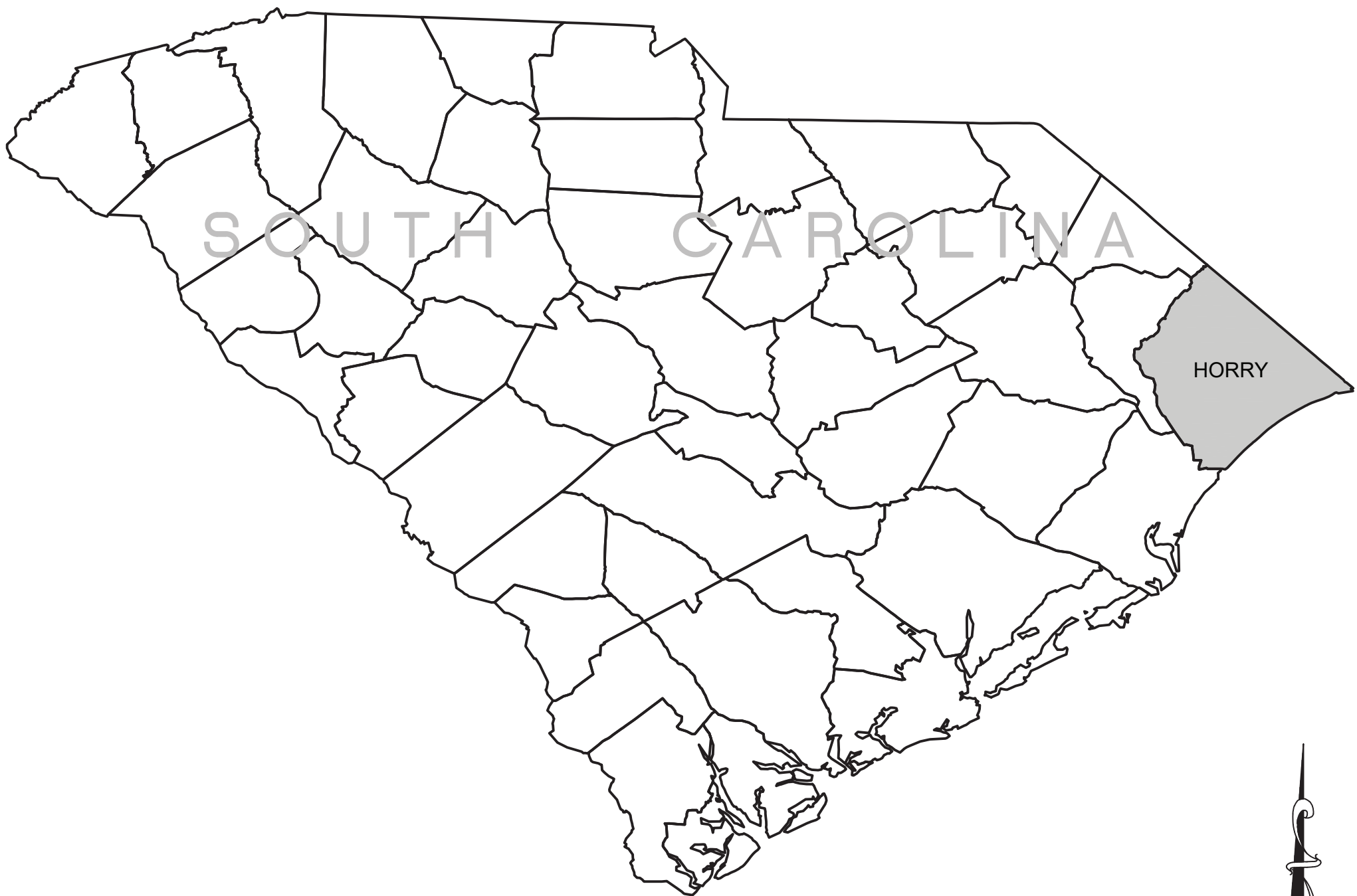


BULL CREEK WTP
SLUDGE DEWATERING
FACILITY

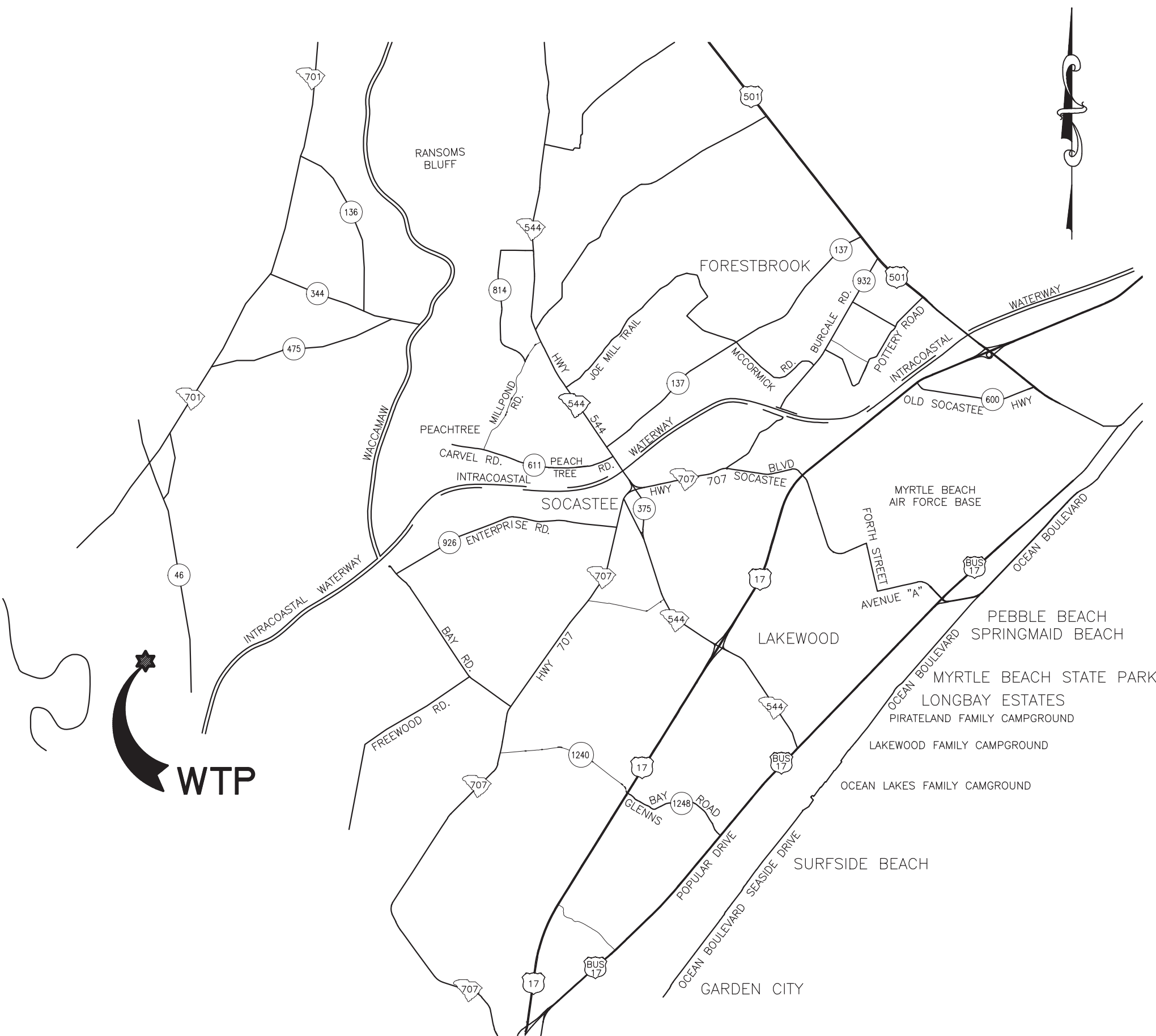
HORRY COUNTY, SOUTH CAROLINA



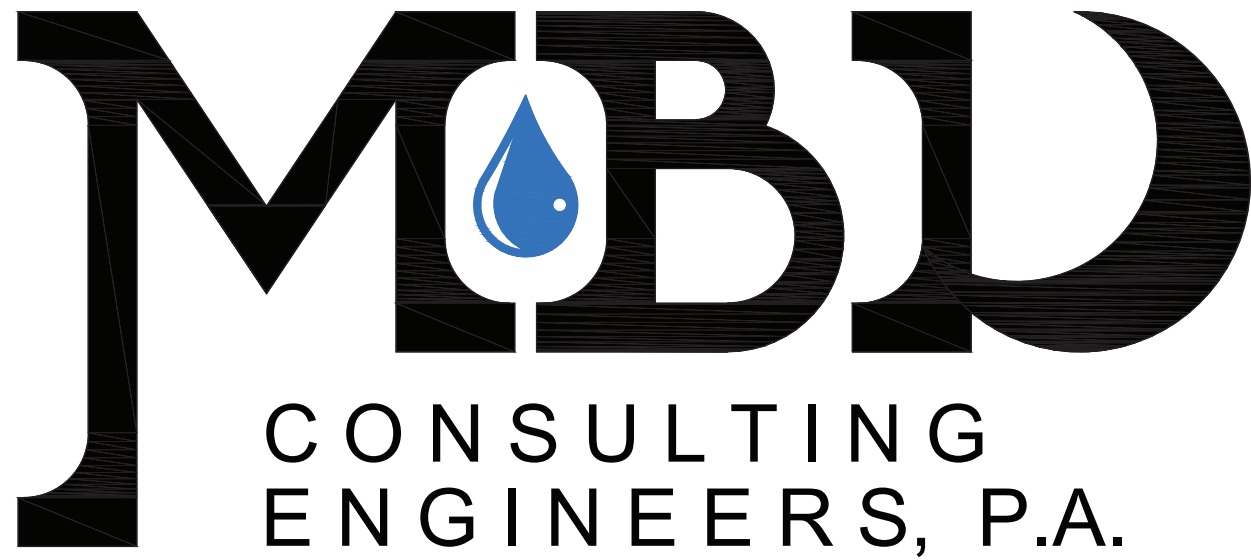
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LOCATION MAP
N.T.S.



VICINITY MAP
N.T.S.



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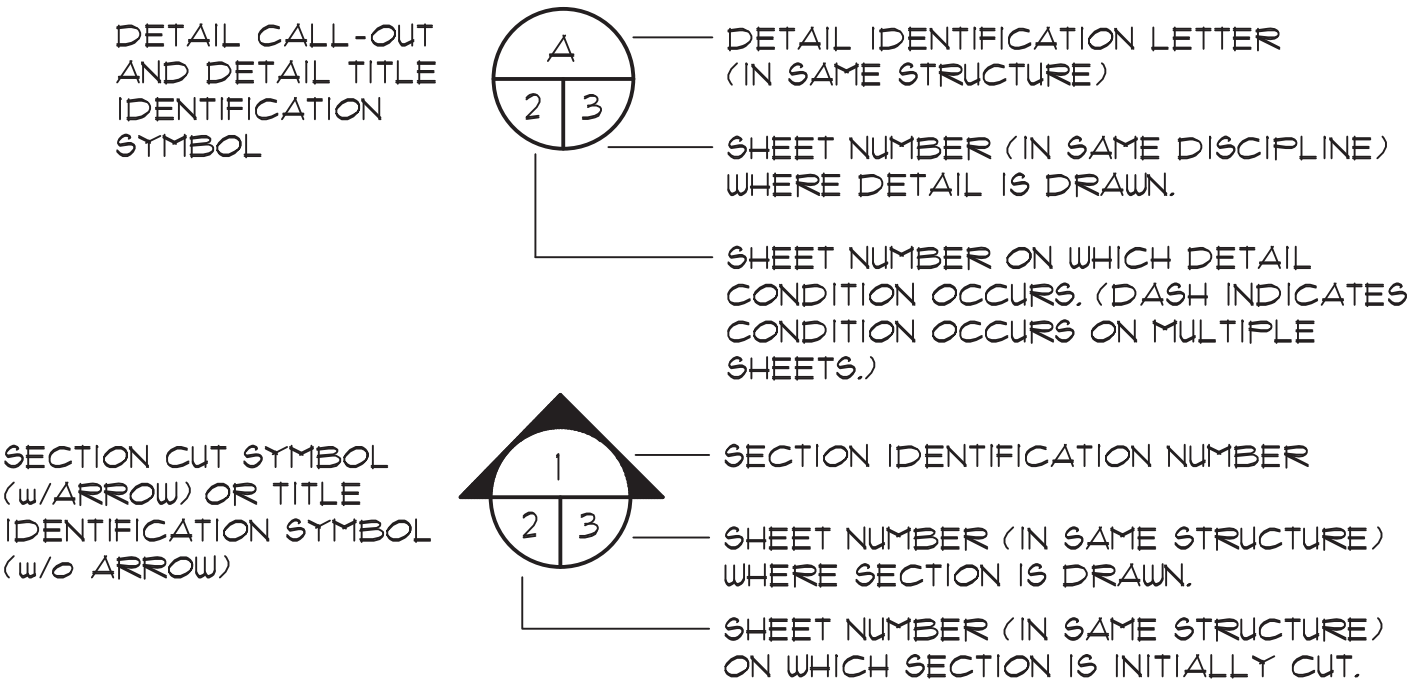
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| | MARCH 2020 |
| | JOB NO. 317010 |
| | 11x17 DWGS. ARE TRUE HALF SCALE |
| | AS-BUILT |

Version: 2

GENERAL CONSTRUCTION ABBREVIATIONS

| | | | |
|--------|-------------------------------|--------|--|
| # | NUMBER OR POUND | INFL | INFLUENT |
| Ø | DIAMETER | INS. | INSIDE |
| & | AND | INV. | INVERT |
| < | LESS THAN | JT. | JOINT |
| <= | LESS THAN OR EQUAL TO | JTS | JOINTS |
| > | GREATER THAN | L.L.O. | LONG LEG OUT |
| @ | AT | LB | POUND |
| AB. | ANCHOR BOLT | LG | LONG |
| AFF. | ABOVE FINISHED FLOOR | L.P. | LOW POINT |
| ADDL | ADDITIONAL | M.J. | MECHANICAL JOINT |
| ALUM | ALUMINUM OR ALUM | MATL. | MATERIAL |
| APPROX | APPROXIMATE(LY) | MAS | MASONRY |
| ARCH | ARCHITECTURAL | MAX | MAXIMUM |
| BM | BENCH MARK OR BEAM | MECH | MECHANICAL |
| BOTT. | BOTTOM | MFR | MANUFACTURER |
| B.W. | BLOCK WALL | MH | MANHOLE |
| C.I. | CAST IRON | MIN | MINIMUM |
| C/C | CENTER TO CENTER | MNTG | MOUNTING |
| CAP | CAPACITY | N.P.W. | NONPOTABLE WATER |
| CIRCUM | CIRCUMFERENCE | N.T.S. | NOT TO SCALE |
| CL | CLAY | NO. | NUMBER |
| CLR. | CLEARANCE | O.C. | ON CENTER |
| CL2 | CENTERLINE | O/O | OUTSIDE TO OUTSIDE |
| CL2 | CHLORINE | OPNG | OPENING |
| CLARIF | CLARIFIER | OX | OXIDATION |
| CHEM. | CHEMICAL | P.E. | PLAIN END |
| COL | COLUMN | PED | PEDESTAL |
| CONC. | CONCRETE | PL | PLATE |
| CONST | CONSTRUCTION | PLCS. | PLACES |
| CONT | CONTINUOUS | PROJ | PROJECTION |
| CONTR | CONTRACTOR | P.S. | PUMP STATION |
| CU | COPPER | P.V.C. | POLYVINYL CHLORIDE |
| C.W. | CONCRETE WALL | R.C.P. | REINFORCED CONCRETE PIPE |
| D | DIAMETER | RAD. | RADIUS |
| DIA | DIAMETER | RAS | RETURN ACTIVATED SLUDGE |
| D.I.P. | DUCTILE IRON PIPE | RED | REDUCER |
| DISCH. | DISCHARGE | REF | REFERENCE |
| DP | DEEP | REINF | REINFORCING OR REINFORCED |
| DWLS. | DOWELS | REQ'D | REQUIRED |
| E.F. | EACH FACE | S.S. | STAINLESS STEEL |
| E.J. | EXPANSION JOINT | SCH. | SCHEDULE |
| EA | EACH | SHT | SHEET |
| EFF. | EFFLUENT | SIM | SIMILAR |
| EL | ELEVATION | SO2 | SULFUR DIOXIDE |
| ELEV | ELEVATION | SFA | SFACES |
| EQ | EQUAL | SQ. | SQUARE |
| EQUIP | EQUIPMENT | STD. | STANDARD |
| EXIST. | EXISTING | STL | STEEL |
| EXP. | EXPANSION | STN | STAINLESS |
| F.E.S. | FLARED END SECTION | SW. | SLAB WIDTH |
| F.R.P. | FIBERGLASS REINFORCED PLASTIC | SWD. | SIDE WALL DEPTH |
| | | T/ | TOP OF |
| FIG | FIGURE | TCJ/CJ | TYP. CONTROL JOINT, CONSTRUCTION JOINT |
| FIN | FINISHED | | |
| FL. | FLANGE | THRD | THREAD(SXED) |
| FLR | FLOOR | TRICK | TRICKLING |
| FTG | FOOTING | TYP | TYPICAL |
| GALV | GALVANIZED | U.O.N. | UNLESS OTHERWISE NOTED |
| HDWE | HARDWARE | VERT | VERTICAL |
| HK | HOOK | WWF. | WELDED WIRE FABRIC |
| HORIZ. | HORIZONTAL | W/ | WITH |
| H.P. | HIGH POINT | W/O | WITHOUT |
| HYD | HYDRANT | WAS | WASTE ACTIVATED SLUDGE |
| I.D. | INSIDE DIAMETER | W/L | WATER LEVEL |
| O.D. | OUTSIDE DIAMETER | | |

SECTION/DETAIL LEGEND



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SLUDGE BUILDING HVAC PLAN

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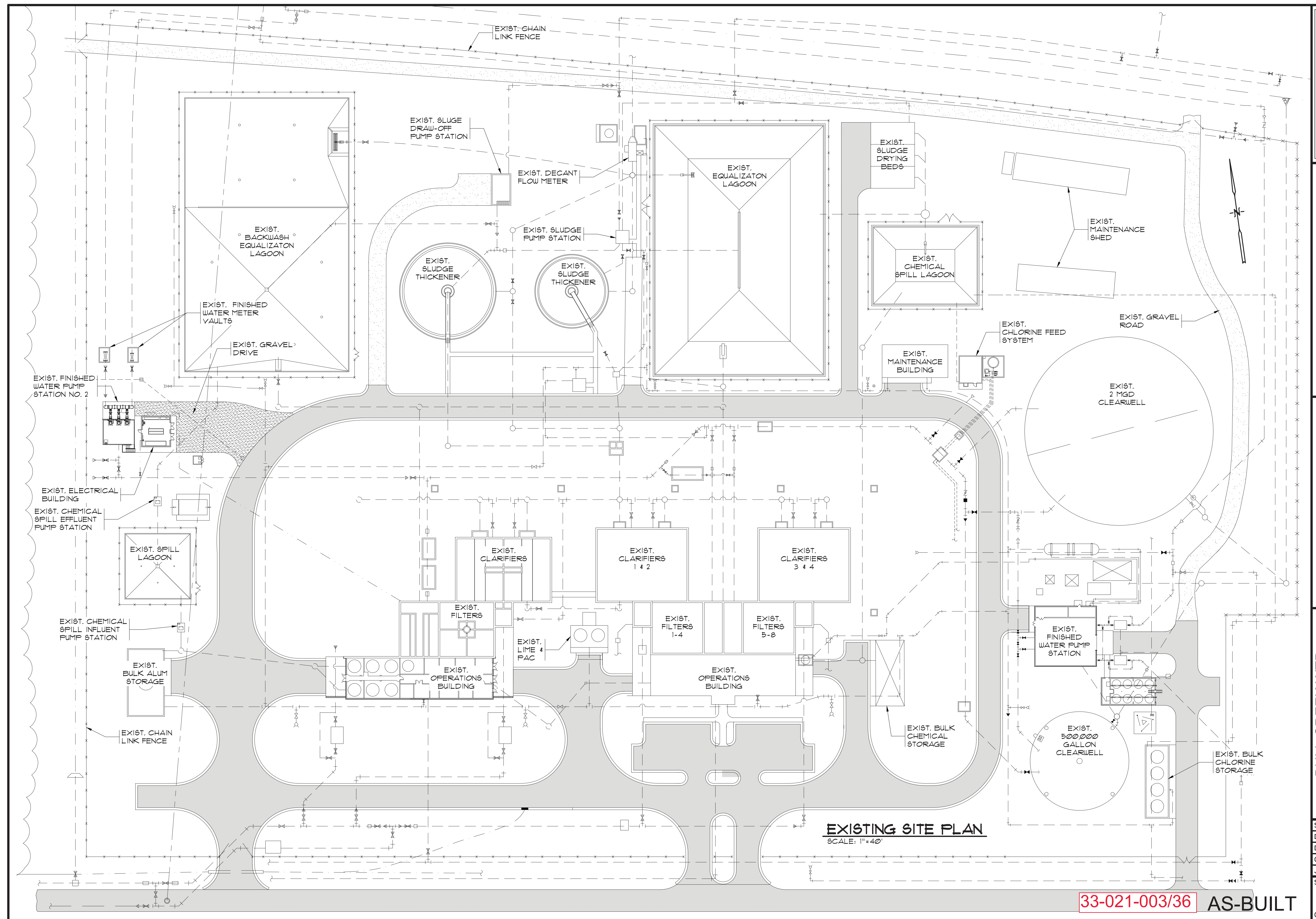
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GENERAL NOTES & INDEX

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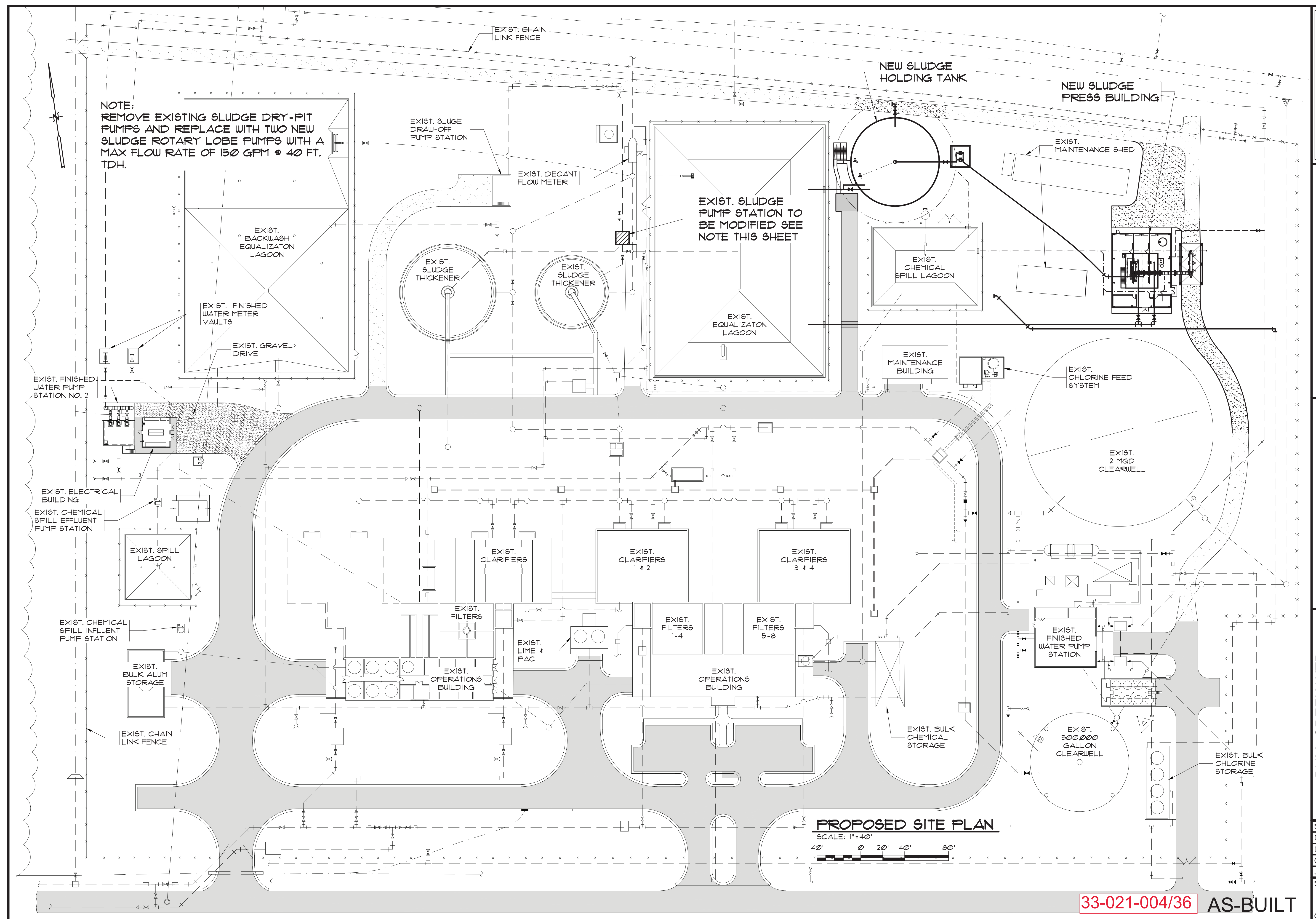
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EXISTING SITE PLAN

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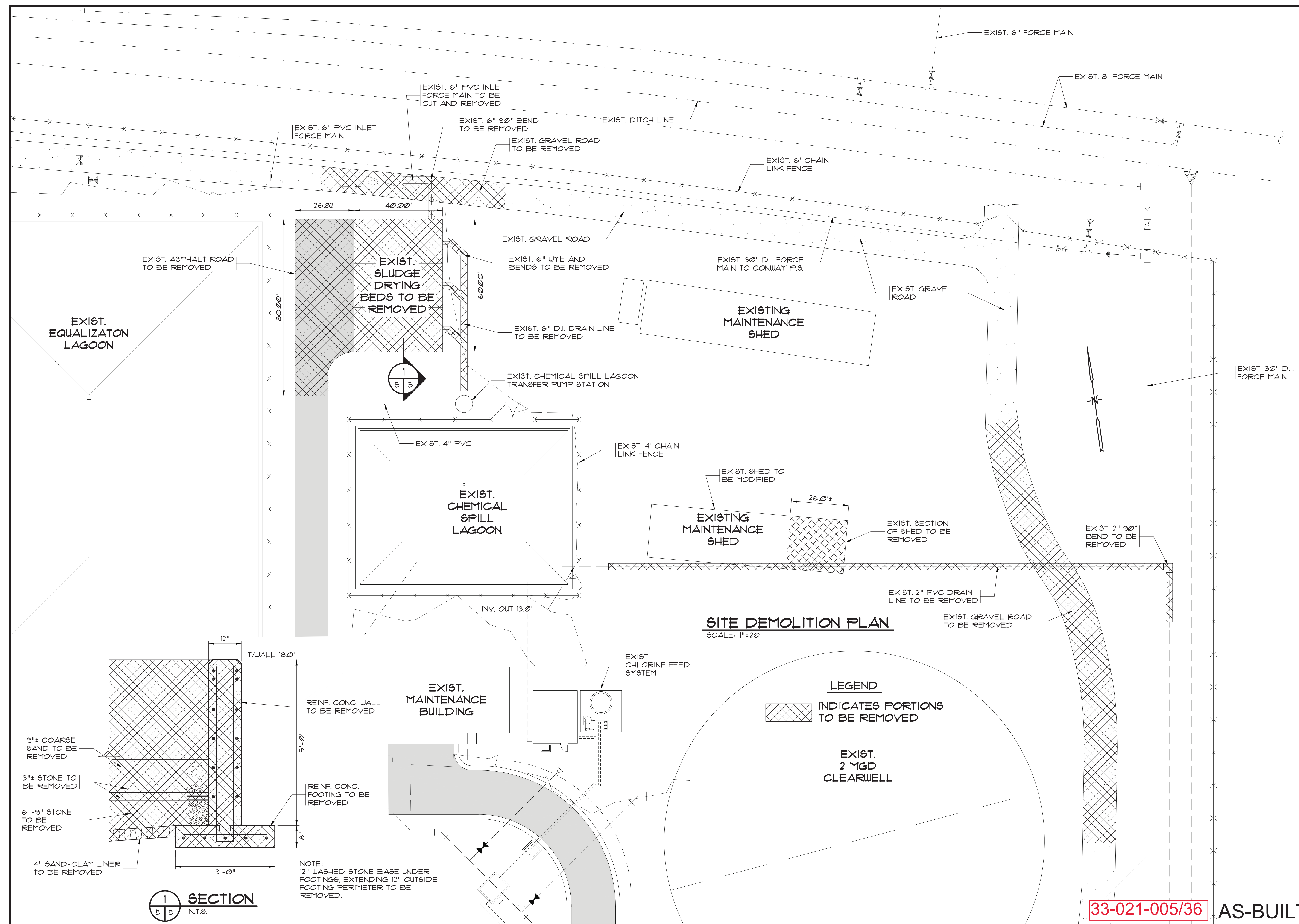
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PROPOSED SITE PLAN

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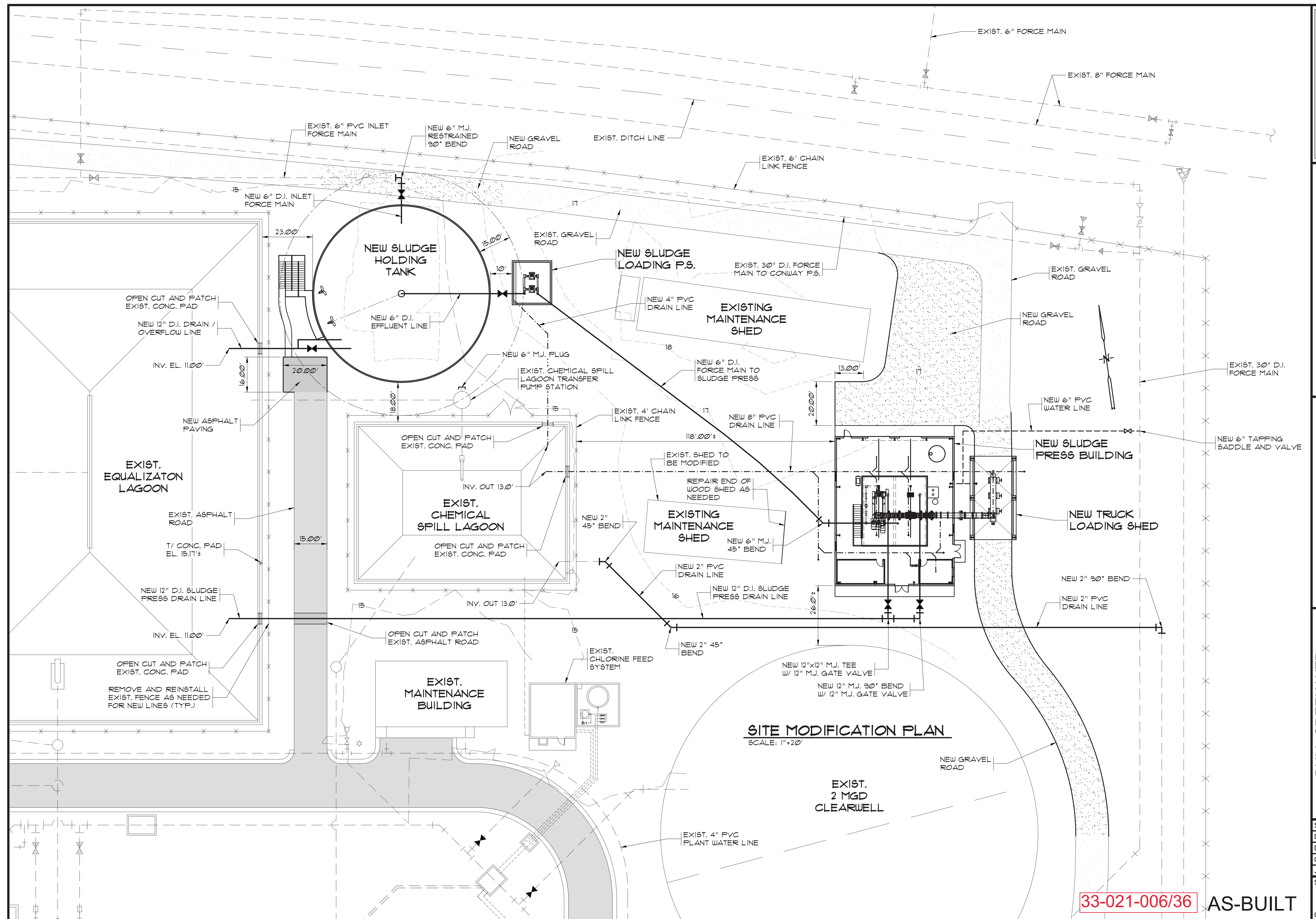
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SITE DEMOLITION PLAN

**BULL CREEK WTP
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FACILITY**
GRAND STRAND WATER AND
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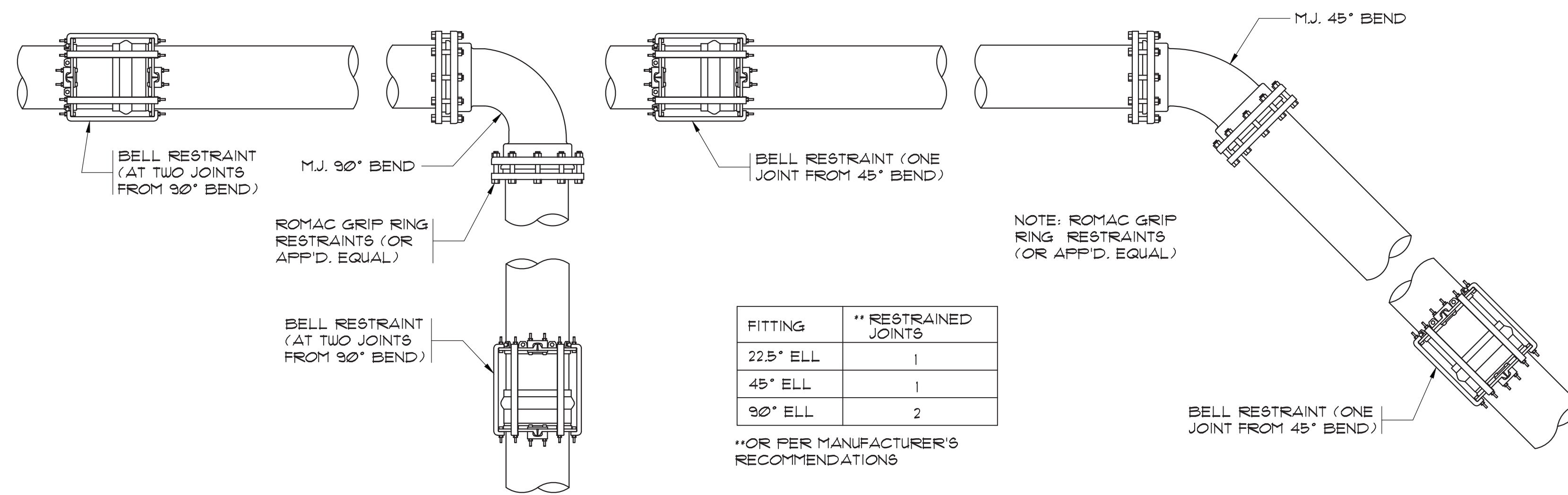
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SITE MODIFICATION
PLAN

