

APPROVAL

APPROVED _____
 DEPARTMENT OF PLANNING & ZONING _____ SIGNATURE _____ DATE _____
 ISLE OF WIGHT COUNTY, VIRGINIA

QUALITY ASSURANCE STATEMENT

A Quality Control and Assurance review has been performed on this document in accordance with the TIMMONS Quality Plan. The undersigned states that this document has been checked and reviewed in a manner commensurate with the level of detail for the type of submittal indicated below.

KENNETH TURNER, PE *[Signature]* 1/26/2023
 Project Manager Date
 CONSTRUCTION DOCUMENTS FOR ADVERTISEMENT
 Type of Submittal



OLD STAGE ROAD BOOSTER PUMP STATION

ISLE OF WIGHT COUNTY, VIRGINIA

JANUARY 2023

CONTACTS

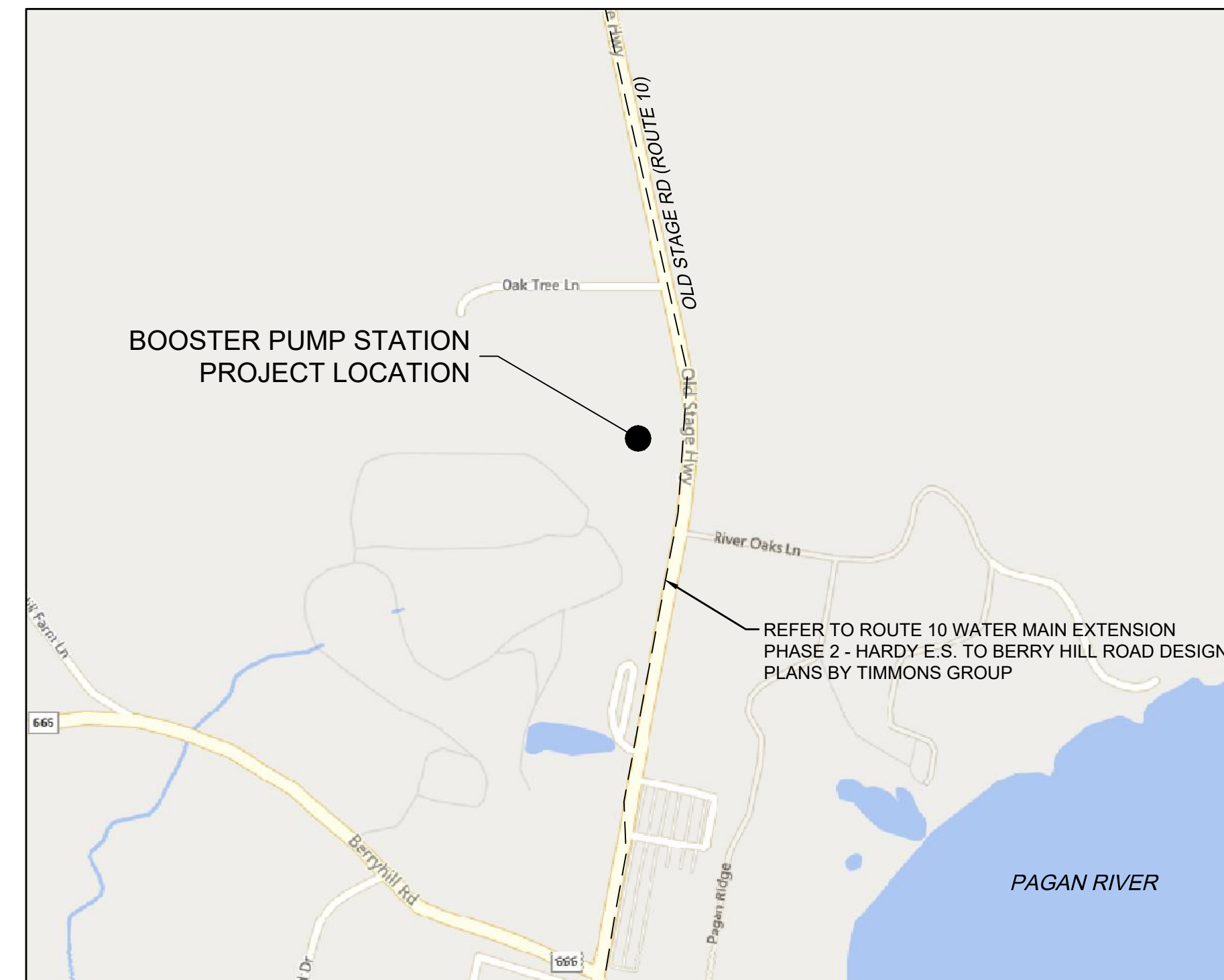
- OWNER**
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RESPONSIBLE LAND DISTURBER CERTIFICATION

THE FOLLOWING PERSON, KENNETH TURNER, PE (PRINT), *[Signature]* (SIGN), IS IDENTIFIED AS THE RESPONSIBLE LAND DISTURBER WHO WILL BE IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND DISTURBING ACTIVITY. THIS PERSON MEETS THE APPLICABLE REQUIREMENTS OF VIRGINIA CODE SECTION 62.1-44.15:52 AND 62.1-44.15:55 BY VIRTUE OF THE FOLLOWING (CHECK THE CATEGORY THAT APPLIES):

- RESPONSIBLE LAND DISTURBER CERTIFICATE
- DEQ CERTIFICATION FOR COMBINED ADMINISTRATOR, ADMINISTRATOR, LAND REVIEWER, INSPECTOR, OR CONTRACTOR.
- VA PROFESSIONAL ENGINEER, LAND SURVEYOR, LANDSCAPE ARCHITECT, OR ARCHITECT.

UPON AWARD OF THE CONTRACT AND BEFORE ANY LAND DISTURBING ACTIVITY CAN BEGIN; THE CONTRACTOR SHALL BE DESIGNATED AS THE "PERMITEE" OF RECORD AND SHALL EXECUTE THE CERTIFICATE FOR RESPONSIBLE LAND DISTURBER WITH THE DEPARTMENT OF CITY PLANNING, ENVIRONMENTAL SERVICES. THIS EXECUTED FORM IS TO BE SUBMITTED TO THE DEPARTMENT OF UTILITIES AND THE DEPARTMENT OF PLANNING. AWARD OF THE CONTRACT WILL RELIEVE THE ABOVE SIGNER OF ALL RESPONSIBILITY."



VICINITY MAP

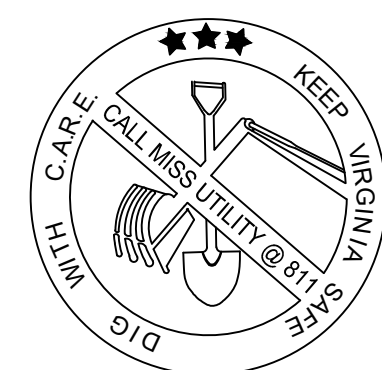
SCALE: 1" = 600'

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PROJECT AREA LIES WITHIN CHESAPEAKE BAY PRESERVATION AREA AND ENTRANCE CORRIDOR OVERLAY DISTRICT.

ESTIMATED CONSTRUCTION TIME IS 12 MONTHS.



CALL BEFORE YOU DIG

ALWAYS CALL 811 BEFORE YOU DIG IN VIRGINIA

CALL 1-800-552-7001

SECTION 56-265.17 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST. VIRGINIA UTILITY PROTECTION SERVICE, INC.

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.



Local Roots, Global Reach
ISLE OF WIGHT
 COUNTY, VIRGINIA

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REVISION DESCRIPTION
 DATE
 1/26/2023
 DRAWN BY
 L. KIM
 DESIGNED BY
 K. TURNER
 CHECKED BY
 K. TURNER
 SCALE
 AS SHOWN

TIMMONS GROUP
 OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY - VIRGINIA
 COVER SHEET

JOB NO.
48527
 SHEET NO.
G1

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EXISTING CONDITIONS SITE PLAN
SCALE: 1"=20'



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1" = 20'

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OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY - VIRGINIA
EXISTING CONDITIONS SITE PLAN

JOB NO.
48527
SHEET NO.
C1

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DATE: 1/26/2023
 DRAWN BY: L. KIM
 DESIGNED BY: K. TURNER
 CHECKED BY: K. TURNER

SCALE: 1" = 10'

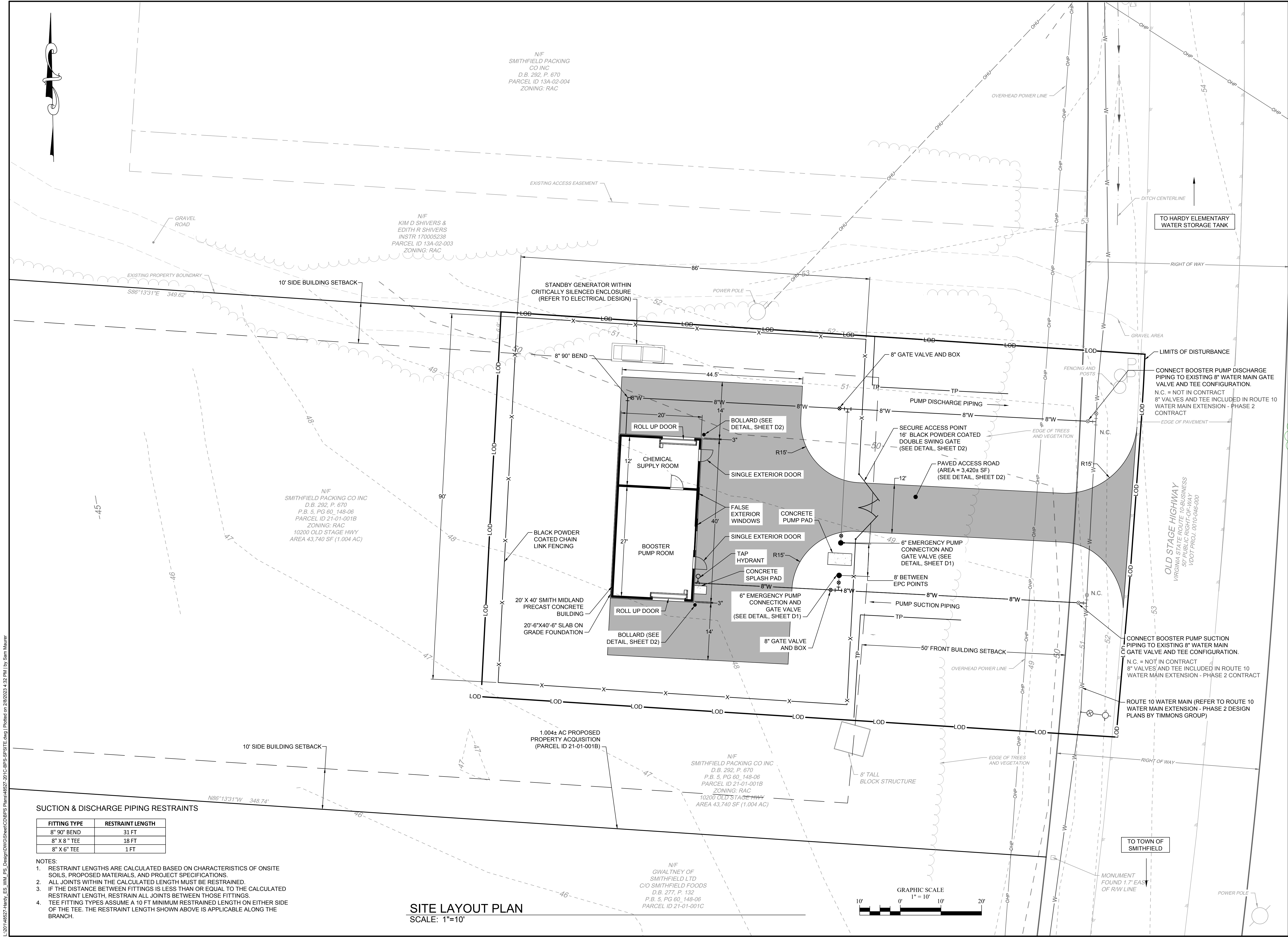
TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION

ISLE OF WIGHT COUNTY - VIRGINIA

BPS SITE PLAN

JOB NO. 48527
 SHEET NO. C2



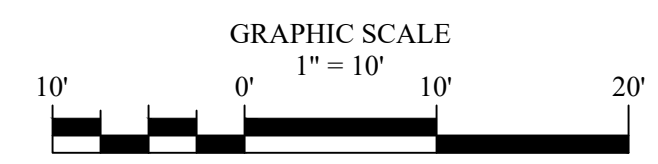
SUCTION & DISCHARGE PIPING RESTRAINTS

| FITTING TYPE | RESTRAINT LENGTH |
|--------------|------------------|
| 8" 90° BEND | 31 FT |
| 8" X 8" TEE | 18 FT |
| 8" X 6" TEE | 1 FT |

- NOTES:
- RESTRAINT LENGTHS ARE CALCULATED BASED ON CHARACTERISTICS OF ONSITE SOILS, PROPOSED MATERIALS, AND PROJECT SPECIFICATIONS.
 - ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED.
 - IF THE DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINTS BETWEEN THOSE FITTINGS.
 - TEE FITTING TYPES ASSUME A 10 FT MINIMUM RESTRAINED LENGTH ON EITHER SIDE OF THE TEE. THE RESTRAINT LENGTH SHOWN ABOVE IS APPLICABLE ALONG THE BRANCH.

SITE LAYOUT PLAN

SCALE: 1"=10'



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| | L. KIM |
| | DESIGNED BY |
| | K. TURNER |
| | CHECKED BY |
| | K. TURNER |
| | SCALE |
| | 1" = 10' |

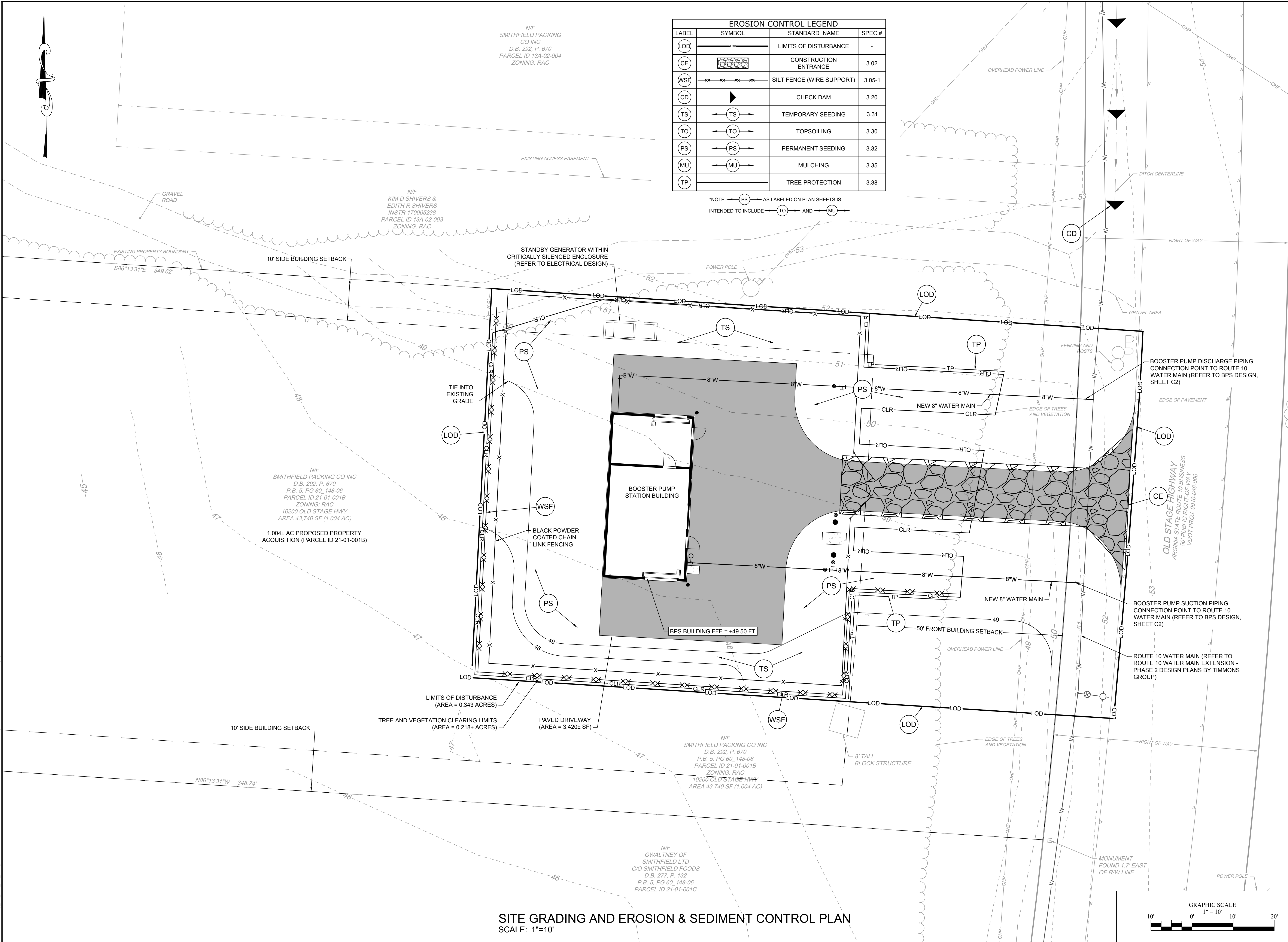
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**OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY - VIRGINIA
 GRADING AND ESC PLAN**

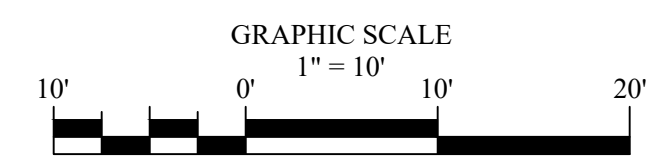
JOB NO.
48527
 SHEET NO.
C3

| EROSION CONTROL LEGEND | | | |
|------------------------|--------|---------------------------|--------|
| LABEL | SYMBOL | STANDARD NAME | SPEC.# |
| LOD | --- | LIMITS OF DISTURBANCE | - |
| CE | ▨ | CONSTRUCTION ENTRANCE | 3.02 |
| WSF | XXX | SILT FENCE (WIRE SUPPORT) | 3.05-1 |
| CD | ▲ | CHECK DAM | 3.20 |
| TS | ⊖ | TEMPORARY SEEDING | 3.31 |
| TO | ⊖ | TOPSOILING | 3.30 |
| PS | ⊖ | PERMANENT SEEDING | 3.32 |
| MU | ⊖ | MULCHING | 3.35 |
| TP | ⊖ | TREE PROTECTION | 3.38 |

*NOTE: ⊖ AS LABELED ON PLAN SHEETS IS INTENDED TO INCLUDE ⊖ AND ⊖



SITE GRADING AND EROSION & SEDIMENT CONTROL PLAN
 SCALE: 1"=10'

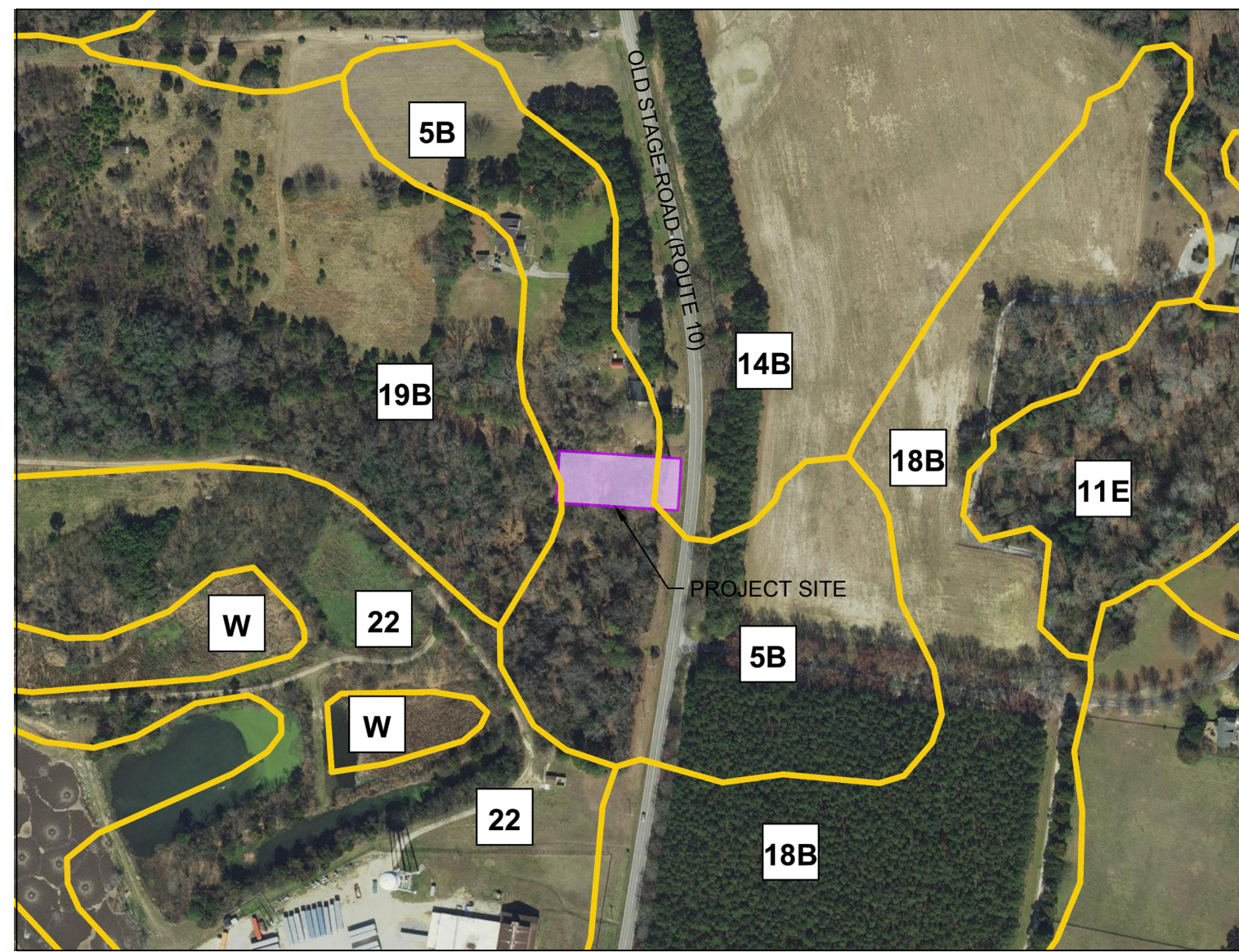


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SOILS LEGEND -OLD STAGE ROAD BPS - ISLE OF WIGHT COUNTY

| MAP UNIT SYMBOL | MAP UNIT NAME |
|-----------------|---|
| 5B | Emporia fine sandy loam, 2 to 6 percent slopes |
| 11E | Nevarc and Remik soils, 15 to 35 percent slopes |
| 12B | Peawick silt loam, 2 to 6 percent slopes |
| 14B | Peawick-Slagle complex, 2 to 6 percent slopes |
| 18B | Slagle fine sandy loam, 2 to 6 percent slopes |
| 19B | Uchee loamy sand, 2 to 6 percent slopes |
| 22 | Urban land |
| W | Water |



**OLD STAGE ROAD (ROUTE 10)
BOOSTER PUMP STATION
SOILS MAP**

GENERAL EROSION AND SEDIMENT CONTROL NOTES

- ES-1: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ES-2: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-3: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-4: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ES-5: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

STRUCTURAL PRACTICES

3.01 SAFETY FENCE:
A PROTECTIVE BARRIER INSTALLED TO PROHIBIT UNDESIRABLE USE OF AN EROSION CONTROL MEASURE

3.05 SILT FENCE
A TEMPORARY SEDIMENT BARRIER CONSTRUCTED OF POSTS, FILTER FABRIC AND, IN SOME CASES, A WIRE SUPPORT FENCE, PLACED ACROSS OR AT THE TOE OF A SLOPE OR IN A MINOR DRAINAGE WAY TO INTERCEPT AND DETAIN SEDIMENT AND DECREASE FLOW VELOCITIES FROM DRAINAGE AREAS OF LIMITED SIZE; APPLICABLE WHERE SHEET AND RILL EROSION OR SMALL CONCENTRATED FLOWS MAY BE A PROBLEM. MAXIMUM EFFECTIVE LIFE OF 6 MONTHS.

3.02 TEMPORARY STONE CONSTRUCTION ENTRANCE:
A STONE PAD, LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS TO REDUCE THE SOIL TRANSPORTED ONTO PUBLIC ROADS AND OTHER PAVED AREAS. - IN THE EVENT FIELD CONDITIONS ARE SUCH THAT THE STONE PAD DOES NOT SIGNIFICANTLY REDUCE THE TRANSPORT OF SOIL ONTO THE ROADWAY, A WASH STATION SHALL BE INSTALLED AT EACH ENTRANCE AND AN ADEQUATE DEWATERING STRUCTURE OR WASH RACK SHALL BE INSTALLED.

3.20 ROCK CHECK DAM
SMALL TEMPORARY STONE DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH TO REDUCE THE VELOCITY OF CONCENTRATED FLOWS, REDUCING EROSION IN THE SWALE OR DITCH.

VEGETATIVE PRACTICES

3.31 TEMPORARY SEEDING
ALL DENUDED AREAS WHICH WILL BE LEFT DORMANT FOR MORE THAN 30 DAYS SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING OF THOSE AREAS. SELECTION OF THE SEED MIXTURE SHALL DEPEND ON THE TIME OF YEAR IT IS APPLIED.

3.32 PERMANENT SEEDING
FOLLOWING GRADING ACTIVITIES, ESTABLISH PERENNIAL VEGETATIVE COVER BY PLANTING SEED TO REDUCE EROSION, STABILIZE DISTURBED AREAS, AND ENHANCE NATURAL BEAUTY.

3.35 MULCHING: APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO DISTURBED SURFACES TO PREVENT EROSION AND REDUCE OVERLAND FLOW VELOCITIES. FOSTERS PLANT GROWTH BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT OR COLD. SHOULD BE APPLIED TO ALL SEEDING OPERATIONS, OTHER PLANT MATERIALS WHICH DO NOT PROVIDE ADEQUATE SOIL PROTECTION BY THEMSELVES AND BARE AREAS WHICH CANNOT BE SEEDED DUE TO THE SEASON BUT WHICH STILL NEED PROTECTION TO PREVENT SOIL LOSS.

3.38 TREE PROTECTION
PROTECTION OF DESIRABLE TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITY.

PERMANENT STABILIZATION

ALL NON-PAVED AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING AND MULCHED IMMEDIATELY FOLLOWING FINISH GRADING. TOPSOIL SHALL BE PLACED TO A DEPTH OF 4" & SEEDING SHALL BE IN ACCORDANCE WITH STD. & SPEC. 3.32. PERMANENT SEEDING. IMPORTED TOPSOIL SHALL BE OBTAINED FROM A SITE WITH AN APPROVED ESC PLAN. SEED TYPE SHALL BE AS SPECIFIED FOR "MINIMUM CARE LAWNS" AND "GENERAL SLOPES" IN THE HANDBOOK. MULCH (STRAW OR FIBER) IN ACCORDANCE WITH STD. & SPEC. 3.35. SHALL BE USED ON ALL SEEDED SURFACES. EROSION CONTROL BLANKETS WILL BE INSTALLED OVER FILL SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDED TO PROTECT THE SLOPES FROM RILL & GULLY EROSION AND TO ALLOW THE SEED TO GERMINATE PROPERLY. IN ALL SEEDING OPERATIONS SEED, FERTILIZER AND LIME SHALL BE APPLIED PER RECOMMENDATIONS OF THE SOIL TEST PRIOR TO MULCHING.

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION:

THE PURPOSE OF THIS PROJECT IS TO COMPLETE SITE CLEARING IN PREPARATION FOR A WATER BOOSTER PUMP STATION IN ISLE OF WIGHT COUNTY, WEST OF OLD STAGE ROAD (ROUTE 10) AND JUST NORTH OF THE TOWN OF SMITHFIELD. THE BOOSTER PUMP STATION SITE WILL REQUIRE APPROXIMATELY 0.218± AC OF TREE CUTTING/CLEARING TO BE COMPLETED BY APRIL 1, 2023.

EXISTING SITE CONDITIONS:

THE SITE FOR THE BOOSTER PUMP STATION CONSISTS OF PROPERTY PURCHASED FROM SMITHFIELD FOODS WHICH CONSISTS OF A MOSTLY FORESTED AREA.

ADJACENT AREAS:

THE BOOSTER PUMP STATION SITE IS LOCATED ADJACENT TO OLD STAGE ROAD (ROUTE 10) AND PRIVATE PROPERTY OWNERS.

OFF-SITE AREAS:

THERE WILL BE NO OFF-SITE LAND DISTURBANCE ASSOCIATED WITH THIS PROJECT. SPOILS WILL BE DISPOSED OF IN STRICT ACCORDANCE WITH COUNTY AND STATE REQUIREMENTS.

SOILS:

SEE SOILS LEGEND ON THIS SHEET FOR A DESCRIPTION OF THE SOILS LOCATED AT AND NEAR THE BOOSTER PUMP STATION SITE.

CRITICAL AREAS:

CRITICAL AREAS OF EROSION AND SEDIMENT CONTROL WILL BE THE SILT FENCING, ROCK CHECK DAMS, AND CONSTRUCTION ENTRANCES. CONTRACTOR MUST REGULARLY MAINTAIN / INSPECT THE ROCK CHECK DAM AND PERIMETER SILT FENCING IN ORDER TO PREVENT SEDIMENT FROM WASHING DOWNSTREAM DURING LAND DISTURBANCE. CONTRACTOR MUST ALSO MONITOR CONSTRUCTION TRAFFIC ON THE EXISTING ROAD SYSTEM TO PREVENT SEDIMENT BUILD UP ON EXISTING ROADS.

MAINTENANCE:

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MORE FREQUENT, AND SHOULD BE CLEANED AND REPAIRED ACCORDING TO THE FOLLOWING SCHEDULE AND GUIDELINES:

- A. EROSION AND SEDIMENT CONTROL DEVICES WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION AND BUILDUP OR CLOTTING WITH SEDIMENT. CORRECTIVE ACTION WILL BE TAKEN IMMEDIATELY.
- B. ALL SLOTTED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, RE-SEEDED, WATERED AND MOWED AS NEEDED OR AS DIRECTED.
- C. ALL TEMPORARY EROSION AND SEDIMENT MEASURES SHALL BE DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED AND VEGETATION IS ESTABLISHED.
- D. IF SEDIMENT-LADEN WATER IS REMOVED FROM A CONSTRUCTION SITE BY MEANS OF PUMPING, A TEMPORARY SETTLING AND FILTERING DEVICE SHALL BE USED TO FILTER THE SEDIMENT-LADEN WATER PRIOR TO THE WATER BEING DISCHARGED OFFSITE.

PUMP STATION EROSION AND SEDIMENT CONTROL SEQUENCING:

- 1. ACQUIRE ALL NECESSARY PERMITS.
- 2. INSTALL SILT FENCING AROUND PROJECT SITES AND AROUND EXISTING DRAINAGE STRUCTURES AND MAINTAIN THROUGHOUT CONSTRUCTION.
- 3. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AND ESTABLISH PERIMETER PROTECTION AND MAINTAIN THROUGHOUT CONSTRUCTION. ANY AND ALL MATERIAL OR DEBRIS TRACKED ONTO A PUBLIC OR PRIVATE ROAD WILL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR SWEEPING AND BE TRANSPORTED TO A SEDIMENT CONTROLLED DISPOSAL AREA.
- 4. WHERE REQUIRED CLEAR AND GRUB SITE AND STOCK PILE STRIPPED MATERIAL AND INSTALL ADDITIONAL EROSION CONTROL MEASURES AS NEEDED.
- 5. INSTALL UNDERGROUND UTILITIES, STRUCTURES, PUMP STATION AND STORM DRAINAGE AND PROVIDE SEDIMENT TRAPS OR OTHER APPROVED PROTECTION AT NEW DRAINAGE STRUCTURES.
- 6. GRADE ALL DISTURBED AREAS.
- 7. DRESS AND OVERSEED ALL DISTURBED AREAS, MAINTAIN VEGETATIVE COVER THROUGHOUT THE DURATION OF PROJECT.
- 8. MAINTAIN PROTECTION AT DRAINAGE STRUCTURES.
- 9. COMPLETE PAVEMENT RESTORATION.
- 10. REPAIR ANY INADVERTENT EROSION AND REMOVE ACCUMULATED SEDIMENTATION.
- 11. FINE GRADE & TOPSOIL DISTURBED AREAS, ESTABLISH PERMANENT VEGETATION.
- 12. REMOVE REMAINING TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WITHIN THIRTY DAYS AFTER FINAL SITE IS STABILIZED WITH VEGETATIVE CROPS.

MINIMUM STANDARDS:

AN EROSION AND SEDIMENT CONTROL PROGRAM ADOPTED BY A DISTRICT OR LOCALITY MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS PER THE VESCH HANDBOOK, LATEST EDITION:

- MS-1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- MS-2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
- MS-3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
- MS-4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- MS-5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- MS-6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
 - A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
 - B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.
- MS-7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
- MS-8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- MS-9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- MS-10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
- MS-11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- MS-12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
- MS-13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- MS-14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- MS-15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- MS-16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
 - A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
 - B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
 - C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
 - D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
 - E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
 - F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
- MS-17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
- MS-18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- MS-19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE STANDARDS AND CRITERIA LISTED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, CHAPTER 8 PAGES 20-24.



