PROJECT

CHARLOTTE AMALIE UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT (FEEDER 9A PHASE 3) ST. THOMAS, USVI

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OWNER:

Virgin Islands Water & Power Authority St. Thomas U.S. Virgin Islands

VIRGIN ISLANDS WATER AND POWER AUTHORITY

PROJECT LOCATION MAP:
FEEDER 9A - PHASE 3

ENLARGED PROJECT LOCATION MAP:
FEEDER 9A - PHASE 3

ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISH FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISH GRADE	KCMIL	THOUSAND CIRCULAR MILS
AHU	AIR HANDLING UNIT	MCP	MOTOR CIRCUIT PROTECTOR
AL	ALUMINUM	MISC	MISCELLANEOUS
ARCH	ARCHITECT	MLO	MAIN LUGS ONLY
ATC	AIR TERMINAL CHAMBER	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	N.C.	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	N.O.	NORMALLY OPEN
BIL	BASIC IMPULSE LEVEL	NEC	NATIONAL ELECTRICAL CODE
BLDG	BUILDING	NFSS	NON-FUSED SAFETY SWITCH
C	CONDUIT - RACEWAY	NGR	NEUTRAL GROUNDING RESISTOR
CC1	CLOSE COIL 1	NL	NIGHT LIGHT
CKT	CIRCUIT	NTS	NOT TO SCALE
C/L	CENTERLINE	P	POLE
COL	COLUMN	(PH1)	PHASE 1
CU	COPPER	(PH2)	PHASE 2
C/B	CIRCUIT BREAKER	PNL	PANEL OR PANELBOARD
CT	CURRENT TRANSFORMER	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	PWR	POWER
DN	DOWN	PT	POTENTIAL TRANSFORMER
EC	ELECTRICAL CONTRACTOR	PRIM	PRIMARY
ECB	ENCLOSED CIRCUIT BREAKER	(R)	TO BE REMOVED
EM	EMERGENCY	RTU	ROOF TOP UNIT
(EX)	EXISTING TO REMAIN	SA	SURGE ARRESTER
F	FUSE	SEC	SECONDARY
FA	FIRE ALARM	SP	SPARE
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SW	SWITCH
FACP	FIRE ALARM CONTROL PANEL	TC1	TRIP COIL 1
FBO	FURNISHED BY OTHERS	TC2	TRIP COIL 2
F/S	FUSED SWITCH	TEL	TELEPHONE
FT	FEET	V	VOLT
FU.	FUSES	W	WIRE
G	GROUND OR GROUNDING	WP	WEATHERPROOF
GRD	GROUND OR GROUNDING	WG	WITH WIREGUARD
KVA	KILOVOLT AMPERES	TRANSF	TRANSFORMER
KW	KILOWATTS	Ø	PHASE
LTG	LIGHTING	%Z	PERCENT IMPEDANCE
		VB	VISIBLE BREAK
		VFI	VACUUM FAULT INTERRUPTER

METHOD OF PROCEDURE ("M.O.P.")

WHERE CALLED FOR THROUGHOUT THE CONSTRUCTION DOCUMENTS, OR AS REQUESTED THROUGH THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL SUBMIT A M.O.P. FOR ANY ACTIVITY DEEMED BY THE OWNER/ENGINEER TO POTENTIALLY IMPACT UTILITY CUSTOMERS. CONTRACTOR TO RELEASE M.O.P. TO THE ENGINEER FOR REVIEW AND COMMENT A MINIMUM OF TWO WEEKS PRIOR TO THE SCHEDULED ACTIVITY. THE M.O.P. SHALL INCLUDE ITEMS SUCH AS, BUT NOT LIMITED TO:

1. SHORT DESCRIPTION OF ACTIVITY
2. PROPOSED SCHEDULE/ CALENDAR DAY(S) OF ACTIVITY
3. ESTIMATED START AND END TIME
4. IDENTIFICATION AND REQUIRED ACTION FOR CRITICAL PATH MILESTONES, INCLUDING OWNER DEPENDENCIES
5. LENGTH OF ANY PLANNED DOWNTIME OF LIVE POWER SYSTEMS
6. STEP BY STEP PROCEDURE WITH ITEMIZED TIME ESTIMATE FOR EACH MAJOR STEP
7. EMERGENCY BACK OUT PROCEDURE WHERE APPLICABLE
8. SAFETY EQUIPMENT AND/OR ANY OTHER SPECIAL SAFETY MEASURES TO BE TAKEN
9. IDENTIFY LEAD PERSONNEL INVOLVED, INCLUDING 24 HR. CONTACT INFORMATION
10. IDENTIFY REQUIRED TRADES TO PARTICIPATE AND TASKS TO BE PERFORMED

ELECTRICAL TESTING REQUIREMENTS

CONTRACTOR SHALL RETAIN THE SERVICES OF A NETA CERTIFIED TESTING AGENCY TO PERFORM THE FOLLOWING ELECTRICAL ACCEPTANCE TESTING:

ACCEPTANCE TESTING RESPONSIBILITIES

* SWITCHGEAR (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.1)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.1.A
  2. PROVIDE STANDARD ELECTRICAL TESTS IN ACCORDANCE WITH 7.1.B.
* MEDIUM VOLTAGE CABLES & ACCESSORIES (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.3.3)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.3.3.A
  2. PERFORM STANDRD ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2009 SECTION 7.3.3.B AND IEEE STANDARD 400.2
* TRANSFORMERS, LIQUID FILLED (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.2.2)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.2.2.A
  2. PERFORM STANDARD ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2013 SECTION 7.2.2.B AND IEEE STANDARD 400.2
  3. REFER TO SPECIFICATION 260800.01 "ELECTRICAL INSPECTION & TESTING" FOR ADDITIONAL INFORMATION.

OWNER FURNISHED EQUIPMENT:

THIS PROJECT INCLUDES OWNER FURNISHED EQUIPMENT. REFER TO ELECTRICAL EQUIPMENT SCHEDULE ON DRAWING #E400. FOR ALL OWNER FURNISHED EQUIPMENT THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:

1. RECEIVE EQUIPMENT AT THE RANDOLPH HARLEY POWER PLANT SITE IN ST. THOMAS UNLESS SPECIFICALLY NOTED OTHERWISE.
2. TRANSPORT EQUIPMENT, AS NEEDED, TO THE JOB SITE.
2. OFFLOAD EQUIPMENT AND SET IN PLACE IN ITS FINAL LOCATION
3. ANCHOR EQUIPMENT IN PLACE IN ACCORDANCE WITH DRAWINGS & MANUFACTURERS INSTALLATION INSTRUCTIONS/SHOP DWGS.
4. INSTALL ANY COMPONENTS THAT SHIPPED LOOSE IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.
5. PROVIDE VISUAL INSPECTION AND TESTS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
6. PROVIDE SUPPORT DURING START UP & TESTING SUCH AS RE-TORQUING, PHASE ROTATION CHECK, OPEN TRANSFORMER & SWITCHGEAR DOORS, ETC.

GENERAL CONSTRUCTION NOTES:

GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION WORK SHALL COMPLY WITH THE LATEST ADOPTED VERSION OF ALL RELEVANT CODES, REGULATIONS AND REQUIREMENTS INCLUDING FEMA, HUD, IBC, OSHA, NESC, NFPA 70, DPW, VISHPO, DPNR, CZM, FISH & WILDLIFE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ON SITE SAFETY AND SECURITY OF EMPLOYEES, SUBCONTRACTORS, OUTSIDE CONSULTANTS, OWNERS REPRESENTATIVE AND THE PUBLIC, FROM MOBILIZATION THRU CONTRACT CLOSEOUT. ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH THE LATEST OSHA REQUIREMENTS, AND ALL LOCAL AND FEDERAL AGENCIES.
3. THE CONTRACTOR MUST MAINTAIN A FULL SIZE SET OF THE LATEST SET OF WORKING DRAWINGS, AND SPECIFICATION, ON THE PROJECT JOBSITE AT ALL TIMES.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES, AND DEVICES AND ROAD CLOSURE PERMITS (WHERE REQUIRED) AND ASSOCIATED COSTS. THE CONTRACTOR SHALL REFER TO THE TRAFFIC CONTROL DRAWINGS AND SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.

COORDINATION/PROTECTION OF EXISTING UTLITIES AND STRUCTURES:

1. THE CONTRACT DRAWINGS INDICATE GENERAL LOCATIONS OF EXISTING UTILITIES BASED ON AVAILABLE DRAWINGS AND NON-INVASIVE FIELD SURVEYS. HOWEVER, PRECISE LOCATIONS, SIZES AND TYPES OF UTILITIES HAVE NOT BEEN CONFIRMED. THIS INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR BY MEANS OF GROUND PENETRATING RADAR (GPR), TEST PITS, AND CLOSE COORDINATION WITH DPW, VINGN AND OTHER COMMUNICATIONS CARRIERS, VIWAPA'S WATER DEPARTMENT, THE DEPARTMENT OF PUBLIC WORKS, AND WASTE MANAGEMENT.
2. THE CONTRACTOR SHALL AVOID INTERFERENCE WITH EXISTING UTILITIES TO THE EXTENT THAT IS PRACTICAL. IF IT IS DETERMINED BY THE CONTRACTOR THAT AN EXISTING UTILITY MUST BE REWORKED/REROUTED IN ORDER TO ACCOMMODATE THE NEW WORK, WRITTEN APPROVAL FROM VIWAPA, THE PROJECT MANAGEMENT COMPANY, AND THE OWNER OF THE EXISTING UTILITY IS REQUIRED, PRIOR TO PERFORMING ANY OF THE RELOCATION WORK. ALL REROUTED UTLITIES MUST BE RECONNECTED AND PLACED BACK INTO SERVICE.
3. THE CONTRACTOR IS RESPONSIBLE TO PROTECT EXISTING UTILITIES, AND STRUCTURES, PRIOR TO PERFORMING EXCAVATION. WHERE NEWLY PROPOSED DUCT BANKS ARE TO CROSS BELOW EXISTING WATER, SANITARY, COMMUNICATIONS DUCTS, ELECTRIC DUCTS, OR STORM SEWER PIPING OR DRAINAGE, THE EXISTING UTILITY MUST BE PROPERLY PROTECTED AND SUPPORTED AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE UTILITY, AND UTILIZING MEANS AND METHODS AS APPROVED BY THE PROJECT MANAGEMENT TEAM.
4. WHERE POSSIBLE AND PRACTICAL, ALL NEW ELECTRICAL DUCT BANKS RUNS SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 5'-0" AND VERTICAL SEPARATION OF 18" FROM FROM POTABLE WATER LINES. MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 2'-0" AND VERTICAL SEPARATIION OF 12" FROM ALL OTHER UTILITIES. WHERE A MIMUM OF 12" VERTICAL SEPARATION CANNOT BE MAINTAINED, CONCRETE ENCASEMENT OF THE PROPOSED DUCT BANK IS REQUIRED AND WRITTEN APPROVAL OF THE PROJECT MANAGER IS REQUIRED.
5. WHERE NECESSARY, THE CONTRACTOR SHALL UTILIZE TEMPORARY RETAINING STRUCTURES TO PROTECT ADJACENT STRUCTURES, AND UTILITIES DURING CONSTRUCTION.
6. ALL EXCAVATION IN CLOSE PROXIMITY TO EXISTING UTLITIES SHALL BE PERFORMED BY HAND IN ORDER TO DETERMINE THE PRECISE UTILITY LOCATION, PRIOR TO MACHINE EXCAVATION.
7. ANY EXISTING UTILITIES THAT ARE DAMAGED BY THE CONTRACTOR DURING THE CONSTRUCTION PROCESS SHALL BE REPAIRED AND FULLY RESTORED AND PLACED BACK INTO SERVICE, AT THE CONTRACTORS EXPENSE. ALL REPAIRS SHALL BE CLOSELY COORDINATED WITH THE APPROPRIATE UTILITY COMPANY AND THE PROJECT MANAGEMENT TEAM. ALL DAMAGED UTILITIES MUST BE RESTORED AND PLACED BACK INTO SERVICE AS QUICKLY AS POSSIBLE IN ORDER TO MITIGATE THE DURATION OF THE INTERRUPTION.