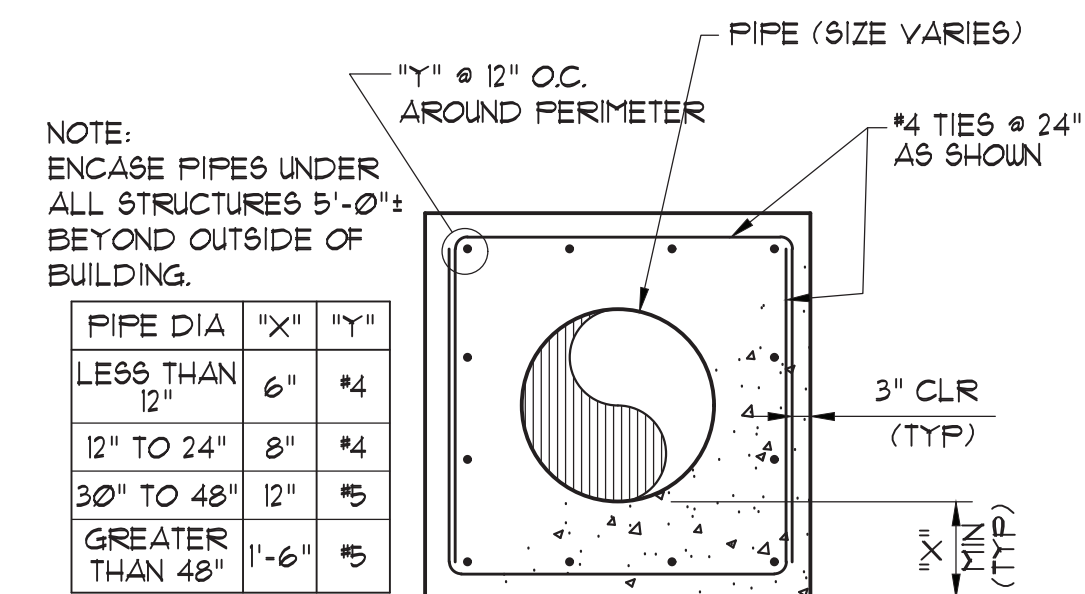
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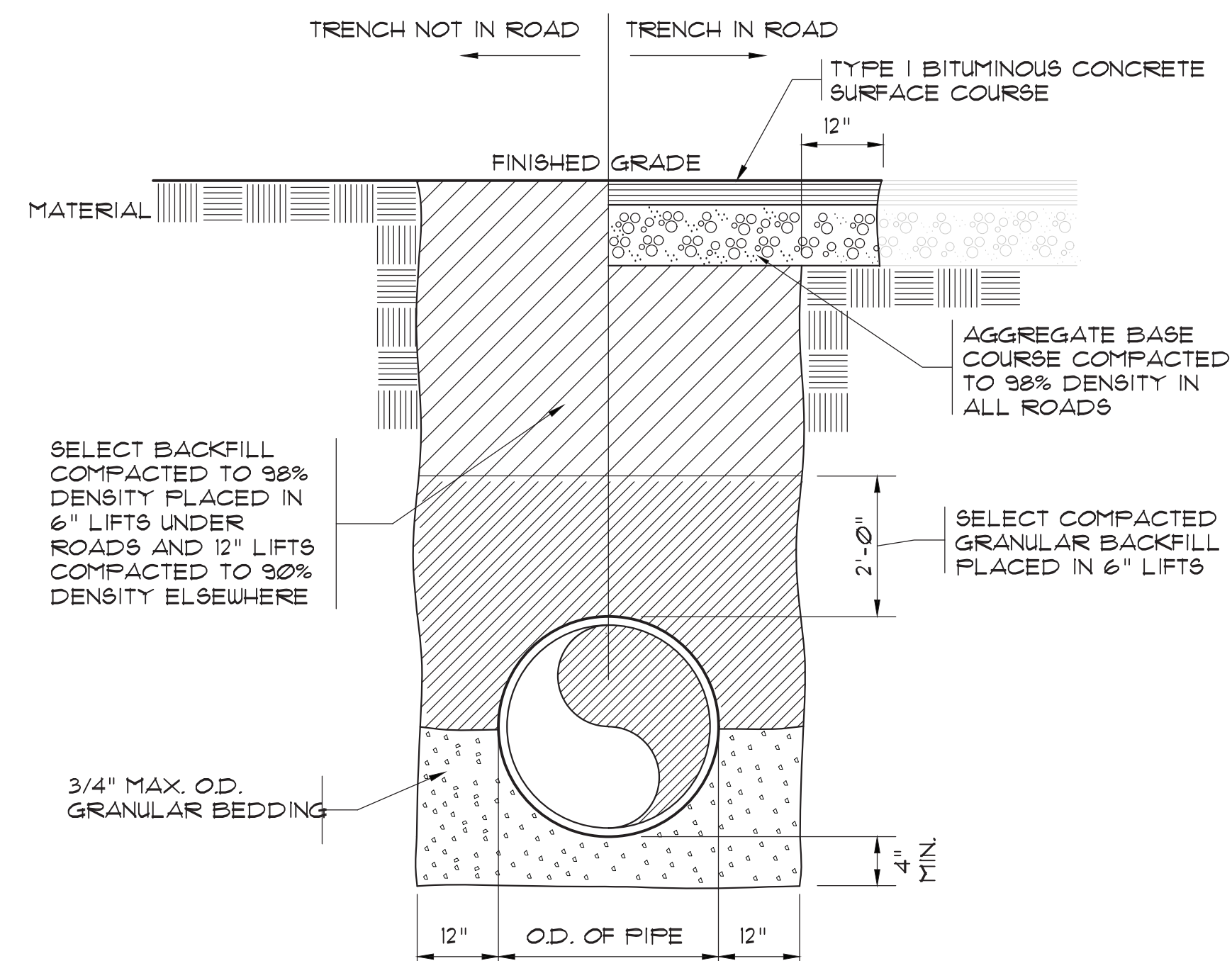
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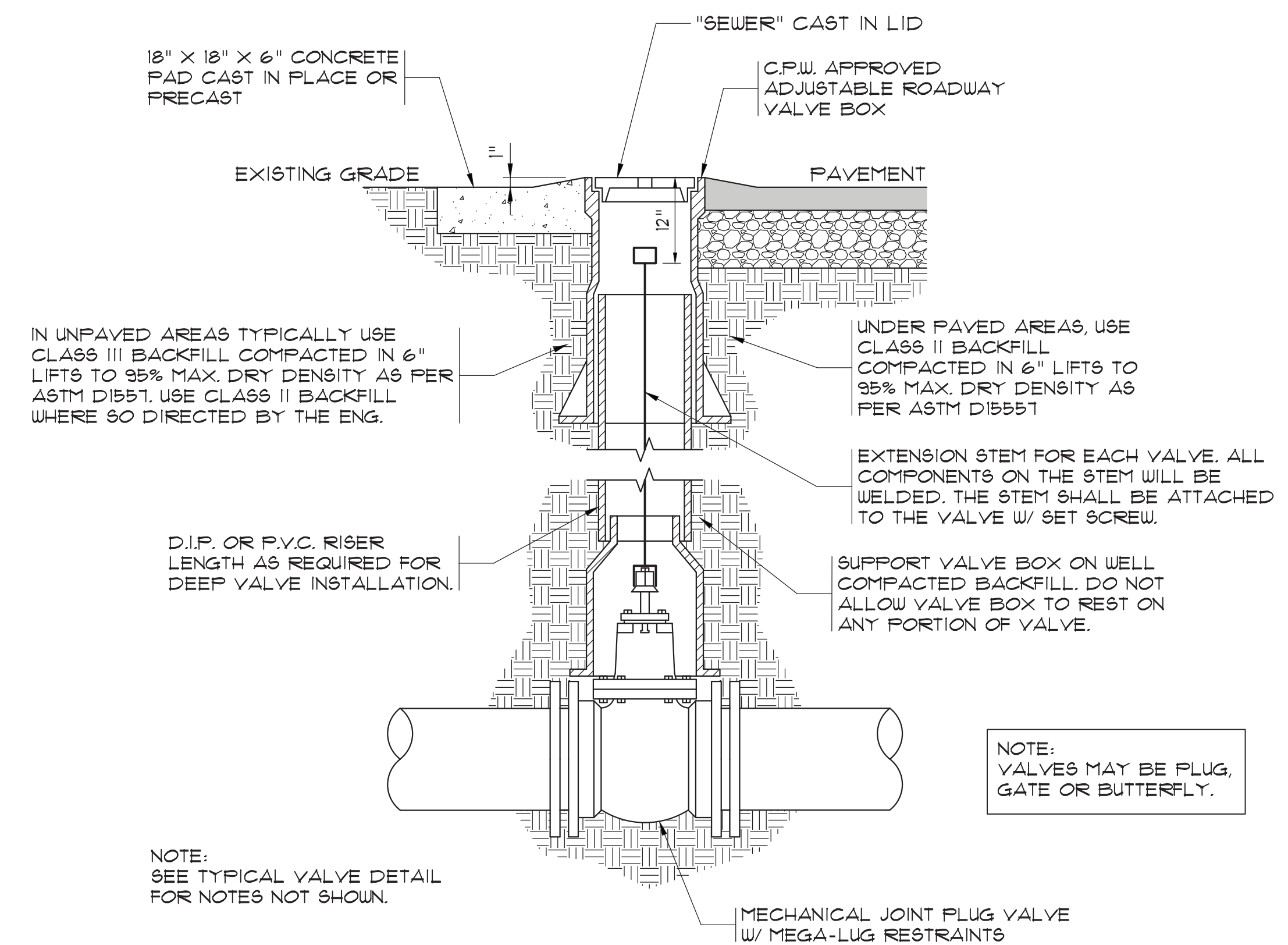
TYPICAL FITTING AND JOINT RESTRAINT
N.T.S.



TYPICAL PIPE ENCASEMENT DETAIL
N.T.S.



PIPE BEDDING DETAIL
N.T.S.



TYPICAL VALVE BOX ASSEMBLY
N.T.S.

- NOTES:
1. CENTER VALVE BOX OVER OPERATING NUT TO INSURE FREE VALVE OPERATION.
 2. USE 6" RISER PIPE ON 4" & 6" VALVES.
 3. USE 8" RISER PIPE ON 8" VALVES AND LARGER.

33-021-008/36 AS-BUILT

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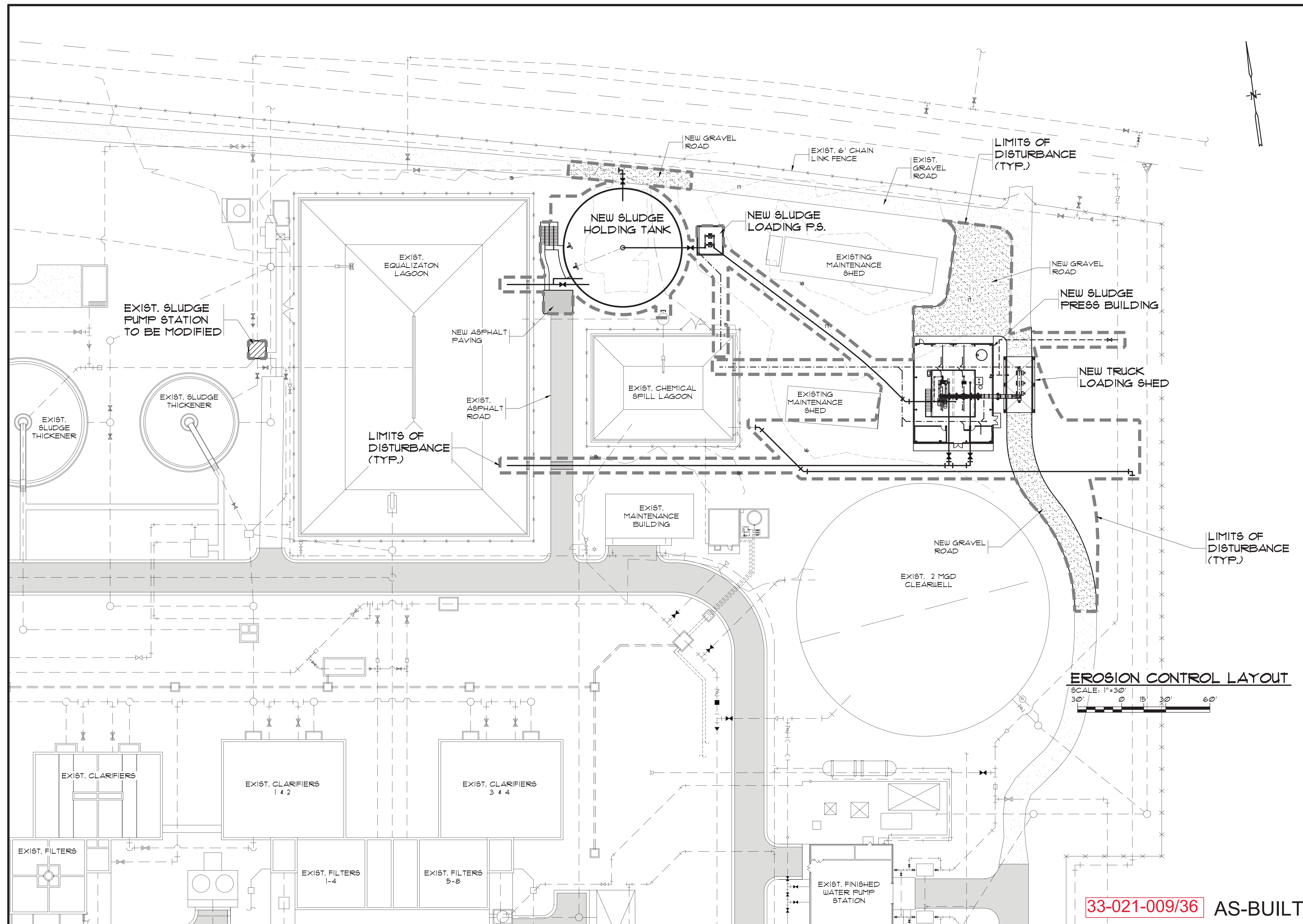
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MISCELLANEOUS DETAILS

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EROSION CONTROL LAYOUT
SCALE: 1"=30'
30' 0' 15' 30' 60'

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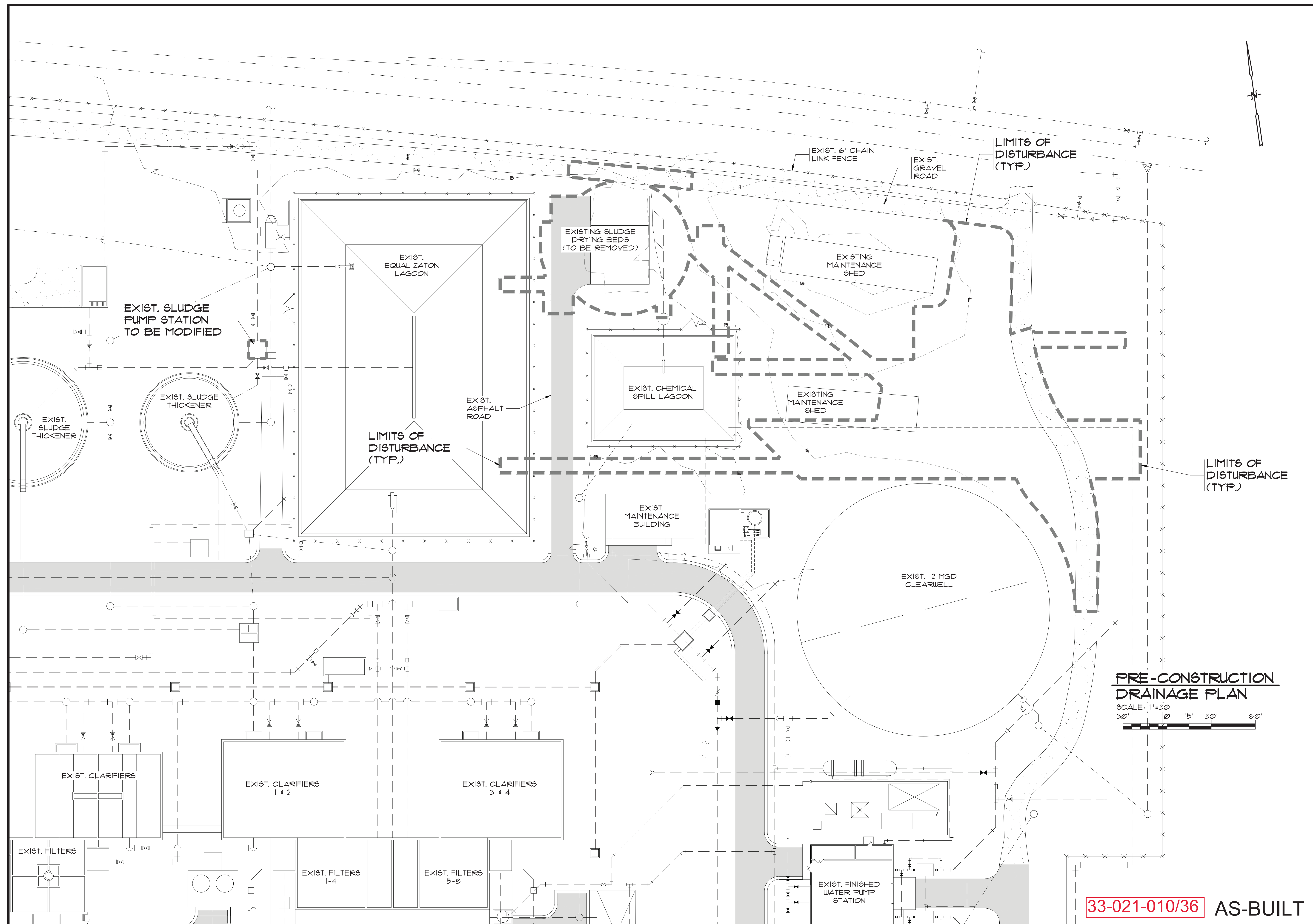
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**EROSION CONTROL
LAYOUT**

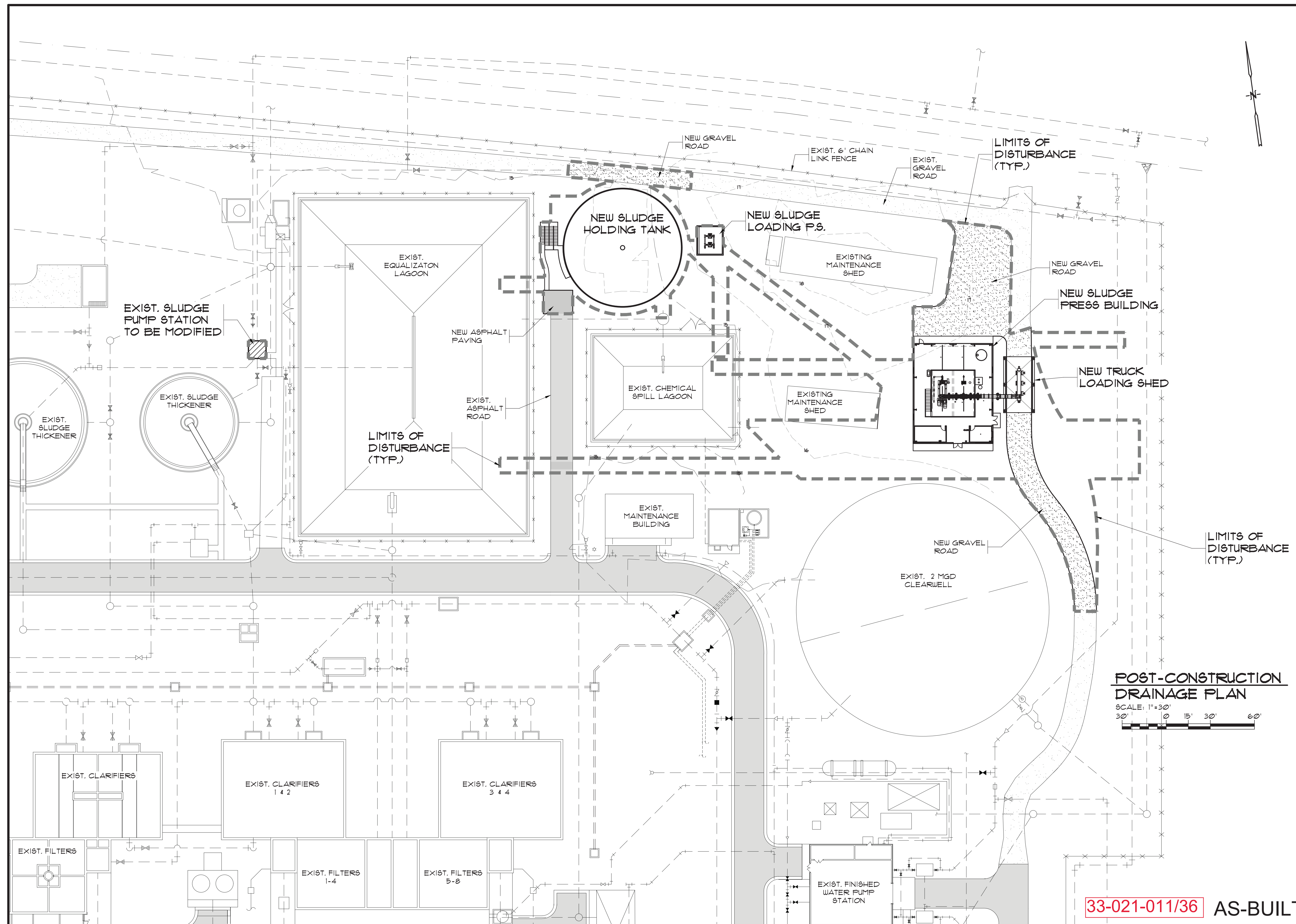
**BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
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| PRE-CONSTRUCTION DRAINAGE PLAN | |
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POST-CONSTRUCTION
DRAINAGE PLAN

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33-021-011/36 AS-BUILT

STANDARD NOTES

1. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS. IN ADDITION TO HYDROSEEDING, IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.

-WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.

-WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.

4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.

5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/ OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD INTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/ SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG 12-300 ET SEQ. AND SCR100000.

8. TEMPORARY DIVERSION BERMS AND/ OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/ OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

11. A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.

15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMP'S (SEDIMENT BASIN, FILTER BAG, ETC.).

16. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:

-WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL

-WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS

-FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE

-SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING

17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

18. IF EXISTING BMP'S NEED TO BE MODIFIED OR IF ADDITIONAL BMP'S ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMP'S MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

20. WORK WILL NOT HAPPEN AT WETLANDS UNTIL THE USACOE PERMIT AND DHEC 404/401 CERTIFICATION ARE RECEIVED.

21. EVERY 5,000 FEET PUT PERMANENT STABILIZATION.

SEEDBED PREPARATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.

2. RIP THE ENTIRE AREA TO 6" DEPTH.

3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.

4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW).

5. CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.

6. COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.

7. MULCH IMMEDIATELY AFTER SEEDING.

8. INSPECT ALL SEEDING AREAS AND MAKE NECESSARY REPAIRS OR RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER, AND SEEDING RATES.

9. FERTILIZER SHALL BE APPLIED AT THE RATE OF 1000 POUNDS PER ACRE.

10. LIME SHALL BE APPLIED AT THE RATE OF 3000 POUNDS PER ACRE.

11. PERMANENT VEGETATION:

A. SUMMER (MARCH 1 - AUGUST 14):

COMMON BERMUDA (HULLED)

WEEPING LOVEGRASS

SERICEA LESPEDEZA (SCARIFIED)

B. WINTER (AUGUST 15 - FEBRUARY 28):

COMMON BERMUDA (UNHULLED)

WEEPING LOVEGRASS

SERICEA LESPEDEZA (UNHULLED, UNSCARIFIED)

30 LBS./ACRE

10 LBS./ACRE

50 LBS./ACRE

40 LBS./ACRE

10 LBS./ACRE

80 LBS./ACRE

12. RYE GRAIN AND MILLET SHALL BE ADDED IN ORDER TO ESTABLISH QUICK GROUND COVER FOR EROSION CONTROL PURPOSES.

13. TEMPORARY VEGETATION:

A. (APRIL 1 - AUGUST 15):

ANNUAL SUDAN GRASS (SWEET OF TIFF)

BROWN TOP MILLET

B. (AUGUST 16 - MARCH 1):

RYE GRAIN

OAT GRAIN IS TO BE ADDED IF SEEDING DATE IS BETWEEN MARCH 1 AND APRIL 16, AT THE RATE OF 10 POUNDS PER ACRE.

OTHER PLANTINGS OR SEEDING AS CONTAINED IN THE CRITICAL AREA STABILIZATION SECTION OF SC'S HANDBOOK "EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS" MAY BE USED PROVIDED THE WORK COMPLIES WITH ALL APPLICABLE SPECIFICATIONS CONTAINED IN SAID HANDBOOK.

CONSULT CONSERVATION INSPECTOR ON MAINTENANCE AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

40 LBS./ACRE

50 LBS./ACRE

55 LBS./ACRE

MAINTENANCE

DURING AND AFTER CONSTRUCTION, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE STORM WATER MANAGEMENT AND SEDIMENT CONTROL FACILITIES ON SITE. MAINTENANCE SHALL INCLUDE BUT NOT BE LIMITED TO:

1. PERIODIC TRASH REMOVAL FROM THE STORM WATER MANAGEMENT AND SEDIMENT CONTROL FACILITIES TO PROVIDE FOR FREE FLOW OF WATER.

2. PERIODIC HAND REMOVAL OF WEEDS FROM SEDIMENT BASINS AND DETENTION FONDS.

3. REMOVAL OF SEDIMENT FROM CATCH INLETS AND DETENTION FONDS EVERY TWO YEARS TO PREVENT BLOCKAGE IN PIPES.

SEQUENCE OF CONSTRUCTION

1. RECEIVE NPDES COVERAGE.

2. INFORM LOCAL DHEC OFFICE BEFORE LAND DISTURBANCE.

3. HOLD A PRE-CONSTRUCTION MEETING ON SITE.

4. ESTABLISH BUFFER ZONE WHEN APPROPRIATE.

5. CLEARING AND GRUBBING THOSE AREAS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS.

6. INSTALLATION OF BMP'S AND CONSTRUCTION OF PERIMETER CONTROLS.

7. REMAINING CLEARING AND GRUBBING.

8. CONSTRUCTION OF PIPING.

9. FINAL GRADING, LANDSCAPING, OR STABILIZATION.

10. REMOVAL OF SEDIMENT CONTROL.

11. APPLY FOR THE NOTICE OF TERMINATION ONCE THE SITE HAS REACHED FINAL STABILIZATION.

"I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM. FURTHER I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1916 AS AMENDED, PURSUANT TO REGULATION 12-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000."

NAME: _____

TITLE: _____

DATE: _____

RECORD DRAWING

MARCH 2020

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EROSION CONTROL
NOTES

BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN

Date: MAR. 2020

Drawn: DC

Checked: JWM

Job No.: 317010

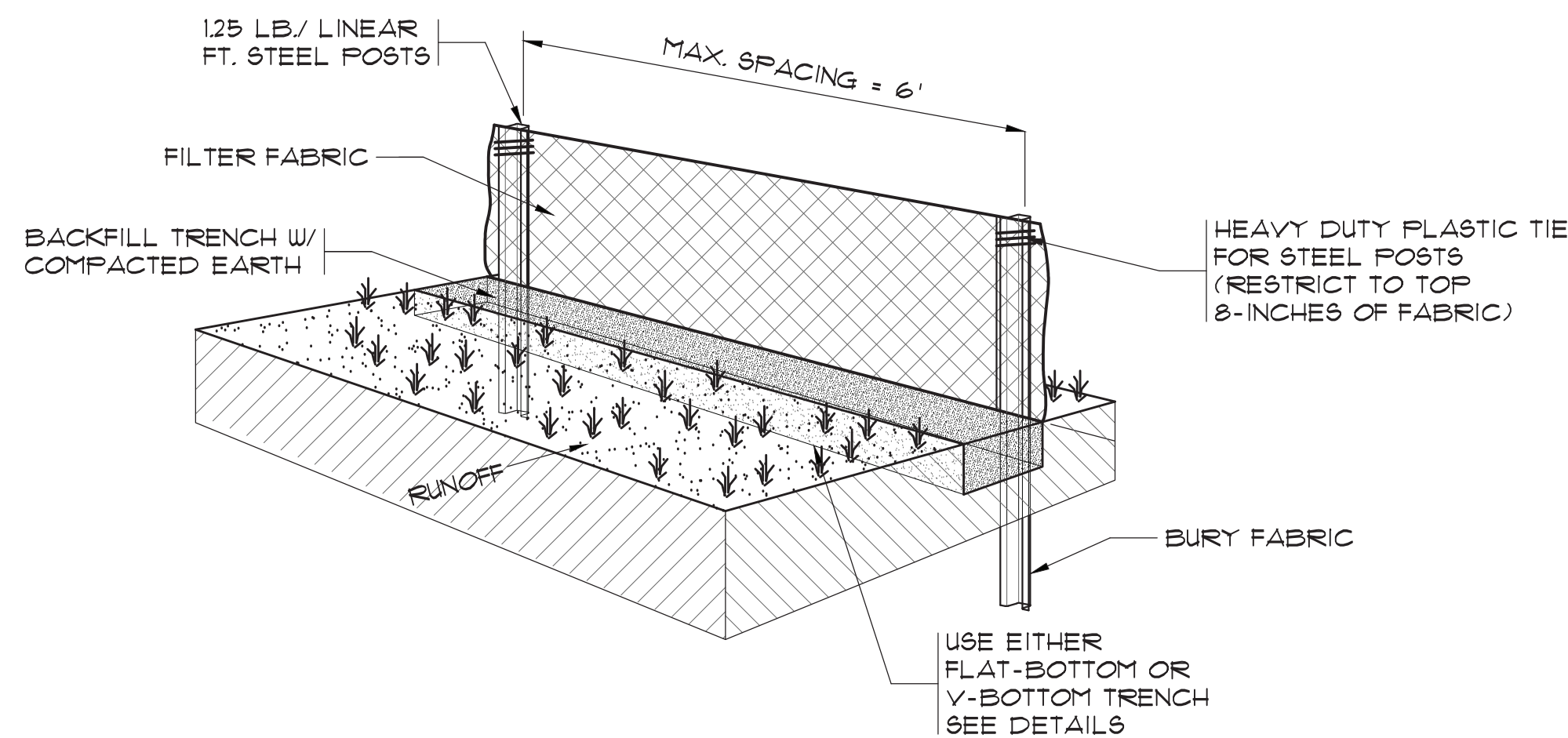
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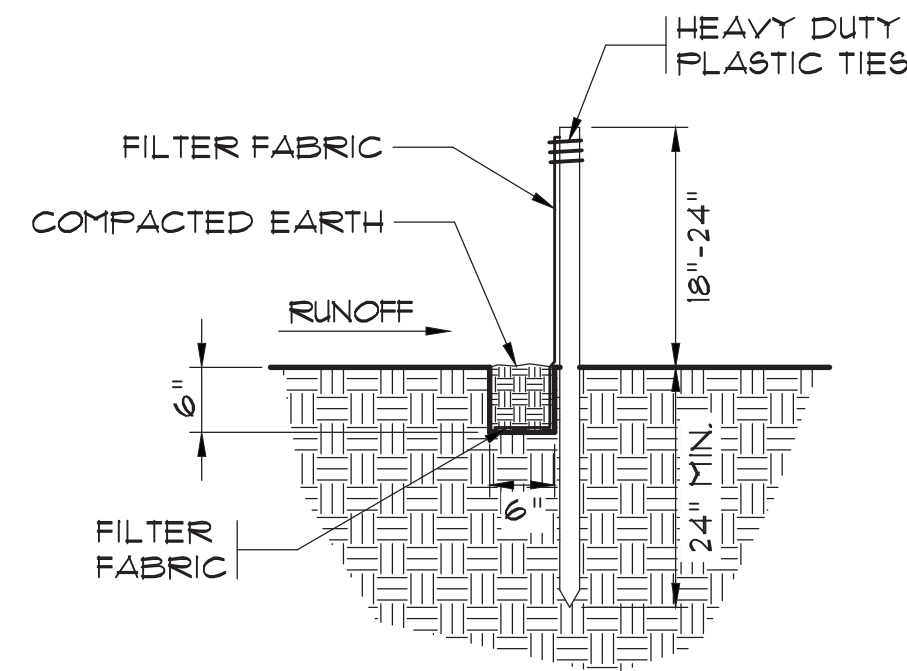
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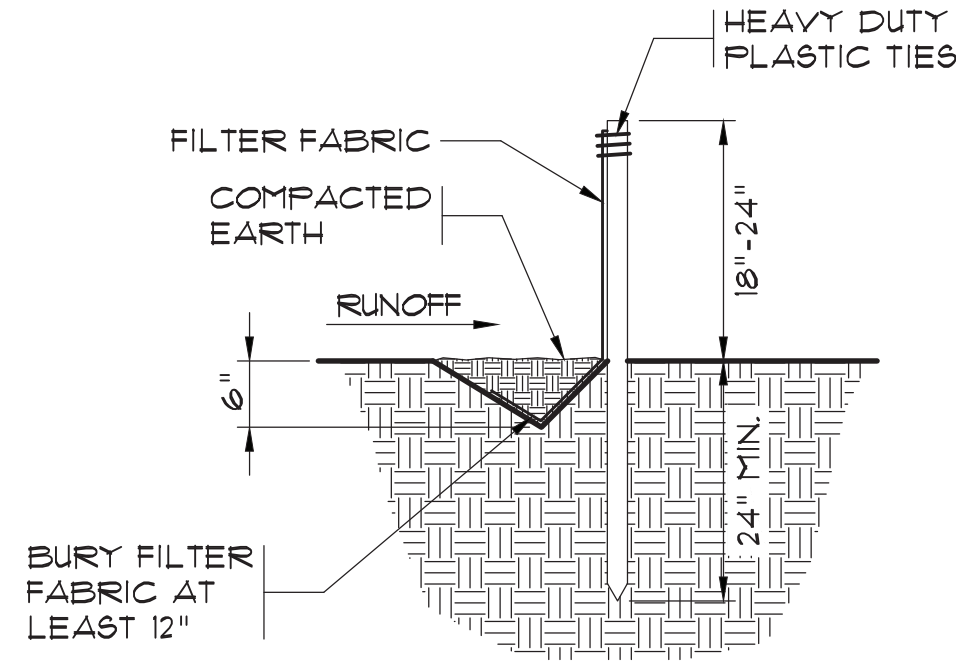
AS-BUILT



SILT FENCE DETAIL
NTS



FLAT BOTTOM TRENCH DETAIL
NTS



V-SHAPED TRENCH DETAIL
NTS

SILT FENCE - POST REQUIREMENTS

1. SILT FENCE POSTS MUST BE 48 INCH LONG STEEL POSTS THAT MEET, AT A MINIMUM, THE FOLLOWING PHYSICAL CHARACTERISTICS:
 - COMPOSED OF A HIGH STRENGTH STEEL WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI.
 - INCLUDE A STANDARD "I" SECTION WITH A NOMINAL FACE WIDTH OF 138 INCHES AND A NOMINAL "I" LENGTH OF 148 INCHES.
 - WEIGH 125 POUNDS PER FOOT ($\pm 8\%$)
2. POSTS SHALL BE EQUIPPED WITH PROJECTIONS TO AID IN FASTENING OF FILTER FABRIC.
3. STEEL POSTS MAY NEED TO HAVE A METAL SOIL STABILIZATION PLATE WELDED NEAR THE BOTTOM WHEN INSTALLED ALONG STEEP SLOPES OR INSTALLED IN LOOSE SOILS. THE PLATE SHOULD HAVE A MINIMUM CROSS SECTION OF 15 SQUARE INCHES AND BE COMPOSED OF 15 GAUGE STEEL. AT A MINIMUM, THE METAL SOIL STABILIZATION PLAT SHOULD BE COMPLETELY BURIED.
4. INSTALL POSTS TO A MINIMUM OF 24 INCHES. A MINIMUM HEIGHT OF 1 TO 2 INCHES ABOVE THE FABRIC SHALL BE MAINTAINED, AND A MAXIMUM HEIGHT OF 3 FEET SHALL BE MAINTAINED ABOVE THE GROUND.
5. POST SPACING SHALL BE AT A MAXIMUM OF 6 FEET ON CENTER.