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TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY - VIRGINIA
ESC NARRATIVE

| | |
|-----------|-------|
| JOB NO. | 48527 |
| SHEET NO. | C4 |

| MULCH | MULCHING RATES | | NOTES |
|---|---|----------------|---|
| | PER ACRE | PER 1000 SQ FT | |
| STRAW AND HAY | 1.5 - 2 TONS (MIN 2 TONS FOR WINTER COVER) | 70-90 LBS | FREE FROM WEEDS AND COARSE MATTER. MUST BE ANCHORED. SPREAD WITH MULCH BLOWER OR BY HAND. |
| MU ORGANIC MULCH MATERIALS AND APPLICATION RATES | | | |
| No Scale | | | |

| LAND USE | SEED ¹ | | APPLICATION PER ACRE |
|--|--|--|--|
| | SPECIES | | |
| MINIMUM CARE LAWN (COMMERCIAL OR RESIDENTIAL) | TALL FESCUE ¹ or BERMUDAGRASS ¹ | | 175 - 200 LBS. |
| | TALL FESCUE ¹ or BERMUDAGRASS ¹ (SEED) | | 40 LBS (UNHULLED) 30 LBS. (HULLED) |
| HIGH-MAINTENANCE LAWN | TALL FESCUE ¹ or BERMUDAGRASS ¹ (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34) | | 200-250 LBS. |
| | TALL FESCUE ¹ RED TOP GRASS OR CREEPING RED FESCUE SEASONAL NURSE CROP ² | | 128 LBS. 2 LBS. 20 LBS. TOTAL: 150 LBS. |
| GENERAL SLOPE (3:1 OR LESS) | TALL FESCUE ¹ BERMUDAGRASS ¹ | | 93 - 108 LBS. 0 - 15 LBS. |
| | TALL FESCUE ¹ RED TOP GRASS OR CREEPING RED FESCUE SEASONAL NURSE CROP ² SERICEA LESPEDEZA ³ | | 2 LBS. 20 LBS. 20 LBS. TOTAL: 150 LBS. |
| LOW-MAINTENANCE SLOPE (STEEPER THAN 3:1) | TALL FESCUE ¹ RED TOP GRASS OR CREEPING RED FESCUE SEASONAL NURSE CROP ² | | 128 LBS. 2 LBS. 20 LBS. TOTAL: 150 LBS. |
| | TALL FESCUE ¹ BERMUDAGRASS ¹ | | 93 - 108 LBS. 0 - 15 LBS. |
| 1 - WHEN SELECTING VARIETIES OF TURFGRASS, USE THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCI) RECOMMENDED TURFGRASS VARIETY LIST. QUALITY SEED WILL BEAR A LABEL INDICATING THAT THEY ARE APPROVED BY VCI. A CURRENT TURFGRASS VARIETY LIST IS AVAILABLE AT THE LOCAL COUNTY EXTENSION OFFICE OR THROUGH VCI AT 804-746-4884 OR AT HTTP://SUDAN.CSES.VT.EDU/HTML/TURF/TURF/PUBLICATIONS/PUBLICATIONS2.HTML 2 - USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW: FEBRUARY, MARCH - APRIL ANNUAL RYE MAY 1ST - AUGUST FOXTAIL MILLET SEPTEMBER, OCTOBER - NOVEMBER 15TH ANNUAL RYE NOVEMBER 16TH - JANUARY WINTER RYE 3 - MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER PERIODS, USE UNHULLED SEED. IF WEEPING LOVEGRASS IS USED, INCLUDE IN ANY SLOPE OR LOW MAINTENANCE MIXTURE DURING WARMER SEEDING PERIODS, INCREASE TO 30 - 40 LBS/ACRE. | | | |
| FERTILIZER & LIME | | | |
| <ul style="list-style-type: none"> APPLY 10-20-10 FERTILIZER AT A RATE OF 500 LBS. / ACRE (OR 12 LBS. / 1,000 SQ. FT.) APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE (80 LBS. / 1,000 SQ. FT.) | | | |
| NOTE: - A SOIL TEST IS NECESSARY TO DETERMINE THE ACTUAL AMOUNT OF LIME REQUIRED TO ADJUST THE SOIL PH OF SITE. - INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 4 - 6 INCHES OF THE SOIL BY DISKING OR BY OTHER MEANS. - WHEN APPLYING SLOWLY AVAILABLE NITROGEN, USE RATES AVAILABLE IN EROSION & SEDIMENT CONTROL TECHNICAL BULLETIN #4, 2003 NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES AT HTTP://WWW.DCR.STATE.VA.US/SIW/E&S.HTM#PUBS | | | |
| PLATE 3.05-1 | | | |
| WSF PERMANENT SEEDING SPECIFICATIONS FOR COASTAL PLAIN AREA | | | |
| No Scale | | | |

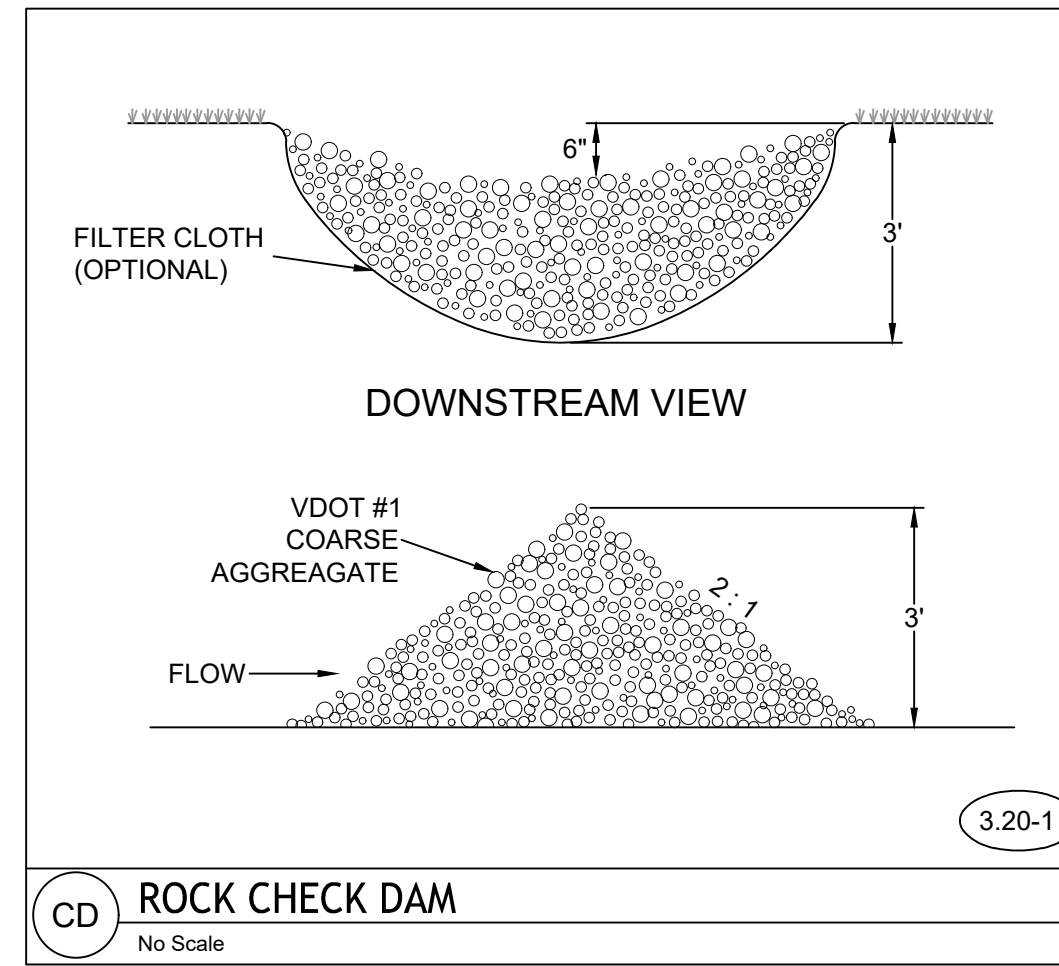


TABLE 3.31-B
ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS
"QUICK REFERENCE FOR ALL REGIONS"

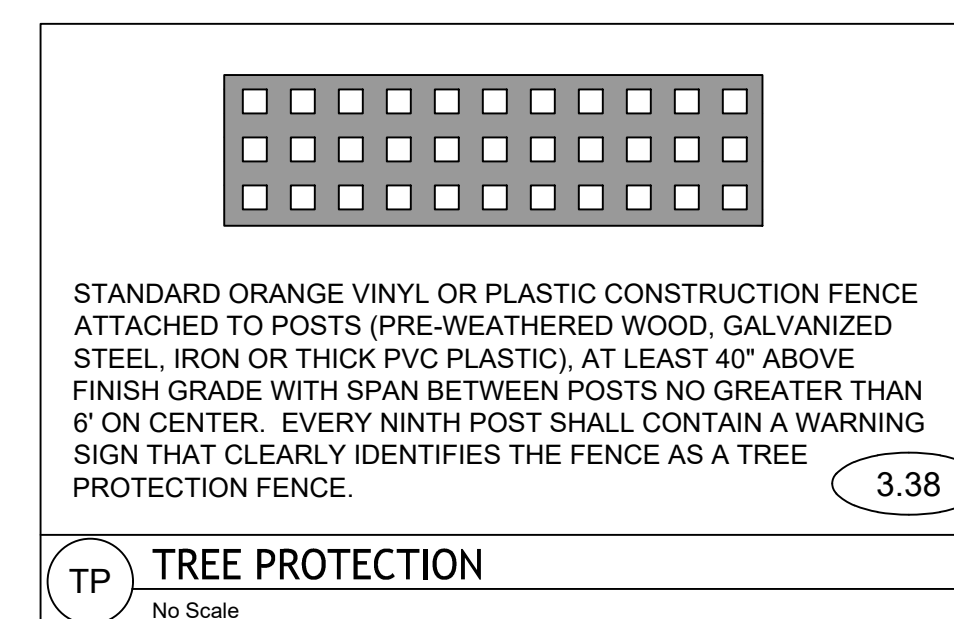
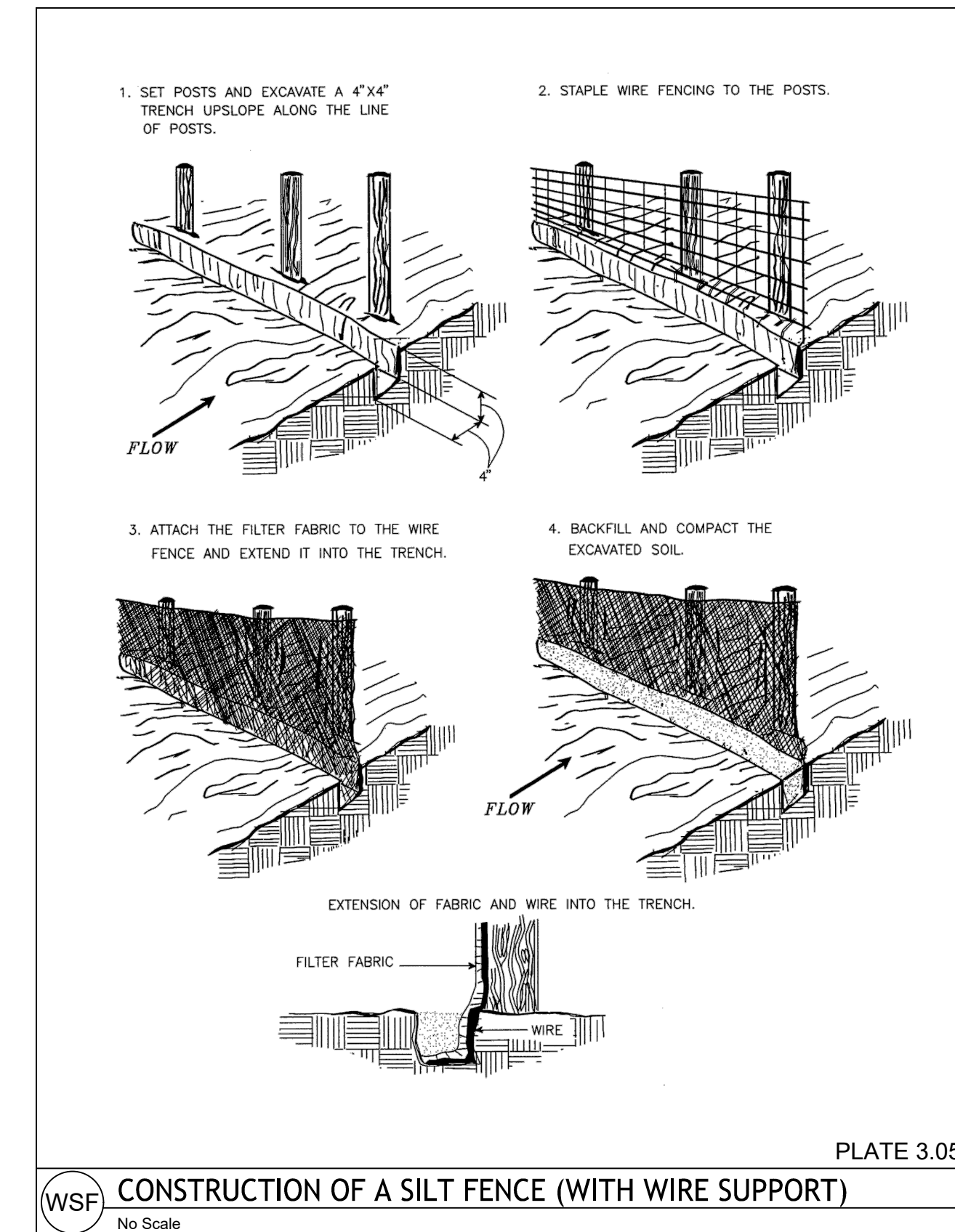
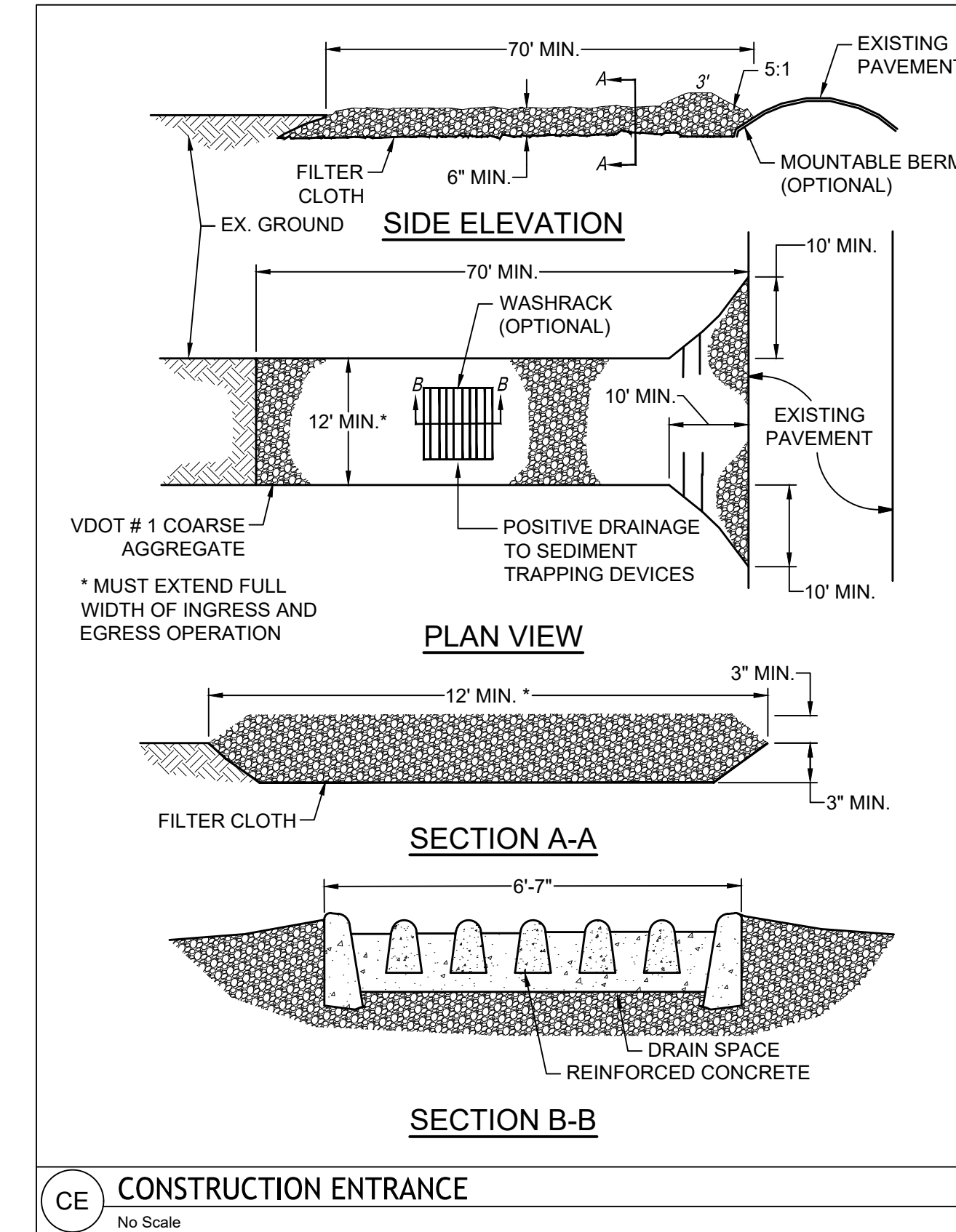
| PLANTING DATES | SPECIES | RATE (LBS./ACRE) |
|-------------------|---|------------------|
| SEPT. 1 - FEB. 15 | 50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE) | 50-100 |
| FEB. 16 - APR. 30 | ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) | 60-100 |
| MAY 1 - AUG. 31 | GERMAN MILLET (SETARIA ITALICA) | 50 |

TS TEMPORARY SEEDING
No Scale

TABL 3.30-A
CUBIC YARDS OF TOPSOIL REQUIRED
OR APPLICATION TO VARIOUS DEPTHS

| DEPTH (INCHES) | PER 1,000 SQUARE FEET | PER ACRE |
|----------------|-----------------------|----------|
| 1 | 3.1 | 134 |
| 2 | 6.2 | 268 |
| 3 | 9.3 | 403 |
| 4 | 12.4 | 537 |
| 5 | 15.5 | 672 |
| 6 | 18.6 | 806 |

TS TOPSOILING
No Scale



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Kenneth Turner
Lic. No. 021260
1/26/2023
PROFESSIONAL ENGINEER

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DATE
1/26/2023

DRAWN BY
L. KIM

DESIGNED BY
K. TURNER

CHECKED BY
K. TURNER

SCALE
NTS

TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY - VIRGINIA

ESC DETAILS

JOB NO.
48527

SHEET NO.
C5



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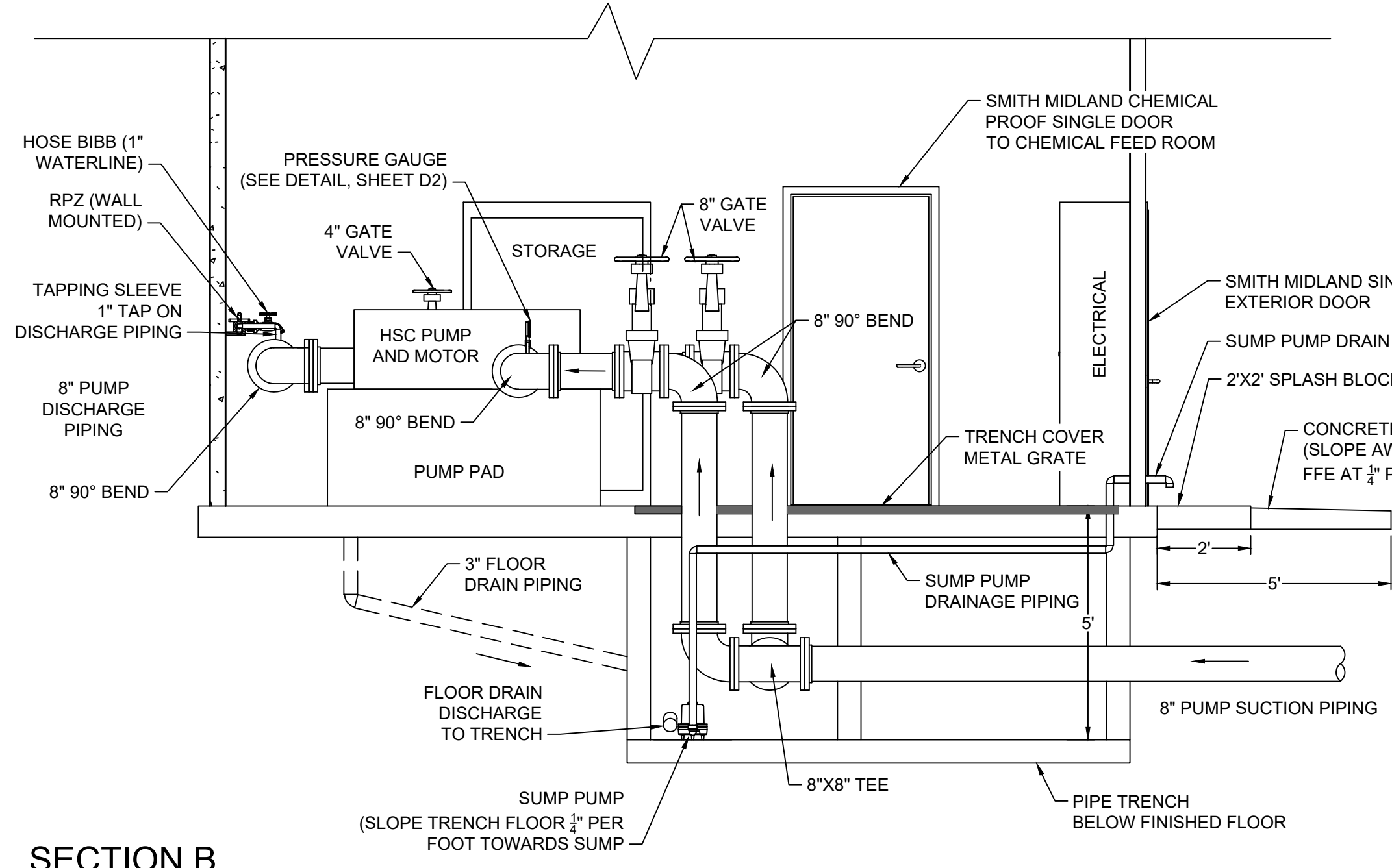
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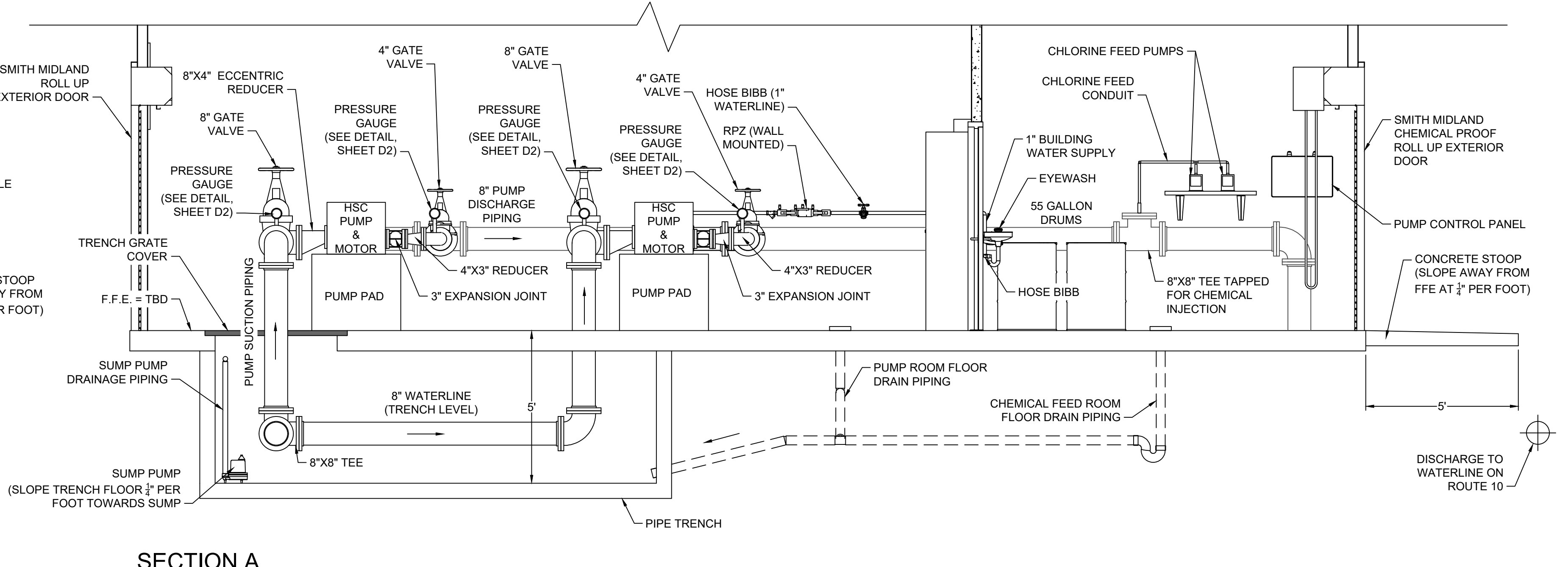
OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY - VIRGINIA

BPS MECHANICAL PIPING PLAN AND SECTIONS

| | |
|-----------|-------|
| JOB NO. | 48527 |
| SHEET NO. | M1 |

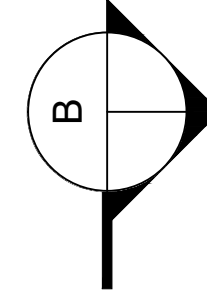


SECTION B

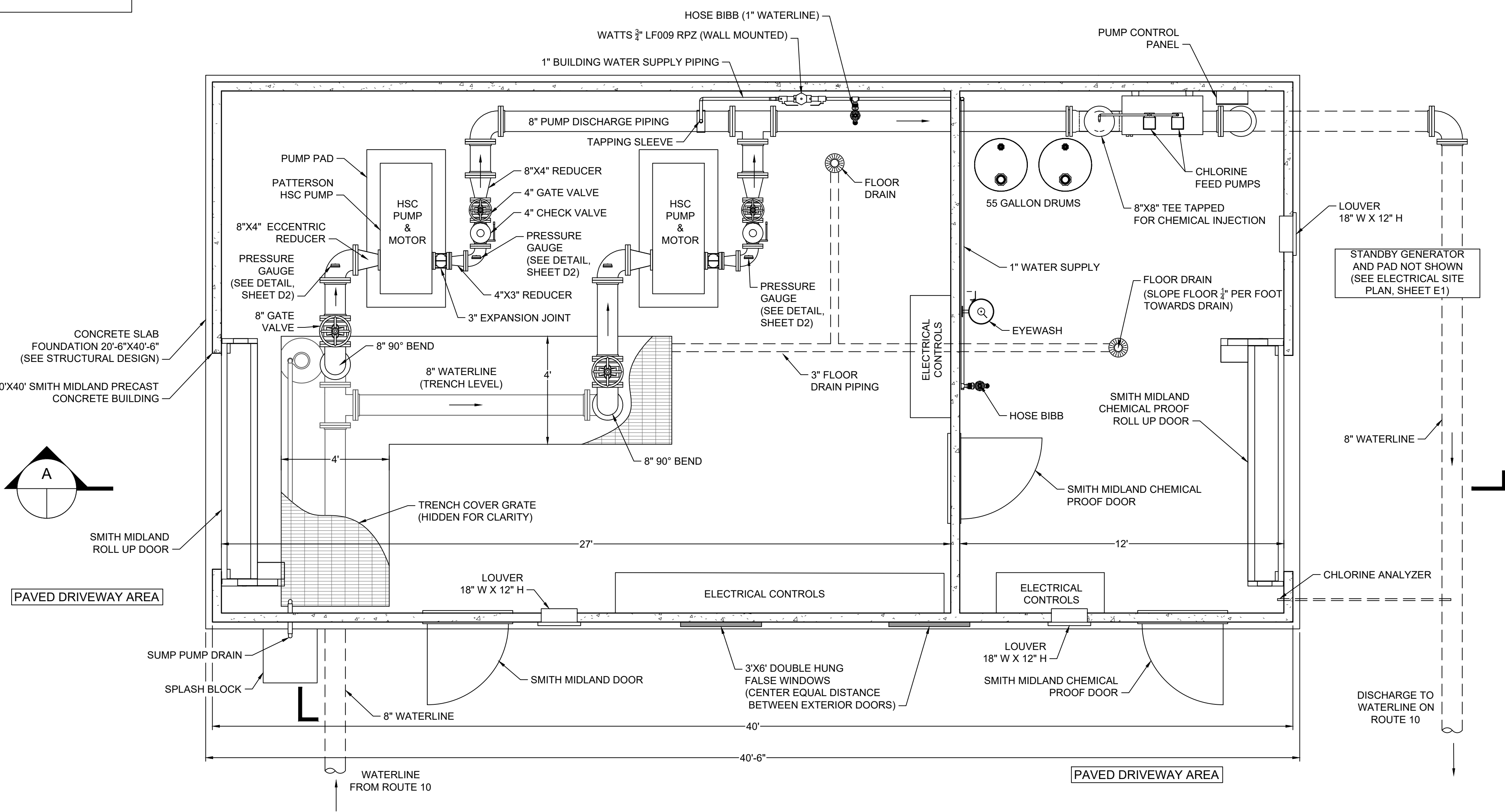


SECTION A

NOTE:
 1. NOT ALL MEP COMPONENTS ARE SHOWN ON THIS SHEET. REFER TO DESIGN, NOTES, AND DETAILS ON SHEETS E1-E5 AND SHEETS P1-P4, THIS PLAN SET, FOR COMPLETE MEP DESIGN.



GRASS AREA



BOOSTER PUMP STATION FLOOR PLAN

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- NOTES:
- BUILDING FINISHED FLOOR ELEVATION SHALL BE SET 3" ABOVE FINISHED GRADE ELEVATION.
 - BUILDING SHALL BE A SMITH MIDLAND PRECAST CONCRETE STRUCTURE WITH SLAB-ON-GRADE FOUNDATION (SEE STRUCTURAL DESIGN, S-SERIES SHEETS).
 - ALL EXTERIOR AND INTERIOR DOORS SHALL BE CHEMICAL PROOF.

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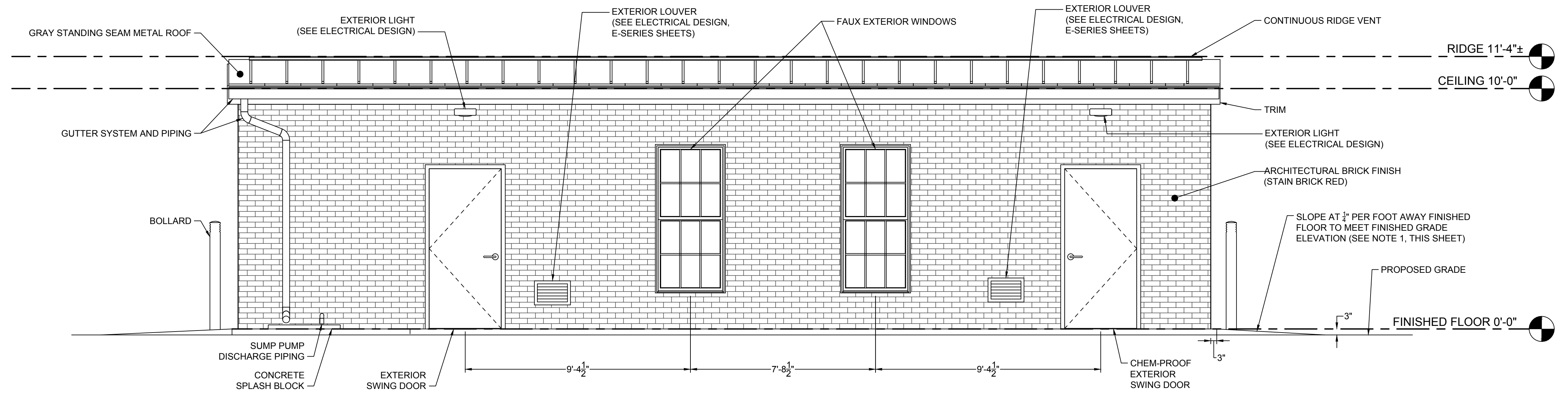
| | |
|-------------|-----------|
| DATE | 1/26/2023 |
| DRAWN BY | L. KIM |
| DESIGNED BY | K. TURNER |
| CHECKED BY | K. TURNER |
| SCALE | 1" = 10' |

TIMMONS GROUP

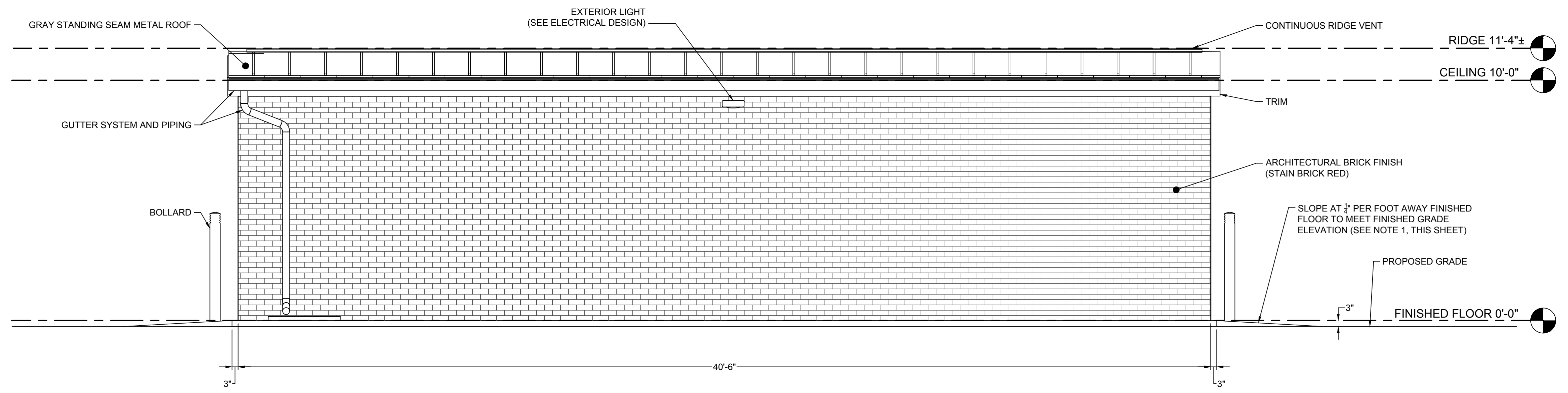
OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY - VIRGINIA
 BPS BUILDING ELEVATIONS

| | |
|-----------|-------|
| JOB NO. | 48527 |
| SHEET NO. | M2 |

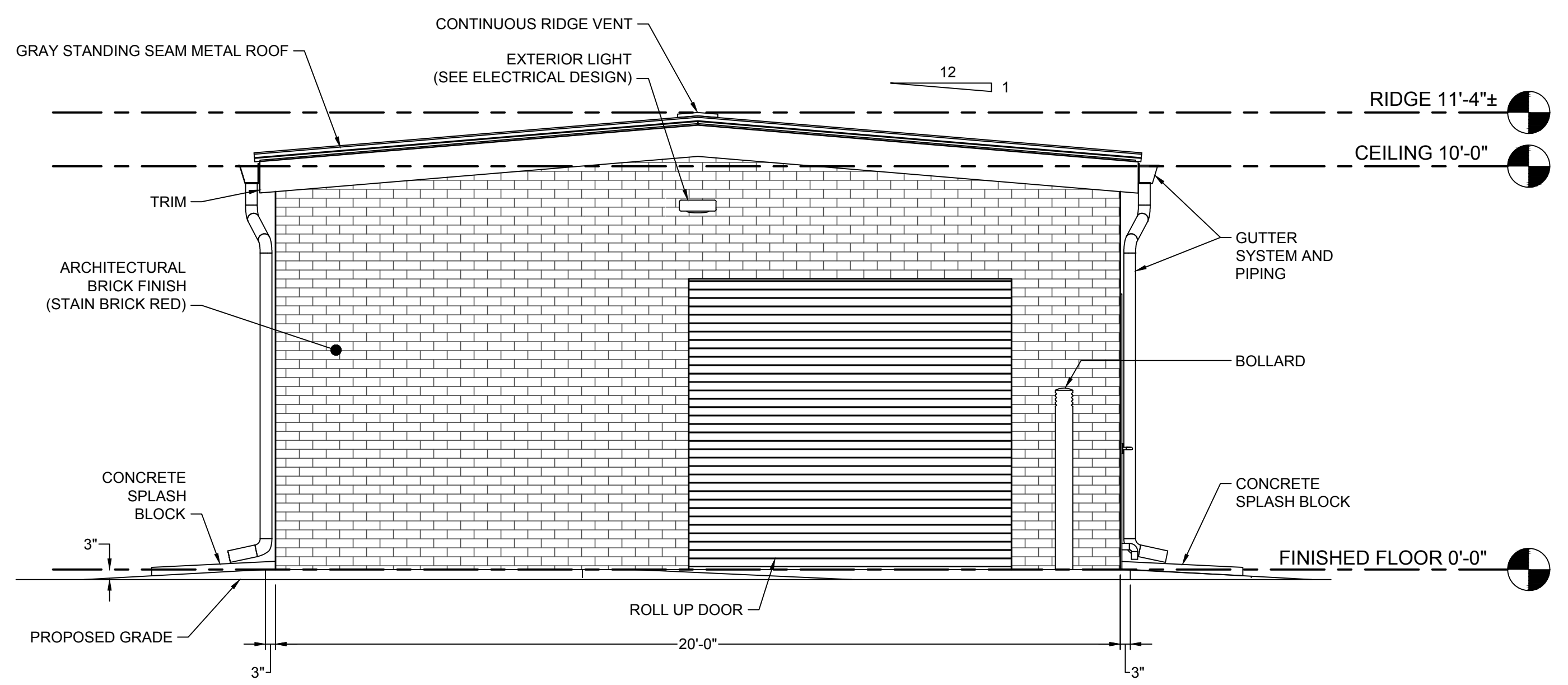
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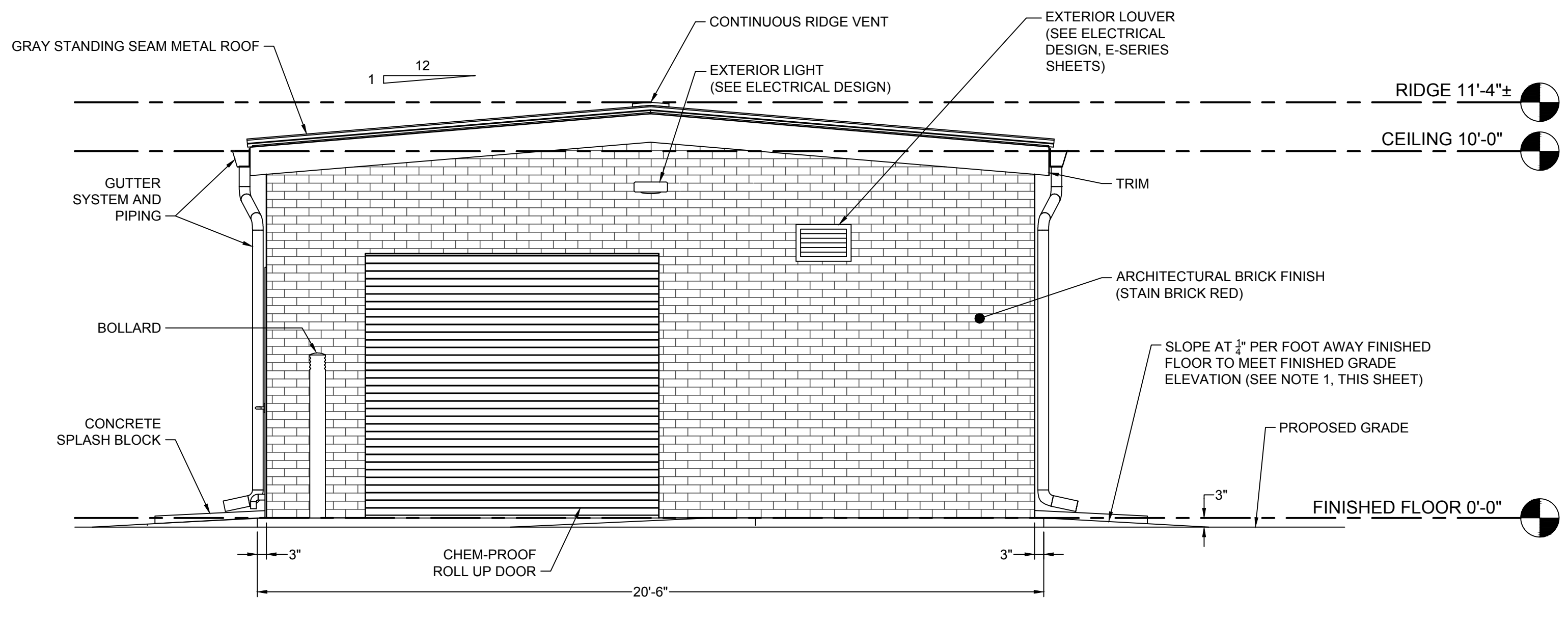
EAST ELEVATION
 SCALE: 3/8" = 1'-0"



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



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



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

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PRE-CONSTRUCTION

- CONTRACTOR IS RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1.800.552.7001 FOR LOCATION OF ALL UTILITY LINES. TREES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM SEWER/WATER CONNECTIONS. NOTIFY LANDSCAPE ARCHITECT OF CONFLICTS.
- VERIFY ALL PLANT MATERIAL QUANTITIES ON THE PLAN PRIOR TO BIDDING. PLANT LIST TOTALS ARE FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO BIDDING.
- PROVIDE PLANT MATERIALS OF QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY INDICATED ON PLANS. ALL PLANT MATERIALS AND INSTALLATION SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK". IF SPECIFIED PLANT MATERIAL IS NOT OBTAINABLE, SUBMIT PROOF OF NON AVAILABILITY TO THE ARCHITECTS, TOGETHER WITH PROPOSAL FOR USE OF EQUIVALENT MATERIAL.
- PROVIDE AND INSTALL ALL PLANTS AS IN ACCORDANCE WITH DETAILS AND CONTRACT SPECIFICATIONS.
- SOIL TESTS SHALL BE PERFORMED TO DETERMINE SOIL CHARACTER AND QUALITY. NECESSARY SOIL AMENDMENTS SHALL BE PERFORMED PER TEST RESULTS TO ENSURE PLANT HEALTH.

