.49	3.34	1.82	107.82
MANDEVILLE ISLAND	1955-1965	1.10	2.38	4.77	6.95	8.55	10.44	11.22	9.71	7.41	5.12	2.47	1.13	71.25
MANTECA	1965-1977	1.20	1.71	4.04	6.33	9.24	10.53	11.64	10.22	7.19	4.13	1.78	1.16	69.17
MARKLEY COVE	1970-2005	1.03	1.51	3.03	4.80	7.33	9.60	10.82	9.45	6.99	4.35	1.75	1.01	61.67
MOJAVE	1948-2005	0.00	4.65	6.45	9.97	13.59	15.33	17.21	16.00	11.83	8.28	4.76	3.52	111.59
MONTICELLO DAM	1957-1970	1.02	1.03	3.24	4.96	7.35	9.36	11.20	10.07	7.56	4.82	1.98	1.08	64.47
NACIMIENTO DAM	1957-1978	1.58	2.20	3.92	5.53	7.92	9.85	11.28	10.43	7.76	5.16	2.57	1.66	69.86

APPENDIX M


WATER SURFACE ELEV.
735
733
730
725
720
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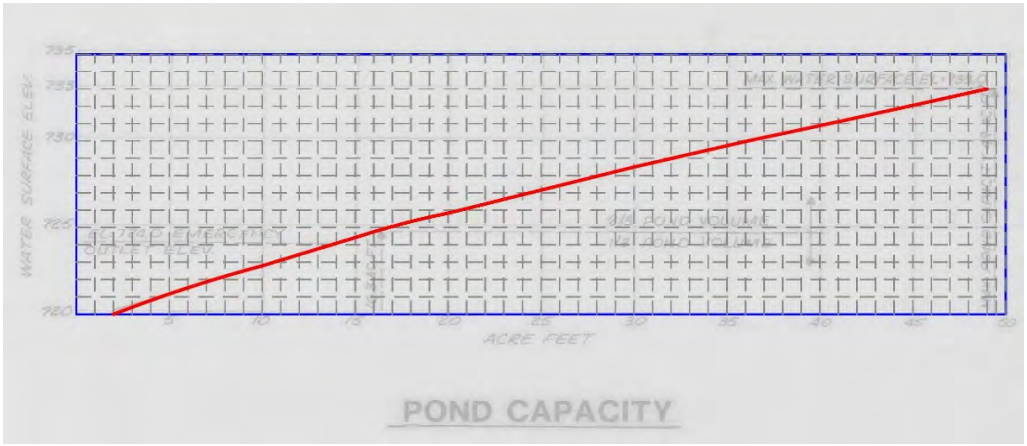
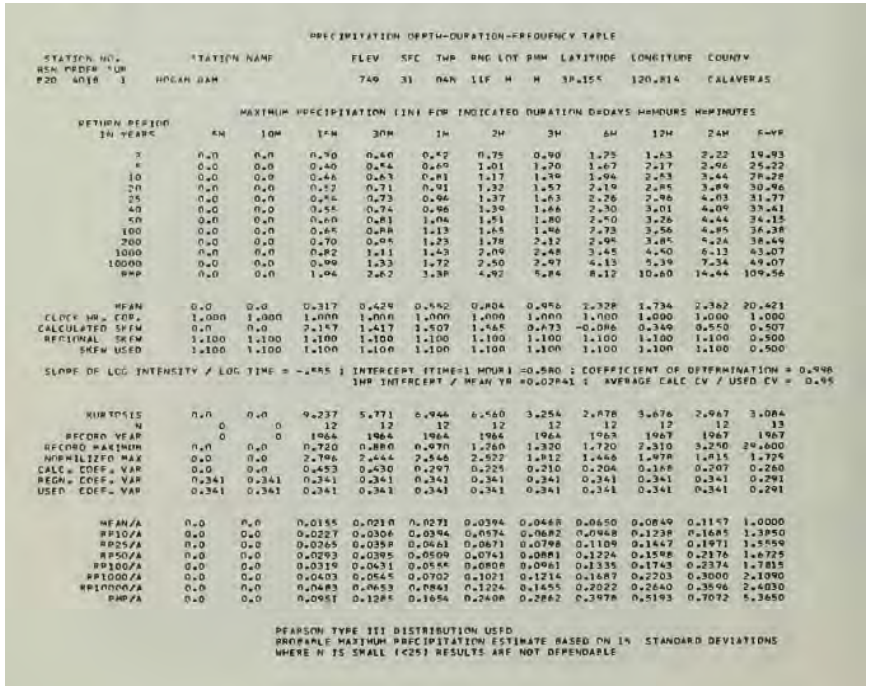
MAX. POND CAPACITY 49 AC.FT.
EL=724.0 EMERGENCY OUTLET ELEV.
2/3 POND VOLUME
1/3 POND VOLUME
16.3 AC. FT.
5
10
15
20
25
30
35
40
45
50
ACRE FEET
POND CAPACITY


WATER SURFACE ELEV.
ACRE FEET
POND CAPACITY



PRECIPITATION DEPTH-DURATION-FREQUENCY TABLE

STATION NO. (USA MODIFIED)	STATION NAME	ELEV	SEC	TWP	RNG	LOT	PRM	LATITUDE	LONGITUDE	COUNTY
F20 4018 1	HOGAN DAM	749	31	04N	11E	H	M	38.155	120.814	CALAVERAS

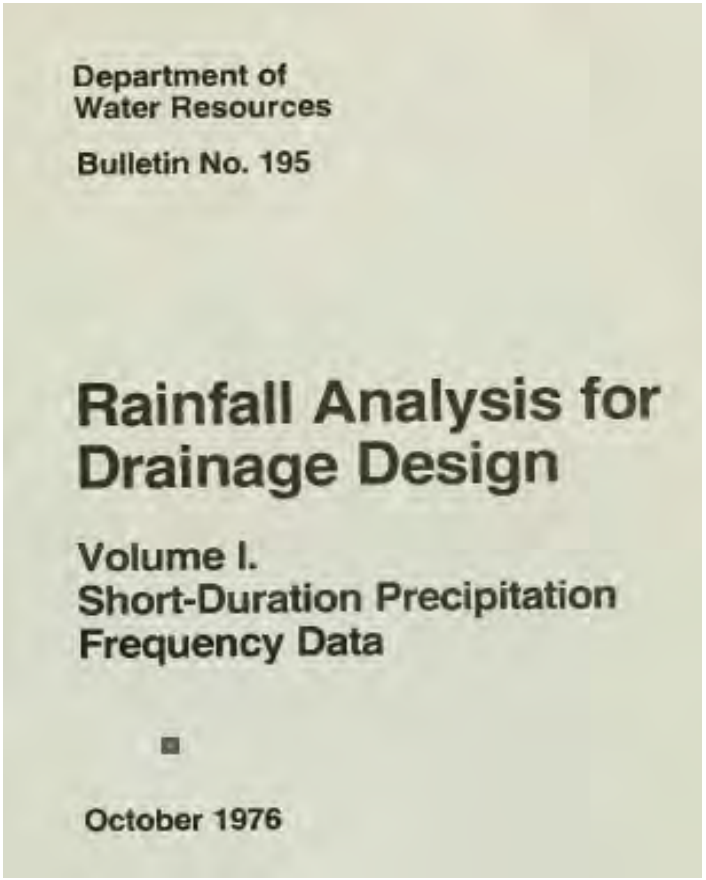
MAXIMUM PRECIPITATION (IN) FOR INDICATED DURATION D=DAYS H=HOURS M=MINUTES

RETURN PERIOD IN YEARS	5M	10M	15M	30M	1H	2H	3H	6H	12H	24H	5-YR
2	0.0	0.0	0.38	0.46	0.57	0.75	0.90	1.25	1.63	2.22	19.93
5	0.0	0.0	0.40	0.54	0.69	1.01	1.20	1.67	2.17	2.96	26.22
10	0.0	0.0	0.46	0.63	0.81	1.17	1.39	1.94	2.53	3.44	29.28
20	0.0	0.0	0.52	0.71	0.91	1.32	1.57	2.19	2.85	3.89	30.96
25	0.0	0.0	0.54	0.73	0.96	1.37	1.63	2.26	2.96	4.03	31.77
40	0.0	0.0	0.55	0.74	0.98	1.39	1.66	2.30	3.01	4.09	33.61
50	0.0	0.0	0.60	0.81	1.06	1.51	1.80	2.50	3.26	4.44	34.15
100	0.0	0.0	0.65	0.88	1.13	1.65	1.96	2.73	3.56	4.85	36.38
200	0.0	0.0	0.70	0.95	1.23	1.78	2.12	2.94	3.85	5.24	38.69
1000	0.0	0.0	0.82	1.11	1.43	2.08	2.48	3.45	4.50	6.13	43.07
10000	0.0	0.0	0.99	1.33	1.72	2.50	2.97	4.13	5.39	7.34	49.07
PMP	0.0	0.0	1.94	2.62	3.38	4.92	5.84	8.12	10.60	14.44	109.56
MEAN	0.0	0.0	0.317	0.429	0.552	0.804	0.956	1.328	1.734	2.362	20.421
LOG10 MN. COR.	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
CALCULATED SKEW	0.0	0.0	2.157	1.417	1.507	1.465	0.473	-0.086	0.349	0.550	0.507
REGIONAL SKEW	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	0.500
SKEW USED	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	0.500

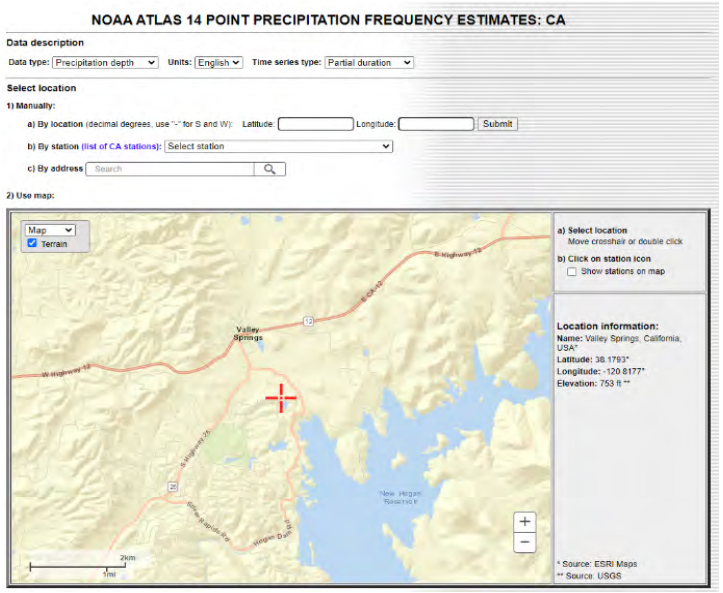
SLOPE OF LOG INTENSITY / LOG TIME = -.485 ; INTERCEPT (TIME=1 HOUR) =0.580 ; COEFFICIENT OF DETERMINATION = 0.998
1HR INTERCEPT / MEAN YR =0.02941 ; AVERAGE CALC CV / USED CV = 0.99

KURTOSIS	0.0	0.0	9.237	5.771	6.946	6.560	3.254	2.878	3.676	2.967	3.084
N	0	0	12	12	12	12	12	12	12	12	13
RECORD YEAR	0	0	1964	1964	1964	1964	1964	1963	1967	1967	1967
RECORD MAXIMUM	0.0	0.0	0.720	0.880	0.970	1.260	1.330	1.720	2.310	3.250	29.600
NORMALIZED MAX	0.0	0.0	2.796	2.444	2.546	2.522	1.812	1.446	1.978	1.815	1.729
CALC. COEF. VAR	0.0	0.0	0.453	0.430	0.297	0.225	0.210	0.204	0.188	0.207	0.260
REGN. COEF. VAR	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.291
USED COEF. VAR	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.291
MEAN/A	0.0	0.0	0.0155	0.0210	0.0271	0.0394	0.0468	0.0650	0.0849	0.1157	1.0000
RP10/A	0.0	0.0	0.0227	0.0306	0.0394	0.0574	0.0682	0.0948	0.1238	0.1685	1.3850
RP25/A	0.0	0.0	0.0265	0.0358	0.0461	0.0671	0.0798	0.1109	0.1447	0.1971	1.5559
RP50/A	0.0	0.0	0.0293	0.0395	0.0509	0.0741	0.0881	0.1224	0.1598	0.2176	1.6725
RP100/A	0.0	0.0	0.0319	0.0431	0.0555	0.0808	0.0961	0.1335	0.1743	0.2374	1.7815
RP1000/A	0.0	0.0	0.0403	0.0545	0.0702	0.1021	0.1214	0.1687	0.2203	0.3000	2.1090
RP10000/A	0.0	0.0	0.0483	0.0653	0.0841	0.1224	0.1455	0.2022	0.2640	0.3596	2.4030
PMP/A	0.0	0.0	0.0957	0.1295	0.1654	0.2408	0.2862	0.3978	0.5193	0.7072	5.3650

PEARSON TYPE III DISTRIBUTION USED
PROBABLE MAXIMUM PRECIPITATION ESTIMATE BASED ON 14 STANDARD DEVIATIONS
WHERE N IS SMALL (<25) RESULTS ARE NOT DEPENDABLE



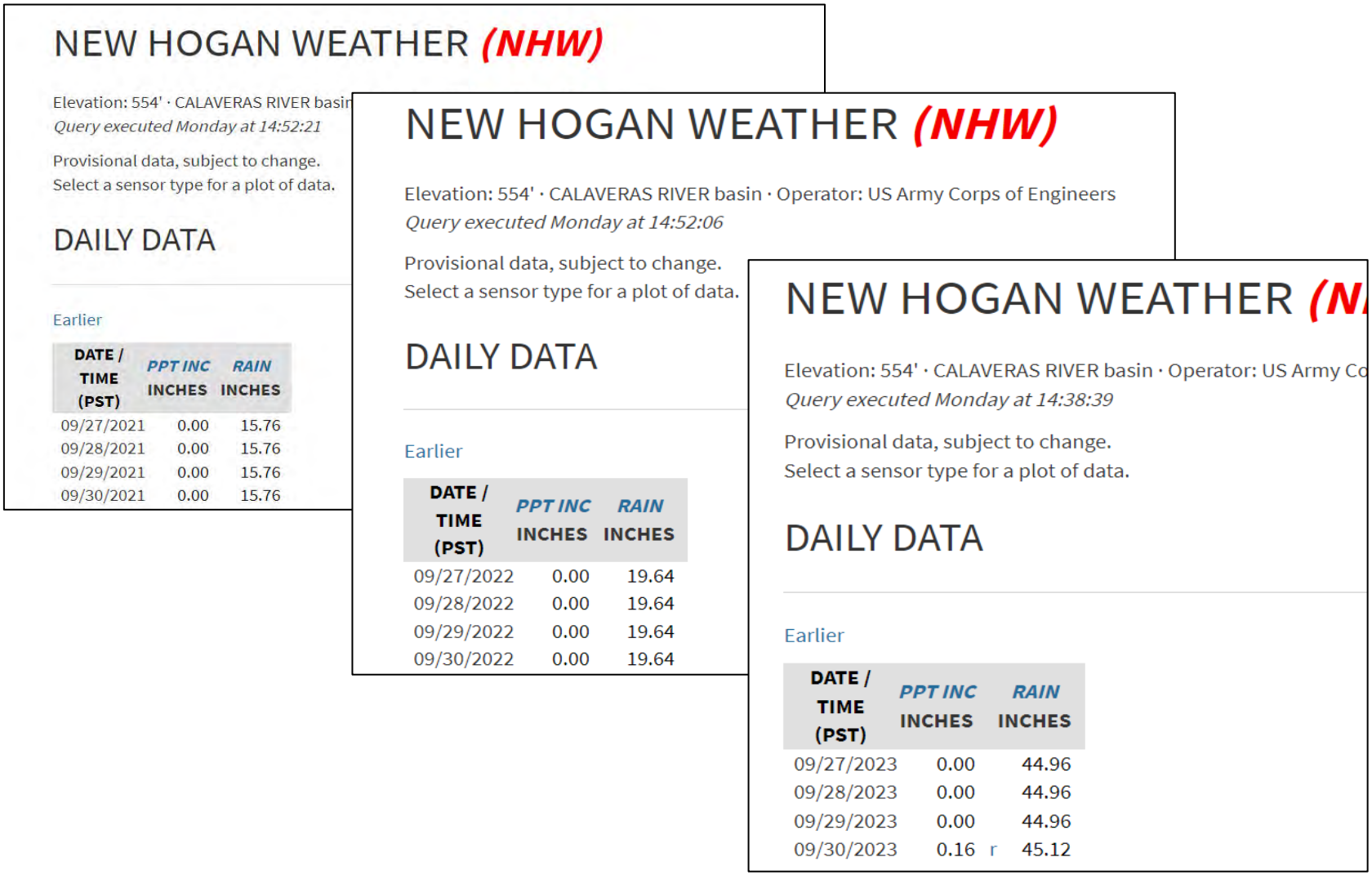
APPENDIX M



PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
24-hr	1.89 (1.71-2.14)	2.29 (2.07-2.59)	2.80 (2.52-3.17)	3.21 (2.86-3.66)	3.74 (3.23-4.43)	4.15 (3.50-5.02)	4.55 (3.74-5.55)	4.96 (3.96-6.34)	5.49 (4.20-7.34)	5.90 (4.35-8.18)
2-day	2.32 (2.10-2.61)	2.83 (2.56-3.20)	3.47 (3.13-3.93)	3.97 (3.54-4.54)	4.60 (3.97-5.45)	5.07 (4.27-6.13)	5.52 (4.53-6.85)	5.96 (4.75-7.62)	6.52 (4.98-8.72)	6.94 (5.11-9.62)
3-day	2.67 (2.42-3.02)	3.30 (2.98-3.72)	4.05 (3.65-4.59)	4.63 (4.13-5.29)	5.36 (4.62-6.34)	5.88 (4.95-7.11)	6.37 (5.24-7.91)	6.86 (5.47-8.77)	7.46 (5.70-9.97)	7.91 (5.82-11.0)
4-day	3.01 (2.72-3.39)	3.73 (3.37-4.21)	4.59 (4.14-5.20)	5.24 (4.68-5.99)	6.05 (5.21-7.16)	6.62 (5.58-8.01)	7.16 (5.88-8.89)	7.67 (6.12-9.81)	8.31 (6.35-11.1)	8.78 (6.46-12.2)
7-day	3.66 (3.31-4.12)	4.57 (4.12-5.16)	5.63 (5.07-6.38)	6.41 (5.72-7.32)	7.36 (6.34-8.70)	8.00 (6.75-9.69)	8.60 (7.07-10.7)	9.17 (7.32-11.7)	9.86 (7.53-13.2)	10.3 (7.61-14.3)
10-day	4.14 (3.75-4.67)	5.20 (4.70-5.88)	6.42 (5.78-7.27)	7.30 (6.52-8.34)	8.35 (7.20-9.88)	9.06 (7.64-11.0)	9.71 (7.98-12.1)	10.3 (8.23-13.2)	11.0 (8.43-14.7)	11.5 (8.50-16.0)
20-day	5.51 (4.98-6.21)	6.97 (6.30-7.88)	8.63 (7.78-9.78)	9.81 (8.76-11.2)	11.2 (9.65-13.2)	12.1 (10.2-14.6)	12.9 (10.6-16.1)	13.7 (10.9-17.5)	14.6 (11.1-19.5)	15.2 (11.2-21.0)
30-day	6.74 (6.10-7.60)	8.55 (7.72-9.66)	10.6 (9.54-12.0)	12.0 (10.7-13.7)	13.7 (11.8-16.2)	14.8 (12.5-17.9)	15.8 (13.0-19.8)	16.7 (13.3-21.4)	17.8 (13.6-23.7)	18.5 (13.6-25.6)
45-day	8.40 (7.60-9.46)	10.6 (9.61-12.0)	13.2 (11.8-14.9)	14.9 (13.3-17.1)	17.0 (14.6-20.1)	18.4 (15.5-22.2)	19.6 (16.1-24.3)	20.7 (16.5-26.4)	22.0 (16.8-29.3)	22.8 (16.8-31.6)
60-day	10.0 (9.09-11.3)	12.7 (11.4-14.3)	15.6 (14.1-17.7)	17.7 (15.8-20.2)	20.1 (17.3-23.8)	21.7 (18.3-26.3)	23.1 (19.0-28.7)	24.4 (19.5-31.2)	25.9 (19.8-34.6)	26.9 (19.8-37.3)

APPENDIX M



NEW HOGAN WEATHER *(NHW)*

Elevation: 554' · CALAVERAS RIVER basin
Query executed Monday at 14:52:21

Provisional data, subject to change.
Select a sensor type for a plot of data.

DAILY DATA

Earlier

DATE / TIME (PST)	*PPT INC* INCHES	*RAIN* INCHES
09/27/2021	0.00	15.76
09/28/2021	0.00	15.76
09/29/2021	0.00	15.76
09/30/2021	0.00	15.76

NEW HOGAN WEATHER *(NHW)*

Elevation: 554' · CALAVERAS RIVER basin · Operator: US Army Corps of Engineers
Query executed Monday at 14:52:06

Provisional data, subject to change.
Select a sensor type for a plot of data.

DAILY DATA

Earlier

DATE / TIME (PST)	*PPT INC* INCHES	*RAIN* INCHES
09/27/2022	0.00	19.64
09/28/2022	0.00	19.64
09/29/2022	0.00	19.64
09/30/2022	0.00	19.64

NEW HOGAN WEATHER *(N*

Elevation: 554' · CALAVERAS RIVER basin · Operator: US Army Co
Query executed Monday at 14:38:39

Provisional data, subject to change.
Select a sensor type for a plot of data.

DAILY DATA

Earlier

DATE / TIME (PST)	*PPT INC* INCHES	*RAIN* INCHES
09/27/2023	0.00	44.96
09/28/2023	0.00	44.96
09/29/2023	0.00	44.96
09/30/2023	0.16 r	45.12

APPENDIX N

LA CONTENTA WWTF
2020 TO 2023
DAILY EFFLUENT AND IRRIGATION DEMAND

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/1/2020	12.300	37.750
10/2/2020	0.000	0.000
10/3/2020	0.000	0.000
10/4/2020	0.000	0.000
10/5/2020	3.230	9.913
10/6/2020	0.000	0.000
10/7/2020	0.000	0.000
10/8/2020	0.000	0.000
10/9/2020	0.000	0.000
10/10/2020	0.000	0.000
10/11/2020	0.000	0.000
10/12/2020	0.000	0.000
10/13/2020	0.000	0.000
10/14/2020	2.639	8.099
10/15/2020	0.000	0.000
10/16/2020	0.000	0.000
10/17/2020	0.000	0.000
10/18/2020	0.000	0.000
10/19/2020	0.000	0.000
10/20/2020	0.000	0.000
10/21/2020	0.000	0.000
10/22/2020	2.332	7.157
10/23/2020	0.000	0.000
10/24/2020	0.000	0.000
10/25/2020	0.000	0.000
10/26/2020	0.000	0.000
10/27/2020	0.000	0.000
10/28/2020	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/1/2021	0.000	0.000
10/2/2021	0.000	0.000
10/3/2021	0.000	0.000
10/4/2021	0.000	0.000
10/5/2021	0.000	0.000
10/6/2021	0.000	0.000
10/7/2021	0.000	0.000
10/8/2021	0.000	0.000
10/9/2021	0.000	0.000
10/10/2021	0.000	0.000
10/11/2021	0.000	0.000
10/12/2021	0.000	0.000
10/13/2021	0.000	0.000
10/14/2021	0.000	0.000
10/15/2021	0.000	0.000
10/16/2021	0.000	0.000
10/17/2021	0.000	0.000
10/18/2021	0.000	0.000
10/19/2021	0.000	0.000
10/20/2021	0.000	0.000
10/21/2021	0.000	0.000
10/22/2021	0.000	0.000
10/23/2021	0.000	0.000
10/24/2021	0.000	0.000
10/25/2021	0.000	0.000
10/26/2021	0.000	0.000
10/27/2021	0.000	0.000
10/28/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/1/2022	0.000	0.000
10/2/2022	0.000	0.000
10/3/2022	0.000	0.000
10/4/2022	0.000	0.000
10/5/2022	0.000	0.000
10/6/2022	0.000	0.000
10/7/2022	1.279	3.925
10/8/2022	0.000	0.000
10/9/2022	0.000	0.000
10/10/2022	0.000	0.000
10/11/2022	0.000	0.000
10/12/2022	0.000	0.000
10/13/2022	0.000	0.000
10/14/2022	0.000	0.000
10/15/2022	0.000	0.000
10/16/2022	0.000	0.000
10/17/2022	0.000	0.000
10/18/2022	0.000	0.000
10/19/2022	0.000	0.000
10/20/2022	0.000	0.000
10/21/2022	0.000	0.000
10/22/2022	0.000	0.000
10/23/2022	0.000	0.000
10/24/2022	3.700	11.356
10/25/2022	0.000	0.000
10/26/2022	0.000	0.000
10/27/2022	0.000	0.000
10/28/2022	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/29/2020	0.000	0.000
10/30/2020	1.403	4.306
10/31/2020	0.000	0.000
11/1/2020	0.000	0.000
11/2/2020	0.000	0.000
11/3/2020	0.000	0.000
11/4/2020	0.000	0.000
11/5/2020	0.000	0.000
11/6/2020	0.000	0.000
11/7/2020	0.000	0.000
11/8/2020	0.000	0.000
11/9/2020	0.000	0.000
11/10/2020	0.000	0.000
11/11/2020	0.000	0.000
11/12/2020	0.000	0.000
11/13/2020	0.000	0.000
11/14/2020	0.000	0.000
11/15/2020	0.000	0.000
11/16/2020	0.000	0.000
11/17/2020	0.000	0.000
11/18/2020	0.000	0.000
11/19/2020	0.000	0.000
11/20/2020	0.000	0.000
11/21/2020	0.000	0.000
11/22/2020	0.000	0.000
11/23/2020	0.000	0.000
11/24/2020	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/29/2021	0.000	0.000
10/30/2021	0.000	0.000
10/31/2021	4.600	14.118
11/1/2021	0.000	0.000
11/2/2021	0.000	0.000
11/3/2021	0.000	0.000
11/4/2021	0.000	0.000
11/5/2021	0.000	0.000
11/6/2021	0.000	0.000
11/7/2021	0.000	0.000
11/8/2021	0.000	0.000
11/9/2021	0.000	0.000
11/10/2021	0.000	0.000
11/11/2021	0.000	0.000
11/12/2021	0.000	0.000
11/13/2021	0.000	0.000
11/14/2021	0.000	0.000
11/15/2021	0.000	0.000
11/16/2021	0.000	0.000
11/17/2021	0.000	0.000
11/18/2021	0.000	0.000
11/19/2021	0.000	0.000
11/20/2021	0.000	0.000
11/21/2021	0.000	0.000
11/22/2021	0.000	0.000
11/23/2021	0.000	0.000
11/24/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
10/29/2022	0.000	0.000
10/30/2022	0.000	0.000
10/31/2022	0.000	0.000
11/1/2022	0.000	0.000
11/2/2022	0.000	0.000
11/3/2022	0.000	0.000
11/4/2022	0.000	0.000
11/5/2022	0.000	0.000
11/6/2022	0.000	0.000
11/7/2022	0.000	0.000
11/8/2022	11.424	35.063
11/9/2022	0.000	0.000
11/10/2022	0.000	0.000
11/11/2022	0.000	0.000
11/12/2022	0.000	0.000
11/13/2022	0.000	0.000
11/14/2022	0.000	0.000
11/15/2022	0.000	0.000
11/16/2022	0.000	0.000
11/17/2022	0.000	0.000
11/18/2022	0.000	0.000
11/19/2022	0.000	0.000
11/20/2022	0.000	0.000
11/21/2022	0.000	0.000
11/22/2022	0.000	0.000
11/23/2022	0.000	0.000
11/24/2022	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
11/25/2020	0.000	0.000
11/26/2020	0.000	0.000
11/27/2020	0.000	0.000
11/28/2020	0.000	0.000
11/29/2020	0.000	0.000
11/30/2020	6.991	21.456
12/1/2020	0.000	0.000
12/2/2020	0.000	0.000
12/3/2020	0.000	0.000
12/4/2020	0.000	0.000
12/5/2020	0.000	0.000
12/6/2020	0.000	0.000
12/7/2020	0.000	0.000
12/8/2020	0.000	0.000
12/9/2020	0.000	0.000
12/10/2020	0.000	0.000
12/11/2020	0.000	0.000
12/12/2020	0.000	0.000
12/13/2020	0.000	0.000
12/14/2020	0.000	0.000
12/15/2020	0.000	0.000
12/16/2020	0.000	0.000
12/17/2020	0.000	0.000
12/18/2020	0.000	0.000
12/19/2020	0.000	0.000
12/20/2020	0.000	0.000
12/21/2020	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
11/25/2021	0.000	0.000
11/26/2021	0.000	0.000
11/27/2021	0.000	0.000
11/28/2021	0.000	0.000
11/29/2021	0.000	0.000
11/30/2021	0.000	0.000
12/1/2021	0.000	0.000
12/2/2021	0.000	0.000
12/3/2021	0.000	0.000
12/4/2021	0.000	0.000
12/5/2021	0.000	0.000
12/6/2021	0.000	0.000
12/7/2021	0.000	0.000
12/8/2021	0.000	0.000
12/9/2021	0.000	0.000
12/10/2021	0.000	0.000
12/11/2021	0.000	0.000
12/12/2021	0.000	0.000
12/13/2021	0.000	0.000
12/14/2021	0.000	0.000
12/15/2021	0.000	0.000
12/16/2021	0.000	0.000
12/17/2021	0.000	0.000
12/18/2021	0.000	0.000
12/19/2021	0.000	0.000
12/20/2021	0.000	0.000
12/21/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
11/25/2022	0.000	0.000
11/26/2022	0.000	0.000
11/27/2022	0.000	0.000
11/28/2022	0.000	0.000
11/29/2022	0.000	0.000
11/30/2022	0.000	0.000
12/1/2022	0.000	0.000
12/2/2022	0.000	0.000
12/3/2022	0.000	0.000
12/4/2022	0.000	0.000
12/5/2022	0.000	0.000
12/6/2022	0.000	0.000
12/7/2022	0.000	0.000
12/8/2022	0.000	0.000
12/9/2022	0.000	0.000
12/10/2022	0.000	0.000
12/11/2022	0.000	0.000
12/12/2022	0.000	0.000
12/13/2022	0.000	0.000
12/14/2022	0.000	0.000
12/15/2022	0.000	0.000
12/16/2022	0.000	0.000
12/17/2022	0.000	0.000
12/18/2022	0.000	0.000
12/19/2022	0.000	0.000
12/20/2022	0.000	0.000
12/21/2022	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
12/22/2020	0.000	0.000
12/23/2020	0.000	0.000
12/24/2020	0.000	0.000
12/25/2020	0.000	0.000
12/26/2020	0.000	0.000
12/27/2020	0.000	0.000
12/28/2020	0.000	0.000
12/29/2020	0.000	0.000
12/30/2020	0.000	0.000
12/31/2020	0.000	0.000
1/1/2021	0.000	0.000
1/2/2021	0.000	0.000
1/3/2021	0.000	0.000
1/4/2021	0.000	0.000
1/5/2021	0.000	0.000
1/6/2021	0.000	0.000
1/7/2021	0.000	0.000
1/8/2021	0.000	0.000
1/9/2021	0.000	0.000
1/10/2021	0.000	0.000
1/11/2021	0.000	0.000
1/12/2021	0.000	0.000
1/13/2021	0.000	0.000
1/14/2021	0.000	0.000
1/15/2021	0.000	0.000
1/16/2021	0.000	0.000
1/17/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
12/22/2021	0.000	0.000
12/23/2021	0.000	0.000
12/24/2021	0.000	0.000
12/25/2021	0.000	0.000
12/26/2021	0.000	0.000
12/27/2021	0.000	0.000
12/28/2021	0.000	0.000
12/29/2021	0.000	0.000
12/30/2021	0.000	0.000
12/31/2021	0.000	0.000
1/1/2022	0.000	0.000
1/2/2022	0.000	0.000
1/3/2022	0.000	0.000
1/4/2022	0.000	0.000
1/5/2022	0.000	0.000
1/6/2022	0.000	0.000
1/7/2022	0.000	0.000
1/8/2022	0.000	0.000
1/9/2022	0.000	0.000
1/10/2022	0.000	0.000
1/11/2022	0.000	0.000
1/12/2022	0.000	0.000
1/13/2022	0.000	0.000
1/14/2022	0.000	0.000
1/15/2022	0.000	0.000
1/16/2022	0.000	0.000
1/17/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
12/22/2022	0.000	0.000
12/23/2022	0.000	0.000
12/24/2022	0.000	0.000
12/25/2022	0.000	0.000
12/26/2022	0.000	0.000
12/27/2022	0.000	0.000
12/28/2022	0.000	0.000
12/29/2022	0.000	0.000
12/30/2022	0.000	0.000
12/31/2022	0.000	0.000
1/1/2023	0.000	0.000
1/2/2023	0.000	0.000
1/3/2023	0.000	0.000
1/4/2023	0.000	0.000
1/5/2023	0.000	0.000
1/6/2023	0.000	0.000
1/7/2023	0.000	0.000
1/8/2023	0.000	0.000
1/9/2023	0.000	0.000
1/10/2023	0.000	0.000
1/11/2023	0.000	0.000
1/12/2023	0.000	0.000
1/13/2023	0.000	0.000
1/14/2023	0.000	0.000
1/15/2023	0.000	0.000
1/16/2023	0.000	0.000
1/17/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
1/18/2021	0.000	0.000
1/19/2021	0.000	0.000
1/20/2021	0.000	0.000
1/21/2021	0.000	0.000
1/22/2021	0.000	0.000
1/23/2021	0.000	0.000
1/24/2021	0.000	0.000
1/25/2021	0.000	0.000
1/26/2021	0.000	0.000
1/27/2021	0.000	0.000
1/28/2021	0.000	0.000
1/29/2021	0.000	0.000
1/30/2021	0.000	0.000
1/31/2021	0.000	0.000
2/1/2021	0.000	0.000
2/2/2021	0.000	0.000
2/3/2021	0.000	0.000
2/4/2021	0.000	0.000
2/5/2021	0.000	0.000
2/6/2021	0.000	0.000
2/7/2021	0.000	0.000
2/8/2021	0.000	0.000
2/9/2021	0.000	0.000
2/10/2021	0.000	0.000
2/11/2021	0.000	0.000
2/12/2021	0.000	0.000
2/13/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
1/18/2022	0.000	0.000
1/19/2022	0.000	0.000
1/20/2022	0.000	0.000
1/21/2022	0.000	0.000
1/22/2022	0.000	0.000
1/23/2022	0.000	0.000
1/24/2022	0.000	0.000
1/25/2022	0.000	0.000
1/26/2022	0.000	0.000
1/27/2022	0.000	0.000
1/28/2022	0.000	0.000
1/29/2022	0.000	0.000
1/30/2022	0.000	0.000
1/31/2022	0.000	0.000
2/1/2022	0.000	0.000
2/2/2022	0.000	0.000
2/3/2022	0.000	0.000
2/4/2022	0.000	0.000
2/5/2022	0.000	0.000
2/6/2022	0.000	0.000
2/7/2022	0.000	0.000
2/8/2022	0.000	0.000
2/9/2022	0.000	0.000
2/10/2022	0.000	0.000
2/11/2022	0.000	0.000
2/12/2022	0.000	0.000
2/13/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
1/18/2023	0.000	0.000
1/19/2023	0.000	0.000
1/20/2023	0.000	0.000
1/21/2023	0.000	0.000
1/22/2023	0.000	0.000
1/23/2023	0.000	0.000
1/24/2023	0.000	0.000
1/25/2023	0.000	0.000
1/26/2023	0.000	0.000
1/27/2023	0.000	0.000
1/28/2023	0.000	0.000
1/29/2023	0.000	0.000
1/30/2023	0.000	0.000
1/31/2023	0.000	0.000
2/1/2023	0.000	0.000
2/2/2023	0.000	0.000
2/3/2023	0.000	0.000
2/4/2023	0.000	0.000
2/5/2023	0.000	0.000
2/6/2023	0.000	0.000
2/7/2023	0.000	0.000
2/8/2023	0.000	0.000
2/9/2023	0.000	0.000
2/10/2023	0.000	0.000
2/11/2023	0.000	0.000
2/12/2023	0.000	0.000
2/13/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
2/14/2021	0.000	0.000
2/15/2021	0.000	0.000
2/16/2021	0.000	0.000
2/17/2021	0.000	0.000
2/18/2021	0.000	0.000
2/19/2021	0.000	0.000
2/20/2021	0.000	0.000
2/21/2021	0.000	0.000
2/22/2021	0.000	0.000
2/23/2021	0.000	0.000
2/24/2021	0.000	0.000
2/25/2021	0.000	0.000
2/26/2021	0.000	0.000
2/27/2021	0.000	0.000
2/28/2021	0.000	0.000
3/1/2021	0.000	0.000
3/2/2021	0.000	0.000
3/3/2021	0.000	0.000
3/4/2021	0.000	0.000
3/5/2021	0.000	0.000
3/6/2021	0.000	0.000
3/7/2021	0.000	0.000
3/8/2021	0.000	0.000
3/9/2021	0.000	0.000
3/10/2021	0.000	0.000
3/11/2021	0.000	0.000
3/12/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
2/14/2022	0.000	0.000
2/15/2022	0.000	0.000
2/16/2022	0.000	0.000
2/17/2022	0.000	0.000
2/18/2022	0.000	0.000
2/19/2022	0.000	0.000
2/20/2022	0.000	0.000
2/21/2022	0.000	0.000
2/22/2022	0.000	0.000
2/23/2022	0.000	0.000
2/24/2022	0.000	0.000
2/25/2022	0.000	0.000
2/26/2022	0.000	0.000
2/27/2022	0.000	0.000
2/28/2022	0.000	0.000
3/1/2022	0.000	0.000
3/2/2022	0.000	0.000
3/3/2022	0.000	0.000
3/4/2022	0.000	0.000
3/5/2022	0.000	0.000
3/6/2022	0.000	0.000
3/7/2022	0.000	0.000
3/8/2022	0.000	0.000
3/9/2022	0.000	0.000
3/10/2022	0.000	0.000
3/11/2022	0.000	0.000
3/12/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
2/14/2023	0.000	0.000
2/15/2023	0.000	0.000
2/16/2023	0.000	0.000
2/17/2023	0.000	0.000
2/18/2023	0.000	0.000
2/19/2023	0.000	0.000
2/20/2023	0.000	0.000
2/21/2023	0.000	0.000
2/22/2023	0.000	0.000
2/23/2023	0.000	0.000
2/24/2023	0.000	0.000
2/25/2023	0.000	0.000
2/26/2023	0.000	0.000
2/27/2023	0.000	0.000
2/28/2023	0.000	0.000
3/1/2023	0.000	0.000
3/2/2023	0.000	0.000
3/3/2023	0.000	0.000
3/4/2023	0.000	0.000
3/5/2023	0.000	0.000
3/6/2023	0.000	0.000
3/7/2023	0.000	0.000
3/8/2023	0.000	0.000
3/9/2023	0.000	0.000
3/10/2023	0.000	0.000
3/11/2023	0.000	0.000
3/12/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
3/13/2021	0.000	0.000
3/14/2021	0.000	0.000
3/15/2021	0.000	0.000
3/16/2021	0.000	0.000
3/17/2021	0.000	0.000
3/18/2021	0.000	0.000
3/19/2021	0.000	0.000
3/20/2021	0.000	0.000
3/21/2021	0.000	0.000
3/22/2021	0.000	0.000
3/23/2021	0.000	0.000
3/24/2021	0.000	0.000
3/25/2021	0.000	0.000
3/26/2021	0.000	0.000
3/27/2021	0.000	0.000
3/28/2021	0.000	0.000
3/29/2021	0.000	0.000
3/30/2021	0.000	0.000
3/31/2021	0.000	0.000
4/1/2021	0.000	0.000
4/2/2021	0.000	0.000
4/3/2021	0.000	0.000
4/4/2021	0.000	0.000
4/5/2021	0.000	0.000
4/6/2021	0.000	0.000
4/7/2021	0.000	0.000
4/8/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
3/13/2022	0.000	0.000
3/14/2022	0.000	0.000
3/15/2022	0.000	0.000
3/16/2022	0.000	0.000
3/17/2022	0.000	0.000
3/18/2022	0.000	0.000
3/19/2022	0.000	0.000
3/20/2022	0.000	0.000
3/21/2022	0.000	0.000
3/22/2022	0.000	0.000
3/23/2022	0.000	0.000
3/24/2022	0.000	0.000
3/25/2022	0.000	0.000
3/26/2022	0.000	0.000
3/27/2022	0.000	0.000
3/28/2022	0.000	0.000
3/29/2022	0.000	0.000
3/30/2022	0.000	0.000
3/31/2022	0.000	0.000
4/1/2022	0.000	0.000
4/2/2022	0.000	0.000
4/3/2022	0.000	0.000
4/4/2022	10.516	32.274
4/5/2022	0.000	0.000
4/6/2022	0.000	0.000
4/7/2022	0.000	0.000
4/8/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
3/13/2023	0.000	0.000
3/14/2023	0.000	0.000
3/15/2023	0.000	0.000
3/16/2023	0.000	0.000
3/17/2023	0.000	0.000
3/18/2023	0.000	0.000
3/19/2023	0.000	0.000
3/20/2023	0.000	0.000
3/21/2023	0.000	0.000
3/22/2023	0.000	0.000
3/23/2023	0.000	0.000
3/24/2023	0.000	0.000
3/25/2023	0.000	0.000
3/26/2023	0.000	0.000
3/27/2023	0.000	0.000
3/28/2023	0.000	0.000
3/29/2023	0.000	0.000
3/30/2023	0.000	0.000
3/31/2023	0.000	0.000
4/1/2023	0.000	0.000
4/2/2023	0.000	0.000
4/3/2023	0.000	0.000
4/4/2023	0.000	0.000
4/5/2023	0.000	0.000
4/6/2023	0.000	0.000
4/7/2023	0.000	0.000
4/8/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
4/9/2021	0.000	0.000
4/10/2021	0.000	0.000
4/11/2021	0.000	0.000
4/12/2021	0.000	0.000
4/13/2021	0.000	0.000
4/14/2021	0.000	0.000
4/15/2021	0.000	0.000
4/16/2021	0.000	0.000
4/17/2021	0.000	0.000
4/18/2021	0.000	0.000
4/19/2021	0.000	0.000
4/20/2021	0.000	0.000
4/21/2021	0.000	0.000
4/22/2021	0.000	0.000
4/23/2021	0.000	0.000
4/24/2021	0.000	0.000
4/25/2021	0.000	0.000
4/26/2021	0.000	0.000
4/27/2021	0.000	0.000
4/28/2021	0.000	0.000
4/29/2021	0.000	0.000
4/30/2021	9.123	27.998
5/1/2021	0.000	0.000
5/2/2021	0.000	0.000
5/3/2021	0.000	0.000
5/4/2021	0.000	0.000
5/5/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
4/9/2022	0.000	0.000
4/10/2022	0.000	0.000
4/11/2022	0.000	0.000
4/12/2022	0.000	0.000
4/13/2022	0.000	0.000
4/14/2022	0.000	0.000
4/15/2022	0.000	0.000
4/16/2022	0.000	0.000
4/17/2022	0.000	0.000
4/18/2022	0.000	0.000
4/19/2022	0.000	0.000
4/20/2022	0.000	0.000
4/21/2022	0.000	0.000
4/22/2022	0.000	0.000
4/23/2022	0.000	0.000
4/24/2022	0.000	0.000
4/25/2022	0.000	0.000
4/26/2022	0.000	0.000
4/27/2022	0.000	0.000
4/28/2022	0.000	0.000
4/29/2022	0.000	0.000
4/30/2022	0.000	0.000
5/1/2022	0.000	0.000
5/2/2022	0.000	0.000
5/3/2022	0.000	0.000
5/4/2022	6.814	20.913
5/5/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
4/9/2023	0.000	0.000
4/10/2023	0.000	0.000
4/11/2023	0.000	0.000
4/12/2023	0.000	0.000
4/13/2023	0.000	0.000
4/14/2023	0.000	0.000
4/15/2023	0.000	0.000
4/16/2023	0.000	0.000
4/17/2023	0.000	0.000
4/18/2023	0.000	0.000
4/19/2023	0.000	0.000
4/20/2023	0.000	0.000
4/21/2023	0.000	0.000
4/22/2023	0.000	0.000
4/23/2023	0.000	0.000
4/24/2023	0.000	0.000
4/25/2023	0.000	0.000
4/26/2023	0.000	0.000
4/27/2023	4.587	14.076
4/28/2023	0.000	0.000
4/29/2023	0.000	0.000
4/30/2023	0.000	0.000
5/1/2023	0.000	0.000
5/2/2023	0.000	0.000
5/3/2023	0.000	0.000
5/4/2023	0.000	0.000
5/5/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
5/6/2021	0.000	0.000
5/7/2021	2.153	6.607
5/8/2021	0.000	0.000
5/9/2021	0.000	0.000
5/10/2021	0.000	0.000
5/11/2021	0.000	0.000
5/12/2021	0.000	0.000
5/13/2021	0.000	0.000
5/14/2021	0.000	0.000
5/15/2021	0.000	0.000
5/16/2021	6.937	21.289
5/17/2021	0.000	0.000
5/18/2021	0.000	0.000
5/19/2021	0.000	0.000
5/20/2021	0.000	0.000
5/21/2021	0.000	0.000
5/22/2021	0.000	0.000
5/23/2021	2.979	9.142
5/24/2021	0.000	0.000
5/25/2021	0.000	0.000
5/26/2021	0.000	0.000
5/27/2021	0.000	0.000
5/28/2021	6.329	19.424
5/29/2021	0.000	0.000
5/30/2021	0.000	0.000
5/31/2021	0.000	0.000
6/1/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
5/6/2022	0.000	0.000
5/7/2022	0.000	0.000
5/8/2022	0.000	0.000
5/9/2022	0.000	0.000
5/10/2022	0.000	0.000
5/11/2022	0.000	0.000
5/12/2022	0.000	0.000
5/13/2022	0.000	0.000
5/14/2022	0.000	0.000
5/15/2022	0.000	0.000
5/16/2022	0.000	0.000
5/17/2022	0.000	0.000
5/18/2022	0.000	0.000
5/19/2022	0.000	0.000
5/20/2022	0.000	0.000
5/21/2022	0.000	0.000
5/22/2022	0.000	0.000
5/23/2022	0.000	0.000
5/24/2022	0.000	0.000
5/25/2022	0.000	0.000
5/26/2022	0.000	0.000
5/27/2022	0.000	0.000
5/28/2022	0.000	0.000
5/29/2022	0.000	0.000
5/30/2022	0.000	0.000
5/31/2022	0.000	0.000
6/1/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
5/6/2023	2.973	9.125
5/7/2023	0.000	0.000
5/8/2023	0.000	0.000
5/9/2023	0.000	0.000
5/10/2023	0.000	0.000
5/11/2023	0.000	0.000
5/12/2023	0.000	0.000
5/13/2023	0.000	0.000
5/14/2023	0.000	0.000
5/15/2023	0.000	0.000
5/16/2023	0.000	0.000
5/17/2023	3.985	12.229
5/18/2023	0.000	0.000
5/19/2023	0.000	0.000
5/20/2023	0.000	0.000
5/21/2023	0.000	0.000
5/22/2023	0.000	0.000
5/23/2023	0.000	0.000
5/24/2023	2.947	9.043
5/25/2023	0.000	0.000
5/26/2023	0.000	0.000
5/27/2023	0.000	0.000
5/28/2023	0.000	0.000
5/29/2023	0.000	0.000
5/30/2023	0.000	0.000
5/31/2023	4.172	12.805
6/1/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/2/2021	0.000	0.000
6/3/2021	0.000	0.000
6/4/2021	0.000	0.000
6/5/2021	0.000	0.000
6/6/2021	0.000	0.000
6/7/2021	0.000	0.000
6/8/2021	0.000	0.000
6/9/2021	0.000	0.000
6/10/2021	4.125	12.661
6/11/2021	7.555	23.187
6/12/2021	0.000	0.000
6/13/2021	0.000	0.000
6/14/2021	0.000	0.000
6/15/2021	0.000	0.000
6/16/2021	3.107	9.536
6/17/2021	0.000	0.000
6/18/2021	0.000	0.000
6/19/2021	0.000	0.000
6/20/2021	0.000	0.000
6/21/2021	0.000	0.000
6/22/2021	0.000	0.000
6/23/2021	0.000	0.000
6/24/2021	0.000	0.000
6/25/2021	0.000	0.000
6/26/2021	0.000	0.000
6/27/2021	0.000	0.000
6/28/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/2/2022	14.364	44.084
6/3/2022	0.000	0.000
6/4/2022	0.003	0.008
6/5/2022	8.158	25.036
6/6/2022	0.000	0.000
6/7/2022	0.000	0.000
6/8/2022	0.000	0.000
6/9/2022	0.000	0.000
6/10/2022	0.000	0.000
6/11/2022	0.000	0.000
6/12/2022	4.309	13.224
6/13/2022	0.000	0.000
6/14/2022	0.000	0.000
6/15/2022	0.000	0.000
6/16/2022	0.000	0.000
6/17/2022	2.437	7.480
6/18/2022	0.000	0.000
6/19/2022	0.000	0.000
6/20/2022	0.000	0.000
6/21/2022	0.000	0.000
6/22/2022	0.000	0.000
6/23/2022	1.593	4.888
6/24/2022	0.000	0.000
6/25/2022	0.000	0.000
6/26/2022	0.000	0.000
6/27/2022	0.000	0.000
6/28/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/2/2023	0.000	0.000
6/3/2023	0.000	0.000
6/4/2023	0.000	0.000
6/5/2023	0.000	0.000
6/6/2023	0.000	0.000
6/7/2023	0.000	0.000
6/8/2023	0.000	0.000
6/9/2023	5.342	16.395
6/10/2023	0.000	0.000
6/11/2023	0.000	0.000
6/12/2023	0.000	0.000
6/13/2023	0.000	0.000
6/14/2023	0.000	0.000
6/15/2023	0.000	0.000
6/16/2023	0.000	0.000
6/17/2023	0.000	0.000
6/18/2023	4.179	12.825
6/19/2023	0.000	0.000
6/20/2023	0.000	0.000
6/21/2023	0.000	0.000
6/22/2023	0.000	0.000
6/23/2023	0.000	0.000
6/24/2023	0.000	0.000
6/25/2023	0.000	0.000
6/26/2023	5.808	17.824
6/27/2023	0.000	0.000
6/28/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/29/2021	0.000	0.000
6/30/2021	10.721	32.904
7/1/2021	0.000	0.000
7/2/2021	0.000	0.000
7/3/2021	0.000	0.000
7/4/2021	0.000	0.000
7/5/2021	0.000	0.000
7/6/2021	0.000	0.000
7/7/2021	0.000	0.000
7/8/2021	0.000	0.000
7/9/2021	0.000	0.000
7/10/2021	0.000	0.000
7/11/2021	0.000	0.000
7/12/2021	4.544	13.947
7/13/2021	0.000	0.000
7/14/2021	0.000	0.000
7/15/2021	0.000	0.000
7/16/2021	0.000	0.000
7/17/2021	0.000	0.000
7/18/2021	0.000	0.000
7/19/2021	0.000	0.000
7/20/2021	0.000	0.000
7/21/2021	0.000	0.000
7/22/2021	0.000	0.000
7/23/2021	0.000	0.000
7/24/2021	0.000	0.000
7/25/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/29/2022	0.000	0.000
6/30/2022	0.000	0.000
7/1/2022	10.540	32.348
7/2/2022	0.000	0.000
7/3/2022	0.000	0.000
7/4/2022	0.000	0.000
7/5/2022	0.000	0.000
7/6/2022	0.000	0.000
7/7/2022	0.000	0.000
7/8/2022	0.000	0.000
7/9/2022	0.000	0.000
7/10/2022	1.930	5.925
7/11/2022	0.000	0.000
7/12/2022	0.000	0.000
7/13/2022	0.000	0.000
7/14/2022	2.811	8.628
7/15/2022	0.000	0.000
7/16/2022	0.000	0.000
7/17/2022	0.000	0.000
7/18/2022	0.000	0.000
7/19/2022	0.000	0.000
7/20/2022	0.000	0.000
7/21/2022	0.000	0.000
7/22/2022	0.000	0.000
7/23/2022	0.000	0.000
7/24/2022	5.501	16.882
7/25/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
6/29/2023	0.853	2.616
6/30/2023	0.000	0.000
7/1/2023	3.857	11.837
7/2/2023	0.000	0.000
7/3/2023	0.000	0.000
7/4/2023	0.000	0.000
7/5/2023	0.000	0.000
7/6/2023	0.000	0.000
7/7/2023	0.000	0.000
7/8/2023	0.000	0.000
7/9/2023	0.000	0.000
7/10/2023	5.999	18.410
7/11/2023	0.000	0.000
7/12/2023	0.000	0.000
7/13/2023	0.000	0.000
7/14/2023	0.000	0.000
7/15/2023	0.000	0.000
7/16/2023	0.000	0.000
7/17/2023	4.359	13.378
7/18/2023	0.000	0.000
7/19/2023	0.000	0.000
7/20/2023	4.905	15.055
7/21/2023	0.000	0.000
7/22/2023	0.000	0.000
7/23/2023	1.638	5.028
7/24/2023	0.000	0.000
7/25/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
7/26/2021	4.165	12.783
7/27/2021	0.000	0.000
7/28/2021	11.781	36.158
7/29/2021	0.000	0.000
7/30/2021	0.000	0.000
7/31/2021	0.000	0.000
8/1/2021	0.000	0.000
8/2/2021	0.000	0.000
8/3/2021	0.000	0.000
8/4/2021	0.000	0.000
8/5/2021	0.000	0.000
8/6/2021	0.000	0.000
8/7/2021	0.000	0.000
8/8/2021	0.000	0.000
8/9/2021	0.000	0.000
8/10/2021	0.000	0.000
8/11/2021	0.000	0.000
8/12/2021	0.000	0.000
8/13/2021	0.000	0.000
8/14/2021	0.000	0.000
8/15/2021	0.000	0.000
8/16/2021	3.222	9.889
8/17/2021	0.000	0.000
8/18/2021	0.000	0.000
8/19/2021	0.000	0.000
8/20/2021	0.000	0.000
8/21/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
7/26/2022	0.000	0.000
7/27/2022	0.000	0.000
7/28/2022	0.000	0.000
7/29/2022	4.724	14.497
7/30/2022	0.000	0.000
7/31/2022	5.794	17.782
8/1/2022	0.000	0.000
8/2/2022	0.000	0.000
8/3/2022	0.000	0.000
8/4/2022	0.000	0.000
8/5/2022	0.000	0.000
8/6/2022	0.000	0.000
8/7/2022	0.000	0.000
8/8/2022	0.000	0.000
8/9/2022	0.000	0.000
8/10/2022	0.000	0.000
8/11/2022	0.000	0.000
8/12/2022	0.000	0.000
8/13/2022	3.741	11.482
8/14/2022	0.000	0.000
8/15/2022	0.000	0.000
8/16/2022	0.000	0.000
8/17/2022	0.000	0.000
8/18/2022	0.000	0.000
8/19/2022	0.000	0.000
8/20/2022	0.000	0.000
8/21/2022	4.080	12.522

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
7/26/2023	0.000	0.000
7/27/2023	0.000	0.000
7/28/2023	0.000	0.000
7/29/2023	0.000	0.000
7/30/2023	0.000	0.000
7/31/2023	0.000	0.000
8/1/2023	4.334	13.303
8/2/2023	0.000	0.000
8/3/2023	0.000	0.000
8/4/2023	4.129	12.673
8/5/2023	0.000	0.000
8/6/2023	0.000	0.000
8/7/2023	0.000	0.000
8/8/2023	0.000	0.000
8/9/2023	0.000	0.000
8/10/2023	0.000	0.000
8/11/2023	4.216	12.940
8/12/2023	0.000	0.000
8/13/2023	0.000	0.000
8/14/2023	0.000	0.000
8/15/2023	0.000	0.000
8/16/2023	0.000	0.000
8/17/2023	4.149	12.733
8/18/2023	0.000	0.000
8/19/2023	0.000	0.000
8/20/2023	0.000	0.000
8/21/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
8/22/2021	0.000	0.000
8/23/2021	0.000	0.000
8/24/2021	0.000	0.000
8/25/2021	0.000	0.000
8/26/2021	0.000	0.000
8/27/2021	0.000	0.000
8/28/2021	0.000	0.000
8/29/2021	0.000	0.000
8/30/2021	0.000	0.000
8/31/2021	16.467	50.538
9/1/2021	0.000	0.000
9/2/2021	0.000	0.000
9/3/2021	0.000	0.000
9/4/2021	0.000	0.000
9/5/2021	0.000	0.000
9/6/2021	0.000	0.000
9/7/2021	0.000	0.000
9/8/2021	0.000	0.000
9/9/2021	0.000	0.000
9/10/2021	0.000	0.000
9/11/2021	0.000	0.000
9/12/2021	0.000	0.000
9/13/2021	0.000	0.000
9/14/2021	0.000	0.000
9/15/2021	0.000	0.000
9/16/2021	0.000	0.000
9/17/2021	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
8/22/2022	0.000	0.000
8/23/2022	0.000	0.000
8/24/2022	0.000	0.000
8/25/2022	0.000	0.000
8/26/2022	0.000	0.000
8/27/2022	0.000	0.000
8/28/2022	0.000	0.000
8/29/2022	6.260	19.214
8/30/2022	0.000	0.000
8/31/2022	0.000	0.000
9/1/2022	0.010	0.031
9/2/2022	0.000	0.000
9/3/2022	0.000	0.000
9/4/2022	0.000	0.000
9/5/2022	5.455	16.742
9/6/2022	0.000	0.000
9/7/2022	0.000	0.000
9/8/2022	0.000	0.000
9/9/2022	0.000	0.000
9/10/2022	0.000	0.000
9/11/2022	0.000	0.000
9/12/2022	0.000	0.000
9/13/2022	0.000	0.000
9/14/2022	0.000	0.000
9/15/2022	0.000	0.000
9/16/2022	0.000	0.000
9/17/2022	0.000	0.000

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
8/22/2023	0.000	0.000
8/23/2023	0.000	0.000
8/24/2023	3.896	11.958
8/25/2023	0.000	0.000
8/26/2023	0.000	0.000
8/27/2023	0.000	0.000
8/28/2023	0.000	0.000
8/29/2023	0.000	0.000
8/30/2023	0.000	0.000
8/31/2023	0.000	0.000
9/1/2023	3.865	11.863
9/2/2023	0.000	0.000
9/3/2023	0.000	0.000
9/4/2023	0.000	0.000
9/5/2023	0.000	0.000
9/6/2023	0.000	0.000
9/7/2023	0.000	0.000
9/8/2023	0.000	0.000
9/9/2023	0.000	0.000
9/10/2023	0.000	0.000
9/11/2023	0.000	0.000
9/12/2023	0.000	0.000
9/13/2023	0.000	0.000
9/14/2023	0.000	0.000
9/15/2023	0.000	0.000
9/16/2023	0.000	0.000
9/17/2023	0.000	0.000

2020 - 2021 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
9/18/2021	0.000	0.000
9/19/2021	0.000	0.000
9/20/2021	0.000	0.000
9/21/2021	0.000	0.000
9/22/2021	4.567	14.017
9/23/2021	0.730	2.241
9/24/2021	0.266	0.816
9/25/2021	0.000	0.000
9/26/2021	0.000	0.000
9/27/2021	0.000	0.000
9/28/2021	0.000	0.000
9/29/2021	0.540	1.656
9/30/2021	11.593	35.581

2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
9/18/2022	0.000	0.000
9/19/2022	0.000	0.000
9/20/2022	0.000	0.000
9/21/2022	0.000	0.000
9/22/2022	0.000	0.000
9/23/2022	0.000	0.000
9/24/2022	3.700	11.356
9/25/2022	0.000	0.000
9/26/2022	6.369	19.546
9/27/2022	0.000	0.000
9/28/2022	0.000	0.000
9/29/2022	0.000	0.000
9/30/2022	1.578	4.842

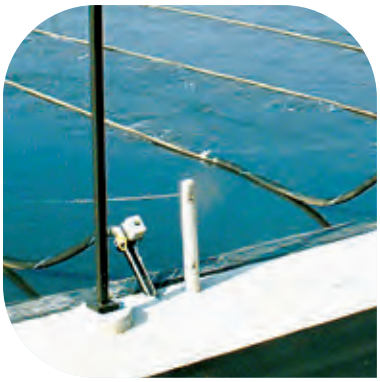
2021 - 2022 Seasonal Irrigation Volume		
Date	*million gal.*	*acre-ft.*
9/18/2023	0.000	0.000
9/19/2023	0.000	0.000
9/20/2023	0.000	0.000
9/21/2023	0.000	0.000
9/22/2023	0.000	0.000
9/23/2023	0.000	0.000
9/24/2023	0.000	0.000
9/25/2023	0.000	0.000
9/26/2023	0.000	0.000
9/27/2023	0.000	0.000
9/28/2023	0.000	0.000
9/29/2023	0.000	0.000
9/30/2023	13.126	40.285

APPENDIX O

LA CONTENTA WWTF
VENDOR INFORMATION

1. Parkson™ Biolac® System Brochure
2. Teledyne ISCO® DuraTracker® Portable Flowmeter and Logger Brochure

Parkson™
Treating Water Right



biolac®

Extended Aeration Treatment System

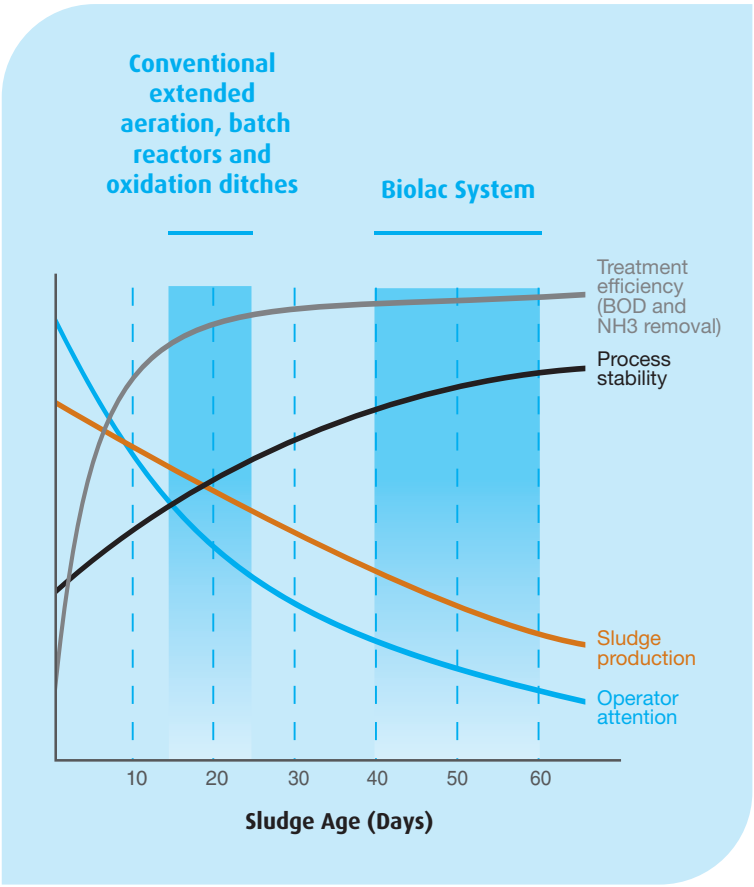
- Low-loaded activated sludge technology
- High oxygen transfer efficiency delivery system
- Exceptional mixing energy from controlled aeration chain movement
- Simple system construction
- Low biosolids production

Extended sludge age biological technology

The Biolac® system is an innovative activated sludge process using extended retention of biological solids to create an extremely stable, easily operated system.

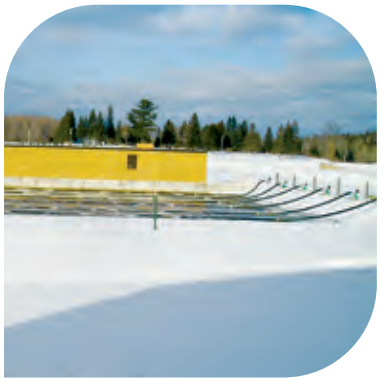
The capabilities of this unique technology far exceed ordinary extended aeration treatment. The Biolac® process maximizes the stability of the operating environment and provides high-efficiency treatment. The design ensures the lowest-cost construction and guarantees operational simplicity. Over 800 Biolac® systems are installed throughout North America treating municipal wastewater and many types of industrial wastewater.

The Biolac® system utilizes a long sludge age design. Sludge age, also known as SRT (Solids Retention Time) or MCRT (Mean Cell Residence Time), defines the operating characteristics of any aerobic biological treatment system. A longer sludge age dramatically lowers effluent BOD and ammonia levels, especially in colder climates. The Biolac® long sludge age process produces BOD levels of less than 10 mg/L and complete nitrification (less than 1 mg/L ammonia).Minor modifications to the system will extend its capabilities to denitrification and biological phosphorus removal.



While most extended aeration systems reach their maximum mixing capability at sludge ages of approximately 15-25 days, the Biolac® system efficiently and uniformly mixes the aeration volumes associated with a 30-70 day sludge age.

The large quantity of biomass treats widely fluctuating loads with very few operational changes. Extreme sludge stability allows sludge wasting to non-aerated sludge ponds or basins and long storage times.



Aeration Components

Simple Process Control and Operation

Parkson provides a very easy to use system to control both the process and aeration. Additional controls required for denitrification, phosphorus removal, dissolved oxygen control and SCADA communications are also easily implemented.

Aeration System Components

The ability to mix large basin volumes using minimal energy is a critical function of the unique BioFlex® moving aeration chains and the attached BioFuser® fine bubble diffuser assemblies. The gentle, controlled, back and forth motion of the chains and diffusers distributes the oxygen transfer and mixing energy evenly throughout the basin area. No additional airflow is required to maintain mixing.

Stationary fine-bubble aeration systems require 8-10 CFM of air per 1000 cu. ft. of aeration basin volume. The Biolac® system maintains the required mixing of the activated sludge and suspension of the solids at only 4 CFM per 1000 cu.ft. of aeration basin volume. Mixing of a Biolac® basin typically requires 35-50 percent of the energy of the design oxygen requirement. Therefore, air delivery to the basin can be reduced during periods of low loading while maintaining effective food to biomass contact and without the risk of solids settling out of the wastewater.

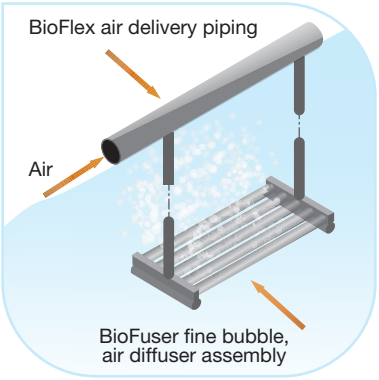
System Construction

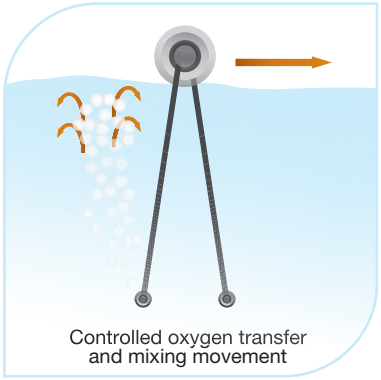
A major advantage of the Biolac® system is its low installed cost. Most systems require costly in-ground concrete basins for the activated sludge portion of the process. Biolac® systems can be installed in earthen basins, either lined or unlined. The BioFuser® fine bubble diffusers require no mounting to basin floors or associated anchors and leveling. The diffusers are suspended from the BioFlex® floating aeration chains; The only concrete structural work required is for the simple internal clarifier(s) and blower/control buildings.

Biological Nutrient Removal

Simple control of the air distribution to the BioFlex® chains creates moving waves of oxic and anoxic zones within the basin. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycle pumping of mixed liquor or additional external basins. This mode of Biolac® operation is known as the Wave Oxidation process. No additional in-basin equipment is required and simple timer-operated actuator valves regulate manipulation of the air distribution.

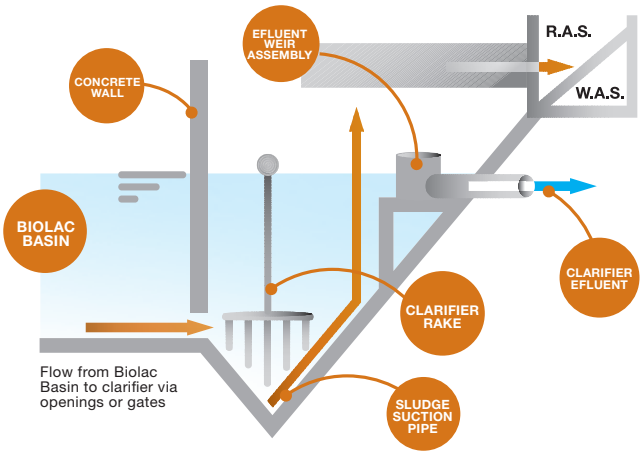
Biological phosphorus removal can also be accomplished by incorporating an anaerobic zone.





Integral Clarifier

Land space and hydraulic efficiencies are maximized using the integral clarifier. The clarifier design incorporates a common wall between the clarifier and aeration basin. The inlet ports in the bottom of the wall create negligible hydraulic headloss and promote efficient solids removal by filtering the flow through the upper layer of the sludge blanket. Parkson offers multiple configurations of integral clarifiers. One of the most common integral clarifier configuration is the hopper-style bottom clarifier. The hopper-style bottom simplifies sludge concentration and removal, and minimizes clarifier HRT. The sludge return airlift pump provides important flexibility in RAS flows with no moving parts. All maintenance is performed from the surface without dewatering the clarifier.



Parkson™
Treating Water Right

50 YEARS 2010

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Biolac® EZClear™ Clarifier

Advanced Gravity Separation

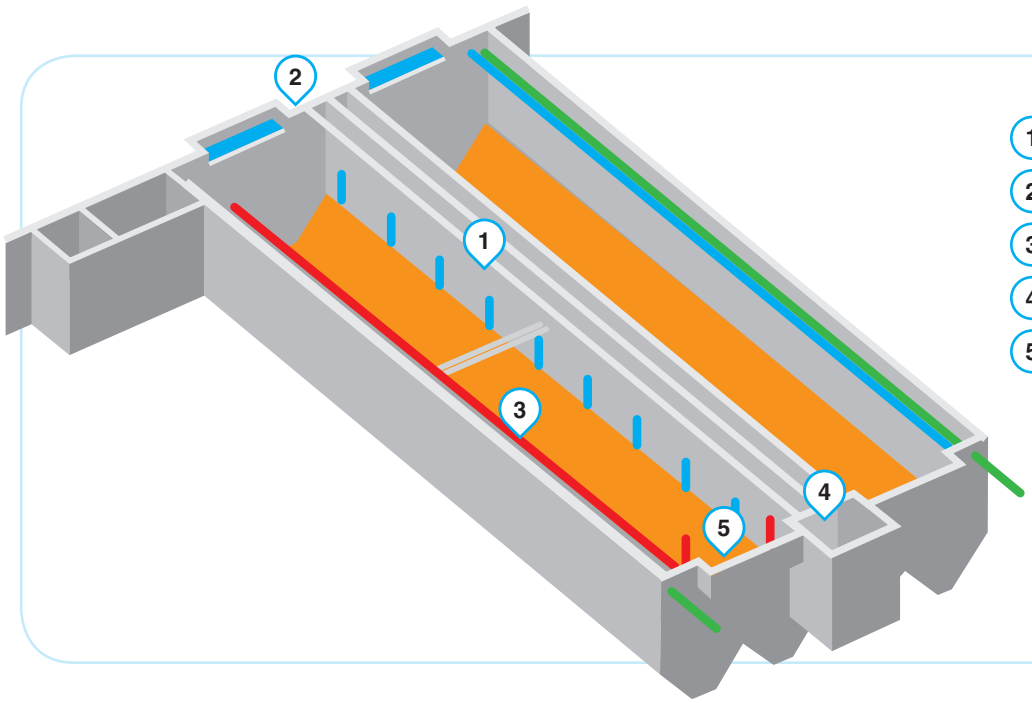
For years, a key part of the Biolac System has been the simple, common wall secondary clarifier that completes the system. Efficient liquid-solids separation is critical to maintaining high quality effluent and the Biolac® clarifier has proven to perform with excellent reliability. Many plants produce effluent TSS between 5 and 10 mg/l. Along with hundreds of successful installation over the past 25 years comes the experience and learning that leads to new innovation and development.

The EZClear™ design builds on the successful innovation of the existing Biolac® clarifier while maintaining all the features and benefits that owners want.

- Low effluent TSS
- Rapid sludge removal
- Simple maintenance of all equipment from the surface
- Gravity RAS flow option
- Low hydraulic profile

With lengths up to 100 feet, the EZClear™ almost doubles the available surface area per clarifier, expanding the range of application and further reducing operation and maintenance requirements while improving effluent quality.

Biolac® EZClear™ Clarifier



1. EZClear™ feed channel orifices control the flow into the clarifier
2. Feed channel slide gate
3. Rapid sludge removal from the entire V-bottom EZClear™
4. Surface wasting slide gate
5. Automated scum skimming and removal

Features	Benefits
Effluent TSS guaranteed – as low as 10 mg/l TSS	Provides the owner with the confidence and security of a successful EZClear™ installation
Turned 90° from the original Biolac™ clarifier, the EZClear™ Clarifier is available in lengths up to 100 feet.	The surface area available per clarifier is increased by over 80%, providing higher flow capacity for lower total cost
Vertical, common wall construction with the Biolac™ treatment basin and other structures	Reduces the amount of concrete and excavation required, lowering the cost of construction. Clarifier/RAS footprint is at least 30% less than with separate circular clarifiers
Low-velocity, equally distributed crossflow design	Inlet distribution pipes ensure superior hydraulic efficiency and eliminates the density currents that destroy clarifier performance
EZClear™ feed channel orifices control the flow into the clarifier	Controlled equalization can automatically be provided in the Biolac® treatment basin, dampening short term peak clarifier loading, improving performance
Feed channel slide gate	Provides easy isolation of each EZClear™ from the Biolac® treatment basin
Rapid sludge removal from the entire EZClear™ V-bottom	Keeps sludge healthy and in the process treating wastewater – no danger of denitrification or P re-release in the sludge collection zone
Automated sludge wasting	Improves process stability and performance while reducing operator time and attention
Surface wasting slide gate	Allows for removal of poor settling floc/scum from the clarifier feed. The operator decides when and how much to waste this way
Automated scum skimming and removal	Minimizes scum flow while reducing operator time and attention
Both airlift pumps with gravity RAS flow, and mechanical pumps with pumped RAS flow are available	Design flexibility depending on plant hydraulics and operator preference

Parkson™
Treating Water Right

50 YEARS 2010

Fort Lauderdale
Chicago
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Kansas City
Dubai

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technology@parkson.com
www.parkson.com

DuraTracker®
Flowmeter

With the new DuraTracker flowmeter, we've built upon the market-leading 2100 portable logger by adding expanded capabilities into a proven product solution.

Optimize flow monitoring, cost effectively.

The DuraTracker flowmeter is the most efficient and reliable flow monitoring solution on the market today for a wide range of open channel flow measurement applications. It supports flow measurement technologies including non-contact laser area velocity, submerged Doppler area velocity, and ultrasonic. The flowmeter calculates flow using standard open channel level-to-flow and area velocity conversions, user defined equations, level to area data points, or level to flow data points.

The DuraTracker package cost-effectively integrates cellular communications and multiple flow technologies within a single module. The standard Bluetooth capabilities make the programming, sensor calibration, and data retrieval job easy through wireless devices. A field upgradable remote cell phone communication option is also available.

For permanent applications without the battery compartment and an exposed desiccant.

Portable version comes with two compartments for off-the-shelf batteries and desiccant.

DURA TRACKER®

Applications:

- Collection system flow monitoring
- Surface water flow monitoring
- Industrial pretreatment flow monitoring
- WWTP flow monitoring

Standard Features:

- Rugged, submersible enclosure meets IP68 environmental specs
- Quick connect plug-and-play multiple sensors connectivity: Ultrasonic, AV, and laser
- pH and sampler interface
- Bluetooth communication interface with wireless devices
- USB interface
- MODBUS output
- Replaceable high-capacity internal desiccant cartridge and Gortex filter protect sensor air reference port from water entry and internal moisture
- Variable data-rate storage
- Compatible with off-the-shelf batteries

DuraTracker® Flowmeter Specifications

Size (H x W x D):	
DuraTracker:	12.25 x 6.25 x 12.75 in (31.12 x 15.88 x 32.39 cm)
DuraTracker w/o Battery Box:	13.375 x 8.625 x 4.5 in (33.97 x 21.91 x 11.43 cm)
Weight	
DuraTracker:	14.3 lbs. (6.49 kg) without batteries
DuraTracker w/o Battery Box:	5.3 lbs. (2.4 kg)
Materials:	ABS, Delrin, Stainless Steel
Enclosure:	IP68
Temperature Range:	Operating: -40 to 140 °F (-40 to 60 °C) Storage: -40 to 140 °F (-40 to 60 °C)
Power Source: **(each bank)**	2 x Alkaline Lantern Batteries 8 x Alkaline D Cell Batteries 4 x Lithium Thionyl Chloride (Low Temperature Applications)
Battery Life: **(1 battery bank)**	310 Ex Ultrasonic Sensor: 18 months [a] 350 Ex AV Sensor: 8 months [a] 360 Ex LaserFlow Sensor: 9 months [a]
Power Required	
DuraTracker:	9–15 Vdc
External Power:	7–28 Vdc

Built-in Conversions

Flow Rate Conversions:	Up to 2 independent level-to-area conversions and/or level-to-flow rate conversions
Level-to-Area Conversions:	Channel Shapes–round, U-shaped, rectangular, rapezoidal, elliptical, with silt correction; Data Points–Up to 50 level-area points
Level-to-Flow Conversions:	Most common weirs and flumes; Manning Formula; Data Points (up to 50 level-flow points); 2-term polynomial equation
Total Flow Calculations:	Up to 2 independent, net, positive or negative, based on either flow rate conversion

Optional Interfaces

pH input	TIENet 301 pH Interface
Sampler enabling	TIENet 306 sampler interface

[a] Data shows 5 Parameter, 15 min data rate interval. Battery life determined by the number of devices and parameters logged. If a second bank of batteries is used, the battery life will double.

[b] Turbidity > 20 NTU; Distance from liquid surface to bottom of sensor < 48 inches

[c] Maximum non-linearity, hysteresis, and temperature error from actual liquid level

[d] Uniform velocity profile

Data Handling and Communications

Data Storage:	Non-volatile flash; retains stored data during program updates. Capacity 8 MB (1.3 million readings or 2700 days with 5 parameters logged at 15 minute intervals, reports once per day).
Data Types:	Level, velocity, flow rate 1, flow rate 2, flow rate 3, flow rate 4, total flow 1, total flow 2, total flow 3, total flow 4, input voltage, temperature
Storage Mode:	Rollover; 5 bytes per reading Storage Interval: 15 or 30 seconds; 1, 2, 5, 15, or 30 minutes; or 1, 2, 4, 12, or 24 hours. Storage rate variable based on level, velocity, flow rate, total flow, or input voltage
Communication Interface:	USB, Remote Cellular, Bluetooth, MODBUS ASCII/RTU
Optional Cellular Communication:	LTE

TIENet® Measurement Technologies

TIENet 310 Ex Ultrasonic Level Sensor

Level Measurement Range:	0.3 to 3.3 m (1 to 11 ft)
Level Accuracy:	±0.006 m (0.02 ft) at ≤1 ft level change ±0.012 m (0.04 ft) at >1 ft level change

TIENet 350 Ex Area Velocity Sensor

Velocity Measurement Range:	-1.5 to 6.1 m/s (-5 to 20 ft/s)
Velocity Measurement:	Bi-directional
Velocity Accuracy:	±0.03 m/s (±0.1 ft/s) from -5 to 5 ft/s [d] ±2% of reading from 5 to 20 ft/s [c]
Level Measurement Range:	0.01 to 3.05 m (0.033 to 10 ft)
Level Accuracy:	±0.10% Full Scale[c]

TIENet 360 LaserFlow (including Ex) Area Velocity Sensor

Flow Accuracy:	±4% of reading. (Typical, under normal flow conditions)
Velocity Measurement Range:	-15 ft/s to 15 ft/s (-4.6 m/s to 4.6 m/s)
Velocity Measurement:	Bi-directional[b]
Velocity Accuracy:	±0.5% of reading ±0.03 m/s (0.1 ft/s) [d]
Level Measurement Range:	0 to 3.05 m (0 to 10 ft)
Level Accuracy:	±0.006 m (0.02 ft) at ≤1 ft level change ±0.012 m (0.04 ft) at >1 ft level change

Multi-sensor Connectivity

4 TIENet devices of any combination of 350 Ex, 310 Ex, 306 or 301

1 TIENet 360/360 Ex and up to 3 other TIENet devices (350 Ex, 310 Ex, 306 or 301)

Teledyne ISCO
P.O. Box 82531, Lincoln, Nebraska, 68501 USA
Toll-free: (800) 228-4373 • Phone: (402) 464-0231 • Fax: (402) 465-3091

teledyneisco.com

TELEDYNE ISCO
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Teledyne ISCO is continually improving its products and reserves the right to change product specifications, replacement parts, schematics, and instructions without notice.

L-2304 Rev 2.0
5/19/2023

AUTOMATED WATER SAMPLING

Refrigerated Samplers

Teledyne ISCO samplers set the stage for being first in many categories. Our advances include the first non-contacting liquid detector, first outdoor refrigerated sampler, and first sampler with interchangeable modules for measuring flow and parameters. Through listening to our customers, continuous innovation and improvement, and emphasis on quality and reliability, Teledyne ISCO continues to lead the way with samplers for every application:

- Industrial pretreatment compliance monitoring
- Storm water runoff monitoring
- Combined Sewer Overflow monitoring
- Regulatory compliance monitoring
- Water quality research
- Specialized applications, such as hazardous locations and monitoring for radio nuclides

BLZZRD™

Portable Peristaltic Pump Sampler

A sequential or composite refrigerated sampler featuring our legendary 6712 controller allowing you to select different programming modes to assure the most suitable routine for your application. The power-saving cooling system remains on standby until the first sample is drawn, and only then switches on to preserve the collected samples for pickup.

- 12 Vdc or 110/220 Vac power
- Indoor/outdoor use
- Optional mobility cart
- Composite and sequential sampling (14 bottles)
- Intelligent sampling with rain input, SDI-12 interface, and 700 module input for parameter monitoring and triggering

5800

Permanent Peristaltic Pump Sampler

The 5800 Refrigerated Sampler is Teledyne ISCO's answer to the rigorous demands of water monitoring. With user-friendly controls and task accommodating features, the 5800 is the only choice for stationary sampling in both municipal and industrial wastewater applications. The tough, double-wall LLDPE cabinet shrugs off exposure to weather and harsh environments.

- 110/220 Vac
- Indoor/outdoor use
- Composite and sequential sampling—wide choice for bottle configurations
- Modular design
- Slide-out bottle rack
- Certified to MCERTS

MCERTS
Sira MC140265/03

6712FR

Permanent Peristaltic Pump Sampler

A sequential or composite refrigerated sampler featuring our legendary 6712 controller allowing you to select different programming modes to assure the most suitable routine for your application. The corrosion-proof refrigerator cabinet molded from polyester resin fiberglass and supported by a stainless steel frame.

- 110/220 Vac
- Indoor/outdoor use
- Composite and sequential sampling—wide choice for bottle configurations
- Fiberglass reinforced plastic with UV-resistant gel coat
- Intelligent sampling with rain input, SDI-12 interface, and 700 module input for parameter monitoring and triggering

AUTOMATED WATER SAMPLING

Portable Samplers and **Accessories**

All Teledyne ISCO brand portable samplers are built to withstand harsh environments and for easy manhole installation and removal.

- Vacuum-formed ABS plastic shell withstands exposure and abuse.
- Twin-wall construction with foamed-in-place insulation maximizes structural integrity along with the efficiency of ice used for sample preservation.
- NEMA 4X, 6 (IP67) controller rating for submersible, watertight, dust-tight, and corrosion resistant service.

6712C Compact

6712 Full-size with Jumbo Base

6712 Full-size

6712 Sequential/Composite

Intelligent sampling with integrated flow and parameter measurement capabilities.

- Rugged ABS plastic exterior with insulated center section and base for preserving samples
- Accurate, repeatable sample volumes
- High-performance peristaltic pump
- Optional Teledyne ISCO 700 series modules
- Certified to MCERTS

700 Series Plug-in Modules

Teledyne ISCO 700 Series modules add versatility. Monitor flow or pH with the field interchangeable modules that are environmentally sealed. Data is logged by your 6712 series sampler and can be retrieved for analysis.

701 pH and Temperature Module

Accurate pH and temperature monitoring in a single module. Activate your 6712 sampler at user-selected pH or temperature ranges and save by collecting and analyzing only samples outside normal parameters.

720 Submerged Probe Flow Module

A differential pressure transducer provides accurate measurement where wind, steam, foam, turbulence, or air temperature fluctuations exist—even if the probe gets covered with silt or sand.

730 Bubbler Flow Module

Unaffected by changing stream conditions, the 730 delivers accurate level measurement despite temperature fluctuations and exposure to harsh chemicals.

750 Area Velocity Flow Module

Get accurate measurement where weirs and flumes aren't practical—or where submerged, full-pipe, surcharged, and reverse flow conditions may occur. No need to estimate channel slope or roughness. Sensor uses patented Doppler technology to directly measure average flow velocity.

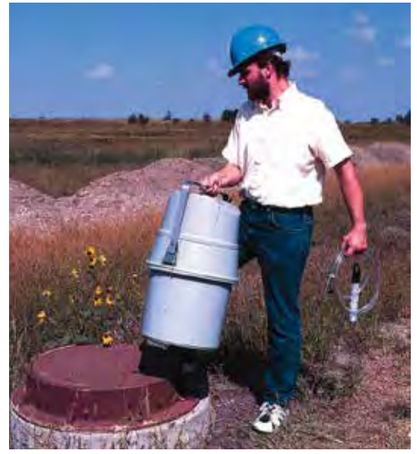
780 Analog Input Module

Add intelligent interpretation of any 4–20 mA signal. Characterize analog signals as flow rate or percentage of full scale. Pace or trigger your 6712 Sampler and store data for retrieval and analysis.

GLS Composite

Especially designed for general purpose and priority pollutant applications where a full-size sampler is too large.

- Small and lightweight
- Simplified programming for quick, easy setup
- Two keystroke program recall and one-button program start



OPEN CHANNEL FLOW MEASUREMENT

Shown with 2191 Battery Module

2110 Ultrasonic Flow Module

Accurate, non-contact liquid level measurement with built-in flow conversion software.

- Measurement technology: Ultrasonic
- Microprocessor-based digital sensor
- Self-tuned power control
- Unique sensor design minimizes “deadband”
- Vertical sensor face avoids condensation problems
- Variable rate data storage

Shown with 2191 Battery Module

2150 Area Velocity Flow Module

Advanced area velocity technology in modular form.

- Measurement technology: Continuous Wave Doppler
- Microprocessor-based low profile sensor
- Span calibration not required
- No temperature drift
- Automatic gain control
- No “draw down” effect
- Variable rate data storage

2160 LaserFlow Module

2100 Series modularity with advanced non-contacting laser Doppler technology

- Rugged, submersible enclosure fulfills IP68 enclosure requirements
- The quick-connect sensor can be easily removed and interchanged in the field without requiring recalibration
- Modbus output interface

TIENet® **LaserFlow**® and **LaserFlow**® **Ex** Non-Contact, Sub-Surface Sensors

Remotely measure flow in open channels with non-contact Laser Doppler Velocity technology and non-contact Ultrasonic Level technology. Compatible with DuraTracker and Signature flowmeters.

- Single or multipoint velocity measurement below the liquid’s surface
- The non-contact sensor avoids the need for unsafe and time- consuming confined space entry for preventive maintenance
- LaserFlow EX for intrinsically safe applications in Class 1, Division 1, ATEX Zone 0 areas, ATEX Category 1G
- Certified to MCERTS Class 2

DuraTracker® and **DuraTracker**® **Ex** Flowmeter

The DuraTracker flowmeter is the most efficient and reliable flow monitoring solution on the market today for a wide range of open channel flow measurement applications. It supports flow measurement technologies including non-contact laser area velocity, submerged Doppler area velocity, and ultrasonic. The flowmeter calculates flow using standard open channel level-to-flow and area velocity conversions, user defined equations, level-to-area data points, or level-to-flow data points.

The DuraTracker package cost-effectively integrates cellular communications and multiple flow technologies within a single module. The standard Bluetooth capabilities make the programming, sensor calibration, and data retrieval job easy through wireless devices. A field upgradable remote cell phone communication option is also available.

The DuraTracker Ex is suitable for intrinsically safe applications in Class I, Div 1. Zone 0, ATEX Category 1G.

Above Left: DuraTracker portable with battery compartments.

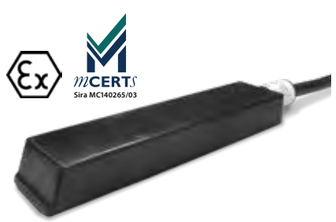
Above Right: DuraTracker Ex for intrinsically safe environments.

Left: DuraTracker for permanent applications without the battery compartment and an exposed desiccant container.

TIENet® Sensors

Teledyne ISCO Environmental Network—TIENet—devices provide seemless integration of a variety of sensors to the flowmeter of your choice. Compatible with DuraTracker and Signature flowmeters.

- TIENet input and output devices use a common, proprietary interface protocol.
- Low system integration cost with multiple measurement technologies, input/outputs, protocols and communication options.
- Configurable and upgradable without hardware or firmware changes.
- Quick set-up with an identifiable, unique address for each device.
- Easy trouble-shooting with built in device diagnostics.



Area Velocity

Ultrasonic Level

OPEN CHANNEL FLOW MEASUREMENT

2103LTE Cellular Modem Module

The 2103LTE modem modules enable remote two-way, dial-up communication with 2100 Series instruments via cell phone modem and your desktop computer equipped with Teledyne ISCO Flowlink software.

- Field instrument connectivity via internet
- Gather data with cell phone speed and convenience
- LTE cellular communication

2105LTE Interface Module

An advanced interface and communication device.

The 2105LTE integrates multiple field instruments and provides a common platform for logging and remote communication. Teledyne ISCO 2100 Series flow modules, pulse Doppler flowmeters, and rain gauges are directly compatible. It can also interface with non-Teledyne ISCO instruments that have SDI-12 or Modbus output. Additional inputs (4–20 mA) are possible using readily available aftermarket converters.

The 2105 will monitor recorded data and take intelligent action, such as sampler enabling and multiple alarm generation based on user-defined conditions. Features include a built-in cell phone modem and remote or online data access.

LTE cellular communication options are available.

ICell—Hassle-free, Budget-friendly Cellular Service

When you need a flowmeter or automated sampler that's durable and adaptable, yet hi-tech and precise, you turn to Teledyne ISCO. Now, when you need cellular service for two-way communication with those units, you can turn to us, too. Introducing ICell. Dedicated cellular service for ISCO products with set-up, account management and customer service—all from Teledyne ISCO. Just email or call the same number you do for all your flowmeter and sampler needs.

We're your one-stop-shop for all your ISCO-related cellular communications, taking the confusion out of finding the right cellular service at the right price.

- Trouble-free, communication from modem modules used in Teledyne ISCO flowmeters and samplers.
- Quick and easy connection with LTE speeds.
- Cost-savings with our volume-discount purchasing power.
- Backed by 70 years of industry experience.

We'll walk you through the process to get you running out of the gate. Think about it: cellular service will be one less thing to think about.

Signature® Flowmeter

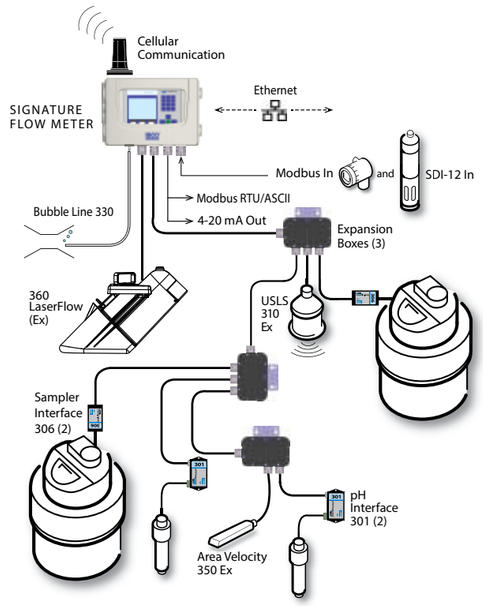
Highly flexible monitoring platform, adapting right along with your current needs and any future changes in your monitoring requirements.

- Cost-effective and easy installation with simple programming and interchangeable sensors
- Integration with multiple input, output and communications options
- Provides a common data recording, reporting and communication platform for multiple parameters
- Easy data retrieval options
- Certified to MCERTS

Photo credit: John Morris Group

Simplified Plant Integration

Acting as a system hub, the Signature records and transmits data, generates reports, and takes intelligent action in response to multiple simultaneous inputs, communicating with SCADA systems using RS-485 Modbus ASCII or RTU, or optional 4–20 mA analog. With a diverse array of possible inputs and an industry-standard output, the Signature is a one-stop access point for process monitoring and control.



FLOWLINK® SOFTWARE

Flowlink® CIPHER

Flowlink Cipher represents the latest advancement in Teledyne ISCO's Flowlink series of data management solutions. Now an advanced cloud-based solution, Flowlink Cipher allows site managers to view and manage all data at multiple sites through an easy-to-use and powerful browser-based user interface. Centralized, secure, cloud-based access to device status, site status, and flow data occurs through desktops, laptops and tablet mobile devices with no need for client software or mobile app. With AWS hosting security, there is no better protection from service interruptions or data loss. Advanced user administration provides five levels of access with user profiles including View Only, Editor, Analyst, Site Manager, and Administrator.

Flowlink Cipher is built for speed and accuracy. Adding sites, devices and desired data sets is fast and easy, as is graph creation using drag-and-drop tools to bring data directly into graphical format. A broad range of controls for graph design and built-in mathematical calculations allows site managers to develop state-of-the-art data analysis with insightful views and reporting, without the need for expensive analysts or time-consuming data export and data manipulation procedures.

Flowlink and **Flowlink LE**

Analyze data, conduct advanced studies, and generate sophisticated reports.

Set up and retrieve data from these Teledyne ISCO instruments:

- 2100 Series Flow Modules
- Signature Flowmeter
- 4200 Series Flowmeters
- ADFM Pro20 & accQmin Flow Loggers
- 6712 samplers and BLZZRD, with 700 Series Modules
- 676 rain gauge logger

Flowlink Pro

A server/client package for municipalities and service providers.

Facilitates management of multi-site wastewater and flow measurement networks.

SUPPORT PRODUCTS

674 Rain Gauge

The Teledyne ISCO 674 rain gauge connects directly to 6712 Series samplers and 4200 flowmeters to log rainfall along with sampler and flow data. Our 676 Logging System records rainfall at sites where no sampler or flowmeter is deployed.

- Tipping bucket mechanism with jeweled pivot for maximum accuracy

Power Products

Rugged, reliable batteries and chargers for environmental monitoring applications.

Street Level Tools

Minimize or eliminate manhole entry.

Versatile accessories that allow a single worker to quickly and safely insert and remove a variety of sensors in manholes as deep as 5 meters.

IRent—Equipment Rental Program

Introducing IRent, the way to obtain Teledyne ISCO water and wastewater flow measurement and sampling products on a temporary basis. Want to take something for a test spin? Looking to suit a specific project within a limited timeframe? Just need additional equipment for that one big job? IRent is what you're after.

IRent is the practical, cost-effective alternative to purchasing equipment you can't use full time. You get only the specific hardware you need for the job at hand. Since IRent originates directly from our factory, you receive the best rates available, along with fast, personalized service. Our large factory inventory assures timely delivery of first-rate equipment containing the latest upgrades.

Common jobs suited to renting over buying include

- Needs that can't wait for your company's formal purchasing process (Teledyne ISCO delivers on short-term notice, typically shipping within 24–48 hours)
- Wastewater Based Surveillance (WBS)
- Large flow studies
- Storm water monitoring
- Short-term, one-time studies
- Supplementing existing equipment

Northern California, Nevada

Tritek Solutions, Inc.

Location:	4340 Stevens Creek Boulevard, Suite 160 San Jose, CA 95129
Phone:	408-255-3533
Fax:	408-257-0115
Web:	www.triteksolutions.com

Director of Relays, Sales Americas and Western Region - Michael Carlson

Address:	12525 Daphne Avenue Hawthorne, CA 90250

Phone:	323-652-5458
Cell:	310-725-7823
Email:	michael.carlson@teledyne.com

Field Applications Engineer- Jason Quinten

Cell:	323-241-1206
Email:	jason.quinten@teledyne.com

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APPENDIX P

PARKSON™ BIOLAC® BASIN AND
INTERGAL CLARIFIER VENDOR CALCULATIONS

Parkson™
Treating Water Right

biolac®

La Contenta, CA

Preliminary Design Proposal

February **1,** 2024

To:	**Bob Godwin, P.E.**	**Date:**	**2/1/2024**
Company:	**Calaveras County Water District**	**From:**	**Robert Rolette**
Tel.:		**Tel.:**	**913-745-1234**
cc:	**Marty Unger, Brad Linsey, Kevin Bunting - Parkson** **Ross Tate, Brad Leidecker, Brian Villacorta (Coombs-Hopkins)**		
Subject:	**Parkson Biolac® Treatment System, Preliminary Design Proposal for La Contenta, CA - Upgrade**		

Thank you for your interest in Parkson's Biolac® Treatment System. Based upon the data provided for this project, we developed the Biolac® design described in this proposal. We believe that this Biolac® design not only meets effluent quality requirements, but also provides the most cost effective solution for this municipality.

We look forward to working with you on this project. Should you have any questions or need clarifications, please do not hesitate to contact me at (913) 745-1234. Thanks.

Sincerely,

PARKSON CORPORATION

An Axel Johnson, Inc. Company

Robert Rolette
Application Engineer
rrolette@parkson.com

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1. Design Basis

1.1. Influent and Effluent Specifications

The proposed system design is based on wastewater influent with the following characteristics:

Table 1.1 – Design Influent flow requirements

PARAMETER	UNITS	AVERAGE
Start-Up Flow	MGD	0.24
Flow to be split between two (2) identical basins		**Phase 1**
Max Month Flow– Design Flow	MGD	0.45
Max Day Flow	MGD	1.25
Peak Flow	MGD	1.80

Note: Customer must confirm these final design flows to assure accuracy of the hydraulic calculations.

Table 1.2 - Influent Water Quality

PARAMETER	UNITS	AVERAGE
Design Temperature	Deg C	20
Minimum Temperature	Deg C	10
		Phase 1
BOD_5	mg/L	200
Total Suspended Solids	mg/L	200
TKN	mg/L	50
NH_3-N	mg/L	35
Total Phosphorous (TP)	mg/L	6
pH	-	6 to 9
Alkalinity	mg/L as $CaCO_3$	500

Note: Customer must confirm Influent loading conditions for any associated process warranty.

In order to offer this proposal, Parkson Corporation must make the following assumptions. Deviations from these assumptions should be brought to the attention of the designer of this system as modifications maybe required:

a. The wastewater will be pretreated to remove debris and grit using a fine influent screen.

b. Sufficient alkalinity is present or will be added to allow nitrification to proceed uninhibited.

c. The incoming oil, grease, chemical and metals concentrations are within biologically treatable levels.

d. Sufficient nutrients (P, N, etc.) are present in the influent for biomass growth or will be added by the plant operating staff.

e. A qualified operator will supervise plant activities and performance.

Based on the specified influent water quality, Parkson anticipates that the proposed Biolac® system will provide the following effluent quality:

Table 1.3 - Effluent Water Quality

PARAMETER	UNITS	QUALITY
BOD_5	mg/L	10
Total Suspended Solids	mg/L	15
NH_3-N	mg/L	1
Total Nitrogen (TN)	Mg/L	10

1.2. Selected Design Parameters

Based on the design loading information described above, the proposed Biolac® System will be derived as follows:

F/M Ratio	**0.03**	**MLSS**	**3000 mg/l**
SRT	**50-70** days	**Plant Elevation** (above sea level)	750 ft

2. System Description

The Biolac® Biological Nutrient Removal System is an innovative complete mix activated sludge process using extended retention of biological solids to create an extremely stable and easily operated system. The Biolac® process can be applied to a wide range of wastewater treatment applications, whether for municipal application or industrial application. Biolac® has over 800 installations in North American and over 1000 installations globally.

Some of the advantages of the Biolac® BNR process include:

a. Economical construction: Most Biolac® systems are installed in earthen basins which reduces construction cost tremendously by eliminating the need for sophisticated concrete structures and complex piping systems for recycling.

b. Biolac® BNR systems are typically designed with a sludge age greater than 30 days. The extended sludge age provides stable operation, low sludge production, low production of well stabilized biosolids, and high effluent quality.

c. Economical process in terms of operation and maintenance cost.

d. Comprehensive electrical control system to optimize air delivery and provide peace of mind to plant operator.

e. Utilization of fine bubble aeration using extremely high mixing efficiency of 4 CFM per 1000 ft^3 which is over 50% improvement in comparison to the mixing efficiency achieved by stationary fine bubble diffusers.

f. Ease of aeration expansion capability simply by adding additional Biofuser® tubes to modules.

g. Biological nutrient removal is implemented using the Wave-Ox™ design by Parkson's process experts. The Wave-Ox™ process is designed to achieve sequential nitrification / denitrification which results in oxygen and alkalinity recovery and translates into an energy efficient and stable operation.

h. Integral clarifier design using common walls with the Biolac® basin, designed to make the most efficient use of the available footprint.

i. Elimination of the need to drain the aeration basin(s) with the Biolac® system since all components can be cleaned and maintained from the surface.

The Biolac® process is characterized by excellent BOD removal, complete nitrification, enhanced denitrification, and biosolids stabilization. It uses fine bubble membrane diffusers attached to floating aeration chains, which are moved across the basin propelled by the air release from the diffusers. The moving aeration chains equipped with the Biofuser® diffuser assemblies provide efficient mixing of the basin contents as well as high oxygen transfer at low energy usage.

The Biofuser® system does not have submerged aeration piping or any other components to be installed, leveled, or secured on the basin floor. The BioFlex® chains with BioFusers do not contact or harm the basin liner. Each BioFlex® chain can be individually controlled by independent air valve providing excellent flexibility in fine-tuning the system to meet the oxygen demand. The individual control capability of the BioFlex chains is used to create alternating oxic and anoxic zones (Wave-Ox™) to allow denitrification in a single basin without internal mixed liquor recycle or complex controls. The moving aeration chain design is not mixing limited so the horsepower required for mixing is typically half of that required for aeration. A turndown capability of 50-70% during low loaded periods is typical without sacrificing mixing due to the movement of the BioFlex aeration chains. Inspection and service of the BioFusers is done quickly and easily without dewatering the basin, keeping maintenance costs low and eliminating the need for redundant aeration basins. In case of cold climates, the fine bubble diffusion beneath the water surface eliminates icing and minimizes wastewater cooling.

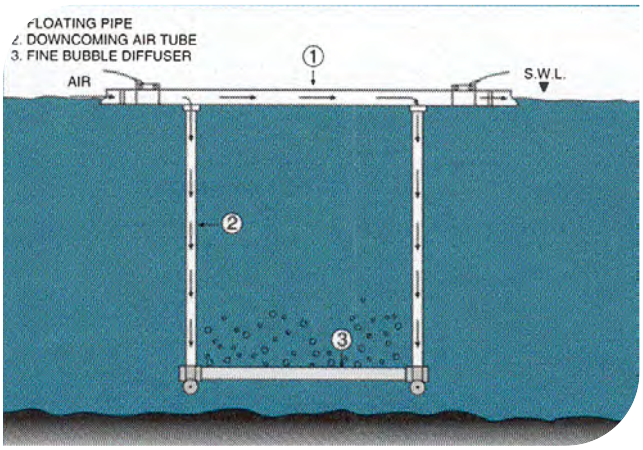
Earthen basins can be used rather than expensive concrete tanks making this extended aeration/activated sludge design the lowest cost alternative available on the market. Integral clarifier(s) are installed using common-wall construction with the extended aeration basin to settle and recycle the stable extended aeration solids.

3. System Components

The Biolac® aeration system consists mainly of suspended aeration chains, fine bubble diffusers, motorized and controlled air valves, clarification equipment, blowers and automatic electrical control system.

3.1. Moving Aeration Chain System

The moving aeration chain suspends fine bubble diffusers near the bottom of the basin. The aeration system is designed so that there are no points of attachment to the bottom of the basin. The aeration system is completely suspended above the basin bottom and is not supported or rested on the bottom. This arrangement allows for ease of access for service and maintenance without dewatering the basin or having a complete aeration system shut down.



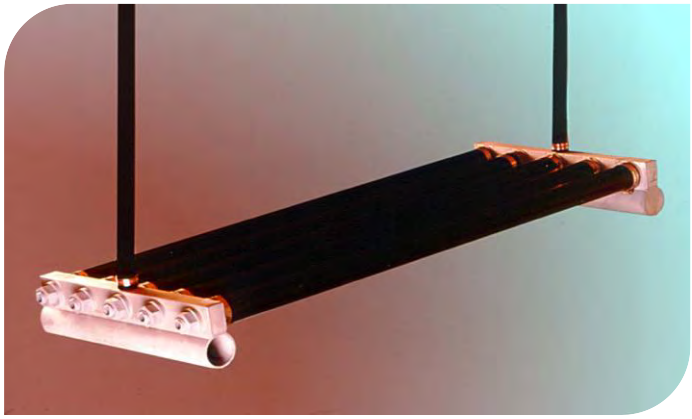
The aeration chain system is designed to be self-propelled and to move back and forth systematically in the wastewater to provide high mixing efficiency of the basin's content. This capability is critical to allow turndown flexibility in the aeration system while maintaining a completely mixed environment.

Air is delivered to each aeration chain from one side and connects to the air main through individual branches with butterfly valves. The butterfly valve provides individual control or isolation of the airflow to each chain.

The moving aeration chain is constructed of a single continuous polyethylene header. The moving aeration chain is connected to the Biofuser® by EPDM hose.

3.2. Diffuser Frame

The diffuser frame is formed from an extruded polypropylene compound with sufficient strength to prevent warping or deflection. The end connections of each frame shall be sealed using mechanical welding procedures providing a connection stronger than the unwelded tube.



The suspended air diffuser assembly consists of a fully functioning unit capable of housing up to five (5) diffuser tubes total.

3.3. System Integral Clarifier

The existing Biolac® system includes an integral clarifier. The integral clarifier is located downstream of the Biolac® system. The clarifier is typically designed using conventional solids and hydraulic loading rates.

Each clarifier has a flocculating rake mechanism which consists of a drive assembly and non-drive / pulley assembly.

The sludge removal system includes an airlift pump and a sludge suction pipe and the Return Sludge will flow by gravity upstream of the Biolac® basin. The sludge suction piping for removing the settled solids from the clarifier is located along the length of

the clarifier hopper bottom. Holes are placed along the length of the suction pipe for uniformal removal of the sludge.

Each integral clarifier includes a fixed overflow weir to control the liquid level in the clarifier and Biolac® basin as well as control the flow to the effluent pipe.

A scum baffle is included in the integral clarifier as well to prevent floating objects from passing over the overflow weir.

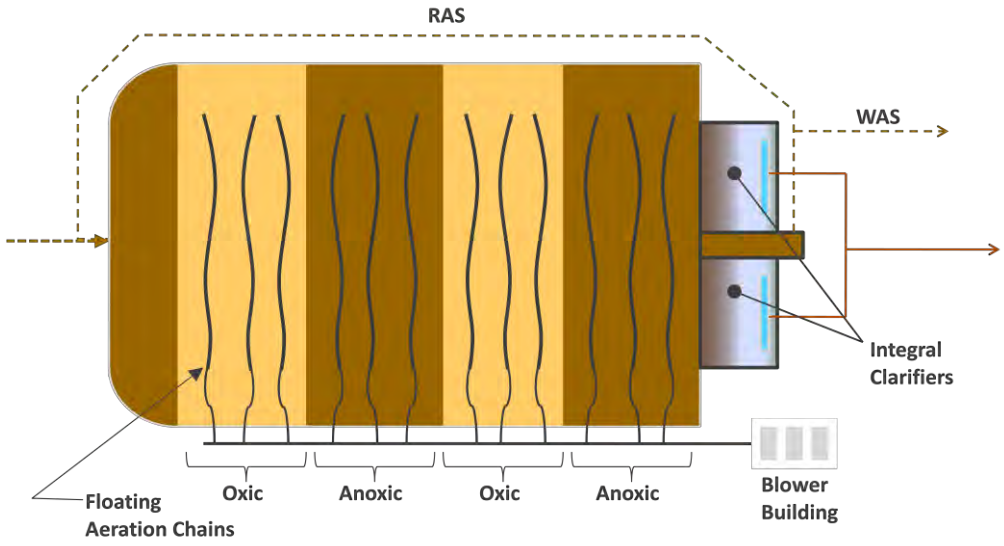
3.4. Aeration Design

a. The estimated air and energy requirements and the number of BioFlex© moving aeration headers and Biofuser® units estimated are given in Table 1. A typical BioFlex aeration header and Biofuser® assembly is shown in Drawing SD-**Error! Reference source not found.** and SD-37.

b. The required air for Biolac® basin will be supplied by two (2), 25 Hp (Phase 1). One (1) additional blower is provided as an installed spare. Less than one (1) blower is necessary for mixing. Therefore, it is possible to operate one blowers and cut energy usage substantially during periods of low load, such as nighttime operation. The blowers are expected to be located on a concrete pad next to the aeration basins or in a blower building as dictated by local requirements.

4. Wave-Ox™ Biological Nutrient Removal

Biological Nutrient Removal (BNR) is simplified and affordable with the Biolac® Wave Ox™ process. Simple control of the air flow distribution to the Biolac's moving aeration chains varies the basin dissolved oxygen content by creating a unique moving wave of multiple oxic and anoxic zones. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycle pumping or additional external basins.



Biological phosphorus removal can also be accomplished by incorporating an upstream anaerobic zone.

The Biolac Wave-Ox™ process not only produces BNR effluent quality with low effluent total nitrogen and total phosphorus, but also includes main features such as

- Single basin BNR process resulting in major construction costs savings by eliminating the need for baffle walls to create independent zones.
- Reduced energy consumption by eliminating the need for internal recycle pumps and mixers for anoxic zones

5. Biolac® Treatment System Preliminary Design Information

Biolac Extended Aeration Basin	
Number of Biolac® Basin(s)	1
Approximate Dimensions at Grade (ft)	105 x 91
Approximate Bottom Dimensions (ft)	85 x 52
Side Slope	1.5:1
Side Water Depth (ft)	10
Basin Volume (MG)	0.46
Clarifier Design Hydraulic Loading Rate (gpd/ft^2)	220
Integral Clarifier Size (ft)	45 x 23 ea.
Number of Clarifiers per basin	1
Estimated SOR (lbs/hr) **Oxidation-only** **Wave Oxidation (including denite credit)**	 84 55
Estimated SCFM (excluding airlift requirements) **Oxidation-only** **Wave Oxidation (including denite credit)**	 486 324
Estimated Brake HP (excluding airlift requirements) **Oxidation-only** **Wave Oxidation (including denite credit)**	 16.7 11
# Diffusers	105
# Biofuser® Assemblies	35
# BioFlex© Headers	7

6. Equipment and Services Supplied

Parkson will supply the following equipment and services for the Biolac® treatment system described above:

Existing Clarifier Internals (Basin 1)

- One (1) new design rake assembly with single side skimming feature, for existing integral clarifier equipment including flocculating mechanism for single side skimming, rake drive with cable and limit switches.
- Final installation inspection, start-up supervision and operator training.
- Existing biosolids removal piping, sludge suction pipe, effluent overflow weir, scum pumps, scum weir and clarifier controls (in existing Biolac panel) are EXCLUDED and will be reused.

Buildout (ONLY NEW BASIN)

- Complete BioFlex® moving chains for only the new basin, with BioFuser® aeration units including, reinforced hi-temperature connecting hose, HDPE piping, restraining cable system and required hardware.
- Electric motor actuated butterfly valves for individual control of each BioFlex aeration chain. valves for individual control of each BioFlex aeration chain.
- Qty two (2) complete, 25 Hp, blower assemblies (Centrifugal blowers) including motor and required backflow prevention valves, pressure gauges and accessories (includes one installed spare blower for redundancy). Blower proposed are only for the new basin.
- One (1) EZClear clarifier equipment for the new basin, including biosolids removal piping, sludge suction pipe, flocculating mechanism with single side skimming features, scum removal pipe and overflow weir. Internal components for existing clarifier for basin #1 are EXCLUDED and will be reused.
- One (1) dissolved oxygen probes and analyzers.
- PLC based remote-mounted control system with HMI for operation of the Biolac® Wave-Ox™ System and clarifiers for both basins, including control enclosure, VFDs, relays and control switches for all motors, and components in the system.
- Final installation inspection, start-up supervision and operator training.

7. Cost Estimate and Term

a. The budget price for the equipment and services supplied is

Existing Clarifier Rake Assembly – new design (Basin 1 only)..... $

New Basin Equipment ..... $

FOB Factory, Freight Allowed.

b. Terms are 90% net 30, 10% upon startup.

c. Approval drawings-typically 8-12 weeks after receipt of written order.

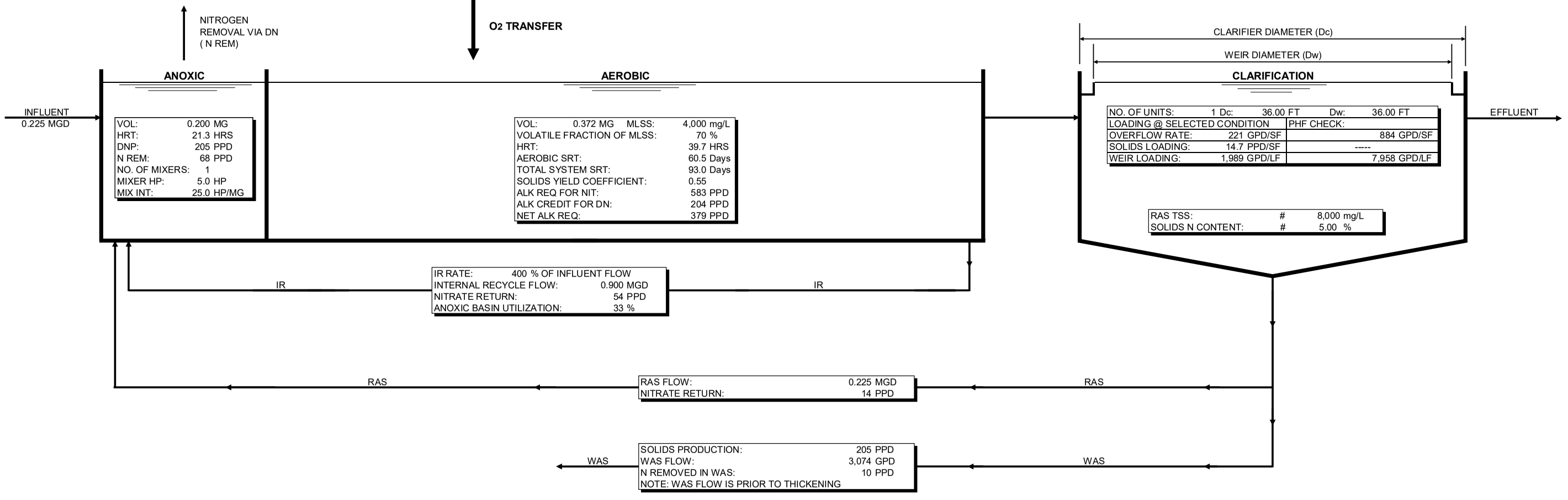
d. Equipment Shipment - typically 16-20 weeks after complete release for manufacture.

APPENDIX Q

GENERAL WWTF ACTIVATED SLUDGE AND
CLARIFIER PROCESS CALCULATIONS

FLOW CHARACTERISTICS		INFLUENT CHARACTERISTICS		CONDITION	TEMPERATURE	EFFLUENT QUALITY	
AVERAGE DAILY FLOW:	0.225 MGD	CBOD5:	200 mg/L	(•) ADF	( ) 10 DEG. C	SOL CBOD5:	1.6 mg/L
MMF PEAKING FACTOR:	1.50	TSS:	200 mg/L	( ) MMF	(•) 20 DEG. C	REFRACT ORG N:	1.0 mg/L
MDF PEAKING FACTOR:	2.50	TKN:	50 mg/L	( ) MDF	( ) 30 DEG. C	AMMONIA, AS N:	0.0 mg/L
PHF FACTOR:	4.00	REFRACT ORG N:	1.0 mg/L			NITRATE, AS N:	7.3 mg/L
		TP:	8 mg/L			TN:	8.3 mg/L
						TP:	6.7 mg/L

OXYGEN REQUIREMENTS		OPERATING DO		DIFFUSED AERATION	
O2 REQ FOR CBOD5 REM:	560 PPD	@ ADF:	1.75 mg/L	ALPHA:	0.65
O2 REQ FOR NIT:	376 PPD	@ MMF:	1.25 mg/L	BETA:	0.98
DENIT CREDIT:	195 PPD	@ MDF:	1.00 mg/L	SOTE:	20.00 %
NET O2 REQ:	741 PPD			EFF SAT D:	5.00 FT
MECH AER ( )	DIFF AER (•)			REQ AIR FLOW:	279 SCFM



ABBREVIATIONS			
ADF	AVERAGE DAILY FLOW	ALK	ALKALINITY AS CALCIUM CARBONATE
MMF	MAXIMUM MONTHLY FLOW	MLSS	MIXED LIQUOR SUSPENDED SOLIDS
MDF	MAXIMUM DAILY FLOW	N	NITROGEN
PHF	PEAK HOURLY FLOW	NIT	NITRIFICATION
MGD	MILLION GALLONS PER DAY	DN	DENITRIFICATION
GPD	GALLONS PER DAY	DNP	DENITRIFICATION POTENTIAL
PPD	POUNDS PER DAY	HRT	HYDRAULIC RETENTION TIME
DEG C	DEGREES CENTIGRADE	SRT	SOLIDS RETENTION TIME
CBOD5	5-DAY CARBONACEOUS BIOCHEMICAL OXYGEN DEMAND	HRS	HOURS
TSS	TOTAL SUSPENDED SOLIDS	RAS	RETURN ACTIVATED SLUDGE
TKN	TOTAL KJELDAHL NITROGEN, AS N	WAS	WASTE ACTIVATED SLUDGE
REFRACT ORG N	REFRACTORY ORGANIC NITROGEN, AS N	IR	INTERNAL RECYCLE
TP	TOTAL PHOSPHORUS	NO.	NUMBER
COD	CHEMICAL OXYGEN DEMAND	MIX INT	MIXING INTENSITY
mg/L	MILLIGRAMS PER LITER	ATM P	ATMOSPHERIC PRESSURE
SOL	SOLUBLE	RH	RELATIVE HUMIDITY
VOL	VOLUME	DIFF AER	DIFFUSED AERATION
MG	MILLION GALLONS	MECH AER	MECHANICAL AERATION
REQ	REQUIRED	SOR	STANDARD OXYGENATION RATE
LF	LINEAL FOOT	SOTE	STANDARD OXYGEN TRANSFER EFFICIENCY
SF	SQUARE FOOT	EFF SAT D	EFFECTIVE SATURATION DEPTH
O2	OXYGEN	HP	HORSEPOWER
DO	DISSOLVED OXYGEN	SCFM	STANDARD CUBIC FEET PER MINUTE

LA CONTENTA WASTEWATER TREATMENT FACILITY

PROCESS ANALYSIS AND EXPECTED PERFORMANCE FOR PROJECTED FLOWS AND LOADING

PROJECT: 15097	DATE: FEBRUARY 8, 2024	PREPARED BY: ROG

LA CONTENTA WASTEWATER TREATMENT FACILITY PROCESS ANALYSIS AND EXPECTED PERFORMANCE FOR PROJECTED FLOWS AND LOADING

Parameter	Unit	Wastewater Temp. = 20 Deg. C			
		ADF	MMF	MDF	PHF
Flows & Influent Characteristics					
Flow	MGD	0.225	0.338	0.563	0.900
Influent $CBOD_5$ Concentration	mg/L	200	200	200	---
Influent TSS Concentration	mg/L	200	200	200	---
Influent TKN Concentration	mg/L	50	50	50	---
Influent TP Concentration	mg/L	8	8	8	---
Process Input Parameters					
Anoxic Volume	MG	0.200	0.200	0.200	---
Aerobic Volume	MG	0.372	0.372	0.372	---
MLSS	mg/L	4,000	4,000	4,000	---
Volatile Fraction Of MLSS	Percent	70	70	70	---
RAS TSS Concentration	mg/L	8,000	8,000	8,000	---
Internal Recycle Flow As Percent Of Influent Flow	Percent	400	400	400	---
Internal Recycle Flow	MGD	0.900	1.350	2.250	---
Refractory Organic Nitrogen Concentration	mg/L	1.0	1.0	1.0	---
Nitrogen Content Of WAS Solids	Percent	5.00	5.00	5.00	---
HRT, SRT,Yield, Effluent $CBOD_5$, & Effluent Ammonia					
RAS Flow Rate	MGD	0.225	0.338	0.563	---
Anoxic HRT	Hours	21.3	14.2	8.5	---
Aerobic HRT	Hours	39.7	26.5	15.9	---
Total HRT	Hours	61.0	40.7	24.4	---
Aerobic SRT	Days	60.5	36.3	18.7	---
Total System SRT	Days	93.0	55.8	28.8	---
Yield Coefficient	Lb./Lb.	0.55	0.61	0.71	---
Solids Production	PPD	205	342	662	---
WAS Flow	GPD	3,074	5,123	9,923	---
Effluent Soluble $CBOD_5$ Concentration	mg/L	1.6	1.8	2.4	---
Effluent Ammonia Concentration	mg/L	0.0	0.0	0.1	---
Nitrification Analysis					
Influent TKN	PPD	94	141	235	---
Less Nitrogen Required For Cell Synthesis	PPD	10	17	33	---
Less Effluent Ammonia	PPD	0	0	0	---
Less Refractory Organic Nitrogen	PPD	2	3	5	---
TKN To Be Nitrified	PPD	82	121	196	---
Denitrification Potential & Nitrate Removal @ Specified IR Flow					
Anoxic Stage Denitrification Potential	PPD	205	210	222	---
Anoxic Stage Nitrate Removal	PPD	68	101	164	---
Clarifier Loadings					
Number Of Units	Each	1	1	1	1
Clarifier Diameter	Feet	36.00	36.00	36.00	36.00
Surface Area	SF	1,018	1,018	1,018	1,018
Weir Diameter	Feet	36.00	36.00	36.00	36.00
Weir Length	Feet	113	113	113	113
RAS Flow	MGD	0.225	0.338	0.563	---
Overflow Rate	GPD/SF	221	332	553	884
Weir Loading	GPD/LF	1,989	2,984	4,974	7,958
Solids Loading	PPD/SF	14.7	22.1	36.9	---

LA CONTENTA WASTEWATER TREATMENT FACILITY PROCESS ANALYSIS AND EXPECTED PERFORMANCE FOR PROJECTED FLOWS AND LOADING

Parameter	Unit	Wastewater Temp. = 20 Deg. C			
		ADF	MMF	MDF	PHF
Flows & Influent Characteristics					
Flow	MGD	0.225	0.338	0.563	0.900
Influent $CBOD_5$ Concentration	mg/L	200	200	200	---
Influent TSS Concentration	mg/L	200	200	200	---
Influent TKN Concentration	mg/L	50	50	50	---
Influent TP Concentration	mg/L	8	8	8	---
Process Input Parameters					
Anoxic Volume	MG	0.200	0.200	0.200	---
Aerobic Volume	MG	0.372	0.372	0.372	---
MLSS	mg/L	4,000	4,000	4,000	---
Volatile Fraction Of MLSS	Percent	70	70	70	---
RAS TSS Concentration	mg/L	8,000	8,000	8,000	---
Internal Recycle Flow As Percent Of Influent Flow	Percent	400	400	400	---
Internal Recycle Flow	MGD	0.900	1.350	2.250	---
Refractory Organic Nitrogen Concentration	mg/L	1.0	1.0	1.0	---
Nitrogen Content Of WAS Solids	Percent	5.00	5.00	5.00	---
HRT, SRT,Yield, Effluent $CBOD_5$, & Effluent Ammonia					
RAS Flow Rate	MGD	0.225	0.338	0.563	---
Anoxic HRT	Hours	21.3	14.2	8.5	---
Aerobic HRT	Hours	39.7	26.5	15.9	---
Total HRT	Hours	61.0	40.7	24.4	---
Aerobic SRT	Days	60.5	36.3	18.7	---
Total System SRT	Days	93.0	55.8	28.8	---
Yield Coefficient	Lb./Lb.	0.55	0.61	0.71	---
Solids Production	PPD	205	342	662	---
WAS Flow	GPD	3,074	5,123	9,923	---
Effluent Soluble $CBOD_5$ Concentration	mg/L	1.6	1.8	2.4	---
Effluent Ammonia Concentration	mg/L	0.0	0.0	0.1	---
Nitrification Analysis					
Influent TKN	PPD	94	141	235	---
Less Nitrogen Required For Cell Synthesis	PPD	10	17	33	---
Less Effluent Ammonia	PPD	0	0	0	---
Less Refractory Organic Nitrogen	PPD	2	3	5	---
TKN To Be Nitrified	PPD	82	121	196	---
Denitrification Potential & Nitrate Removal @ Specified IR Flow					
Anoxic Stage Denitrification Potential	PPD	205	210	222	---
Anoxic Stage Nitrate Removal	PPD	68	101	164	---
Clarifier Loadings					
Number Of Units	Each	1	1	1	1
Clarifier Diameter	Feet	36.00	36.00	36.00	36.00
Surface Area	SF	1,018	1,018	1,018	1,018
Weir Diameter	Feet	36.00	36.00	36.00	36.00
Weir Length	Feet	113	113	113	113
RAS Flow	MGD	0.225	0.338	0.563	---
Overflow Rate	GPD/SF	221	332	553	884
Weir Loading	GPD/LF	1,989	2,984	4,974	7,958
Solids Loading	PPD/SF	14.7	22.1	36.9	---

LA CONTENTA WASTEWATER TREATMENT FACILITY
PROCESS ANALYSIS AND EXPECTED PERFORMANCE
FOR PROJECTED FLOWS AND LOADING

Parameter	Unit	Wastewater Temp. = 20 Deg. C			
		ADF	MMF	MDF	PHF
Anoxic Basin Mixing Analysis					
Number Of Anoxic Mixers	Each	1	1	1	---
Anoxic Mixer Horsepower, Each	HP	5.0	5.0	5.0	---
Anoxic Basin Mixing Intensity	HP/MG	25.0	25.0	25.0	---
Alkalinity Balance					
Alkalinity Coefficient For Nitrification	Lb./Lb.	7.14	7.14	7.14	---
Alkalinity Coefficient For Denitrification	Lb./Lb.	3.00	3.00	3.00	---
Alkalinity Required For Nitrification	PPD	583	862	1,402	---
Alkalinity Credit For Denitrification	PPD	204	302	491	---
Net Alkalinity Required	PPD	379	560	911	---
Oxygen Requirements					
Influent $CBOD_5$	PPD	375	563	938	---
Effluent $CBOD_5$	PPD	3	5	11	---
$CBOD_5$ Removed	PPD	372	558	927	---
Oxygen Coefficient For $CBOD_5$ Removal	Lb./Lb.	1.50	1.37	1.21	---
Oxygen Required For $CBOD_5$ Removal	PPD	560	765	1,126	---
Oxygen Coefficient For Nitrification	Lb./Lb.	4.60	4.60	4.60	---
TKN Converted To Nitrate	PPD	82	121	196	---
Oxygen Required For Nitrification	PPD	376	555	903	---
Oxygen Coefficient For Denitrification Credit	Lb./Lb.	2.86	2.86	2.86	---
Denitrification Credit	PPD	195	288	468	---
Net Oxygen Requirement	PPD	741	1,032	1,562	---
Clarifier Loadings					
Number Of Units	Each	1	1	1	1
Clarifier Diameter	Feet	36.00	36.00	36.00	36.00
Surface Area	SF	1,018	1,018	1,018	1,018
Weir Diameter	Feet	36.00	36.00	36.00	36.00
Weir Length	Feet	113	113	113	113
RAS Flow	MGD	0.225	0.338	0.563	---
Overflow Rate	GPD/SF	221	332	553	884
Weir Loading	GPD/LF	1,989	2,984	4,974	7,958
Solids Loading	PPD/SF	14.7	22.1	36.9	---
Diffused Aeration System Analysis					
Actual Oxygenation Rate (AOR)	PPD	741	1,032	1,562	---
Aerobic SRT	Days	60.5	36.3	18.7	---
Alpha	---	0.65	0.65	0.65	---
Beta	---	0.98	0.98	0.97	---
DO Saturation In Clean Water @ 20 Deg. C & 100% RH	mg/L	9.09	9.09	9.09	---
DO Saturation In Clean Water @ Specified Temp. & 100% RH	mg/L	9.09	9.09	9.09	---
Tau	---	1.00	1.00	1.00	---
Standard Atmospheric Pressure	psi	14.70	14.70	14.70	---
Barometric Pressure	psi	14.70	14.70	14.70	---
Saturated Vapor Pressure of Water @ 20 Deg. C	psi	0.34	0.34	0.34	---
Saturated Vapor Pressure of Water @ Specified Temperature	psi	0.34	0.34	0.34	---
Effective Saturation Depth	Feet	5.00	5.00	5.00	---
Omega	---	1.00	1.00	1.00	---
Corrected DO Saturation In Clean Water @ 20 Deg. C & 100% RH	mg/L	10.46	10.46	10.46	---
Operating DO	mg/L	1.75	1.25	1.00	---
OTRf/SOTR	---	0.53	0.56	0.57	---
Standard Oxygen Transfer Efficiency	Percent	20.00	20.00	20.00	---
Field Oxygen Transfer Efficiency	Percent	10.59	11.15	11.38	---
Air Flow Required For Biological Process	SCFM	279	369	547	---

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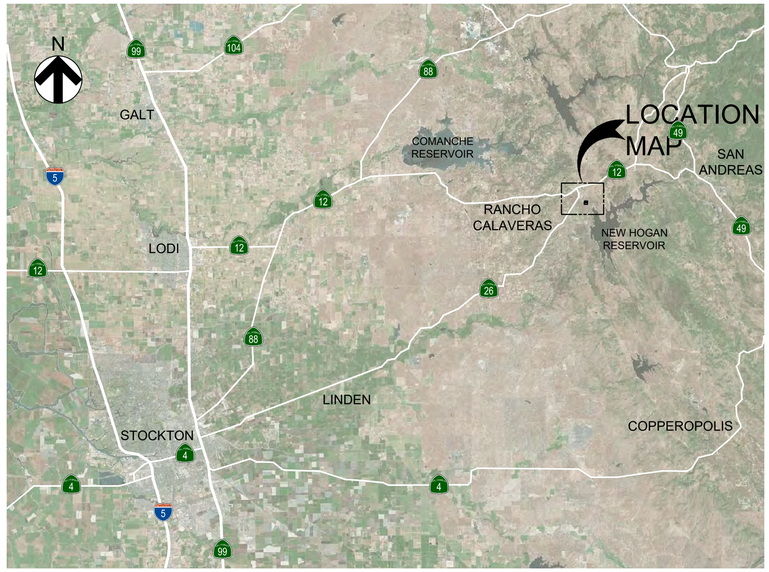
APPENDIX B

Calaveras County Water District
La Contenta WWTF Improvement Project
Preliminary Design Submittal



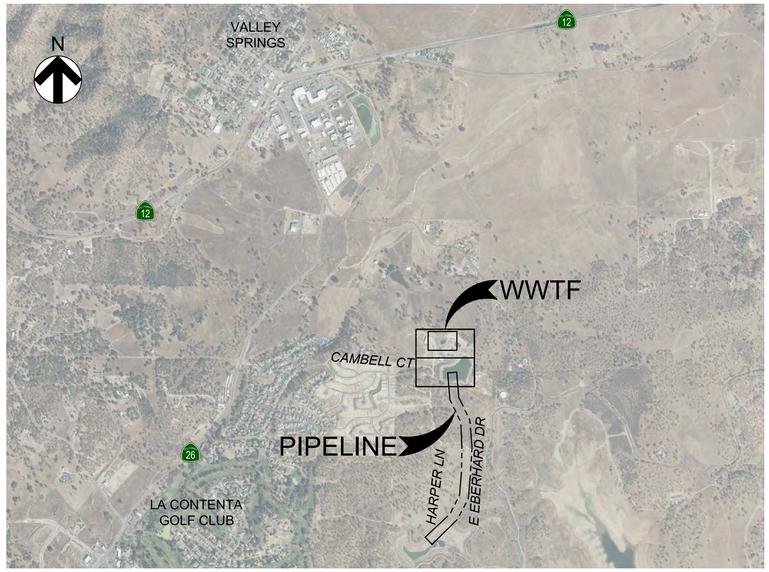
VICINITY MAP
NTS

CALAVERAS COUNTY WATER DISTRICT

HYDROSCIENCE PROJECT NO.: 483-003

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

30% SUBMITTAL
NOVEMBER 2024



LOCATION MAP
NTS

DRAWING INDEX

SHEET NO.	DWG NO.	DRAWING TITLE
		GENERAL
1	G001	TITLE SHEET, VICINITY MAP, LOCATION MAP & DRAWING INDEX
2	G002	STANDARD SHEET REFERENCING, SERVICE ID, SYMBOLS & ABBREVIATIONS
3	G003	GENERAL NOTES
4	G004A	PROCESS FLOW DIAGRAM BASE SCOPE: INTEGRAL CLARIFIER
4	G004B	PROCESS FLOW DIAGRAM SEPARATE CLARIFIER & RAS/WAS PUMP STATION
5	G005	HYDRAULIC PROFILE & DESIGN DATA
6	G006	KEY MAP
		CIVIL
7	C100	EXISTING WWTF SITE PLAN SHEET 1 OF 2
8	C101	EXISTING WWTF SITE PLAN SHEET 2 OF 2
9	C102	WWTF SITE DEMOLITION PLAN SHEET 1 OF 2
10	C103	WWTF SITE DEMOLITION PLAN SHEET 2 OF 2
11	C104A	WWTF SITE AND PIPING PLAN BASE SCOPE: INTEGRAL CLARIFIER SHEET 1 OF 2
11	C104B	WWTF SITE AND PIPING PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION SHEET 1 OF 2
12	C105A	WWTF/UESP PUMP STATION SITE AND PIPING PLAN BASE SCOPE: INTEGRAL CLARIFIER PLAN SHEET 2 OF 2
12	C105B	WWTF/UESP PUMP STATION SITE AND PIPING PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION SHEET 2 OF 2
13	C106A	GRADING & PAVING PLAN BASE SCOPE: INTEGRAL CLARIFIER
13	C106B	AERATION BASIN GRADING & PAVING PLAN OPTION 1: SEPARATE CLARIFIER & RAS/WAS PUMP STATION
14	C200	PIPELINE PLAN AND PROFILE STA: 100+00 TO 104+50
15	C201	PIPELINE PLAN AND PROFILE STA: 104+50 TO 109+50
16	C202	PIPELINE PLAN AND PROFILE STA: 109+50 TO 113+50
17	C203	PIPELINE PLAN AND PROFILE STA: 113+50 TO 118+00
18	C204	PIPELINE PLAN AND PROFILE STA: 118+00 TO 122+50
19	C205	PIPELINE PLAN AND PROFILE STA: 122+50 TO 127+00
20	C206	PIPELINE PLAN AND PROFILE STA: 127+00 TO 131+50
21	C207	PIPELINE PLAN AND PROFILE STA: 131+50 TO 132+75
22	C900	CIVIL DETAILS - 1
23	C901	CIVIL DETAILS - 2
24	C902	CIVIL DETAILS - 3
25	C903	CIVIL DETAILS - 4

SHEET NO.	DWG NO.	DRAWING TITLE
		MECHANICAL
26	M200	UESP PUMP STATION MECHANICAL PLAN, SECTION & DETAIL
27	M300	SECONDARY CLARIFIER PLAN & SECTION
28	M301	SECONDARY CLARIFIER SECTIONS & DETAILS
29	M400	FLOW SPLITTER BOX PLAN & SECTIONS
30	M500	MECHANICAL PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION
31	M600	BLOWER ROOM MODIFICATION PLAN
32	M601	BLOWER ROOM MODIFICATION SECTION
33	M700	TBD
34	M900	MECHANICAL DETAILS - 1
35	M901	MECHANICAL DETAILS - 2
36	M902	MECHANICAL DETAILS - 3
		BUILDING
37	B100	ELECTRICAL BUILDING PLANS
38	B300	ELECTRICAL BUILDING ELEVATIONS
39	B301	ELECTRICAL BUILDING DETAILS-1
40	B302	ELECTRICAL BUILDING DETAILS-2
		STRUCTURAL
41	S001	TYPICAL STRUCTURAL NOTES - 1
42	S002	TYPICAL STRUCTURAL NOTES - 2
43	S003	TYPICAL STRUCTURAL DETAILS - 1
44	S004	TYPICAL STRUCTURAL DETAILS - 2
45	S005	TYPICAL STRUCTURAL DETAILS - 3
46	S006	TYPICAL STRUCTURAL DETAILS - 4
47	S200	UESP PUMP STATION STRUCTURAL PLAN, SECTION & DETAIL
48	S300	SECONDARY CLARIFIER STRUCTURAL PLAN
49	S301	SECONDARY CLARIFIER SECTIONS
50	S500	FLOW SPLITTER BOX & METER BOX STRUCTURAL PLAN & SECTIONS
51	S600	RAS/WAS PUMP STATION STRUCTURAL PLAN
52	S601	BLOWER ROOM STRUCTURAL PLAN
53	S700	TBD

SHEET NO.	DWG NO.	DRAWING TITLE
		ELECTRICAL
54	E001	STANDARD ELECTRICAL SYMBOLS, LEGENDS & ABBREVIATIONS
55	E010	SINGLE LINE DIAGRAM
56	E011	PANEL ELEVATIONS
57	E020	ELECTRICAL SCHEDULES
58	E021	ELECTRICAL SCHEDULES
59	E030	WIRING DIAGRAM
60	E031	WIRING DIAGRAM
61	E032	WIRING DIAGRAM
62	E040	TBD
63	E041	TBD
64	E042	TBD
65	E043	TBD
66	E044	TBD
67	E045	TBD
68	E046	TBD
69	E047	TBD
70	E048	TBD
71	E049	TBD
72	E100	ELECTRICAL SITE PLAN SHEET 1 OF 2
73	E101	ELECTRICAL SITE PLAN SHEET 2 OF 2
74	E300	SECONDARY CLARIFIER PLAN & SECTION
75	E500	RAS/WAS PUMP STATION STRUCTURAL PLAN
76	E600	BLOWER ROOM MODIFICATION PLAN
77	E900	ELECTRICAL DETAILS - 1
78	E901	ELECTRICAL DETAILS - 2

SHEET NO.	DWG NO.	DRAWING TITLE
		INSTRUMENTATION
79	I001	STANDARD PROCESS & INSTRUMENTATION SYMBOLS, LEGENDS & ABBREVIATIONS
80	I100	PROCESS AND INSTRUMENTATION DIAGRAM
81	I101	PROCESS AND INSTRUMENTATION DIAGRAM
82	I102	PROCESS AND INSTRUMENTATION DIAGRAM
83	I103	PROCESS AND INSTRUMENTATION DIAGRAM
84	I104	PROCESS AND INSTRUMENTATION DIAGRAM
85	I105	PROCESS AND INSTRUMENTATION DIAGRAM
86	I106	PROCESS AND INSTRUMENTATION DIAGRAM
87	I107	PROCESS AND INSTRUMENTATION DIAGRAM
88	I108	PROCESS AND INSTRUMENTATION DIAGRAM
89	I109	PROCESS AND INSTRUMENTATION DIAGRAM
90	I900	INSTRUMENTATION DETAILS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

TITLE SHEET, VICINITY MAP, LOCATION MAP & DRAWING INDEX

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G001
DRAWING NUMBER

SHEET 1 OF 90

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LINE LEGENDS

GENERAL LEGEND

- CENTERLINE
- BUILDING
- CONCRETE
- EQUIPMENT
- EXISTING FEATURES, EQUIPMENT OR STRUCTURES
- PROPERTY LINE
- MATCH LINE
- RIGHT OF WAY
- FENCE
- HANDRAIL
- GRADE BREAK
- SWALES OR DITCH
- EDGE OF WATER
- MAJOR CONTOURS (180)
- MINOR CONTOURS (180)
- EXISTING GUARD RAIL
- DENSE BRUSH

CIVIL LEGEND

- PIPING TO BE ABANDONED OR REMOVED
- W — WATER MAIN PIPE
- W — EXISTING WATER MAIN PIPE
- SFM — SEWER FORCE MAIN
- SS — EXISTING SEWER FORCE MAIN
- RW — RECYCLED WATER PIPE
- RW — EXISTING RECYCLED WATER PIPE
- SS — SANITARY SEWER PIPE
- SS — EXISTING SANITARY SEWER PIPE
- SD — STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- OF — OVER FLOW LINE
- OF — EXISTING OVER FLOW LINE
- D — DRAIN LINE
- D — EXISTING DRAIN LINE
- E — ELECTRICAL CONDUIT
- E — EXISTING ELECTRICAL CONDUIT
- G — ELECTRICAL GROUND
- CULV — CULVERT
- CULV — EXISTING CULVERT
- UNK — EXISTING UNKNOWN PIPE
- G — EXISTING GAS LINE
- NG — EXISTING NATURAL GAS LINE

GENERAL SYMBOLS

MISCELLANEOUS SYMBOLS

- SINGLE LINE CONTINUATION
- DOUBLE LINE CONTINUATION
- GENERAL CONTINUATION
- WATERLINE
- PH# — POTHOLE
- BH# — BORING HOLE
- N — NORTH ARROW
- 50 — INTERSTATE HIGHWAY
- 550 — HIGHWAY
- TREE
- UTILITY BOX
- POWER POLE

TYPICAL PIPING SYMBOLS

- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE
- GATE VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- CHECK VALVE
- REDUCER
- FM — FLOW METER
- BACKFLOW PREVENTER
- DROP INLET
- FIRE HYDRANT
- CAP
- BLIND FLANGE
- HOSE BIBB
- CLEAN OUT

REFERENCE LABELS

VIEW TITLES, SECTION/DETAIL & PHOTO CALL-OUTS

(1) MAIN FEATURE TITLE

<FEATURE_TITLE> — FEATURE TITLE
1" = 1'-0" — NOTE/SCALE

(2) DETAIL/SECTION/ELEVATION TITLE:

<TITLE> — TITLE
SCALE: NO SCALE — SCALE
A / C102 — VIEW LABEL (LETTERS FOR SECTIONS/ ELEVATIONS & NUMBERS FOR DETAILS); SHEET REFERENCED

(3) SECTION/ELEVATION CALL OUT:

A / C102 — SECTION/ELEVATION DESIGNATION; SHEET SECTION IS ON

(4) PHOTO CALL OUT: PHOTO 1 FROM DWG M001:

1 / M001 — PHOTO NUMBER; SHEET PHOTO IS ON

SERVICE IDENTIFICATION SYSTEM

SERVICE ABBREVIATIONS

SERVICE ABBREVIATION
PIPE SIZE (NOMINAL)
24" SS
SEE NOTES 1 & 3
NOTE/ REFERENCE

SERVICE ABBREVIATION
PIPE SIZE (NOMINAL)
XX" XX"
XX" XX"
DIRECTION OF FLOW

C	ELECTRICAL CONTROL
D	DRAIN
EFF	EFFLUENT
E	ELECTRICAL SERVICE
FA	FOUL AIR
OF	OVERFLOW
NPW	NON POTABLE WATER
PW	POTABLE WATER
RW	RECYCLED WATER/RAW WATER
SD	STORM DRAIN
SMP	SAMPLE
SS	SANITARY SEWER
SSFM	SANITARY SEWER FORCE MAIN
V	VENT
W	WATER SERVICE

PATTERNS LEGEND

PATTERN LEGEND

NEW	EXISTING	
	N/A	DEMOLITION AREA
		AC W/ AB (SECTION VIEW)
		NATURAL GROUND OR GRADE
		COMPACTED BACKFILL
		AB (SECTION VIEW)
		CONCRETE
		CHECKER PLATE
		STEEL OR STAINLESS STEEL
		AC PAVEMENT (PLAN VIEW) OR GROUT (SECTION VIEW)
		GRATING
		MISCELLANEOUS MATERIAL
	N/A	HIGHLIGHTED AREA

ABBREVIATIONS

A	
AB	ANCHOR BOLT/AGGREGATE BASE
A/C	AIR CONDITIONER
AC	ASPHALT CONCRETE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AL	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE(LY)
AUX	AUXILIARY
AVE	AVENUE

B	
BF	BLIND FLANGE
BFC	BOTTOM FACE OF CURB
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BEAM/BENCHMARK
BTM	BOTTOM
BV	BALL VALVE

C	
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
CONC	CONCRETE
CONT	CONTAINMENT
CPLG	COUPLING
CV	CONTROL VALVE

D	
(D)	DEMOLISH
D	DRAIN
DET	DETAIL
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING

E	
(E)	EXISTING
E	EAST
EA	EACH
EG	EXISTING GRADE
EL	ELEVATION
ELL	ELBOW
EMBED	EMBEDDED
EMERG	EMERGENCY
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EW T&B	EACH WAY/TOP AND BOTTOM
EXP	EXPANSION
EXT	EXTERIOR

F	
(F)	FUTURE
FA	FOUL AIR
FACP	FIRE ALARM CONTROL PANEL
FC	FLEX COUPLING
FCA	FLANGE COUPLING ADAPTER
FD	FLOOR DRAIN/FIRE DAMPER
FE	FLOW-METER
FF	FINISHED FLOOR
FG	FINISHED GRADE
FI	FLOW INDICATOR
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE(D)
FLR	FLOOR
FO	FIBER OPTIC/FAIL OPEN
FRP	FIBERGLASS REINFORCED PIPE
FS	FIRE SERVICE/FLOW SWITCH
FT	FEET
FTG	FOOTING
FTS	FLOAT SWITCH

G	
G	GAS
GALV	GALVANIZED
GEN	GENERAL
GPM	GALLONS PER MINUTE
GRT	GROUT/GRATE
GSN	GENERAL STRUCTURAL NOTES
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE

H	
HI	HIGH
HORIZ	HORIZONTAL
HP	HIGH PRESSURE/HIGH POINT /HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HSS	HOLLOW STRUCTURE STEEL
HT	HEIGHT/HIGH
HWL	HIGH WATER LEVEL
HYD	HYDRAULIC

I	
IE	INVERT ELEVATION
IN	INCH
INST	INSTRUMENTATION
INV	INVERT
IRR	IRRIGATION

J	
JT	JOINT

L	
L	LENGTH

M	
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM/MINUTE
MINS	MINUTES
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MOV	MOTOR OPERATED VALVE
MTD	MANUAL TRANSFER SWITCH
MTR	MOTOR

N	
(N)	NEW
N	NEUTRAL/NORTH
N/A	NOT APPLICABLE
NO	NORMALLY OPEN
NPW	NON-POABLE WATER
NTS	NOT TO SCALE

O	
O	OPEN
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OFMH	OVERFLOW MANHOLE

P	
PE	PLAIN END
PL/t	PROPERTY LINE/PIPELINE/PLATE
PMP	PUMP
PROVIDE	FURNISH, INSTALL AND CONNECT
PSI	POUNDS PER SQUARE INCH
PV	PLUG VALVE
PVC	POLYVINYLCHLORIDE
PVT	PAVEMENT
PW	POTABLE WATER

Q	
Q	RATE OF FLOW
QCPLG	QUICK COUPLING

R	
R	RADIUS/RIGHT
R/C	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED	REDUCER
REF	REFERENCE
REINF	REINFORCE/REINFORCING
REL	RELAY
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
RW	RECYCLED WATER

S	
S	SOUTH
SBL	SET BACK LINE
SCH	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDR	STANDARD DIMENSION RATIO
SEC	SECONDARY
SECT	SECTION
SFM	SEWER FORCE-MAIN
SHT	SHEET
SPEC	SPECIFICATION(S)
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURE
SV	SOLENOID VALVE

T	
T&B	TOP AND BOTTOM
T, TEL	TELECOMMUNICATIONS
TOP	TOP OF PIPE
T/B	TOP OF BANK
TB	TERMINAL BLOCK
TBC	TOP BACK OF CURB
TC	TOP OF CURB/TOP OF CONCRETE
TCDI	TOP OF CURB DROP INLET
TEMP	TEMPERATURE
TP	TOP OF PAVEMENT
TYP	TYPICAL

U	
UB	UTILITY BOX
UG	UNDERGROUND
UN	UNION
UNKN	UNKNOWN
UON	UNLESS OTHERWISE NOTED

V	
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE

W	
W	WATER/WEST
W/	WITH
W/O	WITHOUT
WL	WATER LEVEL
WS	WATER SURFACE
WSTP	WATER-STOP
WT	WATERTIGHT/WEIGHT
WV	WATER VALVE
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
WWTP	WASTEWATER TREATMENT PLANT

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PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

STANDARD SHEET REFERENCING, SERVICE ID, SYMBOLS & ABBREVIATIONS

30% SUBMITTAL NOV 2024

G002
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SHEET 2 OF 90

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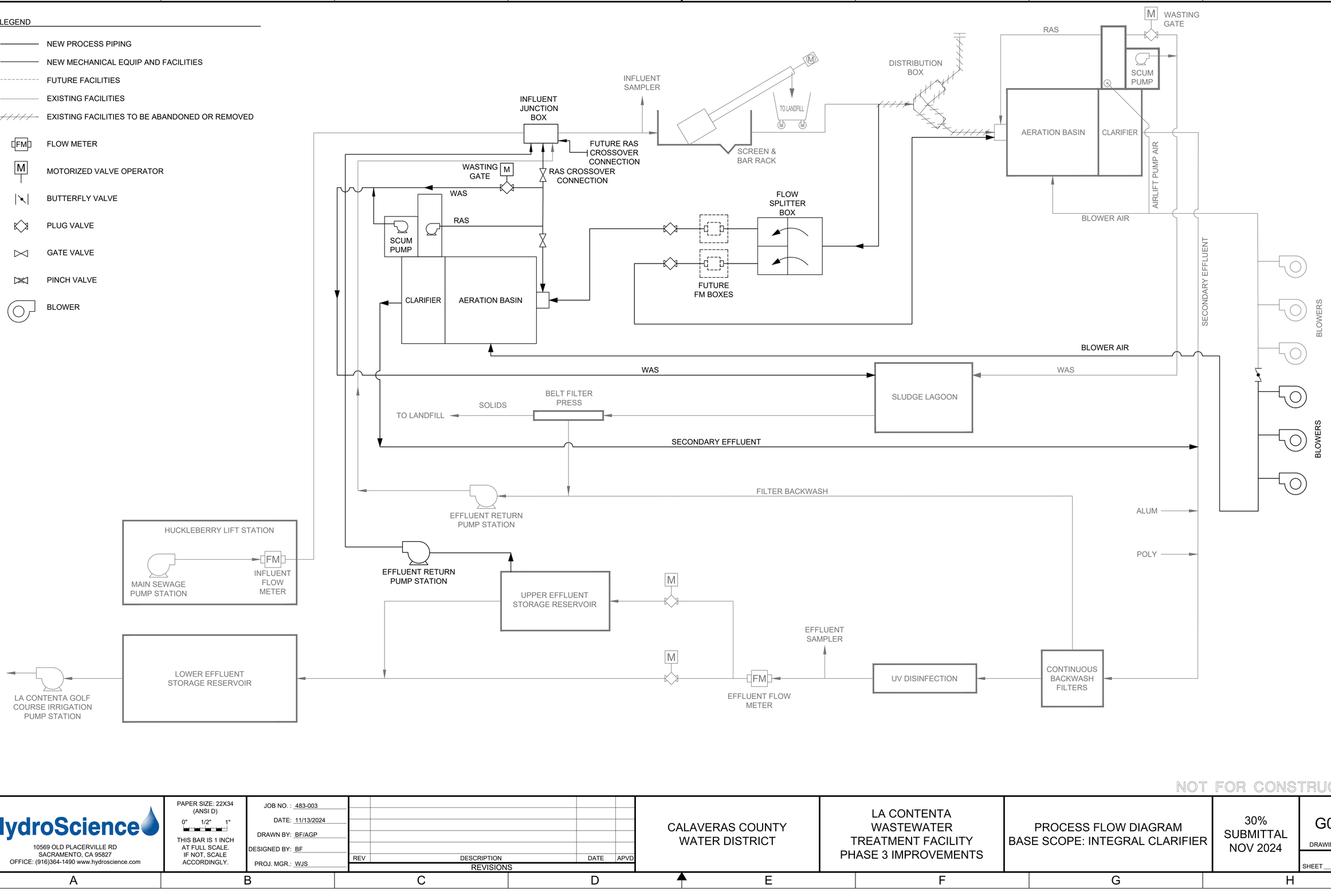
LEGEND

- NEW PROCESS PIPING
- NEW MECHANICAL EQUIP AND FACILITIES
- FUTURE FACILITIES
- EXISTING FACILITIES
- EXISTING FACILITIES TO BE ABANDONED OR REMOVED
- FM — FLOW METER
- M — MOTORIZED VALVE OPERATOR
- BUTTERFLY VALVE
- PLUG VALVE
- GATE VALVE
- PINCH VALVE
- BLOWER



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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS FLOW DIAGRAM
BASE SCOPE: INTEGRAL CLARIFIER

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G004A
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SHEET 4 OF 90

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- NEW MECHANICAL EQUIP AND FACILITIES
- FUTURE FACILITIES
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- FM — FLOW METER
- M — MOTORIZED VALVE OPERATOR
- BUTTERFLY VALVE
- PLUG VALVE
- GATE VALVE
- PINCH VALVE
- BLOWER

INFLUENT JUNCTION BOX
RAS
FUTURE RAS CROSSOVER CONNECTION
RAS CROSSOVER CONNECTION
INFLUENT SAMPLER
TO LANDFILL
SCREEN & BAR RACK
DISTRIBUTION BOX
M WASTING GATE
RAS
SCUM PUMP
AERATION BASIN
CLARIFIER
AIRLIFT PUMP AIR
BLOWER AIR
FLOW SPLITTER BOX
FUTURE FM BOXES
AERATION BASIN
CLARIFIER
WET WELL
SCUM LINE
RAS/WAS PS
BLOWER AIR
SECONDARY EFFLUENT
BLOWERS
WAS
WAS
SLUDGE LAGOON
BELT FILTER PRESS
SOLIDS
TO LANDFILL
SECONDARY EFFLUENT
FILTER BACKWASH
EFFLUENT RETURN PUMP STATION
ALUM
POLY
EFFLUENT RETURN PUMP STATION
HUCKLEBERRY LIFT STATION
MAIN SEWAGE PUMP STATION
INFLUENT FLOW METER
UPPER EFFLUENT STORAGE RESERVOIR
EFFLUENT SAMPLER
LOWER EFFLUENT STORAGE RESERVOIR
LA CONTENTA GOLF COURSE IRRIGATION PUMP STATION
EFFLUENT FLOW METER
UV DISINFECTION
CONTINUOUS BACKWASH FILTERS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

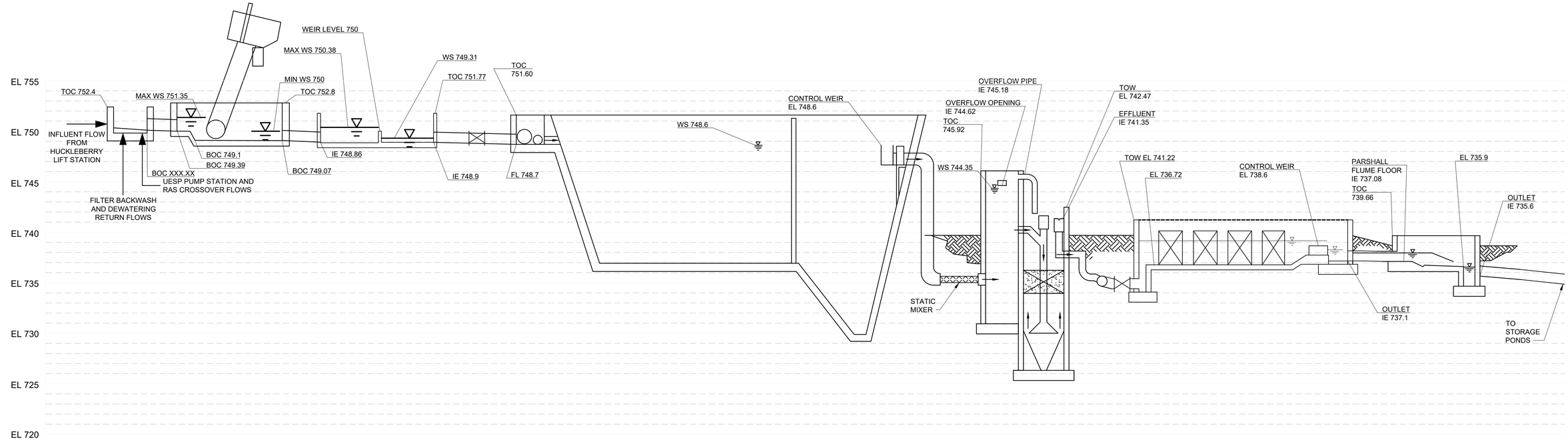
LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS FLOW DIAGRAM OPTION 1: SEPARATE CLARIFIER & RAS/WAS PUMP STATION

30% SUBMITTAL NOV 2024

G004B
DRAWING NUMBER

SHEET 4 OF 90



INFLUENT FLOWS (GPD)		
	PHASE 3	BUILDOUT
ADWF	237,000	338,000
MMF	473,000	675,000
MDF	950,000	1,350,000
PHF	1,260,000	2,016,000
Note: Buildout PHF is based on Huckleberry Lift Station max discharge flow.		

WWTF RETURN STREAMS (GPD)		
	PHASE 3	BUILDOUT
FILTER BACKWASH	127,000	177,000
SOLIDS DEWATERING	138,000	138,000
TOTAL	265,000	315,000

RAS FLOW (GPD)		
	PHASE 3	BUILDOUT
RAS FLOW	474,000	675,000

PHASE 3 INFLUENT LOAD				
	CONCENTRATION	UNITS	LOAD	UNITS
BOD5	200	MG/L	789	LBS/D
SUSPENDED SOLIDS	200	MG/L	789	LBS/D
NITROGEN, N	35	MG/L	138	LBS/D

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

HYDRAULIC PROFILE & DESIGN DATA

30% SUBMITTAL NOV 2024

G005
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SHEET 5 OF 90

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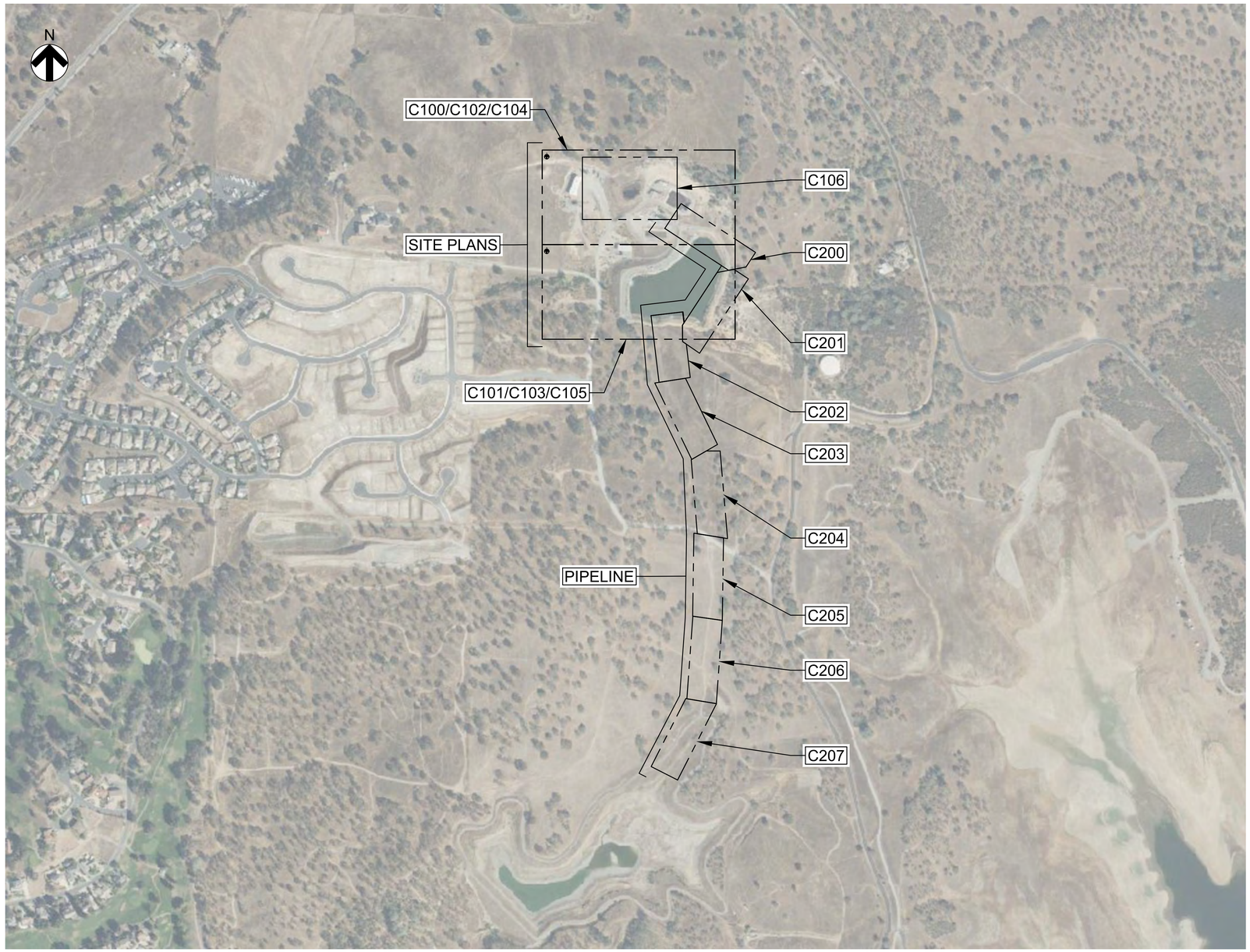

KEY MAP
NTS

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

KEY MAP

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G006
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SHEET 6 OF 90

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File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-General.dwg

MATCHLINE - SEE DWG C101

EXISTING WWTF SITE PLAN

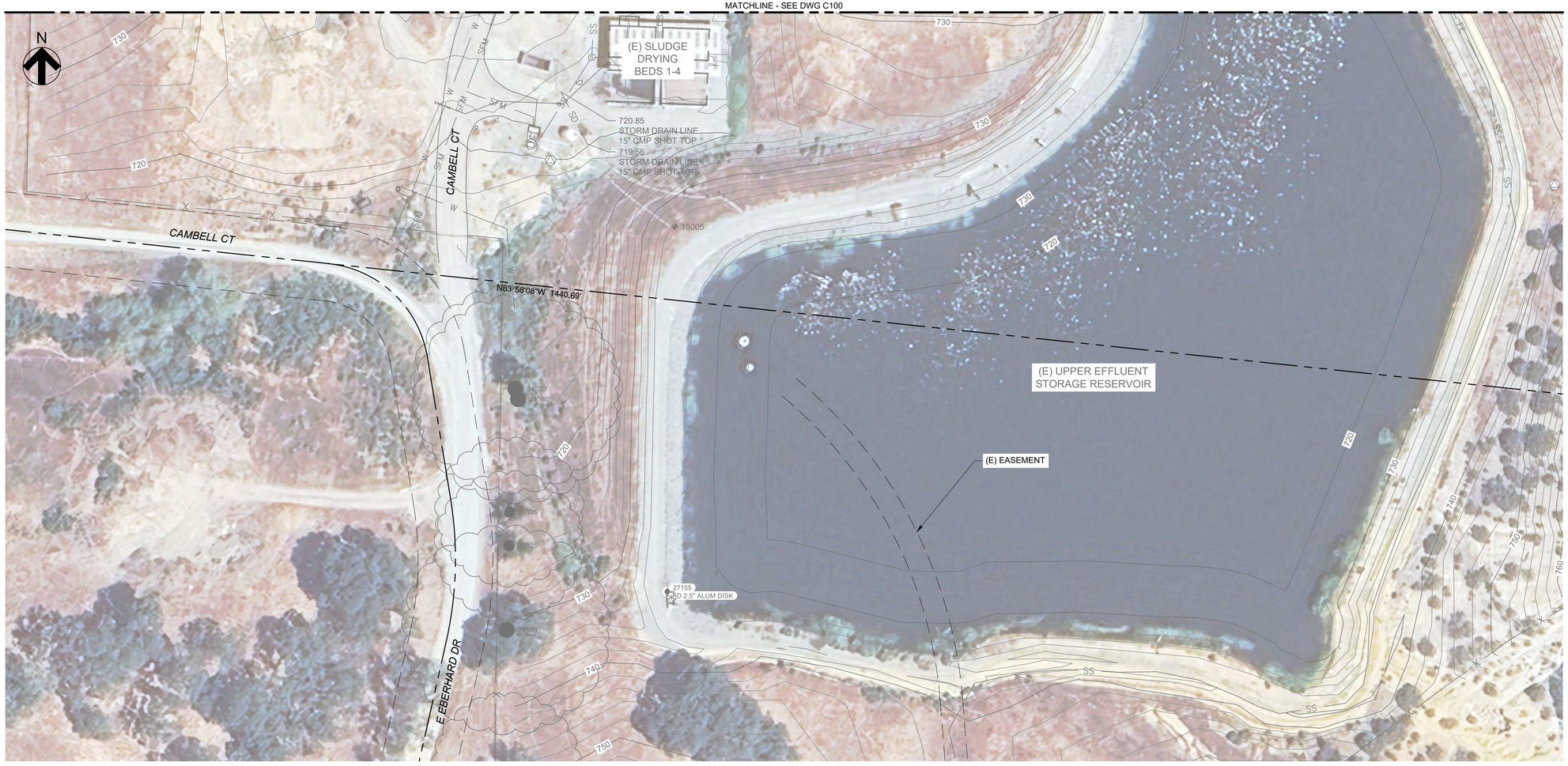
SCALE: 1" = 40'-0"

NOT FOR CONSTRUCTION

HydroScience 10569 OLD PLACERVILLE RD SACRAMENTO, CA 95827 OFFICE: (916)364-1490 www.hydroscience.com	PAPER SIZE: 22X34 (ANSI D) 0" 1/2" 1" THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.	JOB NO. : 483-003 DATE: 11/13/2024 DRAWN BY: BF/AGP DESIGNED BY: BF PROJ. MGR.: WJS	REV / DESCRIPTION / DATE / APVD REVISIONS	CALAVERAS COUNTY WATER DISTRICT	LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS	EXISTING WWTF SITE PLAN SHEET 1 OF 2	30% SUBMITTAL NOV 2024	C100 DRAWING NUMBER SHEET 7 OF 90

Plot Date: 11/13/2024 10:44 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Site Plan.dwg

MATCHLINE - SEE DWG C100



EXISTING WWTF SITE PLAN

SCALE: 1" = 40'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

EXISTING WWTF SITE PLAN SHEET 2 OF 2

30% SUBMITTAL NOV 2024

C101

DRAWING NUMBER

SHEET 8 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:44 AM
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Site Plan.dwg

MATCHLINE - SEE DWG C103

WWTF SITE DEMOLITION PLAN

SCALE: 1" = 40'-0"

NOTES

1. CONTRACTOR SHALL DEWATER HOLDING POND AND REMOVE SLUDGE AND UNSUITABLE SOILS AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. CONTRACTOR TO STOCKPILE MATERIALS IN A DISTRICT-DESIGNATED LOCATION ON THIS WWTF SITE. ASSUME A TOTAL VOLUME OF 600 CY OF WATER, SLUDGE, AND UNSUITABLE SOILS, 15% OF WHICH IS WATER.

