

UNDERGROUND INSTALLATION REQUIREMENTS

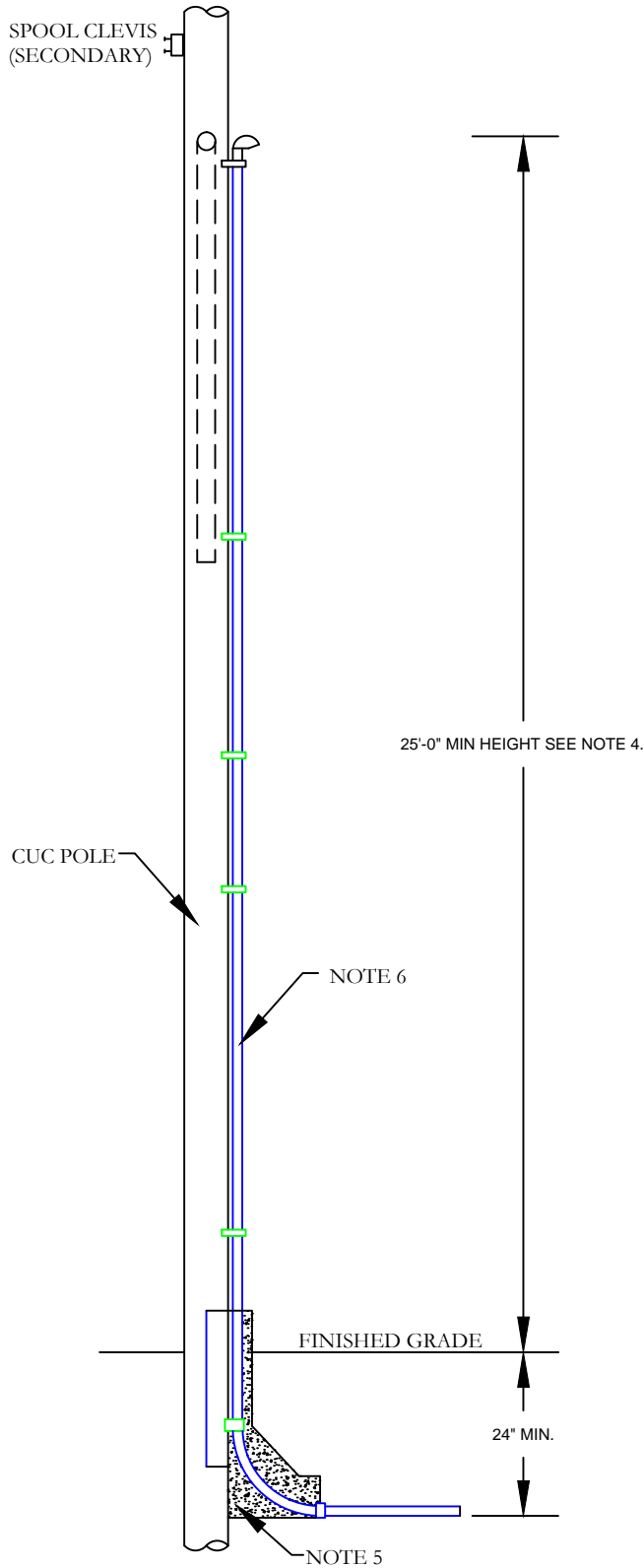


CARIBBEAN UTILITIES COMPANY

UNDERGROUND INSTALLATION REQUIREMENTS



CARIBBEAN UTILITIES COMPANY



1. THE CUSTOMER MUST OBTAIN PERMISSION FOR THE INSTALLATION OF U/G SERVICE ON CUC POLES.

2. THE LOCATION OF U/G SERVICE (WHICH SIDE OF POLE) MUST BE OBTAINED FROM CUC'S PLANNING DEPT.

3. IF MORE THAN TWO CONDUITS ARE REQUIRED, A CONDUIT STANDOFF BRACKET (SIMILAR TO THE ALUMAFORM 9-CS0-12) IS REQUIRED.

4. A WEATHER HEAD HEIGHT OF 25' MINIMUM IS REQUIRED ON ALL MAIN LINE POLES & MOST SERVICE POLES. IN NO CASE IS THE CUSTOMER ALLOWED TO WORK WITHIN 40" (FORTY INCHES) OF CUC'S SECONDARY OR NEUTRAL CONDUCTORS, 10'(TEN FEET) FROM CUC'S 13KV PRIMARY CONDUCTOR OR EQUIPMENT AND 16' (SIXTEEN FEET) FROM CUC 69KV TRANSMISSION CONDUCTORS.