CONSTRUCTION/INSTALLATION

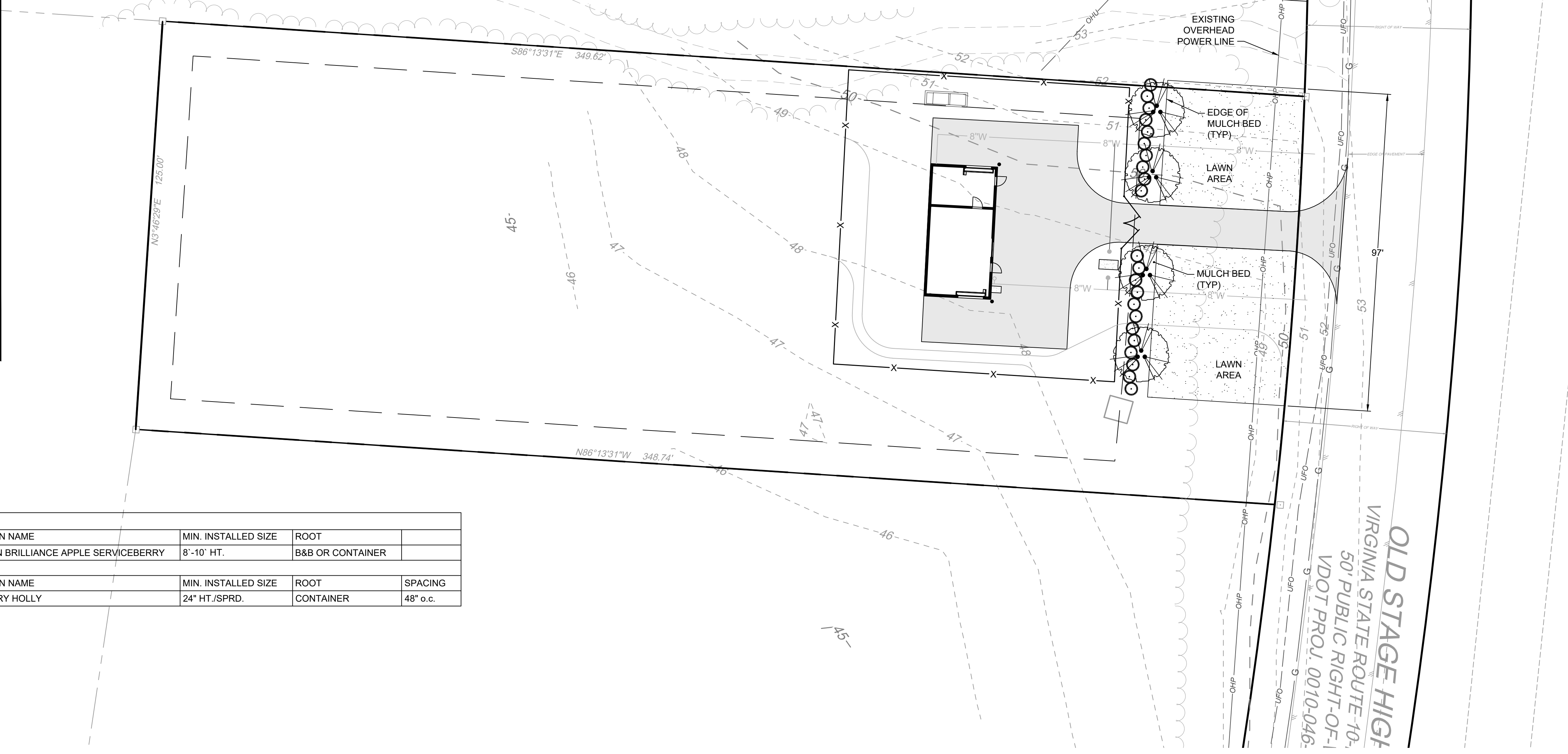
- LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANTS AND MATERIALS THAT ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION, AS WELL AS PLANTS AND MATERIALS THAT DO NOT CONFORM TO ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK"
- LABEL AT LEAST ONE TREE AND ONE SHRUB OF EACH VARIETY AND CALIPER WITH A SECURELY ATTACHED, WATERPROOF TAG BEARING THE DESIGNATION OF BOTANICAL AND COMMON NAME.
- INSTALL LANDSCAPE PLANTINGS AT ENTRANCES/EXITS AND PARKING AREAS ACCORDING TO PLANS SO THAT MATERIALS WILL NOT INTERFERE WITH SIGHT DISTANCES.
- CONTRACTOR IS RESPONSIBLE FOR WATERING ALL PLANT MATERIAL DURING INSTALLATION AND UNTIL FINAL INSPECTION AND ACCEPTANCE BY OWNER. CONTRACTOR SHALL NOTIFY OWNER OF CONDITIONS WHICH AFFECTS THE GUARANTEE.

INSPECTIONS/GUARANTEE

- UPON COMPLETION OF LANDSCAPE INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR WHO WILL VERIFY COMPLETENESS, INCLUDING THE REPLACEMENT OF ALL DEAD PLANT MATERIAL. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING A FINAL INSPECTION BY THE LANDSCAPE ARCHITECT.
- ALL EXTERIOR PLANT MATERIALS SHALL BE GUARANTEED FOR ONE FULL YEAR AFTER DATE OF FINAL INSPECTION AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. DEFECTS RESULTING FROM NEGLIGENCE BY THE OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND THE CONTRACTORS CONTROL ARE NOT THE RESPONSIBILITY OF THE CONTRACTOR
- PLANT MATERIAL QUANTITIES AND SIZES WILL BE INSPECTED FOR COMPLIANCE WITH APPROVED PLANS BY A SITE PLAN REVIEW AGENT OF THE PLANNING DEPARTMENT PRIOR TO THE RELEASE OF THE CERTIFICATE OF OCCUPANCY.
- REMOVE ALL GUY WIRES AND STAKES 12 MONTHS AFTER INSTALLATION.

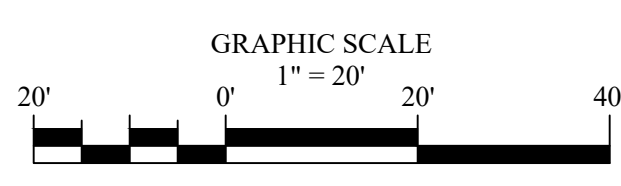
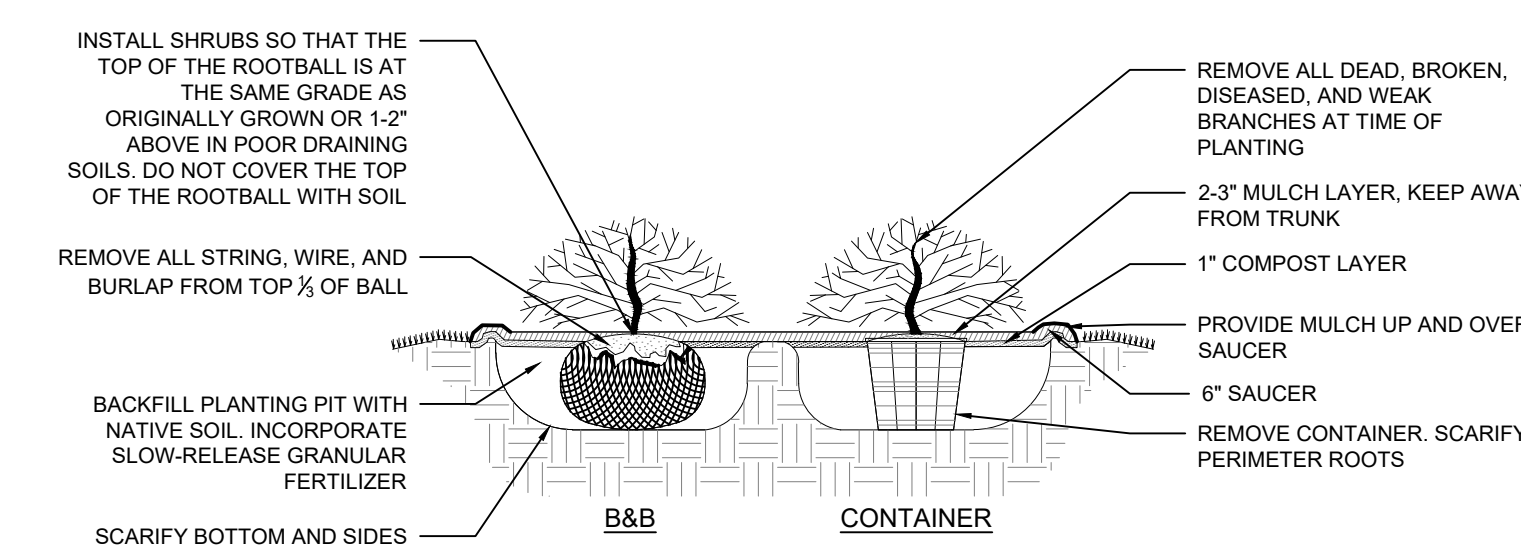
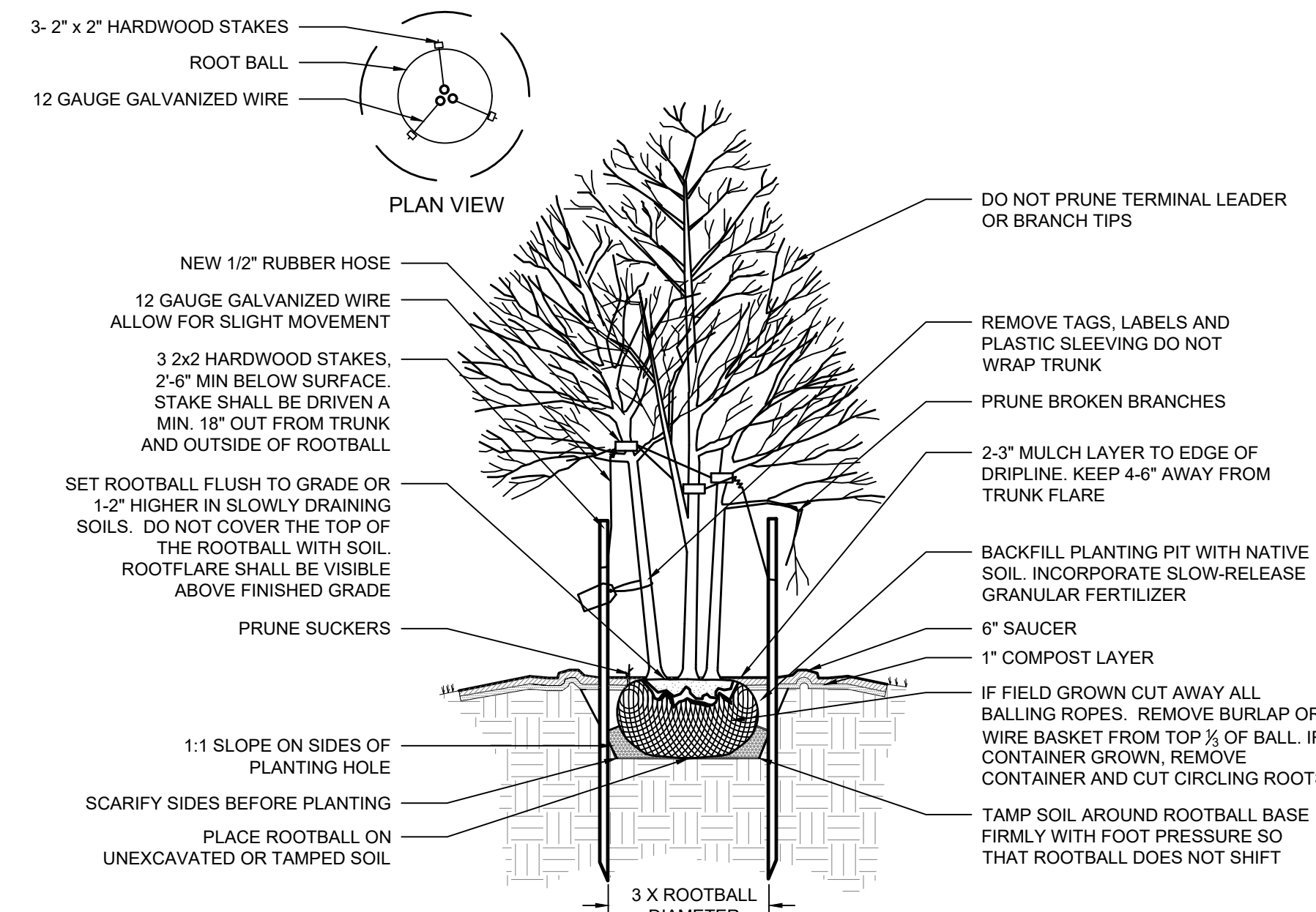
LANDSCAPE REQUIREMENTS

- STREET FRONTAGE**
 - 1 TREE EVERY 40 LF
 - 97 FT FRONTAGE
 - (97 / 40 = 2.4)
 - 3 TREES REQUIRED
 - 4 TREES PROVIDED
- CIVIC USE BUFFER**
 - 10 FT WIDE BED
 - 45 CREDIT POINTS PER 500 SQUARE FEET
- WOODED AREA SURROUNDING SITE**
 - PROHIBITS NECESSITY OF BUFFER.
- SITE IS SURROUNDED BY SOLID PERIMETER FENCE.**



| TREES | QTY | BOTANICAL NAME | COMMON NAME | MIN. INSTALLED SIZE | ROOT |
|-------|-----|---|--------------------------------------|---------------------|------------------|
| AG | 4 | AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' | AUTUMN BRILLIANCE APPLE SERVICEBERRY | 8'-10' HT. | B&B OR CONTAINER |

| SHRUBS | QTY | BOTANICAL NAME | COMMON NAME | MIN. INSTALLED SIZE | ROOT | SPACING |
|--------|-----|----------------------|----------------|---------------------|-----------|----------|
| ID | 22 | ILEX GLABRA 'DENSEA' | INKBERRY HOLLY | 24" HT./SPRD. | CONTAINER | 48" o.c. |



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OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY - VIRGINIA
PROPOSED PLANTING PLAN

JOB NO. 48527
SHEET NO. L1

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SITE LIGHTING WORK NOTES (1)

(THIS SHEET ONLY)

- 1 POLE MOUNTED SITE FIXTURE, 20' AFG. SEE POLE BASE DETAIL, THIS SHEET.
- 2 MOUNT FIXTURE 9'-0" AFF.

SITE POWER PLAN WORK NOTES (1)

(THIS SHEET ONLY)

- 1 GAS SHUT-OFF VALVE AND PRESSURE REGULATOR.
- 2 NEW GAS METER AND SERVICE PIPING BY VIRGINIA NATURAL GAS (VNG). COORDINATE INSTALLATION OF NEW GAS SERVICE WITH VNG. GAS SERVICE: 2 PSI.
- 3 (1) - 1" C WITH GENERATOR ALARM AND SUPERVISORY WIRING.
- 4 4#600 KCMIL THHN/THWN & 1#2/0 GND IN 4".
- 5 4#10 THHN/THWN & 1#8 GND IN 1" (P1-1, -3).
- 6 18" X 24" DEEP TRENCH. INSTALL CONDUIT 24" BELOW GRADE. ENCASE IN 3" CONC. ENVELOPE. PAINT TOP OF CONC. RED. BACKFILL AND RE-SEED TO MATCH EXISTING GRADE.
- 7 BUILDING GROUND RING - #2/0 AWG BARE COPPER GROUND CONDUCTOR, 30" BELOW GRADE. CONNECT TO METAL PIPING, BUILDING STEEL, REBAR SYSTEM, GENERATOR FRAME. CADWELD ALL UNDERGROUND CONNECTIONS.
- 8 GROUND ROD - 3/4" x 10' COPPER GROUND ROD PER NEC.
- 9 GROUND INSPECTION POINT. REFER TO GROUND INSPECTION POINT DETAIL.
- 10 TO PANEL MDP - 2#10 THHN/THWN & GND IN 1".
- 11 NOT USED.
- 12 2#12 THHN/THWN & GND IN 1" (P1-5).

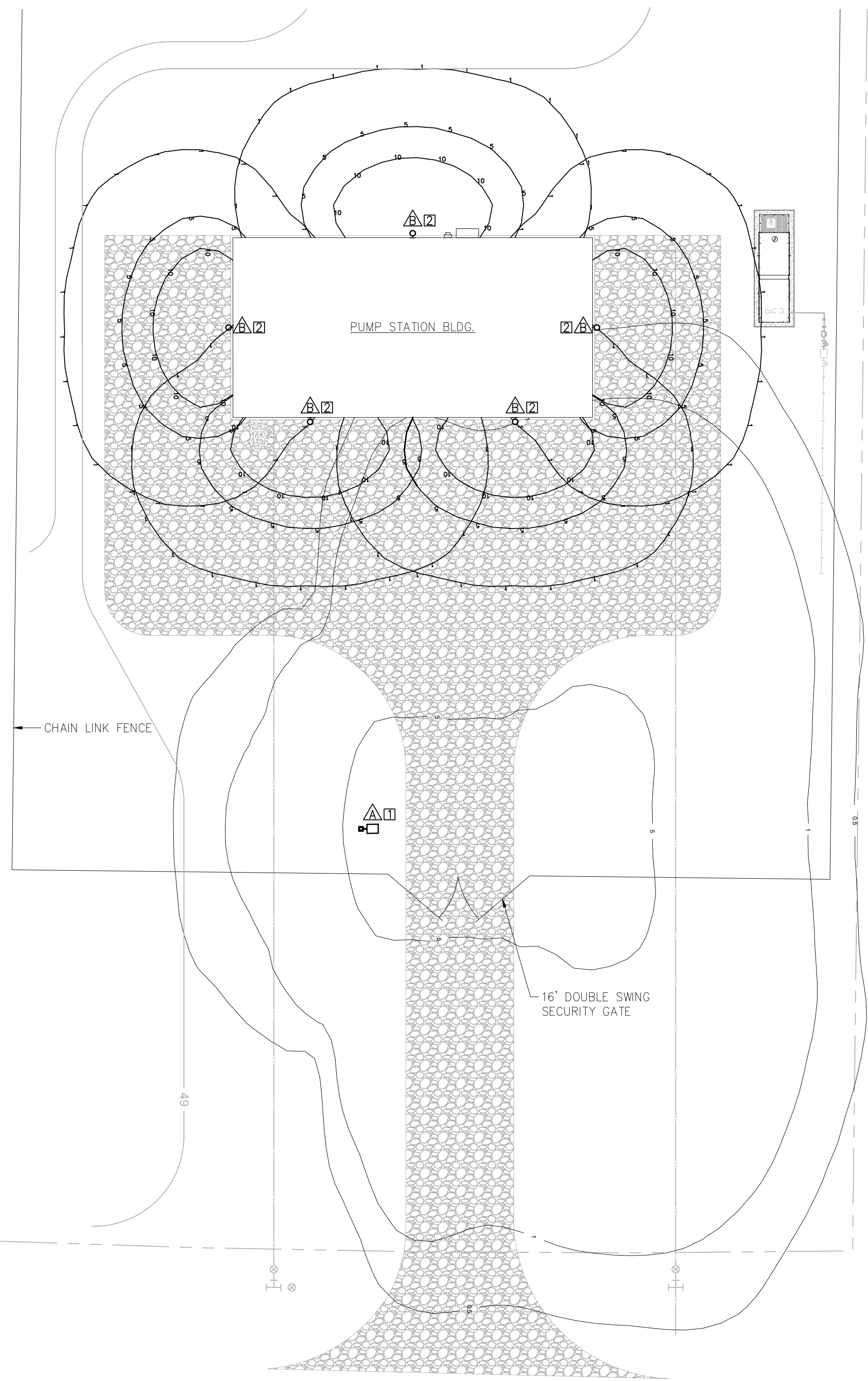
SITE ELECTRICAL LEGEND

- CONDUIT BELOW GRADE OR UNDER SLAB
- EXPOSED CONDUIT
- 1 ELECTRICAL WORK NOTE IDENTIFICATION
- o BRACKET MOUNTED FIXTURE, LED
- POLE MOUNTED FIXTURE, LED
- △ FIXTURE TYPE DESIGNATION
- ⊞ GAS PRESSURE REGULATOR
- ⊞ GAS SHUT-OFF VALVE

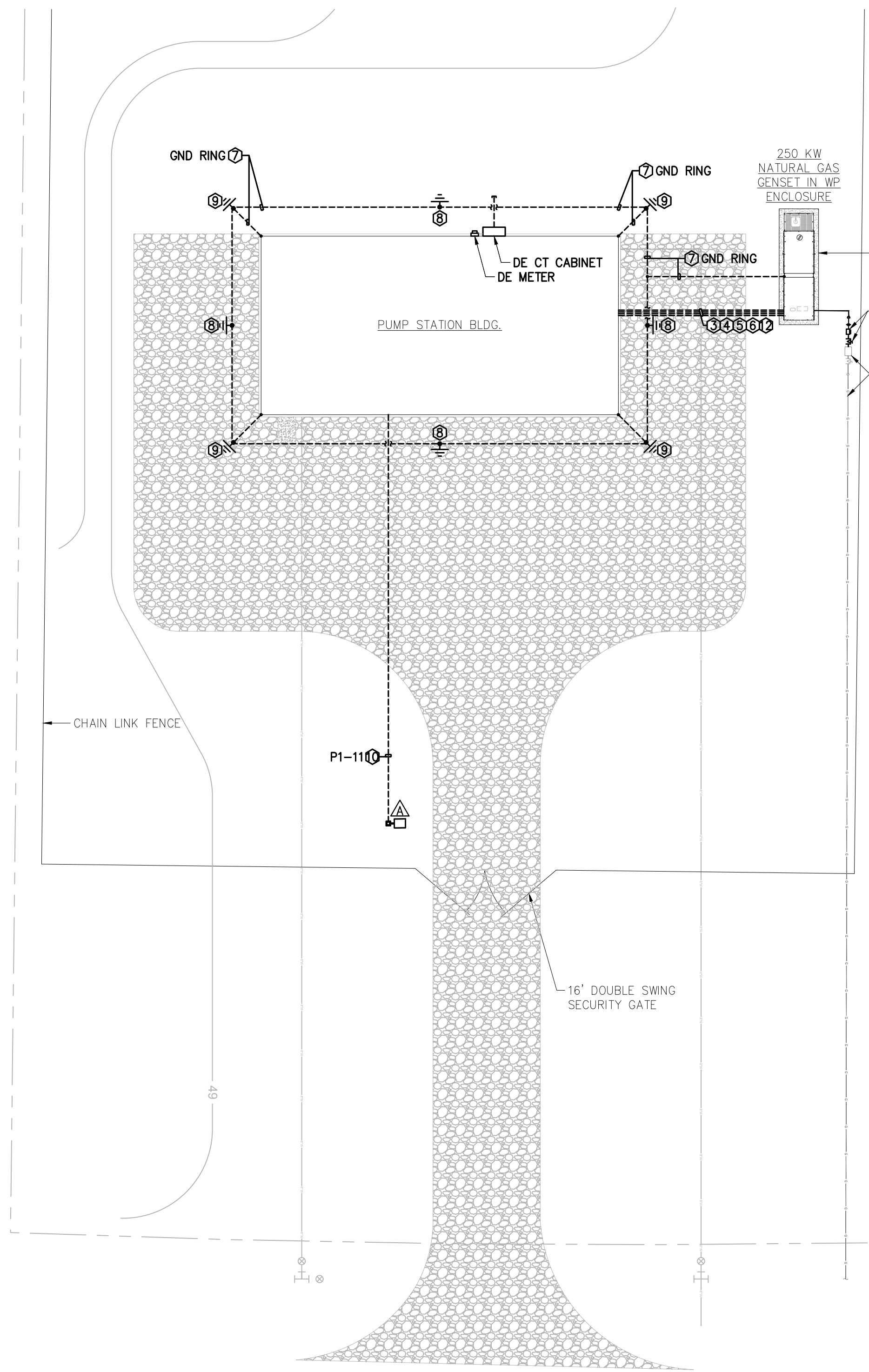
MISS UTILITY NOTES

1. PRIOR TO CONSTRUCTION OR EXCAVATION, THE CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF LOCATING ANY AND ALL UNDERGROUND UTILITIES (PUBLIC OR PRIVATE) THAT MAY EXIST OR CROSS THROUGH THE AREA OF CONSTRUCTION WHETHER OR NOT THEY ARE SHOWN ON THESE PLANS. BEFORE DIGGING, TO AVOID THE UTILITIES, THE CONTRACTOR MUST CALL MISS UTILITY OF VIRGINIA AT 1 800 522 7001. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS SOLE EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
2. THIS PLAN DOES NOT GUARANTEE THE EXISTENCE, NONEXISTENCE, SIZE, TYPE, LOCATION, ALIGNMENT OR DEPTH OF ANY OR ALL UNDERGROUND UTILITIES OR OTHER FACILITIES. WHERE SURFACE FEATURES (MANHOLES, CATCH BASINS, VALVES, ETC.) ARE UNAVAILABLE OR INCONCLUSIVE, INFORMATION SHOWN MAY BE FROM UTILITY OWNER'S RECORDS AND/OR ELECTRONIC LINE TRACING, THE RELIABILITY OF WHICH IS UNCERTAIN. THE CONTRACTOR SHALL PERFORM WHATEVER TEST EXCAVATION OR OTHER REINVESTIGATION AS NECESSARY TO VERIFY LOCATIONS AND CLEARANCE.
3. STATE LAW MANDATES THE NOTIFICATION OF UTILITY OWNERS 48 HOURS IN ADVANCE OF EXCAVATION FOR LOCATION OF UTILITIES. CALL MISS UTILITY AT 1 800 552 7001, 48 HOURS PRIOR TO LAND DISTURBANCE ACTIVITY.

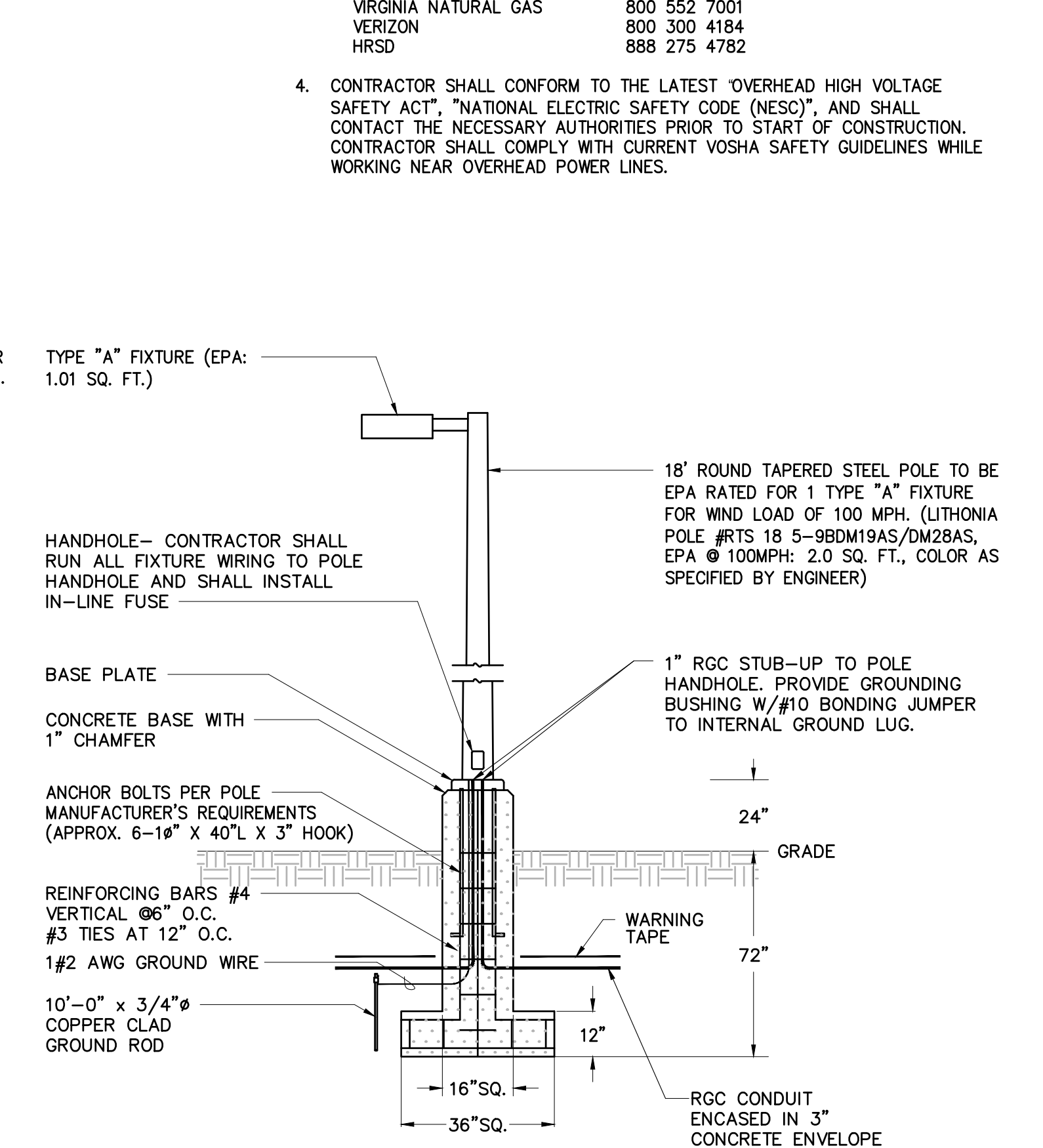
| | |
|----------------------|--------------|
| UTILITY OWNER | TELEPHONE |
| DOMINION ENERGY | 866 366 4357 |
| COX COMMUNICATIONS | 757 222 1111 |
| VIRGINIA NATURAL GAS | 800 552 7001 |
| VERIZON | 800 300 4184 |
| HRSD | 888 275 4782 |
4. CONTRACTOR SHALL CONFORM TO THE LATEST OVERHEAD HIGH VOLTAGE SAFETY ACT, "NATIONAL ELECTRIC SAFETY CODE (NEC)", AND SHALL CONTACT THE NECESSARY AUTHORITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH CURRENT OSHA SAFETY GUIDELINES WHILE WORKING NEAR OVERHEAD POWER LINES.



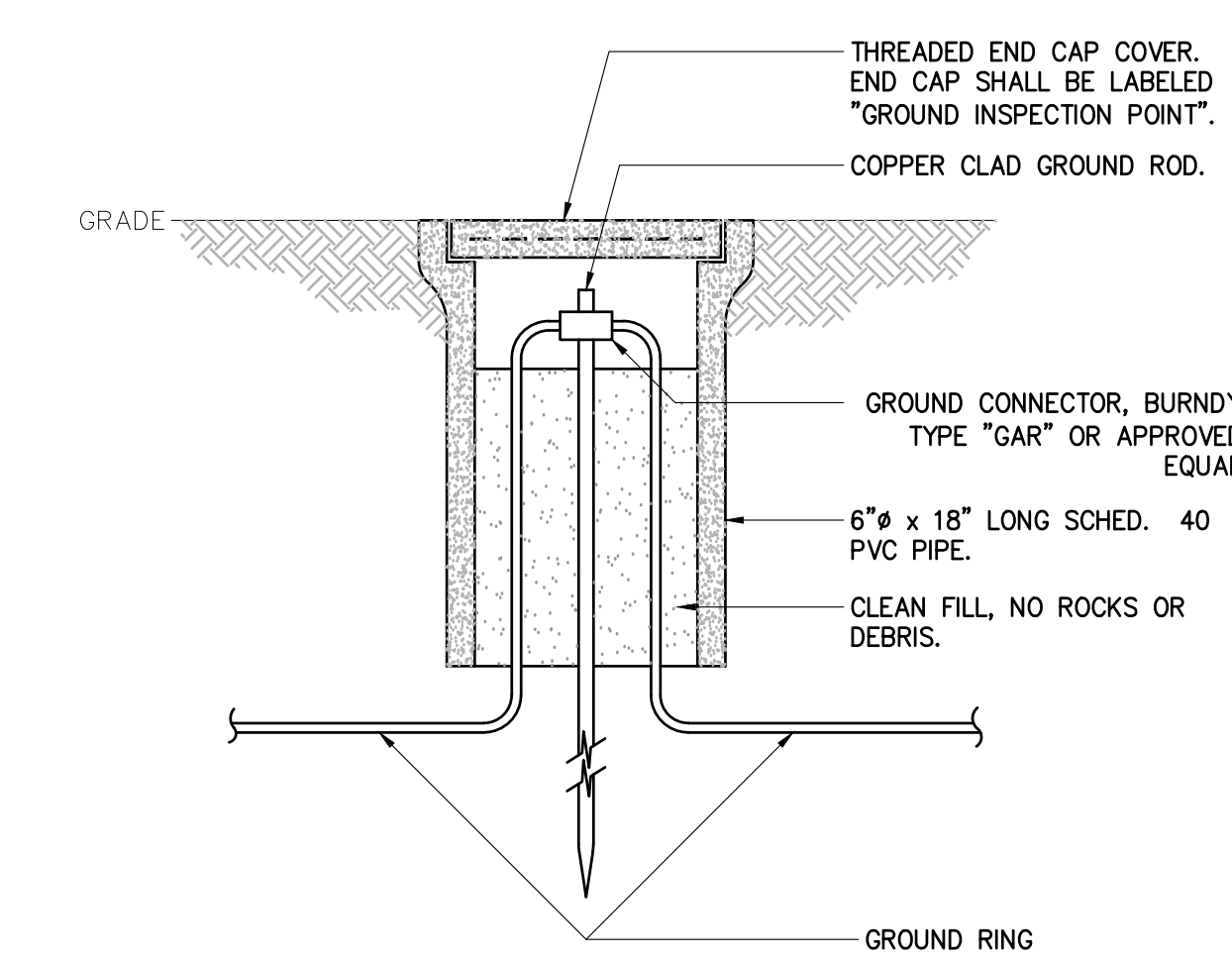
SITE LIGHTING PHOTOMETRIC PLAN
SCALE: 1"=10'-0"



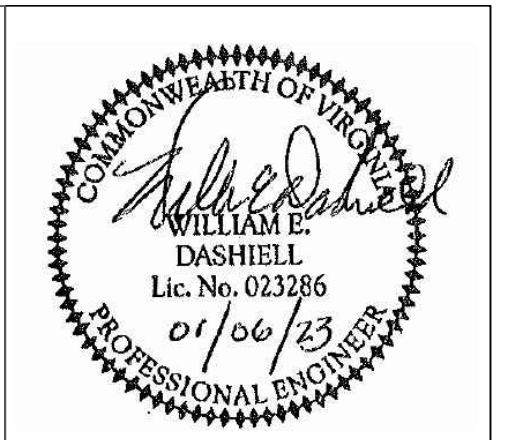
SITE POWER PLAN
SCALE: 1"=10'-0"



TYPE 'A' FIXTURE POLE MOUNTING DETAIL
SCALE: NO SCALE



GROUND INSPECTION POINT DETAIL (9)
SCALE: NO SCALE



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| CHECKED BY | WFS |
| SCALE | AS SHOWN |

TIMMONS GROUP
OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA
ELECTRICAL SITE PLAN

JOB NO. 47716
SHEET NO. E1

ROBERT G. DASHIELL, JR. P.E. INC.
CONSULTING ENGINEERS
1225 WEST 26TH STREET
NORFOLK, VIRGINIA 23508
(757) 623-5012

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NATURAL GAS PIPING REQUIREMENTS

- CONTRACTOR SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE ON PROJECTS WITH GAS PIPING SYSTEMS SIMILAR TO THIS PROJECT. CONTRACTOR TO ACQUIRE ALL NECESSARY PERMITS FOR GAS PIPING INSTALLATION.
- GAS PIPING INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF INTERNATIONAL FUEL GAS CODE, NFPA-54 (NATIONAL FUEL GAS CODE), LOCAL AND STATE CODES AND REQUIREMENTS, AND THE REQUIREMENTS AND RECOMMENDATIONS OF THE GAS UTILITY. INSTALLATION OF CONNECTION TO THE GENERATOR SHALL FOLLOW THE RECOMMENDATIONS/INSTRUCTIONS OF THE GENERATOR MANUFACTURER.
- GAS PIPING: (ABOVE GROUND) BLACK STEEL, SCHEDULE 40 WITH MALLEABLE IRON FITTINGS AND THREADED JOINTS. (BELOW GRADE) POLYETHYLENE (PE) PIPE CONFORMING TO ASTM D 2513, AND PE ANODE LESS RISERS (PRE-BENT). ALL CONFORMING TO NFPA-54. GAS COCKS (VALVES) SHALL BE AGA APPROVED FOR GAS SERVICE.
- ALL PIPING SHALL BE REAMED TO FULL SIZE AFTER CUTTING. MAKE JOINTS WITH APPROVED JOINT COMPOUND.
- ABOVE GROUND EXPOSED PIPING (INCLUDING PIPING WITHIN GENERATOR ENCLOSURE) SHALL BE CLEANED AND PAINTED WITH 2 COATS OF RUST INHIBITING PAINT.
- UNDERGROUND PIPE SHALL BE INSTALLED IN ACCORDANCE WITH NFPA-54, WITH A MINIMUM OF 18" COVER, AND WITH PLASTIC WARNING TAPE 6" BELOW GRADE.
- PROVIDE DRIP LEGS AS REQUIRED.
- INSTALL CONNECTION TO GENERATOR INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING FURNISHED BY THE GENERATOR MANUFACTURER: FLEX, FUEL CONNECTION, SOLENOID VALVE, AND GAS PRESSURE REGULATOR (WITH CAPACITY OF UP TO 2 PSI GAS INLET PRESSURE) AND OUTLET PRESSURE TO SUIT MAXIMUM AND MINIMUM PRESSURES OF THE GENERATOR.
- UPON COMPLETION THE NEW GAS PIPING INSTALLATION SHALL BE TESTED AND PROVEN TIGHT AT AN AIR PRESSURE OF 50 LBS. PER SQUARE INCH. TESTS SHALL BE WITNESSED BY A REPRESENTATIVE OF THE GAS UTILITY COMPANY AND THE LOCAL CODE OFFICIAL, WHO SHALL DETERMINE LENGTH OF TEST. INSPECT, TEST, AND PURGE NATURAL GAS SYSTEMS IN ACCORDANCE WITH NFPA 54 AND LOCAL UTILITY REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR PERFORMANCE OF THIS WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH DOMINION ENERGY AND VIRGINIA NATURAL GAS AS REQUIRED TO PERFORM THIS WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR COST ASSOCIATED WITH DOMINION ENERGY AND LOCAL GAS COMPANY.
- GROUND ALL ABOVE GROUND GAS PIPING PER NFPA 54, PARAGRAPH 7.12 AND NFPA 70, SECTION 250.