SILT FENCE - FABRIC REQUIREMENTS

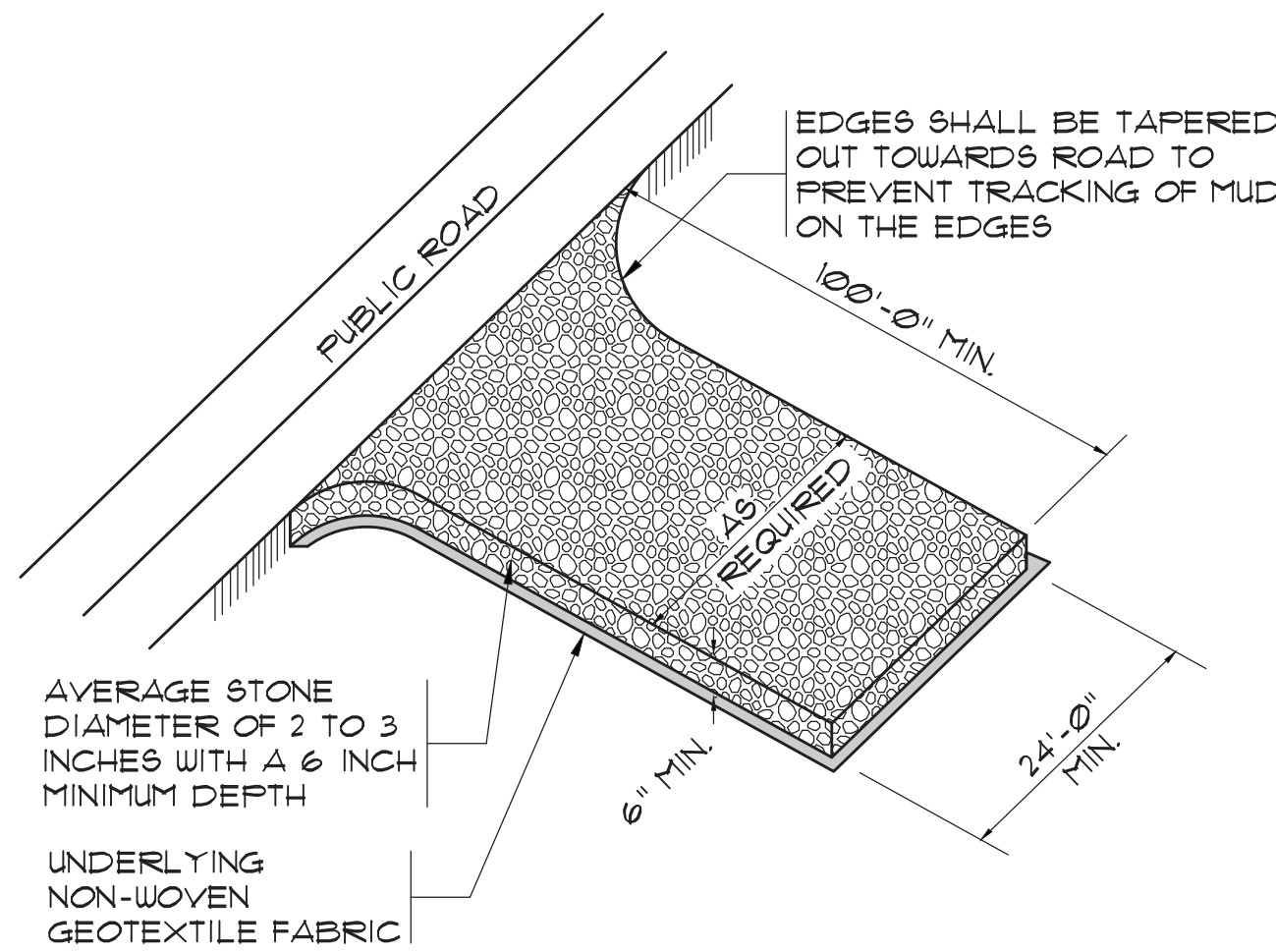
1. SILT FENCE MUST BE COMPOSED OF WOVEN GEOTEXTILE FILTER FABRIC THAT CONSISTS OF THE FOLLOWING REQUIREMENTS:
 - COMPOSED OF FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS OF AT LEAST 85% BY WEIGHT OF POLYOLEFINS, POLYESTERS, OR POLYAMIDES THAT ARE FORMED INTO A NETWORK SUCH THAT THE FILAMENTS OR YARNS RETAIN DIMENSIONAL STABILITY RELATIVE TO EACH OTHER;
 - FREE OF ANY TREATMENT OR COATING WHICH MIGHT ADVERSELY ALTER ITS PHYSICAL PROPERTIES AFTER INSTALLATION;
 - FREE OF ANY DEFECTS OR FLAWS THAT SIGNIFICANTLY AFFECT ITS PHYSICAL AND/OR FILTERING PROPERTIES; AND,
 - HAVE A MINIMUM WIDTH OF 36 INCHES.
2. USE ONLY FABRIC APPEARING ON SC DOT'S QUALIFIED PRODUCTS LISTING (QPL), APPROVAL SHEET #34, MEETING THE REQUIREMENTS OF THE MOST CURRENT EDITION OF THE SC DOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. 12 INCHES OF THE FABRIC SHOULD BE PLACED WITHIN EXCAVATED TRENCH AND TOED IN WHEN THE TRENCH IS BACKFILLED.
4. FILTER FABRIC SHALL BE PURCHASED IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS.
5. FILTER FABRIC SHALL BE INSTALLED AT A MINIMUM OF 24 INCHES ABOVE THE GROUND.

SILT FENCE - GENERAL NOTES:

1. DO NOT PLACE SILT FENCE ACROSS CHANNELS OR IN OTHER AREAS SUBJECT TO CONCENTRATED FLOWS. SILT FENCE SHOULD NOT BE USED AS A VELOCITY CONTROL BMP. CONCENTRATED FLOWS ARE ANY FLOWS GREATER THAT 0.5 CFS.
2. MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE SILT FENCE SHALL BE 100 FEET.
3. MAXIMUM SLOPE STEEPNESS (NORMAL $\frac{3}{4}$ PERPENDICULAR $\frac{1}{8}$ TO THE FENCE LINE) SHALL BE 2:1.
4. SILT FENCE JOINTS, WHEN NECESSARY, SHALL BE COMPLETED BY ONE THE FOLLOWING OPTIONS:
 - WRAP EACH FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 1 FOOT MINIMUM OVERLAP;
 - OVERLAP SILT FENCE BY INSTALLING 3 FEET PASSED THE SUPPORT POST TO WHICH THE NEW SILT FENCE ROLL IS ATTACHED. ATTACH OLD ROLL TO NEW ROLL WITH HEAVY-DUTY PLASTIC TIES; OR,
 - OVERLAP ENTIRE WIDTH OF EACH SILT FENCE ROLL FROM ONE SUPPORT POST TO THE NEXT SUPPORT POST.
5. ATTACH FILTER FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC.
6. INSTALL THE SILT FENCE PERPENDICULAR TO THE DIRECTION OF THE STORM WATER FLOW AND PLACE THE SILT FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.
7. INSTALL SILT FENCE CHECKS (TIE-BACKS) EVERY 50-100 FEET, DEPENDANT ON SLOPE, ALONG SILT FENCE THAT IS INSTALLED WITH SLOPE AND WHERE CONCENTRATED FLOWS ARE EXPECTED OR ARE DOCUMENTED ALONG THE PROPOSED/INSTALLED SILT FENCE.

SILT FENCE - INSPECTION & MAINTENANCE

1. THE KEY TO FUNCTIONAL SILT FENCE IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF SILT FENCE SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
3. ATTENTION TO SEDIMENT ACCUMULATIONS ALONG THE SILT FENCE IS EXTREMELY IMPORTANT. ACCUMULATED SEDIMENT SHOULD BE CONTINUALLY MONITORED AND REMOVED WHEN NECESSARY.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3 THE HEIGHT OF THE SILT FENCE.
5. REMOVED SEDIMENT SHALL BE PLACED IN STOCKPILE STORAGE AREAS OR SPREAD THINLY ACROSS DISTURBED AREA. STABILIZE THE REMOVED SEDIMENT AFTER IT IS RELOCATED.
6. CHECK FOR AREAS WHERE STORM WATER RUNOFF HAS ERODED A CHANNEL BENEATH THE SILT FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED DUE TO RUNOFF OVERTOPPING THE SILT FENCE. INSTALL CHECKS/TIE-BACKS AND/OR REINSTALL SILT FENCE, AS NECESSARY.
7. CHECK FOR TEARS WITHIN THE SILT FENCE, AREAS WHERE SILT FENCE HAS BEGUN TO DECOMPOSE, AND FOR ANY OTHER CIRCUMSTANCE THAT MY RENDER THE SILT FENCE INEFFECTIVE. REMOVE DAMAGED SILT FENCE AND REINSTALL NEW SILT FENCE IMMEDIATELY.
8. SILT FENCE SHOLD BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED AND ONCE IT IS REMOVED, THE RESULTING DISTURBED AREA SHALL BE PERMANENTLY STABILIZED.



TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
NTS

CONSTRUCTION ENTRANCE - GENERAL NOTES:

1. STABILIZED CONSTRUCTION ENTRANCES SHOULD BE USED AT ALL POINTS WHERE TRAFFIC WILL EGRESS/INGRESS A CONSTRUCTION SITE ONTO A PUBLIC ROAD OR ANY IMPERVIOUS SURFACES, SUCH AS PARKING LOTS.
2. INSTALL A NON-WOVEN GEOTEXTILE FABRIC PRIOR TO PLACING ANY STONE.
3. INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDED POSITIVE DRAINAGE.
4. THE ENTRANCE SHALL CONSIST OF 2 INCH TO 3 INCH D50 STONE PLACED AT A MINIMUM DEPTH OF 6 INCHES.
5. MINIMUM DIMENSIONS OF THE ENTRANCE SHALL BE 24 FEET WIDE BY 100 FEET LONG, AND MAY BE MODIFIED AS NECESSARY TO ACCOMMODATE SITE CONSTRAINTS.
6. THE EDGES OF THE ENTRANCE SHALL BE TAPERED OUT TOWARDS THE ROAD TO PREVENT TRACKING AT THE EDGE OF THE ENTRANCE.
7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN OR OTHER SEDIMENT TRAPPING STRUCTURE.
8. LIMESTONE MAY NOT BE USED FOR THE STONE PAD.

CONSTRUCTION ENTRANCE - INSPECTION & MAINTENANCE

1. THE KEEP TO FUNCTIONAL CONSTRUCTION ENTRANCES IS WEEKLY INSPECTIONS, ROUTINE MAINENCE, AND REGULAR SEDIMENT REMOVAL.
2. REGULAR INSPECTIONS OF CONSTRUCTION ENTRANCES SHALL BE CONDUCTED ONCE EVERY CALENDAR WEEK AND, AS RECOMMENDED, WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCH OR MORE OF PRECIPITATION.
3. DURING REGULAR INSPECTIONS, CHECK FOR MUD AND SEDIMENT BUILDUP AND PAD INTEGRITY. INSPECTION FREQUENCIES MAY NEED TO BE MORE FREQUENT DURING LONG PERIODS OF WET WEATHER.
4. RESHAPE THE STONE PAD AS NECESSARY FOR DRAINAGE AND RUNOFF CONTROL.
5. WASH OR REPLACE STONES AS NEEDED AND AS DIRECTED BY SITE INSPECTOR. THE STONE IN THE ENTRANCE SHOULD BE WASHED OR REPLACED WHENEVER THE ENTRANCE FAILS TO REDUCE THE AMOUNT OF MUD BEING CARRIED OFF-SITE BY VEHICLES. FREQUENT WASHING WILL EXTEND THE USEFUL LIFE OF STONE PAD.
6. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO ADJACENT IMPERVIOUS SURFACES BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED WHEN THE WATER CAN BE DISCHARGED TO A SEDIMENT TRAP OR BASIN.
7. DURING MAINTENANCE ACTIVITIES, ANY BROKEN PAVEMENT SHOULD BE REPAIRED IMMEDIATELY.
8. CONSTRUCTION ENTRANCES SHOULD BE REMOVED AFTER THE SITE HAS REACHED FINAL STABILIZATION. PERMANENT VEGETATION SHOULD REPLACE AREAS FROM WHICH CONSTRUCTION ENTRANCES HAVE BEEN REMOVED, UNLESS AREA WILL BE CONVERTED TO AN IMPERVIOUS SURFACE TO SERVE POST-CONSTRUCTION.

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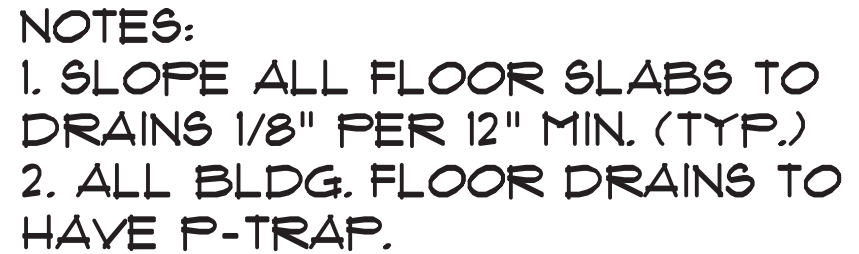
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EROSION CONTROL DETAILS

**BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY**

Scale: AS SHOWN
Date: MAR. 2020
Drawn: DC
Checked: JWM
Job No.: 317010
Sheet No.:
EC-05
Of: Version: 2



NOTE NO. 1
1. OUTSIDE EDGE OF CONCRETE BUILDING
SLAB SHALL CORRESPOND WITH BUILDING
STRUCTURE LINE. (COORDINATE WITH
BUILDING MANUFACTURER.)

RECORD DRAWING **MARCH 2020**

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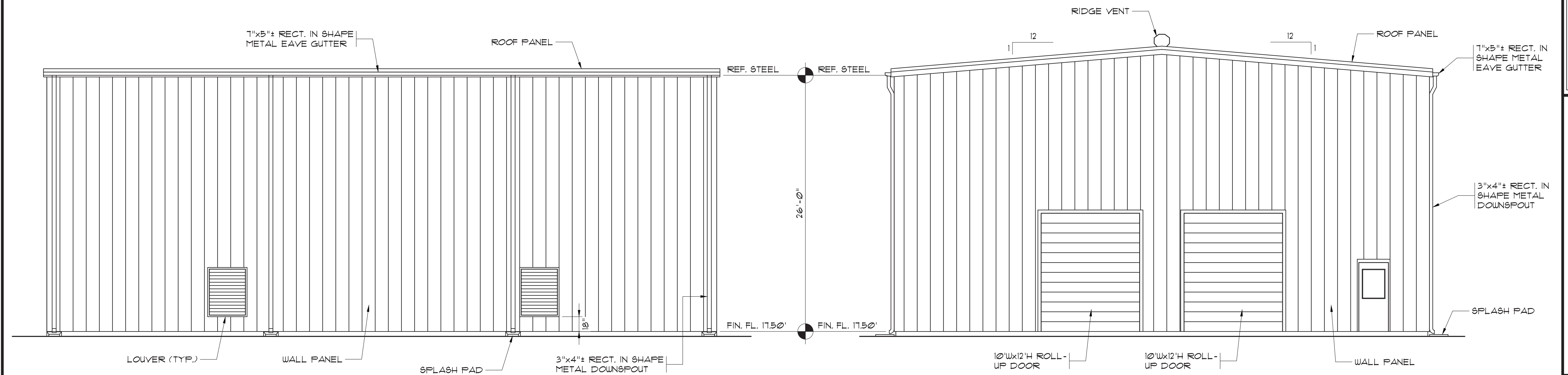
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SLUDGE BUILDING LAYOUT

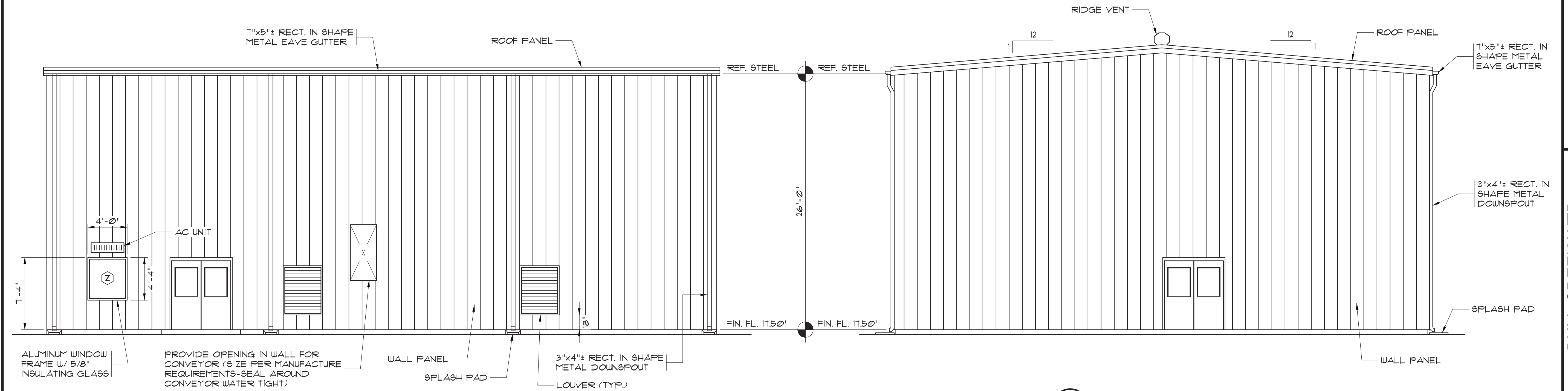
BULL CREEK WIP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
 Date: MAR. 2020
 Drawn: DC
 Checked: JWM
 Job No.: 317010
 Sheet No.:
B-1
 If: - Version: 2



1 EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"
4' 2' 0 4' 8'

2 EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"
4' 2' 0 4' 8'



3 EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"
4' 2' 0 4' 8'

4 EXTERIOR ELEVATION
SCALE: 3/16" = 1'-0"
4' 2' 0 4' 8'

33-021-015/36 AS-BUILT

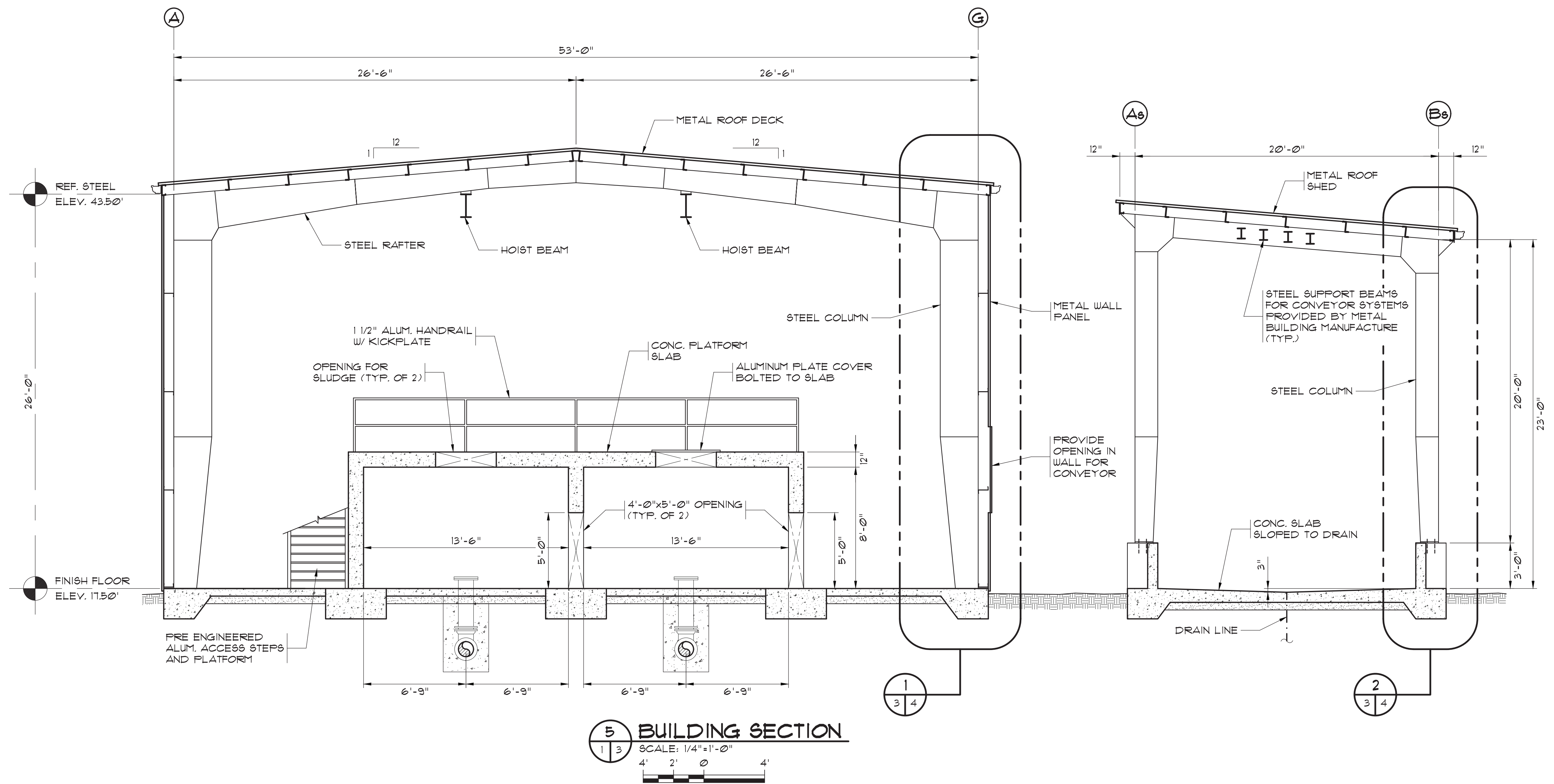
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EXTERIOR ELEVATIONS

BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
Date: MAR. 2020
Drawn: DC
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Job No.: 317010
Sheet No.:
B-2
Of: Version: 2



BUILDING SECTION
 SCALE: 1/4" = 1'-0"
 4' 2' 0' 4'

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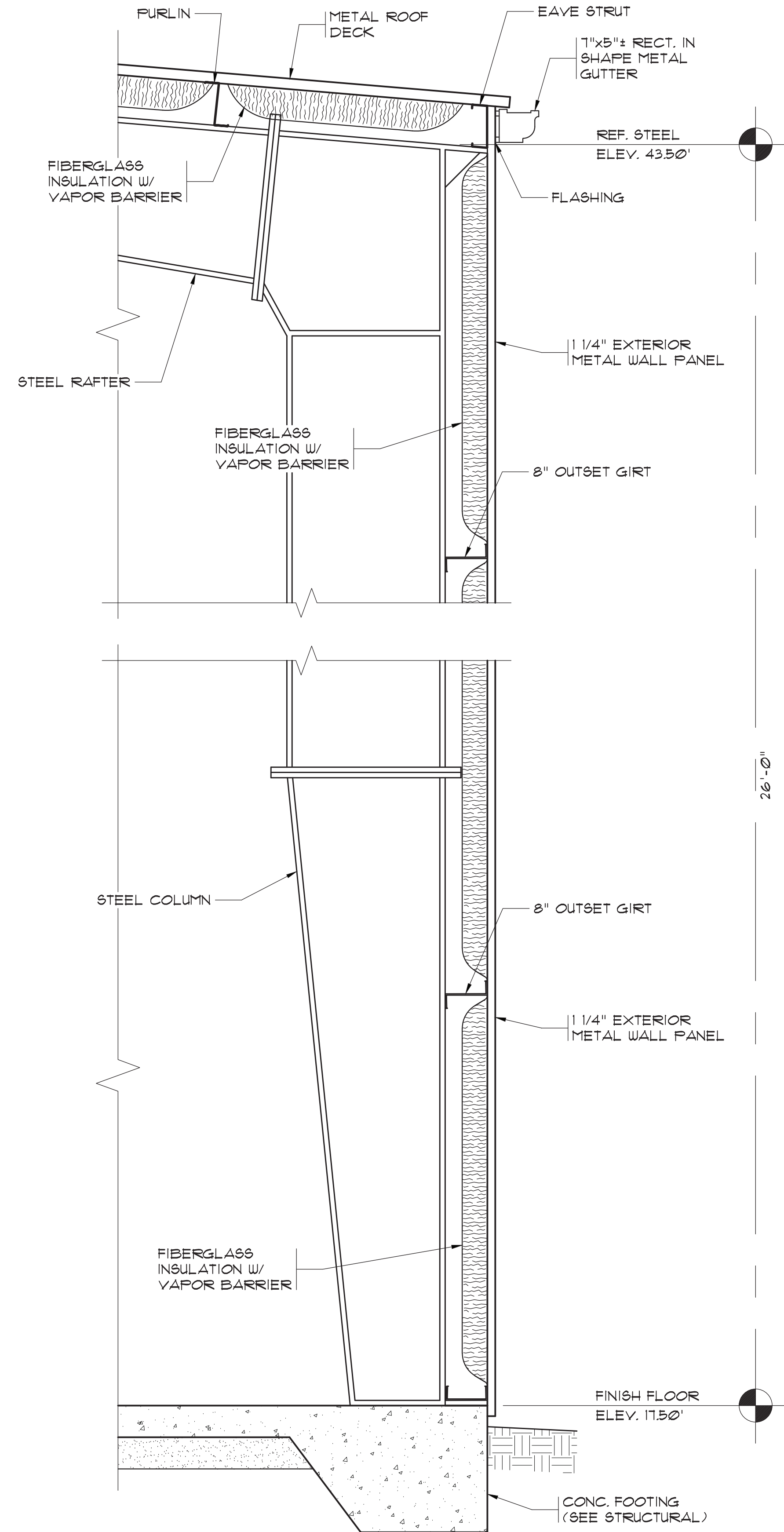
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**SLUDGE BUILDING
 SECTION VIEW**

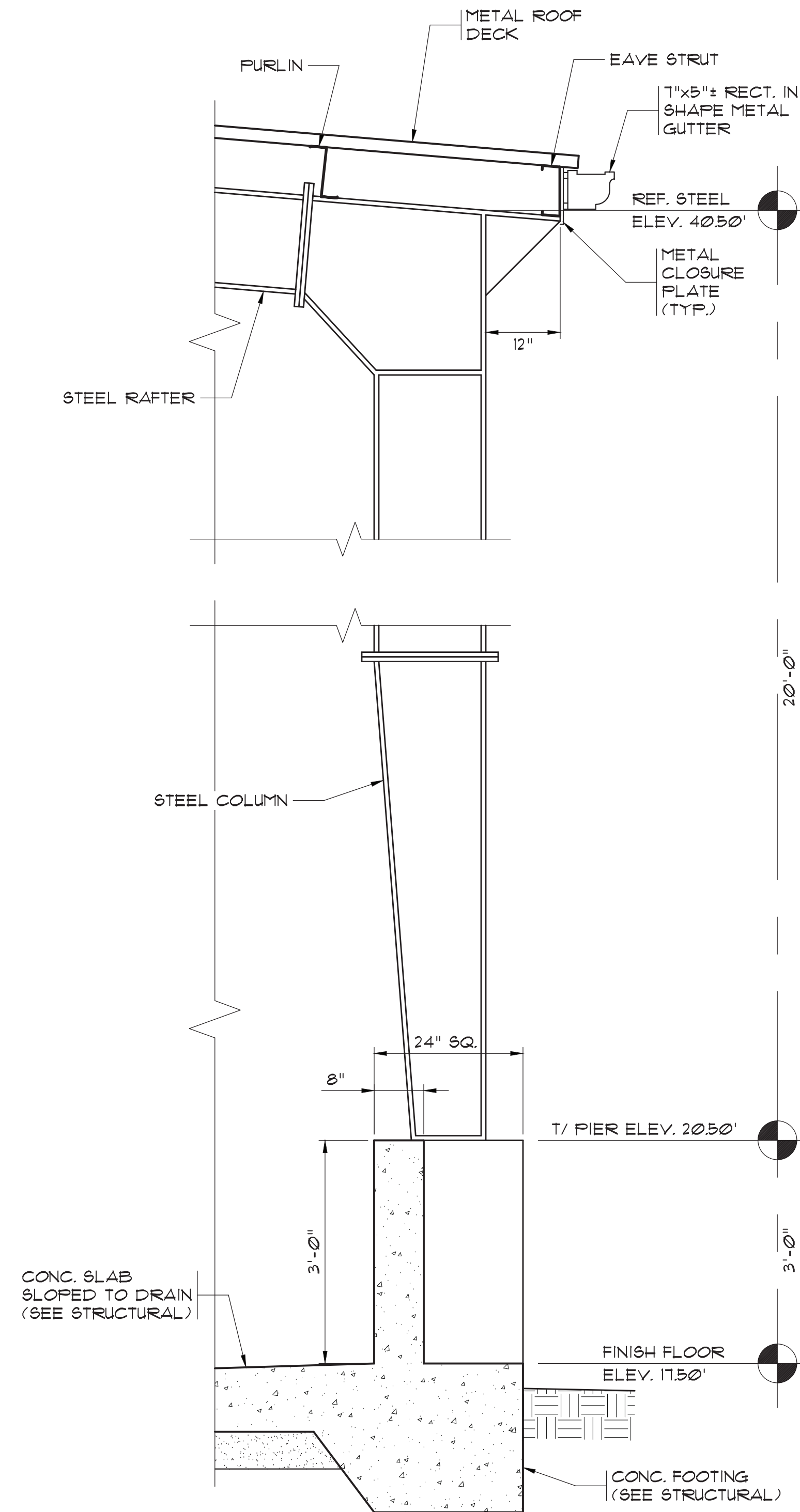
**BULL CREEK WTP
 SLUDGE DEWATERING
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B-3
 Of: Version: 2

