PROJECT

# *UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI*

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| STX-20131-9B-E-308 | FEEDER 9B DUCT BANK PLAN | ○ | ○ | ● | | |
| STX-20131-9B-E-309 | FEEDER 9B DUCT BANK PLAN | ○ | ○ | ● | | |
| STX-20131-9B-E-310 | FEEDER 9B DUCT BANK PLAN | ○ | ○ | ● | | |
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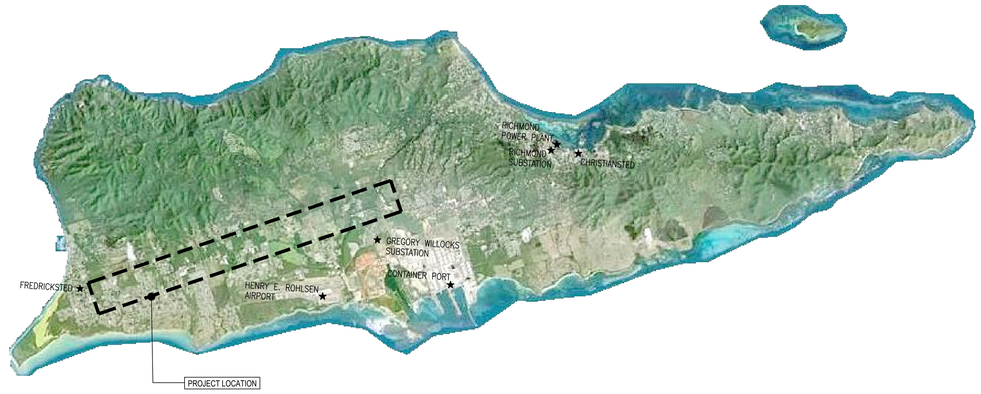
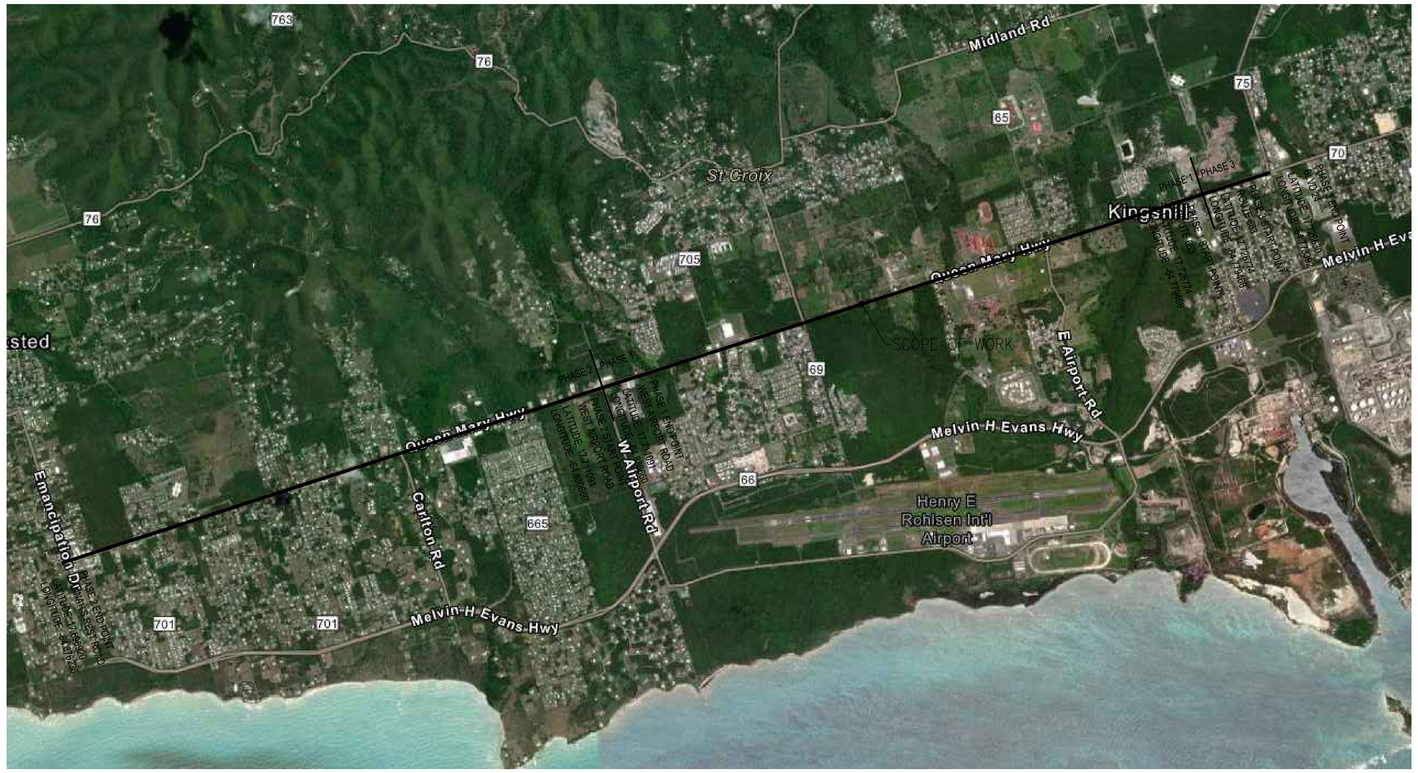
| STX-20131-9B-TC-101 | TRAFFIC CONTROL SYMBOLS & DETAILS | ○ | ○ | | | |

PROJECT LOCATION MAP




ENLARGED PROJECT LOCATION MAP

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## 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-2013 SECTION 7.1)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.1.1
  2. PROVIDE ELECTRICAL TESTS IN ACCORDANCE WITH 7.1.2.
- MEDIUM VOLTAGE CABLES (REFERENCE: ANSI/NETA ATS-2013 SECTION 7.3.3)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.3.3.1
  2. PERFORM ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2009 SECTION 7.3.3.2 AND IEEE STANDARD 400.2
- TRANSFORMERS, LIQUID FILLED (REFERENCE: ANSI/NETA ATS-2013 SECTION 7.2.2)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.2.2.1
  2. PERFORM ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2013 SECTION 7.2.2.2 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 #E600. 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: | | |
| | | |
| 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 | GEOTECHNICAL ENGINEERING REPORT; IBC 1705.6 |
| 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 ANCIORS EMBEDDED WITH ADHESIVE (AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS) IN CONCRETE: | | |
| a. SIZE AND EMBEDMENT OF ANCHORS. | CONTINUOUS | |
| b. ANCHORS INSTAIJID 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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Project Name:

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Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

| | |
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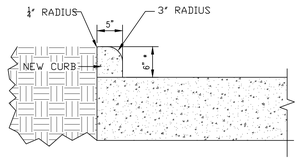
Drawing Title:

GENERAL CONSTRUCTION NOTES & ABBREVIATIONS

Drawing Number:

STX-20131-9B-G-100

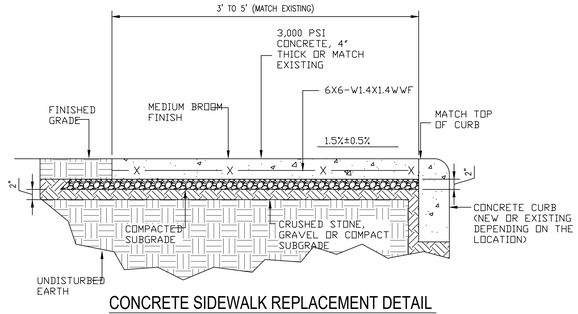



## CONCRETE CURB REPLACEMENT

NTS

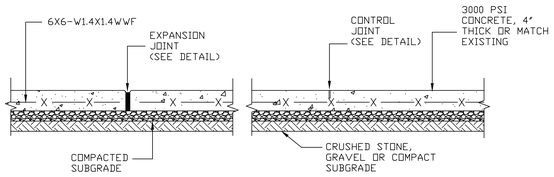
NOTE:
1. REPLACE CONCRETE CURB WITH A MINIMUM OF 48' SECTIONS.

2. CURB DIMENSIONS ARE INDICATED AS 5" WIDE AND 6" HIGH FOR REFERENCE. CONTRACTOR SHALL MATCH THE EXISTING CURB SIZE.




## CONCRETE SIDEWALK REPLACEMENT DETAIL

SCALE: 1"=1'-0"

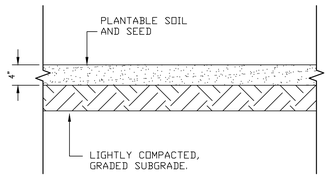



## CONCRETE SIDEWALK REPLACEMENT DETAIL LONGITUDINAL VIEW

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.




## 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.

## EXCAVATION AND ROAD RESTORATION NOTES

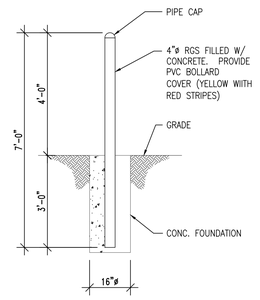
1. ALL UTILITIES MUST BE IDENTIFIED AND MARKED PRIOR TO COMMENCEMENT OF EXCAVATION WORK.

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.




## BOLLARD DETAIL

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

VIRGIN ISLANDS WATER AND POWER AUTHORITY

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

Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

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|---|---|---|
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| | |
|---|---|
| Drawn By: | PJB |
| Chk'd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

GENERAL CONSTRUCTION DETAILS

Drawing Number:

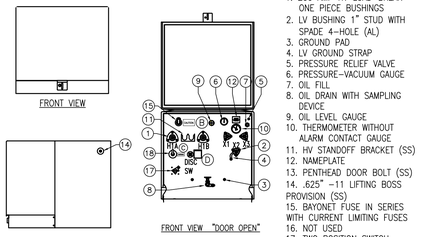
STX-20131-9B-G-101

## TYPICAL MANHOLE ACCESSORY BILL OF MATERIAL

| 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 | 30 |
| ② | UNDERGROUND DEVICES | FFW316-18-40 | FLAT WASHER I.D.=.562 O.D.=1.25, THK.=.078 MATERIAL: 316 STAINLESS STEEL | 30 |
| ③ | UNDERGROUND DEVICES | FHC316-16-044 | 1/2"-13 X 1 -3/8" LG. HEX HEAD CAP SCREW MATERIAL: 316 STAINLESS STEEL | 30 |
| ④ | UNDERGROUND DEVICES | CR36-B | 36" LONG X 4" WIDE STANCHION MATERIAL: 50% GLASS REINFORCED NYLON | 6 |
| ⑤ | UNDERGROUND DEVICES | RA20 | RA20 ARM (20" LONG) MATERIAL: 50% GLASS REINFORCED NYLON | 12 |
| ⑥ | UNDERGROUND DEVICES | HDL | HDL LOCK MATERIAL: POLYCARBONATE | 12 |
| 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.




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. TWO POSITION SWITCH
18. TAP CHANGER W/ HANDLE

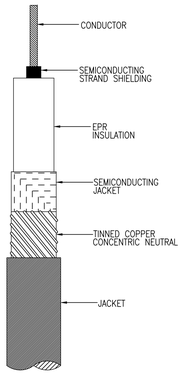
KVA – SEE SCHEDULE
HV – 24.94/14.40kV
LV – 240/120V
FLUID TYPE – EDIBLE SEED OIL

## TYPICAL SINGLE PHASE TRANSFORMER

SCALE: NO SCALE

NOTES:

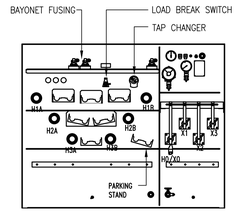
1. THIS DETAIL IS FOR REFERENCE ONLY AND WILL CHANGE BASED ON TRANSFORMER KVA RATING, FINAL OPTIONS SELECTED AND MANUFACTURER.
2. CONTRACTOR MUST REFER TO THE APPROVED TRANSFORMER SUBMITTALS FOR ACTUAL DETAILS PRIOR TO PURCHASING BOX PADS.
3. DIMENSIONS INDICATED MUST NOT BE CONSIDERED ACCURATE. REFER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




## CONCENTRIC NEUTRAL CABLE DETAIL

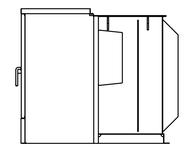
(PRIMARY CABLE IS FURNISHED BY VIWAPA)

SCALE: NO SCALE




## TYPICAL THREE PHASE TRANSFORMER FRONT ELEVATION (COVER REMOVED)

SCALE: NO SCALE

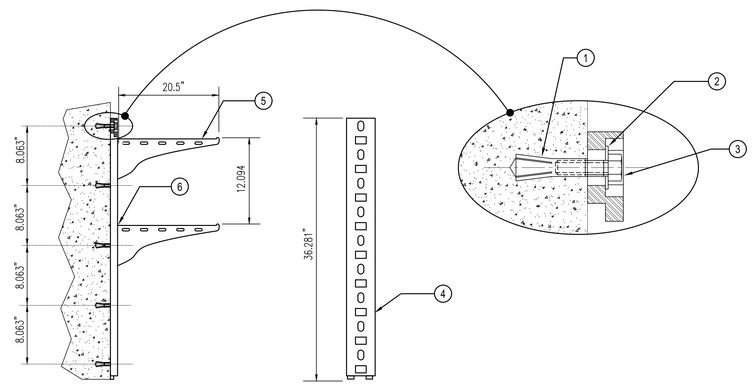


## THREE PHASE TRANSFORMER SIDE ELEVATION

SCALE: NO SCALE

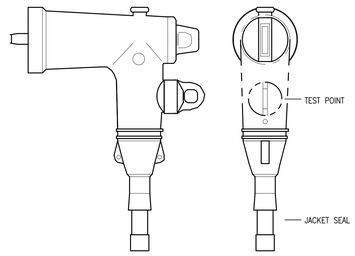
NOTES:

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



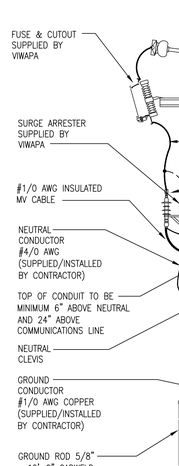

## ENLARGED PLAN NON-METALLIC CABLE RACK

SCALE: NONE




## 25kV LOADBREAK ELBOW W/JACKET SEAL

SCALE: NO SCALE

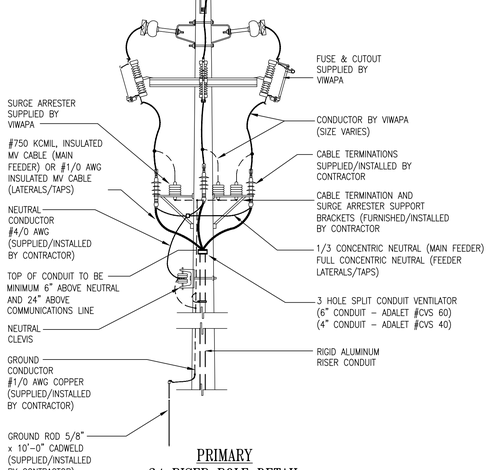



## PRIMARY 1Ø RISER POLE DETAIL

NOT TO SCALE

NOTES:

1. CONTRACTOR TO RUN #1/0 AWG INSULATED COPPER GROUND CONDUCTOR TO SURGE ARRESTER, 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.