GENERAL ELECTRICAL NOTES

1. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
2. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH LATEST VERSION OF THE NESC, NEC AND VIWAPA STANDARDS.
3. ALL ELECTRICAL EQUIPMENT, INCLUDING, BUT NOT LIMITED TO CONDUIT, WIRE, BOXES, AND FITTINGS, SHALL BE NEW AND FREE OF DEFECTS, SHALL BEAR THE THE UL LABEL, AND SHALL MEET NEMA AND ANSI STANDARDS.
4. ALL WORK AND MATERIALS SHALL BE GUARANTEED FREE FROM DEFECTS FOR A MINIMUM PERIOD OF ONE YEAR UNLESS NOTED OTHERWISE. THE WARRANTY PERIOD SHALL BEGIN AT THE DATE OF SUBSTANTIAL COMPLETION OF WORK UNLESS NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS.
5. ELECTRICAL CONTRACTOR MUST SUBMIT A METHOD OF PROCEDURE "MOP" FOR ALL POWER TRANSITIONS AND SHUTDOWNS. MOPS WILL BE REVIEWED & APPROVED BY THE ENGINEER AND VIWAPA. REFER TO "MOP" REQUIREMENTS ON THIS DRAWING.
6. CONTRACTOR SHALL LOCATE ALL HANDHOLES, SWITCHGEARS, AND TRANSFORMERS VIA GPS COORDINATES ON RECORD DRAWINGS.
7. CONTRACTOR SHALL PROVIDE AUTOCAD GENERATED AS BUILT PLANS TO SHOW ACTUAL DUCT BANK AND HANDHOLE LOCATIONS. CONTRACTOR SHALL PROVIDE GPS LOCATIONS OF DUCT BANKS ON AS BUILT PLANS. GPS LOCATIONS SHALL BE INDICATED EVERY 25'-0" ON PLANS. USE THE CENTER OF THE DUCT BANK TO INDICATE THE GPS LOCATIONS.

EARTHWORK

1. THE CONTRACTOR SHALL ENSURE THAT ALL TEMPORARY EROSION & SEDIMENT CONTROL, DUST CONTROL MEASURES, AND POLLUTION CONTROL MEASURES ARE IN PLACE PRIOR TO PERFORMING ANY EXCAVATION WORK. ALL TEMPORARY CONTROLS MEANS AND METHODS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND ALL LOCAL AND FEDERAL AGENCY REQUIREMENTS.
2. THE CONTRACTOR SHALL ENSURE THAT ALL TEMPORARY TREE AND PLANT PROTECTION MEASURES ARE IN PLACE PRIOR TO PERFORMING ANY EXCAVATION WORK. THE CONTRACTOR SHALL SUBMIT A TREE PROTECTION PLAN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND EHP REQUIREMENTS, FOR REVIEW AND APPROVAL.
3. THE CONTRACTOR SHALL LOCATE AND MARK OUT ALL PROPOSED MANHOLES & HANDHOLES, AND MARK OUT ALL PROPOSED DUCT BANK STATION NUMBERS (EVERY 50'-0") PRIOR TO PERFORMING ANY EXCAVATION WORK. THE MARKED LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE PROJECT MANAGEMENT TEAM PRIOR TO EXCAVATION.
4. THE CONTRACTOR SHALL EMPLOY DEWATERING METHODS WHERE NECESSARY, AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGEMENT TEAM WHEN DEWATERING METHODS ARE REQUIRED. ALL GROUND WATER REMOVED FROM EXCAVATED TRENCHES, MANHOLES AND HANDHOLES MUST BE DISCHARGED IN ACCORDANCE WITH LOCAL AND FEDERAL REGULATORY AGENCIES. DISCHARGES TO STORM DRAINS MUST BE PROPERLY FILTERED.
5. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGEMENT TEAM WHEN "ROCK" IS ENCOUNTERED DURIGN THE EXCAVATION PROCESS. REFER TO THE CONTRACT DOCUMENTS FOR THE DEFINITION OF "ROCK" AS IT RELATES TO THIS PROJECT.
6. AN ONSITE "PRE-EXCAVATION" CONFERENCE IS REQUIRED, AS DESCRIBED IN THE PROJECT SPECIFICATIONS PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
7. THE CONTRACTOR SHALL PREPARE "PRE-EXCAVATION" PHTOGRAPHS, AND/OR VIDEO TAPES, AS DESCRIBED IN THE PROJECT SPECIFICATIONS.
8. EXCEPT WHERE OTHERWISE INDICATED IN THE CONTRACT BOOK SPECIFICATIONS, BACKFILL SHALL BE COMPACTED IN 6" MAXIMUM LIFTS. BACKFILL SHALL BE VOID OF ALL FOREIGN DEBRIS. COMPACTION SHALL BE TO 95% DENSITY OF THEORETICAL DRY DENSITY.
9. TRENCH PROTECTION: THE CONTRACTOR SHALL INSTALL AND MAINTAIN SUITABLE TRENCH PROTECTION, INCLUDING BUT NOT LIMITED TO SHEETING AND BRACING, TO ENSURE SAFETY OF PERSONNEL OR THE PUBLIC, AND TO PREVENT EROSION, CAVING, OR LOSS OF GROUND. WHERE STRUCTURAL TRENCH PROTECTION IS NECESSARY, DETAILS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL, SIGNED & SEALED BY A USVI LICENSED CIVIL, STRUCTURAL OR GEOTECHNICAL ENGINEER.
10. ALL EXPOSED TRENCHES, MANHOLES, AND HANDHOLES MUST BE COMPLETETY COVERED WITH SOLID STEEL PLATING AT THE END OF EACH CONSTRUCTION DAY, IN ORDER TO ENSURE PROTECTIONS TO THE PUBIC AND TO PREVENT UNAUTHORIZED ACCESS.
11. PRIOR TO EXCAVATION, EXISTING PAVED ROADWAYS & DRIVEWAYS, SHALL BE NEATLY SAW CUT. THE USE OF JACK HAMMERS IS PROHIBITED FOR THIS PURPOSE.
12. THE CONTRACTOR SHALL REMOVE AND REPLACE, OR COMPLETELY REPAIR, ALL CURBS, SIDEWALKS, PAVED AREAS, TREES, PLANTS, GRASS AREAS, ETC. THAT ARE AFFECTED DURING THE EXCAVATION PROCESS. REFER TO CONTRACT SPECIFICATIONS AND DETAILS ON THE CONTRACT DRAWINGS FOR SPECIFIC REQUIREMENTS.

SCHEDULE OF SPECIAL INSPECTIONS:
SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE TABLE BELOW.

SPECIAL INSPECTION	FREQUENCY	STANDARD
SOILS:		GEOTECHNICAL ENGINEERING REPORT; IBC 1705.6
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	PERIODIC	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAIS.	PERIODIC	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	PERIODIC	
CONCRETE:		
1. INSPECTION OF REINFORCING STEEL AND PLACEMENT.	PERIODIC	ACI 318: 3.5, 7.1-7.7
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, ITEM 5B.		AWS D1.4; ACI 318: 3.5.2
3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE, PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	CONTINUOUS	ACI 318: 8. 1.3, 21.2.8; IBC 1908.4, 1908.S
4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE.	PERIODIC	ACI 318: 3.8.6, 8.1.3, 21.2.8; IBC 1908.S
5. VERIFYING USE OF REQUIRED DESIGN MIX.	PERIODIC	ACI 318: CH. 4, 5.2-5.4; IBC 1905
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	CONTINUOUS	ASTM C172; ASTM C31; ACI 318: 5.6, 5.8
7. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	ACI 318: 5.9, 5.10:
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	PERIODIC	ACI 318: 5.11-5.13
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC	ACI 318: 6.1.1
ADHESIVE ANCHORS:		
1. DURING PLACEMENT OF ADHESIVE ANCHORS EMBEDDED WITH ADHESIVE (AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS) IN CONCRETE:		
a. SIZE AND EMBEDMENT OF ANCHORS.	CONTINUOUS	
b. ANCHORS INSTALLED PER MANUFACTURERS RECOMMENDATIONS.	CONTINUOUS	

ELECTRICAL SYMBOLS

ONE LINE DIAGRAM	
	TRANSFORMER
	SWITCH, AIR INSULATED UNLESS NOTED OTHERWISE
	FUSED CUTOUT
	FUSE
	SURGE ARRESTER
600:5A	CURRENT TRANSFORMER; 3 INDICATES QUANTITY; 600:5A INDICATES PRIMARY/SECONDARY RATINGS
7E2:120V	POTENTIAL TRANSFORMER; 2 INDICATES QUANTITY; 13,200:120V INDICATES PRIMARY/SECONDARY RATINGS
	LIVE LINE INDICATOR
M	METER OR MOTOR OPERATOR
	GROUND
	DELTA -CONNECTED WINDING
	WYE-CONNECTED WINDING
	GROUNDED WYE-CONNECTED WINDING
	DEAD FRONT CABLE TERMINATION/CONNECTION
	PREPARED DEAD FRONT CONNECTION
	LIVE FRONT CABLE TERMINATION/CONNECTION
	PREPARED LIVE FRONT CONNECTION
A	ELECTRICAL EQUIPMENT TAG. IDENTIFIED ON EQUIPMENT SCHEDULE
1	RACEWAY TAG FOR MEDIUM VOLTAGE FEEDER; IDENTIFIED ON MEDIUM VOLTAGE RACEWAY SCHEDULE
	COLD SHRINK MEDIUM VOLTAGE SPLICE
	GROUNDED DELTA-CONNECTED WINDING
VFI	VACUUM FAULT INTERRUPTER