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF SITE DEMOLITION PLAN SHEET 1 OF 2

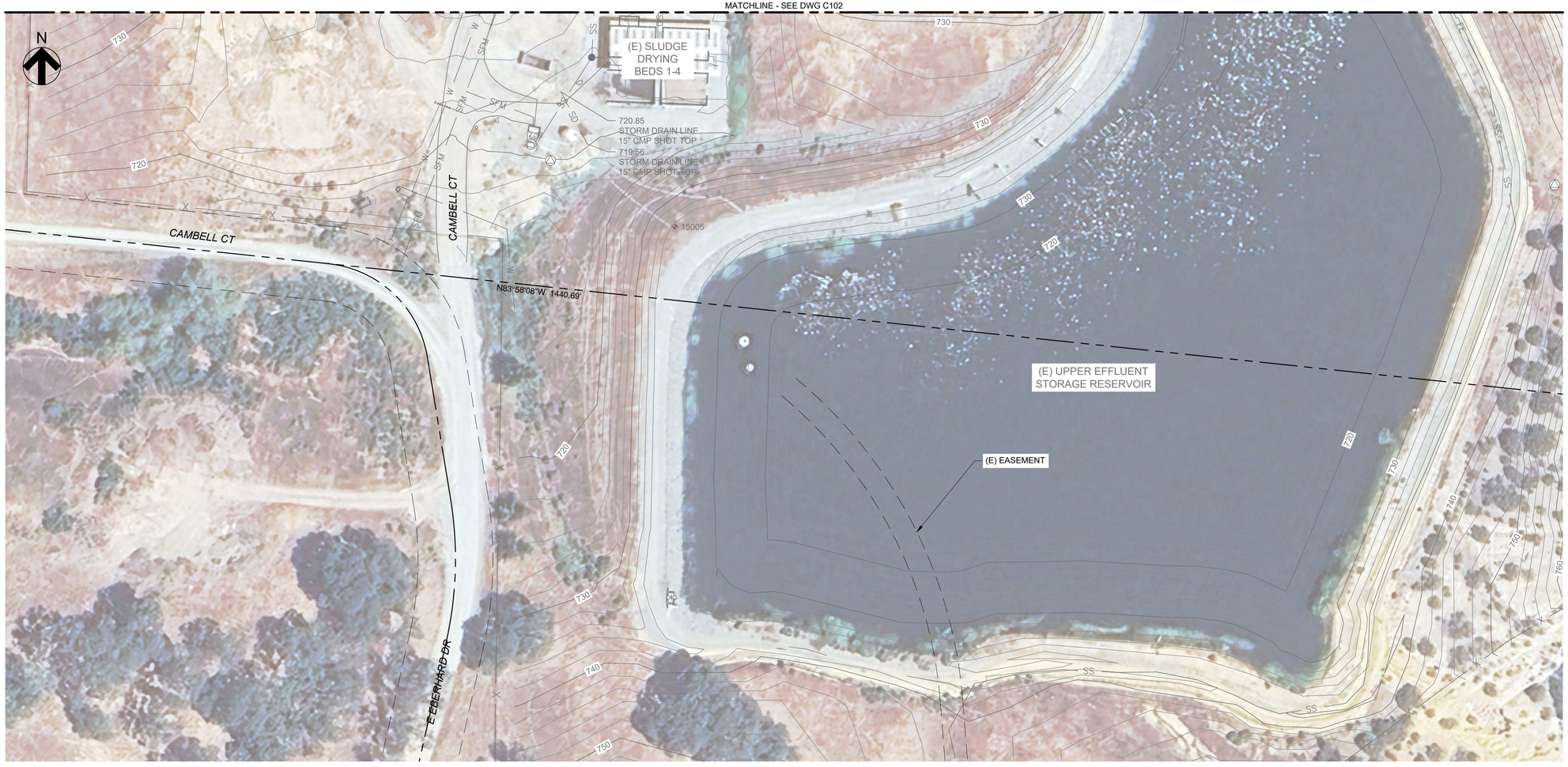
30% SUBMITTAL NOV 2024

C102
DRAWING NUMBER

SHEET 9 OF 90

Plot Date: 11/13/2024 10:44 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Site Plan.dwg

MATCHLINE - SEE DWG C102



WWTF SITE DEMOLITION PLAN

SCALE: 1" = 40'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF SITE DEMOLITION PLAN SHEET 2 OF 2

30% SUBMITTAL NOV 2024

C103
DRAWING NUMBER

SHEET 10 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:44 AM
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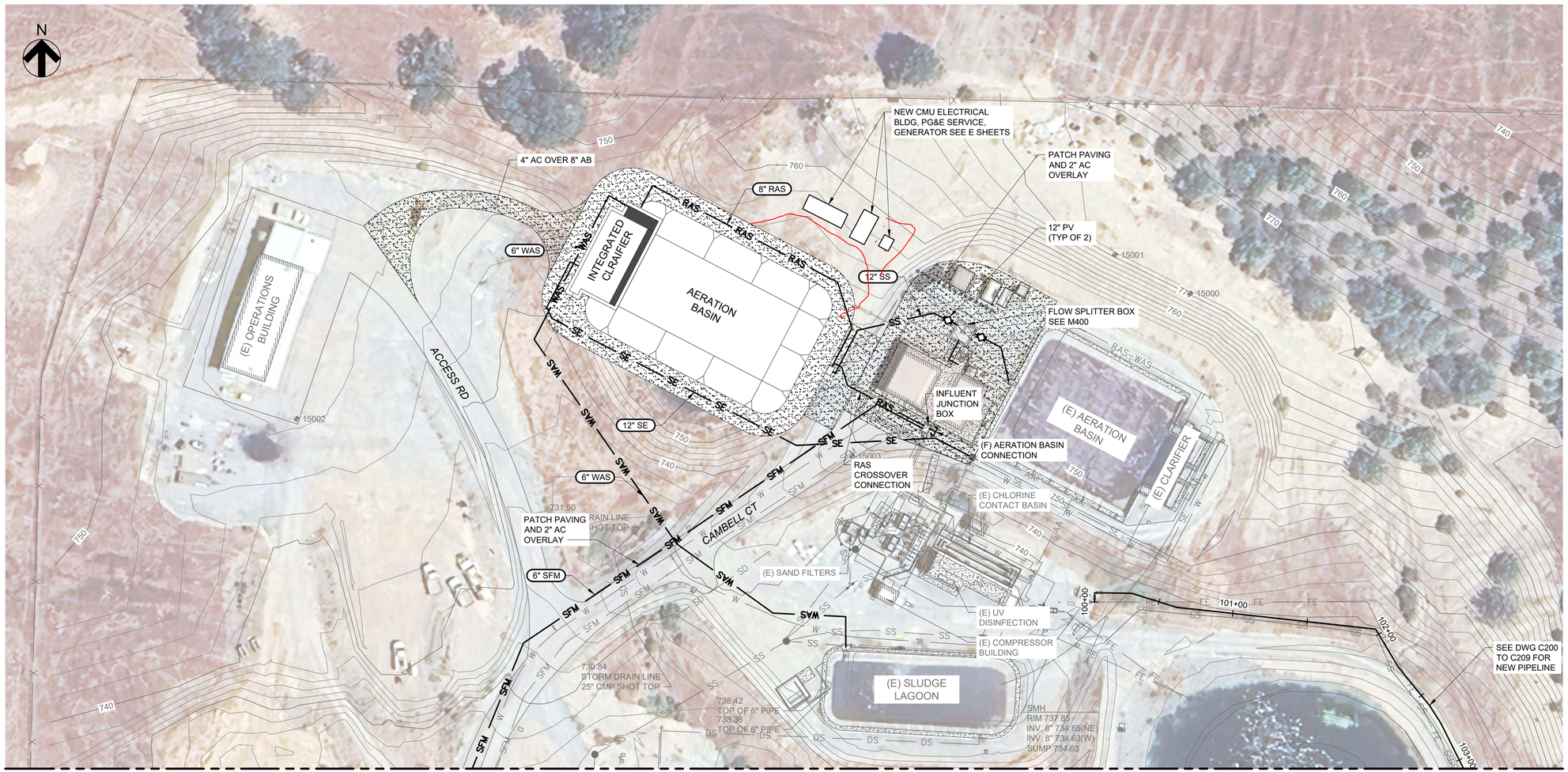

MATCHLINE - SEE DWG C105

WWTF SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY
WATER DISTRICT

LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

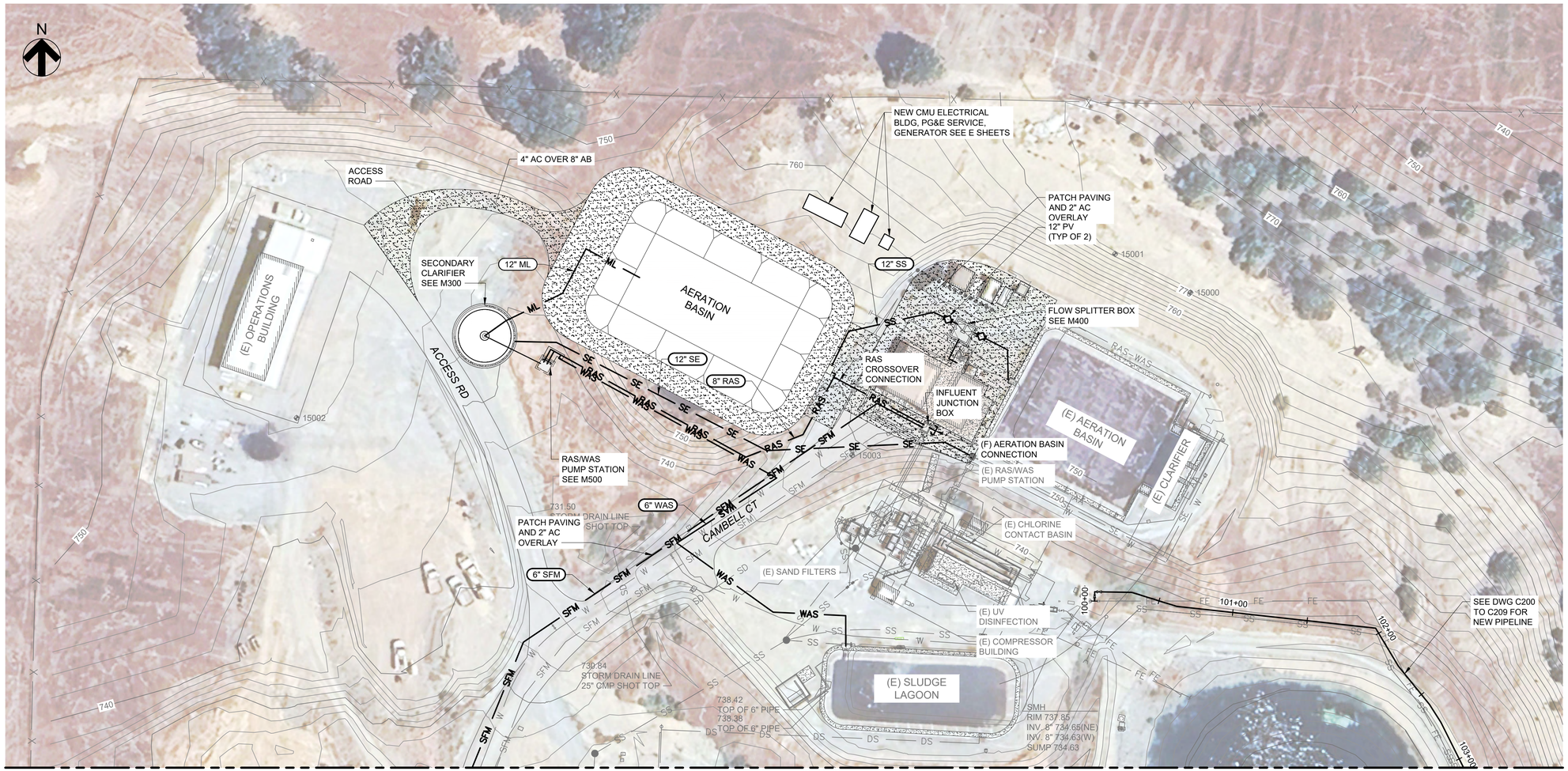
WWTF SITE AND PIPING PLAN
BASE SCOPE: INTEGRAL CLARIFIER
SHEET 1 OF 2

30%
SUBMITTAL
NOV 2024

C104A
DRAWING NUMBER

SHEET 11 OF 90

Plot Date: 11/13/2024 10:45 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Site Plan.dwg



WWTF SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF SITE AND PIPING PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION SHEET 1 OF 2

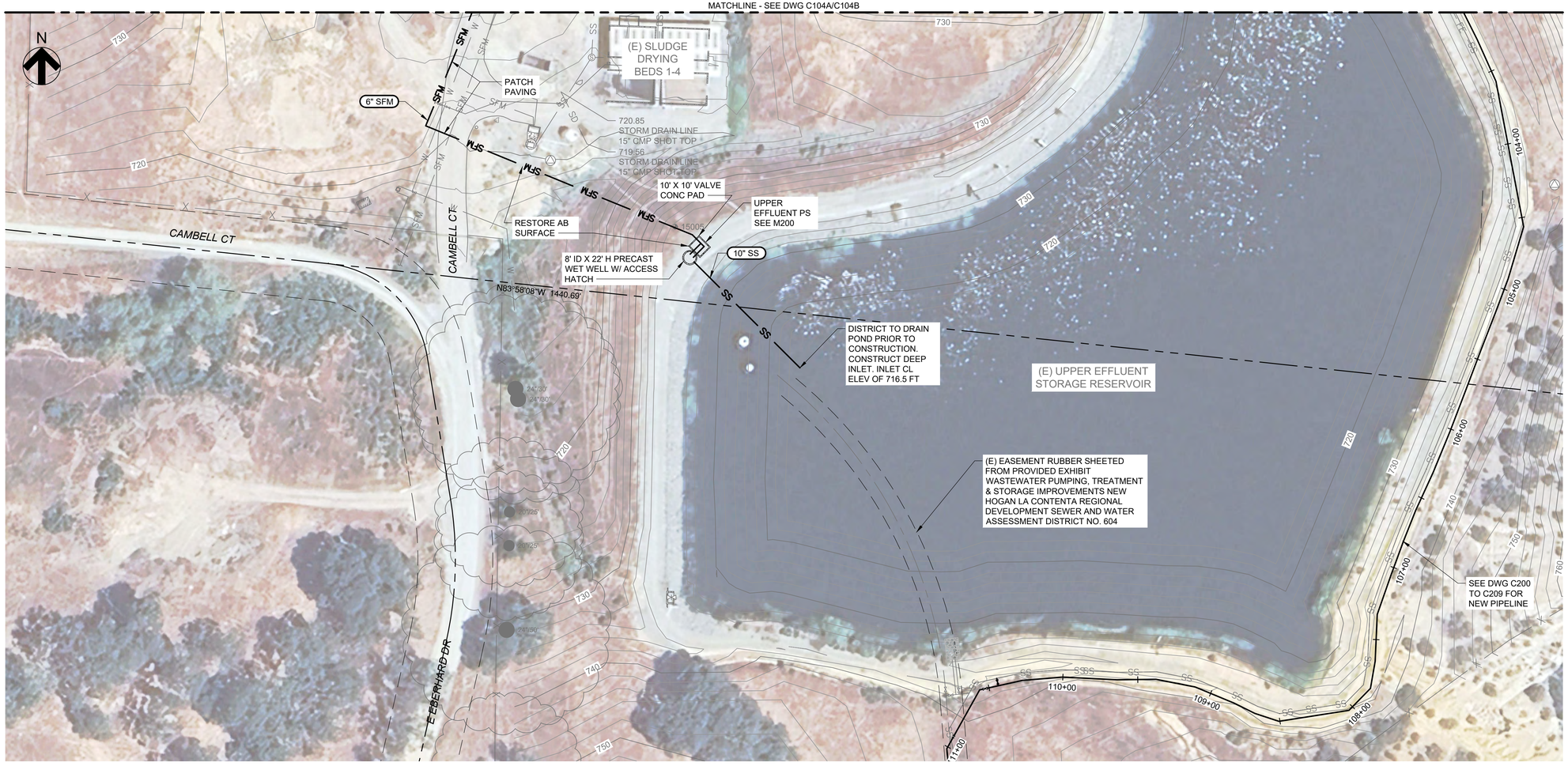
30% SUBMITTAL NOV 2024

C104B
DRAWING NUMBER

SHEET 11 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:45 AM
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Site Plan.dwg

MATCHLINE - SEE DWG C104A/C104B



WWTF/UESP PUMP STATION SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF/UESP PUMP STATION SITE AND PIPING PLAN
BASE SCOPE: INTEGRAL CLARIFIER
PLAN SHEET 2 OF 2

30% SUBMITTAL NOV 2024

C105A
DRAWING NUMBER

SHEET 12 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 1:49 PM
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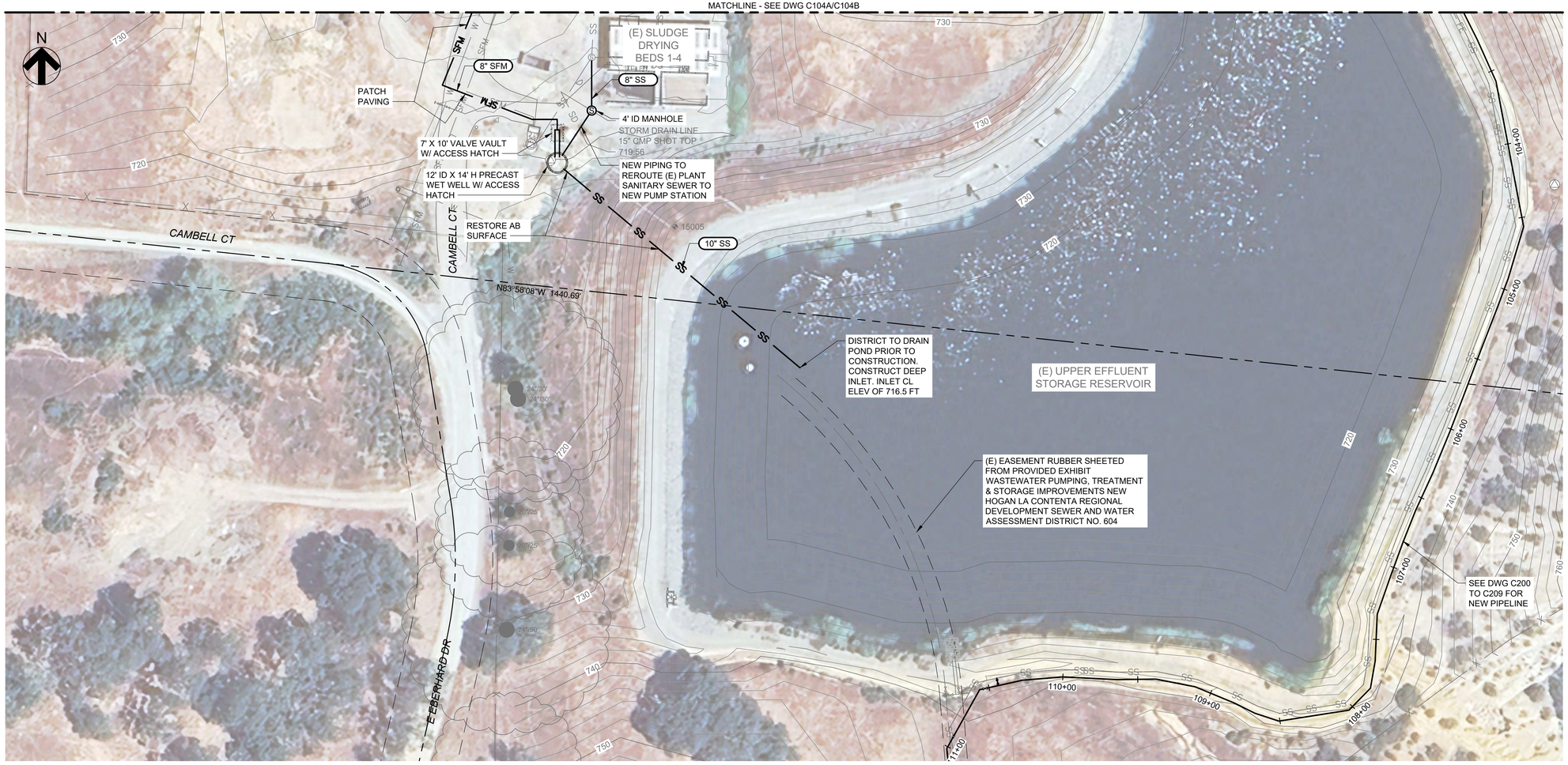
MATCHLINE - SEE DWG C104A/C104B



WWTF/UESP PUMP STATION SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

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DATE: 11/13/2024
DRAWN BY: BF/AGP
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PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF/UESP PUMP STATION SITE AND PIPING PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION SHEET 2 OF 2

30% SUBMITTAL NOV 2024

C105B
DRAWING NUMBER

SHEET 12 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 1:48 PM
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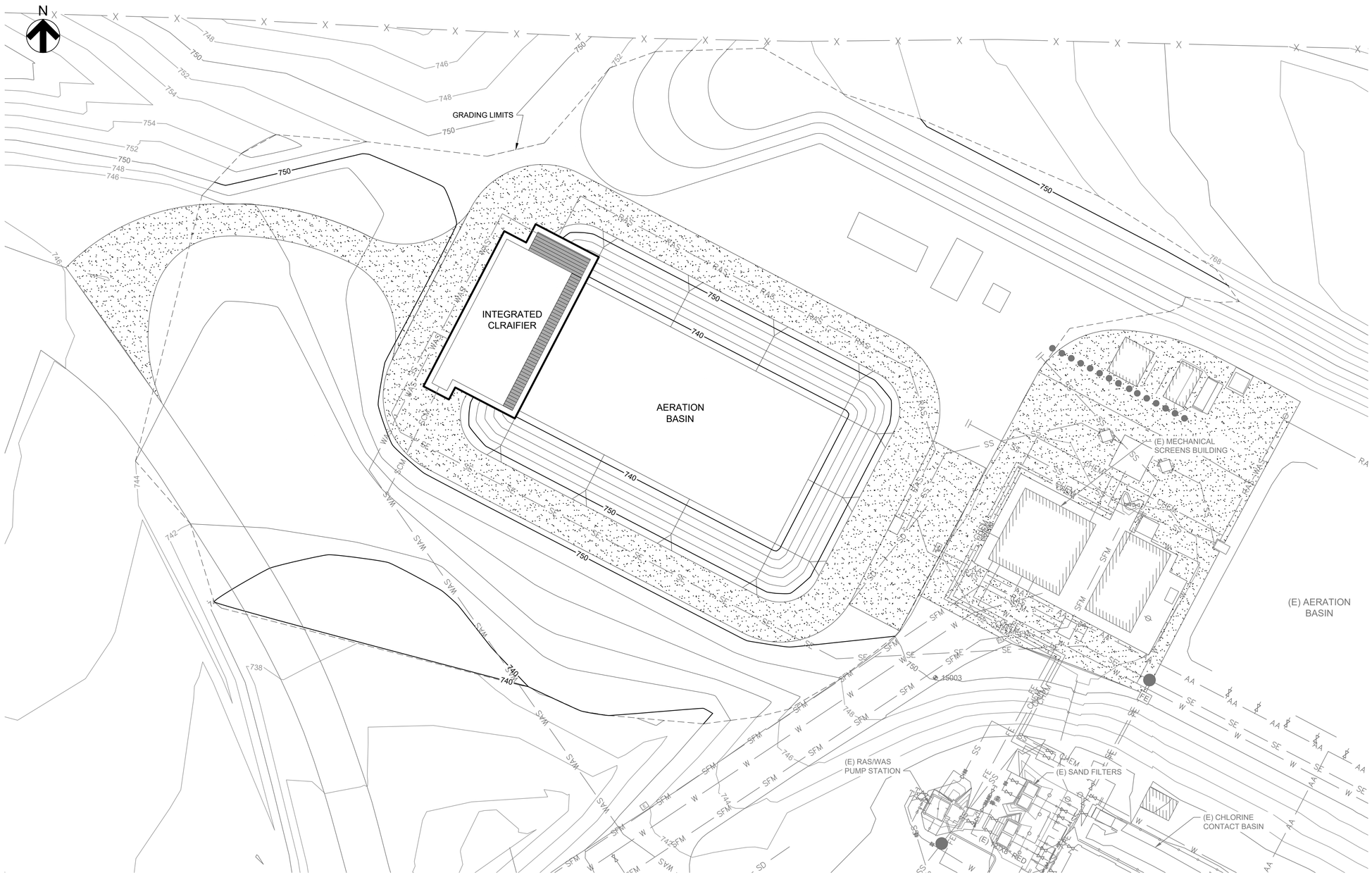

AERATION BASIN GRADING PLAN

SCALE: 1" = 20'-0"

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

AERATION BASIN GRADING AND PAVING PLAN BASE SCOPE: INTEGRAL CLARIFIER

30% SUBMITTAL NOV 2024

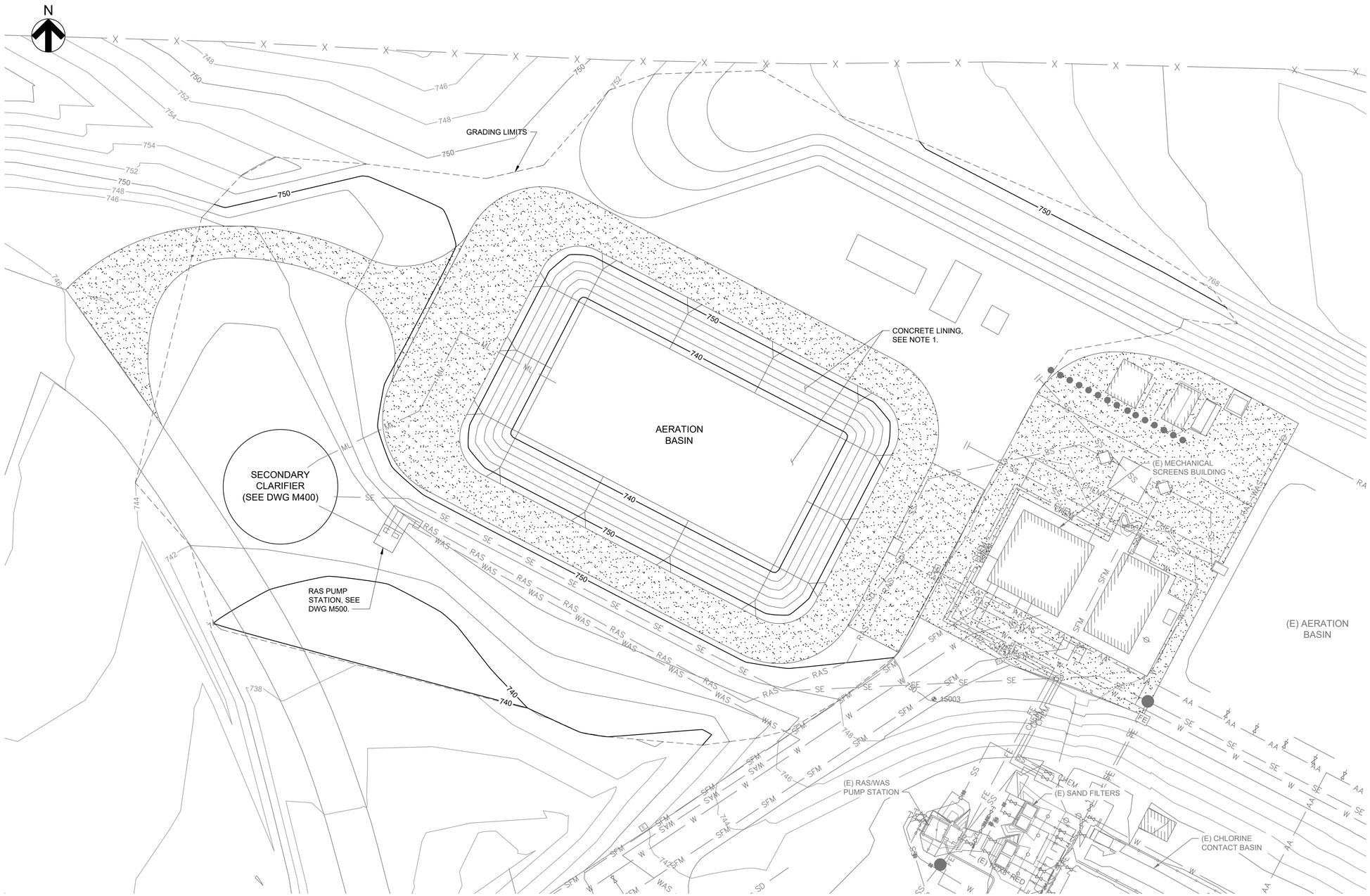
C106A
DRAWING NUMBER

SHEET 13 OF 90

Plot Date: 11/13/2024 10:46 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Grading Plan.dwg

NOTES

1. CONCRETE LINING SHALL BE 6" CONCRETE WITH #4 @ 12" OC EW.



AERATION BASIN GRADING PLAN

SCALE: 1" = 20'-0"

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JOB NO. : 483-003
DATE: 11/13/2024
DRAWN BY: MAF/AGP
DESIGNED BY: MAF/BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

AERATION BASIN GRADING AND PAVING PLAN OPTION 1: SEPARATE CLARIFIER AND RAS/WAS PUMP STATION

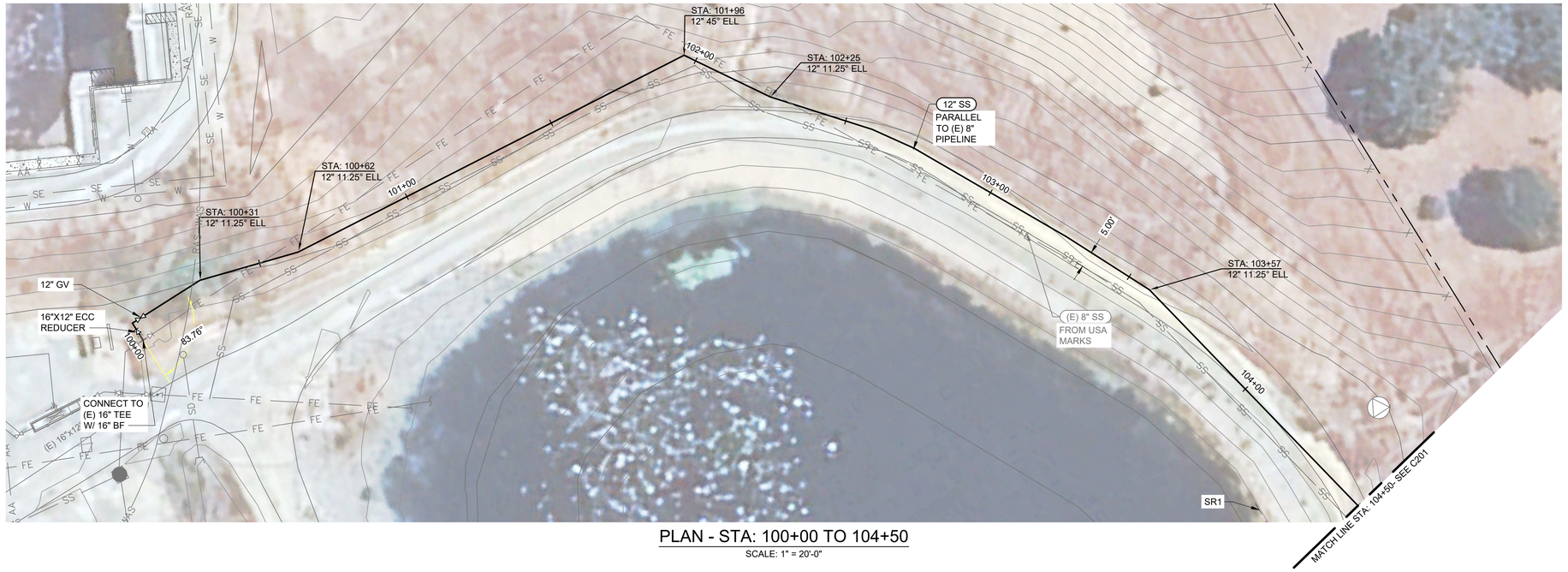
30% SUBMITTAL NOV 2024

C106B

DRAWING NUMBER

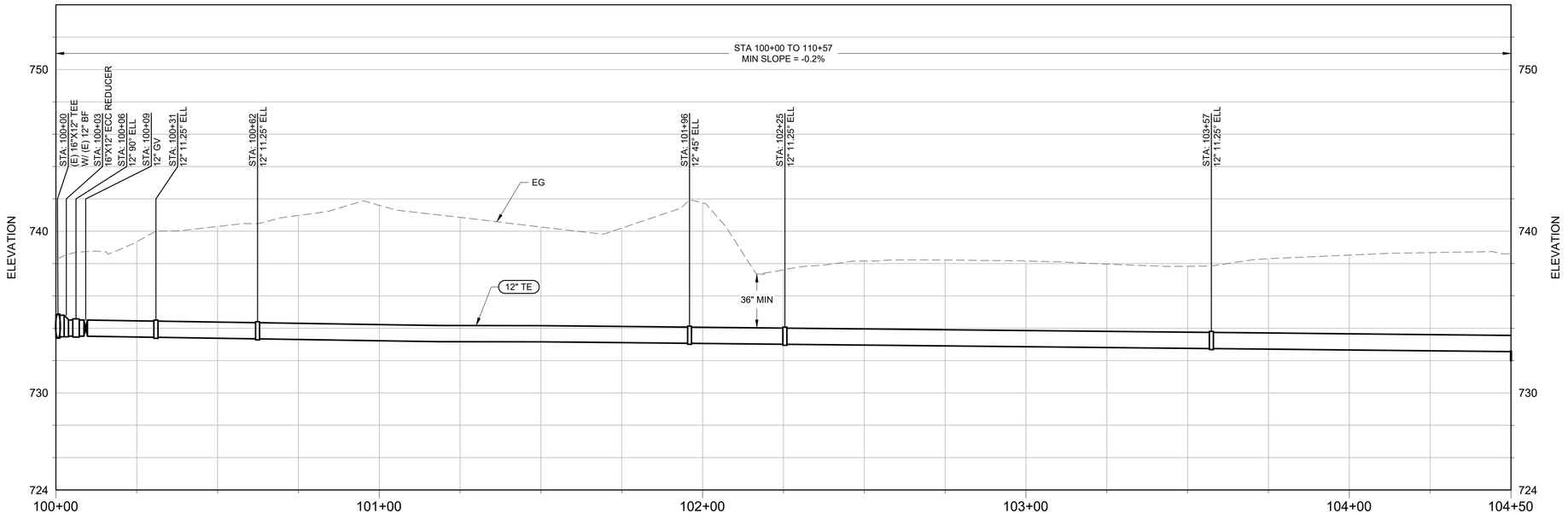
SHEET 13 OF 90

Plot Date: 11/13/2024 10:46 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Grading Plan.dwg



PLAN - STA: 100+00 TO 104+50

SCALE: 1" = 20'-0"



PROFILE - STA: 100+00 TO 104+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 100+00 TO 104+50

30% SUBMITTAL NOV 2024

C200
DRAWING NUMBER

SHEET 14 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:47 AM
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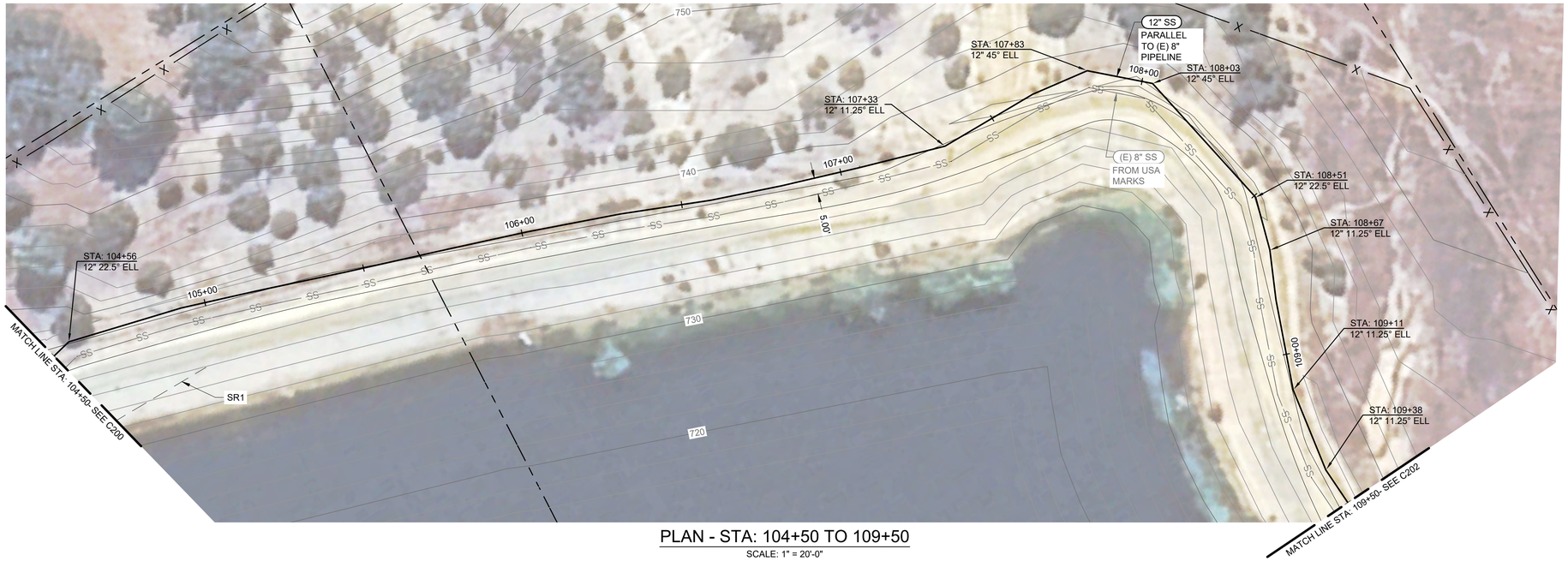
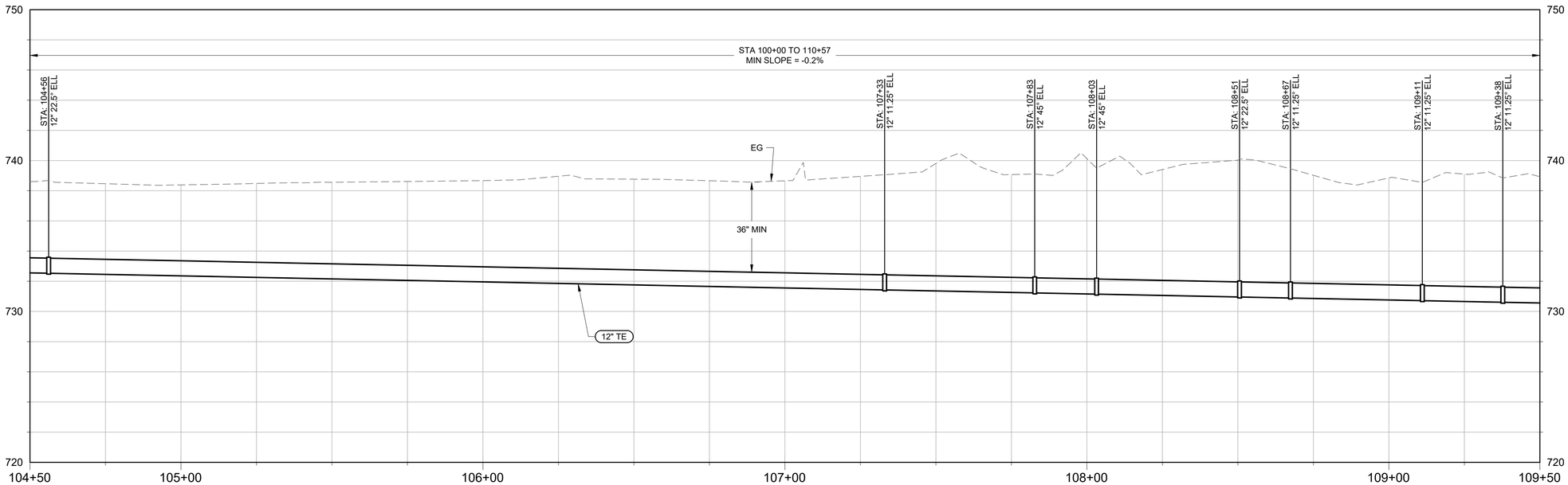


PLAN - STA: 104+50 TO 109+50

SCALE: 1" = 20'-0"



PROFILE - STA: 104+50 TO 109+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 104+50 TO 109+50

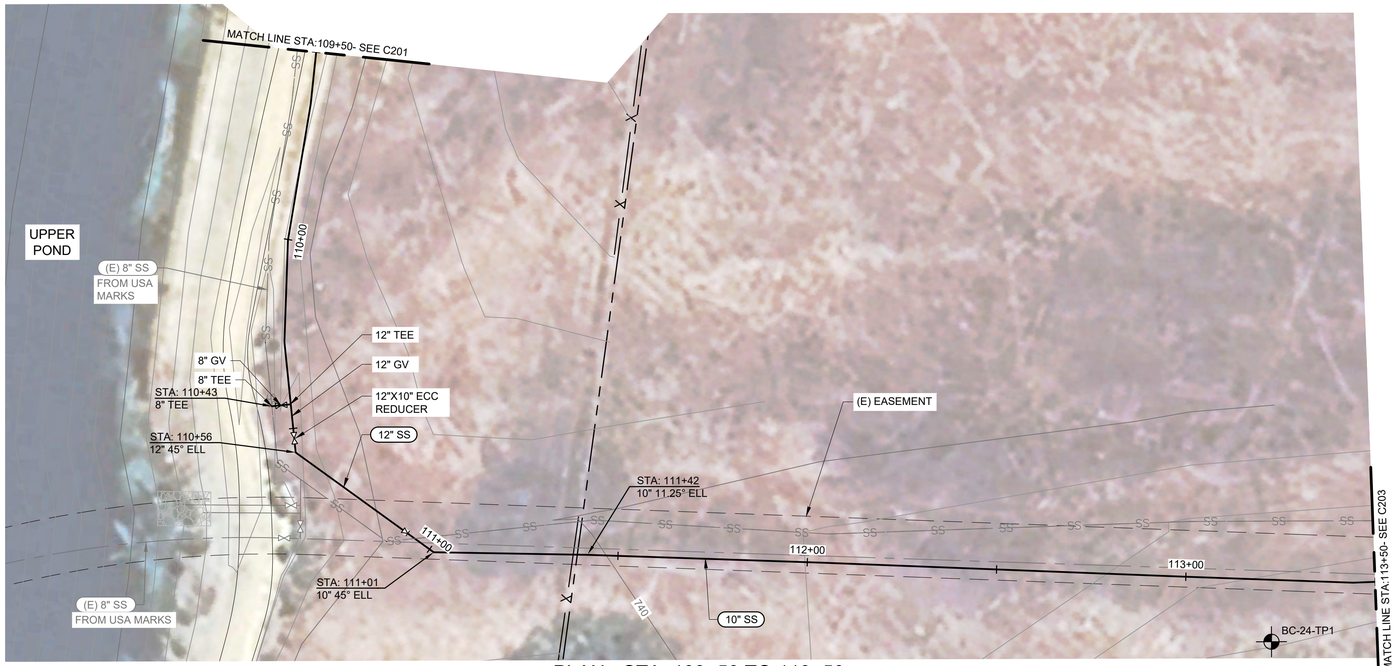
30% SUBMITTAL NOV 2024

C201

DRAWING NUMBER

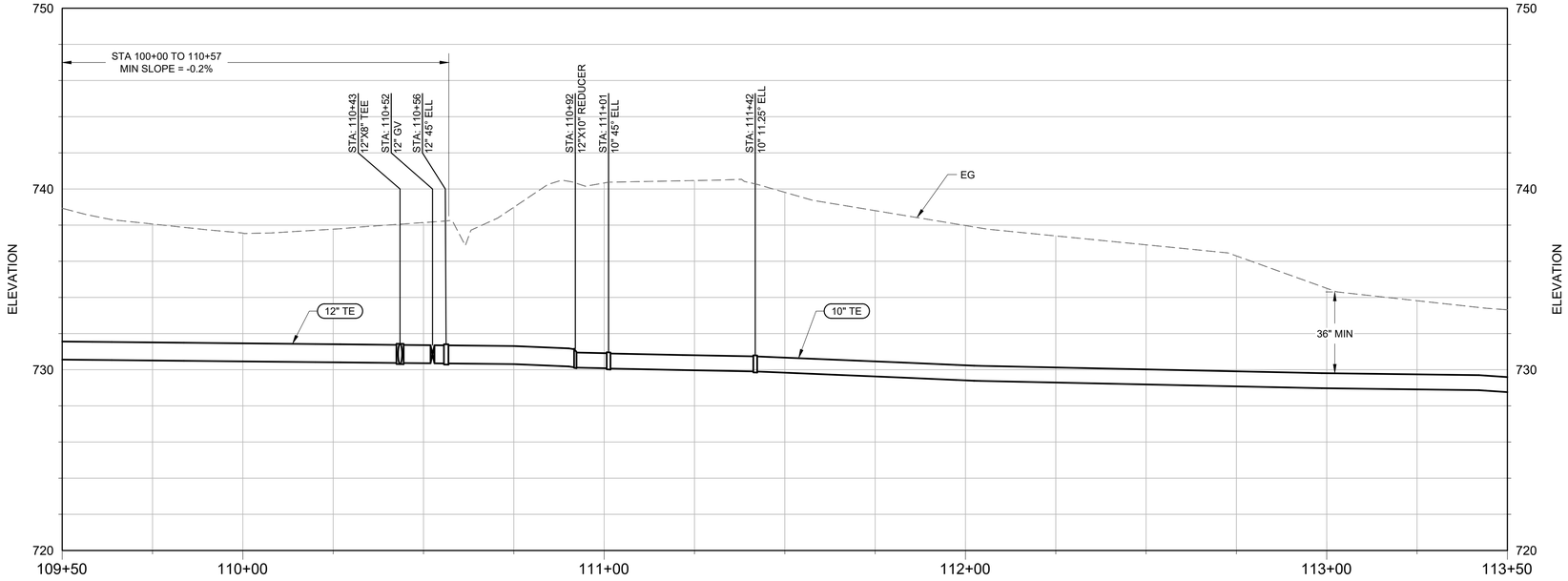
SHEET 15 OF 90

Plot Date: 11/13/2024 10:47 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg



PLAN - STA: 109+50 TO 113+50

SCALE: 1" = 20'-0"



PROFILE - STA: 109+50 TO 113+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

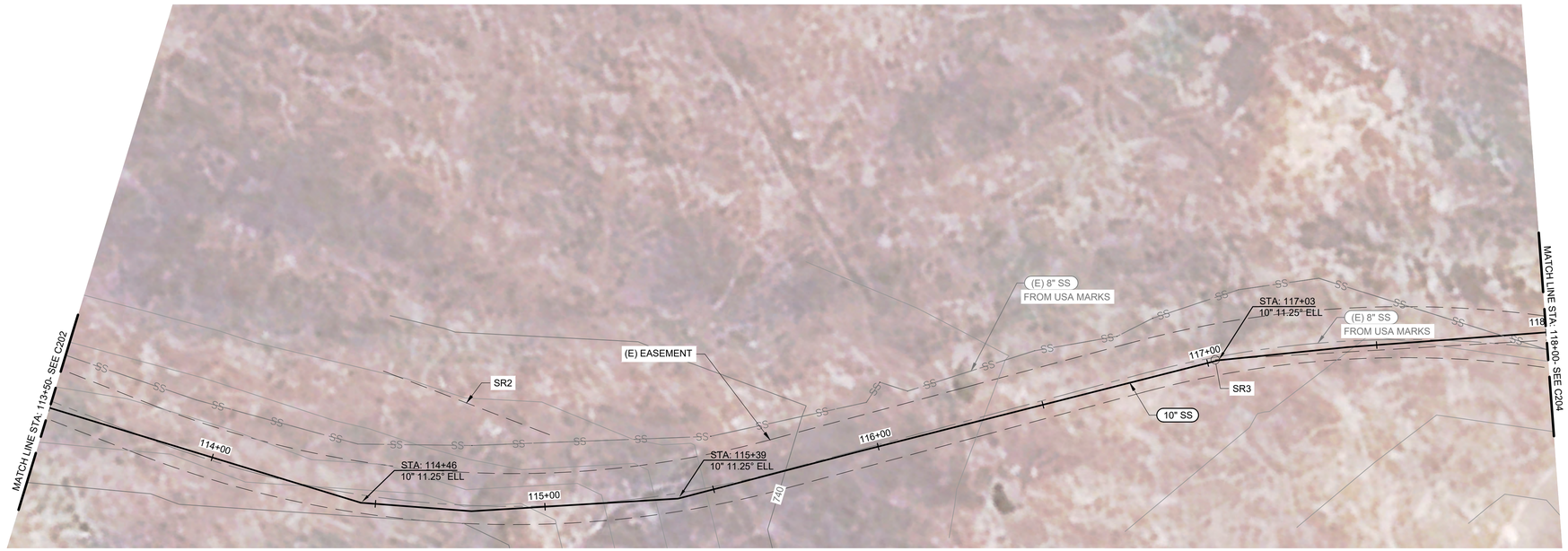
PIPELINE PLAN AND PROFILE STA: 109+50 TO 113+50

30% SUBMITTAL NOV 2024

C202
DRAWING NUMBER

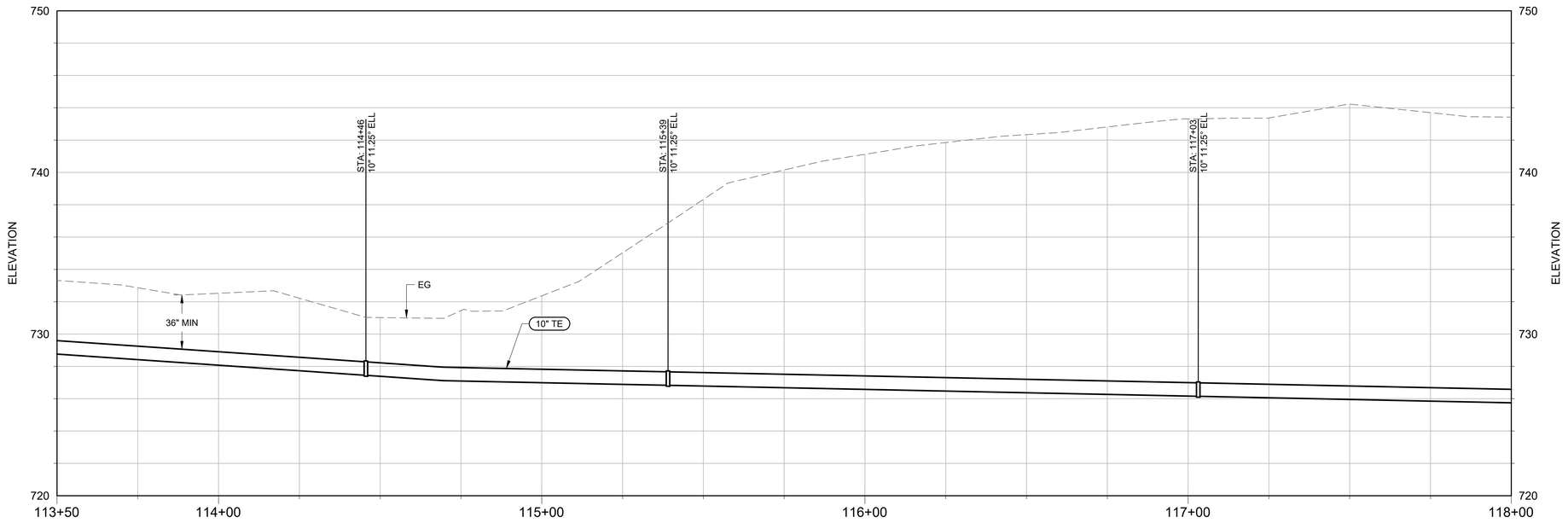
SHEET 16 OF 90

Plot Date: 11/13/2024 10:47 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg



PLAN - STA: 113+50 TO 118+00

SCALE: 1" = 20'-0"



PROFILE - STA: 113+50 TO 118+00

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 113+50 TO 118+00

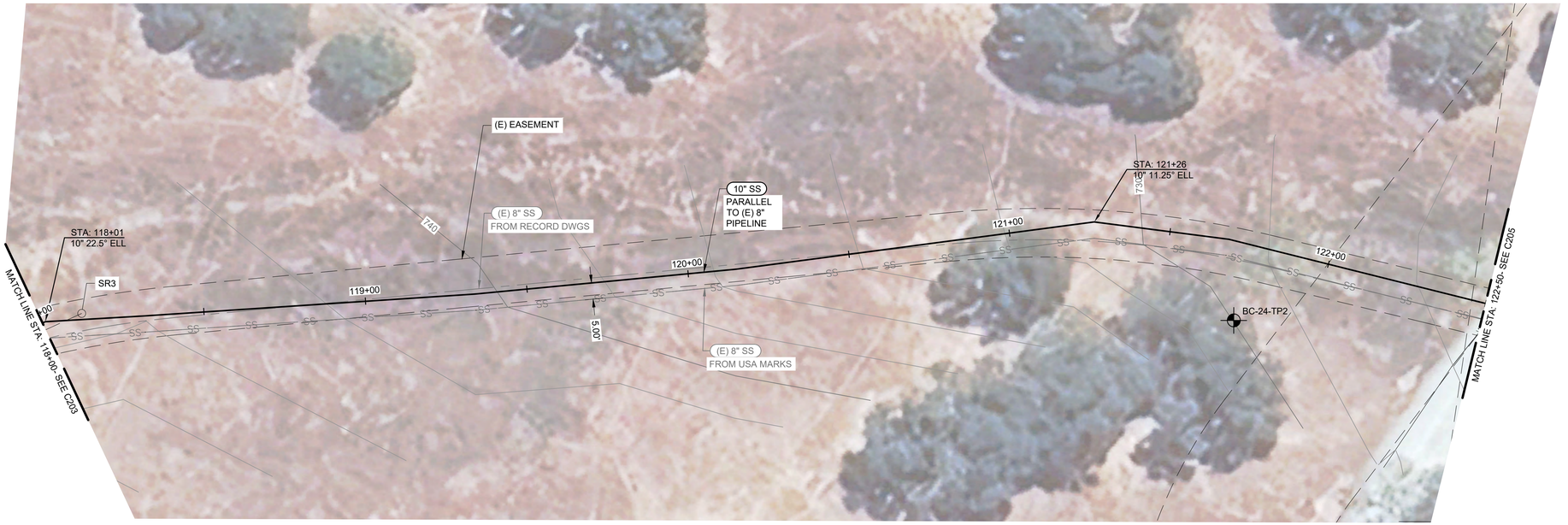
30% SUBMITTAL NOV 2024

C203

DRAWING NUMBER

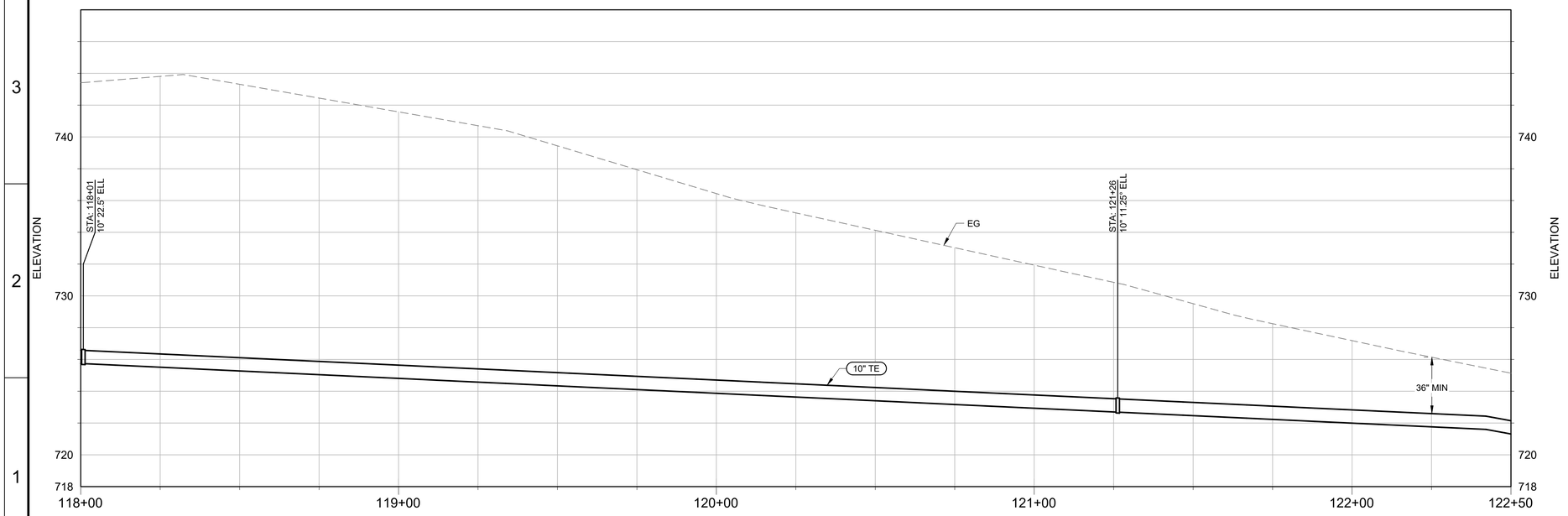
SHEET 17 OF 90

Plot Date: 11/13/2024 10:47 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg



PLAN - STA: 118+00 TO 122+50

SCALE: 1" = 20'-0"



PROFILE - STA: 118+00 TO 122+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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JOB NO. : 483-003
DATE: 11/13/2024
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 118+00 TO 122+50

30% SUBMITTAL NOV 2024

C204

DRAWING NUMBER

SHEET 18 OF 90

Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:47 AM
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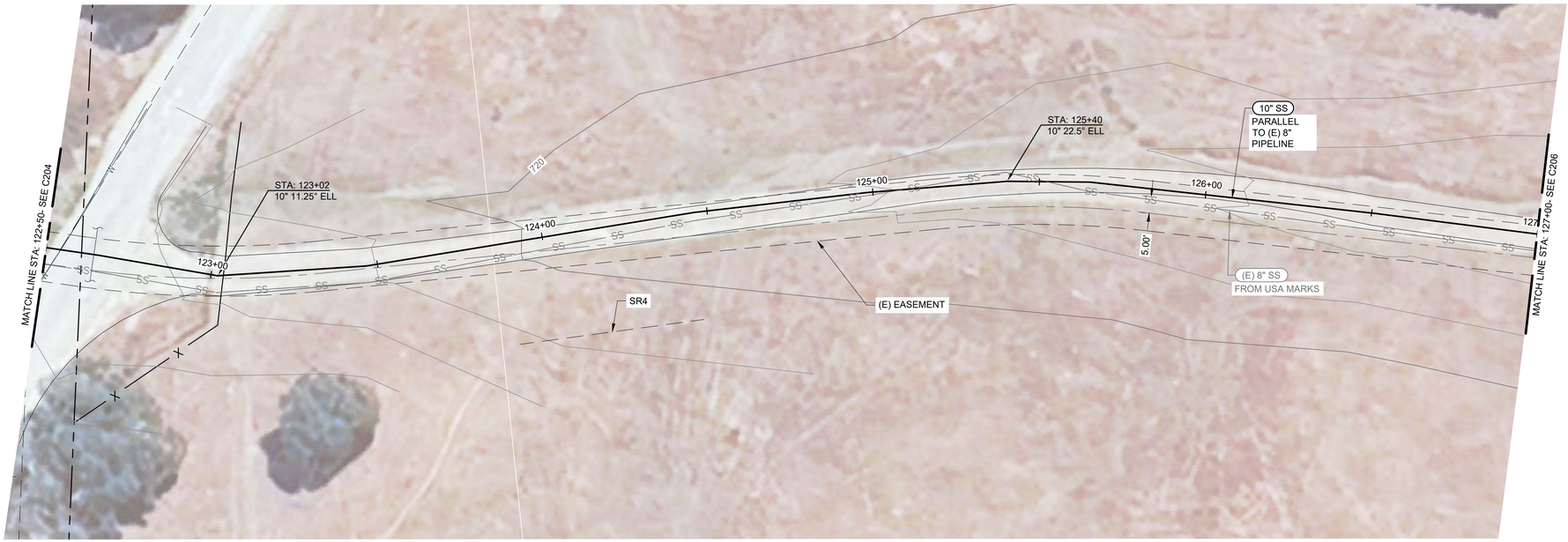
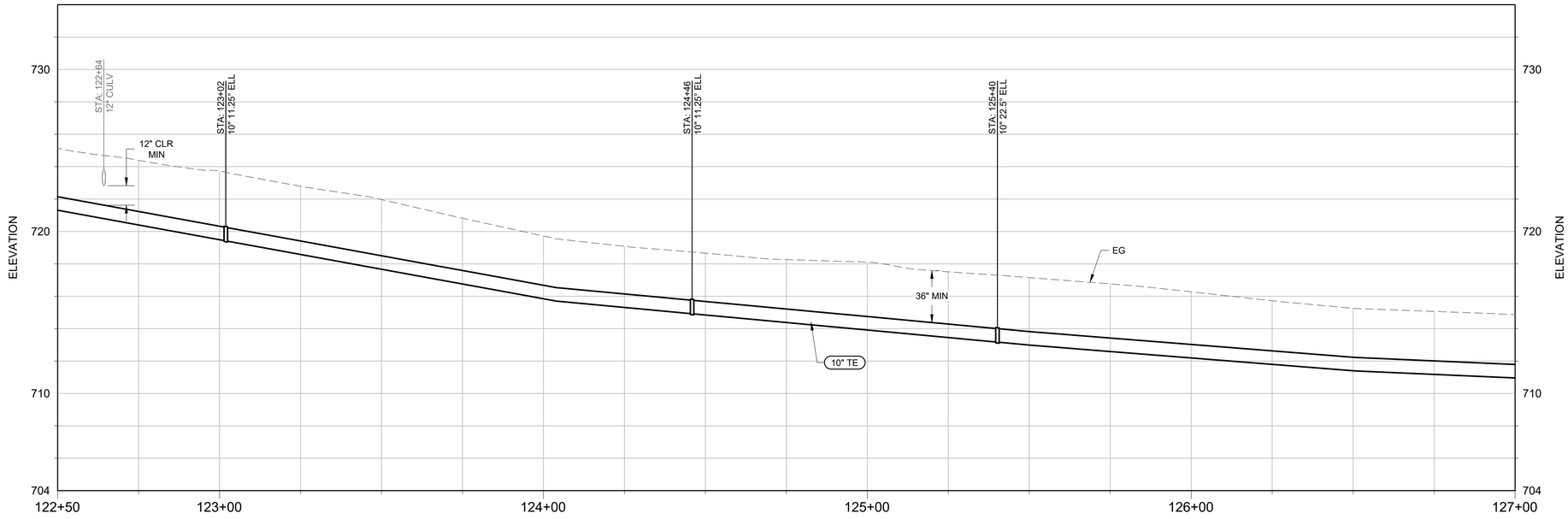


PLAN - STA: 122+50 TO 127+00

SCALE: 1" = 20'-0"



PROFILE - STA: 122+50 TO 127+00

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 122+50 TO 127+00

30% SUBMITTAL NOV 2024

C205

DRAWING NUMBER

SHEET 19 OF 90

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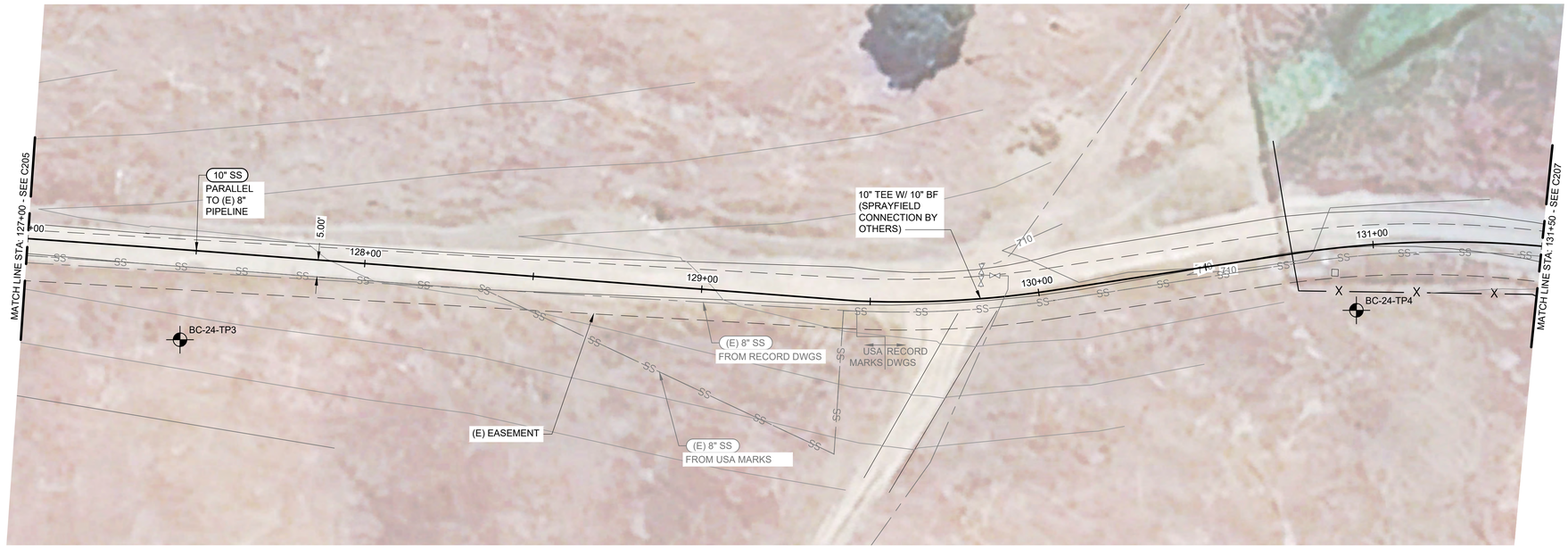
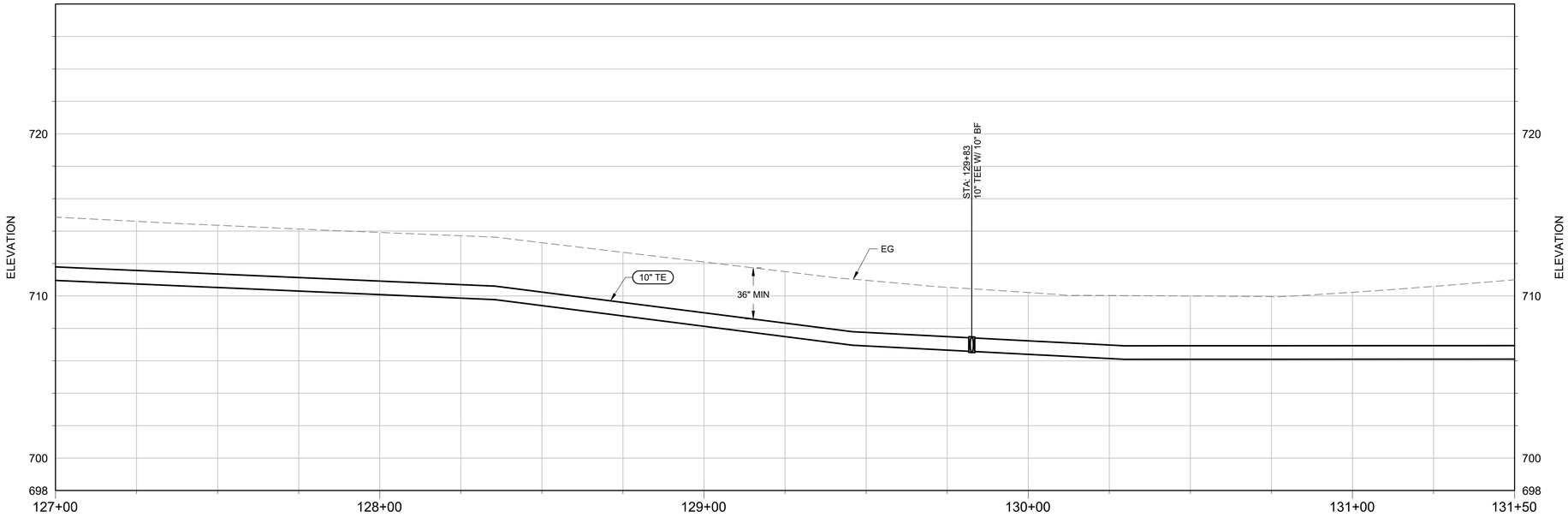


PLAN - STA: 127+00 TO 131+50

SCALE: 1" = 20'-0"

NOTES

1. LOCATION OF (E) 8" SS IS APPROXIMATE FROM STA 29+60 TO STA XX+XX. PRIOR TO TRENCHING OR EXCAVATING WITHIN 5 FT OF THE (E) 8" FE APPROX LOCATION, CONTRACTOR SHALL HAND DIG AND LOCATE (E) 8" FE AND PROTECT IT FROM DAMAGE.



PROFILE - STA: 127+00 TO 131+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 127+00 TO 131+50

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C206
DRAWING NUMBER

SHEET 20 OF 90

Plot Date: 11/13/2024 10:48 AM
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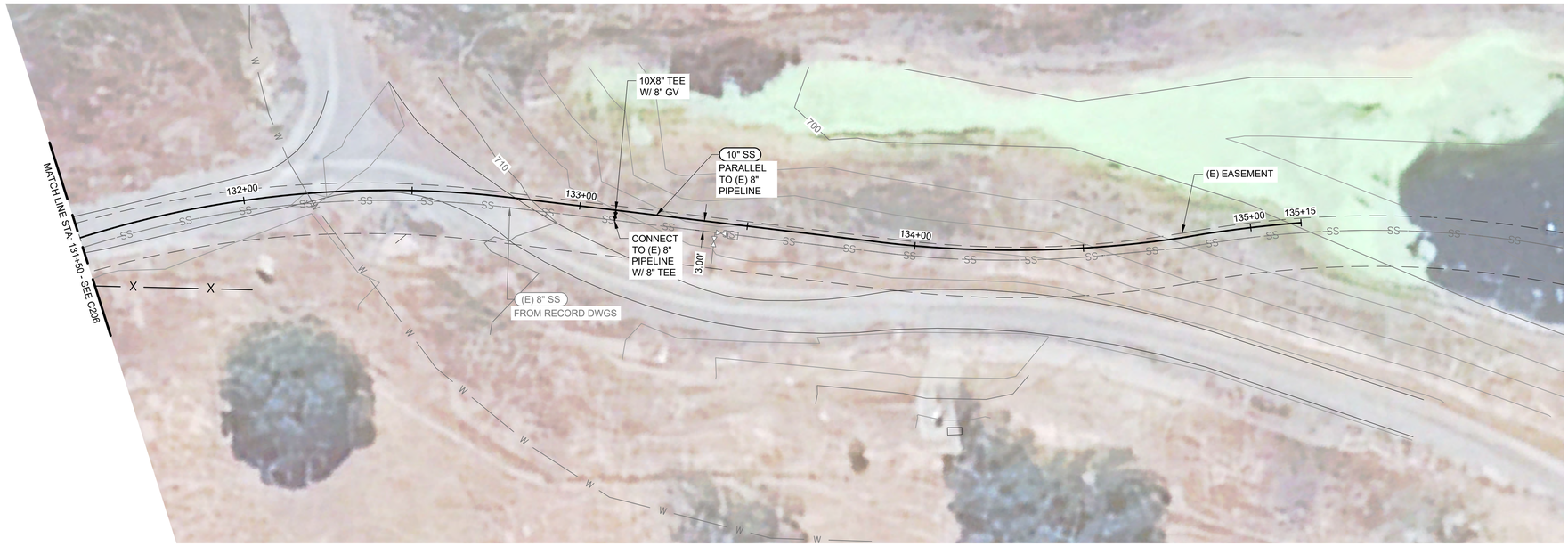
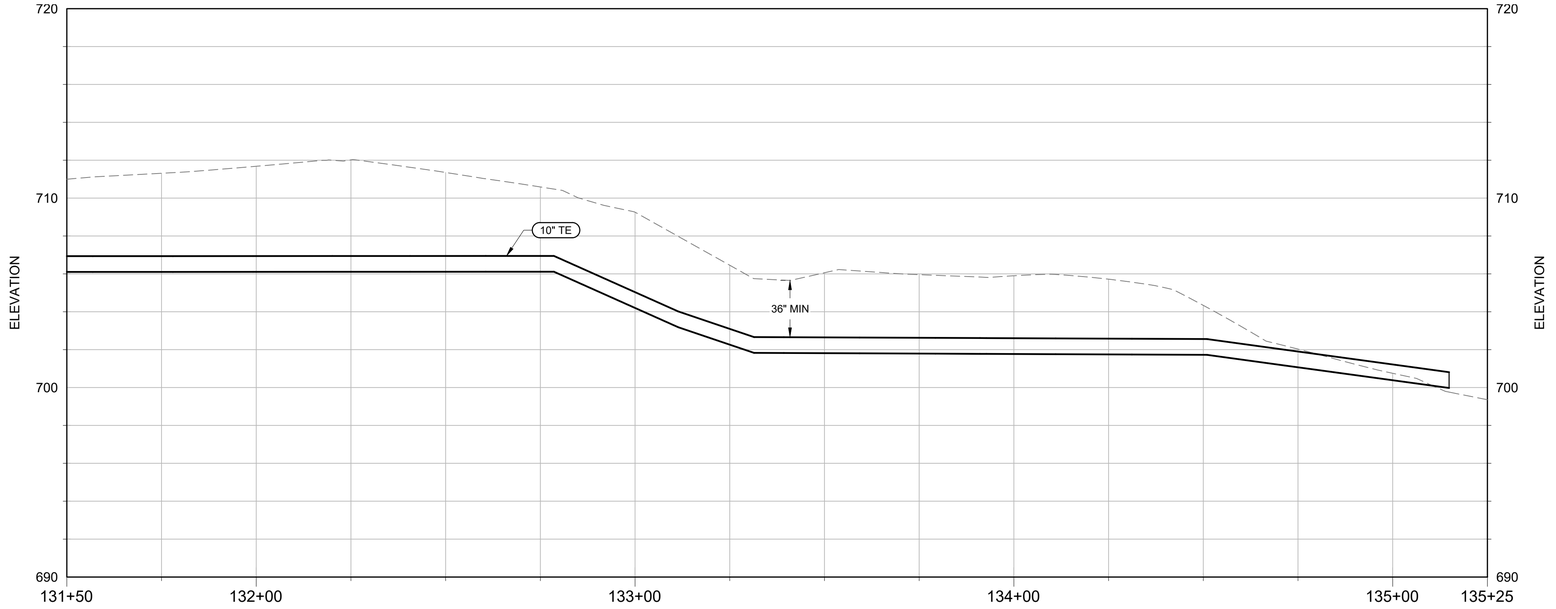


PLAN - STA: 131+50 TO 135+75

SCALE: 1" = 20'-0"



PROFILE - STA: 131+50 TO 135+25

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

NOTES

1. LOCATION OF (E) 8" SS IS APPROXIMATE FROM STA 29+60 TO STA XX+XX. PRIOR TO TRENCHING OR EXCAVATING WITHIN 5 FT OF THE (E) 8" FE APPROX LOCATION, CONTRACTOR SHALL HAND DIG AND LOCATE (E) 8" FE AND PROTECT IT FROM DAMAGE.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 131+50 TO 135+25

30% SUBMITTAL NOV 2024

C207
DRAWING NUMBER

SHEET 21 OF 90

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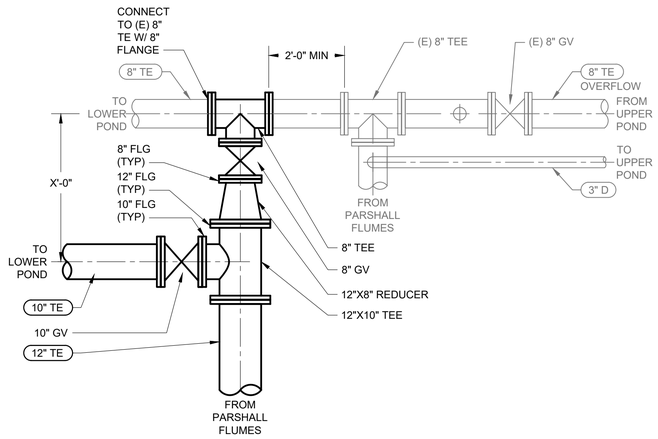

CONNECTION DETAIL

SCALE: 1/2" = 1'-0"

1 VAR

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DESIGNED BY: DESIGNED_BY
PROJ. MGR.: PROJ_MAN

REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CIVIL DETAILS - 1

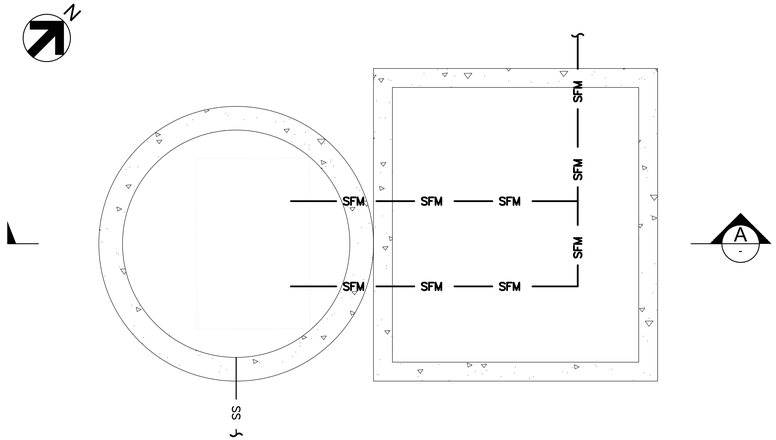
30% SUBMITTAL NOV 2024

C900

DRAWING NUMBER

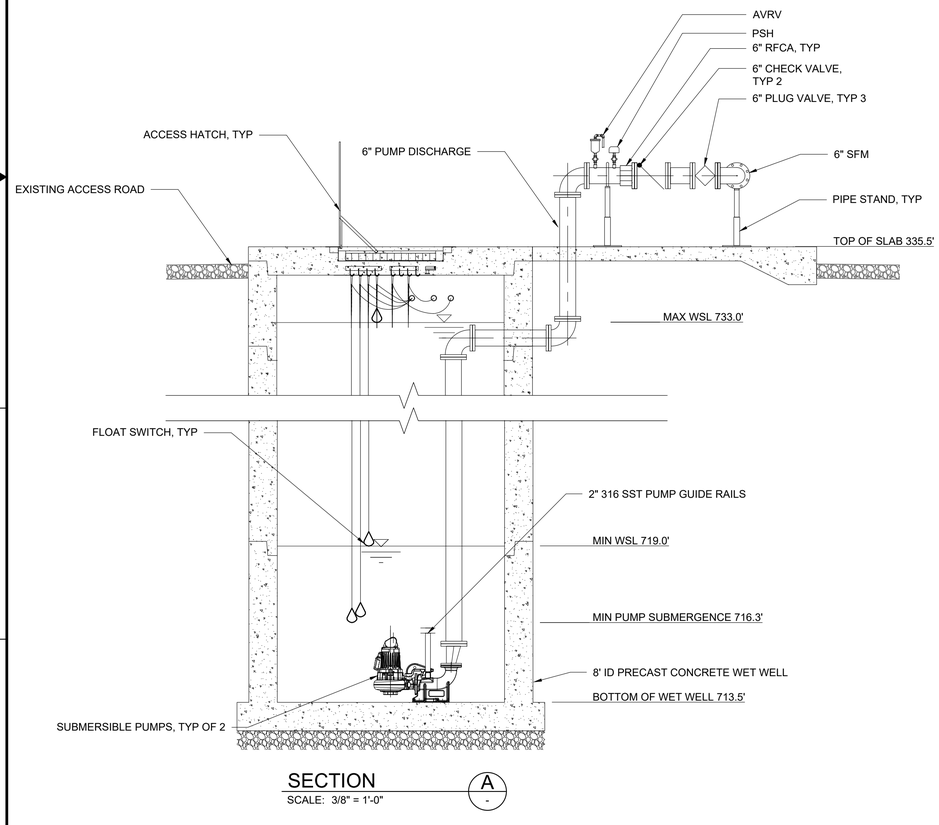
SHEET 22 OF 90

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Details.dwg Plotted By: ANTHONY PEREZ Plot Date: 11/13/2024 10:48 AM



UESP PS MECHANICAL PLAN

SCALE: 3/8" = 1'-0"



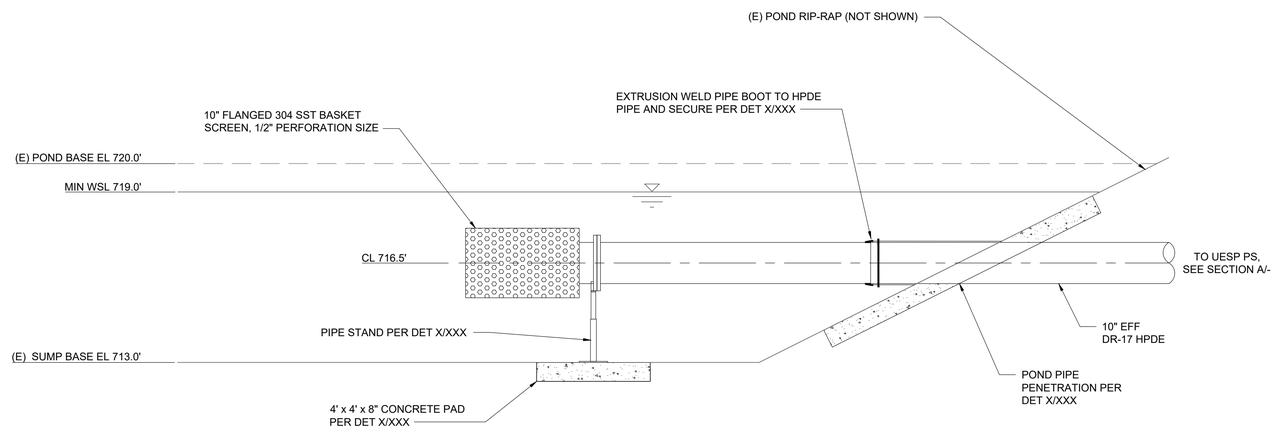
SECTION

SCALE: 3/8" = 1'-0"

A
-

NOTES

1. UESP PUMP STATION SECTIONS SHOWN APPLY TO BOTH ALTERNATIVE 1 (BASE OPTION) AND 2 AS STATED IN THE PDR. FOR ALTERNATIVE 2, ABOVE GRADE VALVES AND MANIFOLD PIPING WILL BE INSTALLED IN BURIED VALVE VAULT. ALTERNATIVE 2 OPTION ALSO INCLUDES THE ADDITIONAL EQUIPMENT AND STRUCTURES:
   - 1.1. THROTTLING VALVE AND ISOLATION VALVE FOR POND SUCTION LINE
   - 1.2. NEW MANHOLE PRECAST STRUCTURE
   - 1.3. NEW 8" SS PIPING FROM EXISTING MANHOLE TO NEW UESP PUMP STATION
   - 1.4. RESTRAINED FLEXIBLE COUPLINGS BETWEEN WET WELL AND VALVE VAULT
2. ALTERNATIVE 3 UESP PUMP STATION WOULD INCLUDE TWO FLOATING BARGES FOR SUBMERSIBLE PUMPS WITH INDIVIDUAL FLOATING SUCTION LINES. TIE IN WOULD BE ABOVE GRADE AT THE VALVE AND MANIFOLD STATION SHOWN IN SECTION A OF THIS SHEET. THE VALVE AND MANIFOLD CONCRETE PAD WOULD BE ORIENTATED TO FACE THE POND ON THE LONGEST SIDE FOR THIS OPTION. THIS ALTERNATIVE MAY ALSO INCLUDE A FLOATING WALKWAY FOR PUMP ACCESS.
3. ALL PIPING IN WET WELLS SHALL BE 316 SST SCH40S TRANSITION TO DIP CL350 FOR ABOVE GRADE PIPING. BURIED PIPING MAY BE PVC C900/905 CL235/DR-18 OR DIP CL350. COATING AND LINING FOR DIP SHALL BE FUSION BONDED EPOXY. DIP AND PVC PIPING TO BE FULLY RESTRAINED.



PUMP STATION SUCTION DETAIL

SCALE: 3/8" = 1'-0"

1
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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

UESP PS MECHANICAL PLAN & SECTION

30% SUBMITTAL NOV 2024

M200
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SHEET 26 OF 90

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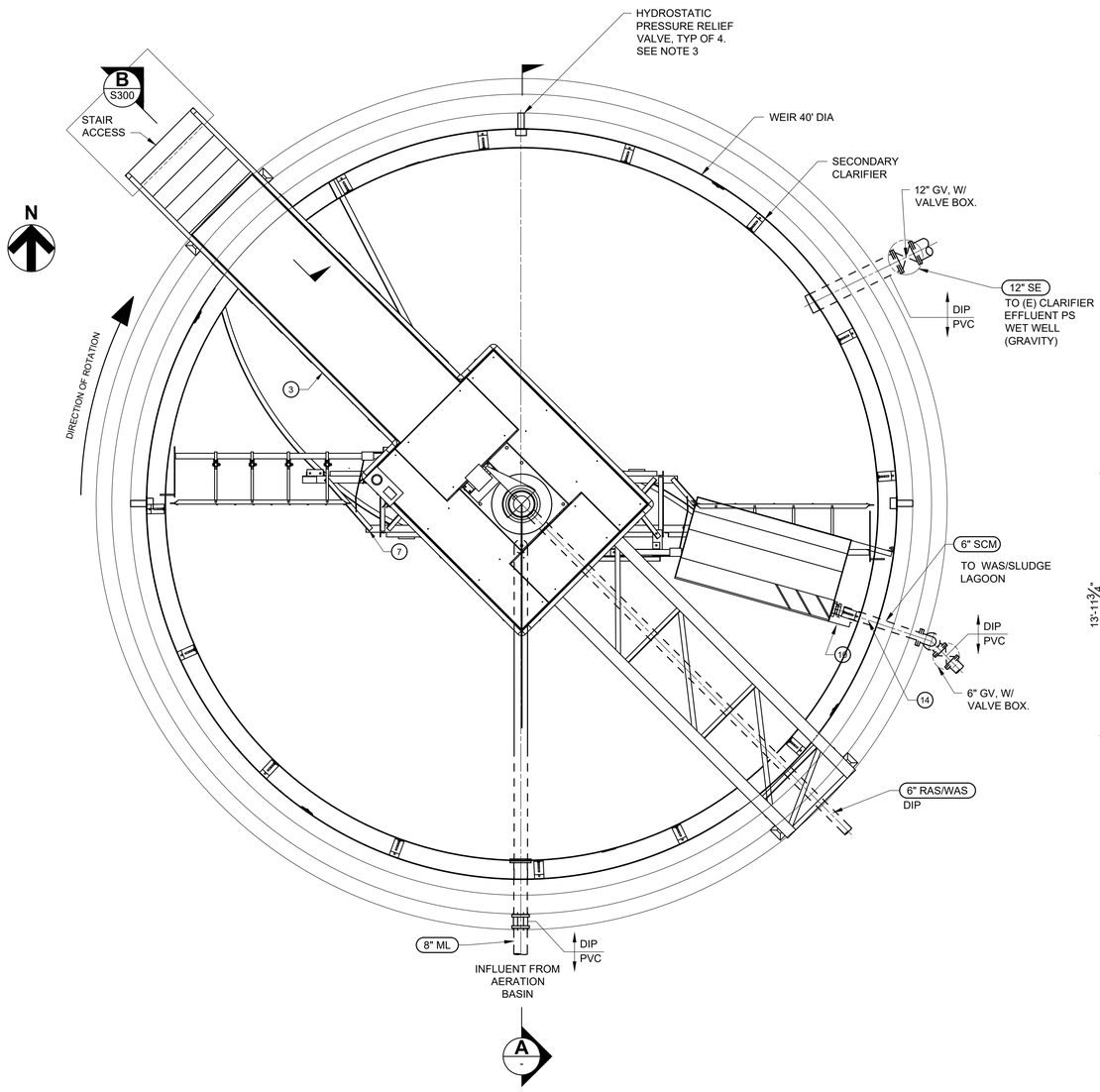
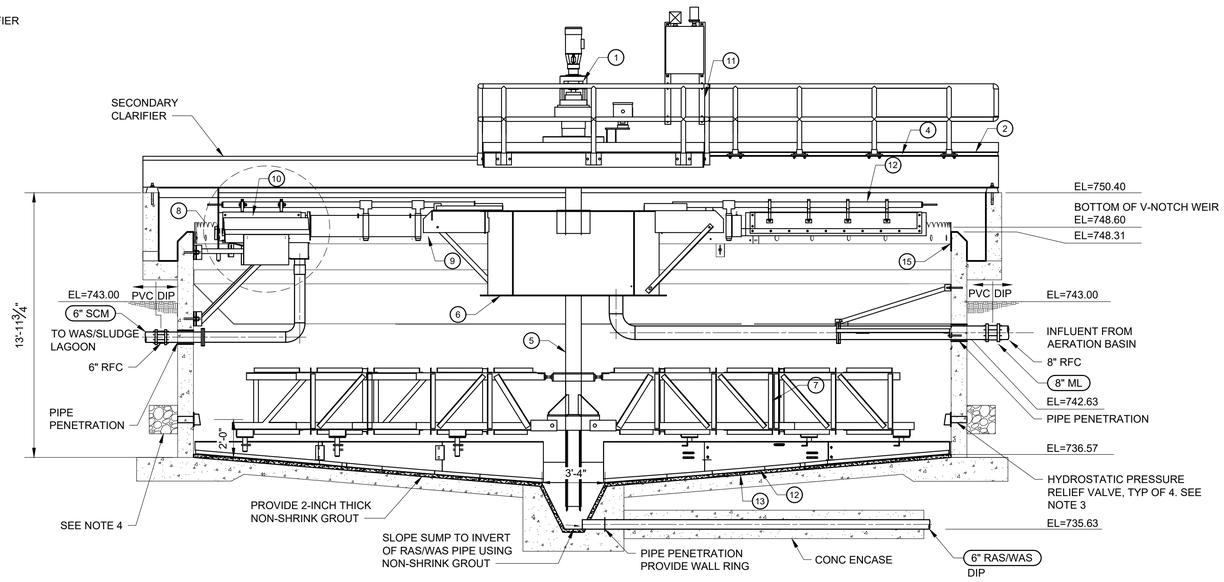


SECONDARY CLARIFIER PLAN

SCALE: 1/4"=1'-0"



SECTION

SCALE: 1/4"=1'-0"

A
-

KEY NOTES

1. DRIVE UNIT WITH TORQUE CONTROL DEVICE
2. WALKWAY
3. PLATFORM
4. HANDRAIL
5. CENTER SHAFT WITH CONE SCRAPER
6. FEEDWELL WITH BAFFLED SCUM PORTS
7. CHANNEL RACK ARMS WITH SPIRAL BLADES AND ADJUSTABLE SQUEEGEES, TYP OF 2.
8. WEIR PLATE WITH 90° V-NOTCHES PER DET 2/M301
9. BAFFLE PLATE WITH SUPPORT PER DET 1/M301
10. SCUM BOX WITH SUPPORTS AND DISCHARGE PIPE PER
11. ELECTRICAL CONTROL PANEL
12. SKIMMER PLATE ASSEMBLY WITH WIPERS
13. 2" LEVELING GROUT
14. SCUM FLUSHING VALVE
15. COATING PER SPECIFICATION 09900

NOTES

1. INSTALLING CONTRACTOR TO CONFIRM ELEVATIONS, DIMENSIONS AND CORRECT SLOPE AND SMOOTHNESS OF GROUT FILL IN CLARIFIER BOTTOM AND SHALL TEST NEW EQUIPMENT TO CONFIRM PROPER FUNCTIONING.
2. PROVIDE INTERNAL PROTECTIVE WET WELL AND CLARIFIER COATING PER SPECIFICATION 09900.
3. INSTALL FOUR 4" HYDROSTATIC PRESSURE RELIEF VALVES EQUALLY SPACED AROUND THE PERIMETER OF THE CLARIFIER. SEE SPECIFICATION 15100.
4. INSTALL MIN 1 CU. YD OF CRUSHED ROCK BEHIND THE HYDROSTATIC PRESSURE RELIEF VALVE. DRAIN ROCK SHALL BE WRAPPED IN FILTER FABRIC.

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PROJ. MGR.: WJS

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

SECONDARY CLARIFIER PLAN & SECTION

30% SUBMITTAL NOV 2024

M300
DRAWING NUMBER

SHEET 27 OF 90

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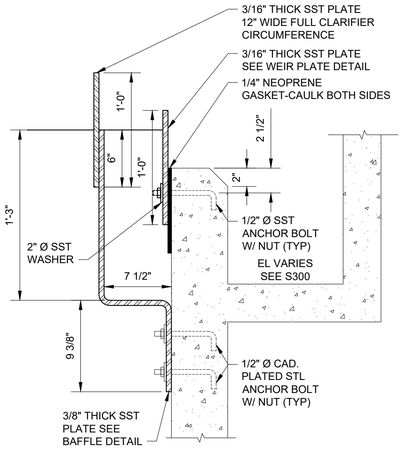
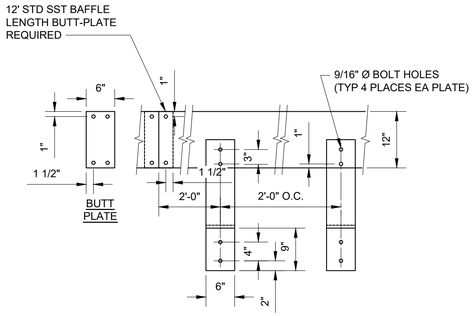


SECTION A

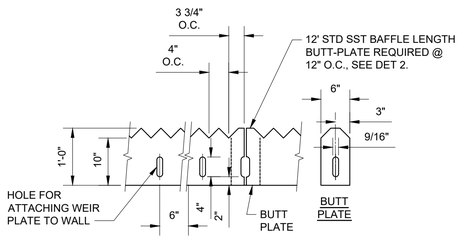
SCALE: NTS
NOTE: GAF



BAFFLE DETAIL

SCALE: NTS

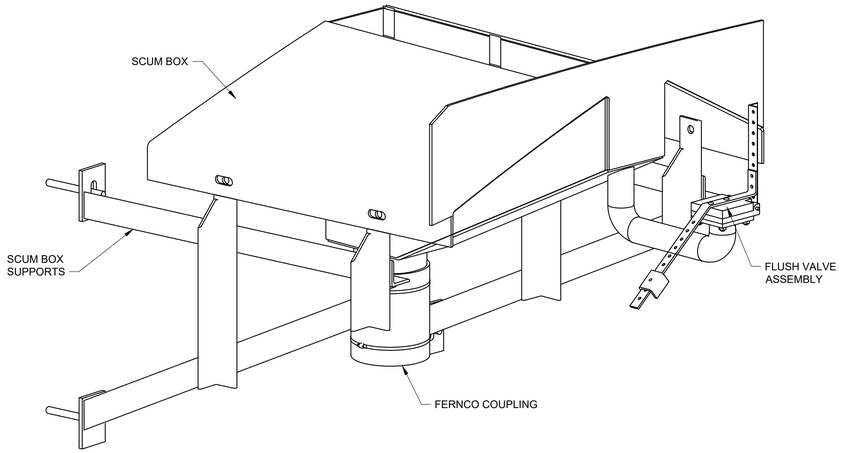
1 / M300



WEIR PLATE DETAIL

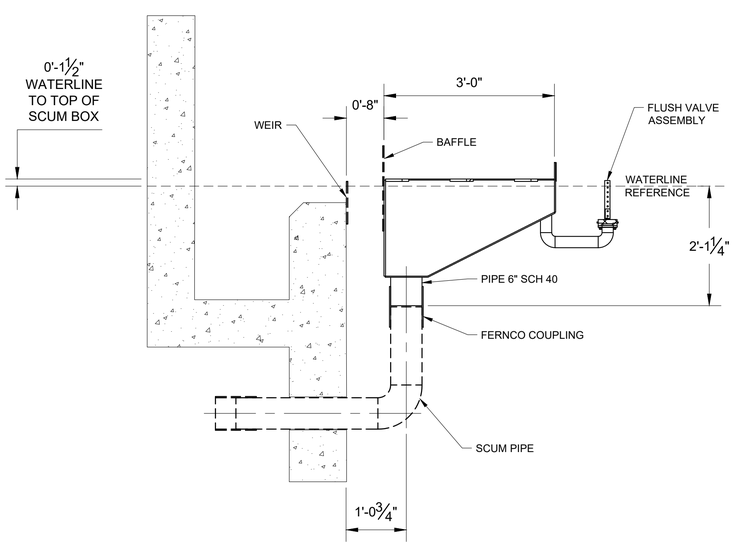
SCALE: NTS

2 / M300



ISOMETRIC

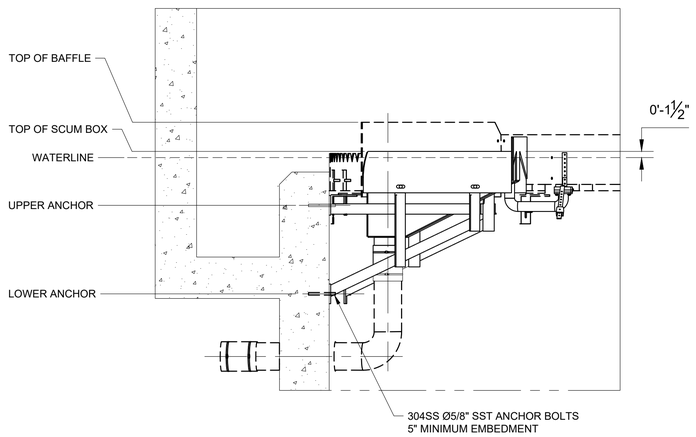
SCALE: NTS



SECTION A

SCALE: 3/4"=1'-0"

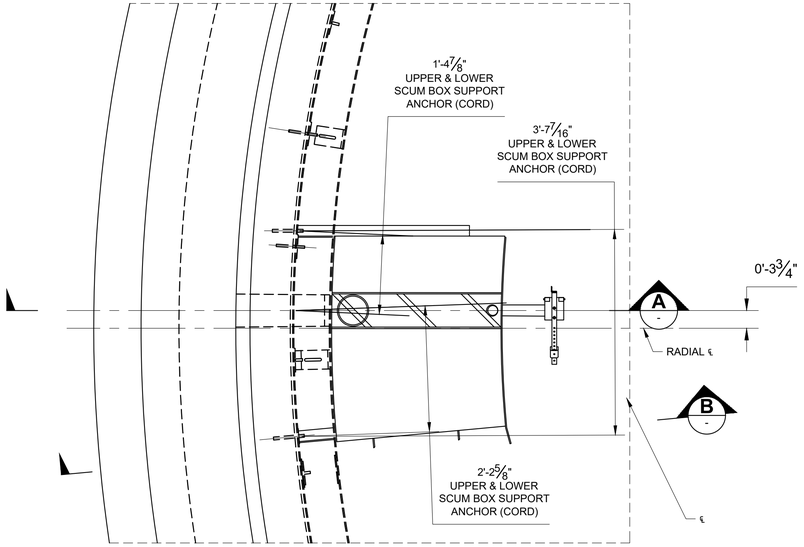
A / -



SECTION B

SCALE: 3/4"=1'-0"

B / -



PARTIAL PLAN

SCALE: 3/4"=1'-0"

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DESIGNED BY: ELJ
PROJ. MGR.: WJS

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WATER DISTRICT

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WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

SECONDARY CLARIFIER
SECTION & DETAILS

30%
SUBMITTAL
NOV 2024

M301
DRAWING NUMBER

SHEET 28 OF 90

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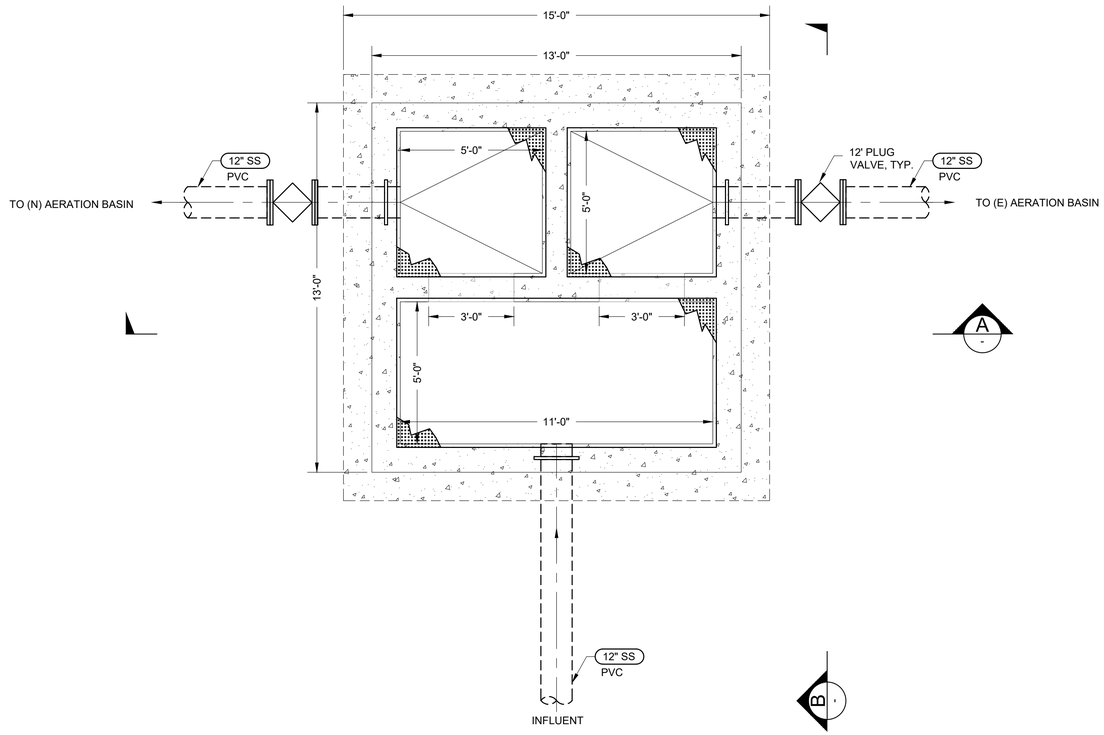
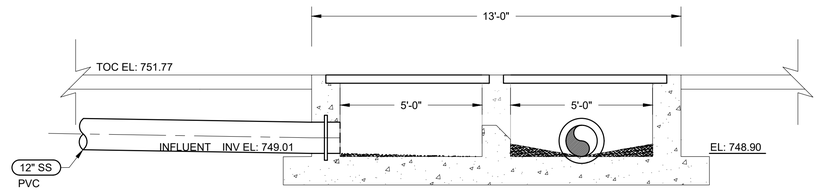


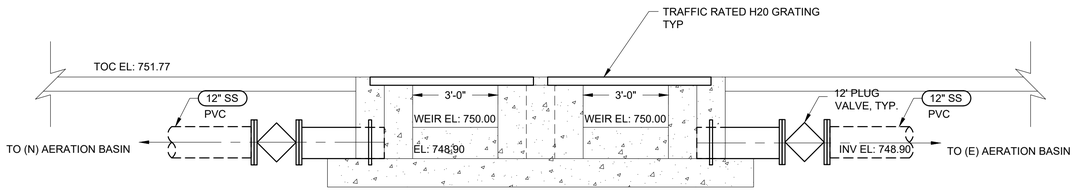
FLOW SPLITTER BOX BOX PLAN

SCALE: 3/8" = 1'-0"



SECTION B

SCALE: 3/8" = 1'-0"



SECTION A

SCALE: 3/8" = 1'-0"

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DESIGNED BY: DESIGNED_BY
PROJ. MGR.: PROJ_MAN

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FLOW SPLITTER BOX
PLAN & SECTIONS

30%
SUBMITTAL
NOV 2024

M400
DRAWING NUMBER

SHEET 29 OF 90

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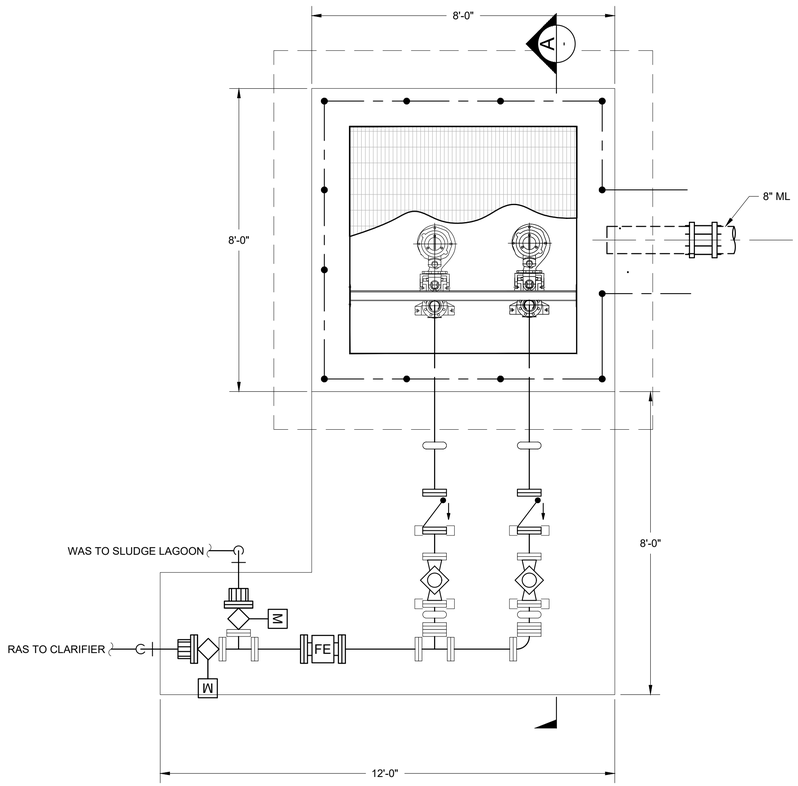
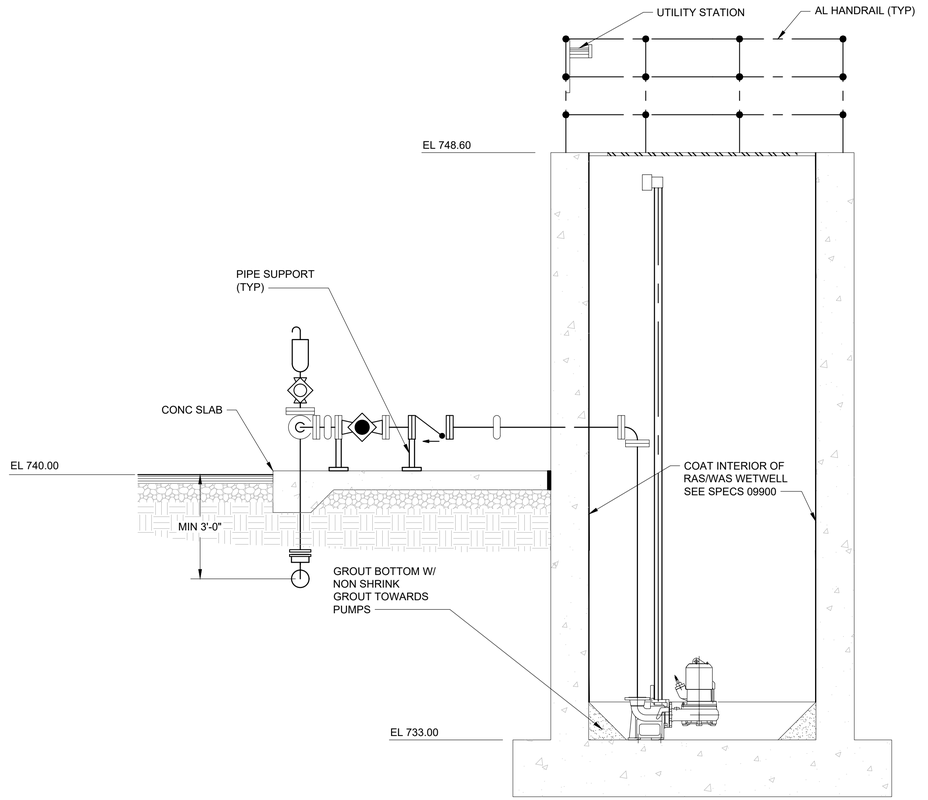


RAS/WAS PS PLAN

1/2" = 1'-0"



RAS/WAS PS SECTION

SCALE: 1/2" = 1'-0"

A
-

OPTION 1B: SUBMERSIBLE PUMPS IN PRECAST WET WELL

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PROJ. MGR.: PROJ_MAN

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PHASE 3 IMPROVEMENTS

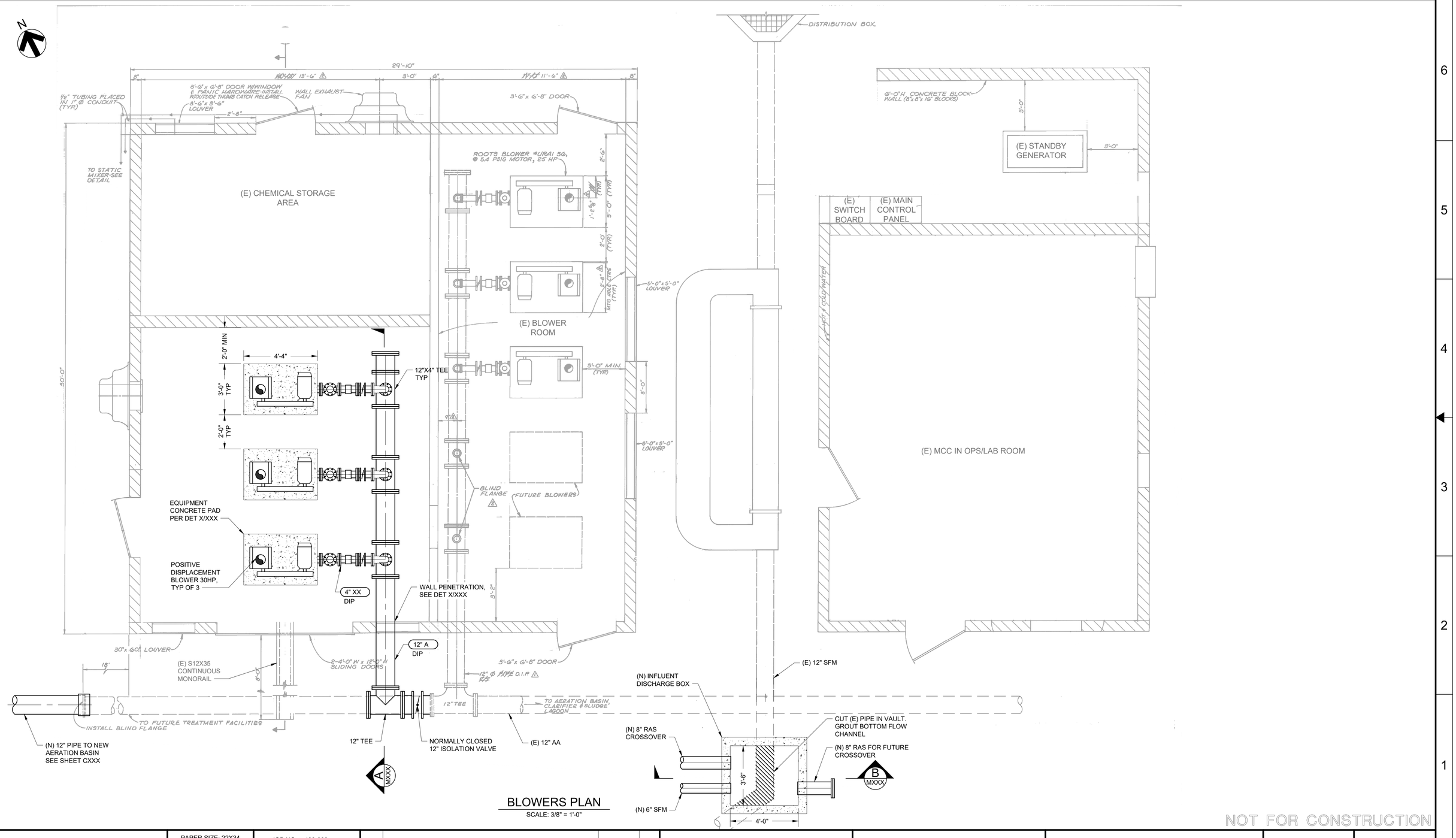
MECHANICAL PLAN
OPTION 1: SEPARATE CLARIFIER
AND RAS/WAS PUMP STATION

30%
SUBMITTAL
NOV 2024

M500
DRAWING NUMBER

SHEET 30 OF 90

Plot Date: 11/13/2024 10:49 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-RAS WAS PS.dwg



BLOWERS PLAN

SCALE: 3/8" = 1'-0"

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HydroScience 10569 OLD PLACERVILLE RD SACRAMENTO, CA 95827 OFFICE: (916)364-1490 www.hydroscience.com	PAPER SIZE: 22X34 (ANSI D) 0" 1/2" 1" THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.	JOB NO. : 483-003 DATE: 11/13/2024 DRAWN BY: DRAWN_BY DESIGNED BY: DESIGNED_BY PROJ. MGR.: PROJ_MAN

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT	LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS	BLOWER ROOM MODIFICATION PLAN	30% SUBMITTAL NOV 2024

M600
DRAWING NUMBER

SHEET 31 OF 90

Plot Date: 11/13/2024 10:50 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-M600 BLOWER.dwg

WIRING & CONDUIT - CONNECTIONS

- PANEL OR EQUIPMENT WIRING
- FIELD WIRING
- EXISTING WIRING
- CONDUCTORS - NOT CONNECTED
- CONDUCTORS - CONNECTED
- GROUND
- CHASSIS OR FRAME GROUND
- PLUG AND RECEPTACLE
- INCOMING LINE
- SHIELDED CABLE
- CONDUIT CONCEALED IN WALL OR CEILING 3/4"C-2#12, 1#12GND UON
- CONDUIT, IN SLAB OR BELOW GRADE 3/4"C-2#12, 1#12GND UON
- CONDUIT, EXPOSED 3/4"C-2#12, 1#12GND UON
- CONDUIT STUBBED OUT AND CAPPED CONDUIT
- BENDS TOWARD OBSERVER CONDUIT
- BENDS AWAY FROM OBSERVER
- BARE COPPER GROUND WIRE
- GROUND CONNECTION BOLTED TYPE
- GROUND CONNECTION EXOTHERMIC WELD

SWITCHES - PROCESS

- FLOW SWITCH - CLOSES UPON INCREASING FLOW
- FLOW SWITCH - OPENS UPON INCREASING FLOW
- LEVEL SWITCH - CLOSES UPON INCREASING LEVEL
- LEVEL SWITCH - OPENS UPON INCREASING LEVEL
- PRESSURE SWITCH - CLOSES UPON INCREASING PRESSURE (INCREASING VACUUM)
- PRESSURE SWITCH - OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
- PRESSURE SWITCH - OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
- TEMPERATURE SWITCH - CLOSES UPON INCREASING TEMPERATURE
- TEMPERATURE SWITCH - OPENS UPON INCREASING TEMPERATURE
- LIMIT SWITCH - CLOSES AT SET
- LIMIT LIMIT SWITCH - OPENS AT SET LIMIT
- PROXIMITY SWITCH - CLOSES UPON DECREASING DISTANCE
- PROXIMITY SWITCH - CLOSES UPON DECREASING DISTANCE
- TORQUE SWITCH - CLOSES UPON INCREASING TORQUE
- TORQUE SWITCH - OPENS UPON INCREASING TORQUE

SWITCHES - OPERATORS

- TOGGLE OR DISCONNECT SWITCH
- PUSHBUTTON - NORMALLY OPEN, MOMENTARY ACTION
- PUSHBUTTON- NORMALLY CLOSED, MOMENTARY ACTION
- LEVEL SWITCH - OPENS UPON INCREASING
- OFF / HAND / AUTO — LEVEL SELECTOR SWITCH, 3 POSITION- CONTACT STATUS SHOWN EXISTS AT POSITION OF H-HAND, O-OFF, A-AUTO
- 3-POLE SWITCH

DEVICES - RELAY

- CR 1 / 28, 111 — CONTROL RELAY CR1 WITH NORMALLY OPEN CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
- TR 2 — TIME DELAY RELAY TR2 - ADJUSTABLE TIME DELAY RANGE AND SETTING AS SHOWN
- TDE — TIME DELAY RELAY ON ENERGIZATION
- TDD — TIME DELAY RELAY ON DE-ENERGIZATION
- M1 — CONTACTOR OR STARTER M1
- SV — SOLENOID
- CR-1 / (105) — NORMALLY OPEN RELAY CONTACT- ACTUATED BY RELAY CR-1 COIL ON LINE 105
- CR-1 — NORMALLY CLOSED RELAY CONTACT- ACTUATED BY RELAY CR-1 COIL
- NORMALLY OPEN, TIME DELAY RELAY CONTACT - CONTACT CLOSES AFTER RELAY IS ENERGIZED
- NORMALLY CLOSED, TIME DELAY RELAY CONTACT - CONTACT OPENS AFTER RELAY IS ENERGIZED
- NORMALLY OPEN, TIME DELAY RELAY CONTACT - CONTACT OPENS AFTER RELAY IS DEENERGIZED
- NORMALLY CLOSED, TIME DELAY RELAY CONTACT - CONTACT CLOSES AFTER RELAY IS DEENERGIZED

DEVICES - FRONT PANEL

- W — INDICATING LIGHT, LETTER INDICATES COLOR R=RED, G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
- PTT / W — INDICATING LIGHT, PUSH TO TEST
- ETM — ELAPSED TIME METER

DEVICES - MISCELLANEOUS

- AUDIBLE ALARM
- HTR — HEATER
- 20 — MOTOR. # = MOTOR HORSEPOWER
- TRANSFORMER
- G — GENERATOR
- SD — SMOKE DETECTOR
- DISCONNECT, 3 POLE CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
- CIRCUIT BREAKER, 3 POLE TM = THERMAL MAGNETIC MCP = MOTOR CIRCUIT PROTECTOR
- OL — THERMAL OVERLOAD CONTACT
- THERMAL OVERLOAD ELEMENT
- FUSE WITH BLOWN FUSE INDICATOR LIGHT
- FUSE
- CIRCUIT BREAKER

SYMBOLS - PLAN

- DISCONNECT SWITCH
- FIELD MOUNTED DEVICE
- SPECIAL RECEPTACLE, SIZE AS INDICATED
- JUNCTION BOX
- CONTROL STATION
- WALL MOUNTED LIGHT FIXTURE
- SITE LIGHT FIXTURE
- LED LIGHT FIXTURE LIGHT
- A 2/32 AO — FIXTURE TYPE "A" WITH 2-32 WATT LAMPS, TYPICAL FOR ROOM NOTED, UON.
- # — DUPLEX RECEPTACLE AT +18" UON, # = CIRCUIT NUMBER
- # — DOUBLE DUPLEX RECEPTACLE AT +18" UON, # = CIRCUIT NUMBER
- $TAG1 / TAG2 — TOGGLE SWITCH AT +48" UON; SUBSCRIPT - CIRCUIT CONTROLLED; SUPERSCRIPT - BLANK = 1, POLE 2 = 2, POLE 3 = 3 WAY, M = MOTOR OVERLOAD, T = SPRING WOUND TIMER
- EMERGENCY EXIT LIGHTING
- C001 — CONDUIT AND CONDUCTOR DESIGNATION SEE SCHEDULE FOR SIZE
- 3 PHASE SPECIAL RECEPTACLE, SIZE AS INDICATED
- TELEPHONE OUTLET
- TS — TAMPER SWITCH
- FS — FLOW SWITCH
- T — THERMOSTAT AT +48" UON
- REMOVE I/O DATA OUTLET
- FIBER OPTIC OUTLET
- GW — GROUND ROD, 3/4" X 10'-0" GW INDICATES GROUND ROD IN GROUND ROD BOX SEE GROUND ROD DETAIL.
- INTERCEPTION POINT - DEMO PLANS: EXISTING TO REMAIN TO EXISTING TO BE REMOVED NEW PLANS: EXISTING TO NEW
- MS — MOTION DETECTOR
- PC — PHOTOCELL
- GR — GROUND ROD, 3/4" X 10'-0" GR INDICATES GROUND ROD IN CONCRETE HANDHOLE TEST WELL.

ELECTRICAL ABBREVIATIONS

A	AMPERES	GEN	GENERATOR	NC	NORMALLY CLOSED	SEQ	SEQUENCE
AFF	ABOVE FINISHED FLOOR	GFCI	GROUND FAULT CIRCUIT INTERRUPT	NIC	NOT IN CONTRACT	SHLD	SHIELDED
AI	ANALOG INPUT	GND	GROUND	NL	NIGHT LIGHT	SP	SET POINT
AIC	AMPS INTERRUPTING CAPACITY, SYMM	GR	GROUND ROD	NO	NORMALLY OPEN	SPD	SURGE PROTECTION DEVICE
AM	AMMETER	GRS	GALVANIZED RIGID STEEL CONDUIT	O	OPEN	SPEC	SPECIFICATION
AO	ANALOG OUTPUT	GW	GROUND WELL	OI	OPERATOR INTERFACE	SPST	SINGLE POLE, SINGLE THROW
ATS	AUTOMATIC TRANSFER SWITCH	HI	HIGH	OL	OVERLOAD	SR	SENSING RELAY
AUX	AUXILIARY	HID	HIGH INTENSITY DISCHARGE	P	POLE, PRESSURE	SS	SOFT STARTER,SURGE SUPPRESSOR
AWG	AMERICAN WIRE GUAGE	HOA	HAND-OFF-AUTO	PB	PULL BOX, PUSHBUTTON	STA	STATION
BATT	BATTERY	HP	HORSEPOWER	PCP	PROCESS CONTROL PANEL	SV	SOLENOID VALVE
BSC	BARE STRANDED COPPER	HPS	HIGH PRESSURE SODIUM	PF	POWER FACTOR	SW	SWITCH
BKR	BREAKER	HTR	HEATER	PFR	POWER (PHASE) FAIL RELAY	SWBD	SWITCHBOARD
BLDG	BUILDING	HZ	HERTZ (CYCLES PER SECOND)	PH	PHASE	SYMM	SYMMETRICAL
C	CONDUIT, CLOSE, CONTROL	HZD	HAZARDOUS AREA, EXPLOSION PROOF	PI	PRESSURE INDICATOR	T	TRIP
CB	CIRCUIT BREAKER	I	INTERLOCK OR INTELIGENT/LOGIC DEVICE	PLC	PROGRAMMABLE LOGIC CONTROLLER PMP PUMP	TB	TERMINAL BLOCK
CKT	CIRCUIT			PNL	PANEL	TDD,TDE	TIME DELAY RELAY
CNTRL	CONTROL	I/O	INPUT/OUTPUT	POT	POTENTIOMETER	TEL CO	TELEPHONE COMPANY
COAX	COAXIAL CABLE	INST	INSTRUMENTATION	PR	PAIR, TWISTED AND SHIELDED CABLE PROVIDE FURNISH, INSTALL AND CONNECT	TM	THERMAL MAGNETIC
COMM	COMMUNICATION PORT	ISC	SHORT CIRCUIT INTERRUPTING CURRENT (SYMM)			TEMP	TEMPERATURE
CP	CONTROL PANEL					TS	TEMPERATURE SWITCH
CPT	CONTROL POWER TRANSFORMER	ISR	INTRINSICALLY SAFE RELAY	PS	PRESSURE SWITCH	TTB	TELEPHONE TERMINAL BACKBOARD
CR	CONTROL RELAY	J/J-BOX	JUNCTION BOX	PT	POTENTIAL TRANSFORMER	TWP	TWISTED PAIR
CT	CURRENT TRANSFORMER	K	KILO, THOUSAND (PREFIX)	PSI	POUNDS PER SQUARE INCH	TWSP	TWISTED SHIELDED PAIR
CU	COPPER	KCMIL	THOUSAND CIRCULAR MILS	PVC	POLYVINYLCHLORIDE	UG	UNDERGROUND
DI	DIGITAL INPUT	LC	LIGHTING CONTACTOR	PVCRC	PVC AND GRC CONDUIT	UON	UNLESS OTHERWISE NOTED
DISC	DISCONNECT	LOS	LOCK-OUT STOP SWITCH	PVC-GRC	PVC COATED GRC CONDUIT	V	VOLTAGE
DO	DIGITAL OUTPUT	LI	LEVEL INDICATOR	PVC-RSC	PVC COATED RSC CONDUIT	VA	VOLT AMPS
DPDT	DOUBLE POLE, DOUBLE THROW	LIT	LEVEL INDICATOR TRANSMITTER	PWR	POWER	VFD	VARIABLE FREQUENCY DRIVE
EF	EXHAUST FAN	LS	LEVEL SWITCH	R	RED	VLV	VALVE
EMERG	EMERGENCY	LTG	LIGHTING	REC	RECEPTACLE	VM	VOLTMETER
EMT	ELECTRICAL METALLIC TUBING	M	MOTOR CONTACTOR	RGS	RIGID GALVANIZED STEEL	VS	VARIABLE SPEED
ETM	ELAPSED TIME METER	mA	MILLIAMPERES	RMS	ROOT MEAN SQUARE	W	WATTS, WHITE, WIRE
FACP	FIRE ALARM CONTROL PANEL	MCC	MOTOR CONTROL CENTER	RSC	RIGID STEEL CONDUIT	WHM	WATT-HOUR METER
FI	FLOW INDICATOR	MCP	MOTOR CIRCUIT PROTECTOR	RT	RESET TIMER	WM	WATTMETER
FIT	FLOW INDICATOR TRANSDUCER	MD	MOISTURE DETECTION	RTM	RUN TIME METER	WP	WATERPROOF, WEATHERPROOF
FLA	FULL LOAD AMPS	MFR	MANUFACTURER	RTU	REMOTE TERMINAL UNIT	XFMR	TRANSFORMER
FO	FAIL OPEN	MINS	MINUTES	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER	Y	YELLOW
FLEX	FLEX METAL LIQUID TIGHT CONDUIT	MLO	MAIN LUGS ONLY	RVNR	REDUCED VOLTAGE NON-REVERSING	ZAU	INTRUSION ALARM
FS	FLOW SWITCH	MOA	MANUAL-OFF-AUTO	RVSS	REDUCED VOLTAGE SOFT START	ZS	LIMIT SWITCH
FTS	FLOAT SWITCH	MOV	MOTOR OPERATED VALVE	SEC	SECONDARY		
FVNR	FULL VOLTAGE NON-REVERSING	MTC	EMPTY CONDUIT WITH PULLROPE	SECS	SECONDS		
FUT	FUTURE	MTS	MANUAL TRANSFER SWITCH				
FVR	FULL VOLTAGE REVERSING	MTR	MOTOR				
G	GREEN	N	NEUTRAL				

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JOB NO. : 483-003
DATE: 11/13/2024
DRAWN BY: MLE
DESIGNED BY: TTL
PROJ. MGR.: WLS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

STANDARD ELECTRICAL SYMBOLS, LEGENDS & ABBREVIATIONS

30% SUBMITTAL NOV 2024

E001
DRAWING NUMBER

SHEET 54 OF 90

Plot Date: 11/13/2024 10:50 AM
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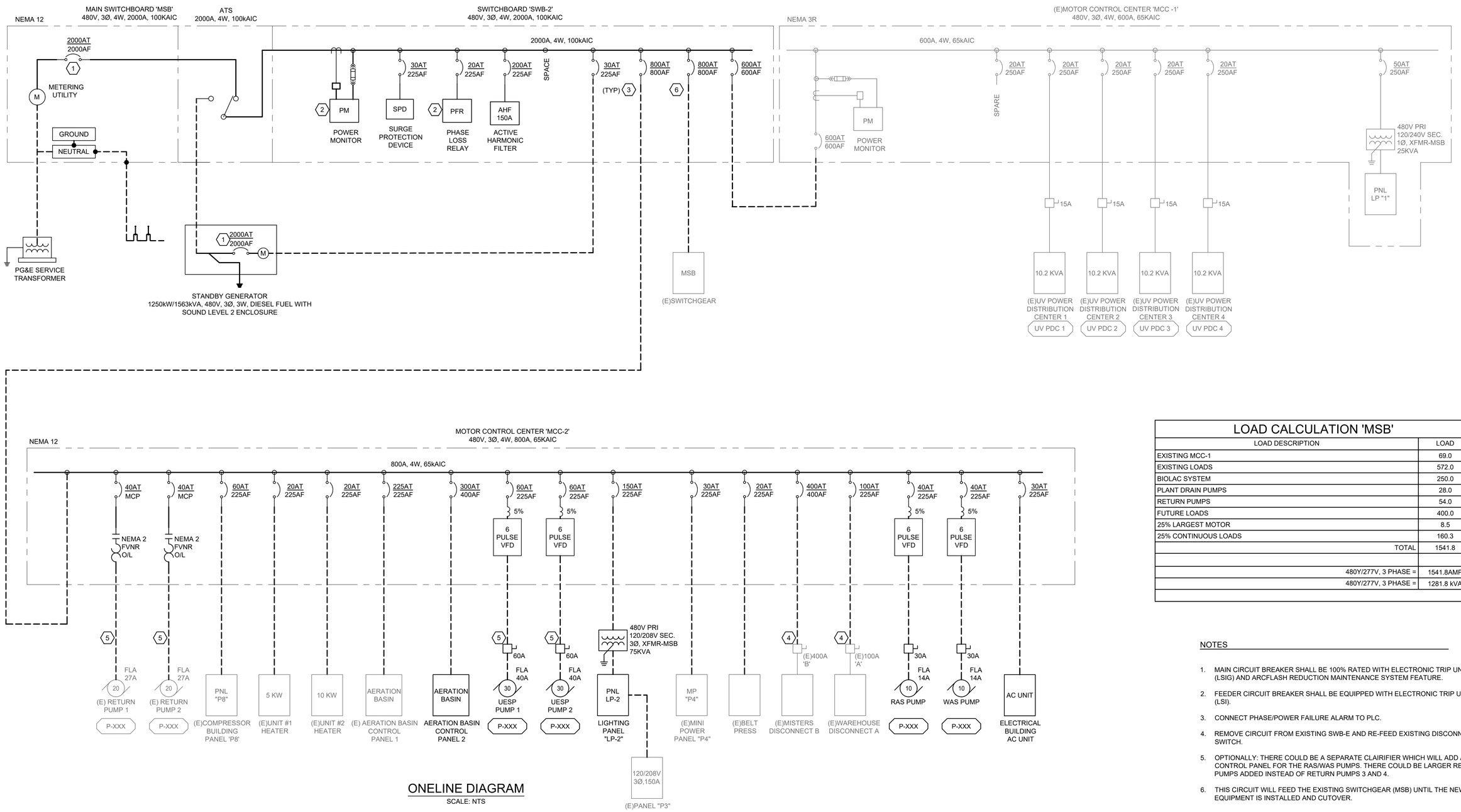

ONELINE DIAGRAM

SCALE: NTS

LOAD CALCULATION 'MSB'

LOAD DESCRIPTION	LOAD
EXISTING MCC-1	69.0
EXISTING LOADS	572.0
BIOLAC SYSTEM	250.0
PLANT DRAIN PUMPS	28.0
RETURN PUMPS	54.0
FUTURE LOADS	400.0
25% LARGEST MOTOR	8.5
25% CONTINUOUS LOADS	160.3
TOTAL	1541.8
480Y/277V, 3 PHASE =	1541.8AMP
480Y/277V, 3 PHASE =	1281.8 kVA

NOTES

1. MAIN CIRCUIT BREAKER SHALL BE 100% RATED WITH ELECTRONIC TRIP UNIT (LSIG) AND ARCFLASH REDUCTION MAINTENANCE SYSTEM FEATURE.
2. FEEDER CIRCUIT BREAKER SHALL BE EQUIPPED WITH ELECTRONIC TRIP UNIT (LSI).
3. CONNECT PHASE/POWER FAILURE ALARM TO PLC.
4. REMOVE CIRCUIT FROM EXISTING SWB-E AND RE-FEED EXISTING DISCONNECT SWITCH.
5. OPTIONALLY: THERE COULD BE A SEPARATE CLAIRIFIER WHICH WILL ADD A CONTROL PANEL FOR THE RAS/WAS PUMPS. THERE COULD BE LARGER RETURN PUMPS ADDED INSTEAD OF RETURN PUMPS 3 AND 4.
6. THIS CIRCUIT WILL FEED THE EXISTING SWITCHGEAR (MSB) UNTIL THE NEW EQUIPMENT IS INSTALLED AND CUTOVER.

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DESIGNED BY: MLE
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

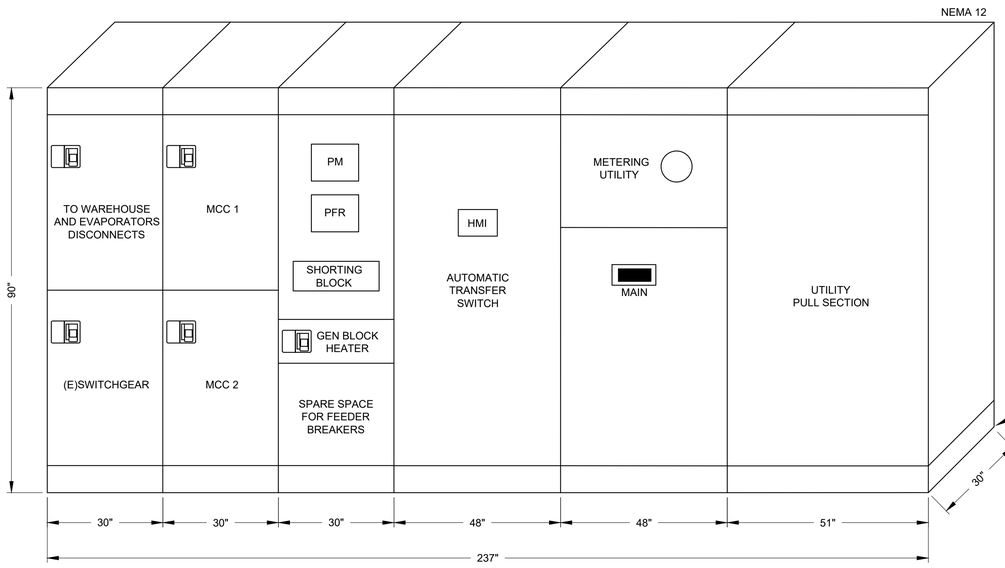
SINGLE LINE DIAGRAM

30% SUBMITTAL NOV 2024

E010
DRAWING NUMBER

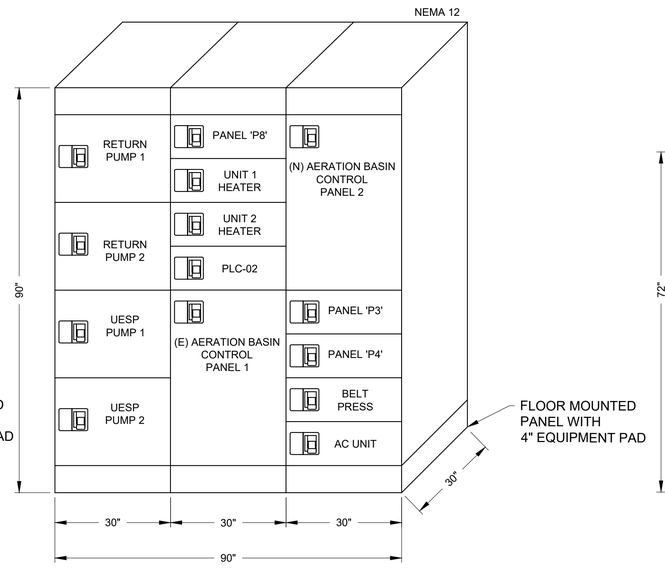
SHEET 55 OF 90

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg
Plotted By: ANTHONY PEREZ
Plot Date: 11/13/2024 10:50 AM



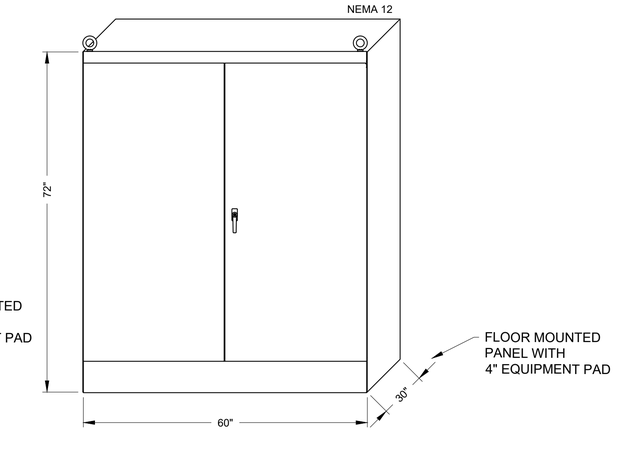
MSB PANEL ELEVATION (A-)

SCALE: NONE



MCC 2 PANEL ELEVATION (A-)

SCALE: NONE



AERATION BASIN 2 CONTROL PANEL ELEVATION (A-)

SCALE: NONE

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DESIGNED BY: TTL
PROJ. MGR.: WLS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PANEL ELEVATION

30% SUBMITTAL NOV 2024

E011

DRAWING NUMBER

SHEET 56 OF 90

Plot Date: 11/13/2024 10:50 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg

MATCHLINE - SEE DWG E101

ELECTRICAL SITE PLAN

SCALE: 1" = 40'-0"

NOTES

1. REFER TO P&ID DRAWINGS LOCATION OF INSTRUMENTS.
2. BOND ALL PUMPS, STEEL, FIELD MOUNTED CONTROL PANELS AND TANKS TO GROUNDING GRID WITH 250KMCIL BSC.
3. THE GROUND FAULT PROTECTION SYSTEM SHALL BE PERFORMANCE TESTED WHEN FIRST INSTALLED ON SITE. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH INSTRUCTIONS THAT SHALL BE PROVIDES WITH THE EQUIPMENT. A WRITTEN RECORD OF THIS TEST SHALL ME MADE AND SHALL BE AVAILABLE TO THE BUILDING INSPECTOR.
4. OUTDOOR RECEPTACLES SHALL BE WEATHER PROOF AND GFCI.
5. All UNDERGROUND SERVICE CONDUITS SHALL BE SEALED.
6. THE EXISTING PG&E TRANSFORMER, SWITCHGEAR, STANDBY GENERATOR AND GENERATOR FUEL TANK WILL BE DEMOLISHED AFTER THE CUTOVER OF ALL EQUIPMENT.

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL SITE PLAN
SHEET 1 OF 2

30% SUBMITTAL NOV 2024

E100
DRAWING NUMBER

SHEET 72 OF 90

Plot Date: 11/13/2024 10:51 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-E-Plan.dwg

MATCHLINE - SEE DWG E100

CAMBELL CT
CAMBELL CT
E EBERHARD DR
(E) SLUDGE DRYING BEDS
PB
720.85
STORM DRAIN LINE
15" CMP SHOT TOP
719.56
STORM DRAIN LINE
15" CMP SHOT TOP
(E) RETURN PUMP STATION
15005
PB
UESP PUMP STATION
27155
FD 2.5" ALUM DISK
24"30"
24"30"
20"25"
20"25"
24"30"
SS
SS
SS

MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP
- SUBMERSIBLE PUMP
- PROPELLER FAN
- BLOWER OR FAN
- COMPRESSOR
- ROTARY LOBE COMPRESSOR, BLOWER OR PUMP
- PROGRESSIVE CAVITY PUMP
- WEIR GATE
- WEIR
- STOP GATE / LOGS
- CHOPPER PUMP
- BARREL PUMP
- VFD — VARIABLE FREQUENCY DRIVE
- TANK
- SLUICE GATE (NORMALLY OPEN)
- SLUICE GATE (NORMALLY CLOSED)
- SLIDE GATE (NORMALLY OPEN)
- SLIDE GATE (NORMALLY CLOSED)
- STATIC MIXER
- BAFFLE WALL
- SILENCER
- INLET AIR FILTER-SILENCER
- M — EQUIPMENT MOTOR
- METERING PUMP
- TELESCOPING VALVE
- GROUND
- # — SHEET NOTE TAG
- VERTICAL TURBINE PUMP
- XXX ### — FIELD MOUNTED INSTRUMENT
- XXX ### — FACE MOUNTED INSTRUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE
- XXX ### — INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE
- XXX ### — FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
- XXX ### — INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACCESSIBLE
- I — OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES - REFERENCE ELEMENTARY DWG. #
- 12 / XXX ### / 6 — LAMP INDICATION (STATUS OR ALARM)
- 12 / XXX ### / 6 — ANNUNCIATOR WINDOW
- 12 / XXX ### / 6 — COMMUNICATIONS POINT
- PLC/RTU OR COMPUTER FUNCTION
- 12 / XXX ### / 6 — PLC/RTU OR COMPUTER FUNCTION
- 12 / XXX ### / 6 — PLC/RTU OR COMPUTER PERFORMING INTERNAL OPERATION
- 12 / AO / XXX ### — INSTRUMENT PANEL MOUNTED WITH COMPUTING, CONVERTING, OR INTERFACE FUNCTION

VALVE AND ACTUATOR SYMBOLS

- THREE WAY VALVE
- GATE VALVE (NORMALLY OPEN)
- GATE VALVE (NORMALLY CLOSED)
- PLUG VALVE (NORMALLY OPEN)
- PLUG VALVE (NORMALLY CLOSED)
- BALL VALVE (NORMALLY OPEN)
- BALL VALVE (NORMALLY CLOSED)
- BUTTERFLY VALVE
- GLOBE VALVE
- DIAPHRAGM VALVE
- ANGLE VALVE
- FLOAT VALVE
- PINCH VALVE
- NEEDLE VALVE
- DOUBLE LEAF CHECK VALVE
- CHECK VALVE
- BALL CHECK VALVE
- KNIFE GATE VALVE
- FLAP GATE
- BALANCING COCK
- CIRCUIT SETTER
- THERMOSTATICALLY CONTROLLED VALVE
- PRESSURE AND VACUUM RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE RELIEF VALVE
- MULTI-FUNCTION VALVE
- PRESSURE REDUCING REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR (SELF-CONTAINED)
- PRESSURE REDUCING VALVE
- BACK PRESSURE REDUCING VALVE
- S — SOLENOID (PILOT) VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE BALANCE OPERATED VALVE
- PNEUMATIC OPERATED VALVE (FOR VALVE TYPE - SEE SPECS)
- M — MOTOR OPERATED VALVE (FOR VALVE TYPE - SEE SPECS)
- 3-WAY CONTROL VALVE PNEUMATIC OPERATOR
- PNEUMATIC CYLINDER OPERATED VALVE
- VALVE ACTUATOR
- P — VALVE POSITIONER

INSTRUMENT ABBREVIATIONS

CODE LETTER	FIRST LETTER(S)		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTO/LAG
B	BURNER FLAME				
C	CHLORINE			CONTROL	CLOSE
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT, SENSOR		LEAD
F	FLOW	RATIO	FUEL		FAILURE
G	GAUGING		VIEWING DEVICE		
H	HAND				HIGH/HAND
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		PILOT LIGHT		LOW/LOCAL
M	MOISTURE/MOTOR	MOMENTARY	MOTOR		MIDDLE/MANUAL
N	STATUS				
O	OPERATOR		ORIFICE		OPEN/OVERLOAD
P	PRESSURE		POINT		
Q	EVENT	TOTALIZE	TOTAL		
R	RESET		RECORD		RUNNING/REMOTE
S	SPEED	SAFETY		SWITCH	STOP/SPEED
T	TEMPERATURE		TEST	TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION		
V	VIBRATION			VALVE	
W	FORCE, WEIGHT		WELL		
X	TELEMETRY INTERFACE				
Y	COMPUTER INTERFACE			COMPUTE/RELAY/ CONVERTER	
Z	POSITION			ACTUATE	POSITION

PROCESS FLOW LINE LEGEND

- FUTURE ELECTRIC SIGNAL
- ELECTRICAL SIGNAL
- ELECTRIC POWER/CONTROL
- PNEUMATIC SIGNAL
- CAPILARY TUBING (FILLED SYSTEM)
- HYDRAULIC SIGNAL
- SONIC OR ELECTROMAGNETIC SIGNAL
- FUTURE PROCESS LINE
- MAIN PROCESS LINE
- SECONDARY PROCESS LINE
- AUXILIARY PROCESS LINE
- DIRECTION OF FLOW
- = 0.01 LT SCALE — MANUFACTURER'S PRE-WIRING
- = 0.01 LT SCALE — LOGIC OR DATA SIGNAL

TYPICAL PROCESS DIAGRAM CROSS REFERENCE LEGEND

1. ON DWG. P3 CONTINUATION IS SHOWN AS: SYSTEM
2. ON DWG. P4 THIS CONTINUATION IS SHOWN AS: SYSTEM
3. SYSTEM FLOW BOTH DIRECTIONS: SYSTEM

WATER SURFACE ELEVATION SYMBOL

WATER SURFACE ELEVATION

PLC I/O SIGNAL TYPE LEGEND

X / XX / XXXX — DI SIGNAL; DO SIGNAL; AI SIGNAL; AO SIGNAL

NOT FOR CONSTRUCTION

PIPE LINE DEVICE SYMBOLS

- STRAINER
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- CLEANOUT
- EXPANSION JOINT
- UNION
- AUDIBLE ALARM (BUZZER OR HORN)
- REDUCER
- CAP OR PLUG
- BLIND FLANGE
- FLEXIBLE COUPLING
- QUICK CONNECTOR
- FE — FLOW METER
- DRAIN — DRAIN
- AIR VENT
- EMERGENCY SHOWER/ EYEWASH STATION
- BACKFLOW PREVENTER
- DIAPHRAGM SEAL
- CALIBRATION TUBE
- AIR VACUUM RELEASE VALVE OR AIR RELEASE VALVE
- HYDRANT
- HOSE BIBB

NOTES AND EQUIP. ABBREVIATIONS

NOTES

1. THE PROCESS SCHEMATIC ARE PRESENTED IN DIAGRAMMATIC FORM TO SHOW PROCESS FLOWS CONTROL CONCEPTS AND UNIT OPERATING PARAMETERS, AND AS SUCH ARE NOT INTENDED TO SHOWN ALL VALVING PIPING AND INSTRUMENTATION SYSTEMS.
2. PROCESS SYMBOLS ARE FOR REFERENCE ONLY. NOT ALL SYMBOLS ARE USED IN THESE CONTRACT DRAWINGS.

EQUIPMENT

ABBREVIATIONS	DESCRIPTION
ARV	AIR RELIEF VALVE
BLDG	BUILDING
CV	CHECK VALVE
FLR	FLARE
FN	FAN
LVR	LOUVER
MBR	MEMBRANE BIOREACTOR
MF	MOTOR FIXED
MOD	MODULE
P	PUMP
PNL	PANEL
TK	TANK

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

STANDARD PROCESS & INSTRUMENTATION SYMBOLS, LEGENDS & ABBREVIATIONS

30% SUBMITTAL NOV 2024

I001
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SHEET 79 OF 90

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SCADA

CP-CPC

FIELD

YQA
-

YQA
-

OPS/ADMIN INTRUSION ALARM DI

ELECTRICAL BUILDING ALARM DI

ZA
-

ZA
-

24VDC

24VDC

STAFF DOOR

ZS
XXX

ELECTRICAL BUILDING DOOR

ZS
XXX

NOT FOR CONSTRUCTION

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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I100
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SHEET 80 OF 90

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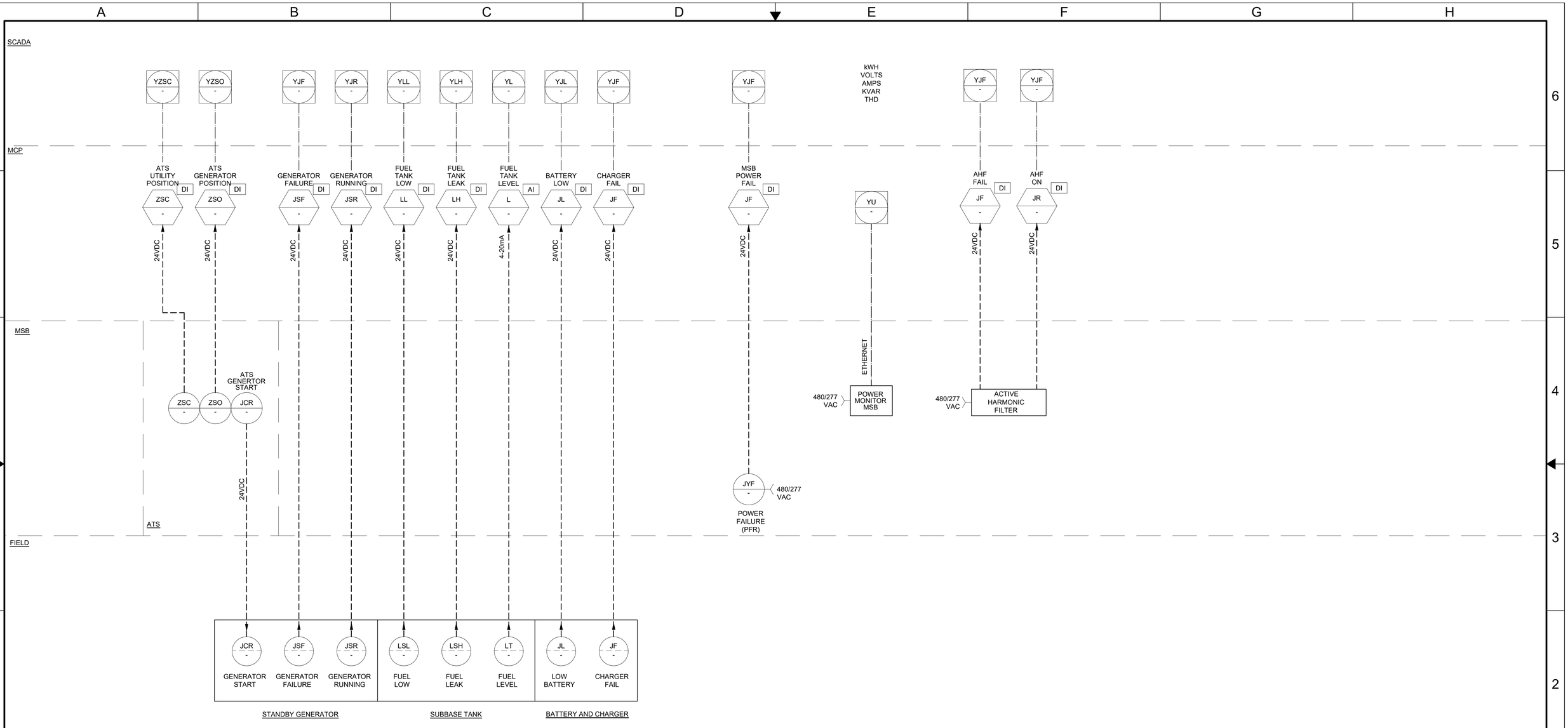

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REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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I101
DRAWING NUMBER

SHEET 81 OF 90

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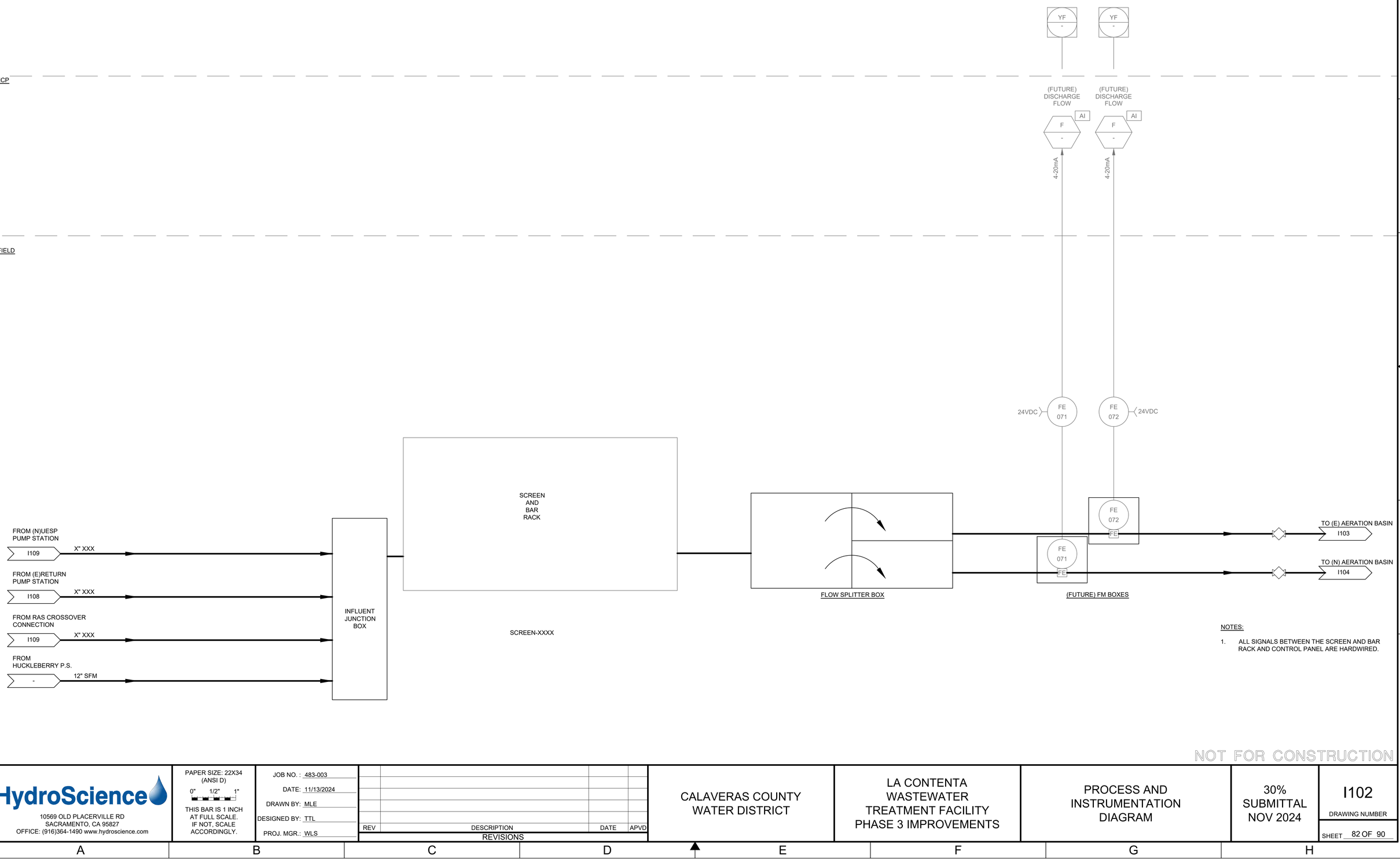
SCADA

MCP

FIELD



NOTES:

1. ALL SIGNALS BETWEEN THE SCREEN AND BAR RACK AND CONTROL PANEL ARE HARDWIRED.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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I102

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SHEET 82 OF 90

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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND CONTROLS
TO MATCH HMI WITHAERATION BASIN SYSTEM VENDOR

MCP

FIELD

480/277VAC

AERATION BASIN #1 CONTROL PANEL
CP-XXXX *

HARDWIRED CONNECTION

FROM FM BOX
I102

XX" – XXX

XX" - RAS

XX" - WAS

TO SLUDGE LAGOON
I107

SCUM PUMP

TO CONTINUOUS BACKWASH FILTERS
I105

XX" - AIR

(E)AERATION BASIN

AER-XXXX

INTEGRAL CLARIFIER

AIRLIFT PUMP AIR

BLOWER AIR

B-001

B-002

B-003

BLOWER AIR

I104

TO AERATION BASIN 2 AIR MANIFOLD

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE AERATION BASIN AND CONTROL PANEL ARE HARDWIRED.
2. SIGNALS INCLUDED ARE: SLUDGE GATE OPENED AND CLOSED, SCUM PUMP RUNNING, RAKE #1 OVERTRAVEL, RAKE #1 REVERSE MOTION, RAKE #1 FORWARD MOTION, BLOWER 1-3 RUNNING AND OVERLOAD.
3. SIGNALS TO THE MCP ARE TO BE HARDWIRED

* SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.

NOT FOR CONSTRUCTION

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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I103
DRAWING NUMBER

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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND CONTROLS
TO MATCH HMI WITH AERATION BASIN SYSTEM VENDOR

MCP

FIELD

480/277VAC

*
AERATION BASIN #2 CONTROL PANEL
CP-XXXX

HARDWIRED CONNECTION

FROM FM & VALVE BOX
I102
xx" – xxx

FROM AERATION BASIN 1 AIR MANIFOLD
I103

XX" - AIR
XX" - AIR
XX" - AIR
XX" - AIR

B-004
B-005
B-006

XX" - AIR (x6)

AERATION BASIN

AER-XXXX

INTEGRAL CLARIFIER

RAS PUMP
XX" - RAS

M
XX" - WAS
TO SLUDGE LAGOON
I107

SCUM PUMP
XX" - WAS

XX" - SE
TO CONTINUOUS BACKWASH FILTERS
I105

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE AERATION BASIN AND CONTROL PANEL ARE HARDWIRED.
2. SIGNALS INCLUDED ARE: SLUDGE GATE OPENED AND CLOSED, SCUM PUMP RUNNING, RAKE #1 OVERTRAVEL, RAKE #1 REVERSE MOTION, RAKE #1 FORWARD MOTION, BLOWER 1-3 RUNNING AND OVERLOAD.
3. SIGNALS TO THE MCP ARE TO BE HARDWIRED.
4. OPTIONALLY: THIS AERATION BASIN COULD HAVE A SEPARATE CLARIFIER. THIS WILL ADD A SEPARATE CONTROL PANEL TO CONTROL THE RAS/WAS PUMPS.

* SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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I104
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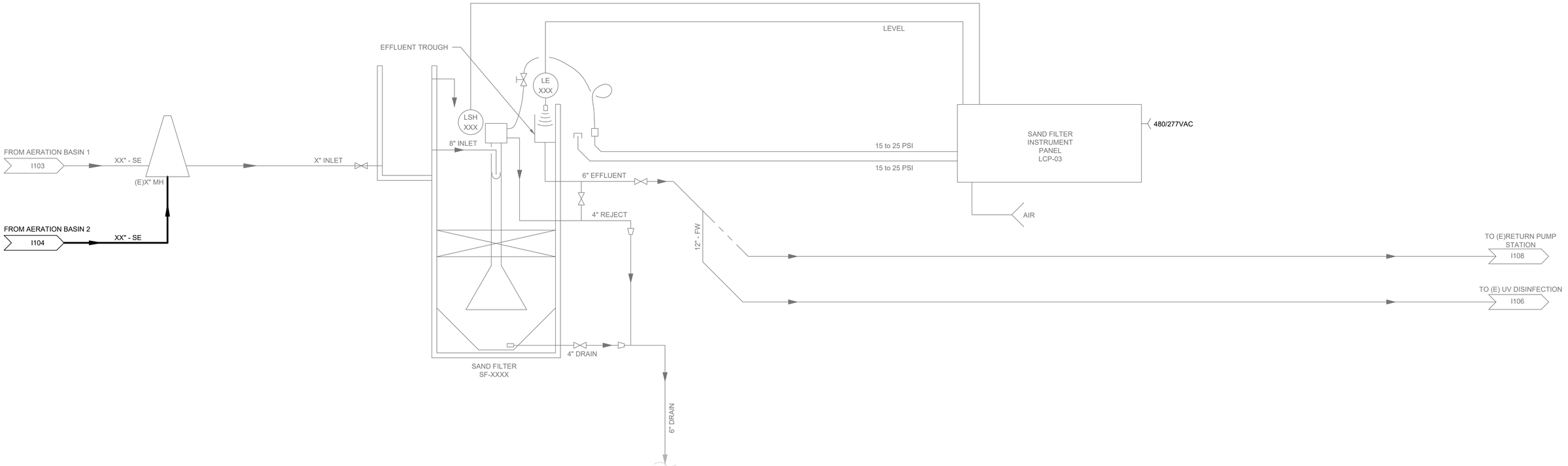
FIELD

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE SAND FILTER AND CONTROL PANEL ARE HARDWIRED.



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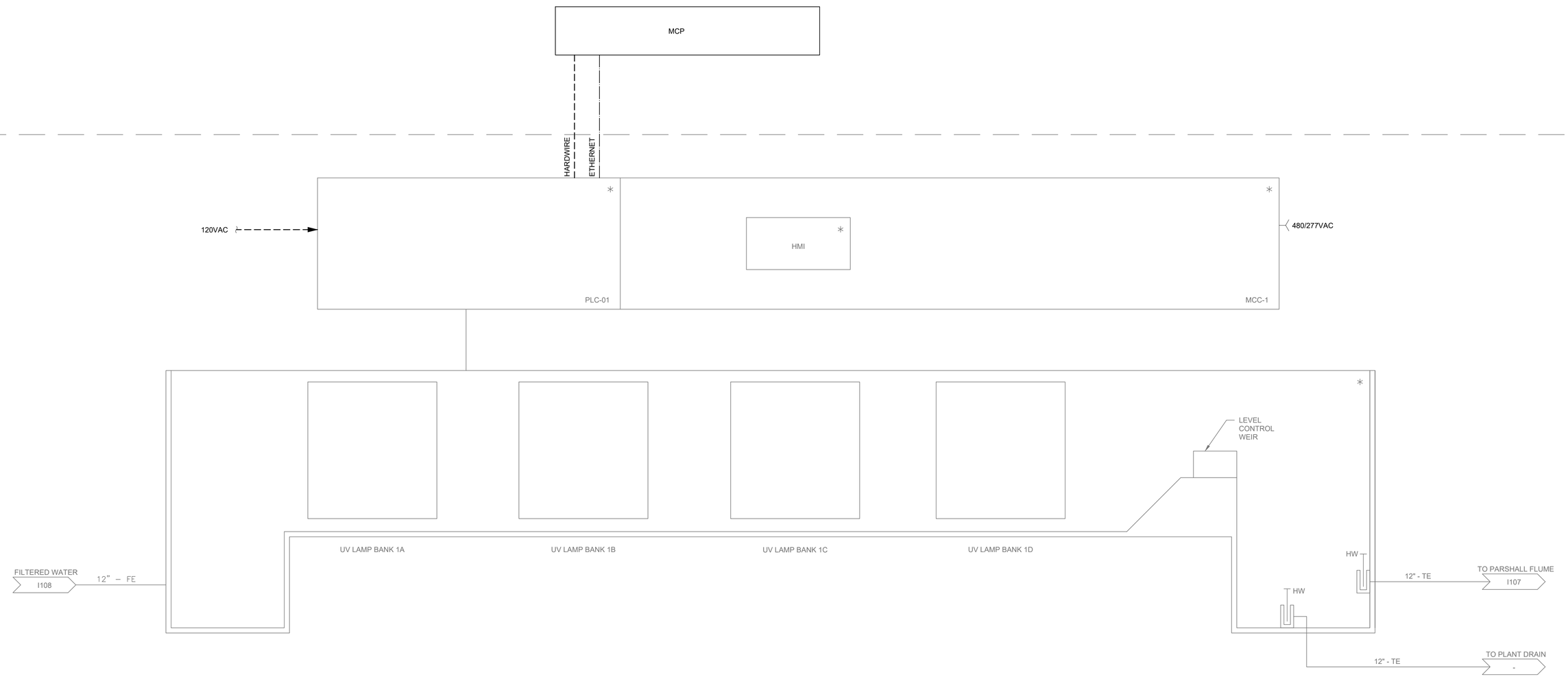
SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND CONTROLS
TO MATCH HMI WITH EXISTING UV SYSTEM SCADA

MCP



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* SUPPLIED BY UV SYSTEM MANUFACTURER.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

30% SUBMITTAL NOV 2024

I106
DRAWING NUMBER

SHEET 86 OF 90

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SCADA

YF
-

MCP

DISCHARGE FLOW

F
-
AI

4-20mA

FIELD

FIT
100

FROM UV DISINFECTION SYSTEM
I106

XX" - TE

EXISTING PARSHALL FLUME

XX" - TE

XX" - TE

TO LOWER EFFLUENT STORAGE RESERVOIR
-

XX" - TE

XX" - TE

UPPER EFFLUENT STORAGE POND

10" - TE

TO LOWER EFFLUENT STORAGE RESERVOIR
-

10" - TE

TO (N) UESP PUMP STATION
I109

FROM AERATION BASIN 1 WAS
I103

X" - WAS

FROM AERATION BASIN 2 WAS
I104

X" - WAS

SLUDGE LAGOON

X" - XX

BELT FILTER PRESS

X" - XX

I108

TO LANDFILL

NOT FOR CONSTRUCTION

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

30% SUBMITTAL NOV 2024

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SCADA

YTH - | YMHA - | YMA - | YMF - | YMR - | YMC -

YALL - | YAL - | YAH - | YAHH - | YAHH -

YP - | YF -

MCP

PUMP TEMP SW HIGH — DI — TH -

PUMP MOISTURE HIGH — DI — MHA -

PUMP IN AUTO — DI — MA -

PUMP FAILURE — DI — MF -

PUMP RUNNING — DI — MR -

PUMP START — DO — MC -

RETURN PS LOW CUTOFF ALARM — DI — LALL -

RETURN PS DUTY & STANDBY PUMP STOP — DI — LAL -

RETURN PS DUTY PUMP START — DI — LAHH -

RETURN PS STANDBY PUMP SART — DI — LAHH -

RETURN PS HIGH HIGH ALARM — DI — LAHH -

DISCHARGE PRESSURE — AI — P -

DISCHARGE FLOW — AI — F -

24VDC

4-20mA

MCC-2

MLF - FAILURE

MLR - RUNNING

ETM

KQ -

I/O AND PILOT DEVICES FOR PUMP 2 ARE IDENTICAL TO PUMP 1

HOA — HS -

MPR — MP -

FROM LEVEL OVERRIDE CONTROLS

480VAC

FIELD

FROM CONTINUOUS BACKWASH FILTERS — I105

FROM BELT FILTER PRESS — I107

8" SS

TSH XXX | MSH 0XXX | M

P-201 EFFLUENT PUMP 1

TSH XXX | MSH XXX | M

P-202 EFFLUENT PUMP 2

XX" 3W

LSLL XXX

LSL XXX

LSH XXX

LSHH XXX

LSHH XXX

PI XXX

PI XXX

PIT XXX

FIT XXX — 24VDC

FE XXX — FE XX"

XX" X

TO PLANT INFLUENT -

(E)RETURN PUMP STATION

GENERAL NOTES:

1. OPTIONALLY: THIS STATION WOULD BE REPLACE ENTIRELY IF DISTRICT PREFERS A DUAL PURPOSE PUMP STATION

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM

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SCADA

YTH - | YMHA - | YMA - | YMF - | YMR - | YMC -

YALL - | YL - | YAHH -

YP - | YF -

MCP

PUMP TEMP SW HIGH — DI — TH -

PUMP MOISTURE HIGH — DI — MHA -

PUMP IN AUTO — DI — MA -

PUMP FAILURE — DI — MF -

PUMP RUNNING — DI — MR -

PUMP START — DO — MC -

UESP LOW CUTOFF ALARM — DI — LALL -

UESP WETWELL LEVEL — AI — L -

UESP HIGH HIGH LEVEL — DI — LAHH -

DISCHARGE PRESSURE — AI — P -

DISCHARGE FLOW — AI — F -

24VDC | 24VDC | 24VDC | 24VDC | 24VDC | 24VDC | 24VDC | 4-20mA | 24VDC | 4-20mA | 4-20mA

MCC-2

I

MLF - FAILURE | MLR - RUNNING | ETM | KQ -

I/O AND PILOT DEVICES FOR PUMP 2 ARE IDENTICAL TO PUMP 1

HOA | HS - | MPR | MP -

FROM LEVEL OVERRIDE CONTROLS

I

480VAC | 480VAC

FIELD

LIT 100 | LSHH XXX | LSLL XXX

PI XXX | PI XXX | PIT XXX | FIT XXX — 24VDC | FE XXX

XX" 3W | XX" 3W | XX" | XX" X

TSH XXX | MSH XXX | M | P-XXX — UESP PUMP 1

TSH XXX | MSH XXX | M | P-XXX — UESP PUMP 2

FROM UPPER EFFLUENT STORAGE POND - | 10" SS

UESP PUMP STATION

TO PLANT INFLUENT -

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APPENDIX C

Calaveras County Water District
Aeration Basin and Integral Secondary Clarifier Equipment Data Sheets and Budgetary Proposals

Preliminary Budget Proposal

Date: September 24,2024

To: Hydroscience Engineers

Attn: Mr. Bill Slenter, Ms. Bya Founas
Project Engineer

Re: La Contenta WWTF
Calaveras County, CA
Preliminary Aeration System Design

Dear Bill, Bya,

Bioworks NA is pleased to offer this preliminary budget proposal for a long sludge age extended aeration plant, in accordance with the preliminary design criteria provided with your request. Please note that the following is a preliminary estimate and can be adjusted as needed.

In particular, the exact basin dimensions could be adjusted, as can the scope and equipment details.

The process design is based upon the influent biological load values that you've provided:

Flow	0.45 MGD
Bod/TSS/TKN/TP	200/200/50/6 mg/l
Alkalinity	500 mg/l as CaCO3
Temp	10-20 degrees C

The effluent requirements are:

BOD	10 mg/l
TSS	15 mg/l
TN	10 mg/l

The Process system will incorporate at least:

1. A fine screen, not included in Bioworks' scope. The screen opening size should be no more than 6 mm and no rags should be passed into the aeration basin.
2. Two lined earthen aeration basins, with three sloping sides (the fourth side is the concrete wall of the clarifier) and with the liner by others. Please note that we suggest using a slightly more rectangular basin geometry that you'd mentioned as it yields a little better layout for the denitrification process. The exact dimensions are not cast in stone, though, and can be adjusted.
3. Bioworks' fine bubble aeration system, with floating & moving air headers, by Bioworks. OXIRISE is included, allowing for the operator to bring the diffusers to the surface from the basin shore

4. DyNOX, Bioworks' denitrification system, is included. The system may be operated without denitrification if desired.
5. Secondary Clarifiers, with options as shown below
6. PLC based controls, provided by Bioworks (VFD's for the blowers are included, as are controls for the electrically operated header valves for the DyNOX system)

Plant Design Data

Design flow	See above
Plant elevation	1,100 ft ASL
Number of trains (aeration basins, clarifiers)	1
Approx. Aeration Basin Dimensions (ea) , LxW	
Flat Floor	108' x 54'
At Grade (approx.)	126' x 90'
Side slope (3 sides)	2.25:1
Side Water Depth (min)	10'
Diffuser depth	9'
Basin Volume (ea)	0.6 MG
Estimated SOTR, Lbs/Hr	
Non-denitrification	156 Lbs/hr
DyNOX (with denite credit)	110 Lbs/hr
Air required, SCFM	
Non-denitrification	900 SCFM
DyNOX	650 SCFM
Blowers (by others)	
No. blowers	3 (one a spare - to be discussed)
Blower Type	Standard rotary lobe
SCFM per blower	450
Motor nameplate HP (estimated)	30
VFD included	Yes
Aeration System	
No. floating headers per basin	11
No. OXIWORKS per header	5
No. tubes per OXIWORKS	4
OXIRISE Included	Yes
Headers operating (DyNOX)	8
Clarifiers	See below

HydroScience checking if 1.5:1 ok with concrete liner

Clarifier Options

Option 1 … Two Bioworks Crossflow clarifiers, each designed to handle the full design flow and designed to allow isolation

Clarifier number:	2
Clarifier LxW:	42 feet x 24
Sludge removal system:	Bioworks suction scraper

The clarifiers are located right after the aeration basin, separated from it by a concrete wall. To make sure we can isolate them if we need to, the activated sludge flows through a channel before entering the clarifier through an opening at the basin bottom of the channel. The channel runs the whole length of the partition wall between the ASB and clarifier. The clarifier can be isolated manually using the penstock located at the inlet openings from ASB to channel. The clarifier is divided into two separate compartments. Both clarifiers are completely separated from each other.

The clarifier depth is the same as in ASB.

Option 2 … Same as above except that each is designed for half the flow

This design is very similar to above, except that each clarifier length is reduced to 32 feet.

General Description

This system is designed to remove BOD and TSS, and to denitrify if required, using a system that is cost-effective, easy & inexpensive to operate and simple to maintain. We have not included screens, grit removal, blowers, clarifiers or a disinfection system in this budget, but those items are readily available.

Bioworks offers experience, extensive process know-how, high quality equipment, and expert support from preliminary design through successful plant operation. Our components are the most modern in design and performance, providing excellent process results, high efficiency, easy operation, and simple maintenance.

So long as we have control over the main process components (aeration basin design, aeration system, clarifier, RAS design, blowers, controls), Bioworks offers a comprehensive effluent quality guarantee covering BOD, TSS, ammonia and Total N.

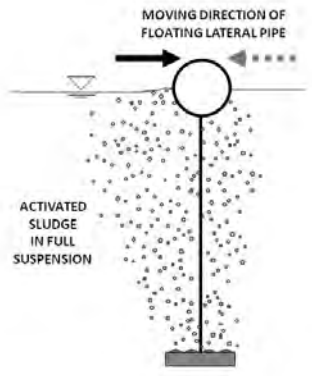
The Bioworks system is reliable, robust and can be designed using either a lined earthen aeration basin or a concrete aeration basin. The lined earthen basin approach is most common, and is most cost-effective.

It should be noted that no sludge handling system is included in our budget offer. A separate sludge holding basin might be used, or sludge dewatering might be added.

Because of the long HRT and SRT, the system is very forgiving and flexible. No equalization is normally required. Excellent process performance is easy to obtain, including BOD/TSS/Ammonia levels after the clarifier of 10/15/1 mg/l and total TN of 10 mg/l.

The heart of the system is the floating fine bubble aeration system, designed in such a way that nothing is affixed to the basin floor and the diffusers move laterally. This movement maximizes oxygen transfer efficiency and assures full mixing in a wide area. Because of this approach, unlike other extended aeration systems the Bioworks system is rarely, if ever, mixing limited.

The diffusers themselves are state-of-the-art in design and performance. Using silicone membranes and a large number of very small perforations, the diffusers offer the most energy efficient performance on the market.



We have included a major labor-saving device, the OXIRISE® system that allows the plant operators to raise each diffuser to the surface automatically from the basin shore. This makes maintenance as easy and mess-free as possible, and makes flexing a simple and painless procedure. Operators love this system.

The sludge wasted from the system will be well digested and stabilized, due to the long sludge age.

The end result is a system that's cost-effective to install, easy to operate, simple to maintain, and which yield excellent process performance.

Our offer consists of:

1. Process summary and guarantee basics.
2. Process design approach
3. Equipment & services summary
4. Cost estimate

1. Process Summary and Guarantee Basics

Our design is based upon the influent data shown above.

Monthly average effluent results are guaranteed, assuming that the water temperature will be 8 degrees C or above, and based upon the loadings shown above as:

BOD_5	10 mg/l
TSS	15 mg/l
TN	10 mg/l

Bioworks will provide a comprehensive process guarantee, as described herein – a sample copy is attached.

Design bases ... our design and guaranteed performance are based upon:

a. The wastewater will be screened using a 6 mm (or finer) screen. All wastewater is to be screened. Grit is to be removed if expected in appreciable amounts. Comminution or grinding is not recommended.
b. Sufficient alkalinity will be present (or added by the plant personnel) to allow the nitrification process to proceed uninhibited.
c. Incoming FOG, chemicals and metals will be with treatable limits.
d. Sufficient nutrients (P, N, etc) will be present in the influent for biosolids growth (or will be added by the plant personnel).
e. A qualified operator will supervise plant activities and performance, and the plant will be operated in accordance with Bioworks' recommended procedures.

2. Process Design Approach

a. Design basics
    a. Design F/M ratio is approximately 0.05 at the design loading, with attendant long HRT and sludge age. We have assumed an operating MLSS level of 3,000 mg/l. This long sludge age will assure essentially complete nitrification at any reasonable water temperature, even in the winter.
    b. The long sludge age also assures that the waste sludge will be well digested and stabilized, making disposal uncomplicated.
    c. Bioworks uses the most modern and energy efficient fine bubble aeration system available. The tentative number of floating headers ("chains") is shown above.
    d. We are including the OXIRISE® system, making maintenance as simple as possible.
b. Blowers
    a. The number and size of the blowers are shown above.
    b. Unless you prefer a different approach we suggest using basic rotary lobe blowers (Gardner Denver or equal)
    c. Blowers speed will be controlled using VFD's, from a DO feedback loop. Bioworks will provide the DO probe & analyzer, as well as the VFD's.

c. Controls
    a. Bioworks includes a control panel, to be installed in a building adjacent to the system.
    b. Included are the NEMA 12 enclosure, PLC control system for all motors, switches, etc, and D.O. monitoring.
    c. VFD's for the blower motors will be included
    d. The control system will also operate the electrically controlled valves on each header.
d. Clarifiers (see above)

3. Equipment & Services Summary – items supplied by Bioworks

a. OXIWORKS® aeration system, consisting of hi-temperature connecting hoses, HDPE floating aeration headers, stainless steel restraining cable system and required hardware.
b. OXIRISE® system, consisting of shore-mounted control panels and in-basin tubing. Also included is the "shop compressor" required for the system.
c. Electrically operated (1/60/120 power) butterfly valves for each aeration header.
d. One Dissolved Oxygen probe and analyzer per basin.
e. PLC based remote controls, as previously described.
f. Two Clarifiers, as described above (optional)
g. Descriptive specifications and aeration basin drawings on CAD, for use by the Engineer in developing plans & specs.
h. Approval submittals
i. Installation, operation & maintenance manuals
j. Field service for final installation inspection, start-up supervision and operator training. Bioworks will furnish a trained technician to oversee and assist in assembly and installation of the aeration system, for a period of approximately five days. He will require the assistance of 4 of the contractor's personnel. Also included is a visit for extended operator training, after the plant has been in operation for several months.
k. Additional field startup service by a Bioworks controls engineer and a technician from the blower supplier.
l. Spare parts
    a. Four complete OXIWORKS tube diffusers
    b. Ten spare diffuser membranes, with hardware.
    c. Fifty clamps, gaskets & o-rings used in the diffuser assemblies,

4. The following are to be supplied by others:

a. Fine screen(s)
b. Grit removal when appropriate
c. Liners for aeration basin
d. Disinfection system if required
e. Air mains – all piping between blowers and aeration basin.
f. Building for controls and blowers
g. Wiring, etc between controls and components
h. Anchor posts for aeration system
i. Field painting, if required
j. Installation
k. Plant operation

5. Estimated Cost

a. The budget price for the equipment and services supplied by Bioworks is:

Above Scope with two full-flow clarifiers	**$975.000**
Above scope with two half-flow clarifiers	**$900,000**
Above scope with no clarifiers	**$495,000**
Above scope with one full flow clarifier	**$710,000**

b. Approval drawings can normally be supplied approximately 8-10 weeks after acceptance of an order.

c. Equipment can normally be delivered 18-20 weeks after approval and release for manufacture.

6 References

Bioworks is a world-wide company, with hundreds of installations throughout the globe. In America we have several dozen, including a number on the west coast.

The attached partial reference list shows a selection of our installations. The nearest installations to you, in which we supplied the full system (including clarifiers) are Myrtle Point, OR and South Fork, ID.

Bioworks NA thanks you for your interest in our products & services, and looks forward to working with you on this project and in the future.

If you'll be attending WEFTEC in New Orleans please be sure to stop at our booth (2254). We also suggest meeting at your office at any mutually convenient time.

Should you have any questions, please do not hesitate to contact us or our local representative, Brian Oswalt of Rockwell Solutions at 916-616-8492.

Best regards,

David Gibson
Bioworks NA
479-856-4044

BIOWORKS
NORTH AMERICA Inc.

the clear solution

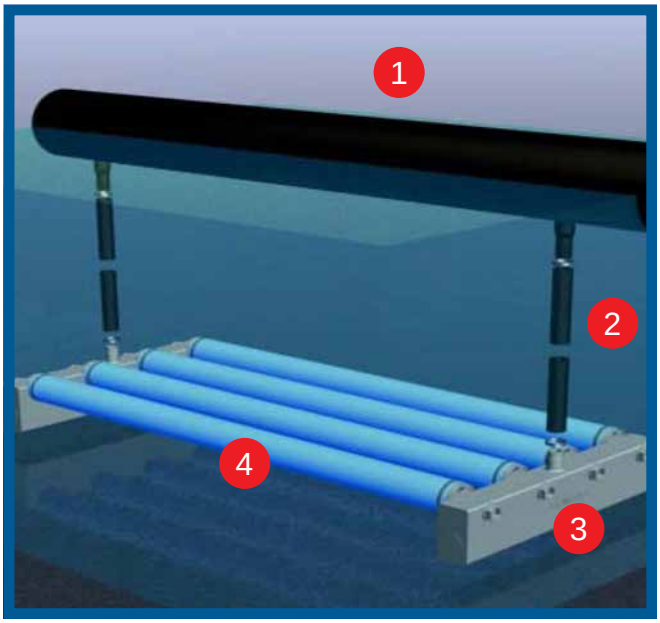
OXIWORKS® HIGH EFFICIENCY FINE BUBBLE DIFFUSER SYSTEM

BIOWORKS NORTH AMERICA Inc.

the clear solution

The OXIWORKS® Diffuser

The OXIWORKS® fine bubble diffuser system brings high efficiency aeration to both activated sludge and lagoon treatment systems.



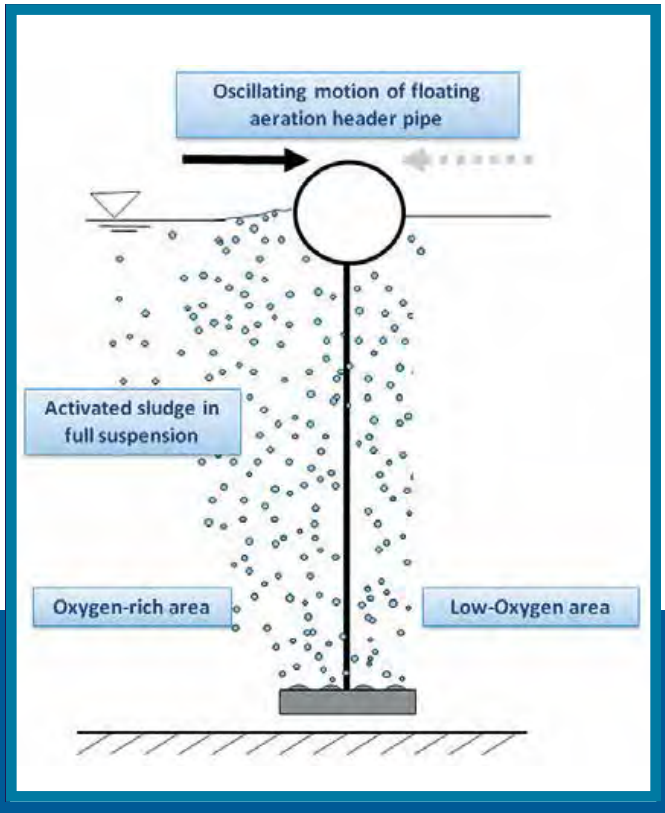
How it works

Air is supplied from the blowers to the air main to each floating lateral header (1). The air then flows through the downcomer hoses (2) into the OXIWORKS® diffuser assembly (3 & 4).

In the diffuser assembly, the air is distributed through high efficiency fine bubble tubular membranes creating 1mm fine bubbles for aeration and mixing.

The system is designed to allow the lateral floating headers with suspended diffusers to move in the basin creating significant advantages:

- The oxygen transfer is maximized because the diffusers are continually move towards areas of low dissolved oxygen. Along with using high efficiency fine bubble diffusers, this increases the overall efficiency of the system.
- Moving diffusers mix a significantly larger area than other systems because the laterals oscillate over a wide area. OXIWORKS® can reduce the required amount of mixing air by 30% compared to fixed aeration systems.



OXIRISE®
Maintenance and Retrieval System

Bioworks has created a simple and effective system to minimize manual labor for system maintenance.

How it Works

The OXIRISE® system allows the operator to raise each diffuser assembly to the surface without ever entering the basin by simply activating a switch at the side of the basin. The benefits of the OXIRISE® system are:

- When work on the diffusers are necessary, they can be retrieved from the surface without reaching under diffuser headers and pulling up of the diffuser assemblies suspended in the basin creating an easier safer way to perform maintenance.
- When the OXIRISE® system is activated periodically, it flexes the fine bubble diffusers, maximizing the life of the membranes.

Applications

The Bioworks OXIWORKS® moving suspended aeration system utilizing earthen or concrete basins combines a highly stable biological process with minimal investment, operating costs, and maintenance to provide a high quality effluent.

MUNICIPAL APPLICATIONS:

- Aerated Lagoons
- Activated Sludge Systems
- Biological nitrogen and phosphorus removal

INDUSTRIAL APPLICATIONS:

- Food and Meat Processing Plants
- Pulp and Paper Processing Plants
- Industrial Pretreatment Lagoons
- Aerated Lagoons
- Activated Sludge Processes

Bioworks North America, Inc.

Bioworks is a company that helps consulting engineers and customers consistently and professionally meet their objectives: state-of-the-art process design assistance, clean effluent to improve our environment, reduced energy usage, and easy plant operation and maintenance.

Bioworks creates value by designing each project specifically for our customers' needs and our aim is to exceed expectations in terms of design, costs, support, and operation of our systems. We guarantee our process designs and provide industry leading warranties on the equipment we provide.

Bioworks North America Inc. is the US subsidiary of the BIOWORKS group which provides a broad range of wastewater treatment processes worldwide.

Why choose Bioworks?

- We help from the start (the process design) to the finish (installation and then operational support)
- Guaranteed results
- Low energy usage - our diffused aeration system is the finest of its kind
- Simple, low cost operation
- Easy maintenance

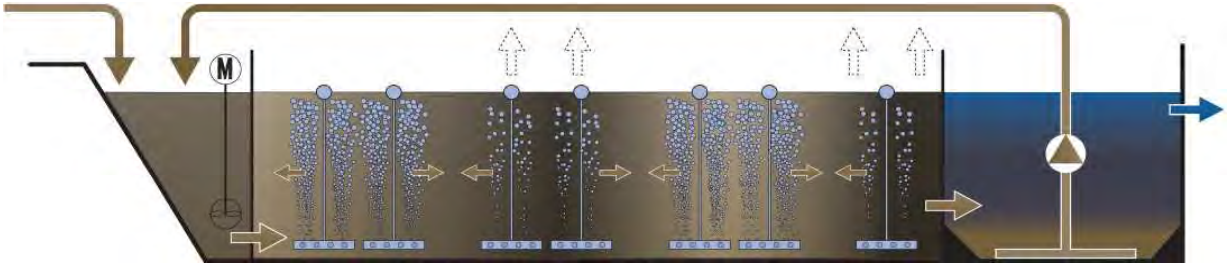
BIOWORKS
NORTH AMERICA Inc.

4858 N. Powerline Road
Deerfield Beach, FL 33073
(912) 445-5021

Cross Flow Clarifier

Bioworks recommends our rectangular, suction clarifier, using a travelling bridge approach. It's simple, effective and easy to operate & maintain.

At the end of the activated sludge basin, the biological treatment is complete, and the sludge must be separated from the clear water in the clarifier stage. Bioworks has designed the clarifier so that it's embedded at the end of the activated sludge basin and separated by a common wall. Due to the inlet openings distributed all along the common wall, the inlet velocities are very low and influent into the clarifier is turbulence free.



Sketch of embedded clarifier

The inside of the clarifier is completely turbulence free and the biological mass (sludge floc) and the clear water will separate by gravity. Please see the illustration below. The mixed liquor enters the clarifier structure through openings (1) in the separation wall. In the clarifier, the floc will settle to the bottom and will be removed by perforated suction pipes (4) from the bottom of the clarifier by a moving scraper bridge (2).

The RAS (recycle activated sludge) is then pumped into lateral collecting troughs (5) and then flow by gravity – in a concrete channel - to the inlet of the activated sludge basin.

Return sludge flow can be controlled by VFD if desired. The clear water overflows to the effluent and joins the effluent from other clarifiers – depending on design - in a common channel. The return sludge pumps are installed in vertical standpipes and can be accessed from the top for maintenance, so all servicing can take place in the filled basin. The clarifier bridge is constantly moving back and forth – guided by simple railtracks – and driven by 2 motors, each with a power of less than 0.5 hp. Power is provided by a cable reel.

Scum can be removed by a skimming board attached to the bridge and a rotating pipe trough. Waste sludge is removed when desired directly from the return sludge stream, either by an automated valve – in small plants – or in larger plants by a submerged pump which is connected to the return sludge channel.

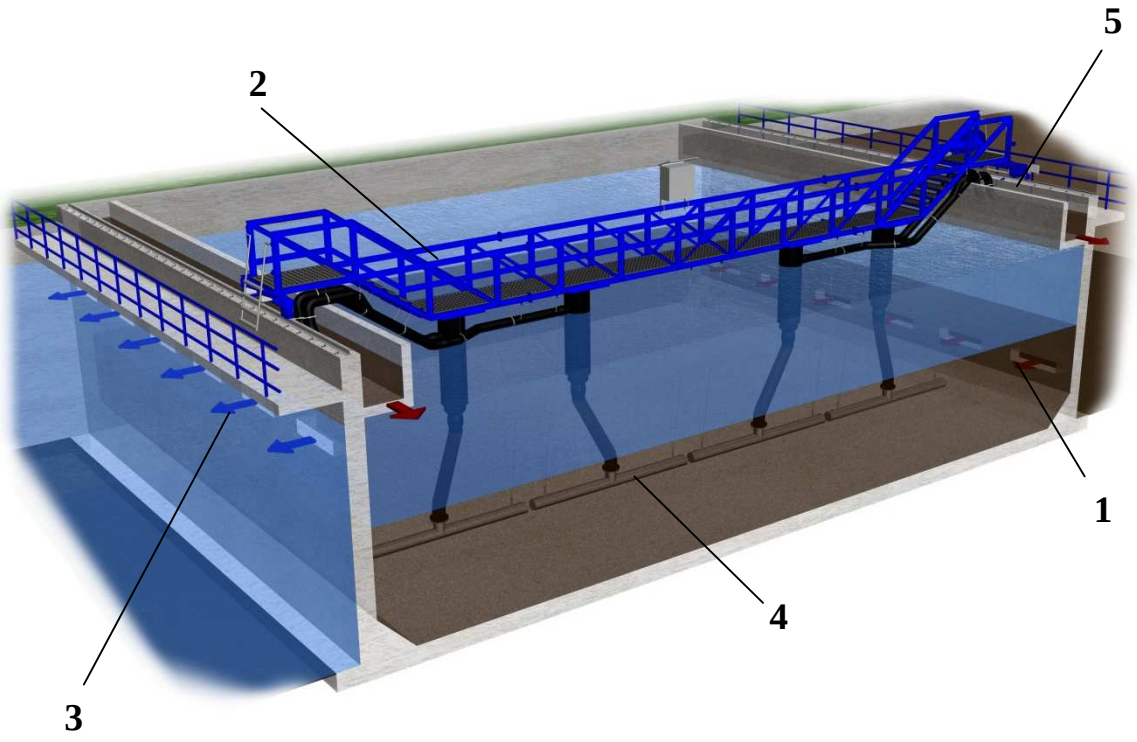
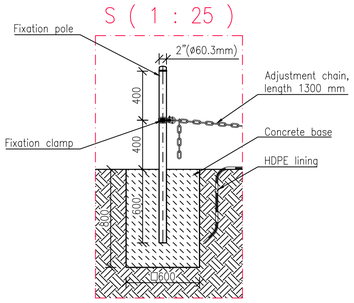


Illustration of BIOWORKS ® rectangular cross clarifier with moving scraper bridge
1. Inlet openings
2. Moving scraper bridge
3. Clear water effluent openings
4. Sludge suction pipes
5. Sludge transport troughs

BIOWORKS® clarifier in operation

Bioworks NA, Inc, 912-445-5021

S (1 : 25)



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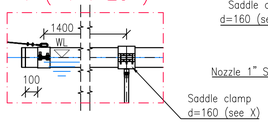

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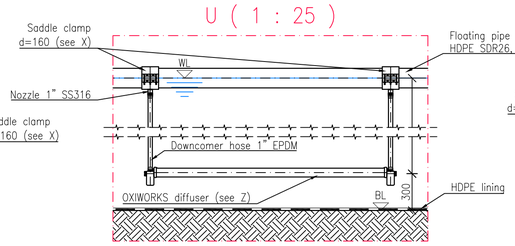

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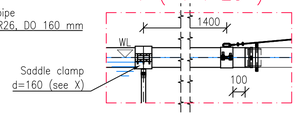

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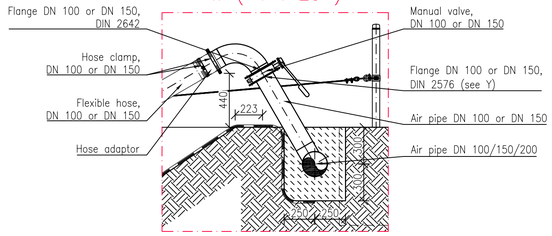

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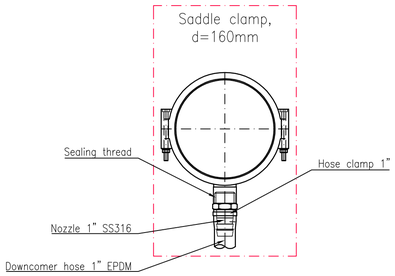

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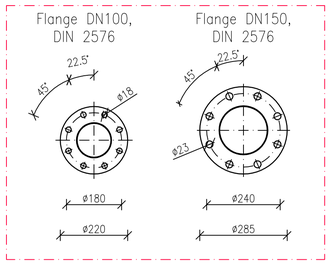

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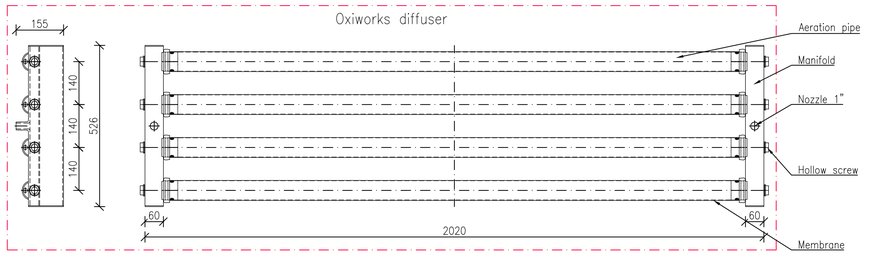

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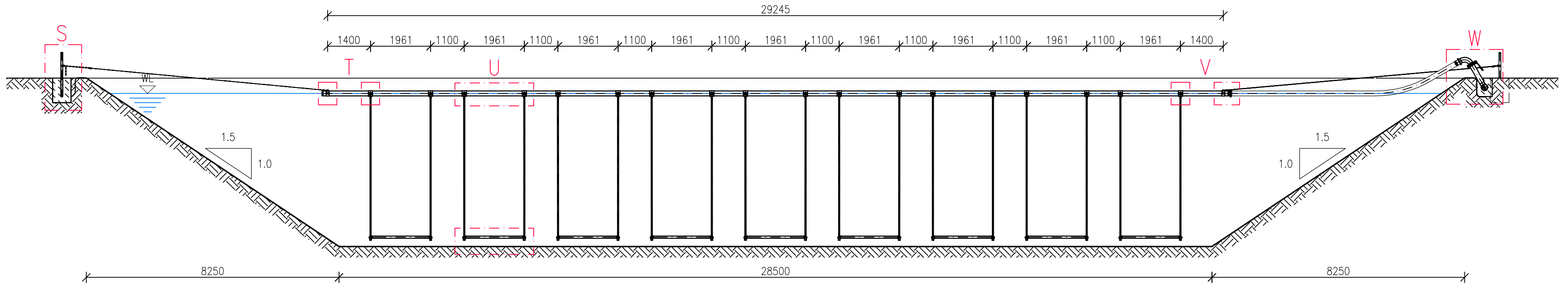
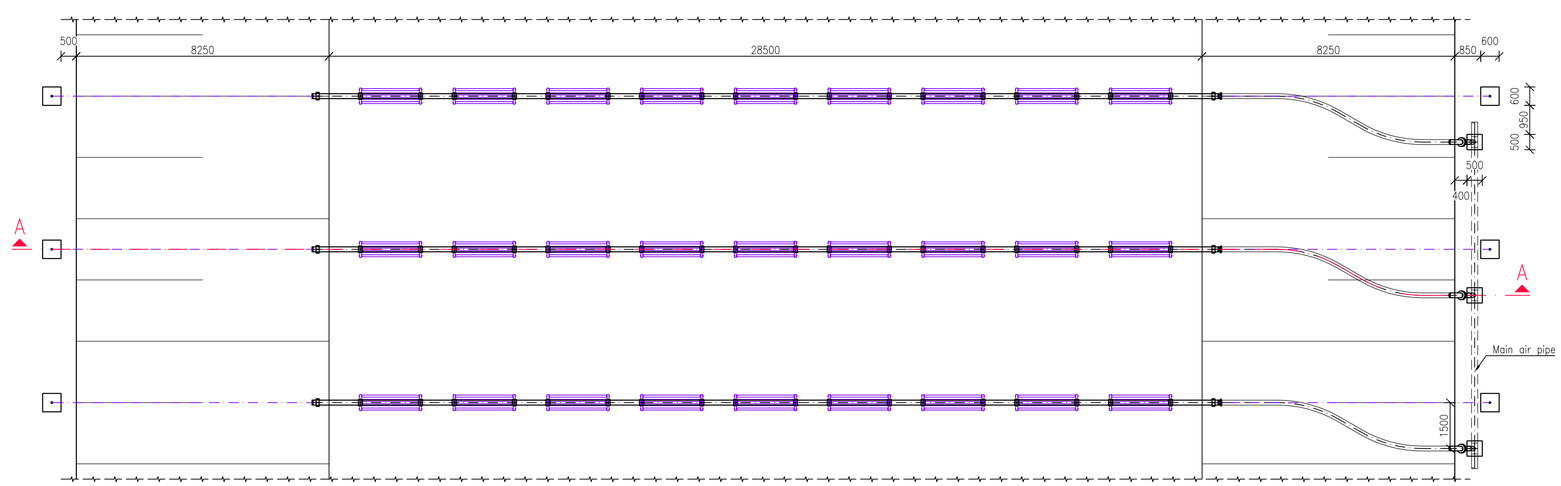


Top view (1 : 100)



Rev.	Date	Revised	Drawn:	Check:	Appr.:
A	21.07.16	New	TN	JS	

BIOWORKS® Verfahrenstechnik GmbH
Wernher-von-Braun Straße 9
85640 Putzbrunn / Germany
Phone +49 89 451519960
Fax +49 89 451519969-27
Email info@bioworks-gmbh.de
Web: www.bioworks-gmbh.de

Project name:

Example drawing

Aeration OXIWORKS in earth basins

Content:

Drawing number:	Project number	Project phase	Type of drawing	Plant section	Serial no.	Sheet no.	Revision	Sheet:
	0002	1	2	00	1	1	A	1 of 1

Scale: 1:100, 1:25, 1:10, 1:5

ISO-Method 1

Legal information:
This drawing is our intellectual property. Without our permission, it may neither be altered, copied, nor misused in any other way. It is not allowed to be passed on to a third party without our authorisation.

Size: A1

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Parkson
Treating Water Right

biolac®

La Contenta, CA rev2

Preliminary Design Proposal

October **29,** 2024

To:	**Bob Godwin, P.E.**	**Date:**	**10/7/2024**
Company:	**Calaveras County Water District**	**From:**	**Robert Rolette**
Tel.:		**Tel.:**	**913-745-1234**
cc:	**Marty Unger, Brad Linsey, Kevin Bunting - Parkson** **Ross Tate, Brad Leidecker, Brian Villacorta (Coombs-Hopkins)**		
Subject:	**Parkson Biolac® Treatment System, Preliminary Design Proposal for La Contenta, CA - Upgrade**		

Thank you for your interest in Parkson's Biolac® Treatment System. Based upon the data provided for this project, we developed the Biolac® design described in this proposal. We believe that this Biolac® design not only meets effluent quality requirements, but also provides the most cost effective solution for this municipality.

We look forward to working with you on this project. Should you have any questions or need clarifications, please do not hesitate to contact me at (913) 745-1234. Thanks.

Sincerely,

PARKSON CORPORATION

An Axel Johnson, Inc. Company

Robert Rolette
Application Engineer
rrolette@parkson.com

1. Design Basis

1.1. Influent and Effluent Specifications

The proposed system design is based on wastewater influent with the following characteristics:

Table 1.1 – Design Influent flow requirements

PARAMETER	UNITS	AVERAGE
Start-Up Flow	MGD	0.24
		Phase 1
Max Month Flow– Design Flow	MGD	0.45
Max Day Flow	MGD	1.25
Peak Flow	MGD	1.80

Note: Customer must confirm these final design flows to assure accuracy of the hydraulic calculations.

Table 1.2 - Influent Water Quality

PARAMETER	UNITS	AVERAGE
Design Temperature	Deg C	20
Minimum Temperature	Deg C	10
		Phase 1
BOD_5	mg/L	200
Total Suspended Solids	mg/L	200*
TKN	mg/L	50*
NH_3-N	mg/L	35*
Total Phosphorous (TP)	mg/L	6*
pH	-	6 to 9*
Alkalinity	mg/L as $CaCO_3$	500*

**assumed*

Note: Customer must confirm Influent loading conditions for any associated process warranty.

In order to offer this proposal, Parkson Corporation must make the following assumptions. Deviations from these assumptions should be brought to the attention of the designer of this system as modifications maybe required:

a. The wastewater will be pretreated to remove debris and grit using a fine influent screen.

b. Sufficient alkalinity is present or will be added to allow nitrification to proceed uninhibited.

c. The incoming oil, grease, chemical and metals concentrations are within biologically treatable levels.

d. Sufficient nutrients (P, N, etc.) are present in the influent for biomass growth or will be added by the plant operating staff.

e. A qualified operator will supervise plant activities and performance.

Based on the specified influent water quality, Parkson anticipates that the proposed Biolac® system will provide the following effluent quality:

Table 1.3 - Effluent Water Quality

PARAMETER	UNITS	QUALITY
BOD_5	mg/L	10
Total Suspended Solids	mg/L	15
NH_3-N	mg/L	1
Total Nitrogen (TN)	Mg/L	10

1.2. Selected Design Parameters

Based on the design loading information described above, the proposed Biolac® System will be derived as follows:

F/M Ratio	**0.03**	**MLSS**	**3000 mg/l**
SRT	**40-50** days	**Plant Elevation** (above sea level)	750 ft

2. System Description

The Biolac® Biological Nutrient Removal System is an innovative complete mix activated sludge process using extended retention of biological solids to create an extremely stable and easily operated system. The Biolac® process can be applied to a wide range of wastewater treatment applications, whether for municipal application or industrial application. Biolac® has over 800 installations in North American and over 1000 installations globally.

