P0215A-041

BID SET

August 2024

RESTON, VIRGINIA
Reston pump Station Electrical Upgrades

Fairfax Water

8570 Executive Park Avenue ~ Fairfax ~ Virginia ~ 22031

RESTON PUMP STATION ELECTRICAL UPGRADES

Fairfax Water Authority Project No. 0215A, Division 041

11030 Sunrise Valley Drive ~ Reston ~ Virginia ~ 20191

CODE SUMMARY

VIRGINIA CONSTRUCTION CODE (VCC) CITATIONS APPLICABLE TO PROVISIONS OF THE 2018 VIRGINIA EXISTING BUILDING CODE
USE GROUP: VCC 312 UTILITY AND MISCELLANEOUS GROUP U
CONSTRUCTION TYPE: VCC TABLE 601 TYPE IIB
ACCESSIBILITY: VCC 1103.2.4 UTILITY BUILDINGS ARE NOT REQUIRED COMPLY WITH ACCESSIBILITY REQUIREMENTS.

ENERGY CODE COMPLIANCE IS INDICATED IN COMCHECK DOCUMENTATION PROVIDE SEPARATE OF THESE DRAWINGS.

ELECTRICAL CODE:
2017 NATIONAL ELECTRICAL CODE

MECHANICAL CODE:
2018 VIRGINIA MECHANICAL CODE
2018 VIRGINIA ENERGY CONSERVATION CODE
2018 VIRGINIA STATEWIDE FIRE PREVENTION CODE

APPLICABLE CODE: 2018 VIRGINIA EXISTING BUILDING CODE
CHAPTER 4: ACCESSIBILITY
VEBC 402.1 CHANGE OF OCCUPANCY: NO CHANGE IN OCCUPANCY IS INCLUDED. NO ADDITIONAL REQUIREMENTS APPLY.

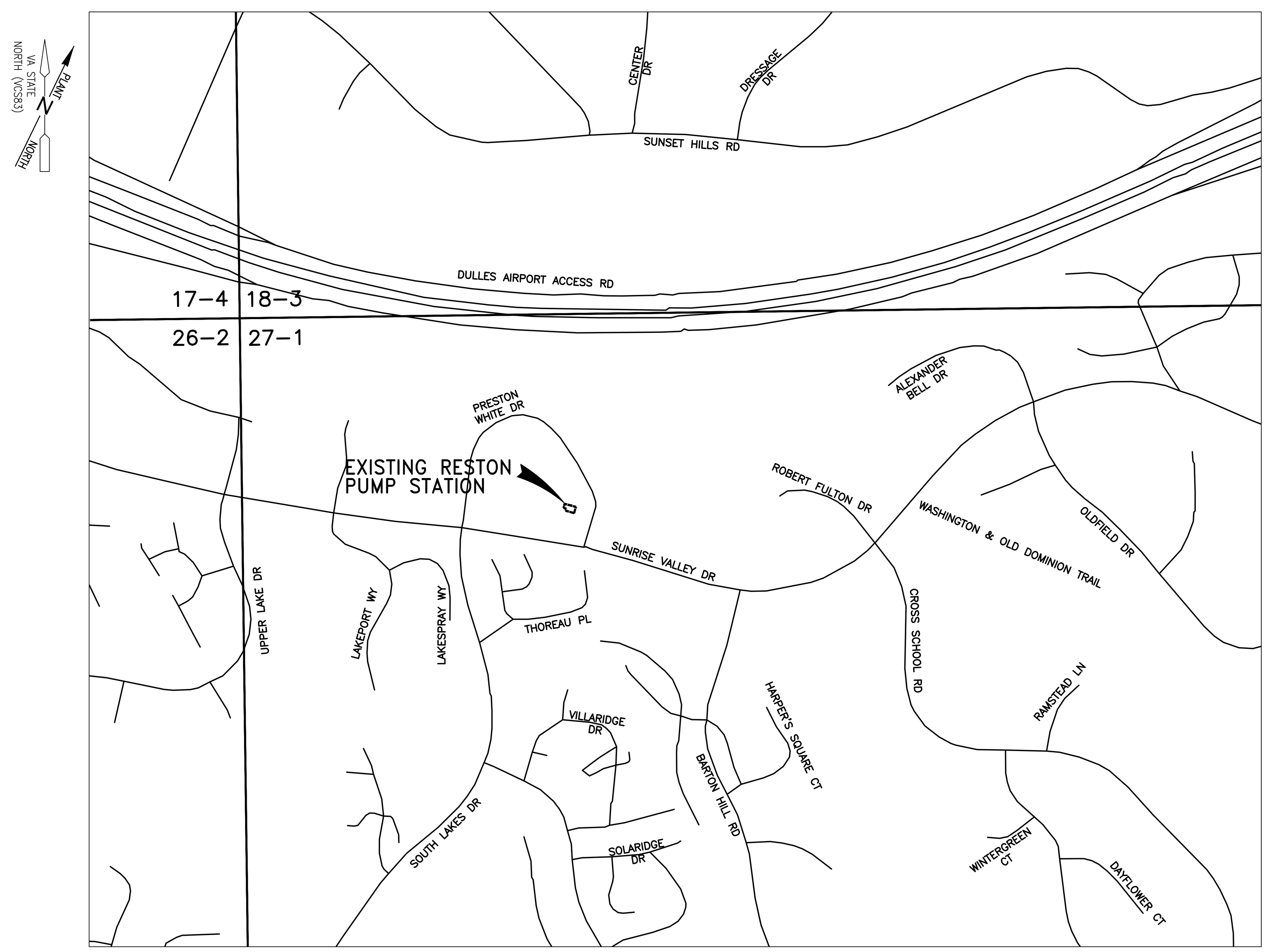
CHAPTER 6 - ALTERATIONS
VEBC 601.2 LEVEL OF ALTERATIONS:
VEBC 601.2.2 LEVEL 2: APPLIES PER VEBC 601.2.2.4. WORK IS REQUIRED TO COMPLY WITH SECTION 602 AND 603 WHERE APPLICABLE
VEBC 601.2.2.4: INSTALLATION INCLUDES NEW EQUIPMENT, MATERIALS, ELEMENTS AND FIXTURES.
VEBC 601.4: ENERGY CONSERVATION: NEW WORK MUST COMPLY WITH VIRGINIA ENERGY CONSERVATION CODE.
VEBC 601.4.6: LIGHTING
VEBC 601.4.6.1: COMMERCIAL LIGHTING ALTERED LIGHTING COMPLIES WITH SECTION C405 OF THE VECC - EXISTING INTERIOR LIGHT FIXTURES WILL BE ALTERED WITH NEW LED LIGHT FIXTURES.
VEBC 601.5: ACCESSIBILITY - SEE VEBC 402.1 ABOVE.

VEBC 602 ALTERATION - LEVEL 1
VEBC 602.2: CONFORMANCE - ALTERATIONS DO NOT MODIFY THE LEVEL OF FIRE PROTECTION OR THE LEVEL OF PROTECTION FOR THE MEANS OF EGRESS
VEBC 602.3: BUILDING ELEMENTS AND MATERIALS
VEBC 602.3.1: INTERIOR FINISHES AND TRIM - ALL NEW MATERIALS COMPLY WITH CHAPTER 8 OF VCC.
VEBC 602.3.1: MATERIALS AND METHODS - ALL NEW BUILDING ELEMENTS AND MATERIALS COMPLY WITH VCC, IEBC, IMC, AND IPC AS APPLICABLE.
VEBC 603.2.2: STRUCTURAL AND CONSTRUCTION LOADS -NO CHANGE TO ROOF LOADS.

VEBC 603 ALTERATION - LEVEL 2
VEBC 603.5: MECHANICAL - EXISTING BUILDING IS A NORMALLY UNOCCUPIED PUMP STATION WITH PUMPING SYSTEM EQUIPMENT AND ELECTRICAL EQUIPMENT AND DOES NOT REQUIRE OUTSIDE AIR PER ASHRAE 62.1.
VEBC 603.5.1: LOCAL EXHAUST - NOT APPLICABLE.
VEBC 603.7: STRUCTURAL - STRUCTURAL IMPROVEMENTS ARE RELATED TO THE REMOVAL OF EXISTING LOUVERS AND PROVIDING SUPPORT FRAMING FOR WALL MOUNTED AC UNITS IN THE SPACE WHERE THE LOUVERS WERE LOCATED.
VEBC 603.7.1: NEW STRUCTURAL ELEMENTS - NEW STRUCTURAL ELEMENTS WILL COMPLY WITH VCC
VEBC 603.7.2: MINIMUM DESIGN LOADS - NO CHANGE TO MINIMUM DESIGN LOADS
VEBC 603.7.3: EXISTING STRUCTURAL ELEMENTS CARRYING GRAVITY LOADS - GRAVITY LOADS ON EXISTING STRUCTURAL ELEMENTS ARE NOT INCREASED BY MORE THAN 5 PERCENT
VEBC 603.7.3.1: DESIGN LIVE LOAD - NO CHANGE TO DESIGN LIVE LOADS
VEBC 603.7.4: EXISTING STRUCTURAL ELEMENTS RESISTING LATERAL LOAD - DEMAND TO CAPACITY RATIO OF THE EXISTING STRUCTURAL ELEMENTS ARE NOT INCREASED BY MORE THAN 10 PERCENT
VEBC 603.7.5: VOLUNTARY LATERAL LOAD FORCE-RESISTING SYSTEM ALTERATIONS - NO CHANGE TO THE LATERAL - FORCE RESISTING SYSTEM
VEBC 603.7.6: VOLUNTARY SEISMIC IMPROVEMENTS - NO SEISMIC IMPROVEMENTS

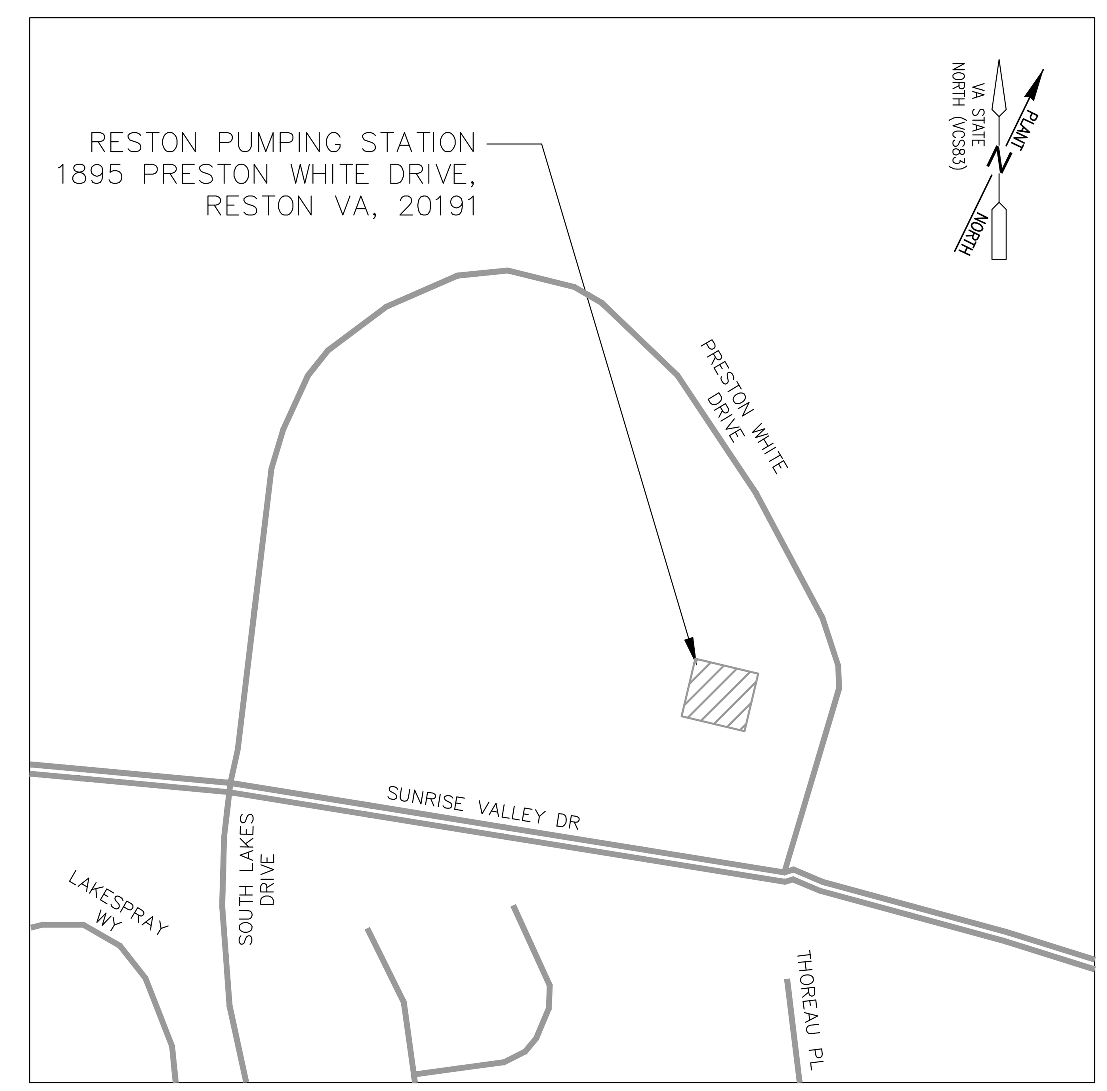
603.5 MECHANICAL: EXISTING BUILDING IS A NORMALLY UNOCCUPIED PUMP STATION WITH PUMPING SYSTEM EQUIPMENT AND ELECTRICAL EQUIPMENT AND DOES NOT REQUIRE OUTSIDE AIR PER ASHRAE 62.1.
603.5.1 LOCAL EXHAUST: NOT APPLICABLE.

603.7 STRUCTURAL:
603.7.1 NEW STRUCTURAL ELEMENTS: NEW STRUCTURAL ELEMENTS COMPLY WITH VCC
603.7.2 MINIMUM DESIGN LOADS: NO CHANGE TO MINIMUM DESIGN LOADS
603.7.3 EXISTING STRUCTURAL ELEMENTS CARRYING GRAVITY LOADS: GRAVITY LOADS ON EXISTING STRUCTURAL ELEMENTS ARE NOT INCREASED BY MORE THAN 5 PERCENT
603.7.3.1 DESIGN LIVE LOAD: NO CHANGE TO DESIGN LIVE LOADS
603.7.4 EXISTING STRUCTURAL ELEMENTS RESISTING LATERAL LOADS: DEMAND TO CAPACITY RATIO OF EXISTING STRUCTURAL ELEMENTS ARE NOT INCREASED BY MORE THAN 10 PERCENT
603.7.5 VOLUNTARY LATERAL FORCE - RESISTING SYSTEM ALTERATIONS: NO CHANGE TO LATERAL - FORCE RESISTING SYSTEM
603.7.6 VOLUNTARY SEISMIC IMPROVEMENTS: NO SEISMIC IMPROVEMENTS



PROJECT LOCATION MAP
SCALE: 1" = 500'

GRAPHIC SCALE
500 0 250 500 1000
(IN FEET)
1 inch = 500 ft.



VICINITY MAP
NOT TO SCALE

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
8/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: C. MATA DRAWN: J. SOSA CHECKED: T. MOHAMMED	NO.	DATE	REVISION
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SCALE

CDM Smith

Fairfax Water

RESTON, VIRGINIA

COVER SHEET

FILE NAME: G-00-COVER.PDF		
PROJECT	DIVISION	DATE: 08-27-2024
0215A	041	DRAWING G-0
TAX MAP: 027-1		SHEET 1 of 34

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5	C-3	SITE DEMOLITION AND EROSION & SEDIMENT CONTROL PLAN
6	C-4	SITE LAYOUT, PLANTING, AND PAVING PLAN
7	C-5	SITE GRADING AND YARD PIPING PLAN
8	CD-1	CIVIL DETAILS I
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10	A-1	ARCHITECTURAL ABBREVIATIONS AND SYMBOLS
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COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
6/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: C. MATA
DRAWN: J. SOSA
CHECKED: T. MOHAMMED

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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

DRAWING INDEX

FILE NAME: G_01_DRAWING_INDEX.PDF

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING G-1
TAX MAP:	027-1	SHEET 2 of 34

GENERAL NOTES

REGULATORY PERMITTING AND SAFETY

1. CONTRACTOR SHALL ABIDE BY ALL APPLICABLE GOVERNMENTAL AND REGULATORY STANDARDS AND REQUIREMENTS AND SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FOR CONSTRUCTION OF THE PUMP STATION FACILITIES SHOWN IN THE DRAWING, EXCLUDING PERMITS OBTAINED BY THE OWNER. CONTRACTOR SHALL ABIDE BY REQUIREMENTS OF PERMITS OBTAINED BY THE OWNER AND CONTAINED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ARRANGING AND COORDINATING ALL REQUIRED INSPECTIONS BY REGULATORY AGENCIES INCLUDING PROVIDING ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO ACCOMMODATE THE INSPECTIONS.
2. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING GENERAL SAFETY AT AND ADJACENT TO THE PROJECT AREA, INCLUDING THE PERSONAL SAFETY OF THE CONSTRUCTION STAFF AND THE GENERAL PUBLIC, AND FOR THE SAFETY OF PUBLIC AND PRIVATE PROPERTY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH SAFETY IN ACCORDANCE WITH 29 CFR 1926 SUBPART P (OSHA).
4. CONTRACTOR SHALL PROVIDE ADEQUATE MEASURE FOR DEWATERING IF GROUNDWATER IS ENCOUNTERED WITHIN OR NEAR THE EXCAVATION ZONES, INCLUDING ALL REQUIRED DEWATERING NOTIFICATIONS, PERMITS AND ASSOCIATED FEES.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ROADWAYS AND SIDEWALKS ADJACENT TO THE PROJECT FREE OF MUD, TRASH, AND CONSTRUCTION DEBRIS. CONTRACTOR SHALL CLEAN ROADWAY, SIDEWALKS, DRIVEWAYS, AND OTHER PAVED SURFACES THROUGHOUT THE DAY AND KEEP CLEAN FOR VEHICLES AND PEDESTRIANS.

GENERAL CONSTRUCTION

1. CONTRACTOR SHALL VERIFY DIMENSIONS AND SITE CONDITIONS IN FIELD AND REPORT ANY DISCREPANCY TO THE ENGINEER PRIOR TO COMMENCING WORK.
2. CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PROTECT ABUTTING PROPERTY, UTILITIES, PEDESTRIANS AND VEHICULAR TRAFFIC.
3. CONTRACTOR SHALL NOT BLOCK ACCESS TO FIRE HYDRANTS, OR BUILDING FIRE SERVICE CONNECTION AT ANY TIME DURING THE PERFORMANCE OF THE WORK. ACCESS SHALL BE MAINTAINED AT ALL TIMES UNLESS OTHERWISE APPROVED BY THE LOCAL FIRE DEPARTMENT OR OTHER GOVERNING AGENCY.
4. MATERIAL OR EQUIPMENT SHALL NOT BE STORED ON OR RESTRICT ACCESS TO VALVE BOXES, MANHOLES, VAULTS, OR OTHER UTILITY SYSTEMS.
5. WHEN USING PUBLIC ROADS FOR TRANSPORTING PIPE AND EQUIPMENT, THE CONTRACTOR SHALL FOLLOW THE LAWS FOR ROAD WEIGHT RESTRICTIONS. DAMAGE CAUSED BY CONSTRUCTION VEHICLES DURING PIPE CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. CONTRACTOR SHALL ADHERE TO THE GOVERNING MUNICIPALITY'S NOISE ORDINANCE.
7. CONTRACTOR IS RESPONSIBLE FOR SNOW AND ICE REMOVAL WITHIN THE WORK AREA.
8. CONTRACTOR SHALL CLEAN ROADWAY, SIDEWALKS, DRIVEWAYS, AND OTHER PAVED SURFACES THROUGHOUT THE DAY.
9. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL LAWS GOVERNING HOURS DURING WHICH CONSTRUCTION EQUIPMENT MAY BE OPERATED.
10. DURING CONSTRUCTION OPERATIONS, IF ANY LOOSE MATERIALS ARE DEPOSITED IN THE FLOW LINE OF THE GUTTERS OR DRAINAGE STRUCTURES SO THAT THE NATURAL FLOW OF WATER IS OBSTRUCTED, THE OBSTRUCTION SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF THE CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES SHALL BE FREE FROM ALL DIRT AND DEBRIS.

ACCESS AND WORK AREA REQUIREMENTS

1. CONTRACTOR'S OPERATIONS AND ALL ITEMS (PERSONNEL, EQUIPMENT, MATERIALS, ETC.) RELATED TO THE WORK MUST STAY WITHIN THE PERMANENT AND TEMPORARY EASEMENTS SHOWN ON THE DRAWINGS, WITHIN THE PUBLIC RIGHT OF WAY AND IN THE DESIGNATED AREAS ON THE OWNER'S PROPERTY. CONTRACTOR SHALL MAINTAIN STAKES UNTIL WORK IS COMPLETE, INCLUDING PROPERTY RESTORATION. CONTRACTOR SHALL NOT OBSTRUCT PRIVATE OR PUBLIC ROADWAYS OR STREETS. ACCESS ROUTES OR OPERATIONS WHICH FALL OUTSIDE THE DESIGNATED AREAS WILL ONLY BE ALLOWED WITH PRIOR LANDOWNER WRITTEN CONSENT. CONTRACTOR SHALL PROVIDE THE OWNER WITH A COPY OF ANY AGREEMENTS MADE BETWEEN LANDOWNERS AND THE CONTRACTOR.
2. GENERAL ACCESS TO ALL RESIDENTIAL, COMMERCIAL, AND MUNICIPAL FACILITIES MUST BE MAINTAINED AT ALL TIMES.
3. ALL AREAS WITH OPEN EXCAVATION, OPEN VAULTS, MANHOLES, OR OTHER STRUCTURES SHALL BE ENTIRELY FENCED WITH TEMPORARY CONSTRUCTION FENCING OR OTHER MEANS.
4. ALL LOCKING DOORS SHALL BE KEPT CLOSED ON OWNER'S PROPERTY. CONTRACTOR IS SOLELY RESPONSIBLE FOR SITE SECURITY AND ACCESS CONTROL AND SHALL PROVIDE APPROPRIATE STAFFING AND ACCESS CONTROLS INCLUDING LOCKS AS REQUIRED.
5. CONTRACTOR SHALL PROVIDE MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) PLANS, IF REQUIRED, IN ACCORDANCE WITH THE REQUIREMENTS OF FAIRFAX COUNTY FOR REVIEW AND APPROVAL. IF THE ROADWAY MUST BE CLOSED TO FACILITATE CONSTRUCTION ACTIVITIES, ACCESS MUST BE MAINTAINED TO PRIVATE DRIVES AT ALL TIMES. CONTRACTOR SHALL NOTIFY PRIVATE DRIVE OWNERS A MINIMUM OF 7 CALENDAR DAYS PRIOR TO AFFECTING ACCESS TO DRIVES. NOTICE SHALL PROVIDE THE EXPECTED DURATION OF CLOSURE.
6. CONTRACTOR SHALL PROVIDE APPROPRIATE SIGNAGE, BARRICADES, FLAGMEN, ETC. REQUIRED TO MAINTAIN SAFE TRAFFIC FLOW AT ALL TIMES FOR ANY WORK ACTIVITY ON OR ADJACENT TO ANY CITY, COUNTY, OR STATE ROADWAY. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. CONTRACTOR SHALL NOTIFY ALL CIVIC AUTHORITIES, EMERGENCY UNITS AND SCHOOL DISTRICTS OPERATING WITHIN THE AREA OF THE PROPOSED WORK OF LANE CLOSURES AND CONSTRUCTION SCHEDULES IN WRITING A MINIMUM OF 30 CALENDAR DAYS PRIOR TO START OF CONSTRUCTION.
8. CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS AT LEAST 7 CALENDAR DAYS PRIOR TO PERFORMING ANY WORK ON THEIR PROPERTY. CONTRACTOR SHALL ALSO DISTRIBUTE A LETTER TO ALL AFFECTED PROPERTY OWNERS THAT INCLUDES NAMES AND TELEPHONE NUMBERS OF CONTRACTOR'S CONTACTS, A DESCRIPTION OF WORK TO BE DONE, AND THE TIME FRAME FOR DOING THE WORK. A COPY OF THE NOTICE LETTERS SHALL BE SUBMITTED TO THE ENGINEER AND OWNER.
9. CONTRACTOR MAY ACQUIRE ADDITIONAL TEMPORARY CONSTRUCTION EASEMENTS AT HIS OWN COST, IF HE/SHE SO CHOOSES. IF THE CONTRACTOR ACQUIRES ADDITIONAL TEMPORARY EASEMENTS, HE/SHE SHALL PROVIDE COPIES OF THE WRITTEN AGREEMENT TO THE OWNER. THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR ANY DAMAGES AS A RESULT OF USE OF ADDITIONAL TEMPORARY EASEMENTS.
10. TWELVE (12) FOOT CLEARANCE MUST BE MAINTAINED AROUND EXISTING FACILITIES AND ACCESS TO BUILDINGS AND EQUIPMENT MUST BE PROVIDED TO OPERATIONS STAFF AT ALL TIMES.

EXCAVATION AND BACKFILL

1. STATE ONE-CALL SYSTEM: PRIOR TO CONSTRUCTION ALL UTILITIES SHALL BE VERIFIED BY NOTIFYING THE VIRGINIA MISS UTILITY CALL CENTER 1-800-552-7001. ALL UTILITY COMPANIES WITH INTERESTS WITHIN THE LIMITS OF THE CONSTRUCTION SHALL BE NOTIFIED A MINIMUM OF 72 HOURS PRIOR TO CONSTRUCTION.
2. OPEN EXCAVATIONS, TRENCHES AND PIPE SHALL BE PROTECTED FROM STORMWATER AT ALL TIMES BOTH DURING WORK AND NON-WORK ACTIVITIES. PROTECTION SHALL CONSIST OF TEMPORARY BERMS, PUMPS AND PIPING TO RE-ROUTE STORMWATER AROUND AND/OR OVER OPEN EXCAVATIONS.
3. CONTRACTOR SHALL ASSUME GROUNDWATER LEVEL IS AT GRADE FOR BIDDING AND DESIGN PURPOSES. THE CONTRACTOR SHALL ANTICIPATE THE INSTALLATION OF A DEWATERING SYSTEM AND SHALL ENGAGE A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VIRGINIA TO DESIGN SUCH SYSTEM.
4. CONTRACTOR SHALL SECURE EXCAVATION AT THE END OF EACH DAY. NO TRENCHES MAY BE LEFT OPEN OVERNIGHT.
5. CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES GOVERNING SAFE LOADING OF EXCAVATIONS WITH EXCAVATED MATERIAL. EXCAVATED MATERIAL WHICH IS NOT USED FOR BACKFILL SHALL BE CONTINUALLY REMOVED FROM THE SITE.
6. STOCKPILING OF EXCESS MATERIALS SHALL BE WITHIN THE LIMITS OF WORK AS DESIGNATED ON THE DRAWINGS. IF CONTRACTOR REQUIRES AREAS FOR STOCKPILING GREATER THAN AVAILABLE WITHIN THE LIMITS OF WORK, CONTRACTOR SHALL OBTAIN ADDITIONAL AREAS AT NO ADDITIONAL EXPENSE TO THE OWNER.
7. THE MAXIMUM HEIGHT OF THE STOCKPILE FOR EXCAVATED AND BACKFILL MATERIALS SHALL NOT EXCEED 8 FEET. CONTRACTOR MAY STOCKPILE EXCAVATED MATERIALS ON SITE AS APPROVED BY THE ENGINEER FOR A MAXIMUM OF 5 WORKING DAYS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8. ALL HAUL TRUCKS LEAVING AND ENTERING THE LIMITS OF WORK SHALL BE COVERED. ALL TRUCKS AND EQUIPMENT LEAVING THE LIMITS OF WORK SHALL HAVE NO WATER LEAKING FROM THEM. ALL TRUCKS AND EQUIPMENT SHALL REMOVE DUST, ROCKS, AND BUILT-UP OR CAKED-ON SOILS AND DEBRIS FROM EXTERIOR SURFACES, TRACKS, AND TIRES BEFORE LEAVING THE LIMITS OF WORK.
9. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA REGULATIONS. ALL EXCAVATION AND SUPPORT SYSTEMS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VIRGINIA WHO SHALL BE ENGAGED BY THE CONTRACTOR.

WORK AREA RESTORATION

1. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE WORK AREA AS SHOWN ON THE DRAWINGS. IF NOT OTHERWISE SPECIFIED, ALL STREETS, DRIVEWAYS, FENCING, LANDSCAPING, AND OTHER EXISTING IMPROVEMENTS SHALL BE RETURNED TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL RESTORE GROUND TO ORIGINAL GRADE AND PREVENT PONDING OF STORMWATER RUNOFF ON ALL GROUND DISTURBED BY CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL CLEAN THE WORK AREA OF ANY AND ALL TRASH AND OTHER CONSTRUCTION DEBRIS.
4. IT SHALL BE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE PAVEMENT TO THE SAME LINE AND GRADE THAT EXISTED PRIOR TO PIPELINE CONSTRUCTION.
5. CONTRACTOR SHALL RESTORE, AT THEIR OWN EXPENSE, TEMPORARY ROADS AND WORK AREAS TO PRE-CONSTRUCTION CONDITIONS.
6. CONTRACTOR SHALL RESEED ALL GRASSED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. INSTALL SOD IN AREAS REQUIRED BY THE CONTRACT DOCUMENTS.
7. DAMAGED CURB OR CURB AND GUTTERS SHALL BE SAW CUT A MINIMUM OF 10 FEET ON EITHER SIDE OF THE DAMAGE EXTENTS AND REPLACED. ENGINEER SHALL HAVE FINAL DETERMINATION OF DAMAGED AREAS AND EXTENTS.

TREES

1. ALL TREE PROTECTION MEASURES SHALL BE ENTIRELY WITHIN THE LIMITS OF WORK SHOWN ON THE DRAWINGS. TREE PROTECTION SHALL BE PERFORMED AS REQUIRED BY THE GOVERNING LOCAL AGENCIES.
2. TREES REMOVED OR DAMAGED TO SUCH AN EXTENT THEY WILL NOT SURVIVE DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST. REPLACEMENT TREES SHALL BE OF THE SAME SPECIES AND AT LEAST 2.5-INCH CALIPER, BALLED, AND BAGGED. THE TREES SHALL BE PLANTED WITHIN A PLACE TO BE SELECTED BY THE OWNER. THE TREE SHALL BE GUARANTEED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE OF PLANTING.
3. CONTRACTOR SHALL OBTAIN A TREE REMOVAL PERMIT AS MAY BE REQUIRED BY THE GOVERNING AGENCY IF TREE REMOVAL IS REQUIRED.
4. CONTRACTOR SHALL REMOVE TREES ONLY AS SHOWN ON THE DRAWINGS OR AS AUTHORIZED BY THE ENGINEER.

UTILITIES

1. OWNER DOES NOT GUARANTEE THE COMPLETENESS OR ACCURACY OF EXISTING UTILITIES AND STRUCTURES SHOWN ON THE DRAWINGS. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN IN THE DRAWINGS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE COMMENCING WORK. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES RESULTING FROM FAILURE TO EXACTLY LOCATE AND PRESERVE THE UNDERGROUND UTILITIES. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE APPROPRIATE FACILITY OWNER TO REPORT ANY DAMAGE TO AN EXISTING UTILITY OR STRUCTURE.
2. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO MANUFACTURING OF PIPE AND SUFFICIENTLY IN ADVANCE OF THE CONSTRUCTION SO THAT IF IT IS NECESSARY TO CHANGE OR MOVE THE UTILITY, THE PROGRESS OF WORK WILL NOT BE DELAYED. ANY EXISTING UTILITY DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED IMMEDIATELY WITH LIKE OR BETTER MATERIALS.
3. THE CONTRACTOR IS TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES WITHIN THE LIMITS OF THE SITE IMPROVEMENTS. ANY UTILITY, WHETHER SHOWN OR NOT, THAT IS DAMAGED BY THE CONTRACTOR DURING EXCAVATION SHALL BE REPAIRED IMMEDIATELY AT NO EXPENSE TO THE OWNER. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS TO UTILITIES WITHOUT THE AUTHORIZATION OF THE ENGINEER, THE CONTRACTOR ASSUMES THE RESPONSIBILITY FOR SAID CORRECTIONS OR ADJUSTMENTS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH HAVE OCCURRED THROUGH HIS/HER FAILURE TO LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES, OR OTHER FEATURES.
4. THE CONTRACTOR SHALL NOTIFY VIRGINIA MISS UTILITY CALL CENTER (1-800-552-7001) AT LEAST 72 HOURS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO THE START OF EXCAVATION TO DETERMINE THE LOCATION OF EXISTING UTILITIES WITH TEST PITS. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY. THE INFORMATION ON EXISTING UTILITIES SHALL BE PROVIDED TO THE ENGINEER PRIOR TO ORDERING PIPE MATERIALS.
5. THE CONTRACTOR IS TO PROVIDE TO THE ENGINEER FIELD SKETCHES OF EACH TEST PIT CONDUCTED THAT INCLUDES, BUT IS NOT LIMITED TO DEPTH, INVERTS AND MATERIALS OF THE UTILITIES DISCOVERED DURING THE INVESTIGATION. THIS INFORMATION IS TO BE PROVIDED TO THE ENGINEER PRIOR TO ORDERING ANY PIPING MATERIALS SO THAT ADJUSTMENTS IN THE VERTICAL AND HORIZONTAL ALIGNMENT CAN BE MADE, IF NECESSARY.
6. WHENEVER THE FIELD VERIFIED LOCATION OF BURIED UTILITIES AS DETERMINED BY THE CONTRACTOR CONFLICTS WITH THE LOCATION OF PROPOSED WORK AS INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER. THE LOCATION OF THE PROPOSED WORK SHALL BE ADJUSTED TO SUIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER. THE UTILITY IN CONFLICT MAY BE DESIGNATED FOR RELOCATION BY THE CONTRACTOR IN ACCORDANCE WITH THE UTILITY RELOCATION ALLOWANCE, AS APPROVED BY THE ENGINEER.
7. CONTRACTOR SHALL PROTECT EXISTING UTILITIES, AND SHALL BRACE AND SUPPORT THE UTILITIES PROPERLY TO PREVENT SETTLEMENT, DISPLACEMENT, OR DAMAGE TO THE UTILITIES. CONTRACTOR SHALL ALSO MEET SPECIAL REQUIREMENTS FOR UTILITIES IDENTIFIED HEREIN. THE CONTRACTOR SHALL LIMIT THE EXTERNAL LOADING ON EXISTING UTILITIES CAUSED BY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL USE CRANE PADS OR TIMBER PADS TO DISTRIBUTE EQUIPMENT LOADS. THE CONTRACTOR SHALL VERIFY ACCEPTABLE LOADING FOR EXISTING UTILITIES PRIOR TO STAGING EXTERNAL LOADS ON THE SITE.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SERVICE LINES CROSSED OR EXPOSED BY HIS/HER CONSTRUCTION OPERATIONS. WHERE EXISTING SERVICE LINES ARE CUT, BROKEN OR DAMAGED THE CONTRACTOR SHALL IMMEDIATELY REPLACE THE SERVICE LINES IN KIND WITH LIKE OR BETTER MATERIALS, AT NO ADDITIONAL COST TO THE OWNER.
9. CONTRACTOR, AT THEIR DISCRETION, MAY TUNNEL UNDER EXISTING UTILITIES OR ROADWAYS OTHER THAN THOSE CROSSINGS SPECIFICALLY SHOWN ON THE DRAWINGS, AT NO ADDITIONAL COST TO THE OWNER.
10. CONTRACTOR SHALL VERIFY THE VERTICAL CLEARANCE REQUIREMENTS OF OVERHEAD UTILITIES AND STRUCTURES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE OWNERS OF THE OVERHEAD UTILITIES AND STRUCTURES TO DETERMINE ANY WORK RESTRICTIONS AROUND THEIR FACILITIES. PROVIDE VISUAL WARNINGS OF LIMITS IN WORK AREA.
11. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS OF THE "HIGH VOLTAGE PROXIMITY ACT."
12. NOT ALL PAVEMENT MARKINGS ARE SHOWN. CONTRACTOR SHALL REPLACE ALL PAVEMENT MARKING AS SPECIFIED.
13. ANY GAS MAINS THAT FALL WITHIN THE "ANGLE OF REPOSE" MUST BE PROTECTED BY INSTALLING SHEETING THAT IS TO BE LEFT IN PLACE. THE ANGLE OF REPOSE IS DEFINED AS A 45 DEGREE ANGLE DRAWN HORIZONTALLY FROM THE EDGE OF THE TRENCH TO THE FINISHED GRADE.

GENERAL CIVIL NOTES

1. PAVEMENT, CURB, CURB AND GUTTER, SIDEWALK, AND OTHER PAVED SURFACE REPLACEMENTS SHALL BE AS SHOWN ON THE DRAWINGS. IF SURFACES ARE ENCOUNTERED OTHER THAN AS SHOWN, REPLACEMENT SHALL BE THE IN-KIND MATERIAL AND DEPTH.
2. EXISTING FENCES, GATES, ETC. NOT SLATED FOR REMOVAL AND REPLACEMENT SHALL BE LEFT IN CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGED FENCING ITEMS IN KIND WITH LIKE OR BETTER MATERIALS, AND PAINTED, STAINED OR TREATED TO MATCH EXISTING FENCING.
3. CONTRACTOR TO PROVIDE PAVEMENT AND OVERLAY AREAS FOLLOWING THE STABILIZATION OF THE SITE AND AFTER ALL HEAVY EQUIPMENT AND MACHINERY USED TO CONSTRUCT THE SITE IMPROVEMENTS HAS BEEN REMOVED. ANY WEARING ON THE SURFACE COURSE AS A RESULT OF CONSTRUCTION OF SITE IMPROVEMENTS SHALL BE REMEDIATED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

SITE DEMOLITION NOTES

1. DEMOLITION DRAWINGS ARE ONLY TO ASSIST IN SHOWING THE SCOPE OF DEMOLITION AND ARE NOT INTENDED TO INDICATE ALL DEMOLITION. CONTRACTOR SHALL REMOVE ALL EXISTING ITEMS AS REQUIRED TO COMPLETE THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING A WALK-THROUGH OF THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS FOR IDENTIFYING POSSIBLE CRITICAL ITEMS, NOT ADDRESSED OR INCORRECTLY ADDRESSED, WHICH WILL REQUIRE REMOVAL/RELOCATION.
3. CONTRACTOR SHALL CHECK AND IDENTIFY ALL WATER LINES, ELECTRIC LINES, GAS LINES, AND SEWER LINES TO REMAIN WHICH ARE PROXIMATE TO THE OWNER AND MUST BE PROTECTED FROM DAMAGE DURING DEMOLITION AND ALTERNATION WORK.
4. EXECUTION OF DEMOLITION SHALL PROGRESS IN SUCH A MANNER AS NOT TO INTERFERE WITH THE SAFETY AND CONVENIENCE OF THE OWNER AND TRAFFIC, AND THOSE AROUND THE SITE.
5. WASTE MATERIALS AND RUBBISH FROM DEMOLITION OPERATION SHALL BE REMOVED FROM SITE AS RAPIDLY AS POSSIBLE AND SHALL NOT BE ALLOWED TO ACCUMULATE ON PREMISES. ALL DEBRIS AND WASTE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LAWFULLY.
6. DEMOLISH AND REMOVE EXISTING CONDITIONS AS SHOWN BY DIAGONAL HATCHES.

GEOTECHNICAL REPORT AND FINDINGS

1. GEOTECHNICAL EXPLORATION OF THE SITE INCLUDES ONE SOIL BORING LOCATION PERFORMED BY STRATIFIED, INC. THE SOIL BORING LOCATION WERE COMPLETED AT THE APPROXIMATE LOCATIONS INDICATED ON THE DRAWINGS. BORING LOGS, TEST PIT LOGS, AND ANY LABORATORY TESTING DATA ARE INCLUDED IN THE CONTRACT SPECIFICATIONS.
2. PRIOR TO PLACING CONCRETE FOR FOUNDATIONS, THE SOIL EXCAVATION AND THE COMPACTION OF STRUCTURAL FILL AND BACKFILL SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL REPORT.

OVER-EXCAVATION NOTES FOR CONCRETE STRUCTURES

1. ALL CONCRETE STRUCTURES ARE TO BE PLACED ON A MINIMUM OF 24 INCHES OF COMPACTED STRUCTURAL FILL AND 6 INCHES OF CRUSHED STONE NO. 57 AFTER THE REMOVAL OF A MINIMUM OF 30 INCHES OF NATURAL SOIL, SEE SPECIFICATION SECTION 02060 "SOILS AND AGGREGATES FOR EARTHWORK."

GENERAL ABBREVIATIONS

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BW	BOTTOM OF WALL
CONC.	CONCRETE
DIA.	DIAMETER
DEPT.	DEPARTMENT
DEQ	DEPT. OF ENVIRONMENTAL QUALITY
EL	ELEVATION
ELEC.	ELECTRICAL
ESMT.	EASEMENT
EX.	EXISTING
F.C.W.A.	FAIRFAX COUNTY WATER AUTHORITY
FT	FEET
INV.	INVERT
MIN.	MINIMUM
MAX.	MAXIMUM
NTS	NOT TO SCALE
REQ.	REQUIRED
RET.	RETAINING
SAN.	SANITARY
TC	TOP OF CURB
TELE.	TELECOM
TRANS.	TRANSFORMER
TW	TOP OF WALL
TYP.	TYPICAL
VA	VIRGINIA

SURVEY SYMBOLS

SANITARY MANHOLE
WATER VALVE
WATER METER
FIRE HYDRANT
GAS VALVE
UTILITY POLE
LIGHT POLE
GUY WIRE
ELECTRIC MANHOLE
TELEPHONE PEDESTAL
TELEPHONE MANHOLE
GAS METER
ROAD SIGN
TREE/SIZE
BUSH
GROUND LIGHT
PROPERTY LINE
TREE LINE
LANDSCAPING AND SHRUBBERY
2-FT CONTOUR LINE
UNDERGROUND ELECTRIC LINE
UNDERGROUND GAS LINE
UNDERGROUND TELECOM LINE
UNDERGROUND WATER LINE

PROPOSED SITE FEATURE SYMBOLS

TO BE DEMOLISHED
PROPOSED SPOT ELEVATION
PROPOSED TREE
DIRECTION OF DRAINAGE
TREE PROTECTION FENCE
SILT FENCE
APPROX. SAWCUT LINE
REQ. ELEC. TRANS. CLEARANCE
LIMIT OF DISTURBANCE
TEMPORARY LIMIT OF DISTURBANCE
ASPHALT PAVEMENT
CONCRETE PAVEMENT
GRAVEL SURFACE

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
5/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: D. RAUCH
DRAWN: D. RAUCH
CHECKED: C. MATA

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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

FILE NAME: C_01_GEN_NOTES_ABBREV_SYMB.pdf
PROJECT: 0215A
DIVISION: 041
DATE: 05-31-2024
DRAWING: C-1
TAX MAP: 027-1

SURVEY NOTES

1. TOPOGRAPHIC AND UTILITY INFORMATION SOURCED FROM 2016 RDA SURVEY, 2016 ACCUMARK UNDERGROUND UTILITY DESIGNATION, AND 2017 MICHAEL BAKER INTERNATIONAL RESTON PUMPING STATION INTERCONNECTIONS DRAWINGS
2. TOPOGRAPHIC INFORMATION CONTOUR INTERVAL IS 2 FT AND IS REFERENCED TO USGS DATUM, NGVD 1929 DATUM.
3. SIZE INFORMATION SHOWN HEREON IS TAKEN FROM AVAILABLE UTILITY RECORDS.
4. UNLESS OTHERWISE NOTED, UTILITY LINE LIMITS DEPICTED REPRESENT FIELD DESIGNATING LIMITS AND NOT ENDPOINTS OF UTILITIES.

PLAN
1" = 10'

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: D. RAUCH
DRAWN: D. RAUCH
CHECKED: C. MATA

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SCALE
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

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RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

EXISTING CONDITIONS PLAN

FILE NAME: C_02_EX_COND_PLAN.pdf

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING C-2
TAX MAP: 027-1		SHEET 4 of 34

GENERAL NOTES

1. SEE 9VAC25–840–40 (MINIMUM STANDARDS) FOR ALL EROSION AND SEDIMENT CONTROL MEASURES INCORPORATED AS PART OF THIS PROJECT.
2. THIS PROJECT INCLUDES ELECTRICAL UPGRADES AT THE RESTON PUMP STATION IN FAIRFAX COUNTY, VIRGINIA. THE SITE WORK INCLUDES REMOVING THE EXISTING TRANSFORMER AND INSTALLING A NEW TRANSFORMER AT THE LOCATION SHOWN IN THE DRAWINGS.
3. THE USDA NRCS MAPPED SOIL AT THE ENTIRE SITE IS FAIRFAX COUNTY, VIRGINIA 101 – URBAN LAND–WHEATON COMPLEX.
4. NO DISTURBED AREA WHICH IS NOT ACTIVELY BEING WORKED SHALL REMAIN DISTURBED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY FAIRFAX COUNTY.
5. CONTRACTOR SHALL USE HAND TOOLS ONLY (NO MECHANICAL EQUIPMENT) FOR EXCAVATION WITHIN THE TEMPORARY LIMIT OF DISTURBANCE.

EROSION AND SEDIMENT CONTROL CONSTRUCTION SUGGESTED SEQUENCE

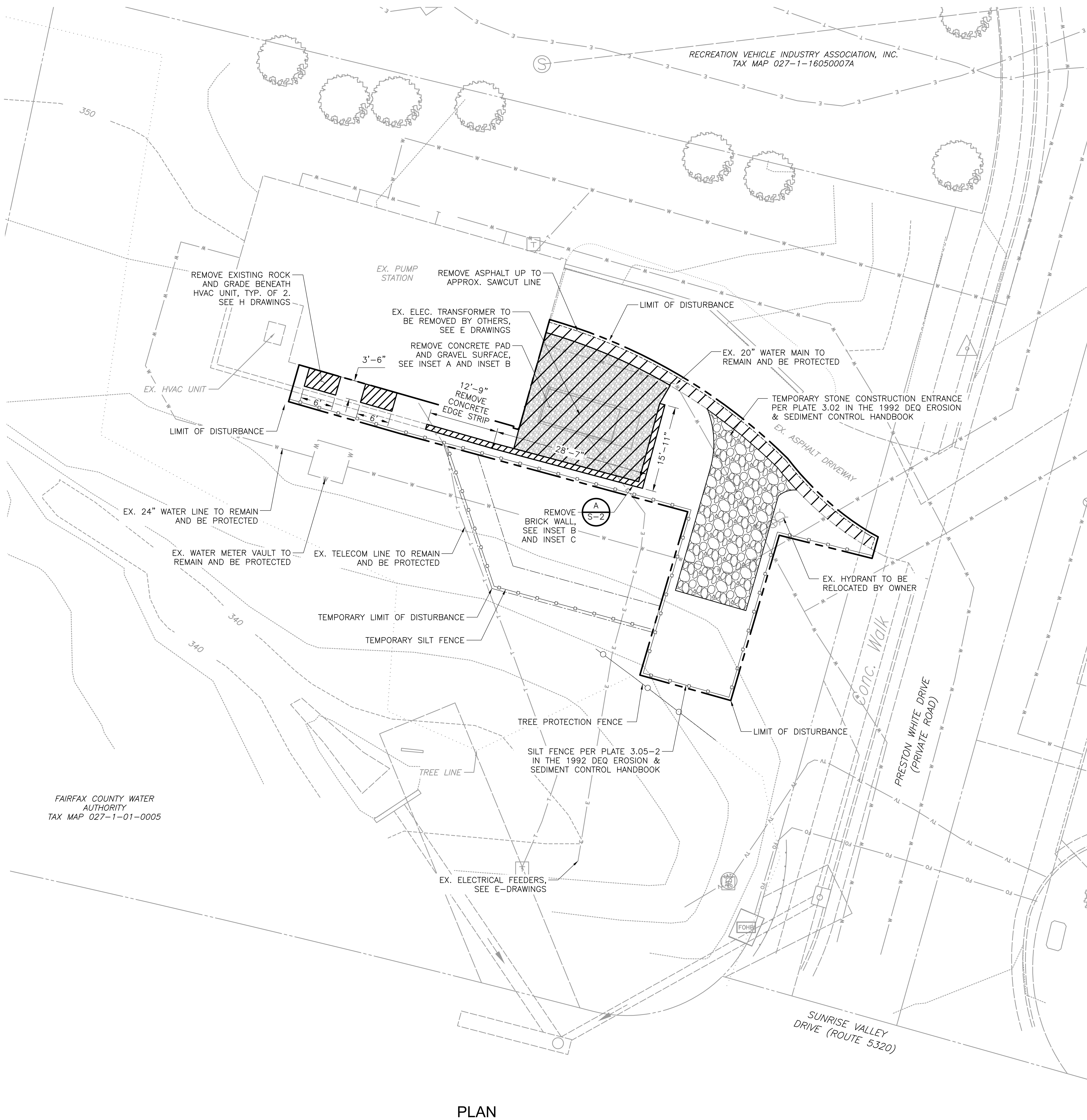
1. AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, AND A REPRESENTATIVE OF THE FAIRFAX COUNTY WATER AUTHORITY (FCWA) TO AN ON–SITE PRECONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES FOR LOCATION OF BURIED UTILITIES.
2. INSTALL SILT FENCE AS SHOWN ON THE DRAWINGS AND ON DOWN SLOPE SIDES OF WORK AREA.
3. INSTALL INLET SEDIMENT CONTROL DEVICES IN ALL INLETS THAT HAVE A DRAINAGE AREA WITHIN LIMITS OF CONSTRUCTION, WHETHER OR NOT SPECIFICALLY SHOWN ON THE DRAWINGS.
4. INSTALL TEMPORARY STONE CONSTRUCTION ENTRANCE AND EQUIP ALL VEHICLE ACCESS POINTS WITH DUST SUPPRESSION MEASURES (I.E. WHEEL WASH SYSTEMS, RUMBLE GRATES, AND/OR GRAVEL PADS).
5. REMOVE TOPSOIL FROM AREAS TO BE DISTURBED BY CONSTRUCTION WITHIN THE LIMIT OF DISTURBANCE AND REMOVE MATERIAL FROM SITE AND DISPOSE OF AT AN ALTERNATIVE SITE IN A MANNER CONSISTENT WITH VA DEQ AND FAIRFAX COUNTY REGULATIONS.
6. EXCAVATE FOR FOUNDATIONS, STRUCTURES, AND PAVEMENT AND REMOVE EXCAVATED MATERIALS FROM SITE AND DISPOSE OF AT AN ALTERNATIVE SITE IN A MANNER CONSISTENT WITH VA DEQ AND FAIRFAX COUNTY REGULATIONS.
7. INSTALL TEMPORARY SILT FENCE AND EXCAVATE TRENCH FOR ELECTRICAL DUCTBANK WITHIN THE TEMPORARY LIMIT OF DISTURBANCE USING HAND TOOLS ONLY. REMOVE EXCAVATED MATERIALS FROM SITE AND DISPOSE OF AT AN ALTERNATIVE SITE IN A MANNER CONSISTENT WITH VA DEQ AND FAIRFAX COUNTY REGULATIONS.
8. IF DEWATERING OPERATIONS ARE NECESSARY, PUMP EXCAVATION DRAINAGE THROUGH A SYSTEM FILTER BAG (OR OTHER APPROVED FILTER DEVICE) LOCATED ON AN UNDISTURBED VEGETATED AREA OR DISCHARGE TO THE COMBINED SEWER SYSTEM. AN INDUSTRIAL WASTE DISCHARGE PERMIT MUST BE OBTAINED BY THE CONTRACTOR FOR ALL DEWATERING ACTIVITIES.
9. CONSTRUCT FOUNDATIONS, PIPING, AND STRUCTURES AND BACKFILL WHILE CONTINUING TO DEWATER FROM THE LOW POINT WITHIN THE EXCAVATION.
10. PERFORM FINAL GRADING AND APPLY LIME, FERTILIZER, PERMANENT SEED AND MULCH OR RESTORE ALL SIDEWALKS, CURBING, AND PAVEMENT WITHIN 7 DAYS OF BACKFILLING TO ALL DISTURBED AREAS.
11. REMOVE FILTER BAGS AND/OR ALTERNATIVE FILTER DEVICES USED FOR DEWATERING OPERATIONS.
12. AFTER PERMANENT STABILIZATION IS ACHIEVED, OBTAIN FCWA APPROVAL OF PERMANENT SEDIMENT AND EROSION CONTROL MEASURES.
13. REMOVE SEDIMENT AND EROSION CONTROL FILTER FABRIC FENCE AND ANY REMAINING TEMPORARY SEDIMENT AND EROSION CONTROL FACILITIES.

