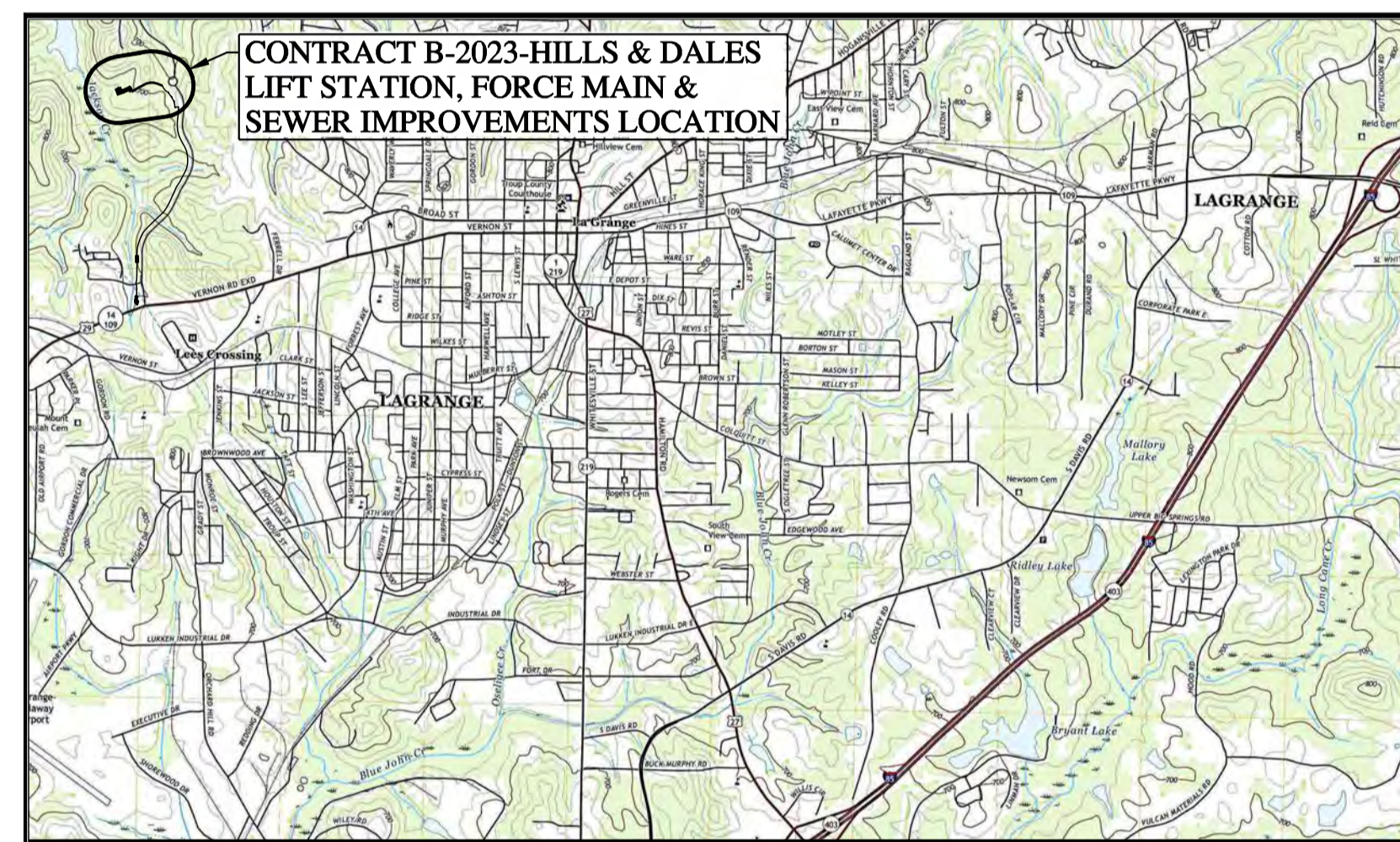


# CITY OF LAGRANGE, GEORGIA

## CONTRACT B - 2023 HILLS & DALES LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS



VICINITY MAP  
N.T.S.

MAYOR PRO TEM  
**MARK MITCHELL**

CITY MANAGER  
**MEG KELSEY**

DIRECTOR OF UTILITIES  
**PATRICK BOWIE**

CONTRACT A - 2023 HILLS & DALES  
LIFT STATION, FORCE MAIN  
& SEWER IMPROVEMENTS

GPS LOCATIONS :  
BEGINNING POINT : N 33.047926  
                                  W 85.063685  
ENDING POINT :      N 33.048077  
                                  W 85.060144

CITY OF LAGRANGE  
200 RIDLEY AVENUE  
LAGRANGE, GEORGIA 30240  
TROUP COUNTY, GEORGIA

PREPARED BY:  
**RONALD L. ELLIS & ASSOCIATES, INC.**  
P.O. BOX 1150  
PELHAM, ALABAMA 35124  
JANUARY 30, 2023

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01/30/2023

ABBREVIATIONS

Table of abbreviations including items like ANCHOR BOLTS, ALUMINUM, BUTTERFLY VALVE, and MANHOLE, MINIMUM, MISCELLANEOUS, etc.

Before any excavation work begins or any work begins within ten (10) feet of overhead power lines of 750 volts or more, notification must be made to the Utilities Protection Center, Inc. at 1-800-282-7411

COLOR CODES FOR UTILITY LOCATING

- RED ELECTRIC
YELLOW GAS-OIL
ORANGE TELEPHONE/CATV
BLUE WATER
GREEN SEWER

IF YOU DIG GEORGIA CALL US FIRST !
1-800-282-7411
It's The Low !

Utilities Protection Center, Inc.

LEGEND

UTILITIES

Table of utility symbols for EXISTING and PROPOSED lines, including LIGHT POLE, POWER POLE, TELEPHONE POLE, SERVICE, FIRE HYDRANT, REDUCER/INCREASER, GATE VALVE, etc.

SITE WORK SYMBOLS

Table of site work symbols including EXIST. GRADE ELEVATION, PROP. GRADE ELEVATION, EXIST. 1 OR 2 FT. CONTOURS, etc.

SURVEYING SYMBOLS

Table of surveying symbols for EXISTING and PROPOSED lines, including IRON PIN FOUND, SET, CONC. MONUMENT FOUND, SET, R.O.W. MONUMENT, etc.

TOPOGRAPHICAL SYMBOLS

Table of topographical symbols including SIGN, BILLBOARD, MAIL BOX, WIRE FENCE, CHAIN LINK FENCE, WOOD FENCE, GUARD RAIL, RAILROAD TRACKS, TREE LINE, DRAINAGE DITCH, IMPROVED ROAD, UNIMPROVED ROAD, CREEK, LAKE OR POND, MARSH, BEAVER DAM, HEDGEROW, TREE

GENERAL NOTES

- 1. EFFORTS HAVE BEEN MADE TO INDICATE LOCATIONS OF EXISTING STRUCTURES, PIPING AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT SIZES AND LOCATIONS OF ALL EXISTING UTILITIES BEFORE INITIATING ANY CONSTRUCTION OPERATIONS.
2. THE LIMITS OF CONSTRUCTION SHALL BE THE PROPERTY LINES OR EASEMENT LINES AS SHOWN ON THE PLANS.
3. DIMENSIONS OF EXISTING STRUCTURES AND/OR SIZE RESTRICTIONS ARE APPROXIMATE. ALL NECESSARY DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES & TOPOGRAPHY SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION OPERATIONS.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO WORK ALL APPLICABLE DRAWINGS AND THE APPROPRIATE SPECIFICATIONS AS A UNIT. ANY OMISSIONS, DELETIONS, OR CONFLICTS ARISING AS A RESULT OF FAILURE TO INCORPORATE ALL DRAWINGS AND SPECIFICATIONS WHICH APPLY SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND/OR ENGINEER.
5. ALL PROPERTY LINE MARKERS (IRON PINS, CONCRETE MONUMENTS, ETC.) DESTROYED DURING CONSTRUCTION SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF GEORGIA TO RESET PROPERTY MARKERS.
6. ALL EXCESS MATERIAL FROM THE PROJECT EXCAVATION SHALL BE DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL WHICH SHALL BE IN ACCORDANCE WITH THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THIS WILL BE CONSIDERED INCIDENTAL TO THE WORK AND NO SEPARATE PAYMENT WILL BE MADE FOR IT.
8. ALL EXCAVATION IS TO BE CONSIDERED UNCLASSIFIED. NO ADDITIONAL PAYMENT WILL BE MADE FOR ROCK EXCAVATION, UNLESS PAY ITEM IS INCLUDED ON BID FORM.
9. JOB SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING COMPLIANCE WITH OSHA REQUIREMENTS. NEITHER THE OWNER, NOR THE ENGINEER, WILL SUPERVISE OR INSPECT THE JOB WITH REGARD TO SAFETY ISSUES.
10. JOB SITE IS TO BE CLEANED UP ON A DAILY BASIS. THE CONTRACTOR SHALL RESTORE ALL AREAS, BOTH PUBLIC AND PRIVATE, WHICH HAVE BEEN DAMAGED BY THE CONSTRUCTION ACTIVITIES TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
11. CONTRACTOR IS RESPONSIBLE FOR DOCUMENTATION OF ALL PRE-EXISTING CONDITIONS PRESENT ADJACENT TO THE CONSTRUCTION AREA. DOCUMENTATION SHALL CONSIST AT A MINIMUM OF VIDEOS, PHOTOGRAPHS AND WRITTEN DOCUMENTATION. DOCUMENTATION SHALL BE DELIVERED TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.
12. THE TIME FOR COMPLETION OF THIS PROJECT IS BASED ON A STANDARD WEEKLY WORK SCHEDULE OF MONDAY THROUGH FRIDAY. EMERGENCY WORK MUST BE APPROVED BY THE ENGINEER. NO WORK SHALL BE SCHEDULED OR PERFORMED ON SATURDAY, SUNDAY OR HOLIDAYS, WITHOUT APPROVAL BY THE ENGINEER.
13. REFER TO SECTION 01152, 1.10 EXPLANATION OF BID ITEMS AND PAYMENT, FOR A DESCRIPTION OF THE BID ITEMS AND THE UNIT BID PRICE FOR EACH ITEM.
14. CONTRACTOR SHALL NOT BLAST ANY MORE DISTANCE THAN HE CAN LAY DURING THE SAME DAY. PRE-BLAST SURVEY & SEISMOGRAPH REQUIRED FOR ALL BLASTING EVENTS, AND CONTRACTOR IS FULLY RESPONSIBLE FOR DESIGNING HIS BLASTING OPERATIONS SO THERE IS NO DAMAGE TO SURROUNDING PROPERTY.

CONSTRUCTION NOTES

- 1. ALL HDPE PIPE SHALL BE DR 11 AND MEET THE DIPS SIZING SYSTEM, REFER TO SPECIFICATION SECTION 15105.
2. ALL DI FLANGED PIPE SHALL BE CLASS 350.
3. ALL FLANGED ACCESSORIES SHALL BE 316 STAINLESS STEEL.
4. ALL PIPE SUPPORTS AND ACCESSORIES SHALL BE 316 STAINLESS STEEL.
5. ALL DI MJ FITTINGS AS NOTED ON THE PLANS REQUIRE HEAVY DUTY RETAINER GLANDS AND ACCESSORIES, MEGALUG SERIES 1100, BY EBAA IRON, INC. OR APPROVED EQUAL.
6. ALL MANHOLES ARE STANDARD 48" DIAMETER, WITH MANHOLE JOINT STRAPS AND BOLT-DOWN WATER TIGHT MANHOLE COVER AND FRAME.
7. THE CONTRACTOR SHALL VERIFY THE TYPE AND DIAMETER OF EXISTING SEWER PIPE WHICH CONNECTS TO PROPOSED MANHOLES PRIOR TO SUBMITTING THE SHOP DRAWINGS.
8. UTILIZE MANHOLE BRICK, PER ASTM C32, TO CONSTRUCT INLET AND/OR OUTLET PLUGS FOR EXISTING MANHOLES (MH) NOTED ON PLANS. PROVIDE A DOUBLE WALL OF MANHOLE BRICK FROM THE MANHOLE INVERT TO A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE OPENING AND A MINIMUM OF 12" ON EACH SIDE OF THE PIPE OPENING BEING PLUGGED. USE #4 REBAR VERTICALLY ALONG PLUG WALL TO PROVIDE STRUCTURAL SUPPORT TO PLUG WALL. USE WALL TIES TO CONNECT THE FIRST AND SECOND ROW OF MANHOLE BRICK TO ADEQUATELY SECURE MANHOLE BRICK PLUG TO THE EXISTING STRUCTURE. USE NON-SHRINK GROUT TO COAT OUTSIDE FACE OF MANHOLE PLUG AND TO THE INTERFACE BETWEEN THE MANHOLE PLUG AND THE EXISTING STRUCTURE.
9. TRENCH BACKFILLING-SANITARY SEWER PIPELINE, SECTION 02201.1.08 SHALL BE MODIFIED TO REQUIRE THAT ALL SEWER AND FORCE MAIN PIPELINE TRENCHES FOR THIS PROJECT SHALL BE COMPACTED WITH VIBRATORY COMPACTION EQUIPMENT.
10. ALL EXISTING ROADWAYS, DRIVES, SIDEWALKS, AND CONCRETE AREAS THAT ARE EXCAVATED IN ORDER TO PERFORM THE WORK ASSOCIATED WITH THE CONTRACT PLANS AND SPECIFICATIONS SHALL BE SAW CUT, BACKFILLED WITH COMPACTED CRUSHED STONE PER SD 315 PER THE PLANS AND SPECIFICATIONS.
11. THE PAVEMENT REPLACEMENT WIDTH FOR ALL TRENCH EXCAVATIONS SHALL BE THE TRENCH WIDTH PLUS 12" ON EACH SIDE OF TRENCH AND SHALL BE SAW CUT PRIOR TO REPLACEMENT. THE AREA BEING REPLACED WITH PAVEMENT REQUIRES A 12" BASE OF COMPACTED #8910 STONE OR CRUSHER RUN OVER THE TRENCH STONE BACKFILL, REFER TO SD 320 PER THE PLANS AND SPECIFICATIONS FOR ALL PAVEMENT REPLACEMENT.
12. IT IS THE REQUIREMENT OF THE CONTRACTOR TO REFER TO ALL CIVIL/SITWORK STANDARD DETAILS, REFER TO THE S PLANS.

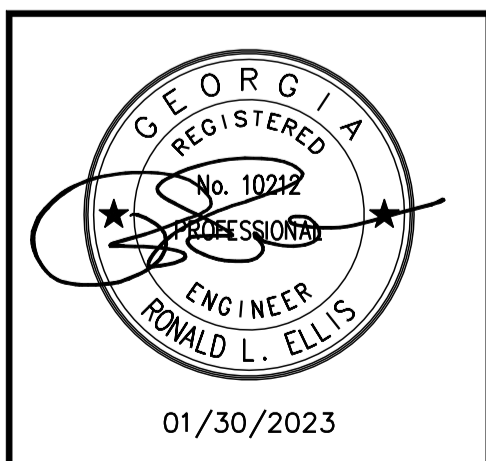


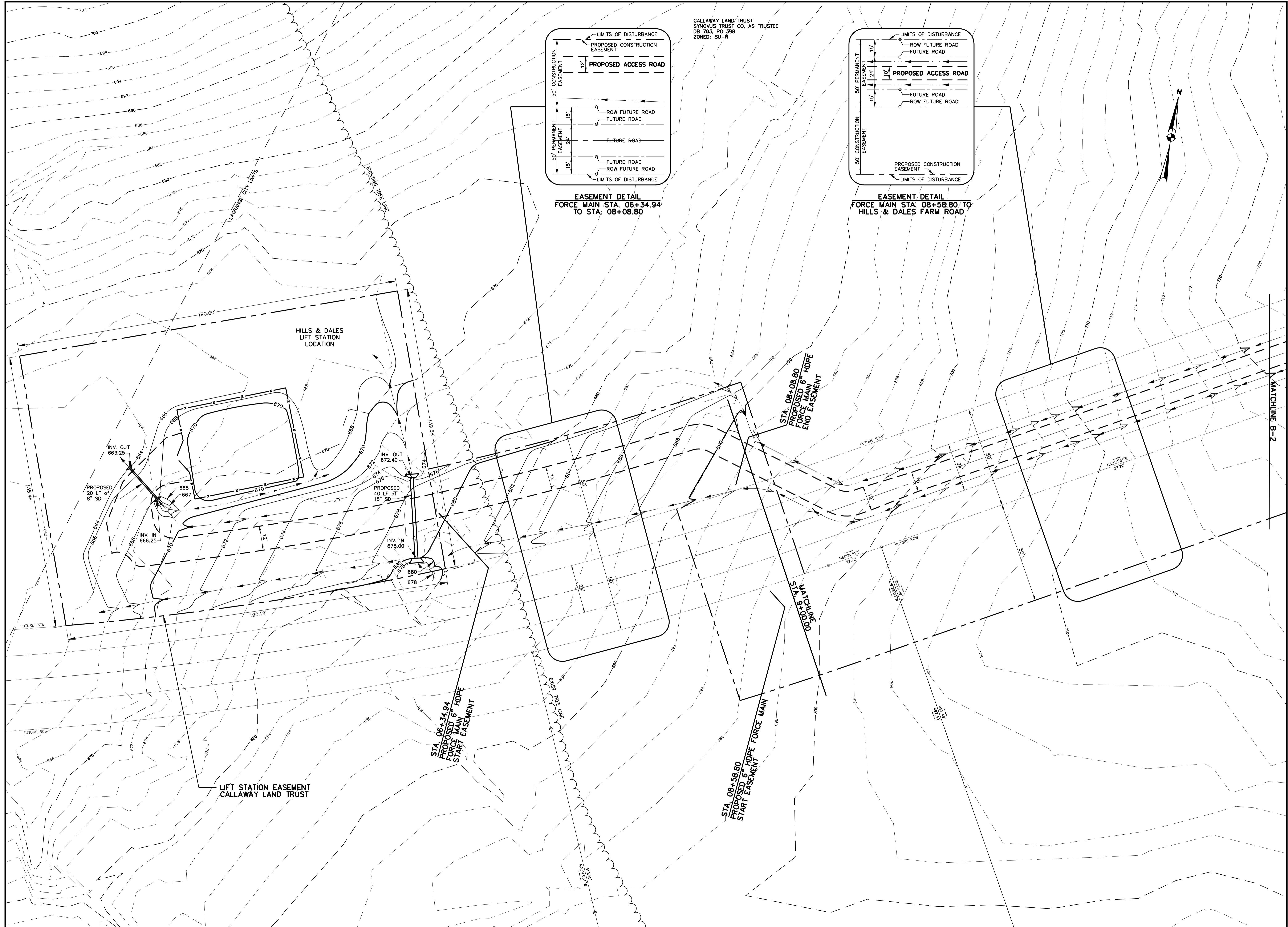
RONALD L. ELLIS & ASSOCIATES, INC. Consulting Engineers Pelham, Alabama

CITY OF LAGRANGE, GEORGIA
CONTRACT B - 2023 HILLS & DALES
LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS
GENERAL NOTES, CONSTRUCTION NOTES & LEGEND

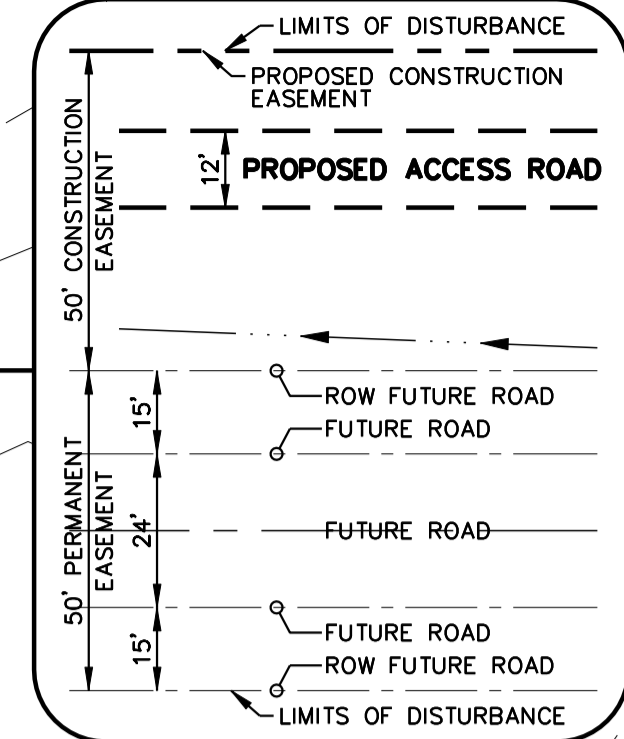
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Table with columns for REVISIONS: NO., DATE, DESCRIPTION

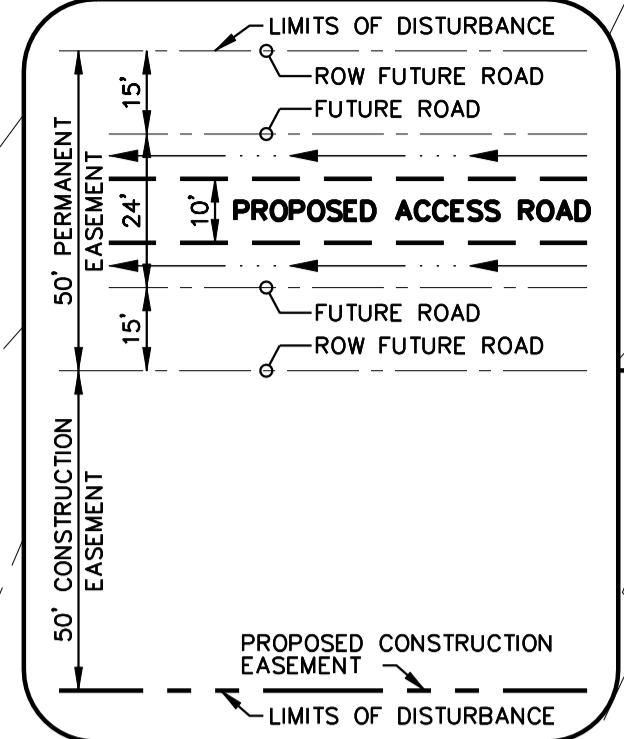




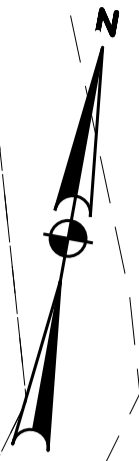
CALLAWAY LAND TRUST  
 SYNOVUS TRUST CO. AS TRUSTEE  
 DB 703, PG 398  
 ZONED: SU-R



**EASEMENT DETAIL**  
 FORCE MAIN STA. 06+34.94  
 TO STA. 08+08.80



**EASEMENT DETAIL**  
 FORCE MAIN STA. 08+58.80 TO  
 HILLS & DALES FARM ROAD

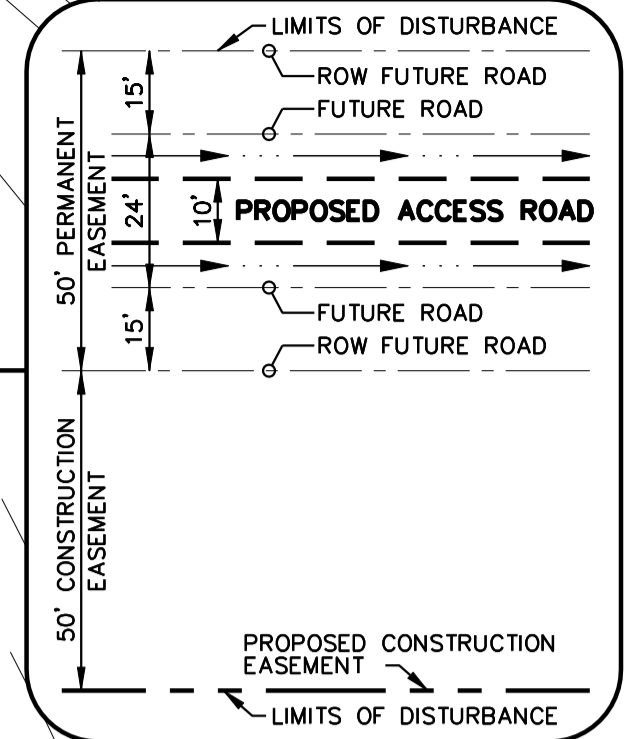
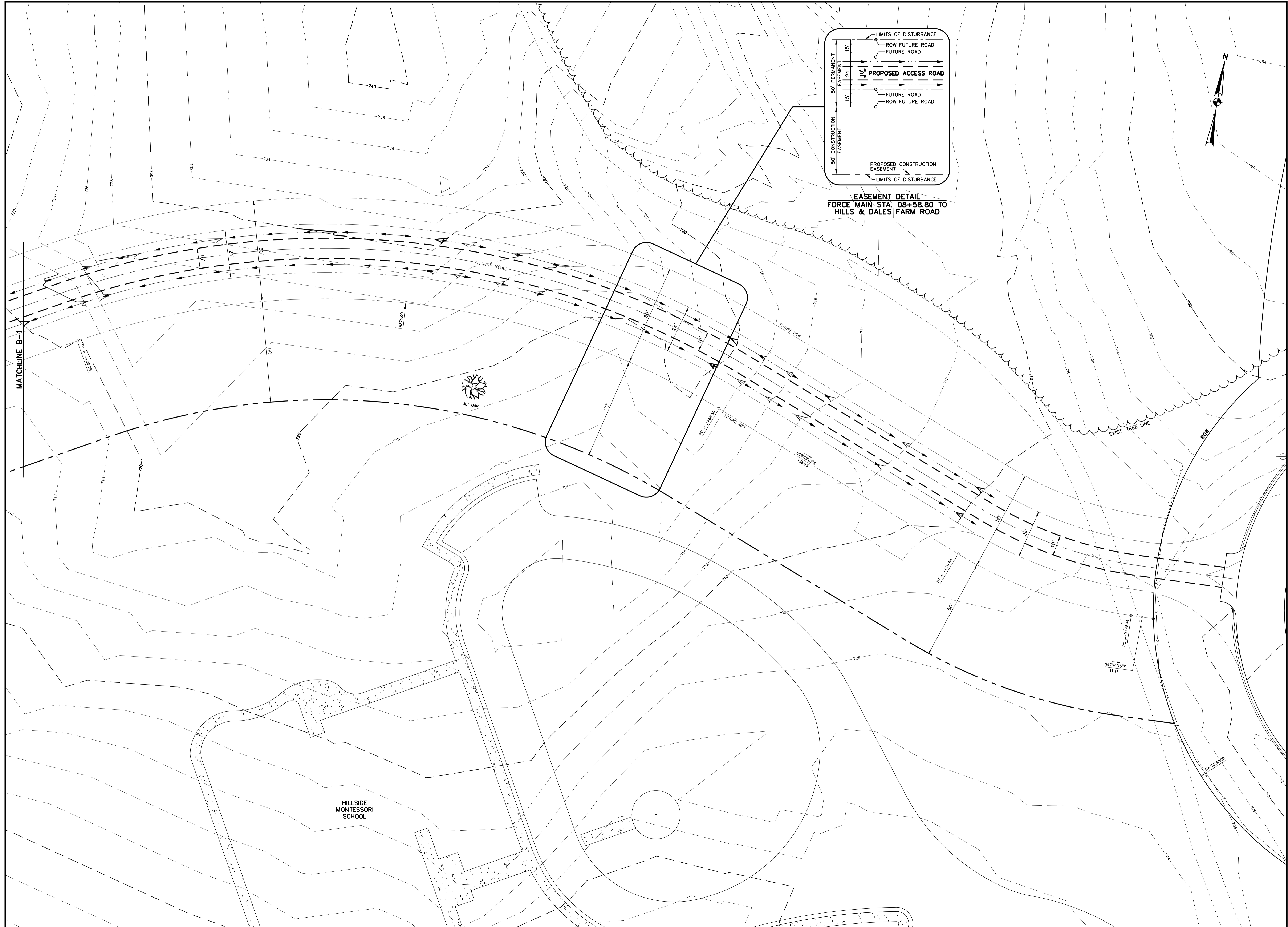


**ELLIS**  
 &  
 ASSOCIATES  
 RONALD L. ELLIS  
 &  
 ASSOCIATES, INC.  
 Consulting Engineers  
 Pelham, Alabama

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
 PROPOSED CLEARING & GRADING PLAN - LIFT STATION & ACCESS ROAD

|                |            |
|----------------|------------|
| DRAWING NAME : | CONT-B-B-1 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | 1" = 20'   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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**EASEMENT DETAIL**  
**FORCE MAIN STA. 08+58.80 TO**  
**HILLS & DALES FARM ROAD**

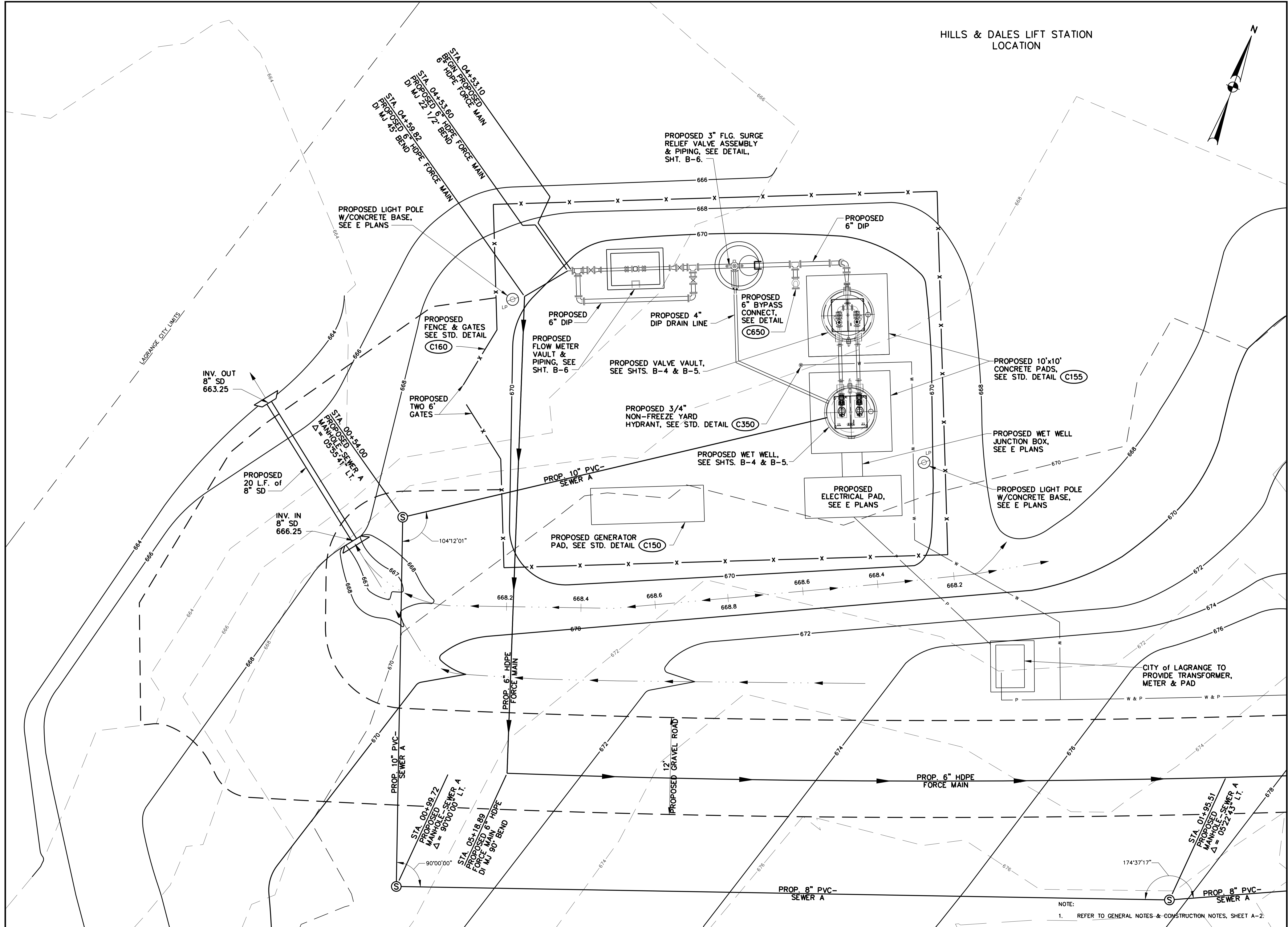


**ELLIS**  
 &  
 ASSOCIATES  
 RONALD L. ELLIS  
 &  
 ASSOCIATES, INC.  
 Consulting Engineers  
 Pelham, Alabama

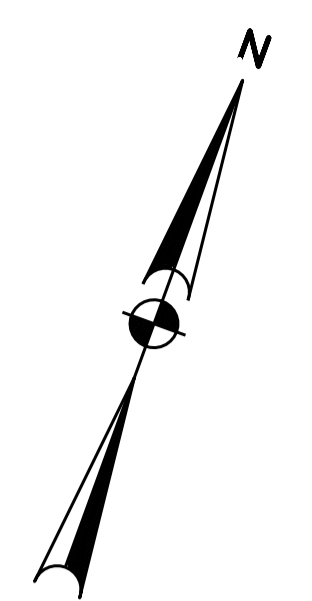
**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
 PROPOSED CLEARING & GRADING PLAN - ACCESS ROAD

|                |            |
|----------------|------------|
| DRAWING NAME : | CONT-B_B-2 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | 1" = 20'   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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HILLS & DALES LIFT STATION  
LOCATION



**ELLIS & ASSOCIATES**  
RONALD L. ELLIS & ASSOCIATES, INC.  
Consulting Engineers  
Pelham, Alabama

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
PROPOSED LIFT STATION SITE PLAN

DRAWING NAME : CONT-B\_B-3  
PROJECT NO. : 21.135  
DRAWN BY : RDE  
DESIGNED BY : RLE  
APPROVED BY : RLE  
SCALE : 1" = 5'  
DATE : 01/30/2023

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
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|           |      |             |

NOTE:  
1. REFER TO GENERAL NOTES & CONSTRUCTION NOTES, SHEET A-2.

CITY OF LAGRANGE TO  
PROVIDE TRANSFORMER,  
METER & PAD

LAGRANGE CITY LIMITS

INV. OUT  
8" SD  
663.25

PROPOSED  
20 L.F. of  
8" SD

INV. IN  
8" SD  
666.25

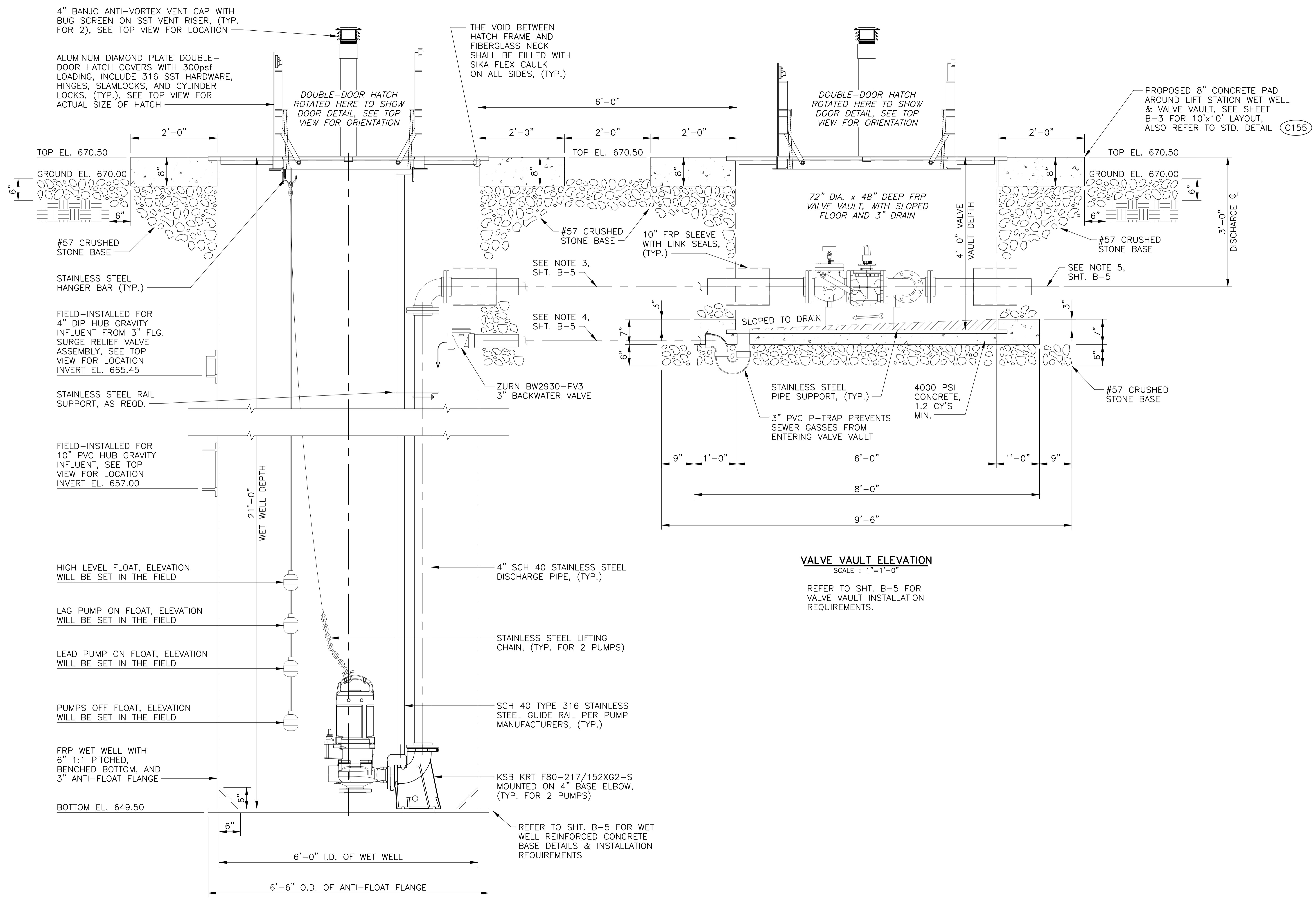
STA. 00+99.72  
PROPOSED  
MANHOLE - SEWER A  
Δ = 90°00'00" LT.

STA. 05+18.89  
PROPOSED  
FORCE MAIN 6" HDPE  
DI MJ 90° BEND

STA. 01+95.51  
PROPOSED  
MANHOLE - SEWER A  
Δ = 05°22'43" LT.

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**

PROPOSED LIFT STATION ELEVATION VIEWS

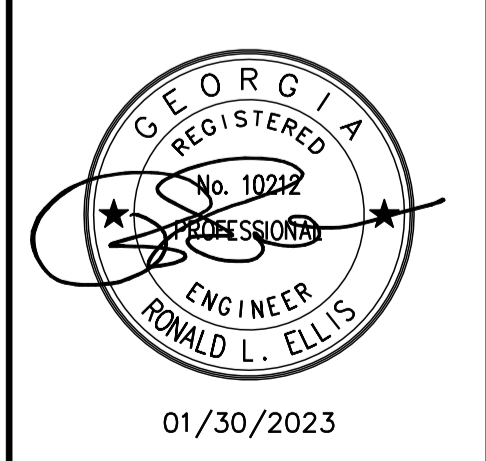


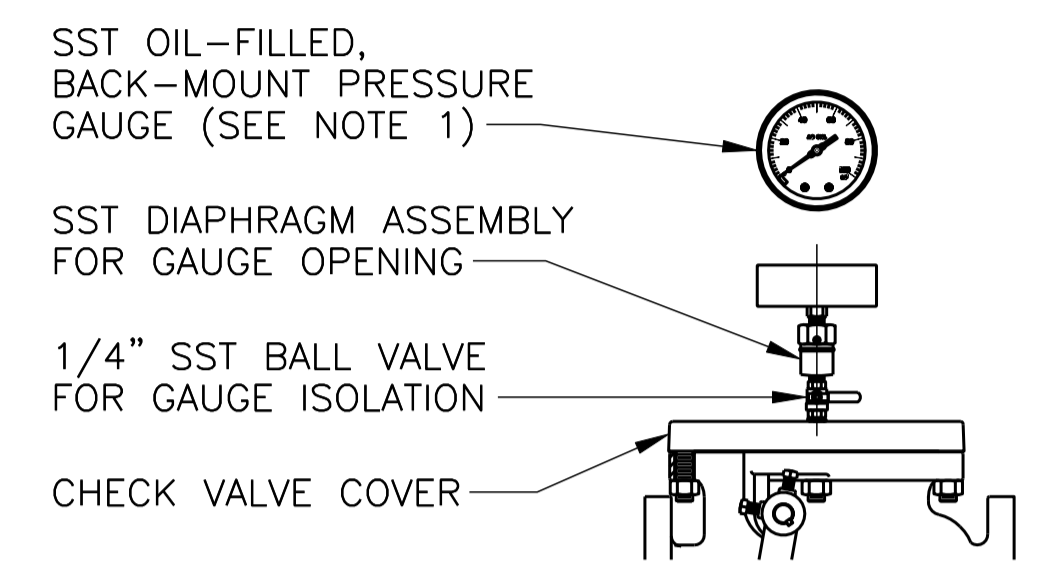
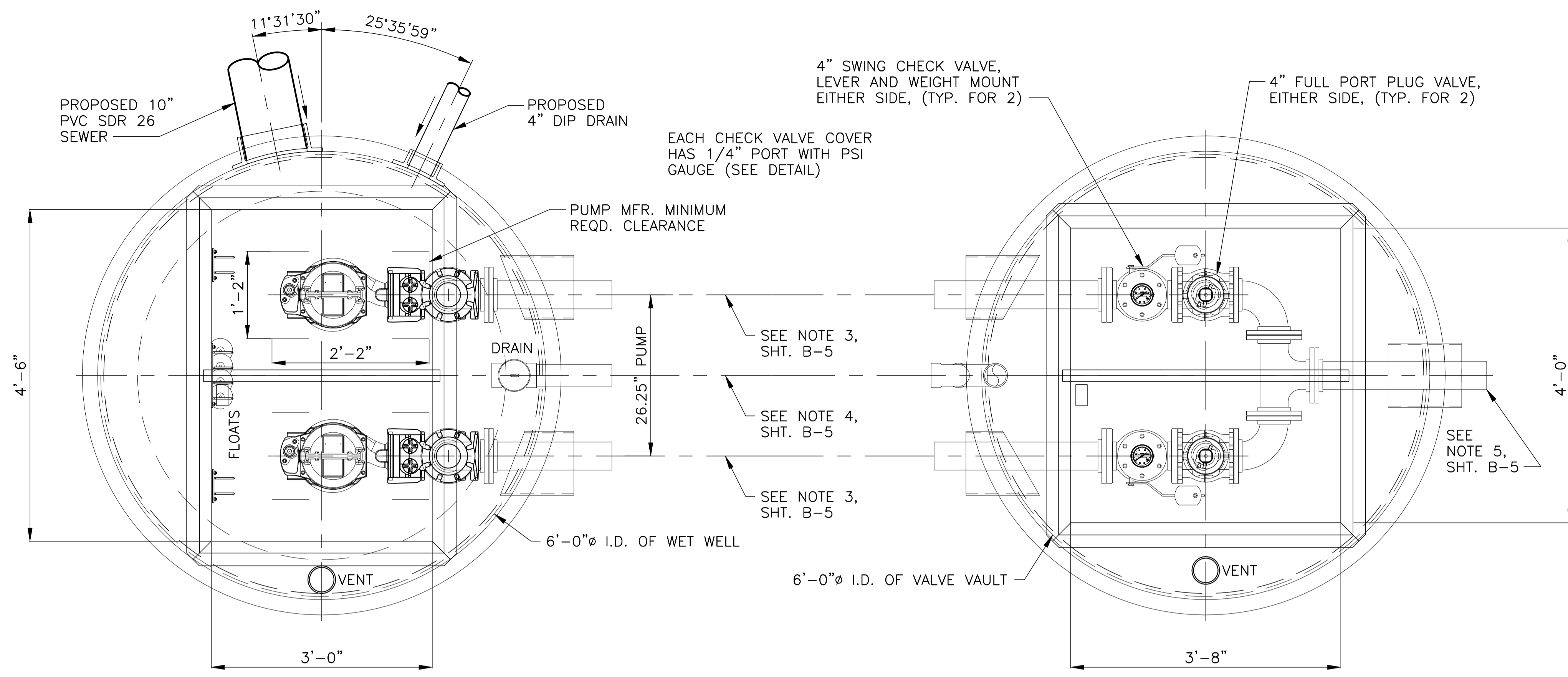
**VALVE VAULT ELEVATION**  
 SCALE : 1"=1'-0"  
 REFER TO SHT. B-5 FOR VALVE VAULT INSTALLATION REQUIREMENTS.