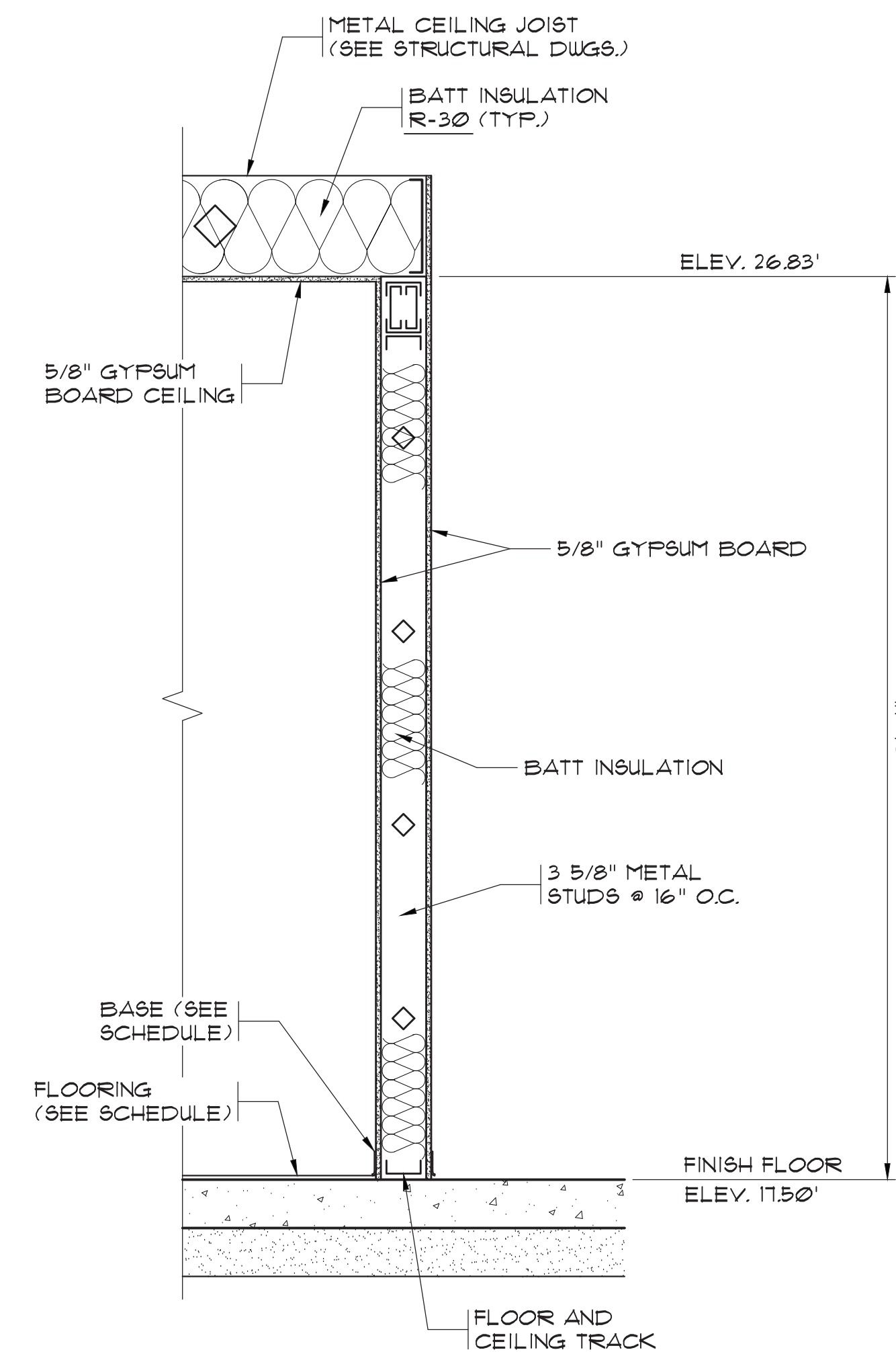
33-021-016/36 AS-BUILT



1 WALL SECTION
SCALE: 3/4"=1'-0"
1' 6" 0' 1' 2'



2 WALL SECTION
SCALE: 3/4"=1'-0"
1' 6" 0' 1' 2'



3 WALL SECTION
SCALE: 3/4"=1'-0"
1' 6" 0' 1' 2'

33-021-017/36 AS-BUILT

RECORD DRAWING MARCH 2020
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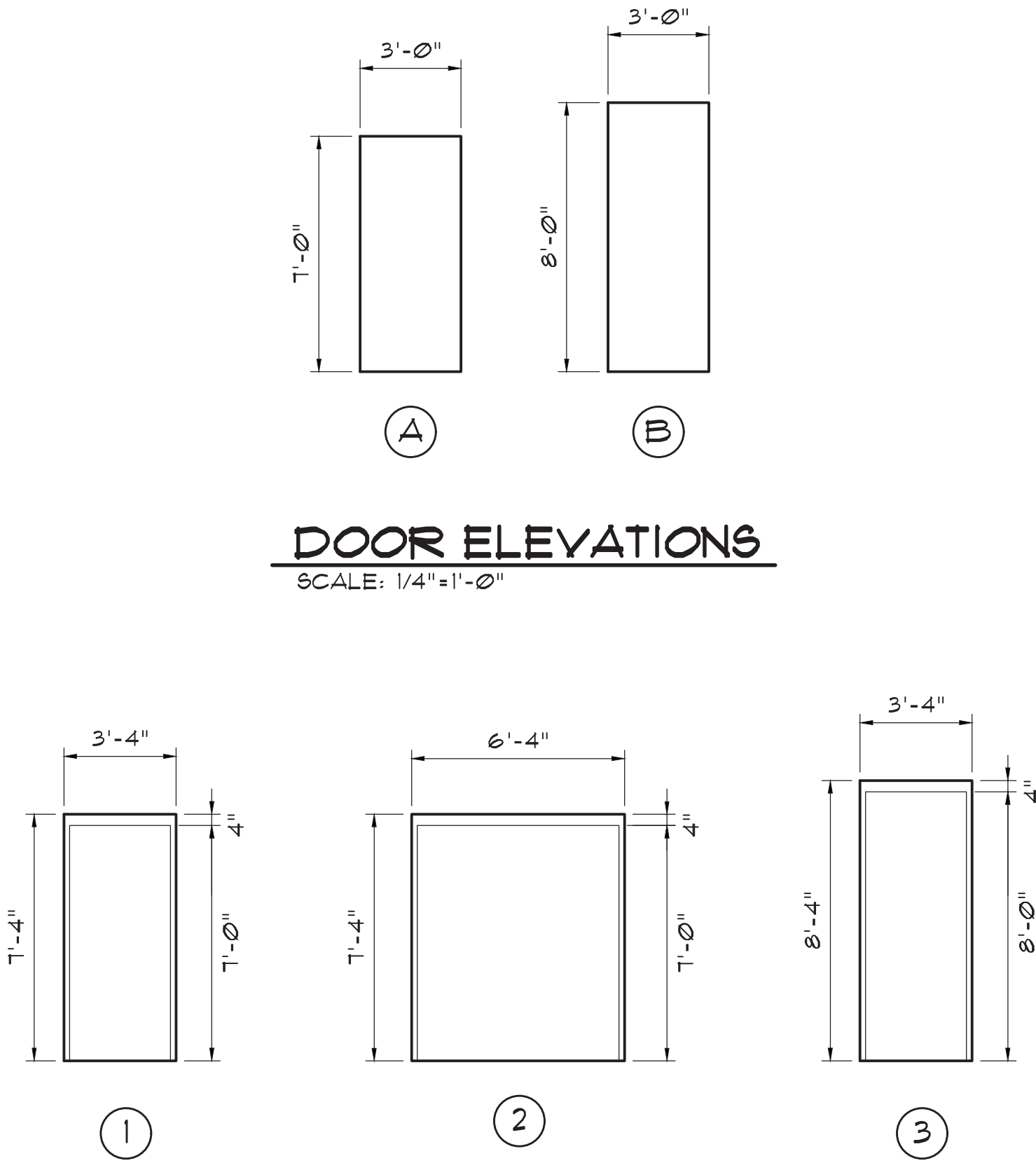
SLUDGE BUILDING
WALL SECTIONS

BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
Date: MAR. 2020
Drawn: DC
Checked: JWM
Job No.: 317010
Sheet No.:
Of: Version: 2
B-4

| DOOR SCHEDULE | | | | | | | | | |
|---------------|-----------------|------|------------|-------|--------|-------|-------|------------|------------|
| NO. | DOOR | | | | | | FRAME | | |
| | SIZE | TYPE | MTL. | GLASS | LOUVER | LABEL | TYPE | MTL. | GLASS |
| ① | PR. 3'X7'X1.75" | A | FIBERGLASS | NONE | NONE | NONE | 2 | FIBERGLASS | 1/4" TEMP. |
| ② | 3'X7'X1.75" | A | FIBERGLASS | NONE | NONE | NONE | 1 | FIBERGLASS | 1/4" TEMP. |
| ③ | 3'X7'X1.75" | A | FIBERGLASS | NONE | NONE | NONE | 1 | FIBERGLASS | NONE |
| ④ | 3'X8'X1.75" | B | FIBERGLASS | NONE | NONE | NONE | 3 | FIBERGLASS | NONE |

| ROOM FINISH SCHEDULE | | | | |
|----------------------|------------------------|-------|------------------|------------------|
| No./ROOM | FLOOR | BASE | WALLS | CEILING |
| 101 / ELECTRICAL | VINYL COMPOSITION TILE | VINYL | PAINTED GYP. BD. | PAINTED GYP. BD. |
| 102 / LAB | VINYL COMPOSITION TILE | VINYL | PAINTED GYP. BD. | PAINTED GYP. BD. |



DOOR ELEVATIONS
SCALE: 1/4"=1'-0"

FRAME ELEVATIONS
SCALE: 1/4"=1'-0"

33-021-018/36 AS-BUILT

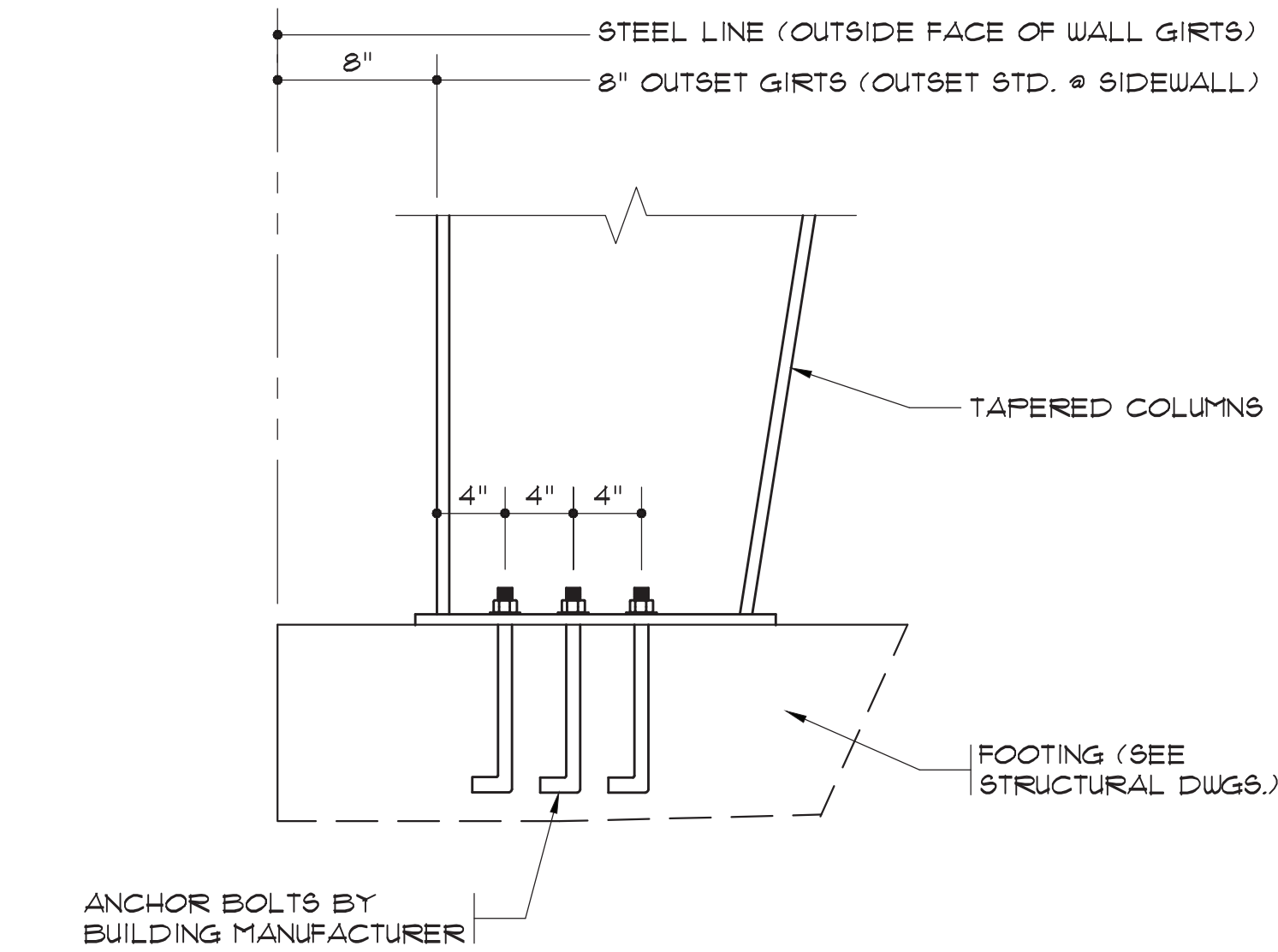
BULL CREEK WTP
SLUDGE DEWATERING
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SLUDGE BUILDING
DOOR SCHEDULE,
FINISH SCHEDULE
AND DOOR / BATH DETAILS

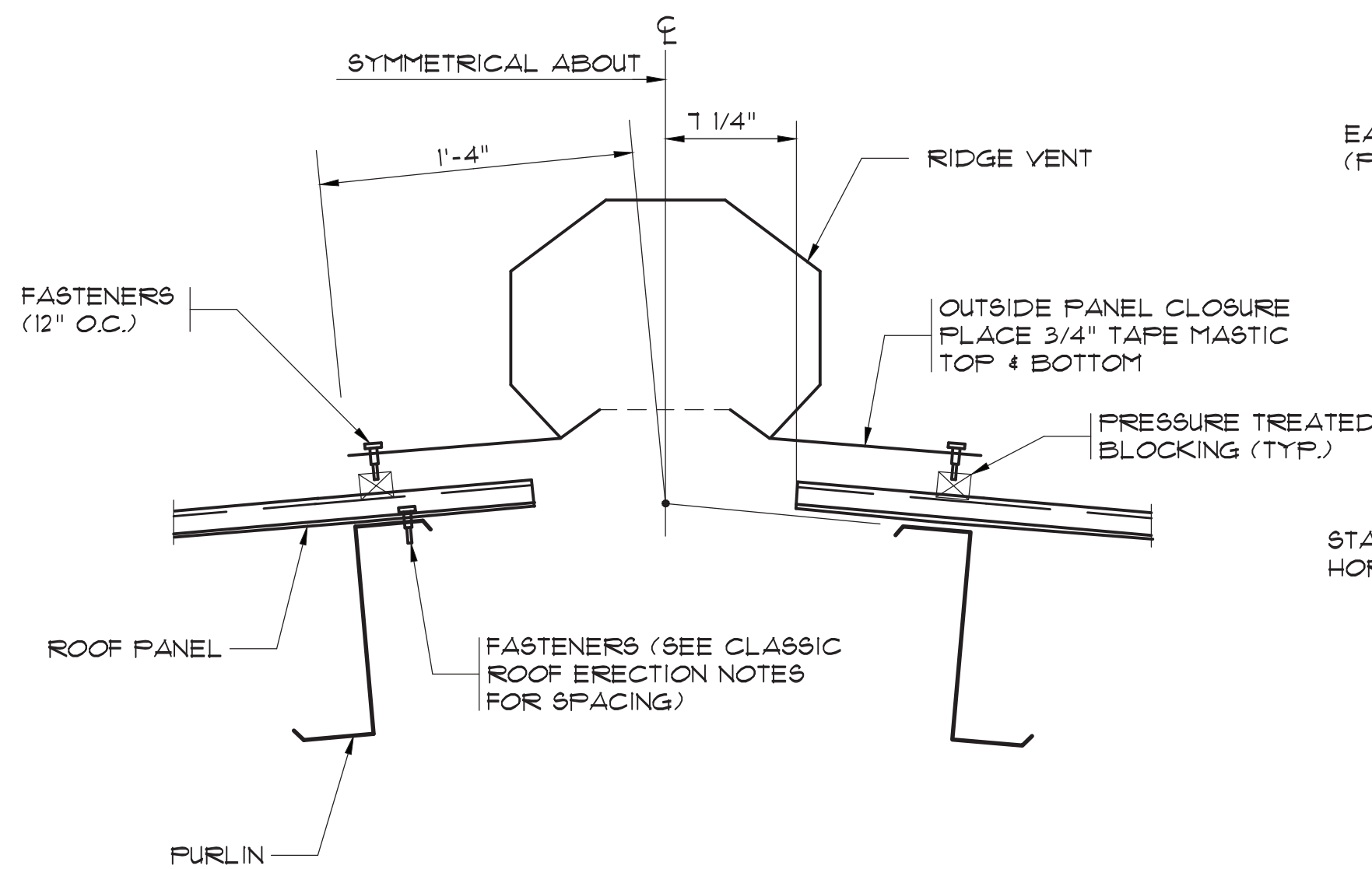
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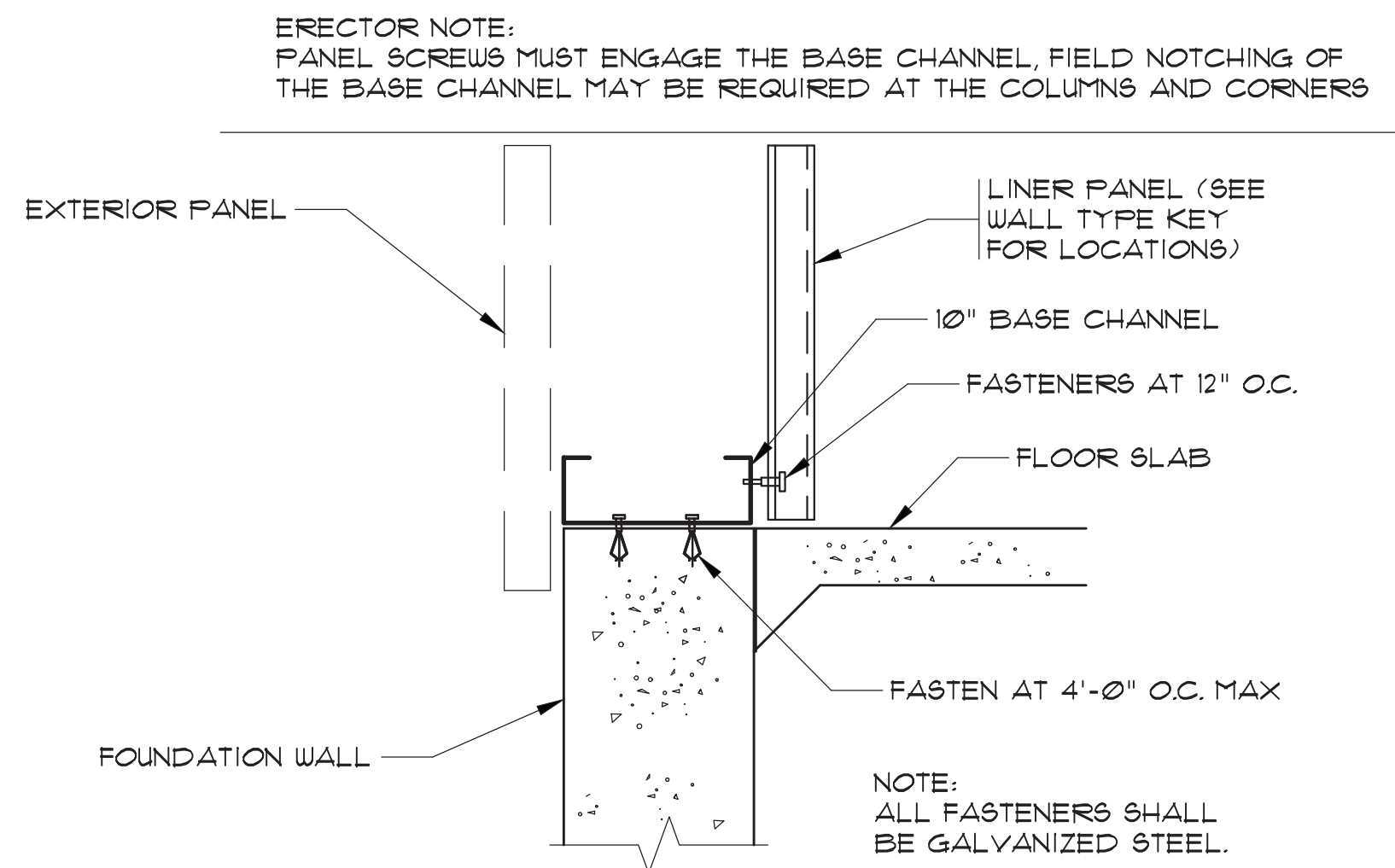
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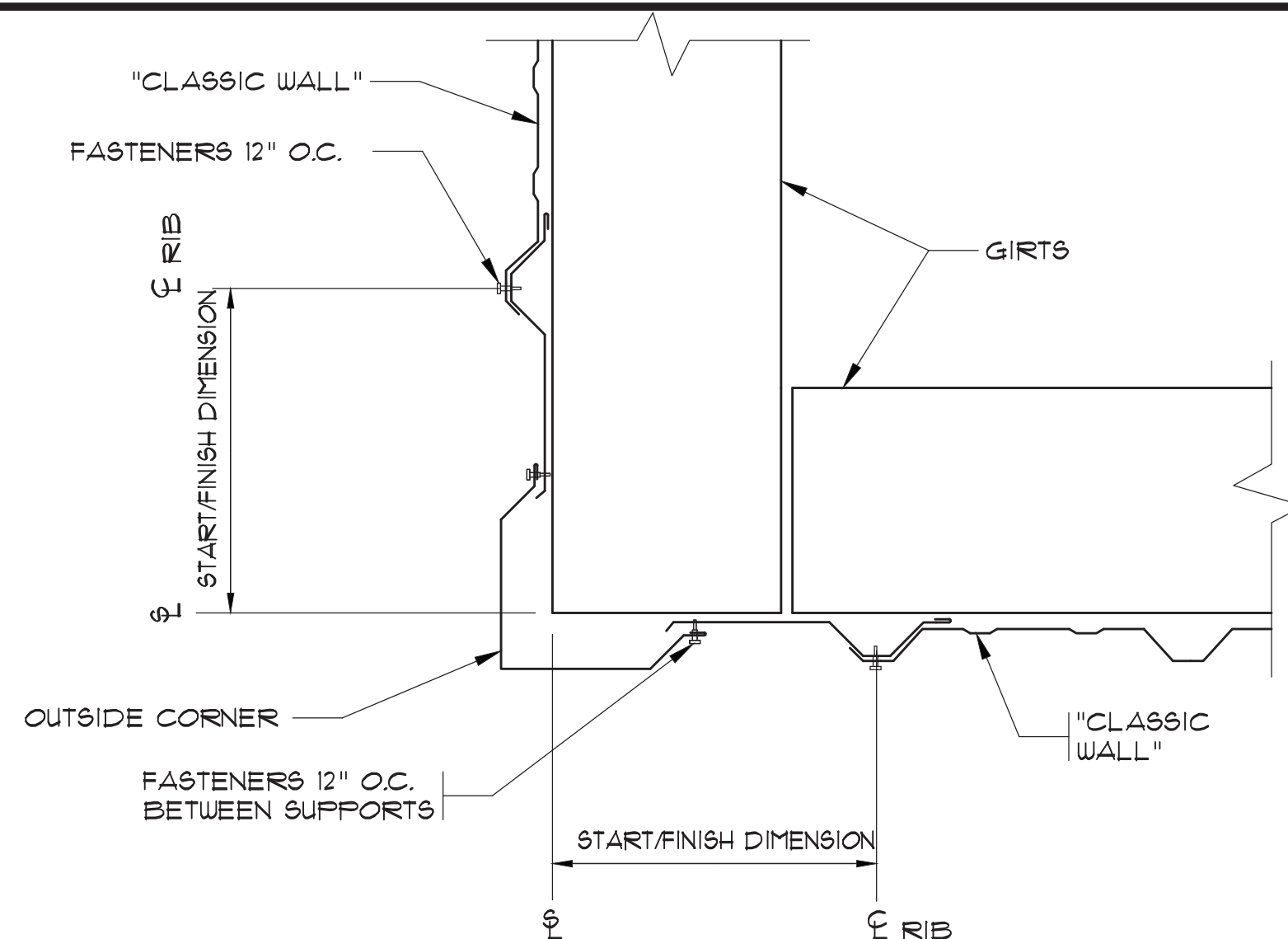
SIDEWALL OR ENDWALL COLUMN SETBACK
N.T.S.



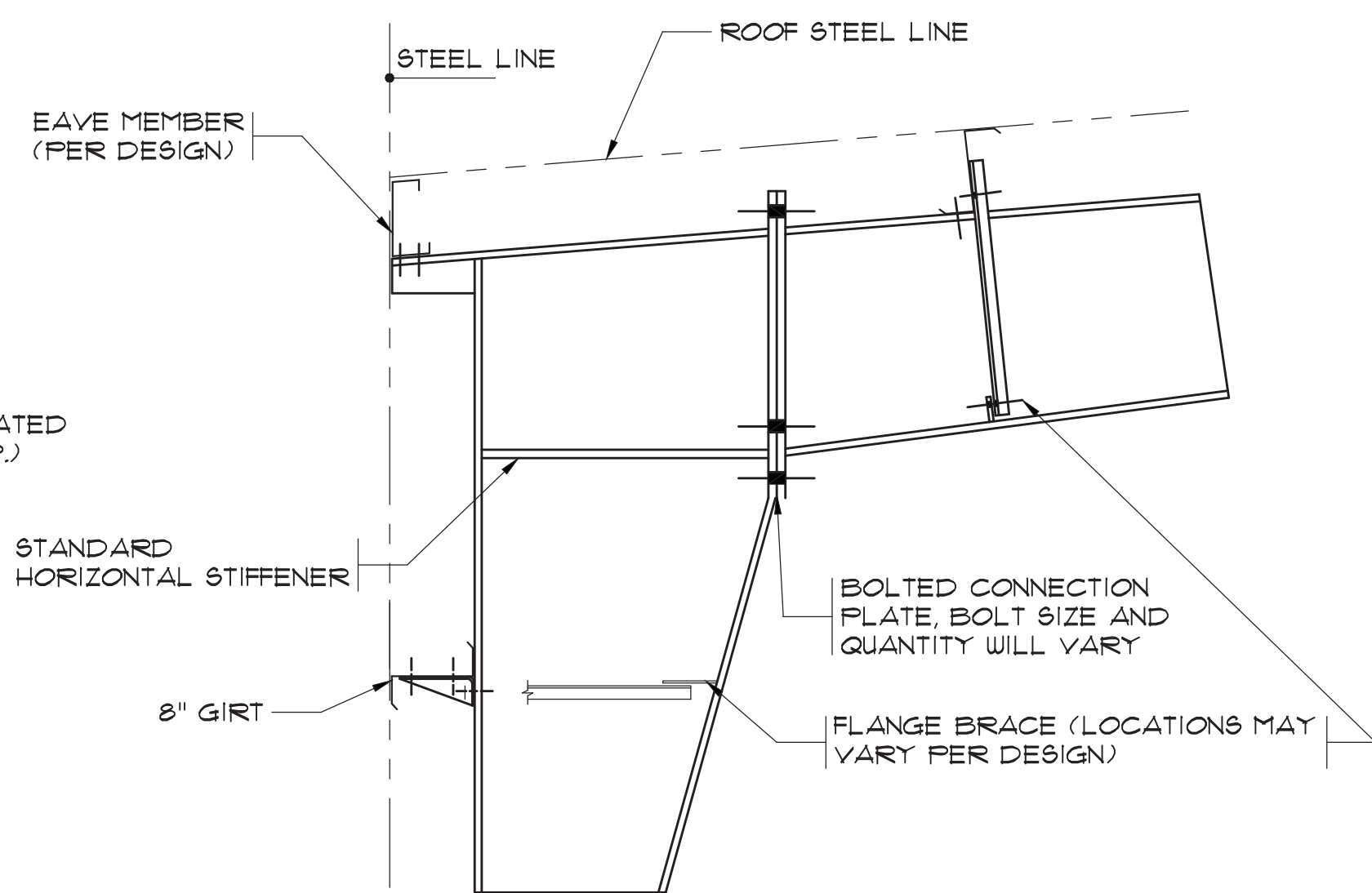
RIDGE VENT DETAIL CLASSIC ROOF
N.T.S.



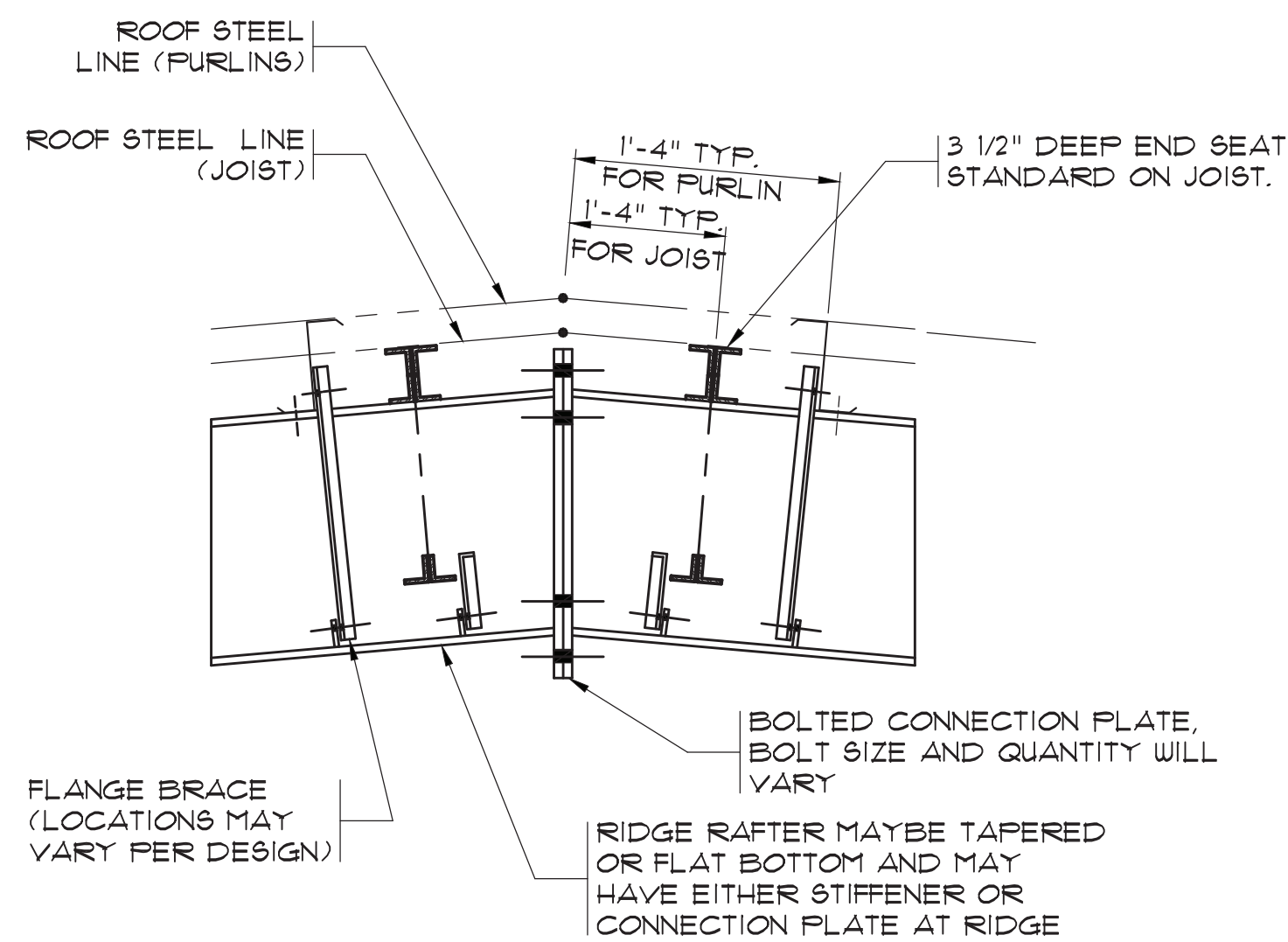
FINISHED FLOOR BASE DETAIL
N.T.S.



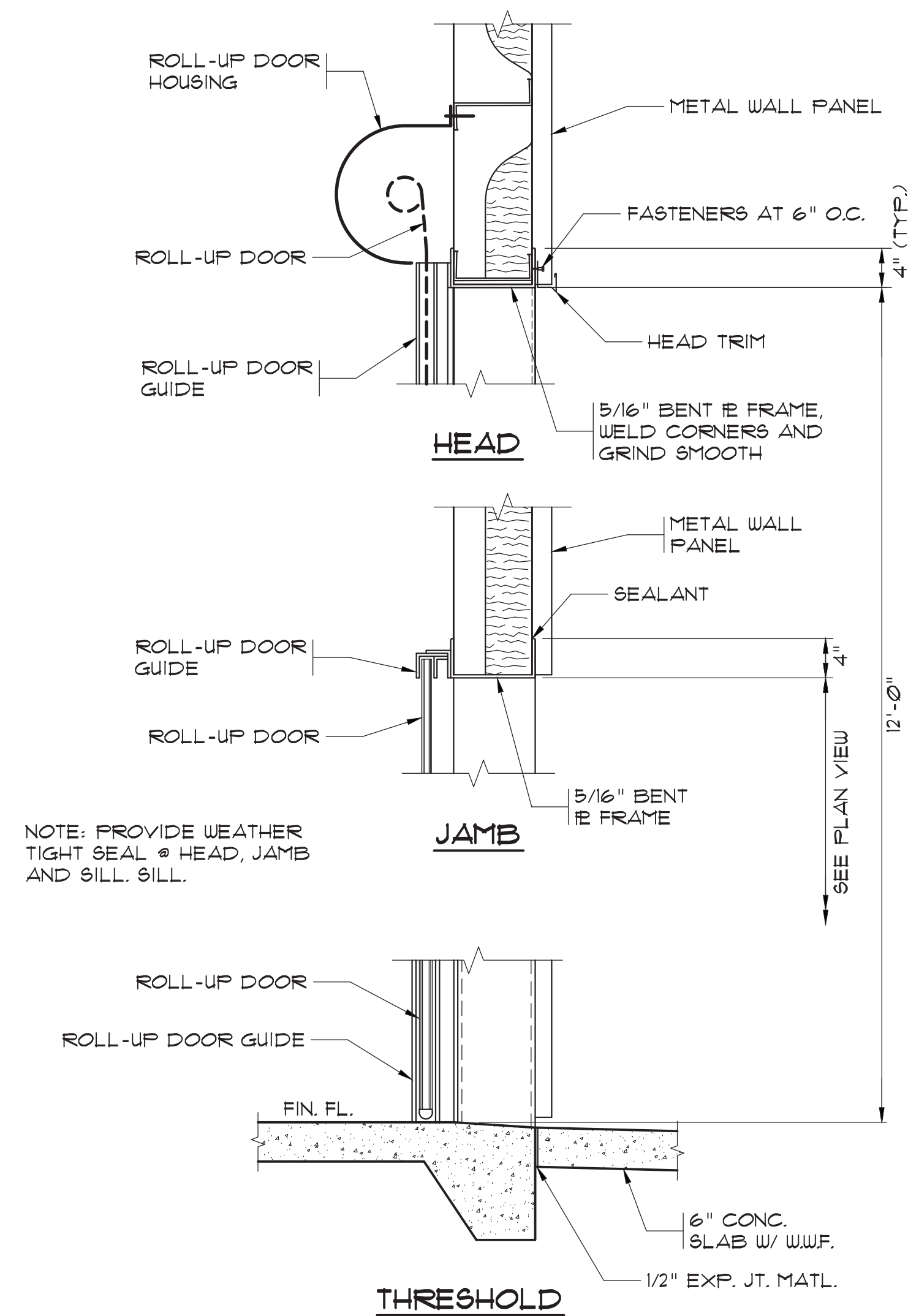
OUTSIDE CORNER DETAIL
N.T.S.



RIGID FRAME KNEE W/ PURLIN LOW EAVE-BYPASS
N.T.S.



RIGID FRAME RIDGE CONDITION
N.T.S.



TYP. SECTION THRU ROLL-UP DOOR
N.T.S.