EROSION AND SEDIMENT CONTROL CONSTRUCTION LEGEND

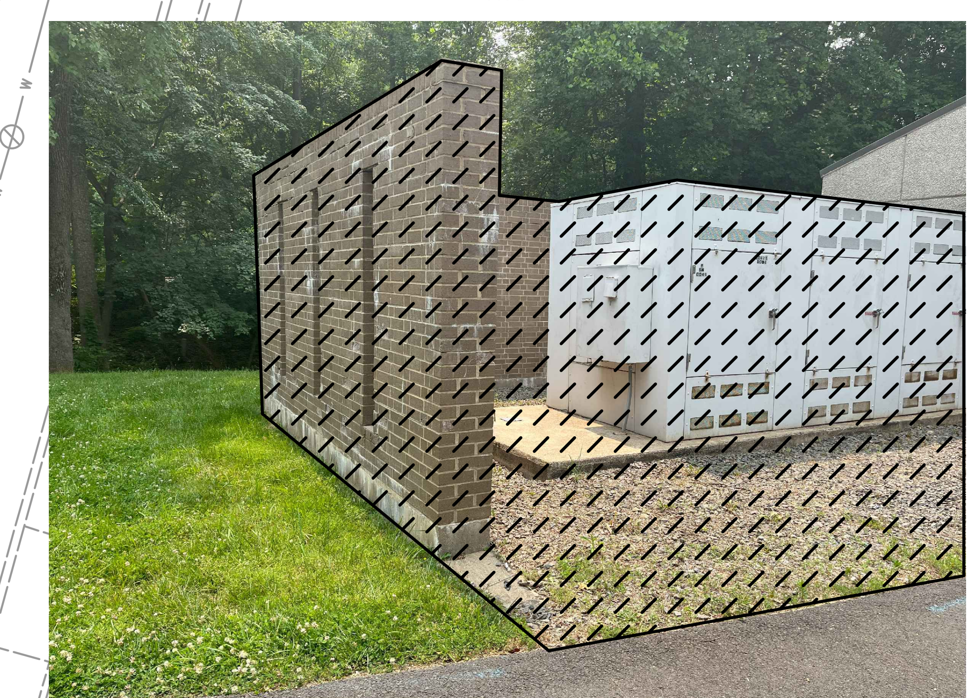
— — — LIMIT OF DISTURBANCE = 2,135 SQ FT

—·—·— TEMPORARY LIMIT OF DISTURBANCE = 275 SQ FT*

*SEE EROSION AND SEDIMENT CONTROL CONSTRUCTION SUGGESTION SEQUENCE NOTE 7 FOR ADDITIONAL DETAILS ON TEMPORARY LIMIT OF DISTURBANCE



INSET A
NTS



INSET B
NTS

INSET C
NTS

PLAN
1" = 10'

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
6/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: D. RAUCH
DRAWN: D. RAUCH
CHECKED: C. MATA

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SCALE
1" = 10'
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

SITE DEMOLITION AND
EROSION & SEDIMENT CONTROL PLAN

FILE NAME: C_03_DEMO_SITE_PLAN.pdf

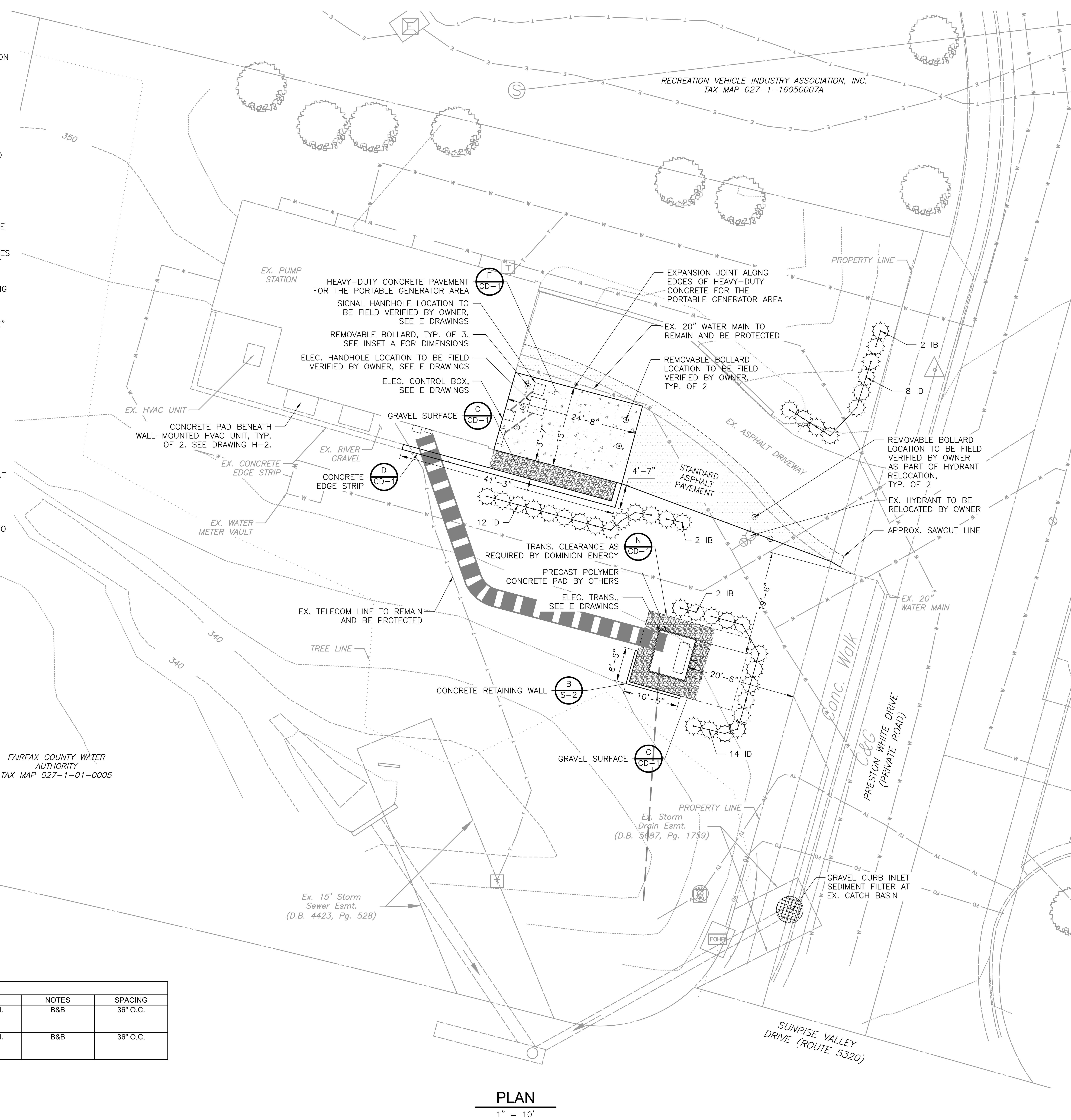
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING C-3
TAX MAP: 027-1		SHEET 5 of 34

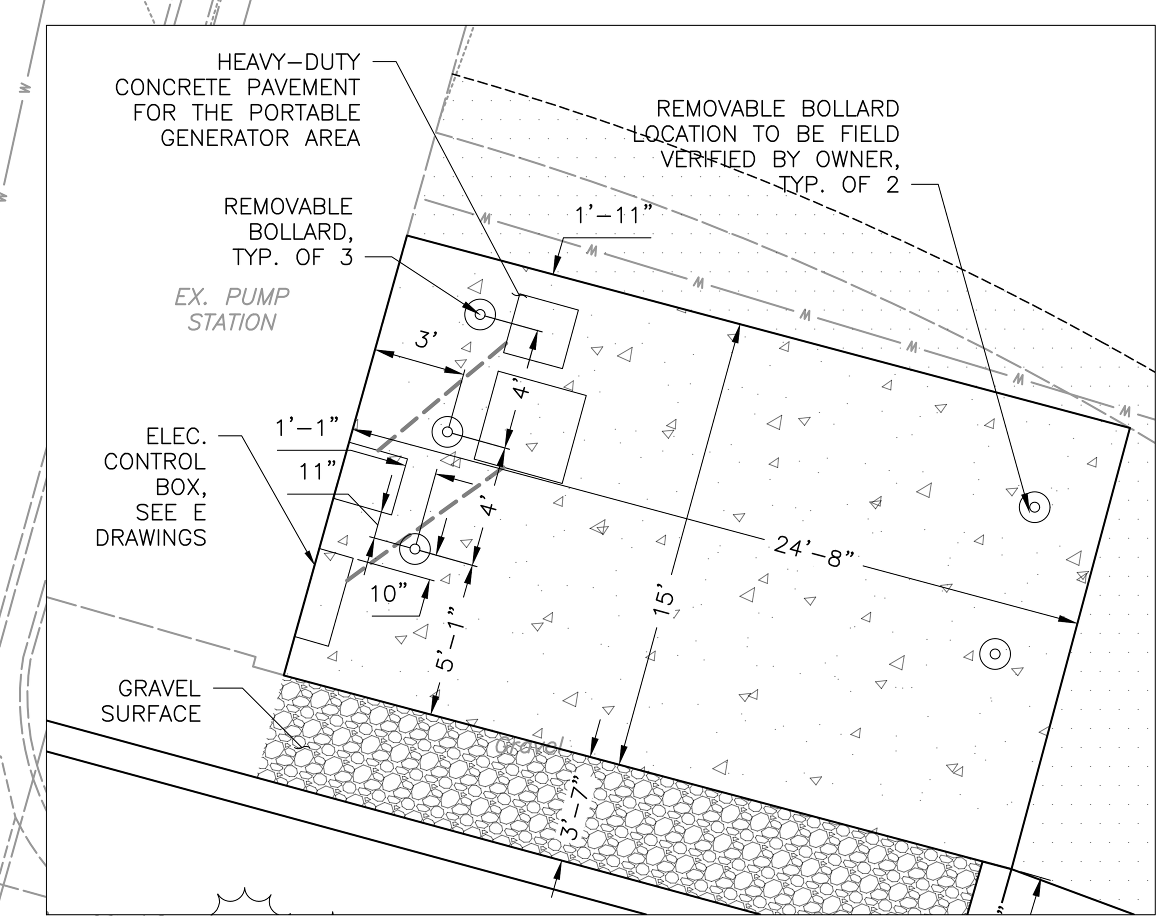
LANDSCAPE NOTES:

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES AND NOTIFY LANDSCAPE ARCHITECT OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND HARDSCAPE CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. A 3-INCH DEEP SHREDDED PINE BARK SAUCER SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, AS SHOWN ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED, OR APPROVED BY THE LANDSCAPE ARCHITECT.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE MAINTAINED AND GUARANTEED AS SPECIFIED.

PLANT MAINTENANCE NOTES:

1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE PLANTINGS AS SPECIFIED.
2. CONTRACTOR TO PROVIDE 1 YEAR OF TEMPORARY IRRIGATION AS SPECIFIED.
3. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK.
4. WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
5. CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS ACCORDING TO THE PLANT MAINTENANCE AND GUARANTEE PERIOD AS SPECIFIED.





INSET A – REMOVABLE BOLLARD DIMENSIONS

PLAN

1" = 5'

PLANT SCHEDULE						
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES	SPACING
ID	34	Ilex x aquipernyi 'Dragon Lady'	Dragon Lady Holly	5' HT. MIN.	B&B	36" O.C.
IB	6	Ilex x meserveae 'Blue Stallion'	Blue Stallion Holly	5' HT. MIN.	B&B	36" O.C.

PLAN

1" = 10'

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
6/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: D. RAUCH DRAWN: D. RAUCH CHECKED: C. MATA		

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SCALE
1" = 10'
5 0 10
1" = 5'
2.5 0 5

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

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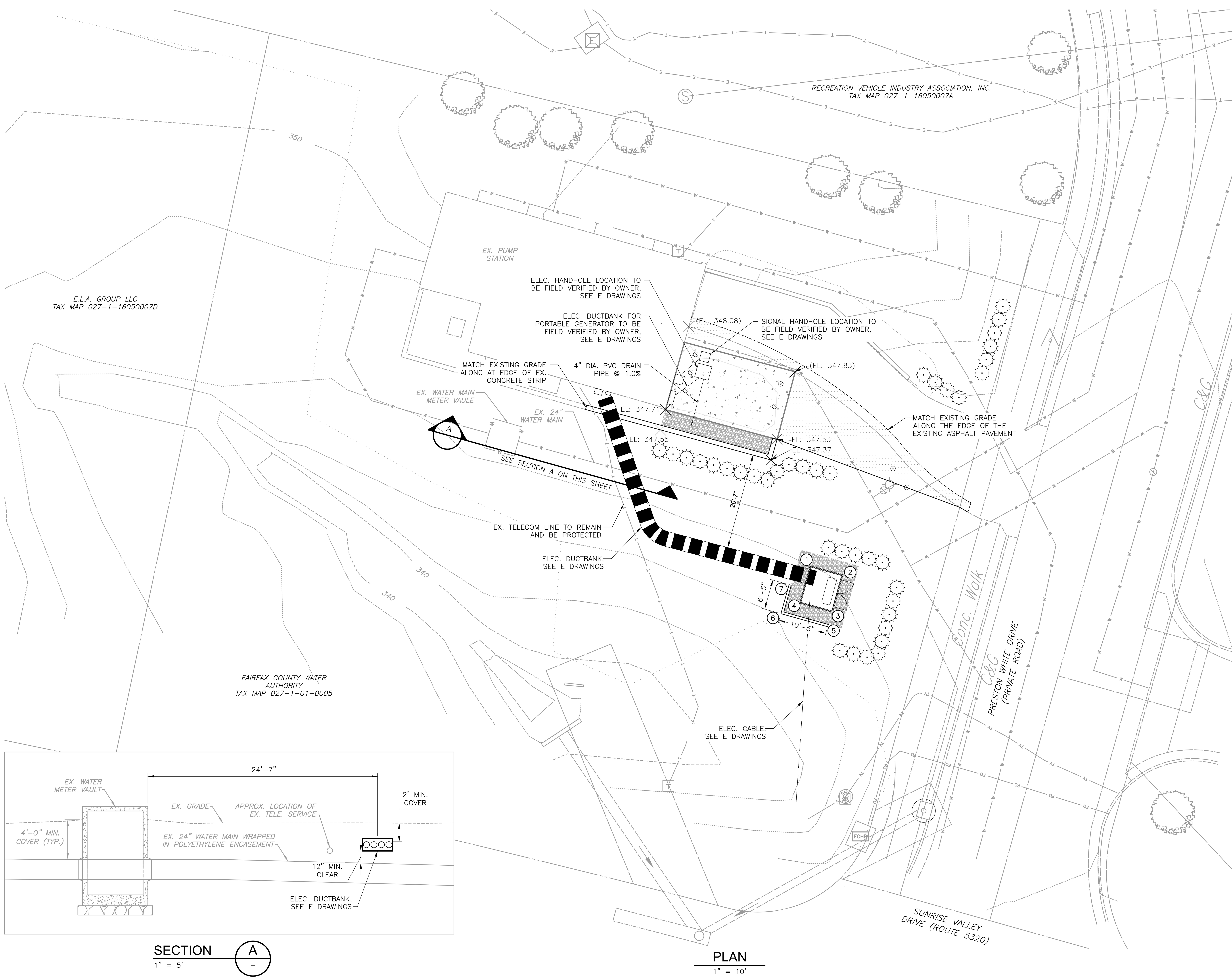
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

SITE LAYOUT, PLANTING, AND PAVING PLAN

FILE NAME: C_04_SITE_LAYOUT.pdf		
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING C-4
TAX MAP: 027-1		SHEET 6 of 34



LEGEND:
TP: 346.0 = PROPOSED TOP OF PAD ELEVATION
BP: 346.0 = PROPOSED BOTTOM OF PAD ELEVATION
TW: 346.0 = PROPOSED TOP OF WALL ELEVATION
BW: 346.0 = PROPOSED BOTTOM OF WALL ELEVATION

(EL: 346.0) = EXISTING FINISHED ELEVATION
EL: 346.0 = PROPOSED FINISHED ELEVATION

RIM: 346.0 = PROPOSED COVER ELEVATION
INV: 346.0 = PROPOSED INVERT ELEVATION

CONCRETE PAD AND RETAINING WALL

POINT NO.	NORTHING	EASTING	ELEVATION
1	7028146.7427	11816507.1319	TP: 346.18 BP: 346.0
2	7028144.9343	11816513.7186	TP: 346.18 BP: 346.0
3	7028137.3629	11816511.6052	TP: 346.18 BP: 346.0
4	7028139.1918	11816505.0538	TP: 346.18 BP: 346.0
5	7028133.9692	11816510.7514	TW: 345.83 BW: 345.18
6	7028136.7973	11816500.7329	TW: 345.83 BW: 344.08
7	7028142.9593	11816502.5385	TW: 345.83 BW: 345.18

CONTROL NOTES:

1. HORIZONTAL CONTROL BASED ON VCS 1983.
2. VERTICAL CONTROL BASED ON NGVD 1929.

COMMONWEALTH OF VIRGINIA
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6/27/2024
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PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: D. RAUCH
DRAWN: D. RAUCH
CHECKED: C. MATA

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SCALE
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5 0 10
1" = 5'
2.5 0 5

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

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RESTON PUMP STATION
ELECTRICAL UPGRADES

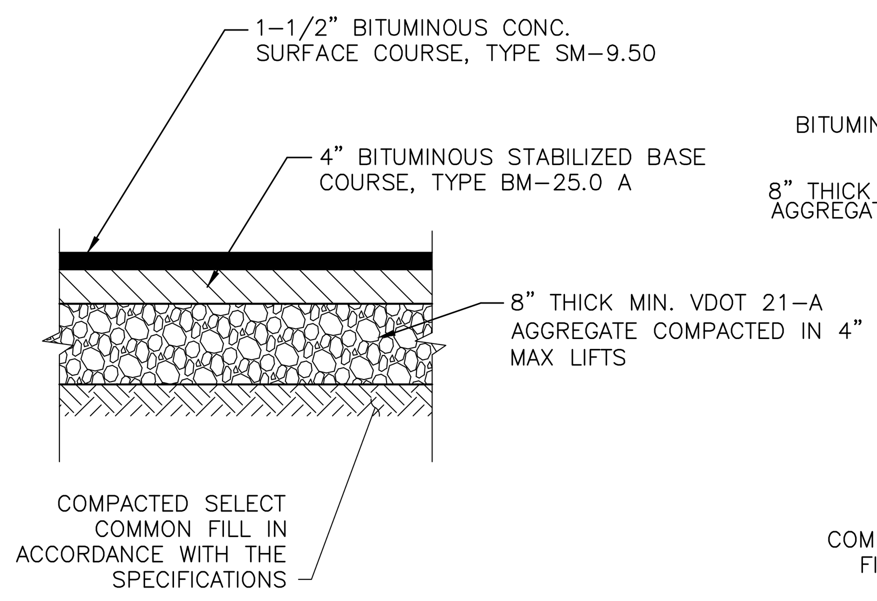
RESTON, VIRGINIA

SITE GRADING AND YARD PIPING PLAN

FILE NAME: C_05_SITE_GRADE_YARD_PIPE.pdf
PROJECT: 0215A
DIVISION: 041
DATE: 05-31-2024
DRAWING: C-5
TAX MAP: 027-1
SHEET 7 of 34

NOTES:

1. TYPICAL UNLESS OTHERWISE INDICATED BY FINISHED SPOT ELEVATIONS OR CONTOURS ON PLANS

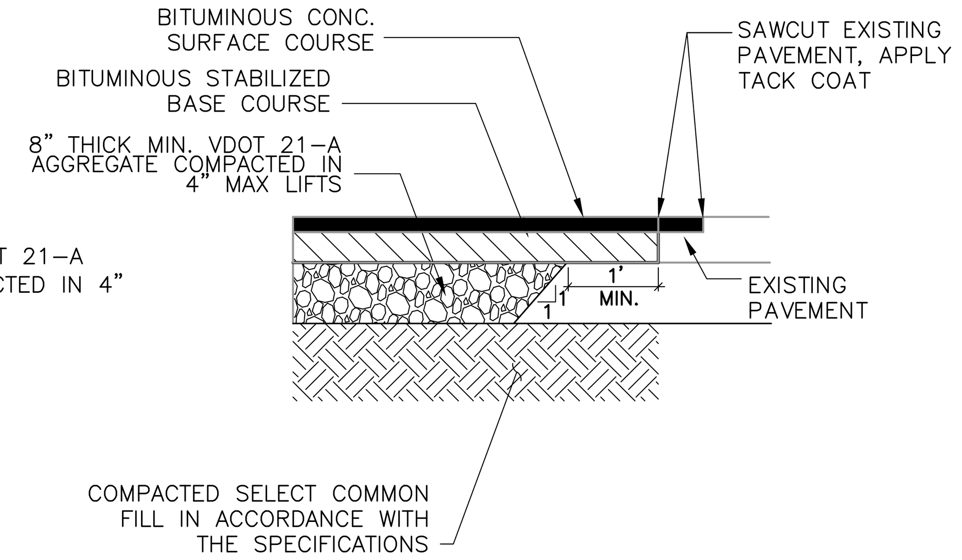


NOTE:

1. TACK COAT ALL JOINTS.

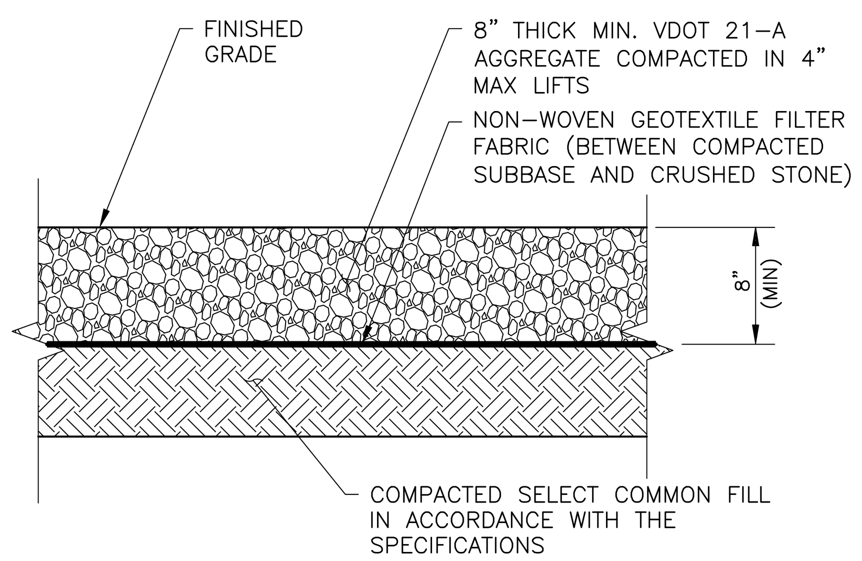
STANDARD ASPHALT PAVEMENT

DETAIL A
NTS C-4



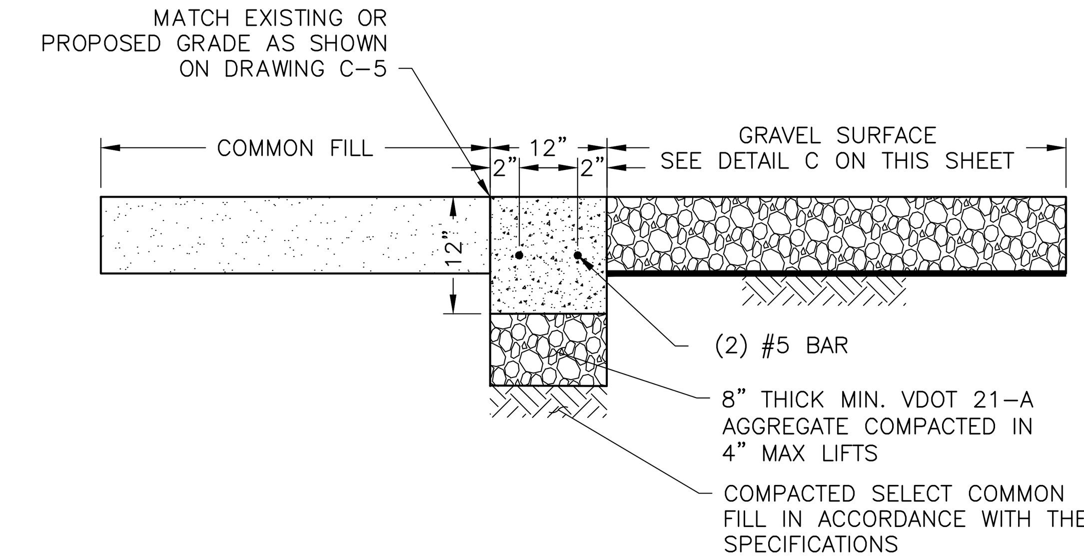
PAVEMENT MATCH

DETAIL B
NTS C-4



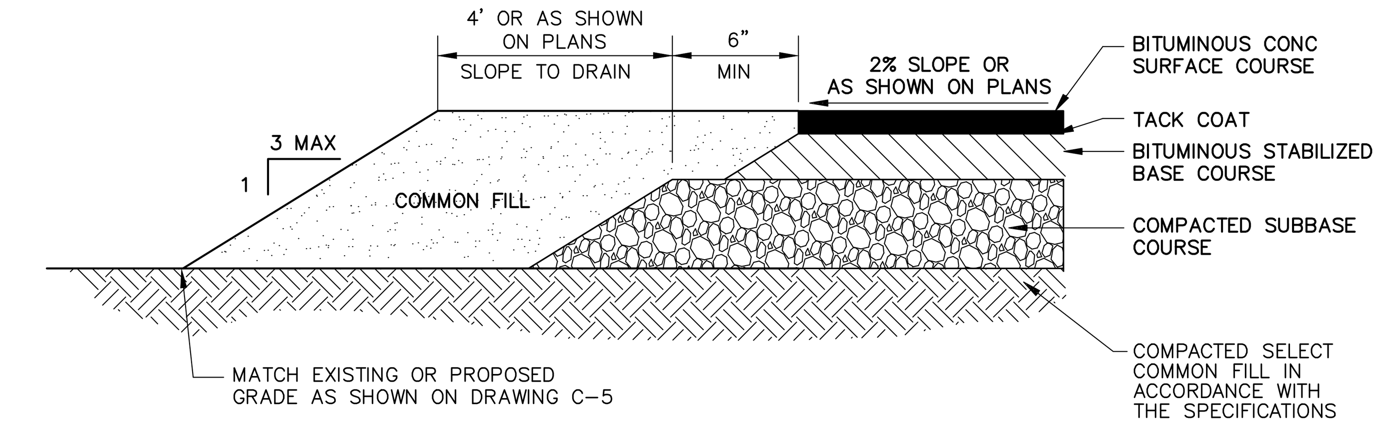
GRAVEL SURFACE

DETAIL C
NTS C-4



CONCRETE EDGE STRIP

DETAIL D
NTS C-4

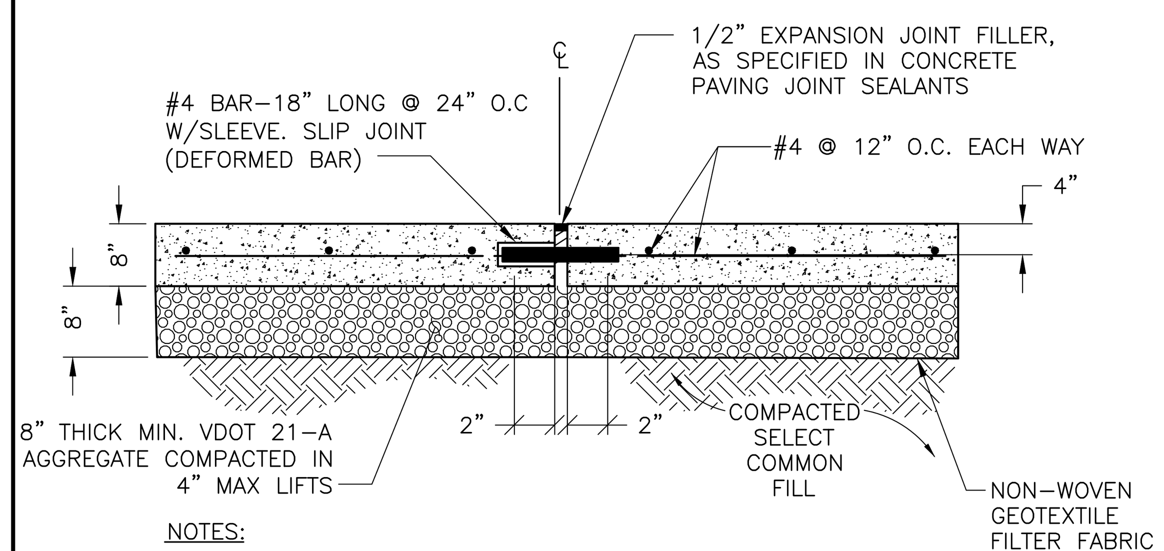


NOTES:

1. ASPHALT CONCRETE PAVEMENT MATERIALS AND INSTALLATION SHALL CONFORM TO VDOT STANDARDS-LATEST EDITION.
2. LOAM, SEED, AND MULCH SHOULDER AS REQUIRED IN SPECS.

EDGE OF ASPHALT PAVEMENT WITHOUT CURB

DETAIL E
NTS C-4

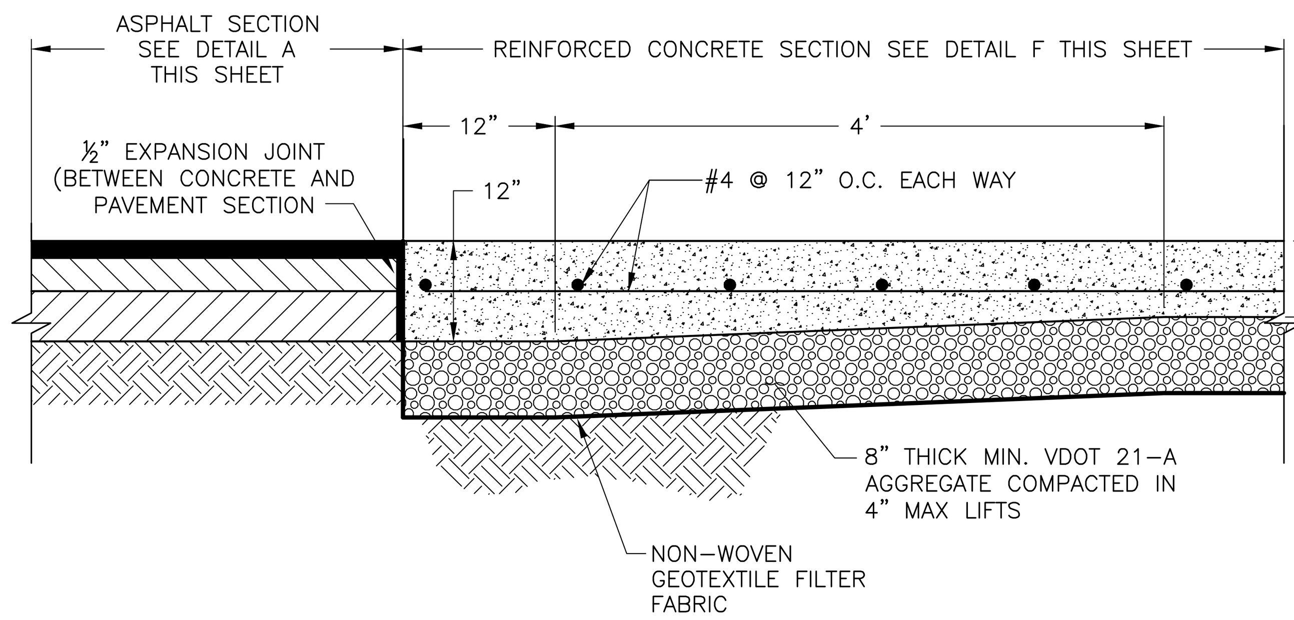


NOTES:

1. 8" CONC. SLAB W/ #4 @ 12" O.C. EACH WAY.
2. PROVIDE EXPANSION JOINTS AT 20' O.C. MAX WITH NO PANELS HAVING AN ASPECT RATIO MORE THAN 2:1.
3. REFER TO PLAN FOR CONCRETE SLOPE AND GRADES.
4. CONCRETE SHALL BE 4,500 PSI AIR ENTRAINED.

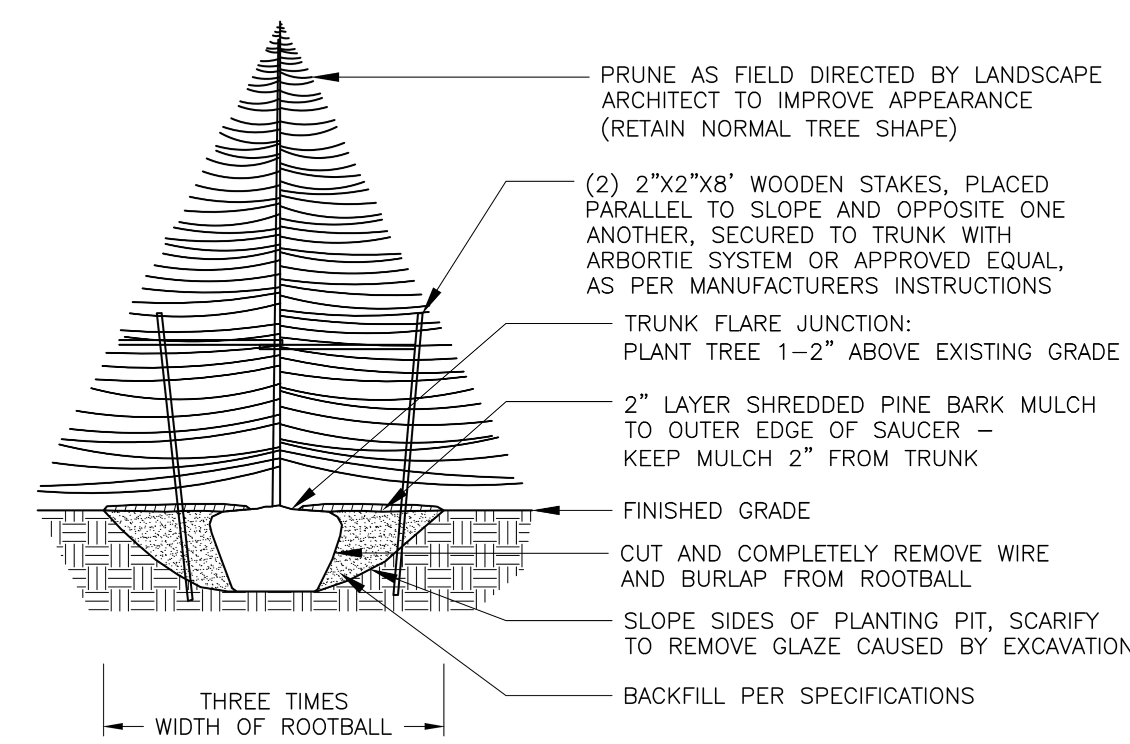
HEAVY-DUTY CONCRETE PAVEMENT SECTION FOR THE PORTABLE GENERATOR AREA

DETAIL F
NTS C-4



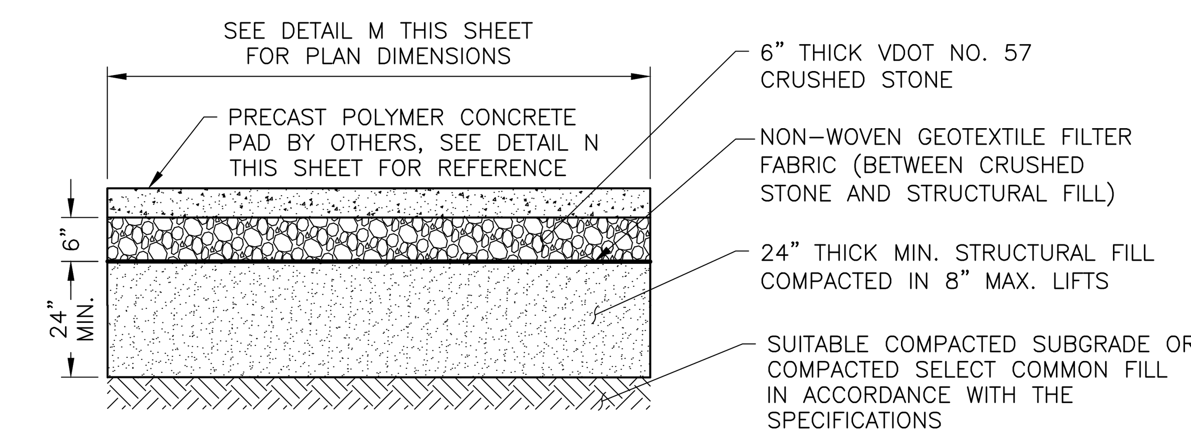
CONCRETE TO ASPHALT TRANSITION FOR THE PORTABLE GENERATOR AREA

DETAIL G
NTS C-4



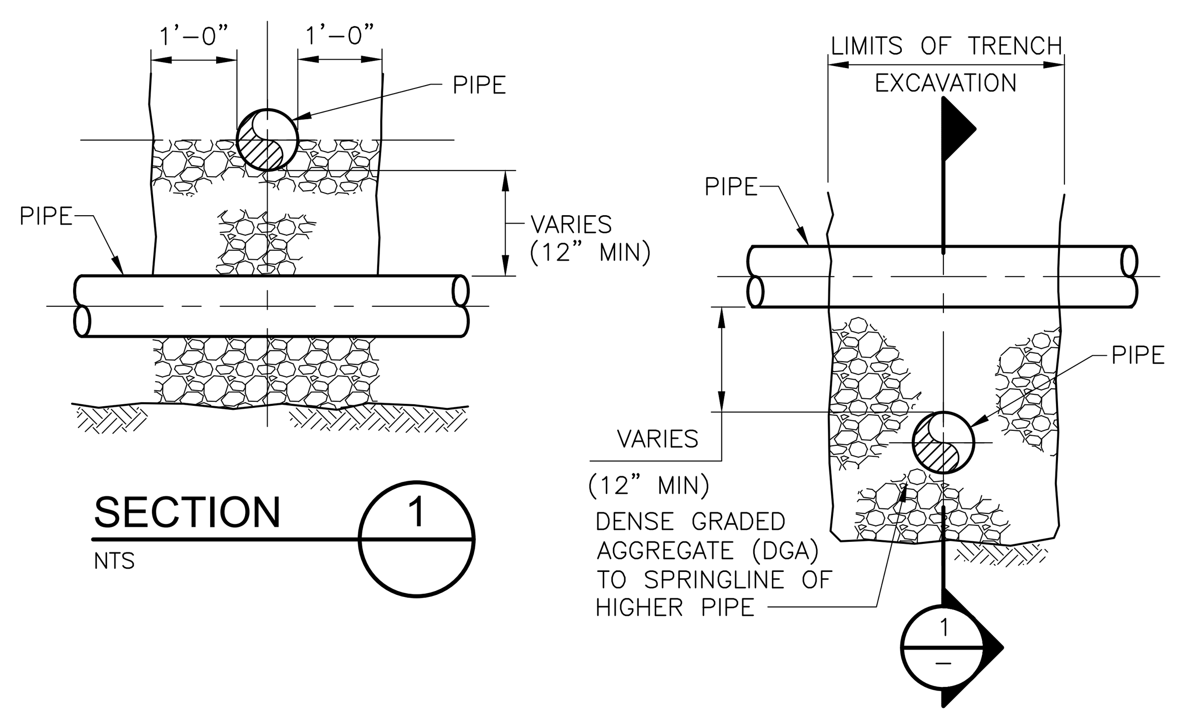
EVERGREEN TREE PLANTING

DETAIL H
NTS C-4



OVER-EXCAVATION AND FILL UNDER CONCRETE PAD FOR TRANSFORMER

DETAIL I
NTS C-4

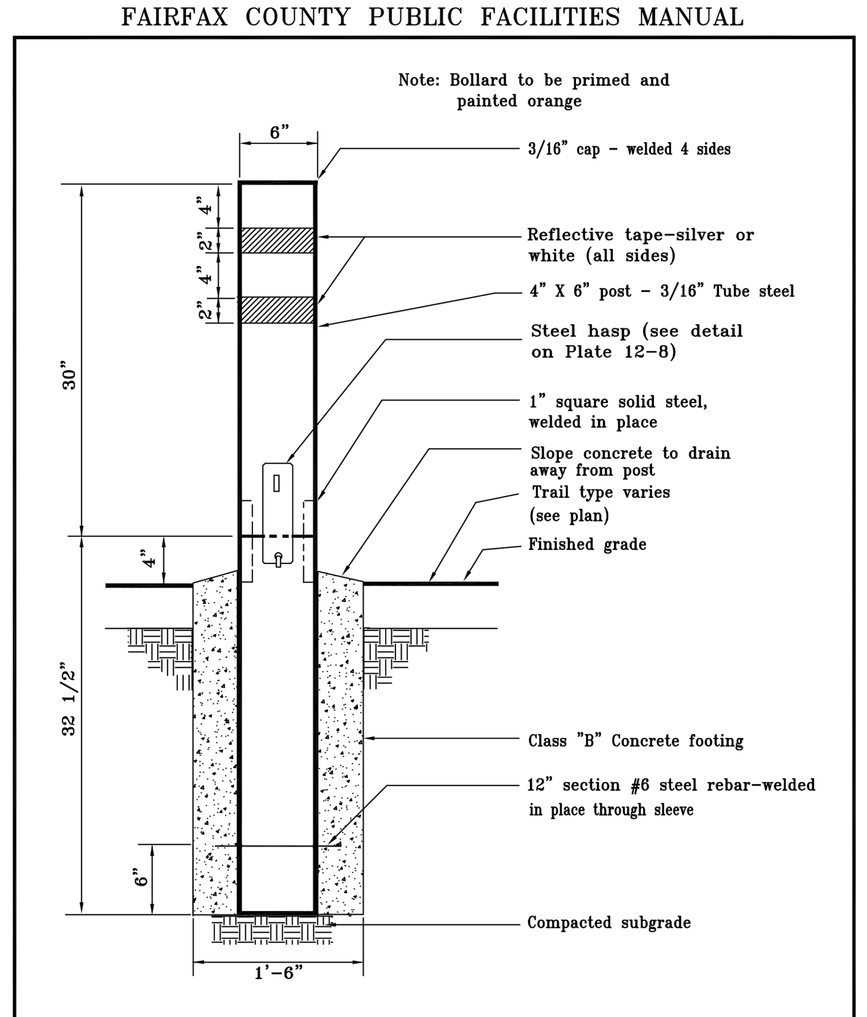


SECTION 1
NTS

TYPICAL UTILITY CROSSING

DETAIL J
NTS C-5

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL

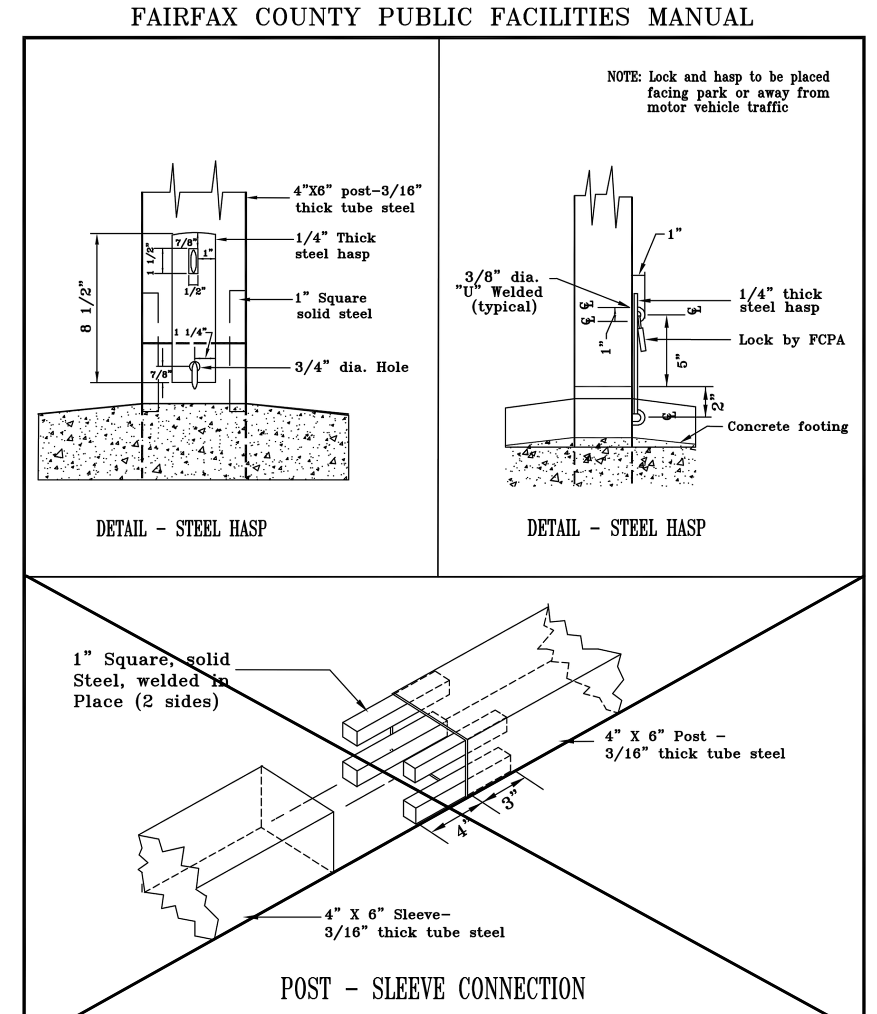


Ref. Sec. 8-0202.1B, 8-0203.1B, 8-0203.2E, 8-0203.2G Rev. 1-00, 2011 Reprint, 2018 Reprint	REMOVABLE LOCKING BOLLARD	PLATE NO. 11-8	STD. NO.

REMOVABLE LOCKING BOLLARD

DETAIL K
NTS C-4

FAIRFAX COUNTY PUBLIC FACILITIES MANUAL

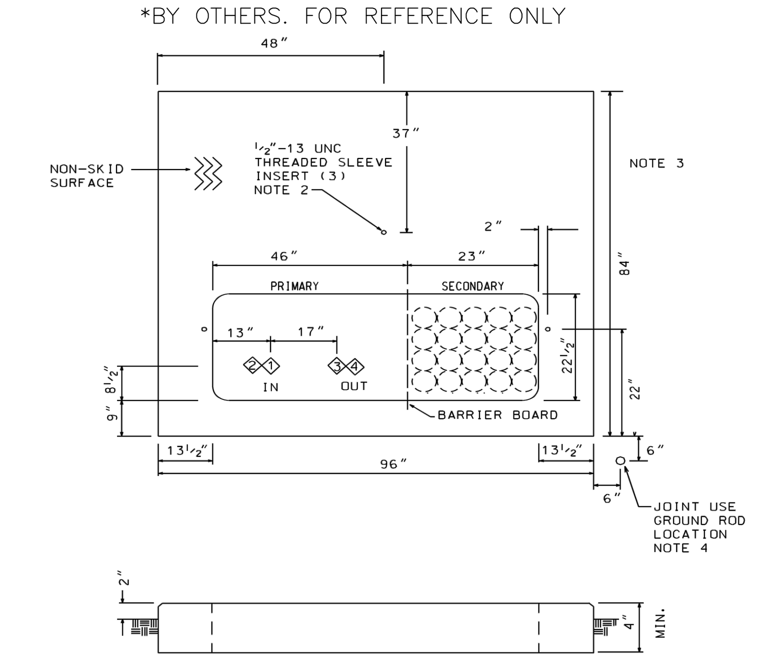


Ref. Sec. 8-0202.1B, 8-0203.1B, 8-0203.2E, 8-0203.2G Rev. 1-00, 2011 Reprint, 2018 Reprint	POST-SLEEVE CONNECTION	PLATE NO. 12-8	STD. NO.

STEEL HASP

DETAIL L
NTS C-4

*BY OTHERS. FOR REFERENCE ONLY



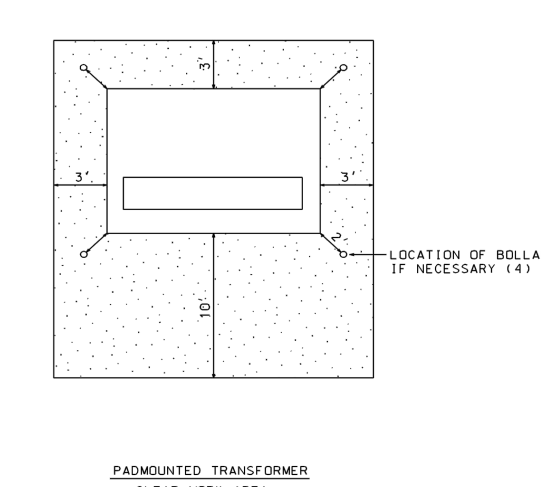
NOTES:

1. PAD DESIGNED FOR MAXIMUM TRANSFORMER WEIGHT 12,000 LBS. (150 - 1000 KVA DEADFRONT TRANSFORMERS).
2. LIFTING SLEEVE INSERTS, LOCATED AT BALANCE POINT, TO BE USED WITH STANDARD ½" BOLT.
3. SURFACE EDGES OF PAD TO BE CHAMFERED.
4. WHERE INSTALLED WITH JOINT USE CABLES, INSTALL GROUND ROD FOR JOINT USER AS SHOWN IN GROUNDING SECTION.
5. GROUT INSIDE OF CABINET TO MAKE IT TAMPER PROOF.
6. ANY DISTURBED EARTH OR FILL SHALL BE COMPACTED PRIOR TO INSTALLING PAD.
7. A MAXIMUM OF 20 FOUR INCH SECONDARY CONDUITS MAY BE INSTALLED IN THIS PAD.
8. ALL THREE-PHASE CABLE SETS MUST BE INSTALLED IN THE SAME CONDUIT; INNER CONDUITS (POSITIONS 1 & 3) PREFERRED.

PRECAST POLYMER CONCRETE PAD FOR TRANSFORMER

DETAIL M
NTS –

*BY OTHERS. FOR REFERENCE ONLY



PADMOUNTED TRANSFORMER
CLEAR WORK AREA

NOTES: ALL DIMENSIONS ARE FROM THE TRANSFORMER PAD.
PAD DIMENSIONS FOR THE TRANSFORMER TO BE INSTALLED WILL BE ADDED TO THESE DIMENSIONS. (SEE FIRST GENERAL NOTE)
BOLLARDS CAN BE INSTALLED IF THERE IS A RISK OF INCIDENTIAL VEHICLE CONTACT.
BOLLARDS MUST BE INSTALLED SO AS TO ALLOW EQUIPMENT DOORS TO OPEN PAST 90 DEGREES AND LOCK IN PLACE.