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Client:
Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:
Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 3), St Thomas, USVI

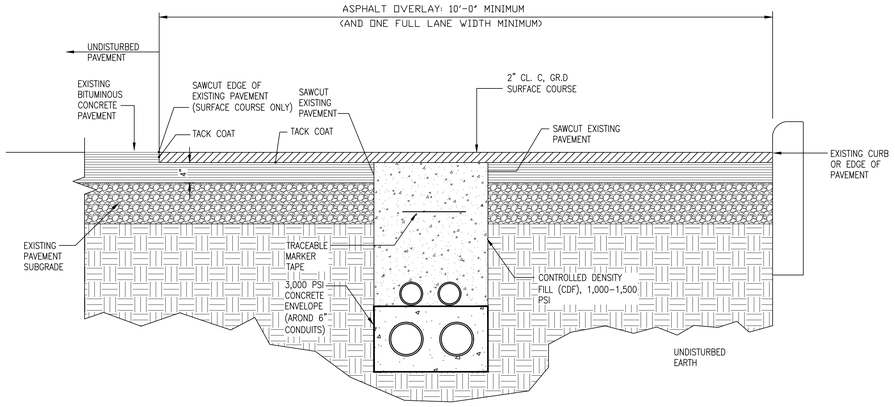
Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

Drawn By: PJB
Chkd By: PJB
Date: 06.12.2023
Scale: As Noted
Project Number: VIT 20131

Drawing Title:
GENERAL CONSTRUCTION NOTES & ABBREVIATIONS

Drawing Number:
STT-20131-9A3-G-100

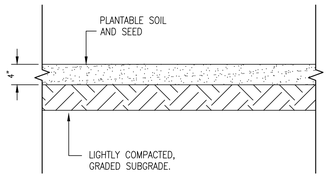


BITUMINOUS PAVEMENT RESTORATION DETAIL

SCALE: 1"=1'-0"

NOTES:

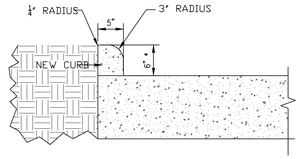
1. TACK COAT SHALL BE USED BETWEEN ALL ASPHALT LAYERS AT APPLICATION RATE OF 0.05 GAL./SY.
2. RE-STRIPE ALL PAVEMENT MARKINGS WITHIN OVERLAY WIDTH.
3. IF FORMS ARE REQUIRED DUE TO EXISTING SOIL CONDITIONS, THE EXTENT OF EXCAVATION SHALL BE WIDER THAN THE DUCT BANK.



LOAN & SEED DETAIL

NTS

NOTE:
1. LOAM SHALL BE FRIABLE TOPSOIL STRIPPED FROM ON-SITE.
2. LOAM SHALL BE FREE FROM REFUSE, STONES LARGER THAN 2 INCH AND ROOTS LARGER THAN 1 INCH.



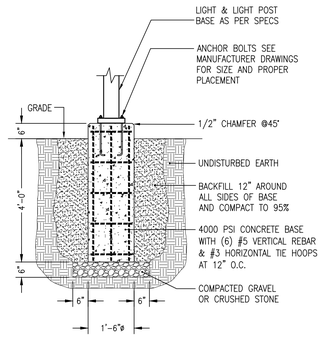
CONCRETE CURB REPLACEMENT

NTS

NOTE:
1. REPLACE CONCRETE CURB WITH A MINIMUM OF 48" SECTIONS.
2. CURB DIMENSIONS ARE INDICATED AS 5" WIDE AND 6" HIGH FOR REFERENCE. CONTRACTOR SHALL MATCH THE EXISTING CURB SIZE.

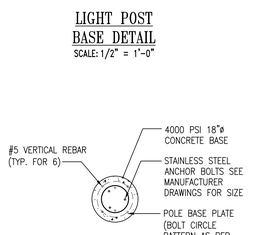
EXCAVATION AND ROAD RESTORATION NOTES

1. ALL UTILITIES MUST BE IDENTIFIED AND MARKED PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
2. ALL KNOWN UTILITY COMPANIES MUST BE CONTACTED, AND COORDINATED WITH, PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
3. ALL DRAINAGE CROSSINGS MUST BE IDENTIFIED / COMFIRMED PRIOR TO EXCAVATION. KNOWN DRAINAGE LOCATIONS ARE INDICATED ON THE DRAWINGS.
4. BITUMINOUS PAVEMENT RESTORATIONS SHALL BE FULL LANE WIDTH, AND 10'-0" MINIMUM WIDTH.
5. CONTRACTOR SHALL ENSURE THAT THERE IS ADEQUATE SPACE BETWEEN CONDUITS AND TRENCH WALL SUCH THAT THE CONCRETE WILL COMPLETELY ENCASE THE CONDUIT WITHOUT ANY VOIDS. USE CONCRETE VIBRATORS AS REQUIRED.



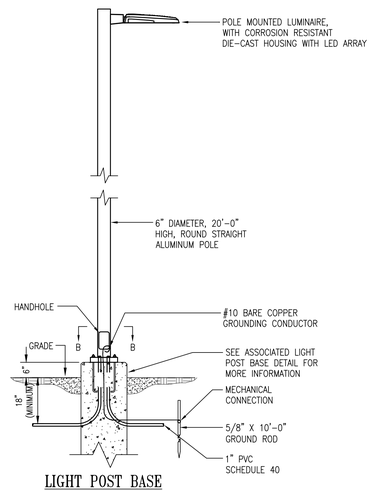
LIGHT POST BASE DETAIL

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



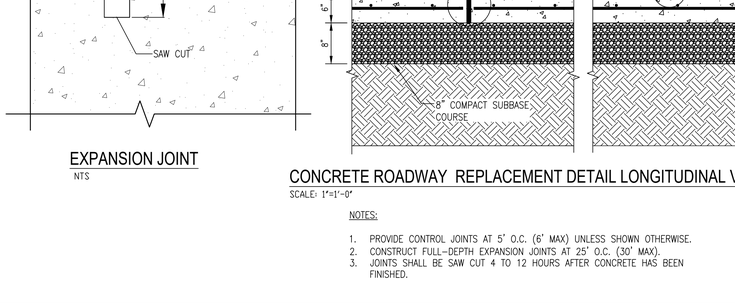
SECTION B-B

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



LIGHT POST BASE DETAIL "SL2"

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

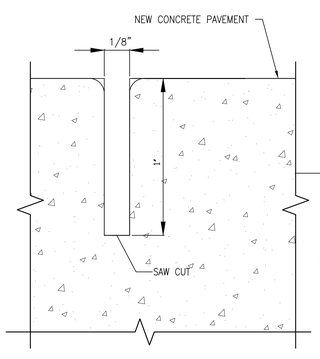


CONCRETE / ASPHALT ROADWAY REPLACEMENT DETAIL SECTION VIEW

SCALE: 1"=1'-0"

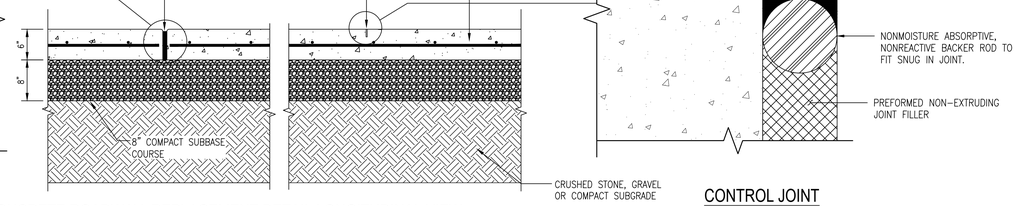
NOTE:

1. IF FORMS ARE REQUIRED DUE TO EXISTING SOIL CONDITIONS, THE EXTENT OF EXCAVATION SHALL BE WIDER THAN THE DUCT BANK.



EXPANSION JOINT

NTS

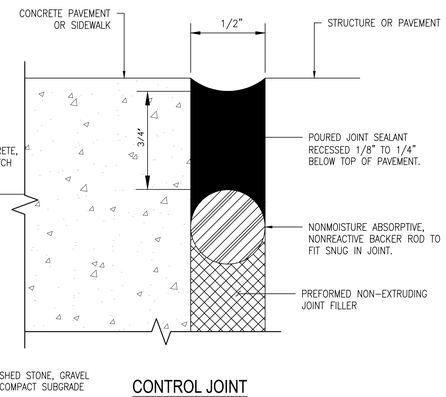


CONCRETE ROADWAY REPLACEMENT DETAIL LONGITUDINAL VIEW

SCALE: 1"=1'-0"

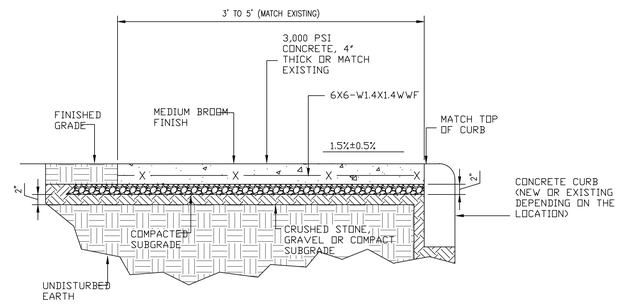
NOTES:

1. PROVIDE CONTROL JOINTS AT 5' O.C. (6' MAX) UNLESS SHOWN OTHERWISE.
2. CONSTRUCT FULL-DEPTH EXPANSION JOINTS AT 25' O.C. (30' MAX).
3. JOINTS SHALL BE SAW CUT 4 TO 12 HOURS AFTER CONCRETE HAS BEEN FINISHED.



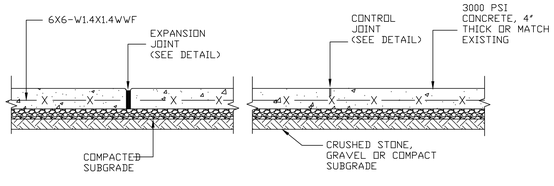
CONTROL JOINT

NTS



CONCRETE SIDEWALK REPLACEMENT DETAIL

SCALE: 1"=1'-0"

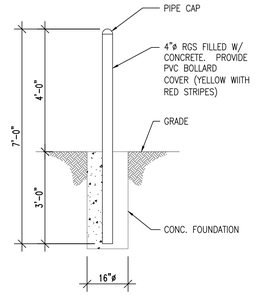


CONCRETE SIDEWALK REPLACEMENT DETAIL LONGITUDINAL VIEW

SCALE: 1"=1'-0"

NOTES:

1. PROVIDE CONTROL JOINTS AT 5' O.C. (6' MAX) UNLESS SHOWN OTHERWISE.
2. CONSTRUCT FULL-DEPTH EXPANSION JOINTS AT 25' O.C. (30' MAX).
3. JOINTS SHALL BE SAW CUT 4 TO 12 HOURS AFTER CONCRETE HAS BEEN FINISHED.