**WET WELL ELEVATION**  
 SCALE : 1"=1'-0"

|                |            |
|----------------|------------|
| DRAWING NAME : | CONT-B_B-4 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | AS NOTED   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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|           |      |             |
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**PRESSURE GAUGE DETAIL**  
 SCALE : 1/2"=1'-0"

**TOP VIEW**  
 SCALE : 1"=1'-0"

REFER TO SHT. B-3 & B-4 FOR  
 10'x10' CONCRETE PAD AROUND  
 THE WET WELL & THE VALVE VAULT.

**NOTES:**

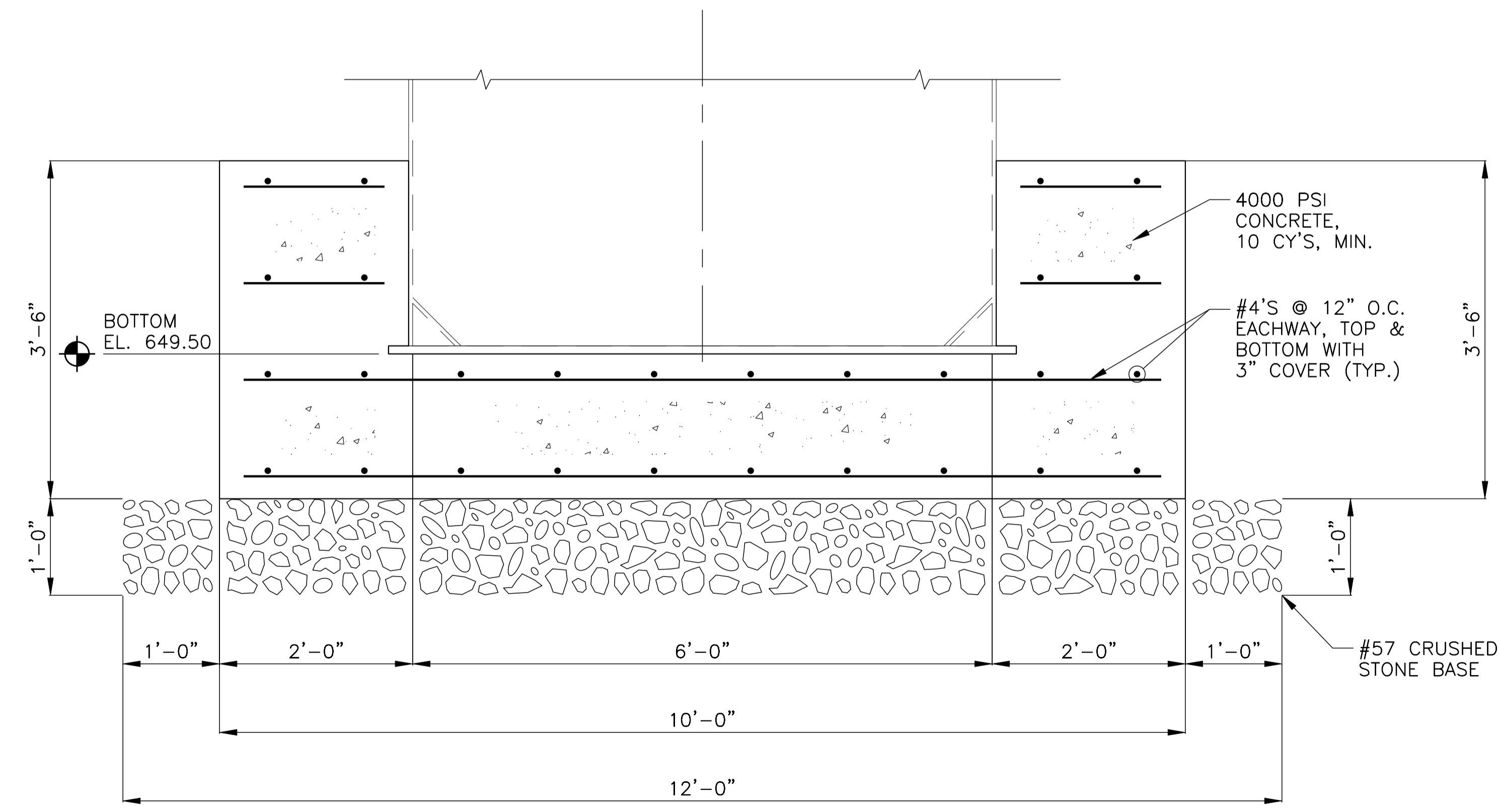
- PRESSURE GAUGE TO BE SIZED TO READ NO MORE THAN 1-1/2 TIMES THE MAXIMUM PRESSURE PUMP PROVIDES AT DEAD HEAD.
- FLOATS SHALL BE ANCHOR SCIENTIFIC ROTO FLOAT MERCURY SWITCH TYPE S (SUSPENDED) WITH INTERNAL WEIGHTS.
- CONNECT TWO (2) 4" SS PIPES WITH 4" DIP OR APPROVED EQUAL AND TWO (2) ROMAC 501 COUPLING OR EQUAL.
- COMPLETE INSTALLATION OF 3" PVC PIPE TO COMPLETE CONNECTION OF 3" PVC PIPE FROM WET WELL TO 3" PVC PIPE AT VALVE VAULT.
- REFER TO PLAN SHTS. B-3 & B-6 FOR CONTINUATION OF 4" FORCE MAIN.

**WET WELL INSTALLATION REQUIREMENTS:**

- PROVIDE A POURED REINFORCED CONCRETE BASE AS DEPICTED ON THIS SHEET.
- THE WET WELL SHALL BE LOWERED INTO THE WET CONCRETE AND BROUGHT TO PLUMB.
- CONTINUE TO POUR THE CONCRETE OVER AND AROUND THE ANTI-FLOTATION FLANGE UNTIL THE AREA REQUIRING CONCRETE IS COMPLETED.
- COMPACTED CRUSHED STONE SHALL BE USED FOR BACKFILL AROUND THE WET WELL FOR A MINIMUM DISTANCE OF TWO (2) FEET FROM THE OUTSIDE SURFACE AND EXTENDING FROM THE BOTTOM OF THE EXCAVATION TO THE BOTTOM OF THE TOP SLAB.
- BACKFILL SHALL BE PLACED IN SUCH A MANNER AS TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE.
- ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS FOR CONTRACT B-2023 HILLS & DALES LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS SHALL APPLY.

**VALVE VAULT INSTALLATION REQUIREMENTS:**

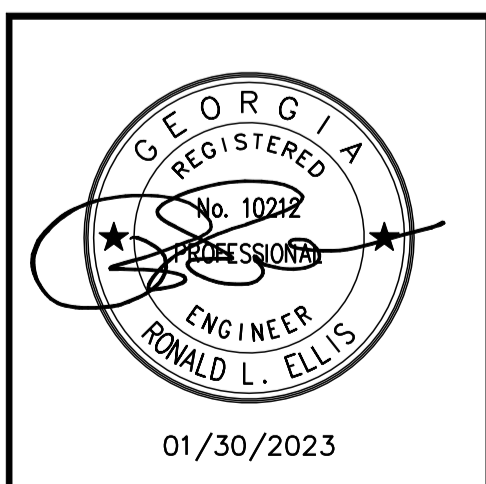
- PROVIDE A POURED CONCRETE BASE AS DEPICTED ON SHT. B-4, 1.2 CY'S, MIN.
- FOLLOW THE WET WELL REQUIREMENTS 2 THROUGH 6.



**WET WELL ELEVATION**  
 SCALE : 1"=1'-0"

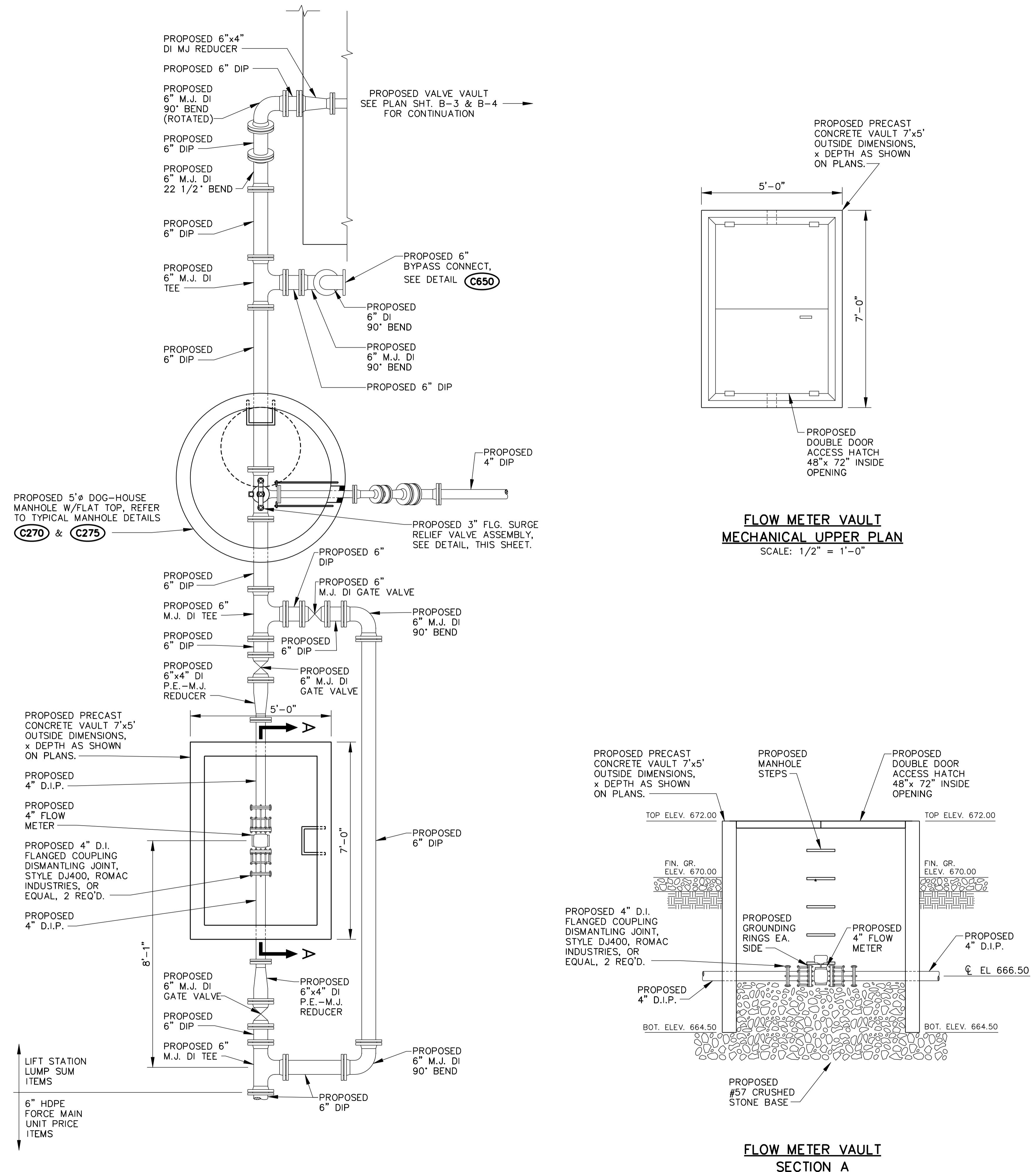
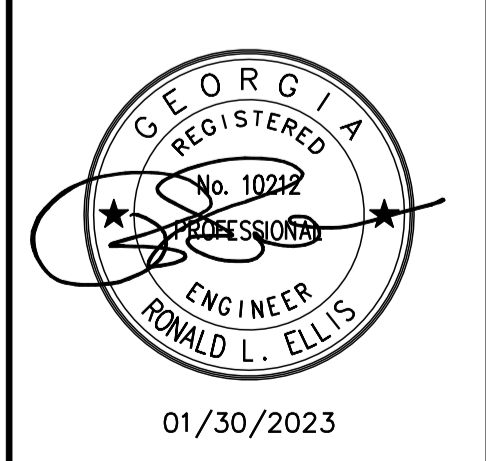
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| DRAWING NAME : | CONT-B_B-5 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | AS NOTED   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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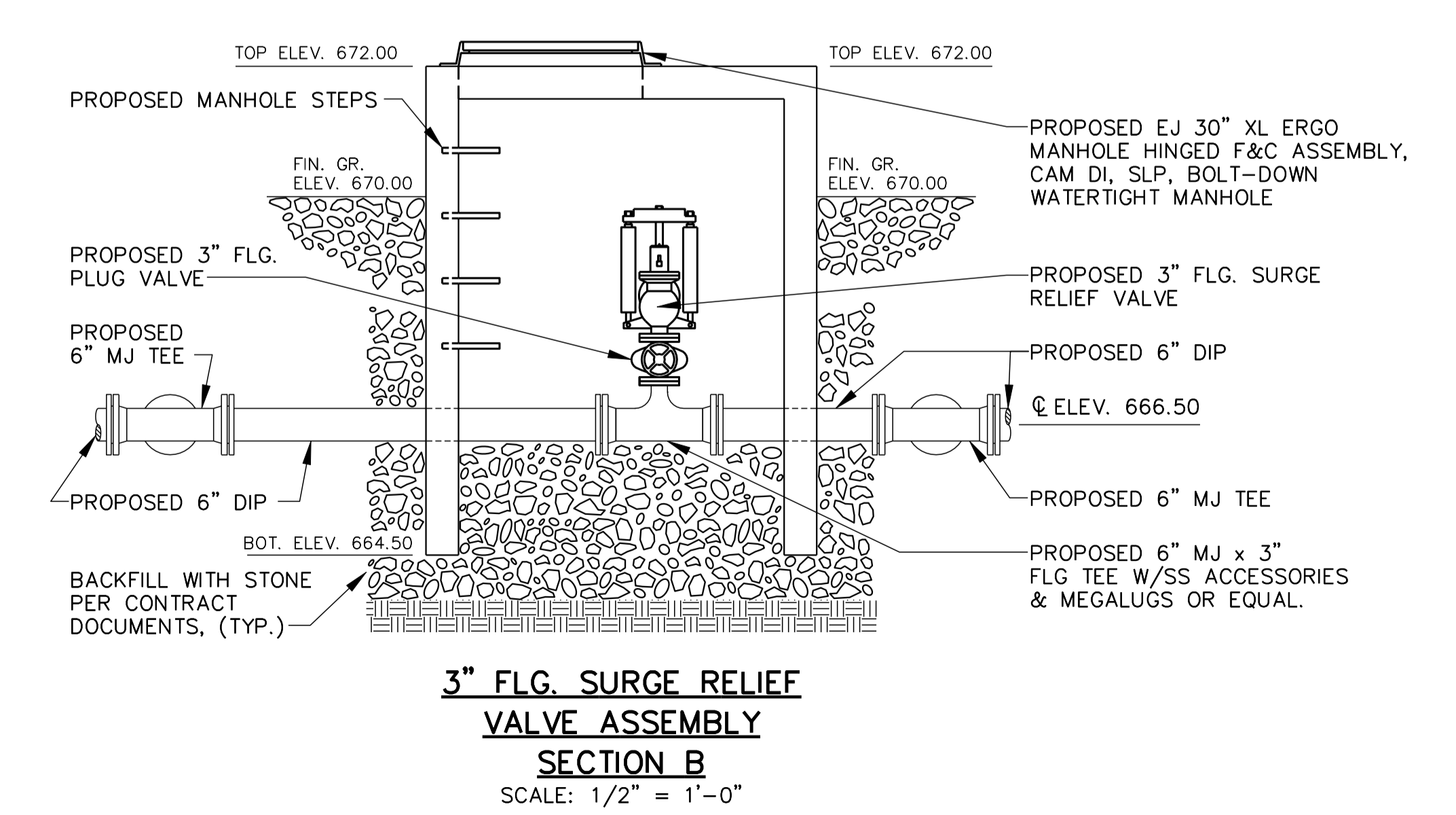
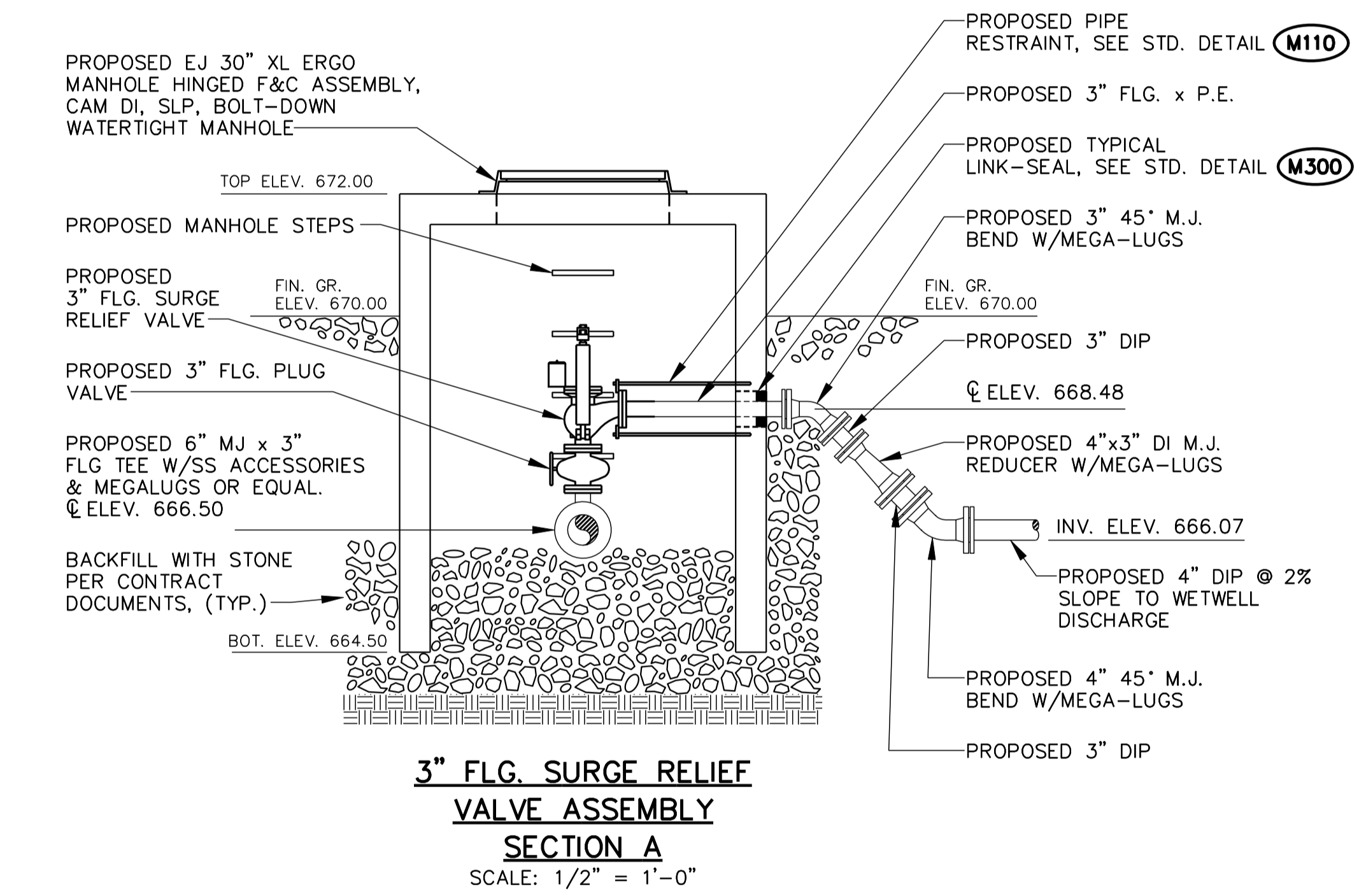
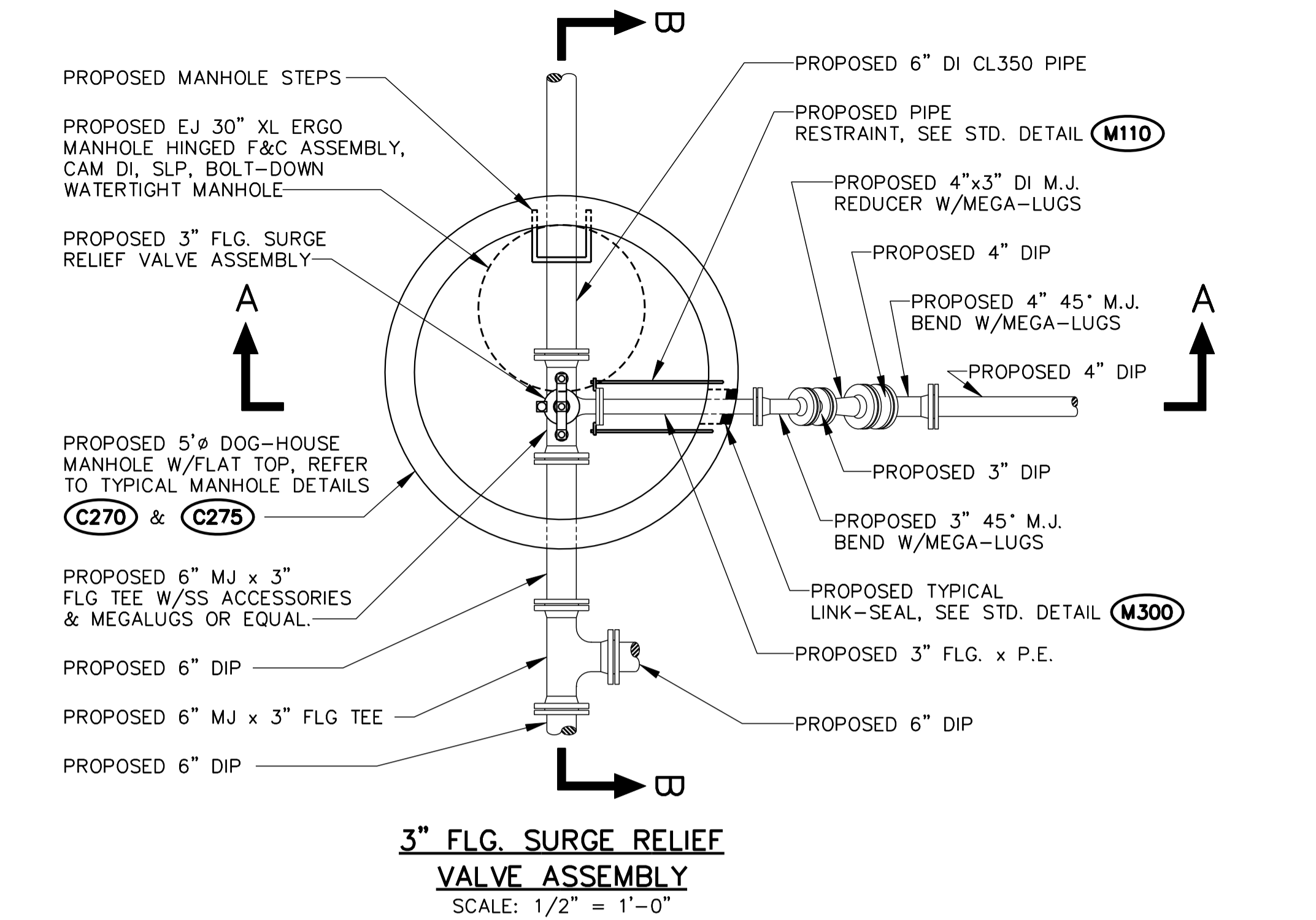


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| DRAWING NAME : | CONT-B_B-6 |
| PROJECT NO. :  | 21.135     |
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| APPROVED BY :  | RLE        |
| SCALE :        | AS NOTED   |
| DATE :         | 01/30/2023 |

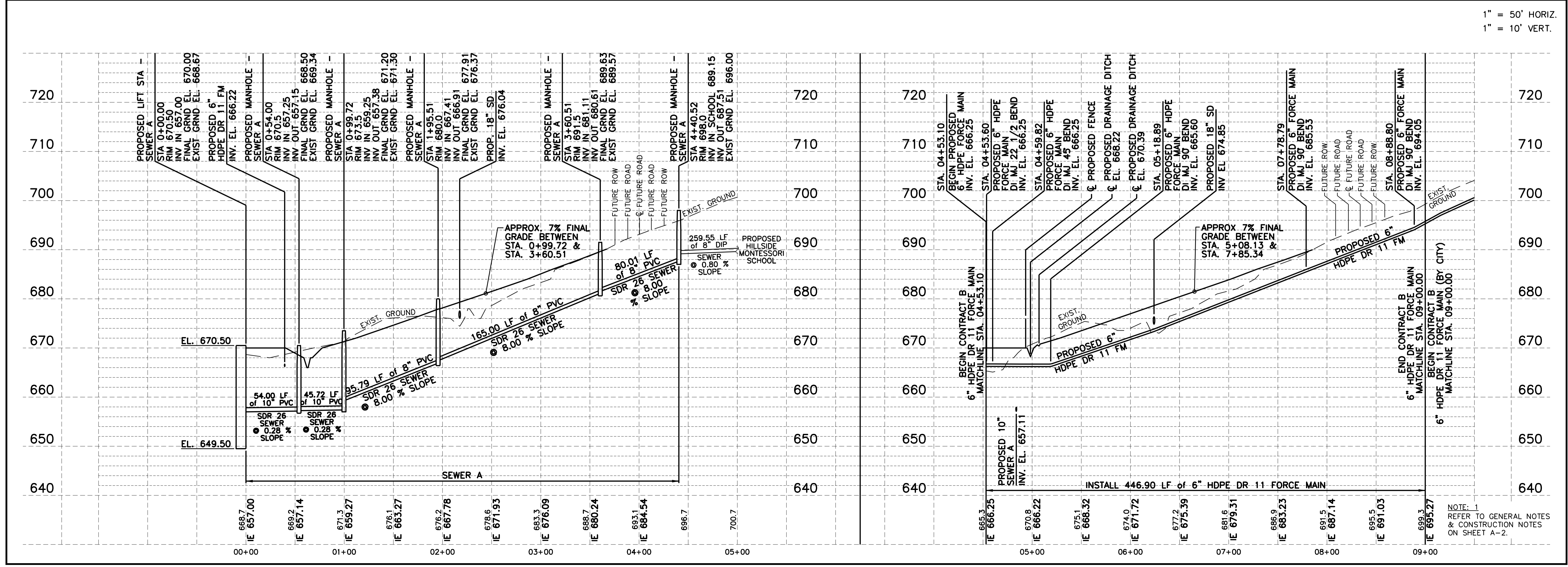
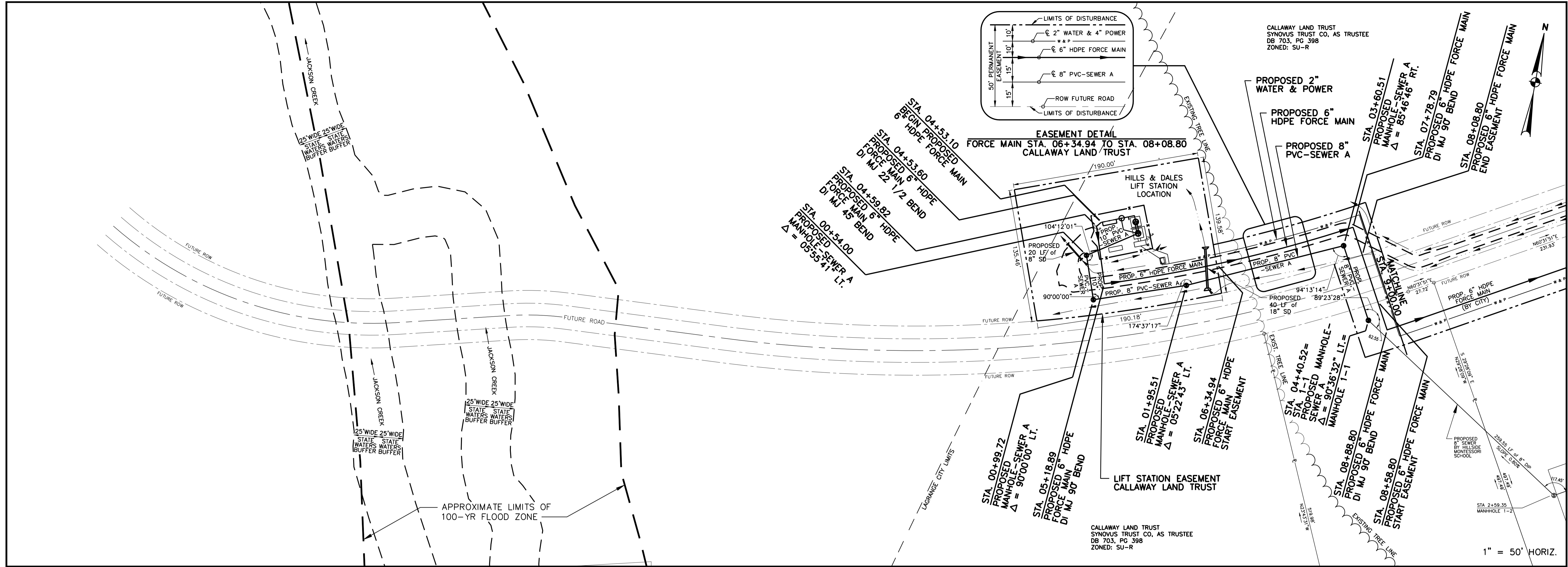
| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
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- NOTES:
1. PROPOSED 4" FLOW METER & ACCESSORIES FURNISHED BY OWNER
  2. PROPOSED 3" FLG. SURGE RELIEF VALVE ASSEMBLY FURNISHED BY OWNER





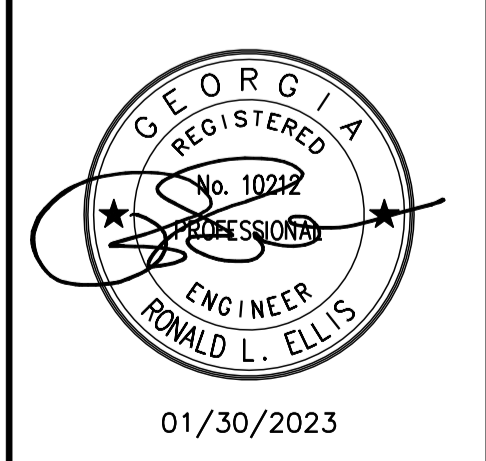


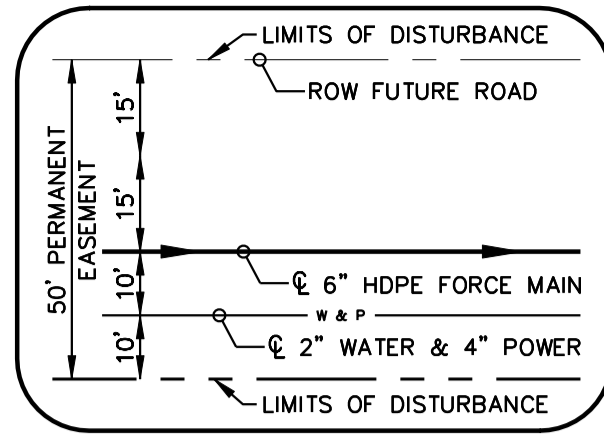
**ELLIS**  
ASSOCIATES  
RONALD L. ELLIS  
&  
ASSOCIATES, INC.  
Consulting Engineers  
Pelham, Alabama

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
8" & 10" PVC - SEWER A STA. 00+00.00 TO STA. 04+40.52  
6" HDPE FORCE MAIN STA. 04+53.10 TO STA. 09+00.00

DRAWING NAME : CONT-B\_C-1  
PROJECT NO. : 21.135  
DRAWN BY : RDE  
DESIGNED BY : RLE  
APPROVED BY : RLE  
SCALE : AS SHOWN  
DATE : 01/30/2023

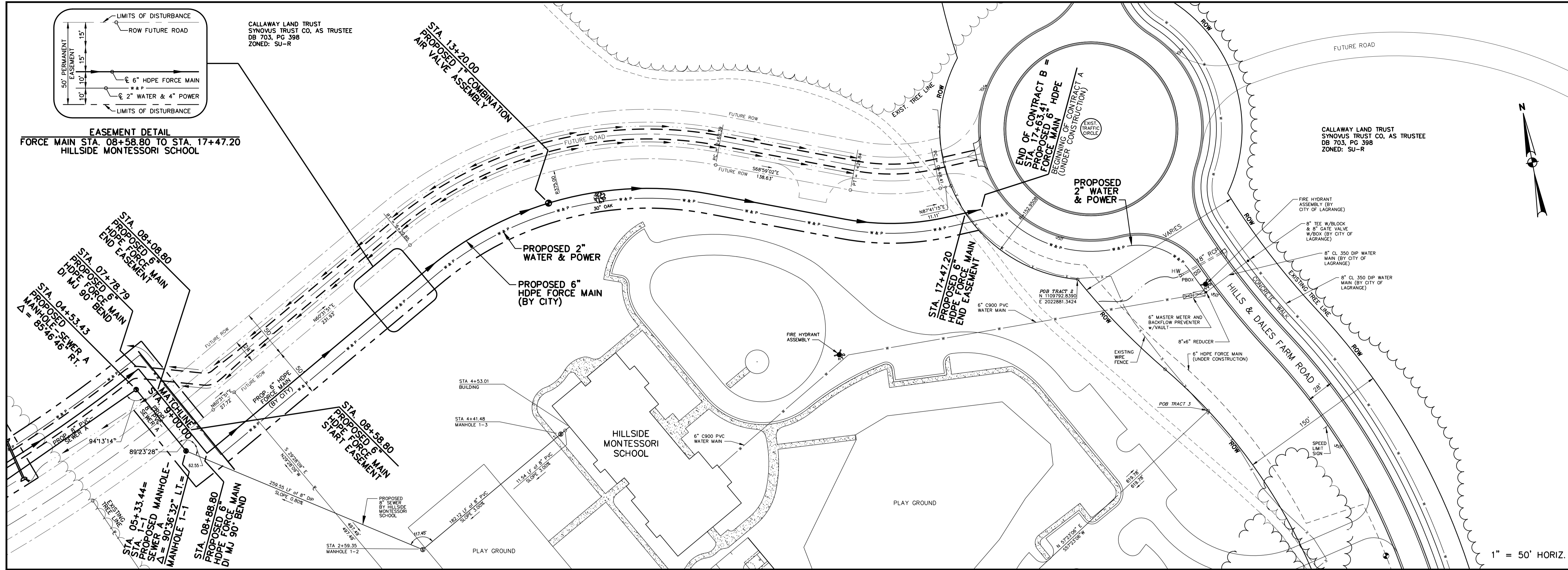
| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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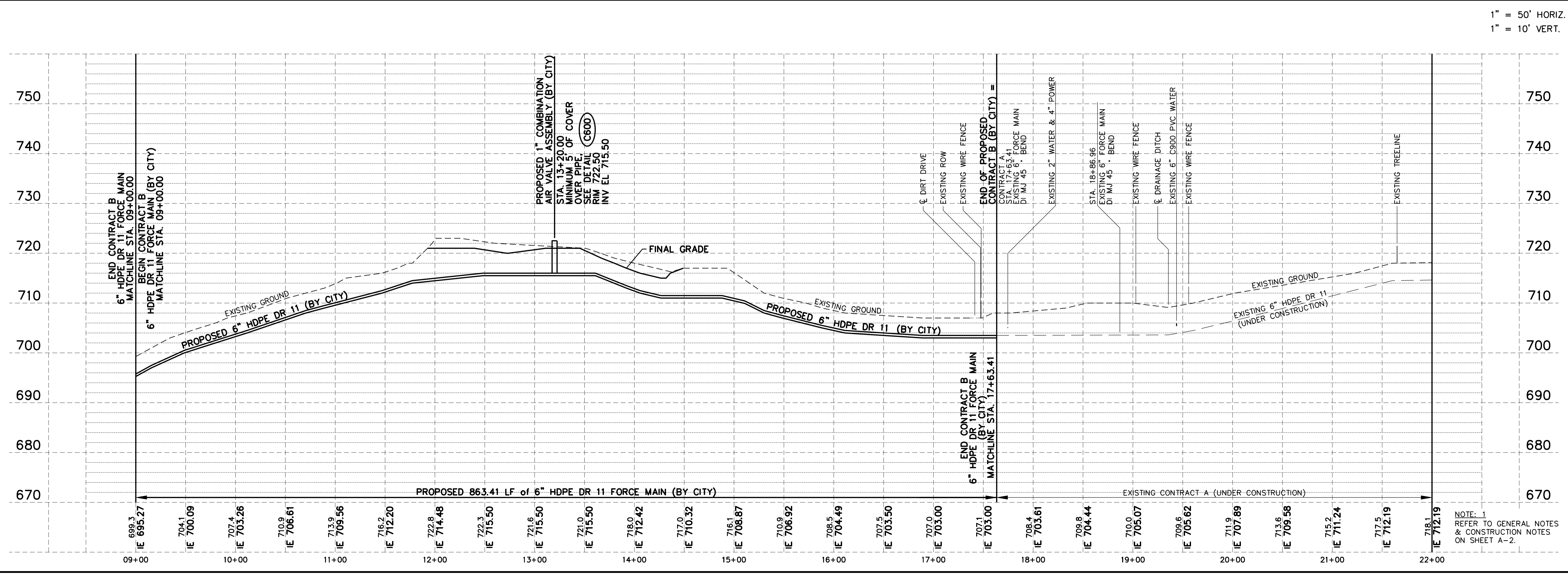


CALLAWAY LAND TRUST  
SYNOVUS TRUST CO. AS TRUSTEE  
DB 703, PG 398  
ZONED: SU-R

EASEMENT DETAIL  
FORCE MAIN STA. 08+58.80 TO STA. 17+47.20  
HILLSIDE MONTESSORI SCHOOL



1" = 50' HORIZ.



1" = 50' HORIZ.  
1" = 10' VERT.

NOTE: 1  
REFER TO GENERAL NOTES  
& CONSTRUCTION NOTES  
ON SHEET A-2.

ELLIS & ASSOCIATES  
RONALD L. ELLIS & ASSOCIATES, INC.  
Consulting Engineers  
Pelham, Alabama

CITY OF LAGRANGE, GEORGIA  
CONTRACT B - 2023 HILLS & DALES  
LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS  
6" HDPE FORCE MAIN STA. 09+00.00 TO STA. 17+63.41

DRAWING NAME : CONT-B\_C-2  
PROJECT NO. : 21.135  
DRAWN BY : RDE  
DESIGNED BY : RLE  
APPROVED BY : RLE  
SCALE : AS SHOWN  
DATE : 01/30/2023

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |

01/30/2023

**GENERAL ELECTRICAL LEGEND**

**FIXTURE OUTLET - POLELIGHT - SINGLE FIXTURE.**

**FIXTURE DESIGNATIONS:**

A FIXTURE TYPE "A" - MAY BE USED WITH OTHER TYPES.  
2 CIRCUIT NUMBER - MAY BE USED WITH OTHER NUMBERS.

**SWITCH OUTLET - WEATHERPROOF WITH PILOT LIGHT (CLEAR LIGHT ON WITH LOAD ON) - S.P.S.T. - 20A - 120-277VAC - HUBBELL #HBL1221PLC TOGGLE SWITCH WITH #HBL1795 CLEAR BUBBLE WEATHERPROOF PLATE - LABEL FUNCTION WITH ENGRAVED NAMEPLATE.**

**PHOTOELECTRIC CONTROL - S.P.S.T. - UTILITY GRADE TURN-LOCK TYPE WITH ASSOCIATED TURN-LOCK RECEPTACLE & MOUNTING BRACKET - 120VAC OR 277VAC - 1800VA - TORK 5001M FOR 120V CIRCUIT - MOUNT AT TOP OF EQUIPMENT STAND FACING NORTHWARD (IF POSSIBLE) AWAY FROM POTENTIAL TRAFFIC/HEADLIGHTS/LUMINAIRES FOR PROPER OPERATION.**

**WALL OUTLET - DUPLEX RECEPTACLE - 20A - 125V - 2P - 3W - GROUNDING - "GFI" TYPE - WEATHER RESISTANT - NEMA 5-20R.**

**OUTLET DESIGNATIONS (APPLY TO ALL OUTLETS, DEVICES & EQUIPMENT):**

CM OUTLET MOUNTED TO 5" STAINLESS STEEL CHANNEL BOLTED TO CONCRETE BASE.  
ES EQUIPMENT MOUNTED TO ALUMINUM SUPPORT FRAME - SEE DETAIL "E-ES".  
VL VERIFY EXACT OUTLET LOCATION WITH OWNER PRIOR TO ROUGH-IN.  
W WEATHER PROOF - OUTLET SHALL BE INSTALLED WITH WEATHERPROOF, IN-USE, CAST COVER.

BRANCH/FEEDER CIRCUIT - EXPOSED ON WALLS OR CEILING.

BRANCH/FEEDER CIRCUIT - CONCEALED IN FLOOR SLAB OR DIRT FILL.

BRANCH/FEEDER CIRCUIT - CONCEALED IN WALLS OR CEILING.

BRANCH/FEEDER CIRCUIT - TO BE DEMOLISHED - MAY BE USED WITH OTHER LINE TYPES.

BRANCH/FEEDER CIRCUIT - HOMERUN - CAN BE USED WITH OTHER BRANCH/FEEDER TYPES.

**BRANCH/FEEDER CIRCUIT MODIFIERS:**

— : 2#12 & 1#12G UNLESS NOTED OTHERWISE.  
— : 3#12 & 1#12G, ETC. UNLESS NOTED OTHERWISE (TICK MARKS INDICATE CONDUCTOR QUANTITY NOT INCLUDING GROUND WIRE).  
—10 : 2#10 & 1#10G UNLESS NOTED OTHERWISE (NUMBER INDICATES WIRE AWG).  
SIZE CONDUIT PER N.E.C. UNLESS INDICATED OTHERWISE.

---UGP--- UNDERGROUND PRIMARY POWER SERVICE - BY POWER CO.

---UGS--- UNDERGROUND SECONDARY POWER SERVICE - SEE ASSOCIATED SINGLE LINE DIAGRAM - VERIFY EXACT SERVICE TRANSFORMER LOCATION(S) WITH UTILITY CO. PRIOR TO BID AND INCLUDE ALL COSTS IN BID.

UNDERGROUND ELECTRICAL DUCT RUN - BURIED A MINIMUM OF 30" BELOW GRADE (TO TOP OF DUCT RUN) - WITH GRAVEL BACKFILL (CONCRETE ENCASMENT NOT REQUIRED).

UNDERGROUND ELECTRICAL DUCT RUN - BURIED A MINIMUM OF 30" BELOW GRADE (TO TOP OF DUCT RUN) - WITH GRAVEL BACKFILL (CONCRETE ENCASMENT NOT REQUIRED).

~ FLEXIBLE CONNECTION TO EQUIPMENT.

• BRANCH CIRCUIT - RISER DOWN OR GENERAL CONDUIT STUB-OUT.

■ LIGHTING PANEL - SURFACE MOUNTED.

DISCONNECT SWITCH - INTEGRAL TO EQUIPMENT.

TRANSFORMER - POWER.

GROUND CONNECTION.

MOTOR OUTLET - SIZE AS SHOWN.

WELL JB WETWELL JUNCTION BOX(ES) - SEE DETAIL "E-WWJB".

FE FLOW ELEMENT.

FS<sup>x4</sup> FLOAT SWITCH(ES) - "x4" OR SIMILAR INDICATES QUANTITIES - SEE DETAILS "E-SUBC" & "E-WWJB".

FIT FLOW INDICATING TRANSMITTER.

SC-\*\*\*\* TYPICAL CONTROL & INSTRUMENTATION WIRING MARK (WHERE "\*\*" REPRESENTS A UNIQUE IDENTIFIER CONSISTING OF LETTERS AND NUMBERS) - SEE CONTROL & INSTRUMENTATION WIRING SCHEDULES.