SECONDARY PEDESTALS

SECONDARY PEDESTALS REQUIRE A CLEARANCE OF FIVE (5) FEET ON ALL SIDES.

CONCRETE PAD FOR TRANSFORMER - CLEARANCES

DETAIL N
NTS –

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: D. RAUCH DRAWN: D. RAUCH CHECKED: C. MATA	NO. / DATE / REVISION: - - - (all rows)	SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

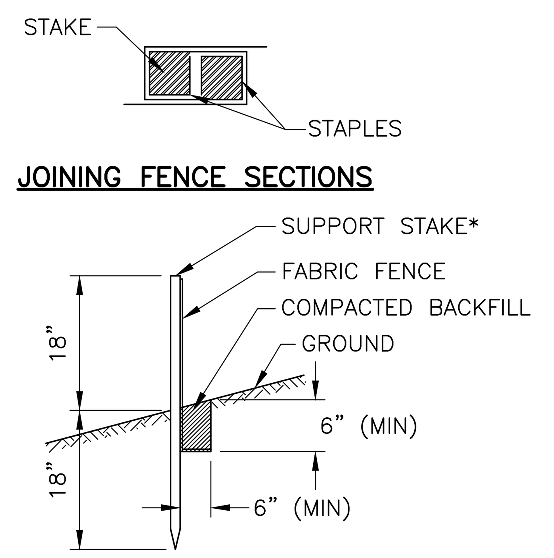
Fairfax Water

RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA

CIVIL DETAILS I

FILE NAME: C_CD1_CIVIL_DETAILS_1.pdf		
PROJECT 0215A	DIVISION 041	DATE: 05-31-2024
TAX MAP: 027-1		DRAWING CD-1
		SHEET 8 of 34



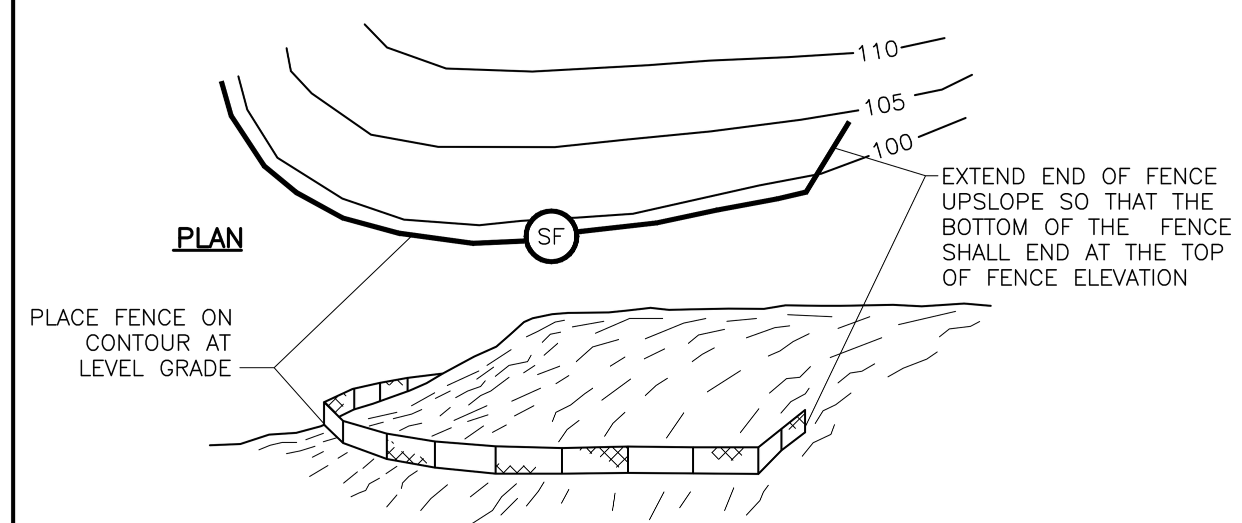
* STAKES SPACED @ 8' MAXIMUM. USE 2" X 2" WOOD OR EQUIVALENT STEEL STAKES.

FILTER FABRIC FENCE MUST BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

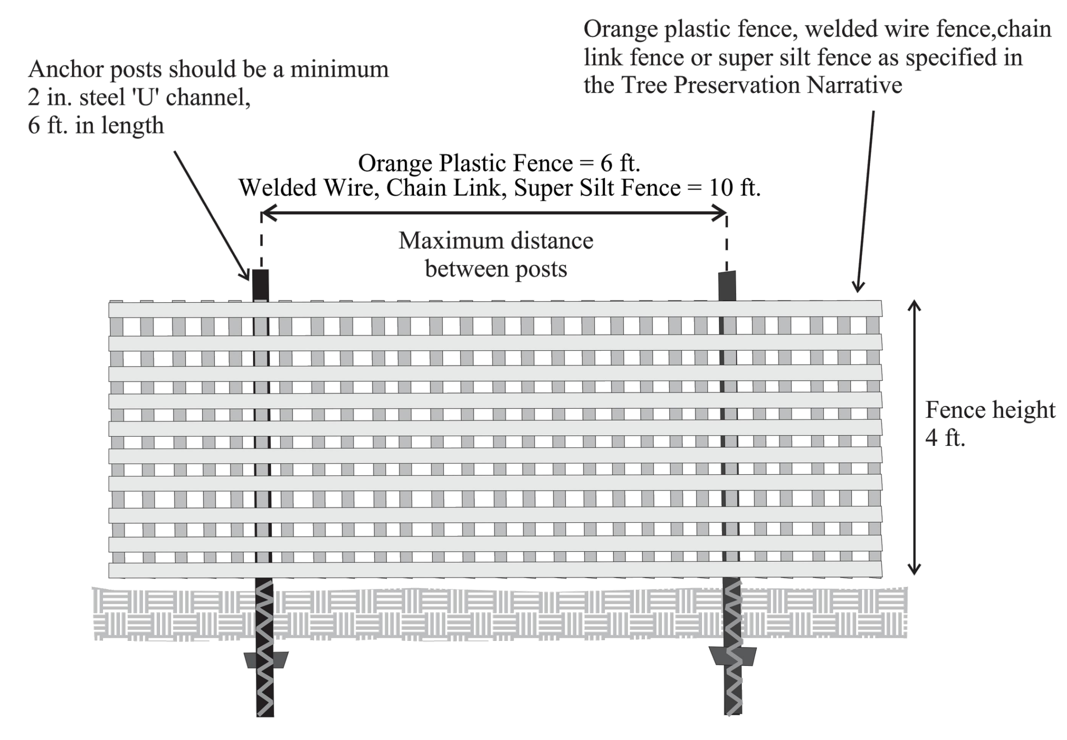
ANY SECTION OF FILTER FABRIC FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

STANDARD SILT FENCE
DETAIL A (C-4)
NTS



SILT FENCE INSTALLATION
DETAIL B (–)
NTS

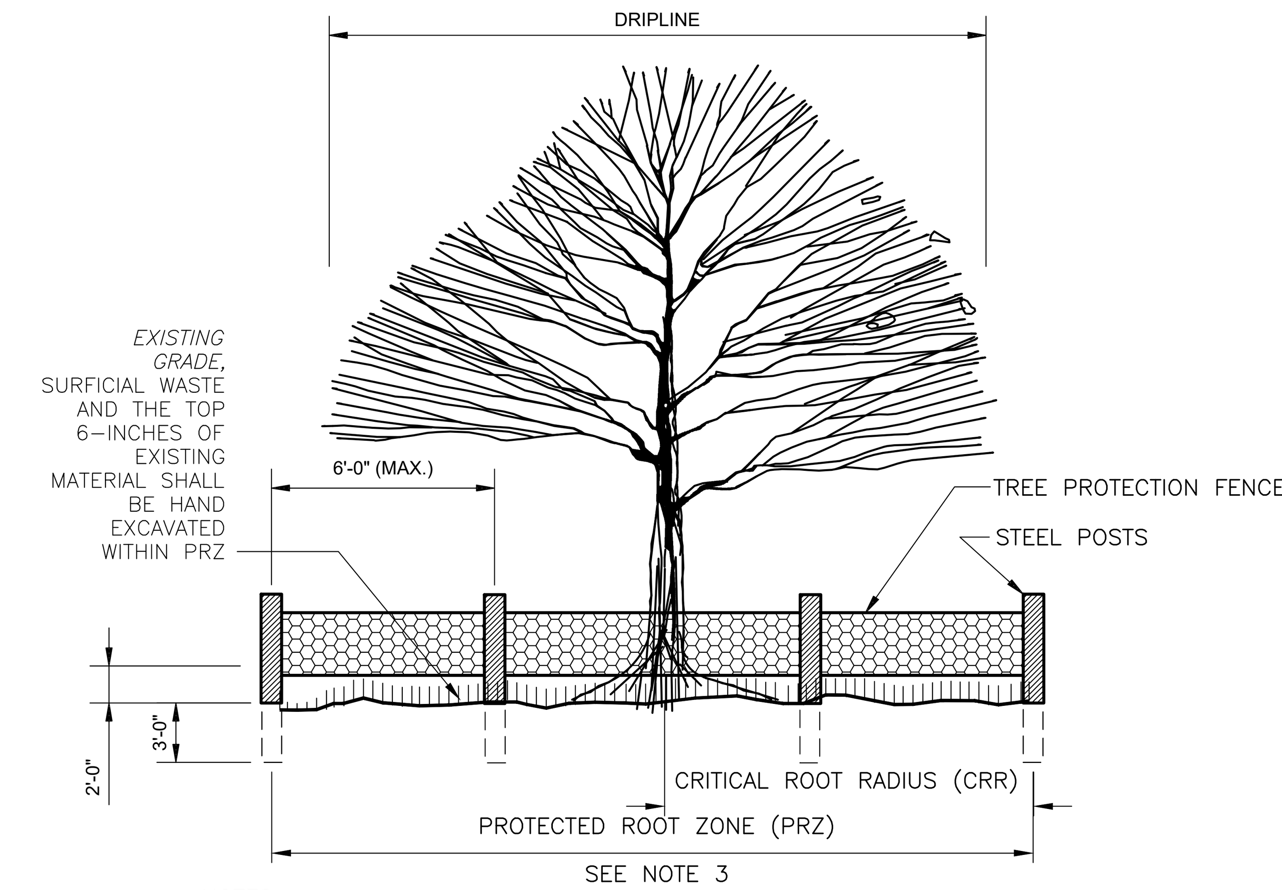
FAIRFAX COUNTY PUBLIC FACILITIES MANUAL



Note: Tree protection fencing must be maintained throughout construction until removal approved by County

Ref. Sec. 12-0305.1B, 12-0503.1B Rev. 2-02, 2011 Reprint, 2018 Reprint, 10-20	TREE PROTECTION FENCE INSTALLATION	PLATE NO. 6-12	STD. NO.

TREE PROTECTION FENCE INSTALLATION
DETAIL C (C-4)
NTS



NOTES:

1. PROVIDE BARRICADE AROUND EXISTING TREES TO REMAIN.
2. REMOVE AT PROJECT COMPLETION.
3. THE PROTECTED ROOT ZONE (PRZ) CAN BE ESTIMATED BY CALCULATING THE CRITICAL ROOT RADIUS (CRR):
   A. MEASURE THE DBH (DIAMETER OF TREE AT BREAST HEIGHT, 4'-6" ABOVE GROUND ON THE UPHILL SIDE OF THE TREE) IN INCHES.
   B. MULTIPLY MEASURED DBH BY 1.5 OR 1.0. EXPRESS THE RESULT IN FEET.
      - DBH X 1.5: CRR FOR OLDER, UNHEALTHY OR SENSITIVE SPECIES
      - DBH X 1.0: CRR FOR YOUNGER, HEALTHY OR TOLERANT SPECIES.
   C. PRZ IS TO BE MINIMUM 20' DIAMETER

PROTECTION OF EXISTING TREE
DETAIL D (C-4)
NTS

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

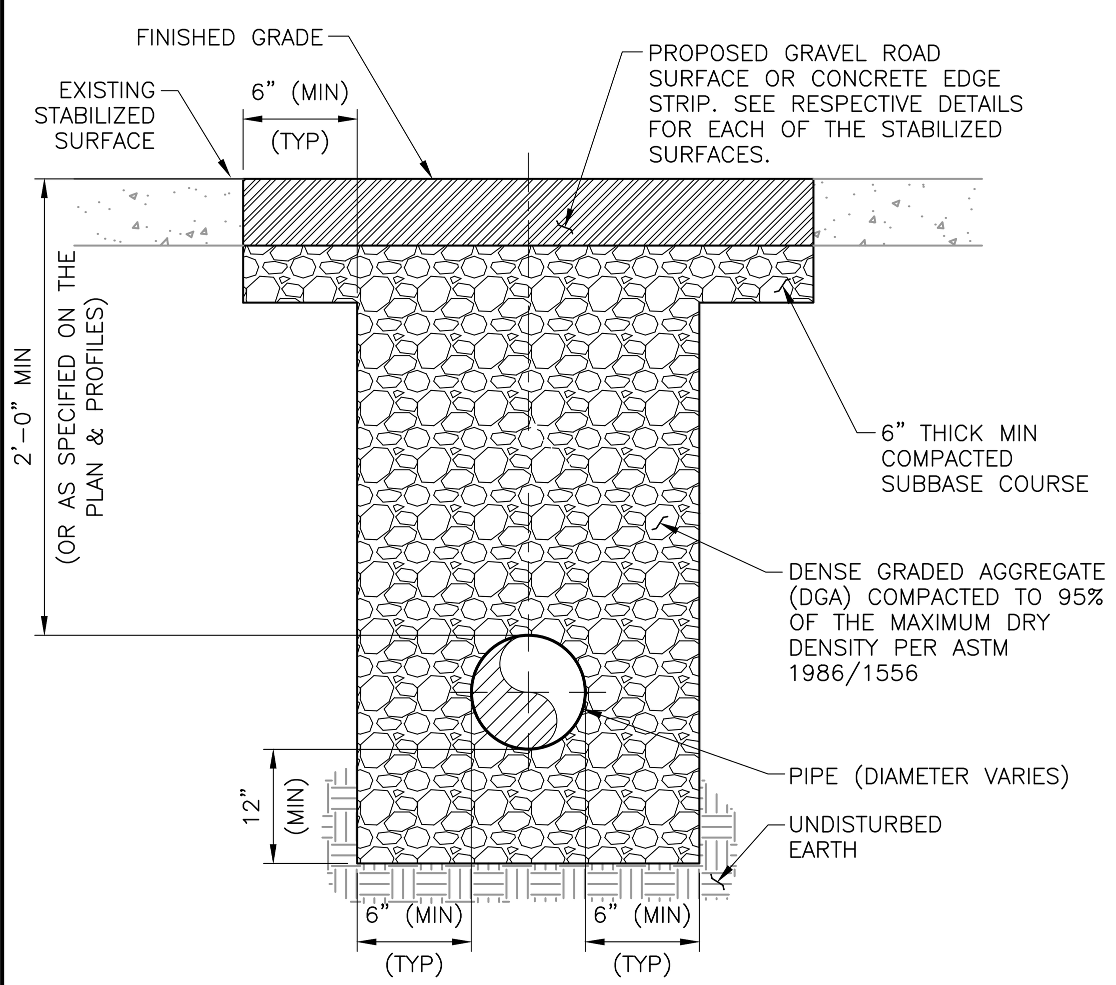
ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS
DETAIL E (–)
NTS

TABLE 3.31-A

LIMING REQUIREMENTS FOR TEMPORARY SITES

pH Test	Recommended Application of Agricultural Limestone
below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

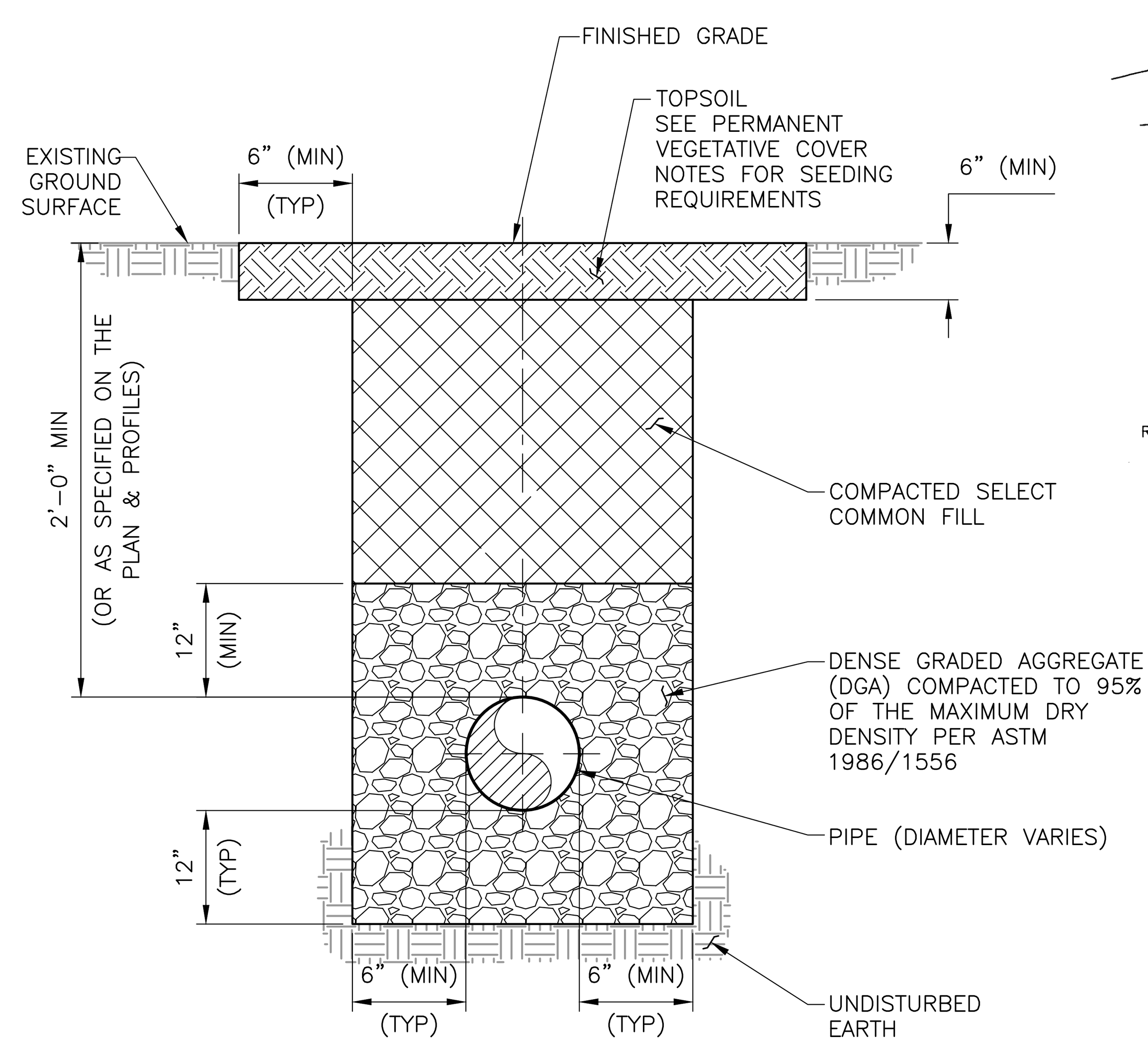
LINING REQUIREMENTS FOR TEMPORARY SITES
DETAIL F (–)
NTS



NOTE:

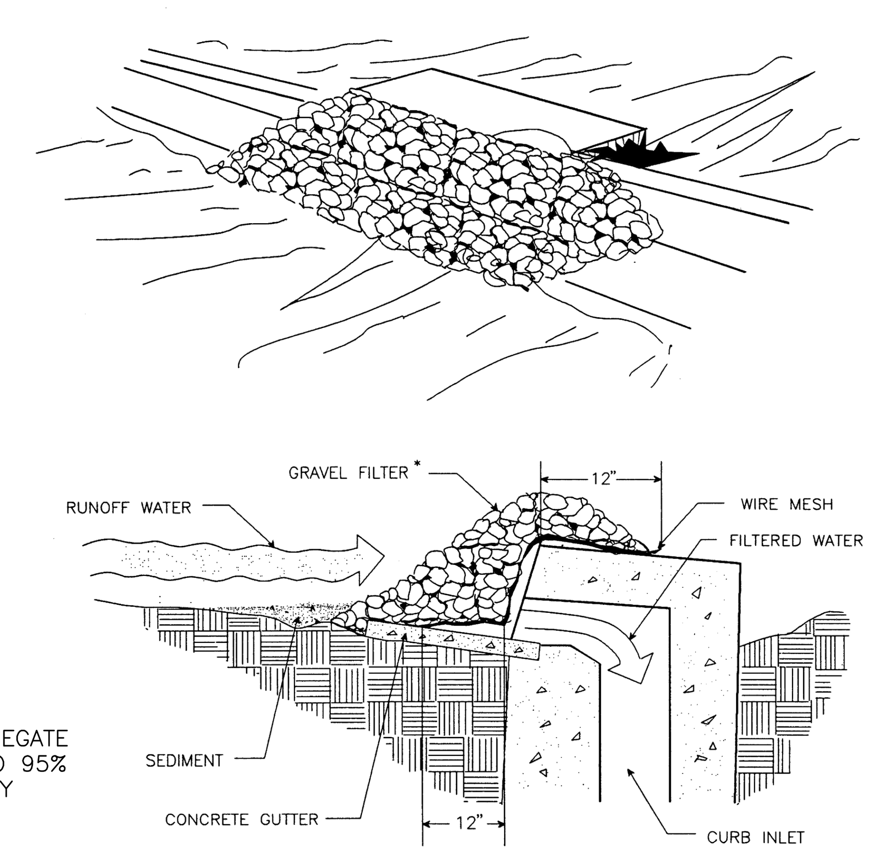
1. ANY STABILIZED SURFACE BEYOND THE FINAL RESTORATION WIDTH THAT IS DAMAGED SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

PIPE TRENCH FOR PAVED AREA RESTORATION
DETAIL G (–)
NTS



PIPE TRENCH FOR NON-PAVED AREA RESTORATION
DETAIL H (–)
NTS

GRAVEL CURB INLET SEDIMENT FILTER



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

GRAVEL CURB INLET SEDIMENT FILTER
DETAIL I (C-4)
NTS

TABLE 3.35-A

ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	Per 1000 sq. ft.	NOTES:
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

ORGANIC MULCH MATERIALS AND APPLICATION RATES
DETAIL J (–)
NTS

TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- Kentucky 31 or Turf-Type Tall Fescue	100%
General Slope (3:1 or less)	
- Kentucky 31 Fescue	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- Kentucky 31 Fescue	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- Crownvetch **	20 lbs.
	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:
February 16th through April .... Annual Rye
May 1st through August 15th .... Foxtail Millet
August 16th through October .... Annual Rye
November through February 15th .... Winter Rye

** Substitute Sericea lespedeza for Crownvetch east of Farmville, Va. (May through September use hulled Sericea, all other periods, use unhulled Sericea). If Flatpea is used in lieu of Crownvetch, increase rate to 30 lbs./acre. All legume seed must be properly inoculated. Weeping Lovegrass may be added to any slope or low-maintenance mix during warmer seeding periods; add 10-20 lbs./acre in mixes.

SITE SPECIFIC SEEDING MIXTURES
DETAIL K (–)
NTS

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
5/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: D. RAUCH
DRAWN: D. RAUCH
CHECKED: C. MATA

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

CIVIL DETAILS II

FILE NAME: C_CD2_CIVIL_DETAILS_2.pdf

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING CD-2
TAX MAP: 027-1		SHEET 9 of 34

ABBREVIATIONS

&	AND	GB	GLASS BLOCK	REF	REFERENCE
<	ANGLE	GRT	GRATING	REINF	REINFORCE (D, ING)
@	AT	GYP	GYPSUM	REQ'D	REQUIRED
AB	ANCHOR BOLT	GWB	GYPSUM WALL BOARD	REV	REVISE(D)
ABV	ABOVE	HARD	HARDENER	RF	ROOF FAN
ACMU	ACOUSTICAL CONCRETE MASONRY UNIT	HD	HEAVY DUTY	RFG	ROOFING
AFF	ABOVE FINISHED FLOOR	HDWD	HARDWOOD	RGH	ROUGH
AFG	ABOVE FINISHED GRADE	HDWR	HARDWARE	RJ	REVEAL/RUSTICATION JOINT
AL, ALUM	ALUMINUM	HGR	HANGER	RL	RAIN LEADER
AMP	ACOUSTICAL METAL PANELS	HGT	HEIGHT	RLG	RAILING
ANOD	ANODIZE(D)	HM	HOLLOW METAL	RM	ROOM
ASSY	ASSEMBLY	HOR	HORIZONTAL	RO	ROUGH OPENING
BBT	BIOBASED TILE	HP	HIGH POINT	RT	RUBBER TILE
BD	BOARD	HR	HANDRAIL	RWL	RAIN WATER LEADER
BEV	BEVEL(ED)	IN	INCH	S	STEEL S-SHAPED DESIGNATION
BLDG	BUILDING	INST	INSTRUMENTATION	SA	SELF-ADHERE(D)
BLK	BLOCK	INSUL	INSULATION	SAT	SUSPENDED ACOUSTICAL TILE
BLKG	BLOCKING	JC	JANITOR'S CLOSET	SB	SEAMLESS BASE
BRG	BEARING	JT	JOINT	SCHD	SCHEDULE
BRK	BRICK	JT FLR	JOINT FILLER	SCRN	SCREEN(ED, ING)
BRS	BRASS	L	LINE OF STRUCTURAL ANGLE DESIGNATION	SECT	SECTION
BRZ	BRONZE	LAB	LABORATORY	SF	SQUARE FEET/FOOT(AGE)
BTM	BOTTOM	LAD	LADDER	SGFT	STRUCTURAL GLAZED FACING TILE
C TO C	CENTER TO CENTER	LAM	LAMINATED	SHT	SHEET
CAB	CABINET	LAV	LAVATORY	SIM	SIMILAR
CEM	CEMENT	LG	LAMINATED GLASS	SK	SINK
CF	COMPRESSIBLE FILLER	LINO	LINOLEUM	SL	SLOPE
CGFB	CEMENTITIOUS GLASS FIBER BOARD	LKR	LOCKER	SLNT	SEALANT
CH	CONCRETE HARDENER	LNTL	LINTEL	SPEC	SPECIFICATION, SPECIFIED
CHAM	CHAMFER	LP	LOW POINT	SST	STAINLESS STEEL
CHAN	CHANNEL	LT	LIGHT(S)	STD	STANDARD
CIP	CAST IN PLACE	MAS	MASONRY	STL	STEEL
CJ	CONTROL JOINT (MASONRY VENEER)	MATL	MATERIAL	STOR	STORAGE
CL OR ℄	CENTERLINE	MAX	MAXIMUM	STRU	STRUCTURE(S, URAL)
CLG	CEILING	MCJ	MASONRY CONTROL JOINT	STWY	STAIRWAY
CLKG	CAULKING	MEMB	MEMBRANE	SUPT	SUPERINTENDENT
CMU	CONCRETE MASONRY UNIT	MFR	MANUFACTURER	SUSP	SUSPENDED
COL	COLUMN	MIN	MINIMUM	T	TREAD(S)
COMP	COMPRESSIBLE	MISC	MISCELLANEOUS	TBM	TRAFFIC BEARING MEMBRANE
CONC	CONCRETE	MO	MASONRY OPENING	T&G	TONGUE AND GROOVE
CONT	CONTINUOUS	MR	MOISTURE RESISTANT	TEMP	TEMPERED
CRPT	CARPET, CARPET TILE	MRAT	MOISTURE RESISTANT ACOUSTICAL TILE	TER	TERRAZZO
CRS	COURSE(S)	MTD	MOUNTED	TERB	TERRAZZO BASE
CT	CERAMIC TILE	MTG	MOUNTING	THK	THICK(NESS)
DET	DETAIL	MTL	METAL	THR	THRESHOLD
DF	DRINKING FOUNTAIN	NIC	NOT IN CONTRACT	TKBD	TACKBOARD
DIA	DIAMETER	NOM	NOMINAL	TLT	TOILET
DIAG	DIAGONAL	NTS	NOT TO SCALE	TOB	TOP OF BRICK
DIM	DIMENSION	OC	ON CENTER	TOC	TOP OF CONCRETE
DISP	DISPENSER	OH	OVERHANG	TOM	TOP OF MASONRY
DN	DOWN	OPNG	OPENING	TOPG	TOPPING
DP	DAMPPROOFING	OPP HD	OPPOSITE HAND	TOS	TOP OF STEEL
DR	DRAIN	ORD	OVERFLOW ROOF DRAIN	TSL	TOP OF SLAB
ELEC	ELECTRICAL	OSB	ORIENTED STRAND BOARD	TWF	THROUGH WALL FLASHING
ELEV	ELEVATION	OV	OVER	TYP	TYPICAL
EQ	EQUAL(LY)	OVHD	OVERHEAD	UC	UNDERCUT
EQPT	EQUIPMENT	PERIM	PERIMETER	UON	UNLESS OTHERWISE NOTED
EWC	ELECTRICAL WATER COOLER	PL	PLATE	UR	URINAL
EXP	EXPOSED	PLAS	PLASTER	VB	VAPOR BARRIER
EJ	EXPANSION JOINT	PLK	PLANK	VCT	VINYL COMPOSITE TILE
EXIST, (E)	EXISTING	PLYWD	PLYWOOD	VERT	VERTICAL
FD	FLOOR DRAIN	PM	PRESSED METAL	VEST	VESTIBULE
FE	FIRE EXTINGUISHER	PR	PAIR	VTR	VENT THROUGH ROOF
FF	FACTORY FINISH	PRD	PROMENADE ROOF DRAIN	W/	WITH
FGL	FIBERGLASS	PRCST	PRECAST	W/A	WHERE APPLICABLE
FIN	FINISH(ED)	PREFAB	PRE-FABRICATED	W/O	WITHOUT
FLG	FLASHING	PT	PRESSURE TREATED	WC	WATER CLOSET
FL	FLOOR(ING)	PRMLD	PREMOLDED	WD	WOOD
FLR	FILLER	PSF	POUNDS PER SQUARE FOOT	WDW	WINDOW
FR	FRAME	PTD	PAINTED	WF	WIDE FLANGE
FRP	FIBERGLASS REINFORCED PLASTIC	QT	QUARRY TILE	WPG	WATERPROOFING
FO	FRAME OPENING	QTB	QUARRY TILE BASE	WWF	WELDED WIRE FABRIC
FV	FIELD VERIFY	R	RISER(S)		
FXD	FIXED	RB	RUBBER BASE		
GA	GAGE, GAUGE	RD	ROOF DRAIN		
GALV	GALVANIZED	RECT	RECEPTACLE		
GL	GLASS				

GENERAL NOTES

1. DO NOT SCALE FROM THE DRAWINGS.
2. NOTIFY ENGINEER IF CONSTRUCTION DOCUMENTS DIFFER FROM ACTUAL FIELD CONDITIONS PRIOR TO FABRICATION OR NEW CONSTRUCTION.
3. THIS DRAWING CONTAINS A GENERAL LIST OF SYMBOLS AND ABBREVIATIONS. NOT ALL ITEMS SHOWN HERE APPEAR ON THE CONTRACT DRAWINGS.

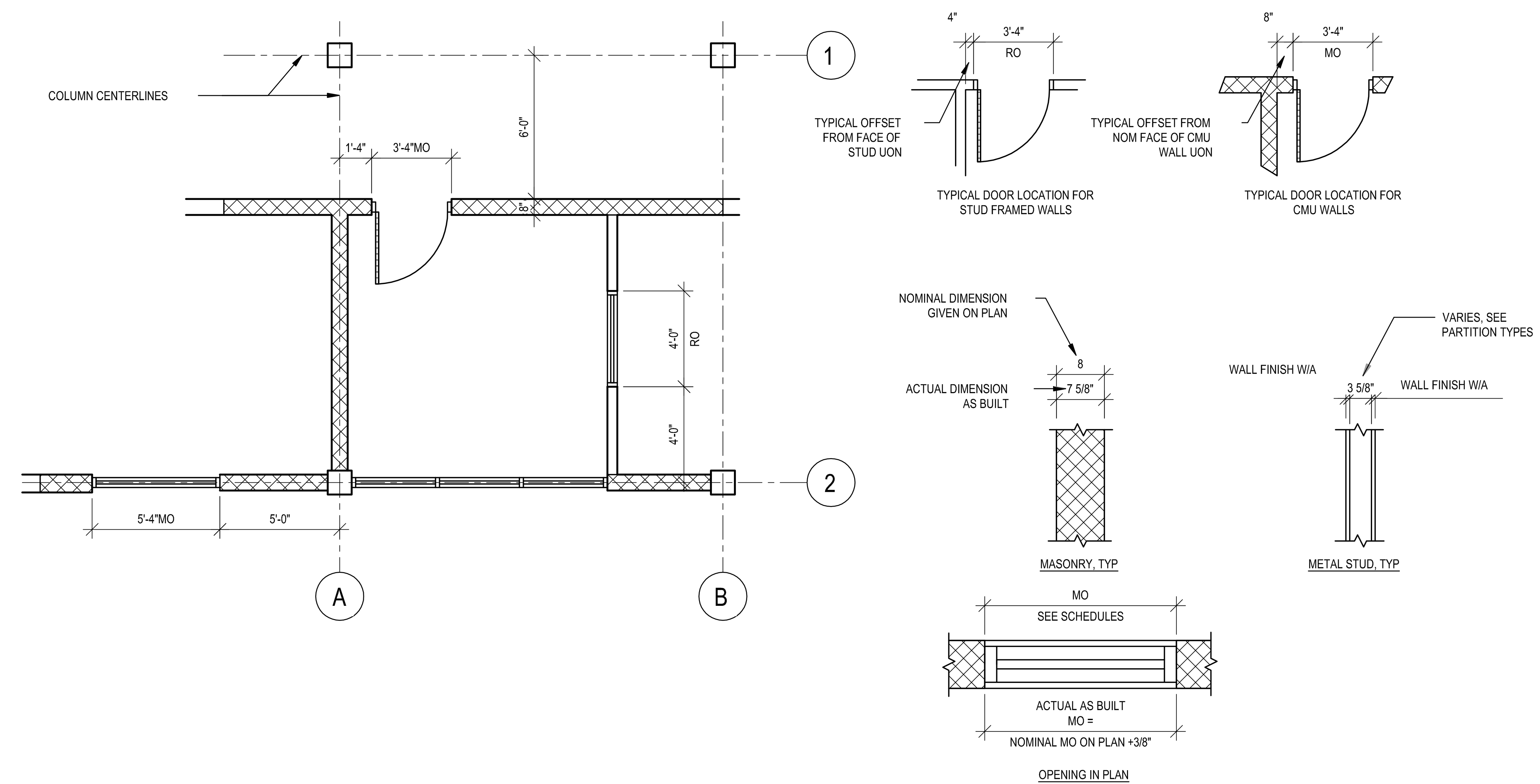
LINE TYPES (UNLESS OTHERWISE NOTED)

- CONTINUOUS - NEW CONSTRUCTION
- DASHED ON CONSTRUCTION PLAN/SHEETS - HIDDEN ELEMENTS BEYOND, ABOVE OR BELOW

MATERIAL SYMBOLS

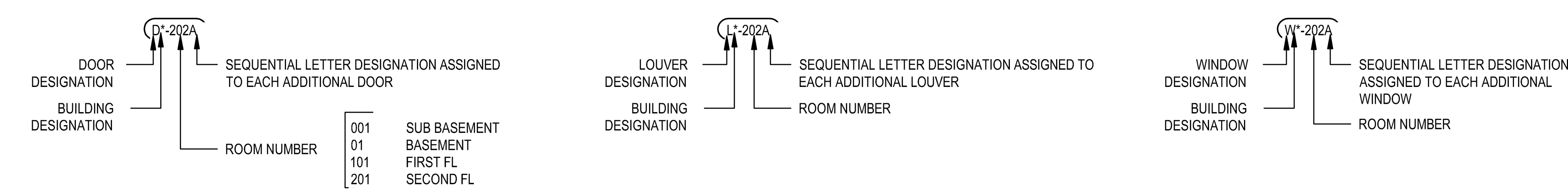
- EARTH
- GRAVEL
- BRICK
- CONCRETE MASONRY UNIT (CMU)
- PRECAST CONCRETE
- CAST-IN-PLACE CONCRETE
- WOOD BLOCKING
- WOOD FINISH
- PLYWOOD
- RIGID INSULATION
- BLANKET INSULATION
- STEEL
- ALUMINUM
- STUCCO / GROUT
- CAULK

DIMENSIONING SYSTEM

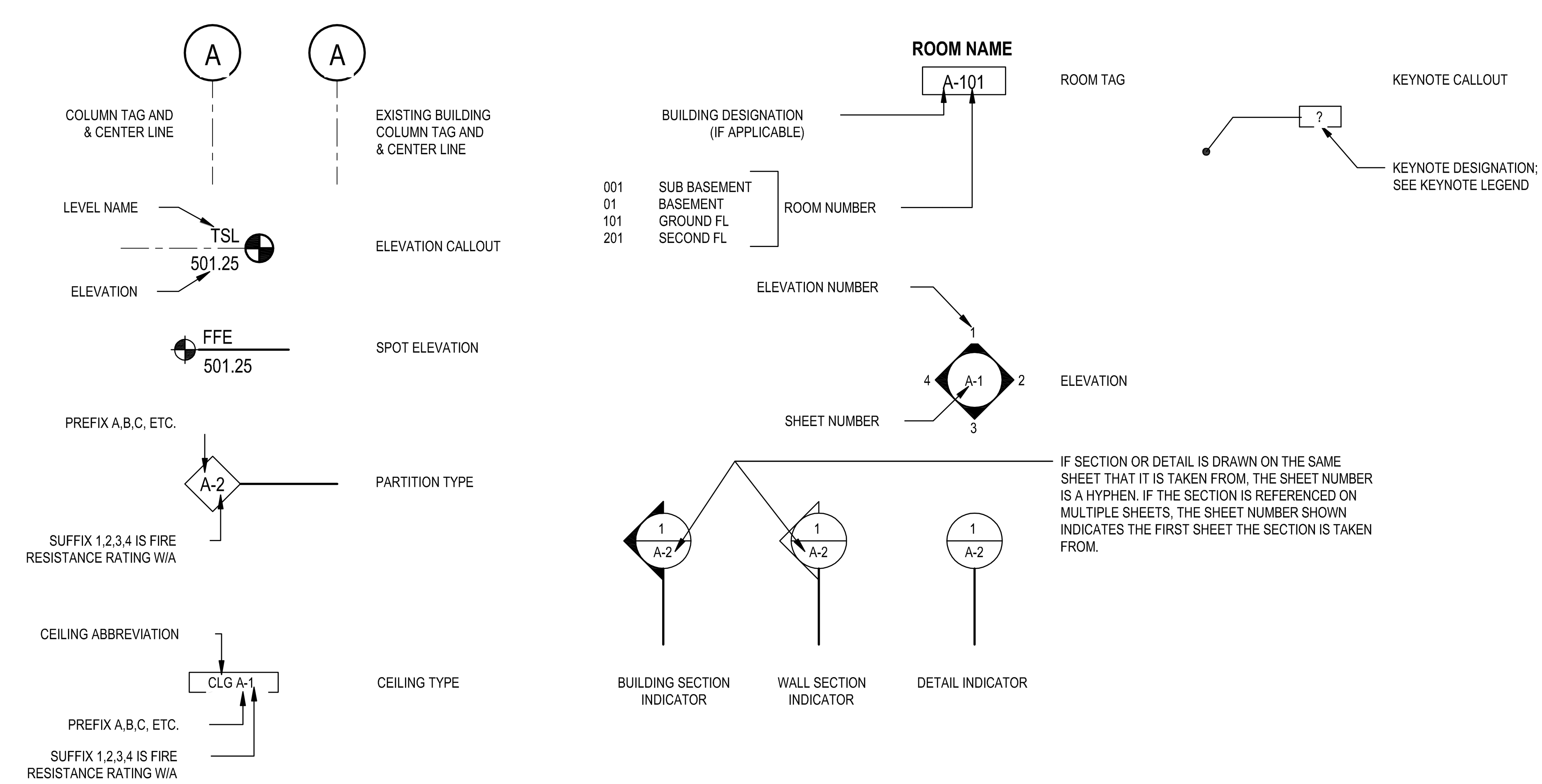


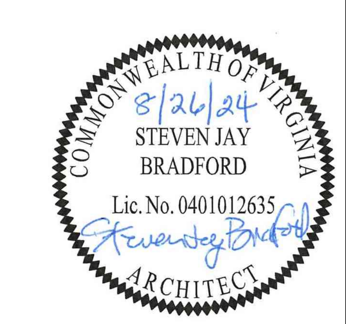
OPENINGS

USUALLY LABELED IN PLAN VIEW; HOWEVER, OPENINGS NOT SHOWN IN PLAN ARE LABELED ON ELEVATIONS



SYMBOLS





FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: S. BRADFORD
DRAWN: O. PEREZ
CHECKED: T. MOHAMMED

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

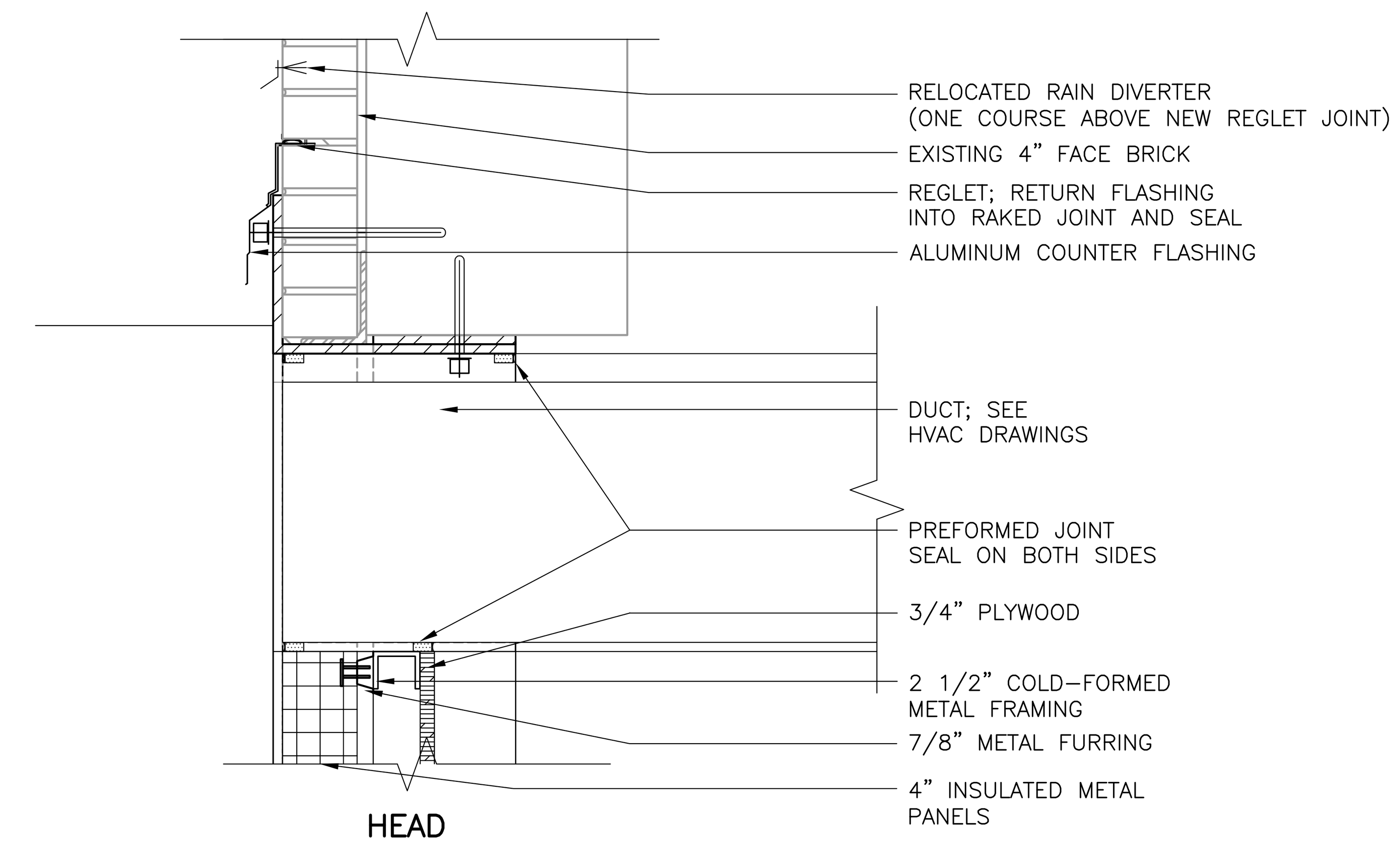
Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ARCHITECTURAL
ABBREVIATIONS AND SYMBOLS

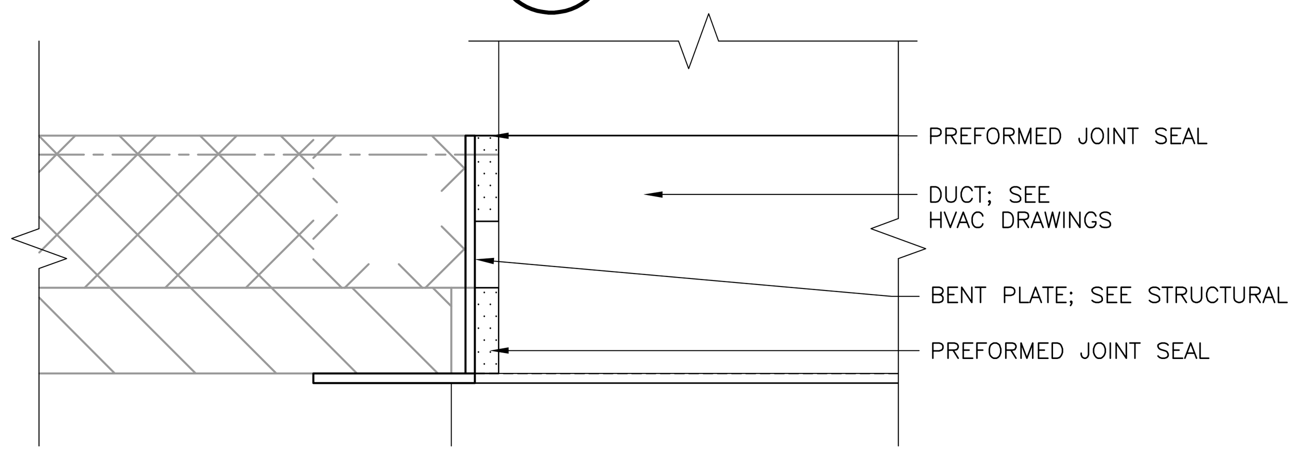
FILE NAME: A_01_ARCH_ABRV_SYM.pdf

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING A-1
TAX MAP: 027-1		SHEET 10 of 34



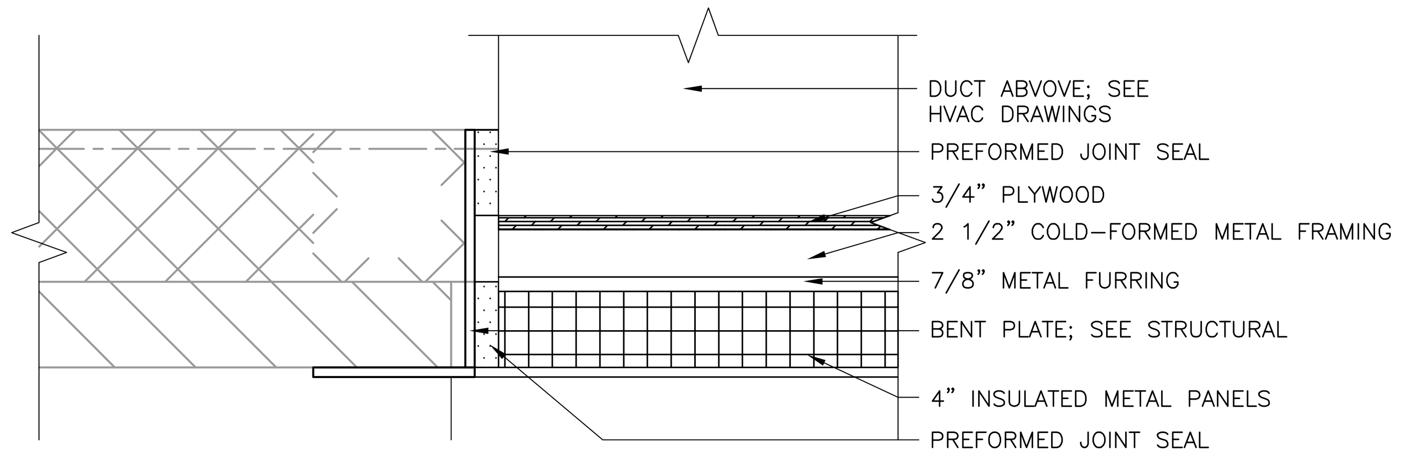
HEAD

DETAIL B (A-1)
1 1/2" = 1'-0"



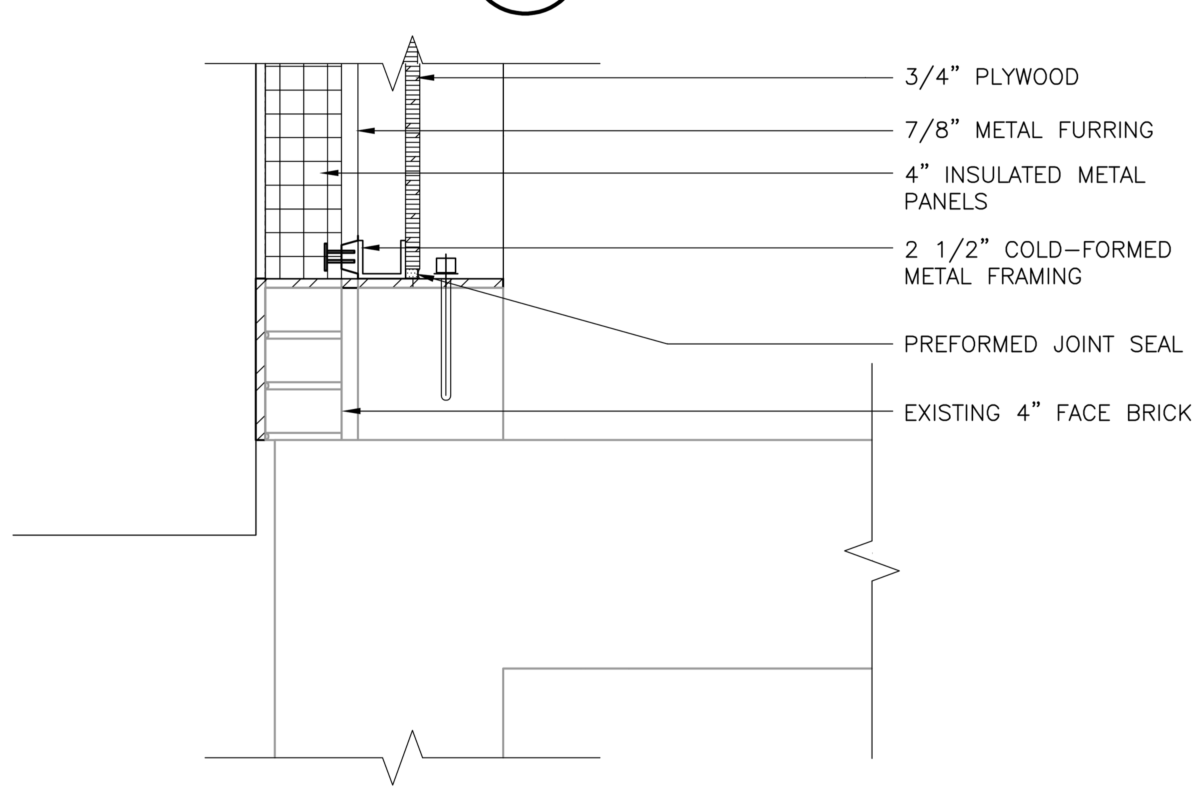
JAMB

DETAIL C (A-1)
1 1/2" = 1'-0"