BOLLARD DETAIL

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

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Client:
Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:
Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
B	12/02/22	Issue for FEMA Review (75%)
C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:
GENERAL CONSTRUCTION DETAILS

Drawing Number:
STT-20131-9A3-G-101

TYPICAL MANHOLE ACCESSORY BILL OF MATERIAL (PER MANHOLE)				
ITEM NUMBER	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	QTY. REQ. (PER MANHOLE)
1	UNDERGROUND DEVICES	FSRM-12	1/2"-13 DROP-IN ANCHOR MATERIAL: 18-8 STAINLESS STEEL	80
2	UNDERGROUND DEVICES	FFW316-18-40	FLAT WASHER I.D.=.562 O.D.=1.25, THK.=.078 MATERIAL: 316 STAINLESS STEEL	80
3	UNDERGROUND DEVICES	FHC316-16-044	1/2"-13 X 1 -3/8" LG. HEX HEAD CAP SCREW MATERIAL: 316 STAINLESS STEEL	80
4	UNDERGROUND DEVICES	CR36-B	36" LONG X 4" WIDE STANCHION MATERIAL: 50% GLASS REINFORCED NYLON	16
5	UNDERGROUND DEVICES	RA20	RA20 ARM (20" LONG) MATERIAL: 50% GLASS REINFORCED NYLON	32
6	UNDERGROUND DEVICES	HDL	HDL LOCK MATERIAL: POLYCARBONATE	32
NOT SHOWN	UNDERGROUND DEVICES	FRT-112	SETTING TOOL TO INSTALL DROP-IN ANCHORS	1

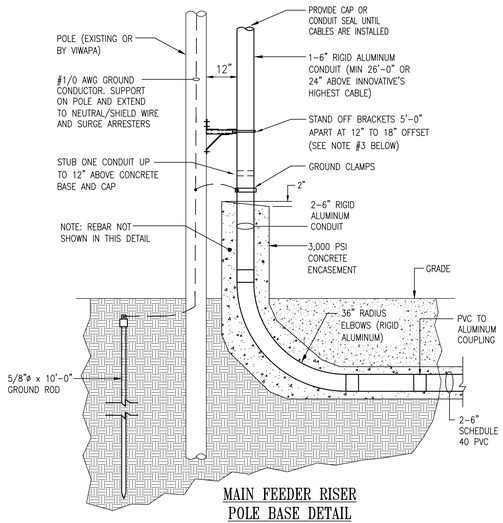
NOTES:

1. ALL MATERIAL LISTED ABOVE SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. ALL MATERIAL LISTED ABOVE SHALL BE AS SPECIFIED, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR REVIEW AND APPROVAL.

TYPICAL HANDHOLE ACCESSORY BILL OF MATERIAL (PER HANDHOLE)				
ITEM NUMBER	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	QTY.
1	UNDERGROUND DEVICES	FSRM-12	1/2"-13 DROP-IN ANCHOR MATERIAL: 303 STAINLESS STEEL	12
2	UNDERGROUND DEVICES	FFW316-18-40	FLAT WASHER I.D.=.562 O.D.=1.250, THK.=.078 MATERIAL: 316 STAINLESS STEEL	12
3	UNDERGROUND DEVICES	FHC316-16-044	HEX HEAD CAP SCREW 1/2"-13 X 1-3/8" LG. MATERIAL: 316 STAINLESS STEEL	12
4	UNDERGROUND DEVICES	CR24-B	24"STANCHION MATERIAL: 50% GLASS FILLED NYLON	4
5	UNDERGROUND DEVICES	3HDS	3HDS SADDLE ARM MATERIAL: 50% GLASS FILLED NYLON	8

NOTES:

1. ALL MATERIAL LISTED ABOVE SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. ALL MATERIAL LISTED ABOVE SHALL BE AS SPECIFIED, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR REVIEW AND APPROVAL.

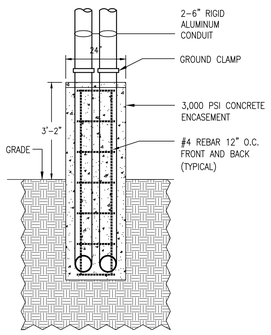


MAIN FEEDER RISER POLE BASE DETAIL (#750 KCMIL CABLE)

SCALE: NONE

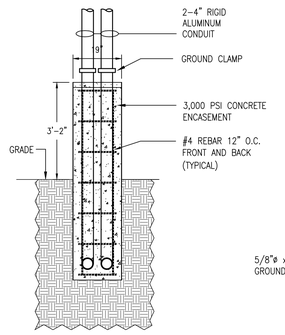
NOTES:

1. ASCENDING PVC CONDUIT SHALL BE INSTALLED PARALLEL TO THE STREET.
2. CONTRACTOR SHALL WRAP RIGID ALUMINUM CONDUIT THAT IS ENCASED IN CONCRETE WITH 2" WIDE ELECTRICAL TAPE, HALF LAPPED.
3. THE STANDOFF BRACKETS MUST BE MODIFIED FOR COMPOSITE POLES.



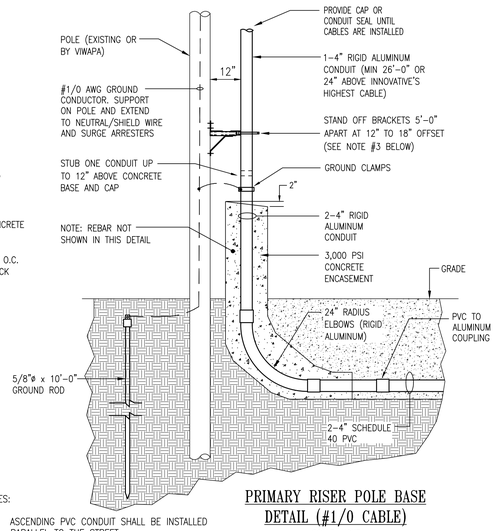
MAIN FEEDER RISER POLE BASE DETAIL - FRONT VIEW (#750 KCMIL CABLE)

SCALE: NONE



PRIMARY RISER POLE BASE DETAIL - FRONT VIEW (#1/0 CABLE)

SCALE: NONE

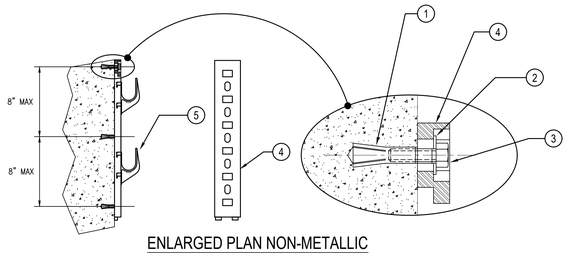


PRIMARY RISER POLE BASE DETAIL (#1/0 CABLE)

SCALE: NONE

NOTES:

1. ASCENDING PVC CONDUIT SHALL BE INSTALLED PARALLEL TO THE STREET.
2. CONTRACTOR SHALL WRAP RIGID ALUMINUM CONDUIT THAT IS ENCASED IN CONCRETE WITH 2" WIDE ELECTRICAL TAPE, HALF LAPPED.
3. THE STANDOFF BRACKETS MUST BE MODIFIED FOR COMPOSITE POLES.

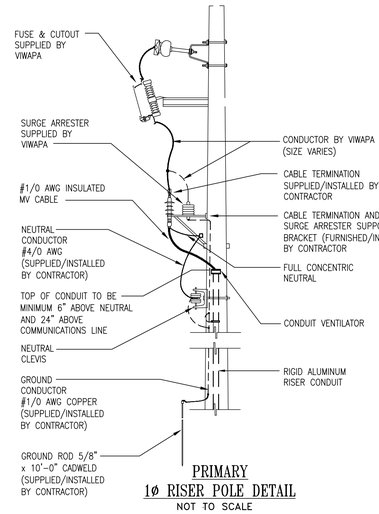


ENLARGED PLAN NON-METALLIC CABLE RACK - COMMUNICATIONS

SCALE: NONE

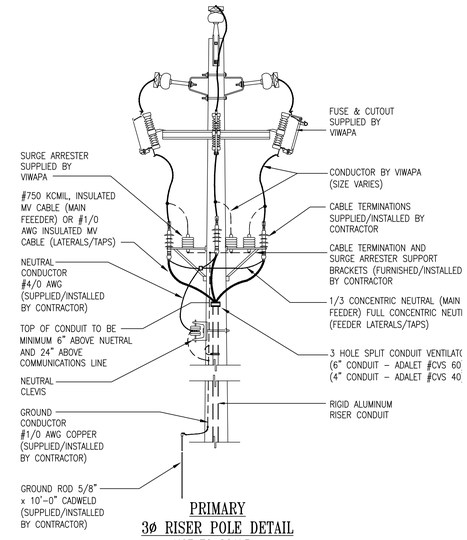
NOTE:

1. SEE HANDHOLE BILL OF MATERIALS SHEET E-100.



PRIMARY 1ø RISER POLE DETAIL

NOT TO SCALE

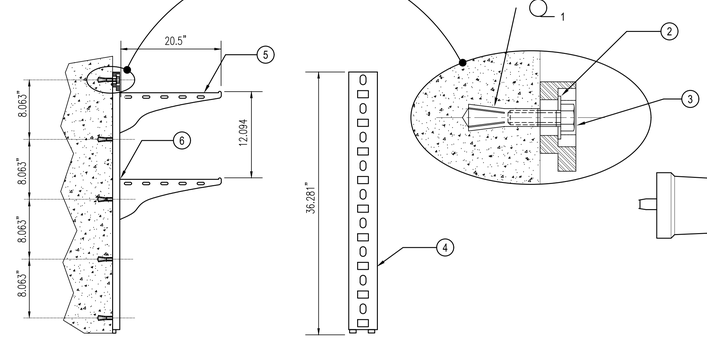


PRIMARY 3ø RISER POLE DETAIL

NOT TO SCALE

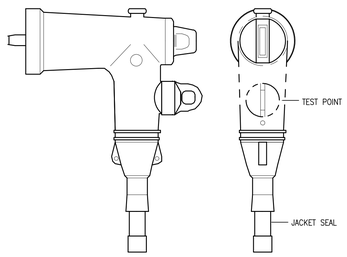
PRIMARY RISER POLE DETAIL NOTES:

1. CONTRACTOR TO RUN #1/0 AWG INSULATED COPPER GROUND CONDUCTOR TO SURGE ARRESTERS, AND TO METAL CONDUIT RISER, AND BOND TO SYSTEM NEUTRAL.
2. CONTRACTOR TO CONNECT MV CABLE CONCENTRIC NEUTRALS TO SYSTEM NEUTRAL WITH #4/0 AWG BARE COPPER CONDUCTOR.