Some of the advantages of the Biolac® BNR process include:

a. Economical construction: Most Biolac® systems are installed in earthen basins which reduces construction cost tremendously by eliminating the need for sophisticated concrete structures and complex piping systems for recycling.

b. Biolac® BNR systems are typically designed with a sludge age greater than 30 days. The extended sludge age provides stable operation, low sludge production, low production of well stabilized biosolids, and high effluent quality.

c. Economical process in terms of operation and maintenance cost.

d. Comprehensive electrical control system to optimize air delivery and provide peace of mind to plant operator.

e. Utilization of fine bubble aeration using extremely high mixing efficiency of 4 CFM per 1000 ft^3 which is over 50% improvement in comparison to the mixing efficiency achieved by stationary fine bubble diffusers.

f. Ease of aeration expansion capability simply by adding additional Biofuser® tubes to modules.

g. Biological nutrient removal is implemented using the Wave-Ox™ design by Parkson's process experts. The Wave-Ox™ process is designed to achieve sequential nitrification / denitrification which results in oxygen and alkalinity recovery and translates into an energy efficient and stable operation.

h. Integral clarifier design using common walls with the Biolac® basin, designed to make the most efficient use of the available footprint.

i. Elimination of the need to drain the aeration basin(s) with the Biolac® system since all components can be cleaned and maintained from the surface.

The Biolac® process is characterized by excellent BOD removal, complete nitrification, enhanced denitrification, and biosolids stabilization. It uses fine bubble membrane diffusers attached to floating aeration chains, which are moved across the basin propelled by the air release from the diffusers. The moving aeration chains equipped with the Biofuser® diffuser assemblies provide efficient mixing of the basin contents as well as high oxygen transfer at low energy usage.

The Biofuser® system does not have submerged aeration piping or any other components to be installed, leveled, or secured on the basin floor. The BioFlex® chains with BioFusers do not contact or harm the basin liner. Each BioFlex® chain can be individually controlled by independent air valve providing excellent flexibility in fine-tuning the system to meet the oxygen demand. The individual control capability of the BioFlex chains is used to create alternating oxic and anoxic zones (Wave-Ox™) to allow denitrification in a single basin without internal mixed liquor recycle or complex controls. The moving aeration chain design is not mixing limited so the horsepower required for mixing is typically half of that required for aeration. A turndown capability of 50-70% during low loaded periods is typical without sacrificing mixing due to the movement of the BioFlex aeration chains. Inspection and service of the BioFusers is done quickly and easily without dewatering the basin, keeping maintenance costs low and eliminating the need for redundant aeration basins. In case of cold climates, the fine bubble diffusion beneath the water surface eliminates icing and minimizes wastewater cooling.

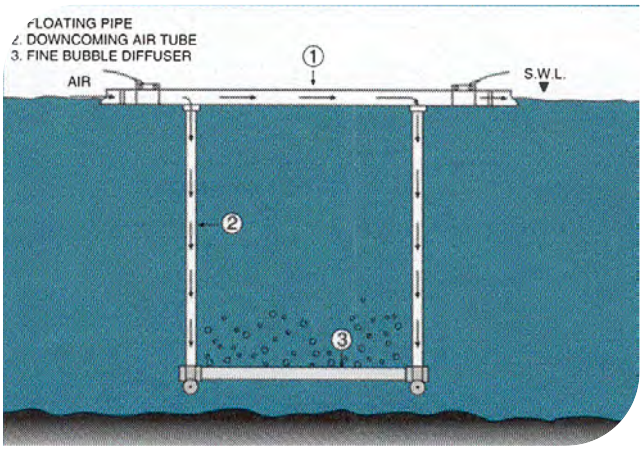
Earthen basins can be used rather than expensive concrete tanks making this extended aeration/activated sludge design the lowest cost alternative available on the market. Integral clarifier(s) are installed using common-wall construction with the extended aeration basin to settle and recycle the stable extended aeration solids.

3. System Components

The Biolac® aeration system consists mainly of suspended aeration chains, fine bubble diffusers, motorized and controlled air valves, clarification equipment, blowers and automatic electrical control system.

3.1. Moving Aeration Chain System

The moving aeration chain suspends fine bubble diffusers near the bottom of the basin. The aeration system is designed so that there are no points of attachment to the bottom of the basin. The aeration system is completely suspended above the basin bottom and is not supported or rested on the bottom. This arrangement allows for ease of access for service and maintenance without dewatering the basin or having a complete aeration system shut down.



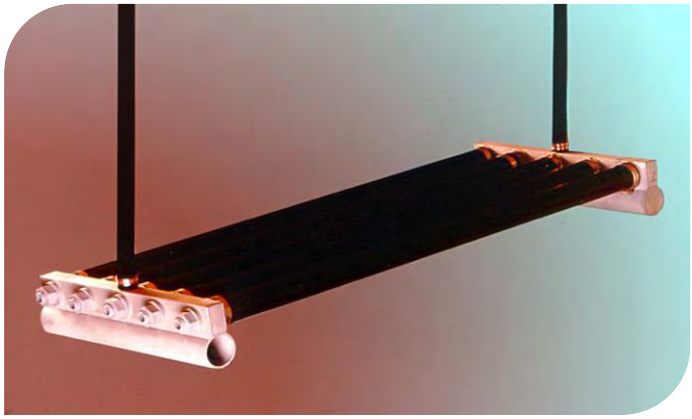
The aeration chain system is designed to be self-propelled and to move back and forth systematically in the wastewater to provide high mixing efficiency of the basin's content. This capability is critical to allow turndown flexibility in the aeration system while maintaining a completely mixed environment.

Air is delivered to each aeration chain from one side and connects to the air main through individual branches with butterfly valves. The butterfly valve provides individual control or isolation of the airflow to each chain.

The moving aeration chain is constructed of a single continuous polyethylene header. The moving aeration chain is connected to the Biofuser® by EPDM hose.

3.2. Diffuser Frame

The diffuser frame is formed from an extruded polypropylene compound with sufficient strength to prevent warping or deflection. The end connections of each frame shall be sealed using mechanical welding procedures providing a connection stronger than the unwelded tube.



The suspended air diffuser assembly consists of a fully functioning unit capable of housing up to five (5) diffuser tubes total.

3.3. System Integral Clarifier

The existing Biolac® system includes an integral clarifier. The integral clarifier is located downstream of the Biolac® system. The clarifier is typically designed using conventional solids and hydraulic loading rates.

Each clarifier has a flocculating rake mechanism which consists of a drive assembly and non-drive / pulley assembly.

The sludge removal system includes an airlift pump and a sludge suction pipe and the Return Sludge will flow by gravity upstream of the Biolac® basin. The sludge suction piping for removing the settled solids from the clarifier is located along the length of

the clarifier hopper bottom. Holes are placed along the length of the suction pipe for uniformal removal of the sludge.

Each integral clarifier includes a fixed overflow weir to control the liquid level in the clarifier and Biolac® basin as well as control the flow to the effluent pipe.

A scum baffle is included in the integral clarifier as well to prevent floating objects from passing over the overflow weir.

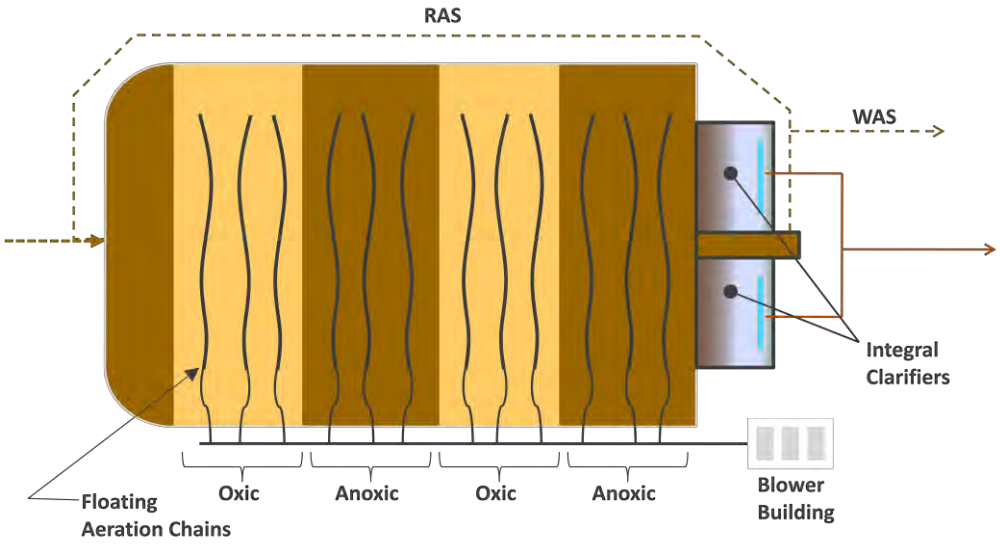
3.4. Aeration Design

a. The estimated air and energy requirements and the number of BioFlex© moving aeration headers and Biofuser® units estimated are given in Table 1. A typical BioFlex aeration header and Biofuser® assembly is shown in Drawing SD23 and SD-37.

b. The required air for Biolac® basin will be supplied by two (2), 25 Hp (Phase 1). One (1) additional blower is provided as an installed spare. Less than one (1) blower is necessary for mixing. Therefore, it is possible to operate one blowers and cut energy usage substantially during periods of low load, such as nighttime operation. The blowers are expected to be located on a concrete pad next to the aeration basins or in a blower building as dictated by local requirements.

4. Wave-Ox™ Biological Nutrient Removal

Biological Nutrient Removal (BNR) is simplified and affordable with the Biolac® Wave Ox™ process. Simple control of the air flow distribution to the Biolac's moving aeration chains varies the basin dissolved oxygen content by creating a unique moving wave of multiple oxic and anoxic zones. This repeated cycling of environments nitrifies and denitrifies the wastewater without recycle pumping or additional external basins.



Biological phosphorus removal can also be accomplished by incorporating an upstream anaerobic zone.

The Biolac Wave-Ox™ process not only produces BNR effluent quality with low effluent total nitrogen and total phosphorus, but also includes main features such as

- Single basin BNR process resulting in major construction costs savings by eliminating the need for baffle walls to create independent zones.
- Reduced energy consumption by eliminating the need for internal recycle pumps and mixers for anoxic zones

5. Biolac® Treatment System Preliminary Design Information

Biolac Extended Aeration Basin	
Number of Biolac® Basin(s)	1
Approximate Dimensions at Grade (ft)	148 x 86
Approximate Bottom Dimensions (ft)	128 x 47
Side Slope	1.5:1
Side Water Depth (ft)	10
Basin Volume (MG)	0.62
Clarifier Design Hydraulic Loading Rate (gpd/ft^2) (ADF/PHF)	218/874
Clarifier Design Solids Loading Rate (lbd/ft^2) (ADF)	21
Clarifier Design Weir Loading Rate (gpd/ft) (ADF/PHF)	5000/20000
Integral Clarifier Size (ft)	90 x 23 ea.
Number of Clarifiers per basin	1
Estimated SOR (lbs/hr) **Oxidation-only** **Wave Oxidation (including denite credit)**	 199 118
Estimated SCFM (excluding airlift requirements) **Oxidation-only** **Wave Oxidation (including denite credit)**	 1185 716
Estimated Brake HP (excluding airlift requirements) **Oxidation-only** **Wave Oxidation (including denite credit)**	 41 25
# Diffusers	216
# Biofuser® Assemblies	54
# BioFlex© Headers	9

6. Equipment and Services Supplied

Parkson will supply the following equipment and services for the Biolac® treatment system described above:

Buildout (ONLY NEW BASIN)

- Complete BioFlex® moving chains for only the new basin, with BioFuser® aeration units including, reinforced hi-temperature connecting hose, HDPE piping, restraining cable system and required hardware.
- Electric motor actuated butterfly valves for individual control of each BioFlex aeration chain. valves for individual control of each BioFlex aeration chain.
- Qty three (3) complete, 25 Hp, blower assemblies (PD blowers) including motor and required backflow prevention valves, pressure gauges and accessories (includes one installed spare blower for redundancy). Blower proposed are only for the new basin.
- One (1) EZClear clarifier equipment for the new basin, including biosolids removal piping, sludge suction pipe, flocculating mechanism with single side skimming features, scum removal pipe and overflow weir. Internal components for existing clarifier for basin #1 are EXCLUDED and will be reused.
- Two (2) Submersible Centrifugal Pumps shall be provided for RAS (one as spare). Each pump will be selected to deliver 468 GPM at a total pump head of 15 ft. Each pump will be furnished complete with elbow discharge connection, 30 ft. power cable, thermal overload / seal failure protection, retrieval guide rails and guide rail brackets, stainless steel lifting cable, and a 10 Hp, 460 volt, 3 ph, 60 hz, submersible motor.
- Three (3) modulating 4" electric actuating plug valves.
- One (1) dissolved oxygen probes and analyzers.
- PLC based remote-mounted control system with HMI for operation of the Biolac® Wave-Ox™ System and clarifiers for both basins, including control enclosure, VFDs, relays and control switches for all motors, and components in the system.
- Final installation inspection, start-up supervision and operator training.

7. Cost Estimate and Term

a. The budget price for the equipment and services supplied is

New Basin Equipment .....$

Clarifier Option 1 (Two integral clarifiers, each sized for half flow).....$

Clarifier Option 2 (Two integral clarifiers, each sized for full flow) .....$

Clarifier Option 3 (Clarifier By others) .....$

FOB Factory, Freight Allowed.

b. Terms are 90% net 30, 10% upon startup.

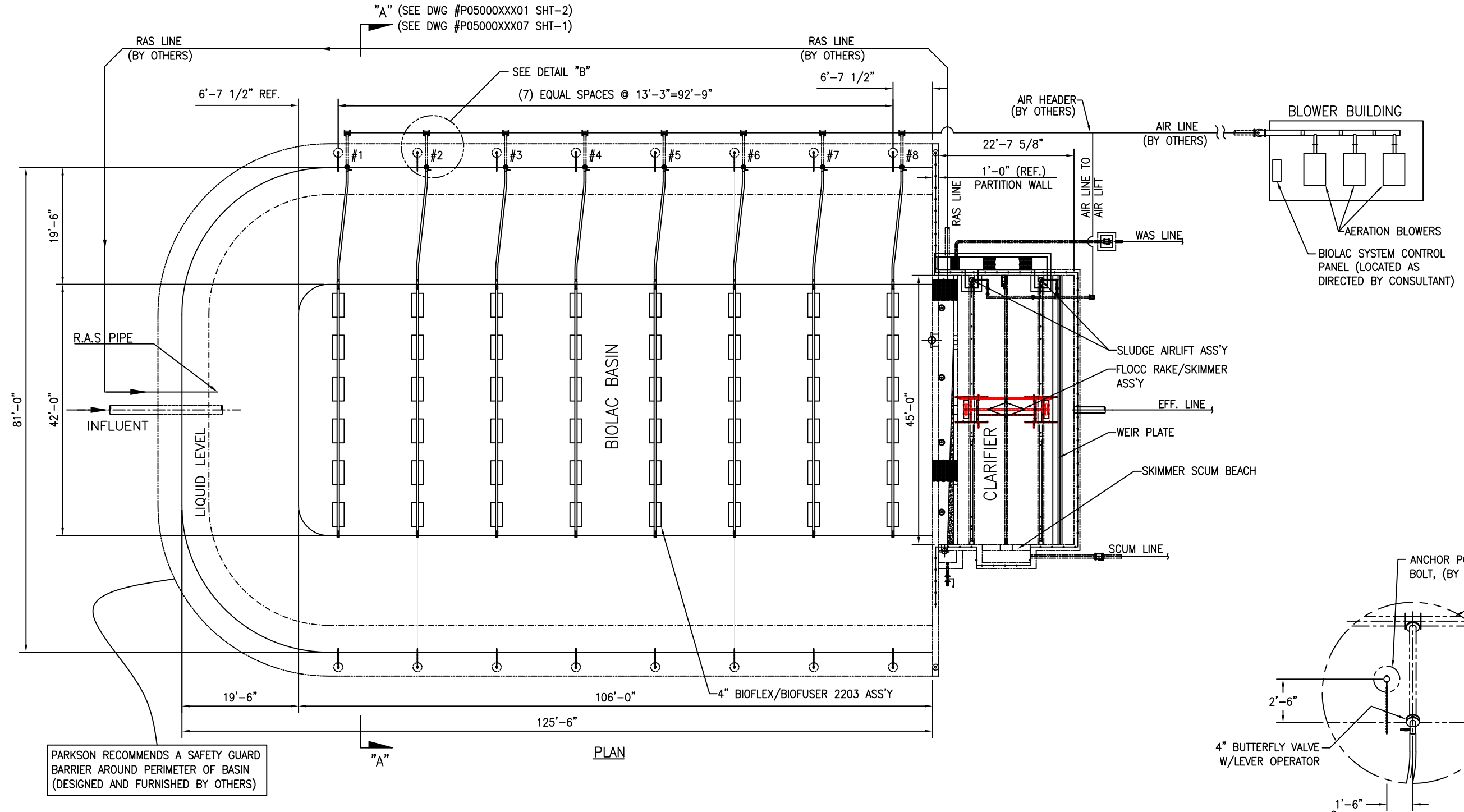
c. Approval drawings-typically 8-12 weeks after receipt of written order.

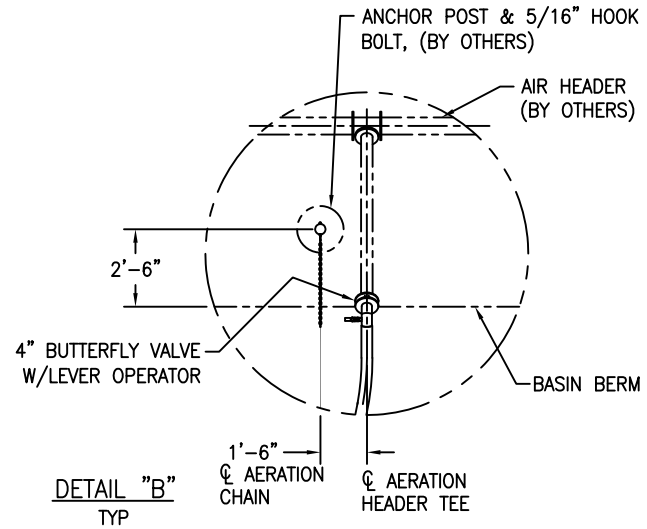
d. Equipment Shipment - typically 16-20 weeks after complete release for manufacture.

Alternative	Parkson
A. Single full-flow integral clarifier	$795,000
B. Two integral clarifiers, each at 50% Q	$835,000
C. Two integral clarifiers, each at 100% Q	$895,000
D. Clarifier by others	$715,000

NOTES:

1. CIVIL AND CONCRETE DESIGN NOT BY PARKSON.
2. REFER TO DRAWING P05000XXX01 SHT-2 FOR GENERAL ARRANGEMENT SECTIONS AND DETAILS.
3. REFER TO DRAWING P05000XXX01 SHT-3 FOR CLARIFIER LAYOUT.
4. REFER TO DRAWING P05000XXX01 SHT-4 FOR CLARIFIER SECTIONS.
5. REFER TO DRAWING P05000XXX07 SHT-1 FOR 4" BIOFLEX/BIOFUSER 2203 ASSEMBLY.





DETAIL "B"
TYP

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CHECKED BY	DATE
MR	04/04/17
SCALE	SIZE
NTS	B

Parkson™

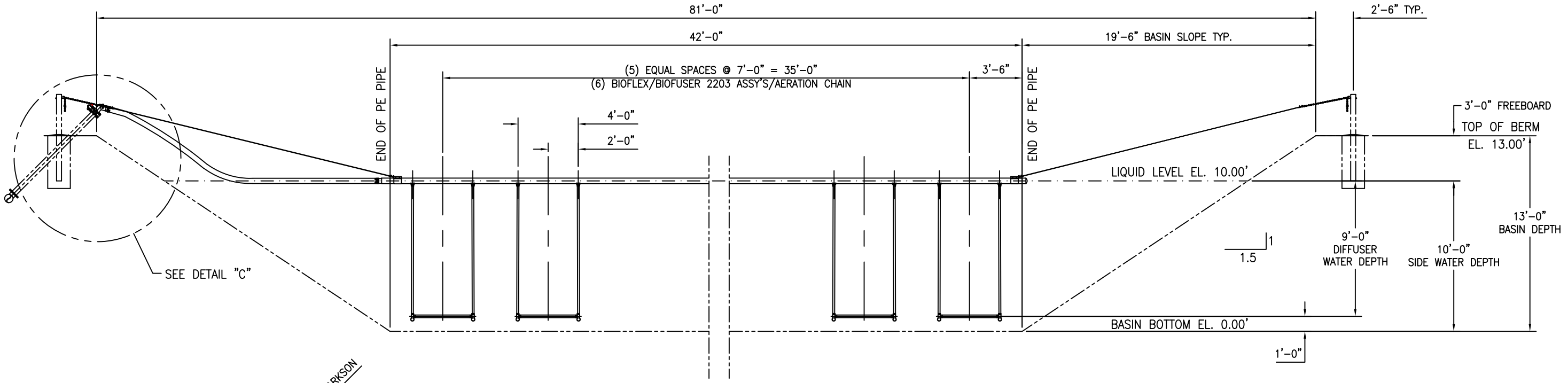
PROJECT NAME
PROJECT NUMBER P05000XXX
OAK GROVE, LA

TITLE
BIOLAC (R) SYSTEM
GENERAL ARRANGEMENT

REFERENCE INFORMATION

DRAWING NO
P05000XXX01
SHEET 1 OF 4

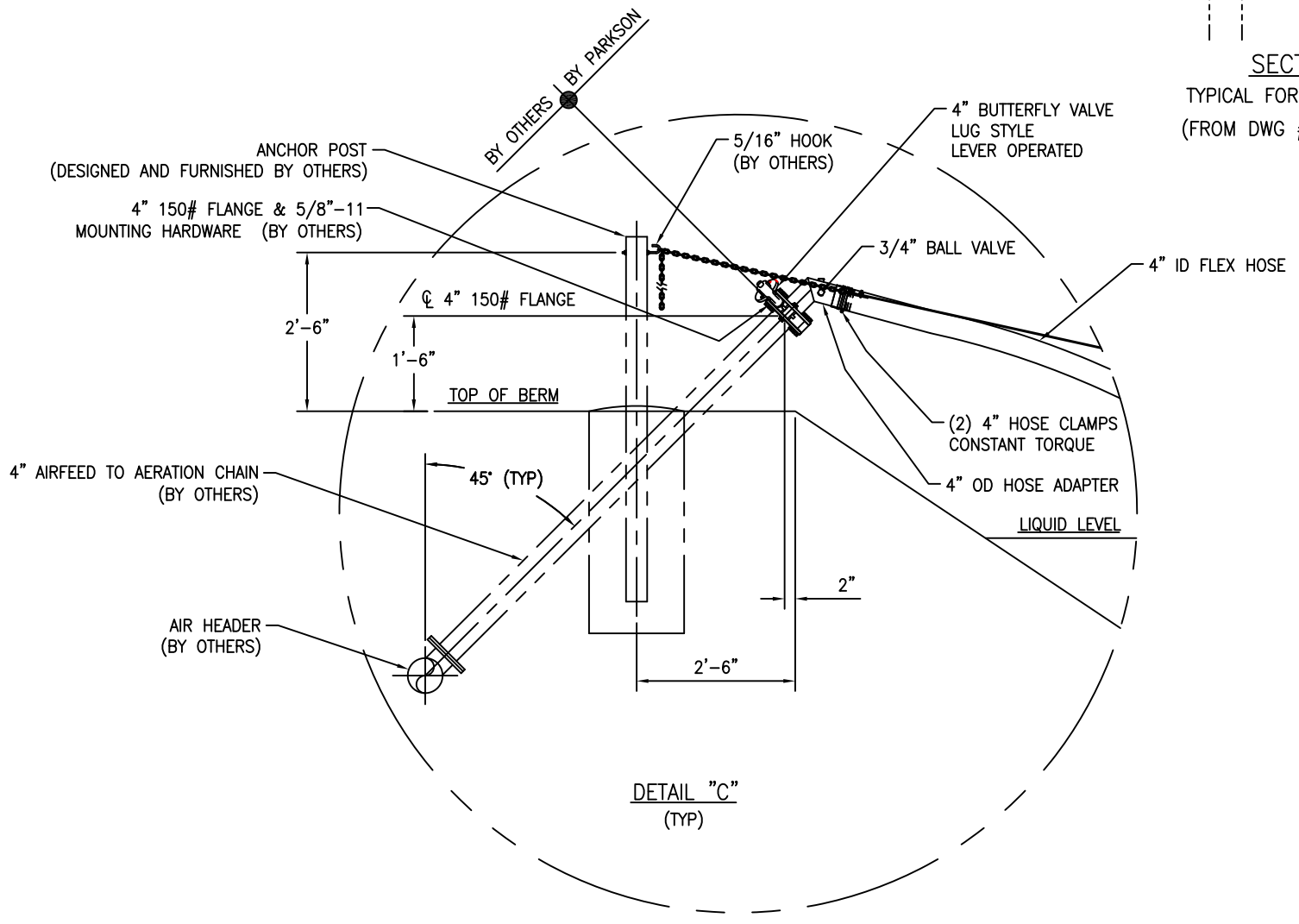
REV
0



SECTION "A"–"A"

TYPICAL FOR ALL AERATION CHAINS

(FROM DWG #P05000XXX01 SHT–1)



DETAIL "C"

(TYP)

NOTES:

1. CIVIL AND CONCRETE DESIGN NOT BY PARKSON.
2. FOR GENERAL ARRANGEMENT SEE DWG #P05000XXX01–1.

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CHECKED BY	DATE
MR	04/04/17
SCALE	SIZE
NTS	B

Parkson™

PROJECT NAME: PROJECT NUMBER P05000XXX
OAK GROVE, LA

TITLE: BIOLAC (R) SYSTEM
SECTION "A–A" & DETAIL "C"

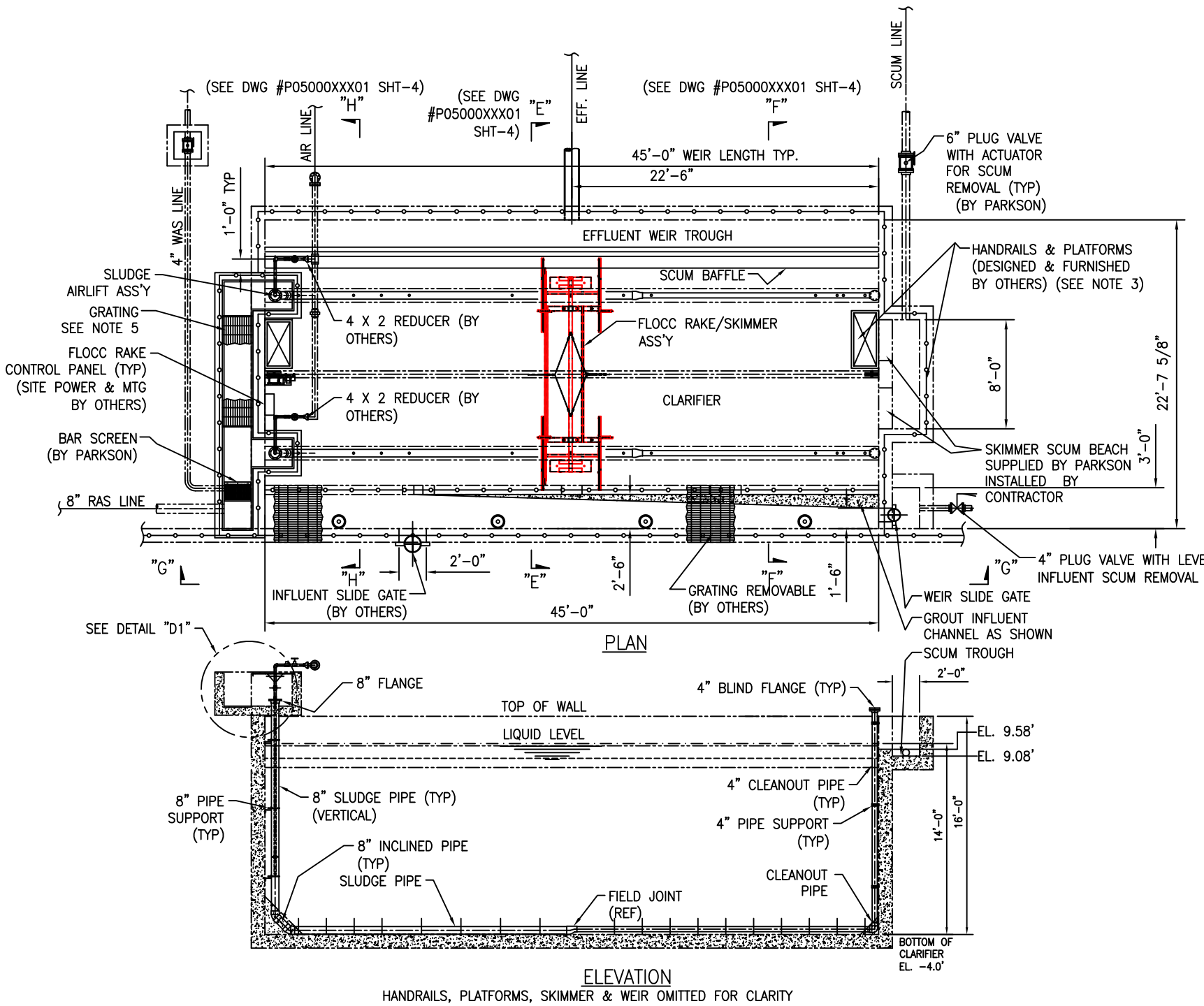
REFERENCE INFORMATION

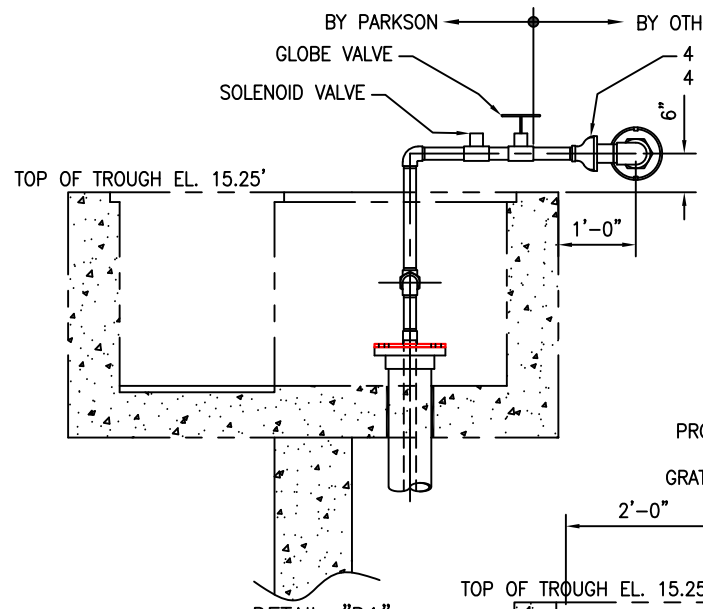
DRAWING NO: P05000XXX01 SHEET 2 OF 4

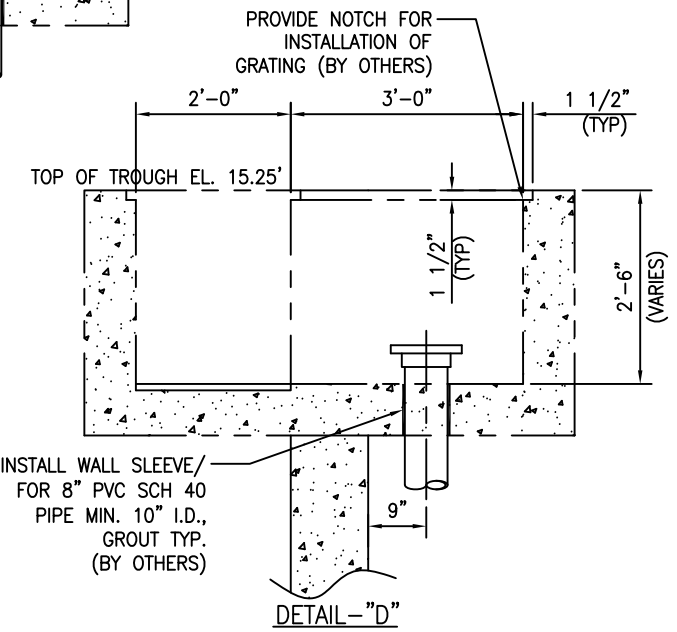
REV: 0

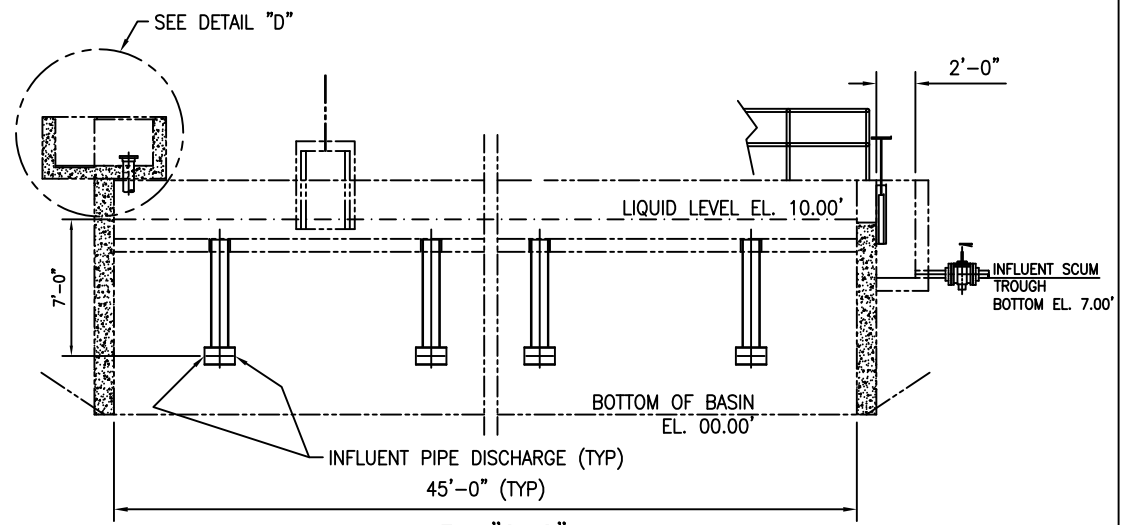
NOTES:

1. CIVIL AND CONCRETE DESIGN NOT BY PARKSON.
2. SERVICE WATER FOR CLARIFIER MAINTENANCE RECOMMENDED.
3. PARKSON CORP. RECOMMENDS INSTALLATION OF OSHA APPROVED HANDRAILS AND PLATFORMS FOR MAINTENANCE & SAFETY W/ KICKPLATES ATTACHED TO HANDRAILS TO PREVENT DEBRIS FROM ENTERING CLARIFIER. (DESIGNED AND FURNISHED BY OTHERS)
4. ALL PIPING WALL SLEEVES, AS REQUIRED, PROVIDED BY OTHERS.
5. GRATING (BY OTHERS) TO BE DESIGNED W/REMOVABLE SECTION OVER SCREEN AND SUMP FOR MAINTENANCE ACCESS.









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NTS	B

Parkson™

PROJECT NAME
PROJECT NUMBER P05000XXX
OAK GROVE, LA

TITLE
BIOLAC (R) SYSTEM
CLARIFIER LAYOUT & VIEW "G-G"

REFERENCE INFORMATION

DRAWING NO
P05000XXX01
SHEET 3 OF 4

REV
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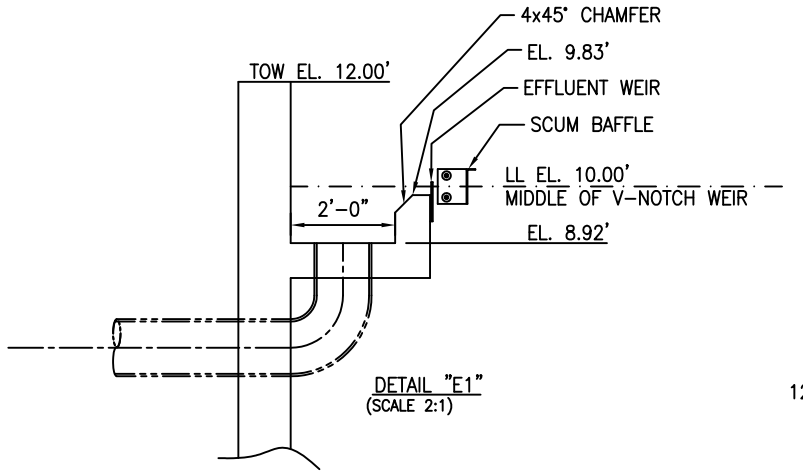
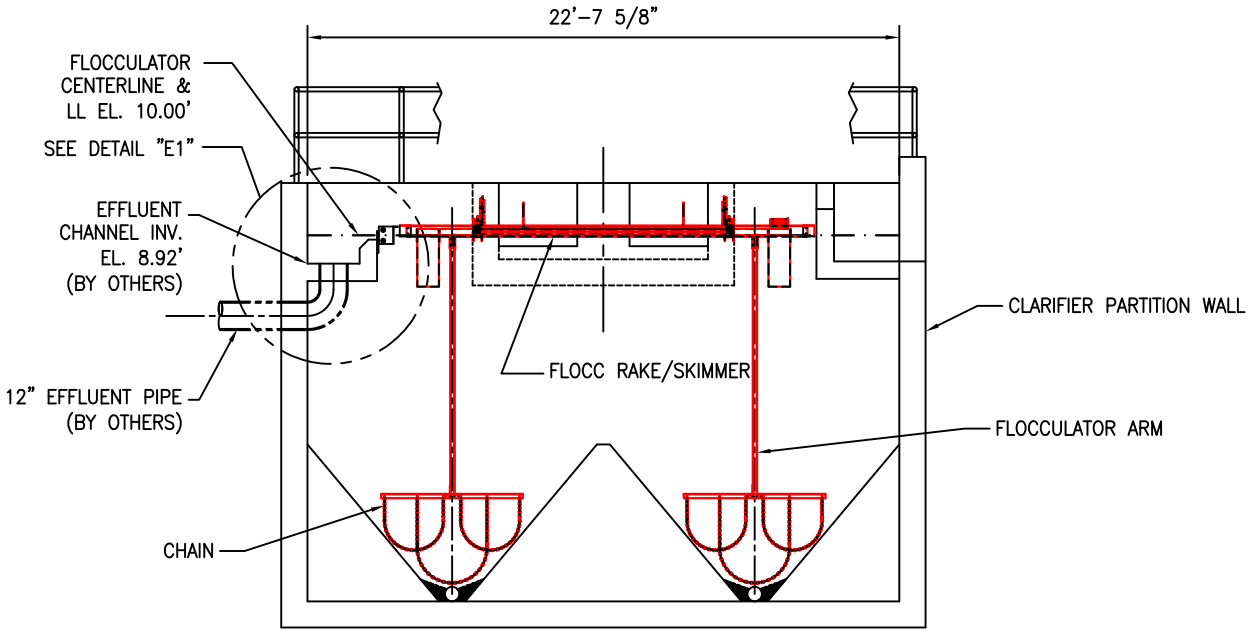
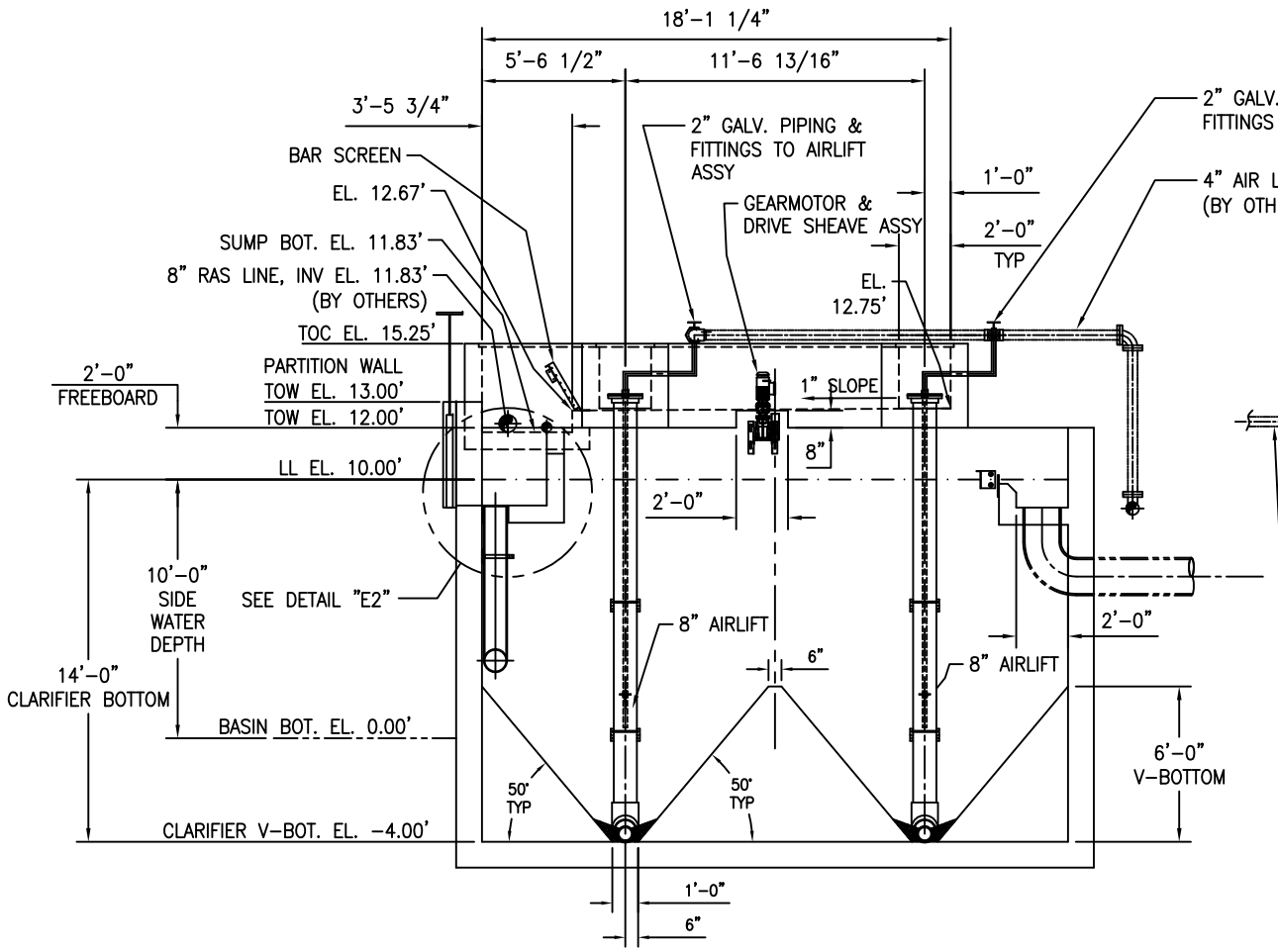


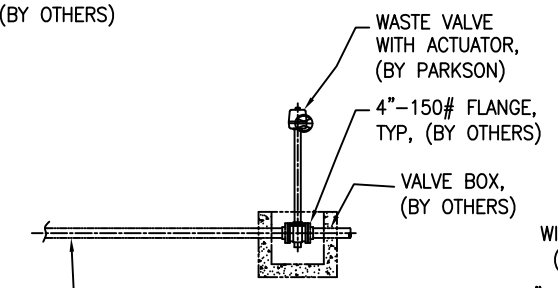
DETAIL "E1"
(SCALE 2:1)

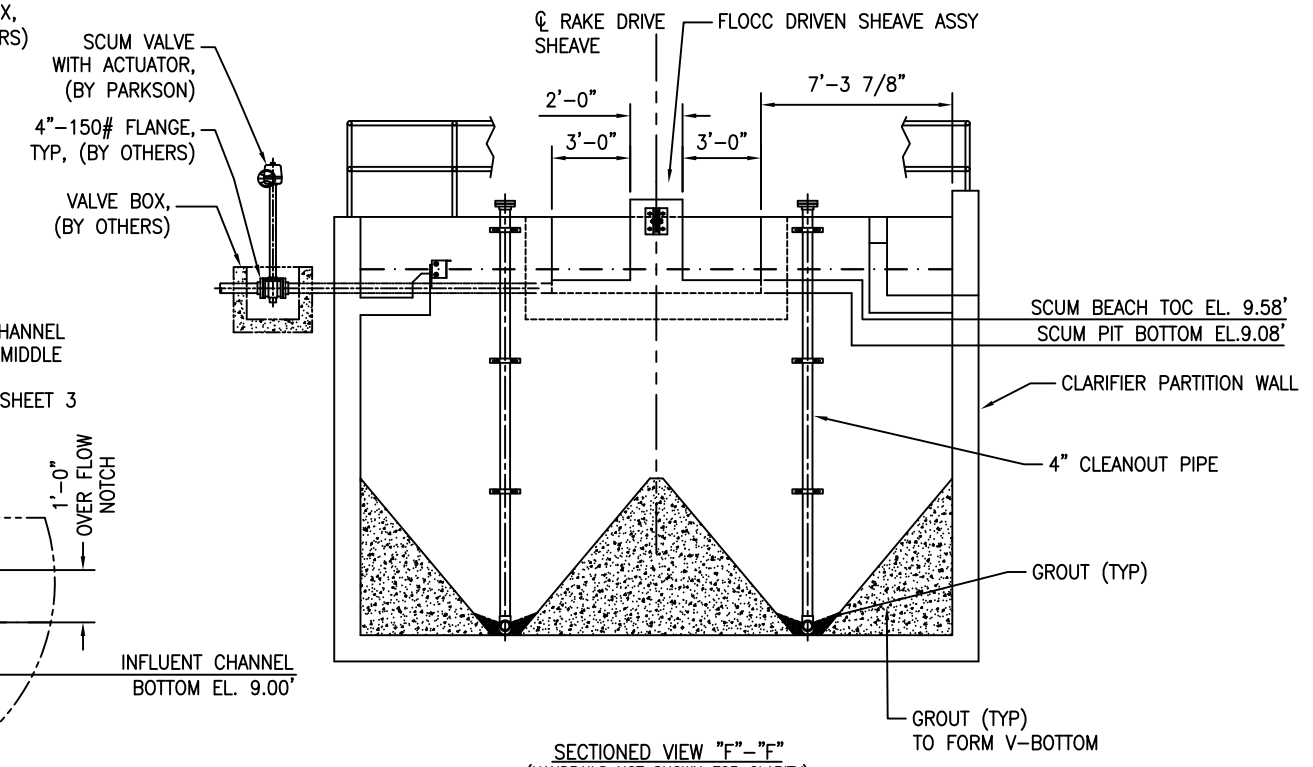


SECTIONED VIEW "E"–"E"
(MAINTENANCE PLATFORM NOT SHOWN FOR CLARITY)
(FROM DWG #P05000XXX01 SHT-3)

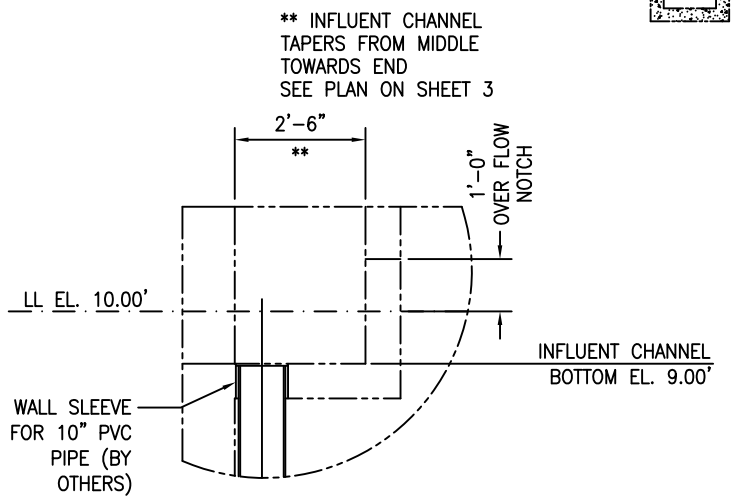


SECTIONED VIEW "H"–"H"
(HANDRAILS & MAINTENANCE PLATFORM NOT SHOWN FOR CLARITY)
(FROM DWG #P05000XXX01 SHT-3)





SECTIONED VIEW "F"–"F"
(HANDRAILS NOT SHOWN FOR CLARITY)
(FROM DWG #P05000XXX01 SHT-3)



DETAIL "E2"
(SCALE 2:1)

NOTES:

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CHECKED BY	DATE
MR	04/04/17
SCALE	SIZE
NTS	B

Parkson™

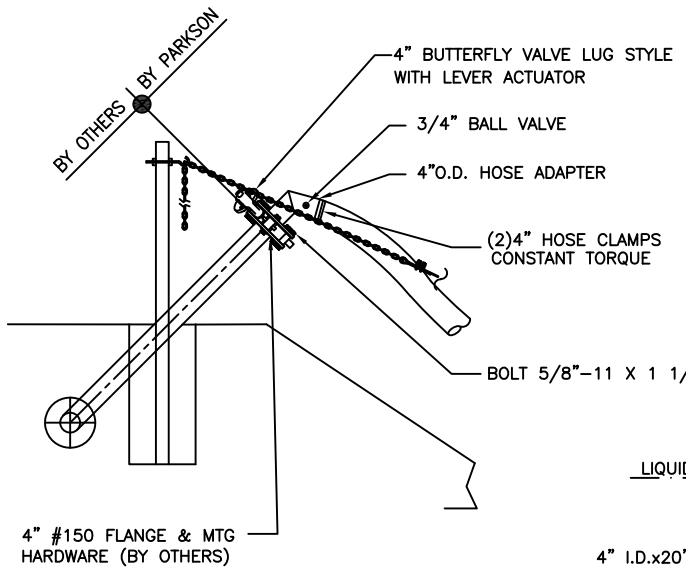
PROJECT NAME
PROJECT NUMBER P05000XXX
OAK GROVE, LA

TITLE
BIOLAC (R) SYSTEM
CLARIFER SECTIONS

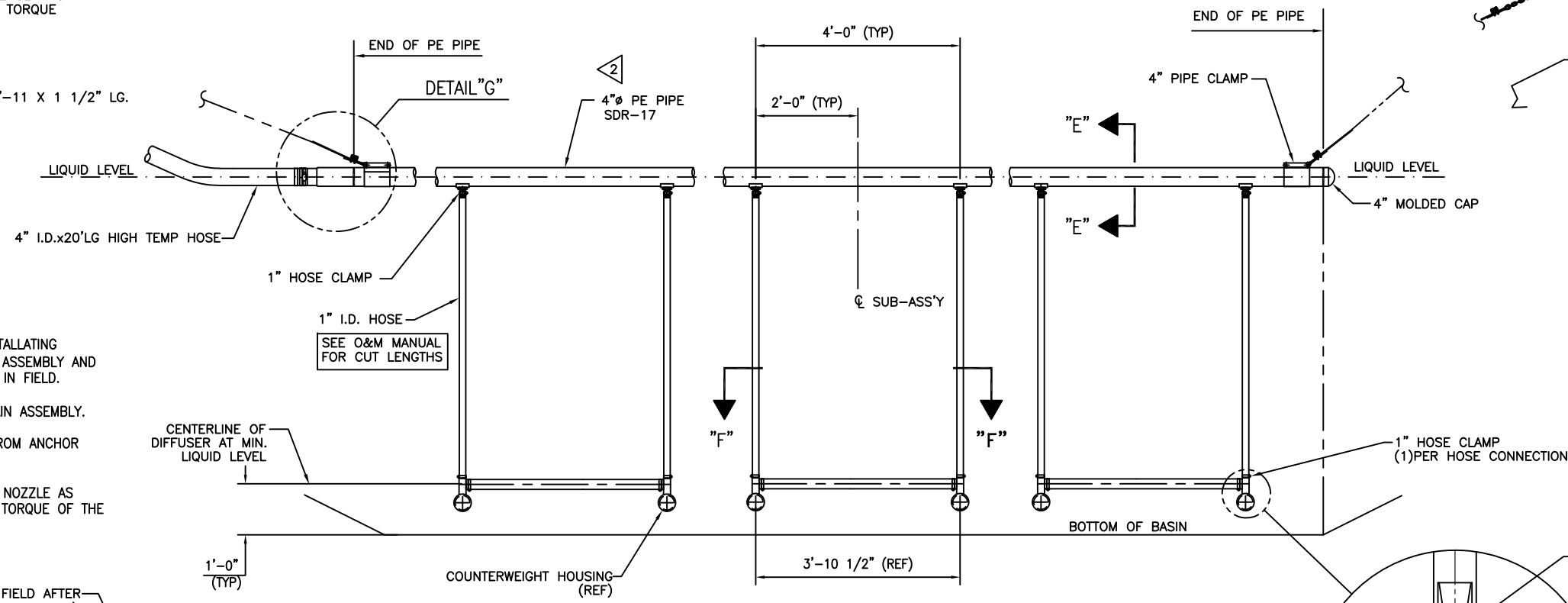
REFERENCE INFORMATION

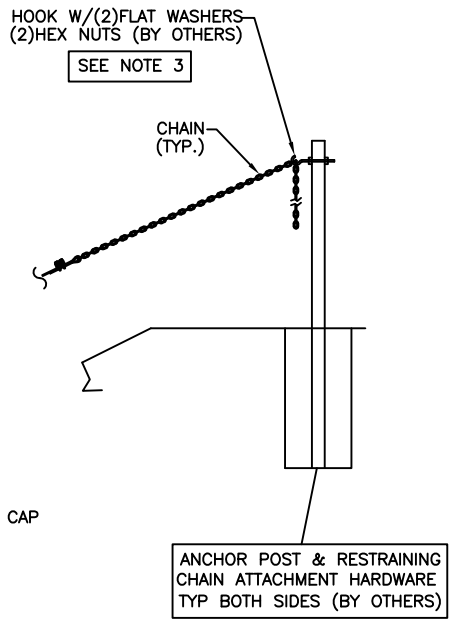
DRAWING NO
P05000XXX01
SHEET 4 OF 4

REV
0



VALVE MUST BE INSTALLED WITH DISC IN FULLY OPEN POSITION

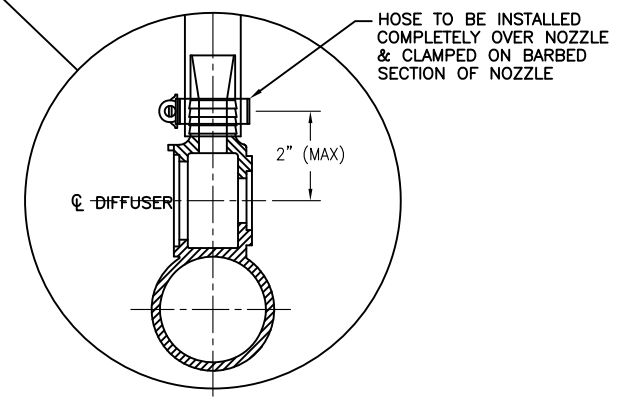


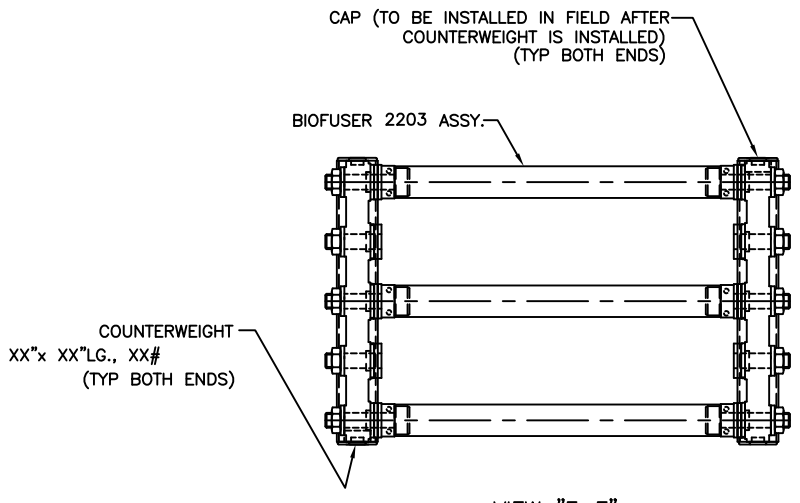


NOTES:

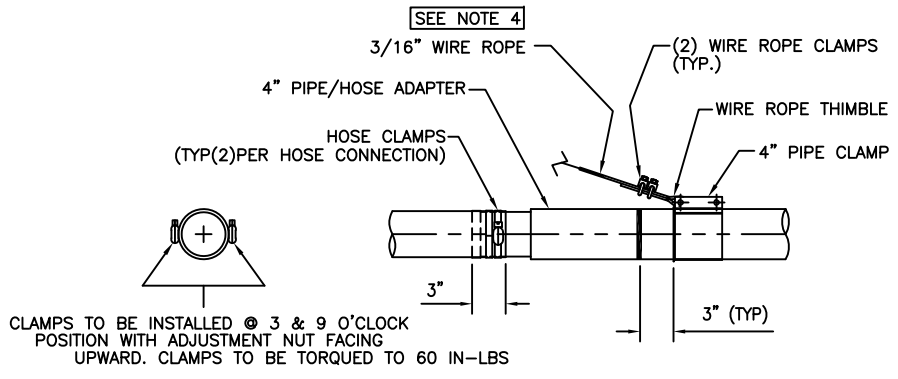
1. CIVIL AND CONCRETE DESIGN NOT BY PARKSON.
2. POLYETHYLENE PIPE TO BE SHIPPED IN 40' LENGTHS. INSTALLATING CONTRACTOR TO DRILL ø1-1/4" HOLES FOR DOWNCOMER ASSEMBLY AND FUSION WELD PIPE AND FITTINGS FOR REQUIRED LENGTHS IN FIELD.
3. REFER TO DRAWING P05000XXX07 SHT-2 FOR CABLE/CHAIN ASSEMBLY.
4. WIRE ROPE CUT LENGTH EQUALS HORIZONTAL DISTANCE FROM ANCHOR POST TO END OF PE PIPE MINUS 2'-0".
5. IT IS EXTREMELY IMPORTANT TO INSTALL THE DOWNCOMER NOZZLE AS INDICATED TO AVOID POTENTIAL LEAK. PROPER SEATING & TORQUE OF THE DOWNCOMER, GASKET, BEVEL WASHER & NUT IS CRITICAL.
6. REFER DRAWING 0900001 FOR ITEMS 10 TO 90.

SECTION "A-A"
4" BIOFLEX/BIOFUSER 2203 ASS'Y
FROM DWG #P05000XXX01 SHT. #1
TYP FOR AERATION CHAINS

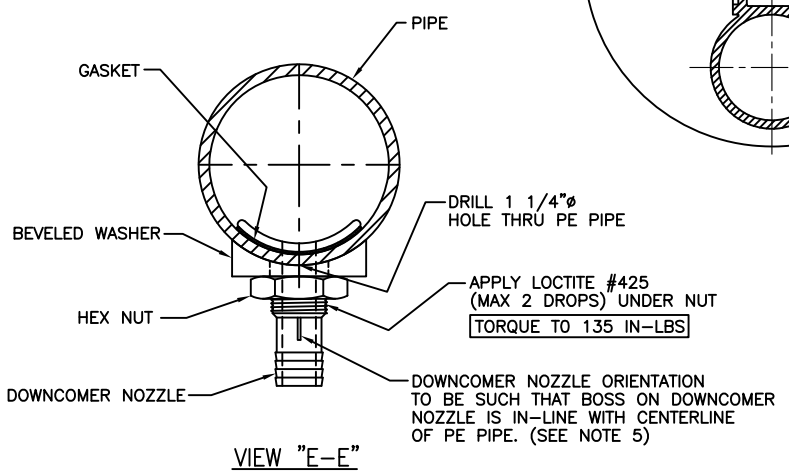




VIEW "F-F"
BIOFUSER 2203 ASSEMBLY TO BE FIELD ASSEMBLED



SIDE VIEW



DETAIL "G"

VIEW "E-E"

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REV	DESCRIPTION	DATE	BY

X PRELIMINARY __ APPROVAL

__ INFORMATION __ CERTIFIED

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DRAWN BY	DATE
RAGHU	04/04/17
CHECKED BY	DATE
MR	04/04/17
SCALE	SIZE
NTS	B

Parkson™

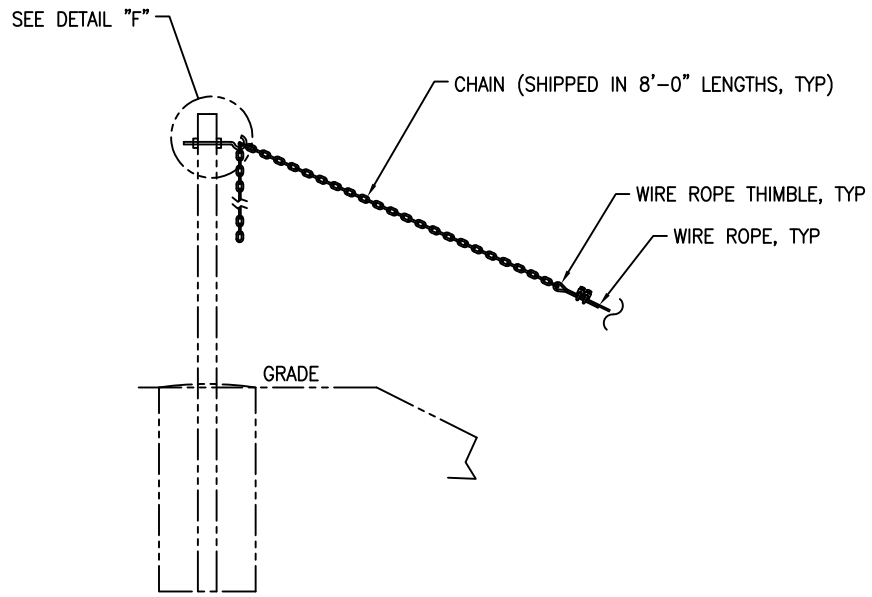
PROJECT NAME
PROJECT NUMBER P05000XXX
OAK GROVE, LA

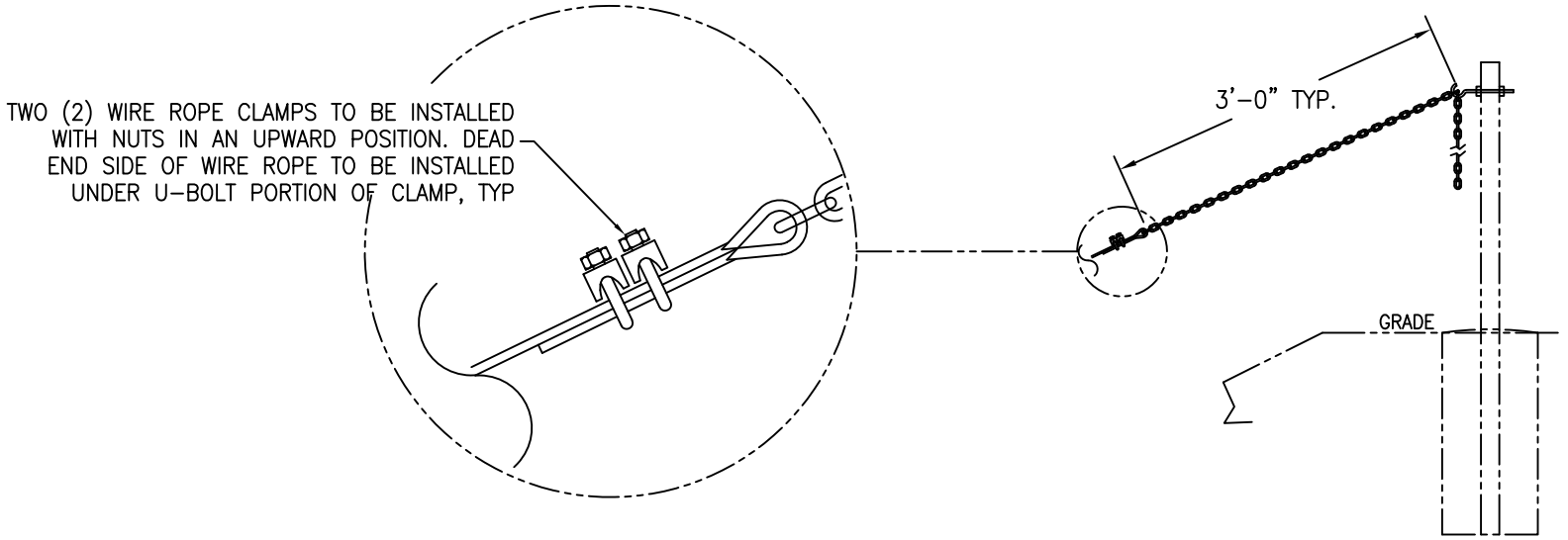
TITLE
BIOLAC (R) SYSTEM
4" BIOFLEX/BIOFUSER
2203 ASSY

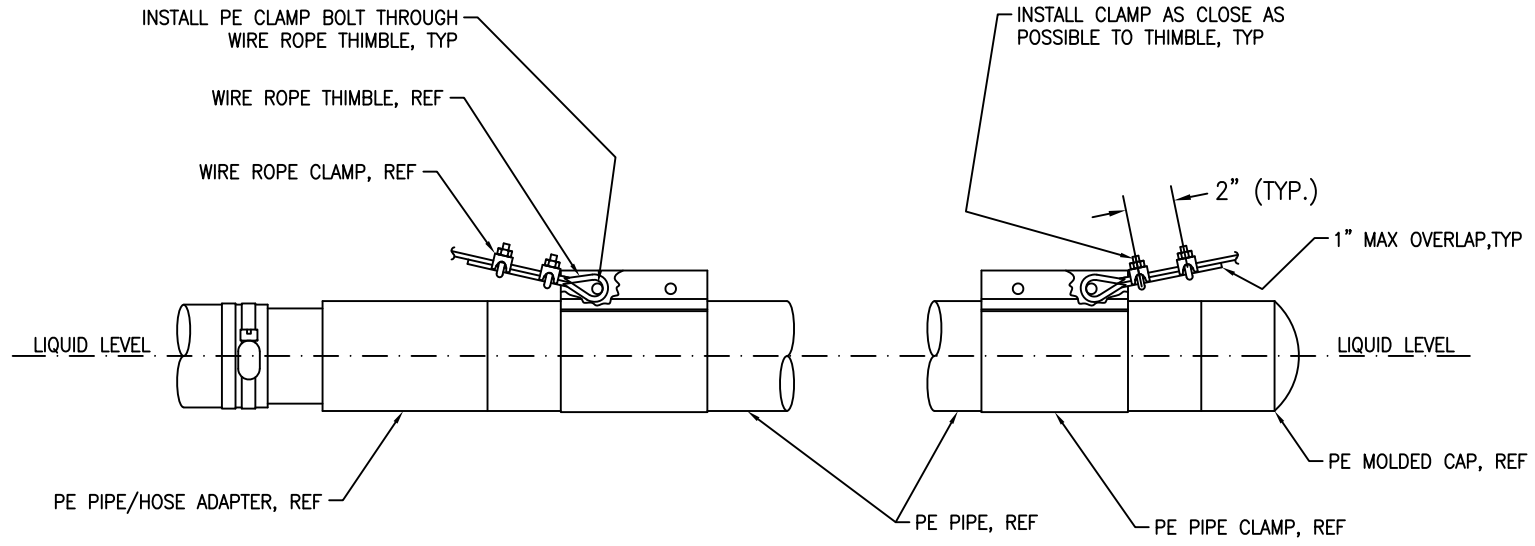
REFERENCE INFORMATION

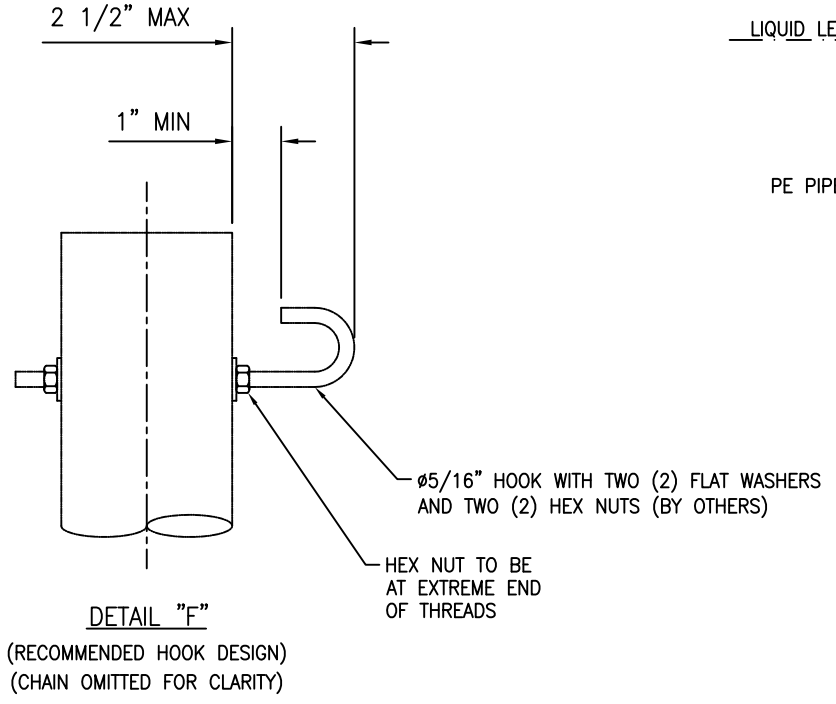
DRAWING NO
P05000XXX07
SHEET 1 OF 2

REV
0









DETAIL "F"
(RECOMMENDED HOOK DESIGN)
(CHAIN OMITTED FOR CLARITY)

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REV	DESCRIPTION	DATE	BY

X PRELIMINARY __ APPROVAL

__ INFORMATION __ CERTIFIED

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DRAWN BY	DATE
RAGHU	04/04/17
CHECKED BY	DATE
MR	04/04/17
SCALE	SIZE
NTS	B

Parkson™

PROJECT NAME
PROJECT NUMBER P05000XXX
OAK GROVE, LA

TITLE
BIOLAC SYSTEM
CHAIN & CABLE ASSY

REFERENCE INFORMATION

DRAWING NO
P05000XXX07
SHEET 2 OF 2

REV
0

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APPENDIX D

Calaveras County Water District
Secondary Clarifier Design Calculations and Budgetary Proposal

Proposal

La Contenta WWTF

Calaveras County, California

Representative
Dan Whittemore
MISCOwater
Pleasanton, California
(925) 225-1900
dwhittemore@miscowater.com

Engineer
HydroScience Engineers, Inc.
Sacramento, California
(916) 364-1490

Contact
Matthew Swaney
mswaney@westechwater.com
(801) 290-1910

Matt Pearson
mpearson@westech-inc.com
(801) 290-5772

Proposal: 2460412.B_Rev0
Wednesday, October 9, 2024

WesTech®

Swire Water

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Pricing
Payment Terms
Schedule
Freight

Warranty

Terms and Conditions

Item A – One (1) 30' Diameter Clarifier Mechanism, Model COPS4G

General Scope of Supply

Item	Unit	Value/Description
Number of Mechanisms	Each	1
Application	-	Activated Sludge Secondary
Tank Diameter	ft	30
Tank Side Wall Depth	ft	14
Tank Side Water Depth	ft	12
Tank Bottom Slope	-	2.75:12
Average Flow Rate	MGD	0.237
Design Flow Rate	MGD	0.473
Max Flow Rate	MGD	0.7885
Peak Flow Rate	MGD	1.262
Influent MLSS Concentration	mg/L	3000
SVI	mL/g	130**

**Assumed Values

see updated dimensions - separate file

Detailed Scope of Supply – Each Mechanism Includes the Following

Item	Qty	Size/Description	Material
Walkway Bridge	1	36" wide Full Diameter Beam Bridge	Steel
Walkway Handrail	-	2 Rail Component Handrail, Pop Rivet	Aluminum
Walkway Flooring	-	1.25" Grating	Aluminum
Drive Platform	1	24" Minimum Drive Clearance	Steel
Platform Handrail	-	2 Rail Component Handrail, Pop Rivet	Aluminum
Platform Flooring	-	0.25" Checker Plate	Aluminum
Influent Pipe	1	16" dia. sch. 40 pipe & supports	Steel
Drive Shaft	1	8" Dia.	Steel
Dual Gate EDI	1	4' dia. x 2.5' deep x 0.1875" plate	Steel
Feedwell	1	10' dia. x 5' deep x 0.1875" plate	Steel
Full Radius Rake Arms	2	Box Truss w/ Spiral Scrapers	Steel
Skimmer Blade & Supports	2	Extends from feedwell to hinged skimmer	Steel
Hinged Skimmer Assembly	2	With neoprene wipers	HDG/304 SS/Alum
Scum Box & Supports	1	3' Scum Box	Steel
Scum Flushing Valve	1	Skimmer Actuated	Polymer/SS
Effluent Weir	1	9" deep x 0.25" thick	FRP
Scum Baffle & Supports	1	12" deep x 0.25" thick	FRP
Electrical Control Panel	1	NEMA 4X	304 SS
Drive Unit	1	See Drive Unit Table for description	
Anchor Bolts & Fasteners	-	-	304 SS

Electrical Control Panel

The clarifier controls will be housed in a single NEMA 4X, wall-mount, stainless steel enclosure with painted steel back panel, and mounting feet. Hand/Off/Auto switch, run light, motor overload light, drive cutout light, alarm silence and reset pushbuttons are provided on the door. The panel will contain a magnetic combination motor starter with externally reset thermal overloads, a main circuit breaker with rotary disconnect handle, fuses, fuse blocks, relays, timer, and other supporting hardware. A control power transformer will provide 120VAC for internal controls. The transformer will have both primary legs fused, and one secondary leg on a circuit breaker.

A top mounted, amber strobing alarm light and horn shall provide indication of a high torque condition. A door mounted reset pushbutton clears all interlocks after the high torque conditions have been removed.

The control panel is wired to accept a single 480VAC, 3 phase, 60 Hertz power feed from the customer. A 3-pole molded case circuit breaker with pad-lockable disconnect handle is provided for short circuit protection. All wiring for field connections will be brought to a terminal strip. All interconnecting wiring is to be by others.

Drive Unit

Description	Unit	Value/Description
Drive Type	D25	Shaft Drive w/ Precision Bearing
Housing Material	-	Fabricated Steel
Continuous Rated Torque	ft·lbs	4,100
Momentary Peak Torque	ft·lbs	8,200
Rake Tip Speed	ft/min	8.2
Motor Size	HP	1
Motor Voltage/Frequency/Phase	V / Hz / Phase	460 / 60 / 3
Torque Control Settings	Alarm: ft·lbs Motor Cutout: ft·lbs	100%: 4,100 120%: 4,920
Main Gear and Pinion Lubrication	-	Oil
Main Bearing and Reducer Lubrication	-	Grease

Surface Preparation and Coating

Application Surfaces	Surface Preparation	Finish
Submerged	SSPC-SP10	One (1) Coat Tnemec N140-1255, 4-6 mils DFT, and One (1) Coat Tnemec N140-B5712, 4-6 mils DFT
Non-Submerged	SSPC-SP10	One (1) Coat Tnemec N140-1255, 4-6 mils DFT, and One (1) Coat Tnemec 1074U-B5712, 3-5 mils DFT
Drive Unit	SSPC-SP6	One (1) coat Tnemec N140F-1255 Epoxy, 4-6 mils DFT, and one (1) coat Tnemec 1074U-B5712 Polyurethane, 3-5 mils DFT

Approximate Weights

Item	Weight	Unit
Influent Pipe	1700	lbs
Drive Shaft, Rake Arms, Spiral Rake Blades	2350	lbs
Dual Gate EDI, Feedwell, Feedwell Supports	2550	lbs
Standard Skimmer, Scum Box & Supports	950	lbs
Bridge & Platform	2100	lbs
Drive Unit	1200	lbs
Heaviest Single Item (Drive)	**1200**	**lbs**

Additional Services and Equipment

WesTech has included on-site technical assistance for inspection, observation of torque testing, startup, and instruction of plant personnel. Additional on-site services may be purchased at standard WesTech daily rates plus travel and living expenses.

On-Site Technical Service

Item	Quantity
Total Number of Trips	1
Total Number of Days	1

Items Not Included in WesTech's Base Scope of Supply (unless specifically noted)

- Access Stairs and Landings
- Concrete/Grout
- Concrete and Anchor Reinforcement
- Conduits and Wiring
- Erection or Assembly
- Lubricants
- Piping, Valves, or Fittings
- Unloading or Storage

Item B – One (1) 40' Diameter Clarifier Mechanism, Model COPC1G

General Scope of Supply

Item	Unit	Value/Description
Number of Mechanisms	Each	1
Application	-	Activated Sludge Secondary
Tank Diameter	ft	40
Tank Side Wall Depth	ft	14
Tank Side Water Depth	ft	12
Tank Bottom Slope	-	1:12
Average Flow Rate	MGD	0.237
Design Flow Rate	MGD	0.473
Max Flow Rate	MGD	0.7885
Peak Flow Rate	MGD	1.262
Influent MLSS Concentration	mg/L	3000
SVI	mL/g	130**

**Assumed Values

Detailed Scope of Supply – Each Mechanism Includes the Following

Item	Qty	Size/Description	Material
Walkway Bridge	1	36" wide Beam Bridge	Steel
Walkway Handrail	-	2 Rail Component Handrail, Pop Rivet	Aluminum
Walkway Flooring	-	1.25" Grating	Aluminum
Drive Platform	1	24" Minimum Drive Clearance	Steel
Platform Handrail	-	2 Rail Component Handrail, Pop Rivet	Aluminum
Platform Flooring	-	0.25" Checker Plate	Aluminum
Center Column	1	18" dia. x 0.25" thick	Steel
Center Cage	1	3' Square	Steel
Dual Gate EDI	1	6' dia. x 2.5' deep x 0.1875" plate	Steel
Feedwell	1	10' dia. x 5' deep x 0.1875" plate	Steel
Full Radius Rake Arms	2	Box Truss w/ Spiral Scrapers	Steel
Sludge Withdrawal Ring	1	20% Tank Diameter w/ Evenly Spaced Ports	Steel
Skimmer Blade & Supports	2	Extends from feedwell to hinged skimmer	Steel
Hinged Skimmer Assembly	2	With neoprene wipers	HDG/304 SS/Alum
Scum Box & Supports	1	3' Scum Box	Steel
Scum Flushing Valve	1	Skimmer Actuated	Polymer/SS
Effluent Weir	1	9" deep x 0.25" thick	FRP
Scum Baffle & Supports	1	12" deep x 0.25" thick	FRP
Electrical Control Panel	1	NEMA 4X	304 SS
Drive Unit	1	See Drive Unit Table for description	
Anchor Bolts & Fasteners	-	-	304 SS

Electrical Control Panel

The clarifier controls will be housed in a single NEMA 4X, wall-mount, stainless steel enclosure with painted steel back panel, and mounting feet. Hand/Off/Auto switch, run light, motor overload light, drive cutout light, alarm silence and reset pushbuttons are provided on the door. The panel will contain a magnetic combination motor starter with externally reset thermal overloads, a main circuit breaker with rotary disconnect handle, fuses, fuse blocks, relays, timer, and other supporting hardware. A control power transformer will provide 120VAC for internal controls. The transformer will have both primary legs fused, and one secondary leg on a circuit breaker.

A top mounted, amber strobing alarm light and horn shall provide indication of a high torque condition. A door mounted reset pushbutton clears all interlocks after the high torque conditions have been removed.

The control panel is wired to accept a single 480VAC, 3 phase, 60 Hertz power feed from the customer. A 3-pole molded case circuit breaker with pad-lockable disconnect handle is provided for short circuit protection. All wiring for field connections will be brought to a terminal strip. All interconnecting wiring is to be by others.

Drive Unit

Description	Unit	Value/Description
Drive Type	C31	Cage Drive w/ Precision Bearing
Housing Material	-	Fabricated Steel
Continuous Rated Torque	ft·lbs	14,700
Momentary Peak Torque	ft·lbs	29,400
Rake Tip Speed	ft/min	8.0
Motor Size	HP	1
Motor Voltage/Frequency/Phase	V / Hz / Phase	460 / 60 / 3
Torque Control Settings	Alarm: ft·lbs Motor Cutout: ft·lbs	100%: 14,700 120%: 17,640
Main Gear and Pinion Lubrication	-	Oil
Main Bearing and Reducer Lubrication	-	Grease

Surface Preparation and Coating

Application Surfaces	Surface Preparation	Finish
Submerged	SSPC-SP10	One (1) Coat Tnemec N140-1255, 4-6 mils DFT, and One (1) Coat Tnemec N140-B5712, 4-6 mils DFT
Non-Submerged	SSPC-SP10	One (1) Coat Tnemec N140-1255, 4-6 mils DFT, and One (1) Coat Tnemec 1074U-B5712, 3-5 mils DFT
Drive Unit	SSPC-SP6	One (1) coat Tnemec N140F-1255 Epoxy, 4-6 mils DFT, and one (1) coat Tnemec 1074U-B5712 Polyurethane, 3-5 mils DFT

Approximate Weights

Item	Weight	Unit
Center Column	1200	lbs
Center Cage, Rake Arms, Spiral Rake Blades, Sludge Withdrawal Ring	3550	lbs
Dual Gate EDI, Feedwell, Feedwell Supports	2800	lbs
Standard Skimmer, Scum Box & Supports	1200	lbs
Bridge & Platform	1100	lbs
Drive Unit	2200	lbs
Heaviest Single Item (Drive Unit)	**2200**	**lbs**

Additional Services and Equipment

WesTech has included on-site technical assistance for inspection, observation of torque testing, startup, and instruction of plant personnel. Additional on-site services may be purchased at standard WesTech daily rates plus travel and living expenses.

On-Site Technical Service

Item	Quantity
Total Number of Trips	1
Total Number of Days	1

Items Not Included in WesTech's Base Scope of Supply (unless specifically noted)

- Access Stairs and Landings
- Concrete/Grout
- Concrete and Anchor Reinforcement
- Conduits and Wiring
- Erection or Assembly
- Lubricants
- Piping, Valves, or Fittings
- Unloading or Storage

Clarifications and Exceptions

General Clarifications

Terms & Conditions: This proposal, including all terms and conditions contained herein, shall become part of any resulting contract or purchase order. Changes to any terms and conditions, including but not limited to submittal and shipment days, payment terms, and escalation clause shall be negotiated at order placement, otherwise the proposal terms and conditions contained herein shall apply.

Escalation: If between the proposal date and actual procurement and through no fault of the Seller, the relevant cost of labor, material, freight, tariffs, and other Seller costs combined relating to the contract, increase by greater than 2.5% of the overall contract price, then the contract price shall be subject to escalation and increased. Such increase shall be verified by documentation and the amount of contract price escalation shall be calculated as either the actual increased cost to the Seller or, if agreed by the Parties, the equivalent increase of a relevant industry recognized third-party index, and in both cases without any additional profit or margin being added.

Build America, Buy America Act (BABAA) and Other Domestic Content Requirements: WesTech is U.S. based and proudly manufacturers many products available to meet various domestic procurement requirements. Due to variability in legislation, products, and project-based specifications, WesTech is unable to guarantee compliance with domestic content requirements unless stated otherwise in our official project proposal. For products where domestic sourcing is not currently available, WesTech can provide documentation to support application for relevant waivers (Non-Availability, De Minimis, or others).

Paint: If your equipment has paint included in the price, please take note to the following. Primer paints are designed to provide only a minimal protection from the time of application (usually for a period not to exceed 30 days). Therefore, it is imperative that the finish coat be applied within 30 days of shipment on all shop primed surfaces. Without the protection of the final coatings, primer degradation may occur after this period, which in turn may require renewed surface preparation and coating. If it is impractical or impossible to coat primed surfaces within the suggested time frame, WesTech strongly recommends the supply of bare metal, with surface preparation and coating performed in the field. All field surface preparation, field paint, touch-up, and repair to shop painted surfaces are not by WesTech.

Exceptions

Not applicable.

Commercial Proposal

Proposal Name: La Contenta WWTF
Proposal Number: 2460412
Wednesday, October 09, 2024

1. Bidder's Contact Information

Company Name	WesTech Engineering, LLC
Primary Contact Name	Matthew Swaney
Phone	(801) 265-1000
Email	mswaney@westechwater.com
Address: Number/Street	3665 S West Temple
Address: City, State, Zip	Salt Lake City, UT 84115

2. Budget Pricing — Currency: USD

Scope of Supply

A	One (1) 30' Diameter Clarifier Mechanism, Model COPS4G	$270,600
B	One (1) 40' Diameter Clarifier Mechanism, Model COPC1G	$282,000
	Taxes (sales, use, VAT, IVA, IGV, duties, import fees, etc.)	Not Included

Prices are valid for a period not to exceed 30 days from date of proposal.

Additional Field Service

Daily Rate (Applicable Only to Field Service Not Included in Scope)	$1,750

Pricing does not include field service unless noted in scope of supply but is available at the daily rate plus expenses. The greater of a two week notice or visa procurement time is required prior to departure date. Our field service policy is subject to change and can be provided upon request.

3. Payment Terms

Purchase Order Acceptance and Contract Execution	10%
Submittals Provided by WesTech	15%
Release for Fabrication	35%
Notification of Ready to Ship	40%

All payments are net 30 days. Partial shipments are allowed. An approved Letter of Credit is required if Incoterms CIF, CFR, DAP, CIP, or CPT are applicable. Payment is required in full for all other Incoterms prior to international shipment. Other terms per WesTech proforma invoice. Please note that the advising bank must be named as: Wells Fargo Bank, International Department, 9000 Flair Drive, 3rd Floor, El Monte, California 91731, USA.

4. Schedule

Submittals, after Purchase Order Acceptance and Contract Execution	10 to 12 weeks
Ready to Ship, after Receipt of Final Submittal Approval	26 to 28 weeks
Estimated Weeks to Ready to Ship	**36 to 40 weeks***

*Customer submittal approval is typically required to proceed with equipment fabrication and is not accounted for in the schedule above. Project schedule will be extended to account for time associated with receipt of customer submittal approval. Due to supply chain disruptions and volatility, delivery schedule is a best estimate only and may be improved or hampered based on date of contract execution, scope selection, and materials availability.

5. Freight

Domestic — FOB Shipping Point (FSP)

From	Final Destination	Number of Trucks / Containers
WesTech Shops	Calaveras County, California	Approximately 3

One-Year Warranty

Equipment manufactured or sold by WesTech Engineering, LLC, once paid for in full, is backed by the following warranty:

Subject to the terms below, WesTech warrants all new equipment manufactured or sold by WesTech Engineering, LLC to be unencumbered and free from defects in material and workmanship, and WesTech will replace or repair, F.O.B. its factories or other location it chooses, any part or parts returned to WesTech which WesTech's examination and analysis determine have failed within the warranty period because of defects in material and workmanship. The warranty period is either, one calendar year immediately following start-up, or eighteen (18) months from when WesTech sent its ready-to-ship notification to the purchaser, whichever expires sooner. All repair or replacement parts qualifying under this warranty shall be free of charge. Purchaser will provide timely written notice to WesTech of any defects it believes should be repaired or replaced under this warranty. WesTech will reject as untimely any warranty defect claim that purchaser submits more than thirty (30) days after the possible warranty defect first occurred. Unless specifically stated otherwise, this warranty does not cover normal wear, consumables, or coatings. Purchasers are invited to inspect the equipment in the shop for proper surface preparation and coating application prior to shipment. This warranty is not transferable.

This warranty shall be void and shall not apply where the equipment or any part thereof

- has been dismantled, modified, repaired, or connected to other equipment, outside of a WesTech factory, or without WesTech's written approval, or
- has not been installed in complete adherence to all WesTech's or parts manufacturer's requirements, recommendations, and procedures, or
- has been subject to misuse, abuse, neglect, or accident, or has not at all times been operated and maintained in strict compliance with all of WesTech's requirements and recommendations therefor, including, but not limited to, the relevant WesTech Operations & Maintenance Manual and any other of WesTech's specified guidelines & procedures, or
- has been subject to force majeure events; use of chemicals not approved in writing by WesTech; electrical surges; overloading; significant power, water or feed supply fluctuations; or non-compliance with agreed feedwater or chemical volumes, specifications or procedures.

In any case where a part or component of equipment under this warranty is or may be faulty and the component or part is also covered under the warranty of a third party then the purchaser shall provide reasonable assistance to first pursue a claim under the third-party warranty before making a claim under this warranty from WesTech. WesTech Engineering, LLC gives no warranty with respect to parts, accessories, or components purchased other than through WesTech. The warranties which apply to such items are those offered by the respective manufacturers.

This warranty is expressly given by WesTech and accepted by purchaser in lieu of all other warranties whether written, oral, express, implied, statutory, or otherwise, including without limitation, warranties of merchantability and fitness for particular purpose. WesTech neither accepts nor authorizes any other person to assume for it any other liability with respect to its equipment. WesTech shall not be liable for normal wear and tear, corrosion, or any contingent, incidental, or consequential damage or expense due to partial or complete inoperability of its equipment for any reason whatsoever. The purchaser's exclusive and only remedy for breach of this warranty shall be the repair and or replacement of the defective part or parts within a reasonable time of WesTech's accepting the validity of a warranty claim made by the purchaser.

Terms and Conditions

Terms and Conditions appearing in any order based on this proposal which are inconsistent herewith shall not be binding on WesTech Engineering, LLC. The sale and purchase of equipment described herein shall be governed exclusively by the foregoing proposal and the following provisions:

1. SPECIFICATIONS: WesTech Engineering, LLC is furnishing its standard equipment as outlined in the proposal and as will be covered by final approved drawings. The equipment may not be in strict compliance with the Engineer's/Owner's plans, specifications, or addenda as there may be deviations. The equipment will, however, meet the general intention of the mechanical specifications of these documents.

2. ITEMS INCLUDED: This proposal includes only the equipment specified herein and does not include erection, installation, accessories, nor associated materials such as controls, piping, etc., unless specifically listed.

3. PARTIES TO CONTRACT: WesTech Engineering, LLC is not a party to or bound by the terms of any contract between WesTech Engineering, LLC's customer and any other party. WesTech Engineering, LLC's undertakings are limited to those defined in the contract between WesTech Engineering, LLC and its direct customers.

4. PRICE AND DELIVERY: All selling prices quoted are subject to change without notice after 30 days from the date of this proposal unless specified otherwise. Unless otherwise stated, all prices are F.O.B. WesTech Engineering, LLC or its supplier's shipping points. All claims for damage, delay or shortage arising from such equipment shall be made by Purchaser directly against the carrier. When shipments are quoted F.O.B. job site or other designation, Purchaser shall inspect the equipment shipped, notifying WesTech Engineering, LLC of any damage or shortage within forty-eight hours of receipt, and failure to so notify WesTech Engineering, LLC shall constitute acceptance by Purchaser, relieving WesTech Engineering, LLC of any liability for shipping damages or shortages.

5. PAYMENTS: All invoices are net 30 days. Delinquencies are subject to a 1.5 percent service charge per month or the maximum permitted by law, whichever is less on all past due accounts. Pro rata payments are due as shipments are made. If shipments are delayed by the Purchaser, invoices shall be sent on the date when WesTech Engineering, LLC is prepared to make shipment and payment shall become due under standard invoicing terms. If the work to be performed hereunder is delayed by the Purchaser, payments shall be based on the purchase price and percentage of completion. Products held for the Purchaser shall be at the risk and expense of the Purchaser. Unless specifically stated otherwise, prices quoted are for equipment only. These terms are independent of and not contingent upon the time and manner in which the Purchaser receives payment from the owner.

6. PAYMENT TERMS: Credit is subject to acceptance by WesTech Engineering, LLC's Credit Department. If the financial condition of the Purchaser at any time is such as to give WesTech Engineering, LLC, in its judgment, doubt concerning the Purchaser's ability to pay, WesTech Engineering, LLC may require full or partial payment in advance or may suspend any further deliveries or continuance of the work to be performed by the WesTech Engineering, LLC until such payment has been received.

7. ESCALATION: If between the proposal date and actual procurement and through no fault of the Seller, the relevant cost of labor, material, freight, tariffs, and other Seller costs combined relating to the contract, increase by greater than 2.5% of the overall contract price, then the contract price shall be subject to escalation and increased. Such increase shall be verified by documentation and the amount of contract price escalation shall be calculated as either the actual increased cost to the Seller or, if agreed by the Parties, the equivalent increase of a relevant industry recognized third-party index, and in both cases without any additional profit or margin being added.

8. APPROVAL: If approval of equipment submittals by Purchaser or others is required, a condition precedent to WesTech Engineering, LLC supplying any equipment shall be such complete approval.

9. INSTALLATION SUPERVISION: Prices quoted for equipment do not include installation supervision. WesTech Engineering, LLC recommends and will, upon request, make available, at WesTech Engineering, LLC's then current rate, an experienced installation supervisor to act as the Purchaser's employee and agent to supervise installation of the equipment. Purchaser shall at its sole expense furnish all necessary labor equipment, and materials needed for installation.

Responsibility for proper operation of equipment, if not installed by WesTech Engineering, LLC or installed in accordance with WesTech Engineering, LLC's instructions, and inspected and accepted in writing by WesTech Engineering, LLC, rests entirely with Purchaser; and any work performed by WesTech Engineering, LLC personnel in making adjustment or changes must be paid for at WesTech Engineering, LLC's then current per diem rates plus living and traveling expenses.

WesTech Engineering, LLC will supply the safety devices described in this proposal or shown in WesTech Engineering, LLC's drawings furnished as part of this order but excepting these, WesTech Engineering, LLC shall not be required to supply or install any safety devices whether required by law or otherwise. The Purchaser hereby agrees to indemnify and hold harmless WesTech Engineering, LLC from any claims or losses arising due to alleged or actual insufficiency or inadequacy of the safety devices offered or supplied hereunder, whether specified by WesTech Engineering, LLC or Purchaser, and from any damage resulting from the use of the equipment supplied hereunder.

10. ACCEPTANCE OF PRODUCTS: Products will be deemed accepted without any claim by Purchaser unless written notice of non-acceptance is received by WesTech Engineering, LLC within 30 days of delivery if shipped F.O.B. point of shipment, or 48 hours of delivery if shipped F.O.B. point of destination. Such written notice shall not be considered received by WesTech Engineering, LLC unless it is accompanied by all freight bills for said shipment, with Purchaser's notations as to damages, shortages and conditions of equipment, containers, and seals. Non-accepted products are subject to the return policy stated below.

11. TAXES: Any federal, state, or local sales, use or other taxes applicable to this transaction, unless specifically included in the price, shall be for Purchaser's account.

Terms and Conditions

12. TITLE: The equipment specified herein, and any replacements or substitutes therefore shall, regardless of the manner in which affixed to or used in connection with realty, remain the sole and personal property of WesTech Engineering, LLC until the full purchase price has been paid. Purchaser agrees to do all things necessary to protect and maintain WesTech Engineering, LLC's title and interest in and to such equipment; and upon Purchaser's default, WesTech Engineering, LLC may retain as liquidated damages any and all partial payments made and shall be free to enter the premises where such equipment is located and remove the same as its property without prejudice to any further claims on account of damages or loss which WesTech Engineering, LLC may suffer from any cause.

13. INSURANCE: From date of shipment until the invoice is paid in full, Purchaser agrees to provide and maintain at its expense, but for WesTech Engineering, LLC's benefit, adequate insurance including, but not limited to, builders risk insurance on the equipment against any loss of any nature whatsoever.

14. SHIPMENTS: Any shipment of delivery dates recited represent WesTech Engineering, LLC's best estimate but no liability, direct or indirect, is assumed by WesTech Engineering, LLC for failure to ship or deliver on such dates.

WesTech Engineering, LLC shall have the right to make partial shipments; and invoices covering the same shall be due and payable by Purchaser in accordance with the payment terms thereof. If Purchaser defaults in any payment when due hereunder, WesTech Engineering, LLC may, without incurring any liability therefore to Purchaser or Purchaser's customers, declare all payments immediately due and payable with maximum legal interest thereon from due date of said payment, and at its option, stop all further work and shipments until all past due payments have been made, and/or require that any further deliveries be paid for prior to shipment.

If Purchaser requests postponements of shipments, the purchase price shall be due and payable upon notice from WesTech Engineering, LLC that the equipment is ready for shipment; and thereafter any storage or other charge WesTech Engineering, LLC incurs on account of the equipment shall be for the Purchaser's account.

If delivery is specified at a point other than WesTech Engineering, LLC or its supplier's shipping points, and delivery is postponed or prevented by strike, accident, embargo, or other cause beyond WesTech Engineering, LLC's reasonable control and occurring at a location other than WesTech Engineering, LLC or its supplier's shipping points, WesTech Engineering, LLC assumes no liability in delivery delay. If Purchaser refuses such delivery, WesTech Engineering, LLC may store the equipment at Purchaser's expense. For all purposes of this agreement such tender of delivery or storage shall constitute delivery.

15. WARRANTY: WesTech Engineering, LLC warrants equipment it supplies only in accordance with the attached WesTech Warranty. This warranty is expressly given by WesTech and accepted by purchaser in lieu of all other warranties whether written, oral, express, implied, statutory or otherwise, including without limitation, warranties of merchantability and fitness for particular purpose. WesTech neither accepts nor authorizes any other person to assume for it any other liability with respect to its equipment. WesTech shall not be liable for normal wear and tear, corrosion, or any contingent, incidental, or consequential damage or expense due to partial or complete inoperability of its equipment for any reason whatsoever. The purchaser's exclusive and only remedy for breach of this warranty shall be the repair and or replacement of the defective part or parts within a reasonable time of WesTech's accepting the validity of a warranty claim made by the purchaser.

16. PATENTS: WesTech Engineering, LLC agrees that it will, at its own expense, defend all suits or proceedings instituted against Purchaser and pay any award of damages assessed against it in such suits or proceedings, so far as the same are based on any claim that the said equipment or any part thereof constitutes an infringement of any apparatus patent of the United States issued at the date of this Agreement, provided WesTech Engineering, LLC is given prompt notice in writing of the institution or threatened institution of any suit or proceeding and is given full control of the defense, settlement, or compromise of any such action; and Purchaser agrees to give WesTech Engineering, LLC needed information, assistance, and authority to enable WesTech Engineering, LLC so to do. In the event said equipment is held or conceded to infringe such a patent, WesTech Engineering, LLC shall have the right at its sole option and expense to a) modify the equipment to be non-infringing, b) obtain for Purchaser the license to continue using said equipment, or c) accept return of the equipment and refund to the Purchaser the purchase price thereof less a reasonable charge for the use thereof. WesTech Engineering, LLC will reimburse Purchaser for actual out-of-pocket expenses, exclusive of legal fees, incurred in preparing such information and rendering such assistance at WesTech Engineering, LLC's request. The foregoing states the entire liability of WesTech Engineering, LLC, with respect to patent infringement; and except as otherwise agreed to in writing, WesTech Engineering, LLC assumes no responsibility for process patent infringement.

17. SURFACE PREPARATION AND PAINTING: If furnished, shop primer paint is intended to serve only as minimal protective finish. WesTech Engineering, LLC will not be responsible for the condition of primed or finish painted surfaces after equipment leaves its shops. Purchasers are invited to inspect paint in shops for proper preparation and application prior to shipment. WesTech Engineering, LLC assumes no responsibility for field surface preparation or touch-up of shipping damage to paint. Painting of fasteners and other touch-up to painted surfaces will be by Purchaser's painting contractor after mechanism installation.

Motors, gear motors, and other components not manufactured by WesTech Engineering, LLC will be painted with that manufacturer's standard paint system. It is WesTech Engineering, LLC's intention to ship major steel components as soon as fabricated, often before drive, motors, and other manufactured components. Unless Purchaser can ensure that shop primed steel shall be field painted within thirty (30) days after arrival at the job site, WesTech Engineering, LLC encourages the Purchaser to order these components without primer.

WesTech Engineering, LLC's prices are based on paints and surface preparations as outlined in the main body of this proposal. In the event that an alternate paint system is selected, WesTech Engineering, LLC requests that Purchaser's order advise of the paint

selection. WesTech Engineering, LLC will then either adjust the price as may be necessary to comply or ship the material unpainted if compliance is not possible due to application problems or environmental controls.

18. CANCELLATION, SUSPENSION, OR DELAY: After acceptance by WesTech Engineering, LLC, this proposal, or Purchaser's order based on this proposal, shall be a firm agreement and is not subject to cancellation, suspension, or delay except upon payment by Purchaser of appropriate charges which shall include all costs incurred by WesTech Engineering, LLC to date of cancellation, suspension, or delay plus a reasonable profit. Additionally, all charges related to storage and/or resumption of work, at WesTech Engineering, LLC's plant or elsewhere, shall be for Purchaser's sole account; and all risks incidental to storage shall be assumed by Purchaser.

19. FORCE MAJEURE: Neither party hereto shall be liable to the other for default or delay in delivery caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, act of government, pandemic, delay of carriers, failure of normal sources of supply, complete or partial shutdown of plant by reason of inability to attain sufficient raw materials or power, and/or other similar contingency beyond the reasonable control of the respective parties. The time for delivery specified herein shall be extended during the continuance of such conditions, or any other cause beyond such party's reasonable control. Escalation resulting from a Force Majeure event shall be equitably adjusted per the escalation policy stated above.

20. RETURN OF PRODUCTS: No products may be returned to WesTech Engineering, LLC without WesTech Engineering, LLC's prior written permission. Said permission may be withheld by WesTech Engineering, LLC at its sole discretion.

21. BACKCHARGES: WesTech Engineering, LLC will not approve or accept backcharges for labor, materials, or other costs incurred by Purchaser or others in modification, adjustment, service, or repair of WesTech Engineering, LLC furnished materials unless such back charge has been authorized in advance in writing by a WesTech Engineering, LLC purchase order, or work requisition signed by WesTech Engineering, LLC.

22. INDEMNIFICATION: Purchaser agrees to indemnify WesTech Engineering, LLC from all costs incurred, including but not limited to court costs and reasonable attorney fees, from enforcing any provisions of this contract, including but not limited to breach of contract or costs incurred in collecting monies owed on this contract.

23. ENTIRE AGREEMENT: This proposal expresses the entire agreement between the parties hereto superseding any prior understandings, and is not subject to modification except by a writing signed by an authorized officer of each party.

24. MOTORS AND MOTOR DRIVES: In order to avoid shipment delays of WesTech Engineering, LLC equipment, motors and drives may be sent directly to the job site for installation by the equipment installer. Minor fit-up may be required.

25. EXTENDED STORAGE: Extended storage instructions will be part of information provided to shipment. If equipment installation and start-up is delayed more than 30 days, the provisions of the storage instructions must be followed to keep WARRANTY in force.

26. LIABILITY: Professional liability insurance, including but not limited to, errors and omissions insurance, is not included. In any event, liability for errors and omissions shall be limited to the lesser of $100,000 USD or the value of the particular piece of equipment (not the value of the entire order) supplied by WesTech Engineering, LLC against which a claim is sought.

27. ARBITRATION NEGOTIATION: Any controversy or claim arising out of or relating to the performance of any contract resulting from this proposal or contract issued, or the breach thereof, shall be settled by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the arbitrator(s) may be entered to any court having jurisdiction.

ACCEPTED BY PURCHASER

Customer Name: _____

Customer Address: _____

_____

Contact Name: _____

Contact Phone: _____ Contact Email: _____

Signature: _____ Printed Name: _____

Date: _____ Title: _____

ATTACHMENT D - Clarifier Loading

Buildout Clarifier Loading with Equal Flow Split

						Detention Time, DT (Hours)		Surface Overflow Rate, SOR (gal/d/ft2)		Weir Overflow Rate, WOR (gal/d/ft)		Solids Loading Rate, SLR (lbs/d/ft2)	
		Flow (MGD)	Number of Clarifiers Running	MLSS (mg/L)	RAS SS (mg/L)	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2
ADF		0.338	2	3,000	7,000	7.1	17.6	318	149	6,760	1,416	13.9	6.5
MMF		0.675	2	3,000	7,000	3.6	8.8	293	298	13,500	2,827	12.8	13.0
MDF		1.125	2	3,000	7,000	2.1	5.3	489	496	22,500	4,712	21.4	21.7
PHF		1.8	2	3,000	7,000	1.3	3.3	783	794	36,000	7,539	23.1	23.4

Phase 3 Clarifier Loading with only New Clarifier Running

						Detention Time, DT (Hours)		Surface Overflow Rate, SOR (gal/d/ft2)		Weir Overflow Rate, WOR (gal/d/ft)		Solids Loading Rate, SLR (lbs/d/ft2)	
		Flow (MGD)	Number of Clarifiers Running	MLSS (mg/L)	RAS SS (mg/L)	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2	Clarifier 1	Clarifier 2
ADF													
MMF		0.473	1	3,000	7,000	0.0	6.3	0	417	0	3,962	0.0	16.5
MDF		0.7885	1	3,000	7,000	0.0	3.8	0	695	0	6,605	0.0	27.5
PHF		1.262	1	3,000	7,000	0.0	2.4	0	1113	0	10,571	0.0	44.0

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APPENDIX E

Calaveras County Water District
RAS/WAS Pump Data Sheets and Budgetary Proposal

ESSCO Pumps & Controls
4935 Telegraph Rd.
Los Angeles, Ca 90022

www.esscopumps.com
sales@esscopumps.com

(323) 261-2181
Fax (323) 261-1523

10/30/2024

Customer: La Contenta WWTF

REF: RAS/WAS PS

Conditions of service: 250 GPM @ 25 FT TDH

ESSCO is pleased to provide you with the following Engineering BUDGET proposal for your review.

ESSCO model 4x12-7.5-6 torque fluid submersible sized for 250 GPM @ 25 ft. TDH vortex pump with a 100% recessed vortex style impeller **capable of passing 4 inch diameter and long length solids.** Each unit shall be constructed of heavy duty engineered Cast Iron with High Chrome Iron "Shredder" impeller, cast iron volute, cast iron wear plate, assembled with Stainless Steel hardware. The pump shall be painted with standard factory paint.

Each pump shall be equipped with a **Cool Agivent device which shall vent the pump case, cool the motor and agitate the wet well. The Cool Agivent shall provide enough cooling to dissipate any excess heat generated by the motor in the event of prolonged operation with the motor exposed.** EIM, FM Approved 7.5 HP, 1150 RPM, VFD rated, inverter duty, 460/3/60hz. submersible motor with Buna-N O-rings, Carbon/Ceramic upper mechanical seal with Buna-N elastomers and Silicon Carbide lower mechanical seal with Buna-N elastomers, 416 Stainless Steel shaft, Class F insulation, oil buffer zone, moisture sensing probes, built-in thermal overload protection, 50 ft motor leads. The exterior of the motor shall be coated with standard factory paint.

Also include will be 4". Design 3 slide rail assy. With 90 degree discharge elbow

Net Each $15,880.00

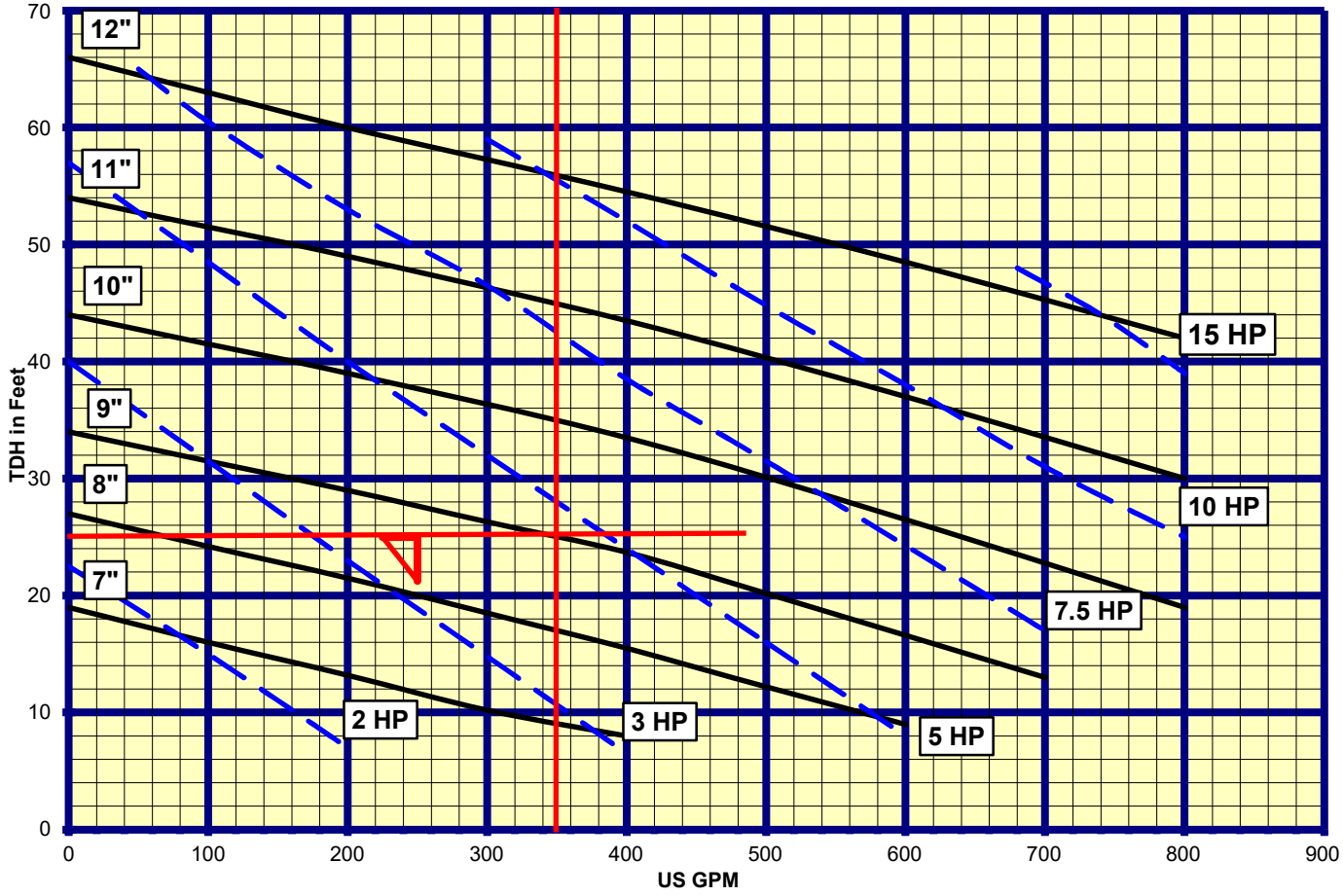
Shipping to jobsite TBD

Estimated lead time after engineering approval 20-22 weeks

Let me know if you have any questions

ESSCO Pumps
4935 Telegraph Rd
L.A., Ca. 90022
323-261-2181
323-261-1523 FAX
Website: www.esscopumps.com

Pump Model:	4X12	Impeller No.:	1012
RPM:	1150	Sphere Size:	4"
Type:	Submersible, Horizontal, Vertical		
Impeller Type:	Vortex 7 Vane	Revised Date	
Impeller Dia:	Various	Nov-98	
Condition Point:	250 GPM	25 TDH	
Condition Point:	0 GPM	0 TDH	
Condition Point:	0 GPM	0 TDH	



The World Leader in Free-Disc™ Pumping Technology

Penn Valley Pump

Model: 8DDDX214

Flow Range:	0 - 1100 GPM
Displacement:	2.14 gal/rev
Operating Speeds:	0 - 400 RPM
Max Discharge Pressure:	60psi operating
Max Suction Lift:	25 ft
Connection:	8" 150# Flanged

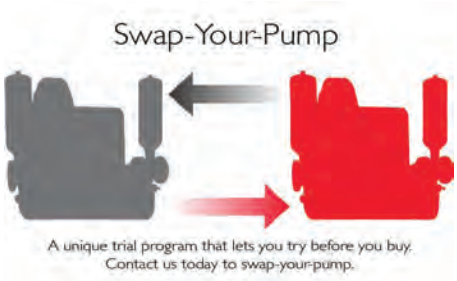
Lower Wear = Longer Life

With a non-close tolerance design and no rubbing action to generate flow the Double Disc Pump offers the lowest life cycle cost of any positive displacement pump on the market.

Features and Benefits:

- "Maintain-In-Place" Design
- Self-priming
- Passes up to 2" solids
- Two (2) year warranty
- Made in the USA
- Runs dry without damage
- Low friction design
- No check valves
- No routine maintenance
- Seal-less design

THE ULTIMATE IN SLUDGE PUMPS™



info@pennvalleypump.com

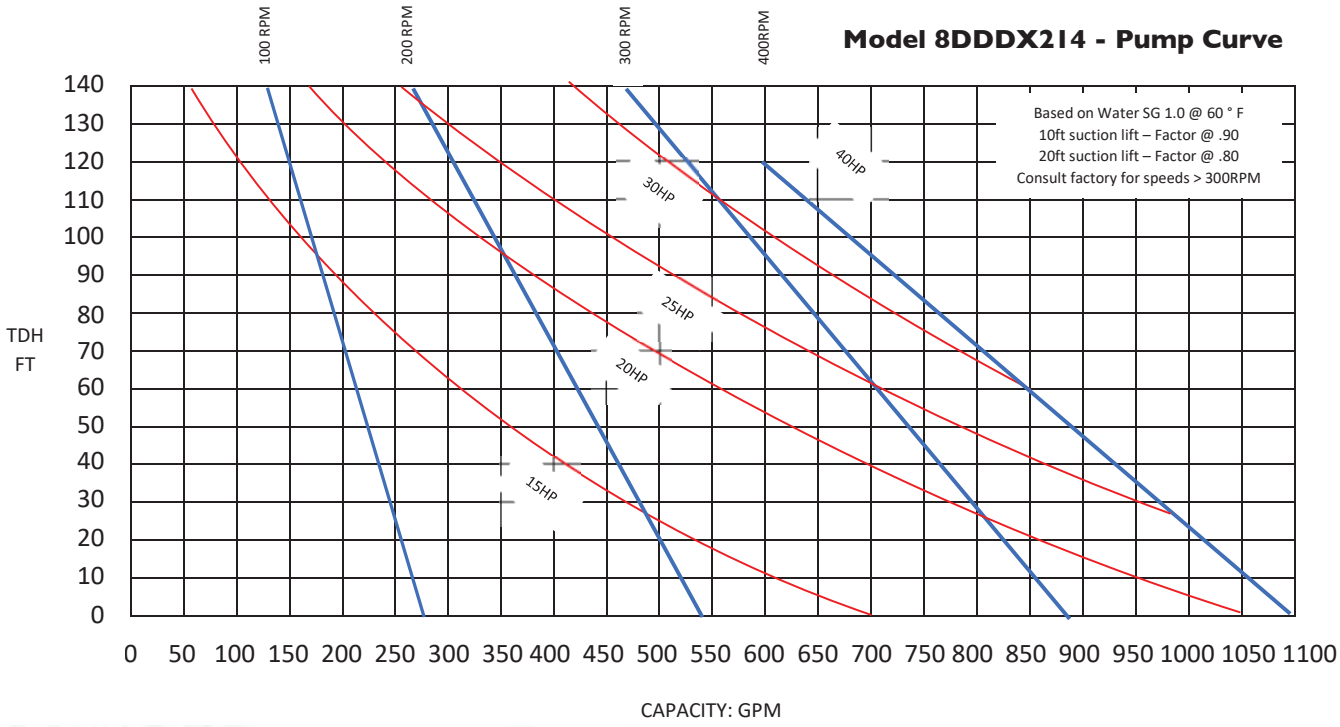
215-343-8750

Warrington, PA 18976

www.pennvalleypump.com

DOUBLE DISC PUMP

Technical

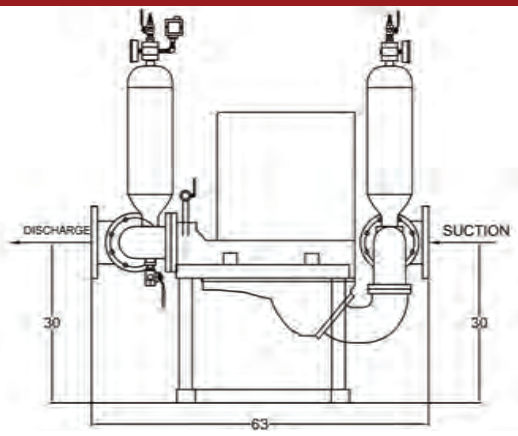


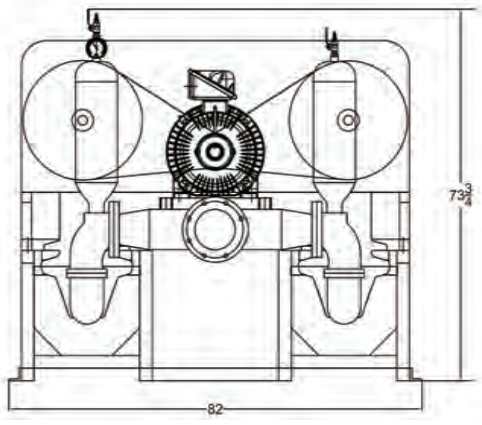
Materials of Construction:

	Standard	Optional:
Housings:	Cast Iron	Linings: Porcelain Glass, Neoprene, Powder Coat, Soft PVC, Tungsten Carbide
Discs & Trunnions:	Neoprene -10° to +200°F	Buna-N +10° to +180° F, EPDM +10° to +200°F, HNBR +10° to +220° F, Viton -40° to +350° F
Connecting Rods:	Aluminum	
Drive Shaft:	High-Tensile 416 Stainless Steel	
Eccentric Cams:	High-Tensile Bronze Alloy	
Bearing Pedestals:	Aluminum	
Frame & Covers:	304 Stainless Steel	316 Stainless Steel

Drive System Options:

	Standard	Optional:
Static:	Electric motor, belt and pulley	Gearmotor, air or hydraulic motor
Portable:	Electric, Gas or Diesel Engine	





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SPARK PROOF STAINLESS STEEL AND HARD METAL SLIDE RAIL SYSTEM

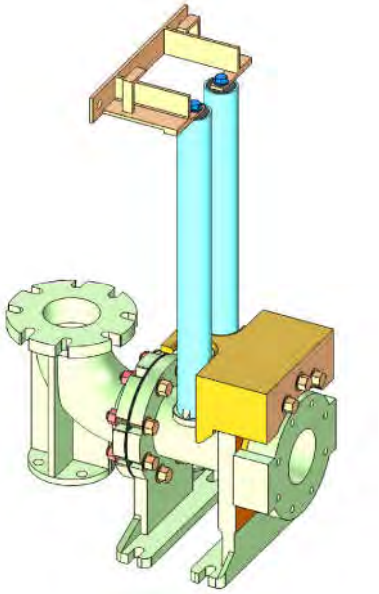

Figure 1 at left: Rendering of ESSCO Design 3 Slide Rail System

ESSCO offers a series of Slide Rail Systems are designed to meet light duty, normal duty and severe duty requirements. Each system is available for non hazardous and hazardous installations. Applications include storm water, sewage wet well, waste water treatment plants, industrial waste pits, power plants, solid waste management run off tanks and many more. The ESSCO slide rail adaptor is available in all Cast Iron construction, Spark Proof Bronze, 316 Stainless Steel and Hard Metal Construction such as High Chrome Iron (BRN 550 min), CD4MCu and many other materials. Contact your local distributor or the factory for specific materials requirements.

All slide rail systems are available in spark proof design. Spark Proof systems have a Bronze rail guide “claw” and a Bronze insert on the sliding face. The Sliding Face has an embedded O-ring to provide a superior sealing method between the stationary base face and the sliding face. An optional metal to metal face seal is available.

ESSCO endeavors to provide the user with the most reliable system on the market. Our many years of experience and thousands of successful installations are key factors in solving tough application problems.

Contact ESSCO 's application team and draw upon our knowledge base to help solve your next difficult pump problem.

Materials of Construction				
Design 3	All Iron	Spark Proof	Hard Metal	316 SS
Base	Cast Iron	Cast Iron	Hard Metal	316 SS
Sliding Face	Cast Iron	Cast Iron	Cast Iron	316 SS
Face Insert	Cast Iron	Bronze	Bronze	316 SS
Sliding Face T Sleeve	---	---	Hard Metal	316 SS
Rail Guide	Cast Iron	Bronze	Bronze	316 SS
Discharge Elbow	Cast Iron	Cast Iron	Hard Metal	316 SS

Alternate Material		
Top Guide Bracket	304 SS	316 SS
Intermediate Guide Bracket	304 SS	316 SS
Spacer Kit for Intermediate Guide Bracket	304 SS	316 SS

ESSCO Pumps & Controls

4935 Telegraph Rd.
Los Angeles, Ca 90022
(323) 261-2181
Fax (323) 261-1523
www.esscopumps.com
Email sales@esscopumps.com

Distributed By:

EIM Electric Co.
FM Approved XP Motors
And Non-XP Motors

FM
C US
APPROVED

SUBMERSIBLE MOTORS

- HP 1-250* HP
- 1750 RPM, 1150 RPM, 870 RPM
- STANDARD POWER AND CONTROL CABLE LENGTH 50 FT

Single Channel Dual Channel

SEAL LEAKAGE
Single & Dual Channel | SFP Series

*- Consult Factory for XP Motors 150 HP and above.

ESSCO Pumps & Controls
4935 Telegraph Rd.
Los Angeles, Ca 90022

(323) 261-2181
Fax (323) 261-1523

Website: www.esscopumps.com
Email: sales@esscopumps.com

Member of the Hydraulic Institute

Form EIM1

SUBMERSIBLE PUMPS
WITH
100% RECESSED IMPELLER

ESSCO 4x12 free standing submersible vortex pump with FM Approved motor pictured above. **Cool Agivent ®** shown on motor flange.

ESSCO submersible pumps are of the 100% recessed impeller design. Each unit is capable of handling long stringy material, large size solids and slurries, with maximum solids handling efficiency. The ESSCO pump incorporates the vortex pumping action along with unique pump design, allowing the greatest flexibility in the submersible pump field. ESSCO offers special materials, specialty coatings and special mechanical seals along with many other options.

VOLUTE: Each ESSCO volute is designed with maximum life in mind. ESSCO provides extra material in high wear areas as well as special designs to handle heavy grit slurries. With casting thickness up to 1.25".

IMPELLER: ESSCO pumps have various impellers available to allow for high capacity and low head capability, or high head and low capacity applications. ESSCO also incorporates a special machining technique to shred and break down any solids which might come into contact with the impeller. Standard impeller is ductile iron.

COOL AGIVENT: Each ESSCO submersible pump includes a Cool Agivent® apparatus which is for venting pump cases and cooling external surface of the motor. This patented device will allow a more shallow wet well design, as well as keep the motor cool when not submerged. All ESSCO submersible pumps are capable of running dry continuously. (Consult factory for specific applications.)

MOTOR: EIM FM Approved motor for Class 1, Div. 1, Group D, hazardous location, complete with a moisture detector and thermal protection. Heavy duty thrust bearings and dual mechanical seals located **inside** the oil chamber give added protection and on special request high temperature or abrasion resistant seals are available.

SIZES AVAILABLE: **2"** through 6" discharge.

SPECIAL MATERIALS: ESSCO submersible pumps are available in materials other than cast iron. Special materials include 316 S.S., bronze and high chromium iron (Brinnell 550-650 hardness). Other materials are available on special requests. ESSCO maintains a large stock of complete pump units and spare parts for quick shipment. Pump test certification available upon request.

All ESSCO Pumps Manufactured, Assembled and Tested in the U.S.A.

ESSCO Pumps & Controls

4935 Telegraph Rd.
Los Angeles, Ca 90022
(323) 261-2181
Fax (323) 261-1523
www.esscopumps.com
Email sales@esscopumps.com

Distributed By:

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APPENDIX F

Calaveras County Water District
UESP Pump Station Calculation and Budgetary Proposal

G3 Engineering, Inc.

10/25/2024

G3 ENGINEERING INC.
5905 GRANITE LAKE DRIVE STE 120
Granite Bay, CA 95746

Quotation number: 2376380
Revision: 0

Attn: Jory Benitez
E-mail: HydroScience Engineers

Project: La Contenta WWTF Phase 3 Improvements Project
Your reference:

With reference to your project noted above, we are pleased to submit our proposal covering the equipment described herein.
The following is a price summary for this project. See itemized quote for details.

Tag Number	Service	Model	Unit Price	Qty	Extended Price
001		SL1.30.A30.55	$ 18,540.00	2	$ 37,080.00
				Grand Total	$ 37,080.00

COMMENTS: - Pricing for budgetary purposes only.
- Submittal lead time is 4 weeks after receipt of order.
- Shipment lead time is 12 weeks after submittal approval.

SCOPE OF SUPPLY: Only the material detailed in the following quote is being offered. No assumptions should be made that anything not specifically defined is included.

VALIDITY: This offer is valid for 30 days from date issued. Quoted prices will be held firm thru shipment if order is released for manufacture within 60 days from Grundfos CBS receipt of purchase order. Otherwise, a price adjustment may be applied.

PAYMENT TERMS: Net 30 days.

FREIGHT: Prices are FOB our plant and include freight to the jobsite, but does NOT include unloading or taxes.

PACKAGING: Items will be palletized for domestic shipment.

SHIPMENT: Approximately 10-12 weeks after our acceptance of your written purchase order and your written release for manufacture.

START-UP: Included.

EXPORT CONTROL: Country of Final Destination is The United States of America

SPECIFICATION: Written specifications were not received at time of quotation. Exception is taken to all sections not received.

TERMS AND CONDITIONS: Our standard terms and conditions are attached.

TAXES: Prices do not include taxes, tariffs, or duties.

We hope you find our quotation in line with your requirements. However, if you have any questions, please do not hesitate to contact us.

Sincerely,

Christopher Davidson
G3 Engineering, Inc.

Pump Performance Datasheet

Customer	:	Quote Number / ID	: 2376380
Customer ref. / PO	:	Model	: SL1.30.A30.55
Tag Number	: 001	Stages	: 1
Service	:	Based on curve number	: RC10599
Quantity	: 2	Date last saved	: 10/25/2024 2:15 PM

Operating Conditions

Flow, rated	: 300.0 USgpm
Differential head / pressure, rated (requested)	: 36.00 ft
Differential head / pressure, rated (actual)	: 36.05 ft
Suction pressure, rated / max	: 0.00 / 0.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz

Performance

Speed, rated	: 1762 rpm
Efficiency	: 68.26 %
NPSH required / margin required	: 5.11 / 0.00 ft
Ns (imp. eye flow) / Nss (imp. eye flow)	: 2,705 / 7,695 US Units
MCSF	: -
Head, maximum, rated diameter	: 59.01 ft
Head rise to shutoff	: 63.71 %
Flow, best eff. point	: 410.5 USgpm
Flow ratio, rated / BEP	: 73.08 %
Diameter ratio (rated / max)	: 100.00 %
Head ratio (rated dia / max dia)	: 100.00 %
Solids diameter limit	: 3.15 in
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Acceptable
Curve Tolerance	: ANSI/HI11.6:2017 3B2
Consult Factory for a different Tolerance	

Liquid

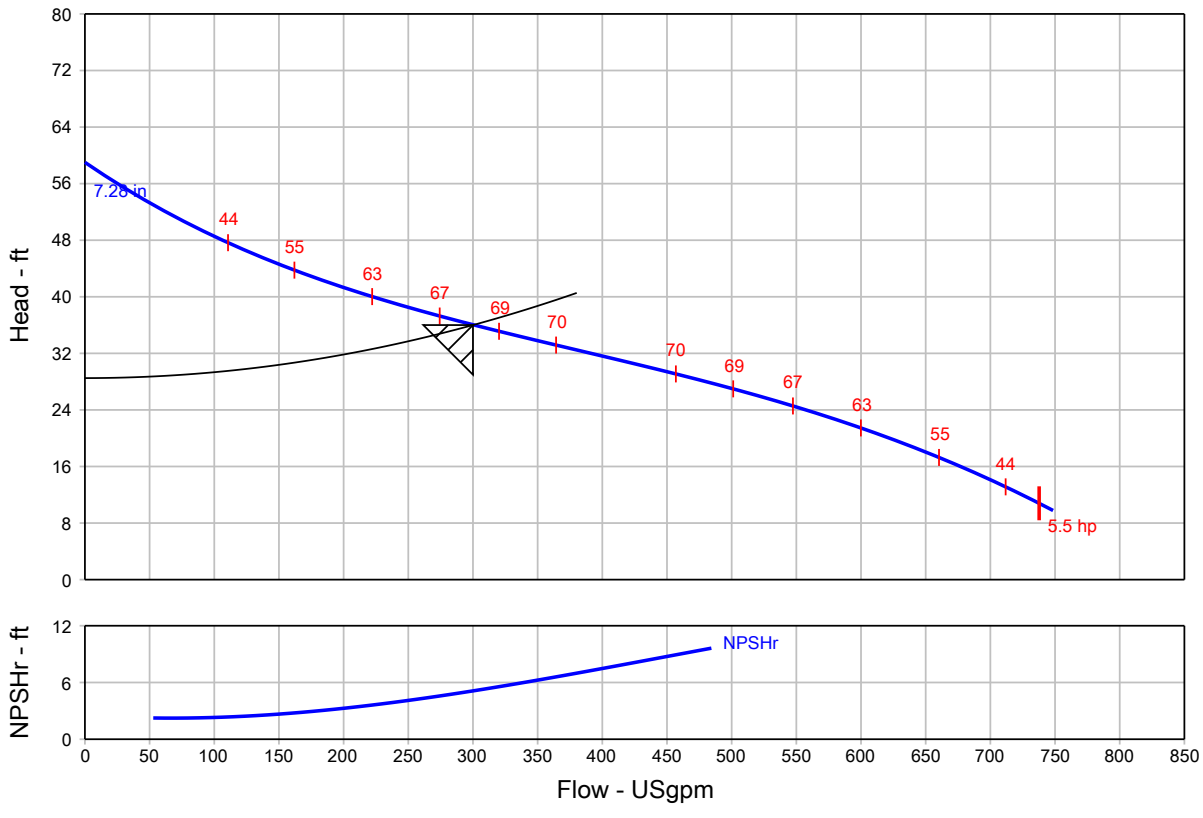
Liquid type	: Cold Water
Additional liquid description	:
Solids diameter, max	: 0.00 in
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG

Pressure Data

Maximum working pressure	: 25.54 psi.g

Driver & Power Data (@Max density)

Motor sizing specification	: Max power (non-overloading)
Service factor	: 1.15 (used)
Power, hydraulic	: 2.73 hp
Rated power (based on duty point)	: 4.00 hp
Max power (non-overloading)	: 5.60 hp
Motor rating	: 5.50 hp / 4.10 kW (Fixed)
Efficiency at 100%	: 87.8
Efficiency at 75%	: 87.8
Efficiency at 50%	: 86.2
Power Factor at 100%	: 0.78
Power Factor at 75%	: 0.7
Power Factor at 50%	: 0.59
Full Load Amps	: 9.05
Locked Rotor Amps	: 80
Nema Code Ltr	: K



Construction Datasheet

Project name	La Contenta WWTF Phase 3 Improvements Project	Tag Number	001
Consulting engineer		Service	
Customer		Model	SL1.30.A30.55
Customer ref. / PO		Quantity	2
Quote Number / ID	2376380	Grundfos Partner	G3 ENGINEERING INC.
Date last saved	10/25/2024 2:15 PM	Quoted By (Sales Engineer)	Christopher Davidson

Construction Code : SL1.30.A30.55.EX.4.61R.C

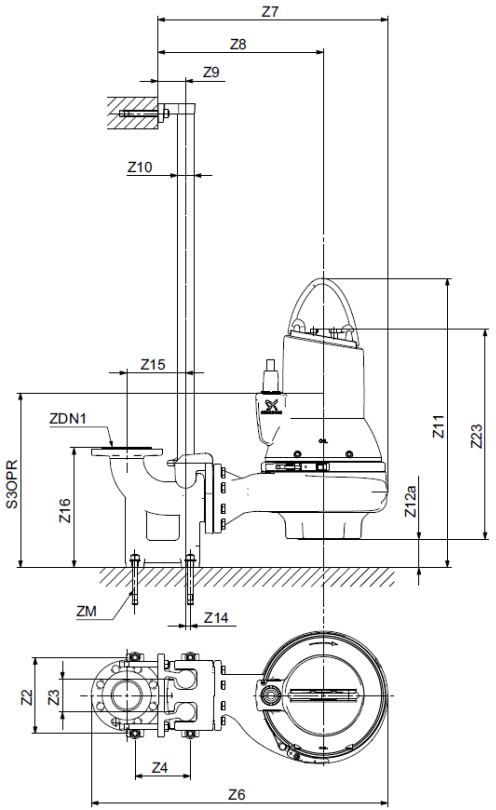
Construction	
Product Family	SL
Product Type	SL1
Pump Housing Type	Cast iron
Pump Housing Material	ASTM A48 35B
Impeller Type	S-TUBE
Impeller Material	ASTM A48 35B
Primary Shaft Seal Material	SIC/SIC
Secondary Shaft Seal Material	CARBON/CERAMICS
Max Flow	748.5 USgpm
Max Head	56.76 ft
Suction	4" / DN100
Discharge	3" / DN80
Connection	ANSI
Cooling Jacket	NO
Pressure Stage	PN 10
Moisture Sensor	YES
Water in Oil Sensor	NO
Nameplate Approval	CSA, FM
Installation	SUBMERGED
Orientation	Vertical
Max Installation Depth	65.62 ft

Motor Information	
Horsepower	5.50 hp
Enclosure Class	IP68
Explosion proof	YES
Explosion Proof Class	Class I, Division 1, Groups C and D, T4,T3C
Frame Range	C
Rated Voltage	230/460 V
Rated Speed	1760 rpm
Phase	3
Frequency	60 Hz
Number of Poles	4
Insulation Class	H
Motor Thermal Protection	THERMAL SWITCH
Rated Current	16.2/9.05 A
FLA	16.2/9.05A
LRA	120/80A
Efficiency at 100%	87.8
Efficiency at 75%	87.8
Efficiency at 50%	86.2
Power Factor at 100%	0.78
Power Factor at 75%	0.7
Power Factor at 50%	0.59
Start Method	Direct-on-line
Max Starts per hour	20
Cable Length	49.21 ft

Weights Approx.	
Net Weight (lb)	324.1 lb

General Arrangement

Project name	: La Contenta WWTF Phase 3 Improvements Project	Tag Number	: 001
Consulting engineer	:	Service	:
Customer	:	Model	:
Customer ref. / PO	:	Quantity of pumps	: 2
Quote Number / ID	: 2376380	Grundfos Partner	: G3 ENGINEERING INC.
Date last saved	: 10/25/2024 2:15 PM	Quoted By (Sales Engineer)	: Christopher Davidson



NOT FOR CONSTRUCTION, UNLESS CERTIFIED AND REFERENCED ON ORDER

Units	Z2	Z3	Z4	Z6	Z7	Z8	Z9	Z10	Z11	Z12a	Z15	Z16	ZDN1	ZM	Z23 EX	S3OPR EX
inches	**9.10**	**4.30**	**8.70**	**37.30**	**28.40**	**21.10**	**4.30**	**1.50**	**34.30**	**4.80**	**8.70**	**16.30**	**ANSI 4"**	**4 X M16**	**24.50**	**21.90**

Conditions of Service		Motor Data			
Flow: 300.0 USgpm	Fluid: Cold Water	HP: 5.5	Encl: IP68	Phase: 3	Efficiency: 87.8
TDH: 36.00 ft	Temp.: 20.00 deg F	RPM: 1762 rpm	Hz: 60	Voltage: 230/460	S.F.: 1.15

Wiring Diagrams for Small (1.5-15 HP) SL/SLV pumps

61R-3 phase, 230/460V, 60Hz without WIO (Water-in-Oil) Sensor:

- Connect 230V pumps using the low-voltage (delta) connection.
- Connect 460V pumps using the high-voltage (star) connection.

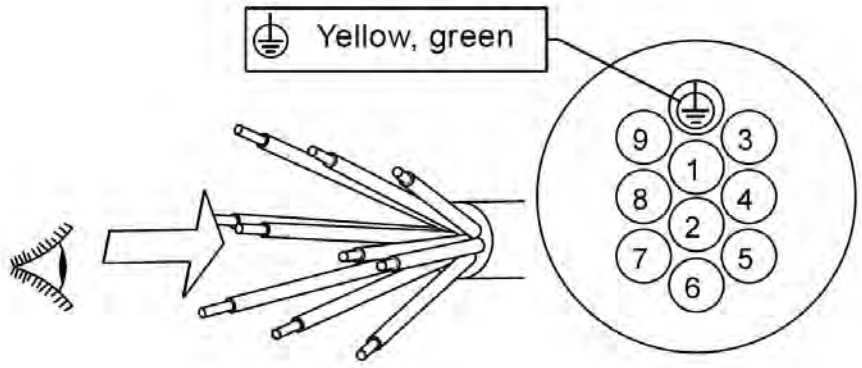


Fig. 1 Wiring Diagram, 10 core cable.

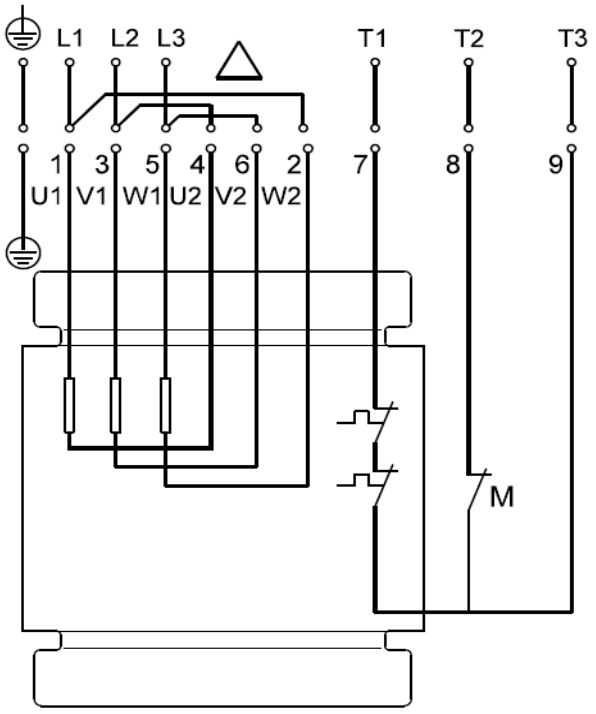


Fig. 2 Standard version with Thermal Switches and Moisture Switch wired in low-voltage (delta) connection.

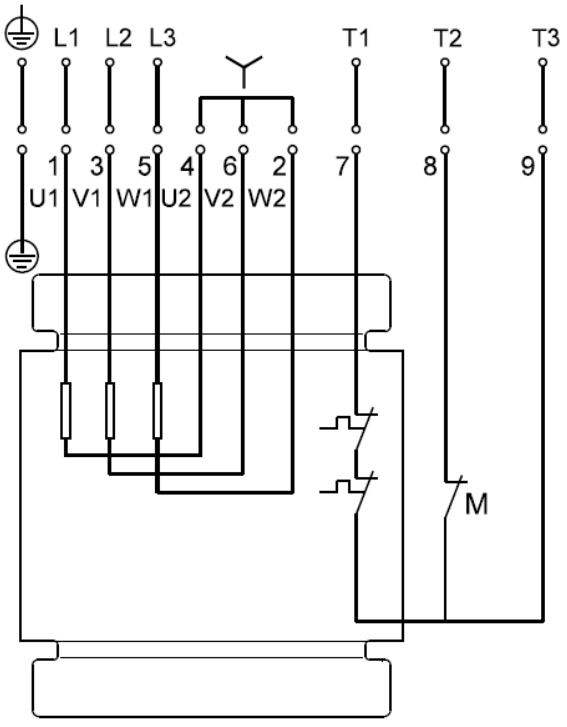


Fig. 3 Standard version with Thermal Switches and Moisture Switch wired in high-voltage (star) connection.

Calc Name	La Contenta - Upper Effluent Storage Pond PS
	Jory Benitez
Scenario	**Existing Return Lift Station Calcs**
Date	9/18/2024

Legend: Fill Field | *Notes* | Verify | Calculated

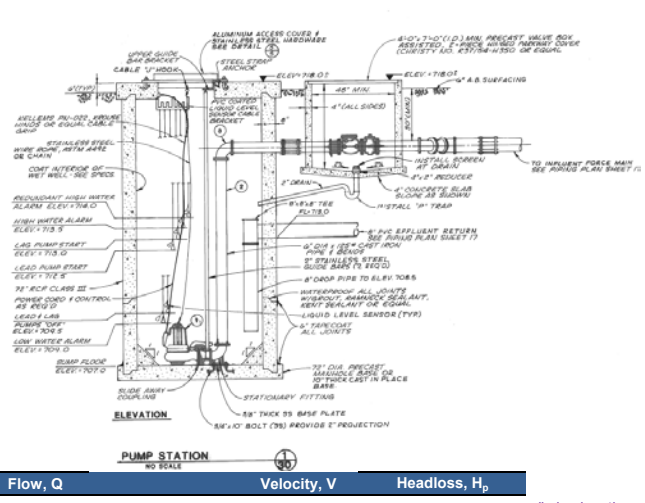
Demand and Assumptions

SCENARIO 1 - SINGLE PUMP CAPACITY, LEAD/LAG

Description	Value	Notes
Influent Flow	71 gpm	*adjusted to meet pump cycling time*
QTY of Duty Pumps	1	
Design Flow	**305 gpm**	
Est. Pipe Diameter	6 in	
Flow Velocity Check	3 fps	*<7 fps*
Max Pump Starts/Hr	6.0	*Recommended*
Min Sump Volume	458 gal	*= Tmin*Q/4*
Max Sump Volume	634 gal	
ft^3	84.8 cf	
Wet well Dia	6.0 ft	
Operational depth	3.0 ft	*for lead pump*
Operational Volume	634 gal	
Time to Fill	8.9 min	
Time to Drain	1.0 min	*critical flow*
Total Cycle Time	10.0 min	
Pump cycles/hr	6.0	
Pump cycles/hr/pump	6.0	*<6 cycles per pump ok*

Elevations

Description	Value	Notes
Well		
Lid Elevation	718.00 ft	*per as-built*
Min Inlet Invert El	713.00 ft	*per as-built*
HWL Alarm El	713.50 ft	*per as-built*
Pump On	712.50 ft	*per as-built*
Pump Off	709.50 ft	*per as-built*
Wet Well Base	707.00 ft	*per as-built*
Total Wet Well Depth	11.0 ft	
	11 ft	
Static		
Delivery Elevation	750 ft	*assumed 0.5' below top of grate elev*
Design Static Head Required	38 ft	
Max Static Head	41 ft	*from pump low level elev to delivery elev*
Min Static Head	36 ft	
Pressure		
Pressure Required at Discharge	0 ft	
Additonal Flow	**0 gpm**	



Straight Piping Losses

all pipe lengths assumed

Code	C	Type of Pipe	Dia., d	Length, L	Flow, Q		Velocity, V	Headloss, H_p
wsd	100	Welded Steel	6.00 in	12.0 ft	305 gpm	4.0906E-06	3.46 ft/sec	0.16 ft
dip	130	Ductile Iron Pipe	6.00 in	10.0 ft	305 gpm	2.09802E-06	3.46 ft/sec	0.08 ft
pd	130	Plastic (PVC or ABS)	8.00 in	60.0 ft	305 gpm	3.10508E-06	1.95 ft/sec	0.12 ft
PD	130	Plastic (PVC or ABS)	12.00 in	460.0 ft	305 gpm	3.3106E-06	0.87 ft/sec	0.13 ft

Subtotals:

$$\sum \frac{10.44(L)}{C^{1.85} d^{4.8655}} =$$ 1.26043E-05 = K1' Piping losses (at Qd_{es}): 0.50 ft

Fittings and Valving

Code	K	Description	Dia., d	Number	Flow, Q		Velocity, V	Headloss, H_f
sfb	0.3	45 deg. Bend - Std	12.00 in	4	305 gpm	0.030207558	0.87 ft/sec	0.01 ft
rfn	0.3	90 deg. Elbow - Reg, flg	6.00 in	2	305 gpm	0.241660463	3.46 ft/sec	0.11 ft
sc	1.5	Swing Check	6.00 in	1	305 gpm	0.604151157	3.46 ft/sec	0.28 ft
GV	0.2	Gate Valve	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
SFB	0.3	45 deg. Bend - Std	6.00 in	1	305 gpm	0.120830231	3.46 ft/sec	0.06 ft
D_2	0.2	Increaser	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
WBL	0.75	Wye -Branch to Line	8.00 in	1	305 gpm	0.095578601	1.95 ft/sec	0.04 ft
blt	1	Tee - Branch to Line	8.00 in	1	305 gpm	0.127438135	1.95 ft/sec	0.06 ft
e	1	Exits	12.00 in	1	305 gpm	0.025172965	0.87 ft/sec	0.01 ft

Subtotals:

$$\sum \frac{K}{2g * (A)^2} =$$ 1.40614608510 = K2' Fitting losses (at Q_{max}): 0.65 ft

Results

Total frictional losses: 1.15 ft
Design TDH: **39.40 ft**
Max TDH: **41.65 ft** *Matches design TDH*
Min TDH: **37.15 ft**

Velocity: $V = \frac{Q[gpm]}{448.8 x \pi x D[ft]^2 / 4}$

Piping Losses (Hazen Williams Formula): $H_p = (10.44)(L[ft]) \frac{Q[gpm]^{1.85}}{(C)^{1.85} (d[inches])^{4.8655}}$

$H_p = K1'(Q)^{1.85}$

Fitting Losses (Darcy Weisbach Equation): $H_f = \frac{KV^2}{2g} = K2'(Q)^2$

Total Dynamic Head (TDH): $TDH = StaticHead[H_S] + H_P + H_F$

Q, gpm	Q, mgd	Pipe Losses, H_p	Minor Losses, Hf	Total Losses	Max TDH	Min TDH	Design TDH
0	0.00	0.00 ft	0.00 ft	0.00 ft	40.50 ft	36.00 ft	38.25 ft
100	0.14	0.06 ft	0.07 ft	0.13 ft	40.63 ft	36.13 ft	38.38 ft
200	0.29	0.23 ft	0.28 ft	0.51 ft	41.01 ft	36.51 ft	38.76 ft
305	0.44	0.50 ft	0.65 ft	1.15 ft	41.65 ft	37.15 ft	39.40 ft
400	0.58	0.82 ft	1.12 ft	1.94 ft	42.44 ft	37.94 ft	40.19 ft
500	0.72	1.24 ft	1.75 ft	2.99 ft	43.49 ft	38.99 ft	41.24 ft
600	0.86	1.74 ft	2.52 ft	4.26 ft	44.76 ft	40.26 ft	42.51 ft
700	1.01	2.31 ft	3.43 ft	5.74 ft	46.24 ft	41.74 ft	43.99 ft
800	1.15	2.96 ft	4.48 ft	7.44 ft	47.94 ft	43.44 ft	45.69 ft
900	1.30	3.68 ft	5.67 ft	9.36 ft	49.86 ft	45.36 ft	47.61 ft
1000	1.44	4.47 ft	7.01 ft	11.48 ft	51.98 ft	47.48 ft	49.73 ft

Calc Name	La Contenta - Upper Effluent Storage Pond PS
	Jory Benitez
Scenario	**Existing Return Lift Station Calcs**
Date	9/18/2024

Legend: Fill Field | *Notes* | Verify | Calculated

Demand and Assumptions

SCENARIO 2 - SINGLE PUMP CAPACITY, ALTERNATING SINGLE PUMPS

Description	Value	Notes
Influent Flow	160 gpm	*adjusted to meet pump cycling time*
QTY of Duty Pumps	2	
Design Flow	**305 gpm**	
Est. Pipe Diameter	6 in	
Flow Velocity Check	3 fps	*<7 fps*
Max Pump Starts/Hr	6.0	*Recommended*
Min Sump Volume	458 gal	*= Tmin*Q/4*
Max Sump Volume	634 gal	
ft^3	84.8 cf	
Wet well Dia	6.0 ft	
Operational depth	3.0 ft	*for lead pump*
Operational Volume	634 gal	
Time to Fill	4.0 min	
Time to Drain	1.0 min	*critical flow*
Total Cycle Time	5.0 min	
Pump cycles/hr	12.0	
Pump cycles/hr/pump	6.0	*<6 cycles per pump ok*

Elevations

Description	Value	Notes
Well		
Lid Elevation	718.00 ft	*per as-built*
Min Inlet Invert El	713.00 ft	*per as-built*
HWL Alarm El	713.50 ft	*per as-built*
Pump On	712.50 ft	*per as-built*
Pump Off	709.50 ft	*per as-built*
Wet Well Base	707.00 ft	*per as-built*
Total Wet Well Depth	11.0 ft	
	11 ft	
Static		
Delivery Elevation	750 ft	*assumed 0.5' below top of grate elev*
Design Static Head Required	38 ft	
Max Static Head	41 ft	*from pump low level elev to delivery elev*
Min Static Head	36 ft	
Pressure		
Pressure Required at Discharge	0 ft	
Additonal Flow	**0 gpm**	

Straight Piping Losses

all pipe lengths assumed

Code	C	Type of Pipe	Dia., d	Length, L	Flow, Q		Velocity, V	Headloss, H_p
wsd	100	Welded Steel	6.00 in	12.0 ft	305 gpm	4.0906E-06	3.46 ft/sec	0.16 ft
dip	130	Ductile Iron Pipe	6.00 in	10.0 ft	305 gpm	2.09802E-06	3.46 ft/sec	0.08 ft
pd	130	Plastic (PVC or ABS)	8.00 in	60.0 ft	305 gpm	3.10508E-06	1.95 ft/sec	0.12 ft
PD	130	Plastic (PVC or ABS)	12.00 in	460.0 ft	305 gpm	3.3106E-06	0.87 ft/sec	0.13 ft

Subtotals:

$$\sum \frac{10.44(L)}{C^{1.85} d^{4.8655}} =$$ 1.26043E-05 = K1'

Piping losses (at Qd_{es}): 0.50 ft

Fittings and Valving

Code	K	Description	Dia., d	Number	Flow, Q		Velocity, V	Headloss, H_f
sfb	0.3	45 deg. Bend - Std	12.00 in	4	305 gpm	0.030207558	0.87 ft/sec	0.01 ft
rfn	0.3	90 deg. Elbow - Reg, flg	6.00 in	2	305 gpm	0.241660463	3.46 ft/sec	0.11 ft
sc	1.5	Swing Check	6.00 in	1	305 gpm	0.604151157	3.46 ft/sec	0.28 ft
GV	0.2	Gate Valve	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
SFB	0.3	45 deg. Bend - Std	6.00 in	1	305 gpm	0.120830231	3.46 ft/sec	0.06 ft
D_2	0.2	Increaser	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
WBL	0.75	Wye -Branch to Line	8.00 in	1	305 gpm	0.095578601	1.95 ft/sec	0.04 ft
blt	1	Tee - Branch to Line	8.00 in	1	305 gpm	0.127438135	1.95 ft/sec	0.06 ft
e	1	Exits	12.00 in	1	305 gpm	0.025172965	0.87 ft/sec	0.01 ft

Subtotals:

$$\sum \frac{K}{2g * (A)^2} =$$ 1.40614608510 = K2'

Fitting losses (at Q_{max}): 0.65 ft

Results

Total frictional losses: 1.15 ft

Design TDH: **39.40 ft**

Max TDH: **41.65 ft** *Matches design TDH*

Min TDH: **37.15 ft**

Velocity: $V = \frac{Q[gpm]}{448.8 x \pi x D[ft]^2 / 4}$

Piping Losses (Hazen Williams Formula): $H_p = (10.44)(L[ft]) \frac{Q[gpm]^{1.85}}{(C)^{1.85} (d[inches])^{4.8655}}$

$H_p = K1'(Q)^{1.85}$

Fitting Losses (Darcy Weisbach Equation): $H_f = \frac{KV^2}{2g} = K2'(Q)^2$

Total Dynamic Head (TDH): $TDH = StaticHead[H_S] + H_P + H_F$

Q, gpm	Q, mgd	Pipe Losses, H_p	Minor Losses, Hf	Total Losses	Max TDH	Min TDH	Design TDH
0	0.00	0.00 ft	0.00 ft	0.00 ft	40.50 ft	36.00 ft	38.25 ft
100	0.14	0.06 ft	0.07 ft	0.13 ft	40.63 ft	36.13 ft	38.38 ft
200	0.29	0.23 ft	0.28 ft	0.51 ft	41.01 ft	36.51 ft	38.76 ft
305	0.44	0.50 ft	0.65 ft	1.15 ft	41.65 ft	37.15 ft	39.40 ft
400	0.58	0.82 ft	1.12 ft	1.94 ft	42.44 ft	37.94 ft	40.19 ft
500	0.72	1.24 ft	1.75 ft	2.99 ft	43.49 ft	38.99 ft	41.24 ft
600	0.86	1.74 ft	2.52 ft	4.26 ft	44.76 ft	40.26 ft	42.51 ft
700	1.01	2.31 ft	3.43 ft	5.74 ft	46.24 ft	41.74 ft	43.99 ft
800	1.15	2.96 ft	4.48 ft	7.44 ft	47.94 ft	43.44 ft	45.69 ft
900	1.30	3.68 ft	5.67 ft	9.36 ft	49.86 ft	45.36 ft	47.61 ft
1000	1.44	4.47 ft	7.01 ft	11.48 ft	51.98 ft	47.48 ft	49.73 ft

Calc Name	La Contenta - Upper Effluent Storage Pond PS
	Jory Benitez
Scenario	**Existing Return Lift Station Calcs**
Date	9/18/2024

Legend: Fill Field | *Notes* | Verify | Calculated

Demand and Assumptions

SCENARIO 3 - SINGLE PUMP CAPACITY, ALTERNATING SINGLE PUMPS, 740 GAL OP. CAP.

Description	Value	Notes
Influent Flow	195 gpm	*adjusted to meet pump cycling time*
QTY of Duty Pumps	2	
Design Flow	**305 gpm**	
Est. Pipe Diameter	6 in	
Flow Velocity Check	3 fps	*<7 fps*
Max Pump Starts/Hr	6.0	*Recommended*
Min Sump Volume	458 gal	*= Tmin*Q/4*
Max Sump Volume	740 gal	
ft^3	99.0 cf	
Wet well Dia	6.0 ft	
Operational depth	3.5 ft	*for lag pump*
Operational Volume	740 gal	
Time to Fill	3.8 min	
Time to Drain	1.2 min	*critical flow*
Total Cycle Time	5.0 min	
Pump cycles/hr	12.0	
Pump cycles/hr/pump	6.0	*<6 cycles per pump ok*

Elevations

Well

Description	Value	Notes	
Lid Elevation	718.00 ft	*per as-built*	
Min Inlet Invert El	713.00 ft	*per as-built*	
HWL Alarm El	713.50 ft	*per as-built*	
Pump On	712.50 ft	*per as-built*	lag on at 713.0
Pump Off	709.50 ft	*per as-built*	
Wet Well Base	707.00 ft	*per as-built*	
Total Wet Well Depth	11.0 ft		
	11 ft		

Static

Delivery Elevation	750 ft	*assumed 0.5' below top of grate elev*
Design Static Head Required	38 ft	
Max Static Head	41 ft	*from pump low level elev to delivery elev*
Min Static Head	36 ft	

Pressure

Pressure Required at Discharge	0 ft
Additonal Flow	**0 gpm**

Straight Piping Losses

all pipe lengths assumed

Code	C	Type of Pipe	Dia., d	Length, L	Flow, Q		Velocity, V	Headloss, H_p
wsd	100	Welded Steel	6.00 in	12.0 ft	305 gpm	4.0906E-06	3.46 ft/sec	0.16 ft
dip	130	Ductile Iron Pipe	6.00 in	10.0 ft	305 gpm	2.09802E-06	3.46 ft/sec	0.08 ft
pd	130	Plastic (PVC or ABS)	8.00 in	60.0 ft	305 gpm	3.10508E-06	1.95 ft/sec	0.12 ft
PD	130	Plastic (PVC or ABS)	12.00 in	460.0 ft	305 gpm	3.3106E-06	0.87 ft/sec	0.13 ft

Subtotals:

$$\sum \frac{10.44(L)}{C^{1.85} d^{4.8655}} =$$ 1.26043E-05 = K1'

Piping losses (at Qd_{es}): 0.50 ft

Fittings and Valving

Code	K	Description	Dia., d	Number	Flow, Q		Velocity, V	Headloss, H_f
sfb	0.3	45 deg. Bend - Std	12.00 in	4	305 gpm	0.030207558	0.87 ft/sec	0.01 ft
rfn	0.3	90 deg. Elbow - Reg, flg	6.00 in	2	305 gpm	0.241660463	3.46 ft/sec	0.11 ft
sc	1.5	Swing Check	6.00 in	1	305 gpm	0.604151157	3.46 ft/sec	0.28 ft
GV	0.2	Gate Valve	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
SFB	0.3	45 deg. Bend - Std	6.00 in	1	305 gpm	0.120830231	3.46 ft/sec	0.06 ft
D_2	0.2	Increaser	6.00 in	1	305 gpm	0.080553488	3.46 ft/sec	0.04 ft
WBL	0.75	Wye -Branch to Line	8.00 in	1	305 gpm	0.095578601	1.95 ft/sec	0.04 ft
blt	1	Tee - Branch to Line	8.00 in	1	305 gpm	0.127438135	1.95 ft/sec	0.06 ft
e	1	Exits	12.00 in	1	305 gpm	0.025172965	0.87 ft/sec	0.01 ft

Subtotals:

$$\sum \frac{K}{2g * (A)^2} =$$ 1.40614608510 = K2'

Fitting losses (at Q_{max}): 0.65 ft

Results

Total frictional losses	1.15 ft
Design TDH:	**39.40 ft**
Max TDH:	**41.65 ft** *Matches design TDH*
Min TDH:	**37.15 ft**

Velocity: $V = \frac{Q[gpm]}{448.8 x \pi x D[ft]^2 / 4}$

Piping Losses (Hazen Williams Formula): $H_p = (10.44)(L[ft]) \frac{Q[gpm]^{1.85}}{(C)^{1.85} (d[inches])^{4.8655}}$

$H_p = K1'(Q)^{1.85}$

Fitting Losses (Darcy Weisbach Equation): $H_f = \frac{KV^2}{2g} = K2'(Q)^2$

Total Dynamic Head (TDH): $TDH = StaticHead[H_S] + H_P + H_F$

Q, gpm	Q, mgd	Pipe Losses, H_p	Minor Losses, Hf	Total Losses	Max TDH	Min TDH	Design TDH
0	0.00	0.00 ft	0.00 ft	0.00 ft	40.50 ft	36.00 ft	38.25 ft
100	0.14	0.06 ft	0.07 ft	0.13 ft	40.63 ft	36.13 ft	38.38 ft
200	0.29	0.23 ft	0.28 ft	0.51 ft	41.01 ft	36.51 ft	38.76 ft
305	0.44	0.50 ft	0.65 ft	1.15 ft	41.65 ft	37.15 ft	39.40 ft
400	0.58	0.82 ft	1.12 ft	1.94 ft	42.44 ft	37.94 ft	40.19 ft
500	0.72	1.24 ft	1.75 ft	2.99 ft	43.49 ft	38.99 ft	41.24 ft
600	0.86	1.74 ft	2.52 ft	4.26 ft	44.76 ft	40.26 ft	42.51 ft
700	1.01	2.31 ft	3.43 ft	5.74 ft	46.24 ft	41.74 ft	43.99 ft
800	1.15	2.96 ft	4.48 ft	7.44 ft	47.94 ft	43.44 ft	45.69 ft
900	1.30	3.68 ft	5.67 ft	9.36 ft	49.86 ft	45.36 ft	47.61 ft
1000	1.44	4.47 ft	7.01 ft	11.48 ft	51.98 ft	47.48 ft	49.73 ft

Calc Name	La Contenta - Upper Effluent Storage Pond PS
	Jory Benitez
Scenario	**Existing Return Lift Station Calcs**
Date	9/18/2024

Legend: Fill Field | *Notes* | Verify | Calculated

Demand and Assumptions

SCENARIO 4 - TWO DUTY PUMPS, 740 GAL OP. CAP.

Description	Value	Notes
Influent Flow	78 gpm	*adjusted to meet pump cycling time*
QTY of Duty Pumps	1	
Design Flow	**700 gpm**	
Est. Pipe Diameter	6 in	
Flow Velocity Check	8 fps	*<7 fps*
Max Pump Starts/Hr	6.0	*Recommended*
Min Sump Volume	1,050 gal	*= Tmin*Q/4*
Max Sump Volume	740 gal	
ft^3	99.0 cf	
Wet well Dia	6.0 ft	
Operational depth	3.5 ft	*for lag pump*
Operational Volume	740 gal	
Time to Fill	9.5 min	
Time to Drain	0.5 min	*critical flow*
Total Cycle Time	10.0 min	
Pump cycles/hr	6.0	
Pump cycles/hr/pump	6.0	*<6 cycles per pump ok*

Elevations

Description	Value	Notes	
Well			
Lid Elevation	718.00 ft	*per as-built*	
Min Inlet Invert El	713.00 ft	*per as-built*	
HWL Alarm El	713.50 ft	*per as-built*	
Pump On	712.50 ft	*per as-built*	lag on at 713.0
Pump Off	709.50 ft	*per as-built*	
Wet Well Base	707.00 ft	*per as-built*	
Total Wet Well Depth	11.0 ft		
	11 ft		
Static			
Delivery Elevation	750 ft	*assumed 0.5' below top of grate elev*	
Design Static Head Required	38 ft		
Max Static Head	41 ft	*from pump low level elev to delivery elev*	
Min Static Head	36 ft		
Pressure			
Pressure Required at Discharge	0 ft		
Additonal Flow	**0 gpm**		

Straight Piping Losses

all pipe lengths assumed

Code	C	Type of Pipe	Dia., d	Length, L	Flow, Q		Velocity, V	Headloss, H_p
wsd	100	Welded Steel	6.00 in	12.0 ft	700 gpm	4.0906E-06	7.94 ft/sec	0.75 ft
dip	130	Ductile Iron Pipe	6.00 in	10.0 ft	700 gpm	2.09802E-06	7.94 ft/sec	0.38 ft
pd	130	Plastic (PVC or ABS)	8.00 in	60.0 ft	700 gpm	3.10508E-06	4.47 ft/sec	0.57 ft
PD	130	Plastic (PVC or ABS)	12.00 in	460.0 ft	700 gpm	3.3106E-06	1.99 ft/sec	0.61 ft

Subtotals:

$$\sum \frac{10.44(L)}{C^{1.85} d^{4.8655}} =$$ 1.26043E-05 = K1'

Piping losses (at Qd_{es}): 2.31 ft

Fittings and Valving

Code	K	Description	Dia., d	Number	Flow, Q		Velocity, V	Headloss, H_f
sfb	0.3	45 deg. Bend - Std	12.00 in	4	700 gpm	0.030207558	1.99 ft/sec	0.07 ft
rfn	0.3	90 deg. Elbow - Reg, flg	6.00 in	2	700 gpm	0.241660463	7.94 ft/sec	0.59 ft
sc	1.5	Swing Check	6.00 in	1	700 gpm	0.604151157	7.94 ft/sec	1.47 ft
GV	0.2	Gate Valve	6.00 in	1	700 gpm	0.080553488	7.94 ft/sec	0.20 ft
SFB	0.3	45 deg. Bend - Std	6.00 in	1	700 gpm	0.120830231	7.94 ft/sec	0.29 ft
D_2	0.2	Increaser	6.00 in	1	700 gpm	0.080553488	7.94 ft/sec	0.20 ft
WBL	0.75	Wye -Branch to Line	8.00 in	1	700 gpm	0.095578601	4.47 ft/sec	0.23 ft
blt	1	Tee - Branch to Line	8.00 in	1	700 gpm	0.127438135	4.47 ft/sec	0.31 ft
e	1	Exits	12.00 in	1	700 gpm	0.025172965	1.99 ft/sec	0.06 ft

Subtotals:

$$\sum \frac{K}{2g * (A)^2} =$$ 1.40614608510 = K2'

Fitting losses (at Q_{max}): 3.42 ft

Results

Total frictional losses: 5.73 ft

Design TDH: **43.98 ft**

Max TDH: **46.23 ft**

Min TDH: **41.73 ft**

Velocity: $V = \frac{Q[gpm]}{448.8 x \pi x D[ft]^2 / 4}$

Piping Losses (Hazen Williams Formula): $H_p = (10.44)(L[ft]) \frac{Q[gpm]^{1.85}}{(C)^{1.85} (d[inches])^{4.8655}}$

$H_p = K1'(Q)^{1.85}$

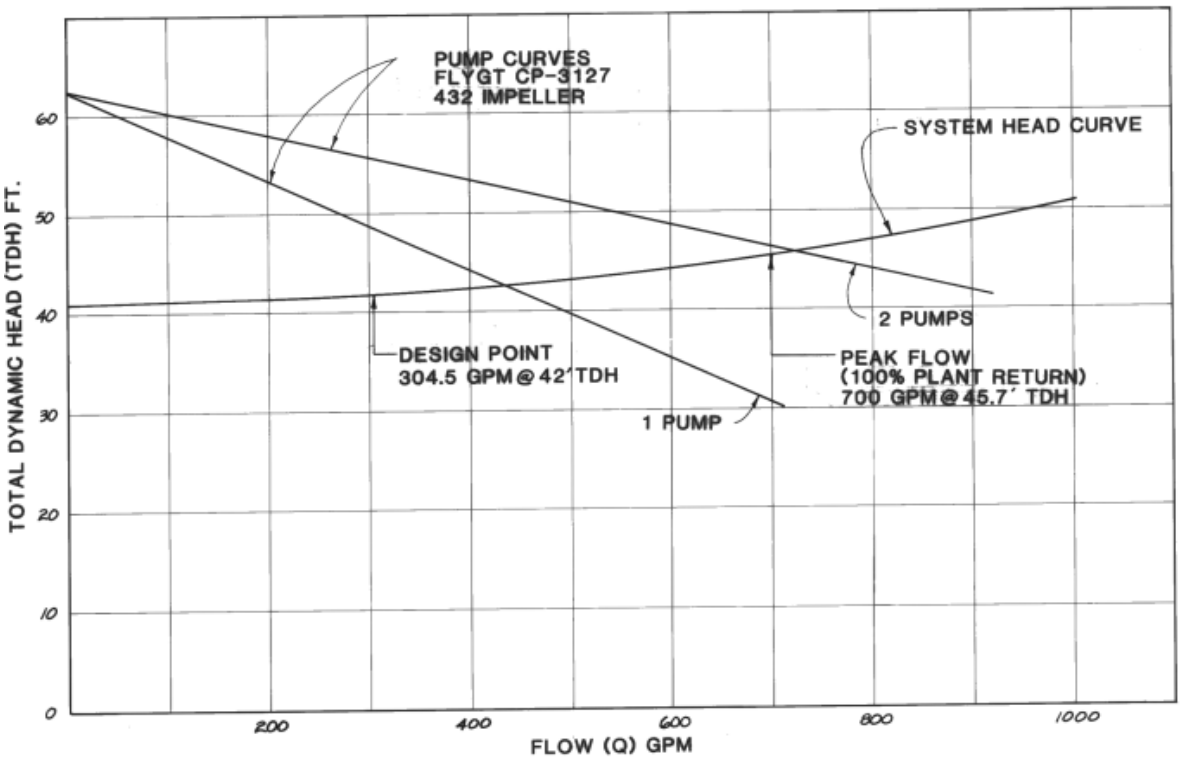
Fitting Losses (Darcy Weisbach Equation): $H_f = \frac{KV^2}{2g} = K2'(Q)^2$

Total Dynamic Head (TDH): $TDH = StaticHead[H_S] + H_P + H_F$

Q, gpm	Q, mgd	Pipe Losses, H_p	Minor Losses, Hf	Total Losses	Max TDH	Min TDH	Design TDH
0	0.00	0.00 ft	0.00 ft	0.00 ft	40.50 ft	36.00 ft	38.25 ft
100	0.14	0.06 ft	0.07 ft	0.13 ft	40.63 ft	36.13 ft	38.38 ft
200	0.29	0.23 ft	0.28 ft	0.51 ft	41.01 ft	36.51 ft	38.76 ft
305	0.44	0.50 ft	0.65 ft	1.15 ft	41.65 ft	37.15 ft	39.40 ft
400	0.58	0.82 ft	1.12 ft	1.94 ft	42.44 ft	37.94 ft	40.19 ft
500	0.72	1.24 ft	1.75 ft	2.99 ft	43.49 ft	38.99 ft	41.24 ft
600	0.86	1.74 ft	2.52 ft	4.26 ft	44.76 ft	40.26 ft	42.51 ft
700	1.01	2.31 ft	3.43 ft	5.74 ft	46.24 ft	41.74 ft	43.99 ft
800	1.15	2.96 ft	4.48 ft	7.44 ft	47.94 ft	43.44 ft	45.69 ft
900	1.30	3.68 ft	5.67 ft	9.36 ft	49.86 ft	45.36 ft	47.61 ft
1000	1.44	4.47 ft	7.01 ft	11.48 ft	51.98 ft	47.48 ft	49.73 ft

Pump Manufacturer: **FLYGT**
Model: **CP-3127**
Speed: **-**
Stages: **-**
Impeller Dia: **-**
Horsepower: **-**

	1 Pump		**2 Pumps**	
Flow (gpm)	**TDH (ft)**	TDH (ft) (inc. station loss)	Flow (gpm)	**TDH (ft)**
0	64.0	64.0	0	64.00
100	59.0	59.0	200	59.00
200	54.0	54.0	400	54.00
300	49.0	49.0	600	49.00
400	44.0	44.0	800	44.00
500	40.0	40.0	1000	40.00
600	36.0	36.0		
700	32.0	32.0		



RETURN LIFT STATION
SYSTEMS HEAD CURVE AND PUMP CURVES

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APPENDIX G

Calaveras County Water District
Treated Effluent Pipeline Calculations

Flow Scenario 1: 8-inch and 10-inch Pipelines, Evaluation of 2MGD Flow to LESP

Input | AutoCalc

Hazen William's Calculator (For Full Flow Circular Pipe)

This calculation is based on the full capacity of the pipe (full flow), not under partial flow conditions

$$v = 1.318 C_{HW} R_H^{0.63} S^{0.54}$$

Step 1: Calculate exising flow capacity & required flow for proposed pipe

Description	Units	Gravity (Mannings)	Pressurized (Hazen)	Existing Pipe (Hazen)	Proposed Pipe (Hazen)
Calculation Condition		Resulting Flow	Resulting Flow	Resulting Head Losses (I	Resulting Head Losses (Input Q)
Begin STA or Point		12"x8" DI Cross after Parshall Flume	12"x8" DI Cross after Parshall Flume	12"x8" DI Cross after Parshall Flume	12"x10" DI Tee after Parshall Flume
End STA or Point		STA 0+80	STA 0+80	STA 0+80	STA 5+95
Begin WS EL		736.33	736.33	736.33	736.33
End WS EL		702.3	702.3	702.3	702.3
Flow Rate, Q =	CFS	1.09	1.22	0.92	2.17
Flow Rate, Q =	GPM	490.79	548.51	414.97	973.92
Flow Rate, Q =	**MGD**	**0.71**	**0.79**	**0.60**	**1.40**
velocity =	ft/s	3.13	3.50	2.65	3.98
Pipe Diameter =	inch	8	8.00	8.00	10.00
Pipe Diameter =	ft	0.67			
Theta =		6.28			
Height of Water|y =	ft	0.67	0.67	0.67	0.83
Mutiplier =		1			
Hydraulic Radius|R =	ft	0.17	0.17	0.17	0.21
Cross-Sectional Area of Flow|A =	ft^2	0.35	0.35	0.35	0.55
Wetted Perimeter|P =	ft	2.09	2.09	2.09	2.62
Slope of Hydraulic Surface|S =	ft/ft	0.0082	0.0082	0.0082	0.0097
Slope of Hydraulic Surface|S =	% Slope	0.8189			
Vertical Delta =	ft	34.0	34.0	34.0	34.0
Horizontal Pipe Run =	ft	4,155	4,155	4,155	3,498
Manning's Roughness Coefficient| n =	DI, CCWD	0.013			
Energy Gradient Sf =		0.0082			
H-Williams Roughness Coefficient, C =		110	110	110	145
H-Williams Major Head Losses hL1=	ft	27.93	34.30	20.47	16.90
H-Williams Minor Head Losses hL2=	ft	3.940	4.404	3.332	6.901
Total Head Loses hLtot =	ft	31.87	38.71	23.80	23.80 0.00 Balance check
Sum of K =		9			10.57

Fittings	K Value	Quantity	Individual Losses (ft)
90 DEG BEND	0.3	1	0.06
45 DEG BEND	0.2	17	0.65
TEE, STRAIGHT THRU	0.2		
TEE, BRANCH TO LINE	1	2	0.38
TEE, LINE TO BRANCH	1		
ENTR, INWARD PROJECT'G	0.8		
ENTR., SHARP CRNR	0.5	1	0.10
ENTR. BELL MOUTH	0.1		
SLUICE GATE	2.7		
GATE VALVE (FULLY OPEN)	0.2	3	0.11
WATER METER	0.5	1	0.10
BUTTERFLY VALVE (FULLY OPEN)	0.7	1	
SWING CHECK VALVE (FULLY OPEN)	2.5	0	-
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1		
FLAP GATE	1.5		
EXIT LOSS	1	1	0.19

Step 2: Proposed hydraulic grade line (piping profile)

Description	Units	Hazen Williams Design Calculations (Full Flow Conditions)									TOTALS
Segment No.		1	2	3	4	5	6	7	8	9	
Begin STA or Point		Parshall Flume	STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	
End STA or Point		STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	STA 135+15	
Begin WS EL		736.64	733.48	731.33	727.20	725.77	722.00	706.00	706.00	703.00	736.64
End WS EL		733.48	731.33	727.20	725.77	722.00	706.00	706.00	703.00	702.30	702.30
Flow Rate, Q =	CFS	3.09	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	
Flow Rate, Q =	GPM	1,388.89	973.92	973.92	973.92	973.92	973.92	973.92	973.92	973.92	
Flow Rate, Q =	**MGD**	**2.00**	**1.40**	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
velocity =	ft/s	3.94	2.76	3.98	3.98	3.98	3.98	3.98	3.98	3.98	
Pipe Diameter =	inch	12.00	12.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
Height of Water|y =	ft	1.00	1.00	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Hydraulic Radius|R =	ft	0.25	0.25	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
Cross-Sectional Area of Flow|A =	ft^2	0.79	0.79	0.55	0.55	0.55	0.55	0.55	0.55	0.55	
Wetted Perimeter|P =	ft	3.14	3.14	2.62	2.62	2.62	2.62	2.62	2.62	2.62	
Vertical Delta =	ft	3.16	2.15	4.13	1.43	3.77	16.00	0.00	3.00	0.70	34.34
Horizontal Pipe Run =	ft	30	1,075	358	350	450	771	259	60	175	
Total Pipe Run =	ft	30	1,105	1,463	1,813	2,263	3,034	3,293	3,353	3,528	
H-Williams Roughness Coefficient, C =		145	145	145	145	145	145	145	145	145	
H-Williams Major Head Losses hL1=	ft	0.12	2.14	1.73	1.69	2.17	3.73	1.25	0.29	0.85	13.96
Sum of K =		1.80	2.80	0.57	0.13	0.20	0.67	0.00	0.60	3.80	
H-Williams Minor Head Losses hL2=	ft	0.20	0.34	0.02	0.00	0.00	0.03	0.00	0.02	0.89	1.50
Total Head Losses hLtot =	**ft**	**0.31**	**2.47**	**1.75**	**1.69**	**2.18**	**3.75**	**1.25**	**0.31**	**1.74**	**15.46**
Accumulated Head Losses =	ft	**0.31**	**2.79**	**4.54**	**6.23**	**8.41**	**12.16**	**13.41**	**13.72**	**15.46**	
Hydraulic Grade Line at Endpoint =	ft EL	736.33	733.85	732.10	730.41	728.23	724.48	723.23	722.92	721.18	721.18
Max. Invert Elevation at Endpoint =	ft EL	735.33	732.85	731.27	729.58	727.40	723.65	722.40	722.08	720.35	
Total Head =	ft	3.16	5.31	9.44	10.87	14.64	30.64	30.64	33.64	34.34	
Net Static Head Available =	ft	2.85	2.52	4.91	4.64	6.23	18.48	17.23	19.92	18.88	18.88
Velocity Head =	ft	0.24	0.12	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Net Total Head =	ft	3.09	2.64	5.15	4.89	6.48	18.73	17.47	20.16	19.12	

Fittings	K Value	Quantity									
90 DEG BEND	0.3	1	1								
45 DEG BEND	0.2		10	2	1	1	1		3	3	
TEE, STRAIGHT THRU	0.2		1				1				
TEE, BRANCH TO LINE	1										
TEE, LINE TO BRANCH	1	1									
ENTR, INWARD PROJECT'G	0.8										
ENTR., SHARP CRNR	0.5	1									
ENTR. BELL MOUTH	0.1										
SLUICE GATE	2.7										
GATE VALVE (FULLY OPEN)	0.2		1	1			1			1	
WATER METER	0.5									1	
BUTTERFLY VALVE (FULLY OPEN)	0.7										
SWING CHECK VALVE (FULLY OPEN)	2.5										
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1										
FLAP GATE	1.5									1	
EXIT LOSS	1									1	
REDUCER	0.04		1	1							

Flow Scenario 2: 8-inch and 10-inch Pipelines, Evaluation of Maximum Flow to LESP

Input | AutoCalc

Hazen William's Calculator (For Full Flow Circular Pipe)

This calculation is based on the full capacity of the pipe (full flow), not under partial flow conditions

$$v = 1.318 C_{HW} R_H^{0.63} S^{0.54}$$

Step 1: Calculate exising flow capacity & required flow for proposed pipe

Description	Units	Gravity (Mannings)	Pressurized (Hazen)	Existing Pipe (Hazen)	Proposed Pipe (Hazen)		
Calculation Condition		Resulting Flow	Resulting Flow	Resulting Head Losses (I	Resulting Head Losses (Input Q)		
Begin STA or Point		16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume		
End STA or Point		STA 0+80	STA 0+80	STA 0+80	STA 5+95		
Begin WS EL		736.22	736.22	736.22	736.22		
End WS EL		702.3	702.3	702.3	702.3		
Flow Rate, Q =	CFS	1.09	1.22	1.13	2.70		
Flow Rate, Q =	GPM	490.04	547.61	508.56	1,212.07		
Flow Rate, Q =	**MGD**	**0.71**	**0.79**	**0.73**	**1.75**		
velocity =	ft/s	3.13	3.50	3.25	4.95		
Pipe Diameter =	inch	8	8.00	8.00	10.00		
Pipe Diameter =	ft	0.67					
Theta =		6.28					
Height of Water|y =	ft	0.67	0.67	0.67	0.83		
Mutiplier =		1					
Hydraulic Radius|R =	ft	0.17	0.17	0.17	0.21		
Cross-Sectional Area of Flow|A =	ft^2	0.35	0.35	0.35	0.55		
Wetted Perimeter|P =	ft	2.09	2.09	2.09	2.62		
Slope of Hydraulic Surface|S =	ft/ft	0.0082	0.0082	0.0082	0.0097		
Slope of Hydraulic Surface|S =	% Slope	0.8164					
Vertical Delta =	ft	33.9	33.9	33.9	33.9		
Horizontal Pipe Run =	ft	4,155	4,155	4,155	3,498		
Manning's Roughness Coefficient| n =	DI, CCWD	0.013					
Energy Gradient Sf =		0.0082					
H-Williams Roughness Coefficient, C =		110	110	110	145		
H-Williams Major Head Losses hL1=	ft	27.85	34.20	29.83	25.33		
H-Williams Minor Head Losses hL2=	ft	3.934	4.397	4.083	8.589		
Total Head Loses hLtot =	ft	31.78	38.60	33.91	33.92	0.00	Balance check
Sum of K =		9			10.57		

Fittings	K Value	Quantity	Individual Losses (ft)
90 DEG BEND	0.3	1	0.06
45 DEG BEND	0.2	17	0.65
TEE, STRAIGHT THRU	0.2		
TEE, BRANCH TO LINE	1	2	0.38
TEE, LINE TO BRANCH	1		
ENTR, INWARD PROJECT'G	0.8		
ENTR., SHARP CRNR	0.5	1	0.09
ENTR. BELL MOUTH	0.1		
SLUICE GATE	2.7		
GATE VALVE (FULLY OPEN)	0.2	3	0.11
WATER METER	0.5	1	0.09
BUTTERFLY VALVE (FULLY OPEN)	0.7	1	
SWING CHECK VALVE (FULLY OPEN)	2.5	0	-
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1		
FLAP GATE	1.5		
EXIT LOSS	1	1	0.19

Step 2: Proposed hydraulic grade line (piping profile)

Description	Units	Hazen Williams Design Calculations (Full Flow Conditions)									TOTALS
Segment No.		1	2	3	4	5	6	7	8	9	
Begin STA or Point		Parshall Flume	STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	
End STA or Point		STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	STA 135+15	
Begin WS EL		736.64	733.48	731.33	727.20	724.92	722.00	706.00	706.00	703.00	736.64
End WS EL		733.48	731.33	727.20	724.92	722.00	706.00	706.00	703.00	702.30	702.30
Flow Rate, Q =	CFS	3.83	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	
Flow Rate, Q =	GPM	1,720.63	1,212.07	1,212.07	1,212.07	1,212.07	1,212.07	1,212.07	1,212.07	1,212.07	
Flow Rate, Q =	**MGD**	**2.48**	**1.75**	1.75	1.75	1.75	1.75	1.75	1.75	1.75	
velocity =	ft/s	4.88	3.44	4.95	4.95	4.95	4.95	4.95	4.95	4.95	
Pipe Diameter =	inch	12.00	12.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	
Height of Water|y =	ft	1.00	1.00	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Hydraulic Radius|R =	ft	0.25	0.25	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
Cross-Sectional Area of Flow|A =	ft^2	0.79	0.79	0.55	0.55	0.55	0.55	0.55	0.55	0.55	
Wetted Perimeter|P =	ft	3.14	3.14	2.62	2.62	2.62	2.62	2.62	2.62	2.62	
Vertical Delta =	ft	3.16	2.15	4.13	2.27	2.92	16.00	0.00	3.00	0.70	34.34
Horizontal Pipe Run =	ft	30	1,075	358	350	450	771	259	60	175	
Total Pipe Run =	ft	30	1,105	1,463	1,813	2,263	3,034	3,293	3,353	3,528	
H-Williams Roughness Coefficient, C =		145	145	145	145	145	145	145	145	145	
H-Williams Major Head Losses hL1=	ft	0.17	3.20	2.59	2.53	3.26	5.58	1.88	0.43	1.27	20.92
Sum of K =		1.80	2.80	0.57	0.13	0.20	0.67	0.00	0.60	3.80	
H-Williams Minor Head Losses hL2=	ft	0.25	0.42	0.03	0.00	0.00	0.03	0.00	0.03	1.11	1.87
Total Head Losses hLtot =	**ft**	**0.42**	**3.62**	**2.62**	**2.54**	**3.26**	**5.62**	**1.88**	**0.46**	**2.38**	**22.79**
Accumulated Head Losses =	ft	**0.42**	**4.04**	**6.66**	**9.19**	**12.46**	**18.07**	**19.95**	**20.41**	**22.79**	
Hydraulic Grade Line at Endpoint =	ft EL	736.22	732.60	729.98	727.45	724.18	718.57	716.69	716.23	713.85	713.85
Max. Invert Elevation at Endpoint =	ft EL	735.22	731.60	729.15	726.61	723.35	717.73	715.86	715.40	713.02	
Total Head =	ft	3.16	5.31	9.44	11.72	14.64	30.64	30.64	33.64	34.34	
Net Static Head Available =	ft	2.74	1.27	2.79	2.52	2.18	12.57	10.69	13.23	11.55	11.55
Velocity Head =	ft	0.37	0.18	0.38	0.38	0.38	0.38	0.38	0.38	0.38	
Net Total Head =	ft	3.11	1.45	3.17	2.91	2.57	12.95	11.07	13.61	11.93	

Fittings	K Value	Quantity									
90 DEG BEND	0.3	1	1								
45 DEG BEND	0.2		10	2	1	1	1		3	3	
TEE, STRAIGHT THRU	0.2		1				1				
TEE, BRANCH TO LINE	1										
TEE, LINE TO BRANCH	1	1									
ENTR, INWARD PROJECT'G	0.8										
ENTR., SHARP CRNR	0.5	1									
ENTR. BELL MOUTH	0.1										
SLUICE GATE	2.7										
GATE VALVE (FULLY OPEN)	0.2		1	1			1			1	
WATER METER	0.5									1	
BUTTERFLY VALVE (FULLY OPEN)	0.7										
SWING CHECK VALVE (FULLY OPEN)	2.5										
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1										
FLAP GATE	1.5									1	
EXIT LOSS	1									1	
REDUCER	0.04		1	1							

Flow Scenario 3: One 12-inch Proposed Pipeline, Abandon (E) 8-inch Pipeline

Input | AutoCalc

Hazen William's Calculator (For Full Flow Circular Pipe)

This calculation is based on the full capacity of the pipe (full flow), not under partial flow conditions

$$v = 1.318 C_{HW} R_H^{0.63} S^{0.54}$$

Step 1: Calculate exising flow capacity & required flow for proposed pipe

Description	Units	Proposed Pipe (Hazen)
Calculation Condition		Resulting Head Losses (Input Q)
		16" DI Cross after Parshall
Begin STA or Point		Flume
End STA or Point		STA 5+95
Begin WS EL		736.33
End WS EL		702.3
Flow Rate, Q =	CFS	3.09
Flow Rate, Q =	GPM	1,388.89
Flow Rate, Q =	**MGD**	**2.00**
velocity =	ft/s	3.94
Pipe Diameter =	inch	12.00
Pipe Diameter =	ft	
Theta =		
Height of Water|y =	ft	1.00
Mutiplier =		
Hydraulic Radius|R =	ft	0.25
Cross-Sectional Area of Flow|A =	ft^2	0.79
Wetted Perimeter|P =	ft	3.14
Slope of Hydraulic Surface|S =	ft/ft	0.0097
Slope of Hydraulic Surface|S =	% Slope	
Vertical Delta =	ft	34.0
Horizontal Pipe Run =	ft	3,515
Manning's Roughness Coefficient| n =	DI, CCWD	
Energy Gradient Sf =		
H-Williams Roughness Coefficient, C =		145
H-Williams Major Head Losses hL1=	ft	13.48
H-Williams Minor Head Losses hL2=	ft	6.835
Total Head Loses hLtot =	ft	20.31
Sum of K =		10.57

Step 2: Proposed hydraulic grade line (piping profile)

Description	Units	Hazen Williams Design Calculations (Full Flow Conditions)									TOTALS
Segment No.		1	2	3	4	5	6	7	8	9	
Begin STA or Point		Parshall Flume	STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	
End STA or Point		STA 100+00	STA 110+92	STA 114+50	STA 118+00	STA 122+50	STA 130+21	STA 132+80	STA 133+40	STA 135+15	
Begin WS EL		736.64	733.48	731.30	727.16	725.77	722.00	706.00	706.00	703.00	736.64
End WS EL		733.48	731.30	727.16	725.77	722.00	706.00	706.00	703.00	702.30	702.30
Flow Rate, Q =	CFS	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	
Flow Rate, Q =	GPM	1,388.89	1,388.89	1,388.89	1,388.89	1,388.89	1,388.89	1,388.89	1,388.89	1,388.89	
Flow Rate, Q =	**MGD**	**2.00**	**2.00**	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
velocity =	ft/s	3.94	2.89	3.94	3.94	3.94	3.94	3.94	3.94	3.94	
Pipe Diameter =	inch	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
Height of Water|y =	ft	1.00	1.17	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Hydraulic Radius|R =	ft	0.25	0.29	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Cross-Sectional Area of Flow|A =	ft^2	0.79	1.07	0.79	0.79	0.79	0.79	0.79	0.79	0.79	
Wetted Perimeter|P =	ft	3.14	3.67	3.14	3.14	3.14	3.14	3.14	3.14	3.14	
Vertical Delta =	ft	3.16	2.18	4.13	1.39	3.77	16.00	0.00	3.00	0.70	34.34
Horizontal Pipe Run =	ft	30	1,092	358	350	450	771	259	60	175	
Total Pipe Run =	ft	30	1,122	1,480	1,830	2,280	3,051	3,310	3,370	3,545	
H-Williams Roughness Coefficient, C =		145	145	145	145	145	145	145	145	145	
H-Williams Major Head Losses hL1=	ft	0.12	1.98	1.37	1.34	1.73	2.96	0.99	0.23	0.67	11.38
Sum of K =		1.80	2.80	0.57	0.13	0.20	0.67	0.00	0.60	3.80	
H-Williams Minor Head Losses hL2=	ft	0.20	0.35	0.02	0.00	0.00	0.03	0.00	0.02	0.88	1.51
Total Head Losses hLtot =	**ft**	**0.31**	**2.33**	**1.39**	**1.34**	**1.73**	**2.98**	**0.99**	**0.25**	**1.55**	**12.89**
Accumulated Head Losses =	ft	**0.31**	**2.64**	**4.03**	**5.38**	**7.11**	**10.09**	**11.08**	**11.33**	**12.89**	
Hydraulic Grade Line at Endpoint =	ft EL	736.33	734.00	732.61	731.26	729.53	726.55	725.56	725.31	723.75	723.75
Max. Invert Elevation at Endpoint =	ft EL	735.33	732.83	731.61	730.26	728.53	725.55	724.56	724.31	722.75	
Total Head =	ft	3.16	5.34	9.48	10.87	14.64	30.64	30.64	33.64	34.34	
Net Static Head Available =	ft	2.85	2.70	5.44	5.49	7.53	20.55	19.56	22.31	21.45	21.45
Velocity Head =	ft	0.24	0.13	0.24	0.24	0.24	0.24	0.24	0.24	0.24	
Net Total Head =	ft	3.09	2.83	5.69	5.73	7.78	20.79	19.80	22.55	21.69	

Fittings	K Value	Quantity									
90 DEG BEND	0.3	1	1								
45 DEG BEND	0.2		10	2	1	1	1		3	3	
TEE, STRAIGHT THRU	0.2		1				1				
TEE, BRANCH TO LINE	1										
TEE, LINE TO BRANCH	1	1									
ENTR, INWARD PROJECT'G	0.8										
ENTR., SHARP CRNR	0.5	1									
ENTR. BELL MOUTH	0.1										
SLUICE GATE	2.7										
GATE VALVE (FULLY OPEN)	0.2		1	1			1			1	
WATER METER	0.5									1	
BUTTERFLY VALVE (FULLY OPEN)	0.7										
SWING CHECK VALVE (FULLY OPEN)	2.5										
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1										
FLAP GATE	1.5									1	
EXIT LOSS	1									1	
REDUCER	0.04		1	1							

Flow Scenario 4: 8-inch and 10-inch Pipelines, Max Flow to LESP Bottom Inlet

Input | AutoCalc

Hazen William's Calculator (For Full Flow Circular Pipe)

This calculation is based on the full capacity of the pipe (full flow), not under partial flow conditions

$$v = 1.318 C_{HW} R_H^{0.63} S^{0.54}$$

Step 1: Calculate exising flow capacity & required flow for proposed pipe

Description	Units	Gravity (Mannings)	Pressurized (Hazen)	Existing Pipe (Hazen)	Proposed Pipe (Hazen)
Calculation Condition		Resulting Flow	Resulting Flow	Resulting Head Losses (In	Resulting Head Losses (Input Q)
Begin STA or Point		16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume	16" DI Cross after Parshall Flume
End STA or Point		STA 0+80	STA 0+80	STA 5+95	STA 5+95 (bottom outlet)
Begin WS EL		736.41	736.41	736.41	736.41
End WS EL		702.3	702.3	702.3	702.3
Flow Rate, Q =	CFS	1.14	1.28	0.73	1.71
Flow Rate, Q =	GPM	511.27	573.28	327.97	767.86
Flow Rate, Q =	**MGD**	**0.74**	**0.83**	**0.47**	**1.11**
velocity =	ft/s	3.26	3.66	2.09	3.14
Pipe Diameter =	inch	8	8.00	8.00	10.00
Pipe Diameter =	ft	0.67			
Theta =		6.28			
Height of Water|y =	ft	0.67	0.67	0.67	0.83
Mutiplier =		1			
Hydraulic Radius|R =	ft	0.17	0.17	0.17	0.21
Cross-Sectional Area of Flow|A =	ft^2	0.35	0.35	0.35	0.55
Wetted Perimeter|P =	ft	2.09	2.09	2.09	2.62
Slope of Hydraulic Surface|S =	ft/ft	0.0089	0.0089	0.0093	0.0097
Slope of Hydraulic Surface|S =	% Slope	0.8887			
Vertical Delta =	ft	34.1	34.1	34.1	34.1
Horizontal Pipe Run =	ft	3,838	3,838	3,670	3,508
Manning's Roughness Coefficient| n =	DI, CCWD	0.013			
Energy Gradient Sf =		0.0089			
H-Williams Roughness Coefficient, C =		110	110	110	145
H-Williams Major Head Losses hL1=	ft	27.82	34.38	11.70	10.92
H-Williams Minor Head Losses hL2=	ft	4.105	4.603	2.633	3.412
Total Head Loses hLtot =	ft	31.93	38.99	14.33	14.33
Sum of K =		9			8.37

0.00 Balance check

Fittings	K Value	Quantity	Individual Losses (ft)
90 DEG BEND	0.3	1	0.06
45 DEG BEND	0.2	17	0.71
TEE, STRAIGHT THRU	0.2		
TEE, BRANCH TO LINE	1	2	0.42
TEE, LINE TO BRANCH	1		
ENTR, INWARD PROJECT'G	0.8		
ENTR., SHARP CRNR	0.5	1	0.10
ENTR. BELL MOUTH	0.1		
SLUICE GATE	2.7		
GATE VALVE (FULLY OPEN)	0.2	3	0.12
WATER METER	0.5	1	0.10
BUTTERFLY VALVE (FULLY OPEN)	0.7	1	
SWING CHECK VALVE (FULLY OPEN)	2.5	0	-
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1		
FLAP GATE	1.5		
EXIT LOSS	1	1	0.21

Description	Units	Existing Pipe (Hazen)
Calculation Condition		Resulting Head Losses (Input Q)
Begin STA or Point		STA 5+95
End STA or Point		STA 0+00
Begin WS EL		702.30
End WS EL		702.3
Flow Rate, Q =	CFS	2.44
Flow Rate, Q =	GPM	1,095.84
Flow Rate, Q =	**MGD**	**1.58**
velocity =	ft/s	6.99
Pipe Diameter =	inch	8.00
Pipe Diameter =	ft	
Theta =		
Height of Water|y =	ft	0.67
Mutiplier =		
Hydraulic Radius|R =	ft	0.17
Cross-Sectional Area of Flow|A =	ft^2	0.35
Wetted Perimeter|P =	ft	2.09
Slope of Hydraulic Surface|S =	ft/ft	0.0000
Slope of Hydraulic Surface|S =	% Slope	
Vertical Delta =	ft	0.0
Horizontal Pipe Run =	ft	595
Manning's Roughness Coefficient| n =	DI, CCWD	0.013
Energy Gradient Sf =		0.0408
H-Williams Roughness Coefficient, C =		110
H-Williams Major Head Losses hL1=	ft	17.67
H-Williams Minor Head Losses hL2=	ft	2.103
Total Head Loses hLtot =	ft	19.78
Max Allowable Headloss =	ft	19.78
Headloss Balance =	ft	0.00
Sum of K =		4.4

Iterate until = 0

Fittings	K Value	Quantity	Individual Losses (ft)
90 DEG BEND	0.3	1	0.23
45 DEG BEND	0.2	7	1.06
TEE, STRAIGHT THRU	0.2		
TEE, BRANCH TO LINE	1	1	0.76
TEE, LINE TO BRANCH	1		-
ENTR, INWARD PROJECT'G	0.8		-
ENTR., SHARP CRNR	0.5	0	-
ENTR. BELL MOUTH	0.1		-
SLUICE GATE	2.7		-
GATE VALVE (FULLY OPEN)	0.2	1	0.15
WATER METER	0.5	1	0.38
BUTTERFLY VALVE (FULLY OPEN)	0.7	0	-
SWING CHECK VALVE (FULLY OPEN)	2.5	0	-
PLUG VALVE, ECCENTRIC (FULLY OPEN)	1		-
FLAP GATE	1.5		-
EXIT LOSS	1	1	0.76

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APPENDIX H

Calaveras County Water District
Preliminary Cost Estimate

PRE-CONSTRUCTION SERVICES GROUP

LA CONTENTA WWTF PHASE 3 – 30% OPCC

REPORT SUMMARY

The following summary report prepared on 11/11/2024 is based on the HydroScience 30% SUBMITTAL LA CONTENTA WASTEWATER TREATEMENT FACILITY PHASE 3 IMPROVEMENTS dated November 2024. The following comments, questions and recommendations are not intended to be direction. Ultimate design, engineering, and use of the information provided is at the discretion of the recipient.