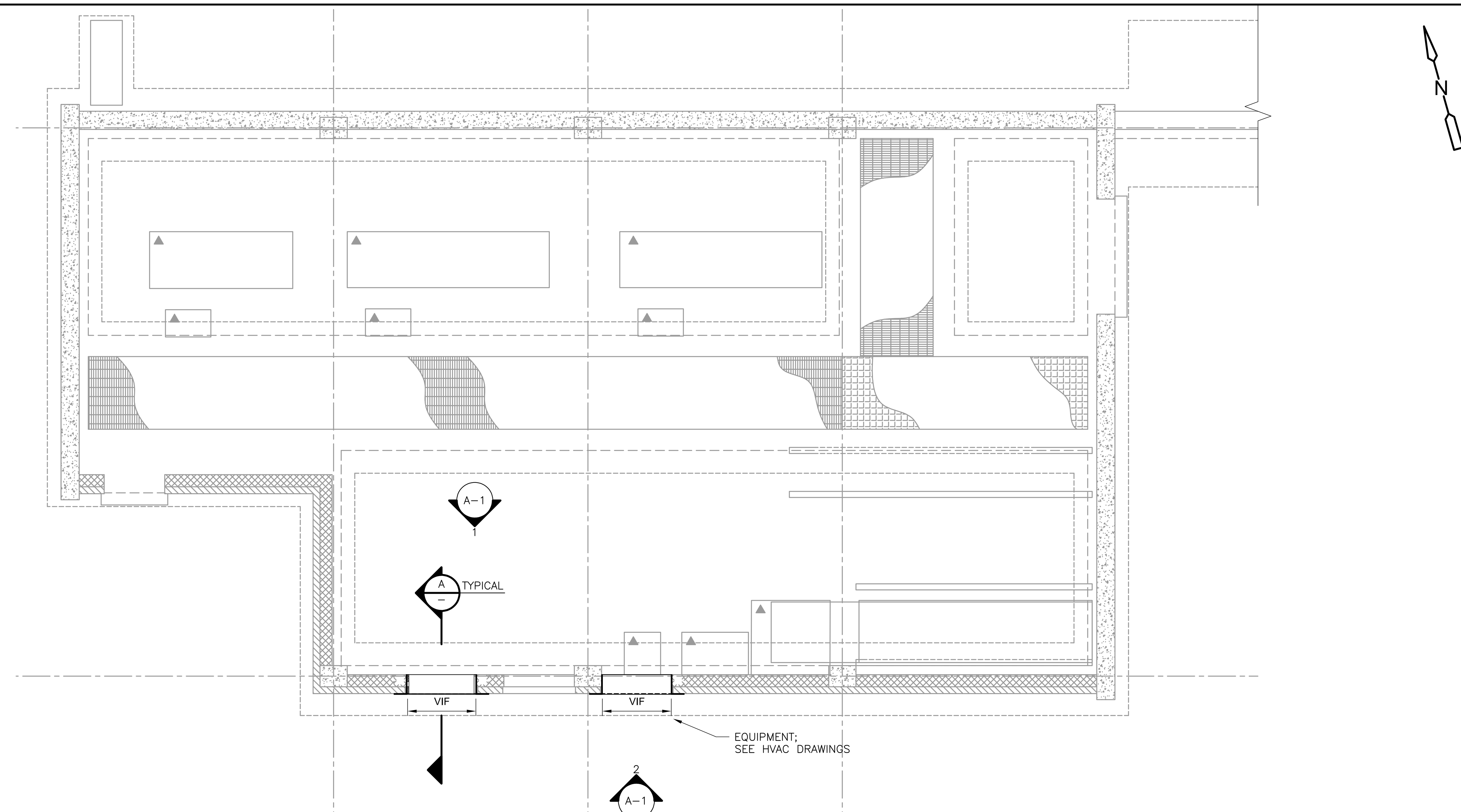
INSULATED METAL PANEL JAMB

DETAIL D (A-1)
1 1/2" = 1'-0"

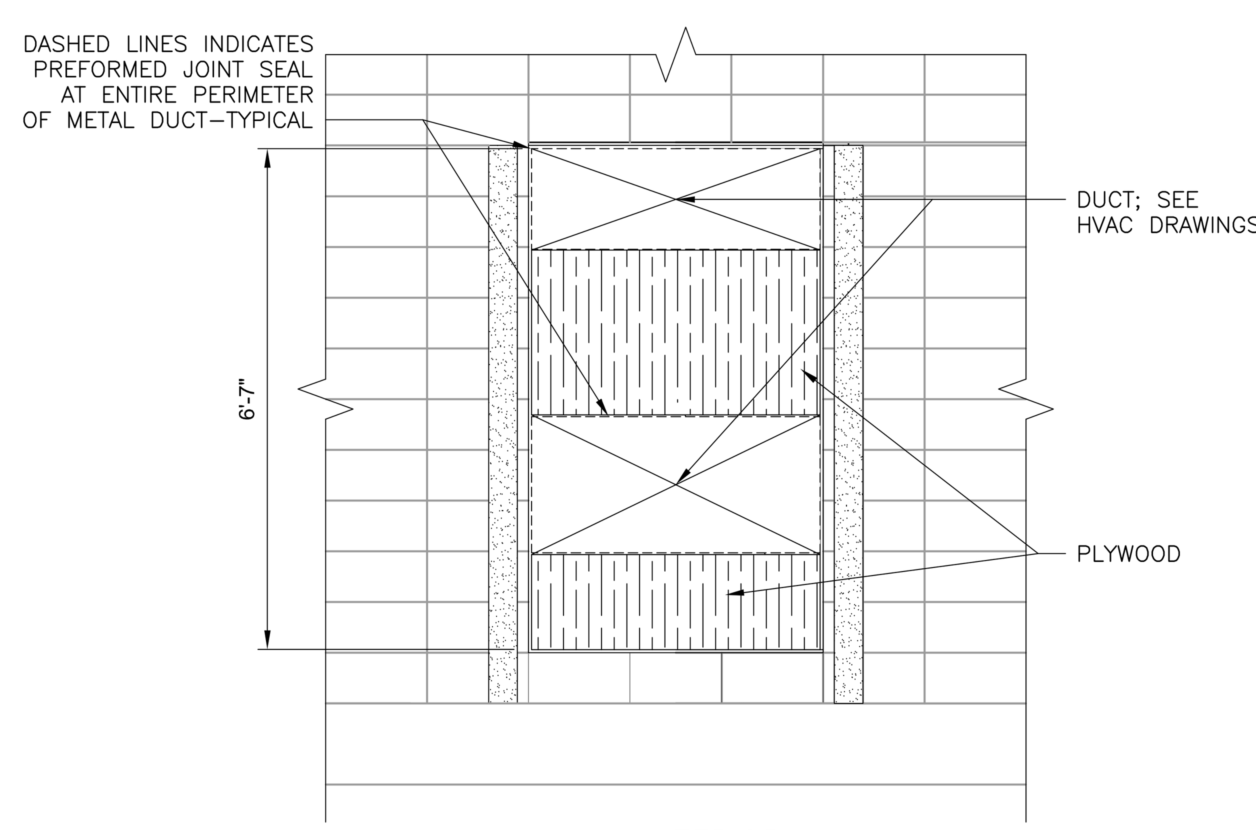


THRESHOLD

DETAIL E (A-1)
1 1/2" = 1'-0"

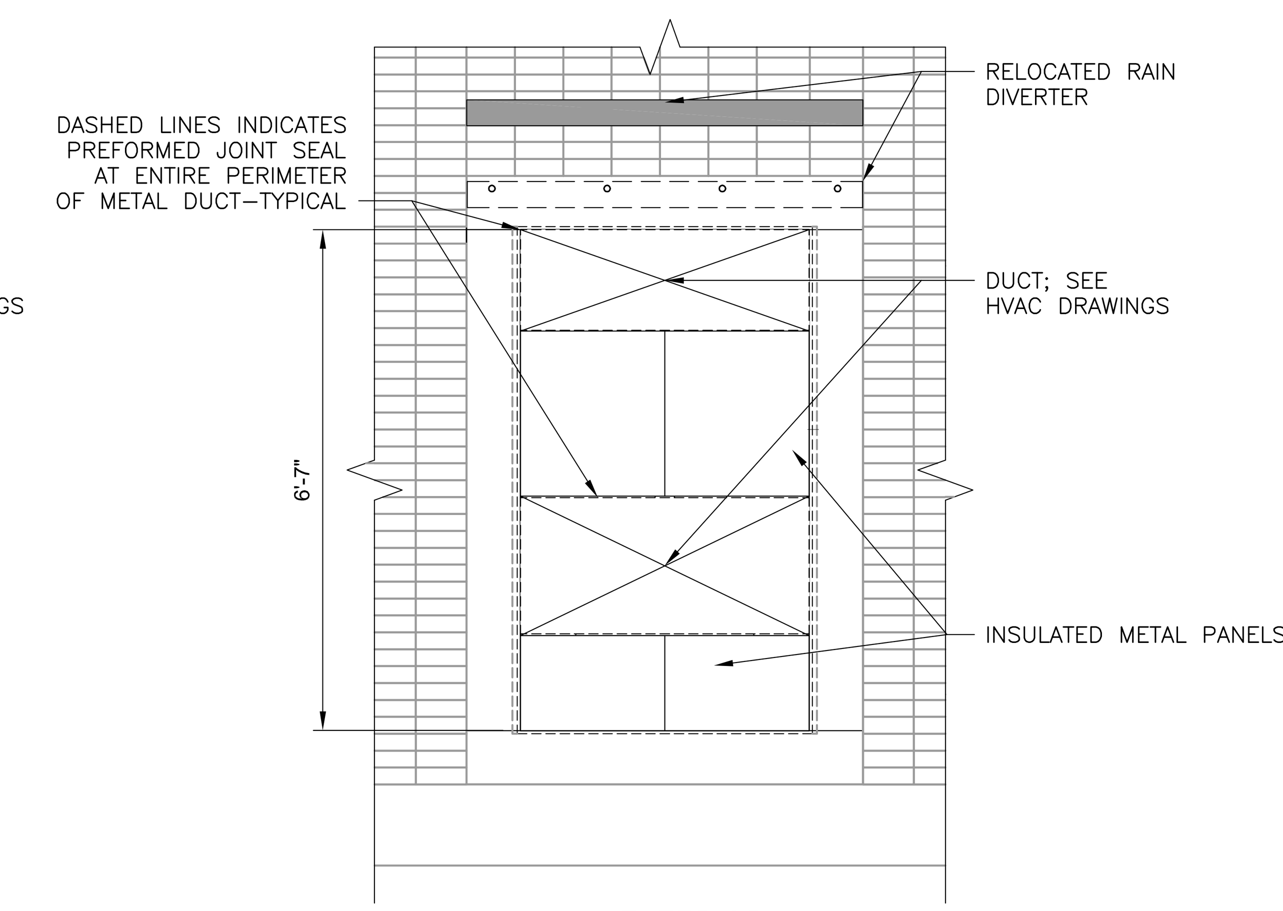


PLAN
1/4" = 1'-0"



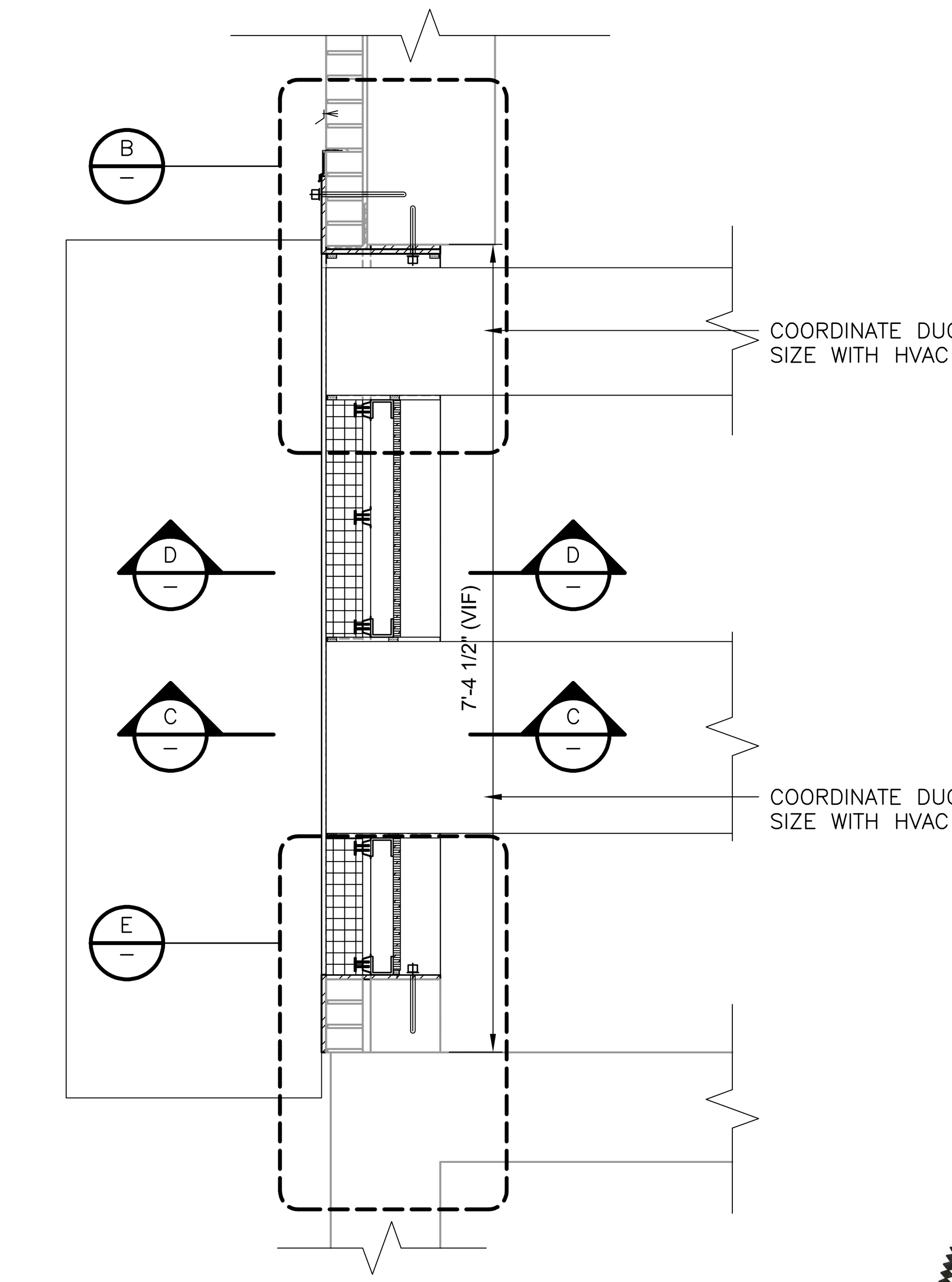
INTERIOR

ELEVATION 1 (A-1)
1/2" = 1'-0"



EXTERIOR

ELEVATION 2 (A-1)
1/2" = 1'-0"



SECTION 1 (–)
3/4" = 1'-0"

1 1/2" = 1'- 0"
.5 0 .5 1

COMMONWEALTH OF VIRGINIA
8/26/24
STEVEN JAY BRADFORD
Lic. No. 0401012635
ARCHITECT

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: S. BRADFORD DRAWN: O. PEREZ CHECKED: T. MOHAMMED	

NO.	DATE	REVISION
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SCALE
1/4" = 1'- 0" (2 1 0 2 4)
1/2" = 1'- 0" (1 0 1 2)
3/4" = 1'- 0" (1 0 1 2)

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

PUMP STATION PLAN
SECTIONS, ELEVATIONS AND DETAILS

FILE NAME: A_02_ARCH_PLAN_DETAILS.pdf

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING A-2
TAX MAP: 027-1		SHEET 11 of 34

STRUCTURAL NOTES

A. DESIGN CRITERIA

1. CODES:
   a. 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE: INTERNATIONAL BUILDING CODE 2018
   b. ASCE/SEI 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
   c. ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
   d. TMS 402-16 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
2. BUILDING CLASSIFICATION: RISK CATEGORY III
3. SNOW LOAD DESIGN DATA:
   GROUND SNOW LOAD (Pg) .... 25 PSF
   EXPOSURE FACTOR (Ce) 1.0
   THERMAL FACTOR (Ct) 1.0
   SLOPED ROOF FACTOR (Cs) 1.0
   IMPORTANCE FACTOR (Is) 1.1
   SLOPED ROOF SNOW LOAD (Ps) .... 22 PSF
4. WIND DESIGN DATA:
   MAIN WIND FORCE RESISTING SYSTEM
   BASIC DESIGN WIND SPEED (V) .... 120 MPH
   ALLOWABLE STRESS DESIGN WIND SPEED (VASD)............ 93 MPH
   EXPOSURE CATEGORY .... B
   INTERNAL PRESSURE COEFFICIENT .... ± 0.18
   COMPONENTS AND CLADDING .... SEE TABLE THIS SHEET
5. SEISMIC DESIGN DATA:
   SEISMIC IMPORTANCE FACTOR Ie 1.25
   SEISMIC DESIGN CATEGORY .... B
   SITE CLASS .... E
   Ss 0.137
   S1 .... 0.044
   SDs 0.218
   SD1 .... 0.123
6. LIVE LOADS:
   PUMP ROOM .... 250 PSF
7. FROST DEPTH .... 24"

B. GENERAL CONDITIONS

1. SLANTED AND SCREENED TEXT AND INFORMATION INDICATES EXISTING INFORMATION.
2. ALL EXISTING INFORMATION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
3. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL, ARCHITECTURE, MECHANICAL, ELECTRICAL, AND HEATING AND VENTILATING DRAWINGS, AND SPECIFICATIONS.
4. SEE MECHANICAL, ELECTRICAL, AND HEATING AND VENTILATING DRAWINGS FOR PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH CONCRETE.
5. THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL DRAWINGS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE STRUCTURES. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING THE WORK.
6. THE WORK OCCURS ADJACENT TO AN EXISTING OPERATING FACILITY. COORDINATE ALL CONSTRUCTION ACCESS AND OPERATIONS WITH THE OWNER TO AVOID DISRUPTION TO ONGOING FACILITY OPERATIONS.

C. CAST IN PLACE CONCRETE

1. REINFORCED CONCRETE SHALL COMPLY WITH ACI 318.
2. MINIMUM CONCRETE STRENGTH AT 28 DAYS:
   CONCRETE FILL (PIPE & DUCT ENCASEMENT)(CLASS A) .... f'c = 2500 PSI
   STRUCTURAL CONCRETE (CLASS B) .... f'c = 4000 PSI
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM SPECIFICATION A615 GRADE 60.
4. REINFORCING STEEL FABRICATION SHALL BE IN COMPLIANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
5. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER UNO:
   a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: .... 3"
   b. CONCRETE SURFACES IN CONTACT WITH SOIL OR EXPOSED TO WEATHER: .... 2"
   c. CONCRETE SURFACES NOT IN CONTACT WITH SOIL OR EXPOSED TO WEATHER: .... 2"
6. SPLICED BARS SHALL HAVE A MINIMUM LAP OF CLASS B TENSION LAP SPLICE PER NOTE 10 BELOW, UON.
7. CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
8. ALL EXPOSED CORNERS OF CONCRETE TO HAVE 3/4" MINIMUM CHAMFER, UNO.
9. SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
10. LAP SPLICE AND DEVELOPMENT LENGTHS:

CLASS B TENSION LAP SPLICE LENGTHS IN WALLS AND SLABS (INCHES)

f'c=4000 PSI		
BAR SIZE	TOP BARS	OTHER BARS
3	24	18
4	32	25
5	40	31
6	48	37
7	70	54
8	80	62
9	91	70

TENSION DEVELOPMENT LENGTHS IN WALLS AND SLABS (INCHES)

f'c=4000 PSI		
BAR SIZE	TOP BARS	OTHER BARS
3	18	14
4	25	19
5	31	24
6	37	29
7	54	42
8	62	47
9	70	54

NOTES:
a. MINIMUM BAR SPACING = 6" OC
b. A HORIZONTAL BAR IS CONSIDERED A TOP BAR IF MORE THAN 12" OF FRESH CONCRETE IS CAST DIRECTLY BELOW THE BAR.

11. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

D. MODIFICATION TO CONCRETE NOTES

1. CONNECTION METHODS:
   METHOD 'A' – BONDING TO SATURATED SURFACE USING CEMENT PASTE.
   METHOD 'B' – BONDING BY USING EPOXY BONDING AGENT
   METHOD 'C' – DRILLED DOWELS OR BOLTS USING ADHESIVE ANCHORING SYSTEM
   METHOD 'D' – COMBINATION OF METHODS 'B' AND 'C'
2. SEE CONCRETE SPECIFICATIONS SECTION 03015 FOR EXPLANATION OF CONCRETE REMOVAL METHODS, CONNECTION METHODS AND MATERIALS USED.

E. FOUNDATIONS

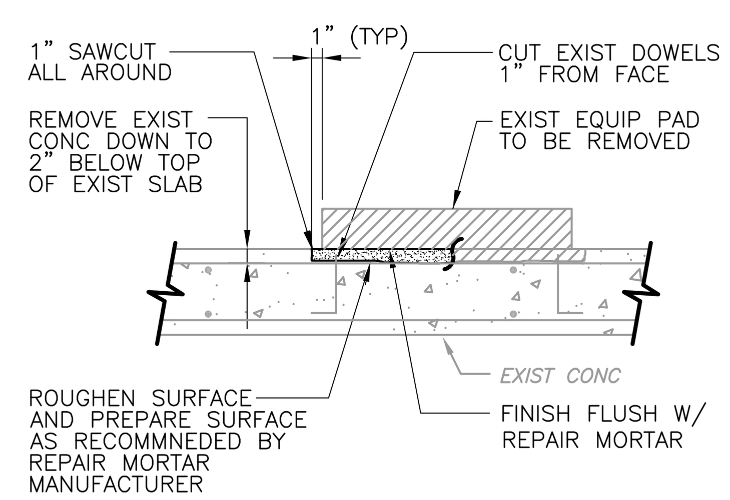
1. PRIOR TO PLACING CONCRETE FOR FOUNDATIONS, THE SOIL EXCAVATION AND THE COMPACTION OF STRUCTURAL FILL AND BACKFILL SHALL BE PERFORMED IN ACCORDANCE WITH THE RECOMMENDATIONS PRESENTED IN THE GEOTECHNICAL REPORT.
2. IN PREPARATION OF THE FOUNDATION DESIGN, DRAWINGS, AND SPECIFICATIONS, THE ENGINEER HAS RELIED UPON THE FOLLOWING GEOTECHNICAL REPORTS:
   a. GEOTECHNICAL DESIGN REPORT: RESTON PUMP STATION ELECTRICAL UPGRADES RESTON, VA AS PREPARED BY CDM SMITH DATED OCTOBER 2023.
3. ALL EXTERIOR FOUNDATIONS SHALL BEAR AT OR BELOW THE FROST DEPTH, UNLESS OTHER MEANS TO PREVENT FROST HEAVE HAVE BEEN EMPLOYED.
4. IF UNSUITABLE SOIL IS DISCOVERED AT THE FOOTING ELEVATIONS SPECIFIED, THE CONTRACTOR SHALL EXCAVATE THE UNSUITABLE SOIL TO A DEPTH WHERE SUITABLE BEARING MATERIAL IS FOUND. THE UNSUITABLE SOIL REMOVED SHALL BE REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL UP TO THE FOOTING ELEVATION.
5. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM PRIOR TO STARTING WORK.
6. EXISTING UTILITIES KNOWN TO BE IN THE CONSTRUCTION AREA HAVE BEEN INDICATED IN THE CONSTRUCTION DOCUMENTS. THE SIZE, LOCATION, AND DEPTH OF THE UTILITIES ARE NOT KNOWN EXACTLY AND MAY VARY SIGNIFICANTLY FROM THAT INDICATED. OTHER UNKNOWN UTILITIES NOT INDICATED MAY ALSO BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES WHICH MAY BE AFFECTED BY THE CONSTRUCTION PROCESS WHETHER INDICATED OR NOT.

F. MASONRY

1. GROUT SHALL CONFORM TO ASTM C476. MINIMUM COMPRESSIVE STRENGTH OF GROUT SHALL BE 2,000 PSI. CONCRETE OR MORTAR SHALL NOT BE USED AS GROUT.
2. MASONRY REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
3. FULLY GROUT ALL CELLS AND COURSES WITH VERTICAL REINFORCING.

G. STEEL

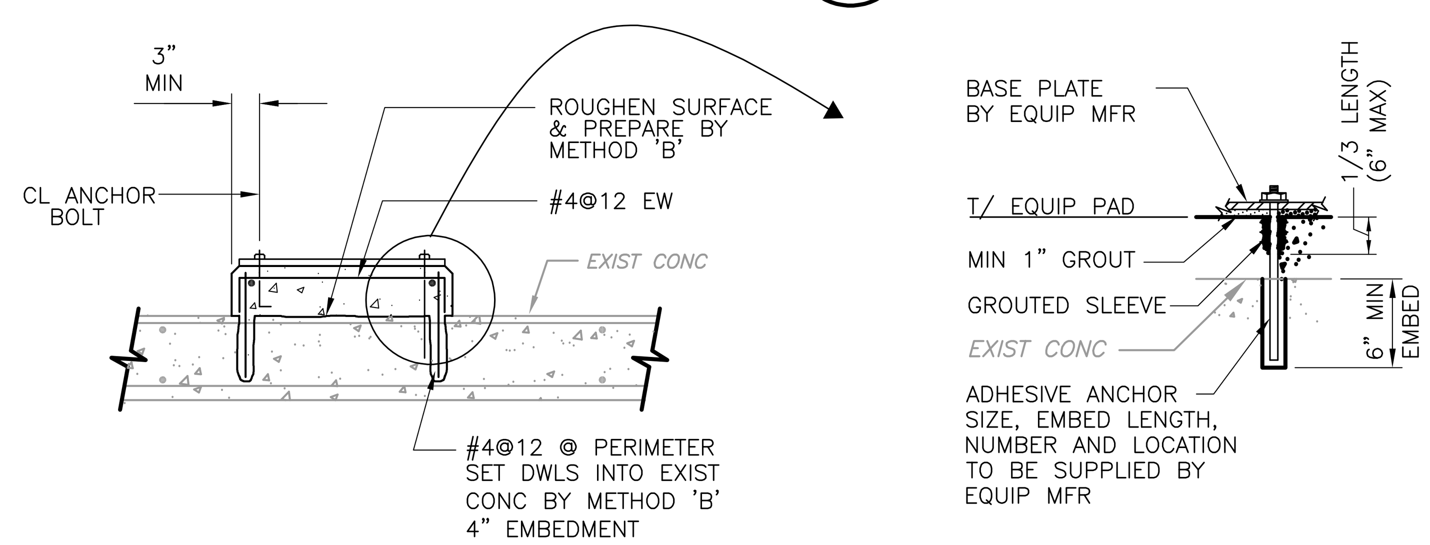
1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, ERECTED AND CONNECTED IN ACCORDANCE WITH THE 15TH EDITION OF THE "AISC MANUAL OF STEEL CONSTRUCTION" (ASD)
2. MATERIALS:
   a. CHANNELS, ANGLES AND PLATES: ASTM A36
3. CONNECTIONS:
   a. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE-STEEL". WELDING FILLER METAL SHALL BE AWS A5.1 OR A5.5 E70XX LOW HYDROGEN ELECTRODES. WELDERS SHALL BE AWS CERTIFIED. SUBMIT COPY OF ALL CERTIFICATIONS TO THE CONTRACTING OFFICER. SURFACES TO BE WELDED SHALL BE WIRE BRUSHED CLEAN BEFORE WELDING.
4. ALL STRUCTURAL STEEL SHALL BE SHOP PRIMED AND PAINTED, EXCEPT DOOR LINTELS, SHELF ANGLES, STEEL ROOF DECK AND RELATED ACCESSORIES TO BE HOT-DIP GALVANIZED.
5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



SEE "MODIFICATION TO CONCRETE NOTES"

EXIST EQUIPMENT PAD REMOVAL

DETAIL A / –
NTS



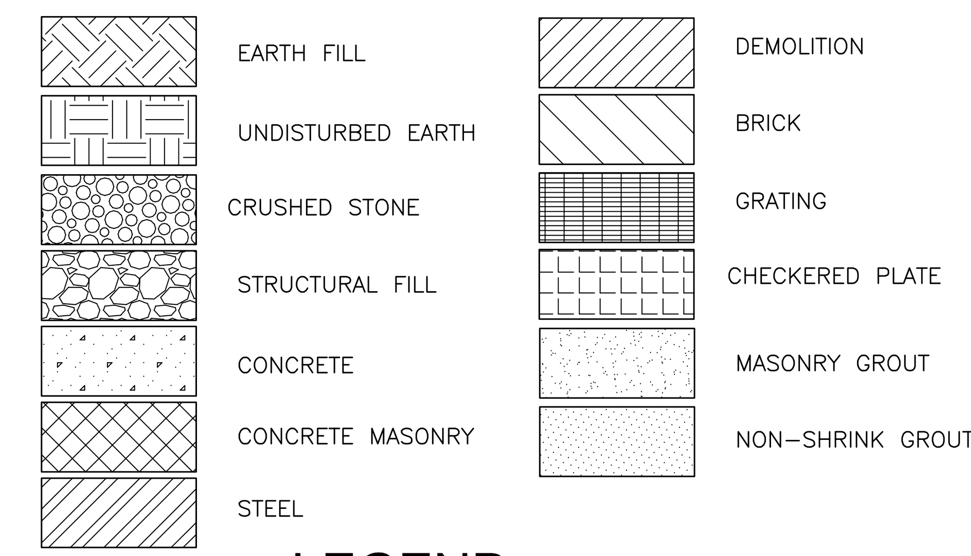
DIMENSIONS OF PAD AS REQD TO SUIT EQUIP (4" MIN, 12" MAX HEIGHT)

SEE "MODIFICATION TO CONCRETE NOTES"

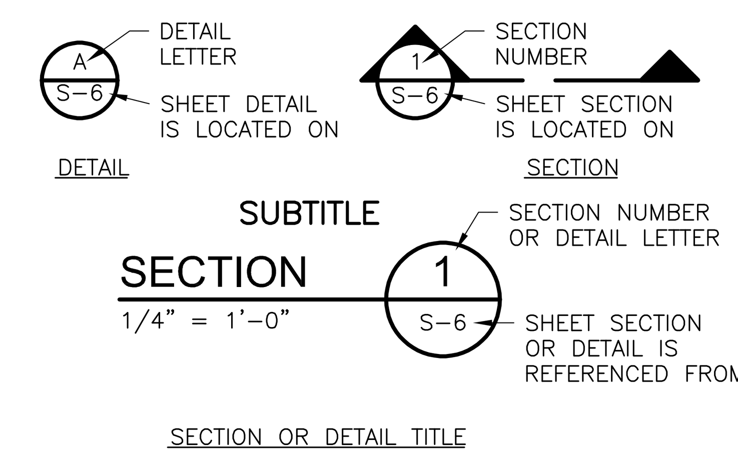
NEW EQUIPMENT PAD ON EXIST SLAB

DETAIL B / –
NTS

STRUCTURAL SYMBOLS



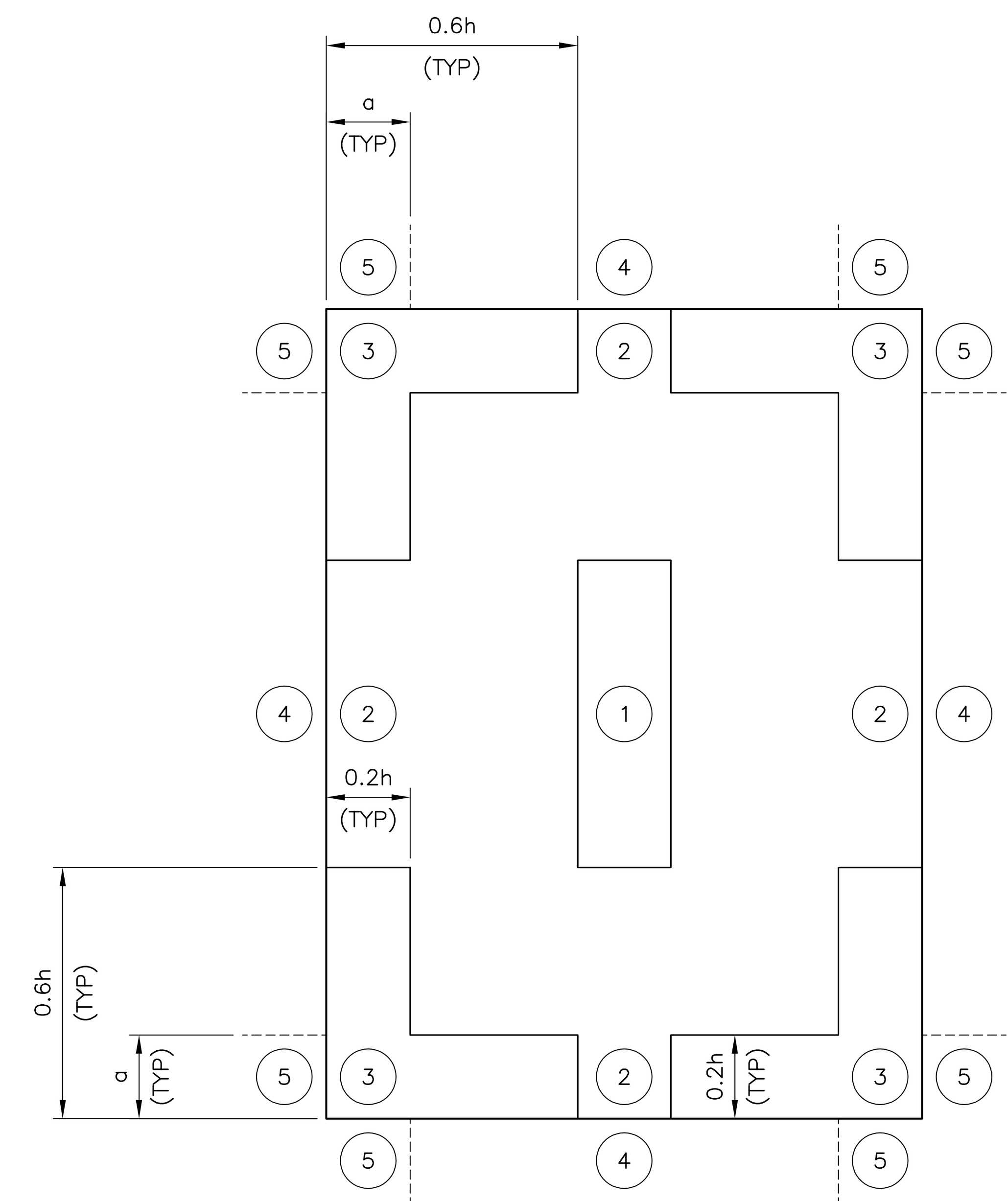
LEGEND



ABBREVIATIONS

&	AND
@	AT
°	DEGREES
ø	DIAMETER
#	NUMBER
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BOT	BOTTOM
BRG	BEARING
BS	BOTH SIDES
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLJ	CONTROL JOINT
CLR	CLEAR
CMU	CONCRETE MASONRY UNITS
CONC	CONCRETE
CONN	CONNECT(ION)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTR	CENTER(ED)
DET	DETAIL
DIM(S)	DIMENSION(S)
DL	DEAD LOAD
DWG	DRAWING
DWL(S)	DOWEL(S)
EA	EACH
EE	EACH END
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDMENT
EQ	EQUAL(LY)
ES	EACH SIDE
EW	EACH WAY
EXP JT	EXPANSION JOINT
EXIST	EXISTING
EXT	EXTERIOR
f'c	CONCRETE COMPRESSION STRENGTH
f'm	MASONRY COMPRESSIVE STRENGTH
FF	FAR FACE
FS	FAR SIDE
FTG	FOOTING
GA	GAGE
GALV	GALVANIZED
GR	GRADE
GRTG	GRATING
HAS	HEADED ANCHOR STUD
HCA	HEADED CONCRETE ANCHOR
HOR, H	HORIZONTAL
HP	HIGH POINT
HVAC	HEATING, VENTILATING & AIR CONDITIONINGINSIDE DIAMETER
ID	INSIDE DIAMETER
IF	INSIDE FACE
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
JT	JOINT
L	STRUCTURAL ANGLE
LB(S)	POUND(S)
LF	LINEAL FEET
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION(S)
LP	LOW POINT
MAS	MASONRY
MAX	MAXIMUM
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
NF	NEAR FACE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NS	NEAR SIDE
NSG	NON-SHRINK GROUT
NTS	NOT TO SCALE
NW	NORMAL WEIGHT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG(S)	OPENING(S)
OPP	OPPOSITE
PC	PRECAST
PJF	PREMOLDED JOINT FILLER
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R	RADIUS / RISER(S)
REINF	REINFORCE(D, ING)
REQD	REQUIRED
RO	ROUGH OPENING
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SOG	SLAB ON GRADE
SP	SPACE(S)(ED)
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SST	STAINLESS STEEL
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STRUC	STRUCTURE(S)(URAL)
T	TREAD(S)
T/	TOP OF
T&B	TOP AND BOTTOM
THK	THICK, THICKNESS
THRU	THROUGH
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VERT, V	VERTICAL
W/	WITH
WS	WATERSTOP

ABBREVIATION NOTES:
1. ABBREVIATIONS AND DESIGNATIONS FOR STEEL MEMBERS MAY BE FOUND IN THE CURRENT MANUAL OF STEEL CONSTRUCTION BY AISC.
2. ABBREVIATIONS OF TECHNICAL SOCIETIES AND TRADE ASSOCIATIONS MAY BE FOUND IN THE SPECIFICATIONS.
3. WELDING SYMBOLS AND ABBREVIATIONS MAY BE FOUND IN AWS 2.4.



NOTES:
1. a = 3.2 FT
   0.2h = 3.0 FT
   0.6h = 9.0 FT
2. LABELS MARKED ON THE ROOF PLAN INDICATE ROOF ZONES. LABELS MARKED OUTSIDE THE ROOF PLAN INDICATE WALL ZONES.
3. PRESSURES ARE AT ULTIMATE STRENGTH LEVEL.
4. POSITIVE (+) PRESSURES ACT TOWARDS THE SURFACE. NEGATIVE (–) PRESSURES ACT AWAY FROM THE SURFACE.

COMPONENTS & CLADDING WIND PRESSURES (PSF)

ZONE	MAXIMUM POSITIVE PRESSURE	MAXIMUM SUCTION PRESSURE
1 (INTERIOR)	16	-26
2 (EDGE STRIP)	16	-32
3 (CORNER)	16	-55
4 (INTERIOR WALL)	21	-23
5 (CORNER WALL)	21	-28
ENCLOSURE CLASSIFICATION: PARTIALLY OPEN		
INTERNAL PRESSURE COEFFICIENT (GCpi): +/- 0.18		

COMPONENTS AND CLADDING WIND PRESSURES

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: K. BASILI DRAWN: B. BENNETT CHECKED: K. BASILI	NO. / DATE / REVISION	SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

STRUCTURAL NOTES, LEGENDS, ABBREVIATIONS, AND DETAILS

FILE NAME: S_01_STRUCT_NOTE_LEG_DET.PDF

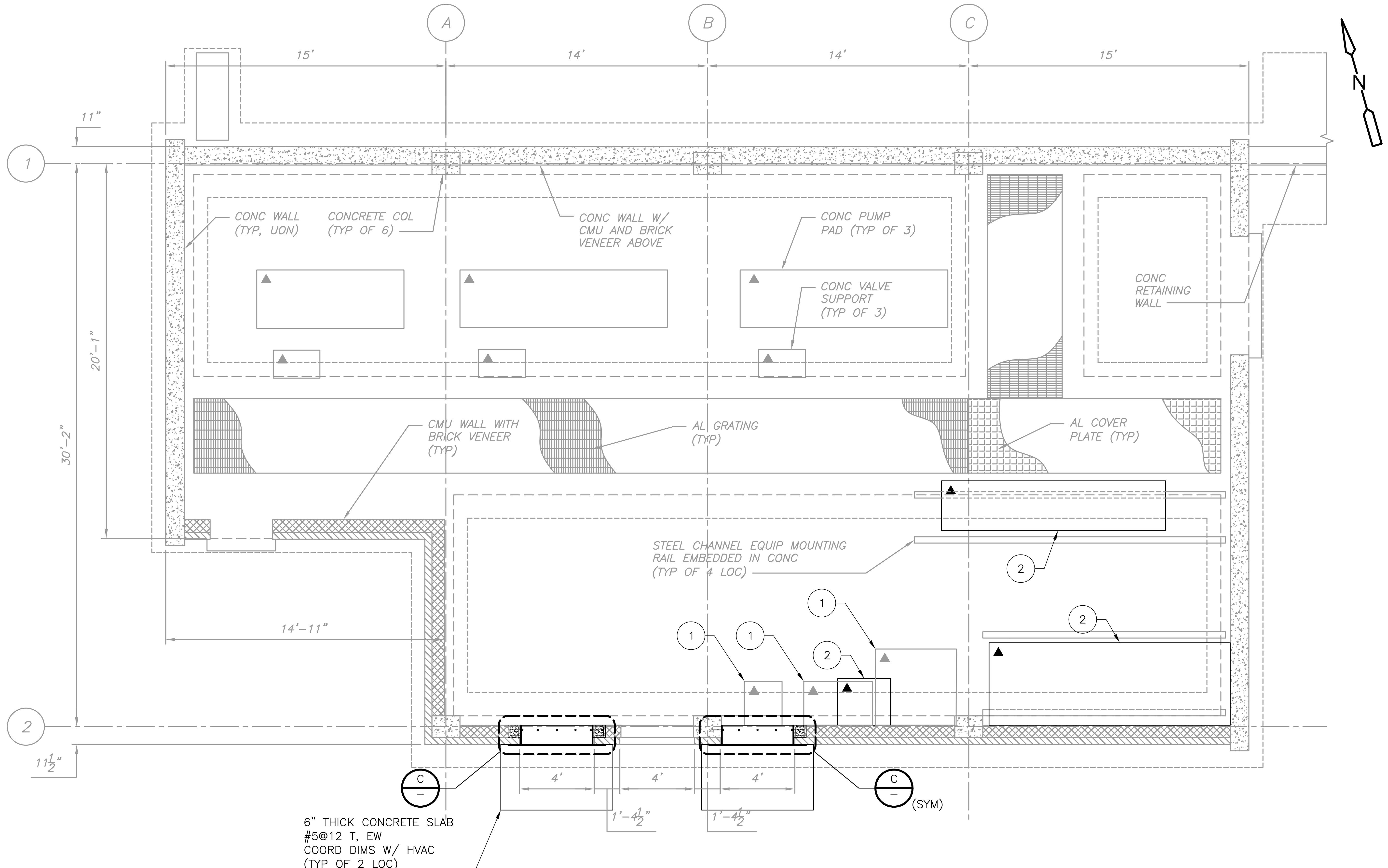
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING S-1
TAX MAP: 027-1		SHEET 12 of 34

NOTES:

1. SEE SHEET S-1 FOR NOTES.

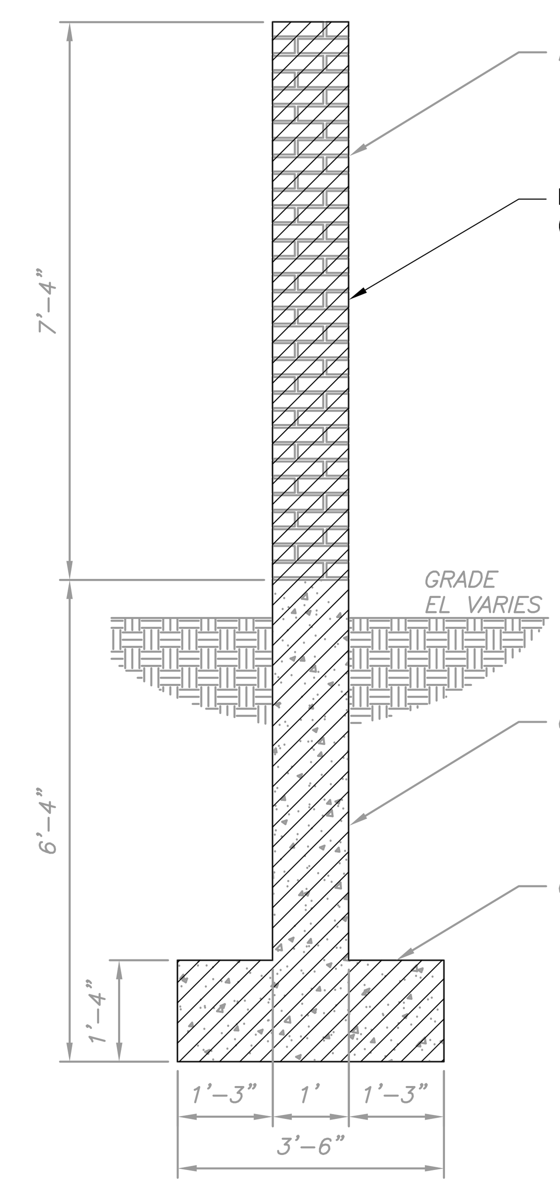
KEYED NOTES:

1. REMOVE EXIST CONC EQUIP PAD PER DETAIL A/S-1
2. NEW CONC EQUIP PAD PER DETAIL B/S-1. COORDINATE EQUIP PAD SIZE WITH THE APPROVED EQUIPMENT AND WITH THE LOCATION OF THE EXIST EQUIP MOUNTING RAILS EMBEDDED IN THE SLAB.
3. CONFIRM IF CMU IS FULLY GROUTED. IF NOT, PARTIALLY DEMO FACE SHELL TO INSTALL NEW REINFORCING AND FULLY GROUT. SEE SECTION 3/–.
4. FABRICATED L13X8½X½ (GALV, PAINTED)
5. CONTINUOUS SHIM PLATE (GALV, PAINTED)
6. ¾"ø GALV THREADED ROD WITH NUT AND WASHER IN 13/16"ø HOLE. EMBED 5⅝" PER METHOD 'C'. CONFIRM LOCATION WILL NOT CONFLICT W/ REINFORCING IN CMU OR CONC COLUMN. PAINT AFTER INSTALL.
7. ¾"ø GALV THREADED ROD WITH NUT AND WASHER IN 13/16"ø HOLE. EMBED 6¾" PER METHOD 'C'. PAINT AFTER INSTALL.
8. ¾"ø GALV THREADED ROD WITH NUT AND WASHER IN 13/16"ø HOLE. EMBED 4" PER METHOD 'C'. CONFIRM LOCATION WILL NOT CONFLICT W/ REINFORCING CONC BEAM COLUMN. PAINT AFTER INSTALL.
9. FLASHING PER ARCH.
10. INFILL OPENING WITH INSULATED METAL PANEL AND COLD-FORMED STEEL STUDS (NOT SHOWN FOR CLARITY). SEE ARCH.