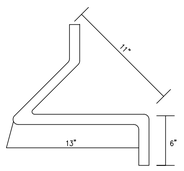



## PRIMARY 3Ø RISER POLE DETAIL

NOT TO SCALE

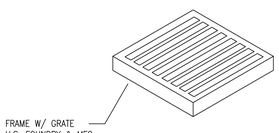
NOTES:

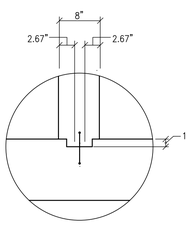
1. CONTRACTOR TO RUN #1/0 AWG INSULATED COPPER GROUND CONDUCTOR TO SURGE ARRESTERS, AND TO METAL CONDUIT RISER, AND BOND TO SYSTEM NEUTRAL.
2. CONTRACTOR TO CONNECT MV CABLE CONCENTRIC NEUTRALS TO SYSTEM NEUTRAL WITH #4/0 AWG BARE COPPER CONDUCTOR.




## PULLING IRON DETAIL

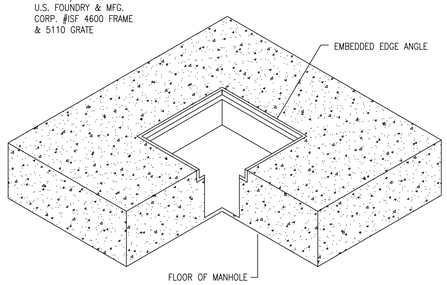
NTS



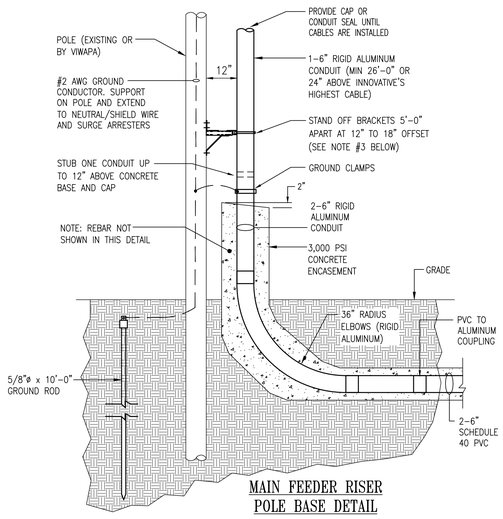

## WATER STOP DETAIL

SCALE: "=1'-0"




## SUMP DETAIL

NTS

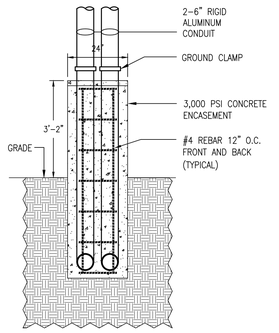



## MAIN FEEDER RISER POLE BASE DETAIL (#750 KCMIL CABLE)

SCALE: ½" = 1'-0"

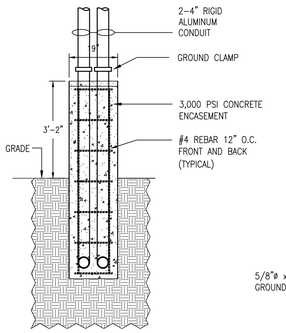
NOTES:

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.



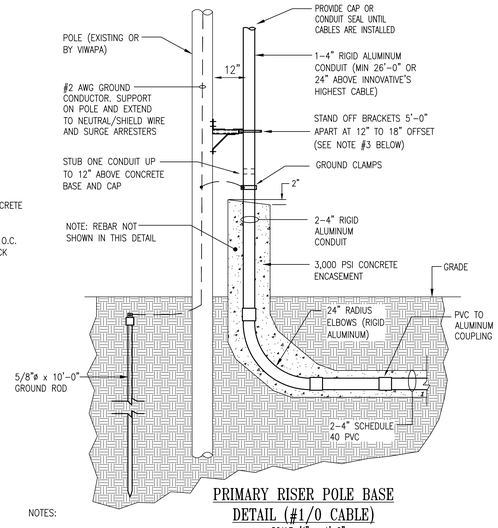

## MAIN FEEDER RISER POLE BASE DETAIL - FRONT VIEW (#750 KCMIL CABLE)

SCALE: ½" = 1'-0"




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

SCALE: ½" = 1'-0"




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

SCALE: ½" = 1'-0"

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.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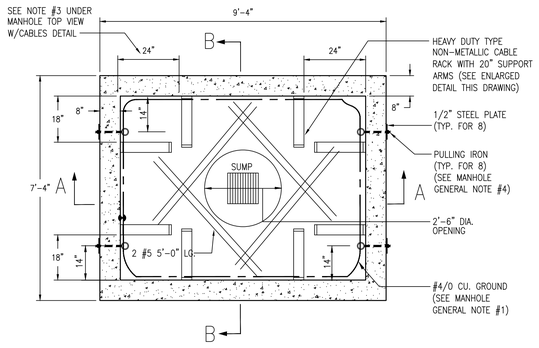
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

ELECTRICAL DETAILS

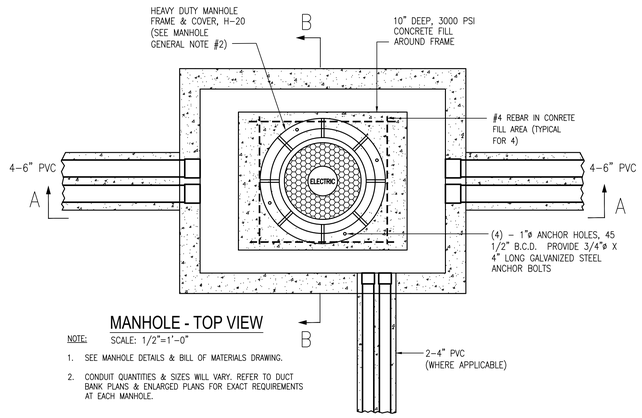
Drawing Number:

STX-20131-9B-E-100




## MANHOLE - TOP VIEW (COVER REMOVED)

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

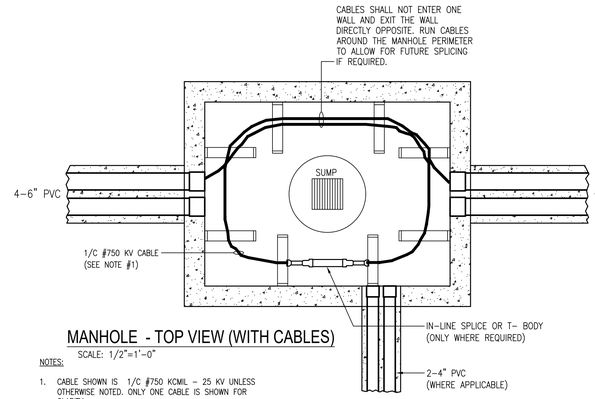



## MANHOLE - TOP VIEW

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

NOTE:

1. SEE MANHOLE DETAILS & BILL OF MATERIALS DRAWING.
2. CONDUIT QUANTITIES & SIZES WILL VARY. REFER TO DUCT BANK PLANS & ENLARGED PLANS FOR EXACT REQUIREMENTS AT EACH MANHOLE.




## MANHOLE - TOP VIEW (WITH CABLES)

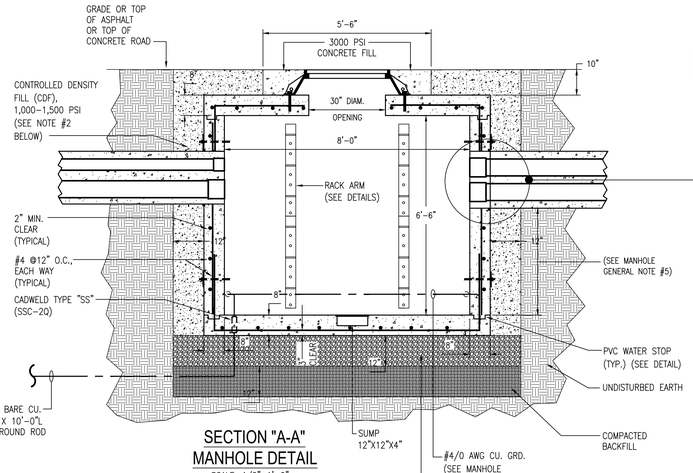
SCALE: 1/2"=1'-0"

NOTES:

1. CABLE SHOWN IS 1/C #750 KCMIL – 25 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 HOT DIPPED GALVANIZED, 7 /8" DIAMETER STEEL INWESCO INC. #12A10 OR EQUAL. CONTRACTOR MAY ALSO UTILIZE 3/4"ø STAINLESS STEEL EYE BOLTS, LENGTH AS REQUIRED, THROUGH BOLTED, WITH 1/2" THICK STEEL PLATE & STAINLESS STEEL HARDWARE.
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.

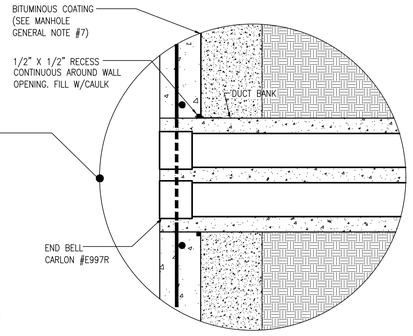



## SECTION "A-A" MANHOLE DETAIL

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

NOTES:

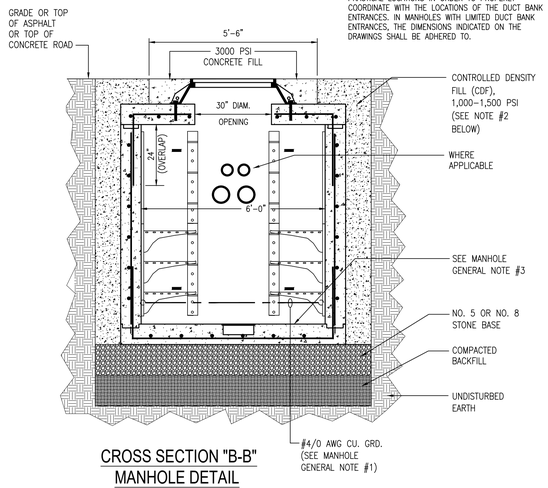
1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND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




## DUCT BANK TO MANHOLE INTERFACE DETAIL

NTS

(TYPICAL AT DUCT BANK ENTRANCE)

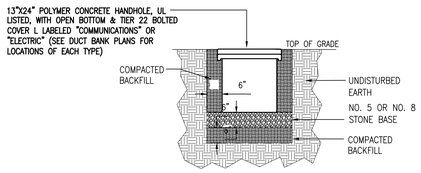



## CROSS SECTION "B-B" MANHOLE DETAIL

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

NOTES:

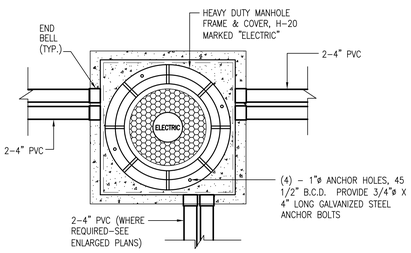
1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND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




## 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)**

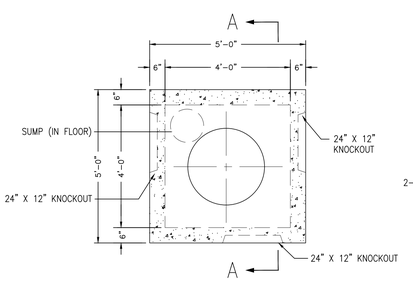



## ELECTRICAL HANDHOLE TOP VIEW

NTS

NOTE:

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



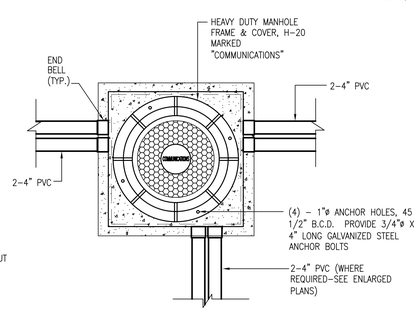

## TYPICAL COMMUNICATIONS HANDHOLE PLAN VIEW

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

NOTE: PROVIDE PULLING IRONS AS REQUIRED (NOT SHOWN)

NOTE:

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

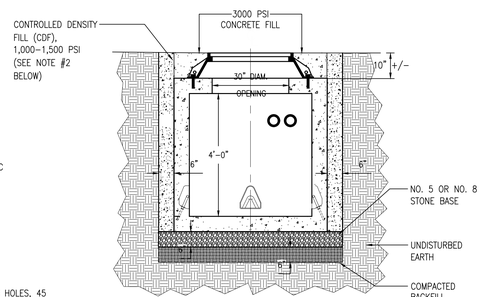



## COMMUNICATIONS HANDHOLE TOP VIEW

NTS

NOTE:

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

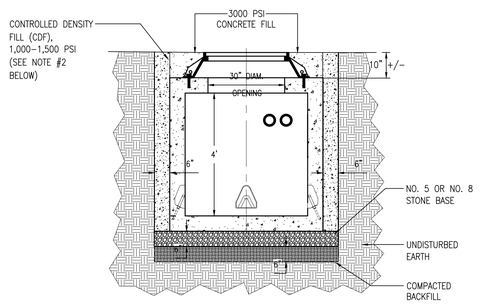



## COMMUNICATIONS HANDHOLE SECTION A-A

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.