Notes and Comments:

- This estimate is commensurate with the design level and is based on the drawings and documents provided. Material and quantities were taken off and were used by PCSG in the completion of the estimate.
- NOTE ABOUT MATERIAL PRICING: Material pricing is volatile. Pricing is often guaranteed for as little as 10 or 15 days. Material costs are based on material pricing at the time of this report.
- A 30% contingency factor has been included in the overall project value to account for design development and scope of work evolution. Contractor risk contingency is included in the overall contingency value.
- Direct costs are based on takeoff quantities with labor and equipment typical of the scope of work and regional productivity to prosecute the work as shown. Direct cost also includes typical small tools, non-permanent materials consumed during construction, and support subcontractors typical of the scope of work. Temporary and construction materials have been included at current pricing levels.
- California and Calaveras County Prevailing Wage Rates for 2024/2025 have been used in pricing craft labor costs.
- Construction equipment costs are based on available rental pricing data in Washoe County and include fuel, oil, grease, and wear parts as well as Blue Book Equipment Rates from Equipment Watch.
- Overhead and project management have been included to represent the overall project costs.
- A contractor fee of 12% has been included to represent assumed contractor profit.
- 2 years of escalation at 5% per year has been included to represent assumed inflation over the next two years
- This opinion of probable construction costs (OPCC) is provided as a specific value; however, contractor means and methods, actual wage and equipment rates, advantages, and risk assumptions will vary. Bids received from contractors are likely to vary by as much as +/- 25% depending on the number of bidders, market conditions, and regional factors if the project bids are received within the assumed 2 year period.

La Contenta WWTF Phase 3 Improvements - 30%

OPINION OF PROBABLE CONSTRUCTION COSTS

	ACTIVITY	BASELINE	ALTERNATE	ALTERNATE OPTIONS
	Sitework	$ 634,277	$ 634,277	
	Splitter Box	$ 105,722	$ 105,722	
	Flow Meter Vaults	$ 178,438	$ 178,438	
	Aeration Basin w/ Integral Clarifier	$ 3,833,045		
	Aeration Basin w/o Integral Clarifier		$ 2,310,797	
	Independent Clarifier		$ 1,729,700	
	Baseline Integral Clarifier Yard Piping	$ 740,301		
	Independent Clarifier Yard Piping		$ 750,917	
	Electrical Building	$ 371,471	$ 371,471	
	RAS/WAS Pump Station (Submersible Option)		$ 332,930	
	RAS/WAS Pump Station (Split Case Pump Option)			*$ 190,882*
	Influent Junction Box	$ 203,579	$ 203,579	
	Effluent Pump Station (Baseline)	$ 586,243	$ 586,243	
	Effluent Pump Station (Barge Option)			*$ 426,341*
	Effluent Pump Station (Plant Drain Combination)			*$ 993,607*
	Effluent Pipeline	$ 1,303,800	$ 1,303,800	
	Effluent Pipeline (Increased Pipeline Size Option)			*$ 1,450,000*
	Electrical Work (New MCC/PLC/Generator)	$ 3,112,638	$ 3,250,000	
	TOTAL DIRECT COSTS	**$ 11,069,514**	**$ 11,757,874**	
	CONTINGENCY (30%)	**$ 3,320,854**	**$ 3,527,362**	
	ESCALATION (2 YEARS @ 5% YOY)	**$ 1,162,299**	**$ 1,234,577**	
	TOTAL OPCC	**$ 15,552,667**	**$ 16,519,813**	

Cost Report

Biditem

10

Sitework

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 1

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	116,724.00	40,468.43	157,192.43	117,209.32	84,443.29	6,198.75	149,980.00	515,023.79
Total	116,724.00	40,468.43	157,192.43	117,209.32	84,443.29	6,198.75	149,980.00	515,023.79

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
1,476.0000	0.0007	1,476.0000	348.9321	79.0813	106.4989	0.0028

Activity: 020150.01 Site Demo - Remove Comp Surface Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,296.00	1,821.30	7,117.30	6,576.62	0.00	1,848.75	6,480.00	22,022.67
Total	5,296.00	1,821.30	7,117.30	6,576.62	0.00	1,848.75	6,480.00	22,022.67

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
13,693.9200	16.0000	0.0625	855.8700	2.0000	0.5000	2.0000	11,011.3350

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	111.2078	5,296.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3DUMPFEES	Dump Fees	1.00	68.00	TON	25.00	108.750	27.19	1,848.75
4HAUL	Hauling - Sub	1.00	48.00	HR	135.00	100.000	135.00	6,480.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	16.00	HR	111.02	108.750	120.73	1,931.75
8279	EXCAVATOR SMALL-MED	1.00	16.00	HR	221.08	108.750	240.42	3,846.79
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 311000.02 Dewater Pond Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,008.00	6,536.85	25,544.85	14,983.21	0.00	0.00	68,980.00	109,508.06
Total	19,008.00	6,536.85	25,544.85	14,983.21	0.00	0.00	68,980.00	109,508.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
40,528.0600	48.0000	0.0208	844.3346	6.0000	0.1667	6.0000	18,251.3433

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	106.4369	19,008.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	48.00	HR	135.00	100.000	135.00	6,480.00
4SLUDGEDEH20	Sludge Dewatering Sub	1.00	2,500.00	GAL	25.00	100.000	25.00	62,500.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	48.00	HR	111.02	108.750	120.73	5,795.24
8276	EXCAVATOR SMALL	1.00	48.00	HR	130.15	108.750	141.54	6,793.73
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94

OPER4	Operator Foreman	1.00	48.00	MH	92.00	100.000	123.64	5,934.66
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 015556.01 Temporary Controls/Protection/SWPPP Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8,680.00	2,985.05	11,665.05	3,195.25	0.00	4,350.00	0.00	19,210.30
Total	8,680.00	2,985.05	11,665.05	3,195.25	0.00	4,350.00	0.00	19,210.30

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
14,860.3000	40.0000	0.0250	371.5075	5.0000	0.2000	5.0000	3,842.0600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
120.0000	0.0083	120.0000	97.2088	8,680.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: CH 40 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3SWPPMTL	SWPPP Materials	1.00	1.00	LS	4,000.00	108.750	4,350.00	4,350.00
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	40.00	HR	73.45	108.750	79.88	3,195.25
LABORER	Laborer	2.00	80.00	MH	65.00	100.000	87.35	6,988.28
OPERATOR	Operator	1.00	40.00	MH	87.00	100.000	116.92	4,676.77

Activity: 312000.09 Earth Moving - Cut & Offhaul Quantity: 4000.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6.62	2.28	8.90	8.22	0.00	0.00	13.50	30.62
Total	26,480.00	9,106.47	35,586.47	32,883.10	0.00	0.00	54,000.00	122,469.57

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17.1174	0.0200	50.0000	855.8696	10.0000	400.0000	0.0025	12,246.9570

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
320.0000	12.5000	0.0800	111.2077	6.6200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	400.00	HR	135.00	100.000	135.00	54,000.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	80.00	HR	111.02	108.750	120.73	9,658.74
8279	EXCAVATOR SMALL-MED	1.00	80.00	HR	221.08	108.750	240.42	19,233.96
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28
OPER4	Operator Foreman	1.00	80.00	MH	92.00	100.000	123.64	9,891.10
OPERATOR	Operator	2.00	160.00	MH	87.00	100.000	116.92	18,707.09

Activity: 311000.01 Earthwork-Clearing Quantity: 50000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.05	0.02	0.07	0.11	0.00	0.00	0.04	0.23
Total	2,648.00	910.65	3,558.65	5,730.73	0.00	0.00	2,160.00	11,449.38

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.1858	0.0002	6,250.0000	1,161.1725	1.0000	50,000.0000	0.0000	11,449.3800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	1,562.5000	0.0006	111.2078	0.0530

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8239	MOTORGRADER/BLADE	1.00	8.00	HR	182.58	108.750	198.56	1,588.45
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8287	DOZER STANDARD TRACK SMALL	1.00	8.00	HR	192.87	108.750	209.75	1,677.97
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 311000.03 Remove Saturated Materials (Unreviewed) Quantity: 600.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8.83	3.04	11.86	10.96	0.00	0.00	7.20	30.02
Total	5,296.00	1,821.30	7,117.30	6,576.62	0.00	0.00	4,320.00	18,013.92

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
22.8232	0.0267	37.5000	855.8700	2.0000	300.0000	0.0033	9,006.9600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	9.3750	0.1067	111.2078	8.8267

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	32.00	HR	135.00	100.000	135.00	4,320.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	16.00	HR	111.02	108.750	120.73	1,931.75
8279	EXCAVATOR SMALL-MED	1.00	16.00	HR	221.08	108.750	240.42	3,846.79
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 323100.02 Bollards Quantity: 12.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	651.00	223.88	874.88	239.64	937.97	0.00	0.00	2,052.49
Total	7,812.00	2,686.54	10,498.54	2,875.72	11,255.63	0.00	0.00	24,629.89

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,114.5217	3.0000	0.3333	371.5072	4.5000	2.6667	0.3750	5,473.3089

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
108.0000	0.1111	9.0000	97.2087	651.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: HU 3 Eff: 100.00 Crew Hrs: 36.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BOLLARD	Bollard Steel	1.00	12.00	EA	750.00	108.750	815.63	9,787.50
2CONC	Ready-Mix Concrete	1.00	6.00	CY	225.00	108.750	244.69	1,468.13
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	36.00	HR	73.45	108.750	79.88	2,875.72
LABORER	Laborer	2.00	72.00	MH	65.00	100.000	87.35	6,289.45
OPERATOR	Operator	1.00	36.00	MH	87.00	100.000	116.92	4,209.09

Activity: 339900.99 Raise/Collar (Unreviewed) Quantity: 8.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	868.00	298.51	1,166.51	835.40	122.34	0.00	0.00	2,124.25
Total	6,944.00	2,388.04	9,332.04	6,683.23	978.75	0.00	0.00	16,994.02

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,001.9088	4.0000	0.2500	500.4772	4.0000	2.0000	0.5000	4,248.5050

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0833	12.0000	97.2088	868.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: RAISE Utilitiy Raise/Collar Prod: HU 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	4.00	CY	225.00	108.750	244.69	978.75
8002	COMPRESSOR 175-195 CFM	1.00	32.00	HR	28.37	108.750	30.85	987.28
8016	BREAKER PAVEMENT AIR 90#	1.00	32.00	HR	18.00	108.750	19.58	626.40
8245	BACKHOE/LOADER 91-104HP 4WD	1.00	32.00	HR	99.81	108.750	108.54	3,473.39
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	2.00	64.00	MH	65.00	100.000	87.35	5,590.62
OPERATOR	Operator	1.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 312000.01 Site Grading Quantity: 50000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.15	0.05	0.21	0.19	0.00	0.00	0.00	0.40
Total	7,648.00	2,630.15	10,278.15	9,562.27	0.00	0.00	0.00	19,840.42

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.3968	0.0006	1,562.5000	620.0131	4.0000	12,500.0000	0.0001	4,960.1050

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	520.8333	0.0019	107.0641	0.1530

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8272	LOADER LANDSCAPER 4WD	1.00	32.00	HR	41.69	108.750	45.34	1,450.92
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPERATOR	Operator	2.00	64.00	MH	87.00	100.000	116.92	7,482.84

Activity: 312000.02 Agg Base Quantity: 21000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.64	0.22	0.86	0.69	0.66	0.00	0.00	2.20
Total	13,376.00	4,600.00	17,976.00	14,465.13	13,859.10	0.00	0.00	46,300.23

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.5448	0.0015	656.2500	1,013.7853	4.0000	5,250.0000	0.0002	11,575.0575

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
160.0000	131.2500	0.0076	112.3500	0.6370

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	708.00	TON	18.00	108.750	19.58	13,859.10
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8239	MOTORGRADER/BLADE	1.00	32.00	HR	182.58	108.750	198.56	6,353.78

8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 321216.01 AC Paving Quantity: 20000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.68	0.25	0.93	0.68	2.92	0.00	0.70	5.23
Total	13,536.00	4,982.08	18,518.08	13,677.44	58,349.81	0.00	14,040.00	104,585.33

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.6098	0.0008	1,250.0000	2,012.2200	2.0000	10,000.0000	0.0001	52,292.6650

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
176.0000	113.6364	0.0088	105.2164	0.6768

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PAVE Asphalt Paving Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 11.00 Equipment Pcs: 8.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ACPAVEMENT	Asphalt	1.00	511.00	TON	105.00	108.750	114.19	58,349.81
4HAUL	Hauling - Sub	1.00	104.00	HR	135.00	100.000	135.00	14,040.00
8042	ROLLER MD DOUBLE DRUM	1.00	16.00	HR	62.64	108.750	68.12	1,089.94
8043	ROLLER LG DOUBLE DRUM	2.00	32.00	HR	75.10	108.750	81.67	2,613.48
8272	LOADER LANDSCAPER 4WD	1.00	16.00	HR	41.69	108.750	45.34	725.46
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8998	AC PAVER	1.00	16.00	HR	325.00	100.000	325.00	5,200.00
8MECHTRK	Mechanics Truck	1.00	16.00	HR	65.73	100.000	65.73	1,051.68
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
MECH	Mechanic	1.00	16.00	MH	44.00	100.000	79.57	1,273.15
OPER4	Operator Foreman	2.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	4.00	64.00	MH	87.00	100.000	116.92	7,482.84
TRUCK	Truck Driver (On Site)	1.00	16.00	MH	75.00	100.000	100.79	1,612.68

Biditem

20

Splitter Box

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 2

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29,700.00	10,213.83	39,913.83	9,653.13	18,772.97	3,806.25	13,440.00	85,586.18
Total	29,700.00	10,213.83	39,913.83	9,653.13	18,772.97	3,806.25	13,440.00	85,586.18

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
333.6000	0.0030	333.6000	256.5533	89.0288	119.6458	0.0137

Activity: 033001.01 Invert Quantity: 9.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	986.67	339.31	1,325.98	133.01	269.16	36.25	420.00	2,184.40
Total	8,880.00	3,053.83	11,933.83	1,197.12	2,422.41	326.25	3,780.00	19,659.61

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,458.9944	2.6667	0.3750	547.1229	3.0000	3.0000	0.3333	6,553.2033

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0938	10.6667	124.3107	986.6667

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	9.90	CY	225.00	108.750	244.69	2,422.41
3FORMMTL	Form Materials	1.00	60.00	SF	5.00	108.750	5.44	326.25
4REBAR	Rebar - Sub	1.00	2,700.00	LB	1.40	100.000	1.40	3,780.00
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
CARP	Carpenter - Journeyman	2.00	48.00	MH	100.00	100.000	134.39	6,450.72
CARP4	Carpenter Foreman	1.00	24.00	MH	105.00	100.000	141.11	3,386.63
LABORER	Laborer	1.00	24.00	MH	65.00	100.000	87.35	2,096.48

Activity: 033001.02 Concrete Walls Quantity: 10.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	812.80	279.52	1,092.32	63.85	269.16	348.00	534.00	2,307.32
Total	8,128.00	2,795.22	10,923.22	638.46	2,691.56	3,480.00	5,340.00	23,073.24

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,156.1680	1.2800	0.7813	903.2563	1.6000	6.2500	0.1600	14,420.7750

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
89.6000	0.1116	8.9600	121.9109	812.8000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 1.6 Eff: 100.00 Crew Hrs: 12.80 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	11.00	CY	225.00	108.750	244.69	2,691.56
3FORMMTL	Form Materials	1.00	640.00	SF	5.00	108.750	5.44	3,480.00
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	3,000.00	LB	1.40	100.000	1.40	4,200.00
8UTLPU	Utility Pickup	1.00	12.80	HR	49.88	100.000	49.88	638.46
CARP	Carpenter - Journeyman	4.00	51.20	MH	100.00	100.000	134.39	6,880.77
CARP4	Carpenter Foreman	1.00	12.80	MH	105.00	100.000	141.11	1,806.20
LABORER	Laborer	2.00	25.60	MH	65.00	100.000	87.35	2,236.25

Activity: 055001.01 Misc Metals Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,920.00	2,035.89	7,955.89	798.08	13,267.50	0.00	0.00	22,021.47
Total	5,920.00	2,035.89	7,955.89	798.08	13,267.50	0.00	0.00	22,021.47

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,753.9700	16.0000	0.0625	547.1231	2.0000	0.5000	2.0000	11,010.7350

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	124.3108	5,920.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FRAMEGRATE	Frame and Grate	1.00	100.00	SF	100.00	108.750	108.75	10,875.00
2WEIR	Weir	1.00	2.00	EA	1,100.00	108.750	1,196.25	2,392.50
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66

Activity: 32001.01 Structure Exc Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	2,648.00	910.65	3,558.65	3,288.31	0.00	0.00	2,160.00	9,006.96
Total	2,648.00	910.65	3,558.65	3,288.31	0.00	0.00	2,160.00	9,006.96

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,846.9600	8.0000	0.1250	855.8700	1.0000	1.0000	1.0000	9,006.9600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0313	32.0000	111.2078	2,648.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8279	EXCAVATOR SMALL-MED	1.00	8.00	HR	221.08	108.750	240.43	1,923.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 32001.02 Invert Grading Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	956.00	328.76	1,284.76	1,195.28	391.50	0.00	0.00	2,871.54
Total	956.00	328.76	1,284.76	1,195.28	391.50	0.00	0.00	2,871.54

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,480.0400	4.0000	0.2500	620.0100	0.5000	2.0000	0.5000	5,743.0800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
12.0000	0.0833	12.0000	107.0633	956.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	20.00	TON	18.00	108.750	19.58	391.50
8040	SINGLE DRUM COMPACTOR	1.00	4.00	HR	60.85	108.750	66.18	264.70
8272	LOADER LANDSCAPER 4WD	1.00	4.00	HR	41.69	108.750	45.34	181.36
8326	4000 GAL WATER TRUCK	1.00	4.00	HR	126.37	108.750	137.43	549.70
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41
OPERATOR	Operator	2.00	8.00	MH	87.00	100.000	116.92	935.35

Activity: 32001.03 Structure BF Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,168.00	1,089.48	4,257.48	2,535.88	0.00	0.00	2,160.00	8,953.36
Total	3,168.00	1,089.48	4,257.48	2,535.88	0.00	0.00	2,160.00	8,953.36

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,793.3600	8.0000	0.1250	849.1700	1.0000	1.0000	1.0000	8,953.3600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	106.4370	3,168.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL (Mod) Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40

8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8324	2000 GAL WATER TRUCK	1.00	8.00	HR	73.74	108.750	80.20	641.57
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Biditem

30

Flow Meter Vaults

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 3

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	20,744.00	7,133.86	27,877.86	16,654.02	100,131.57	0.00	0.00	144,663.45
Total	20,744.00	7,133.86	27,877.86	16,654.02	100,131.57	0.00	0.00	144,663.45

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
264.0000	0.0038	264.0000	547.9676	78.5758	105.5980	0.0179

Activity: 03600.01 Valve/Vault Materials Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	99,886.88	0.00	0.00	99,886.88
Total	0.00	0.00	0.00	0.00	99,886.88	0.00	0.00	99,886.88

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FLOWMETER	Flow Meter	1.00	2.00	EA	16,800.00	108.750	18,270.00	36,540.00
2MISCMTL	Misc Materials	1.00	1.00	LS	2,500.00	108.750	2,718.75	2,718.75
2PCVAULT	Precast Vault	1.00	2.00	EA	22,000.00	108.750	23,925.00	47,850.00
2PIPEMTL	Pipe Materials	1.00	1.00	LS	11,750.00	108.750	12,778.13	12,778.13

Activity: 03600.02 Valve Vault - Install Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,008.00	6,536.85	25,544.85	14,983.21	0.00	0.00	0.00	40,528.06
Total	19,008.00	6,536.85	25,544.85	14,983.21	0.00	0.00	0.00	40,528.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
40,528.0600	48.0000	0.0208	844.3346	6.0000	0.1667	6.0000	6,754.6767

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	106.4369	19,008.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	48.00	HR	111.02	108.750	120.73	5,795.24
8276	EXCAVATOR SMALL	1.00	48.00	HR	130.15	108.750	141.54	6,793.73
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	48.00	MH	92.00	100.000	123.64	5,934.66
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 32009.01 Raise & Collar Quantity: 2.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	868.00	298.51	1,166.51	835.41	122.35	0.00	0.00	2,124.26
Total	1,736.00	597.01	2,333.01	1,670.81	244.69	0.00	0.00	4,248.51

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,001.9100	4.0000	0.2500	500.4775	1.0000	2.0000	0.5000	4,248.5100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0833	12.0000	97.2088	868.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: RAISE Utilitiy Raise/Collar Prod: HU 4 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	1.00	CY	225.00	108.750	244.69	244.69
8002	COMPRESSOR 175-195 CFM	1.00	8.00	HR	28.37	108.750	30.85	246.82
8016	BREAKER PAVEMENT AIR 90#	1.00	8.00	HR	18.00	108.750	19.58	156.60
8245	BACKHOE/LOADER 91-104HP 4WD	1.00	8.00	HR	99.81	108.750	108.54	868.35
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35

Biditem

40

Aeration Basin w/ Integral Clarifier

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 4a

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	559,032.64	192,251.30	751,283.94	147,078.66	1,617,677.59	28,035.76	565,450.00	3,109,525.95
Total	559,032.64	192,251.30	751,283.94	147,078.66	1,617,677.59	28,035.76	565,450.00	3,109,525.95

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
6,552.0000	0.0002	6,552.0000	474.5919	85.3224	114.6648	0.0007

Activity: 02001.01 Blower Building Mods Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29,600.00	10,179.44	39,779.44	3,990.40	3,208.13	543.75	0.00	47,521.72
Total	29,600.00	10,179.44	39,779.44	3,990.40	3,208.13	543.75	0.00	47,521.72

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
43,769.8400	80.0000	0.0125	547.1230	10.0000	0.1000	10.0000	4,752.1720

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
320.0000	0.0031	320.0000	124.3108	29,600.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2MISCMTL	Misc Materials	1.00	1.00	LS	2,500.00	108.750	2,718.75	2,718.75
3MISCMTL	Misc Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
CARP	Carpenter - Journeyman	2.00	160.00	MH	100.00	100.000	134.39	21,502.40
CARP4	Carpenter Foreman	1.00	80.00	MH	105.00	100.000	141.11	11,288.76
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28

Activity: 03300.01 Clarifier - Invert Concrete (Unreviewed) Quantity: 97.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	529.48	182.09	711.57	49.37	269.16	24.44	727.01	1,781.55
Total	51,360.00	17,662.70	69,022.70	4,788.48	26,108.16	2,370.75	70,520.00	172,810.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
760.9400	0.9897	1.0104	768.8665	12.0000	8.0833	0.1237	14,400.8408

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
576.0000	0.1684	5.9381	119.8311	529.4845

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	106.70	CY	225.00	108.750	244.69	26,108.16
3FORMMTL	Form Materials	1.00	436.00	SF	5.00	108.750	5.44	2,370.75
4CRANE	Crane - Subcontractor	1.00	0.50	MO	55,000.00	100.000	55,000.00	27,500.00
4PUMP	Concrete Pump	1.00	8.00	HR	285.00	100.000	285.00	2,280.00
4REBAR	Rebar - Sub	1.00	29,100.00	LB	1.40	100.000	1.40	40,740.00
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
CARP	Carpenter - Journeyman	3.00	288.00	MH	100.00	100.000	134.39	38,704.32
CARP4	Carpenter Foreman	1.00	96.00	MH	105.00	100.000	141.11	13,546.51
LABORER	Laborer	2.00	192.00	MH	65.00	100.000	87.35	16,771.87

Activity: 03300.02 Clarifier - Wall Concrete Quantity: 78.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,214.36	761.52	2,975.88	173.94	682.52	242.60	1,976.41	6,051.34
Total	172,720.00	59,398.40	232,118.40	13,567.36	53,236.39	18,922.50	154,160.00	472,004.65

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3,149.8174	3.4872	0.2868	903.2565	34.0000	2.2941	0.4359	13,882.4897

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
1,904.0000	0.0410	24.4103	121.9109	2,214.3590

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL (Mod) 6 Man Wall Crew Prod: S 34 Eff: 100.00 Crew Hrs: 272.00 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	85.80	CY	225.00	108.750	244.69	20,994.19
2FORMSAVER	Form Savers	1.00	436.00	EA	68.00	108.750	73.95	32,242.20
3FORMMTL	Form Materials	1.00	3,480.00	SF	5.00	108.750	5.44	18,922.50
4CRANE	Crane - Subcontractor	1.00	2.00	MO	55,000.00	100.000	55,000.00	110,000.00
4PUMP	Concrete Pump	1.00	40.00	HR	285.00	100.000	285.00	11,400.00
4REBAR	Rebar - Sub	1.00	23,400.00	LB	1.40	100.000	1.40	32,760.00
8UTLPU	Utility Pickup	1.00	272.00	HR	49.88	100.000	49.88	13,567.36
CARP	Carpenter - Journeyman	4.00	1,088.00	MH	100.00	100.000	134.39	146,216.32
CARP4	Carpenter Foreman	1.00	272.00	MH	105.00	100.000	141.11	38,381.78
LABORER	Laborer	2.00	544.00	MH	65.00	100.000	87.35	47,520.30

Activity: 03300.03 Clarifier - Launderer Invert Concrete Quantity: 11.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,112.73	1,070.47	4,183.19	290.21	269.16	103.81	3,023.64	7,870.01
Total	34,240.00	11,775.14	46,015.14	3,192.32	2,960.72	1,141.88	33,260.00	86,570.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4,473.4055	5.8182	0.1719	768.8666	8.0000	1.3750	0.7273	10,821.2575

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
384.0000	0.0286	34.9091	119.8311	3,112.7273

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	12.10	CY	225.00	108.750	244.69	2,960.72
3FORMMTL	Form Materials	1.00	210.00	SF	5.00	108.750	5.44	1,141.88

4CRANE	Crane - Subcontractor	1.00	0.50	MO	55,000.00	100.000	55,000.00	27,500.00
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	3,300.00	LB	1.40	100.000	1.40	4,620.00
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
CARP	Carpenter - Journeyman	3.00	192.00	MH	100.00	100.000	134.39	25,802.88
CARP4	Carpenter Foreman	1.00	64.00	MH	105.00	100.000	141.11	9,031.01
LABORER	Laborer	2.00	128.00	MH	65.00	100.000	87.35	11,181.25

Activity: 03300.04 Clarifier - Launderer Wall Concrete Quantity: 11.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,723.64	936.66	3,660.29	253.93	269.16	187.84	3,023.64	7,394.86
Total	29,960.00	10,303.24	40,263.24	2,793.28	2,960.72	2,066.25	33,260.00	81,343.49

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3,914.2291	5.0909	0.1964	768.8664	7.0000	1.5714	0.6364	11,620.4986

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
336.0000	0.0327	30.5455	119.8311	2,723.6364

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 7 Eff: 100.00 Crew Hrs: 56.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	12.10	CY	225.00	108.750	244.69	2,960.72
3FORMMTL	Form Materials	1.00	380.00	SF	5.00	108.750	5.44	2,066.25
4CRANE	Crane - Subcontractor	1.00	0.50	MO	55,000.00	100.000	55,000.00	27,500.00
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	3,300.00	LB	1.40	100.000	1.40	4,620.00
8UTLPU	Utility Pickup	1.00	56.00	HR	49.88	100.000	49.88	2,793.28
CARP	Carpenter - Journeyman	3.00	168.00	MH	100.00	100.000	134.39	22,577.52
CARP4	Carpenter Foreman	1.00	56.00	MH	105.00	100.000	141.11	7,902.13
LABORER	Laborer	2.00	112.00	MH	65.00	100.000	87.35	9,783.59

Activity: 03300.05 Clarifier Grout Quantity: 1736.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	16.95	5.83	22.78	1.38	1.73	0.47	2.63	28.99
Total	29,424.00	10,118.92	39,542.92	2,394.24	3,009.66	815.63	4,560.00	50,322.45

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
24.1574	0.0276	36.1667	873.6908	6.0000	289.3333	0.0035	8,387.0750

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
336.0000	5.1667	0.1935	117.6873	16.9493

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL (Mod) 6 Man Wall Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	12.30	CY	225.00	108.750	244.69	3,009.66
3FORMMTL	Form Materials	1.00	1.00	LS	750.00	108.750	815.63	815.63
4PUMP	Concrete Pump	1.00	16.00	HR	285.00	100.000	285.00	4,560.00
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
CARP	Carpenter - Journeyman	3.00	144.00	MH	100.00	100.000	134.39	19,352.16
CARP4	Carpenter Foreman	1.00	48.00	MH	105.00	100.000	141.11	6,773.26
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
MASON	Cement Mason	1.00	48.00	MH	78.00	100.000	104.82	5,031.56

Activity: 05500.01 Install Misc Metals (Unreviewed) Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	13,941.12	4,794.35	18,735.47	4,788.48	14,137.50	0.00	0.00	37,661.45
Total	13,941.12	4,794.35	18,735.47	4,788.48	14,137.50	0.00	0.00	37,661.45

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,523.9500	96.0000	0.0104	245.0411	12.0000	0.0833	12.0000	3,138.4542

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
192.0000	0.0052	192.0000	97.5806	13,941.1200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2HANDRAIL	Handrail	1.00	100.00	LF	80.00	108.750	87.00	8,700.00
2MISCMETAL	Misc Metal	1.00	1.00	LS	5,000.00	108.750	5,437.50	5,437.50
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
LABORER	Laborer	1.00	96.00	MH	65.00	100.000	87.35	8,385.94
MILLWR	Millwright	1.00	96.00	MH	80.22	100.000	107.81	10,349.53

Activity: 09900.01 Performance Coatings (Unreviewed) Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4COAT	High Performance Coating	1.00	584.00	SF	80.00	100.000	80.00	46,720.00

Activity: 10000.01 Signage (Unreviewed) Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4SIGN	Signage	1.00	1.00	LS	5,000.00	100.000	5,000.00	5,000.00

Activity: 32000.01 Clarifier Structure Exc (Unreviewed) Quantity: 1018.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	13.01	4.47	17.48	16.15	0.00	0.00	21.22	54.85
Total	13,240.00	4,553.23	17,793.23	16,441.55	0.00	0.00	21,600.00	55,834.78

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
33.6294	0.0393	25.4500	855.8695	5.0000	203.6000	0.0049	11,166.9560

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
160.0000	6.3625	0.1572	111.2077	13.0059

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 (Mod) 4 man Exc Crew Prod: S 5 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	160.00	HR	135.00	100.000	135.00	21,600.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	40.00	HR	111.02	108.750	120.73	4,829.37
8279	EXCAVATOR SMALL-MED	1.00	40.00	HR	221.08	108.750	240.42	9,616.98
8UTLPU	Utility Pickup	1.00	40.00	HR	49.88	100.000	49.88	1,995.20
LABORER	Laborer	1.00	40.00	MH	65.00	100.000	87.35	3,494.14
OPER4	Operator Foreman	1.00	40.00	MH	92.00	100.000	123.64	4,945.55
OPERATOR	Operator	2.00	80.00	MH	87.00	100.000	116.92	9,353.54

Activity: 32000.02 Clarifier Subgrade (Unreviewed) Quantity: 2628.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.46	0.50	1.96	1.82	2.93	0.00	0.00	6.71
Total	3,824.00	1,315.08	5,139.08	4,781.13	7,706.68	0.00	0.00	17,626.89

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift

3.7748	0.0061	164.2500	620.0131	2.0000	1,314.0000	0.0008	8,813.4450

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	54.7500	0.0183	107.0642	1.4551

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	328.00	TON	18.00	108.750	19.58	6,420.60
2FABRIC	Filter Fabric	1.00	2,628.00	SF	0.45	108.750	0.49	1,286.08
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8272	LOADER LANDSCAPER 4WD	1.00	16.00	HR	41.69	108.750	45.34	725.46
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 32004.01 Structure Backfill (Unreviewed) Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,472.00	3,945.22	15,417.22	14,343.39	0.00	0.00	0.00	29,760.61
Total	11,472.00	3,945.22	15,417.22	14,343.39	0.00	0.00	0.00	29,760.61

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
29,760.6100	48.0000	0.0208	620.0127	6.0000	0.1667	6.0000	4,960.1017

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
144.0000	0.0069	144.0000	107.0640	11,472.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	48.00	HR	60.85	108.750	66.17	3,176.37
8272	LOADER LANDSCAPER 4WD	1.00	48.00	HR	41.69	108.750	45.34	2,176.37
8326	4000 GAL WATER TRUCK	1.00	48.00	HR	126.37	108.750	137.43	6,596.41
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 402319.01 Pipe & Fittings - Blower Piping/Air Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	17,058.96	5,866.57	22,925.53	3,591.36	496,117.50	0.00	0.00	522,634.39
Total	17,058.96	5,866.57	22,925.53	3,591.36	496,117.50	0.00	0.00	522,634.39

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
26,516.8900	72.0000	0.0139	368.2901	9.0000	0.1111	9.0000	58,070.4878

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
216.0000	0.0046	216.0000	106.1367	17,058.9600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 9 Eff: 100.00 Crew Hrs: 72.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	6,200.00	108.750	6,742.50	6,742.50
2PIPEMTL	Pipe Materials	1.00	1.00	LS	450,000.00	108.750	489,375.00	489,375.00
8UTLPU	Utility Pickup	1.00	72.00	HR	49.88	100.000	49.88	3,591.36
LABORER	Laborer	1.00	72.00	MH	65.00	100.000	87.35	6,289.45
MILLWR	Millwright	1.00	72.00	MH	80.22	100.000	107.81	7,762.15
PLUMB	Plumber - Journeyman	1.00	72.00	MH	91.71	100.000	123.25	8,873.93

Activity: 402319.02 Pipe & Fittings - Aeration Basin & Clarifier Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	24,640.72	8,473.95	33,114.67	5,187.52	35,343.75	0.00	0.00	73,645.94
Total	24,640.72	8,473.95	33,114.67	5,187.52	35,343.75	0.00	0.00	73,645.94

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
38,302.1900	104.0000	0.0096	368.2903	13.0000	0.0769	13.0000	5,665.0723

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
312.0000	0.0032	312.0000	106.1368	24,640.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 13 Eff: 100.00 Crew Hrs: 104.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	7,500.00	108.750	8,156.25	8,156.25
2PIPEMTL	Pipe Materials	1.00	1.00	LS	25,000.00	108.750	27,187.50	27,187.50
8UTLPU	Utility Pickup	1.00	104.00	HR	49.88	100.000	49.88	5,187.52
LABORER	Laborer	1.00	104.00	MH	65.00	100.000	87.35	9,084.76
MILLWR	Millwright	1.00	104.00	MH	80.22	100.000	107.81	11,212.00
PLUMB	Plumber - Journeyman	1.00	104.00	MH	91.71	100.000	123.25	12,817.91

Activity: 46000.00 Aeration Equipment - Buy out Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2AERATION	Aeration Basin & Integral Clarifier	1.00	1.00	LS	795,000.00	108.750	864,562.50	864,562.50

Activity: 46000.01 Install Aeration Equipment Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	36,686.40	12,616.45	49,302.85	11,098.56	0.00	0.00	35,000.00	95,401.41
Total	36,686.40	12,616.45	49,302.85	11,098.56	0.00	0.00	35,000.00	95,401.41

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
60,401.4100	96.0000	0.0104	629.1814	12.0000	0.0833	12.0000	7,950.1175

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
480.0000	0.0021	480.0000	102.7143	36,686.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD (Mod) Medium Mechanical Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 5.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4CRANE	Crane - Subcontractor	1.00	10.00	DAY	3,500.00	100.000	3,500.00	35,000.00
8MECHTRK	Mechanics Truck	1.00	96.00	HR	65.73	100.000	65.73	6,310.08
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
LABORER	Laborer	2.00	192.00	MH	65.00	100.000	87.35	16,771.87
MILLWR	Millwright	2.00	192.00	MH	80.22	100.000	107.81	20,699.07
PLUMB	Plumber - Journeyman	1.00	96.00	MH	91.71	100.000	123.25	11,831.91

Activity: 46000.02 Install Blower Equipment Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	10,148.80	3,490.17	13,638.97	3,699.52	0.00	0.00	42,000.00	59,338.49
Total	10,148.80	3,490.17	13,638.97	3,699.52	0.00	0.00	42,000.00	59,338.49

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,338.4900	32.0000	0.0313	541.8278	4.0000	0.2500	4.0000	14,834.6225

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	106.5545	10,148.8000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4CRANE	Crane - Subcontractor	1.00	12.00	DAY	3,500.00	100.000	3,500.00	42,000.00
8MECHTRK	Mechanics Truck	1.00	32.00	HR	65.73	100.000	65.73	2,103.36
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
MILLWR	Millwright	2.00	64.00	MH	80.22	100.000	107.81	6,899.69
PLUMB	Plumber - Journeyman	1.00	32.00	MH	91.71	100.000	123.25	3,943.97

Activity: 46000.03 Install Clarifier (Unreviewed) Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	24,029.60	8,263.78	32,293.38	3,990.40	0.00	0.00	35,000.00	71,283.78
Total	24,029.60	8,263.78	32,293.38	3,990.40	0.00	0.00	35,000.00	71,283.78

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
36,283.7800	80.0000	0.0125	453.5473	10.0000	0.1000	10.0000	7,128.3780

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
320.0000	0.0031	320.0000	100.9168	24,029.6000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4CRANE	Crane - Subcontractor	1.00	10.00	DAY	3,500.00	100.000	3,500.00	35,000.00
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28
MECHHLP	Mech Helper/Oiler	1.00	80.00	MH	74.93	100.000	100.70	8,055.88
MILLWR	Millwright	2.00	160.00	MH	80.22	100.000	107.81	17,249.22

Activity: 46000.04 Install Clarifier Weir (Unreviewed) Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,847.04	2,698.59	10,545.63	1,596.16	1,740.00	0.00	0.00	13,881.79
Total	7,847.04	2,698.59	10,545.63	1,596.16	1,740.00	0.00	0.00	13,881.79

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
12,141.7900	32.0000	0.0313	379.4309	4.0000	0.2500	4.0000	3,470.4475

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	109.8503	7,847.0400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2MISCMTL	Misc Materials	1.00	1.00	EA	1,600.00	108.750	1,740.00	1,740.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
CARP	Carpenter - Journeyman	1.00	32.00	MH	100.00	100.000	134.39	4,300.48
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
MILLWR	Millwright	1.00	32.00	MH	80.22	100.000	107.81	3,449.84

Activity: 312000.02 Earth Moving - Cut Quantity: 3000.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7.06	2.43	9.49	8.77	0.00	0.00	13.50	31.76
Total	21,184.00	7,285.17	28,469.17	26,306.48	0.00	0.00	40,500.00	95,275.65

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
18.2586	0.0213	46.8750	855.8695	8.0000	375.0000	0.0027	11,909.4563

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
256.0000	11.7188	0.0853	111.2077	7.0613

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	300.00	HR	135.00	100.000	135.00	40,500.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	64.00	HR	111.02	108.750	120.73	7,726.99
8279	EXCAVATOR SMALL-MED	1.00	64.00	HR	221.08	108.750	240.42	15,387.17
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
LABORER	Laborer	1.00	64.00	MH	65.00	100.000	87.35	5,590.62
OPER4	Operator Foreman	1.00	64.00	MH	92.00	100.000	123.64	7,912.88
OPERATOR	Operator	2.00	128.00	MH	87.00	100.000	116.92	14,965.67

Activity: 312000.03 Pond Grading Quantity: 16000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.33	0.11	0.44	0.45	0.00	0.00	0.00	0.90
Total	5,296.00	1,821.30	7,117.30	7,232.56	0.00	0.00	0.00	14,349.86

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.8969	0.0010	1,000.0000	896.8663	2.0000	8,000.0000	0.0001	7,174.9300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	250.0000	0.0040	111.2078	0.3310

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8239	MOTORGRADER/BLADE	1.00	16.00	HR	182.58	108.750	198.56	3,176.89
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 312000.04 Conc Pond Liner Quantity: 16000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.89	0.31	1.20	0.05	4.98	0.14	2.74	9.11
Total	14,288.00	4,913.64	19,201.64	798.08	79,670.25	2,175.00	43,870.00	145,714.97

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.2500	0.0010	1,000.0000	1,249.9825	2.0000	8,000.0000	0.0001	72,857.4850

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
176.0000	90.9091	0.0110	109.1002	0.8930

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF Pour Crew - Flatwork/Slab Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 11.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	325.60	CY	225.00	108.750	244.69	79,670.25
3FORMMTL	Form Materials	1.00	400.00	SF	5.00	108.750	5.44	2,175.00
4PUMP	Concrete Pump	1.00	10.00	HR	285.00	100.000	285.00	2,850.00
4REBAR	Rebar - Sub	1.00	29,300.00	LB	1.40	100.000	1.40	41,020.00
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75

LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
MASON	Cement Mason	4.00	64.00	MH	78.00	100.000	104.82	6,708.75
MASON4	Mason Foreman	1.00	16.00	MH	81.00	100.000	108.86	1,741.69

Activity: 312000.05 Drain Intake Structure **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6,336.00	2,178.95	8,514.95	11,858.34	23,925.00	0.00	0.00	44,298.29
Total	6,336.00	2,178.95	8,514.95	11,858.34	23,925.00	0.00	0.00	44,298.29

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
20,373.2900	16.0000	0.0625	1,273.3306	2.0000	0.5000	2.0000	22,149.1450

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
80.0000	0.0125	80.0000	106.4369	6,336.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 5.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PRECASTINLE	Precast Inlet	1.00	1.00	EA	22,000.00	108.750	23,925.00	23,925.00
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 323100.02 Pond Accessories **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,736.00	597.01	2,333.01	639.05	2,990.63	0.00	0.00	5,962.69
Total	1,736.00	597.01	2,333.01	639.05	2,990.63	0.00	0.00	5,962.69

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,972.0600	8.0000	0.1250	371.5075	1.0000	1.0000	1.0000	5,962.6900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	97.2088	1,736.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2RESQRING	Rescue Ring	1.00	4.00	EA	575.00	108.750	625.31	2,501.25
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	73.45	108.750	79.88	639.05
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35

Biditem

45

(Non Additive) Aeration Basin w/o Integral Clarifier

Takeoff Qty: *1.000 LS*

Bid Qty: *1.000 LS*

Client #: 4b

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	172,203.92	59,220.91	231,424.83	100,009.52	1,503,699.85	3,099.38	128,720.00	1,966,953.58
Total	172,203.92	59,220.91	231,424.83	100,009.52	1,503,699.85	3,099.38	128,720.00	1,966,953.58

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
2,104.0000	0.0005	2,104.0000	934.8639	81.8460	109.9928	0.0021

Activity: 02001.01 *(Non Additive) Blower Building Mods* *(Unreviewed)* *Quantity: 1.00* *Unit: LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29,600.00	10,179.44	39,779.44	3,990.40	3,208.13	543.75	0.00	47,521.72
Total	29,600.00	10,179.44	39,779.44	3,990.40	3,208.13	543.75	0.00	47,521.72

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
43,769.8400	80.0000	0.0125	547.1230	10.0000	0.1000	10.0000	4,752.1720

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
320.0000	0.0031	320.0000	124.3108	29,600.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2MISCMTL	Misc Materials	1.00	1.00	LS	2,500.00	108.750	2,718.75	2,718.75
3MISCMTL	Misc Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
CARP	Carpenter - Journeyman	2.00	160.00	MH	100.00	100.000	134.39	21,502.40
CARP4	Carpenter Foreman	1.00	80.00	MH	105.00	100.000	141.11	11,288.76
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28

Activity: 402319.01 *(Non Additive) Pipe & Fittings - Blower Piping/Air* *(Unreviewed)* *Quantity: 1.00* *Unit: LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	17,058.96	5,866.57	22,925.53	3,591.36	496,117.50	0.00	0.00	522,634.39
Total	17,058.96	5,866.57	22,925.53	3,591.36	496,117.50	0.00	0.00	522,634.39

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
26,516.8900	72.0000	0.0139	368.2901	9.0000	0.1111	9.0000	58,070.4878

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
216.0000	0.0046	216.0000	106.1367	17,058.9600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 9 Eff: 100.00 Crew Hrs: 72.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	6,200.00	108.750	6,742.50	6,742.50
2PIPEMTL	Pipe Materials	1.00	1.00	LS	450,000.00	108.750	489,375.00	489,375.00
8UTLPU	Utility Pickup	1.00	72.00	HR	49.88	100.000	49.88	3,591.36
LABORER	Laborer	1.00	72.00	MH	65.00	100.000	87.35	6,289.45
MILLWR	Millwright	1.00	72.00	MH	80.22	100.000	107.81	7,762.15
PLUMB	Plumber - Journeyman	1.00	72.00	MH	91.71	100.000	123.25	8,873.93

Activity: 402319.02 *(Non Additive) Pipe & Fittings - Aeration Basin & Clarifier* *Quantity: 1.00* *Unit: LS*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,581.76	2,607.36	10,189.12	1,596.16	13,050.00	0.00	0.00	24,835.28
Total	7,581.76	2,607.36	10,189.12	1,596.16	13,050.00	0.00	0.00	24,835.28

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
11,785.2800	32.0000	0.0313	368.2900	4.0000	0.2500	4.0000	6,208.8200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	106.1367	7,581.7600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	2,000.00	108.750	2,175.00	2,175.00
2PIPEMTL	Pipe Materials	1.00	1.00	LS	10,000.00	108.750	10,875.00	10,875.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
MILLWR	Millwright	1.00	32.00	MH	80.22	100.000	107.81	3,449.84
PLUMB	Plumber - Journeyman	1.00	32.00	MH	91.71	100.000	123.25	3,943.97

Activity: 46000.00 (Non Additive) Aeration Equipment - Buy out Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2AERATION	Aeration Basin & Integral Clarifier	1.00	1.00	LS	715,000.00	108.750	777,562.50	777,562.50

Activity: 46000.01 (Non Additive) Install Aeration Equipment Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	36,686.40	12,616.45	49,302.85	11,098.56	0.00	0.00	35,000.00	95,401.41
Total	36,686.40	12,616.45	49,302.85	11,098.56	0.00	0.00	35,000.00	95,401.41

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
60,401.4100	96.0000	0.0104	629.1814	12.0000	0.0833	12.0000	7,950.1175

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
480.0000	0.0021	480.0000	102.7143	36,686.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD (Mod) Medium Mechanical Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 5.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4CRANE	Crane - Subcontractor	1.00	10.00	DAY	3,500.00	100.000	3,500.00	35,000.00
8MECHTRK	Mechanics Truck	1.00	96.00	HR	65.73	100.000	65.73	6,310.08
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
LABORER	Laborer	2.00	192.00	MH	65.00	100.000	87.35	16,771.87
MILLWR	Millwright	2.00	192.00	MH	80.22	100.000	107.81	20,699.07
PLUMB	Plumber - Journeyman	1.00	96.00	MH	91.71	100.000	123.25	11,831.91

Activity: 46000.02 (Non Additive) Install Blower Equipment Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	10,148.80	3,490.17	13,638.97	3,699.52	0.00	0.00	42,000.00	59,338.49
Total	10,148.80	3,490.17	13,638.97	3,699.52	0.00	0.00	42,000.00	59,338.49

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,338.4900	32.0000	0.0313	541.8278	4.0000	0.2500	4.0000	14,834.6225

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	106.5545	10,148.8000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4CRANE	Crane - Subcontractor	1.00	12.00	DAY	3,500.00	100.000	3,500.00	42,000.00
8MECHTRK	Mechanics Truck	1.00	32.00	HR	65.73	100.000	65.73	2,103.36
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31
MILLWR	Millwright	2.00	64.00	MH	80.22	100.000	107.81	6,899.69
PLUMB	Plumber - Journeyman	1.00	32.00	MH	91.71	100.000	123.25	3,943.97

Activity: 312000.02 (Non Additive) Earth Moving - Fill *Quantity: 3400.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12.79	4.40	17.18	16.33	27.39	0.00	0.00	60.90
Total	43,472.00	14,950.02	58,422.02	55,505.49	93,130.78	0.00	0.00	207,058.29

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
33.5081	0.0306	32.6923	1,095.4568	13.0000	261.5385	0.0038	15,927.5608

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
520.0000	6.5385	0.1529	112.3500	12.7859

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 13 Eff: 100.00 Crew Hrs: 104.00 Labor Pcs: 5.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FILL	Fill Dirt	1.00	5,525.00	TON	15.50	108.750	16.86	93,130.78
8040	SINGLE DRUM COMPACTOR	1.00	104.00	HR	60.85	108.750	66.17	6,882.14
8043	ROLLER LG DOUBLE DRUM	1.00	104.00	HR	75.10	108.750	81.67	8,493.81
8239	MOTORGRADER/BLADE	1.00	104.00	HR	182.58	108.750	198.56	20,649.80
8326	4000 GAL WATER TRUCK	1.00	104.00	HR	126.37	108.750	137.43	14,292.22
8UTLPU	Utility Pickup	1.00	104.00	HR	49.88	100.000	49.88	5,187.52
LABORER	Laborer	1.00	104.00	MH	65.00	100.000	87.35	9,084.76
OPER4	Operator Foreman	1.00	104.00	MH	92.00	100.000	123.64	12,858.44
OPERATOR	Operator	3.00	312.00	MH	87.00	100.000	116.92	36,478.82

Activity: 312000.03 (Non Additive) Pond Grading *Quantity: 18800.00* *Unit: SF*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.28	0.10	0.38	0.38	0.00	0.00	0.00	0.76
Total	5,296.00	1,821.30	7,117.30	7,232.56	0.00	0.00	0.00	14,349.86

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.7633	0.0009	1,175.0000	896.8663	2.0000	9,400.0000	0.0001	7,174.9300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	293.7500	0.0034	111.2078	0.2817

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8239	MOTORGRADER/BLADE	1.00	16.00	HR	182.58	108.750	198.56	3,176.89
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 312000.04 (Non Additive) Conc Pond Liner *Quantity: 18800.00* *Unit: SF*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.76	0.26	1.02	0.04	4.98	0.14	2.75	8.94
Total	14,288.00	4,913.64	19,201.64	798.08	93,715.31	2,555.63	51,720.00	167,990.66

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1.0638	0.0009	1,175.0000	1,249.9825	2.0000	9,400.0000	0.0001	83,995.3300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
176.0000	106.8182	0.0094	109.1002	0.7600

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF Pour Crew - Flatwork/Slab Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 11.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	383.00	CY	225.00	108.750	244.69	93,715.31
3FORMMTL	Form Materials	1.00	470.00	SF	5.00	108.750	5.44	2,555.63
4PUMP	Concrete Pump	1.00	12.00	HR	285.00	100.000	285.00	3,420.00
4REBAR	Rebar - Sub	1.00	34,500.00	LB	1.40	100.000	1.40	48,300.00
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
MASON	Cement Mason	4.00	64.00	MH	78.00	100.000	104.82	6,708.75
MASON4	Mason Foreman	1.00	16.00	MH	81.00	100.000	108.86	1,741.69

Activity: 312000.05 (Non Additive) Drain Intake Structure Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6,336.00	2,178.95	8,514.95	11,858.34	23,925.00	0.00	0.00	44,298.29
Total	6,336.00	2,178.95	8,514.95	11,858.34	23,925.00	0.00	0.00	44,298.29

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
20,373.2900	16.0000	0.0625	1,273.3306	2.0000	0.5000	2.0000	22,149.1450

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
80.0000	0.0125	80.0000	106.4369	6,336.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 5.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PRECASTINLE	Precast Inlet	1.00	1.00	EA	22,000.00	108.750	23,925.00	23,925.00
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 323100.02 (Non Additive) Pond Accessories Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,736.00	597.01	2,333.01	639.05	2,990.63	0.00	0.00	5,962.69
Total	1,736.00	597.01	2,333.01	639.05	2,990.63	0.00	0.00	5,962.69

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,972.0600	8.0000	0.1250	371.5075	1.0000	1.0000	1.0000	5,962.6900

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	97.2088	1,736.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2RESQRING	Rescue Ring	1.00	4.00	EA	575.00	108.750	625.31	2,501.25
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	73.45	108.750	79.88	639.05
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35

Biditem **55**

(Non Additive) Independent Clarifier

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 5b

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	367,828.07	126,496.06	494,324.13	86,345.76	414,441.26	25,338.75	381,850.00	1,402,299.90
Total	367,828.07	126,496.06	494,324.13	86,345.76	414,441.26	25,338.75	381,850.00	1,402,299.90

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
4,287.0900	0.0002	4,287.0900	327.0983	85.7990	115.3053	0.0011

Activity: 03300.01 (Non Additive) Clarifier - Invert Concrete Quantity: 93.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	460.22	158.27	618.48	42.91	268.37	14.73	516.34	1,460.84
Total	42,800.00	14,718.92	57,518.92	3,990.40	24,958.13	1,370.25	48,020.00	135,857.70

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
661.3905	0.8602	1.1625	768.8665	10.0000	9.3000	0.1075	13,585.7700

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
480.0000	0.1938	5.1613	119.8311	460.2151

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	102.00	CY	225.00	108.750	244.69	24,958.13
3FORMMTL	Form Materials	1.00	252.00	SF	5.00	108.750	5.44	1,370.25
4CRANE	Crane - Subcontractor	1.00	0.50	MO	55,000.00	100.000	55,000.00	27,500.00
4PUMP	Concrete Pump	1.00	16.00	HR	285.00	100.000	285.00	4,560.00
4REBAR	Rebar - Sub	1.00	11,400.00	LB	1.40	100.000	1.40	15,960.00
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
CARP	Carpenter - Journeyman	3.00	240.00	MH	100.00	100.000	134.39	32,253.60
CARP4	Carpenter Foreman	1.00	80.00	MH	105.00	100.000	141.11	11,288.76
LABORER	Laborer	2.00	160.00	MH	65.00	100.000	87.35	13,976.56

Activity: 03300.02 (Non Additive) Clarifier - Wall Concrete Quantity: 62.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,474.84	507.20	1,982.04	115.85	610.23	286.61	1,557.90	4,552.63
Total	91,440.00	31,446.22	122,886.22	7,182.72	37,834.13	17,769.75	96,590.00	282,262.82

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,097.8861	2.3226	0.4306	903.2565	18.0000	3.4444	0.2903	15,681.2678

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
1,008.0000	0.0615	16.2581	121.9109	1,474.8387

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL (Mod) 6 Man Wall Crew Prod: S 18 Eff: 100.00 Crew Hrs: 144.00 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	70.00	CY	225.00	108.750	244.69	17,128.13
2FORMSAVER	Form Savers	1.00	280.00	EA	68.00	108.750	73.95	20,706.00
3FORMMTL	Form Materials	1.00	3,268.00	SF	5.00	108.750	5.44	17,769.75
4CRANE	Crane - Subcontractor	1.00	1.25	MO	55,000.00	100.000	55,000.00	68,750.00
4PUMP	Concrete Pump	1.00	24.00	HR	285.00	100.000	285.00	6,840.00
4REBAR	Rebar - Sub	1.00	15,000.00	LB	1.40	100.000	1.40	21,000.00
8UTLPU	Utility Pickup	1.00	144.00	HR	49.88	100.000	49.88	7,182.72
CARP	Carpenter - Journeyman	4.00	576.00	MH	100.00	100.000	134.39	77,408.64
CARP4	Carpenter Foreman	1.00	144.00	MH	105.00	100.000	141.11	20,319.77

LABORER	Laborer	2.00	288.00	MH	65.00	100.000	87.35	25,157.81

Activity: 03300.03 *(Non Additive) Clarifier - Launderer Invert Concrete* *Quantity: 9.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,804.44	1,308.35	5,112.79	354.70	271.88	77.33	3,898.89	9,715.59
Total	34,240.00	11,775.14	46,015.14	3,192.32	2,446.88	696.00	35,090.00	87,440.34

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,467.4956	7.1111	0.1406	768.8666	8.0000	1.1250	0.8889	10,930.0425

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
384.0000	0.0234	42.6667	119.8311	3,804.4444

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	10.00	CY	225.00	108.750	244.69	2,446.88
3FORMMTL	Form Materials	1.00	128.00	SF	5.00	108.750	5.44	696.00
4CRANE	Crane - Subcontractor	1.00	0.50	MO	55,000.00	100.000	55,000.00	27,500.00
4PUMP	Concrete Pump	1.00	6.00	HR	285.00	100.000	285.00	1,710.00
4REBAR	Rebar - Sub	1.00	4,200.00	LB	1.40	100.000	1.40	5,880.00
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
CARP	Carpenter - Journeyman	3.00	192.00	MH	100.00	100.000	134.39	25,802.88
CARP4	Carpenter Foreman	1.00	64.00	MH	105.00	100.000	141.11	9,031.01
LABORER	Laborer	2.00	128.00	MH	65.00	100.000	87.35	11,181.25

Activity: 03300.04 *(Non Additive) Clarifier - Launderer Wall Concrete* *Quantity: 26.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,469.23	849.17	3,318.40	230.22	269.16	190.73	2,138.08	6,146.58
Total	64,200.00	22,078.38	86,278.38	5,985.60	6,998.06	4,959.00	55,590.00	159,811.04

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3,548.6146	4.6154	0.2167	768.8665	15.0000	1.7333	0.5769	10,654.0693

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
720.0000	0.0361	27.6923	119.8311	2,469.2308

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 15 Eff: 100.00 Crew Hrs: 120.00 Labor Pcs: 6.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	28.60	CY	225.00	108.750	244.69	6,998.06
3FORMMTL	Form Materials	1.00	912.00	SF	5.00	108.750	5.44	4,959.00
4CRANE	Crane - Subcontractor	1.00	0.75	MO	55,000.00	100.000	55,000.00	41,250.00
4PUMP	Concrete Pump	1.00	12.00	HR	285.00	100.000	285.00	3,420.00
4REBAR	Rebar - Sub	1.00	7,800.00	LB	1.40	100.000	1.40	10,920.00
8UTLPU	Utility Pickup	1.00	120.00	HR	49.88	100.000	49.88	5,985.60
CARP	Carpenter - Journeyman	3.00	360.00	MH	100.00	100.000	134.39	48,380.40
CARP4	Carpenter Foreman	1.00	120.00	MH	105.00	100.000	141.11	16,933.14
LABORER	Laborer	2.00	240.00	MH	65.00	100.000	87.35	20,964.84

Activity: 03300.05 *(Non Additive) Clarifier Grout* *Quantity: 1256.00* *Unit: SF*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	23.43	8.06	31.48	1.91	1.73	0.43	3.63	39.19
Total	29,424.00	10,118.92	39,542.92	2,394.24	2,177.72	543.75	4,560.00	49,218.63

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
33.3895	0.0382	26.1667	873.6908	6.0000	209.3333	0.0048	8,203.1050

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
336.0000	3.7381	0.2675	117.6873	23.4268

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL (Mod) 6 Man Wall Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	8.90	CY	225.00	108.750	244.69	2,177.72
3FORMMTL	Form Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
4PUMP	Concrete Pump	1.00	16.00	HR	285.00	100.000	285.00	4,560.00
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
CARP	Carpenter - Journeyman	3.00	144.00	MH	100.00	100.000	134.39	19,352.16
CARP4	Carpenter Foreman	1.00	48.00	MH	105.00	100.000	141.11	6,773.26
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
MASON	Cement Mason	1.00	48.00	MH	78.00	100.000	104.82	5,031.56

Activity: 05500.01 (Non Additive) Install Misc Metals Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	13,941.12	4,794.35	18,735.47	4,788.48	19,031.25	0.00	0.00	42,555.20
Total	13,941.12	4,794.35	18,735.47	4,788.48	19,031.25	0.00	0.00	42,555.20

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,523.9500	96.0000	0.0104	245.0411	12.0000	0.0833	12.0000	3,546.2667

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
192.0000	0.0052	192.0000	97.5806	13,941.1200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2HANDRAIL	Handrail	1.00	125.00	LF	80.00	108.750	87.00	10,875.00
2MISCMETAL	Misc Metal	1.00	1.00	LS	7,500.00	108.750	8,156.25	8,156.25
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
LABORER	Laborer	1.00	96.00	MH	65.00	100.000	87.35	8,385.94
MILLWR	Millwright	1.00	96.00	MH	80.22	100.000	107.81	10,349.53

Activity: 09900.01 (Non Additive) Performance Coatings Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4COAT	High Performance Coating	1.00	1,005.00	SF	80.00	100.000	80.00	80,400.00

Activity: 10000.01 (Non Additive) Signage Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4SIGN	Signage	1.00	1.00	LS	5,000.00	100.000	5,000.00	5,000.00

Activity: 32000.01 (Non Additive) Clarifier Structure Exc Quantity: 1018.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	13.01	4.47	17.48	16.15	0.00	0.00	21.22	54.85
Total	13,240.00	4,553.23	17,793.23	16,441.55	0.00	0.00	21,600.00	55,834.78

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
33.6294	0.0393	25.4500	855.8695	5.0000	203.6000	0.0049	11,166.9560

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
160.0000	6.3625	0.1572	111.2077	13.0059

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 (Mod) 4 man Exc Crew Prod: S 5 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	160.00	HR	135.00	100.000	135.00	21,600.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	40.00	HR	111.02	108.750	120.73	4,829.37
8279	EXCAVATOR SMALL-MED	1.00	40.00	HR	221.08	108.750	240.42	9,616.98
8UTLPU	Utility Pickup	1.00	40.00	HR	49.88	100.000	49.88	1,995.20
LABORER	Laborer	1.00	40.00	MH	65.00	100.000	87.35	3,494.14
OPER4	Operator Foreman	1.00	40.00	MH	92.00	100.000	123.64	4,945.55
OPERATOR	Operator	2.00	80.00	MH	87.00	100.000	116.92	9,353.54

Activity: 32000.02 (Non Additive) Clarifier Subgrade Quantity: 1962.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.91	0.66	2.57	2.39	2.93	0.00	0.00	7.89
Total	3,751.43	1,290.11	5,041.54	4,691.50	5,756.03	0.00	0.00	15,489.07

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4.9608	0.0080	125.0000	620.0968	1.9620	1,000.0000	0.0010	7,894.5311

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
47.0900	41.6649	0.0240	107.0618	1.9120

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 1.962 Eff: 100.00 Crew Hrs: 15.70 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	245.00	TON	18.00	108.750	19.58	4,795.88
2FABRIC	Filter Fabric	1.00	1,962.00	SF	0.45	108.750	0.49	960.15
8040	SINGLE DRUM COMPACTOR	1.00	15.70	HR	60.85	108.750	66.17	1,038.94
8272	LOADER LANDSCAPER 4WD	1.00	15.70	HR	41.69	108.750	45.34	711.86
8326	4000 GAL WATER TRUCK	1.00	15.70	HR	126.37	108.750	137.43	2,157.58
8UTLPU	Utility Pickup	1.00	15.70	HR	49.88	100.000	49.88	783.12
LABORER	Laborer	1.00	15.70	MH	65.00	100.000	87.35	1,371.45
OPERATOR	Operator	2.00	31.39	MH	87.00	100.000	116.92	3,670.09

Activity: 32000.03 (Non Additive) Underslab Piping Quantity: 28.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	226.29	77.82	304.11	178.37	169.92	0.00	0.00	652.40
Total	6,336.00	2,178.95	8,514.95	4,994.41	4,757.81	0.00	0.00	18,267.17

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
482.4771	0.5714	1.7500	844.3350	2.0000	14.0000	0.0714	9,133.5850

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
80.0000	0.3500	2.8571	106.4369	226.2857

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	7.00	CY	225.00	108.750	244.69	1,712.81
2PIPEMTL	Pipe Materials	1.00	28.00	LF	100.00	108.750	108.75	3,045.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	16.00	HR	111.02	108.750	120.73	1,931.75
8276	EXCAVATOR SMALL	1.00	16.00	HR	130.15	108.750	141.54	2,264.58
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 32004.01 (Non Additive) Structure Backfill **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,120.00	6,575.37	25,695.37	23,905.66	0.00	0.00	0.00	49,601.03
Total	19,120.00	6,575.37	25,695.37	23,905.66	0.00	0.00	0.00	49,601.03

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
49,601.0300	80.0000	0.0125	620.0129	10.0000	0.1000	10.0000	4,960.1030

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	107.0640	19,120.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	80.00	HR	60.85	108.750	66.17	5,293.95
8272	LOADER LANDSCAPER 4WD	1.00	80.00	HR	41.69	108.750	45.34	3,627.29
8326	4000 GAL WATER TRUCK	1.00	80.00	HR	126.37	108.750	137.43	10,994.02
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28
OPERATOR	Operator	2.00	160.00	MH	87.00	100.000	116.92	18,707.09

Activity: 32011.01 (Non Additive) Dewatering? **Quantity: 1.00** **Unit: LS**

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Notes: None Anticipated

Activity: 46000.01 (Non Additive) Install Clarifier **Quantity: 1.00** **Unit: EA**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	33,641.44	11,569.28	45,210.72	5,586.56	306,675.00	0.00	35,000.00	392,472.28
Total	33,641.44	11,569.28	45,210.72	5,586.56	306,675.00	0.00	35,000.00	392,472.28

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
50,797.2800	112.0000	0.0089	453.5471	14.0000	0.0714	14.0000	28,033.7343

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
448.0000	0.0022	448.0000	100.9168	33,641.4400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 14 Eff: 100.00 Crew Hrs: 112.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CLARIFIER	Round Tank Clarifier	1.00	1.00	LS	282,000.00	108.750	306,675.00	306,675.00
4CRANE	Crane - Subcontractor	1.00	10.00	DAY	3,500.00	100.000	3,500.00	35,000.00
8UTLPU	Utility Pickup	1.00	112.00	HR	49.88	100.000	49.88	5,586.56
LABORER	Laborer	1.00	112.00	MH	65.00	100.000	87.35	9,783.59
MECHHLP	Mech Helper/Oiler	1.00	112.00	MH	74.93	100.000	100.70	11,278.22
MILLWR	Millwright	2.00	224.00	MH	80.22	100.000	107.81	24,148.91

Activity: 46000.02 (Non Additive) Install Clarifier Weir **Quantity: 1.00** **Unit: EA**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	15,694.08	5,397.19	21,091.27	3,192.32	3,806.25	0.00	0.00	28,089.84
Total	15,694.08	5,397.19	21,091.27	3,192.32	3,806.25	0.00	0.00	28,089.84

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
24,283.5900	64.0000	0.0156	379.4311	8.0000	0.1250	8.0000	3,511.2300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
192.0000	0.0052	192.0000	109.8504	15,694.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2MISCMTL	Misc Materials	1.00	1.00	EA	3,500.00	108.750	3,806.25	3,806.25
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
CARP	Carpenter - Journeyman	1.00	64.00	MH	100.00	100.000	134.39	8,600.96
LABORER	Laborer	1.00	64.00	MH	65.00	100.000	87.35	5,590.62
MILLWR	Millwright	1.00	64.00	MH	80.22	100.000	107.81	6,899.69

Biditem

60

Baseline Inegral Clarifier Yard Piping

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 6a

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	126,480.04	43,496.49	169,976.53	153,437.77	266,066.13	4,350.00	7,020.00	600,850.43
Total	126,480.04	43,496.49	169,976.53	153,437.77	266,066.13	4,350.00	7,020.00	600,850.43

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
1,617.2700	0.0006	1,617.2700	371.5214	78.2059	105.1009	0.0040

Activity: 339901.01 12" SS Quantity: 156.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	56.21	19.33	75.53	76.02	135.94	0.00	0.00	287.49
Total	8,768.00	3,015.32	11,783.32	11,858.34	21,206.25	0.00	0.00	44,847.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
151.5491	0.1026	9.7500	1,477.6038	2.0000	78.0000	0.0128	22,423.9550

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	1.3929	0.7179	105.2082	56.2051

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	156.00	LF	125.00	108.750	135.94	21,206.25
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.02 8" RAS Quantity: 296.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29.62	10.19	39.81	40.06	114.19	0.00	0.00	194.06
Total	8,768.00	3,015.32	11,783.32	11,858.34	33,799.50	0.00	0.00	57,441.16

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
79.8705	0.0541	18.5000	1,477.6038	2.0000	148.0000	0.0068	28,720.5800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	2.6429	0.3784	105.2082	29.6216

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total

2PIPEMTL	Pipe Materials	1.00	296.00	LF	105.00	108.750	114.19	33,799.50
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.03 6" WAS Quantity: 428.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	40.97	14.09	55.06	55.41	100.05	0.00	0.00	210.53
Total	17,536.00	6,030.63	23,566.63	23,716.68	42,821.40	0.00	0.00	90,104.71

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
110.4750	0.0748	13.3750	1,477.6034	4.0000	107.0000	0.0093	22,526.1775

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	1.9107	0.5234	105.2082	40.9720

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	428.00	LF	92.00	108.750	100.05	42,821.40
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.04 6" SFM Quantity: 675.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	25.98	8.93	34.91	35.14	97.88	0.00	0.00	167.92
Total	17,536.00	6,030.63	23,566.63	23,716.68	66,065.63	0.00	0.00	113,348.94

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
70.0493	0.0474	21.0938	1,477.6034	4.0000	168.7500	0.0059	28,337.2350

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	3.0134	0.3319	105.2082	25.9793

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	675.00	LF	90.00	108.750	97.88	66,065.63
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44

OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.05 12" SE **Quantity: 361.00** **Unit: LF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	28.03	9.64	37.67	37.92	135.94	0.00	0.00	211.53
Total	10,120.04	3,480.28	13,600.32	13,688.96	49,073.44	0.00	0.00	76,362.72

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
75.5936	0.0512	19.5500	1,477.8522	2.3082	156.3998	0.0064	33,083.4129

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
129.2700	2.7926	0.3581	105.2086	28.0334

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2.3082 Eff: 100.00 Crew Hrs: 18.47 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	361.00	LF	125.00	108.750	135.94	49,073.44
8040	SINGLE DRUM COMPACTOR	1.00	18.47	HR	60.85	108.750	66.17	1,222.24
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	18.47	HR	153.44	108.750	166.86	3,081.99
8283	EXCAVATOR LARGE	1.00	18.47	HR	294.99	108.750	320.80	5,925.21
8326	4000 GAL WATER TRUCK	1.00	18.47	HR	126.37	108.750	137.43	2,538.24
8UTLPU	Utility Pickup	1.00	18.47	HR	49.88	100.000	49.88	921.28
LABORER	Laborer	3.00	55.40	MH	65.00	100.000	87.35	4,839.38
OPER4	Operator Foreman	1.00	18.47	MH	92.00	100.000	123.64	2,283.61
OPERATOR	Operator	3.00	55.40	MH	87.00	100.000	116.92	6,477.33

Activity: 339901.06 Tie Ins **Quantity: 2.00** **Unit: EA**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8,768.00	3,015.32	11,783.32	11,858.34	3,806.25	0.00	0.00	27,447.91
Total	17,536.00	6,030.63	23,566.63	23,716.68	7,612.50	0.00	0.00	54,895.81

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,641.6550	16.0000	0.0625	1,477.6034	4.0000	0.5000	2.0000	13,723.9525

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	0.0089	112.0000	105.2082	8,768.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	2.00	EA	3,500.00	108.750	3,806.25	7,612.50
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.09 Blower Air **Quantity: 100.00** **Unit: LF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	87.68	30.15	117.83	118.58	163.13	0.00	0.00	399.54
Total	8,768.00	3,015.32	11,783.32	11,858.34	16,312.50	0.00	0.00	39,954.16

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
236.4166	0.1600	6.2500	1,477.6038	2.0000	50.0000	0.0200	19,977.0800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	0.8929	1.1200	105.2082	87.6800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	100.00	LF	150.00	108.750	163.13	16,312.50
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.99 Bypass Allowance Quantity: 2.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,504.00	3,268.43	12,772.43	10,496.53	0.00	2,175.00	0.00	25,443.95
Total	19,008.00	6,536.85	25,544.85	20,993.05	0.00	4,350.00	0.00	50,887.90

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,268.9500	24.0000	0.0417	969.5396	6.0000	0.3333	3.0000	8,481.3167

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0083	120.0000	106.4369	9,504.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE (Mod) Small Pipe Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 5.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3PIPEMTL	Temp Pipe Materials	1.00	200.00	LF	20.00	108.750	21.75	4,350.00
8092	GENERATOR 50-59 KVA	1.00	48.00	HR	52.03	108.750	56.58	2,716.02
8165	PUMP 6" SELF PRIME - ELECTRI	2.00	96.00	HR	31.55	108.750	34.31	3,293.82
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	48.00	HR	111.02	108.750	120.73	5,795.24
8276	EXCAVATOR SMALL	1.00	48.00	HR	130.15	108.750	141.54	6,793.73
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	48.00	MH	92.00	100.000	123.64	5,934.66
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 320001.01 AC Patch Paving Quantity: 10000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.84	0.63	2.48	1.20	2.92	0.00	0.70	7.30
Total	18,440.00	6,341.51	24,781.51	12,030.70	29,174.91	0.00	7,020.00	73,007.12

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3.6812	0.0040	250.0000	920.3053	5.0000	2,000.0000	0.0005	14,601.4240

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	41.6667	0.0240	103.2563	1.8440

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PAVE (Mod) Asphalt Paving Prod: S 5 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ACPAVEMENT	Asphalt	1.00	255.50	TON	105.00	108.750	114.19	29,174.91
4HAUL	Hauling - Sub	1.00	52.00	HR	135.00	100.000	135.00	7,020.00

8042	ROLLER MD DOUBLE DRUM	1.00	40.00	HR	62.64	108.750	68.12	2,724.84
8272	LOADER LANDSCAPER 4WD	1.00	40.00	HR	41.69	108.750	45.34	1,813.65
8326	4000 GAL WATER TRUCK	1.00	40.00	HR	126.37	108.750	137.43	5,497.01
8UTLPU	Utility Pickup	1.00	40.00	HR	49.88	100.000	49.88	1,995.20
LABORER	Laborer	3.00	120.00	MH	65.00	100.000	87.35	10,482.42
OPER4	Operator Foreman	1.00	40.00	MH	92.00	100.000	123.64	4,945.55
OPERATOR	Operator	2.00	80.00	MH	87.00	100.000	116.92	9,353.54

Biditem

65

(Non Additive) Independent Clarifier Yard Piping

Takeoff Qty: *1.000 LS*

Bid Qty: *1.000 LS*

Client #: 6b

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	129,512.00	44,539.18	174,051.18	157,536.32	266,447.84	4,350.00	7,020.00	609,405.34
Total	129,512.00	44,539.18	174,051.18	157,536.32	266,447.84	4,350.00	7,020.00	609,405.34

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
1,656.0000	0.0006	1,656.0000	367.9984	78.2077	105.1034	0.0039

Activity: 339901.01 (Non Additive) 12" SS (Unreviewed) Quantity: 156.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	56.21	19.33	75.53	76.02	135.94	0.00	0.00	287.49
Total	8,768.00	3,015.32	11,783.32	11,858.34	21,206.25	0.00	0.00	44,847.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
151.5491	0.1026	9.7500	1,477.6038	2.0000	78.0000	0.0128	22,423.9550

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	1.3929	0.7179	105.2082	56.2051

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	156.00	LF	125.00	108.750	135.94	21,206.25
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.02 (Non Additive) 8" RAS Quantity: 300.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29.23	10.05	39.28	39.53	114.19	0.00	0.00	192.99
Total	8,768.00	3,015.32	11,783.32	11,858.34	34,256.25	0.00	0.00	57,897.91

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
78.8055	0.0533	18.7500	1,477.6038	2.0000	150.0000	0.0067	28,948.9550

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	2.6786	0.3733	105.2082	29.2267

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total

2PIPEMTL	Pipe Materials	1.00	300.00	LF	105.00	108.750	114.19	34,256.25
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.03 (Non Additive) 6" WAS Quantity: 396.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	44.28	15.23	59.51	59.89	100.05	0.00	0.00	219.45
Total	17,536.00	6,030.63	23,566.63	23,716.68	39,619.80	0.00	0.00	86,903.11

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
119.4023	0.0808	12.3750	1,477.6034	4.0000	99.0000	0.0101	21,725.7775

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	1.7679	0.5657	105.2082	44.2828

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	396.00	LF	92.00	108.750	100.05	39,619.80
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.04 (Non Additive) 6" SFM (Unreviewed) Quantity: 675.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	25.98	8.93	34.91	35.14	97.88	0.00	0.00	167.92
Total	17,536.00	6,030.63	23,566.63	23,716.68	66,065.63	0.00	0.00	113,348.94

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
70.0493	0.0474	21.0938	1,477.6034	4.0000	168.7500	0.0059	28,337.2350

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	3.0134	0.3319	105.2082	25.9793

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	675.00	LF	90.00	108.750	97.88	66,065.63
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44

OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.05 (Non Additive) 12" ML **Quantity: 88.00** **Unit: LF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	49.82	17.13	66.95	67.38	135.94	0.00	0.00	270.27
Total	4,384.00	1,507.65	5,891.65	5,929.17	11,962.50	0.00	0.00	23,783.32

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
134.3275	0.0909	11.0000	1,477.6025	1.0000	88.0000	0.0114	23,783.3200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
56.0000	1.5714	0.6364	105.2080	49.8182

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	88.00	LF	125.00	108.750	135.94	11,962.50
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	8.00	HR	153.44	108.750	166.87	1,334.92
8283	EXCAVATOR LARGE	1.00	8.00	HR	294.99	108.750	320.80	2,566.41
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	3.00	24.00	MH	65.00	100.000	87.35	2,096.48
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	3.00	24.00	MH	87.00	100.000	116.92	2,806.06

Activity: 339901.06 (Non Additive) Tie Ins **Quantity: 2.00** **Unit: EA**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8,768.00	3,015.32	11,783.32	11,858.34	3,806.25	0.00	0.00	27,447.91
Total	17,536.00	6,030.63	23,566.63	23,716.68	7,612.50	0.00	0.00	54,895.81

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,641.6550	16.0000	0.0625	1,477.6034	4.0000	0.5000	2.0000	13,723.9525

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	0.0089	112.0000	105.2082	8,768.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	2.00	EA	3,500.00	108.750	3,806.25	7,612.50
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 339901.07 (Non Additive) 12" SE **Quantity: 296.00** **Unit: LF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	29.62	10.19	39.81	40.06	135.94	0.00	0.00	215.81
Total	8,768.00	3,015.32	11,783.32	11,858.34	40,237.50	0.00	0.00	63,879.16

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
79.8705	0.0541	18.5000	1,477.6038	2.0000	148.0000	0.0068	31,939.5800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	2.6429	0.3784	105.2082	29.6216

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	296.00	LF	125.00	108.750	135.94	40,237.50
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.09 (Non Additive) Blower Air Quantity: 100.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	87.68	30.15	117.83	118.58	163.13	0.00	0.00	399.54
Total	8,768.00	3,015.32	11,783.32	11,858.34	16,312.50	0.00	0.00	39,954.16

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
236.4166	0.1600	6.2500	1,477.6038	2.0000	50.0000	0.0200	19,977.0800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
112.0000	0.8929	1.1200	105.2082	87.6800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 7.00 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	100.00	LF	150.00	108.750	163.13	16,312.50
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	3.00	48.00	MH	87.00	100.000	116.92	5,612.13

Activity: 339901.99 (Non Additive) Bypass Allowance Quantity: 2.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,504.00	3,268.43	12,772.43	10,496.53	0.00	2,175.00	0.00	25,443.95
Total	19,008.00	6,536.85	25,544.85	20,993.05	0.00	4,350.00	0.00	50,887.90

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,268.9500	24.0000	0.0417	969.5396	6.0000	0.3333	3.0000	8,481.3167

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0083	120.0000	106.4369	9,504.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE (Mod) Small Pipe Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 5.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3PIPEMTL	Temp Pipe Materials	1.00	200.00	LF	20.00	108.750	21.75	4,350.00
8092	GENERATOR 50-59 KVA	1.00	48.00	HR	52.03	108.750	56.58	2,716.02

8165	PUMP 6" SELF PRIME - ELECTRI	2.00	96.00	HR	31.55	108.750	34.31	3,293.82
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	48.00	HR	111.02	108.750	120.73	5,795.24
8276	EXCAVATOR SMALL	1.00	48.00	HR	130.15	108.750	141.54	6,793.73
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	48.00	MH	92.00	100.000	123.64	5,934.66
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 320001.01 (Non Additive) AC Patch Paving Quantity: 10000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.84	0.63	2.48	1.20	2.92	0.00	0.70	7.30
Total	18,440.00	6,341.51	24,781.51	12,030.70	29,174.91	0.00	7,020.00	73,007.12

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3.6812	0.0040	250.0000	920.3053	5.0000	2,000.0000	0.0005	14,601.4240

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	41.6667	0.0240	103.2563	1.8440

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PAVE (Mod) Asphalt Paving Prod: S 5 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ACPAVEMENT	Asphalt	1.00	255.50	TON	105.00	108.750	114.19	29,174.91
4HAUL	Hauling - Sub	1.00	52.00	HR	135.00	100.000	135.00	7,020.00
8042	ROLLER MD DOUBLE DRUM	1.00	40.00	HR	62.64	108.750	68.12	2,724.84
8272	LOADER LANDSCAPER 4WD	1.00	40.00	HR	41.69	108.750	45.34	1,813.65
8326	4000 GAL WATER TRUCK	1.00	40.00	HR	126.37	108.750	137.43	5,497.01
8UTLPU	Utility Pickup	1.00	40.00	HR	49.88	100.000	49.88	1,995.20
LABORER	Laborer	3.00	120.00	MH	65.00	100.000	87.35	10,482.42
OPER4	Operator Foreman	1.00	40.00	MH	92.00	100.000	123.64	4,945.55
OPERATOR	Operator	2.00	80.00	MH	87.00	100.000	116.92	9,353.54

Biditem

70

Electrical Building

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 7

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	83,977.52	28,879.87	112,857.39	14,587.07	58,424.32	2,234.81	113,055.00	301,158.59
Total	83,977.52	28,879.87	112,857.39	14,587.07	58,424.32	2,234.81	113,055.00	301,158.59

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
976.0000	0.0010	976.0000	308.5641	86.0425	115.6326	0.0042

Activity: 031100.01 Concrete Footings Quantity: 14.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,480.00	508.97	1,988.97	199.52	269.16	144.09	420.00	3,021.74
Total	20,720.00	7,125.61	27,845.61	2,793.28	3,768.19	2,017.31	5,880.00	42,304.39

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,188.4921	4.0000	0.2500	547.1230	7.0000	2.0000	0.5000	6,043.4843

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
224.0000	0.0625	16.0000	124.3108	1,480.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 7 Eff: 100.00 Crew Hrs: 56.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total

2CONC	Ready-Mix Concrete	1.10	15.40	CY	225.00	108.750	244.69	3,768.19
3FORMMTL	Form Materials	1.00	371.00	SF	5.00	108.750	5.44	2,017.31
4REBAR	Rebar - Sub	1.00	4,200.00	LB	1.40	100.000	1.40	5,880.00
8UTLPU	Utility Pickup	1.00	56.00	HR	49.88	100.000	49.88	2,793.28
CARP	Carpenter - Journeyman	2.00	112.00	MH	100.00	100.000	134.39	15,051.68
CARP4	Carpenter Foreman	1.00	56.00	MH	105.00	100.000	141.11	7,902.13
LABORER	Laborer	1.00	56.00	MH	65.00	100.000	87.35	4,891.80

Activity: 031100.02 Concrete Slab Quantity: 16.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	893.00	307.10	1,200.10	49.88	269.16	0.00	529.00	2,048.14
Total	14,288.00	4,913.64	19,201.64	798.08	4,306.50	0.00	8,464.00	32,770.22

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,249.9825	1.0000	1.0000	1,249.9825	2.0000	8.0000	0.1250	16,385.1100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
176.0000	0.0909	11.0000	109.1002	893.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF Pour Crew - Flatwork/Slab Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 11.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	17.60	CY	225.00	108.750	244.69	4,306.50
4PUMPCY	Concrete Pump - CY	1.00	16.00	CY	3.00	100.000	3.00	48.00
4PUMPHR	Concrete Pump - Hrly	1.00	6.40	HR	265.00	100.000	265.00	1,696.00
4REBAR	Rebar - Sub	1.00	4,800.00	LB	1.40	100.000	1.40	6,720.00
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
MASON	Cement Mason	4.00	64.00	MH	78.00	100.000	104.82	6,708.75
MASON4	Mason Foreman	1.00	16.00	MH	81.00	100.000	108.86	1,741.69

Activity: 042200.01 CMU Masonry Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4MASON	Masonry - Sub	1.00	1,100.00	SF	42.00	100.000	42.00	46,200.00

Activity: 042200.02 CMU Masonry Support Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,920.00	2,035.89	7,955.89	798.08	0.00	217.50	0.00	8,971.47
Total	5,920.00	2,035.89	7,955.89	798.08	0.00	217.50	0.00	8,971.47

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,753.9700	16.0000	0.0625	547.1231	2.0000	0.5000	2.0000	4,485.7350

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	124.3108	5,920.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TEMPLATE	Template Materials	1.00	1.00	LS	200.00	108.750	217.50	217.50
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66

Activity: 054000.01 Framing — Quantity: 1.00 — Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	8,880.00	3,053.83	11,933.83	1,197.12	16,366.88	0.00	0.00	29,497.83
Total	8,880.00	3,053.83	11,933.83	1,197.12	16,366.88	0.00	0.00	29,497.83

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
13,130.9500	24.0000	0.0417	547.1229	3.0000	0.3333	3.0000	9,832.6100

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	124.3107	8,880.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FRAMING	Framing Materials	1.00	570.00	SF	10.00	108.750	10.88	6,198.75
2TRUSS	Wood Truss	1.00	17.00	EA	550.00	108.750	598.13	10,168.13
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
CARP	Carpenter - Journeyman	2.00	48.00	MH	100.00	100.000	134.39	6,450.72
CARP4	Carpenter Foreman	1.00	24.00	MH	105.00	100.000	141.11	3,386.63
LABORER	Laborer	1.00	24.00	MH	65.00	100.000	87.35	2,096.48

Activity: 075419.01 Roofing — Quantity: 1.00 — Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4MTLSHINGROO	Metal Shingle Roofing	1.00	620.00	SF	55.00	100.000	55.00	34,100.00

Activity: 076200.01 Sheet Metal Flashing — Quantity: 1.00 — Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4ROOFFLASH	Roof Flashing	1.00	106.00	LF	10.00	100.000	10.00	1,060.00

Activity: 076200.02 Nailer (Unreviewed) — Quantity: 1.00 — Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	4,800.00	1,650.72	6,450.72	0.00	0.00	0.00	0.00	6,450.72
Total	4,800.00	1,650.72	6,450.72	0.00	0.00	0.00	0.00	6,450.72

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,450.7200	24.0000	0.0417	268.7800	3.0000	0.3333	3.0000	2,150.2400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	0.0208	48.0000	134.3900	4,800.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: TEMP (Mod) Template Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 2.00 Equipment Pcs: 0.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2NAILER	Nailer	1.00	106.00	LF	0.00	108.750	0.00	0.00
CARP	Carpenter - Journeyman	2.00	48.00	MH	100.00	100.000	134.39	6,450.72

Activity: 081113.01 Hollow Metal Doors — Quantity: 2.00 — Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,220.00	763.46	2,983.46	299.28	5,355.94	0.00	0.00	8,638.68
Total	4,440.00	1,526.91	5,966.91	598.56	10,711.88	0.00	0.00	17,277.35

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3,282.7350	6.0000	0.1667	547.1225	1.5000	1.3333	0.7500	11,518.2333

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit

48.0000	0.0417	24.0000	124.3106	2,220.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: HU 6 Eff: 100.00 Crew Hrs: 12.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2DRHDWRSNGL	Single Door Hardware	1.00	2.00	EA	1,200.00	108.750	1,305.00	2,610.00
2HMDOOR	Hollow Metal Door	1.00	1.00	EA	3,240.00	108.750	3,523.50	3,523.50
2HMDOORDBL	Double Hollow Metal Door	1.00	1.00	EA	4,210.00	108.750	4,578.38	4,578.38
8UTLPU	Utility Pickup	1.00	12.00	HR	49.88	100.000	49.88	598.56
CARP	Carpenter - Journeyman	2.00	24.00	MH	100.00	100.000	134.39	3,225.36
CARP4	Carpenter Foreman	1.00	12.00	MH	105.00	100.000	141.11	1,693.31
LABORER	Laborer	1.00	12.00	MH	65.00	100.000	87.35	1,048.24

Activity: 092900.01 Drywall Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	6,334.08	2,178.29	8,512.37	798.08	1,239.75	0.00	0.00	10,550.20
Total	6,334.08	2,178.29	8,512.37	798.08	1,239.75	0.00	0.00	10,550.20

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
9,310.4500	16.0000	0.0625	581.9031	2.0000	0.5000	2.0000	5,275.1000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	133.0058	6,334.0800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP (Mod) 4 Man Carp Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2DRYWALLMTL	Drywall Materials	1.00	570.00	SF	2.00	108.750	2.18	1,239.75
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	1.00	16.00	MH	100.00	100.000	134.39	2,150.24
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
DRYWALL	Drywall Taper/Texture	2.00	32.00	MH	95.44	100.000	128.26	4,104.38

Activity: 099000.01 Painting/Coatings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	7,920.00	7,920.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	7,920.00	7,920.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4EXTPAINT	Exterior Paint - Sub	1.00	1.00	EA	2,500.00	100.000	2,500.00	2,500.00
4FLOORSEAL	Floor Sealer	1.00	570.00	SF	6.00	100.000	6.00	3,420.00
4INTPAINT	Interior Paint	1.00	1.00	EA	2,000.00	100.000	2,000.00	2,000.00

Activity: 101410.01 Signage Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	532.00	182.95	714.95	199.52	489.38	0.00	0.00	1,403.85
Total	532.00	182.95	714.95	199.52	489.38	0.00	0.00	1,403.85

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
914.4700	4.0000	0.2500	228.6175	0.5000	2.0000	0.5000	2,807.7000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	89.3688	532.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 (Mod) 4 Man Labor Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2SIGNMTL	Signage Materials	1.00	3.00	EA	150.00	108.750	163.13	489.38
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LAB4	Labor Foreman	1.00	4.00	MH	68.00	100.000	91.39	365.54
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 233400.01 Exhaust/Vent Fans Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,616.48	555.91	2,172.39	399.04	4,023.75	0.00	1,648.75	8,243.93
Total	1,616.48	555.91	2,172.39	399.04	4,023.75	0.00	1,648.75	8,243.93

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,571.4300	8.0000	0.1250	321.4288	1.0000	1.0000	1.0000	8,243.9300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	90.5163	1,616.4800

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: HVAC HVAC Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FAN	HVAC Exhaust/Vent Fan	1.00	1.00	EA	2,800.00	108.750	3,045.00	3,045.00
2LOUVER	Louver	1.00	1.00	EA	900.00	108.750	978.75	978.75
4HVAC	HVAC - Sub	1.00	6,595.00	LS	0.25	100.000	0.25	1,648.75
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
HVAC	HVAC Tech	2.00	16.00	MH	68.53	100.000	92.10	1,473.56
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83

Activity: 235523.01 Unit Heater Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	808.24	277.95	1,086.19	199.52	1,957.50	0.00	810.75	4,053.96
Total	808.24	277.95	1,086.19	199.52	1,957.50	0.00	810.75	4,053.96

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,285.7100	4.0000	0.2500	321.4275	0.5000	2.0000	0.5000	8,107.9200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
12.0000	0.0833	12.0000	90.5158	808.2400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: HVAC HVAC Crew Prod: HU 4 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2UNITHEATER	Unit Heater	1.00	1.00	EA	1,800.00	108.750	1,957.50	1,957.50
4HVAC	HVAC - Sub	1.00	3,243.00	LS	0.25	100.000	0.25	810.75
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
HVAC	HVAC Tech	2.00	8.00	MH	68.53	100.000	92.10	736.78
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 265000.01 Lighting/Power Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,366.72	3,221.22	12,587.94	1,596.16	13,702.50	0.00	6,971.50	34,858.10
Total	9,366.72	3,221.22	12,587.94	1,596.16	13,702.50	0.00	6,971.50	34,858.10

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
14,184.1000	32.0000	0.0313	443.2531	4.0000	0.2500	4.0000	8,714.5250

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	98.3433	9,366.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC Electrical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	5,700.00	108.750	6,198.75	6,198.75
2LIGHTING	Lighting - LED	1.00	12.00	EA	575.00	108.750	625.31	7,503.75
4ELEC	Electric - Sub	1.00	27,886.00	LS	0.25	100.000	0.25	6,971.50
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
ELEC	Electrician	2.00	64.00	MH	73.88	100.000	99.29	6,354.39
ELEC4	Elecrician Foreman	1.00	32.00	MH	79.95	100.000	107.45	3,438.24
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 311000.02 Footing Excavation Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,736.00	597.01	2,333.01	639.05	0.00	0.00	0.00	2,972.06
Total	1,736.00	597.01	2,333.01	639.05	0.00	0.00	0.00	2,972.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,972.0600	8.0000	0.1250	371.5075	1.0000	1.0000	1.0000	2,972.0600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	97.2088	1,736.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP Mini Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	8.00	HR	73.45	108.750	79.88	639.05
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35

Activity: 311000.03 Backfill Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,104.00	723.57	2,827.57	2,180.01	0.00	0.00	0.00	5,007.58
Total	2,104.00	723.57	2,827.57	2,180.01	0.00	0.00	0.00	5,007.58

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,007.5800	8.0000	0.1250	625.9475	1.0000	1.0000	1.0000	5,007.5800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
28.0000	0.0357	28.0000	100.9846	2,104.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMBF Small Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.50 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8031	WALKBEHIND ROLLER (AUTO)	1.00	8.00	HR	93.69	108.750	101.89	815.10
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	0.50	4.00	MH	92.00	100.000	123.64	494.56
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35

Activity: 311000.05 Pad Grading Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,432.00	836.37	3,268.37	2,390.57	1,857.99	0.00	0.00	7,516.93
Total	2,432.00	836.37	3,268.37	2,390.57	1,857.99	0.00	0.00	7,516.93

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,658.9400	8.0000	0.1250	707.3675	1.0000	1.0000	1.0000	7,516.9300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0313	32.0000	102.1366	2,432.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	68.00	TON	18.00	108.750	19.58	1,331.10
2VAPOR	Vapor Barrier	1.00	570.00	SF	0.85	108.750	0.92	526.89
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40
8272	LOADER LANDSCAPER 4WD	1.00	8.00	HR	41.69	108.750	45.34	362.73
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Biditem

80

(Non Additive) RAS/WAS Pump Station (Submersible Option)

Takeoff Qty: *1.000 LS*

Bid Qty: *1.000 LS*

Client #: 8a

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	65,522.96	22,533.36	88,056.32	18,763.81	82,894.69	6,851.25	73,346.50	269,912.57
Total	65,522.96	22,533.36	88,056.32	18,763.81	82,894.69	6,851.25	73,346.50	269,912.57

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
776.0000	0.0013	776.0000	347.8255	84.4368	113.4746	0.0047

Activity: 031100.01 (Non Additive) Invert *Quantity: 8.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,110.00	381.73	1,491.73	149.64	269.16	67.97	562.50	2,540.99
Total	8,880.00	3,053.83	11,933.83	1,197.12	2,153.25	543.75	4,500.00	20,327.95

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,641.3688	3.0000	0.3333	547.1229	3.0000	2.6667	0.3750	6,775.9833

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0833	12.0000	124.3107	1,110.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	8.80	CY	225.00	108.750	244.69	2,153.25
3FORMMTL	Form Materials	1.00	60.00	SF	5.00	108.750	5.44	326.25
3TEMPLATE	Template Materials	1.00	1.00	LS	200.00	108.750	217.50	217.50
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	2,400.00	LB	1.40	100.000	1.40	3,360.00
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
CARP	Carpenter - Journeyman	2.00	48.00	MH	100.00	100.000	134.39	6,450.72
CARP4	Carpenter Foreman	1.00	24.00	MH	105.00	100.000	141.11	3,386.63
LABORER	Laborer	1.00	24.00	MH	65.00	100.000	87.35	2,096.48

Activity: 031100.02 (Non Additive) PS Walls *Quantity: 22.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,076.36	370.16	1,446.53	145.11	269.16	286.70	471.82	2,619.31
Total	23,680.00	8,143.55	31,823.55	3,192.32	5,921.44	6,307.50	10,380.00	57,624.81

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,591.6305	2.9091	0.3438	547.1230	8.0000	2.7500	0.3636	7,203.1013

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
256.0000	0.0859	11.6364	124.3107	1,076.3636

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	24.20	CY	225.00	108.750	244.69	5,921.44
3FORMMTL	Form Materials	1.00	1,160.00	SF	5.00	108.750	5.44	6,307.50
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	6,600.00	LB	1.40	100.000	1.40	9,240.00
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
CARP	Carpenter - Journeyman	2.00	128.00	MH	100.00	100.000	134.39	17,201.92
CARP4	Carpenter Foreman	1.00	64.00	MH	105.00	100.000	141.11	9,031.01
LABORER	Laborer	1.00	64.00	MH	65.00	100.000	87.35	5,590.62

Activity: 055001.01 (Non Additive) Misc Metals/Hatch Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,761.20	605.68	2,366.88	399.04	5,981.25	0.00	0.00	8,747.17
Total	1,761.20	605.68	2,366.88	399.04	5,981.25	0.00	0.00	8,747.17

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,765.9200	8.0000	0.1250	345.7400	1.0000	1.0000	1.0000	8,747.1700

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	98.6200	1,761.2000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM Small Mechanical Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2HATCH	Access Hatch	1.00	1.00	EA	5,500.00	108.750	5,981.25	5,981.25
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
MECHHLP	Mech Helper/Oiler	1.00	8.00	MH	74.93	100.000	100.70	805.59
MILLWR	Millwright	1.00	8.00	MH	80.22	100.000	107.81	862.46

Activity: 099000.01 (Non Additive) Painting/Coatings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	52,100.00	52,100.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	52,100.00	52,100.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4COATING	High Performance Coating	1.00	620.00	SF	80.00	100.000	80.00	49,600.00
4MECHPAINT	Mechanical/Pipe Painting	1.00	1.00	EA	2,500.00	100.000	2,500.00	2,500.00

Activity: 101410.01 (Non Additive) Signage Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22
Total	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
914.4700	4.0000	0.2500	228.6175	0.5000	2.0000	0.5000	2,916.4400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	89.3688	532.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 (Mod) 4 Man Labor Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2SIGNMTL	Signage Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LAB4	Labor Foreman	1.00	4.00	MH	68.00	100.000	91.39	365.54
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 262X00.01 (Non Additive) Electrical Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79
Total	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
11,388.7900	32.0000	0.0313	355.8997	4.0000	0.2500	4.0000	5,258.1975

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	102.0066	7,286.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	5,000.00	108.750	5,437.50	5,437.50
4ELEC	Electric - Sub	1.00	16,826.00	LS	0.25	100.000	0.25	4,206.50
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
ELEC	Electrician	2.00	64.00	MH	73.88	100.000	99.29	6,354.39
ELEC4	Elecrician Foreman	1.00	32.00	MH	79.95	100.000	107.45	3,438.24

Activity: 311000.06 (Non Additive) Wet Well Excavation Quantity: 114.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	27.79	9.56	37.35	47.37	0.00	0.00	18.95	103.66
Total	3,168.00	1,089.48	4,257.48	5,399.77	0.00	0.00	2,160.00	11,817.25

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
84.7127	0.0702	14.2500	1,207.1563	1.0000	114.0000	0.0088	11,817.2500

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	2.8500	0.3509	106.4370	27.7895

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	8.00	HR	153.44	108.750	166.87	1,334.92
8283	EXCAVATOR LARGE	1.00	8.00	HR	294.99	108.750	320.80	2,566.41
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 311000.07 (Non Additive) Wet Well Backfill Quantity: 82.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	45.95	15.80	61.75	30.93	0.00	0.00	0.00	92.68
Total	3,768.00	1,295.82	5,063.82	2,535.88	0.00	0.00	0.00	7,599.70

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
92.6793	0.0976	10.2500	949.9625	1.0000	82.0000	0.0122	7,599.7000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	1.7083	0.5854	105.4963	45.9512

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL (Mod) Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8324	2000 GAL WATER TRUCK	1.00	8.00	HR	73.74	108.750	80.20	641.57
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71
TRUCK	Truck Driver (On Site)	1.00	8.00	MH	75.00	100.000	100.79	806.34

Activity: 402319.03 (Non Additive) Pipe & Fittings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,372.64	3,911.06	15,283.70	2,394.24	22,402.50	0.00	0.00	40,080.44
Total	11,372.64	3,911.06	15,283.70	2,394.24	22,402.50	0.00	0.00	40,080.44

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,677.9400	48.0000	0.0208	368.2904	6.0000	0.1667	6.0000	6,680.0733

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
144.0000	0.0069	144.0000	106.1368	11,372.6400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	2,000.00	108.750	2,175.00	2,175.00
2PIPEMTL	Pipe Materials	1.00	1.00	LS	18,600.00	108.750	20,227.50	20,227.50
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
MILLWR	Millwright	1.00	48.00	MH	80.22	100.000	107.81	5,174.77
PLUMB	Plumber - Journeyman	1.00	48.00	MH	91.71	100.000	123.25	5,915.96

Activity: 432113.01 (Non Additive) Pumps Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,074.40	1,745.08	6,819.48	1,849.76	40,455.00	0.00	0.00	49,124.24
Total	5,074.40	1,745.08	6,819.48	1,849.76	40,455.00	0.00	0.00	49,124.24

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,669.2400	16.0000	0.0625	541.8275	2.0000	0.5000	2.0000	24,562.1200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	106.5544	5,074.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PUMP	Submersible Pump	1.00	2.00	EA	18,600.00	108.750	20,227.50	40,455.00
8MECHTRK	Mechanics Truck	1.00	16.00	HR	65.73	100.000	65.73	1,051.68
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
MILLWR	Millwright	2.00	32.00	MH	80.22	100.000	107.81	3,449.84
PLUMB	Plumber - Journeyman	1.00	16.00	MH	91.71	100.000	123.25	1,971.98

Biditem RAS/WAS Pump Station (Split Case Pump Option)

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Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 8b

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,781.84	6,802.99	26,584.83	3,790.88	54,301.60	0.00	70,180.00	154,857.31
Total	19,781.84	6,802.99	26,584.83	3,790.88	54,301.60	0.00	70,180.00	154,857.31

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
244.0000	0.0041	244.0000	634.6611	81.0731	108.9542	0.0132

Activity: 031100.01 Concrete Pad — Quantity: 6.00 — Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	928.00	319.14	1,247.14	133.01	269.16	0.00	233.33	1,882.64
Total	5,568.00	1,914.84	7,482.84	798.08	1,614.94	0.00	1,400.00	11,295.86

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,380.1533	2.6667	0.3750	517.5575	2.0000	3.0000	0.3333	5,647.9300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0938	10.6667	116.9194	928.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF (Mod) Pour Crew - Flatwork/Slab Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	6.60	CY	225.00	108.750	244.69	1,614.94
4REBAR	Rebar - Sub	1.00	1,000.00	LB	1.40	100.000	1.40	1,400.00
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	1.00	16.00	MH	100.00	100.000	134.39	2,150.24
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
MASON	Cement Mason	1.00	16.00	MH	78.00	100.000	104.82	1,677.19

Activity: 031100.02 Pump Pedistals — Quantity: 1.00 — Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,080.00	371.41	1,451.41	199.52	269.16	0.00	280.00	2,200.09
Total	1,080.00	371.41	1,451.41	199.52	269.16	0.00	280.00	2,200.09

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,650.9300	4.0000	0.2500	412.7325	0.5000	2.0000	0.5000	4,400.1800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
12.0000	0.0833	12.0000	120.9508	1,080.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF (Mod) Pour Crew - Flatwork/Slab Prod: CH 4 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	1.10	CY	225.00	108.750	244.69	269.16
4REBAR	Rebar - Sub	1.00	200.00	LB	1.40	100.000	1.40	280.00
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
CARP	Carpenter - Journeyman	1.00	4.00	MH	100.00	100.000	134.39	537.56
CARP4	Carpenter Foreman	1.00	4.00	MH	105.00	100.000	141.11	564.44
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 099000.01 Painting/Coatings — Quantity: 1.00 — Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4MECHPAINT	Mechanical/Pipe Painting	1.00	1.00	EA	2,500.00	100.000	2,500.00	2,500.00

Activity: 402319.03 Pipe & Fittings **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,372.64	3,911.06	15,283.70	2,394.24	23,055.00	0.00	0.00	40,732.94
Total	11,372.64	3,911.06	15,283.70	2,394.24	23,055.00	0.00	0.00	40,732.94

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,677.9400	48.0000	0.0208	368.2904	6.0000	0.1667	6.0000	6,788.8233

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
144.0000	0.0069	144.0000	106.1368	11,372.6400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	4,500.00	108.750	4,893.75	4,893.75
2PIPEMTL	Pipe Materials	1.00	1.00	LS	16,700.00	108.750	18,161.25	18,161.25
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
MILLWR	Millwright	1.00	48.00	MH	80.22	100.000	107.81	5,174.77
PLUMB	Plumber - Journeyman	1.00	48.00	MH	91.71	100.000	123.25	5,915.96

Activity: 432113.01 Pumps **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,761.20	605.68	2,366.88	399.04	29,362.50	0.00	0.00	32,128.42
Total	1,761.20	605.68	2,366.88	399.04	29,362.50	0.00	0.00	32,128.42

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,765.9200	8.0000	0.1250	345.7400	1.0000	1.0000	1.0000	32,128.4200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	98.6200	1,761.2000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM Small Mechanical Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2SCPUMP	Split Case Pump	1.00	2.00	EA	13,500.00	108.750	14,681.25	29,362.50
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
MECHHLP	Mech Helper/Oiler	1.00	8.00	MH	74.93	100.000	100.70	805.59
MILLWR	Millwright	1.00	8.00	MH	80.22	100.000	107.81	862.46

Activity: 82.1 Enclosure **Quantity: 1.00** **Unit: LS**

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4ENCLOSURE	Pump Enclosure	1.00	120.00	SF	550.00	100.000	550.00	66,000.00

Biditem

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Influent Junction Box

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 9

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	76,571.44	26,332.93	102,904.37	23,501.59	17,370.10	7,373.25	13,896.00	165,045.31
Total	76,571.44	26,332.93	102,904.37	23,501.59	17,370.10	7,373.25	13,896.00	165,045.31

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
868.0000	0.0012	868.0000	190.1444	88.2159	118.5534	0.0061

Activity: 033001.01 Invert **Quantity: 5.00** **Unit: CY**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,184.00	407.18	1,591.18	159.62	269.16	65.25	420.00	2,505.20
Total	5,920.00	2,035.89	7,955.89	798.08	1,345.78	326.25	2,100.00	12,526.00

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,750.7940	3.2000	0.3125	547.1231	2.0000	2.5000	0.4000	6,263.0000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0781	12.8000	124.3108	1,184.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	5.50	CY	225.00	108.750	244.69	1,345.78
3FORMMTL	Form Materials	1.00	60.00	SF	5.00	108.750	5.44	326.25
4REBAR	Rebar - Sub	1.00	1,500.00	LB	1.40	100.000	1.40	2,100.00
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	2.00	32.00	MH	100.00	100.000	134.39	4,300.48
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66

Activity: 033001.02 Concrete Walls **Quantity: 14.00** **Unit: CY**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,902.86	998.29	3,901.15	228.02	269.16	348.00	534.00	5,280.33
Total	40,640.00	13,976.10	54,616.10	3,192.32	3,768.19	4,872.00	7,476.00	73,924.61

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4,129.1729	4.5714	0.2188	903.2566	8.0000	1.7500	0.5714	9,240.5763

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
448.0000	0.0313	32.0000	121.9109	2,902.8571

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 6WALL 6 Man Wall Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 7.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	15.40	CY	225.00	108.750	244.69	3,768.19
3FORMMTL	Form Materials	1.00	896.00	SF	5.00	108.750	5.44	4,872.00
4PUMP	Concrete Pump	1.00	5.60	HR	285.00	100.000	285.00	1,596.00
4REBAR	Rebar - Sub	1.00	4,200.00	LB	1.40	100.000	1.40	5,880.00
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
CARP	Carpenter - Journeyman	4.00	256.00	MH	100.00	100.000	134.39	34,403.84
CARP4	Carpenter Foreman	1.00	64.00	MH	105.00	100.000	141.11	9,031.01
LABORER	Laborer	2.00	128.00	MH	65.00	100.000	87.35	11,181.25

Activity: 055001.01 Misc Metals **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,840.00	4,071.77	15,911.77	1,596.16	10,875.00	0.00	0.00	28,382.93
Total	11,840.00	4,071.77	15,911.77	1,596.16	10,875.00	0.00	0.00	28,382.93

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,507.9300	32.0000	0.0313	547.1228	4.0000	0.2500	4.0000	7,095.7325

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	124.3107	11,840.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FRAMEGRATE	Frame and Grate	1.00	100.00	SF	100.00	108.750	108.75	10,875.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
CARP	Carpenter - Journeyman	2.00	64.00	MH	100.00	100.000	134.39	8,600.96
CARP4	Carpenter Foreman	1.00	32.00	MH	105.00	100.000	141.11	4,515.50
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 32001.01 Structure Exc — Quantity: 1.00 — Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,648.00	910.65	3,558.65	3,288.31	0.00	0.00	2,160.00	9,006.96
Total	2,648.00	910.65	3,558.65	3,288.31	0.00	0.00	2,160.00	9,006.96

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,846.9600	8.0000	0.1250	855.8700	1.0000	1.0000	1.0000	9,006.9600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0313	32.0000	111.2078	2,648.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 4 man Exc Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8279	EXCAVATOR SMALL-MED	1.00	8.00	HR	221.08	108.750	240.43	1,923.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 32001.02 Invert Grading — Quantity: 1.00 — Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	956.00	328.76	1,284.76	1,195.28	293.63	0.00	0.00	2,773.67
Total	956.00	328.76	1,284.76	1,195.28	293.63	0.00	0.00	2,773.67

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,480.0400	4.0000	0.2500	620.0100	0.5000	2.0000	0.5000	5,547.3400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
12.0000	0.0833	12.0000	107.0633	956.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMGRD (Mod) Small Grading Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 3.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	15.00	TON	18.00	108.750	19.58	293.63
8040	SINGLE DRUM COMPACTOR	1.00	4.00	HR	60.85	108.750	66.18	264.70
8272	LOADER LANDSCAPER 4WD	1.00	4.00	HR	41.69	108.750	45.34	181.36
8326	4000 GAL WATER TRUCK	1.00	4.00	HR	126.37	108.750	137.43	549.70
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41
OPERATOR	Operator	2.00	8.00	MH	87.00	100.000	116.92	935.35

Activity: 32001.03 Structure BF — Quantity: 1.00 — Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,168.00	1,089.48	4,257.48	2,535.88	0.00	0.00	2,160.00	8,953.36
Total	3,168.00	1,089.48	4,257.48	2,535.88	0.00	0.00	2,160.00	8,953.36

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,793.3600	8.0000	0.1250	849.1700	1.0000	1.0000	1.0000	8,953.3600

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	0.0250	40.0000	106.4370	3,168.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL (Mod) Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	16.00	HR	135.00	100.000	135.00	2,160.00
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8324	2000 GAL WATER TRUCK	1.00	8.00	HR	73.74	108.750	80.20	641.57
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 402319.03 Cut Out Existing Pipe Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,895.44	651.85	2,547.29	399.04	1,087.50	0.00	0.00	4,033.83
Total	1,895.44	651.85	2,547.29	399.04	1,087.50	0.00	0.00	4,033.83

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,946.3300	8.0000	0.1250	368.2913	1.0000	1.0000	1.0000	4,033.8300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	106.1371	1,895.4400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	1,000.00	108.750	1,087.50	1,087.50
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
MILLWR	Millwright	1.00	8.00	MH	80.22	100.000	107.81	862.46
PLUMB	Plumber - Journeyman	1.00	8.00	MH	91.71	100.000	123.25	986.00

Activity: 339901.99 Bypass Allowance Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,504.00	3,268.43	12,772.43	10,496.52	0.00	2,175.00	0.00	25,443.95
Total	9,504.00	3,268.43	12,772.43	10,496.52	0.00	2,175.00	0.00	25,443.95

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,268.9500	24.0000	0.0417	969.5396	3.0000	0.3333	3.0000	8,481.3167

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
120.0000	0.0083	120.0000	106.4369	9,504.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE (Mod) Small Pipe Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 5.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3PIPEMTL	Temp Pipe Materials	1.00	100.00	LF	20.00	108.750	21.75	2,175.00
8092	GENERATOR 50-59 KVA	1.00	24.00	HR	52.03	108.750	56.58	1,358.01
8165	PUMP 6" SELF PRIME - ELECTRI	2.00	48.00	HR	31.55	108.750	34.31	1,646.91
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	24.00	HR	111.02	108.750	120.73	2,897.62
8276	EXCAVATOR SMALL	1.00	24.00	HR	130.15	108.750	141.54	3,396.86
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
LABORER	Laborer	2.00	48.00	MH	65.00	100.000	87.35	4,192.97

OPER4	Operator Foreman	1.00	24.00	MH	92.00	100.000	123.64	2,967.33
OPERATOR	Operator	2.00	48.00	MH	87.00	100.000	116.92	5,612.13

Biditem

100

(Non Additive) Effluent Return Pump Station

Takeoff Qty: *1.000 LS*

Bid Qty: *1.000 LS*

Client #: 10a

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	103,659.76	35,648.60	139,308.36	54,527.84	162,654.66	10,200.75	108,586.50	475,278.11
Total	103,659.76	35,648.60	139,308.36	54,527.84	162,654.66	10,200.75	108,586.50	475,278.11

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
1,232.0000	0.0008	1,232.0000	385.7777	84.1394	113.0750	0.0034

Activity: 031100.01 (Non Additive) Invert *Quantity: 10.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	888.00	305.38	1,193.38	119.71	269.16	63.08	114.00	1,759.33
Total	8,880.00	3,053.83	11,933.83	1,197.12	2,691.56	630.75	1,140.00	17,593.26

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,313.0950	2.4000	0.4167	547.1229	3.0000	3.3333	0.3000	5,864.4200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.1042	9.6000	124.3107	888.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	11.00	CY	225.00	108.750	244.69	2,691.56
3FORMMTL	Form Materials	1.00	76.00	SF	5.00	108.750	5.44	413.25
3TEMPLATE	Template Materials	1.00	1.00	LS	200.00	108.750	217.50	217.50
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
CARP	Carpenter - Journeyman	2.00	48.00	MH	100.00	100.000	134.39	6,450.72
CARP4	Carpenter Foreman	1.00	24.00	MH	105.00	100.000	141.11	3,386.63
LABORER	Laborer	1.00	24.00	MH	65.00	100.000	87.35	2,096.48

Activity: 031100.02 (Non Additive) PS Walls *Quantity: 33.00* *Unit: CY*

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,076.36	370.16	1,446.53	145.11	269.16	290.00	34.55	2,185.33
Total	35,520.00	12,215.33	47,735.33	4,788.48	8,882.16	9,570.00	1,140.00	72,115.97

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,591.6306	2.9091	0.3438	547.1230	12.0000	2.7500	0.3636	6,009.6642

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
384.0000	0.0859	11.6364	124.3108	1,076.3636

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 12 Eff: 100.00 Crew Hrs: 96.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	36.30	CY	225.00	108.750	244.69	8,882.16
3FORMMTL	Form Materials	1.00	1,760.00	SF	5.00	108.750	5.44	9,570.00
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
8UTLPU	Utility Pickup	1.00	96.00	HR	49.88	100.000	49.88	4,788.48
CARP	Carpenter - Journeyman	2.00	192.00	MH	100.00	100.000	134.39	25,802.88
CARP4	Carpenter Foreman	1.00	96.00	MH	105.00	100.000	141.11	13,546.51
LABORER	Laborer	1.00	96.00	MH	65.00	100.000	87.35	8,385.94

Activity: 031500.01 (Non Additive) Concrete Accessories Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	6,215.06	0.00	0.00	6,215.06
Total	0.00	0.00	0.00	0.00	6,215.06	0.00	0.00	6,215.06

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONCACCESS	Concrete Accessories	1.00	43.00	CY	5.00	108.750	5.44	233.81
2HATCH2	Access Hatch - 2	1.00	1.00	EA	5,500.00	108.750	5,981.25	5,981.25

Activity: 032000.01 (Non Additive) Concrete Reinforcing Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4REBAR	Rebar - Sub	1.00	12,900.00	LB	1.40	100.000	1.40	18,060.00

Activity: 099000.01 (Non Additive) Painting/Coatings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	72,300.00	72,300.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	72,300.00	72,300.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4COATING	High Performance Coating	1.00	860.00	SF	80.00	100.000	80.00	68,800.00
4MECHPAINT	Mechanical/Pipe Painting	1.00	1.00	EA	3,500.00	100.000	3,500.00	3,500.00

Activity: 101410.01 (Non Additive) Signage Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22
Total	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
914.4700	4.0000	0.2500	228.6175	0.5000	2.0000	0.5000	2,916.4400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	89.3688	532.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 (Mod) 4 Man Labor Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2SIGNMTL	Signage Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LAB4	Labor Foreman	1.00	4.00	MH	68.00	100.000	91.39	365.54
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 262X00.01 (Non Additive) Electrical Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79
Total	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
11,388.7900	32.0000	0.0313	355.8997	4.0000	0.2500	4.0000	5,258.1975

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	102.0066	7,286.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	5,000.00	108.750	5,437.50	5,437.50
4ELEC	Electric - Sub	1.00	16,826.00	LS	0.25	100.000	0.25	4,206.50
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
ELEC	Electrician	2.00	64.00	MH	73.88	100.000	99.29	6,354.39
ELEC4	Elecrician Foreman	1.00	32.00	MH	79.95	100.000	107.45	3,438.24

Activity: 311000.06 (Non Additive) Wet Well Excavation Quantity: 280.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	22.63	7.78	30.41	38.57	0.00	0.00	11.57	80.55
Total	6,336.00	2,178.95	8,514.95	10,799.55	0.00	0.00	3,240.00	22,554.50

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
68.9804	0.0571	17.5000	1,207.1563	2.0000	140.0000	0.0071	11,277.2500

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
80.0000	3.5000	0.2857	106.4369	22.6286

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	24.00	HR	135.00	100.000	135.00	3,240.00
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 311000.07 (Non Additive) Wet Well Backfill Quantity: 240.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	31.40	10.80	42.20	21.13	0.00	0.00	0.00	63.33
Total	7,536.00	2,591.63	10,127.63	5,071.77	0.00	0.00	0.00	15,199.40

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
63.3308	0.0667	15.0000	949.9625	2.0000	120.0000	0.0083	7,599.7000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	2.5000	0.4000	105.4961	31.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL (Mod) Backfill Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	16.00	HR	111.02	108.750	120.73	1,931.75
8324	2000 GAL WATER TRUCK	1.00	16.00	HR	73.74	108.750	80.20	1,283.15
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42
TRUCK	Truck Driver (On Site)	1.00	16.00	MH	75.00	100.000	100.79	1,612.68

Activity: 312319.01 (Non Additive) Dewatering Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,986.00	682.99	2,668.99	2,914.56	0.00	0.00	0.00	5,583.55
Total	1,986.00	682.99	2,668.99	2,914.56	0.00	0.00	0.00	5,583.55

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,583.5500	6.0000	0.1667	930.5917	0.7500	1.3333	0.7500	7,444.7333

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	111.2079	1,986.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 (Mod) 4 man Exc Crew Prod: CH 6 Eff: 100.00 Crew Hrs: 6.00 Labor Pcs: 4.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8092	GENERATOR 50-59 KVA	1.00	6.00	HR	52.03	108.750	56.58	339.50
8205	PUMP 2" ELECTRIC SUBMERSIBLE	2.00	12.00	HR	8.34	108.750	9.07	108.82
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	6.00	HR	111.02	108.750	120.74	724.41
8279	EXCAVATOR SMALL-MED	1.00	6.00	HR	221.08	108.750	240.43	1,442.55
8UTLPU	Utility Pickup	1.00	6.00	HR	49.88	100.000	49.88	299.28
LABORER	Laborer	1.00	6.00	MH	65.00	100.000	87.36	524.13
OPER4	Operator Foreman	1.00	6.00	MH	92.00	100.000	123.64	741.83
OPERATOR	Operator	2.00	12.00	MH	87.00	100.000	116.92	1,403.03

Activity: 402319.02 (Non Additive) Intake Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,136.00	6,580.87	25,716.87	23,716.68	24,936.38	0.00	8,500.00	82,869.93
Total	19,136.00	6,580.87	25,716.87	23,716.68	24,936.38	0.00	8,500.00	82,869.93

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
49,433.5500	32.0000	0.0313	1,544.7984	4.0000	0.2500	4.0000	20,717.4825

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	107.1536	19,136.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 7.50 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2PIPEMTL	Pipe Materials	1.00	1.00	LS	22,480.00	108.750	24,447.00	24,447.00
4LINER	Liner Sub	1.00	1.00	LS	8,500.00	100.000	8,500.00	8,500.00
8040	SINGLE DRUM COMPACTOR	1.00	32.00	HR	60.85	108.750	66.17	2,117.58
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	32.00	HR	153.44	108.750	166.87	5,339.68
8283	EXCAVATOR LARGE	1.00	32.00	HR	294.99	108.750	320.80	10,265.65
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
CARP	Carpenter - Journeyman	0.50	16.00	MH	100.00	100.000	134.39	2,150.24
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	3.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 402319.03 (Non Additive) Pipe & Fittings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,372.64	3,911.06	15,283.70	2,394.24	22,598.25	0.00	0.00	40,276.19
Total	11,372.64	3,911.06	15,283.70	2,394.24	22,598.25	0.00	0.00	40,276.19

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,677.9400	48.0000	0.0208	368.2904	6.0000	0.1667	6.0000	6,712.6983

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
144.0000	0.0069	144.0000	106.1368	11,372.6400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	1,180.00	108.750	1,283.25	1,283.25
2PIPEMTL	Pipe Materials	1.00	1.00	LS	19,600.00	108.750	21,315.00	21,315.00
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
MILLWR	Millwright	1.00	48.00	MH	80.22	100.000	107.81	5,174.77
PLUMB	Plumber - Journeyman	1.00	48.00	MH	91.71	100.000	123.25	5,915.96

Activity: 432113.01 (Non Additive) Pumps Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,074.40	1,745.08	6,819.48	1,849.76	91,350.00	0.00	0.00	100,019.24
Total	5,074.40	1,745.08	6,819.48	1,849.76	91,350.00	0.00	0.00	100,019.24

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,669.2400	16.0000	0.0625	541.8275	2.0000	0.5000	2.0000	50,009.6200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	106.5544	5,074.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PUMP	Submersible Pump	1.00	2.00	EA	42,000.00	108.750	45,675.00	91,350.00
8MECHTRK	Mechanics Truck	1.00	16.00	HR	65.73	100.000	65.73	1,051.68
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
MILLWR	Millwright	2.00	32.00	MH	80.22	100.000	107.81	3,449.84
PLUMB	Plumber - Journeyman	1.00	16.00	MH	91.71	100.000	123.25	1,971.98

Biditem

102

(Non Additive) Effluent Return Pump Station (Barge Option)

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 10b

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	54,643.92	18,792.06	73,435.98	14,708.56	247,395.38	0.00	10,151.50	345,691.42
Total	54,643.92	18,792.06	73,435.98	14,708.56	247,395.38	0.00	10,151.50	345,691.42

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
688.0000	0.0015	688.0000	502.4585	79.4243	106.7383	0.0050

Activity: 031100.01 (Non Additive) Concrete Pad Quantity: 4.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,392.00	478.71	1,870.71	199.52	269.16	0.00	236.25	2,575.64
Total	5,568.00	1,914.84	7,482.84	798.08	1,076.63	0.00	945.00	10,302.55

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
2,070.2300	4.0000	0.2500	517.5575	2.0000	2.0000	0.5000	5,151.2750

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0625	16.0000	116.9194	1,392.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: POURF (Mod) Pour Crew - Flatwork/Slab Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	4.40	CY	225.00	108.750	244.69	1,076.63
4REBAR	Rebar - Sub	1.00	675.00	LB	1.40	100.000	1.40	945.00

8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
CARP	Carpenter - Journeyman	1.00	16.00	MH	100.00	100.000	134.39	2,150.24
CARP4	Carpenter Foreman	1.00	16.00	MH	105.00	100.000	141.11	2,257.75
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
MASON	Cement Mason	1.00	16.00	MH	78.00	100.000	104.82	1,677.19

Activity: 099000.01 (Non Additive) Painting/Coatings (Unreviewed) Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4MECHPAINT	Mechanical/Pipe Painting	1.00	1.00	EA	5,000.00	100.000	5,000.00	5,000.00

Activity: 262X00.01 (Non Additive) Electrical (Unreviewed) Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79
Total	7,286.72	2,505.91	9,792.63	1,596.16	5,437.50	0.00	4,206.50	21,032.79

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
11,388.7900	32.0000	0.0313	355.8997	4.0000	0.2500	4.0000	5,258.1975

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	102.0066	7,286.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	5,000.00	108.750	5,437.50	5,437.50
4ELEC	Electric - Sub	1.00	16,826.00	LS	0.25	100.000	0.25	4,206.50
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
ELEC	Electrician	2.00	64.00	MH	73.88	100.000	99.29	6,354.39
ELEC4	Elecrician Foreman	1.00	32.00	MH	79.95	100.000	107.45	3,438.24

Activity: 402319.01 (Non Additive) Barge & Gangway Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	20,297.60	6,980.34	27,277.94	7,399.04	76,125.00	0.00	0.00	110,801.98
Total	20,297.60	6,980.34	27,277.94	7,399.04	76,125.00	0.00	0.00	110,801.98

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
34,676.9800	64.0000	0.0156	541.8278	8.0000	0.1250	8.0000	13,850.2475

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
256.0000	0.0039	256.0000	106.5545	20,297.6000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 8 Eff: 100.00 Crew Hrs: 64.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FLOATBARGE	Floating Barge	1.00	1.00	LS	50,000.00	108.750	54,375.00	54,375.00
2GANGWAY	Gangway	1.00	80.00	LF	250.00	108.750	271.88	21,750.00
8MECHTRK	Mechanics Truck	1.00	64.00	HR	65.73	100.000	65.73	4,206.72
8UTLPU	Utility Pickup	1.00	64.00	HR	49.88	100.000	49.88	3,192.32
LABORER	Laborer	1.00	64.00	MH	65.00	100.000	87.35	5,590.62
MILLWR	Millwright	2.00	128.00	MH	80.22	100.000	107.81	13,799.38
PLUMB	Plumber - Journeyman	1.00	64.00	MH	91.71	100.000	123.25	7,887.94

Activity: 402319.03 (Non Additive) Pipe & Fittings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	18,954.40	6,518.42	25,472.82	3,990.40	73,406.25	0.00	0.00	102,869.47
Total	18,954.40	6,518.42	25,472.82	3,990.40	73,406.25	0.00	0.00	102,869.47

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
29,463.2200	80.0000	0.0125	368.2903	10.0000	0.1000	10.0000	10,286.9470

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	106.1368	18,954.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	2,500.00	108.750	2,718.75	2,718.75
2PIPEMTL	Pipe Materials	1.00	1.00	LS	65,000.00	108.750	70,687.50	70,687.50
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
LABORER	Laborer	1.00	80.00	MH	65.00	100.000	87.35	6,988.28
MILLWR	Millwright	1.00	80.00	MH	80.22	100.000	107.81	8,624.61
PLUMB	Plumber - Journeyman	1.00	80.00	MH	91.71	100.000	123.25	9,859.93

Activity: 432113.01 (Non Additive) Pumps Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	2,537.20	872.55	3,409.75	924.88	91,350.00	0.00	0.00	95,684.63
Total	2,537.20	872.55	3,409.75	924.88	91,350.00	0.00	0.00	95,684.63

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
4,334.6300	8.0000	0.1250	541.8288	1.0000	1.0000	1.0000	95,684.6300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0313	32.0000	106.5547	2,537.2000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PUMP	Submersible Pump	1.00	2.00	EA	42,000.00	108.750	45,675.00	91,350.00
8MECHTRK	Mechanics Truck	1.00	8.00	HR	65.73	100.000	65.73	525.84
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
MILLWR	Millwright	2.00	16.00	MH	80.22	100.000	107.81	1,724.92
PLUMB	Plumber - Journeyman	1.00	8.00	MH	91.71	100.000	123.25	986.00

Biditem

104

Effluent Return Pump Station (Plant Drain Combo)

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 10c

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	160,525.04	55,204.56	215,729.60	140,245.16	339,397.89	2,936.25	109,339.95	807,648.85
Total	160,525.04	55,204.56	215,729.60	140,245.16	339,397.89	2,936.25	109,339.95	807,648.85

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
1,984.0000	0.0005	1,984.0000	407.0811	80.9098	108.7347	0.0026

Activity: 031100.01 Invert Quantity: 12.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	986.67	339.31	1,325.98	133.01	269.16	63.44	95.00	1,886.59
Total	11,840.00	4,071.77	15,911.77	1,596.16	3,229.88	761.25	1,140.00	22,639.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,458.9942	2.6667	0.3750	547.1228	4.0000	3.0000	0.3333	5,659.7650

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0938	10.6667	124.3107	986.6667

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.10	13.20	CY	225.00	108.750	244.69	3,229.88
3FORMMTL	Form Materials	1.00	100.00	SF	5.00	108.750	5.44	543.75
3TEMPLATE	Template Materials	1.00	1.00	LS	200.00	108.750	217.50	217.50
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
CARP	Carpenter - Journeyman	2.00	64.00	MH	100.00	100.000	134.39	8,600.96
CARP4	Carpenter Foreman	1.00	32.00	MH	105.00	100.000	141.11	4,515.50
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 031100.02 PS Walls Quantity: 36.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	608.89	209.40	818.29	749.97	2,265.63	0.00	0.00	3,833.88
Total	21,920.00	7,538.29	29,458.29	26,998.88	81,562.50	0.00	0.00	138,019.67

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,568.2547	1.1111	0.9000	1,411.4293	5.0000	7.2000	0.1389	27,603.9340

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
280.0000	0.1286	7.7778	105.2082	608.8889

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE Large Pipe Crew Prod: S 5 Eff: 100.00 Crew Hrs: 40.00 Labor Pcs: 7.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2WETWELL	Precast Wet Well	1.00	1.00	LS	75,000.00	108.750	81,562.50	81,562.50
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	40.00	HR	153.44	108.750	166.87	6,674.60
8283	EXCAVATOR LARGE	1.00	40.00	HR	294.99	108.750	320.80	12,832.07
8326	4000 GAL WATER TRUCK	1.00	40.00	HR	126.37	108.750	137.43	5,497.01
8UTLPU	Utility Pickup	1.00	40.00	HR	49.88	100.000	49.88	1,995.20
LABORER	Laborer	3.00	120.00	MH	65.00	100.000	87.35	10,482.42
OPER4	Operator Foreman	1.00	40.00	MH	92.00	100.000	123.64	4,945.55
OPERATOR	Operator	3.00	120.00	MH	87.00	100.000	116.92	14,030.32

Activity: 031500.01 Concrete Accessories Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	12,223.50	0.00	0.00	12,223.50
Total	0.00	0.00	0.00	0.00	12,223.50	0.00	0.00	12,223.50

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONCACCESS	Concrete Accessories	1.00	48.00	CY	5.00	108.750	5.44	261.00
2HATCH2	Access Hatch - 2	1.00	2.00	EA	5,500.00	108.750	5,981.25	11,962.50

Activity: 032000.01 Concrete Reinforcing Quantity: 1.00 Unit: LS

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4REBAR	Rebar - Sub	1.00	14,000.00	LB	1.40	100.000	1.40	19,600.00

Activity: 03600.02 Valve Vault Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	19,008.00	6,536.85	25,544.85	14,983.21	36,975.00	0.00	0.00	77,503.06
Total	19,008.00	6,536.85	25,544.85	14,983.21	36,975.00	0.00	0.00	77,503.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
40,528.0600	48.0000	0.0208	844.3346	6.0000	0.1667	6.0000	12,917.1767

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
240.0000	0.0042	240.0000	106.4369	19,008.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2VAULT	Precast Vault	1.00	1.00	EA	34,000.00	108.750	36,975.00	36,975.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	48.00	HR	111.02	108.750	120.73	5,795.24
8276	EXCAVATOR SMALL	1.00	48.00	HR	130.15	108.750	141.54	6,793.73
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	2.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	48.00	MH	92.00	100.000	123.64	5,934.66
OPERATOR	Operator	2.00	96.00	MH	87.00	100.000	116.92	11,224.25

Activity: 055001.01 Misc Metals Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,840.00	4,071.77	15,911.77	1,596.16	30,015.00	0.00	0.00	47,522.93
Total	11,840.00	4,071.77	15,911.77	1,596.16	30,015.00	0.00	0.00	47,522.93

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,507.9300	32.0000	0.0313	547.1228	4.0000	0.2500	4.0000	11,880.7325

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	124.3107	11,840.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP 4 Man Carp Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2FRAMEGRATE	Frame and Grate	1.00	120.00	SF	100.00	108.750	108.75	13,050.00
2SLIDEGATE	Slide Gate	1.00	2.00	EA	7,800.00	108.750	8,482.50	16,965.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
CARP	Carpenter - Journeyman	2.00	64.00	MH	100.00	100.000	134.39	8,600.96
CARP4	Carpenter Foreman	1.00	32.00	MH	105.00	100.000	141.11	4,515.50
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 099000.01 Painting/Coatings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	78,700.00	78,700.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	78,700.00	78,700.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4COATING	High Performance Coating	1.00	940.00	SF	80.00	100.000	80.00	75,200.00
4MECHPAINT	Mechanical/Pipe Painting	1.00	1.00	EA	3,500.00	100.000	3,500.00	3,500.00

Activity: 101410.01 Signage Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22
Total	532.00	182.95	714.95	199.52	543.75	0.00	0.00	1,458.22

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
914.4700	4.0000	0.2500	228.6175	0.5000	2.0000	0.5000	2,916.4400

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
8.0000	0.1250	8.0000	89.3688	532.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 (Mod) 4 Man Labor Crew Prod: S 0.5 Eff: 100.00 Crew Hrs: 4.00 Labor Pcs: 2.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2SIGNMTL	Signage Materials	1.00	1.00	LS	500.00	108.750	543.75	543.75
8UTLPU	Utility Pickup	1.00	4.00	HR	49.88	100.000	49.88	199.52
LAB4	Labor Foreman	1.00	4.00	MH	68.00	100.000	91.39	365.54
LABORER	Laborer	1.00	4.00	MH	65.00	100.000	87.35	349.41

Activity: 311000.06 Wet Well Excavation Quantity: 121.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	26.18	9.00	35.19	44.63	0.00	0.00	11.57	91.38
Total	3,168.00	1,089.48	4,257.48	5,399.77	0.00	0.00	1,399.95	11,057.20

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
79.8120	0.0661	15.1250	1,207.1563	1.0000	121.0000	0.0083	11,057.2000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
40.0000	3.0250	0.3306	106.4370	26.1818

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 5.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4HAUL	Hauling - Sub	1.00	10.37	HR	135.00	100.000	135.00	1,399.95
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	8.00	HR	153.44	108.750	166.87	1,334.92
8283	EXCAVATOR LARGE	1.00	8.00	HR	294.99	108.750	320.80	2,566.41
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71

Activity: 311000.07 Wet Well Backfill Quantity: 92.00 Unit: CY

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	40.96	14.09	55.04	27.56	0.00	0.00	0.00	82.61
Total	3,768.00	1,295.82	5,063.82	2,535.88	0.00	0.00	0.00	7,599.70

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
82.6054	0.0870	11.5000	949.9625	1.0000	92.0000	0.0109	7,599.7000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	1.9167	0.5217	105.4963	40.9565

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: BKFL (Mod) Backfill Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8040	SINGLE DRUM COMPACTOR	1.00	8.00	HR	60.85	108.750	66.18	529.40
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.00	HR	111.02	108.750	120.73	965.87
8324	2000 GAL WATER TRUCK	1.00	8.00	HR	73.74	108.750	80.20	641.57
8UTLPU	Utility Pickup	1.00	8.00	HR	49.88	100.000	49.88	399.04
LABORER	Laborer	2.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	8.00	MH	92.00	100.000	123.64	989.11
OPERATOR	Operator	2.00	16.00	MH	87.00	100.000	116.92	1,870.71
TRUCK	Truck Driver (On Site)	1.00	8.00	MH	75.00	100.000	100.79	806.34

Activity: 312319.01 Dewatering Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,986.00	682.99	2,668.99	2,914.56	0.00	0.00	0.00	5,583.55
Total	1,986.00	682.99	2,668.99	2,914.56	0.00	0.00	0.00	5,583.55

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,583.5500	6.0000	0.1667	930.5917	0.7500	1.3333	0.7500	7,444.7333

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.0417	24.0000	111.2079	1,986.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: EXC4 (Mod) 4 man Exc Crew Prod: CH 6 Eff: 100.00 Crew Hrs: 6.00 Labor Pcs: 4.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8092	GENERATOR 50-59 KVA	1.00	6.00	HR	52.03	108.750	56.58	339.50
8205	PUMP 2" ELECTRIC SUBMERSIBLE	2.00	12.00	HR	8.34	108.750	9.07	108.82
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	6.00	HR	111.02	108.750	120.74	724.41
8279	EXCAVATOR SMALL-MED	1.00	6.00	HR	221.08	108.750	240.43	1,442.55
8UTLPU	Utility Pickup	1.00	6.00	HR	49.88	100.000	49.88	299.28
LABORER	Laborer	1.00	6.00	MH	65.00	100.000	87.36	524.13
OPER4	Operator Foreman	1.00	6.00	MH	92.00	100.000	123.64	741.83
OPERATOR	Operator	2.00	12.00	MH	87.00	100.000	116.92	1,403.03

Activity: 402319.01 Buried Piping Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12,672.00	4,357.90	17,029.90	9,988.81	7,395.00	0.00	0.00	34,413.71
Total	12,672.00	4,357.90	17,029.90	9,988.81	7,395.00	0.00	0.00	34,413.71

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
27,018.7100	32.0000	0.0313	844.3347	4.0000	0.2500	4.0000	8,603.4275

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
160.0000	0.0063	160.0000	106.4369	12,672.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	1.00	LS	6,800.00	108.750	7,395.00	7,395.00
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	32.00	HR	111.02	108.750	120.73	3,863.50
8276	EXCAVATOR SMALL	1.00	32.00	HR	130.15	108.750	141.54	4,529.15
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	2.00	64.00	MH	65.00	100.000	87.35	5,590.62
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	2.00	64.00	MH	87.00	100.000	116.92	7,482.84

Activity: 402319.02 Intake Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	47,840.00	16,452.17	64,292.17	59,291.69	53,505.01	0.00	8,500.00	185,588.87
Total	47,840.00	16,452.17	64,292.17	59,291.69	53,505.01	0.00	8,500.00	185,588.87

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
123,583.8600	80.0000	0.0125	1,544.7983	10.0000	0.1000	10.0000	18,558.8870

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
600.0000	0.0017	600.0000	107.1536	47,840.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 7.50 Equipment Pcs: 5.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	2.00	CY	225.00	108.750	244.69	489.38
2PIPEMTL	Pipe Materials	1.00	1.00	LS	48,750.00	108.750	53,015.63	53,015.63
4LINER	Liner Sub	1.00	1.00	LS	8,500.00	100.000	8,500.00	8,500.00
8040	SINGLE DRUM COMPACTOR	1.00	80.00	HR	60.85	108.750	66.17	5,293.95
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	80.00	HR	153.44	108.750	166.86	13,349.19
8283	EXCAVATOR LARGE	1.00	80.00	HR	294.99	108.750	320.80	25,664.13
8326	4000 GAL WATER TRUCK	1.00	80.00	HR	126.37	108.750	137.43	10,994.02
8UTLPU	Utility Pickup	1.00	80.00	HR	49.88	100.000	49.88	3,990.40
CARP	Carpenter - Journeyman	0.50	40.00	MH	100.00	100.000	134.39	5,375.60
LABORER	Laborer	3.00	240.00	MH	65.00	100.000	87.35	20,964.84
OPER4	Operator Foreman	1.00	80.00	MH	92.00	100.000	123.64	9,891.10
OPERATOR	Operator	3.00	240.00	MH	87.00	100.000	116.92	28,060.63

Activity: 402319.03 Pipe & Fittings Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	11,372.64	3,911.06	15,283.70	2,394.24	22,598.25	0.00	0.00	40,276.19
Total	11,372.64	3,911.06	15,283.70	2,394.24	22,598.25	0.00	0.00	40,276.19

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
17,677.9400	48.0000	0.0208	368.2904	6.0000	0.1667	6.0000	6,712.6983

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
144.0000	0.0069	144.0000	106.1368	11,372.6400

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHSM (Mod) Small Mechanical Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEACC	Pipe Accessories	1.00	1.00	LS	1,180.00	108.750	1,283.25	1,283.25
2PIPEMTL	Pipe Materials	1.00	1.00	LS	19,600.00	108.750	21,315.00	21,315.00
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
MILLWR	Millwright	1.00	48.00	MH	80.22	100.000	107.81	5,174.77
PLUMB	Plumber - Journeyman	1.00	48.00	MH	91.71	100.000	123.25	5,915.96

Activity: 432113.01 Pumps Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	5,074.40	1,745.08	6,819.48	1,849.76	91,350.00	0.00	0.00	100,019.24
Total	5,074.40	1,745.08	6,819.48	1,849.76	91,350.00	0.00	0.00	100,019.24

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,669.2400	16.0000	0.0625	541.8275	2.0000	0.5000	2.0000	50,009.6200

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0156	64.0000	106.5544	5,074.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MECHMD Medium Mechanical Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PUMP	Submersible Pump	1.00	2.00	EA	42,000.00	108.750	45,675.00	91,350.00
8MECHTRK	Mechanics Truck	1.00	16.00	HR	65.73	100.000	65.73	1,051.68
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
MILLWR	Millwright	2.00	32.00	MH	80.22	100.000	107.81	3,449.84
PLUMB	Plumber - Journeyman	1.00	16.00	MH	91.71	100.000	123.25	1,971.98

Activity: 339901.99 Bypass Allowance Quantity: 1.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,504.00	3,268.43	12,772.43	10,496.52	0.00	2,175.00	0.00	25,443.95
Total	9,504.00	3,268.43	12,772.43	10,496.52	0.00	2,175.00	0.00	25,443.95

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
23,268.9500	24.0000	0.0417	969.5396	3.0000	0.3333	3.0000	8,481.3167

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
120.0000	0.0083	120.0000	106.4369	9,504.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE (Mod) Small Pipe Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 5.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3PIPEMTL	Temp Pipe Materials	1.00	100.00	LF	20.00	108.750	21.75	2,175.00
8092	GENERATOR 50-59 KVA	1.00	24.00	HR	52.03	108.750	56.58	1,358.01
8165	PUMP 6" SELF PRIME - ELECTRI	2.00	48.00	HR	31.55	108.750	34.31	1,646.91
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	24.00	HR	111.02	108.750	120.73	2,897.62
8276	EXCAVATOR SMALL	1.00	24.00	HR	130.15	108.750	141.54	3,396.86
8UTLPU	Utility Pickup	1.00	24.00	HR	49.88	100.000	49.88	1,197.12
LABORER	Laborer	2.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	24.00	MH	92.00	100.000	123.64	2,967.33
OPERATOR	Operator	2.00	48.00	MH	87.00	100.000	116.92	5,612.13

Biditem

110

Effluent Pipeline

Takeoff Qty: 3,975.000 LF

Bid Qty: 3,975.000 LF

Client #: 11

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	40.91	14.07	54.98	71.28	113.50	7.96	18.27	265.99
Total	162,607.60	55,920.77	218,528.37	283,335.91	451,163.90	31,651.69	72,630.00	1,057,309.87

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
2,099.0000	1.8938	0.5281	503.7208	77.4691	104.1107	8.2366

Activity: 339900.07 Unload/Stage Pipe Quantity: 1.07 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1,943.93	668.51	2,612.44	4,184.46	0.00	0.00	0.00	6,796.90
Total	2,080.00	715.31	2,795.31	4,477.37	0.00	0.00	0.00	7,272.68

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
6,796.8972	29.9065	0.0334	227.2713	4.0000	0.2675	3.7383	1,818.1700

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
32.0000	0.0334	29.9065	87.3534	1,943.9252

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LAB4 (Mod) 4 Man Labor Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 1.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8*FORK10	Reach Forklift - 10000 lb	1.00	32.00	HR	128.66	108.750	139.92	4,477.37
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 015526.02 Traffic Control - Unpaved Sections Quantity: 1.07 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	4,067.29	1,398.74	5,466.03	2,983.48	0.00	5,188.50	0.00	13,638.00
Total	4,352.00	1,496.65	5,848.65	3,192.32	0.00	5,551.69	0.00	14,592.66

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
8,449.5047	119.6262	0.0084	70.6326	16.0000	0.0669	14.9533	912.0413

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	0.0167	59.8131	91.3852	4,067.2897

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: TRAFIC (Mod) Traffic Control Prod: S 16 Eff: 100.00 Crew Hrs: 128.00 Labor Pcs: 0.50 Equipment Pcs: 0.50

Notes: Assumed Traffic Control for paved road alignment.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3TCARROW	Traffic Control Arrow Board	1.00	0.00	EAD	40.00	108.750	0.00	0.00
3TCBARRELS	Traffic Control Barrels	1.00	0.00	EAD	2.25	108.750	0.00	0.00
3TCBARRIER	Traffic Control Conc Barrier	1.00	0.00	FT/D	1.00	108.750	0.00	0.00
3TCCONES	Traffic Control Cones	1.00	810.00	EAD	1.50	108.750	1.63	1,321.31
3TCMSGBD	Traffic Control Message Board	1.00	0.00	MO	3,800.00	108.750	0.00	0.00
3TCPLATE	Traffic Control Traffic Plate	1.00	162.00	EAD	20.00	108.750	21.75	3,523.50
3TCSIGNS	Traffic Control Signs	1.00	130.00	EAD	5.00	108.750	5.44	706.88
3TCWTRBARR	Traffic Control Water Barrier	1.00	0.00	FT/D	3.25	108.750	0.00	0.00
8UTLPU	Utility Pickup	0.50	64.00	HR	49.88	100.000	49.88	3,192.32
FLAG	Flagger	0.00	0.00	MH	48.91	100.000	0.00	0.00
LAB4	Labor Foreman	0.50	64.00	MH	68.00	100.000	91.39	5,848.65

Activity: 311000.01 Earthwork - Clearing Quantity: 59625.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.03	0.01	0.04	0.08	0.00	0.00	0.00	0.12
Total	1,816.00	624.52	2,440.52	4,658.05	0.00	0.00	0.00	7,098.57

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.1191	0.0001	7,453.1250	887.3213	1.0000	59,625.0000	0.0000	7,098.5700

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	2,484.3750	0.0004	101.6883	0.0305

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PIONR (Mod) Pioneering Crew Prod: S 1 Eff: 100.00 Crew Hrs: 8.00 Labor Pcs: 3.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8290	DOZER STANDARD TRACK MED	1.00	8.00	HR	409.04	108.750	444.83	3,558.65
8326	4000 GAL WATER TRUCK	1.00	8.00	HR	126.37	108.750	137.43	1,099.40
LABORER	Laborer	1.00	8.00	MH	65.00	100.000	87.35	698.83
OPERATOR	Operator	1.00	8.00	MH	87.00	100.000	116.92	935.35
TRUCK	Truck Driver (On Site)	1.00	8.00	MH	75.00	100.000	100.79	806.34

Activity: 312000.02 Gravel Road Quantity: 25000.00 Unit: SF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.21	0.07	0.28	0.29	0.43	0.00	0.00	1.00
Total	5,296.00	1,821.30	7,117.30	7,232.56	10,766.25	0.00	0.00	25,116.11

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
0.5740	0.0006	1,562.5000	896.8663	2.0000	12,500.0000	0.0001	12,558.0550

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
64.0000	390.6250	0.0026	111.2078	0.2118

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGGRD (Mod) Large Grading Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	550.00	TON	18.00	108.750	19.58	10,766.25
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8239	MOTORGRADER/BLADE	1.00	16.00	HR	182.58	108.750	198.56	3,176.89
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80

8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	1.00	16.00	MH	65.00	100.000	87.35	1,397.66
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22
OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 339900.01 Install Pipeline - Dig/Lay/Backfill Quantity: 3975.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	26.47	9.10	35.57	57.61	0.00	6.57	15.62	115.37
Total	105,216.00	36,183.79	141,399.79	228,985.46	0.00	26,100.00	62,100.00	458,585.25

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
93.1787	0.0483	20.7031	1,929.0898	24.0000	165.6250	0.0060	19,107.7188

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
1,344.0000	2.9576	0.3381	105.2082	26.4694

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 24 Eff: 100.00 Crew Hrs: 192.00 Labor Pcs: 7.00 Equipment Pcs: 8.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
3FUSIONRENT	Rental HDPE Fusion Machine	1.00	5.00	WEEK	4,800.00	108.750	5,220.00	26,100.00
4HAUL	Hauling - Sub	1.00	460.00	HR	135.00	100.000	135.00	62,100.00
8027	VIB PLATE	1.00	192.00	HR	18.51	108.750	20.13	3,864.89
8040	SINGLE DRUM COMPACTOR	1.00	192.00	HR	60.85	108.750	66.17	12,705.48
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	192.00	HR	153.44	108.750	166.86	32,038.06
8282	EXCAVATOR MED	1.00	192.00	HR	246.65	108.750	268.23	51,500.52
8283	EXCAVATOR LARGE	1.00	192.00	HR	294.99	108.750	320.80	61,593.91
8285	EXCAVATOR BREAKER	1.00	192.00	HR	150.00	108.750	163.13	31,320.00
8326	4000 GAL WATER TRUCK	1.00	192.00	HR	126.37	108.750	137.43	26,385.64
8UTLPU	Utility Pickup	1.00	192.00	HR	49.88	100.000	49.88	9,576.96
LABORER	Laborer	3.00	576.00	MH	65.00	100.000	87.35	50,315.62
OPER4	Operator Foreman	1.00	192.00	MH	92.00	100.000	123.64	23,738.65
OPERATOR	Operator	3.00	576.00	MH	87.00	100.000	116.92	67,345.52

Activity: 339900.99 Abandon Existing Pipeline Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	7,376.00	2,536.61	9,912.61	12,180.41	1,223.44	0.00	0.00	23,316.46
Total	7,376.00	2,536.61	9,912.61	12,180.41	1,223.44	0.00	0.00	23,316.46

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
22,093.0200	16.0000	0.0625	1,380.8138	2.0000	0.5000	2.0000	11,658.2300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	0.0104	96.0000	103.2564	7,376.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: LGPIPE (Mod) Large Pipe Crew Prod: S 2 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 6.00 Equipment Pcs: 6.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	5.00	CY	225.00	108.750	244.69	1,223.44
8027	VIB PLATE	1.00	16.00	HR	18.51	108.750	20.13	322.07
8040	SINGLE DRUM COMPACTOR	1.00	16.00	HR	60.85	108.750	66.17	1,058.79
8268	LOADER WHEEL 3.0-3.4 CUBIC Y	1.00	16.00	HR	153.44	108.750	166.87	2,669.84
8283	EXCAVATOR LARGE	1.00	16.00	HR	294.99	108.750	320.80	5,132.83
8326	4000 GAL WATER TRUCK	1.00	16.00	HR	126.37	108.750	137.43	2,198.80
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	3.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22

OPERATOR	Operator	2.00	32.00	MH	87.00	100.000	116.92	3,741.42

Activity: 339900.02 Materials Quantity: 3975.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	99.27	0.00	0.00	99.27
Total	0.00	0.00	0.00	0.00	394,579.37	0.00	0.00	394,579.37

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2BASE	Base Rock	1.00	1,552.40	TON	18.00	108.750	19.58	30,388.23
2PIPEACC	Pipe Accessories	1.00	3,975.00	LF	3.00	108.750	3.26	12,968.44
2PIPEMTL	Pipe Materials	1.00	3,975.00	LF	75.00	108.750	81.56	324,210.94
2SAND	Bedding Sand - FOB Plant	1.00	1,552.40	TON	16.00	108.750	17.40	27,011.76

Activity: 339900.05 Potholing Quantity: 4.30 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	792.00	272.37	1,064.37	624.30	0.00	0.00	0.00	1,688.67
Total	3,405.60	1,171.19	4,576.79	2,684.49	0.00	0.00	0.00	7,261.28

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,688.6698	2.0000	0.5000	844.3349	1.0750	4.0000	0.2500	6,754.6791

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
43.0000	0.1000	10.0000	106.4370	792.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE Small Pipe Crew Prod: HU 2 Eff: 100.00 Crew Hrs: 8.60 Labor Pcs: 5.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
8267	LOADER WHEEL 2.5-2.9 CUBIC Y	1.00	8.60	HR	111.02	108.750	120.73	1,038.31
8276	EXCAVATOR SMALL	1.00	8.60	HR	130.15	108.750	141.54	1,217.21
8UTLPU	Utility Pickup	1.00	8.60	HR	49.88	100.000	49.88	428.97
LABORER	Laborer	2.00	17.20	MH	65.00	100.000	87.35	1,502.49
OPER4	Operator Foreman	1.00	8.60	MH	92.00	100.000	123.64	1,063.29
OPERATOR	Operator	2.00	17.20	MH	87.00	100.000	116.92	2,011.01

Activity: 339900.06 Raise/Collar Quantity: 3.00 Unit: EA

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	618.00	212.53	830.53	360.38	122.34	0.00	0.00	1,313.25
Total	1,854.00	637.59	2,491.59	1,081.13	367.03	0.00	0.00	3,939.75

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,190.9067	2.0000	0.5000	595.4533	0.7500	4.0000	0.2500	5,253.0000

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
24.0000	0.1250	8.0000	103.8163	618.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: MINIP (Mod) Mini Pipe Crew Prod: HU 2 Eff: 100.00 Crew Hrs: 6.00 Labor Pcs: 4.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONC	Ready-Mix Concrete	1.00	1.50	CY	225.00	108.750	244.69	367.03
8002	COMPRESSOR 175-195 CFM	1.00	6.00	HR	28.37	108.750	30.85	185.11
8016	BREAKER PAVEMENT AIR 90#	1.00	6.00	HR	18.00	108.750	19.58	117.45
8243	BACKHOE/LOADER 60-90HP 4WD	1.00	6.00	HR	73.45	108.750	79.88	479.29
8UTLPU	Utility Pickup	1.00	6.00	HR	49.88	100.000	49.88	299.28
LABORER	Laborer	2.00	12.00	MH	65.00	100.000	87.35	1,048.24
OPER4	Operator Foreman	1.00	6.00	MH	92.00	100.000	123.64	741.83

OPERATOR	Operator	1.00	6.00	MH	87.00	100.000	116.92	701.52

Activity: 320001.01 AC Patch Paving **Quantity: 15000.00** **Unit: SF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.84	0.63	2.48	1.20	2.92	0.00	0.70	7.30
Total	27,660.00	9,512.28	37,172.28	18,046.04	43,762.36	0.00	10,530.00	109,510.68

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3.6812	0.0040	250.0000	920.3053	7.5000	2,000.0000	0.0005	14,601.4240

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
360.0000	41.6667	0.0240	103.2563	1.8440

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PAVE (Mod) Asphalt Paving Prod: S 7.5 Eff: 100.00 Crew Hrs: 60.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ACPAVEMENT	Asphalt	1.00	383.25	TON	105.00	108.750	114.19	43,762.36
4HAUL	Hauling - Sub	1.00	78.00	HR	135.00	100.000	135.00	10,530.00
8042	ROLLER MD DOUBLE DRUM	1.00	60.00	HR	62.64	108.750	68.12	4,087.26
8272	LOADER LANDSCAPER 4WD	1.00	60.00	HR	41.69	108.750	45.34	2,720.47
8326	4000 GAL WATER TRUCK	1.00	60.00	HR	126.37	108.750	137.43	8,245.51
8UTLPU	Utility Pickup	1.00	60.00	HR	49.88	100.000	49.88	2,992.80
LABORER	Laborer	3.00	180.00	MH	65.00	100.000	87.35	15,723.63
OPER4	Operator Foreman	1.00	60.00	MH	92.00	100.000	123.64	7,418.33
OPERATOR	Operator	2.00	120.00	MH	87.00	100.000	116.92	14,030.32

Activity: 402319.01 Pipe Testing/Cleaning **Quantity: 1.07** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	3,319.63	1,141.62	4,461.24	745.87	435.00	0.00	0.00	5,642.11
Total	3,552.00	1,221.53	4,773.53	798.08	465.45	0.00	0.00	6,037.06

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
5,207.1121	14.9533	0.0669	348.2256	2.0000	0.5350	1.8692	3,018.5300

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
48.0000	0.0223	44.8598	99.4485	3,319.6262

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: SMPIPE (Mod) Small Pipe Crew Prod: CH 16 Eff: 100.00 Crew Hrs: 16.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2PIPEMTL	Pipe Materials	1.00	1.07	LS	400.00	108.750	435.00	465.45
8UTLPU	Utility Pickup	1.00	16.00	HR	49.88	100.000	49.88	798.08
LABORER	Laborer	2.00	32.00	MH	65.00	100.000	87.35	2,795.31
OPER4	Operator Foreman	1.00	16.00	MH	92.00	100.000	123.64	1,978.22

Biditem

120

Electrical Work

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: 12

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	335,529.04	115,388.45	450,917.49	128,526.85	1,715,116.92	25,848.25	209,684.50	2,530,094.01
Total	335,529.04	115,388.45	450,917.49	128,526.85	1,715,116.92	25,848.25	209,684.50	2,530,094.01

Manhours	Unit/MH	MH/Unit	$/MH	Base Labor/MH	Total Labor/MH	Unit/CH
4,432.0000	0.0002	4,432.0000	570.8696	75.7060	101.7413	0.0008

Activity: 260001.01 Electrical Gear **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total

U. Cost	70,250.40	24,159.11	94,409.51	11,971.20	494,812.50	0.00	0.00	601,193.21
Total	70,250.40	24,159.11	94,409.51	11,971.20	494,812.50	0.00	0.00	601,193.21

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
106,380.7100	240.0000	0.0042	443.2530	30.0000	0.0333	30.0000	20,039.7737

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
960.0000	0.0010	960.0000	98.3432	70,250.4000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC Electrical Crew Prod: S 30 Eff: 100.00 Crew Hrs: 240.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2MCC02	MCC 2	1.00	1.00	EA	267,000.00	108.750	290,362.50	290,362.50
2SWB	Main Switchgear	1.00	1.00	LS	188,000.00	108.750	204,450.00	204,450.00
8UTLPU	Utility Pickup	1.00	240.00	HR	49.88	100.000	49.88	11,971.20
ELEC	Electrician	2.00	480.00	MH	73.88	100.000	99.29	47,657.92
ELEC4	Elecrician Foreman	1.00	240.00	MH	79.95	100.000	107.44	25,786.75
LABORER	Laborer	1.00	240.00	MH	65.00	100.000	87.35	20,964.84

Activity: 260001.02 Electrical Work Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	109,300.80	37,588.55	146,889.35	23,942.40	130,500.00	0.00	75,332.75	376,664.50
Total	109,300.80	37,588.55	146,889.35	23,942.40	130,500.00	0.00	75,332.75	376,664.50

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
170,831.7500	480.0000	0.0021	355.8995	60.0000	0.0167	60.0000	6,277.7417

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
1,440.0000	0.0007	1,440.0000	102.0065	109,300.8000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 60 Eff: 100.00 Crew Hrs: 480.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	120,000.00	108.750	130,500.00	130,500.00
4ELEC	Electric - Sub	1.00	301,331.00	LS	0.25	100.000	0.25	75,332.75
8UTLPU	Utility Pickup	1.00	480.00	HR	49.88	100.000	49.88	23,942.40
ELEC	Electrician	2.00	960.00	MH	73.88	100.000	99.29	95,315.84
ELEC4	Elecrician Foreman	1.00	480.00	MH	79.95	100.000	107.44	51,573.51

Activity: 260001.03 Electrical Transfers Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	36,433.60	12,529.51	48,963.11	47,358.74	21,750.00	0.00	29,517.75	147,589.60
Total	36,433.60	12,529.51	48,963.11	47,358.74	21,750.00	0.00	29,517.75	147,589.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
96,321.8500	160.0000	0.0063	602.0116	20.0000	0.0500	20.0000	7,379.4800

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
480.0000	0.0021	480.0000	102.0065	36,433.6000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 20 Eff: 100.00 Crew Hrs: 160.00 Labor Pcs: 3.00 Equipment Pcs: 2.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	20,000.00	108.750	21,750.00	21,750.00
4ELEC	Electric - Sub	1.00	118,071.00	LS	0.25	100.000	0.25	29,517.75
8104	GENERATOR 600-699 KVA	1.00	160.00	HR	226.31	108.750	246.11	39,377.94
8UTLPU	Utility Pickup	1.00	160.00	HR	49.88	100.000	49.88	7,980.80
ELEC	Electrician	2.00	320.00	MH	73.88	100.000	99.29	31,771.94
ELEC4	Elecrician Foreman	1.00	160.00	MH	79.95	100.000	107.44	17,191.17

Activity: 260001.04 New Generator **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	9,366.72	3,221.22	12,587.94	1,596.16	808,012.50	0.00	7,500.00	829,696.60
Total	9,366.72	3,221.22	12,587.94	1,596.16	808,012.50	0.00	7,500.00	829,696.60

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
14,184.1000	32.0000	0.0313	443.2531	4.0000	0.2500	4.0000	207,424.1500

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
128.0000	0.0078	128.0000	98.3433	9,366.7200

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC Electrical Crew Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 4.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ELECMTL	Electrical Materials	1.00	1.00	LS	3,000.00	108.750	3,262.50	3,262.50
2GENSET	Genset	1.00	1.00	EA	740,000.00	108.750	804,750.00	804,750.00
4CRANE	Crane - Subcontractor	1.00	1.00	DAY	7,500.00	100.000	7,500.00	7,500.00
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
ELEC	Electrician	2.00	64.00	MH	73.88	100.000	99.29	6,354.39
ELEC4	Elecrician Foreman	1.00	32.00	MH	79.95	100.000	107.45	3,438.24
LABORER	Laborer	1.00	32.00	MH	65.00	100.000	87.35	2,795.31

Activity: 260001.04.1 Generator Pad **Quantity: 27.00** **Unit: CY**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	727.11	250.05	977.16	88.68	279.49	31.42	322.22	1,698.97
Total	19,632.00	6,751.45	26,383.45	2,394.24	7,546.16	848.25	8,700.00	45,872.10

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
1,065.8404	1.7778	0.5625	599.5352	6.0000	4.5000	0.2222	7,645.3500

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
216.0000	0.1250	8.0000	122.1456	727.1111

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: 4CARP (Mod) 4 Man Carp Crew Prod: S 6 Eff: 100.00 Crew Hrs: 48.00 Labor Pcs: 4.50 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2AB	Anchor Bolt	1.00	16.00	EA	54.00	108.750	58.73	939.60
2CONC	Ready-Mix Concrete	1.00	27.00	CY	225.00	108.750	244.69	6,606.56
3FORMMTL	Form Materials	1.00	156.00	SF	5.00	108.750	5.44	848.25
4PUMP	Concrete Pump	1.00	4.00	HR	285.00	100.000	285.00	1,140.00
4REBAR	Rebar - Sub	1.00	5,400.00	LB	1.40	100.000	1.40	7,560.00
8UTLPU	Utility Pickup	1.00	48.00	HR	49.88	100.000	49.88	2,394.24
CARP	Carpenter - Journeyman	2.00	96.00	MH	100.00	100.000	134.39	12,901.44
CARP4	Carpenter Foreman	1.00	48.00	MH	105.00	100.000	141.11	6,773.26
LABORER	Laborer	1.00	48.00	MH	65.00	100.000	87.35	4,192.97
MASON	Cement Mason	0.50	24.00	MH	78.00	100.000	104.82	2,515.78

Activity: 260040.01 Duct Banks **Quantity: 1930.00** **Unit: LF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	12.06	4.15	16.20	8.63	53.54	0.00	0.00	78.37
Total	23,270.40	8,002.69	31,273.09	16,664.27	103,323.38	0.00	0.00	151,260.74

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
24.8380	0.0415	24.1250	599.2170	10.0000	193.0000	0.0052	15,126.0740

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
320.0000	6.0313	0.1658	97.7284	12.0572

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: DUCT Duct Bank Crew Prod: S 10 Eff: 100.00 Crew Hrs: 80.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2DUCTMTL	Duct Bank Conduit Materials	1.00	1,930.00	LF	45.00	108.750	48.94	94,449.38
2SAND	Bedding Sand - FOB Plant	1.00	510.00	TON	16.00	108.750	17.40	8,874.00
8245	BACKHOE/LOADER 91-104HP 4WD	1.00	80.00	HR	99.81	108.750	108.54	8,683.47
8UTLPU	Utility Pickup	2.00	160.00	HR	49.88	100.000	49.88	7,980.80
ELEC	Electrician	1.00	80.00	MH	73.88	100.000	99.29	7,942.99
LABORER	Laborer	2.00	160.00	MH	65.00	100.000	87.35	13,976.56
OPERATOR	Operator	1.00	80.00	MH	87.00	100.000	116.92	9,353.54

Activity: 260040.02 Primary Service Quantity: 300.00 Unit: LF

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	23.27	8.00	31.27	16.66	103.39	83.33	0.00	234.66
Total	6,981.12	2,400.80	9,381.92	4,999.28	31,015.50	25,000.00	0.00	70,396.70

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
47.9373	0.0800	12.5000	599.2167	3.0000	100.0000	0.0100	23,465.5667

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
96.0000	3.1250	0.3200	97.7283	23.2704

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: DUCT Duct Bank Crew Prod: S 3 Eff: 100.00 Crew Hrs: 24.00 Labor Pcs: 4.00 Equipment Pcs: 3.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
1UTILITYFEE	Utility Fee	1.00	1.00	LS	25,000.00	100.000	25,000.00	25,000.00
2DUCTMTL	Duct Bank Conduit Materials	1.00	300.00	LF	75.00	108.750	81.56	24,468.75
2PULLBOX	Pull Box	1.00	2.00	EA	1,250.00	108.750	1,359.38	2,718.75
2SAND	Bedding Sand - FOB Plant	1.00	80.00	TON	16.00	108.750	17.40	1,392.00
2TPAD	Precast T-Pad	1.00	1.00	EA	2,240.00	108.750	2,436.00	2,436.00
8245	BACKHOE/LOADER 91-104HP 4WD	1.00	24.00	HR	99.81	108.750	108.54	2,605.04
8UTLPU	Utility Pickup	2.00	48.00	HR	49.88	100.000	49.88	2,394.24
ELEC	Electrician	1.00	24.00	MH	73.88	100.000	99.29	2,382.89
LABORER	Laborer	2.00	48.00	MH	65.00	100.000	87.35	4,192.97
OPERATOR	Operator	1.00	24.00	MH	87.00	100.000	116.92	2,806.06

Activity: 260099.01 PLC/Controls Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	45,542.00	15,661.90	61,203.90	9,976.00	94,748.44	0.00	82,964.00	248,892.34
Total	45,542.00	15,661.90	61,203.90	9,976.00	94,748.44	0.00	82,964.00	248,892.34

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
71,179.9000	200.0000	0.0050	355.8995	25.0000	0.0400	25.0000	9,955.6936

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
600.0000	0.0017	600.0000	102.0065	45,542.0000

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: ELEC (Mod) Electrical Crew Prod: S 25 Eff: 100.00 Crew Hrs: 200.00 Labor Pcs: 3.00 Equipment Pcs: 1.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2CONTROLWIRE	Control Wire	1.00	2,500.00	LF	0.85	108.750	0.92	2,310.94
2PLC	PLC	1.00	1.00	LS	85,000.00	108.750	92,437.50	92,437.50
4CONTROLS	Controls Integration Sub	1.00	165,928.00	LS	0.50	100.000	0.50	82,964.00
8UTLPU	Utility Pickup	1.00	200.00	HR	49.88	100.000	49.88	9,976.00
ELEC	Electrician	2.00	400.00	MH	73.88	100.000	99.29	39,714.93
ELEC4	Elecrician Foreman	1.00	200.00	MH	79.95	100.000	107.44	21,488.97

Activity: 320001.01 AC Patch Paving **Quantity: 8000.00** **Unit: SF**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	1.84	0.63	2.48	1.20	2.93	0.00	0.71	7.32
Total	14,752.00	5,073.22	19,825.22	9,624.56	23,408.44	0.00	5,670.00	58,528.22

Crew $/Unit	Crew Hrs/Unit	Units/Crew Hr	$/Crew Hour	Shifts	Units/Shift	Shifts/Unit	$/Shift
3.6812	0.0040	250.0000	920.3056	4.0000	2,000.0000	0.0005	14,632.0550

Manhours	Unit/MH	MH/Unit	Total Labor/MH	Base Labor/Unit
192.0000	41.6667	0.0240	103.2564	1.8440

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Crew: PAVE (Mod) Asphalt Paving Prod: S 4 Eff: 100.00 Crew Hrs: 32.00 Labor Pcs: 6.00 Equipment Pcs: 4.00

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
2ACPAVEMENT	Asphalt	1.00	205.00	TON	105.00	108.750	114.19	23,408.44
4HAUL	Hauling - Sub	1.00	42.00	HR	135.00	100.000	135.00	5,670.00
8042	ROLLER MD DOUBLE DRUM	1.00	32.00	HR	62.64	108.750	68.12	2,179.87
8272	LOADER LANDSCAPER 4WD	1.00	32.00	HR	41.69	108.750	45.34	1,450.92
8326	4000 GAL WATER TRUCK	1.00	32.00	HR	126.37	108.750	137.43	4,397.61
8UTLPU	Utility Pickup	1.00	32.00	HR	49.88	100.000	49.88	1,596.16
LABORER	Laborer	3.00	96.00	MH	65.00	100.000	87.35	8,385.94
OPER4	Operator Foreman	1.00	32.00	MH	92.00	100.000	123.64	3,956.44
OPERATOR	Operator	2.00	64.00	MH	87.00	100.000	116.92	7,482.84

Biditem

2000

Escalation (5% YOYx 2 Yrs)

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: ESC

Biditem

2500

Contingency (30%)

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

Client #: CONT

Biditem

990001

General Account

Takeoff Qty: 1.000 LS

Bid Qty: 1.000 LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	31,102.50	0.00	682,594.80	51,620.00	765,317.30
Total	0.00	0.00	0.00	31,102.50	0.00	682,594.80	51,620.00	765,317.30

Activity: 999 PROJECT SUPPORT **Quantity: 1.00** **Unit: LS**

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	34,400.00	34,400.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	34,400.00	34,400.00

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4*CRANESUB	Crane Subcontractor	1.00	0.00	HR	500.00	100.000	0.00	0.00
4*QAQC	QA/QC Testing	1.00	0.00	LS	0.00	100.000	0.00	0.00
4*SURVEY	Land Surveyor	1.00	160.00	HR	215.00	100.000	215.00	34,400.00
5*CRANE-CRAW	Crawler Crane	1.00	0.00	HR	400.00	100.000	0.00	0.00
5*CRANE-HYDR	Hydrolic Crane	1.00	0.00	HR	200.00	100.000	0.00	0.00

8*BOOM45	→ 45' Boomlift	1.00	0.00	HR	38.00	108.750	0.00	0.00
8*FORK10	→ Reach Forklift - 10000 lb	1.00	0.00	HR	128.66	108.750	0.00	0.00
8*FORK8	→ Reach Forklift - 8000 lb	1.00	0.00	HR	145.75	108.750	0.00	0.00
8*SHOPLIFT	→ Shop Forklift	1.00	0.00	HR	30.56	108.750	0.00	0.00
OPERATOR	→ Operator	1.00	0.00	MH	87.00	100.000	0.00	0.00
RIGGER	→ Crane Rigger	1.00	0.00	MH	78.00	100.000	0.00	0.00

Activity: 9999 MOB/DEMOB EQUIPMENT Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	0.00	0.00	0.00	17,220.00	17,220.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	17,220.00	17,220.00

Calendar: STD Standard Hrs/Shift: 8 WC: 5221 Concrete Construction

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
4*9AXL	9 axel Heavy Equipment Trans	1.00	28.00	HR	225.00	100.000	225.00	6,300.00
4*TRUCKING	Flat bed material transport	1.00	84.00	HR	130.00	100.000	130.00	10,920.00

Activity: 9 GENERAL CONDITIONS Quantity: 1.00 Unit: LS

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
U. Cost	0.00	0.00	0.00	31,102.50	0.00	682,594.80	0.00	713,697.30
Total	0.00	0.00	0.00	31,102.50	0.00	682,594.80	0.00	713,697.30

Calendar: Code not found. Hrs/Shift: 8 WC: Code not found.