**DETAIL DESIGNATOR - "A" INDICATED DETAIL MARK - "E-1" INDICATED SHEET NUMBER WHERE DETAIL IS LOCATED (TYPICAL).**

**GENERAL ABBREVIATIONS:**

EX EXISTING TO REMAIN.  
EX-R EXISTING TO BE REMOVED - REMOVE ALL ASSOCIATED ELECTRICAL EQUIPMENT, DEVICES, CONDUIT AND WIRING CONNECTIONS TO OTHER ELECTRICAL ITEMS UNLESS SHOWN OTHERWISE.  
EX-RL EXISTING TO BE RELOCATED - REMOVE ALL ASSOCIATED ELECTRICAL EQUIPMENT, DEVICES, CONDUIT AND WIRING AT EXISTING LOCATION. RELOCATE ITEM TO NEW LOCATION SHOWN ON ELECTRICAL PLANS. EXTEND AND RECONNECT EXISTING CONDUIT, WIRING, ETC. TO NEW LOCATION AS REQUIRED UNLESS SHOWN OTHERWISE.  
EX-RP EXISTING TO BE REPLACED - EXTEND AND RECONNECT EXISTING CONDUIT AND WIRING TO REPLACED ITEM.

**ELECTRICAL ABBREVIATIONS:**

|  |  |
|--|--|
| A AMPERES.   | NSV NEW, SPARE OR VACATED.                       |
| AIC AMPERES INTERRUPTING CAPACITY.                 | OC ON CENTER.                                    |
| AFF ABOVE FINISHED FLOOR.                          | P POLES.   |
| AL ALUMINUM.                                       | PF POWER FACTOR.                                 |
| ATS AUTOMATIC TRANSFER SWITCH.                     | Ø PHASE.   |
| AWG AMERICAN WIRE GAUGE.                           | FVC POLYVINYL CHLORIDE.                          |
| C CONDUIT.   | SLD SINGLE LINE DIAGRAM.                         |
| CU COPPER.   | SS STAINLESS STEEL.                              |
| EC EMPTY CONDUIT. OR ELECTRICAL CONTRACTOR.        | UL UNDERWRITERS LABORATORY.                      |
| FPN FUSE PER NAMEPLATE.                            | UNO UNLESS NOTED OTHERWISE.                      |
| G GROUND CONDUCTOR.                                | V VOLTS.   |
| KVA KILOVOLT-AMPERES.                              | W WIRES.   |
| KW KILOWATT.                                       | CFCI CONTRACTOR FURNISHED, CONTRACTOR INSTALLED. |
| LV LOW VOLTAGE.                                    | CFOI CONTRACTOR FURNISHED, OWNER INSTALLED.      |
| MCM THOUSAND CIRCULAR MILS.                        | OFOI OWNER FURNISHED, OWNER INSTALLED.           |
| MV MEDIUM VOLTAGE.                                 | OFCI OWNER FURNISHED, CONTRACTOR INSTALLED.      |
| N NEUTRAL.   |  |
| NEC NATIONAL ELECTRICAL CODE.                      |  |
| NEMA NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION. |  |
| NIC NOT IN CONTRACT.                               |  |

**TYPICAL CIRCUITRY DESIGNATIONS:**

2 SETS OF 4#3/0 & 1#3G - 2 1/2" C  
CONDUIT SIZE.  
GROUND CONDUCTOR WIRE GAUGE.  
QUANTITY OF GROUND CONDUCTORS (PER SET)  
PHASE/NEUTRAL CONDUCTOR WIRE GAUGE.  
QUANTITY OF PHASE/NEUTRAL CONDUCTORS (PER SET).  
QUANTITY OF PARALLEL SETS OF THE PHASE/NEUTRAL CONDUCTORS, GROUND CONDUCTOR AND CONDUIT SPECIFIED.

**MULTI-CONDUCTOR CONTROL 600V TRAY CABLE DESIGNATIONS:**

(2) 4C#14 W/G - 1 1/4" C  
CONDUIT SIZE.  
"W/G" = WITH ADDITIONAL INTEGRAL GROUND CONDUCTOR WITH GREEN INSULATION IN EACH CABLE SHEATH.  
WIRE GAUGE.  
QUANTITY OF CONDUCTORS IN EACH CABLE SHEATH (NOT INCLUDING GROUND).  
QUANTITY OF MULTI-CONDUCTOR CABLES OF THE TYPE SPECIFIED WITHIN THE SPECIFIED CONDUIT.

**TWISTED, SHIELDED INSTRUMENTATION CABLE DESIGNATIONS:**

(2) #16TSP - 1" C  
CONDUIT SIZE.  
"TSP" = TWISTED SHIELDED PAIR.  
WIRE GAUGE.  
QUANTITY OF INSTRUMENTATION CABLES IN THE SPECIFIED CONDUIT.

**GENERAL ELECTRICAL NOTES**

- ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH NEC.
- CONTRACTOR SHALL VISIT THE SITE OF THE WORK PRIOR TO SUBMITTING BID TO EXAMINE CAREFULLY LOCAL CONDITIONS AND DIFFICULTIES TO BE ENCOUNTERED. ANY DISCREPANCY BETWEEN PLANS AND EXISTING CONDITIONS SHALL IMMEDIATELY BE CALLED TO THE ATTENTION OF THE ENGINEER.
- ELECTRICAL PLANS & DETAILS INDICATE TYPICAL WIRING REQUIREMENTS FOR PROCESS EQUIPMENT BASED ON BASIS-OF-DESIGN SYSTEMS/EQUIPMENT. VERIFY EXACT WIRING REQUIREMENTS & ALL DEVICE LOCATIONS WITH APPROVED MANUFACTURERS SHOP DRAWINGS PRIOR TO ROUGH-IN. NO ADDITIONAL COMPENSATION WILL BE PAID FOR ADJUSTMENTS REQUIRED TO COMPLY WITH REQUIREMENTS OF NON BASIS-OF-DESIGN SYSTEMS/EQUIPMENT SUPPLIERS.
- REFER TO DETAIL "E-HALS" FOR HAZARDOUS AREA CLASSIFICATION AND ASSOCIATED ELECTRICAL REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL REQUIREMENTS FOR POWER SERVICE WITH UTILITY COMPANY PRIOR TO SUBMITTING BID. IF THEIR REQUIREMENTS ARE AT A VARIANCE WITH THOSE SHOWN ON PLANS THE CONTRACTOR SHALL INFORM ENGINEER IMMEDIATELY. ALL COSTS INCURRED WITH THE UTILITY COMPANY FOR SERVICE SHALL BE INCLUDED IN BID PRICE. IF SUCH COSTS ARE NOT AVAILABLE AT BID TIME CONTRACTOR SHALL INCLUDE WITH BID A LETTER FROM A RESPONSIBLE PARTY WITH THE UTILITY COMPANY STATING SUCH, AND COSTS WILL THEN BE EXCLUDED FROM THE BID PRICE.

**LIGHTING FIXTURE SCHEDULE**

| MARK | MANUFACTURER                      | CATALOG NUMBER                            | VOLTAGE | LAMPS  |                           |      | MOUNTING HEIGHT | MOUNTING TYPE   | REMARKS |
|------|-----------------------------------|---|---------|--------|---------------------------|------|-----------------|---|---------|
|      |                                   |   |         | NUMBER | WATTS                     | TYPE |                 |   |         |
| Y1   | LITHONIA<br>COLUMBIA<br>DAY-BRITE | DSX-LED-P6-40K-T4M-MVOLT-RPA-<br>HS-DDBXD | 120     | 1      | 134<br>15,628<br>(LUMENS) | LED  |                 | MOUNT TO 18" LITHONIA ROUND STRAIGHT STEEL POLE #RSS184B-DM191AS-DDBXD - SEE DETAIL "E-LP1" |         |

**LIGHTING FIXTURE SCHEDULE GENERAL NOTES:**

- CONTRACTOR SHALL COORDINATE ALL FIXTURE MOUNTING PROVISIONS PRIOR TO ORDERING FIXTURES.
- ALL FIXTURES AND BALLASTS/DRIVERS SHALL BE RATED FOR OPERATION IN AMBIENT TEMPERATURES UP TO 55 DEGREES CELSIUS.

**LIGHTING FIXTURE SCHEDULE KEYED NOTES:**

NOT USED

DRAWING NAME : E-01  
PROJECT NO. : 21.135  
DRAWN BY : ZJG  
DESIGNED BY : PDB  
APPROVED BY : PDB  
SCALE : AS NOTED  
DATE : 1/30/2023

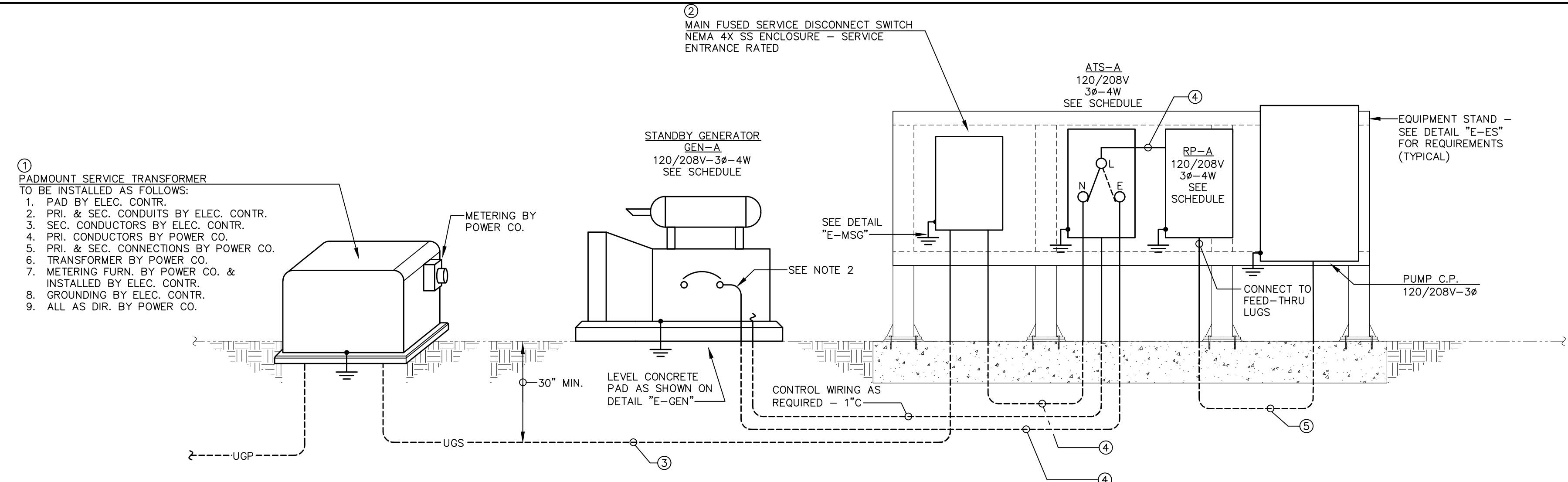
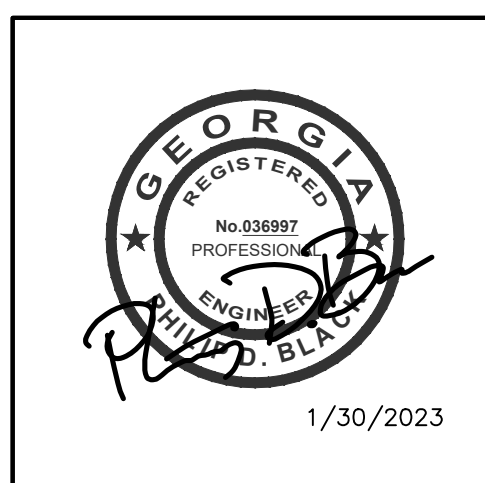
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|                |           |
|----------------|-----------|
| DRAWING NAME : | E-01      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
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**SINGLE LINE DIAGRAM**  
 SCALE : NONE

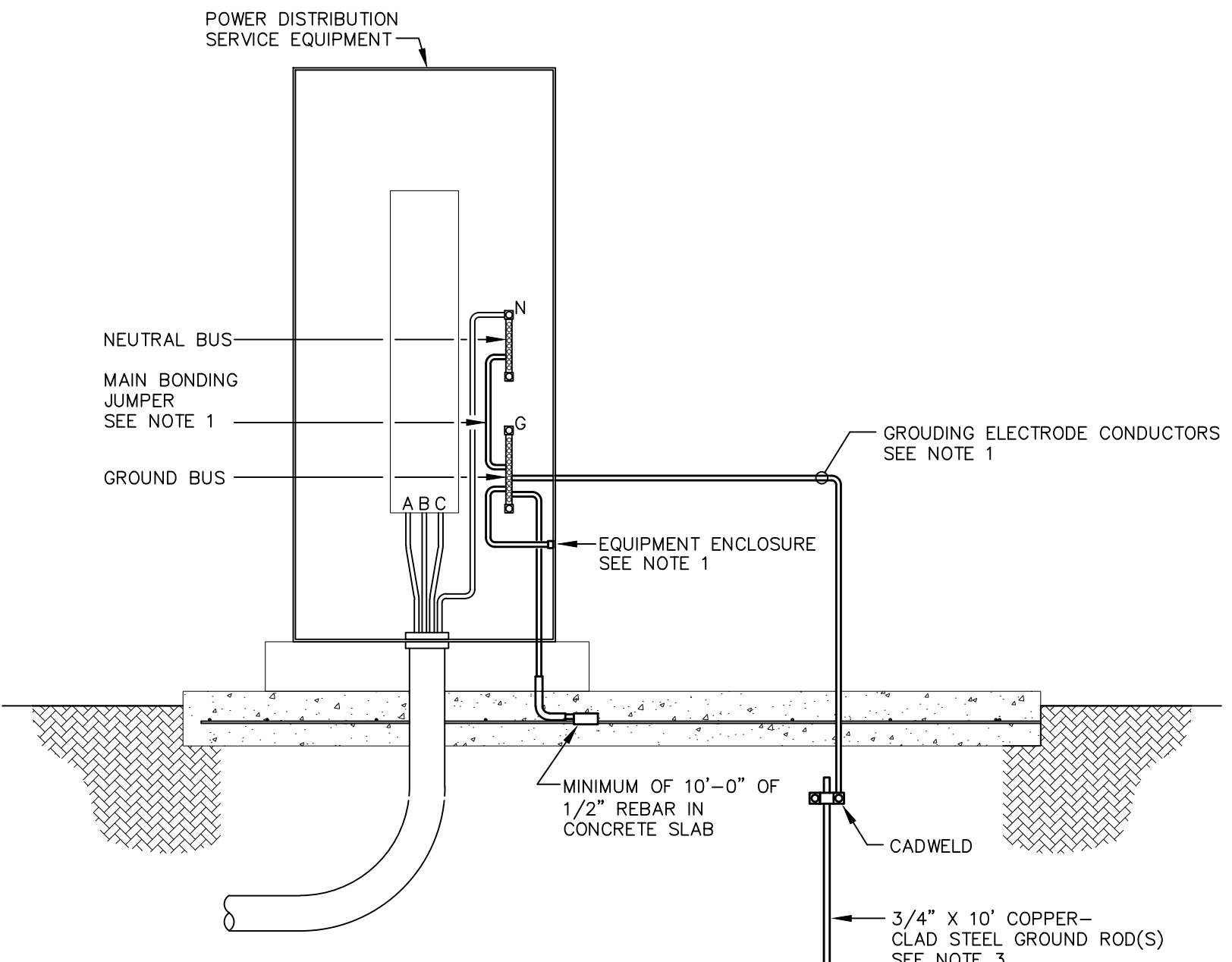
| SINGLE LINE DIAGRAM SCHEDULE |                 |                              |               |                        |   |
|------------------------------|-----------------|------------------------------|---------------|------------------------|---|
| PUMP STATION                 | SERVICE VOLTAGE | MAIN FUSED DISCONNECT SWITCH |               | CIRCUITRY              |   |
|                              |                 | (AMPS/POLES)                 | (INT. RATING) | (3) SERVICE CONDUCTORS | (4) MAIN FEEDERS TO PUMP C.P.   |
| HILLS & DALES                | 120/208V-3P-4W  | 400/3                        | 22KAC         | 300A/RK1               | 4-350MCM - 3 1/2" C<br>4-350MCM & 1#4G - 3 1/2" C<br>4-350MCM & 1#4G - 3 1/2" C |

- DIAGRAM NOTES**
- REFER TO SINGLE LINE DIAGRAM SCHEDULE, EQUIPMENT AND PANELBOARD SCHEDULES FOR ALL APPLICABLE FEEDER SIZES, BREAKER RATINGS, BUS RATINGS, ETC. NOT SHOWN ON THIS DIAGRAM.
  - NEUTRAL-GROUND BONDS SHALL ONLY BE MADE AT THE FOLLOWING LOCATIONS:  
 A. MAIN FUSED DISCONNECT SWITCH.  
 B. SECONDARY SIDE(S) OF ALL TRANSFORMERS.

| GENERATOR SCHEDULE - GEN-A |             |                                      |   |    |           |            |   |                    |                         |
|----------------------------|-------------|--------------------------------------|---|----|-----------|------------|---|--------------------|-------------------------|
| KWRATING: 80KW (MINIMUM)   |             | SKVA RATING (AT 35%V. DIP):          |   |    |           |            |   |                    |                         |
| VOLTAGE: 120/208V-3P-4W    |             | SOUND ATTENUATION: CRITICAL SILENCER |   |    |           |            |   |                    |                         |
| FUEL TYPE: DIESEL          |             | LOCATION: EXTERIOR                   |   |    |           |            |   |                    |                         |
| CIR. NO.                   | DESCRIPTION | VOLTS                                | P | HP | KW OR KVA | AMPS       | BKR SIZE  | SWITCH SIZE        | WIRE AND COND. SIZE     |
|                            |             |                                      |   |    |           |            |   | SWITCH F-TRON AMPS |                         |
| 1                          | ATS-A(E)    | 120/208                              | 3 |    | 45.3      |            | 300/3   |                    | SEE SINGLE LINE DIAGRAM |
| TOTAL CONNECTED LOAD:      |             |                                      |   |    |           | 45.2 KVA   | NOTES:  |                    |                         |
| TOTAL DEMAND LOAD:         |             |                                      |   |    |           | 125.5 AMPS | 1. GENERATOR HAS BEEN PRE-PURCHASED BY OWNER AND SHALL BE INSTALLED BY CONTRACTOR |                    |                         |
| TOTAL COMPUTED LOAD:       |             |                                      |   |    |           | 45.2 KVA   |   |                    |                         |
|                            |             |                                      |   |    |           | 125.5 AMPS |   |                    |                         |
|                            |             |                                      |   |    |           | 45.3 KVA   |   |                    |                         |
|                            |             |                                      |   |    |           | 125.9 AMPS |   |                    |                         |

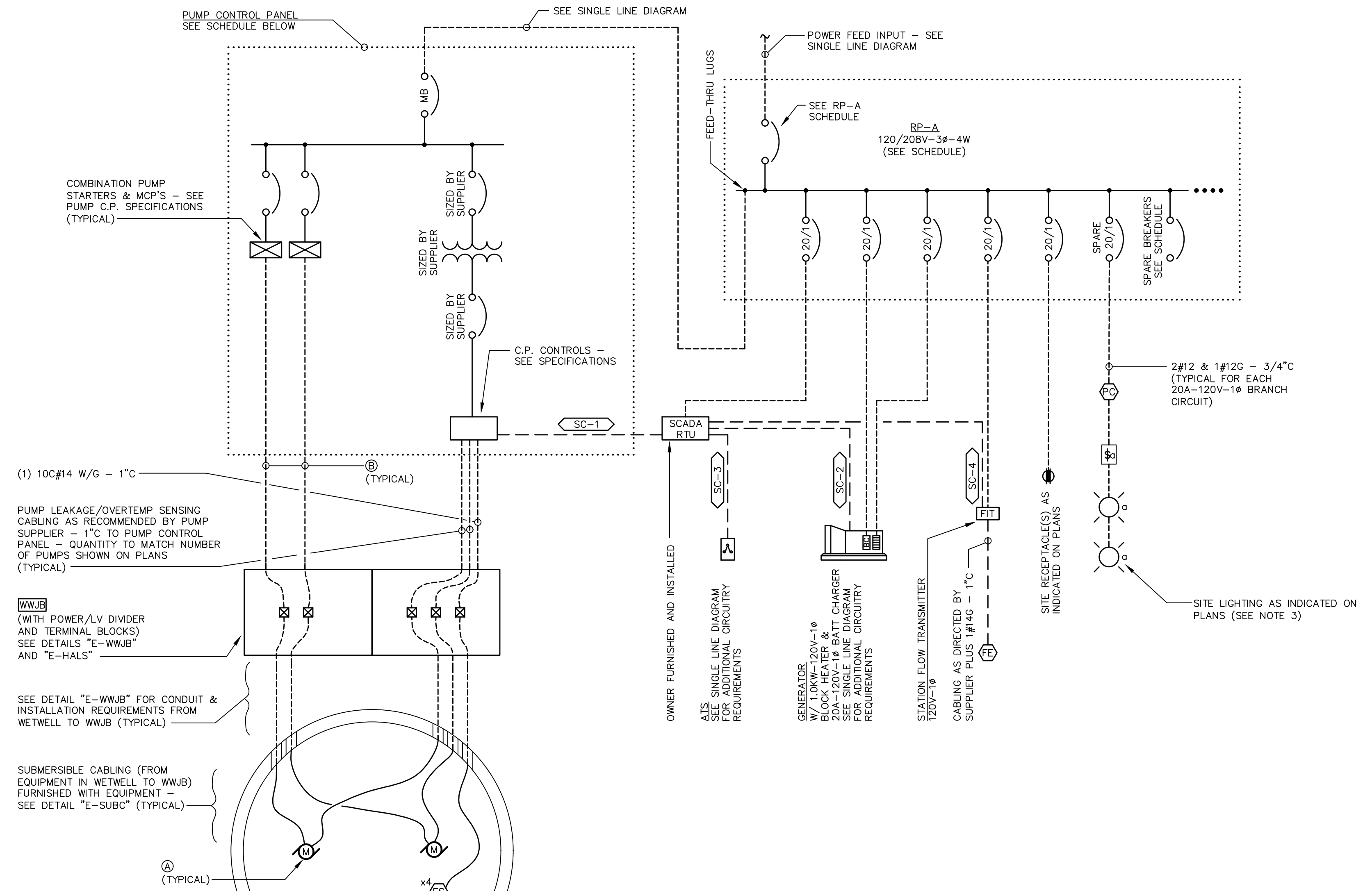
| AUTOMATIC TRANSFER SWITCH SCHEDULE - ATS-A |         |   |    |           |      |                                 |  |  |  |
|--|---------|---|----|-----------|------|---------------------------------|--|--|--|
| KAIC / WCR RATING: 22KAIC (MINIMUM)        |         | NORMAL FED FROM: MAIN FUSED DISCONNECT SWITCH |    |           |      |                                 |  |  |  |
| VOLTAGE: 120/208V-3P-4W                    |         | NORMAL FEEDER: SEE SINGLE LINE DIAGRAM        |    |           |      |                                 |  |  |  |
| AMP RATING: 300 AMP                        |         | EMERGENCY FED FROM: GEN-A                     |    |           |      |                                 |  |  |  |
| LOCATION: PUMP STATION EQUIPMENT STAND     |         | EMERGENCY FEEDER: SEE SINGLE LINE DIAGRAM     |    |           |      |                                 |  |  |  |
| LOAD SIDE FEEDER DESCRIPTION               | VOLTS   | P   | HP | KW OR KVA | AMPS | WIRE AND COND. SIZE             |  |  |  |
| RP-A                                       | 120/208 | 3   |    | 45.3      |      | SEE SINGLE LINE DIAGRAM         |  |  |  |
| EMERGENCY                                  |         |   |    |           |      | NORMAL                          |  |  |  |
| 45.2 KVA                                   |         |   |    |           |      | TOTAL CONNECTED LOAD: 45.2 KVA  |  |  |  |
| 125.5 AMPS                                 |         |   |    |           |      | TOTAL DEMAND LOAD: 125.5 AMPS   |  |  |  |
| 45.2 KVA                                   |         |   |    |           |      | TOTAL DEMAND LOAD: 45.2 KVA     |  |  |  |
| 125.5 AMPS                                 |         |   |    |           |      | TOTAL DEMAND LOAD: 125.5 AMPS   |  |  |  |
| 45.3 KVA                                   |         |   |    |           |      | TOTAL COMPUTED LOAD: 45.3 KVA   |  |  |  |
| 125.9 AMPS                                 |         |   |    |           |      | TOTAL COMPUTED LOAD: 125.9 AMPS |  |  |  |

| PANELBOARD SCHEDULE - RP-A   |       |  |                               |                        |        |        |                       |     |       |
|--|-------|--|-------------------------------|------------------------|--------|--------|-----------------------|-----|-------|
| PANEL TYPE: SQUARE D TYPE NQDD   |       | AIC RATING: 22KAIC (MINIMUM)           |                               |                        |        |        |                       |     |       |
| VOLTAGE: 120/208V-3P-4W  |       | MOUNTING: SURFACE                      |                               |                        |        |        |                       |     |       |
| AMPS & TYPE: 300/3 MAIN BKR  |       | LOCATION: PUMP STATION EQUIPMENT STAND |                               |                        |        |        |                       |     |       |
| FED FROM: ATS-A  |       | FEEDER: SEE SINGLE LINE DIAGRAM        |                               |                        |        |        |                       |     |       |
| CKT. NO.   | NOTES | BKR                                    | DESCRIPTION                   | WATTS                  | PHASE  | WATTS  | DESCRIPTION           | BKR | NOTES |
| 1  | -     | 20/1                                   | SCADARTU                      | 500                    | A      |        |                       | -/1 | - 13  |
| 2  | -     | 20/1                                   | GENERATOR BATTERY CHARGER     | 500                    | B      |        |                       | -/1 | - 14  |
| 3  | -     | 20/1                                   | GENERATOR ENGINE BLOCK HEATER | 1,000                  | C      |        |                       | -/1 | - 15  |
| 4  | -     | 20/1                                   | STATION FLOW TRANSMITTER      | 100                    | A      |        |                       | -/1 | - 16  |
| 5  | -     | 20/1                                   | CONVENIENCE RECEPTACLE        | 200                    | B      |        |                       | -/1 | - 17  |
| 6  | -     | 20/1                                   | SITE LIGHTING                 | 89                     | C      |        |                       | -/1 | - 18  |
| 7  | -     | 20/1                                   | SPARE                         |                        | A      |        |                       | -/1 | - 19  |
| 8  | -     | 20/1                                   | SPARE                         |                        | B      |        |                       | -/1 | - 20  |
| 9  | -     | 20/1                                   | SPARE                         |                        | C      |        |                       | -/1 | - 21  |
| 10   | -     | 20/1                                   | SPARE                         |                        | A      |        |                       | -/1 | - 22  |
| 11   | -     | 20/1                                   | SPARE                         |                        | B      |        |                       | -/1 | - 23  |
| 12   | -     | 20/1                                   | SPARE                         |                        | C      |        |                       | -/1 | - 24  |
| NOTES:   |       |  |                               | PH. A:                 | PH. B: | PH. C: | TOTAL CONNECTED LOAD: |     |       |
| 1. PROVIDE 240KA (PER PHASE) SURGE PROTECTION DEVICE - CONTRACTOR MAY PROVIDE INTEGRAL OR EXTERNALLY MOUNTED DEVICE (CONNECTED TO 30/3 BKR). |       |  |                               | 600                    | 700    | 1,089  | 45.2 KVA              |     |       |
| 2. ENCLOSURE SHALL BE NEMA 4X STAINLESS STEEL.   |       |  |                               | SUB-FEED CONTROL PANEL |        |        | TOTAL DEMAND LOAD:    |     |       |
| 3. PROVIDE FEED-THRU LUGS.   |       |  |                               | 42.8 KVA DEMAND        |        |        | 125.5 AMPS            |     |       |
|  |       |  |                               |                        |        |        | TOTAL COMPUTED LOAD:  |     |       |
|  |       |  |                               |                        |        |        | 45.3 KVA              |     |       |
|  |       |  |                               |                        |        |        | 125.9 AMPS            |     |       |



**DETAIL "E-MSG" MAIN SERVICE GROUNDING**  
 SCALE : NONE

- DETAIL NOTES**
- ALL GROUNDING ELECTRODE CONDUCTORS AND MAIN BONDING JUMPERS SHALL BE INSULATED COPPER, SIZED IN ACCORDANCE WITH NEC TABLE 250.66 UNLESS NOTED OTHERWISE.
  - THE INTERSYSTEM BONDING JUMPER SHALL BE INSULATED COPPER, SIZED TO MATCH THE GROUNDING ELECTRODE CONDUCTOR OR #6AWG, WHICHEVER IS GREATER.
  - ADDITIONAL GROUND RODS SHALL BE INSTALLED A MINIMUM OF SIX (6) FEET APART AND CONNECTED BY GROUNDING ELECTRODE CONDUCTORS UNTIL THE GROUND RESISTANCE DOES NOT EXCEED FIVE (5) OHMS.
  - ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT (TYPE PER SPECIFICATION REQUIREMENTS) UNLESS SPECIFICALLY NOTED OTHERWISE. METAL CONDUITS SHALL BE GROUNDED PER NEC REQUIREMENTS.
  - REFER TO "GROUNDING" SPECIFICATIONS SECTION FOR ADDITIONAL GROUNDING REQUIREMENTS.



**DETAIL "E-PSWD" SUBMERSIBLE P.S. WIRING DIAGRAM**

SCALE : NONE

| SCADA RTU POINT LIST AND CONTROL & INSTRUMENTATION WIRING SCHEDULE |           |                          |   |            |                     |       |         |
|--|-----------|--------------------------|---|------------|---------------------|-------|---------|
| HOMERUN MARK   | TO        | EQUIPMENT DESCRIPTION    | PARAMETER                               | POINT TYPE | WIRING              | SHEET | REMARKS |
| SC-1   | SCADA RTU | PUMP CONTROL PANEL       | LOSS OF PHASE/POWER ALARM               | DI         | (3) 8C#14 - 1 1/2"Ø | E-03  |         |
|  |           |                          | LEVEL ALARM - HIGH                      | DI         |                     |       |         |
|  |           | PUMP NO. 1               | ON/OFF STATUS                           | DI         |                     |       |         |
|  |           |                          | ALARM                                   | DI         |                     |       |         |
|  |           | PUMP NO. 2               | HO/A SWITCH POSITION INDICATION         | DI         |                     |       |         |
|  |           |                          | ALARM                                   | DI         |                     |       |         |
| SC-2   | SCADA RTU | GENERATOR GEN-A          | ON/OFF STATUS                           | DI         | (1) 8C#14 - 1"Ø     | E-03  |         |
|  |           |                          | MINOR ALARM                             | DI         |                     |       |         |
|  |           |                          | MAJOR ALARM                             | DI         |                     |       |         |
|  |           |                          | LOW FUEL LEVEL ALARM                    | DI         |                     |       |         |
| SC-3   | SCADA RTU | ATS-A                    | UTILITY POWER AVAILABLE                 | DI         | (1) 8C#14 - 1"Ø     | E-03  |         |
|  |           |                          | EMERGENCY POWER AVAILABLE STATUS        | DI         |                     |       |         |
|  |           |                          | NORMAL/EMERGENCY SWITCH POSITION STATUS | DI         |                     |       |         |
|  |           |                          | HO/A SWITCH POSITION INDICATION         | DI         |                     |       |         |
| SC-4   | SCADA RTU | STATION FLOW TRANSMITTER | FLOW INDICATION                         | AI         | (1) #16TSP - 3/4"Ø  | E-03  |         |

| CONTROL & INSTRUMENTATION WIRING SCHEDULES LEGEND & NOTES  |                         |
|--|-------------------------|
| <b>LEGEND:</b>   |                         |
| DI   | - DISCRETE INPUT POINT  |
| DO   | - DISCRETE OUTPUT POINT |
| AI   | - ANALOG INPUT POINT    |
| AO   | - ANALOG OUTPUT POINT   |
| <b>NOTES:</b>  |                         |
| 1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS & INFORMATION.   |                         |
| 2. ALL CONTROL CABLING (IDENTIFIED WITH "CH" OR SIMILAR DESIGNATIONS) SHALL BE 600V MULTI-CONDUCTOR TRAY CABLE PER SPECIFICATION REQUIREMENTS. |                         |
| 3. ALL INSTRUMENTATION CABLING (IDENTIFIED WITH "TSP" OR "SHD" DESIGNATIONS) SHALL BE 300V TWISTED, OVERALL-SHEATHED TRAY CABLE.               |                         |

| WIRING DIAGRAM WIRING LEGEND |                                      |
|------------------------------|--------------------------------------|
| —                            | WIRING BY PANEL SUPPLIER             |
| - - -                        | FIELD WIRING BY CONTRACTOR           |
| - · - · -                    | FIELD SCADA I/O WIRING BY CONTRACTOR |

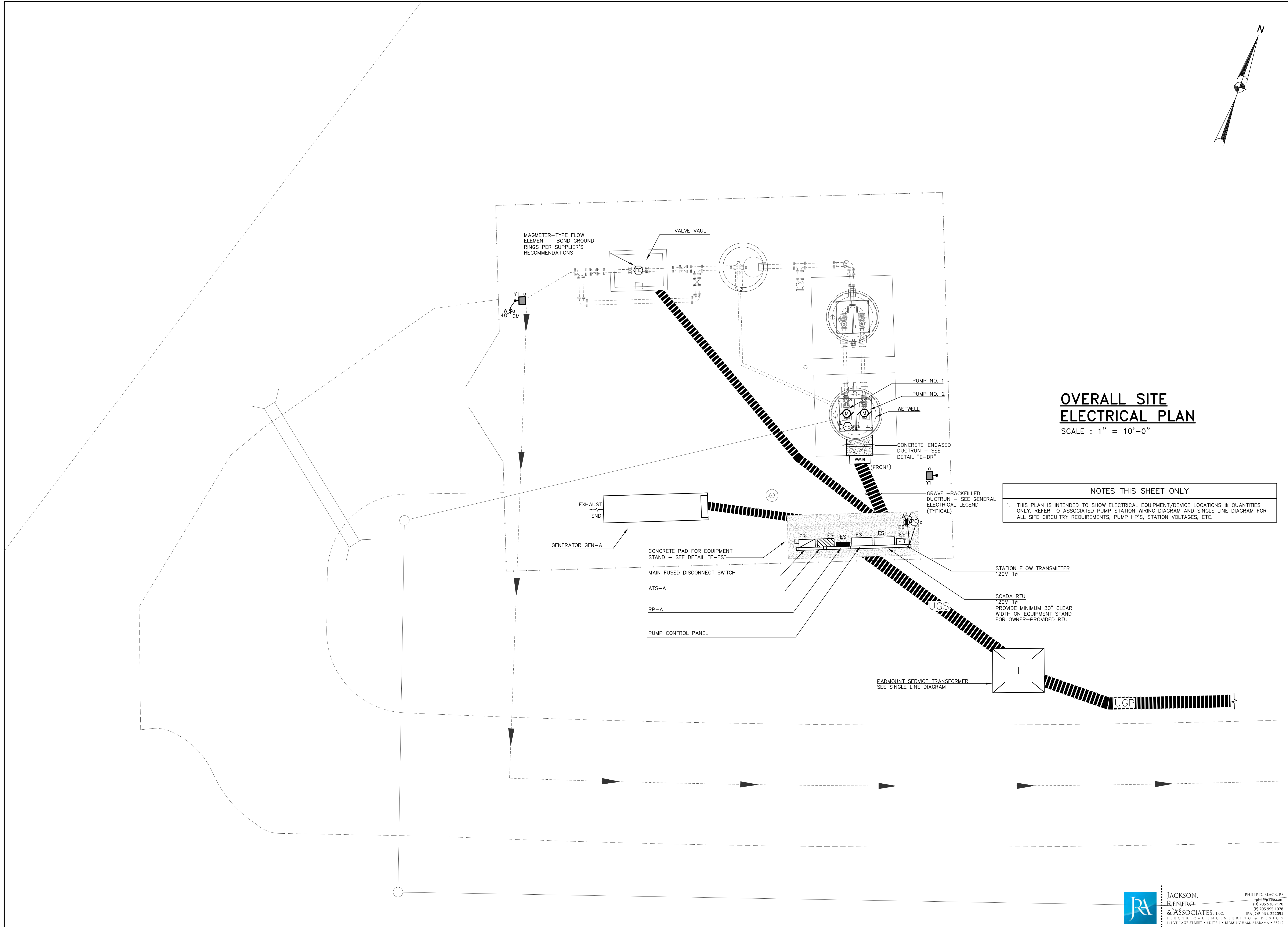
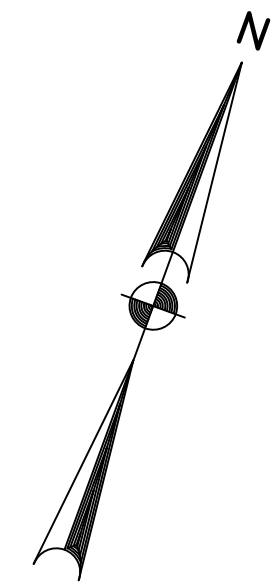
- | DIAGRAM NOTES |  |
|---------------|--|
| 1.            | THIS IS A TYPICAL DIAGRAM THAT INDICATES PUMP STATION WETWELL, 120V & SCADA I/O WIRING REQUIREMENTS. IT IS NOT INTENDED TO SPECIFY ALL REQUIRED CIRCUITRY FOR THE PROJECT. SEE PLANS FOR SITE-SPECIFIC QUANTITIES OF DEVICES & EQUIPMENT. SEE SINGLE LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS. PROVIDE ALL INTERCONNECTIONS/CIRCUITRY AS REQUIRED FOR A COMPLETE INSTALLATION. |
| 2.            | EXACT LOCATIONS OF ALL DEVICES AND EQUIPMENT WITHIN WETWELL SHALL BE AS DIRECTED BY CIVIL ENGINEER.  |
| 3.            | LIGHT SWITCH(ES) SHALL BE CONNECTED IN SERIES WITH PHOTOCCELL SUCH THAT BOTH MUST BE "ON" FOR ASSOCIATED FIXTURES TO OPERATE.  |
| 4.            | ALL INTERCONNECTING CIRCUITRY BETWEEN SEPARATE EQUIPMENT, DEVICES, ETC. SHALL BE ROUTED UNDERGROUND (RATHER THAN EXPOSED OR ABOVE GRADE) WHERE POSSIBLE.   |

| "E-PSWD" DIAGRAM SCHEDULE |     |                   |                                     |                |                  |
|---------------------------|-----|-------------------|-------------------------------------|----------------|------------------|
| PUMP STATION              | QTY | SUBMERSIBLE PUMPS |                                     | CONTROL PANEL  |                  |
|                           |     | RATING            | PUMP FEEDERS (FROM STARTER TO WWJB) | VOLTAGE        | ENCLOSURE RATING |
| HILLS & DALES             | 2   | 20HP-208V-3P      | 3Ø3 & 1Ø6G - 1 1/4"Ø                | 120/208V-3P-4W | NEMA 4X 5.5.     |

|                |           |
|----------------|-----------|
| DRAWING NAME : | E-03      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |
|           |      |             |





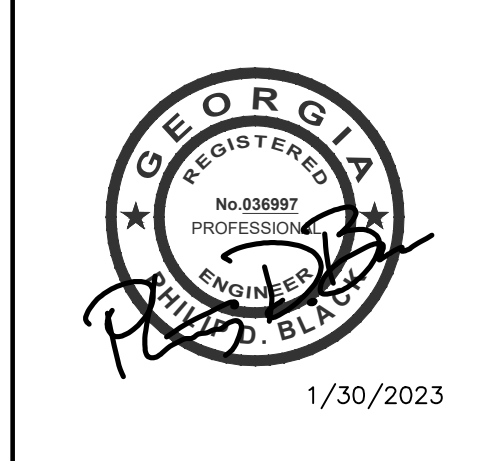
**OVERALL SITE ELECTRICAL PLAN**  
SCALE : 1" = 10'-0"