NATURAL GAS REQUIREMENTS

| | | |
|--|---|---------------------------|
| 250 KW GENERATOR | | |
| • GAS CONSUMPTION - FULL LOAD (250 KW) | = | 3,500,000 BTUH (3500 CFH) |
| • MAXIMUM GAS PRESSURE | = | 20" WC |
| • MINIMUM GAS PRESSURE | = | 14" WC |
| • UNIT GAS CONNECTION SIZE | = | 2" NPT |

| | | |
|--------------|---|---------------------------|
| TOTAL DEMAND | = | 3,500,000 BTUH (3500 CFH) |
|--------------|---|---------------------------|

ABBREVIATIONS

| | | | |
|-------|-------------------------------|--------|---|
| AI/AO | ANALOG INPUT/ANALOG OUTPUT | LED | LIGHT EMITTING DIODE |
| AFF | ABOVE FINISH FLOOR | LR | LINE REACTOR |
| AFG | ABOVE FINISH GRADE | MCC | MOTOR CONTROL CENTER |
| ATS | AUTOMATIC TRANSFER SWITCH | NEC | NATIONAL ELECTRICAL CODE |
| CB | CIRCUIT BREAKER | OC | OUTPUT CONTACTOR |
| DE | DOMINION ENERGY | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| DI/DO | DIGITAL INPUT/DIGITAL OUTPUT | SJOW | SERVICE CORD, CHEMICAL, OIL AND WATER RESISTANT |
| FM | FLOW METER | SS | STAINLESS STEEL |
| FWE | FURNISHED WITH EQUIPMENT | TP | TWISTED PAIR WIRE |
| GFI | GROUND FAULT INTERRUPTER | TVSS | TRANSIENT VOLTAGE SUPPRESSOR |
| GND | GROUNDING CONDUCTOR | UON | UNLESS OTHERWISE NOTED |
| HMI | HUMAN MACHINE INTERFACE | UPS | UNINTERRUPTIBLE POWER SUPPLY |
| HOA | HAND-OFF-AUTO SELECTOR SWITCH | WP | WEATHERPROOF |
| IC | INPUT CONTACTOR | XDUCER | TRANSDUCER |



LED AREA LUMINAIRE, DIE CAST ALUMINUM HOUSING, FULLY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS, THERMOSET POWER COAT FINISH, BLACK, PRECISION MOLDED ACRYLIC LENS, 208V, 207W, 24268 LUMENS, 4000K COLOR TEMPERATURE, TYPE TSM DISTRIBUTION, PHOTOCCELL CONTROL, RATED FOR COLD TEMPERATURE USE, UL C-UL LISTED, IP65 SUITABLE FOR WET LOCATION.

LIGHT FIXTURE
SCALE: NONE



LED WALL PACK, 3213 LUMEN, 4000K, 120 VOLT, WET LOCATION, -40°C MIN. AMBIENT OPERATING TEMP. PROVIDE MOTION SENSOR AUTO ON/OFF CONTROL, MANUAL SWITCH OVERRIDE.

LIGHT FIXTURE
SCALE: NONE



LED VAPOR-TITE FIXTURE. SINGLE PIECE HOUSING, UV-STABILIZED, IMPACT-RESISTANT, INJECTION-MOLDED FROSTED POLYCARBONATE HOUSING WITH CONTINUOUS POURED-IN-PLACE, CLOSED CELL GASKET, 20-GAUGE STEEL CHANNEL AND CHANNEL COVER. CAPTIVE STAINLESS STEEL LATCHES. UV-STABILIZED, INJECTION-MOLDED, IMPACT-RESISTANT, FROSTED POLYCARBONATE LENS. INTEGRAL 6KV/3KA SURGE PROTECTION. L85 AT 60,000 HOURS, 6000 LUMEN OUTPUT, 5000K, 80CRI.

SAME AS FIXTURE "A" EXCEPT WITH EMERGENCY EMERGENCY BATTERY BACK-UP.

LIGHT FIXTURE
SCALE: NONE

LIGHTING FIXTURE SCHEDULE

| TYPE | MANUFACTURER | CATALOG NO. | LAMPS | VOLT | MOUNTING | REMARKS |
|------|-------------------|--|-------------|------|----------|-------------|
| △ | LITHONIA LIGHTING | DSX1LED-P8-40-T3M-MVOLT-RPA-PER-DLL127F1.5JU-DFDBDXD | LED 24268LM | 208 | POLE | NOTES 1,8 |
| △ | LITHONIA LIGHTING | WDGE2LED-P3/P3SW-40K-80CRI-VW-MVOLT-SRM-PIR-DFDBDXD | LED 3213LM | 120 | WALL | NOTES 2,3,6 |
| △ | LITHONIA LIGHTING | VAP-6000LM-FST-MD-MVOLT-40K-80CRI-DL-STSL | LED 6000LM | 120 | SURFACE | NOTES 1,5 |
| △ | LITHONIA LIGHTING | VAP-6000LM-FST-MD-MVOLT-40K-80CRI-DL-STSL-BSL722C | LED 6000LM | 120 | SURFACE | NOTES 1,5,9 |

LIGHTING FIXTURE SCHEDULE NOTES:

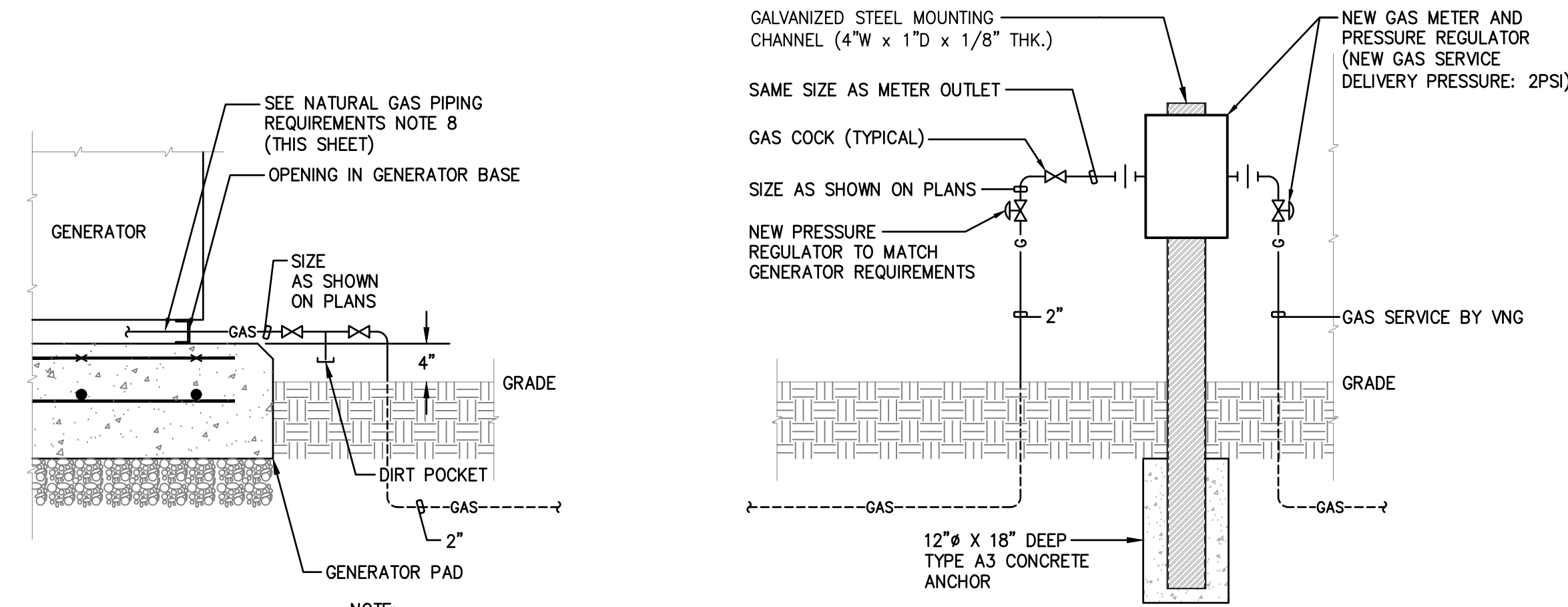
- DAMP LABEL, RATED FOR COLD TEMPERATURE USE.
- VANDAL RESISTANT SCREWS, WET LOCATION, RATED FOR COLD TEMPERATURE USE, PHOTO CELL CONTROL, SWITCH OVERRIDE TO "OFF".
- FINISH SHALL BE BRONZE OR AS SPECIFIED BY OWNER.
- NOT USED.
- SURFACE MOUNT ON CEILING.
- MOUNT EXTERIOR FIXTURE 9'-6"± AFF.
- WET LABEL, RATED FOR COLD TEMPERATURE USE.
- POLE MOUNT FIXTURE 20'-0"± AFG. REFER TO FIXTURE "A" POLE MOUNTING DETAIL, SHEET ES1.
- PROVIDE EMERGENCY BATTERY BACK-UP.

ELECTRICAL GENERAL NOTES

- ALL MOTOR CONTROL CIRCUITS AND WIRING SHALL CONFORM TO ARTICLE 430 OF THE NEC AND AS RECOMMENDED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ALL PANELBOARDS AND SAFETY SWITCHES USED AS SERVICE ENTRANCE EQUIPMENT ARE TO BE LABELED WITH A SERVICE ENTRANCE TYPE UL LABEL, FACTORY INSTALLED.
- ALL WIRING SHALL BE RUN IN CONDUIT. REFER TO SPECIFICATIONS SECTION 16110.
- ALL INTERIOR CONDUIT SHALL BE RIGID GALVANIZED STEEL.
- ALL EXTERIOR CONDUIT SHALL BE PVC COATED RIGID STEEL.
- ALL BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 DB/EB PVC.
- ALL CONDUITS, EXCEPT THOSE RUN IN SLAB, ARE TO BE RUN PARALLEL AND AT RIGHT ANGLE TO BUILDING LINES (NO CONDUIT IN WALLS).
- ALL CONDUITS ENTERING FLOOR SLAB SHALL HAVE A 3" CONCRETE CURB AT POINT OF FLOOR SLAB ENTRANCE.
- WORKING SPACE AROUND ELECTRICAL EQUIPMENT IS TO BE PROVIDED AS PER ARTICLE 110-26 OF THE NEC.
- ALL PANELS, SWITCHES, AND CIRCUITS ARE TO BE MARKED AS PER ARTICLE 110-21 OF THE NEC.
- A GROUND WIRE IS TO BE RUN TO ALL MOTORS, RECEPTACLES, FIXTURES, OUTLETS, AND OTHER ELECTRICAL DEVICES, AND ALL EQUIPMENT IS TO BE GROUNDED IN ACCORDANCE WITH THE NEC.
- ALL CONDUCTORS SHALL BE COPPER/STRANDED, 90° C, THHN/THWN.
- PROVIDE LOCK-OUT DEVICE FOR MOTOR POWER CIRCUIT BREAKER.
- SHARED OR COMMON NEUTRAL CONDUCTORS SHALL NOT BE PERMITTED.
- ALL CONTROL LOGIC TO BE ACCOMPLISHED THROUGH THE PLC.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES.
- THE CONTRACTOR TO SUBMIT A SCHEMATIC DRAWING AND FACEPLATE LAYOUT DETAILING THE PUMP MOTOR CONTROLLER AND PUMP CONTROL/SCADA SYSTEM PANEL.
- POWER CIRCUITS AND CONTROL (AC AND DC) CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS, NO EXCEPTION. LOW VOLTAGE (0-10VOLTS) AND/OR LOW AMPERAGE (0-20MA, 4-20MA) SHALL NOT BE RUN IN ANY CONDUIT THAT HAS WIRES EXCEEDING AFOREMENTIONED VOLTAGE AND/OR AMPERAGE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH DOMINION ENERGY (DE) FOR ALL SERVICE REQUIREMENTS. OWNER SHALL BE RESPONSIBLE FOR ALL COST ASSOCIATED WITH DE SERVICE INSTALLATION.
- POWER AND CONTROL CIRCUIT CONDUITS SHALL BE COLOR CODED AS FOLLOWS: POWER - RED, CONTROL - ORANGE.

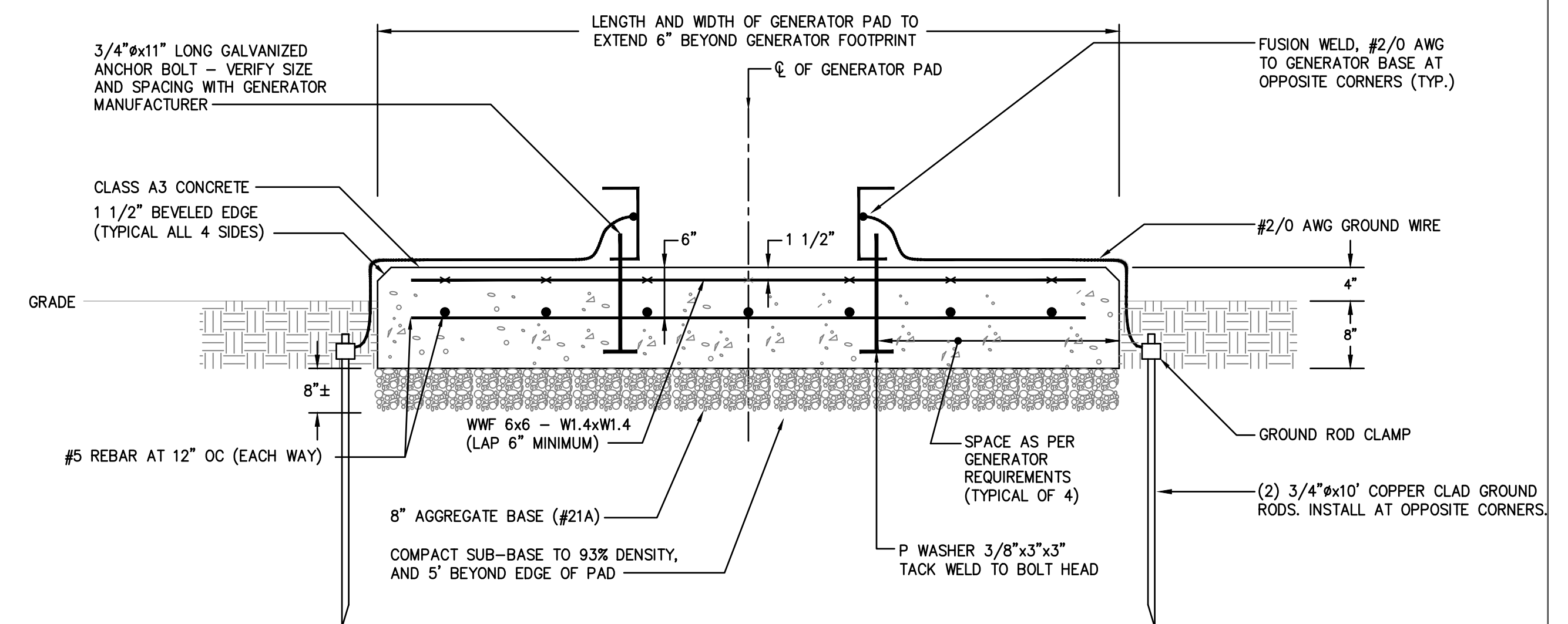
ELECTRICAL LEGEND

- CONDUIT BELOW GRADE OR UNDER SLAB
- EXPOSED CONDUIT
- Ⓜ PUMP MOTOR
- ⓔ EXHAUST FAN
- ⓗ UNIT HEATER
- Ⓝ JUNCTION BOX
- Ⓢ THERMOSTAT
- Ⓛ DISCONNECT SWITCH WITH LOCK-OUT HANDLE, SIZE AS INDICATED ON PLANS
- Ⓛ COMBINATION STARTER/DISCONNECT SWITCH WITH LOCK-OUT HANDLE, SIZE AS INDICATED ON PLANS
- Ⓛ ELECTRICAL PANELS
- Ⓛ ELECTRICAL WORK NOTE IDENTIFICATION
- Ⓜ MAGNETIC DOOR SWITCH
- Ⓛ FLOAT SWITCH
- Ⓛ FLOW METER
- Ⓛ DISCHARGE LINE PRESSURE TRANSDUCER
- Ⓛ CHECK VALVE LIMIT SWITCH
- Ⓛ DUPLEX RECEPTACLE OUTLET, 42" AFF
- Ⓛ GFI DUPLEX RECEPTACLE OUTLET, 42" AFF
- Ⓛ LED INDUSTRIAL FIXTURE
- Ⓛ BRACKET MOUNTED FIXTURE
- Ⓛ SWITCH (SUFFIX "a", "b", AND "c" DESIGNATES FIXTURE CONTROLLED, "f" FAN SWITCH, "3" THREE-WAY SWITCH)
- Ⓛ FIXTURE TYPE DESIGNATION
- Ⓛ CELLULAR ANTENNA
- Ⓛ COMBINATION THERMOSTAT/HUMIDISTAT



DETAIL "A" - TYPICAL GAS PIPING TO GENERATOR

SCALE: NONE

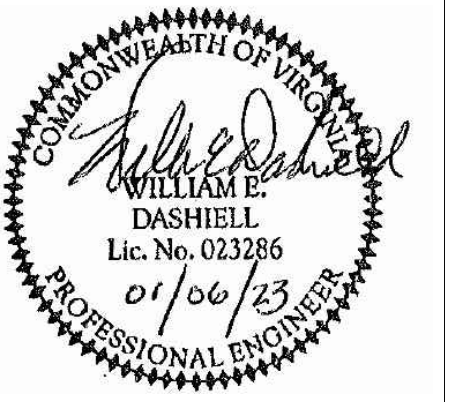


GENERATOR PAD DETAIL

SCALE: NONE

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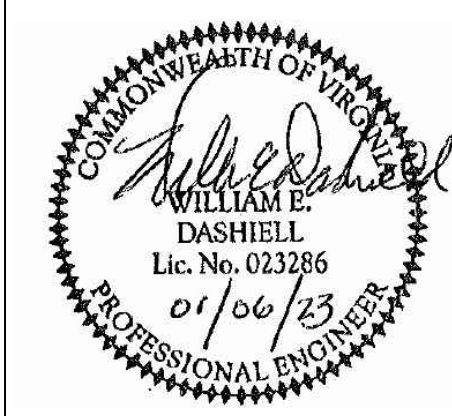
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OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA
ELECTRICAL NOTES, LEGEND, DETAIL, SCHEDULE, AND NATURAL GAS PIPING

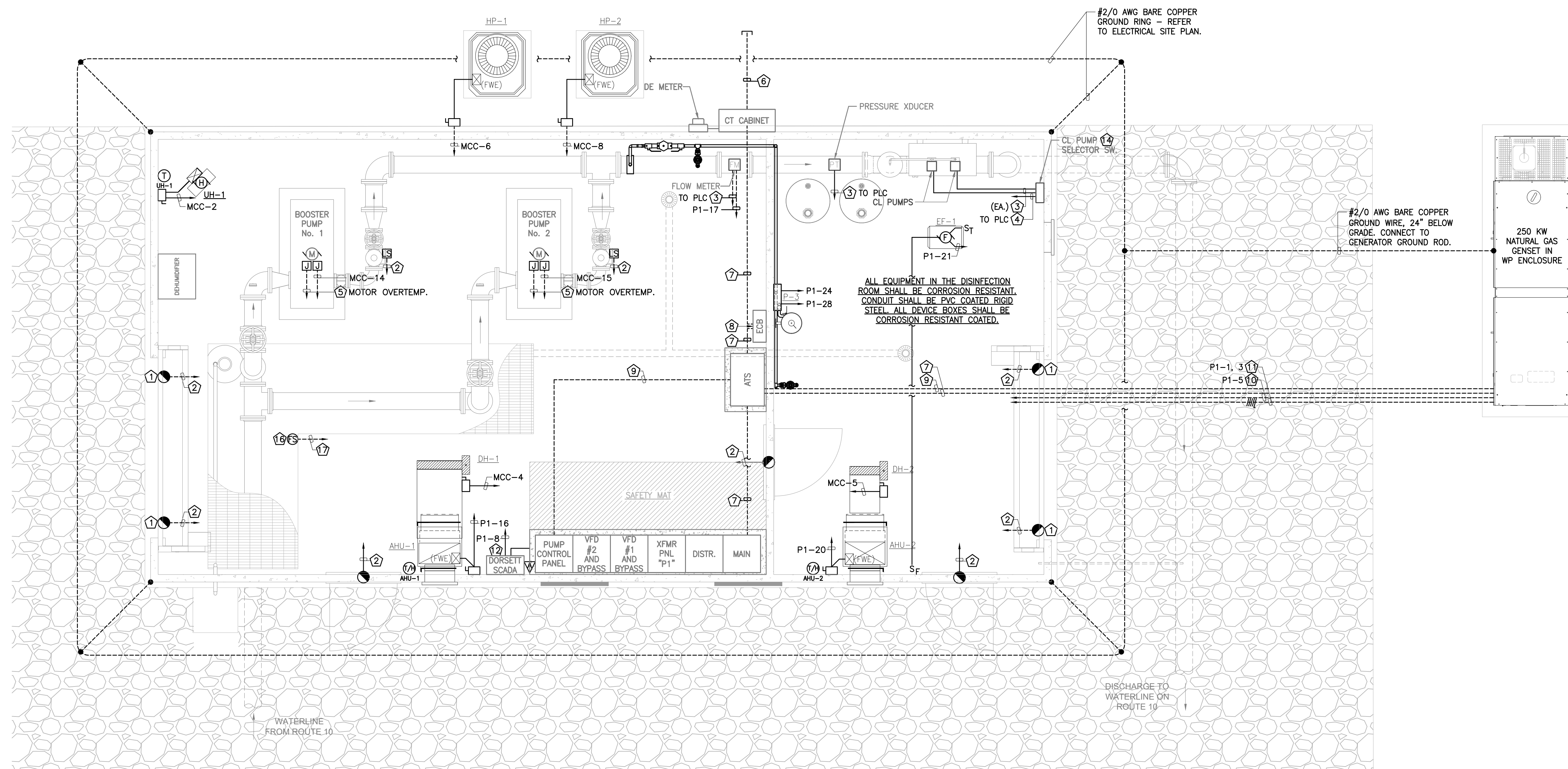
JOB NO.
47716
SHEET NO.
E2



ELECTRICAL NOTE KEY:

(SHEETS E2 AND E3 ONLY - CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL CONDUITS, BOXES AND WIRING AS REQUIRED IN THE TECHNICAL SPECS.)

- ① MOUNT INTRUSION ALARM DOOR CONTACTS LOW, 18" +/- AFF.
- ② TO PLC - 2#14 THHN/THWN & GND IN 3/4"C.
- ③ #14 TWISTED PAIR SHIELDED CABLE IN 3/4"C, CONTINUOUS, 600V INSULATION.
- ④ (2) - #14 TWISTED PAIR SHIELDED CABLE IN 3/4"C, CONTINUOUS, 600V INSULATION.
- ⑤ TO PLC - 4#14 THHN/THWN & GND IN 3/4"C.
- ⑥ (2) - 4"C, 24" BELOW GRADE. STUB OUT AS DIRECTED BY DOMINION ENERGY.
- ⑦ 4"C WITH 4#600 THHN/THWN & 1#2/0 AWG GND. RUN BELOW FLOOR SLAB.
- ⑧ 400A-3P-600V-3P ENCLOSED CIRCUIT BREAKER, LSI, 100% RATED, NEMA 12 (UL SERVICE ENTRANCE LABEL) WITH TVSS, APPLIED TECHNOLOGIES #PTX300.
- ⑨ 1"C WITH GENERATOR ALARM AND SUPERVISORY WIRING.
- ⑩ 2#12 THHN/THWN & GND IN 3/4"C.
- ⑪ 4#10 THHN/THWN & GND IN 3/4"C.
- ⑫ DORSETT CONTROLS, INC. CELLULAR MODEM SCADA SYSTEM PANEL PROVIDED BY THE COUNTY, CONTRACTOR INSTALLED. COORDINATE ALL MOUNTING AND PROGRAMMING REQUIREMENTS WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT.
- ⑬ PROVIDE WEATHER PROOF IN-USE COVER WITH LOCK HASP, LOCK AND KEY (42" AFF).
- ⑭ REFER TO CHLORINE PUMP RISER, SHEET E6. BOOSTER PUMP ON/OFF SIGNAL FROM THE PLC SHALL PROVIDE ON/OFF OPERATION OF THE CHLORINE PUMPS.
- ⑮ INSTALL SUMP PUMP RECEPTACLE OUTLET AS HIGH AS POSSIBLE IN PIPE TRENCH.
- ⑯ SUPPORT FLOAT SWITCH TO PIPE TRENCH WALL WITH SS HARDWARE.
- ⑰ TO SCADA SYSTEM PANEL - 16/2 SJOW-A FLOAT SWITCH CORD. FLOAT SWITCH CORD SHALL BE CONTINUOUS.



POWER AND INSTRUMENTATION PLAN
SCALE: 3/8"=1'-0"

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SCALE
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JOB NO.
47716

SHEET NO.
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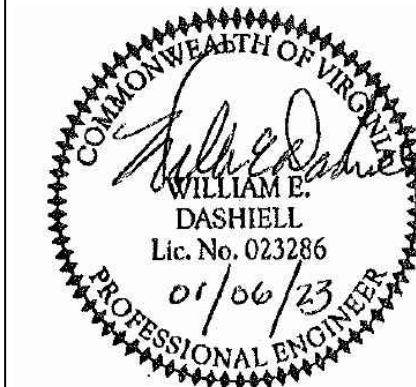
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TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA

ELECTRICAL POWER AND INSTRUMENTATION PLAN

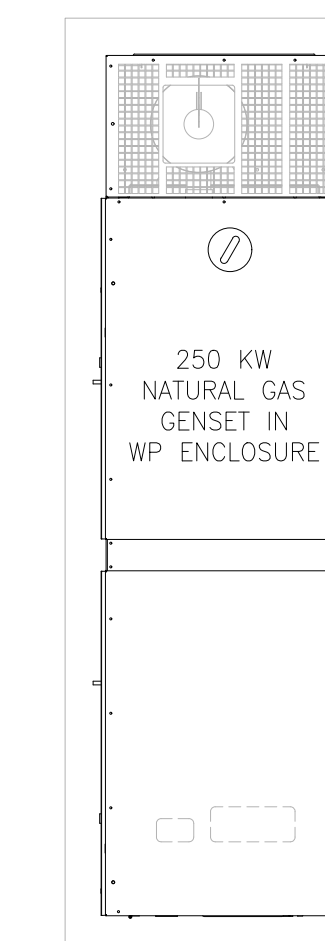
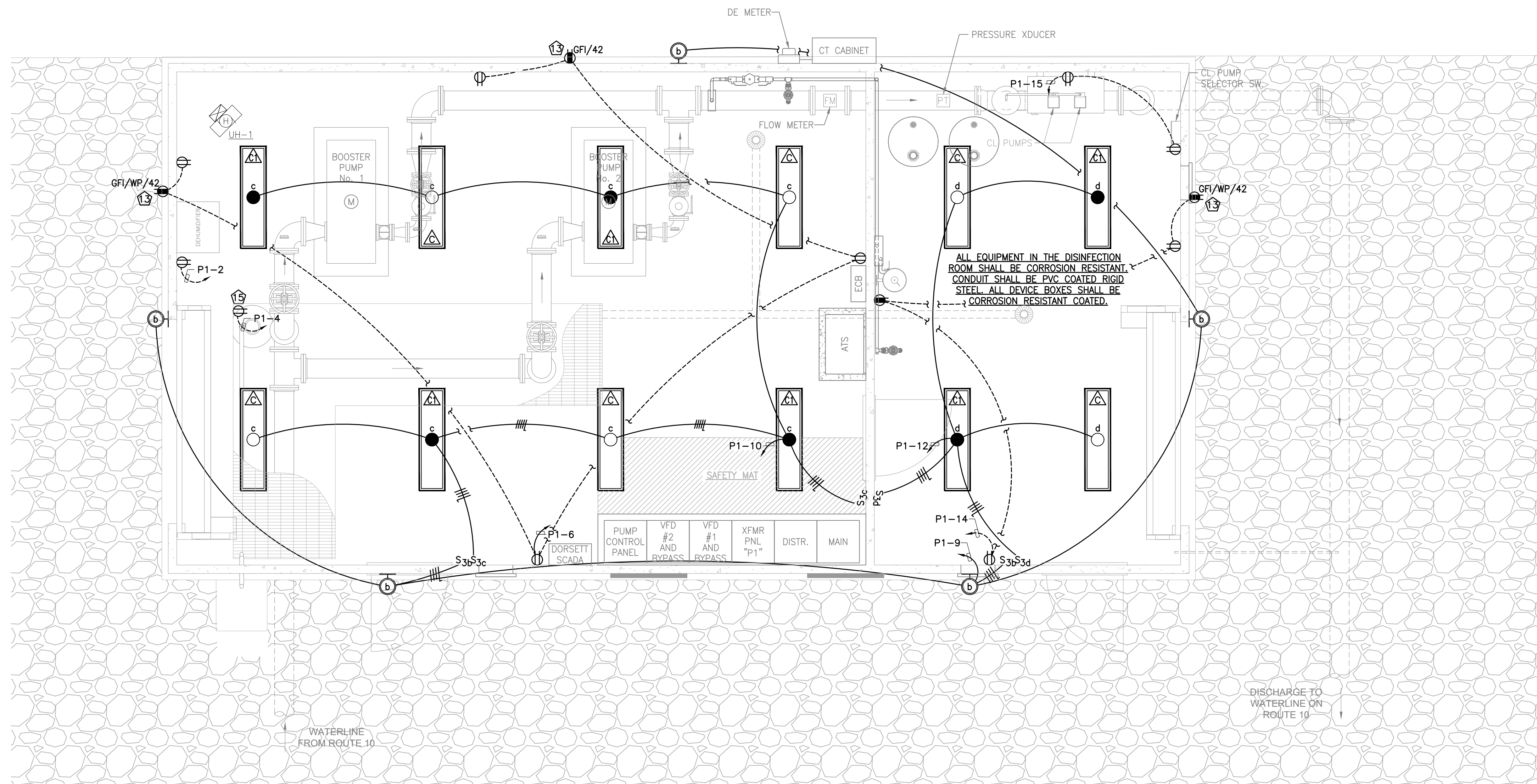
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- 1 MOUNT INTRUSION ALARM DOOR CONTACTS LOW, 18" +/- AFF.
- 2 TO PLC - 2#14 THHN/THWN & GND IN 3/4"C.
- 3 #14 TWISTED PAIR SHIELDED CABLE IN 3/4"C, CONTINUOUS, 600V INSULATION.
- 4 (2) - #14 TWISTED PAIR SHIELDED CABLE IN 3/4"C, CONTINUOUS, 600V INSULATION.
- 5 TO PLC - 4#14 THHN/THWN & GND IN 3/4"C.
- 6 (2) - 4"C, 24" BELOW GRADE. STUB OUT AS DIRECTED BY DOMINION ENERGY.
- 7 4"C WITH 4#600 THHN/THWN & 1#2/0 AWG GND. RUN BELOW FLOOR SLAB.
- 8 400A-3P-600V-3P ENCLOSED CIRCUIT BREAKER, LSI, 100% RATED, NEMA 12 (UL SERVICE ENTRANCE LABEL) WITH TVSS, APPLIED TECHNOLOGIES #PTX300.
- 9 1"C WITH GENERATOR ALARM AND SUPERVISORY WIRING.
- 10 2#12 THHN/THWN & GND IN 3/4"C.
- 11 4#10 THHN/THWN & GND IN 3/4"C.
- 12 DORSETT CONTROLS, INC. CELLULAR MODEM SCADA SYSTEM PANEL PROVIDED BY THE COUNTY, CONTRACTOR INSTALLED. COORDINATE ALL MOUNTING AND PROGRAMMING REQUIREMENTS WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT.
- 13 PROVIDE WEATHER PROOF IN-USE COVER WITH LOCK HASP, LOCK AND KEY (42" AFF).
- 14 REFER TO CHLORINE PUMP RISER, SHEET E6. BOOSTER PUMP ON/OFF SIGNAL FROM THE PLC SHALL PROVIDE ON/OFF OPERATION OF THE CHLORINE PUMPS.
- 15 INSTALL SUMP PUMP RECEPTACLE OUTLET AS HIGH AS POSSIBLE IN PIPE TRENCH.
- 16 SUPPORT FLOAT SWITCH TO PIPE TRENCH WALL WITH SS HARDWARE.
- 17 TO SCADA SYSTEM PANEL - 16/2 SJOW-A FLOAT SWITCH CORD. FLOAT SWITCH CORD SHALL BE CONTINUOUS.