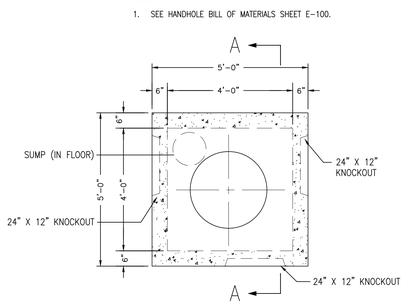



## ELECTRICAL HANDHOLE SECTION A-A

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.




## TYPICAL ELECTRICAL 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.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Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

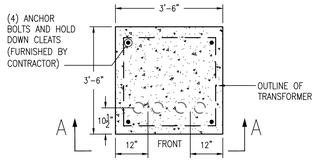
| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

STANDARD MANHOLE & HANDHOLE DETAILS

Drawing Number:

STX-20131-9B-E-101

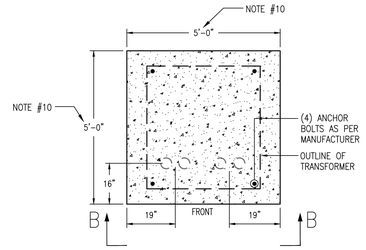



SINGLE PHASE TRANSFORMER PAD (75KVA AND UNDER) – PLAN VIEW

SCALE: ½" = 1'-0"

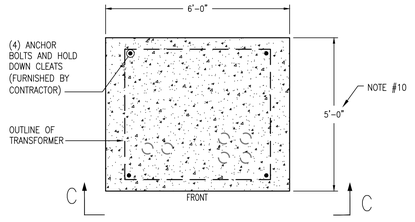
1Ø TRANSFORMER PAD NOTES:

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 PRIMARY ELBOWS ARE TO BE FURNISHED BY THE CONTRACTOR,
8. TRANSFORMER SECONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
9. CONNECT #1/0 BARE COPPER WIRE TO HO & XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.




SINGLE PHASE TRANSFORMER PAD (100KVA AND OVER) – PLAN VIEW

SCALE: ½" = 1'-0"

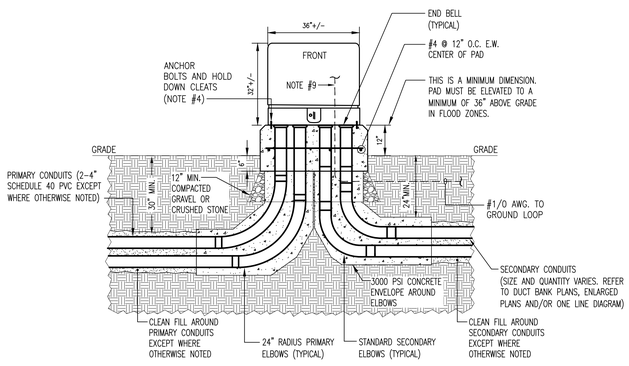



THREE PHASE TRANSFORMER PAD – PLAN VIEW

SCALE: ½" = 1'-0"

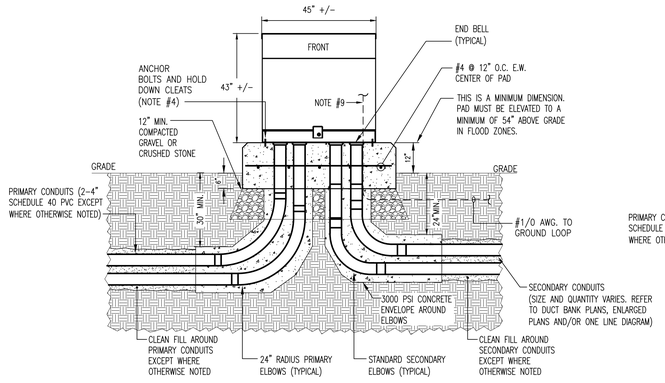
3Ø TRANSFORMER PAD NOTES:

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 PRIMARY ELBOWS ARE FURNISHED BY VIWAPA.
8. TRANSFORMER SCONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
9. CONNECT #1/0 BARE COPPER WIRE TO XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.
10. ADJUST PAD SIZE TO 6'-0" WIDE TO 6'-0" DEEP FOR 500KVA, 750KVA AND 1,000KVA PAD MOUNTED TRANSFORMERS.



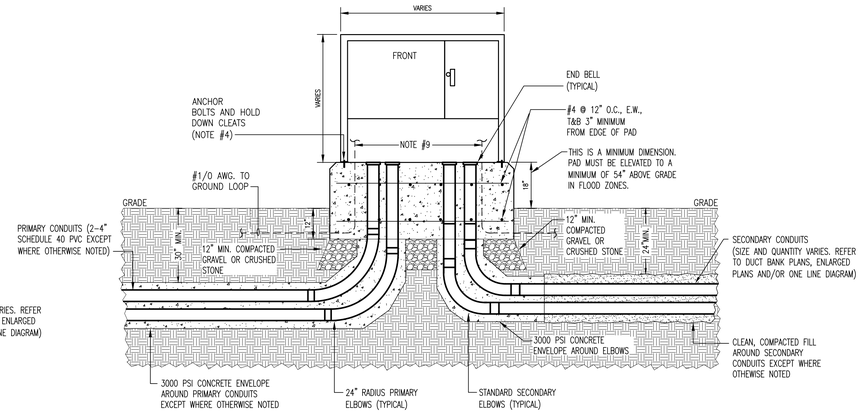

SECTION A-A: SINGLE PHASE PAD MOUNTED TRANSFORMER (75KVA AND UNDER)

SCALE: ½" = 1'-0"




SECTION B-B: SINGLE PHASE PAD MOUNTED TRANSFORMER (100KVA AND OVER)

SCALE: ½" = 1'-0"

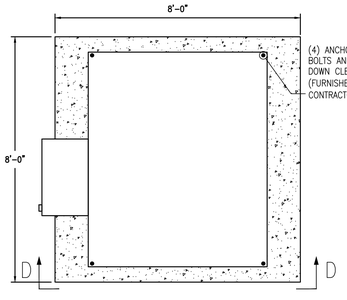



SECTION C-C: THREE PHASE PAD MOUNTED TRANSFORMER

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 COMFIRMING DIMENSIONS WIHT 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.

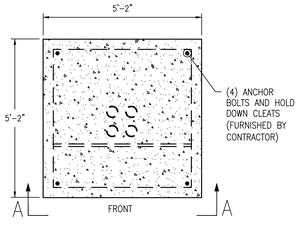



PAD MOUNTED SWITCHGEAR – PLAN VIEW

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 CONRETE.
7. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
8. PRIMARY ELBOWS ARE FURNISHED BY VIWAPA.
9. CONNECT #4/0 BARE COPPER WIRE TO SWITCHGAER GROUND PAD & TO CONCENTRIC NEUTRAL CABLES.

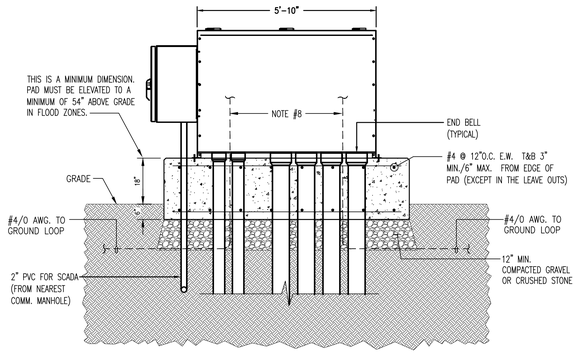



15kV METERING SWITCHGEAR PAD – PLAN VIEW

SCALE: ½" = 1'-0"

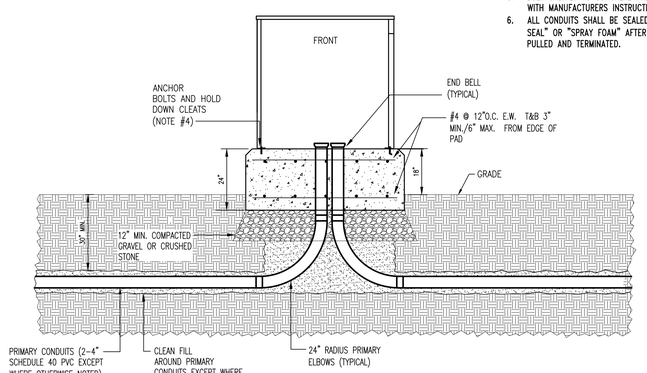
NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. DO NOT POUR CONRETE IN CABLE ACCESS AREA.
3. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
4. PROVIDE END CAPS TO ALL SPARE CONDUITS.
5. BOLT CABINET TO CONCRETE PAD IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
6. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.



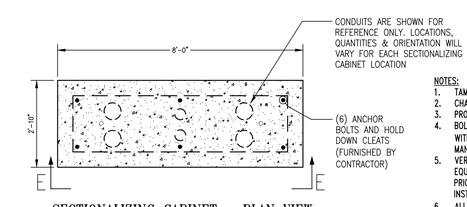

SECTION D-D: PAD MOUNTED SWITCHGEAR

SCALE: ½" = 1'-0"




SECTION A-A THRU 15kV METERING SWITCHGEAR PAD

SCALE: ½" = 1'-0"

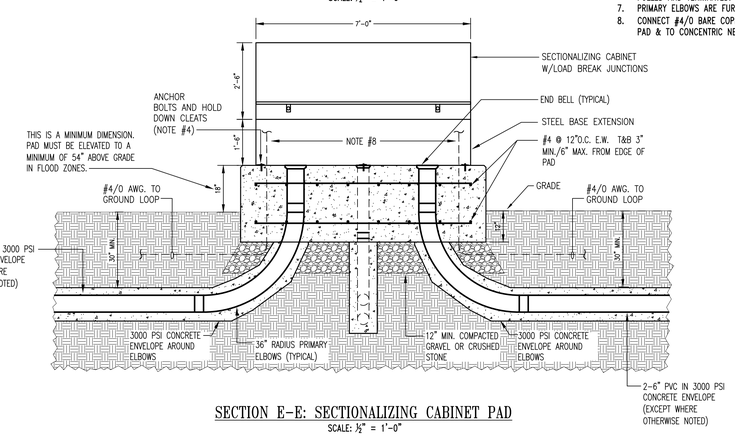



SECTIONALIZING CABINET – PLAN VIEW

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 '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 CONTRACTOR.
8. CONNECT #4/0 BARE COPPER WIRE TO GROUND PAD & TO CONCENTRIC NEUTRAL CABLES.




SECTION E-E: SECTIONALIZING CABINET PAD

SCALE: ½" = 1'-0"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Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

SWITCHGEAR, SECTIONALIZING CABINET AND TRANSFORMER PAD DETAILS

Drawing Number:

STX-20131-9B-E-102

## DUCT BANK NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. THE CONTRACTOR IS RESPONSIBLE TO CALL ALL UTILITIES BEFORE THEY DIG, AND PROVIDE WRITTEN DOCUMENTATION OF UTILITY CORRESPONDENCE.
2. UNDERGROUND DUCTS SHALL CLEAR ALL EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE TO UTILIZE GROUND PENETRATING RADAR EQUIPMENT TO LOCATE ALL EXISTING UTILITIES IN THE VICINITY OF NEW DUCT BANKS, MANHOLES AND HANDHOLES.
3. PROVIDE TRACEABLE UNDERGROUND HAZARD TAPE, 6" WIDE CONTINUOUS BLACK WITH YELLOW BACKGROUND TO READ 'CAUTION-CAUTION-CAUTION ELECTRIC LINE BURIED BELOW.' TYPICAL FOR ALL NEW DUCT BANK RUNS AND AS SHOWN ON DRAWINGS.
4. THE ENTIRE PATH OF THE PROPOSED DUCT BANK ROUTING SHALL BE MARKED OUT "WITH RED PAINT", ALONG THE STREETS. THE CONTRACTOR SHALL INCLUDE STATION NUMBERS AT EVERY 50'-0".
5. PROVIDE HIGH IMPACT SPACES AT 5 FOOT INTERVALS (CARLON OR EQUAL). TYPICAL FOR ALL CONDUITS IN DUCT BANKS.
6. IF EXCAVATED TRENCH WALLS ARE SUITABLE TO ACCOMMODATE THE TRENCH MATERIAL (SAND, COMPACT SUBGRADE, TAMPED BACKFILL, ETC.) THAN FORMS SHALL NOT BE REQUIRED. THE CONTRACTOR SHALL UTILIZE FORMS WHERE THE TRENCH WALLS ARE UNSTABLE.
7. ALL PVC SHALL BE SCHEDULE 40 UNLESS OTHERWISE NOTED.
8. CONDUITS CONTAINING PRIMARY CABLE SHALL BE LOCATED A MINIMUM OF 36" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE. CONDUITS CONTAINING SECONDARY OR COMMUNICATION CABLES SHALL BE LOCATED A MINIMUM OF 24" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE. CONCRETE ENVELOPE CONTAINING PRIMARY CONDUITS SHALL BE LOCATED A MINIMUM OF 30" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE.

## ADDITIONAL NOTES FOR CONCRETE DUCT BANKS

A. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.

B. IF EXCAVATED TRENCH WALLS ARE SUITABLE FOR A CLEAN CONCRETE POUR, FORMS SHALL NOT BE REQUIRED. THE CONTRACTOR SHALL UTILIZE FORMS WHERE TRENCH WALLS ARE UNSTABLE.

C. WHERE REINFORCEMENT IS REQUIRED, OR SPECIFICALLY INDICATED, NO CONCRETE SHALL BE PORED UNTIL ALL REINFORCING STEEL IS IN PLACE.

D. ALL CONCRETE TO DEVELOP 3,000 P.S.I. IN 28 DAYS, EXCEPT UNDER SPECIFIC CONDITIONS WHERE CONTROLLED DENSITY FILL (CDF) IS SPECIFIED.

E. 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.

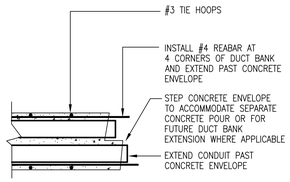
F. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A-615 AND HAVING DEFORMATION MEETING ASTM A-305.