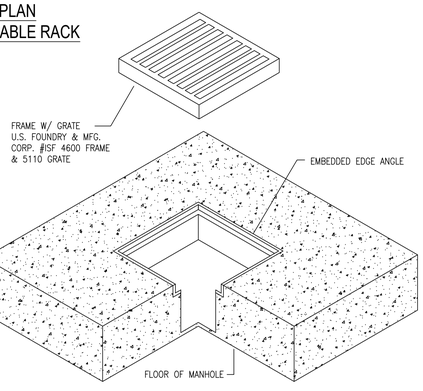
ENLARGED PLAN NON-METALLIC CABLE RACK

SCALE: NONE



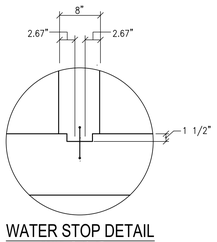
15kV LOADBREAK ELBOW W/JACKET SEAL

SCALE: NO SCALE



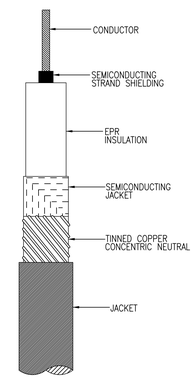
SUMP DETAIL

NTS



WATER STOP DETAIL

SCALE: "=1'-0"



CONCENTRIC NEUTRAL CABLE DETAIL

(PRIMARY CABLE IS FURNISHED BY VIWAPA)

SCALE: NO SCALE

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 3), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

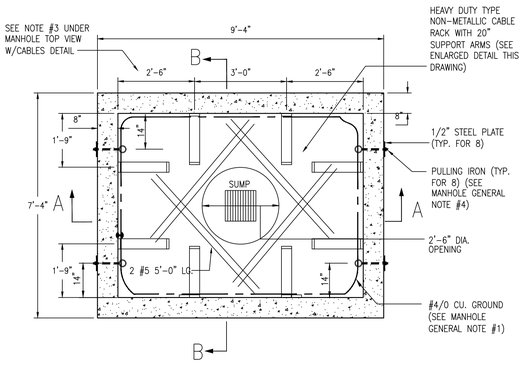
Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

ELECTRICAL DETAILS

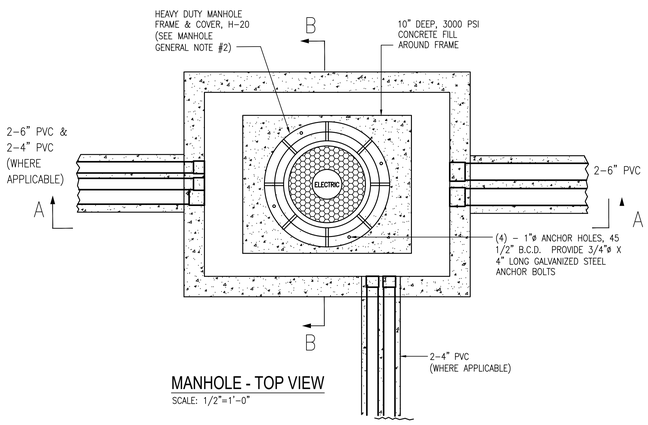
Drawing Number:

STT-20131-9A3-E-100



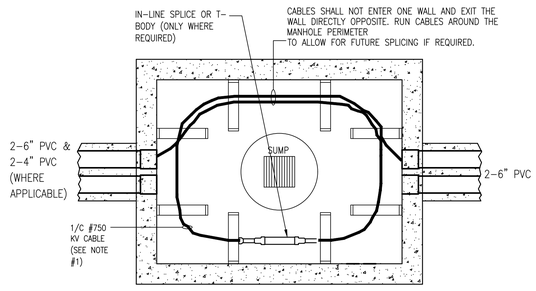
MANHOLE - TOP VIEW (COVER REMOVED)

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



MANHOLE - TOP VIEW

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



MANHOLE - TOP VIEW (W/CABLES)

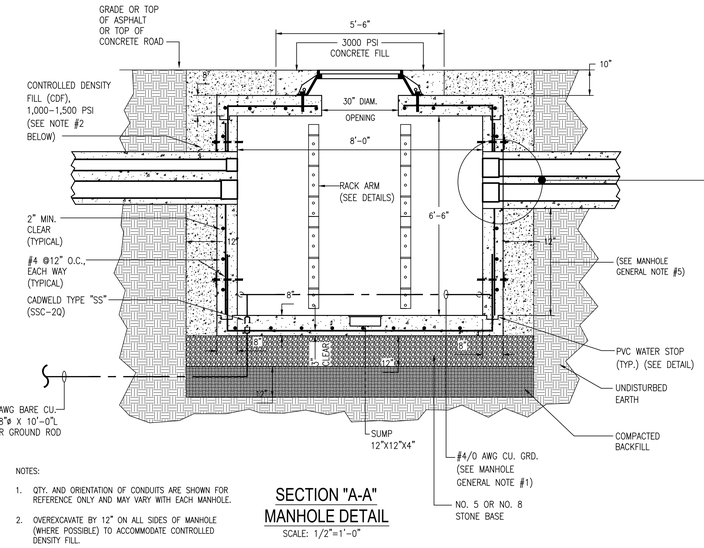
SCALE: 1/2"=1'-0"

NOTES:

1. CABLE SHOWN IS 1/C #750 KCMIL - XX KV UNLESS OTHERWISE NOTED. ONLY ONE CABLE IS SHOWN FOR CLARITY.
2. #1/0 CABLE (WHERE APPLICABLE) IS NOT SHOWN.
3. THE CABLE SPLICER IS RESPONSIBLE TO LOCATE ALL OF THE STANCHIONS IN THE MANHOLE IN THE MOST PRACTICAL LOCATIONS IN ORDER TO PROPERLY COORDINATE WITH THE LOCATIONS OF THE DUCT BANK ENTRANCES. IN MANHOLES WITH LIMITED DUCT BANK ENTRANCES, THE DIMENSIONS INDICATED ON THE DRAWINGS SHALL BE ADHERED TO.

MANHOLE GENERAL NOTES

1. #4/0 AWG COPPER GROUND RING AROUND ENTIRE INTERIOR. STRAP @ 2 FT. INTERVALS.
2. MANHOLE FRAME & COVER TO BE HEAVY DUTY TYPE FOR H-20 HIGHWAY LOADING, MARKED "ELECTRIC", U.S. FOUNDRY & MFG. CORP. #USF 648 RING & Y COVER, OR APPROVED EQUAL
3. SLOPE MANHOLE FLOORS 1/8" PER FOOT TO SUMP.
4. PULLING IRONS TO BE 3/4"ø STAINLESS STEEL EYE BOLTS, LENGTH AS REQUIRED, THROUGH BOLTED, WITH 1/2" THICK STEEL PLATE & STAINLESS STEEL HARDWARE, OR AS OTHERWISE APPROVED.
5. CONDUIT LOCATIONS ENTERING MANHOLE SHALL BE ADJUSTED FOR EACH MANHOLE AS REQUIRED TO COORDINATE WITH DUCT BANK ELEVATIONS..
6. EXCAVATION SHALL PROCEED WITH EXTREME CARE TO PREVENT ANY DAMAGE TO ANY UNDERGROUND UTILITY LINES OR OTHER UNDERGROUND ITEMS NOT SHOWN ON DRAWINGS. EXCAVATION IN CAUTION AREAS SHALL BE PERFORMED BY HAND.
7. ALL EXTERIOR SURFACES OF MANHOLES TO BE SEALED WITH TWO COATS OF WATERPROOFING TREATMENT. CONTRACTOR SHALL SUBMIT PRODUCT FOR APPROVAL.
8. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
9. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
10. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS SHOWN ON THE DRAWINGS.
11. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE AND ALL FORMWORK IS INSPECTED AND APPROVED BY VIWAPA.
12. MANHOLES ARE DETAILED AS CAST-IN-PLACE. PRE-CAST MANHOLES ARE ALSO ACCEPTABLE WITH APPROVED SUBMITTAL.
13. ALL CONCRETE MUST INCLUDE A CORROSION-INHIBITING ADMIXTURE. CONTRACTOR MUST SUBMIT MIX DESIGN FOR APPROVAL.
14. SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
    - MANHOLE FRAME & COVER
    - PULLING IRONS
    - MANHOLE SUMP FRAME & GRATING
    - MANHOLE STANCHIONS, RACK ARMS AND ACCESSORIES
    - END BELLS
    - WATERPROOFING TREATMENT
    - CYLINDER BREAK
    - CONCRETE DESIGN MIX
    - MANHOLE SECTIONS, PLAN VIEW & ISOMETRIC IF PRE-CAST MANHOLES ARE USED.

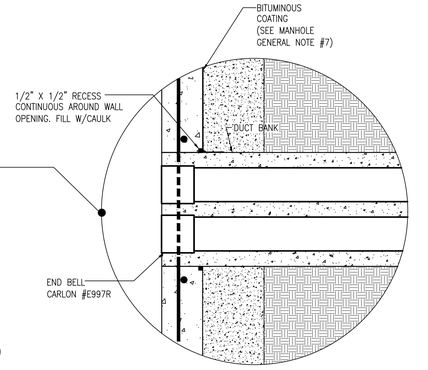


NOTES:

1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.

SECTION "A-A" MANHOLE DETAIL

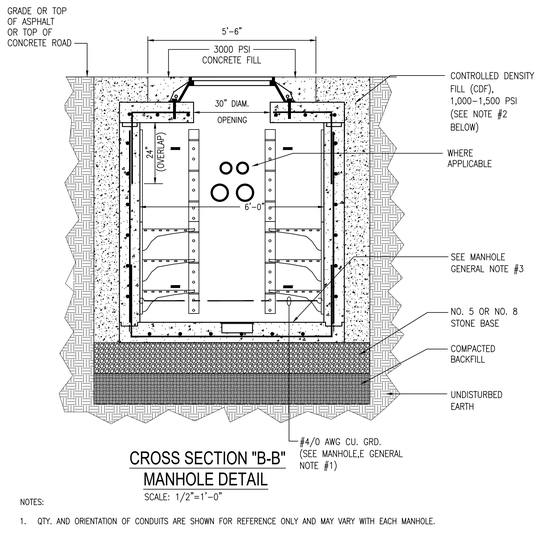
SCALE: 1/2"=1'-0"



DUCT BANK TO MANHOLE INTERFACE DETAIL

NTS

(TYPICAL AT DUCT BANK ENTRANCE)

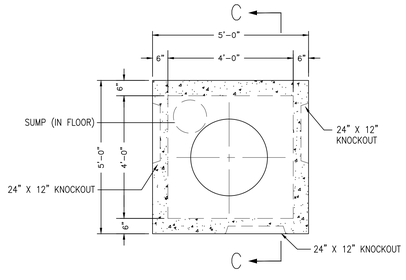


CROSS SECTION "B-B" MANHOLE DETAIL

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

NOTES:

1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVER EXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.



