

COPPER COVE WATER SYSTEM

C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

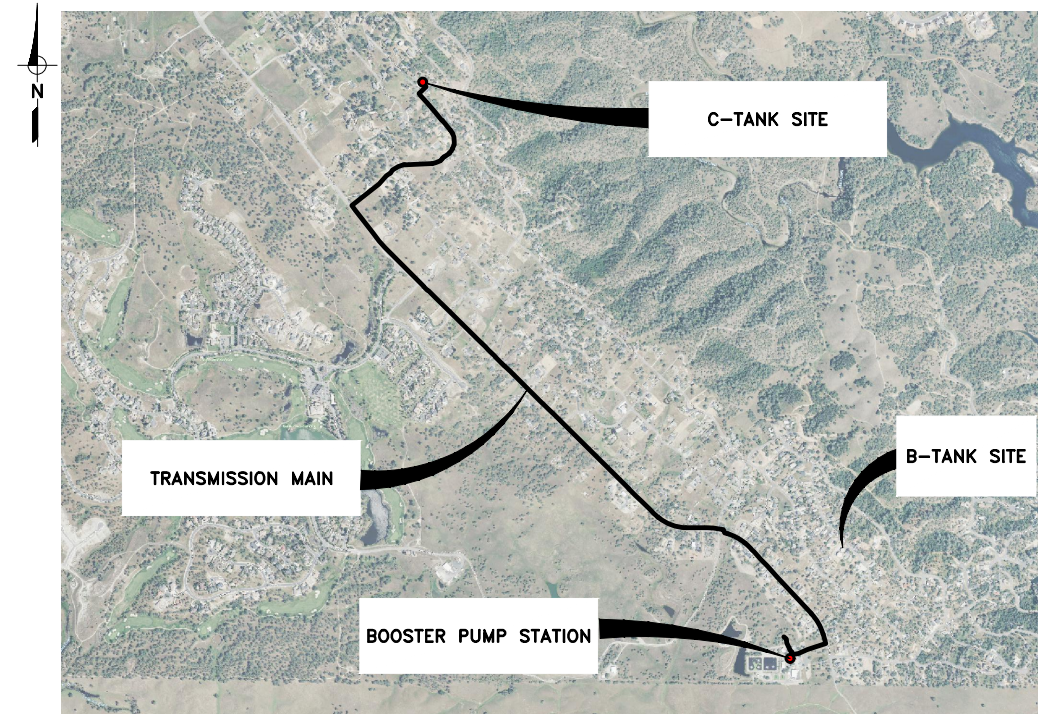
JANUARY 2025



VICINITY MAP
NTS

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LOCATION MAP
NTS

APPROVALS

DAMON WYCKOFF
DIRECTOR OF OPERATIONS
CALAVERAS COUNTY WATER DISTRICT

DATE

KARL BRUSTAD, PE
PRESIDENT
PBI, LLP

1/13/2025
DATE

Calaveras County Water District

120 TOMA CT, SAN ANDREAS, CA 95249
PHONE: (209) 754-3543



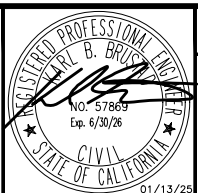
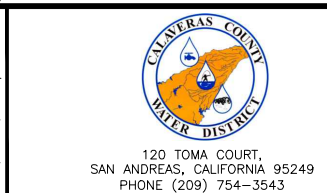
WARNING: CONTRACTOR TO USE EXTREME CAUTION. EXACT DEPTH AND LOCATION OF UNDERGROUND UTILITIES ARE UNKNOWN. CONTRACTOR TO FIELD VERIFY LOCATIONS AND DEPTH OF EXISTING UTILITIES PRIOR TO CONSTRUCTION AND SHALL NOTIFY ENGINEER OF ANY CONFLICT. CONTRACTOR SHALL CALL USA AT 1-800-642-2444 OR 811 AT LEAST TWO WORKING DAYS BEFORE DIGGING.

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| DRAWN: JAK/HMH |
| CHECKED: KBB |



COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TITLE SHEET, LOCATION MAP, & VICINITY MAP

FIGURE
G01
SHEET 1 OF 48

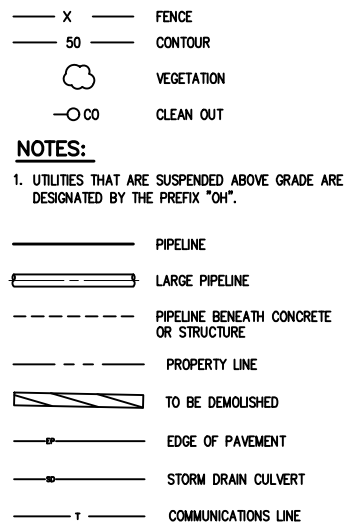
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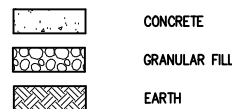
ABBREVIATIONS

| | | | |
|---------|---|-------|-------------------------------------|
| AC | ASPHALT CONCRETE | PVC | POLYVINYL CHLORIDE |
| ACP | ASBESTOS CEMENT PIPE | RFLCA | RESTRAINED FLANGED COUPLING ADAPTER |
| AWWA | AMERICAN WATER WORKS ASSOCIATION | SCH | SCHEDULE |
| AVRV | AIR VACUUM RELEASE VALVE | SF | SQUARE FEET |
| BFV | BUTTERFLY VALVE | SS | SANITARY SEWER |
| BLDG | BUILDING | SD | STORM DRAIN |
| BWS | BACKWASH SUPPLY | TW | TREATED WATER |
| CCWD | CALAVERAS COUNTY WATER DISTRICT | TYP | TYPICAL |
| CONC | CONCRETE | W | WATER, WEST, WIDTH |
| DI | DUCTILE IRON | WSP | WELDED STEEL PIPE |
| DIA, Ø | DIAMETER | WTP | WATER TREATMENT PLANT |
| DIP | DUCTILE IRON PIPE | WV | WATER VALVE |
| E | EAST | | |
| EX, (E) | EXISTING | | |
| EG | EXISTING GRADE | | |
| EL | ELEVATION | | |
| EP | EDGE OF PAVEMENT | | |
| FCA | FLANGED COUPLING ADAPTER | | |
| FE | FILTER EFFLUENT, FLOW ELEMENT, FLANGED END | | |
| GV | GATE VALVE | | |
| IN, " | INCH | | |
| IE | INVERT ELEVATION | | |
| LF | LINEAR FEET | | |
| MAX | MAXIMUM | | |
| MIN | MINIMUM | | |
| N | NORTH, NEUTRAL, NEW | | |
| NTS | NOT TO SCALE | | |
| OSHA | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION | | |

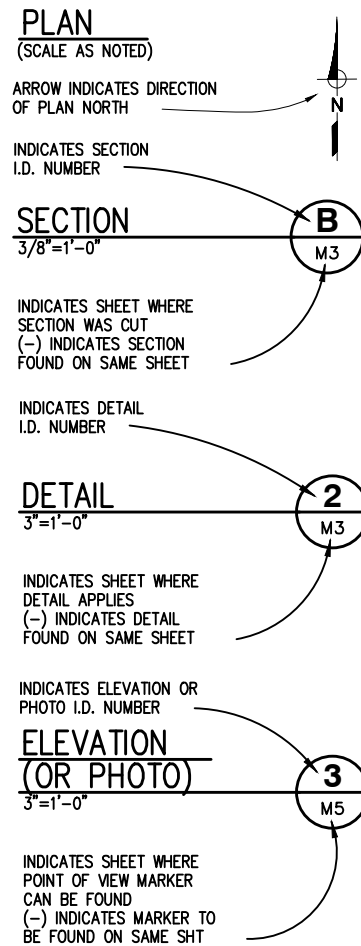
SITE PLAN SYMBOLOGY & LINE TYPE



MATERIALS IN PLAN/SECTION



GENERAL SYMBOLOGY



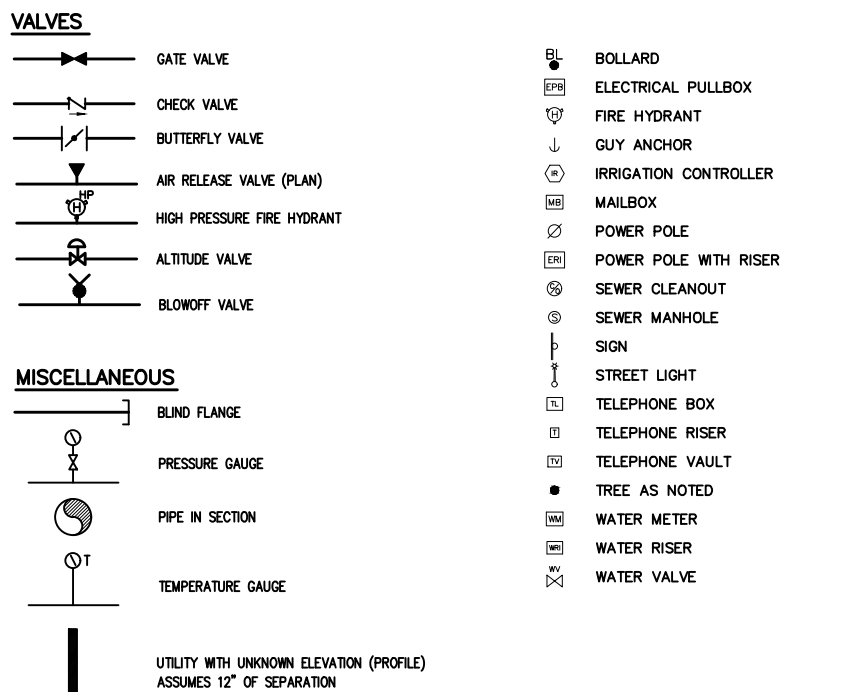
DESIGN CRITERIA

| CRITERION | VALUE | |
|-----------------------------|-----------------------------|--------------|
| MAXIMUM DESIGN FLOW | MAX PUMP STATION DISCHARGE: | 3,300 GPM |
| | INDIVIDUAL PUMP DISCHARGE | 1,650 GPM |
| WTP ELEVATION | 785 FEET | |
| C TANK ELEVATION | GROUND ELEVATION | |
| | MAXIMUM WATER ELEVATION | 1,163.9 FEET |
| STATIC HEAD AT PUMP | 378.9 FEET | |
| HAZEN WILLIAMS CONSTANT | 10.44 | |
| LENGTH OF PIPE | 12,000 FEET | |
| ROUGHNESS COEFFICIENT | 130 | |
| DIAMETER | 20 INCHES | |
| HEADLOSS | 20 FEET | |
| MINOR LOSSES | 4.0 FEET | |
| REQUIRED TOTAL DYNAMIC HEAD | 402.9 FEET | |
| DESIGN TOTAL DYNAMIC HEAD | 440 FEET | |

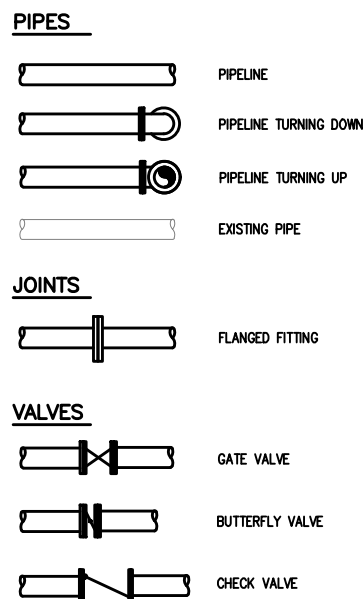
NOTE: FOR A GIVEN ROADSIDE FILL SLOPE, THE DISTANCE FROM THE HINGE POINT TO THE TRENCH WALL SHALL BE PER THE FOLLOWING TABLE:

| SLOPE | DISTANCE |
|-------|---------------------------|
| 1.5:1 | 1.5 x TRENCH WIDTH |
| 2:1 | EQUAL TO THE TRENCH WIDTH |
| 3:1 | 0.5 x THE TRENCH WIDTH |

SINGLE LINE PIPING SYMBOLOGY



DOUBLE LINE PIPING SYMBOLOGY



GENERAL NOTES

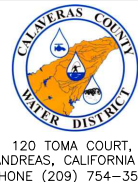
- THESE ABBREVIATIONS APPLY TO THE ENTIRE SET OF CONTRACT DRAWINGS.
- LISTING OF ABBREVIATIONS DOES NOT IMPLY ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
- ABBREVIATIONS SHOWN ON THIS DRAWING INCLUDE VARIATIONS OF THE WORD. FOR EXAMPLE, "W" MAY MEAN WATER OR WEST.
- SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH DRAWING FOR USAGE.

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| DRAWN | JAK/HMH |
| CHECKED | KBB |



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| COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN | |
| ABBREVIATIONS, SYMBOLS, GENERAL NOTES, & DESIGN CRITERIA | |

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|--------|---------|
| FIGURE | G02 |
| SHEET | 2 OF 48 |

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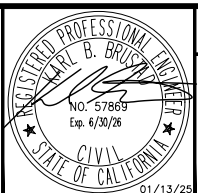
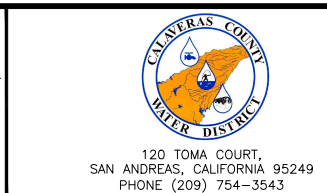


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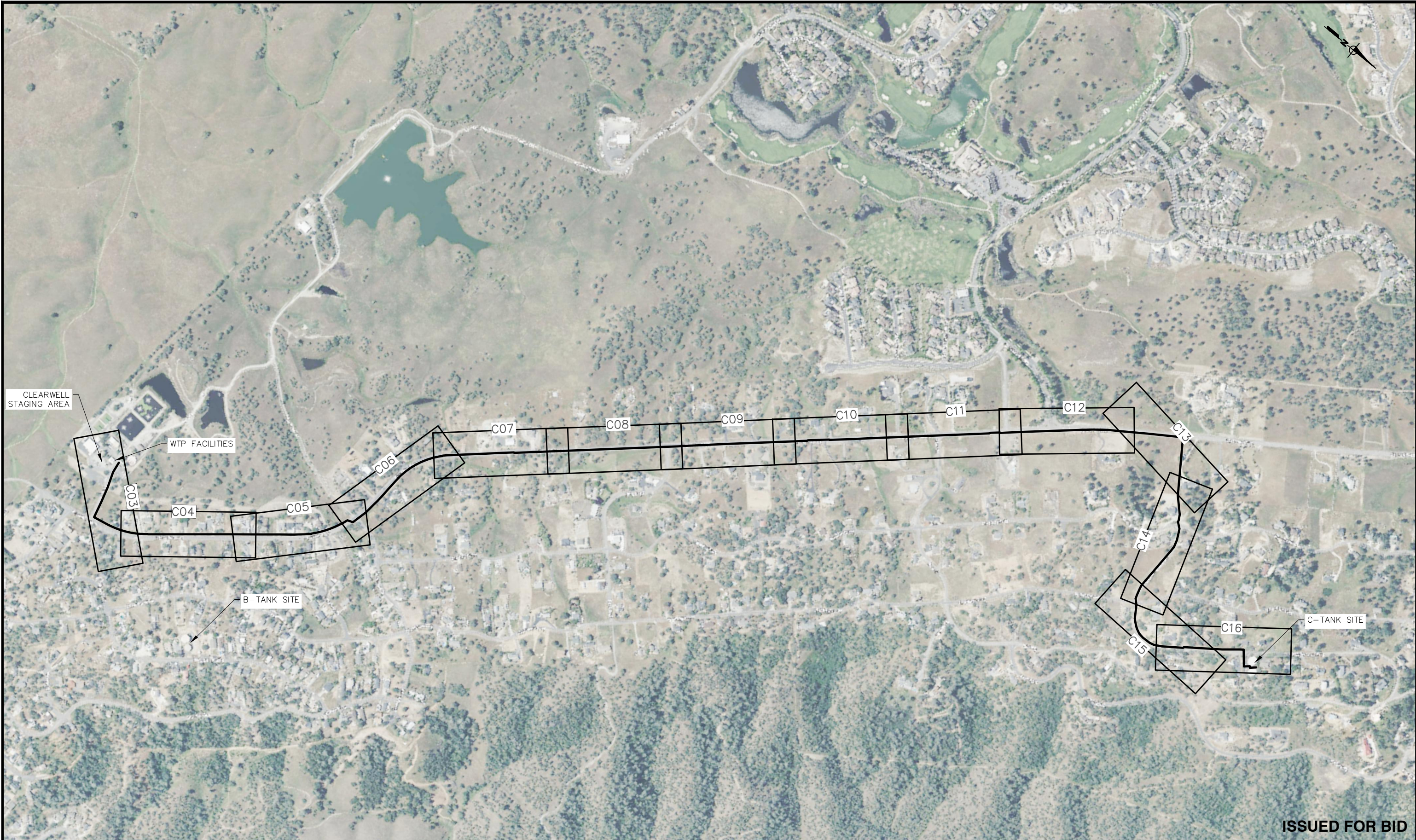
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| STAGING AREAS | |

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| FIGURE | C01 |
| SHEET | 3 OF 48 |

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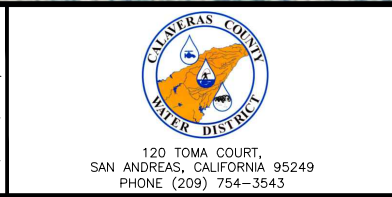
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SCALE: 1" = 350'

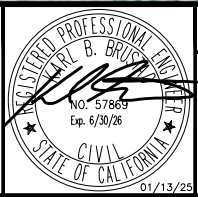
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 Folsom, CA 95630
 PH. 916-608-2212

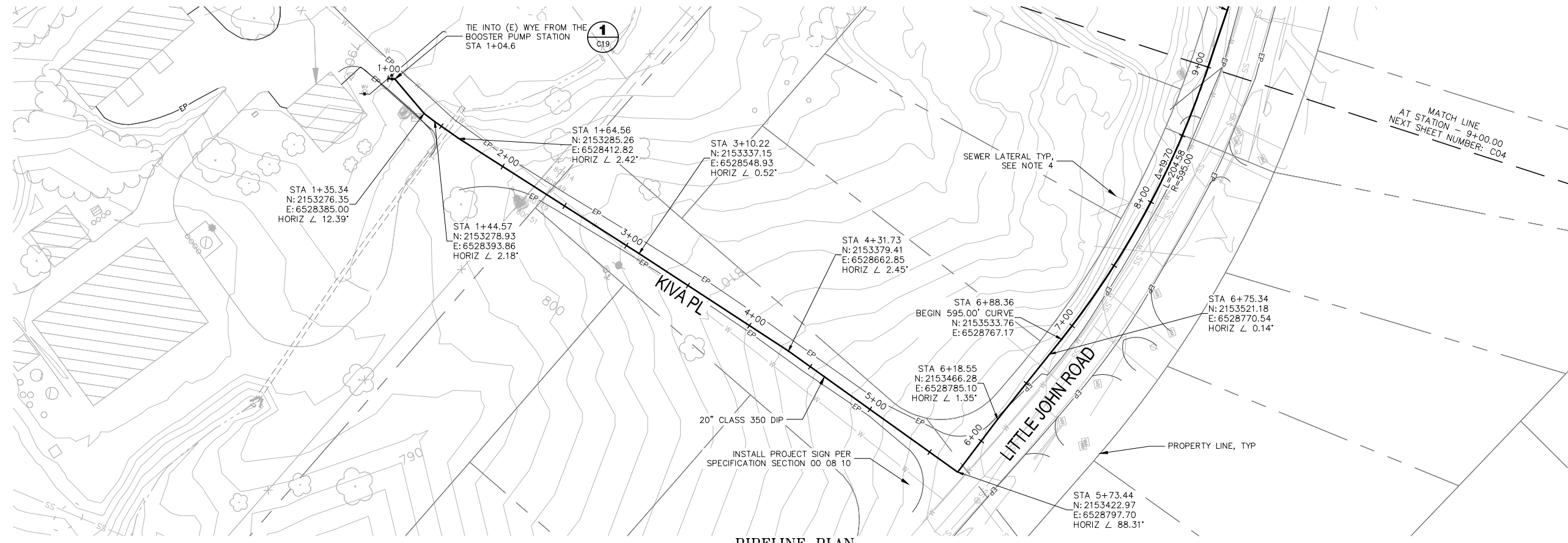


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

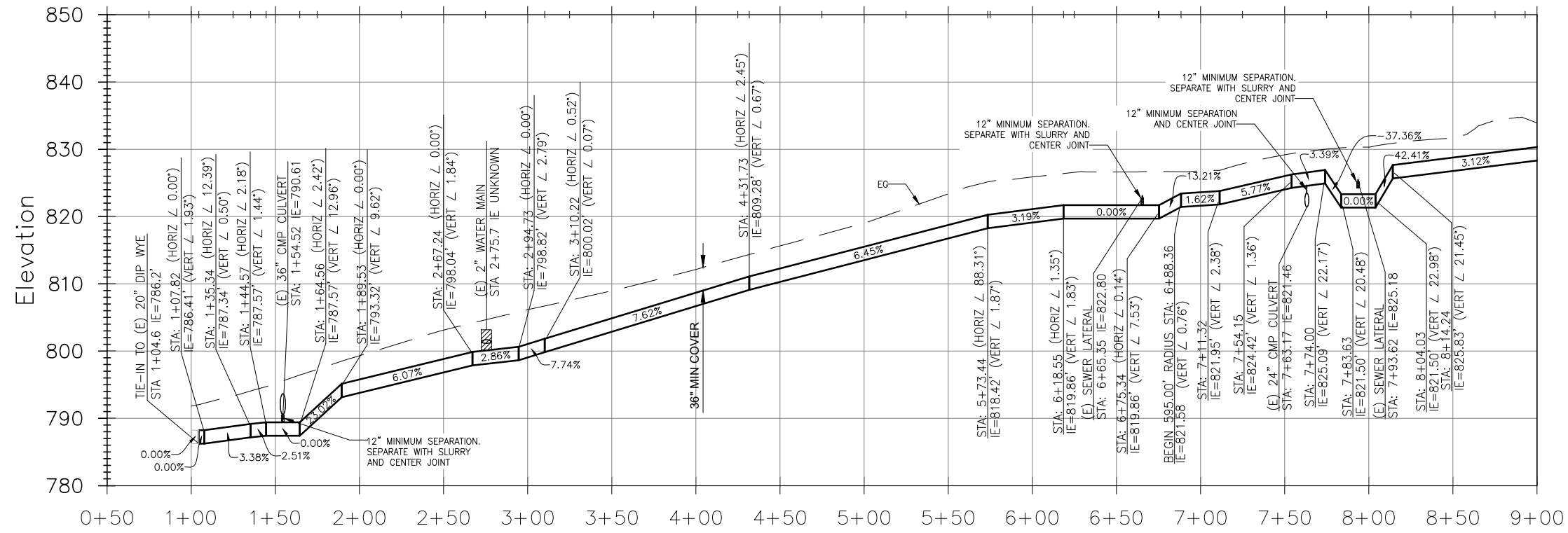
TRANSMISSION MAIN SHEET INDEX

FIGURE C02
 SHEET 4 OF 48

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- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
 4. WATER MAINS SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND 10 FEET FROM STORM DRAINS AND SEWER MAINS, RESPECTIVELY. A MINIMUM OF 1 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED ABOVE AND BELOW ALL STORM DRAIN AND SEWER MAIN CROSSINGS. A FULL STICK OF WATER PIPE SHALL BE CENTERED UNDER ALL STORM DRAIN AND SEWER MAIN CROSSINGS UTILIZING MECHANICAL JOINTS, WITH CROSSINGS AT ANGLES NO LESS THAN 45 DEGREES.



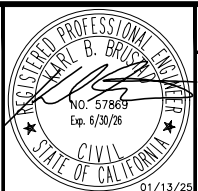
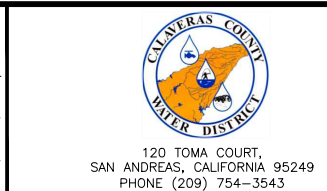
PIPELINE PROFILE
 HORIZ SCALE: 1"=40'
 VERT SCALE: 1"=10'

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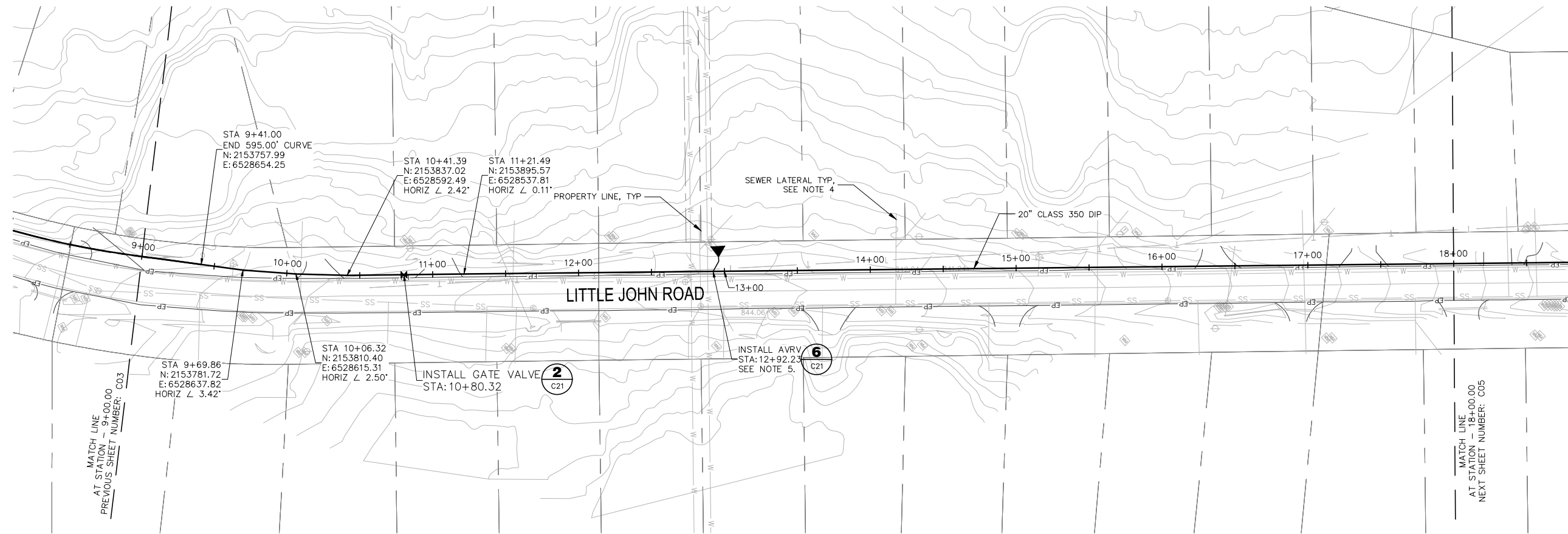


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
 STA 1+00 TO 9+00

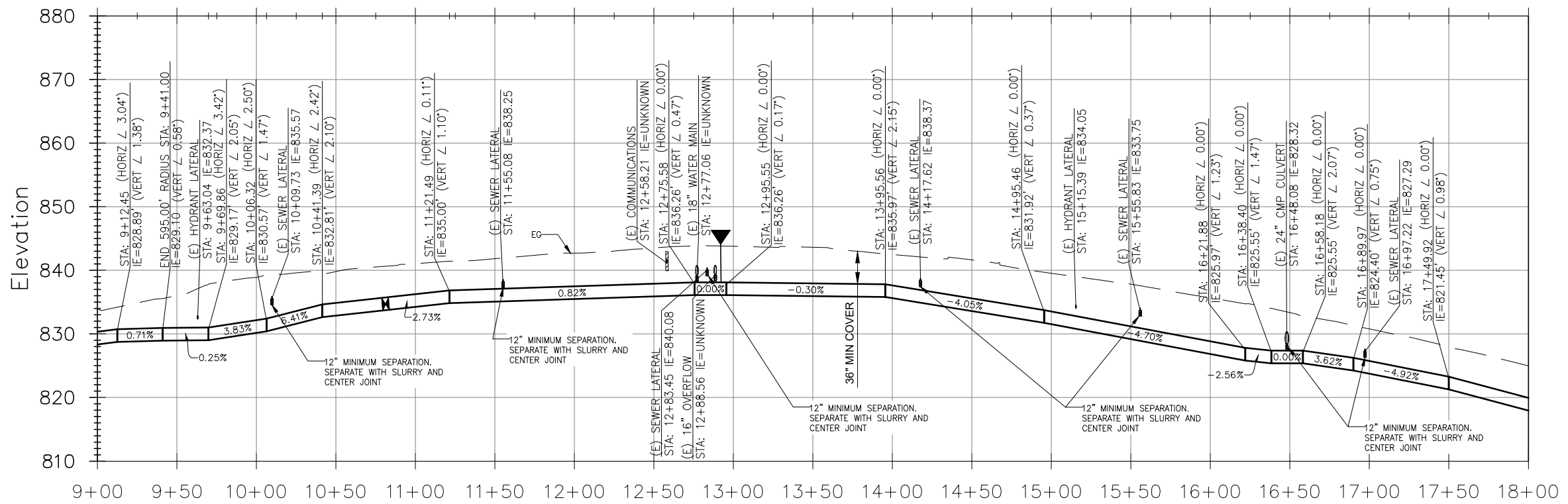
FIGURE
C03
 SHEET 5 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
 4. WATER MAINS SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND 10 FEET FROM STORM DRAINS AND SEWER MAINS, RESPECTIVELY. A MINIMUM OF 1 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED ABOVE AND BELOW ALL STORM DRAIN AND SEWER MAIN CROSSINGS. A FULL STICK OF WATER PIPE SHALL BE CENTERED UNDER ALL STORM DRAIN AND SEWER MAIN CROSSINGS UTILIZING MECHANICAL JOINTS, WITH CROSSINGS AT ANGLES NO LESS THAN 45 DEGREES.
 5. CONTRACTOR SHALL ENSURE AVRVS MAINTAIN A POSITIVE SLOPE AND 36 INCHES MINIMUM COVER. IF MINIMUM COVER CAN NOT BE MET, SLURRY BACKFILL SHALL BE USED.



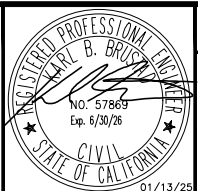
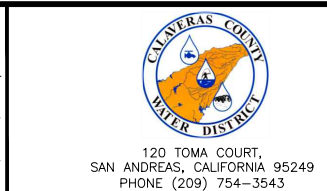
PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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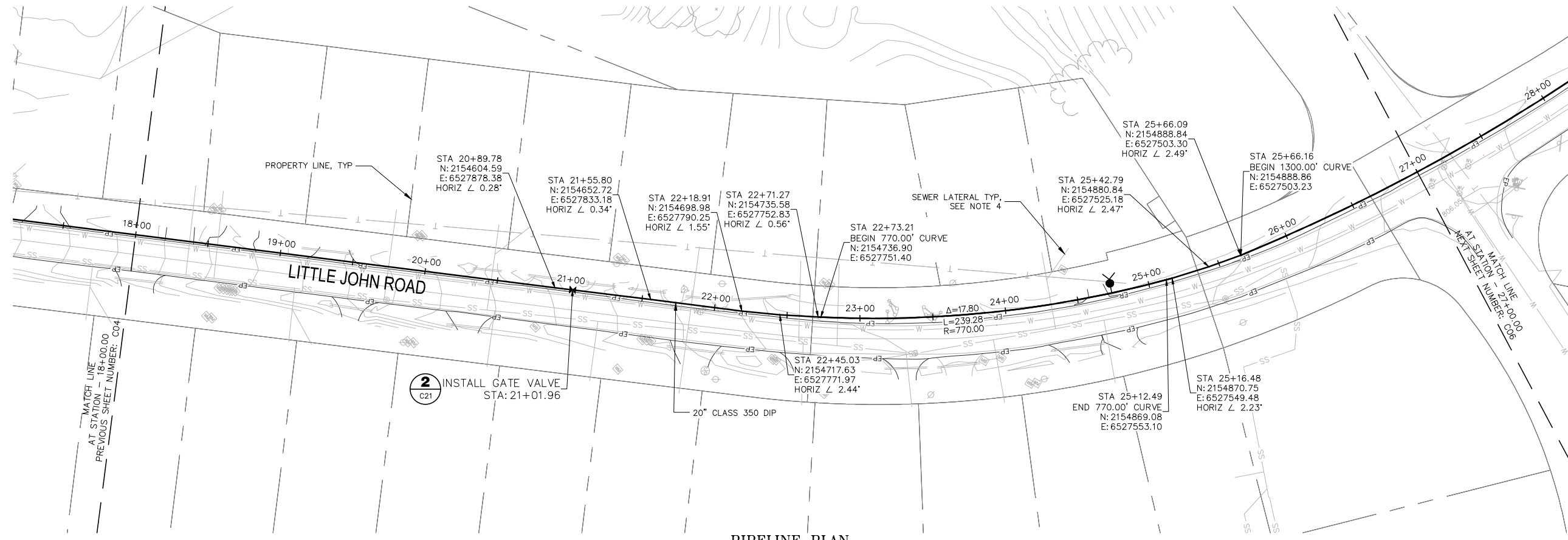


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 9+00 TO 18+00

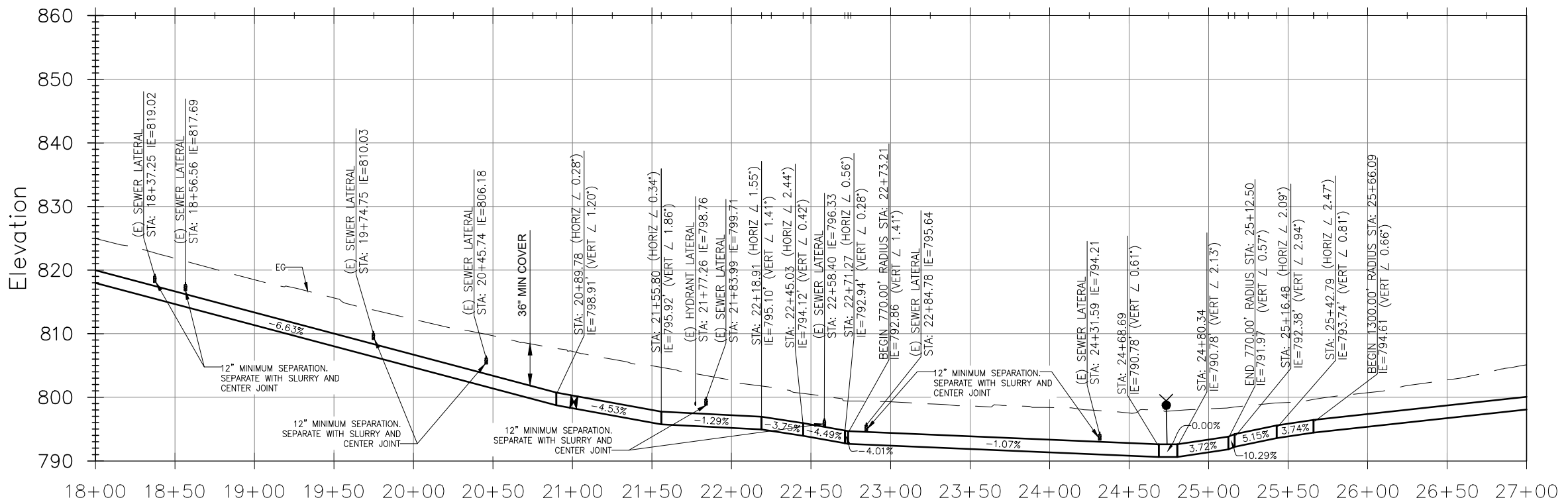
FIGURE
C04
SHEET 6 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
 4. WATER MAINS SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND 10 FEET FROM STORM DRAINS AND SEWER MAINS, RESPECTIVELY. A MINIMUM OF 1 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED ABOVE AND BELOW ALL STORM DRAIN AND SEWER MAIN CROSSINGS. A FULL STICK OF WATER PIPE SHALL BE CENTERED UNDER ALL STORM DRAIN AND SEWER MAIN CROSSINGS UTILIZING MECHANICAL JOINTS, WITH CROSSINGS AT ANGLES NO LESS THAN 45 DEGREES.