Resource	Description	Pcs/Wste	Quantity	Unit	Unit Cost	Tax/OT %	Actual UC	Total
1*ADMIN	Project Admin	1.00	0.00	MO	6,000.00	110.000	0.00	0.00
1*APM	Assistant PM	1.00	0.00	MO	12,000.00	110.000	0.00	0.00
1*PE	Project Engineer	1.00	9.00	MO	8,000.00	110.000	8,800.00	79,200.00
1*PM	Project Manager	1.00	4.00	MO	14,000.00	110.000	15,400.00	61,600.00
1*SAFETY	Safety Professional	1.00	2.00	MO	8,000.00	110.000	8,800.00	17,600.00
1*SUPT	Project Superintendent	1.00	9.00	MO	13,000.00	110.000	14,300.00	128,700.00
1*TRADESUPT	Trade Superintendent	1.00	2.00	MO	10,000.00	110.000	11,000.00	22,000.00
3*AIRPHOTO	Aerial Photography	1.00	0.00	EA	2,000.00	108.750	0.00	0.00
3*COMPUTER	Computer Cost	1.00	1.00	EA	3,500.00	108.750	3,806.25	3,806.25
3*CONEX	Conex storage box	1.00	27.00	MO	150.00	108.750	163.13	4,404.38
3*COPIER	Office Copier	1.00	9.00	MO	250.00	108.750	271.88	2,446.88
3*DH	SMALL TOOLS & SAFETY SUPPLIE	1.00	20,845.87	LBHR	5.00	108.750	5.44	113,349.42
3*DUMPSTER	Dumpster	1.00	9.00	EAM	550.00	108.750	598.13	5,383.13
3*MAIL/FEDEX	Mail/Fedex/Postage	1.00	9.00	MO	250.00	108.750	271.88	2,446.88
3*OFFICE	Project Office - Per Single	1.00	9.00	MO	800.00	108.750	870.00	7,830.00
3*OFFICESUP	Office Supplies	1.00	9.00	MO	500.00	108.750	543.75	4,893.75
3*PHOTOS	Jobsite Photos	1.00	9.00	MO	100.00	108.750	108.75	978.75
3*PRINT	Printing & Copying Service	1.00	9.00	MO	400.00	108.750	435.00	3,915.00
3*SNOWREMOVE	Snow Removal	1.00	0.00	MO	350.00	108.750	0.00	0.00
3*TD	Builders Risk Insurance	1.00	9,471,763.74	TDC$	0.02	108.750	0.02	206,010.86
3*TEMPELESET	Temp Electrical Setup	1.00	1.00	LS	2,500.00	108.750	2,718.75	2,718.75
3*TEMPELEUSE	Temp Electric Use	1.00	9.00	MO	200.00	108.750	217.50	1,957.50
3*TEMPFENCE	Temp Fence	1.00	400.00	LF	3.00	108.750	3.26	1,305.00
3*TEMPH20SET	Temp Water Setup	1.00	1.00	LS	2,000.00	108.750	2,175.00	2,175.00
3*TEMPH20USE	Temp Water Usage	1.00	600.00	KGAL	5.50	108.750	5.98	3,588.75
3*TEMPHEAT	Temp Heat	1.00	0.00	GAL	7.00	108.750	0.00	0.00
3*TEMPTOILET	Temp Toilets	1.00	24.00	MO	145.00	108.750	157.69	3,784.50
3*WINTERPRO	Winter Protection	1.00	0.00	CY	3.00	108.750	0.00	0.00
8*PICKUP	→ Admin Pickup	1.00	26.00	MO	1,100.00	108.750	1,196.25	31,102.50
9*PERMITS	Permit Fees	1.00	1.00	LS	2,500.00	100.000	2,500.00	2,500.00

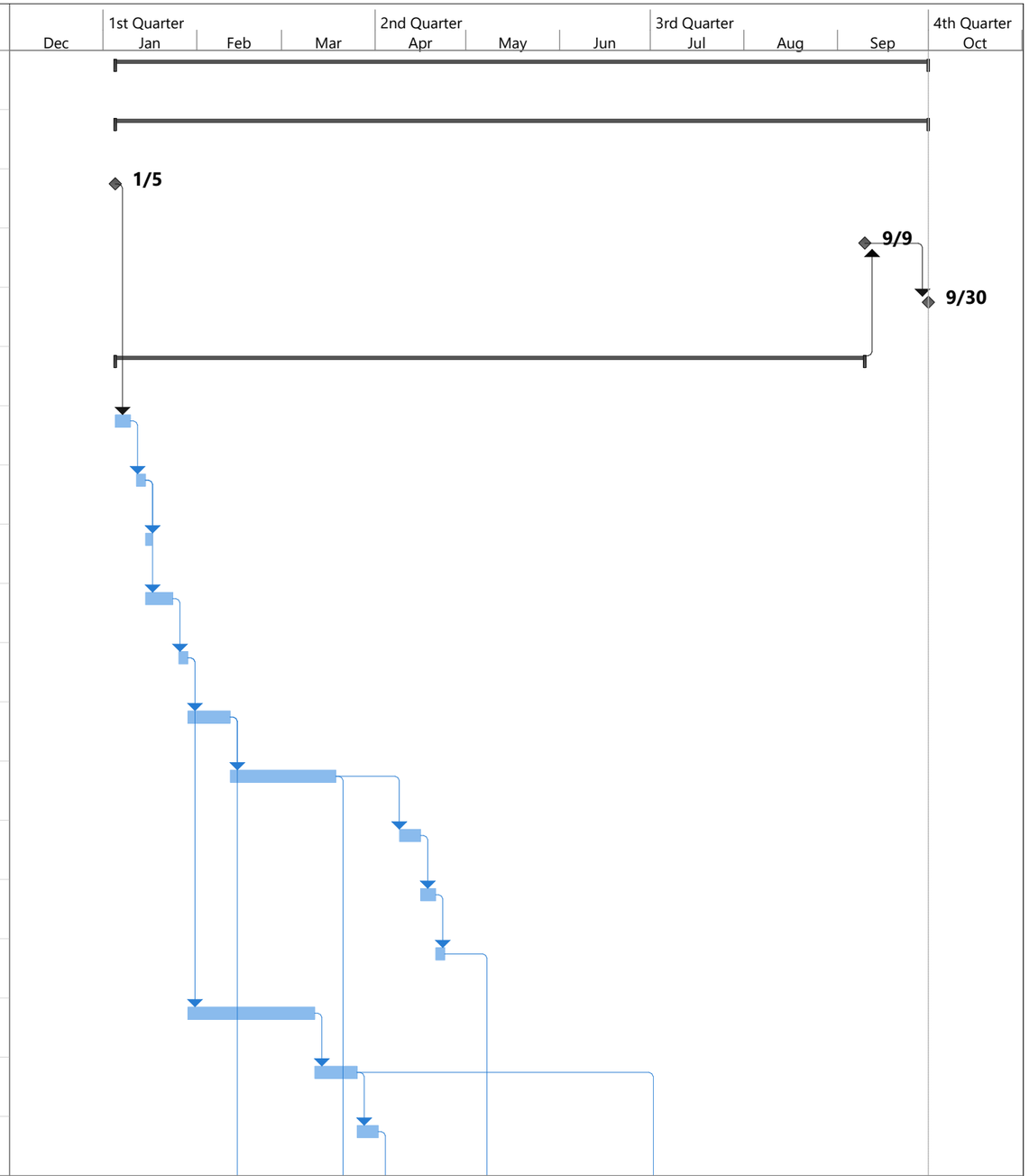
Report Summary

	Base Labor	Burden	Total Labor	Equipment	Perm Matls	Const Matls	Sub	Total
Total	1,691,673	582,093	2,273,767	1,069,123	4,722,866	795,030	1,376,295	10,237,081

Calendars Used In Estimate

STD	Standard

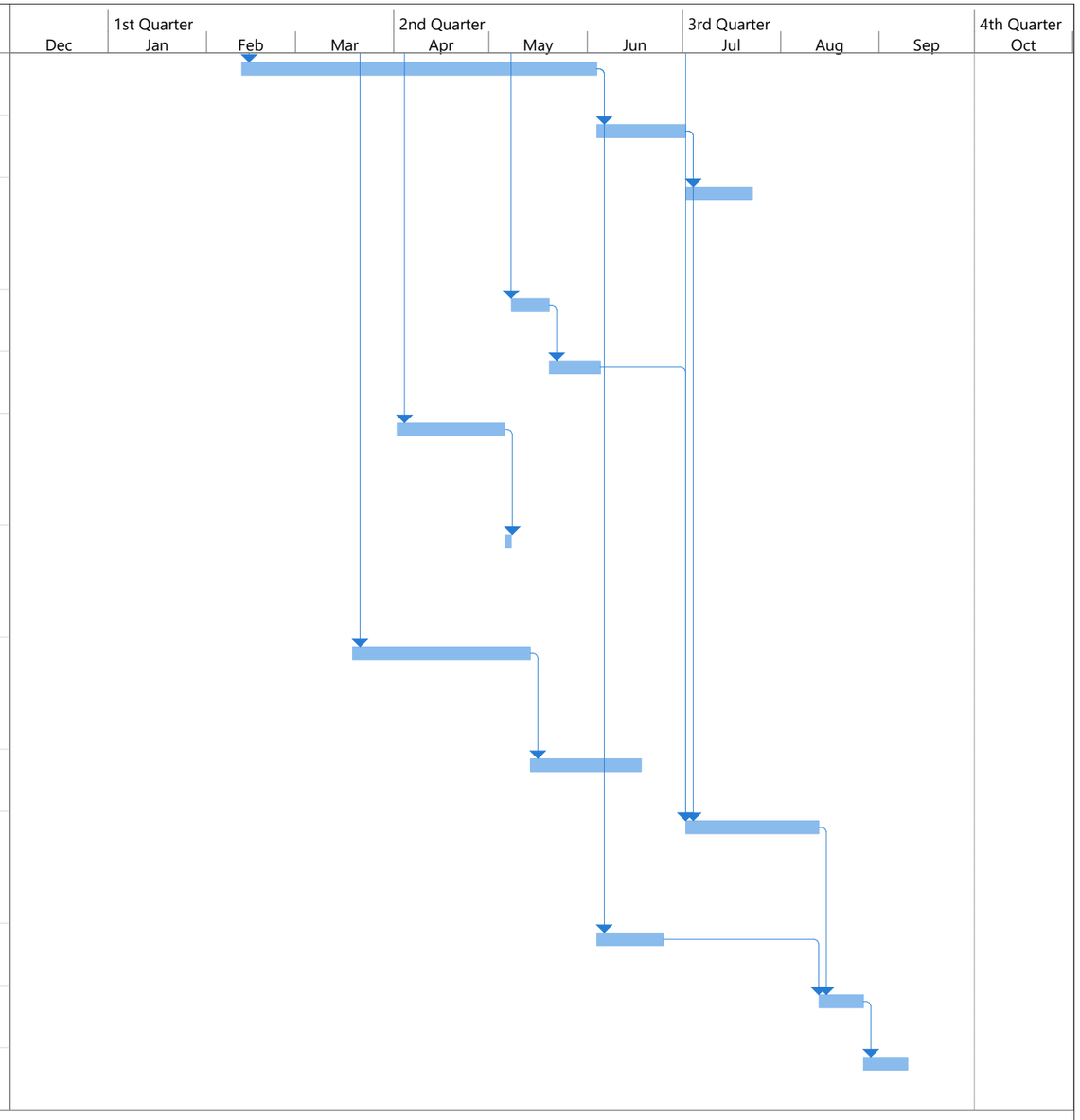
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		**La Contenta WWTF**	**193 days**	**Mon 1/5/26**	**Wed 9/30/26**		
2		**Milestones**	**193 days**	**Mon 1/5/26**	**Wed 9/30/26**		
3		NTP	0 days	Mon 1/5/26	Mon 1/5/26		
4		Substantial Completion	0 days	Wed 9/9/26	Wed 9/9/26	6	
5		Final Completion	0 days	Wed 9/30/26	Wed 9/30/26	4FS+15 days	
6		**Construction**	**178 days**	**Mon 1/5/26**	**Wed 9/9/26**		
7		Mobilization	5 days	Mon 1/5/26	Fri 1/9/26	3	
8		Site Clearing	3 days	Mon 1/12/26	Wed 1/14/26	7	
9		Remove Existing Surfacing	2 days	Thu 1/15/26	Fri 1/16/26	8	
10		Cut/Fill Aeration Pond	7 days	Thu 1/15/26	Fri 1/23/26	8	
11		Excavate for Clarifier	3 days	Mon 1/26/26	Wed 1/28/26	10	
12		Clarifier Invert	10 days	Thu 1/29/26	Wed 2/11/26	11	
13		Clarifier Walls	25 days	Thu 2/12/26	Wed 3/18/26	12	
14		Backfill Clarifier	5 days	Thu 4/9/26	Wed 4/15/26	13FS+15 days	
15		Aeration Pond Grading	3 days	Thu 4/16/26	Mon 4/20/26	14	
16		Aeration Pond Concrete Liner	3 days	Tue 4/21/26	Thu 4/23/26	15	
17		Yard Piping	30 days	Thu 1/29/26	Wed 3/11/26	11	
18		Duct Banks	10 days	Thu 3/12/26	Wed 3/25/26	17	
19		New Primary Electrical	5 days	Thu 3/26/26	Wed 4/1/26	18	



Project: Draft Construction Sche
Date: Tue 11/5/24

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
20		New Electrical Building	80 days	Thu 2/12/26	Wed 6/3/26	12	
21		Install New Switchgear	20 days	Thu 6/4/26	Wed 7/1/26	20	
22		Equipment Power Transfer to New MCC	15 days	Thu 7/2/26	Wed 7/22/26	21	
23		Install Aeration	8 days	Fri 5/8/26	Tue 5/19/26	16FS+10 days	
24		Install Clarifier Mechanism	12 days	Wed 5/20/26	Thu 6/4/26	23	
25		Install Splitter Box & Flow Meter Vaults	24 days	Thu 4/2/26	Tue 5/5/26	19	
26		Tie In SS line to New Flow Meter/Splitter	2 days	Wed 5/6/26	Thu 5/7/26	25	
27		Install Effluent Return Pump Station	40 days	Thu 3/19/26	Wed 5/13/26	13	
28		Off-site Pipeline	25 days	Thu 5/14/26	Wed 6/17/26	27	
29		Site Electrical/Pull Wire/Aeration & Clarifier	30 days	Thu 7/2/26	Wed 8/12/26	18,24,21	
30		Install New PLC and Controls	15 days	Thu 6/4/26	Wed 6/24/26	20	
31		Startup	10 days	Thu 8/13/26	Wed 8/26/26	29,30	
32		Commissioning	10 days	Thu 8/27/26	Wed 9/9/26	31	



Project: Draft Construction Sche
Date: Tue 11/5/24

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

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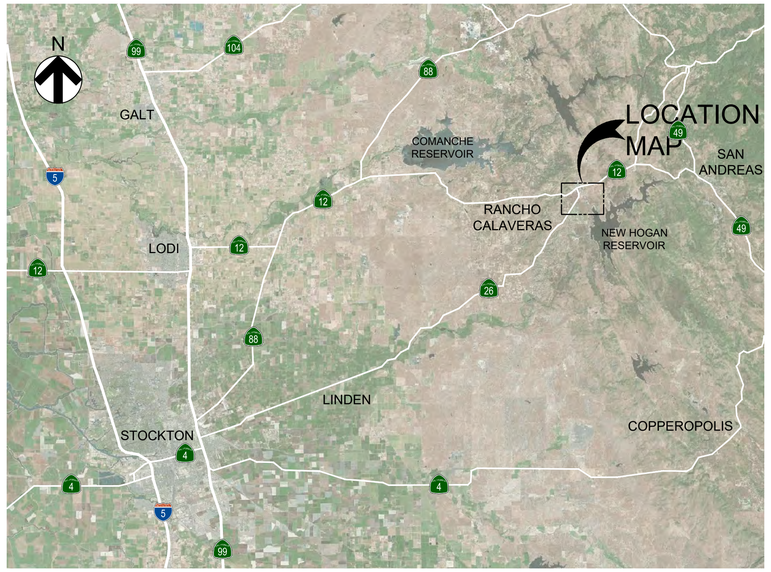
APPENDIX B

La Contenta Wastewater Treatment Facility Phase 3 Improvements,
90% Design Submittal, HydroScience, July 2025



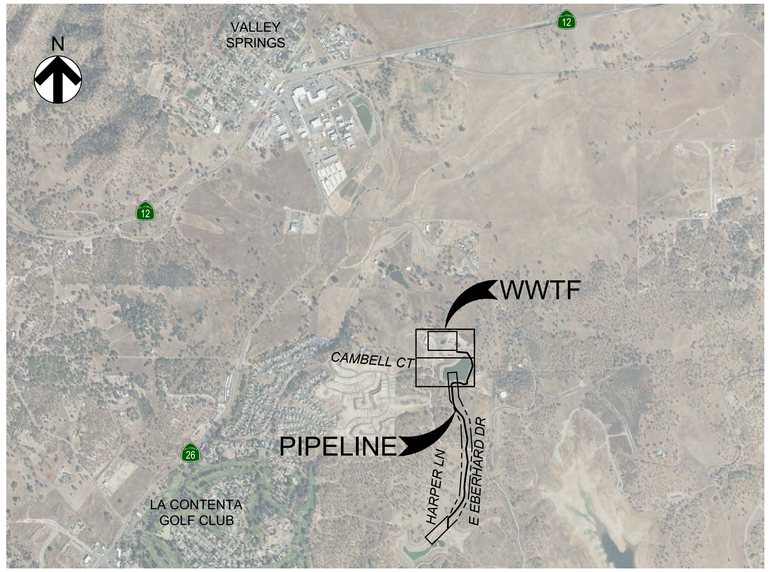
VICINITY MAP
NTS

CALAVERAS COUNTY WATER DISTRICT

HYDROSCIENCE PROJECT NO.: 483-003

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

90% SUBMITTAL
JULY 2025



LOCATION MAP
NTS

DRAWING INDEX

GENERAL

SHEET NO.	DWG NO.	DRAWING TITLE
1	G001	TITLE SHEET, VICINITY MAP, LOCATION MAP & DRAWING INDEX
2	G002	STANDARD SHEET REFERENCING, SERVICE ID, SYMBOLS & ABBREVIATIONS
3	G003	GENERAL NOTES
4	G004	PROCESS FLOW DIAGRAM
5	G005	HYDRAULIC PROFILE & DESIGN DATA
6	G006	KEY MAP

CIVIL

SHEET NO.	DWG NO.	DRAWING TITLE
7	C100	EXISTING WWTF SITE PLAN SHEET 1 OF 2
8	C101	EXISTING WWTF SITE PLAN SHEET 2 OF 2
9	C102	WWTF SITE DEMOLITION PLAN
10	C103	WWTF SITE AND PIPING PLAN
11	C104	WWTF/UESP PUMP STATION SITE AND PIPING PLAN
12	C105	OVEREXCAVATION PLAN
13	C106	GRADING AND PAVING PLAN
14	C200	PIPELINE PLAN AND PROFILE STA: 100+00 TO 104+50
15	C201	PIPELINE PLAN AND PROFILE STA: 104+50 TO 109+50
16	C202	PIPELINE PLAN AND PROFILE STA: 109+50 TO 113+50
17	C203	PIPELINE PLAN AND PROFILE STA: 113+50 TO 118+00
18	C204	PIPELINE PLAN AND PROFILE STA: 118+00 TO 122+50
19	C205	PIPELINE PLAN AND PROFILE STA: 122+50 TO 127+00
20	C206	PIPELINE PLAN AND PROFILE STA: 127+00 TO 131+50
21	C207	PIPELINE PLAN AND PROFILE STA: 131+50 TO 135+50
22	C208	PIPELINE PLAN AND PROFILE STA: 135+50 TO 138+00
23	C900	CIVIL DETAILS - 1
24	C901	CIVIL DETAILS - 2
25	C902	CIVIL DETAILS - 3
26	C903	CIVIL DETAILS - 4

MECHANICAL

SHEET NO.	DWG NO.	DRAWING TITLE
27	M200	UESP PLAN AND ELEVATION
28	M201	PUMP PLATFORMS AND DISCHARGE MANIFOLD PLAN AND SECTION
29	M400	BLOWER ROOM MODIFICATION PLAN AND SECTION
30	M500	AERATION BASIN AND CLARIFIER PLAN
31	M501	AERATION BASIN SECTIONS AND DETAIL
32	M600	CLARIFIERS PLAN, ELEVATION AND SECTION
33	M600	CLARIFIERS PLAN, ELEVATION AND SECTION
34	M700	RAS/WAS PUMP STATION PLAN AND SECTION
35	M800	VALVE VAULT PLAN AND SECTION
36	M900	MECHANICAL DETAILS - 1
37	M901	MECHANICAL DETAILS - 2
38	M902	MECHANICAL DETAILS - 3

BUILDING

SHEET NO.	DWG NO.	DRAWING TITLE
39	B300	ELECTRICAL BUILDING PLAN AND ELEVATIONS
40	B900	ELECTRICAL BUILDING DETAILS

STRUCTURAL

SHEET NO.	DWG NO.	DRAWING TITLE
	S001	GENERAL STRUCTURAL NOTES - 1
	S002	GENERAL STRUCTURAL NOTES - 1
	S003	GENERAL STRUCTURAL NOTES - 1
	S004	TYPICAL STRUCTURAL DETAILS - 1
	S005	TYPICAL STRUCTURAL DETAILS - 2
	S006	TYPICAL STRUCTURAL DETAILS - 3
	S100	ELECTRICAL BUILDING FOUNDATION PLAN AND ROOF FRAMING PLAN - 1
	S101	ELECTRICAL BUILDING SECTIONS AND DETAILS
	S200	PUMP STATION FOUNDATION PLAN AND SECTION
	S500	AERATION BASIN FOUNDATION PLAN
	S501	AERATION BASIN SECTIONS & DETAILS
	S600	CLARIFIERS FOUNDATION PLAN AND TOP PLAN
	S601	CLARIFIERS SECTIONS 1
	S602	CLARIFIERS SECTIONS 2
	S700	GENERATOR FOUNDATION PLAN

ELECTRICAL

SHEET NO.	DWG NO.	DRAWING TITLE
	E001	STANDARD ELECTRICAL SYMBOLS, LEGENDS & ABBREVIATIONS
	E010	OVERALL SINGLE LINE DIAGRAM
	E011	PANEL ELEVATIONS
	E012	UESP CONTROL PANEL (CPF) SINGLE LINE DIAGRAM AND PANEL ELEVATION
	E020	ELECTRICAL SCHEDULE - 1
	E021	ELECTRICAL SCHEDULE - 2
	E030	UPPER EFFLUENT PUMP WIRING DIAGRAM
	E031	RETURN PUMP WIRING DIAGRAM
	E036	MAIN CONTROL PANEL WIRING DIAGRAM
	E040	CONTROL SYSTEM BLOCK DIAGRAM
	E041	MAIN CONTROL PANEL CONTROL BLOCK DIAGRAM
	E100	OVERALL ELECTRICAL SITE PLAN AND KEY MAP
	E101	ELECTRICAL SITE PLAN SHEET 1 OF 3
	E102	ELECTRICAL SITE PLAN SHEET 2 OF 3
	E103	ELECTRICAL SITE PLAN SHEET 3 OF 3
	E104	ELECTRICAL BUILDING PLAN
	E105	SITE LIGHTING AND GROUNDING PLAN
	E106	OPS BUILDING ELECTRICAL PLAN
	E900	ELECTRICAL AND/OR INSTRUMENTATION DETAILS - 1
	E901	ELECTRICAL AND/OR INSTRUMENTATION DETAILS - 2

INSTRUMENTATION

SHEET NO.	DWG NO.	DRAWING TITLE
	I001	STANDARD PROCESS AND INSTRUMENTATION SYMBOLS, LEGENDS AND ABBREVIATIONS
	I100	PROCESS AND INSTRUMENTATION DIAGRAM - 1
	I101	PROCESS AND INSTRUMENTATION DIAGRAM - 2
	I102	PROCESS AND INSTRUMENTATION DIAGRAM - 3
	I103	PROCESS AND INSTRUMENTATION DIAGRAM - 4
	I104	PROCESS AND INSTRUMENTATION DIAGRAM - 5
	I105	PROCESS AND INSTRUMENTATION DIAGRAM - 6
	I106	PROCESS AND INSTRUMENTATION DIAGRAM - 7
	I107	PROCESS AND INSTRUMENTATION DIAGRAM - 8
	I108	PROCESS AND INSTRUMENTATION DIAGRAM - 9
	I109	PROCESS AND INSTRUMENTATION DIAGRAM - 10
	I110	PROCESS AND INSTRUMENTATION DIAGRAM - 11

NOT FOR CONSTRUCTION

HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

TITLE SHEET, VICINITY MAP, LOCATION MAP & DRAWING INDEX

90% SUBMITTAL JULY 2025

G001
DRAWING NUMBER

SHEET 1 OF 87

Plot Date: 7/23/2025 11:42 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-General.dwg

LINE LEGENDS

GENERAL LEGEND

- CENTERLINE
- BUILDING
- CONCRETE
- EQUIPMENT
- EXISTING FEATURES, EQUIPMENT OR STRUCTURES
- PROPERTY LINE
- MATCH LINE
- RIGHT OF WAY
- FENCE
- HANDRAIL
- GRADE BREAK
- SWALES OR DITCH
- EDGE OF WATER
- MAJOR CONTOURS (180)
- MINOR CONTOURS (180)
- EXISTING GUARD RAIL
- DENSE BRUSH

CIVIL LEGEND

- PIPING TO BE ABANDONED OR REMOVED
- W — WATER MAIN PIPE
- W — EXISTING WATER MAIN PIPE
- SFM — SEWER FORCE MAIN
- SS — EXISTING SEWER FORCE MAIN
- RW — RECYCLED WATER PIPE
- RW — EXISTING RECYCLED WATER PIPE
- SS — SANITARY SEWER PIPE
- SS — EXISTING SANITARY SEWER PIPE
- SD — STORM DRAIN LINE
- SD — EXISTING STORM DRAIN LINE
- OF — OVER FLOW LINE
- OF — EXISTING OVER FLOW LINE
- D — DRAIN LINE
- D — EXISTING DRAIN LINE
- E — ELECTRICAL CONDUIT
- E — EXISTING ELECTRICAL CONDUIT
- G — ELECTRICAL GROUND
- CULV — CULVERT
- CULV — EXISTING CULVERT
- UNK — EXISTING UNKNOWN PIPE
- G — EXISTING GAS LINE
- NG — EXISTING NATURAL GAS LINE
- AA — AIR LINE

GENERAL SYMBOLS

MISCELLANEOUS SYMBOLS

- SINGLE LINE CONTINUATION
- DOUBLE LINE CONTINUATION
- GENERAL CONTINUATION
- WATERLINE
- PH# — POTHOLE
- BH# — BORING HOLE
- N — NORTH ARROW
- 50 — INTERSTATE HIGHWAY
- 550 — HIGHWAY
- TREE
- UTILITY BOX
- POWER POLE

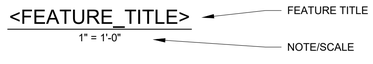
TYPICAL PIPING SYMBOLS

- S — SANITARY SEWER MANHOLE
- D — STORM DRAIN MANHOLE
- GATE VALVE
- BUTTERFLY VALVE
- PLUG VALVE
- CHECK VALVE
- REDUCER
- FM — FLOW METER
- BACKFLOW PREVENTER
- DROP INLET
- FIRE HYDRANT
- CAP
- BLIND FLANGE
- HOSE BIBB
- CLEAN OUT

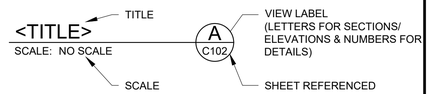
REFERENCE LABELS

VIEW TITLES, SECTION/DETAIL & PHOTO CALL-OUTS

(1) MAIN FEATURE TITLE



(2) DETAIL/SECTION/ELEVATION TITLE:

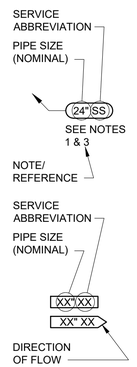


(3) SECTION/ELEVATION CALL OUT:

(4) PHOTO CALL OUT: PHOTO 1 FROM DWG M001:

SERVICE IDENTIFICATION SYSTEM

SERVICE ABBREVIATIONS



A	AIR SUPPLY
C	ELECTRICAL CONTROL
D	DRAIN
E	ELECTRICAL SERVICE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RW	RECYCLED WATER/RAW WATER
SCM	SCUM LINE
SD	STORM DRAIN
SE	SECONDARY EFFLUENT
SMP	SAMPLE
SS	SANITARY SEWER
SSFM	SANITARY SEWER FORCE MAIN
TE	TERTIARY EFFLUENT
V	VENT
W	WATER SERVICE
WAS	WASTE ACTIVATED SLUDGE

PATTERNS LEGEND

PATTERN LEGEND

NEW	EXISTING	
	N/A	DEMOLITION AREA
		AC W/ AB (SECTION VIEW)
		NATURAL GROUND OR GRADE
		COMPACTED BACKFILL
		AB (SECTION VIEW)
		CONCRETE
		CHECKER PLATE
		STEEL OR STAINLESS STEEL
		AC PAVEMENT (PLAN VIEW) OR GROUT (SECTION VIEW)
		GRATING
		MISCELLANEOUS MATERIAL
	N/A	HIGHLIGHTED AREA

ABBREVIATIONS

A	
AB	ANCHOR BOLT/AGGREGATE BASE
A/C	AIR CONDITIONER
AC	ASPHALT CONCRETE
AFF	ABOVE FINISHED FLOOR
AI	ANALOG INPUT
AL	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE(LY)
AUX	AUXILIARY
AVE	AVENUE

B	
BF	BLIND FLANGE
BFC	BOTTOM FACE OF CURB
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BEAM/BENCHMARK
BTM	BOTTOM
BV	BALL VALVE

C	
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
CONC	CONCRETE
CONT	CONTAINMENT
CPLG	COUPLING
CV	CONTROL VALVE

D	
(D)	DEMOLISH
D	DRAIN
DET	DETAIL
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING

E	
(E)	EXISTING
E	EAST
EA	EACH
EG	EXISTING GRADE
EL	ELEVATION
ELL	ELBOW
EMBED	EMBEDDED
EMERG	EMERGENCY
EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EW T&B	EACH WAY/TOP AND BOTTOM
EXP	EXPANSION
EXT	EXTERIOR

F	
(F)	FUTURE
FA	FOUL AIR
FACP	FIRE ALARM CONTROL PANEL
FC	FLEX COUPLING
FCA	FLANGE COUPLING ADAPTER
FD	FLOOR DRAIN/FIRE DAMPER
FE	FLOW-METER
FF	FINISHED FLOOR
FG	FINISHED GRADE
FI	FLOW INDICATOR
FL	FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE(D)
FLR	FLOOR
FO	FIBER OPTIC/FAIL OPEN
FRP	FIBERGLASS REINFORCED PIPE
FS	FIRE SERVICE/FLOW SWITCH
FT	FEET
FTG	FOOTING
FTS	FLOAT SWITCH

G	
G	GAS
GALV	GALVANIZED
GEN	GENERAL
GPM	GALLONS PER MINUTE
GRT	GROUT/GRATE
GSN	GENERAL STRUCTURAL NOTES
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE

H	
HI	HIGH
HORIZ	HORIZONTAL
HP	HIGH PRESSURE/HIGH POINT /HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HSS	HOLLOW STRUCTURE STEEL
HT	HEIGHT/HIGH
HWL	HIGH WATER LEVEL
HYD	HYDRAULIC

I	
IE	INVERT ELEVATION
IN	INCH
INST	INSTRUMENTATION
INV	INVERT
IRR	IRRIGATION

J	
JT	JOINT

L	
L	LENGTH

M	
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM/MINUTE
MINS	MINUTES
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MOV	MOTOR OPERATED VALVE
MTD	MANUAL TRANSFER SWITCH
MTR	MOTOR

N	
(N)	NEW
N	NEUTRAL/NORTH
N/A	NOT APPLICABLE
NO	NORMALLY OPEN
NPW	NON-POABLE WATER
NTS	NOT TO SCALE

O	
O	OPEN
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OFMH	OVERFLOW MANHOLE

P	
PE	PLAIN END
PL/t	PROPERTY LINE/PIPELINE/PLATE
PMP	PUMP
PROVIDE	FURNISH, INSTALL AND CONNECT
PSI	POUNDS PER SQUARE INCH
PV	PLUG VALVE
PVC	POLYVINYLCHLORIDE
PVT	PAVEMENT
PW	POTABLE WATER

Q	
Q	RATE OF FLOW
QCPLG	QUICK COUPLING

R	
R	RADIUS/RIGHT
R/C	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED	REDUCER
REF	REFERENCE
REINF	REINFORCE/REINFORCING
REL	RELAY
RFC	RESTRAINED FLEX COUPLING
RFCA	RESTRAINED FLANGE COUPLING ADAPTER
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
RW	RECYCLED WATER

S	
S	SOUTH
SBL	SET BACK LINE
SCH	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDR	STANDARD DIMENSION RATIO
SEC	SECONDARY
SECT	SECTION
SFM	SEWER FORCE-MAIN
SHT	SHEET
SPEC	SPECIFICATION(S)
SR	SEISMIC REFRACTION LINE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURE
SV	SOLENOID VALVE

T	
T&B	TOP AND BOTTOM
T, TEL	TELECOMMUNICATIONS
TOP	TOP OF PIPE
T/B	TOP OF BANK
TB	TERMINAL BLOCK
TBC	TOP BACK OF CURB
TC	TOP OF CURB/TOP OF CONCRETE
TCDI	TOP OF CURB DROP INLET
TE	TERTIARY EFFLUENT
TEMP	TEMPERATURE
TP	TOP OF PAVEMENT
TYP	TYPICAL

U	
UB	UTILITY BOX
UG	UNDERGROUND
UN	UNION
UNKN	UNKNOWN
UON	UNLESS OTHERWISE NOTED

V	
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE

W	
W	WATER/WEST
W/	WITH
W/O	WITHOUT
WL	WATER LEVEL
WS	WATER SURFACE
WSTP	WATER-STOP
WT	WATERTIGHT/WEIGHT
WV	WATER VALVE
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
WWTP	WASTEWATER TREATMENT PLANT

NOT FOR CONSTRUCTION

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JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

STANDARD SHEET REFERENCING, SERVICE ID, SYMBOLS & ABBREVIATIONS

90% SUBMITTAL JULY 2025

G002
DRAWING NUMBER

SHEET 2 OF 87

Plot Date: 7/23/2025 10:18 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-General.dwg

GENERAL NOTES

1. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PLANS, NOTES, DETAILS, AND PROVISIONS AS SPECIFIED HEREON AND IN ACCORDANCE WITH THE LATEST VERSION OF THE CALAVERAS COUNTY WATER DISTRICT (CCWD) STANDARD SPECIFICATIONS. ALL REQUIREMENTS, STANDARDS, AND SPECIFICATIONS OF ALL AGENCIES HAVING JURISDICTION OVER THE WORK SHALL BE DONE TO THE SATISFACTION OF ALL OF THE INVOLVED AGENCIES.

2. ALL PIPE WORK WILL BE DONE UNDER THE INSPECTION OF CCWD.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL FACILITIES PRIOR TO ANY EXCAVATION.

4. CONNECTIONS TO EXISTING WATER OR SEWER FACILITIES SHALL HAVE PRIOR APPROVAL AND BE DONE IN ACCORDANCE WITH CCWD TIE-IN PROCEDURES, PLANS AND SPECIFICATIONS.

5. THE CONTRACTOR SHALL HAVE A COPY OF CCWD APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS ON SITE. SPECIFICATIONS, SPECIFIC NOTES, AND DETAIL DRAWINGS THEREON AND IN THE GEOLOGICAL REPORT TAKE PRECEDENCE OVER GENERAL DRAWINGS AND PLANS UNLESS OTHERWISE DIRECTED BY THE DISTRICT ENGINEER. ANY DEVIATION FROM APPROVED PLANS DURING CONSTRUCTION WILL BE REQUIRED PRIOR TO CCWD, OTHER APPROPRIATE PUBLIC AGENCIES, AND SHALL RECEIVE APPROVAL BY CCWD.

6. ONLY CCWD PERSONNEL SHALL OPERATE EXISTING FACILITIES.

7. TIE-IN DETAILS SHOWN ON THE PLANS ARE SCHEMATIC AND ARE INTENDED TO SHOW THE ESSENTIAL ELEMENTS REQUIRED FOR CONNECTION. ACTUAL FIELD PIPING ANGLES MAY BE DIFFERENT. THE CONTRACTOR SHALL SUPPLY ALL LABOR, ANGLED FITTINGS AND APPURTENANCES REQUIRED FOR THE TIE-IN INSTALLATIONS WITH NO ADDITIONAL REIMBURSEMENT.

8. CONTRACTOR SHALL PROVIDE ALL TEMPORARY BYPASSES AND FACILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COSTS TO THE OWNER.

9. PIPES TO BE DEMOLISHED THAT REQUIRE NO FUTURE CONNECTION SHALL BE REMOVED TO THE EXTEND SHOWN AND SEALED OR CAPPED. PIPES SHALL BE REMOVED EITHER BY SAWCUTTING, REMOVING A COMPLETE PIPE SECTION TO AN EXISTING JOINT, OR OTHER ADEQUATE MEANS WHICH RESULTS IN A CLEAN JOINT FOR CAPPING OR CONNECTING TO A NEW PIPE.

10. CONTRACTOR SHALL PROPOSE AND OBTAIN DISTRICT APPROVAL FOR ALL REQUIRED STAGING AND STOCKPILE AREAS PRIOR TO MOVING ANY EQUIPMENT OR MATERIALS ONTO THE SITE. CONTRACTOR SHALL PROVIDE OPERATOR ACCESS TO ALL FACILITIES AT ALL TIMES.

11. EXISTING TREATMENT FACILITY OPERATES 24 HOURS A DAY, 7 DAY A WEEK. CONTRACTOR SHALL PROTECT ONGOING FACILITY OPERATIONS AT ALL TIMES. SEE TECHNICAL SPECIFICATIONS INCLUDING BUT NOT LIMITED TO SECTION 01014 FOR WORK SEQUENCING REQUIREMENTS AND CONSTRAINTS.

12. PLANS INDICATE APPROXIMATE LOCATION OF EXISTING BURIED PIPING BASED ON AS-BUILT PLANS AND LIMITED POTHOLING. ACTUAL LOCATIONS MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL POTHOLE AND VERIFY ALL EXISTING BURIED PIPING LOCATIONS, DEPTHS, ALIGNMENTS, DIAMETERS, AND MATERIALS AS REQUIRED PRIOR TO INSTALLING NEW PIPING IN THE VICINITY OF EXISTING PIPING AND PRIOR TO ORDERING FITTINGS FOR TIE-INS OR PERFORMING THE TIE-INS.

13. FOR THE PERIOD OF NOVEMBER 5TH THROUGH APRIL 15TH THE CONTRACTOR AND SUBCONTRACTORS MAY NOT COMMENCE WITH EXCAVATIONS/TRENCHES, CONTINUE EARTHWORK OR KEEP OPEN EXCAVATIONS ON THE JOB SITE UNLESS ALLOWED BY THE ENGINEER, IF OTHERWISE ALLOWED BY ENGINEER, A SWPPP OR WPCP MUST SPECIFICALLY ADDRESS BMP'S TO BE USED TO MITIGATE STORM WATER DISCHARGES DUE TO THE ACTIVITIES. ENGINEER MAY REQUIRE CONTRACTOR PROVIDE ADDITIONAL BMP'S AT NO ADDITIONAL COST TO DISTRICT.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND FACILITIES AFFECTED BY THE WORK AND SHALL CONTACT UNDERGROUND SERVICES ALERT (USA) 48 HOURS PRIOR TO ANY EXCAVATION WORK FOR IDENTIFICATION AND LOCATION OF UNDERGROUND UTILITIES. (PHONE: 1-800-227-2600)

15. WHERE DEPTH OF EXCAVATIONS INTO WHICH WORKERS DESCEND IS 5 FEET OR DEEPER, CONTRACTOR REQUIRED TO OBTAIN EXCAVATION PERMIT FROM NEAREST CAL/OSHA OFFICE & PROVIDE COPY TO CCWD PRIOR TO CONSTRUCTION.

16. UTILITIES:
    A. CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL EXCAVATIONS AND NOTIFYING UNDERGROUND SERVICE ALERT (USA) AT LEAST 48 HOURS BEFORE DIGGING AND FOLLOW ALL OTHER PROVISIONS OF CALIFORNIA GOVERNMENT CODE SECTIONS 4216 THROUGH 4216.9. CONTRACTOR SHALL MAINTAIN AN ACTIVE USA TICKET NUMBER FOR THE ENTIRE DURATION OF THE EXCAVATION.

    B. UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS, ALL UTILITY LINES, CONDUITS, WIRES, OR STRUCTURES SHALL BE MAINTAINED BY THE CONTRACTOR AND SHALL NOT BE DISTURBED, DISCONNECTED, OR DAMAGED DURING THE PROGRESS OF THE WORK, PROVIDED, THAT SHOULD THE CONTRACTOR IN THE PERFORMANCE OF THE WORK DISTURB, DISCONNECT, OR DAMAGE ANY OF THE ABOVE, ALL EXPENSES ARISING FROM SUCH DISTURBANCE OR IN THE REPLACEMENT OR REPAIR THEREOF SHALL BE BORNE BY THE CONTRACTOR. HOWEVER, IN ACCORDANCE WITH SECTION 4215 OF THE CALIFORNIA GOVERNMENT CODE, THE CONTRACTOR SHALL BE COMPENSATED FOR ALL COSTS OF LOCATING AND REPAIRING DAMAGE TO MAIN OR TRUNKLINE UTILITY FACILITIES LOCATED ON THE WORK SITE AND FOR COSTS OF OPERATING EQUIPMENT ON THE WORK SITE NECESSARILY IDLED DURING SUCH WORK WHERE THE CONTRACTOR HAS EXERCISED REASONABLE CARE IN REMOVING OR RELOCATING UTILITY FACILITIES WHICH ARE INACCURATELY INDICATED IN THE CONTRACT DOCUMENTS.

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

GENERAL NOTES

90% SUBMITTAL JULY 2025

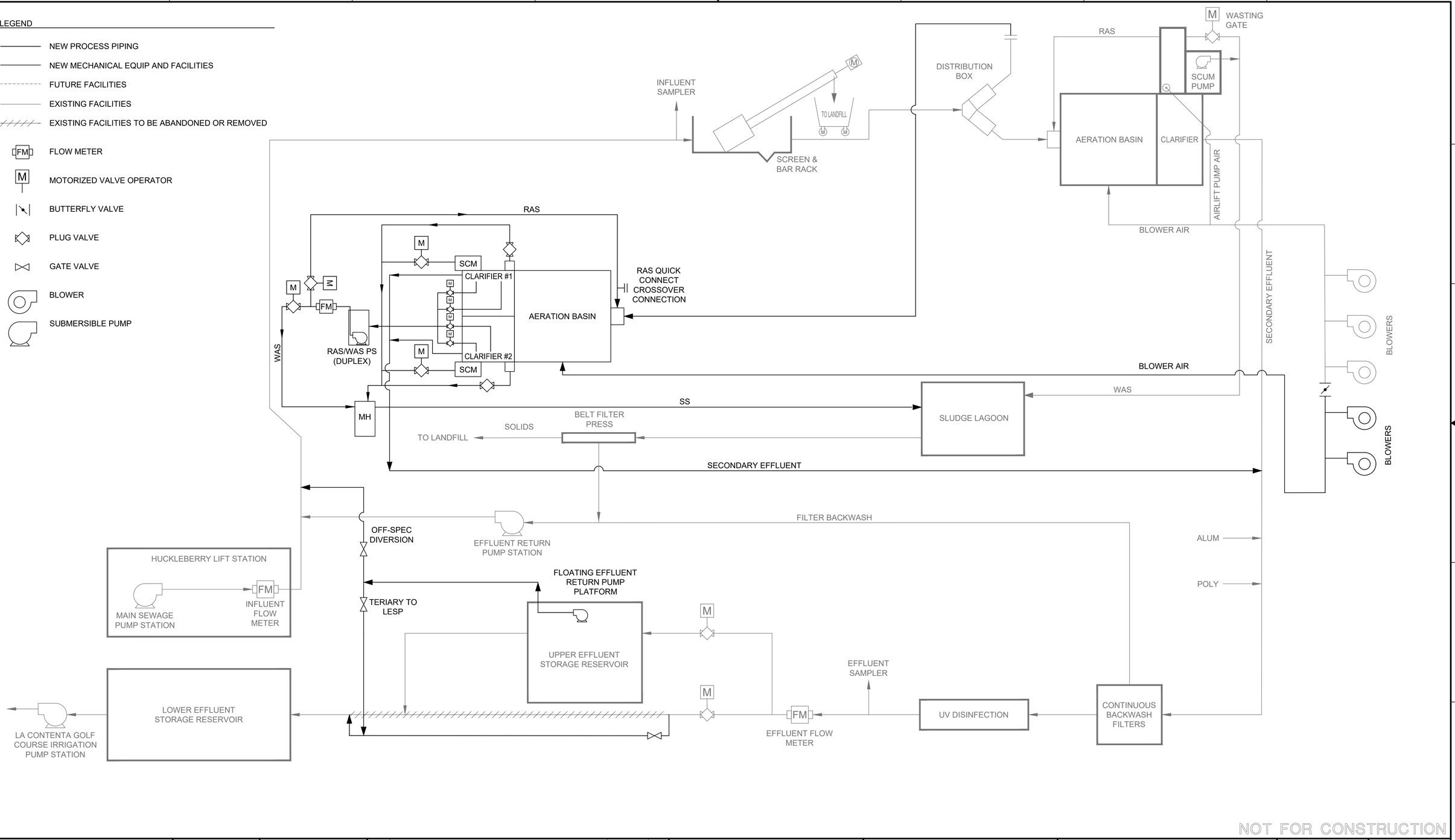
G003
DRAWING NUMBER

SHEET 3 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:27 AM
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-General.dwg

LEGEND

- NEW PROCESS PIPING
- NEW MECHANICAL EQUIP AND FACILITIES
- FUTURE FACILITIES
- EXISTING FACILITIES
- EXISTING FACILITIES TO BE ABANDONED OR REMOVED
- FM — FLOW METER
- M — MOTORIZED VALVE OPERATOR
- BUTTERFLY VALVE
- PLUG VALVE
- GATE VALVE
- BLOWER
- SUBMERSIBLE PUMP



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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

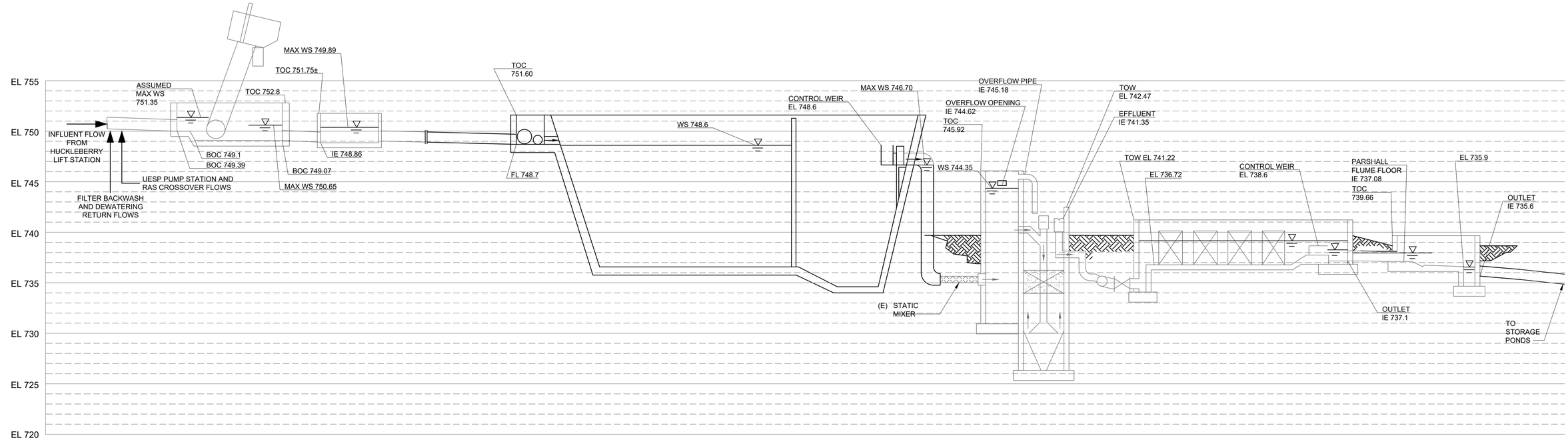
PROCESS FLOW DIAGRAM

90% SUBMITTAL JULY 2025

G004
DRAWING NUMBER

SHEET 4 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 12:29 PM
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-General.dwg



INFLUENT FLOWS (GPD)		
	PHASE 3	BUILDOUT
ADWF	315,000	450,000
MMF	473,000	675,000
MDF	950,000	1,350,000
PHF	1,262,000	2,016,000
Note: Buildout PHF is based on Huckleberry Lift Station max discharge flow.		

WWTF RETURN STREAMS (GPD)		
	PHASE 3	BUILDOUT
FILTER BACKWASH	126,000	177,000
SOLIDS DEWATERING	180,000	180,000
TOTAL	306,000	357,000

RAS FLOW (GPD)		
	PHASE 3	BUILDOUT
RAS FLOW	421,000	600,000

PHASE 3 INFLUENT LOAD				
	CONCENTRATION	UNITS	LOAD	UNITS
BOD5	200	MG/L	789	LBS/D
SUSPENDED SOLIDS	200	MG/L	789	LBS/D
NITROGEN, N	35	MG/L	138	LBS/D

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

HYDRAULIC PROFILE & DESIGN DATA

90% SUBMITTAL JULY 2025

G005
DRAWING NUMBER

SHEET 5 OF 87

Plot Date: 7/23/2025 10:28 AM
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KEY MAP
NTS

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Plot Date: 7/23/2025 10:24 AM
Plotted By: ANTHONY PEREZ
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MATCHLINE - SEE DWG C101

EXISTING WWTF SITE PLAN

SCALE: 1" = 40'-0"

SURVEY NOTES

1. THE FIELD WORK FOR THIS SURVEY WAS CONDUCTED IN AUGUST AND SEPTEMBER 2024.
2. NO ATTEMPT WAS MADE TO IDENTIFY THE NATURE OF USE OF UNDERLYING LAND SHOWN HEREON. ANY POTENTIAL PAST USES, INCLUDING THOSE WHICH MAY HAVE RESULTED IN SIGNIFICANT ENVIRONMENTAL OR CULTURAL IMPACTS, WERE NOT ASSESSED BY THIS SURVEY.
3. PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ON THIS SITE, IT IS ADVISED THAT ALL INVOLVED PARTIES REVIEW SECTION 8771 AND SECTION 8725 OF THE CALIFORNIA BUSINESS AND PROFESSIONS CODE, AND SECTION 605 OF THE CALIFORNIA PENAL CODE TO ENSURE THAT MONUMENT CONSERVATION HAS BEEN PROPERLY ADDRESSED.
4. NOTHING ON THIS SURVEY SHALL BE INTERPRETED IN A MANNER CONTRARY TO THESE STATEMENTS.
5. PHYSICAL ITEMS SHOWN ON THIS SURVEY ARE LIMITED TO THOSE SURFACE-VISIBLE STRUCTURES, FACILITIES, AND FEATURES OBSERVED AT THE TIME OF THE FIELD SURVEY. SUBSURFACE OBJECTS, IF ANY, WERE NOT LOCATED BY THIS SURVEY.
6. BOUNDARY LINES (STREET CENTERLINES, ROAD RIGHTS-OF-WAY, PARCEL LINES, EASEMENTS, SECTION LINES, ETC.) ARE FOR CONCEPTUAL PURPOSES ONLY AND PLOTTED FROM RECORD INFORMATION ONLY.
7. THE FOLLOWING FLOODPLAIN INFORMATION IS RELEVANT TO THIS PROJECT:
   - 7.1. FIRM PANEL: 06009C0362F EFFECTIVE: 2017-05-16
   - 7.2. APPLICABLE FLOOD ZONE(S): ZONE X

SURVEY CONTROL

HORIZONTAL DATUM
NORTH AMERICAN DATUM OF 1983 (2011), EPOCH 2010.00.

BASIS OF BEARINGS AND COORDINATES
COORDINATES AND BEARING SHOWN HEREON ARE BASED ON THE LINE BETWEEN 15001 AND 15002, TAKEN AS BEARING S 78°40'27" W.

POINT	ELEVATION	COMBINED GRID FACTOR	MAPPING ANGLE
15000	774.29	1.00	-0D11'38.7"

VERTICAL DATUM
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

PROJECT BENCHMARK
3/4" IRON PIPE 126 FEET NORTHEAST OF A WASTE WATER TREATMENT PLANT BUILDING, 108 FEET NORTHEAST OF A TRANSFORMER, AND 63 FEET NORTH OF A POND
ELEVATION = 774.29 FEET (NAVD88) PT#=15000

CONTROL POINT TABLE

LOCATION	NORTHING	EASTING	DESCRIPTION
15000	2252091.14	6470539.41	SET ¾" IP
15001	22521116.86	6470489.05	SET ¾" IP
15002	2252007.42	6469942.60	SET MAG IN AC
15003	2251982.12	6470313.45	SET MAG IN AC
15004	2251853.12	6470400.62	SCRIBE X IN CONC
15005	2251630.80	6470195.37	SET ¾" IP

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

EXISTING WWTF SITE PLAN
SHEET 1 OF 2

90% SUBMITTAL JULY 2025

C100
DRAWING NUMBER

SHEET 7 OF 87

Plot Date: 7/23/2025 10:30 AM
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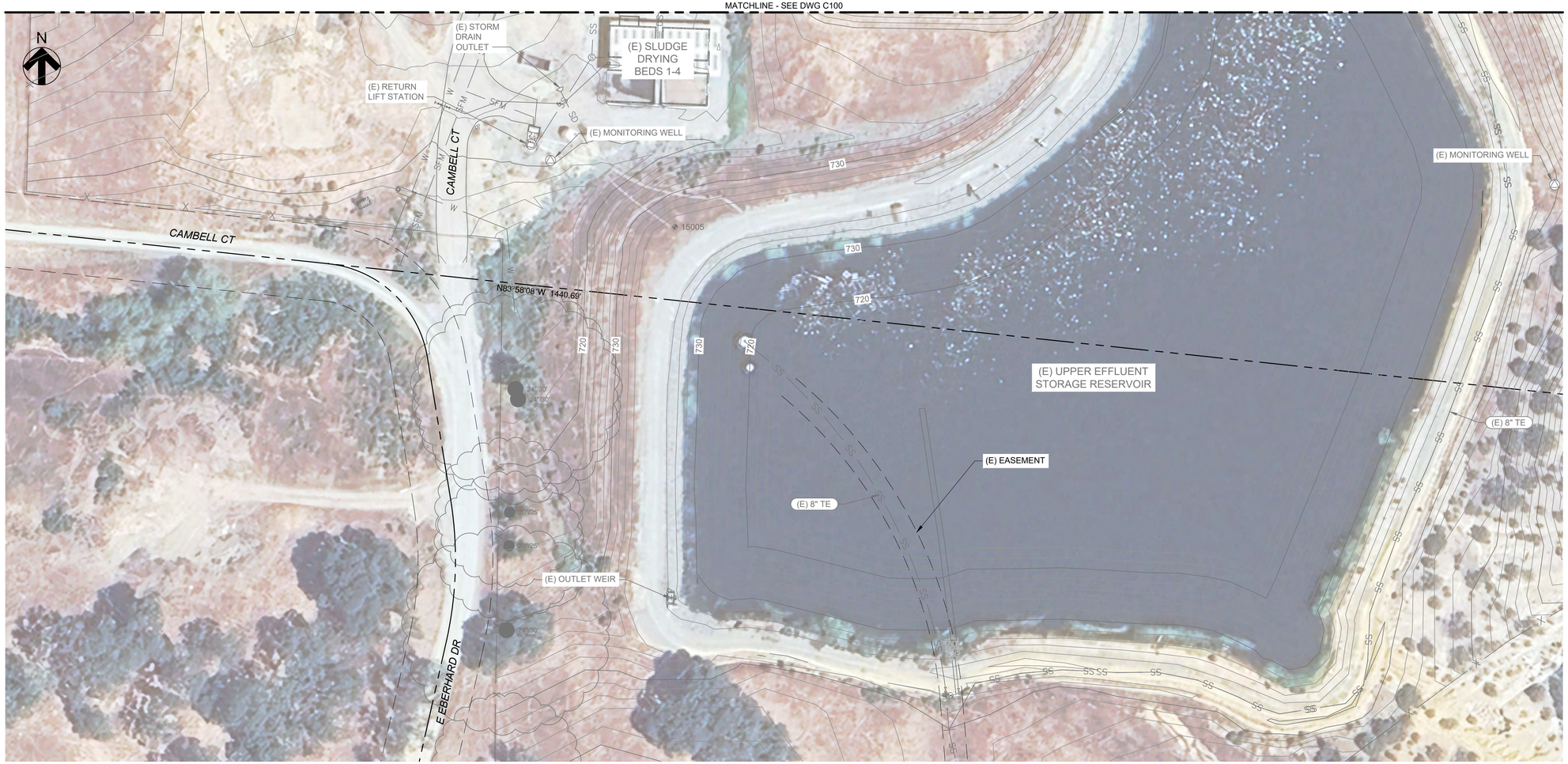
MATCHLINE - SEE DWG C100



EXISTING WWTF SITE PLAN

SCALE: 1" = 40'-0"

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PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

EXISTING WWTF SITE PLAN SHEET 2 OF 2

90% SUBMITTAL JULY 2025

C101

DRAWING NUMBER

SHEET 8 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:22 AM
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WWTF SITE DEMOLITION PLAN

SCALE: 1" = 40'-0"

NOTES

1. CONTRACTOR SHALL DEWATER HOLDING POND AND REMOVE SLUDGE AND UNSUITABLE SOILS AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. CONTRACTOR TO STOCKPILE MATERIALS IN A DISTRICT-DESIGNATED LOCATION ON THIS WWTF SITE. ASSUME A TOTAL VOLUME OF 600 CY OF WATER, SLUDGE, AND UNSUITABLE SOILS, 15% OF WHICH IS WATER.
2. ABANDON (E) 8" TE PIPE AND SECURE EACH PIPE END WITH WATERTIGHT SEAL PER DET 3/C902.

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PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF SITE DEMOLITION PLAN

90% SUBMITTAL JULY 2025

C102
DRAWING NUMBER

SHEET 9 OF 87

Plot Date: 7/23/2025 10:22 AM
Plotted By: ANTHONY PEREZ
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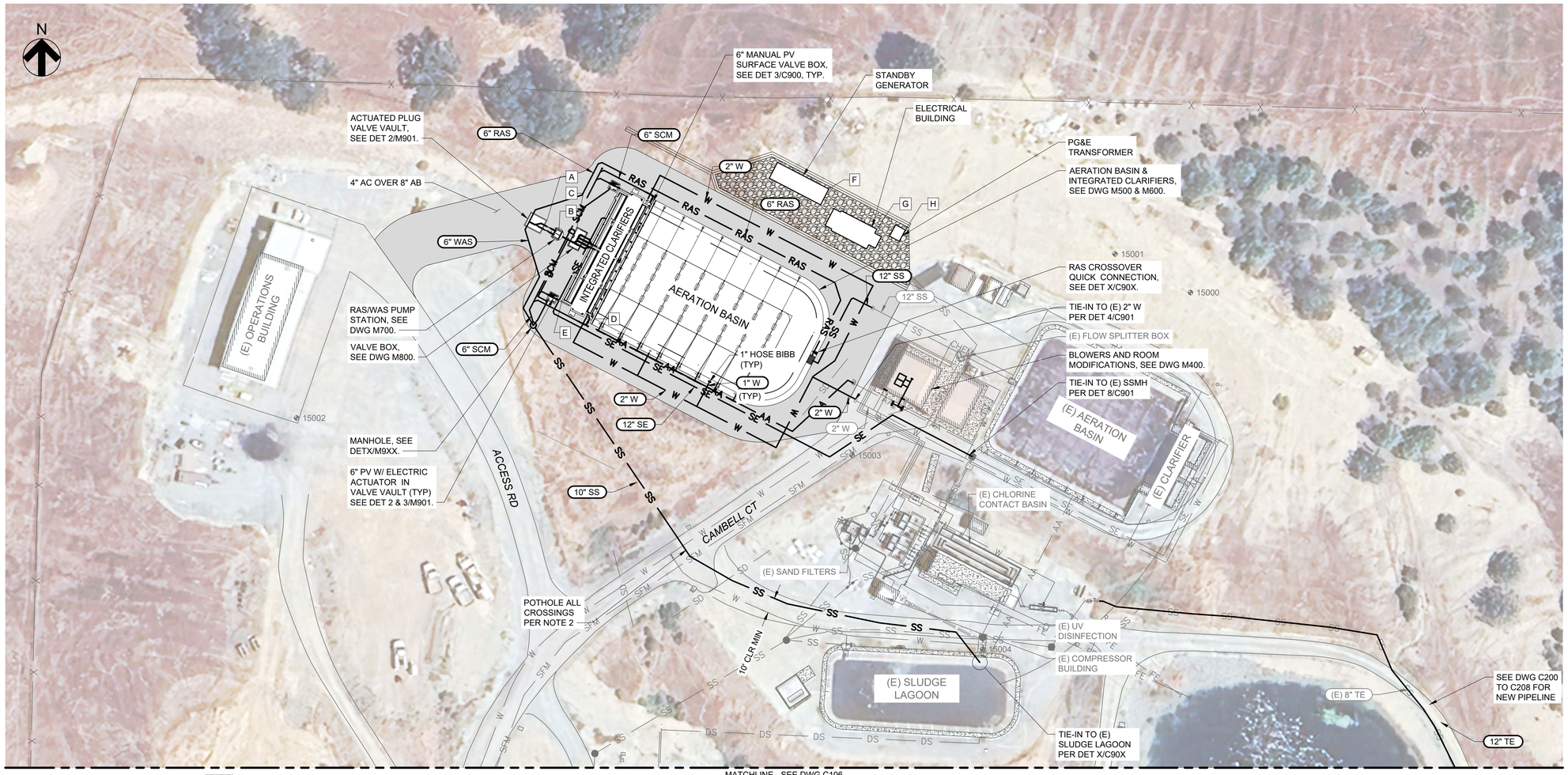

WWTF SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

NOTES

1. ALL PRESSURIZED PIPING WITHIN LIMITS OF PROJECT SHALL BE FULLY RESTRAINED VIA MECHANICAL RESTRAINING SYSTEMS, FLANGED, THREADED OR SOLVENT WELDED CONNECTORS. CONNECTOR TYPE SHALL BE PER SPECIFICATIONS.
2. LOCATIONS OF EXISTING PIPELINES ARE BASED UPON AS-BUILT RECORD DRAWINGS AND NOT CONFIRMED BY A PROFESSIONAL SURVEY OR POTHOLING. TO CONFIRM EACH UTILITIES HORIZONTAL AND VERTICAL POSITION, CONTRACTOR SHALL POTHOLE ACCORDINGLY TO CONFIRM ELEVATIONS AT EACH PLANNED UTILITY CROSSING AND SUBMIT POTHOLE RESULTS FOR APPROVAL PRIOR TO ORDERING MATERIALS.
3. PROVIDE THRUST BLOCKS AT ALL TIE-INS TO EXISTING PIPING PER DET 4/C902.
4. POTABLE WATER PIPE ("W") MINIMUM CLEARANCE REQUIREMENTS:
   - 4.1. PARALLEL TO SEWER OR HAZARDOUS FLUID PIPELINES: 10 FT MIN HORIZONTAL SEPARATION, 1 FT MIN VERTICAL SEPARATION (WATER LINE ABOVE).
   - 4.2. PARALLEL TO STORM DRAINAGE OR RECYCLED WATER: 4 FT MIN HORIZONTAL SEPARATION, 1 FT MIN VERTICAL SEPARATION (WATER LINE ABOVE).
   - 4.3. CROSSING ANY OF THE ABOVE NON-POTABLE FLUIDS: CROSSING SHALL BE PERPENDICULAR. WATER LINE SHALL BE 1 FT ABOVE NON-POTABLE PIPE. NO CONNECTION JOINTS SHALL BE MADE WITHIN 8 FT.
   - 4.4. ALL MEASUREMENTS TAKEN FROM OUTSIDE WALL OF PIPE.

STRUCTURE COORDINATES

LOCATION	NORTHING	EASTING
A	2252141.68	6470111.00
B	2252132.51	6470117.78
C	2252134.88	6470129.85
D	2252073.71	6470141.29
E	2252085.67	6470119.78
F	2252160.27	6470297.94
G	2252133.42	6470330.01
H	2252132.90	6470349.05

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF SITE AND PIPING PLAN

90% SUBMITTAL JULY 2025

C103
DRAWING NUMBER

SHEET 10 OF 87

Plot Date: 7/23/2025 10:17 AM
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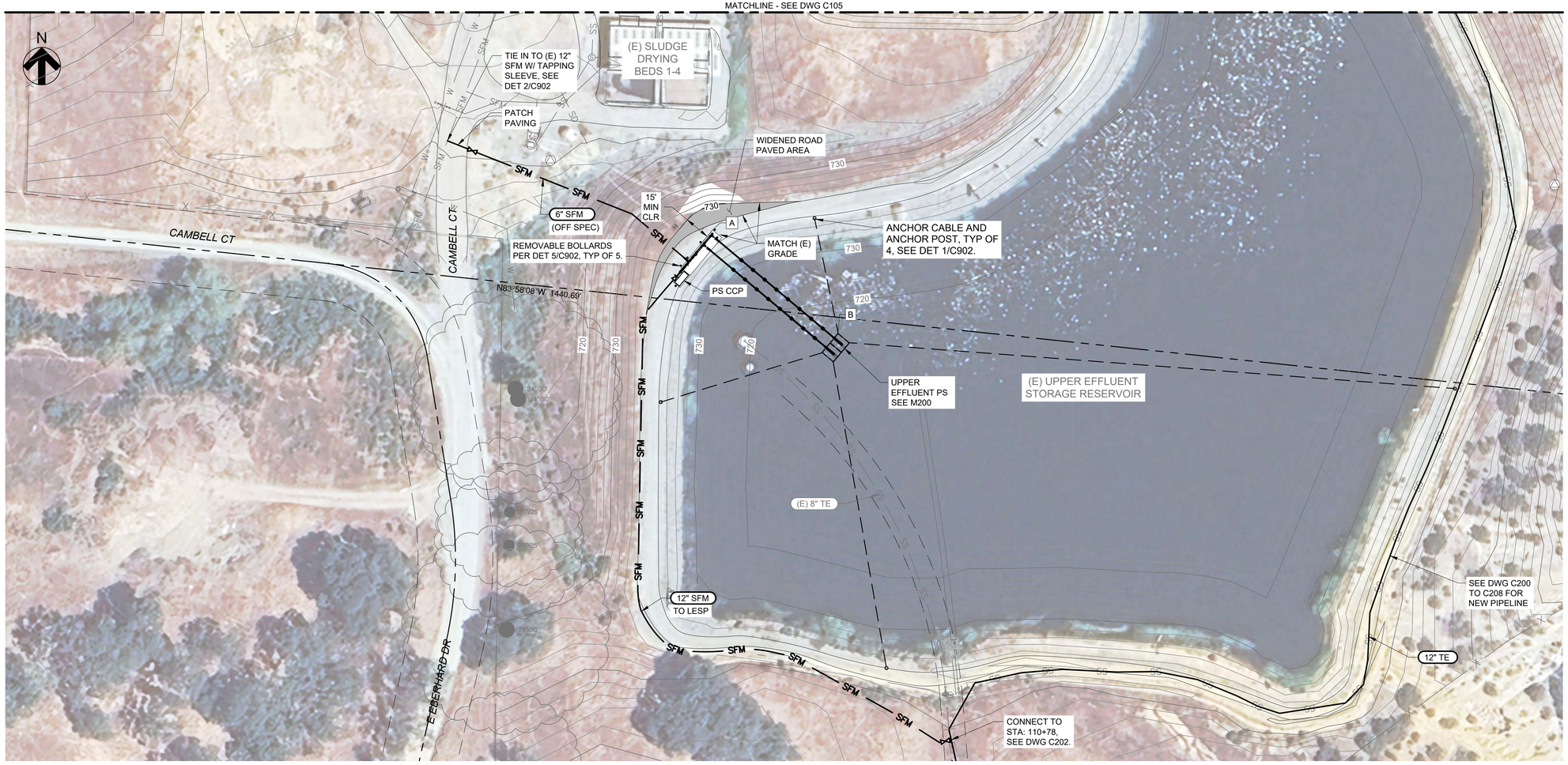
MATCHLINE - SEE DWG C105



WWTF/UESP PUMP STATION SITE AND PIPING PLAN

SCALE: 1" = 40'-0"

STRUCTURE COORDINATES

LOCATION	NORTHING	EASTING
A	2251628.60	6470220.39
B	2251559.58	6470304.07

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

WWTF/UESP PUMP STATION SITE AND PIPING PLAN

90% SUBMITTAL JULY 2025

C104
DRAWING NUMBER

SHEET 11 OF 87

Plot Date: 7/23/2025 10:27 AM
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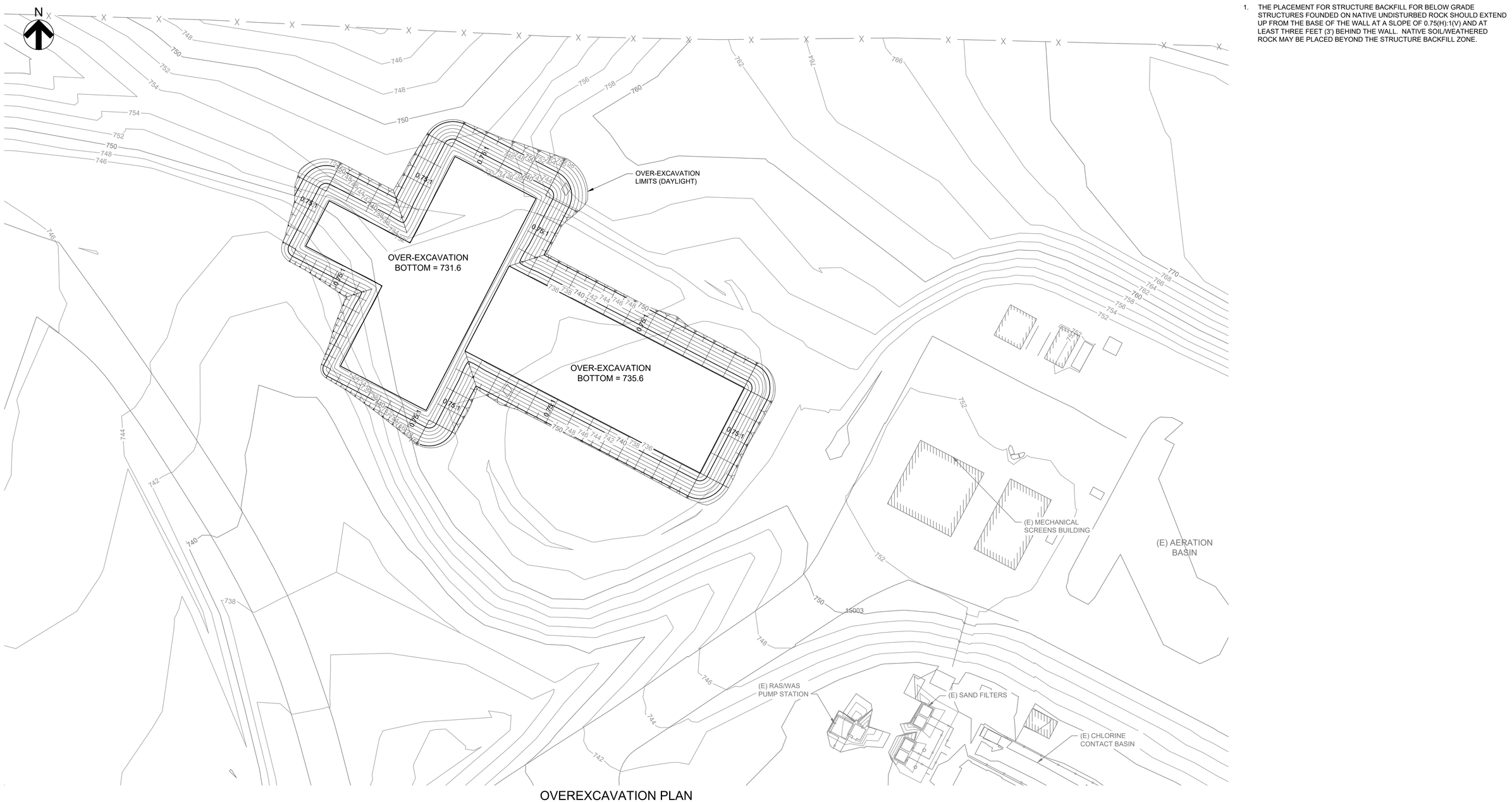
NOTES

1. THE PLACEMENT FOR STRUCTURE BACKFILL FOR BELOW GRADE STRUCTURES FOUNDED ON NATIVE UNDISTURBED ROCK SHOULD EXTEND UP FROM THE BASE OF THE WALL AT A SLOPE OF 0.75(H):1(V) AND AT LEAST THREE FEET (3') BEHIND THE WALL. NATIVE SOIL/WEATHERED ROCK MAY BE PLACED BEYOND THE STRUCTURE BACKFILL ZONE.



OVEREXCAVATION PLAN

SCALE: 1" = 20'-0"

NOT FOR CONSTRUCTION

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JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: MAF/AGP
DESIGNED BY: MAF/BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

OVEREXCAVATION PLAN

90% SUBMITTAL JULY 2025

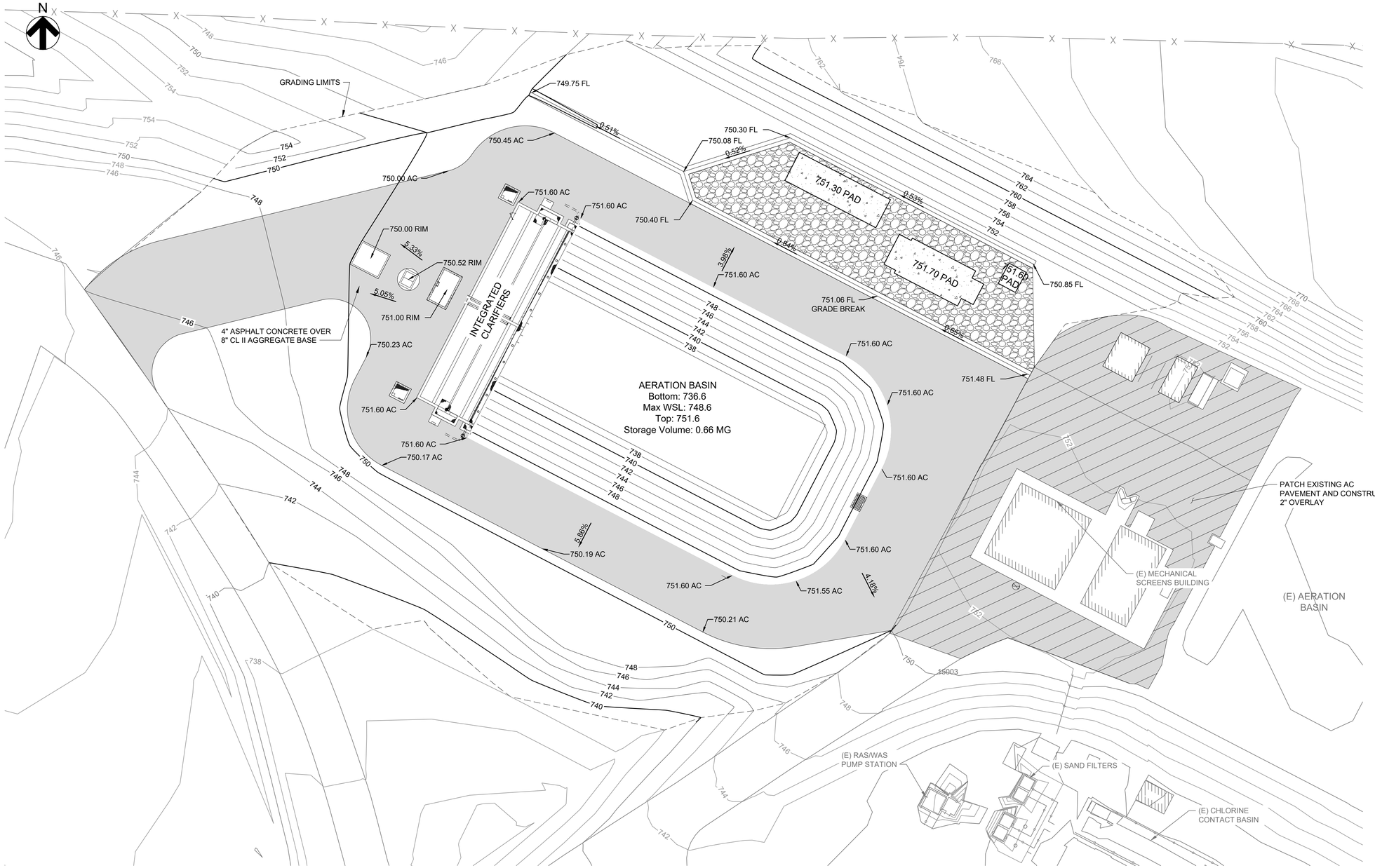
C105

DRAWING NUMBER

SHEET 12 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:29 AM

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-OX Plan.dwg



NOTES

1. PROVIDE 2% MIN SLOPE AWAY FROM STRUCTURES WITHIN 4 FT OF STRUCTURES.

GRADE BREAK

6" CL II AB

CONCRETE EQUIPMENT PAD

4" AC / 8" AB

2" AC OVERLAY

AERATION BASIN GRADING AND PAVING PLAN

SCALE: 1" = 20'-0"

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

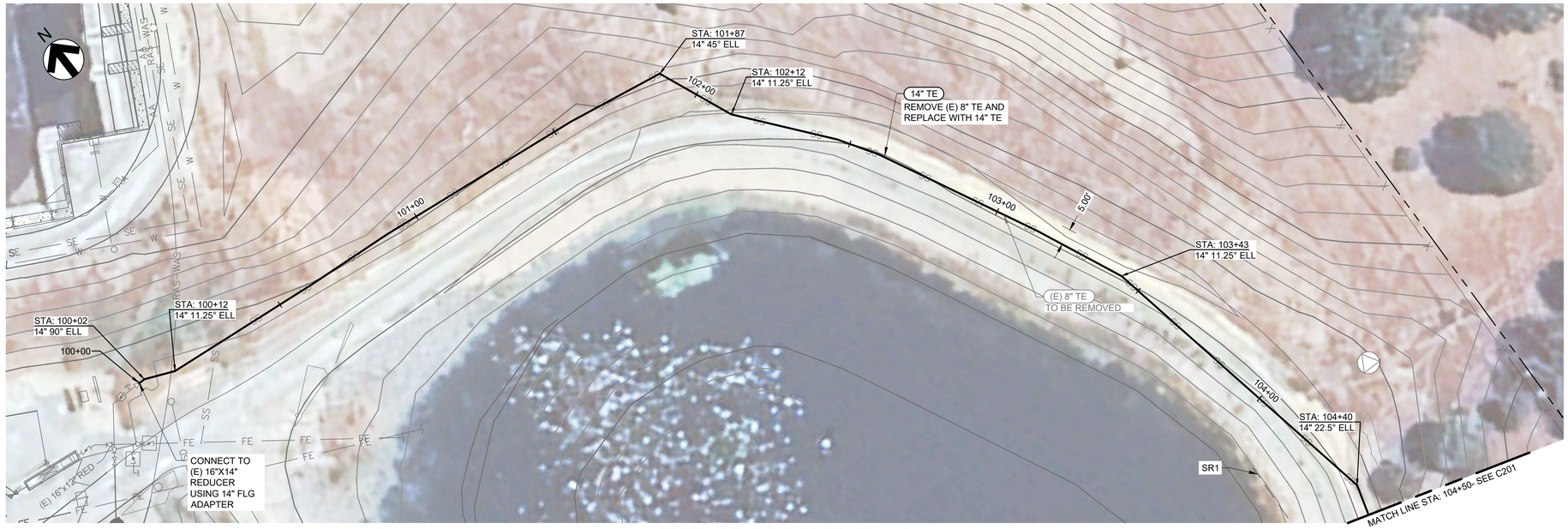
GRADING AND PAVING PLAN

90% SUBMITTAL JULY 2025

C106
DRAWING NUMBER

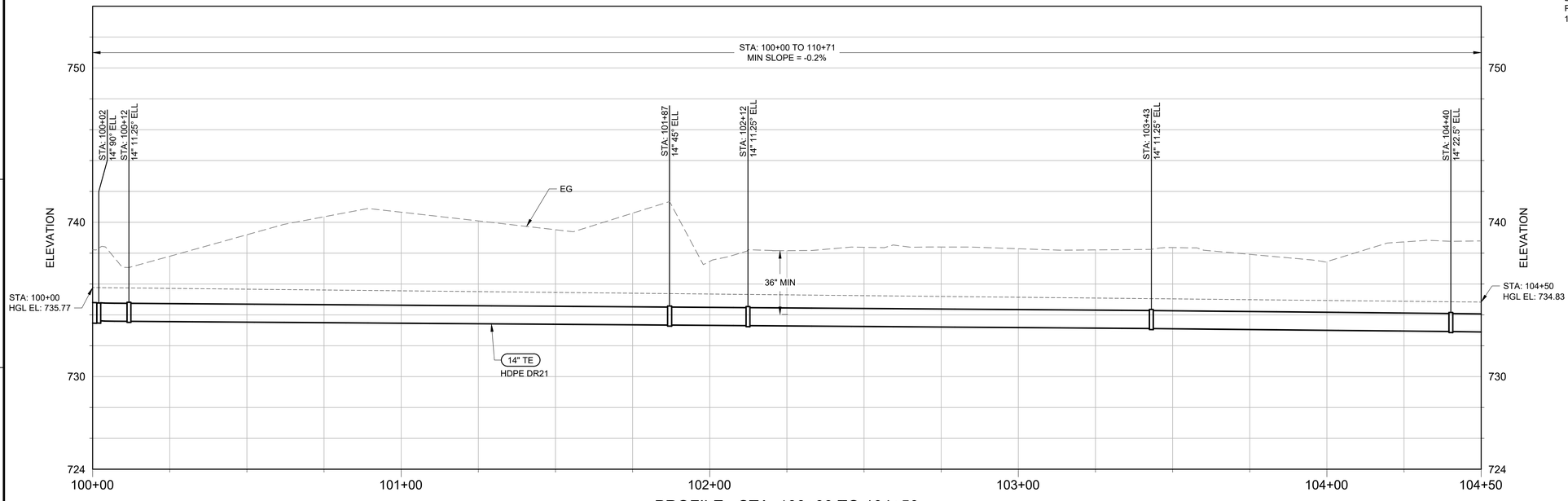
SHEET 13 OF 87

Plot Date: 7/23/2025 10:28 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Grading Plan.dwg



PLAN - STA: 100+00 TO 104+50

SCALE: 1" = 20'-0"



PROFILE - STA: 100+00 TO 104+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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10. TE PIPE FROM STA 133+16 TO STA 137+91 SHALL BE INSTALLED PRIOR TO SEPTEMBER 1ST WITHOUT INTERRUPTING DISTRICT'S OPERATIONS TO CONVEY EFFLUENT TO THE LOWER EFFLUENT STORAGE POND VIA THE (E) 8" TE PIPE. INTERCONNECTION OF THE PIPELINE AT STA 133+16 AND WORK WITHIN THE LOWER POND FROM STA 136+19 TO STA 137+91 SHALL BE COMPLETED AFTER SEPTEMBER 1ST.

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 100+00 TO 104+50

90% SUBMITTAL JULY 2025

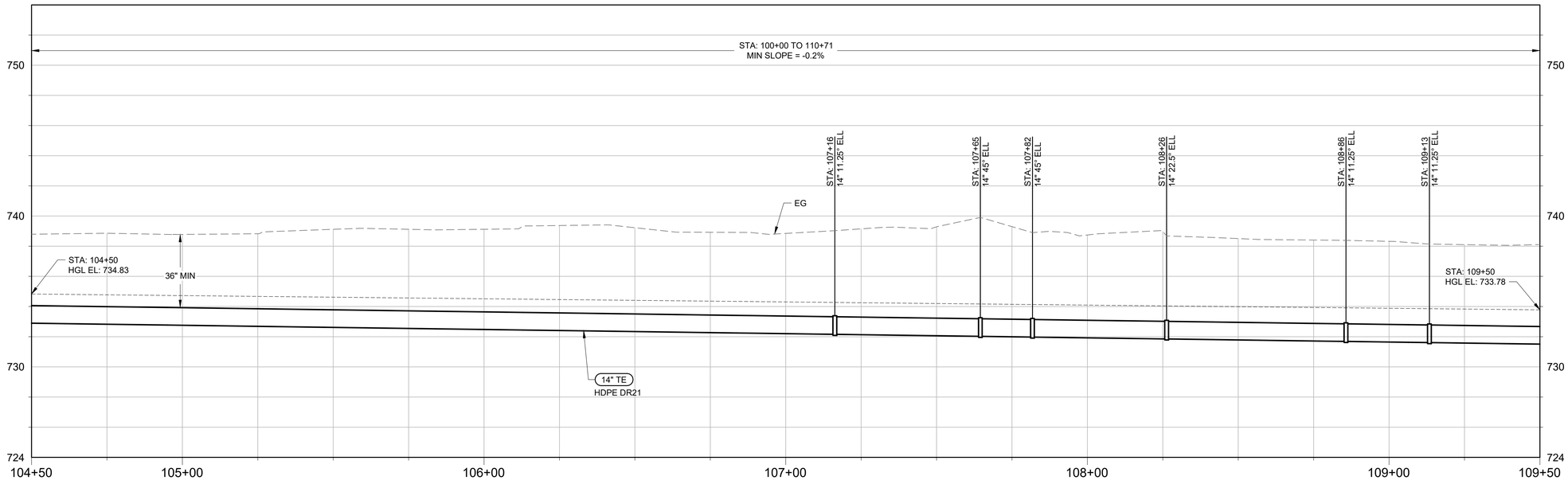
C200
DRAWING NUMBER

SHEET 14 OF 87

Plot Date: 7/23/2025 10:21 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg

PLAN - STA: 104+50 TO 109+50

SCALE: 1" = 20'-0"



PROFILE - STA: 104+50 TO 109+50

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VERTICAL SCALE: 1" = 4'-0"

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DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

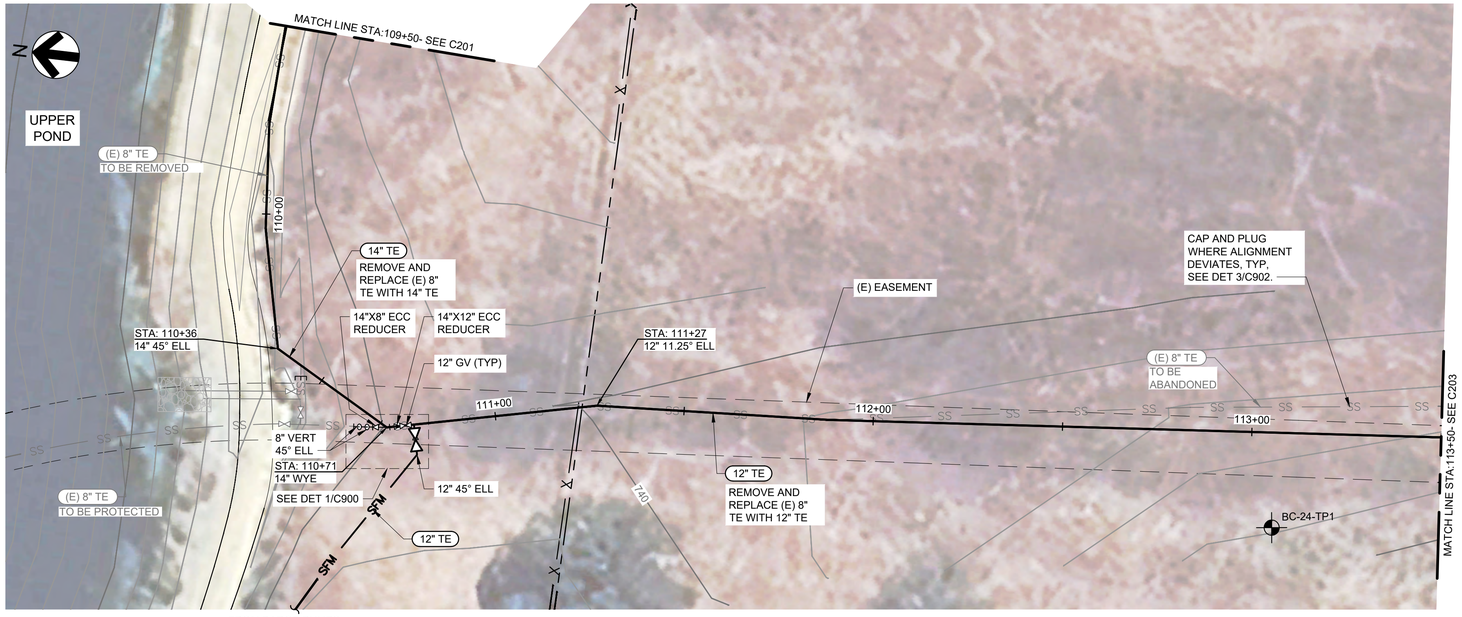
PIPELINE PLAN AND PROFILE STA: 104+50 TO 109+50

90% SUBMITTAL JULY 2025

C201
DRAWING NUMBER

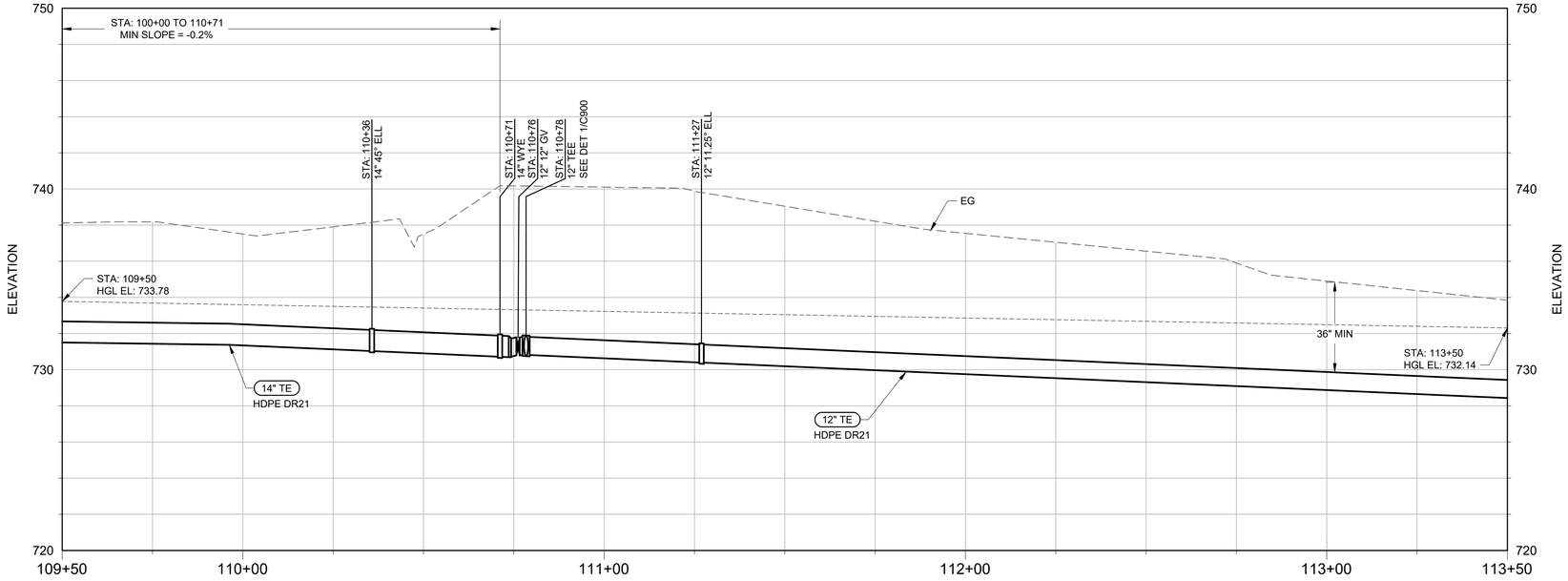
SHEET 15 OF 87

Plot Date: 7/23/2025 10:25 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg



PLAN - STA: 109+50 TO 113+50

SCALE: 1" = 20'-0"



PROFILE - STA: 109+50 TO 113+50

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DESIGNED BY: BF
PROJ. MGR.: WJS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 109+50 TO 113+50

90% SUBMITTAL JULY 2025

C202
DRAWING NUMBER

SHEET 16 OF 87

Plot Date: 7/23/2025 10:21 AM
Plotted By: ANTHONY PEREZ
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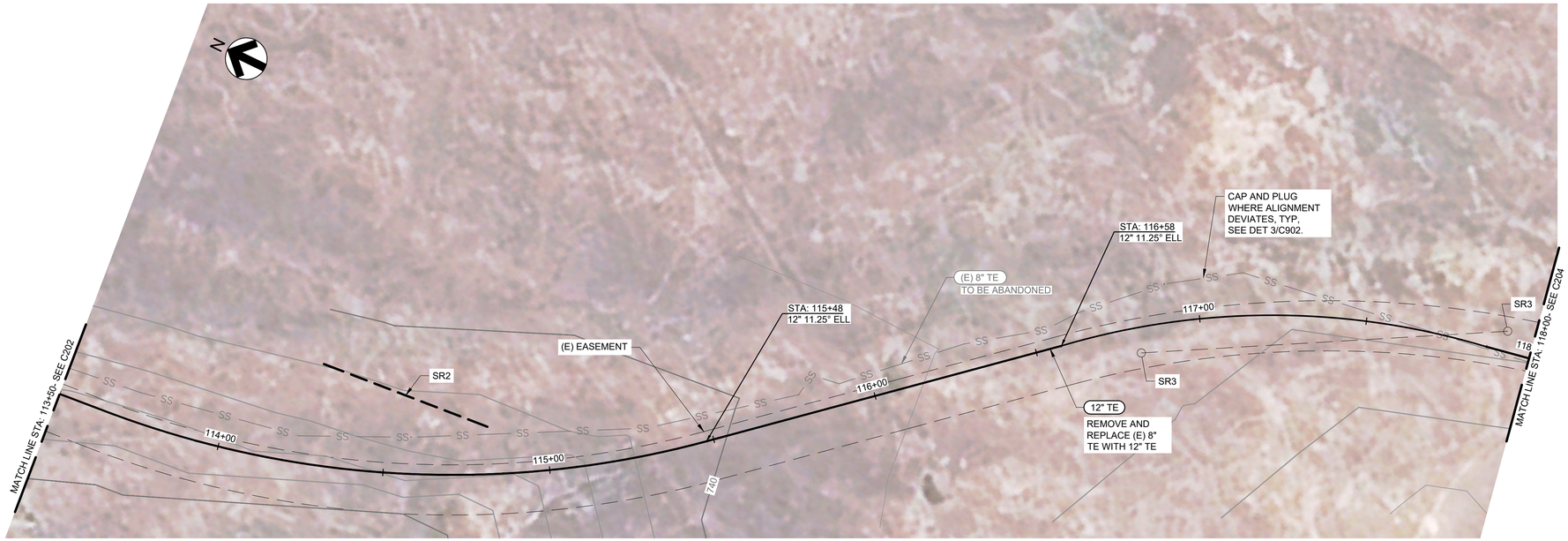
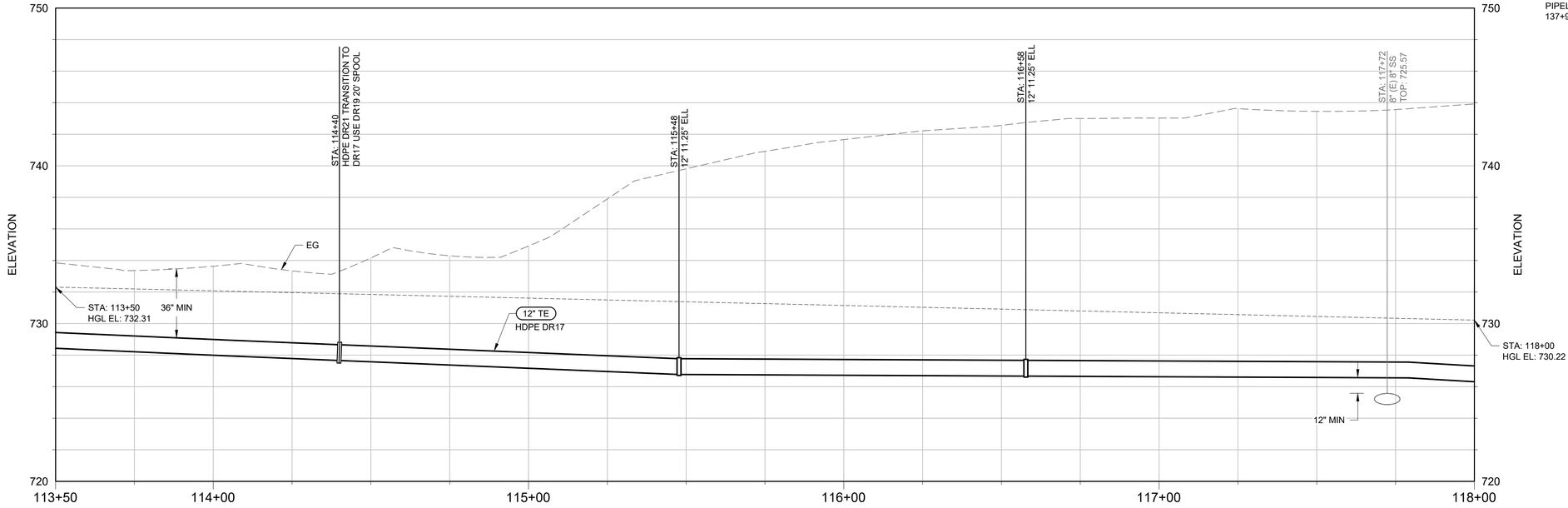


PLAN - STA: 113+50 TO 118+00

SCALE: 1" = 20'-0"



PROFILE - STA: 113+50 TO 118+00

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PIPELINE PLAN AND PROFILE STA: 113+50 TO 118+00

90% SUBMITTAL JULY 2025

C203
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SHEET 17 OF 87

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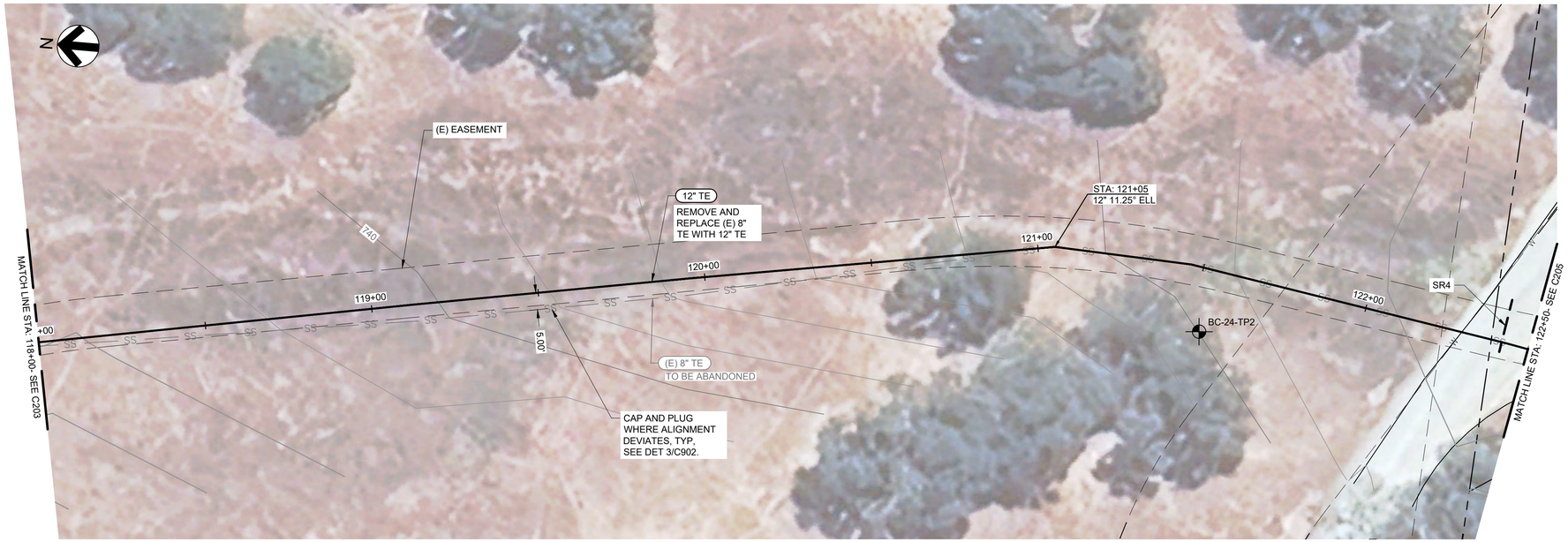
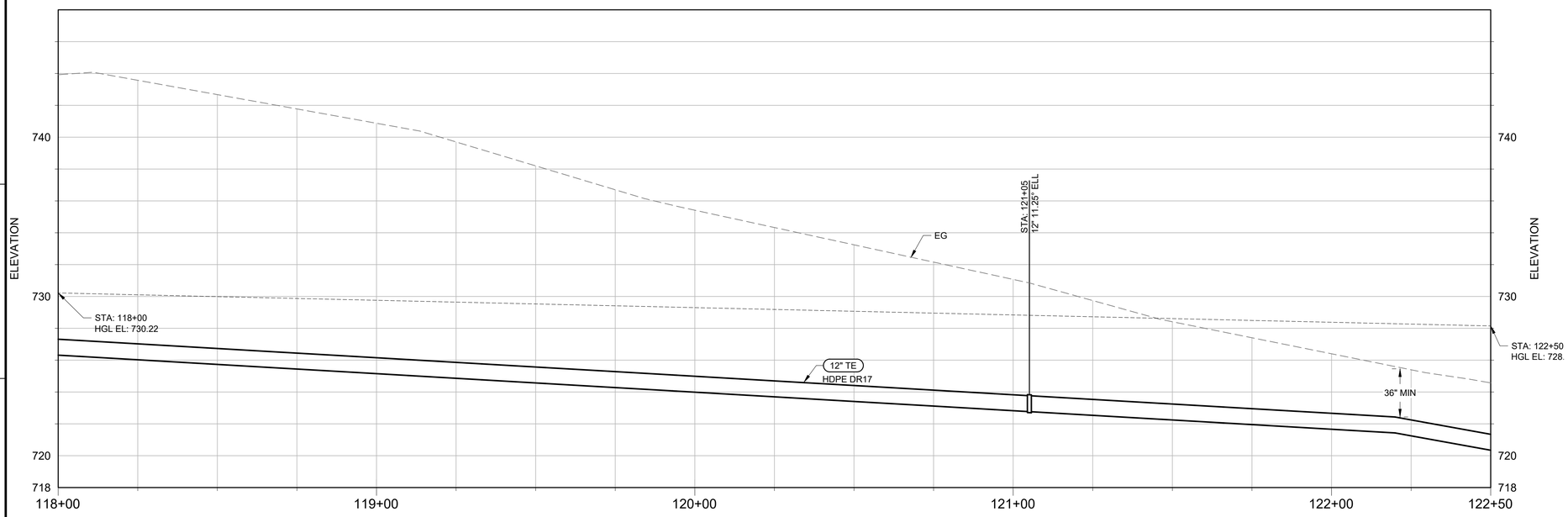


PLAN - STA: 118+00 TO 122+50

SCALE: 1" = 20'-0"



PROFILE - STA: 118+00 TO 122+50

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DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 118+00 TO 122+50

90% SUBMITTAL JULY 2025

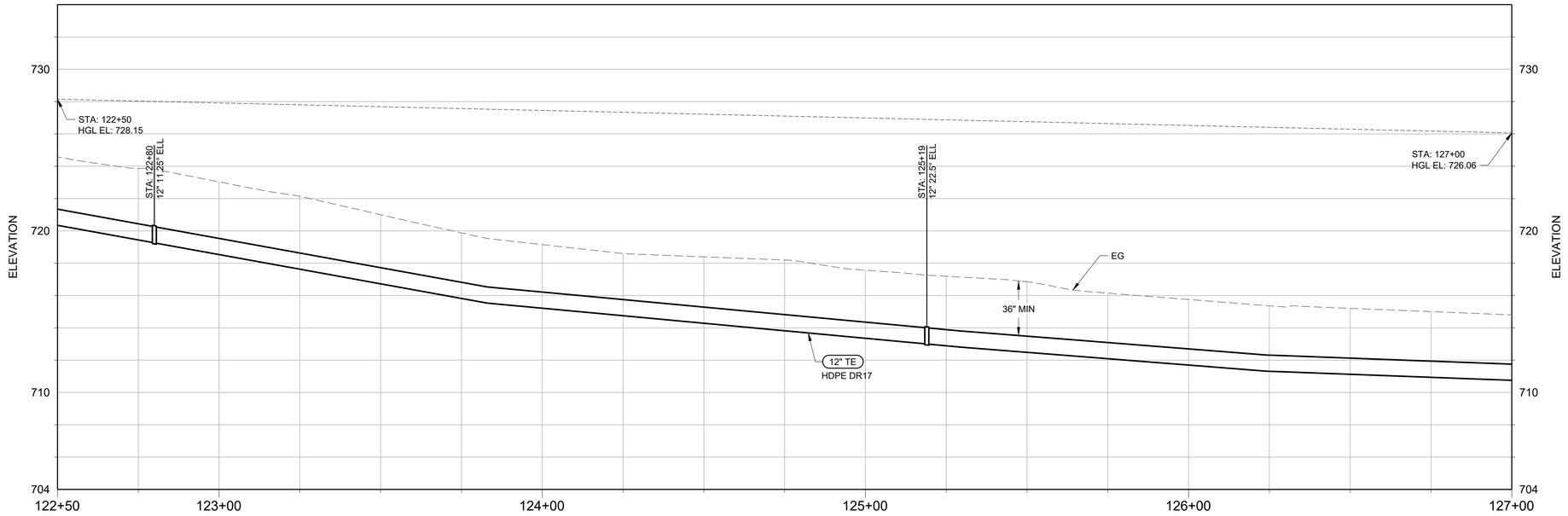
C204
DRAWING NUMBER

SHEET 18 OF 87

Plot Date: 7/23/2025 10:27 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Pipeline Plan & Profile.dwg

PLAN - STA: 122+50 TO 127+00

SCALE: 1" = 20'-0"



PROFILE - STA: 122+50 TO 127+00

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 122+50 TO 127+00

90% SUBMITTAL JULY 2025

C205
DRAWING NUMBER

SHEET 19 OF 87

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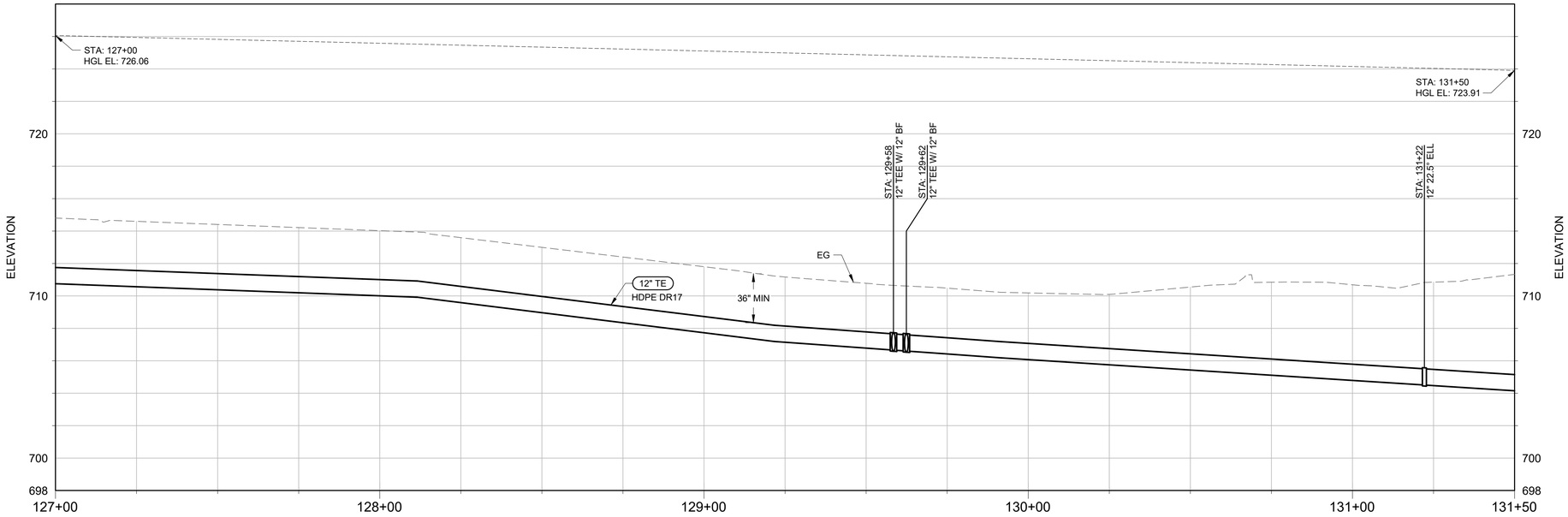
PLAN - STA: 127+00 TO 131+50

SCALE: 1" = 20'-0"



PROFILE - STA: 127+00 TO 131+50

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 127+00 TO 131+50

90% SUBMITTAL JULY 2025

C206
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SHEET 20 OF 87

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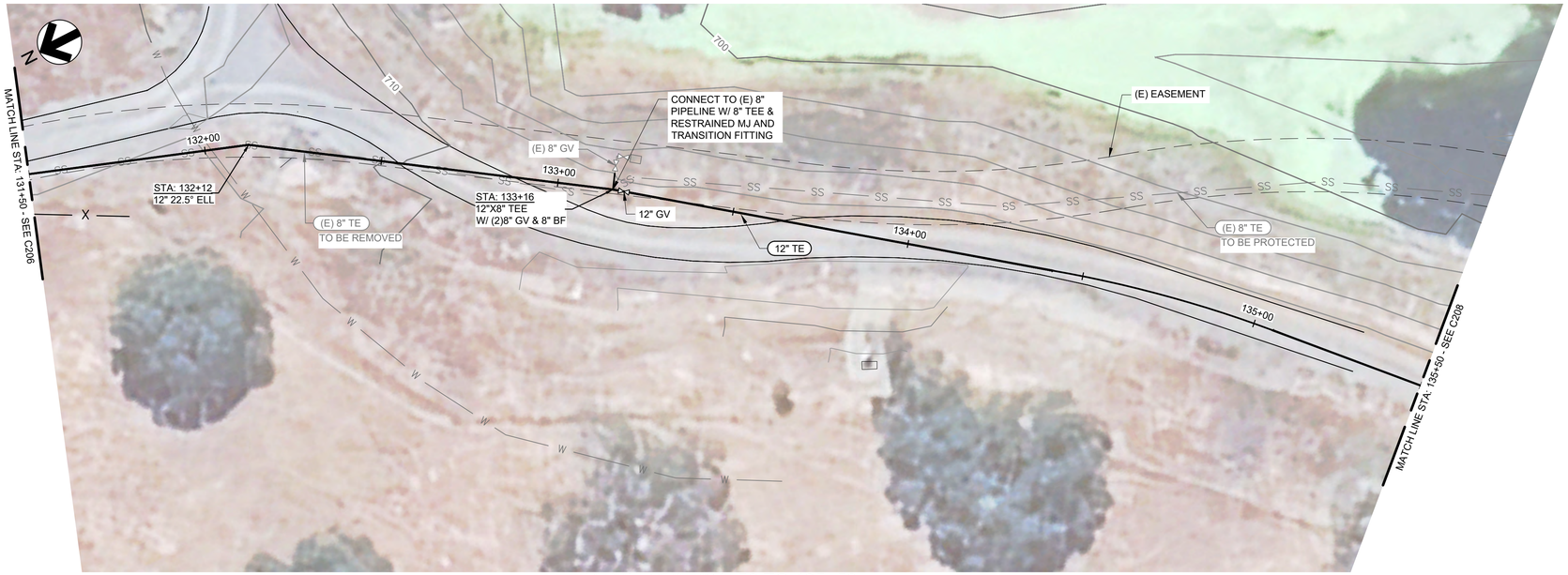
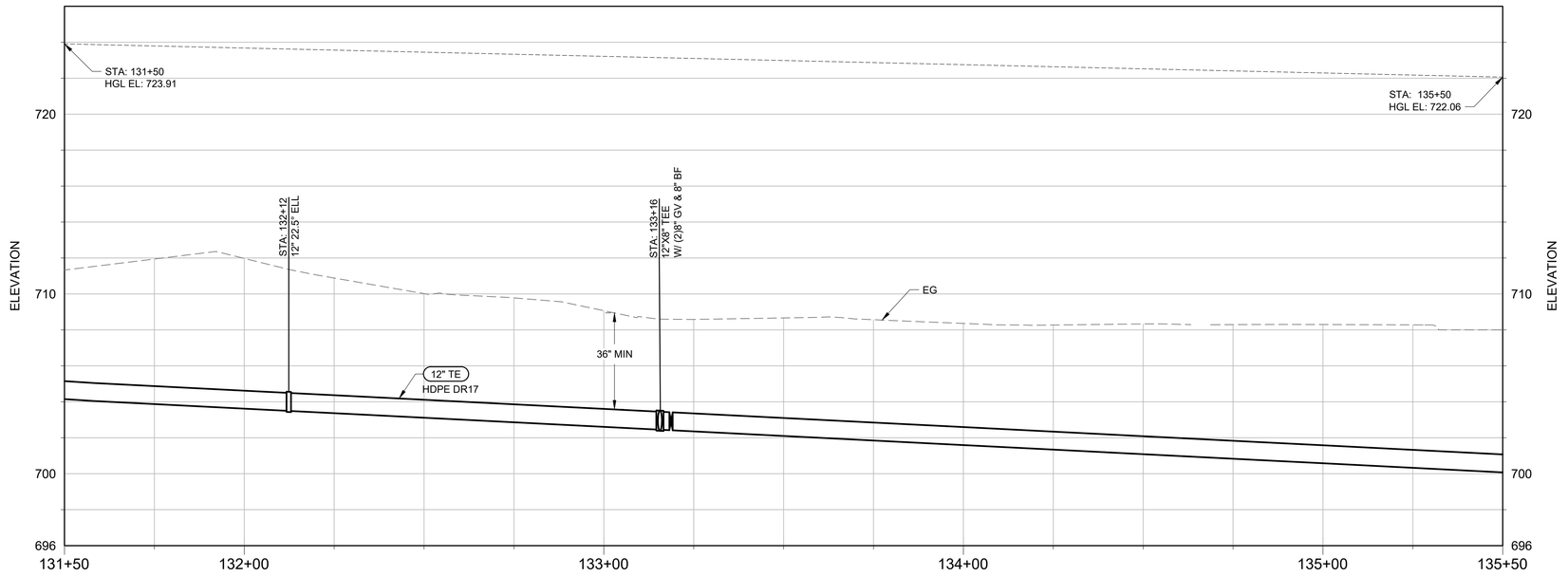


PLAN - STA: 131+50 TO 135+50

SCALE: 1" = 20'-0"



PROFILE - STA: 131+50 TO 135+50

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DESIGNED BY: BF
PROJ. MGR.: WJS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 131+50 TO 135+50

90% SUBMITTAL JULY 2025

C207
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SHEET 21 OF 87

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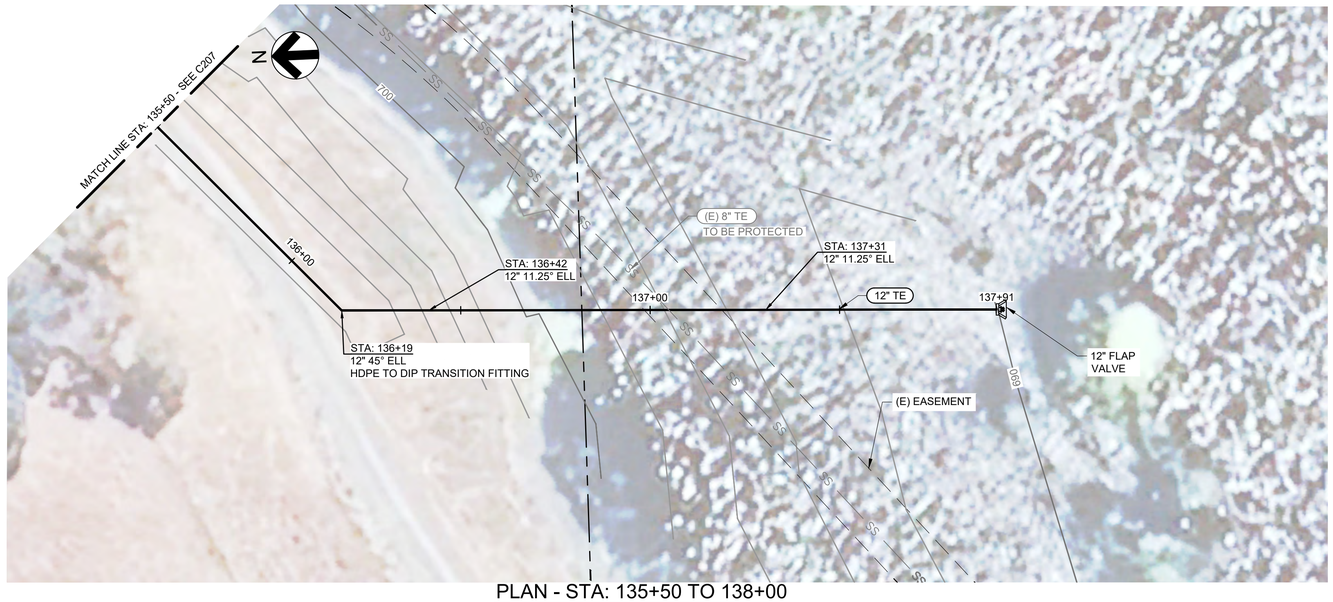
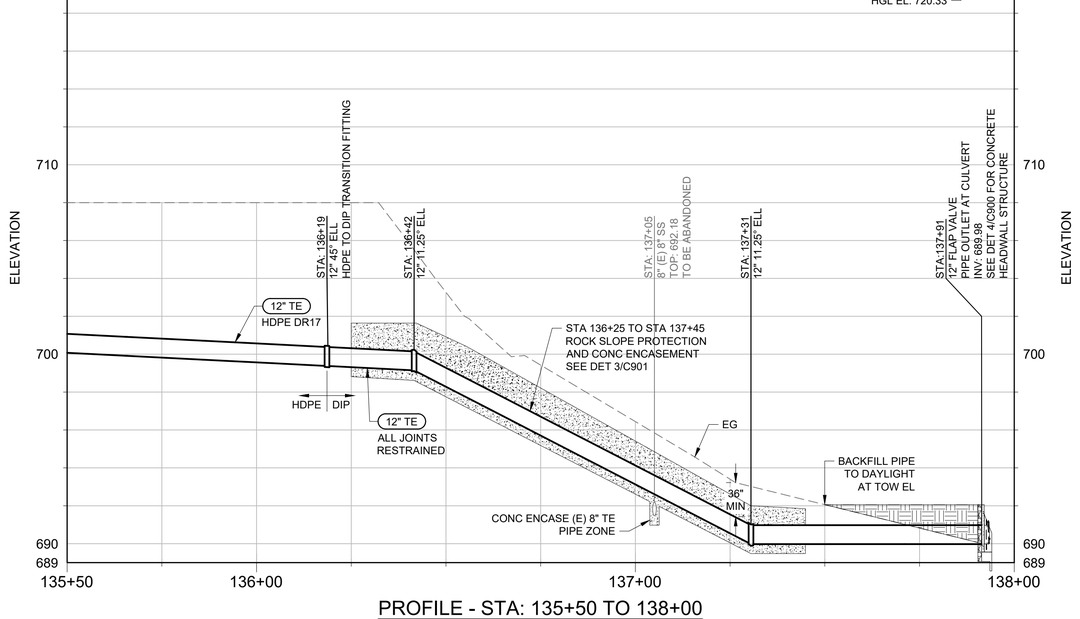


PLAN - STA: 135+50 TO 138+00

SCALE: 1" = 20'-0"



PROFILE - STA: 135+50 TO 138+00

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PIPELINE PLAN AND PROFILE STA: 135+50 TO 138+00

90% SUBMITTAL JULY 2025

C208
DRAWING NUMBER

SHEET 22 OF 87

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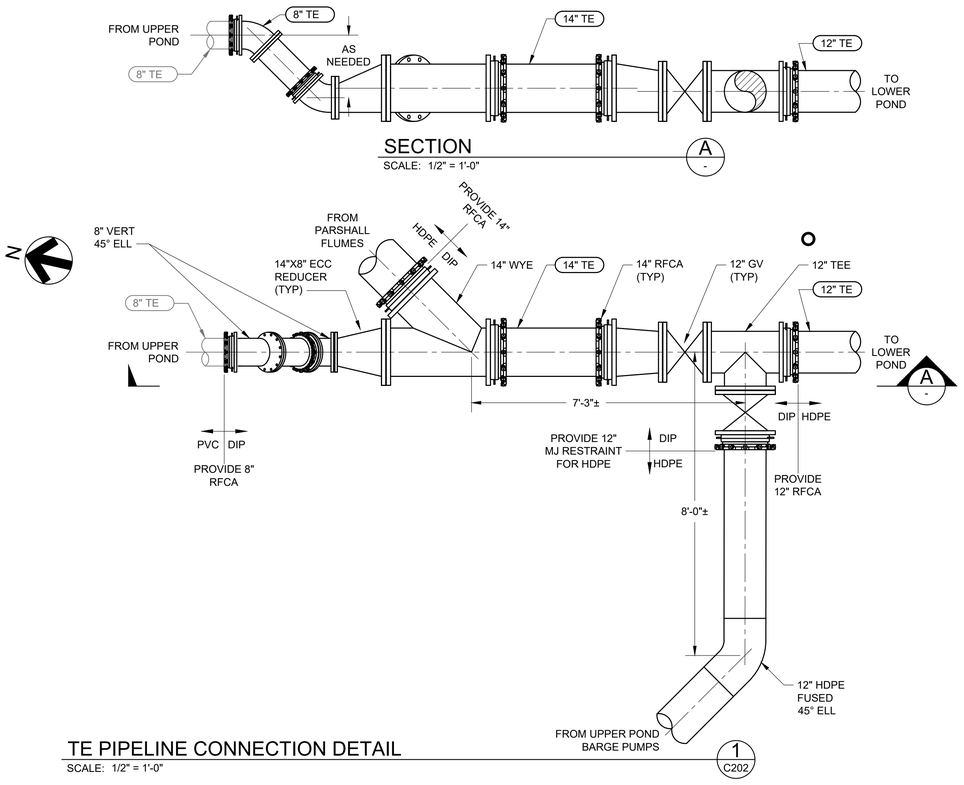
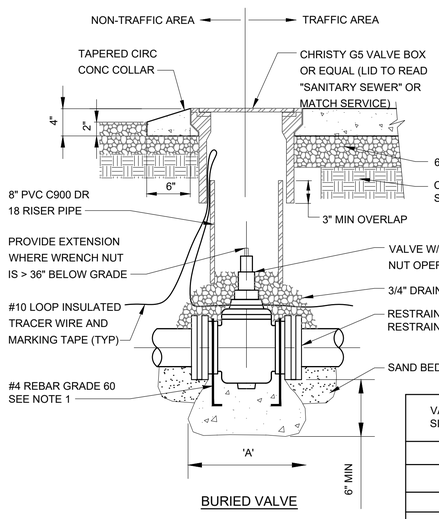


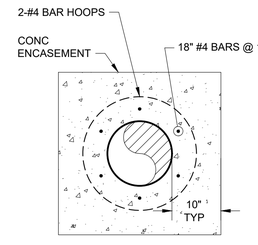


NOTES

1. ALL ANCHOR RODS ARE TO BE COVERED WITH BITUMASTIC COMPOUND.
2. THE ANCHOR BLOCK SHALL BE KEYED NO LESS THAN 12 INCHES INTO UNDISTURBED SOIL OF THE TRENCH WALL AND NO LESS THAN 6 INCHES INTO THE TRENCH BOTTOM.
3. ANCHORS ARE TO BE INSTALLED ON ALL VALVES 6" AND LARGER UNLESS OTHERWISE NOTED ON PLANS.
4. FOOTING SHALL BE 12 INCHES (MIN) WIDER THAN THE TRENCH WALLS.

VALVE SIZE	ANCHOR BLOCK DIMENSIONS	
	'A' (FT)	'B' (FT)
6	1.5	1.0
8	1.5	1.0
10	2.0	1.5
12	2.0	1.5

VALVE BOX DETAIL
SCALE: NONE
3
VAR

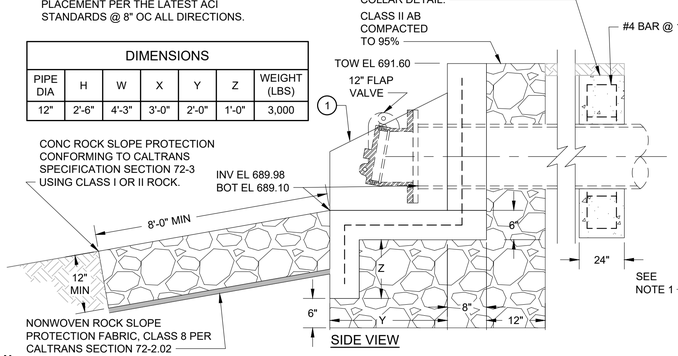


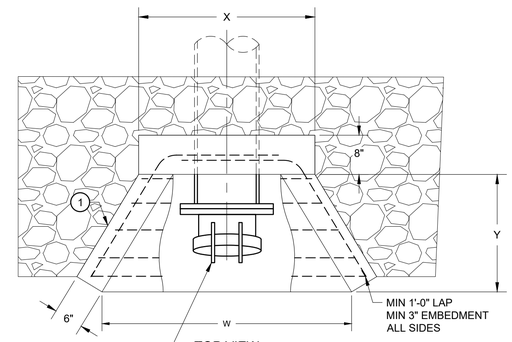
COLLAR DETAIL

NOTES

1. PRECAST OR CAST IN PLACE CONCRETE HEADWALL.
2. BLOCKOUT HOLE FOR PIPING
3. CONCRETE:
   CLASS II CONCRETE WITH A DESIGN STRENGTH OF 4,500 PSI AT 28 DAYS. UNIT SHALL BE MONOLITHIC CONSTRUCTION INCLUDING WALLS AND FLOOR.
4. REINFORCEMENT:
   GRADE 60 REINFORCED. NO. 4 STEEL REBAR @ 8" OC MAX ALL DIRECTIONS TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL. BAR BENDING AND PLACEMENT PER THE LATEST ACI STANDARDS @ 8" OC ALL DIRECTIONS.

DIMENSIONS						
PIPE DIA	H	W	X	Y	Z	WEIGHT (LBS)
12"	2'-6"	4'-3"	3'-0"	2'-0"	1'-0"	3,000





CONCRETE HEADWALL DETAIL
SCALE: NTS
4
VAR

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HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP/SEW
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

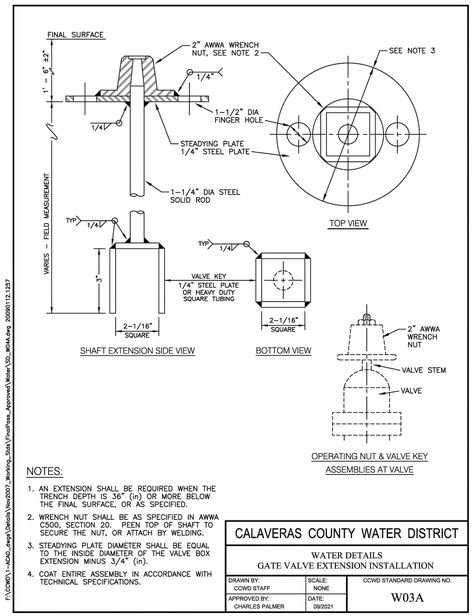
CIVIL DETAILS - 1

90% SUBMITTAL JULY 2025

C900
DRAWING NUMBER

SHEET 23 OF 87

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-C-Details.dwg
Plotted By: ANTHONY PEREZ
Plot Date: 7/23/2025 10:32 AM



NOTES:

1. AN EXTENSION SHALL BE REQUIRED WHEN THE TRENCH DEPTH IS 36" (in) OR MORE BELOW THE FINAL SURFACE, OR AS SPECIFIED.
2. WRENCH NUT SHALL BE AS SPECIFIED IN AWWA C500, SECTION 20. PEEN TOP OF SHAFT TO SECURE THE NUT, OR ATTACH BY WELDING.
3. STEADYING PLATE DIAMETER SHALL BE EQUAL TO THE INSIDE DIAMETER OF THE VALVE BOX EXTENSION MINUS 3/4" (in).
4. COAT ENTIRE ASSEMBLY IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.

CALAVERAS COUNTY WATER DISTRICT		
WATER DETAILS GATE VALVE EXTENSION INSTALLATION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED BY: CHARLES PALMER	DATE: 09/2021	W03A

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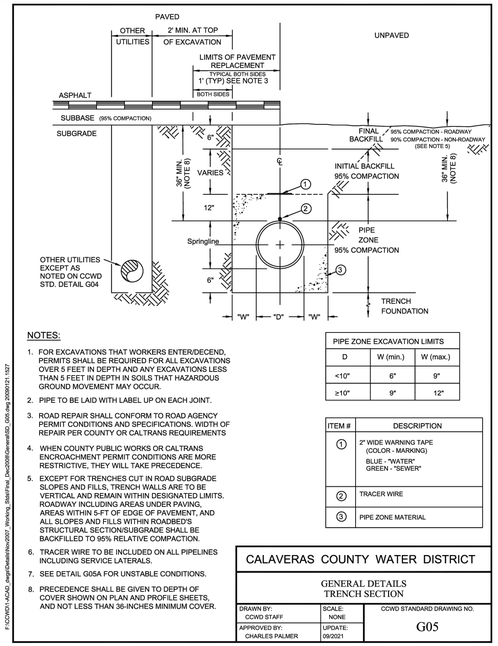
CCWD DETAIL W03A (1 VAR)
SCALE: NTS



NOTES:

1. FOR EXCAVATIONS THAT WORKERS ENTER/DECEND, PERMITS SHALL BE REQUIRED FOR ALL EXCAVATIONS OVER 5 FEET IN DEPTH AND ANY EXCAVATIONS LESS THAN 5 FEET IN DEPTH IN SOILS THAT HAZARDOUS GROUND MOVEMENT MAY OCCUR.
2. PIPE TO BE LAID WITH LABEL UP ON EACH JOINT.
3. ROAD REPAIR SHALL CONFORM TO ROAD AGENCY PERMIT CONDITIONS AND SPECIFICATIONS. WIDTH OF REPAIR PER COUNTY OR CALTRANS REQUIREMENTS
4. WHEN COUNTY PUBLIC WORKS OR CALTRANS ENCROACHMENT PERMIT CONDITIONS ARE MORE RESTRICTIVE, THEY WILL TAKE PRECEDENCE.
5. EXCEPT FOR TRENCHES CUT IN ROAD SUBGRADE SLOPES AND FILLS, TRENCH WALLS ARE TO BE VERTICAL AND REMAIN WITHIN DESIGNATED LIMITS. ROADWAY INCLUDING AREAS UNDER PAVING, AREAS WITHIN 5-FT OF EDGE OF PAVEMENT, AND ALL SLOPES AND FILLS WITHIN ROADBED'S STRUCTURAL SECTION/SUBGRADE SHALL BE BACKFILLED TO 95% RELATIVE COMPACTION.
6. TRACER WIRE TO BE INCLUDED ON ALL PIPELINES INCLUDING SERVICE LATERALS.
7. SEE DETAIL G05A FOR UNSTABLE CONDITIONS.
8. PRECEDENCE SHALL BE GIVEN TO DEPTH OF COVER SHOWN ON PLAN AND PROFILE SHEETS, AND NOT LESS THAN 36-INCHES MINIMUM COVER.

PIPE ZONE EXCAVATION LIMITS		
D	W (min.)	W (max.)
<10"	6"	9"
≥10"	9"	12"

ITEM #	DESCRIPTION
①	2" WIDE WARNING TAPE (COLOR - MARKING) BLUE - "WATER" GREEN - "SEWER"
②	TRACER WIRE
③	PIPE ZONE MATERIAL

CALAVERAS COUNTY WATER DISTRICT		
GENERAL DETAILS TRENCH SECTION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED BY: CHARLES PALMER	UPDATE: 09/2021	G05

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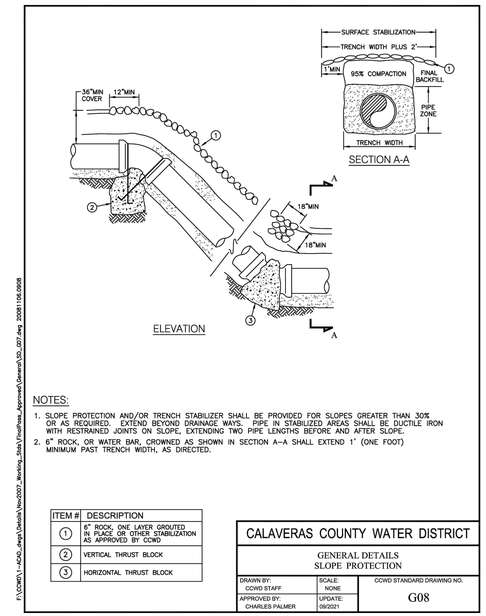
CCWD DETAIL G05 (2 VAR)
SCALE: NTS



NOTES:

1. SLOPE PROTECTION AND/OR TRENCH STABILIZER SHALL BE PROVIDED FOR SLOPES GREATER THAN 30% OR AS REQUIRED. EXTEND BEYOND DRAINAGE WAYS. PIPE IN STABILIZED AREAS SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS ON SLOPE, EXTENDING TWO PIPE LENGTHS BEFORE AND AFTER SLOPE.
2. 6" ROCK, OR WATER BAR, CROWNED AS SHOWN IN SECTION A–A SHALL EXTEND 1' (ONE FOOT) MINIMUM PAST TRENCH WIDTH, AS DIRECTED.

ITEM #	DESCRIPTION
①	6" ROCK, ONE LAYER GROUTED IN PLACE OR OTHER STABILIZATION AS APPROVED BY CCWD
②	VERTICAL THRUST BLOCK
③	HORIZONTAL THRUST BLOCK

CALAVERAS COUNTY WATER DISTRICT		
GENERAL DETAILS SLOPE PROTECTION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED BY: CHARLES PALMER	UPDATE: 09/2021	G08

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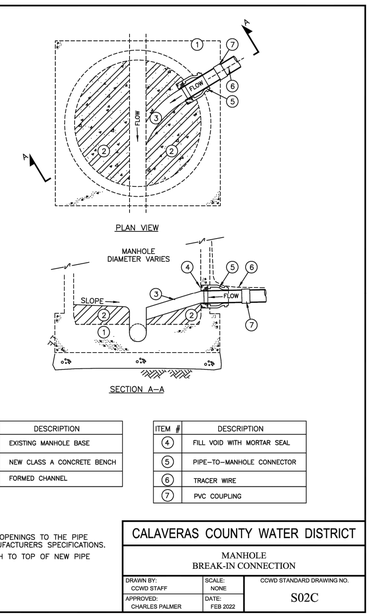
CCWD DETAIL G08 (3 VAR)
SCALE: NTS



ITEM #	DESCRIPTION
①	EXISTING MANHOLE BASE
②	NEW CLASS A CONCRETE BENCH
③	FORMED CHANNEL

ITEM #	DESCRIPTION
④	FILL VOID WITH MORTAR SEAL
⑤	PIPE–TO–MANHOLE CONNECTOR
⑥	TRACER WIRE
⑦	PVC COUPLING

NOTES

1. CORE DRILL ALL OPENINGS TO THE PIPE CONNECTOR MANUFACTURERS SPECIFICATIONS.
2. POUR NEW BENCH TO TOP OF NEW PIPE

CALAVERAS COUNTY WATER DISTRICT		
MANHOLE BREAK-IN CONNECTION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: FEB 2022	S02C

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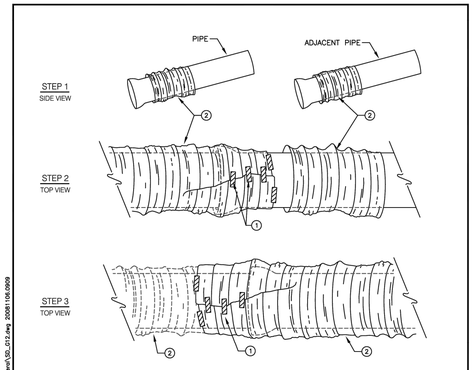
CCWD DETAIL S02C (4 VAR)
SCALE: NTS



FIELD INSTALLATION - POLYETHYLENE WRAP

STEP 1: PLACE TUBE OF POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING INTO TRENCH.

STEP 2: PULL THE TUBE OVER THE LENGTH OF THE PIPE AND TAPE TO TOP OF PIPE AT JOINT. FOLD THE MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE PLASTIC TUBE IN PLACE.

STEP 3: OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH UTILITY TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF THE PIPE AND TAPED IN PLACE.

ITEM #	DESCRIPTION
①	UTILITY TAPE
②	PIPE WRAP

CALAVERAS COUNTY WATER DISTRICT		
GENERAL DETAILS POLYETHYLENE WRAP		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED BY: CHARLES PALMER	UPDATE: 09/2021	G13

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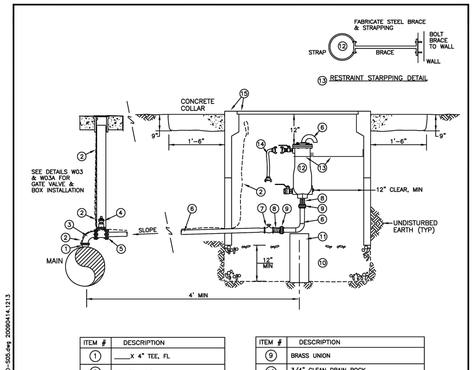
SCALE: NTS



ITEM #	DESCRIPTION
①	____X 4" TEE, FL
②	TRACER WIRE
③	4" BEND, FL
④	4" GATE VALVE, FL, INSTALLED PER DETAIL W03& W03A
⑤	4"x2" FL THREADED REDUCER
⑥	2" BRASS PIPE & FITTINGS
⑦	BRASS BALL VALVE FIP x FIP
⑧	2" BRASS THREADED NIPPLE

ITEM #	DESCRIPTION
⑨	BRASS UNION
⑩	3/4" CLEAN DRAIN ROCK
⑪	CONCRETE SUPPORT BLOCK TO NATIVE SOIL
⑫	SEWAGE COMBINATION AIR VALVE
⑬	RESTRAINT STRAPPING SEE DETAIL ABOVE
⑭	FLUSING HOSE W/ QUICK DISCONNECT COUPLING ON EACH END
⑮	UTILITY BOX, B40

NOTES:

1. ENGINEER TO SPECIFY SIZE OF VALVE.
2. AIR VALVES LARGER THAT 2" (in) SHALL BE BY SPECIAL DESIGN.
3. AIR VALVE SHALL BE PLACED OUTSIDE OF TRAFFIC AREAS.
4. CENTER VALVE IN BOX.

CALAVERAS COUNTY WATER DISTRICT		
SEWER FORCE MAIN COMBINATION AIR VALVE ASSEMBLY		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: FEB 2022	S03

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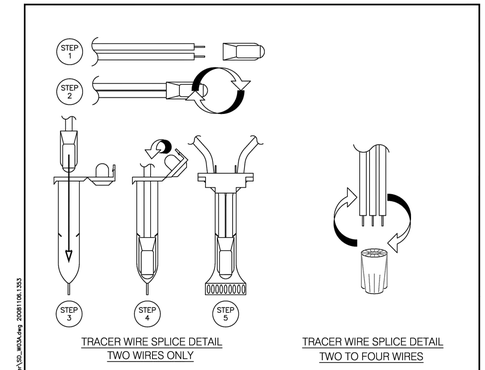

NOTES:

1. LOCATING WIRE SHALL BE INSTALLED WITH ALL PIPE, SERVICE LINES FROM WATER MAIN TO METER, WHICH ARE NOT PERPENDICULAR TO THE MAIN, SHALL HAVE A LOCATING WIRE ALSO. WIRE TO BE TAPED TO BASE OF CURB STOP.
2. LOCATE WIRE DIRECTLY ON TOP OF PIPE AND TAPE TO PIPE (TWO PLACES EVERY FULL PIPE SECTION).
3. STRIP APPROXIMATELY 3" (in) OF INSULATION AT THE TERMINATION OF THE WIRE IN THE VALVE OR METER BOX.
4. AT THE TERMINATION OF LOCATING WIRE, INSTALL AN EXTRA VALVE BOX IF NECESSARY. SHOW LOCATION ON PLANS.
5. THE CONTRACTOR SHALL TEST THE CONTINUITY OF THE FINISHED INSTALLATION.

CALAVERAS COUNTY WATER DISTRICT		
WATER DETAILS LOCATING WIRE SPLICES		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED BY: CHARLES PALMER	DATE: 09/2021	W02A

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CCWD DETAIL W02A (7 VAR)
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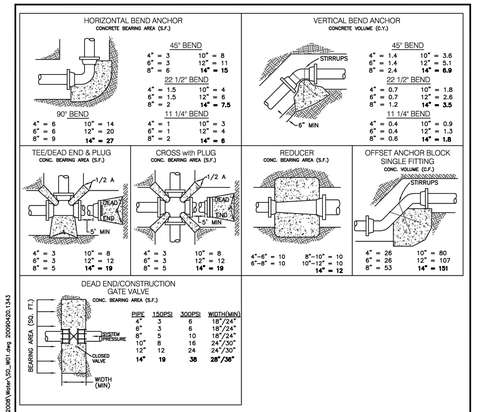

NOTES:

1. THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 3 CONCRETE.
2. AREAS GIVEN ARE FOR PIPE AT TEST PRESSURES OF 150 PSI. SIZE OF THRUST BLOCK ABOVE 150 PSIG MUST BE SCALED PROPORTIONALLY, I.E. 2X FOR 300 PSIG.
3. IN SOIL WITH 2,000 PSF BEARING CAPACITY, INSTALLATIONS USING DIFFERENT TEST PRESSURES, AND/OR SOIL TYPES, SHOULD ADJUST THRUST BLOCK AREAS ACCORDINGLY, SUBJECT TO APPROVAL OF DISTRICT ENGINEER.
4. BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL OF MINIMUM AREA SQUARE FEET.
5. PROTECT BOLTS, NUTS, THREADS, AND GASKETS FROM CONCRETE WITH 6 MIL. MIN. PVC SHEETING.
6. ALL FITTINGS SHALL BE WRAPPED (SEE DETAIL G13).
7. STIRRUPS SHALL BE MINIMUM 1/2" IN SIZE.
8. TWO STIRRUPS REQUIRED ON 4" – 8" FITTINGS. FOUR STIRRUPS REQUIRED ON 10" – 12" FITTINGS.

CALAVERAS COUNTY WATER DISTRICT		
WATER DETAILS THRUST BLOCK BEARING AREA SCHEDULE		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC 2015	W01

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CCWD DETAIL W01 (8 VAR)
SCALE: NTS

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HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD
	REVISIONS		

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CIVIL DETAILS - 2

90% SUBMITTAL JULY 2025

C901
DRAWING NUMBER

SHEET 24 OF 87

Plot Date: 7/23/2025 10:26 AM
Plotted By: ANTHONY PEREZ
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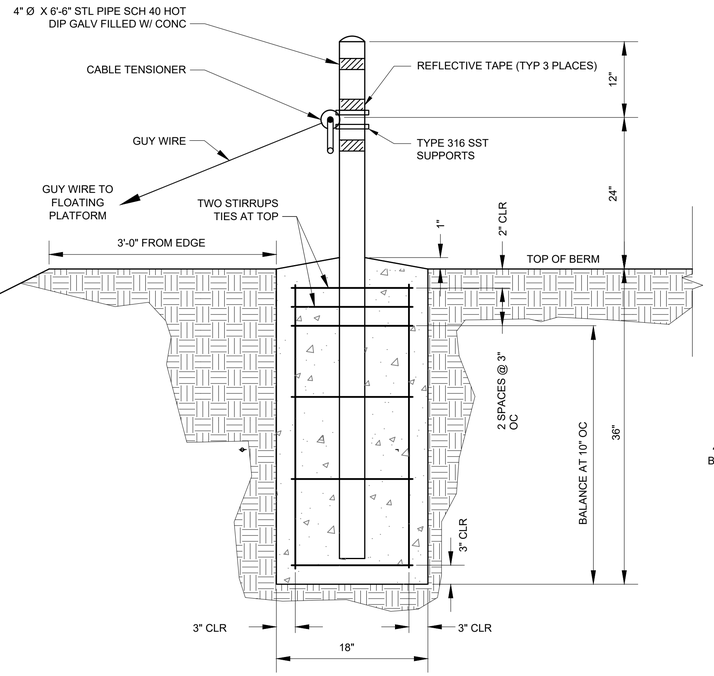
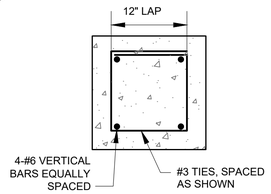
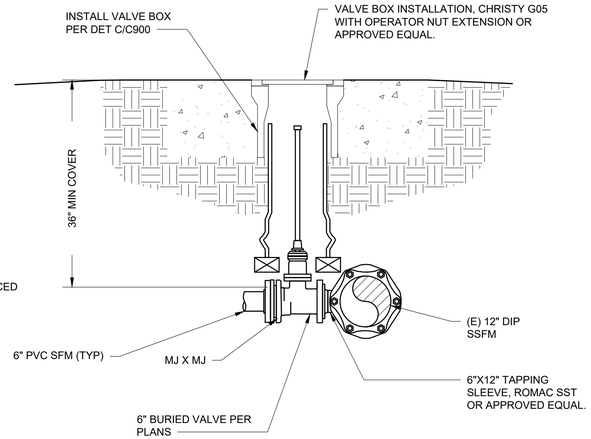


TYPICAL ANCHOR DETAIL 1 VAR

SCALE: 1" = 1'-0"

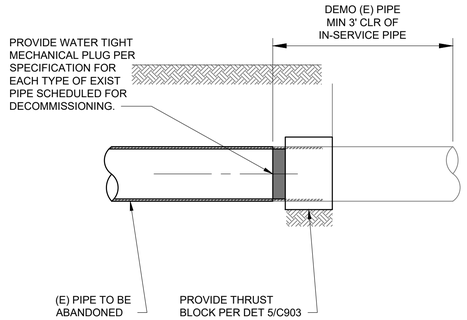


SECTION A



TAPPING CONNECTION AT (E) 12" SSFM 2 VAR

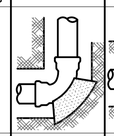
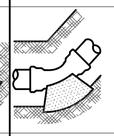
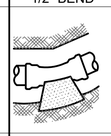
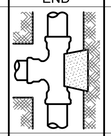
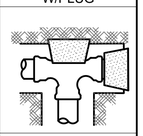
SCALE: NTS



PIPE ABANDONMENT 3 VAR

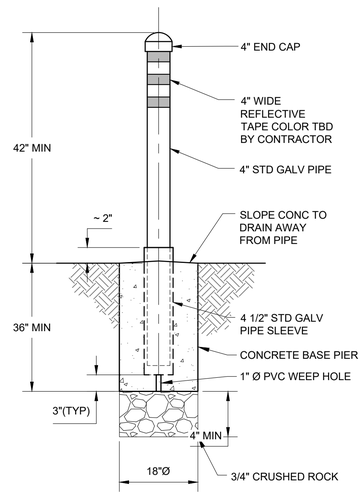
SCALE: NTS

MINIMUM REQUIRED BEARING AREA - TOTAL SQUARE FEET

TYPE OF FITTING		90° BEND	45° BEND	11 1/4" OR 22 1/2" BEND	TEE OR DEAD END	TEE W/PLUG
TYPICAL INSTALLATION						
SIZE OF PIPE	3"	-	-	-	-	-
	4"	-	-	-	-	-
	6"	-	-	-	-	-
	8"	-	-	-	-	-
	10"	-	-	-	-	-

NOTES

1. THRUST BLOCK SIZES BASED ON A UNIT PASSIVE SOIL PRESSURE OF 400 PSF PER FOOT OF DEPTH, WITH A MINIMUM SOIL COVER OF 2'-6". A FACTOR OF SAFETY OF 1.5 WAS APPLIED TO THE PASSIVE SOIL PRESSURE TO ACCOUNT FOR SOIL VARIABILITY.
2. THRUST BLOCKS TO BE CONSTRUCTED OF CLASS B CONCRETE. CONCRETE COMPRESSIVE STRENGTH SHALL MEET SPECIFICATIONS FOR 3000 PSI AT 28 DAYS CURING WHEN TESTED IN ACCORDANCE WITH ASTM C39.
3. THRUST BLOCKS SHALL BE POURED SOLIDLY AGAINST FIRM, CLEAN CUT, UNDISTURBED SOIL WITH PASSIVE PRESSURE EQUAL TO OR GREATER THAN THAT SHOWN IN NOTE 1 OR BACKFILLED WITH SLURRY.
4. THRUST BLOCKS SHALL NOT BE POURED AGAINST CRUSHED ROCK.
5. AREAS GIVEN ARE FOR PIPES TESTED AT PRESSURE OF 150 P.S.I. INSTALLATIONS, TEST PRESSURES, AND/OR LESSER SOIL TYPES SHOULD ADJUST AREAS ACCORDINGLY, SUBJECT TO APPROVAL OF ENGINEER.
6. JOINTS AND FACE OF PLUGS SHALL BE KEPT CLEAR OF CONCRETE.
7. THRUST BLOCKS MAY BE REQUIRED FOR CASES NOT DEPICTED ABOVE.



THRUST BLOCK BEARING AREA 4 VAR

SCALE: NTS

REMOVABLE BOLLARD DETAIL 5 C104

SCALE: NTS

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HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)

0" 1/2" 1"

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JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WLS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CIVIL DETAILS - 3

90% SUBMITTAL JULY 2025

C902

DRAWING NUMBER

SHEET 25 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:21 AM

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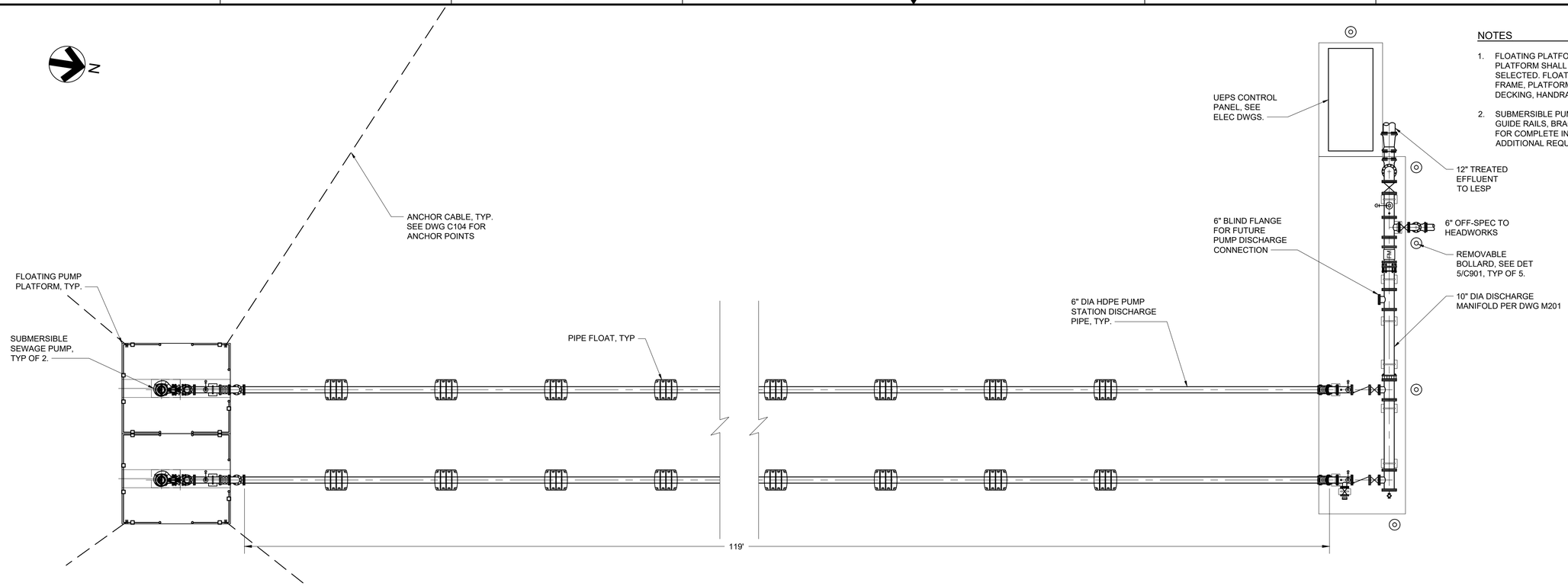
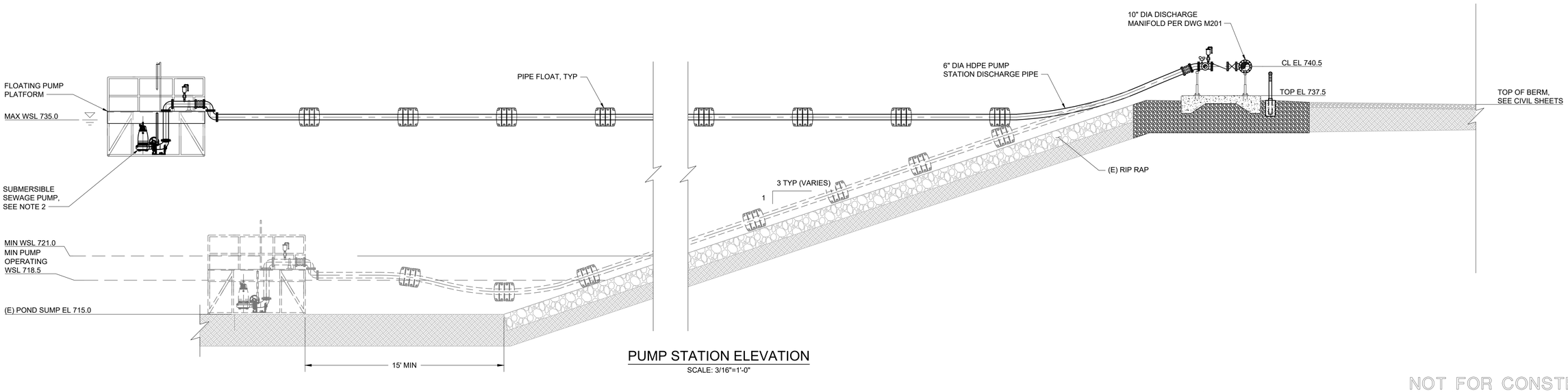


PUMP STATION PLAN

SCALE: 3/16"=1'-0"



PUMP STATION ELEVATION

SCALE: 3/16"=1'-0"

NOTES

1. FLOATING PLATFORM DIMENSIONS SHALL BE PER MANUFACTURER. FLOATING PLATFORM SHALL BE DESIGNED TO SUPPORT FINAL PUMP AND EQUIPMENT SELECTED. FLOATING PLATFORM SUPPLIER TO PROVIDE PUMP PROTECTION FRAME, PLATFORM, GALVANIZED OR STAINLESS STEEL FRAME, NON-SLIP DECKING, HANDRAILS, PLATFORM LINKAGE HARDWARE, AND ANCHOR POINTS.
2. SUBMERSIBLE PUMP SHALL BE PROVIDED WITH DISCHARGE ELBOW AND BASE, GUIDE RAILS, BRACKETS AND LIFTING CHAIN INCLUDING ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. SEE STANDARD SPECIFICATION 11530 FOR ADDITIONAL REQUIREMENTS.

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DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

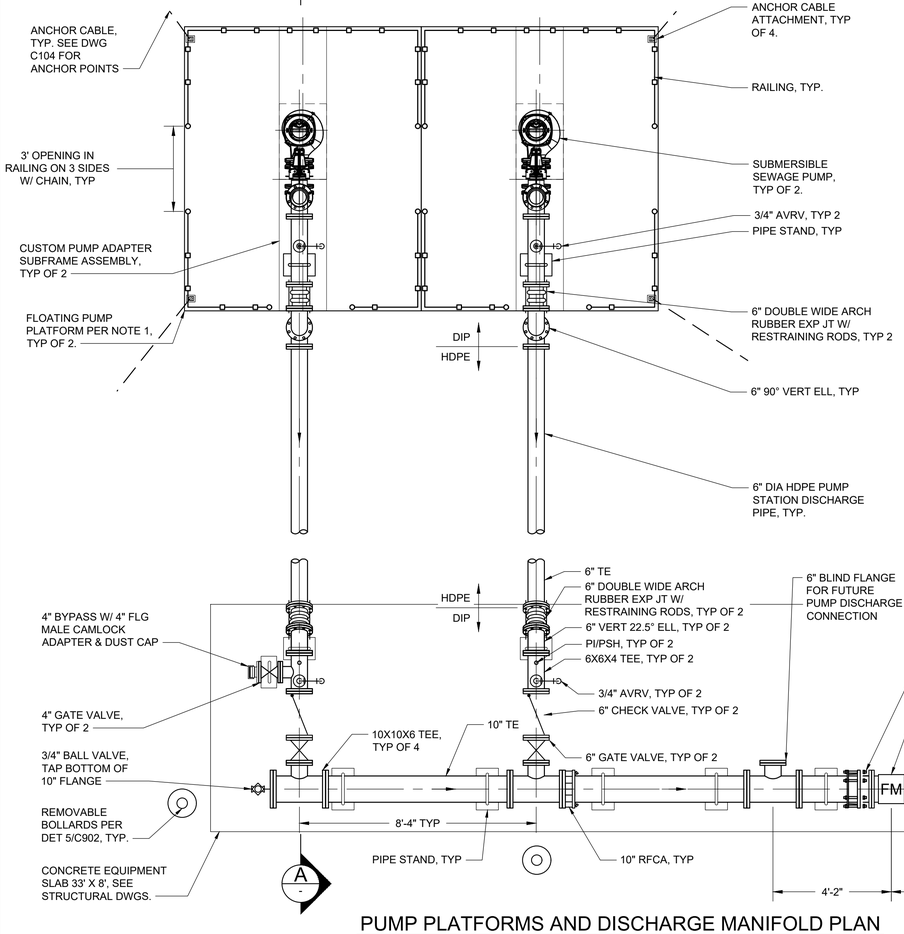
UESP PLAN AND ELEVATION

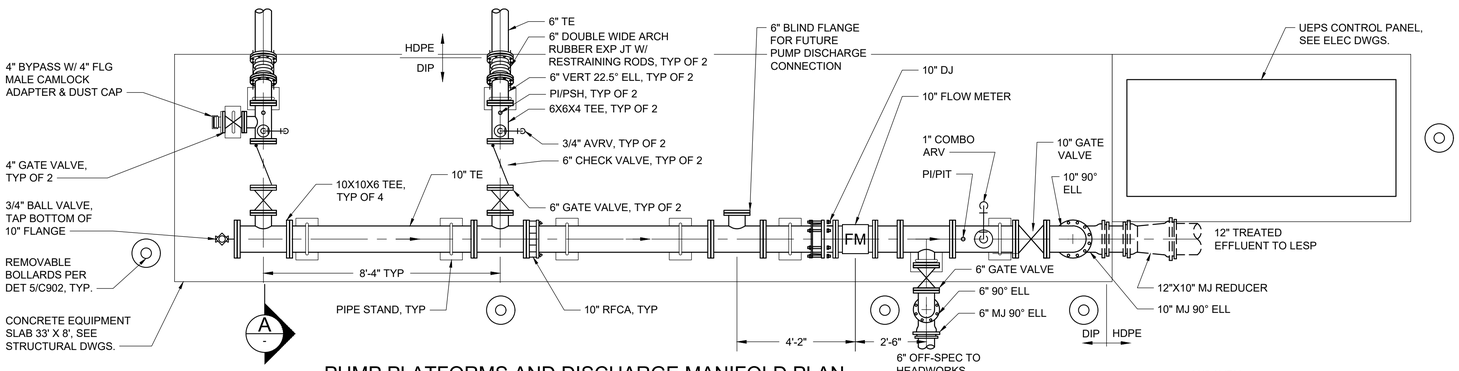
90% SUBMITTAL JULY 2025

M200
DRAWING NUMBER

SHEET 27 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:26 AM
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-M200-UESP Pump Station.dwg



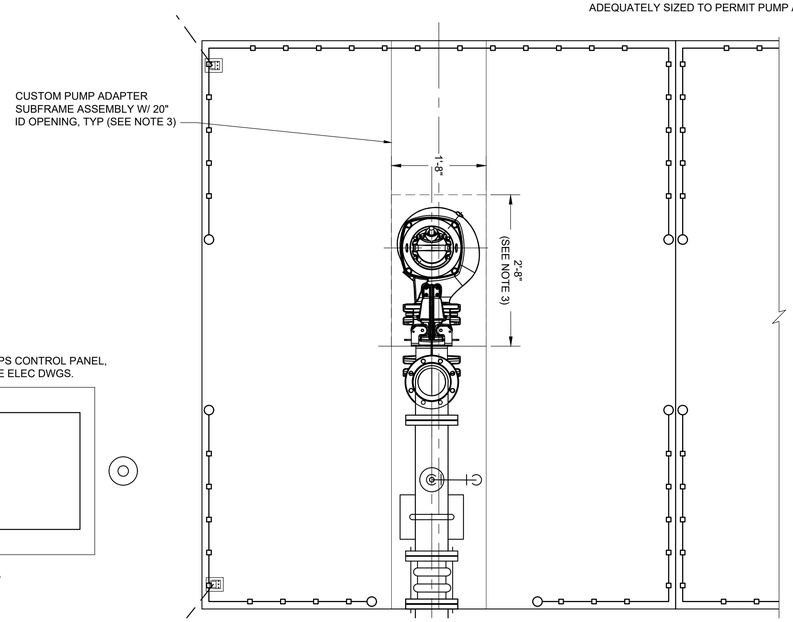


PUMP PLATFORMS AND DISCHARGE MANIFOLD PLAN

SCALE: 3/8"=1'-0"

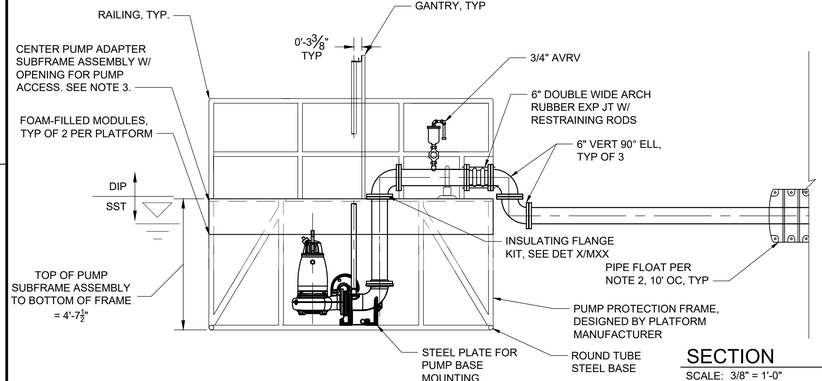
NOTES

1. PUMP FLOATING PACKAGE TO INCLUDE MODULAR FLOATING PUMP PLATFORM SYSTEM TO INCLUDE GALVANIZED OR STAINLESS STEEL FRAME, FOAM-FILLED MODULES (2 PER PLATFORM), NON-SLIP DECKING, HANDRAILS, CENTER PUMP ADAPTER SUBFRAME ASSEMBLY WITH CENTER OPENING WITH STANCHION, PLATFORM LINKAGE HARDWARE, DOCK CLEAT, AND ANCHOR POINTS. SEE STANDARD SPECIFICATION 11540 - FLOATING PLATFORM EQUIPMENT FOR ADDITIONAL REQUIREMENTS.
2. PIPE FLOATS SHALL BE TWO-PIECE, CLAMP ON-STYLE, POLYETHYLENE PLASTIC MOLDED WITH UV INHIBITORS SUITABLE FOR USE WITH HDPE PIPE AS MANUFACTURED BY NEPTUNE FLOTATION OR EQUAL.
3. PUMP ADAPTER SUBFRAME CENTER OPENING FINAL ID DIMENSIONS SHALL BE COORDINATED WITH APPROVED PUMP SUBMITTAL. CLEAR OPENING SHALL BE ADEQUATELY SIZED TO PERMIT PUMP AND PIPE INSTALLATION AND REMOVAL.



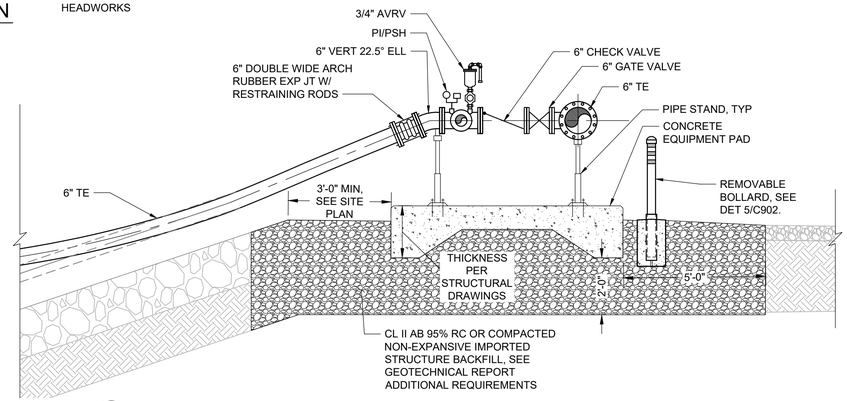
PUMP SUBFRAME ASSBEMBLY PLAN

SCALE: 3/4"=1'-0"



SECTION

SCALE: 3/8" = 1'-0"



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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PUMP PLATFORMS AND DISCHARGE MANIFOLD PLAN AND SECTION

90% SUBMITTAL JULY 2025

M201
DRAWING NUMBER

SHEET 28 OF 87

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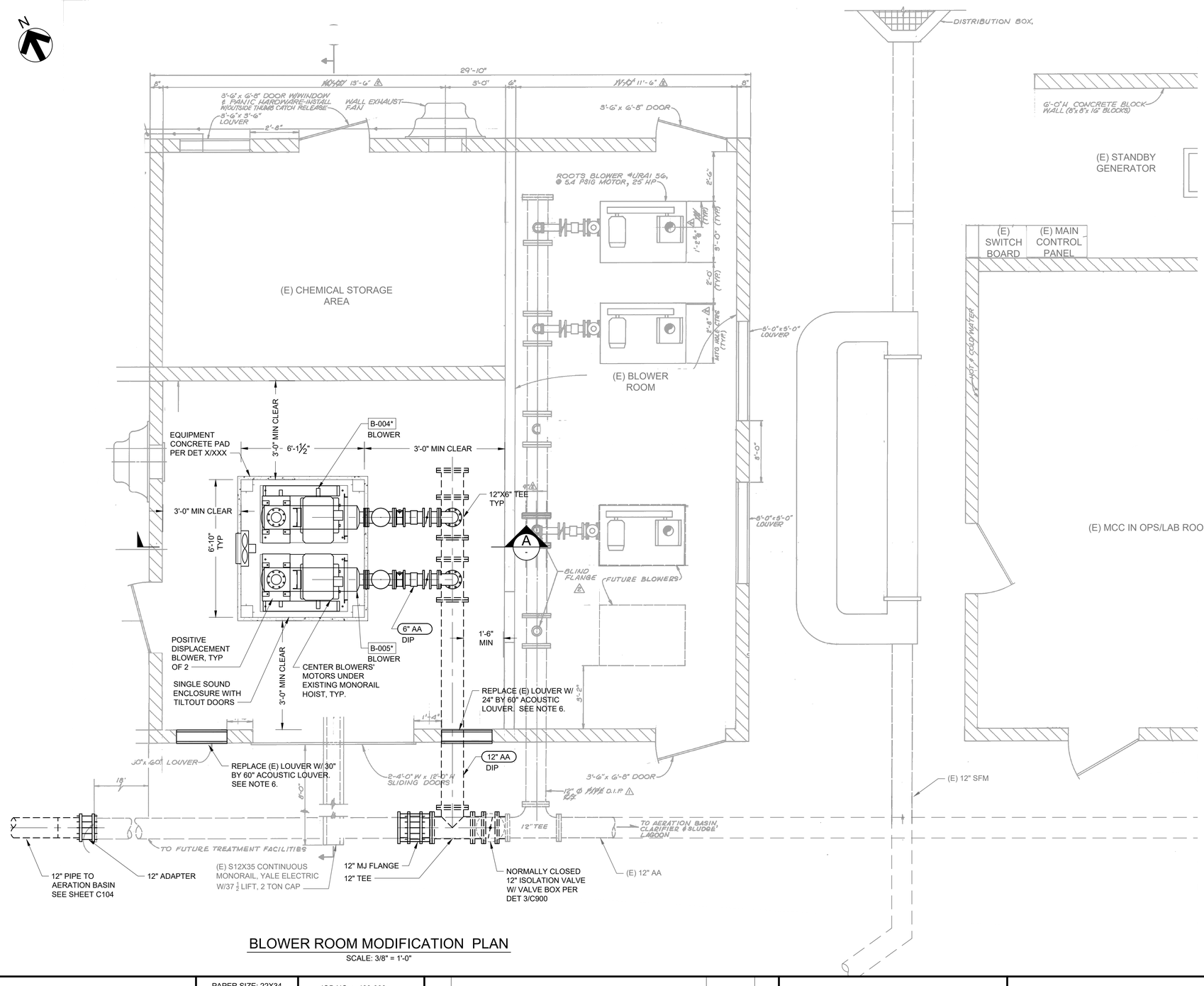
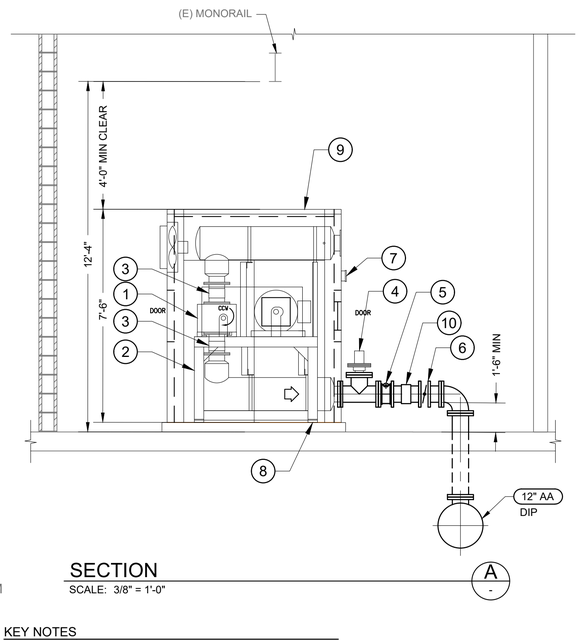


BLOWER ROOM MODIFICATION PLAN

SCALE: 3/8" = 1'-0"



SECTION

SCALE: 3/8" = 1'-0"

A

KEY NOTES

1. BLOWER, DUTY/STANDBY *
2. ELEVATED STEEL BASE *
3. FLEXIBLE PIPE CONNECTOR *
4. RELIEF VALVE *
5. 6" CHECK VALVE, WAFER TYPE *
6. 6" BUTTERFLY VALVE *
7. DIFFERENTIAL PRESSURE GAUGE *
8. VIBRATION ISOLATION PAD *
9. NOISE ENCLOSURE *
10. 6" DISMANTLING COUPLING

NOTES

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PLANS, NOTES, DETAILS AND PROVISIONS AS SPECIFIED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ROOM'S DIMENSIONS AND ENSURE ENOUGH OPERATING SPACE IS AVAILABLE AROUND THE BLOWERS PRIOR TO ANY INSTALLATION.
3. DURING CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE APPROPRIATE TIMING FOR SHUTDOWN OF THE AIR LINE WITH THE DISTRICT.
4. SUBMITTED BOWERS SHALL FIR IN THE SPACE PROVIDED. THE CONTRACTOR SHALL SUBMIT DIMENSIONED EQUIPMENT LAYOUT DRAWINGS FOR APPROVAL SHOWING ALL MAJOR COMPONENTS, CLEARANCES FOR MAINTENANCE, AND COMPLIANCE WITH ROOM ACCESS CONSTRAINTS PRIOR TO EQUIPMENT FABRICATION.
5. ITEMS MARKED WITH "*" SHALL BE SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.
6. FURNISH AND INSTALL ACOUSTICAL LOUVERS AS HEREINAFTER SPECIFIED WHERE SHOWN ON PLANS. LOUVERS SHALL BE STATIONARY ACOUSTICAL TYPE CONTAINED WITHIN 6" FRAME W/ BIRD SCREEN IN REMOVAL FRAME. LOUVER COMPONENTS SHALL BE FACTORY ASSEMBLED BY THE LOUVER MANUFACTURER. LOUVER SIZES TOO LARGE FOR SHIPPING SHALL BE BUILT UP BY THE CONTRACTOR FROM FACTORY ASSEMBLED LOUVER SECTIONS TO PROVIDE OVERALL SIZES REQUIRED. LOUVER DESIGN SHALL INCORPORATE STRUCTURAL SUPPORTS REQUIRED TO WITHSTAND WIND LOAD OF 25 PSF MIN. PUBLISHED LOUVER PERFORMANCE DATA BEARING THE AMCA CERTIFIED RATINGS SEAL FOR AIR PERFORMANCE SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION AND MUST DEMONSTRATE PRESSURE DROP EQUAL TO OR LESS THAN THE MODEL SPECIFIED. FRAME AND BLADES SHALL BE OF HEAVY GAUGE FORMED ALUM CONSTRUCTION ALLOY 5052-H32 ALUM, MIN 0.08" THICK. FRAME SHALL BE CHANNEL STYLE AND BLADES SHALL BE J STYLE. FINISH MATERIAL SHALL BE MILL FINISH. FREE AREA SHALL BE 30% MIN. ACOUSTICAL INSULATION MATERIAL SHALL BE FIBERGLASS W/ STC RATING OF 10 MIN. PROVIDE MODEL AFJ-601 BY GREENHECK OR APPROVED EQUAL.

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

BLOWER ROOM MODIFICATION PLAN AND SECTION

90% SUBMITTAL JULY 2025

M400
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SHEET 29 OF 87

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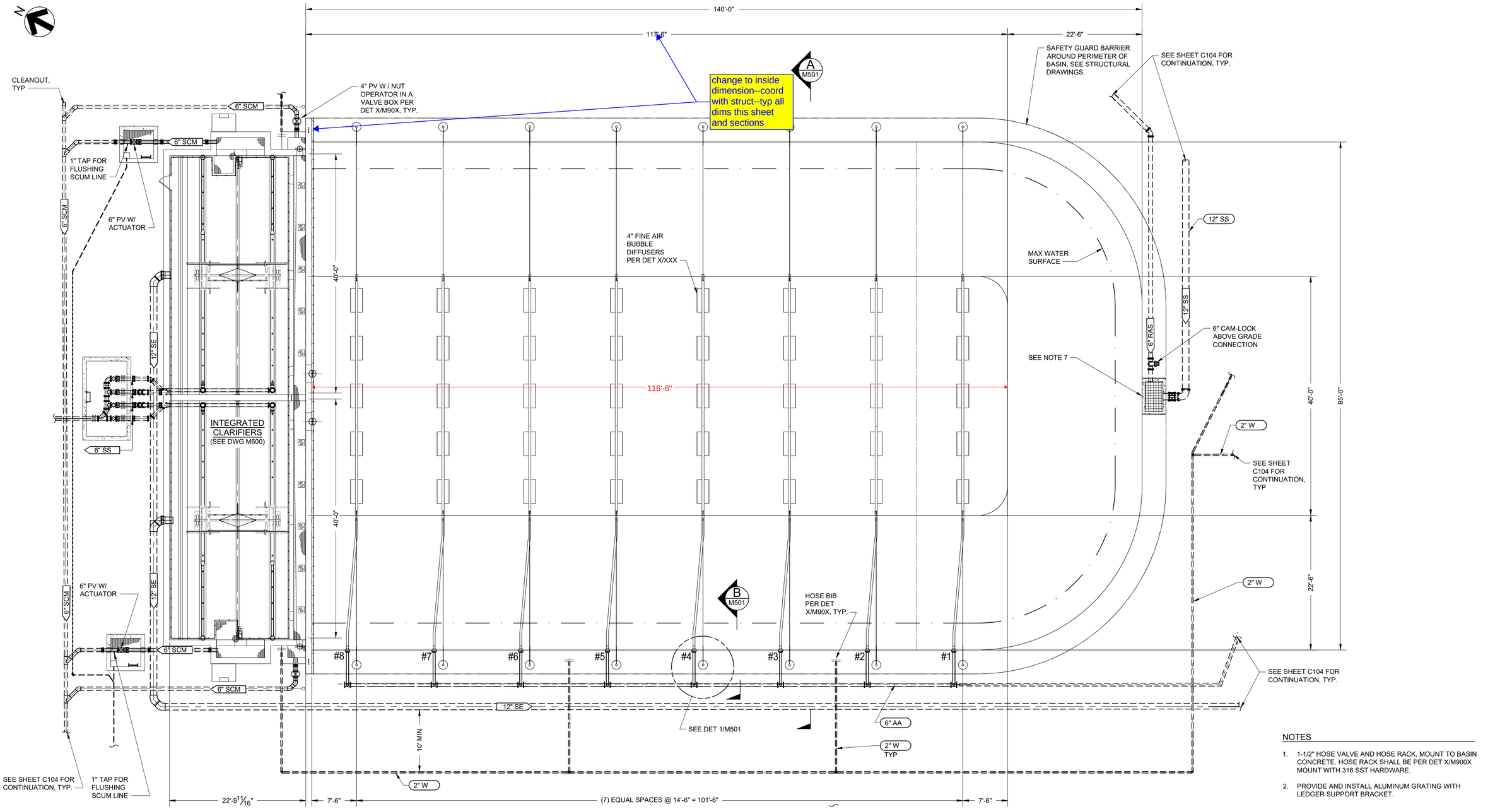

AEARTION BASIN AND CLARIFIERS PLAN

SCALE: 1/8" = 1'-0"

NOTES

1. 1-1/2" HOSE VALVE AND HOSE RACK, MOUNT TO BASIN CONCRETE. HOSE RACK SHALL BE PER DET X/M900X MOUNT WITH 316 SST HARDWARE.
2. PROVIDE AND INSTALL ALUMINUM GRATING WITH LEDGER SUPPORT BRACKET.

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

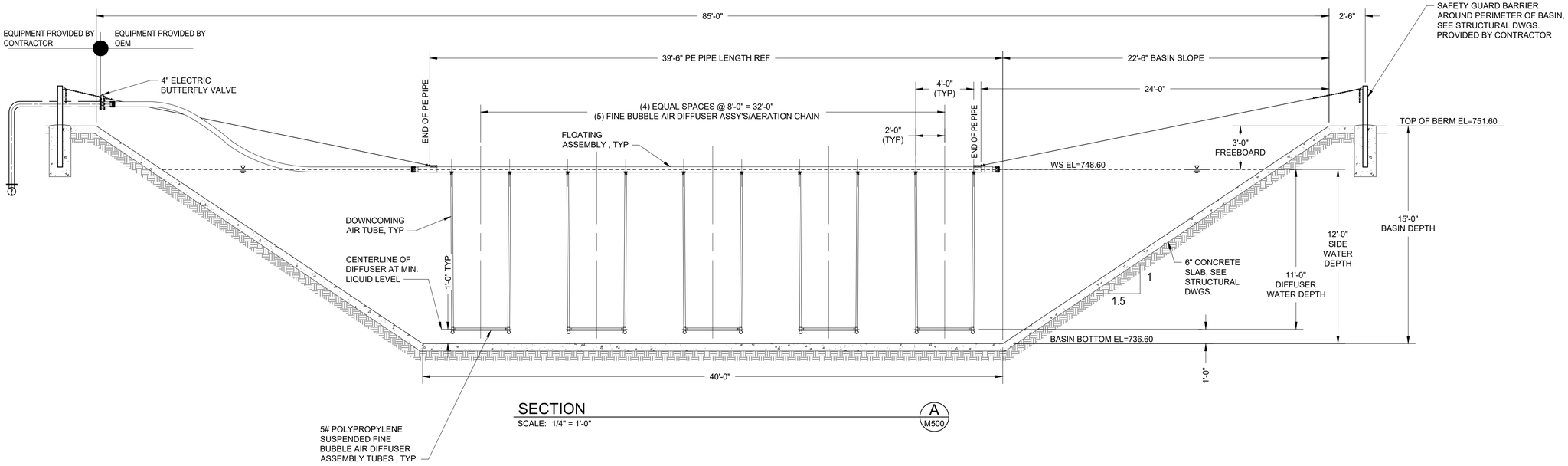
AERATION BASIN AND CLARIFIER PLAN

90% SUBMITTAL JULY 2025

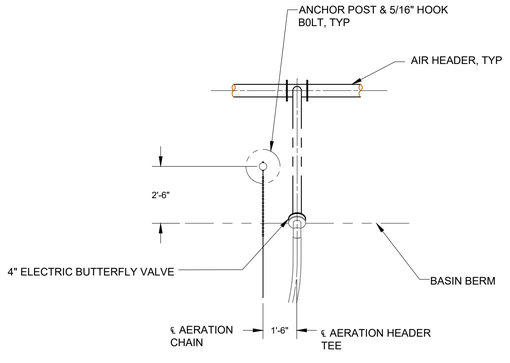
M500
DRAWING NUMBER

SHEET 30 OF 87

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-M500-Aeration Basin.dwg Plot Date: 7/23/2025 12:26 PM Plotted By: ANTHONY PEREZ



SECTION
SCALE: 1/4" = 1'-0"
A M500



DETAIL
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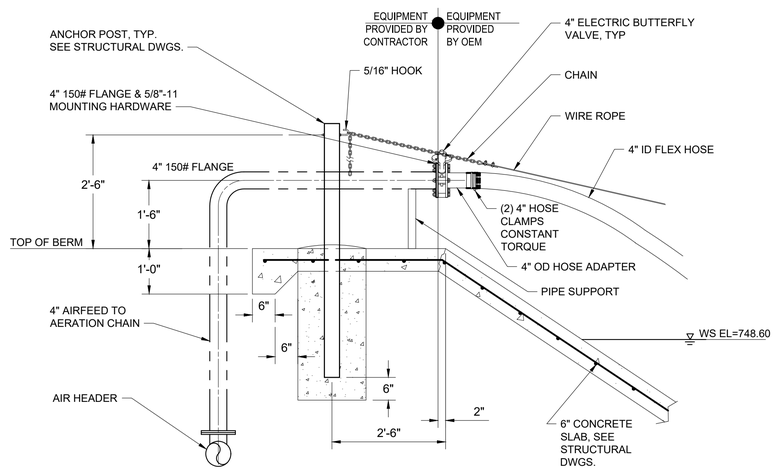

SECTION
SCALE: NO SCALE
B M500

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

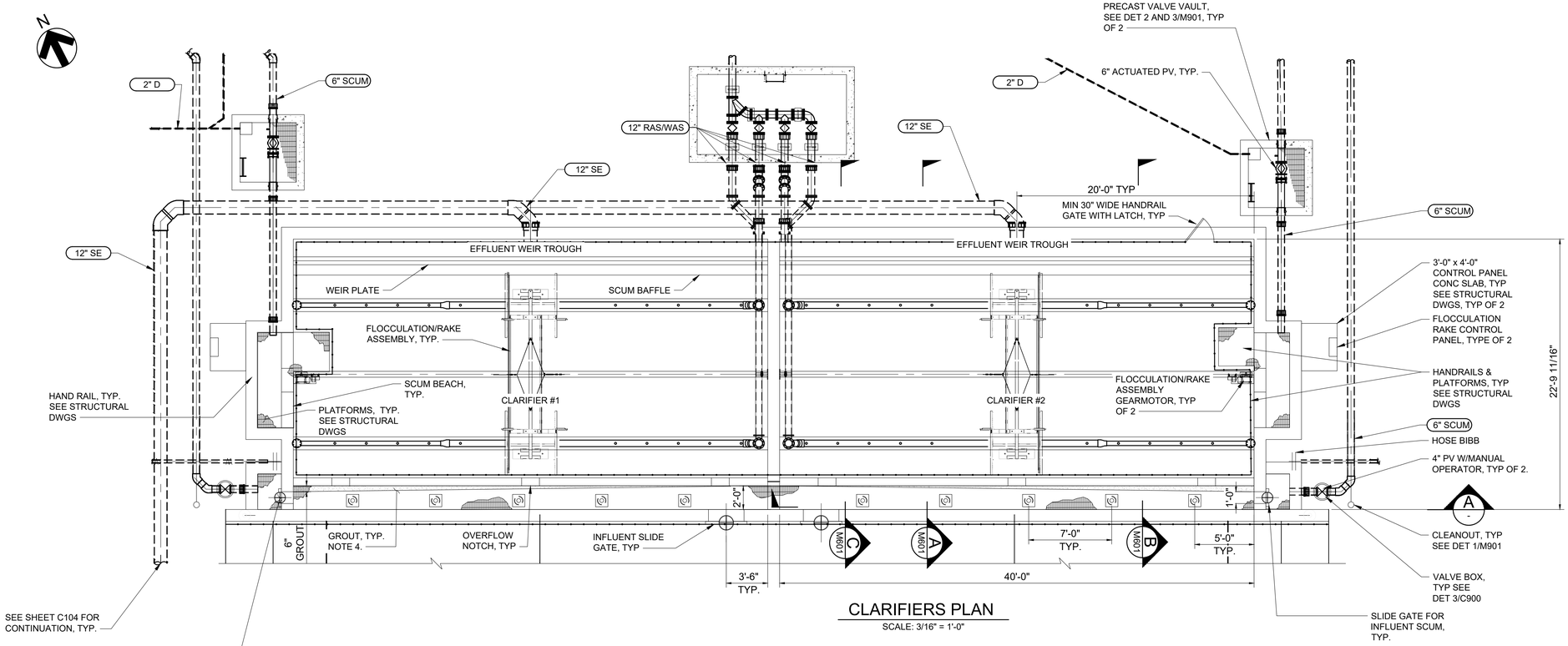
AERATION BASIN SECTIONS AND DETAIL

90% SUBMITTAL JULY 2025

M501
DRAWING NUMBER

SHEET 31 OF 87

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-M500-Aeration Basin.dwg Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:20 AM

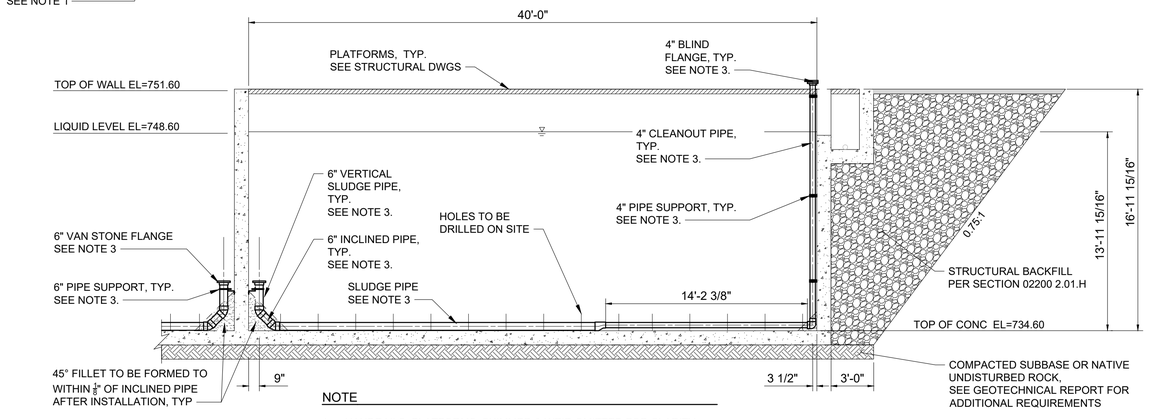


CLARIFIERS PLAN

SCALE: 3/16" = 1'-0"

NOTES

1. EQUIPMENT WITHIN THE CLARIFIERS TO BE PROVIDED BY OEM.
2. ALL RAS/WAS PLUG VALVES, SCUM PLUG VALVES AND AIR BUTTERFLY VALVES TO BE PROVIDED BY OEM.
3. PIPING TO BE PROVIDED BY OEM.
4. GROUT ON INLET CHANNEL IS NOT PART OF THE STRUCTURAL CONCRETE.