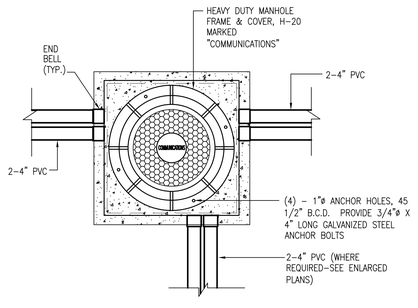
TYPICAL COMMUNICATIONS HANDHOLE PLAN VIEW

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

NOTE: PROVIDE PULLING IRONS AS REQUIRED (NOT SHOWN)

NOTE:

1. SEE HANDHOLE BILL OF MATERIALS SHEET E-100.

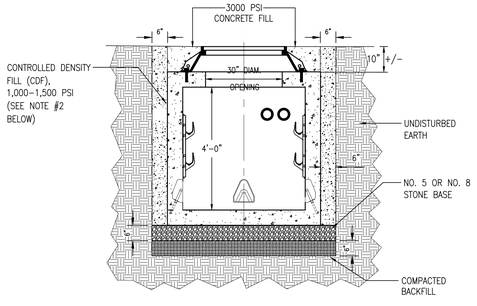


COMMUNICATIONS HANDHOLE TOP VIEW

NTS

NOTE:

1. SEE HANDHOLE BILL OF MATERIALS SHEET E-100.



COMMUNICATIONS HANDHOLE SECTION C-C

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

NOTES:

1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.
4. SEE HANDHOLE BILL OF MATERIALS SHEET E-100.

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 3), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

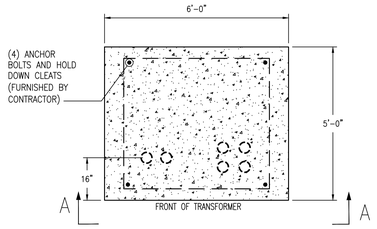
Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

STANDARD MANHOLE & HANDHOLE DETAILS

Drawing Number:

STT-20131-9A3-E-101

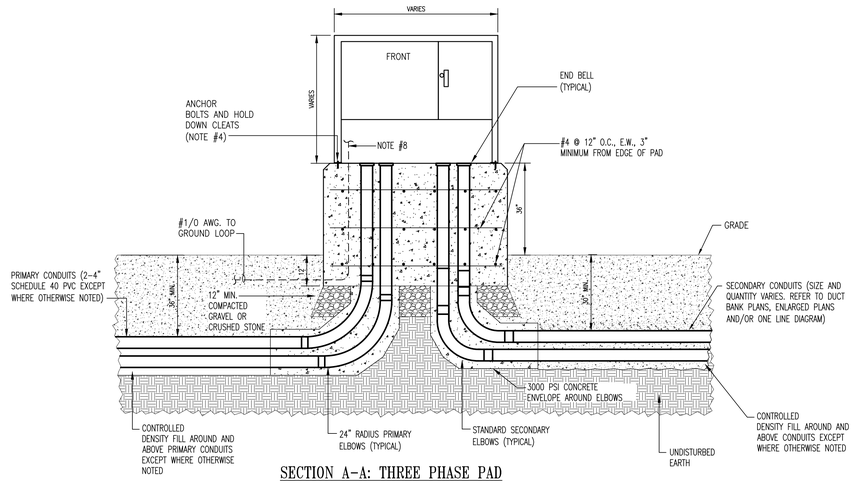


3Ø TRANSFORMER PAD: PLAN VIEW

SCALE: ½" = 1'-0"

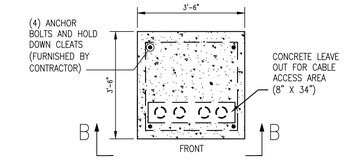
NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT TRANSFORMER TO CONCRETE PAD WITH 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND I INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL PRIMARY AND SECONDARY CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. TRANSFORMER SECONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
8. CONNECT #1/0 BARE COPPER WIRE TO XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.



SECTION A-A: THREE PHASE PAD MOUNTED TRANSFORMER

SCALE: ½" = 1'-0"

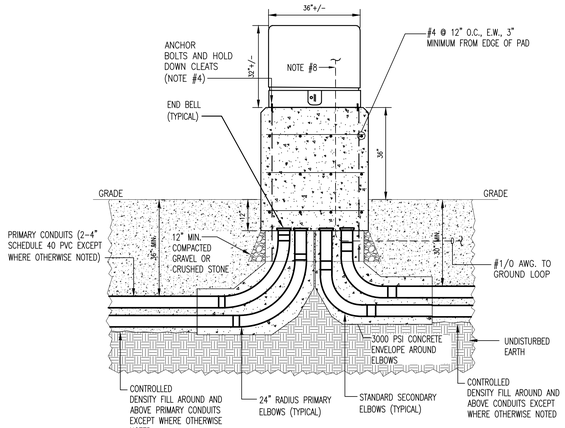


SINGLE PHASE TRANSFORMER POURED PAD PLAN VIEW

SCALE: ½" = 1'-0"

NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT TRANSFORMER TO CONCRETE PAD WITH 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL PRIMARY AND SECONDARY CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. TRANSFORMER SCONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
8. CONNECT #1/0 BARE COPPER WIRE TO HO & XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.

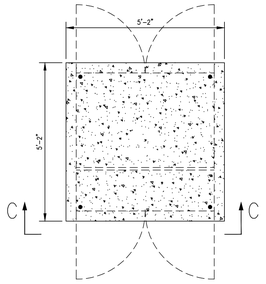


SECTION B-B: SINGLE PHASE PAD MOUNTED TRANSFORMER

SCALE: ½" = 1'-0"

CONCRETE PAD NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
2. CONTRACTOR SHALL VERIFY SUB-SURFACE CONDITIONS BEFORE ANY FOUNDATIONS ARE PLACED. ASSUMED SOIL BEARING CAPACITY 3000 P.S.F.
3. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
4. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS INDICATED ON THE DRAWINGS (AFTER CONFIRMING DIMENSIONS WITH MANUFACTURERS APPROVED EQUIPMENT SUBMITTALS.
5. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE.
6. ALL CONCRETE TO DEVELOP 3500 P.S.I. IN 28 DAYS.
7. ALL DETAILING, FABRICATION & PLACEMENT OF REINFORCING BARS SHALL FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES A.C.I. 315. HIGH CHAIRS WILL BE REQUIRED UNDER ALL TOP REINFORCING.
8. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A-615 AND HAVING DEFORMATION MEETING ASTM A-305.
9. PROVIDE 3/4" CHAMFER ON EXPOSED EDGES OF ALL CONCRETE PADS.
10. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR CONCRETE MIX DESIGN FOR REVIEW AND APPROVAL.
11. FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH.
12. THE FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301, TYPE A.

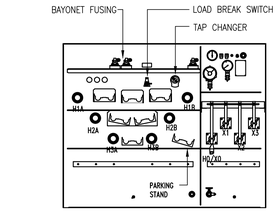


PRIMARY METERING CABINET POURED PAD PLAN VIEW

SCALE: ½" = 1'-0"

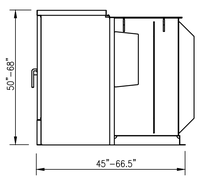
NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT PRIMARY METERING SWITCHGEAR TO CONCRETE PAD WITH ANCHOR BOLTS AND 'HOLD DOWN' CLEATS, OR STAINLESS STEEL HARDWARE, IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY METERING CABINET DIMENSIONS WITH APPROVED SUBMITTALS FROM SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. CONNECT #1/0 BARE COPPER WIRE TO SWITCHGEAR GROUND PAD & TO CONCENTRIC NEUTRAL CABLES.



TYPICAL THREE PHASE TRANSFORMER FRONT ELEVATION (COVER REMOVED)

SCALE: NO SCALE

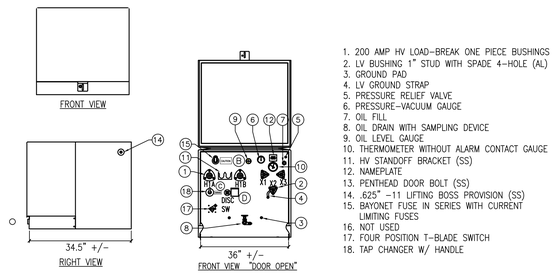


THREE PHASE TRANSFORMER SIDE ELEVATION

SCALE: NO SCALE

NOTES:

1. PAD NOT SHOWN.
2. DIMENSIONS ARE SHOWN FOR REFERENCE ONLY AND CANNOT BE VERIFIED UNTIL TRANSFORMER APPROVED SUBMITTALS ARE RECEIVED.



1. 200 AMP HV LOAD-BREAK ONE PIECE BUSHINGS
2. LV BUSHING 1" STUD WITH SPADE 4-HOLE (AL)
3. GROUND PAD
4. LV GROUND STRAP
5. PRESSURE RELIEF VALVE
6. PRESSURE-VACUUM GAUGE
7. OIL FILL
8. OIL DRAIN WITH SAMPLING DEVICE
9. OIL LEVEL GAUGE
10. THERMOMETER WITHOUT ALARM CONTACT GAUGE
11. HV STANDOFF BRACKET (SS)
12. NAMEPLATE
13. PENTHEAD DOOR BOLT (SS)
14. .625" -11 LIFTING BOSS PROVISION (SS)
15. BAYONET FUSE IN SERIES WITH CURRENT LIMITING FUSES
16. NOT USED
17. FOUR POSITION T-BLADE SWITCH
18. TAP CHANGER W/ HANDLE

B - BAYONET OPERATION CAUTION DECAL
C - TC WARNING DECAL
D - DISCONNECT CAUTION DECAL

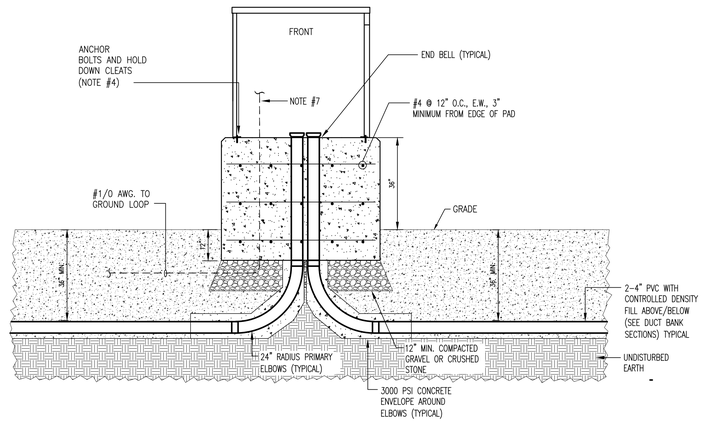
KVA - SEE SCHEDULE
HV - 13,200GY/7620
LV - 240/120
FLUID TYPE - EDIBLE SEED OIL

TYPICAL SINGLE PHASE TRANSFORMER

SCALE: NO SCALE

NOTES:

1. THIS DETAIL IS FOR REFERENCE ONLY AND WILL CHANGE BASED ON TRANSFORMER KVA RATING, FINAL OPTIONS SELECTED AND MANUFACTURER.
2. CONTRACTOR MUST REFER TO THE APPROVED TRANSFORMER SUBMITTALS FOR ACTUAL DETAILS PRIOR TO PURCHASING BOX PADS.
3. DIMENSIONS INDICATED MUST NOT BE CONSIDERED ACCURATE. REFER TO APPROVED SUBMITTALS FOR ACTUAL DIMENSIONS.