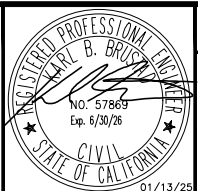
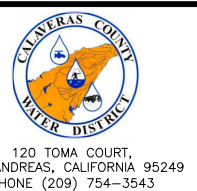
PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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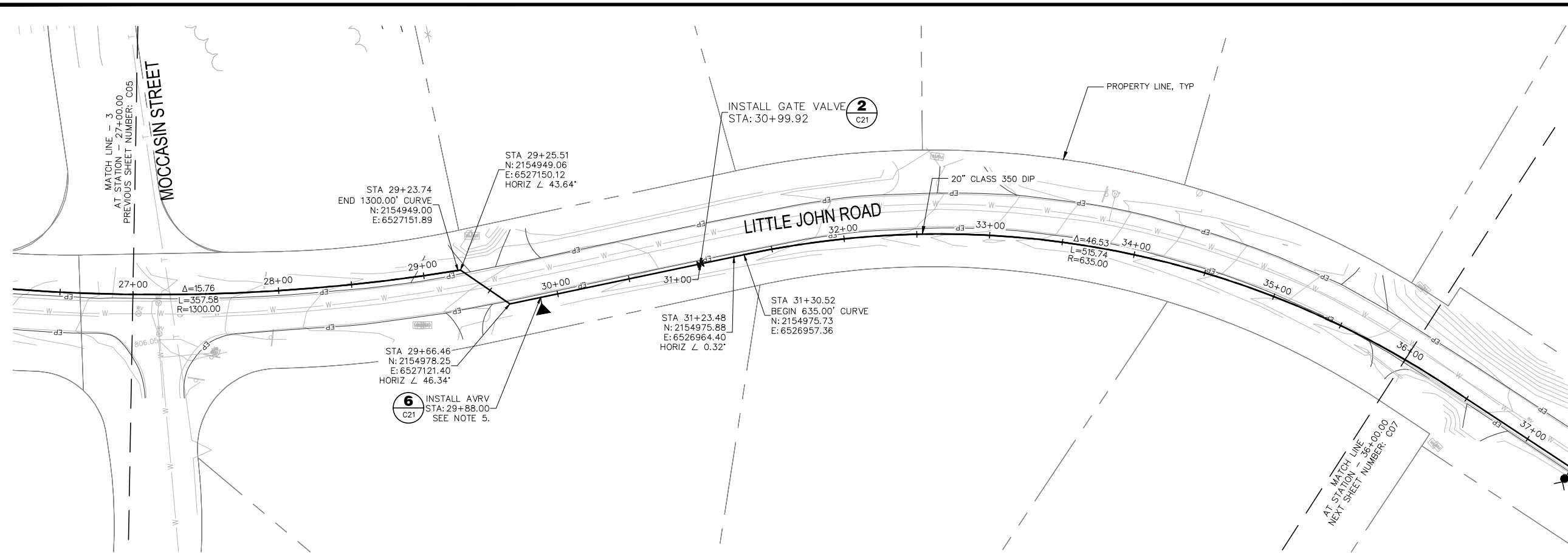


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 18+00 TO 27+00

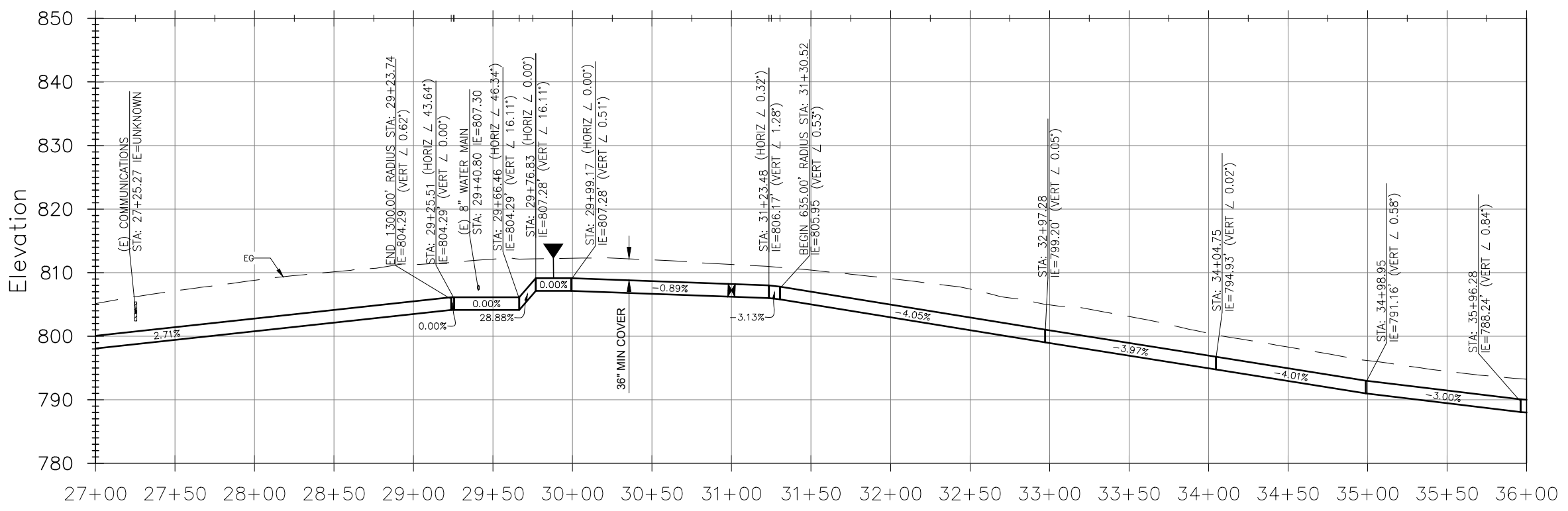
FIGURE
C05
SHEET 7 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
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 5. CONTRACTOR SHALL ENSURE AVRVS MAINTAIN A POSITIVE SLOPE AND 36 INCHES MINIMUM COVER. IF MINIMUM COVER CAN NOT BE MET, SLURRY BACKFILL SHALL BE USED.



PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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| DRAWN: JAK/HMH |
| CHECKED: KBB |

120 TOMA COURT,
SAN ANDREAS, CALIFORNIA 95249
PHONE (209) 754-3543

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PH. 916-608-2212

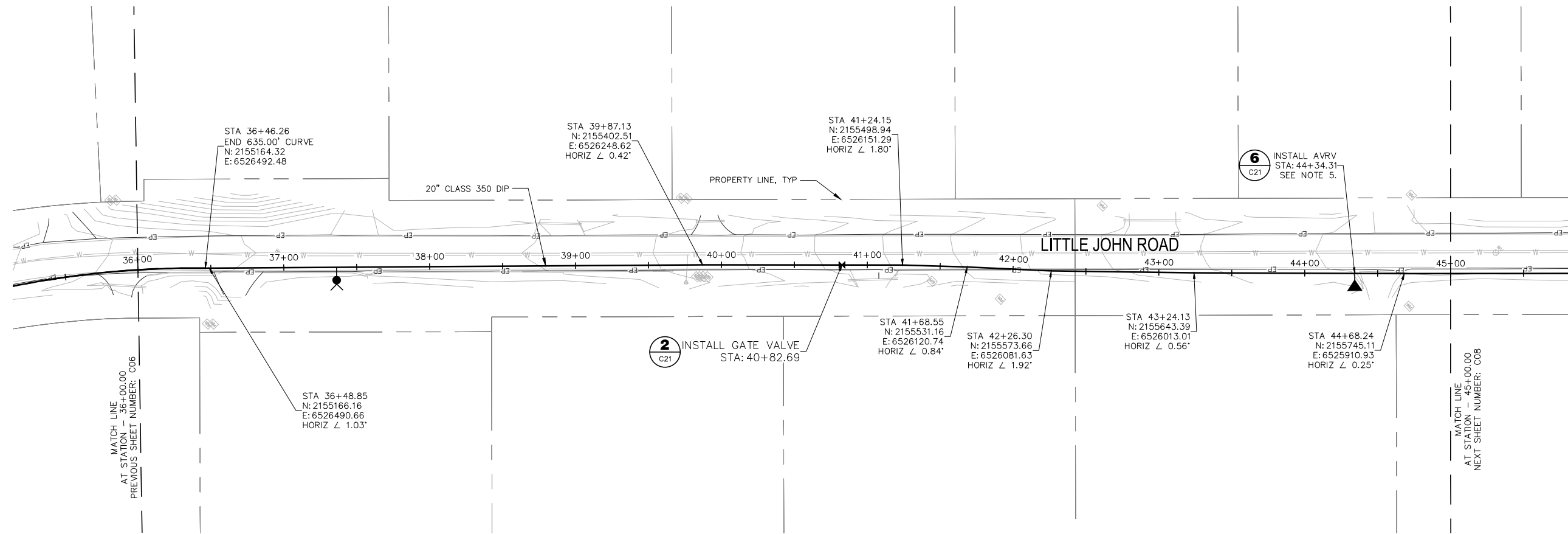
REGISTERED PROFESSIONAL ENGINEER
CARL B. BRUCK
NO. 57869
Exp. 6/30/26
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

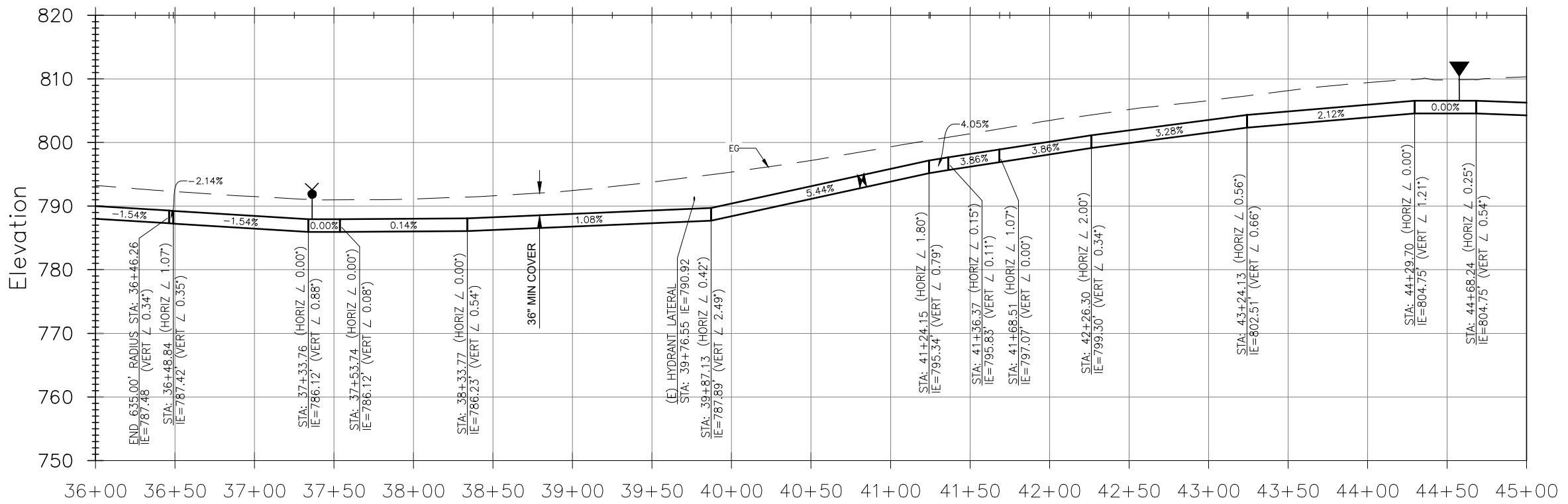
PLAN AND PROFILE
STA 27+00 TO 36+00

FIGURE
C06
SHEET 8 OF 48

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PIPELINE PLAN
SCALE: 1"=40'



PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

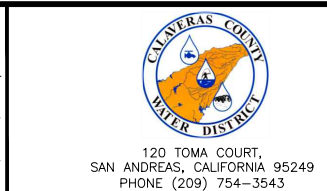
- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
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| DATE: JANUARY 2025 | DESIGNED: AAS/ADA DRAWN: JAK/HMH CHECKED: KBB |

DESIGNED: AAS/ADA
DRAWN: JAK/HMH
CHECKED: KBB

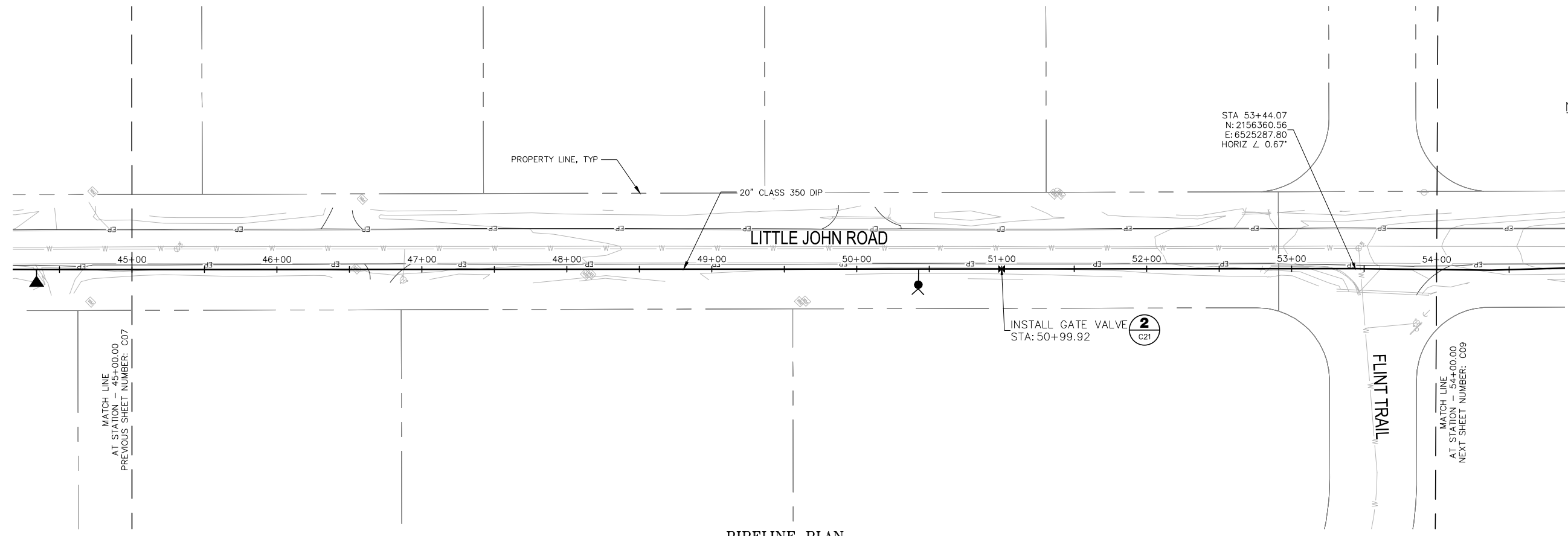


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 36+00 TO 45+00

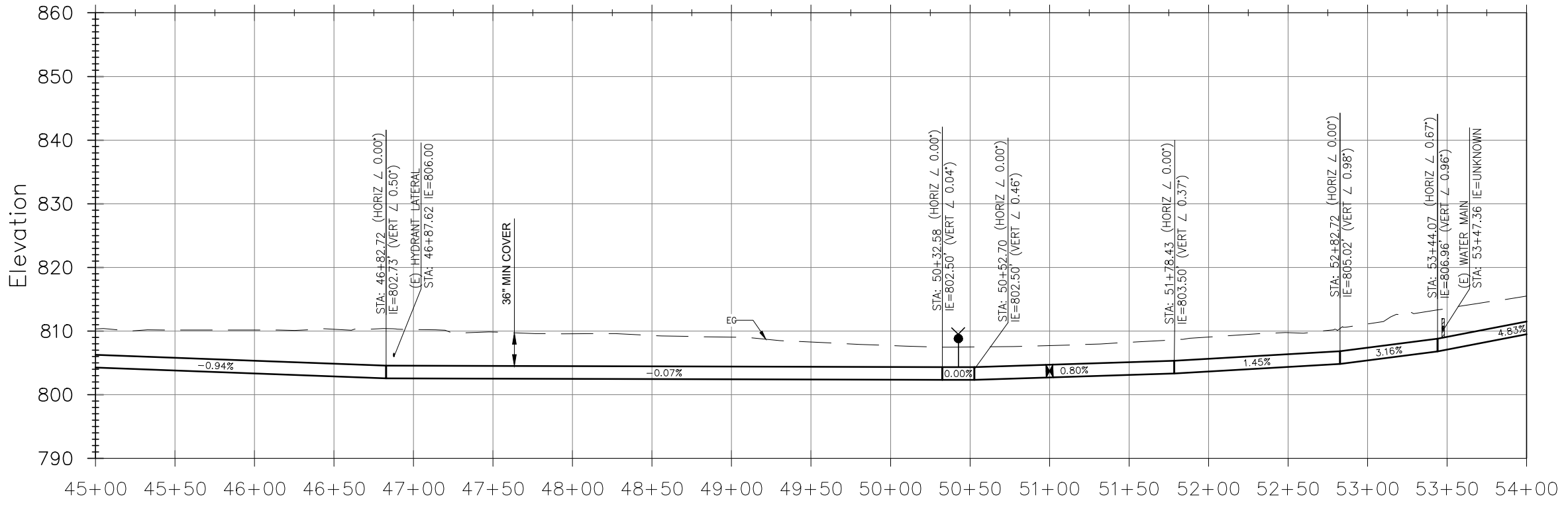
FIGURE
C07
SHEET 9 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
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PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

ISSUED FOR BID

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| SCALE: AS NOTED | WARNING 0 1/2 1 |
| DATE: JANUARY 2025 | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |

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| CHECKED: KBB |

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REGISTERED PROFESSIONAL ENGINEER
CARL B. BRUCK
No. 57869
Exp. 6/30/26
CIVIL
STATE OF CALIFORNIA
01/13/25

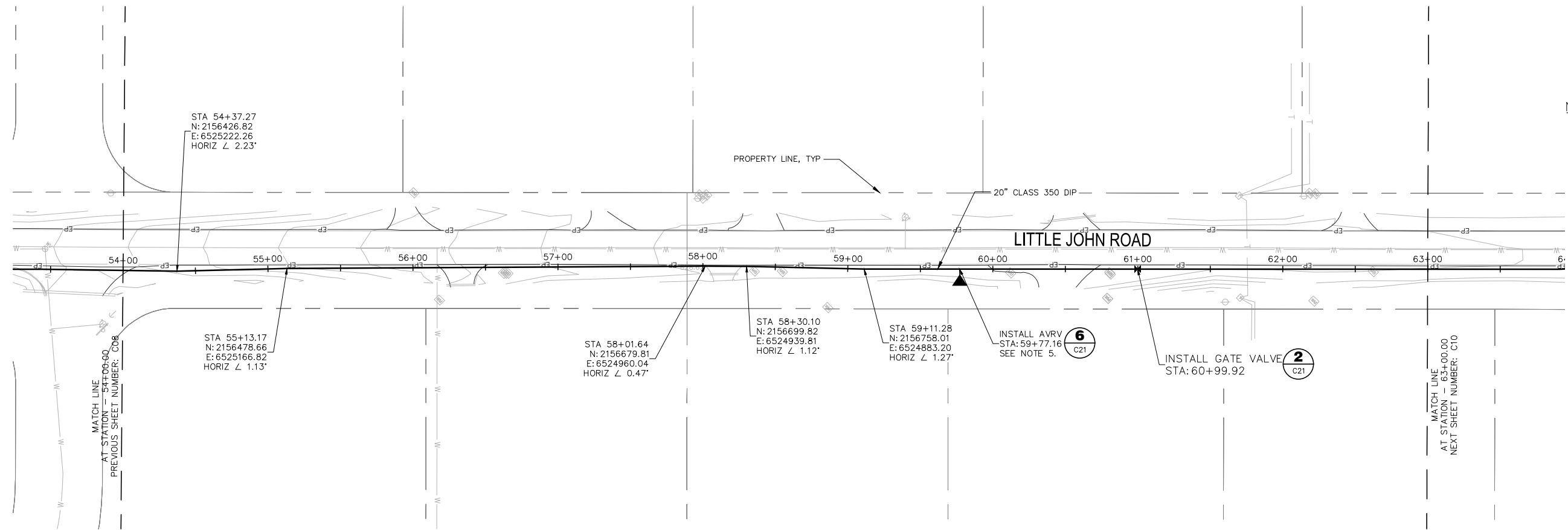
COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 45+00 TO 54+00

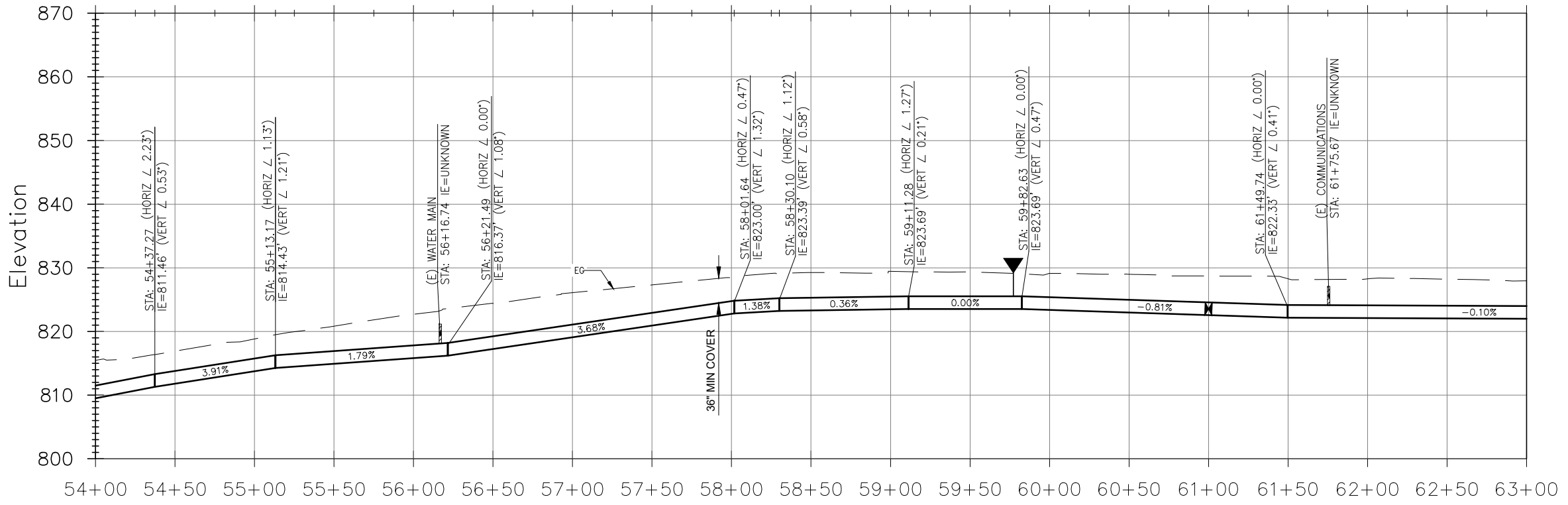
FIGURE
C08

SHEET 10 OF 48

P:\COWD\Copper Cove Water System Improvements\05 Drawings\5.1 CAD\BPS & Transmission Main\Copper Cove BPS (2023) - Civil.dwg 1-10-25 05:16:06 PM hhoran



PIPELINE PLAN
SCALE: 1"=40'



PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

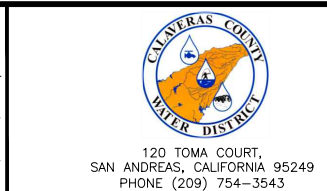
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| DRAWN: JAK/HMH |
| CHECKED: KBB |

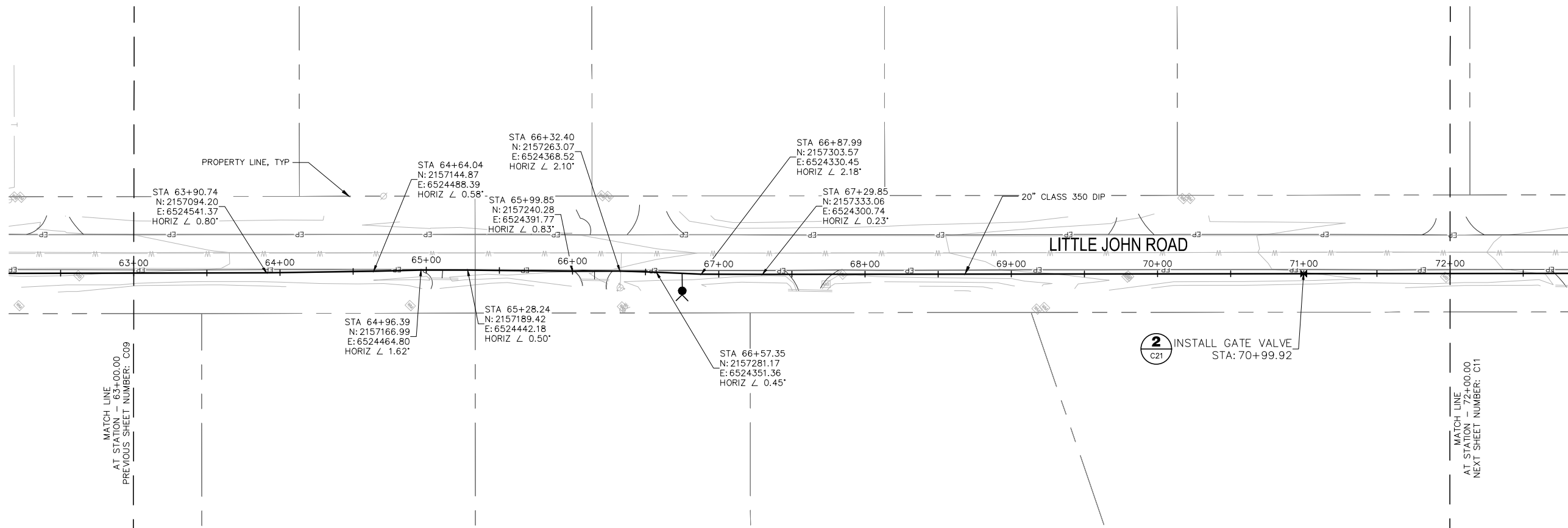


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 54+00 TO 63+00

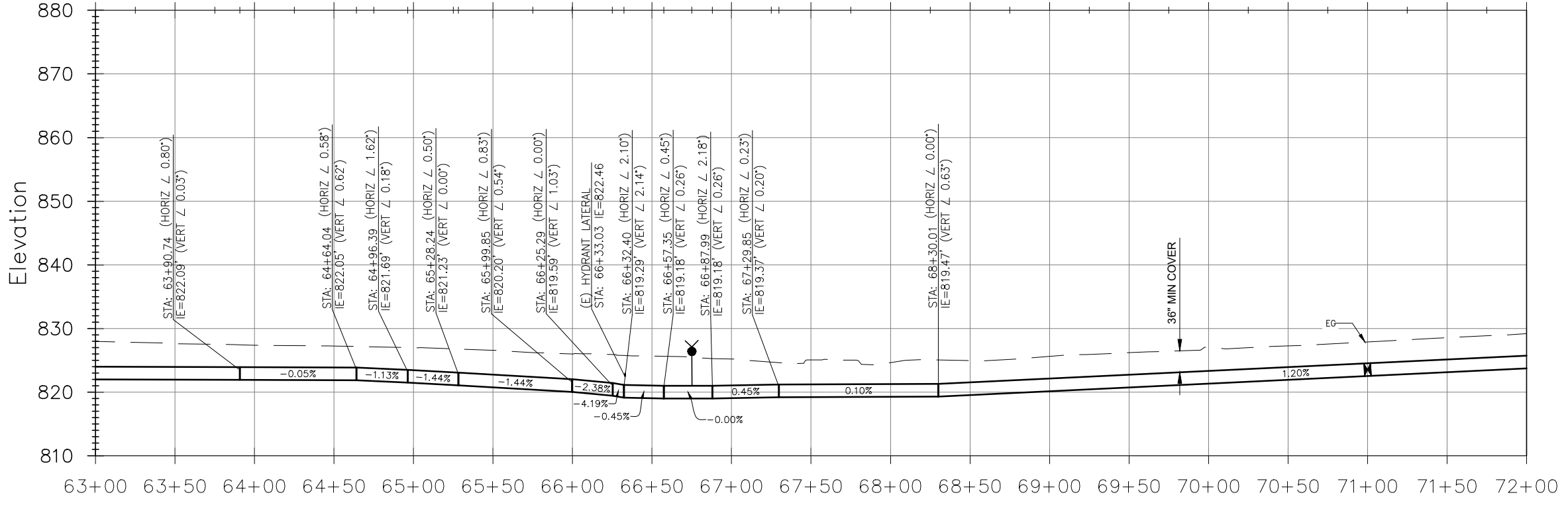
FIGURE
C09
SHEET 11 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
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PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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| CHECKED: KBB |

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PHONE (209) 754-3543

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Folsom, CA 95630
PH. 916-608-2212

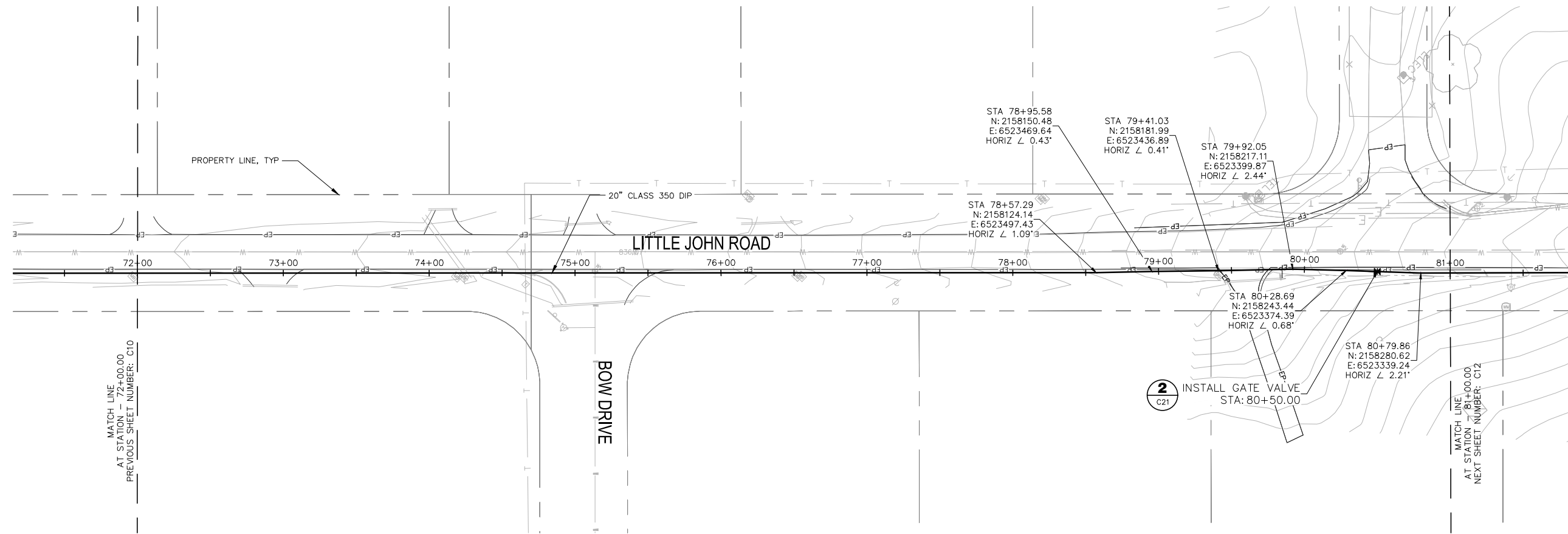
REGISTERED PROFESSIONAL ENGINEER
CARL B. BRUCK
NO. 57869
Exp. 6/30/26
CIVIL
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 63+00 TO 72+00

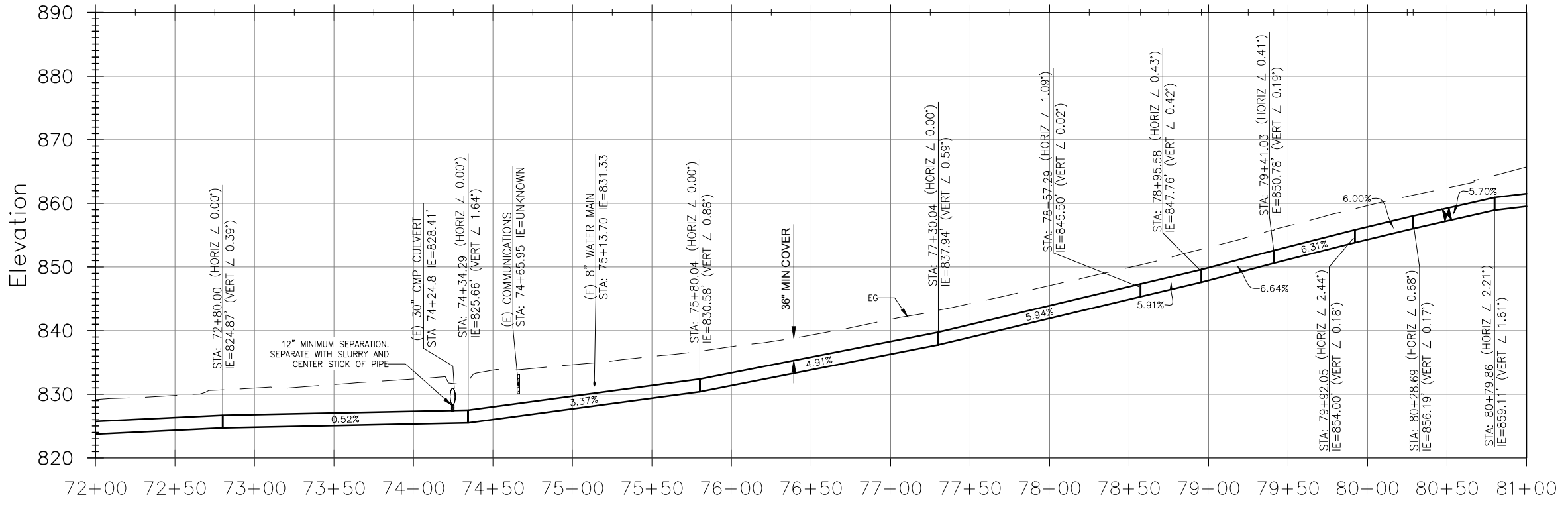
FIGURE
C10
SHEET 12 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

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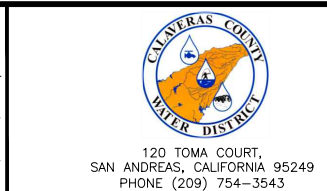
PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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| DESIGNED: AAS/ADA |
| DRAWN: JAK/HMH |
| CHECKED: KBB |

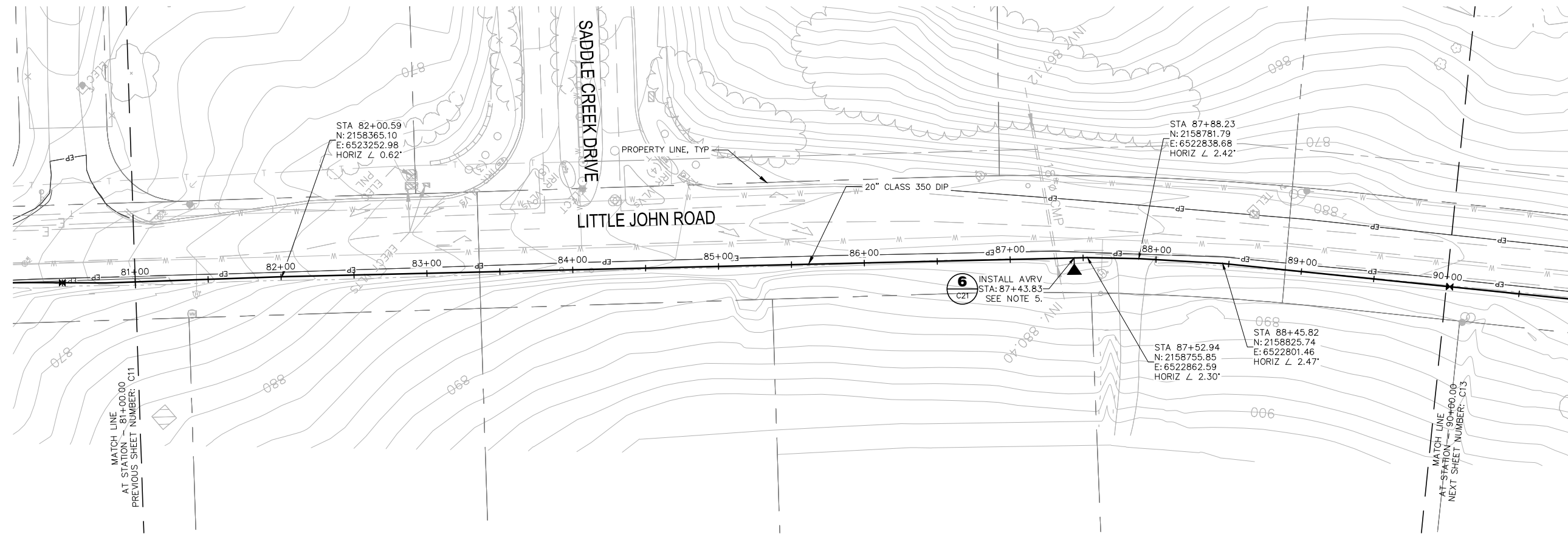


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

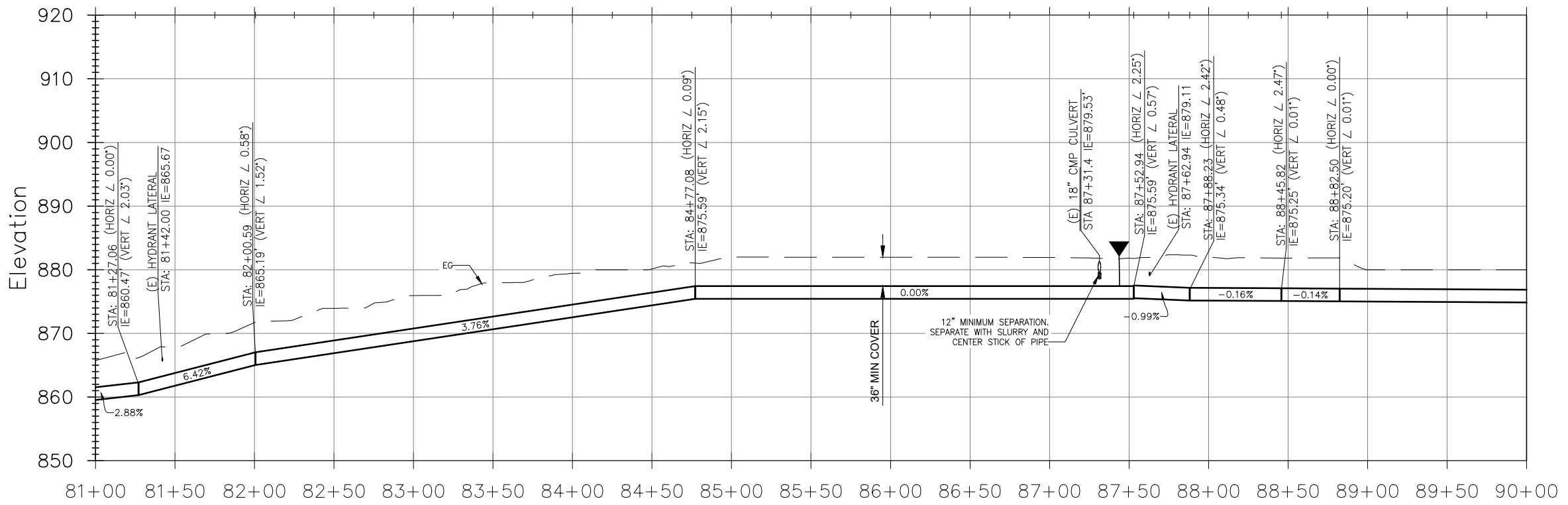
PLAN AND PROFILE
STA 72+00 TO 81+00

FIGURE
C11
SHEET 13 OF 48

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- NOTES:**
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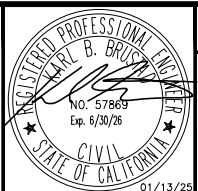
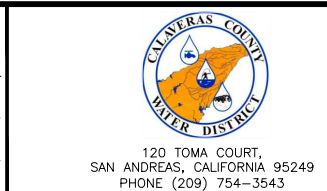