5. A GALVANIZED RIGID STEEL ELBOW ENCASED IN CONCRETE IS REQUIRED AT THE BASE OF THE POLE.

6. THE FIRST SECTION OF THE CONDUIT AT THE BASE OF THE POLES MUST BE RIGID STEEL GALVANIZED AS PER NESC REQUIREMENTS AND GROUNDED TO A DEDICATED GROUND ROD.

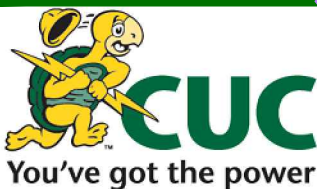
7. THE PRIMARY OR HIGH VOLTAGE DIPS (a) THE ABOVE REQUIREMENTS APPLY (b) A SPARE CONDUIT IS REQUIRED; THIS SPARE CONDUIT SHALL BE CAPPED NEAR THE GROUND LINE (c) TRENCH AND DUCT DETAILS SHALL BE IN ACCORDANCE WITH CUC SPECIFICATION (PAGE 16-4) AND (d) THE CONDUIT SIZE IS 3 INCH FOR SINGLE PHASE AND 4 INCH FOR THREE PHASE.

8. SUFFICIENT CONDUCTOR MUST BE PROVIDED TO CONNECT (A) THE SECONDARY (6 FEET), OR (b) THE Transformer(s) (10 FEET).

9. DUCTS INSTALLED FOR HV CABLE SHALL CONTAIN A FISH WIRE OR ROPE AND THE ENDS SHALL BE CAPPED (SPARE DUCTS DO NOT REQUIRE A FISH WIRE).