RECEPTACLE AND LIGHTING PLAN
SCALE: 3/8"=1'-0"

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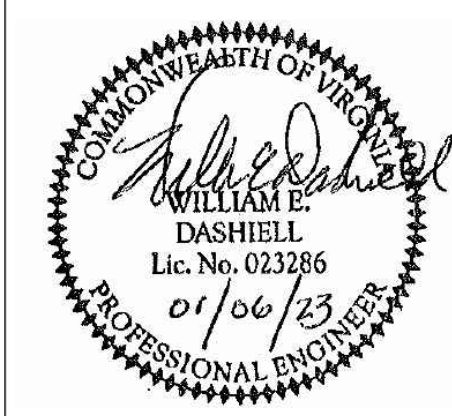
OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA
RECEPTACLE AND LIGHTING PLAN

JOB NO.
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SHEET NO.
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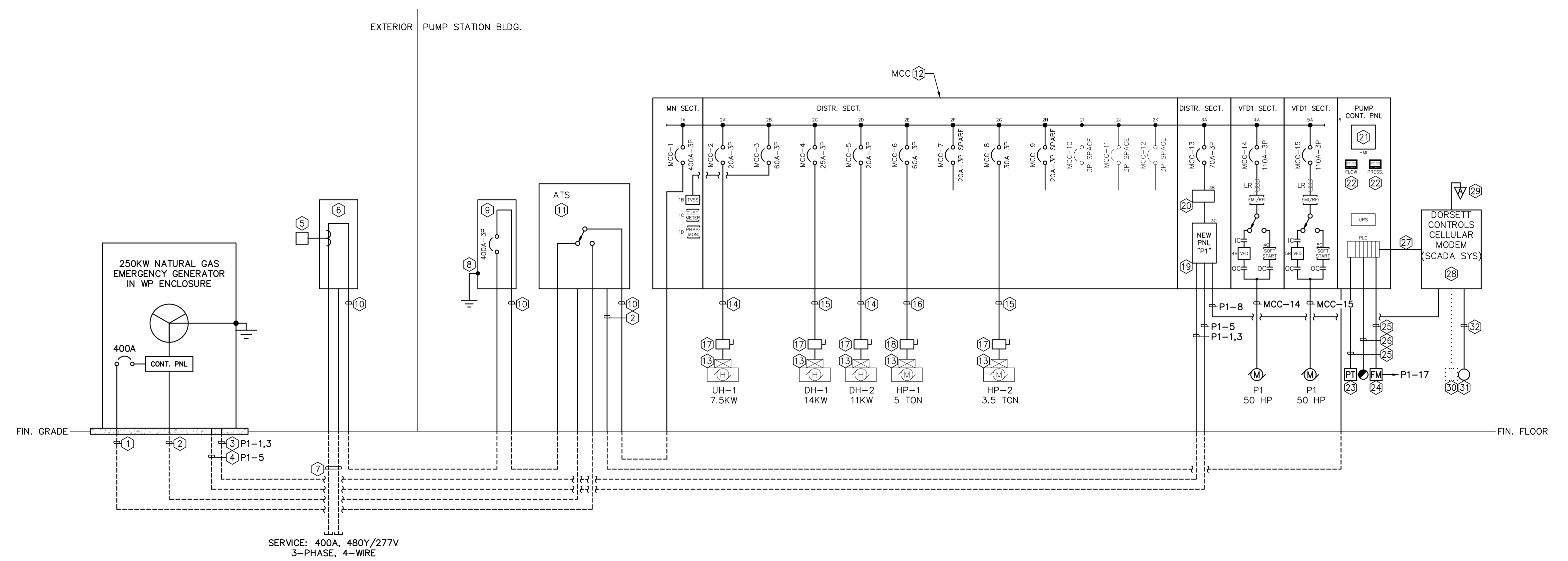
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- | | | | |
|---|--|--|---|
| ① 4" C WITH 4#600 THHN/ THWN & 1#2/0 AWG GND, 24" BELOW GRADE. | ⑪ AUTOMATIC TRANSFER SWITCH (ATS), 400A-480V-3P, NEMA 12. | ⑳ 45KVA, 480V-208Y/120V, 3PH TRANSFORMER, PART OF MCC. | ⑳ SCADA SYSTEM - DORSETT CONTROLS, INC. CELLULAR MODEM PROVIDED BY THE COUNTY. CONTRACTOR TO INSTALL IN NEMA 12 ENCLOSURE. COORDINATE ALL MOUNTING, ENCLOSURE SIZE, AND PROGRAMMING REQUIREMENTS WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT. |
| ② 1" C WITH GENERATOR ALARM AND SUPERVISORY WIRING, 24" BELOW GRADE.. | ⑫ MOTOR CONTROL CENTER (MCC), 400A, 480Y/277V, 3-PHASE, 4-WIRE, NEMA 12 (SQUARE D, CUTLER-HAMMER, OR APPROVED EQUAL). | ㉑ HUMAN MACHINE INTERFACE PANEL (HMI), ALLEN-BRADLEY PANEL VIEW SERIES 1000 OR EQUAL. | ㉑ CELLULAR MODEM ANTENNA - COORDINATE ANTENNA REQUIREMENTS WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT. |
| ③ 4#10 THHN/THWN & GND IN 1" C, 24" BELOW GRADE.. | ⑬ STARTER FURNISHED WITH EQUIPMENT. | ㉒ FLOW OR PRESSURE DIGITAL INDICATOR AS SHOWN, RED-LION OR EQUAL. | ㉒ LEVEL TRANSDUCER IN ELEVATED STORAGE TANK. LEVEL TRANSDUCER SHALL PROVIDE SIGNAL FOR ON/OFF CONTROL OF THE BOOSTER PUMPS. COORDINATE LEVEL SIGNAL RECEPTION FROM ELEVATED STORAGE TANK WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT. |
| ④ 2#12 THHN/THWN & GND IN 1" C, 24" BELOW GRADE.. | ⑭ 3#12 THHN/THWN & GND IN 3/4" C. | ㉓ DISCHARGE LINE PRESSURE TRANSDUCER. | ㉓ FLOAT SWITCH - PIPE TRENCH HIGH WATER ALARM. |
| ⑤ DOMINION ENERGY METER. | ⑮ 3#10 THHN/THWN & GND IN 3/4" C. | ㉔ MAGNETIC TYPE FLOW METER WITH INTEGRAL TRANSMITTER AND DIGITAL DISPLAY, LISTED FOR USE IN POTABLE WATER DISTRIBUTION SYSTEMS, ROSEMOUNT EMERSON SERIES 8750W OR EQUAL. | ㉔ 16/2 SJOW-A FLOAT SWITCH CORD. FLOAT SWITCH CORD SHALL BE CONTINUOUS. |
| ⑥ DOMINION ENERGY CT CABINET. | ⑯ 3#6 THHN/THWN & GND IN 1" C. | ㉕ #14 TWISTED PAIR SHIELDED CABLE IN 3/4" C, CONTINUOUS, 600V INSULATION. | |
| ⑦ (2) - 4" C, 24" BELOW GRADE. STUB OUT AS DIRECTED BY DOMINION ENERGY. | ⑰ NON-FUSED SAFETY DISCONNECT SWITCH - 30A-480V-3P (NEMA 1 INDOORS, NEMA 3R OUTDOORS, CORROSION RESISTANT COATING IN DISINFECTION ROOM). | ㉖ 2#14 THHN & GND IN 3/4" C. | |
| ⑧ 3/4" DIA. X 10' COPPER CLAD GROUND ROD WITH #2/0 AWG GND CONDUCTOR. CONNECT TO SERVICE EQUIPMENT, BLDG. STEEL, AND GROUND RING. | ⑱ NON-FUSED SAFETY DISCONNECT SWITCH - 60A-480V-3P (NEMA 1 INDOORS, NEMA 3R OUTDOORS CORROSION RESISTANT COATING IN DISINFECTION ROOM). | ㉗ ETHERNET CABLE, MODBUS TCP-IP. COORDINATE ALL CONNECTION AND PROGRAMING REQUIREMENTS WITH OWNERS SCADA SYSTEM SUB-CONSULTANT. | |
| ⑨ 400A-3P-600V-3P ENCLOSED CIRCUIT BREAKER, LSI, 100% RATED, NEMA 12 (UL SERVICE ENTRANCE LABEL) WITH TVSS, APPLIED TECHNOLOGIES #PTX300. | ⑳ PANEL "P1", 225A-208Y/120V-3PH-4W, 42-CIRCUIT, 150A MCB, PART OF MCC. | | |
| ⑩ 4" C WITH 4#600 THHN/THWN & 1#2/0 AWG GND. | | | |

SCADA SYSTEM/PLC ALARM, SUPERVISORY, AND CONTROL POINTS

- | | | |
|----------------------------|---------------------------------|-------------------------------------|
| 1. PUMP 1 RUNNING (DI) | 9. PUMP 2 OVERTEMP (DI) | 17. CHLORINE PUMP NOT IN AUTO (DI) |
| 2. PUMP 1 FAIL (DI) | 10. UTILITY POWER FAIL (DI) | 18. PIPE TRENCH HI-WATER ALARM (DI) |
| 3. PUMP 1 NOT IN AUTO (DI) | 11. INTRUSION ALARM (DI) | 19. FLOW METER (AI) |
| 4. PUMP 1 OVERTEMP (DI) | 12. GENERATOR RUN (DI) | 20. STO. TANK LEVEL (AI) |
| 5. PUMP 1 LOCKOUT (DI) | 13. GENERATOR FAIL (DI) | 21. DISCH. LINE PRESS. (AI) |
| 6. PUMP 2 RUNNING (DI) | 14. SCADA PANEL POWER FAIL (DI) | 22. STATION FLOW DISPLAY (AO) |
| 7. PUMP 2 FAIL (DI) | 15. CHLORINE PUMP RUNNING (DI) | 23. STO. TANK LEVEL DISPLAY (AO) |
| 8. PUMP 2 NOT IN AUTO (DI) | 16. CHLORINE PUMP FAIL (DI) | 24. DISCH. LINE PRESS. DISPLAY (AO) |

NOTE:
THE CONTROL SYSTEM INTEGRATOR SHALL COORDINATE ALL REQUIRED I/O POINTS BETWEEN THE MOTOR CONTROL CENTER PLC AND THE OWNER'S DORSETT CONTROLS, INC. SCADA SYSTEM SUB-CONSULTANT. COORDINATE ALL SCADA SYSTEM MOUNTING, ENCLOSURE SIZE, AND PROGRAMMING REQUIREMENTS WITH THE COUNTY'S SCADA SYSTEM SUB-CONSULTANT.



ELECTRICAL ONE-LINE
NOT TO SCALE

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DESIGNED BY: WFS
CHECKED BY: WED
SCALE: AS SHOWN

TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA

ELECTRICAL ONE-LINE DIAGRAM

JOB NO. 47716
SHEET NO. E5

ROBERT G. DASHIELL, JR. P.E. INC.
CONSULTING ENGINEERS
1225 WEST 26TH STREET
NORFOLK, VIRGINIA 23508
(757) 623-5012

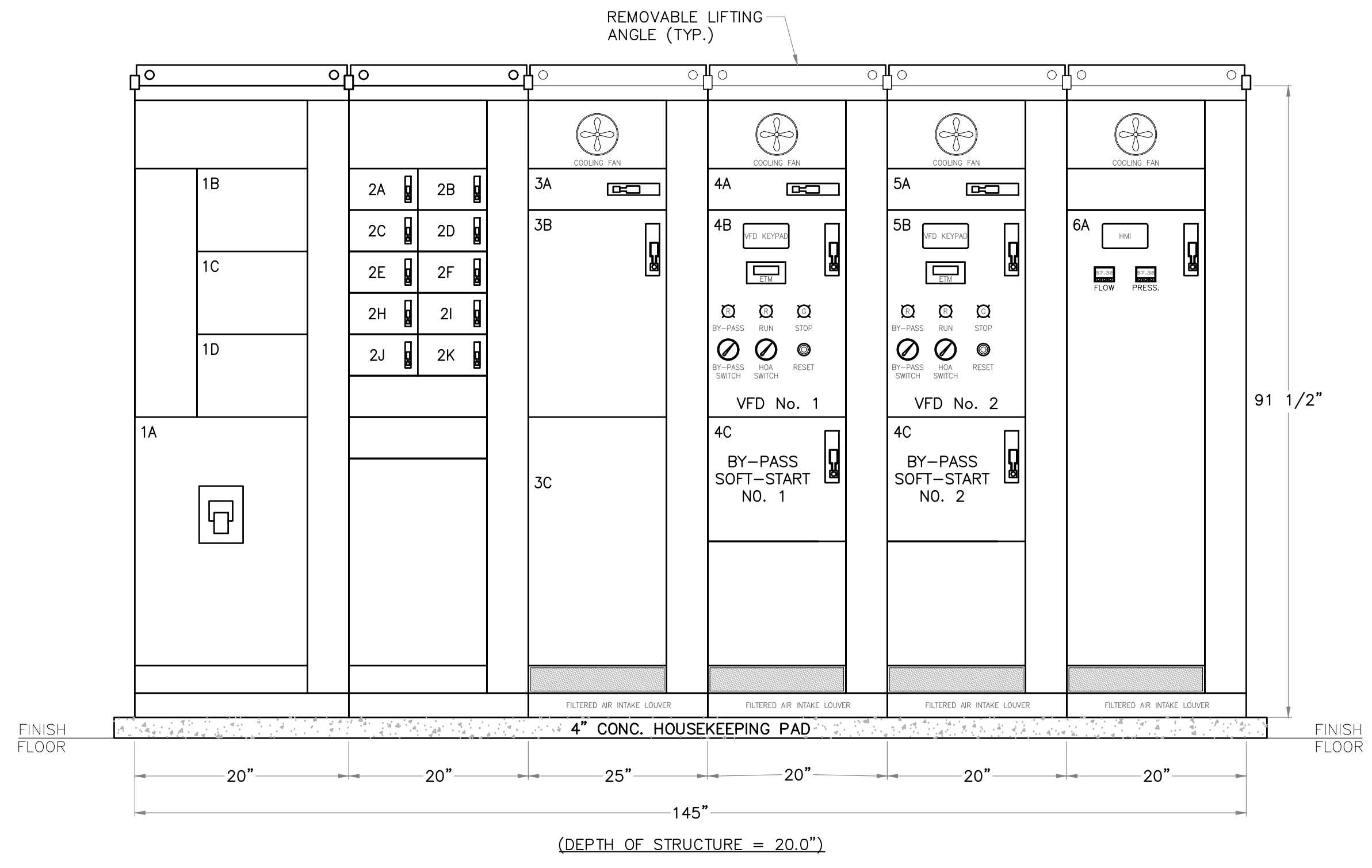
P:\Pumpstation\line of Wight\4746-Hardy ES Booster Pump Station\Sheets\E4-ELECTRICAL ONE-LINE DIAGRAM.dwg | Printed on 1/6/2023 9:59 AM | by Fred Semolina

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| MOTOR CONTROL CENTER "MCC" | | | | | | | | | | | | | | | | |
|---|-------------|------------------------|-------|--------------|---------|-----------|-----------------|---------------|--------|-----------|-----|----------|------|----------------------|-------|---------|
| 480 VOLTS, 3 ϕ , 4W, 60HZ, 600A BUS, 42K AMP BUS BRACING | | | | | | | | | | | | | | | | |
| MCC SECTION NO. | CIRCUIT NO. | DESCRIPTION | MOTOR | | STARTER | | CIRCUIT BREAKER | STOP/START PB | HOA SW | PILOT LGT | | AUX CONT | | WIRE SIZE PER ϕ | KW | REMARKS |
| | | | HP | VOLT- ϕ | TYPE | NEMA SIZE | | | | RED | GRN | N.O. | N.C. | | | |
| 1A | MCC-1 | MAIN CIRCUIT BREAKER | - | - | - | - | 400A-3P | - | - | - | - | - | - | 1#600 KCML | 225.0 | NOTE 3 |
| 1B | - | TVSS | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1C | - | CUSTOMER METERING | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1D | - | PHASE MONITOR | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2A | MCC-2 | UNIT HEATER | - | - | - | - | 20A-3P | - | - | - | - | - | - | 1#12 AWG | 7.5 | - |
| 2B | MCC-3 | TVSS | - | - | - | - | 60A-3P | - | - | - | - | - | - | 1#6 AWG | 1.5 | NOTE 2 |
| 2C | MCC-4 | DH-1 | - | - | - | - | 25A-3P | - | - | - | - | - | - | 1#10 AWG | 14.0 | - |
| 2D | MCC-5 | DH-2 | - | - | - | - | 20A-3P | - | - | - | - | - | - | 1#12 AWG | 11.0 | - |
| 2E | MCC-6 | HP-1, 5-TON | - | - | - | - | 60A-3P | - | - | - | - | - | - | 1#6 AWG | 25.0 | - |
| 2F | MCC-7 | SPARE | - | - | - | - | 20A-3P | - | - | - | - | - | - | - | - | - |
| 2G | MCC-8 | HP-2, 3.5-TON | - | - | - | - | 30A-3P | - | - | - | - | - | - | 1#10 AWG | 13.0 | - |
| 2H | MCC-9 | SPARE | - | - | - | - | 20A-3P | - | - | - | - | - | - | - | - | - |
| 2I | MCC-10 | SPACE | - | - | - | - | 3P | - | - | - | - | - | - | - | - | - |
| 2J | MCC-11 | SPACE | - | - | - | - | 3P | - | - | - | - | - | - | - | - | - |
| 2K | MCC-12 | SPACE | - | - | - | - | 45A-3P | - | - | - | - | - | - | - | - | - |
| 3A | MCC-13 | XFORMER 45KVA | - | - | - | - | 70A-3P | - | - | - | - | - | - | 1#4 AWG | 45.0 | - |
| 3B | - | XFORMER "T1", 45KVA | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3C | - | NEW PANEL "P1" | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4A/4B/4C | MCC-14 | VFD No. 1 | 50 | 480-3 ϕ | VFD | 4 | 110A-3P | YES | YES | YES | YES | 4 | 4 | 1#2 AWG | 54.0 | NOTE 1 |
| 5A/5B/5C | MCC-15 | VFD No. 2 | 50 | 480-3 ϕ | VFD | 4 | 110A-3P | YES | YES | YES | YES | 4 | 4 | 1#2 AWG | 54.0 | NOTE 1 |
| 6A | - | PUMP CONT. PNL/PLC/HMI | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| | | |
|-------------------|--|---|
| POWER SYSTEM DATA | NEMA WIRING CLASS: 1 | NEMA WIRING TYPE: B |
| | 480Y/277 VOLTS, 3-PHASE, 4-WIRE, 60-HERTZ, AVAILABLE FAULT CURRENT - 42 KAIC (INCLUDE ANY OPTIONS REQUIRED FOR THE UNITS AND STRUCTURES TO MEET THE SPECIFIED AVAILABLE FAULT CURRENT) | |
| | POWER ENTERS SECTION: TOP LEFT | FEEDER CABLE SIZE: 1#600 - #750 KCML PER PHASE |
| | CONTROL POWER: 120 VOLTS, 60 HERTZ | SUPPLIED BY: TRANSFORMER |
| BUS SYSTEM DATA | MAIN BUS AMPS: 600A, COPPER TIN PL. | TIN PL. COPPER GROUND BUS WITH #1 AWG - #600 KCML LUG |
| | VERT. BUS AMPS: 400A | |
| | BUS SYSTEM WITHSTAND RATING: 42 KAIC | |
| ENCLOSURE DATA | NEMA ENCLOSURE: TYPE 12, GASKETED GENERAL DUTY | |
| | FINISH: STANDARD #49 MEDIUM LIGHT GRAY ELECTRO-DEPOSITION PER ANSI Z55.1-1967 | |

- NOTES:
- PROVIDE LOCK-OUT TYPE SWITCH.
 - INTEGRAL MOUNTED TRANSIENT ELIMINATOR ADVANCED PROTECTION TECHNOLOGIES, INC. #XTE/4XLHP.
 - PROVIDE LSI TYPE CIRCUIT BREAKER, 100% RATED.

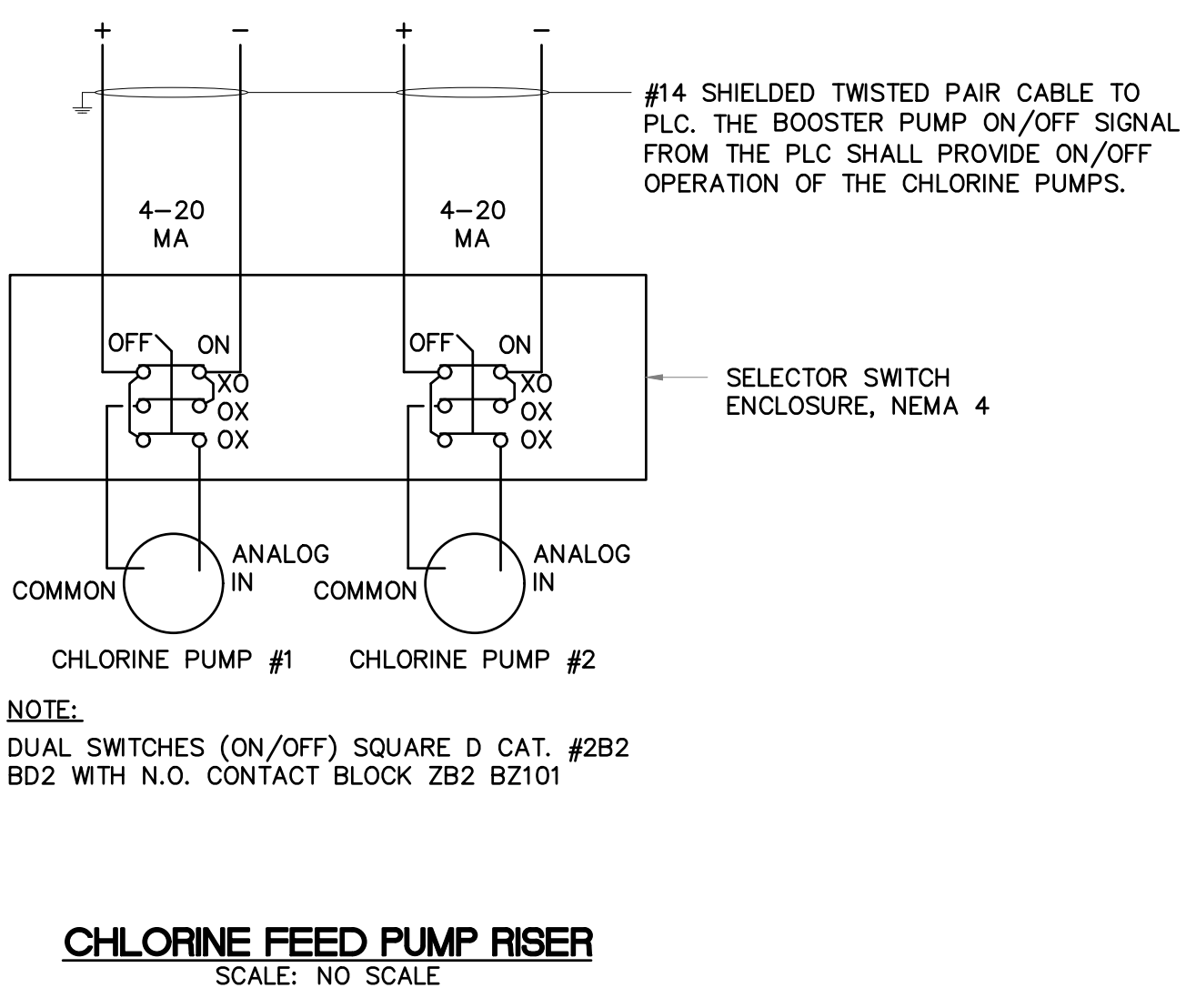


ELEVATION - MOTOR CONTROL CENTER "MCC"
NOT TO SCALE

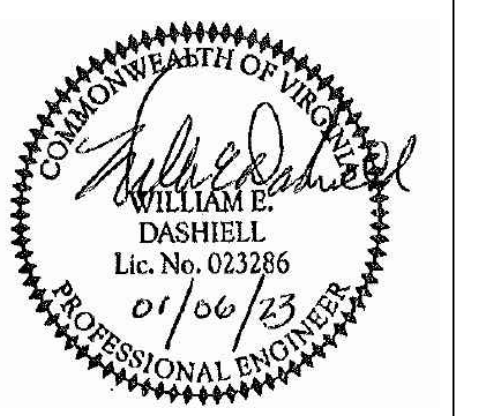
PANEL IS PART OF MOTOR CONTROL CENTER
LOCATION: MOTOR CONTROL CENTER

| LOAD/CKT | CKT NO. | POLES | AMPS | WIRE | DESCRIPTION | KW LOAD /PHASE | | | DESCRIPTION | WIRE | AMPS | POLES | CKT NO. | LOAD/CKT | | | |
|--------------------------------|---------|-------|------|------|-------------------|----------------|------|------|-------------------------------------|------|------|-----------------|---------|----------|----------|--|--|
| | | | | | | A | B | C | | | | | | | | | |
| 1.2 | 1 | 1 | 20 | 10 | BATTERY CHARGER | 2.2 | | | DEHUMIDIFIER | 12 | 20 | 1 | 2 | 1.0 | | | |
| 1.2 | 3 | 1 | 20 | 10 | GENSET CONTROLLER | 2.2 | | | SUMP PUMP | 12 | 20 | 1 | 4 | 1.0 | | | |
| 3.0 | 5 | 2 | 20 | 12 | JACKET HEATER | | 4.4 | | REC - MOTOR RM. | 12 | 20 | 1 | 6 | 1.4 | | | |
| 3.0 | | | | 12 | | 4.2 | | | SCADA SYSTEM PNL | 12 | 20 | 1 | 8 | 1.2 | | | |
| 0.3 | 9 | 1 | 20 | 10 | LGTS - EXTERIOR | 1.3 | | | LGTS - MOTOR RM. | 12 | 20 | 1 | 10 | 1.0 | | | |
| 0.5 | 11 | 2 | 20 | 10 | LGTS - SITE | | 1.0 | | LGTS - CHEM. RM. | 12 | 20 | 1 | 12 | 0.5 | | | |
| 0.5 | | | | 10 | | 1.3 | | | REC - CHEM RM. | 12 | 20 | 1 | 14 | 0.8 | | | |
| 1.0 | 15 | 1 | 20 | 12 | METERING PUMPS | 2.2 | | | AHU-1 | 12 | 20 | 2 | 16 | 1.2 | | | |
| 0.5 | 17 | 1 | 20 | 12 | FLOW METER | | 1.7 | | | 12 | | | | 1.2 | | | |
| 0.0 | 19 | 1 | 20 | 12 | SPARE | 0.0 | | | AHU-2 | 12 | 20 | 2 | 20 | 0.0 | | | |
| 0.3 | 21 | 3 | 20 | 12 | EF-1 | | 0.3 | | | 12 | | | | 0.0 | | | |
| 0.3 | | | | 12 | | | 4.8 | | EYE WASH HTR 1 | 6 | 60 | 2 | 24 | 4.5 | | | |
| 0.3 | | | | 12 | | | 4.8 | | EYE WASH HTR 2 | 6 | 60 | 2 | 28 | 4.5 | | | |
| 0.0 | 27 | 1 | | | SPACE W/HARDWARE | 4.5 | | | | 6 | 60 | 2 | 28 | 4.5 | | | |
| 0.0 | 29 | 1 | | | SPACE W/HARDWARE | | 4.5 | | | 6 | 60 | 2 | 28 | 4.5 | | | |
| 0.0 | 31 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 32 | 0.0 | | | |
| 0.0 | 33 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 34 | 0.0 | | | |
| 0.0 | 35 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 36 | 0.0 | | | |
| 0.0 | 37 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 38 | 0.0 | | | |
| 0.0 | 39 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 40 | 0.0 | | | |
| 0.0 | 41 | 1 | | | SPACE W/HARDWARE | 0.0 | | | SPACE W/HARDWARE | | | 1 | 42 | 0.0 | | | |
| TOTAL (CONNECTED LOAD) | | | | | | 12.5 | 10.5 | 16.4 | | | | | | | | | |
| BUS: 225 AMPS | | | | | | 3-PHASE | | | 4-WIRE | | | SOLID NEUTRAL | | | 42 POLES | | |
| SURFACE MOUNT | | | | | | #1/0 AWG FEED | | | LUGS FOR: | | | #1/0 - #3/0 AWG | | | | | |
| THHN/THWN WIRE | | | | | | | | | | | | | | | | | |
| ALL BRANCH BKRS RATED: 14 KAIC | | | | | | | | | BKRS TYPE: ALL BOLT-ON CIRCUIT BKRS | | | | | | | | |

- FURNISH INTEGRAL TRANSIENT ELIMINATOR APT CAT #XTE/2XGA OR EQUAL.
- PROVIDE HACR TYPE CIRCUIT BREAKER.



CHLORINE FEED PUMP RISER
SCALE: NO SCALE



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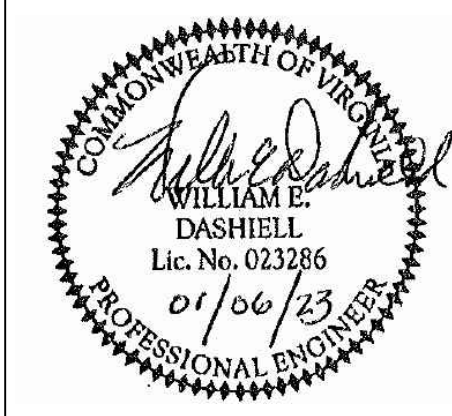
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| DATE | 01-06-23 |
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| DESIGNED BY | WFS |
| CHECKED BY | WED |
| SCALE | AS SHOWN |

TIMMONS GROUP
OLD STAGE ROAD BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY, VIRGINIA
MOTOR CONTROL CENTER AND PANEL SCHEDULE

JOB NO. 47716
SHEET NO. E6

ROBERT G. DASHIELL, JR. P.E. INC.
CONSULTING ENGINEERS
1225 WEST 26TH STREET
NORFOLK, VIRGINIA 23508
(757) 623-5012

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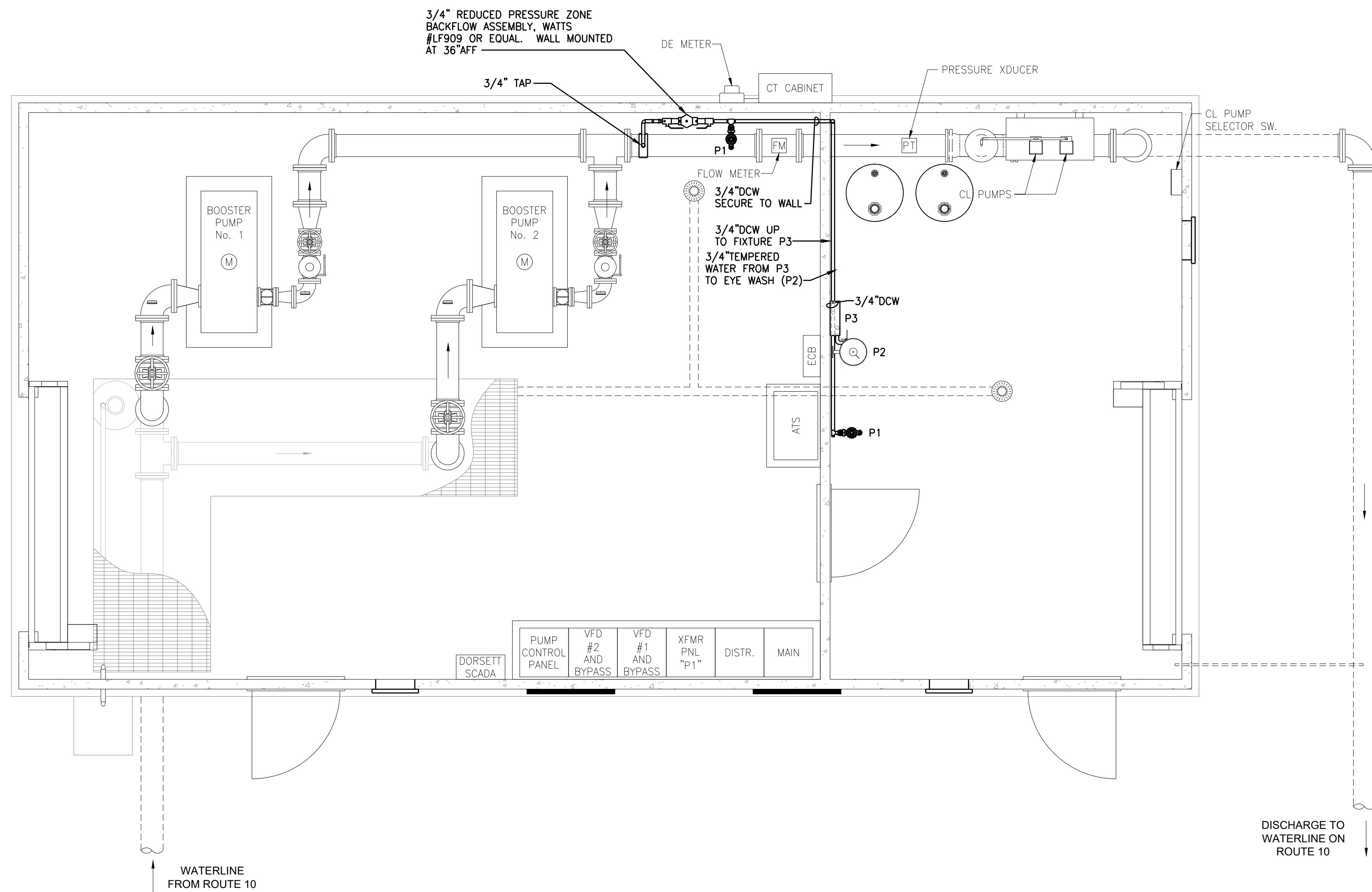


PLUMBING SYMBOL LEGEND

====DCW==== NEW DOMESTIC COLD WATER PIPING

GENERAL PLUMBING NOTES:

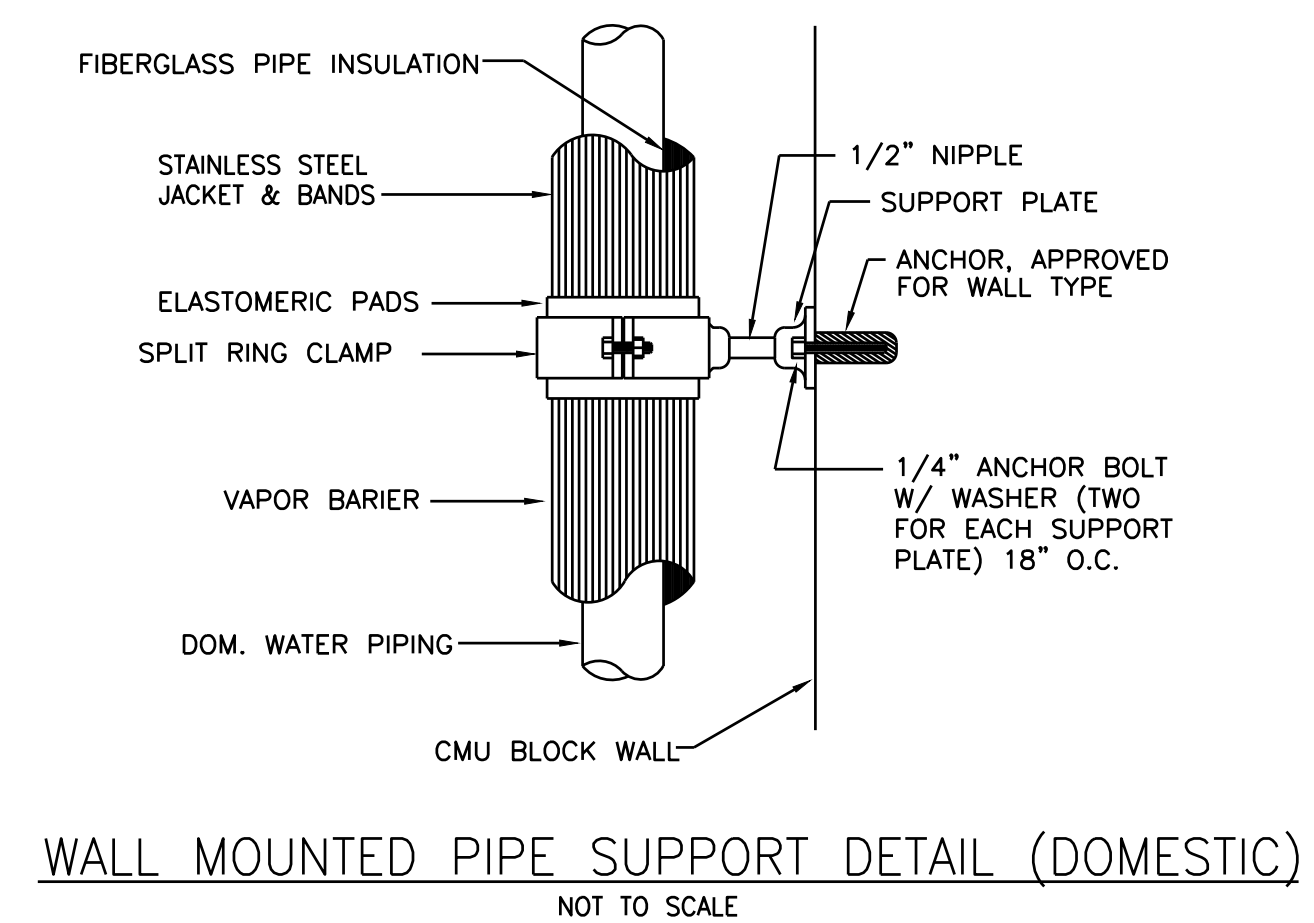
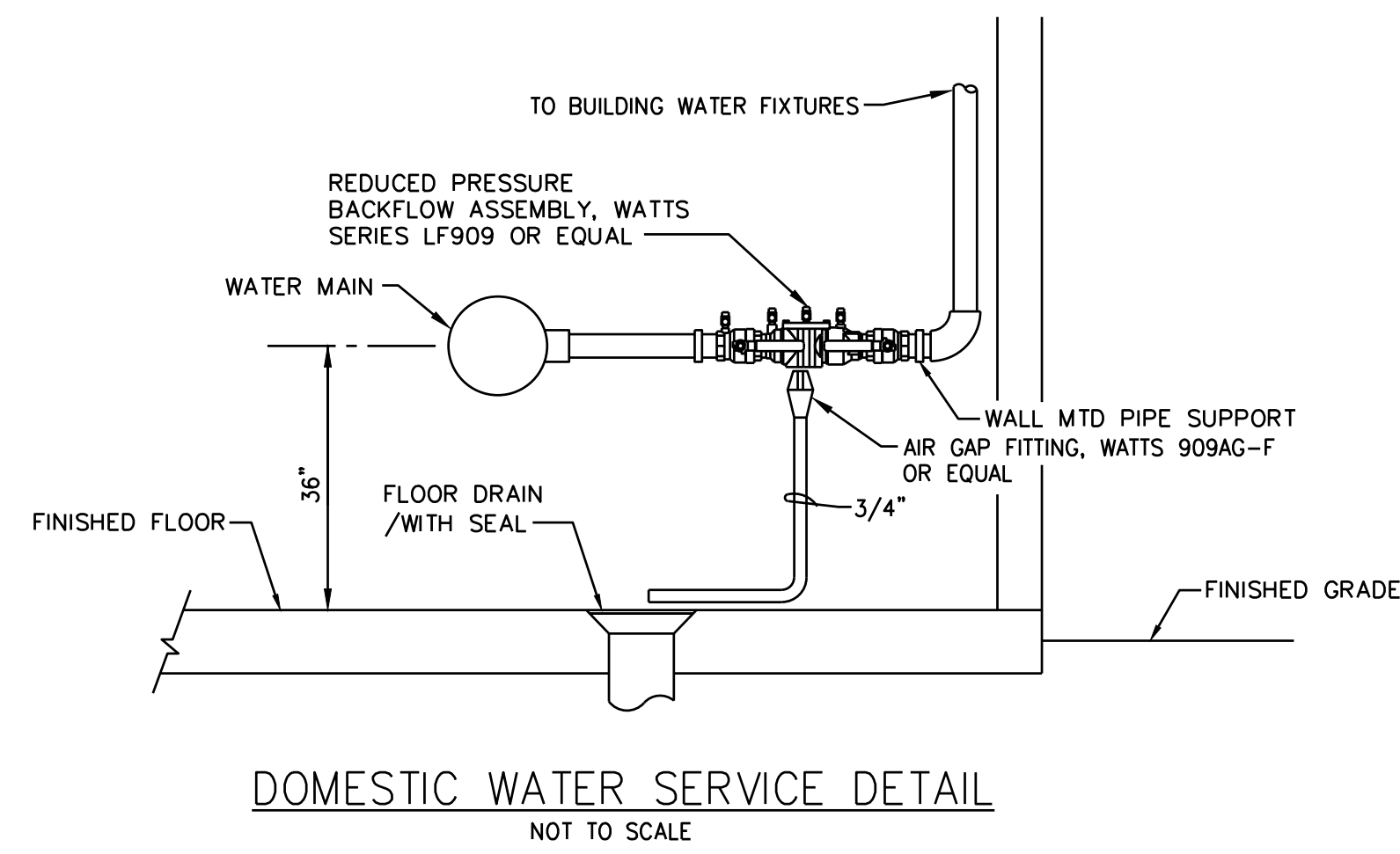
1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES.
2. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES.
3. CONTRACTOR SHALL PROVIDE PROPER STORAGE OF ALL MATERIALS AND EQUIPMENT AND ASSUME COMPLETE RESPONSIBILITY FOR LOSSES. ALL STORAGE SHALL BE OFF THE BUILDING SITE UNLESS APPROVED BY THE OWNER.
4. WORKMANSHIP SHALL BE FIRST CLASS AND OF THE BEST QUALITY IN ACCORDANCE WITH APPROVED CONTEMPORARY CONSTRUCTION AND ENGINEERING PRACTICES.
5. CONTRACTOR SHALL SUBMIT ELECTRONIC COPIES OF EQUIPMENT, MATERIAL MANUFACTURE'S LITERATURE AND/OR EQUIPMENT DATA FOR ENGINEERS REVIEW AND APPROVAL BEFORE INSTALLATION.
6. ALL WORK AND INSTALLATIONS SHALL BE COORDINATED WITH ALL TRADES TO AVOID CONFLICTS.
7. CONTRACTOR SHALL COORDINATE ROUGH-IN LOCATIONS FOR EQUIPMENT AND FIXTURES PRIOR TO PIPING.
8. CONTRACTOR SHALL CAULK ALL WALL PENETRATIONS.
9. ALL DOMESTIC WATER PIPING SHALL BE TYPE K COPPER PIPING AND FITTINGS.
10. ALL VALVES SHALL BE 1/4 TURN BALL VALVE, SIMILAR TO NIBCO.
11. ALL DOMESTIC WATER PIPING SHALL BE INSULATED. PIPING ABOVE FLOOR SHALL BE INSULATED WITH 1 1/2" FIBERGLASS INSULATION WITH VAPOR BARRIER.