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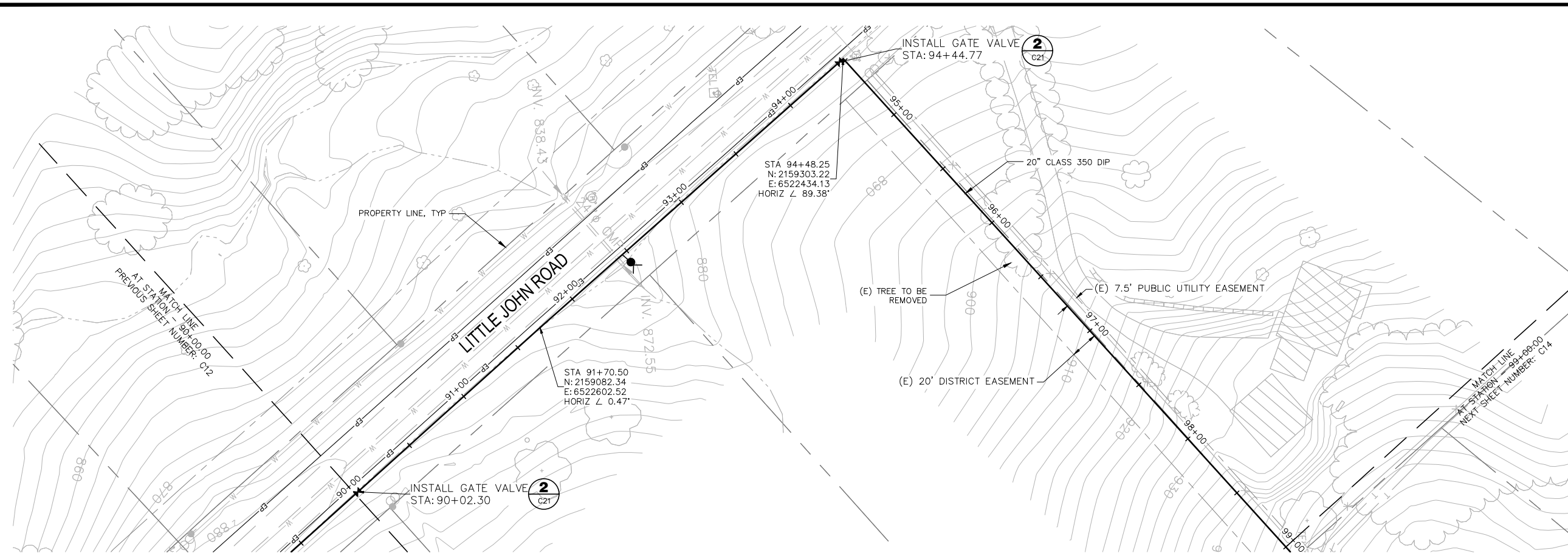


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 81+00 TO 90+00

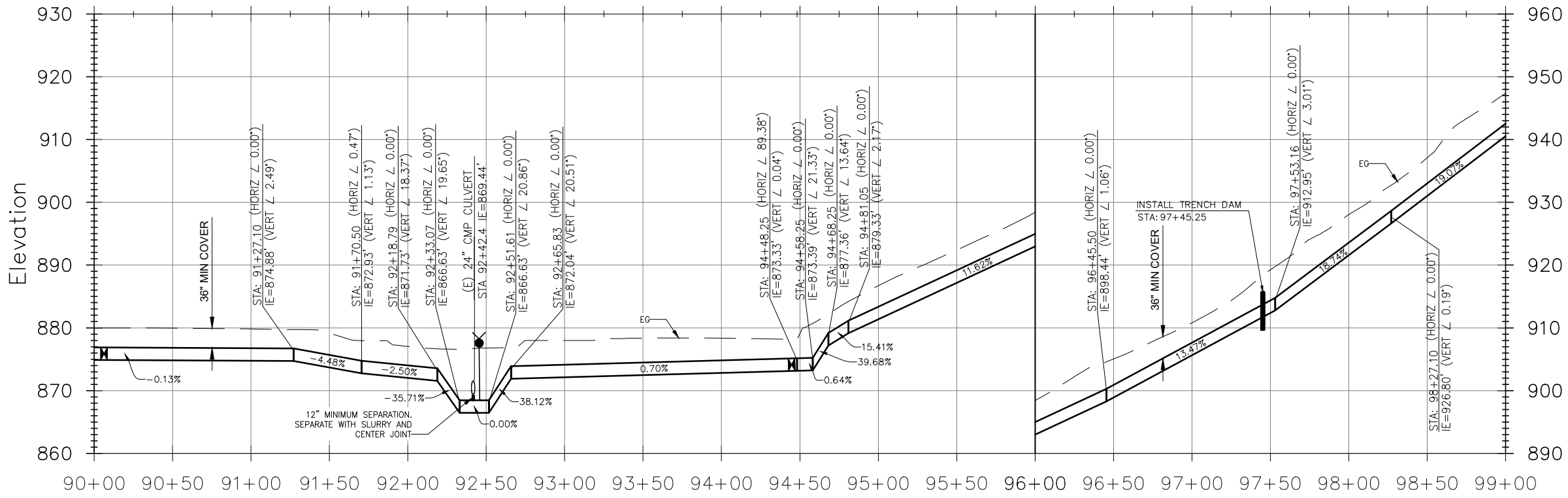
FIGURE
C12
SHEET 14 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
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PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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SCALE: AS NOTED

DATE: JANUARY 2025

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DRAWN: JAK/HMH
CHECKED: KBB

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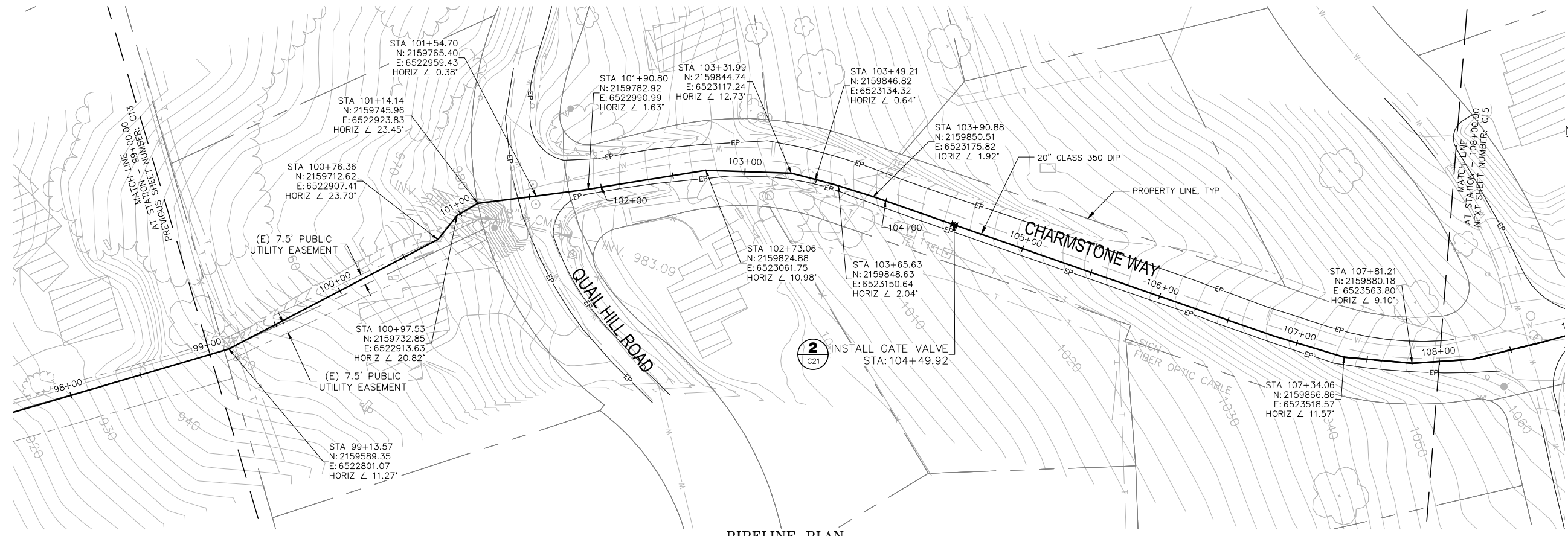
REGISTERED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 90+00 TO 99+00

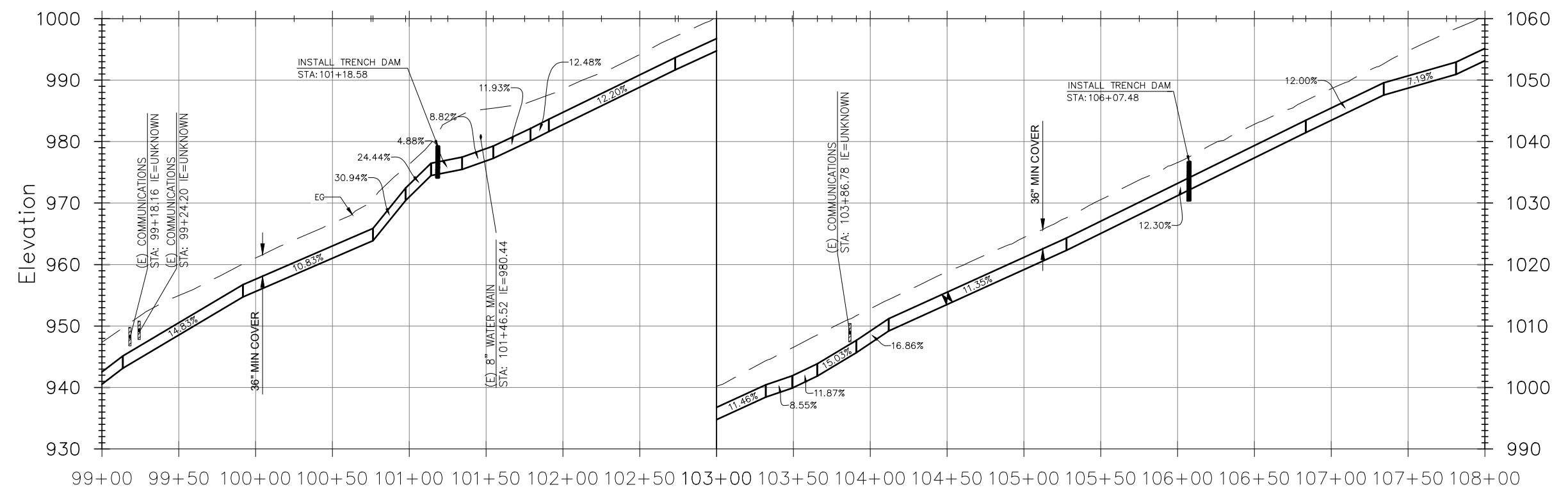
FIGURE
C13
SHEET 15 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

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PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

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| JANUARY 2025 | |

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Folsom, CA 95630
PH. 916-608-2212

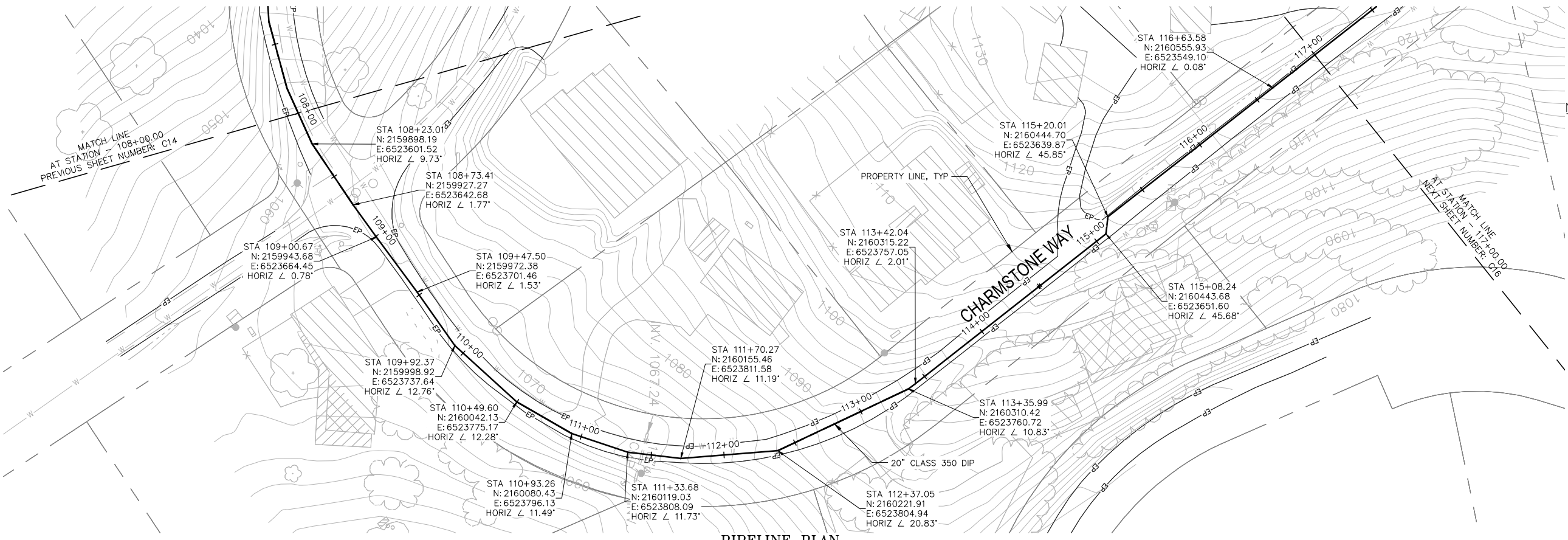
REGISTERED PROFESSIONAL ENGINEER
CARL B. BRUCK
No. 57869
Exp. 6/30/26
CIVIL
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 99+00 TO 108+00

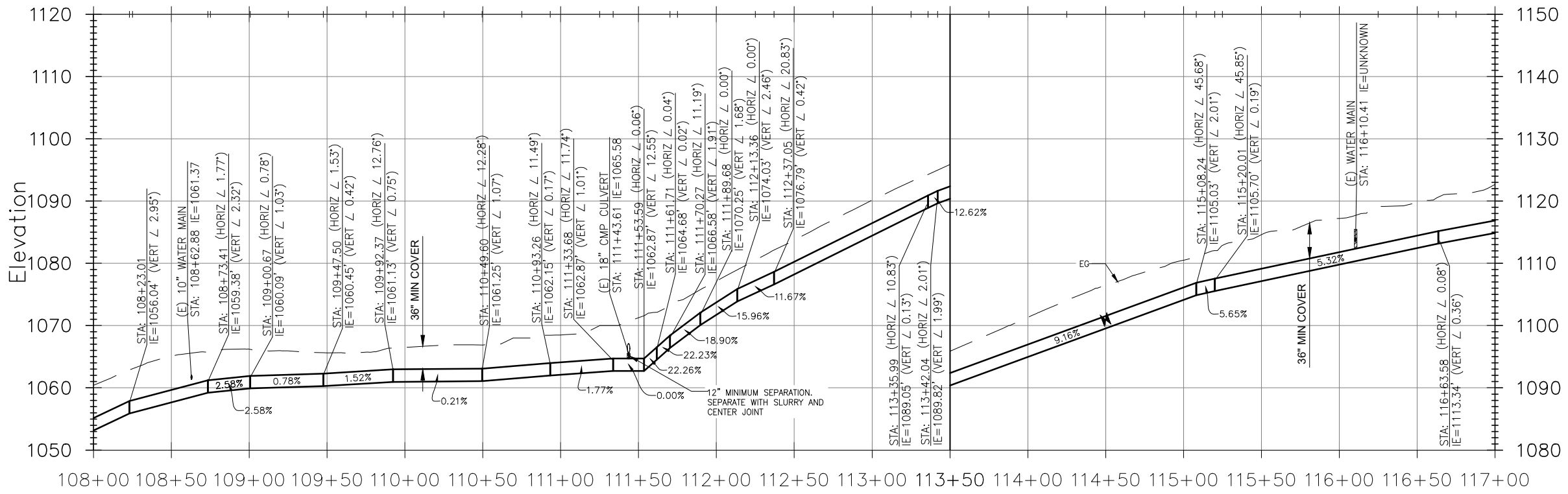
FIGURE
C14
SHEET 16 OF 48

P:\COWD\Copper Cove Water System Improvements\05 Drawings\5.1 CAD\BPS & Transmission Main\Copper Cove BPS (2023) - Civil.dwg 1-10-25 05:16:21 PM hhoran



PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
 4. WATER MAINS SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND 10 FEET FROM STORM DRAINS AND SEWER MAINS, RESPECTIVELY. A MINIMUM OF 1 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED ABOVE AND BELOW ALL STORM DRAIN AND SEWER MAIN CROSSINGS. A FULL STICK OF WATER PIPE SHALL BE CENTERED UNDER ALL STORM DRAIN AND SEWER MAIN CROSSINGS UTILIZING MECHANICAL JOINTS, WITH CROSSINGS AT ANGLES NO LESS THAN 45 DEGREES.



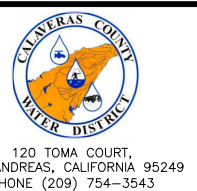
PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

ISSUED FOR BID

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| SCALE: AS NOTED | WARNING 0 1/2 1 |
| DATE: JANUARY 2025 | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |

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| DESIGNED: AAS/ADA | DRAWN: JAK/HMH | CHECKED: KBB |
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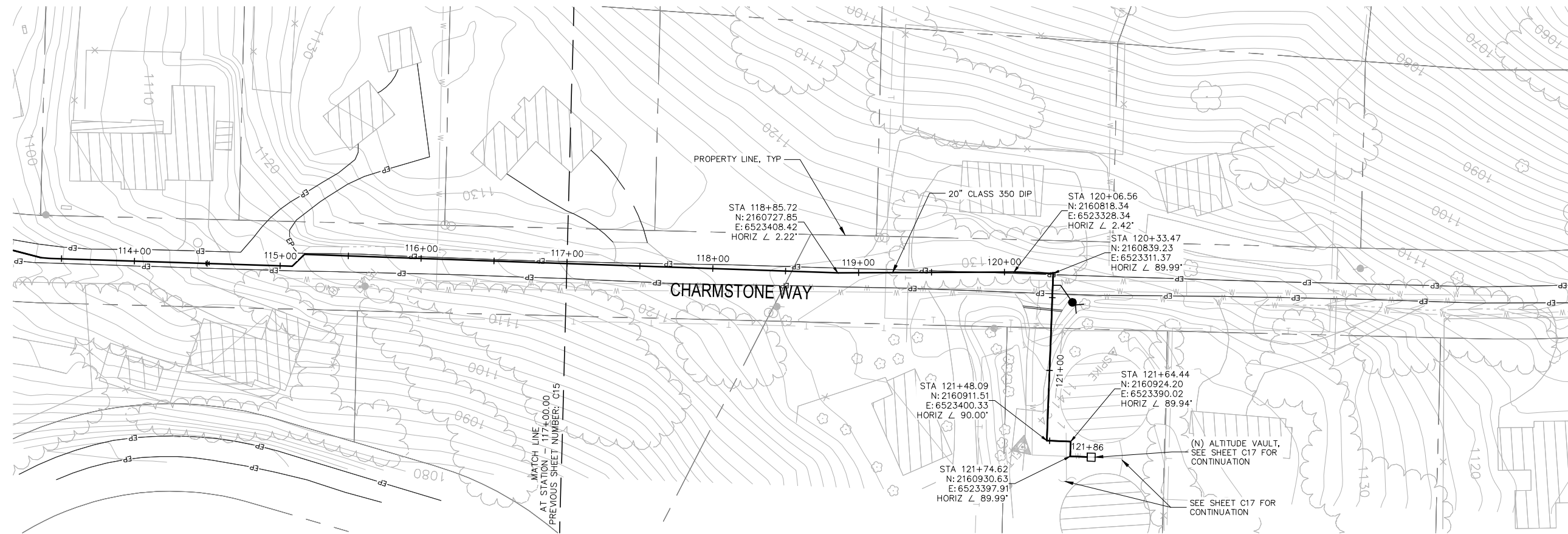


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 108+00 TO 117+00

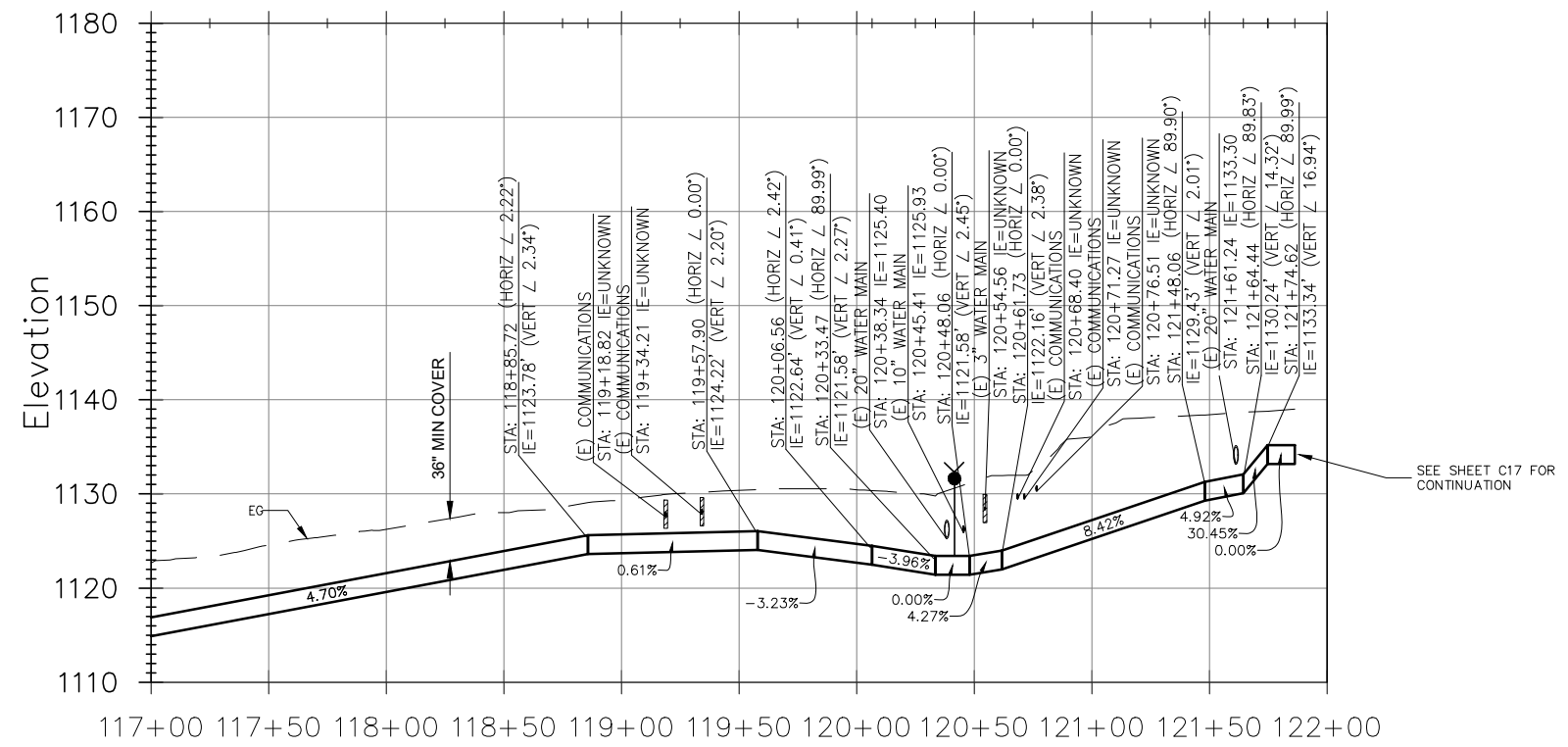
FIGURE
C15
SHEET 17 OF 48

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PIPELINE PLAN
SCALE: 1"=40'

- NOTES:**
1. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM 36 INCHES OF COVER.
 2. ALL JOINTS AND FITTINGS FOR DI WATER MAINS SHALL BE FULLY RESTRAINED.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR POTHOLING EXISTING UTILITIES PRIOR TO INSTALLATION OF NEW WATER MAINS AND APPURTENANCES. PRIOR TO PROCEEDING WITH TIE-INS TO EXISTING WATER MAINS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES TO CONFIRM REQUIRED SEPARATION DISTANCES ARE ACHIEVABLE.
 4. WATER MAINS SHALL MAINTAIN MINIMUM HORIZONTAL SEPARATION OF 4 FEET AND 10 FEET FROM STORM DRAINS AND SEWER MAINS, RESPECTIVELY. A MINIMUM OF 1 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED ABOVE AND BELOW ALL STORM DRAIN AND SEWER MAIN CROSSINGS. A FULL STICK OF WATER PIPE SHALL BE CENTERED UNDER ALL STORM DRAIN AND SEWER MAIN CROSSINGS UTILIZING MECHANICAL JOINTS, WITH CROSSINGS AT ANGLES NO LESS THAN 45 DEGREES.



PIPELINE PROFILE
HORIZ SCALE: 1"=40'
VERT SCALE: 1"=10'

ISSUED FOR BID

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| DATE: JANUARY 2025 | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |

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| DESIGNED: AAS/ADA |
| DRAWN: JAK/HMH |
| CHECKED: KBB |

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SAN ANDREAS, CALIFORNIA 95249
PHONE (209) 754-3543

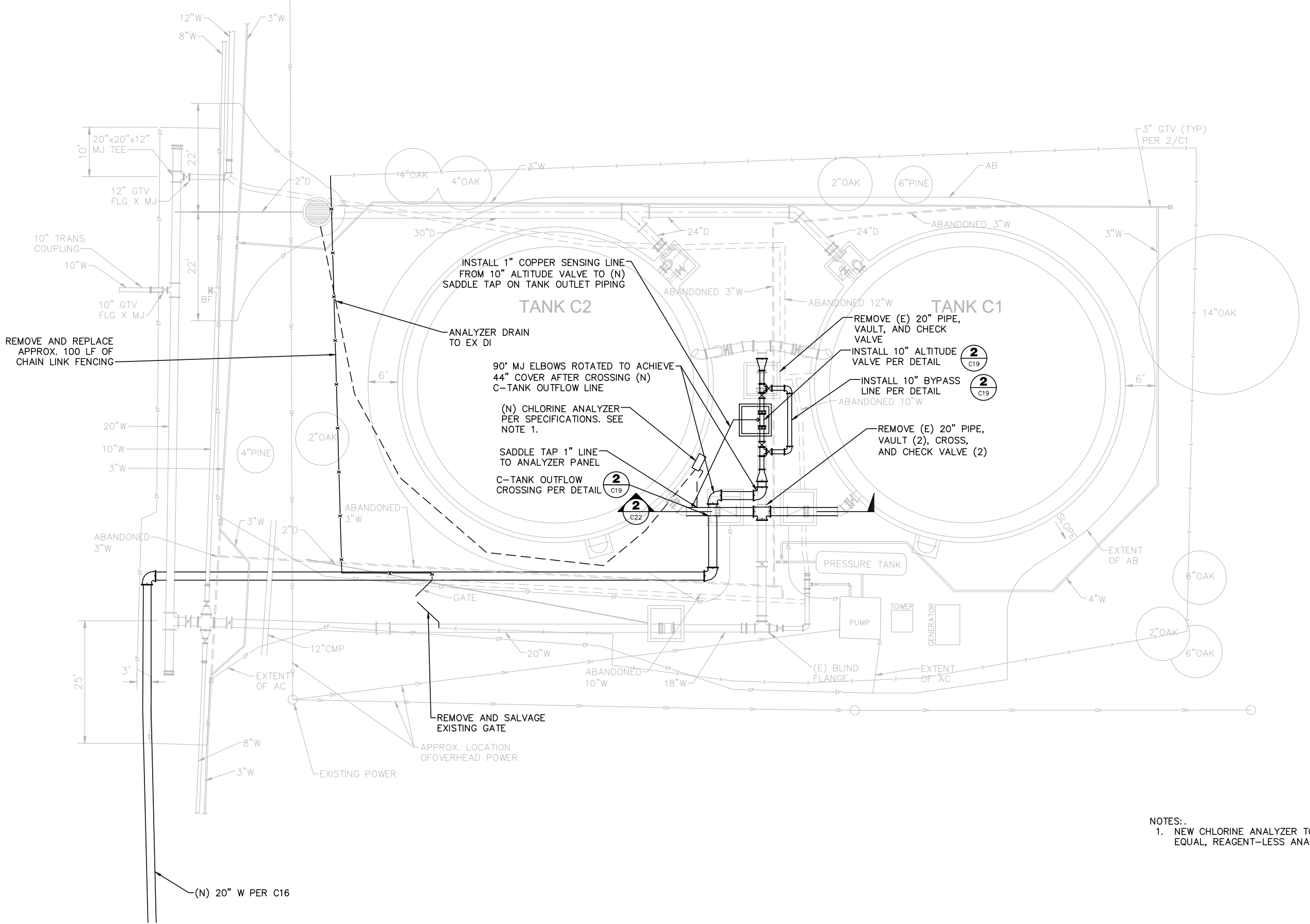
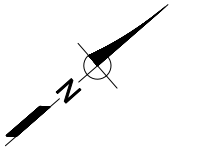
PBI ENGINEERING CONSULTING™
A Verdantas Company
80 Blue Ravine Rd. Suite 280
Folsom, CA 95630
PH. 916-608-2212

REGISTERED PROFESSIONAL ENGINEER
CARL B. BRUCK
NO. 57869
Exp. 6/30/26
CIVIL
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

PLAN AND PROFILE
STA 117+00 TO 121+75

FIGURE
C16
SHEET 18 OF 48



NOTES:
 1. NEW CHLORINE ANALYZER TO BE ECD FC-80 OR APPROVED EQUAL, REAGENT-LESS ANALYZER.

ISSUED FOR BID

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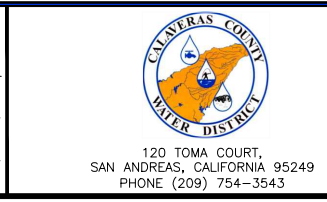
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SCALE:
1" = 10'

DATE:
JANUARY 2025

WARNING
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED AAS/ADA
 DRAWN JAK/HMH
 CHECKED KBB

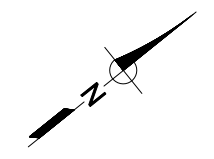



COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

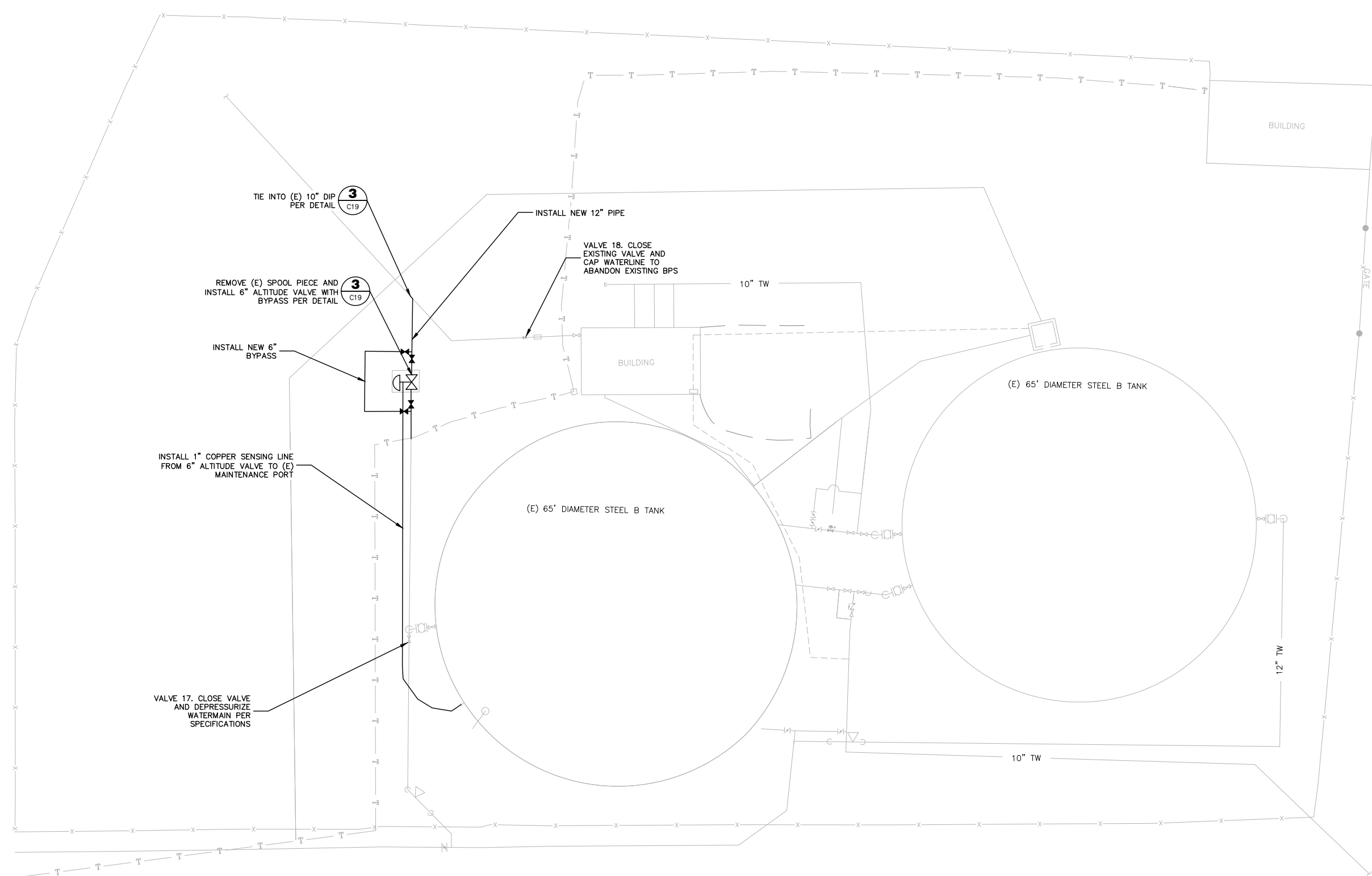
C-TANK SITE PLAN

FIGURE
C17
 SHEET 19 OF 48

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SIGNAL HILL TRAIL



ISSUED FOR BID

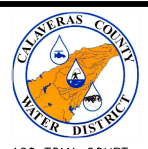
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SCALE:
1" = 10'

DATE:
JANUARY 2025

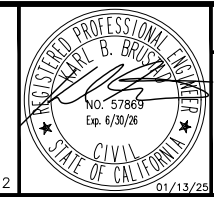
WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED AAS/ADA
DRAWN JAK/HMH
CHECKED KBB



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SAN ANDREAS, CALIFORNIA 95249
PHONE (209) 754-3543

80 Blue Ravine Rd. Suite 280
Folsom, CA 95630
PH. 916-608-2212

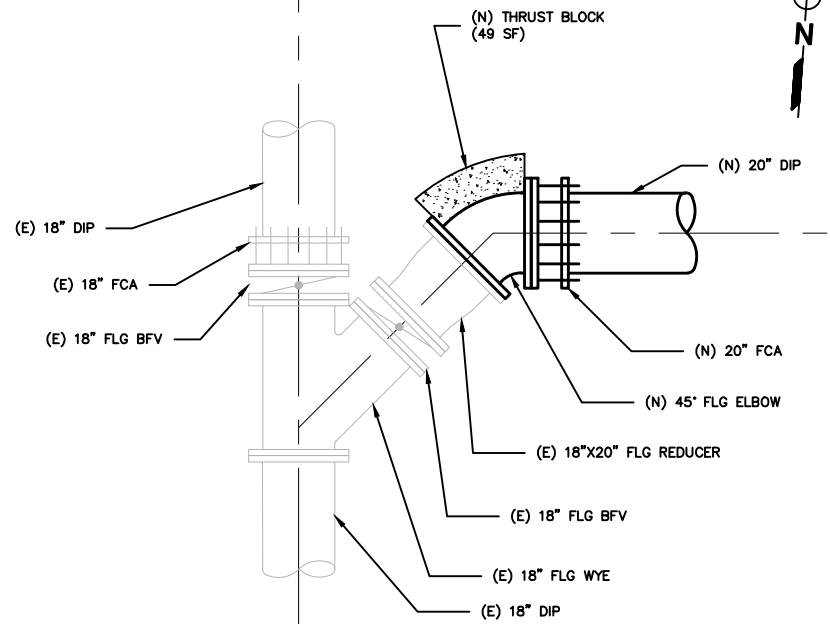


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

B-TANK SITE PLAN

FIGURE
C18
SHEET 20 OF 48

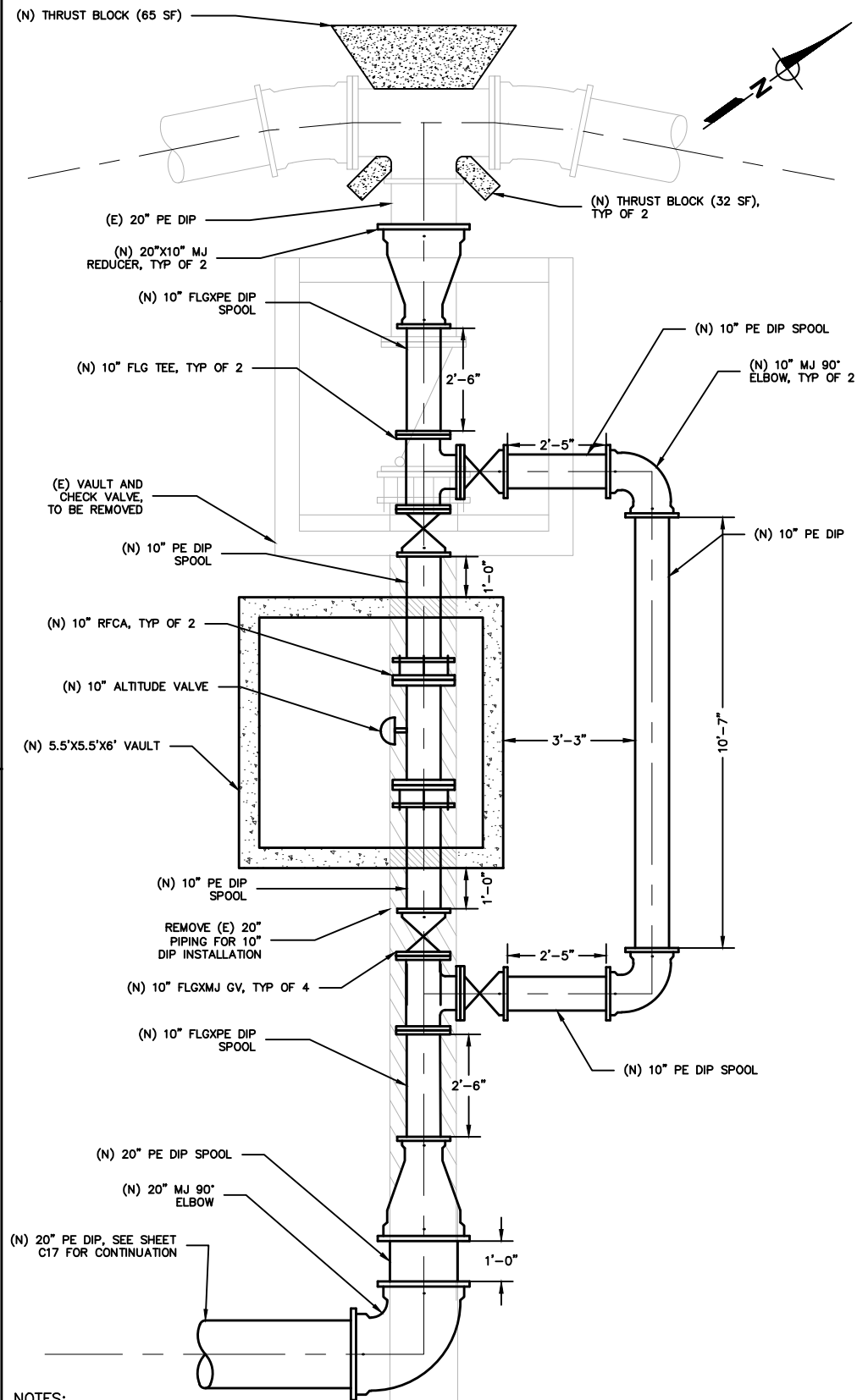
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NOTES:

1. CONTRACTOR TO SUBMIT DETAIL TIE-IN PLANS AFTER POTHOLING ELEVATIONS OF EXISTING PIPELINES.
2. ALL PIPE JOINTS TO BE FULLY RESTRAINED.