PLAN

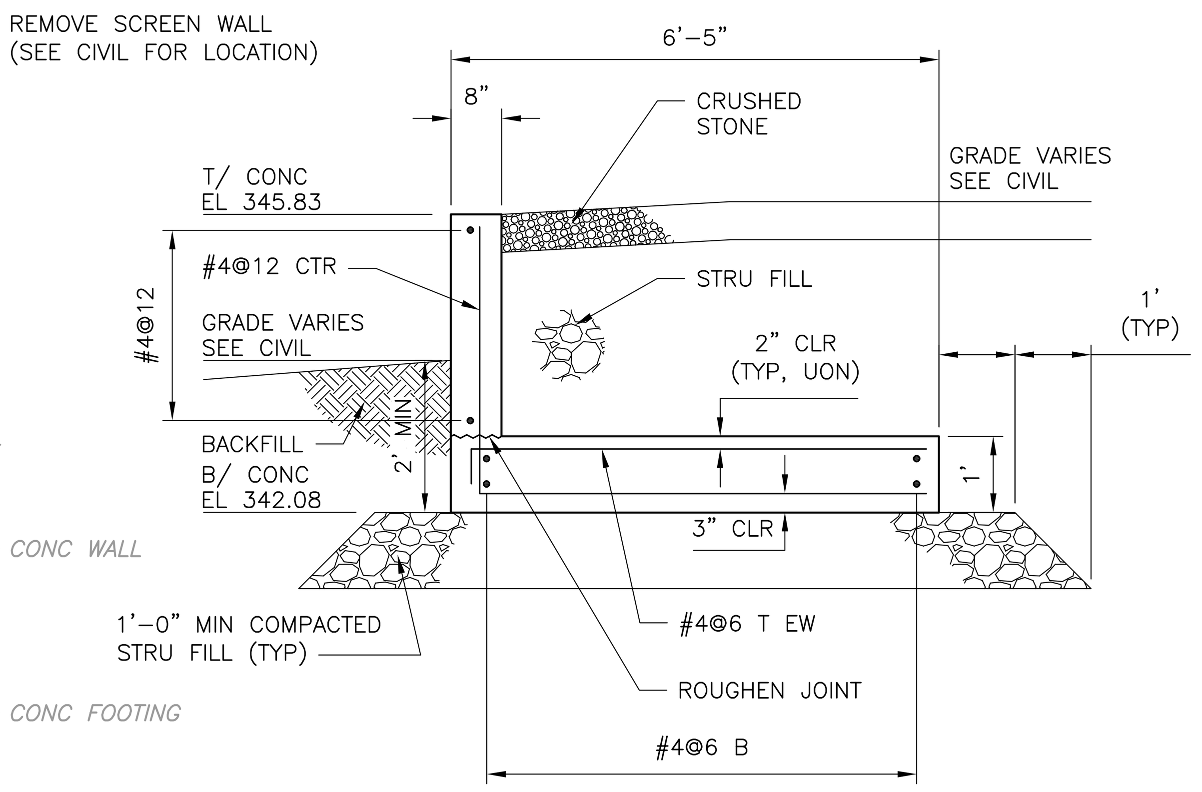
1/4" = 1'-0"



SCREEN WALL DEMOLITION

DETAIL A

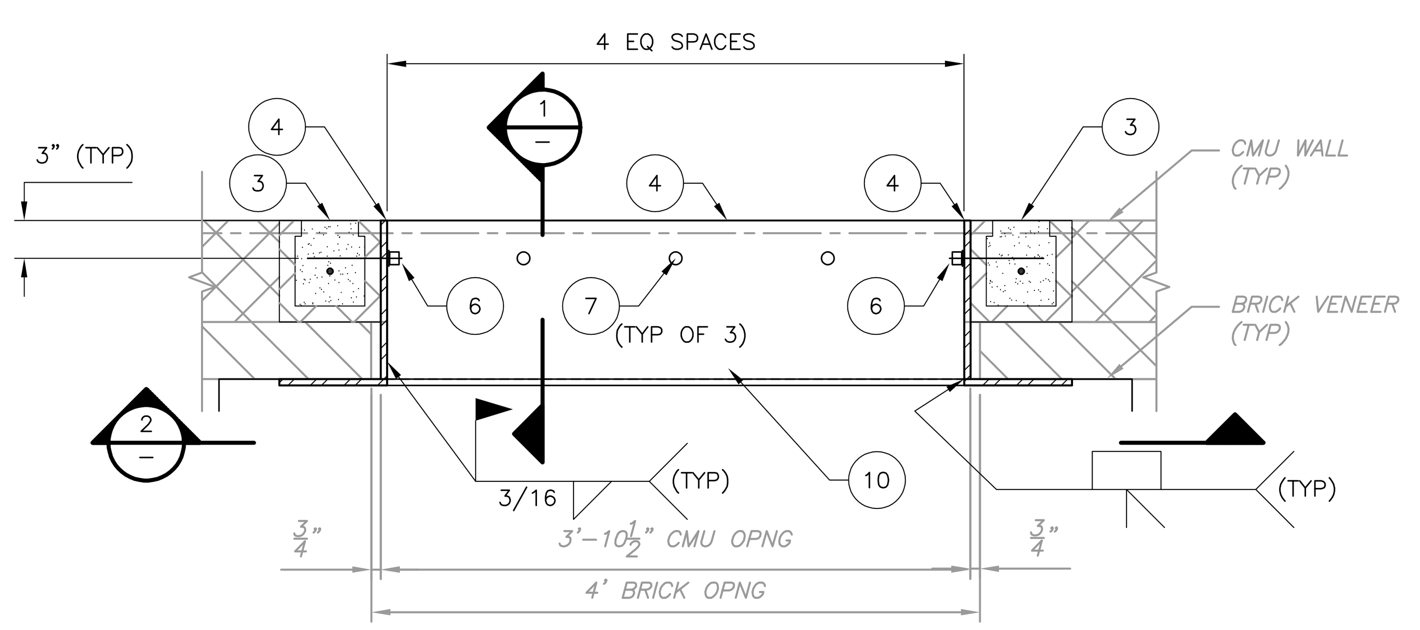
1/2" = 1'-0"



TRANSFORMER RETAINING WALL

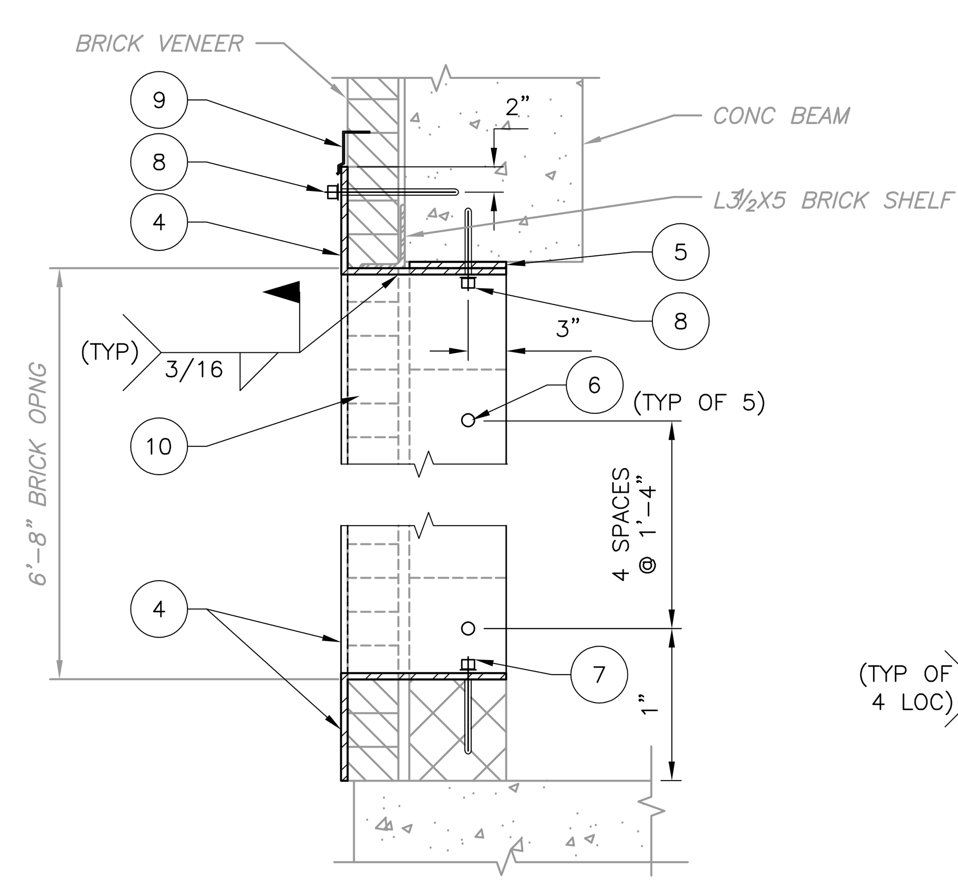
DETAIL B

1/2" = 1'-0"



DETAIL C

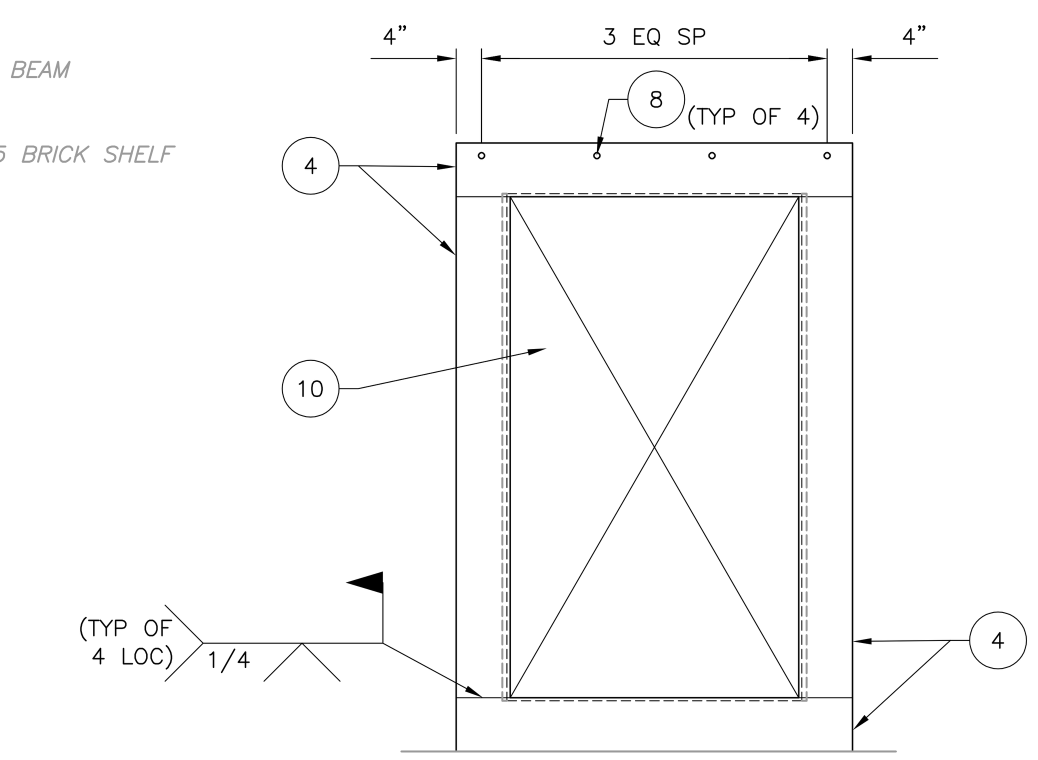
1" = 1'-0"



SEE DETAIL C/– FOR PARTS NOT NOTED.

SECTION 1

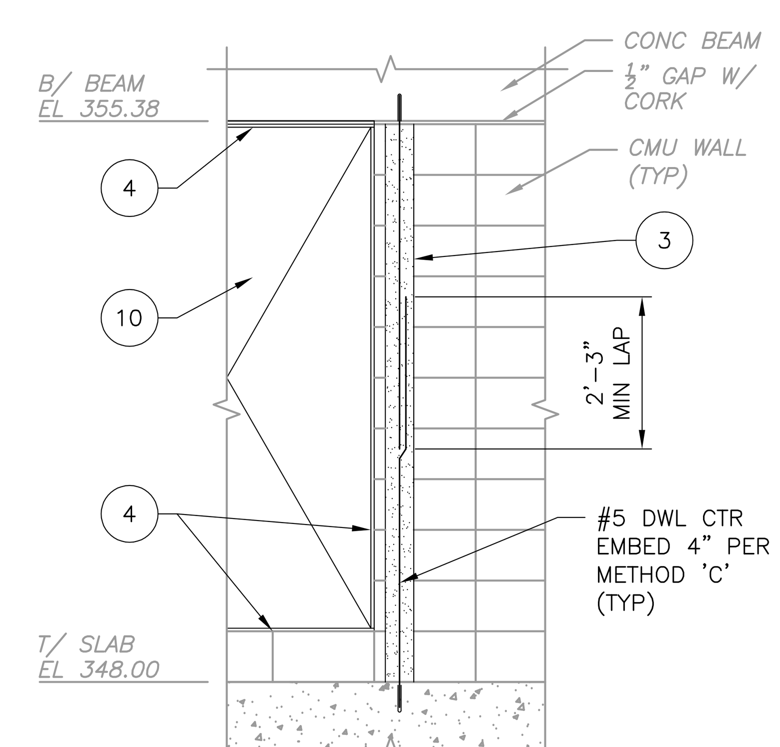
1" = 1'-0"



SEE DETAIL C/– AND SECTION 1/– FOR PARTS NOT NOTED.

SECTION 2

1/2" = 1'-0"



SECTION 3

1/2" = 1'-0"

COMMONWEALTH OF VIRGINIA
KEVIN M. BASILI
Lic. No. 55637
06-19-2024
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: M. ZARAT-BASIR DRAWN: B. BENNETT CHECKED: K. BASILI	NO. / DATE / REVISION	SCALE 1/4" = 1'-0" 1/2" = 1'-0" 1" = 1'-0"	CDM Smith 10306 Eaton Place, Suite 220 Fairfax, VA 22030 Tel: (703) 691-6500

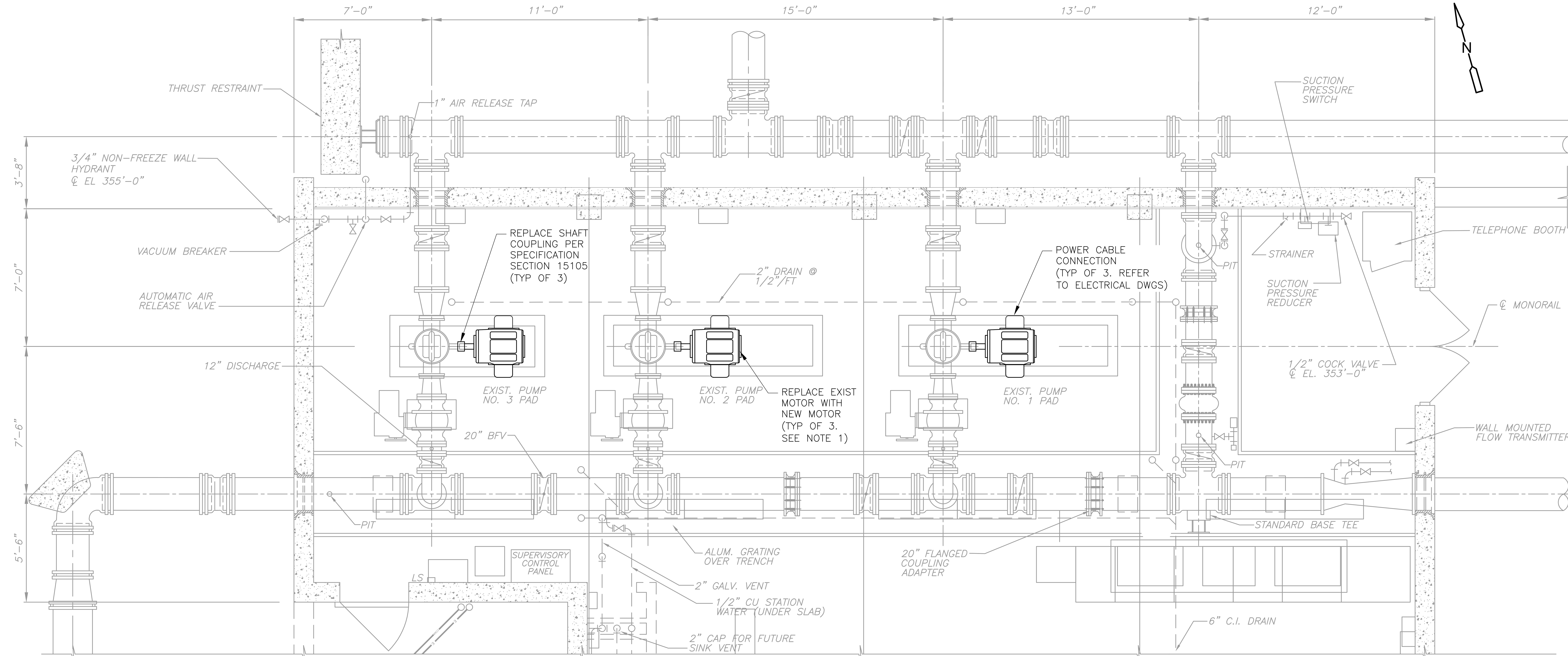
Fairfax Water

RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA

PLAN, SECTIONS, AND DETAILS

FILE NAME: S_02_PLAN_SECT_DETAILS.PDF		
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING S-2
TAX MAP: 027-1		SHEET 13 of 34



PLAN

3/8" = 1'-0"

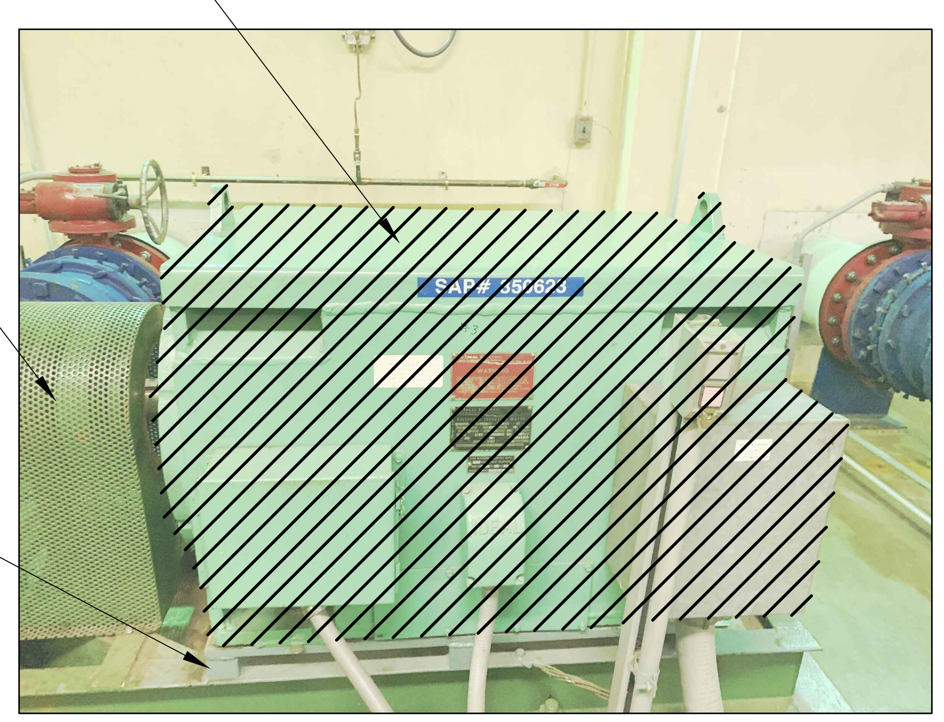
NOTES:

1. CONTRACTOR TO FIELD VERIFY EXISTING MOTOR BASE DIMENSIONS. COORDINATE DIMENSIONS OF NEW PUMP MOTORS WITH EXISTING MOTOR BASE DIMENSIONS AND PROVIDE SUBMITTAL DETAILING REQUIRED MODIFICATIONS TO MOTOR BASE AND/OR DESIGN OF NEW ADAPTER PLATE. PROPOSED MODIFICATIONS TO EXISTING MOTOR BASES AND/OR DESIGN OF NEW ADAPTER PLATE SHALL BE COORDINATED WITH VIBRATION ANALYSIS AS REQUIRED IN SPECIFICATION 15105.
2. THE PRESENCE OF LEGALLY REGULATED MATERIAL IS ANTICIPATED WITHIN THE PROJECT AREA. CONTRACTOR TO VERIFY, REMEDIATE, AND/OR DISPOSE OF MATERIAL AS REQUIRED BY STATE AND FEDERAL REGULATION. PRIOR TO COMMENCING WORK, CONTRACTOR TO PROVIDE SUBMITTAL(S) DETAILING VERIFICATION, REMEDIATION, AND FULL PLAN TO HANDLE REQUIRED WORK, AS NECESSARY.

DEMOLISH EXISTING PUMP MOTOR

DEMOLISH EXISTING SHAFT COUPLING

MODIFY EXISTING MOTOR BASE AND/OR INSTALL NEW ADAPTER PLATE AS REQUIRED FOR NEW MOTOR. SEE NOTE 1.



PUMP NO. 3 - MOTOR

NTS

DEMOLISH EXISTING PUMP MOTOR

DEMOLISH EXISTING SHAFT COUPLING

MODIFY EXISTING MOTOR BASE AND/OR INSTALL NEW ADAPTER PLATE AS REQUIRED FOR NEW MOTOR. SEE NOTE 1.

PUMP NO. 2 - MOTOR

NTS

DEMOLISH EXISTING SHAFT COUPLING

DEMOLISH EXISTING PUMP MOTOR

MODIFY EXISTING MOTOR BASE AND/OR INSTALL NEW ADAPTER PLATE AS REQUIRED FOR NEW MOTOR. SEE NOTE 1.

PUMP NO. 1 - MOTOR

NTS

COMMONWEALTH OF VIRGINIA
CHRISTOPHER D. MATA
Lic. No. 0402058063
5/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: C. BENTLEY
DRAWN: J. SOSA
CHECKED: C. FRIZZELL

NO.	DATE	REVISION
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SCALE
3/8" = 1'- 0"
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

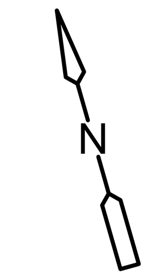
RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA

PUMP STATION MODIFICATION PLAN

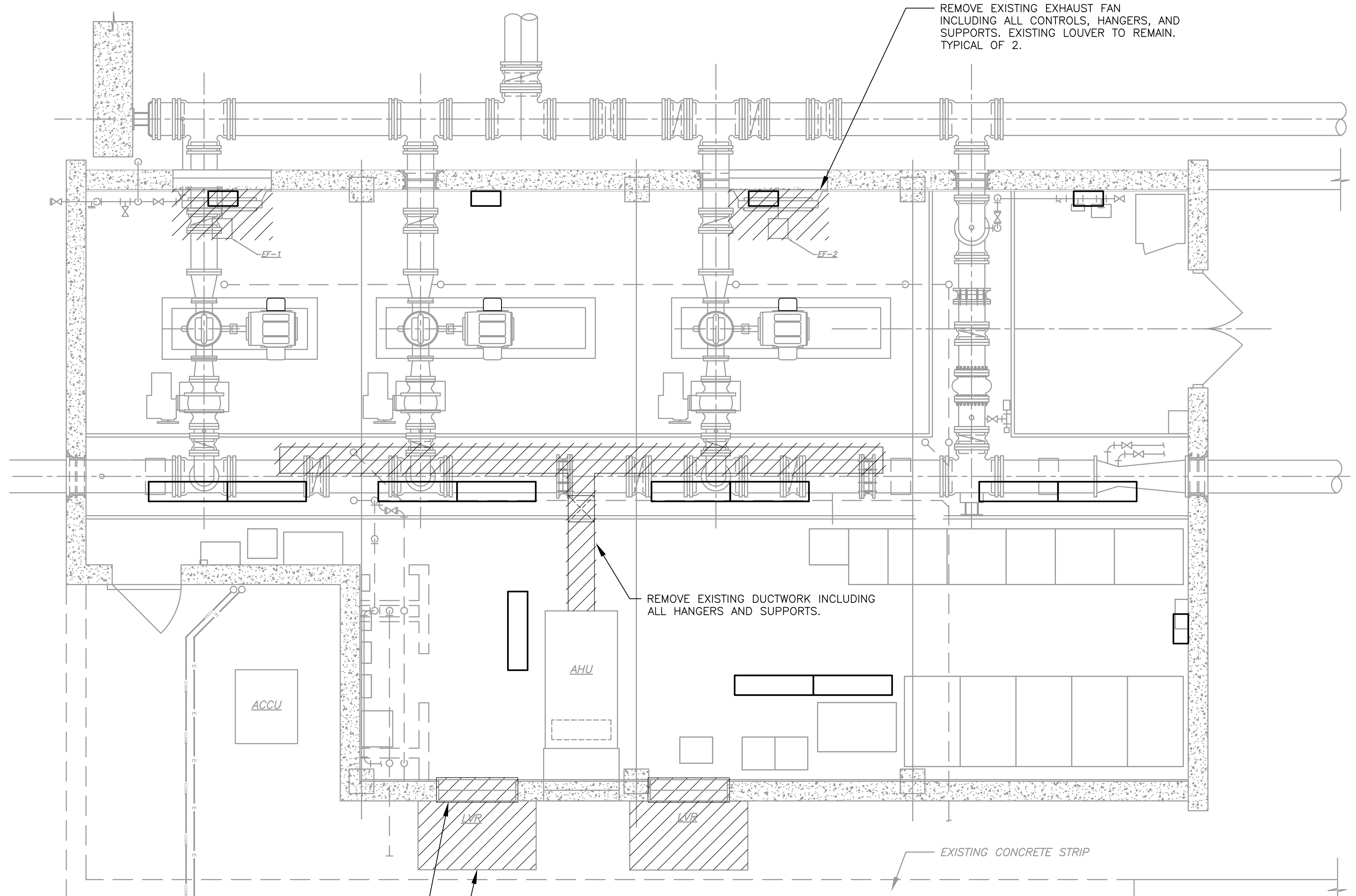
FILE NAME: M_01_PS_MODIF_PLAN.PDF

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING M-1
TAX MAP:	027-1	SHEET 14 of 34



DEMOLITION NOTES:

1. COORDINATE DEMOLITION AND DISPOSAL WITH THE OWNER.
2. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, DIMENSIONS, AND CONFIGURATION OF ALL EXISTING EQUIPMENT, DUCTWORK, PIPING, HANGERS, SUPPORTS, ANCHORS, CONTROLS, ETC.
3. SEE STRUCTURAL, PROCESS MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL DEMOLITION IN THESE AREAS.



PLAN
1/4" = 1'-0"

COMMONWEALTH OF VIRGINIA
PAUL A. POULIOT
Lic. No.045575
PROFESSIONAL ENGINEER
6/20/2024

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: P. POULIOT
DRAWN: A. SOMERVILLE
CHECKED: J. GARZIONE

NO.	DATE	REVISION
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SCALE
1/4" = 1'- 0"
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

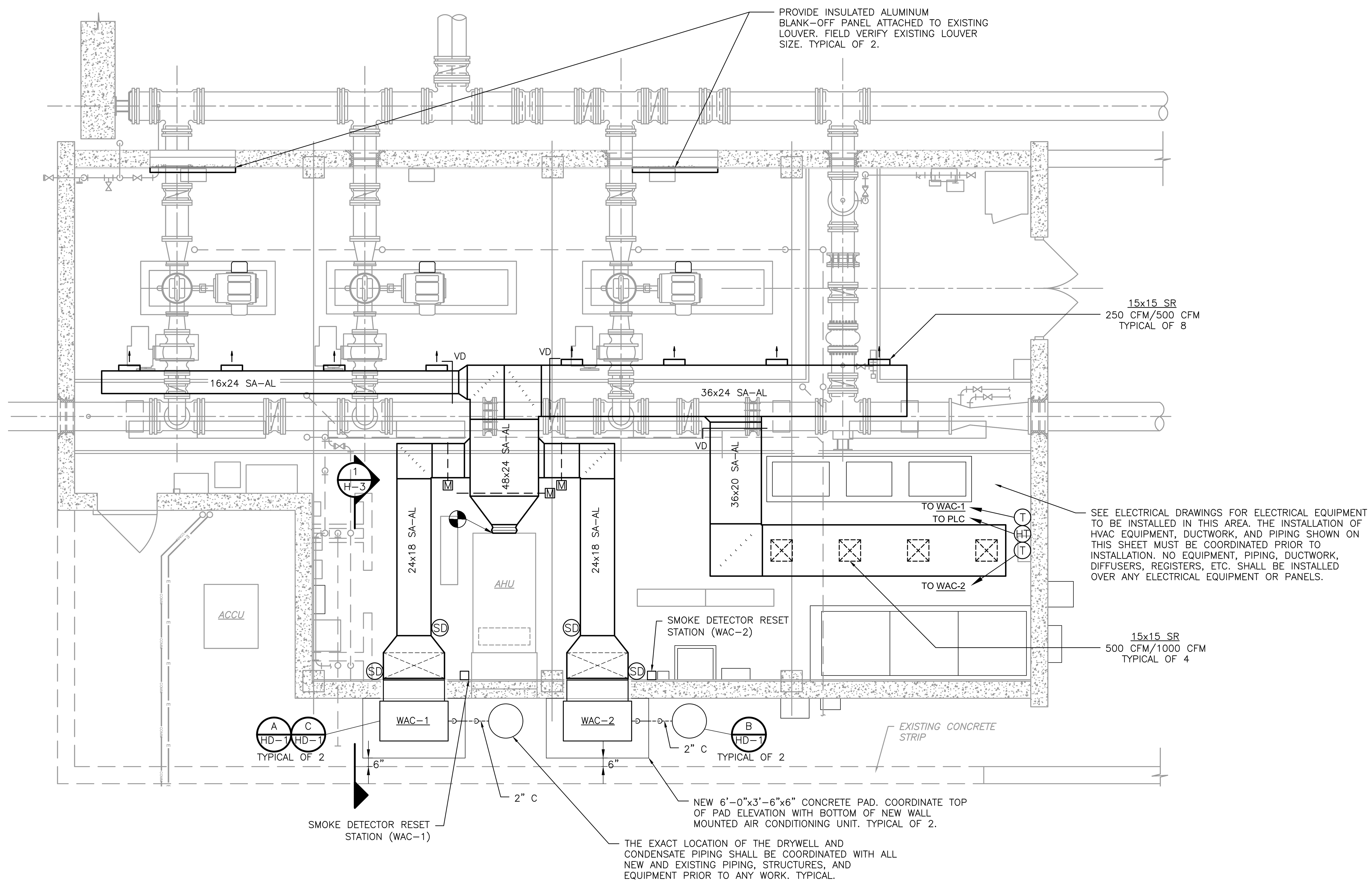
PUMP STATION
HVAC DEMOLITION PLAN

FILE NAME: H_01_HVAC_DEMO_PLAN.DWG

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING H-1
TAX MAP:	027-1	SHEET 15 of 34

NOTE:

1. COORDINATE LOCATIONS OF ALL HVAC PIPING, DUCTWORK, AND EQUIPMENT WITH ALL OTHER UTILITIES, PIPING, ELECTRICAL DUCT BANKS, CONDUIT, WIRING, LIGHTING, BUILDING STRUCTURES, ETC.



PLAN
1/4" = 1'–0"

COMMONWEALTH OF VIRGINIA
PAUL A. POULIOT
Lic. No.045575
PROFESSIONAL ENGINEER
6/20/2024

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: P. POULIOT
DRAWN: A. SOMERVILLE
CHECKED: J. GARZIONE

NO.	DATE	REVISION
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SCALE
1/4" = 1'– 0"
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

PUMP STATION
HVAC MODIFICATION PLAN

FILE NAME: H_02_HVAC_MOD_PLAN.DWG

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING H-2
TAX MAP:	027-1	SHEET 16 of 34

PUMP/ ELECTRICAL ROOM PACKAGED AIR CONDITIONING UNITS WITH SPACE THERMOSTAT CONTROL ARE DESIGNED FOR INTERMITTENT OPERATION TO PROVIDE SPACE COOLING FOR PUMP/ ELECTRICAL ROOMS TO PROTECT THE EQUIPMENT FROM THE EFFECTS OF HEAT AND HUMIDITY. UNITS ARE DESIGNED FOR THE SUPPLY FAN TO CYCLE ON/OFF WITH THE COOLING/HEATING FUNCTIONS. THREE UNITS ARE PROVIDED WHICH ARE SIZED AT 50% OF THE ELECTRICAL ROOM PEAK LOAD WITH (2) UNITS OPERATING (DUTY) AND (1) UNIT AS A STANDBY. NOTE THAT THE THIRD UNIT (AHU-1) IS AN EXISTING SPLIT SYSTEM WHICH DOES NOT HAVE AN ECONOMIZER.

1. WHEN THE UNIT THERMOSTAT ON/OFF SWITCH IS PLACED IN THE OFF POSITION, THE TEMPERATURE CONTROLS SHALL BE INACTIVATED. THE SUPPLY FAN AND COMPRESSORS SHALL BE OFF.

2. WHEN SMOKE IS SENSED BY THE SUPPLY AIR OR RETURN AIR SMOKE SENSOR, ALL OTHER CONTROL FUNCTIONS SHALL BE OVERRIDDEN AND THE SUPPLY FAN SHALL BE OFF, AND AN ALARM LIGHT IN THE REMOTE SMOKE SENSOR ALARM/TEST/RESET STATION SHALL BE ACTIVATED FOR THE AFFECTED SMOKE SENSOR, SMOKE SENSORS SHALL BE MANUALLY RESET AT THE REMOTE SMOKE SENSOR ALARM/TEST/RESET STATION. ANY SMOKE DETECTOR SHALL SHUT ALL UNITS DOWN IN THE SPACE. SMOKE DETECTORS SHALL BE INTERLOCKED SUCH THAT ANY SMOKE DETECTOR ACTIVATION SHALL SHUT DOWN ALL UNIT SUPPLY FANS (WAC-1, WAC-2, AND AHU-1).

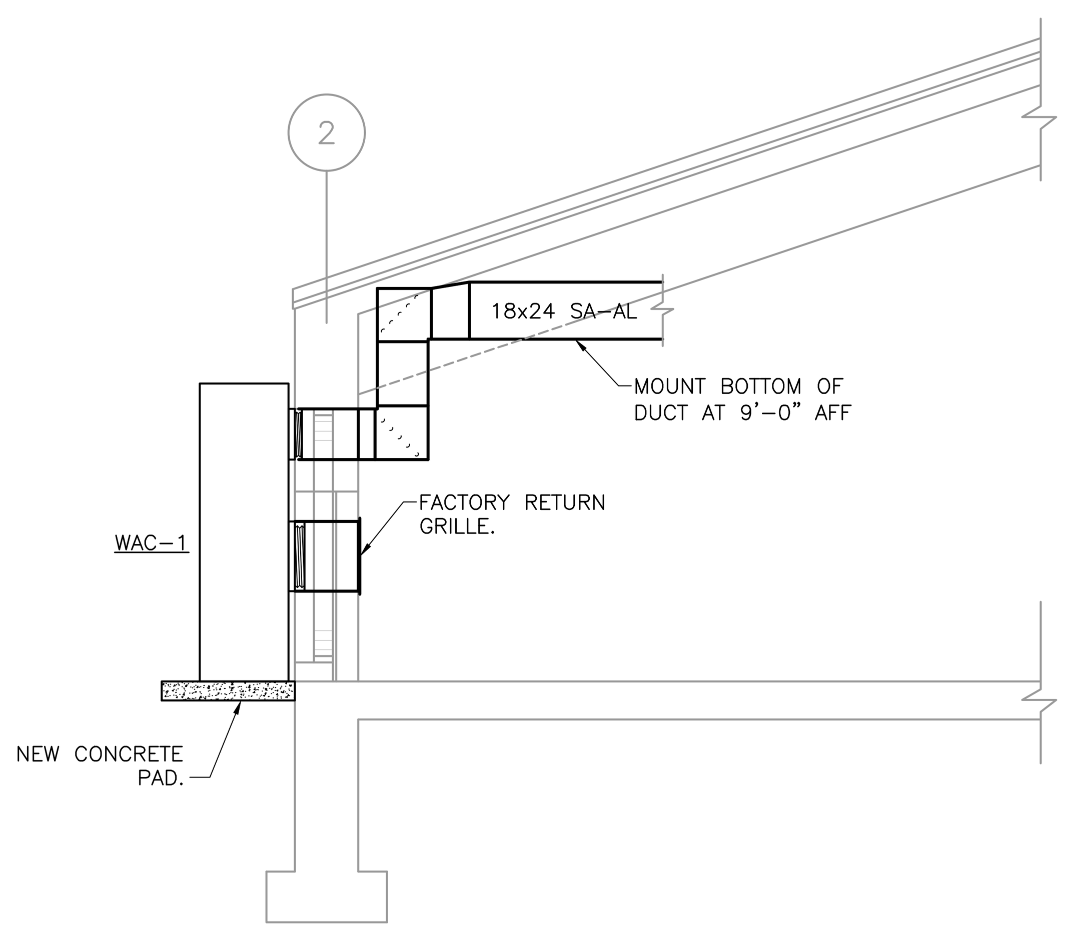
3. WHEN THE UNIT THERMOSTAT IS PLACED IN THE ON POSITION AND THE SYSTEM FAN ON/AUTO SWITCH IS IN THE AUTO POSITION, THE TEMPERATURE CONTROLS SHALL BE ACTIVATED.
   - 3.1. WHEN THE SPACE TEMPERATURE SENSED BY THE SPACE THERMOSTAT IS ABOVE THE COLING SET POINT, THE COMPRESSORS SHALL BE ON COOLING MODE, AND THE SUPPLY FAN SHALL BE ON AND THE MOTOR OPERATED SUPPLY DAMPER SHALL BE OPEN.
   - 3.2. WHEN THE SPACE TEMPERATURE SENSED BY THE SPACE THERMOSTAT IS BELOW THE COOLING SET POINT, THE COMPRESSORS SHALL BE OFF, AND THE SUPPLY FAN SHALL BE OFF AND THE MOTOR OPERATED SUPPLY DAMPER SHALL BE CLOSED.
   - 3.3. WHEN THE SPACE TEMPERATURE SENSED BY THE SPACE THERMOSTAT IS BELOW THE HEATING SET POINT, THE SUPPLY FAN SHALL BE ON. THE COMPRESSORS SHALL BE OFF, AND THE ELECTRIC HEAT SHALL BE ACTIVATED AND THE MOTOR OPERATED SUPPLY DAMPER SHALL BE OPEN.
   - 3.4. WHEN THE SPACE TEMPERATURE SENSED BY THE SPACE THERMOSTAT IS ABOVE THE HEATING SET POINT, THE SUPPLY FAN SHALL BE OFF, THE COMPRESSORS SHALL BE OFF, AND THE ELECTRIC HEATER SHALL BE OFF AND THE MOTOR OPERATED SUPPLY DAMPER SHALL BE CLOSED.

4. COMPRESSORS SHALL CYCLE ON/OFF AND MODULATE VIA THE UNIT FACTORY CONTROLS.

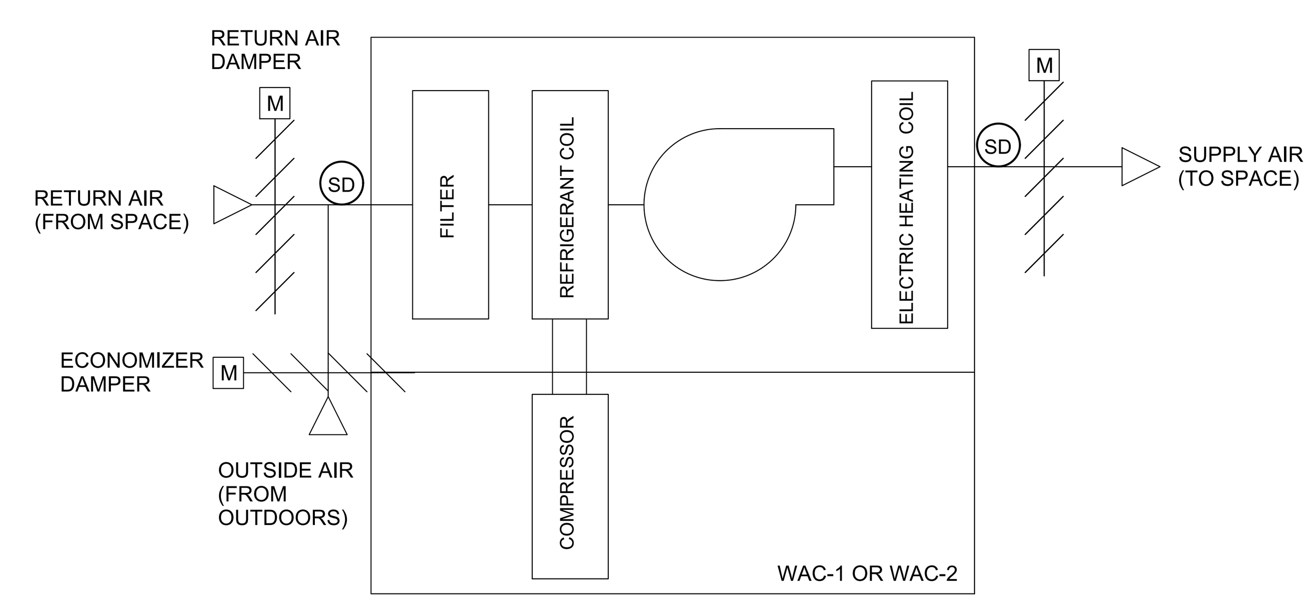
5. UNITS SHALL INCLUDE INTEGRAL FACTORY CONTROLS FOR AN ECONOMIZER MODE. THE ECONOMIZER OPERATION SHALL BE CONTROLLED BY THE OUTDOOR AIR TEMPERATURE AND DIFFERENTIAL COMPARATIVE ENTHALPY.
   - 5.1. THE ECONOMIZER MODE SHALL BE ENABLED WHEN THE OUTDOOR AIR TEMPERATURE IS LESS THAN 75°F AND THE OUTDOOR AIR ENTHALPY IS LESS THAN RETURN AIR ENTHALPY.
   - 5.2. IN ECONOMIZER MODE, THE UNIT SHALL MODULATE THE INTEGRAL OUTSIDE AIR DAMPER AND THE RETURN AIR DAMPER TO MAINTAIN A MINIMUM SPACE TEMPERATURE SETPOINT OF 55°F.
   - 5.3. IF THE SPACE AIR TEMPERATURE DROPS BELOW 50°F, THE UNIT SHALL OPERATE PER THE HEATING CONTROL SEQUENCES ABOVE.
   - 5.4. IF THE OUTSIDE AIR TEMPERATURE IS ABOVE 75°F, UNIT SHALL OPERATE PER THE COOLING CONTROL SEQUENCES ABOVE.

6. THE SPACE THERMOSTATS SHALL HAVE ADJUSTABLE SET POINTS. THE INITIAL COOLING SET POINT FOR AHU-1 SHALL BE 78°F. THE INITIAL COOLING SET POINT FOR WAC-1 SHALL BE 82°F. THE INITIAL COOLING SET POINT FOR WAC-2 SHALL BE 86°F. THE INITIAL HEATING SET POINT FOR AHU-1 SHALL BE 50°F. THE INITIAL HEATING SET POINT FOR WAC-1 SHALL BE 46°F. THE INITIAL HEATING SET POINT FOR WAC-2 SHALL BE 42°F. THE CONTRACTOR SHALL INSTRUCT THE OWNER TO ALTERNATE SET POINTS EVERY (2) WEEKS.

7. PROVIDE A SPACE HIGH TEMPERATURE SENSOR/THERMOSTAT. REFER TO THE DRAWINGS FOR LOCATION. SPACE HIGH TEMPERATURE SENSOR/THERMOSTAT SHALL HAVE AN ADJUSTABLE HIGH LIMIT SET POINT WITH AN INITIAL SETTING OF 95°F. SENSOR SHALL SEND A HIGH SPACE TEMPERATURE ALARM SIGNAL TO THE INSTRUMENTATION SYSTEM. SEE THE ELECTRICAL AND INSTRUMENTATION DRAWINGS FOR ADDITIONAL DETAILS. COORDINATE INTERFACE WITH THE INSTRUMENTATION SYSTEM.



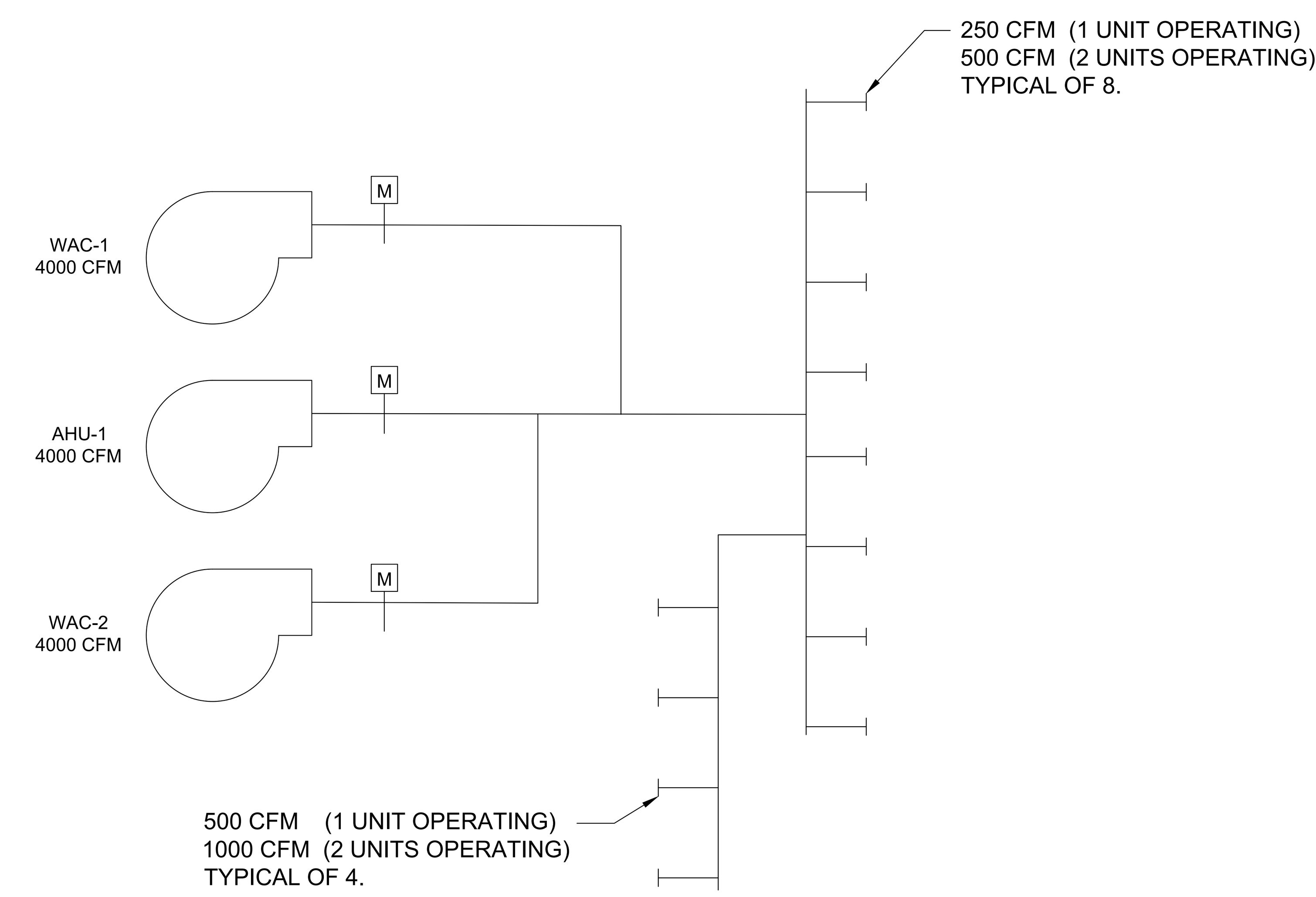
SECTION 1
1/4" = 1'-0"



SMOKE DETECTOR TEST/RESET/ALARM STATION IN SPACE TYPICAL OF 2 FOR EACH UNIT	(SD) SMOKE DETECTOR	(T) THERMOSTAT IN SPACE	
	[M] MOTOR OPERATED DAMPER	(HT) HIGH TEMPERATURE SENSOR/THERMOSTAT IN SPACE	

WAC-1, WAC-2 AIR CONDITIONING CONTROL COMPONENT DIAGRAM

DETAIL A
NTS



PUMP/ ELECTRICAL ROOM AIR FLOW DIAGRAM

DETAIL B
NTS

COMMONWEALTH OF VIRGINIA
PAUL A. POULIOT
Lic. No.045575
PROFESSIONAL ENGINEER
6/20/2024

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: P. POULIOT DRAWN: G. LUISI CHECKED: J. GARZIONE	NO. / DATE / REVISION	SCALE 1/4" = 1'- 0" 2 1 0 2 4	CDM Smith 10306 Eaton Place, Suite 220 Fairfax, VA 22030 Tel: (703) 691-6500

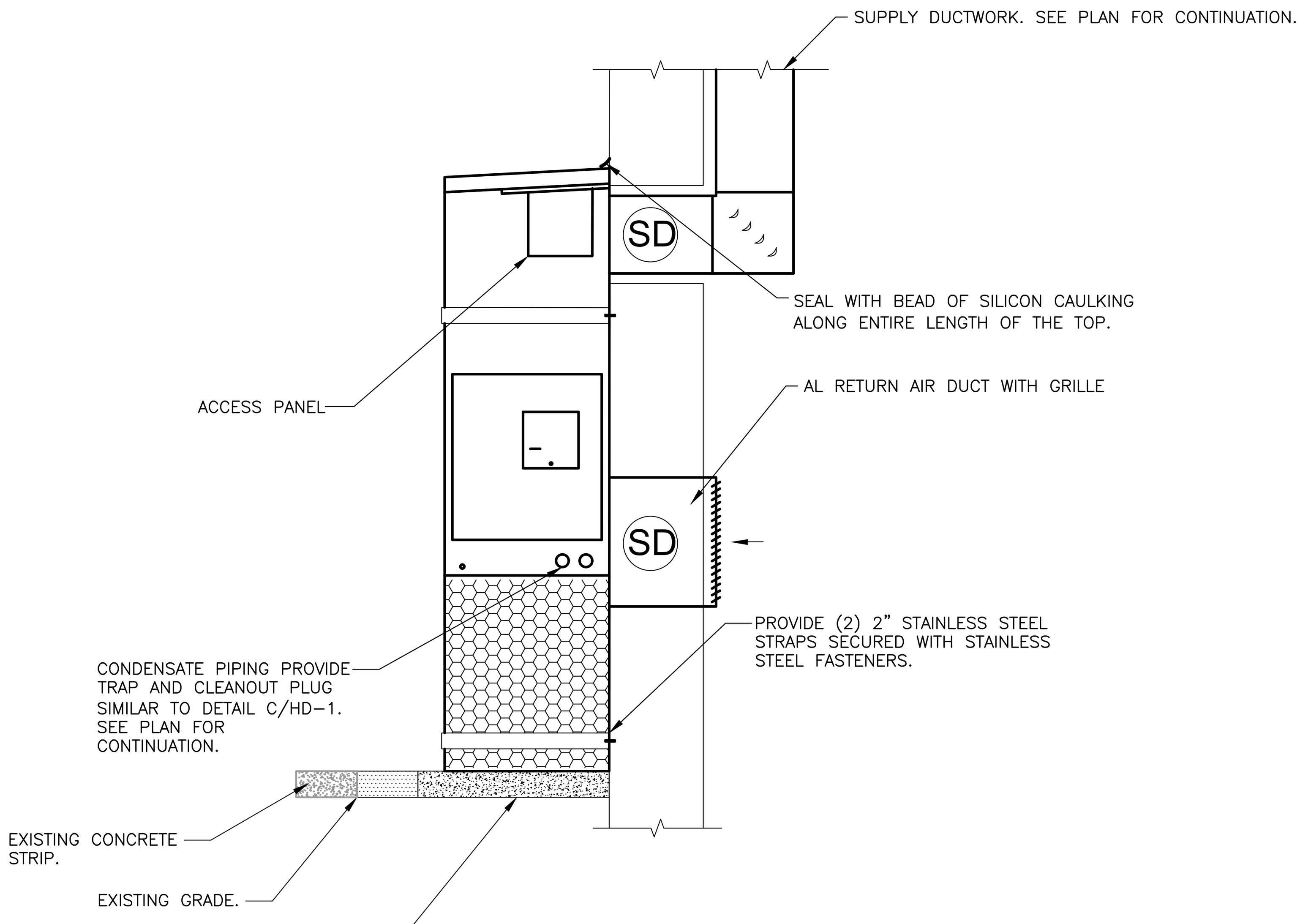
Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

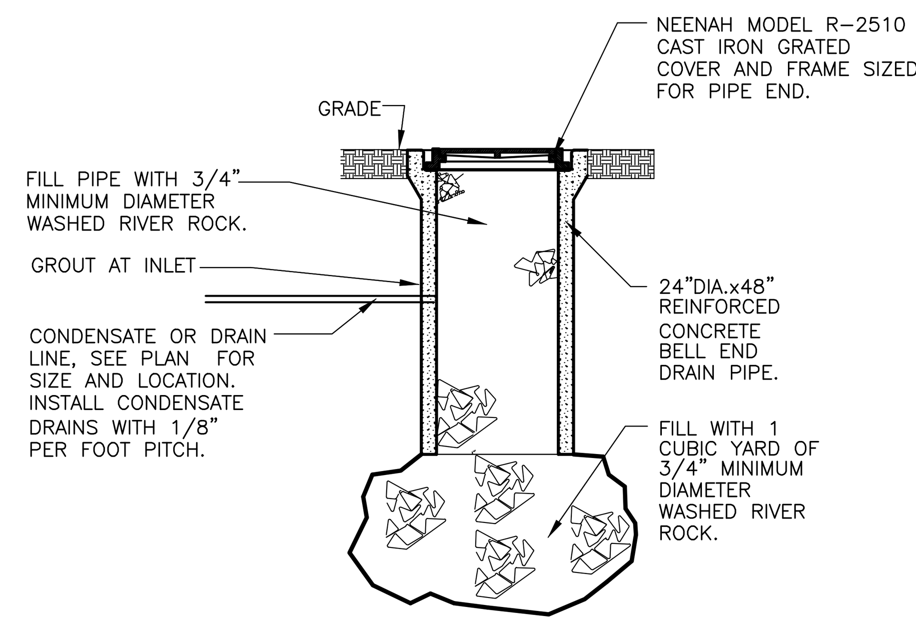
PUMP STATION
HVAC SECTIONS AND DIAGRAMS

FILE NAME: H_03_HVAC_SECT_DIA.DWG		
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING H-3
TAX MAP: 027-1		SHEET 17 of 34



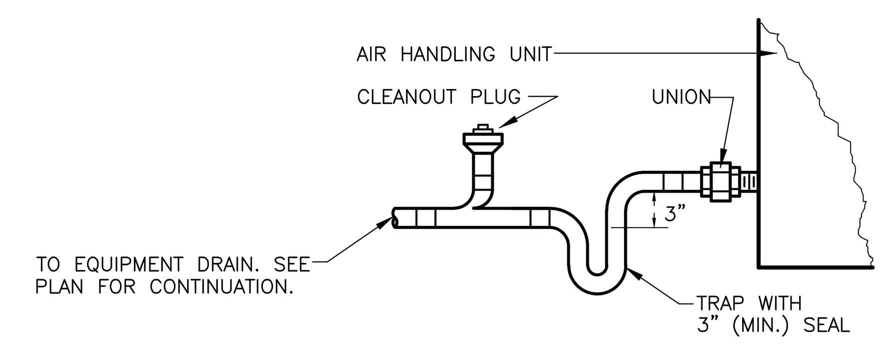
WAC MOUNTING

DETAIL A –
NTS



CONDENSATE DRYWELL

DETAIL B –
NTS



NOTE: CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC WITH DRAIN, WASTE, AND VENT (DWV) FITTINGS.