## PVC CONDUIT ACCESSORIES BILL OF MATERIALS

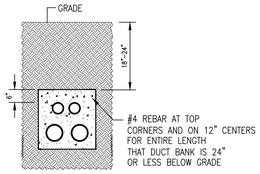
| | QUANTITY | DESCRIPTION |
|---|---|---|
| (1) | TBD | HIGH IMPACT DUCT SPACERS FOR 3" DUCTS, 3" SPACING BETWEEN DUCTS, CARLON #SP3W30-2 |
| (2) | TBD | 2" SNAP-LOC REDUCER, CARLON #S287J |
| (3) | TBD | HIGH IMPACT DUCT SPACERS FOR 6" DUCTS, 3" SPACING BETWEEN DUCTS, CARLON #SP6W3030-2 |
| (4) | TBD | HIGH IMPACT DUCT SPACERS FOR 4" DUCTS, 3" SPACING BETWEEN DUCTS, CARLON #SP4W30-2 |
| (5) | TBD | GREY SOLVENT CEMENT, CARLON #VC9922 |
| (6) | TBD | CLEAR PRIMER, CARLON #VC9902 |
| (7) | TBD | SCHEDULE 40 PVC CONDUIT AND ELBOWS - CONTRACTOR TO DETERMINE QUANTITIES |

NOTES:

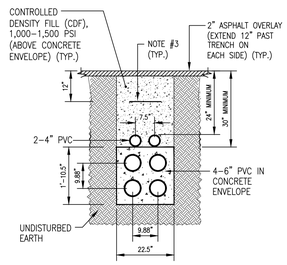
1. PVC CONDUIT ACCESSORIES SHALL BE AS SPECIFIED, OR APPROVED EQUAL.
2. CONTRACTOR SHALL PROVIDE SUBMITTALS TO ENGINEER FOR APPROVAL PRIOR TO ORDERING ANY CONDUIT ACCESSORIES.
3. ALL QUANTITIES SHALL BE DETERMINED BY THE CONTRACTOR.




STEPPED CONCRETE ENVELOPE DETAIL
NOT TO SCALE

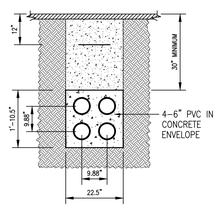



DUCT BANK DETAIL W/ 24" OR LESS FROM GRADE TO TOP OF CONCRETE
NOT TO SCALE

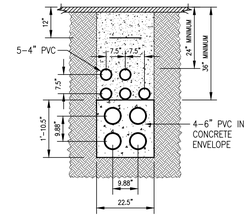



SECTION A-A
SCALE: 1/2"=1'-0"

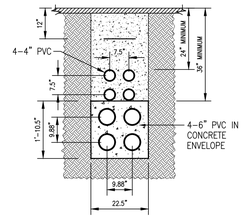
NOTES:
1. ADJUST AS REQUIRED FOR CONCRETE ROAD OR OFF-ROAD DUCT BANK RUNS
2. NOTES APPLY TO ALL SECTIONS




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




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

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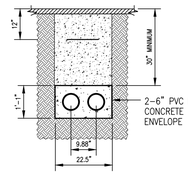
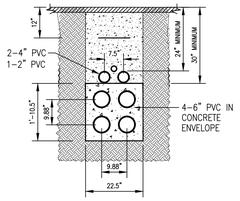
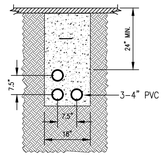
SCALE: 1/2"=1'-0"



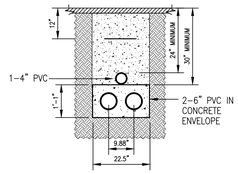

SECTION E-E
SCALE: 1/2"=1'-0"



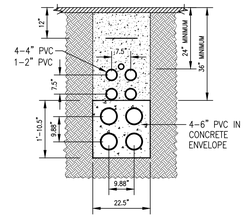

SECTION F-F
SCALE: 1/2"=1'-0"




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




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




SECTION I-I
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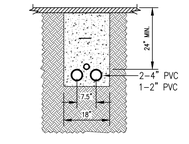


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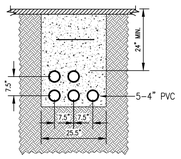
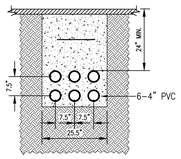
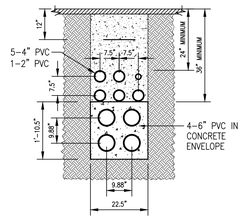
SCALE: 1/2"=1'-0"




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




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

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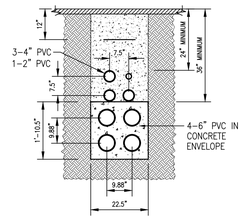
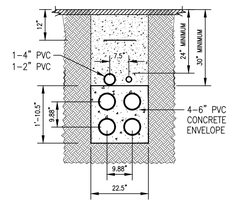
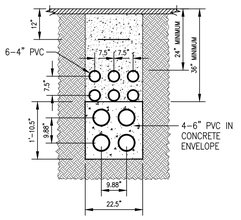



SECTION N-N
SCALE: 1/2"=1'-0"




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

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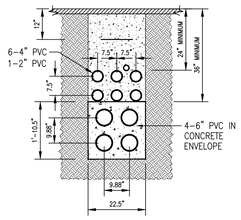
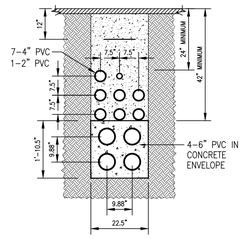
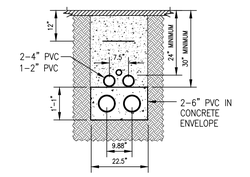
SCALE: 1/2"=1'-0"



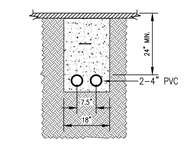

SECTION Q-Q
SCALE: 1/2"=1'-0"




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




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




SECTION T-T
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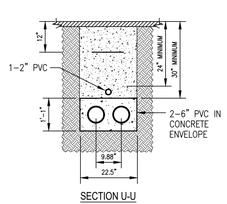
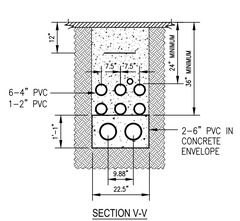
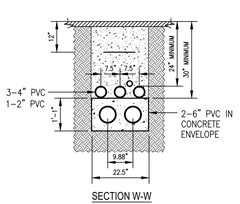


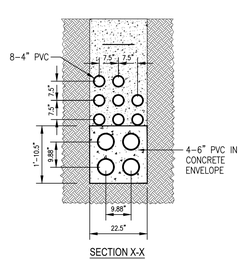

SECTION U-U
SCALE: 1/2"=1'-0"



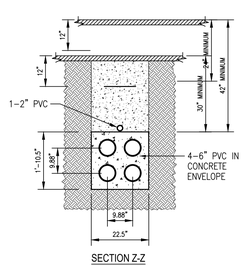

SECTION V-V
SCALE: 1/2"=1'-0"



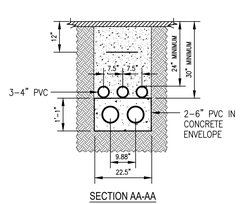

SECTION W-W
SCALE: 1/2"=1'-0"



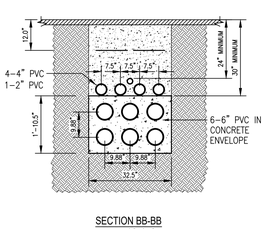

SECTION X-X
SCALE: 1/2"=1'-0"



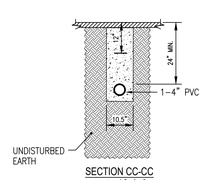

SECTION Z-Z
SCALE: 1/2"=1'-0"




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




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




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

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

Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
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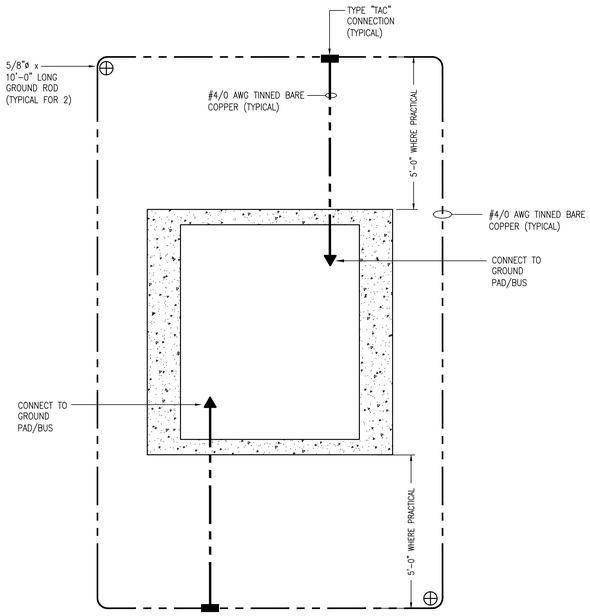
| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

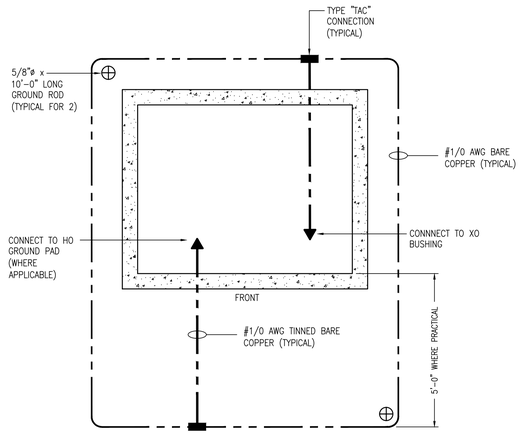
DUCT BANK DETAILS

Drawing Number:

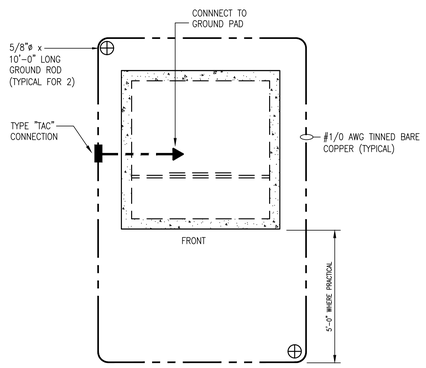
STX-20131-9B-E-103



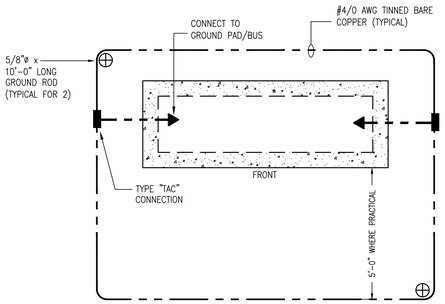

PAD MOUNTED SWITCHGEAR PLAN VIEW
SCALE: ½" = 1'-0"



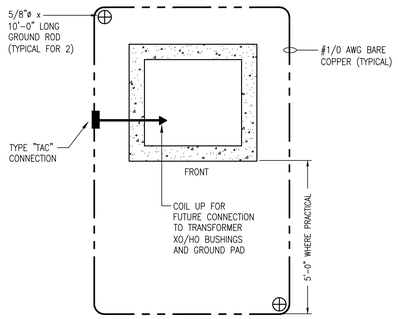

3ø PAD MOUNTED TRANSFORMER GROUNDING PLAN
SCALE: NONE




PAD MOUNTED METERING SWITCHGEAR GROUNDING PLAN
SCALE: NONE




PAD MOUNTED SECTIONALIZING CABINET GROUNDING PLAN
SCALE: NONE




1ø PAD MOUNTED TRANSFORMER GROUNDING PLAN
SCALE: NONE

## BILL OF MATERIAL FOR GROUNDING SYSTEM

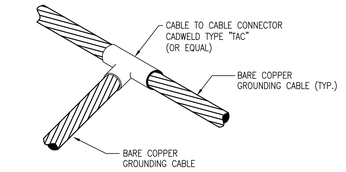
| ITEM NO. | QUANTITY | DESCRIPTION |
|---|---|---|
| 1 | TBD | #4/0 19 STRAND BARE SOFT DRAWN COPPER, CLASS B STRANDING, ASTMB8 |
| 2 | TBD | #1/0 7 STRAND BARE SOFT DRAWN COPPER, CLASS A STRANDING, ASTMB8 |
| 3 | TBD | COPPER BONDED GROUND ROD, 5/8" DIA. X 10'-0" LONG, ERITECH #615800 (OR EQUAL) |
| 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:

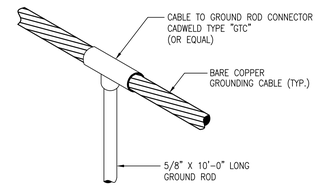
1. GROUNDING MATERIALS SHALL BE AS SPECIFIED, OR APPROVED EQUAL.
2. CONTRACTOR SHALL PROVIDE A SUBMITTAL FOR REVIEW AND APPROVAL BY ENGINEER FOR ALL GROUNDING MATERIALS PRIOR TO ORDERING.
3. ALL QUANTITIES SHALL BE DETERMINED BY THE CONTRACTOR.