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SLUDGE
BUILDING DETAILS

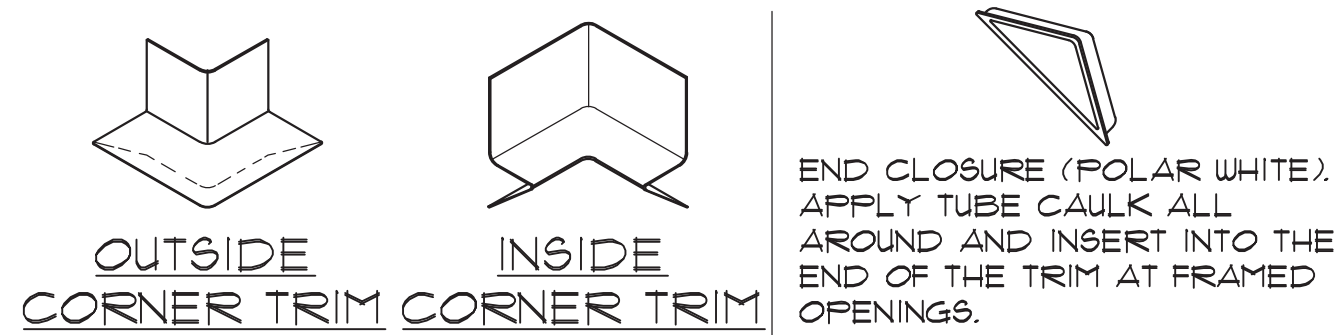
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GRAND STRAND WATER AND
SEWER AUTHORITY

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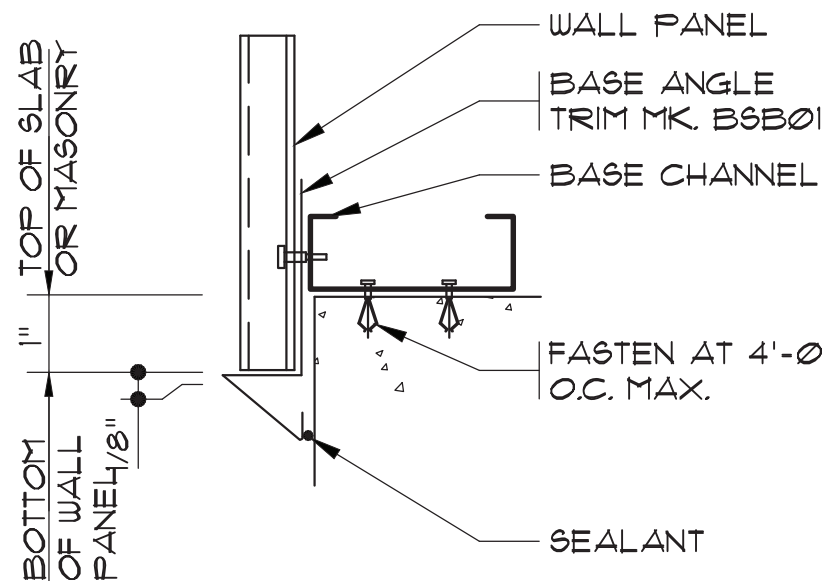
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Of: Version: 2

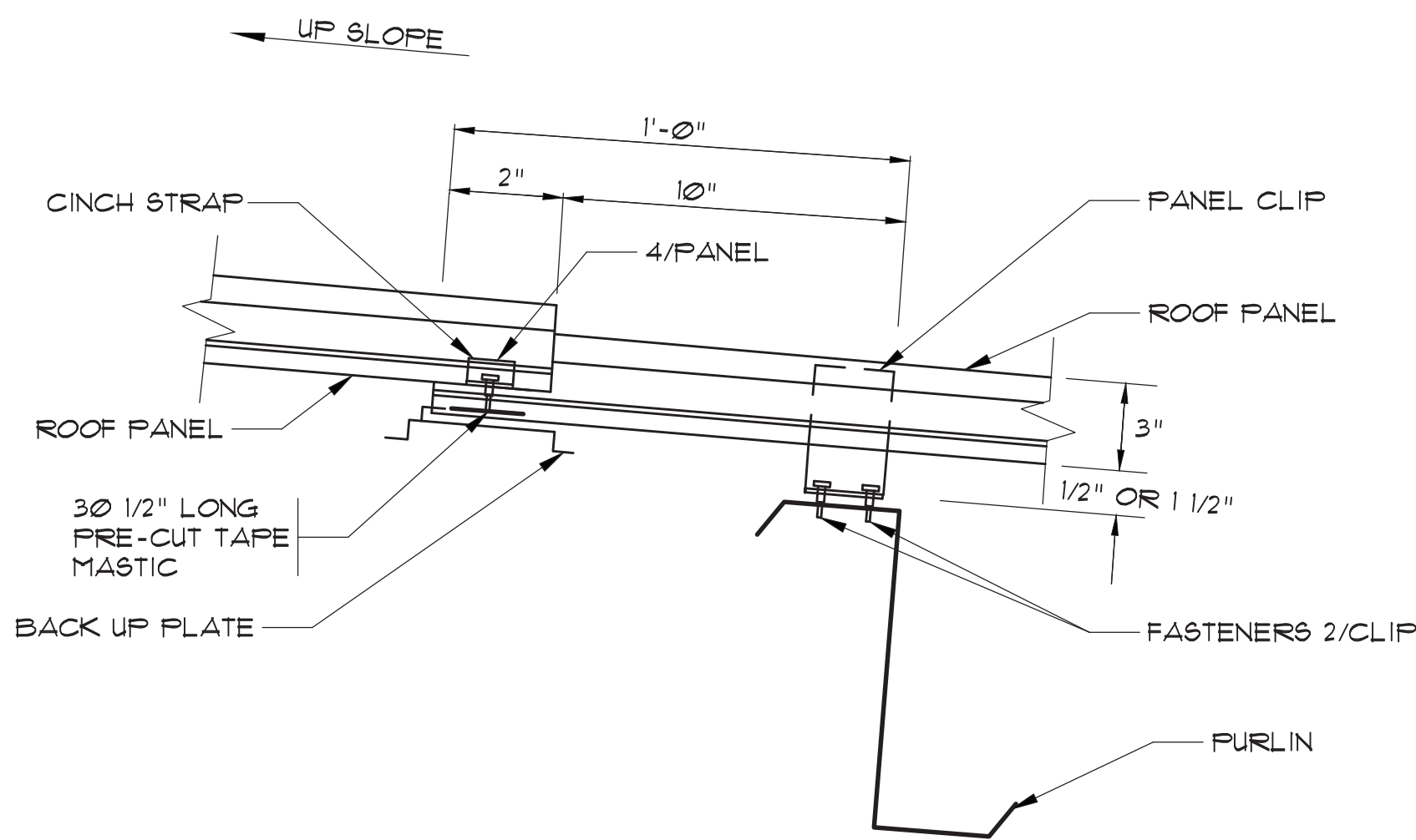
33-021-019/36 AS-BUILT



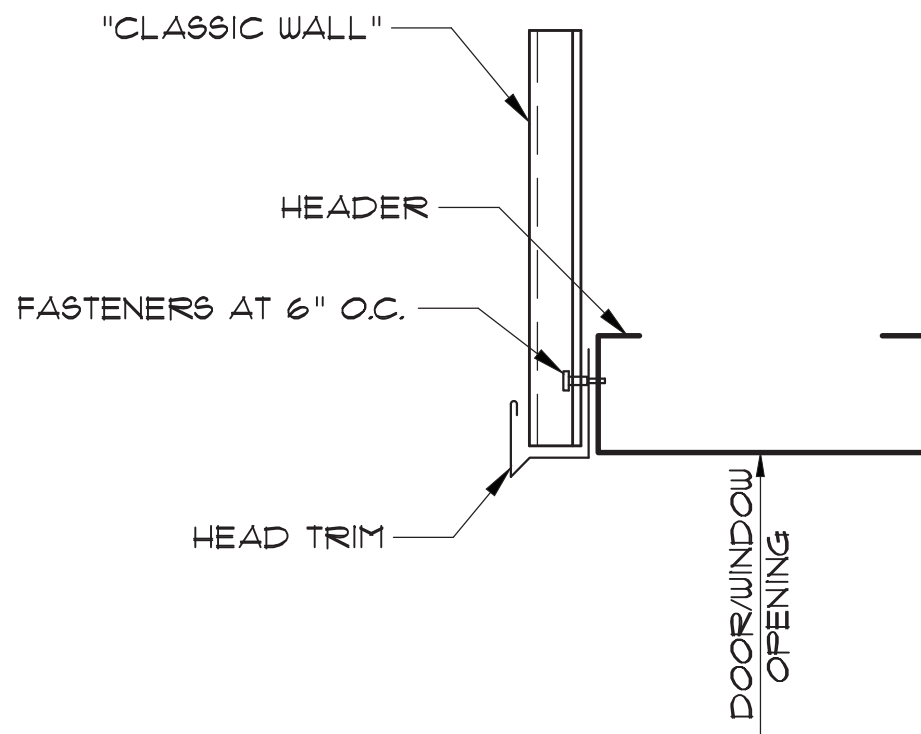
ERECTOR NOTE:
UNTIL WALL PANELS ARE INSTALLED, (3) SCREWS ARE TO BE USED FOR TEMPORARY INSTALLATION OF THE BASE TRIM.



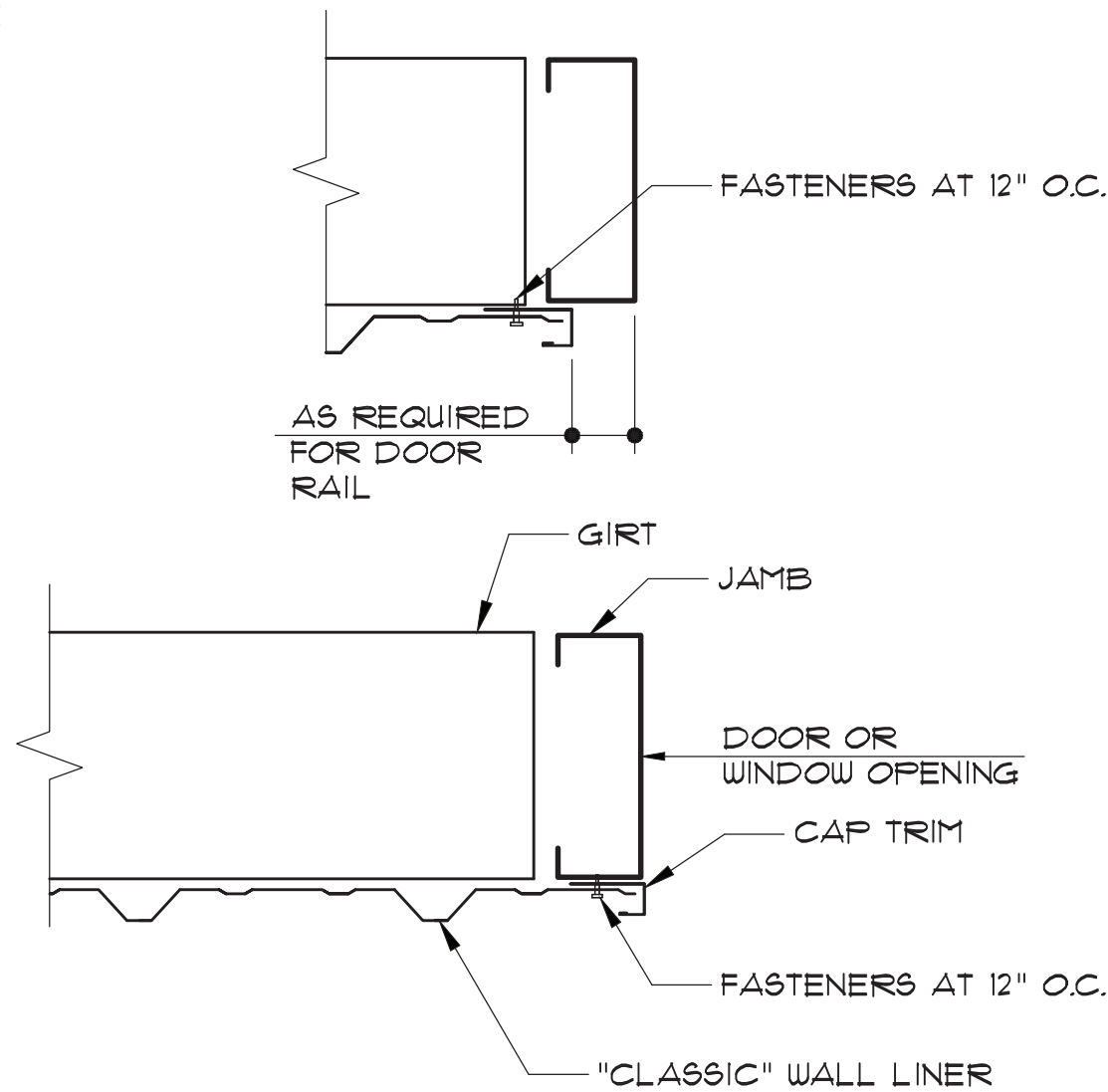
BASE TRIM DETAIL
N.T.S.



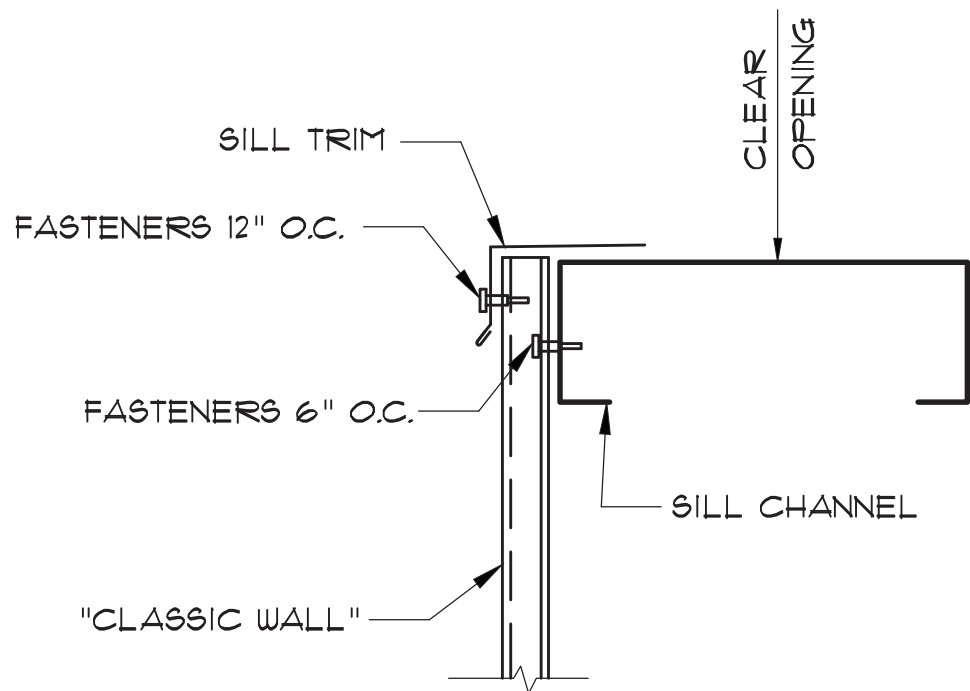
CFR PANEL SPLICE (IF REQUIRED)
N.T.S.



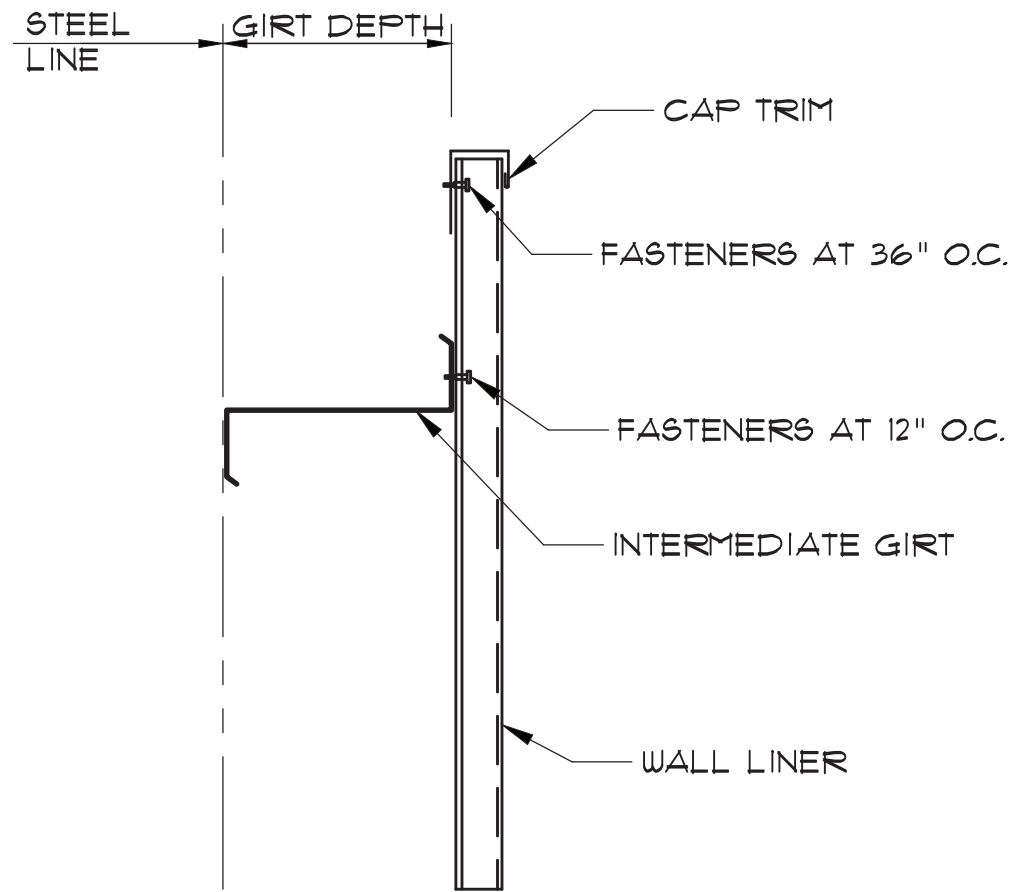
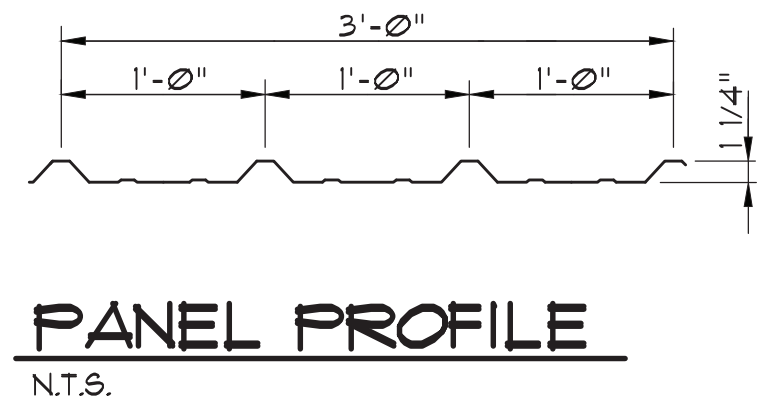
HEADER DETAIL
N.T.S.



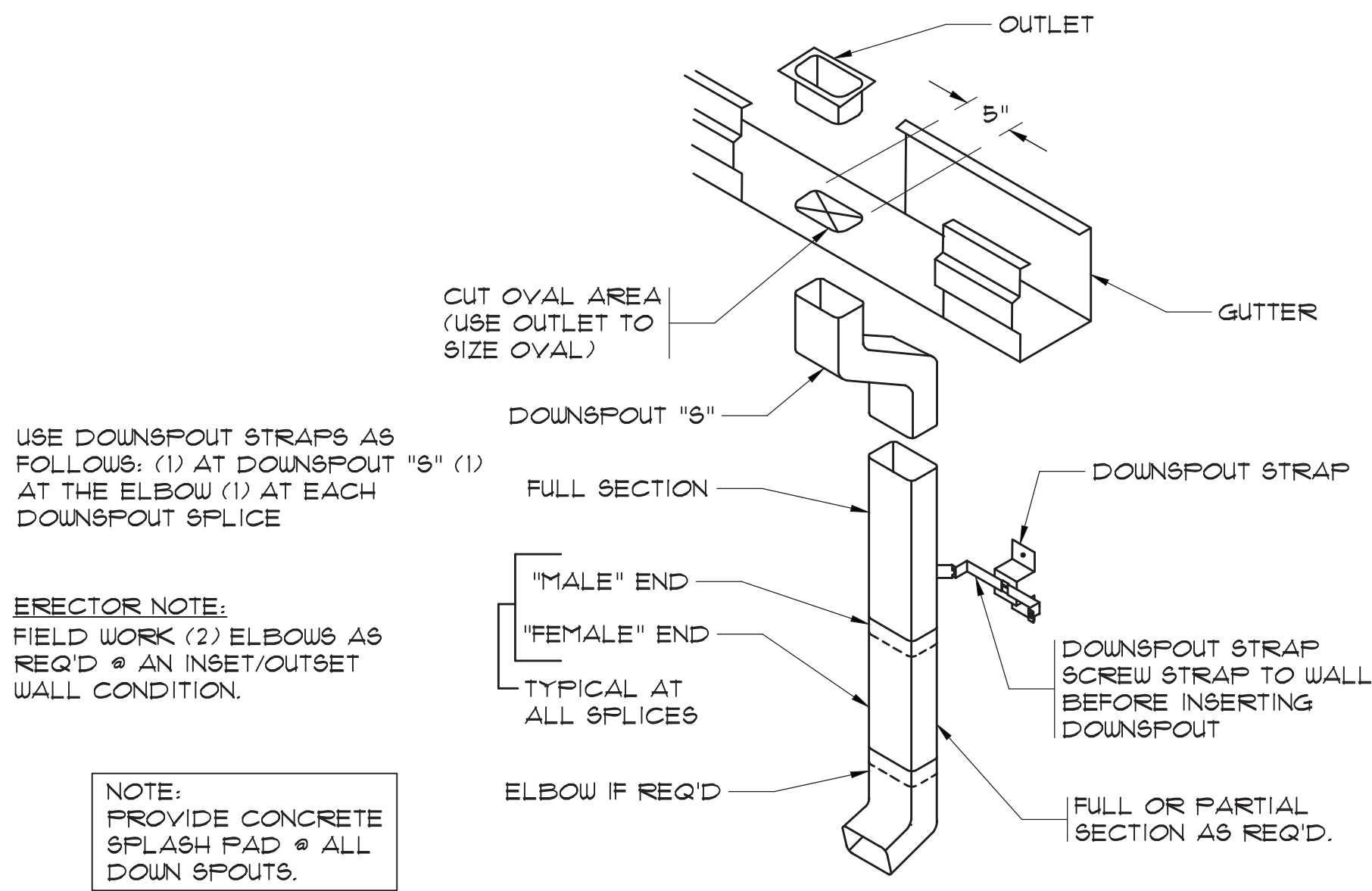
JAMB DETAIL
N.T.S.



SILL DETAIL
N.T.S.



PARTIAL HEIGHT LINER PANEL (IF REQUIRED)
N.T.S.



USE DOWNSPOUT STRAPS AS FOLLOWS: (1) AT DOWNSPOUT "S" (1) AT THE ELBOW (1) AT EACH DOWNSPOUT SPLICE

ERECTOR NOTE:
FIELD WORK (2) ELBOWS AS REQ'D @ AN INSET/OUTSET WALL CONDITION.

NOTE:
PROVIDE CONCRETE SPLASH PAD @ ALL DOWN SPOUTS.

DOWNSPOUT STRAP AND STRAP BRACKETS ARE PROVIDED FOR MASONRY WALL APPLICATIONS AS WELL AS FOR ATTACHMENT TO COLUMNS. FASTENERS TO MASONRY ARE NOT PROVIDED. FASTENERS ARE PROVIDED FOR COLUMN APPLICATIONS, PRE-DRILLING WILL BE REQUIRED.

STANDARD GUTTER AND DOWNSPOUT DETAIL
N.T.S.

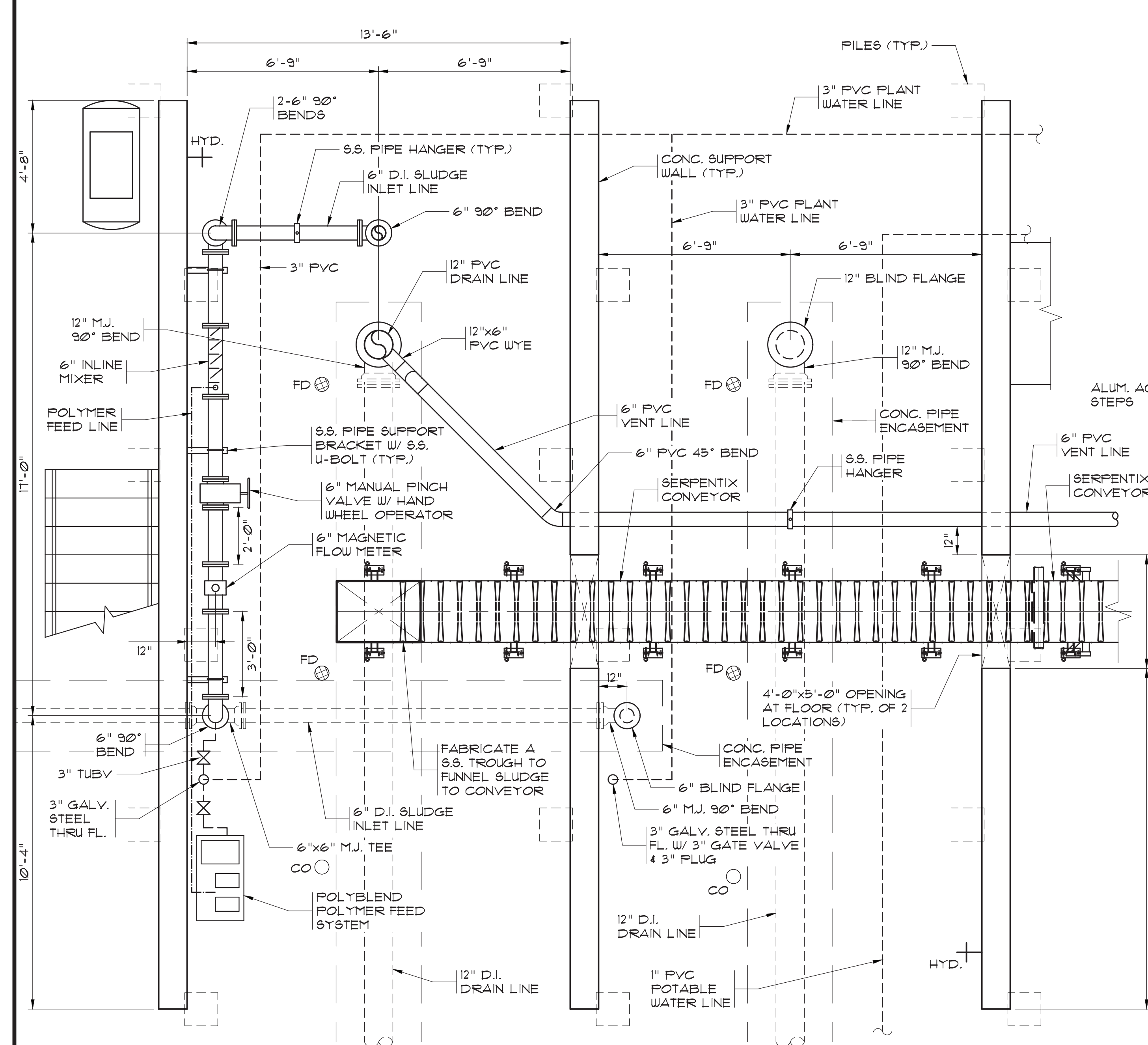
33-021-020/36 AS-BUILT

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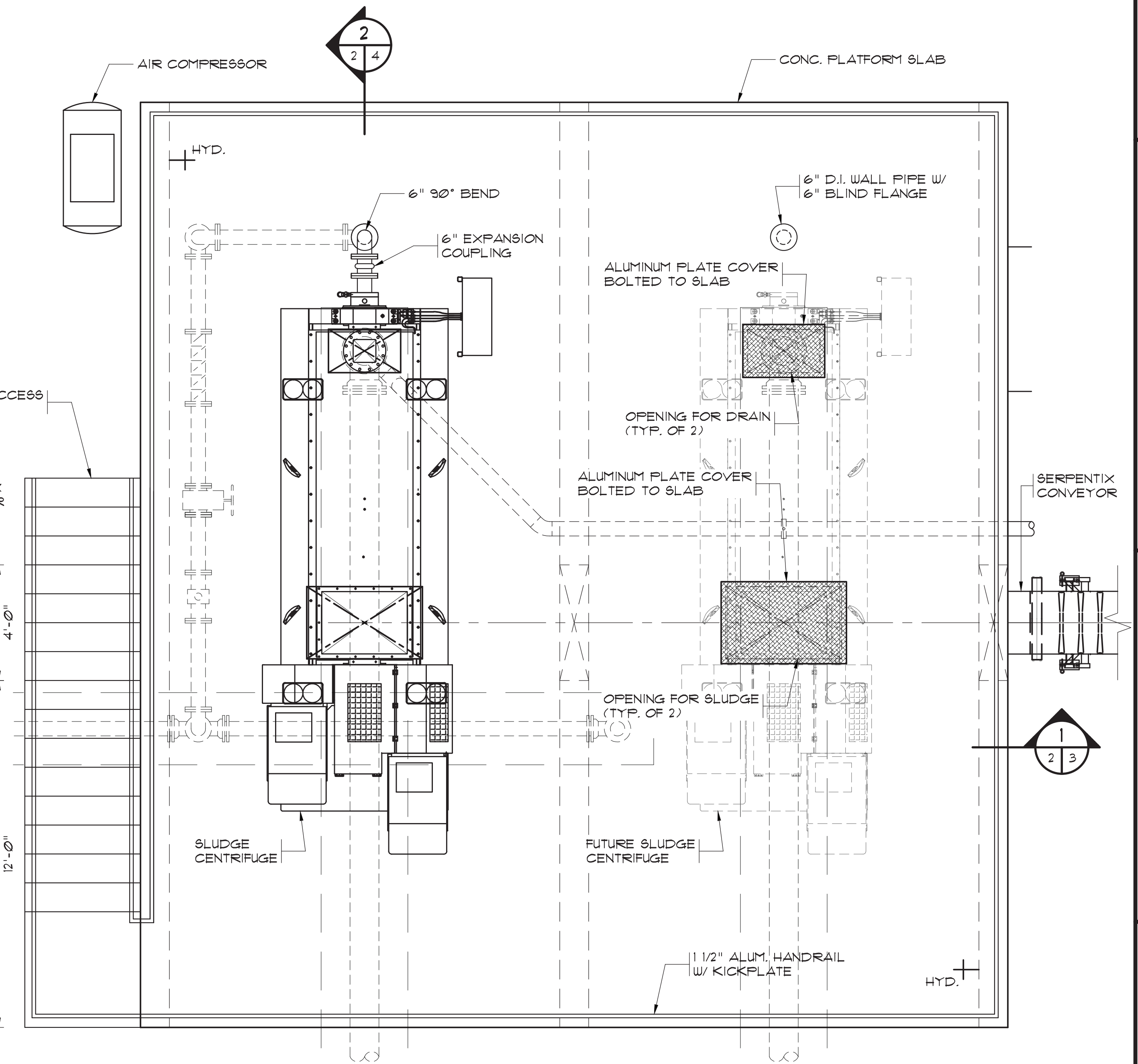
**BULL CREEK WTP
SLUDGE DEWATERING
FACILITY**
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
Date: MAR. 2020
Drawn: DC
Checked: JWM
Job No.: 317010
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SLUDGE CENTRIFUGE LOWER MECHANICAL LAYOUT

SCALE: 3/8"=1'-0"



SLUDGE CENTRIFUGE UPPER MECHANICAL LAYOUT

SCALE: 3/8"=1'-0"



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 SLUDGE DEWATERING FACILITY
 GRAND STRAND WATER AND SEWER AUTHORITY

SLUDGE CENTRIFUGE LOWER AND UPPER MECHANICAL LAYOUT

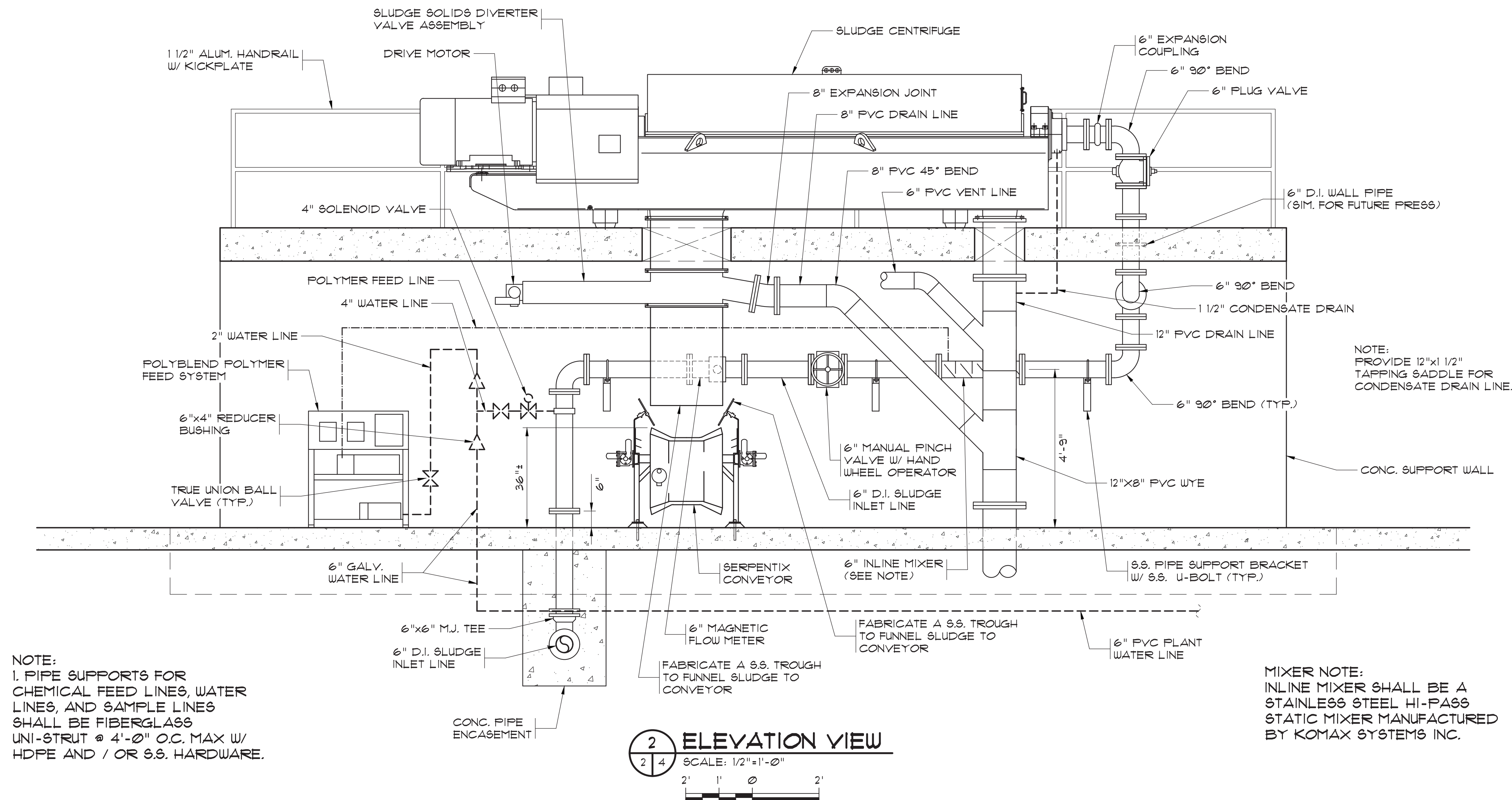
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 Sheet No.:

EN-2

Of: Version: 2

33-021-022/36

AS-BUILT



NOTE:
1. PIPE SUPPORTS FOR
CHEMICAL FEED LINES, WATER
LINES, AND SAMPLE LINES
SHALL BE FIBERGLASS
UNI-STRUT @ 4'-0" O.C. MAX W/
HDPE AND / OR S.S. HARDWARE.

2 ELEVATION VIEW
SCALE: 1/2"=1'-0"
2' 1' 0' 2'

MIXER NOTE:
INLINE MIXER SHALL BE A
STAINLESS STEEL HI-PASS
STATIC MIXER MANUFACTURED
BY KOMAX SYSTEMS INC.