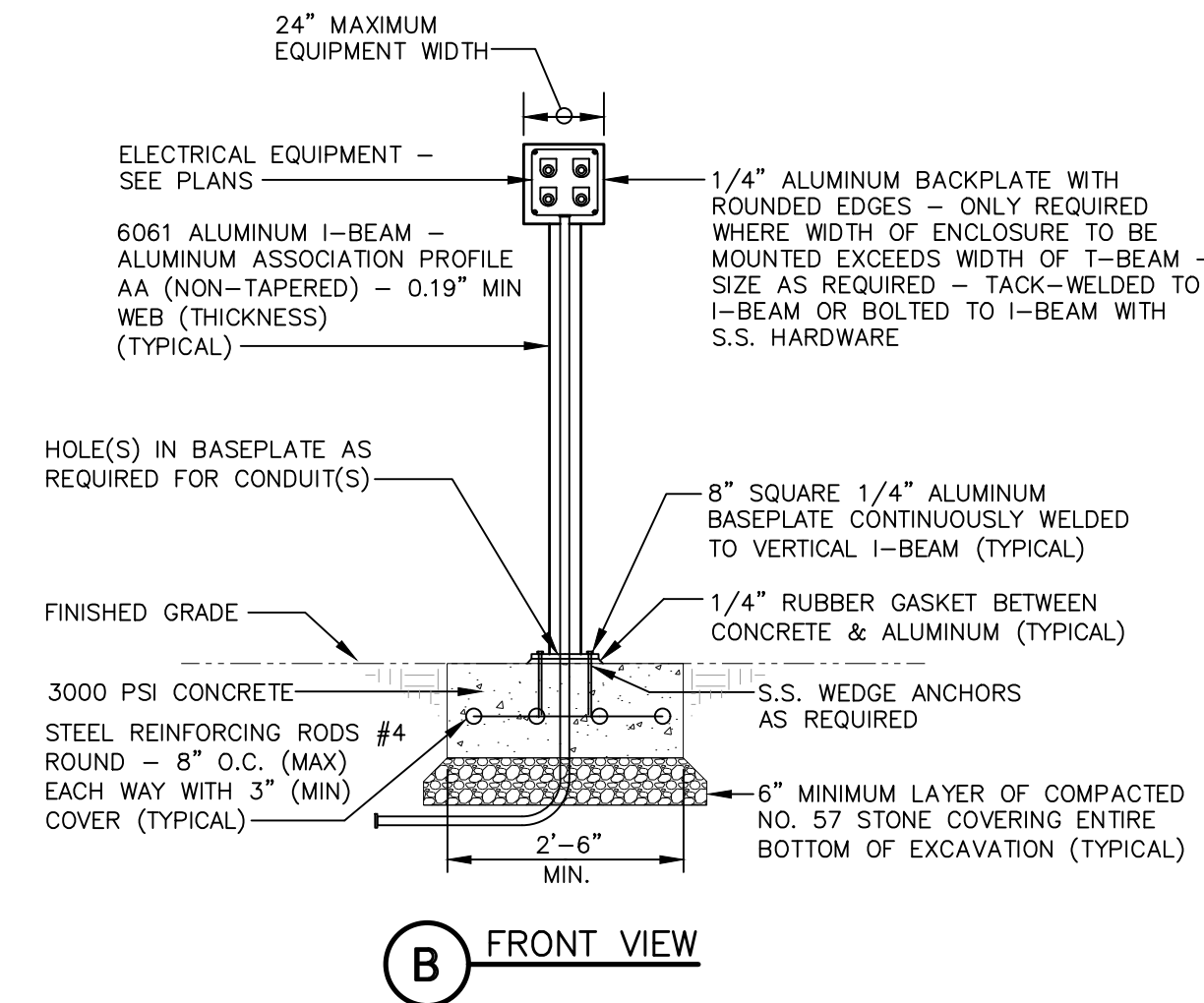
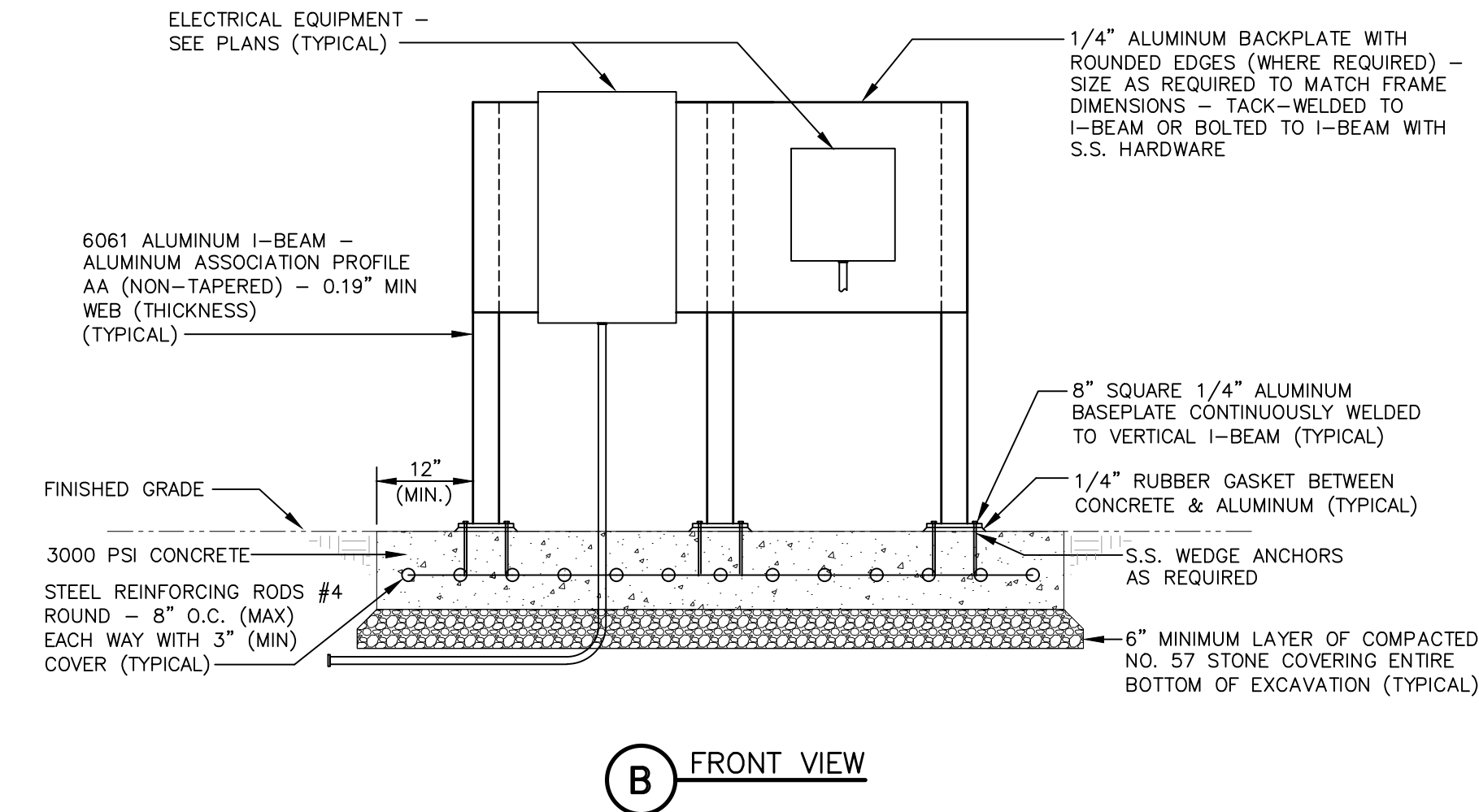
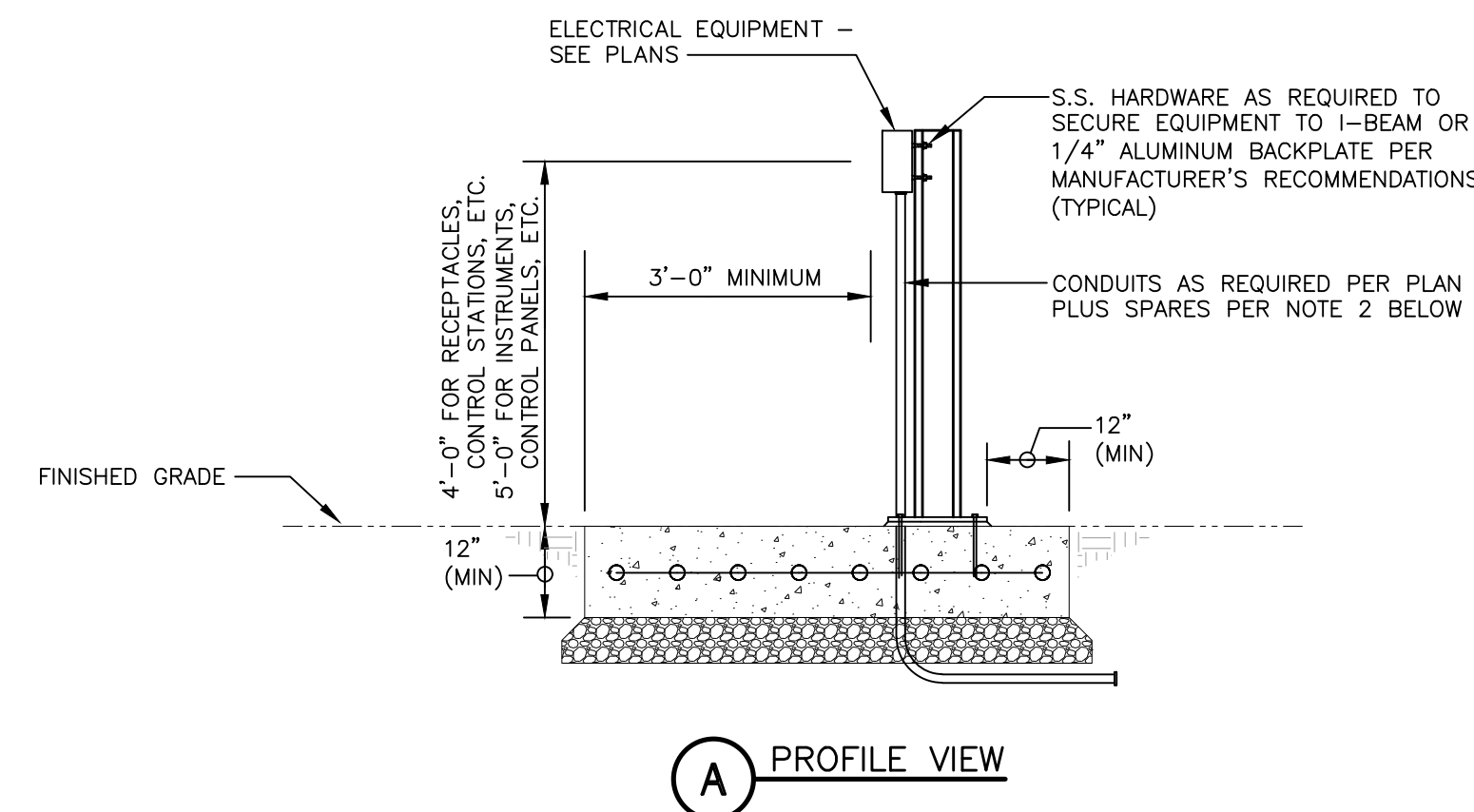
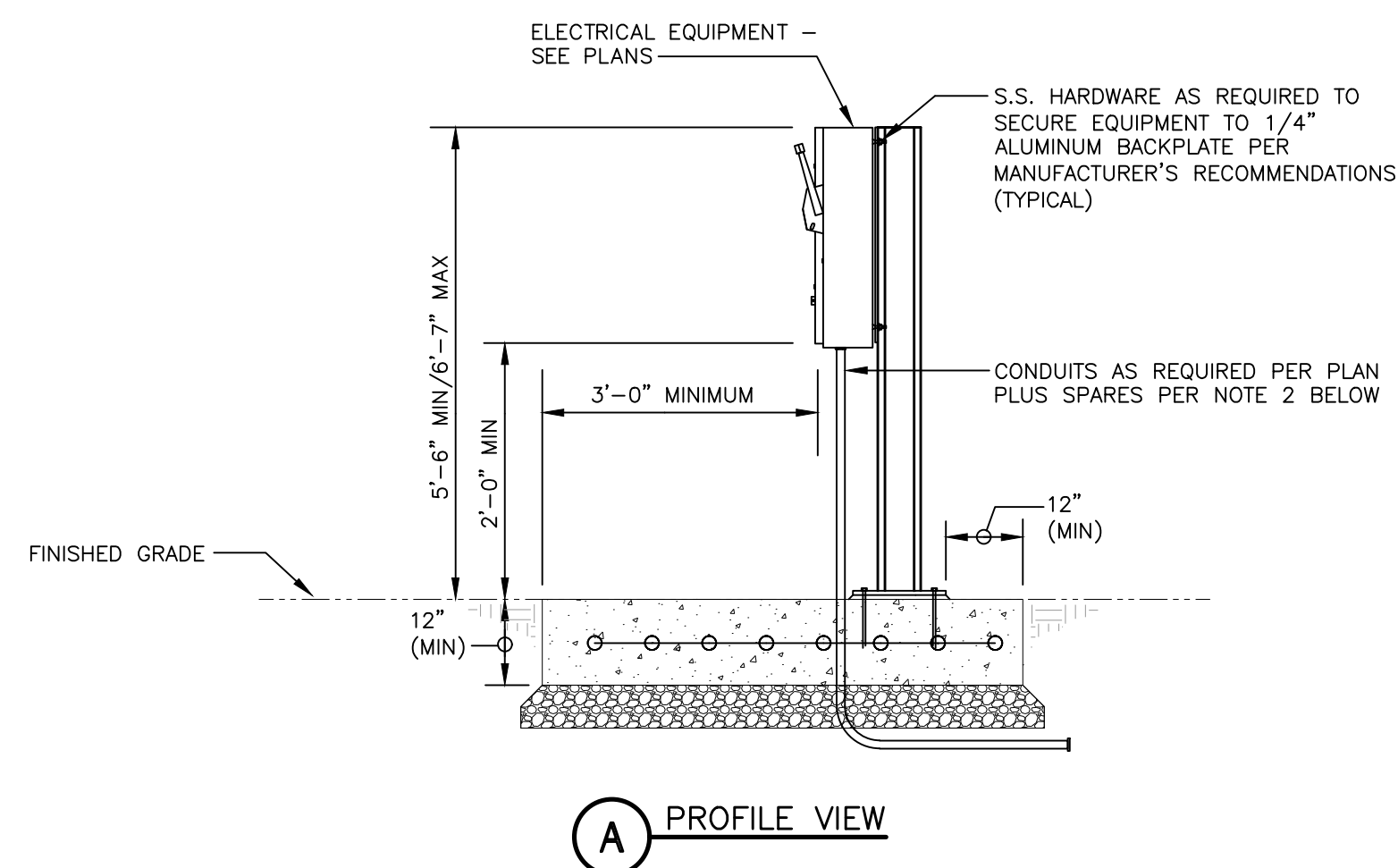
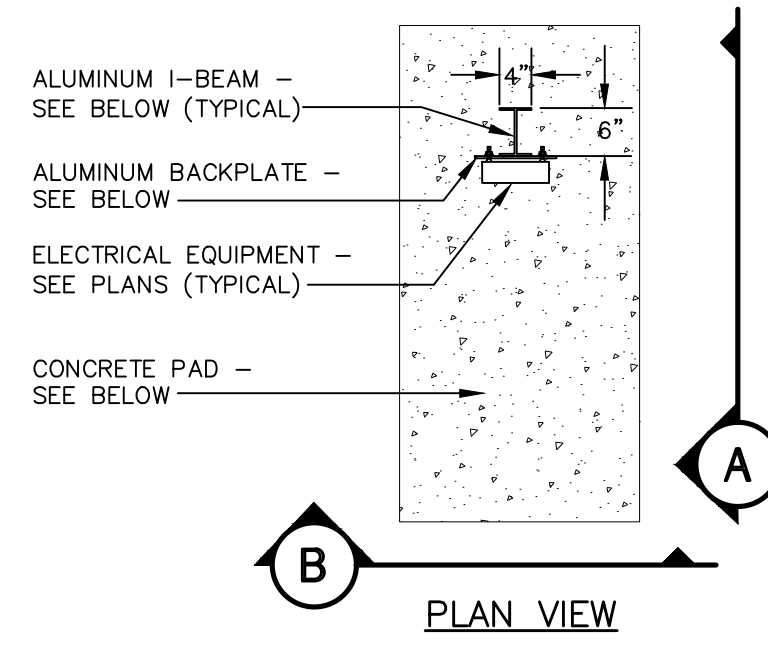
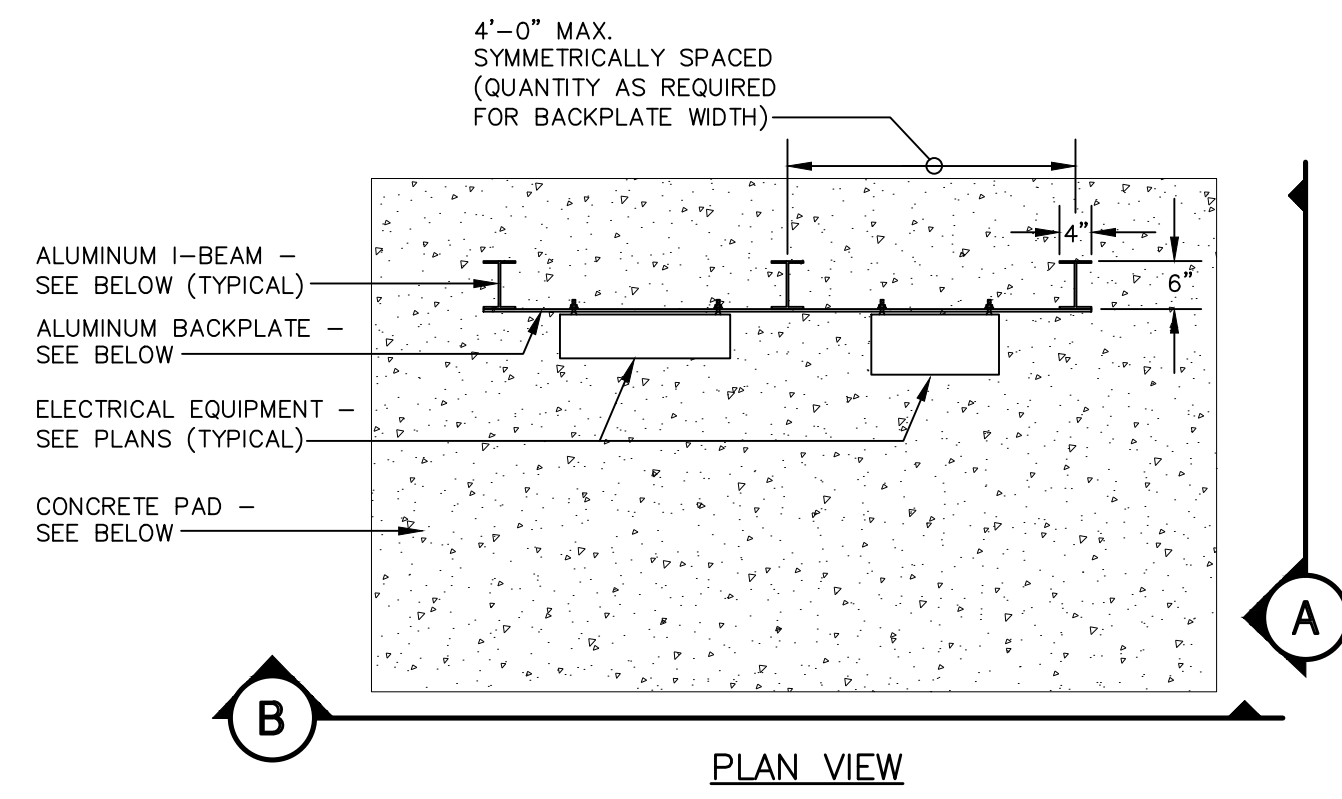
**NOTES THIS SHEET ONLY**

1. THIS PLAN IS INTENDED TO SHOW ELECTRICAL EQUIPMENT/DEVICE LOCATIONS & QUANTITIES ONLY. REFER TO ASSOCIATED PUMP STATION WIRING DIAGRAM AND SINGLE LINE DIAGRAM FOR ALL SITE CIRCUITRY REQUIREMENTS, PUMP HP'S, STATION VOLTAGES, ETC.

|                |           |
|----------------|-----------|
| DRAWING NAME : | E-01      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |
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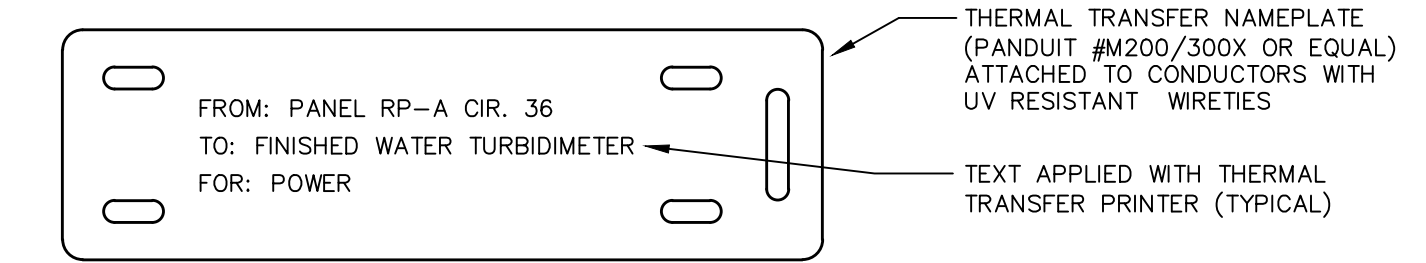
**DETAIL "E-ES"  
EQUIPMENT SUPPORT**  
SCALE : NONE

| DETAIL NOTES |   |
|--------------|---|
| 1.           | ALL DIMENSIONS SHOWN ARE TYPICAL.   |
| 2.           | PROVIDE TWO (2) 1"E.C. FROM ALL DISTRIBUTION PANELS, LIGHTING PANELS, PLC'S AND CONTROL PANELS ROUTED BELOW CONCRETE PAD TO NEAREST PULLBOX OR ACCESSIBLE STUB OUT LOCATION (NOT UNDERNEATH CONCRETE/ROCK/STRUCTURE/ETC). |

|           |                                     |
|-----------|-------------------------------------|
| NAME:     | RP-A                                |
| RATING:   | 120/208V-3ø-4W                      |
| FED FROM: | PP-A CIR. 4<br>(IN MAIN ELEC. ROOM) |

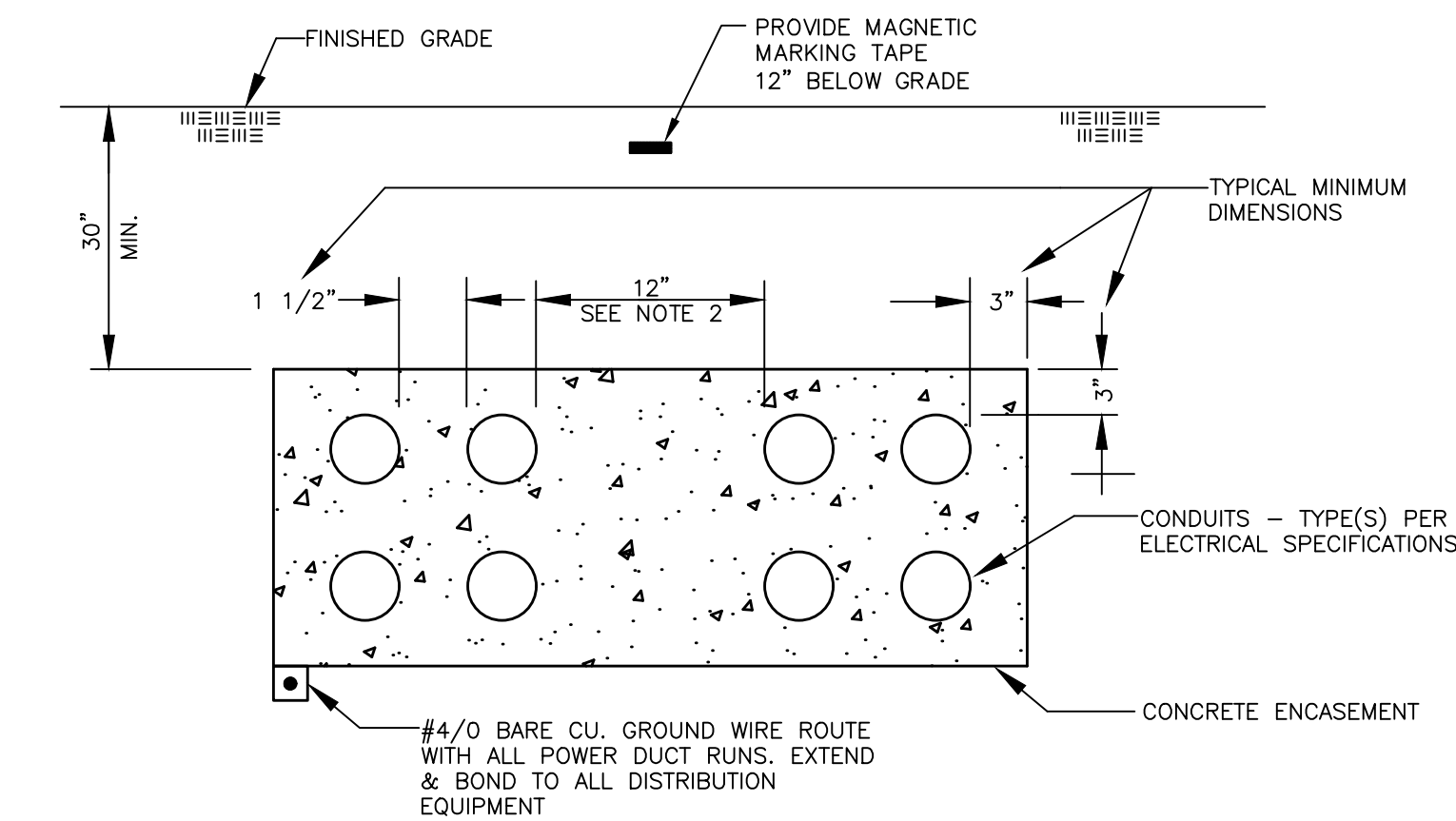
**DETAIL "E-EDL" ELECTRICAL  
DISTRIBUTION EQUIPMENT LABEL**  
SCALE : NONE

| DETAIL NOTES |   |
|--------------|---|
| 1.           | PANEL NAMES & RATINGS LISTED ABOVE ARE FOR EXAMPLE PURPOSES ONLY. NAMES & RATINGS SHALL BE ADJUSTED TO MATCH ASSOCIATED EQUIPMENT.  |
| 2.           | THE INTENT OF THIS DETAIL IS TO DEMONSTRATE GENERAL ELECTRICAL IDENTIFICATION REQUIREMENTS FOR ELECTRICITY DISTRIBUTION AND UTILIZATION EQUIPMENT. REFER TO SPECIFICATIONS FOR SPECIFIC REQUIREMENTS REGARDING LOCATIONS, CONTENT, MATERIALS, ETC.. |



**DETAIL "E-CL"  
TYPICAL CIRCUIT LABEL**  
SCALE : NONE

| NOTES THIS DETAIL ONLY |   |
|------------------------|---|
| 1.                     | CIRCUIT LABEL TYPES SHOWN ABOVE SHALL BE USED TO IDENTIFY ALL CIRCUITS WITHIN PULLBOXES, HANDHOLES, VAULTS, JUNCTION BOXES LARGER THAN 4-11/16", APPROXIMATELY EVERY 50 FEET WITHIN CABLE TRAYS (INCLUDING AT MAJOR CABLE TRAY JUNCTIONS AND BREAKOUT LOCATIONS) AND AT OTHER SIMILAR LOCATIONS. SEE SPECIFICATIONS FOR LABELING REQUIREMENTS IN OTHER AREAS. |
| 2.                     | CIRCUIT NUMBERS SHALL BE IDENTIFIED FOR ALL CIRCUITS FED FROM LIGHTING OR POWER PANELBOARDS.  |
| 3.                     | "FROM", "TO" & "FOR" TEXT SHOWN ABOVE ARE FOR EXAMPLE PURPOSES ONLY. NAMES/NUMBERS SHALL BE ADJUSTED TO MATCH ASSOCIATED CIRCUITS/CABLES.   |
| 4.                     | SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.   |



**DETAIL "E-DR" TYPICAL  
CONCRETE-ENCASED  
DUCTRUN SECTION**  
SCALE : NONE

| DETAIL NOTES |   |
|--------------|---|
| 1.           | PVC SPACERS SHALL BE INSTALLED AT RECOMMENDED INTERVALS TO SUPPORT AND MAINTAIN SPACING FOR CONDUITS.                 |
| 2.           | INSTRUMENTATION CONDUITS SHALL BE SEPARATED FROM POWER/CONTROL CONDUITS BY A MINIMUM OF 12" THROUGHOUT ANY DUCT RUNS. |

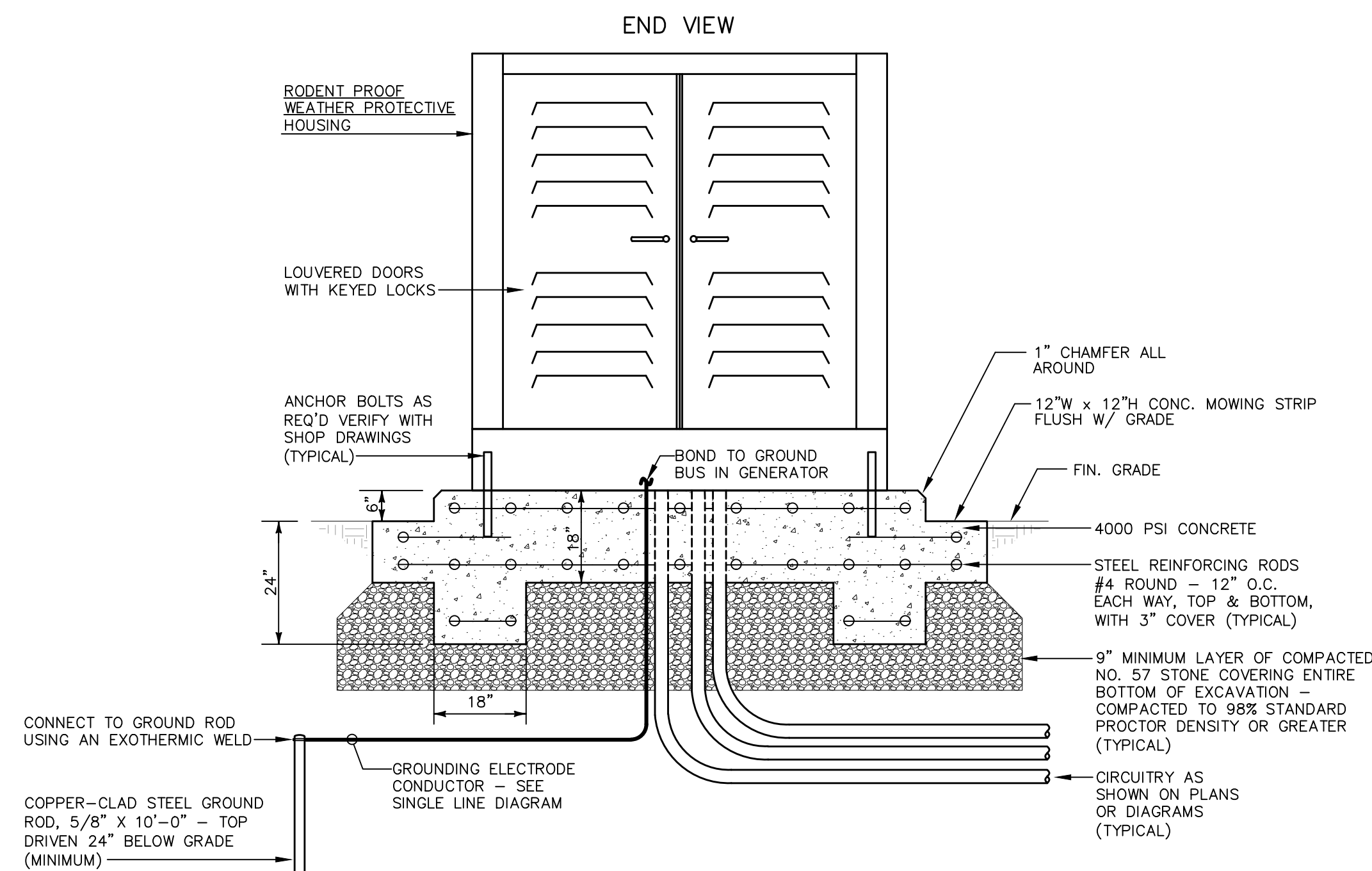
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| DRAWING NAME : | E-21      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
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|           |      |             |
|           |      |             |



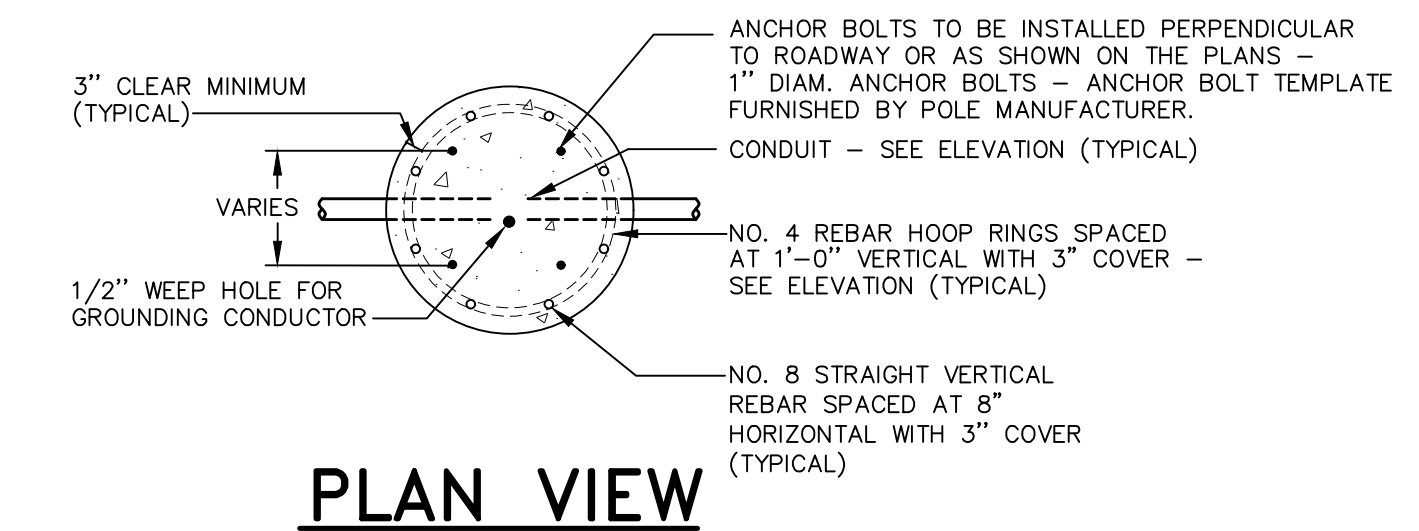
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| DRAWING NAME : | E-22      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
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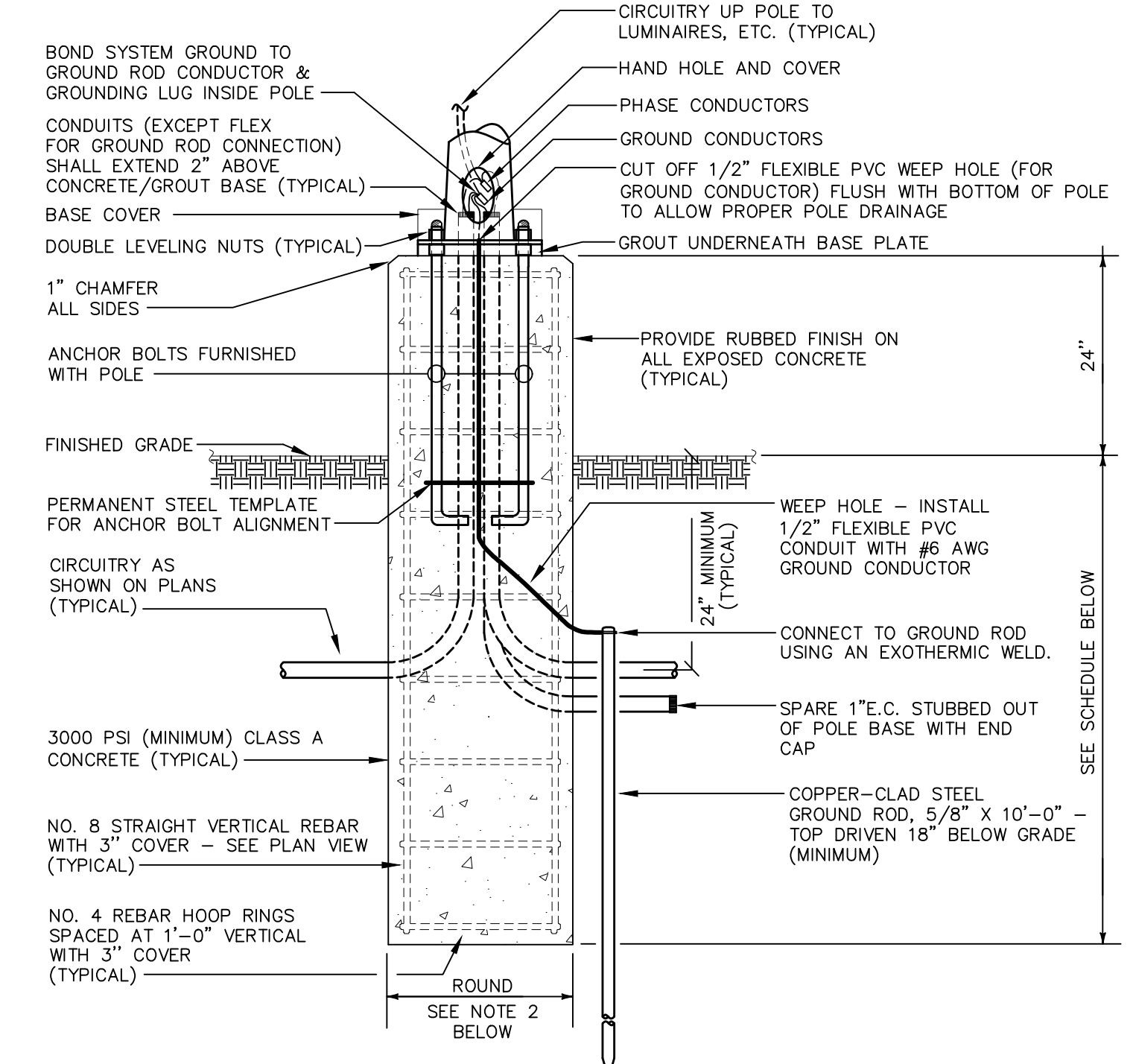


**DETAIL "E-GEN"  
 GENERATOR ELEVATION**  
 SCALE : NONE

- DETAIL NOTES**
- ALL DIMENSIONS SHOWN ARE TYPICAL AND MINIMUM. ADDITIONALLY, CONTRACTOR SHALL SIZE CONCRETE PAD SUCH THAT THE TOTAL PAD WEIGHT (AT AN ASSUMED CONCRETE DENSITY OF 150 LBS/CUBIC FOOT) IS A MINIMUM OF 1.5 TIMES THE TOTAL GENERATOR SET WEIGHT (INCLUDING ENCLOSURE(S), ACCESSORIES, FUEL, OIL, ETC.).
  - PROVIDE VIBRATION ISOLATORS, SPRING & PAD TYPE, QUANTITY AS RECOMMENDED BY THE GENERATOR SET MANUFACTURER TO MOUNT GENERATOR SET. ISOLATORS SHALL INCLUDE SEISMIC RESTRAINTS IF REQUIRED BY SITE LOCATION.



**PLAN VIEW**

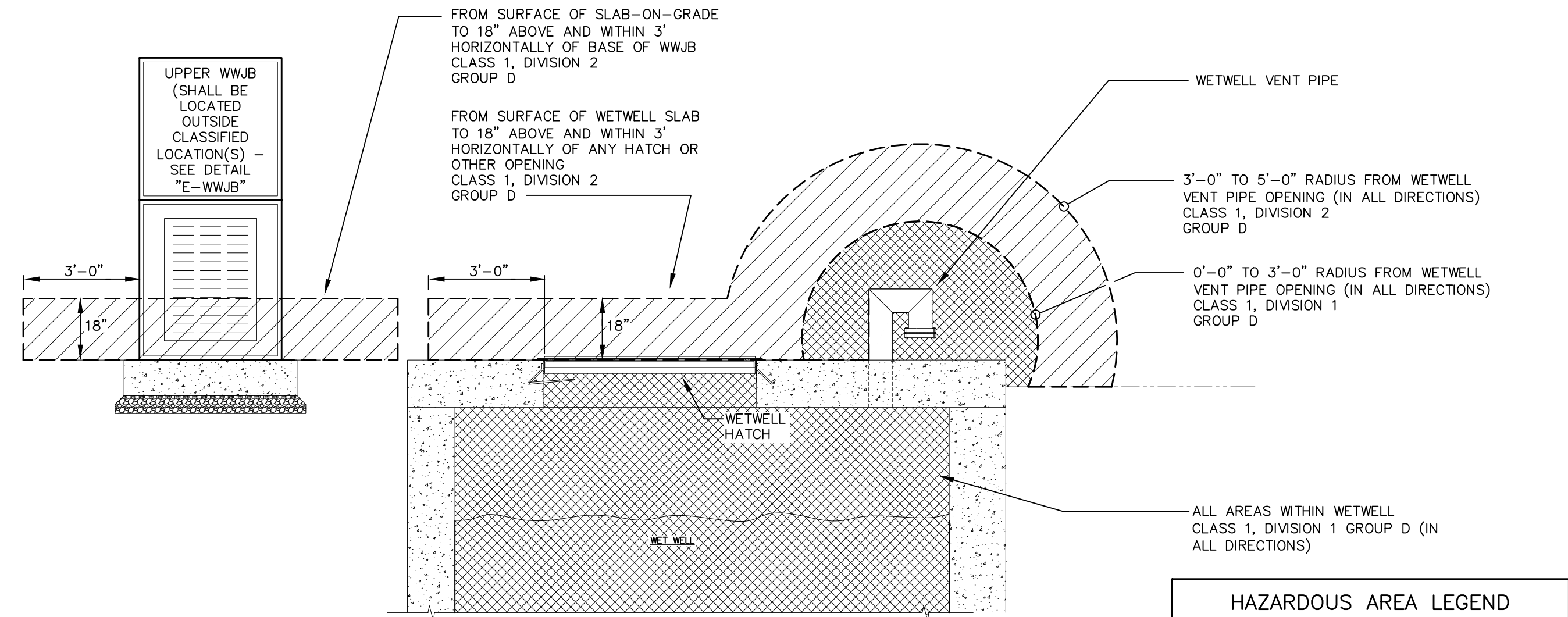


**ELEVATION**

**DETAIL "E-LP1"  
 EXPOSED LIGHT POLE BASE**  
 SCALE : NONE

- DETAIL NOTES**
- THIS CONTRACTOR SHALL CONFIRM SOIL CONDITIONS PRIOR TO BID OR INSTALLATION. IF SOIL CONDITIONS/TYPES ARE DIFFERENT THAN THE SPECIFIC TYPES INDICATED BELOW, OR THE POLE HEIGHTS ARE IN EXCESS OF THOSE LISTED BELOW, OR THE BASIC WIND SPEED FOR THE PROPOSED POLE LOCATION (PER ASCE 7 BASIC WIND SPEED MAPS) IS IN EXCESS OF 100MP, OR THE COMBINED E.P.A. OF ALL LUMINAIRES/ARMS/ACCESSORIES INSTALLED ON A POLE IS IN EXCESS OF 5.5 S.F., THE CONTRACTOR SHALL RETAIN A QUALIFIED STRUCTURAL ENGINEER (LICENCED IN THE STATE OF THE PROJECT) TO PROVIDE A PROJECT-SPECIFIC STRUCTURAL DESIGN FOR THE PROPOSED POLE BASE(S), AND SHALL INCLUDE ALL COSTS (FOR THE DESIGN AND THE REQUIRED POLE BASES) IN THE BID.
  - MINIMUM POLE BASE DIAMETER SHALL BE THE GREATER OF THE FOLLOWING:  
 A. ANCHOR BOLT CIRCLE DIAMETER PLUS 8" (TO PROVIDE MINIMUM 4" COVER OVER ALL ANCHOR BOLTS).  
 B. 20" DIAMETER.  
 C. DIAMETER AS REQUIRED BY SOIL CONDITIONS OR BY POLE SUPPLIER.
  - CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UNDERGROUND UTILITIES OR OBSTRUCTIONS TO AVOID CONFLICTS PRIOR TO INSTALLATION OF LIGHT POLE BASE(S).
  - POLE SHALL BE RATED TO WITHSTAND THE WIND SPEED SPECIFIED FOR THE SPECIFIC PROJECT SITE LOCATION PER LATEST VERSION OF ASCE 7 BASIC WIND SPEED MAPS OR APPLICABLE LOCAL BUILDING CODE REQUIREMENTS (WHICHEVER IS MORE STRINGENT), WITH 1.3 GUST FACTOR WITH ALL LUMINAIRES & ACCESSORIES INSTALLED.

| POLE HEIGHT | MINIMUM BASE DEPTH (BELOW GRADE) (SEE NOTE 1 ABOVE) |                         |       | BASE DIAMETER    |
|-------------|---|-------------------------|-------|------------------|
|             | CLAYEY SOILS (CL, ML, CH, MH)                       |                         |       |                  |
|             | SANDY SOILS (SW, SP, SM, SC, GM, GC)                | GRAVELLY SOILS (GW, GP) |       |                  |
| 0 - 15 FT.  | 6'-0"   | 5'-0"                   | 4'-6" | SEE NOTE 2 ABOVE |
| 16 - 20 FT. | 7'-0"   | 5'-6"                   | 5'-0" | SEE NOTE 2 ABOVE |
| 21 - 25 FT. | 8'-0"   | 6'-0"                   | 5'-6" | SEE NOTE 2 ABOVE |
| 26 - 30 FT. | 8'-6"   | 7'-0"                   | 6'-6" | SEE NOTE 2 ABOVE |
| 31 - 35 FT. | 9'-0"   | 7'-6"                   | 7'-0" | SEE NOTE 2 ABOVE |
| 36 - 40 FT. | 10'-0"  | 8'-0"                   | 7'-6" | SEE NOTE 2 ABOVE |
| 41 - 45 FT. | 10'-6"  | 8'-6"                   | 8'-0" | SEE NOTE 2 ABOVE |
| 46 - 50 FT. | 11'-0"  | 9'-0"                   | 8'-6" | SEE NOTE 2 ABOVE |



**DETAIL "E-HALS"  
 HAZARDOUS AREA CLASSIFICATION  
 FOR ENCLOSED WASTEWATER WETWELLS**  
 SCALE : NONE

- DETAIL NOTES**
- ALL EQUIPMENT, DEVICES, CIRCUITRY, ETC. SHALL BE KEPT OUT OF HAZARDOUS AREAS UNLESS SPECIFICALLY SHOWN OTHERWISE. ENTIRE ELECTRICAL INSTALLATION WITHIN HAZARDOUS AREAS AS (DEFINED ON PLANS OR BY NFPA 820) SHALL COMPLY WITH ALL APPLICABLE NEC REQUIREMENTS FOR INSTALLATION, CONDUIT SEALS, RACEWAY TYPES, MATERIAL/DEVICE TYPES, ETC. GENERAL PROJECT INTENT IS TO NOT REQUIRE CONDUIT SEALS (PER DETAIL "E-WWJB")
  - WHERE MULTIPLE HAZARDOUS AREA ZONES OVERLAP, THE MORE STRINGENT ZONE CLASSIFICATION SHALL APPLY.