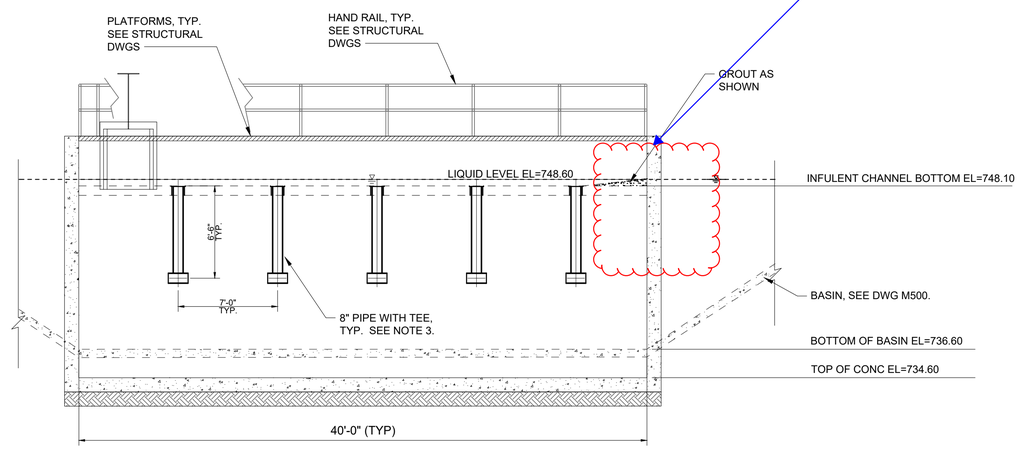
NOTE

1. HANDRAILS, PLATFORMS, SKIMMER & WEIR OMITTED FOR CLARITY.

CLARIFIERS ELEVATION

SCALE: 3/16" = 1'-0"

missing scum-coord with struct



SECTION A -

SCALE: 3/16" = 1'-0"

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CLARIFIERS PLAN, ELEVATION & SECTION

90% SUBMITTAL JULY 2025

M600
DRAWING NUMBER

SHEET 32 OF 87

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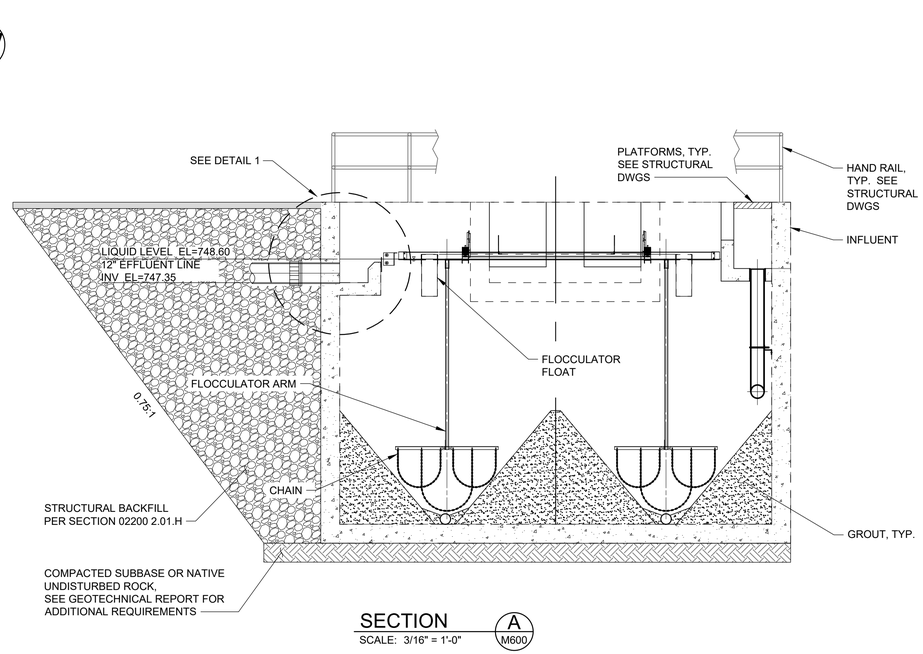
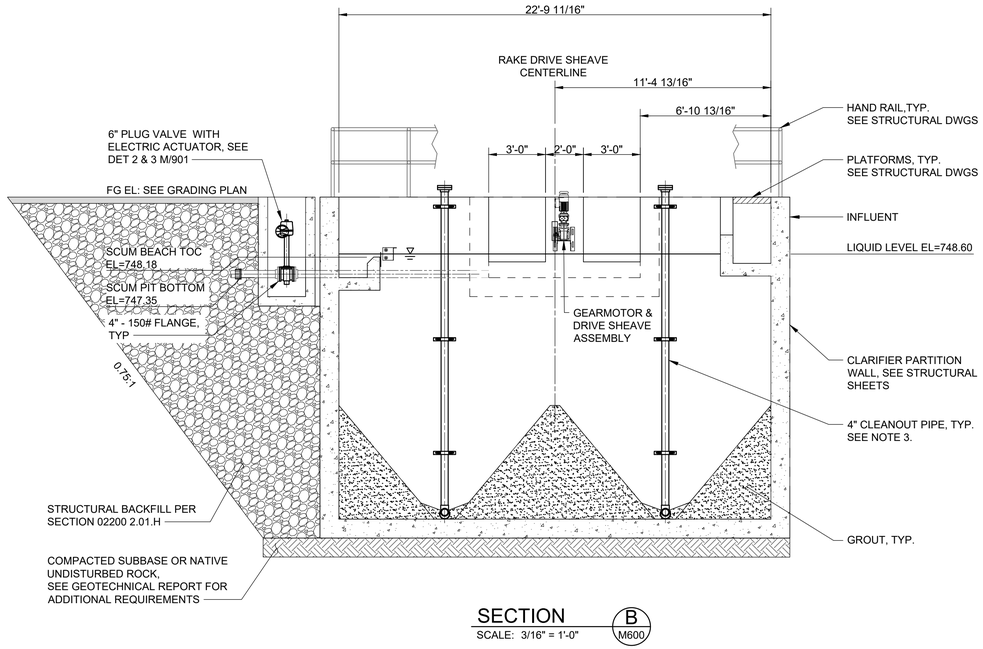


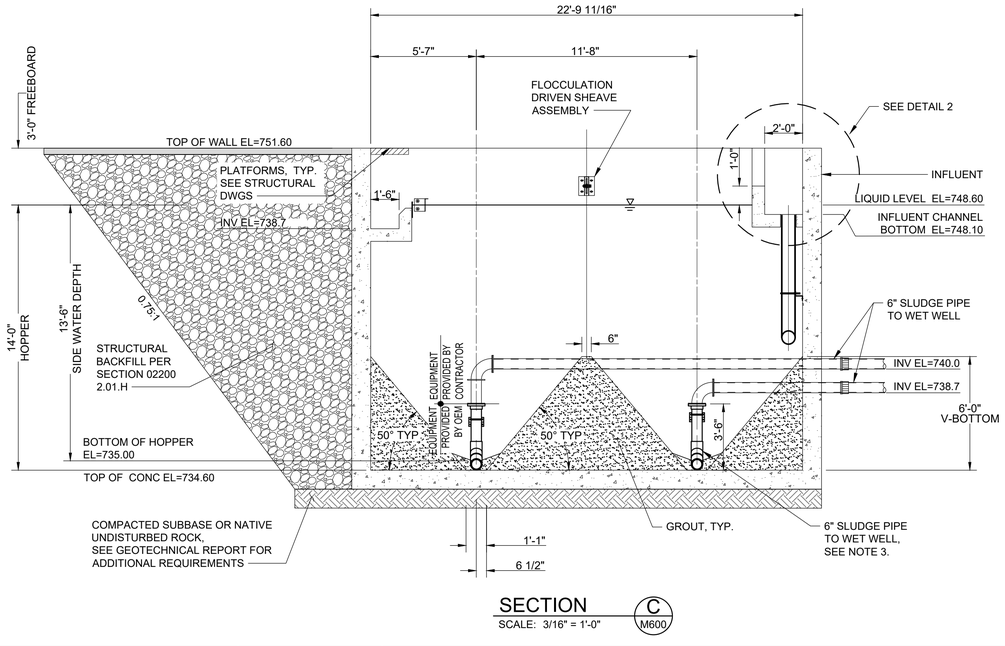
SECTION A
SCALE: 3/16" = 1'-0"
M600



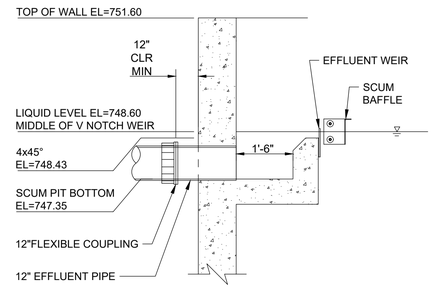
SECTION B
SCALE: 3/16" = 1'-0"
M600

NOTES

1. EQUIPMENT WITHIN THE CLARIFIERS TO BE PROVIDED BY OEM.
2. ALL RAS/WAS PLUG VALVES, SCUM PLUG VALVES AND AIR BUTTERFLY VALVES TO BE PROVIDED BY OEM.
3. PIPING TO BE PROVIDED BY OEM.



SECTION C
SCALE: 3/16" = 1'-0"
M600



DETAIL 1
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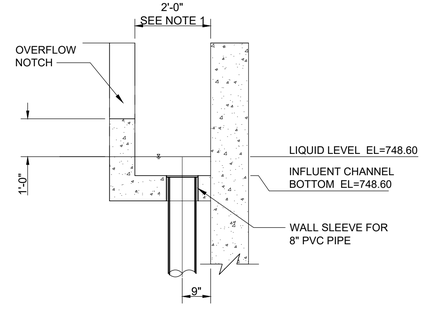

DETAIL 2
SCALE: N.T.S.

NOTE:

1. INFLUENT CHANNEL GROUT TAPERS FROM MIDDLE TOWARDS END. SEE PLAN VIEW.

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PROJ. MGR.: PROJ_MAN

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CLARIFIERS SECTIONS & DETAILS

90% SUBMITTAL JULY 2025

M601
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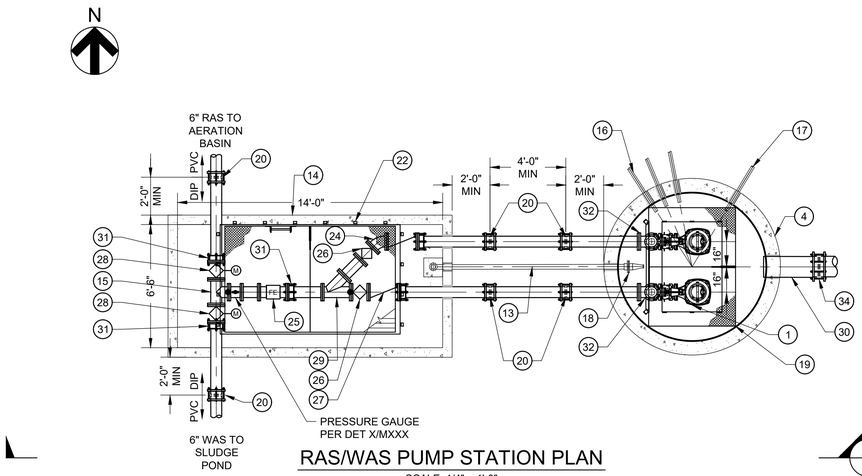
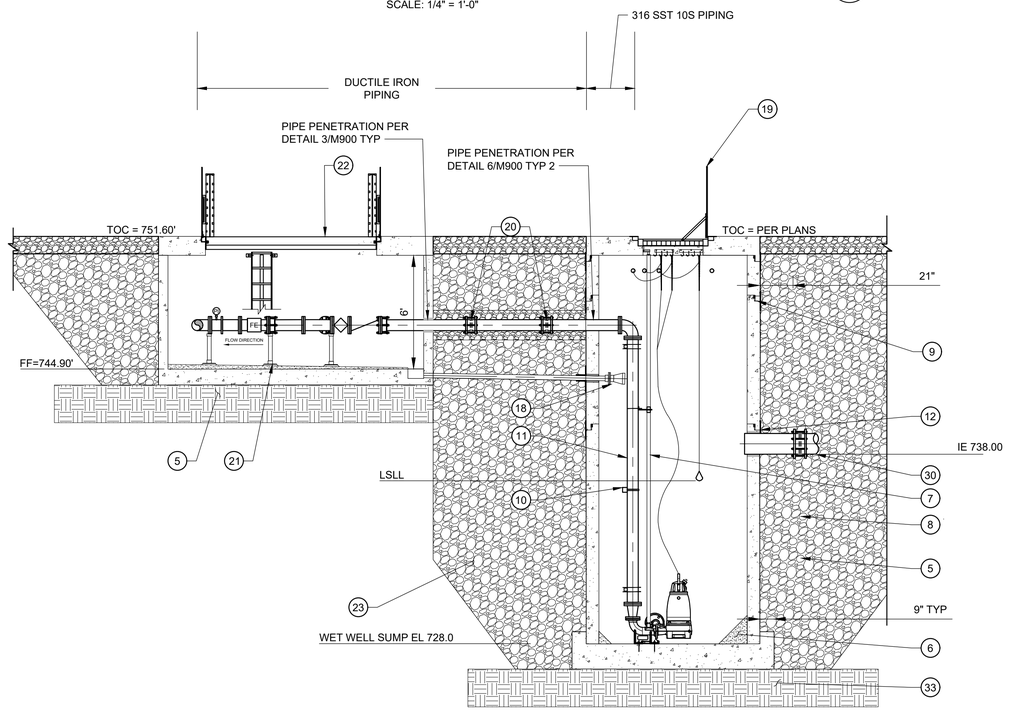


RAS/WAS PUMP STATION PLAN

SCALE: 1/4" = 1'-0"



SECTION

SCALE: 1/4" = 1'-0"

KEY NOTES

1. SUBMERSIBLE SEWAGE PUMP, DISCHARGE ELBOW AND GUIDE RAIL ASSEMBLY. DUTY + STANDBY. TO BE PROVIDED BY OEM.
2. SUBMERSIBLE LEVEL TRANSDUCER W/BIRD CAGE, SEE NOTE 6.
3. NOT USED
4. 8 FT ID PRECAST CONCRETE WET WELL W/ANTI-FLOATATION BASE SLAB EXTENSIONS.
5. 3/4" CLASS 1 ANGULAR CRUSHED ROCK LINED W/GEOTEXTILE FILTER FABRIC.
6. NON-SHRINK GROUT FILLET INSTALLED AROUND WET WELL BASE PERIMETER, SLOPED @ 45-DEGREE ANGLE TO DIRECT SOLIDS TOWARDS PUMPS. TAPER AS SHOWN.
7. 2" 316 SST PUMP GUIDE RAILS.
8. CLASS II AB COMPACTED TO 95%, COMPACTED NATIVE OR APPROVED CEMENTITIOUS CDF.
9. TONGUE & GROOVE PRECAST JOINTS. INSTALL BUTYL RUBBER SEALANT AT EACH JOINT OR MANUFACTURER'S RECOMMENDED SEALANT SYSTEM.
10. 316 SST DISCHARGE PIPING HORIZONTAL PIPE SUPPORT PER DET X/XXX.
11. 6" 316 SST DISCHARGE PIPE RISER, TYP OF 2.
12. WATERPROOF EXTERIOR WET WELL JOINTS W/ POLYOLEFIN BACKED JT WRAP, 6" LAP E/W FROM JOINT. USE ON EXT PIPE CONNECTIONS, 6" LAP E/W.
13. 3" SCH 80 PVC DRAIN PIPING FOR VALVE VAULT. SLOPE DOWN AT 2%.
14. PUMP STATION VALVE VAULT. MIN INTERNAL DIMS 6'-6"' WIDE X 14' LONG X 6' DEEP.
15. 6" TEE
16. POWER PVC COATED RMC PENETRATIONS.
17. CONTROL/INSTRUMENT PVC COATED RMC PENETRATIONS.
18. 3" FLANGED STYLE DUCKBILL CHECK VALVE.
19. H20 RATED ALUMINUM ACCESS HATCH WITH 38"X57" CLEAR OPENING, OR EQUAL. HINGE ORIENTATION FOR HATCH DOORS AND SAFETY GRATE AS SHOWN. SEE NOTE 2.
20. 6" RESTRAINED FLEXIBLE COUPLING. TYP OF 6.
21. PIPE SUPPORT, TYP OF 5.
22. H20 RATED ALUMINUM ACCESS HATCH WITH 67"X108" CLEAR OPENING,OR EQUAL. HINGE ORIENTATION FOR HATCH DOORS AND SAFETY GRATE AS SHOWN. SEE NOTE 2.
23. STRUCTURAL BACKFILL PER SECTION 02200, 2.01.H.
24. 6" 45° ELL
25. 6" FLOW METER, TO BE PROVIDED BY OEM.
26. 6" PLUG VALVE, TYP OF 2.
27. 6" SWING CHECK VALVE, TYP OF 2.
28. 6" ELECTRIC MOTORIZED PLUG VALVE, TYP OF 2. TO BE PROVIDED BY THE OEM.
29. 6" WYE
30. 6" INFLUENT SDR-26.
31. 6" RFCA, TYP OF 5.
32. 6" 90° ELL, TYP OF 2.
33. COMPACTED SUBBASE OR NATIVE UNDISTURBED ROCK, SEE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS
34. 6" RFC

GENERAL NOTES

1. SUBMERSIBLE PUMP SHALL BE CAPABLE OF INDIVIDUALLY PUMPING XXX GPM AT XX FT OF TOTAL DYNAMIC HEAD. REFER TO PUMP SPECIFICATION FOR ADDITIONAL DUTY POINT CONDITIONS. PROVIDE (2) IDENTICAL PUMPS AS SHOWN.
2. WET WELL AND VALVE VAULT ACCESS HATCHES SHALL BE CONSTRUCTED OF 1/4" THICK DIAMOND PLATE ALUMINUM COVER RATED FOR H-20 LOADING AND SET FLUSH WITH THE PRECAST CONCRETE LID. HATCHES SHALL ALSO HAVE FLUSH LIFTING HANDLES, TAMPER RESISTANT HINGES, AND LOCKS. WET WELL HATCH SHALL HAVE STANDARD HINGED SAFETY GRATE, PAINTED SAFETY ORANGE.
3. BACKFILL STRUCTURE AND OVER EXCAVATE FOUNDATION IN STRICT ACCORDANCE WITH THE GEOTECHNICAL REPORT. BACKFILL WITH CLASS II AGGREGATE BASE COMPACTED AT 95%, COMPACTED SUITABLE NATIVE, OR A CEMENTITIOUS CDF.
4. DUCTILE IRON PIPING SHALL BE LINED WITH PROTECTO 401 OR EQUAL.
5. ELECTRIC PUMP AND INSTRUMENT CABLE HOISTING MOUNTS SHALL BE "J" HOOK EQUIPPED WITH 316 SST KELLUMS GRIP CABLE HANGERS. INSTALLATION AND PUMP SLACK LEFT IN CABLE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. MOUNTS SHALL BE ANCHORED TO WET WELL HATCH CONCRETE.
6. FLOATS SHALL HANG FROM HOOKS ANCHORED TO THE WET WELL HATCH FRAME, FOR MAINTENANCE WORKER ACCESS. THEREFORE, THE FLOATS ARE GENERALLY IN THE MIDDLE OF THE STRUCTURE AND SHALL BE INSTALLED AWAY FROM THE FLOW STREAM OF INFLUENT SEWAGE.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

RAS/WAS PUMP STATION PLAN AND SECTION

90% SUBMITTAL JULY 2025

M700
DRAWING NUMBER

SHEET 34 OF 87

Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 11:33 AM
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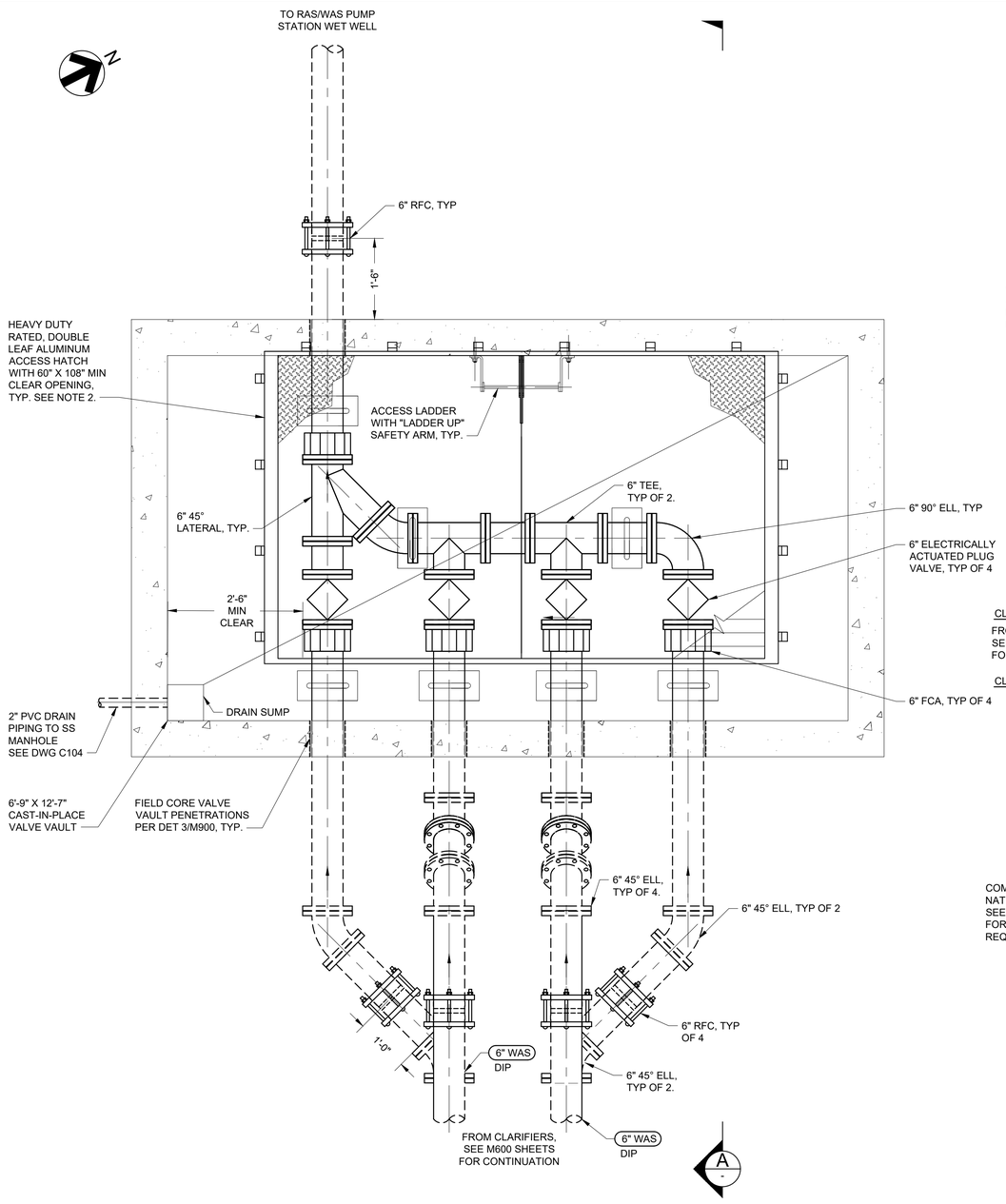
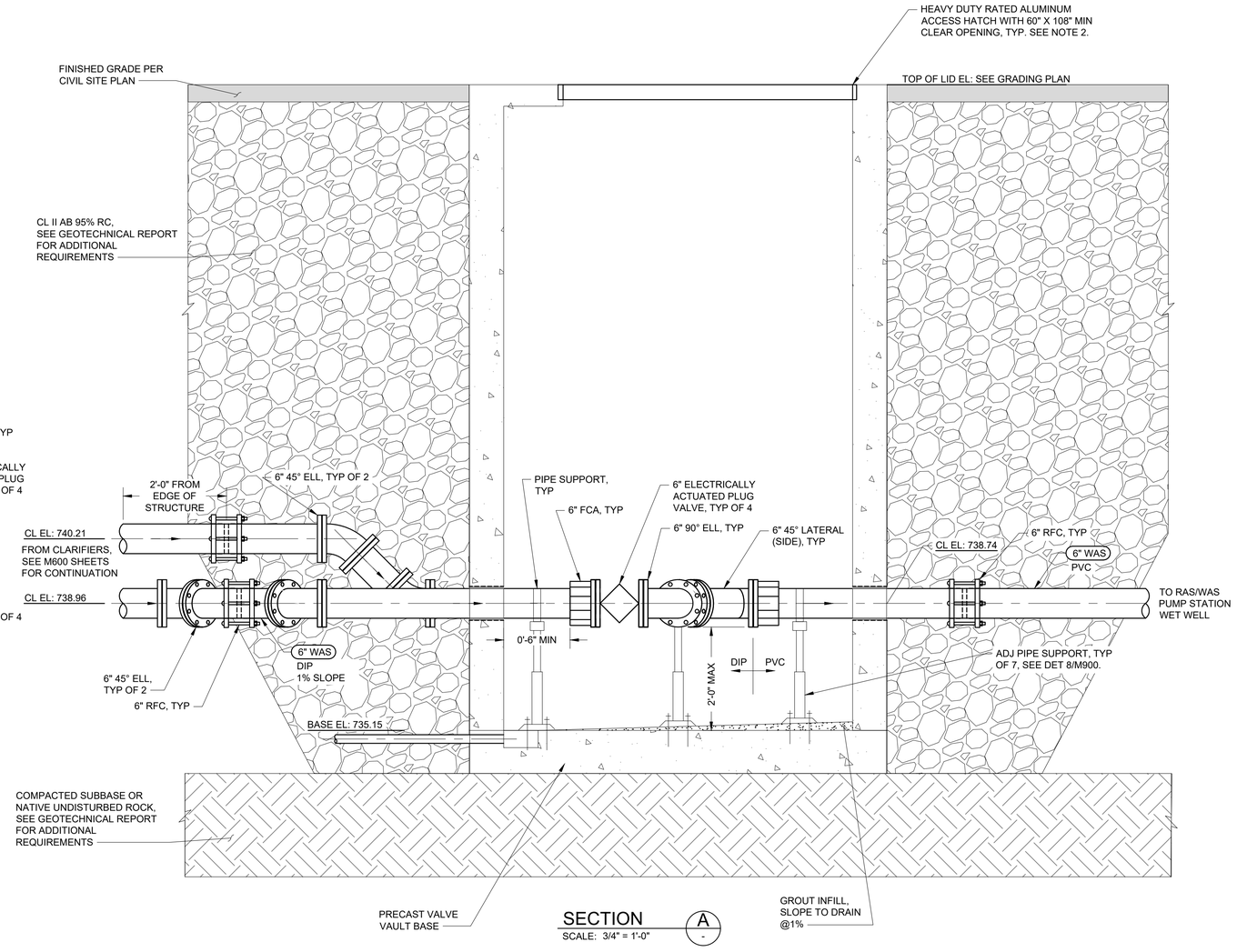


VALVE VAULT PLAN

SCALE: 3/4" = 1'-0"



SECTION A

SCALE: 3/4" = 1'-0"

NOTES

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE PLANS, NOTES, DETAILS AND PROVISIONS AS SPECIFIED.
2. H-20 RATED AL ACCESS HATCH SHALL BE DOUBE LEAF, ANGLE FRAME TYPE SET FLUSH AND CAST INTO VAULT TOP SLAB. ACCESS HATCH SHALL BE PROVIDED WITH ORANGE SAFETY GRATE.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

VALVE VAULT PLAN AND SECTION

90% SUBMITTAL JULY 2025

M800
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SHEET 35 OF 87

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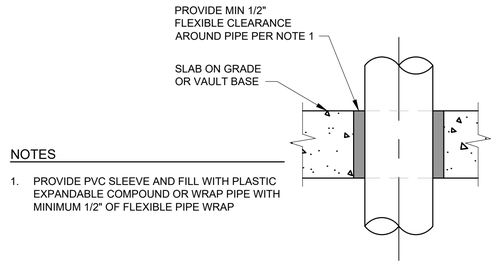


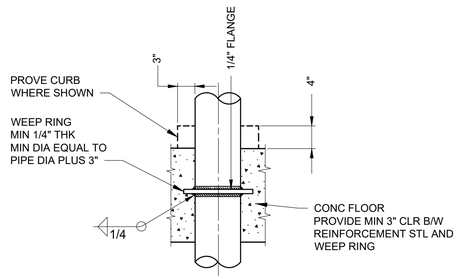
NOTES

1. PROVIDE PVC SLEEVE AND FILL WITH PLASTIC EXPANDABLE COMPOUND OR WRAP PIPE WITH MINIMUM 1/2" OF FLEXIBLE PIPE WRAP

SLAB ON GRADE PIPE PENETRATION DETAIL

SCALE: NTS

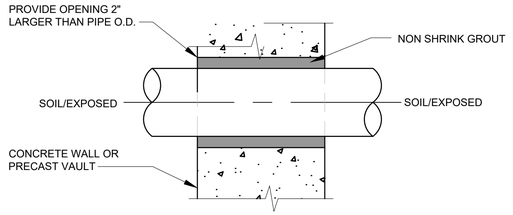
1 VAR



FLOOR PENETRATION DETAIL

SCALE: NTS

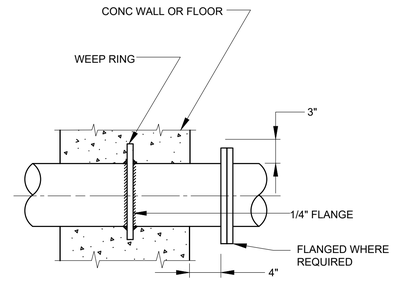
2 VAR



HORIZONTAL PIPE PENETRATION DETAIL 1

SCALE: NTS

3 VAR



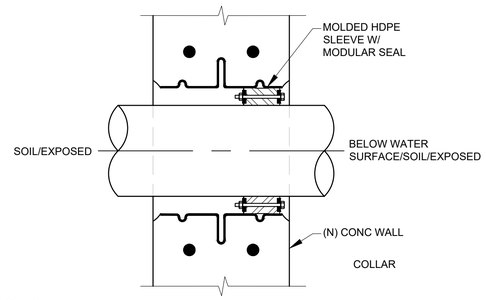
NOTES

1. PROVIDE MINIMUM 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.

HORIZONTAL PIPE PENETRATION DETAIL 2

SCALE: NTS

4 VAR



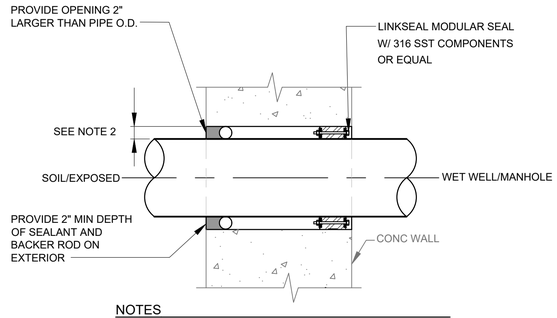
NOTES

1. FOR USE IN CAST IN PLACE CONSTRUCTION INSIDE WET STRUCTURES, WHERE ONE OR BOTH SIDES ARE BELOW WATER LINE.
2. MODULAR SEAL REQUIRED ON BOTH SIDES OF PENETRATION IF BOTH SIDES ARE SUBMERGED OR COULD BE SUBMERGED.
3. FOR NEW CONSTRUCTION SLEEVE SHALL BE CAST INTO WALL. BLOCKOUTS AND SUBSEQUENT GROUTING IN LIEU OF SLEEVES SHALL NOT BE PERMITTED UNLESS OTHERWISE INDICATED ON DRAWINGS.
4. FOR EXISTING OR PRECAST STRUCTURES SLEEVE MAY BE OMITTED.
5. SELECT SPOOL DIAMETER BASED ON MANUFACTURER'S RECOMMENDATION.
6. MODULAR MECHANICAL EXPANDING RUBBER SEAL SHALL HAVE TYPE 316L SST HARDWARE.

CAST IN PLACE PIPE PENETRATION DETAIL

SCALE: NTS

5 VAR



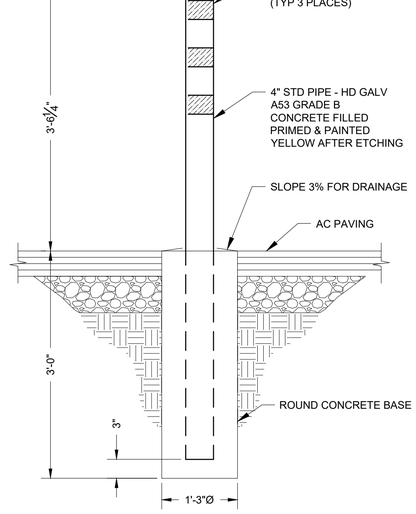
NOTES

1. FOR CORES WHERE ONE OR BOTH SIDES OF THE PENETRATION IS SUBMERGED. IF BOTH SIDES ARE SUBMERGED, THAN EACH SIDE REQUIRES MODULAR SEAL.
2. SLEEVE DIAMETER SHALL BE AS RECOMMENDED BY THE MECHANICAL SEAL MANUFACTURER.

SUBMERGED PIPE PENETRATION FOR STRUCTURES DETAIL

SCALE: NTS

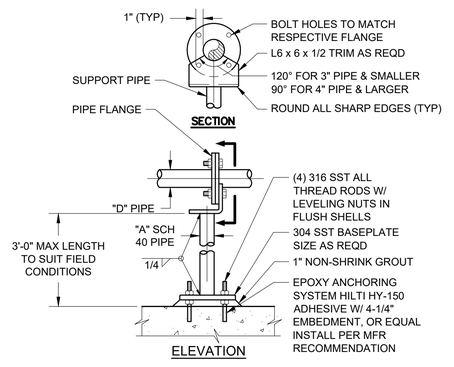
6 VAR



PERMANENT BOLLARD DETAIL

SCALE: NTS

7 VAR



PIPE SIZE		PLATE SIZE
"A"	"D"	
3	3	1/2"X12"X12"

PIPE SIZE		BOLT SIZE	BOLT PATTERN
"A"	"D"		
3	3	1/2"	9" SQ

NOTES

1. MAXIMUM VERTICAL LOAD = 1400 LBS.
2. MAXIMUM PRESSURE IN PIPE = 150 PSI.
3. IF PRESSURE OR STANCHION LENGTH EXCEED MAXIMUMS, CONTRACTOR SHALL USE AN APPROPRIATE SYSTEM AS DIRECTED BY ENGINEER.
4. ALL PIPE SUPPORT MATERIALS INCLUDING BOLTING SHALL BE 304 SST.
5. BASE PLATE BOLTING SHALL BE TYPE 316 SST.

ADJUSTABLE PIPE SUPPORT DETAIL

SCALE: NTS

8 M800

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REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

MECHANICAL DETAILS - 1

90% SUBMITTAL JULY 2025

M900

DRAWING NUMBER

SHEET 36 OF 87

Plot Date: 7/23/2025 10:28 AM
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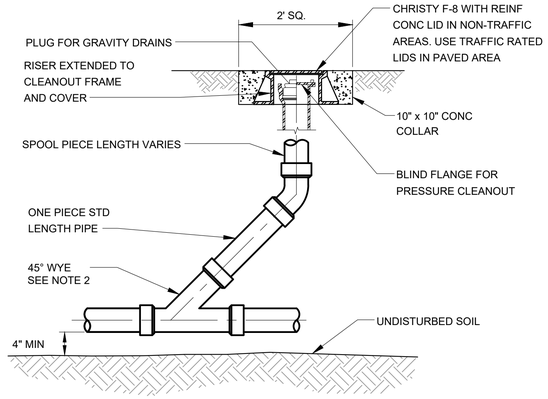
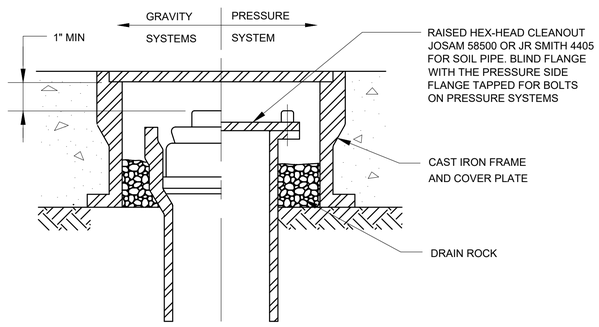


NOTES

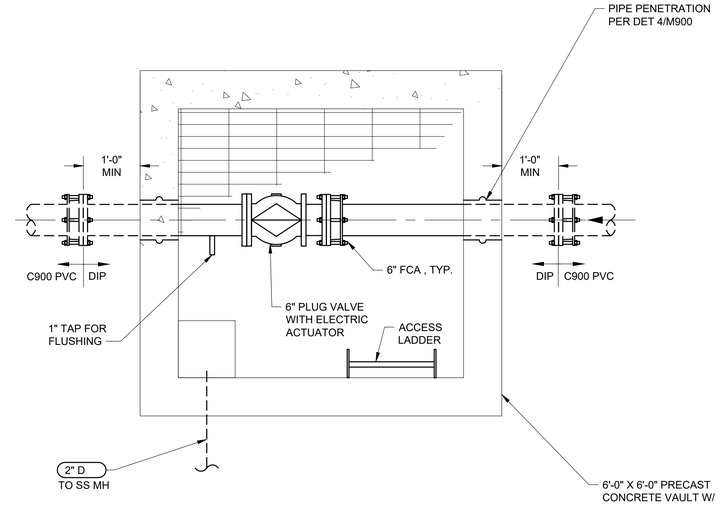
1. PROVIDE ALL SAND BACKFILL.
2. PROVIDE 45° ELL IN PLACE OF WYE FOR END-OF-LINE CLEANOUT AND WAS PIPING LONG RADIUS ELBOWS.



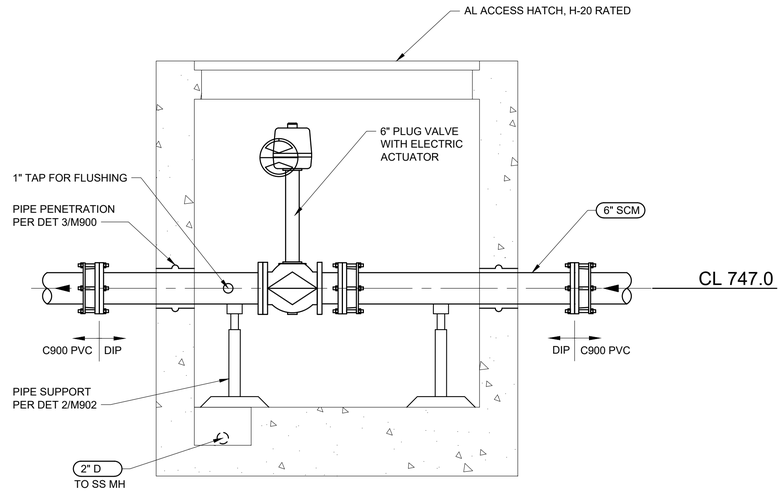
NOTES

1. ALL INTERIOR CLEANOUTS SHALL HAVE NICKEL BRONZE TOPS. ALL EXTERIOR CLEANOUTS SHALL HAVE CHRISTY F-8 WITH REINFORCED CONCRETE LID IN NON-TRAFFIC AREAS.
2. USE TRAFFIC RATED LIDS IN PAVED AREAS.

CLEANOUT DETAIL 1 VAR
SCALE: NTS



ACTUATED PLUG VALVE VAULT PLAN 2 VAR
SCALE: 3/4" = 1'-0"



ACTUATED PLUG VALVE VAULT SECTION 3 VAR
SCALE: 3/4" = 1'-0"

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

MECHANICAL DETAILS - 2

90% SUBMITTAL JULY 2025

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SHEET 37 OF 87

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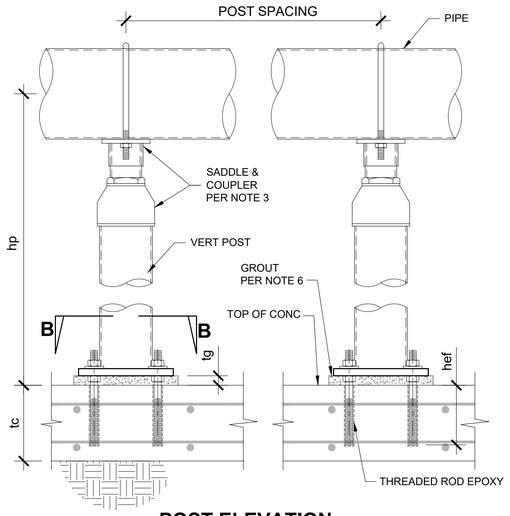
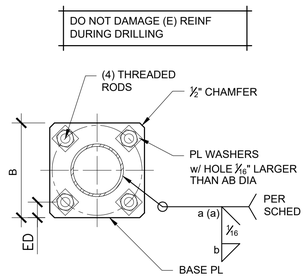


A **POST ELEVATION**

NOTES

1. BASED ON WATER-FILLED PIPE.
2. DESIGN PARAMETERS PER GEOTECHNICAL REPORT.
3. SADDLE SHALL BE ADJUSTABLE & TYPE 37 PER MSS. USE THREADED PIPE COUPLERS & REDUCERS AS REQ'D FOR ADJUSTABILITY & FIT. AT LEAST 4 FULL THREADS MUST BE ENGAGED AT EACH THREADED CONNECTION & THREADED FITTING MUST BE ABOVE POST MIDHEIGHT.
4. MIN CONC EDGE DIST = 1.5 x hef TO ANCHOR BOLT.
5. MATERIAL HOT-DIP GALVANIZED STEEL OR SST.
6. GROUT IS SIKA 212 OR EQ.

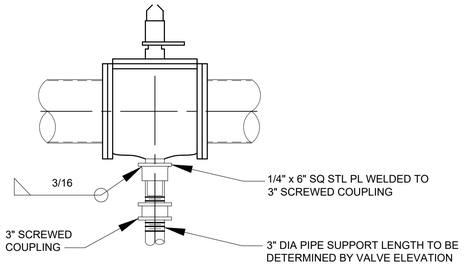


B **PLAN AT BASE PL**

HORIZ PIPE (NOM DIA)	VERT POST SIZE (NOM)	STL MAX POST SPACING	PVC MAX POST SPACING	MAX HEIGHT TO PIPE CL, hp	MIN CONC THICKNESS, tc
4" STD	2.5" STD	10 FT	6 FT	6 FT	8"
6" STD	2.5" STD	14 FT	7 FT	6 FT	8"
8" STD	2.5" STD	14 FT	7 FT	6 FT	8"
10" STD	3" STD	14 FT	-	5 FT	8"
12" STD	3" STD	14 FT	-	4 FT	8"

POST SIZE	2.5" STD	3" STD	4" STD
POST DIA (OD)	2.875"	3.5"	4.5"
tp PIPE WALL	0.203"	0.216"	0.237"
ANCHOR BOLT	(4) ½" DIA	(4) ½" DIA	(4) ⅝" DIA
AB HOLE	⅝" DIA	⅝" DIA	¾" DIA
AB EMBEDMENT, hef	5½"	5½"	7½"
PL WASHER	¼"x2"x2"	¼"x2"x2"	¼"x2"x2"
WELD "a"	tp-1/16"	tp-1/16"	tp-1/16"
WELD "b"	tp+1/16"	tp+1/16"	tp+1/16"
BASE PL THICKNESS	½"	⅝"	⅝"
"B" BASE PL WIDTH	9"	10"	11"
C/C SPACING	6½"	7"	8"
ED, PL EDGE DIST	1¼"	1½"	1½"
GROUT THICK, tgr	⅝"-1"	¾"-1¼"	¾"-1¼"

PIPE STAND DETAIL 1 VAR
SCALE: NTS



NOTES

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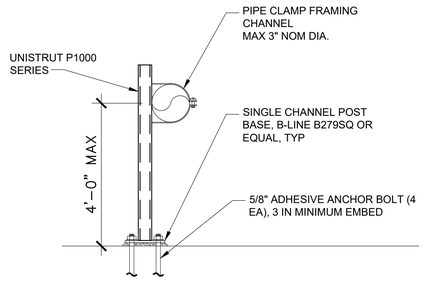
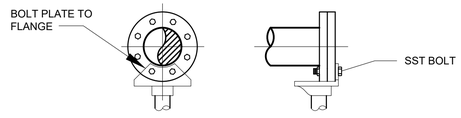
VALVE SUPPORT DETAIL 2 VAR
SCALE: NTS



PIPE SUPPORT SMALL DIA DETAIL 3 VAR
SCALE: NTS



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FLANGED PIPE SUPPORT DETAIL 4 VAR
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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

MECHANICAL DETAILS - 3

90% SUBMITTAL JULY 2025

M902
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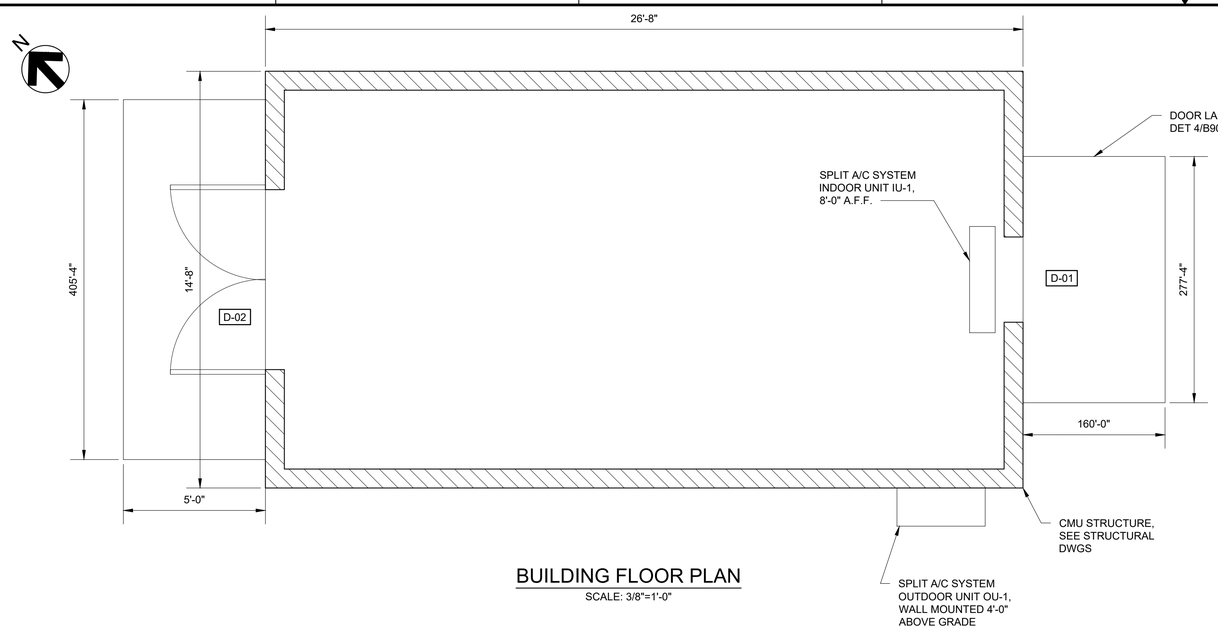
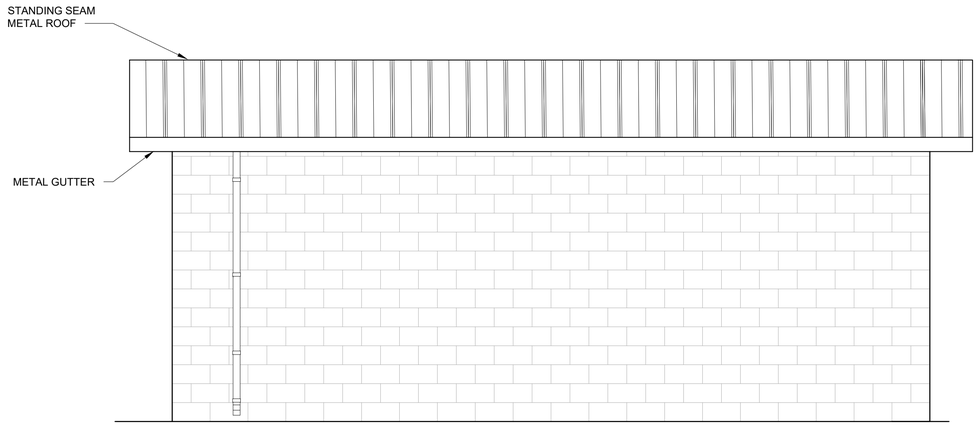
SHEET 38 OF 87

File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-M-Details.dwg Plotted By: ANTHONY PEREZ Plot Date: 7/23/2025 10:26 AM



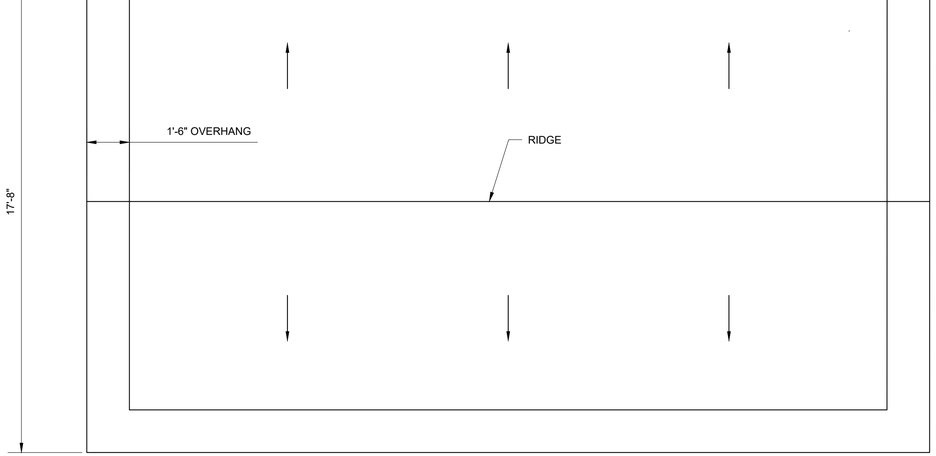
BUILDING FLOOR PLAN

SCALE: 3/8"=1'-0"



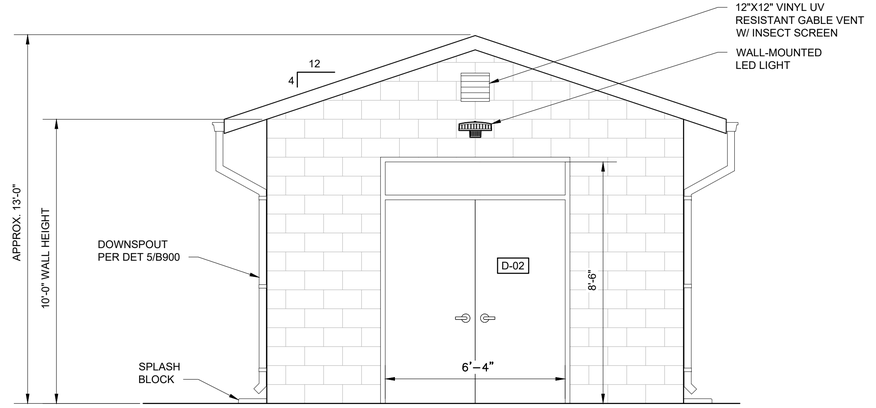
BUILDING NORTH / SOUTH ELEVATION

SCALE: 3/8"=1'-0"



BUILDING ROOF PLAN

SCALE: 3/8"=1'-0"



BUILDING WEST ELEVATION

SCALE: 3/8"=1'-0"

NOTES

1. SEE SHEET B900 FOR ARCHITECTURAL DETAILS, HARDWARE AND EQUIPMENT SCHEDULE.

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL BUILDING PLAN AND ELEVATIONS

90% SUBMITTAL JULY 2025

B300
DRAWING NUMBER

SHEET 39 OF 87

Plot Date: 7/23/2025 10:19 AM
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DOOR SCHEDULE											
DOOR LABELS	DOOR								HARDWARE		
	DOOR SIZE		THICKNESS	MATERIAL	FINISH	PAIR	HOLLOW	LOUVER	MATERIAL	FINISH	COMMENTS
	WIDTH	HEIGHT									
D-01	3'-0"	7'-0"	1¾"	STEEL	PAINT		X		STEEL	PAINT	
D-02	3'-0"	7'-0"	1¾"	STEEL	PAINT	X	X		STEEL	PAINT	8'-6" H W/ REMOVABLE TRANSOM

NOTES:

1. KICK PLATES ARE ALUMINUM (DULL FINISH) WITH STAINLESS STEEL SCREWS.
2. DOOR AND FRAME COLOR TO MATCH CMU BLOCK.
3. INSTALL LATCH GUARDS ON ALL EXTERIOR SWING DOORS.

INTERIOR FINISH SCHEDULE						
ROOM NAME	FLOOR INFORMATION		CEILING INFORMATION		WALL INFO	COMMENTS
	FLOOR MATERIAL	BASE MATERIAL	CEILING MATERIAL	CEILING FINISH		
ELECTRICAL BUILDING	SEALED CONC	-	GYPSUM	PAINT	CMU	

NOTES:

1. PRIME AND PAINT ALL INTERIOR EXPOSED WOOD SURFACES AND TRIM. COLOR: WHITE, SEMI-GLOSS

EXTERIOR FINISH SCHEDULE	
DESCRIPTION	COMMENTS
ALL EXTERIOR CMU SURFACES COATED w/ CLEAR WATER REPELLANT	CMU BASE COLOR: GREY
STANDING SEAM METAL ROOF	COLOR: BROWN
EXTERIOR EXPOSED WOOD ROOF FRAMING, METAL SURFACES, AND TRIM	COLOR: MATCH ROOF
GUTTERS, DOWNSPOUTS, AND STRAPS	COLOR: MATCH CMU

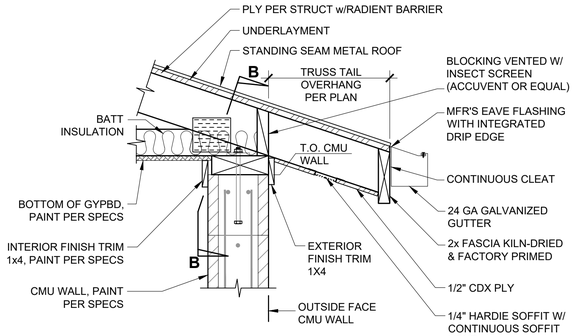
NOTES:

1. CONTRACTOR SHALL SUBMIT COLOR SAMPLES. COLORS INDICATED ARE FOR GUIDANCE ONLY. FINAL COLOR CHOICE SHALL BE APPROVED BY OWNER.

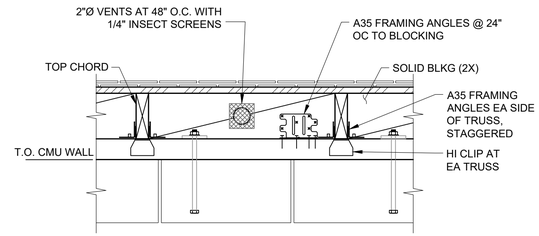
DUCTLESS SPLIT A/C SYSTEM SCHEDULE						
SYM.	MFR.	MODEL	VOLTAGE	DIMENSIONS (IN)	SUCTION LINE	DISCHARGE LINE
OU-1	CARRIER	38MARBQ24AA3	230	37 X 16 X 32	5/8"	3/8"
IU-1	"	40MAHBQ24XA3	230	45 X 15 X 11	5/8"	3/8"

NOTES:

1. EQUIPMENT MANUFACTURER/MODEL SHALL BE AS LISTED, OR EQUAL.



A SIDE SECTION

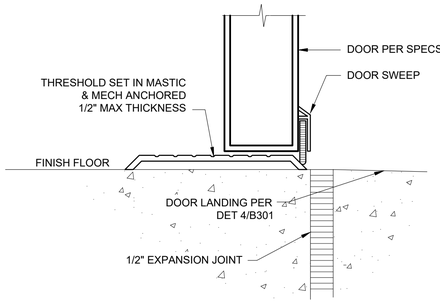


B SECTION THRU TRUSSES

ROOF OVERHANG DETAIL

SCALE: NTS

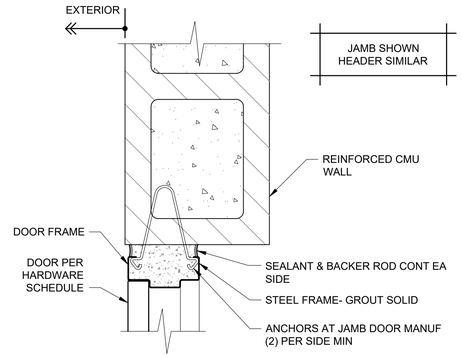
1 / -



DOOR THRESHOLD DETAIL

SCALE: NTS

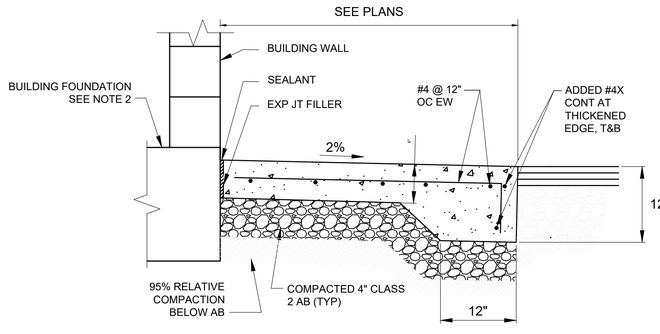
2 / -



DOOR JAMB DETAIL

SCALE: NTS

3 / -



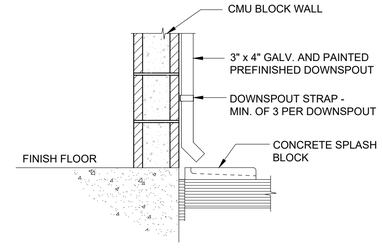
DOOR LANDING DETAIL

SCALE: NTS

4 / -

NOTES:

1. CONCRETE SHALL BE MEDIUM BROOM FINISH, REMOVE EXCESS WATER AND LAITANCE BUT DO NOT USE DUST ON FINISH TO ABSORB FREE WATER. SLOPE SURFACES FOR DRAINAGE AS REQUIRED. USE EDGING TOOL ON HORIZONTAL EDGES.
2. BUILDING FOUNDATION FINISHED FLOOR ELEVATION MIN 2" ABOVE ASPHALT CONCRETE PAVEMENT. SIDEWALK ELEVATION AT DOOR THRESHOLD SHALL BE MIN 1/4" AND MAX 1/2" BELOW BUILDING FOUNDATION FINISHED FLOOR ELEVATION.
3. CONSTRUCTION JOINTS SHALL BE 3/4" DEEP WITH TOOL EDGES 1/4" RADIUS EVERY 32 FT MIN.
4. SHRINKAGE CONTRACTION JOINTS EVERY 8' MIN.



DOWNSPOUT DETAIL

SCALE: NTS

5 / -

NOT FOR CONSTRUCTION

HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: BF/AGP
DESIGNED BY: BF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL BUILDING DETAILS

90% SUBMITTAL JULY 2025

B900
DRAWING NUMBER

SHEET 40 OF 87

Plot Date: 7/23/2025 10:19 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-B-Building.dwg

GENERAL:

1. INTERPRETATION OF DRAWINGS & SPECIFICATIONS
   - 1.1 WHERE APPLICABLE, SPECIFICATIONS HAVE BEEN PREPARED FOR THIS PROJECT AND ARE ARRANGED IN SEVERAL SECTIONS, BUT SUCH SEPARATION SHALL NOT BE CONSIDERED AS THE LIMITS OF THE WORK REQUIRED BY ANY SEPARATE TRADE. THE TERMS AND CONDITIONS OF SUCH LIMITATIONS ARE WHOLLY BETWEEN THE CONTRACTOR AND SUBCONTRACTORS.
   - 1.2 IN GENERAL, THE WORKING DETAILS WILL INDICATE DIMENSIONS, POSITIONS AND KIND OF CONSTRUCTION, AND THE SPECIFICATIONS WILL INDICATE QUALITIES AND METHODS. ANY WORK INDICATED ON THE WORKING DETAILS MENTIONED BUT NOT IN THE SPECIFICATIONS, OR VICE VERSA, SHALL BE FURNISHED AS THOUGH FULLY SET FORTH IN BOTH. WORK NOT PARTICULARLY DETAILED, MARKED OR SPECIFIED, SHALL BE THE SAME AS SIMILAR PARTS THAT ARE DETAILED, MARKED OR SPECIFIED. IF CONFLICTS OCCUR BETWEEN DRAWINGS AND SPECIFICATIONS, THE MOST EXPENSIVE MATERIALS OR METHODS WILL PREVAIL.
   - 1.3 SHOULD AN ERROR APPEAR IN THE WORKING DETAILS OR SPECIFICATIONS OR IN WORK DONE BY OTHERS AFFECTING THIS WORK, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT ONCE AND IN WRITING. IF THE CONTRACTOR PROCEEDS WITH THE WORK SO AFFECTED WITHOUT HAVING GIVEN SUCH WRITTEN NOTICE AND WITHOUT RECEIVING THE NECESSARY APPROVAL, DECISION OR INSTRUCTION IN WRITING FROM THE OWNER, THEN THEY SHALL HAVE NO VALID CLAIM AGAINST THE OWNER, FOR THE COST OF SO PROCEEDING AND SHALL MAKE GOOD ANY RESULTING DAMAGE OR DEFECT. NO VERBAL APPROVAL, DECISION, OR INSTRUCTION SHALL BE VALID OR BE THE BASIS FOR ANY CLAIM AGAINST THE OWNER, ITS OFFICERS, EMPLOYEES, OR AGENTS. THE FOREGOING INCLUDES TYPICAL ERRORS IN THE SPECIFICATIONS OR NOTATIONAL ERRORS IN THE WORKING DETAILS WHERE THE INTERPRETATION IS DOUBTFUL OR WHERE THE ERROR IS SUFFICIENTLY APPARENT AS TO PLACE A REASONABLY PRUDENT CONTRACTOR ON NOTICE THAT, SHOULD THEY ELECT TO PROCEED, THEY ARE DOING SO AT THEIR OWN RISK.
2. CONSTRUCTION SHALL CONFORM TO THE 2022 CBC AND ALL APPLICABLE CODES AND REGULATIONS.
3. SHOP DRAWING NOTE:
   - 3.1 SHOP DRAWINGS SHALL BE SUBMITTED ELECTRONICALLY IN PDF FORMAT AT FULL SCALE.
   - 3.2 THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE STRUCTURAL ENGINEER THAT THEY UNDERSTAND THE DESIGN CONCEPT BY INDICATING WHICH MATERIALS THEY INTEND TO FURNISH AND INSTALL, AND BY DETAILING THE FABRICATION AND INSTALLATION METHODS THEY INTEND TO USE.
   - 3.3 PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE STRUCTURAL ENGINEER. SHOP DRAWING SUBMITTALS SHALL INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO CONCRETE MIX DESIGNS, STRUCTURAL STEEL, REINFORCING STEEL, MASONRY UNITS, GROUT MIX DESIGNS, GLUED LAMINATED BEAMS, AND PRE-FABRICATED WOOD ROOF FRAMING ITEMS SUCH AS I-JOISTS AND TRUSSES WHERE THESE ELEMENTS ARE INDICATED ON THE DRAWINGS.
   - 3.4 PRIOR TO SUBMISSION THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SHALL STAMP SUBMITTALS AS BEING "REVIEWED FOR CONFORMANCE"
   - 3.5 SHOP DRAWING SUBMITTALS PROCESSED BY THE STRUCTURAL ENGINEER ARE NOT CHANGE ORDERS.
   - 3.6 ANY DETAIL ON THE SHOP DRAWING THAT DEVIATES FROM THE CONTRACT DOCUMENTS SHALL CLEARLY BE MARKED WITH THE NOTE "THIS IS A CHANGE".
   - 3.7 SHOP DRAWINGS OR CALCULATIONS SUBMITTED FOR REVIEW THAT REQUIRE RESUBMITTAL FOR RE-REVIEW SHALL BE BILLED HOURLY FOR SUCH TIME TO THE GENERAL CONTRACTOR. RE-REVIEW WILL NOT PROCEED WITHOUT WRITTEN APPROVAL FROM THE GENERAL CONTRACTOR FOR ADDITIONAL ENGINEERING REVIEW SERVICES.
4. SAFETY NOTE:
   - 4.1 IT IS THE CONTRACTORS RESPONSIBILITY TO COMPLY WITH THE PERTINENT SECTIONS, AS THEY APPLY TO THIS PROJECT, OF THE "CONSTRUCTION SAFETY ORDERS" ISSUED BY THE STATE OF CALIFORNIA LATEST EDITION, AND ALL OSHA REQUIREMENTS.
   - 4.2 THE OWNER AND THE STRUCTURAL ENGINEER DO NOT ACCEPT ANY RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO COMPLY WITH THESE REQUIREMENTS.
   - 4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS AND SHORING REQUIRED.
5. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHERE A CONFLICT OR A DISCREPANCY OCCURS BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER PORTION OF THE CONTRACT DOCUMENTS OR EXISTING FIELD CONDITIONS. SUCH NOTIFICATION SHALL BE GIVEN IN DUE TIME SO AS NOT TO AFFECT THE CONSTRUCTION SCHEDULE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS WITH STRUCTURAL DRAWINGS PRIOR TO COMMENCING ANY WORK.
6. WHERE NO SPECIFIC DETAIL IS SHOWN, THE CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CASES OF CONSTRUCTION ON THIS PROJECT. SHOULD THERE BE ANY QUESTION, CONTACT THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING.
7. WHEN CONSTRUCTION ATTACHES TO AN EXISTING BUILDING, A COMPLETE SET OF DRAWINGS OF THE EXISTING BUILDING SHALL BE KEPT ON THE JOB SITE. CONTRACTOR TO OBTAIN THESE DRAWINGS FROM THE OWNER.
8. ANY SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, OR DETAILS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER. SUCH REVIEW WILL BE BILLED ON A TIME AND MATERIALS BASIS TO THE GENERAL CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
9. DO NOT SCALE DRAWINGS. CONTACT THE STRUCTURAL ENGINEER FOR ANY DIMENSIONS NOT SHOWN.
10. THESE DRAWINGS ARE NOT COMPLETE UNTIL REVIEWED AND ACCEPTED BY THE LOCAL BUILDING OFFICIAL AND SIGNED BY THE OWNER AND THE STRUCTURAL ENGINEER.
11. ALL DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTES THE ORIGINAL AND UNPUBLISHED WORK OF THE STRUCTURAL ENGINEER AND THE SAME MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT WRITTEN CONSENT OF THE STRUCTURAL ENGINEER.
12. THE STRUCTURE SHOWN ON THESE DRAWINGS IS STRUCTURALLY SOUND ONLY IN ITS COMPLETED FORM. THE STABILITY OF THIS STRUCTURE DEPENDS ON THE DIAPHRAGMS AND THE BRACING MEMBERS SHOWN. THE CONTRACTOR IS TO PROVIDE FOR THE DESIGN AND CONSTRUCTION OF SHORING FOR ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, AND MASONRY TO RESIST GRAVITY, EARTH, WIND, SEISMIC, AND CONSTRUCTION LOADS. SHORING SHALL REMAIN IN PLACE UNTIL ALL DIAPHRAGMS AND LATERAL RESISTING ELEMENTS ARE IN PLACE IN THEIR ENTIRETY.

STRUCTURAL ALUMINUM:

1. ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM CONSTRUCTION MANUAL OF THE ALUMINUM ASSOCIATION.
2. UNLESS OTHERWISE INDICATED, STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 AS SPECIFIED IN ASTM B308.
3. WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACES SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT.

CONCRETE AND REINFORCING STEEL:

1. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318-19 & ACI 350.
2. THE MINIMUM 28 DAY STRENGTH AND TYPE OF CONCRETE SHALL BE AS FOLLOWS:
   CONCRETE 145 PCF
   F'c= 4,000 PSI (MINIMUM 6 SACKS CEMENT PER CU. YD.).
3. ALL CONCRETE SHALL BE READY-MIX IN ACCORDANCE WITH ASTM-C94.
4. CONCRETE MIX DESIGN SHALL BE REVIEWED BY THE OWNER'S TESTING LABORATORY AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE PER 2019 CBC SECTION 1903.
5. CEMENT SHALL CONFORM TO ASTM C-150 TYPE V.
6. CONCRETE AGGREGATES: NATURAL SAND AND ROCK AGGREGATES CONFORMING TO ASTM C-33.
7. REINFORCING SHALL CONFORM TO ASTM A706 GRADE 60.
8. WELDING OF REINFORCING STEEL SHALL CONFORM TO AWS D1.4 USING PROPER LOW HYDROGEN ELECTRODES. TACK WELDING TO REBAR IS STRICTLY PROHIBITED. SEE "REBAR WELDING".
9. REINFORCING STEEL SHALL BE DETAILED, FABRICATED, AND INSTALLED ACCORDING TO "MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" BY CRSI.
10. WIRE FABRIC SHALL CONFORM TO ASTM A-1064.
11. DIMENSIONS SHOWN FOR LOCATION OF REINFORCING ARE TO THE FACE OF MAIN BARS AND DENOTE CLEAR COVERAGE. UNLESS OTHERWISE NOTED, CONCRETE COVERAGE SHALL BE AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND (EXCEPT SLABS)	3"
FORMED CONCRETE EXPOSED TO WEATHER OR GROUND OR LIQUID	
#6 AND LARGER	2"
#5 AND SMALLER	2"
BEAMS (TOP BARS)	1½"
BEAMS (ALL OTHER MAIN REINFORCING)	2"
COLUMN MAIN REINFORCING	2"
WALLS AND SLABS (INTERIOR DRY FACES)	¾"
SLABS ON GROUND WITH ONE LAYER OF REINFORCEMENT	POSITION IN CENTER OF SLAB

12. REINFORCING STEEL PLACEMENT:
    - 12.1 ALL BARS SHOWN WITH LAPS OR SPLICES SHALL HAVE MIN LAP LENGTH UNLESS OTHERWISE NOTED.
    - 12.2 DOWEL ALL VERTICAL REBAR IN WALLS AND COLUMNS FROM FOUNDATION WITH SAME SIZE AND SPACING AS VERTICAL BARS.
    - 12.3 SPLICES IN ADJACENT BARS SHALL BE NOT LESS THAN 5'-0" APART.
    - 12.4 SPLICE CONTINUOUS BARS IN SOIL-BEARING GRADE BEAMS AS FOLLOWS: BOTTOM BARS AT MID-SPAN, TOP BARS AT CENTERLINE OF SUPPORT, UNLESS NOTED OTHERWISE.
    - 12.5 SPLICE CONTINUOUS BARS IN BEAMS, SPANDRELS, WALL BEAMS ETC. AS FOLLOWS: BOTTOM BARS AT CENTERLINE OF SUPPORT, TOP BARS AT MIDSPAN, UNLESS NOTED OTHERWISE.
    - 12.6 REINFORCING BARS SHALL BE RUN IN A MANNER THAT FORMS A CONTINUOUS SYSTEM OF BARS TYING ALL PARTS OF THE STRUCTURE TOGETHER. EXTEND ALL REINFORCING BARS AS FAR AS POSSIBLE IN EACH CONCRETE MEMBER AND TERMINATE BAR TO PROVIDE 2" OF CONCRETE COVER END OF BAR OR FACE OR BEND.
    - 12.7 BEAM STIRRUPS AND COLUMN TIES SHALL HOOK 135 DEGREES AROUND A CORNER BAR UNLESS NOTED OTHERWISE.
13. GENERAL:
    - 13.1 NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE SLABS, BEAMS, WALLS OR GRADE BEAMS UNLESS SPECIFICALLY DETAILED.
    - 13.2 REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR ALL OPENINGS, FLANGES, MOULDS, GROOVES, CLIPS AND GROUNDS TO BE CAST IN CONCRETE.
14. CONSTRUCTION JOINTS SHALL BE MADE ROUGH AND ALL LAITANCE REMOVED FROM THE SURFACE. CONCRETE MAY BE ROUGHENED BY CHIPPING THE ENTIRE SURFACE, SANDBLASTING, OR HOSING THE SURFACE 4 TO 6 HOURS AFTER THE POUR WITH A FINE SPRAY.
15. REMOVE ALL DEBRIS FROM THE FORMS BEFORE PLACING ANY CONCRETE.
16. REINFORCING, DOWELS, BOLTS, ANCHORS, SLEEVES, ETC. TO BE EMBEDDED IN CONCRETE SHALL BE SECURELY POSITIONED BEFORE PLACING CONCRETE. OBTAIN APPROVAL OF ALL AFFECTED TRADES PRIOR TO PLACING CONCRETE.
17. MAXIMUM FREE FALL OF CONCRETE SHALL BE 3'-0".
18. WALLS SHALL BE PLACED IN HORIZONTAL LAYERS OF 2'-0" MAX DEPTH.
19. CONCRETE IN WALLS, PIERS, OR COLUMNS SHALL SET AT LEAST 2 HOURS BEFORE PLACING CONCRETE IF IT SUPPORTS BEAMS, SPANDRELS, OR SLABS.
20. REINFORCE ALL SLABS ON GRADE AS SHOWN ON DRAWINGS.
21. HORIZONTAL WALL BARS IN DOUBLE LAYER WALLS SHALL BE STAGGERED. USE #2 SPREADERS APPROXIMATELY EVERY THIRD INTERSECTION EACH DIRECTION FOR ALL DOUBLE LAYER WALLS. PLACE SPREADERS IN VERTICAL LINES WITH FORM TIES.
22. NO WOOD SPREADERS ARE ALLOWED. NO WOOD STAKES ARE ALLOWED IN AREAS TO BE CONCRETED.
23. MINIMUM WALL REINFORCING FOR TEMPERATURE AND SHRINKAGE CONTROL ARE:

WALL THICKNESS	SINGLE LAYER	DOUBLE LAYER
7" OR LESS	#4 @ 12" CC EW	
8"	#4 @ 10" CC EW	
9" AND 10"		#4 @ 16" CC EW
11" AND 12"		#4 @ 12" CC EW
18"		#5 @ 12" CC EW
24"		#6 @ 12" CC EW

24. NOTIFY THE ENGINEER 48 HOURS PRIOR TO PLACING CONCRETE.
25. REINFORCEMENT LAP SPLICE LENGTHS ARE:

	3,000 PSI	3,500 PSI	4,000 PSI
#6 AND SMALLER	$57d_b$	$53d_b$	$49d_b$
#7 AND LARGER	$72d_b$	$66d_b$	$62d_b$

    - 25.1 SPLICE LENGTHS SHOWN APPLY TO LAP CLASS B NORMAL WEIGHT CONCRETE FOR THE STRENGTHS SHOWN. THE REINFORCING IS UNCOATED GRADE 60 REINFORCING.
    - 25.2 INCREASE LAP SPLICE LENGTHS BY 30% FOR TOP REINFORCING. TOP REINFORCING IS HORIZONTAL REINFORCING WITH MORE THAN 12" OF CONCRETE BELOW THE SPLICE.
    - 25.3 INCREASE LAP LENGTHS BY 30% IF LIGHTWEIGHT CONCRETE IS USED.
    - 25.4 WHERE CLEAR SPACING OF BARS IS LESS THAN 2 db OR WHERE CLEAR COVER IS LESS THAN 1 db INCREASE LAP LENGTHS BY 50%, UNO.
26. MAXIMUM SPACING OF WALL CONST. JOINTS IS 30ft.

STAINLESS STEEL:

1. FABRICATION, ERECTION AND MATERIALS SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS OF THE AISC, AS CONTAINED IN THE LATEST EDITION OF "AISC 360 SPECIFICATIONS OF STRUCTURAL STEEL BUILDINGS" & THE "AISC MANUAL OF STEEL CONSTRUCTION".
2. ALL W, L, HSS AND PLATES SHALL BE STAINLESS STEEL 304/304L DUAL GRADE AND CONFORM WITH ASTM A276.
3. WELDING SHALL BE DONE BY THE ELECTRIC ARC PROCESS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY STANDARDS, USING ONLY CERTIFIED WELDERS. ALL GROOVE WELDS SHALL HAVE COMPLETE PENETRATION UNLESS NOTED OTHERWISE. ALL EXPOSED WELDS SHALL BE GROUND. ALL WELDED CONNECTIONS SHALL BE PICKLED AND PASSIVATED.
4. ALL STEEL SHALL BE ERECTED PLUMB AND TRUE TO LINE. TEMPORARY BRACING SHALL BE INSTALLED AND SHALL BE LEFT IN PLACE UNTIL OTHER MEANS ARE PROVIDED TO ADEQUATELY BRACE THE STRUCTURE.
5. PLACE NON-SHRINK GROUT UNDER ALL BASE PLATES BEFORE ADDING VERTICAL LOAD. NON-SHRINK GROUT SHALL BE MASTERFLOW 928 GROUT BY MASTER BUILDERS TECHNOLOGIES OR APPROVED EQUAL WITH A MINIMUM F'c OF 7500 PSI @ 28 DAYS.
6. BOLTED CONNECTIONS AND THREADED PARTS SHALL CONSIST OF STAINLESS STEEL 316 AND CONFORM TO ASTM F-593 UNLESS NOTED OTHERWISE.
7. HOLES FOR UNFINISHED BOLTS SHALL BE OF THE SAME NOMINAL DIAMETER OF THE BOLT PLUS $\frac{1}{16}$". USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE.
8. HOLES FOR ANCHOR BOLTS EMBEDDED IN CONCRETE SHALL BE OF THE SAME NOMINAL BOLT DIAMETER PLUS $\frac{3}{16}$" UNLESS NOTED OTHERWISE.
9. PROVIDE ½" DIAMETER STITCH BOLTS AND RING FILLS, SPACED AT NOT MORE THAN 24" CC FOR ALL DOUBLE ANGLE MEMBERS.
10. AT WOOD TO STEEL PARALLEL CONTACT, BOLT WITH ½" DIAMETER BOLTS AT MAXIMUM 24" CC, TYPICAL UNLESS NOTED OTHERWISE.
11. STRUCTURAL STEEL BELOW GRADE SHALL HAVE 3" MINIMUM OF CONCRETE COVER.

DESIGN CRITERIA:

1. CODE: 2022 CALIFORNIA BUILDING CODE (CBC)
2. DESIGN LIVE LOADS:
   - CATWALK 60 PSF
3. WIND DESIGN PARAMETERS:
   - BASIC WIND SPEED (3-SEC GUST) V= 100 MPH
   - RISK CATEGORY III
   - EXPOSURE CATEGORY C
4. EARTHQUAKE DESIGN PARAMETERS:
   - SEISMIC IMPORTANCE FACTOR, I_E 1.5
   - COMPONENT IMPORTANCE FACTOR, I_P 1.5
   - RISK CATEGORY III
   - SITE CLASS C
   - SEISMIC DESIGN CATEGORY C
   - MAPPED SPECTRAL RESPONSE PARAMETERS:
     - S_S 0.382
     - S_1 0.197
   - DESIGN SPECTRAL RESPONSE PARAMETERS:
     - S_{DS} 0.331
     - S_{D1} 0.197
     - PGA 0.199
   - SEISMIC FORCE RESISTING SYSTEM: SPECIAL REINFORCED MASONRY WALLS
     - R 5
     - C_v 0.08
   - ANALYSIS PROCEDURE: PSEUDO STATIC

GEOTECHNICAL:

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY BLACKBURN CONSULTING (NO. 4668.X).
2. ALL BUILDING PAD PREPARATION AND FOUNDATION WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. COPIES OF THE REPORT MAY BE OBTAINED FROM THE ENGINEER UPON REQUEST.
3. THE GEOTECHNICAL ENGINEER SHALL OBSERVE ALL FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF REINFORCING STEEL AND CONCRETE.
4. FOUNDATION DEPTHS INDICATED ON PLANS ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL DEPTHS ARE TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER ON THE JOBSITE.
5. WHEN STRUCTURAL OBSERVATION IS REQUIRED, STRUCTURAL ENGINEER SHALL OBSERVE FOOTING REINFORCING STEEL PRIOR TO CONCRETE PLACEMENT. PROVIDE 48 HOURS NOTICE TO STRUCTURAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING, BUT NOT LIMITED TO, LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES IN ACCORDANCE WITH THE LOCAL BUILDING DEPARTMENT.
7. FOUNDATION TYPE:

SPREAD FOOTING ALLOWABLE PRESSURES:	
D+L	3,500 PSF (⅓ INCREASE FOR WIND/SEISMIC)
MAT FOUNDATION ALLOWABLE PRESSURES:	
D+L	2,500 PSF (⅓ INCREASE FOR WIND/SEISMIC)
MODULUS OF SUBGRADE	17.4 PCI
LATERAL EARTH PRESSURE (DRAINED):	
ACTIVE SOIL PRESSURE	36 PCF
AT-REST SOIL PRESSURE	56 PCF
SEISMIC PRESSURE	4 PCF
PASSIVE PRESSURE (SF=1.0)	400 PCF
COEFFICIENT OF FRICTION (SF=1.0)	0.60

NOT FOR CONSTRUCTION

HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/22/2025
DRAWN BY: DGG
DESIGNED BY: BAF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

GENERAL STRUCTURAL NOTES 1

90% SUBMITTAL JULY 2025

S001
DRAWING NUMBER

SHEET X OF 86

Plot Date: 7/26/2025 12:04 PM
Plotted By: BRAD FRIEDERICHS
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WOOD:

1. ALL SAWN LUMBER SHALL BE DOUGLAS FIR–LARCH AS GRADED BY THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB) IN ACCORDANCE WITH STANDARD GRADING RULES NO. 17 TYPICAL UNLESS NOTED OTHERWISE. ALL MEMBERS SHALL HAVE A MINIMUM GRADE OF NO. 1 EXCEPT 2x4 AND 2x6 WALL STUDS, PLATES, AND BLOCKING MAY BE NO. 2.
2. MANUFACTURED LUMBER MINIMUM PROPERTIES:
   - 2.1 PARALLEL STRAND LUMBER SHALL BE GRADE 2.0E (Fb=2,900 PSI MIN) AND EQUIVALENT TO WEYERHAEUSER PARALLAM® PRODUCT.
   - 2.2 LAMINATED VENEER LUMBER SHALL BE GRADE 1.9E (Fb=2,600 PSI MIN) AND EQUIVALENT TO WEYERHAEUSER MICROLLAM® PRODUCT.
   - 2.3 GLU–LAMINATED MEMBERS–SEE "GLU–LAMINATED BEAM NOTES".
3. ALL STRUCTURAL SHEATHING USED FOR SHEARWALLS AND ROOF SHEATHING SHALL BE MANUFACTURED IN ACCORDANCE WITH PRODUCT STANDARDS OF APA – THE ENGINEERED WOOD ASSOCIATION. SHEATHING SHALL MEET PS2–04 PERFORMANCE STANDARD FOR WOOD–BASED STRUCTURAL–USE PANELS AND SHALL BE STAMPED WITH APA TRADEMARK.
4. ALL FOUNDATION PLATES OR SILLS ON CONCRETE SLABS WHICH ARE IN DIRECT CONTACT WITH EARTH, AND PLATES OR SILLS ON CONCRETE OR MASONRY FOUNDATIONS, SHALL BE PRESSURE TREATED.
5. ALL WOOD SHALL HAVE A MOISTURE CONTENT OF NOT MORE THAN 19% WHEN SHEATHING IS APPLIED.
6. 8" MINIMUM CLEARANCE SHALL BE MAINTAINED AT ALL EXTERIOR WALLS BETWEEN FINISH GRADE AND BOTTOM OF WOOD WALLS.
7. BEARING AND SHEARWALLS SHALL HAVE DOUBLE TOP PLATES LAPPED AT WALL CORNERS AND INTERSECTIONS AND PLATES SHALL BE INTERNAILED WITH (3) 16d AT SUCH LOCATIONS. FOR PLATE SPLICE DETAILS, SEE DRAWINGS.
8. SILL PLATE ANCHOR BOLTS SHALL BE INSTALLED WITH PLATE WASHERS 3x3x¼ BETWEEN NUT AND PLATE.
9. PROVIDE SOLID BLOCKING BETWEEN JOISTS AND RAFTERS AT ALL SUPPORTS.
10. PROVIDE BLOCKING AT ALL CEILING LEVELS.
11. JOISTS UNDER AND PARALLEL TO PARTITIONS SHALL BE DOUBLED AND NAILED TOGETHER.
12. HOLES FOR BOLTS IN WOOD SHALL BE BORED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT PLUS 1/16".
13. HOLES FOR LAG SCREWS SHALL BE BORED AS FOLLOWS:
    - 13.1 THE CLEARANCE HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH OF PENETRATION AS THE LENGTH OF UNTHREADED SHANK.
    - 13.2 THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60% TO 75% OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION.
14. LAG SCREWS AND WOOD SCREWS SHALL BE SCREWED AND NOT DRIVEN INTO PLACE. SOAP MAY BE USED TO LUBRICATE THE SCREWS.
15. ALL BOLTS AND LAG SCREWS SHALL BE PROVIDED WITH METAL WASHERS UNDER HEADS AND NUTS WHICH BEAR ON WOOD. APPLIES ALSO TO INSERTED EXPANDING FASTENERS, RED HEAD, ETC.

BOLT DIAMETER	MI WASHER	STEEL WASHER
5/8"ø	2¾"øx5/16"	3"x3"x¼"
¾"ø	3"øx1/4"	3"x3"x5/16"
7/8"ø	3½"øx1/4"	3½"x3½"x⅜"
1"ø	4"øx½"	3¾"x3¾"x⅜"

16. ALL BOLTS AND LAG SCREWS SHALL BE TIGHTENED AT INSTALLATION AND RETIGHTENED BEFORE CLOSING IN OR AT COMPLETION OF JOB.
17. LAY ALL STRUCTURAL SHEATHING ON ROOF AND FLOORS WITH FACE GRAIN PERPENDICULAR TO SUPPORT TYPICAL UNLESS NOTED OTHERWISE. USE PLY–CLIPS AT UNSUPPORTED SHEATHING EDGES.
18. CONNECTOR HARDWARE MODEL NUMBER ARE THOSE FOR SIMPSON STRONG–TIE COMPANY. ALL JOIST HANGERS SHALL BE SIMPSON U SERIES UNLESS NOTED OTHERWISE. EQUIVALENT CONNECTORS WITH ICC ACCEPTANCE MAY BE SUBMITTED FOR REVIEW AS AN ALTERNATE.
19. NOTIFY STRUCTURAL ENGINEER AFTER WALL, FLOOR, AND ROOF SHEATHING NAILING HAS BEEN COMPLETED AND A MINIMUM OF 48 HOURS PRIOR TO CONCEALING SHEATHING.
20. ALL SPLIT, TWISTED OR OTHERWISE DAMAGED MATERIAL SHALL BE REPLACED.
21. FASTENERS AND CONNECTORS IN PRESERVATIVE–TREATED WOOD ARE TO BE APPROVED SILICONE BRONZE OR COPPER, STAINLESS STEEL OR HOT–DIPPED ZINC–COATED STEEL PER CBC 2304.9.5.
22. ALL NAILS SHALL BE COMMON WIRE SIZE.

DEFERRED APPROVAL ITEMS:

1. THE FOLLOWING ITEMS ARE DEFERRED DESIGN DOCUMENTS:
   - 1.1. EQUIPMENT ATTACHMENT TO CONCRETE
   - 1.2. GUARDRAIL DESIGN AND ATTACHMENT
2. THE DESIGN OF THE DEFERRED ITEMS IS BY THE CONTRACTOR/MANUFACTURER.
3. THE CONTRACTOR/MANUFACTURER SHALL:
   - a. PREPARE ALL NECESSARY CALCULATIONS AND DRAWINGS IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE REQUIREMENTS.
   - b. THE DOCUMENTS SHALL BE PREPARED UNDER THE SUPERVISION OF A CALIFORNIA REGISTERED CIVIL ENGINEER.
4. THE DEFERRED APPROVAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND COORDINATION PRIOR TO SUBMITTING THEM TO THE ENFORCEMENT AGENCY. THE ENGINEER OF RECORD WILL PROVIDE A LETTER STATING THAT THE REVIEW AND COORDINATION OF THESE ITEMS HAS BEEN COMPLETED.
5. INSTALLATION OF DEFERRED APPROVAL ITEMS SHALL NOT BEGIN UNTIL DETAILED PLANS, SPECIFICATIONS AND ENGINEERING CALCULATIONS HAVE BEEN REVIEWED BY THE ENGINEER OF RECORD AND APPROVED BY THE ENFORCEMENT AGENCY.

SHOTCRETE:

1. SHOTCRETE SHALL CONFORM TO CBC STANDARDS AND ACI 506R AND APPLICABLE PROVISIONS OF THE ACI MANUAL OF CONCRETE PRACTICE.
2. THE MINIMUM 28 DAY STRENGTH SHALL BE 3,000 PSI.
3. SUBMIT THE MIX PROPORTIONS AND RESULTS OF PRECONSTRUCTION TESTS PRIOR TO BEGINNING THE WORK.
4. THE NOZZLEMAN SHALL PRODUCE A TEST PANEL PRIOR TO BEGINNING THE WORK. THE PANEL SHALL BE PREPARED WITH THE SAME THICKNESS AND REINFORCING STEEL AS THE MOST CONGESTED PORTION OF THE WALL. THE PANEL SHALL BE PREPARED AND TESTED IN ACCORDANCE WITH ACI 505.2–95. PANEL TESTING MAY BE WAIVED BY THE ENGINEER, IF THE CONTRACTOR CAN SHOW SATISFACTORY RESULTS ON PREVIOUS JOBS WITH SAME MATERIALS, REINFORCING STEEL CONGESTION, PERSONNEL AND EQUIPMENT. THE TESTING LABORATORY SHALL EVALUATE VALIDITY OF THE WAIVER REQUEST AND MAKE A RECOMMENDATION TO THE ENGINEER FOR APPROVAL TO WAIVE TEST PANEL REQUIREMENTS.
5. ADDITIONAL NOZZELMEN SHALL ALSO MEET THE REQUIREMENTS OF ITEM 4. ONLY NOZZELMEN WITH A TEST PANEL MEAN CORE GRADE LESS THAN 2.5 SHALL BE ALLOWED TO PLACE JOB SHOTCRETE.
6. THE CORE GRADE OF SHOTCRETE SHALL BE GRADE 2.
7. REMOVE AND REPLACE SHOTCRETE THAT IS DELAMINATED, EXHIBITS LAMINATIONS, VOIDS OR SAND POCKETS EXCEEDING THE LIMITS OF THE SPECIFIED GRADE OR SHOTCRETE.

CONCRETE MASONRY:

1. 28–DAY COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE F'm = 2000 PSI FOR ALL USES. FULL MASONRY STRESSES ARE USED IN DESIGN.
2. CONCRETE BLOCK UNITS SHALL BE MEDIUM WEIGHT AND CONFORM TO ASTM C–90.
3. MORTAR SHALL BE TYPE S PORTLAND CEMENT–LIME MORTAR THAT HAS PROPORTIONS OF 1 PART PORTLAND CEMENT TO 0.5 PARTS HYDRATED MASON'S LIME TO 4.5 PARTS MASON'S SAND. MORTAR CAN ALSO BE SPECIFIED BY ASTM C 270 PROPERTIES.
4. GROUT SHALL BE PROVIDED IN ACCORDANCE WITH ASTM C 476 BY PROPORTION OF 1 PART PORTLAND CEMENT, 0 TO 1/10 PART HYDRATED LIME OR LIME PUTTY, FINE AGGREGATE OF 2¼ TO 3 TIMES THE COMBINED VOLUME OF CEMENT AND LIME. COARSE AGGREGATE IN THE AMOUNT OF 1 TO 2 TIMES THE COMBINED VOLUME OF CEMENT AND LIME MAY BE ADDED WHERE THE LEAST CLEAR CELL DIMENSION IS 4". NOT MORE THAN 5% OF THE COARSE AGGREGATE SHALL PASS THE NO. 8 SIEVE AND 100% SHALL PASS THE ⅜" SIEVE. GROUT MAY ALSO BE SUBMITTED BY PROPERTY SPECIFICATION.
5. COMPLIANCE WITH THE REQUIREMENTS FOR THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, F'm SHALL BE IN ACCORDANCE WITH 2022 CBC SECTION 2105.3–MASONRY PRISM TESTING, OR SECTION 2105.2.2.1–UNIT STRENGTH METHOD.
   FOR UNIT STRENGTH METHOD SEE TABLE BELOW FOR REQUIRED 28–DAY COMPRESSIVE STRENGTH OF THE CONCRETE BLOCK UNITS, GROUT, AND MORTAR.

REQUIRED 28–DAY COMPRESSIVE STRENGTH			
SPECIFIED F'm	CONCRETE BLOCK UNITS (PSI)	GROUT (PSI)	MORTAR (PSI)
1,500	1,900	1,900 MIN	1,800
2,000	2,800	2,800 MIN	1,800
2,500	3,750	3,750 MIN	1,800

   UNIT STRENGTH METHOD SHALL NOT BE USED FOR SPECIFIED COMPRESSIVE STRENGTHS IN EXCESS OF 2,500 PSI.
6. REINFORCING STEEL SHALL CONFORM TO ASTM A615–GRADE 60.
7. ALL REINFORCEMENT SHALL BE CONTINUOUS. STAGGER SPLICES WHERE POSSIBLE. LAP BARS 72 DIAMETERS MINIMUM, UNLESS NOTED OTHERWISE.
8. VERTICAL REINFORCING SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT TO EXCEED 200 BAR DIAMETERS.
9. REINFORCEMENT LAP LENGTHS FOR GRADE 60 BAR ARE:

BAR SIZE	LAP LENGTH	REDUCED LAP LENGTH
#4	13"	13"
#5	20"	20"
#6	37"	27"
#7	52"	32"
#8	72"	50"

   THE REDUCED LAP LENGTH IS ALLOWED IF A #4 MIN. TRANSVERSE BAR IS PLACED WITHIN 8" OF EACH END OF THE SPLICE AND THERE IS A MIN. OF 2" MASONRY COVER.
10. EACH VERTICAL BAR IN WALLS SHALL LAPPED WITH A DOWEL OF THE SAME SIZE EXTENDING INTO THE FOUNDATION. CARRY EACH DOWEL TO WITHIN 3" OF THE BOTTOM OF THE FOUNDATION AND TERMINATE WITH 90° HOOK. DOWELS SHALL BE STRAIGHT AND PLUMB.
11. PLACE ALL HORIZONTAL BARS IN BOND BEAM UNITS. WHEN 2 BARS ARE USED, STAGGER LAPS A MINIMUM OF 5'–0".
12. PROVIDE (2) #5 BARS (FULL HEIGHT OF WALL AT JAMB AND EXTENDING A MINIMUM OF 2'–6" PAST EDGES OF OPENINGS AT HEAD AND SILL) EACH SIDE OF ALL OPENINGS AND EACH END OF ALL WALLS, UNLESS NOTED OTHERWISE ON DRAWINGS.
13. BEFORE BLOCK IS PLACED ON CONCRETE, THOROUGHLY CLEAN CONCRETE AND REMOVE ALL LAITANCE AND LOOSE MATERIAL. ROUGHEN CONCRETE SURFACE TO 1/16" AMPLITUDE.
14. CONCRETE BLOCK MASONRY SHALL BE BUILT TO PRESERVE THE UNOBSTRUCTED VERTICAL CONTINUITY OF THE CELLS. ALL HEAD AND BED JOINTS SHALL BE SOLIDLY FILLED WITH MORTAR FOR A DISTANCE IN FROM THE FACE OF THE UNIT NOT LESS THAN THE THICKNESS OF THE FACE SHELL. BOND SHALL BE PROVIDED BY LAPPING SUCCESSIVE COURSES OR BY EQUIVALENT MECHANICAL ANCHORAGE.
15. VERTICAL CELLS SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL MEASURING NOT LESS THAN 2"x3".
16. CLEAN OUT OPENINGS SHALL BE PROVIDED IN THE BOTTOM COURSE OF WALL TO BE FILLED AT EACH LIFT OR POUR OF GROUT WHERE SUCH LIFT OR POUR OF GROUT IS IN EXCESS OF 5'–0" IN HEIGHT. SPACING OF CLEAN OUTS SHALL NOT EXCEED 32" CC. THE CLEAN OUTS SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING.
17. THOROUGHLY CLEAN ALL CELLS AND BOND BEAMS OF MORTAR PROJECTIONS, MORTAR DROPPINGS, OR OTHER FOREIGN MATERIAL BEFORE GROUTING.
18. ALL CELLS SHALL BE FILLED SOLIDLY WITH GROUT. GROUT SHALL BE PLACED IN A CONTINUOUS POUR IN LIFTS NOT EXCEEDING 5'–4". ALL GROUTING SHALL BE DONE UNDER THE CONTINUOUS OBSERVATION OF THE OWNER'S TESTING LABORATORY.
19. ALL GROUT SHALL BE THOROUGHLY CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT IN A MANNER TO PROVIDE SOLIDLY GROUTED SPACES.
20. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE POUR OF GROUT 1½" BELOW THE TOP OF THE UPPERMOST UNIT.
21. ALL EMBEDDED ITEMS (BOLTS, ETC.) SHALL BE SECURELY POSITIONED PRIOR TO GROUTING. PROVIDE A MINIMUM OF 1" GROUT AROUND ALL BOLTS IN MASONRY. SEE TYPICAL DETAILS SHEET.
22. PIPES AND ELECTRICAL CONDUITS SHALL NOT BE EMBEDDED IN CONCRETE MASONRY EXCEPT WHERE SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER.
23. USE OPEN END BLOCK FOR ALL STACK BOND CONSTRUCTION.

ABBREVIATIONS:

AB	AGGREGATE BASE, ANCHOR BOLT	HA	HEADED ANCHOR
ADDNL	ADDITIONAL	HDG	HOT DIP GALVANIZED
AL	ALUMINUM	HORIZ	HORIZONTAL
ARCH	ARCHITECTURAL	HR	HANDRAIL
BETW	BETWEEN	HSB	HIGH STRENGTH BOLT
BEV	BEVELLED	HSS	HOLLOW STRUCTURAL STEEL
BLKG	WOOD BLOCKING	IE	INVERT ELEVATION
BLW	BELOW	JT	JOINT
BM	BEAM	KP	KICK PLATE
BOF	BOTTOM OF FOOTING	L	LONG
BOT	BOTTOM	LS	LAG SCREW
BRG	BEARING	MANUF	MANUFACTURER
CC	CENTER TO CENTER	MAX	MAXIMUM
CHKD PL	CHECKERED PLATE	MB	MACHINE BOLT
CLR	CLEAR	MECH	MECHANICAL
℄	CENTERLINE	MIN	MINIMUM
CMU	CONCRETE MASONRY UNIT	MTG	MOUNTING
CNTSK	COUNTERSINK	(N)	NEW
COL	COLUMN	NTS	NOT TO SCALE
CONC	CONCRETE	O/	OVER
CNJ	CONSTRUCTION JOINT	OH	OPPOSITE HAND
CONT	CONTINUOUS	PEMB	PRE–ENGINEERED METAL BUILDING
CJ	CONTROL JOINT, CONTRACTION JOINT	PL	PLATE
db	BAR DIAMETER	PLC'S	PLACES
DIA	DIAMETER	PT	PRESSURE TREATED
DIM	DIMENSION	REINF	REINFORCING
DN	DOWN	REQ'D	REQUIRED
(E)	EXISTING	REQMT'S	REQUIREMENTS
EA	EACH	SAD	SEE ARCHITECTURAL DRAWINGS
EF	EACH FACE	SIM	SIMILAR
EJ	EXPANSION JOINT	SMS	SHEET METAL SCREW
EL, (ELEV)	ELEVATION	SOG	SLAB ON GRADE
EMB	EMBEDMENT	SP	STRUCTURAL PLYWOOD
EN	EDGE NAILING	SS	STAINLESS STEEL
EQ	EQUAL	STIFF	STIFFENER
EQUIP	EQUIPMENT	STAGG	STAGGER
ES	EACH SIDE	SQ	SQUARE
EW	EACH WAY	SYMM	SYMMETRICAL
EWEF	EACH WAY EACH FACE	T&B	TOP AND BOTTOM
EWF	ELECTRICALLY WELDED FABRIC	TOC	TOP OF CONCRETE
FB	FLAT BAR	TOF	TOP OF FRAMING
FD	FLOOR DRAIN	TOM	TOP OF MASONRY
FF	FINISHED FLOOR	TOP	TOP OF PLATE
FG	FINAL GRADE	TOS	TOP OF STEEL
FLG	FLANGE	TOW	TOP OF WALL
FN	FIELD NAILING	TYP	TYPICAL
FOM	FACE OF MASONRY	UNO (UON)	UNLESS NOTED OTHERWISE
FS	FACE OF STUD	VERT	VERTICAL
FTG	FOOTING	W	WIDE
GA	GAGE	W/	WITH
GALV	GALVANIZED	WHS	WELDED HEADED STUD
GC	GENERAL CONTRACTOR	WP	WORKING POINT
GS	GALVANIZED STEEL	WS	WATERSTOP
H	HIGH		

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

GENERAL STRUCTURAL NOTES 2

90% SUBMITTAL JULY 2025

S002
DRAWING NUMBER

SHEET X OF 86

File Name: Z:\24000 jobs\24025\24030 La Contenta WWTP\CAD\24030 S001 General Notes.dwg Plotted By: BRAD FRIEDERICHS Plot Date: 7/26/2025 12:04 PM

TABLE 3.1.2
MASONRY LEVEL B QUALITY ASSURANCE

MINIMUM TESTS				
VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1.b.3 FOR SELF CONSOLIDATING GROUT				
VERIFICATION OF f'_M AND f'_{AAC} IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE				
MINIMUM SPECIAL INSPECTION				
INSPECTION TASK	FREQUENCY [a]		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	TMS 402/ ACI 530/ ASCE 5	TMS 602/ ACI 530.1/ ASCE 6
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		X		Art. 1.5
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. PROPORTIONS OF SITE–PREPARED MORTAR		X		Art. 2.1, 2.6A
b. CONSTRUCTION OF MORTAR JOINTS		X		Art. 3.3B
c. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGE		X		Art. 2.4B, 2.4H
d. LOCATION OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES		X		Art. 3.4, 3.6A
e. PRESTRESSING TECHNIQUE		X		Art. 3.6B
f. PROPERTIES OF THIN–BED MORTAR FOR AAC MASONRY	X [b]	X [c]		Art. 2.1C
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
a. GROUT SPACE		X		Art. 3.2D, 3.2F
b. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES		X	Sec. 6.1	Art. 2.4, 3.4
c. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES		X	Sec. 6.1, 6.2.1, 6.2.6, 6.2.7	Art. 3.2E, 3.4, 3.6A
d. PROPORTIONS OF SITE–PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS		X		Art. 2.6B, 2.4G.1.b
e. CONSTRUCTION OF MORTAR JOINTS		X		Art. 3.3B
4. VERIFY DURING CONSTRUCTION				
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X		Art. 3.3F
b. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION		X	Sec. 1.2.1(e), 6.1.4.3, 6.2.1	
c. WELDING OF REINFORCEMENT	X		Sec. 8.1.6.7.2, 9.3.3.4(c), 11.3.3.4(b)	
d. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F [4.4°C]) OR HOT WEATHER (TEMPERATURE ABOVE 90°F [32.2°C])		X		Art. 1.8C, 1.8D
e. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X			Art. 3.6B
f. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X			Art. 3.5, 3.6C
g. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN–BED MORTAR JOINTS	X [b]	X [c]		Art. 3.3 B.9, 3.3 F.1.b
5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

A. FREQUENCY REFERS TO THE FREQUENCY OF SPECIAL INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OR PERIODIC DURING THE LISTED TASK, AS DEFINED IN THE TABLE.
B. REQUIRED FOR THE FIRST 5,000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.
C. REQUIRED AFTER THE FIRST 5,000 SQUARE FEET (465 SQUARE METERS) OF AAC MASONRY.

TABLE 1705.3
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT		X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1–26.6.3	1908.4
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706 B. INSPECT SINGLE–PASS FILLET WELDS, 5/16" MAX C. INSPECT ALL OTHER WELDS			AWS D1.4 ACI 318: 26.6.4	
3. INSPECT ANCHORS CAST IN CONCRETE		X	ACI 318: 17.8.2	
4. INSPECT ANCHORS POST–INSTALLED IN HARDENED CONCRETE MEMBERS A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED 4.a	X	X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX		X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X		ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X	ACI 318: 26.5.3–26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: A. APPLICATION OF PRESTRESSING FORCES; AND B. GROUTING OF BONDED PRESTRESSING TENDONS			ACI 318: 26.10	
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS			ACI 318: CH. 26.8	
11. VERIFY IN–SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST–TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS			ACI 318: 26.11.2	
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X	ACI 318: 26.11.1.2(b)	

A. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.
B. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

TABLE 1705.6
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

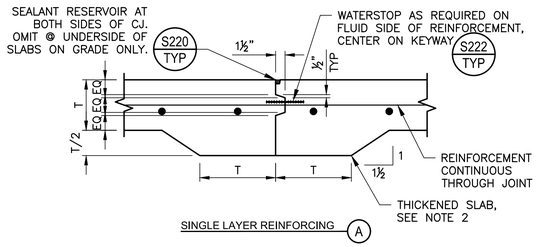
GENERAL STRUCTURAL NOTES 3

90% SUBMITTAL JULY 2025

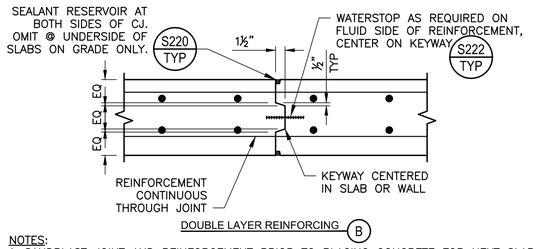
S003
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S001 General Notes.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/26/2025 11:37 AM



SINGLE LAYER REINFORCING (A)



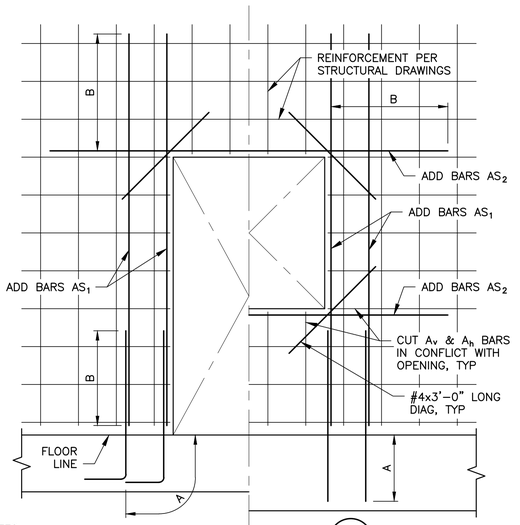
DOUBLE LAYER REINFORCING (B)

NOTES:
1. SANDBLAST JOINT AND REINFORCEMENT PRIOR TO PLACING CONCRETE FOR NEXT SLAB OR WALL.
2. THICKENED SECTION FOR CONCRETE PLACED AGAINST EARTH ONLY.
3. WATERSTOP SHALL BE THOROUGHLY CLEANED BEFORE PLACING CONCRETE.
4. SEE DRAWINGS FOR REINFORCEMENT.

KEYED CONSTRUCTION JOINT
SCALE: NTS — S205 TYP

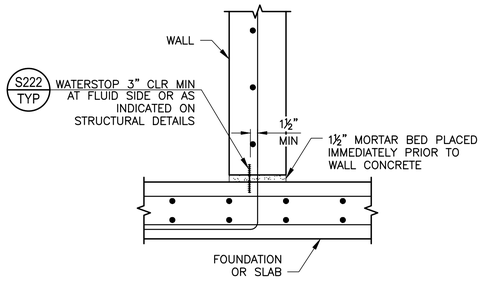
NOTES:
1. THIS DETAIL IS TO BE USED EXCEPT WHEN NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
2. NORMAL REINFORCEMENT CUT AT OPENING:
   AS =AREA OF REINOFRCEMENT
   AS_1 =½ TOTAL A_v CUT BARS
   AS_2 =½ TOTAL A_h CUT BARS
   TO BE ADDED ON EACH SIDE OF OPENING.
3. DIAGONAL BARS TO BE PLACED:
   a) AT ℄ OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT ARE PROVIDED.
   b) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
4. PROVIDE DIAGONAL DOWEL FOR EACH LAYER OF REINFORCEMENT (#4x3'–0") UON.
5. LOCATE ADDITIONAL BARS AT MID–SPACING BETWEEN CONTINUOUS BARS THAT ARE NOT CUT.
6. BARS SHOWN SHALL BE PLACED ON EACH SIDE AND TOP AND BOTTOM OF OPENING.

NOTES FOR ADDITIONAL REINFORCEMENT AT OPENINGS
SCALE: NTS — S215 TYP



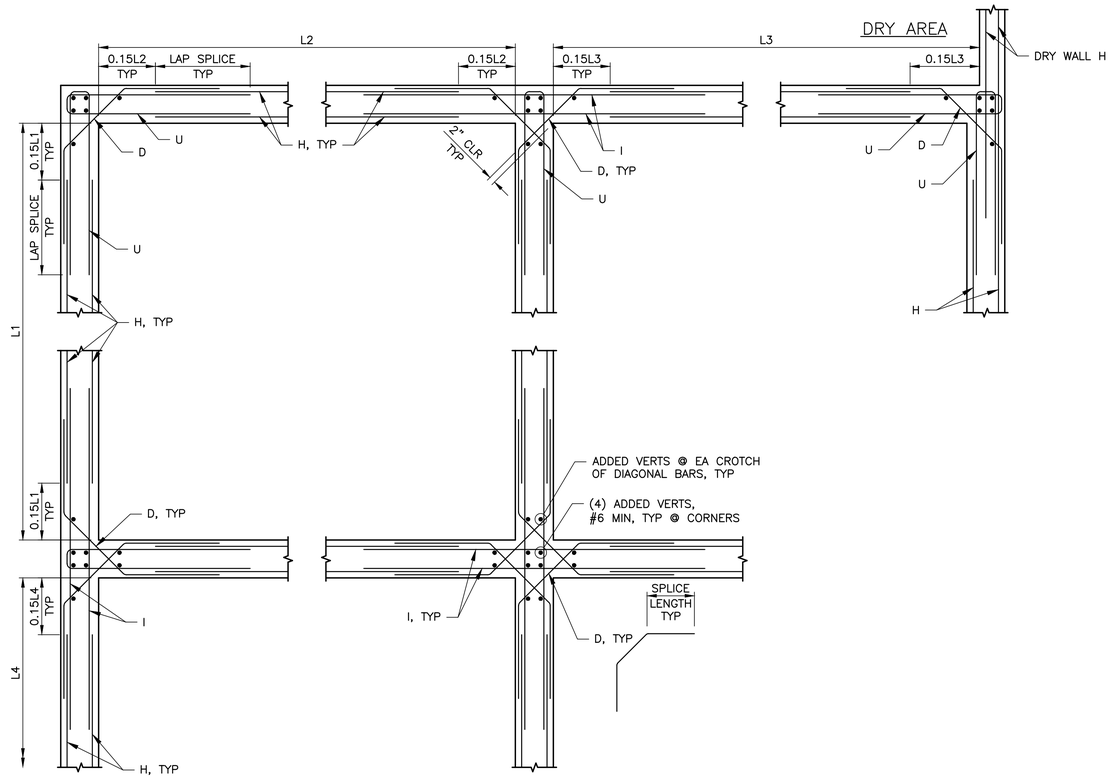
NOTES:
1. FOR NOTES, REINFORCEMENT SIZES AND LENGTHS, SEE S215 TYP
2. IF "A" IS GREATER THAN SLAB THICKNESS, THEN PROVIDE HOOKED BAR.

ADDITIONAL REINFORCEMENT AT RECTANGULAR OPENINGS
SCALE: NTS — S216 TYP



NOTES:
1. SEE DRAWINGS FOR REINFORCEMENT.
2. SANDBLAST JOINT AND REINFORCEMENT PRIOR TO PLACING CONCRETE FOR NEXT SLAB OR WALL.
3. WATERSTOP SHALL BE THOROUGHLY CLEANED BEFORE PLACING CONCRETE.

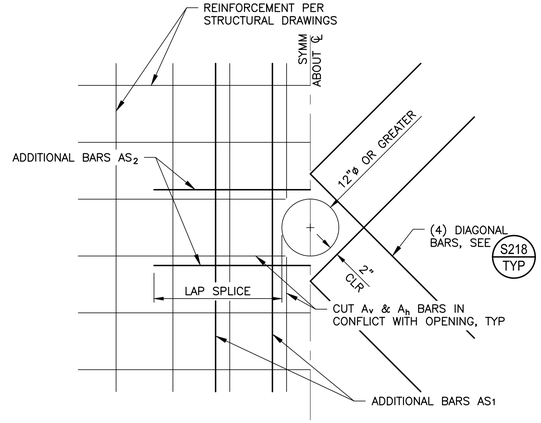
CONSTRUCTION JOINT WALL TO FOUNDATION SINGLE LAYER REINFORCING
SCALE: NTS — S208 TYP



NOTES:
1. ADDED VERTICAL BARS AT CORNERS TO MATCH TYP VERTS. CORNER VERTICALS DO NOT NEED TO BE DOWELLED INTO THE BASE SLAB OR FOOTING.
2. THIS DETAIL APPLIES AT ALL BELOW GRADE AND/OR LIQUID CONTAINING STRUCTURES UNO. FOR OTHER STRUCTURES, SEE S214b TYP

WALL REINFORCING DETAILS
SCALE: NTS — S214 TYP

H= WALL HORIZONTAL REINFORCEMENT. SEE STRUCTURAL DRAWINGS FOR SIZE AND SPACING.
U= U–SHAPED BAR TO MATCH SIZE OF LARGEST LAPPING H BAR. U–SHAPED BAR TO MATCH TIGHTEST SPACING OF LAPPING H BAR. AT CORNER CONDITION (2) AS SHOWN ON THE STRUCTURAL PLANS, U BAR SPACING IS HALF OF H BAR SPACING.
I= INTERSECTION BARS. MATCH SIZE AND SPACING OF U BAR.
D= DIAGONAL BARS. MATCH SIZE AND SPACING OF U BAR. D BAR SIZE IS THE LARGER OF LAPPED H BARS.



NOTES:
1. FOR NOTES, SEE S215 TYP
2. USE THIS DETAIL FOR ALL CIRCULAR OPENINGS 12"ø OR GREATER UNO ON THE STRUCTURAL DRAWINGS. FOR CIRCULAR OPENINGS LESS THAN 12"ø, SEE S218 TYP

ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS
SCALE: NTS — S217 TYP

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DATE: 7/22/2025
DRAWN BY: DGG
DESIGNED BY: BAF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

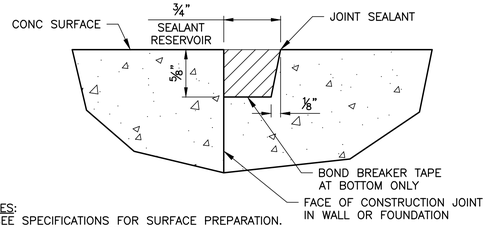
TYPICAL STRUCTURAL DETAILS 1

90% SUBMITTAL JULY 2025

S004
DRAWING NUMBER

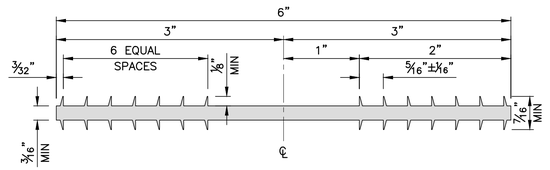
SHEET X OF 86

Plotted By: DANIEL.GARROTT Plot Date: 7/26/2025 11:37 AM
File Name: C:\VES\24000\24030\24030 S001 General Notes.dwg



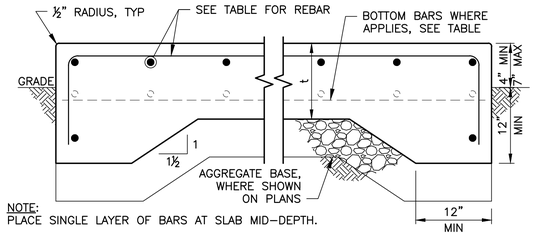
NOTES:
1. SEE SPECIFICATIONS FOR SURFACE PREPARATION.
2. PRIME VERTICAL EDGES.

SEALANT RESERVOIR AT CONSTRUCTION JOINT
SCALE: NTS — S220 TYP



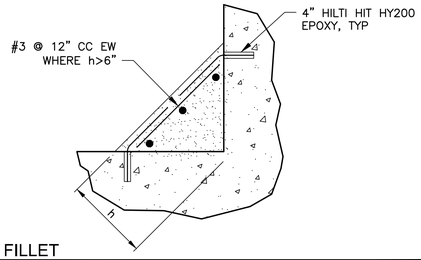
PVC FLATSTRIP WATERSTOP
SCALE: NTS — S222 TYP

t	REBAR
4"	#4 @ 18" CC EW
6"	#5 @ 18" CC EW
8"	#5 @ 12" CC EW
12"	#5 @ 12" CC EW T&B
18"	#6 @ 12" CC EW T&B
20"	#6 @ 12" CC EW T&B

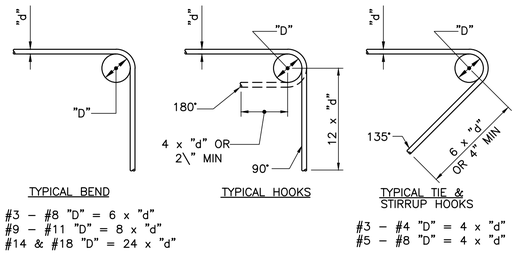


NOTE:
PLACE SINGLE LAYER OF BARS AT SLAB MID-DEPTH.

CONCRETE SLAB ON GRADE
SCALE: NTS — S245 TYP



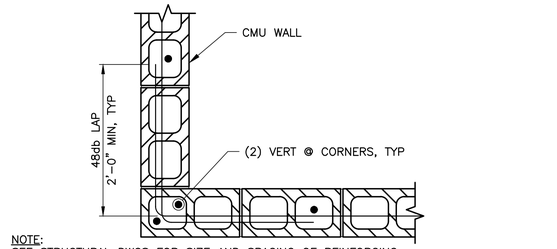
GROUT FILLET
SCALE: NTS — S249 TYP



#3 – #8 "D" = 6 x "d"
#9 – #11 "D" = 8 x "d"
#14 & #18 "D" = 24 x "d"

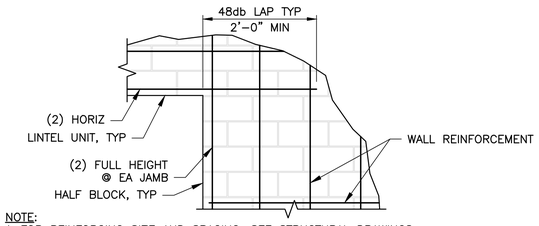
#3 – #4 "D" = 4 x "d"
#5 – #8 "D" = 4 x "d"

REINFORCING BENDS
SCALE: NTS — S257 TYP



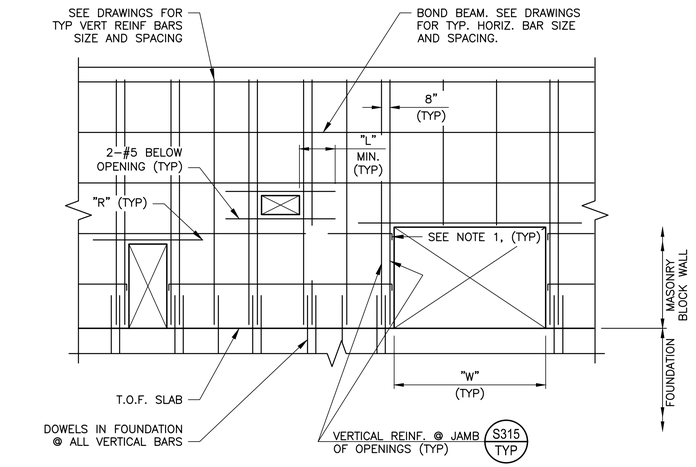
NOTE:
SEE STRUCTURAL DWGS FOR SIZE AND SPACING OF REINFORCING.

MASONRY CORNER (SINGLE MAT)
SCALE: NTS — S312 TYP

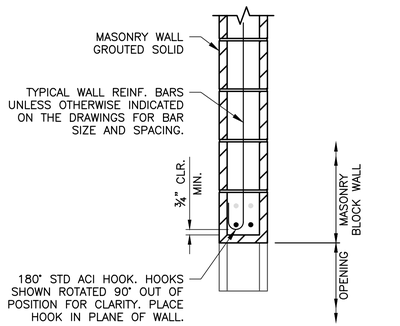


NOTE:
1. FOR REINFORCING SIZE AND SPACING, SEE STRUCTURAL DRAWINGS.

REINFORCEMENT AT MASONRY WALL OPENINGS
SCALE: NTS — S315 TYP



PARTIAL WALL ELEVATION



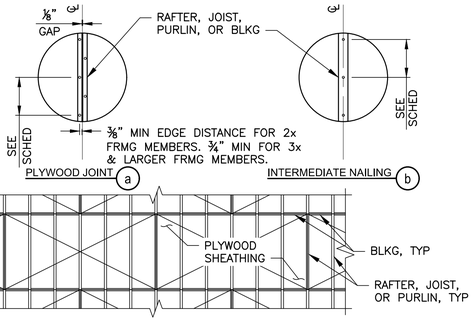
SINGLE BARS

SECTION OF LINTEL AT OPENINGS

LINTEL REINFORCEMENT SCHEDULE		
"W"	"R"	"L"
LESS THAN 5'–0"	2–#5	2'–6"
GREATER THAN 5'–0" TO 7'–0"	2–#6	3'–0"
GREATER THAN 7'–0" TO 12'–0"	2–#7	3'–6"
GREATER THAN 12'–0" TO 20'–0"	4–#5	2'–6"

NOTES:
1. ACI STANDARD 90° HOOK ON HORIZONTAL BARS AT OPENINGS.
2. FOR ADDITIONAL REINFORCING, SEE DRAWINGS.

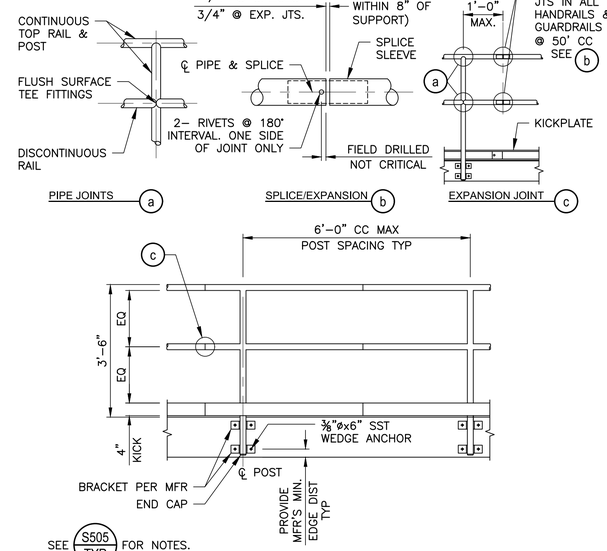
REINFORCED MASONRY WALL
SCALE: NTS — S309 TYP



PLYWOOD PANEL SCHEDULE								
TYPE	THICK	PANEL INDEX	GRADE	FRAMING MEMBER THICKNESS	NAILING SIZE	NAILING SPACING BN	NAILING SPACING EN	NAILING SPACING INT	REMARKS
1	1/2"	24/0	APA RATED C–D EXP 1	2x	10d	6"	6"	12"	UNBLOCKED DIAPHRAGM

NOTES:
1. INDIVIDUAL PIECES OF PLYWOOD SHALL NOT BE LESS THAN 24" IN THE LEAST DIMENSION, NOR LESS THAN 8 ft² IN TOTAL AREA.
2. PRE–DRILL HOLES IF FRAMING MEMBER TENDS TO SPLIT.
3. PROVIDE EDGE NAILING ALONG ALL STRUCTURAL AND CHORD LINES.
4. EDGE BLOCKING CALLED FOR ABOVE IS FOR ROOF STRUCTURAL CONDITIONS ONLY. VERIFY ADEQUACY OF UNBLOCKED EDGES WITH ROOFING INSTALLER BEFORE APPLYING PLYWOOD.
5. ALL NAILS SHALL BE COMMON NAILS.

PLYWOOD SHEATHING
SCALE: NTS — S401 TYP



HANDRAILS / GUARDRAILS / PLATFORM
SCALE: NTS — S501a TYP

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PROJ. MGR.: WJS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

TYPICAL STRUCTURAL DETAILS 2

90% SUBMITTAL JULY 2025

S005
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SHEET X OF 86

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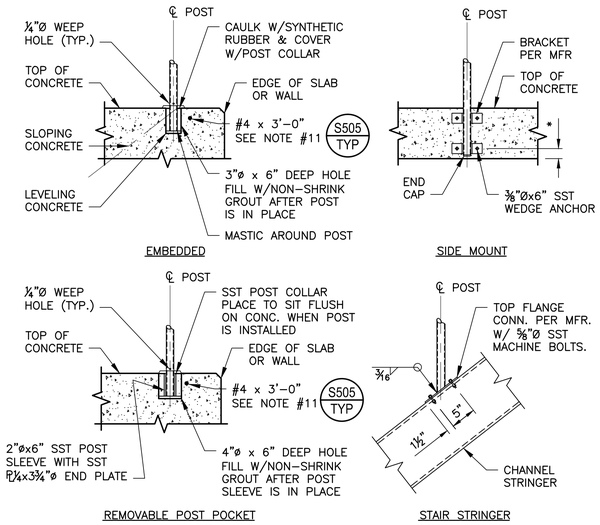


* PROVIDE MFGR'S MIN. EDGE DIST. (TYP.)

HANDRAIL / GUARDRAIL POST CONNECTIONS

SCALE: NTS

S502 TYP

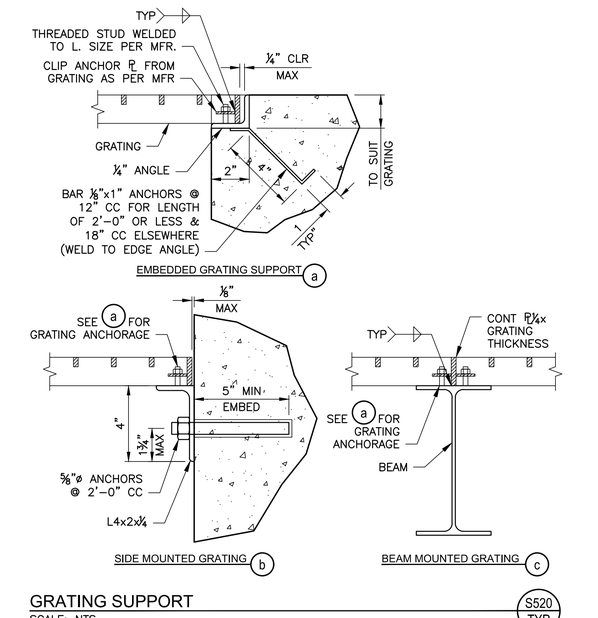
NOTES:

1. ALL HANDRAILS/GUARDRAILS SHALL BE ALUMINUM UNO. COAT ALL SURFACES OF ALUMINUM THAT COME IN CONTACT WITH CONCRETE IN ACCORDANCE WITH SPECIFICATIONS. PLACE NEOPRENE GASKET BETWEEN ALUMINUM AND STEEL.
2. ALL HANDRAILS/GUARDRAILS SHALL BE IN ACCORDANCE WITH CURRENT OSHA SAFETY CODE REQUIREMENTS.
3. PLACE CENTER OF EMBEDDED POSTS 6" FROM EDGE OF CONCRETE OR 4" FROM EDGE OF CONCRETE STAIR NOSING UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
4. PLACE RAIL POSTS OPPOSITE EACH OTHER WHERE GUARDRAILS ARE PARALLEL.
5. PROVIDE SLIP JOINTS AT 24'-0" CC MAX FOR EXPANSION OF RAILS AND KICKPLATE. LOCATE RAIL SLIP JOINTS AT FACE OF POST. GAP AT TIME OF INSTALLATION SHALL BE BASED ON THE TEMPERATURE OF THE HANDRAIL (⅜" GAP AT 25°F, 0" GAP AT 100°F). AT CONCRETE EXPANSION JOINTS, PROVIDE MINIMUM OF 1" GAP IN SLIP JOINTS, BUT NOT LESS THAN WIDTH OF CONCRETE EXPANSION JOINT. INSERT SLEEVES SHALL BE LONG ENOUGH TO ALLOW FOR THE FULL RANGE OF MOVEMENT.
6. PROVIDE KICKPLATE AT ALL LOCATIONS EXCEPT SLOPING GUARDRAILS ON STAIRS AND HANDRAIL MOUNTED ON 6" MIN HIGH CURB. KICKPLATE MATERIAL SHALL BE SAME AS HANDRAIL/GUARDRAIL AND ATTACHED WITH SS BOLTS IN 5/16"x¾"ø SLOTTED HOLES. BOLT KICKPLATE TO POST WITH BOTTOM ½" CLR FROM SURFACE. FOR SIDE MOUNTED HANDRAIL, PROVIDE STANDARD SPACER BLOCK BETWEEN POST AND KICKPLATE TO MAINTAIN ½" MAX CLR SPACING. HAND TIGHTEN AND CENTER PUNCH BOLTS TO LOCK. SHALL ACCOMMODATE TEMPERATURE EXPANSION PER NOTE 5.
7. ALL GUARDRAILS SHALL BE FIXED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
8. HANDRAILS ALONG WALLS SHALL BE SINGLE RAIL WITH TOP OF RAIL AT 2'-10" HIGH ABOVE LANDINGS OR TREAD NOSINGS, OR TO MATCH TOP RAIL ON OPPOSITE SIDE WHERE HANDRAIL IS INTEGRAL WITH DROP OF GUARDRAIL. HANDRAILS ALONG WALLS SHALL BE FASTENED WITH STANDARD WALL BRACKETS PER HANDRAIL/GUARDRAIL MANUFACTURER AT 5'-0" CC MAX. END OF RAILS SHALL HAVE CLOSURES.
9. FOR RAIL POSTS MOUNTED TO BEAM OR STAIR CHANNEL; PROVIDE MANUFACTURER'S REINFORCED CONNECTION FROM POST TO PLATE. PLATE AND REINFORCED INSERTS SHALL BE ALUMINUM OR STAINLESS STEEL.
10. PROVIDE #4x3'-0" REINFORCING BAR ADJACENT AND CENTERED AT EVERY EMBEDDED POST IF LONGITUDINAL REINFORCING DOES NOT PASS BETWEEN POST POCKET AND EDGE OF CONCRETE.
11. CONTRACTOR TO PROVIDE CALCULATIONS STAMPED BY A CIVIL OR STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE WORK IS TO BE PERFORMED FOR ALL HANDRAILS AND GUARDRAILS.

HANDRAIL / GUARDRAIL NOTES

SCALE: NTS

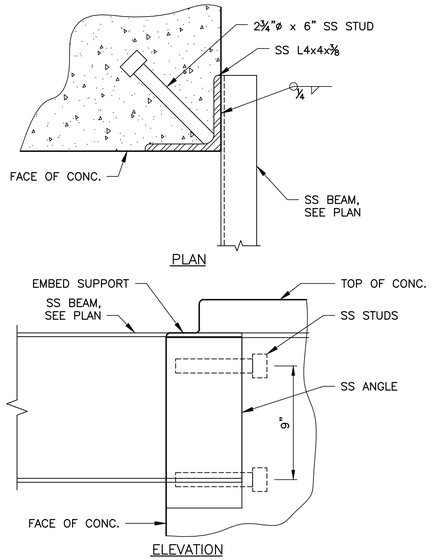
S505 TYP



GRATING SUPPORT

SCALE: NTS

S520 TYP



CORNER MOUNTED SS BEAM TO WALL CONNECTION

SCALE: NTS

S522 TYP

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PROJ. MGR.: WJS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

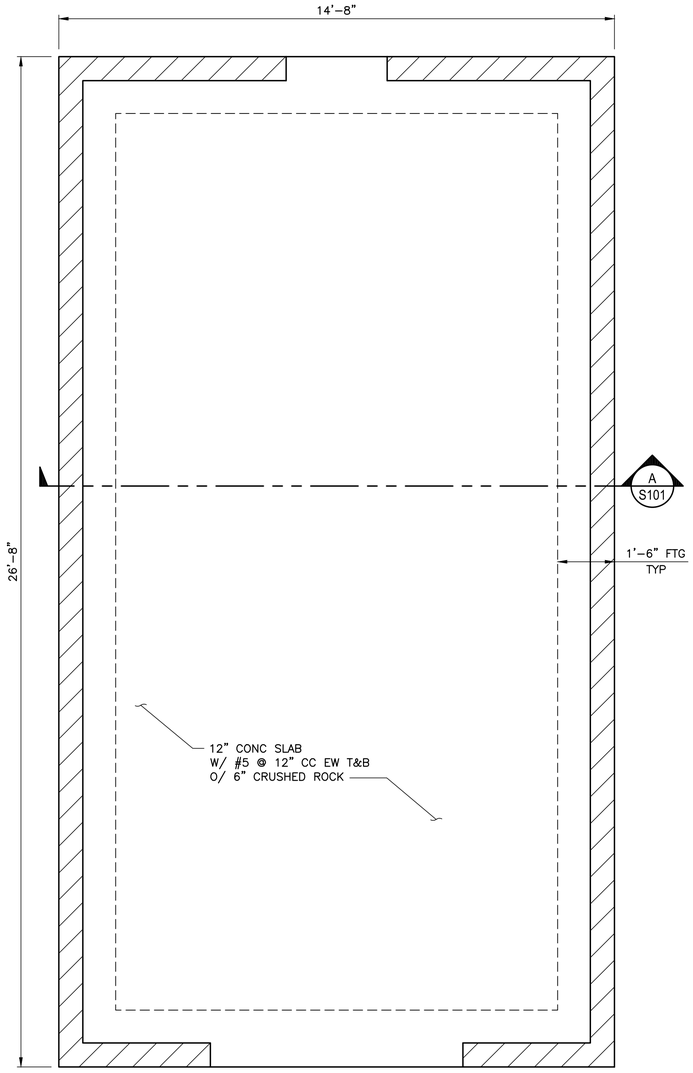
TYPICAL STRUCTURAL DETAILS 3

90% SUBMITTAL JULY 2025

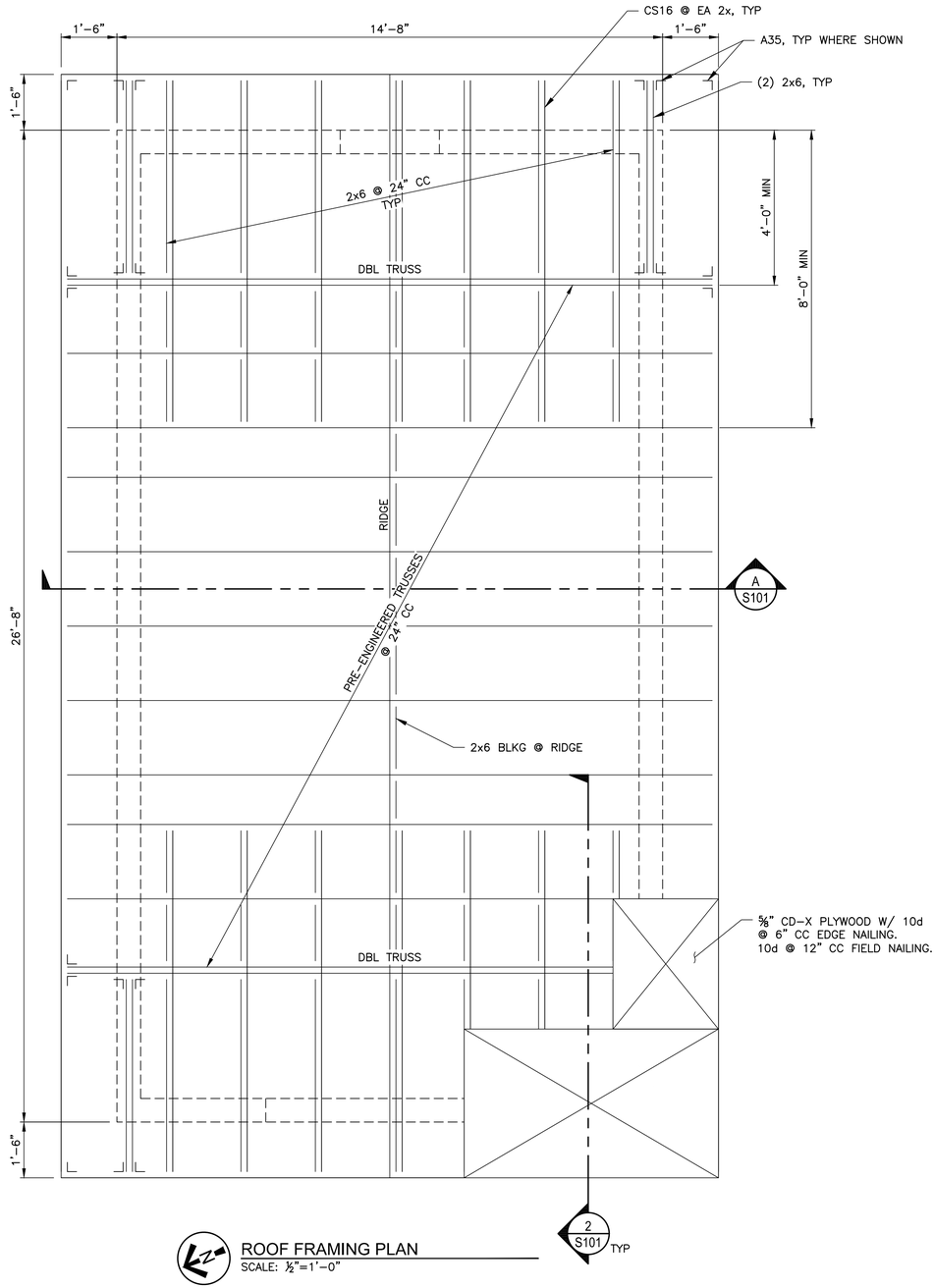
S006
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S001 General Notes.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/26/2025 11:37 AM



FOUNDATION PLAN
SCALE: ½"=1'-0"



ROOF FRAMING PLAN
SCALE: ½"=1'-0"

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

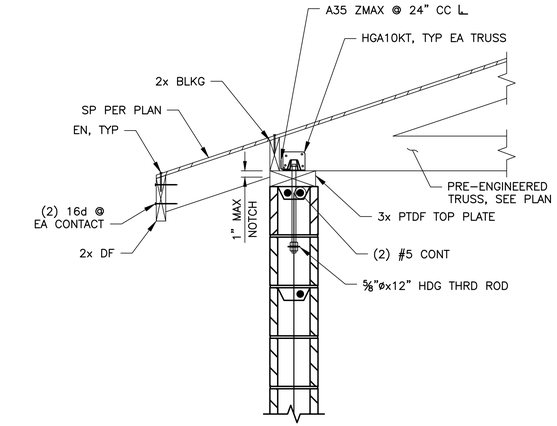
ELECTRICAL BUILDING FOUNDATION PLAN AND ROOF FRAMING PLAN

90% SUBMITTAL JULY 2025

S100
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S100 Electrical Building.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/26/2025 11:29 AM



DETAIL 1/-
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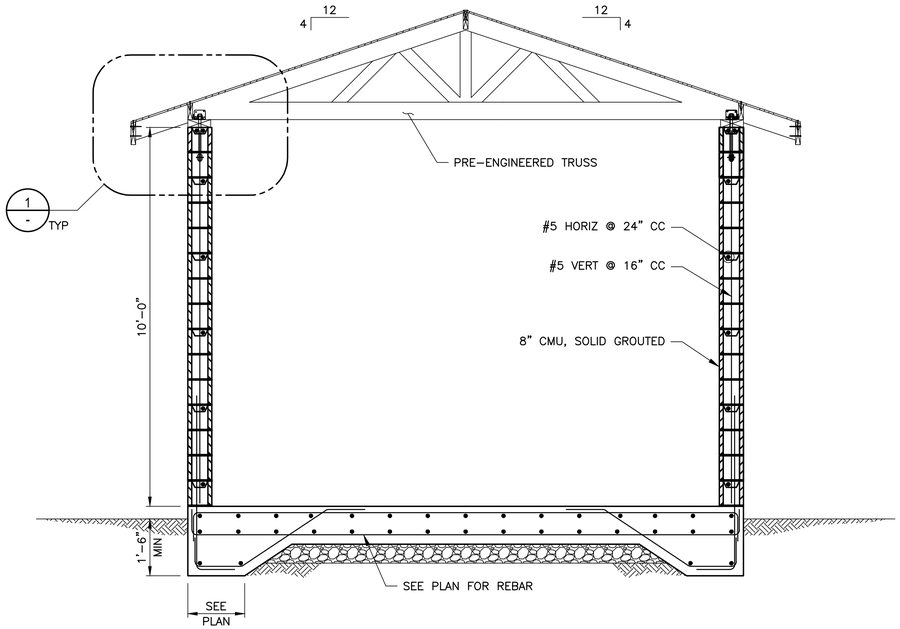
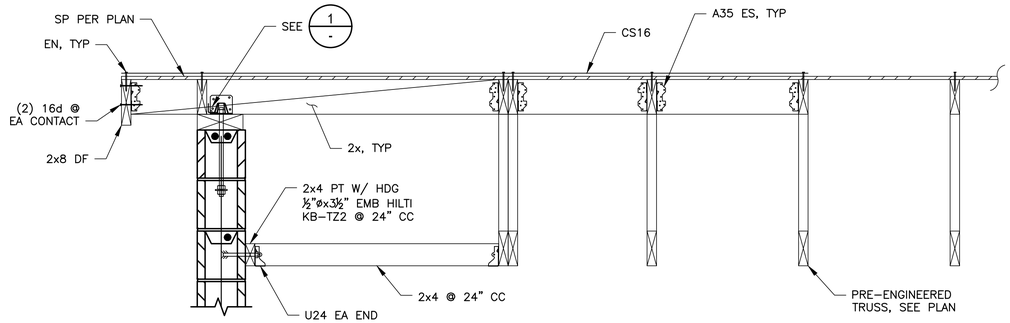


SECTION A/S100
SCALE: ½"=1'-0"



DETAIL 2/S100
SCALE: 1"=1'-0"

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

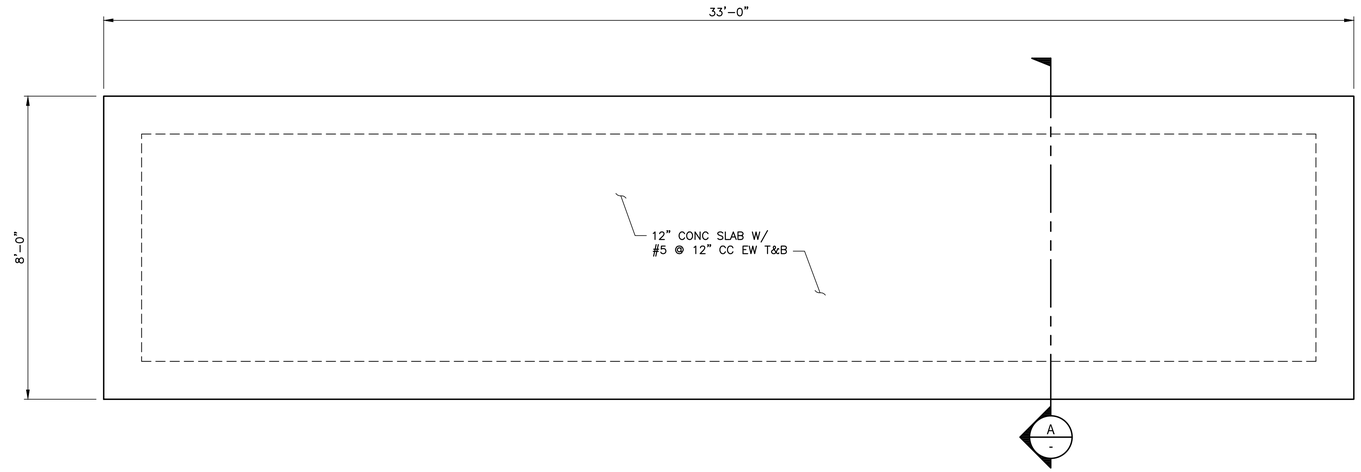
ELECTRICAL BUILDING SECTIONS AND DETAILS

90% SUBMITTAL JULY 2025

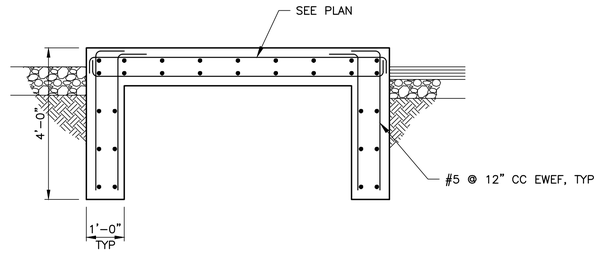
S101
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S100 Electrical Building.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/26/2025 11:29 AM



FOUNDATION PLAN
SCALE: ½"=1'-0"



SECTION
SCALE: ½"=1'-0"

A
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DRAWN BY: DGG
DESIGNED BY: BAF
PROJ. MGR.: WJS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

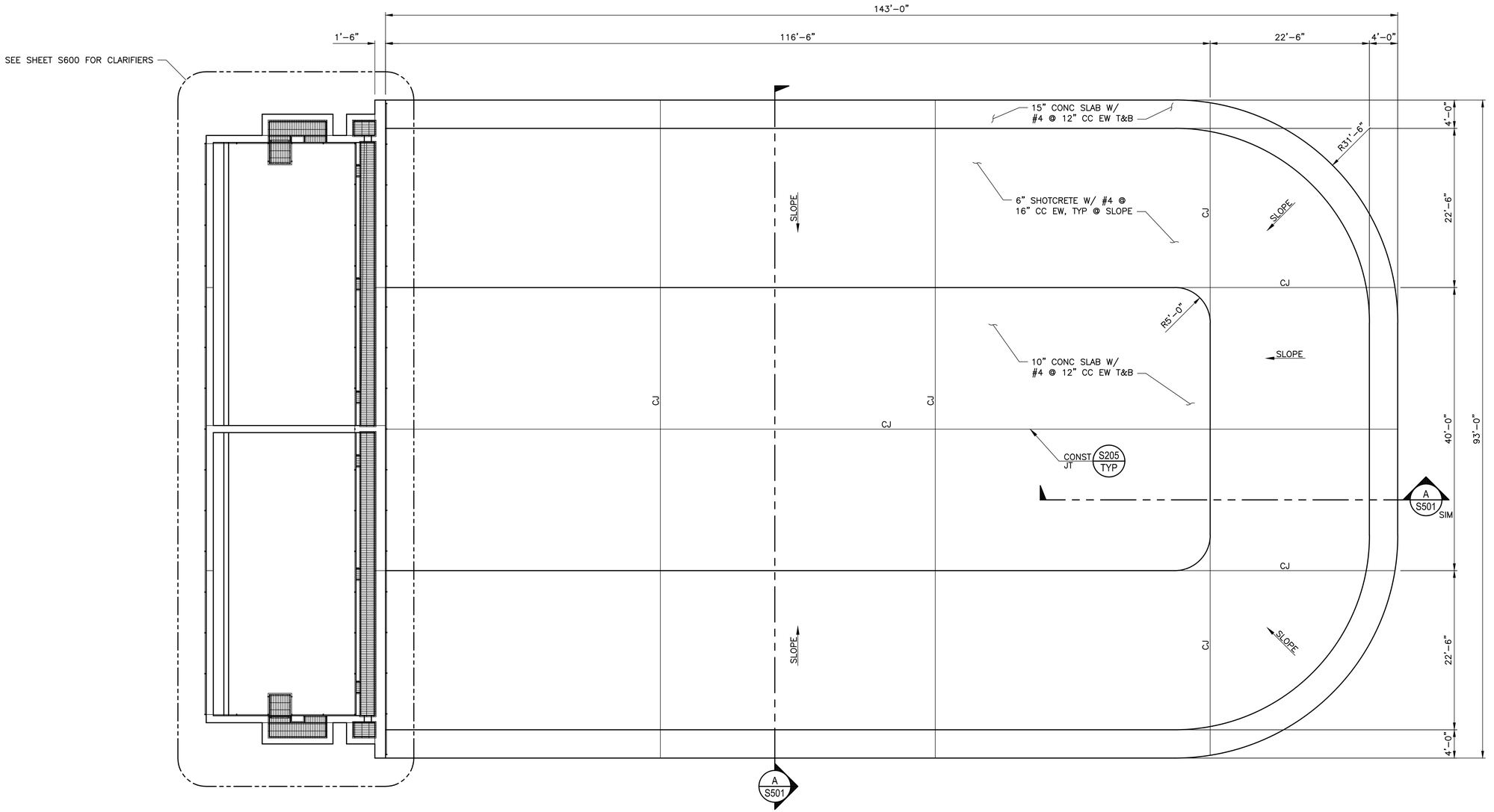
PUMP STATION FOUNDATION PLAN AND SECTION

90% SUBMITTAL JULY 2025

S200
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S200 Pump Station.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/25/2025 7:01 PM



FOUNDATION PLAN
SCALE: ⅛"=1'-0"

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CALAVERAS COUNTY WATER DISTRICT	LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS	AERATION BASIN FOUNDATION PLAN	90% SUBMITTAL JULY 2025
S500 DRAWING NUMBER SHEET X OF 86			

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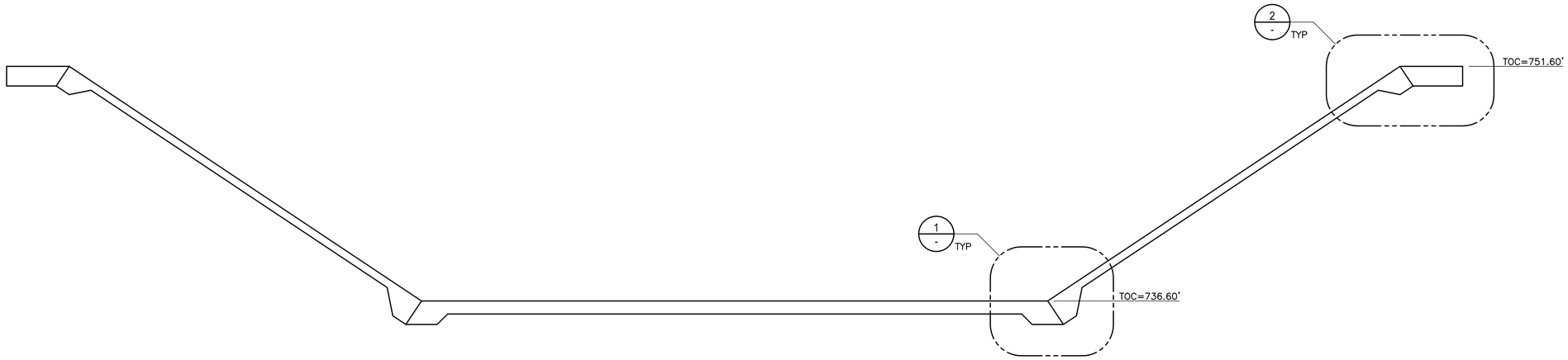

SECTION
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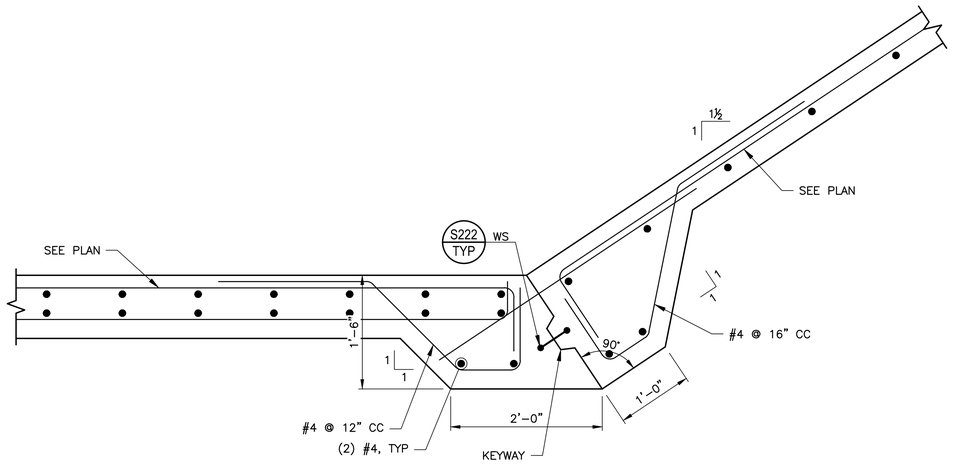
A
S500



DETAIL
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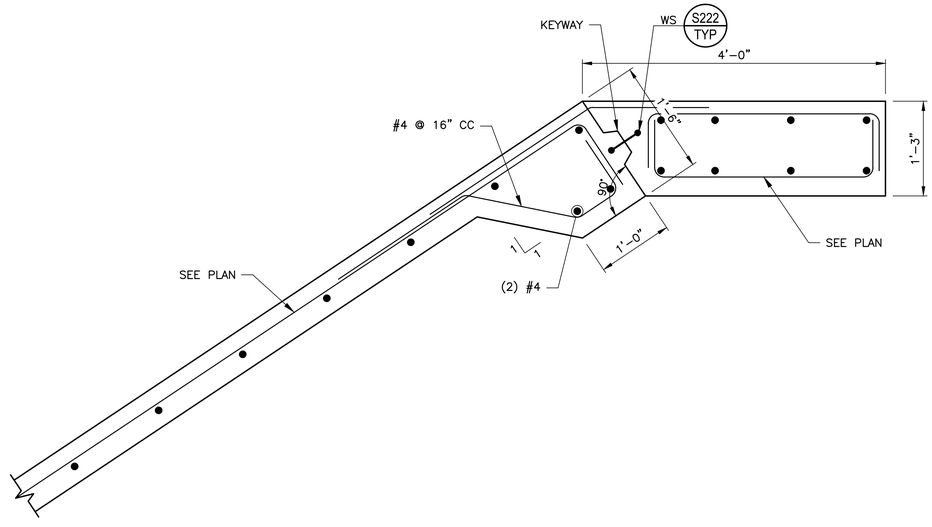

DETAIL
SCALE: 1"=1'-0"
2
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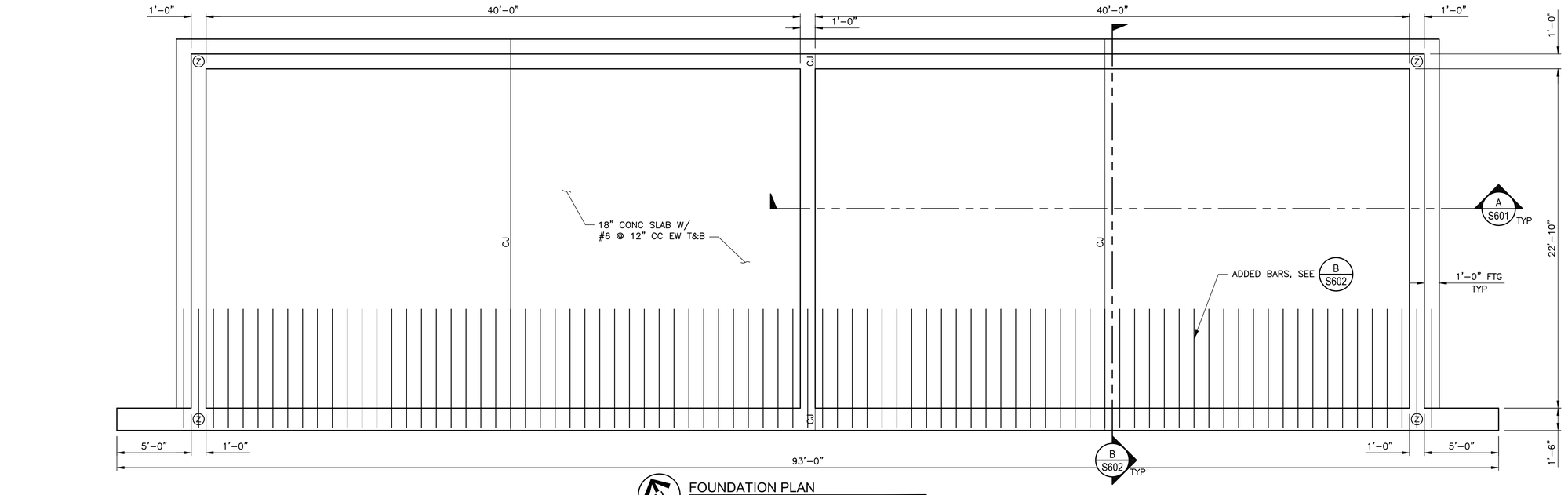
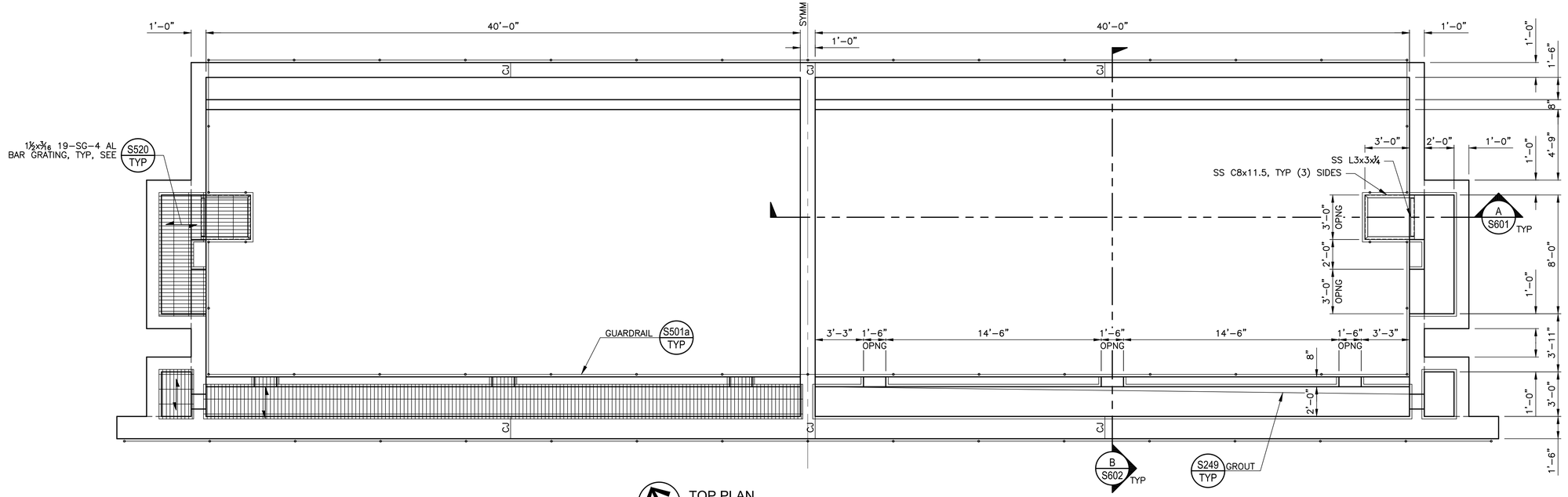
File Name: C:\VES\24000\24030\24030 S500 Aeration Basin.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/25/2025 6:57 PM



FOUNDATION PLAN
SCALE: ¼"=1'–0"



TOP PLAN
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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

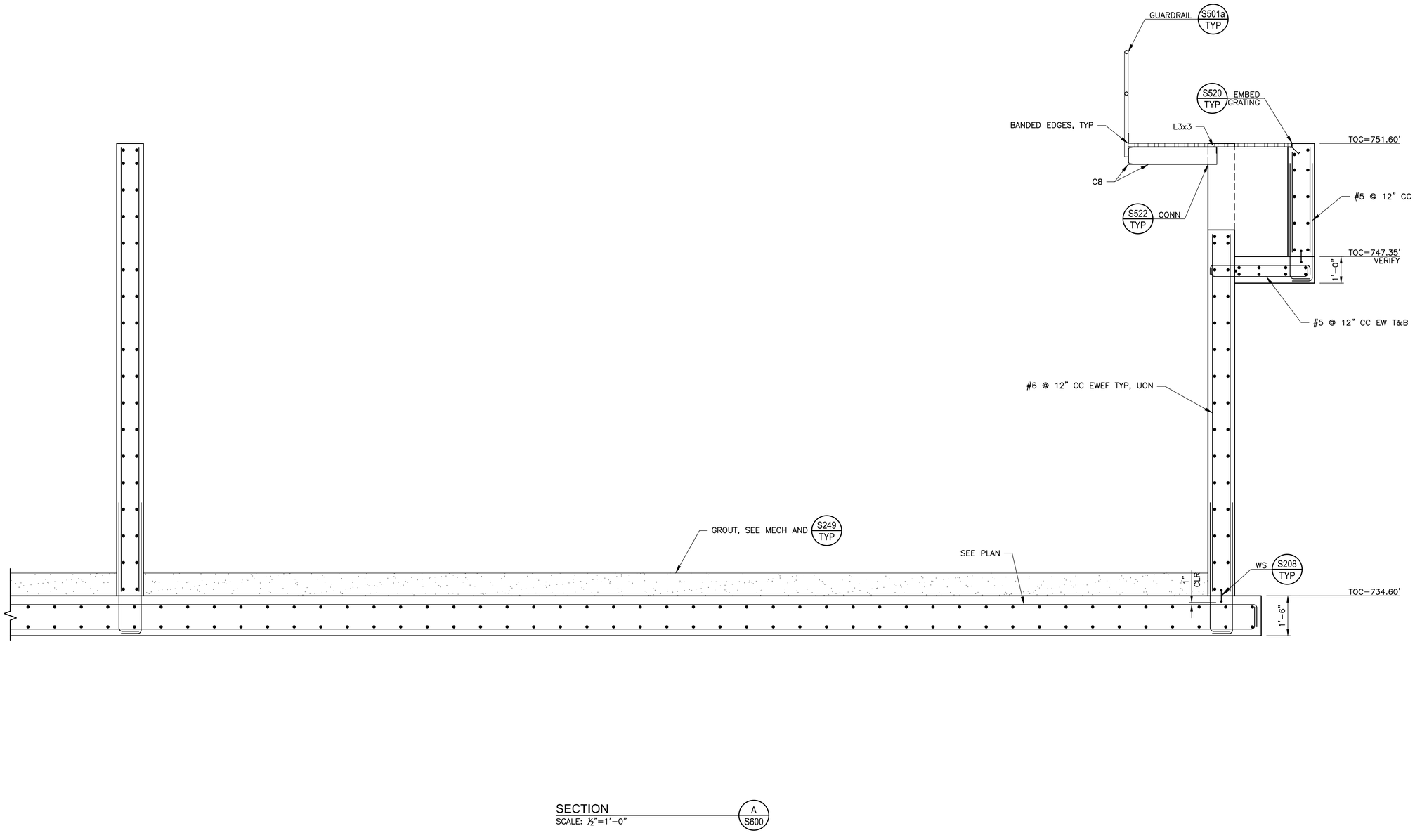
CLARIFIERS FOUNDATION PLAN AND TOP PLAN

90% SUBMITTAL JULY 2025

S600
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S500 Aeration Basin.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/25/2025 6:57 PM



SECTION A S600
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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CLARIFIERS SECTIONS 1

90% SUBMITTAL JULY 2025

S601
DRAWING NUMBER

SHEET X OF 86

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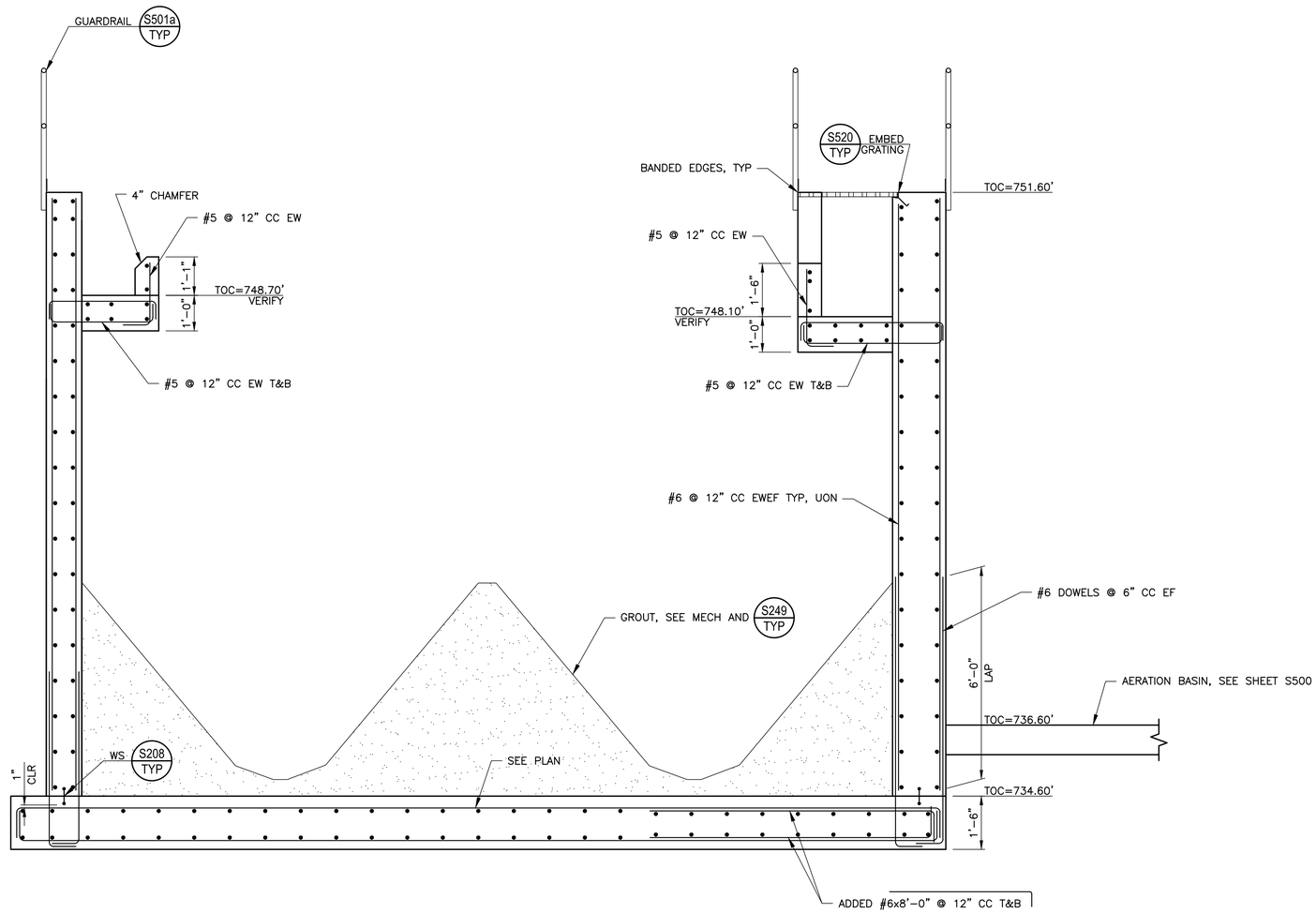

SECTION B S600
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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CLARIFIERS SECTIONS 2

90% SUBMITTAL JULY 2025

S602
DRAWING NUMBER

SHEET X OF 86

File Name: C:\VES\24000\24030\24030 S500 Aeration Basin.dwg Plotted By: DANIEL.GARROTT Plot Date: 7/25/2025 6:57 PM

WIRING & CONDUIT - CONNECTIONS

- PANEL OR EQUIPMENT WIRING
- FIELD WIRING
- EXISTING WIRING
- CONDUCTORS - NOT CONNECTED
- CONDUCTORS - CONNECTED
- GROUND
- CHASSIS OR FRAME GROUND
- PLUG AND RECEPTACLE
- INCOMING LINE
- SHIELDED CABLE
- CONDUIT CONCEALED IN WALL OR CEILING 3/4"C-2#12, 1#12GND UON
- CONDUIT, IN SLAB OR BELOW GRADE 3/4"C-2#12, 1#12GND UON
- CONDUIT, EXPOSED 3/4"C-2#12, 1#12GND UON
- CONDUIT STUBBED OUT AND CAPPED CONDUIT
- BENDS TOWARD OBSERVER CONDUIT
- BENDS AWAY FROM OBSERVER
- BARE COPPER GROUND WIRE
- G — GROUND CONNECTION BOLTED TYPE
- G — GROUND CONNECTION EXOTHERMIC WELD

SWITCHES - PROCESS

- FLOW SWITCH - CLOSES UPON INCREASING FLOW
- FLOW SWITCH - OPENS UPON INCREASING FLOW
- LEVEL SWITCH - CLOSES UPON INCREASING LEVEL
- LEVEL SWITCH - OPENS UPON INCREASING LEVEL
- PRESSURE SWITCH - CLOSES UPON INCREASING PRESSURE (INCREASING VACUUM)
- PRESSURE SWITCH - OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
- PRESSURE SWITCH - OPENS UPON INCREASING PRESSURE (INCREASING VACUUM)
- TEMPERATURE SWITCH - CLOSES UPON INCREASING TEMPERATURE
- TEMPERATURE SWITCH - OPENS UPON INCREASING TEMPERATURE
- LIMIT SWITCH - CLOSES AT SET
- LIMIT LIMIT SWITCH - OPENS AT SET LIMIT
- PROXIMITY SWITCH - CLOSES UPON DECREASING DISTANCE
- PROXIMITY SWITCH - CLOSES UPON DECREASING DISTANCE
- TORQUE SWITCH - CLOSES UPON INCREASING TORQUE
- TORQUE SWITCH - OPENS UPON INCREASING TORQUE

SWITCHES - OPERATORS

- TOGGLE OR DISCONNECT SWITCH
- PUSHBUTTON - NORMALLY OPEN, MOMENTARY ACTION
- PUSHBUTTON- NORMALLY CLOSED, MOMENTARY ACTION
- LEVEL SWITCH - OPENS UPON INCREASING
- OFF / HAND / AUTO — LEVEL SELECTOR SWITCH, 3 POSITION- CONTACT STATUS SHOWN EXISTS AT POSITION OF H-HAND, O-OFF, A-AUTO
- 3-POLE SWITCH

DEVICES - RELAY

- CR 1 / 28, 111 — CONTROL RELAY CR1 WITH NORMALLY OPEN CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
- TR 2 — TIME DELAY RELAY TR2 - ADJUSTABLE TIME DELAY RANGE AND SETTING AS SHOWN
- TDE — TIME DELAY RELAY ON ENERGIZATION
- TDD — TIME DELAY RELAY ON DE-ENERGIZATION
- M1 — CONTACTOR OR STARTER M1
- SV — SOLENOID
- CR-1 / (105) — NORMALLY OPEN RELAY CONTACT- ACTUATED BY RELAY CR-1 COIL ON LINE 105
- CR-1 — NORMALLY CLOSED RELAY CONTACT- ACTUATED BY RELAY CR-1 COIL
- NORMALLY OPEN, TIME DELAY RELAY CONTACT - CONTACT CLOSES AFTER RELAY IS ENERGIZED
- NORMALLY CLOSED, TIME DELAY RELAY CONTACT - CONTACT OPENS AFTER RELAY IS ENERGIZED
- NORMALLY OPEN, TIME DELAY RELAY CONTACT - CONTACT OPENS AFTER RELAY IS DEENERGIZED
- NORMALLY CLOSED, TIME DELAY RELAY CONTACT - CONTACT CLOSES AFTER RELAY IS DEENERGIZED

DEVICES - FRONT PANEL

- W — INDICATING LIGHT, LETTER INDICATES COLOR R=RED, G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE
- PTT / W — INDICATING LIGHT, PUSH TO TEST
- ETM — ELAPSED TIME METER

DEVICES - MISCELLANEOUS

- AUDIBLE ALARM
- HTR — HEATER
- 20 — MOTOR. # = MOTOR HORSEPOWER
- TRANSFORMER
- G — GENERATOR
- SD — SMOKE DETECTOR
- DISCONNECT, 3 POLE CONTACT ON LINE 28 AND NORMALLY CONTACT ON LINE 111
- CIRCUIT BREAKER, 3 POLE TM = THERMAL MAGNETIC MCP = MOTOR CIRCUIT PROTECTOR
- OL — THERMAL OVERLOAD CONTACT
- THERMAL OVERLOAD ELEMENT
- FUSE WITH BLOWN FUSE INDICATOR LIGHT
- FUSE
- CIRCUIT BREAKER

SYMBOLS - PLAN

- DISCONNECT SWITCH
- FIELD MOUNTED DEVICE
- SPECIAL RECEPTACLE, SIZE AS INDICATED
- JUNCTION BOX
- CONTROL STATION
- WALL MOUNTED LIGHT FIXTURE
- SITE LIGHT FIXTURE
- LED LIGHT FIXTURE LIGHT
- A 2/32 AO — FIXTURE TYPE "A" WITH 2-32 WATT LAMPS, TYPICAL FOR ROOM NOTED, UON.
- # — DUPLEX RECEPTACLE AT +18" UON, # = CIRCUIT NUMBER
- # — DOUBLE DUPLEX RECEPTACLE AT +18" UON, # = CIRCUIT NUMBER
- $ TAG1 TAG2 — TOGGLE SWITCH AT +48" UON
  SUBSCRIPT - CIRCUIT CONTROLLED
  SUPERSCRIPT - BLANK = 1, POLE 2 = 2, POLE 3 = 3 WAY, M = MOTOR OVERLOAD, T = SPRING WOUND TIMER
- EMERGENCY EXIT LIGHTING
- C001 — CONDUIT AND CONDUCTOR DESIGNATION SEE SCHEDULE FOR SIZE
- 3 PHASE SPECIAL RECEPTACLE, SIZE AS INDICATED
- TELEPHONE OUTLET
- TS — TAMPER SWITCH
- FS — FLOW SWITCH
- T — THERMOSTAT AT +48" UON
- REMOVE I/O DATA OUTLET
- FIBER OPTIC OUTLET
- GW — GROUND ROD, 3/4" X 10'-0" GW INDICATES GROUND ROD IN GROUND ROD BOX SEE GROUND ROD DETAIL.
- INTERCEPTION POINT - DEMO PLANS: EXISTING TO REMAIN TO EXISTING TO BE REMOVED NEW PLANS: EXISTING TO NEW
- MS — MOTION DETECTOR
- PC — PHOTOCELL
- GR — GROUND ROD, 3/4" X 10'-0" GR INDICATES GROUND ROD IN CONCRETE HANDHOLE TEST WELL.

ELECTRICAL ABBREVIATIONS

A	AMPERES	GFCI	GROUND FAULT CIRCUIT INTERRUPT	O	OPEN	SS	SOFT STARTER,SURGE SUPPRESSOR
AFF	ABOVE FINISHED FLOOR	GND	GROUND	OI	OPERATOR INTERFACE	STA	STATION
AI	ANALOG INPUT	GR	GROUND ROD	OIT	OPERATOR INTERFACE TERMINAL	SV	SOLENOID VALVE
AIC	AMPS INTERRUPTING CAPACITY, SYMM	GRS	GALVANIZED RIGID STEEL CONDUIT	OL	OVERLOAD	SW	SWITCH
AM	AMMETER	GW	GROUND WELL	P	POLE, PRESSURE	SWBD	SWITCHBOARD
AO	ANALOG OUTPUT	HI	HIGH	PB	PULL BOX, PUSHBUTTON	SYMM	SYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH	HID	HIGH INTENSITY DISCHARGE	PCP	PROCESS CONTROL PANEL	T	TRIP
AUX	AUXILIARY	HOA	HAND-OFF-AUTO	PF	POWER FACTOR	TB	TERMINAL BLOCK
AWG	AMERICAN WIRE GUAGE	HP	HORSEPOWER	PFR	POWER (PHASE) FAIL RELAY	TDD,TDE	TIME DELAY RELAY
BATT	BATTERY	HPS	HIGH PRESSURE SODIUM	PH	PHASE	TEL CO	TELEPHONE COMPANY
BSC	BARE STRANDED COPPER	HTR	HEATER	PI	PRESSURE INDICATOR	TM	THERMAL MAGNETIC
BKR	BREAKER	HZ	HERTZ (CYCLES PER SECOND)	PLC	PROGRAMMABLE LOGIC CONTROLLER	TEMP	TEMPERATURE
BLDG	BUILDING	HZD	HAZARDOUS AREA, EXPLOSION PROOF	PMP	PUMP	TS	TEMPERATURE SWITCH
C	CONDUIT, CLOSE, CONTROL	I	INTERLOCK OR INTELIGENT/LOGIC DEVICE	PNL	PANEL	TTB	TELEPHONE TERMINAL BACKBOARD
CB	CIRCUIT BREAKER	I/O	INPUT/OUTPUT	POT	POTENTIOMETER	TWP	TWISTED PAIR
CKT	CIRCUIT	INST	INSTRUMENTATION	PR	PAIR, TWISTED AND SHIELDED CABLE	TWSP	TWISTED SHIELDED PAIR
CNTRL	CONTROL	ISC	SHORT CIRCUIT INTERRUPTING CURRENT(SYMM)	PS	PRESSURE SWITCH	UG	UNDERGROUND
COAX	COAXIAL CABLE	ISR	INTRINSICALLY SAFE RELAY	PT	POTENTIAL TRANSFORMER	UON	UNLESS OTHERWISE NOTED
COMM	COMMUNICATION PORT	J/J-BOX	JUNCTION BOX	PSI	POUNDS PER SQUARE INCH	V	VOLTAGE
CP	CONTROL PANEL	K	KILO, THOUSAND (PREFIX)	PVC	POLYVINYLCHLORIDE	VA	VOLT AMPS
CPT	CONTROL POWER TRANSFORMER	KCMIL	THOUSAND CIRCULAR MILS	PVCRC	PVC AND GRC CONDUIT	VFD	VARIABLE FREQUENCY DRIVE
CR	CONTROL RELAY	LC	LIGHTING CONTACTOR	PVC-GRC	PVC COATED GRC CONDUIT	VLV	VALVE
CT	CURRENT TRANSFORMER	LOS	LOCK-OUT STOP SWITCH	PVC-RSC	PVC COATED RSC CONDUIT	VM	VOLTMETER
CU	COPPER	LI	LEVEL INDICATOR	PWR	POWER	VS	VARIABLE SPEED
DI	DIGITAL INPUT	LIT	LEVEL INDICATOR TRANSMITTER	R	RED	W	WATTS, WHITE, WIRE
DISC	DISCONNECT	LS	LEVEL SWITCH	REC	RECEPTACLE	WHM	WATT-HOUR METER
DO	DIGITAL OUTPUT	LTG	LIGHTING	RGS	RIGID GALVANIZED STEEL	WM	WATTMETER
DPDT	DOUBLE POLE, DOUBLE THROW	M	MOTOR CONTACTOR	RMS	ROOT MEAN SQUARE	WP	WATERPROOF, WEATHERPROOF
EF	EXHAUST FAN	mA	MILLIAMPERES	RSC	RIGID STEEL CONDUIT	XFMR	TRANSFORMER
EMERG	EMERGENCY	MCC	MOTOR CONTROL CENTER	RT	RESET TIMER	Y	YELLOW
EMT	ELECTRICAL METALLIC TUBING	MCP	MOTOR CIRCUIT PROTECTOR	RTM	RUN TIME METER	ZAU	INTRUSION ALARM
ETM	ELAPSED TIME METER	MD	MOISTURE DETECTION	RTU	REMOTE TERMINAL UNIT	ZS	LIMIT SWITCH
FACP	FIRE ALARM CONTROL PANEL	MFR	MANUFACTURER	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER		
FI	FLOW INDICATOR	MINS	MINUTES	RVNR	REDUCED VOLTAGE NON-REVERSING		
FIT	FLOW INDICATOR TRANSDUCER	MLO	MAIN LUGS ONLY	RVSS	REDUCED VOLTAGE SOFT START		
FLA	FULL LOAD AMPS	MOA	MANUAL-OFF-AUTO	SEC	SECONDARY		
FO	FAIL OPEN	MOV	MOTOR OPERATED VALVE	SECS	SECONDS		
FLEX	FLEX METAL LIQUID TIGHT CONDUIT	MTC	EMPTY CONDUIT WITH PULLROPE	SEQ	SEQUENCE		
FS	FLOW SWITCH	MTS	MANUAL TRANSFER SWITCH	SHLD	SHIELDED		
FTS	FLOAT SWITCH	MTR	MOTOR	SP	SET POINT		
FVNR	FULL VOLTAGE NON-REVERSING	N	NEUTRAL	SPD	SURGE PROTECTION DEVICE		
FUT	FUTURE	NC	NORMALLY CLOSED	SPEC	SPECIFICATION		
FVR	FULL VOLTAGE REVERSING	NIC	NOT IN CONTRACT	SPST	SINGLE POLE, SINGLE THROW		
G	GREEN	NL	NIGHT LIGHT	SR	SENSING RELAY		
GEN	GENERATOR	NO	NORMALLY OPEN				

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PROJ. MGR.: WLS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

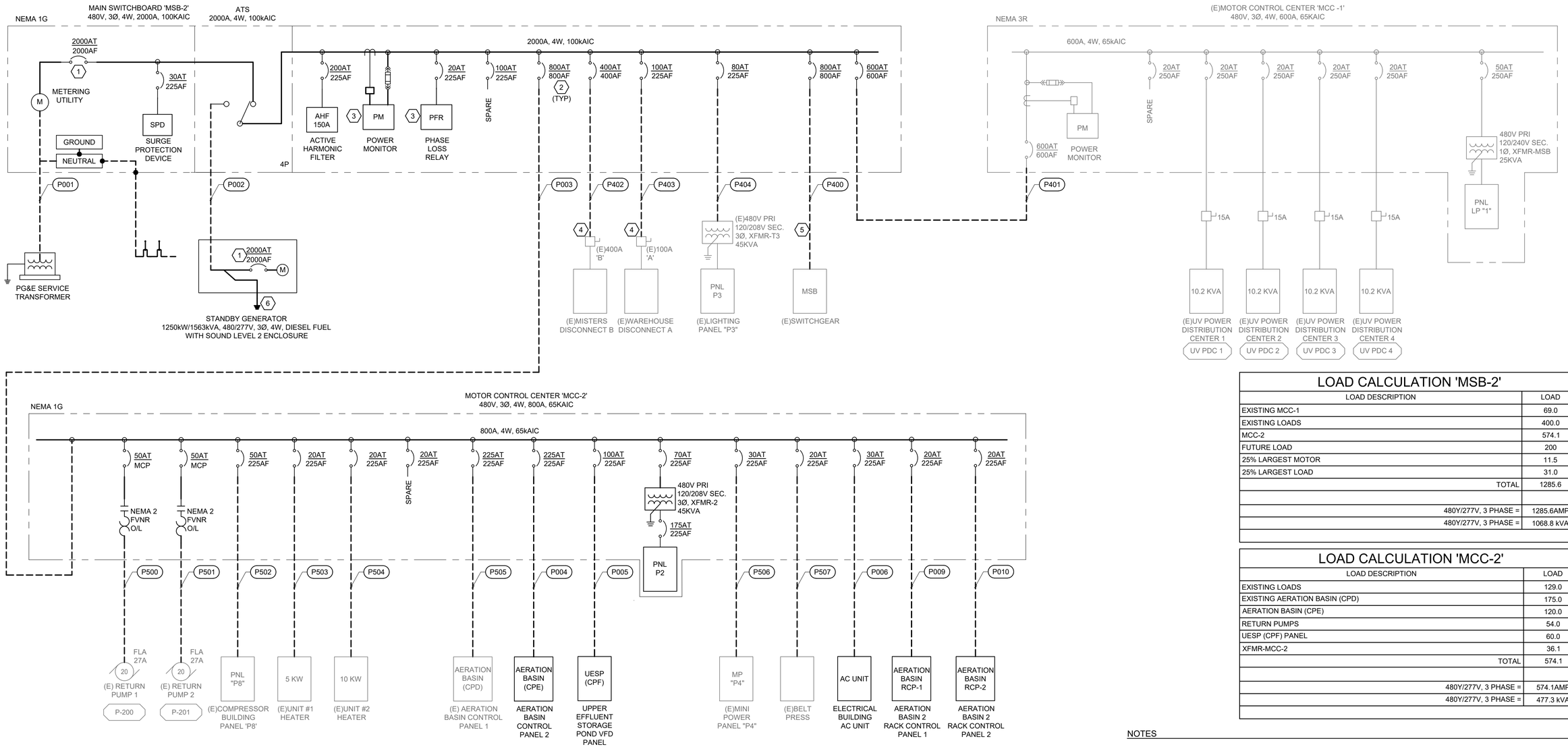
STANDARD ELECTRICAL SYMBOLS, LEGENDS & ABBREVIATIONS

90% SUBMITTAL JULY 2025

E001
DRAWING NUMBER

SHEET 56 OF 87

Plot Date: 7/23/2025 11:37 AM
Plotted By: ANTHONY PEREZ
File Name: S:\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg



OVERALL SINGLELINE DIAGRAM

SCALE: NTS

LOAD CALCULATION 'MSB-2'

LOAD DESCRIPTION	LOAD
EXISTING MCC-1	69.0
EXISTING LOADS	400.0
MCC-2	574.1
FUTURE LOAD	200
25% LARGEST MOTOR	11.5
25% LARGEST LOAD	31.0
TOTAL	1285.6
480Y/277V, 3 PHASE =	1285.6AMP
480Y/277V, 3 PHASE =	1068.8 kVA

LOAD CALCULATION 'MCC-2'

LOAD DESCRIPTION	LOAD
EXISTING LOADS	129.0
EXISTING AERATION BASIN (CPD)	175.0
AERATION BASIN (CPE)	120.0
RETURN PUMPS	54.0
UESP (CPF) PANEL	60.0
XFMR-MCC-2	36.1
TOTAL	574.1
480Y/277V, 3 PHASE =	574.1AMP
480Y/277V, 3 PHASE =	477.3 kVA

NOTES

1. MAIN CIRCUIT BREAKER SHALL BE 100% RATED WITH ELECTRONIC TRIP UNIT (LSIG) AND ARCFLASH REDUCTION MAINTENANCE SYSTEM FEATURE.
2. FEEDER CIRCUIT BREAKER SHALL BE EQUIPPED WITH ELECTRONIC TRIP UNIT (LSI).
3. CONNECT PHASE/POWER FAILURE ALARM TO PLC.
4. REMOVE CIRCUIT FROM EXISTING SWB-E AND RE-FEED EXISTING DISCONNECT SWITCH.
5. THE TEMPORARY CIRCUIT SHALL CONTINUE TO FEED THE EXISTING MAIN SWITCHBOARD (MSB) UNTIL THE NEW EQUIPMENT IS FULLY INSTALLED AND THE CUTOVER IS COMPLETE. THEN THE TEMPORARY CABLES SHALL BE DEMO'D.
6. THE GENERATOR GROUNDING SYSTEM SHALL UTILIZE A SEPARATELY DERIVED GROUNDING CONFIGURATION. A SEPARATE GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED FOR THE GENERATOR, ISOLATED FROM THE MAIN BUILDING GROUND, AND BONDED AS REQUIRED TO MEET GROUNDING AND BONDING STANDARDS FOR A SEPARATELY DERIVED SYSTEM.