## 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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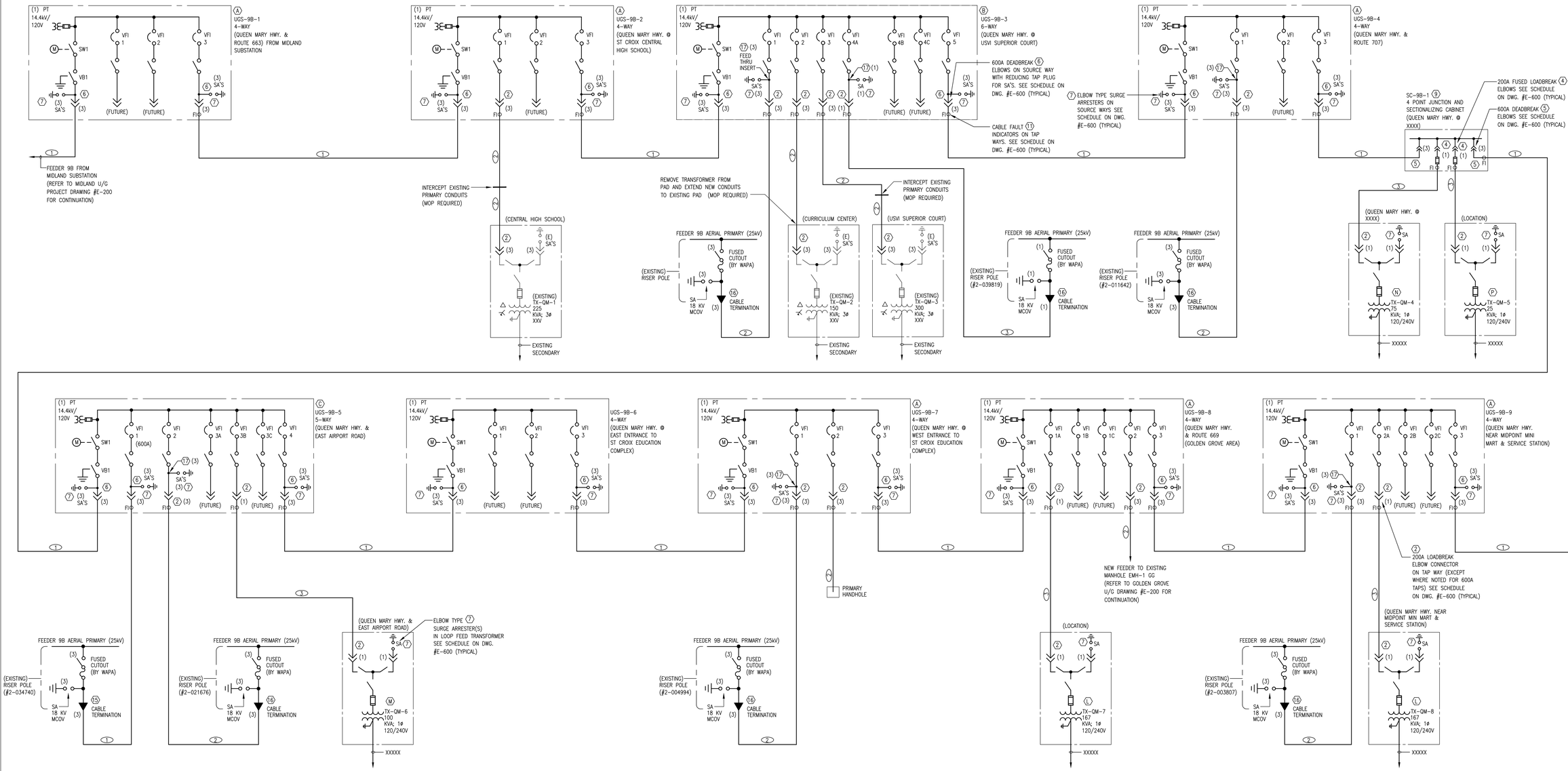
| | |
|---|---|
| Drawn By: | PJB |
| Chk'd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:
GROUNDING DETAILS

Drawing Number:
STX-20131-9B-E-104




1 / E-200 ONE LINE DIAGRAM
NOT TO SCALE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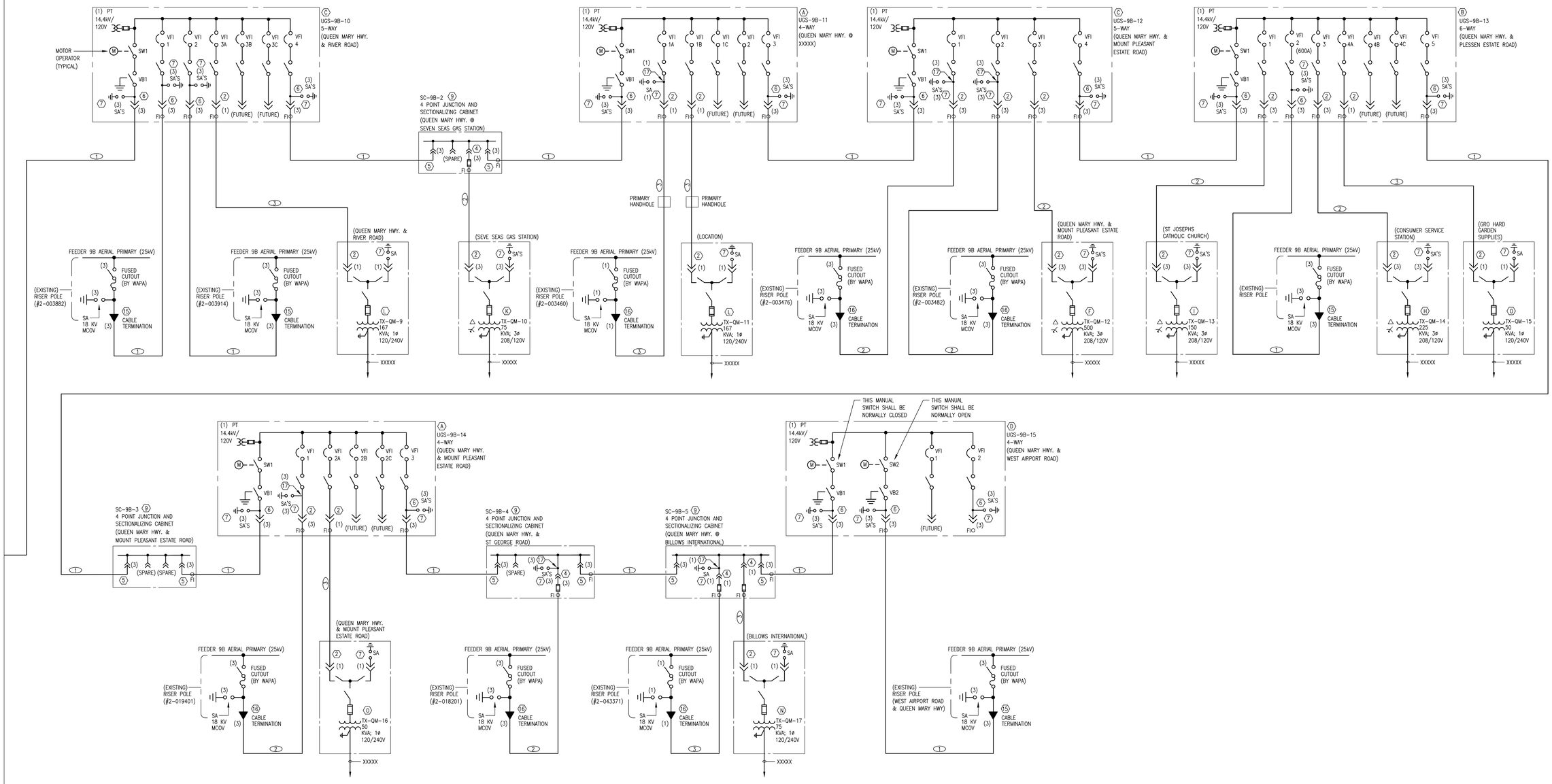
| | |
|---|---|
| Drawn By: | PJB |
| Chk'd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:
INSTALLATION ONE LINE DIAGRAM FEEDER 9B

Drawing Number:
STX-20131-9B-E-200




1 / E-201 ONE LINE DIAGRAM
NOT TO SCALE

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Owner:

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Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

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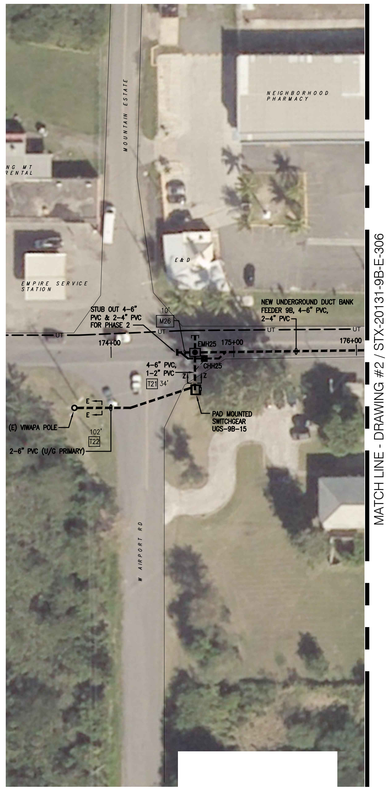
| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

INSTALLATION ONE LINE DIAGRAM FEEDER 9B

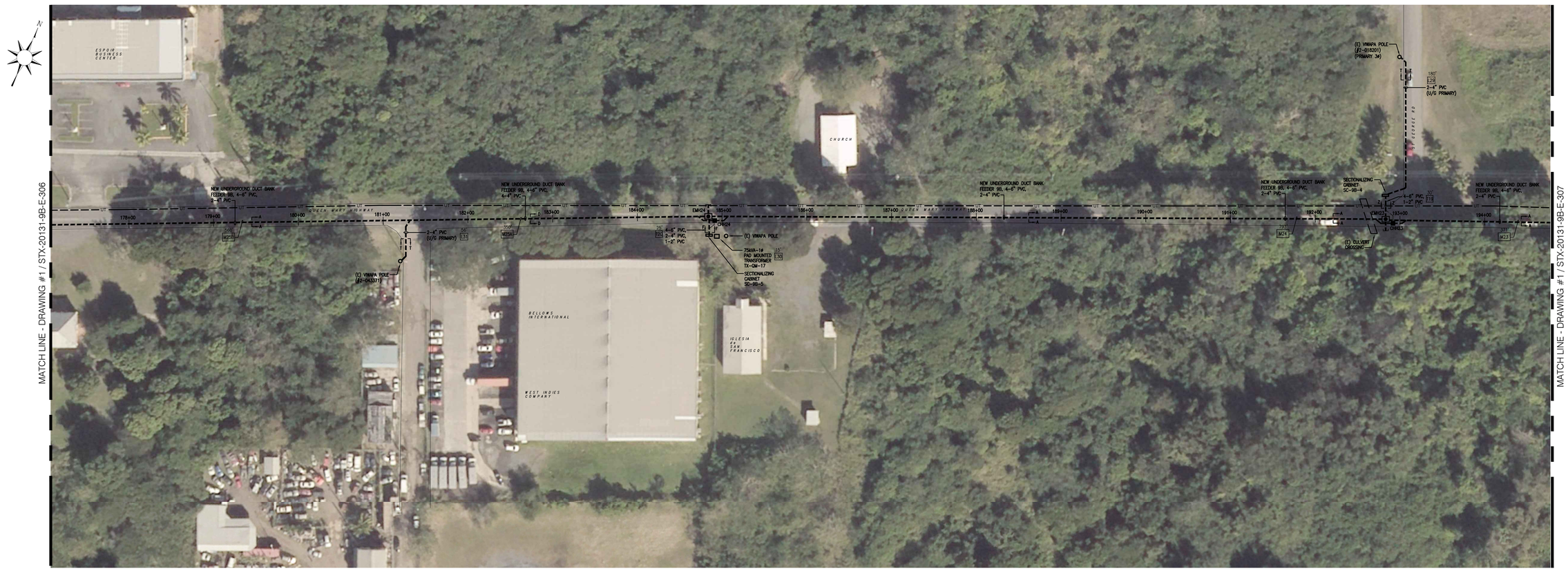
Drawing Number:

STX-20131-9B-E-201




MATCH LINE - DRAWING #2 / STX-20131-9B-E-306

1 E306 DUCT BANK PLAN
SCALE: 1" = 50'-0"




MATCH LINE - DRAWING #1 / STX-20131-9B-E-306

MATCH LINE - DRAWING #1 / STX-20131-9B-E-307

2 E306 DUCT BANK PLAN
SCALE: 1" = 50'-0"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Engineers Seal

Client:

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

Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT FEEDER 9B, ALONG QUEEN MARY HIGHWAY. FROM HANNAH'S REST RD. TO BLVD. 24,, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

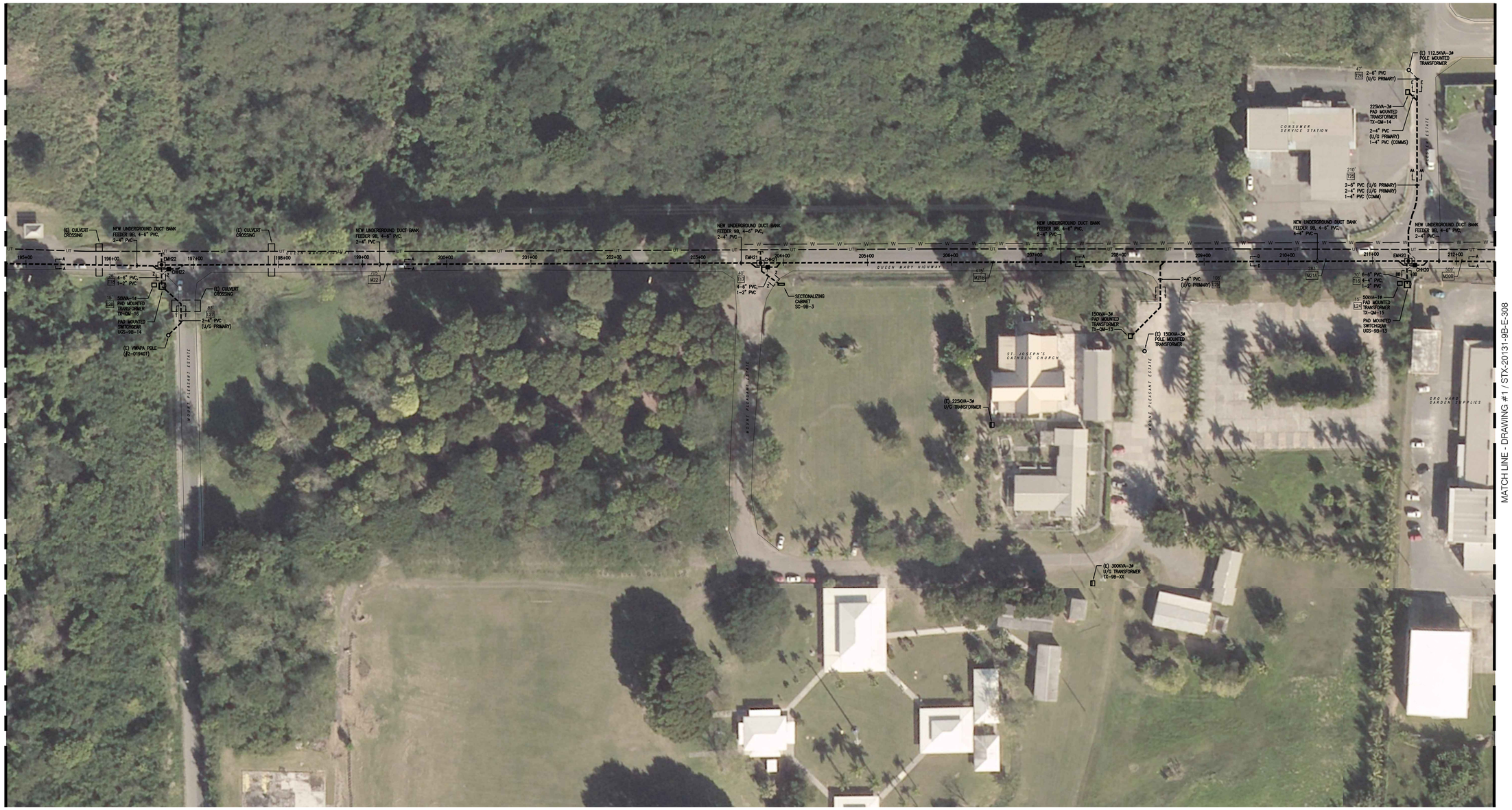
| | |
|---|---|
| Drawn By: | PJB |
| Chk'd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-306