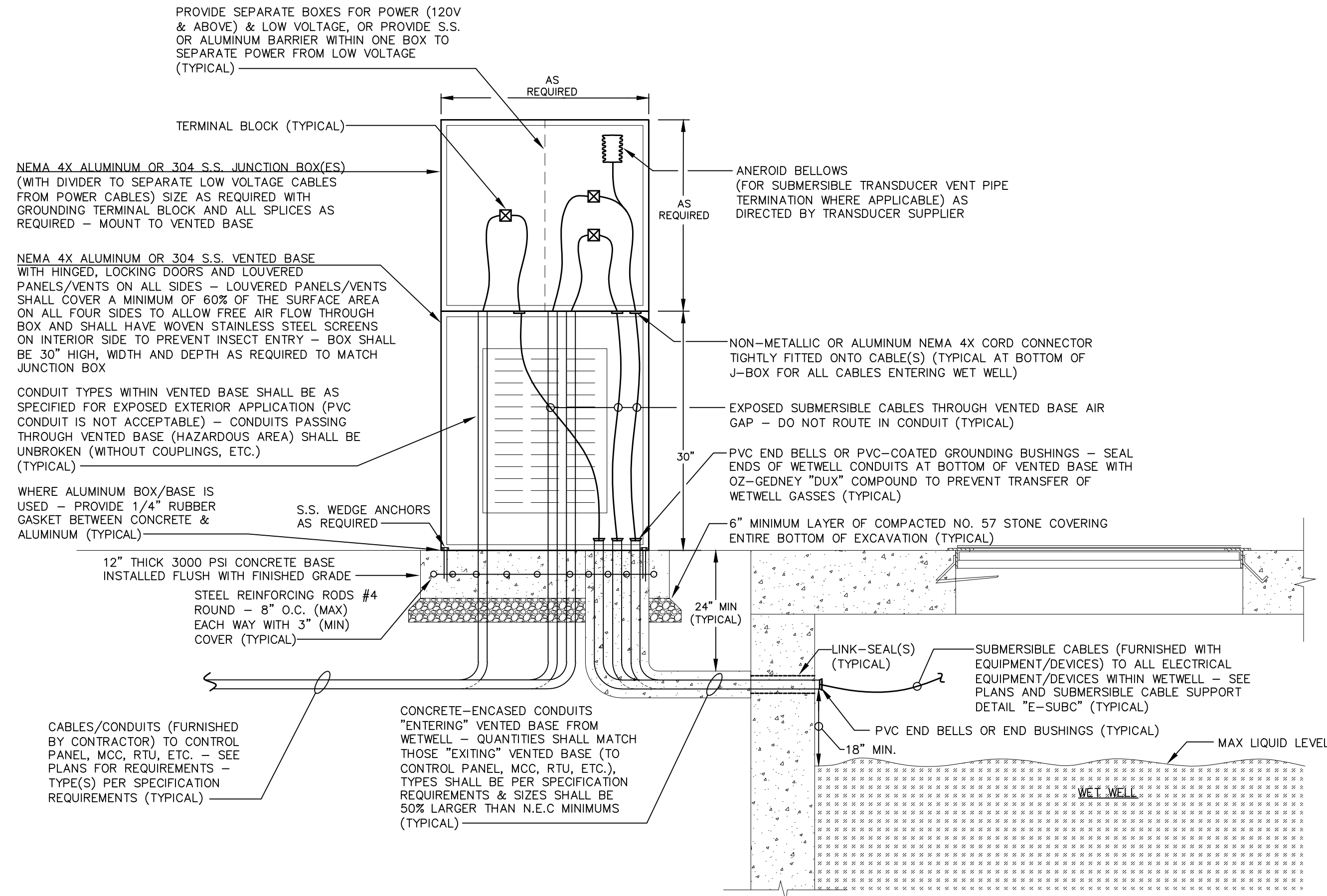
**ELLIS & ASSOCIATES**

RONALD L. ELLIS & ASSOCIATES, INC.

Consulting Engineers  
Pelham, Alabama

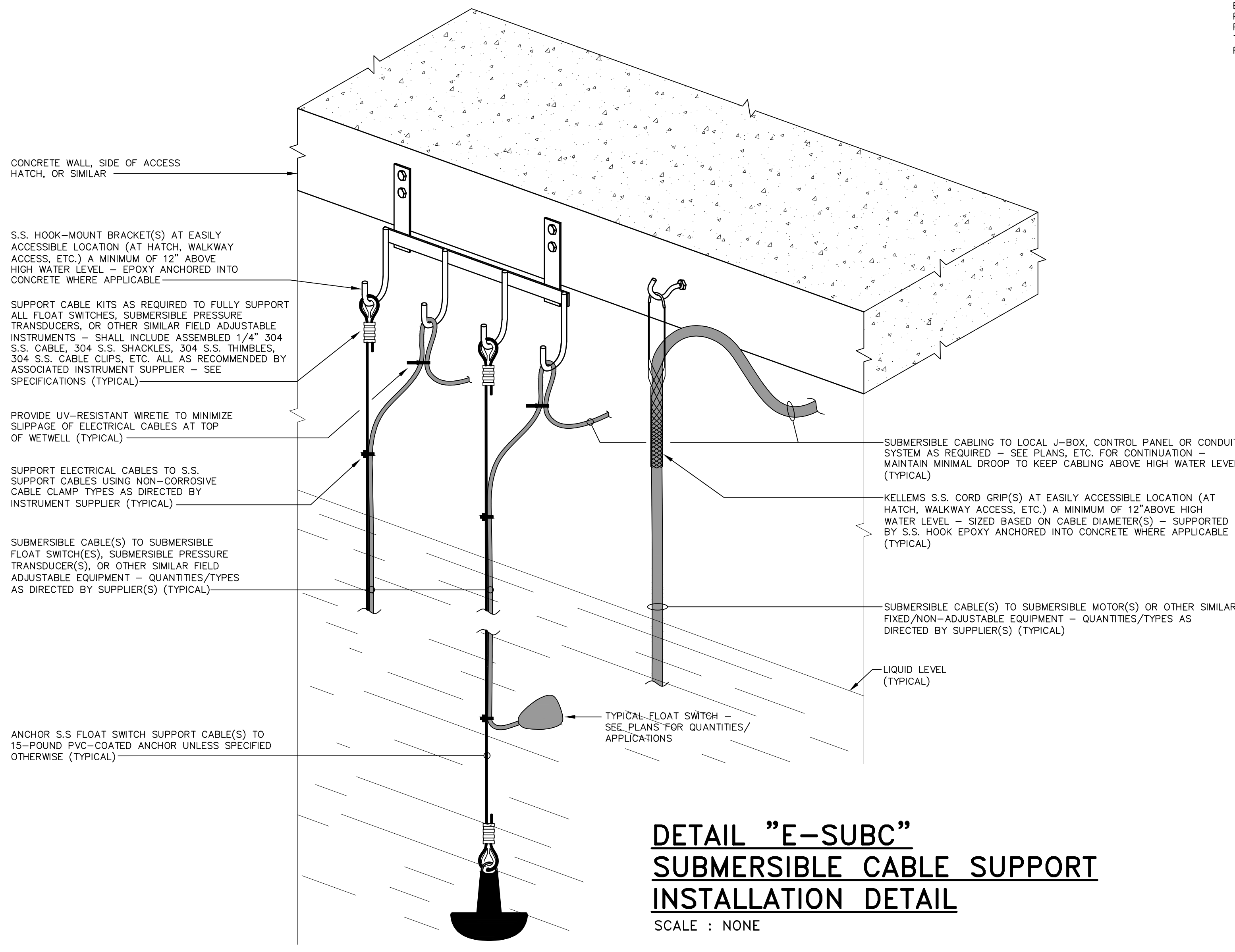
CITY OF LAGRANGE, GEORGIA  
CONTRACT B - 2023 - HILLS & DALES  
LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS

ELECTRICAL DETAILS



**DETAIL "E-WWJB"**  
**WET WELL JUNCTION BOX**  
SCALE : NONE

- DETAIL NOTES
- ENTIRE ELECTRICAL INSTALLATION WITHIN HAZARDOUS AREAS AS DEFINED BELOW AND BY NFPA 820 SHALL COMPLY WITH ALL APPLICABLE NEC REQUIREMENTS FOR RACEWAY TYPES, MATERIAL/DEVICE TYPES, ETC. CONTRACTOR SHALL COORDINATE EXACT WETWELL JUNCTION BOX LOCATION(S) TO BE OUTSIDE OF THESE HAZARDOUS AREAS:
    - THE FOLLOWING AREAS SHALL BE CONSIDERED CLASS I, DIVISION I, GROUP D AREAS:
      - AREAS WITHIN WASTEWATER PUMPING STATION WET WELLS AND VALVE VAULTS.
      - AREAS WITHIN 3' OF ANY WASTEWATER WET WELL OR VALVE VAULT VENTILATION OUTLET (SUCH AS PIPE VENT).
    - THE FOLLOWING AREAS SHALL BE CONSIDERED CLASS I, DIVISION II, GROUP D AREAS:
      - AREAS UP TO 18" ABOVE TOP OF WASTEWATER WET WELL SLABS AND WITHIN 3' HORIZONTALLY OF HATCHES OR OTHER OPENINGS.
      - AREAS WITHIN 5' OF ANY WASTEWATER WET WELL VENTILATION OUTLET BUT MORE THAN 3' AWAY.
  - THIS DETAIL IS TYPICAL ONLY. PROVIDE QUANTITIES/ARRANGEMENTS OF WET WELL JUNCTION BOXES AS REQUIRED BY APPLICATION.
  - EXACT HEIGHTS OF ALL LEVEL SENSING TRANSDUCERS & FLOAT SWITCHES SHALL BE AS DIRECTED BY CIVIL ENGINEER.
  - ALL LEVEL SENSING TRANSDUCERS SHALL BE LOCATED WITHIN WETWELL AS DIRECTED BY EQUIPMENT SUPPLIER.
  - CONTRACTOR SHALL PROVIDE ALL FIELD CONNECTIONS AS DIRECTED BY THE EQUIPMENT/DEVICE SUPPLIERS.



**DETAIL "E-SUBC"**  
**SUBMERSIBLE CABLE SUPPORT**  
**INSTALLATION DETAIL**  
SCALE : NONE

JACKSON, RENFRO & ASSOCIATES, INC.  
ELECTRICAL ENGINEERING & DESIGN  
141 VILLAGE STREET • SUITE 1 • BIRMINGHAM, ALABAMA • 35242

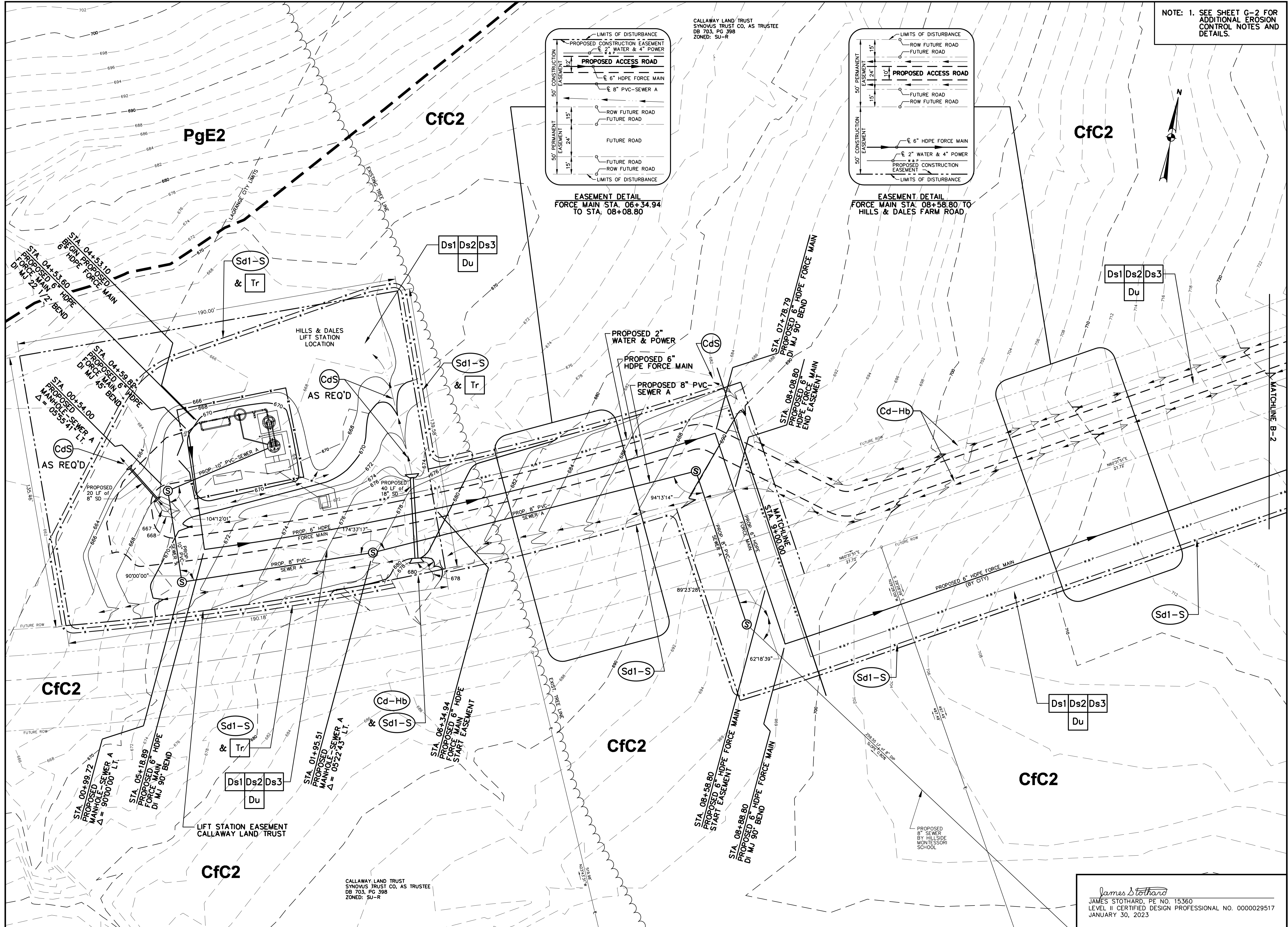
PHILIP D. BLACK, PE  
pblack@raee.com  
(205) 955-5362  
(205) 955-1078  
IRA 1038 NO. 222091

|                |           |
|----------------|-----------|
| DRAWING NAME : | E-23      |
| PROJECT NO. :  | 21.135    |
| DRAWN BY :     | ZJG       |
| DESIGNED BY :  | PDB       |
| APPROVED BY :  | PDB       |
| SCALE :        | AS NOTED  |
| DATE :         | 1/30/2023 |

| REVISIONS |      |             |
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| NO.       | DATE | DESCRIPTION |
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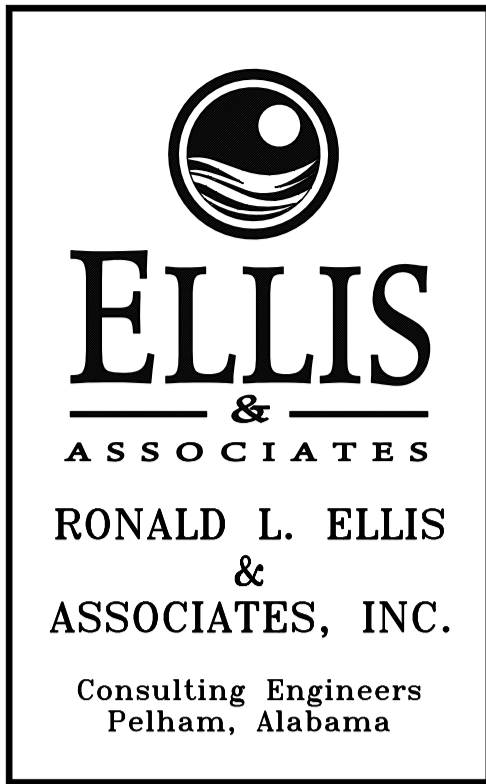


SHEET NO.  
E-23



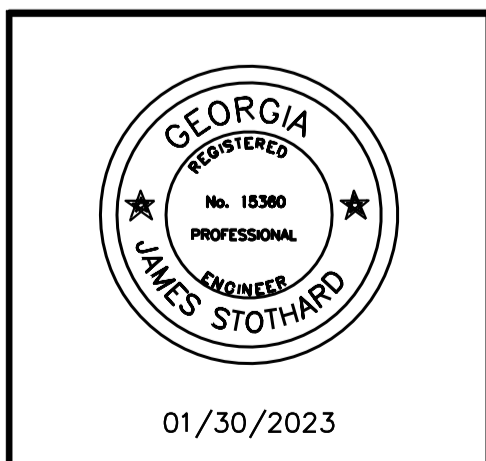
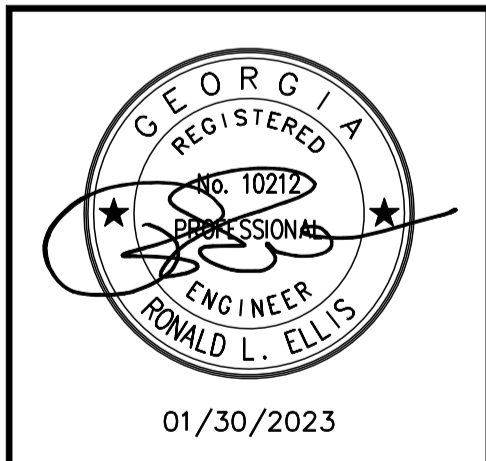
CALLAWAY LAND TRUST  
 SYNOVUS TRUST CO. AS TRUSTEE  
 DB 703, PG 398  
 ZONED: SU-R

NOTE: 1. SEE SHEET G-2 FOR  
 ADDITIONAL EROSION  
 CONTROL NOTES AND  
 DETAILS.



**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
 PROPOSED EROSION CONTROL PLAN

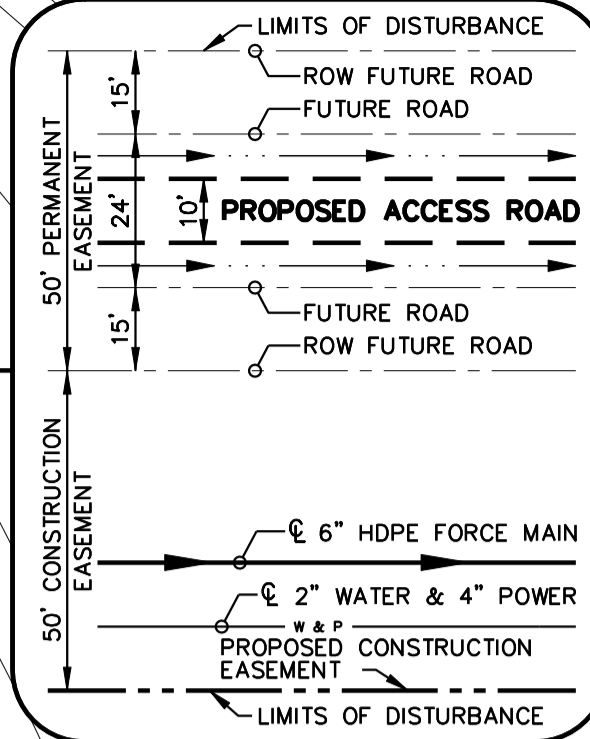
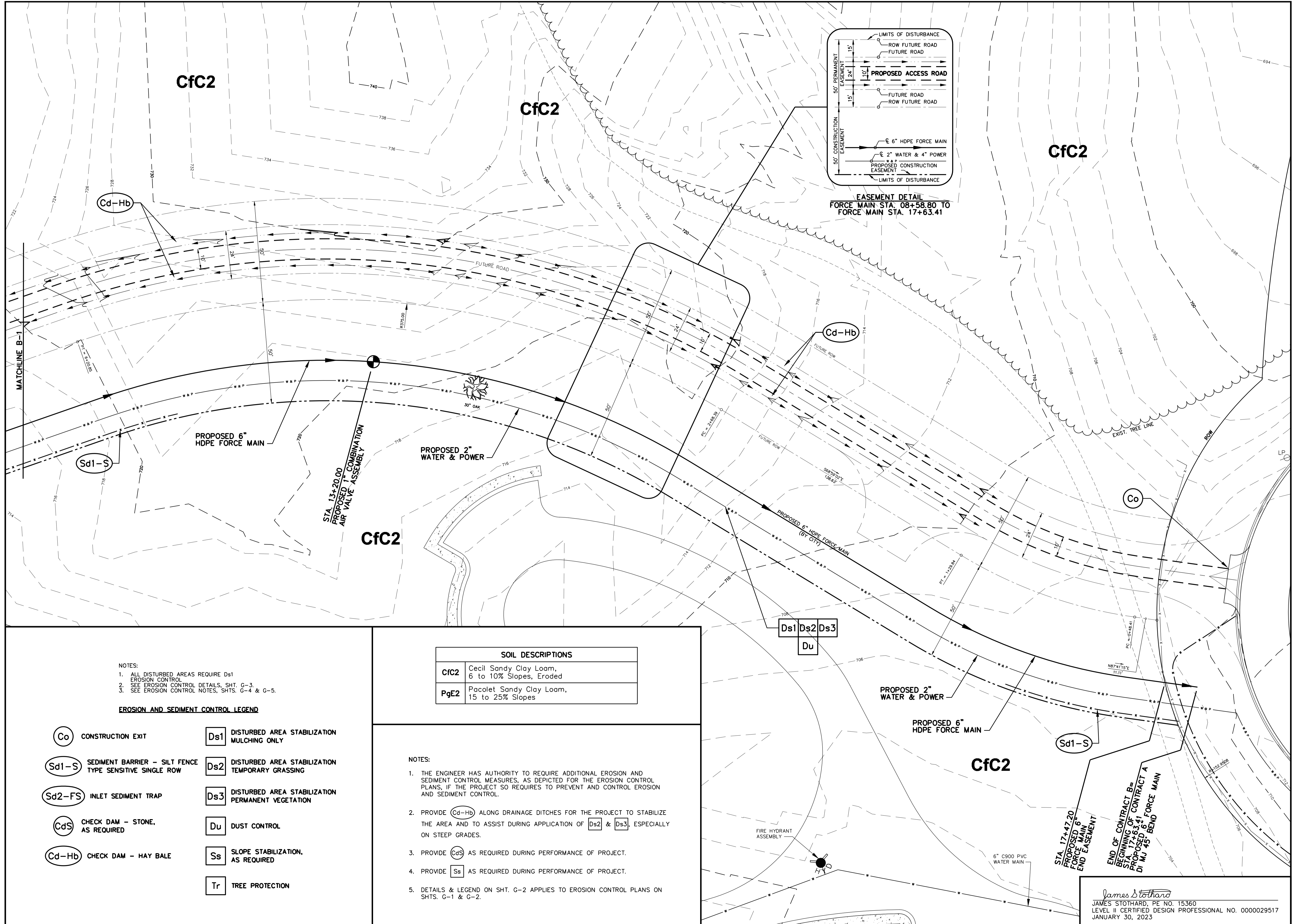
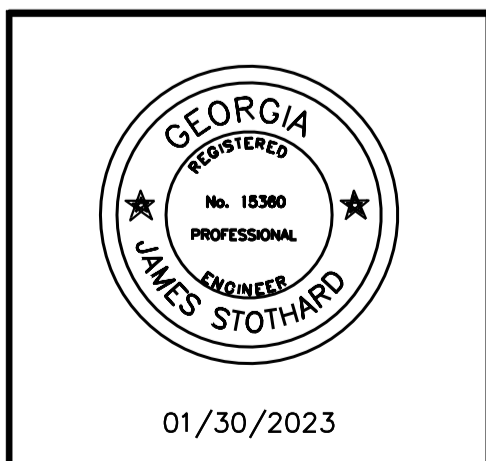
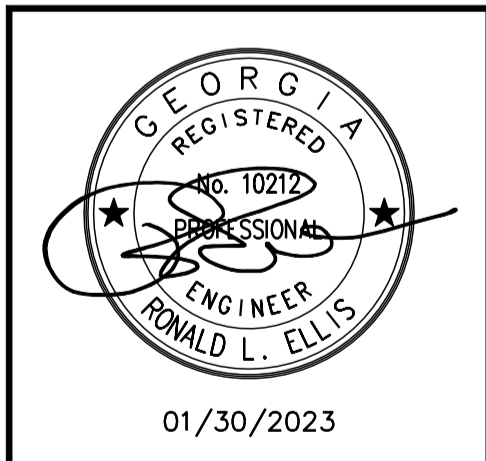
DRAWING NAME : CONT-B\_G-1  
 PROJECT NO. : 21.135  
 DRAWN BY : RDE  
 DESIGNED BY : JS/RLE  
 APPROVED BY : JS  
 SCALE : 1" = 20'  
 DATE : 01/30/2023



*James Stothard*  
 JAMES STOTHARD, PE NO. 15360  
 LEVEL II CERTIFIED DESIGN PROFESSIONAL NO. 0000029517  
 JANUARY 30, 2023

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
 PROPOSED EROSION CONTROL PLAN

DRAWING NAME : CONT-B\_G-2  
 PROJECT NO. : 21.135  
 DRAWN BY : RDE  
 DESIGNED BY : JS/RLE  
 APPROVED BY : JS  
 SCALE : 1" = 20'  
 DATE : 01/30/2023



**EASEMENT DETAIL**  
 FORCE MAIN STA. 08+58.80 TO  
 FORCE MAIN STA. 17+63.41

| SOIL DESCRIPTIONS |  |
|-------------------|--|
| <b>CfC2</b>       | Cecil Sandy Clay Loam, 6 to 10% Slopes, Eroded |
| <b>PgE2</b>       | Pacolet Sandy Clay Loam, 15 to 25% Slopes      |

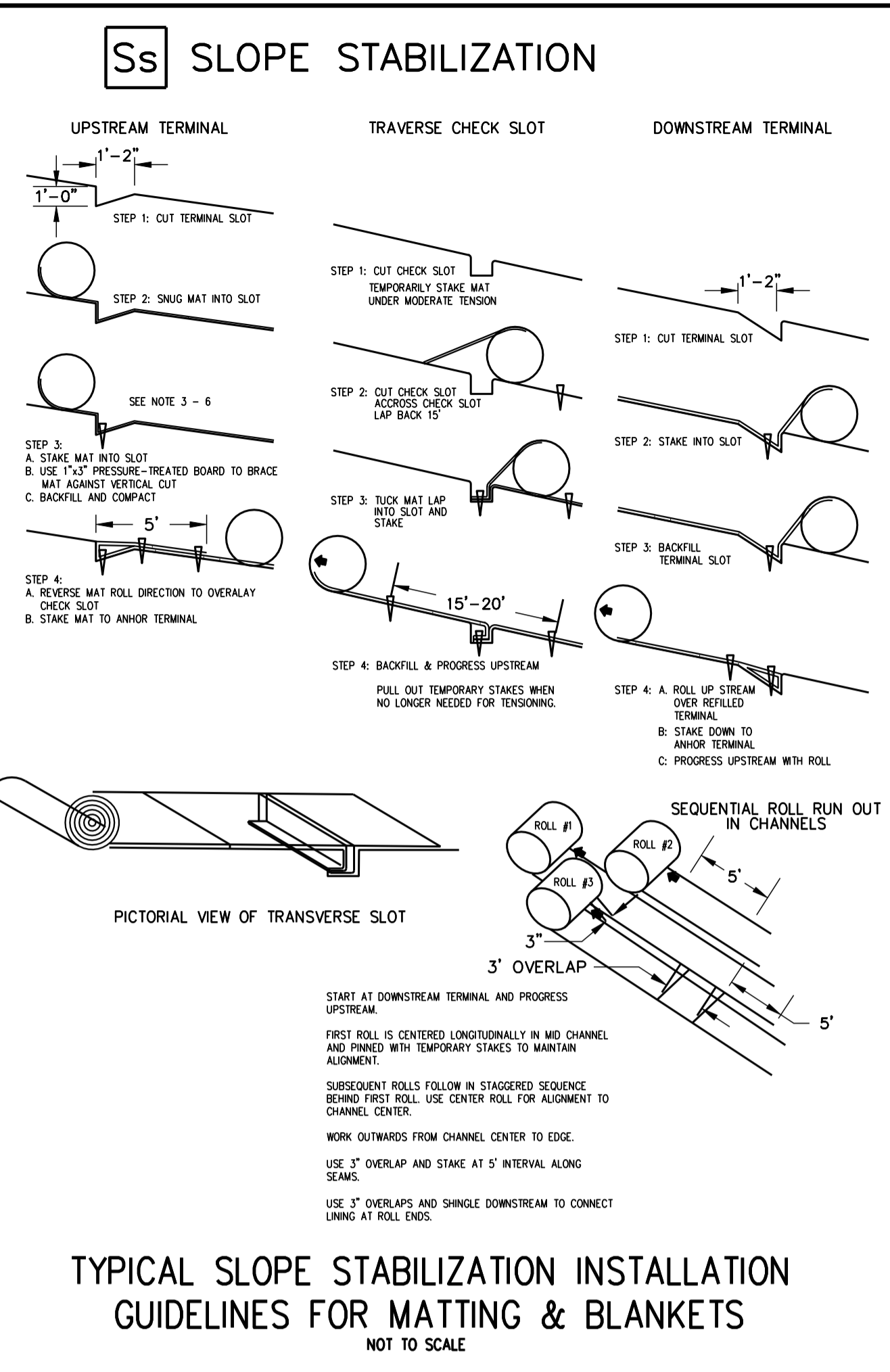
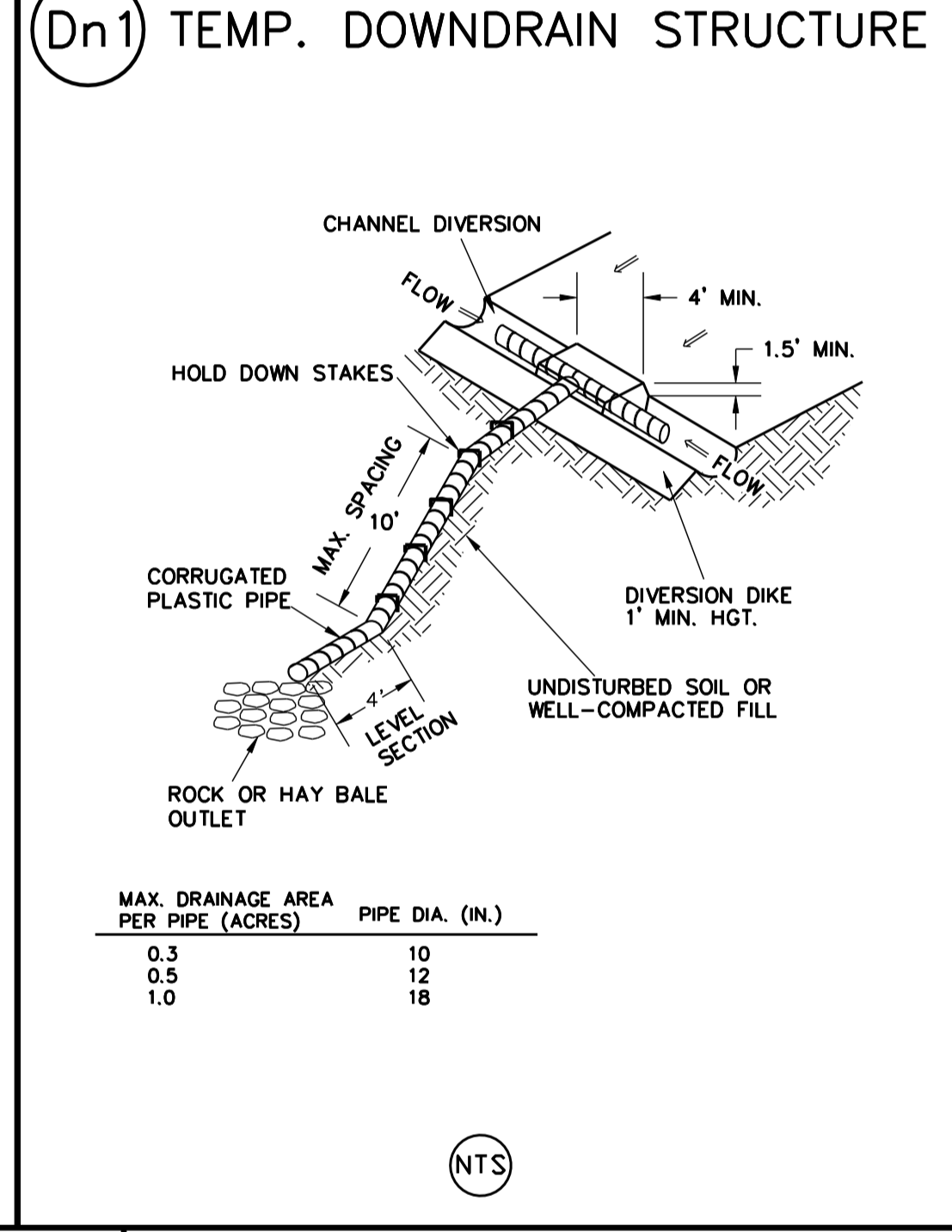
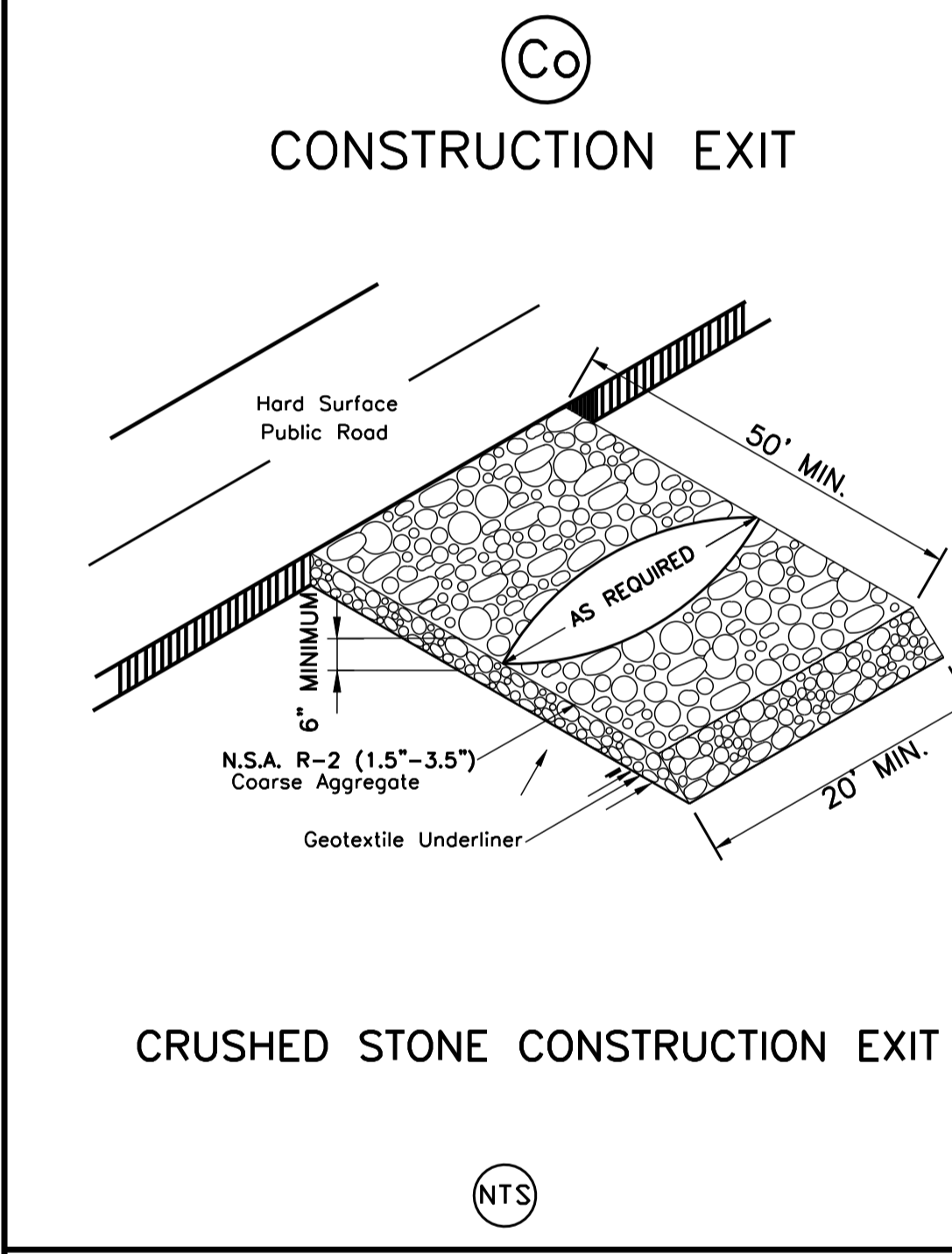
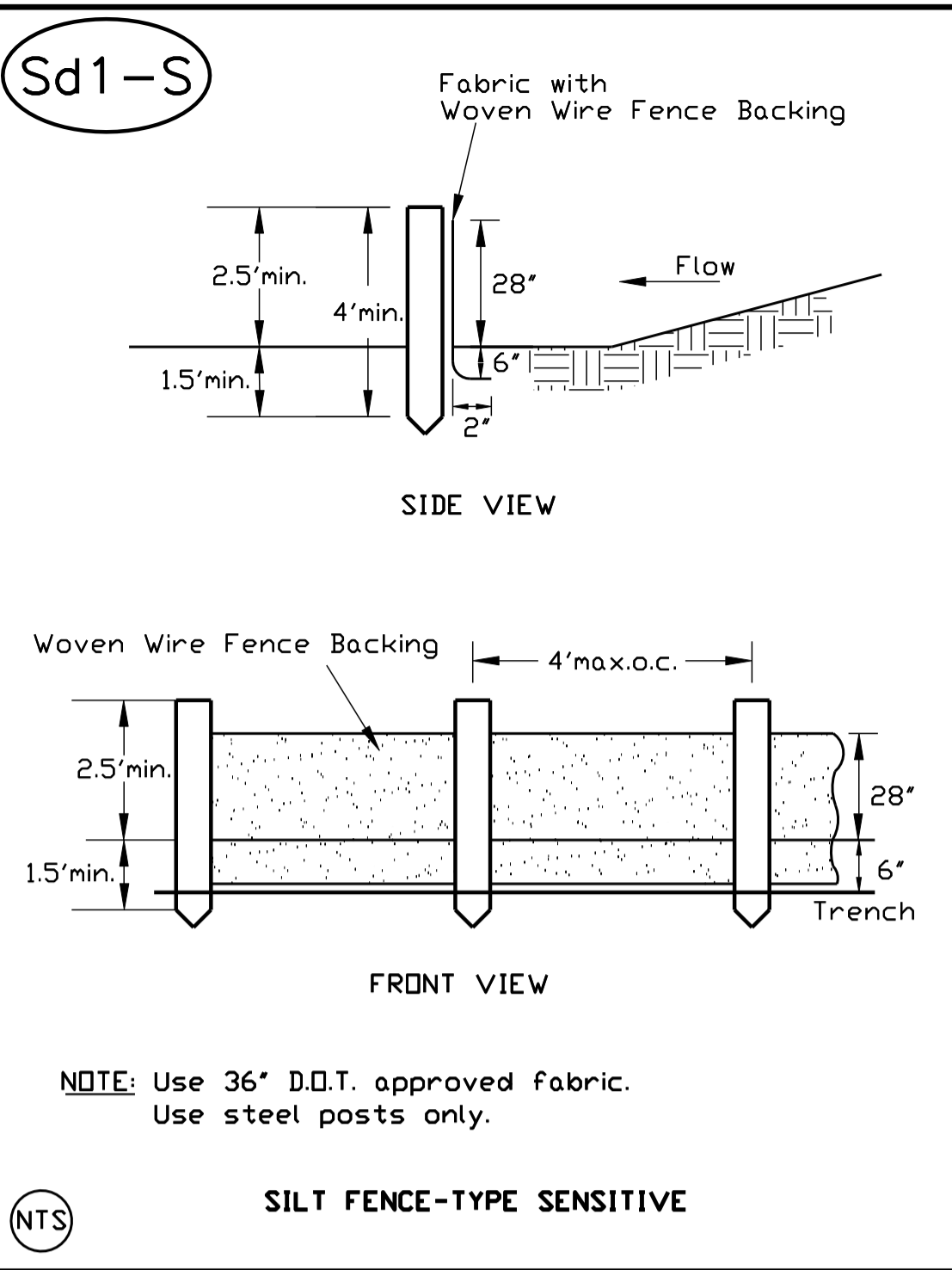
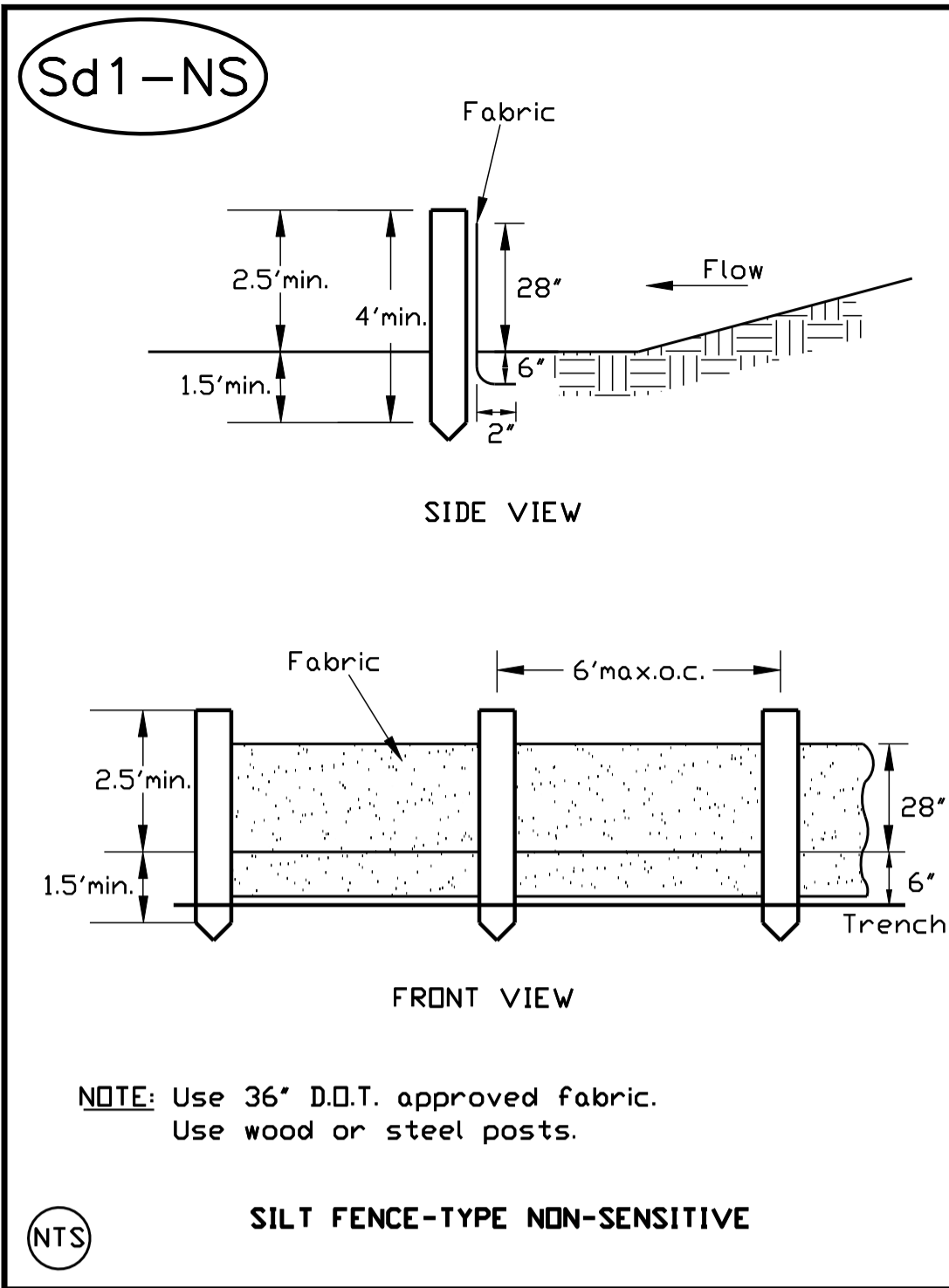
- NOTES:  
 1. ALL DISTURBED AREAS REQUIRE Ds1 EROSION CONTROL.  
 2. SEE EROSION CONTROL DETAILS, SHT. G-3.  
 3. SEE EROSION CONTROL NOTES, SHTS. G-4 & G-5.