PLUMBING FIXTURE SCHEDULE

| MARK | FIXTURE | WASTE | VENT | CW | HW | MANUFACTURER | CAT. # | REMARKS | NOTES |
|------|---------------|-------|------|------|------|--------------|---------------|-----------------------|-------|
| P1 | HOSE BIBB | N/A | N/A | 3/4" | N/A | NIBCO | QT56X | MOUNT AT 36" AFF | 1 |
| P2 | EYE/FACE WASH | N/A | N/A | 3/4" | | HAWS | 7360BT-7460BT | WALL MOUNT AT 36" AFF | 3 |
| P3 | WATER HEATER | N/A | N/A | 3/4" | 3/4" | ECOSMART | EC018 | WALL MOUNT AT 72" AFF | 2 |

- NOTE:**
1. PROVIDE WITH VACUUM BREAKER.
 2. SET WATER HEATER FOR 90°F DISCHARGE TEMPERATURE.
 3. EXTEND DRAIN PIPE DOWN TO 3" AFF AND DISCHARGE TO FLOOR.



TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION

ISLE OF WIGHT COUNTY, VIRGINIA
PLUMBING PLAN AND NOTES

JOB NO.
47716
SHEET NO.
P1

ROBERT G. DASHIELL, JR. P.E. INC.
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1225 WEST 26TH STREET
NORFOLK, VIRGINIA 23508
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SEQUENCE OF OPERATION

SEQUENCE OF OPERATION FOR AHU-1

CONSTANT SPEED SINGLE ZONE AHU WITH DEHUMIDIFICATION OCCUPIED
 COOLING TEMPERATURE SET POINT 78 DEGREES (ADJUSTABLE)
 HEATING TEMPERATURE SETPOINT 60 DEGREES (ADJUSTABLE)
 HUMIDITY SETPOINT 50% RH (ADJUSTABLE)
 SUPPLY AIR FAN SHALL BE IN RUNNING IN AUTO MODE.
 OUTSIDE AIR DAMPER SHALL BE INTERLOCKED WITH COMPRESSOR – SEE BELOW.

COOLING

UPON A RISE IN SPACE TEMPERATURE ABOVE SET POINT – THE FOLLOWING SHALL OCCUR.
 THE COMPRESSOR SHALL ENERGIZE AT FIRST STAGE AND CHARGE THE DX COIL.

THE OUTSIDE AIR DAMPER SHALL BE INTERLOCKED WITH THE OUTDOOR HEAT PUMP. UPON ENERGIZING THE OUTDOOR HEAT PUMP – THE OUTSIDE AIR DAMPER SHALL OPEN TO THE PRESET POSITION (200 CFM). WHEN THE OUTDOOR HEAT PUMP (COMPRESSOR) DE-ENERGIZES – THE OUTSIDE AIR DAMPER SHALL CLOSE.

UPON A FURTHER RISE IN SPACE TEMPERATURE, THE COMPRESSOR SHALL INCREASE IN ENABLE STAGE TWO AND INCREASE CAPACITY TO THE DX COIL – UNTIL SPACE TEMPERATURE SET POINT IS MET.

UPON A FALL IN SPACE TEMPERATURE, BELOW SET POINT, THE OPPOSITE SHALL OCCUR.

HEATING

UPON A FALL IN SPACE TEMPERATURE BELOW SET POINT, THE SUPPLY AIR FAN SHALL ENERGIZE.

THE OUTSIDE AIR DAMPER SHALL BE INTERLOCKED WITH THE OUTDOOR HEAT PUMP. UPON ENERGIZING THE OUTDOOR HEAT PUMP – THE OUTSIDE AIR DAMPER SHALL OPEN TO THE PRESET POSITION (200 CFM). WHEN THE OUTDOOR HEAT PUMP (COMPRESSOR) DE-ENERGIZES – THE OUTSIDE AIR DAMPER SHALL CLOSE.

THE COMPRESSOR SHALL ENERGIZE AT FIRST STAGE OF COMPRESSOR.

UPON A FURTHER FALL IN SPACE TEMPERATURE, THE FAN COMPRESSOR SHALL ENERGIZE THE SECOND STAGE OF THE COMPRESSOR TO MEET SPACE SET POINT TEMPERATURE.

ON A CONTINUAL FALL IN SPACE TEMPERATURE THE ELECTRIC HEAT IN THE DUCT SHALL ENERGIZE.

UPON A RISE IN SPACE TEMPERATURE, THE OPPOSITE SHALL OCCUR.

ELECTRIC DUCT HEATER

OUTDOOR HEAT PUMP SHALL LOCK OUT AT 38 DEGREES F (ADJUSTABLE)

UPON A FALL IN SPACE TEMPERATURE BELOW SET POINT AND OUTSIDE AIR TEMPERATURE BELOW HEAT PUMP LOCKOUT, THE ELECTRIC DUCT HEATER HEAT SHALL ENERGIZE STAGE ONE TO HEAT THE SPACE. UPON A CONTINUAL FALL IN SPACE TEMPERATURE BELOW SET POINT, THE SECOND STAGE OF THE DUCT HEATER SHALL ENERGIZE TO MEET SPACE TEMPERATURE SETPOINT.

UPON A RISE IN SPACE TEMPERATURE, THE OPPOSITE SHALL OCCUR.

DEHUMIDIFICATION

UPON A RISE IN SPACE HUMIDITY THE FOLLOW SHALL OCCUR.

THE FIRST STAGE OF THE DX COOLING SHALL CHARGE THE COOLING COIL. THE AHU FAN SHALL ENERGIZE AND RUN.

UPON A FURTHER RISE IN SPACE HUMIDITY THE COMPRESSOR SHALL ENERGIZE THE SECOND STAGE OF COOLING TO PROVIDE MORE COOLING CAPACITY TO THE DX COIL – UNTIL SPACE HUMIDITY SET POINT IS MET.

TO MAINTAIN SPACE TEMPERATURE SET POINT, THE ELECTRIC HEATING COIL (LOCATED IN THE DUCT) SHALL ENERGIZE AND PULSE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SET POINT.

ON A FALL OF SPACE HUMIDITY, THE OPPOSITE SHALL OCCUR.

SEQUENCE OF OPERATION FOR AHU-2

CONSTANT SPEED SINGLE ZONE AHU WITH DEHUMIDIFICATION OCCUPIED
 COOLING TEMPERATURE SET POINT 78 DEGREES (ADJUSTABLE)
 HEATING TEMPERATURE SETPOINT 60 DEGREES (ADJUSTABLE)
 HUMIDITY SETPOINT 50% RH (ADJUSTABLE)

SUPPLY AIR FAN SHALL BE IN RUNNING IN ON MODE.

OUTSIDE AIR DAMPER SHALL BE INTERLOCKED WITH AHU – SEE BELOW.

AHU FAN

THE AIR HANDLER FAN SHALL RUN CONTINUOUS. THE OUTSIDE AIR DAMPER SHALL BE OPEN WHEN THE AHU IS ENERGIZED TO THE SET POINT (230 CFM). THE OA DAMPER SHALL CLOSE WHEN THE AHU IS DE-ENERGIZED.

COOLING

UPON A RISE IN SPACE TEMPERATURE ABOVE SET POINT – THE FOLLOWING SHALL OCCUR.
 THE COMPRESSOR SHALL ENERGIZE AT FIRST STAGE AND CHARGE THE DX COIL.

UPON A FURTHER RISE IN SPACE TEMPERATURE, THE COMPRESSOR SHALL INCREASE IN ENABLE STAGE TWO AND INCREASE CAPACITY TO THE DX COIL – UNTIL SPACE TEMPERATURE SET POINT IS MET.

UPON A FALL IN SPACE TEMPERATURE, BELOW SET POINT, THE OPPOSITE SHALL OCCUR.

HEATING

UPON A FALL IN SPACE TEMPERATURE BELOW SET POINT, THE SUPPLY AIR FAN SHALL ENERGIZE.
 THE COMPRESSOR SHALL ENERGIZE AT FIRST STAGE OF COMPRESSOR.

UPON A FURTHER FALL IN SPACE TEMPERATURE, THE FAN COMPRESSOR SHALL ENERGIZE THE SECOND STAGE OF THE COMPRESSOR TO MEET SPACE SET POINT TEMPERATURE.

ON A CONTINUAL FALL IN SPACE TEMPERATURE THE ELECTRIC HEAT IN THE DUCT SHALL ENERGIZE.

UPON A RISE IN SPACE TEMPERATURE, THE OPPOSITE SHALL OCCUR.

ELECTRIC DUCT HEATER

OUTDOOR HEAT PUMP SHALL LOCK OUT AT 38 DEGREES F (ADJUSTABLE)

UPON A FALL IN SPACE TEMPERATURE BELOW SET POINT AND OUTSIDE AIR TEMPERATURE BELOW HEAT PUMP LOCKOUT, THE ELECTRIC DUCT HEATER HEAT SHALL ENERGIZE STAGE ONE TO HEAT THE SPACE. UPON A CONTINUAL FALL IN SPACE TEMPERATURE BELOW SET POINT, THE SECOND STAGE OF THE DUCT HEATER SHALL ENERGIZE TO MEET SPACE TEMPERATURE SETPOINT.

UPON A RISE IN SPACE TEMPERATURE, THE OPPOSITE SHALL OCCUR.

DEHUMIDIFICATION

UPON A RISE IN SPACE HUMIDITY THE FOLLOW SHALL OCCUR.

THE FIRST STAGE OF THE DX COOLING SHALL CHARGE THE COOLING COIL. THE AHU FAN SHALL ENERGIZE AND RUN.

UPON A FURTHER RISE IN SPACE HUMIDITY THE COMPRESSOR SHALL ENERGIZE THE SECOND STAGE OF COOLING TO PROVIDE MORE COOLING CAPACITY TO THE DX COIL – UNTIL SPACE HUMIDITY SET POINT IS MET.

TO MAINTAIN SPACE TEMPERATURE SET POINT, THE ELECTRIC HEATING COIL (LOCATED IN THE DUCT) SHALL ENERGIZE AND PULSE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SET POINT.

ON A FALL OF SPACE HUMIDITY, THE OPPOSITE SHALL OCCUR.

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES.
2. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES.
3. CONTRACTOR SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE IN THEIR CONSTRUCTION TRADE.
4. THIS CONTRACTOR SHALL PROVIDE PROPER STORAGE OF ALL OF HIS MATERIALS AND EQUIPMENT AND ASSUME COMPLETE RESPONSIBILITY FOR LOSSES.
5. WORKMANSHIP SHALL BE FIRST CLASS AND OF THE BEST QUALITY IN ACCORDANCE WITH APPROVED CONTEMPORARY CONSTRUCTION AND ENGINEERING PRACTICES.
6. CONTRACTOR SHALL SUBMIT COPIES OF EQUIPMENT, MATERIAL, MANUFACTURER'S LITERATURE AND/OR EQUIPMENT DATA FOR REVIEW AND APPROVAL BEFORE INSTALLATION.
7. ALL WORKMANSHIP AND MATERIALS SHALL BE GUARANTEED FROM DEFECTS FOR THE PERIOD OF ONE YEAR AFTER ACCEPTANCE FROM THE OWNER OR OWNER REPRESENTATIVE.
8. ALL WORK AND INSTALLATIONS SHALL BE COORDINATED WITH ALL TRADES TO AVOID CONFLICTS.
9. ALL CONTROL WIRING SHALL BE PLENUM RATED AND INSTALLED CONCEALED IN WALLS AND CEILING. CONTRACTOR(S) SHALL PROTECT FROM DAMAGE.
10. CONTRACTOR SHALL INSULATE THE FOLLOWING SYSTEMS: REFRIGERANT PIPING, DOMESTIC WATER PIPING, SUPPLY AND RETURN DUCTWORK, AND CONDENSATE PIPING.
 - A. REFRIGERANT PIPING SHALL BE INSULATED WITH CLOSED CELL INSULATION AND WRAPPED WITH UV RESISTANT STAINLESS STEEL JACKET.
 - B. INSULATE ALL DUCTWORK WITH R10 MIN. SERVICE DUCT WRAP WITH REINFORCED FOIL FACED VAPOR BARRIER.

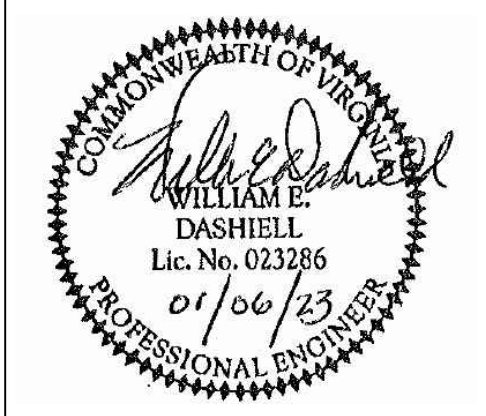
MECHANICAL NOTES:

1. PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO INSTALL NEW MECHANICAL EQUIPMENT, DUCTWORK, DIFFUSERS, AND EXHAUST SYSTEMS.
2. ALL DUCTWORK SHALL BE FIBERGLASS-REINFORCED PLASTIC (FRP) DUCT, MCGILL AIRFLOW OR EQUAL.
3. ALL DUCTWORK AND FITTINGS SHALL BE CORROSION-RESISTANT.
4. IF A SPECIFIC DUCT SIZE IS NOT ON THE DRAWING, THE CONTRACTOR SHALL SIZE THE DUCTWORK OF NOT MORE THAN .05" W.G. PER 100 FT, SEA LEVEL DENSITY, NOR MORE THAN 1000 FT. PER MINUTE MAXIMUM VELOCITY.
5. ALL DUCT SIZES ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS.
6. CONTRACTOR SHALL PROVIDE NEW MECHANICAL UNITS AS SHOWN ON DRAWINGS COMPLETE WITH DRAIN, CONDENSATE DRAIN PIPING, AND VIBRATION ISOLATORS AS REQUIRED FOR A COMPLETE INSTALLATION.
7. DUCT HANGERS SUPPORTS AND METHODS SHALL CONFORM TO ASHRAE AND SMACNA RECOMMENDATIONS. ALL DUCTWORK SHALL BE INSTALLED STRAIGHT AND PLUMB.
8. MECHANICAL SYSTEM SHALL BE BALANCED BY MECHANICAL CONTRACTOR. COMPLY WITH ASHRAE RECOMMENDATIONS PERTAINING TO MEASUREMENTS, INSTRUMENTS, TESTING, ADJUSTING AND BALANCING. SUBMIT TEST REPORTS SIGNED BY TEST AND BALANCE SUPERVISOR WHO PERFORMED THE TAB WORK.
9. CONTRACTOR SHALL PROVIDE ENGRAVED PHENOLIC LABELS ON ALL HVAC EQUIPMENT. LABELS SHALL BE 1" TALL AND HAVE ENGRAVED 3/8" LETTERING. LABELS SHALL BE RED WITH WHITE LETTERING.
10. CONTRACTOR SHALL RUN REFRIGERANT PIPING NEAT, PARALLEL, AND PERPENDICULAR TO WALLS, CEILINGS, AND FLOORS. REFRIGERANT PIPING SHALL BE SECURED TO WALLS AND RUN DIRECTLY TO UNIT CONNECTIONS.
11. CONTRACTOR SHALL CLEAN INTERIOR OF ALL DUCTS PRIOR TO INSTALLATION. CONTRACTOR SHALL KEEP ALL OPENINGS INTO HVAC SYSTEMS SEALED WITH PLASTIC WRAP DURING ALL PHASES OF CONSTRUCTION.

MECHANICAL SYMBOL LEGEND

| | |
|--|--|
| | NEW DUCT WORK – SIZE INDICATED |
| | CEILING OR WALL SUPPLY GRILLE – SEE SCHEDULE – 4 WAY |
| | CEILING OR WALL EXHAUST GRILLE – SEE SCHEDULE |
| | FLEXIBLE DUCT |
| | FUTURE WALL-MOUNTED DEHUMIDIFICATION UNIT |
| | COMBINATION PROGRAMMABLE VOICE-ACTIVATED THERMOSTAT & HUMIDISTAT |
| | CEILING LIGHT FIXTURE |
| | INLINE EXHAUST FAN |
| | ROOF MOUNTED EXHAUST FAN |
| | UNIT HEATER |
| | DIFFUSER/GRILL IDENTIFICATION TAG |
| | WALL MOUNTED COMBINATION THERMOSTAT AND HUMIDISTAT |
| | UNIT HEATER THERMOSTAT |
| | MANUAL OR BALANCING DAMPER |
| | MOTORIZED DAMPER |
| | REFRIGERANT PIPING(LIQUID & SUCTION) |
| | CONDENSATE DRAIN PIPING |
| | HEAT PUMP |
| | LOUVER IDENTIFICATION |
| | SUPPLY AIR |
| | RETURN AIR |
| | OUTSIDE AIR |
| | AIR HANDLING UNIT |
| | WALL MOUNTED SWITCH |
| | ABOVE FINISHED FLOOR |
| | UNIT HEATER |
| | INSTANT HOT WATER HEATER |

| PRESSURE CLASSIFICATION AND SEALING REQUIREMENTS FOR DUCTWORK (REFER TO SMACNA STANDARDS) | | |
|---|----------------------------|------------|
| SYSTEM | STATIC PRESS. CLASS IN. WG | SEAL CLASS |
| DUCT | +2" | C |
| EXHAUST DUCT | -2" | C |



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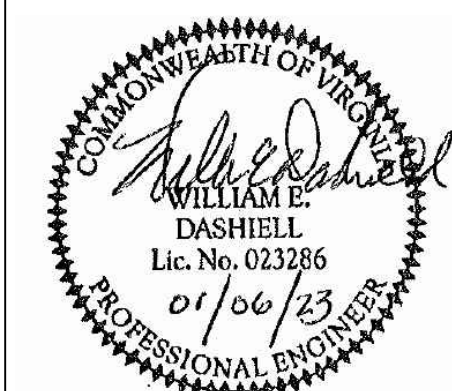
TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY, VIRGINIA

JOB NO. 47716
 SHEET NO. P2

MECHANICAL NOTES AND LEGEND

ROBERT G. DASHIELL, JR. P.E. INC.
 CONSULTING ENGINEERS
 1225 WEST 26TH STREET
 NORFOLK, VIRGINIA 23508
 (757) 623-5012



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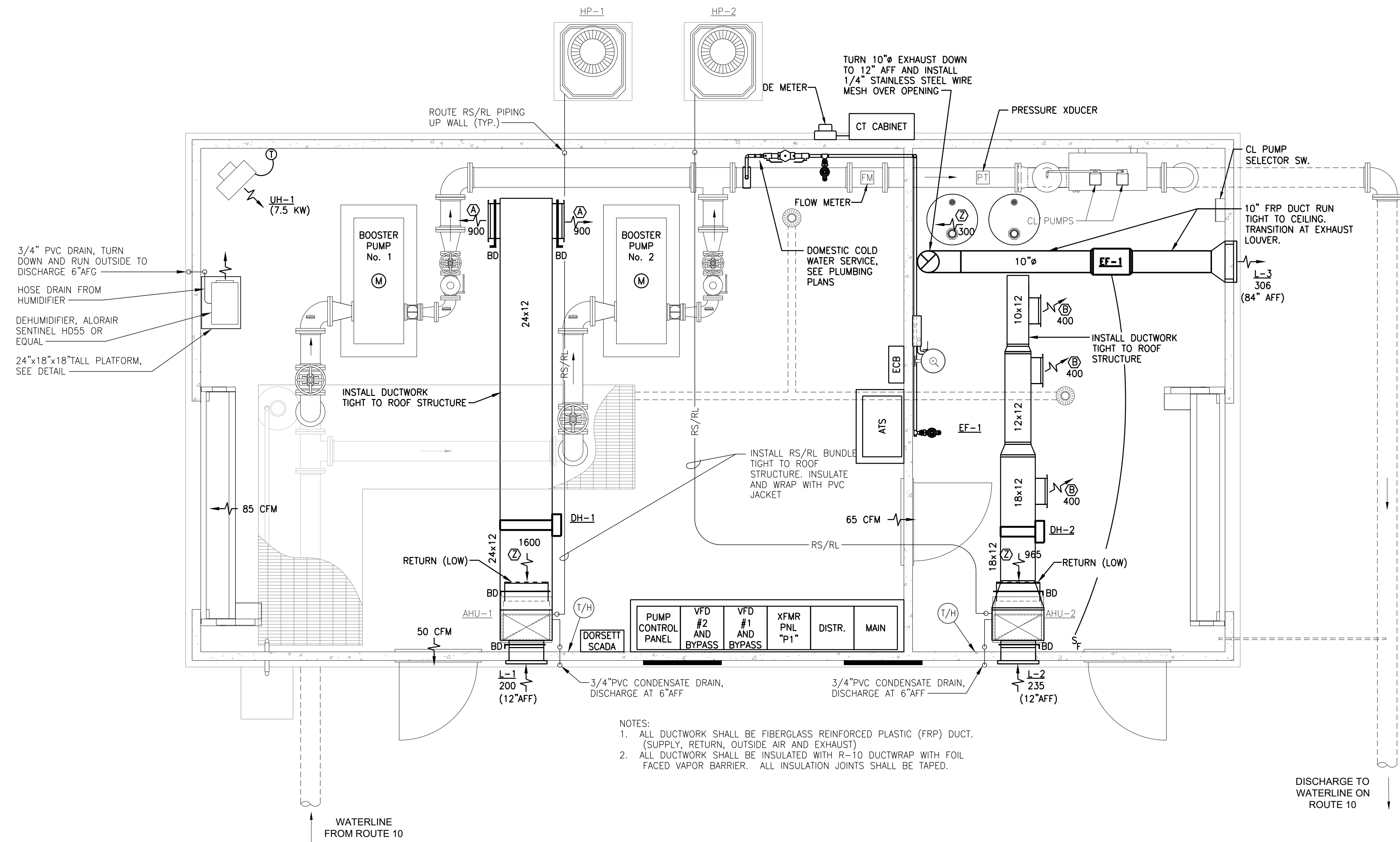
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REVISION DESCRIPTION
 DATE
 01-06-23
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 RN
 DESIGNED BY
 WFS
 CHECKED BY
 WED
 SCALE
 AS SHOWN

TIMMONS GROUP
 OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY, VIRGINIA
MECHANICAL NEW WORK PLAN

JOB NO.
47716
 SHEET NO.
P4

ROBERT G. DASHIELL, JR. P.E. INC.
 CONSULTING ENGINEERS
 1225 WEST 26TH STREET
 NORFOLK, VIRGINIA 23508
 (757) 623-5012



| HEAT PUMP SCHEDULE | | | | | | | | | | | | | | | |
|--------------------|------|------------------|-----------------------------|-----------|-----|------------------|-------------|------|-------------------|------------------------------------|--------------|---------------------|----------------------|------|-----|
| MARK | CFM | O.A. OUTSIDE AIR | ESP. IN. W.G. (LESS FILTER) | NOM. TONS | HP | VOLTAGE/PHASE | COOLING MBH | | TOTAL HEATING MBH | ELECTRIC HEAT HEAT VOLT./PH./STEPS | MANUFACTURER | MODEL # INDOOR UNIT | MODEL # OUTDOOR UNIT | SEER | COP |
| | | | | | | | SC | TC | | | | | | | |
| HP-1 | 1800 | 200 | 0.40 | 5 | 3/4 | 480V-3Φ(OUTDOOR) | 45.1 | 53.2 | 45.1 | NONE-DUCT HTR | TRANE | TWE060 | 4TWZ6060A400A | 16 | 9.0 |
| HP-2 | 1200 | 235 | 0.40 | 3.5 | 3/4 | 480V-3Φ(OUTDOOR) | 41.5 | 32.9 | 32.9 | NONE-DUCT HTR | TRANE | TWE042 | 4TWZ6042A400A | 16 | 9.0 |

- NOTES:
 1. SELECTION ARE BASED ON TRANE
 2. PERFORMANCE SHALL BE BASED ON 95° AMBIENT 80/69 EAT CONDITIONS.
 3. PROVIDE FREEZE STAT ON COIL TO PREVENT FREEZE DURING DEHUMIDIFICATION CYCLE.
 4. PROVIDE CONSTANT SPEED, ECM BASED AIR HANDLER. AHU VOLTAGE SHALL BE 208V-1Φ
 5. PROVIDE INTERNAL TXV (NON BLEED) ON ALL INDOOR AND EXTERIOR COILS.
 6. PROVIDE R410A REFRIGERANT.
 7. PROVIDE 1" MERV 8 FILTER. CONTRACTOR SHALL CHANGE FILTER/PROVIDE NEW FILTER AT TURN OVER TO OWNER. UNIT SHALL NOT BE ENERGIZED DURING CONSTRUCTION WITHOUT MERV 8 FILTER IN PLACE.
 8. PROVIDE HVAC ARMOR COIL COATING ON UNIT EVAPORATOR COIL AND CONDENSER COIL. PROVIDE CLEAR COAT HVAC ARMOR XT HEMPETHANE HS COATING ON ALL CASING AND FRAMES FOR AHU'S AND CONDENSING UNITS.
 9. PROVIDE LONG LINESSET ACCESSORIES FOR UNITS WITH REFRIGERANT PIPING RUNS GREATER THAN 75 FEET.
 10. ALL HEATPUMPS SHALL HAVE A MINIMUM SEER RATING OF 16.0.
 11. ALL HEATPUMPS SHALL HAVE A MINIMUM H.S.P.F. RATING OF 9.0.
 12. ESP INCLUDE .25" LOSS FOR FILTER. (1/2 LIFE)
 13. PROVIDE DUCT HEATER FOR SPACE TEMPERATURE CONTROL FOR DEHUMIDIFICATION AND SPACE HEAT. SEE SEQUENCE OF CONTROL FOR AHU-1 AND AHU-2
 14. PROVIDE EMERGENCY FLOAT SWITCH IN DRAIN PAN TO DE-ENERGIZE UNIT UPON ACTIVATION IN ALL SPLIT SYSTEM UNITS.
 15. OUTDOOR HEAT PUMPS SHALL BE SPACED AS RECOMMENDED BY EQUIPMENT MANUFACTURER.
 16. PROVIDE COMBINATION T'STAT AND HUMIDISTAT FOR AHU-1 AND AHU-2. T'STAT SHALL BE BY EQUIPMENT MANUFACTURER.
 17. SEE FLOOR PLANS FOR UNIT AIR FLOWS.
 18. PROVIDE 2-STAGE HEAT PUMPS (OUTDOOR UNITS).

| EXHAUST FAN SCHEDULE | | | | | | | | | |
|----------------------|-----|------|-------------|-----------|---------|--------------|--------------------|---------------|---------|
| MARK | CFM | SP | VOLT-PH-HP | MFG. | CAT. # | TYPE | CONTROL | SPACE SERVED | NOTES |
| EF-1 | 306 | 0.26 | 208V-3Φ-1/3 | GREENHECK | G-090-E | INLINE AXIAL | ON-OFF WALL SWITCH | CHEMICAL ROOM | 1, 2, 3 |

- NOTES:
 1. ALL DIRECT DRIVE EXHAUST FANS SHALL BE PROVIDED WITH AN INTEGRAL SPEED CONTROLLER FOR FAN OPERATION AND BALANCING. CONTROLLER SHALL BE FACTORY MOUNTED AND WIRED.
 2. PROVIDE STAINLESS STEEL BIRD SCREEN.
 3. PROVIDE PERMATECTOR EPOXY COATING ON ALL INTERIOR FAN SURFACES FOR CORROSIVE RESISTANCE.
 4. PROVIDE WALL MOUNTED FAN SWITCH. FAN SHALL RUN CONTINUOUSLY.

| ELECTRIC HEATER SCHEDULE | | | | | | | | | | |
|--------------------------|------|----------|--------|-------------|--------------|--------|--------|-------------|------|---------------------------------------|
| MARK | CFM | CAPACITY | | VOLTS / PH. | MANUFACTURER | CAT. # | STAGES | AREA SERVED | TYPE | REMARKS |
| | | KW | BTUH | | | | | | | |
| UH-1 | 600 | 7.5 | 26,000 | 480V-3Φ | REZ NOR | EGEB7 | 2 | PUMP ROOM | UNIT | WALL MOUNTED WITH WALL TSTAT |
| DH-1 | 1800 | 14.0 | 51,195 | 480V-3Φ | GREENHECK | IDHE | SCR | AHU-1 | DUCT | CONTROLLED BY AHU-1 T'STAT/HUMIDISTAT |
| DH-2 | 1200 | 11.0 | 37,543 | 480V-3Φ | GREENHECK | IDHE | SCR | AHU-2 | DUCT | CONTROLLED BY AHU-2 T'STAT/HUMIDISTAT |

- NOTES:
 1. UNIT HEATER (UH'S) SHALL HAVE INTEGRAL T'STAT.
 2. PROVIDE SCR CONTROLS ON ALL DUCT HEATERS.
 3. PROVIDE STAINLESS STEEL HARDWARE & FRAME.
 4. PROVIDE STAINLESS STEEL OR COATED COILS FOR CORROSION RESISTANCE.
 5. PROVIDE STAINLESS BIRD SCREENS ON ALL EXHAUST LOUVERS.

| WALL LOUVER SCHEDULE | | | | | |
|----------------------|-----|-----------|--------------|---------|----------------------|
| MARK | CFM | SIZE | MANUFACTURER | MODEL | REMARKS |
| L-1 | 200 | 18"Wx12"H | GREENHECK | ESD-403 | INTAKE AHU-1 INTAKE |
| L-2 | 235 | 18"Wx12"H | GREENHECK | ESD-403 | INTAKE AHU-2 INTAKE |
| L-3 | 300 | 18"Wx12"H | GREENHECK | ESD-403 | EXHAUST EF-1 EXHAUST |

- NOTES:
 1. PROVIDE ALUMINUM INSECT SCREENS ON ALL INTAKE LOUVERS.
 2. PROVIDE GRAVITY BACKDRAFT DAMPER ON ALL INTAKE LOUVERS.
 3. PROVIDE LOUVER COLOR AS SELECTED BY ARCHITECT.
 4. L-3 SHALL CORROSION RESISTANT WITH SS HARDWARE.

| DIFFUSER, GRILLE, AND REGISTER SCHEDULE | | | | | |
|---|----------|----------|-------------|------|---|
| MARK | CFM | SIZE | MANUFACTURE | CAT# | REMARKS |
| A | 900 | 20x10 | DUCT MFG | N/A | SUPPLY OPENING W/ DAMPER - PROVIDE 1/4" STAINLESS STEEL WIRE MESH |
| B | 400 | 12x10 | DUCT MFG | N/A | SUPPLY OPENING W/ DAMPER - PROVIDE 1/4" STAINLESS STEEL WIRE MESH |
| Z | 200-1800 | VARIABLE | NONE | N/A | RETURN/EXHAUST OPENING - PROVIDE 1/4" STAINLESS STEEL WIRE MESH |

- NOTES:
 1. UNITS SHALL BE MANUFACTURED BY DUCT MANUFACTURER.
 2. PROVIDE WITH BALANCING DAMPER.

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SPECIFICATIONS – PLUMBING

SECTION 1 GENERAL

- 1.01 GENERAL:
- (A) WORK UNDER THIS DIVISION IS SUBJECT TO THE GENERAL AND SPECIAL CONDITIONS AND, TOGETHER WITH THIS SECTION, ARE A PART OF THE CONTRACT.
 - (B) THE WORK REQUIRED FOR THIS SECTION INCLUDES LABOR, MATERIALS, EQUIPMENT, APPURTENANCES AND SERVICE TO PROVIDE COMPLETE ELECTRICAL SYSTEMS DRAWINGS AND AS SPECIFIED IN THE SPECIFICATIONS, INCLUDING SPECIAL SYSTEMS INDICATED AND SOME SPECIFIED OWNER SUPPLIED EQUIPMENT.
 - (C) THE LATEST EFFECTIVE PUBLICATIONS OF THE NFPA, LOCAL, STATE AND FEDERAL CODES, ETC., AS APPLICABLE, FORM A PART OF THESE SPECIFICATIONS THE SAME AS IF WRITTEN FULLY HEREIN AND SHALL BE FOLLOWED AS MINIMUM REQUIREMENTS. MINIMUM REQUIREMENTS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING HIGHER-GRADE MATERIALS AND WORKMANSHIP THAN THEREIN SPECIFIED.
 - (D) PROVIDE REQUIRED NOTICES, OBTAIN NECESSARY PERMITS, AND PAYS PERMIT AND INSPECTION FEES.
 - (E) THESE SPECIFICATIONS ARE ACCOMPANIED BY FLOOR PLANS. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT OF THE WORK. EXAMINE THE ARCHITECTURAL, STRUCTURAL AND MECHANICAL SCOPE TO AVOID CONFLICT WITH OTHER TRADES.
 - (F) DETERMINE PLUMBING REQUIREMENTS OF OTHER SECTIONS IN ORDER TO FULLY UNDERSTAND REQUIREMENTS FOR COMPLETE AND SATISFACTORY OPERATION OF PROJECT.
- 1.02 COORDINATION
- (A) COOPERATE AND COORDINATE THE WORK IN THIS DIVISION WITH OTHER TRADES.
 - (B) DISAGREEMENT OCCURRING BETWEEN TRADES COVERING VARIOUS WORK SHALL BE REFERRED TO THE ENGINEER FOR FINAL DECISION.
- 1.03 MATERIALS AND WORKMANSHIP
- (A) ELECTRICAL MATERIALS FURNISHED UNDER THESE SPECIFICATIONS SHALL BE NEW AND LISTED, INSPECTED AND APPROVED BY THE UNDERWRITERS' LABORATORIES, INC., AND SHALL BEAR THE UL LABEL WHERE LABELING SERVICE IS AVAILABLE.
 - (B) REPLACE OR REPAIR DEFECTIVE EQUIPMENT AND MATERIALS, OR MATERIAL DAMAGED IN THE COURSE OF INSTALLATION OR TESTS AS APPROVED BY THE ENGINEER.
 - (C) INSTALL MATERIALS IN A FIRST CLASS AND WORKMANLIKE MANNER AND RUN EXPOSED THROUGHOUT BUILDING, EXCEPT AS INDICATED.
 - (D) PARTIAL LISTS SUBMITTED AT INTERVALS OR SUBMITTALS NOT ARRANGED IN AN ORDERLY MANNER AND NOT ENCLOSED IN AN APPROPRIATE BINDER OR FOLDER AND SUBMITTALS THAT DO NOT BEAR THE GENERAL CONTRACTOR'S STAMP OF APPROVAL THEREON WILL BE REJECTED WITHOUT REVIEW.
 - (E) WHERE THREE OR MORE MANUFACTURES ARE LISTED, NO SUBSTITUTIONS WILL BE PERMITTED.