1 E307 DUCT BANK PLAN
SCALE: 1" = 50-0"

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Client:

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

Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT FEEDER 9B, ALONG QUEEN MARY HIGHWAY. FROM HANNAH'S REST RD. TO BLVD. 24,, ST CROIX, USVI

Issue / Revisions:

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|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-307


1 E308 DUCT BANK PLAN
SCALE: 1" = 50'-0"

MATCH LINE - DRAWING #1 / STX-20131-9B-E-307

MATCH LINE - DRAWING #1 / STX-20131-9B-E-309


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Issue / Revisions:

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| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-308


1 E309 DUCT BANK PLAN
SCALE: 1" = 50'-0"

MATCH LINE - DRAWING #1 / STX-20131-9B-E-309

MATCH LINE - DRAWING #1 / STX-20131-9B-E-310

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Project Name:

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Issue / Revisions:

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| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

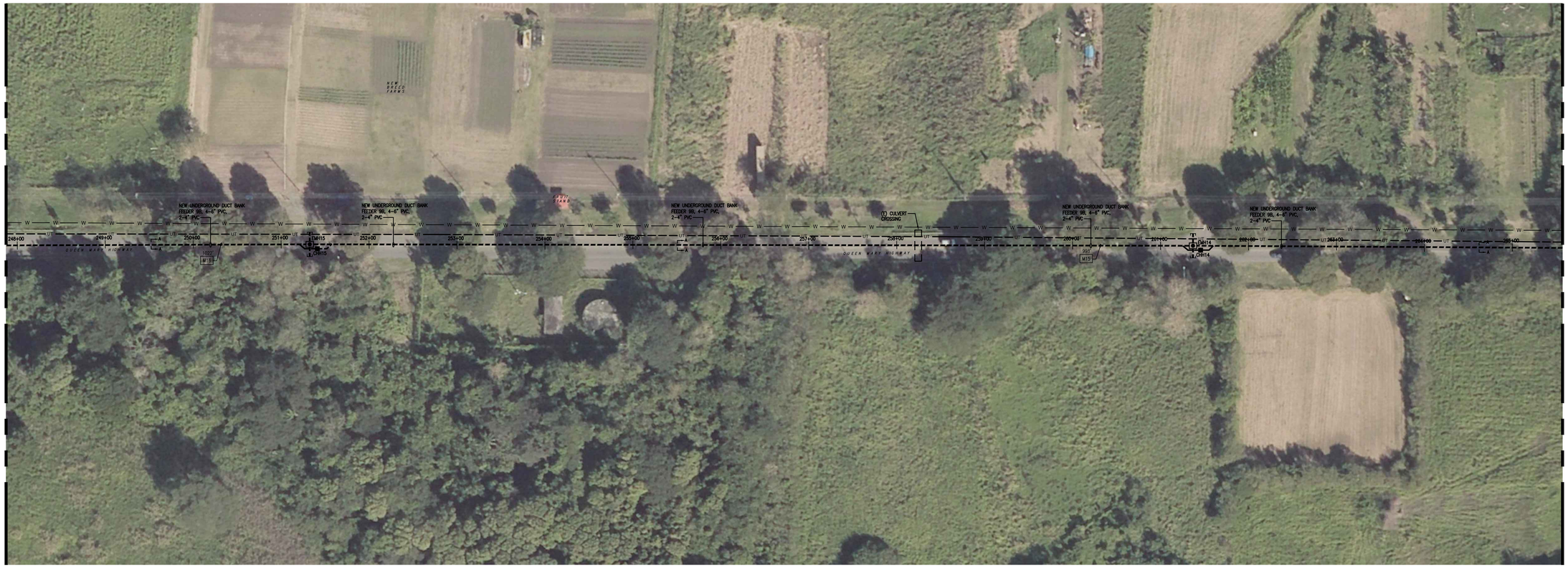
Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-309

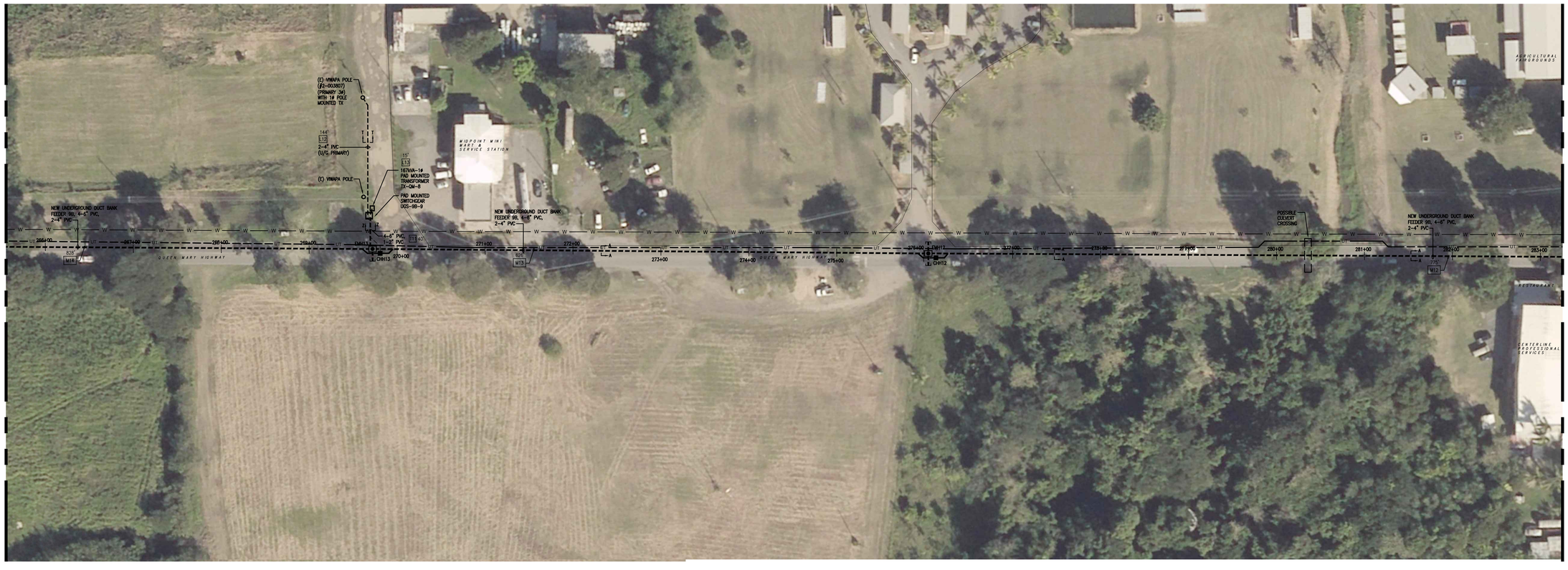
MATCH LINE - DRAWING #1 / STX-20131-9B-E-309




1 E310 DUCT BANK PLAN
SCALE: 1" = 50'-0"

MATCH LINE - DRAWING #2 / STX-20131-9B-E-310

MATCH LINE - DRAWING #1 / STX-20131-9B-E-310




2 E310 DUCT BANK PLAN
SCALE: 1" = 50'-0"

MATCH LINE - DRAWING #1 / STX-20131-9B-E-311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Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT FEEDER 9B, ALONG QUEEN MARY HIGHWAY. FROM HANNAH'S REST RD. TO BLVD. 24,, ST CROIX, USVI

Issue / Revisions:

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| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

| | |
|---|---|
| Drawn By: | PJB |
| Chk'd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-310

MATCH LINE - DRAWING #2 / STX-20131-9B-E-310

MATCH LINE - DRAWING #1 / STX-20131-9B-E-312


1 / E311 DUCT BANK PLAN
SCALE: 1" = 50'-0"

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| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-311

MATCH LINE - DRAWING #1 / STX-20131-9B-E-311


1 E312 DUCT BANK PLAN
SCALE: 1" = 50'-0"

MATCH LINE - DRAWING #1 / STX-20131-9B-E-313

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UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT FEEDER 9B, ALONG QUEEN MARY HIGHWAY. FROM HANNAH'S REST RD. TO BLVD. 24,, ST CROIX, USVI

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| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-312


MATCH LINE - DRAWING #1 / STX-20131-9B-E-312

MATCH LINE - DRAWING #2 / STX-20131-9B-E-313

1 E313 DUCT BANK PLAN
SCALE: 1" = 50'-0"


MATCH LINE - DRAWING #1 / STX-20131-9B-E-313

MATCH LINE - DRAWING #1 / STX-20131-9B-E-314

2 E313 DUCT BANK PLAN
SCALE: 1" = 50'-0"

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| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-313

MATCH LINE - DRAWING #2 / STX-20131-9B-E-313


1 / E314 DUCT BANK PLAN
SCALE: 1" = 50'-0"


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| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

FEEDER 9B
DUCT BANK PLAN

Drawing Number:

STX-20131-9B-E-314

## MEDIUM VOLTAGE SPLICE/TERMINATION & EQUIPMENT SCHEDULE

| ITEM | QUANTITY | DETAILS | BASIS OF DESIGN | MODEL # | DESCRIPTION | INSTALLED BY | FURNISHED BY |
|---|---|---|---|---|---|---|---|
| 1 | 39 | 25KV, COLD SHRINK CABLE SPLICE FOR #750 KCMIL CU. CABLE (2.048" O.D., W/1/3 CONC. NEUTRAL 100% EPR INSULATION (SEE APPROVED CABLE DATA SHEET) | 3M KIT QS-III<br>TE | 5526A<br>CSJA-2824M8 | EPDM STRAIGHT THROUGH CABLE SPLICE | E.C. | E.C. |
| 2 | 88 | 25KV, 200 AMP LOADBREAK ELBOW CONNECTOR FOR 25KV, #1/0 AL, 100% INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET) | HUBBELL | 228LE35TJ | 200A LOADBREAK ELBOW CONNECTOR AT TRANSFORMERS & METERING CABINET | E.C. | E.C. |
| 4 | 10 | 25KV, 200 AMP FUSED LOADBREAK ELBOW CONNECTOR, WITH TEST POINTS FOR 35KV, #1/0 AL, 100% EPR INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET), 10 KAIC SYMMETRICAL | HUBBELL | 228FEHB5J | 200A FUSED LOADBREAK ELBOW CONNECTOR | E.C. | E.C. |
| 5 | 30 | 25KV, 600 AMP DEADBREAK ELBOW CONNECTOR FOR 25KV, #750 KCMIL AL, 100% INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET) | HUBBELL | 625BTM38TJ | 600A DEADBREAK ELBOW CONNECTOR | E.C. | E.C. |
| 6 | 105 | 25KV, 600 AMP DEADBREAK ELBOW CONNECTOR FOR 25KV, #750 KCMIL AL, 100% INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET) WITH REDUCING TAP PLUG FOR ELBOW ARRESTER CONNECTION | HUBBELL | 625LRTPM38TJ | 600A DEADBREAK ELBOW CONNECTOR | E.C. | E.C. |
| 7 | 157 | 18KV/15.3KV MCOV METAL OXIDE VARISTOR ELBOW TYPE SURGE ARRESTER | HUBBELL | 225ELA18 | MOV ELBOW ARRESTER | E.C. | E.C. |
| 9 | 5 CABINETS<br>15 JUNCTIONS | 25KV, 200A, STAINLESS STEEL SECTIONALIZING CABINET WITH BASE EXTENSION, WITH 3 – 4 POINT VARIABLE JUNCTIONS | HUBBELL | JUNCTION: XXX<br>CABINET: XXX | SECTIONALIZING CABINET WITH 4 POINT VARIABLE JUNCTIONS | E.C. | E.C. |
| 11 | 142 | CABLE FAULT INDICATOR, SELF POWERED, LOCAL LED INDICATION WITH 8 HOUR AUTOMATIC RESET, AND DETACHABLE 6' REMOTE FIBER-OPTIC DISPLAY LEAD | SEL | SEL ARU 1BARUZR8GY2 | FAULT INDICATOR | E.C. | E.C. |
| 15 | 15 | OUTDOOR TYPE, SILICON POLYMER COLD SHRINK, 25kV CABLE TERMINATION KIT, CABLE SIZE #750 KCMIL AL., 100% EPR INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET), WITH MOUNTING BRACKET (COMPLY WITH IEEE 48 CLASS 1) | BURNDY | CSUDI2528500150OJ | TERMINATION AT 25KV RISER POLES | E.C. | E.C. |
| 16 | 30 | OUTDOOR TYPE, SILICON POLYMER COLD SHRINK, 25kV CABLE TERMINATION KIT, CABLE SIZE #1/0 AWG AL., 100% EPR INSULATION, CONCENTRIC NEUTRAL CABLE (SEE APPROVED CABLE DATA SHEET), WITH MOUNTING BRACKET (COMPLY WITH IEEE 48 CLASS 1) | BURNDY | CSUD02528140J<br>CSUDI2528140J<br>(#1–#4/0) | TERMINATION AT 25KV RISER POLES | E.C. | E.C. |
| 17 | 30 | 25KV FEED-THRU INSERT | HUBBELL | 228FTI | 25KV FEED THRU INSERT | E.C. | E.C. |