**EROSION AND SEDIMENT CONTROL LEGEND**

- |  |  |
|--|--|
| <b>(Co)</b> CONSTRUCTION EXIT  | <b>(Ds1)</b> DISTURBED AREA STABILIZATION MULCHING ONLY        |
| <b>(Sd1-S)</b> SEDIMENT BARRIER - SILT FENCE TYPE SENSITIVE SINGLE ROW | <b>(Ds2)</b> DISTURBED AREA STABILIZATION TEMPORARY GRASSING   |
| <b>(Sd2-FS)</b> INLET SEDIMENT TRAP                                    | <b>(Ds3)</b> DISTURBED AREA STABILIZATION PERMANENT VEGETATION |
| <b>(CdS)</b> CHECK DAM - STONE, AS REQUIRED                            | <b>(Du)</b> DUST CONTROL                                       |
| <b>(Cd-Hb)</b> CHECK DAM - HAY BALE                                    | <b>(Ss)</b> SLOPE STABILIZATION, AS REQUIRED                   |
|  | <b>(Tr)</b> TREE PROTECTION                                    |

- NOTES:  
 1. THE ENGINEER HAS AUTHORITY TO REQUIRE ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES, AS DEPICTED FOR THE EROSION CONTROL PLANS, IF THE PROJECT SO REQUIRES TO PREVENT AND CONTROL EROSION AND SEDIMENT CONTROL.  
 2. PROVIDE (Cd-Hb) ALONG DRAINAGE DITCHES FOR THE PROJECT TO STABILIZE THE AREA AND TO ASSIST DURING APPLICATION OF (Ds2) & (Ds3), ESPECIALLY ON STEEP GRADES.  
 3. PROVIDE (CdS) AS REQUIRED DURING PERFORMANCE OF PROJECT.  
 4. PROVIDE (Ss) AS REQUIRED DURING PERFORMANCE OF PROJECT.  
 5. DETAILS & LEGEND ON SHT. G-2 APPLIES TO EROSION CONTROL PLANS ON SHTS. G-1 & G-2.

*James Stothard*  
 JAMES STOTHARD, PE NO. 15360  
 LEVEL II CERTIFIED DESIGN PROFESSIONAL NO. 0000029517  
 JANUARY 30, 2023



**Temporary Erosion Control Blankets**  
This includes temporary "combination" blankets (rolled erosion control blankets-RECB) consisting of a plastic netting which covers and is intertwined with a natural organic or manmade mulch; or, a jute mesh which is typically homogeneous in design and can act alone as a soil stabilization blanket.

Temporary blankets as a minimum shall be used to stabilize concentrated flow areas with a velocity less than 5 ft/sec and slopes 2:5:1 or steeper with a height of 10 feet or greater. Because temporary blankets will deteriorate in a short period of time, they provide no enduring reduction in erosion protection.

**Benefits of using erosion control blankets include the following:**

1. Protection of the seed and soil from raindrop impact and subsequent displacement.
2. Thermal consistency and moisture retention for seeded areas.
3. Stronger and faster germination of grasses and legumes.
4. Planting of excess stormwater runoff.
5. Prevention of sloughing of topsoil added to steeper slopes.

**Permanent Erosion Control Matting**  
Consists of a permanent non-degradable, three-dimensional plastic structure which can be filled with soil prior to planting. These mats are also known as permanent soil reinforcing mats (soil reinforcement matting). Roots penetrate and become entangled in the matrix, forming a continuous anchorage for surface growth and promoting enhanced energy dissipation. Matting shall be used when a vegetative lining is desired in stormwater conveyance channels where the velocity is between five and ten per second.

**Benefits of using erosion control matting include the following:**

1. All benefits gained from using erosion control blankets.
2. Causes soil to drop out of stormwater and fill matrix with fine soils which become the growth medium for the development of roots.
3. Acts with the vegetative root system to form an erosion resistant cover which resists hydraulic lift and shear forces when embedded in the soil within stormwater channels.

**Materials**  
All blanket and matting materials shall be on the Georgia Department of Transportation Qualified Products List (QPL #62 for blankets, QPL #49 for matting). All blankets shall be nontoxic to vegetation and to the germination of seed and shall not be injurious to the unprotected skin of humans. At a minimum, the plastic netting shall be intertwined with the mulching material/fiber to maximize strength and provide for ease of handling.

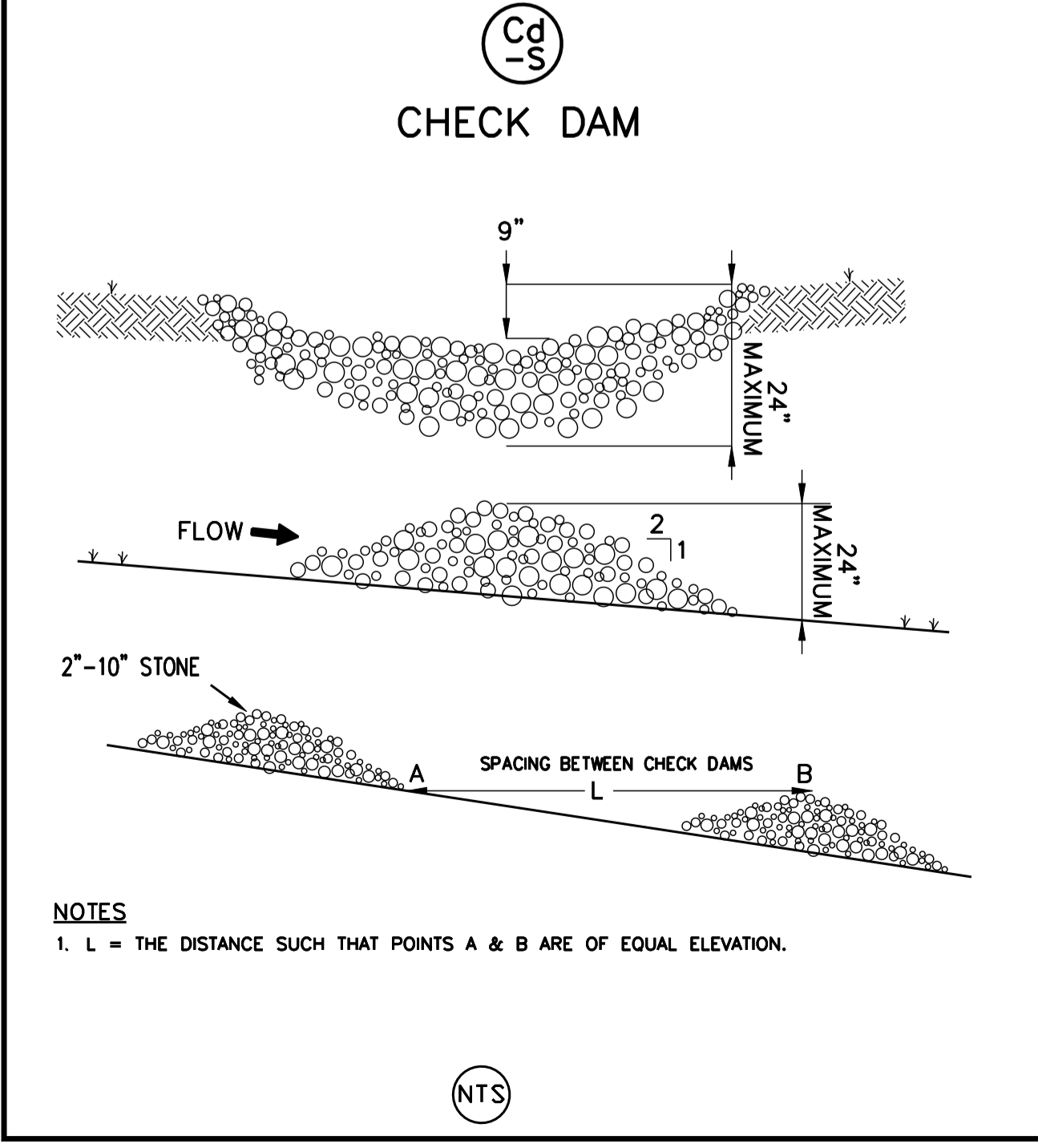
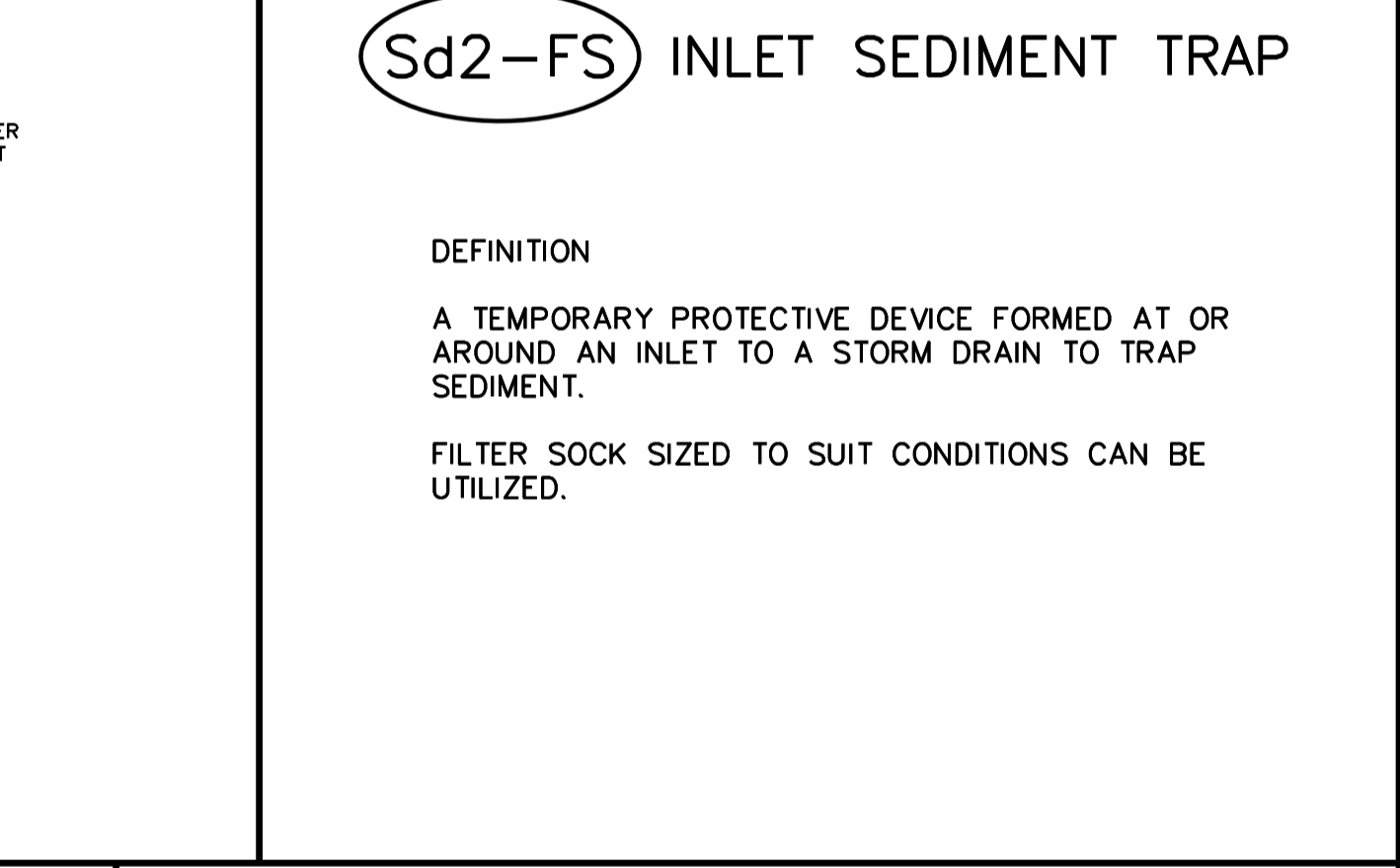
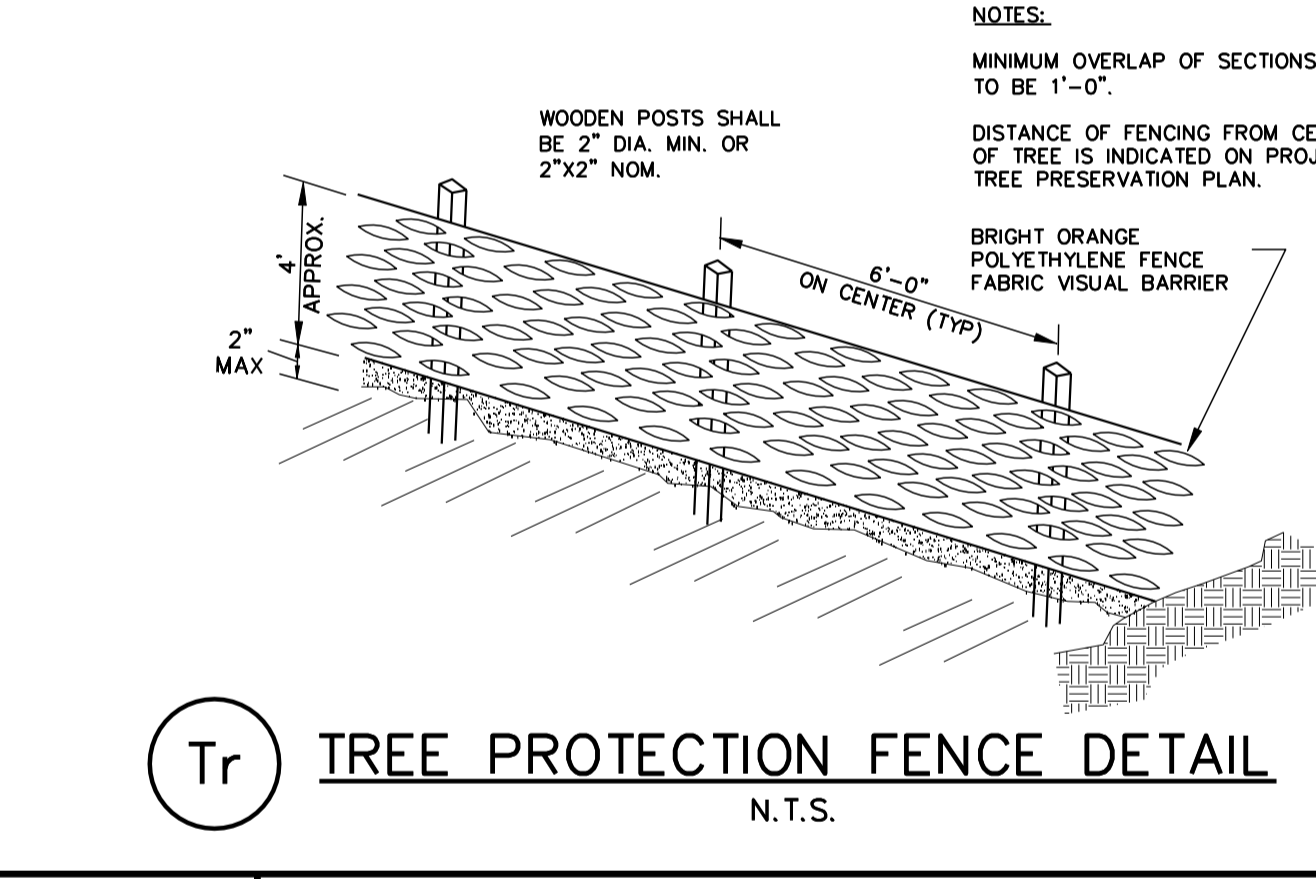
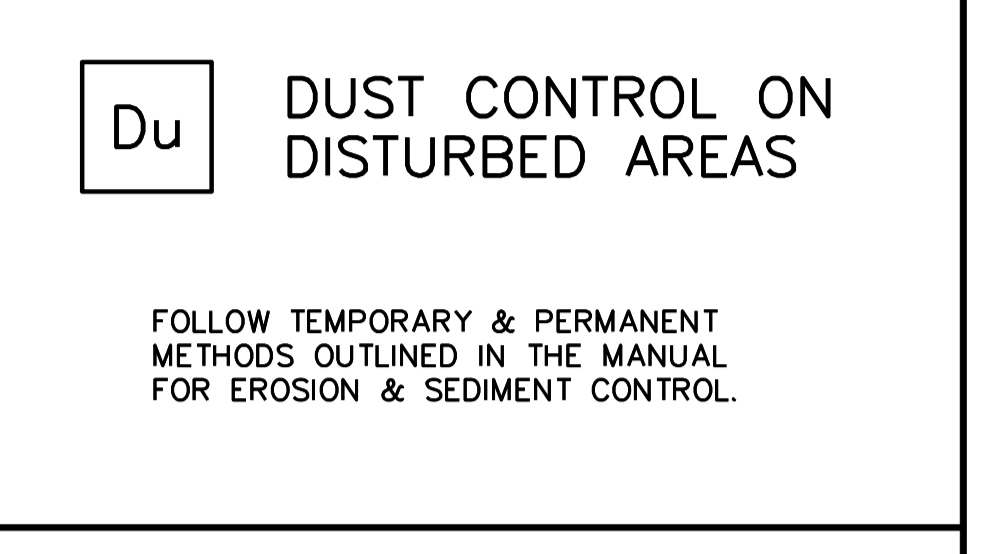
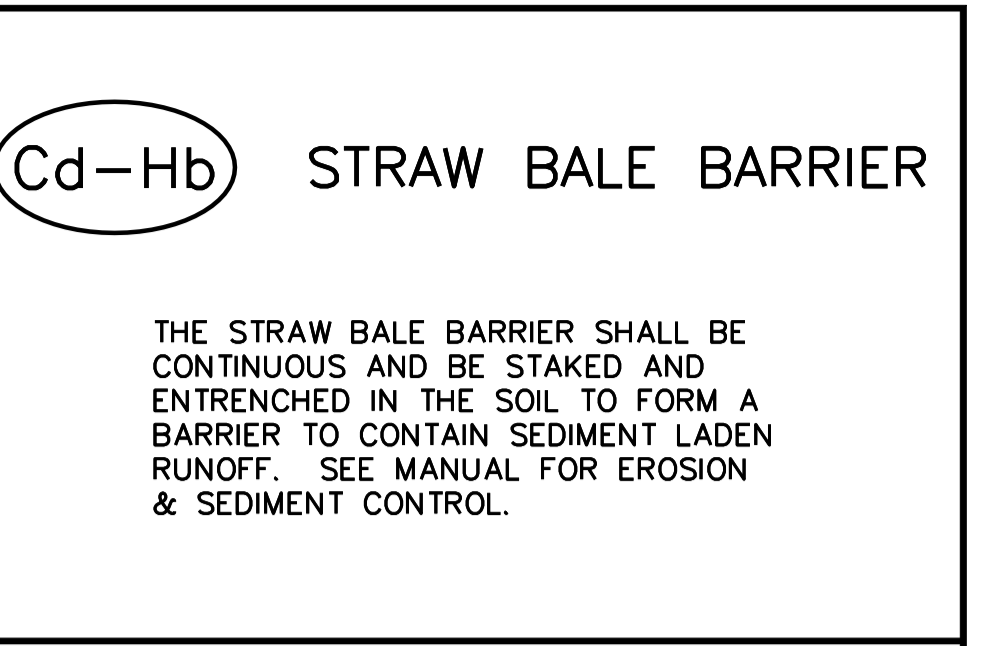
**Temporary Blankets**  
Machine produced temporary combination blankets shall have a consistent thickness with the organic material evenly distributed over the entire blanket area. All combination blankets shall have a minimum width of 48 inches. Machine produced combination blankets include the following:

1. Straw blankets are combination blankets that consist of weed-free straw from agricultural crops formed into a blanket. Blankets with a top side of photodegradable plastic mesh with a maximum mesh size of 5/16 x 5/16 inch and sewn to the straw with biodegradable thread is appropriate for slopes. The blanket shall have a minimum thickness of 3/8 inch and minimum dry weight of 0.5 pounds per square yard.
2. Excelsior blankets are combination blankets that consist of curled wood excelsior (80% of fibers are six inches or longer) formed into a blanket. The blanket shall have clear markings indicating the top side of the blanket and be smaller resistant. Blankets shall be photodegradable plastic mesh having a maximum mesh size of 1 1/2 x 3 inches. The blanket shall have a minimum thickness of 1/4 of an inch and a minimum dry weight of 0.8 pounds per square yard. Slopes require excelsior matting with the top side of the blanket covered in the plastic mesh, and for waterways, both sides of the blanket require plastic mesh.
3. Coconut fiber blankets are combination blankets that consist of 100% coconut fiber formed into a blanket. The minimum thickness of the blanket shall be 1/4 of an inch with a minimum dry weight of 0.5 pounds per square yard. Blankets shall have photodegradable plastic mesh, with a maximum mesh size of 5/8 x 5/8 inch and sewn to the fiber with a breakdown resistant synthetic yarn. Plastic mesh is required on both sides of the blanket is used in waterways. A maximum of two inches is allowable for the stitch pattern and row spacing.
4. Wood fiber blankets are combination blankets that consist of reprocessed wood fibers that do not possess or contain any growth or germination inhibiting factors. The blanket shall have a photodegradable plastic mesh, with a maximum mesh size of 5/8 x 3/4 inch, securely bonded to the top of the mat. The blanket shall have a minimum dry weight of 0.35 pounds per square yard. A maximum of two inches is allowable for the stitch pattern and row spacing. This practice shall be applied only to slopes.
5. Jute Mesh can be applied to slopes. Jute mesh with shall show between 76 and 80 warplings and a one yard length shall show between 39 to 43 warplings. The woven mesh shall be at least 45 inches wide. Yarn shall have a unit weight of at least 0.9 pounds per square yard, but not more than 1.5 pounds per square yard.

**Permanent Matting**  
Permanent matting shall consist of a lathy web of mechanically or melt bonded polymer nettings, monofilaments or fibers which are entangled to form a strong and dimensionally stable matrix. Polymer welding, thermal of polymer fusion, or the placement of fibers between two high strength, biaxially oriented nets bound securely together by parallel lock stitching with polypropylene, nylon or polyester threads are all appropriate bonding methods. Mats shall maintain their shape before, during, and after installation, under dry or water saturated conditions. Mats must be stabilized against ultraviolet degradation and shall be inert to chemicals normally encountered in a natural soil environment.

The mat shall conform to the following physical properties:

| Property                | Minimum Value |
|-------------------------|---------------|
| Thickness               | 0.5 inch      |
| Weight                  | 0.8 PSY       |
| Roll Width              | 36 inches     |
| Tensile Strength        | 15 lbs./in.   |
| Length (30% elongation) | 20 lbs./in.   |



**Ds1** **Disturbed Area Stabilization (With Mulching Only)**

**CONSTRUCTION SPECIFICATIONS**

**Site Preparation**

1. Grade to permit the use of equipment for applying and anchoring mulch.
2. Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
3. Loosen compact soil to a minimum depth of 3 inches.

**Mulching Materials**

Select one of the following materials and apply at the depth indicated:

1. Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
2. Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
3. Cutback asphalt (slow curing) shall be applied at 1200 gallons per acre (or 1/4 gallon per sq. yd.).
4. Polyethylene film shall be secured over berms or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

**Applying Mulch**

When mulch is used without seeding, mulch shall be applied to provide full coverage of exposed area.

1. Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.
2. If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
3. Cutback asphalt shall be applied uniformly. Care should be taken in areas of pedestrian traffic due to problems of "tracking in" or damage to shoes, clothing, etc.
4. Apply polyethylene film on exposed areas.

**Anchoring Mulch**

1. Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special packer disk. Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

**Ds2 Ds3 - TEMPORARY AND PERMANENT GRASSING**

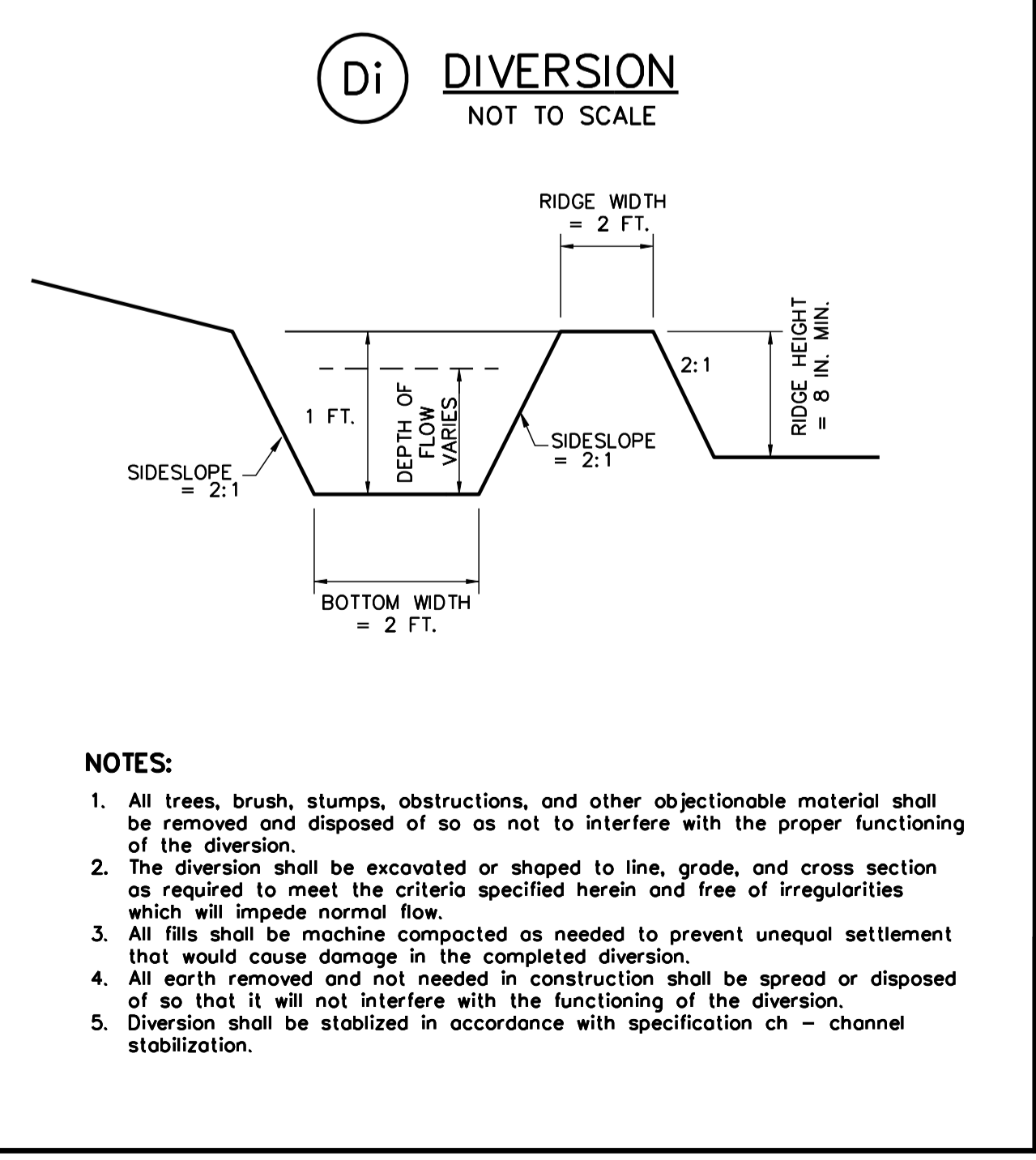
| SPECIES                            | YEAR               | ANALYSIS OR EQUIVALENT           | RATE  | N DRESSING RATE                                     |
|------------------------------------|--------------------|----------------------------------|---|---|
| 1. COOL SEASON GRASSES             | FIRST SECOND MAINT | 6-12-12<br>6-12-12<br>10-10-10   | 1500 lbs/AC<br>1000 lbs/AC<br>400 lbs/AC                  | 50-100 LBS/AC 1/2/<br>30 LBS/AC                     |
| 2. COOL SEASON GRASSES AND LEGUMES | FIRST SECOND MAINT | 6-12-12<br>0-10-10<br>0-10-10    | 1500 lbs/AC<br>1000 lbs/AC<br>400 lbs/AC                  | 0-50 LBS/AC 1/<br>-                                 |
| 3. WARM SEASON GRASSES AND LEGUMES | FIRST SECOND MAINT | 10-10-10<br>10-10-10<br>10-10-10 | 1300 lbs/AC<br>1300 lbs/AC<br>1100 lbs/AC                 | -<br>-  |
| 4. PINE SEEDLINGS                  | FIRST              | 20-10-15                         | one 21 gram pellet per seeding placed in the closing hole | -   |
| 5. SHRUB LEEPEDEZA                 | FIRST MAINT        | 0-10-10<br>0-10-10               | 700 lbs/AC<br>700 lbs/AC                                  | -   |
| 6. TEMP COVER CROP SEEDING DONE    | FIRST              | 10-10-10                         | 500 lbs/AC  | 30 LBS/AC 5/<br>30 LBS/AC                           |
| 7. WARM SEASON GRASSES             | FIRST SECOND MAINT | 6-12-12<br>6-12-12<br>10-10-10   | 1500 lbs/AC<br>800 lbs/AC<br>400 lbs/AC                   | 50-100 LBS/AC 2/6/<br>50-100 LBS/AC 2/<br>30 LBS/AC |
| 8. WARM SEASON GRASSES AND LEGUMES | FIRST SECOND MAINT | 6-12-12<br>0-10-10<br>0-10-10    | 1500 lbs/AC<br>1000 lbs/AC<br>400 lbs/AC                  | 50 LBS/AC 6/<br>-                                   |

**1/ APPLY IN SPRING FOLLOWING SEEDING**  
**2/ APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED**  
**3/ APPLY IN THREE SPLIT APPLICATIONS**  
**4/ APPLY WHEN PLANTS ARE PRUNED**  
**5/ APPLY TO GRASS SPECIES ONLY**  
**6/ APPLY WHEN PLANTS GROW TO A HEIGHT OF 2 TO 4 INCHES**

**LIME RATES**  
AGRICULTURAL LIME IS REQUIRED AT THE RATE OF ONE TO TWO TONS PER ACRE UNLESS SOIL TESTS INDICATE OTHERWISE. ALL GRADED AREAS REQUIRE LIME APPLICATION. IF LIME IS APPLIED WITHIN SIX MONTHS OF PLANTING PERMANENT PERENNIAL VEGETATION, ADDITIONAL LIME IS NOT REQUIRED. AGRICULTURAL LIME SHALL BE WITHIN THE SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE.

**PERMANENT GRASSING SPECIFICATIONS**  
MARCH 1 TO JUNE 30  
BERMUDA, COMMON (HULLED) - 10 LBS/AC  
OR  
APRIL 1 TO JUNE 30  
CENTIPEDE - BLOCK SOD ONLY

**TEMPORARY SEEDING SPECIFICATIONS**  
AUGUST 15 TO DECEMBER 30  
RYE - 3 BU/AC  
OR  
APRIL 15 TO AUGUST 31  
MILLET, PEARL - 50 LBS/AC



**ELLIS & ASSOCIATES**  
RONALD L. ELLIS & ASSOCIATES, INC.  
Consulting Engineers  
Pelham, Alabama

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**  
EROSION CONTROL PLAN DETAILS

DRAWING NAME : CONT-B\_G-3  
PROJECT NO. : 21.135  
DRAWN BY : RDE  
DESIGNED BY : JS/RLE  
APPROVED BY : JS  
SCALE : AS SHOWN  
DATE : 01/30/2023

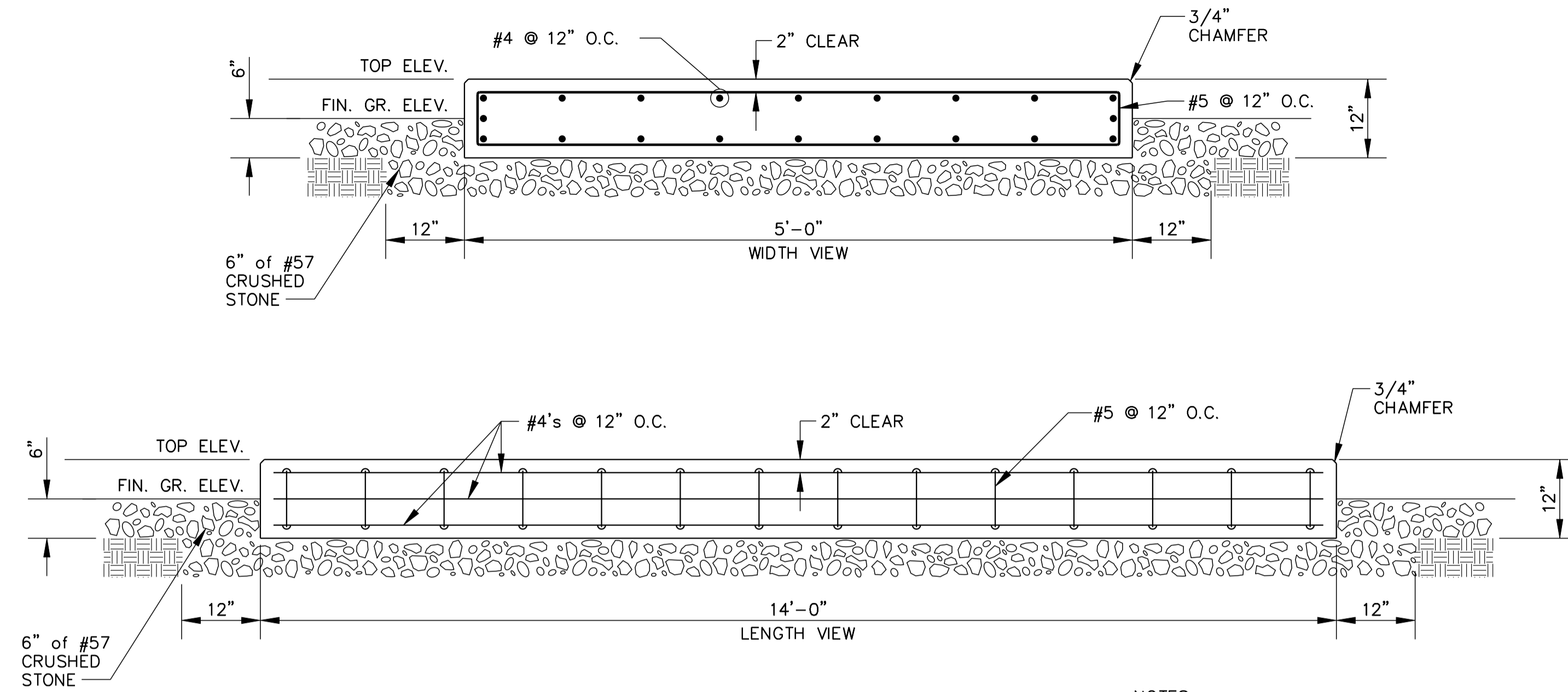
REGISTERED PROFESSIONAL ENGINEER  
RONALD L. ELLIS  
01/30/2023

REGISTERED PROFESSIONAL ENGINEER  
JAMES STOTHARD  
01/30/2023

SHEET NO.  
**G - 3**

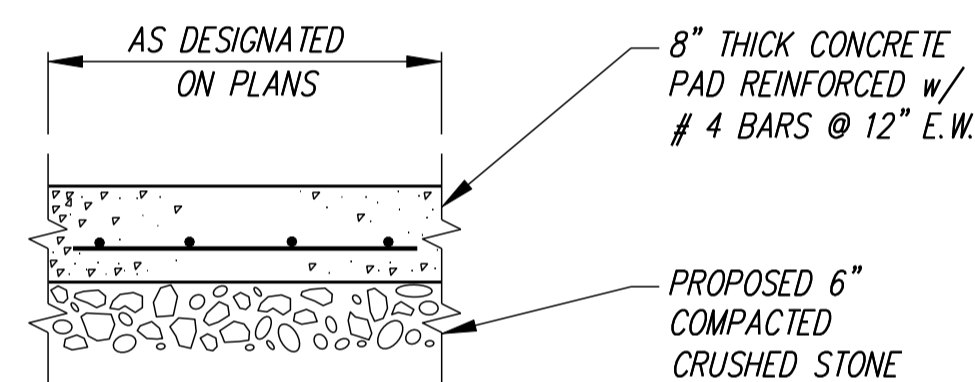






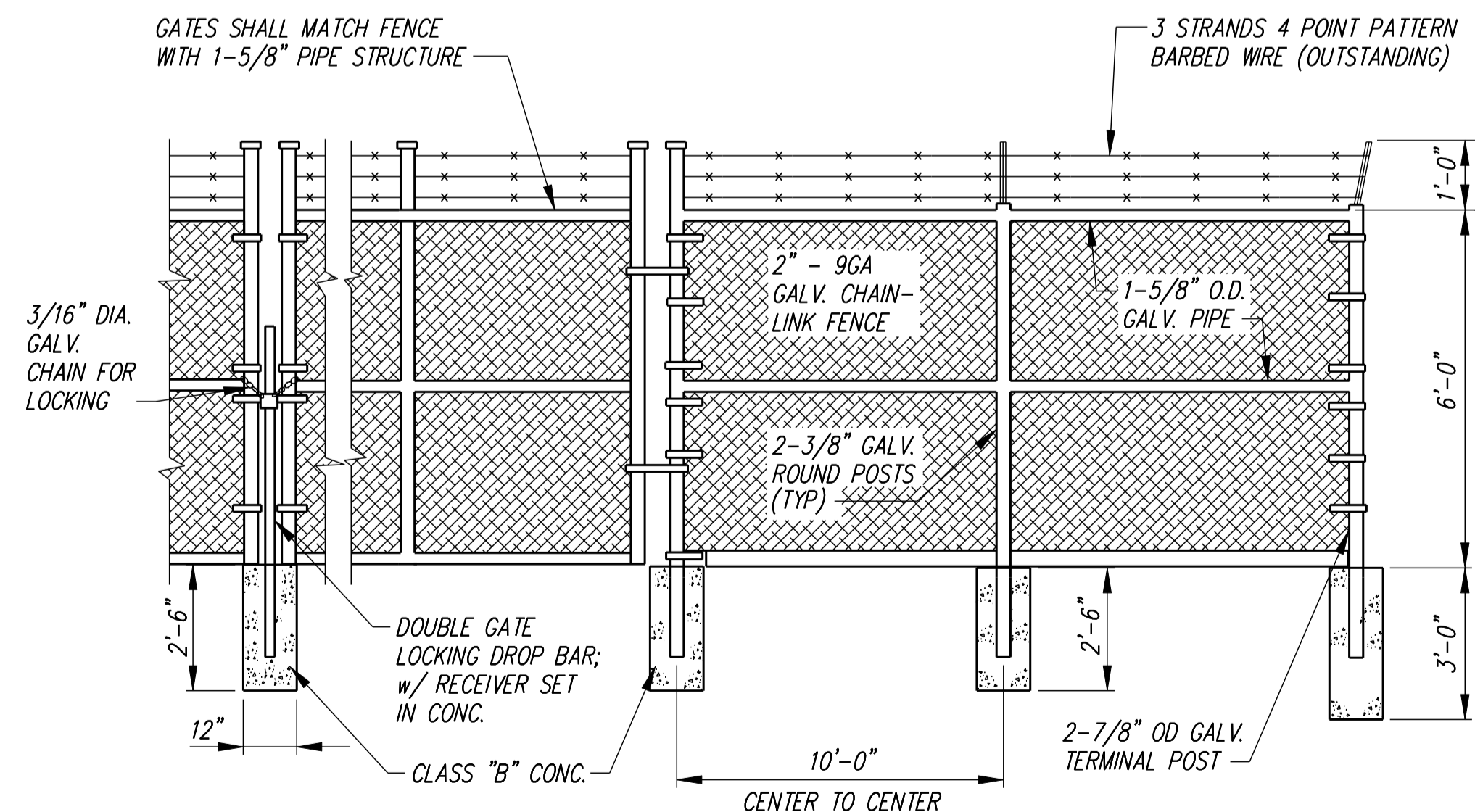
**GENERATOR PAD** C150  
NTS

- NOTES:
1. GENERATOR TO BE SET ON LENGTH & WIDTH CENTERLINES OF PAD.
  2. VERIFY PAD DIMENSIONS WITH ENGINEER, BASED ON GENERATOR.