- 1.04 SHOP DRAWINGS AND ENGINEERING DATA
- (A) SUBMIT ELECTRONIC COPY IN PDF FORMAT OF COMPLETE SHOP DRAWINGS AND ENGINEERING DATA ON EQUIPMENT AND MATERIALS TO BE USED IN THE WORK OF THIS PROJECT TO THE ENGINEER.
 - (B) THE SUBMITTALS SHALL BE PROPERLY IDENTIFIED AND REFERENCED AS TO THE APPLICABLE SPECIFICATION PARAGRAPH HEADING OR DRAWING NUMBER WHICH APPLIES, AND SHALL ESTABLISH THAT EACH ITEM MEETS THE REQUIREMENTS OF THE SPECIFICATIONS WITH REGARD TO DIMENSION, ARRANGEMENT AND OTHER PERTINENT CHARACTERISTICS. INDIVIDUAL ITEMS WITHIN EACH SUBMITTAL SHALL BE MARKED ACCORDINGLY.
 - (C) SUBMITTAL DATA SHALL BE IN THE FORM OF SHOP DRAWINGS FOR MAJOR AND SPECIALLY CONSTRUCTED EQUIPMENT AND CATALOG OR OTHER ENGINEERING DATA ON ITEMS NORMALLY CONSIDERED AS STOCK ITEMS.
 - (D) SUBMITTALS SHALL INCLUDE COMPLETE WIRING DIAGRAMS, PERFORMANCE CURVES, INSTALLATION INSTRUCTIONS AND ALL OTHER APPLICABLE INFORMATION NECESSARY FOR THE PROPER INSTALLATION OF THE EQUIPMENT.
 - (E) THE SHOP DRAWINGS AND SUBMITTAL DATA WILL BE REVIEWED ONLY FOR CONFORMANCE WITH THE PROJECT DESIGN CONCEPT AND COMPLIANCE WITH INFORMATION IN THE CONTRACT DOCUMENTS. THE CHECKING OF DIMENSIONS AND QUANTITY OF MATERIALS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
 - (F) NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT OR INTENT OF THE CONTRACT DOCUMENTS IN ACCORDANCE WITH THE GENERAL PROVISIONS.
 - (G) IF VARIATIONS AND/OR DEVIATIONS ARE NOT MARKED ON SUBMITTAL, THE CONTRACTOR WILL NOT BE RELIEVED OF RESPONSIBILITY FOR FURNISHING EQUIPMENT AND EXECUTING WORK IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS, EVEN THOUGH SHOP DRAWINGS HAVE BEEN APPROVED. IN CHECKING SHOP DRAWINGS, THE REVIEWER WILL MAKE EVERY EFFORT TO DETECT AND CORRECT ERRORS, OMISSIONS AND INACCURACIES; THE REVIEWER'S FAILURE TO DETECT ERRORS, OMISSIONS AND INACCURACIES SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROPER AND COMPLETE INSTALLATION IN ACCORDANCE WITH INTENT CONTRACT DOCUMENTS.
- 1.05 AS-BUILT DRAWINGS
- (A) UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT CORRECTED PDF'S AND SPECIFICATIONS TO THE ENGINEER. THE PDF'S AND SPECIFICATIONS SHALL INCLUDE ANY DEVIATIONS IN THE ACTUAL INSTALLATION TO THE CONTRACT PLAN.
- SECTION 2 PLUMBING SYSTEM
- 2.01 PIPING SYSTEMS
- (A) CONDENSATE DRAIN PIPING:
 - A. CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC WITH GLUE FITTINGS.
 - 1. ALL EXPOSED PVC PIPING SHALL BE PAINTED WITH UV RESISTANT PAINT.
 - 2. P-TRAPS SHALL BE INSTALLED WITH UNIONS TO FACILITATE REMOVAL FOR CLEANING.
 - B. DOMESTIC WATER PIPING:
 - A. DOMESTIC WATER PIPING SHALL BE COPPER TUBE, ASTM A88, TYPE K, DRAWN.
 - B. FITTINGS FOR COPPER TUBE.
 - 1. WROUGHT COPPER OR BRONZE CASTINGS CONFORMING TO ANSI B16.18 AND B16.22.
 - 2. SOLDER OR BRAZED JOINTS WITH 95/5 TIN AND ANTIMONY SOLDER (LEAD FREE).
 - (C) SANITARY, VENT AND STORM PIPING (WHERE APPROVED BY LOCAL AUTHORITY):
 - A. CAST IRON PIPE SHALL BE BELL AND SPIGOT OR HUBLESS, CONFORMING TO THE REQUIREMENTS OF CISP STANDARD 301, ASTM A-888 OR ASTM A-74.
 - 1. JOINTS SHALL CONFORM TO THE PIPE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - B. PVC PIPE AND FITTINGS SHALL BE SCHEDULE 40 SOLID CORE PIPE CONFORMING TO ASTM D 1785 AND ASTM D2665, AS ACCEPTED BY LOCAL CODE AND APPLICATION.
 - 1. JOINTS SHALL BE SOLVENT WELDED SOCKET TYPE CONFORM TO ASTM D2564.

- PART 3 – EXECUTION
- 3.01 CUTTING AND PATCHING
- (A) CUTTING, DRILLING AND CHANNELING REQUIRED FOR THIS WORK SHALL BE DONE UNDER THIS SECTION BY SKILLED MECHANICS OF TRADE INVOLVED. CUTTING OF MASONRY BLOCK SHALL BE DONE WITH MASONRY SAW.
- 3.02 EQUIPMENT MARKING AND PAINTING
- (A) MECHANICAL UNITS, HEATERS, FAN, SWITCHES, STARTERS, CONTROL CABINETS, ETC., SHALL BE PROVIDED WITH PERMANENTLY ATTACHED, ADHESIVES NOT ACCEPTABLE, ENGRAVED BAKELITE DESIGNATION PLATES TO INDICATE EQUIPMENT. EXPOSED METAL, PIPE, ENCLOSURES, PANELS, ETC., SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
- 3.03 DEFACEMENT OF EQUIPMENT
- (A) EQUIPMENT SHALL NOT BE DEFACED WITH ANY FORM OF PERSONAL ADVERTISEMENT, STICKERS OR NAMEPLATES.
 - (B) MANUFACTURER'S RATING PLATES AND OTHER ACCEPTABLE IDENTIFICATION AS REQUIRED BY CODE FOR EQUIPMENT IS PERMITTED, AND THIS MATERIAL SHALL BE APPLIED IN USUAL AND ACCEPTABLE MANNER.
- 3.04 ACCESS DOORS
- (A) THIS CONTRACTOR SHALL FURNISH AND THE GENERAL CONTRACTOR SHALL INSTALL STEEL ACCESS DOORS WHERE REQUIRED, ESPECIALLY FOR MECHANICAL ACCESS. PROVIDE STYLE NECESSARY FOR SURFACE IN WHICH PLACED, SIZED AS INDICATED OR REQUIRED WITH CYLINDER LOCK.
- 3.05 SUBSTANTIAL COMPLETION
- (A) UPON COMPLETION OF THE ENTIRE WORK, THE CONTRACTOR SHALL PERFORM SUCH TEST AS REQUIRED BY THE ENGINEER. THE ENGINEER SHALL BE GIVEN 48 HOURS NOTICE BEFORE TESTS ARE MADE. THE CONTRACTOR SHALL FURNISH THE ENGINEER A CERTIFICATE OF APPROVAL FROM THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.
- 3.06 WARRANTY
- (A) CONTRACTOR SHALL FURNISH WRITTEN WARRANTY, COUNTERSIGNED AND GUARANTEED BY THE GENERAL CONTRACTOR, STATING THAT THE WORK EXECUTED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE OF BUILDING.
 - (B) CONTRACTOR SHALL PROVIDE WARRANTY TAGS ON THE BOILER, BOILER LOOP PUMP, AND CONTROLS. CONTRACTOR SHALL PROVIDE LAMINATED TAGS (4" SQUARE IN SIZE) SUITABLE FOR WET LOCATION INSTALLATION. WARRANTY TAGS SHALL BE SECURED TO EQUIPMENT BY STAINLESS STEEL STRAP TIES. WARRANTY TAGS SHALL INCLUDE THE FOLLOWING INFORMATION:
 1. EQUIPMENT IDENTIFICATION
 2. INSTALLING CONTRACTOR
 3. WARRANTY START AND END DATES
 4. CONTRACTOR PHONE NUMBER FOR REPORTING WARRANTY ISSUES
- 3.07 GUARANTEE
- (A) THIS CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE STATING THAT THE WORK EXECUTED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE. DEFECTS DEVELOPING DURING THAT PERIOD SHALL BE CORRECTED AT NO COST TO THE OWNER.

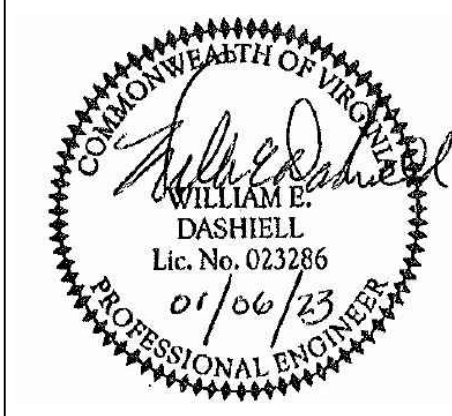
MECHANICAL SPECIFICATIONS

SECTION 1, GENERAL

- 1.01 GENERAL:
- (A) WORK INCLUDED UNDER THIS SECTION SHALL INCLUDE COMPLETE MECHANICAL SYSTEMS AS DESCRIBED HEREIN. THE SYSTEMS SHALL BE FULLY ADJUSTED, TESTED AND READY FOR USE.
 - (B) MATERIALS AND INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS, STANDARD BUILDING CODE, GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION, AND EQUIPMENT MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
 - (C) ALL WORK SHALL BE INSTALLED TO CONFORM TO THE REQUIREMENTS OF ALL REGULATORY AGENCIES HAVING JURISDICTION. THIS SHALL INCLUDE LOCAL, STATE AND FEDERAL AUTHORITIES. OBTAIN PERMITS AND PAY ALL REQUIRED FEES FOR WORK SPECIFIED AS PART OF THE HVAC AND PIPING PORTION OF THIS PROJECT.
 - (D) WORK INCLUDED UNDER THIS SECTION SHALL INCLUDE DEMOLITION/REMOVAL OF EXISTING MECHANICAL SYSTEMS AS DESCRIBED HEREIN.
- 1.02 COORDINATION
- (A) COOPERATE AND COORDINATE THE WORK IN THIS DIVISION WITH OTHER TRADES.
 - (B) DISAGREEMENT OCCURRING BETWEEN TRADES COVERING VARIOUS WORK SHALL BE REFERRED TO THE ENGINEER FOR FINAL DECISION.
- 1.03 MATERIALS AND WORKMANSHIP
- (A) PIPING AND MECHANICAL MATERIALS FURNISHED UNDER THESE SPECIFICATIONS SHALL BE NEW AND LISTED, INSPECTED AND APPROVED BY THE UNDERWRITER'S LABORATORIES, INC., AND SHALL BEAR THE UL LABEL WHERE LABELING SERVICE IS AVAILABLE.
 - (B) REPLACE OR REPAIR DEFECTIVE MATERIAL/EQUIPMENT, OR MATERIAL DAMAGED IN THE COURSE OF INSTALLATION OR TEST APPROVED BY THE ENGINEER.
 - (C) INSTALL MATERIALS IN A FIRST CLASS AND WORKMANLIKE MANNER.
 - (D) MATERIAL AND EQUIPMENT SHALL BE PROPERLY STORED AND PROTECTED AT THE PROJECT SITE UNTIL INSTALLATION BY THE CONTRACTOR AND ACCEPTANCE BY THE OWNER.
- 1.04 SHOP DRAWINGS AND ENGINEERING DATA
- (A) SUBMIT ELECTRONIC COPY IN PDF FORMAT OF COMPLETE SHOP DRAWINGS AND ENGINEERING DATA ON EQUIPMENT AND MATERIALS TO BE USED IN THE WORK OF THIS PROJECT TO THE ENGINEER.
 - (B) THE SUBMITTALS SHALL BE PROPERLY IDENTIFIED AND REFERENCED AS TO THE APPLICABLE SPECIFICATION PARAGRAPH HEADING OR DRAWING NUMBER WHICH APPLIES, AND SHALL ESTABLISH THAT EACH ITEM MEETS THE REQUIREMENTS OF THE SPECIFICATIONS WITH REGARD TO DIMENSION, ARRANGEMENT AND OTHER PERTINENT CHARACTERISTICS. INDIVIDUAL ITEMS WITHIN EACH SUBMITTAL SHALL BE MARKED ACCORDINGLY.
 - (C) SUBMITTAL DATA SHALL BE IN THE FORM OF SHOP DRAWINGS FOR MAJOR AND SPECIALLY CONSTRUCTED EQUIPMENT AND CATALOG OR OTHER ENGINEERING DATA ON ITEMS NORMALLY CONSIDERED AS STOCK ITEMS.
 - (D) SUBMITTALS SHALL INCLUDE COMPLETE WIRING DIAGRAMS, PERFORMANCE CURVES, INSTALLATION INSTRUCTIONS AND ALL OTHER APPLICABLE INFORMATION NECESSARY FOR THE PROPER INSTALLATION OF THE EQUIPMENT.
 - (E) THE SHOP DRAWINGS AND SUBMITTAL DATA WILL BE REVIEWED ONLY FOR CONFORMANCE WITH THE PROJECT DESIGN CONCEPT AND COMPLIANCE WITH INFORMATION IN THE CONTRACT DOCUMENTS. THE CHECKING OF DIMENSIONS AND QUANTITY OF MATERIALS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

- (F) NOTIFY THE ENGINEER OF ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT OR INTENT OF THE CONTRACT DOCUMENTS IN ACCORDANCE WITH THE GENERAL PROVISIONS.
 - (G) IF VARIATIONS AND/OR DEVIATIONS ARE NOT MARKED ON SUBMITTAL, THE CONTRACTOR WILL NOT BE RELIEVED OF RESPONSIBILITY FOR FURNISHING EQUIPMENT AND EXECUTING WORK IN STRICT ACCORDANCE WITH CONTRACT DOCUMENTS, EVEN THOUGH SHOP DRAWINGS HAVE BEEN APPROVED.
 - (H) IN CHECKING SHOP DRAWINGS, THE REVIEWER WILL MAKE EVERY EFFORT TO DETECT AND CORRECT ERRORS, OMISSIONS AND INACCURACIES; THE REVIEWER'S FAILURE TO DETECT ERRORS, OMISSIONS AND INACCURACIES SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROPER AND COMPLETE INSTALLATION IN ACCORDANCE WITH INTENT CONTRACT DOCUMENTS.
- 1.05 SUBMITTAL MANUFACTURER'S DATA
- (A) COMPLETE SPLIT SYSTEM HEAT PUMPS
 - (B) ALL DUCTWORK
 - (C) DUCT FITTINGS AND ACCESSORIES
 - (D) PIPING INSULATION AND PROTECTIVE JACKET
 - (E) PIPE HANGERS AND CLAMPS
 - (F) INLINE EXHAUST FANS
 - (G) DUCT INSULATION
- 1.06 AS-BUILT DRAWINGS
- (A) UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT CORRECTED PDF'S AND SPECIFICATIONS TO THE ENGINEER. THE PDF'S AND SPECIFICATIONS SHALL INCLUDE ANY DEVIATIONS IN THE ACTUAL INSTALLATION TO THE CONTRACT PLAN.
- SECTION 2 – PRODUCTS
- 2.01 HEATING, VENTILATING AND AIR CONDITIONING SYSTEM
- (A) NEW SPLIT SYSTEM HEAT PUMP UNITS:
 - A. ALL UNITS SHALL BE PROVIDED WITH INDOOR AIR HANDLING UNIT AND MATCHING OUTDOOR HEAT PUMP UNIT. SEE SCHEDULE
 - B. REFRIGERANT PIPING SHALL BE SIZE AND TYPE AS SPECIFIED BY EQUIPMENT MANUFACTURER.
 - (B) EXHAUST AND VENTILATION SYSTEMS:
 - A. ROOF MOUNTED EXHAUST FAN WITH SPEED CONTROL
 - (C) GRILLES
 - A. ALL GRILLES SHALL BE COMMERCIAL GRADE, ALL STAINLESS STEEL CONSTRUCTION INCLUDING OPPOSED BLADE DAMPERS. GRILLES SHALL BE SECURED TO THE DUCT.
 - B. GRILLES SHALL BE PER SCHEDULE ON DRAWINGS OR EQUAL.
 - (D) DUCTWORK
 - A. ALL DUCTWORK SHALL BE FABRICATED FROM FIBERGLASS REINFORCED PLASTIC (FRP) AS SHOWN ON DRAWINGS.
 - B. ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS. DUCTWORK IS SIZED FOR .07" WG PER 100FT, AND MAXIMUM 1500FT VELOCITY.
 - C. DUCT HANGERS SUPPORTS AND METHODS SHALL CONFORM TO ASHRAE AND SMACNA RECOMMENDATIONS. ALL DUCTWORK SHALL BE INSTALLED STRAIGHT AND PLUMB.
 - D. INSULATE ALL DUCTWORK WITH R-10 ALL SERVICE DUCT WRAP WITH REINFORCED FOIL FACED VAPOR BARRIER.

- (E) CONTROLS:
 - A. EXHAUST FANS SHALL RUN CONTINUOUS. ON-OFF WALL SWITCH SHALL BE PROVIDED.
 - B. NEW HEAT PUMP SHALL HAVE STAND-ALONE CONTROLS FOR COOLING, HEATING DEHUMIDIFICATION AND EMERGENCY HEATING. LOCATION OF NEW TSTAT/HUMIDISTAT IS SHOWN ON CONTRACT DRAWINGS. DRAWINGS SEE SEQUENCE OF OPERATION.
- PART 3 – EXECUTION
- 3.01 CUTTING AND PATCHING
- (A) CUTTING, DRILLING AND CHANNELING REQUIRED FOR THIS WORK SHALL BE DONE UNDER THIS SECTION BY SKILLED MECHANICS OF TRADE INVOLVED. CUTTING OF MASONRY BLOCK SHALL BE DONE WITH MASONRY SAW.
- 3.02 EQUIPMENT MARKING AND PAINTING
- (A) MECHANICAL UNITS, SWITCHES, STARTERS, CONTROL CABINETS, ETC., SHALL BE PROVIDED WITH PERMANENTLY ATTACHED, ADHESIVES NOT ACCEPTABLE, ENGRAVED BAKELITE DESIGNATION PLATES TO INDICATE EQUIPMENT. EXPOSED METAL, PIPE, ENCLOSURES, PANELS, ETC., SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
- 3.03 DEFACEMENT OF EQUIPMENT
- (A) EQUIPMENT SHALL NOT BE DEFACED WITH ANY FORM OF PERSONAL ADVERTISEMENT, STICKERS OR NAMEPLATES.
 - (B) MANUFACTURER'S RATING PLATES AND OTHER ACCEPTABLE IDENTIFICATION AS REQUIRED BY CODE FOR EQUIPMENT IS PERMITTED, AND THIS MATERIAL SHALL BE APPLIED IN USUAL AND ACCEPTABLE MANNER.
- 3.04 SUBSTANTIAL COMPLETION
- (A) UPON COMPLETION OF THE ENTIRE WORK, THE CONTRACTOR SHALL PERFORM SUCH TEST AS REQUIRED BY THE ENGINEER. THE ENGINEER SHALL BE GIVEN 48 HOURS NOTICE BEFORE TESTS ARE MADE. THE CONTRACTOR SHALL FURNISH THE ENGINEER A CERTIFICATE OF APPROVAL FROM THE LOCAL INSPECTION AUTHORITY HAVING JURISDICTION.
- 3.05 WARRANTY
- (A) CONTRACTOR SHALL FURNISH WRITTEN WARRANTY, COUNTERSIGNED AND GUARANTEED BY THE GENERAL CONTRACTOR, STATING THAT THE WORK EXECUTED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE OF BUILDING.
 - (B) CONTRACTOR SHALL PROVIDE WARRANTY TAGS ON THE BOILER, BOILER LOOP PUMP, AND CONTROLS. CONTRACTOR SHALL PROVIDE LAMINATED TAGS (4" SQUARE IN SIZE) SUITABLE FOR WET LOCATION INSTALLATION. WARRANTY TAGS SHALL BE SECURED TO EQUIPMENT BY STAINLESS STEEL STRAP TIES. WARRANTY TAGS SHALL INCLUDE THE FOLLOWING INFORMATION:
 1. EQUIPMENT IDENTIFICATION
 2. INSTALLING CONTRACTOR
 3. WARRANTY START AND END DATES
 4. CONTRACTOR PHONE NUMBER FOR REPORTING WARRANTY ISSUES
- 3.06 GUARANTEE
- (A) THIS CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE STATING THAT THE WORK EXECUTED UNDER THIS DIVISION OF THE SPECIFICATIONS SHALL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR PERIOD OF 12 MONTHS FROM DATE OF FINAL ACCEPTANCE. DEFECTS DEVELOPING DURING THAT PERIOD SHALL BE CORRECTED AT NO COST TO THE OWNER.



THIS DRAWING PREPARED AT THE
CORPORATE OFFICE
 WILLIAM E. DASHIELL
 Lic. No. 023286
 01/06/23
 PROFESSIONAL ENGINEER

YOUR VISION ACHIEVED THROUGH OURS.

DATE
 01-06-23

DRAWN BY
 RN

DESIGNED BY
 WFS

CHECKED BY
 WED

SCALE
 AS SHOWN

TIMMONS GROUP

OLD STAGE ROAD BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY, VIRGINIA

PLUMBING AND MECHANICAL SPECIFICATIONS

JOB NO.
 47716

SHEET NO.
P5

ROBERT G. DASHIELL, JR. P.E. INC.
 CONSULTING ENGINEERS
 1225 WEST 26TH STREET
 NORFOLK, VIRGINIA 23508
 (757) 623-5012

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YOUR VISION ACHIEVED THROUGH OURS.

REVISION DESCRIPTION
DATE
07/22/2022
DRAWN BY
T. DAEKE
DESIGNED BY
J. JUDY
CHECKED BY
J. JUDY
SCALE
AS NOTED

TIMMONS GROUP
ROUTE 10 BOOSTER PUMP STATION
ISLE OF WIGHT COUNTY - VIRGINIA
STRUCTURAL NOTES
JOB NO.
48527
SHEET NO.
S1

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STRUCTURAL NOTES

DESIGN
DESIGN IS IN ACCORDANCE WITH THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE, DATED 2018, THE INTERNATIONAL BUILDING CODE (IBC), DATED 2018, ASCE 7, DATED 2016, THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318), DATED 2014.

- DESIGN LOADS**
- A. GRAVITY - LIVE LOADS
 - 1. ROOF LIVE LOAD: 20 PSF
 - 2. SLAB-ON-GRADE: 100 PSF
 - B. GRAVITY - SNOW LOADS (SL) PLUS DRIFTING WHERE APPLICABLE
 - 1. GROUND SNOW LOAD, P_g : 15 PSF
 - 2. FLAT ROOF SNOW LOAD, P_f : 10.5 PSF
 - 3. EXPOSURE FACTOR, C_e : 1.0
 - 4. IMPORTANCE FACTOR, I_s : 1.0
 - D. LATERAL LOADS - WIND (W)
 - 1. BASIC WIND SPEED (3-SECOND GUST): 110 MPH
 - 2. RISK CATEGORY: I
 - 3. EXPOSURE CATEGORY: C
 - 4. INTERNAL PRESSURE COEFFICIENT: ± 0.18
 - E. LATERAL LOADS - SEISMIC (E)
 - 1. SEISMIC IMPORTANCE FACTOR, I_s : 1.00
 - 2. SITE CLASS: D
 - 3. MAPPED SPECTRAL ACCELERATIONS:
 - a. $S_s = 0.150$
 - b. $S_1 = 0.060$
 - 4. SPECTRAL RESPONSE COEFFICIENTS:
 - a. $S_{DS} = 0.160$
 - b. $S_{D1} = 0.096$
 - 5. SEISMIC DESIGN CATEGORY: B

EXISTING CONDITIONS
THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY OF ANY DISCREPANCIES BETWEEN INFORMATION SHOWN ON THE PLANS AND THE ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL BE REQUIRED TO DOCUMENT EXISTING CONDITIONS BY SKETCHES OR OTHER METHODS.
DEPTHS AND LOCATIONS OF UTILITY LOCATIONS TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF THE WORK. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING UTILITIES ARE NOT DAMAGED AS PART OF THE WORK.

PROPOSED DIMENSIONS & ELEVATIONS
THE CONTRACTOR SHALL INDEPENDENTLY VERIFY ALL ELEVATIONS AND DIMENSIONS SHOWN ON THE DRAWINGS BEFORE CONSTRUCTION. THE CONTRACTOR SHALL INDEPENDENTLY VERIFY THAT ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS MATCH THE ARCHITECTURAL DRAWINGS BEFORE PROCEEDING WITH CONSTRUCTION. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEERING IN WRITING BEFORE PROCEEDING WITH ANY WORK.

CONSTRUCTION METHODS
THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTIONS TO ENSURE THE STABILITY AND SAFE PERFORMANCE OF ALL STRUCTURAL ELEMENTS DURING CONSTRUCTION.

TEMPORARY BRACING
CONTRACTOR IS RESPONSIBLE FOR BRACING, WITHOUT OVERSTRESSING, ALL STRUCTURAL ELEMENTS AS REQUIRED AT ALL STAGES OF CONSTRUCTION UNTIL COMPLETION OF THE PROJECT.

GEOTECHNICAL INFORMATION
ALLOWABLE DESIGN SOIL BEARING PRESSURE IS TAKEN AS 3,000 PSF BASED ON THE ASSUMED GEOTECHNICAL INFORMATION.
THE SITE SHALL BE PREPARED UNIFORM IN ACCORDANCE WITH CIVIL DRAWINGS, SPECIFICATIONS, AND THE DESIGN SOIL BEARING PRESSURE. A LICENSED GEOTECHNICAL ENGINEER SHALL VERIFY ALL ASSUMPTIONS AND REPORT ANY VARIATIONS TO THE ENGINEER.
ALL EXCAVATIONS SHALL BE INSPECTED BY A LICENSED GEOTECHNICAL ENGINEER TO VERIFY THE DESIGN ASSUMPTIONS AND REPORT ADVERSE CONDITIONS.
WHERE FILL IS REQUIRED, IT SHALL BE PLACED IN ACCORDANCE WITH INSTRUCTIONS OF A LICENSED GEOTECHNICAL ENGINEER TO MAINTAIN DESIGN BEARING PRESSURE.
SOIL BELOW THE SLAB NOT MEETING THE DESIGN BEARING PRESSURE SHALL BE EXCAVATED TO A DEPTH OF VERIFIABLE DESIGN PRESSURE AND BACKFILLED WITH SUITABLE IMPORT MATERIAL TO THE LEVEL OF SLAB. THIS SHALL BE APPROVED BY A LICENSED GEOTECHNICAL ENGINEER.
REFER TO THE AUGUST 19, 2021 GEOTECHNICAL ENGINEERING REPORT TITLED "GEOTECH REPORT & STATEMENT OF INSPECTIONS" PREPARED FOR MSA, P.C., BY GET SOLUTIONS, INC. FOR GEOTECHNICAL RECOMMENDATIONS AND REQUIREMENTS.

MATERIALS

A. REINFORCEMENT
REINFORCING STEEL BARS AND ALL SUPPORT DEVICES SHALL BE PLAIN BLACK BARS AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60. SUBMIT TO TIMMONS GROUP FOR APPROVAL, COMPLETE BENDING AND PLACING DETAILS OF ALL REINFORCEMENT, INDICATING POSITION OF SPLICES. INCLUDE ACCESSORY DRAWINGS. UNLESS OTHERWISE NOTED, CAST-IN-PLACE CONCRETE CLEAR COVER SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):

- 1. EXPOSED TO EARTH OR WEATHER:
 - 1.a. NO. 6 THROUGH NO. 18 BARS: 2"
 - 1.b. NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER: 1 1/2"
- 2. CAST AGAINST EARTH: 3"

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, GRADE 65, AND BE LAPPED TWO FULL PANELS AND TIED ON EACH SIDE.

B. CONCRETE

- 1. 28-DAY STRENGTH: 4,500 PSI
- 2. DENSITY: NORMAL WEIGHT
- 3. W/C (MAX): 0.45
- 4. AIR CONTENT: 6% +/- 1.5
- 5. NOMINAL MAX. AGGREGATE SIZE: 3/4 IN.
- 6. DURABILITY REQUIREMENTS (PER ACI 318): F2, S0, C1

NO ADDITIONAL WATER SHALL BE ADDED TO THE CONCRETE AT THE JOB SITE.
AT LOCATIONS OF NEW CONCRETE PLACED AGAINST EXISTING CONCRETE, THE EXISTING CONCRETE SHALL BE ROUGHENED TO A 3/16" AMPLITUDE PRIOR TO APPLYING THE BONDING AGENT AND SUBSEQUENTLY THE NEW CONCRETE.

CONCRETE SHALL BE DESIGN IN ACCORDANCE WITH ACI "SPECIFICATIONS FOR STRUCTURAL CONCRETE" (ACI 301), ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318), AND ACI "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES" (ACI 350), LATEST EDITIONS, EXCEPT AS MODIFIED BY CONTRACT DOCUMENTS.

ALL DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL, FORM WORK, MIXING, HANDLING, PLACING, FINISHING, AND CURING OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315) AND ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).

INTERIOR SLAB CONCRETE SHALL RECEIVE A STEEL TROWEL FINISH. EXTERIOR SLAB CONCRETE SHALL RECEIVE A BROOM FINISH. IMMEDIATELY FOLLOWING FINISHING, THE CONCRETE SHALL BE PROTECTED FROM PREMATURE OR EXCESSIVE DRYING, TEMPERATURE EXTREMES AND INJURY. COORDINATE CURING PROCESS WITH FLOOR FINISH REQUIREMENTS. MOIST CURE ALL CAST-IN-PLACE CONCRETE SURFACES FOR 7 DAYS UNLESS NOTED OTHERWISE.

ALL EXPOSED CONCRETE EDGES TO HAVE 3/4" CHAMFER.
TAKE 6 CYLINDERS OF EACH CONCRETE POUR. TEST 2 AT 7 DAYS AND 2 AT 28 DAS. HOLD TWO CYLINDERS FOR POSSIBLE TEST UNTIL 60 DAYS, THEN DISPOSE OF IF TEST NOT REQUESTED. SEND REPORTS TO ARCHITECT, CONTRACTOR, AND STRUCTURAL ENGINEER.

C. CONCRETE BONDING AGENT
SHALL BE A CEMENTITIOUS EPOXY RESIN. SUBMIT THE FOLLOWING (OR APPROVED EQUAL) FOR ENGINEER'S APPROVAL AND INSTALL PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS:

- 1. ARMATEC 110 EPOCEM BY SIKA CORPORATION, LYNHURST, NJ

D. ISOLATION JOINT FILLER MATERIAL
SHALL BE PERFORMED AND SHALL MEET THE REQUIREMENTS OF ASTM C656. A MINIMUM 1/2" WIDE ISOLATION JOINT SHALL BE INSTALLED WHEN SLABS ARE PLACED AGAINST CONCRETE GRADE BEAMS AND PEDESTALS.
SUBMIT THE FOLLOWING PRODUCT (OR APPROVED EQUAL) FOR ENGINEER'S APPROVAL AND INSTALL PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS:

- 1. CALCIUM SILICATE HIGH TEMPERATURE INSULATION, DENSITY 40, BY GRAINGER, INC., LAKE FOREST, IL

E. JOINT SEALANT MATERIAL
SHALL BE A ONE-COMPONENT, COLD-APPLIED SEALANT AND SHALL MEET THE REQUIREMENTS OF ASTM D5893. SUBMIT ONE OF THE FOLLOWING PRODUCTS (OR APPROVED EQUAL) FOR ENGINEER'S APPROVAL AND INSTALL PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS:

- 1. DOW CORNING 888 SILICONE JOINT SEALANT BY DOW CORNING CORP., MIDLAND, MI
- 2. SPECTREM 800 BY TREMCO COMMERCIAL SEALANTS AND WATERPROOFING, BEACHWOOD, OH
- 3. ROADSAVER SILICONE (PART NO. 34902) BY CRAFTCO, INC., AN ERGON CO., CHANDLER, AZ

F. CONTROL JOINT SEALANT MATERIAL
SHALL MEET THE REQUIREMENTS OF VDOT CLASS A SILICONE SEALANTS AND ASTM D5893. COLOR SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
SUBMIT ONE OF THE FOLLOWING PRODUCTS (OR APPROVED EQUAL) FOR ENGINEER'S APPROVAL AND INSTALL PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS:

- 1. DOW CORNING 888 SILICONE JOINT SEALANT BY DOW CORNING CORPORATION, MIDLAND, MI
- 2. SPECTREM 800 BY TREMCO COMMERCIAL SEALANTS AND WATERPROOFING, BEACHWOOD, OH
- 3. ROADSAVER SILICONE (PART NO. 34902) BY CRAFTCO, INC., AN ERGON COMPANY, CHANDLER, AZ

G. VAPOR BARRIER
SHALL BE 10 MILS THICK MINIMUM POLYETHYLENE SHEETING AND SHALL BE INSTALLED BENEATH ALL INTERIOR SLABS-ON-GRADE. JOINTS SHALL BE LAPPED NO LESS THAN 6".
SUBMIT THE FOLLOWING PRODUCT (OR APPROVED EQUAL) FOR ENGINEER'S APPROVAL AND INSTALL PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS:

- 1. TUFF-SCRIM POLY BY AMERICOVER, ESCONDIDO, CA

H. SLAB-ON-GRADE

- 1. WHERE SOFT SOILS OR DEBRIS ARE ENCOUNTERED AT THE BOTTOM OF THE EXCAVATION, OVER-EXCAVATE THE DELETERIOUS MATERIAL AND REPLACE WITH VDOT NO. 57 STONE. EXCAVATION AND SUBGRADE MATERIAL TO BE INSPECTED PER THE STATEMENT OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS.
- 2. PLACEMENT OF THE WELDED WIRE FABRIC IN THE SLAB, WHERE SPECIFIED SHALL BE AT A CONSISTENT DEPTH OF 1 1/2" FROM THE TOP OF THE SLAB. OVERLAY EACH REINFORCING SHEET FROM FULL PANELS AND TIE CROSS WIRES ON EACH SIDE.
- 3. ALL CONTROL AND CONSTRUCTION JOINTS SHALL BE CONTINUOUS AND NOT STAGGERED, OR OFFSET. CONTROL JOINTS SHALL BE SAW CUT INTO STRIP POURS AS SOON AS CONCRETE CAN ACCEPT THE SAW WITHOUT RAVELING.
- 4. CONTROL JOINTS SHALL BE LOCATED ON COLUMN LINES WITH INTERMEDIATE JOINTS LOCATED AT EQUAL SPACES BETWEEN COLUMN LINES AS NECESSARY. THE MAXIMUM CONTROL JOINT SPACING SHALL BE 24 FT. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ENGINEER'S APPROVAL SHOWING PROPOSED CONTROL AND CONSTRUCTION JOINT LOCATIONS.
- 5. CONSTRUCTION JOINTS SHALL BE USED IN PLACE OF CONTROL JOINTS TO INTERRUPT A CONTINUOUS CONCRETE PLACEMENT.

I. SLAB-ON-GRADE FLATNESS AND LEVELNESS CRITERIA
PROVIDE A FLAT CONCRETE SLAB-ON-GRADE SURFACE MEETING THE TOLERANCE REQUIREMENTS PER ACI 117 AND THE FOLLOWING FLOOR FLATNESS/LEVELNESS REQUIREMENTS:

- 1. 1.50F \geq 35

- 2. 2.50F \geq 25
- J. TRENCH GRATE**
TRENCH GRATE SHALL BE SERRATED GW-150A 1 1/2"x 1/8" BY MCNICHOLS OR APPROVED EQUAL. ALL ENDS BANDED.
- K. PRECAST NOTES**
SEE PRECAST DRAWINGS BY OTHERS FOR ALL INFORMATION REQUIRED FOR PRECAST CONSTRUCTION.
CONTRACTOR TO COORDINATE PRECAST DRAWINGS WITH STRUCTURAL DRAWINGS AND ALL OTHER TRADES.
- 1. THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF ALL EMBED PLATES AND ALL OTHER FRAMING CONNECTIONS TO THE PRECAST STRUCTURE WITH ALL OTHER WORK.
 - 2. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW SHOWING LAYOUT, DIMENSIONS, OPENINGS, REINFORCEMENT, EMBED LOCATIONS, AND ALL OTHER INFORMATION REQUIRED TO PROPERLY CONSTRUCT THE PRECAST ELEMENTS. THE SUBMITTALS SHALL INCLUDE DRAWINGS, DETAILS, AND CALCULATIONS SHOWING LIFTING AND HANDLING STRESSES AND BRACING REQUIREMENTS. LIFTING AND BRACING DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF VIRGINIA.

SUBMITTALS
CONTRACTOR SHALL PROVIDE THE FOLLOWING PRIOR TO FABRICATION AND INSTALLATION FOR THE ENGINEER'S APPROVAL:

- A. PRODUCT DATA SHEETS FOR EACH MATERIAL TO BE INSTALLED.
- B. CONCRETE MIX DESIGN FOR FOOTINGS AND SLAB-ON-GRADE.
- C. SHOP DRAWINGS.
- D. MATERIAL AND MILL CERTIFICATIONS.

STATEMENT OF SPECIAL INSPECTIONS
REFERENCE THE STATEMENT OF SPECIAL INSPECTIONS CHECKLIST FOR REQUIRED INSPECTIONS DURING THE WORK. INSPECTIONS INCLUDE SOILS AND CONCRETE. THE CONTRACTOR SHALL COORDINATE WITH THE INSPECTOR TO MEET THE SPECIAL INSPECTION REQUIREMENTS.