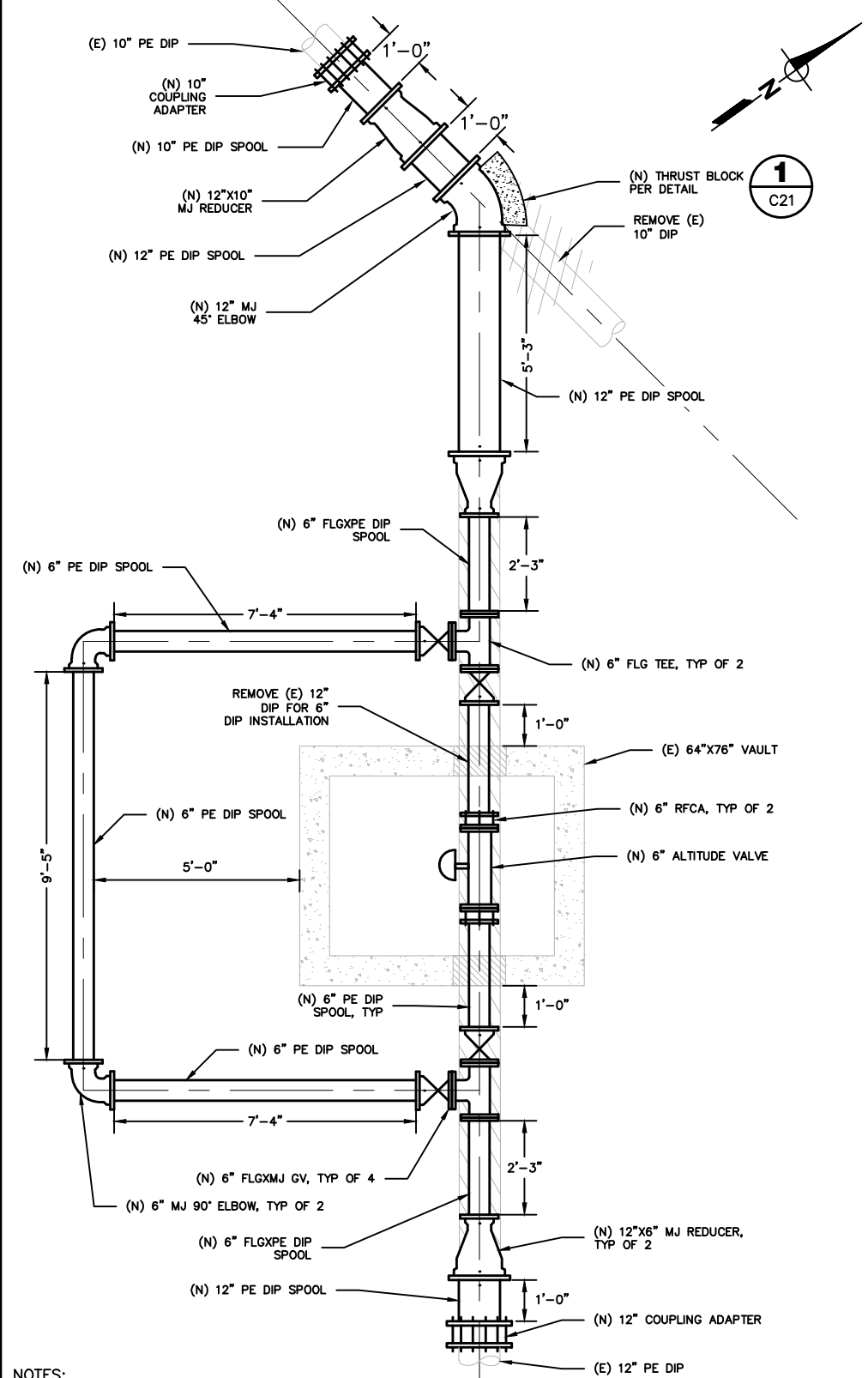
BPS TIE-IN **1**
1"=2' C03



NOTES:

1. CONTRACTOR TO SUBMIT DETAIL TIE-IN PLANS AFTER POTHOLING ELEVATIONS OF EXISTING PIPELINES.
2. ALL PIPE JOINTS TO BE FULLY RESTRAINED.

C-TANK ALTITUDE VALVE **2**
1"=2' C17



NOTES:

1. CONTRACTOR TO SUBMIT DETAIL TIE-IN PLANS AFTER POTHOLING ELEVATIONS OF EXISTING PIPELINES.
2. ALL PIPE JOINTS TO BE FULLY RESTRAINED.

B-TANK TIE-IN **3**
1"=2' C18

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| JANUARY 2025 | |

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| DESIGNED | AAS/ADA |
| DRAWN | JAK/HMH |
| CHECKED | KBB |



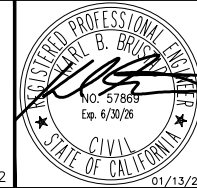
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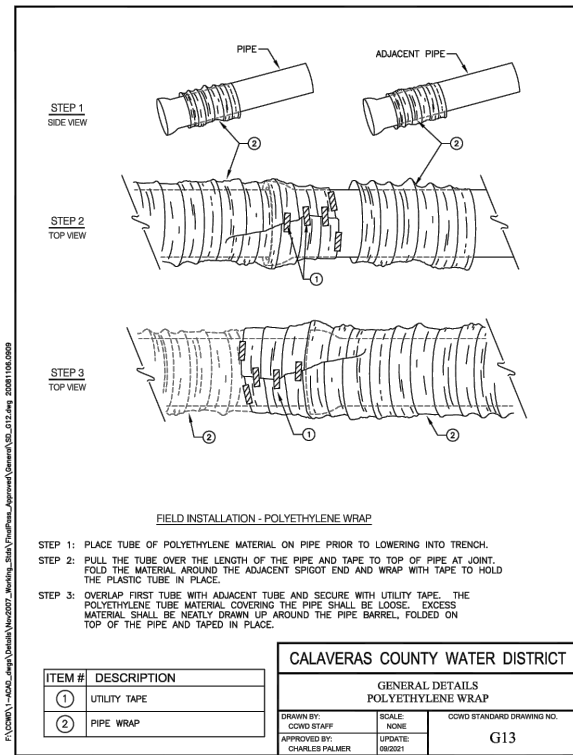
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| COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN | |
| TIE-IN AND CROSSING DETAILS | |

FIGURE

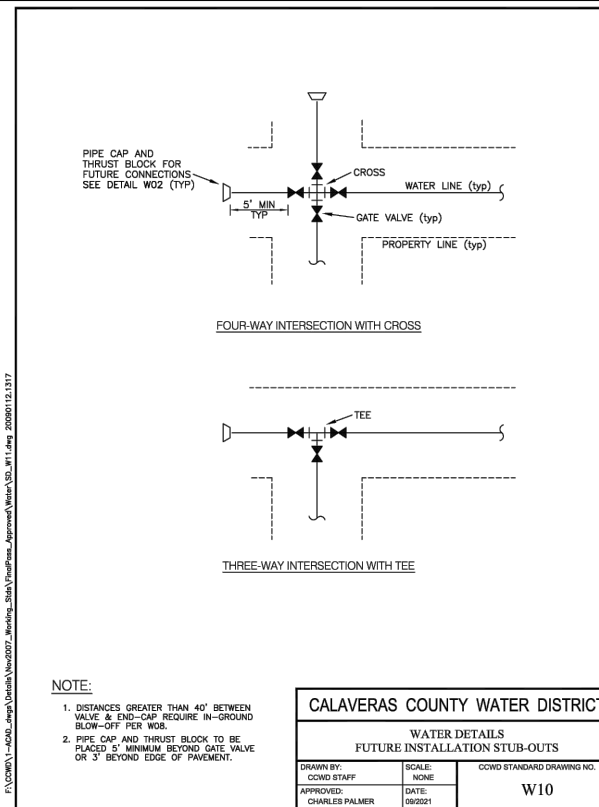
C19

SHEET 21 OF 48

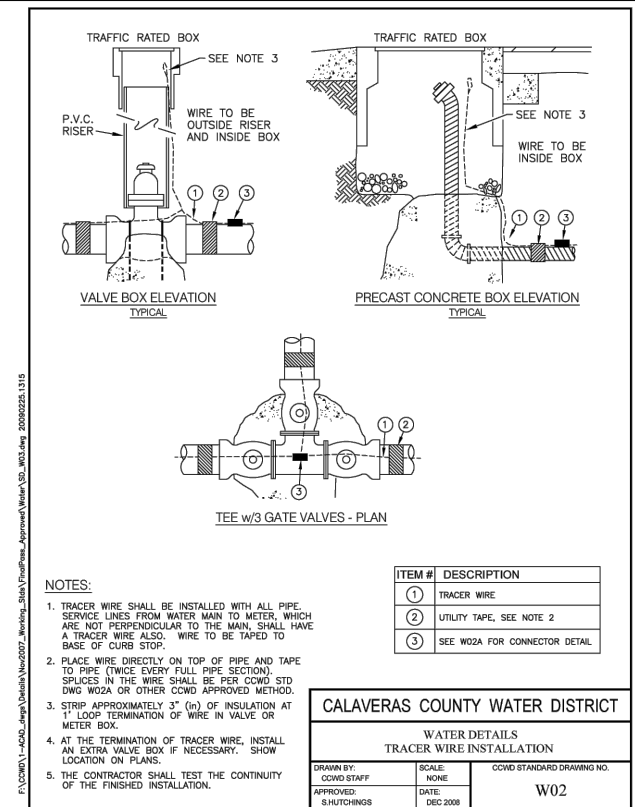
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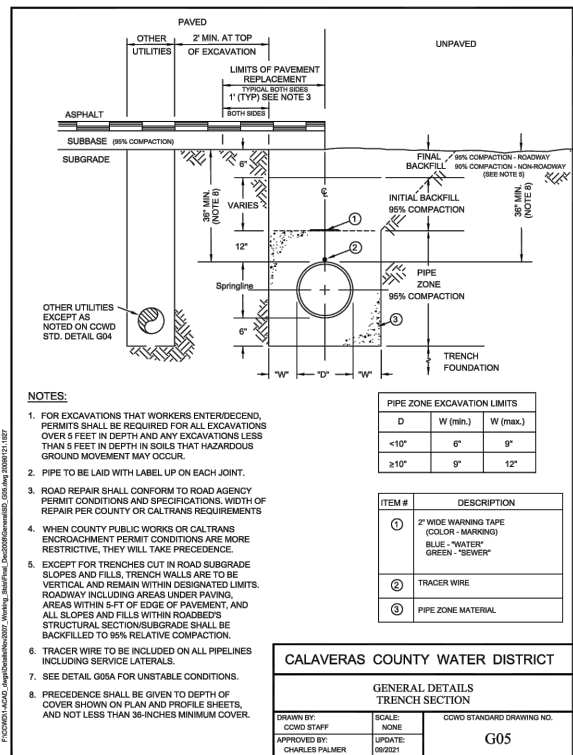
POLYETHYLENE WRAP 1
NTS



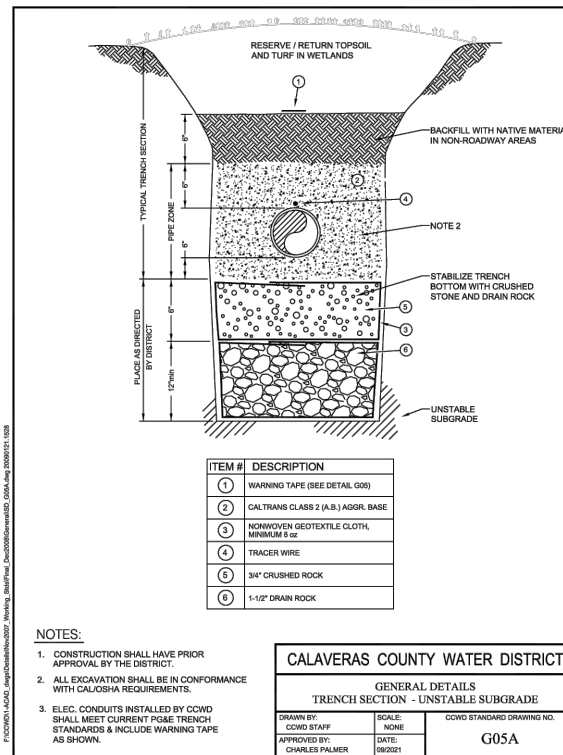
FUTURE INSTALLATION STUB-OUTS 2
NTS



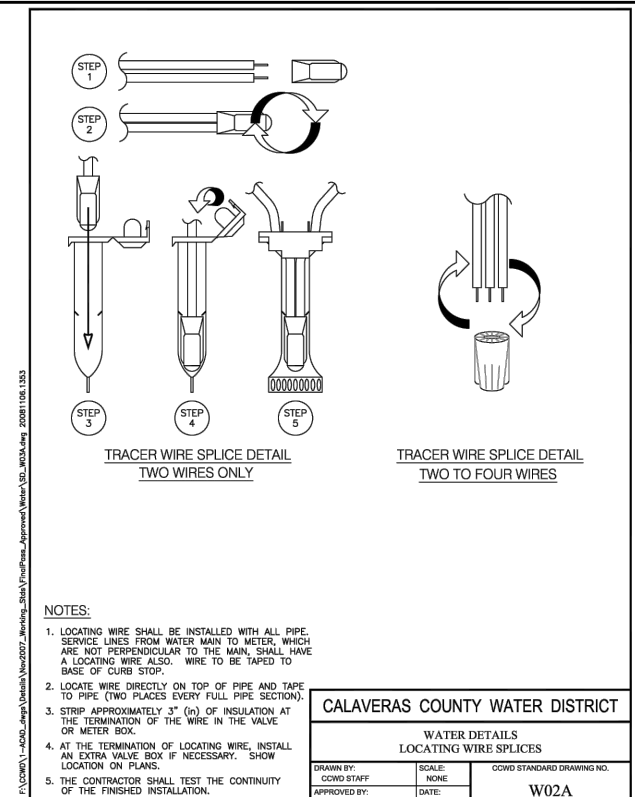
LOCATING WIRE INSTALLATION 3
NTS



TRENCH SECTIONS 4
NTS



TRENCH SECTION - UNSTABLE SUBGRADE 5
NTS



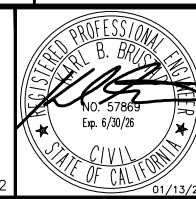
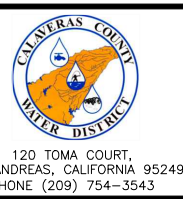
LOCATING WIRE SPLICES 6
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| DESIGNED | AAS/ADA |
| DRAWN | JAK/HMH |
| CHECKED | KBB |



COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

STANDARD DETAILS I

FIGURE
C20
SHEET 22 OF 48

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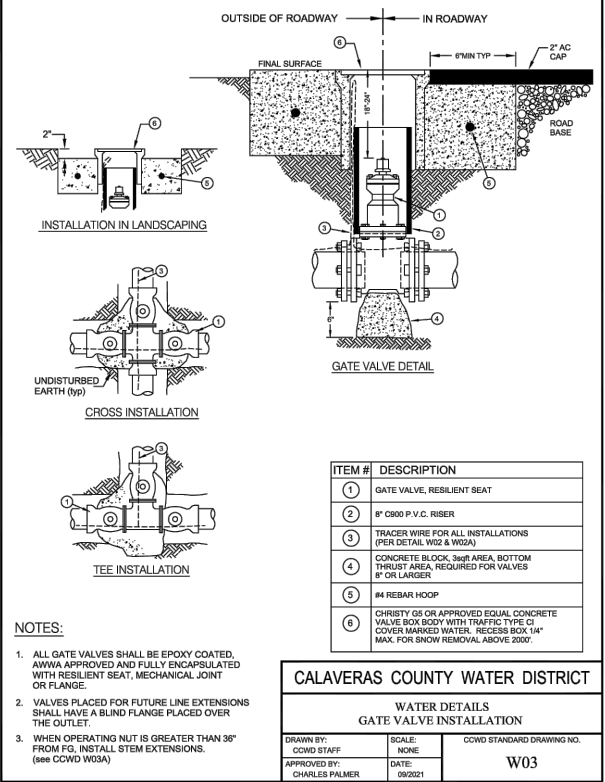
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| HORIZONTAL BEND ANCHOR CONCRETE BEARING AREA (S.F.) | | VERTICAL BEND ANCHOR CONCRETE VOLUME (C.Y.) | |
| 45° BEND 4" = 1.4 10" = 8 6" = 3 12" = 11 22 1/2° BEND 4" = 0.7 10" = 4 6" = 1.5 12" = 6 90° BEND 4" = 6 10" = 14 6" = 6 12" = 20 11 1/4° BEND 4" = 1 10" = 3 6" = 2 12" = 4 | | 45° BEND 4" = 1.4 10" = 3.6 6" = 2.4 12" = 5.1 22 1/2° BEND 4" = 0.7 10" = 1.8 6" = 0.7 12" = 2.6 11 1/4° BEND 4" = 0.4 10" = 0.9 6" = 0.4 12" = 1.3 | |
| TEE/DEAD END & PLUG CONCRETE BEARING AREA (S.F.) | | CROSS WITH PLUG CONCRETE BEARING AREA (S.F.) | |
| REDUCER CONCRETE BEARING AREA (S.F.) | | OFFSET ANCHOR BLOCK CONCRETE VOLUME (C.Y.) | |
| 4" = 6 10" = 8 6" = 3 12" = 12 8" = 5 | | 4" = 3 10" = 8 6" = 3 12" = 12 8" = 5 | |
| 4" = 8" = 10 8" = 10" = 10 6" = 8" = 10 10" = 12" = 10 | | 4" = 26 10" = 80 6" = 26 12" = 107 8" = 53 | |

NOTES:

- THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 5" CONCRETE.
- AREAS GIVEN ARE FOR PIPE AT TEST PRESSURES OF 150 PSI.
- 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.
- BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL OF MINIMUM AREA SQUARE FEET.
- PROTECT BOLTS, NUTS, THREADS, AND GASKETS FROM CONCRETE WITH 6 MIL. MIN. PVC SHEETING.
- ALL FITTINGS SHALL BE WRAPPED (SEE DETAIL G13).
- STIRRUPS SHALL BE MINIMUM 1/2" IN SIZE.
- TWO STIRRUPS REQUIRED ON 4" - 8" FITTINGS. FOUR STIRRUPS REQUIRED ON 10" - 12" FITTINGS.

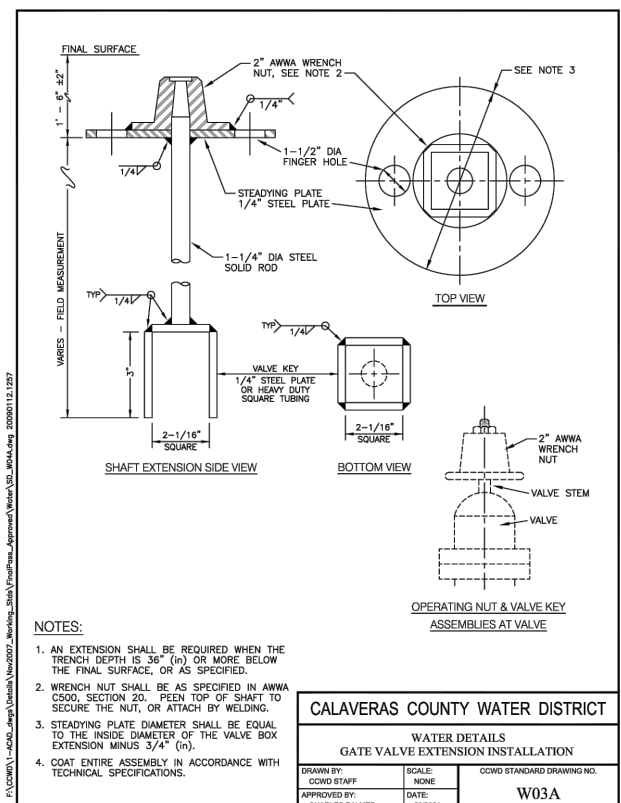
| | | |
|---|----------|---------------------------|
| CALAVERAS COUNTY WATER DISTRICT WATER DETAILS THRUST BLOCK BEARING AREA SCHEDULE | | |
| DRAWN BY: | SCALE: | CCWD STANDARD DRAWING NO. |
| CCWD STAFF | NONE | W01 |
| APPROVED: | DATE: | |
| S.HUTCHINGS | DEC 2008 | |

THRUST BLOCK BEARING AREA SCHEDULE 1
NTS

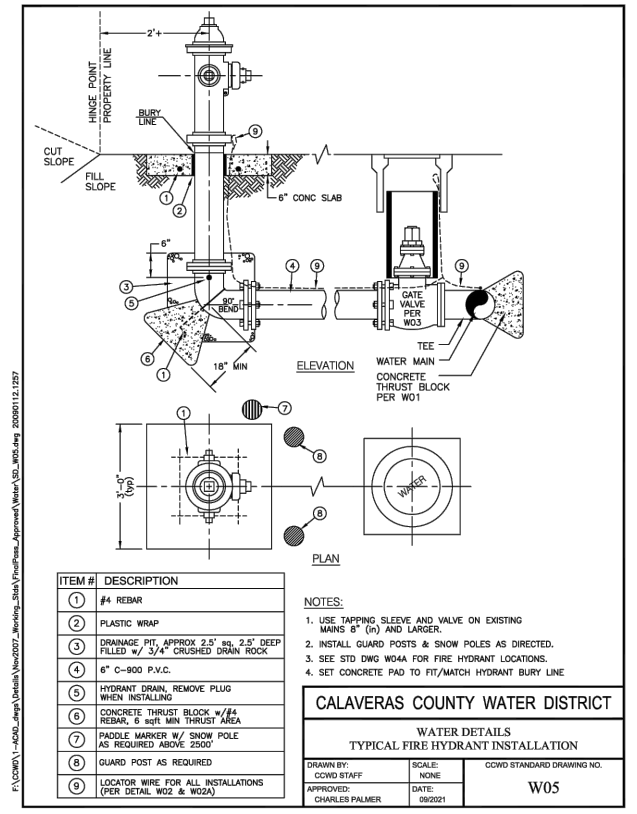


GATE VALVE INSTALLATION 2
NTS

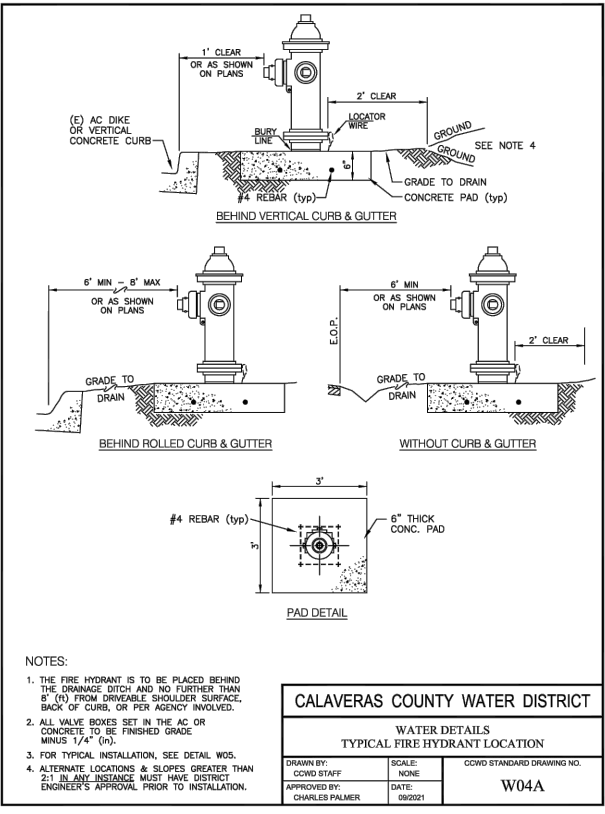
1. ALL GATE VALVES LARGER THAN 16" SHALL BE INSTALLED HORIZONTALLY WITH BEVEL GEAR ACTUATOR.



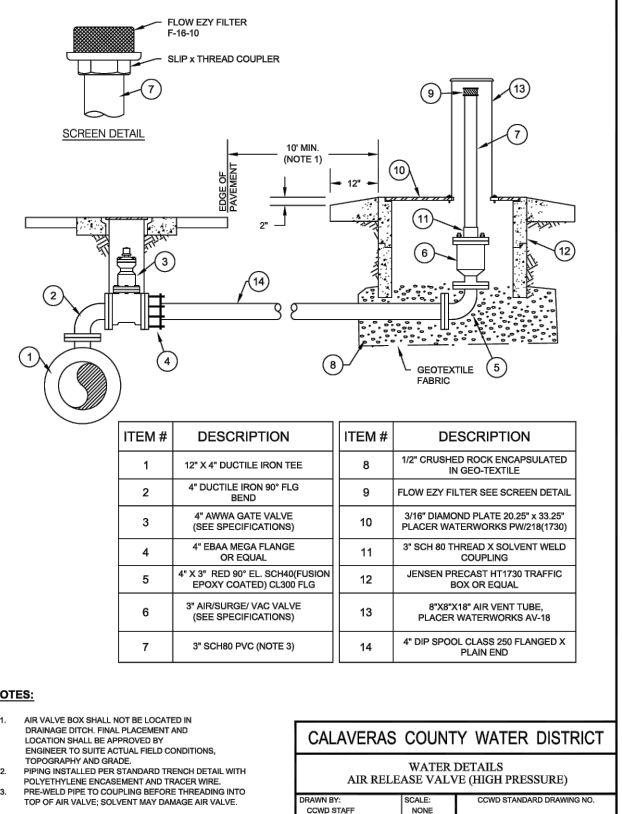
GATE VALVE EXTENSION INSTALLATION 3
NTS



TYPICAL FIRE HYDRANT INSTALLATION 4
NTS



TYPICAL FIRE HYDRANT LOCATION 5
NTS

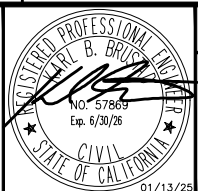
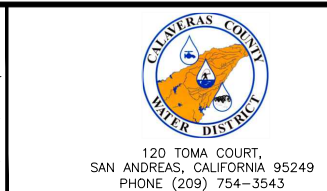


AIR RELEASE VALVE (HIGH PRESSURE) 6
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| DATE: | DRAWN JAK/HMH |
| JANUARY 2025 | CHECKED KBB |
| IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. | |

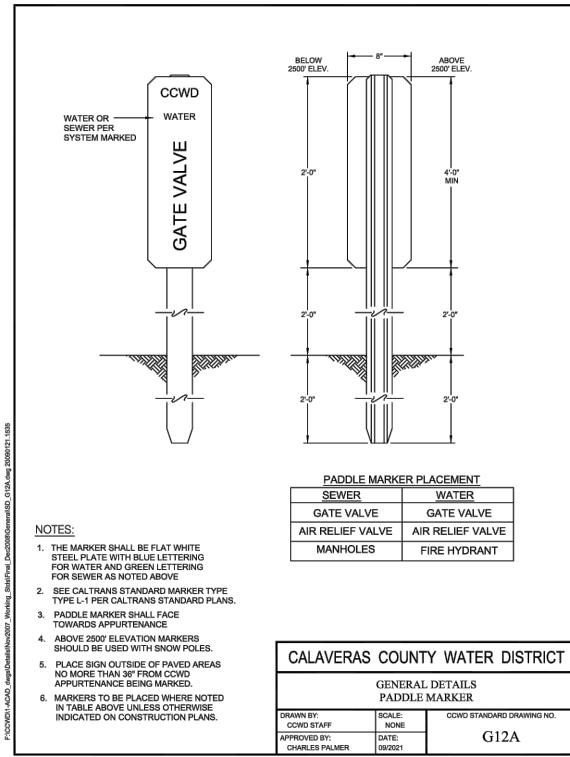


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

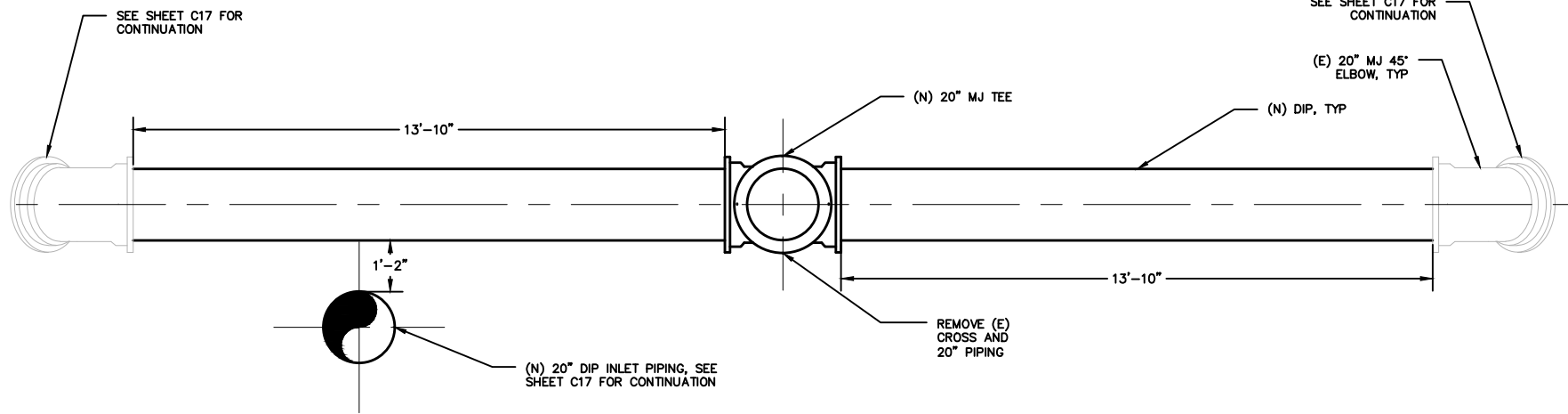
STANDARD DETAILS II

FIGURE
C21
SHEET 23 OF 48

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PADDLE MARKER
NTS
1



NOTES:
1. CONTRACTOR TO SUBMIT DETAIL TIE-IN PLANS AFTER POTHOLES ELEVATIONS OF EXISTING PIPELINES.
2. ALL PIPE JOINTS TO BE FULLY RESTRAINED.

OUTLET PIPING SECTION
1"=2'
2

ISSUED FOR BID

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| SCALE: | WARNING |
| DATE: | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |
| JANUARY 2025 | |

| | |
|----------|---------|
| DESIGNED | AAS/ADA |
| DRAWN | JAK/HMH |
| CHECKED | KBB |

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SAN ANDREAS, CALIFORNIA 95249
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80 Blue Ravine Rd. Suite 280
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PH. 916-608-2212

REGISTERED PROFESSIONAL ENGINEER
CHARLES B. BRUCK
NO. 57869
Exp. 6/30/26
CIVIL
STATE OF CALIFORNIA
01/13/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

STANDARD DETAILS III

FIGURE
C22
SHEET 24 OF 48

P:\COWD\Copper Cove Water System Improvements\05 Drawings\5.1 CAD\BPS & Transmission Main\Copper Cove BPS (2023) - Traffic.dwg 1-10-25 05:16:46 PM hhoran

GENERAL TRAFFIC NOTES:

1. TTC STANDS FOR "TEMPORARY TRAFFIC CONTROL".
2. ALL WORK SHALL COMPLY WITH THE LATEST CALAVERAS COUNTY IMPROVEMENT STANDARDS, APPLICABLE CALTRANS STANDARDS, THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CA-MUTCD).
3. A MINIMUM OF ONE PERSON SHALL BE ASSIGNED TO PROVIDED FULL TIME CONTINUOUS MONITORING AND MAINTENANCE OF TRAFFIC CONTROL DEVICES.
4. ALL CONES SHALL BE 28 INCHES MINIMUM IN HEIGHT. CONES USED DURING NIGHT TIME HOURS SHALL BE EQUIPPED WITH RETRO REFLECTIVE BANDS (OR SLEEVES) IF NIGHT TIME WORK IS PERMITTED.
5. ALL SIGN REFERENCES ON THESE TTC SHEETS REFER TO THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2014 EDITION).
6. THESE PLANS DO NOT APPLY WHERE THERE ARE EMERGENCY CONDITIONS. UNDER EMERGENCY CONDITIONS, EQUIPMENT AND PERSONNEL WHICH ARE AVAILABLE SHOULD BE UTILIZED TO IMPLEMENT A CLOSURE EVEN THOUGH SUCH CLOSURE DOES NOT MEET THE STANDARDS CONTAINED IN THIS PLAN. AS EQUIPMENT OR PERSONNEL BECOME AVAILABLE AN IMMEDIATE EFFORT SHOULD THEN BE MADE TO IMPLEMENT THE STANDARDS SHOWN ON THESE PLANS.
7. ALL SIGNAGE SHALL BE SIZED TO CONVENTIONAL ROAD DIMENSIONS PER CA-MUTCD MINIMUM.
8. CHANGEABLE MESSAGE SIGNS (CMS) SHALL BE USED WHERE NEEDED BASED ON CA-MUTCD GUIDELINES.
9. A MAXIMUM LANE CLOSURE OF 100 FT. WILL BE IN EFFECT EXCEPT AS NOTED ON DETAILS. FIELD CONDITIONS COULD REQUIRE DEVIATIONS FROM THESE PLANS AND ACCOMPANYING NOTES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST TRAFFIC CONTROL DEVICES BASED ON CHANGING CONDITIONS AS PER THE CA-MUTCD.
10. WORK HOURS: MONDAY THROUGH FRIDAY 7:00AM TO 6:00PM AND MAY BE MODIFIED BY INSPECTOR
 WEEKENDS -----NO WEEKEND WORK
 NIGHT -----NO NIGHT WORK

 NOTE: THESE WORK HOURS ARE FOR TTC RESTRICTIONS ONLY. SEE SPECIFICATIONS FOR CONTRACT WORK HOURS AND ADDITIONAL WORK HOUR RESTRICTIONS.
11. IF TRAFFIC SAFETY AND/OR DELAYS BECOME A CONCERN, THE TRAFFIC AUTHORITY (CALAVERAS COUNTY) CAN CHANGE THE WORK HOURS, TRAFFIC CONTROL PLAN AND TRAFFIC CONTROL DEVICES AS NECESSARY.
12. TEMPORARY TRAFFIC CONTROL MINIMUM LANE WIDTH FOR ALL TRAVELED LANES SHALL BE 10 FEET.
13. ROAD CLOSURES SHALL NOT OCCUR OUTSIDE OF WORK HOURS. ROAD CLOSURES ARE ONLY ALLOWED DURING THE HOURS OF 7:00 AM TO 6:00 PM. NO ROAD CLOSURES ARE ALLOWED ON WEEKENDS AND HOLIDAYS.
14. DRIVEWAY ACCESS SHALL BE ACCOMMODATED AT ALL TIMES UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE WITH THE AFFECTED PROPERTY OWNER. CONTRACTOR SHALL MAINTAIN TRENCH PLATES ON SITE DURING ALL ROAD CLOSURE ACTIVITIES TO ACCOMMODATE EMERGENCY ACCESS.
15. COUNTY INSPECTOR MAY DIRECT THE CONTRACTOR TO DISCONTINUE OPERATIONS AT ANY TIME IF THE INSPECTOR DETERMINES THAT THE WORK CREATES AN UNDUE SAFETY RISK OR SEVERE TRAFFIC CONGESTION.
16. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA SHALL BE PLACED FIRST AND SHALL BE PLACED PROGRESSIVELY TOWARDS THE WORK AREA.
17. FLAGGERS SHALL WEAR APPROVED SAFETY VEST BE EQUIPPED WITH STOP/SLOW PADDLES AND SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
18. CONSTRUCTION SIGNAGE SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
19. TAPER/BUFFER AREAS SHALL REMAIN CLEAR OF VEHICLES AND EQUIPMENT (EXCEPT FOR APPROPRIATE TTC DEVICES) AT ALL TIMES.
20. ON ROADWAYS WHERE PARKING IS ALLOWED, TEMPORARY "NO PARKING SIGNAGE MAY BE PLACED WHERE ROADWAY WIDTHS ARE INADEQUATE.
21. CONTRACTOR SHALL COORDINATE WITH COUNTY INSPECTOR TO VERIFY, IDENTIFY, AND ADDRESS CONFLICTS WITH OTHER PLANNED OR ONGOING PROJECTS IN THE AREA.