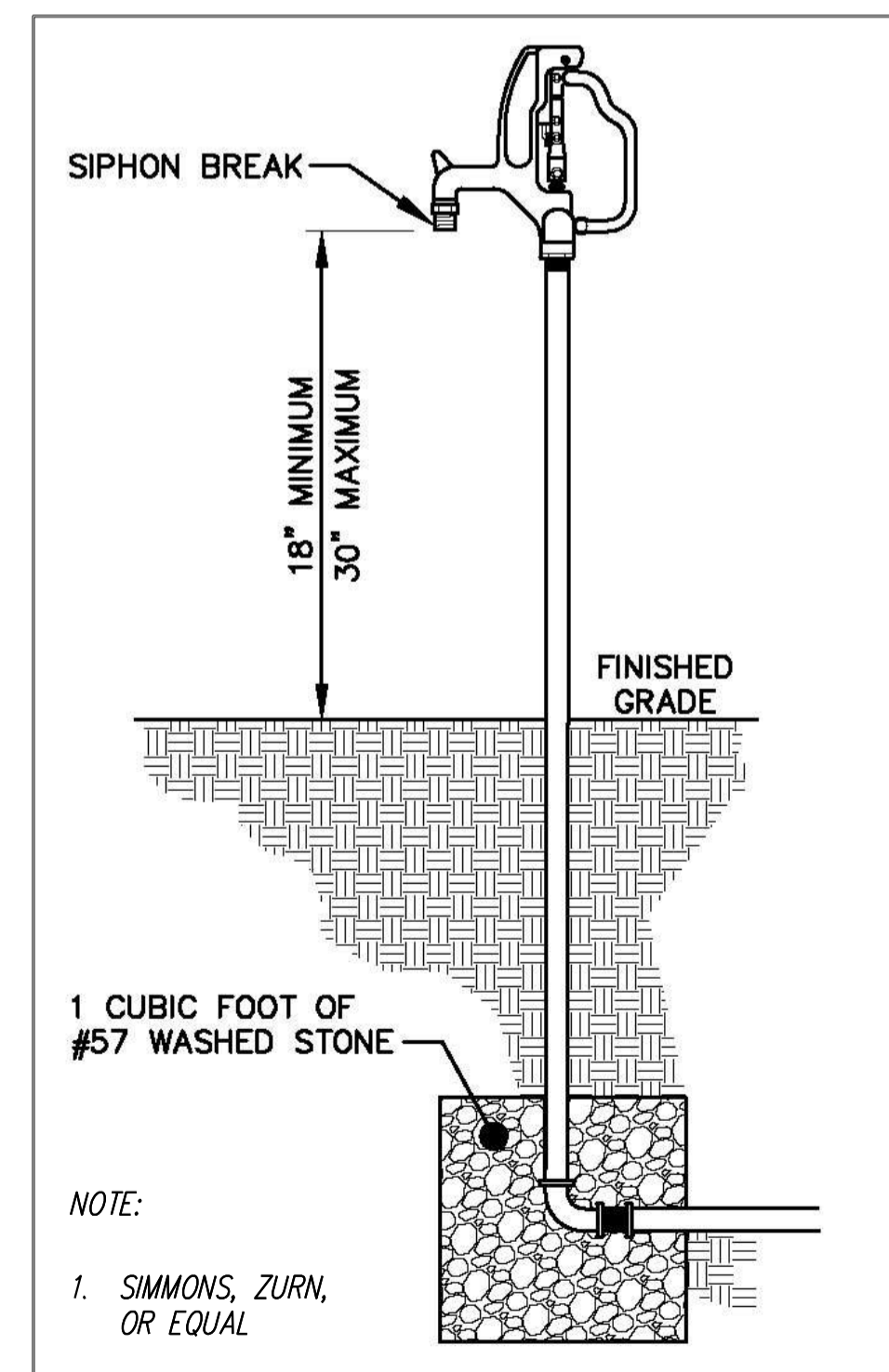


NOTE: PROVIDE CONTRACTION JOINTS AS REQUIRED

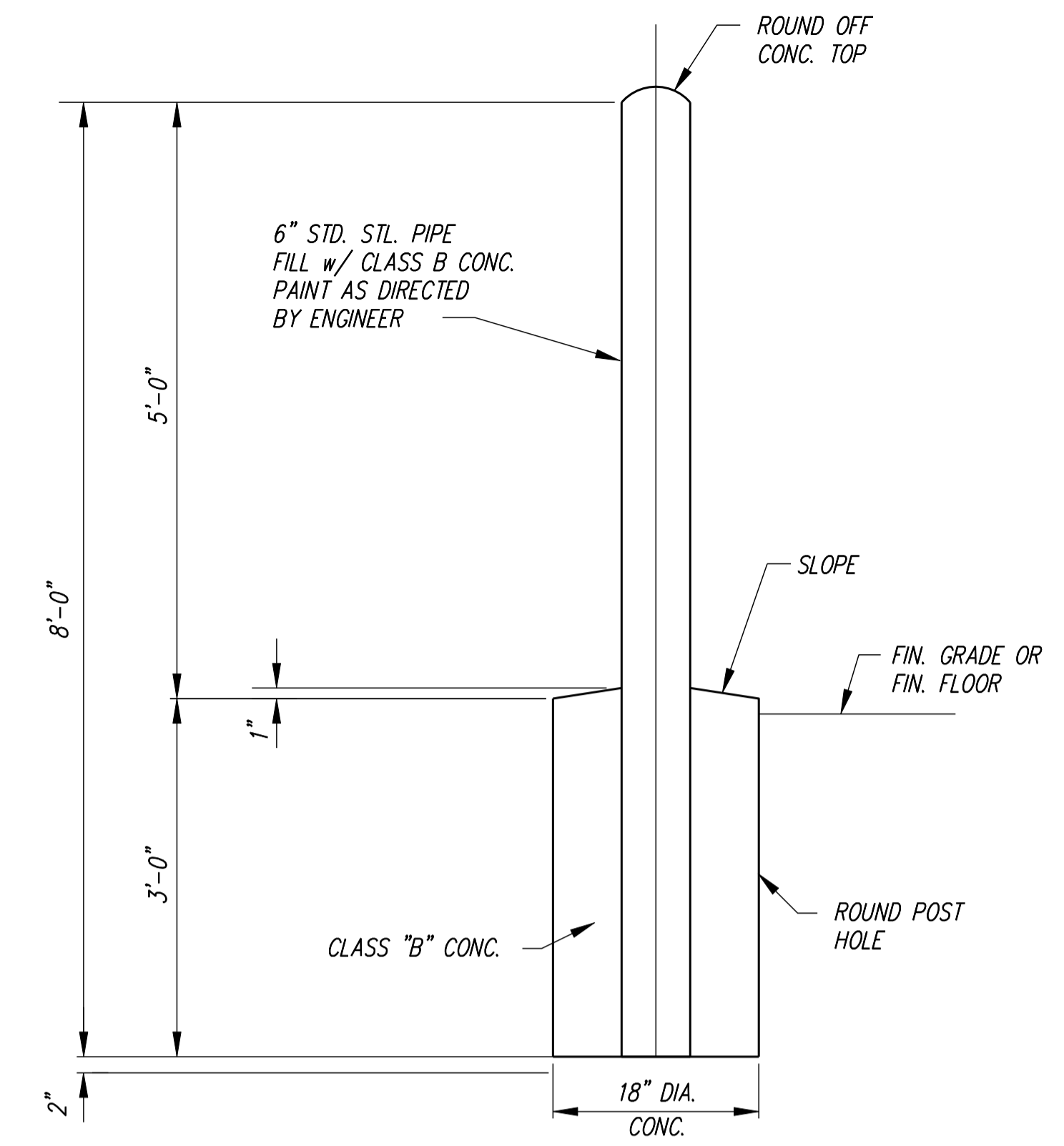
**CONCRETE PAD AT LIFT STATION WET WELL & VALVE VAULT** C155  
NTS



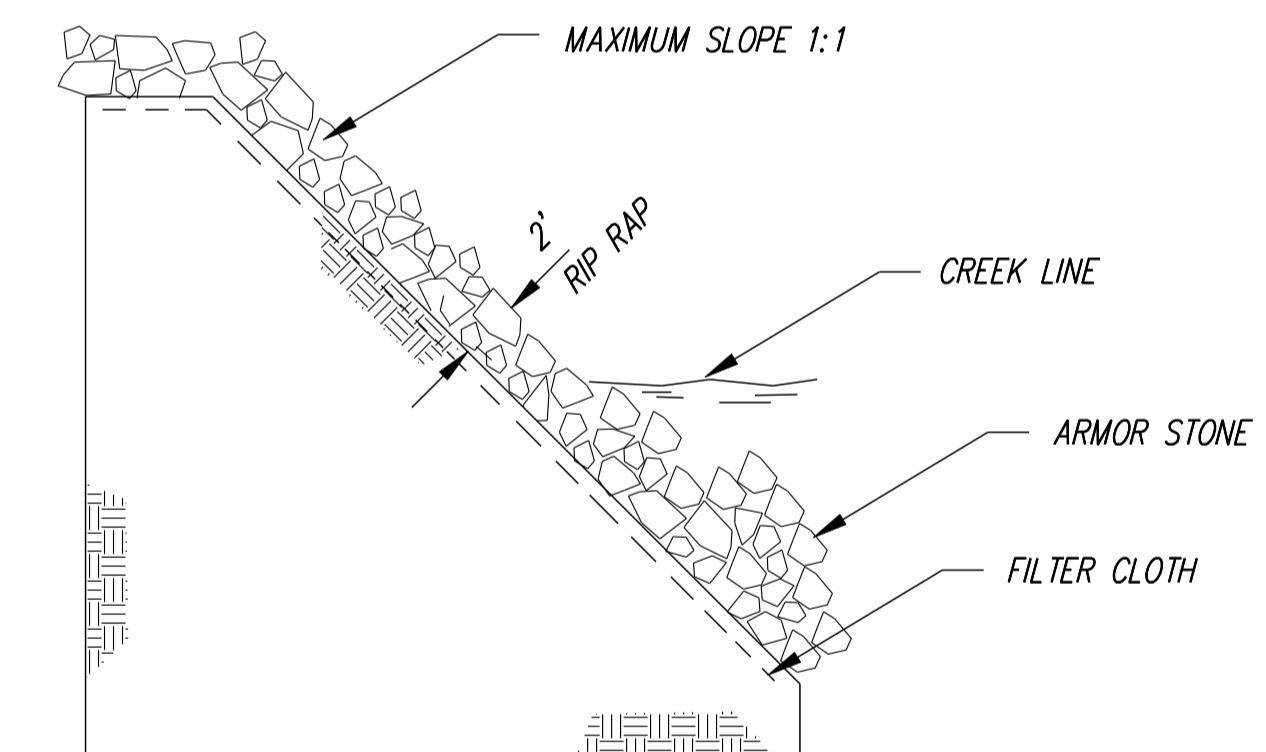
**CHAIN LINK FENCE** C160  
NTS



**NON-FREEZE YARD HYDRANT** C350  
NTS



**PIPE GUARD** C180  
NTS



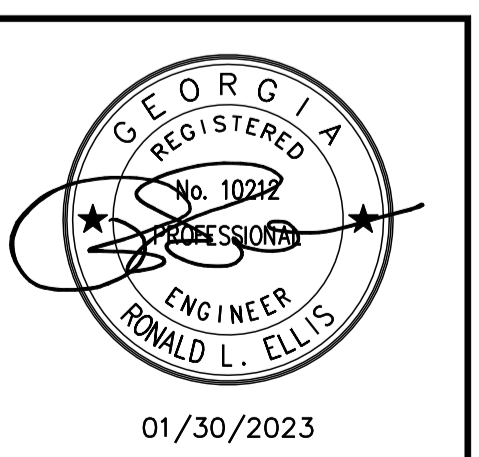
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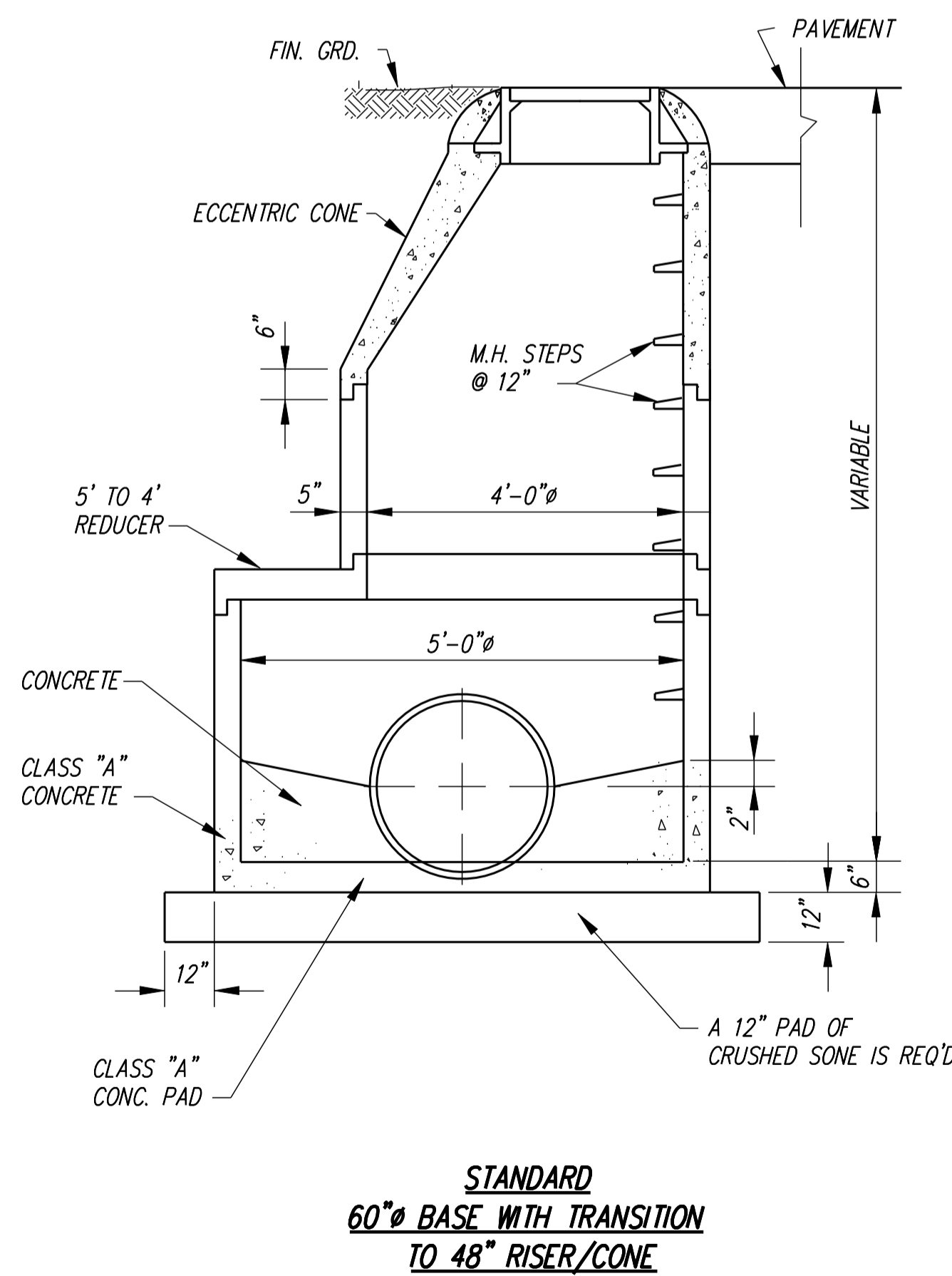
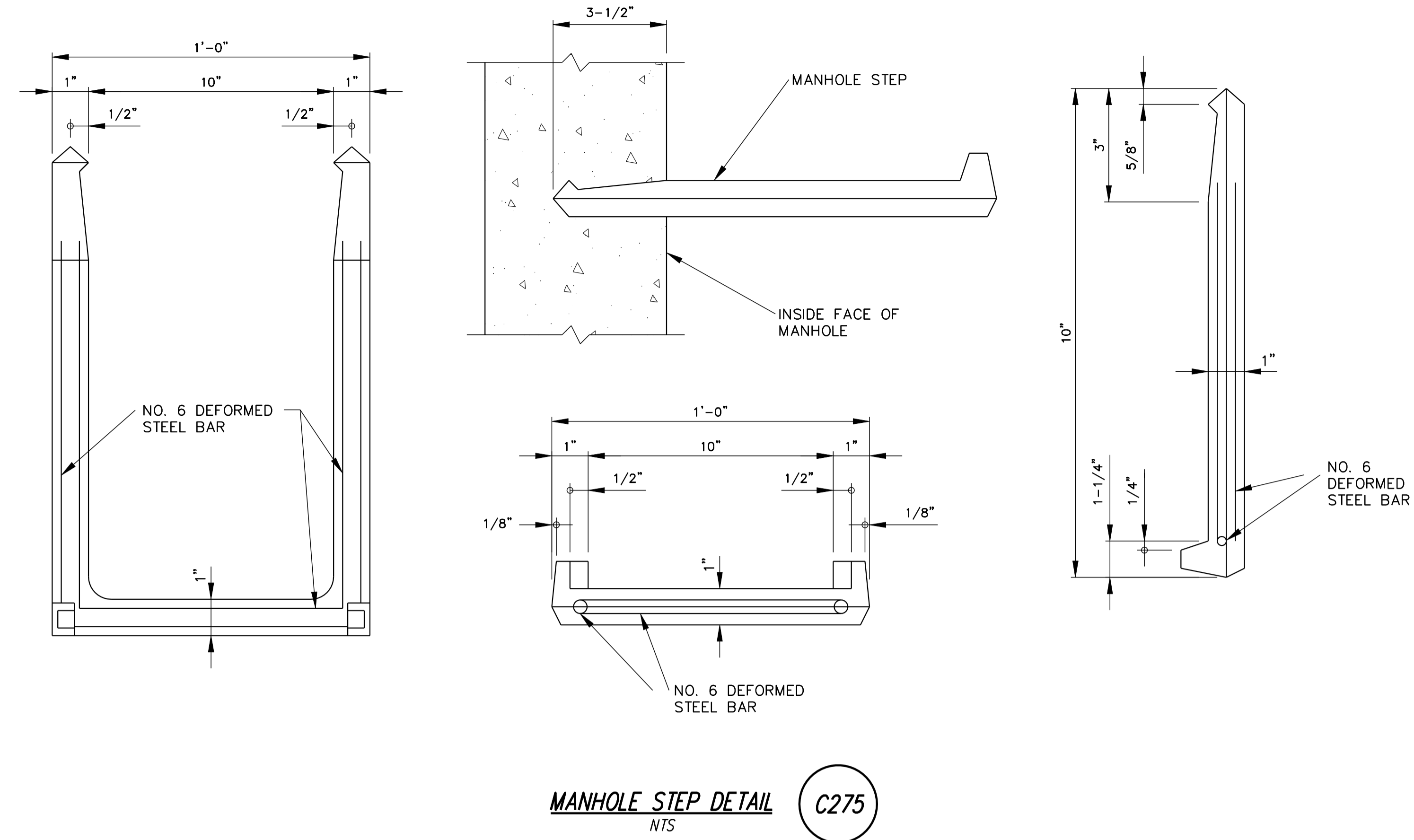
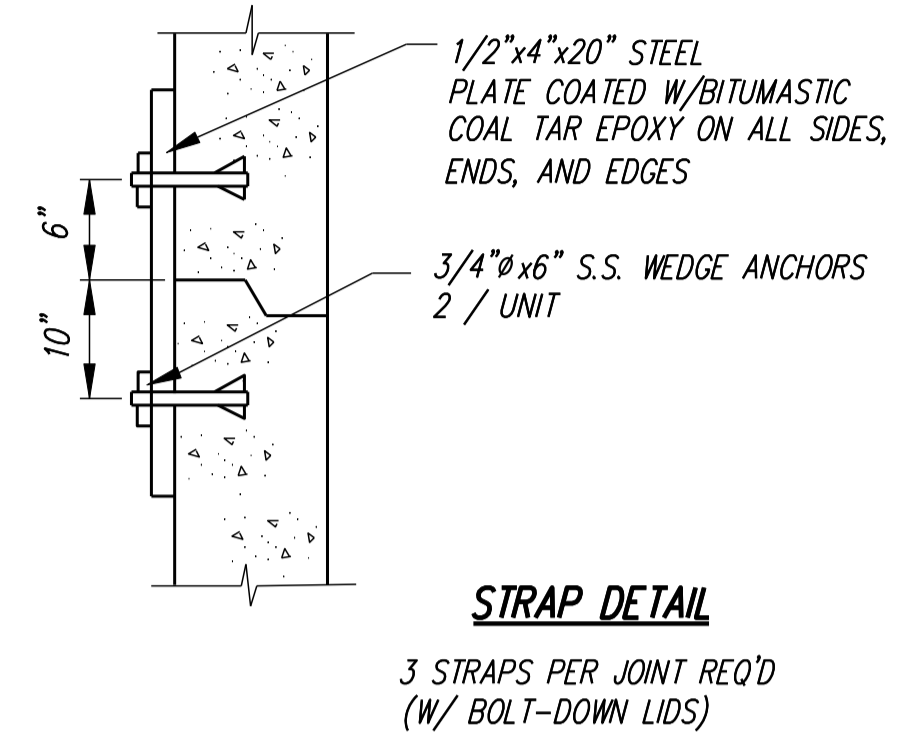
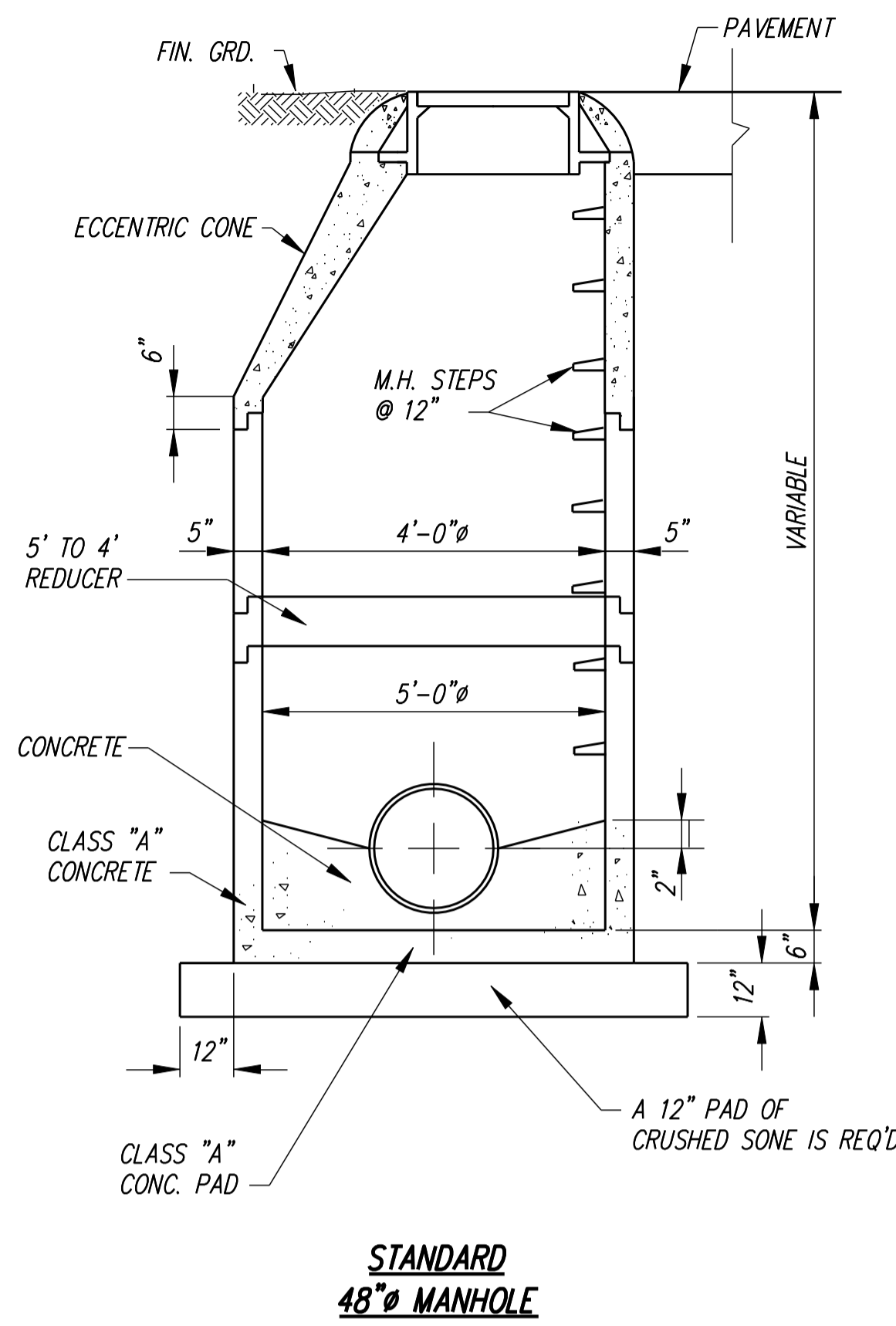
1. SPECIAL SLOPE PROTECTION OF VARIOUS POINTS ALONG EXISTING STREAM BANKS MAY BE REQUIRED AT THE OPTION OF THE ENGINEER TO INSURE THE STABILITY OF THE UTILITY LINE. THE COST FOR THIS WORK SHALL BE PAID UNDER THE APPROPRIATE PROPOSAL ITEM PER SQUARE YARD MEASURED PARALLEL TO THE PLANE OF THE SLOPE.
2. STONE FOR RIP RAP SHALL BE SELECTED STONE FROM ROCK CUTS OR OTHER APPROVED SOURCES OR PIECES OF CONCRETE. IT SHALL CONSIST OF WELL GRADED STONES WEIGHING FROM 10 POUNDS TO 200 POUNDS EACH WITH AT LEAST 50% WEIGHING OVER 80 POUNDS. BOTH WIDTH AND THICKNESS SHALL BE AT LEAST 1/3 THE LENGTH FOR EACH STONE. NOT MORE THAN 10% BY TOTAL WEIGHT SHALL WEIGH LESS THAN 10 POUNDS AND NOT MORE THAN 10% BY WEIGHT SHALL WEIGH MORE THAN 200 POUNDS.
3. THE PLASTIC FILTER CLOTH SHALL BE A PERVIOUS SHEET WOVEN OF POLYPROPYLENE MONOFILAMENT YARNS. AFTER WEAVING, THE CLOTH SHALL BE CALENDERED AND PALMERED SO THAT THE FILAMENTS RETAIN THEIR RELATIVE POSITIONS WITH RESPECT TO EACH OTHER. THE EQUIVALENT OPENING SIZE (E.O.S.) SHALL BE U.S. STANDARD SIEVE NO.40 ALL EDGES OF THE CLOTH SHALL BE SELVAGED AND/OR SERGED. THE PLASTIC FILTER CLOTH SHALL BE FREE OF DEFECTS OR FLAWS WHICH SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES. THE PLASTIC FILTER CLOTH SHALL HAVE A SERVICE RECORD OF NOT LESS THAN 10 YEARS IN PROJECTS OF GENERALLY SIMILAR NATURE. THE SUPPLIER OF THE FILTER CLOTH SHALL SUBMIT AN ENGINEERING ANALYSIS AND DESIGN REPORT WHICH DOCUMENTS THE USE OF THEIR CLOTH FOR THESE INSTALLATIONS. THE SANITARY SEWER CONTRACTOR SHALL FURNISH ANY STREAM FLOW VELOCITIES, WATER OR SOIL ANALYSIS AND ALL OTHER DATA REQUIRED TO THE SUPPLIER AT NO EXTRA COST TO THE OWNER. THE FINAL DECISION FOR THE CHOICE OF THE VINYL FABRIC OR VARIATIONS THEREOF SHALL BE MADE BY THE ENGINEER.

**RIP RAP SLOPE PROTECTION** C535  
NTS

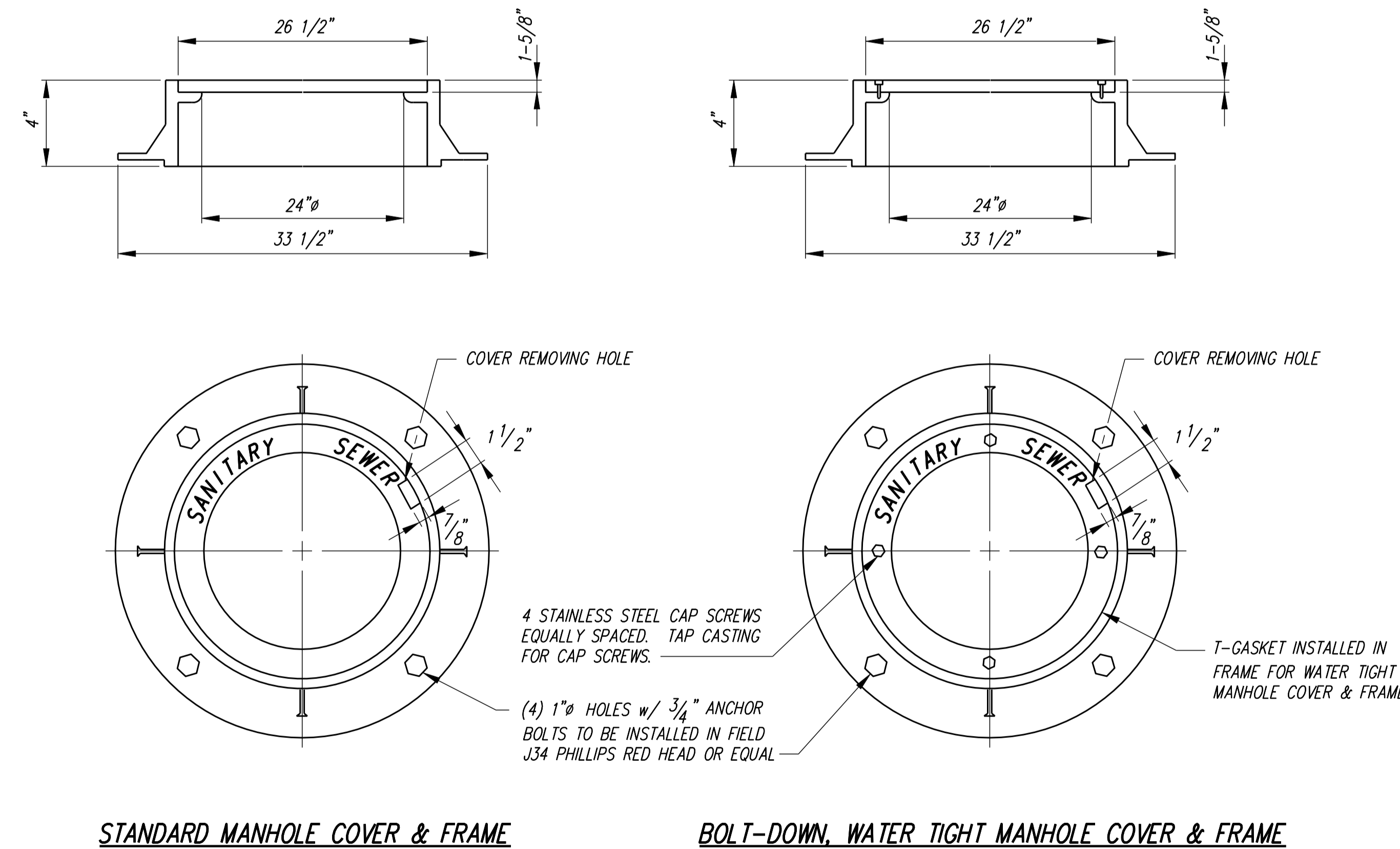
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| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | AS SHOWN   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |





- NOTES:
1. ALL BASES TO BE POURED MONOLITHIC.
  2. ALL PRECAST MANHOLES SHALL BE WATERTIGHT WITH GROUT APPLIED SMOOTHLY TO THE OUTSIDE AND INSIDE FACE OF ALL JOINTS, PIN HOLES AND AROUND ALL STEPS, FRAME AND COVER. ALL PIPE SHALL BE CUT FLUSH WITH THE INSIDE FACE OF THE MANHOLE.
  3. PROVIDE A-LOK FLEXIBLE PIPE TO MANHOLE CONNECTOR FOR ALL MANHOLES, SEE SPEC.
  4. JOINTS REQUIRE TYLOX SUPER SEAL GASKET AND CONSEAL CS-231 WATERSTOP SEALANT, SEE SPEC.
  5. MANHOLE CONSTRUCTION REQUIRES XYPEX ADMIX C-1000, SEE SPEC.



- NOTES:
1. ALL COVERS ARE HINGED & INCORPORATE A 90° BLOCKING SYSTEM TO PREVENT ACCIDENTAL CLOSURE.
  2. FRAME & COVER SHALL BE DUCTILE IRON.
  3. COVERS SHALL BE ONE-MAN OPERABLE.
  4. ALL MANHOLE FRAMES AND COVERS SHALL BE PAMREX FOR STD. MH. & PAMREX PAMTIGHT FOR WATERTIGHT MH OR EQUAL.

**TYPICAL PRECAST MANHOLE DETAILS**  
NTS

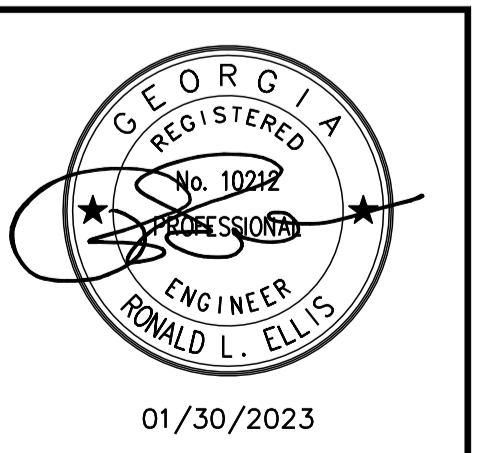
C270

**MANHOLE COVER & FRAME DETAILS**  
N.T.S.

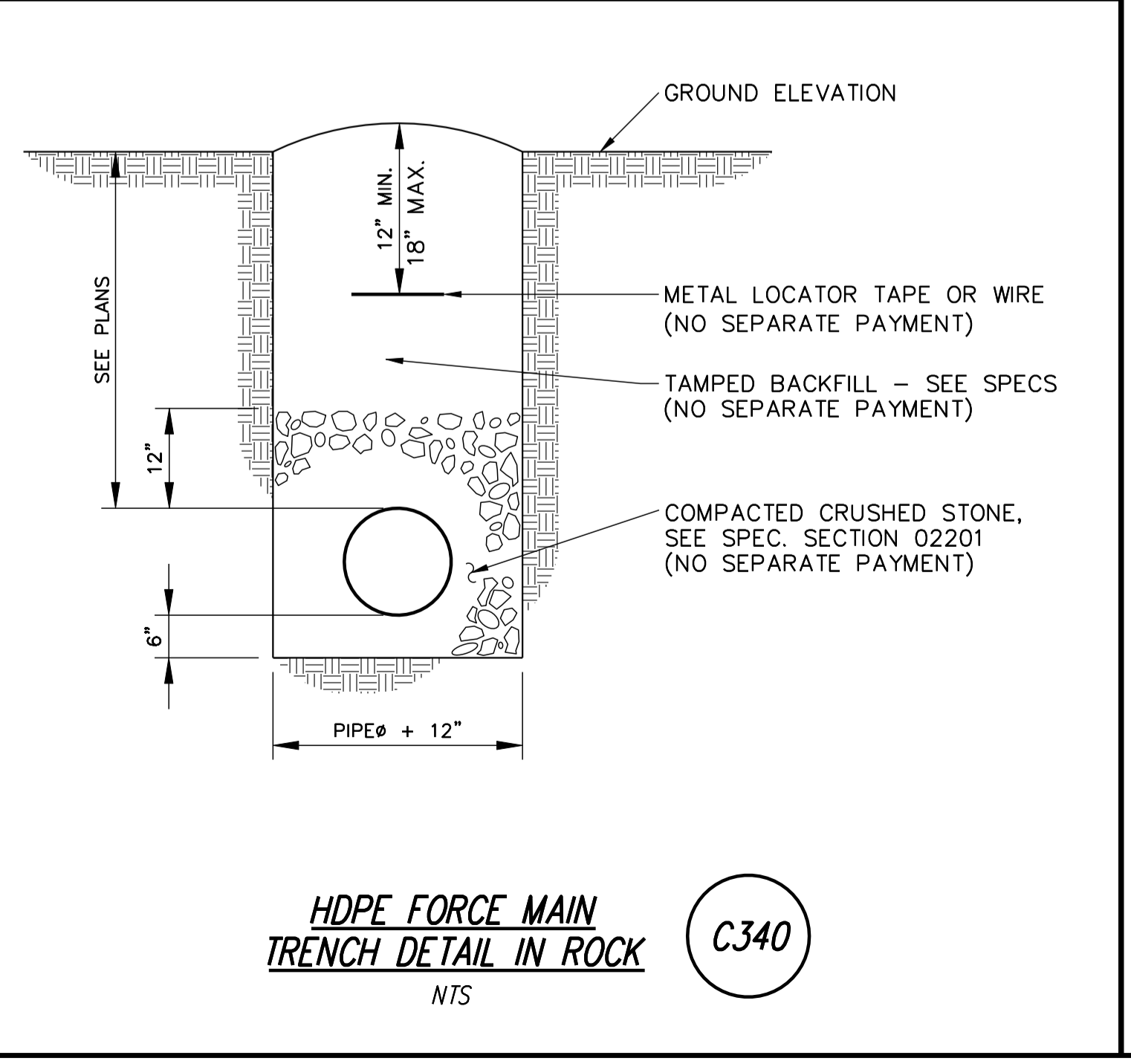
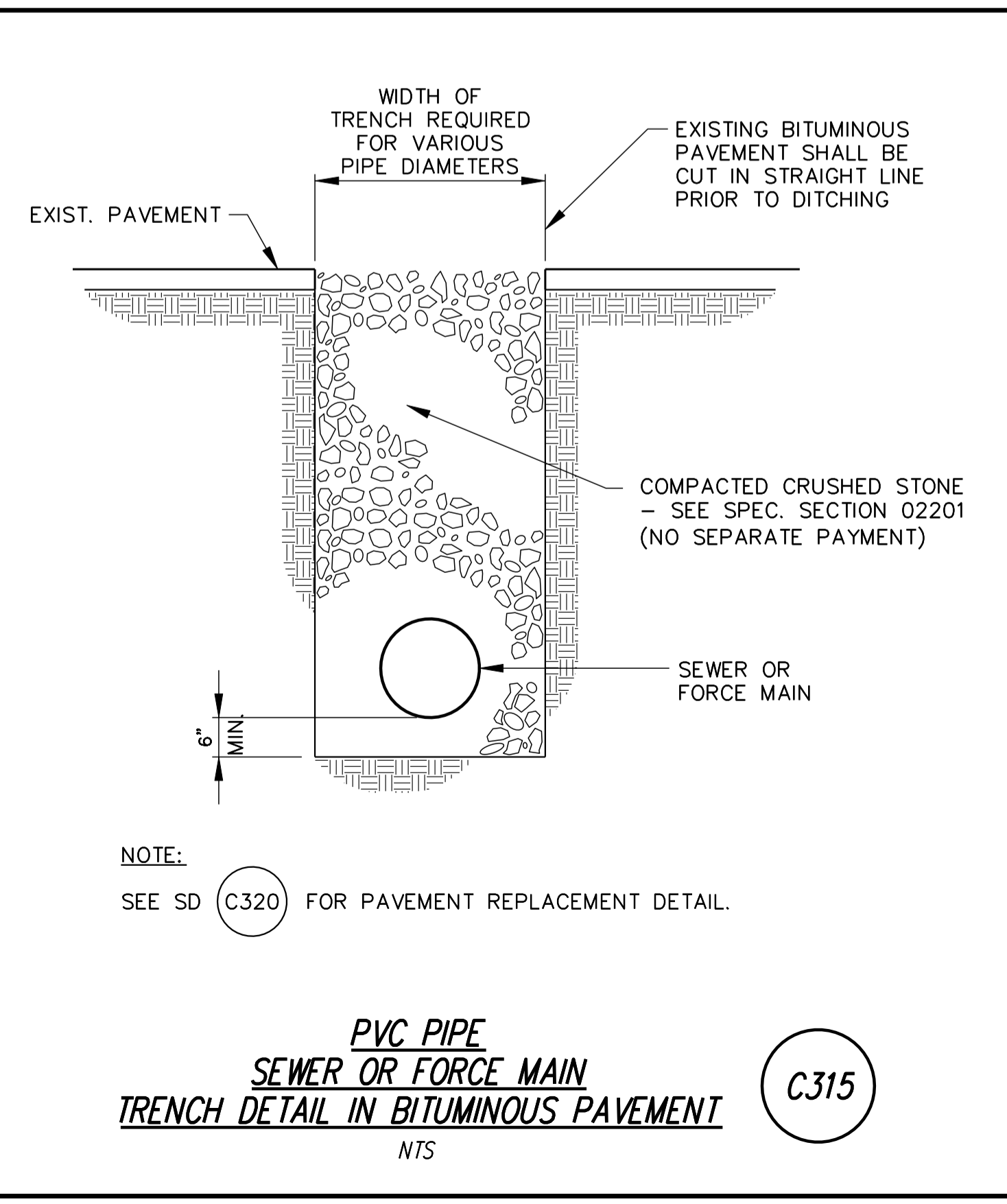
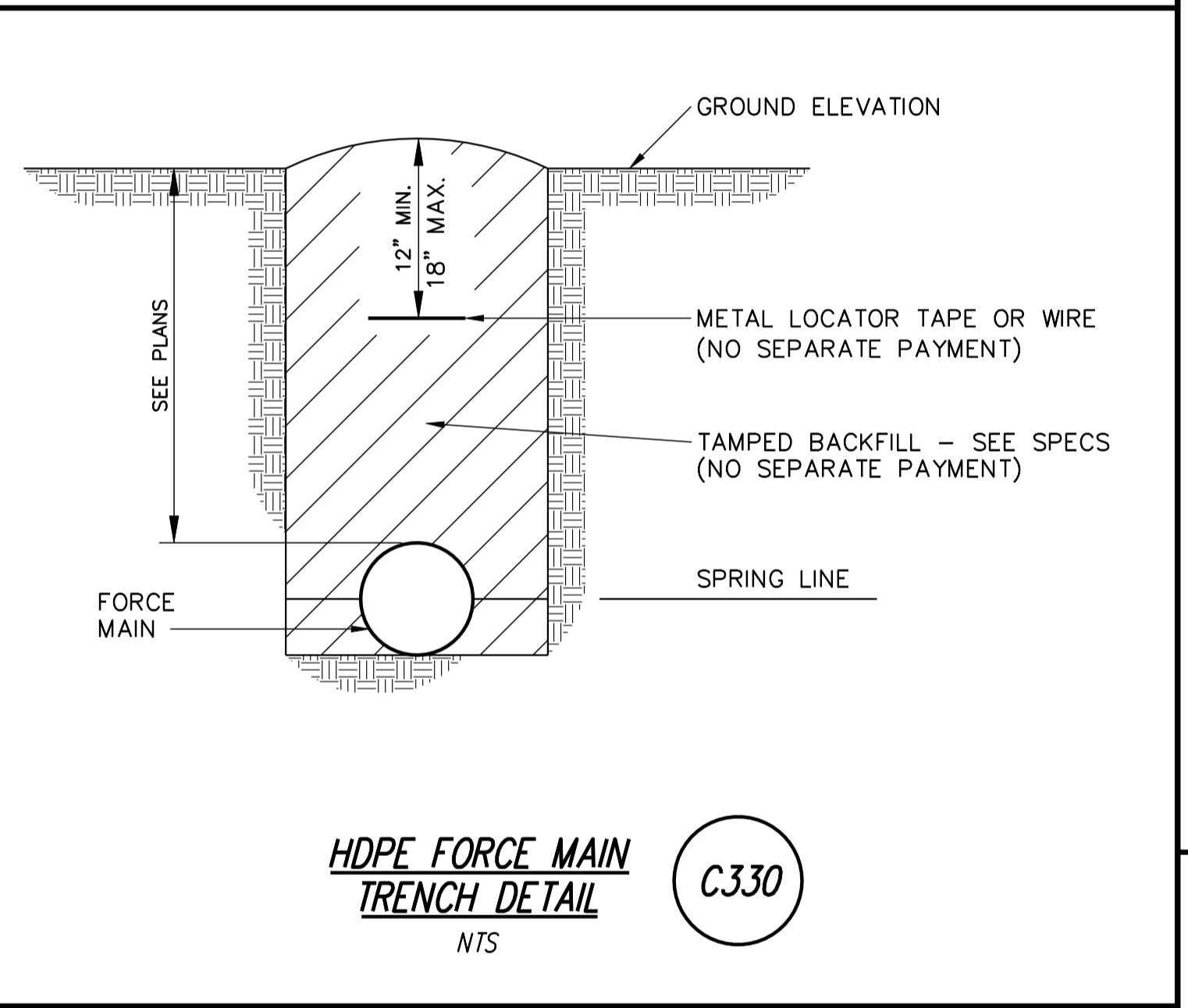
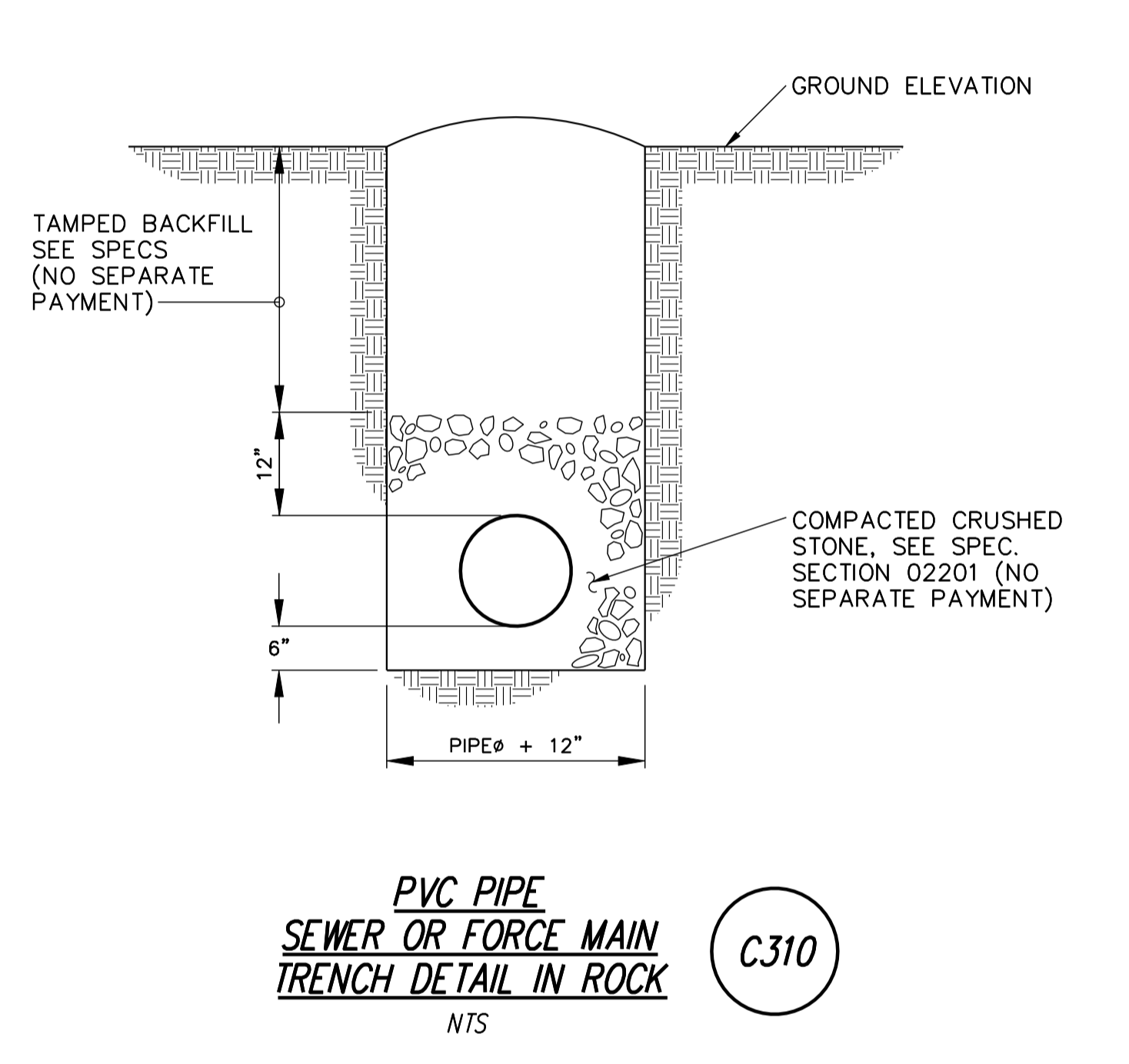
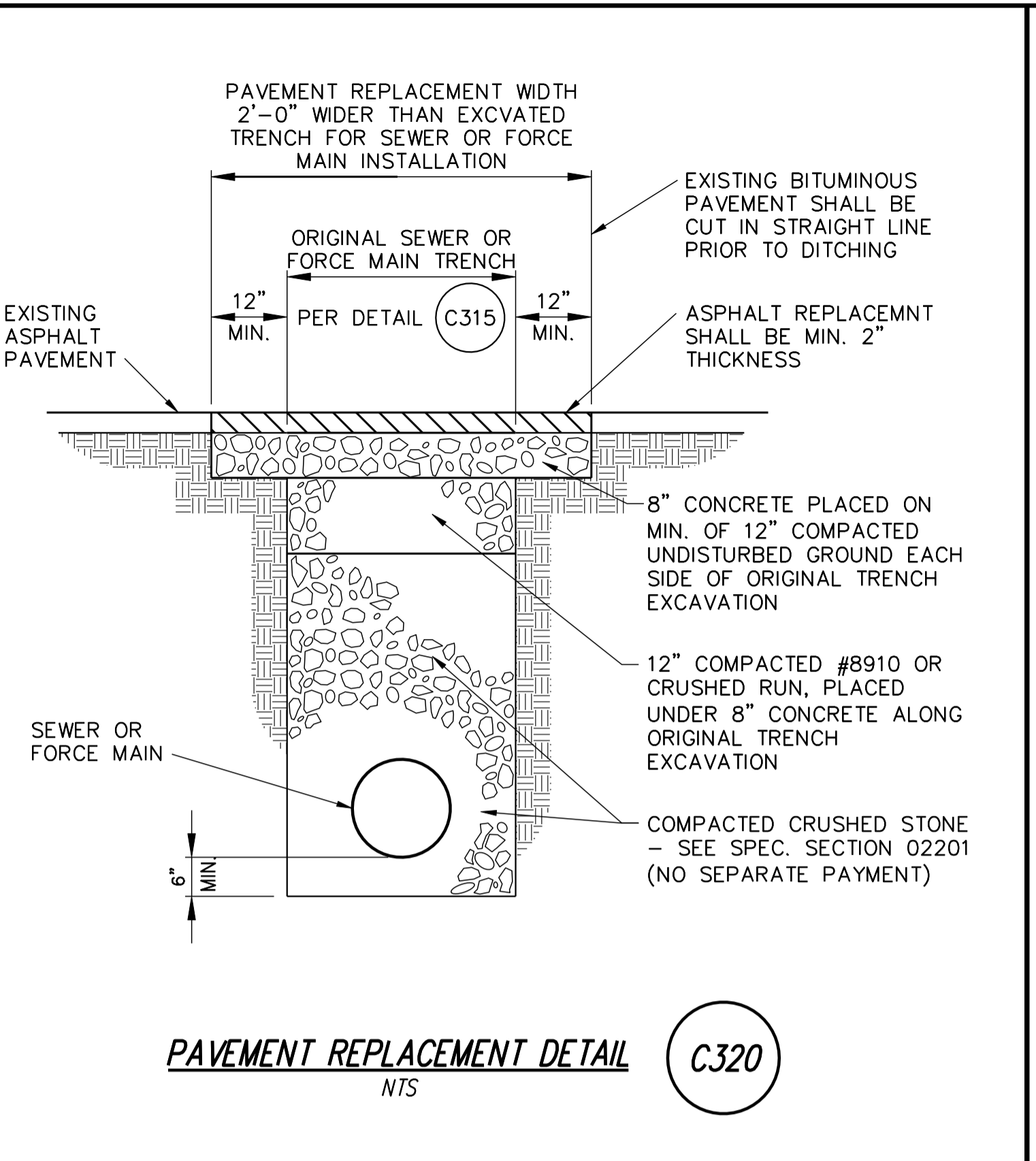
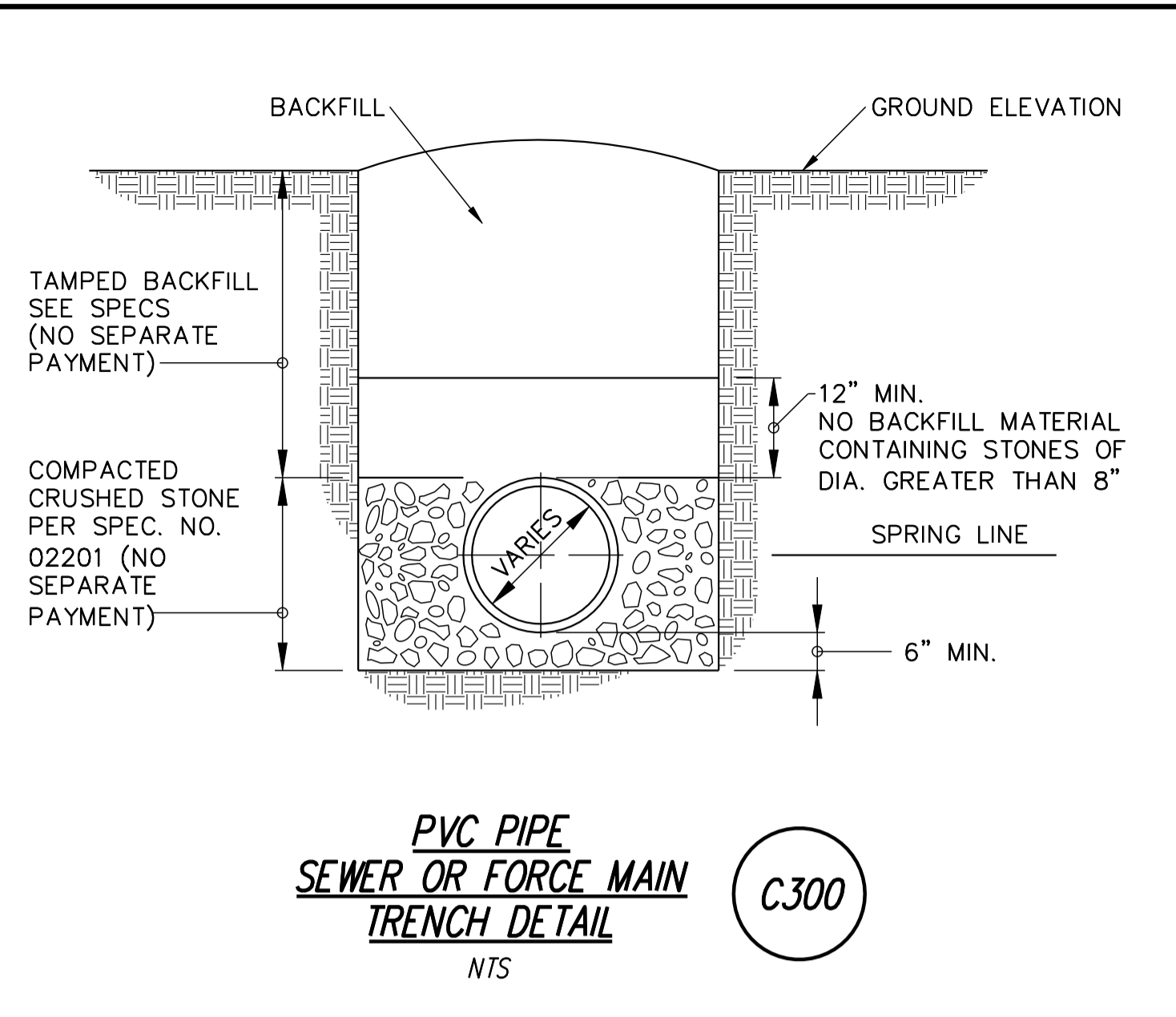
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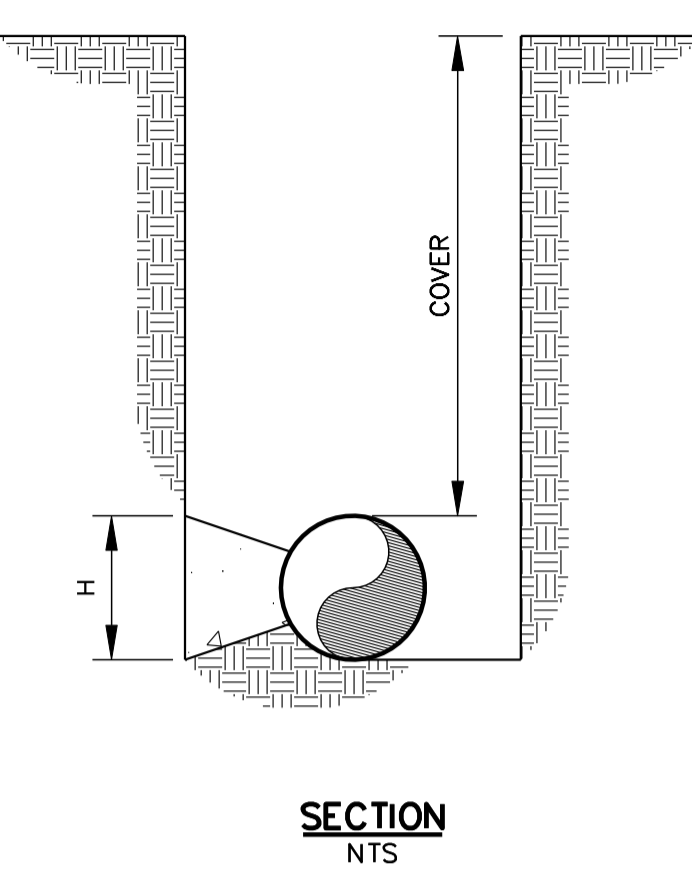
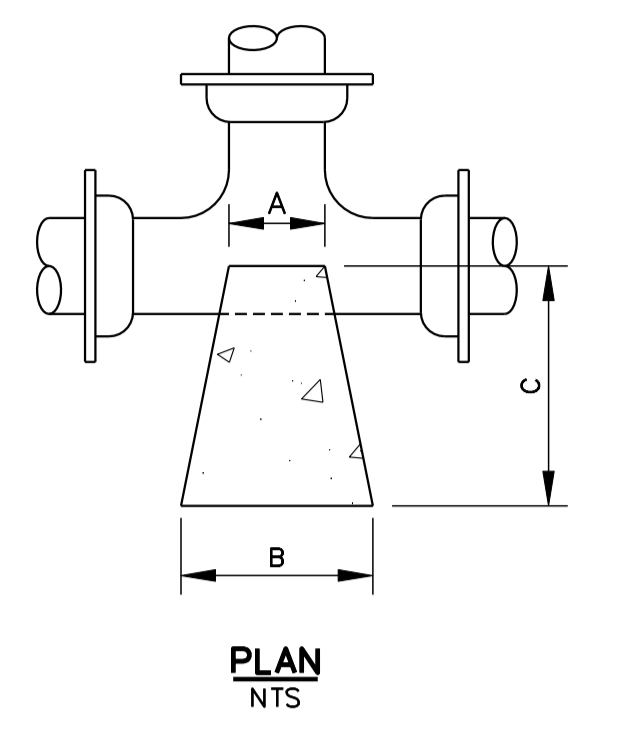
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| NO.       | DATE | DESCRIPTION |
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|           |      |             |
|           |      |             |