RECORD DRAWING
MARCH 2020

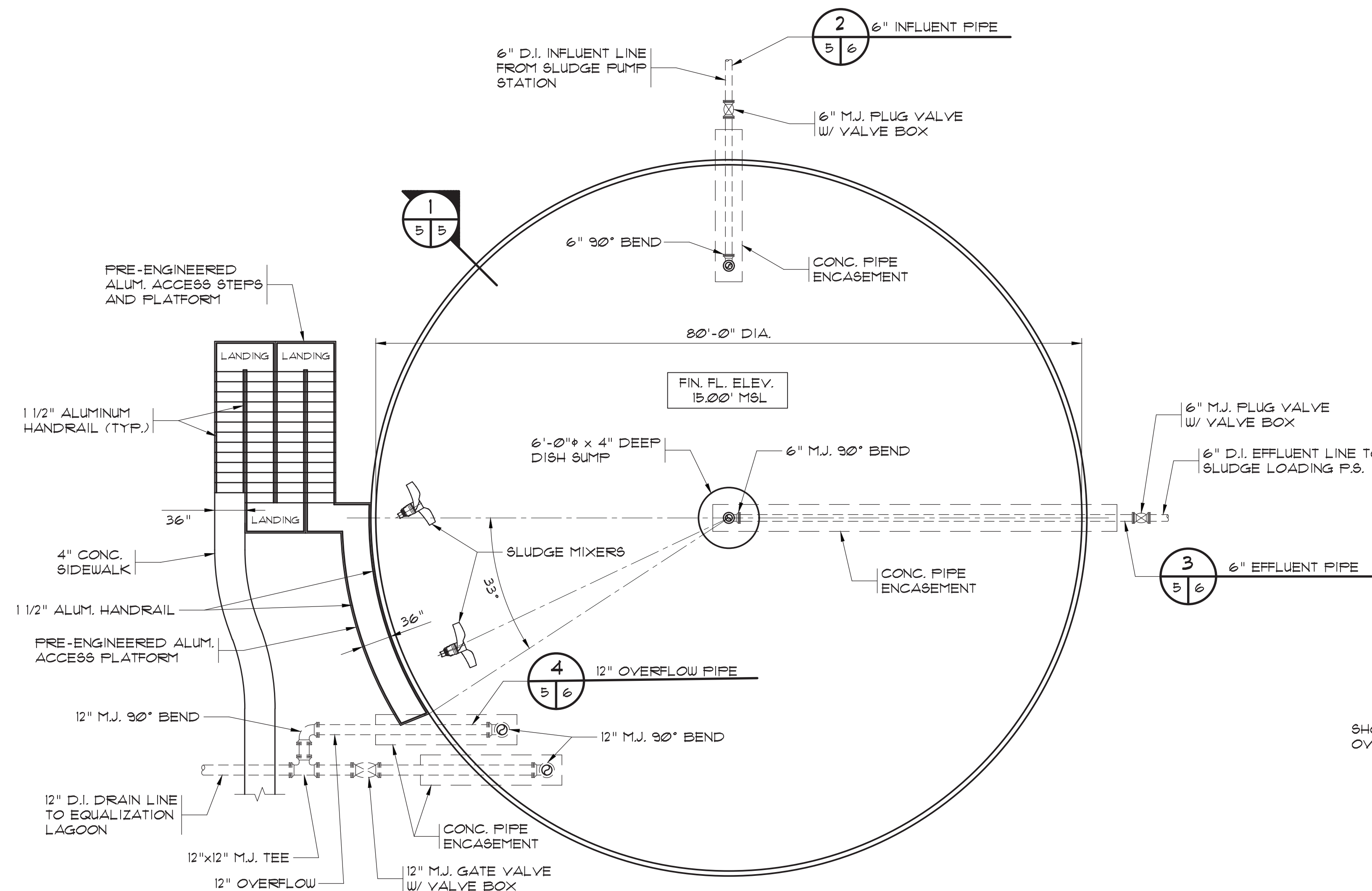
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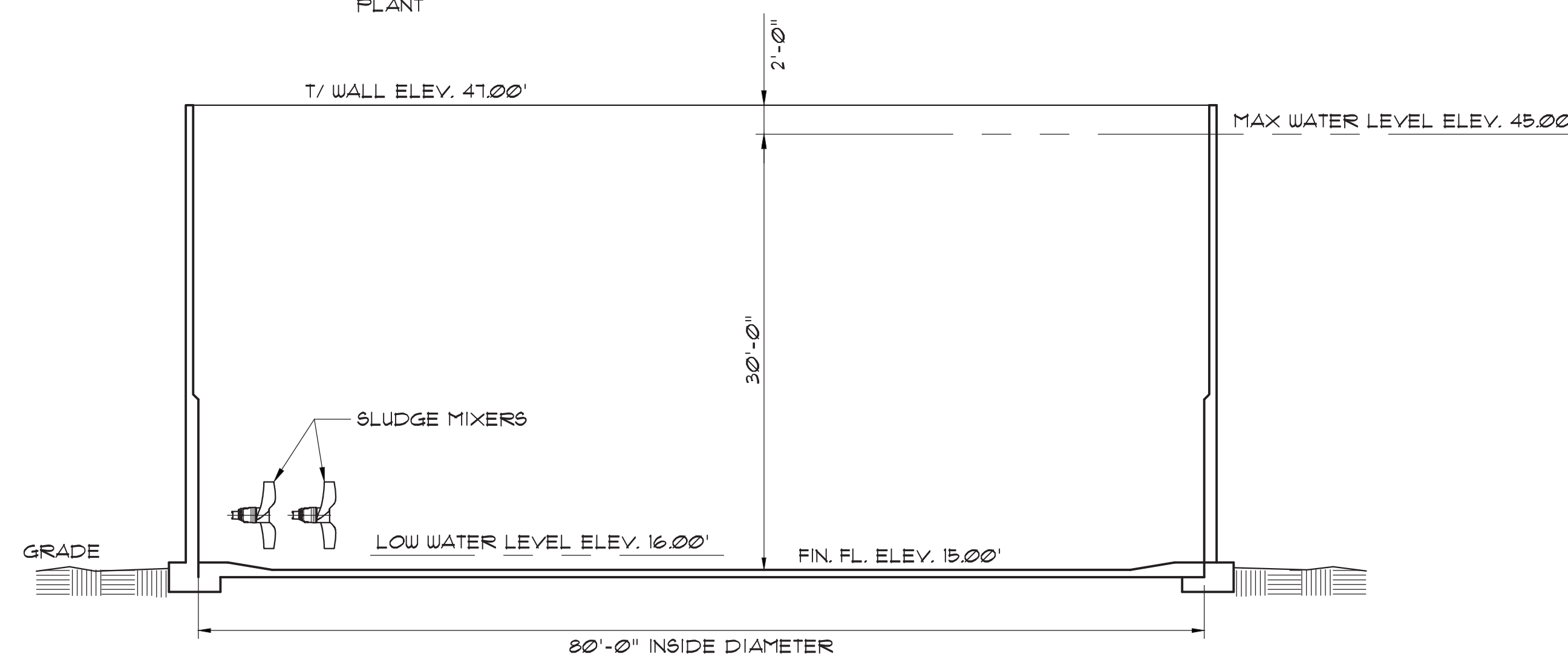
BULL CREEK WTP
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GRAND STRAND WATER AND
SEWER AUTHORITY

SLUDGE CENTRIFUGE
ELEVATION VIEW

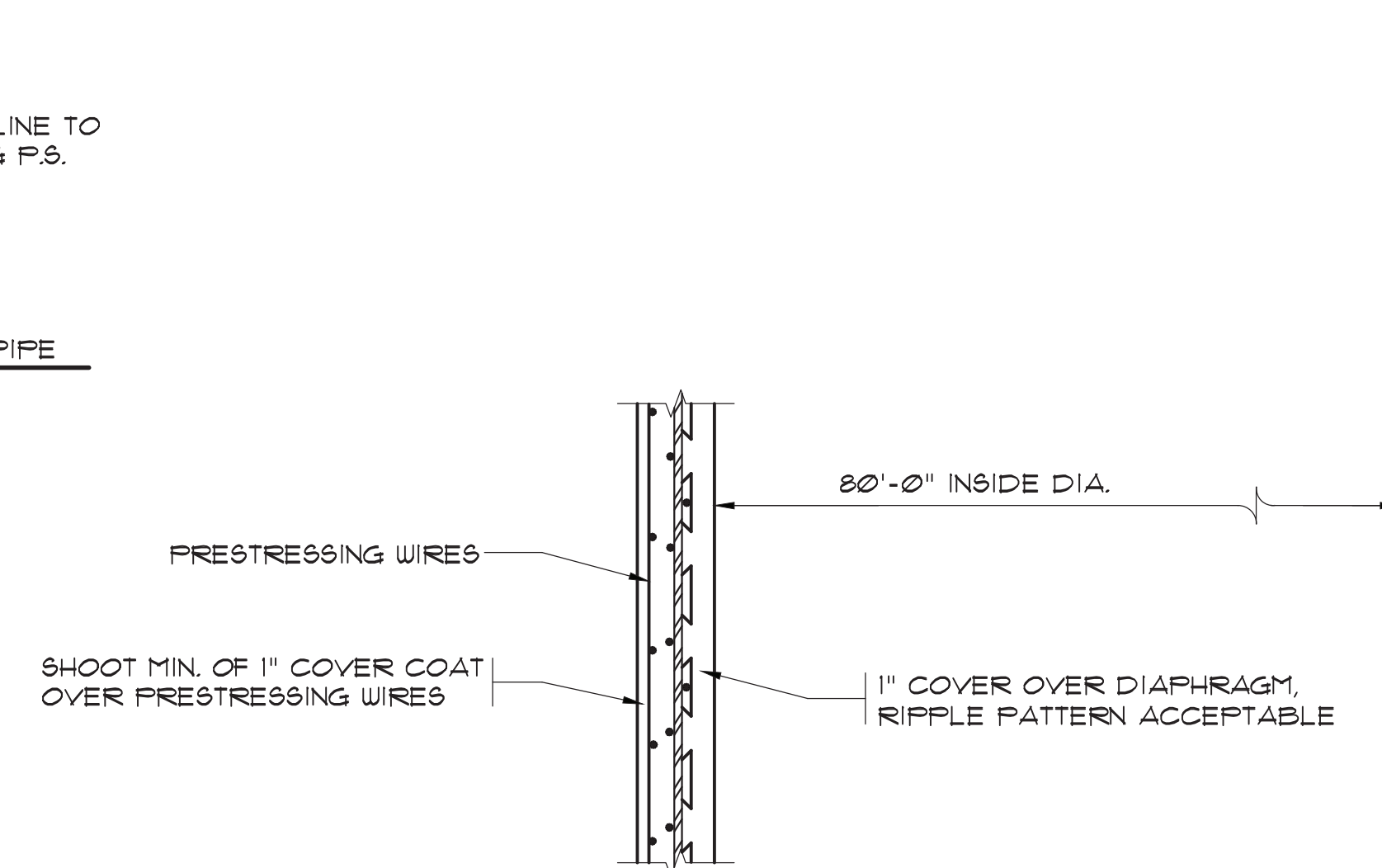
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| Sheet No.: | EN-4 |
| Of: - | Version: 2 |



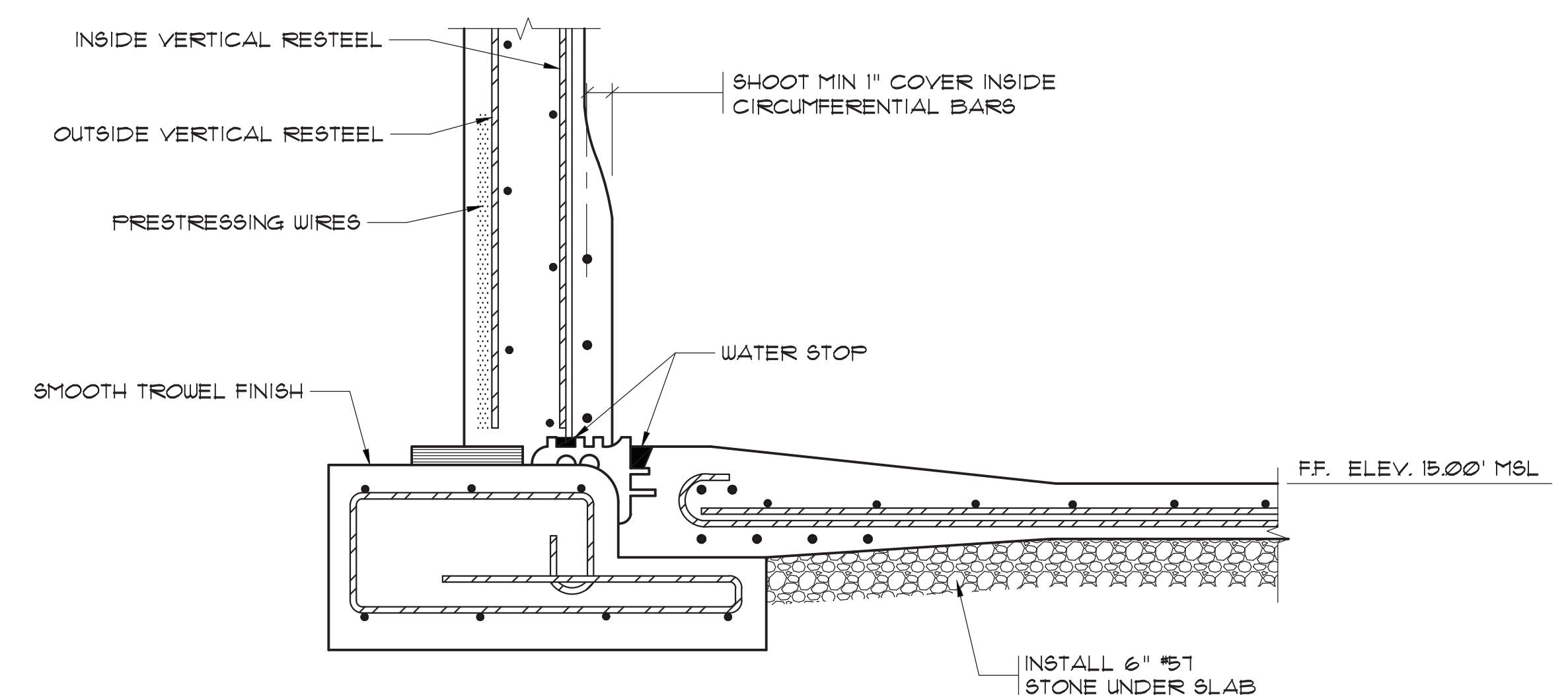
SLUDGE HOLDING TANK
PLAN VIEW
N.T.S.



SLUDGE HOLDING TANK
ELEVATION VIEW
N.T.S.



HORIZONTAL WALL SECTION
N.T.S.



FLOOR-WALL DETAIL
N.T.S.

33-021-025/36 AS-BUILT

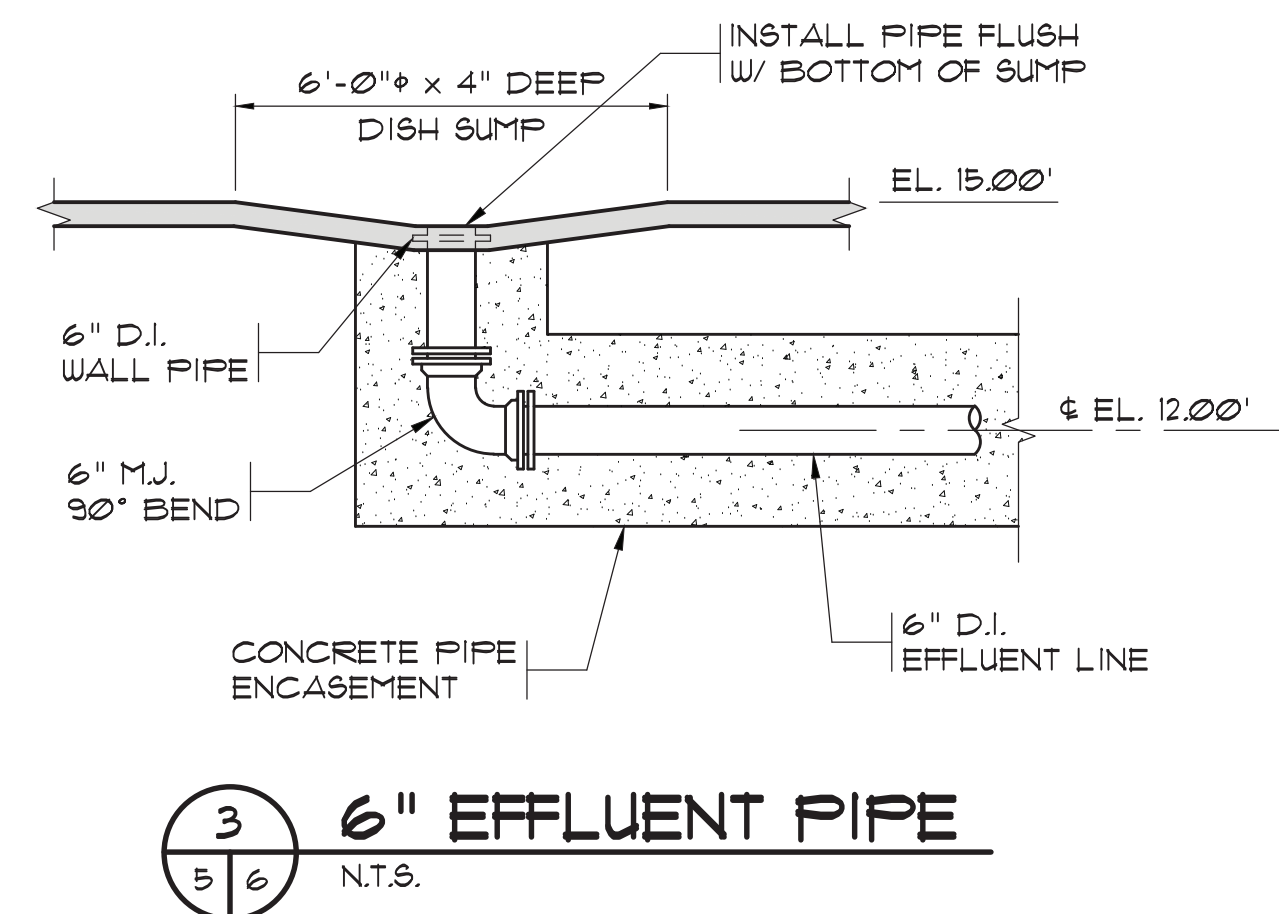
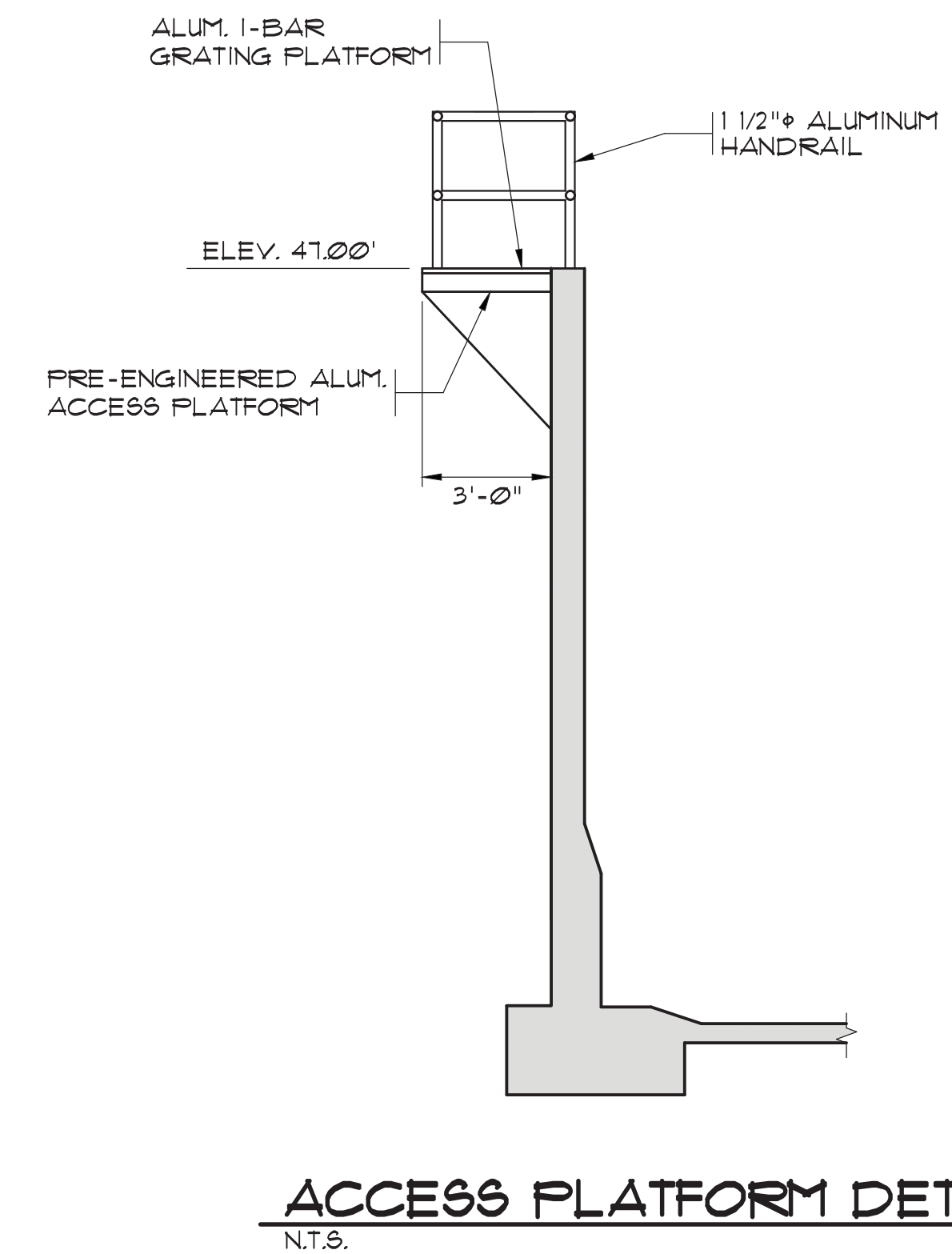
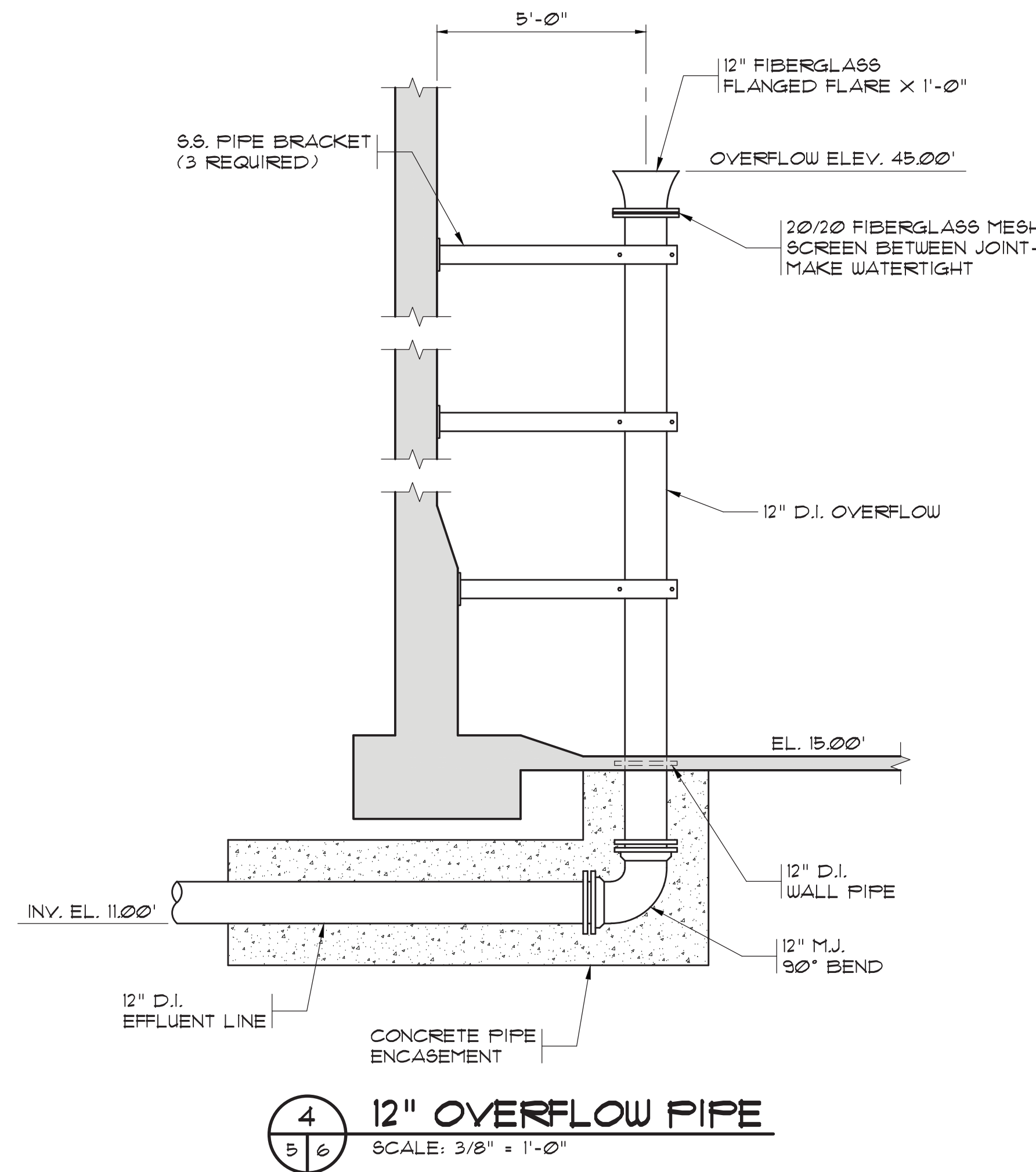
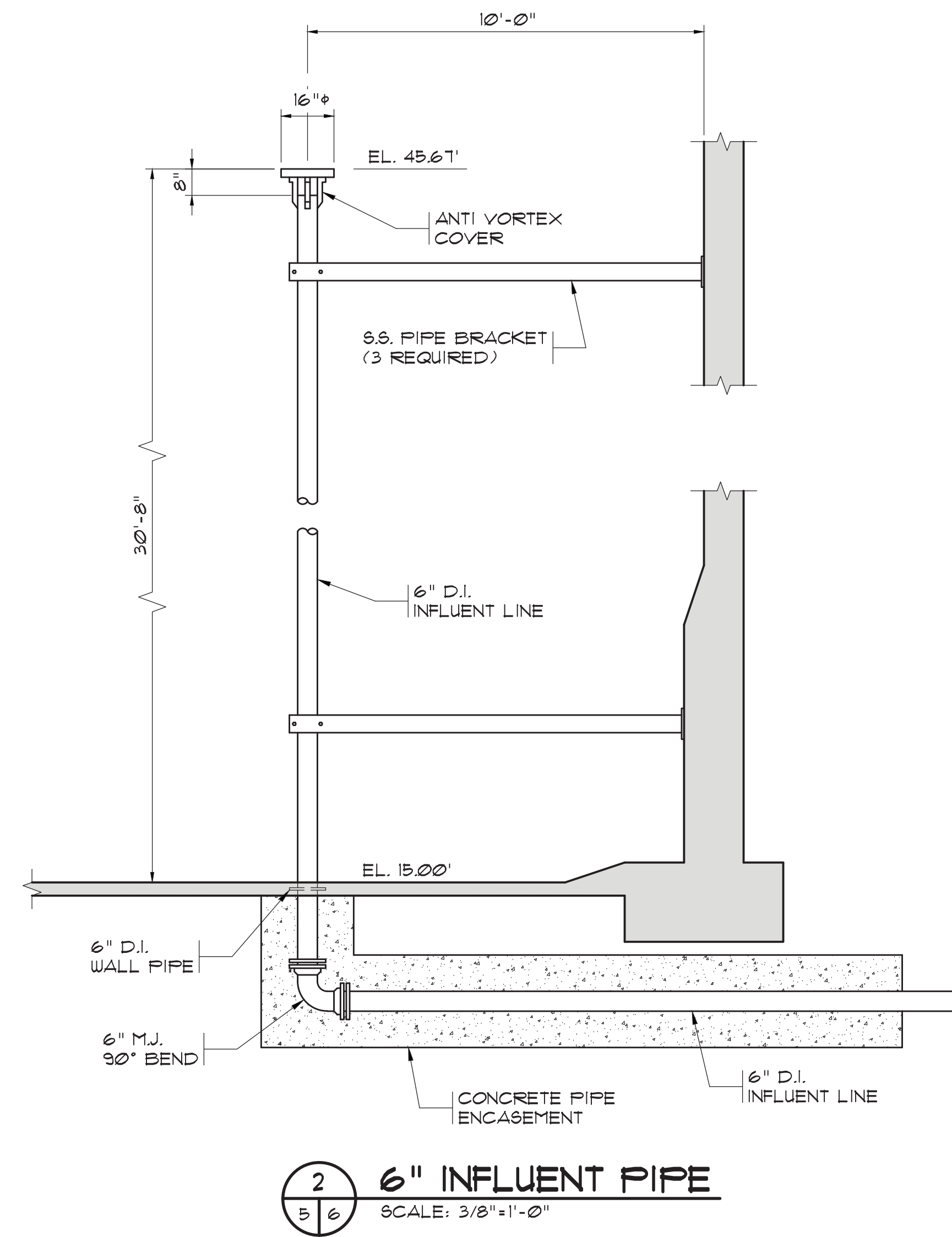
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SLUDGE HOLDING TANK
PLAN AND SECTIONS