SIGN SPACING, TAPER LENGTH AND CONE SPACING






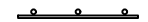
TABLE: 6H-3 (CA-MUTCD 2014) MEANING OF LETTER CODES ON TYPICAL APPLICATION DIAGRAMS

| ROAD TYPE | DISTANCE BETWEEN SIGNS | | | |
|------------------------|------------------------|----------|----------|----------|
| | A | B | C | D |
| URBAN - 25 MPH OR LESS | 100 FEET | 100 FEET | 100 FEET | 100 FEET |

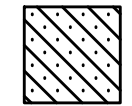
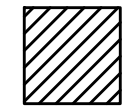
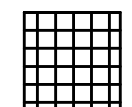
TABLE: TAPER LENGTH AND CONE SPACING (PER 2014 CA-MUTCD)

| SPEED | MERGING L | SHIFTING L/2 | SHOULDER L/3 | CONE SPACING |
|--------|-----------|--------------|--------------|--------------|
| 25 MPH | 125 FEET | 63 FEET | 42 FEET | 25 FEET |
| 55 MPH | 660 FEET | 330 FEET | 220 FEET | 55 FEET |

SYMBOLOLOGY

-  CONE or CHANNELIZING DEVICE
-  WORK SPACE
-  SIGN
-  FLAGGER
-  DIRECTION OF TRAVEL
-  BARRICADE

TRAFFIC CONTROL PLAN LEGEND

-  INTERSECTION CLOSURE
-  ROAD CLOSURE
-  LANE CLOSURE

ISSUED FOR BID

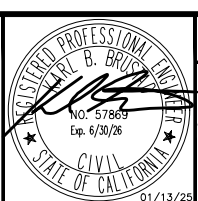
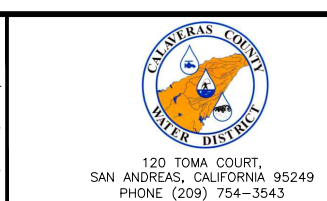
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SCALE: 0 1/2 1

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED: AAS/ADA
 DRAWN: JAK/HMH
 CHECKED: KBB

DATE: JANUARY 2025



COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TRAFFIC CONTROL NOTES, SPACING CRITERIA & SYMBOLS

FIGURE
T01
 SHEET 25 OF 48

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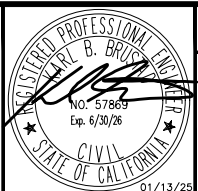
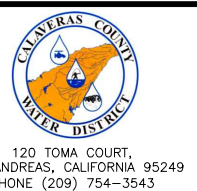
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SCALE: 1" = 100'

DATE: JANUARY 2025

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED: AAS/ADA
 DRAWN: JAK/HMH
 CHECKED: KBB



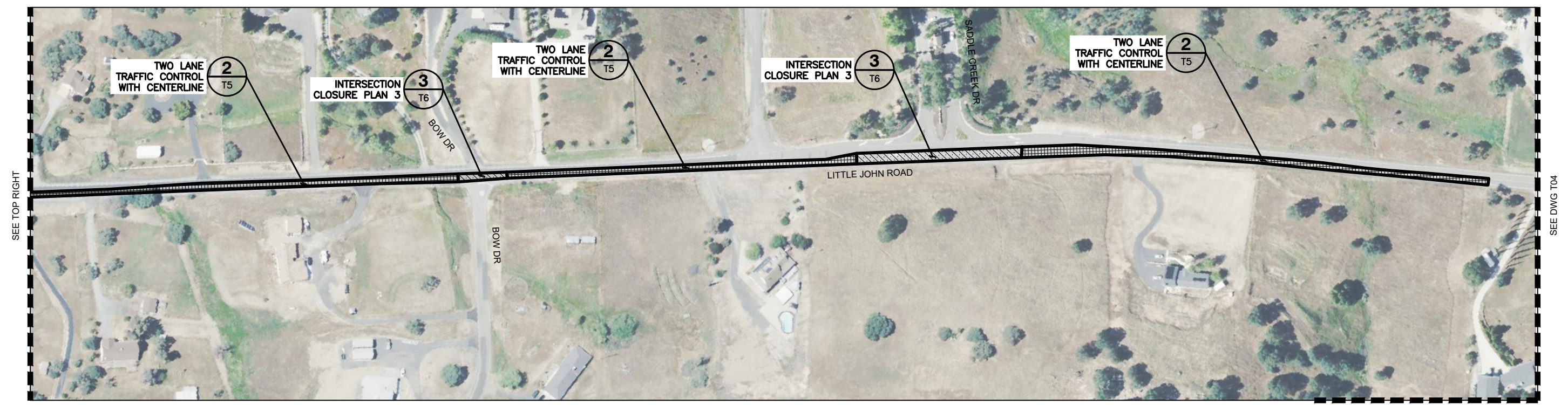
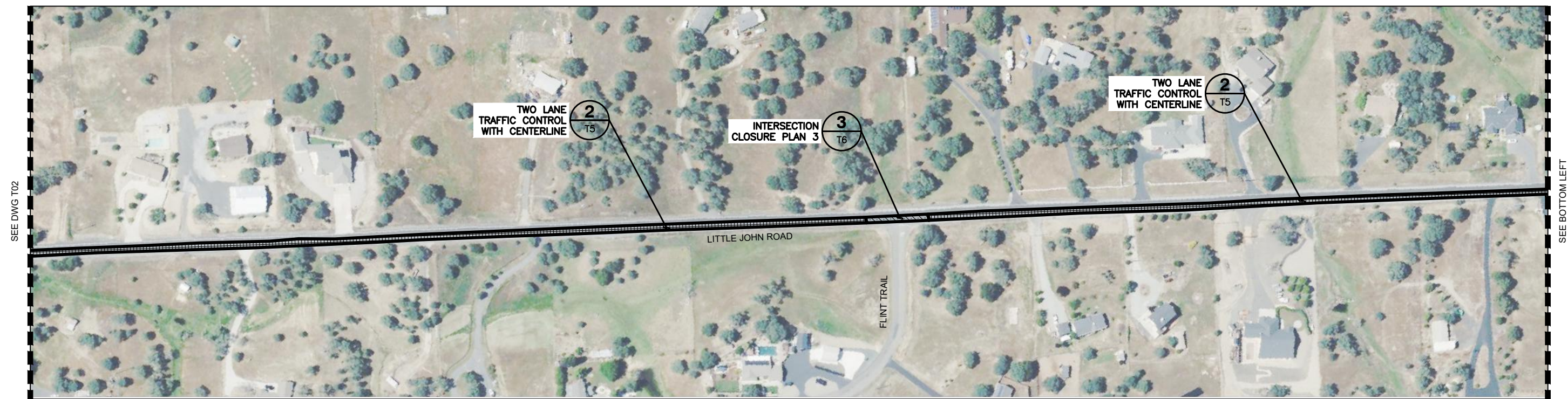
COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TRAFFIC CONTROL INDEX I

FIGURE T02

SHEET 26 OF 48

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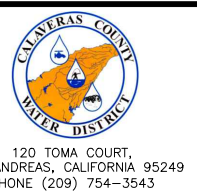
SEE DWG T04

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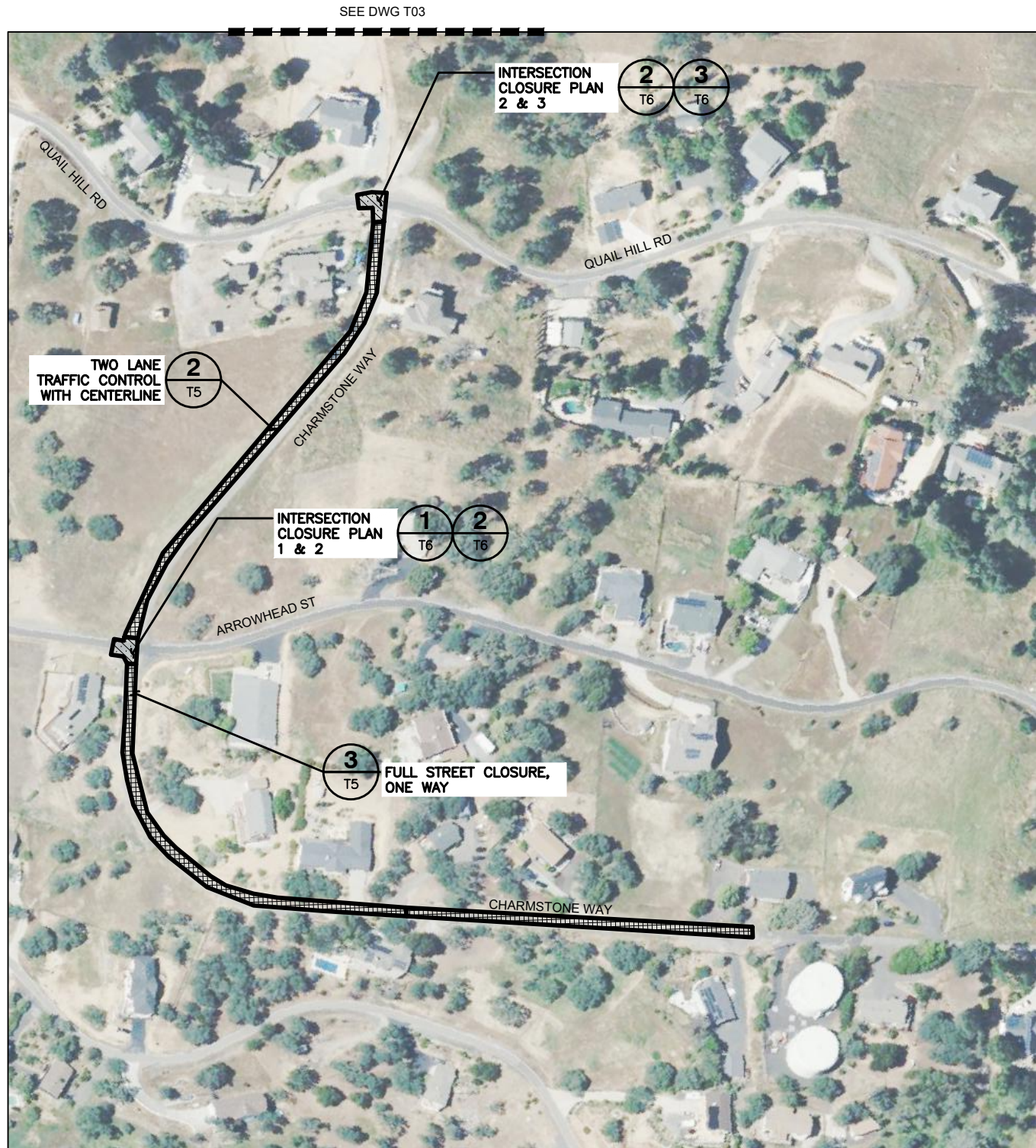


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TRAFFIC CONTROL INDEX II

FIGURE
T03

 SHEET 27 OF 48



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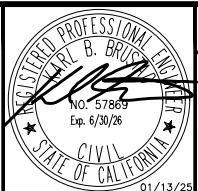
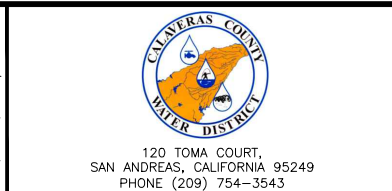
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SCALE: 1" = 100'

DATE: JANUARY 2025

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

DESIGNED: AAS/ADA
 DRAWN: JAK/HMH
 CHECKED: KBB



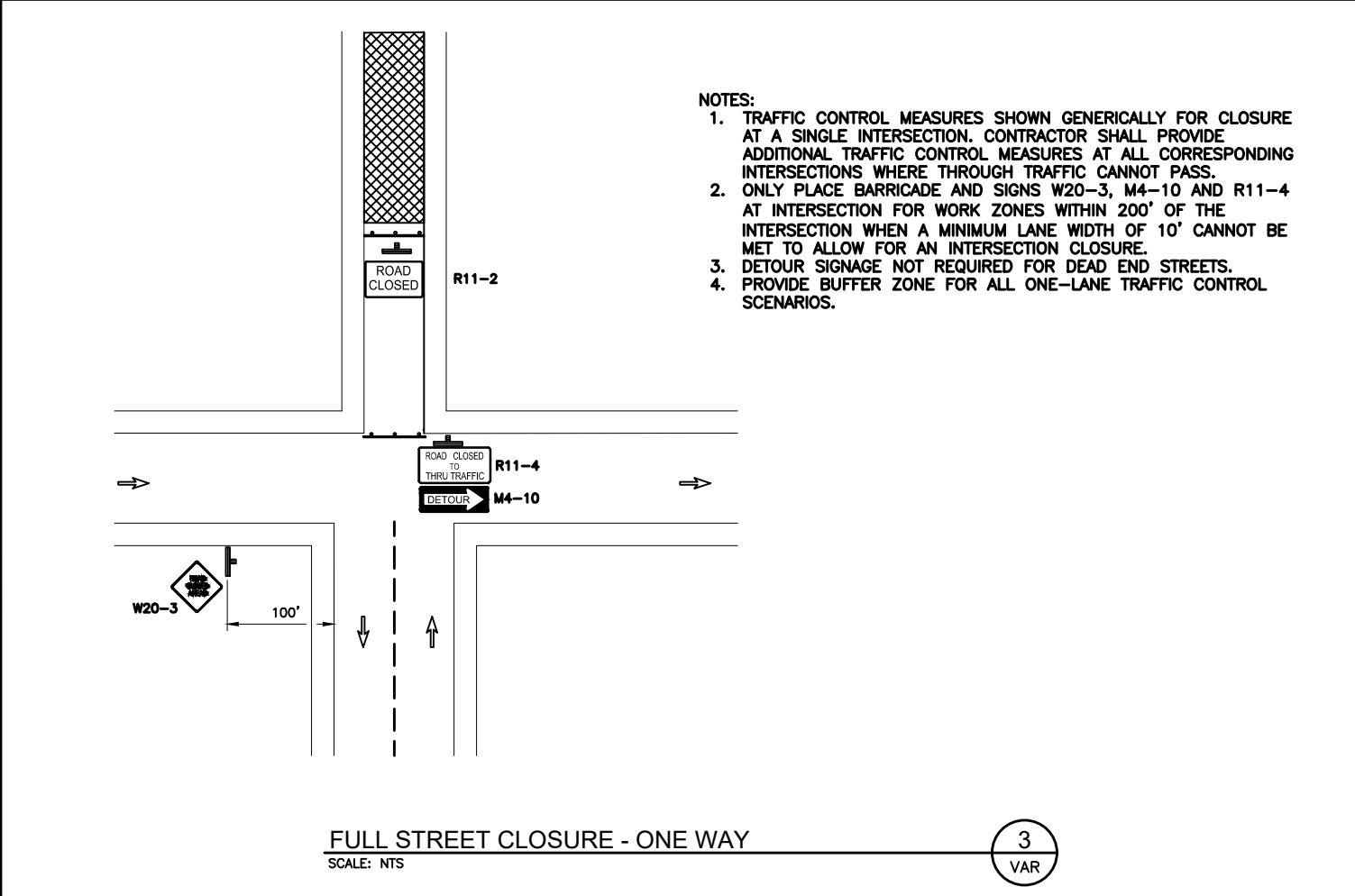
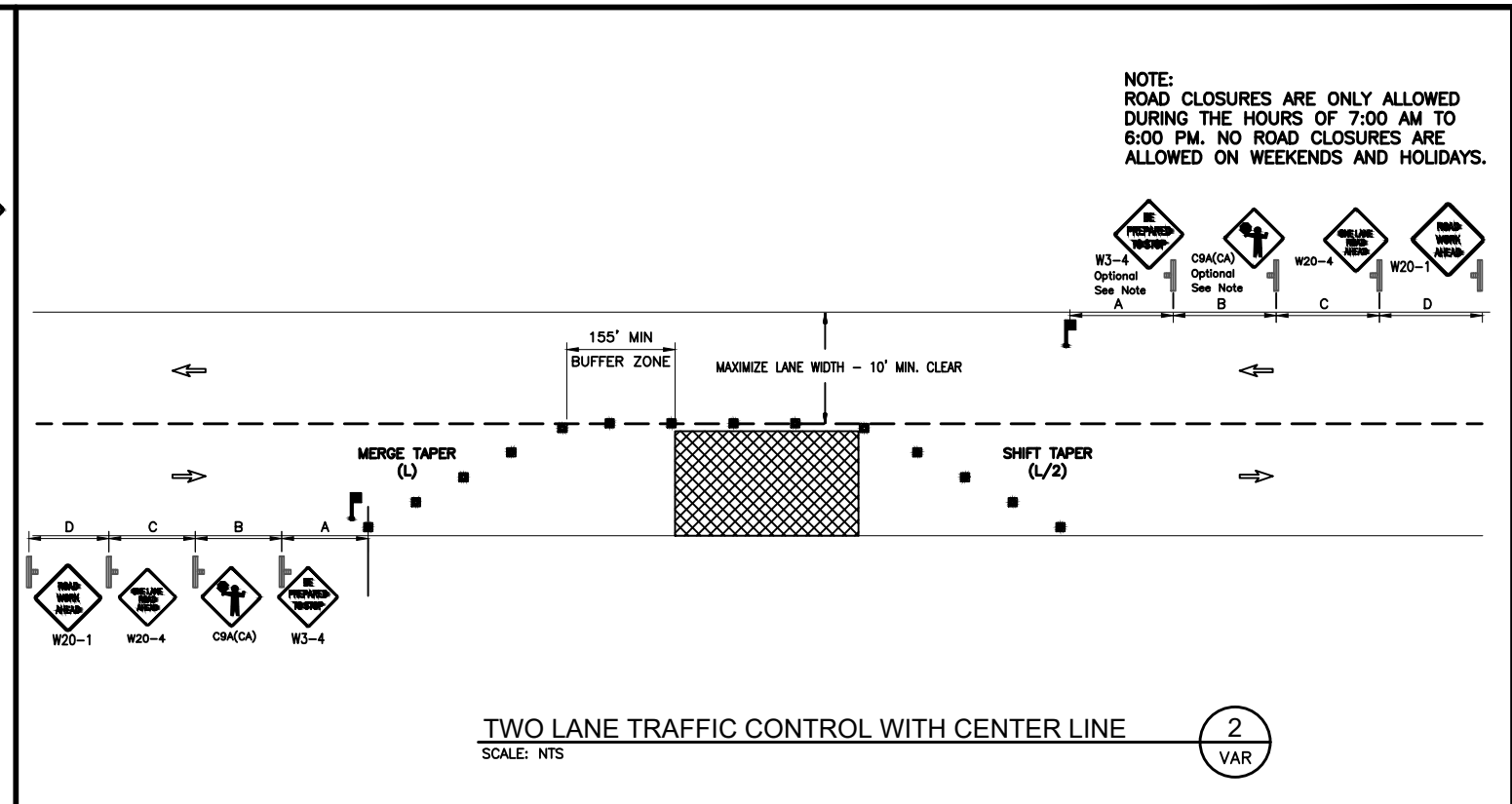
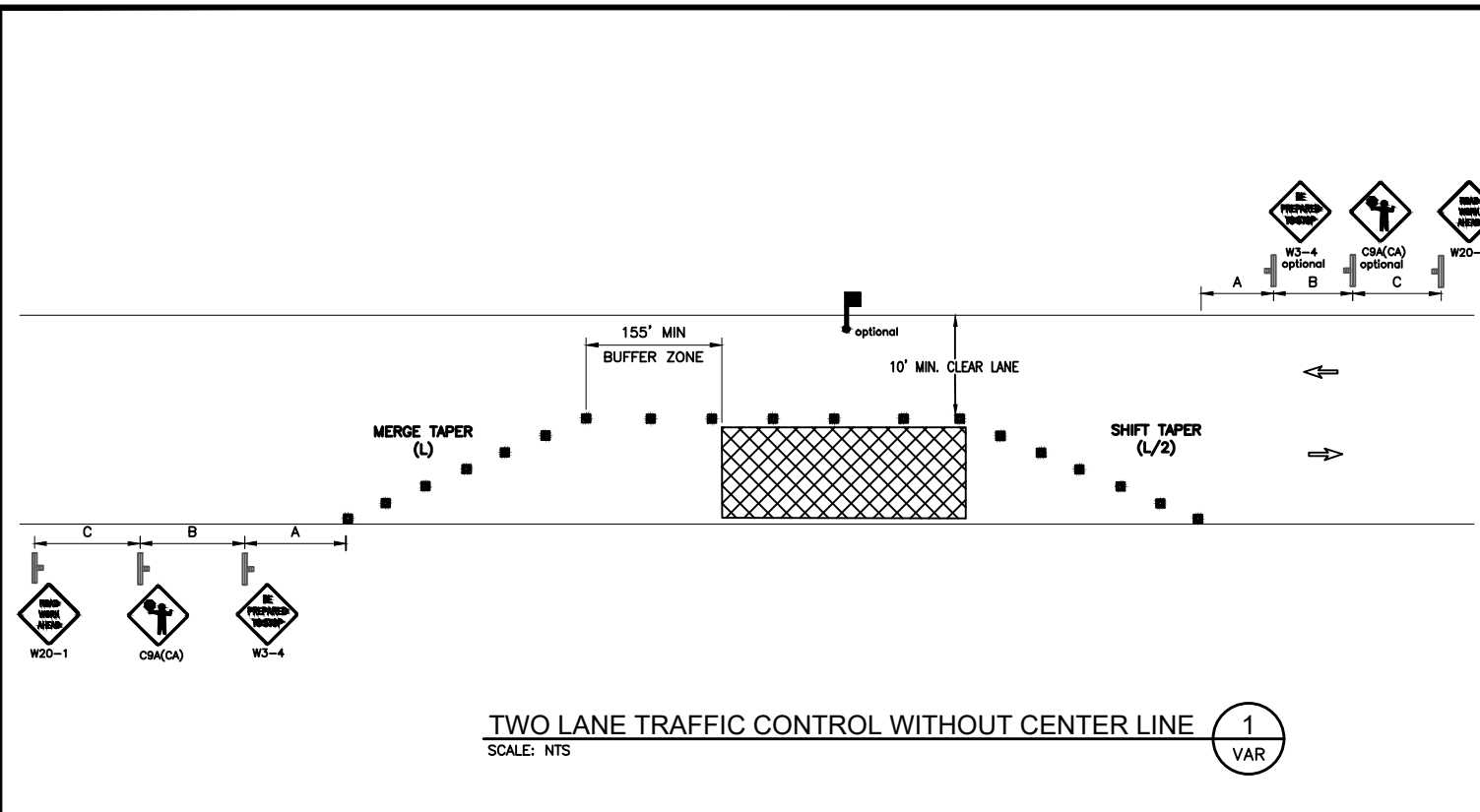
COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TRAFFIC CONTROL INDEX III

FIGURE T04

SHEET 28 OF 48

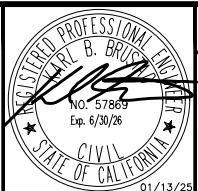
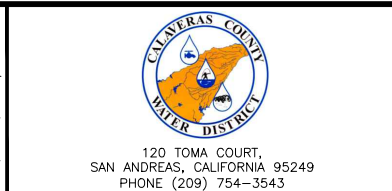
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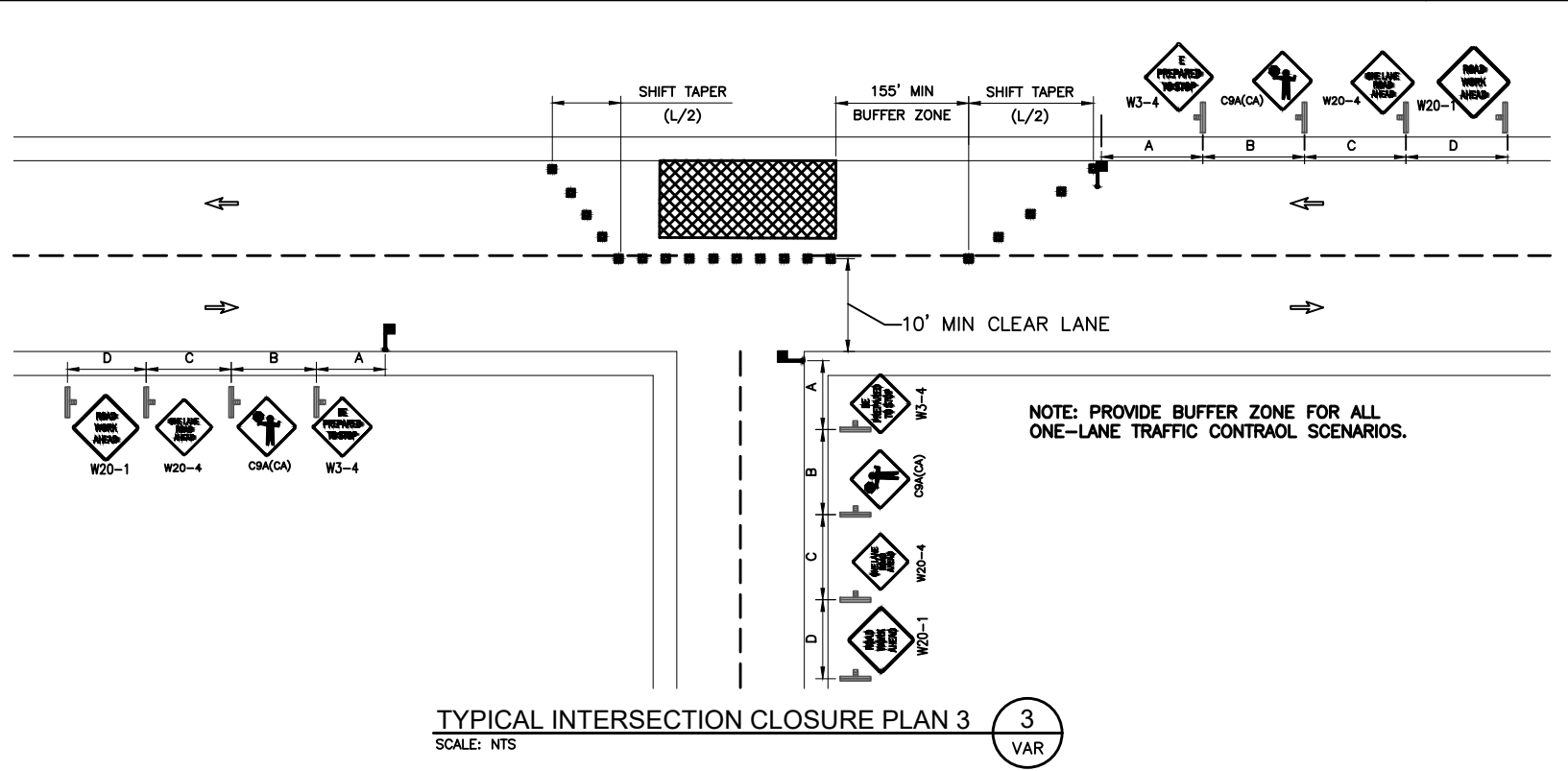
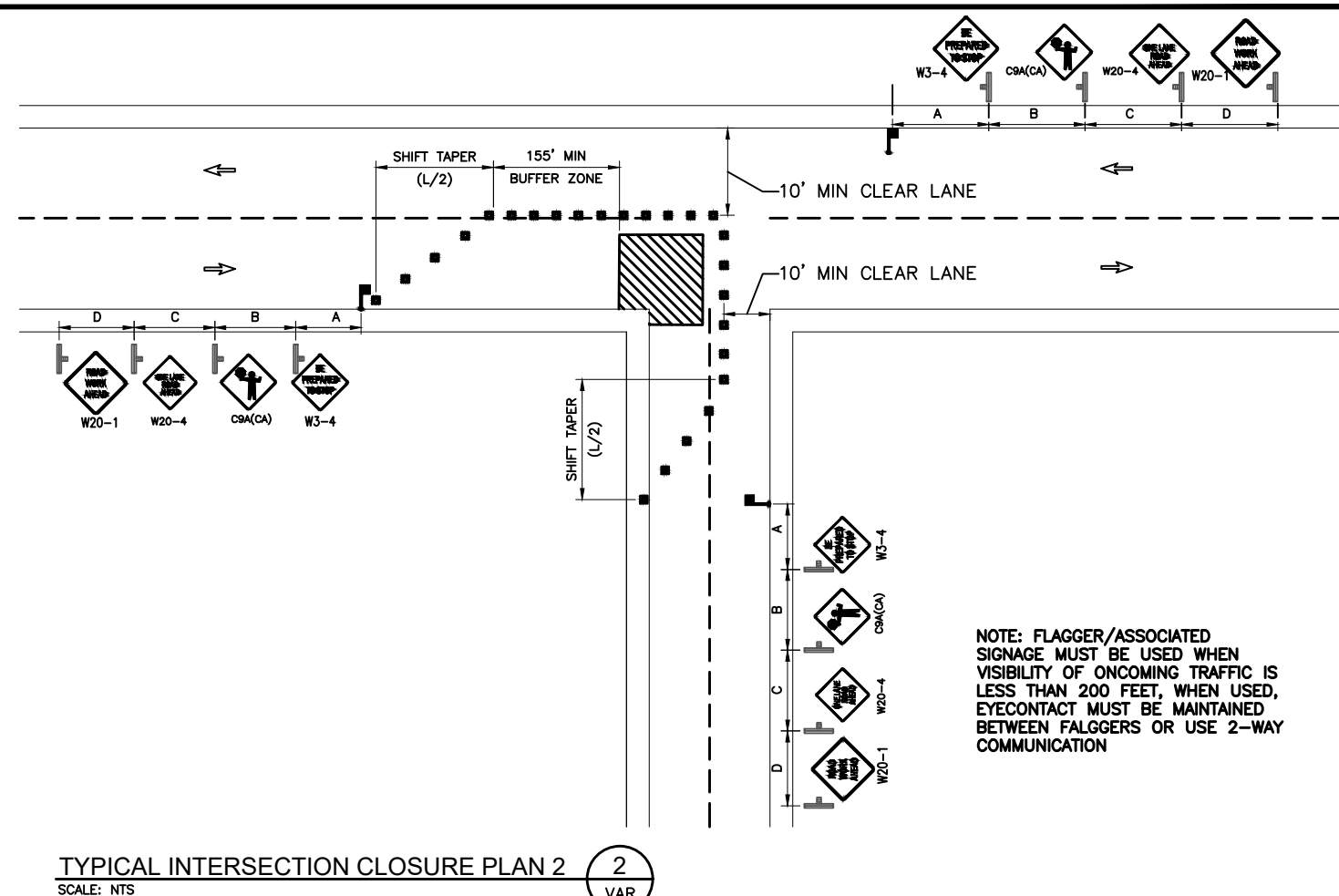
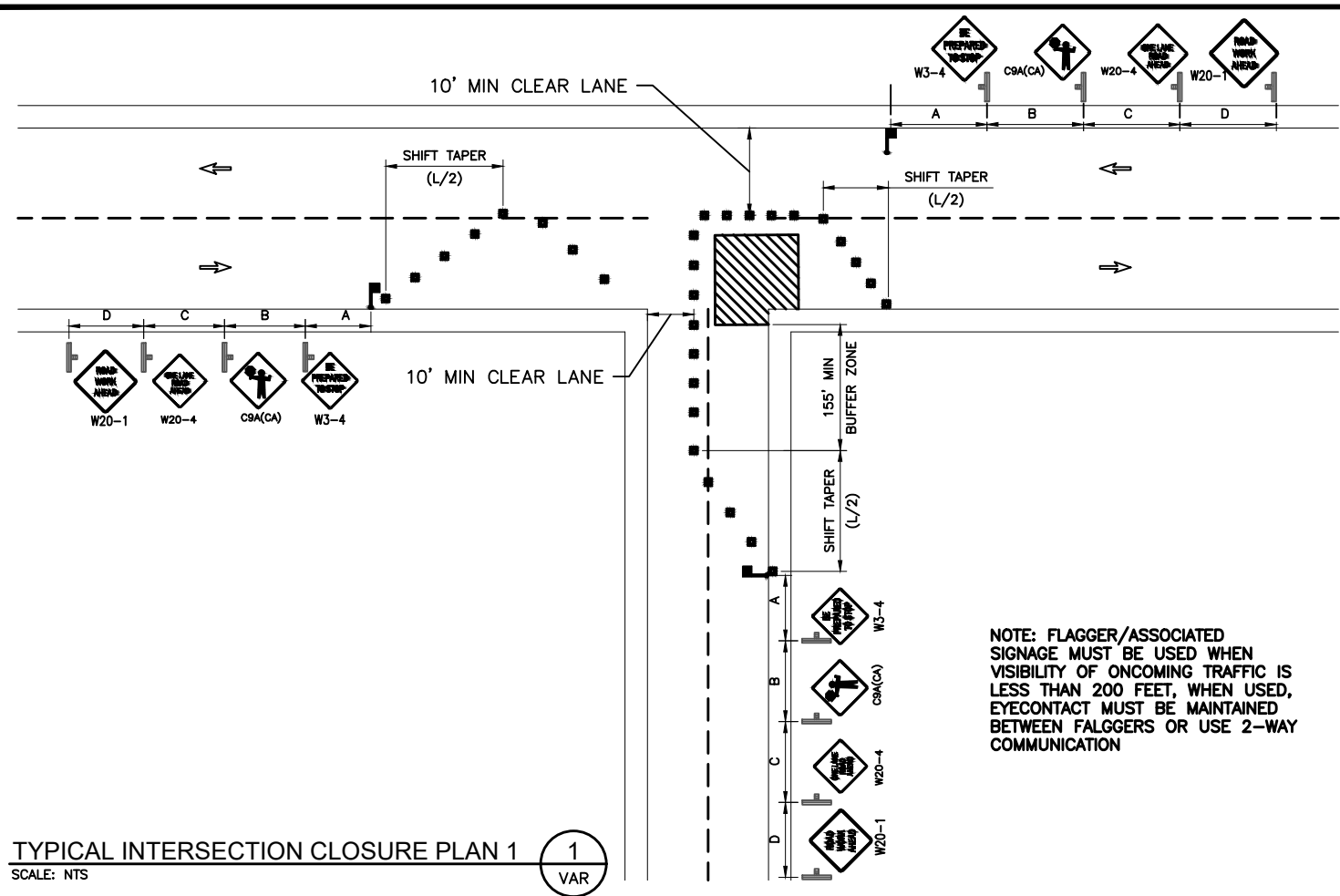


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TYPICAL TWO LANE CLOSURE AND ROAD CLOSURE PLANS

FIGURE
T05
SHEET 29 OF 48

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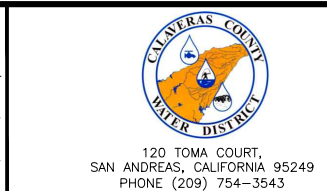


NOTE:
ROAD CLOSURES ARE ONLY ALLOWED DURING THE HOURS OF 7:00 AM TO 6:00 PM. NO ROAD CLOSURES ARE ALLOWED ON WEEKENDS AND HOLIDAYS.

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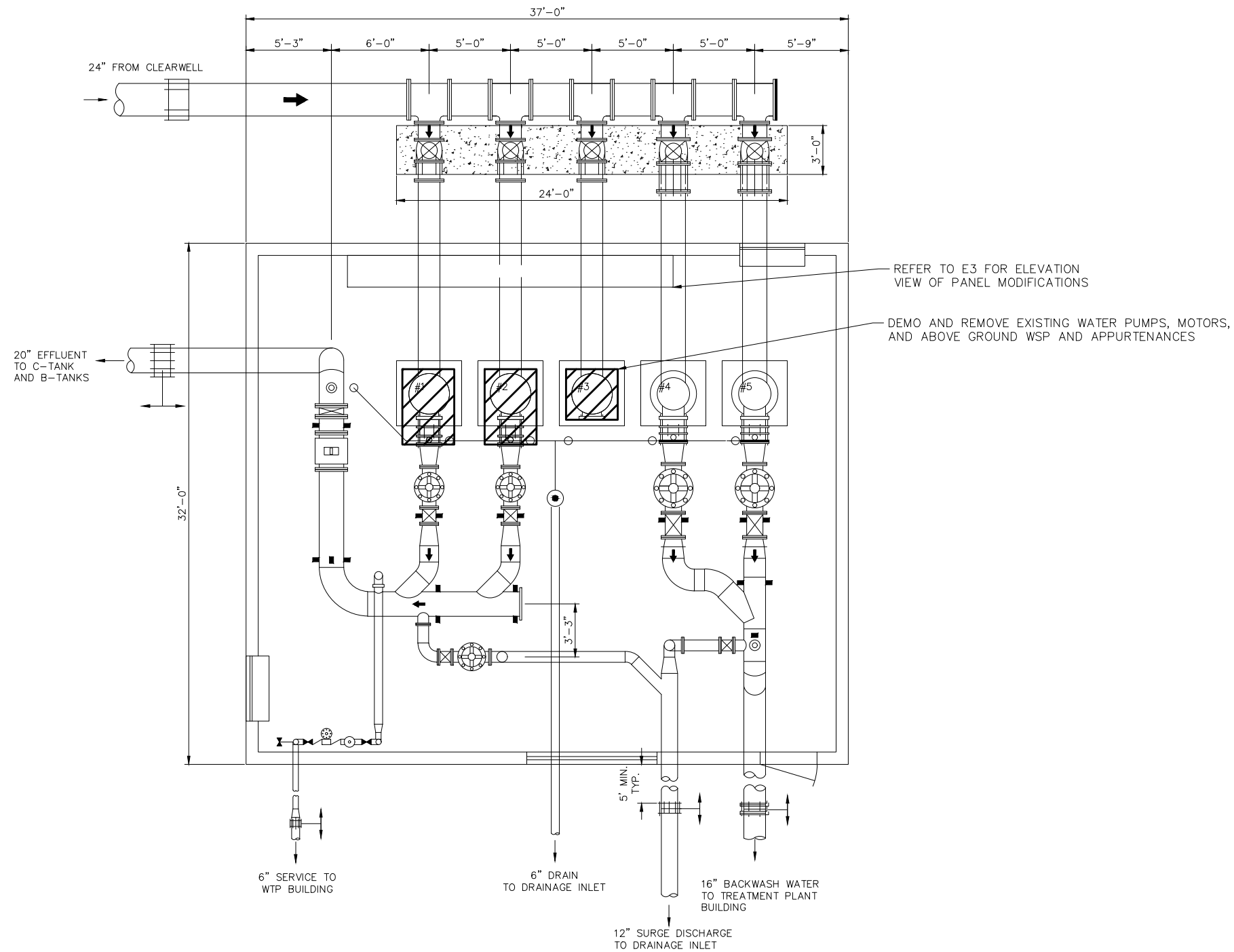


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TYPICAL INTERSECTION CLOSURE PLANS

FIGURE
T06
SHEET 30 OF 48

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PLAN
1" = 4'

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| DRAWN | JAK/HMH |
| CHECKED | KBB |



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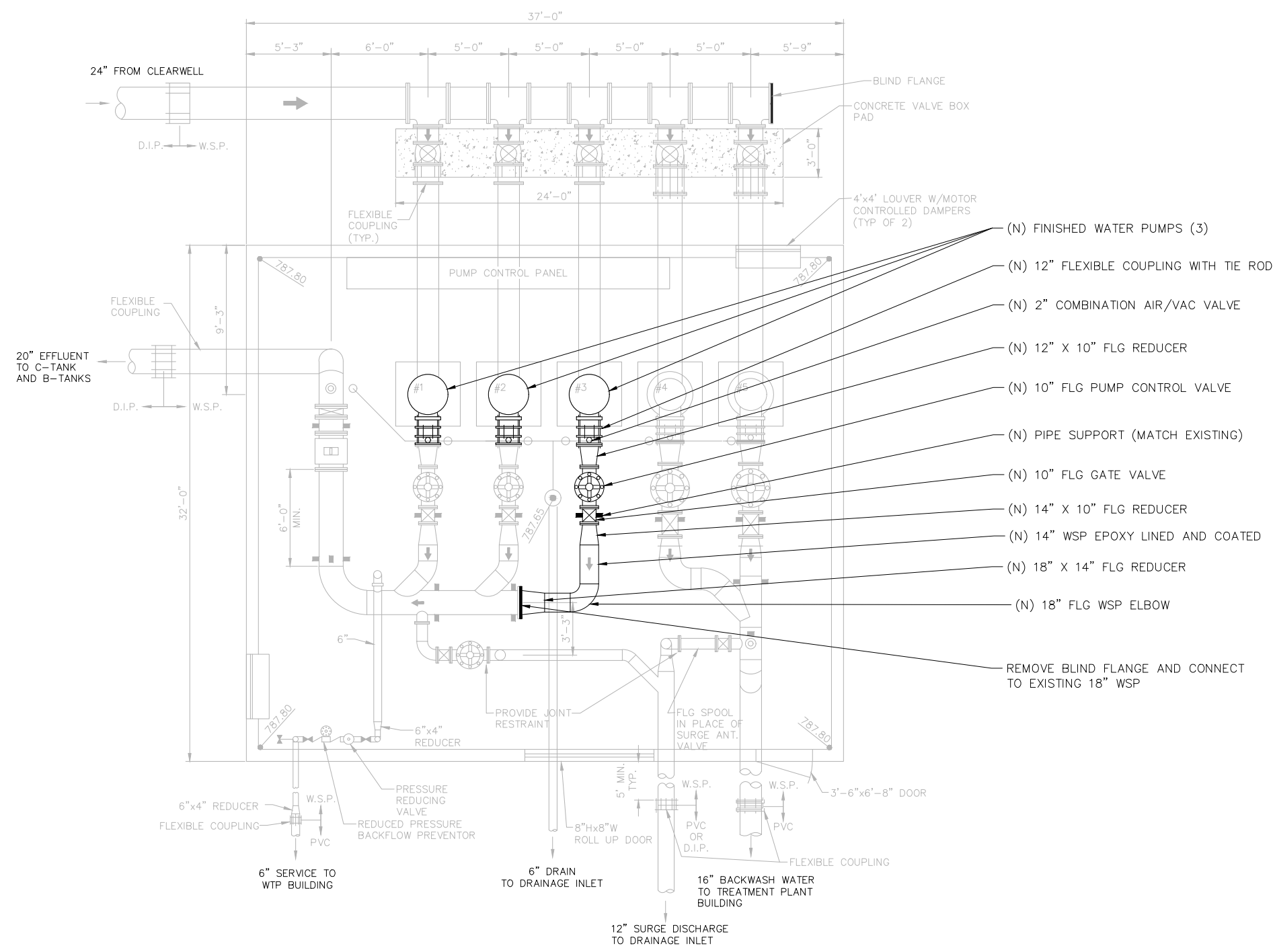


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

BOOSTER PUMP STATION DEMOLITION PLAN

FIGURE
M01
SHEET 31 OF 48

- NOTES:
1. REMOVE EXISTING PUMPS #1 AND #2 AND REPLACE WITH NEW FINISHED WATER PUMPS IN ACCORDANCE WITH SEQUENCING PLAN.
 2. REMOVE EXISTING SPARE PUMP LOCATED AT PUMP #3 AND REPLACE WITH NEW FINISHED WATER PUMP.