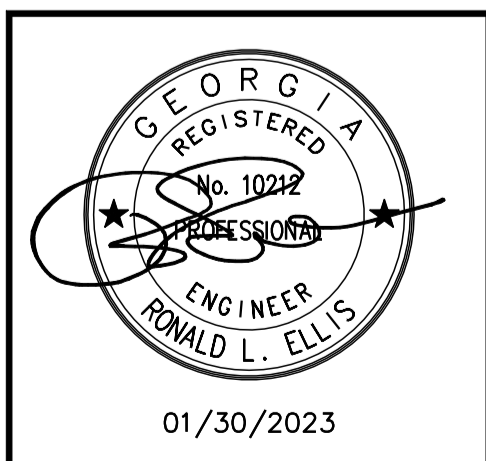
| PIPE Ø    | A         | B      | C       | H      | MIN. COVER |              |
|-----------|-----------|--------|---------|--------|------------|--------------|
| 3" & 4"   | 4"        | 1'-0"  | 1'-10"  | 1'-0"  | 2'-6"      | 90° BEND     |
| 6"        | 6"        | 2'-0"  | 1'-9"   | 1'-6"  | 2'-6"      |              |
| 8"        | 8"        | 2'-8"  | 1'-9"   | 2'-0"  | 3'-0"      |              |
| 10"       | 10"       | 4'-2"  | 1'-11"  | 2'-6"  | 3'-0"      |              |
| 12"       | 1'-2"     | 5'-0"  | 1'-11"  | 3'-0"  | 5'-0"      |              |
| 14"       | 1'-2"     | 5'-0"  | 2'-0"   | 3'-6"  | 5'-0"      |              |
| 16"       | 1'-4"     | 5'-10" | 2'-1"   | 4'-0"  | 5'-0"      |              |
| 18"       | 1'-6"     | 6'-8"  | 2'-2"   | 4'-6"  | 5'-0"      |              |
| 20"       | 1'-8"     | 7'-0"  | 2'-3"   | 5'-0"  | 5'-0"      |              |
| 24" & 36" | 2'-6"     | 8'-6"  | 2'-5"   | 6'-0"  | 5'-0"      | 45° BEND     |
| 42" & 48" | 3'-4"     | 10'-0" | 2'-7"   | 7'-0"  | 5'-0"      |              |
| 3" - 4"   | 4"        | 7"     | 1'-1"   | 1'-0"  | 2'-6"      |              |
| 6"        | 6"        | 1'-1"  | 1'-2"   | 1'-6"  | 2'-6"      |              |
| 8"        | 8"        | 1'-8"  | 1'-2"   | 2'-0"  | 3'-0"      |              |
| 10"       | 10"       | 2'-3"  | 1'-4"   | 2'-6"  | 3'-0"      |              |
| 12"       | 1'-2"     | 2'-9"  | 1'-8"   | 3'-0"  | 5'-0"      |              |
| 14"       | 1'-2"     | 2'-9"  | 1'-8"   | 3'-6"  | 5'-0"      |              |
| 16"       | 1'-2"     | 3'-2"  | 1'-10"  | 4'-0"  | 5'-0"      |              |
| 18"       | 1'-4"     | 3'-7"  | 2'-4"   | 4'-6"  | 5'-0"      |              |
| 20"       | 1'-4"     | 4'-0"  | 2'-10"  | 5'-0"  | 5'-0"      |              |
| 24" & 36" | 1'-6"     | 4'-6"  | 3'-0"   | 6'-0"  | 5'-0"      | 22-1/2° BEND |
| 42" & 48" | 1'-8"     | 5'-6"  | 3'-6"   | 7'-0"  | 5'-0"      |              |
| 3" - 4"   | 4"        | 4"     | 1'-1"   | 8"     | 2'-6"      |              |
| 6"        | 6"        | 8"     | 1'-0"   | 1'-0"  | 2'-6"      |              |
| 8"        | 8"        | 1'-0"  | 1'-0"   | 1'-4"  | 3'-0"      |              |
| 10"       | 10"       | 1'-4"  | 1'-1"   | 1'-8"  | 3'-0"      |              |
| 12"       | 1'-2"     | 1'-9"  | 1'-7"   | 2'-0"  | 5'-0"      |              |
| 14"       | 1'-2"     | 1'-11" | 2'-1"   | 2'-4"  | 5'-0"      |              |
| 16"       | 1'-2"     | 2'-2"  | 2'-5"   | 3'-4"  | 5'-0"      |              |
| 18"       | 1'-4"     | 2'-0"  | 2'-1"   | 3'-8"  | 5'-0"      |              |
| 20"       | 1'-4"     | 2'-4"  | 2'-1"   | 4'-2"  | 5'-0"      |              |
| 24" & 36" | 1'-6"     | 3'-0"  | 3'-0"   | 4'-10" | 5'-0"      | TEE RUN      |
| 42" & 48" | 1'-8"     | 3'-8"  | 3'-8"   | 5'-10" | 5'-0"      |              |
| 3" - 4"   | 5"        | 10"    | 6"      | 1'-0"  | 2'-6"      |              |
| 6"        | 6"        | 1'-4"  | 6"      | 1'-6"  | 2'-6"      |              |
| 8"        | 7"        | 4'-0"  | 6"      | 2'-0"  | 3'-0"      |              |
| 10"       | 9"        | 3'-0"  | 6"      | 2'-6"  | 3'-0"      |              |
| 12"       | 10"       | 3'-8"  | 6"      | 3'-0"  | 5'-0"      |              |
| 14"       | 11-1/2"   | 3'-6"  | 7"      | 3'-6"  | 5'-0"      |              |
| 16"       | 1'-0 1/2" | 4'-0"  | 8"      | 4'-0"  | 5'-0"      |              |
| 18"       | 1'-2"     | 4'-8"  | 9"      | 4'-6"  | 5'-0"      |              |
| 20"       | 1'-3 1/2" | 5'-0"  | 10"     | 5'-0"  | 5'-0"      |              |
| 24" & 36" | 2'-3"     | 6'-0"  | 12"/18" | 6'-0"  | 5'-0"      | 11-1/4° BEND |
| 42" & 48" | 3'-0"     | 7'-0"  | 21"/24" | 7'-0"  | 5'-0"      |              |
| 3" - 4"   | 4"        | 4"     | 1'-0"   | 6"     | 2'-6"      |              |
| 6"        | 4"        | 4"     | 1'-0"   | 8"     | 2'-6"      |              |
| 8"        | 6"        | 8"     | 1'-0"   | 10"    | 3'-0"      |              |
| 10"       | 8"        | 10"    | 1'-0"   | 1'-0"  | 3'-0"      |              |
| 12"       | 10"       | 12"    | 1'-0"   | 1'-2"  | 5'-0"      |              |
| 14"       | 1'-0"     | 1'-4"  | 1'-0"   | 1'-4"  | 5'-0"      |              |
| 16"       | 1'-0"     | 1'-8"  | 1'-0"   | 1'-6"  | 5'-0"      |              |
| 18"       | 1'-2"     | 2'-0"  | 1'-0"   | 1'-8"  | 5'-0"      |              |
| 20"       | 1'-2"     | 2'-6"  | 1'-0"   | 2'-6"  | 5'-0"      |              |
| 24" & 36" | 1'-9"     | 3'-0"  | 1'-0"   | 3'-9"  | 5'-0"      |              |
| 42" & 48" | 2'-7"     | 4'-0"  | 1'-0"   | 5'-0"  | 5'-0"      |              |



- NOTES:
1. CONCRETE MUST BE PLACED AGAINST UNDISTURBED MATERIAL ON BEARING FACE
  2. PLACE NO CONCRETE UNDER PIPE OR ON JOINT BOLTS. JOINT MAY BE WRAPPED IN PLASTIC TO PREVENT ADHERENCE.
  3. ALL JOINTS MECHANICAL

|                |            |
|----------------|------------|
| DRAWING NAME : | CONT-B_S-3 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | AS SHOWN   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |
|           |      |             |





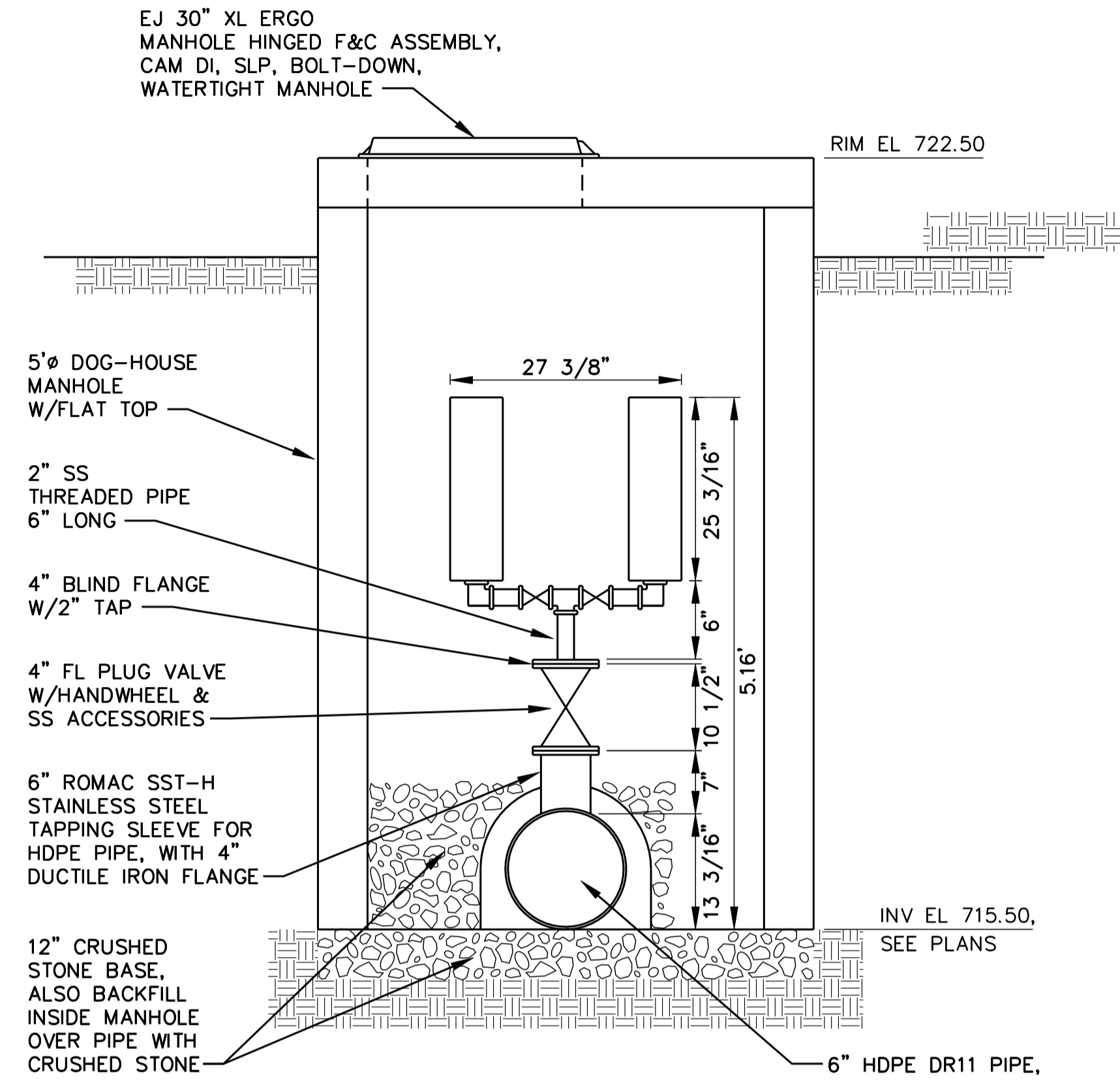
**ELLIS**  
&  
ASSOCIATES

RONALD L. ELLIS  
&  
ASSOCIATES, INC.

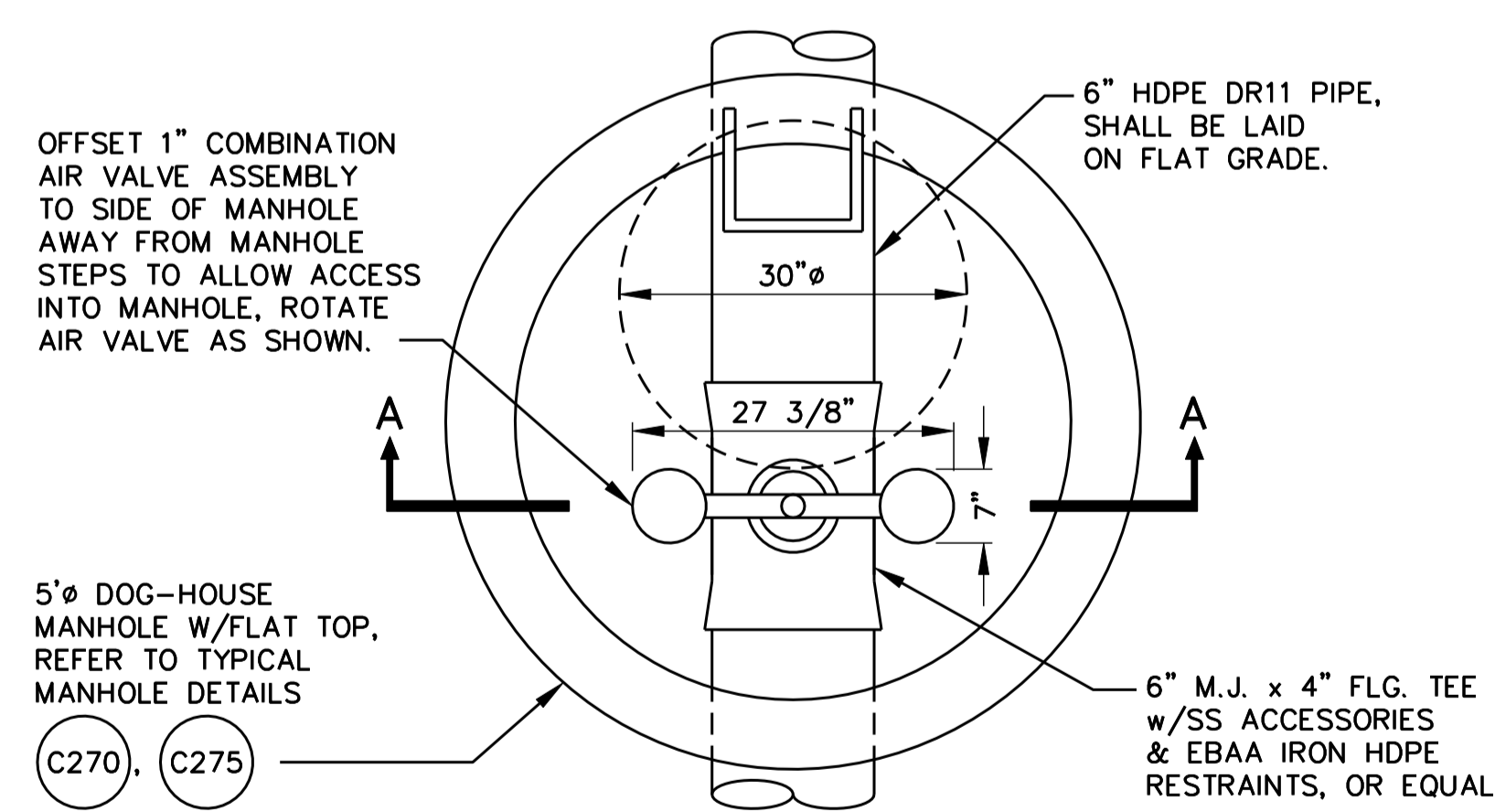
Consulting Engineers  
Pelham, Alabama

**CITY OF LAGRANGE, GEORGIA**  
**CONTRACT B - 2023 HILLS & DALES**  
**LIFT STATION, FORCE MAIN & SEWER IMPROVEMENTS**

CIVIL / SITEWORK & MECHANICAL DETAILS



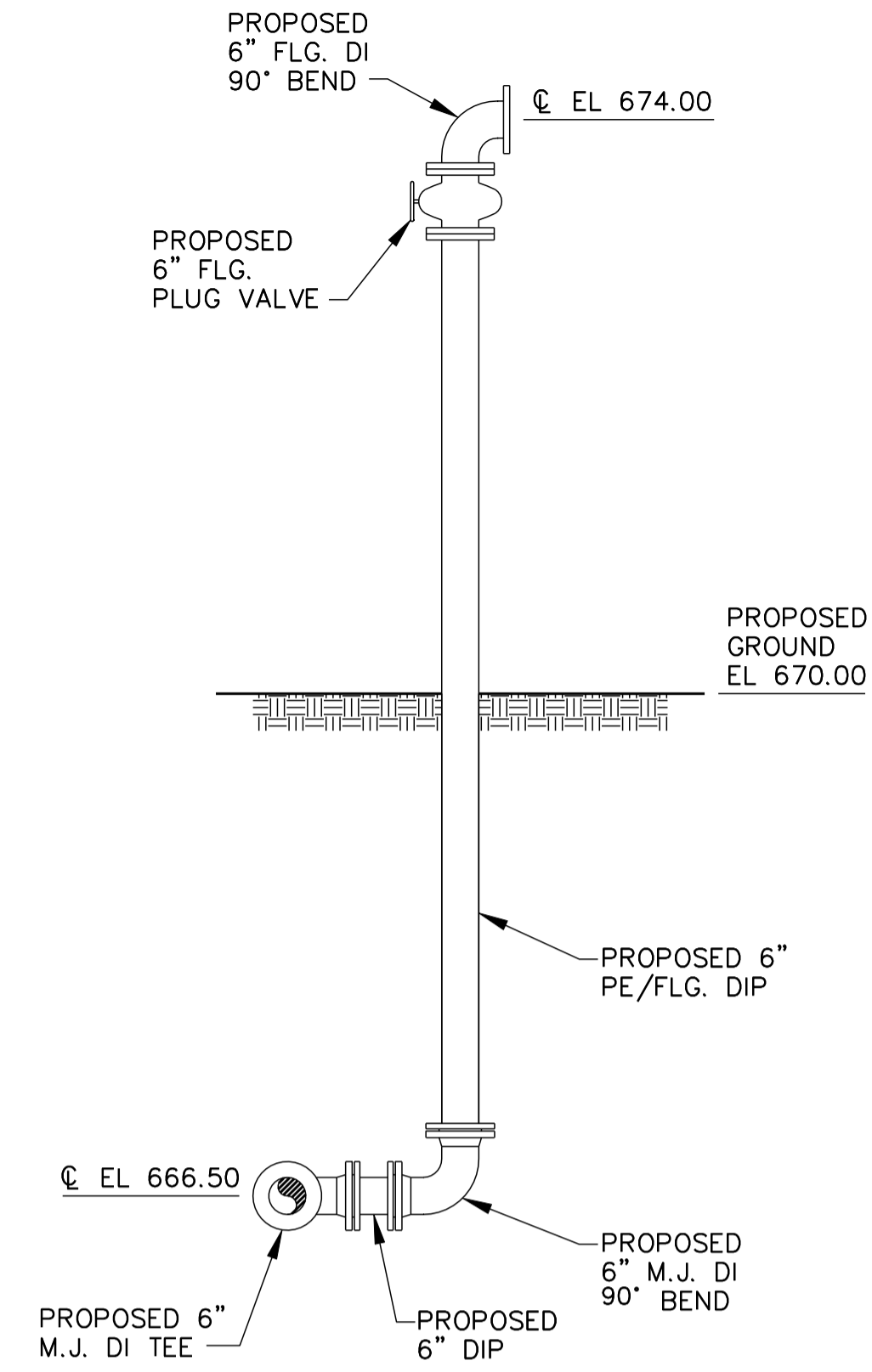
**SECTION A-A**



NOTE:  
1. ARV TO BE INSTALLED BY OWNER.

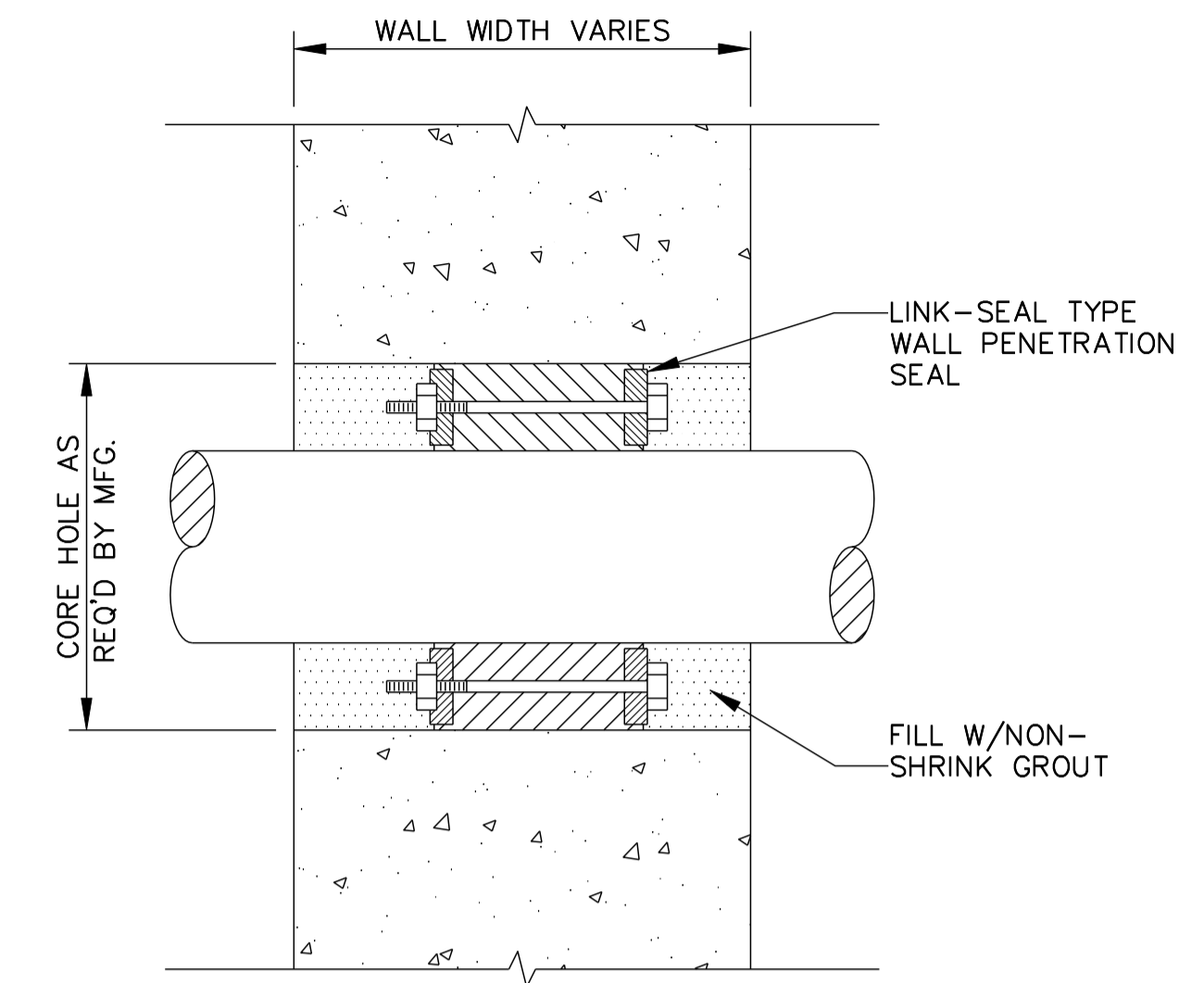
**1\"/>**

**C600**



**BYPASS CONNECT DETAIL**  
NTS

**C650**

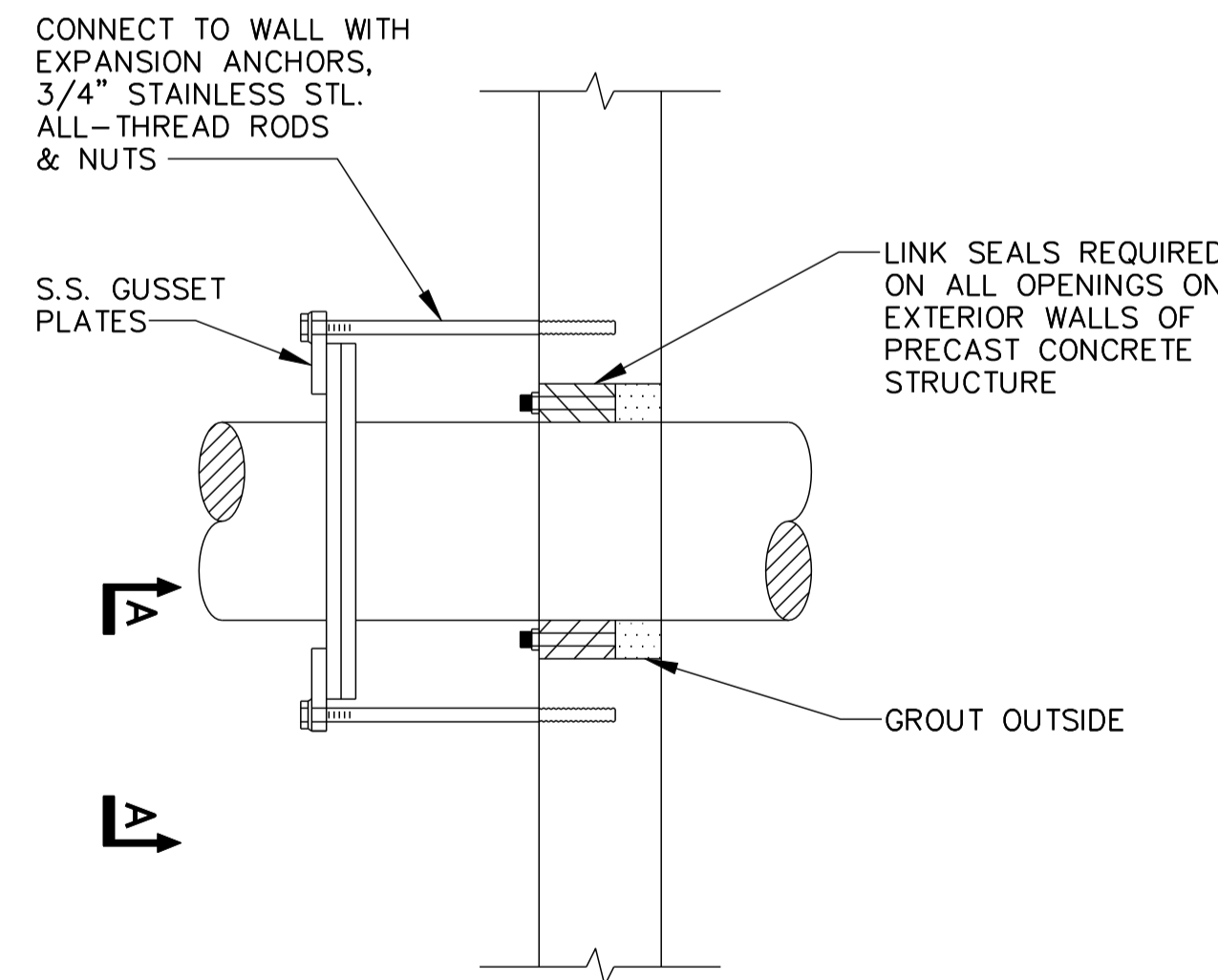


NOTE:  
CONTRACTOR TO CORE PRECAST CONCRETE WALLS AND INSTALL LINK-SEAL (OR EQUAL) PER MANUFACTURERS SPECIFICATIONS

ALL HARDWARE IS 5316 STAINLESS STEEL

**TYPICAL LINK-SEAL DETAIL**  
NTS

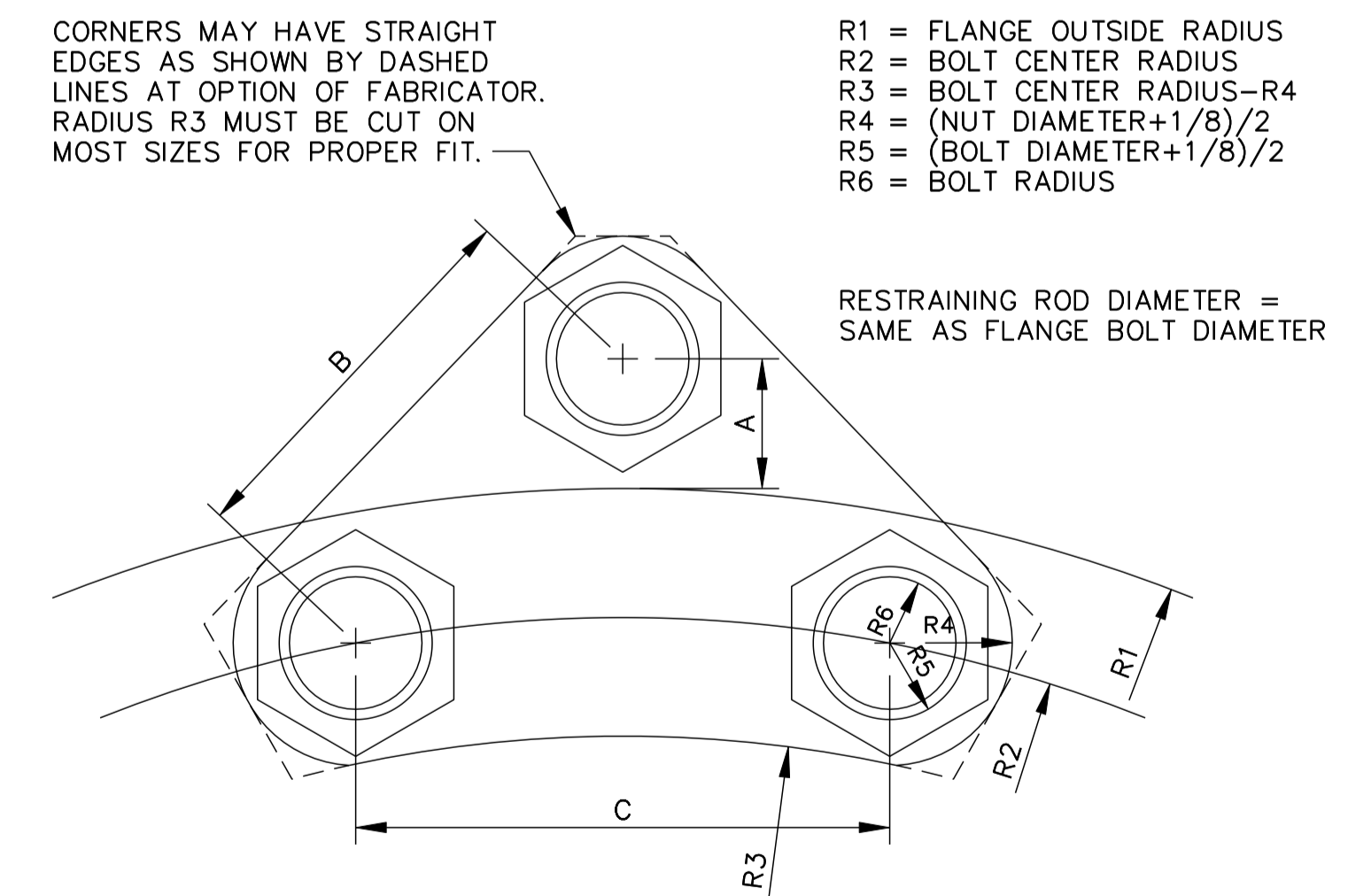
**M300**



**FOR ALL WALL TYPES**

**TYPICAL PIPE RESTRAINT DETAIL**  
NTS

**M110**



**SECTION A-A**

|                |            |
|----------------|------------|
| DRAWING NAME : | CONT-B_S-4 |
| PROJECT NO. :  | 21.135     |
| DRAWN BY :     | RDE        |
| DESIGNED BY :  | RLE        |
| APPROVED BY :  | RLE        |
| SCALE :        | AS SHOWN   |
| DATE :         | 01/30/2023 |

| REVISIONS |      |             |
|-----------|------|-------------|
| NO.       | DATE | DESCRIPTION |
|           |      |             |
|           |      |             |
|           |      |             |