CONDENSATE DRAIN

DETAIL C –
NTS

GENERAL NOTES:

1. HVAC EQUIPMENT DIMENSIONS, LOCATIONS, DUCTWORK AND PIPING SYSTEM LAYOUTS ARE BASED ON EQUIPMENT SELECTED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO FURNISH EQUIPMENT THAT REQUIRES AN ARRANGEMENT OR SPACE DIFFERING FROM THAT INDICATED ON THE DRAWINGS OR SPECIFIED, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER FOR APPROVAL, DETAILED ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, INSTRUMENTATION, HVAC AND ELECTRICAL DRAWINGS AND EQUIPMENT LISTS SHOWING ALL NECESSARY CHANGES AND EMBODYING ALL FEATURES OF THE EQUIPMENT THE CONTRACTOR PROPOSES TO FURNISH. THIS INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO PLANS, SECTIONS, DETAILS, AND SCHEMATICS OF ALL APPURTENANCES REQUIRED. SUCH CHANGES IF APPROVED BY THE ENGINEER SHALL BE AT NO EXTRA COST TO THE OWNER. THE CONTRACTOR SHALL ASSUME THE COST OF, AND THE RESPONSIBILITY FOR SATISFACTORILY ACCOMPLISHING ALL THE NECESSARY CHANGES CORRESPONDING TO THE DIMENSIONS AND CHARACTERISTICS OF THE EQUIPMENT SUBMITTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
2. SIZES OF EQUIPMENT PADS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL DRAWINGS.
3. DIELECTRIC COUPLINGS, FLANGES OR UNIONS SHALL BE INSTALLED AT ALL CONNECTIONS OF COPPER PIPE TO OTHER TYPES OF METALLIC PIPING.
4. HVAC PIPING AND DUCTWORK DRAWINGS DO NOT SHOW ALL DRAINS, VENTS, OFFSETS AND FITTINGS, etc.REQUIRED FOR THE COMPLETE SYSTEM. SMALL PIPING IS SHOWN APPROXIMATELY TO SCALE BUT NOT EVERY FITTING AND OFFSET IS SHOWN. SOME VALVES AND APPURTENANCES MAY BE OMITTED FOR THE SAKE OF CLARITY. THE CONTRACTOR SHALL FURNISH, INSTALL AND TEST ALL HVAC SYSTEMS SHOWN ON THE DRAWINGS AND DETAILS, AND/OR AS DEFINED IN THE SPECIFICATIONS TO PROVIDE THE COMPLETE SYSTEM.
5. UNLESS OTHERWISE SHOWN ON THE DRAWING ALL FLOOR SLAB AND WALL PENETRATIONS SHALL BE AS SHOWN ON THE WALL PENETRATION DETAILS. ABOVE GROUND EXTERIOR WALL AND ROOF PENETRATIONS SHALL BE AS SHOWN ON THE ARCHITECTURAL DRAWINGS. IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY SUBSTITUTE ALTERNATE METHODS PROVIDING THEY MEET INTENDED DESIGN REQUIREMENTS.
6. NOT ALL AND ONLY CERTAIN TYPES OF SUPPORTS ARE SHOWN ON THE HVAC DRAWINGS. UNLESS OTHERWISE DETAILED ON THE DRAWINGS ALL PIPE AND DUCT SUPPORTS SHALL BE DESIGNED, FURNISHED AND INSTALLED BY THE CONTRACTOR AS SPECIFIED AND TO THE APPROVAL OF THE ENGINEER.

CONTROL COMPONENT SCHEDULE

SYMBOL	DESCRIPTION
T	SEE DRAWINGS AND SPECIFICATIONS FOR THERMOSTAT SETPOINTS. REFER TO AIR HANDLING UNIT SCHEDULE AND THE SPECIFICATIONS FOR AIR CONDITIONING UNIT THERMOSTAT REQUIREMENTS.
M	LOW LEAKAGE DAMPER, RUSKIN MODEL CD40 (THIN LINE) OR EQUAL WITH BELIMO MODEL AF24-S (24 VOLT) OR AF120-S (120 VOLT) ACTUATOR WITH ZS-300 NEMA 4X HOUSING. COORDINATE FINAL VOLTAGE WITH ELECTRICAL AND AUTOMATIC TEMPERATURE CONTROL CONTRACTORS/SUPPLIERS.
HT	HEAVY DUTY, CORROSION RESISTANT LINE VOLTAGE THERMOSTAT/HIGH TEMPERATURE SWITCH JOHNSON CONTROLS A19BAF-1C OR EQUAL WITH CLEAR LOCKING COVER. SET AT 95°F.
SD	PHOTO ELECTRIC SMOKE DETECTOR. SYSTEM SENSOR INNOVAIR FLEX MODEL D4120W OR EQUAL WITH NEMA 4 WATER TIGHT COVER. PROVIDE SMOKE DETECTOR WITH REMOTE TEST, RESET, AND ALARM STATIONS. REFER TO THE SPECIFICATION SECTION 15715 FOR ADDITIONAL REQUIREMENTS. FOR USE WITH AIR HANDLING UNITS.

DUCTWORK MATERIAL SCHEDULE

SYMBOL	DESCRIPTION
AL	ALUMINUM DUCTWORK PER SMACNA STANDARDS. REFER TO SECTION 15712.

PACKAGE WALL AIR CONDITIONING UNIT SCHEDULE

ITEM NO.	NO. REQ'D	AREA SERVED	SHEET NO.	COIL DATA							FAN DATA						FILTERS		REMARKS	MODEL	AUX. HEATING KW	COMPRESSOR				
				ENTERING AIR		LEAVING AIR		TOTAL MBH	SENSIBLE MBH	EER	CFM	OSA CFM	ESP	HP	DRIVE	VOLT PHASE	TYPE	SIZE NO.				NO.	TYPE	RLA	VOLT	PHASE
				DB	WB	DB	WB																			
WAC-1 WAC-2	2	PUMP BUILDING	H-2	80	61.8	58.9	37.7	90.0	87.7	11.0	4,000	0	1.0	–	DIRECT	480 V 3ø	TA	(1) 24X20X2 (1) 20X20X2	SEE NOTES 1 & 2 BELOW	SPECIFIC SYSTEMS APK-90	10kW	1	SCROLL	6.3	460 V	3ø

NOTES:
1. PROVIDE UNIT WITH THE FOLLOWING OPTIONS: TYPE 3A OR 3B CABINET COATING (INTERIOR AND EXTERIOR), TYPE 4A OR 4B COIL COATING PER THE SPECIFICATIONS, DUAL REFRIGERANT CIRCUITS, FREEZESTAT, HOT GAS BYPASS, FACTORY ELECTRIC HEATER, 2" THICK FARR 30/30 FILTERS, CRANKCASE HEATER, LOW AMBIENT CONTROLS, ECONOMIZER, HEAD PRESSURE CONTROL VALVE AND RECEIVER, HIGH PRESSURE ALARM, TIME DELAY RELAY, FACTORY RETURN GRILLE, SERVICE VALVES, DIRTY FILTER INDICATOR, AND 2-STAGE COOLING THERMOSTAT/1-STAGE HEATING.
2. UNITS SHALL BE SPECIFIC SYSTEMS, OR EQUAL.

AIR DISTRIBUTION DEVICE SCHEDULE

SYMBOL	DESCRIPTION	MODEL	FRAME TYPE	MATERIAL	FINISH	REMARKS
VD	VOLUME DAMPER	RUSKIN CD-50	CHANNEL	ALUMINUM	–	LOCKING HAND QUADRANT
SR	SUPPLY REGISTER HIGH VELOCITY	METAL-AIRE RLD-DF	PLASTER	ALUMINUM	OFF-WHITE ENAMEL	OPPOSED BLADE DAMPER

NOTES:
1. CONTROL DAMPER MATERIAL SHALL MATCH DUCTWORK MATERIAL AS SHOWN ON THE PLANS.
2. DAMPERS SHALL BE RUSKIN, GREENHECK, POTTER, OR EQUAL.
3. AIR DISTRIBUTION DEVICES SHALL BE METAL*AIRE, TITUS, PRICE, OR EQUAL.

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AL	ALUMINUM
C	CONDENSATE
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
EER	ENERGY EFFICIENT RATIO
ESP	EXTERNAL STATIC PRESSURE
HP	HORSE POWER
KW	KILOWATT
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
NO	NUMBER
OSA	OUTSIDE AIR
PLC	POINT LINE CONTROLLER
PSI	POUNDS PER SQUARE INCH
REQ'D	REQUIRED
SA	SUPPLY AIR
SR	SUPPLY REGISTER
TA	THROW AWAY
V	VOLT
VD	VOLUME DAMPER
WAC	WALL AIR CONDITIONING UNIT
WB	WET BULB

SYMBOLS

HT	HIGH TEMPERATURE THERMOSTAT
M	MOTOR OPERATED DAMPER
	POINT OF CONNECTION
SD	SMOKE DETECTOR
T	THERMOSTAT

COMMONWEALTH OF VIRGINIA
PAUL A. POULIOT
Lic. No.045575
PROFESSIONAL ENGINEER
8/26/2024

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: P. POULIOT DRAWN: A. SOMERVILLE CHECKED: J. GARZIONE	NO. | DATE | REVISION	SCALE	

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

HVAC
SCHEDULES, DETAILS AND NOTES

FILE NAME	H_HD1_HVAC_SCHED_DET.DWG	
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING HD-1
TAX MAP: 027-1		SHEET 18 of 34

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
52 CS	—	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH
FRAME TRIP	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.
AMPS TYPE SIZE # *		COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR – FULL VOLTAGE REVERSING RVNR – REDUCED VOLTAGE NON-REVERSING RVAT – REDUCED VOLTAGE AUTOTRANSFORMER RVSS – REDUCED VOLTAGE SOLID STATE 2S1W – TWO SPEED, ONE WINDING 2S2W – TWO SPEED, TWO WINDING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
*		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
* ✱	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE. * AMPERE RATING AND FUSE SIZE AS NOTED ✱ AMPERE RATING NOTED IF OTHER THAN 30A FUSE RATING (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	P 2	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE (DIAGRAMMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	—	DRAWOUT TYPE EQUIPMENT OR DEVICE
	—	MEDIUM VOLTAGE CABLE TERMINATION
	—	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
✱	—	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH ✱ FUSE RATING
	—	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
XFMR NO. 1 480V –KVA 120/208V 3P, 4W	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS, ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
* A TO 5	—	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
* V TO 120	—	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
ATS N S 100A		AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
*	*	VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER SCR = SILICON CONTROLLED RECTIFIER VFD = VARIABLE FREQUENCY DRIVE
#KW	E	UNIT HEATER – ELECTRIC HEATING COIL AND FAN # – RATING
—	U	UNIT HEATER – GAS FIRED, STEAM OR WATER HEATING COIL AND FAN
5	M	MOTOR, NUMERAL INDICATES HORSEPOWER
VS VM *	—	VOLTMETER WITH SWITCH, 3 PHASE
AS AM *	—	AMMETER WITH SWITCH, 3 PHASE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
*	—	METER * WM – WATTMETER WHM – WATTHOUR METER WHDM – WATTHOUR DEMAND METER WHDR – WATTHOUR DEMAND RECORDER PF – POWER FACTOR METER DMU – DIGITAL METERING UNIT TRANSDUCER AX – CURRENT TRANSDUCER WX – WATT TRANSDUCER WHX – WATTHOUR TRANSDUCER
*	*	RELAY, NO. AS INDICATED 25 – SYNCHRONISM CHECK RELAY 27 – UNDERVOLTAGE RELAY 32 – DIRECTIONAL POWER RELAY 38 – BEARING PROTECTIVE DEVICE 40 – LOSS OF EXCITATION RELAY 42 – RUNNING CONTACTOR/PILOT RELAY 46 – REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 – PHASE SEQUENCE VOLTAGE RELAY 49 – MACHINE OR TRANSFORMER THERMAL RELAY 50/51 – INSTANTANEOUS/TIME OVERCURRENT RELAY 50G – INSTANTANEOUS GROUND 51 – TIME OVERCURRENT RELAY 51G – TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N – TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V – TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X – AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 – OVERVOLTAGE RELAY 60 – NEGATIVE SEQUENCE VOLTAGE RELAY 62 – TIME DELAY RELAY 63 – OVERPRESSURE RELAY 64 – GENERATOR FIELD GROUND RELAY 67 – AC DIRECTIONAL OVERCURRENT RELAY 74 – ALARM LATCHING RELAY 83 – AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 – LOCKING-OUT RELAY 87 – DIFFERENTIAL PROTECTIVE RELAY B – SUFFIX INDICATES "BUS" G – SUFFIX INDICATES "GENERATOR" GF – GROUND FAULT ST – SHUNT TRIP T – SUFFIX INDICATES "TRANSFORMER" X – SUFFIX INDICATES "AUXILIARY"
*	—	SPECIAL CAPACITOR * SC – SURGE CAPACITOR PF – POWER FACTOR CORRECTION CAPACITOR
*	—	TUNED POWER FACTOR CORRECTION CAPACITOR
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED
	—	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN
	ES	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)
STOP START	PBL	START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP
	PBM	START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP
OFF ON	S/S	OFF/ON SELECTOR SWITCH
L R (XO) (OX)	LR	LOCAL/REMOTE SELECTOR SWITCH
A B C* (XOO) (OXO) (OOX)	*	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O–OPEN X–CLOSED (see position table below) NAMEPLATE (A/B/C) HOA – HAND/OFF/AUTO HOR – HAND/OFF/REMOTE LOR – LOCAL/OFF/REMOTE RSL – RAISE/STOP/LOWER TOA – TEST/OFF/AUTO

GD/VF #	GD/VF #	GAS DETECTOR / VENTILATION FAILURE ALARM
		# INDICATES TYPE OF UNIT
		1=MASTER, 2=REMOTE

42 #	—	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY
CR #	—	CONTROL RELAY COIL, NUMBER AS INDICATED

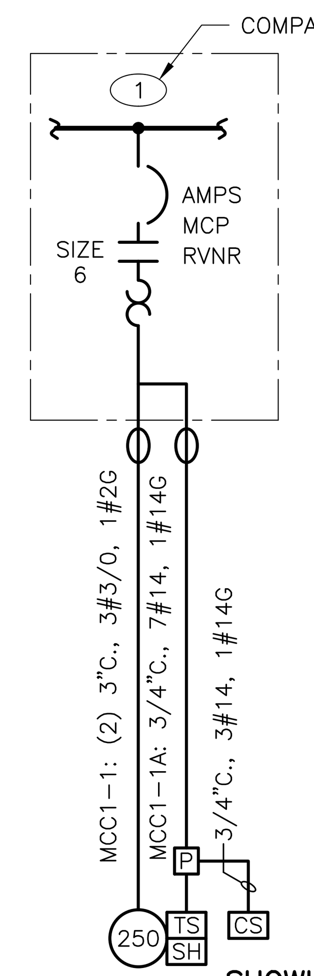
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT
A	X	O	O
B	O	X	O
C	O	O	X

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
*	—	PILOT LIGHT, COLOR AS NOTED * R – RED G – GREEN B – BLUE W – WHITE A – AMBER
*	—	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.
* RANGE # SETPOINT NOTC NCTO NOTO NCTC		TIME DELAY RELAY RANGE AS NOTED SETPOINT AS NOTED # NUMBER AS INDICATED * TDE – TIME DELAY AFTER ENERGIZATION ON DELAY TDD – TIME DELAY AFTER DE-ENERGIZATION OFF DELAY NOTC– NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED NCTO– NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED NOTO– NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED NCTC– NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
—	* – ##	FIELD INSTRUMENT, TAG NO. AS INDICATED * INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID ## INDICATES LOOP NO.
	LS OR ■	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
	PS OR ■	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSES ON RISING PRESSURE NORMALLY OPEN, CLOSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
	TS OR T OR ■	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSES ON RISING TEMPERATURE NORMALLY OPEN, CLOSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
	FS OR ■	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSES ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
	ZS OR ■	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN – HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED – HELD OPEN
	WS OR ■	TORQUE SWITCH NORMALLY OPEN, CLOSES ON HIGH TORQUE NORMALLY CLOSED, OPENS ON HIGH TORQUE
#	—	UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS LOCATION SEE LOCATION LEGEND ON DRAWING
	—	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	—	CONDUCTORS ELECTRICALLY CONNECTED
	S	SOLENOID VALVE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
LA	—	LIGHTNING ARRESTER
		GROUND OR GROUND ROD
30A	—	FUSE, AMPERE RATING AS NOTED
	HTR	STRIP HEATER OR HEATING ELEMENT
	—	INDUCTOR
TG	TG	TACHOMETER GENERATOR
	—	CONTACT, NORMALLY OPEN (NO)
	—	CONTACT, NORMALLY CLOSED (NC)
	—	OVERLOAD RELAY HEATER
*	—	* K = KEY INTERLOCK E = ELECTRICAL INTERLOCK
TB	—	TERMINAL OR TEST BLOCK
RTD	—	RESISTANCE TEMPERATURE DETECTOR
VE OR VE	—	VIBRATION DETECTOR
DM	DM	DAMPER MOTOR
ETM	—	ELAPSED TIME METER
M	M	MOTOR OPERATED VALVE OR GATE
	—	INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE

EXISTING WORK	NEW WORK	FUTURE EXPANSION

EXISTING, NEW OR FUTURE CONDITION DESIGNATION



INDICATES CONDUIT IS ALL OR PARTIALLY LOCATED UNDERGROUND. CONDUIT SIZE SHOWN INDICATES THE SIZE WITHIN STRUCTURE. UNDERGROUND CONDUIT SIZE IS SHOWN ON DUCT BANK SECTIONS.

MCC1-1: (2) 3"C., 3#3/0, 1#2G DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR, FROM NEMA SIZE 6 STARTER IN MCC-1 TO 250HP MOTOR LOAD.

MCC1-1A: 3/4"C., 7#14, 1#14G DENOTES ONE 3/4-INCH CONDUIT CONTAINING SEVEN NO. 14 AWG CONTROL CONDUCTORS AND 1 NO. 14 AWG GROUND CONDUCTOR.

MCC1-1 AND MCC1-1A: DENOTES CONDUIT IDENTIFICATION (ID) (TYPICAL)

NOTES:
1. PROTECTIVE/CONTROL DEVICE AS SHOWN.
2. CONTROL/AUXILIARY DEVICES AT OR NEAR EQUIPMENT. EQUIPMENT SHALL BE INSTALLED AND WIRED AS REQUIRED BY EQUIPMENT FURNISHED AND/OR CONTROL DIAGRAM.

TYPICAL ONE LINE DIAGRAM
SHOWING POWER AND CONTROL TO EQUIPMENT

NOTES:

1. IN GENERAL CONDUIT ROUTING FOR EQUIPMENT AND DEVICES IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS WHICH SHALL INCLUDE CONDUITS SHOWN ON ONE-LINE AND RISER DIAGRAMS AND HOME-RUNS SHOWN ON PLAN DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
2. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
3. SWITCHGEAR AND MOTOR CONTROL CENTER COMPARTMENT DESIGNATIONS AS INDICATED BELOW:
   BLANK: NOT INTENDED FOR USE. PLATE ONLY
   SPACE: EQUIPPED WITH REQUIRED BUS AND HARDWARE FOR THE FUTURE ADDITION OF BREAKERS AND/OR STARTERS WITHIN THE SIZE AND RANGE SHOWN
   SPARE: CONTAINS A COMPLETELY INSTALLED BREAKER AND/OR STARTER OF SIZE AND TYPE INDICATED FOR FUTURE USE.
4. INTERPRETATION OF ELECTRICAL DRAWINGS: CIRCUIT IDENTIFICATION, ROUTING, AND SIZES OF CONDUITS AND WIRES ARE SHOWN ON THE FOLLOWING DRAWINGS:

A. ONE LINE POWER DIAGRAMS: POWER, CONTROL AND SIGNAL WIRING REQUIREMENTS FOR ELECTRICAL DISTRIBUTION EQUIPMENT AND UTILIZATION EQUIPMENT POWERED FROM SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND MAJOR POWER DISTRIBUTION PANELBOARDS ARE TYPICALLY SHOWN ON THE ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE AND QUANTITY FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT, AND SIZE OF THE GROUNDING ELECTRODE CONDUCTORS.

B. INSTRUMENTATION AND CONTROL RISER DIAGRAMS: POWER, CONTROL, SIGNAL AND DATA HIGHWAY WIRING REQUIREMENTS FOR INSTRUMENTS AND CONTROL DEVICES CONTROLLED/MONITORED FROM INSTRUMENTATION AND CONTROL PANELS SUCH AS RTUS, PLCS, TERMINAL CABINETS, AND REMOTE I/O PANELS ARE TYPICALLY SHOWN ON THE INSTRUMENTATION AND CONTROL ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE, QUANTITY AND TYPE FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT.

C. FLOOR PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS LOCATED WITHIN STRUCTURES, FLOOR PLANS SHOW THE LOCATION OF ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, UTILIZATION EQUIPMENT, INSTRUMENTS, ANCILLARY EQUIPMENT AND DEVICES AND THE ANTICIPATED PENETRATION LOCATIONS WHERE CONDUITS EXIT/ENTER THE STRUCTURE. HOMERUNS MAY ALSO BE SHOWN FROM MISCELLANEOUS EQUIPMENT NOT SHOWN ON A ONE LINE OR RISER DIAGRAM.

D. SITE PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS EXTERIOR TO STRUCTURES AND TO IDENTIFY THE SPECIFIC REQUIREMENTS OF THE UNDERGROUND CONDUITS OR DUCT BANKS, SITE PLANS SHOW THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS WITH SECTIONS INDICATING THE CONDUIT SIZE, ARRANGEMENT AND CIRCUIT ROUTING.

E. NOTE THAT CONDUIT SIZE WITHIN THE STRUCTURE IS INDICATED ON ONE-LINE DIAGRAM AND UNDERGROUND SIZE IS INDICATED ON DUCT BANK SECTIONS.

GENERAL NOTE
THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
8/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL LEGENDS AND ABBREVIATIONS I

FILE NAME: E_01_LEGEND_ABBREV_1.pdf

PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-1
TAX MAP: 027-1		SHEET 19 of 34

SYMBOL	DESCRIPTION
A 3 b	LIGHTING FIXTURE "A" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b" – CONTROLLED BY SWITCH "b" "3" – CIRCUIT NUMBER
A 3 b	LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3 b	WALL MOUNTED TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3 b OR A 3	CROSS HATCH INDICATES LIGHTING FIXTURE THAT IS UNSWITCHED AND SHALL REMAIN ON AT ALL TIMES. NOTATIONS SAME AS ABOVE.
A 3 b OR A 3 b	SHADED AREA INDICATES LIGHTING FIXTURE THAT IS EQUIPPED WITH EMERGENCY BACKUP POWER SOURCE. NOTATIONS SAME AS ABOVE.
A 3	POLE MOUNTED AREA TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3	POLE MOUNTED ROADWAY TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
EM 3 (*)	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS "EM" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" – SUPERVISORY CIRCUIT * – FIXTURE TAG #
R-2 BU-1(*)	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS "R-2" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) * – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN (2) NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND (1) NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
A 3	COMBINATION BATTERY UNIT AND EXIT SIGN. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
A 3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. (DOUBLE FACE DOUBLE CHEVRONS SHOWN)
A 3	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
RH-3 E 3 BU-1(*)	REMOTE EMERGENCY CEILING LIGHTING FIXTURE. "RH-3" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" – SUPERVISORY CIRCUIT * – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	HOME RUN TO DESIGNATED EQUIPMENT. BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE NOTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING.
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
X	'X' INDICATES EXPLOSION PROOF CONDUIT SEAL FITTING.
	CONCRETE ENCASED DUCTBANK. WIDTH VARIES, SEE DUCTBANK SECTION/DETAILS FOR REQUIREMENTS AND WIDTH
	CONDUIT STUBBED OUT AND CAPPED
(2) 3"C., 3#3/0, 1#2G	DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR.
2-2/C#16 SH	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
2-3/C#16 SH	SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
(3) 4"C.	THREE 4-INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (3/4"C., 2#12, 1#12G UNLESS OTHERWISE NOTED) FOR LIQUID TIGHT MOTOR CONNECTIONS
X	'X' INDICATES CONDUIT SEAL FITTING IN OTHER THAN CODE REQUIRED LOCATIONS.
⊠	INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE.

SYMBOL	DESCRIPTION
$ a	SINGLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
$ 2 a	DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
$ 3 c	THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED.
$ 4 a	FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED.
$ D a	DIMMER SWITCH "a" INDICATES FIXTURES CONTROLLED
$ OS	SINGLE POLE SWITCH "OS" INDICATES A PASSIVE INFRARED OCCUPANCY SENSOR
$ 2 OS	DOUBLE POLE SWITCH "OS" INDICATES PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF INBOARD/OUTBOARD SWITCHING
$ DT	SINGLE POLE SWITCH "DT" INDICATES DUAL TECHNOLOGY PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF SENSING MOTION AND SOUND
C 3	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED
TM	TIME SWITCH
□	PUSH BUTTON STATION
TYPE A	INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	LIGHTING PANELBOARD (LP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	POWER PANELBOARD (PP-#) OR DISTRIBUTION PANELBOARD (DP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	LIGHTING CONTACTOR PANELBOARD (LCP-#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
* 4	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W * GFCI – GROUND FAULT CIRCUIT INTERRUPTER TYPE WP – WEATHERPROOF XP – EXPLOSION PROOF T – TRANSIENT VOLTAGE SURGE SUPPRESSOR IC – ISOLATED GROUND 4 – CIRCUIT NUMBER
* 4	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED ABOVE COUNTER-TOP OR 42" AFF * NOTATIONS SAME AS ABOVE
* 3 60 4W	SPECIAL PURPOSE RECEPTACLE * – VOLT RATING "3" – NUMBER OF POLES "60" – AMPERE RATING "4W" – 4 WIRES IN ADDITION TO GROUND
	MULTI-OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE
	FLUSH FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED
	UNDER FLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED
	THREE CELL UNDER FLOOR DUCT SYSTEM JUNCTION BOX
J OR J	JUNCTION BOX
P	PULL BOX
TC	TERMINAL CABINET
OS	OCCUPANCY SENSOR
PC	PHOTOCELL
ESA	EMERGENCY EYEWASH/SHOWER ALARM STATION WITH FLOW SWITCH(ES)
	INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
	GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
	EXOTHERMIC WELD CONNECTION
	3/4" x 10'-0" GROUND ROD. UNLESS SPECIFIED OTHERWISE.
	GROUND ROD TEST WELL STATION (SEE DETAIL SHEET FOR REQUIREMENTS)

SYMBOL	DESCRIPTION
	COMMUNICATION SYSTEMS
K	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SYSTEM
K	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'-6") K = KEY SYSTEM
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET, MOUNT UP 4'-6"
S H W	PAGING SPEAKER, WALL MOUNTED H = HORN TYPE W = WIDE ANGLE TYPE
S W	PAGING SPEAKER, WALL MOUNTED, BI-DIRECTIONAL, HORN TYPE W = WIDE ANGLE TYPE
S	PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE
S	PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE
VC	REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER, MOUNT UP 5'-0"
A	PAGING SPEAKER AMPLIFIER ASSEMBLY
TM	TELEPHONE CABINET OR BACKBOARD AS NOTED
P OR C	"C" – DATA INPUT/OUTPUT CABLE OUTLET "P" – PROCESS COMPUTER SYSTEM (CAT6 RJ-45 JACK)

GD/VF #	GAS DETECTOR/VENTILATION FAILURE ALARM,
	# INDICATES TYPE OF UNIT.
	1 = MASTER, 2 = REMOTE

GB	GAS DETECTION/VENTILATION FAILURE WEATHERPROOF DUAL-LITE BEACON MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
15 G	GAS DETECTION/VENTILATION FAILURE HORN/STROBE MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
G	GAS DETECTION/VENTILATION FAILURE HORN, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
G	GAS DETECTION/VENTILATION FAILURE STROBE, MOUNT TOP OF DEVICE UP 6'-8" A.F.F.
	SECURITY SYSTEMS
SACP	SECURITY ALARM CONTROL PANEL
DS	SECURITY ALARM DOOR SWITCH
K	SECURITY ALARM KEY PAD
R	SECURITY SYSTEM CARD ACCESS READER
WS	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
CCTV	CLOSED CIRCUIT TV CAMERA
PTZ	PAN, TILT, ZOOM CAMERA LENS CONTROLS
GB	GLASS BREAK DETECTOR
	FIRE ALARM SYSTEMS
H 200 R	FIRE ALARM HEAT DETECTOR 135 FIXED TEMPERATURE UNLESS OTHERWISE NOTED. "200" – 200 FIXED TEMPERATURE "R" – FIXED TEMPERATURE RATE-OF-RISE TYPE
I	FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED. "I" – IONIZATION TYPE.
D	FIRE ALARM DUCT SMOKE DETECTOR
FACP	FIRE ALARM CONTROL PANEL
FV	FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL
FA	REMOTE FIRE ALARM ANNUNCIATOR PANEL
	FIRE ALARM MASTER BOX
F	FIRE ALARM HORN, MOUNT UP 7'-6"
15 F	FIRE ALARM STROBE, MOUNT UP 6'-8" 15 = CANDELA RATING

SYMBOL	DESCRIPTION
15 F	FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'-8" 15 = CANDELA RATING
F	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'-0"
VSS	SPRINKLER VALVE SUPERVISORY SWITCH
SFS	SPRINKLER FLOW ALARM SWITCH
F	FIRE ALARM BELL
FB	WEATHERPROOF HI-INTENSITY FIRE ALARM STROBE LIGHT WITH HORN
PIR	PASSIVE INFRARED DETECTOR
R	SMOKE BEAM DETECTOR (RECEIVER)
T	SMOKE BEAM DETECTOR (TRANSMITTER)
	FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH

ABBREVIATIONS	
A	AMPS
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CGD	COMBUSTIBLE GAS DETECTOR
CKT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH/CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL

ABBREVIATIONS (CONTINUED)	
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE OR ENCLOSED
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
FO	FIBER OPTIC
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
G, GND	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HACR	HEATING & AIR CONDITIONING RATED
HH	HANDHOLE
HT	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HZ	HERTZ
ID	IDENTIFICATION
INSTR	INSTRUMENT
K	KILO (PREFIX)
kcmil	1000 CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTNING ARRESTER
LTG	LIGHTING
LP	LIGHTING PANEL
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
PB	PULL BOX
PCP	PUMP CONTROL PANEL
PH	PHASE
PMH	POWER MANHOLE
PNL	PANEL OR PANELBOARD
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RECPT	RECEPTACLE
REQD	REQUIRED
QTY	QUANTITY
SA	SURGE ARRESTER
SEC	SECONDS OR SECONDARY
SH	SHIELDED OR SPACE HEATER
SHH	SIGNAL HANDHOLE
SPD	SURGE PROTECTIVE DEVICE
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME TO CLOSE OR TRAY CABLE
TEL	TELEPHONE
TO	TIME TO OPEN
TS	TWISTED SHIELDED OR THERMAL SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS, WIDTH, WITH, WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

A E-4 — SHEET NO. WHERE DETAIL IS DRAWN

SYMBOL WHERE THERE IS A DETAIL

DETAIL A E-3
1/4" = 1'-0" — SHEET NO. WHERE THERE IS A DETAIL

SYMBOL WHERE DETAIL IS DRAWN

DETAIL SYMBOL

1 E-4 — SHEET NO. WHERE SECTION IS DRAWN

SYMBOL WHERE THERE IS A SECTION

SECTION 1 E-3
1/4" = 1'-0" — SHEET NO. WHERE SECTION IS TAKEN

SYMBOL WHERE SECTION IS DRAWN

SECTION SYMBOL

GENERAL NOTE
THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
8/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
LEGENDS AND ABBREVIATIONS II

FILE NAME: E_02_LEGEND_ABBREV_2.pdf

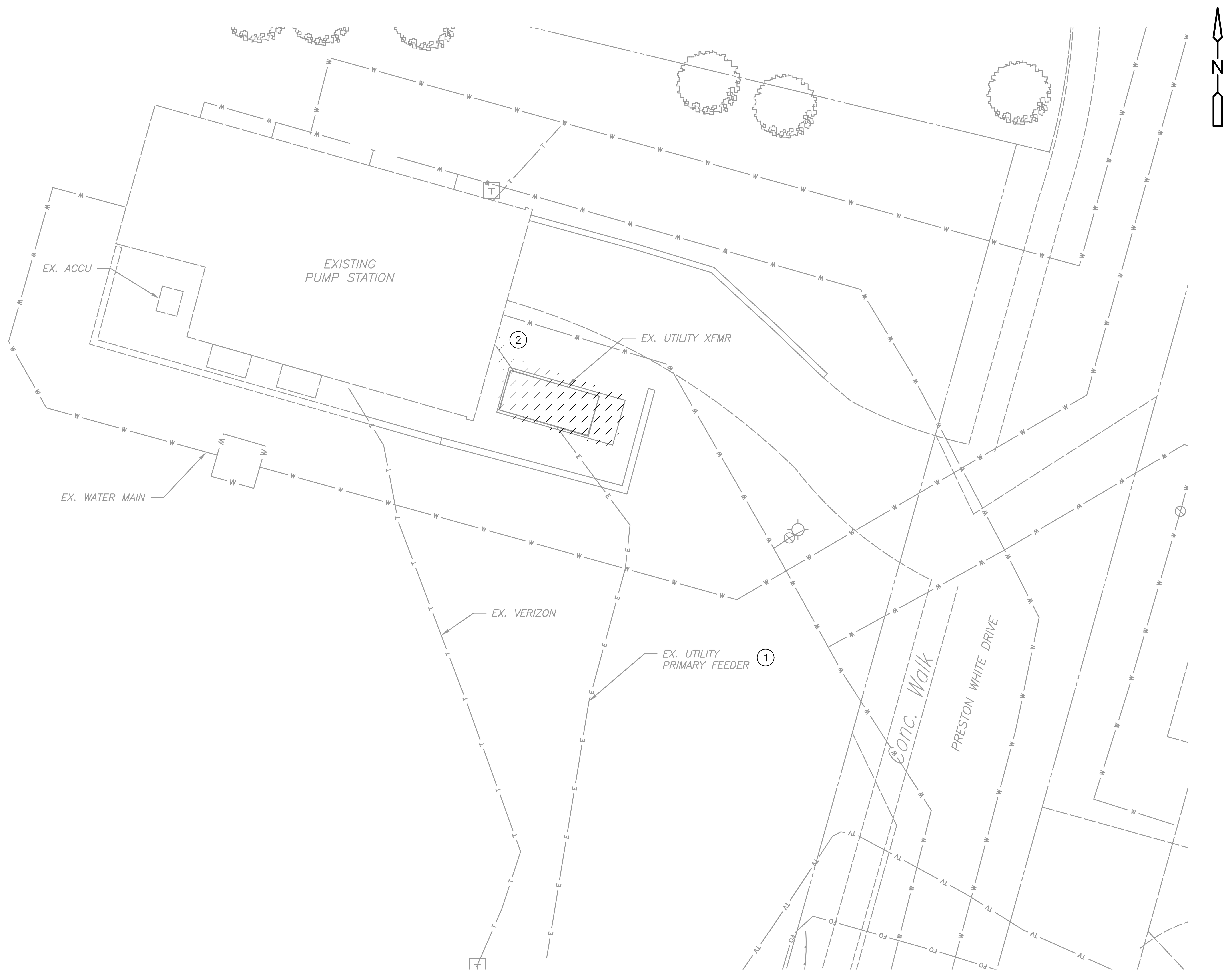
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-2
TAX MAP:	027-1	SHEET 20 of 34

GENERAL NOTES:

1. REFER TO CIVIL SHEETS FOR ADDITIONAL SITE DEMOLITION.
2. REFER TO SPECIFICATION SECTION 16010 FOR DIVISION OF RESPONSIBILITY BETWEEN CONTRACTOR AND ELECTRIC UTILITY.
3. REFER TO SPECIFICATION SECTION 01140 FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS REQUIREMENTS.
4. REFER TO SHEET E-7 FOR DEMOLITION WITHIN PUMP STATION BUILDING.

KEYED NOTES:

1. COORDINATE WITH DOMINION ENERGY FOR DEMOLITION/ABANDONMENT OF EXISTING PRIMARY FEEDERS.
2. DISCONNECT AND REMOVE CONDUCTORS FROM TRANSFORMER SECONDARY TO EXISTING SWITCHGEAR. DEMOLISH CONDUITS ABOVEGROUND AND ABANDON UNDERGROUND CONDUITS. CUT, PATCH, AND PLUG SUITABLY.



ELECTRICAL SITE DEMOLITION
PLAN
1" = 10'

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER
8/27/2024

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	NO.	DATE	REVISION

SCALE 1" = 10' (5 0 10)

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA
OVERALL SITE DEMOLITION PLAN

FILE NAME: E_03_SITE_DEMO.pdf		
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-3
TAX MAP: 027-1		SHEET 21 of 34

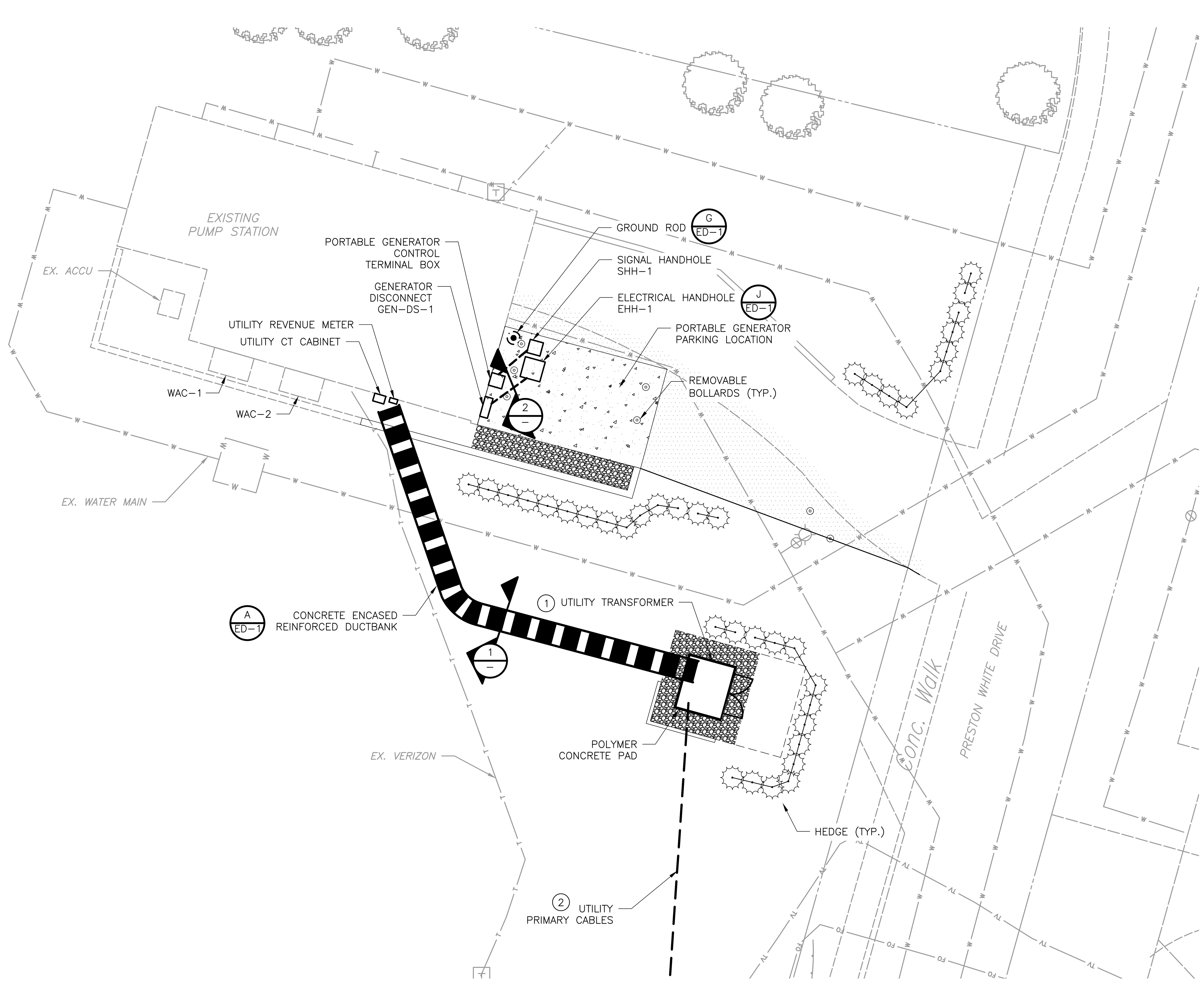
GENERAL NOTES:

1. REFER TO CIVIL SHEETS FOR ADDITIONAL SITE WORK.
2. REFER TO SPECIFICATION SECTION 16010 FOR DIVISION OF RESPONSIBILITY BETWEEN CONTRACTOR AND ELECTRIC UTILITY.

KEYED NOTES:

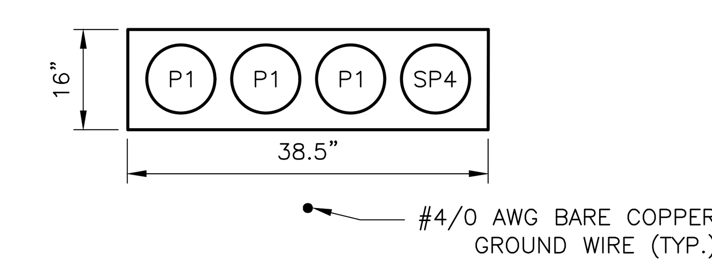
1 COMPLY WITH DOMINION ENERGY REQUIREMENTS FOR TRANSFORMER CLEARANCES.

2 PRIMARY FEEDERS PROVIDED BY DOMINION ENERGY.



ELECTRICAL SITE PLAN

1" = 10'

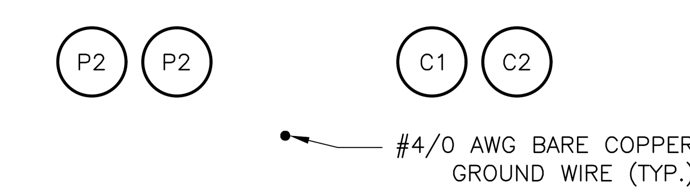


DUCTBANK SECTION 1

NTS

P1: 4"C., P-SWGR-1: REFER TO ONE-LINE DIAGRAM FOR CONDUCTORS

SP4: 4"C., EMPTY W/ PULLSTRING



DUCTBANK SECTION 2

NTS

C1: 1"C., C-GENSHH1-1: REFER TO RISER DIAGRAM FOR CONDUCTORS

C2: 1"C., C-GENSHH1-2: REFER TO RISER DIAGRAM FOR CONDUCTORS

P2: 4"C., P-GEN: REFER TO ONE-LINE DIAGRAM FOR CONDUCTORS

COMMONWEALTH OF VIRGINIA
8/27/2024
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER

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FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

SCALE: 1" = 10' (5 0 10)

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

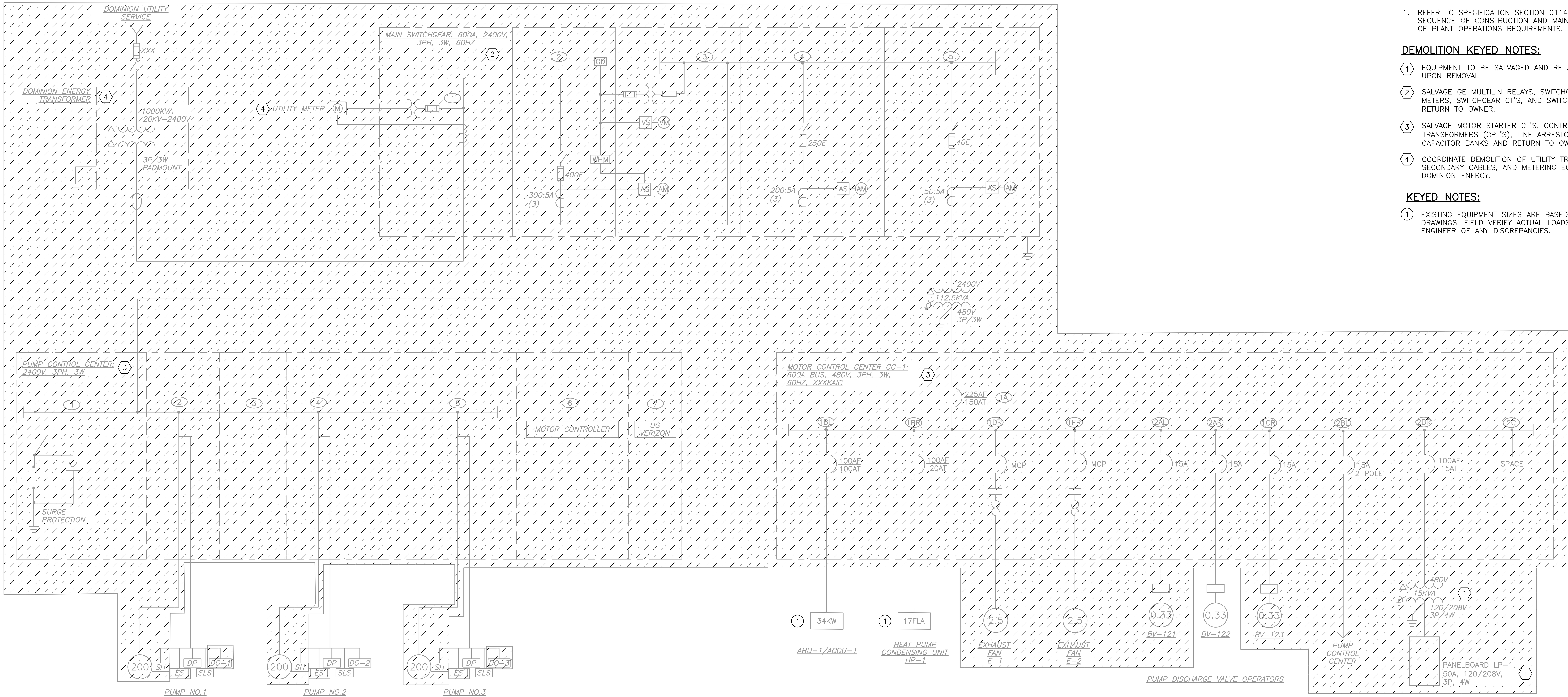
Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
OVERALL SITE PLAN

FILE NAME:	E_04_SITE_PLAN.pdf	
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-4
TAX MAP:	027-1	SHEET 22 of 34



GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 01140 FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS REQUIREMENTS.

DEMOLITION KEYED NOTES:

1. EQUIPMENT TO BE SALVAGED AND RETURNED TO OWNER UPON REMOVAL.
2. SALVAGE GE MULTILIN RELAYS, SWITCHGEAR ANALOG METERS, SWITCHGEAR CT'S, AND SWITCHGEAR VT'S AND RETURN TO OWNER.
3. SALVAGE MOTOR STARTER CT'S, CONTROL POWER TRANSFORMERS (CPT'S), LINE ARRESTORS, AND CAPACITOR BANKS AND RETURN TO OWNER.
4. COORDINATE DEMOLITION OF UTILITY TRANSFORMER, SECONDARY CABLES, AND METERING EQUIPMENT WITH DOMINION ENERGY.

KEYED NOTES:

1. EXISTING EQUIPMENT SIZES ARE BASED ON RECORD DRAWINGS. FIELD VERIFY ACTUAL LOADS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

OVERALL POWER DEMOLITION ONE-LINE DIAGRAM 1
NTS –

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER
8/27/2024

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

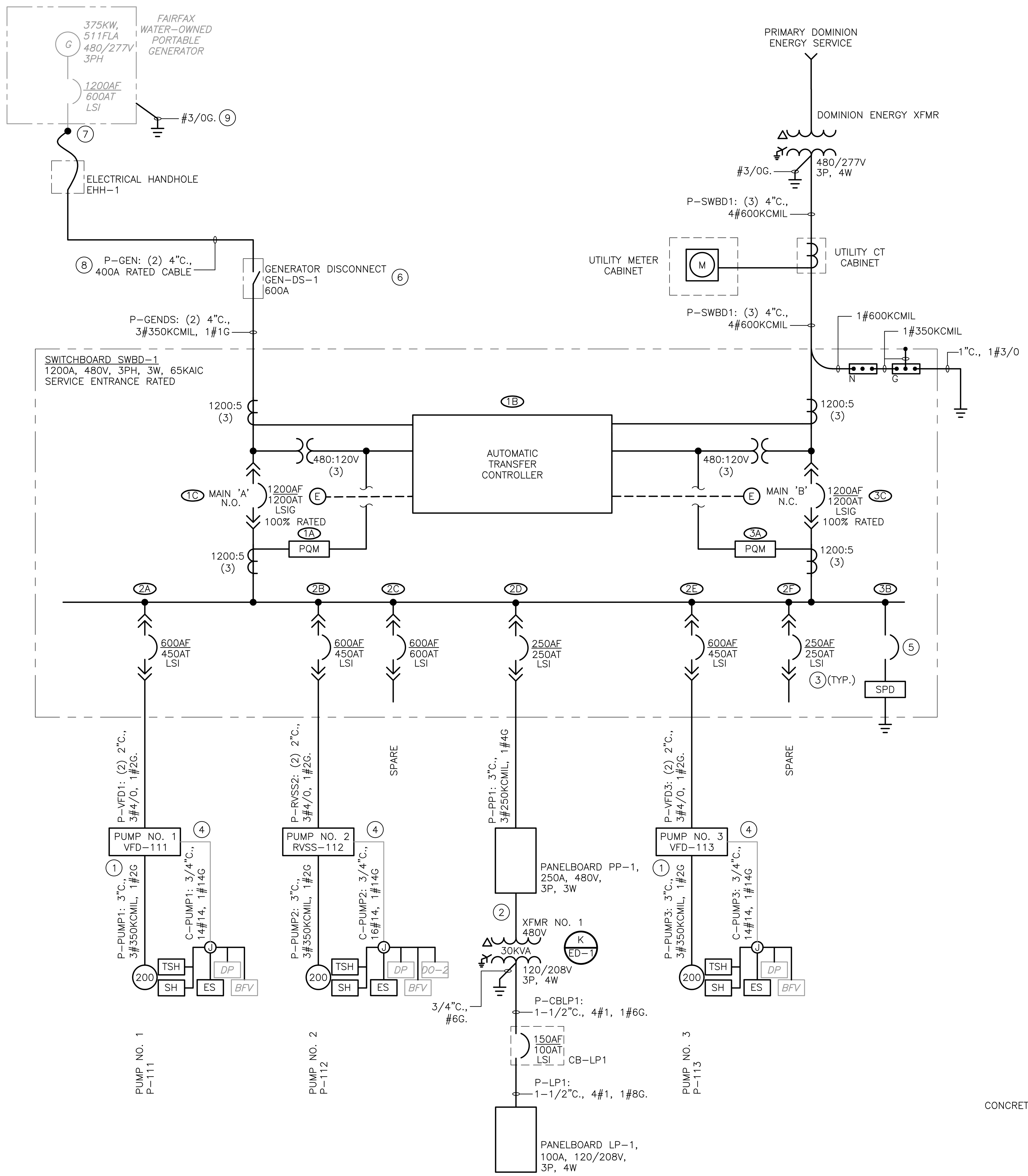
Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

DEMOLITION
ONE-LINE DIAGRAM

FILE NAME: E_05_DEMO_ONE_LINE.pdf

PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-5
TAX MAP: 027-1		SHEET 23 of 34



OVERALL POWER NEW WORK ONE-LINE

DIAGRAM 1

NTS

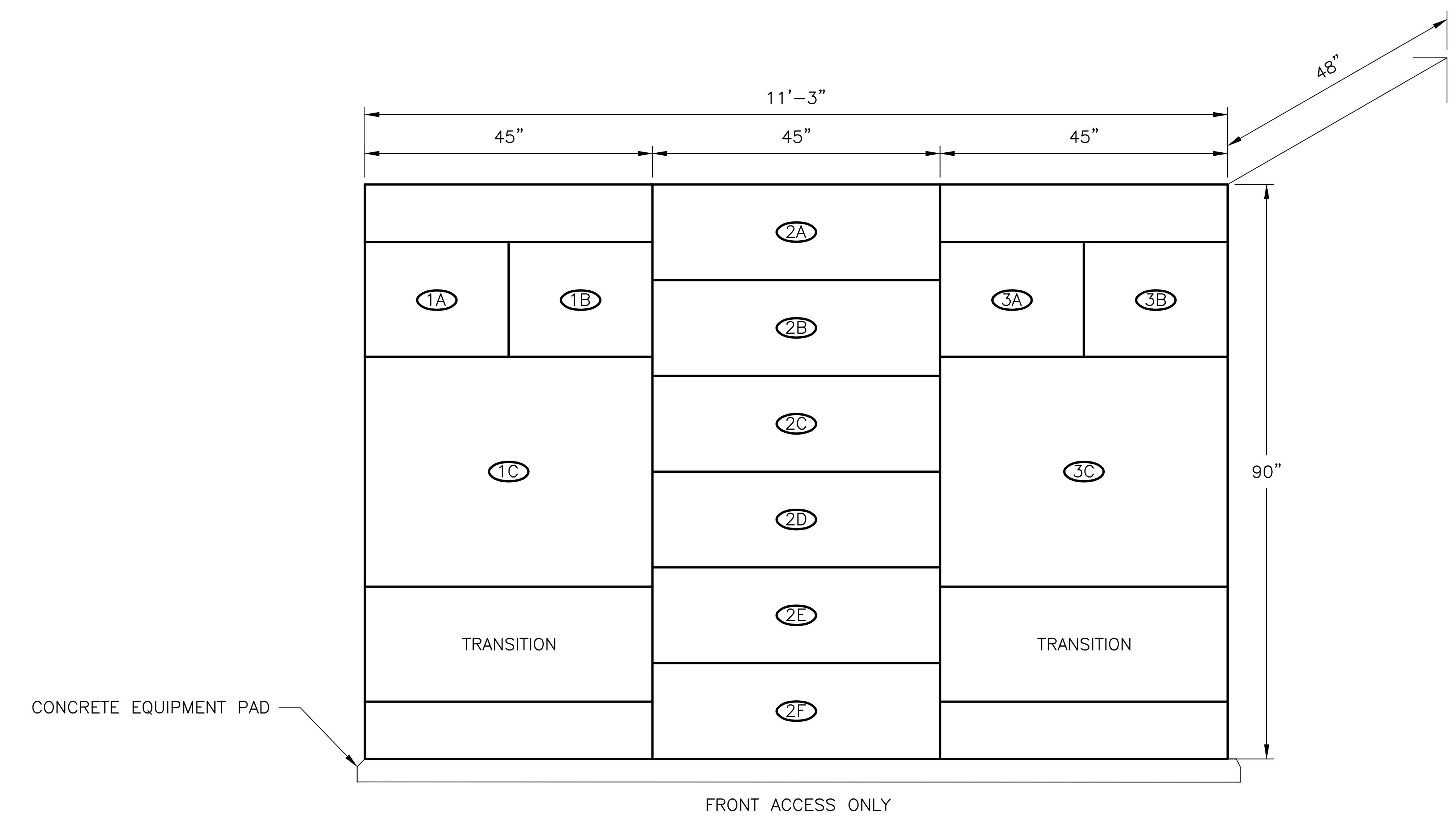
GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 16010 FOR DIVISION OF RESPONSIBILITY BETWEEN CONTRACTOR AND ELECTRIC UTILITY.
2. REFER TO SPECIFICATION SECTION 16243 FOR SWITCHBOARD SEQUENCE OF OPERATIONS.