## MEDIUM VOLTAGE CABLE & RACEWAY SCHEDULE

| TAG | FROM | TO | CABLES / CONDUCTORS PER CONDUIT | | | | | | CONDUIT | | | PURPOSE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | VOLTAGE | PHASE | NEUTRAL | GROUND | INSULATION | TEMP/ RATING | QUANTITY | SIZE | TYPE | |
| 1 | SWITCHGEAR OR SECTIONALIZER | SWITCHGEAR, SECTIONALIZER OR 3ø RISER | 25kV | 3–1/C #750 KCMIL | 1/3 NEUTRAL | N/A | 100% | MV105 | 1 | 6" | SCHEDULE 40 PVC | MAIN FEEDER |
| 2 | SWITCHGEAR OR SECTIONALIZER | 3ø TRANSFORMER OR 3ø RISER | 25kV | 3–1/C #1/0 | FULL NEUTRAL | N/A | 100% | MV105 | 1 | 4" | SCHEDULE 40 PVC | 3ø FEEDER TO TRANSFORMER OR RISER POLE |
| 3 | SWITCHGEAR, SECTIONALIZER OR TRANSFORMER | 1ø TRANSFORMER OR 1ø RISER | 25kV | 1–1/C #1/0 | FULL NEUTRAL | N/A | 100% | MV105 | 1 | 4" | SCHEDULE 40 PVC | 1ø FEEDER TO TRANSFORMER OR RISER POLE |

NOTE; MEDIUM VOLTAGE CABLE IS SUPPLIED BY VIWAPA AND RECEIVED, TRANSPORTED, TESTED AND INSTALLEDF BY CONTRACTOR

## PAD MOUNTED TRANSFORMER SCHEDULE

| TAG | LABEL | RATING | PRIMARY | SECONDNARY | QUANTITY | DESCRIPTION | MANUFACTURER | DIMENSIONS | TOTAL WEIGHT | ACCESS REQUIRED | INSTALLED BY | CABLE ENTRY / EXIT | FURNISHED BY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F | TX-QM-12 | 500KVA;3ø TRANSFORMER | 24.94kV △ | 208/120V ⊀ | 1 | 3ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, UL LISTED, DOE 2016 EFFICIENCY, STAINLESS STEEL TANK, COPPER WINDINGS, BAY-O-NET FUSES AND CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, XX% IMPEDANCE, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| H | TX-QM-14 | 225KVA;3ø TRANSFORMER | 24.94kV △ | 208/120V ⊀ | 1 | 3ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, UL LISTED, DOE 2016 EFFICIENCY, STAINLESS STEEL TANK, COPPER WINDINGS, BAY-O-NET FUSES AND CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, XX% IMPEDANCE, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| I | TX-QM-13 | 150KVA;3ø TRANSFORMER | 24.94kV △ | 208/120V ⊀ | 1 | 3ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, UL LISTED, DOE 2016 EFFICIENCY, STAINLESS STEEL TANK, COPPER WINDINGS, BAY-O-NET FUSES AND CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, XX% IMPEDANCE, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| K | TX-QM-10 | 75KVA;3ø TRANSFORMER | 24.94kV △ | 208/120V ⊀ | 1 | 3ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, UL LISTED, DOE 2016 EFFICIENCY, STAINLESS STEEL TANK, COPPER WINDINGS, BAY-O-NET FUSES AND CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, XX% IMPEDANCE, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| L | TX-QM-7<br>QM-8, QM-9<br>QM-11 | 167KVA;1ø TRANSFORMER | 24.94/14.40kV ⊀ | 120/240V | 4 | 1ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| M | TX-QM-6 | 100KVA;1ø TRANSFORMER | 24.94/14.40kV ⊀ | 120/240V | 1 | 1ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| N | TX-QM-4,<br>QM-17 | 75KVA;1ø TRANSFORMER | 24.94/14.40kV ⊀ | 120/240V | 2 | 1ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| O | TX-QM-15<br>QM-16 | 50KVA;1ø TRANSFORMER | 24.94/14.40kV ⊀ | 120/240V | 2 | 1ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |
| P | TX-QM-5 | 25KVA;1ø TRANSFORMER | 24.94/14.40kV ⊀ | 120/240V | 1 | 1ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL | REFER TO SPECIFICATIONS | TBD | TBD | 6' FRONT 3' REAR/SIDES | TBD | BOTTOM | VIWAPA |

NOTE: TRANSFORMERS ARE SUPPLIED BY VIWAPA AND RECEIVED, TRANSPORTED AND INSTALLED BY CONTRACTOR.

## PAD MOUNTED SWITCHGEAR SCHEDULE

| TAG | LABEL | NAME | QUANTITY | DESCRIPTION | MANUFACTURER | MODEL/TYPE | SC RATING | DIMENSIONS | WEIGHT | ACCESS REQUIRED | INSTALLED BY | CABLE ENTRY / EXIT | FURNISHED BY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | UGS-9B-1<br>9B-2, 9B-4,<br>9B-6, 9B-7,<br>9B-8, 9B-9,<br>9B-11 | PAD MOUNTED DISTRIBUTION SWITCHGEAR | 8 | PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 4WAY, 600A; 25kV; 95kV BIL; 12.5KA SYMMETRICAL, 1 SOURCE WAY & 3 VFI TAP WAYS, 3 POSITION VISIBLE BREAK SOURCE SWITCHES, MOTOR OPERATED SOURCE SWITCHES, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE | REFER TO SPECIFICATIONS | REFER TO SPECIFICATIONS | 12.5KA SYM. | TBD | TBD | 6' FRONT 3' REAR/SIDES | E.C. | BOTTOM | E.C. |
| B | UGS-9B-3,<br>9B-13 | PAD MOUNTED DISTRIBUTION SWITCHGEAR | 2 | PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 6WAY, 600A; 25kV; 95kV BIL; 12.5KA SYMMETRICAL, 1 SOURCE WAY & 5 VFI TAP WAYS, 5 POSITION VISIBLE BREAK SOURCE SWITCHES, MOTOR OPERATED SOURCE SWITCHES, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE | REFER TO SPECIFICATIONS | REFER TO SPECIFICATIONS | 12.5KA SYM. | TBD | TBD | 6' FRONT 3' REAR/SIDES | E.C. | BOTTOM | E.C. |
| C | UGS-9B-5<br>9B-10, 9B-12,<br>9B-14 | PAD MOUNTED DISTRIBUTION SWITCHGEAR | 4 | PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 5WAY, 600A; 25kV; 95kV BIL; 12.5KA SYMMETRICAL, 1 SOURCE WAY & 4 VFI TAP WAYS, 4 POSITION VISIBLE BREAK SOURCE SWITCHES, MOTOR OPERATED SOURCE SWITCHES, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE | REFER TO SPECIFICATIONS | REFER TO SPECIFICATIONS | 12.5KA SYM. | TBD | TBD | 6' FRONT 3' REAR/SIDES | E.C. | BOTTOM | E.C. |
| D | UGS-9B-15 | PAD MOUNTED DISTRIBUTION SWITCHGEAR | 1 | PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 4WAY, 600A; 25kV; 95kV BIL; 12.5KA SYMMETRICAL, 2 SOURCE WAYS & 2 VFI TAP WAYS, 2 POSITION VISIBLE BREAK SOURCE SWITCHES, MOTOR OPERATED SOURCE SWITCHES, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE | REFER TO SPECIFICATIONS | REFER TO SPECIFICATIONS | 12.5KA SYM. | TBD | TBD | 6' FRONT 3' REAR/SIDES | E.C. | BOTTOM | E.C. |


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

Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

ELECTRICAL EQUIPMENT SCHEDULES FEEDER 9B

Drawing Number:

STX-20131-9B-E-600

## FEEDER 9B - MAIN DUCT BANK SCHEDULE (6" PRIMARY)

| TAG | FROM | TO | LENGTH OF DUCT BANK (FEET) | DUCT BANK PVC QUANTITY | SECTION TAG |
|---|---|---|---|---|---|
| **M1** | MANHOLE EMH11-ML | MANHOLE EMH-1 | 618 | 4-6", 2-4" PVC | A-A |
| **M2** | MANHOLE EMH-1 | MANHOLE EMH-2 | 546 | 4-6", 2-4" PVC | A-A |
| | | | 223 | 4-6", 4-4" PVC | D-D |
| **M3** | MANHOLE EMH-2 | MANHOLE EMH-3 | 285 | 4-6", 5-4" PVC | C-C |
| | | | 425 | 4-6", 2-4" PVC | A-A |
| **M4** | MANHOLE EMH-3 | MANHOLE EMH-4 | 549 | 4-6", 2-4" PVC | A-A |
| | | | 665 | 4-6", 4-4", 1-2" PVC | I-I |
| **M5** | MANHOLE EMH-4 | MANHOLE EMH-5 | 765 | 4-6", 2-4" PVC | A-A |
| **M6** | MANHOLE EMH-5 | MANHOLE EMH-6 | 934 | 4-6", 2-4" PVC | A-A |
| **M7** | MANHOLE EMH-6 | MANHOLE EMH-7 | 68 | 4-6", 4-4" PVC | D-D |
| | | | 550 | 4-6", 2-4" PVC | A-A |
| **M8** | MANHOLE EMH-7 | MANHOLE EMH-8 | 573 | 4-6", 2-4" PVC | A-A |
| **M9** | MANHOLE EMH-8 | MANHOLE EMH-9 | 596 | 4-6", 2-4" PVC | A-A |
| **M10** | MANHOLE EMH-9 | MANHOLE EMH-10 | 1215 | 4-6", 2-4" PVC | A-A |
| **M11** | MANHOLE EMH-10 | MANHOLE EMH-11 | 244 | 4-6", 4-4" PVC | D-D |
| | | | 220 | 4-6", 2-4" PVC | A-A |
| | | | 140 | 4-6", 4-4" PVC | D-D |
| **M12** | MANHOLE EMH-11 | MANHOLE EMH-12 | 775 | 4-6", 2-4" PVC | A-A |
| **M13** | MANHOLE EMH-12 | MANHOLE EMH-13 | 626 | 2-6", 1-4" PVC | H-H |
| **M14** | MANHOLE EMH-13 | MANHOLE EMH-14 | 828 | 4-6", 2-4" PVC | A-A |
| **M15** | MANHOLE EMH-14 | MANHOLE EMH-15 | 998 | 4-6", 2-4" PVC | A-A |
| **M16** | MANHOLE EMH-15 | MANHOLE EMH-16 | 1022 | 4-6", 2-4" PVC | A-A |
| **M17** | MANHOLE EMH-16 | MANHOLE EMH-17 | 50 | 2-6", 1-4" PVC | H-H |
| | | | 500 | 4-6", 2-4" PVC | A-A |
| **M18** | MANHOLE EMH-17 | MANHOLE EMH-18 | 1050 | 4-6", 2-4" PVC | A-A |
| **M19** | MANHOLE EMH-18 | MANHOLE EMH-19 | 427 | 4-6", 4-4" PVC | D-D |
| | | | 509 | 4-6", 2-4" PVC | A-A |
| **M20** | MANHOLE EMH-19 | MANHOLE EMH-20 | 237 | 4-6", 4-4" PVC | D-D |
| | | | 172 | 4-6", 2-4" PVC | A-A |
| **M21** | MANHOLE EMH-20 | MANHOLE EMH-21 | 283 | 4-6", 4-4" PVC | D-D |
| | | | 475 | 4-6", 2-4" PVC | A-A |
| **M22** | MANHOLE EMH-21 | MANHOLE EMH-22 | 705 | 4-6", 2-4" PVC | A-A |
| **M23** | MANHOLE EMH-22 | MANHOLE EMH-23 | 371 | 4-6", 2-4" PVC | A-A |
| **M24** | MANHOLE EMH-23 | MANHOLE EMH-24 | 793 | 4-6", 2-4" PVC | A-A |
| **M25** | MANHOLE EMH-24 | MANHOLE EMH-25 | 350 | 4-6", 2-4" PVC | A-A |
| | | | 560 | 4-6", 2-4" PVC | A-A |
| **M26** | MANHOLE EMH-25 | STUB OUT FOR PHASE 2 | 10 | 4-6", 2-4" PVC | A-A |
| | | TOTAL LENGTH (FEET) | 19357 | | |