PLAN
1" = 4'

ISSUED FOR BID

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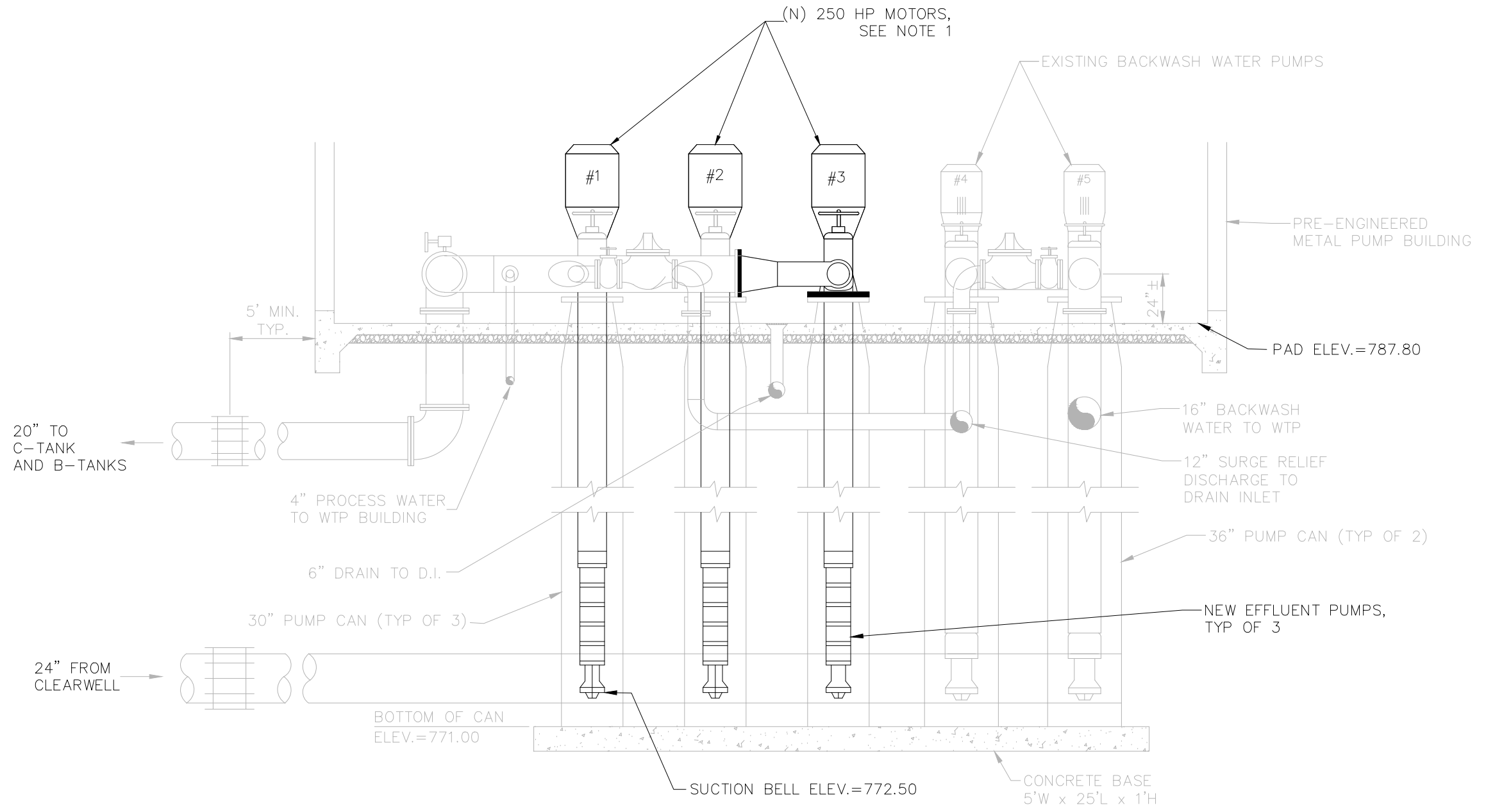
COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

BOOSTER PUMP STATION PLAN

FIGURE M02
SHEET 32 OF 48

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NOTE 1:
 REMOVE (E) 250 HP MOTORS AND PUMPS.
 INSTALL NEW EFFLUENT PUMPS AND NEW 250 HP MOTORS



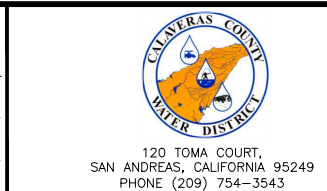
ELEVATION
 1" = 2.5'

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COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

BOOSTER PUMP STATION SECTIONS

FIGURE
M03
 SHEET 33 OF 48

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| MISCELLANEOUS ELECTRICAL & INSTRUMENTATION ABBREVIATIONS | | | |
|--|--|---------|---|
| & | AND | HOR | HAND-OFF-REMOTE |
| @ | AT | HP | HORSEPOWER |
| A | AMBER, AMPERES | HPS | HIGH PRESSURE SODIUM |
| AC | ALTERNATING CURRENT | HS | HAND SWITCH |
| AF | AMP FRAME | HTR | HEATER |
| AFF | ABOVE FINISHED FLOOR | HZ | HERTZ (CYCLES PER SECOND) |
| AI | ANALOG INPUT | HZD | HAZARDOUS AREA, EXPLOSION PROOF |
| AIC | AMP INTERRUPTING CAPACITY SYMMETRICAL | I | INTERLOCK |
| AL | RIGID ALUMINUM CONDUIT | I/O | INPUT/OUTPUT |
| ALT | ALTERNATOR | ICR | INSTRUMENTATION CONTROL RELAY |
| AM | AMMETER | INST | INSTANTANEOUS |
| ARMS | ARC FLASH REDUCTION MAINTENANCE SYS | ISC | SHORT CKT INTERRUPTING CURRENT (SYMM) |
| AO | ANALOG OUTPUT | ISR | INTRINSICALLY SAFE RELAY |
| AT | AMP TRIP | J | JUNCTION BOX |
| ATS | AUTOMATIC TRANSFER SWITCH | K | KILO, PREFIX |
| AWG | AMERICAN WIRE GAUGE | KAIC | KILO-AMPERE INTERRUPTING CAPACITY |
| B | BLUE | L | LINE |
| BC | BARE COPPER | LA | LIGHTNING ARRESTOR |
| BFC | BELOW FINISHED CEILING | LC | LIGHTING CONTACTOR |
| BOD | BIOCHEMICAL OXYGEN DEMAND | LCD | LIQUID CRYSTAL DISPLAY |
| BLK | BLACK | LED | LIGHT EMITTING DIODE |
| BKR | BREAKER | LEL | LOWER EXPLOSIVE LIMIT |
| C | CONDUIT | LGT | LIGHT |
| CAP | CAPACITOR | LO | LOW |
| CB | CIRCUIT BREAKER | LOR | LOCAL-OFF-REMOTE |
| CBL | CABLE | LOS | LOCK-OUT STOP SWITCH |
| CH | CHANNEL | LP | LIGHTING PANELBOARD |
| CKT | CIRCUIT | LPU | LINE PROTECTION UNIT |
| COAX | COAXIAL CABLE | LS | LEVEL SWITCH |
| COMM | COMMUNICATION PORT | LSI | LONG, SHORT, INSTANTANEOUS |
| CP | CONTROL PANEL | M | MOTOR CONTRACTOR |
| CPT | CONTROL POWER TRANSFORMER | MAX | MAXIMUM |
| CR | CONTROL RELAY | MCC | MOTOR CONTROL CENTER |
| CT | CURRENT TRANSFORMER | MCM | THOUSAND CIRCULAR MILS |
| CTQ | CONSTANT TORQUE | MCP | MOTOR CIRCUIT PROTECTOR |
| CU | COPPER, CONDENSING UNIT | MH | MANHOLE |
| DC | DIRECT CURRENT | MHD | METAL HALIDE |
| DET | DETAIL | MIN | MINIMUM |
| DI | DIGITAL INPUT | MINS | MINUTES |
| DIA | DIAGRAM | MISC | MISCELLANEOUS |
| DISC | DISCONNECT | MNFR | MANUFACTURER |
| DIV | DIVISION | MOV | MOTOR OPERATED VALVE |
| DO | DIGITAL OUTPUT | MPS | MOTOR PROTECTION SYSTEM |
| DPDT | DOUBLE POLE DOUBLE THROW | MS | MOISTURE SENSOR/SWITCH |
| DWG | DRAWING | MTR | MOTOR |
| ELEV | ELEVATION | MTS | MANUAL TRANSFER SWITCH |
| EMT | ELECTRICAL METALLIC TUBING | MV | MEDIUM VOLTAGE |
| ETM | ELAPSED TIME METER | N | NEUTRAL |
| (E) | EXISTING | NC | NORMALLY CLOSED |
| F | FRAME | NEC | NATIONAL ELECTRICAL CODE |
| FC | FAIL CLOSED, FAN COIL | NEMA | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION |
| FCS | FIELD CONTROL STATION | NIC | NOT IN CONTRACT |
| FLA | FULL LOAD AMPS | NO | NORMALLY OPEN |
| FO | FAIL OPEN | NP | NAMEPLATE |
| FLEX | FLEXIBLE, METAL LIQUID TIGHT CONDUIT | NTS | NOT TO SCALE |
| FROA | FORWARD-REVERSE-OFF-AUTO | (N) | NEW |
| FS | FLOW SWITCH OR FULL SPEED | OC | ON CENTER |
| FV, FVNR | FULL VOLTAGE NON-REVERSING | OI | OPERATOR INTERFACE |
| FVR | FULL VOLTAGE REVERSING | OL | OVERLOAD |
| FWD | FORWARD | ORP | OXIDATION REDUCTION POTENTIAL |
| (F) | FUTURE | P | PHASE, POLE |
| G | GREEN | PB | PULL BOX |
| GALV | GALVANIZED | PBI | PULL BOX INSTRUMENT |
| GEN | GENERATOR | PBP | PULL BOX POWER |
| GFI | GROUND FAULT CIRCUIT INTERRUPTER | PE | PHOTOCELL |
| GND | GROUND | PF | POWER FAIL |
| GRS | GALVANIZED RIGID STEEL CONDUIT | PFR | POWER (PHASE) FAIL RELAY |
| GRS-PVC | PVC COATED GRS CONDUIT | PH | HYDROGEN ION CONCENTRATION |
| HC | PUSHBUTTON | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| HI | HIGH | PM | POWER MONITOR |
| HID | HIGH INTENSITY DISCHARGE | PMP | PUMP |
| HMI | HUMAN MACHINE INTERFACE | PNL | PANEL |
| HOA | HAND-OFF-AUTO | PR | PAIR, TWISTED & SHIELDED CABLE |
| PRESS | PRESSURE | PROVIDE | FURNISH, INSTALL & CONNECT |
| PRI | PRIMARY | PRR | POWER RELAY |
| PS | PRESSURE SWITCH, POWER SUPPLY | PS | PRESSURE SWITCH, POWER SUPPLY |
| PT | POTENTIAL TRANSFORMER | PT | POTENTIAL TRANSFORMER |
| PTT | PUSH TO TEST | PTT | PUSH TO TEST |
| PV | PROCESS VARIABLE | PV | PROCESS VARIABLE |
| PVC | POLY VINYL CHLORIDE | PVC | POLY VINYL CHLORIDE |
| PWR | POWER | PWR | POWER |
| R | RED | R | RED |
| RCT | REPEAT CYCLE TIMER | RCT | REPEAT CYCLE TIMER |
| REF | REFERENCE | REF | REFERENCE |
| RIO | REMOTE I/O | RIO | REMOTE I/O |
| RTD | RESISTANCE TEMPERATURE DETECTOR | RTD | RESISTANCE TEMPERATURE DETECTOR |
| RTM | RUN TIME METER | RTM | RUN TIME METER |
| RTU | REMOTE TELEMETRY UNIT | RTU | REMOTE TELEMETRY UNIT |
| RVNR | REDUCED VOLTAGE NON-REVERSING | RVNR | REDUCED VOLTAGE NON-REVERSING |
| (R) | REWIRE, RELOCATE, REVISE, REUSE, REPLACE | (R) | REWIRE, RELOCATE, REVISE, REUSE, REPLACE |
| SC | SHORTING CONTACTOR | SC | SHORTING CONTACTOR |
| SCH | SCHEDULE | SCH | SCHEDULE |
| SEC | SECONDARY | SEC | SECONDARY |
| SECS | SECONDS | SECS | SECONDS |
| SEL | SELECTOR | SEL | SELECTOR |
| SFA | SERVICE FACTOR AMPS | SFA | SERVICE FACTOR AMPS |
| SP | SETPOINT | SP | SETPOINT |
| SPD | SURGE PROTECTIVE DEVICE | SPD | SURGE PROTECTIVE DEVICE |
| SPEC | SPECIFICATION | SPEC | SPECIFICATION |
| SS | STAINLESS STEEL | SS | STAINLESS STEEL |
| SSS | SOLID STATE SOFT STARTER | SSS | SOLID STATE SOFT STARTER |
| STT | START | STT | START |
| STP | STOP | STP | STOP |
| SV | SOLENOID VALVE | SV | SOLENOID VALVE |
| SW | SWITCH | SW | SWITCH |
| SWBD | SWITCHBOARD | SWBD | SWITCHBOARD |
| SWGR | SWITCHGEAR | SWGR | SWITCHGEAR |
| SYMM | SYMMETRICAL | SYMM | SYMMETRICAL |
| T | TRIP | T | TRIP |
| TB | TERMINAL BLOCK | TB | TERMINAL BLOCK |
| TC | TIME CLOCK | TC | TIME CLOCK |
| TDD | TIME DELAY ON DE-ENERGIZATION | TDD | TIME DELAY ON DE-ENERGIZATION |
| TDOE | TIME DELAY ON ENERGIZATION | TDOE | TIME DELAY ON ENERGIZATION |
| TEL | TELEMETRY | TEL | TELEMETRY |
| TELCO | TELEPHONE COMPANY | TELCO | TELEPHONE COMPANY |
| TEMP | TEMPERATURE | TEMP | TEMPERATURE |
| TM | THERMAL MAGNETIC | TM | THERMAL MAGNETIC |
| TOC | TOTAL ORGANIC CARBON | TOC | TOTAL ORGANIC CARBON |
| TR | TIME DELAY RELAY | TR | TIME DELAY RELAY |
| TRIAD | TWISTED & SHIELDED 3 CONDUCTOR | TRIAD | TWISTED & SHIELDED 3 CONDUCTOR |
| TS | TEMPERATURE SWITCH | TS | TEMPERATURE SWITCH |
| TSPR | TWISTED & SHIELDED PAIR | TSPR | TWISTED & SHIELDED PAIR |
| TYP | TYPICAL | TYP | TYPICAL |
| UG | UNDERGROUND | UG | UNDERGROUND |
| UL | UNDERWRITERS LABORATORIES | UL | UNDERWRITERS LABORATORIES |
| UON | UNLESS OTHERWISE NOTED | UON | UNLESS OTHERWISE NOTED |
| UPS | UNINTERRUPTIBLE POWER SUPPLIES | UPS | UNINTERRUPTIBLE POWER SUPPLIES |
| V | VOLTAGE | V | VOLTAGE |
| VA | VOLT AMPS | VA | VOLT AMPS |
| VAR | VOLT AMP REACTIVE | VAR | VOLT AMP REACTIVE |
| VFD | VARIABLE FREQUENCY DRIVE | VFD | VARIABLE FREQUENCY DRIVE |
| VLV | VALVE | VLV | VALVE |
| VM | VOLTMETER | VM | VOLTMETER |
| VTQ | VARIABLE TORQUE | VTQ | VARIABLE TORQUE |
| W | WHITE, WATTS | W | WHITE, WATTS |
| WHM | WATT-HOUR METER | WHM | WATT-HOUR METER |
| WM | WATTMETER | WM | WATTMETER |
| WP | WATERPROOF, WEATHER PROOF | WP | WATERPROOF, WEATHER PROOF |
| WS | TORQUE SWITCH, WATER SURFACE | WS | TORQUE SWITCH, WATER SURFACE |
| XFMR | TRANSFORMER | XFMR | TRANSFORMER |
| XS | MISCELLANEOUS SWITCH | XS | MISCELLANEOUS SWITCH |
| Y | YELLOW | Y | YELLOW |
| Z | IMPEDANCE | Z | IMPEDANCE |
| ZS | LIMIT SWITCH | ZS | LIMIT SWITCH |

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---------------------|---|--------|--|-------------------------|--|----------------|---|
| SWITCHES – PROCESS | | | | DEVICES – RELAY | | | |
| | FLOW SWITCH – CLOSURES UPON INCREASING FLOW | | CONTROL RELAY CR1 WITH NORMALLY OPEN CONTACT ON LINE 28 & NORMALLY CLOSED CONTACT ON LINE 111 | | RESISTOR | | PANEL OR EQUIPMENT WIRING |
| | FLOW SWITCH – OPENS UPON INCREASING FLOW | | TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN | | POTENTIOMETER | | FIELD WIRING |
| | LEVEL SWITCH – CLOSURES UPON INCREASING LEVEL | | TIME DELAY ON ENERGIZATION | | CAPACITOR, FIXED | | CONDUCTORS – NOT CONNECTED |
| | LEVEL SWITCH – OPENS UPON INCREASING LEVEL | | TIME DELAY ON DE-ENERGIZATION | | CAPACITOR, ADJUSTABLE | | CONDUCTORS – CONNECTED |
| | PRESSURE SWITCH – CLOSURES UPON INCREASING PRESSURE (INCREASING VACUUM) | | CONTACTOR OR STARTER M1 | | DIODE | | GROUND |
| | PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (INCREASING VACUUM) | | SOLENOID | | DIODE, ZENER | | CHASSIS OR FRAME GROUND |
| | TEMPERATURE SWITCH – CLOSURES UPON INCREASING TEMPERATURE | | NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105 | | VARIABLE TRANSIENT VOLTAGE SUPPRESSOR | | PLUG AND RECEPTACLE |
| | TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE | | NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1 | | VOLTAGE SURGE SUPPRESSOR, AC | | INCOMING LINE |
| | LIMIT SWITCH – CLOSURES AT SET LIMIT | | NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSURES AFTER TR2 IS ENERGIZED | | RESISTANCE TEMPERATURE DETECTOR (RTD) | | TERMINAL BLOCKS |
| | LIMIT SWITCH – OPENS AT SET LIMIT | | NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED | | THERMOCOUPLE (T/C) | | TERMINALS |
| | PROXIMITY SWITCH – CLOSURES UPON DECREASING DISTANCE | | NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE-ENERGIZED | DEVICES – MISCELLANEOUS | | | |
| | PROXIMITY SWITCH – OPENS UPON DECREASING DISTANCE | | NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE-ENERGIZED | | AUDIBLE ALARM | | SHIELDED CABLE |
| | TORQUE SWITCH – CLOSURES UPON INCREASING TORQUE | | NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSURES AFTER TR2 IS DE-ENERGIZED | | BATTERY | PLAN – SYMBOLS | |
| | TORQUE SWITCH – OPENS UPON INCREASING TORQUE | | NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSURES AFTER TR2 IS DE-ENERGIZED | | HEATER | | CONDUIT, EXPOSED |
| | | | CONTACT OPENS AND CLOSURES IN A TIMED REPEAT CYCLE | | 3 PHASE HEATER | | CONDUIT, IN SLAB OR BELOW GRADE |
| | | | | | GENERATOR | | CONDUIT STUBBED OUT & CAPPED |
| | | | | | 3 PHASE MOTOR # = MOTOR HP | | CONDUIT BENDS TOWARD OBSERVER |
| | | | | | SINGLE PHASE MOTOR | | CONDUIT BENDS AWAY FROM OBSERVER |
| | | | | | TRANSFORMER | | CONDUIT ENDS |
| | | | | | LINE REACTOR | | CONDUIT CHANGE IN ELEVATION |
| | | | | | | | BARE COPPER GROUND WIRE |
| | | | | | | | GROUND CONNECTION BOLTED TYPE |
| | | | | | | | GROUND CONNECTION EXOTHERMIC WELD TYPE |
| | | | | | | | PULL BOX |
| | | | | | | | DISCONNECT SWITCH |
| | | | | | | | FIELD CONTROL STATION WITH JUNCTION BOX |
| | | | | | | | FIELD CONTROL STATION WITH #AMP DISCONNECT SWITCH |
| | | | | | | | SPECIAL RECEPTACLE |
| | | | | | | | JUNCTION BOX |
| | | | | | | | THERMOSTAT |
| | | | | | | | LIGHTING, FANS, HEATERS |
| | | | | | | | # – CIRCUIT BREAKER NUMBER |
| | | | | | | | A – FIXTURE SCHEDULE REF. |
| | | | | | | | α – CONTROL SWITCH REFERENCE |
| | | | | | | | # – CIRCUIT BREAKER NUMBER |
| | | | | | | | # – CIRCUIT BREAKER NUMBER |
| | | | | | | | SUBSCRIPT – CIRCUIT CONTROLLED |
| | | | | | | | 2 = 2 POLE |
| | | | | | | | 3 = 3 WAY |
| | | | | | | | CONDUIT # |
| | | | | | | | EQUIPMENT NUMBER |
| SWITCHES – OPERATOR | | | | DEVICES – FRONT PANEL | | | |
| | TOGGLE OR DISCONNECT SWITCH | | INDICATING LIGHT, LETTER "X" INDICATES COLOR: R=RED, G=GREEN, A=AMBER, W=WHITE, Y=YELLOW, B=BLUE | | DISCONNECT, 3 POLE | | |
| | PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION | | INDICATING LIGHT, PUSH TO TEST | | CIRCUIT BREAKER, 3 POLE THERMAL MAGNETIC (TM) OR MOTOR CIRCUIT PROTECT (MCP) | | |
| | PUSHBUTTON – NORMALLY CLOSED, MOMENTARY ACTION | | AMP METER | | VOLT METER | | |
| | PUSHBUTTON, MECHANICALLY INTERLOCKED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN, MAINTAINED ACTION | | ELAPSED TIME METER | | THERMAL OVERLOAD CONTACT | | |
| | SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS AT POSITION OF H–HAND, O–OFF, OR A–AUTO | | RUN TIME METER | | THERMAL OVERLOAD ELEMENT | | |
| | SELECTOR SWITCH, 2 POSITION – CONTACT STATUS SHOWN EXISTS AT POSITION AS SHOWN | | MULTI-POSITION SWITCH WHERE LETTER "X" IS FUNCTION: A=AMP, V=VOLT | | FUSE WITH BLOWN FUSE INDICATING LIGHT | | |

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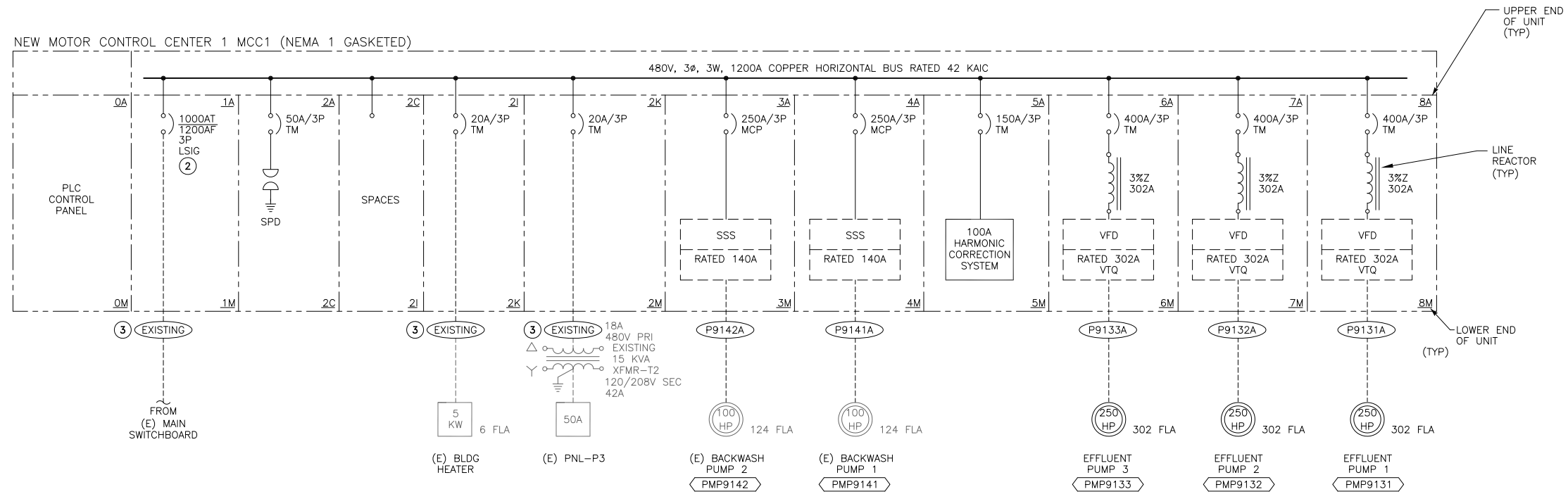
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COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN
ELECTRICAL SYMBOLS & ABBREVIATIONS
1/3/25

FIGURE
E1
SHEET 34 OF 48

ISSUED FOR BID



NEW MCC1 ONE LINE DIAGRAM (1)

- NOTES: (1) ALL LUGS SHALL BE COPPER. SIZE FOR WIRES LISTED IN "CONDUIT & WIRE ROUTING SCHEDULE".
- (2) BREAKER TO HAVE LONG, SHORT, INSTANTANEOUS AND GROUND (LSIG) ADJUSTABLE TRIP UNIT.
- (3) REUSE EXISTING WIRES TO RECONNECT TO NEW MCC1. CONTRACTOR SHALL PERFORM EXTREME CAUTION TO PROTECT THOSE WIRES.

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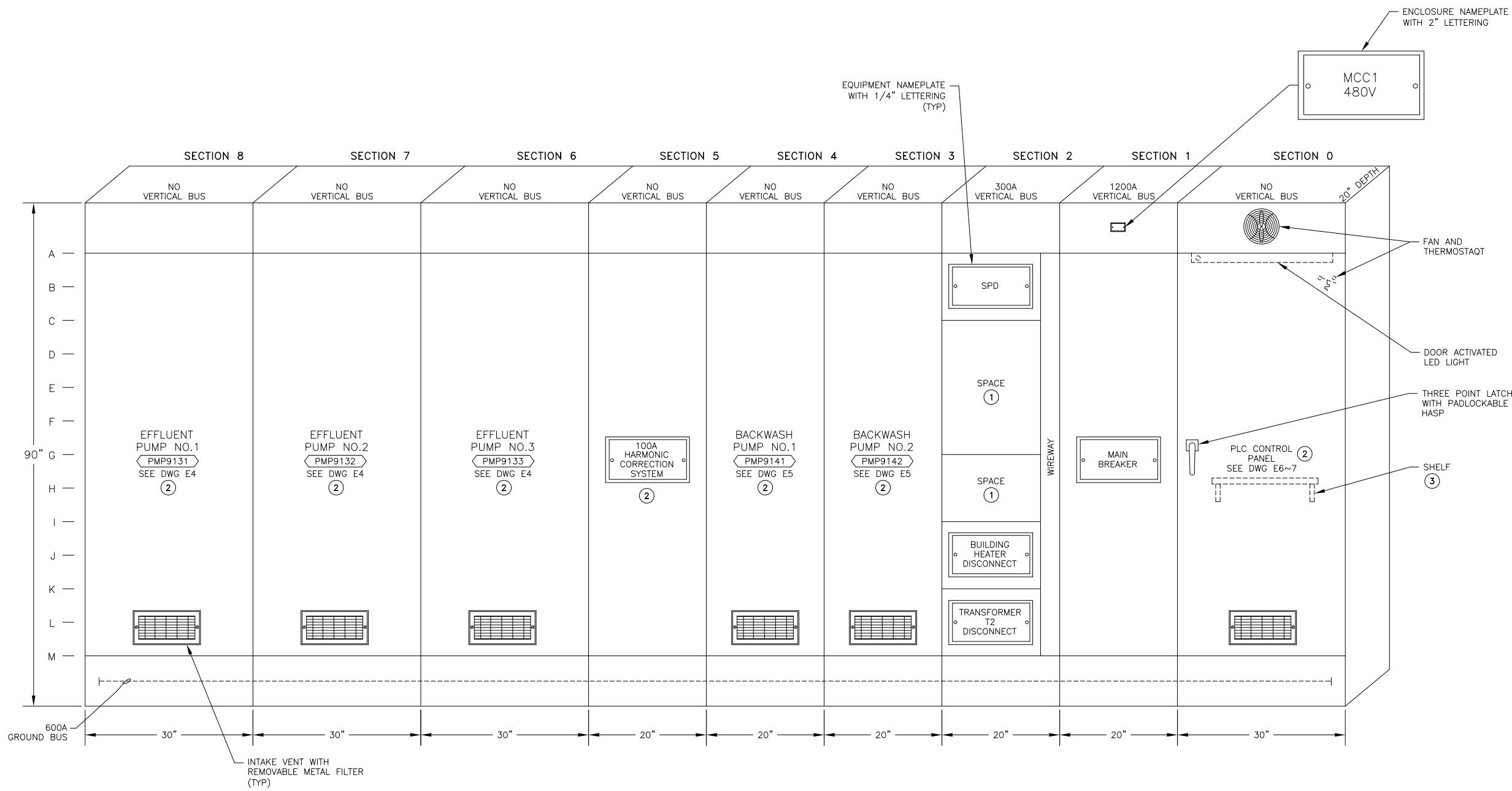
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1/3/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

**NEW MCC1
ONE LINE DIAGRAM**

FIGURE
E2
SHEET 35 OF 48



NEW MCC1 ONE ELEVATION ①

- NOTES:
- ① EACH SPACE LOCATION TO HAVE DRAW OUT BUCKET WITH BLANK DOOR.
 - ② TOP OF DEVICES TO BE MAXIMUM 66" ABOVE FINISHED FLOOR.
 - ③ FOLD DOWN SHELF 18" x 18" MOUNTED INSIDE DOOR, HOFFMAN AASHELF1818 OR APPROVED EQUAL.