KEYED NOTES:

1. PROVIDE VFD CABLE FROM VFD TO PUMP MOTOR. REFER TO SECTION 16052 FOR CABLE REQUIREMENTS.
2. REFER TO PANELBOARD SCHEDULE FOR CONDUIT AND WIRE REQUIREMENTS.
3. DRAWOUT-TYPE CIRCUIT BREAKER.
4. RE-USE OF EXISTING UNDERSLAB CONDUIT IS ALLOWED. CLEAN CONDUIT WITH MANDREL PRIOR TO PULLING NEW WIRES. EXTEND CONDUIT AS NECESSARY. IF EXISTING CONDUIT CANNOT BE REUSED, PROVIDE NEW CONDUITS. PROVIDE INSULATED TERMINAL BLOCKS IN VFD/RVSS FOR EXISTING SIGNALS TO BE SENT TO SCADA. SPLICING IS NOT ACCEPTABLE.
5. SIZED PER MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE DISCONNECT WITH AUXILIARY CONTACT, WIRED TO AUTOMATIC TRANSFER CONTROLLER VIA PORTABLE GENERATOR CONTROL TERMINAL BOX.
7. PROVIDE CAM-LOK TERMINATIONS ON CABLES FOR CONNECTION TO PORTABLE GENERATOR. CROUSE-HINDS J-SERIES E1017 OR EQUAL.
8. PROVIDE TWO (2) SETS OF 3-WIRE PLUS GROUND, HEAVY DUTY INDUSTRIAL, FLEXIBLE PORTABLE POWER CABLE FROM DISCONNECT TO GENERATOR. CABLE SHALL BE RATED FOR CONTINUOUS SUBMERSION, SUNLIGHT RESISTANT, AND COMPLY WITH WITH UL 1650 AND NEC ARTICLE 400 FOR EXTRA-HARD USAGE APPLICATIONS. TYPE W CABLE BY SOUTHWIRE OR APPROVED EQUAL. PROVIDE WITH SUFFICIENT LENGTH TO REACH THE GENERATOR PLUS 10- TO 15-FT SLACK.
9. ROUTE GROUNDING ELECTRODE CONDUCTOR THROUGH GENERATOR HANDHOLE EHH-1.

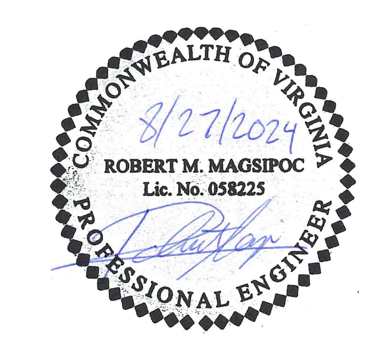
SWBD-1 DEMAND LOADS AT 480V		
LOAD	SIZE / DEMAND	FULL LOAD AMPS AT 480V
Pump No. 1 P-111	200 HP	240 A
Pump No. 2 P-112	200 HP	240 A
Pump No. 3 P-113	200 HP	240 A
Panelboard PP-1	62 KVA	75 A
25% OF THE LARGEST MOTOR FLA (200 HP)		60 A
25% FUTURE CAPACITY		199 A
TOTAL DEMAND LOAD	876 KVA	1054 A



SWITCHBOARD SWBD-1

ELEVATION

NTS



FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	NO.	DATE	REVISION	SCALE	CDM Smith 10306 Eaton Place, Suite 220 Fairfax, VA 22030 Tel: (703) 691-6500	Fairfax Water RESTON PUMP STATION ELECTRICAL UPGRADES	RESTON, VIRGINIA NEW WORK ONE-LINE DIAGRAM

FILE NAME: E_06_NEW_ONE_LINE.pdf

PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-6
TAX MAP: 027-1		SHEET 24 of 34

GENERAL NOTES:

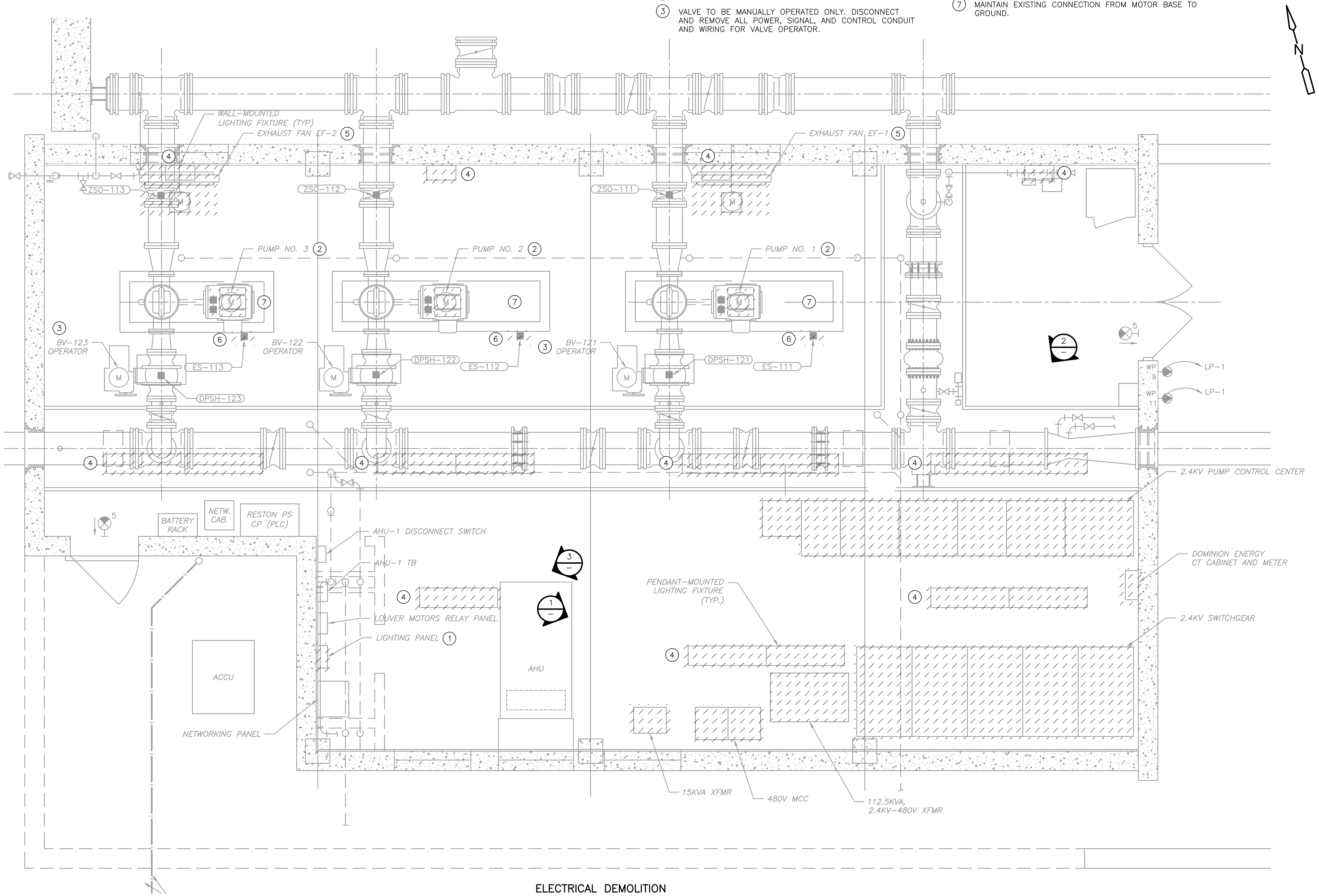
1. REFER TO SPECIFICATION SECTION 16010 FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS REQUIREMENTS.
2. ALL CONDUCTORS TO REMAIN SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.

KEYED NOTES:

1. DISCONNECT BRANCH WIRES FROM EXISTING PANELBOARD AND CONNECT TO NEW PANELBOARD PER E-8. LABEL ALL WIRES, DISCONNECT BRANCH CIRCUIT CONDUCTORS, PROTECT, AND STORE FOR RE-INSTALLATION. IF EXISTING WIRE LENGTH IS NOT SUFFICIENT TO CONNECT TO NEW PANELBOARD, PROVIDE NEW CONDUIT AND WIRE FROM THE NEW SOURCE TO THE EXISTING LOAD. SPLICING SHALL NOT BE PERMITTED.
2. REFER TO SHEET M-1 FOR MOTOR DEMOLITION DETAILS.
3. VALVE TO BE MANUALLY OPERATED ONLY. DISCONNECT AND REMOVE ALL POWER, SIGNAL, AND CONTROL CONDUIT AND WIRING FOR VALVE OPERATOR.

KEYED NOTES (CONT.):

4. DISCONNECT AND REMOVE EXISTING LUMINAIRES. EXISTING CONDUITS AND WIRES TO REMAIN TO BE REUSED.
5. DISCONNECT AND REMOVE POWER AND CONTROL CONDUITS AND WIRES BACK TO THE SOURCE. CLEAN AND SUITABLY PATCH ANY OPENINGS.
6. EQUIPMENT MOUNTING RACK FOR E-STOPS TO REMAIN TO BE RE-USED.
7. MAINTAIN EXISTING CONNECTION FROM MOTOR BASE TO GROUND.



ELECTRICAL DEMOLITION

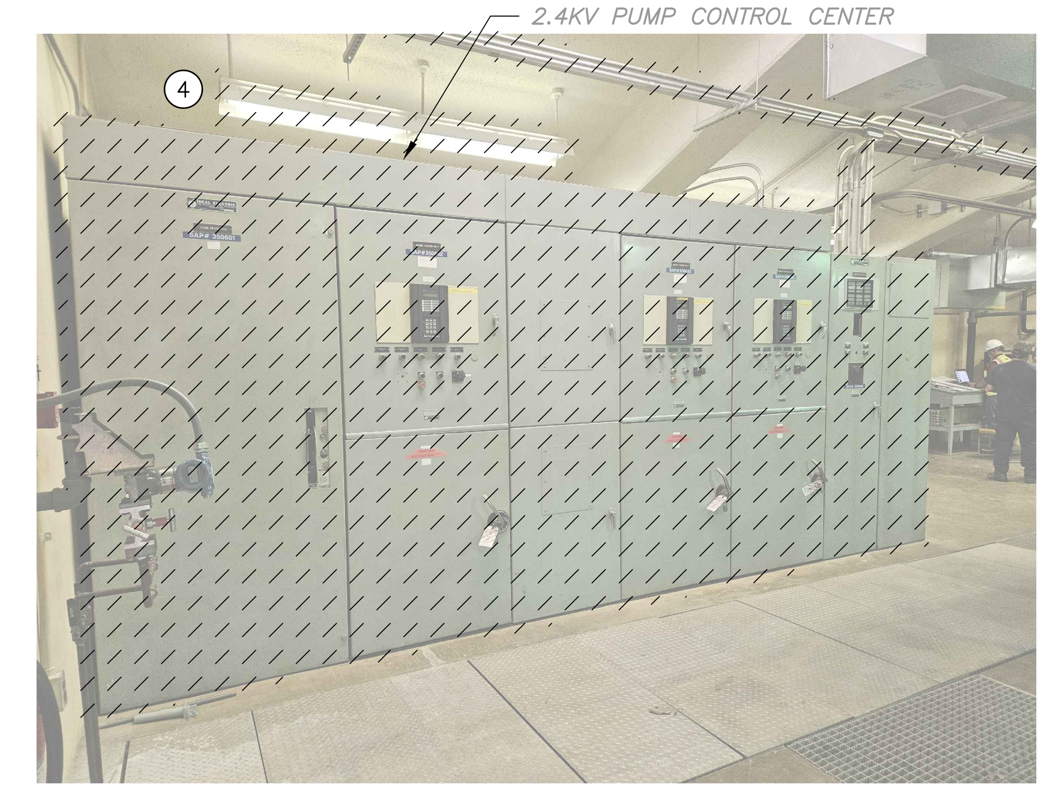
PLAN

3/8" = 1'-0"

2.4KV SWGR, 112.5KVA XFMR, AND 480V MCC

PHOTO 1 / –

NTS



2.4KV PUMP CONTROL CENTER

PHOTO 2 / –

NTS

EX. LIGHTING PANELBOARD

PHOTO 3 / –

NTS

COMMONWEALTH OF VIRGINIA
8/27/2024
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	

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SCALE

3/8" = 1'- 0"

0 2 4

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
PUMP ROOM DEMOLITION PLAN

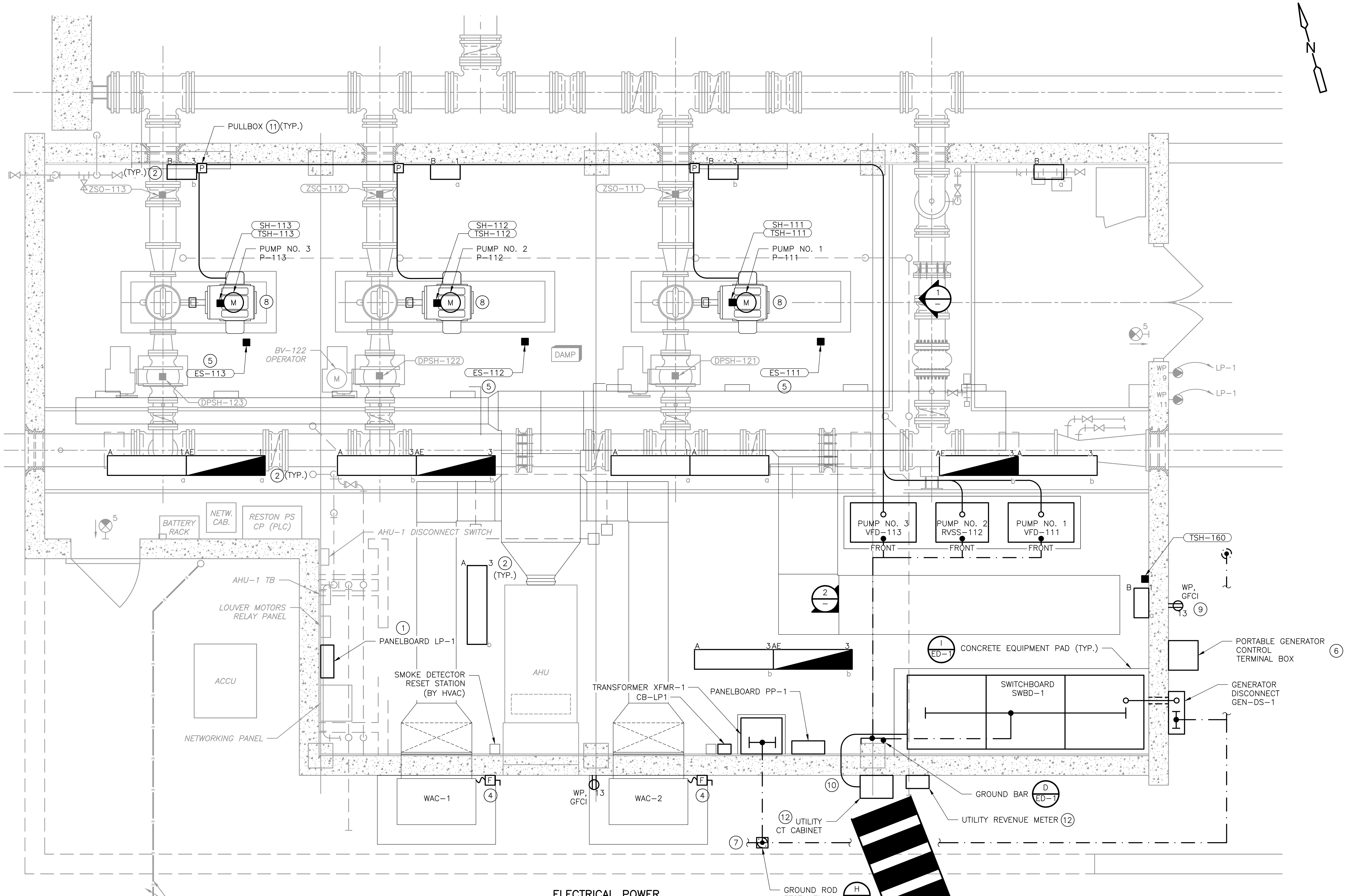
FILE NAME: E_07_DEMO_PUMP_ROOM.pdf		
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-7
TAX MAP: 027-1		SHEET 25 of 34

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 16010 FOR SEQUENCE OF CONSTRUCTION AND MAINTENANCE OF PLANT OPERATIONS REQUIREMENTS.
2. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY. NOT ALL CONDUITS ARE SHOWN FOR CLARITY.
3. DO NOT EXCEED A TOTAL OF 270 DEGREES FOR CONDUIT BENDS. INSTALL JUNCTION BOXES OR PULLBOXES AS REQUIRED PER NEC.

KEYED NOTES:

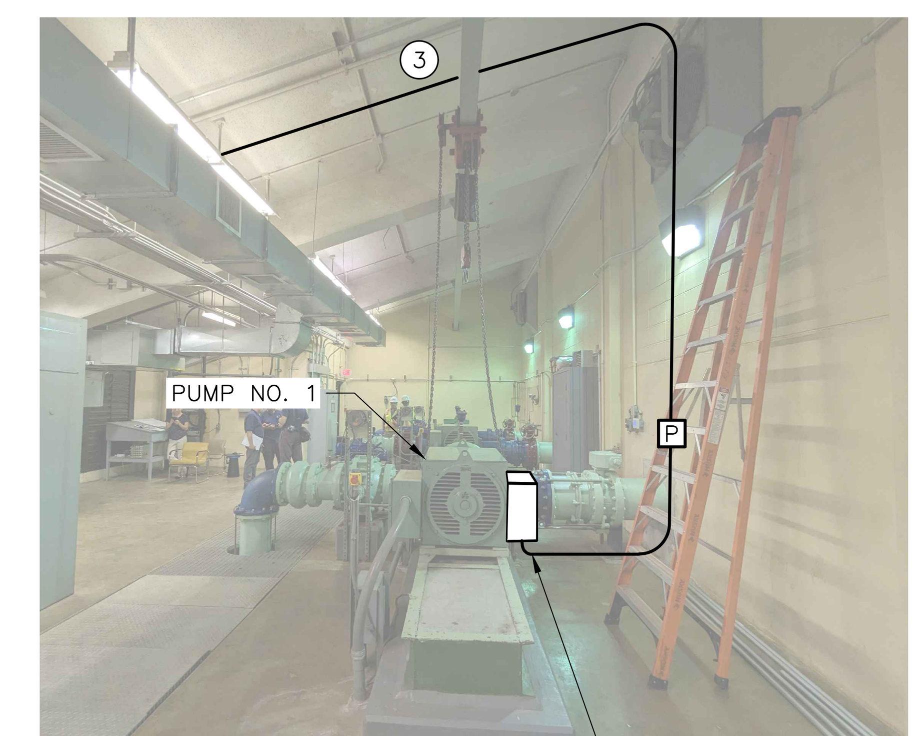
1. INSTALL NEW LIGHTING PANELBOARD LP-1 IN SAME LOCATION AS EXISTING. RECONNECT EXISTING BRANCH CIRCUIT CONDUCTORS, EXTENDING CONDUIT AND NEW WIRES AS NECESSARY. REFER TO PANELBOARD SCHEDULE.
2. MOUNTING HEIGHTS SHALL MATCH EXISTING LUMINAIRE MOUNTING HEIGHTS. RE-USE EXISTING LIGHT SWITCHES TO MATCH EXISTING LIGHTING CONTROL. ALL LUMINAIRES ARE POWERED FROM PANELBOARD LP-1.
3. ROUTE CONDUIT ON CEILING, AVOIDING CONFLICTS WITH LUMINAIRE SUPPORTS, HVAC DUCTWORK, AND MONORAIL.
4. SIZE FUSE PER MANUFACTURER'S RECOMMENDATIONS.
5. INSTALL NEW E-STOP IN SAME LOCATION AS EXISTING ON EXISTING EQUIPMENT MOUNTING RACK. INSTALL NEW CONTROL WIRES ON NEW BUTTON.
6. PROVIDE NEMA 4X TERMINAL BOXES TO TRANSITION TO PORTABLE GENERATOR CABLES. PROVIDE BOXES WITH DISCONNECT AND INSULATED TERMINAL BLOCKS FOR GENERATOR CONTROLS.
7. BOND TO EXISTING BUILDING GROUNDING SYSTEM USING EXOTHERMIC CONNECTION.
8. EXTEND GROUND CONNECTION TO MOTOR FRAME AS NEEDED.
9. PROVIDE HEAVY DUTY, 20A, 120V GFCI RECEPTACLES SUITABLE FOR INSTALLATION OUTDOORS BY HUBBELL OR EQUAL.
10. PENETRATE WALL APPROXIMATELY 72-IN A.F.F.
11. SIZE PULLBOX PER NEC REQUIREMENTS.
12. INSTALL PER DOMINION ENERGY REQUIREMENTS.



ELECTRICAL POWER

PLAN

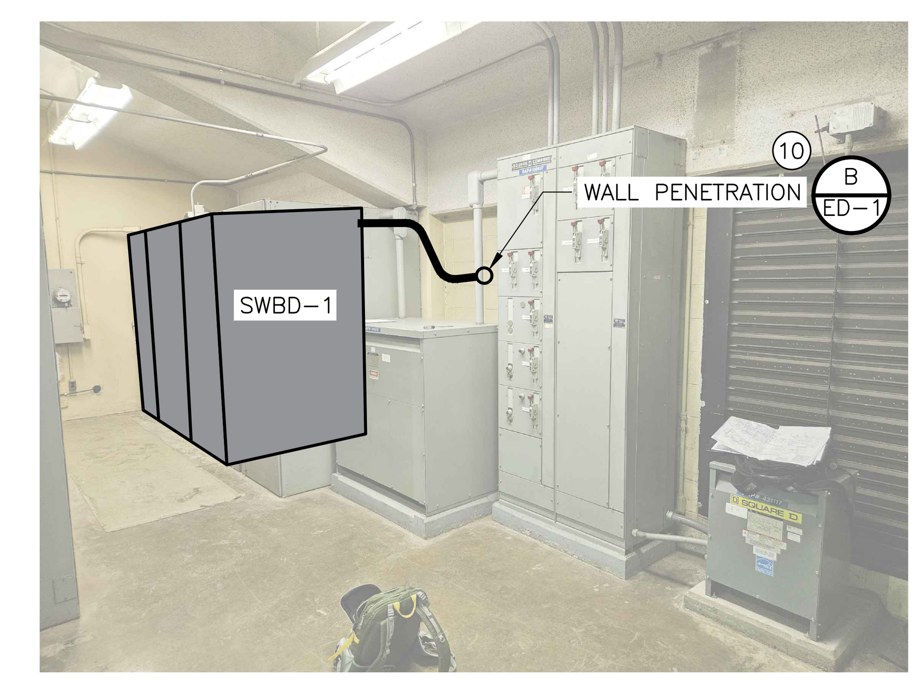
3/8" = 1'-0"



PUMP CONDUIT ROUTING

PHOTO 1

NTS



SERVICE ENTRANCE CONDUIT ROUTING

PHOTO 2

NTS

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER
8/27/2024

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	

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SCALE

3/8" = 1'- 0"

2 0 2 4

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
PUMP ROOM NEW WORK PLAN

FILE NAME: E_08_NEW_WORK_PUMP_ROOM.pdf		
PROJECT 0215A	DIVISION 041	DATE: 5-31-2024
		DRAWING E-8
TAX MAP: 027-1		SHEET 26 of 34

GENERAL NOTES:

1. INSTRUMENTATION WIRING MAY BE COMBINED IN THE SAME CONDUIT PROVIDED THE VOLTAGE AND TYPE OF WIRING IS THE SAME (IE: TSP CABLE SHALL BE RUN IN A SEPARATE CONDUIT THAN 120V POWER TO PRESSURE SWITCHES). CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTMENT FACTOR IN ACCORDANCE WITH NEC 2017 EDITION TABLE 310.15(b)(3)(a).
2. CLEAN CONDUITS SCHEDULED TO BE RE-USED USING MANDREL PRIOR TO RE-USING.

KEYED NOTES:

1. EXISTING FEEDERS PREVIOUSLY USED FROM DEMOLISHED MCC TO EQUIPMENT CAN BE RE-USED PROVIDED THEY ARE IN GOOD CONDITION AND HAVE SUFFICIENT LENGTH. OTHERWISE, PROVIDE NEW FEEDERS.
2. SIGNALS INCLUDE START COMMAND, DISCONNECT AUX CONTACT POSITION, GENERATOR FAIL, E-STOP, AND SPARE.

PANELBOARD PP-1

250 AMP MAIN LUG ONLY
250 AMP BUS RATING **30** POLES
480 VOLTS **3** PHASE **3** WIRE **60 Hz.**
65 KA SHORT CIRCUIT RATING
ELECTRONIC GRADE: **NO**
LOCATION: **PUMP ROOM**
ENCLOSURE RATING: **NEMA 12 ,**
MOUNTING: **SURFACE**

CIRCUIT NO.	DESCRIPTION	LOAD KVA PHASE A	PHASE B	PHASE C	BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA PHASE A	PHASE B	PHASE C	BREAKER AMPS/ POLES	NOTES
1	PACKAGED WALL AIR	6.35					2		10				
3	CONDITIONING UNIT		6.35		30 /3	6	4	VIA 30KVA XFMR-1		10		50 /3	8, 9
5	WAC-1			6.35			6				10		
7	PACKAGED WALL AIR	6.35					8	PUMP NO. 2	0.58				
9	CONDITIONING UNIT		6.35		30 /3	6	10	DISCHARGE VALVE OPERATOR		0.58		15 /3	5
11	WAC-2			6.35			12				0.58		
13	*EX. AIR HANDLING UNIT NO. 1 / AIR*	11.3					14		4.71				
1 15	*CONDITIONING CONDENSING UNIT NO. 1*		11.3		60 /3	10	16	*EX. HP-1* 1		4.71		30 /3	6
17	*EX. AHU-1/ACCU-1*			11.3			18				4.71		
19							20						
21	SPARE				60 /3		22	SPARE				30 /3	
23							24						
25							26						
27	SPARE				15 /3		28	SPARE				15 /3	
29							30						
	TOTAL PHASE KVA THIS SIDE	24	24	24				TOTAL PHASE KVA THIS SIDE	15.29	15.29	15.29		
								TOTAL KVA PER PHASE	39.29	39.29	39.29		
								TOTAL THREE PHASE KVA	117.87				

NOTES:
1. PROVIDE LOCKING HARDWARE
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
5. BRANCH CIRCUIT WIRING: 3/4"C, 3#12 & 1#12G
7. BRANCH CIRCUIT WIRING: 3/4"C, 2#12 & 1#12G
9. PROVIDE LSI CIRCUIT BREAKER

NOTES CONT.:
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)
6. BRANCH CIRCUIT WIRING: 3/4'C, 3#10 & 1#10G
8. BRANCH CIRCUIT WIRING: 3/4'C, 3#6 & 1#10G
10. BRANCH CIRCUIT WIRING: 1"C., 3#4, 1#10G.

PANELBOARD LP-1

100 AMP MAIN BREAKER
100 AMP BUS RATING **30** POLES
208/120 VOLTS **3** PHASE **4** WIRE **60 Hz.**
10 KA SHORT CIRCUIT RATING
ELECTRONIC GRADE: **NO**
LOCATION: **PUMP ROOM**
ENCLOSURE RATING: **NEMA 12 ,**
MOUNTING: **SURFACE**

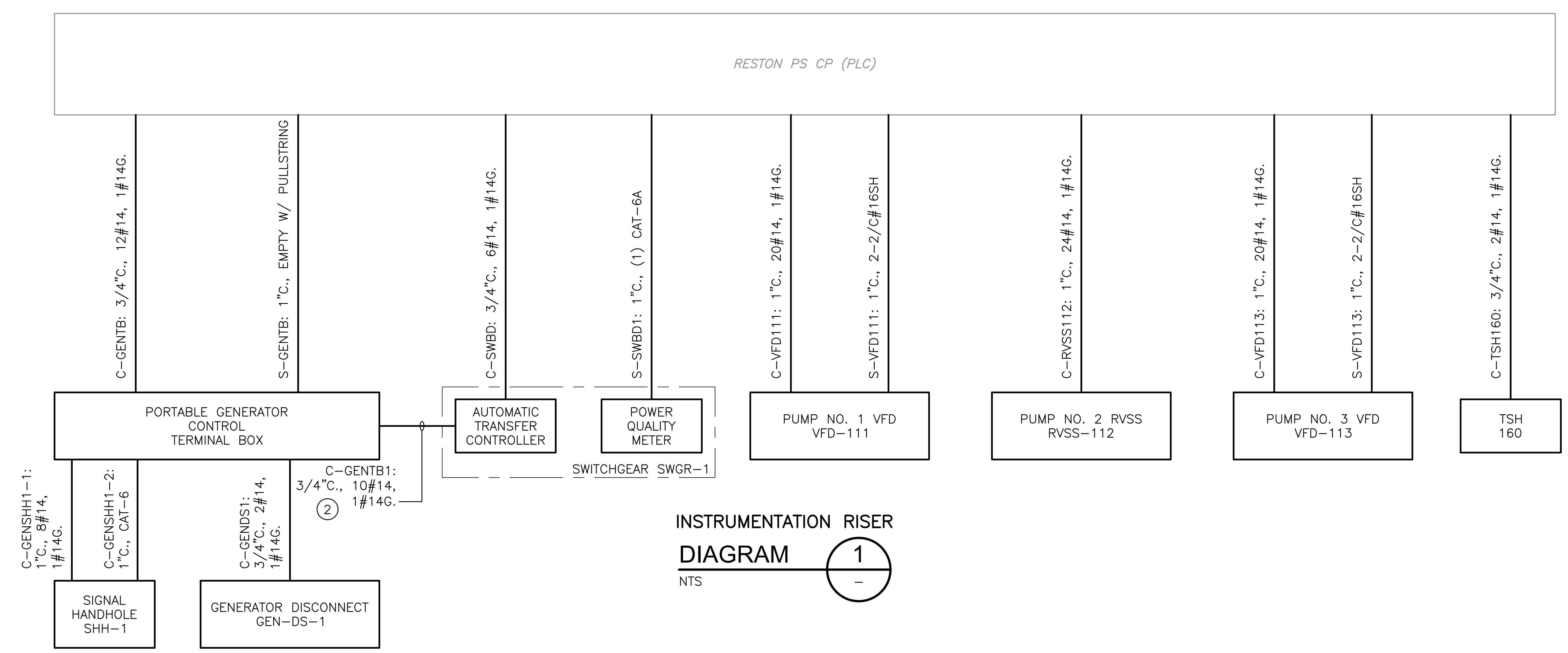
CIRCUIT NO.	DESCRIPTION	LOAD KVA PHASE A	PHASE B	PHASE C	BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA PHASE A	PHASE B	PHASE C	BREAKER AMPS/ POLES	NOTES
1	PUMP ROOM LIGHTING	0.42			20 /1	8	2	PUMP ROOM RECEPTACLES	0.9			20 /1	8
3	PUMP ROOM LIGHTING		0.384		20 /1	8	4	RESTON PS CP (PLC)		1.92		20 /1	8
5	EXTERIOR & EXIT LIGHTING			0.45	20 /1	8	6	FIBER PANEL			0.18	20 /1	8
7	SPARE				20 /1	8	8	LOUVER MOTORS RELAY PANEL	1.92			20 /1	8
9	GEN. SHORE POWER DED. RECP.		2.88		30 /1	8	10	SPARE				20 /1	8
11	GEN. SHORE POWER DED. RECP.			2.88	30 /1	8	12	SPARE				20 /1	
13	EXTERIOR RECEPTACLES	0.36			20 /1	7	14	SPARE				20 /1	
15	SPARE				20 /1		16	SPARE				20 /1	
17	SPARE				20 /1		18	SPARE				20 /1	
19	SPARE				20 /1		20	SPARE				20 /1	
21	SPARE				20 /1		22	SPARE				20 /1	
23	SPARE				20 /1		24	SPARE				20 /1	
25	SPARE				20 /1		26						
27	SPARE				20 /1		28	SPARE				30 /3	
29	SPARE				20 /1		30						
	TOTAL PHASE KVA THIS SIDE	0.78	3.264	3.33				TOTAL PHASE KVA THIS SIDE	2.82	1.92	0.18		
								TOTAL KVA PER PHASE	3.6	5.184	3.51		
								TOTAL THREE PHASE KVA	12.294				

NOTES:
1. PROVIDE LOCKING HARDWARE
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
5. BRANCH CIRCUIT WIRING: 3/4"C, 3#12 & 1#12G
7. BRANCH CIRCUIT WIRING: 3/4"C, 2#12 & 1#12G

NOTES CONT.:
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)
6. BRANCH CIRCUIT WIRING: 3/4'C, 3#10 & 1#10G
8. EX. CONDUIT & WIRE. EXTEND CONDUITS AND WIRES AS NEEDED.

LIGHTING FIXTURE SCHEDULE

TYPE	LOCATION	LAMPS PWR-LMP TYP	MOUNTING	DESCRIPTION	ACCEPTABLE MANUFACTURER'S CATALOG	REMARKS
A	PUMP ROOM WET	24W-LED	PENDANT	LOW-PROFILE ENCLOSED AND GASKETED INDUSTRIAL CORROSION RESISTANT LUMINAIRE WET LOCATION UL LISTING	HOLOPHANE EMS L48 4000LM IMACD-MD-MVOLT-GZ10-40K-80CRI OR APPROVED EQUAL	
AE	PUMP ROOM WET	24W-LED	PENDANT	LOW-PROFILE ENCLOSED AND GASKETED INDUSTRIAL CORROSION RESISTANT LUMINAIRE WET LOCATION UL LISTING, WITH 90 MINUTE INTERNAL BATTERY BACKUP	HOLOPHANE EMS L48 4000LM IMACD-MD-MVOLT-GZ10-40K-80CRI OR APPROVED EQUAL	
B	PUMP ROOM WET	39W-LED	WALL MOUNT	LED WALL PACK LED MODULE 5100 LUMENS, 4000K CRI, 120V WET LOCATION UL LISTED	LITHONIA TWX2 LED P3 40K MVOLT DDBTXD OR APPROVED EQUAL	



INSTRUMENTATION RISER
DIAGRAM 1
NTS –

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER
8/27/2024

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	NO. / DATE / REVISION: - - --	SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

PANELBOARD AND LUMINAIRE SCHEDULES AND RISER DIAGRAM

FILE NAME: E_09_PANEL_LUMIN_SCHED_RISER.pdf

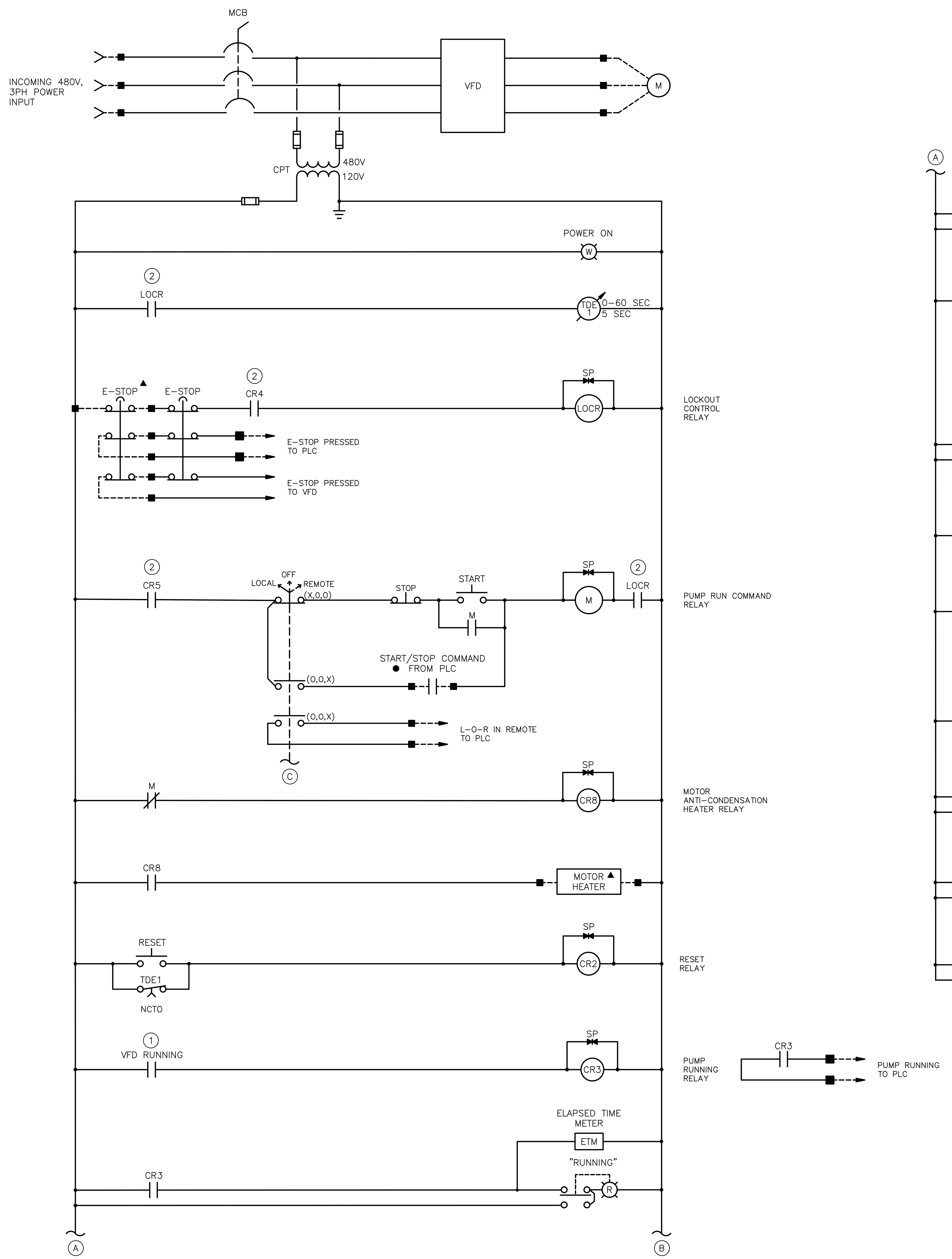
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-9
TAX MAP:	027-1	SHEET 27 of 34

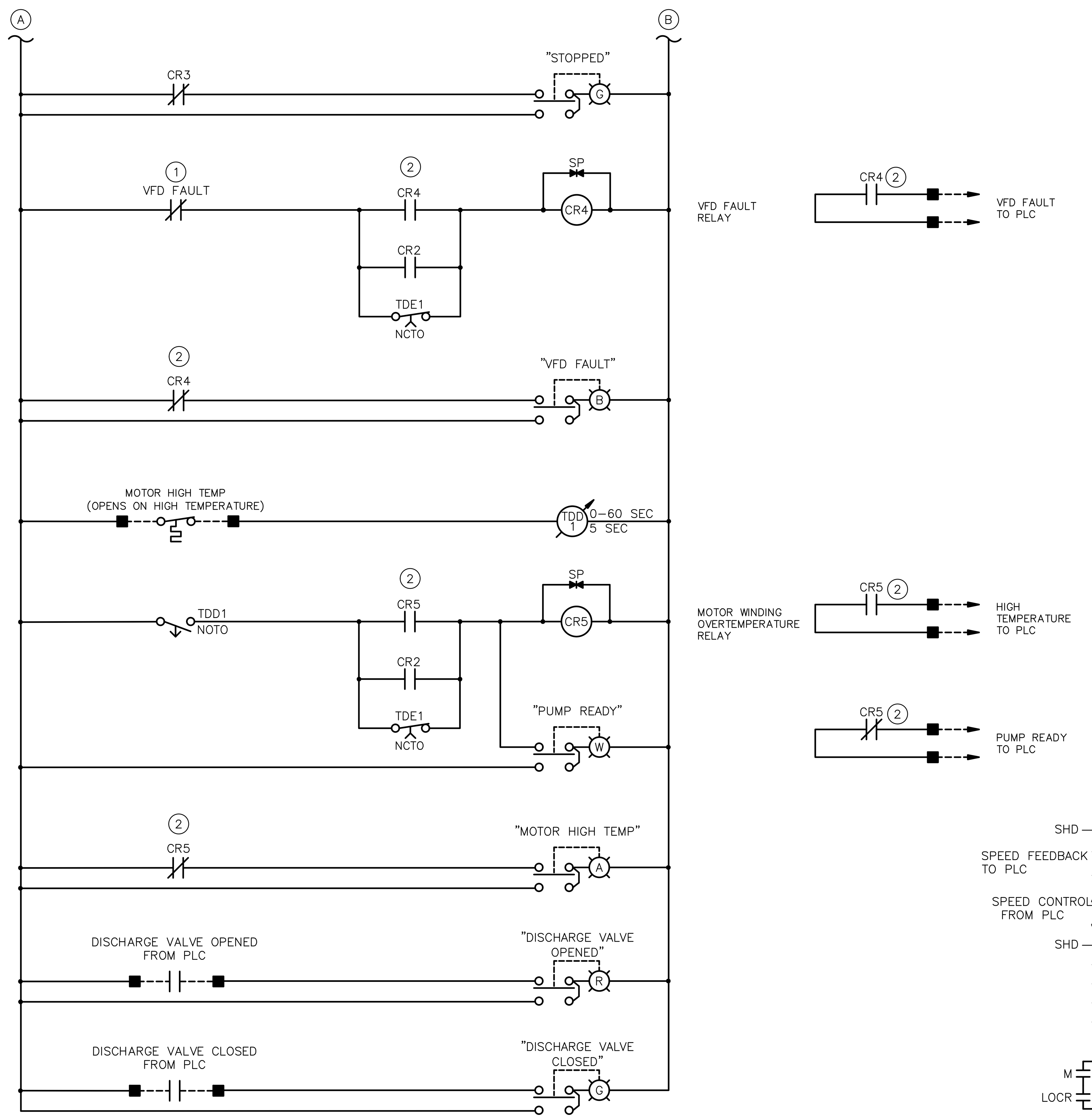
LEGEND (THIS SHEET ONLY):

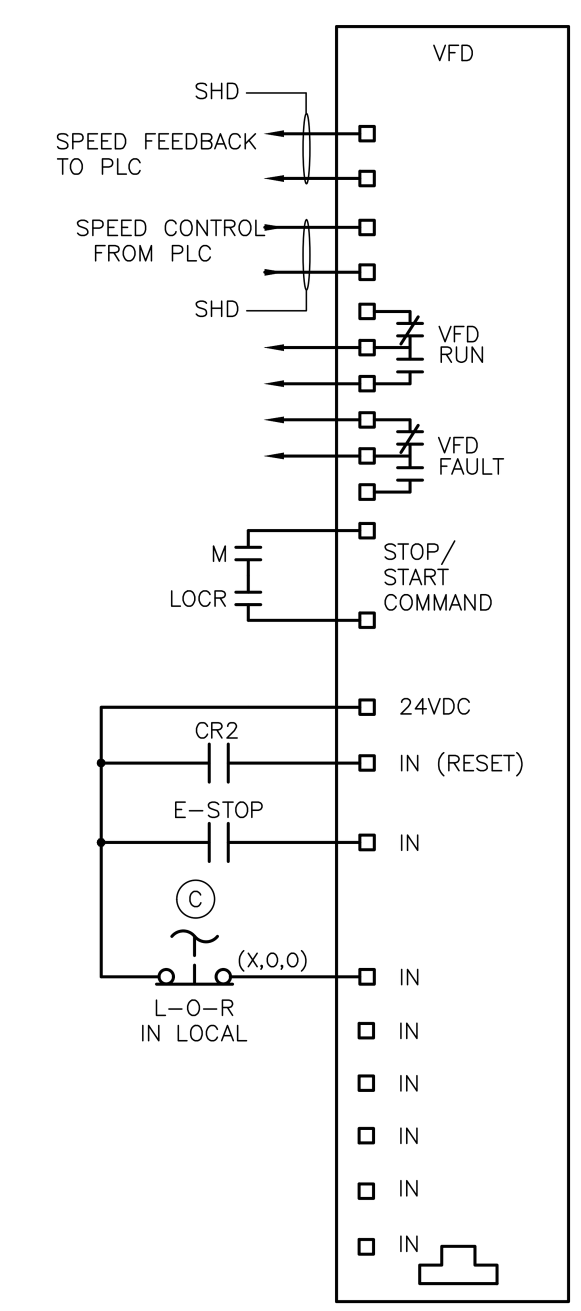
- ▲ DEVICE LOCATED IN FIELD
- ● DEVICE LOCATED IN PLC
- ETM ELAPSED TIME METER
- LOCR LOCKOUT CONTROL RELAY
- SP SURGE PROTECTION

KEYED NOTES:

1. CONTACT LOCATED IN VFD.
2. RELAY IS NORMALLY ENERGIZED.







VFD EQUIPMENT SCHEDULE

EQUIPMENT NO.	LOOP NO.	LOCATION
PUMP NO. 1 VFD	P–111	VFD–111
PUMP NO. 3 VFD	P–113	VFD–113

PUMP NO. 1 SCHEMATIC DIAGRAM

DIAGRAM 1 / –

NTS

(TYP. FOR PUMP NO. 3)

COMMONWEALTH OF VIRGINIA
ROBERT M. MAGSIPOC
Lic. No. 058225
8/27/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

NO.	DATE	REVISION
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
SCHEMATIC DIAGRAMS I

FILE NAME: E_10_SCHEMATIC_DIAGRAM_1.pdf

PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-10
TAX MAP: 027-1		SHEET 28 of 34

LEGEND (THIS SHEET ONLY):

- ▲ DEVICE LOCATED IN FIELD
- ● DEVICE LOCATED IN PLC
- BC RVSS UP–TO–SPEED BYPASS CONTACTOR
- ETM ELAPSED TIME METER
- LOCR LOCKOUT CONTROL RELAY
- SP SURGE PROTECTION

KEYED NOTES:

1. CONTACT LOCATED IN RVSS.
2. RELAY IS NORMALLY ENERGIZED.

STARTER EQUIPMENT SCHEDULE

EQUIPMENT NO.	LOOP NO.	LOCATION
PUMP NO. 2	P–112	RVSS–112

PUMP NO. 2 SCHEMATIC DIAGRAM

DIAGRAM 2 –
NTS

NO.	DATE	REVISION
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-	-	-
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FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. MAGSIPOC
DRAWN: C. CASTEEL
CHECKED: T. MOHAMMED

SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

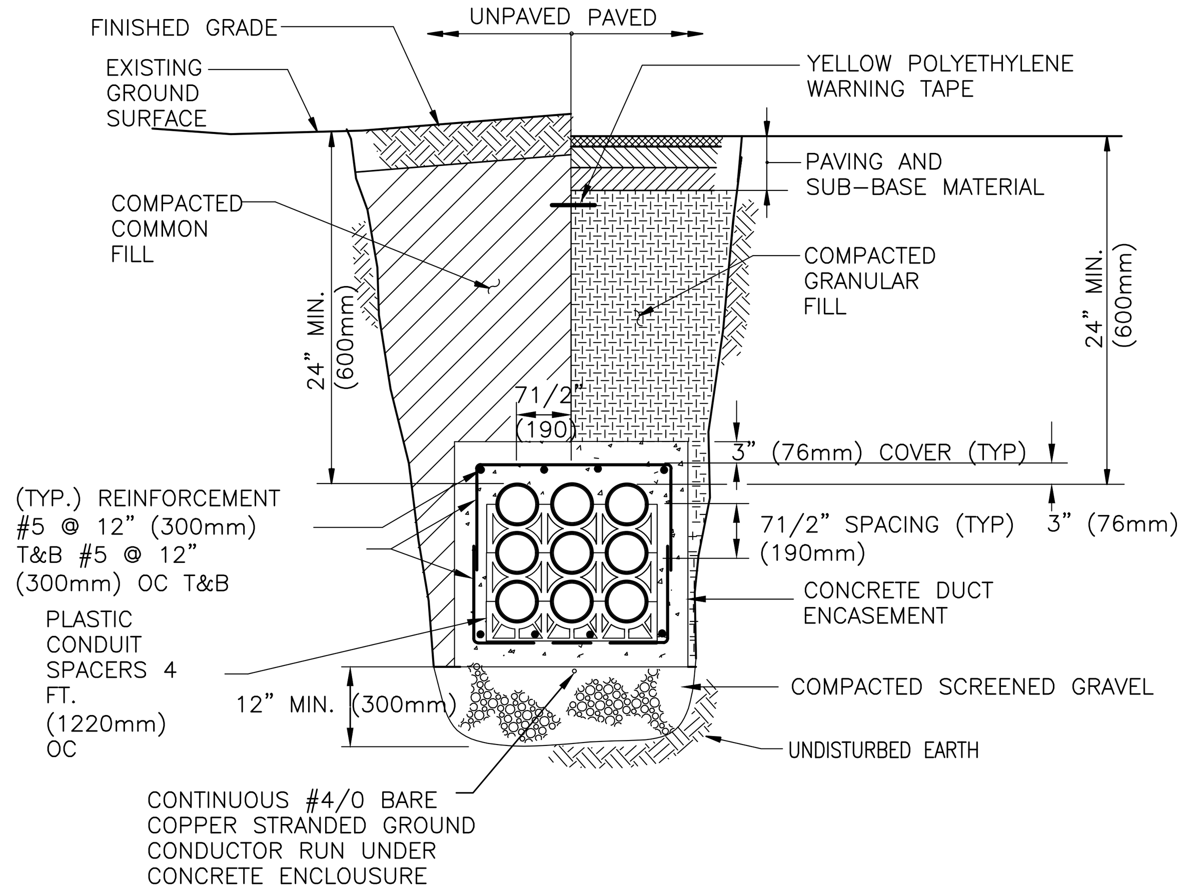
RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL
SCHEMATIC DIAGRAMS II

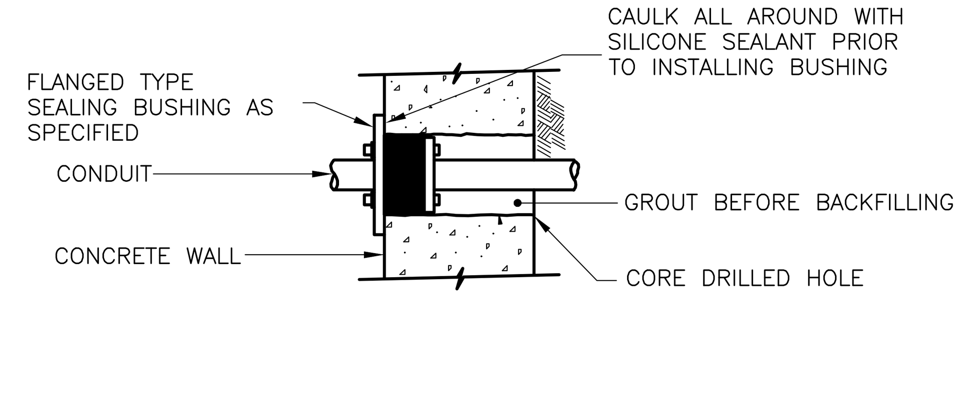
FILE NAME: E_11_SCHEMATIC_DIAGRAM_2.pdf

PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING E-11
TAX MAP:	027-1	SHEET 29 of 34



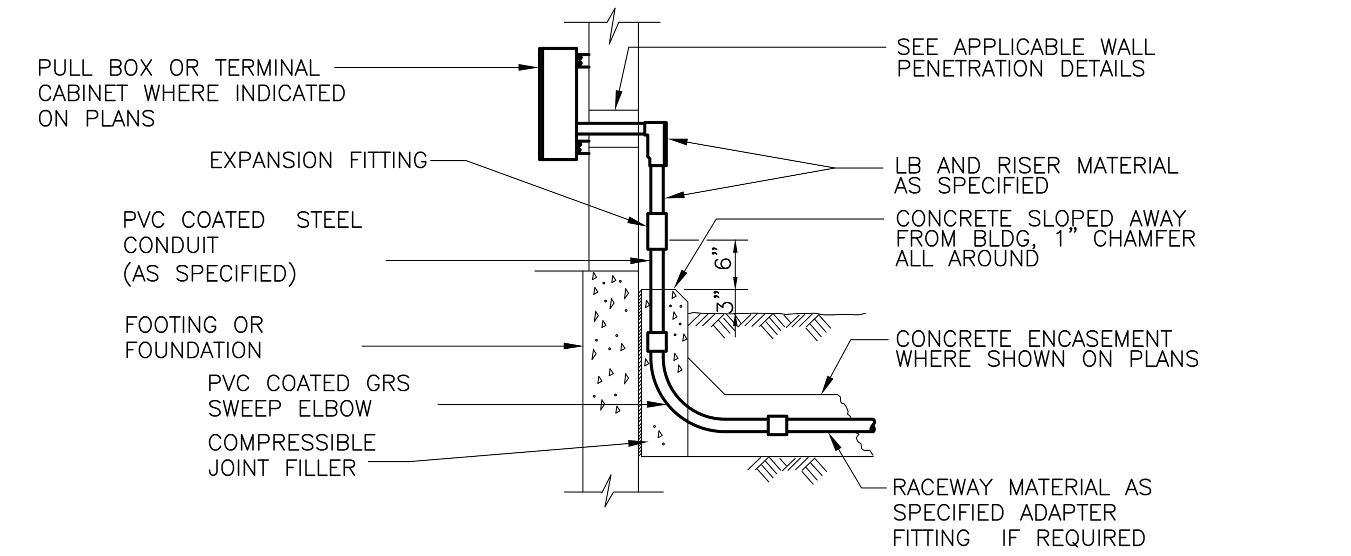
UNDERGROUND POWER DUCT BANK

DETAIL A
N.T.S.