ABBREVIATIONS AND NOTATIONS:

| | |
|-----------------|---|
| ACI | AMERICAN CONCRETE INSTITUTE |
| APPROX. | APPROXIMATELY |
| ASCE | AMERICAN SOCIETY OF CIVIL ENGINEERS |
| ARCH | ARCHITECT/ARCHITECTURAL |
| ASTM | AMERICAN SOCIETY FOR TESTING MATERIALS |
| B | BOTTOM |
| ℓ | BASELINE |
| BLDG | BUILDING |
| BTWN | BETWEEN |
| ℓ | CENTERLINE |
| CONT. | CONTINUOUS |
| DIA. OR Ø | DIAMETER |
| DL | DEAD LOAD |
| DWG | DRAWING |
| E.F. | EACH FACE |
| EL. OR ELEV. | ELEVATION |
| EQ. | EQUAL |
| EXP. | EXPANSION |
| E.W. | EACH WAY |
| HORIZ. | HORIZONTAL |
| IBC | INTERNATIONAL BUILDING CODE |
| JT | JOINT |
| LL | LIVE LOAD |
| MAX. | MAXIMUM |
| MIN. | MINIMUM |
| NOM. | NOMINAL |
| N.T.S. | NOT TO SCALE |
| O.C. | ON-CENTER |
| PCF | POUNDS PER CUBIC FOOT |
| PSF | POUNDS PER SQUARE FOOT |
| REF. | REFERENCE |
| S _{DS} | DESIGN 5 PERCENT DAMPED SPECTRAL RESPONSE PARAMETER AT SHORT PERIODS |
| S _{D1} | DESIGN 5 PERCENT DAMPED SPECTRAL RESPONSE ACCELERATION AT 1 SECOND |
| S _S | MAPPED MCE _s 5 PERCENT DAMPED SPECTRAL RESPONSE PARAMETER AT SHORT PERIODS |
| S ₁ | MAPPED MCE _s 5 PERCENT DAMPED SPECTRAL RESPONSE ACCELERATION AT 1 SECOND |
| S.O.G | SLAB-ON-GRADE |
| T | TOP |
| TOS | TOP OF SLAB |
| TYP. | TYPICAL |
| UNO | UNLESS NOTED OTHERWISE |
| VERT. | VERTICAL |
| W/C | WATER-CEMENTITIOUS RATIO |
| WWF | WELD WIRE FABRIC |



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 TEL 804.200.6500 FAX 804.560.1016 www.timmons.com

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| DATE | REVISION DESCRIPTION |
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DATE
 07/22/2022

DRAWN BY
 T. DAEKE

DESIGNED BY
 J. JUDY

CHECKED BY
 J. JUDY

SCALE
 AS NOTED

CONTRACTOR SHALL COORDINATE SLAB DIMENSIONS WITH PRE-CAST SHOP DRAWINGS PRIOR TO CONCRETE PLACEMENT

UTILITY AND PRE-CAST BUILDING TO BE DESIGNED BY OTHERS (TYP.)

THICKENED EDGE

PUMP PAD, REFER TO DETAIL (TYP.)

CONTROL JOINT, REFER TO DETAIL (TYP.)

SLAB ON-GRADE

PIPE TRENCH (G.C. CONFIRM DIMENSIONS AND LOCATION WITH PIPING REQUIREMENTS)

TRENCH GRATE (TYP.)

SLAB RE-ENTRANT CORNER BAR, #4 x 4'-0" (TYP.)

2'-9 1/2"

4'-0"

10'-5 1/2"

40'-6" (EDGE OF SLAB)

23'-3"

9'-8"

20'-6" (EDGE OF SLAB)

4'-0"

6'-0"

10'-0"

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S3.0

S3.0

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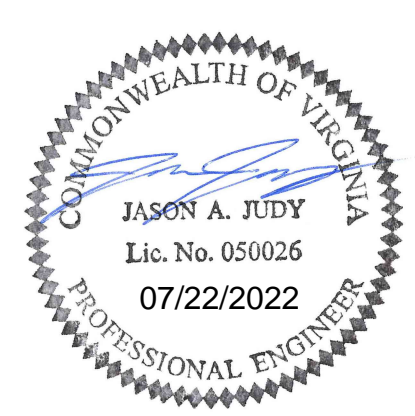
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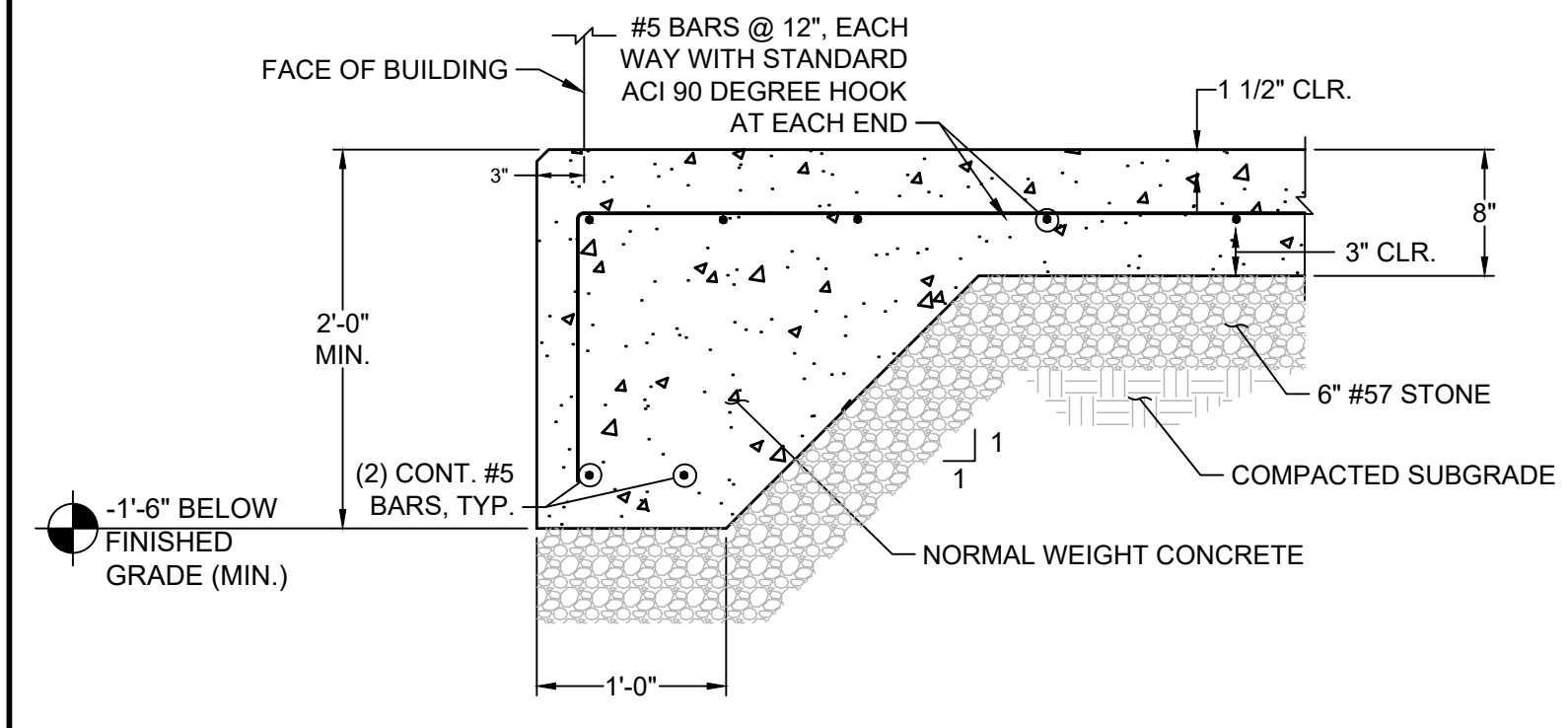
| DATE | DESCRIPTION |
|------------|---------------------|
| 07/22/2022 | DRAWN BY T. DAEKE |
| | DESIGNED BY J. JUDY |
| | CHECKED BY J. JUDY |
| | SCALE AS NOTED |

TIMMONS GROUP

ROUTE 10 BOOSTER PUMP STATION
 ISLE OF WIGHT COUNTY - VIRGINIA

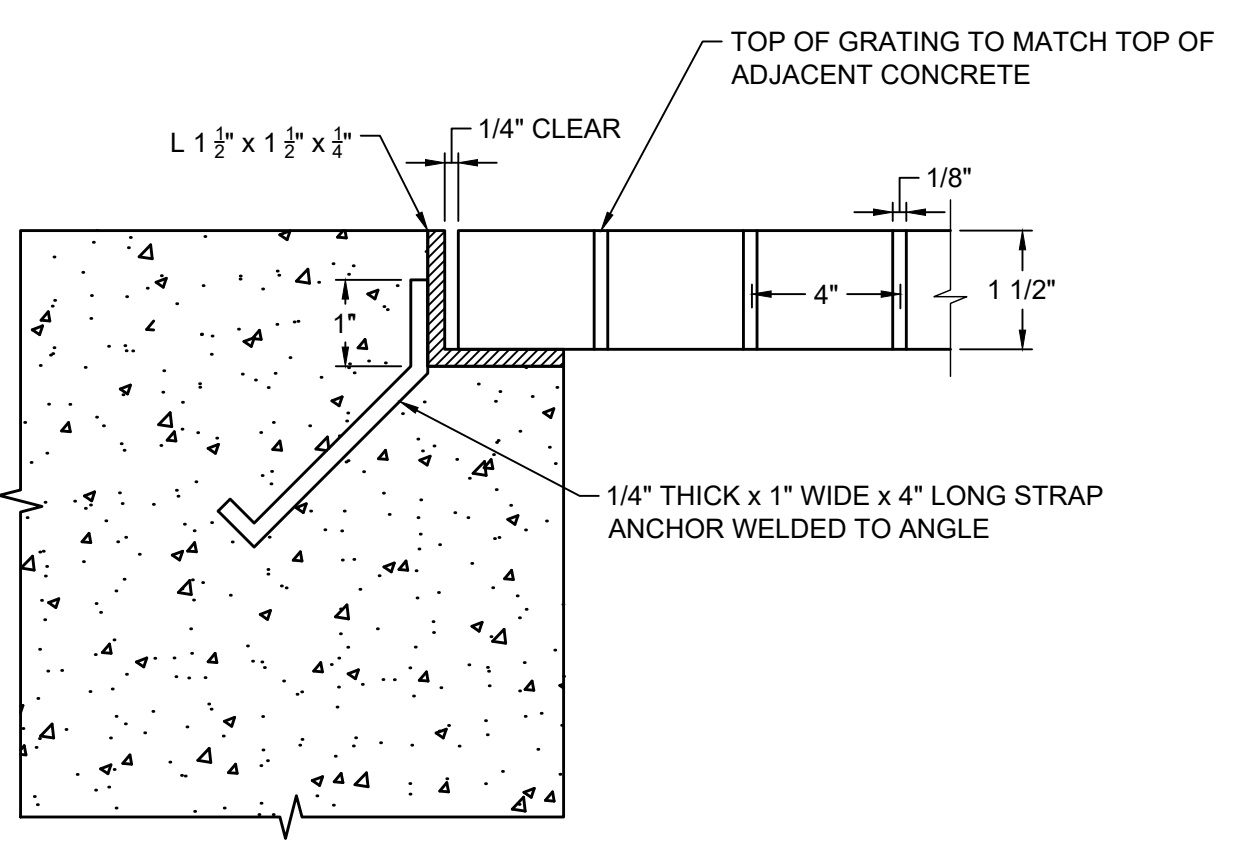
S.O.G. DETAILS

JOB NO. 48527
 SHEET NO. S3



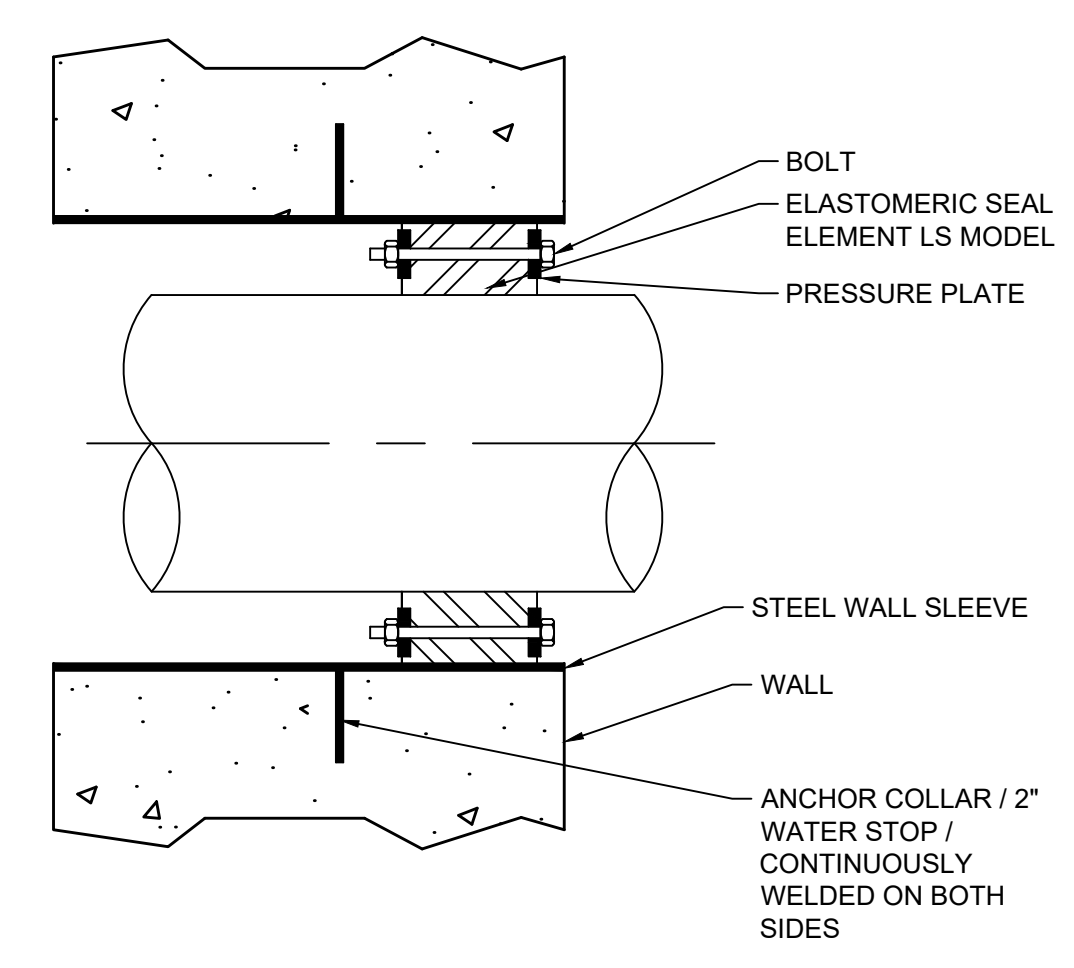
- NOTES:**
1. CONCRETE IN FOUNDATION SHALL BE CLASS A4 (4,500 PSI MIN.), AND SHALL BE PLACED IN A CONTINUOUS POUR. INTERNAL CONCRETE VIBRATION REQUIRED DURING PLACEMENT.
 2. ALL REINFORCING STEEL SHALL BE DEFORMED AND SHALL CONFORM TO ASTM A615 GRADE 60. ALL REINFORCING BAR DIMENSIONS ON THE DETAILED DRAWINGS ARE TO CENTERS OF BARS EXCEPT WHERE OTHERWISE NOTED AND ARE SUBJECT TO FABRICATION AND CONSTRUCTION TOLERANCES.

1 THICKENED EDGE DETAIL
 SCALE: 1" = 1'-0"

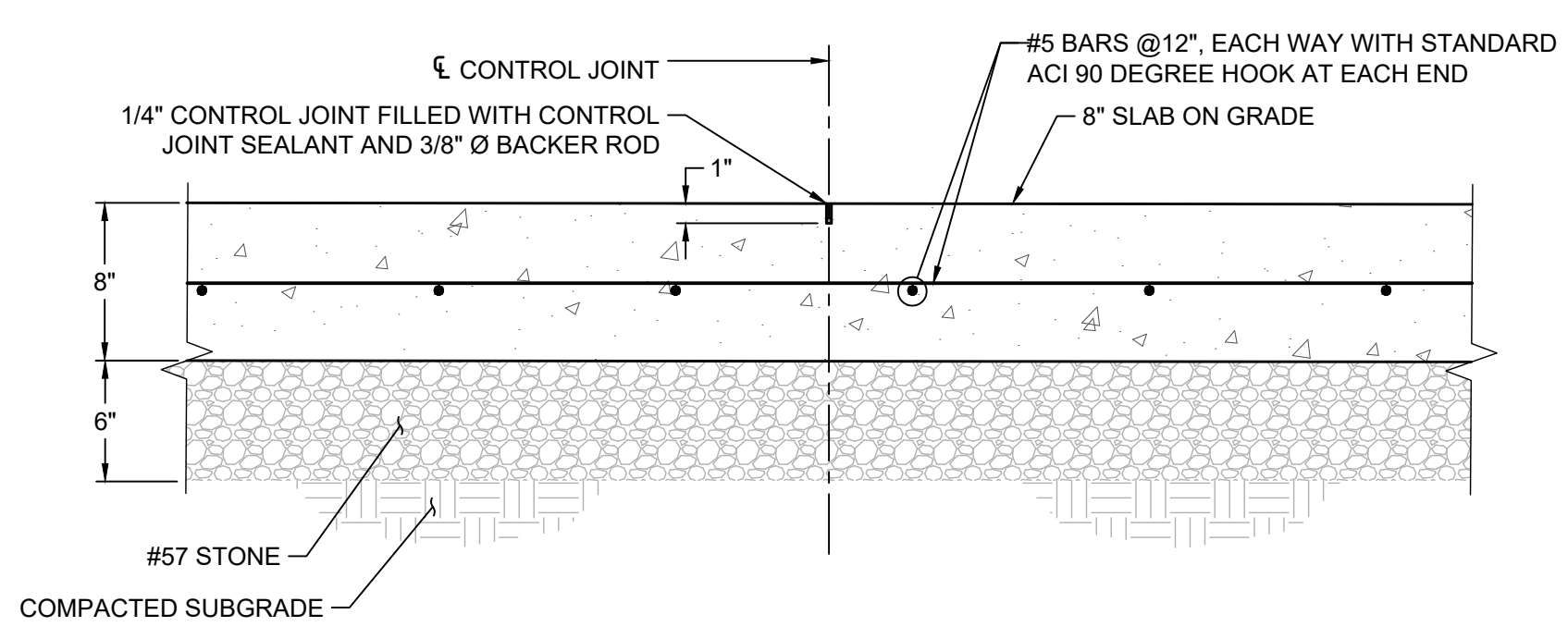


- NOTES:**
1. ATTACH GRATING TO SUPPORT ANGLE WITH STAINLESS STEEL GRATING SADDLE CLIPS AND BOLTS SPACED AT 2'-0" O.C. MAX.; MIN. TWO PER SIDE.
 2. ATTACH INDIVIDUAL GRATING UNITS WITH STAINLESS STEEL CLIPS AT 2'-0" O.C. MAX. TWO CLIPS PER SIDE.
 3. GRATING = 1 1/2" x 1/8" STEEL
 4. GRATING SPACED @ 4" x 1 3/16"

4 TYPICAL GRATING SUPPORT
 SCALE: N.T.S.

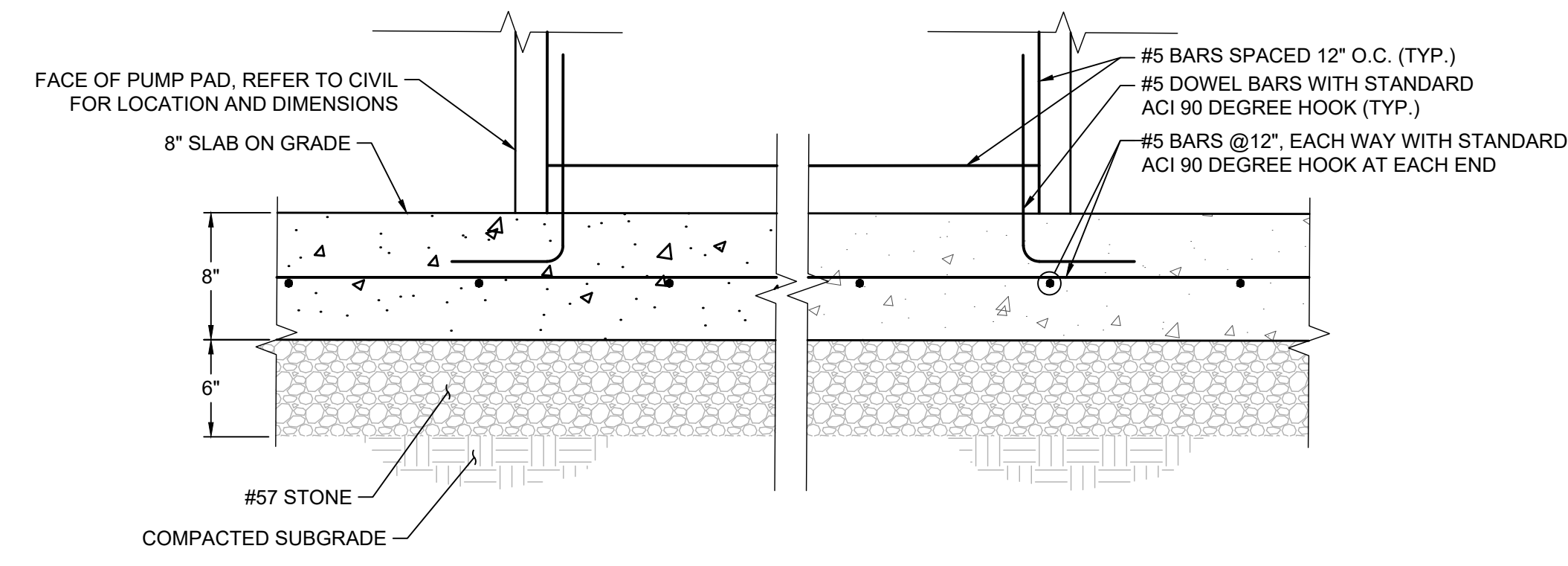


7 PIPE PENETRATION DETAIL
 SCALE: N.T.S.

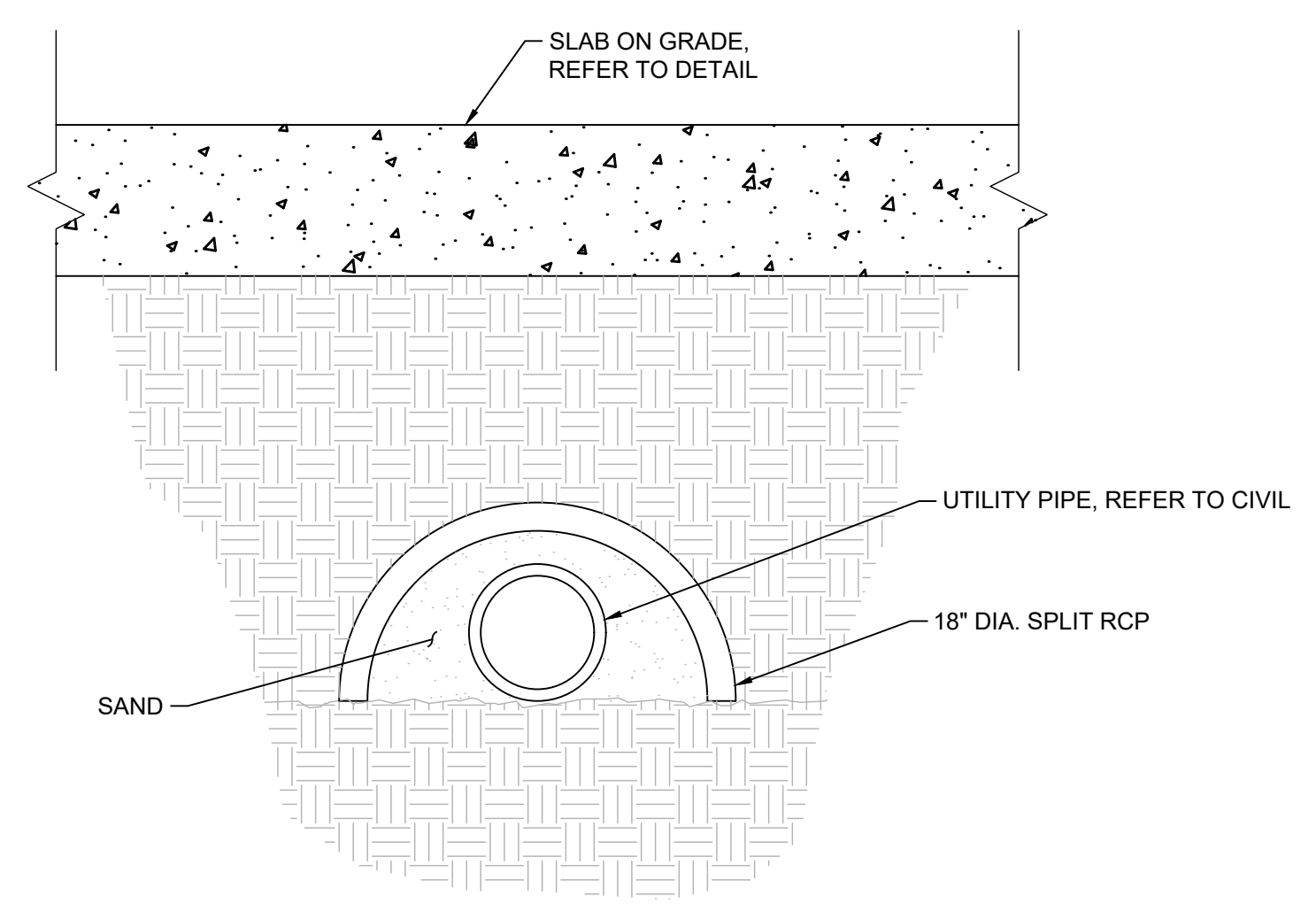


- NOTES:**
1. CONTROL JOINTS SHALL BE INSTALLED AT 24'-0" O.C. MAX. EACH WAY.
 2. JOINTS SHALL BE SAW-CUT.
 3. INSTALL THE BACKER ROD AND JOINT SEALANT MATERIAL ONCE CONCRETE HAS CURED.

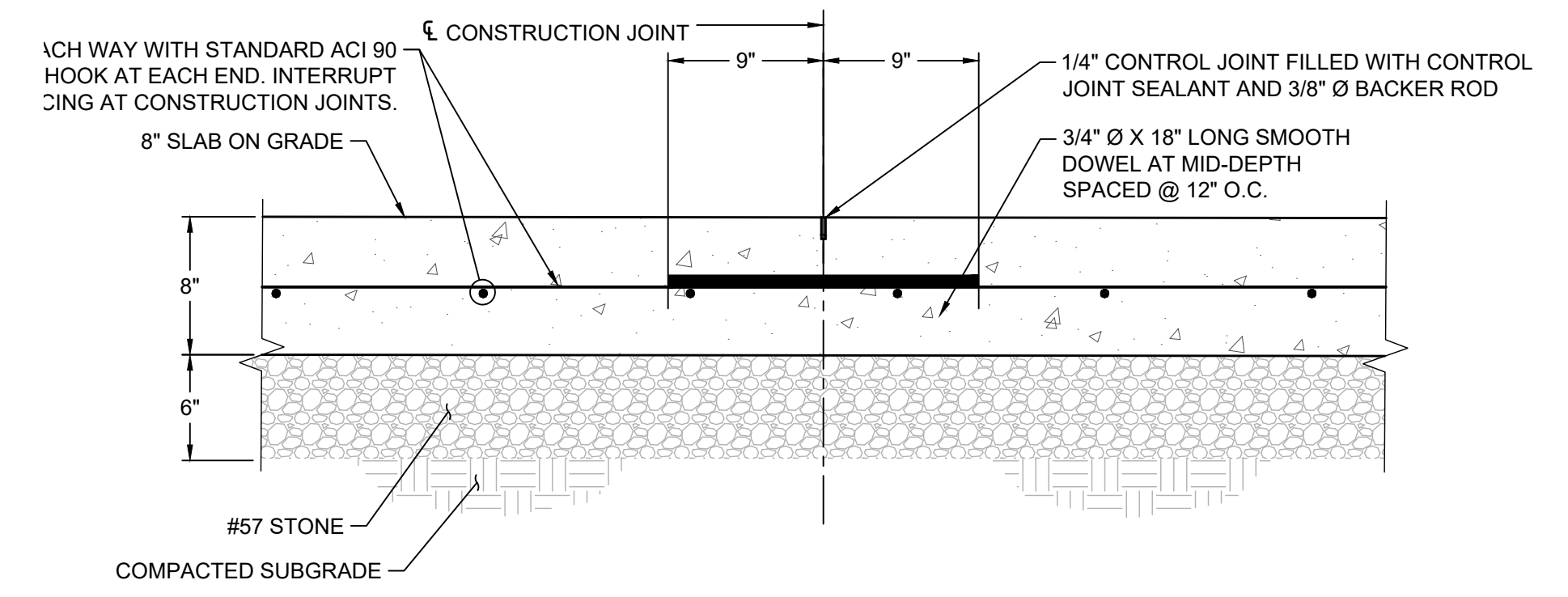
2 SECTION - S.O.G. CONTROL JOINT DETAIL
 SCALE: 1 1/2" = 1'-0"



5 PUMP PAD CONNECTION DETAIL
 SCALE: 1 1/2" = 1'-0"

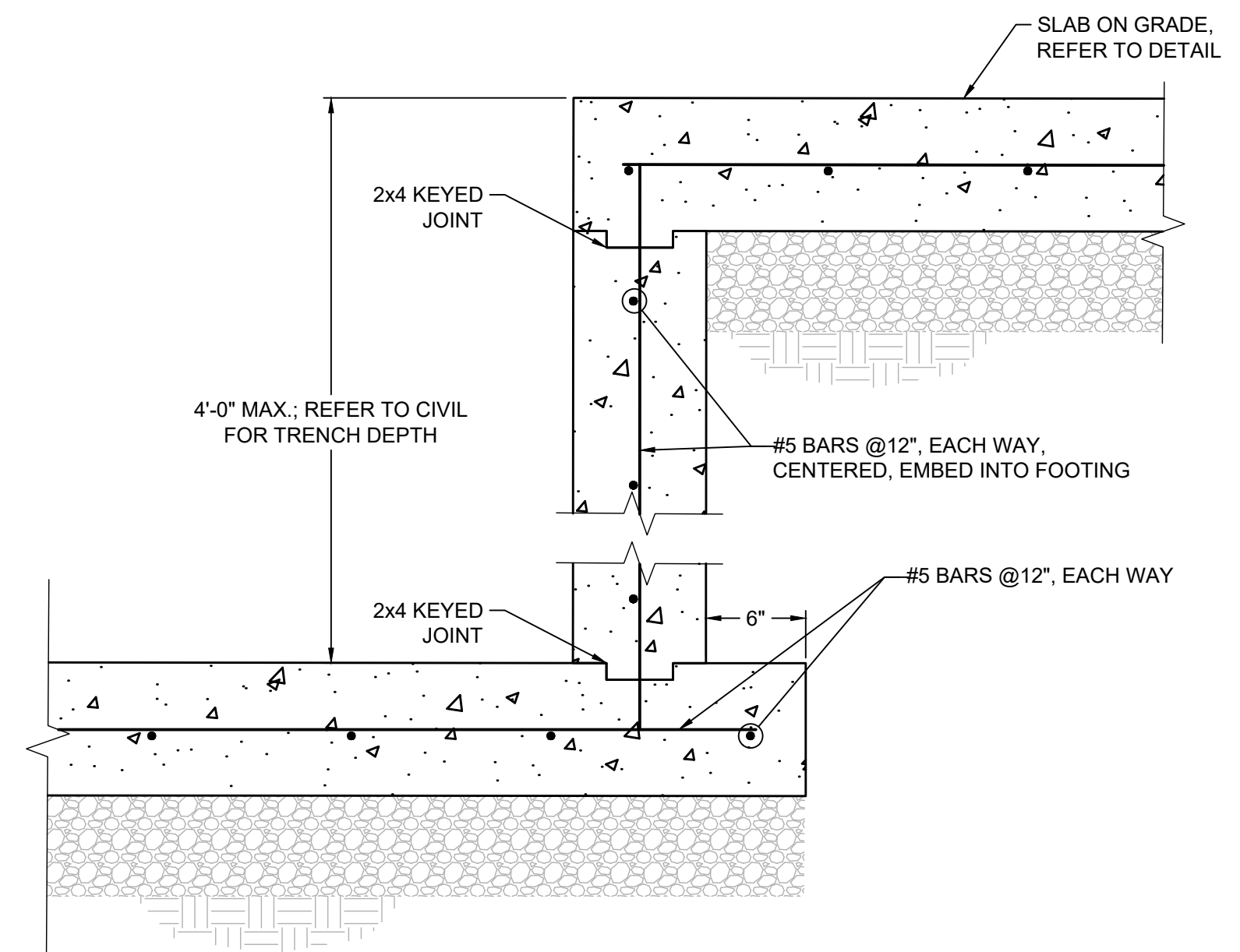


8 TYPICAL UTILITY COVER DETAIL
 SCALE: 1 1/2" = 1'-0"

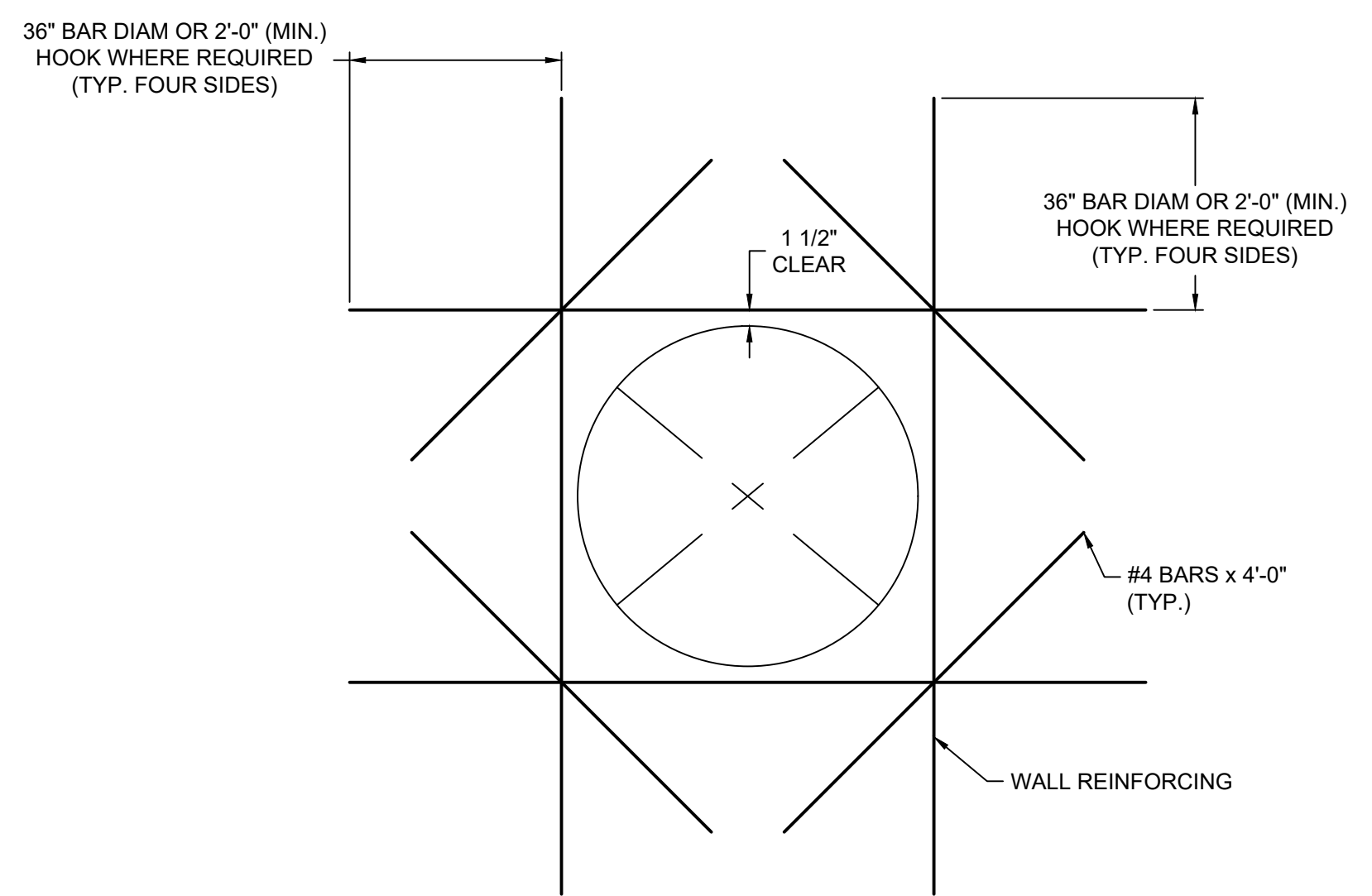


- NOTES:**
1. GREASE ONE 9" LONG SIDE OF EACH SMOOTH DOWEL AND SET IN PVC SLEEVE AT CONSTRUCTION JOINTS

3 SECTION - S.O.G. CONSTRUCTION JOINT DETAIL
 SCALE: 1 1/2" = 1'-0"



6 PIPE TRENCH WALLS DETAIL
 SCALE: 1 1/2" = 1'-0"



- NOTES:**
1. HOOK ALL INTERRUPTED BARS.
 2. PROVIDE 1/2 OF REINF. BAR AREA INTERRUPTED BY OPENINGS AT EACH SIDE OF OPENING IN THE SAME FACE - MINIMUM OF (2) #5 BARS EACH SIDE, EACH FACE.

9 TYPICAL REINF. AT CIRCULAR OPENING DETAIL
 SCALE: N.T.S.

Timmons.com\high\2020\1048527 - Route 10 Booster Pump Station\DWG\Model\48527-SPN1\TD1.dwg | Plotted on 7/29/2022 10:59 AM | by Jason Judy