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WARNING

0 1/2 1

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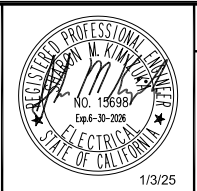
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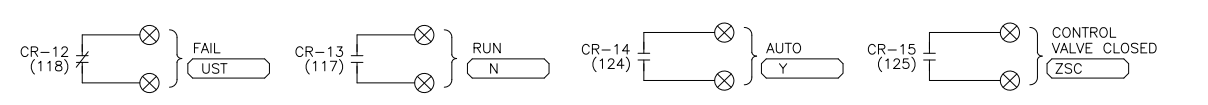
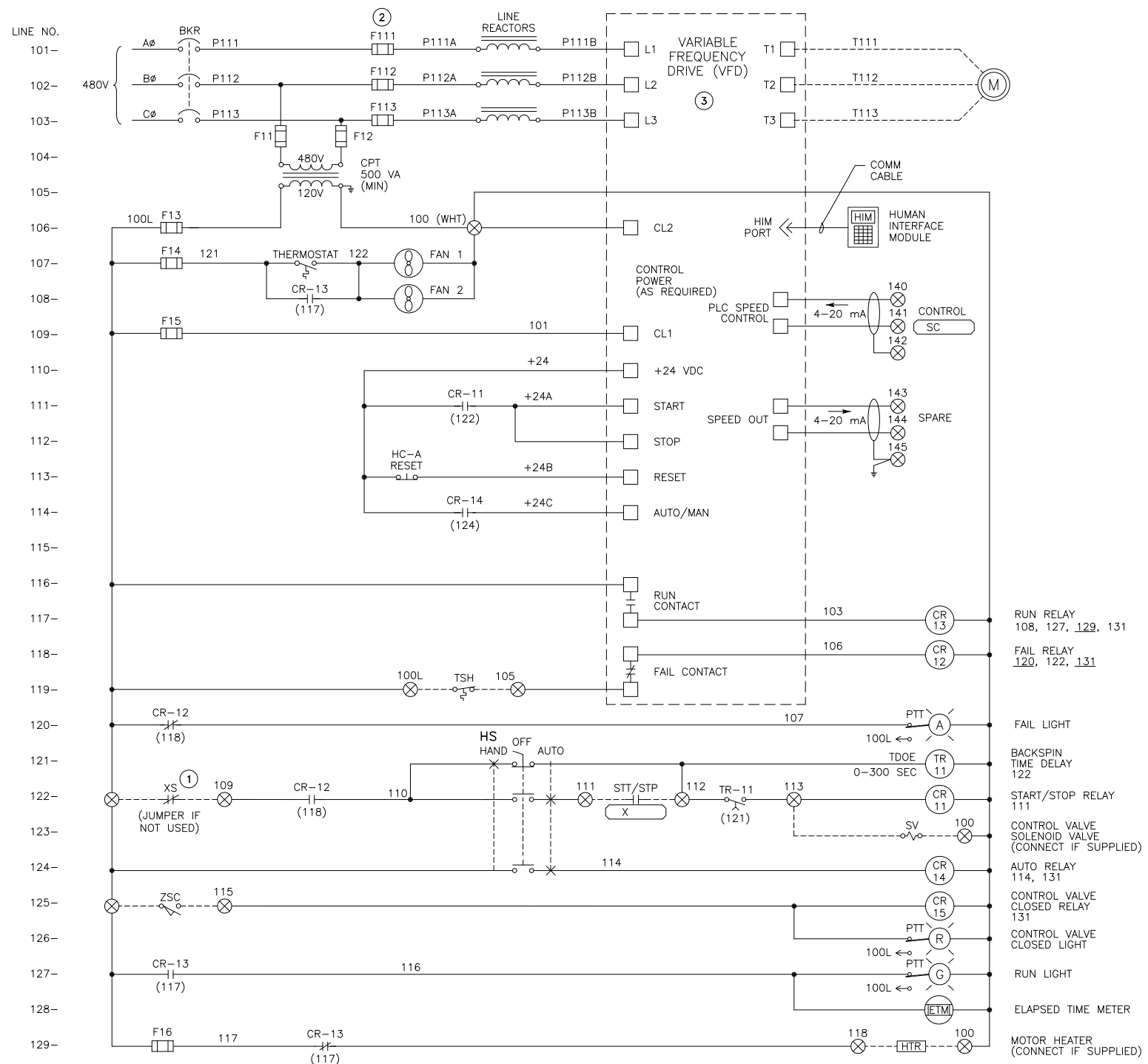
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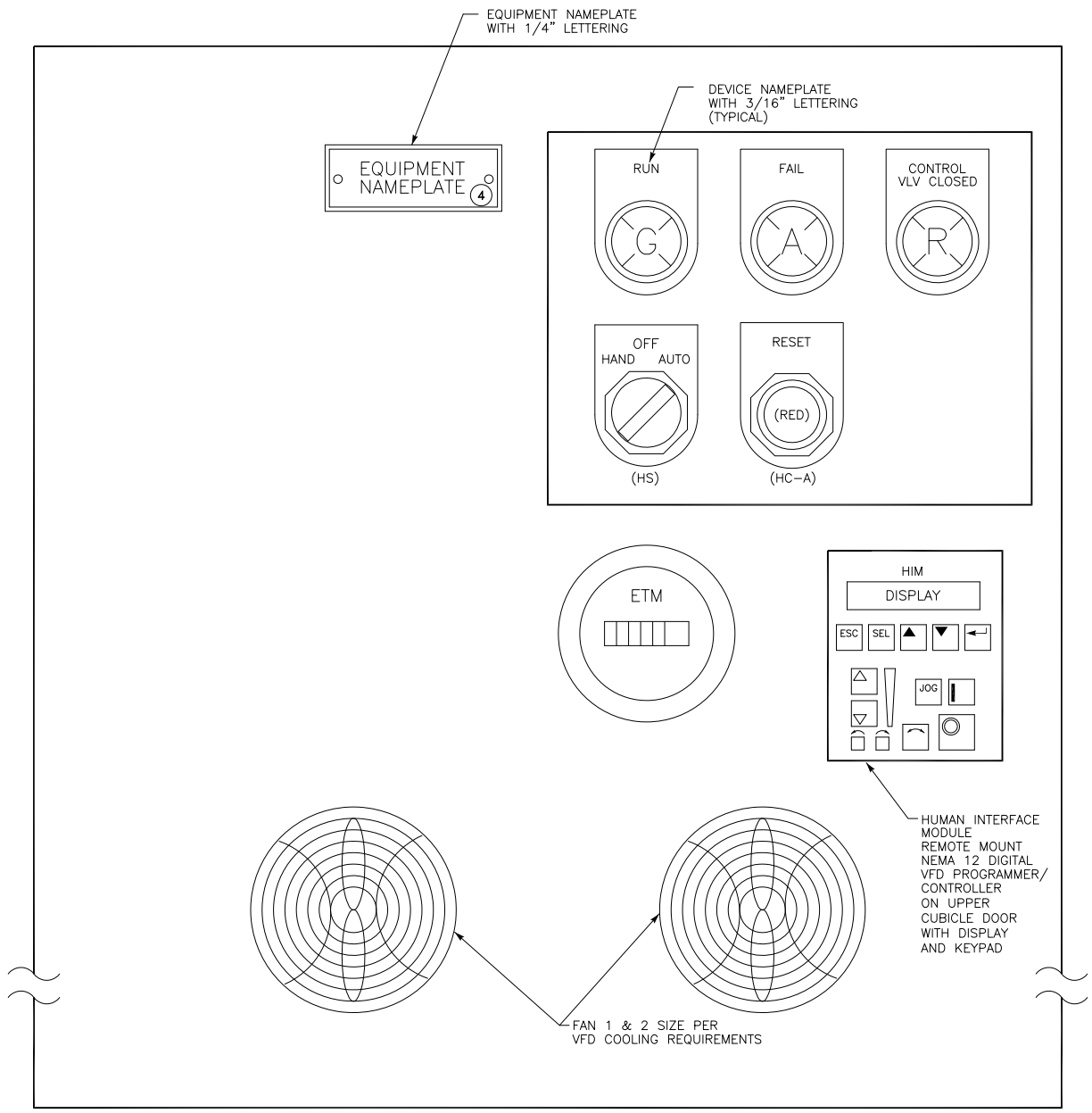
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C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

**NEW MCC1
ELEVATION**

FIGURE
E3
SHEET 36 OF 48



VARIABLE FREQUENCY DRIVE ELEMENTARY DIAGRAM



DOOR LAYOUT

- NOTES:
- 1 REMOTE SHUTDOWN XS => PFR, LSSL, PSSL, PSHH, ETC., PER P&ID, JUMPER IF NOT USED. THESE ARE TO BE CONTACTS OFF OF AUXILIARY RELAY CONTACTS LOCATED IN CONTROL PANEL DRIVEN FROM FIELD DEVICE.
 - 2 PROVIDE FUSES PER MANUFACTURER'S RECOMMENDATIONS.
 - 3 VFD WITH ELECTRONIC OVERLOAD & BUILT-IN RFI FILTER.
 - 4 EQUIPMENT NAMEPLATE TO CONTAIN EQUIPMENT DESCRIPTION AND EQUIPMENT NUMBER PER ELEVATION DIAGRAM.

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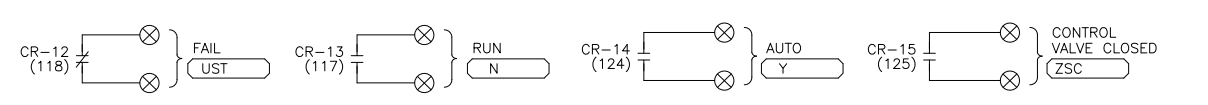
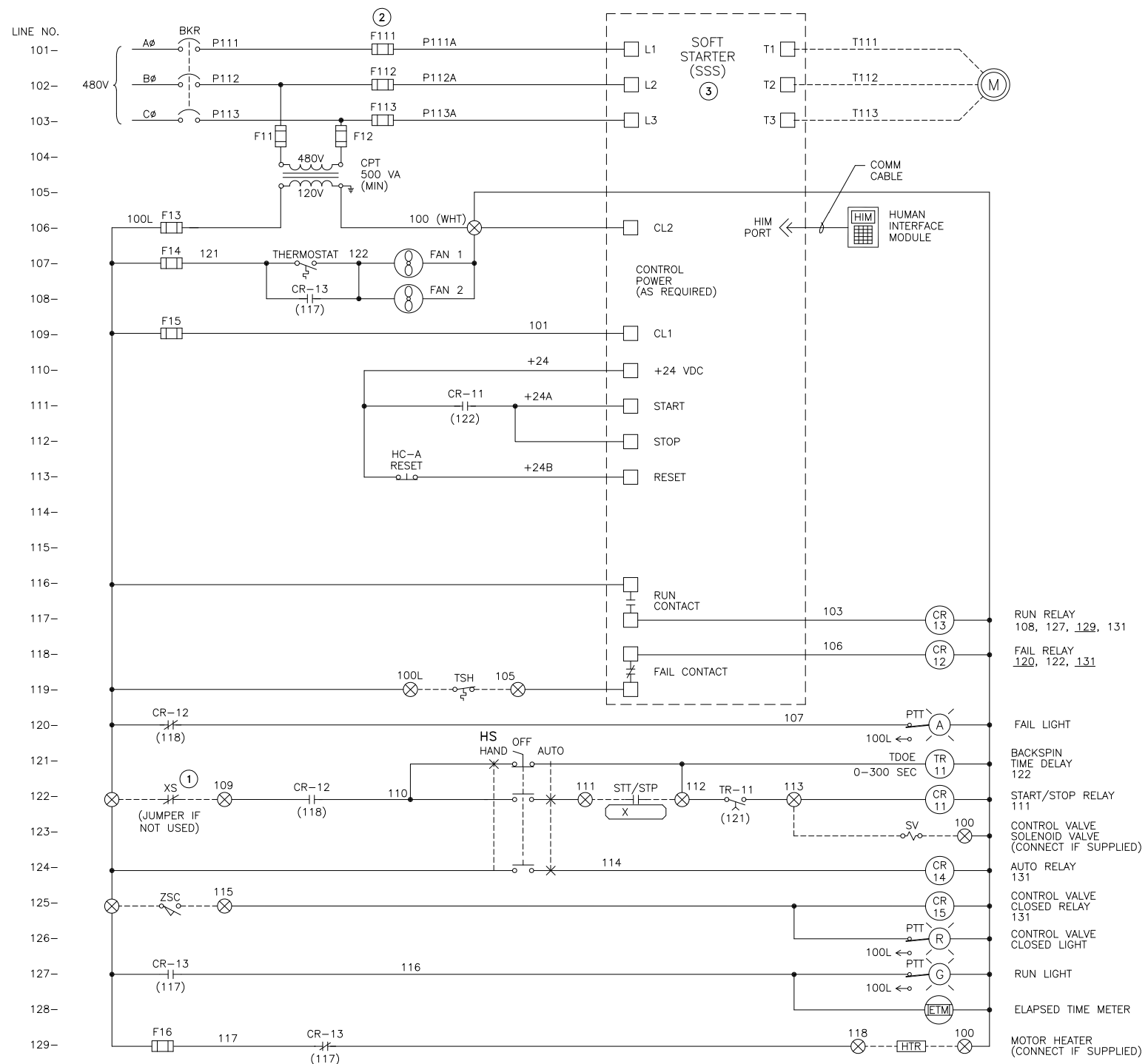
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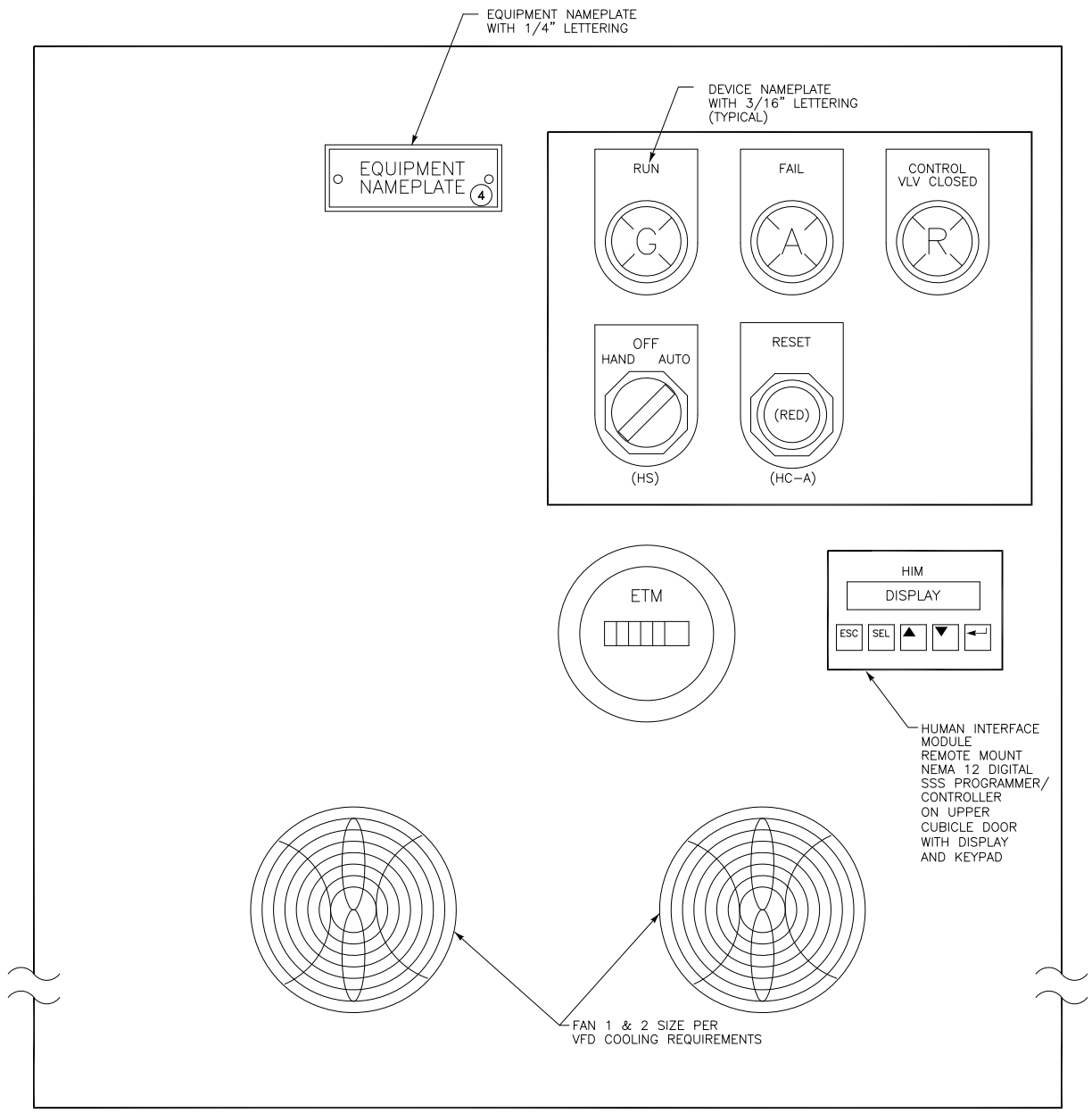
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VFD ELEMENTARY DIAGRAM

ISSUED FOR BID



SOFT STARTER ELEMENTARY DIAGRAM



DOOR LAYOUT

- NOTES:
- 1 REMOTE SHUTDOWN XS => PFR, LSL, PSL, PSH, ETC., PER P&ID, JUMPER IF NOT USED. THESE ARE TO BE CONTACTS OFF OF AUXILIARY RELAY CONTACTS LOCATED IN CONTROL PANEL DRIVEN FROM FIELD DEVICE.
 - 2 PROVIDE FUSES PER MANUFACTURER'S RECOMMENDATIONS.
 - 3 SSS WITH ELECTRONIC OVERLOAD.
 - 4 EQUIPMENT NAMEPLATE TO CONTAIN EQUIPMENT DESCRIPTION AND EQUIPMENT NUMBER PER ELEVATION DIAGRAM.

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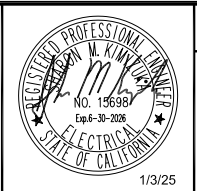
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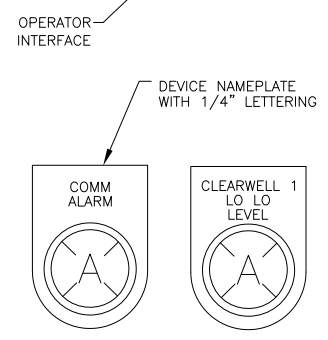
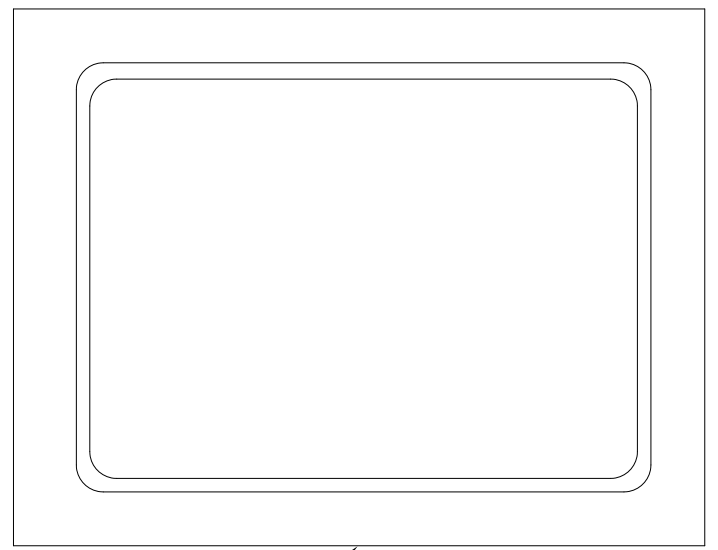


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C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

SOFT STARTER ELEMENTARY
DIAGRAM

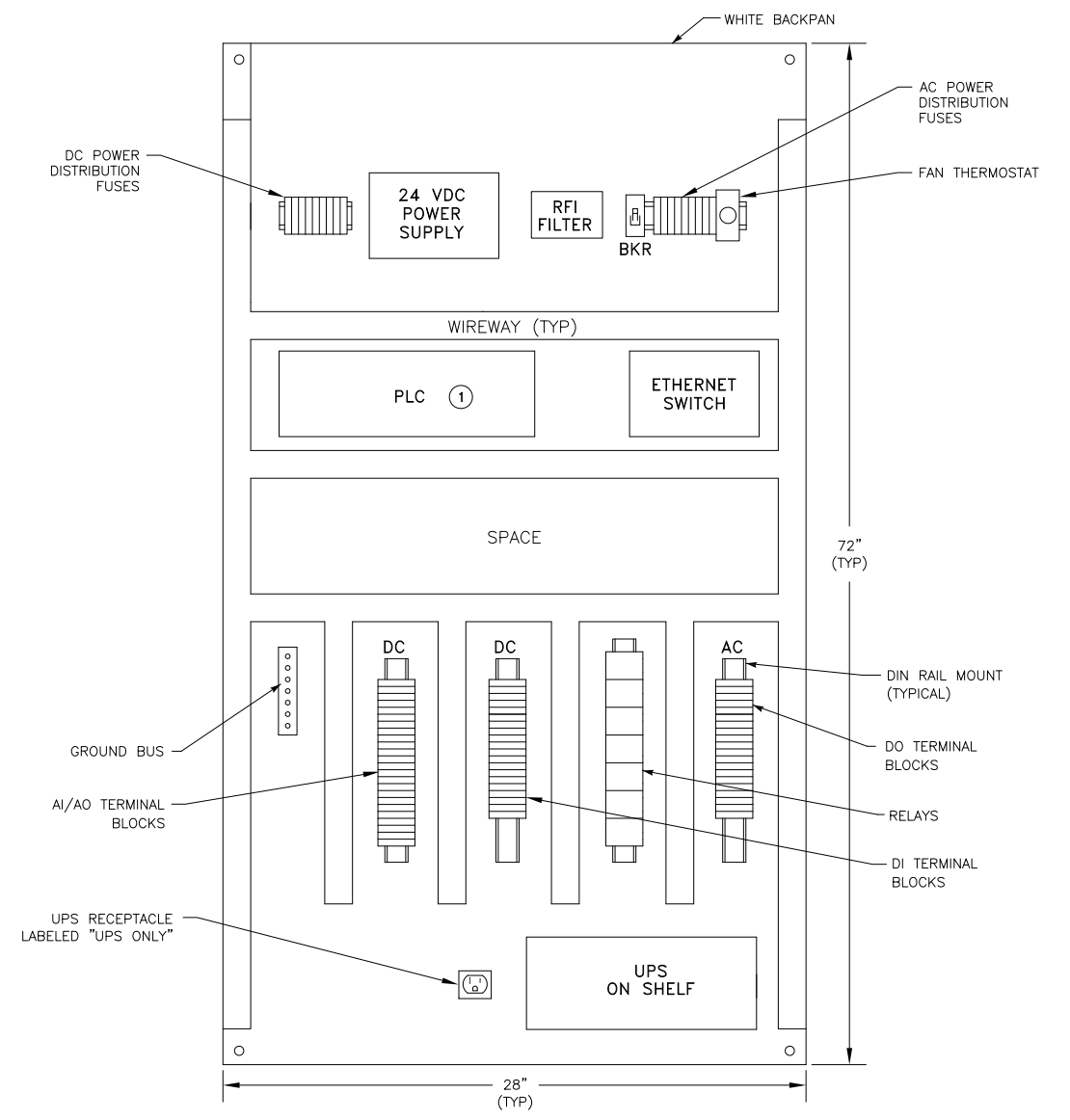
FIGURE
E5
SHEET 38 OF 48

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CP DOOR ELEVATION ①
NOT TO SCALE

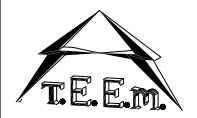
NOTES: ① PROVIDE OI AND DEVICES PER P&ID.



CP BACKPAN LAYOUT
NOT TO SCALE

NOTES: ① WIRE ALL SPARE I/O TO TERMINAL BLOCKS.

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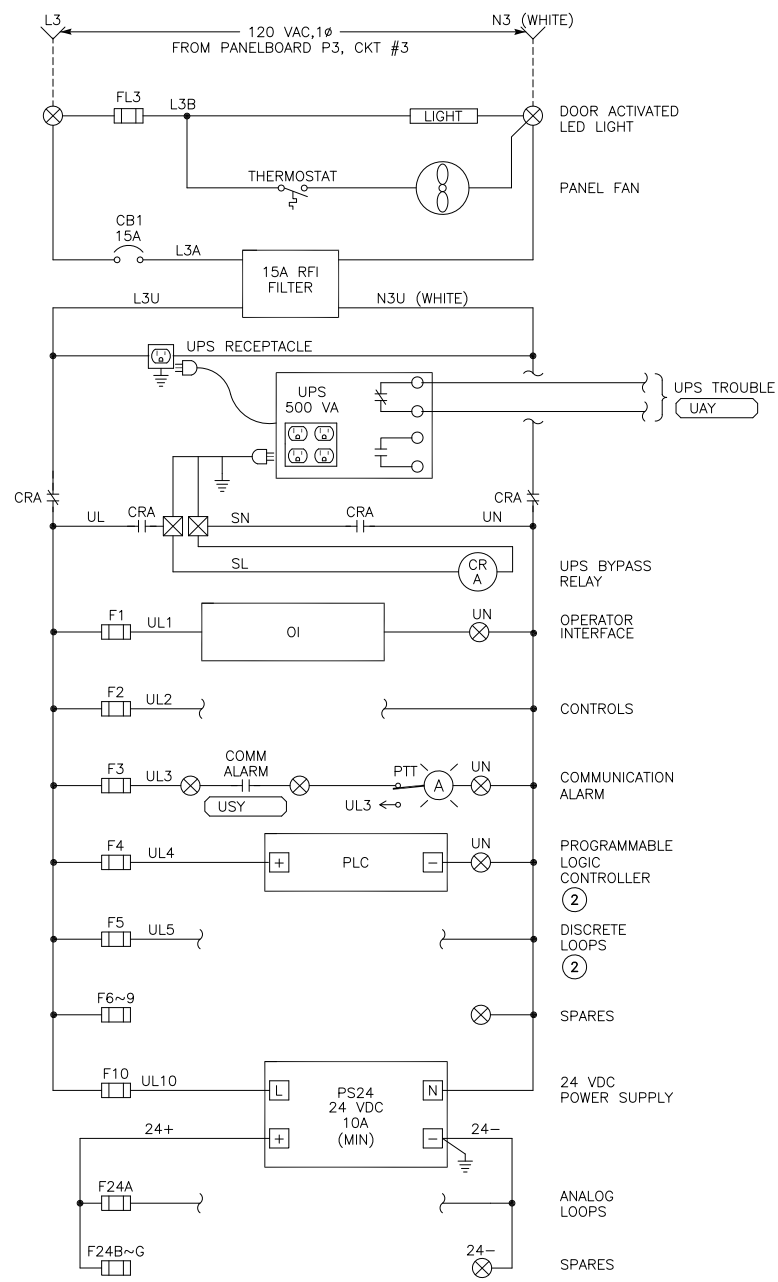
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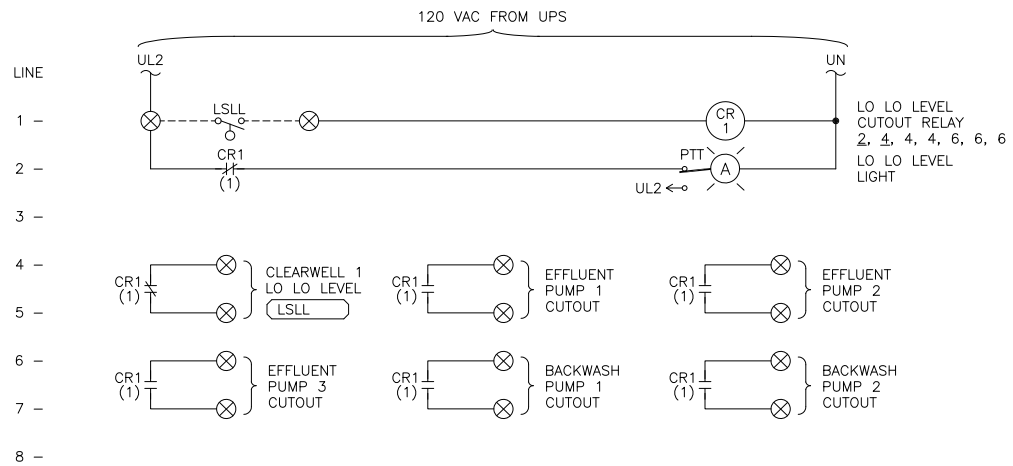
**CP ELEVATION &
BACKPAN LAYOUT**

FIGURE
E6
SHEET 39 OF 48

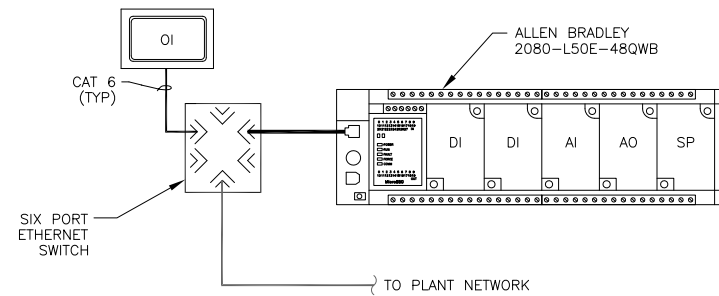


POWER DISTRIBUTION DIAGRAM (A) (E7) ①

- NOTES:
- ① DISTRIBUTION DIAGRAM REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ADDITIONAL FUSES, CIRCUITS, AND COMPONENT CONNECTIONS MAY BE REQUIRED FOR A FUNCTIONAL SYSTEM.
 - ② SEE SPECS FOR DETAILS.



PUMP CUTOUT ELEMENTARY DIAGRAM (B) (E7)



PLC BLOCK DIAGRAM (C) (E7)

- NOTES:
- ① PROVIDE ADDITIONAL I/O CARDS PER P&ID.

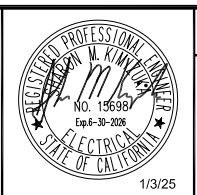
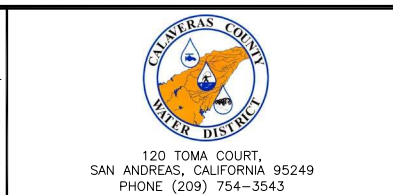


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| SCALE: NONE | WARNING 0 1/2 1 |
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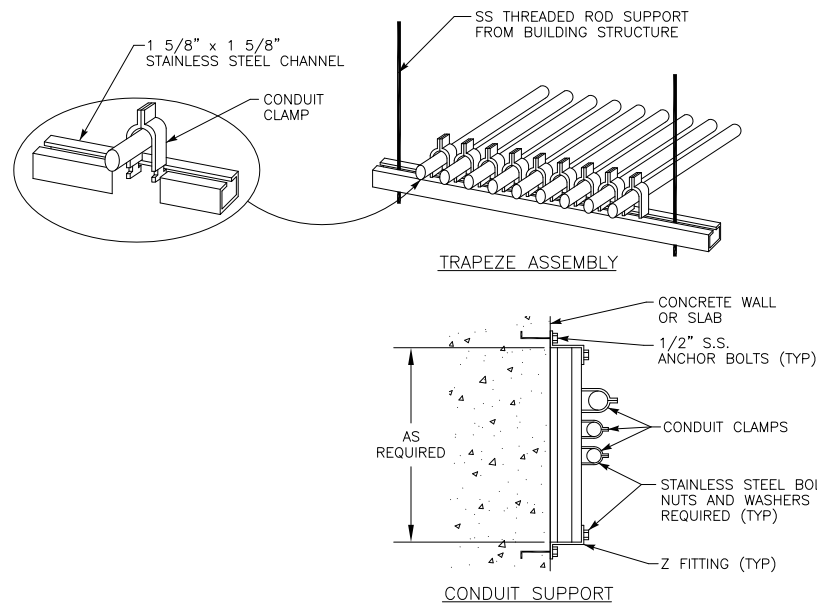


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

CONTROL PANEL
ELEMENTARY DIAGRAMS

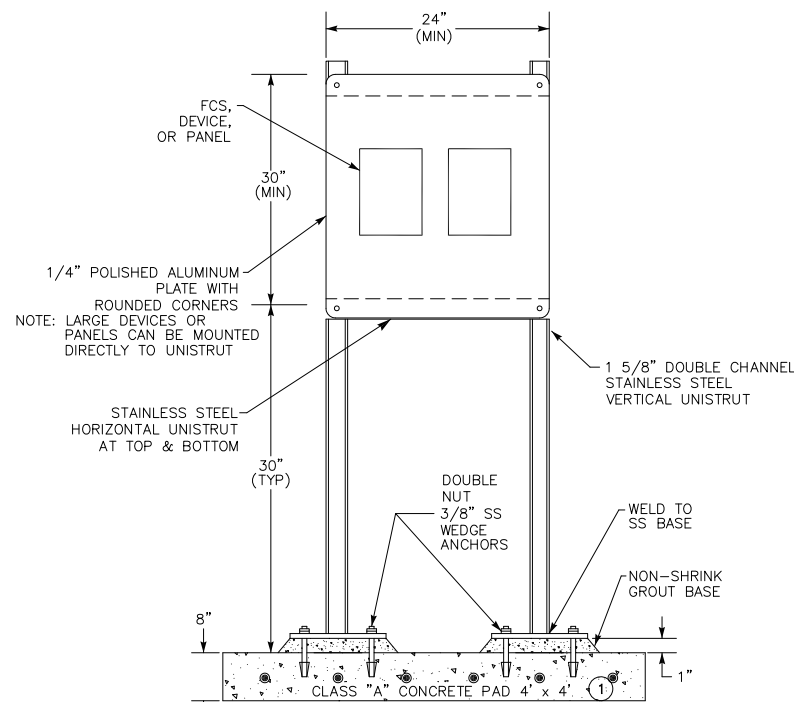
FIGURE
E7
SHEET 40 OF 48

DWG File: Z:\ACADDWG\2023\2308\230806E007.dwg, Last Edit: 5/20/24, ATEEM



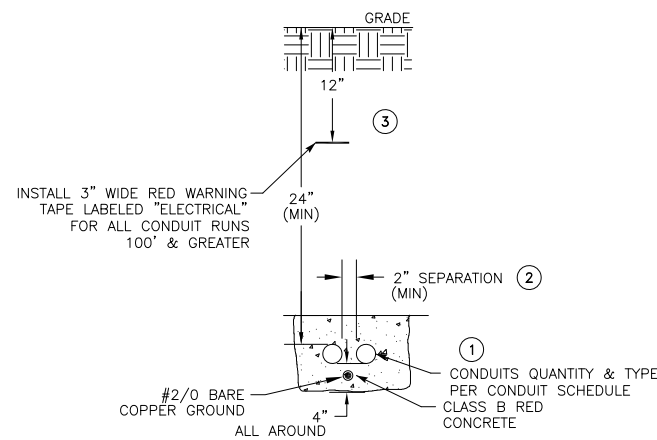
CONDUIT UNISTRUT MOUNTING (A) (E8)
NOT TO SCALE
DETAIL

- NOTES: ① THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
② CHANNEL AND ALL SUPPORT DEVICES TO BE NEMA RATED PER AREA CLASSIFICATION. FIELD COAT ALL CUTS, ETC. TO MATCH.
③ CHANNELS TO BE SPACED 5' MAXIMUM.



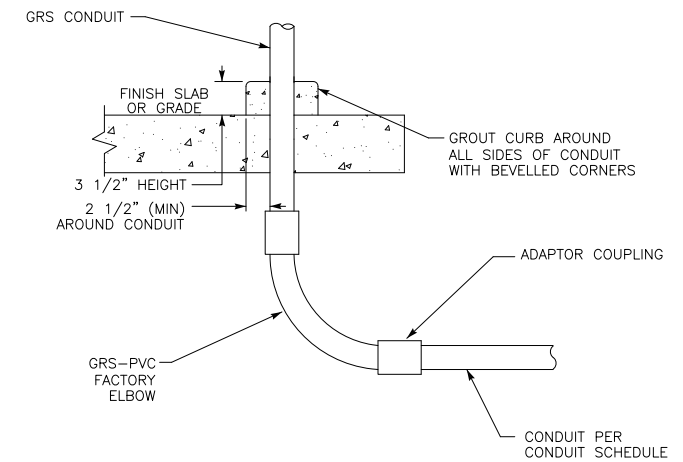
PANEL SUPPORT (D) (E8)
NOT TO SCALE
DETAIL

- NOTES: ① #3 REBAR CROSSWAYS AT 12" INTERVALS INSIDE PAD.

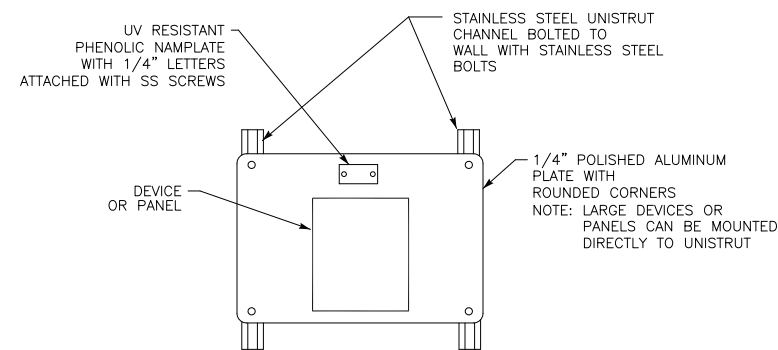


ENCASED CONDUITS (B) (E8)
NOT TO SCALE
DETAIL

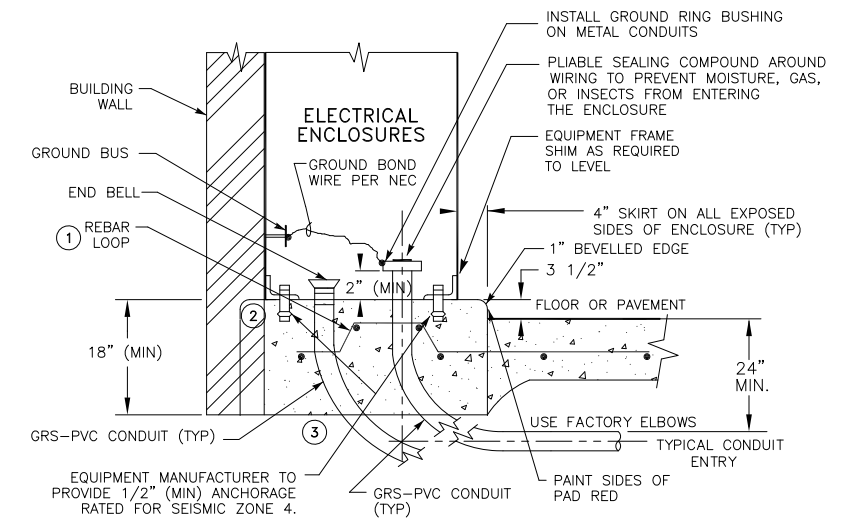
- NOTES: ① PLACE CONDUIT RUNS OF 4 CONDUITS OR GREATER IN PLASTIC SPACERS (RATED FOR DIRECT BURIAL) EVERY 5' ALONG LENGTH OF RUN.
② PROVIDE 12" (MIN) SEPARATION BETWEEN "A, C & D" TYPE GROUP AND "L & P" TYPE GROUP CONDUITS.
③ TRENCHING & COMPACTED BACKFILL PER CIVIL SPECIFICATIONS.



EXPOSED CONDUIT TRANSITION (C) (E8)
NOT TO SCALE
DETAIL



WALL PLATE SUPPORT (E) (E8)
NOT TO SCALE
DETAIL



EQUIPMENT CONCRETE PAD (F) (E8)
NOT TO SCALE
DETAIL

- NOTES: ① AS CALLED OUT IN STRUCTURAL DRAWINGS.
② IF NO BUILDING WALL EXTEND PAD 4" BEYOND ENCLOSURE ON BACK & SIDES.
③ CONCRETE DUCT BANKS SHALL EXTEND & CONNECT INTO EQUIPMENT CONCRETE PAD.

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COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TYPICAL ELECTRICAL
DETAILS NO.1

FIGURE
E8
SHEET 41 OF 48

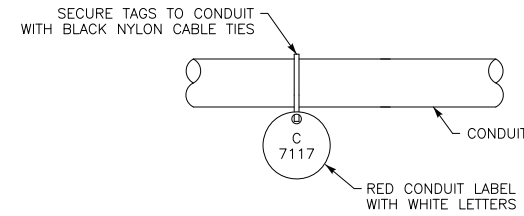
NOTES:

- ① CONDUIT SIZE & TYPE; WIRE FILL FOR CONDUITS TO BE DESIGNATED NEXT TO CONDUIT NUMBER ELLIPSE.
- ② THESE ARE THE CONTRACTOR DESIGNATED DRAWING NUMBERS.
- ③ NOT MORE THAN TWO WIRES PER TERMINAL BLOCK.
- ④ ALL TERMINAL BLOCKS TO BE PLACED IN NUMERICAL ORDER.
- ⑤ ALL NEUTRALS SHALL BE WHITE WIRE COLOR.
- ⑥ #12 GND TO DEVICES SHALL BE BONDED TO #8 GND LUG.