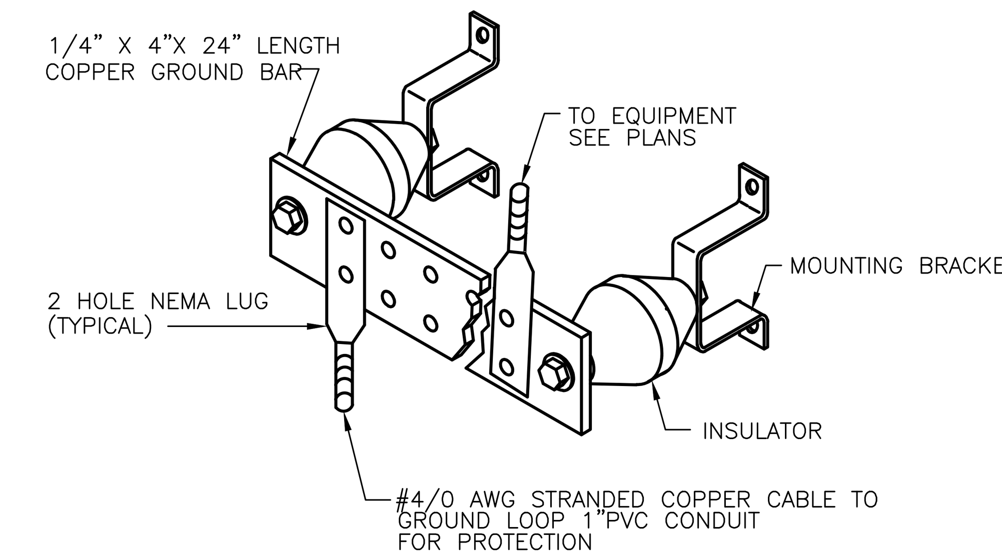
CONDUIT PENETRATION THROUGH EXISTING CONCRETE WALL

DETAIL B
N.T.S.



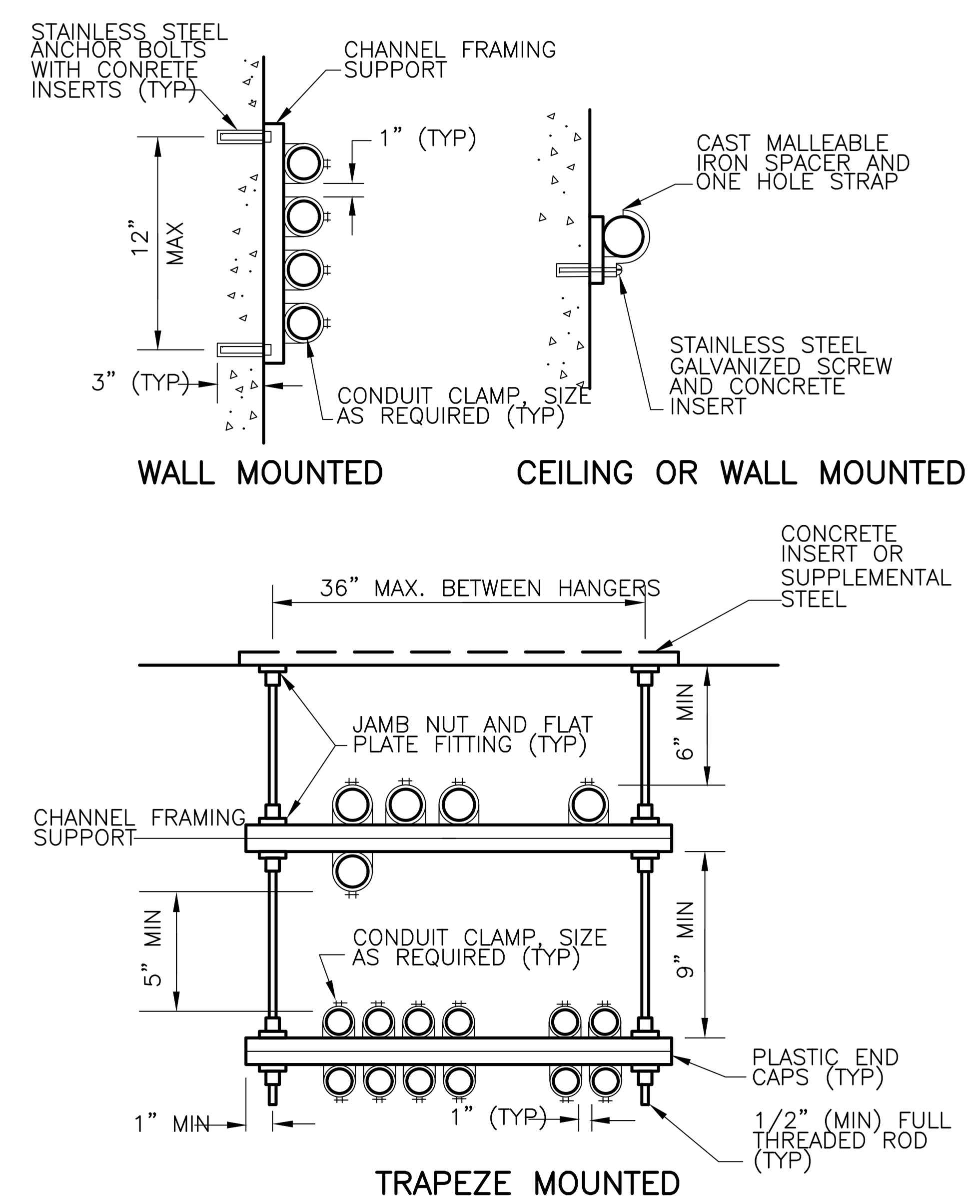
ABOVE GRADE CONDUIT PENETRATIONS THROUGH EXISTING BUILDING OR STRUCTURES

DETAIL C
N.T.S.



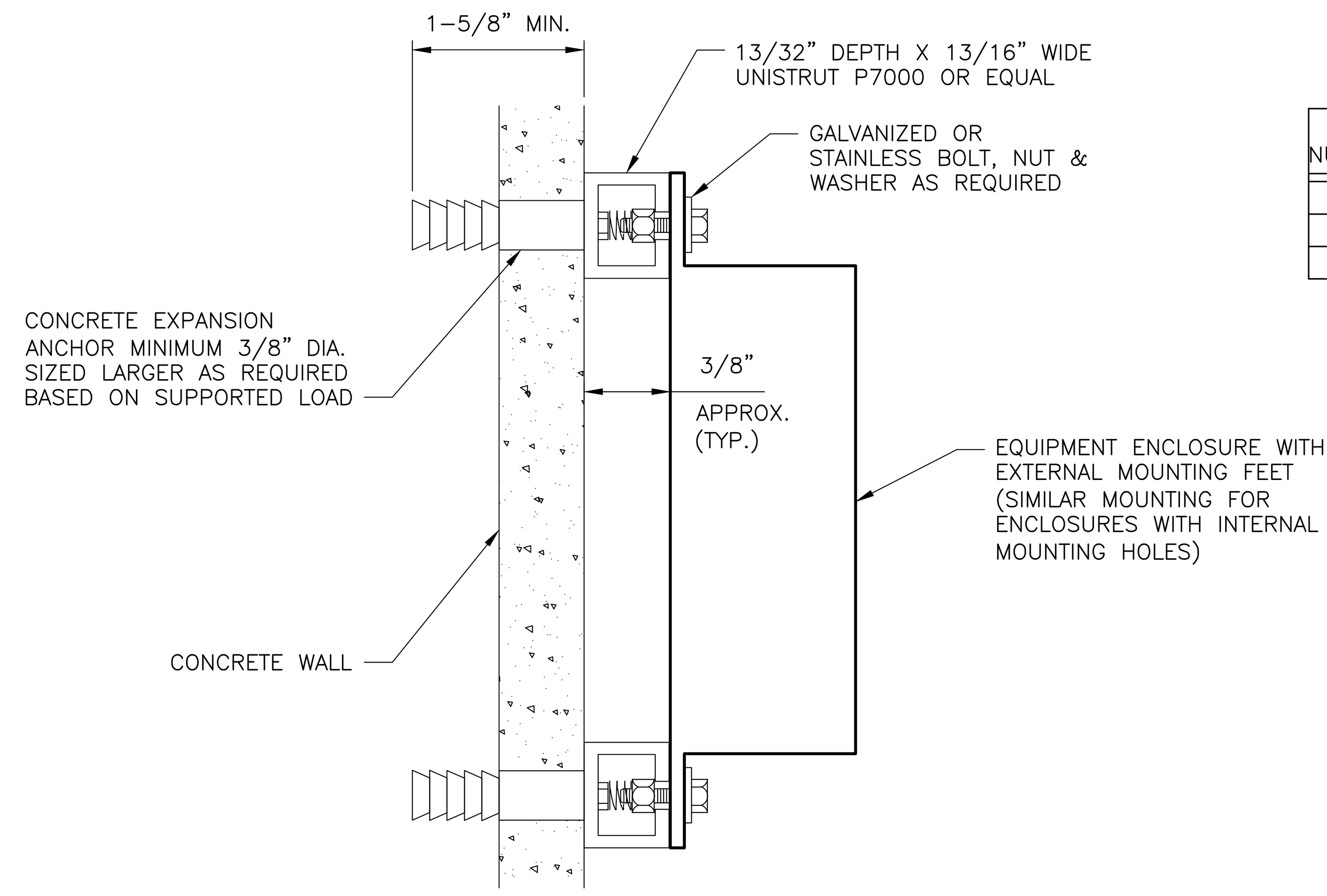
TYPICAL GROUND BAR

DETAIL D
N.T.S.



CONDUIT MOUNTING

DETAIL E
N.T.S.



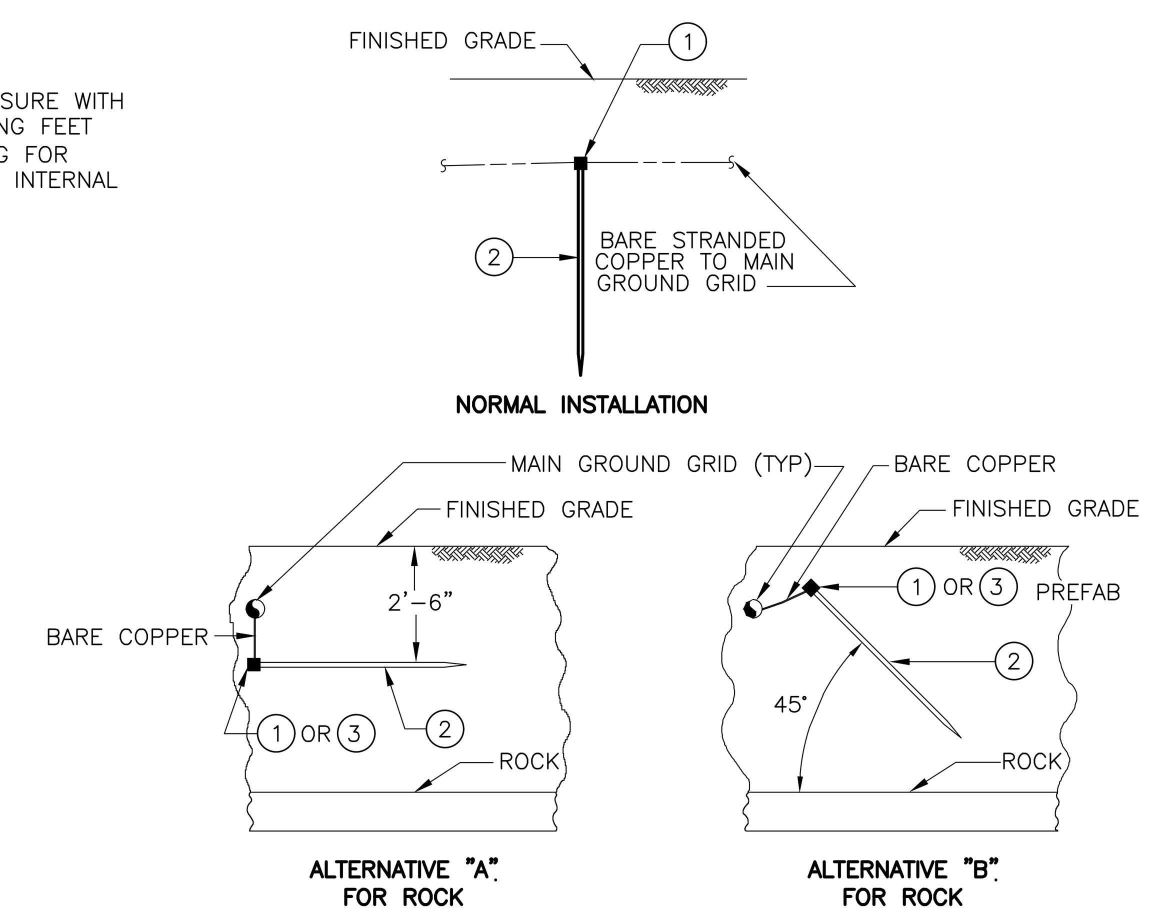
NOTE:

1. APPLICABLE FOR ALL NON CAST-IRON ENCLOSURES OR BOXES

EQUIPMENT ENCLOSURE MOUNTED ON CONCRETE WALL

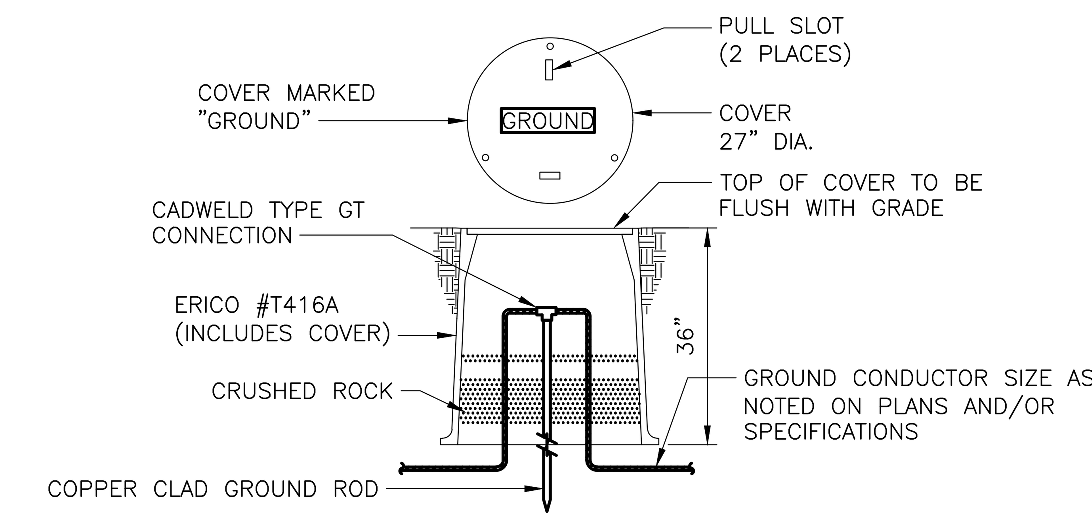
DETAIL F
N.T.S.

ITEM NUMBER	QUANTITY	DESCRIPTION	MANUFACTURER	CAT #
1	1	CADWELD CABLE TO ROD	CADWELD	TYPE GT
2	1	GROUND ROD, COPPER CLAD, 8 FT MIN.	ERITECH	
3	1	CADWELD CABLE TO ROD	CADWELD	TYPE GS



GROUND ROD INSTALLATIONS PER NEC 250-83(c) (3)

DETAIL G
N.T.S.

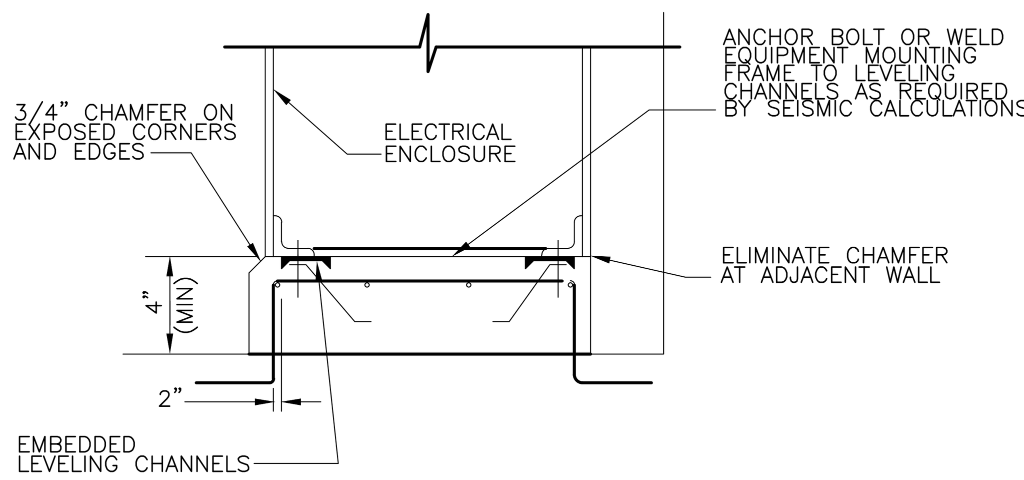


NOTE:

1. TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGERED HOLE

GROUND ROD TEST WELL

DETAIL H
N.T.S.

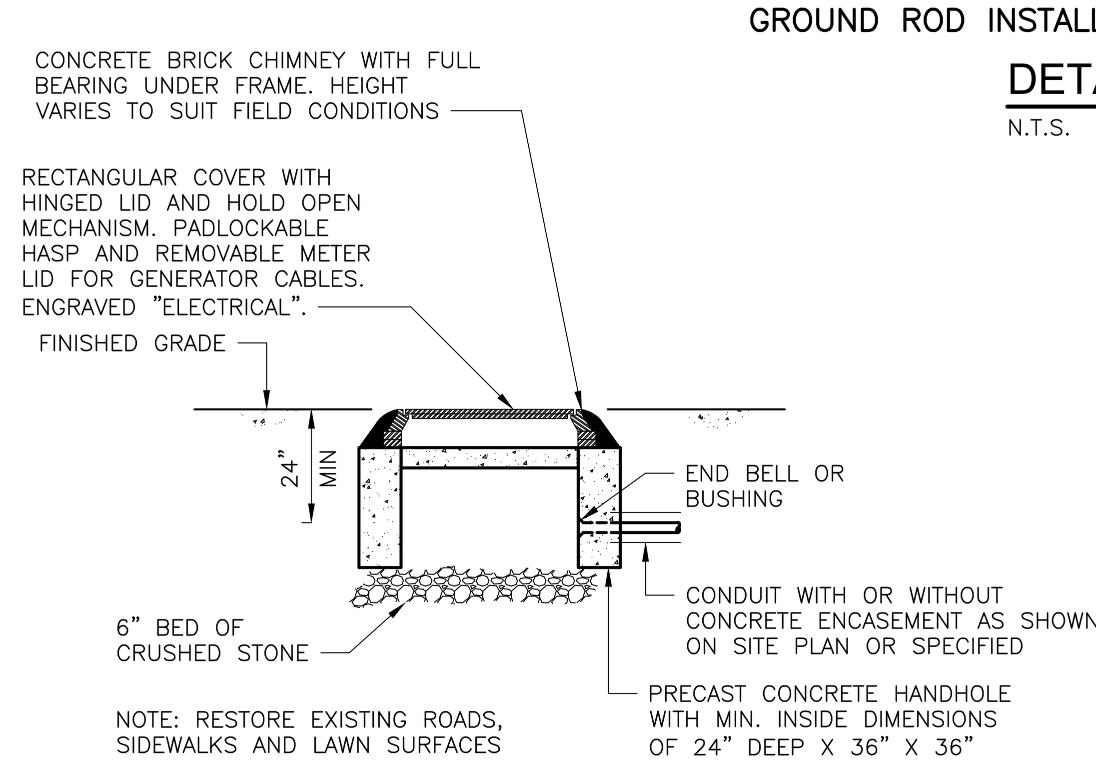


NOTE:

1. REFER TO STRUCTURAL DETAIL 'B' ON SHEET S-1 FOR ADDITIONAL INFORMATION.

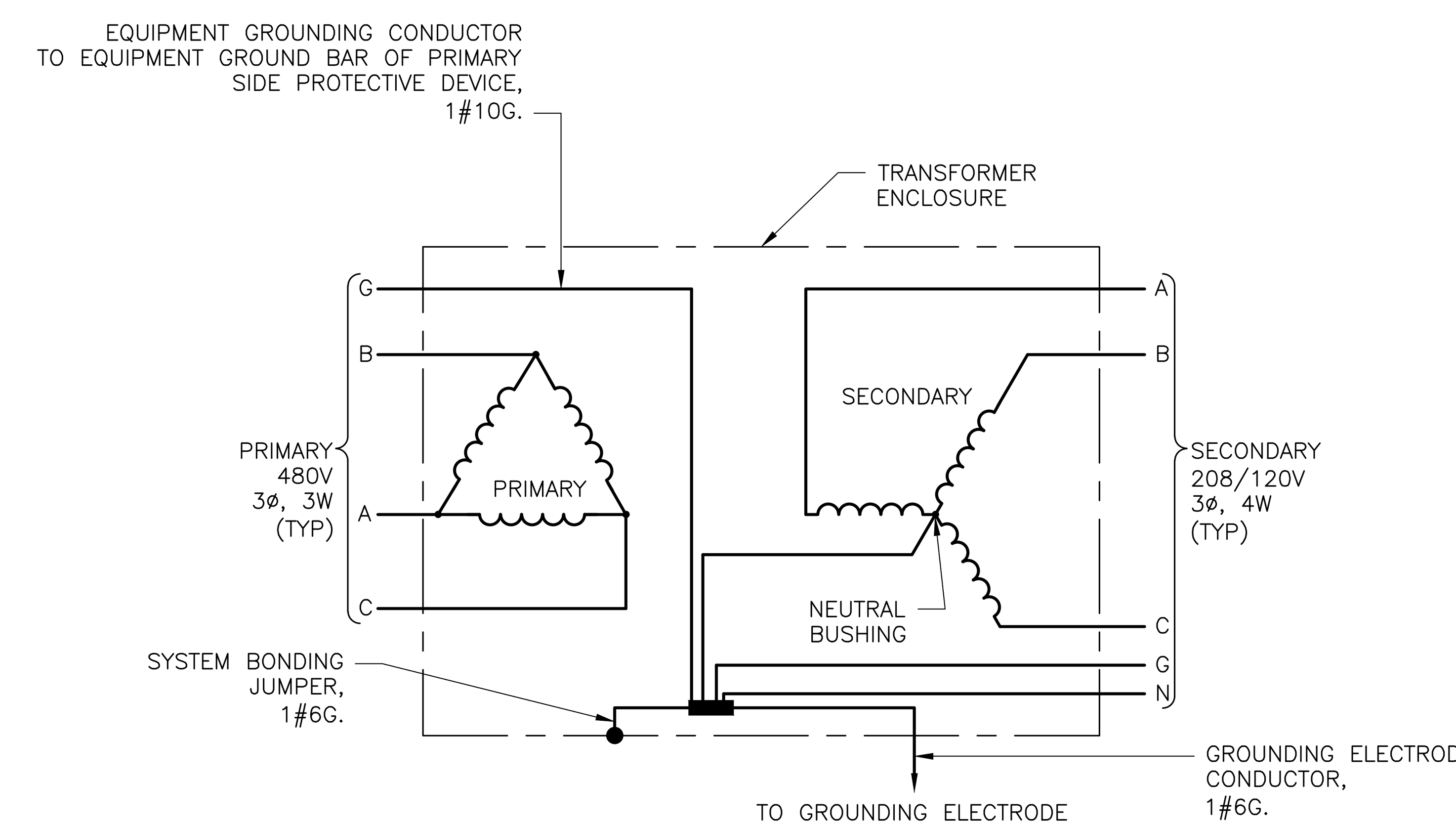
ELECTRICAL ENCLOSURE BASE

DETAIL I
N.T.S.



ELECTRICAL HANDHOLE

DETAIL J
N.T.S.



SEPARATELY DERIVED SYSTEM – 30KVA DELTA-WYE TRANSFORMER GROUNDING AND BONDING

DETAIL K
N.T.S.

COMMONWEALTH OF VIRGINIA
8/27/2024
ROBERT M. MAGSIPOC
Lic. No. 058225
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. MAGSIPOC DRAWN: C. CASTEEL CHECKED: T. MOHAMMED	NO.	DATE	REVISION	SCALE
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CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA

ELECTRICAL TYPICAL DETAILS I

FILE NAME: E_ED1_ELECTRIC_DETAILS_1.pdf		
PROJECT	DIVISION	DATE: 5-31-2024
0215A	041	DRAWING ED-1
TAX MAP: 027-1		SHEET 30 of 34

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

SHARED DISPLAY/ SHARED CONTROL				
PRIMARY CHOICE	SECONDARY CHOICE	COMPUTER SOFTWARE	DISCRETE	LOCATION AND ACCESSIBILITY
				FIELD MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				PRIMARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NORMALLY OPERATOR ACCESSIBLE
				SECONDARY CONTROL PANEL MOUNTED AND NOT NORMALLY OPERATOR ACCESSIBLE

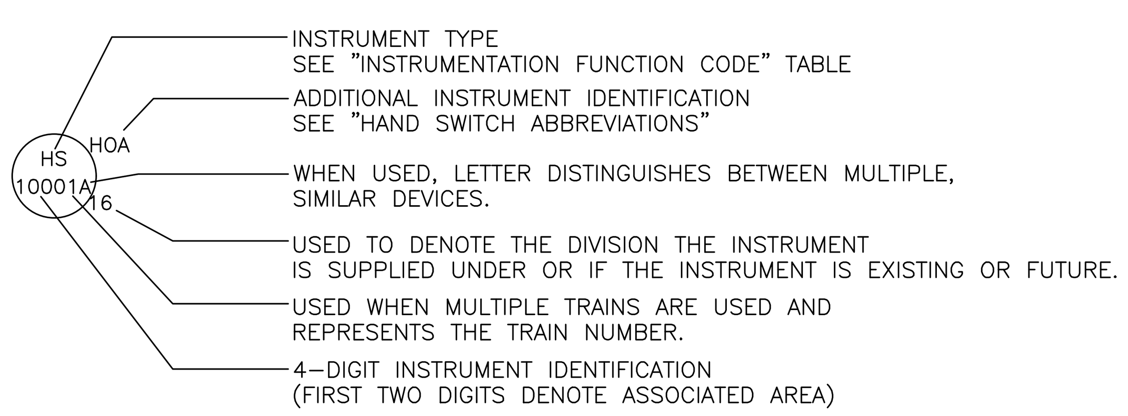
INSTRUMENTS SHARING COMMON HOUSING

PILOT LIGHT

MISCELLANEOUS SYMBOLS

- MCC — INDICATES INTERLOCK OR LOGIC IN A MOTOR CONTROL CENTER
- I — INDICATES GENERAL OR MISCELLANEOUS HARDWIRED INTERLOCK
- MS — MOTOR STARTER
- SCR — SILICONE CONTROL RECTIFIER
- VFD — VARIABLE FREQUENCY DRIVE
- M — MOTOR (VARIABLE FREQUENCY)
- M — MOTOR

TYPICAL TAG NUMBERS & DESIGNATION



HAND SWITCH ABBREVIATIONS

AO = AUTO/OFF
AM = AUTO/MANUAL
CM = COMPUTER/MANUAL
CL = COMPUTER/LOCAL
E-STOP = EMERGENCY STOP
FR = FORWARD/REVERSE
FOR = FORWARD/OFF/REVERSE
FS = FAST SLOW
FOS = FAST/OFF/SLOW
HOA = HAND/OFF/AUTO
LLS = LEAD/LAG/STANDBY
LOC = LOCAL/OFF/COMPUTER
LOR = LOCAL/OFF/REMOTE
LOS = LOCKOUT/STOP
LA = LOCAL/AUTO
LR = LOCAL/REMOTE
OC = OPEN/CLOSE
OCA = OPEN/CLOSE/AUTO
OO = ON/OFF
OOA = ON/OFF/AUTO
OSC = OPEN/STOP/CLOSE
RSL = RAISE/STOP/LOWER
SS = START/STOP
SOR = START/OFF/RESET

INSTRUMENTATION FUNCTION CODE

	FIRST LETTERS		SUCCEEDING LETTERS		
	COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
	MEASURED/INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSED
D	USER'S CHOICE	DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE				MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL, ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL, PROBE		
X	UNCLASSIFIED (1)	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED (1)	UNCLASSIFIED (1)	UNCLASSIFIED (1)
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENT SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED, FINAL CONTROL ELEMENT	

TABLE NOTES:
(1) WHEN USED SYMBOL OR SIGNAL LINE IS ANNOTATED.

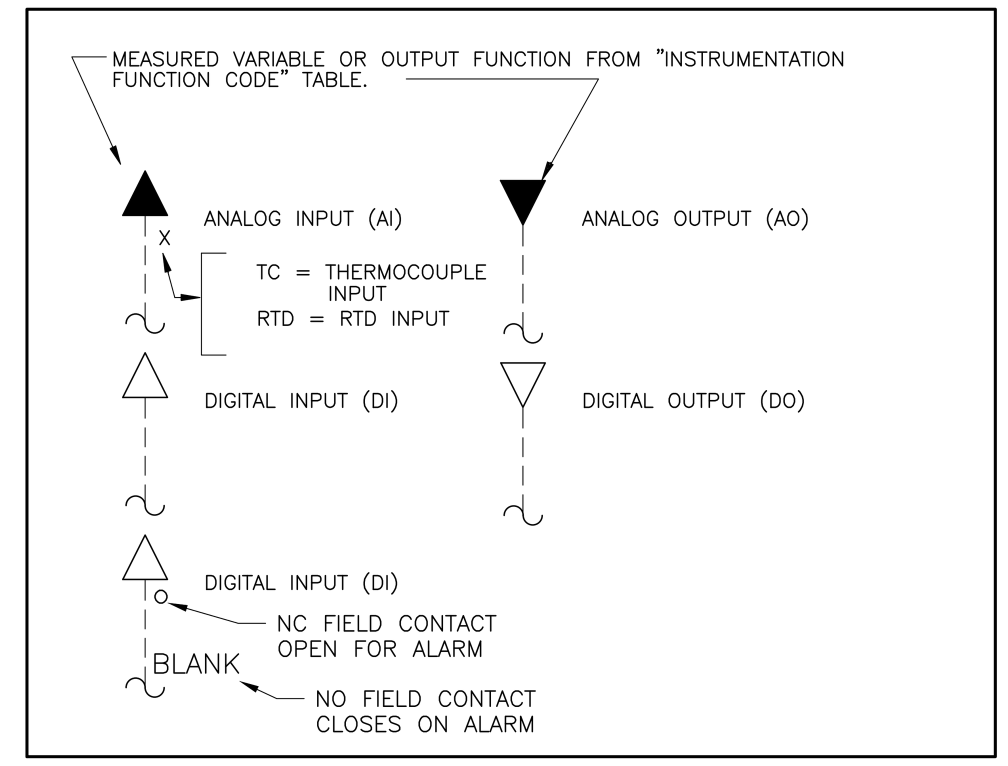
INSTRUMENT LINE SYMBOLS

- ELECTRICAL SIGNAL
- TELEPHONE SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
- ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
- PNEUMATIC SIGNAL
- CAPILLARY TUBE
- HYDRAULIC SUPPLY
- VENDOR SUPPLIED CABLE
- COMMUNICATION LINK – COPPER (HARDWIRED)
- COMMUNICATION LINK – FIBER OPTICS
- C — C — ETHERNET CABLE
- FO — FO — FIBER OPTIC (FO) CABLE OR PATCH CORD
- COAXIAL CABLE

ELECTRICAL / AIR SOURCES

- UPS — UPS POWERED ELECTRICAL SOURCE
- ES — ELECTRICAL SOURCE
- IA — INSTRUMENT AIR SOURCE

I/O SIGNALS



PRIMARY ELEMENTS

- FE — MAGNETIC FLOW METER
- FE — TURBINE OR PROPELLER FLOW METER
- FE — AVERAGING PITOT TUBE
- FE — ULTRASONIC FLOW METER
- FE — ROTAMETER
- FE — WEIR
- FE — ORIFICE PLATE
- FE — VENTURI TUBE
- FE — FLUME
- FE X — GENERAL INSERTION FLOW METER
  - IM=INSERT MAG
- FE — THERMAL MASS FLOW METER
- LE — FLOAT SWITCH
- LE — ULTRASONIC LEVEL SENSOR
- LE — RADAR LEVEL SENSOR
- LE — CAPACITANCE LEVEL SENSOR
- PI — PRESSURE GAUGE
- PDI — DIFFERENTIAL PRESSURE GAUGE
- TI — TEMPERATURE GAUGE
- AE X — GENERAL ANALYZER
  - pH=pH
  - DO=DISSOLVED OXYGEN
  - H2S=HYDROGEN SULFIDE
  - LEL=% LOWER EXPLOSIVE LIMIT
  - O2=OXYGEN
  - O3=OZONE
  - NH3=NITRATE
  - TURB=TURBIDITY
  - FL=FLUORIDE

GENERAL NOTES

1. THIS LEGEND APPLIES TO P&IDS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
2. IN GENERAL THIS LEGEND SHEET AND THE P&IDS ARE BASED ON THE INTERNATIONAL SOCIETY OF AUTOMATION (ISA) STANDARDS AND RECOMMENDED PRACTICES FOR INSTRUMENTATION AND CONTROL. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE PROJECT REQUIREMENTS.
3. SOME PROCESS ITEMS SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, ETC., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE P&IDS.
4. SEE ELECTRICAL AND MECHANICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS.
5. LIGHTER WEIGHT LINES, SHOWN AS ———, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE EXISTING. WEIGHTED LINES, SHOWN AS ——— OR HEAVIER ———, INDICATE EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE NEW. DASHED WEIGHTED LINES, SHOWN AS — — — —, INDICATED EQUIPMENT, INSTRUMENTS OR PIPING THAT ARE GROUPED AS A PACKAGE.

GENERAL ABBREVIATIONS

AI	ANALOG IN
AO	ANALOG OUT
CPU	CENTRAL PROCESSOR UNIT
DI	DIGITAL OR DISCRETE INPUT
DO	DIGITAL OUTPUT
FC	FAIL CLOSED
FO	FAIL OPEN OR FIBER OPTIC
HMI	HUMAN MACHINE INTERFACE
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NPW	NON-POTABLE WATER
NO	NORMALLY OPEN
PLC	PROGRAMMABLE LOGIC CONTROLLER
PW	PLANT WATER
RIO	REMOTE INPUT/OUTPUT
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE

COMMONWEALTH OF VIRGINIA
JOSHUA LEE GELMAN
Lic. No. 042508
6/19/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. GHAI
DRAWN: A. CARTER
CHECKED: M. CUSAC

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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

INSTRUMENTATION AND CONTROL
LEGEND AND ABBREVIATIONS I

FILE NAME: I001SYMB.DWG

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING I-1
TAX MAP: 027-1		SHEET 31 of 34

TYPICAL PIPE TAG NUMBERS & DESIGNATION

6"-RW-DI-L12W01

- FLOW DIRECTION
- LINE NUMBER (FIRST TWO DIGITS DENOTE ASSOCIATED AREA. IF "W" IS PRESENT, PIPE REMAINS WITHIN ASSOCIATED AREA. IF NOT PRESENT, THEN PIPE RUNS FROM AREA DENOTED BY FIRST TWO DIGITS TO AREA DENOTED BY SECOND TWO DIGITS)
- SPEC
- SERVICE
- SIZE

PIPE LINE SYMBOLS

- PIPE UNION
- FLEXIBLE BELLOWS TYPE COUPLING
- FLEXIBLE COUPLING (GENERAL SYMBOL)
- QUICK CONNECT TYPE COUPLING
- HOSE CONNECTION
- Y-STRAINER
- REDUCER/ENLARGER
- BLIND FLANGE
- CONTINUED PIPE
- CONCENTRIC FLANGE MOUNTED DIAPHRAGM SEAL
- THREADED DIAPHRAGM SEAL
- ANNULAR SEAL
- OPEN EQUIPMENT DRAIN
- DIFFUSER
- BASKET STRAINER
- FILTER
- PULSATION DAMPNER
- MAJOR PROCESS LINE
- MINOR PROCESS LINE
- DOUBLE WALLED PIPE
- E (S) — ELECTRIC (OR STEAM) TRACING
- PROCESS FLUID / DWG NO. / TO/FROM LOCATION — DRAWING CONTINUATION

GATE SYMBOLS

- SLUICE GATE (SLG)
- SLIDE GATE (SG)
- WEIR SLIDE GATE (WSG)
- BUTTERFLY GATE
- BULK HEAD GATE/STOP LOG

VALVE SYMBOLS

- GATE VALVE (GV)
- PLUG VALVE (PV)
- BUTTERFLY VALVE (BFV)
- BALL VALVE (BV)
- GLOBE VALVE (GLV)
- PINCH VALVE (PCHV)
- DIAPHRAGM VALVE (DV)
- SWING CHECK VALVE (CV)
- BALL CHECK VALVE (BCV)
- SOLENOID VALVE (SV)
- NEEDLE VALVE (NV)
- KNIFE VALVE (KNV)
- MUD VALVE (MV)
- PRESSURE REGULATING VALVE (PREGV)
- BACK PRESSURE REGULATING VALVE (BPV)
- DIFFERENTIAL PRESSURE REGULATING VALVE W/ EXTERIOR TAPS
- SELF-CONTAINED DIFFERENTIAL PRESSURE REGULATING VALVE
- SELF-CONTAINED DIFFERENTIAL PRESSURE REGULATING VALVE (SOLENOID OPERATED)
- PRESSURE RELIEF VALVE (PRV)
- VACUUM RELIEF VALVE (VRV)
- AIR-VACUUM RELEASE VALVE (AVRV)

VALVE ACTUATORS

- HAND (MANUALLY) OPERATED
- DIAPHRAGM, SPRING OPPOSED
- DIAPHRAGM, PRESSURE-BALANCED
- ROTARY MOTOR. (SHOWN TYPICALLY WITH ELECTRIC SIGNAL. MAY BE HYDRAULIC OR PNEUMATIC)
- SOLENOID
- ELECTROHYDRAULIC
- CYLINDER, SINGLE-ACTING, SPRING OPPOSED WITHOUT POSITIONER OR PILOT.
- CYLINDER, DOUBLE ACTING, WITHOUT POSITIONER OR PILOT
- EXAMPLE OF CYLINDER WITH POSITIONER
- ANY CYLINDER THAT IS ASSEMBLED WITH A PILOT SO THAT ASSEMBLY IS ACTUATED BY ONE CONTROLLED INPUT. PILOT MAY BE POSITIONER, SOLENOID VALVE, SIGNAL CONVERTER, etc.
- FLOAT ACTUATOR

TYPICAL EQUIPMENT TAG NUMBERS & DESIGNATION

P-1000-1A

- WHEN USED, LETTER DISTINGUISHES BETWEEN MULTIPLE, SIMILAR DEVICES.
- USED WHEN MULTIPLE TRAINS ARE USED AND REPRESENTS THE TRAIN NUMBER.
- EQUIPMENT IDENTIFICATION (FIRST TWO DIGITS DENOTE ASSOCIATED AREA)
- EQUIPMENT TYPE

PROCESS EQUIPMENT

PARTIAL LIST
ADDITIONAL SYMBOLS MAY BE SHOWN ON THE FLOW DIAGRAMS

- CENTRIFUGAL PUMP
- PLUNGER / POSITIVE DISPLACEMENT PUMP
- PROGRESSING CAVITY PUMP
- DIAPHRAGM METERING PUMP
- AIR OPERATED DIAPHRAGM PUMP
- ROTARY PUMP
- ROTARY BLOWER
- CENTRIFUGAL BLOWER
- BELT CONVEYOR
- SCREW CONVEYOR
- GRINDER
- MIXER
- SUBMERSIBLE PUMP
- WELL PUMP
- STATIC MIXER
- MANUAL SCREEN
- MECHANICAL SCREEN
- CALIBRATION COLUMN
- CLARIFIER

GENERAL NOTES

1. REFER TO SHEET I-1 FOR ADDITIONAL NOTES

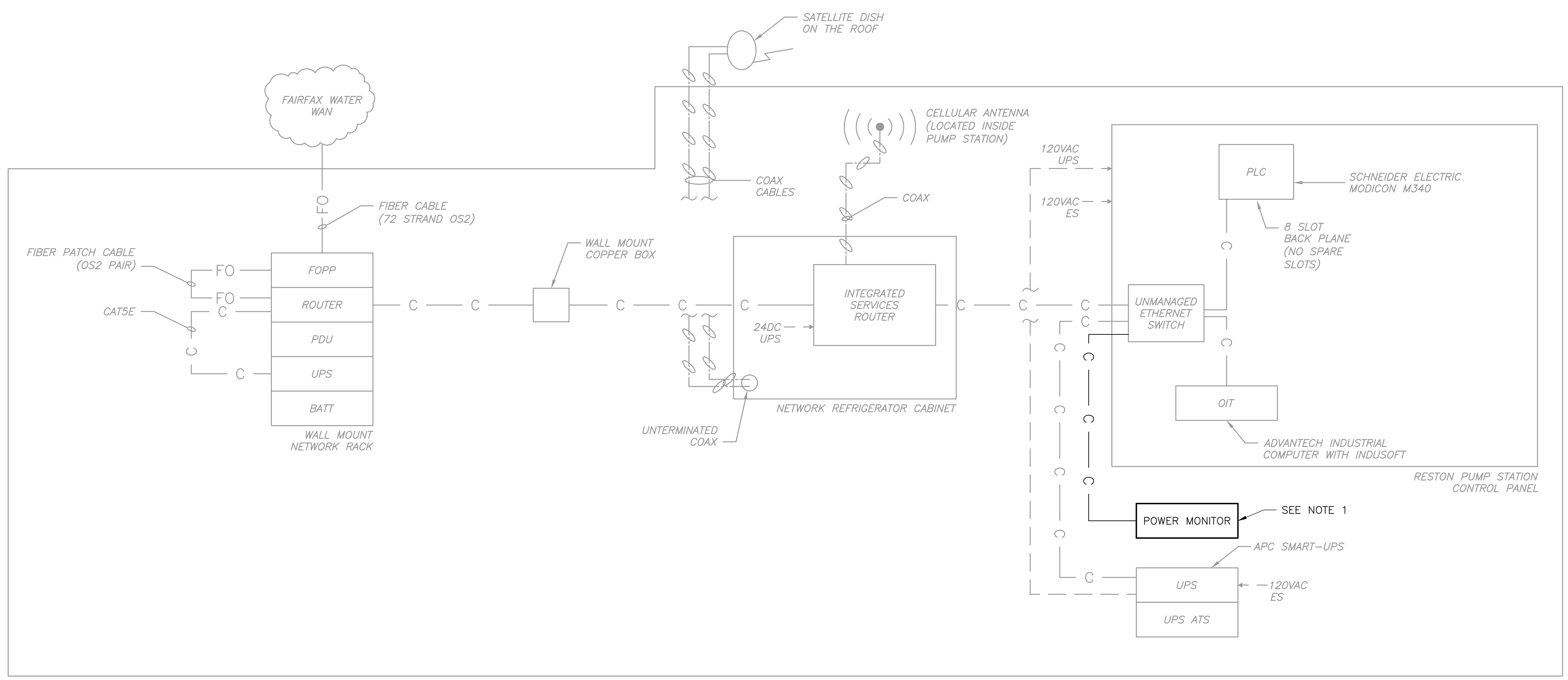
COMMONWEALTH OF VIRGINIA
JOSHUA LEE GELMAN
Lic. No. 042506
6/19/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER PLANNING & ENGINEERING DIVISION 8560 ARLINGTON BOULEVARD FAIRFAX, VA 22031	DESIGNED: R. GHAI DRAWN: A. CARTER CHECKED: M. CUSAC	NO. / DATE / REVISION (all entries: - / - / --)	SCALE	CDM Smith 10306 Eaton Place, Suite 220 Fairfax, VA 22030 Tel: (703) 691-6500

Fairfax Water
RESTON PUMP STATION ELECTRICAL UPGRADES

RESTON, VIRGINIA
INSTRUMENTATION AND CONTROL LEGEND AND ABBREVIATIONS II

FILE NAME: I002SYMB.DWG		
PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING I-2
TAX MAP: 027-1		SHEET 32 of 34



NOTES:

1. INTEGRATE POWER MONITOR INTO PLANT SCADA FOR MONITORING.

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. GHAI
DRAWN: A. CARTER
CHECKED: M. CUSAC

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

CONTROL SYSTEM ARCHITECTURE

FILE NAME: I003PIDT.DWG
PROJECT: 0215A
DIVISION: 041
DATE: 05-31-2024
DRAWING: I-3
TAX MAP: 027-1
SHEET: 33 of 34

COMMONWEALTH OF VIRGINIA
JOSHUA LEE GELMAN
Lic. No. 042508
6/19/2024
PROFESSIONAL ENGINEER

NOTES:

1. DISCONNECT VALVE POSITION ANALOG OUTPUT SIGNAL WIRING FROM FIELD TERMINAL BLOCKS AND REMOVE CABLE TO VALVE ACTUATOR.
2. CONNECT NEW PUMP SPEED ANALOG OUTPUT SIGNAL WIRING TO FIELD TERMINAL BLOCKS PREVIOUSLY OCCUPIED BY VALVE POSITION OUTPUT SIGNALS.
3. SIGNALS ORIGINATE FROM THE ATC WITHIN SWBD-1.
4. THERMOSTAT FURNISHED AND INSTALLED BY HVAC CONTRACTOR. CONDUIT AND WIRING FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

COMMONWEALTH OF VIRGINIA
JOSHUA LEE GELMAN
Lic. No. 042506
6/19/2024
PROFESSIONAL ENGINEER

FAIRFAX WATER
PLANNING & ENGINEERING DIVISION
8560 ARLINGTON BOULEVARD
FAIRFAX, VA 22031

DESIGNED: R. GHAI
DRAWN: A. CARTER
CHECKED: M. CUSAC

NO.	DATE	REVISION
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SCALE

CDM Smith
10306 Eaton Place, Suite 220
Fairfax, VA 22030
Tel: (703) 691-6500

Fairfax Water

RESTON PUMP STATION
ELECTRICAL UPGRADES

RESTON, VIRGINIA

PROCESS & INSTRUMENTATION DIAGRAM
PUMP STATION

FILE NAME: I004PIDI.DWG

PROJECT	DIVISION	DATE: 05-31-2024
0215A	041	DRAWING I-4
TAX MAP: 027-1		SHEET 34 of 34