SECTION C-C: PRIMARY METERING CABINET PAD DETAIL

SCALE: ½" = 1'-0"

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 3), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

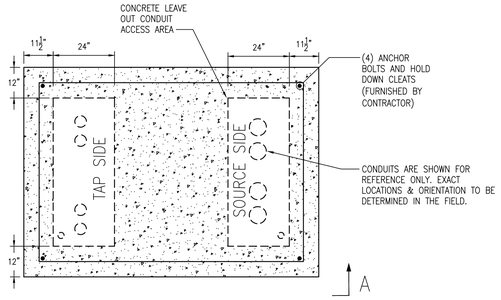
Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

SWITCHGEAR, SECTIONALIZING CABINET AND TRANSFORMER PAD DETAILS

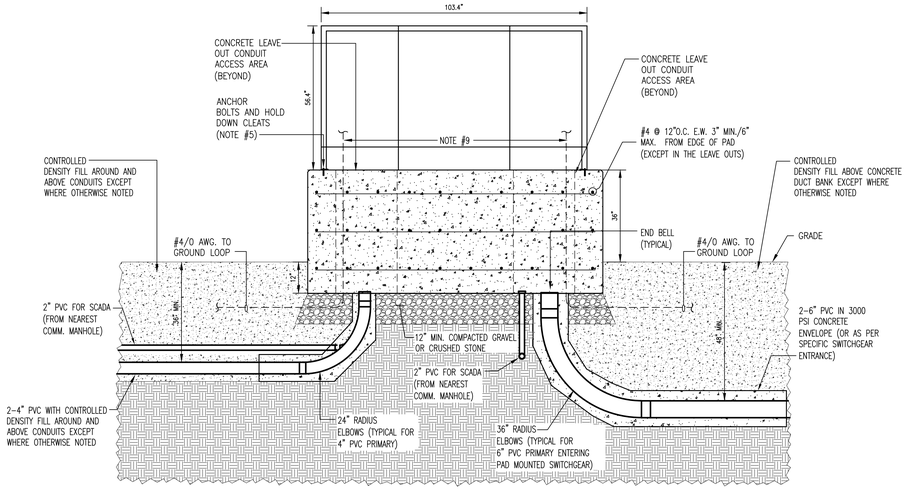
Drawing Number:

STT-20131-9A3-E-102



4 WAY PAD MOUNTED SWITCHGEAR: PLAN VIEW

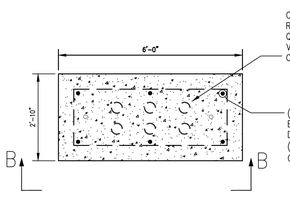
SCALE: ½" = 1'-0"



SECTION A-A: PAD MOUNTED SWITCHGEAR

SCALE: ½" = 1'-0"

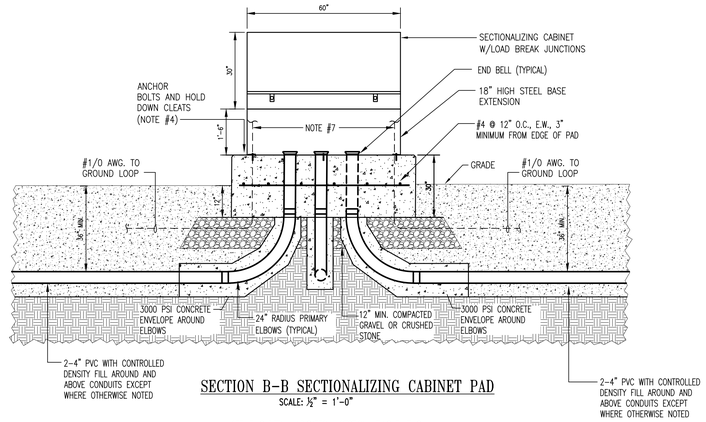
NOTES:
1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. DO NOT POUR CONCRETE IN CABLE ACCESS AREA.
4. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
5. BOLT SWITCHGEAR TO CONCRETE PAD WITH "HOLD DOWN" CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
6. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND I INSTALLING CONDUITS AND POURING CONCRETE.
7. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
8. CONNECT #4/0 BARE COPPER WIRE TO SWITCHGEAR GROUND & TO CONCENTRIC NEUTRAL CABLES.



SECTIONALIZING CABINET - PLAN VIEW

SCALE: ½" = 1'-0"

NOTES:
1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT SECTIONALIZING CABINETS TO CONCRETE PAD WITH ANCHOR BOLTS AND "HOLD DOWN" CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. PRIMARY ELBOWS ARE FURNISHED BY VIWAPA.
8. CONNECT #1/0 BARE COPPER WIRE TO GROUND BAR/BUS & TO CONCENTRIC NEUTRAL CABLES. NOTE: INSTALL #4/0 AWG FOR SECTIONALIZING CABINET USED FOR #750 KCMIL CABLE.



SECTION B-B SECTIONALIZING CABINET PAD

SCALE: ½" = 1'-0"

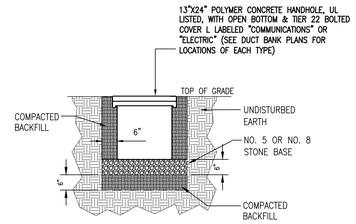
NOTE: THIS DETAIL INDICATES A SECTIONALIZING THAT IS UTILIZED FOR #1/0 CABLE (LATERALS) AND 4" PVC CONDUITS. ADJUST AS REQUIRED FOR #750 KCMIL CABLES AND 6" PVC CONDUITS.

CONCRETE PAD NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
2. CONTRACTOR SHALL VERIFY SUB-SURFACE CONDITIONS BEFORE ANY FOUNDATIONS ARE PLACED. ASSUMED SOIL BEARING CAPACITY 3000 P.S.F.
3. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
4. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS INDICATED ON THE DRAWINGS (AFTER CONFIRMING DIMENSIONS WITH MANUFACTURERS APPROVED EQUIPMENT SUBMITTALS.
5. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE.
6. ALL CONCRETE TO DEVELOP 3500 P.S.I. IN 28 DAYS.
7. ALL DETAILING, FABRICATION & PLACEMENT OF REINFORCING BARS SHALL FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES A.C.I. 315. HIGH CHAIRS WILL BE REQUIRED UNDER ALL TOP REINFORCING.
8. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A-615 AND HAVING DEFORMATION MEETING ASTM A-305.
9. PROVIDE 3/4" CHAMFER ON EXPOSED EDGES OF ALL CONCRETE PADS.
10. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR CONCRETE MIX DESIGN FOR REVIEW AND APPROVAL.
11. FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH.
12. THE FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301, TYPE A.

COMMUNICATIONS HANDHOLE GENERAL NOTES

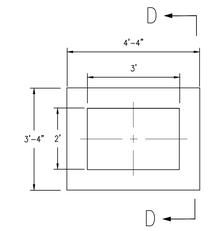
1. HANDHOLE FRAME & COVER TO BE HEAVY DUTY TYPE FOR H-20 HIGHWAY LOADING, MARKED "COMMUNICATIONS", U.S. FOUNDRY & MFG. CORP. #USF 648 RING & Y COVER, OR APPROVED EQUAL
2. CONDUIT LOCATIONS ENTERING HANDHOLES SHALL BE ADJUSTED FOR EACH HANDHOLE AS REQUIRED TO COORDINATE WITH DUCT BANK ELEVATIONS.
3. EXCAVATION SHALL PROCEED WITH EXTREME CARE TO PREVENT ANY DAMAGE TO ANY UNDERGROUND UTILITY LINES OR OTHER UNDERGROUND ITEMS NOT SHOWN ON DRAWINGS. EXCAVATION IN CAUTION AREAS SHALL BE PERFORMED BY HAND.
4. ALL EXTERIOR SURFACES OF HANDHOLES TO BE SEALED WITH TWO COATS OF WATERPROOFING TREATMENT. CONTRACTOR SHALL SUBMIT PRODUCT FOR APPROVAL.
5. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
6. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
7. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS SHOWN ON THE DRAWINGS.
8. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE AND ALL FORMWORK IS INSPECTED AND APPROVED BY VIWAPA.
9. HANDHOLES ARE DETAILED AS PRE-CAST. CAST IN PLACE HANDHOLES ARE ALSO ACCEPTABLE WITH APPROVED SUBMITTAL.
10. ALL CONCRETE MUST INCLUDE A CORROSION-INHIBITING ADMIXTURE. CONTRACTOR MUST SUBMIT MIX DESIGN FOR APPROVAL.
11. SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
    - HANDHOLE FRAME & COVER
    - PULLING IRONS
    - HANDHOLE SUMP FRAME & GRATING
    - END BELLS
    - WATERPROOFING TREATMENT
    - CYLINDER BREAK (FOR CAST IN PLACE HANDHOLES)
    - CONCRETE DESIGN MIX (FOR CAST IN PLACE HANDHOLES)
    - HANDHOLE SECTIONS, PLAN VIEW & ISOMETRIC VIEWS.