BULL CREEK WTP
SLUDGE DEWATERING
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GRAND STRAND WATER AND
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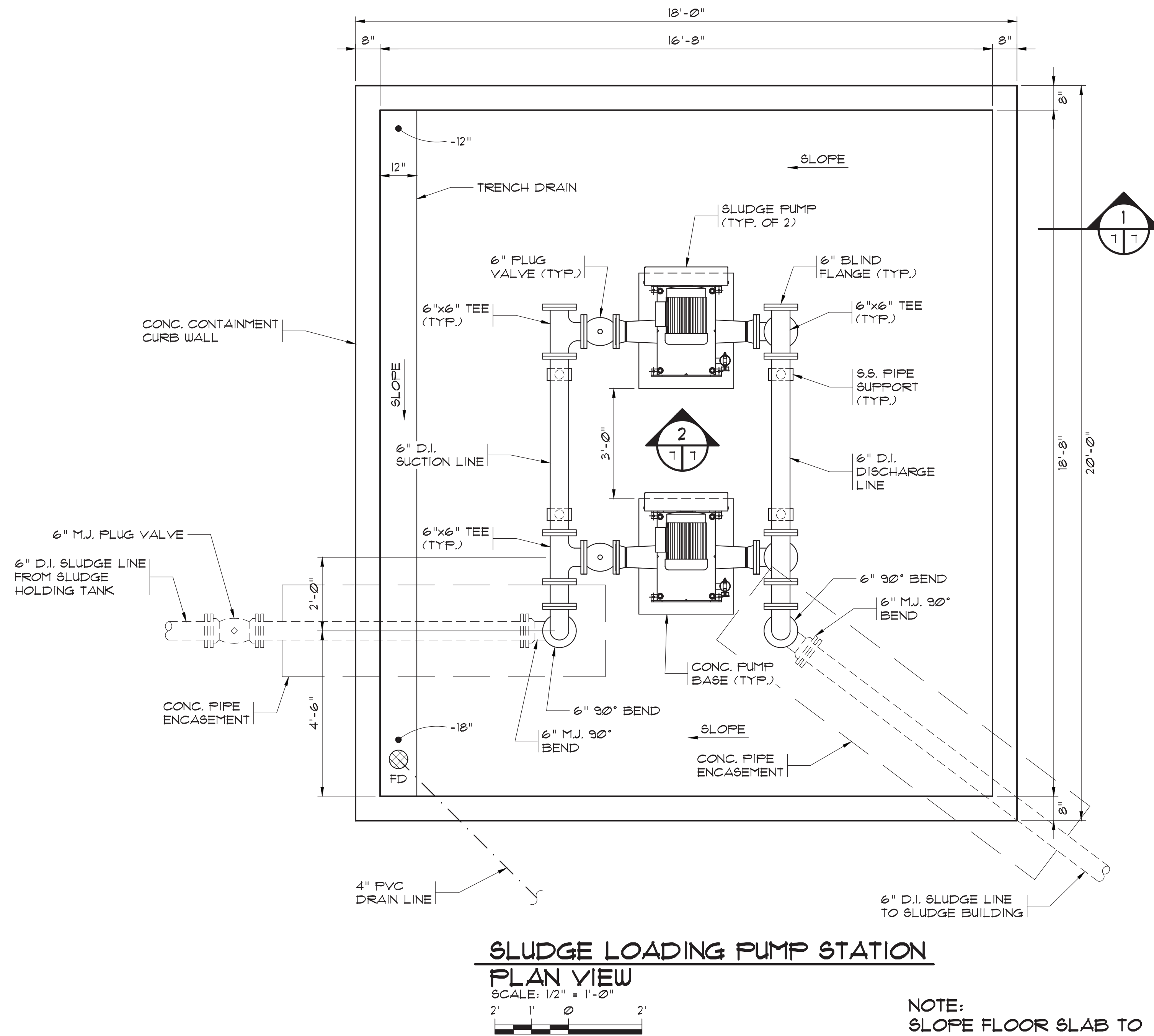
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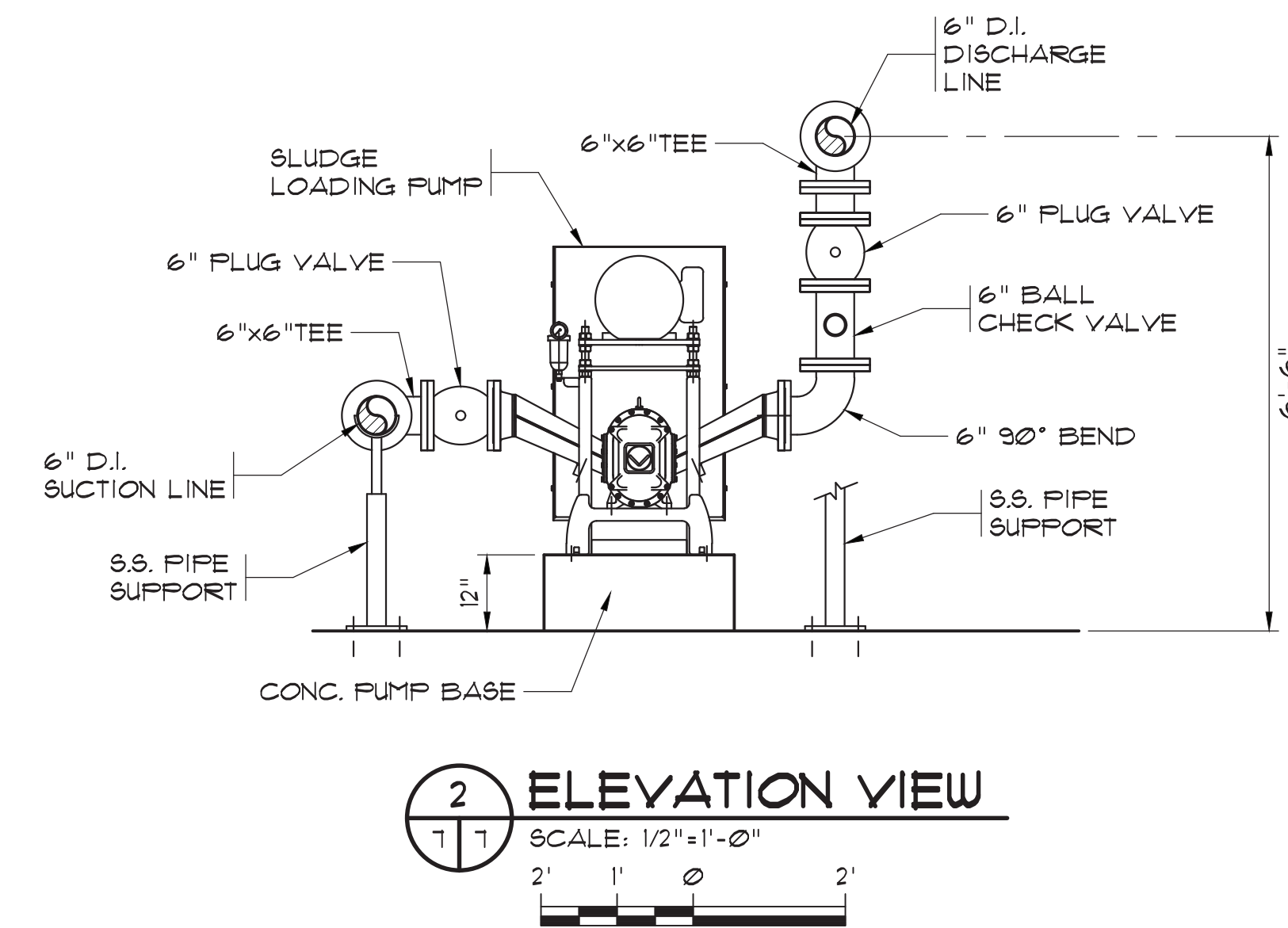
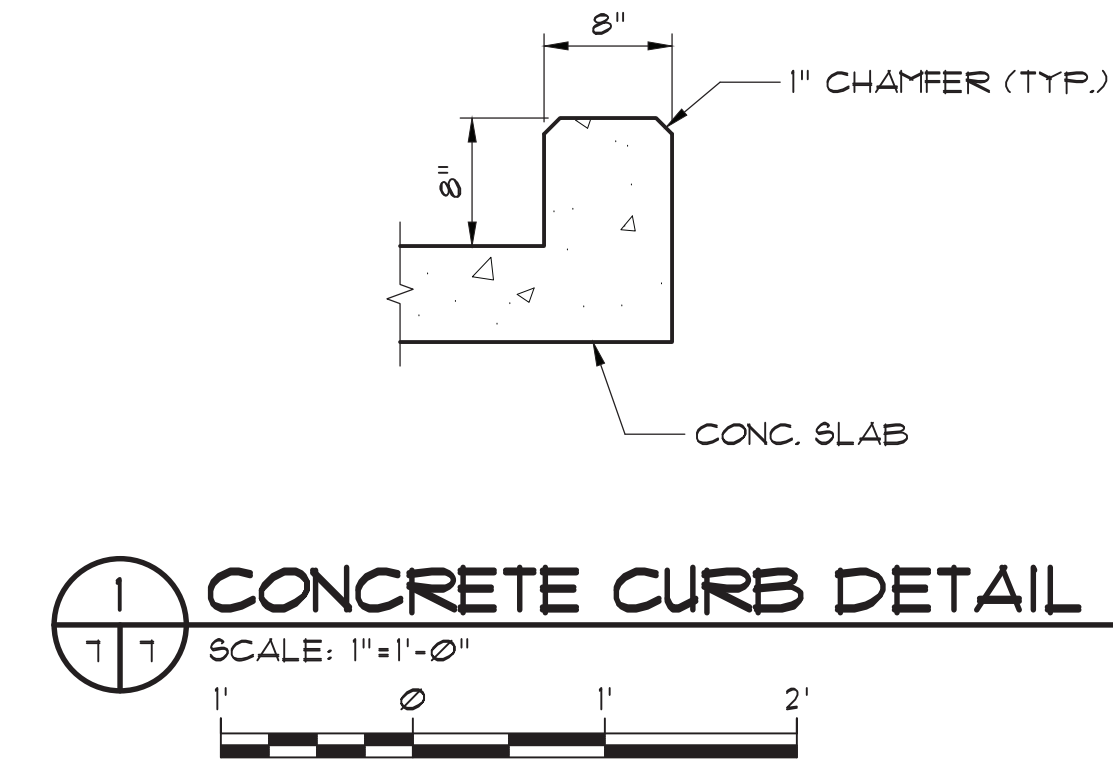
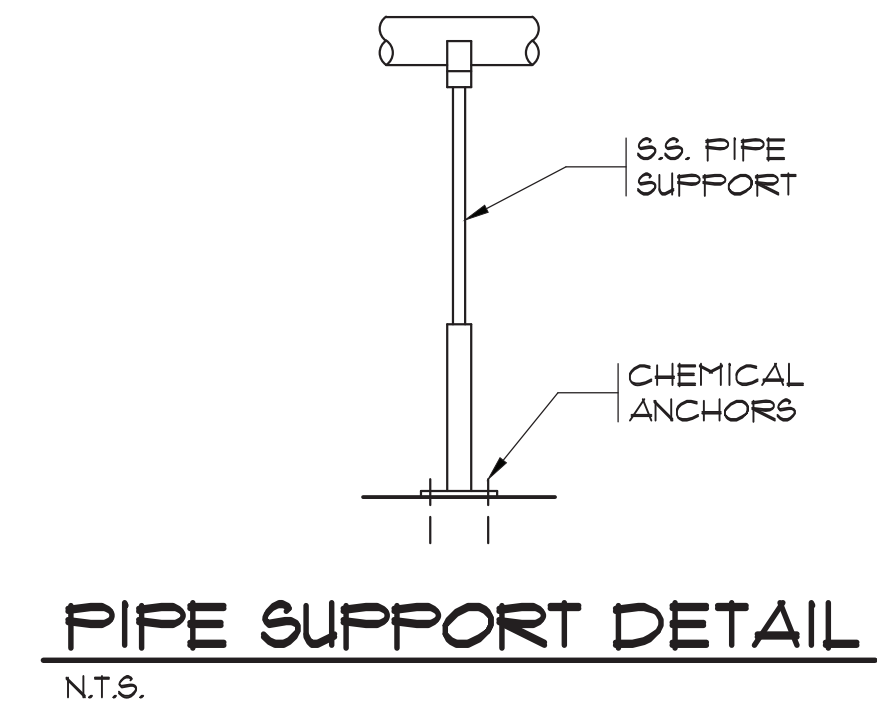
SLUDGE HOLDING
TANK SECTIONS

BULL CREEK WTP
SLUDGE DEWATERING
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NOTE:
SLOPE FLOOR SLAB TO
DRAIN TRENCH 1/4" PER
12" MIN. (TYP.)



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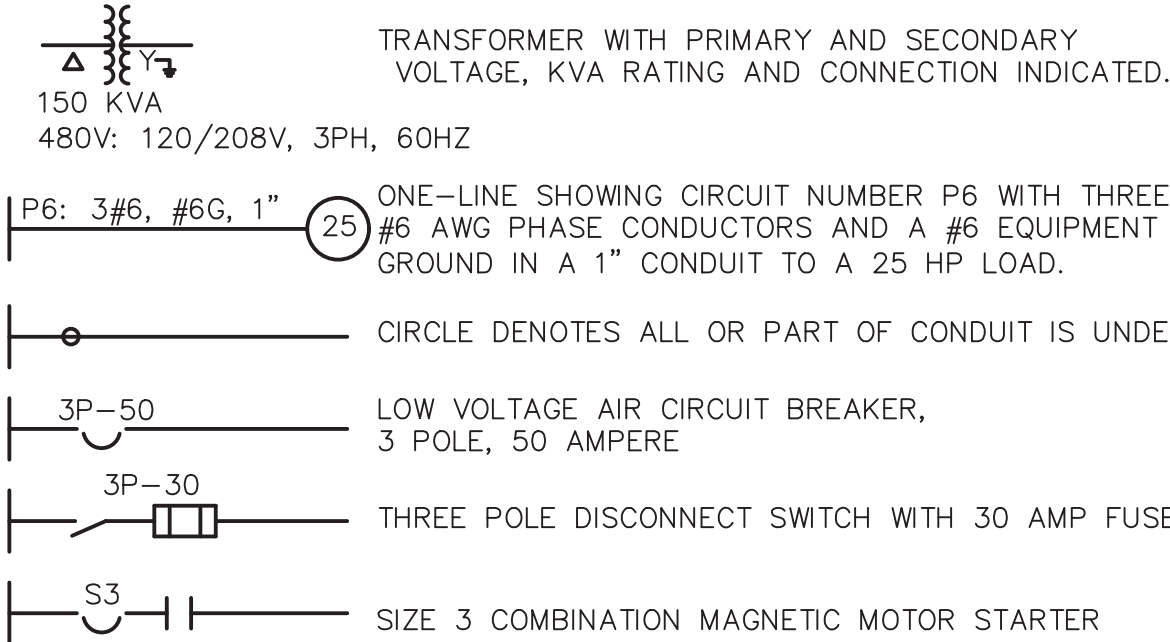
SLUDGE LOADING
PUMP STATION
LAYOUT & DETAILS

BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

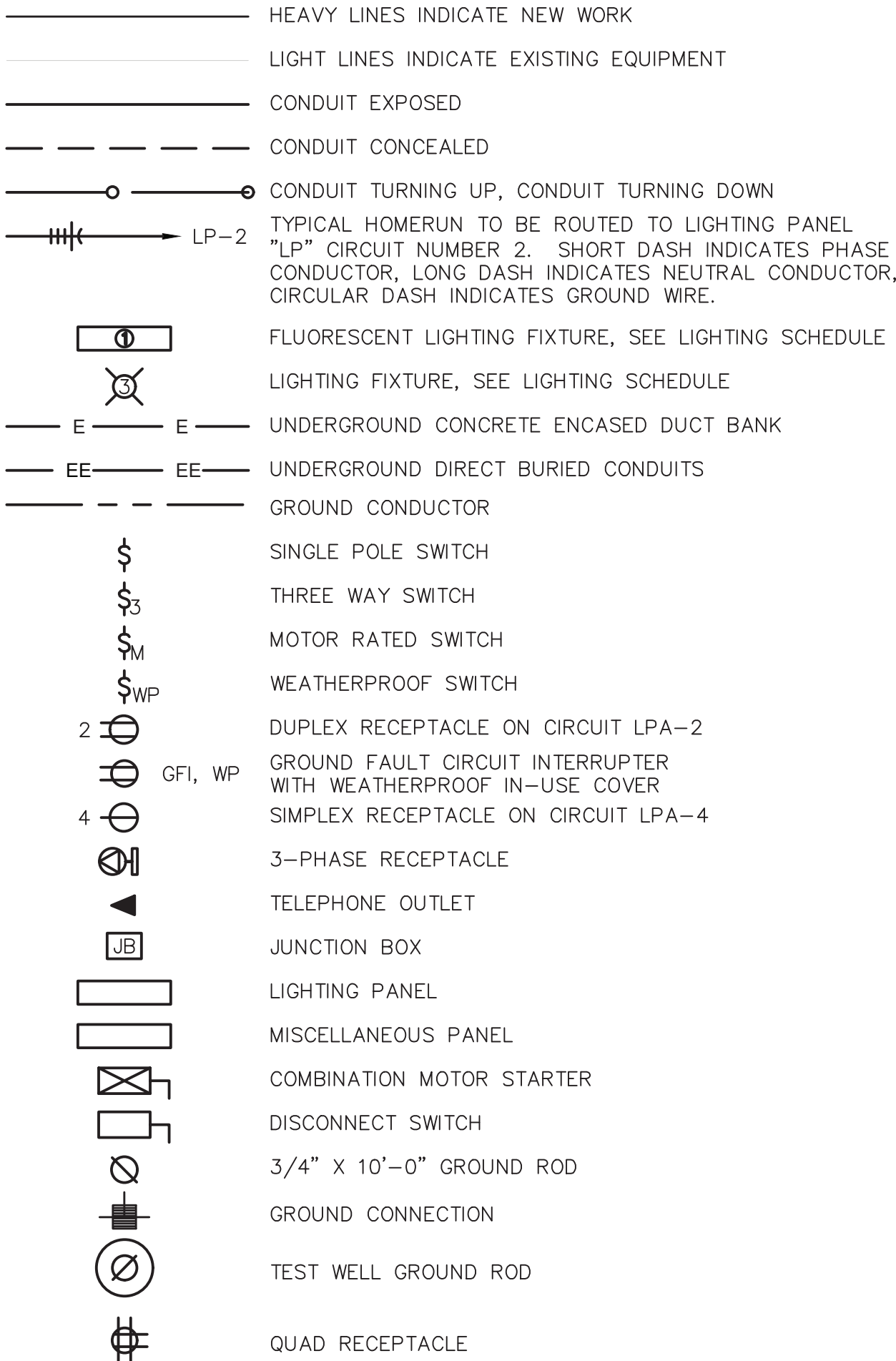
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DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers_P\Bull Creek WTP Sludge Addn - 01251 ELEC DWG\As-Built\ET Legend.dwg - ET Mar 10, 2020 - 11:00am

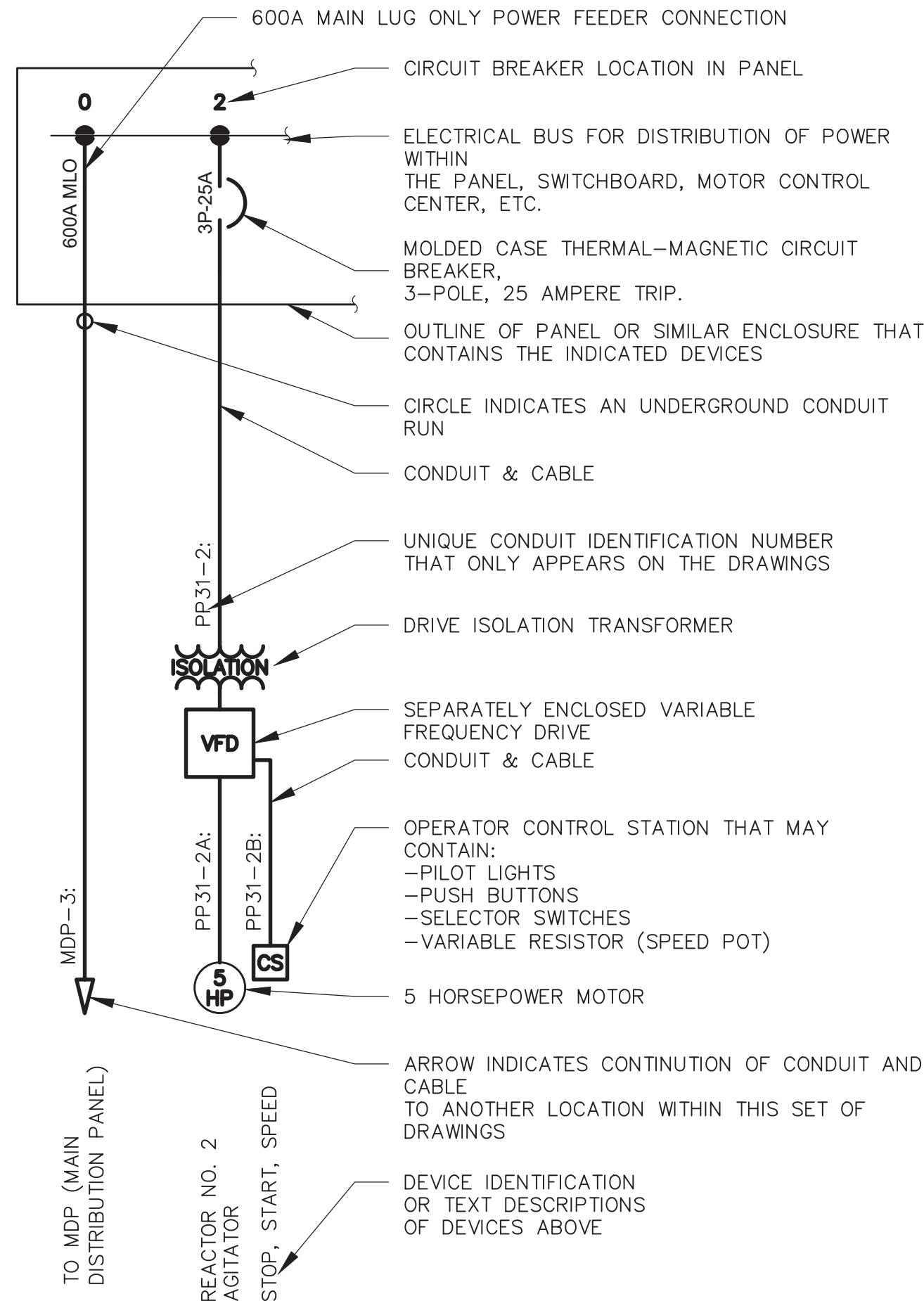
ONE - LINES



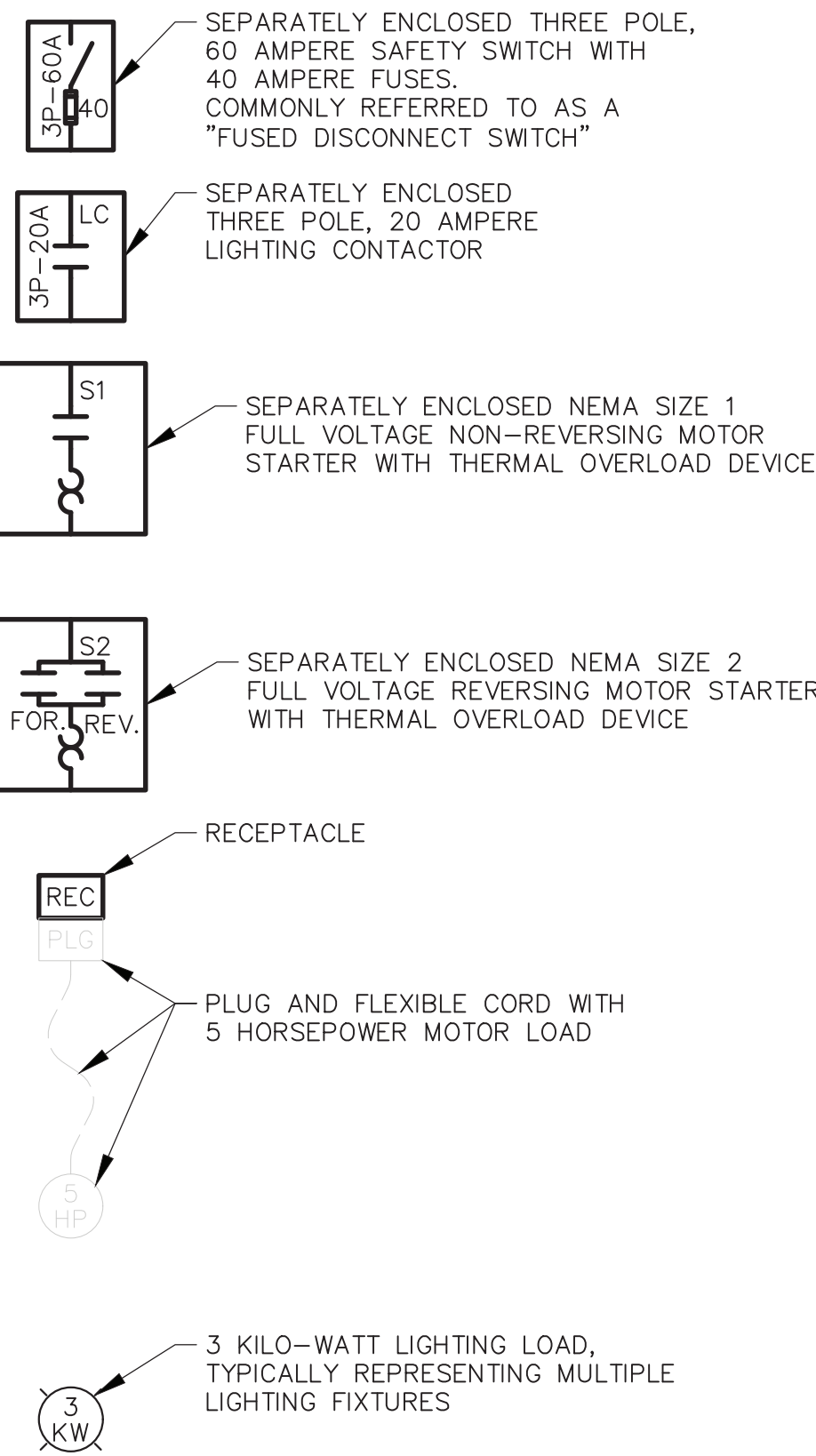
PLANS



ELECTRICAL LEGEND AND SYMBOLS



ELECTRICAL ONE-LINE DIAGRAM LEGEND



| | | | |
|------|-------------------------------------|-------|------------------------------------|
| A | AMPERE | MCC | MOTOR CONTROL CENTER |
| AC | ALTERNATING CURRENT | MCP | MOTOR CIRCUIT PROTECTOR |
| A/C | AIR CONDITIONER | MDP | MAIN DISTRIBUTION PANEL |
| AFF | ABOVE FINISHED FLOOR | MIN | MINIMUM |
| AGL | ABOVE GROUND LEVEL | MLO | MAIN LUG ONLY |
| AMP | AMPERE | MPC | MINI-POWER CENTER |
| ATS | AUTOMATIC TRANSFER SWITCH | MTS | MANUAL TRANSFER SWITCH |
| AWG | AMERICAN WIRE GAUGE | MSH | MOTOR SPACE HEATER |
| BPS | BOOSTER PUMP STATION | N | NEUTRAL |
| C | CONDUIT | NEC | NATIONAL ELECTRICAL CODE |
| CB | CIRCUIT BREAKER | NEMA | NATIONAL ELECTRICAL MANUF. ASSOC. |
| CB | COMPACT FLOUORESCENT | NTS | NOT TO SCALE |
| CFL | CONTROL PANEL | OL | OVERLOAD (RELAY) |
| CP | CONTROL RELAY | PB | PUSH BUTTON |
| CR | CONTROL STATION | PCP | PUMP CONTROL PANEL |
| CS | CURRENT TRANSFORMER | PE | PHOTO-ELECTRIC CONTROL |
| DC | DIRECT CURRENT | PH | PHASE |
| DIA | DIAMETER | PL | PILOT LIGHT |
| DM | DAMPER MOTOR | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| DS | DISCONNECT SWITCH | PMR | POWER MONITOR RELAY |
| DSG | GENERATOR DISCONNECT SWITCH | PP | POWER PANEL |
| DSU | UTILITY DISCONNECT SWITCH | PROP. | PROPOSED |
| EB | ELECTRONIC BALLAST | PSCP | PUMP STATION CONTROL PANEL |
| EC | EMPTY CONDUIT | PS | PUMP STATION |
| E.C. | ELECTRICAL CONTRACTOR | R | RED |
| EF | EXHAUST FAN | REQD | REQUIRED |
| EL | ELEVATION | RTU | REMOTE TELEMETRY UNIT |
| EHH | ELECTRICAL HAND HOLE | RVAT | REDUCED VOLTAGE AUTOTRANSFORMER |
| EW | ELECTRIC WATER HEATER | SA | SURGE ARRESTOR |
| EX | EXISTING | SE | SERVICE ENTRANCE |
| EXP | EXPLOSION PROOF | SP | SUB-PANEL |
| G | GROUND | SS | STAINLESS STEEL OR SELECTOR SWITCH |
| GEN | GENERATOR | SSRV | SOLID STATE REDUCED VOLTAGE |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTER | SST | STAINLESS STEEL |
| GFI | GROUND FAULT INTERRUPTER | SSW | SELECTOR SWITCH |
| GND | GROUND | T | THERMOSTAT |
| HID | HIGH INTENSITY DISCHARGE (LIGHT) | TS | TEMPERATURE SWITCH |
| HOA | HAND-OFF-AUTOMATIC | TVSS | TRANSIENT VOLTAGE SURGE SUPPRESSOR |
| HP | HORSEPOWER | TYP | TYPICAL |
| HVAC | HEATING, VENTILATION, & AIR COND. | UH | UNIT HEATER |
| HZ | HERTZ | UM | UTILITY METER |
| JB | JUNCTION BOX | V | VOLTS |
| KVA | KILOVOLT-AMPERE | VAC | VOLTS ALTERNATING CURRENT |
| KW | KILOWATT | VFD | VARIABLE FREQUENCY DRIVE |
| LAHJ | LOCAL AUTHORITY HAVING JURISDICTION | W | WATTS OR WHITE |
| LE | LEVEL ELEMENT | WP | WEATHERPROOF |
| LP | LIGHTING PANEL | XP | EXPLOSION PROOF |
| LS | LEVEL SWITCH | ZS | POSITION SWITCH |
| LSH | LEVEL SWITCH - HIGH | 3-PH | THREE PHASE |
| LSL | LEVEL SWITCH - LOW | 4P | FOUR POLE |
| M | MAGNETIC MOTOR STARTER | & | AND |
| M | MOTOR | | |
| MA | MILLIAMPERE | | |
| MAX | MAXIMUM | | |
| MCB | MAIN CIRCUIT BREAKER | | |

2(3#350), #1N, 4" TWO PARALLEL SETS OF 3-PHASE 350MCM CONDUCTORS, ONE #1AWG NEUTRAL CONDUCTOR, NO GROUNDING CONDUCTOR, IN ONE 4" CONDUIT.
3(1PR#18STP) THREE - SINGLE PAIR, #18 AWG SHIELDED TWISTED PAIR CABLES
2(1TR#18STT) TWO - SINGLE TRIADS, #18 AWG SHIELDED TWISTED TRIAD CABLES
3#16STP THREE - #16 AWG SHIELDED TWISTED PAIR CABLES
3-7/C#14 THREE - SEVEN CONDUCTOR #14 AWG MULTICONDUCTOR CONTROL CABLES
2-RS485 TWO CABLES FOR RS485 COMMUNICATION

ELECTRICAL ABBREVIATIONS

GENERAL NOTES:

- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, PERMITS, AND OPERATIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK INDICATED ON THE DRAWINGS.
- ALL ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH THE NEC AND OTHER APPLICABLE FEDERAL, STATE, AND LOCAL CODES. ALL ELECTRICAL EQUIPMENT SHALL BE UL LISTED OR LABELED.
- CONTRACTOR SHALL COORDINATE ROUTING OF CONDUITS WITH THE OWNER AND OTHER TRADES.
- CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION POINTS PRIOR TO INSTALLATION.

THE LINE BELOW MEASURED ONE INCH LONG ON THE ORIGINAL DRAWING.

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ELECTRICAL LEGEND

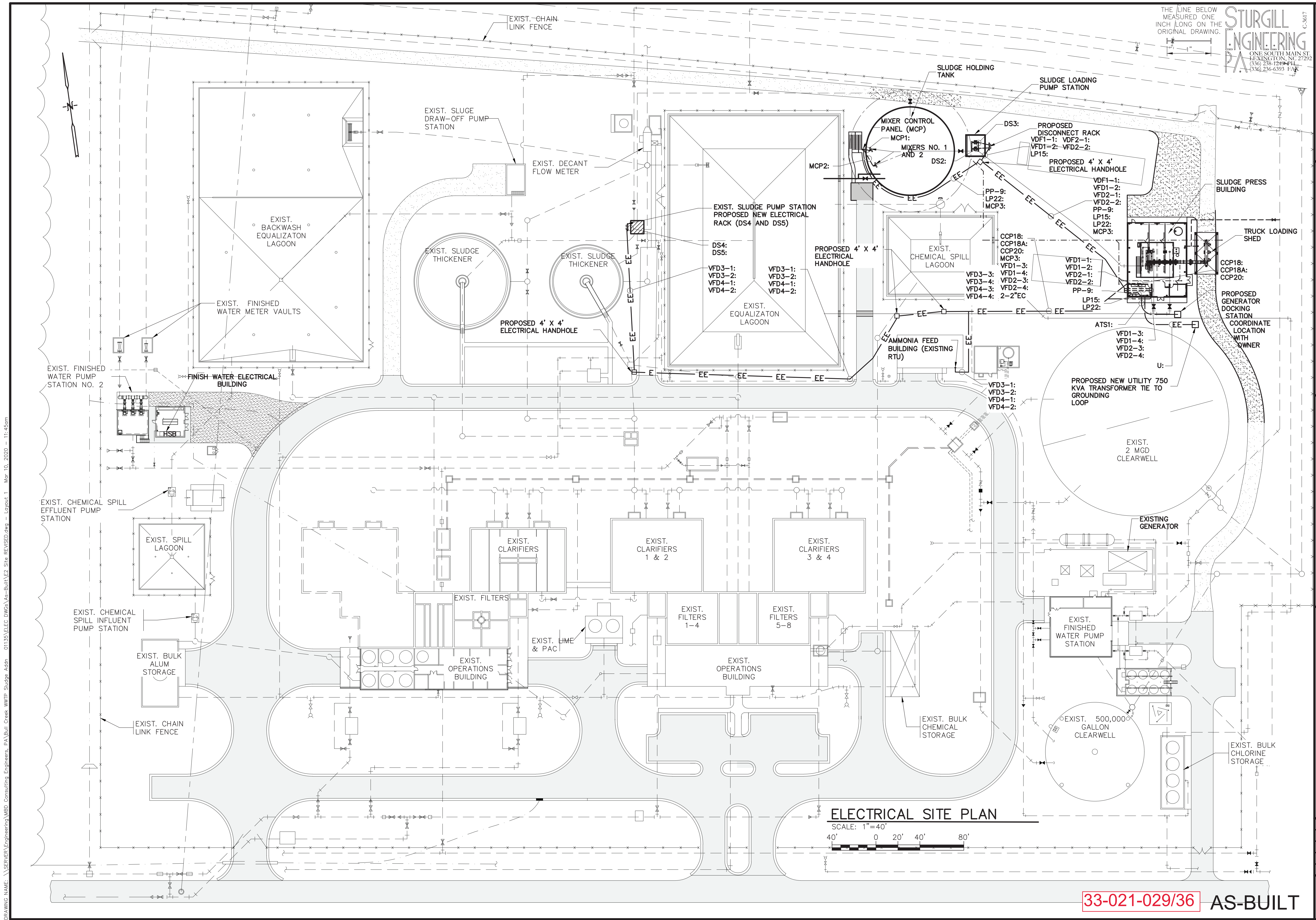
BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
Date: MAR. 2020
Drawn: REH
Checked: RWS
Job No.: 317010
Sheet No.:
E1
Of: Version: 2

33-021-028/36

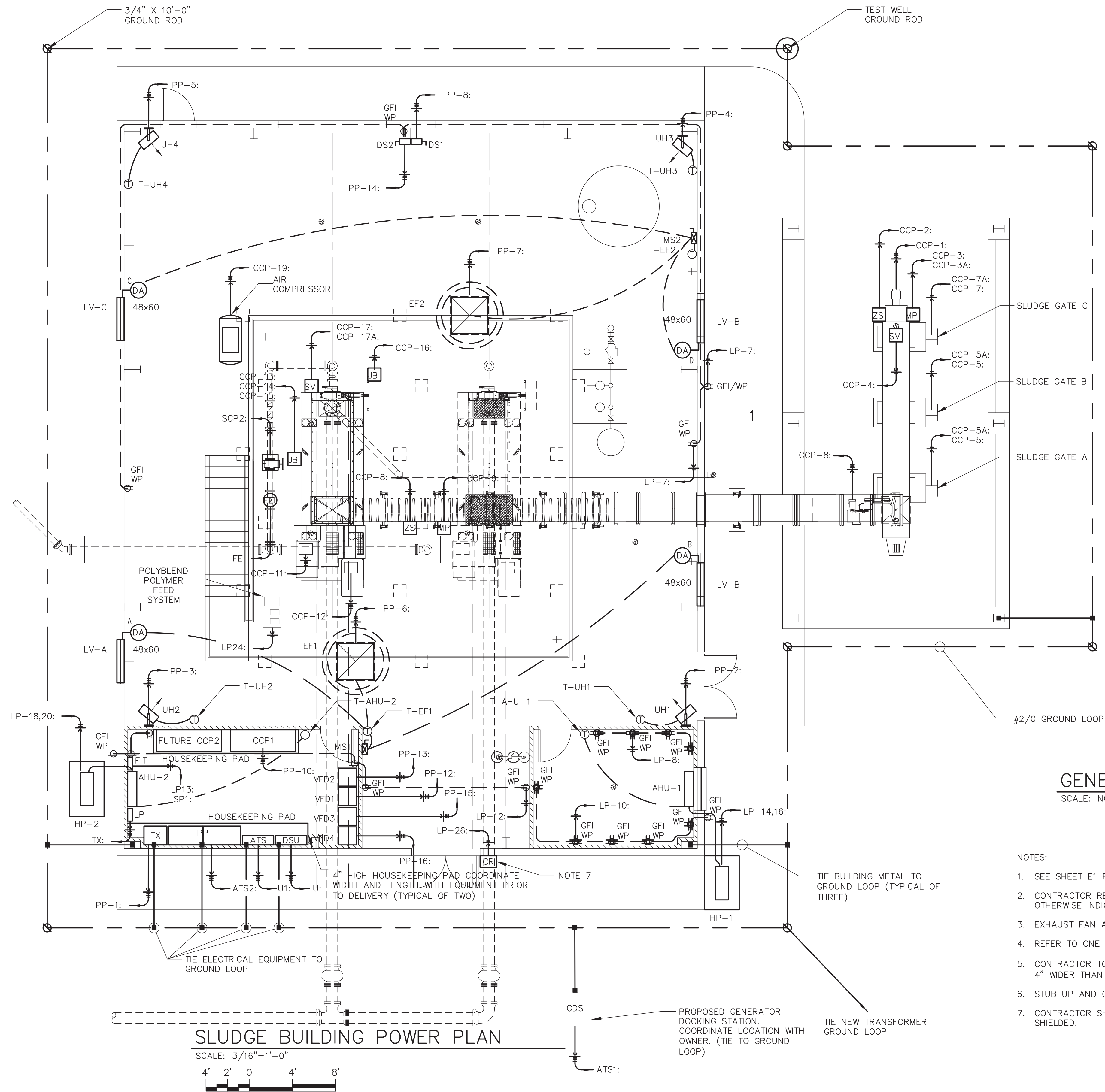
AS-BUILT

DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers, P.A\Bull Creek WTP Sludge Addn - 01\35\EEEC DWG\As-Built\E2 Site REVISED.dwg - Layout 1 - Mar 10, 2020 - 11:45am



33-021-029/36 AS-BUILT

DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers\PA\Bull Creek WTP Sludge Bldg - 011351 ELEC DWG\As-Built\ES Power.dwg - E5 Mar 10, 2020 - 12:51pm



GENERATOR DOCKING STATION ELEVATION
SCALE: NOT TO SCALE

- NOTES:
1. SEE SHEET E1 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.
 2. CONTRACTOR RESPONSIBLE FOR ROUTING ALL CONDUITS. ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE INDICATED OR APPROVED.
 3. EXHAUST FAN AND UNIT HEATER DISCONNECTS AND THERMOSTATS PROVIDED WITH EQUIPMENT.
 4. REFER TO ONE LINES FOR CONDUIT REQUIREMENTS.
 5. CONTRACTOR TO PROVIDE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT 4" HIGH BY 4" WIDER THAN THE EQUIPMENT.
 6. STUB UP AND CAP FUTURE CONDUITS.
 7. CONTRACTOR SHALL COORDINATE NEW CARD READER WITH OWNERS EXISTING SYSTEM. DATA WIRE SHALL BE SHIELDED.