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LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

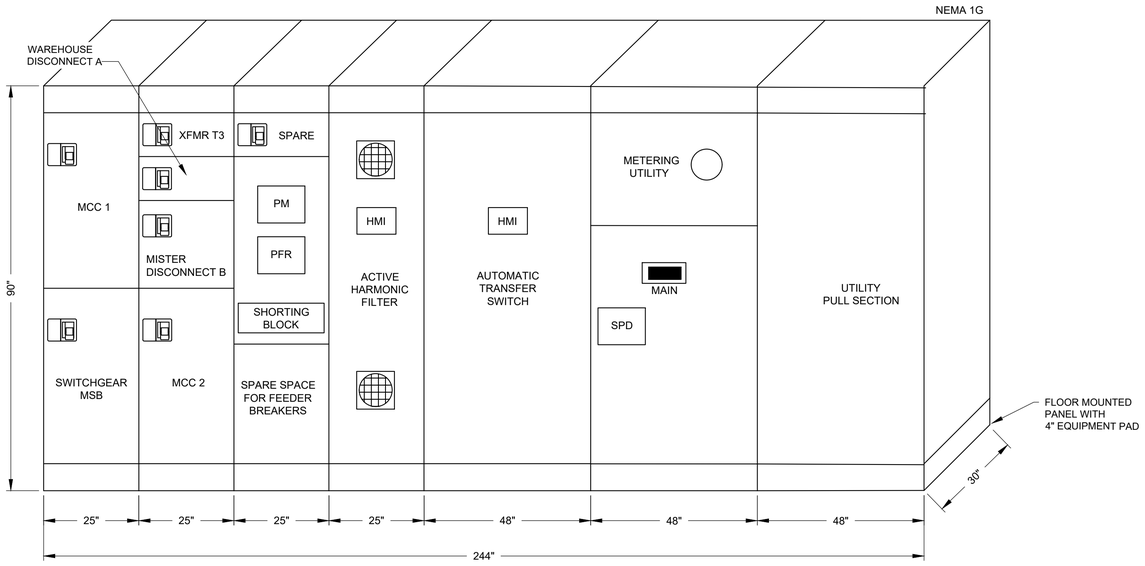
OVERALL
SINGLE LINE DIAGRAM

90%
SUBMITTAL
JULY 2025

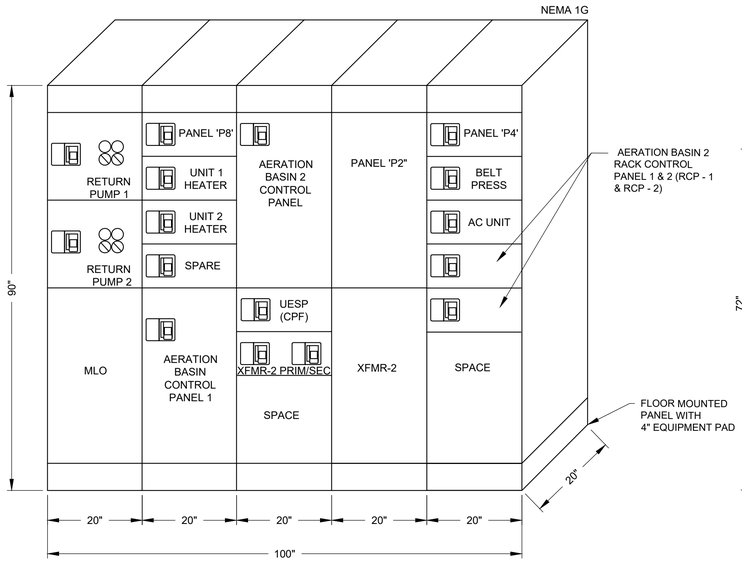
E010
DRAWING NUMBER

SHEET 57 OF 87

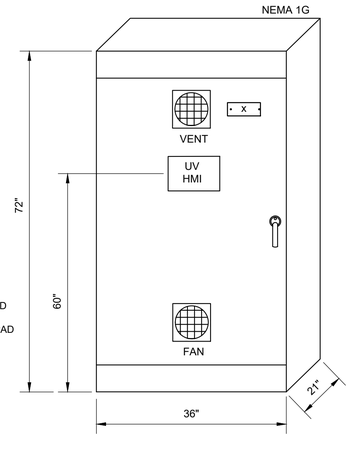
Plot Date: 7/23/2025 11:17 AM
Plotted By: MICHAEL EMBRY
File Name: \\vm-dc-sacvol1\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg



MSB-2 PANEL ELEVATION (A)
SCALE: NONE



MCC 2 PANEL ELEVATION (B)
SCALE: NONE



MCP ELEVATION (C)
SCALE: NTS

NOT FOR CONSTRUCTION

HydroScience
10569 OLD PLACERVILLE RD
SACRAMENTO, CA 95827
OFFICE: (916)364-1490 www.hydroscience.com

PAPER SIZE: 22X34 (ANSI D)
0" 1/2" 1"
THIS BAR IS 1 INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY.

JOB NO. : 483-003
DATE: 7/23/2025
DRAWN BY: MLE
DESIGNED BY: TTL
PROJ. MGR.: WLS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

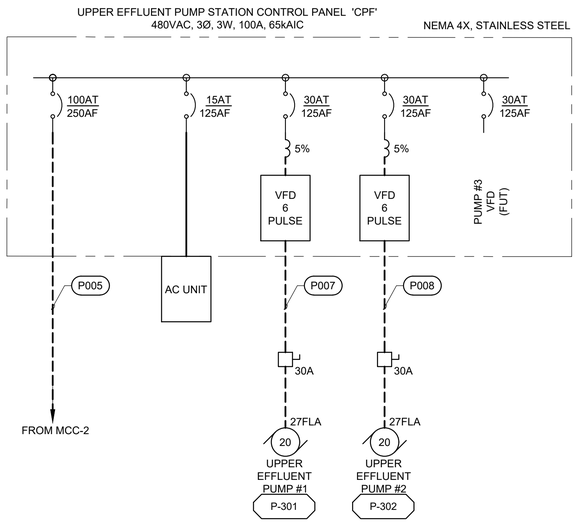
PANEL ELEVATIONS

90% SUBMITTAL JULY 2025

E011
DRAWING NUMBER

SHEET 58 OF 87

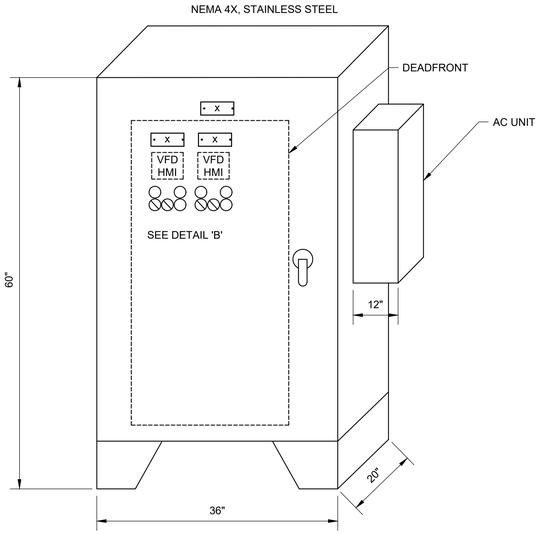
Plotted By: MICHAEL EMBRY Plot Date: 7/23/2025 11:17 AM
File Name: \\vm-dc-sac\vol1\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg



SINGLE LINE DIAGRAM

SCALE: NTS

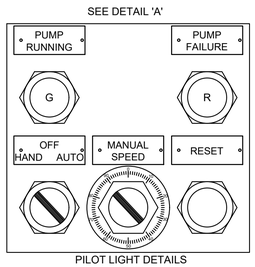
LOAD CALCULATION 'CPF'	
LOAD DESCRIPTION	LOAD
UESP PUMPS (DUTY/STANDBY)	27.0
FUTURE PUMP	27.0
AIR CONDITIONING	6.0
25% LARGEST MOTOR	6.8
TOTAL	60.0
480Y/277V, 3 PHASE =	60.0AMP
480Y/277V, 3 PHASE =	49.9 kVA



UESP (CPF) PANEL ELEVATION

SCALE: NTS

A



PILOT LIGHT DETAILS
(TYP)

PILOT DEVICES (TYP)

SCALE: NTS

B

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REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY
WATER DISTRICT

LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

UESP CONTROL PANEL (CPF)
SINGLE LINE DIAGRAM AND
PANEL ELEVATION

90%
SUBMITTAL
JULY 2025

E012
DRAWING NUMBER

SHEET 59 OF 87

Plotted By: MICHAEL EMBRY Plot Date: 7/23/2025 11:17 AM
File Name: \\vm-dc-sacvol1\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg

LIGHTING PANEL (THREE PHASE)

NAMEPLATE:PANEL 'P2'
ENCLOSURE: NEMA 1
MAIN: 175A

BUILDING.: ELECTRICAL BUILDING
MOUNTING.: MCC
BUS AMPS: 225A

LOCATION: MCC-2
AICS RATING: 22K
VOLTS: 120/208V

DESCRIPTION		VOLT-AMPERES			CB		CB		VOLT-AMPERES			DESCRIPTION	
		A	B	C	AMP	POLE	AMP	POLE	A	B	C		
1	GENERATOR CHARGER	672			20	1	20	1	900			ELECTRICAL BUILDING LIGHTS	2
3	GENERATOR BLOCK HEATER		2500		30	2	20	1		720		ELECTRICAL BUILDING RECEPTACLES	4
5	GENERATOR BLOCK HEATER			2500			20	1			900	SITE LIGHTS, ELEC BLDG/GEN AREA	6
7	SPARE	0			20	1	20	1	1080			SITE RECEPT ELEC BLDG/GEN AREA	8
9	SPARE		0		20	1	20	1		720		SITE LIGHTS, CLARIFIER 2	10
11	SPARE			0	20	1	20	1			720	SITE RECPT, CLARIFIER 2	12
13	SPARE	0			20	1	20	1	720			SITE LIGHTS, RAS/WAS	14
15	SPARE		0		20	1	20	1		720		SITE RECEPT, RAS/WAS	16
17	SPARE			0	20	1	20	1			720	SITE LIGHTS, UESP	18
19	SPACE						20	1	720			SITE RECEPT, UESP	20
21	SPACE						20	1		0		SPARE	22
23	SPACE						20	1			0	SPARE	24
25	SPACE						20	1	0			SPARE	26
27	SPACE						20	1		0		SPARE	28
29	SPACE						20	1			0	SPARE	30
31	SPACE											SPACE	32
33	SPACE											SPACE	34
35	SPACE											SPACE	36
37	SPACE											SPACE	38
39	SPACE											SPACE	40
41	SPACE											SPACE	42
	SUB TOTAL	672	2500	2500					3420	2160	2340		
					CONNECTED LOAD KVA:	13.6						TOTAL (CONN.+LCL X 0.25) KVA:	17.0
					LCL X 0.25 KVA:	3.4						1Ø AMPERES:	70.8

(E) LIGHTING PANEL (THREE PHASE)

NAMEPLATE: PANEL 'P3'
ENCLOSURE: WALL MOUNT
MAIN: 150A

BUILDING.: OPS. BUILDING
MOUNTING.: WALL
BUS AMPS: 225A

LOCATION: EXISTING OPERATIONS ROOM
AICS RATING: 22K
VOLTS: 120/208V

DESCRIPTION		VOLT-AMPERES			CB		CB		VOLT-AMPERES			DESCRIPTION		
		A	B	C	AMP	POLE	AMP	POLE	A	B	C			
1	LIGHTS, CONTROL ROOM, GEN.	750			30	2	20	1	600			CHLORINE RM CL2 DETECTOR	2	
3	LIGHTS, BLDG PROCESS AREA		750				20	1		600		BLOWER RM CL2 DETECTOR	4	
5	SITE LIGHTS, UV AREA			750	30	2	20	1			1200	CONTROL PANEL 'MCP'	6	1
7	SITE LIGHTS, CLARIFIER	750					20	1	600			CHEMICAL PUMP	8	
9	SPARE		285		20	3	20	1		180		FLOW TRANSMITTER	10	
11	SITE LIGHTS, EFFLUENT			285			20	1			180	CHLORINATORS	12	
13	SPARE	285					20	1	1260			CHLORINE SOL. MIXER NO.1	14	
15	SPARE		285		20	3	20	1		0		SPARE	16	
17	SPARE			285			20	1			1400	CPF BLOWER RM EXH FAN	18	
19	SPARE	285					20	1	1400			CPF CHLOR RM EXH FAN	20	
21	RECPT, CONTROL ROOM, GEN.		180		20	1	20	1		0		SPARE	22	
23	RECPT, BLDG PROCESS AREA			180	20	1	20	1			1260	CHLORINE SOL. MIXER NO.2	24	
25	RECPT, LONG LAB COUNTER	540			20	1	20	1	1200			CONTROL PANEL 'MCP'	26	1
27	RECPT, SHORT LAB COUNTER		540		20	1	20	1		0		SPARE	28	
29	SPARE			0	20	1	20	1			0	SPARE	30	
31	AIR CONDITIONER	900			30	2	20	1	1260			NEW INSTRUMENT BLD	32	
33			900				20	1		0		SPARE	34	
35	SPARE			0	20	1	20	1			0	SPARE	36	
37	WATER HEATER	2040			30	1	70	3	1800			SUBFEED TO PANEL 'P5'	38	
39	SPARE		0		20	1				1800			40	
41	SPARE			0	20	1					1800		42	
	SUB TOTAL	2610	2040	1500					5060	780	4040			
					CONNECTED LOAD KVA:	16.0						TOTAL (CONN.+LCL X 0.25) KVA:	20.0	
					LCL X 0.25 KVA:	4.0						1Ø AMPERES:	83.5	

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER	DESCRIPTION	LENS/ REFLECTOR	MOUNTING	FINISH	BALLAST/ DRIVER	LAMP	VOLTAGE	INPUT WATTS	NOTES
P1	LITHONIA DSX0 20C 1000 40K T3M MVOLT RPA HS	LED AREA LIGHT 20C 1000mA LED w/ POLE MOUNTED VIBRATION DAMPENER	ACRYLIC	PLE	NATURAL SILVER	1000mA DRIVER	LED	120	72	MOUNT ON 20' POLE, WEATHER PROOF LIGHT SWITCH SHALL BE POLE MOUNTED.
W1	LITHONIA DSXW1LED 10C 530 40K T3S MVOLT	10C LED WALL MOUNTED AREA FIXTURE	ACRYLIC	WALL	NATURAL SILVER	20W DRIVER	LED	120	20	MOUNT ON AT 10'-0" FROM FINISHED SLAB
A	LITHONIA LBL4 MVOLT LP835	SURFACE MOUNTED LED 48" LONG WITH 4000 NOMINAL LUMENS, 43W LED DRIVER 35K AND ACRYLIC DIFFUSER	ACRYLIC	SURFACE	WHITE	50W DRIVER	LED	120	50	-
C	LITHONIA LHQM-LED-G-HO	LED EXIT SIGN WITH EMERGENCY LIGHTS.	ACRYLIC	WALL	WHITE	-	LED	120	5	-

NOTES

1. PANEL 'P3' CIRCUITS WILL BE REUSED WITH THE EXCEPTION OF CIRCUITS #6 AND #26 SHALLL BE USED TO POWER THE NEW MAIN CONTROL PANEL 'MCP'

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL SCHEDULE - 1

90% SUBMITTAL JULY 2025

E020
DRAWING NUMBER

SHEET 60 OF 87

Plotted By: MICHAEL EMBRY Plot Date: 7/23/2025 11:17 AM
File Name: \\vm-dc-sacvol1\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-Electrical.dwg

CONDUIT AND CONDUCTOR ROUTING SCHEDULE (1)(2)

C NO.	FROM	TO	CONDUIT QTY	CONDUIT SIZE	WIRE QTY	WIRE SIZE	GND SIZE	NOTES
P001	PG&E TRANSFORMER	MAIN SWITCHBOARD 'MSB-2'	7	5"	-	PULL ROPE	-	480VAC/277, P&GE SERVICE CONDUCTORS
P002	GENERATOR	MSB-2 (ATS)	5	4"	4EA	600kCMIL	250kCMIL	480/277VAC
P003	MAIN SWITCHBOARD 'MSB-2'	MOTOR CONTROL CENTER 'MCC-2'	2	4"	4EA	600kCMIL	#1/0	480/277VAC
P004	MOTOR CONTROL CENTER 'MCC-2'	AERATION CONTROL BASIN CPE	1	3"	3	350kCMIL	#1	480VAC
P005	MOTOR CONTROL CENTER 'MCC-2'	UESP CONTROL PANEL 'CPF'	1	2"	3	#1/0	#4	480VAC
P006	MOTOR CONTROL CENTER 'MCC-2'	AIR CONDITIONING UNIT	1	1"	3	#10	#10	480VAC
P007	UESP CONTROL PANEL 'CPF'	UPPER EFFLUENT PUMP #1	1	1"	3	#10	#10	480VAC , SOOW CABLE
P008	UESP CONTROL PANEL 'CPF'	UPPER EFFLUENT PUMP #2	1	1"	3	#10	#10	480VAC , SOOW CABLE
P009	MOTOR CONTROL CENTER 'MCC-2'	AERATION BASIN 2 RACK CONTROL PANEL 1 (RCP-1)	1	1"	3	#10	#10	480VAC
P010	MOTOR CONTROL CENTER 'MCC-2'	AERATION BASIN 2 RACK CONTROL PANEL 2 (RCP-2)	1	1"	3	#10	#10	480VAC
P400	MAIN SWITCHBOARD 'MSB-2'	SWITCHGEAR 'MSB'	2	4"	3EA	600kCMIL	#1/0	480VAC (EXISTING LOAD)
P401	MAIN SWITCHBOARD 'MSB-2'	'MCC-1'	2	3"	3EA	350kCMIL	#1	480/277VAC (EXISTING LOAD)
P402	MAIN SWITCHBOARD 'MSB-2'	MISTERS DISCONNECT B	2	2"	3EA	#4/0	#3	480VAC (EXISTING LOAD)
P403	MAIN SWITCHBOARD 'MSB-2'	WAREHOUSE DISCONNECT A	1	1"	3	#2	#8	480VAC (EXISTING LOAD)
P404	MAIN SWITCHBOARD 'MSB-2'	TRANSFORMER 'T3'	1	2"	3	#1/0	#6	480VAC (EXISTING LOAD)
P500	MOTOR CONTROL CENTER 'MCC-2'	RETURN PUMP 1 'P-201'	1	1"	3	#6	#8	480VAC (EXISTING LOAD)
P501	MOTOR CONTROL CENTER 'MCC-2'	RETURN PUMP 2 'P-202'	1	1"	3	#6	#8	480VAC (EXISTING LOAD)
P502	MOTOR CONTROL CENTER 'MCC-2'	PANEL 'P8'	1	1"	3	#8	#10	480VAC (EXISTING COMPRESSOR BLDG)
P503	MOTOR CONTROL CENTER 'MCC-2'	UNIT HEATER #1	1	1"	3	#12	#12	480VAC (EXISTING LOAD)
P504	MOTOR CONTROL CENTER 'MCC-2'	UNIT HEATER #2	1	1"	3	#12	#12	480VAC (EXISTING LOAD)
P505	MOTOR CONTROL CENTER 'MCC-2'	AERATION CONTROL BASIN CPD	1	3"	3	350kCMIL	#1	480VAC (EXISTING LOAD)
P506	MOTOR CONTROL CENTER 'MCC-2'	PANEL 'P4'	1	1"	3	#10	#10	480VAC (EXISTING MINI POWER PANEL)
P507	MOTOR CONTROL CENTER 'MCC-2'	BELT PRESS	1	1"	3	#12	#12	480VAC (EXISTING LOAD)
P600	AERATION BLOWER 4 (B-004)	AERATION BASIN 2 'CPE'	1	1"	3	#8	#10	480VAC
P601	AERATION BLOWER 5 (B-005)	AERATION BASIN 2 'CPE'	1	1"	3	#8	#10	480VAC
P602	RAS/WAS PUMP 1	AERATION BASIN 2 'CPE'	1	1"	3	#10	#10	480VAC
P603	RAS/WAS PUMP 2	AERATION BASIN 2 'CPE'	1	1"	3	#10	#10	480VAC
P0X1	PULLBOX PB-P1	MAIN SWITCHBOARD 'MSB-2'	2	2"	-	PULL ROPE	-	
P0X2	PULLBOX PB-P1	MOTOR CONTROL CENTER 'MCC-2'	2	2"	-	PULL ROPE	-	
S001	GENERATOR TANK LEVEL	MAIN CONTROL PANEL 'MCP'	1	1"	1	#16TSP	#14	(LOOP-POWERED)
S002	MSB POWER METER	MAIN CONTROL PANEL 'MCP'	1	1"	1	CAT6/FIBER	-	ETHERNET
S003	AERATION BASIN 2 'CPE'	MAIN CONTROL PANEL 'MCP'	1	1"	1	CAT6	-	ETHERNET
S005	UESP DISCHARGE PRESSURE TRANSMITTER 'PIT-304'	MAIN CONTROL PANEL 'MCP'	1	1"	1	#16TSP	#14	(LOOP-POWERED)
S006	UESP DISCHARGE FLOWMETER 'FIT-305'	MAIN CONTROL PANEL 'MCP'	1	1"	1 2	#16TSP #14	- #14	SIGNAL 24VDC POWER
S007	UESP POND LEVEL TRANSMITTER 'LT-300'	MAIN CONTROL PANEL 'MCP'	1	1"	1	#16TSP	#14	(LOOP-POWERED)
S008	UESP CONTROL PANEL 'CPF'	MAIN CONTROL PANEL 'MCP'	1	1"	4	#16TSP	#14	SPEED CONTROL/FEEDBACK
S601	AERATION BASIN 2 DO TRANSMITTER (AIT-600)	AERATION BASIN 2 'CPE'	1	1"	1 2	#16TSP #14	- #14	SIGNAL 24VDC POWER
S602	RAS/WAS FLOW TRANSMITTER (FIT-XXX)	AERATION BASIN 2 'CPE'	1	1"	1 2	#16TSP #14	- #14	SIGNAL 24VDC POWER
S603	RAS ISOLATION VALVES	AERATION BAIS 2 'CPE'	1	3"	6 12	#16TSP #14	- #14	SIGNAL 24VDC POWER
SX01	PULLBOX PB-C1	MAIN CONTROL PANEL 'MCP'	2	2"	-	PULL ROPE	-	
SX02	PULLBOX PB-C1	MOTOR CONTROL CENTER 'MCC-2'	2	2"	-	PULL ROPE	-	

CONDUIT AND CONDUCTOR ROUTING SCHEDULE (1)(2)

C NO.	FROM	TO	CONDUIT QTY	CONDUIT SIZE	WIRE QTY	WIRE SIZE	GND SIZE	NOTES
C001	MAIN SWITCHBOARD 'MSB-2'	MAIN CONTROL PANEL 'MCP'	1	1"	10	#14	#14	24VDC CONTROL, PFR, AHF, ATS
C002	GENERATOR	MSB-2 (ATS)	1	1"	2	#14	#14	24VDC CONTROLS, GEN START
C003	GENERATOR	MAIN CONTROL PANEL 'MCP'	1	1"	12	#14	#14	24VDC CONTROLS
C004	MSB-2 (ATS)	MAIN CONTROL PANEL 'MCP'	1	1"	2	#14	#14	24VDC CONTROLS (ZSC,ZSO)
C005	OPS/ADMIN STAFF DOOR	MAIN CONTROL PANEL 'MCP'	1	1"	2	#14	#14	INTRUSION SWITCH (ZS-001)
C006	ELECTRICAL BUILDING DOOR	MAIN CONTROL PANEL 'MCP'	1	1"	2	#14	#14	INTRUSION SWITCH (ZS-002)
C007	AERATION BASIN 2 'CPE'	MAIN CONTROL PANEL 'MCP'	1	TBD	TBD	TBD	TBD	24VDC CONTROLS
C008	PRESSURE SWITCH 'PSH-301'	MAIN CONTROL PANEL 'MCP'	1	1"	2	#14	#14	24VDC CONTROLS
C009	PRESSURE SWITCH 'PSH-302'	MAIN CONTROL PANEL 'MCP'	1	1"	2	#14	#14	24VDC CONTROLS
C010	UESP PUMP #1	UESP CONTROL PANEL 'CPF'	1	1"	4	#14	#14	CONTROLS (TSH-301, MSH-301) SOOW CBL
C011	UESP PUMP #2	UESP CONTROL PANEL 'CPF'	1	1"	4	#14	#14	CONTROLS (TSH-302, MSH-302) SOOW CBL
C012	UESP CONTROL PANEL 'CPF'	MAIN CONTROL PANEL 'MCP'	1	2"	28	#14	#14	24VDC CONTROLS
C013	ELECTRICAL BUILDING SMOKE DETECTORS (ASH-001, ASH-002)	MAIN CONTROL PANEL 'MCP'	1	1"	4	#14	#14	24VDC CONTROLS
C100	SCREEN AND BAR RACK	MAIN CONTROL PANEL 'MCP'	1	TBD	TBD	TBD	TBD	24VDC CONTROLS (EXISTING)
C101	AERATION BASIN 1 'CPD'	MAIN CONTROL PANEL 'MCP'	1	TBD	TBD	TBD	TBD	24VDC CONTROLS (EXISTING)
C102	SAND FILTER 'LCP-03'	MAIN CONTROL PANEL 'MCP'	1	3/4"	6	#14	#14	24VDC CONTROLS (EXISTING)
C103	MOTOR CONTROL CENTER 'MCC-1'	MAIN CONTROL PANEL 'MCP'	1	TBD	TBD	TBD	TBD	24VDC CONTROLS (EXISTING)
C201	RETURN PUMP 1 'P-201'	MOTOR CONTROL CENTER 'MCC-2'	1	1"	4	#14	#14	24VDC CONTROLS (TSH-201, MSH-201)
C202	RETURN PUMP 2 'P-202'	MOTOR CONTROL CENTER 'MCC-2'	1	1"	4	#14	#14	24VDC CONTROLS (TSH-202, MSH-202)
C203	MOTOR CONTROL CENTER 'MCC-2' RETURN PUMP 1 'P-201'	MAIN CONTROL PANEL 'MCP'	1	1"	12	#14	#14	24VDC CONTROLS (EXISTING AND NEW)
C204	MOTOR CONTROL CENTER 'MCC-2' RETURN PUMP 2 'P-202'	MAIN CONTROL PANEL 'MCP'	1	1"	12	#14	#14	24VDC CONTROLS (EXISTING AND NEW)
C205	FLOAT SWITCHES (LSLL-XXX, LSL, XXX, LSH-XXX, LSH-XXX, LSHH-XXX	MAIN CONTROL PANEL 'MCP'	1	1"	12	#14	#14	24VDC CONTROLS (EXISTING)
C600	RAS/WAS WETWELL LEVEL FLOATS	AERATION BASIN 2 'CPE'	1	1"	2	#14	#14	24VDC CONTROLS
C601	MOV-601	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (RAS ISOLATION)
C602	MOV-602	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (RAS ISOLATION)
C603	MOV-603	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (WAS ISOLATION)
C604	MOV-604	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (WAS ISOLATION)
C605	MOV-605	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (SCUM BOX)
C606	MOV-606	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (SCUM BOX)
C607	MOV-607	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C608	MOV-608	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C609	MOV-609	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C610	MOV-610	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C611	MOV-611	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C612	MOV-612	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C613	MOV-613	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C614	MOV-614	AERATION BASIN 2 'CPE'	1	1"	8	#14	#14	24VDC CONTROLS (AIR)
C615	RAS/WAS PUMP 1 'P-XXX'	AERATION BASIN 2 'CPE'	1	1"	4	#14	#14	24VDC CONTROLS (TSH-XXX, MSH-XXX)
C616	RAS/WAS PUMP 2 'P-XXX'	AERATION BASIN 2 'CPE'	1	1"	4	#14	#14	24VDC CONTROLS (TSH-XXX, MSH-XXX)
CX01	PULLBOX PB-C1	MAIN CONTROL PANEL 'MCP'	2	2"	-	PULL ROPE	-	
CX02	PULLBOX PB-C1	MOTOR CONTROL CENTER 'MCC-2'	2	2"	-	PULL ROPE	-	
L001	GENERATOR BLOCK HEATER GENERATOR CHARGER	PANEL 'P2'	1	1 1/2"	2 2	#10 #12	#10 #12	208VAC 120VAC
L002	ELECTRICAL BUILDING LIGHTING	PANEL 'P2'	1	1"	2	#12	#12	120VAC
L003	ELECTRICAL BUILDING RECEPTACLES	PANEL 'P2'	1	1"	2	#12	#12	120VAC
L004	SITE LIGHTING ELEC BLDG/GEN AREA SITE RECEPTACLES ELEC BLDG/GEN AREA	PANEL 'P2'	1	1"	2 2	#12 #12	#12 #12	120VAC
L005	ELECTRICAL BUILD. SMOKE DETECTORS	PANEL 'P2'	1	1"	2	#12	#12	120VAC
L006	MAIN CONTROL PANEL 'MCP'	PANEL 'P3'	1	1"	2	#10	#10	120VAC (CKT #6)
L007	MAIN CONTROL PANEL 'MCP'	PANEL 'P3'	1	1"	2	#10	#10	120VAC (CKT #16)
L008	SITE LIGHTING UESP AREA SITE RECEPTACLES UESP AREA	PANEL 'P2'	1	1 1/2"	2 2	#10 #10	#10 #10	120VAC
L600	SITE LIGHTING CLARIFIER 2 AREA SITE RECEPTACLES CLARIFIER 2 AREA	AERATION BASIN 2 'CPE'	1	1"	2	#10	#10	120VAC
L601	SITE LIGHTING RAS/WAS AREA SITE RECEPTACLES RAS/WAS AREA	AERATION BASIN 2 'CPE'	1	1"	2	#10	#10	120VAC
LX01	PULLBOX PB-P1	PANEL 'P2"	2	2"	-	PULL ROPE	-	
LX02	PULLBOX PB-P1	PULLBOX PB-P2	2	2"	-	PULL ROPE	-	

(1) (TYP)

NOTES

1. EXISTING CONTROL AND SIGNAL WIRING SHALL BE REUSED WHEN POSSIBLE. THE WIRING SHALL BE MOVED FROM THE EXISTING CONTROL PANEL TO THE MAIN CONTROL PANEL. THIS SHALL BE DONE ONE SIGNAL AT A TIME AND TESTED BEFORE MOVING ON TO THE NEXT SET OF WIRES. IF ANY WIRING IS NOT ABLE TO BE REUSED, IT SHALL BE REPLACED WITH NEWLY PULLED WIRE/CABLE.

2. THE FIELD WIRING FROM AERATION BASIN 2 TO THE AERATION 2 CONTROL PANEL (CPE) IS SHOWN AS TYPICAL. THE CONTRACTOR SHALL PROVIDE ALL CONDUITS AND CONDUCTORS TO AND FROM THE CPE PANEL AS PART OF THE EXTENDED AERATION SYSTEM, IN ACCORDANCE WITH THE CPE PANEL SHOP DRAWINGS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE AERATION BLOWERS, MOTOR-OPERATED VALVES, RAKE DRIVES, RAS/WAS PUMPS, FIELD INSTRUMENTATION WIRING FOR THE AERATION BASIN, RAS/WAS WET WELL, AND FLOW STRUCTURE.

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PROJ. MGR.: WLS

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REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL SCHEDULE - 2

90% SUBMITTAL JULY 2025

E021
DRAWING NUMBER

SHEET 61OF 87

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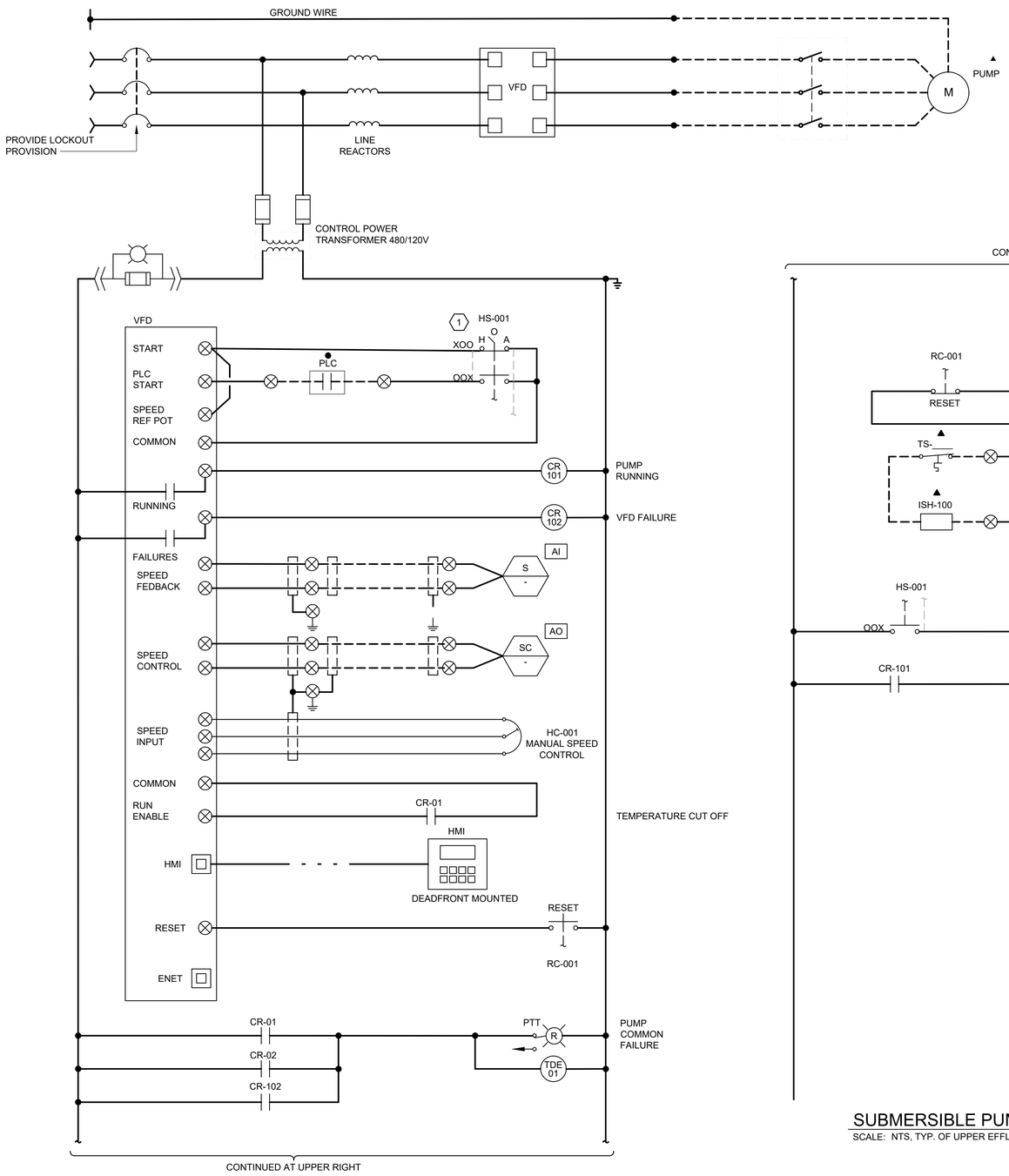

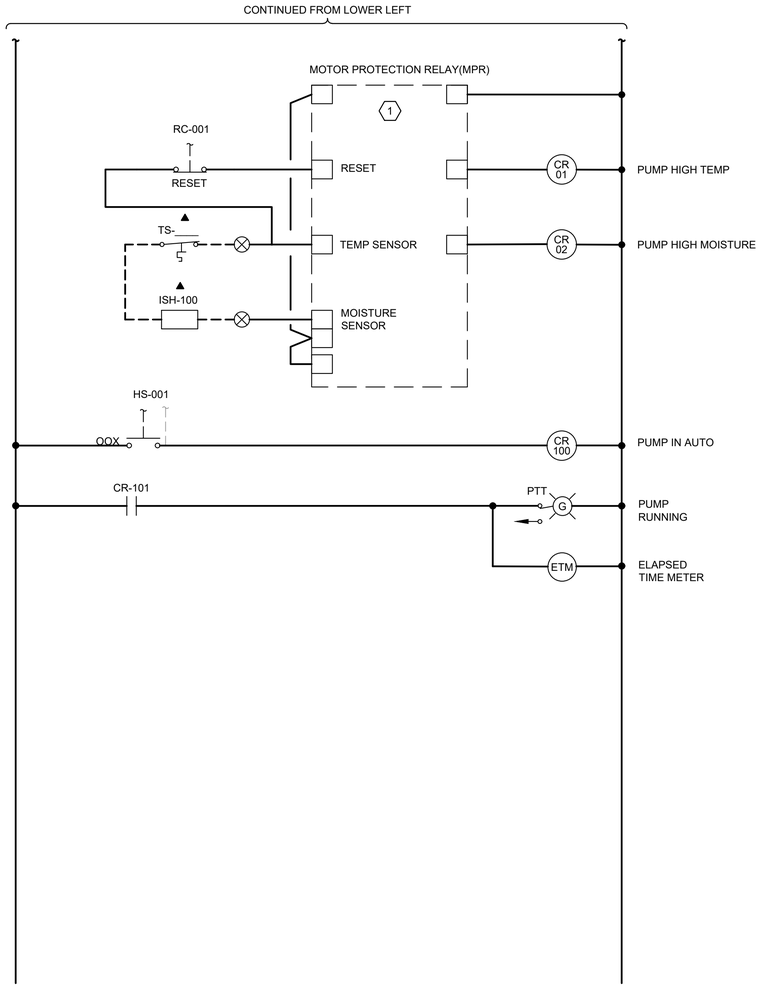

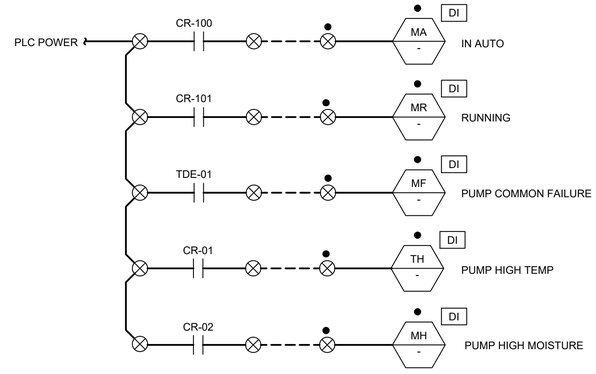

KEY NOTES

- ▲ FIELD
- ETHERNET
- ● CONTROL PANEL

NOTES:

1. ALL DEVICES LOCATED AT CONTROL PANEL OTHERWISE NOTED.

SUBMERSIBLE PUMP VFD CONTROL DIAGRAM

SCALE: NTS, TYP. OF UPPER EFFLUENT PUMPS

A

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

UPPER EFFLUENT PUMP WIRING DIAGRAM

90% SUBMITTAL JULY 2025

E030
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SHEET 62 OF 87

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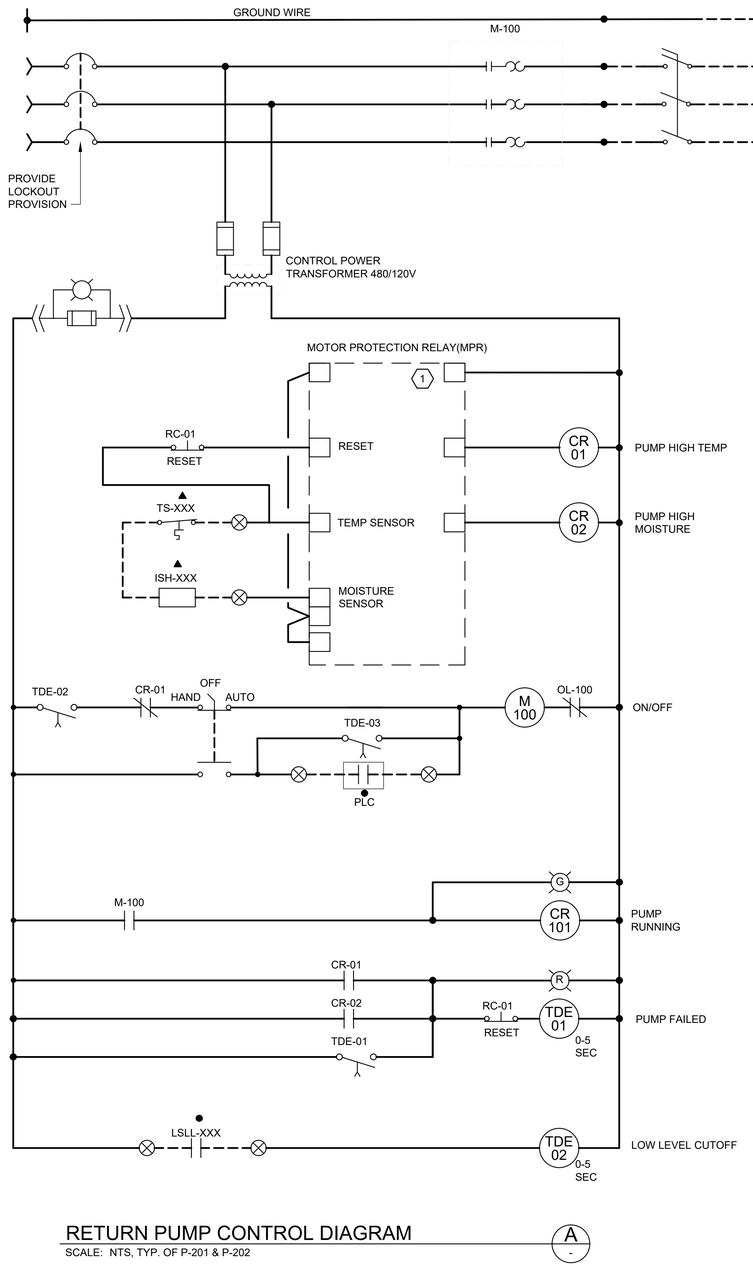
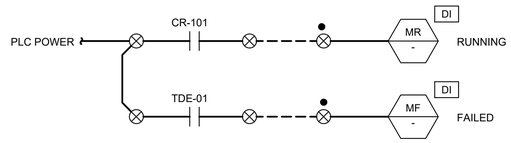


RETURN PUMP CONTROL DIAGRAM

SCALE: NTS, TYP. OF P-201 & P-202

A
-



KEY NOTES

- ▲ FIELD
- — · · — ETHERNET
- ● CONTROL PANEL

NOTES:

1. THE MOTOR PROTECTION RELAYS SHALL BE REUSED OR REPLACED AS NECESSARY.

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

RETURN PUMP WIRING DIAGRAM

90% SUBMITTAL JULY 2025

E031
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SHEET 63 OF 87

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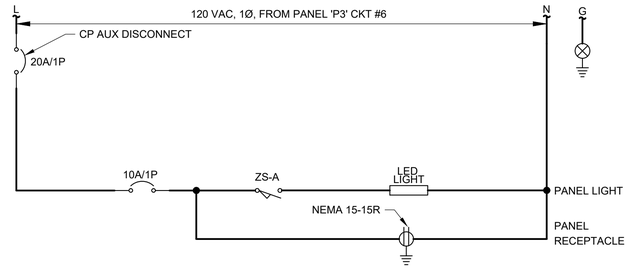

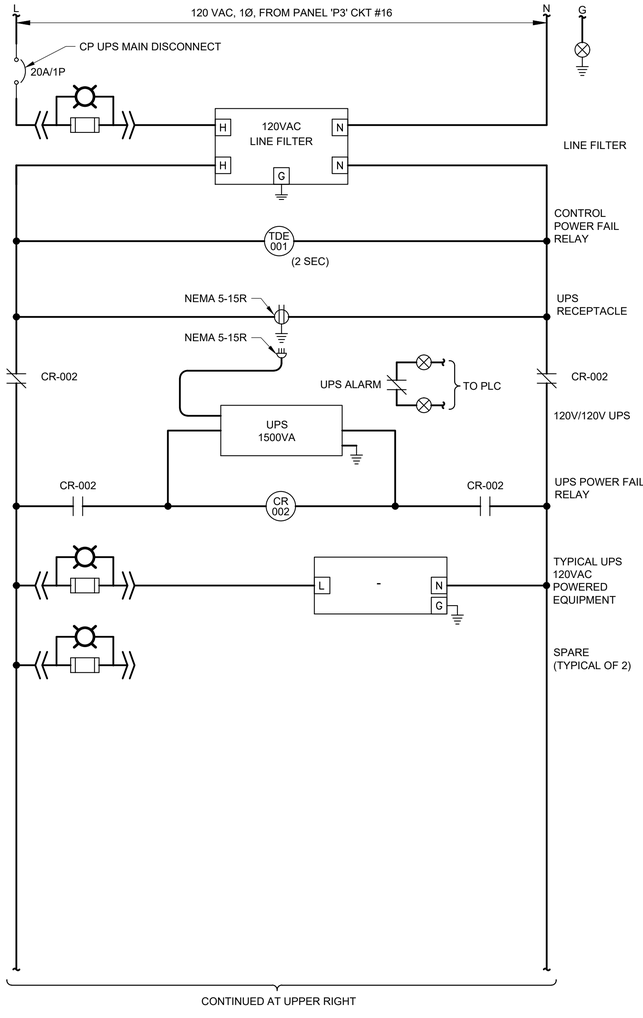

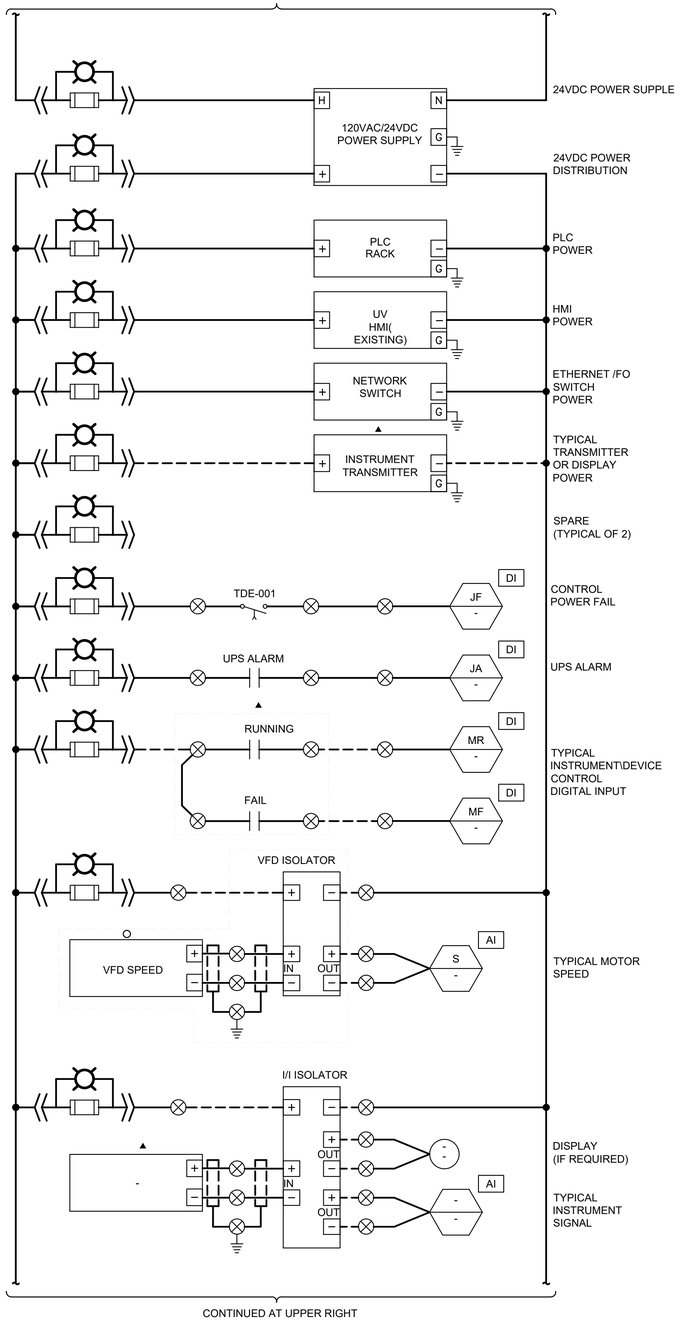

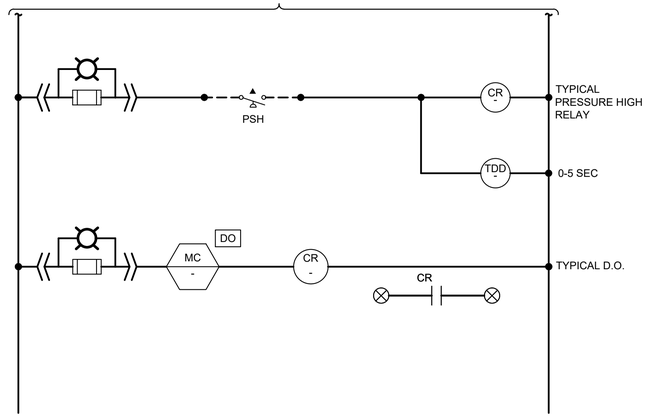

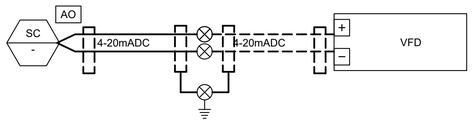

KEY NOTES

▲ FIELD

MCP WIRING DIAGRAM

SCALE: NTS

A

NOTES

1. ALL DEVICES LOCATED AT CONTROL PANEL OTHERWISE NOTED.
2. PROVIDE 4-20mA SIGNAL WITH FUSE AND ISOLATOR.
3. I/O's AND TRANSMITTERS SHOWN AS TYPICAL. REFER TO P&ID DRAWINGS FOR DETAILS.
4. DISTRIBUTION DIAGRAM REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ADDITIONAL FUSES, CIRCUITS AND COMPONENT CONNECTIONS MAY BE REQUIRED FOR A FUNCTIONAL SYSTEM. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR MISTAKENLY EXCLUDED ITEMS.
5. PROVIDE THE FOLLOWING MINIMUM SPARE I/O'S.
   (8) DIGITAL OUTPUTS
   (16) DIGITAL INPUTS
   (8) ANALOG INPUTS
   (8) ANALOG OUTPUTS
6. EXISTING UV HMI TO BE REMOUNTED

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

MAIN CONTROL PANEL WIRING DIAGRAM

90% SUBMITTAL JULY 2025

E036
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SHEET 64 OF 87

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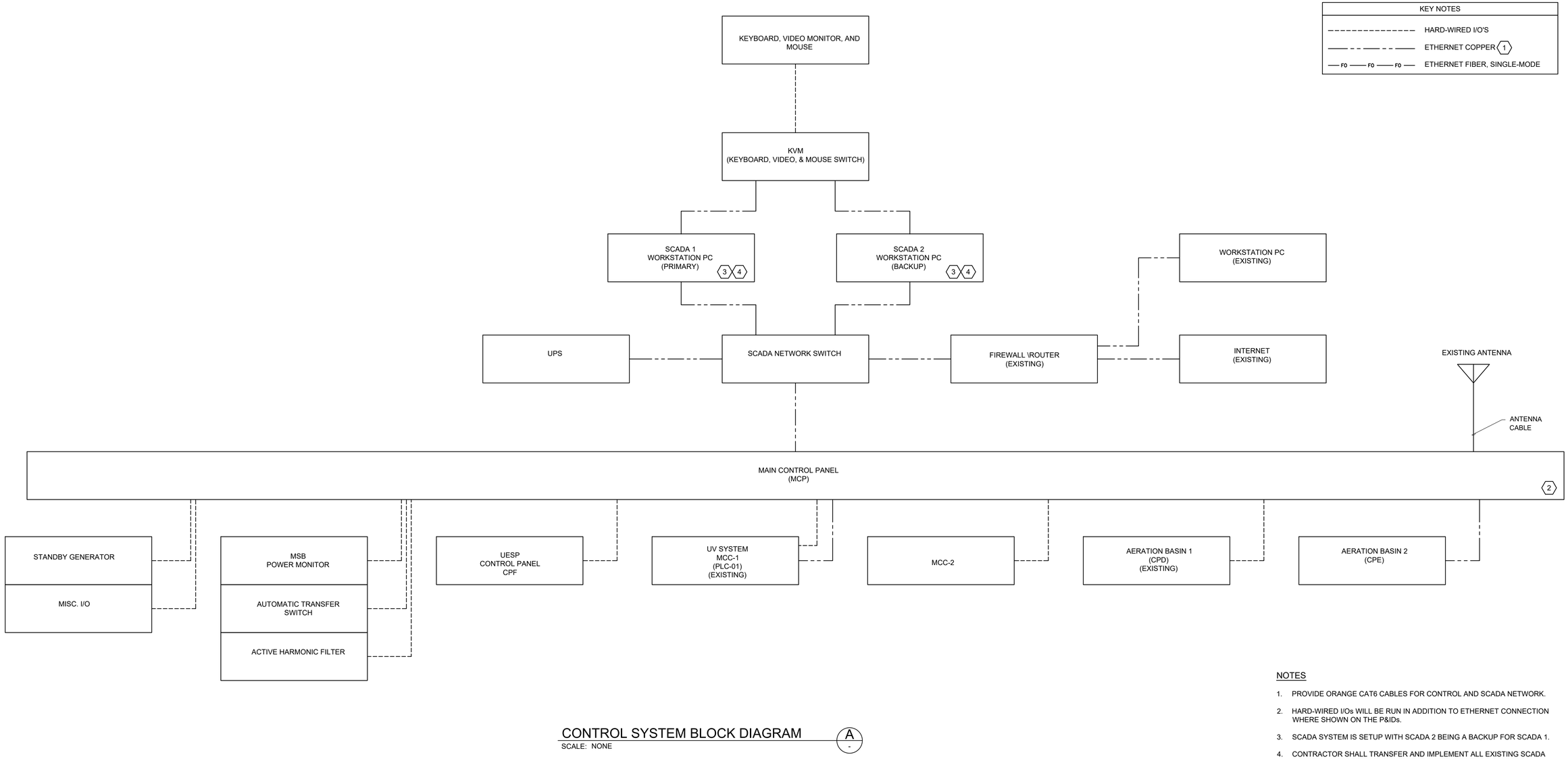

CONTROL SYSTEM BLOCK DIAGRAM

SCALE: NONE

A -

NOTES

1. PROVIDE ORANGE CAT6 CABLES FOR CONTROL AND SCADA NETWORK.
2. HARD-WIRED I/Os WILL BE RUN IN ADDITION TO ETHERNET CONNECTION WHERE SHOWN ON THE P&IDs.
3. SCADA SYSTEM IS SETUP WITH SCADA 2 BEING A BACKUP FOR SCADA 1.
4. CONTRACTOR SHALL TRANSFER AND IMPLEMENT ALL EXISTING SCADA FUNCTIONALITY FROM THE CURRENT SYSTEM TO THE NEW SCADA WORKSTATIONS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL EXISTING TAGS, ALARMS, TRENDS, REPORTS, AND BACKUP DATA. THE MIGRATION SHALL ENSURE FULL FUNCTIONALITY AND DATA INTEGRITY. IN ADDITION, THE CONTRACTOR SHALL INCORPORATE ALL NEWLY ADDED PROCESSES INTO THE SCADA SYSTEM

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

CONTROL SYSTEM BLOCK DIAGRAM

90% SUBMITTAL JULY 2025

E040
DRAWING NUMBER

SHEET 65 OF 87

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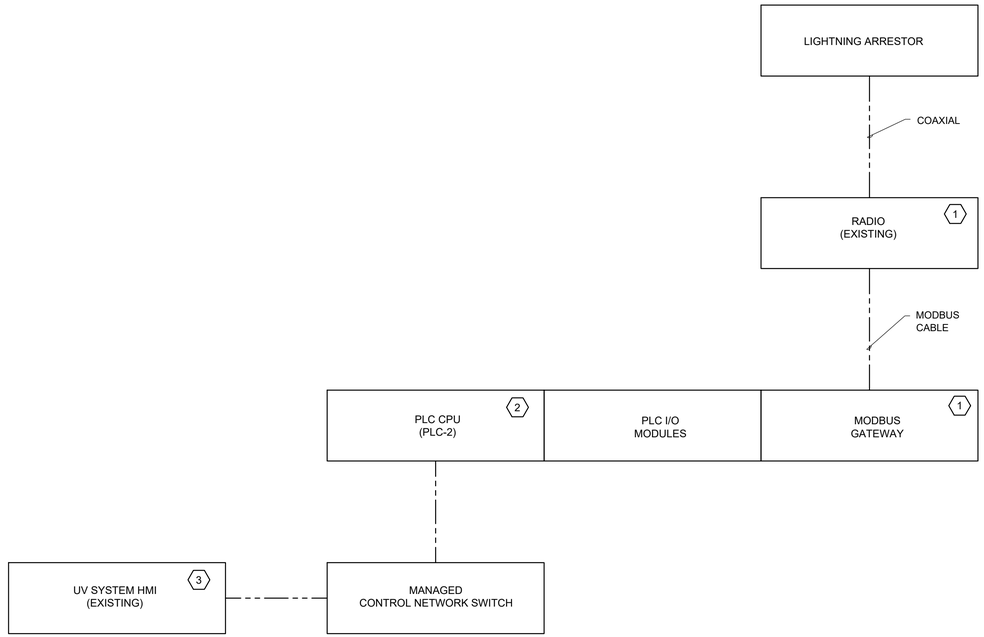
KEY NOTES	
- - - - - - - - - - - - - - - -	HARD-WIRED I/O'S
——— - - ——— - - ———	ETHERNET COPPER
— FO ——— FO ——— FO —	ETHERNET FIBER, SINGLE-MODE



MCP CONTROL BLOCK DIAGRAM (A)
SCALE: NONE

NOTES

1. REINTEGRATE THE EXISTING RADIO INTO THE NEW MAIN CONTROL PANEL FROM THE EXISTING CONTROL PANEL. PROVIDE A COMMUNICATION MODULE OR GATEWAY AS REQUIRED TO ENABLE COMMUNICATION WITH THE PLC.
2. CONTRACTOR SHALL MIGRATE ALL EXISTING CONTROL LOGIC AND FUNCTIONALITY FROM THE CURRENT MODICON TSX MOMENTUM PLC TO THE NEW PLC PLATFORM. THIS MIGRATION SHALL INCLUDE BOTH EXISTING PROCESSES AND ANY NEWLY IMPLEMENTED PROCESSES REQUIRED FOR SYSTEM OPERATION. CONTRACTOR SHALL PROVIDE ALL NECESSARY I/O MODULES TO SUPPORT BOTH EXISTING FIELD I/O AND NEWLY ADDED I/O POINTS. ALL I/O MODULES SHALL BE SIZED TO ACCOMMODATE CURRENT NEEDS AND FUTURE EXPANSION AS REQUIRED. REFER TO THE PROJECT SPECIFICATIONS FOR THE REQUIRED SPARE I/O POINTS AND MODULE ALLOCATIONS.
3. RELOCATE THE EXISTING UV SYSTEM HMI FROM THE EXISTING CONTROL PANEL AND INTEGRATE IT INTO THE NEW MAIN CONTROL PANEL

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

MAIN CONTROL PANEL CONTROL BLOCK DIAGRAM

90% SUBMITTAL JULY 2025

E041
DRAWING NUMBER

SHEET 66 OF 87

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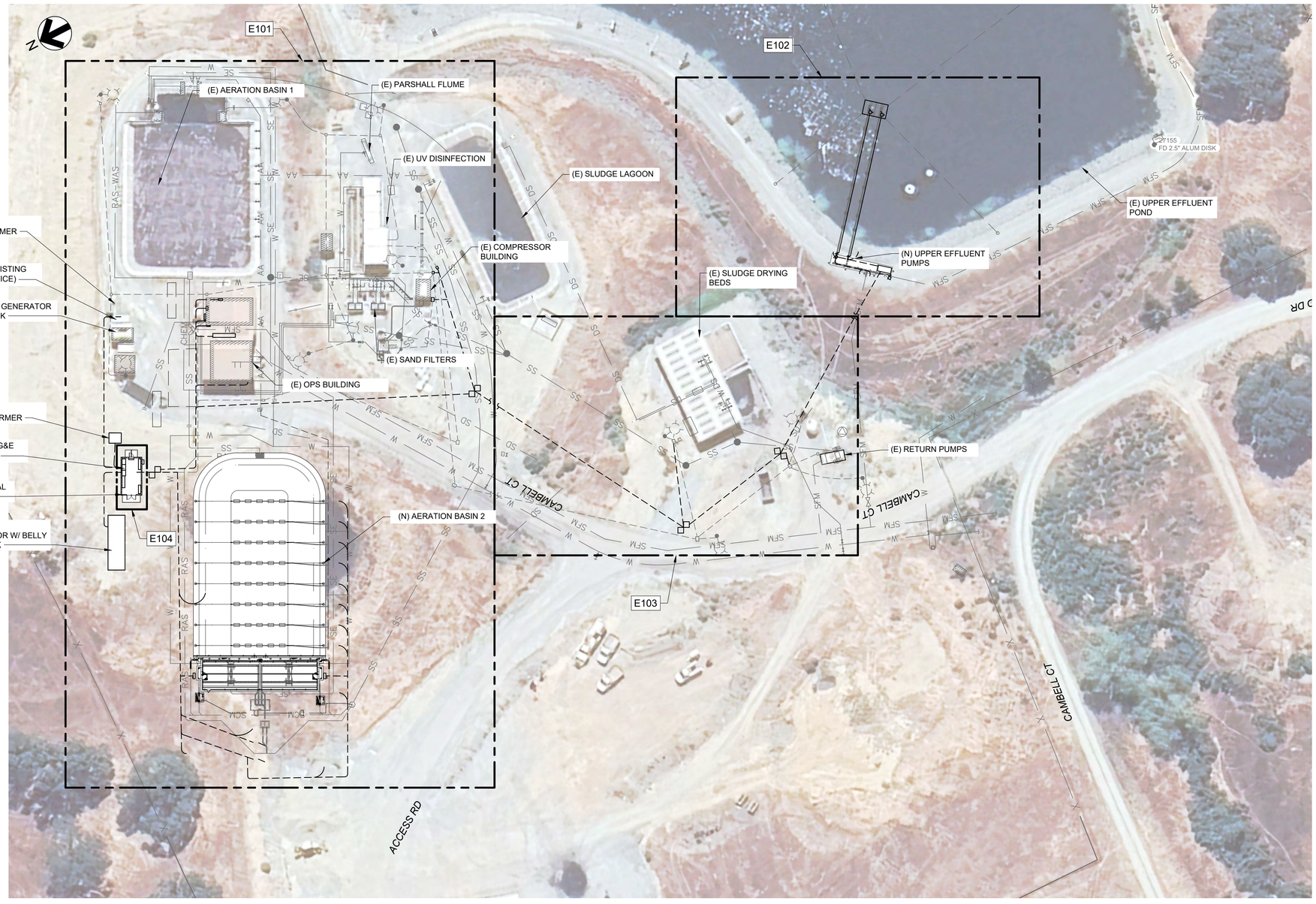

OVERALL ELECTRICAL SITE PLAN AND KEY MAP

SCALE: 1" = 40'-0"

AREA CLASSIFICATION

- HEADWORKS: CLASS 1 DIV 1 GROUP D WITHIN 3FT
- EFFLUENT POND : NEMA 4X
- WWTP : NEMA 4X
- BUILDING INTERIOR : NEMA 1 OR 12
- BUILDING EXTERIOR : NEMA 4X

ALL WORK IN CLASSIFIED AREAS SHALL CONFORM TO NFPA 70 CHAPTER 5 AND NFPA 820.

NOTES

1. REFER TO P&ID DRAWINGS LOCATION OF INSTRUMENTS.
2. OUTDOOR RECEPTACLES SHALL BE WEATHER PROOF AND GFCI.
3. All UNDERGROUND SERVICE CONDUITS SHALL BE SEALED.
4. ALL CONDUITS ENTERING AND EXITING AN ENCLOSURE OR PULL BOX SHALL BE SEALED WITH CONDUIT DUCT SEALS.
5. THE EXISTING PG&E TRANSFORMER AND MAIN SWITCHBOARD (MSB) SHALL BE BACKFED FROM THE NEW SERVICE AT MSB-2. DEMOLISH THE EXISTING MSB AND TRANSFORMER AFTER COMPLETION OF THE CUTOVER FOR ALL CONNECTED EQUIPMENT.
6. THE EXISTING STANDBY GENERATOR AND FUEL TANK SHALL BE REMOVED AND RELOCATED WITHIN THE FACILITY FOR REUSE BY THE DISTRICT. COORDINATE WITH THE DISTRICT TO CONFIRM THE EXACT RELOCATION SITE.
7. EXISTING CONDUITS AND PULLBOXES SHALL BE RETAINED AND REUSED WHERE POSSIBLE. CONDUITS THAT CAN NOT BE REUSED SHALL BE REPLACED AS NECESSARY.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

OVERALL ELECTRICAL SITE PLAN AND KEY MAP

90% SUBMITTAL JULY 2025

E100
DRAWING NUMBER

SHEET 67 OF 87

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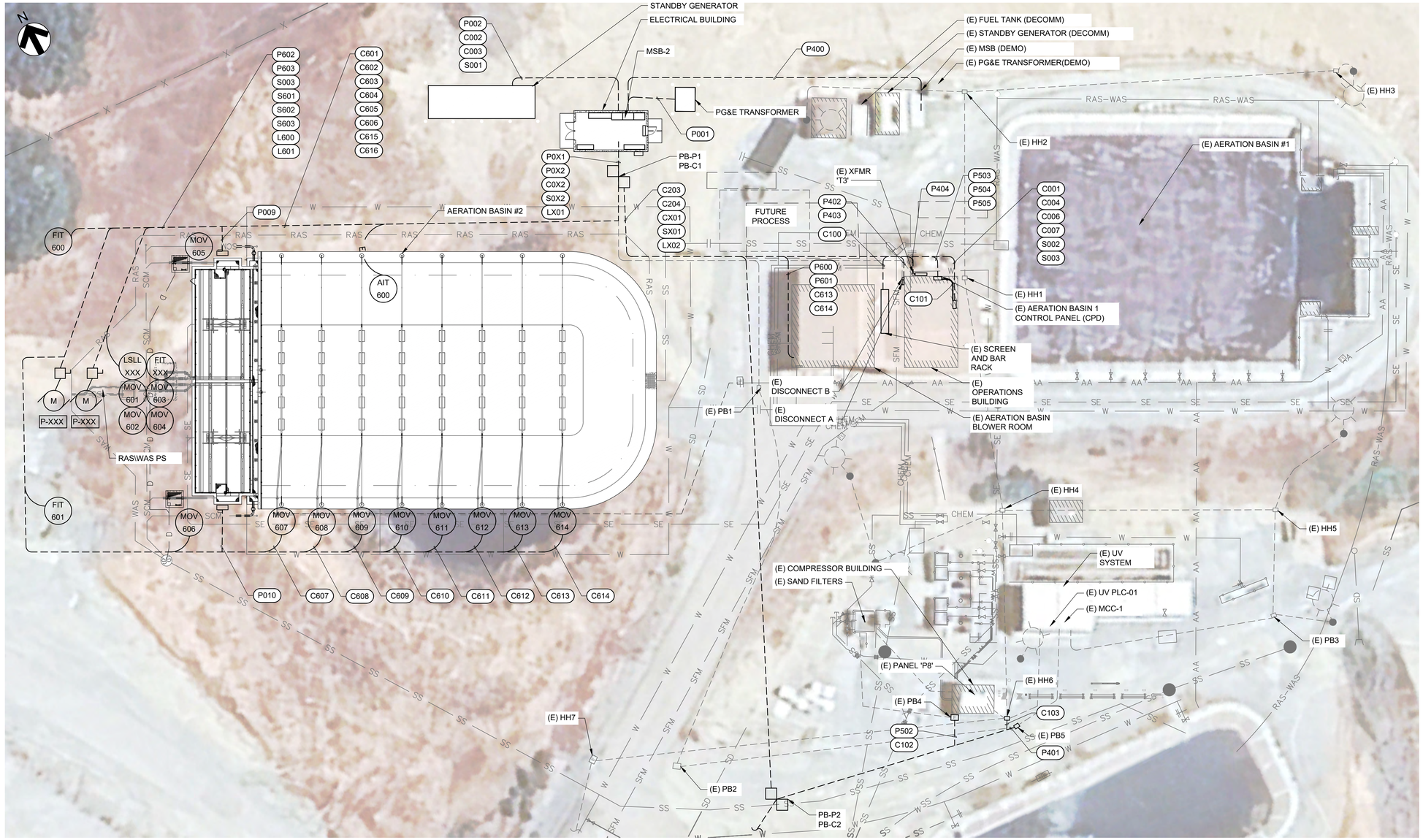

ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

NOTES

1. THE OLD ELECTRICAL SERVICE PANEL SHALL BE DEMO'ED.
2. POWER WIRING SHALL BE ROUTED FROM NEW SERVICE TO EXISTING EQUIPMENT USING THE NEW CONDUITS SHOW TO AN EXISTING PULLBOX, WHERE IT CAN BE ROUTED IN EXISTING CONDUIT TO THE EQUIPMENT.
3. THE MSB SHALL BE BACKFED FROM THE NEW MSB-2 UNTIL THE NEW WIRING FROM THE EXISTING MSB TO EQUIPMENT CAN BE ROUTED TO THE NEW MSB-2. THE EXISTING MSB SHALL THEN BE DEMO'ED AND A NEW MSB-2 WILL BE INSTALLED IN THE NEW ELECTRICAL BUILDING.

THE EXISTING MAIN SWITCHBOARD (MSB)

(E) MAIN SWITCHBOARD (A/-)

SCALE: NONE

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REV	DESCRIPTION	DATE	APVD

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL SITE PLAN SHEET 1 OF 3

90% SUBMITTAL JULY 2025

E101

DRAWING NUMBER

SHEET 68 OF 87

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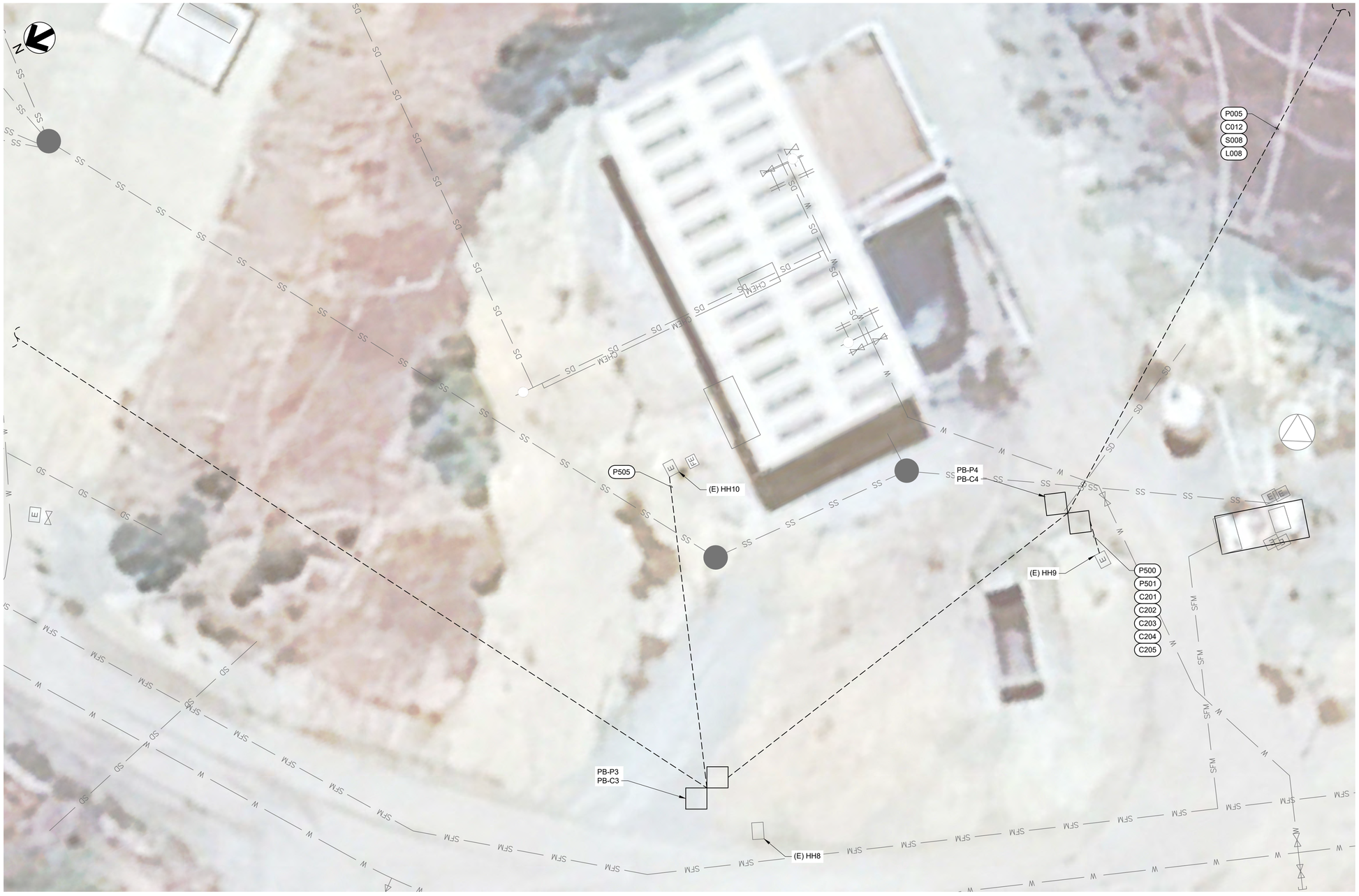

ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL SITE PLAN
SHEET 2 OF 3

90% SUBMITTAL JULY 2025

E102
DRAWING NUMBER

SHEET 69 OF 87

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ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

NOTES

1. SECURE PUMP CABLE TO DISCHARGE FLOATS AND PROVIDE A 24-INCH SERVICE LOOP AT BOTH THE PUMP AND THE POINT WHERE THE CABLE REACHES LAND.

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DESIGNED BY: TTL
PROJ. MGR.: WLS

REV	DESCRIPTION	DATE	APVD

REVISIONS

CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

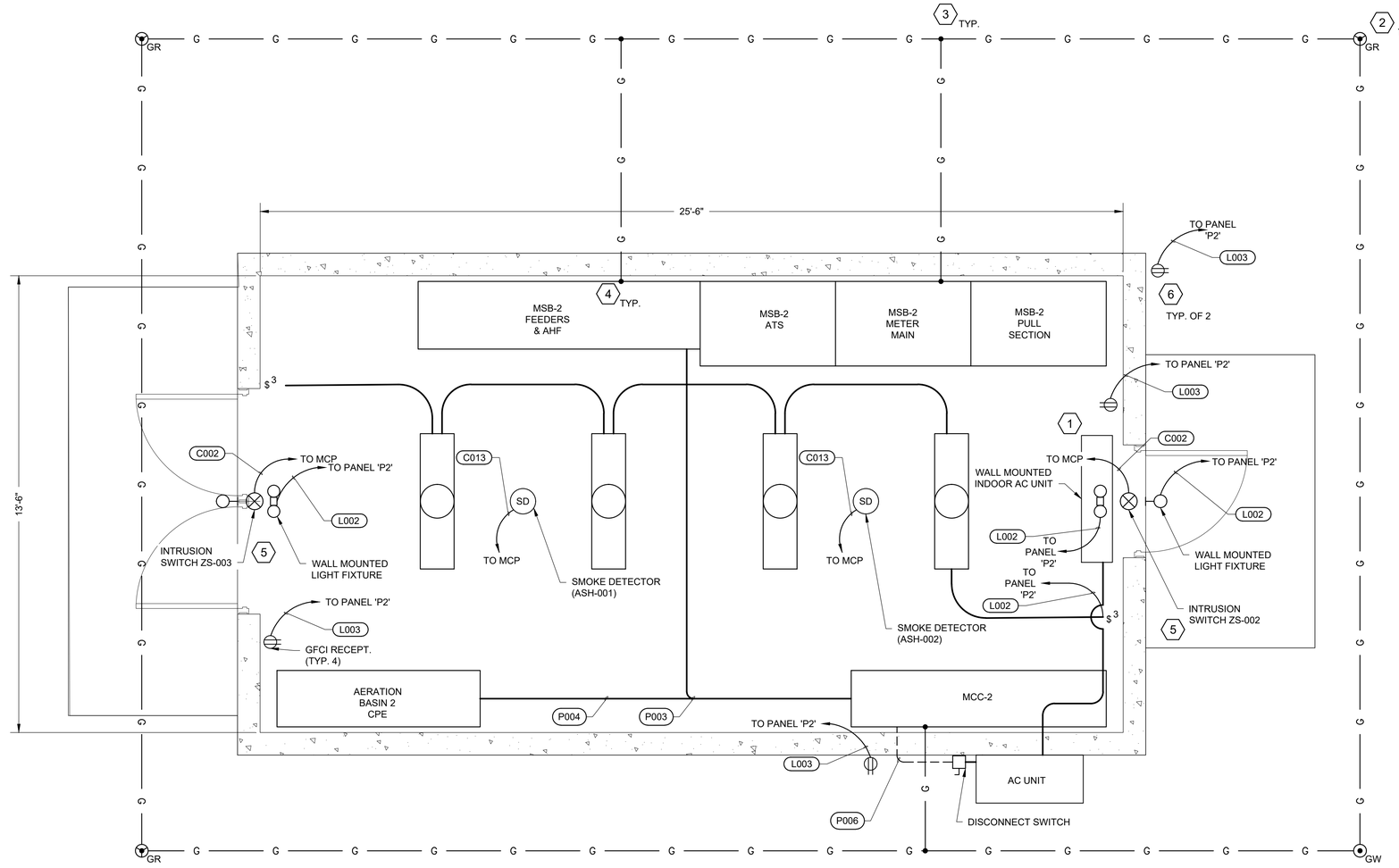
ELECTRICAL SITE PLAN
SHEET 3 OF 3

90% SUBMITTAL JULY 2025

E103
DRAWING NUMBER

SHEET 70 OF 87

Plotted By: MICHAEL EMBRY Plot Date: 7/23/2025 11:18 AM
File Name: \\vm-dc-sac\vol1\common\projects\483-Calaveras County WD\003-La Contenta WWTF Ph3\06-Design\Drawings\483-003-E-Plan.dwg



ELECTRICAL BUILDING LIGHTING AND GROUNDING PLAN

SCALE: 1/2" = 1'-0"

KEY NOTES

- FIXTURE TYPE W1
- FIXTURE TYPE A
- FIXTURE TYPE C

NOTES

1. HIGH WALL INDOOR A/C UNIT TO BE MOUNTED TO WALL ABOVE DOOR.
2. GROUND ROD CONNECTIONS PER DETAIL 3/E900.
3. BELOW GRADE EXOTHERMIC WELD CONNECTION PER SPECIFICATION SECTION 16450.
4. EQUIPMENT BOND PER SPECIFICATION SECTION 16450.
5. INTRUSION SWITCHES SHALL BE RAN IN SERIES.
6. OUTDOOR RECEPTACLES SHALL BE WEATHER PROOF AND GFCI.

NOT FOR CONSTRUCTION

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL BUILDING PLAN

90% SUBMITTAL JULY 2025

E104
DRAWING NUMBER

SHEET 71 OF 87

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LIGHTING AND GROUDING PLAN

SCALE: 1" = 40'-0"

NOTES

1. BOND ALL PUMPS, STEEL, FIELD MOUNTED CONTROL PANELS AND TANKS TO GROUNDING GRID WITH 250KMCIL BSC.
2. THE GROUND FAULT PROTECTION SYSTEM SHALL BE PERFORMANCE TESTED WHEN FIRST INSTALLED ON SITE. THE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH INSTRUCTIONS THAT SHALL BE PROVIDES WITH THE EQUIPMENT. A WRITTEN RECORD OF THIS TEST SHALL ME MADE AND SHALL BE AVAILABLE TO THE BUILDING INSPECTOR.
3. LOCATE ANY EXISTING GROUNDING SYSTEM. NEW GROUNDING SYSTEM SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM.
4. OUTDOOR RECEPTACLES SHALL BE WEATHER PROOF AND GFCI.

KEY NOTES	
	FIXTURE TYPE P1

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

SITE LIGHTING AND GROUNDING PLAN

90% SUBMITTAL JULY 2025

E105
DRAWING NUMBER

SHEET 72 OF 87

Plotted By: MICHAEL EMBRY Plot Date: 7/23/2025 11:18 AM
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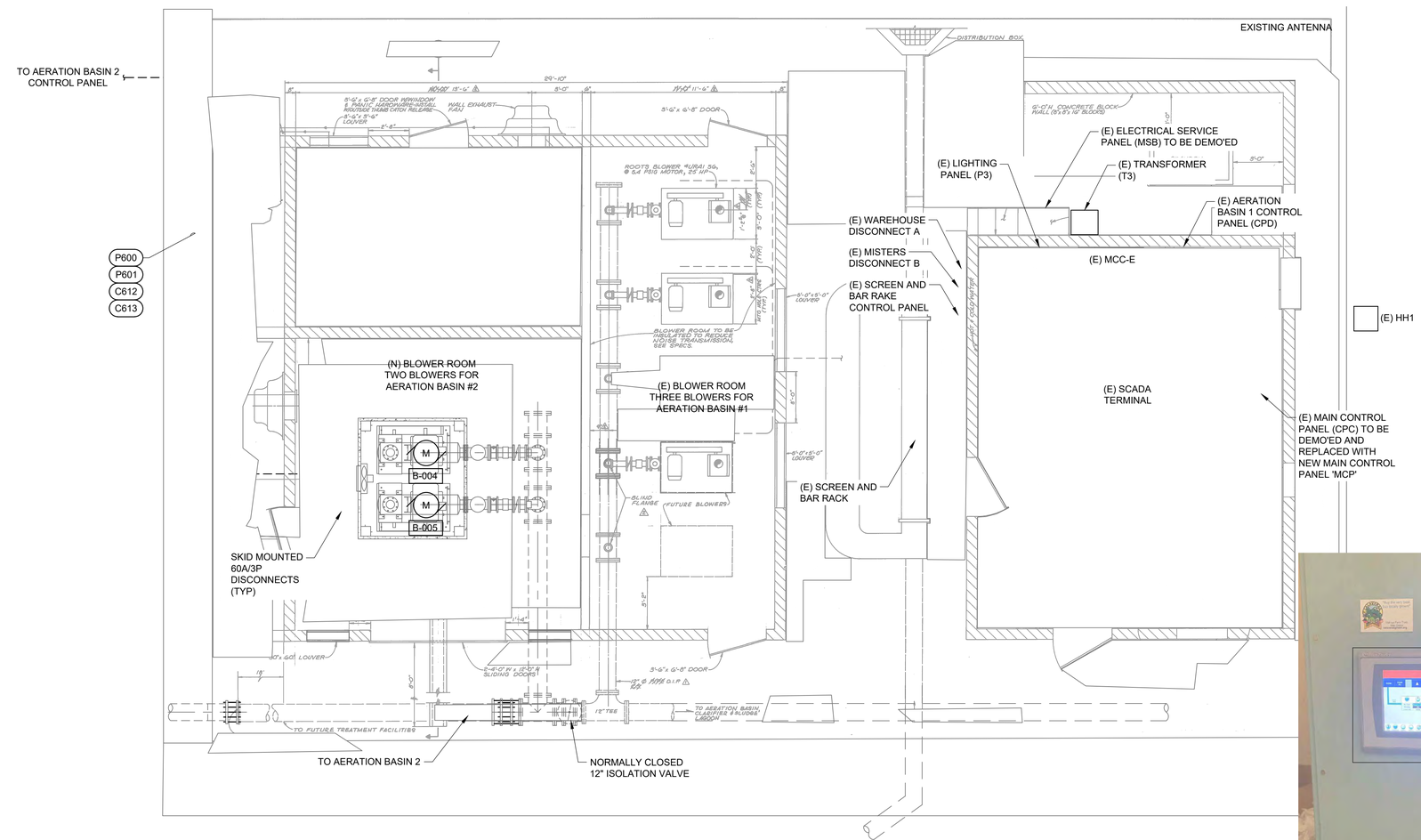
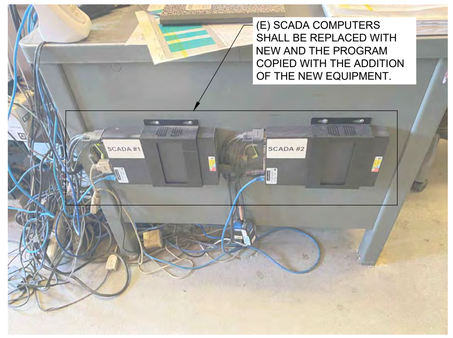


OPS BUILDING ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"

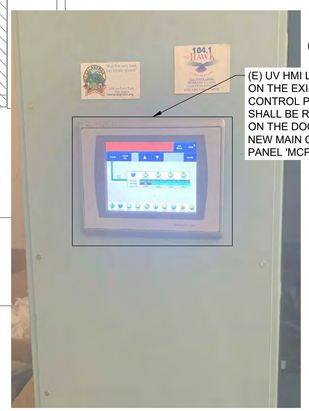
NOTES

1. THE OLD ELECTRICAL SERVICE PANEL SHALL BE DEMO'ED.
2. THE EXISTING MAIN CONTROL PANEL (CPC) SHALL BE DEMO'ED AFTER THE EXISTING SIGNAL WIRES HAVE BEEN MOVED TO THE NEW MAIN CONTROL PANEL (MCP). IF ANY WIRING TO THE NEW MCP IS UNUSABLE, NEW WIRING SHALL BE PULLED AS NEEDED.
3. THE EXISTING MCC-E SHALL BE DEMO'ED AFTER THE NEW WIRING HAS BEEN LANDED AT THE NEW MCC-2. THIS WILL BE ALL NEW WIRING FROM MCC-2 TO THE CLOSEST HH OR PB. THEN THE EXISTING WIRING FROM THE EXISTING HH OR PB TO EXISTING EQUIPMENT SHALL BE REUSED WHERE POSSIBLE.
4. THE NEW BLOWERS SHALL HAVE THE ABILITY TO PROVIDE AIR TO WITHER AERATION BASIN, BUT CAN BE ISOLATED FROM AERATION BASIN #1 AND ONLY PROVIDE AIR TO AERATION BASIN #2



SCADA WORKSTATION LOCATION IN OPS BUILD. (A)

SCALE: NONE



UV HMI LOCATION IN OPS BUILDING. (B)

SCALE: NONE

EQUIPMENT LOCATION IN OPS BUILDING. (C)

SCALE: NONE

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

OPS BUILDING ELECTRICAL PLAN

90% SUBMITTAL JULY 2025

E106

DRAWING NUMBER

SHEET 73 OF 87

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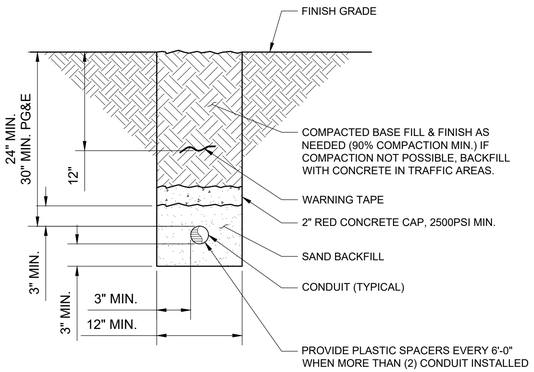
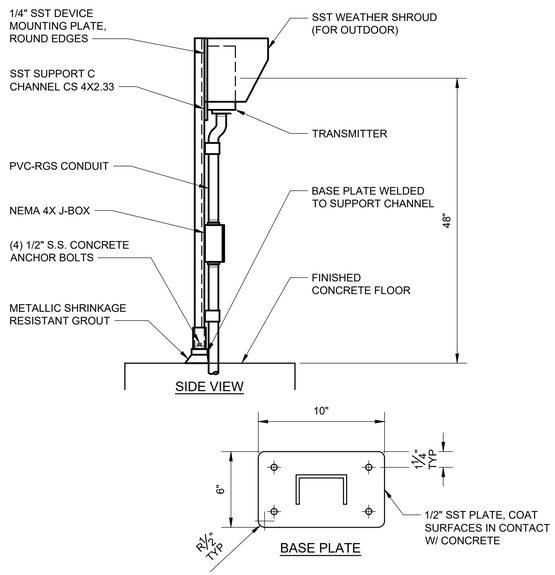


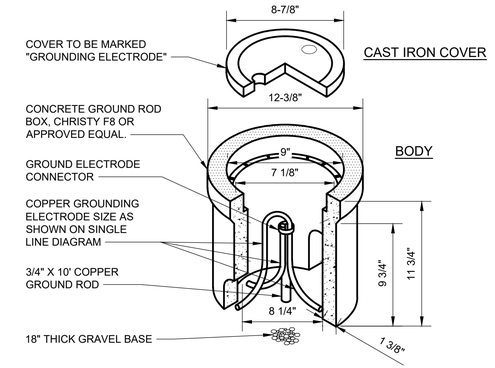
NOTES

1. MINIMUM 12" SEPARATION BETWEEN INSTRUMENTATION AND CONTROL CONDUITS AND POWER CONDUITS.
2. ALL DIMENSIONS ARE MINIMUM UNLESS OTHERWISE INDICTED ON THE DRAWINGS.
3. ALL SPACES BETWEEN POWER CONDUITS AS REQUIRED BY NEC.

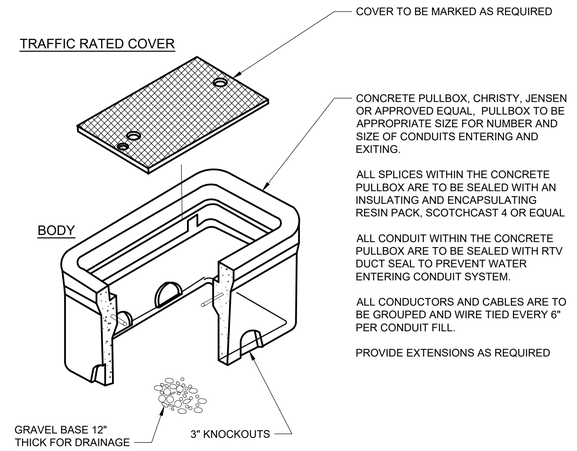
TYPICAL TRENCH DETAIL (1)
SCALE: NTS



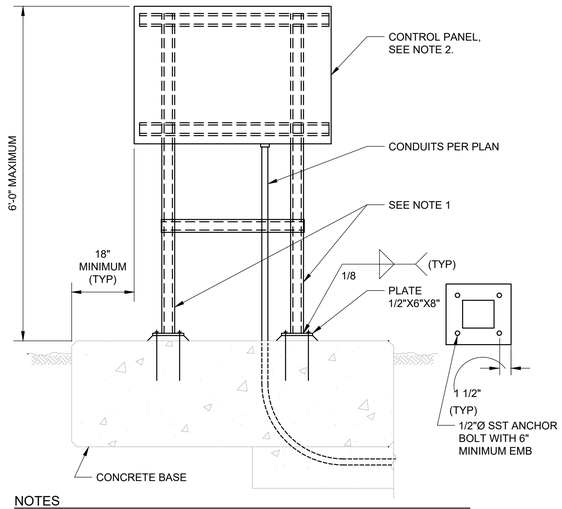
TRANSMITTER MOUNTED DETAIL (2)
SCALE: NTS



CONCRETE GROUNDING ELECTRODE BOX DETAIL (3)
SCALE: NTS



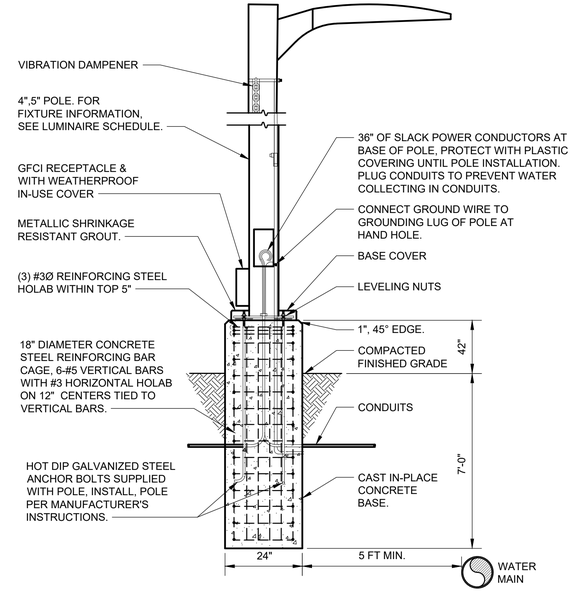
TRAFFIC RATED CONCRETE PULLBOX DETAIL (4)
SCALE: NTS



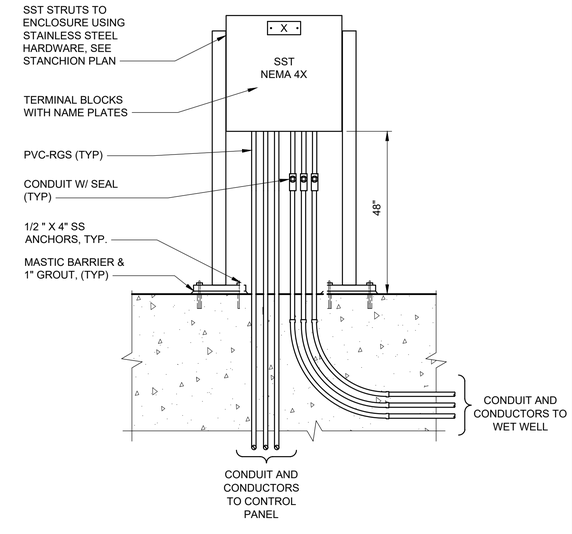
NOTES

1. UTILIZE 4"x4" 304 SST SQUARE TUBING WELDED FRAME. WELD END CAPS ON SQUARE TUBING AS NEEDED. BEVEL EDGES AND REMOVE ALL SHARP EDGES.
2. WELD ¼" 304 SST PLATE TO SQUARE TUBING SUPPORT STRUCTURE, FRONT AND BACK BEVEL EDGES AND REMOVE ALL SHARP EDGES.

STRUT MOUNTED PANEL DETAIL (5)
SCALE: NTS



POLE MOUNTED FIXTURE MOUNTING DETAIL (6)
SCALE: NTS



WETWELL PULL BOX DETAIL (7)
SCALE: NTS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL AND/OR INSTRUMENTATION DETAILS - 1

90% SUBMITTAL JULY 2025

E900
DRAWING NUMBER

SHEET 74 OF 87

Plotted By: MICHAEL EMBRY
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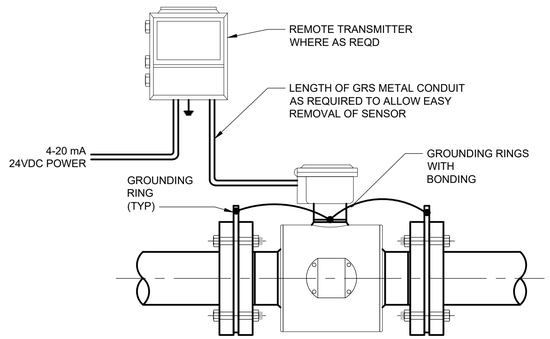
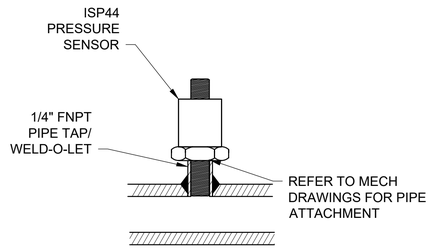


NOTES

1. FLOW TUBE TO BE 5 STRAIGHT PIPE DIAMETERS UPSTREAM AND 2 PIPE DIAMETERS DOWNSTREAM OR AS REQUIRED BY MANUFACTURER, WHICHEVER IS GREATER.
2. PROVIDE STAINLESS STEEL GROUNDING RINGS.
3. FLOW TUBE TERMINATION BOX SHALL BE POTTED WITH FACTORY RESIN AFTER CONFIRMATION OF OPERATION.

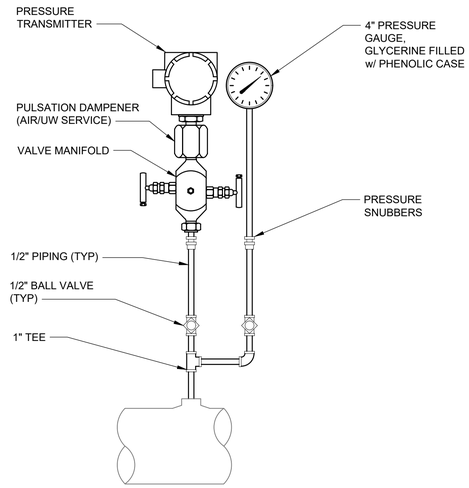
MAGNETIC FLOWMETER INSTALLATION DETAIL 1

SCALE: NTS



PRESSURE TRANSMITTER INSTALLATION DETAIL 2

SCALE: NTS

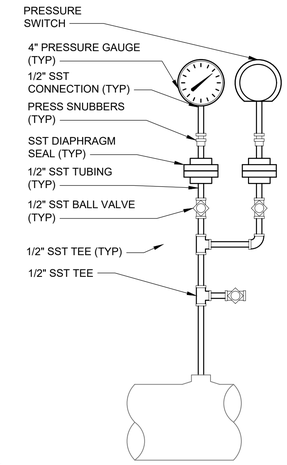


NOTES

1. INSTRUMENT SHALL BE ORIENTED VERTICAL SO SCALE READING IS ALSO VERTICAL.

PRESSURE TRANSMITTER INSTALLATION DETAIL 3

SCALE: NTS

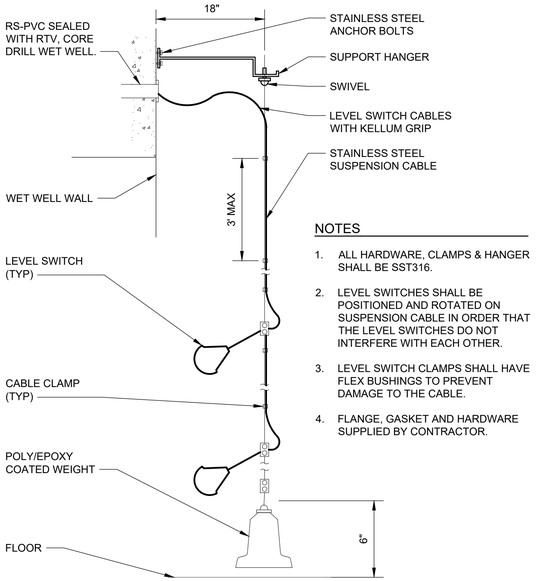


NOTES

1. INSTRUMENT SHALL BE ORIENTED VERTICAL SO SCALE READING IS ALSO VERTICAL.

PRESSURE INDICATOR DETAIL 4

SCALE: NTS

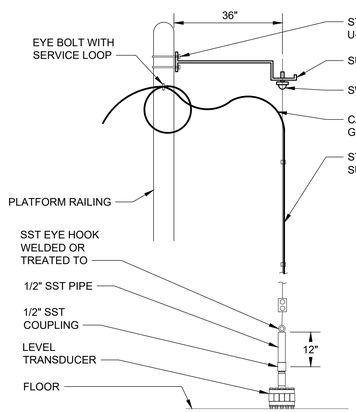


NOTES

1. ALL HARDWARE, CLAMPS & HANGER SHALL BE SST316.
2. LEVEL SWITCHES SHALL BE POSITIONED AND ROTATED ON SUSPENSION CABLE IN ORDER THAT THE LEVEL SWITCHES DO NOT INTERFERE WITH EACH OTHER.
3. LEVEL SWITCH CLAMPS SHALL HAVE FLEX BUSHINGS TO PREVENT DAMAGE TO THE CABLE.
4. FLANGE, GASKET AND HARDWARE SUPPLIED BY CONTRACTOR.

FLOAT SWITCH INSTALLATION DETAIL 5

SCALE: NTS



NOTES

1. SUPPORT HANGER SHALL BE MOUNTED ON THE SIDE OF THE PLATFORM USING U-BOLTS.
2. CABLE SHALL BE ROUTED ALONG THE DISCHARGE PIPE WITH THE USE OF SERVICE LOOPS.
3. CABLE SHALL HAVE SUFFICIENT SLACK TO ENSURE THE TRANSDUCER REMAINS ON THE POND FLOOR REGARDLESS OF THE DEPTH OF THE WATER.
4. ALL HARDWARE, CLAMPS & HANGER SHALL BE SST316.

POND LEVEL TRANSDUCER INSTALLATION DETAIL 6

SCALE: NTS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

ELECTRICAL AND/OR INSTRUMENTATION DETAILS - 2

90% SUBMITTAL JULY 2025

E901
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SHEET 75 OF 87

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MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP
- SUBMERSIBLE PUMP
- PROPELLER FAN
- BLOWER OR FAN
- COMPRESSOR
- ROTARY LOBE COMPRESSOR, BLOWER OR PUMP
- PROGRESSIVE CAVITY PUMP
- WEIR GATE
- WEIR
- STOP GATE / LOGS
- CHOPPER PUMP
- BARREL PUMP
- VFD — VARIABLE FREQUENCY DRIVE
- TANK
- SLUICE GATE (NORMALLY OPEN)
- SLUICE GATE (NORMALLY CLOSED)
- SLIDE GATE (NORMALLY OPEN)
- SLIDE GATE (NORMALLY CLOSED)
- STATIC MIXER
- BAFFLE WALL
- SILENCER
- INLET AIR FILTER-SILENCER
- M — EQUIPMENT MOTOR
- METERING PUMP
- TELESCOPING VALVE
- GROUND
- # — SHEET NOTE TAG
- VERTICAL TURBINE PUMP
- XXX ### — FIELD MOUNTED INSTRUMENT
- XXX ### — FACE MOUNTED INSTRUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE
- XXX ### — INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE
- XXX ### — FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE
- XXX ### — INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACCESSIBLE
- I — OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES - REFERENCE ELEMENTARY DWG. #
- 12 / XXX ### / 6 — LAMP INDICATION (STATUS OR ALARM)
- 12 / XXX ### / 6 — ANNUNCIATOR WINDOW
- 12 / XXX ### / 6 — COMMUNICATIONS POINT
- PLC/RTU OR COMPUTER FUNCTION
- 12 / XXX ### / 6 — PLC/RTU OR COMPUTER FUNCTION
- 12 / XXX / 6 — PLC/RTU OR COMPUTER PERFORMING INTERNAL OPERATION
- 12 / XXX ### / 6 AO — INSTRUMENT PANEL MOUNTED WITH COMPUTING, CONVERTING, OR INTERFACE FUNCTION

VALVE AND ACTUATOR SYMBOLS

- THREE WAY VALVE
- GATE VALVE (NORMALLY OPEN)
- GATE VALVE (NORMALLY CLOSED)
- PLUG VALVE (NORMALLY OPEN)
- PLUG VALVE (NORMALLY CLOSED)
- BALL VALVE (NORMALLY OPEN)
- BALL VALVE (NORMALLY CLOSED)
- BUTTERFLY VALVE
- GLOBE VALVE
- DIAPHRAGM VALVE
- ANGLE VALVE
- FLOAT VALVE
- PINCH VALVE
- NEEDLE VALVE
- DOUBLE LEAF CHECK VALVE
- CHECK VALVE
- BALL CHECK VALVE
- KNIFE GATE VALVE
- FLAP GATE
- BALANCING COCK
- CIRCUIT SETTER
- THERMOSTATICALLY CONTROLLED VALVE
- PRESSURE AND VACUUM RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE RELIEF VALVE
- MULTI-FUNCTION VALVE
- PRESSURE REDUCING REGULATOR (SELF-CONTAINED)
- BACK PRESSURE REGULATOR (SELF-CONTAINED)
- PRESSURE REDUCING VALVE
- BACK PRESSURE REDUCING VALVE
- S — SOLENOID (PILOT) VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE BALANCE OPERATED VALVE
- PNEUMATIC OPERATED VALVE (FOR VALVE TYPE - SEE SPECS)
- A — MOTOR OPERATED VALVE (FOR VALVE TYPE - SEE SPECS)
- 3-WAY CONTROL VALVE PNEUMATIC OPERATOR
- PNEUMATIC CYLINDER OPERATED VALVE
- VALVE ACTUATOR
- P — VALVE POSITIONER

INSTRUMENT ABBREVIATIONS

CODE LETTER	FIRST LETTER(S)		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		AUTO/LAG
B	BURNER FLAME				
C	CHLORINE			CONTROL	CLOSE
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT, SENSOR		LEAD
F	FLOW	RATIO	FUEL		FAILURE
G	GAUGING		VIEWING DEVICE		
H	HAND				HIGH/HAND
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		PILOT LIGHT		LOW/LOCAL
M	MOISTURE/MOTOR	MOMENTARY	MOTOR		MIDDLE/MANUAL
N	STATUS				
O	OPERATOR		ORIFICE		OPEN/OVERLOAD
P	PRESSURE		POINT		
Q	EVENT	TOTALIZE	TOTAL		
R	RESET		RECORD		RUNNING/REMOTE
S	SPEED	SAFETY		SWITCH	STOP/SPEED
T	TEMPERATURE		TEST	TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION		
V	VIBRATION			VALVE	
W	FORCE, WEIGHT		WELL		
X	TELEMETRY INTERFACE				
Y	COMPUTER INTERFACE			COMPUTE/RELAY/ CONVERTER	
Z	POSITION			ACTUATE	POSITION

PROCESS FLOW LINE LEGEND

- FUTURE ELECTRIC SIGNAL
- ELECTRICAL SIGNAL
- ELECTRIC POWER/CONTROL
- PNEUMATIC SIGNAL
- CAPILARY TUBING (FILLED SYSTEM)
- HYDRAULIC SIGNAL
- SONIC OR ELECTROMAGNETIC SIGNAL
- FUTURE PROCESS LINE
- MAIN PROCESS LINE
- SECONDARY PROCESS LINE
- AUXILIARY PROCESS LINE
- DIRECTION OF FLOW
- = 0.01 LT SCALE — MANUFACTURER'S PRE-WIRING
- = 0.01 LT SCALE — LOGIC OR DATA SIGNAL

TYPICAL PROCESS DIAGRAM CROSS REFERENCE LEGEND

1. ON DWG. P3 CONTINUATION IS SHOWN AS: SYSTEM
2. ON DWG. P4 THIS CONTINUATION IS SHOWN AS: SYSTEM
3. SYSTEM FLOW BOTH DIRECTIONS: SYSTEM

WATER SURFACE ELEVATION SYMBOL

- WATER SURFACE ELEVATION

PLC I/O SIGNAL TYPE LEGEND

X XX / XXXX — DI SIGNAL; DO SIGNAL; AI SIGNAL; AO SIGNAL

NOT FOR CONSTRUCTION

PIPE LINE DEVICE SYMBOLS

- STRAINER
- MANUAL AIR VENT
- AUTOMATIC AIR VENT
- CLEANOUT
- EXPANSION JOINT
- UNION
- AUDIBLE ALARM (BUZZER OR HORN)
- REDUCER
- CAP OR PLUG
- BLIND FLANGE
- FLEXIBLE COUPLING
- QUICK CONNECTOR
- FE — FLOW METER
- DRAIN — DRAIN
- AIR VENT
- EMERGENCY SHOWER/ EYEWASH STATION
- BACKFLOW PREVENTER
- DIAPHRAGM SEAL
- CALIBRATION TUBE
- AIR VACUUM RELEASE VALVE OR AIR RELEASE VALVE
- HYDRANT
- HOSE BIBB

NOTES AND EQUIP. ABBREVIATIONS

NOTES

1. THE PROCESS SCHEMATIC ARE PRESENTED IN DIAGRAMMATIC FORM TO SHOW PROCESS FLOWS CONTROL CONCEPTS AND UNIT OPERATING PARAMETERS, AND AS SUCH ARE NOT INTENDED TO SHOWN ALL VALVING PIPING AND INSTRUMENTATION SYSTEMS.
2. PROCESS SYMBOLS ARE FOR REFERENCE ONLY. NOT ALL SYMBOLS ARE USED IN THESE CONTRACT DRAWINGS.

EQUIPMENT ABBREVIATIONS	DESCRIPTION
ARV	AIR RELIEF VALVE
BLDG	BUILDING
CV	CHECK VALVE
FLR	FLARE
FN	FAN
LVR	LOUVER
MBR	MEMBRANE BIOREACTOR
MF	MOTOR FIXED
MOD	MODULE
P	PUMP
PNL	PANEL
TK	TANK

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DESIGNED BY: TTL
PROJ. MGR.: WLS

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

STANDARD PROCESS & INSTRUMENTATION SYMBOLS, LEGENDS & ABBREVIATIONS

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I001
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SHEET 76 OF 87

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SCADA

MCP

FIELD

YQA -

YQA -

YJA -

YJA -

OPS/ADMIN INTRUSION ALARM DI

ZA -

ELECTRICAL BUILDING ALARM DI

ZA -

ELECTRICAL BUILDING ALARM DI

JA -

ELECTRICAL BUILDING ALARM DI

JA -

24VDC

24VDC

24VDC

24VDC

STAFF DOOR ZS 001

ELECTRICAL BUILDING SINGLE DOOR ZS 002

ELECTRICAL BUILDING DOUBLE DOOR ZS 003

ELECTRICAL BUILDING SMOKE ALARM ASH 001 24VDC

ELECTRICAL BUILDING SMOKE ALARM ASH 002 24VDC

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 1

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I100

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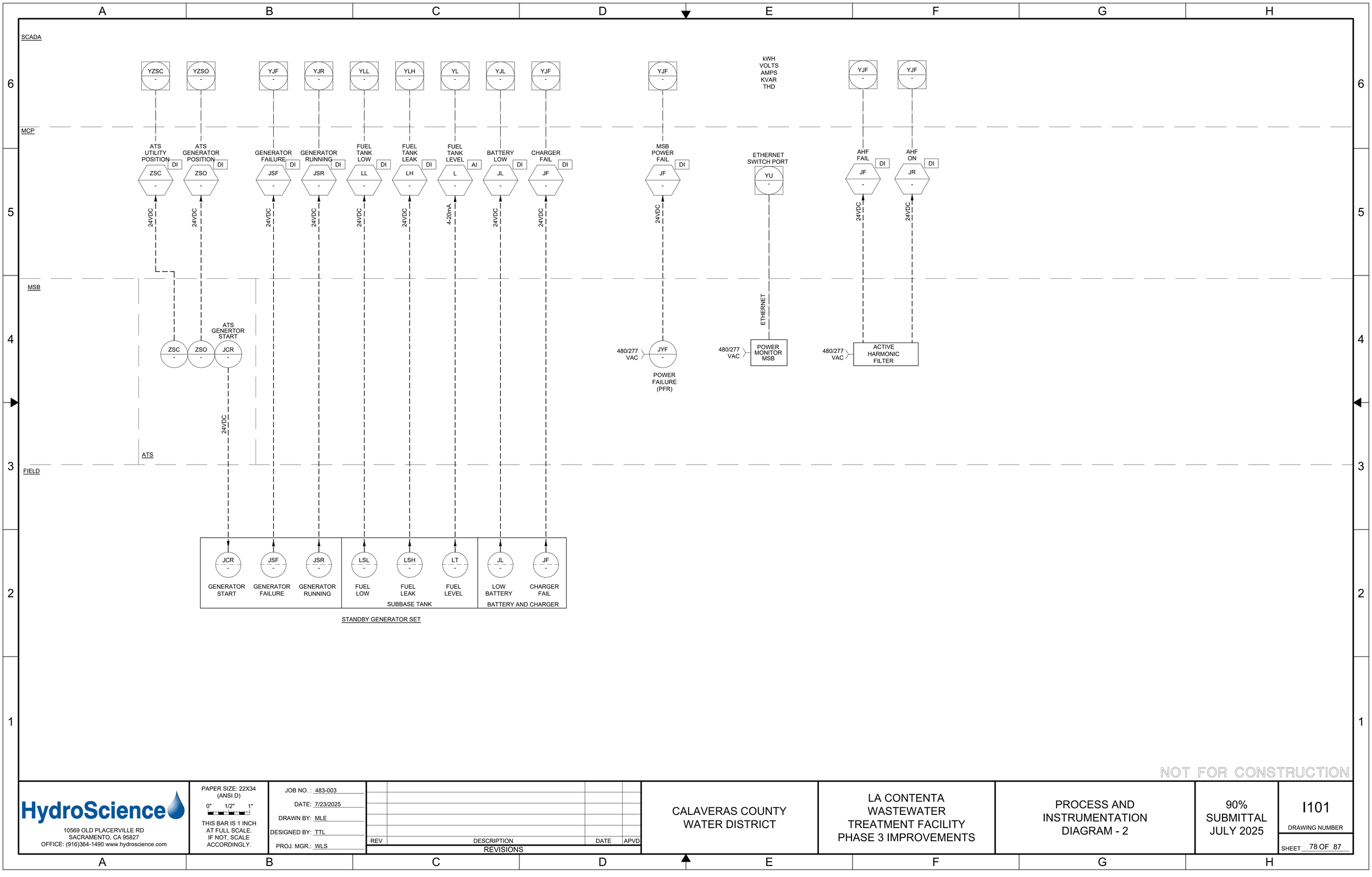

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 2

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I101
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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND
CONTROLS TO MATCH EXISTING

MCP

PROVIDE ALL REQUIRED I/Os AT THE MCP TO
FULLY INTEGRATE THE EXISTING VENDOR'S
SYSTEM

FIELD

HARD-WIRED I/O

1

FROM HUCKLEBERRY
P.S. (E)
-

12" SFM

2

TO (E) AERATION BASIN
I103

TO (N) AERATION BASIN
I104

(E)SCREEN AND BAR RACK

(E) FLOW SPLITTER BOX

NOTES:

1. ALL SIGNALS BETWEEN THE SCREEN AND BAR RACK AND CONTROL PANEL ARE HARDWIRED.
2. CLEAN AND TEST EXISTING ALUMINUM SLIDE GATES.

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WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

PROCESS AND
INSTRUMENTATION
DIAGRAM - 3

90%
SUBMITTAL
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I102
DRAWING NUMBER

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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND
CONTROLS TO MATCH EXISTING

MCP

PROVIDE ALL REQUIRED I/Os AT THE MCP TO
FULLY INTEGRATE THE EXISTING VENDOR'S
SYSTEM

1 2

FIELD

OPERATIONS
BUILDING

HARD-WIRED I/O

480VAC

* AERATION BASIN #1 CONTROL PANEL CPD

HARDWIRED
CONNECTION

FROM FM BOX
I102

XX" – XXX

XX" - RAS

XX" - WAS

TO SLUDGE LAGOON
I108

SCUM PUMP

TO CONTINUOUS
BACKWASH FILTERS
I105

XX" - AIR

(E)AERATION BASIN

ISOLATION
VALVE

AERBAS1

INTEGRAL CLARIFIER

AIRLIFT PUMP AIR

BLOWER AIR

B-001

B-002

B-003

BLOWER AIR

12" - AIR

I104

TO AERATION BASIN
2 AIR MANIFOLD

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE AERATION BASIN AND CONTROL PANEL ARE HARDWIRED. THE EXISTING WIRING SHALL BE USED WHERE POSSIBLE. WHERE NOT POSSIBLE NEW WIRING WILL HAVE TO BE PULLED.
2. SIGNALS INCLUDED ARE: SLUDGE GATE OPENED AND CLOSED, SCUM PUMP RUNNING, RAKE #1 OVERTRAVEL, RAKE #1 REVERSE MOTION, RAKE #1 FORWARD MOTION, BLOWER 1-3 RUNNING AND OVERLOAD.

* SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.

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CALAVERAS COUNTY
WATER DISTRICT

LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

PROCESS AND
INSTRUMENTATION
DIAGRAM - 4

90%
SUBMITTAL
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I103
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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND
CONTROLS TO MATCH LOCAL HMI WITH
AERATION BASIN SYSTEM VENDOR

MCP

ETHERNET
SWITCH PORT
YU
-

ETHERNET

FIELD

480VAC

* AERATION BASIN #2 CONTROL PANEL CPE

RAS CROSSOVER QUICK CONNECT

FROM RAS/WAS PUMP STATION (TYP OF 2)
I105

6" - RAS

TO RAS/WAS MANHOLE (TYP OF 2)
I105

M
M
XXX
* FLOCCULATOR RAKE ASSEMBLY (TYP OF 2)

SCUM BOX (TYP OF 2)

6" - SCM

TO RAS/WAS MANHOLE (TYP OF 2)
I105

FROM FLOW SPLITTER BOX
I102

12" - SS

INFLUENT BOX

AIT
600

AERATION BASIN

INFLUENT SCUM BOX (TYP OF 2)

12" - SE

TO CONTINUOUS BACKWASH FILTERS
I106

PV XXX
PV XXX
PV XXX
PV XXX

VALVE VAULT

6" - WAS

TO RAS/WAS WETWELL
I105

XX" - AIR

FROM AERATION BASIN 1 AIR MANIFOLD
I103

12" - AIR

6" - AIR

6" - AIR

6" - AIR

* B-004

* B-005

MOV 607
MOV 608
MOV 609
MOV 610
MOV 611
MOV 612
MOV 613
MOV 614

AERBAS2

6" MANUAL PLUG (TYP OF 2)

6" - SCM

TO RAS/WAS MANHOLE (TYP OF 2)
I105

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE AERATION BASIN AND CONTROL PANEL ARE HARDWIRED.
2. SIGNALS INCLUDED ARE: SLUDGE GATES OPENED AND CLOSED, RAKE #1 & 2 OVERTRAVEL, RAKE #1 & 2 REVERSE MOTION, RAKE #1 & 2 FORWARD MOTION, BLOWER 1 AND 2 RUNNING AND OVERLOAD.

* SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 5

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I104
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SHEET 81 OF 87

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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND
CONTROLS TO MATCH LOCAL HMI WITH
AERATION BASIN SYSTEM VENDOR

MCP

ETHERNET
SWITCH PORT
YU
-

ETHERNET

GENERAL NOTES:

1. ALL SIGNALS BETWEEN THE AERATION BASIN AND CONTROL PANEL ARE HARDWIRED.
2. SIGNALS INCLUDED ARE: SLUDGE GATE OPENED AND CLOSED, RAKE #1 OVERTRAVEL, RAKE #1 REVERSE MOTION, RAKE #1 FORWARD MOTION, BLOWER 1 AND 2 RUNNING AND OVERLOAD.

* SUPPLIED BY AERATION BASIN SYSTEM MANUFACTURER.

FIELD

ELECTRICAL
BUILDING

480VAC

*
AERATION BASIN #2 CONTROL
PANEL
CPE

TO AERATION BASIN
CLARIFIER #2 INFLUENT BOX
I104

6" - RAS

FIT
XXX
24VDC

FROM SCUM BOX
(TYP OF 2)
I104

6" - SCM

6" PV WITH
ACTUATOR
(TYP OF 2)

XX" - XX

XX" - XX

FE
XXX

6" - XX

6" - XX

FE
6"
FM

*
M
6"
ELECTRIC
PG

*
M
6"
ELECTRIC
PG

FROM VALVE VAULT
I104

6" - WAS

TSH
XXX

MSH
XXX

M

TSH
XXX

MSH
XXX

M

LSLL
XXX

LIFT STATION
VALVE VAULT

* P-XXX
RAS/WAS PUMP 1

* P-XXX
RAS/WAS PUMP 2

RAS/WAS WETWELL

6" - WAS

FROM INFLUENT SCUM BOX
(TYP OF 2)
I104

6" - SCM

6" - SCUM

XX" MH

TO SLUDGE LAGOON
10" - SS
I108

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CALAVERAS COUNTY
WATER DISTRICT

LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

PROCESS AND
INSTRUMENTATION
DIAGRAM - 6

90%
SUBMITTAL
JULY 2025

I105
DRAWING NUMBER

SHEET 82 OF 87

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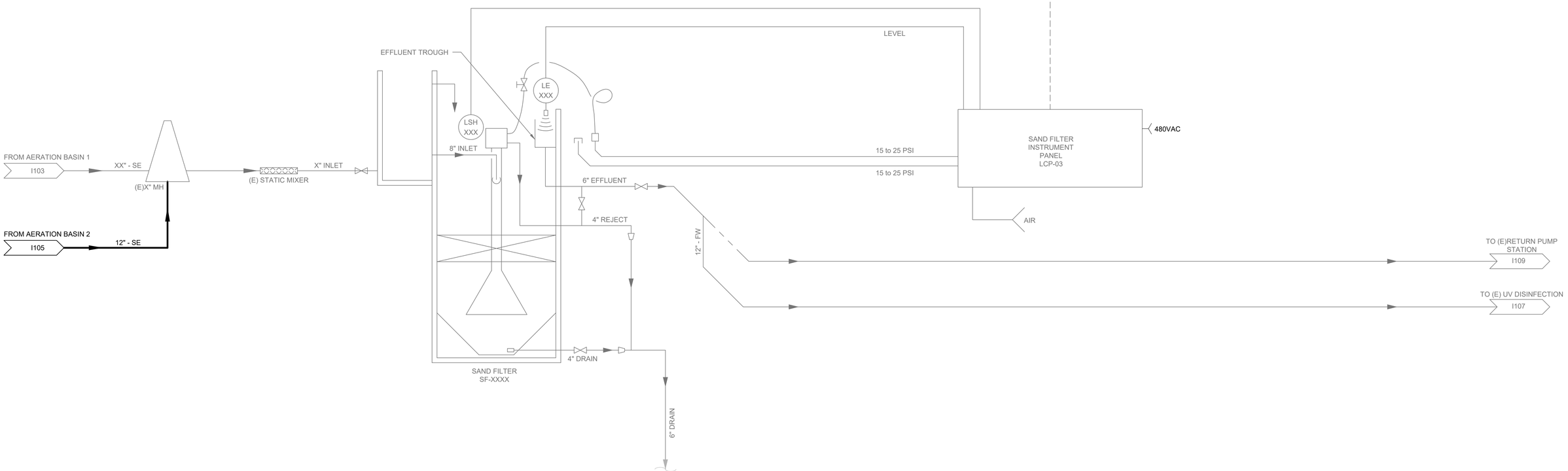
FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND
CONTROLS TO MATCH EXISTING

PROVIDE ALL REQUIRED I/Os AT THE MCP TO
FULLY INTEGRATE THE EXISTING VENDOR'S
SYSTEM

1

HARD-WIRED I/O

FIELD



GENERAL NOTES:

1. ALL I/O SIGNALS BETWEEN THE SAND FILTER AND CONTROL PANEL ARE HARDWIRED. THE EXISTING WIRING SHALL BE USED WHERE POSSIBLE. WHERE NOT POSSIBLE NEW WIRING WILL HAVE TO BE PULLED.

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CALAVERAS COUNTY
WATER DISTRICT

LA CONTENTA
WASTEWATER
TREATMENT FACILITY
PHASE 3 IMPROVEMENTS

PROCESS AND
INSTRUMENTATION
DIAGRAM - 7

90%
SUBMITTAL
JULY 2025

I106
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SHEET 83 OF 87

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SCADA

FULL INTEGRATION
COORDINATE SCADA DISPLAYS AND CONTROLS
TO MATCH HMI WITH EXISTING UV SYSTEM SCADA

MCP

PROVIDE ALL REQUIRED I/Os AT THE MCP TO FULLY INTEGRATE THE EXISTING VENDOR'S SYSTEM

1

HARD-WIRED I/O

ETHERNET SWITCH PORT

YU

-

ETHERNET

FIELD

120VAC

PLC-01

HMI

MCC-1

480/277VAC

GENERAL NOTES:

1. ALL I/O SIGNALS BETWEEN THE UV SYSTEM AND CONTROL PANEL ARE HARDWIRED. THE EXISTING WIRING SHALL BE USED WHERE POSSIBLE. WHERE NOT POSSIBLE NEW WIRING WILL HAVE TO BE PULLED.

UV LAMP BANK 1A

UV LAMP BANK 1B

UV LAMP BANK 1C

UV LAMP BANK 1D

LEVEL CONTROL WEIR

FILTERED WATER
I106

12" – FE

HW

12" - TE

TO PARSHALL FLUME
I108

HW

12" - TE

TO PLANT DRAIN
-

* SUPPLIED BY UV SYSTEM MANUFACTURER.

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 8

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I107
DRAWING NUMBER

SHEET 84 OF 87

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SCADA

YF
-

MCP

DISCHARGE FLOW

F
-
AI

4-20mA

FIELD

FIT
100
24VDC

FROM UV DISINFECTION SYSTEM
I107

XX" - TE

EXISTING PARSHALL FLUME

12" TE

14" TE

TO LOWER EFFLUENT STORAGE RESERVOIR
-

12" TE

14" TE

12" TE

TO UESP PIPING
I110

FROM AERATION BASIN 1 WAS
I103

FROM AERATION BASIN 2 WAS
I105

X" - WAS

12" - SS

SLUDGE LAGOON

X" - XX

BELT FILTER PRESS

TO LANDFILL

X" - XX

I109

GENERAL NOTES:

1. SEE DRAWING I-110 FOR UESP DETAILS

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 9

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I108
DRAWING NUMBER

SHEET 85 OF 87

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SCADA

PUMP TEMP SW HIGH — YTH
PUMP MOISTURE HIGH — YMHA
PUMP IN AUTO — YMA
PUMP FAILURE — YMF
PUMP RUNNING — YMR
PUMP START — YMC

PUMP 2 IS IDENTICAL TO PUMP 1.

RETURN PS LOW CUTOFF ALARM — YALL
RETURN PS DUTY & STANDBY PUMP STOP — YAL
RETURN PS DUTY PUMP START — YAH
RETURN PS STANDBY PUMP START — YAHH
RETURN PS HIGH HIGH ALARM — YAHH
RETURN PS HIGH HIGH ALARM — YAHHH

DISCHARGE PRESSURE — YP
DISCHARGE FLOW — YF

MCP

PUMP TEMP SW HIGH — TH (DI)
PUMP MOISTURE HIGH — MHA (DI)
PUMP IN AUTO — MA (DI)
PUMP FAILURE — MF (DI)
PUMP RUNNING — MR (DI)
PUMP START — MC (DO)

I/O IS HARDWIRED FROM MCC-2 TO MCP AND PUMP 2 IS IDENTICAL TO PUMP 1.

RETURN PS LOW CUTOFF ALARM — LALL (DI)
RETURN PS DUTY & STANDBY PUMP STOP — LAL (DI)
RETURN PS DUTY PUMP START — LAHH (DI)
RETURN PS STANDBY PUMP START — LAHH (DI)
RETURN PS HIGH HIGH ALARM — LAHH (DI)
RETURN PS HIGH HIGH ALARM — LAHHH (DI)

DISCHARGE PRESSURE — P (AI) — 4-20mA
DISCHARGE FLOW — F (AI) — 4-20mA

MCC-2

MLF — FAILURE
MLR — RUNNING
ETM
KQ
HOA — HS
MPR — MP
FROM LEVEL OVERRIDE CONTROLS

I/O AND PILOT DEVICES FOR PUMP 2 ARE IDENTICAL TO PUMP 1

480VAC
480VAC

FIELD

FROM CONTINUOUS BACKWASH FILTERS — I106
FROM BELT FILTER PRESS — I108
8" SS

TSH XXX
MSH 0XXX
M
P-201 RETURN PUMP 1
XX" 3W

TSH XXX
MSH XXX
M
P-202 RETURN PUMP 2
XX" 3W

LSLL XXX
LSL XXX
LSH XXX
LSHH XXX
LSHH XXX
LSHHH XXX

PI XXX
PI XXX
PIT XXX
FIT XXX — 24VDC
FE XXX — FE XX"
XX" X
TO PLANT INFLUENT

(E)RETURN PUMP STATION

NOT FOR CONSTRUCTION

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LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS	
PROCESS AND INSTRUMENTATION DIAGRAM - 10	
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I109 — DRAWING NUMBER	SHEET 86 OF 87

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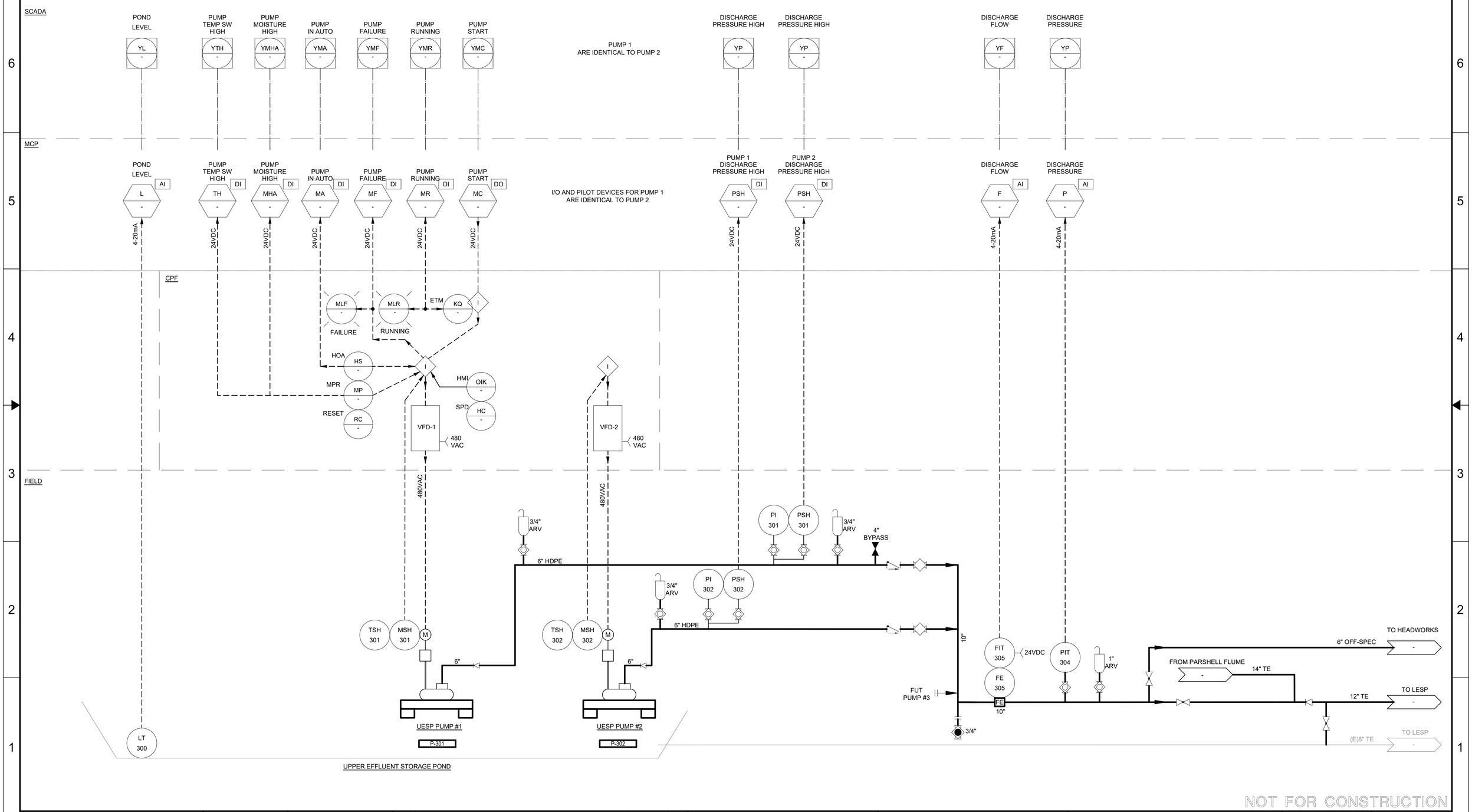

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CALAVERAS COUNTY WATER DISTRICT

LA CONTENTA WASTEWATER TREATMENT FACILITY PHASE 3 IMPROVEMENTS

PROCESS AND INSTRUMENTATION DIAGRAM - 11

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SHEET 87 OF 87

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APPENDIX C

La Contenta WWTF Project Emissions Analysis, ECORP Consulting, Inc.
February 2026

La Contenta WWTF Project Detailed Report

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2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Demolition (2027) - Unmitigated

3.3. Site Preparation (2027) - Unmitigated

3.5. Excavation Operations (2027) - Unmitigated

3.7. Building Construction (2027) - Unmitigated

3.9. Paving (2027) - Unmitigated

3.11. Painting (2027) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

8.1. Justifications

8.4. Construction

8.4.1. Construction Phases

8.5. Operations

8.5.3. Energy Usage

8.5.8. Stationary Sources

8.5.8.1. Emergency Generators and Fire Pumps

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	La Contenta WWTF Project
Construction Start Date	3/1/2027
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40000
Precipitation (days)	43.8000
Location	38.17642274262073, -120.81748772066624
County	Calaveras
City	Unincorporated
Air District	Calaveras County AQMD
Air Basin	Mountain Counties
TAZ	3009
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.37

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	31.2000	Acre	31.2000	0.00000	0.00000	0.00000	—	For treatment area.

Manufacturing	16.3460	1000sqft	0.37525	16,346.0	0.00000	0.00000	—	To account for energy consumption.
Other Non-Asphalt Surfaces	70.3000	1000sqft	1.61387	0.00000	0.00000	0.00000	—	For new pipeline disturbance area.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	67.7515	45.2677	57.1622	0.10642	1.75397	20.3995	21.6133	1.61474	10.3009	11.4209	—	11,998.7	11,998.7	0.46331	0.38770	4.71163	12,077.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.31549	20.3145	19.7334	0.03369	0.79930	13.2863	14.0856	0.73563	6.77949	7.51512	—	3,737.56	3,737.56	0.14823	0.06072	0.02290	3,759.38
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.95970	10.5333	11.7435	0.02325	0.40674	3.98659	4.39333	0.37460	1.81423	2.18883	—	2,638.05	2,638.05	0.09802	0.06273	0.34992	2,659.54
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.90515	1.92232	2.14319	0.00424	0.07423	0.72755	0.80178	0.06836	0.33110	0.39946	—	436.759	436.759	0.01623	0.01039	0.05793	440.318

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	67.7515	45.2677	57.1622	0.10642	1.75397	20.3995	21.6133	1.61474	10.3009	11.4209	—	11,998.7	11,998.7	0.46331	0.38770	4.71163	12,077.9
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.31549	20.3145	19.7334	0.03369	0.79930	13.2863	14.0856	0.73563	6.77949	7.51512	—	3,737.56	3,737.56	0.14823	0.06072	0.02290	3,759.38
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.95970	10.5333	11.7435	0.02325	0.40674	3.98659	4.39333	0.37460	1.81423	2.18883	—	2,638.05	2,638.05	0.09802	0.06273	0.34992	2,659.54
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.90515	1.92232	2.14319	0.00424	0.07423	0.72755	0.80178	0.06836	0.33110	0.39946	—	436.759	436.759	0.01623	0.01039	0.05793	440.318

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.87770	22.0222	13.2640	0.02370	0.72548	0.00000	0.72548	0.72517	0.00000	0.72517	18.1672	2,622.72	2,640.88	1.95214	0.03939	0.00000	2,701.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.76093	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	18.1672	2,619.79	2,637.96	1.95202	0.03936	0.00000	2,698.49
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.94992	0.24422	0.48816	0.00028	0.00856	0.00000	0.00856	0.00841	0.00000	0.00841	18.1672	130.294	148.461	1.85207	0.01986	0.00000	200.682
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.17336	0.04457	0.08909	0.00005	0.00156	0.00000	0.00156	0.00153	0.00000	0.00153	3.00778	21.5717	24.5795	0.30663	0.00329	0.00000	33.2251

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.95516	0.00598	0.71092	0.00004	0.00126	—	0.00126	0.00095	—	0.00095	—	2.92343	2.92343	0.00012	0.00003	—	2.93397
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Water	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Waste	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Stationary	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Total	5.87770	22.0222	13.2640	0.02370	0.72548	0.00000	0.72548	0.72517	0.00000	0.72517	18.1672	2,622.72	2,640.88	1.95214	0.03939	0.00000	2,701.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.83838	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Water	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Waste	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Stationary	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Total	5.76093	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	18.1672	2,619.79	2,637.96	1.95202	0.03936	0.00000	2,698.49
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.89597	0.00295	0.35059	0.00002	0.00062	—	0.00062	0.00047	—	0.00047	—	1.44169	1.44169	0.00006	0.00001	—	1.44689
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Water	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Waste	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186

Stationar	0.05395	0.24127	0.13757	0.00026	0.00794	0.00000	0.00794	0.00794	0.00000	0.00794	0.00000	27.6005	27.6005	0.00111	0.00022	0.00000	27.6926
Total	0.94992	0.24422	0.48816	0.00028	0.00856	0.00000	0.00856	0.00841	0.00000	0.00841	18.1672	130.294	148.461	1.85207	0.01986	0.00000	200.682
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Area	0.16351	0.00054	0.06398	< 0.000005	0.00011	—	0.00011	0.00009	—	0.00009	—	0.23869	0.23869	0.00001	< 0.000005	—	0.23955
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	15.6232	15.6232	0.00253	0.00031	—	15.7777
Water	—	—	—	—	—	—	—	—	—	—	1.19923	1.14020	2.33943	0.12315	0.00294	—	6.29553
Waste	—	—	—	—	—	—	—	—	—	—	1.80856	0.00000	1.80856	0.18076	0.00000	—	6.32752
Stationary	0.00985	0.04403	0.02511	0.00005	0.00145	0.00000	0.00145	0.00145	0.00000	0.00145	0.00000	4.56957	4.56957	0.00018	0.00004	0.00000	4.58483
Total	0.17336	0.04457	0.08909	0.00005	0.00156	0.00000	0.00156	0.00153	0.00000	0.00153	3.00778	21.5717	24.5795	0.30663	0.00329	0.00000	33.2251

3. Construction Emissions Details

3.1. Demolition (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.21478	19.9005	18.6307	0.03253	0.79594	—	0.79594	0.73226	—	0.73226	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Dust From Material Movement	—	—	—	—	—	13.1062	13.1062	—	6.73520	6.73520	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.21478	19.9005	18.6307	0.03253	0.79594	—	0.79594	0.73226	—	0.73226	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Dust From Material Movement	—	—	—	—	—	13.1062	13.1062	—	6.73520	6.73520	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18204	1.63566	1.53129	0.00267	0.06542	—	0.06542	0.06019	—	0.06019	—	281.663	281.663	0.01143	0.00229	—	282.629
Dust From Material Movement	—	—	—	—	—	1.07723	1.07723	—	0.55358	0.55358	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03322	0.29851	0.27946	0.00049	0.01194	—	0.01194	0.01098	—	0.01098	—	46.6325	46.6325	0.00189	0.00038	—	46.7925
Dust From Material Movement	—	—	—	—	—	0.19659	0.19659	—	0.10103	0.10103	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11065	0.08573	1.42259	0.00000	0.00000	0.13481	0.13481	0.00000	0.03160	0.03160	—	151.608	151.608	0.00784	0.00553	0.55941	154.011
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00502	0.28638	0.03395	0.00116	0.00336	0.04525	0.04861	0.00336	0.01269	0.01605	—	174.797	174.797	0.00006	0.02706	0.32472	183.188

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09586	0.10974	1.06765	0.00000	0.00000	0.13481	0.13481	0.00000	0.03160	0.03160	—	135.841	135.841	0.00917	0.00586	0.01450	137.831
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00485	0.30424	0.03505	0.00116	0.00336	0.04525	0.04861	0.00336	0.01269	0.01605	—	174.821	174.821	0.00006	0.02706	0.00840	182.896
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00831	0.00822	0.09172	0.00000	0.00000	0.01077	0.01077	0.00000	0.00252	0.00252	—	11.4497	11.4497	0.00070	0.00045	0.01987	11.6224
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00041	0.02467	0.00283	0.00010	0.00028	0.00364	0.00391	0.00028	0.00102	0.00130	—	14.3677	14.3677	< 0.000005	0.00222	0.01150	15.0422
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00152	0.00150	0.01674	0.00000	0.00000	0.00197	0.00197	0.00000	0.00046	0.00046	—	1.89562	1.89562	0.00012	0.00008	0.00329	1.92423
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00007	0.00450	0.00052	0.00002	0.00005	0.00066	0.00071	0.00005	0.00019	0.00024	—	2.37874	2.37874	< 0.000005	0.00037	0.00190	2.49040

3.3. Site Preparation (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	19.6767	19.6767	—	10.1054	10.1054	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16722	1.53273	1.54955	0.00268	0.06420	—	0.06420	0.05907	—	0.05907	—	290.291	290.291	0.01178	0.00236	—	291.288
Dust From Material Movement	—	—	—	—	—	1.07817	1.07817	—	0.55372	0.55372	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03052	0.27972	0.28279	0.00049	0.01172	—	0.01172	0.01078	—	0.01078	—	48.0611	48.0611	0.00195	0.00039	—	48.2260
Dust From Material Movement	—	—	—	—	—	0.19677	0.19677	—	0.10105	0.10105	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12909	0.10002	1.65969	0.00000	0.00000	0.15728	0.15728	0.00000	0.03687	0.03687	—	176.876	176.876	0.00915	0.00645	0.65265	179.680
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.06269	3.57976	0.42439	0.01447	0.04203	0.56560	0.60762	0.04203	0.15862	0.20065	—	2,184.96	2,184.96	0.00069	0.33827	4.05899	2,289.84
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00646	0.00639	0.07134	0.00000	0.00000	0.00838	0.00838	0.00000	0.00196	0.00196	—	8.90529	8.90529	0.00054	0.00035	0.01546	9.03968
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00340	0.20559	0.02356	0.00079	0.00230	0.03031	0.03261	0.00230	0.00852	0.01082	—	119.731	119.731	0.00004	0.01854	0.09587	125.351
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00118	0.00117	0.01302	0.00000	0.00000	0.00153	0.00153	0.00000	0.00036	0.00036	—	1.47437	1.47437	0.00009	0.00006	0.00256	1.49662
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00062	0.03752	0.00430	0.00014	0.00042	0.00553	0.00595	0.00042	0.00156	0.00198	—	19.8228	19.8228	0.00001	0.00307	0.01587	20.7534

3.5. Excavation Operations (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.10335	26.6524	28.6515	0.06251	1.08664	—	1.08664	0.99971	—	0.99971	—	6,769.41	6,769.41	0.27460	0.05492	—	6,792.65
Dust From Material Movement	—	—	—	—	—	9.20946	9.20946	—	3.65464	3.65464	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56966	4.89236	5.25931	0.01147	0.19947	—	0.19947	0.18351	—	0.18351	—	1,242.60	1,242.60	0.05041	0.01008	—	1,246.87

Dust From Material Movement	—	—	—	—	—	1.69050	1.69050	—	0.67085	0.67085	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10396	0.89285	0.95982	0.00209	0.03640	—	0.03640	0.03349	—	0.03349	—	205.727	205.727	0.00835	0.00167	—	206.433
Dust From Material Movement	—	—	—	—	—	0.30852	0.30852	—	0.12243	0.12243	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16598	0.12859	2.13389	0.00000	0.00000	0.20221	0.20221	0.00000	0.04740	0.04740	—	227.412	227.412	0.01177	0.00829	0.83912	231.017
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01871	1.06858	0.12668	0.00432	0.01254	0.16883	0.18138	0.01254	0.04735	0.05989	—	652.228	652.228	0.00021	0.10098	1.21164	683.536
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02783	0.02753	0.30727	0.00000	0.00000	0.03607	0.03607	0.00000	0.00844	0.00844	—	38.3564	38.3564	0.00234	0.00152	0.06658	38.9352
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00340	0.20559	0.02356	0.00079	0.00230	0.03031	0.03261	0.00230	0.00852	0.01082	—	119.731	119.731	0.00004	0.01854	0.09587	125.351
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00508	0.00503	0.05608	0.00000	0.00000	0.00658	0.00658	0.00000	0.00154	0.00154	—	6.35033	6.35033	0.00039	0.00025	0.01102	6.44616
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00062	0.03752	0.00430	0.00014	0.00042	0.00553	0.00595	0.00042	0.00156	0.00198	—	19.8228	19.8228	0.00001	0.00307	0.01587	20.7534

3.7. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16365	1.49226	2.05589	0.00372	0.05348	—	0.05348	0.04920	—	0.04920	—	380.906	380.906	0.01545	0.00309	—	382.213
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02987	0.27234	0.37520	0.00068	0.00976	—	0.00976	0.00898	—	0.00898	—	63.0633	63.0633	0.00256	0.00051	—	63.2797
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05064	0.03924	0.65110	0.00000	0.00000	0.06170	0.06170	0.00000	0.01446	0.01446	—	69.3892	69.3892	0.00359	0.00253	0.25604	70.4892
Vendor	0.00303	0.11880	0.02981	0.00052	0.00104	0.01973	0.02077	0.00104	0.00545	0.00649	—	73.1167	73.1167	0.00064	0.01084	0.16389	76.5281
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00735	0.00727	0.08116	0.00000	0.00000	0.00953	0.00953	0.00000	0.00223	0.00223	—	10.1314	10.1314	0.00062	0.00040	0.01759	10.2843
Vendor	0.00046	0.01976	0.00485	0.00008	0.00016	0.00306	0.00323	0.00016	0.00085	0.00101	—	11.6195	11.6195	0.00010	0.00172	0.01125	12.1468
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00134	0.00133	0.01481	0.00000	0.00000	0.00174	0.00174	0.00000	0.00041	0.00041	—	1.67737	1.67737	0.00010	0.00007	0.00291	1.70268
Vendor	0.00008	0.00361	0.00089	0.00002	0.00003	0.00056	0.00059	0.00003	0.00015	0.00018	—	1.92373	1.92373	0.00002	0.00029	0.00186	2.01103
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.73744	6.94439	9.95313	0.01395	0.29813	—	0.29813	0.27428	—	0.27428	—	1,511.11	1,511.11	0.06130	0.01226	—	1,516.29
Paving	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04445	0.41857	0.59991	0.00084	0.01797	—	0.01797	0.01653	—	0.01653	—	91.0804	91.0804	0.00369	0.00074	—	91.3930

Paving	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00811	0.07639	0.10948	0.00015	0.00328	—	0.00328	0.00302	—	0.00302	—	15.0794	15.0794	0.00061	0.00012	—	15.1311
Paving	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11065	0.08573	1.42259	0.00000	0.00000	0.13481	0.13481	0.00000	0.03160	0.03160	—	151.608	151.608	0.00784	0.00553	0.55941	154.011
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00609	0.00603	0.06726	0.00000	0.00000	0.00790	0.00790	0.00000	0.00185	0.00185	—	8.39642	8.39642	0.00051	0.00033	0.01457	8.52312
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00111	0.00110	0.01228	0.00000	0.00000	0.00144	0.00144	0.00000	0.00034	0.00034	—	1.39012	1.39012	0.00008	0.00006	0.00241	1.41110
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.11. Painting (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11335	0.83116	1.12539	0.00173	0.01905	—	0.01905	0.01752	—	0.01752	—	133.513	133.513	0.00542	0.00108	—	133.971
Architectural Coatings	62.4084	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00683	0.05010	0.06783	0.00010	0.00115	—	0.00115	0.00106	—	0.00106	—	8.04734	8.04734	0.00033	0.00007	—	8.07496
Architectural Coatings	3.76160	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00125	0.00914	0.01238	0.00002	0.00021	—	0.00021	0.00019	—	0.00019	—	1.33233	1.33233	0.00005	0.00001	—	1.33690
Architectural Coatings	0.68649	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01013	0.00785	0.13022	0.00000	0.00000	0.01234	0.01234	0.00000	0.00289	0.00289	—	13.8778	13.8778	0.00072	0.00051	0.05121	14.0978
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00056	0.00055	0.00616	0.00000	0.00000	0.00072	0.00072	0.00000	0.00017	0.00017	—	0.76859	0.76859	0.00005	0.00003	0.00133	0.78019
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00010	0.00010	0.00112	0.00000	0.00000	0.00013	0.00013	0.00000	0.00003	0.00003	—	0.12725	0.12725	0.00001	0.00001	0.00022	0.12917
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Total	—	—	—	—	—	—	—	—	—	—	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Total	—	—	—	—	—	—	—	—	—	—	—	94.3650	94.3650	0.01527	0.00185	—	95.2981
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	—	15.6232	15.6232	0.00253	0.00031	—	15.7777
Total	—	—	—	—	—	—	—	—	—	—	—	15.6232	15.6232	0.00253	0.00031	—	15.7777

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.46222	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.37616	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.11678	0.00598	0.71092	0.00004	0.00126	—	0.00126	0.00095	—	0.00095	—	2.92343	2.92343	0.00012	0.00003	—	2.93397
Total	0.95516	0.00598	0.71092	0.00004	0.00126	—	0.00126	0.00095	—	0.00095	—	2.92343	2.92343	0.00012	0.00003	—	2.93397
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.46222	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.37616	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.83838	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.08436	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06865	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01051	0.00054	0.06398	< 0.000005	0.00011	—	0.00011	0.00009	—	0.00009	—	0.23869	0.23869	0.00001	< 0.000005	—	0.23955
Total	0.16351	0.00054	0.06398	< 0.000005	0.00011	—	0.00011	0.00009	—	0.00009	—	0.23869	0.23869	0.00001	< 0.000005	—	0.23955

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Total	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Total	—	—	—	—	—	—	—	—	—	—	7.24339	6.88688	14.1303	0.74384	0.01778	—	38.0253
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	1.19923	1.14020	2.33943	0.12315	0.00294	—	6.29553
Total	—	—	—	—	—	—	—	—	—	—	1.19923	1.14020	2.33943	0.12315	0.00294	—	6.29553

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Total	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Total	—	—	—	—	—	—	—	—	—	—	10.9238	0.00000	10.9238	1.09179	0.00000	—	38.2186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Manufacturing	—	—	—	—	—	—	—	—	—	—	1.80856	0.00000	1.80856	0.18076	0.00000	—	6.32752
Total	—	—	—	—	—	—	—	—	—	—	1.80856	0.00000	1.80856	0.18076	0.00000	—	6.32752

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Total	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Total	4.92255	22.0162	12.5531	0.02366	0.72422	0.00000	0.72422	0.72422	0.00000	0.72422	0.00000	2,518.54	2,518.54	0.10112	0.01973	0.00000	2,526.95
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00985	0.04403	0.02511	0.00005	0.00145	0.00000	0.00145	0.00145	0.00000	0.00145	0.00000	4.56957	4.56957	0.00018	0.00004	0.00000	4.58483
Total	0.00985	0.04403	0.02511	0.00005	0.00145	0.00000	0.00145	0.00145	0.00000	0.00145	0.00000	4.56957	4.56957	0.00018	0.00004	0.00000	4.58483

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	3/1/2027	4/12/2027	5.00000	30.0000	—
Site Preparation	Site Preparation	4/13/2027	5/11/2027	5.00000	20.0000	—
Excavation Operations	Grading	5/12/2027	8/12/2027	5.00000	67.0000	—
Building Construction	Building Construction	6/12/2027	9/1/2027	5.00000	58.0000	—
Paving	Paving	8/12/2027	9/12/2027	5.00000	22.0000	—
Painting	Architectural Coating	8/12/2027	9/12/2027	5.00000	22.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Excavation Operations	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Excavation Operations	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Excavation Operations	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Excavation Operations	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Excavation Operations	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Excavation Operations	Sweepers/Scrubbers	Diesel	Average	1.000000	8.00000	36.0000	0.46000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Painting	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	12.7200	LDA,LDT1,LDT2
Demolition	Vendor	—	8.78000	HHDT,MHDT
Demolition	Hauling	2.50000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	12.7200	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.78000	HHDT,MHDT
Site Preparation	Hauling	31.2500	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Excavation Operations	Worker	22.5000	12.7200	LDA,LDT1,LDT2
Excavation Operations	Vendor	—	8.78000	HHDT,MHDT
Excavation Operations	Hauling	9.32836	20.0000	HHDT
Excavation Operations	Onsite truck	—	—	HHDT
Building Construction	Worker	6.86532	12.7200	LDA,LDT1,LDT2
Building Construction	Vendor	2.67911	8.78000	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	12.7200	LDA,LDT1,LDT2
Paving	Vendor	—	8.78000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Painting	Worker	1.37306	12.7200	LDA,LDT1,LDT2
Painting	Vendor	—	8.78000	HHDT,MHDT
Painting	Hauling	0.00000	20.0000	HHDT
Painting	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Painting	0.00000	0.00000	24,519.0	8,173.00	85,762.3

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	—	600.000	30.0000	0.00000	0.00000
Site Preparation	—	5,000.00	30.0000	0.00000	0.00000
Excavation Operations	—	5,000.00	201.000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	32.8139

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Other Non-Asphalt Surfaces	31.2000	0%
Paving	Manufacturing	0.00000	0%
Paving	Other Non-Asphalt Surfaces	1.61387	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	203.983	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Manufacturing	Wood Fireplaces	0	0
Manufacturing	Gas Fireplaces	0	0
Manufacturing	Propane Fireplaces	0	0

Manufacturing	Electric Fireplaces	0	0
Manufacturing	No Fireplaces	0	0
Manufacturing	Conventional Wood Stoves	0	0
Manufacturing	Catalytic Wood Stoves	0	0
Manufacturing	Non-Catalytic Wood Stoves	0	0
Manufacturing	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	24,519.0	8,173.00	85,762.3

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	0.00000	203.983	0.0330	0.0040	0.00000
Manufacturing	168,853	203.983	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	203.983	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00000	0.00000
Manufacturing	3,780,013	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00000	0.00000
Manufacturing	20.2690	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.000000	3.00000	12.0000	1,000.000	0.73000

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.4000	annual days of extreme heat
Extreme Precipitation	4.25000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	11.4800	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	0	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	0	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	0	0	0	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	1	1	1	2
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	66.9571

AQ-PM	39.1164
AQ-DPM	4.77909
Drinking Water	43.8491
Lead Risk Housing	21.9156
Pesticides	55.7931
Toxic Releases	14.3786
Traffic	5.72500
Effect Indicators	—
CleanUp Sites	0.00000
Groundwater	56.1348
Haz Waste Facilities/Generators	35.6188
Impaired Water Bodies	66.7367
Solid Waste	97.7320
Sensitive Population	—
Asthma	49.5763
Cardio-vascular	79.2996
Low Birth Weights	40.6595
Socioeconomic Factor Indicators	—
Education	46.8109
Housing	43.8910
Linguistic	0.00000
Poverty	20.3769
Unemployment	41.8402

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—

Above Poverty	63.33889388
Employed	23.88040549
Median HI	61.88887463
Education	—
Bachelor's or higher	22.76401899
High school enrollment	18.20864879
Preschool enrollment	11.26652124
Transportation	—
Auto Access	61.56807391
Active commuting	2.540741691
Social	—
2-parent households	63.62119851
Voting	64.67342487
Neighborhood	—
Alcohol availability	88.60515848
Park access	6.518670602
Retail density	3.990760939
Supermarket access	40.74169126
Tree canopy	81.39355832
Housing	—
Homeownership	92.2751187
Housing habitability	80.6236366
Low-inc homeowner severe housing cost burden	51.31528295
Low-inc renter severe housing cost burden	59.77158989
Uncrowded housing	87.19363531
Health Outcomes	—
Insured adults	60.00256641
Arthritis	0.0

Asthma ER Admissions	37.7
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	42.2
Cognitively Disabled	21.0
Physically Disabled	18.7
Heart Attack ER Admissions	34.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	3.8
SLR Inundation Area	0.0
Children	96.1
Elderly	12.0
English Speaking	95.3
Foreign-born	6.5

Outdoor Workers	18.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	95.7
Traffic Density	3.7
Traffic Access	0.0
Other Indices	—
Hardship	45.2
Other Decision Support	—
2016 Voting	74.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	40.0000
Healthy Places Index Score for Project Location (b)	45.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Updated to match Project Description.
Construction: Off-Road Equipment	Updated to match Project Description.
Construction: Dust From Material Movement	To account for material movement from the existing holding plan and excavation activities for the proposed pipeline.
Construction: Demolition	No proposed demolition of buildings.
Operations: Energy Use	Updated to exclude natural gas.
Operations: Refrigerants	Updated to match Project Description.
Operations: Emergency Generators and Fire Pumps	Updated to include the annual maintenance testing for an emergency generator.

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Building Construction	Building Construction	Start Date	7/15/2027	6/12/2027
Building Construction	Building Construction	End Date	6/14/2029	9/1/2027
Building Construction	Building Construction	Work Days per Phase	500.000	58.0000
Paving	Paving	Start Date	6/15/2029	8/12/2027
Paving	Paving	End Date	8/3/2029	9/12/2027
Paving	Paving	Work Days per Phase	35.0000	22.0000

8.5. Operations

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
Manufacturing	Natural Gas	kBTU/yr	677,682	0.00000
Manufacturing	Natural Gas (Subject to Title 24)	kBTU/yr	277,566	0.00000

Manufacturing	Natural Gas (Not Subject to Title 24)	kBTU/yr	400,116	0.00000

8.5.8. Stationary Sources

8.5.8.1. Emergency Generators and Fire Pumps

Equipment Type	Model Parameter	Default Value	New Value
Emergency Generator	Hours per Day	0.00000	3.00000

APPENDIX D

La Contenta WWTF Project Biological Resources Assessment,
ECORP Consulting, Inc. February 2026

DRAFT

Biological Resources Assessment
for the
Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

Calaveras County, California

Prepared For:

Calaveras County Water District
120 Toma Court
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Prepared By:

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DRAFT

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LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
°F	degrees Fahrenheit
ARD	Aquatic Resources Delineation
BCC	Birds of Conservation Concern
BRA	Biological Resources Assessment
CCWD	Calaveras County Water District
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DPS	Distinct Population Segment
ECORP	ECORP Consulting, Inc.
ESA	Endangered Species Act
LSAA	Lake or Streambed Alteration Agreement
MBTA	Migratory Bird Treaty Act
MCV	Manual of California Vegetation
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
Project	CCWD La Contenta WWTF Phase 3 Project
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WWTF	Wastewater Treatment Facility

1.0 INTRODUCTION

ECORP Consulting, Inc. (ECORP) has conducted a Biological Resources Assessment (BRA) at the request of Calaveras County Water District (CCWD) for the proposed CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project (Project) located in Calaveras County, California. The results of this assessment will support environmental review of the Project in accordance with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and provide the basis for identifying appropriate measures to lessen or avoid significant impacts to biological resources.

1.1 Project Location and Description

The Project is located southeast of the Community of Valley Springs, south and west of Hogan Dam Road, north of Vista del Lago Drive, and east of East Eberhardt Drive (Figures 1 and 2). The Proposed Project will replace and/or improve facilities at the existing La Contenta WWTF to resolve issues associated with age deterioration and limited capacity.

1.2 Study Area

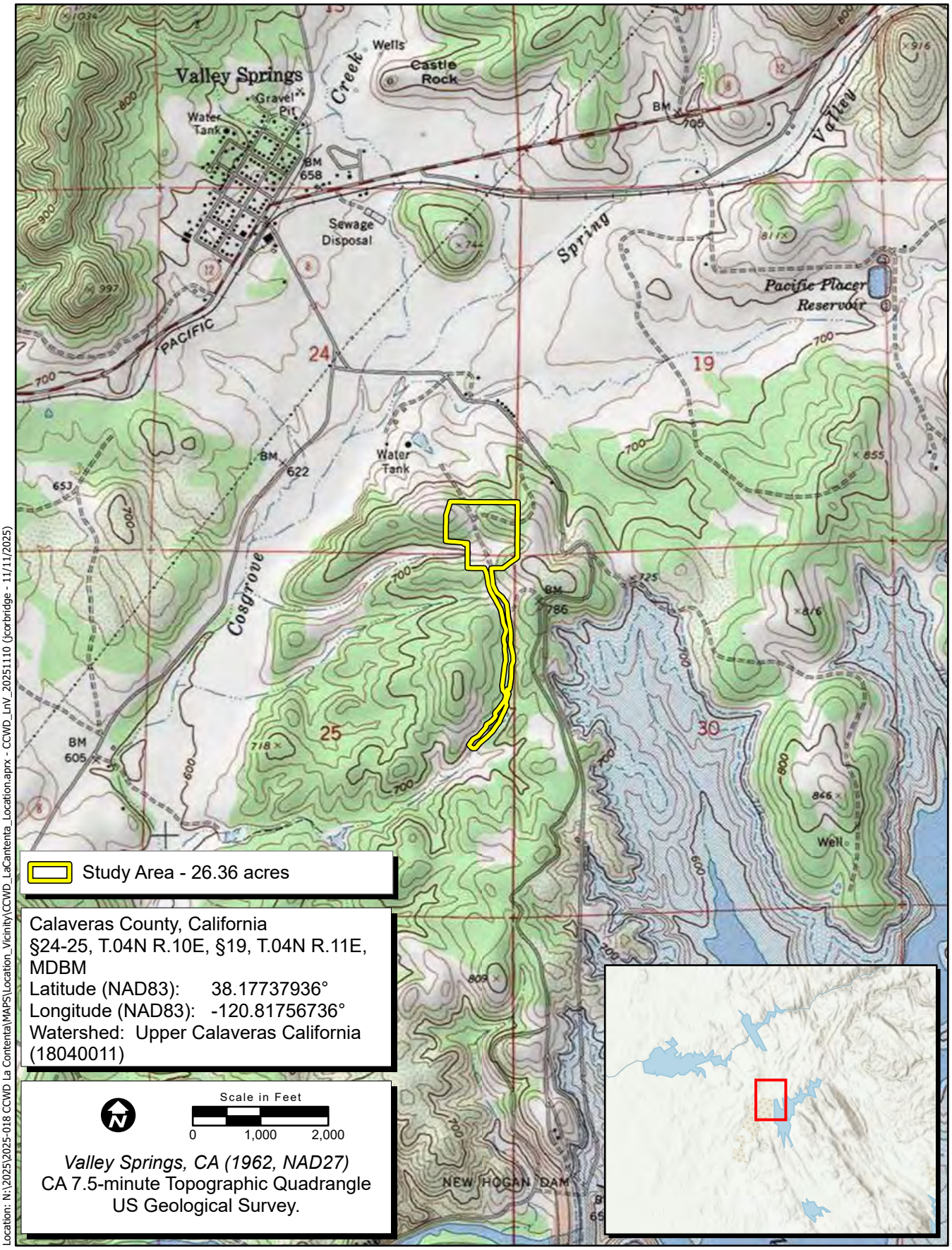
The Study Area for this BRA includes all areas where Project-related activities may result in impacts to sensitive biological resources. The approximately 26.36-acre Study Area corresponds to a portion of Sections 24 and 25, Township 4 North, and Range 10 East and a portion of Section 19, Township 4 North, Range 11 East (Mount Diablo Base and Meridian) of the *Valley Springs, California* 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1962; Figure 1). The approximate center of the Study Area is located at 38.17737936° latitude and -120.81756736° longitude within the Upper Calaveras California watershed (Hydrological Unit Code 18040011; USGS 2025).

1.3 Purpose of This Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitats, and other sensitive or protected resources such as migratory birds, sensitive natural communities, riparian habitat, oak woodlands, and potential Waters of the U.S. or state, including wetlands, within the Study Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of available literature and results of biological surveys conducted within the Study Area, including the Aquatic Resources Delineation (ARD) and site reconnaissance.

For the purposes of this assessment, *special-status species* are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of the CEQA Guidelines;



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Map Date: 11/11/2025
Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

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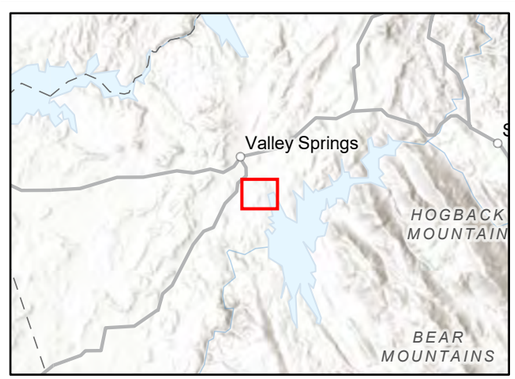
Map Contents

Study Area - 26.36 acres

Sources: Esri, Vantor, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap



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Map Date: 11/11/2025

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Scale in Feet
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Figure 2. Aerial Map

2025-018 CCWD La Contenta WWTF Phase 3 Project

- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are included on the CDFW Watch List;
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Ranks [CRPRs] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, Section 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, Sections 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

2.0 REGULATORY SETTING

Federal, state, and local regulations applicable to the Project are described below.

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by USFWS or the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). For plants, the ESA prohibits removing or possessing any listed plant on federal land, maliciously damaging or destroying any listed plant in any area, or removing, cutting, digging up, damaging, or destroying any such species in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of ESA, federal agencies are required to consult with USFWS and/or NMFS if their actions, including permit approvals or funding, may affect a listed species (including plants) or its designated critical habitat. Through consultation and the issuance of a Biological Opinion (formal consultation), USFWS and/or NMFS may authorize take of a listed species that is incidental to an otherwise legal activity provided the activity will not jeopardize the continued existence of the species. USFWS and/or NMFS may issue a letter of concurrence through an informal consultation process if the federal agency demonstrates that the action is not likely to adversely affect a listed species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a Habitat Conservation Plan is developed.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the United States and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The protections of the MBTA extend to disturbances that result in abandonment of a nest with eggs or young. USFWS may issue permits to qualified applicants as authorized by the MBTA for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits.

2.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended) provides for the protection of bald eagle and golden eagle by prohibiting the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S. Code 668[a]; 50 CFR 22). USFWS may authorize take of bald eagles and golden eagles for activities where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided (50 CFR 22.26).

2.1.4 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas:

> …that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3 7b).

Under the current regulations implementing the CWA, wetlands are considered Waters of the U.S. and are subject to USACE jurisdiction if they are adjacent (defined as having a continuous surface connection) to relatively permanent, standing or continuously flowing bodies of water.

Substantial impacts to Waters of the U.S. may require an individual permit. Projects with only minimal effects may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.1.5 National Environmental Policy Act

NEPA, as amended (42 U.S. Code 4321 et seq.), requires that federal agencies consider "reasonably foreseeable environmental effects" of major federal actions (42 U.S. Code 4332[C][i]). When determining

the level of NEPA review, federal agencies must analyze and disclose whether the major federal action does or does not have a "reasonably foreseeable significant effect on the quality of the human environment," including "important historic, cultural, and natural aspects of our national heritage." (42 U.S. Code 4336[b] and 42 U.S. Code 4331[b]). NEPA also requires that the federal lead agency consult with any federal agency which has jurisdiction by law or special expertise with respect to a particular environmental resource (42 U.S. Code 4332[C]). With respect to biological resources, federal agencies must consider the effects of a proposed action on federally protected wildlife and plant species and/or their habitats and consider compliance with Federal laws such as the CWA, ESA, MBTA, Bald and Golden Eagle Protection Act, and Magnuson-Stevens Fishery Conservation and Management Act. Federal agencies must identify mitigation measures relied upon to determine a proposed action will not have a significant effect on the environment.

2.2 State or Local Regulations

2.2.1 California Fish and Game Code

2.2.1.1 California Endangered Species Act

The California ESA (California Fish and Game Code Sections 2050-2116) generally parallels the main provisions of the federal ESA, but unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called *candidates* by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 allows CDFW to authorize incidental take permits if species-specific minimization and avoidance measures are incorporated to fully mitigate the impacts of a project.

2.2.1.2 Fully Protected Species

The State of California first began to designate species as *fully protected* prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the state and/or federal ESAs. Previously, the regulations that implement the Fully Protected Species Statute (California Fish and Game Code Sections 4700 for mammals, 3511 for birds, 5050 for reptiles and amphibians, and 5515 for fish) provided that fully protected species may not be taken or possessed at any time. However, on July 10, 2023, Senate Bill 147 was signed into law authorizing CDFW to issue take permits under the California ESA for fully protected species for qualifying projects through 2033.

CDFW may also issue licenses or permits for take of these species for necessary scientific research or live capture and relocation and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.1.3 Native Plant Protection Act

The NPPA of 1977 was created with the intent to "preserve, protect and enhance rare and endangered plants in this State." The NPPA is administered by CDFW and provided in California Fish and Game Code Sections 1900-1913. The Fish and Wildlife Commission has the authority to designate native plants as *endangered* or *rare* and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code Sections 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.1.4 Special Protections for Birds

Sections 3503, 3513, and 3800 of the California Fish and Game Code specifically protect birds. Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 prohibits the take, possession, or destruction of any birds in the orders Strigiformes (owls) or Falconiformes (hawks and eagles), as well as their nests and eggs. Section 3513 prohibits the take or possession of any migratory nongame bird as designated in the MBTA. Section 3800 states that, with limited exceptions, it is unlawful to take any nongame bird, defined as all birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds. These provisions, along with the federal MBTA, serve to protect all nongame birds and their nests and eggs, except as otherwise provided in the code.

2.2.1.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires an entity to notify CDFW of activities that may: "substantially divert or obstruct the natural flow of any river stream or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake." The statute has been interpreted by CDFW to include modification of adjacent wetland and riparian habitat. If CDFW determines the activity may "substantially adversely affect a fish or wildlife resource," the entity may not commence the activity without a Lake or Streambed Alteration Agreement (LSAA). The LSAA establishes measures necessary to protect the resource and is mutually agreed upon by CDFW and the applicant.

2.2.2 California Oak Woodlands Conservation Act

The California Oak Woodlands Conservation Act was passed in 2001 to address loss of oak woodland habitats throughout the State. As a result of the Act, the Oak Woodland Conservation Program was established to provide funding for conservation and protection of California oak woodlands. Public Resources Code Section 21083.4 went into effect as of January 1, 2005 and requires lead agencies to analyze potential effects to oak woodlands during the CEQA process. The lead agency must implement one of several mitigation alternatives, including conservation of oak woodlands through conservation easements, planting or restoration of oak woodlands, contribution of funds to the Oak Woodlands Conservation Fund, or other appropriate mitigation measures if it is determined that a project may have a significant effect on oak woodlands.

2.2.3 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb 1 or more acres of land require development and implementation of a Stormwater Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB also regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the water of the state" (Water Code 13260[a]). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050[e]). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

2.2.4 California Environmental Quality Act

CEQA requires state and local agencies to disclose and evaluate the significant environmental impacts of proposed projects. Where significant impacts are identified, the agency must adopt all feasible mitigation measures to reduce or eliminate those impacts.

2.2.4.1 California Environmental Quality Act Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to state or federally listed (i.e., rare, threatened, or endangered) species are considered significant. Per CEQA Guidelines Section 15380, a species not protected on a federal or state list may be considered rare or endangered if it meets certain criteria. A species is considered "endangered" if its survival and reproduction in the wild are in immediate jeopardy; a species is considered "rare" when it is present in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens.

Assessment of *impact significance* to populations of non-listed species (e.g., SSC) usually considers the proportion of the species' range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Pursuant to Appendix G, impacts to biological resources would normally be considered significant if a project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.2.4.2 Species of Special Concern

SSC are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that is not legally protected under the ESA, the California ESA or the California Fish and Game Code, but that currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the State or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not State) threatened or endangered and meets the state definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for state threatened or endangered status.

Projects that result in substantial impacts to SSC may be considered significant under CEQA.

2.2.4.3 U.S. Fish and Wildlife Service Bird of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2021) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS's highest conservation priorities. Projects that result in substantial impacts to BCC may be considered significant under CEQA.

2.2.4.4 Watch List Species

CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

Depending on the policy of the lead agency, projects that result in substantial impacts to species on the CDFW Watch List may be considered significant under CEQA.

2.2.4.5 California Rare Plant Ranks

CNPS maintains the *Rare Plant Inventory* (CNPS 2025a), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academic, non-governmental organizations, and private sector botanists, and is jointly managed by CDFW and CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- *Rare Plant Rank 1A* – presumed extirpated in California and either rare or extinct elsewhere
- *Rare Plant Rank 1B* – rare, threatened, or endangered in California and elsewhere
- *Rare Plant Rank 2A* – presumed extirpated in California, but more common elsewhere
- *Rare Plant Rank 2B* – rare, threatened, or endangered in California but more common elsewhere
- *Rare Plant Rank 3* – a review list of plants about which more information is needed
- *Rare Plant Rank 4* – a watch list of plants of limited distribution

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 0.1 through 0.3, with 0.1 being the most threatened and 0.3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- *Threat Rank 0.1* – Seriously threatened in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat)
- *Threat Rank 0.2* – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- *Threat Rank 0.3* – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known)

Factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2025a). Substantial impacts to plants ranked 1A, 1B, 2A, or 2B are typically considered significant under CEQA Guidelines Section 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 3 or 4.

2.2.4.6 Sensitive Natural Communities

Sensitive natural communities are vegetation communities that are imperiled or vulnerable to environmental effects of projects. CDFW maintains the California Natural Community List (CDFW 2025a), which provides a list of vegetation alliances, associations, and special stands as defined in the Manual of California Vegetation (MCV; CNPS 2025b), along with their respective state and global rarity ranks, if applicable. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Substantial impacts to sensitive natural communities may be considered significant under CEQA.

2.2.4.7 Wildlife Movement Corridors and Nursery Sites

Impacts to wildlife movement corridors or nursery sites may be considered significant under CEQA. As part of the California Essential Habitat Connectivity Project, CDFW and California Department of Transportation maintain data on Essential Habitat Connectivity areas. This data is available in the CNDDB. The goal of this project is to map large intact habitat or natural landscapes and potential linkages that could provide corridors for wildlife. In urban settings, riparian vegetated stream corridors can also serve as wildlife movement corridors. Nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries, bat maternity roosts, and mule deer critical fawning areas. These data are available through CDFW's Biogeographic Information and Observation System database or as occurrence records in the CNDDB and are supplemented with the results of the field reconnaissance.

2.2.5 Calaveras County General Plan

The Conservation and Open Space Element of the Calaveras County General Plan describes Calaveras County's goals and policies with respect to conservation, development, and use of natural resources and the preservation and utilization of lands and waters devoted to or managed for open space uses (Calaveras County 2019). Relevant goals include the protection of a diversity of native plants, fish, and wildlife species and their habitats. Supporting policies include avoidance of impacts to special-status

species and their habitats to the extent practicable, and mitigation of impacts to wildlife habitat, wetlands, riparian habitat and aquatic resources in accordance with agency protocols and policies.

3.0 METHODS

3.1 Literature Review

ECORP biologists reviewed existing available information for the Study Area. Literature sources included current and historical aerial imagery, topographic mapping, soil survey mapping available from the Natural Resources Conservation Service (NRCS) *Web Soil Survey*, USFWS Critical Habitat Mapper, NMFS Essential Fish Habitat Mapper, and other relevant literature as cited throughout this document. ECORP reviewed the following resources to identify special-status plant and wildlife species that have been documented in or near the Study Area:

- CDFW's CNDDB data for the *Valley Springs, California* 7.5-minute quadrangle and the surrounding eight quadrangles (CDFW 2025b)
- CNPS Rare Plant Inventory data for the *Valley Springs, California* 7.5-minute quadrangle and the surrounding eight quadrangles (CNPS 2025a)
- USFWS Information for Planning and Consultation Resource Report List for the Study Area (USFWS 2025)
- NMFS Resources data for the *Valley Springs, California* 7.5-minute quadrangle (National Oceanic and Atmospheric Administration [NOAA] 2022)

Note that unprocessed CNDDB data were not included in the results, as these data have not been quality controlled by CDFW. The results of the database queries are provided in Appendix A. Each special-status species identified in the literature review is evaluated for its potential to occur within the Study Area in Section 4 based on available information concerning species habitat requirements and distribution, occurrence data, and the findings of the site reconnaissance.

3.2 Site Reconnaissance

ECORP biologists Daniel Wong and Annie Lightell conducted the site reconnaissance visit on December 16, 2025. The biologists visually assessed the Study Area while walking meandering transects through all portions of the site, paying special attention to identifying those portions of the Study Area with the potential to support special-status species or sensitive habitats, and using binoculars to scan inaccessible areas. The biologists collected the following biological resource information:

- Characteristics and approximate boundaries of vegetation communities and other land cover types
- Plant and animal species or their sign directly observed
- Characteristics and approximate extents of potential aquatic resources observed

- Incidental observations of special habitat features, such as burrows, active raptor nests, and potential bat roost sites

The biologists qualitatively assessed and mapped vegetation communities based on dominant plant composition. Vegetation community classification was based on the classification systems presented in the MCV. Data were recorded on a GPS unit, field notebooks, and/or maps. Photographs were taken during the survey to provide visual representation of the conditions within the Study Area.

3.3 Focused Surveys

3.3.1 Aquatic Resources Delineation

ECORP biologist Daniel Wong performed an ARD on December 16, 2025 in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). Non-wetland waters were identified in the field according to *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), where applicable.

4.0 RESULTS

4.1 Site Characteristics and Land Use

The Study Area is located on gently rolling terrain in a rural area. The Study Area is situated at an elevational range of approximately 695 to 772 feet above mean sea level in the Northern Sierra Foothills District of the California floristic province (Jepson Flora Project [eds.] 2025). The average winter low temperature is 48.7 degrees Fahrenheit (°F), and the average summer high temperature is 76.8°F; the average annual precipitation is approximately 22.86 inches at the Camp Pardee station, which is approximately 5 miles from the Study Area (NOAA 2025).

The Study Area comprises the La Contenta WWTF and associated effluent storage ponds. The Study Area is surrounded primarily by a mix of foothill oak woodland, pastureland, and rural development. New Hogan Lake is located to the east. Gravel roads crossing through Study Area are frequently maintained by the Pacific Gas and Electric Company or the Calaveras County Water District. Vegetation communities and land cover types are described further in Section 4.3.

Representative photographs of the Study Area are provided in Appendix B.

4.2 Soils and Geology

ECORP staff obtained soil survey mapping for the Study Area from the NRCS *Web Soil Survey* (Figure 3; NRCS 2025a). Table 1 provides an overview of the soil map units within the Study Area, including the presence of hydric soils, parent materials, or other key features that may influence the potential for sensitive biological resources to occur onsite.

Map Features

- Study Area - 26.36 acres

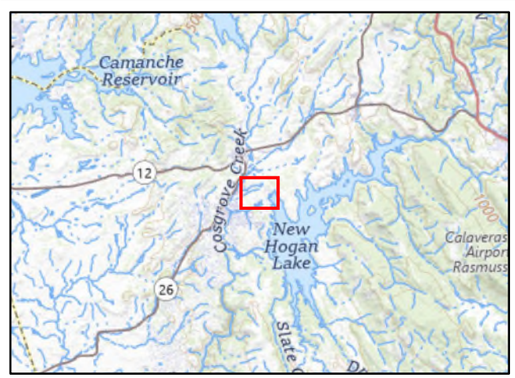
NRCS Soils

Series Number - Series Name

- 5101 - Hornitos-Red Bluff-Ultic Haploxeralfs, shallow, complex, 3 to 25 percent slopes
- 7076 - Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes
- 7085 - Bonanza-Loafercreek complex, 3 to 15 percent slopes
- 8034 - Copperopolis-Whiterock complex, 3 to 15 percent slopes, rocky
- 8036 - Copperopolis-Whiterock complex, 15 to 30 percent slopes, rocky
- W - Water

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Calaveras County, CA

Sources: Esri Imagery, Vantor (2024), NRCS



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Soils_and_Geology\La Contenta Soils.aprx - La Contenta Soils 20251201 (kedwards - 12/1/2025)

Map Date: 12/1/2025

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Scale in Feet
0 500

Figure 3. Natural Resources Conservation Service Soil Units

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Table 1. Soil Map Units within the Study Area			
Map Unit Symbol	**Map Unit Name**	**Parent Material or Key Features**	**Hydric Soils Present**
5105	Firebrick-Mokelumne complex, 2 to 30 percent slopes	Slope alluvium derived from sandstone over residuum weathered from sandstone	Yes
7076	Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes	Colluvium over residuum derived from metavolcanics	No
7085	Bonanza-Loafercreek complex, 3 to 15 percent slopes	Residuum weathered from metavolcanics	No
8034	Copperopolis-Whiterock complex, 3 to 15 percent slopes	Residuum weathered from slate	No
8036	Copperopolis-Whiterock complex, 15 to 30 percent slopes	Residuum weathered from slate	No
W	Water	Not Applicable	Not Applicable

Source: Natural Resources Conservation Service 2025a, 2025b

No soil units derived from serpentinite or gabbroic parent materials are known to occur within the Study Area or its immediate vicinity (Horton 2017; Jennings et al. 1977).

The Ione Formation is a unique geologic formation known to support special-status plant species that only grow on Ione Formation-associated soils. The closest mapping of the Ione Formation is approximately 1 mile north of the Study Area (Wagner et al. 1981). However, data sources have a margin of error and soils resembling Ione Formation soils were observed within the Study Area during the site reconnaissance. Thus, presence of Ione Formation soils within the Study Area was not ruled out.

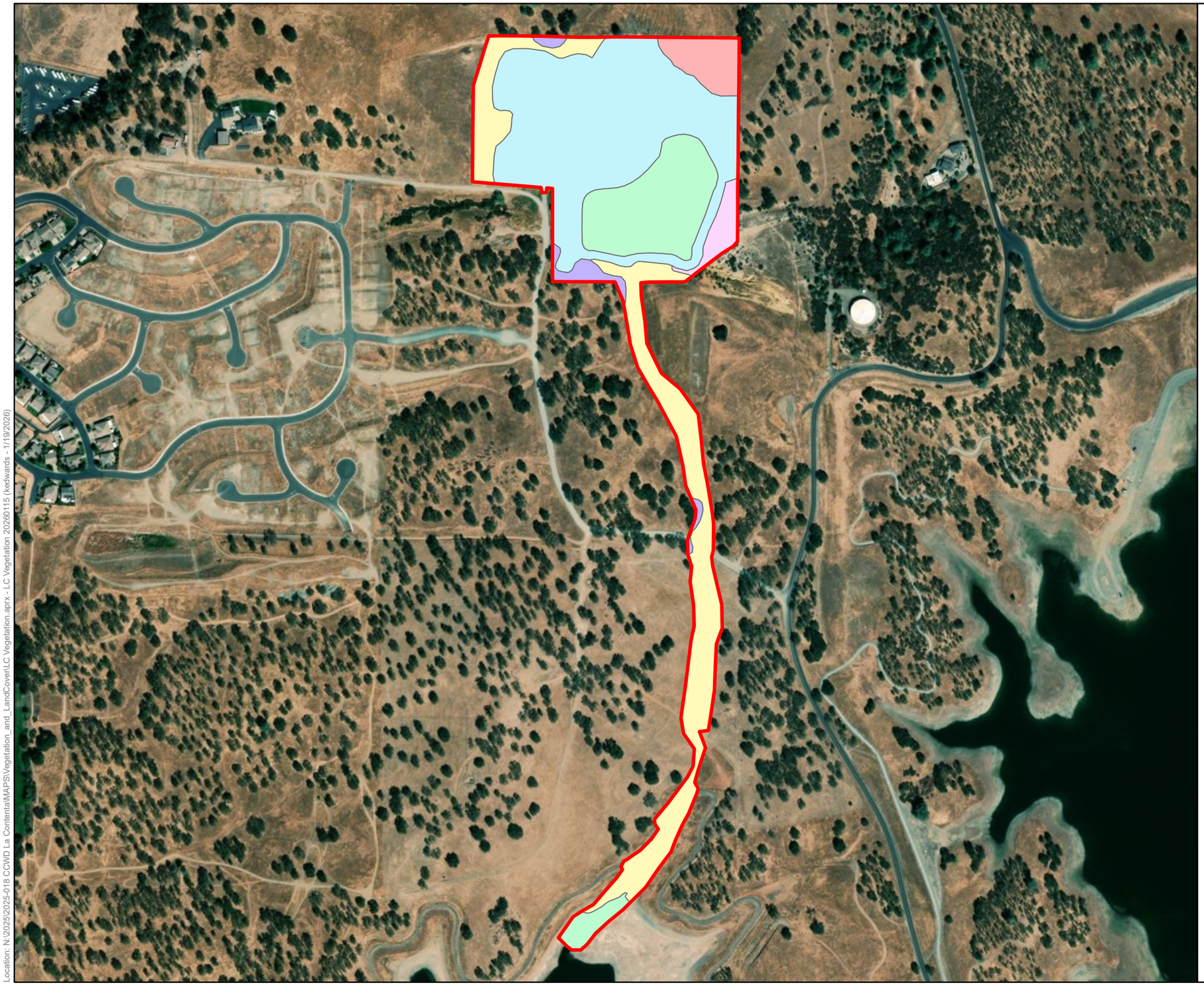
4.3 Vegetation Communities and Land Cover Types

The following sections describe vegetation communities and land cover types within the Study Area as observed during the site reconnaissance. A list of plants incidentally observed within the Study Area during the site reconnaissance can be found in Appendix C. The approximate extent of vegetation communities and land cover types are depicted in Figure 4.

4.3.1 Annual Grassland

The annual grassland community is found in the northwestern and southern portions of the Study Area. The annual grassland within the Study Area is dominated by nonnative annual grasses including Italian ryegrass (*Festuca perennis*), medusahead grass (*Elymus caput-medusae*), and soft brome (*Bromus hordeaceus*).