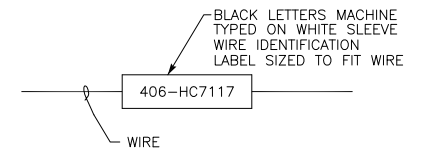
REFERENCE DOCUMENTS

| DRAWING # | DESCRIPTION | MANUFACTURER |
|-------------|----------------------------|--------------|
| P712 | P&ID DIAGRAM | DESIGN |
| E717 | ELECTRICAL SITE PLAN | DESIGN |
| PAGE 32, 36 | CONDUIT AND CABLE SCHEDULE | DESIGN |
| ② 1354-11 | LOOP DIAGRAM | CONTRACTOR |
| ② 1354-68 | ELEMENTARY DIAGRAM | CONTRACTOR |

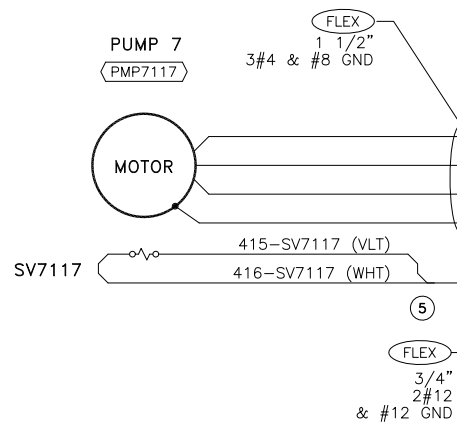
TYPICAL CONDUIT MARKING SYSTEM



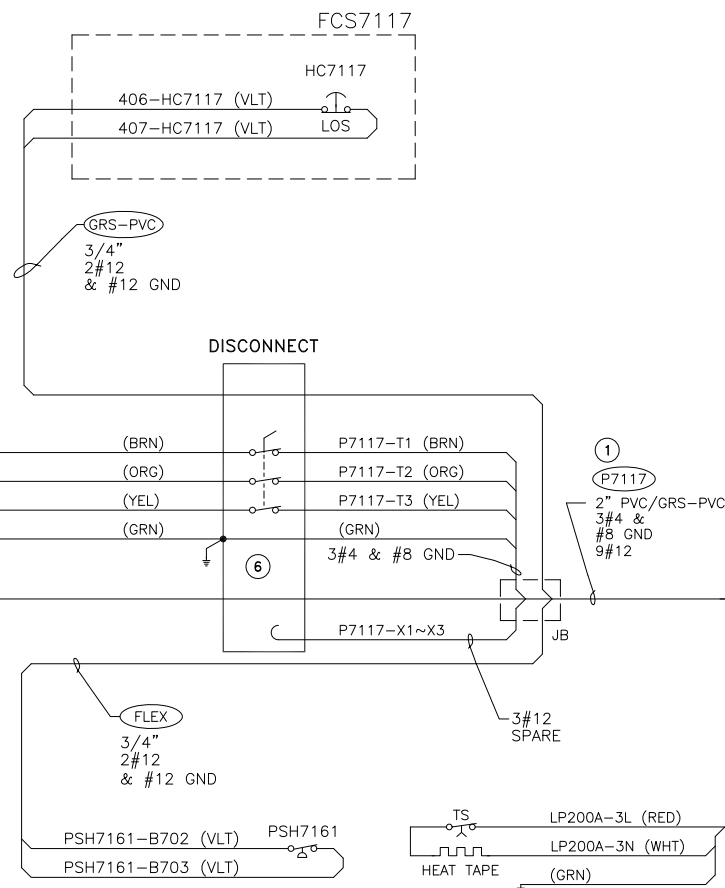
TYPICAL WIRE LABEL



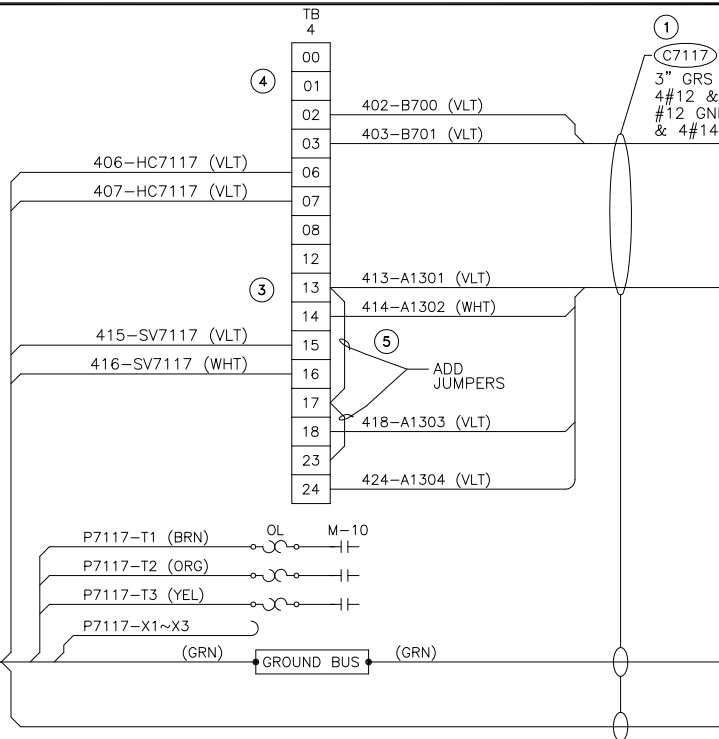
EQUIPMENT



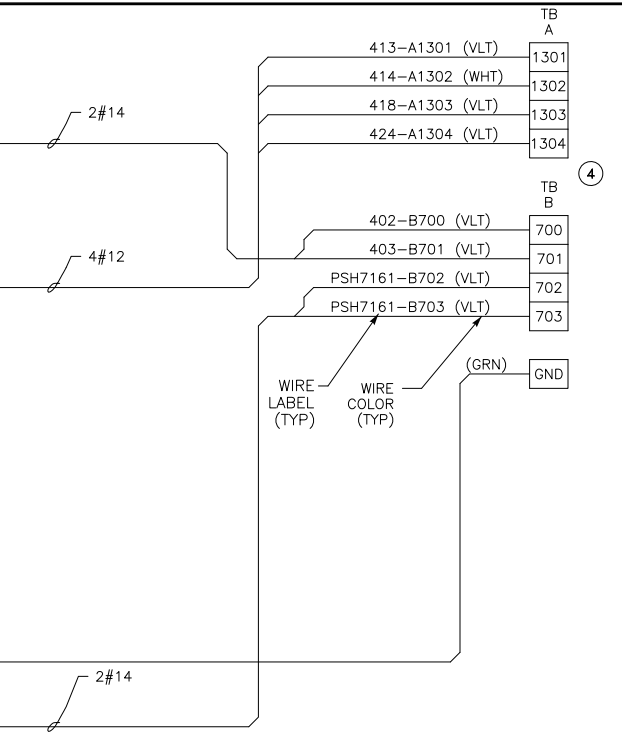
FIELD



MCC-4 SECTION 1 CUBICLE A~E



CONTROL PANEL NO.2



PANELBOARD LP200A

EXAMPLE INTERCONNECTION DIAGRAM

(THIS DRAWING ILLUSTRATES THE FORMAT THAT SHALL BE FOLLOWED IN PREPARATION OF ALL INTERCONNECT DWGS)

DWG File: Z:\ACADDWG\2023\2308A\2308A09.dwg; Lot: E9; 5/20/24; ATEEM

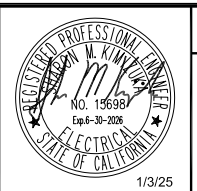
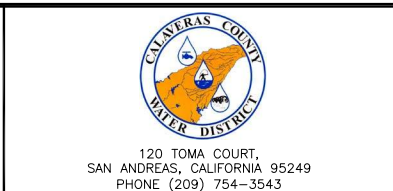


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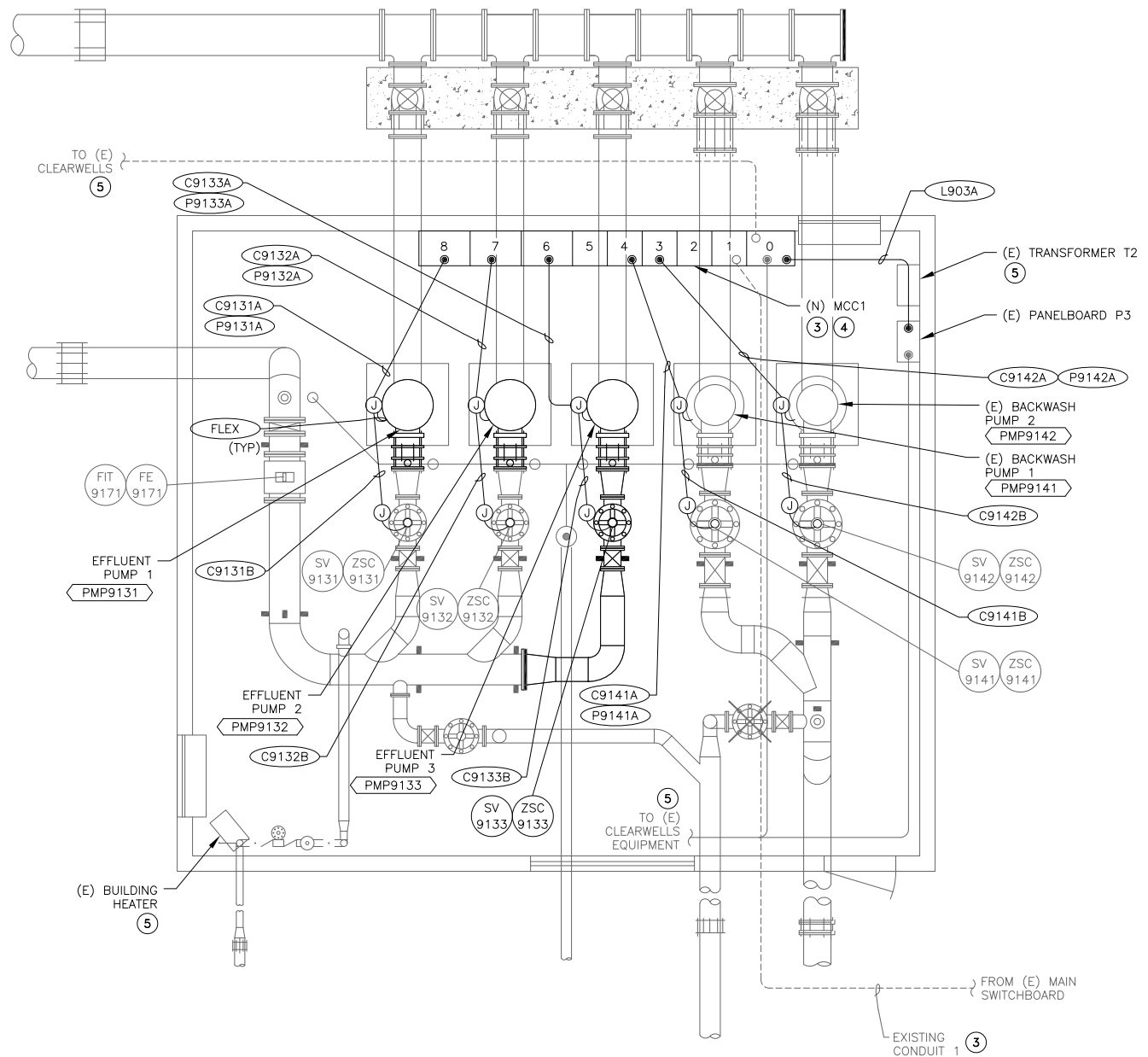


COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

EXAMPLE INTERCONNECT DIAGRAM

FIGURE
E9
SHEET 42 OF 48

| CONDUIT & WIRE ROUTING SCHEDULE | | | | | | | | | | | | | | |
|---------------------------------|-------------|--------------|------------|-----|------|------|---------|------|----------|-------------|------|------------|------|---------------|
| REF DWG | CONDUIT NO. | FROM | TO | QTY | SIZE | TYPE | PWR QTY | SIZE | GND SIZE | CONTROL QTY | SIZE | SIGNAL QTY | SIZE | NOTES |
| E10 | C 9131 | A MCC1 | PMP9131 | 1 | 3/4" | GRS | - | - | #12 | 12 | #14 | - | - | |
| E10 | C 9132 | B PMP9131 JB | SV/ZSC9131 | 1 | 3/4" | GRS | - | - | #12 | 6 | #14 | - | - | |
| E10 | C 9132 | A MCC1 | PMP9132 | 1 | 3/4" | GRS | - | - | #12 | 12 | #14 | - | - | |
| E10 | C 9132 | B PMP9132 JB | SV/ZSC9132 | 1 | 3/4" | GRS | - | - | #12 | 6 | #14 | - | - | |
| E10 | C 9133 | A MCC1 | PMP9133 | 1 | 3/4" | GRS | - | - | #12 | 12 | #14 | - | - | |
| E10 | C 9133 | B PMP9133 JB | SV/ZSC9133 | 1 | 3/4" | GRS | - | - | #12 | 6 | #14 | - | - | |
| E10 | C 9141 | A MCC1 | PMP9141 | 1 | 3/4" | GRS | - | - | #12 | 12 | #14 | - | - | |
| E10 | C 9141 | B PMP9141 JB | SV/ZSC9141 | 1 | 3/4" | GRS | - | - | #12 | 6 | #14 | - | - | |
| E10 | C 9142 | A MCC1 | PMP9142 | 1 | 3/4" | GRS | - | - | #12 | 12 | #14 | - | - | |
| E10 | C 9142 | B PMP9142 JB | SV/ZSC9142 | 1 | 3/4" | GRS | - | - | #12 | 6 | #14 | - | - | |
| E10 | L 903 | A PANEL P3 | MCC1 | 1 | 3/4" | GRS | 4 | #12 | #12 | - | - | - | - | |
| E10 | P 9131 | A MCC1 | PMP9131 | 2 | 3" | GRS | 3 | #4/0 | #2 | - | - | - | - | VFD Rated CBL |
| E10 | P 9132 | A MCC1 | PMP9132 | 2 | 3" | GRS | 3 | #4/0 | #2 | - | - | - | - | VFD Rated CBL |
| E10 | P 9133 | A MCC1 | PMP9133 | 2 | 3" | GRS | 3 | #4/0 | #2 | - | - | - | - | VFD Rated CBL |
| E10 | P 9141 | A MCC1 | PMP9141 | 1 | 3" | GRS | 3 | #3/0 | #2 | - | - | - | - | |
| E10 | P 9142 | A MCC1 | PMP9142 | 1 | 3" | GRS | 3 | #3/0 | #2 | - | - | - | - | |



EXISTING EFFLUENT/BACKWASH PS BUILDING ELECTRICAL PLAN ①②

- NOTES:
- ① NOT ALL EXISTING EQUIPMENT IS SHOWN. EQUIPMENT AS SHOWN IS THOSE ASSOCIATED WITH NEW WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE ANY NEW WORK.
 - ② EXPOSED CONDUITS PER DWG E8, DETAIL "A".
 - ③ LOCATE (N) MCC1 MAIN BREAKER SECTION 1 TO RECONNECT EXISTING CONDUIT 1 WIRES, CONTRACTOR SHALL PERFORM EXTREME CAUTION TO PROTECT THOSE WIRES DURING DEMOLITION.
 - ④ EXISTING MCC CONCRETE PAD SHALL BE REUSED, REMOVE EXISTING PUMPS WIRES AND SEAL EXISTING CONDUITS. INSTALL MCC1 PER DWG E8, DETAIL "F" AND RECONNECT EXISTING GROUND WIRES.
 - ⑤ RECONNECT EXISTING WIRES AND EXTEND OR PROVIDE NEW WIRES AS REQUIRED; SEE DWG I911~2 FOR DETAILS. CONTRACTOR SHALL PERFORM EXTREME CAUTION TO PROTECT THOSE WIRES DURING DEMOLITION.

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WARNING: 0 1/2 1

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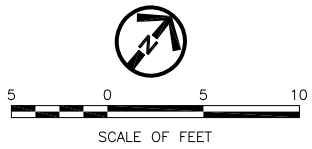
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COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

EXISTING EFFLUENT/BACKWASH PS BUILDING ELECTRICAL PLAN

FIGURE
E10
SHEET 43 OF 48



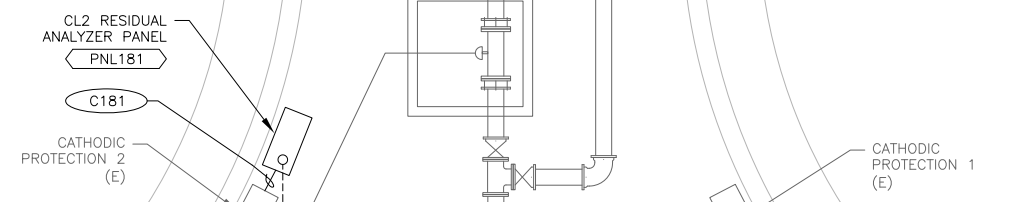
**NEMA
4X
AREA**
OUTSIDE BUILDING

- NOTES:
- ① CONTRACTOR TO HAND TRENCH TO ROUTE NEW CONDUITS DUE TO EXISTING OBSTRUCTIONS.
 - ② THERE ARE EXISTING CONDUITS & PIPING NOT SHOWN WHICH SHALL BE PROTECTED FROM DAMAGE. REPLACE & REPAIR ALL DAMAGED CONDUIT & WIRING.
 - ③ UNDERGROUND CONDUITS PER DWG E8, DETAIL "B".
 - ④ EXPOSED CONDUIT TRANSITIONS PER DWG E8, DETAIL "C".

| REF DWG | CONDUIT NO. | FROM | TO | QTY | SIZE | TYPE | PWR QTY | SIZE | GND SIZE | CONTROL QTY | SIZE | SIGNAL QTY | SIZE | NOTES |
|---------|-------------|-----------------------|-----------------------|-----|------|----------|---------|------|----------|-------------|------|------------|----------|--------------------|
| E11 | A 181 A | RTU200 | PB2 | 1 | 1" | EXISTING | - | - | #12 | - | - | 2 | #16 TSPR | RENAME XC001 |
| E11 | A 181 B | PB2 | PNL181 | 1 | 1" | GRS-PVC | - | - | #12 | - | - | 2 | #16 TSPR | |
| E11 | C 181 | CATHODIC PROTECTION 2 | PNL181 | 1 | 1" | GRS | 2 | #12 | #12 | - | - | - | - | |
| E11 | L 206 | LP2 | CATHODIC PROTECTION 2 | 1 | 1" | EXISTING | - | - | - | - | - | - | - | Add 2#12 + #12 GND |

TANK C2

TANK C1



CATHODIC PROTECTION 1 (E)

CL2 RESIDUAL ANALYZER PANEL (PNL181)

C181

CATHODIC PROTECTION 2 (E)

A181B

L206

HYDRO TANK (E)

L206

A181A

PB2 (E)

PUMP BUILDING (E)

ANTENNA MAST (E)

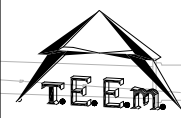
GENERATOR (E)

RTU200 (E)

TANK C ELECTRICAL SITE PLAN ①②③④

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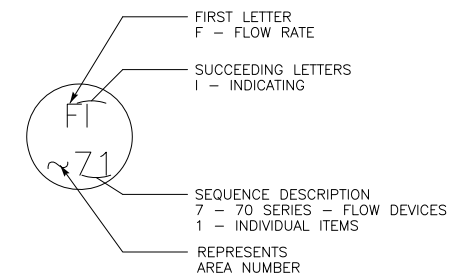
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C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TANK C ELECTRICAL SITE PLAN

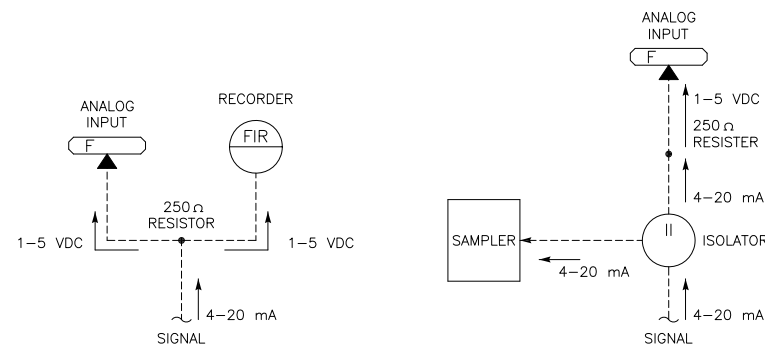
FIGURE
E11
SHEET 44 OF 48

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|----------------------------------|--|--------|----------------------------------|
| P & I DIAGRAM SYMBOLS | | | |
| | FIELD MOUNTED INSTRUMENT | | VALVE (GENERAL) |
| | FACE MOUNTED INSTRUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE | | GATE (GENERAL) |
| | FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE | | CHECK VALVE (GENERAL) |
| | INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE | | PUMP (GENERAL) |
| | INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACCESSIBLE | | |
| | OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES | | VALVE/GATE NUMBER |
| DWG # | - REFERENCE ELEMENTARY DWG. # | | EQUIPMENT NUMBER |
| | PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL INDICATION | | ELECTRIC SIGNAL |
| | PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL ALARM INDICATION | | LOGIC OR DATA SIGNAL |
| | PLC OR COMPUTER PERFORMING INTERNAL OPERATION | | PNEUMATIC SIGNAL |
| | PLC OR COMPUTER PERFORMING INTERNAL ALARM OPERATION | | CAPILLARY TUBING (FILLED SYSTEM) |
| $\propto \int \frac{dy}{dt}$ | PROPORTIONAL, INTEGRAL, AND DIFFERENTIAL PARAMETERS | | HYDRAULIC SIGNAL |
| % +/- | RATIO AND BIAS PARAMETERS | | SONIC OR ELECTROMAGNETIC SIGNAL |
| | AUDIBLE ALARM (BUZZER OR HORN) | | ELECTRIC SUPPLY |
| | ANNUNCIATOR WINDOW R - ROW # C - COLUMN # | | SERVICE AIR |
| | LAMP INDICATION (STATUS OR ALARM) | | INSTRUMENT AIR |
| | DISCRETE INPUT | | DISCONNECT SWITCH |
| | DISCRETE OUTPUT | | |
| | ANALOG INPUT | | |
| | ANALOG OUTPUT | | |
| | JUMP TAG FROM ONE AREA TO ANOTHER AREA OF DRAWING | | |
| | "g" TAG CONNECT POINT ON EACH DRAWING | | |
| | CONTINUED ON DWG P-X | | |
| | AUTODIALER PRIORITY # PC BASED SOFTWARE | | |

| INSTRUMENT IDENTIFICATION LETTERS | | | | |
|-----------------------------------|---------------------|--------------------------|--|---------------|
| FIRST - LETTER | SUCCEEDING - LETTER | | | |
| MEASURED OF INITIATING VARIABLE | MODIFIER | READOUT PASSIVE FUNCTION | OUTPUT FUNCTION | MODIFIER |
| A ANALYSIS | | ALARM | | |
| B BURNER, COMBUSTION | | USER'S CHOICE | USER'S CHOICE | USER'S CHOICE |
| C CONDUCTIVITY | | | CONTROLLER | |
| D DENSITY | DIFFERENTIAL | | | |
| E VOLTAGE | | SENSOR, PRIMARY ELEMENT | | |
| F FLOW RATE | RATIO (FRACTION) | | | |
| G GENERAL | | GLASS VIEWING DEVICE | | |
| H HAND | | | | HIGH, OPENED |
| I CURRENT (ELEC.) | | INDICATING, INDICATOR | | |
| J POWER | SCAN | | | |
| K TIME, TIME SCHEDULE | TIME RATE OF CHANGE | | CONTROL STATION | |
| L LEVEL | | LIGHT | | LOW, CLOSED |
| M MOISTURE | MOMENTARY | | | MIDDLE |
| N STATUS | | STATUS | USER'S CHOICE | USER'S CHOICE |
| O OPERATOR | | ORIFICE, RESTRICTION | | |
| P PRESSURE, VACUUM | | POINT (TEST) CONNECTION | | |
| Q QUANTITY | INTEGRATE, TOTALIZE | | | |
| R RESET | | RECORD | | |
| S SPEED, FREQUENCY | SAFETY | | SWITCH | |
| T TEMPERATURE | | | TRANSMITTER | TEST |
| U MULTIVARIABLE | | MULTIFUNCTION | MULTIFUNCTION | MULTIFUNCTION |
| V VIBRATION, MECH. ANALYSIS | | | VALVE, DAMPER LOUVER | |
| W WEIGHT, FORCE | | WELL | | |
| X SWITCH | X AXIS | UNCLASSIFIED | UNCLASSIFIED | UNCLASSIFIED |
| Y EVENT, STATE OR PRESENCE | Y AXIS | | RELAY, COMPUTER, CONVERTOR | |
| Z POSITION DIMENSION | Z AXIS | | DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT | |



P&ID INSTRUMENT IDENTIFICATION EXAMPLE



TYPICAL SIGNAL FLOWS

| NUMBERING SEQUENCE | |
|--------------------|---------------------------|
| SEQUENCE NUMBER | DESCRIPTION |
| 00 | COMMON ALARM |
| 01-09 | INDIVIDUAL ITEMS |
| 10 | MECHANICAL |
| 20 | MECHANICAL |
| 30 | MECHANICAL |
| 40 | MECHANICAL |
| 50 | LEVEL DEVICES |
| 60 | PRESSURE DEVICES |
| 70 | FLOW DEVICES |
| 80 | ANALYTICAL DEVICES |
| 90 | SAFETY & SECURITY DEVICES |

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| CHECKED: SMK | |

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1/3/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

INSTRUMENTATION SYMBOLS & ABBREVIATIONS

SCADA DISPLAY

SCADA DISPLAY

TANK C PROGRAMMABLE LOGIC CONTROLLER (E)

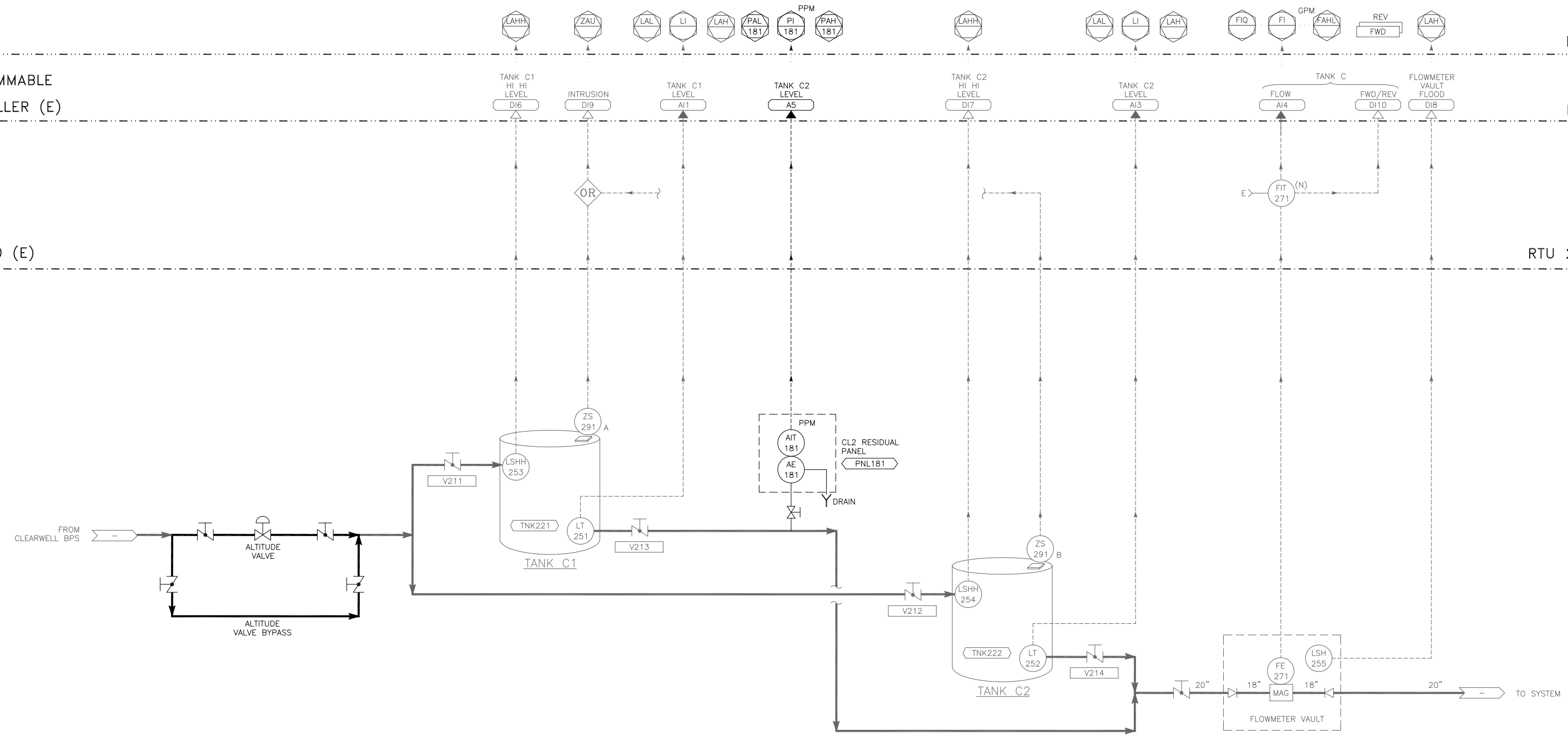
TANK C PLC (E)

TANK C RTU 200 (E)

TANK C RTU 200 (E)

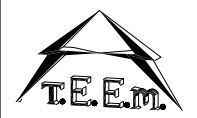
FIELD

FIELD



TANK C ①②

- NOTES: ① SCADA AND PLC PROGRAMMING BY OTHERS.
 ② NEW WORK IN BOLD.



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| REV | DATE | BY | DESCRIPTION |
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| SCALE: NONE | WARNING 0 1/2 1 |
| DATE: JANUARY 2025 | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |

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| DESIGNED: XML |
| DRAWN: ZKV |
| CHECKED: SMK |

120 TOMA COURT,
 SAN ANDREAS, CALIFORNIA 95249
 PHONE (209) 754-3543

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 80 Blue Ravine Rd. Suite 280
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 PH. 916-608-2212

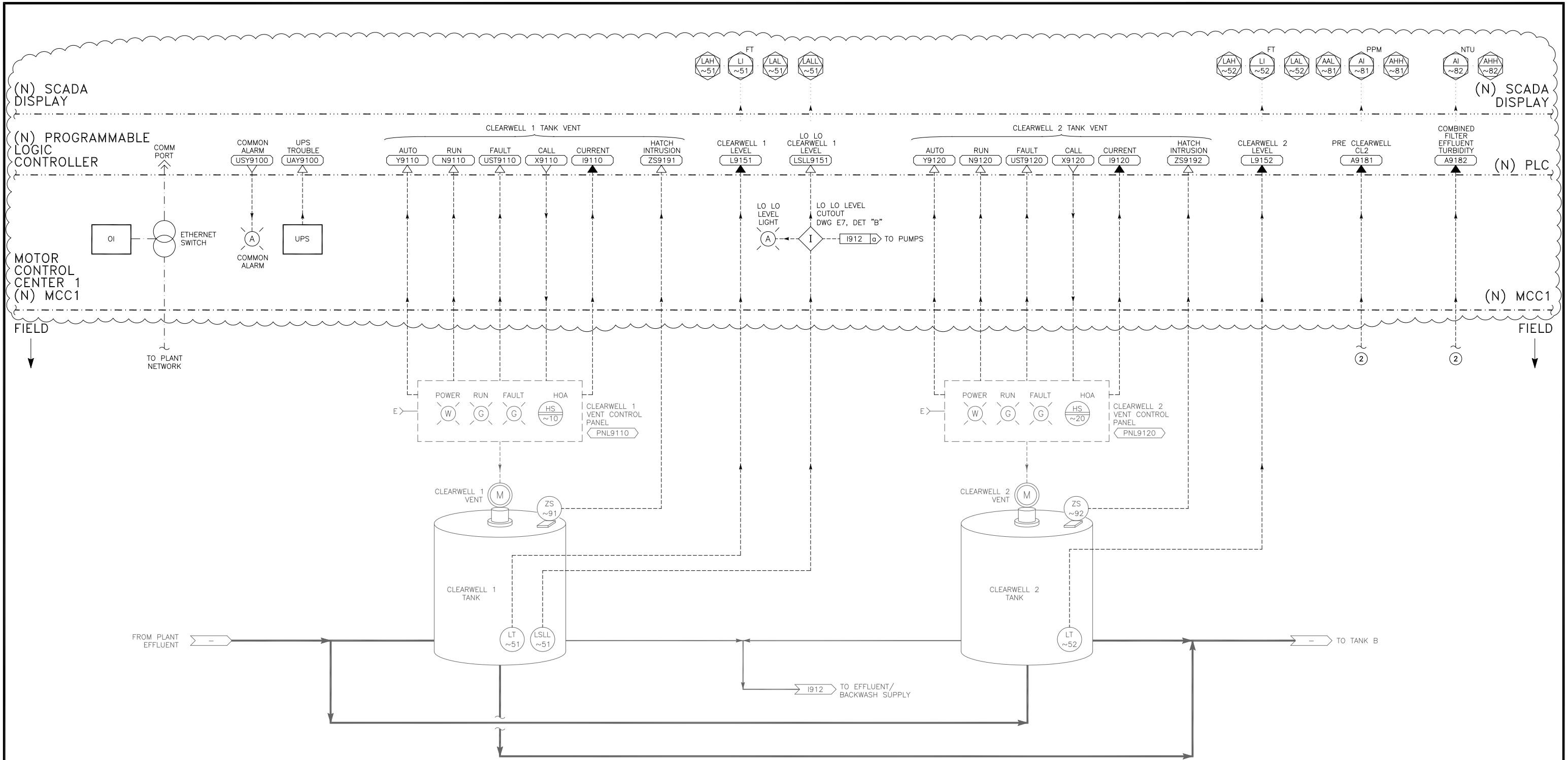
PROFESSIONAL ENGINEER
 M. KINN
 No. 15698
 Exp. 8-30-2026
 ELECTRICAL
 STATE OF CALIFORNIA
 1/3/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
 C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

TANK C P&ID

FIGURE
 12
 SHEET 46 OF 48

DWG File: Z:\CAD\DWG\2023\2308\230802.dwg; Last Edit: 5/20/24; ATEEM



CP AUXILIARY & EXISTING CLEARWELL TANKS ①

- NOTES: ① NEW WORK SHOWN IN BUBBLES. ALL EXISTING WIRES TO EXISTING PLC TO BE REUSED AND RECONNECTED TO NEW PLC AS SHOWN.
 ② CONTRACTOR SHALL FIELD IDENTIFY EXISTING EQUIPMENT LOCATIONS AND PROVIDE WIRING TO NEW PLC AS REQUIRED.

AREA PREFIX
91~



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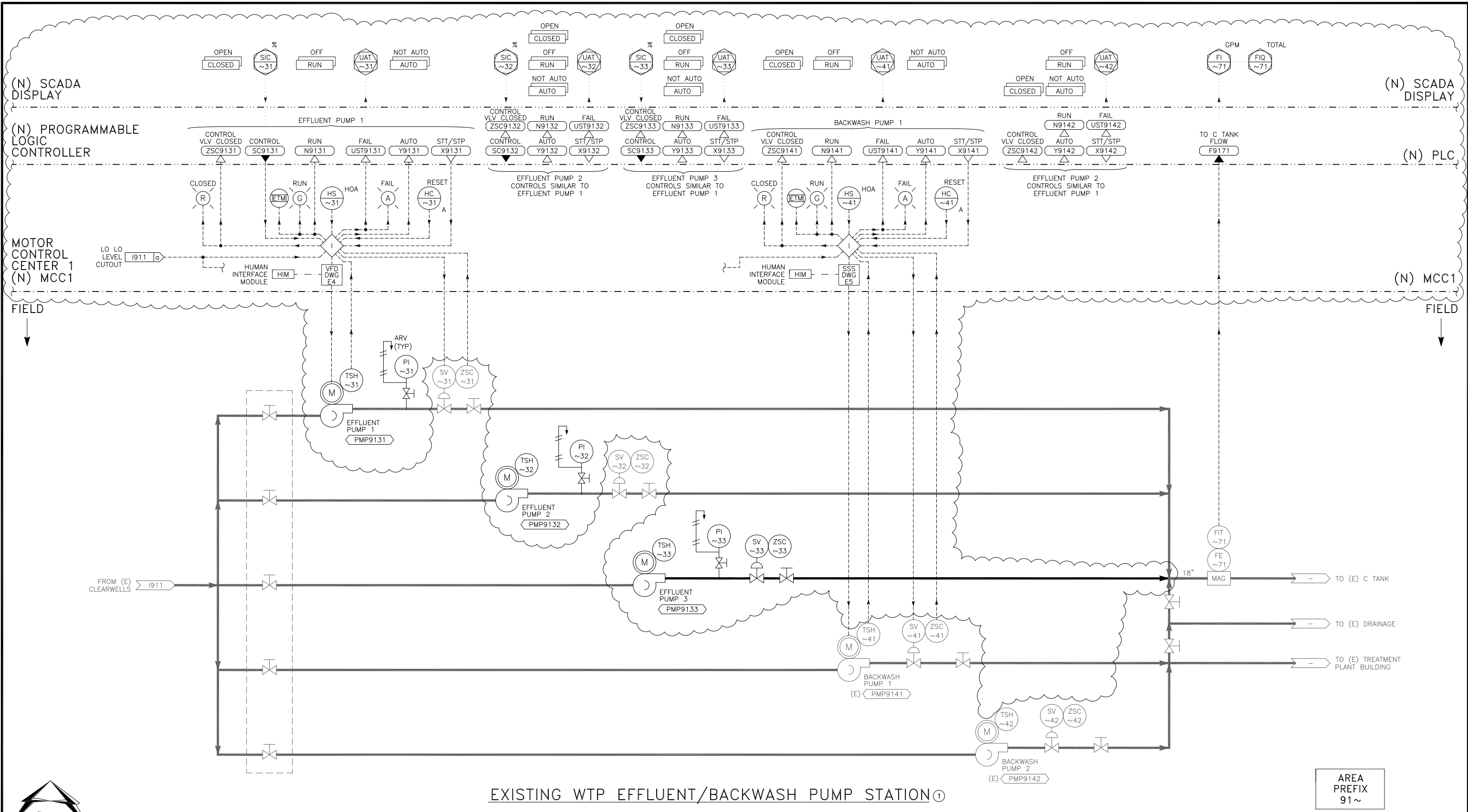
1/3/25

COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT -
C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

CP AUXILIARY & EXISTING CLEARWELL TANKS P&ID

FIGURE
1911
SHEET 47 OF 48

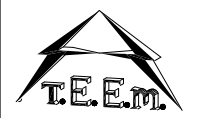
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EXISTING WTP EFFLUENT/BACKWASH PUMP STATION ①

NOTES: ① NEW WORK SHOWN IN BUBBLES.

AREA PREFIX 91~



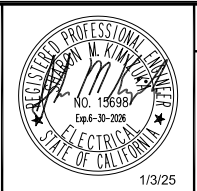
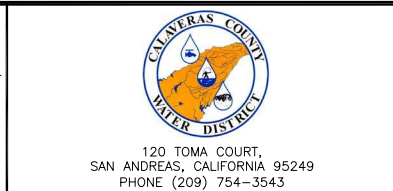
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| SCALE: NONE | WARNING 0 1/2 1 |
| DATE: JANUARY 2025 | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE. |

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| DRAWN: ZKV |
| CHECKED: SMK |



COPPER COVE WATER SYSTEM IMPROVEMENTS PROJECT - C-TANK BOOSTER PUMP STATION MODIFICATIONS AND TRANSMISSION MAIN

EXISTING WTP EFFLUENT/BACKWASH PUMP STATION P&ID

FIGURE 1912
SHEET 48 OF 48

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