33-021-032/36 AS-BUILT

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1"

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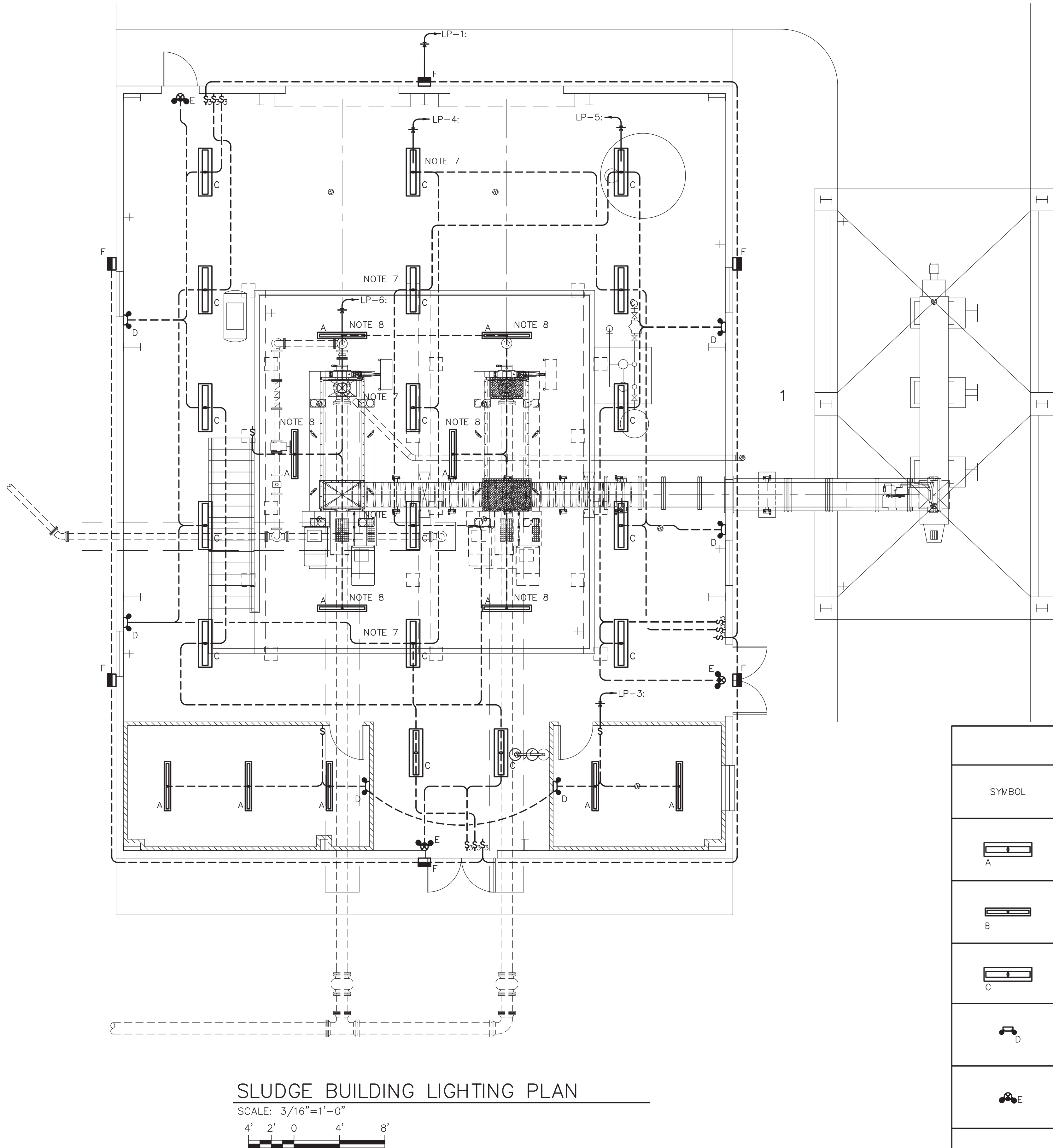
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SLUDGE BUILDING POWER
PLAN

BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY

Scale: AS SHOWN
Date: MAR. 2020
Drawn: REH
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Job No.: 317010
Sheet No.:
E5
Of: Version: 2

DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers_P.A\Bull Creek WWP Sludge Addn_ 01351 ELEC DWG\As-Built\EB Lighting.dwg - E6 Mar 10, 2020 - 12:57pm



SLUDGE BUILDING LIGHTING PLAN

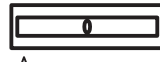

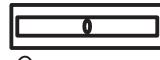



SCALE: 3/16"=1'-0"



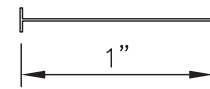
NOTES:

- SEE SHEET E1 FOR ELECTRICAL LEGEND AND ABBREVIATIONS.
- CONTRACTOR RESPONSIBLE FOR ROUTING ALL CONDUITS. ALL CONDUITS SHALL BE CONCEALED UNLESS OTHERWISE INDICATED OR APPROVED.
- REFER TO ONE LINES OR PANEL SCHEDULE FOR CONDUIT REQUIREMENTS.
- FOR AREAS WITH TWO SWITCHES, CONNECT TO OPERATE HALF OF EACH FIXTURE ON EACH SWITCH.
- ALL EXIT AND EMERGENCY LIGHTS SHALL BE CONNECTED TO LOCAL LIGHTING CIRCUIT (UNSWITCHED).
- STUB UP AND CAP FUTURE CONDUITS.
- COORDINATE THE CENTER ROW OF FIXTURE WITH CRANE FOR MOUNTING.
- MOUNTED FIXTURE FLUSH UNDER PLATFORM. COORDINATE LOCATION OF FIXTURES WITH OWNER/OPERATOR.

LIGHTING FIXTURE SCHEDULE

| SYMBOL | LAMP | TOTAL POWER PER FIXTURE | MOUNTING | DESCRIPTION | MANUFACTURER'S PART NUMBER |
|---|------------------------|-------------------------|---|---|---|
| | BALLAST | | | | |
|  | LED | 100 WATTS | SURFACE MOUNT ON CEILING AT 9'-4" AFF | 14.25" X 51.5 LED ENCLOSED VAPOR/DUST PROOF LUMINAIRE WITH GASKET AND ACRYLIC LENS, 120VAC. | LITHONIA COLUMBIA DECO DWP-LED-150-50-UNV-A-CM OR APPROVED EQUIVALENT. |
| | DELIVERED LUMENS 5200 | | | | |
|  | LED | 41 WATTS | SURFACE MOUNT ON CEILING | 4' LED WRAPAROUND FIXTURE, 120VAC. | LITHONIA COLUMBIA LAW2-40HL-EU METALUX OR APPROVED EQUIVALENT. |
| | - | | | | |
|  | LED | 150 WATTS | SUSPENDED MOUNT ON RAFTERS AT 26' AFF W/ V-HOOK | 14.25" X 51.5 LED ENCLOSED VAPOR/DUST PROOF LUMINAIRE WITH GASKET AND ACRYLIC LENS, 120VAC. | LITHONIA COLUMBIA DECO DWP-LED-300-50-UNV-A-V-HOOK OR APPROVED EQUIVALENT. |
| | DELIVERED LUMENS 26000 | | | | |
|  | TWO (2) 6W LED | 12 WATTS | WALL MOUNT 8' AFF | EMERGENCY LIGHT, DAMP LOCATION LISTED, 120VAC, w/BATTERY PACK. | LITHONIA EU2-LED-M12 COOPER SEL25 DUAL LITE EZ-2-D OR APPROVED EQUIVALENT. |
|  | LED EXIT | 11 WATTS | WALL OR CEILING MOUNT ABOVE DOOR | LED EMERGENCY/EXIT SIGN COMBO; WHITE WITH RED LETTERS, 120VAC. WITH BATTERY PACK | LITHONIA ECR LED M6 COOPER AP70RWHDSQ DUAL LITE HCXURW-RC12-03L OR APPROVED EQUIVALENT. |
| | - | | | | |
|  | TWO (2) LEDS | 53 WATTS | EXTERIOR WALL SURFACE MOUNTED | FORWARD THROW WALL PACK, LED, SECURITY | LITHONIA HUBBELL JARVIS LIGHTING WMFT-250 OR APPROVED EQUIVALENT. |
| | - | | | | |

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SLUDGE BUILDING LIGHTING PLAN

BULL CREEK WTP
SLUDGE DEWATERING FACILITY
GRAND STRAND WATER AND SEWER AUTHORITY

Scale: AS SHOWN

Date: MAR. 2020

Drawn: REH

Checked: RWS

Job No.: 317010

Sheet No.:

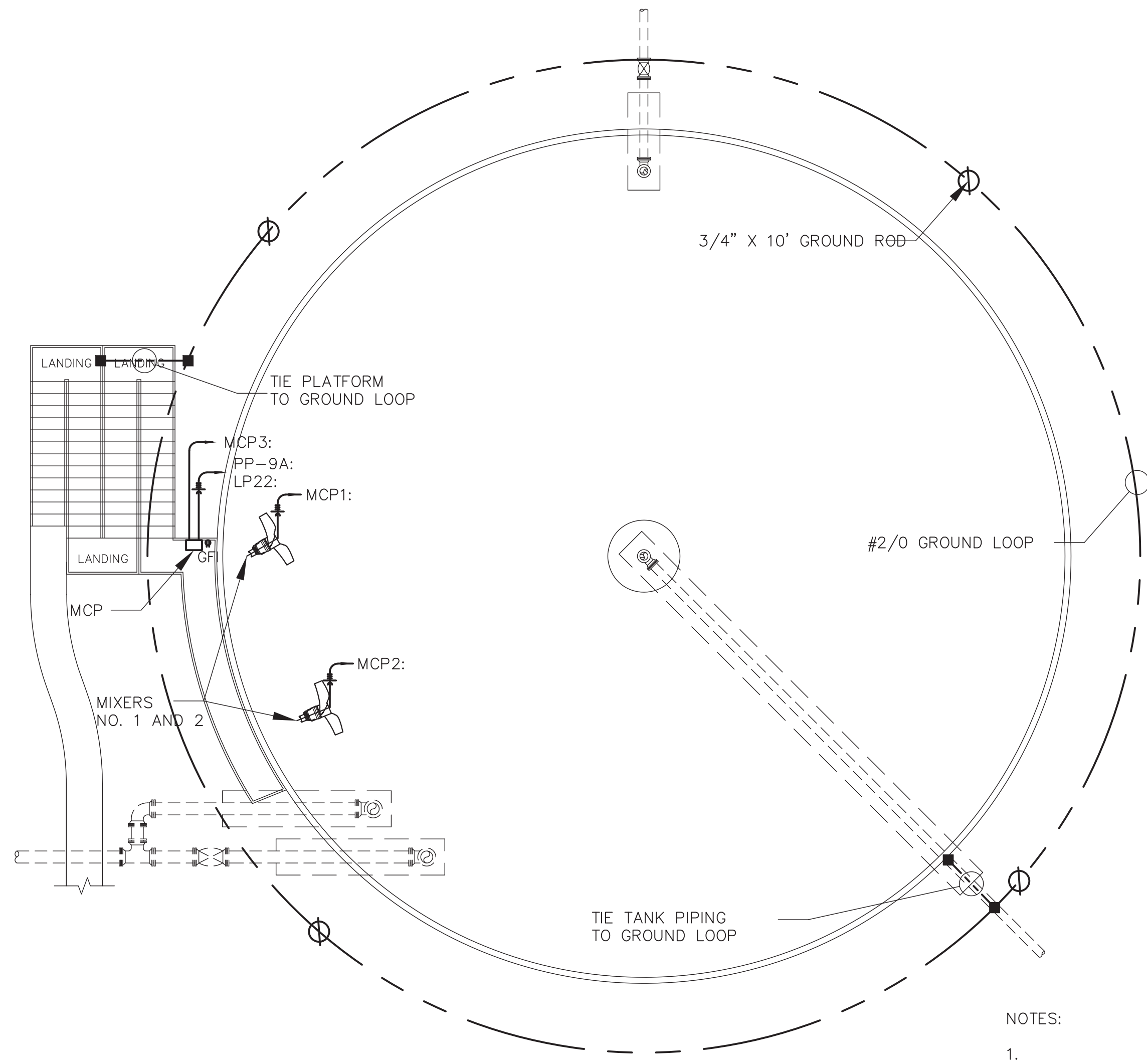
E6

Of: Version: 2

33-021-033/36

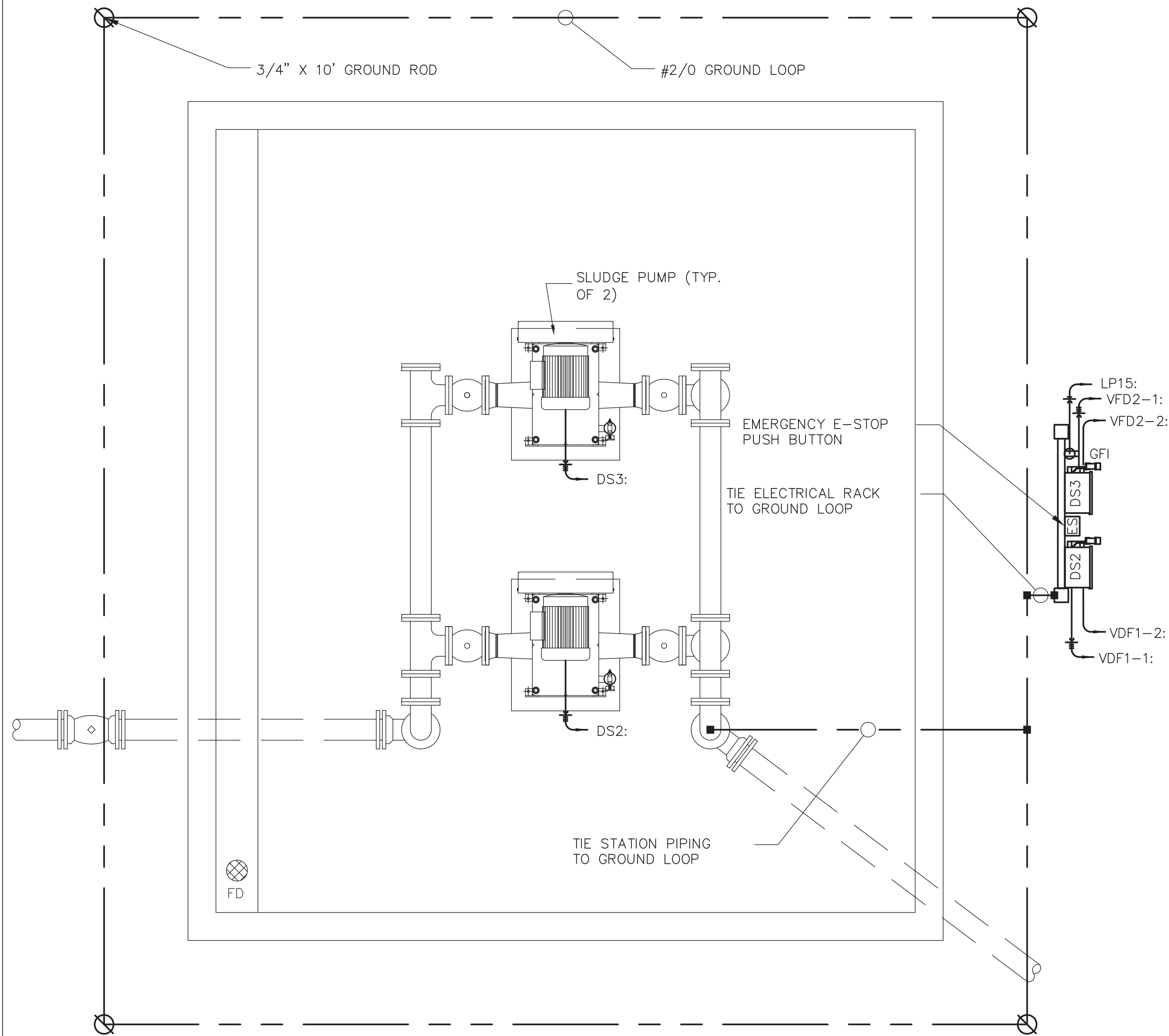
AS-BUILT

DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers, P.A\Bull Creek WTP\Sludge Addn... 0135\ELEC DWGs\As-Built\E7 SLUDGE HOLDING TANK.dwg - Layout1 (2) Mar 10, 2020 - 1:00pm

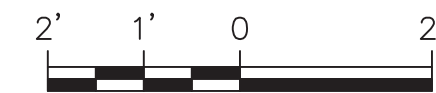


SLUDGE HOLDING TANK POWER PLAN
NOT TO SCALE

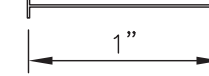
NOTES:
1.



SLUDGE LOADING PUMP STATION POWER PLAN
SCALE: 1/2" = 1'-0"



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SLUDGE HOLDING TANK
AND PUMP STATION POWER
PLAN

BULL CREEK WTP
SLUDGE DEWATERING
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Of: - Version: 2

33-021-034/36 AS-BUILT



1. ONE CONDUCTOR PER LUG. USE MULTIPLE BARREL LUGS AS REQUIRED.
2. SCRAPE PAINT FROM UNDER LUG TO ASSURE METAL CONTACT.

TYPICAL EQUIPMENT GROUNDING DETAIL

NOT TO SCALE

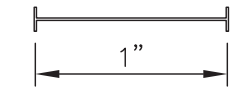


NOTE:

1. SUBMIT COMPLETE LIST OF PROPOSED NAMEPLATES TO ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

TYPICAL NAMEPLATE DETAIL

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ELECTRICAL DETAILS

**BULL CREEK WTP
SLUDGE DEWATERING
FACILITY
GRAND STRAND WATER AND
SEWER AUTHORITY**

Scale: AS SHOWN

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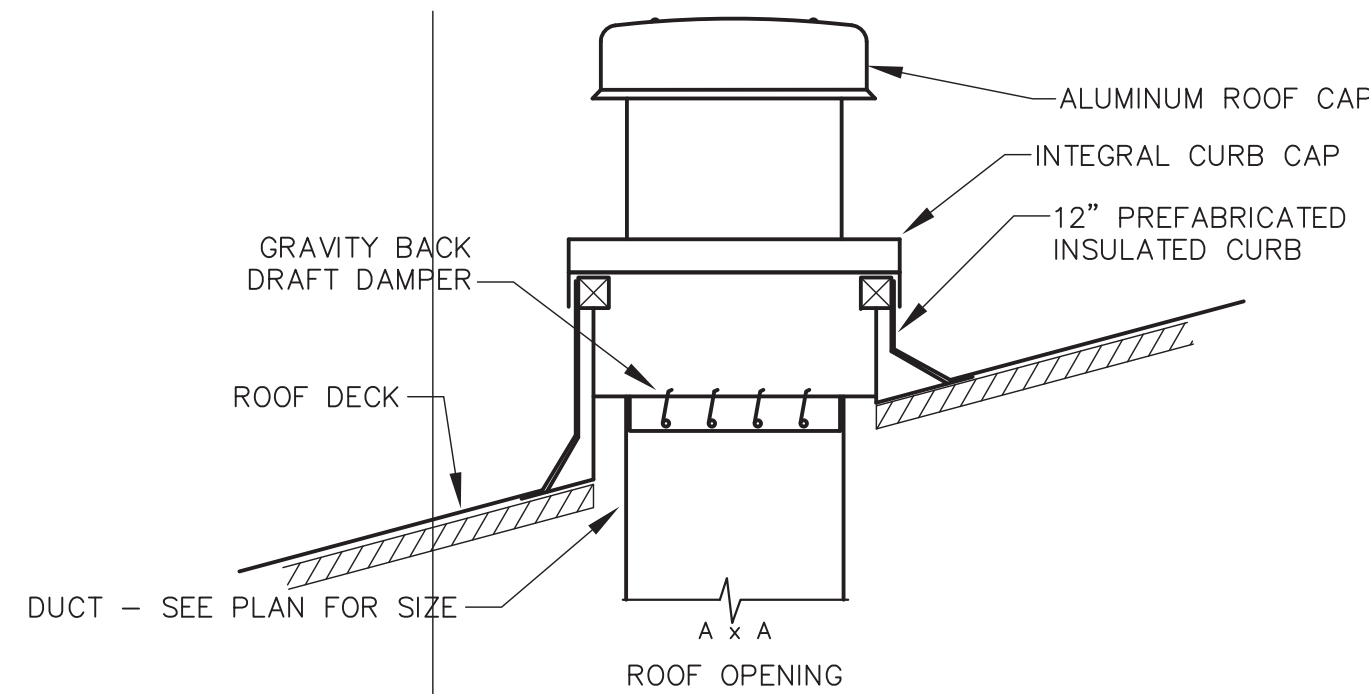
Sheet No.:

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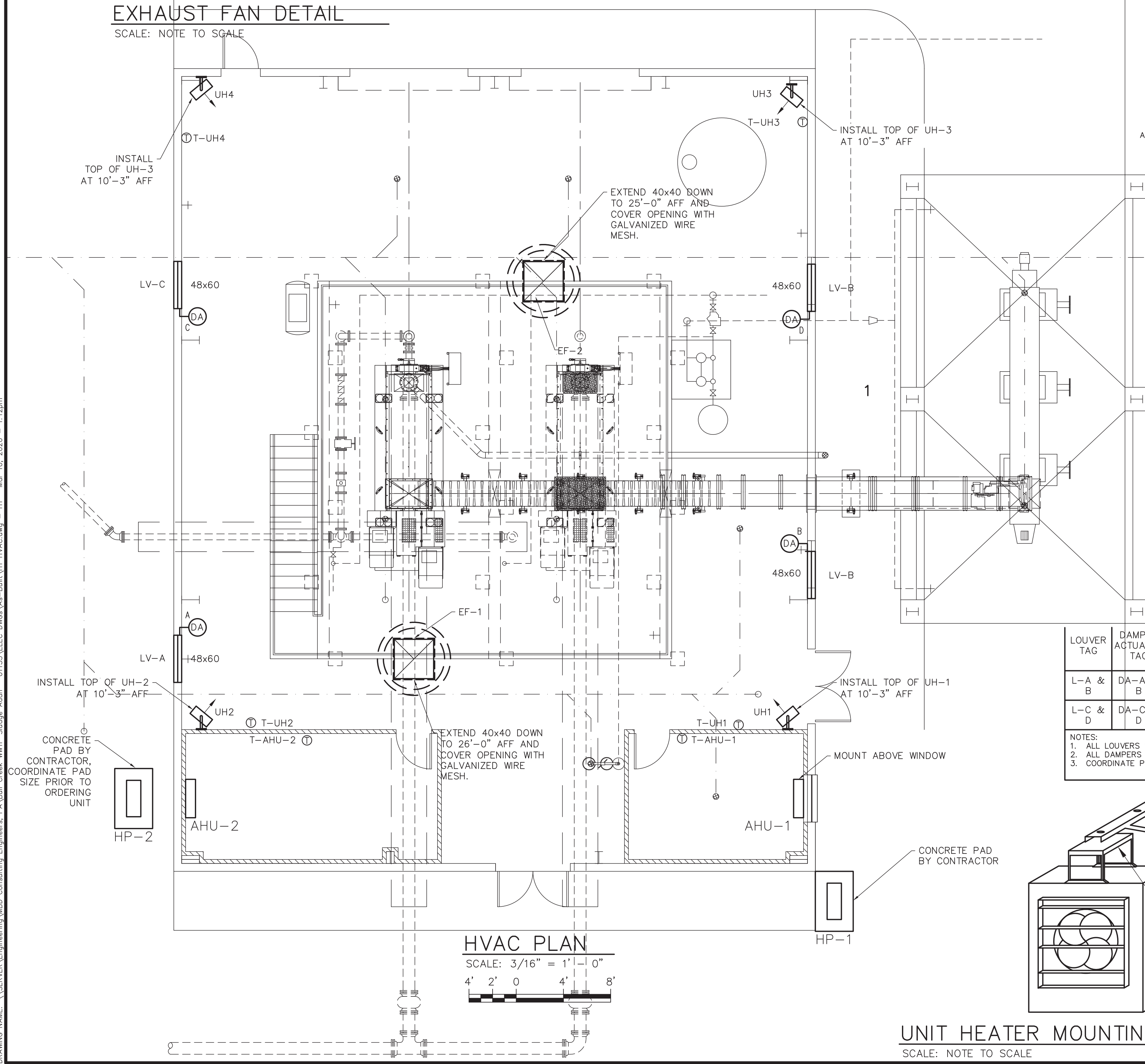
DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers, PA\Bull Creek WWTP Sludge Addn 01135\ELEC DWGs\As-Built\E8 ELECTRICAL MISC DETAILS.dwg - .00 Mar 10, 2020 - 1:04pm

DRAWING NAME: \\SERVER\Engineering\MBD Consulting Engineers P.A\Bull Creek WTP Sludge Addn. 01351 ELEC DWG\As-Built\HVAC.dwg - H1 Mar 10, 2020 - 1:12pm



EXHAUST FAN DETAIL

SCALE: NOTE TO SCALE



HVAC PLAN

SCALE: 3/16" = 1' - 0"



DUCTLESS SPLIT SYSTEM HEAT PUMP

| TAG | MFR | INDOOR MODEL | OUTDOOR MODEL | NOMINAL TONS | SUPPLY CFM | COOLING CAPACITY | | | | | HEATING CAPACITY | | | | INDOOR UNIT | | | | OUTDOOR UNIT | | | | NOTES | | | |
|-----------|--------|--------------|---------------|--------------|------------|------------------|------|--------------------------|------|-----------|------------------|------|----------|-------------------|-------------|------|-------------------|------|----------------|-----------|-----|------|-------|----------------|-----------|-----|
| | | | | | | EAT °Fdb / °Fwb | | OUTDOOR TEMP °Fdb / °Fwb | | TOTAL MBH | SENSIBLE MBH | SEER | EAT °Fdb | OUTDOOR TEMP °Fdb | TOTAL MBH | HSPF | MCA | MOCP | POWER VOLTS/PH | WEIGHT LB | MCA | MOCP | | POWER VOLTS/PH | WEIGHT LB | |
| AH-1/HP-1 | DAIKIN | FTX18NMVJU | RX18NMVJU | 1.5 | 700 | 80.0 | 67.0 | 95.0 | 75.0 | 18.0 | 14.4 | 18.0 | 70.0 | 47.0 | 21.6 | 9.00 | FROM OUTDOOR UNIT | | | | 35 | 18.3 | 20 | 208/1 | 110 | 1-5 |
| AH-2/HP-2 | DAIKIN | FTX30NMVJU | RX30NMVJU | 2.5 | 890 | 80.0 | 67.0 | 95.0 | 75.0 | 31.4 | 21.0 | 17.5 | --- | --- | --- | --- | FROM OUTDOOR UNIT | | | | 40 | 19.8 | 20 | 208/1 | 140 | 1-5 |

- NOTES:
1. UNITS SHALL BE DAIKIN, LG, MITSUBISHI, OR APPROVED EQUAL.
 2. PROVIDE UNIT WITH CONDENSATE PUMP.
 3. PROVIDE 5 YEAR COMPRESSOR WARRANTY.
 4. PROVIDE LOW AMBIENT COOLING KIT.
 5. PROVIDE WIRED THERMOSTAT.

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UNIT HEATER SCHEDULE

| TAG | MFR | MODEL | CFM | KW | °F RISE | DISCHARGE | VOLTS/PH | NOTES |
|------|--------|-------|-----|------|---------|------------|----------|-------|
| UH-1 | MARKEL | 5100 | 700 | 10.0 | 45 | HORIZONTAL | 480/3 | 1,2 |
| UH-2 | MARKEL | 5100 | 700 | 10.0 | 45 | HORIZONTAL | 480/3 | 1,2 |
| UH-3 | MARKEL | 5100 | 700 | 10.0 | 45 | HORIZONTAL | 480/3 | 1,2 |
| UH-4 | MARKEL | 5100 | 700 | 10.0 | 45 | HORIZONTAL | 480/3 | 1,2 |
| - | - | - | - | - | - | - | - | - |

- NOTES:
1. UNIT HEATERS SHALL BE MARKEL, CHROMALOX, TRANE OR APPROVED EQUAL.
 2. PROVIDE UNIT HEATERS WITH LOW VOLTAGE (120V) REMOTE THERMOSTAT, POWER DISCONNECT SWITCH, AND CEILING MOUNTING BRACKET.

FAN SCHEDULE

| TAG | MFR | MODEL | CFM | SP in WC | FAN RPM | HP | MAX SONES | POWER VOLTS/PH | WEIGHT LB | NOTES |
|------|-----------|-------------|--------|----------|---------|----|-----------|----------------|-----------|-------|
| EF-1 | GREENHECK | CUBE-300-50 | 11,818 | 0.500 | 795 | 5 | 23.0 | 480/3 | 400 | 1 - 5 |
| EF-2 | GREENHECK | CUBE-300-50 | 11,818 | 0.500 | 795 | 5 | 23.0 | 480/3 | 400 | 1 - 5 |
| - | - | - | - | - | - | - | - | - | - | - |

- NOTES:
1. EXHAUST FANS SHALL BE GREENHECK, COOK, PENN OR APPROVED EQUAL.
 2. PROVIDE FAN WITH 12" INSULATED ROOF CURB, NEMA-4 DISCONNECT, BACKDRAFT DAMPER, AND EXTENDED LUBRICATION LINES.
 3. CONTROLLED BY LINE VOLTAGE THERMOSTAT PROVIDED BY EC.
 4. PROVIDE HI-PRO POLYESTER DARK GRAY FINISH.
 5. PROVIDE FAN WITH STEEL BUTTERFLY DAMPER, INLET GUARD, EXTERNAL WIRING PIGTAIL, 12" HIGH INSULATED ROOF CURB, EXTENDED LUBRICATION LINES, BEARINGS WITH GREASE FITTINGS, TIE DOWN POINTS (SET OF 4), TWO GROOVE PULLEY AND BELT SYSTEM, AND NEMA-4X DISCONNECT.

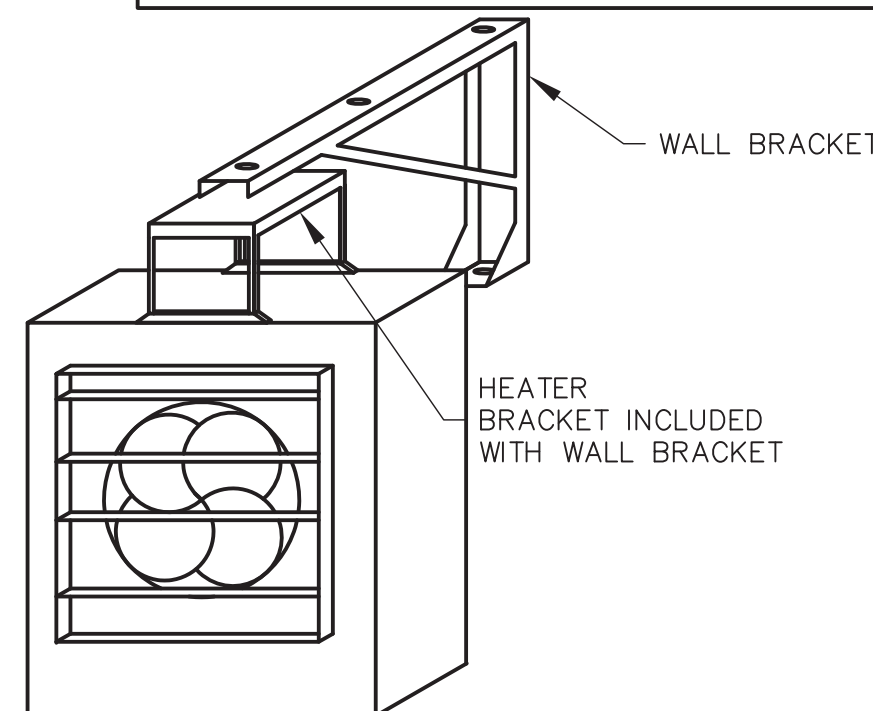
LOUVER/DAMPER SCHEDULE

| LOUVER TAG | DAMPER ACTUATOR TAG | MFR | LOUVER MODEL | DAMPER MODEL | WIDE (IN) | HIGH (IN) | FREE AREA (SF) | FRAME TYPE | INSECT SCREEN | FINISH | END SWITCH | NUMBER OF ACTUATORS | ACTUATOR POWER VOLTS/PH | INTERLOCK |
|------------|---------------------|--------|--------------|--------------|-----------|-----------|----------------|------------|---------------|--------------|------------|---------------------|-------------------------|-----------|
| L-A & B | DA-A & B | RUSKIN | ELC6375-DAX | ---- | 48 | 60 | 17.04 | FLANGED | YES | BAKED ENAMEL | YES | 1 | 120/1 | EF-1 |
| L-C & D | DA-C & D | RUSKIN | ELC6375-DAX | ---- | 48 | 60 | 17.04 | FLANGED | YES | BAKED ENAMEL | YES | 1 | 120/1 | EF-2 |

- NOTES:
1. ALL LOUVERS SHALL BE PROVIDED IN SINGLE SECTIONS.
 2. ALL DAMPERS SHALL BE PROVIDED IN TWO SECTIONS.
 3. COORDINATE POWER REQUIREMENTS WITH ELECTRICAL CONTRACTOR.

MECHANICAL NOTES

1. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS AND REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING CONFIGURATION, etc.
2. ALL DUCTWORK SHALL BE SUPPORTED AS PER SMACNA STANDARDS.
3. ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED WITH THE WORK UNDER OTHER TRADES OR TO AVOID INTERFERENCE.
4. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS EXCEPT AS NOTED OTHERWISE. ALL SQUARE ELBOWS SHALL HAVE SINGLE THICKNESS TURNING VANES
5. MECHANICAL CONTRACTOR SHALL BALANCE SYSTEM TO CFM's INDICATED ON THE PLANS AND PROVIDE ENGINEER WITH COMPLETE BALANCE SHEET REPORT (NEBB AR AABC CERTIFICATION).
6. LOCATE ALL THERMOSTATS AND SWITCHES 4'-0" ABOVE FINISHED FLOOR.
7. ALL BRANCH DUCT RUNS SHALL HAVE A MANUAL VOLUME DAMPER WETHER INDICATED ON THE DRAWINGS OR NOT.
8. ALL CUTTING, PATCHING OF SLAB, ROOF OR OTHER BUILDING COMPONENTS TO BE BY THE INSTALLING CONTRACTOR.
9. ALL DUCT DIMENSIONS SHOWN OR NOTED ON PLANS ARE INSIDE CLEAR.



UNIT HEATER MOUNTING DETAIL

SCALE: NOTE TO SCALE

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