## FEEDER 9B - SWITCHGEAR DUCT BANK SCHEDULE (6" PRIMARY)

| TAG | FROM | TO | LENGTH OF DUCT BANK (FEET) | DUCT BANK PVC QUANTITY | SECTION TAG |
|---|---|---|---|---|---|
| **T1** | UGS-9B-1 | MANHOLE EMH-11 ML | 15 | 2-6", 1-2" PVC | U-U |
| **T2** | MANHOLE EMH-1 | UGS-9B-2 | 35 | 4-6", 1-2" PVC | Z-Z |
| **T3** | MANHOLE EMH-2 | UGS-9B-3 | 30 | 4-6", 6-4", 1-2" PVC | Q-Q |
| **T4** | MANHOLE EMH-3 | UGS-9B-4 | 35 | 4-6", 2-4",1-2" PVC | F-F |
| **T5** | MANHOLE-EMH-4 | SC-9B-1 | 33 | 4-6", 2-4",1-2" PVC | F-F |
| **T6** | MANHOLE EMH-6 | UGS-9B-5 | 55 | 4-6", 2-4",1-2" PVC | F-F |
| **T7** | UGS-9B-5 | 3 PHASE RISER POLE #2-034740 | 178 | 2-6" PVC | E-E |
| **T8** | MANHOLE EMH-8 | UGS-9B-6 | 27 | 4-6", 1-2" PVC | Z-Z |
| **T9** | MANHOLE EMH-10 | UGS-9B-7 | 50 | 4-6", 2-4",1-2" PVC | F-F |
| **T10** | MANHOLE EMH-11 | UGS-9B-8 | 55 | 4-6", 2-4",1-2" PVC | F-F |
| **T11** | MANHOLE EMH-13 | UGS-9B-9 | 40 | 4-6", 1-2" PVC | Z-Z |
| **T12** | MANHOLE EMH-16 | UGS-9B-10 | 51 | 4-6", 2-4",1-2" PVC | F-F |
| **T13** | MANHOLE EMH-17 | SC-9B-2 | 70 | 4-6", 1-2" PVC | Z-Z |
| **T14** | MANHOLE EMH-18 | UGS-8B-11 | 35 | 4-6", 2-4",1-2" PVC | F-F |
| **T15** | MANHOLE EMH-19 | UGS-8B-12 | 44 | 4-6", 2-4",1-2" PVC | F-F |
| **T16** | MANHOLE EMH-20 | UGS-9B-13 | 30 | 6-6", 4-4", 1-2" PVC | BB-BB |
| **T17** | MANHOLE EMH-21 | SC-9B-3 | 40 | 4-6", 1-2" PVC | Z-Z |
| **T18** | MANHOLE EMH-22 | UGS-9B-14 | 26 | 4-6", 1-2" PVC | Z-Z |
| **T19** | MANHOLE EMH-23 | SC-9B-4 | 30 | 4-6", 1-2" PVC | Z-Z |
| **T20** | MANHOLE EMH-24 | SC-9B-5 | 25 | 4-6", 2-4",1-2" PVC | F-F |
| **T21** | MANHOLE EMH-25 | UGS-9B-15 | 34 | 4-6", 1-2" PVC | Z-Z |
| **T22** | UGS-9B-15 | 3 PHASE RISER POLE ON W. AIRPORT ROAD | 102 | 2-6" PVC | E-E |
| **T23** | UGS-9B-10 | 3 PHASE RISER POLE #2-003882 | 247 | 2-6" PVC | E-E |
| **T24** | UGS-9B-10 | 3 PHASE RISER POLE #2-003914 | 213 | 2-6" PVC | E-E |
| **T25** | MANHOLE EMH-20 | LOCATION OF TX-QM-14 | 210 | 2-6", 3-4" PVC | AA-AA |
| **T26** | LOCATION OF TX-QM-14 | 3 PHASE RISER POLE AT CONSUMER SERVICE STATION | 47 | 2-6" PVC | E-E |
| | | TOTAL LENGTH (FEET) | 1757 | | |

## FEEDER 9B - LATERAL DUCT BANK SCHEDULE (4" PRIMARY)

| TAG | FROM | TO | LENGTH OF DUCT BANK (FEET) | DUCT BANK PVC QUANTITY | SECTION TAG |
|---|---|---|---|---|---|
| **L1** | UGS-9B-2 | TX-QM-1 | 25 | 2-4" PVC (CDF) | T-T |
| **L2** | STATION MARKER 358+84 | TX-QM-2 | 58 | 2-4" PVC (CDF) | T-T |
| **L3** | EMH-2/CHH-2 | 1 PHASE RISER POLE #2-039819 | 62 | 3-4" PVC (CDF) | G-G |
| **L4** | UGS-9B-3 | 3 PHASE RISER POLE | 222 | 2-4", 1-2" PVC (CDF) | J-J |
| **L5** | STATION MARKER 353+79 | TX-QM-3 | 48 | 3-4" PVC (CDF) | G-G |
| **L6** | EMH-3/CHH-3 | 3 PHASE RISER POLE #2-011642 | 130 | 3-4" PVC (CDF) | G-G |
| **L7** | STATION MARKER 344+00 | TX-QM-4 | 42 | 2-4", 1-2" PVC (CDF) | J-J |
| **L8** | STATION MARKER 319+49 | 3 PHASE RISER POLE #2-021676 | 320 | 2-4" PVC (CDF) | T-T |
| **L9** | UGS-9B-7 | 3 PHASE RISER POLE #2-004994 | 51 | 2-4" PVC (CDF) | T-T |
| **L10** | STATION MARKER 287+48 | PRIMARY HANDHOLE | 28 | 2-4" PVC (CDF) | T-T |
| **L11** | STATION MARKER 285+30 | INTERCEPT EXISTING CONDUITS TO TX-QM-7 | 40 | 2-4" PVC (CDF) | T-T |
| **L12** | UGS-9B-9 | 3 PHASE RISER POLE #2-003807 | 144 | 2-4" PVC (CDF) | T-T |
| **L13** | UGS-9B-9 | TX-QM-8 | 15 | 2-4" PVC (CDF) | T-T |
| **L15** | UGS-9B-10 | TX-QM-9 | 15 | 2-4" PVC (CDF) | T-T |
| **L17** | SC-9B-2 | TX-QM-10 | 15 | 2-4" PVC (CDF) | T-T |
| **L18** | STATION MARKER 220+63 | PRIMARY HANHOLE | 138 | 2-4" PVC (CDF) | T-T |
| **L19** | PRIMARY HANDHOLE | 1 PHASE RISER POLE #2-003460 | 82 | 2-4" PVC (CDF) | T-T |
| **L20** | PRIMARY HANDHOLE | TX-QM-11 | 199 | 2-4" PVC (CDF) | T-T |
| **L21** | UGS-8B-12 | 3 PHASE RISER POLE #2-003476 | 228 | 5-4" PVC (CDF) | K-K |
| **L22** | UGS-BB-12 | TX-QM-12 | 15 | 2-4" PVC (CDF) | T-T |
| **L23** | STATION MARKER 213+15 | 3 PHASE RISER POLE #2-003482 | 42 | 2-4" PVC (CDF) | T-T |
| **L24** | UGS-9B-13 | TX-QM-15 | 15 | 2-4" PVC (CDF) | T-T |
| **L25** | UGS-9B-13 | TX-QM-13 | 108 | 2-4" PVC (CDF) | T-T |
| **L27** | UGS-9B-14 | 3 PHASE RISER POLE #2-019401 | 83 | 2-4" PVC (CDF) | T-T |
| **L28** | UGS-9B-14 | TX-QM-16 | 15 | 2-4" PVC (CDF) | T-T |
| **L29** | SC-9B-4 | 3 PHASE RISER POLE #2-018201 | 180 | 2-4" PVC (CDF) | T-T |
| **L30** | SC-9B-5 | TX-QM-17 | 15 | 2-4" PVC (CDF) | T-T |
| **L31** | STATION MARKER 181+31 | 1 PHASE RISER POLE #2-043371 | 56 | 2-4" PVC (CDF) | T-T |
| | | TOTAL LENGTH (FEET) | 2391 | | |

## FEEDER 9B - COMMS. ONLY DUCT BANK SCHEDULE (4" OR 2" PVC)

| TAG | FROM | TO | LENGTH OF DUCT BANK (FEET) | DUCT BANK PVC QUANTITY | SECTION TAG |
|---|---|---|---|---|---|
| **C1** | COMMS. HANDHOLE | STUB OUT TO EDGE OF ROAD | 1000 | 1-4" PVC (CDF) | CC-CC |
| | | TOTAL LENGTH (FEET) | 1000 | | |

## FEEDER 9B - MV CABLE SCHEDULE (1-1/C #750 kCMIL CU, 25kV, MV 105 CABLE) (3-PHASE)

| TAG | FROM | TO | CABLE LENGTH (FEET) |
|---|---|---|---|
| **MVM1** | (E) MANHOLE EMH11-ML | UGS-9B-1 | 305 |
| **MVM2** | UGS-9B-1 | UGS-9B-2 (VIA EMH11-ML/EMH1) | 2510 |
| **MVM3** | UGS-9B-2 | UGS-9B-3 (VIA EMH1/EMH2) | 2735 |
| **MVM4** | UGS-9B-3 | UGS-9B4 (VIA EMH2/EMH3) | 2565 |
| **MVM5** | UGS-9B-4 | SC-QM-1 (VIA EMH3/EMH4) | 4110 |
| **MVM6** | SC-QM-1 | UGS-9B-5 (VIA EMH4/EMH5/EMH6) | 5720 |
| **MVM7** | UGS-9B-5 | RISER POLE #2-034740 | 675 |
| **MVM8** | UGS-9B-5 | UGS-9B-6 (VIA EMH6/EMH7/EMH8) | 4170 |
| **MVM9** | UGS-9B-6 | UGS-9B-7 (VIA EMH8/EMH9/EMH10) | 6045 |
| **MVM10** | UGS-9B-7 | UGS-9B-8 (VIA EMH10/EMH11) | 2370 |
| **MVM11** | UGS-9B-8 | UGS-9B-9 (VIA EMH11/EMH12/EMH13) | 4860 |
| **MVM12** | UGS-9B-9 | UGS-9B-10 (VIA EMH13/EMH14/EMH15/EMH16) | 9315 |
| **MVM13** | UGS-9B-10 | RISER POLE #2-003882 | 885 |
| **MVM14** | UGS-9B-10 | RISER POLE #2-003914 (VIA EMH16) | 1230 |
| **MVM15** | UGS-9B-10 | SC-QM-2 (VIA EMH16/EMH17) | 2280 |
| **MVM16** | SC-QM-2 | UGS-9B-11 (VIA EMH17/EMH18) | 3735 |
| **MVM17** | UGS-9B-11 | UGS-9B-12 (VIA EMH18/EMH19) | 3300 |
| **MVM18** | UGS-9B-12 | UGS-9B-13 (VIA EMH19/EMH20) | 1680 |
| **MVM19** | UGS-9B-13 | RISER POLE AT PLESSEN ESTATE (VIA EMH20) | 1065 |
| **MVM20** | UGS-9B-13 | SC-9B-3 (VIA EMH20/EMH21) | 2760 |
| **MVM21** | SC-9B-3 | UGS-9B-14 (VIA EMH21/EMH22) | 2580 |
| **MVM22** | UGS-9B-14 | SC-9B-4 (VIA EMH22/EMH23) | 1545 |
| **MVM23** | SC-9B-4 | SC-9B-5 (VIA EMH23/EMH24) | 2805 |
| **MVM24** | SC-9B-5 | UGS-9B-14 (VIA EMH24/EMH25) | 3195 |
| **MVM25** | UGS-9B-15 | RISER POLE ON W. AIRPORT ROAD | 465 |
| | | **TOTAL LENGTH (FEET)** | 72905 |

## FEEDER 9B - MV CABLE SCHEDULE (1-1/C #1/0 CU, 25kV, MV 105 CABLE) (3-PHASE)

| TAG | FROM | TO | CABLE LENGTH (FEET) |
|---|---|---|---|
| **MVL1** | UGS-9B-2 | TX-QM-1 | 135 |
| **MVL2** | UGS-9B-3 | RISER POLE (USVI SUPERIOR COURT) | 810 |
| **MVL3** | UGS-9B-3 | TX-QM-2 (VIA EMH2) | 1050 |
| **MVL4** | UGS-9B-3 | TX-QM-3 (VIA EMH2) | 1215 |
| **MVL5** | UGS-9B-4 | RISER POLE #2-011642 (VIA EMH3) | 770 |
| **MVL6** | UGS-9B-5 | RISER POLE #2-021676 (VIA EMH6) | 1575 |
| **MVL7** | UGS-9B-7 | RISER POLE #2-004994 | 300 |
| **MVL8** | UGS-9B-7 | PRIMARY HANDHOLE (STA. 287+45 VIA EMH10) | 1110 |
| **MVL9** | UGS-9B-8 | EMG-1 GG (VIA EMH11) | 1725 |
| **MVL10** | UGS-9B-9 | RISER POLE #2-003807 | 570 |
| **MVL11** | SC-9B-2 | TX-QM-10 | 75 |
| **MVL12** | UGS-9B-12 | RISER POLE #2-003476 | 825 |
| **MVL13** | UGS-9B-12 | RISER POLE #2-003482 | 1230 |
| **MVL14** | UGS-9B-12 | TX-QM-12 | 75 |
| **MVL15** | UGS-9B-13 | TX-QM-13 (VIA EMH20) | 1425 |
| **MVL16** | UGS-9B-13 | TX-QM-14 (VIA EMH20) | 870 |
| **MVL17** | UGS-9B-14 | RISER POLE #2-019401 | 390 |
| **MVL18** | SC-9B-4 | RISER POLE #2-018201 | 690 |
| | | **TOTAL LENGTH (FEET)** | 14840 |

## FEEDER 9B - MV CABLE SCHEDULE (1-1/C #1/0 CU, 25kV, MV 105 CABLE) (1-PHASE)

| TAG | FROM | TO | CABLE LENGTH (FEET) |
|---|---|---|---|
| **MVL19** | UGS-9B-3 | RISER POLE #2-039819 (VIA EMH2) | 175 |
| **MVL20** | SC-9B-1 | TX-QM-4 (VIA EMH4) | 790 |
| **MVL21** | SC-9B-1 | TX-QM-5 | 25 |
| **MVL22** | UGS-9B-3 | TX-QM-6 | 25 |
| **MVL23** | UGS-9B-8 | TX-QM-7 (VIA EMH11) | 340 |
| **MVL24** | UGS-9B-9 | TX-QM-8 | 25 |
| **MVL25** | UGS-9B-10 | TX-QM-9 | 25 |
| **MVL26** | UGS-9B-11 | RISER POLE #2-003460 (VIA EMH18) | 780 |
| **MVL27** | UGS-9B-11 | TX-QM-11 (VIA EMH18) | 865 |
| **MVL28** | UGS-9B-13 | TX-QM-15 | 25 |
| **MVL29** | UGS-9B-14 | TX-QM-16 | 25 |
| **MVL30** | SC-9B-5 | RISER POLE #2-043371 (VIA EMH24) | 520 |
| **MVL31** | SC-9B-5 | TX-QM-17 | 25 |
| | | **TOTAL LENGTH (FEET)** | 3645 |


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Project Name:

UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT, PHASE 1 (FEEDER 9B), ALONG QUEEN MARY HIGHWAY. FROM ROUTE 663 TO W. AIRPORT ROAD, ST CROIX, USVI

Issue / Revisions:

| # | Date | Description |
|---|---|---|
| A | 01/24/22 | ISSUE FOR EHP REVIEW |
| B | 06/24/22 | REISSUE FOR EHP REVIEW |
| C | 01/06/23 | ISSUE FOR FEMA REVIEW (70%) |

| | |
|---|---|
| Drawn By: | PJB |
| Chkd By: | PJB |
| Date: | 01.06.23 |
| Scale: | As Noted |
| Project Number: | VIT 20131 |

Drawing Title:

ELECTRICAL
DUCT BANK AND
CABLE SCHEDULES
FEEDER 9B

Drawing Number:

STX-20131-9B-E-601