The annual grassland within the Study Area can be characterized as the *Lolium perenne* Herbaceous Semi-Natural Alliance (CNPS 2025b). Semi-natural alliances are strongly dominated by nonnative plants that have become naturalized in the State, do not have state rarity rankings, and are not considered sensitive natural communities.



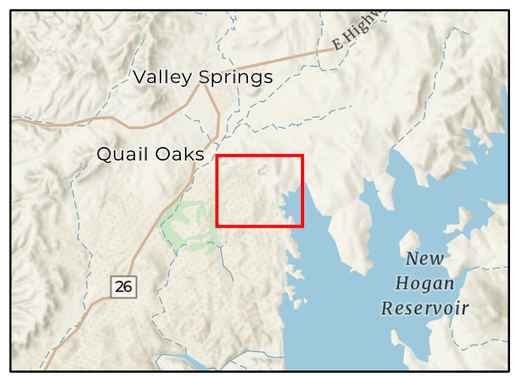
Map Contents

Study Area - 26.36 acres

Vegetation Type

- Annual Grassland - 7.56 ac.
- Blue Oak Woodland - 0.65 ac.
- Disturbed/Developed - 11.68 ac.
- Gray Pine Woodland - 1.23 ac.
- Lacustrine - 4.56 ac.
- Manzanita Chaparral - 0.69 ac.

Sources: Esri Imagery, Vantor (2022)



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Vegetation_and_LandCover\LC Vegetation.aprx - LC Vegetation 20260115 (kedwards - 1/19/2026)

Map Date: 1/19/2026

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Scale in Feet
0 400

Figure 4. Vegetation Communities and Land Cover Types

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4.3.2 Blue Oak Woodland

The blue oak woodland community is found scattered along the boundaries of the Study Area. This community has an overstory of blue oak (*Quercus douglasii*) with a sparse shrub layer dominated by manzanita (*Arctostaphylos* sp.) and buck brush (*Ceanothus cuneatus* var. *cuneatus*). The herbaceous understory resembles the annual grassland found onsite.

The blue oak woodland community can be characterized as the *Quercus douglasii* Forest and Woodland Alliance as classified by the MCV. This alliance has a state rarity ranking of S4 and is not considered a sensitive natural community (CNPS 2025b). The blue oak woodland within the Study Area does not resemble any known sensitive associations (CDFW 2025a) and is not considered a sensitive natural community.

4.3.3 Gray Pine Woodland

The gray pine woodland community is found in the northeast corner of the Study Area. Gray pine (*Pinus sabiniana*) is dominant in the canopy. The woody understory is sparsely populated with a mix of buck brush, manzanita, and chamise (*Adenostoma fasciculatum*). The herbaceous understory is composed of annual grasses similar to the annual grassland found onsite.

The gray pine woodland community can be characterized as the *Pinus sabiniana* Woodland Alliance as classified by the MCV. This alliance has a state rarity ranking of S4 and is not considered a sensitive natural community (CNPS 2025b). The gray pine woodland within the Study Area does not resemble any known sensitive associations (CDFW 2025a) and is not considered a sensitive natural community.

4.3.4 Lacustrine

The lacustrine land cover type is associated with the two effluent storage ponds described in Section 4.4.4. These areas are largely devoid of vegetation with scattered rough cockle-bur (*Xanthium orientale*), Bermuda grass (*Cynodon dactylon*), and non-native annual grasses.

4.3.5 Manzanita Chaparral

Manzanita chaparral is found in the western portion of the Study Area and is dominated by manzanita with chamise and buck brush. Trees, including blue oak and gray pine, are sparsely scattered throughout this community.

The dominant manzanita could not be accurately identified to species due to the timing of the survey. It is believed to be *Arctostaphylos manzanita,* which would correlate with the *Arctostaphylos* (*canescens, manzanita, stanfordiana*) Shrubland Alliance as classified by the MCV. This alliance has a state rarity ranking of S3 and is considered a sensitive natural community (CNPS 2025b).

4.3.6 Developed/Disturbed

The disturbed or developed land cover type is found in the northern portion within the Study Area and is composed of the La Contenta WWTF, maintenance buildings, and roads. These areas are either devoid of

vegetation or dominated by nonnative ruderal herbaceous species, including stinkwort (*Dittrichia graveolens*) and Bermuda grass.

4.4 Aquatic Resources

ECORP conducted an ARD for the Study Area (ECORP 2026). A total of 4.806 acres of aquatic resources were mapped within the Study Area. The aquatic features identified include seasonal wetlands, drainage ditches, ditches, and the La Contenta WWTF effluent storage ponds (Figure 5). These features are further described in the following sections.

4.4.1 Seasonal Wetland

Seasonal wetlands are ephemerally or intermittently wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short, and seasonal wetlands are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. ECORP mapped several seasonal wetlands within the northern and southern portions of the Study Area.

Seasonal wetlands mapped within the northern portion of the Study Area consist of depressional features ponded by stormwater runoff, nuisance runoff, or groundwater and appear to have been created incidentally by erosion or La Contenta WWTF operations.

The seasonal wetlands in the southern portion of the Study Area consist of shallow depressions within the annual grassland or along road shoulders. Plant species present in these features include common spikerush (*Eloecharis palustris*), hyssop loosestrife (*Lythrum hyssopifolia*), and tall flatsedge *(Cyperus eragrostis*).

4.4.2 Drainage Ditch

The drainages ditches mapped within the Study Area are constructed or excavated linear features, which rapidly drain stormwater or managed water from existing La Contenta WWTF infrastructure. The drainage ditches within the Study Area are riprap lined and appear to be ephemeral based on its position of the sloping topography. These ditches are primarily unvegetated within the channel, however scattered plant species observed within the channel consist of Mediterranean barley (*Hordeum marinum*) and Italian ryegrass.

4.4.3 Ditch

Other existing ditches within the La Contenta WWTF displayed more hydric conditions and a longer hydroperiod based on vegetation and soil indicators observed at the OHWM. These ditches appear to share similar ground or surface water influences as the adjacent seasonal wetlands and primarily function to drain water out of the northern portion of the Study Area. Dominant plants species observed above the OHWM include stinkwort (*Dittrichia graveolens*), and dominant species below the OHWM include tall flatsedge and prostrate knotweed (*Polygonum aviculare*).

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

- Upland
- Waters
- OHWM Transect

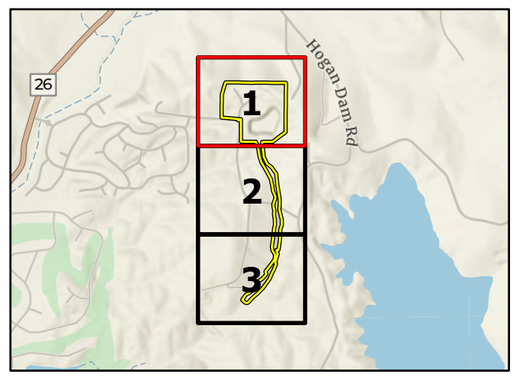
Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- Wastewater Treament Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

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Scale in Feet
0 150
1 inch = 150 ft.

Figure 5. Aquatic Resources Delineation (Sheet 1)

2025-018 CCWD La Contenta WWTF Phase 3 Project

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

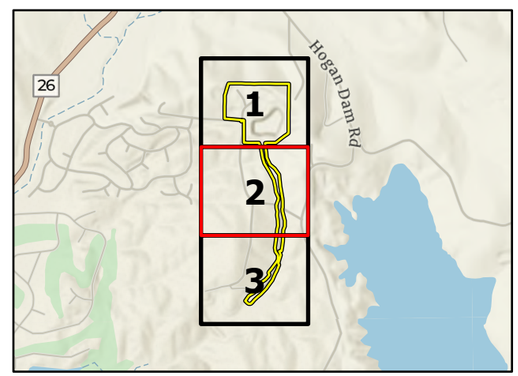
- Upland
- Waters
- OHWM Transect

Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- Wastewater Treament Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

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Scale in Feet
0 150
1 inch = 150 ft.

Figure 5. Aquatic Resources Delineation (Sheet 2)

2025-018 CCWD La Contenta WWTF Phase 3 Project

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

- Upland
- Waters
- OHWM Transect

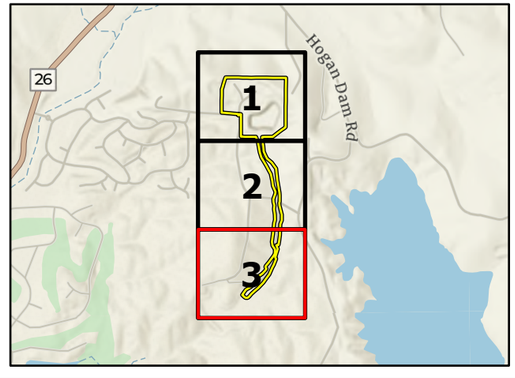
Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- Wastewater Treament Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

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Scale in Feet
0 150
1 inch = 150 ft.

Figure 5. Aquatic Resources Delineation (Sheet 3)

2025-018 CCWD La Contenta WWTF Phase 3 Project

4.4.4 La Contenta Wastewater Treatment Facility Effluent Storage Ponds

The La Contenta WWTF effluent storage ponds are basins constructed to temporarily store La Contenta WWTF effluent prior to discharge or recirculation for additional treatment in the La Contenta WWTF. The ponds within the Study Area are sparsely vegetated, constructed basins created by excavation within the landscape. The ponds are influenced by surrounding wastewater infrastructure and are permanently or seasonally inundated. ECORP identified two effluent storage ponds within the Study Area. The upper effluent storage pond mapped within the northern portion of the Study Area is a constructed, plastic and rip-rap lined detention basin for the La Contenta WWTF that utilizes several pumps or gates to control flow in and out of the pond. The lower effluent storage pond (WTP-01) is a constructed, earthen basin located in the southern portion of the Study Area. WTP-01 receives controlled releases from the upper effluent storage pond (WTP-02) located within the La Contenta WWTF. These features are dominated by rough cocklebur (*Xanthium orientale*) and Italian ryegrass.

4.5 Wildlife

The Study Area provides habitat for a variety of wildlife species. Wildlife species observed onsite include red-eared slider (*Trachemys scripta elegans*), green heron (*Butorides virescens*), red-winged blackbird (*Agelaius phoeniceus*), and red-tailed hawk (*Buteo jamaicensis*). Special-status species observed onsite include oak titmouse (*Baeolophus inornatus)* and Nuttall's woodpeckers (*Dryobates nuttallii)*. A large platform stick nest was observed just south of the Study Area boundary, indicating raptor nesting activity is likely to occur onsite. Other species typically associated with the habitat types found within the Study Area include osprey (*Pandion haliaetus*), barn swallow (*Hirundo rustica*), and California quail (*Callipepla californica*). No ground squirrels or other burrows were observed during the site reconnaissance. A full list of wildlife species observed within the Study Area is provided in Appendix D.

4.6 Special-Status Species

Table 2 presents the full list of special-status plant and animal species identified through the literature review. For each species, it provides the listing status, a brief description of habitat requirements and/or species ecology, a determination of the potential to occur within the Study Area, and the rationale for that determination. ECORP assessed the potential for each species to occur onsite using the following criteria:

- *Present* – species was observed during the site visit or is known to occur within the Study Area based on recent documented occurrences within the CNDDB or other literature.
- *Moderate to High Potential* – suitable habitat (including soils and elevation requirements) occurs within the Study Area, and the species is known to occur in the vicinity of the Study Area based on available data sources.
- *Low Potential* – marginal or limited amounts of habitat occur within the Study Area, or the species is not known to occur in the vicinity of the Study Area based on available data sources.
- *Presumed Absent* – no suitable habitat (including soils and elevation requirements) occurs within the Study Area, or the Study Area is outside of the current known geographical range for the species.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Plants*					
Henderson's bent grass *(Agrostis hendersonii)*	–	–	3.2	Vernal pools and mesic areas in valley and foothill grasslands. Elevation: 230–1,000 feet Bloom Period: April–June	Low Potential. The seasonal wetlands within the Study Area provide marginally suitable habitat.
Ione manzanita *(Arctostaphylos myrtifolia)*	FT	–	1B.2	Chaparral and sometimes cismontane woodlands (CDFW 2025b) associated with very acidic, nutrient–poor, coarse soils typical of the Ione Formation. Elevation: 195–1,905 feet Bloom Period: November–March	Low Potential. The soils within the chaparral habitat have characteristics consistent with Ione Formations soils and the Study Area is within 3 miles of known Ione vegetation (CDFW 2025c).
Big-scale balsamroot *(Balsamorhiza macrolepis)*	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland, sometimes on serpentine soils. Elevation: 150–5,100 feet Bloom Period: March–June	Low Potential. The only known occurrence in the vicinity is presumed extant but is over 13 miles away and was last seen in 1895 (CDFW 2025b). The annual grassland, chaparral, and woodlands within the Study Area provide suitable habitat.
Valley brodiaea (*Brodiaea rosea* ssp. *vallicola*)	–	–	4.2	Occurs in valley and foothill grassland on old alluvial terraces and silt, sandy, or gravelly soils, often in association with vernal pools and swales. Elevation: 35–1,100 feet Bloom Period: April–May	Low Potential. The annual grassland provides suitable habitat, but the Study Area is at the extreme southern area of the distribution of the species.
Hoover's calycadenia *(Calycadenia hooveri)*	–	–	1B.3	Rocky soils in cismontane woodland and valley and foothill grassland. Elevation: 215–985 feet Bloom Period: July–September	Moderate to High Potential. The annual grassland and woodlands within the Study Area provide suitable habitat.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Spicate calycadenia *(Calycadenia spicata)*	–	–	1B.3	Adobe, clay, disturbed areas, dry, gravelly, openings, roadsides, and rocky sites within cismontane woodland and valley and foothill grassland. Elevation: 130–4,595 feet Bloom Period: May–September	Moderate to High Potential. The annual grassland and woodlands within the Study Area provide suitable habitat.
Red Hills soaproot *(Chlorogalum grandiflorum)*	–	–	1B.2	Cismontane woodland, chaparral, and lower montane coniferous forest. Occurs sometimes on serpentine or gabbroic soils, but also on non-ultramafic substrates; often on historically disturbed sites (CDFW 2025b). Elevation: 805–5,545 feet Bloom Period: May–June	Moderate to High Potential. The chaparral and woodlands within the Study Area provide suitable habitat.
Streambank spring beauty *(Claytonia parviflora* ssp. *grandiflora)*	–	–	4.2	Occurs in rocky cismontane woodland. Elevation: 820–3,935 feet Bloom Period: February–May	Moderate to High Potential. The woodlands within the Study Area provide suitable habitat.
Bisbee Peak rush-rose *(Crocanthemum suffrutescens)*	–	–	3.2	Often gabbroic or Ione soil or in burned or disturbed areas within chaparral. Elevation: 245–2,200 feet Bloom Period: April–August	Low Potential. The soil within chaparral habitat has characteristics consistent with Ione Formations soils and the Study Area is within 3 miles of known Ione vegetation (CDFW 2025c).
Mariposa cryptantha *(Cryptantha mariposae)*	–	–	1B.3	Rocky serpentine areas in chaparral. Elevation: 655–2,135 feet Bloom Period: April–June	Presumed Absent. There are no serpentine soils within the Study Area.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Ione buckwheat *(Eriogonum apricum* var. *apricum)*	FE	CE	1B.1	Openings in chaparral communities found on Ione soils. Elevation: 195–475 feet Bloom Period: July–October	Low Potential. The soil within chaparral habitat has characteristics consistent with Ione Formations soils and the Study Area is within 3 miles of known Ione vegetation (CDFW 2025c).
Tansy-flowered woolly sunflower *(Eriophyllum confertiflorum* var. *tanacetiflorum)*	–	–	4.3	Cismontane woodland and lower coniferous forest. Elevation: 1,000–4,395 feet Bloom Period: May–July	Moderate to High Potential. The woodlands within the Study Area provide suitable habitat.
Tuolumne button-celery *(Eryngium pinnatisectum)*	–	–	1B.2	Vernal pools and other mesic conditions in cismontane woodland and lower montane coniferous forests. Elevation: 230–3,000 feet Bloom Period: May–August	Moderate to High Potential. The seasonal wetlands within the Study Area provide suitable habitat.
Delta button-celery *(Eryngium racemosum)*	–	CE	1B.1	Vernally mesic clay depressions in riparian scrub communities. Elevation: 10–100 feet Bloom Period: June–October	Presumed Absent. There is no suitable habitat within the Study Area, and the Study Area is significantly outside the known elevational range of this species.
Small-flowered monkeyflower (*Erythranthe inconspicua*)	–	–	4.3	Mesic areas in chaparral, cismontane woodland, and lower montane coniferous forest. Elevation: 900–2,495 feet Bloom Period: May–June	Moderate to High Potential. The seasonal wetlands within the Study Area provide suitable habitat.
Stanislaus monkeyflower (*Erythranthe marmorata)*	–	–	1B.1	Seeps and streambanks (Fraga 2018) in cismontane woodland and lower montane coniferous forest. Elevation: 330–2,955 feet Bloom Period: March–May	Presumed Absent. There is no suitable habitat within the Study Area.
Parry's horkelia *(Horkelia parryi)*	–	–	1B.2	Ione and other soil formations in chaparral and cismontane woodlands. Elevation: 260–3,510 feet Bloom Period: April–September	Moderate to High Potential. The chaparral and woodlands within the Study Area provide suitable habitat.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Foothill jepsonia *(Jepsonia heterandra)*	–	–	4.3	Rocky, metamorphic soils in cismontane woodland and lower montane coniferous forest. Elevation: 165–1,640 feet Bloom Period: August–December	Moderate to High Potential. The woodlands within the Study Area provide suitable habitat.
Ahart's dwarf rush *(Juncus leiospermus* var. *ahartii)*	–	–	1B.2	Mesic areas in valley and foothill grassland. Species has an affinity for slight disturbance such as farmed fields (USFWS 2005). Elevation: 100–750 feet Bloom Period: March–May	Low Potential. The annual grassland and seasonal wetlands within the Study Area provide marginally suitable habitat.
Legenere *(Legenere limosa)*	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005). Elevation: 5–2,885 feet Bloom Period: April–June	Low Potential. The seasonal wetlands and ponds within the Study Area provide marginally suitable habitat.
Congdon's lomatium *(Lomatium congdonii)*	–	–	1B.2	Serpentine soils within chaparral and cismontane woodland. Elevation: 985–6,890 feet Bloom Period: March–June	Presumed Absent. There are no serpentine soils within the Study Area.
Pincushion navarretia *(Navarretia myersii* ssp. *myersii)*	–	–	1B.1	Often acidic soils in vernal pools. Elevation: 65–1,085 feet Bloom Period: April–May	Presumed Absent. Vernal pool habitat was not observed within the Study Area.
Patterson's navarretia (*Navarretia paradoxiclara*)	–	–	1B.3	Strict serpentine endemic (Safford and Miller 2020), found in drainages, vernally mesic areas, or openings within meadows and seeps. Elevation: 490–1,410 feet Bloom Period: May–June	Presumed Absent. There are no serpentine soils within the Study Area.
Bacigalupi's yampah *(Perideridia bacigalupii)*	–	–	4.2	Serpentine endemic (Safford and Miller 2020) found in lower montane coniferous forest and chaparral. Elevation: 1,475–3,395 feet Bloom Period: June–August	Presumed Absent. There are no serpentine soils within the Study Area and the Study Area is significantly outside the known elevational range of this species.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Prairie wedge grass *(Sphenopholis obtusata)*	–	–	2B.2	Mesic areas, including wet meadows, streambanks, and ponds (Daniel and Wilken 2012), in cismontane woodland and meadows and seeps. Elevation: 985–6,560 feet Bloom Period: April–July	Moderate to High Potential. The seasonal wetlands and ponds within the Study Area provide suitable habitat.
Invertebrates					
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	–	–	Vernal pools/wetlands. Survey Period: November–April	Presumed Absent. The Project is located outside of the known range for this species and does not contain vernal pool habitats.
Crotch's bumble bee *(Bombus crotchii)*	–	CC	–	Primarily nests underground, found in variety of habitats including open grasslands, shrublands, chaparral, desert margins, and semi-urban settings, from the California coast east to the Sierra Cascade and from Redding south to Mexico. Survey Period: February-October (Preferably April-August)	Moderate to High Potential. The annual grassland within the Study Area provides suitable habitat.
Monarch butterfly (*Danaus plexippus*)	FPT	–	–	Adult monarchs west of the Rocky Mountains typically overwinter in sheltered wooded groves of Monterey pine, Monterey cypress, and gum eucalyptus along coastal California, then disperse in spring throughout California, Nevada, Arizona, and parts of Oregon and Washington. Adults require milkweed and additional nectar sources during the breeding season. Larval caterpillars feed exclusively on milkweed. Survey Period: Any season	Presumed Absent. There is no suitable overwintering or breeding habitat within the Study Area.
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT	–	–	Elderberry shrubs. Survey Period: Any season	Presumed Absent. No elderberry shrubs were observed within the Study Area during the site reconnaissance.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Fish					
Hardhead (*Mylopharodon conocephalus*)	–	–	SSC	Relatively undisturbed streams at low to mid elevations in the Sacramento-San Joaquin and Russian River drainages. In the San Joaquin River, scattered populations found in tributary streams, but only rarely in the valley reaches of the San Joaquin River. Survey Period: Not Applicable	Presumed Absent. There are no streams or other suitable habitats within the Study Area.
Steelhead (CA Central Valley DPS) (*Oncorhynchus mykiss irideus*)	FT	–	SSC	Fast-flowing, well-oxygenated rivers and streams below dams in the Sacramento and San Joaquin River systems. Survey Period: Not Applicable	Presumed Absent. There are no streams or other suitable habitats within the Study Area.
Amphibians					
California tiger salamander (Central California DPS) (*Ambystoma californiense*)	FT	CT	WL	Breeds in vernal pools and seasonal wetlands in grassland or oak woodland habitats; adults are terrestrial using underground refuges such as ground squirrel or gopher burrows. Central Valley and Inner Coast Range. Survey Period: Winter-Spring.	Low Potential. The seasonal wetlands and ponds with associated vegetation provide marginally suitable habitat and there are several known occurrences of this species within the vicinity of the Study Area (CDFW 2025b).
Foothill yellow-legged frog East/Southern Sierra Clade (*Rana boylii*)	FE	CE	SSC	Partly shaded shallow streams and riffles in variety of habitats. Needs cobble-sized substrate for egg-laying and at least 15 weeks of permanent water to attain metamorphosis. Can be active all year in warmer locations; become inactive or hibernate in colder climates. Sierra Nevada from northern limits of South Fork American River watershed to Tehachapi Mountains. Survey Period: May–October.	Presumed Absent. There is no suitable breeding habitat within the Study Area.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
California red-legged frog (*Rana draytonii*)	FT	–	SSC	Lowlands and foothills of the northern and southern Coast Ranges and Sierra Nevada. Found in deep standing or flowing water with dense shrubby or emergent riparian vegetation; requires 11-20 weeks of permanent water for larval development. Adults require aestivation habitat to endure summer dry down. Survey Period: January – Sept.	Low Potential. The ponds with associated vegetation and upland habitat provide marginally suitable habitat and there are several known occurrences of this species within the vicinity of the Study Area (CDFW 2025b).
Western spadefoot (Northern DPS) (*Spea hammondii*)	FPT	–	SSC	California endemic species of vernal pools, swales, and seasonal wetlands in grassland, scrub and woodland habitats throughout the Central Valley and South Coast Ranges. Prefers open areas with sandy or gravelly soils. Survey Period: Winter-Spring.	Presumed Absent. There is no suitable habitat within the Study Area.
Reptiles					
Northwestern pond turtle (*Actinemys marmorata*)	FPT	–	SSC	Requires basking sites and upland habitats up to 0.5 kilometer from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches. Survey Period: April-September	Moderate to High Potential. The lower effluent storage pond and adjacent upland habitats within the Study Area provide suitable nesting and basking habitat. Red-eared sliders were observed within the Study Area during the site reconnaissance.
Birds					
Clark's Grebe *(Aechmophorus clarkii)*	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation. Nesting: June-August	Presumed Absent. There is no suitable nesting habitat within the Study Area. New Hogan Lake located less than a mile from the Study Area provides suitable nesting habitat.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Western Grebe *(Aechmophorus occidentalis)*	–	–	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Nests on freshwater lakes and marshes with open water bordered by emergent vegetation. Nesting: June-August	Presumed Absent. There is no suitable nesting habitat within the Study Area. New Hogan Lake located less than a mile from the Study Area provides suitable nesting habitat.
Tricolored Blackbird (*Agelaius tricolor*)	–	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields (Beedy et al. 2023). Nesting: March-August	Presumed Absent. There is no suitable nesting habitat within the Study Area.
Golden Eagle (*Aquila chrysaetos*)	–	–	CFP, WL	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter. Nesting: February-August Wintering in Central Valley: October-February	Presumed Absent. There is no suitable nesting or foraging habitat within the Study Area.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Oak Titmouse (*Baeolophus inornatus*)	–	–	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks are absent, they nest in juniper woodland, open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree). Nesting: March-July	Present. The oak woodlands along the edges of the Study Area provides suitable nesting habitat. This species was observed during the site reconnaissance.
Swainson's Hawk (*Buteo swainsoni*)	–	CT	–	Nesting occurs in trees in agricultural, riparian, oak woodland, scrub, and urban landscapes. Forages over grassland, agricultural lands, particularly during disking/harvesting, irrigated pastures. Nesting: March-August	Presumed absent. The Study Area is outside of the known elevational range for this species.
Wrentit (*Chamaea fasciata*)	–	–	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens. Nesting: March-August	Presumed Absent. There is no suitable nesting habitat within the Study Area.
Northern Harrier (*Circus hudsonius*)	–	–	BCC, SSC	Nests on the ground in open wetlands, marshy meadows, wet/lightly grazed pastures, (rarely) freshwater/brackish marshes, tundra, grasslands, prairies, croplands, desert, and shrub-steppe. Nesting: April-September	Low Potential. The annual grassland in and around the southern portion of the Study Area may provide suitable nesting habitat.
Olive-sided Flycatcher *(Contopus cooperi)*	–	–	SSC, BCC	Nests in montane and northern coniferous forests, in forest openings, forest edges, semiopen forest stands. In California, nests in coastal forests, Cascade and Sierra Nevada region. Winters in Central to South America. Nesting: May-August	Presumed Absent. There is not enough habitat within the Study Area for this species.
Nuttall's Woodpecker *(Dryobates nuttallii)*	–	–	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands. Nesting: April-July	Present. The oak woodlands along the edges of the Study Area provides suitable nesting habitat. This species was observed during the site reconnaissance.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Prairie Falcon (*Falco mexicanus*)	–	–	WL	Found in open habitat at all elevations up to 3,350 meters (Steenhof 2024). Nests on cliffs and bluffs in arid plains and steppes; In California, nesting throughout state except northwest corner, along immediate coast, and the Central Valley floor. Winters throughout California, in open habitats, such as grasslands in Central Valley. Nesting: March-July Wintering in Central Valley: September-February	Presumed Absent. There is no suitable nesting habitat within the Study Area.
Bald Eagle (*Haliaeetus leucocephalus*)	De-listed	CE	CFP	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands. Nesting: February-September	Moderate to High Potential. The tall platform south of the Study Area and other tall trees provide suitable nesting habitat. New Hogan Lake and potentially the ponds within the Study Area provide suitable foraging habitat.
Bullock's Oriole (*Icterus bullockii*)	–	–	BCC	Breeding habitat includes riparian and oak woodlands. Nesting: March-July	Moderate to High Potential. The oak woodlands within the Study Area provide suitable nesting habitat.
California Gull (nesting colony) *(Larus californicus)*	–	–	BCC, WL	Nesting occurs in the Great Basin, Great Plains, Mono Lake, and south San Francisco Bay. Breeding colonies located on islands on natural lakes, rivers, or reservoirs. Winters along Pacific Coast from southern British Columbia south to Baja California and Mexico. In California, winters along coast and inland (Central Valley, Salton Sea). Nesting: April-August	Presumed Absent. The Study Area is outside of the known range for the nesting colony.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Santa Barbara Song Sparrow (*Melospiza melodia graminea*)	–	–	BCC	Breeding habitat includes dense shrubs and thickets of giant coreopsis (*Coreopsis gigantea*), grasslands with scattered shrubs, Artemisia-Opuntia grass associations, and dense grasslands. Resident on California Channel Islands (San Clemente, San Miguel, Santa Cruz, Santa Rosa, Anacapa) and Isla Los Coronados, Baja California. Nesting: February-July	Presumed Absent. This species is endemic to the Channel Islands.
Osprey *(Pandion haliaetus)*	–	–	WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. Nest in large trees, snags, cliffs, transmission/ communication towers, artificial nest platforms, channel markers/buoys. Nesting: April-September	Moderate to High Potential. The tall platform south of the Study Area and taller trees in and near the Study Area provide suitable nesting habitat. New Hogan Lake provides suitable foraging habitat.
Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*)	–	CE	BCC	Resident coastally from Point Conception south into Baja California; coastal salt marsh. Year-round resident. Nesting: March-August	Presumed Absent. The Study Area is outside of the known range for this species.
Yellow-billed Magpie (*Pica nuttallii*)	–	–	BCC	Endemic to California; found in the Central Valley and coast range south of San Francisco Bay and north of Los Angeles County; nesting habitat includes oak savannah with large in large expanses of open ground; also found in urban parklike settings. Nesting: April-June	Low Potential. The trees within and surrounding the Study Area provide suitable nesting habitat.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		
Lawrence's Goldfinch (*Spinus lawrencei*)	–	–	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water. Nesting: March-September	Low Potential. The trees adjacent to the water sources within and adjacent to the Study Area provide suitable nesting habitat.
California Thrasher (*Toxostoma redivivum*)	–	–	BCC	Resident and endemic to coastal and Sierra Nevada-Cascade foothill areas of California. Nests are usually well hidden in dense shrubs, including scrub oak, California lilac, and chamise. Nesting: February-July	Presumed Absent. There is no suitable nesting habitat within the Study Area.
Mammals					
Townsend's big-eared bat *(Corynorhinus townsendii)*	–	–	SSC	Occurs throughout the west and is distributed from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. It has been reported in a wide variety of habitat types ranging from sea level to 3,300 meters. Habitat associations include: coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Roosting can occur within caves, mines, buildings, rock crevices, trees. Survey Period: April-September	Low Potential. The oak woodlands and annual grassland within the Study Area provide suitable habitat for this species. However, the small number of large oak trees within the Study Area reduce the available roosting habitat and the likelihood of this species roosting within the Study Area.

Table 2. Special-Status Species Evaluation					
Common Name (Scientific Name)	**Status**			**Habitat Description/ Species Ecology**	**Potential to Occur within the Study Area**
	ESA	**CESA/ NPPA**	**Other**		

Notes: CDFW = California Department of Fish and Wildlife; CESA = California Endangered Species Act; CNPS = California Native Plant Society; CRPR = California Rare Plant Rank; DPS = Distinct Population Segment; ESA = Endangered Species Act; NPPA = Native Plant Protection Act; USFWS = U.S. Fish and Wildlife Service

Status Codes:

1B	CRPR/Rare or Endangered in California and elsewhere
2B	CRPR/Plants rare, threatened, or endangered in California but more common elsewhere
3	CRPR/Plants About Which More Information is Needed – A Review List
4	CRPR/Plants of Limited Distribution – A Watch List
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
BCC	USFWS Bird of Conservation Concern[†]
CC	Candidate for CESA listing as Endangered or Threatened
CE	CESA- or NPPA-listed, Endangered
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5050-reptiles/amphibians)
CT	CESA- or NPPA-listed, Threatened
Delisted	Formally Delisted
FE	ESA-listed, Endangered
FPT	Formally Proposed for ESA listing as Threatened
FT	ESA listed, Threatened
SSC	CDFW Species of Special Concern
WL	CDFW Watch List Species

Sources: Beedy et al. 2023; CDFW 2025b, 2025c; Daniel and Wilken 2012; Fraga 2018; Safford and Miller 2020; Steenhof 2024; USFWS 2005, [†]2021
*Plant species information is from the CNPS Rare Plant Inventory (CNPS 2025a), unless otherwise cited.

4.7 Critical Habitat or Essential Fish Habitat

There is no designated critical habitat mapped within the Study Area (USFWS 2025).

Based on the literature review, anadromous fish critical habitat for California Central Valley Steelhead Critical Habitat and Essential Fish Habitat for chinook salmon may be present in the *Valley Springs, California* 7.5-minute quadrangle (NOAA 2022). However, there is no suitable habitat for special-status fish within the Study Area. Therefore, there is no anadromous fish critical habitat or Essential Fish Habitat within the Study Area.

4.8 Wildlife Movement Corridors and Nursery Sites

The Study Area does not fall within an Essential Habitat Connectivity area (CDFW 2026a) or an identified natural habitat block (CDFW 2026b). However, the Study Area does fall within a small natural area that could support ecological value (CDFW 2026c). The southern portion of the Study Area, south of the La Contenta WWTF, may provide opportunities for local wildlife movement between New Hogan Reservoir and surrounding undeveloped woodlands.

No nursery sites have been documented within the Study Area (CDFW 2025b), and none were observed within the Study Area during the site reconnaissance. However, a large platform nest was observed approximately 650 feet southwest of the Study Area.

4.9 Oak Woodlands

Blue oak woodland is present within the Study Area.

5.0 IMPACT ASSESSMENT AND RECOMMENDATIONS

This section specifically addresses questions raised by the Biological Resources section of the Environmental Checklist Form in Appendix G of the CEQA Guidelines.

This section also includes a determination of effects for federally threatened, endangered, proposed, or candidate species from the Proposed Project and summarizes possible measures to avoid, minimize, or compensate for potential impacts to biological resources. Potential Project impacts have not been finalized at this time, so these recommended measures are subject to change.

5.1 CEQA Checklist Criteria IV(a) – Special-Status Species

Would the Project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

5.1.1 Special-Status Plants

The Study Area supports potential habitat for special-status plants, as identified in Table 2. Protocol-level surveys have not been conducted for the Study Area. If special-status plants occur in or near the Project development area, Project direct impacts could include damage or loss of individual plants and Project indirect impacts could include loss of suitable habitat, disturbance from human encroachment, and changes in habitat quality due to introduction or spread of non-native invasive plants, alteration of hydrology, erosion, and transport of soil, debris or pollutants into occupied habitat from adjacent Project areas.

The following measure is recommended to avoid or minimize potential impacts to special-status plants:

- A special-status plant survey shall be conducted according to CDFW, CNPS, and USFWS protocols (CDFW 2018; CNPS 2001; USFWS 2000) prior to Project ground-disturbing or vegetation-disturbing activities. The survey shall be conducted by a qualified biologist (as defined per agency protocols) throughout all potential habitat for special-status plants within the Study Area. The survey shall be timed according to the identifiable period for special-status plant species with potential to occur (typically the blooming period). To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If no special-status plants are found and the survey is still considered recent as per CDFW and USFWS protocols (CDFW 2018; USFWS 2000) at the time of Project implementation, no further measures pertaining to special-status plants are necessary. If a special-status plant is found, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not result in significant impacts to the species, meaning Project-related activities won't eliminate, substantially reduce the number of, or restrict the range of the species, and won't conflict with any local policies or ordinances protecting special-status plant species. If impacts may occur to a federally or state listed species, USFWS and/or CDFW shall be consulted to determine appropriate avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the species or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat, or compensatory mitigation in the form of mitigation bank credits. Impacts to a state listed plant species also requires incidental take permit authorization from CDFW.

5.1.2 Special-Status Wildlife Species

5.1.2.1 Crotch's Bumble Bee

The Study Area contains potentially suitable habitat for Crotch's bumble bee. If present, individual Crotch's bumble bees could be injured or killed, particularly if a nest site is encountered or damaged by machinery or heavy equipment during Proposed Project activities.

If Crotch's bumble bee is still a candidate or is listed under the California ESA at the time of construction, the following measures are recommended to avoid potential take of the species:

- If ground-disturbing activities are scheduled to begin between February 1 and October 31, preconstruction surveys shall be conducted by a qualified biologist. Based on CDFW's *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023), it is recommended that three Crotch's bumble bee surveys be conducted at two- to four-week intervals during the colony active period (April-August) if possible. If surveys are conducted during the queen flight season (February-March) it's recommended that three surveys be conducted spaced one to two weeks apart during acceptable weather conditions with the final survey occurring within one week of construction initiation.

- If Crotch's bumble bees are detected, any remaining surveys will focus on nest location. If no nests are found but the species is observed during preconstruction surveys or appropriate floral

resources are present, work crews should be informed of the possibility of Crotch's bumble bees or their nests being present within the Study Area. If a Crotch's bumble bee is encountered during construction, work shall stop until the individual leaves of its own volition. If an active Crotch's bumble bee nest is detected, an appropriate no disturbance buffer zone (including foraging resources and flight corridors essential for supporting the colony) shall be established around the nest to reduce the risk of disturbance or accidental take, and the designated biologist shall coordinate with CDFW to determine if an Incidental Take Permit under Section 2081 of the California ESA will be required. Nest avoidance buffers may be removed at the completion of the flight season (October 31) and/or once the qualified biologist deems the nesting colony is no longer active.

5.1.2.2 California Red-Legged Frog

The ponds within the Study Area provide potentially suitable habitat for California red-legged frog. The Project would preserve these features within proposed open space areas, and they would continue to provide potential aquatic habitat for California red-legged frog. If present within the Study Area, California red-legged frog could be impacted during construction by equipment and vehicles operating onsite, construction-related noise, and human disturbance. These activities could result in direct injury or mortality of California red-legged frogs, or temporary avoidance of suitable habitat areas. The following measures are recommended to avoid or minimize potential effects to California red-legged frog. With implementation of these measures, the Project may affect but is unlikely to adversely affect California red-legged frog:

- A qualified biologist will conduct a preconstruction survey within the Study Area in areas where California red-legged frogs are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages of California red-legged frog.
- If California red-legged frog(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California red-legged frog.
- If California red-legged frogs are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.
- Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

5.1.2.3 California Tiger Salamander

The seasonal wetlands and southern pond within the Study Area provide marginally suitable habitat for California tiger salamander. If present within the Study Area, California tiger salamander could be impacted during construction by equipment and vehicles operating onsite, construction-related noise, and human disturbance. These activities could result in direct injury or mortality of California tiger salamanders, or temporary avoidance of suitable habitat areas. The following measures are recommended

to avoid or minimize potential effects to California tiger salamander. With implementation of these measures, the Project may affect but is unlikely to adversely affect California tiger salamander:

- A qualified biologist will conduct a preconstruction survey within the Study Area in areas where California tiger salamanders are most likely to be impacted by Project activities within 48 hours of the start of construction. The biologist will search for all life stages during this survey.
- If California Tiger Salamander(s) are found during the preconstruction survey, a biological monitor shall be present when activities occur within 100 feet of suitable aquatic habitat for California tiger salamander.
- If California tiger salamanders are found during the preconstruction survey or onsite monitoring, the qualified biologist shall notify USFWS and CDFW immediately to consult on appropriate actions to be taken before construction begins or is re-initiated in the vicinity of the occurrence.
- Temporary impact areas within the open space portions of the site shall be restored to pre-Project conditions after Project completion using a native grassland seed mix.

5.1.2.4 Northwestern Pond Turtle

If present within the Study Area, northwestern pond turtle could be impacted by construction activities including operation of construction equipment and vehicles, noise, and human encroachment. The following measure is recommended to avoid or minimize potential effects to northwestern pond turtles. With implementation of these measures, the Project may affect but is unlikely to adversely affect northwestern pond turtle:

- A qualified biologist will perform a preconstruction clearance survey within 48 hours of the initiation of Project activities. If northwestern pond turtles are found within the Study Area, they will be allowed to move out of the Study Area on their own volition or relocated by a qualified biologist to suitable nearby habitat in coordination with CDFW.

5.1.2.5 Nesting Birds (Including Raptors)

The Study Area contains suitable nesting and/or wintering and foraging habitat for several special-status birds and other birds protected under the California Fish and Game Code and MBTA, as well as the state-listed bald eagle. If Project-related activities occur during the nesting season, the removal of active nests or disruption of nesting activities could lead to "take" of a protected bird, or an active nest with eggs or young, which would be considered a significant impact under CEQA and a violation of California Fish and Game Code. Removal of an active bald eagle nest or disturbance leading to nest abandonment would be considered a take under the California ESA. The Project is only expected to impact a small amount of foraging habitat for special-status birds, so potential impacts to wintering and foraging habitat would not be considered significant under CEQA.

The following measure is recommended to avoid or minimize potential effects to special-status birds and other birds protected under the California ESA, California Fish and Game Code, and the MBTA (and their nests):

- A preconstruction nesting bird survey shall be conducted within 14 days prior to the commencement of Project-related activities to identify active nests that could be impacted by construction. The preconstruction nesting bird survey shall include accessible areas within 100 feet of the Project boundaries, including any temporary disturbance areas. For raptors, including bald eagle, the preconstruction nesting bird survey shall include accessible areas within 500 feet of the Study Area boundary. If active nests are found, a no-disturbance buffer shall be established around the nest. A qualified biologist, in consultation with CDFW, shall establish a buffer distance. The buffer shall be maintained until the nestlings have fledged (e.g., are capable of flight and become independent of the nest), to be determined by a qualified biologist. The avoidance buffer can be removed, and no further measures are necessary once the young have fledged or the nest is no longer occupied, as determined by a qualified biologist.

5.1.2.6 Townsend's Big-Eared Bat

Large cavities in the large oak trees within and immediately adjacent to the Study Area represent potential roosting habitat for Townsend's big-eared bat. If occupied bat roosts are present, removal of the habitat feature could result in direct mortality or injury to Townsend's big-eared bats (Western Bat Working Group 2025). Removal during the maternity roosting season could result in the loss of an established maternity roosting site and injury or mortality of pups that are not yet able to fly. Removal of a roost site during the winter season could also result in direct injury or death of individual bats, particularly during time periods of colder weather or heavy rain, when bats are more likely to be in torpor. Impacts to Townsend's big-eared bats or bat maternity roost sites are considered potentially significant under CEQA.

To avoid and minimize significant impacts to Townsend's big-eared bats or bat roosting colonies, the following mitigation measures are recommended:

- If the Project will remove structures or trim/remove trees, a qualified bat biologist will conduct a bat habitat assessment to identify suitable bat roosting habitat within or adjacent to the Project boundary. The habitat assessment shall be conducted one year prior to construction, if feasible, and no less than 30 days prior to the initiation of construction activities. If no suitable bat roosting habitat is identified, no further measures are necessary.

- If the Project will impact identified structures with bat roosting habitat and evidence of current or previous bat occupation, a qualified bat biologist shall conduct a focused bat emergence survey prior to the start of construction. The focused bat emergence survey shall adhere to industry-standard protocols and survey methods for bat emergence surveys.

- If an active bat roost is identified in a structure that will be removed, a qualified bat biologist will prepare a Bat Management Plan that includes specific avoidance and minimization measures to reduce impacts to roosting bats. The Bat Management Plan will be submitted to CDFW for approval prior to the eviction of bats from occupied habitat. The Bat Management Plan shall include timing and methodology for passive exclusion of bats and/or removal of the structure, as applicable. If a structure with confirmed maternity roosting will be permanently removed, then species-specific replacement roosting habitat may be recommended in the Bat Management Plan.

If temporary impacts to maternity roosting habitat are expected, then temporary exclusion measures, a phased approach to bat exclusion, and biological monitoring of exclusion activities may be appropriate.

- The following shall apply to removal or trimming of trees with identified bat roosting habitat:
  - To the extent feasible, removal or trimming of trees with suitable bat roosting habitat shall be scheduled to occur outside of the maternity roosting season, during seasonal periods of bat activity (September 1 to October 15, or March 1 to April 15). Tree removal may occur after October 15 if evening temperatures are above 45 °F and rain is not over 0.5 inch in 24 hours. No tree removal shall occur after April 15 unless surveys are conducted to confirm active maternity roosts are not present.
  - As much as feasible, vegetation and trees within the area that are not suitable for roosting bats will be removed first to provide a disturbance that may reduce the likelihood of bats using the habitat.
  - If removal of trees with suitable roosting habitat must occur during the maternity season (April 15 to August 31), a qualified bat biologist shall conduct a focused emergence survey of the tree within 48 hours prior to disturbance. If an active bat roost is located, whether solitary or colonial, that roost will remain undisturbed until after the maternity season or until a qualified bat biologist has determined the roost is no longer active, at which point the two-step tree removal process described below will be utilized to remove the tree.
  - The two-step tree removal process will occur over two consecutive days under the supervision of a qualified bat biologist. On Day 1, small branches and small limbs containing no cavity, crevice or exfoliating bark habitat on habitat trees (or outer fronds, in the case of palm trees), as identified by a qualified bat biologist, shall be removed first, using chainsaws only (i.e., no dozers, backhoes). The following day (Day 2), the remainder of the tree is to be felled/removed. The intention of this method is to disturb the tree on Day 1. This should cause day-roosting bats to abandon the roost tree after they emerge for nighttime foraging. Removing the tree quickly the next consecutive day should avoid reoccupation of the tree.
  - Standing dead trees or snags with habitat features should be removed over a single day by gently lowering the tree or snag to the ground. The tree or snag shall be left undisturbed onsite for the next 48 hours.

5.2 CEQA Checklist Criteria IV(b) – Sensitive Natural Communities

Would the Project:

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

One sensitive natural community may be present within the Study Area, as described in Section 4.3.5. If the manzanita chaparral present within the Study Area is determined to be a sensitive natural community,

Project direct impacts could include damage or loss of this sensitive natural community. Project indirect impacts could include disturbance from human encroachment and changes in habitat quality due to introduction or spread of non-native invasive plants, alteration of hydrology, erosion, and transport of soil, debris or pollutants into occupied habitat from adjacent Project areas.

The following measure is recommended to avoid or minimize potential impacts to manzanita chaparral:

- A survey shall be conducted during the identifiable period for manzanitas (blooming period), prior to Project ground-disturbing or vegetation-disturbing activities. The survey shall be conducted by a qualified biologist throughout all potential habitat for manzanitas, including Ione manzanita, within the Study Area. To the extent feasible, known reference populations will be visited prior to the survey to confirm target species are evident and identifiable at the time of the survey. If the manzanita chaparral onsite is determined to not be a sensitive natural community, no further measures are necessary. If the manzanita chaparral within the Study Area is determined to be a sensitive natural community, appropriate avoidance and minimization measures shall be determined by a qualified biologist to ensure the Project will not impact this sensitive natural community. If the Project cannot be modified to avoid the manzanita chaparral, the applicant shall consult with USFWS and/or CDFW regarding appropriate avoidance and minimization measures. These measures may include restoration or permanent preservation of habitat for the manzanita chaparral or translocation (via seed collection and/or transplantation) from planned impact areas to unaffected suitable habitat.

5.3 CEQA Checklist Criteria IV(c) – Aquatic Resources

Would the Project:

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The upper effluent storage pond and drainages ditches within the Study Area are artificial features constructed as part of the La Contenta WWTF and have been continuously operated and maintained for use as part of the La Contenta WWTF; these features are therefore not likely considered federal or state jurisdictional aquatic resources. The lower effluent storage pond is part of a waste treatment system designed to meet the requirements of the CWA and, as such, would not be considered Waters of the U.S. However, the lower effluent pond appears to have been created by a modification of a Waters of the State and is therefore likely considered a jurisdictional Waters of the State. The seasonal wetlands within the Study Area are considered potential jurisdictional waters of the U.S. and/or State, and as such, are regulated by Sections 404 and 401 of the CWA and/or the Porter-Cologne Water Quality Control Act. Ditch-01 appears to have relatively permanent flow and is likely a tributary to the San Joaquin River via a relatively short, piped segment to Cosgrove Creek and then Calaveras River. As such, Ditch-01 may be considered a jurisdictional waters of the U.S. and/or State, and could also be subject to regulation under Section 1602 of the California Fish and Game Code.

Jurisdictional aquatic resources within the Study Area could be directly or indirectly impacted by Project activities. Direct impacts to aquatic resources would include any grading, trenching, excavation, or placement of temporary or permanent fill within a regulated feature. Indirect impacts may include inadvertent encroachments, changes in hydrology, and runoff and erosion from the Study Area.

The following mitigation measures are recommended to address potential impacts to aquatic resources:

- The Project shall avoid aquatic resources to the extent feasible. Avoided aquatic resources will be designated as Environmentally Sensitive Areas and protected with a minimum 50-foot buffer, to the extent feasible. The Environmentally Sensitive Areas shall be clearly demarcated with orange construction fencing or other visible barrier, and no Project-related activities shall be permitted within the Environmentally Sensitive Areas.
- To minimize potential indirect effects, the applicant shall prepare and implement an Erosion and Sediment Control Plan to avoid and minimize erosion and runoff to wetlands and other waters that are to remain within or adjacent to the Study Area.
- If the Project will disturb at least 1 acre of land, the Project applicant shall obtain coverage under the General Construction Storm Water Permit from the RWQCB by preparing a Stormwater Pollution Prevention Plan and implementing best management practices to reduce water quality effects during construction.
- Authorization under the Section 404 of the federal CWA must be obtained from USACE prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. Mitigation for permanent impacts to Waters of the U.S. is typically required at a minimum 1:1 ratio; however, final mitigation requirements will be developed in consultation with USACE.
- If temporary impacts to Waters of the U.S. or State will occur, the applicant shall prepare a site restoration plan describing the methods that will be used to restore impacted aquatic features to pre-Project conditions. The restoration plan will include, at a minimum, the proposed methods for stabilizing and revegetating the site, any maintenance requirements (e.g., watering, invasive species control), the expected timeframe for restoration.
- If discharges will occur to Waters of the U.S., Section 401 Water Quality Certification must be obtained from the RWQCB before a 404 Permit can be issued. An application for a 401 Water Quality Certification will be prepared and submitted to the RWQCB in accordance with the *State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State* (State Water Resources Control Board 2021).
- If discharges to Waters of the State that are not also Waters of the U.S. will occur, the applicant shall obtain waste discharge requirements or a waiver of waste discharge requirements from the RWQCB as required pursuant to the Porter-Cologne Water Quality Control Act.

- If alteration of the bed, channel, or bank of Ditch-01 will occur, the applicant shall notify CDFW of the Proposed Project activities and obtain an LSAA, if required, prior to Project implementation.

5.4 CEQA Checklist Criteria IV(d) – Movement Corridors and Nursery Sites

Would the Project:

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

There are no known wildlife movement corridors or wildlife nursery sites present within the Study Area. Project implementation may temporarily disturb and displace wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Following construction, wildlife use of the area is expected to return to pre-Project conditions. Measures have been recommended above for protection of bird nests and bat roosting sites. Therefore, the Project is not expected to substantially interfere with wildlife movements, wildlife corridors, or nursery sites.

5.5 CEQA Checklist Criteria IV(e) – Conflicts with Local Policies or Ordinances

Would the Project:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

With implementation of measures recommended herein, the Project would be consistent with Chapter 6 of the Calaveras County General Plan policies pertaining to biological resources and would not conflict with any local policies or ordinances protecting biological resources.

5.6 CEQA Checklist Criteria IV(f) – Conflicts with Conservation Plans

Would the Project:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not subject to any local, regional, or state conservation plans; therefore, the Project would not have the potential to conflict with any such plans.

5.7 National Environmental Policy Act Assessment of Effects

5.7.1 Ione Manzanita

If Ione manzanita is not found within the Project Area during the special-status plant survey, the Project would have No Effect on Ione manzanita. There are no Critical Habitats within the Study Area; thus, there will be No Effect to Ione manzanita Critical Habitat.

In the unlikely chance that Ione manzanita is found during the special-status plant survey and the Project implements avoidance measures to ensure that no take occurs, a determination of May Affect, but Not Likely to Adversely Affect may apply to Ione manzanita. If take is unavoidable, a determination of May affect, Likely to Adversely Affect would likely apply but would be assessed during formal consultation. A determination other than No Effect would require concurrence by USFWS.

5.7.2 Ione Buckwheat

If Ione buckwheat is not found within the Project Area during the special-status plant survey, the Project would have No Effect on Ione buckwheat. There are no Critical Habitats within the Study Area; thus, there will be No Effect to Ione buckwheat Critical Habitat.

In the unlikely chance that Ione buckwheat is found during the special-status plant survey and the Project implements avoidance measures to ensure that no take occurs, a determination of May Affect, but Not Likely to Adversely Affect may apply to Ione buckwheat. If take is unavoidable, a determination of May affect, Likely to Adversely Affect would likely apply but would be assessed during formal consultation. A determination other than No Effect would require concurrence by USFWS.

5.7.3 California Tiger Salamander

If all avoidance measures for California tiger salamander are incorporated into the Project, it is determined that the Project May Affect but is Unlikely to Adversely Affect California tiger salamander. This determination may require concurrence by USFWS. There are no Critical Habitats within the Study Area; thus, there will be No Effect to California tiger salamander Critical Habitat.

5.7.4 California Red-Legged Frog

If all avoidance measures for California red-legged frog are incorporated into the Project, it is determined that the Project May Affect but is Unlikely to Adversely Affect California red-legged frog. This determination may require concurrence by USFWS. There are no Critical Habitats within the Study Area; thus, there will be No Effect to California red-legged frog Critical Habitat.

5.7.5 Northwestern Pond Turtle

Northwestern pond turtle is currently proposed for listing under the ESA. If it is listed as threatened or endangered prior to Project implementation, and all avoidance measures for northwestern pond turtle are incorporated into the Project, it is determined that the Project May Affect but is Unlikely to Adversely Affect northwestern pond turtle. This determination may require concurrence by USFWS. There are no Critical Habitats within the Study Area; thus, there will be No Effect to northwestern pond turtle Critical Habitat.

6.0 REFERENCES

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, W. S. Schackwitz, and P. Pyle. 2023. Tricolored Blackbird (*Agelaius tricolor*), Version 2.0. In *Birds of the World* (P. G. Rodewald and B. K. Keeney, Editors). Cornell Lab of Ornithology, Ithaca, New York. https://doi.org/10.2173/bow.tribla.02. Accessed February 12, 2025.

Calaveras County. 2019. *General Plan Adopted November 12, 2019*. https://planning.calaverasgov.us/General-Plan. Accessed January 6, 2026.

California Department of Fish and Wildlife (CDFW). 2026a. *Essential Connectivity Areas - California Essential Habitat Connectivity (CEHC) [ds620]*. DS0620_20140109. Publication date: March 1, 2010. Biogeographic Information and Observation System. https://wildlife.ca.gov/data/BIOS. Accessed January 6, 2026.

_____. 2026b. *Natural Landscape Blocks - California Essential Habitat Connectivity (CEHC) [ds621]*. Publication date: September 13, 2017. Biogeographic Information and Observation System. https://wildlife.ca.gov/data/BIOS. Accessed January 6, 2026.

_____. 2026c. *Natural Areas Small - California Essential Habitat Connectivity (CEHC) [ds1073]*. Publication date: March 1, 2010. Biogeographic Information and Observation System. https://wildlife.ca.gov/data/BIOS. Accessed January 6, 2026.

_____. 2025a. *Natural Communities*. https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities. Accessed December 16, 2025.

_____. 2025b. RareFind 5. Online Version, commercial version dated: April 1, 2023. *California Natural Diversity Database* (CNDDB). The Resources Agency, Sacramento. https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed November 17, 2025.

_____. 2025c. *Ione Manzanita - 2004 [ds1123]*, created 04.01.2015. CDFW. Biogeographic Information and Observation System. https://wildlife.ca.gov/data/BIOS. Accessed December 23, 2025.

_____. 2023. *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species*. June 6. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213150&inline. Accessed October 28, 2025.

_____. 2018. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities*. Sacramento.

California Native Plant Society (CNPS). 2025a. *Rare Plant Inventory*. Online Edition, Version 9-01 0.0. Sacramento. http://www.rareplants.cnps.org/. Accessed November 17, 2025.

_____. 2025b. *A Manual of California Vegetation*, Online Edition (MCV). Sacramento. https://vegetation.cnps.org/. Accessed November 17, 2025.

_____. 2001. *CNPS Botanical Survey Guidelines*. https://www.cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf. Accessed October 24, 2025.

Daniel, T. F. and D. H. Wilken. 2012. *Sphenopholis obtusata*. In *Jepson eFlora*, Jepson Flora Project (eds.). https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=45170. Accessed December 23, 2025.

ECORP Consulting, Inc. (ECORP). 2026. *Aquatic Resources Delineation for the La Contenta Wastewater Treatment Facility Phase 3 Improvement Project.* Prepared for Calaveras County Water District. In Preparation.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1 (On-line edition). U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. p. 143. January. https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Corps%20of%20Engineers%20Wetlands%20Delineation%20Manual%20(1987).pdf.

Fraga, N. S. 2018. *Erythranthe marmorata*. In *Jepson eFlora*, Revision 6, Jepson Flora Project (eds.). https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=99150. Accessed December 23, 2025.

Horton, J. D. 2017. *The State Geologic Map Compilation Geodatabase of the Conterminous United States*. Version 1.1, August: U.S. Geological Survey data release DOI: 10.5066/F7WH2N65, U.S. Geological Survey, Denver, Colorado. Revised August 8, 2018. https://doi.org/10.5066/F7WH2N65. Accessed December 23, 2025.

Jennings, C. W., R. G. Strand, and T. H. Rogers. 1977. *Geologic map of California: California Division of Mines and Geology, scale 1:750,000*. https://ngmdb.usgs.gov/Prodesc/proddesc_16320.htm. Accessed December 23, 2025.

Jepson Flora Project (eds.). 2025. *Jepson eFlora*. https://ucjeps.berkeley.edu/eflora/. Accessed December 22, 2025.

National Oceanic and Atmospheric Administration (NOAA). 2025. *NCDC 1991-2020 Climate Normals for the Camp Pardee, CA US Station*. https://www.ncei.noaa.gov/access/us-climate-normals/. Accessed December 22, 2025.

_____. 2022. *Intersection of USGS 7.5" Topographic Quadrangles with NOAA Fisheries ESA Listed Species, Critical Habitat, Essential Fish Habitat, and MMPA Species Data within California*. National Marine Fisheries Service, West Coast Regions, California. December 2022. Accessed November 17, 2025.

Natural Resources Conservation Service (NRCS). 2025a. *Web Soil Survey*. http://websoilsurvey.nrcs.usda.gov/. Accessed November 17, 2025.

_____. 2025b. *Soil Data Access Hydric Soils List*. https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil/hydric-soils. Accessed November 17, 2025.

Safford, H. D., and J. D. Miller. 2020. An updated database of serpentine endemism in the California flora. In *Madroño* 67: 85-104.

State Water Resources Control Board. 2021. *State Wetland Definition and Procedures for the Discharge of Dredged or Fill Material to Waters of the State*. April.

Steenhof, K. 2024. Prairie Falcon (*Falco mexicanus*), Version 2.0. In *Birds of the World* (B. K. Keeney, Editor). Cornell Lab of Ornithology, Ithaca, New York. https://doi.org/10.2173/bow.prafal.02. Accessed February 12, 2025.

U.S. Army Corps of Engineers (USACE). 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.*

_____. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. ERDC/CRREL TR-08-12. Cold Regions Research and Engineering Laboratory and U.S. Army Engineer Research and Development Center, Hanover, New Hampshire.

U.S. Fish and Wildlife Service (USFWS). 2025. *Information for Planning and Consultation*. USFWS Resource Report List. https://ipac.ecosphere.fws.gov/. Accessed December 30, 2025.

_____. 2021. *Birds of Conservation Concern 2021*. USFWS, Division of Migratory Bird Management, Arlington, Virginia. https://www.fws.gov/migratorybirds/pdf/management/birds-of-conservation-concern-2021.pdf.

_____. 2005. *Recovery plan for vernal pool ecosystems of California and Southern Oregon*. Portland, Oregon. December 15. http://ecos.fws.gov/docs/recovery_plan/060614.pdf. Accessed November 5, 2025.

_____. 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. January.

U.S. Geological Survey (USGS). 2025. *Watershed Boundary Dataset*. Data refreshed October 2025. https://hydro.nationalmap.gov/arcgis/rest/services/wbd/MapServer. Accessed November 11, 2025.

_____. 1962. *Valley Springs, California 7.5-Minute Quadrangle*. United States Department of the Interior, Geological Survey, Denver.

Wagner, D. L., Jennings, C. W., Bedrossian, T. L., and Bortugno, E. J. 1981. *Geologic map of the Sacramento quadrangle, California, 1:250,000, California Division of Mines and Geology, Regional Geologic Map RGM-1A, 1:250,000*. National Geologic Map Database MapView Beta 2.0.0: https://ngmdb.usgs.gov/mapview/?center=-121.045,38.583&zoom=13. Accessed December 23, 2025.

Western Bat Working Group. 2025. *Western Bat Species Accounts*. https://wbwg.org/species-accounts/. Accessed November 5, 2025.

LIST OF APPENDICES

Appendix A – Results of Database Queries

Appendix B – Representative Photographs

Appendix C – Plant Species Observed (December 16, 2025)

Appendix D – Wildlife Species Observed (December 16, 2025)

APPENDIX A

Results of Database Queries

Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Valley Springs (3812027) OR Ione (3812038) OR Jackson (3812037) OR Mokelumne Hill (3812036) OR San Andreas (3812026) OR Salt Spring Valley (3812016) OR Jenny Lind (3812017) OR Valley Springs SW (3812018) OR Wallace (3812028))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAA01181	***Ambystoma californiense pop. 1*** California tiger salamander - central California DPS	Threatened	Threatened	G3T3	S3	WL
AAABF02020	***Spea hammondii*** western spadefoot	Proposed Threatened	None	G2G3	S3S4	SSC
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01055	***Rana boylii pop. 5*** foothill yellow-legged frog - south Sierra DPS	Endangered	Endangered	G3T2	S2	
ABNKC10010	***Haliaeetus leucocephalus*** bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC19070	***Buteo swainsoni*** Swainson's hawk	None	Threatened	G5	S4	
ABNKD06090	***Falco mexicanus*** prairie falcon	None	None	G5	S4	WL
ABPBXB0020	***Agelaius tricolor*** tricolored blackbird	None	Threatened	G1G2	S2	SSC
AFCHA0209K	***Oncorhynchus mykiss irideus pop. 11*** steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	SSC
AFCJB25010	***Mylopharodon conocephalus*** hardhead	None	None	G3	S3	SSC
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G4	S2	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
ARAAD02031	***Actinemys marmorata*** northwestern pond turtle	Proposed Threatened	None	G2	SNR	SSC
CTT37D00CA	***Ione Chaparral*** Ione Chaparral	None	None	G1	S1.1	
ICBRA03030	***Branchinecta lynchi*** vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
IICOL48011	***Desmocerus californicus dimorphus*** valley elderberry longhorn beetle	Threatened	None	G3T3	S3	
IICOL55040	***Hydroporus leechi*** Leech's skyline diving beetle	None	None	G3	S2S3	
IIHYM24260	***Bombus pensylvanicus*** American bumble bee	None	None	G3G4	S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IIHYM24480	***Bombus crotchii*** Crotch's bumble bee	None	Candidate Endangered	G2	S2	
IIHYM35030	***Andrena blennospermatis*** Blennosperma vernal pool andrenid bee	None	None	G2	S1	
ILARA14080	***Banksula rudolphi*** Rudolph's cave harvestman	None	None	G1	S1	
IMGASC7071	***Monadenia mormonum buttoni*** Button's Sierra sideband	None	None	G2T1T2	S1S2	
PDAPI0Z0P0	***Eryngium pinnatisectum*** Tuolumne button-celery	None	None	G2	S2	1B.2
PDAPI0Z0S0	***Eryngium racemosum*** Delta button-celery	None	Endangered	G1	S1	1B.1
PDAPI1B0B0	***Lomatium congdonii*** Congdon's lomatium	None	None	G2	S2	1B.2
PDAST11061	***Balsamorhiza macrolepis*** big-scale balsamroot	None	None	G2	S2	1B.2
PDAST1P040	***Calycadenia hooveri*** Hoover's calycadenia	None	None	G2	S2	1B.3
PDAST1P090	***Calycadenia spicata*** spicate calycadenia	None	None	G3?	S3	1B.3
PDBOR0A1Q0	***Cryptantha mariposae*** Mariposa cryptantha	None	None	G2G3	S2S3	1B.3
PDCAM0C010	***Legenere limosa*** legenere	None	None	G2	S2	1B.1
PDCIS020F0	***Crocanthemum suffrutescens*** Bisbee Peak rush-rose	None	None	G2?Q	S2?	3.2
PDERI04240	***Arctostaphylos myrtifolia*** Ione manzanita	Threatened	None	G1	S1	1B.2
PDPGN080F1	***Eriogonum apricum var. apricum*** Ione buckwheat	Endangered	Endangered	G2T1	S1	1B.1
PDPHR01130	***Erythranthe marmorata*** Stanislaus monkeyflower	None	None	G2?	S2?	1B.1
PDPLM0C0X1	***Navarretia myersii ssp. myersii*** pincushion navarretia	None	None	G2T2	S2	1B.1
PDPLM0C150	***Navarretia paradoxiclara*** Patterson's navarretia	None	None	G2	S2	1B.3
PDROS0W0C0	***Horkelia parryi*** Parry's horkelia	None	None	G2	S2	1B.2
PMJUN011L1	***Juncus leiospermus var. ahartii*** Ahart's dwarf rush	None	None	G2T1	S1	1B.2
PMLIL0G020	***Chlorogalum grandiflorum*** Red Hills soaproot	None	None	G3	S3	4.2

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PMPOA040K0	***Agrostis hendersonii*** Henderson's bent grass	None	None	G2Q	S2	3.2
PMPOA5T030	***Sphenopholis obtusata*** prairie wedge grass	None	None	G5	S2	2B.2

Record Count: 42

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

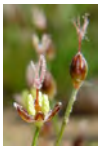
Search Results

25 matches found. Click on scientific name for details

Search Criteria: , Quad is one of [3812027:3812038:3812037:3812036:3812026:3812016:3812017:3812018:3812028]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2		1974-01-01	©2005 Steve Matson
Arctostaphylos myrtifolia	Ione manzanita	Ericaceae	perennial evergreen shrub	Nov-Mar	FT	None	G1	S1	1B.2	Yes	1974-01-01	© 2006 Steve Matson
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	©1998 Dean Wm. Taylor
Brodiaea rosea ssp. *vallicola*	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	None	None	G4G5T3	S3	4.2	Yes	2019-01-07	© 2011 Steven Perry
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	None	None	G2	S2	1B.3	Yes	1980-01-01	No Photo Available
Calycadenia spicata	spicate calycadenia	Asteraceae	annual herb	May-Sep	None	None	G3?	S3	1B.3		2023-04-05	© 2023 Christopher Bronny

Chlorogalum grandiflorum	Red Hills soaproot	Agavaceae	perennial bulbiferous herb	(Apr)May-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	© 2004 George W. Hartwell
Claytonia parviflora ssp. *grandiflora*	streambank spring beauty	Montiaceae	annual herb	Feb-May	None	None	G5T3	S3	4.2	Yes	2006-09-29	No Photo Available
Crocanthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae	perennial evergreen shrub	Apr-Aug	None	None	G2?Q	S2?	3.2	Yes	1974-01-01	No Photo Available
Cryptantha mariposae	Mariposa cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G2G3	S2S3	1B.3	Yes	1974-01-01	No Photo Available
Eriogonum apricum var. *apricum*	Ione buckwheat	Polygonaceae	perennial herb	Jul-Oct	FE	CE	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriophyllum confertiflorum var. *tanacetiflorum*	tansy-flowered woolly sunflower	Asteraceae	perennial shrub	May-Jul	None	None	G5T2?Q	S2?	4.3	Yes	2001-01-01	No Photo Available
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual/perennial herb	May-Aug	None	None	G2	S2	1B.2	Yes	1974-01-01	© 2007 Robert E. Preston, Ph.D.
Eryngium racemosum	Delta button-celery	Apiaceae	annual/perennial herb	(May)Jun-Oct	None	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	© 2017 Debra L. Cook
Erythranthe marmorata	Stanislaus monkeyflower	Phrymaceae	annual herb	Mar-May	None	None	G2?	S2?	1B.1	Yes	1974-01-01	No Photo Available
Horkelia parryi	Parry's horkelia	Rosaceae	perennial herb	Apr-Sep	None	None	G2	S2	1B.2	Yes	1974-01-01	© 2009 Barry Breckling

Jepsonia heterandra	foothill jepsonia	Saxifragaceae	perennial herb	Aug-Dec	None	None	G3	S3	4.3	Yes	1994-01-01	© 2014 Belinda Lo
Juncus leiospermus var. *ahartii*	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	© 2025 Adam Searcy
Lomatium congdonii	Congdon's lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Navarretia myersii ssp. *myersii*	pincushion navarretia	Polemoniaceae	annual herb	Apr-May	None	None	G2T2	S2	1B.1	Yes	1994-01-01	© 2020 Leigh Johnson
Navarretia paradoxiclara	Patterson's navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	None	None	G2	S2	1B.3	Yes	2016-04-27	No Photo Available
Perideridia bacigalupii	Bacigalupi's yampah	Apiaceae	perennial herb	Jun-Aug	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	None	None	G5	S2	2B.2		1974-01-01	No Photo Available

Showing 1 to 25 of 25 entries

Go to top

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2025. Rare Plant Inventory (online edition, v9.5.1). Website https://www.rareplants.cnps.org [accessed 14 November 2025].
}

IPaC U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Calaveras County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Reptiles

NAME	STATUS
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog Rana boylii There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5133	Endangered

NOT FOR CONSULTATION

Western Spadefoot Spea hammondii	Proposed Threatened

No critical habitat has been designated for this species.

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Proposed Threatened

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/9743

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Ione Manzanita Arctostaphylos myrtifolia Wherever found	Threatened

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1806

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts

NOT FOR CONSULTATION

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

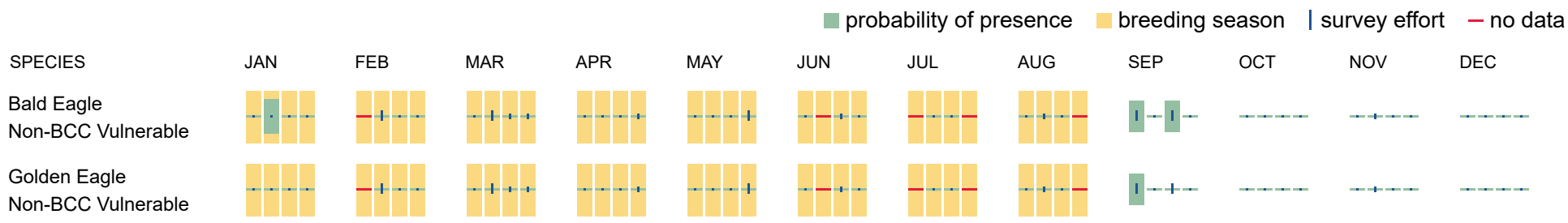
NOT FOR CONSULTATION

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow Passerculus sandwichensis beldingi This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole Icterus bullockii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31

NOT FOR CONSULTATION

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

NOT FOR CONSULTATION

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

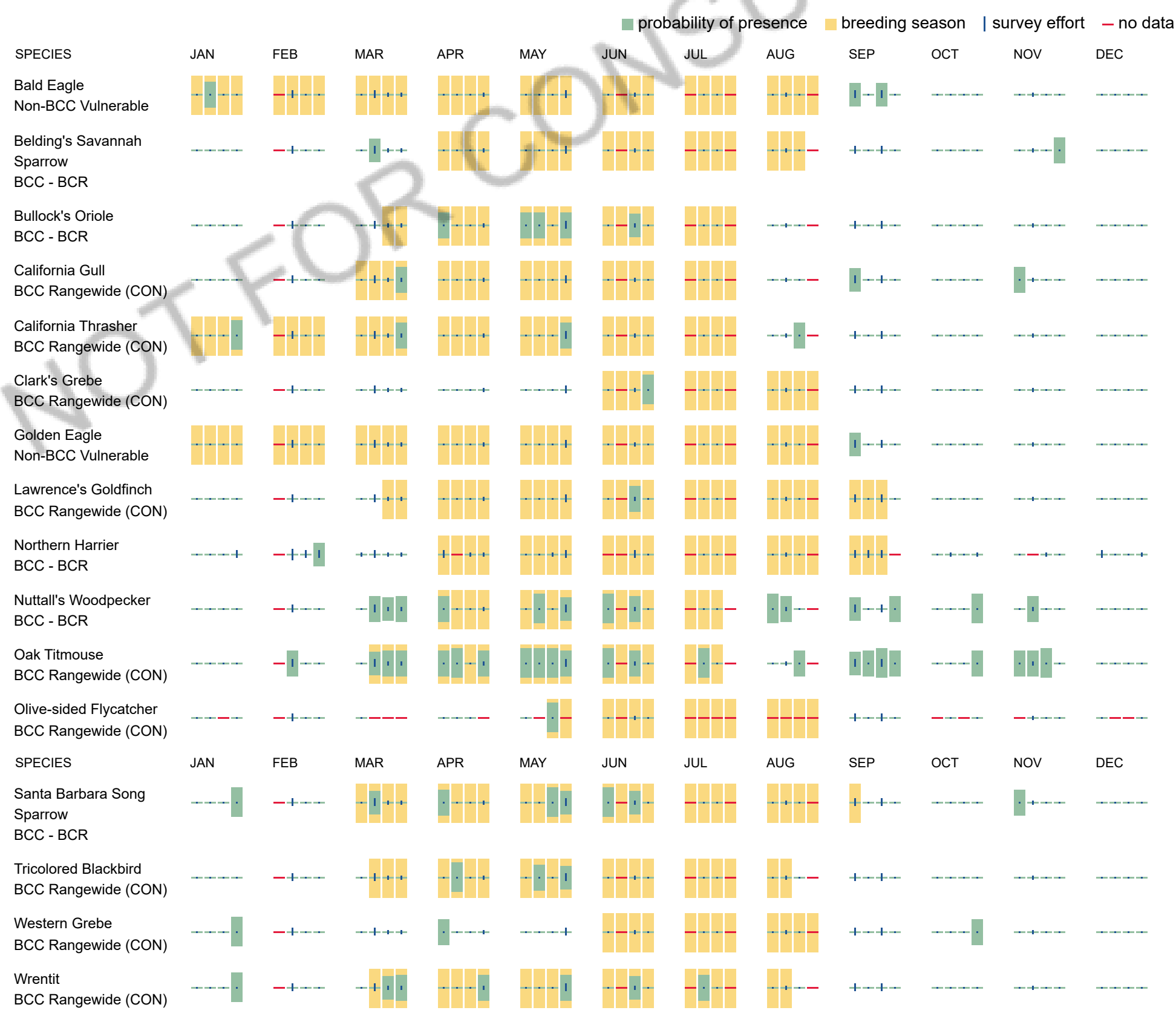
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

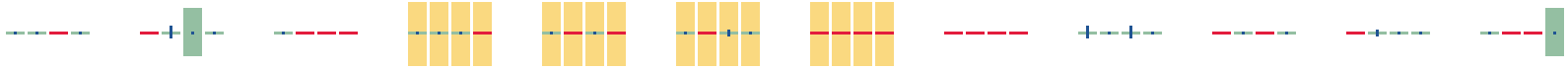
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



NOT FOR CONSULTATION

Yellow-billed Magpie
BCC Rangewide (CON)



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

NOT FOR CONSULTATION

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

NOT FOR CONSULTATION

FRESHWATER POND
PUBFh

RIVERINE
R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Quad Name **Valley Springs**

Quad Number **38120-B7**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH -

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -

MMPA Pinnipeds -

APPENDIX B

Representative Photographs

Photo Point 1. Representative Photo of the Southernmost Portion of the Study Area (view northeast; December 16, 2025).

Photo Point 2. View from the Southeastern Portion of the Study Area within Annual Grassland (view north; December 16, 2025).

Photo Point 3. Representative Photo of Disturbance within the Study Area (view west; December 16, 2025).

Photo Point 4. Representative Photo of the annual grassland within the Study Area (view north, December 16, 2025).

Photo Point 5. Representative Photo of the Study Area (view southwest; December 16, 2025).

Photo Point 6. Representative Photo of the Study Area (view northeast; December 16, 2025).

Photo Point 7. Representative Photo of the Annual Grassland within the Study Area (view south; December 16, 2025).

Photo Point 8. Representative Photo of the Annual Grassland within the Study Area (view southeast; December 16, 2025).

Photo Point 9. Representative Photo of the Study Area (view southwest; December 16, 2025).

Photo Point 10. Representative Photo of the Study Area (view northeast; December 16, 2025).

Photo Point 11. Representative Photo of the Annual Grassland within the Study Area (view south; December 16, 2025).

Photo Point 12. Representative Photo of the Annual Grassland within the Study Area (view southeast; December 16, 2025).

APPENDIX C

Plant Species Observed (December 16, 2025)

Scientific Name	Common Name
APIACEAE	**CARROT FAMILY**
Sanicula crassicaulis	Pacific sanicle
*Torilis arvensis**	Field hedge parsley
ASTERACEAE	**SUNFLOWER FAMILY**
Baccharis pilularis	Coyote brush
Baccharis salicifolia	Mulefat
*Carduus pycnocephalus**	Italian thistle
*Centaurea melitensis**	Tocalote
*Centaurea solstitialis**	Yellow star-thistle
*Dittrichia graveolens**	Stinkwort
Heliotropium curassavicum	Seaside heliotrope
Holocarpha virgata ssp. *virgata*	Narrow tarplant
*Hypochaeris glabra**	Smooth cat's-ear
*Lactuca serriola**	Prickly lettuce
Pseudognaphalium sp.	Cudweed
*Silybum marianum**	Milk thistle
Sonchus sp.*	Sowthistle
Xanthium orientale	Rough cockle-bur
BRASSICACEAE	**MUSTARD FAMILY**
*Hirschfeldia incana**	Shortpod mustard
Nasturtium officinale	Water cress
CARYOPHYLLACEAE	**PINK FAMILY**
*Stellaria media**	Common chickweed
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
*Chenopodium album**	White goosefoot
CRASSULACEAE	**STONECROP FAMILY**
Crassula connata	Sand pygmy-weed
CYPERACEAE	**SEDGE FAMILY**
Cyperus eragrostis	Tall flatsedge
Eleocharis palustris	Common spikerush
Schoenoplectus acutus var. *occidentalis*	Hard-stem bulrush

Scientific Name	Common Name
ERICACEAE	**HEATH FAMILY**
Arctostaphylos sp.	Manzanita
EUPHORBIACEAE	**SPURGE FAMILY**
Croton setiger	Turkey mullein
FABACEAE	**LEGUME FAMILY**
Trifolium sp.	Clover
*Vicia sativa**	Spring vetch
*Vicia villosa**	Hairy vetch
FAGACEAE	**OAK FAMILY**
Quercus douglasii	Blue oak
GENTIANACEAE	**GENTIAN FAMILY**
Zeltnera muehlenbergii	Muehlenberg's centaury
GERANIACEAE	**GERANIUM FAMILY**
*Erodium botrys**	Broadleaf filaree
*Erodium moschatum**	White-stemmed filaree
*Geranium molle**	Dovefoot geranium
HYPERICACEAE	**ST. JOHN'S WORT FAMILY**
*Hypericum perforatum**	Klamath weed
JUNCACEAE	**RUSH FAMILY**
Juncus balticus ssp. *ater*	Baltic rush
LYTHRACEAE	**LOOSESTRIFE FAMILY**
*Lythrum hyssopifolia**	Hyssop loosestrife
MONTIACEAE	**MINER'S LETTUCE FAMILY**
Claytonia sp.	Springbeauty
MYRSINACEAE	**MYRSINE FAMILY**
*Lysimachia arvensis**	Scarlet pimpernel
ONAGRACEAE	**EVENING PRIMROSE FAMILY**
Epilobium ciliatum	Hairy willow-herb
PINACEAE	**PINE FAMILY**
Pinus sabiniana	Gray pine

Scientific Name	Common Name
PLANTAGINACEAE	**PLANTAIN FAMILY**
*Kickxia elatine**	Sharp-leaved fluellin
*Plantago lanceolata**	English plantain
POACEAE	**GRASS FAMILY**
Andropogon virginicus var. *virginicus**	Broomsedge bluestem
*Bromus diandrus**	Ripgut brome
*Bromus hordeaceus**	Soft brome
*Cynodon dactylon**	Bermuda grass
*Elymus caput-medusae**	Medusahead grass
*Festuca perennis**	Italian ryegrass
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley
*Paspalum dilatatum**	Dallis grass
*Polypogon monspeliensis**	Rabbitsfoot grass
*Triticum aestivum**	Cultivated wheat
POLEMONIACEAE	**PHLOX FAMILY**
Navarretia sp.	Navarretia
POLYGONACEAE	**BUCKWHEAT FAMILY**
*Polygonum aviculare**	Prostrate knotweed
*Rumex crispus**	Curly dock
RHAMNACEAE	**BUCKTHORN FAMILY**
Ceanothus cuneatus var. *cuneatus*	Buck brush
ROSACEAE	**ROSE FAMILY**
Adenostoma fasciculatum	Chamise
Heteromeles arbutifolia	Toyon
SALICACEAE	**WILLOW FAMILY**
Salix laevigata	Red willow
TAXODIACEAE	**BALD CYPRESS FAMILY**
Sequoia sempervirens	Coast redwood
TYPHACEAE	**CATTAIL FAMILY**
Typha latifolia	Broad-leaf cattail

Scientific Name	Common Name
VERBENACEAE	**VERVAIN FAMILY**
Verbena bracteata	Bracted verbena

Notes: * = not native to California

APPENDIX D

Wildlife Species Observed (December 16, 2025)

Scientific Name	Common Name
Reptiles	
Trachemys scripta elegans	Red-Eared Slider
Birds	
Agelaius phoeniceus	Red-Winged Blackbird
Anas acuta	Northern Pintail
Anas platyrhynchos	Mallard
Anthus rubescens	American Pipit
Aphelocoma californica	California Scrub-Jay
Ardea alba	Great Egret
Baeolophus inornatus	Oak Titmouse
Branta canadensis	Canada Goose
Bucephala albeola	Bufflehead
Bucephala clangula	Common Goldeneye
Buteo jamaicensis	Red-tailed Hawk
Butorides virescens	Green Heron
Calidris minutilla	Least Sandpiper
Calypte anna	Anna's Hummingbird
Cathartes aura	Turkey Vulture
Charadrius vociferus	Killdeer
Colaptes auratus	Northern Flicker
Corthylio calendula	Ruby-Crowned Kinglet
Corvus corax	Common Raven
Cygnus olor	Mute Swan*
Dryobates nuttallii	Nuttall's Woodpecker
Egretta thula	Snowy Egret
Euphagus cyanocephalus	Brewer's Blackbird
Falco sparverius	American Kestrel
Haemorhous mexicanus	House Finch
Junco hyemalis	Dark-Eyed Junco
Mareca americana	American Wigeon
Melanerpes formicivorus	Acorn Woodpecker
Melanerpes lewis	Lewis's Woodpecker
Melospiza lincolnii	Lincoln's Sparrow

Scientific Name	Common Name
Nannopterum auritum	Double-Crested Cormorant
Passerculus sandwichensis	Savannah Sparrow
Phainopepla nitens	Phainopepla

Notes: * = not native to California

APPENDIX E

La Contenta WWTF Project Aquatic Resources Delineation,
ECORP Consulting, Inc. February 2026

DRAFT

Aquatic Resources Delineation
for the
Calaveras County Water District La Contenta Wastewater Treatment Facility Phase 3 Project

Calaveras County, California

Prepared For:

Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

Prepared By:

2525 Warren Drive
Rocklin, CA 95677

DRAFT

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Appendix G – Delineation Shape File (to be included with USACE submittal only)

LIST OF ACRONYMS AND ABBREVIATIONS

Term	Definition
°F	degrees Fahrenheit
Agencies	U.S. Environmental Protection Agency and Department of the Army
APT	Antecedent Precipitation Tool
CCWD	Calaveras County Water District
CFR	Code of Federal Regulations
CWA	Clean Water Act
ECORP	ECORP Consulting, Inc.
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FR	Federal Register
N/L	plants that are not listed
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OHWM	Ordinary High Water mark
ORM	Operations and Maintenance Business Information Link Regulatory Module
Procedures	State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State
Study Area	Approximately 26.36-Acre Study Area for the CCWD La Contenta WWTF Phase 3 Project
UPL	upland
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOTUS	Waters of the U.S.
WWTF	Wastewater Treatment Facility

1.0 INTRODUCTION

On behalf of Calaveras County Water District (CCWD), ECORP Consulting, Inc. (ECORP) conducted an aquatic resources delineation for the approximately 26.36-acre Study Area (Study Area) for the CCWD La Contenta Wastewater Treatment Facility (WWTF) Phase 3 Project located in Calaveras County, California. The Study Area is located within a portion of Sections 24-25, Township 04 North, Range 10 East and Section 19, Township 04 North, Range 11 East, Mount Diablo Base and Meridian, as depicted on the U.S. Geological Survey (USGS) *Valley Springs, California* 7.5-minute topographic quadrangle (Figure 1; USGS 1962). The Study Area is located along an easement at East Eberhard Drive and Harper Lane, and La Contenta WWTF northwest of Campbell Court. The approximate center of the Study Area is located at 38.17737936° latitude and -121.81756736° longitude within the Upper Calaveras California Watershed (Hydrologic Unit Code No. 18040011; USGS 2025). Appendix A provides driving directions to the Study Area.

This report describes aquatic resources identified within the Study Area that may be regulated on a state of federal level. The information presented in this report provides data required by the *Recommended Minimum Standards for Aquatic Resource Delineation Reports* (U.S. Army Corps of Engineers [USACE] 2025a). The aquatic resource boundaries depicted in this report represent a calculated estimation of potentially jurisdictional areas within the Study Area and are subject to modification following an agency review and/or verification process.

The purpose of this report is to provide adequate information to USACE for the issuance of Preliminary Jurisdictional Determination or Aquatic Resources Verification.

2.0 REGULATORY SETTING

This report describes aquatic resources, including wetlands, that may be regulated by USACE under Section 404 of the federal Clean Water Act (CWA), the Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA or the Porter Cologne Water Quality Act. The following sections define these regulations.

2.1 Waters of the U.S.

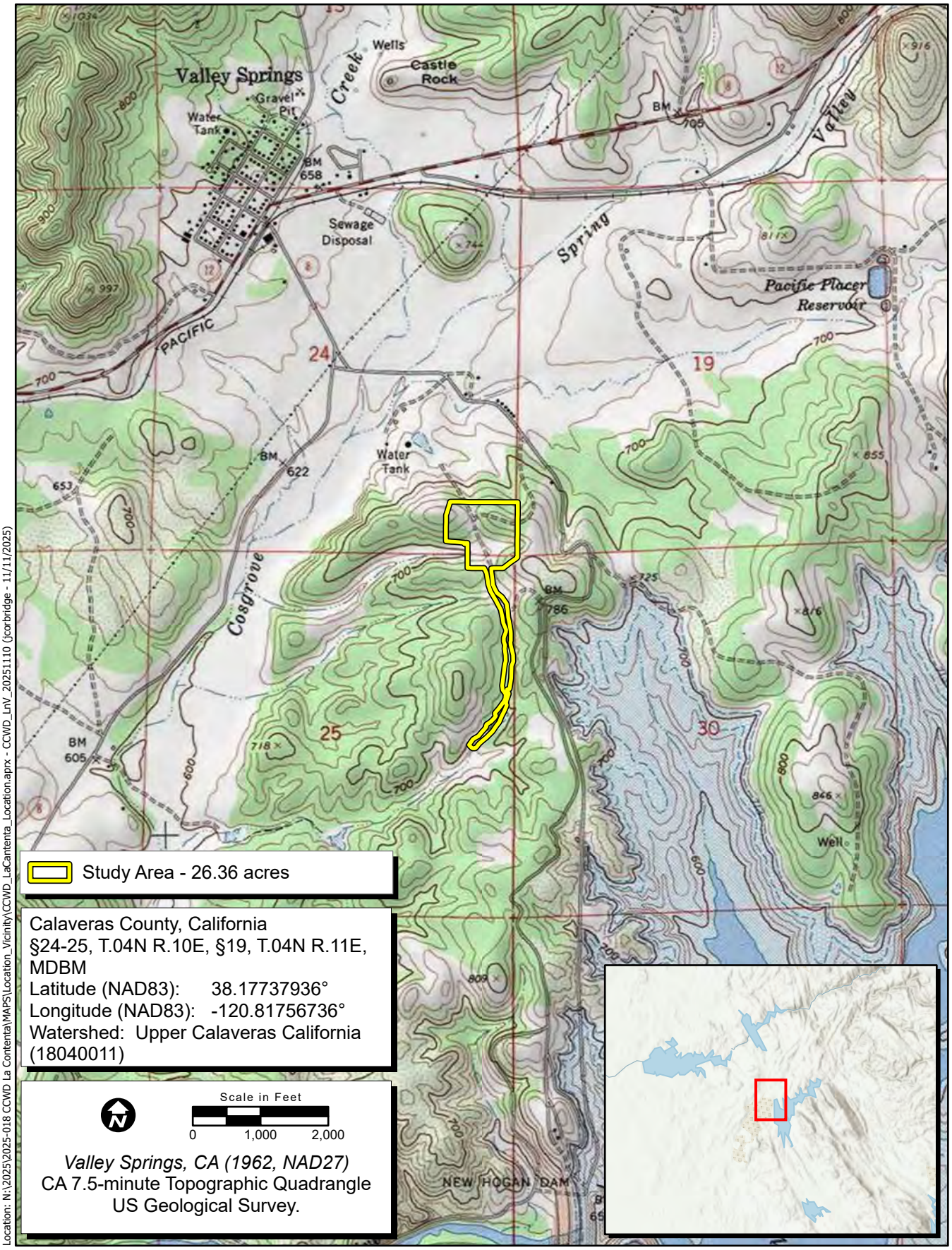
The following sections describe aquatic resources, including wetlands, that may be regulated by USACE under Section 404 of the CWA.

2.1.1 Wetlands

Wetlands are:

> … those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] 328.3[c][1]).

Wetlands can be perennial or intermittent.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Location_Vicinity\CCWD_LaCantenta_Location.aprx - CCWD_LnV_20251110 (jcorbridge - 11/11/2025)

Map Date: 11/11/2025
Sources: ESRI, USGS

Figure 1. Study Area Location and Vicinity

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

2.1.2 Other Waters of the U.S.

Other waters is a term generally used to refer to Waters of the U.S. (WOTUS) other than wetlands, including nontidal, perennial, and intermittent watercourses and tributaries to such watercourses. 33 CFR 328.4(c)(1) defines the limit of USACE jurisdiction for nontidal watercourses (without adjacent wetlands) as the *Ordinary High Water Mark* (OHWM). The OHWM is defined as the:

> ... line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The OHWM approximates the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

Under current regulatory direction, certain constructed features, such as drainage or irrigation ditches, may be considered "other waters." A ditch that was constructed through or drained a prior WOTUS, or which carries a relatively permanent flow of water and has a continuous surface connection to a WOTUS, may be considered a jurisdictional WOTUS subject to regulation under the CWA. Ditches are therefore identified and mapped as "other waters" in the aquatic resources delineation process and then subsequently evaluated for jurisdictional status.

2.2 Clean Water Act

The USACE regulates the discharge of dredged or fill material into WOTUS under Section 404 of the CWA. *Discharge of fill material* is defined as the addition of fill material into WOTUS, which includes, but is not limited to:

- placement of fill necessary for the construction of any structure or impoundment requiring rock, sand, dirt, or other material for its construction;
- site-development fills for recreational, industrial, commercial, residential, and other uses;
- causeways or road fills; and
- fill for intake and outfall pipes and subaqueous utility lines (33 CFR § 328.2[f]).

Section 401 of the CWA (33 CFR 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into WOTUS to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to WOTUS, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect WOTUS, less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by RWQCB.

2.3 Jurisdictional Discussion

On December 22, 2022, the U.S. Environmental Protection Agency and Department of the Army (Agencies) announced a final rule defining WOTUS. The definition was founded upon the pre-2015 *Rapanos* decision and updated to reflect consideration of Supreme Court decisions, the science, and the Agencies' technical expertise. The final rule was published in the Federal Register (FR) on January 18, 2023 and became effective as of March 20, 2023.

On May 25, 2023, the Supreme Court of the U.S. adopted a narrower definition of WOTUS in the case *Sackett v. Environmental Protection Agency*. Under the majority opinion, WOTUS refers to:

> … geographical features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes' and to adjacent wetlands that are 'indistinguishable' from those bodies of water due to a continuous surface connection.

On August 29, 2023, the Agencies issued a final rule to amend the final *Revised Definition of "Waters of the United States"* rule, which was published in the FR on January 18, 2023. This final rule conforms the definition of *Waters of the United States* to the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*. Parts of the January 2023 rule are invalid under the Supreme Court's interpretation of the CWA in the Sackett decision. Therefore, the Agencies have amended key aspects of the regulatory text to conform to the Supreme Court's decision, and this amendment is known as the conforming rule.

The conforming rule became effective upon its publication in the FR on September 9, 2023. Where the January 2023 rule is not enjoined, the Agencies will implement the January 2023 rule, as amended by the conforming rule.

In summary, under the conforming rule, the term *Waters of the United States* includes:

- waters which are:
  - currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
  - the territorial seas; or
  - interstate waters;
- impoundments of WOTUS as defined above;
- tributaries to WOTUS that are relatively permanent, standing or continuously flowing bodies of water;
- wetlands adjacent (defined as having a continuous surface connection) to WOTUS;
- wetlands adjacent (defined as having a continuous surface connection) to impoundments or tributaries, as defined above, and which have a continuous surface connection to those waters; and

- intrastate lakes and ponds that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the water previously identified.

Waters excluded from this definition include:

- prior converted cropland (defined by the U.S. Department of Agriculture);
- waste treatment systems, including treatment ponds or lagoons;
- ditches (including roadside ditches) excavated wholly in and draining only into dry land and that do not carry a relatively permanent flow of water;
- artificially irrigated areas that would revert to dry land if the irrigation ceased;
- artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
- artificial reflecting pools or swimming pools or other small ornamental bodies of water created by excavating or diking dry land to retain water primarily for aesthetic reasons;
- waterfilled depressions (e.g., depressions created in dry land incidental to construction activity or pits excavated in dry land for purposes of obtaining fill, sand, or gravel) unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of WOTUS; and
- swales and erosional features (e.g., gullies or small washes) that are characterized by low volume, infrequent, or short duration flow.

2.4 Waters of the State

Waters of the State are broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state," including all WOTUS (Water Code 13050 [e]). Under the *State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures; State Water Resources Control Board 2021), the State Water Boards define wetlands as follows:

> An area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The State's wetland definition encompasses some features not protected under federal law, including those with a lack of connectivity with a navigable water body. Waters of the State include natural wetlands, wetlands created by modification of a surface Waters of the State, and artificial wetlands meeting any of the following criteria:

- Approved as compensatory mitigation for impacts to Waters of the State
- Specifically identified in a water quality control plan as a wetland or other Waters of the State
- Resulting from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape
- Greater than or equal to 1 acre in size, unless constructed, and is currently used and maintained for a specific purpose, including but not limited to industrial or municipal wastewater treatment or disposal, detention or treatment of stormwater, agricultural crop irrigation, or fire suppression

2.5 Porter-Cologne Water Quality Act

RWQCB implements water quality regulations under the CWA and the Porter-Cologne Water Quality Act. As discussed above, RWQCB issues a Water Quality Certification or waiver pursuant to Section 401 of the CWA for USACE Section 404 permit actions. RWQCB regulates dredging, filling, or discharging materials into Waters of the State that are not WOTUS under the Porter-Cologne Water Quality Act. Any person "discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state" must file an application with the appropriate RWQCB (Water Code 13260[a]). RWQCB may require issuance of Waste Discharge Requirements for these activities.

3.0 METHODS

ECORP conducted this aquatic resources delineation in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a). ECORP identified other waters in the field according to *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), where applicable. ECORP delineated the boundaries of aquatic resources using standard field methods (e.g., paired sample points or OHWM transects) and aerial photograph interpretation. The biologist recorded field data on *Wetland Determination Data Forms – Arid West Region – Version 2.0* (USACE 2008c) and *Arid West Ephemeral and Intermittent Streams OHWM Datasheets*, as applicable (USACE 2010) (Appendix B). The biologist used color aerial photographs that were available on ArcGIS and Google Earth© to assist with mapping and ground-truthing. ECORP also used *Munsell Soil Color Charts* (Munsell Color 2009) and the *Web Soil Survey* (Natural Resources Conservation Service [NRCS] 2025a) to aid in identifying hydric soils in the field and used the *Jepson eFlora* (Jepson Flora Project [eds.] 2025) for plant nomenclature and identification.

ECORP biologist Daniel Wong conducted the field survey on December 16, 2025. The biologist walked or visually inspected the entire approximately 26.36-acre Study Area to determine the location and extent of aquatic resources within the Study Area. The biologist sampled paired locations to evaluate whether or not the vegetation, hydrology, and soils data supported an aquatic resource determination. At each paired location, the biologist collected one point inside the estimated aquatic resource area, and the other point situated outside the limits of the estimated aquatic resource area. ECORP collected additional non-paired sample locations to document marginal areas that were determined not to be aquatic resources because they lacked hydrophytic vegetation, hydric soils, and/or wetland hydrology. The biologist recorded

aquatic resources within the Study Area in the field using a post-processing capable GPS unit with sub-meter accuracy (e.g. Samsung Galaxy tablet with ArcGIS Field Maps using an EOS Arrow 100 submeter unit with real-time correction).

ECORP conducted a typical year analysis of the Study Area via a single-point method using the USACE Antecedent Precipitation Tool (APT; USACE 2025b). The APT is an automation tool that utilizes standardized methodology to calculate precipitation normalcy at a given location using publicly available data sources. The APT analysis determines whether precipitation, drought, and other climatic conditions from the previous three months are *wet*, *normal*, or *dry* for the geographic area based on a rolling 30-year period (USACE 2025b).

3.1 Routine Determinations for Wetlands

For an area to be determined a wetland, the three of the following criteria must be met:

- The majority of dominant vegetation species are wetland-associated species.
- Hydrologic conditions exist that result in periods of flooding, ponding, or saturation during the growing season.
- Hydric soils are present.

3.1.1 Vegetation

Hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanent or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present (Environmental Laboratory 1987). The definition of wetlands includes the phrase "a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). Prevalent vegetation is characterized by the dominant plant species that compose the plant community (Environmental Laboratory 1987). The dominance test is the basic hydrophytic vegetation indicator, and ECORP applied it at each sample point location. ECORP used the *50/20 rule* to select the dominant plant species from each stratum of the community. The rule states that for each stratum in the plant community, dominant species are the most abundant plant species (when ranked in descending order of coverage and cumulatively totaled) that immediately exceed 50 percent of the total coverage for the stratum, plus any additional species that individually comprise 20 percent or more of the total cover in the stratum (USACE 1992, 2008a).

ECORP classified the dominant plant species observed at each sample point according to their indicator status (probability of occurrence in wetlands; Table 1) in the *National Wetland Plant List* (USACE 2022). If the majority (more than 50 percent) of the dominant vegetation on a site are classified as obligate (OBL), facultative wetland (FACW), or facultative (FAC), rather than facultative upland (FACU) or upland (UPL), the site was considered to be dominated by hydrophytic vegetation.

Table 1. Classification of Wetland-Associated Plant Species		
Plant Species Classification	**Abbreviation**	**Probability of Occurring in Wetland**
Obligate	OBL	Almost always occur in wetlands
Facultative wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands
Facultative	FAC	Occur in wetlands and non-wetlands
Facultative upland	FACU	Usually occur in non-wetlands, but may occur in wetlands
Upland	UPL	Almost never occur in wetlands
Plants that are not listed (assumed upland species)	N/L	Does not occur in wetlands in any region

Source: U.S. Army Corps of Engineers 2012

In instances where the biologist detected indicators of hydric soil and wetland hydrology, but the plant community failed the dominance test, ECORP reevaluated the vegetation using the *Prevalence Index*. The Prevalence Index is a weighted-average wetland indicator status of all plant species in the sampling plot, where each indicator status category is given a numeric code (OBL=1, FACW=2, FAC=3, FACU=4, and UPL=5) and weighting is by abundance (percent cover). If the plant community failed the Prevalence Index, ECORP evaluated the presence/absence of plant morphological adaptations to prolonged inundation or saturation in the root zone.

3.1.2 Soils

A *hydric soil* is defined as a soil that has been exposed to conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper portion (NRCS 2003). Indicators that a hydric soil is present include, but are not limited to, histosols, histic epipedon, hydrogen sulfide, depleted below dark surface, sandy redox, loamy gleyed matrix, depleted matrix, redox dark surface, and redox depressions.

ECORP excavated a soil pit at each sample point to the depth needed to document an indicator, to confirm the absence of indicators, or until refusal at each sample point. The biologist then examined the soil for hydric soil indicators and determined the soil colors while the soil was moist using the *Munsell Soil Color Charts* (Munsell Color 2009). Hydric soils are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. These processes and the features in the soil that develop can be identified by looking at the color and texture of the soils.

3.1.3 Hydrology

Wetlands, by definition, are seasonally or perennially inundated or saturated at or near (within 12 inches of) the soil surface. Primary indicators of wetland hydrology include, but are not limited to, visual observation of saturated soils, visual observation of inundation, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, oxidized rhizospheres along living roots, aquatic invertebrates, water marks (secondary indicator in riverine environments), drift lines (secondary indicator in riverine

environments), and sediment deposits (secondary indicator in riverine environments). The occurrence of one primary indicator is sufficient to conclude that wetland hydrology is present. If no primary indicators are observed, two or more secondary indicators are required to conclude wetland hydrology is present. Secondary indicators include, but are not limited to, drainage patterns, crayfish burrows, FAC-neutral test, and shallow aquitard.

3.2 Ordinary High Water Mark

The discussion in this section briefly summarizes *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*, which is intended for delineating ephemeral/intermittent channels (USACE 2008b). OHWM indicators commonly found in the Arid West include a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris. Resources needed to delineate OHWM include aerial photography and other imagery, topographic maps, and other maps (e.g., geological, soil, vegetation), rainfall data, stream gage data and existing delineations (if present). Field identification of the OHWM includes noting the general impression of the vegetation species and distribution, geomorphic features present, surrounding upland land use, and hydrologic alterations and in-stream and floodplain structures. In the field, the process of delineating the OHWM includes the identification of a low-flow channel (if present); a transition to an active floodplain; and an active floodplain through the presence of geomorphic features (e.g., presence of an active floodplain, benches, break in bank slope, staining of rocks, litter, or drift) and vegetation indicators (e.g., presence of sparse/low vegetation, annual herbs, hydromesic ruderals, pioneer tree seedlings and saplings, and xeroriparian species).

4.0 RESULTS

4.1 Existing Site Conditions

The Study Area is located within gently rolling terrain situated at an elevational range of approximately 695 to 772 feet above mean sea level in the Northern Sierra Foothills District (Jepson Flora Project [eds.] 2025). The average winter low temperature at the *Sutter Hill CDF, CA US* weather station approximately 14 miles north of the Study Area is 38.9 degrees Fahrenheit (°F), and the average summer high temperature is 91.3°F. Average annual precipitation in the vicinity of the Study Area is approximately 28.57 inches (National Oceanic and Atmospheric Administration 2025).

The current La Contenta WWTF is within northern portion of the Study Area, and includes concrete-lined treatment basins, settling pools, an effluent storage pond, and supporting onsite facilities. The La Contenta WWTF is surrounded primarily by a mix of foothill oak woodland and residential development to the west. South of the La Contenta WWTF, portions of the Study Area include pastureland for cattle and a southern effluent storage pond which includes an easement maintained by Pacific Gas and Electric Company and CCWD.

The majority of the Study Area is composed of annual grassland, a vegetation community dominated primarily by a mix of nonnative annual grasses and forbs such as perennial ryegrass (*Festuca perennis*;

FAC), medusahead grass (*Elymus caput-medusae*; plants that are not listed [N/L]), and soft brome (*Bromus hordeaceus*; FACU).

Foothill oak woodland occurs along the margins of the Study Area. This vegetation community consists of an intermittent to dense canopy of blue oak (*Quercus douglasii*; N/L), an understory of manzanitas *(Arctostaphylos* sp.) and buck brush *(Ceanothus cuneatus*; N/L), and an herbaceous layer of an annual grassland vegetation community.

Roadsides, constructed berms, and the La Contenta WWTF infrastructure were primarily unvegetated, except for scarce populations ruderal species such as stinkwort (*Dittrichia graveolens*; N/L) and Bermuda grass (*Cynodon dactylon*; FACU).

Appendix C provides a complete list of plant species observed within the Study Area.

ECORP conducted this aquatic resources delineation in the winter, outside the blooming season for most plant species. The survey was conducted at an acceptable time of the year to observe wetland hydrology, and although few wetland plant species were not in bloom at the time of the survey, most plants were identifiable to species based upon vegetative or dehisced fruit morphology.

ECORP ran the APT for the Study Area for December 16, 2025, the date the biologist collected the field delineation data. The APT demonstrated that the site conditions on this date represent a time of year referenced as the wet season, that the general region and the Study Area were experiencing incipient drought conditions since November, and that climatic conditions within the Study Area were normal relative to the annual average (Appendix D; USACE 2025b).

4.1.1 National Wetlands Inventory

The U.S. Fish and Wildlife Service (USFWS) has established the National Wetlands Inventory (NWI) to conduct a nationwide inventory of U.S. wetlands to provide biologist and others with information on the distribution and type of wetlands to aid in conservation efforts (USFWS 2025). USFWS's objective of mapping wetlands and deep-water habitats is to produce reconnaissance-level information on the location, type, and size of these resources. The maps are prepared from the analysis of high-altitude imagery. Wetlands are identified based on vegetation, visible hydrology, and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by USACE.

The NWI mapped freshwater pond, and riverine resources within the Study Area (Figure 2; USFWS 2025). These features roughly correspond with the detention basin and seasonal wetland observed onsite.

Map Contents

- Study Area - 26.36 acres

NWI Type

- Freshwater Pond
- Lake
- Riverine

Sources: Esri Imagery, Vantor (2024)

Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta NWI 20251201 (kedwards - 12/1/2025)

Map Date: 12/1/2025

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Scale in Feet
0 500

Figure 2. National Wetland Inventory

2025-018 CCWD La Contenta WWTF Phase 3 Project

4.1.2 Soils

The *Web Soil Survey* mapped five soil units within the Study Area (Figure 3; Table 2; NRCS 2025a):

- 5101 – Hornitos-Red Bluff-Ultic Haploxeralfs, shallow, complex, 3 to 25 percent slopes
- 7076 – Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes
- 7085 – Bonanza-Loafercreek complex, 3 to 15 percent slopes
- 8034 – Copperopolis-Whiterock complex, 3 to 15 percent slopes, rocky
- 8036 – Copperopolis-Whiterock complex, 15 to 30 percent slopes, rocky

Table 2. Soil Units within the Study Area

Soil Unit	Hydric Components	Hydric Component Landform
5105 – Hornitos–Red Bluff–Ultic Haploxeralfs, shallow, complex, 3 to 25 percent slopes	Not Applicable	Not Applicable
7076 – Bonanza–Loafercreek–Gopheridge complex, 15 to 30 percent slopes	None	Not Applicable
7085 – Bonanza–Loafercreek complex, 3 to 15 percent slopes	None	Not Applicable
8034 – Copperopolis–Whiterock complex, 3 to 15 percent slopes, rocky	None	Not Applicable
8036 – Copperopolis–Whiterock complex, 15 to 30 percent slopes, rocky	None	Not Applicable

Source: Natural Resources Conservation Service 2025a, 2025b

4.2 Aquatic Resources

ECORP mapped a total of 4.806 acre of aquatic resources within the Study Area (Table 3). Appendix B provides the wetland determination data forms, and Appendix E provides photo-documentation of representative aquatic resources observed within the Study Area. The following sections discuss the aquatic resources mapped in the Study Area, and the aquatic resources delineation map is presented in Figure 4.

Appendix F provides the USACE Operations and Maintenance Business Information Link Regulatory Module (also known as the *USACE ORM*) aquatic resources table of potential WOTUS. Appendix G provides digital data for the survey.

Map Features

- Study Area - 26.36 acres

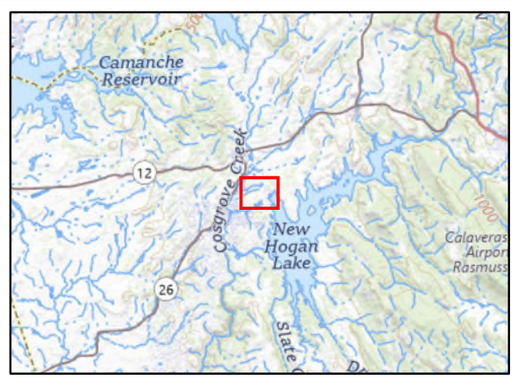
NRCS Soils

Series Number - Series Name

- 5101 - Hornitos-Red Bluff-Ultic Haploxeralfs, shallow, complex, 3 to 25 percent slopes
- 7076 - Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes
- 7085 - Bonanza-Loafercreek complex, 3 to 15 percent slopes
- 8034 - Copperopolis-Whiterock complex, 3 to 15 percent slopes, rocky
- 8036 - Copperopolis-Whiterock complex, 15 to 30 percent slopes, rocky
- W - Water

Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database for Calaveras County, CA

Sources: Esri Imagery, Vantor (2024), NRCS



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Map Date: 12/1/2025

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Scale in Feet
0 500

Figure 3. Natural Resources Conservation Service Soil Units

2025-018 CCWD La Contenta WWTF Phase 3 Project

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

- Upland
- Waters
- OHWM Transect

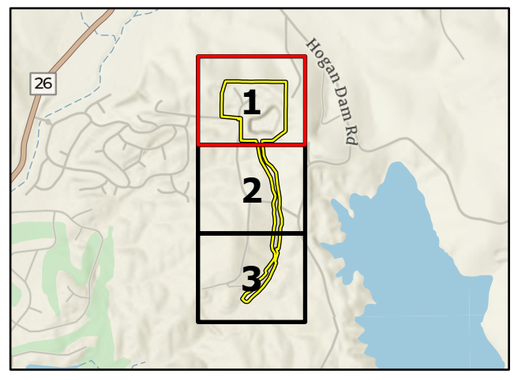
Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- WWTF Effluent Storage Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

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Scale in Feet
0 150
1 inch = 150 ft.

Figure 4. Aquatic Resources Delineation (Sheet 1)

2025-018 CCWD La Contenta WWTF Phase 3 Project

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

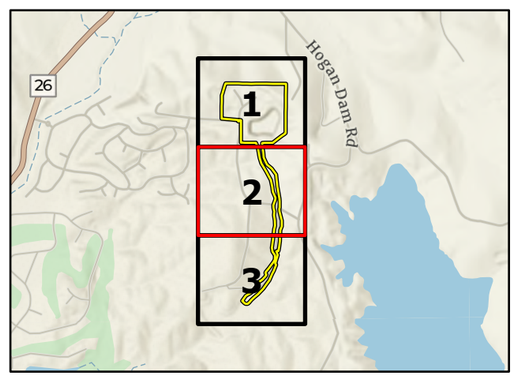
- Upland
- Waters
- OHWM Transect

Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- WWTF Effluent Storage Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.
* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

ECORP Consultants, Inc.
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Scale in Feet
0 150
1 inch = 150 ft.

Figure 4. Aquatic Resources Delineation (Sheet 2)

2025-018 CCWD La Contenta WWTF Phase 3 Project

Map Contents

- Study Area - 26.36 ac.
- Culvert

Sample Points

- Upland
- Waters
- OHWM Transect

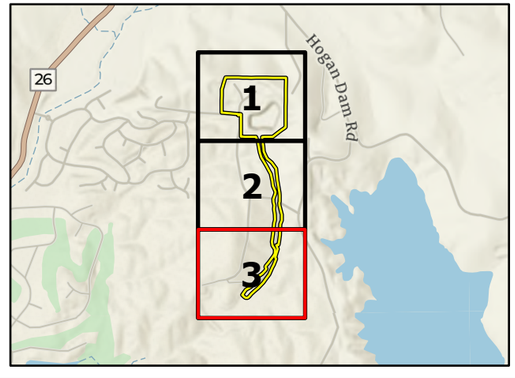
Aquatic Resources - 4.806 ac.

- Ditch - 0.015 ac.
- Drainage Ditch - 0.132 ac.
- WWTF Effluent Storage Pond - 4.579 ac.
- Seasonal Wetland - 0.081 ac.

Photo Source: Esri Imagery, Vantor (2022)
Boundary Source: HydroScience
Delineator(s): Daniel Wong
Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet

[1] Subject to U.S. Army Corps of Engineers verification. This exhibit depicts information and data produced in accord with the wetland delineation methods described in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 as well as the Updated Map and Drawing Standards for the South Pacific Division Regulatory Program as amended on February 10, 2016, and conforms to Sacramento District specifications. However, feature boundaries have not been legally surveyed and may be subject to minor adjustments if more accurate locations are required.

* The acreage value for each feature has been rounded to the nearest 1/1000 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.



Location: N:\2025\2025-018 CCWD La Contenta\MAPS\Aquatic_Resources\La Contenta Aquatics.aprx - La Contenta ARD 20260109 (kedwards - 1/30/2026)

Map Date: 1/30/2026

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Scale in Feet
0 150
1 inch = 150 ft.

Figure 4. Aquatic Resources Delineation (Sheet 3)

2025-018 CCWD La Contenta WWTF Phase 3 Project

Table 3. Aquatic Resources within the Study Area	
Type	**Acreage**
Wetlands	
Seasonal Wetland	0.081
Other Waters	
Wastewater Treatment Pond	4.579
Drainage Ditch	0.132
Ditch	0.015
Total	**4.806**

Notes: The acreage value for each aquatic resource type has been rounded to the nearest 1/1000 decimal place. Acreages represent a calculated estimation and are subject to modification following the U.S. Army Corps of Engineers verification process.

4.2.1 Wetlands

4.2.1.1 Seasonal Wetland

Seasonal wetlands are ephemerally or intermittently wet due to accumulation of surface runoff and rainwater within low-lying areas. Inundation periods tend to be relatively short, and seasonal wetlands are commonly dominated by nonnative annual and sometimes perennial hydrophytic species. ECORP mapped several seasonal wetlands within the northern and southern portions of the Study Area.

Seasonal wetlands mapped within the northern portion of the Study Area consist of depressional features ponded by stormwater runoff, nuisance runoff, or groundwater and appear to have been created incidentally by erosion or La Contenta WWTF operations.

The seasonal wetlands in the southern portion of the Study Area consist of shallow depressions within the annual grassland or along road shoulders. The biologist collected sample point 2 within one of the depressional seasonal wetlands in the southern portion of the Study Area. This feature was dominated by common spikerush (*Eloecharis palustris*; OBL) and contained other hydrophytic species such as hyssop loosestrife (*Lythrum hyssopifolia*; OBL) and perennial ryegrass (FAC). Sample point 10 was collected within seasonal wetlands observed within the northern portion of the Study Area and was dominated by tall flatsedge *(Cyperus eragrostis*; FACW).

The soil matrix color within the seasonal wetlands at sample point 2 was colored 10YR 5/1 from 0 to 12 inches in depth. Redox concentrations were present as 5 percent of the sample and were colored 10YR 4/4. The soil at sample points 2 were determined to be hydric based on the presence of hydric soil indicator Depleted Matrix (F3) and Redox Depressions (F8). Sample point 10 had matrix color of 10YR 6/1, which determined the presence of hydric soil indicator Depleted Matrix (F3). The biologist observed wetland hydrology indicators Saturation (A3), Surface Soil Cracks (B6), Drainage Patterns (B10), and FAC-Neutral Test (D5) within the seasonal wetlands.

Upland sample points 3 and 11 were collected as paired upland points to sample points 2 and 10, respectively. Upland sample point 3 had a soils matrix color of 10YR 5/1 from 0 to 12 inches, with 5 percent redox concentrations colored 10YR 4/4 within the matrix and corresponds to hydric soil indicators Depleted Matrix (F3) and Redox Depressions (F8). The soil matrix color for upland sample point 11 was 10YR 5/6 from 0 to 4 inches, and a matrix color from 4 to 12 inches of 10YR 6/2 with 10 percent redox features concentrated of 10YR 5/4. The biologist observed wetland hydrology indicators Saturation (A3) within upland sample point 11, and Drainage Patterns (B10) within upland sample point 3.

4.2.2 Other Waters

4.2.2.1 Drainage Ditch

The drainages ditches mapped within the Study Area are constructed or excavated linear features, which rapidly drain stormwater or managed water from existing La Contenta WWTF infrastructure. The drainage ditches within the Study Area are riprap lined, and appear to be ephemeral based on its position of the sloping topography.

ECORP identified several drainages (DD-01, DD-02, DD-03, and DD-04) adjacent to toe slopes or constructed berms throughout the Study Area. These ditches are primarily unvegetated within the channel, however scattered plant species observed within the channel consist of Mediterranean barley (*Hordeum marinum*; FAC) and perennial rye grass (FAC). The biologist delineated the extent of the ditches within the Study Area at the OHWM, which were identified in the field at sample point 6 by the break in bank slope at the OHWM, the presence of water marks, and change in vegetation composition and density.

4.2.2.2 Ditch

Other existing ditches (DITCH-01, DITCH-02) within the La Contenta WWTF displayed more hydric conditions and a longer hydroperiod based on vegetation and soil indicators observed at the OHWM. These ditches appear to share similar ground or surface water influences as the adjacent seasonal wetlands and primarily function to drain water out of the northern portion of the Study Area.

Sample point 8 recorded the OHWM of DITCH-01 at the change of plants species composition and density, sedimentation within the channel bottom, and water staining along the riprap ditch linings. Dominant plants species observed above the OHWM include stinkwort (*Dittrichia graveolens*; N/L), and dominant species below the OHWM include tall flatsedge (FACW) and prostrate knotweed (*Polygonum aviculare*; FAC).

4.2.2.3 La Contenta Wastewater Treatment Facility Effluent Storage Ponds

Wastewater treatment ponds are basins constructed to treat sewage, industrial wastewater, and store effluent or other materials from wastewater treatment facilities. Specifically, the two ponds within the Study Area are effluent storage ponds used to temporarily store wastewater effluent prior to discharge or recirculation for additional treatment. The wastewater treatment ponds within the Study Area are sparsely vegetated, constructed basins created by excavation within the landscape. The ponds are influenced by

surrounding wastewater infrastructure and are permanently or seasonally inundated. ECORP identified two wastewater treatment ponds within the Study Area. The upper effluent storage pond mapped within the northern portion of the Study Area is a constructed, plastic and rip-rap lined detention basin for the La Contenta WWTF, which utilizes several pumps or gates to control flow in and out of the pond. The lower effluent storage pond (WTP-01) is a constructed, earthen basin located in the southern portion of the Study Area. WTP-01 receives controlled releases from the upper effluent settling pond (WTP-02) located within the La Contenta WWTF. The biologist collected an OHWM transect, sample point 1, within WTP-01 and delineated the extent of the ponds at the OHWM, based on the presence of water marks, sudden change in bank slope, and change in vegetation cover.

The biologist collected sample point 4 within a vegetated portion of WTP-01. This portion of the pond was dominated by rough cocklebur (*Xanthium strumarium*; FACW) and perennial rye grass (FAC). The soil matrix color at sample point 4 was 10YR 5/1 with two percent redox concentrations colored 10YR 4/4. ECORP determined the soils at sample point 4 to be hydric based on the presence of hydric soil indicator Depleted Matrix (F3). The biologist observed the surface soil cracks (B6) wetland hydrology indicator.

Paired upland sample point 5 was collected slightly above the OHWM and was dominated by stinkwort (N/L), yellow star-thistle (*Cenaturea solstitialis*; UPL), and perennial ryegrass (FAC). The soil matrix color at sample point 5 was 10YR 5/1 with two percent redox concentrations colored 10YR 4/4, which shares the same hydric indicator as the paired wetland sample point 4. However, no wetland hydrology indicators were observed at sample point 5.

5.0 JURISDICTIONAL ASSESSMENT

The following assessment is provided for general planning purposes and would require USACE and/or RWQCB verification to support permit applications.

Some of the aquatic resources discussed in this paragraph are likely to be regulated by Section 404 of the CWA. The ditch, DITCH-01, appears to meet the "relatively permanent" standard and is likely a tributary to the San Joaquin River (a Traditional Navigable Water) via a relatively short, piped segment to Cosgrove Creek, and the Calaveras River. Seasonal wetlands SW-04 and SW-05 appear to be relatively permanent and are wetlands adjacent to Ditch-01. As such, these features may be considered WOTUS.

Aquatic features discussed in this paragraph do not appear to meet the definition of WOTUS and would not likely be regulated under Section 404 of the CWA. Drainage ditches DD-01, DD-02, DD-03, and DD-04 found along berms or effluent ponds appear to be ephemeral drainages or tributaries to downstream features, but do not appear to meet the "relatively permanent" standard, and as such, would not meet the definition of WOTUS. Seasonal wetlands, SW-01 and SW-03, and DITCH-02, do appear to meet the "relatively permanent" standard, but do not appear to have a relatively permanent or continuous surface water connection to a downstream WOTUS (33 CFR 328.3, Sections [3] and [4][ii]). As such, these features would not meet the definition of WOTUS. In addition, the effluent storage ponds (WTP-01 and WTP-02) are part of a waste treatment system designed to meet the requirements of the CWA and, as such, would not be considered WOTUS (33 CFR 328.3, Section [b][1]).

The aquatic features mapped within the Study Area that appear to meet the definition of WOTUS would also meet the definition of Waters of the State (Procedures, Section II; State Water Resources Control Board 2021) and would be regulated under Section 401 of the CWA or the Porter Cologne Water Quality Control Act. Seasonal wetland SW-02 appears to be a natural wetland that is not part of operations or maintenance of the WWTF. In addition, SW-03 and DITCH-02 may meet the definition of Waters of the State. Although they are likely artificial wetlands resulting from historic human activity, they do not appear to be subject to ongoing maintenance and operation of the WWTF.

The lower effluent storage pond (WTP-01) is likely considered a Water of the State. The feature was constructed and is currently used and maintained for wastewater treatment (Procedures, Section III.d.i; State Water Resources Control Board 2021); however, review of historic aerial imagery and topographic maps indicate the feature may also have been, in part, a wetland created by a modification of a Water of the State (Procedures, Section II.2; State Water Resources Control Board 2021). The remaining features onsite (DD-01, DD-02, DD-03, DD-04, and SW-01) do not appear to meet the definition of Waters of the State per Sections II.3.c. and II.3.d. of the Procedures because they are artificial features constructed in uplands, draining only uplands, are part of an active wastewater treatment facility, and are subject to ongoing operations and maintenance (State Water Resources Control Board 2021).

6.0 CONCLUSION

ECORP mapped a total of 4.806 acres of aquatic resources within the Study Area. This acreage represents a calculated estimation of the extent of aquatic resources within the Study Area and is subject to modification following USACE review and/or the verification process.

The placement of dredged or fill material into WOTUS would require a permit pursuant to Section 404 of the CWA and certification or waiver in compliance with Section 401 of the CWA. The placement of dredge or fill material into Waters of the State that are not WOTUS would require issuance of a Waste Discharge Requirement by RWQCB.

7.0 REFERENCES

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1 U.S. Army Engineer Waterways Experiment Station. pp. 143. January 1987. Vicksburg, Mississippi. https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/Website%20Organization/Corps%20of%20Engineers%20Wetlands%20Delineation%20Manual%20(1987).pdf.

Jepson Flora Project (eds.) 2025. *Jepson eFlora*. https://ucjeps.berkeley.edu/eflora/. Accessed December 16, 2025.

Munsell Color. 2009. *Munsell Soil Color Book*. Munsell Color. Grand Rapids, Michigan.

National Oceanic and Atmospheric Administration. 2025. *NCDC 2006-2020 Climate Normals for the Sutter Hill CDF, CA US station*. https://www.ncei.noaa.gov/access/us-climate-normals/#dataset=normals-annualseasonal&timeframe=15&station=USC00048713. Accessed December 16, 2025.

Natural Resources Conservation Service (NRCS). 2025a. *Web Soil Survey*. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx. Accessed December 16, 2025.

_____. 2025b. *Soil Data Access Hydric Soils List*. https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil/hydric-soils. Accessed December 16, 2025.

_____. 2003. *National Soil Survey Handbook*. http://soils.usda.gov/technical/handbook. Accessed December 16, 2025.

State Water Resources Control Board. 2021. *State Policy for Water Quality Control: State Wetland Definition and Procedures for Dredged or Fill Material to Waters of the State*. Adopted April 2, 2019. Revised April 6, 2021.

U.S. Army Corps of Engineers (USACE). 2025a. *Recommended Minimum Standards for Aquatic Resource Delineation Reports*. U.S. Army Corps of Engineers. pp. 36. July.

_____. 2025b. *The Antecedent Precipitation Tool*. https://github.com/erdc/Antecedent-Precipitation-Tool/releases/tag/v2.0.0. Accessed December 16, 2025.

_____. 2022. *National Wetland Plant List*, Version 3.6. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. Hanover, New Hampshire. https://wetland-plants.sec.usace.army.mil. Accessed December 16, 2025.

_____. 2012. *National Wetland Plant List Indicator Rating Definitions*. Lichvar, R. W., N. C. Melvin, M. L. Butterwick, and W. N. Kirchner. ERDC/CRREL TN-12-1. U.S. Army Corps of Engineers, Research and Development Center.

_____. 2010. *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Curtis, K. E. and R. W. Lichvar. ERDC/CRREL TN-10-1. U.S. Army Engineer Research and Development Center. Hanover, New Hampshire.

_____. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region of the Western United States.* Ed. Wakeley, J. S., R. W. Lichvar, and C. V. Noble. ERDC/EL TR-06-16. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

_____. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Lichvar, R. W. and S. M. McColley. ERDC/CRREL TR-08-12. Cold Regions Research and Engineering Laboratory and U.S. Army Engineer Research and Development Center. Hanover, New Hampshire.

_____. 2008c. *Wetland Determination Data Sheet – Arid West Region Version 2.0.* Wakeley, J. S., R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

_____. 1992. *Clarification and Interpretation of the 1987 Manual*. Memorandum from Major General Arthur E. Williams. March 6.

U.S. Fish and Wildlife Service (USFWS). 2025. *National Wetlands Inventory, Wetlands Mapper*. https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. Accessed December 16, 2025.

U.S. Geological Survey (USGS). 2025. *Watershed Boundary Dataset*. Data refreshed January 2025. https://hydro.nationalmap.gov/arcgis/rest/services/wbd/MapServer. Accessed November 11, 2025.

_____. 1962. *Valley Springs, California 7.5-Minute Topographic Quadrangle*. Denver, Colorado.

LIST OF APPENDICES

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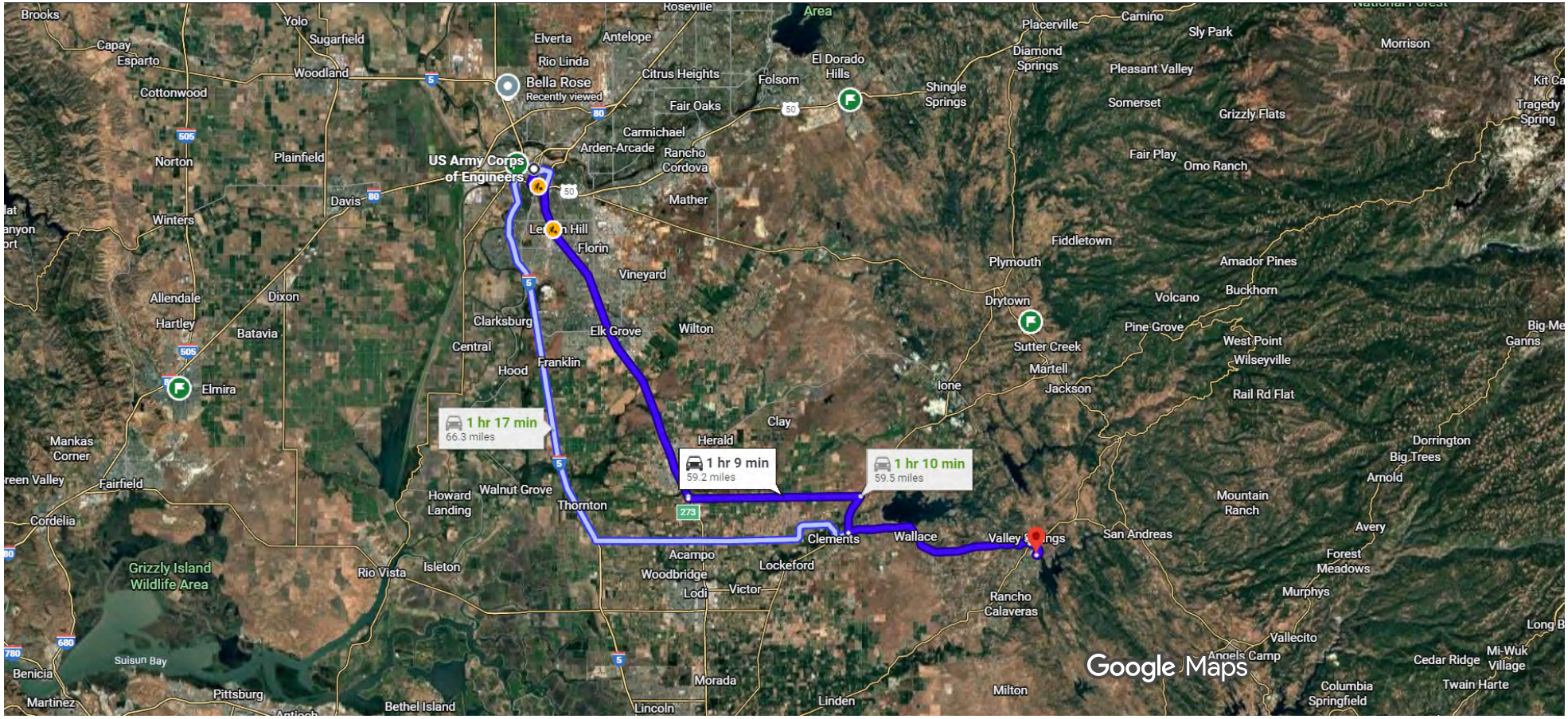
APPENDIX A

Driving Directions to Study Area

Google Maps

US Army Corps of Engineers, 1325 J St Room 1640, Sacramento, CA 95814 to 145 Herbert Ct, Valley Springs, CA 95252

Drive 59.2 miles, 1 hr 9 min



Imagery ©2025 , Map data ©2025 Google 5 mi

US Army Corps of Engineers
1325 J St Room 1640, Sacramento, CA 95814

1. Head east on J St toward 14th St
25 sec (0.1 mi)

Follow CA-99 S to Liberty Rd in San Joaquin County.
Take exit 273 from CA-99 S

2. Turn right onto 15th St — 30 min (27.3 mi)

1.1 mi

3. Use the left 2 lanes to turn left onto X St

404 ft

4. Use the middle 2 lanes to turn slightly left onto the I-80 E ramp

0.3 mi

5. Merge onto US-50 E

0.2 mi

6. Use the right 2 lanes to stay on US-50 E

463 ft

7. Use the right 2 lanes to merge onto CA-99 S

25.3 mi

8. Take exit 273 for Liberty Rd toward Frontage Rd

0.2 mi

9. Turn left onto Liberty Rd

14 min (12.5 mi)

Take CA-12 E/W Hwy 12 to Hogan Dam Rd in Valley Springs

21 min (17.7 mi)

10. At the traffic circle, take the 1st exit onto CA-88 W

2.9 mi

11. Turn left onto CA-12 E/W Hwy 12

14.4 mi

12. Slight right toward State Rte 26 W

138 ft

13. Turn right onto State Rte 26 W

0.4 mi

Follow Hogan Dam Rd to E Eberhard Dr

3 min (1.6 mi)

14. Keep left to continue on Hogan Dam Rd

1.5 mi

15. Turn right onto Harper Ln

328 ft

16. Continue onto E Eberhard Dr

269 ft

145 Herbert Ct
Valley Springs, CA 95252

APPENDIX B

Wetland Determination Data Forms - Arid West Region

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

The Public reporting burden for this collection of information, 0710-0024, is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Project ID #: La Contenta WWTF	Site Name: Sample Point 1	Date and Time: 2025-12-16
Location (lat/long): 38.17001903 / -120.81861256	Investigator(s): DWong	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [X] LiDAR
- [ ] geologic maps
- [X] climatic data
- [X] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [X] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Constructed pond as part of easement for WWTP, possible inputs from nearby rural residences as well surface flow from topography.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Normal conditions are exisiting, however access to the pond is maintained by Calaveras County Water District, and Pacific Gas and Electric. Water level was lower than normal, as indicated by a strong indicator of change in vegetation cover and composition, average sediment size, and erosional features.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [X] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [X] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [X] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [ ] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [X] **Soil development**
- [X] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [X] **Change in vegetation type from** _____ **to** _____
- [X] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Change in vegetation from annual grassland above OHWM to scarcely vegetated basin floor (absolute 100 cover to <5% absolute cover)

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [X] **Water staining**

Other observed indicators? Describe:

Project ID #: La Contenta WWTF

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

Clear water level rings at this pond, where man-made berms and the gravel roads serving as the low terrace for this aquatic features. Discoloration at the OHWM and the transition from annual grassland vegetation community to unvegetated.

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: See Appendix E

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources (Chapter 5) **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on data sheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape. (Chapter 4)

a. **Note on the data sheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
   iii. Erosional and depositional environments
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence) (Chapter 1 and 3)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious human-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the data sheet,** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence (Chapter 2 and 3)

Assemble evidence by marking each box with a slash next to each line of evidence.

If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation indicators**	**Other physical indicators**
Where are the breaks in slope?	Where does evidence of soil formation appear?	Where are the significant transitions in vegetation species, density, and age?	Is there organic litter present?
Are there identifiable banks?		Is there vegetation growing on the channel bed?	
Is there an easily identifiable top of bank?	Are there mudcracks present?	If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?	Is there any leaf litter disturbed or washed away?
Are the banks actively eroding?			
Are the banks undercut?	Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation?	Is there large wood deposition?
Are the banks armored?			
Is the channel confined by the surrounding hillslopes?		Is the vegetation tolerant of flowing water?	Is there evidence of water staining?
Are there natural or man-made berms and levees?		Has any vegetation been flattened by flowing water?	
Are there fluvial terraces?			
Are there channel bars?			

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 3b Weight each line of evidence (Chapter 1 and 3)

Consider importance of each indicator by assessing the following:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows? Did recent extreme events and/or land use affect this indicator?

ii. Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages?

iii. Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low-flow indicator. The difference between high-and extreme-flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 (Chapter 4) can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***In Chapter 2 of the OHWM field manual provides information on specific indicators that can assist in putting these in context and determining relevance, strength, and reliability.**

iv. Recent floods may have left many extreme-flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.

v. Droughts may cause field evidence of OHWM to be obscured because there has been an extended time since the last high-flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.

vi. Both human-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provide specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describe each indicator in detail and provide examples of areas where indicators are difficult to interpret.

Step 4 Was additional information used to support identification of the OHWM? Are other resources used to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling and weighting evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were used to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the data sheet.

Step 5 Describe rationale for location of OHWM: (Chapter 1 and Chapter 3)

a. Weigh body of evidence:

Combine information from Step 3b: Why do the combination of indicators represent the OHWM?

i. Integrate the lines of evidence (relevance, strength, and reliability) of each indicator.

ii. Consider which indicators are high value indicators that co-occur along the stream reach. Which indicators are most relevant to identifying high flow elevations, which are most persistent across the landscape, and which are most persistent over time?

iii. Which indicators that are found above and below the location of the OHWM were helpful in identifying the elevation of the OHWM?

b. If there is more than one possible location, explain why, Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the data sheet under Step 5 or attach additional sketches and field observations to the data sheet.

d. Take photographs of indicators and attach an imagery log using page 2 of data sheet or another method of logging images.

i. Annotate images with descriptions of indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 02
Investigator(s): D.Wong Section, Township, Range: S25, T04N, R10E
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR): LRR C Lat: 38.17137854 Long: -120.81689619 Datum: WGS84
Soil Map Unit Name: 7076, Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Incidental depressional wetland located at bottom of the toeslope of constructed berm

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Eleocharis palustris*	80	Yes	OBL
2. *Centaurea solstitialis*	5	No	UPL
3. *Lythrum hyssopifolium*	5	No	OBL
4. *Festuca perennis*	10	No	FAC
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	95	10YR 4/4	5	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

The public reporting burden for this collection of information, OMB Control Number 0710-0024, is estimated to average 30 minutes per response, including the timefor reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services,at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR REQUEST TO THE ABOVE EMAIL.**

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 03
Investigator(s): D.Wong Section, Township, Range: S25, T04N, R10E
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR): LRR C Lat: 38.17137286 Long: -120.81692332 Datum: WGS84
Soil Map Unit Name: 7076, Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Paired upland point to sample point 2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Centaurea solstitialis*	25	Yes	UPL
2. *Lactuca serriola*	15	No	FACU
3. *Festuca perennis*	10	No	FAC
4. *Elymus caput-medusae*	45	Yes	UPL
5. *Geranium molle*	5	No	UPL
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species	75	x 5 =	375
Column Totals:	100 (A)		465 (B)

Prevalence Index = B/A = 4.65

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	95	10YR 4/4	5	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

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PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 04
Investigator(s): D.Wong Section, Township, Range: S25, T04N, R10E
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): Concave Slope (%): 0
Subregion (LRR): LRR C Lat: 38.17095996 Long: -120.81717186 Datum:
Soil Map Unit Name: 7076, Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
A depressional portion of the lower effluent pond, which appear to influenced primarily by surface runoff, but inundated during high-water periods of the pond.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Xanthium strumarium*	30	Yes	FAC
2. *Festuca perennis*	65	Yes	FAC
3. *Croton setigerus*	5	No	UPL
4.			
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	98	10YR 4/4	2	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF | City/County: Calaveras | Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District | State: CA | Sampling Point: 05
Investigator(s): D.Wong | Section, Township, Range: S25, T04N, R10E
Landform (hillside, terrace, etc.): Plain | Local relief (concave, convex, none): Concave | Slope (%): 0-2
Subregion (LRR): LRR C | Lat: 38.17096971 | Long: -120.81719479 | Datum: WGS84
Soil Map Unit Name: 7076, Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Paired upland point to Sample Point 4

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Dittrichia graveolens*	30	Yes	UPL
2. *Centaurea solstitialis*	20	Yes	UPL
3. *Festuca perennis*	40	Yes	FAC
4. *Croton setigerus*	5	No	UPL
5. *Hirschfeldia incana*	5	No	UPL
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	100 (A)		420 (B)
Prevalence Index = B/A =			4.20

Hydrophytic Vegetation Indicators:
____ Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/1	98	10YR 4/4	2	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Slate coarse fragments, cobble sized, below 5-6 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

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U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

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Project ID #: La Contenta WWTF	Site Name: Sample Point 6	Date and Time: 12/16/2025
Location (lat/long): 38.17095996 / -120.81717186	Investigator(s): D.Wong	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [X] LiDAR
- [ ] geologic maps
- [X] climatic data
- [X] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [X] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
No recent events.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Ditch which drains surface flow from the adjacent gravel road and landscape. A culvert connects the ditch to a seasonal wetland outside of the project area. Evidence of herbicide use and vegetation management above the OHWM, on the road-side of the ditch.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [X] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [X] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [X] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [X] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [X] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [ ] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [ ] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [X] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [X] **Change in vegetation type from** _____ **to** _____
- [X] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [X] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Change in dominance of species, where Dittrichia graveolens, Bromus hordeaceus, is dominant above the OHWM. Below OHWM dominance of Hordeum marinum and Festuca perennis, with some Rumex crispus.

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:

Project ID #: La Contenta WWTF

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

A weak OHWM based off the break in bank slope, and change in species dominance and and vegetation density from more UPL species to FAC. Density consistently remained high above the OHWM, where as below there were some variation of density.

Additional observations or notes

The ditch is connected to a seasonal wetland through a culvert below the road. Based on aerial and LIDAR terrain hillshade, the ditch connects to another culvert to the southwest outside of the Study Area

Attach an imagery log of the site.

Imagery log attached? ☒ Yes ☐ No If no, explain why not: See Appendix E.

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources (Chapter 5) **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on data sheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape. (Chapter 4)

a. **Note on the data sheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
   iii. Erosional and depositional environments
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence) (Chapter 1 and 3)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious human-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the data sheet,** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence (Chapter 2 and 3)

Assemble evidence by marking each box with a slash next to each line of evidence.

If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation indicators**	**Other physical indicators**
Where are the breaks in slope?	Where does evidence of soil formation appear?	Where are the significant transitions in vegetation species, density, and age?	Is there organic litter present?
Are there identifiable banks?		Is there vegetation growing on the channel bed?	
Is there an easily identifiable top of bank?	Are there mudcracks present?	If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?	Is there any leaf litter disturbed or washed away?
Are the banks actively eroding?			
Are the banks undercut?	Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation?	Is there large wood deposition?
Are the banks armored?			
Is the channel confined by the surrounding hillslopes?		Is the vegetation tolerant of flowing water?	Is there evidence of water staining?
Are there natural or man-made berms and levees?		Has any vegetation been flattened by flowing water?	
Are there fluvial terraces?			
Are there channel bars?			

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 3b Weight each line of evidence (Chapter 1 and 3)

Consider importance of each indicator by assessing the following:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows? Did recent extreme events and/or land use affect this indicator?

ii. Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages?

iii. Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low-flow indicator. The difference between high-and extreme-flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 (Chapter 4) can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***In Chapter 2 of the OHWM field manual provides information on specific indicators that can assist in putting these in context and determining relevance, strength, and reliability.**

iv. Recent floods may have left many extreme-flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.

v. Droughts may cause field evidence of OHWM to be obscured because there has been an extended time since the last high-flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.

vi. Both human-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provide specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describe each indicator in detail and provide examples of areas where indicators are difficult to interpret.

Step 4 Was additional information used to support identification of the OHWM? Are other resources used to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling and weighting evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were used to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the data sheet.

Step 5 Describe rationale for location of OHWM: (Chapter 1 and Chapter 3)

a. Weigh body of evidence:

Combine information from Step 3b: Why do the combination of indicators represent the OHWM?

i. Integrate the lines of evidence (relevance, strength, and reliability) of each indicator.

ii. Consider which indicators are high value indicators that co-occur along the stream reach. Which indicators are most relevant to identifying high flow elevations, which are most persistent across the landscape, and which are most persistent over time?

iii. Which indicators that are found above and below the location of the OHWM were helpful in identifying the elevation of the OHWM?

b. If there is more than one possible location, explain why, Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the data sheet under Step 5 or attach additional sketches and field observations to the data sheet.

d. Take photographs of indicators and attach an imagery log using page 2 of data sheet or another method of logging images.

i. Annotate images with descriptions of indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 07
Investigator(s): D.Wong Section, Township, Range: S25, T04N, R10E
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR): LRR C Lat: 38.17506803 Long: -120.81659334 Datum: NAD83
Soil Map Unit Name: 7076, Bonanza-Loafercreek-Gopheridge complex, 15 to 30 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Representative upland data point of annual grassland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Elymus caput-medusae*	33	Yes	UPL
2. *Festuca perennis*	33	Yes	FAC
3. *Bromus hordeaceus*	33	Yes	FACU
4.			
5.			
6.			
7.			
8.			
	99 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 1 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	33	x 3 =	99
FACU species	33	x 4 =	132
UPL species	33	x 5 =	165
Column Totals:	99 (A)		396 (B)
Prevalence Index = B/A =			4.00

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/6	85	7.5YR 5/2	15	D	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Coarse fragments starting at 6-8 inches consisting of gravel and cobble

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

The public reporting burden for this collection of information, OMB Control Number 0710-0024, is estimated to average 30 minutes per response, including the timefor reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services,at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR REQUEST TO THE ABOVE EMAIL.**

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

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Project ID #: La Contenta WWTP	Site Name: Sample Point 8	Date and Time: 12/16/2025
Location (lat/long): 38.17819369 / -120.81853713	Investigator(s): D.Wong	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [x] LiDAR
- [ ] geologic maps
- [x] climatic data
- [x] satellite imagery
- [ ] land use maps
- [x] aerial photos
- [x] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
No extreme events, however the ditches are abutting ponds which may provide extended hydroperiod.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.

Constrcuted ditch to drain surrounding WWTP facilities. Ditches are rip-rap lined with a clear change in vegetation dominance. OHWM determined by the discoloration of riprap, change in species composition, and sedimentation in the ditch bottom.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.

OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.

Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [ ] **Break in slope**
  - [ ] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [x] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [x] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [x] **Channel bar**
  - [ ] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [x] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [x] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [x] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [x] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [x] **Change in vegetation type from** _____ **to** _____
- [x] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [x] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

Dittrichia graveolens at the OHWM of the riprap. Below OHWM, dominance of Cyperus eragrostis and Polygonum aviculare. Above the OHWM, no vegetation and bare riprap.

Other physical indicators

- [x] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:

Project ID #: La Contenta WWTP

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

The ditch did not have a break in bank slope as an indicator because of the riprap lining the ditch. However, discoloration in portions of riprap corresponded to the change in vegetation density and composition. Sedimentation was observed within the channel bottom, which supported hydrophytic plant species.

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☐ Yes ☒ No If no, explain why not: See Appendix E.

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources (Chapter 5) **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on data sheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape. (Chapter 4)

a. **Note on the data sheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
   iii. Erosional and depositional environments
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence) (Chapter 1 and 3)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious human-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the data sheet,** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence (Chapter 2 and 3)

Assemble evidence by marking each box with a slash next to each line of evidence.

If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation indicators**	**Other physical indicators**
Where are the breaks in slope?	Where does evidence of soil formation appear?	Where are the significant transitions in vegetation species, density, and age?	Is there organic litter present?
Are there identifiable banks?		Is there vegetation growing on the channel bed?	
Is there an easily identifiable top of bank?	Are there mudcracks present?	If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?	Is there any leaf litter disturbed or washed away?
Are the banks actively eroding?			
Are the banks undercut?	Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation?	Is there large wood deposition?
Are the banks armored?			
Is the channel confined by the surrounding hillslopes?		Is the vegetation tolerant of flowing water?	Is there evidence of water staining?
Are there natural or man-made berms and levees?		Has any vegetation been flattened by flowing water?	
Are there fluvial terraces?			
Are there channel bars?			

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 3b Weight each line of evidence (Chapter 1 and 3)

Consider importance of each indicator by assessing the following:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows? Did recent extreme events and/or land use affect this indicator?

ii. Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages?

iii. Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low-flow indicator. The difference between high-and extreme-flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 (Chapter 4) can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***In Chapter 2 of the OHWM field manual provides information on specific indicators that can assist in putting these in context and determining relevance, strength, and reliability.**

iv. Recent floods may have left many extreme-flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.

v. Droughts may cause field evidence of OHWM to be obscured because there has been an extended time since the last high-flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.

vi. Both human-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provide specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describe each indicator in detail and provide examples of areas where indicators are difficult to interpret.

Step 4 Was additional information used to support identification of the OHWM? Are other resources used to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling and weighting evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were used to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the data sheet.

Step 5 Describe rationale for location of OHWM: (Chapter 1 and Chapter 3)

a. Weigh body of evidence:

Combine information from Step 3b: Why do the combination of indicators represent the OHWM?

i. Integrate the lines of evidence (relevance, strength, and reliability) of each indicator.

ii. Consider which indicators are high value indicators that co-occur along the stream reach. Which indicators are most relevant to identifying high flow elevations, which are most persistent across the landscape, and which are most persistent over time?

iii. Which indicators that are found above and below the location of the OHWM were helpful in identifying the elevation of the OHWM?

b. If there is more than one possible location, explain why, Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the data sheet under Step 5 or attach additional sketches and field observations to the data sheet.

d. Take photographs of indicators and attach an imagery log using page 2 of data sheet or another method of logging images.

i. Annotate images with descriptions of indicators.

U.S. Army Corps of Engineers (USACE)

RAPID ORDINARY HIGH WATER MARK (OHWM) FIELD IDENTIFICATION DATA SHEET

The proponent agency is Headquarters USACE CECW-COR.

Form Approved -
OMB No. 0710-0024
Expires: 2027-09-30

The Agency Disclosure Notice (ADN)

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Project ID #: La Contenta WWTF	Site Name: Sample Point 9	Date and Time: 12/16/2025
Location (lat/long): 38.17748379 / -120.81809988	Investigator(s): D.Wong	

Step 1 Site overview from remote and online resources.
Check boxes for online resources used to evaluate site:

- [ ] gage data
- [X] LiDAR
- [ ] geologic maps
- [X] climatic data
- [X] satellite imagery
- [ ] land use maps
- [X] aerial photos
- [X] topographic maps
- [ ] Other: _____

Describe land use and flow conditions from online resources.
Were there any recent extreme events (floods or drought)?
Artificial structure, with inputs from the waste water treatment facility onsite.

Step 2 Site conditions during field assessment. First look for changes in channel shape, depositional and erosional features, and changes in vegetation and sediment type, size, density, and distribution. Make note of natural or human-made disturbances that would affect flow and channel form, such as bridges, riprap, landslides, rockfalls, etc.
Constructed pond within a wastewater facility, with constructed inlets and outlets. Portions of the pond contain riprap. OHWM was delineated based on the discolration of the riprap break in bank slope in other parts of pond, and change in vegetation composition and density.

Step 3 Mark the boxes next to the indicators used to help identify the location of the OHWM.
OHWM is at a transition point, therefore some indicators used to identify the location of the OHWM may be just below or above the OHWM. Make a slash in boxes next to indicators that are helpful in identifying the OHWM. After the initial assessment, those indicators identified at the OHWM elevation should be changed from slashes to x's. Note, it is not necessary to mark indicators that are present but do not help inform identification of the OHWM.
Go to page 2 to describe overall rationale for location of OHWM, write any additional observations, and attach a photo log.

Geomorphic indicators

- [X] **Break in slope**
  - [X] *on the bank*
  - [ ] *undercut bank*
  - [ ] *valley bottom*
  - [ ] Other: _____
- [X] **Shelving**
  - [ ] *shelf at top of bank*
  - [ ] *natural levee*
  - [X] *human-made berms or levees*
  - [ ] *other berms:* _____
- [ ] **Secondary channels**
- [X] **Channel bar**
  - [X] *shelving (berms) on bar*
  - [ ] *unvegetated*
  - [ ] *vegetation transition (go to veg. indicators)*
  - [ ] *sediment transition (go to sed. indicators)*
  - [ ] *upper limit of deposition on bar*
- [X] **Instream bedforms and other bedload transport evidence**
  - [ ] *deposition bedload indicators (e.g., imbricated clasts, gravel sheets, etc.)*
  - [ ] *bedforms (e.g., pools, riffles, steps, etc.)*
  - [ ] *Weathered clasts or bedrock*
  - [X] *erosional bedload indicators (e.g., obstacle marks, scour, smoothing, etc.)*

Sediment indicators

- [ ] **Soil development**
- [ ] **Changes in character of soil**
- [ ] **Mudcracks**
- [ ] **Changes in particle-sized distribution**
  - [ ] *transition from* _____ to _____
  - [ ] *upper limit of sand-sized particles*
  - [ ] *silt deposits*

Vegetation indicators (*Consider the vegetation transition looking from the middle of the channel, up the banks, and into the floodplain*)

- [X] **Change in vegetation type from** _____ **to** _____
- [X] **Change in density of vegetation**
- [ ] **Exposed roots below intact soil layer**
- [ ] **Vegetation matted down and/or bent**
- [ ] **Other vegetation observations**

At the OHWM, dense Paspalum dilatatum. Above OHWM, mix of Festuca perennis and Cynodon dactylon. Below OHWM, open water.

Other physical indicators

- [ ] **Sediment deposited on vegetation or structures**
- [ ] **Wracking/presence of organic litter**
- [ ] **Presence of large wood**
- [ ] **Leaf litter disturbed or washed away**
- [ ] **Water staining**

Other observed indicators? Describe:
Sharp drop in bank slope below OHWM to open water.

Project ID #: La Contenta WWTF

Step 4 Was additional information used to support identification of the OHWM? ☐ Yes ☒ No

If yes, describe and attach information to data sheet:

Step 5 Is an OHWM present at this site? ☒ Yes ☐ No

Describe rationale for location of OHWM or lack thereof by describing any observed indicators (at, above, and/or below the OHWM location).

OHWM was determined by the discoloration in riprap or the change in vegetation species/density provide. Depth of the pond drops sharply below the OHWM. Overflow weir and culvert structures slightly above the OHWM indicate releases are controlled based on pond capacity.

Additional observations or notes

Attach an imagery log of the site.

Imagery log attached? ☐ Yes ☐ No If no, explain why not: _____

List photographs, or other imagery/sketches, and include descriptions in the table below.

Number photographs in the order that they are taken. Attach imagery and include annotations of features.

Imagery Number	Imagery description

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 1 Site overview from remote and online resources (Chapter 5) **Complete Step 1 prior to site visit.**

Online Resources: Identify what information is available for the site. Check boxes on data sheet next to the resources used to assess this site.

a. gage data
b. aerial photos
c. satellite imagery
d. LiDAR
e. topographic maps
f. geologic maps
g. land use maps
h. climatic data (precipitation and temperature)

Landscape context: Use the online resources to put the site in the context of the surrounding landscape. (Chapter 4)

a. **Note on the data sheet under Step 1:**
   i. Overall land use and change if known
   ii. Recent extreme events if known (e.g., flood, drought, landslides, debris flows, wildfires)
   iii. Erosional and depositional environments
b. Consider the following to inform weighting of evidence observed during field visit.
   i. What physical characteristics are likely to be observed in specific environments?
   ii. Was there a recent flood or drought? Are you expecting to see recently formed or obscured indicators?
   iii. How will land use affect specific stream characteristics? How natural is the hydrologic regime? How stable has the landscape been over the last year, decade, century?

Step 2 Site conditions during the field assessment (assemble evidence) (Chapter 1 and 3)

a. Identify the assessment area.
b. Walk up and down the assessment area noting all the potential OHWM indicators.
c. Note broad trends in channel shape, vegetation, and sediment characteristics.
   i. Is this a single thread or multi-thread system? Is this a stream-wetland complex?
   ii. Are there any secondary and/or floodplain channels?
   iii. Are there obvious human-made alterations to the system?
   iv. Are there man-made (e.g., bridges, dams, culverts) or natural structures (e.g., bedrock outcrops, Large Wood jams) that will influence or control flow?
d. Look for signs of recurring fluvial action.
   i. Where does the flow converge on the landscape?
   ii. Are there signs of fluvial action (sediment sorting, bedforms, etc.) at the convergence zone?
e. Look for indicators on both banks. If the opposite bank is not accessible, then look across the channel at the bank.
f. **In Step 2 of the data sheet,** describe any adjacent land use or flow conditions that may influence interpretation of each line of evidence.
   i. What land use and flow conditions may be affecting your ability to observe indicators at the site?
   ii. What recent extreme events may have caused changes to the site and affected your ability to observe indicators?

Step 3a List evidence (Chapter 2 and 3)

Assemble evidence by marking each box with a slash next to each line of evidence.

If using fillable form, then follow the instructions for filling in the fillable form.

Context is important when assembling evidence. For instance, pool development may be an indicator of interest on the bed of a dry stream, but may not be a useful indicator to take note of in a flowing stream. On the other hand, if the pool is found in a secondary channel adjacent to the main channel, it could provide a line of evidence for a minimum elevation of high flows. Therefore, consider the site context when deciding which indicators provide evidence for identifying the OHWM. Explain reasoning in Step 5.

Questions to consider while making observations and listing evidence at a site:

Geomorphic indicators	**Sediment and soil indicators**	**Vegetation indicators**	**Other physical indicators**
Where are the breaks in slope?	Where does evidence of soil formation appear?	Where are the significant transitions in vegetation species, density, and age?	Is there organic litter present?
Are there identifiable banks?		Is there vegetation growing on the channel bed?	
Is there an easily identifiable top of bank?	Are there mudcracks present?	If no, how long does it take for the non-tolerant vegetation to establish relative to how often flows occur in the channel?	Is there any leaf litter disturbed or washed away?
Are the banks actively eroding?			
Are the banks undercut?	Is there evidence of sediment sorting by grain size?	Where are the significant transitions in vegetation?	Is there large wood deposition?
Are the banks armored?			
Is the channel confined by the surrounding hillslopes?		Is the vegetation tolerant of flowing water?	Is there evidence of water staining?
Are there natural or man-made berms and levees?		Has any vegetation been flattened by flowing water?	
Are there fluvial terraces?			
Are there channel bars?			

Are the following features of fluvial transport present?

Evidence of erosion: obstacle marks, scour, armoring
Bedforms; riffles, pools, steps, knickpoints/headcuts
Evidence of deposition: imbricated clasts, gravel sheets, etc.

In some cases, it may be helpful to explain why an indicator was NOT at the OHWM elevation, but found above or below. It can also be useful to note if specific indicators (e.g., vegetation) are NOT present. For instance, note if the site has no clear vegetation zonation.

OHWM Field Identification Data Sheet Instructions and Field Procedure

Step 3b Weight each line of evidence (Chapter 1 and 3)

Consider importance of each indicator by assessing the following:

a. Relevance:

i. Is this indicator left by low, high, or extreme flows? Did recent extreme events and/or land use affect this indicator?

ii. Consider the elevation of the indicator relative to the channel bed. What is the current flow level based on season or nearby gages?

iii. Consider the elevation of the indicator relative to the current flow. If the stream is currently at baseflow and indicator is adjacent to that, then it is likely a low-flow indicator. The difference between high-and extreme-flow indicators can sometimes be difficult to determine.

***Landscape context from Step 1 (Chapter 4) can help determine the relevance, strength, and reliability of the indicators observed in the field.**

***In Chapter 2 of the OHWM field manual provides information on specific indicators that can assist in putting these in context and determining relevance, strength, and reliability.**

iv. Recent floods may have left many extreme-flow indicators, or temporarily altered channel form. Other resources will likely be needed to support any OHWM identification at this site. Field evidence of the OHWM may have to wait for the site to recover from the recent flood.

v. Droughts may cause field evidence of OHWM to be obscured because there has been an extended time since the last high-flow event. There can be overgrowth of vegetation or deposition of material from surrounding landscape that can obscure indicators.

vi. Both human-made (e.g., dams, construction, mining activities, urbanization, agriculture, grazing) and natural (e.g., fires, floods, debris flows, beaver dams) disturbances can alter how indicators are expected to appear at a site. Chapter 6 and Chapter 7 of the OHWM field manual provide specific case-studies that can help in interpreting evidence at these sites.

b. Strength:

i. Is this indicator persistent across the landscape?

1. Look up and downstream and across the channel to see if you see the same indicator at multiple locations.
2. Does the indicator occur at the same elevation as other indicators?

c. Reliability:

i. Is this indicator persistent on the landscape over time? Will this indicator still persist across seasons?

1. This can be difficult to determine for some indicators and may be specific to climatic region (in terms of persistence of vegetation) and history of land use or other natural disturbances.
2. Chapter 2, Chapter 6, and Chapter 7 of the OHWM field manual describe each indicator in detail and provide examples of areas where indicators are difficult to interpret.

Step 4 Was additional information used to support identification of the OHWM? Are other resources used to support the lines of evidence observed in the field?

a. If additional resources are needed, then repeat steps 3a and 3b for the resources selected in Step 1 of assembling and weighting evidence collected from online resources. Chapter 5 of the OHWM field manual provides information on using online resources.

b. Any data collected from online tools have strengths and weaknesses. Make sure these are clear when determining relevance, strength, and reliability of the remotely collected data. Clearly describe why other resources were used to support the lines of evidence observed in the field, as well as the relevance, strength, and reliability of the supporting data and/or resources.

c. Attach any remote data and data analysis to the data sheet.

Step 5 Describe rationale for location of OHWM: (Chapter 1 and Chapter 3)

a. Weigh body of evidence:

Combine information from Step 3b: Why do the combination of indicators represent the OHWM?

i. Integrate the lines of evidence (relevance, strength, and reliability) of each indicator.

ii. Consider which indicators are high value indicators that co-occur along the stream reach. Which indicators are most relevant to identifying high flow elevations, which are most persistent across the landscape, and which are most persistent over time?

iii. Which indicators that are found above and below the location of the OHWM were helpful in identifying the elevation of the OHWM?

b. If there is more than one possible location, explain why, Include any relevant discussion on why specific indicators were not included in the final decision.

c. If needed, add additional site notes on page 2 of the data sheet under Step 5 or attach additional sketches and field observations to the data sheet.

d. Take photographs of indicators and attach an imagery log using page 2 of data sheet or another method of logging images.

i. Annotate images with descriptions of indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 10
Investigator(s): D.Wong Section, Township, Range: S24, T04N, R10E
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 0-2
Subregion (LRR): LRR C Lat: 38.178611 Long: -120.81809494 Datum: NAD83
Soil Map Unit Name: 8036, Copperopolis-Whiterock complex, 15 to 30 percent slopes, rocky NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Depressional wetland between two culverts, which then drains into constructued ditches.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Typha latifolia*	15	No	OBL
2. *Cyperus eragrostis*	45	Yes	FACW
3. *Polygonum aviculare*	15	No	FAC
4. *Polypogon monspeliensis*	5	No	FACW
5.			
6.			
7.			
8.			
	80 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
____ Prevalence Index is ≤3.0[1]
____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 6/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

The public reporting burden for this collection of information, OMB Control Number 0710-0024, is estimated to average 30 minutes per response, including the timefor reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services,at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR REQUEST TO THE ABOVE EMAIL.**

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 9/30/2027
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: La Contenta WWTF City/County: Calaveras Sampling Date: 12/16/2025
Applicant/Owner: Calaveras County Water District State: CA Sampling Point: 11
Investigator(s): D.Wong Section, Township, Range: S24, T04N, R10E
Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 0-2
Subregion (LRR): LRR C Lat: 38.17861907 Long: -120.8180805 Datum: NAD83
Soil Map Unit Name: 8036, Copperopolis-Whiterock complex, 15 to 30 percent slopes, rocky NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Paired upland point to sample point 10

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5x5')			
1. *Cynodon dactylon*	50	Yes	FACU
2. *Cyperus eragrostis*	10	No	FACW
3. *Dittrichia graveolens*	10	No	UPL
4. *Festuca perennis*	30	Yes	FAC
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	30	x 3 =	90
FACU species	50	x 4 =	200
UPL species	10	x 5 =	50
Column Totals:	100 (A)		360 (B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/6	100					Loamy/Clayey	
4-12	10YR 6/2	90	10YR 5/4	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Iron Monosulfide (A18)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
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- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

AGENCY DISCLOSURE NOTIFICATION

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PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

APPENDIX C

Plant Species Observed (December 16, 2025)

Scientific Name	Common Name	Indicator Status
APIACEAE	**CARROT FAMILY**	**–**
Sanicula crassicaulis	Pacific sanicle	N/L
*Torilis arvensis**	Field hedge parsley	N/L
ASTERACEAE	**SUNFLOWER FAMILY**	**–**
Baccharis pilularis	Coyote brush	N/L
Baccharis salicifolia	Mulefat	FAC
*Carduus pycnocephalus**	Italian thistle	N/L
*Centaurea melitensis**	Tocalote	N/L
*Centaurea solstitialis**	Yellow star-thistle	N/L
*Dittrichia graveolens**	Stinkwort	N/L
Heliotropium curassavicum	Seaside heliotrope	FACU
Holocarpha virgata ssp. *virgata*	Narrow tarplant	N/L
*Hypochaeris glabra**	Smooth cat's-ear	N/L
*Lactuca serriola**	Prickly lettuce	FACU
Pseudognaphalium sp.	Cudweed	–
*Silybum marianum**	Milk thistle	N/L
Sonchus sp.*	Sowthistle	–
Xanthium strumarium	Rough cockle-bur	FAC
BRASSICACEAE	**MUSTARD FAMILY**	**–**
*Hirschfeldia incana**	Shortpod mustard	N/L
Nasturtium officinale	Water cress	OBL
CARYOPHYLLACEAE	**PINK FAMILY**	**–**
*Stellaria media**	Common chickweed	FACU
CHENOPODIACEAE	**GOOSEFOOT FAMILY**	**–**
*Chenopodium album**	White goosefoot	FACU
CRASSULACEAE	**STONECROP FAMILY**	**–**
Crassula connata	Sand pygmy-weed	FAC
CYPERACEAE	**SEDGE FAMILY**	**–**
Cyperus eragrostis	Tall flatsedge	FACW
Eleocharis palustris	Common spikerush	OBL
Schoenoplectus acutus var. *occidentalis*	Hard-stem bulrush	OBL

Scientific Name	Common Name	Indicator Status
ERICACEAE	**HEATH FAMILY**	**–**
Arctostaphylos sp.	Manzanita	–
EUPHORBIACEAE	**SPURGE FAMILY**	**–**
Croton setiger	Turkey mullein	N/L
FABACEAE	**LEGUME FAMILY**	**–**
Trifolium sp.	Clover	–
*Vicia sativa**	Spring vetch	FACU
*Vicia villosa**	Hairy vetch	N/L
FAGACEAE	**OAK FAMILY**	**–**
Quercus douglasii	Blue oak	N/L
GENTIANACEAE	**GENTIAN FAMILY**	**–**
Zeltnera muehlenbergii	Muehlenberg's centaury	FAC
GERANIACEAE	**GERANIUM FAMILY**	**–**
*Erodium botrys**	Broadleaf filaree	FACU
*Erodium moschatum**	White-stemmed filaree	N/L
*Geranium molle**	Dovefoot geranium	N/L
HYPERICACEAE	**ST. JOHN'S WORT FAMILY**	**–**
*Hypericum perforatum**	Klamath weed	FACU
JUNCACEAE	**RUSH FAMILY**	**–**
Juncus balticus ssp. *ater*	Baltic rush	FACW
MONTIACEAE	**MINER'S LETTUCE FAMILY**	**–**
Claytonia sp.	Springbeauty	–
MYRSINACEAE	**MYRSINE FAMILY**	**–**
*Lysimachia arvensis**	Scarlet pimpernel	FAC
ONAGRACEAE	**EVENING PRIMROSE FAMILY**	**–**
Epilobium ciliatum	Hairy willow-herb	FACW
PINACEAE	**PINE FAMILY**	**–**
Pinus sp.*	Pine (cultivated)	–
PLANTAGINACEAE	**PLANTAIN FAMILY**	**–**
*Kickxia elatine**	Sharp-leaved fluellin	UPL
*Plantago lanceolata**	English plantain	FAC

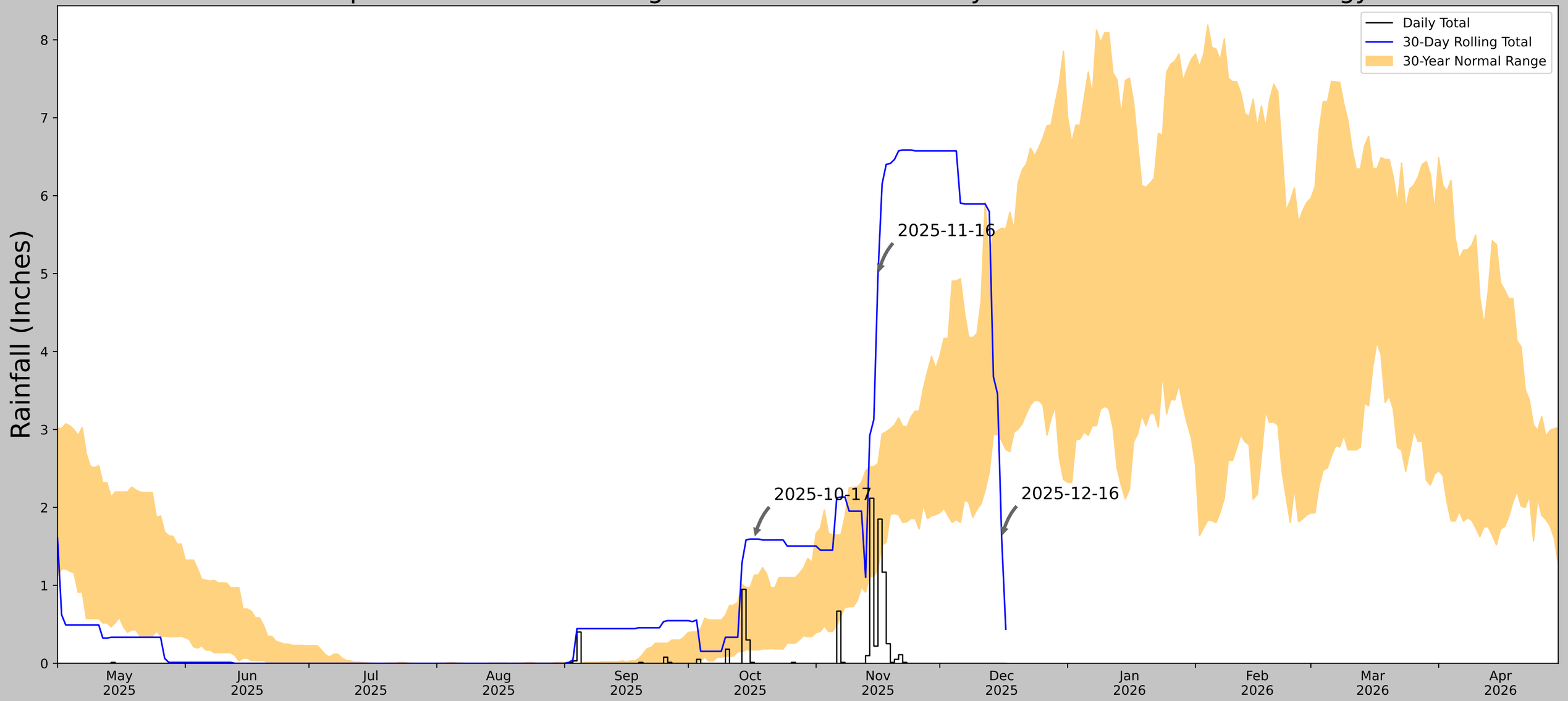
Scientific Name	Common Name	Indicator Status
POACEAE	**GRASS FAMILY**	**–**
Andropogon virginicus var. *virginicus**	Broomsedge bluestem	FAC
*Bromus diandrus**	Ripgut brome	N/L
*Bromus hordeaceus**	Soft brome	FACU
*Cynodon dactylon**	Bermuda grass	FACU
*Elymus caput-medusae**	Medusahead grass	N/L
*Festuca perennis**	Italian ryegrass	FAC
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley	FAC
*Paspalum dilatatum**	Dallis grass	FAC
*Polypogon monspeliensis**	Rabbitsfoot grass	FACW
*Triticum aestivum**	Cultivated wheat	N/L
POLEMONIACEAE	**PHLOX FAMILY**	**–**
Navarretia sp.	Navarretia	—
POLYGONACEAE	**BUCKWHEAT FAMILY**	**–**
*Polygonum aviculare**	Prostrate knotweed	FAC
*Rumex crispus**	Curly dock	FAC
RHAMNACEAE	**BUCKTHORN FAMILY**	**–**
Ceanothus cuneatus var. *cuneatus*	Buck brush	N/L
ROSACEAE	**ROSE FAMILY**	**–**
Heteromeles arbutifolia	Toyon	N/L
SALICACEAE	**WILLOW FAMILY**	**–**
Salix laevigata	Red willow	FACW
TAXODIACEAE	**BALD CYPRESS FAMILY**	**–**
Sequoia sempervirens	Coast redwood (cultivated)	N/L
VERBENACEAE	**VERVAIN FAMILY**	**–**
Verbena bracteata	Vracted verbena	–

Notes: * = non-native species

APPENDIX D

Antecedent Precipitation Tool for December 16, 2025

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.17738, -120.81757
Observation Date	2025-12-16
Elevation (ft)	738.097
Drought Index (PDSI)	Incipient drought (2025-11)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-12-16	2.855906	5.583465	1.606299	Dry	1	3	3
2025-11-16	1.207874	2.564173	4.980315	Wet	3	2	6
2025-10-17	0.172047	1.132284	1.594488	Wet	3	1	3
Result							Normal Conditions - 12

Figures and tables made by the
Antecedent Precipitation Tool
Version 3.0

US Army Corps of Engineers.
ERDC

Developed by:
U.S. Army Corps of Engineers and
U.S. Army Engineer Research and
Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
NEW MELONES DAM HQ	38.0047, -120.4864	959.974	21.602	221.877	14.514	11283	89
SONORA	37.9672, -120.3872	1674.869	5.991	714.895	6.979	70	1

APPENDIX E

Representative Site Photographs

Photo 1. Location of Sample Point 2 (view north; December 16, 2025).

Photo 2. Seasonal Wetland (SW-03) and DITCH-01 (view northwest; December 16, 2025).

Photo 3. Representative Photo of the Lower Effluent Storage Pond (WTP-01) (view southeast; December 16, 2025).

Photo 4. Representative Photo of the Upper Effluent Storage Pond (WTP-02) (view east; December 16, 2025).

Photo 5. Location of Sample Point 7 (view west; December 16, 2025).

Photo 6. Drainage Ditch (DD-01) within the Facility (view north; December 16, 2025).

Photo 7. Location of Sample Point 8 and Aquatic Feature DITCH-01 (view west; December 16, 2025).

Photo 8. Drainage Ditch (DD-02) along the Roadside of the Lower Effluent Storage Pond (view south; December 16, 2025).

APPENDIX F

USACE ORM Aquatic Resources Table

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
WTP-01	CALIFORNIA	L1UB		Area	0.598462272	ACRE	DELIN.CONC	38.17013611	-120.8182103	
SW-01	CALIFORNIA	PEM		Area	0.016792932	ACRE	DELIN.CONC	38.17134573	-120.8168816	
SW-02	CALIFORNIA	PEM		Area	0.001862937	ACRE	DELIN.CONC	38.17206563	-120.8166195	
SW-03	CALIFORNIA	PEM		Area	0.021383178	ACRE	DELIN.CONC	38.17871238	-120.818262	
SW-04	CALIFORNIA	PEM		Area	0.033438403	ACRE	DELIN.CONC	38.17851761	-120.8180742	
SW-05	CALIFORNIA	PEM		Area	0.007607544	ACRE	DELIN.CONC	38.17835569	-120.8180907	
WTP-02	CALIFORNIA	L1OW		Area	3.980039493	ACRE	DELIN.CONC	38.17797694	-120.8172073	
DITCH-01	CALIFORNIA	R4		Area	0.013306771	ACRE	DELIN.CONC	38.17827325	-120.8184087	
DD-01	CALIFORNIA	R6		Area	0.030757784	ACRE	DELIN.CONC	38.17845046	-120.8174578	
DD-02	CALIFORNIA	R6		Area	0.013444108	ACRE	DELIN.CONC	38.17147583	-120.8170806	
DITCH-02	CALIFORNIA	R4		Area	0.001554888	ACRE	DELIN.CONC	38.17880151	-120.8183038	
DD-03	CALIFORNIA	R6		Area	0.067441094	ACRE	DELIN.CONC	38.17736856	-120.8173062	
DD-04	CALIFORNIA	R6		Area	0.019940824	ACRE	DELIN.CONC	38.17883533	-120.8167951	

APPENDIX G

Delineation Shape File (to be included with USACE submittal only)

APPENDIX F

La Contenta WWTF Project Energy Consumption Analysis,
ECORP Consulting, Inc. February 2026.

La Contenta WWTF Project
2025-018

Energy Consumption Analysis
Construction On-Road Fuel Consumption

Worker Trips						
Phase Name	**Phase Length**	**# of Trips**	**Worker Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Demolition	30.0	15.0	12.7	5,724.0	**24.33032203**	*235.3*
Site Preparation	20.0	17.5	12.7	4,452.0		*183.0*
Excavation Operations	67.0	22.5	12.7	19,175.4		*788.1*
Building Construction	58.0	6.9	12.7	5,065.0		*208.2*
Paving	22.0	15.0	12.7	4,197.6		*172.5*
Painting	22.0	1.4	12.7	384.2		*15.8*
					Worker Trips Total (Gasoline)	*1,603*

Vendor Trips						
Phase	**Phase Length**	**# of Trips**	**Vendor Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Demolition	30	0	0	0	**8.185260459**	*0.0*
Site Preparation	20	0	0	0		*0.0*
Excavation Operations	67	0	0	0		*0.0*
Building Construction	58	3	9	1364.3		*166.7*
Paving	22	0	0	0		*0.0*
Painting	22	0	0	0		*0.0*
					Vendor Trips Total (Diesel)	*167*

Hauling Trips						
Phase	**Phase Length**	**# of Trips**	**Hauling Trip Length**	**Total VMT**	**Fuel Consumption Factor (Miles/Gallon/Day)**	**Total Fuel Consumption (gallon)**
Demolition	30	3	20	1500.0	**8.185260459**	*12,277.9*
Site Preparation	20	31	20	12500.0		*102,315.8*
Excavation Operations	67	9	20	12500.0		*102,315.8*
Building Construction	58	0	0	0		*0.0*
Paving	22	0	0	0		*0.0*
Painting	22	0	0	0		*0.0*
					Hauling Trips Total (Diesel)	*216,909*
					Construction On-Road Diesel Consumption	***217,076***
					Construction Off-Road Diesel Consumption	***37,811***

Total Construction On-Road Gasoline Consumption (gallon)	**Total Construction Off-Road and On-Road Diesel Consumption (gallon)**
1,603	254,887
Statewide On-Road Gasoline Consumption (2024)	**Statewide Off-Road and On-Road Diesel Consumption (2024)**
14,071,323,791	3,429,798,776
Percentage Increase Statewide	
Gasoline Consumption[1]	**Diesel Consumption[1,2]**
0.0000%	0.0074%

Notes:

1. Countywide fuel consumption rates, on-road construction equipment diesel fuel consumption, and on-road fuel consumption are from CARB's EMFAC2021.
2. Countywide off-road fuel consumption is from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

La Contenta WWTF Project
2025-018

Energy Consumption Analysis
Electricity and Natural Gas

Project Electricity Consumption		Project Natural Gas Consumption	
(kWh/year)	(MWh/year)	(kBTU/year)	(Therms/year)
168,853	169	0	0

California County Annual Energy Consumption (2024)			
Electricity Consumption[1]		Natural Gas Consumption[2]	
(kWh/year)	(MWh/year)	(kBTU/year)	(Therms/year)
182,902,348,759	182,902,349	0	0

Percentage Increase Statewide	
Electricity Consumption[1]	Natural Gas Consumption[2]
0.0001%	0.0000%

Notes:

1. State annual electricity consumption data source: California Energy Commission, Electricity Consumption by County, http://www.ecdms.energy.ca.gov/elecbycounty.aspx.
2. State annual natural gas consumption data source: California Energy Commission, Gas Consumption by County, http://www.ecdms.energy.ca.gov/gasbycounty.aspx.

Source: Refer to CalEEMod outputs for assumptions used in this analysis.

La Contenta WWTF Project
2025-018

Energy Consumption Analysis
Construction Off-Road Fuel Consumption

Phase Name	Off-Road Equipment	Quantity	Usage (hrs)	Horsepower (hp)	Load Factor	Fuel Consumption Rate (gallon/hr)[1]	Total Hours	Number of Days	Total Fuel Consumption (gallon)
Demolition	Concrete/Industrial Saws	1	8	33	0.73	1.39	8	30	333.6
Demolition	Excavators	3	8	36	0.38	0.79	24	30	568.3
Demolition	Rubber Tired Dozers	2	8	367	0.4	7.62	16	30	3,657.1
Site Preparation	Rubber Tired Dozers	3	8	367	0.4	7.62	24	20	3,657.1
Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37	1.79	32	20	1,147.7
Excavation Operations	Excavators	2	8	36	0.38	0.79	16	67	846.2
Excavation Operations	Graders	1	8	148	0.41	3.15	8	67	1,688.0
Excavation Operations	Rubber Tired Dozers	1	8	367	0.4	7.62	8	67	4,083.7
Excavation Operations	Scrapers	2	8	423	0.48	10.54	16	67	11,296.5
Excavation Operations	Tractors/Loaders/Backhoes	2	8	84	0.37	1.79	16	67	1,922.4
Excavation Operations	Sweepers/Scrubbers	1	8	36	0.46	0.96	8	67	512.2
Building Construction	Cranes	1	7	367	0.29	5.52	7	58	2,242.6
Building Construction	Forklifts	3	8	82	0.2	0.95	24	58	1,317.2
Building Construction	Generator Sets	1	8	14	0.74	0.60	8	58	277.4
Building Construction	Tractors/Loaders/Backhoes	3	7	84	0.37	1.79	21	58	2,184.3
Building Construction	Welders	1	8	46	0.45	1.19	8	58	554.2
Paving	Pavers	2	8	81	0.42	1.96	16	22	691.0
Paving	Paving Equipment	2	6	89	0.36	1.85	12	22	488.1
Paving	Rollers	2	6	36	0.38	0.79	12	22	208.4
Painting	Air Compressors	1	6	37	0.48	1.02	6	22	135.3
								Total Construction Off-Road Fuel (Diesel) Consumption (gallon)	***37,811***
								Statewide Off-Road Fuel (Diesel) Consumption (2024) (gallon)	***234,449,452***

Notes:

1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Fuel Consumption Factor: Brake Specific Fuel Capacity is converted from diesel lb/hp-hr to diesel gallon/hp-hr

Environmental Protection Agency, 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*

2. Statewide off-road diesel consumption is from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis as well as equipment usage.

La Contenta WWTF Project
2025-018

Energy Consumption Analysis
Emergency Generator Maintenance Fuel Consumption

Phase Name	Off-Road Equipment	Quantity	Usage (hrs)	Horsepower (hp)	Load Factor	Fuel Consumption Rate (gallon/hr)[1]	Total Hours	Number of Days	Total Fuel Consumption (gallon)
Excavation Operations	Generator Sets	1	3	14	0.74	0.60	3	4	7.2
Total Operational Fuel (Diesel) Consumption for the Maintenance of the Emergency Generator (gallon)									***7***
Statewide Off-Road Fuel (Diesel) Consumption (2024) (gallon)									***234,449,452***

Notes:

1. Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Fuel Consumption Factor: Brake Specific Fuel Capacity is converted from diesel lb/hp-hr to diesel gallon/hp-hr

Environmental Protection Agency, 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2*

2. Statewide off-road diesel consumption is from CARB's OFFROAD2021 (v1.0.5) Emissions Inventory.

Source: Refer to CalEEMod outputs for assumptions used in this analysis as well as equipment usage.

APPENDIX G

La Contenta WWTF Project Noise Analysis, ECORP Consulting, Inc.
February 2026

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **01: La Contenta WWTF Project, Demolition**

Description	**Affected Land Use**
01: Demolition	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Concrete Saw	No	20		89.6	871	0
Excavator	No	40		80.7	871	0
Excavator	No	40		80.7	871	0
Excavator	No	40		80.7	871	0
Dozer	No	40		81.7	871	0
Dozer	No	40		81.7	871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Concrete Saw	64.8	57.8
Excavator	55.9	51.9
Excavator	55.9	51.9
Excavator	55.9	51.9
Dozer	56.8	52.9
Dozer	56.8	52.9
Total	64.8	**61.6**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **02: La Contenta WWTF Project, Site Preparation**

Description	**Affected Land Use**
02: Site Preparation	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Dozer	No	40		81.7	871	0
Dozer	No	40		81.7	871	0
Dozer	No	40		81.7	871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Dozer	56.8	52.9
Dozer	56.8	52.9
Dozer	56.8	52.9
Tractor	59.2	55.2
Tractor	59.2	55.2
Tractor	59.2	55.2
Tractor	59.2	55.2
Total	59.2	**62.8**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **03: La Contenta WWTF Project, Excavation Operations**

Description	**Affected Land Use**
03: Excavation Operations	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Excavator	No	40		80.7	871	0
Excavator	No	40		80.7	871	0
Grader	No	40	85		871	0
Dozer	No	40		81.7	871	0
Scraper	No	40		83.6	871	0
Scraper	No	40		83.6	871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0
Vacuum Street Sweeper	No	10		81.6	871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Excavator	55.9	51.9
Excavator	55.9	51.9
Grader	60.2	56.2
Dozer	56.8	52.9
Scraper	58.8	54.8
Scraper	58.8	54.8
Tractor	59.2	55.2
Tractor	59.2	55.2
Vacuum Street Sweeper	56.8	46.8
Total	60.2	**63.5**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **04: La Contenta WWTF Project, Building Construction**

Description	**Affected Land Use**
04: Building Construction	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Crane	No	16		80.6	871	0
Gradall	No	40		83.4	871	0
Gradall	No	40		83.4	871	0
Gradall	No	40		83.4	871	0
Generator	No	50		80.6	871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0
Tractor	No	40	84		871	0
Welder / Torch	No	40		74	871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Crane	55.7	47.8
Gradall	58.6	54.6
Gradall	58.6	54.6
Gradall	58.6	54.6
Generator	55.8	52.8
Tractor	59.2	55.2
Tractor	59.2	55.2
Tractor	59.2	55.2
Welder / Torch	49.2	45.2
Total	59.2	**63.3**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **05: La Contenta WWTF Project, Paving**

Description	**Affected Land Use**
05: Paving	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Paver	No	50		77.2	871	0
Paver	No	50		77.2	871	0
Pavement Scarafier	No	20		89.5	871	0
Pavement Scarafier	No	20		89.5	871	0
Roller	No	20		80	871	0
Roller	No	20		80	871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Paver	52.4	49.4
Paver	52.4	49.4
Pavement Scarafier	64.7	57.7
Pavement Scarafier	64.7	57.7
Roller	55.2	48.2
Roller	55.2	48.2
Total	64.7	**61.7**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/4/2026
Case Description: **06: La Contenta WWTF Project, Painting**

Description	**Affected Land Use**
06: Painting	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**	**Estimated Shielding (dBA)**
Compressor (air)	No	40		77.7	871	0

Results

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Compressor (air)	52.8	48.9
Total	52.8	**48.9**

*Calculated Lmax is the Loudest value.