POLYMER HANDHOLE INSTALLATION DETAIL

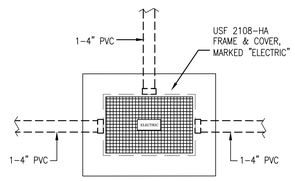
SCALE: NONE

NOTE: DO NOT LOCATE HANDHOLES DIRECTLY IN THE MAIN ROADWAY. THE BOXES AND COVERS ARE RATED FOR OFF-ROADWAY APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICLE TRAFFIC (ANSI/SCTE 77 TIER 22 RATING)



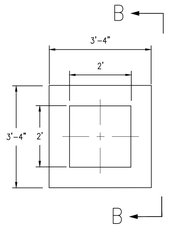
TYPICAL ELECTRIC PRIMARY HANDHOLE PLAN VIEW

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



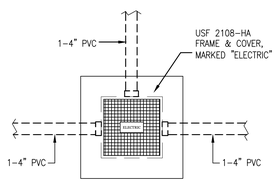
ELECTRIC PRIMARY HANDHOLE TOP VIEW

NTS



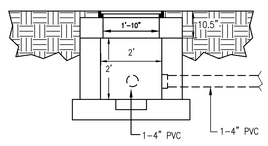
TYPICAL ELECTRIC SECONDARY HANDHOLE PLAN VIEW

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



ELECTRIC SECONDARY HANDHOLE TOP VIEW

NTS



ELECTRIC HANDHOLE SECTION D-D

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

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 3), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

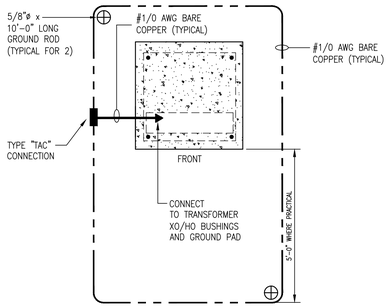
Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

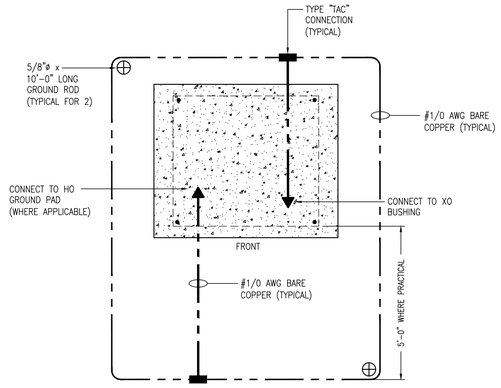
DUCT BANK DETAILS

Drawing Number:

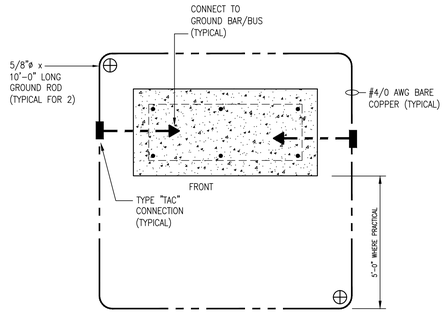
STT-20131-9A3-E-103



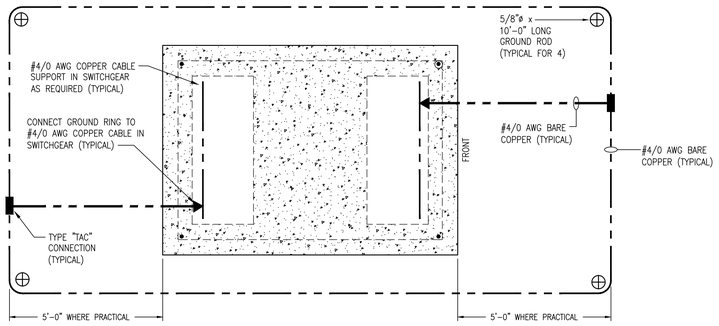
1ø PAD MOUNTED TRANSFORMER
GROUNDING PLAN
SCALE: NONE



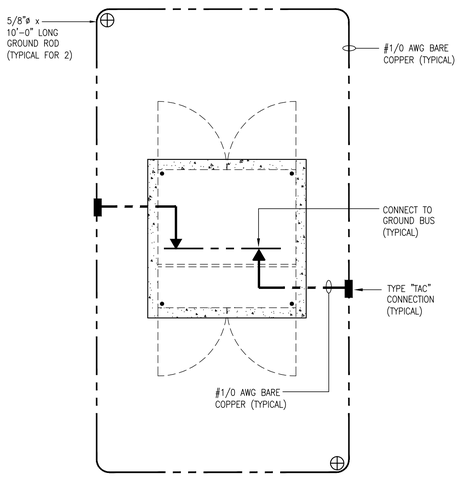
3ø PAD MOUNTED TRANSFORMER
GROUNDING PLAN
SCALE: NONE



PAD MOUNTED SECTIONALIZING CABINET
(FOR #750 KCMIL FEEDER)
GROUNDING PLAN
SCALE: NONE



PAD MOUNTED SWITCHGEAR
GROUNDING PLAN
SCALE: NONE



PAD MOUNTED PRIMARY METERING CABINET
GROUNDING PLAN
SCALE: NONE

PAD MOUNTED SWITCHGEAR
GROUNDING DETAIL
SCALE: NONE

BILL OF MATERIAL FOR GROUNDING SYSTEM

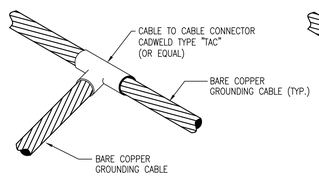
ITEM NO.	QUANTITY	DESCRIPTION
1	TBD	#4/0 19 STRAND BARE SOFT DRAWN COPPER, CLASS B STRANDING, ASTMB8
2	TBD	#1/0 7 STRAND BARE SOFT DRAWN COPPER, CLASS A STRANDING, ASTMB8
3	TBD	COPPER BONDED GROUND ROD, 5/8" DIA. X 10'-0" LONG, ERITECH #615800 (OR EQUAL)
4	TBD	CADWELD MOLD #GTC-162Q (OR EQUAL) CONNECTOR, 5/8" DIA. COPPER OR COPPER CLAD GROUND ROD TO #4/0 BARE COPPER
5	TBD	CADWELD MOLD #GTC-162C (OR EQUAL) CONNECTOR, 5/8" DIA. COPPER OR COPPER CLAD GROUND ROD TO #1/0 BARE COPPER
6	TBD	CADWELD MOLD #TAC-2Q2Q (OR EQUAL) TEE CONNECTOR, THERMOWELD, #4/0 COPPER
7	TBD	CADWELD MOLD #TAC-2C2C (OR EQUAL) TEE CONNECTOR, THERMOWELD, #1/0 COPPER
8	TBD	CABLE RUN TO #4/0 COPPER CABLE TAP
9	TBD	CABLE RUN TO #1/0 COPPER CABLE TAP
10	TBD	TWO HOLE COMPRESSION LUG FOR #4/0 CU.
11	TBD	TWO HOLE COMPRESSION LUG FOR #1/0 CU.
12	TBD	MECHANICAL TEE CONNECTOR, #4/0 COPPER CABLE RUN TO #4/0 COPPER TAP
13	TBD	MECHANICAL TEE CONNECTOR, #1/0 COPPER CABLE RUN TO #1/0 COPPER TAP
14	TBD	CADWELD PLUS WELDING MATERIAL #150PLUSF20 (OR EQUAL) (FOR #4/0 RUN TO #4/0 TAP)
15	TBD	CADWELD PLUS WELDING MATERIAL #90PLUSF20 (OR EQUAL) (FOR #1/0 RUN TO #1/0 TAP)
16	TBD	CADWELD PLUS WELDING MATERIAL #115PLUSF20 (OR EQUAL) (FOR #4/0 TO GROUND ROD)
17	TBD	CADWELD PLUS WELDING MATERIAL #90PLUSF20 (OR EQUAL) (FOR #1/0 TO GROUND ROD)
18	TBD	CLEANING BRUSH, CADWELD CAT. NO. T394. (OR EQUAL)
19	TBD	CADWELD PLUS CONTROL UNIT PLUSCU (OR EQUAL)

NOTES:

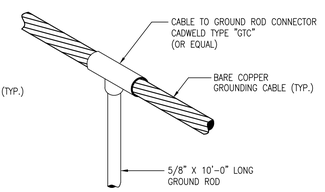
1. GROUNDING MATERIALS SHALL BE AS SPECIFIED, OR APPROVED EQUAL.
2. CONTRACTOR SHALL PROVIDE A SUBMITTAL FOR REVIEW AND APPROVAL BY ENGINEER FOR ALL GROUNDING MATERIALS PRIOR TO ORDERING.
3. ALL QUANTITIES SHALL BE DETERMINED BY THE CONTRACTOR.

GROUNDING NOTES

1. ALL BURIED GROUNDING CONDUCTORS AND CONNECTED RISERS SHALL HAVE A MINIMUM BURIAL DEPTH OF 18" BELOW GRADE AND SHALL BE TINNED BARE, STRANDED COPPER UNLESS OTHERWISE NOTED.
2. ALL UNDERGROUND GROUNDING SYSTEM CONNECTIONS SHALL BE EXOTHERMICALLY WELDED, INCLUDING ALL CABLE CONNECTIONS, GROUND ROD CONNECTIONS AND SPLICES AND CABLE TO STEEL CONNECTIONS. ALL WELDING MATERIALS USED SHALL BE CADWELD MATERIALS AS MANUFACTURED BY ERICO PRODUCTS, INC. OR APPROVED EQUAL.
3. ALL ABOVE GROUND CONNECTIONS SHALL BE BOLTED CONNECTORS. (BURNDY OR APPROVED EQUAL).
4. TOP OF GROUND RODS SHALL BE 8" MINIMUM BELOW GRADE.
5. ALL BURIED GROUND CONDUCTORS SHALL BE LAID SLACK IN TRENCHES TO PREVENT STRESS AND BREAKAGE.
6. ALL GROUND CONNECTION AREAS SHALL BE PREPARED BY GRINDING OR WIRE BRUSH CLEANING. ALL SURFACES AFFECTED SHALL BE PAINTED WITH RUST INHIBITING PAINT, AFTER WELDING IS COMPLETED.
7. GROUND BED RESISTANCE TO EARTH SHALL BE TESTED UNDER DRY SOIL CONDITIONS AT GROUND TEST WELL. THE THREE-POINT FALL METHOD SHALL BE USED FOR TESTING TO BE DONE USING A BIDDLE "MEGGER" EARTH RESISTANCE TESTER (OR EQUIVALENT) IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE WRITTEN TEST REPORT TO ENGINEER.



CABLE TO CABLE
GROUND CONNECTION
SCALE: NONE



CONTINUOUS CABLE TO
GROUND ROD CONNECTION
SCALE: NONE

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610.558.3464 office
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Engineering Excellence Since 1968

Engineers Seal

Client:

Virgin Islands
Water and Power
Authority
U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground
Electrical Construction Project
(Feeder 9A Phase 3),
St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/12/23	Issue for CZM Application

Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

GROUNDING DETAILS

Drawing Number:

STT-20131-9A3-E-104

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

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Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

ST-20131-9A3-E-300

MATCH LINE - DRAWING ST-20131-9A-E-300

MATCH LINE - DRAWING ST-20131-9A-E-302

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

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A	06/12/23	Issue for CZM Application

Drawn By:	PJB
Chkd By:	PJB
Date:	06.12.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

ST-20131-9A3-E-301