10. THREE PHASE AND MULTI CONDUCTOR SERVICES MUST BE MARKED OR COLOR CODED IN ACCORDANCE WITH REQUIREMENTS ON PAGE 2.

11. ALL HARDWARE MUST BE HOT DIPPED GALVANIZED



457 NORTH SOUND RD.
P.O. Box 38 G.T., GRAND CAYMAN,
CAYMAN ISLANDS, B.W.I.
TELEPHONE: (345)-949-5300/5200

PROJECT

CUC
STANDARDS

DRAWING

UNDERGROUND SERVICE
INSTALLATION

DATE: JUNE 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

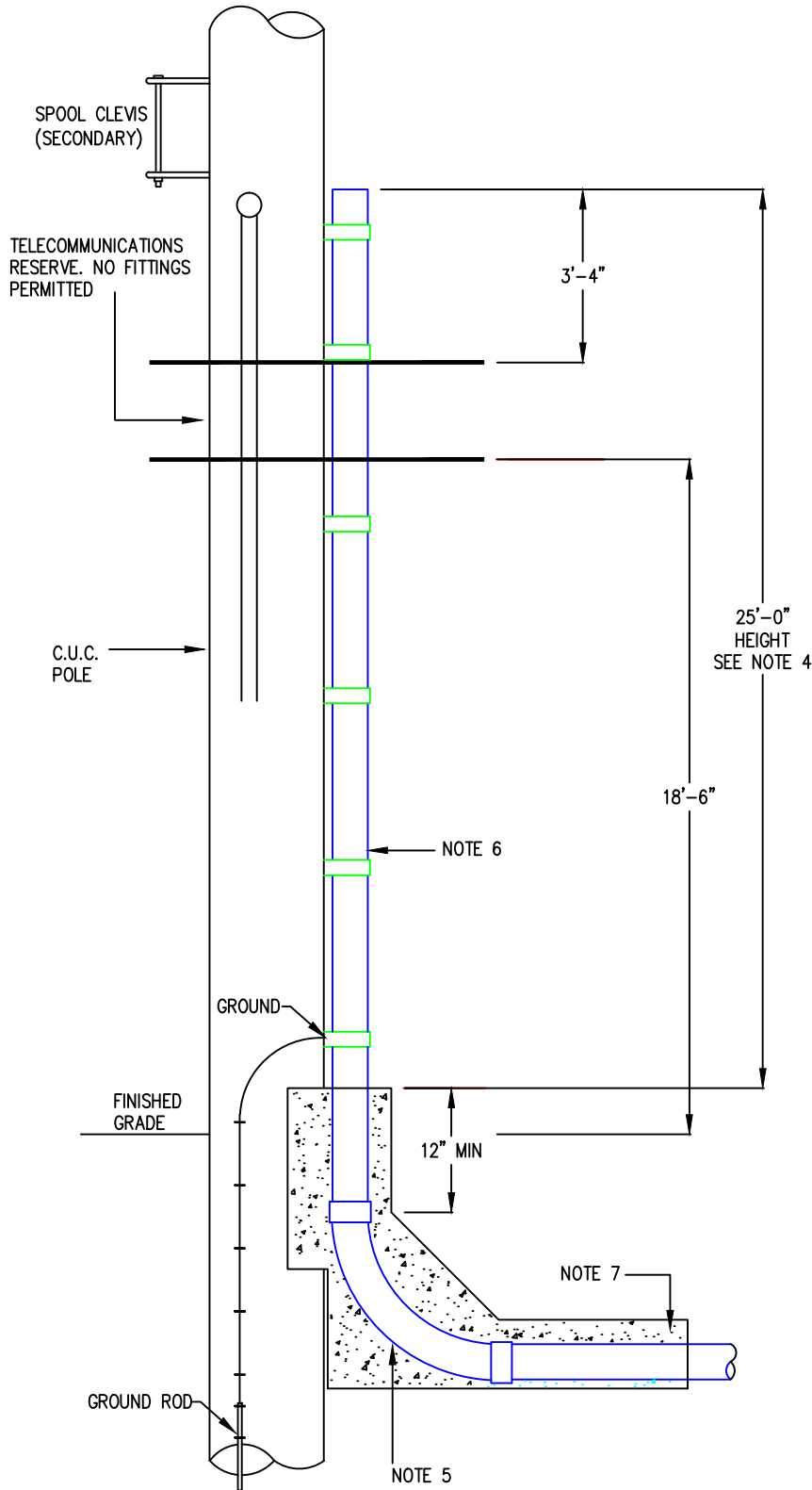
DRAWING # 14-A

SHEET # 01 of 01

REV. # D

REV. DATE June 30, 2014

APPROVED



NOTES:

1. THE CUSTOMER MUST OBTAIN PERMISSION FOR THE INSTALLATION OF U/G SERVICE ON CUC POLES.
2. THE LOCATION OF U/G SERVICE (which side of pole) MUST BE OBTAINED FROM CUC'S PLANNING DEPT.
3. IF MORE THAN TWO CONDUITS ARE REQUIRED, A CONDUIT STAND-OFF BRACKET IS REQUIRED.
4. A WEATHER HEAD HEIGHT OF 25' MINIMUM IS REQUIRED ON ALL MAIN LINE POLES & MOST SERVICE POLES. IN NO CASE IS THE CUSTOMER ALLOWED TO WORK WITHIN 40" (FORTY INCHES) OF CUC'S SECONDARY OR NEUTRAL CONDUCTORS, 10' (TEN FEET) FROM CUC'S 13KV PRIMARY CONDUCTOR OR EQUIPMENT AND 16' (SIXTEEN FEET) FROM CUC 69KV TRANSMISSION CONDUCTORS.
5. GALVANIZED RIGID STEEL ELBOW, ENCASED IN CONCRETE IS REQUIRED AT THE BASE OF THE CUC POLE.
6. THE FIRST SECTION OF CONDUIT AT THE BASE OF CUC POLES MUST BE RIGID STEEL GALVANIZED AND GROUNDED TO A DEDICATED GROUND ROD AS PER NESC REQUIREMENTS.
7. FOR PRIMARY OR HIGH VOLTAGE DIPS (a) A SPARE CONDUIT IS REQUIRED; (b) THIS SPARE CONDUIT SHALL BE CAPPED NEAR THE GROUND LINE; (c) TRENCH AND DUCT DETAILS SHALL BE IN ACCORDANCE WITH CUC SPECIFICATIONS AND (d) THE CONDUIT SIZE IS 3 INCH FOR SINGLE PHASE, AND 4 INCH FOR THREE PHASE.
8. SUFFICIENT CONDUCTOR MUST BE PROVIDED TO CONNECT TO (a) THE SECONDARY (6 FEET), OR (b) THE TRANSFORMER(S) 10 FEET.
9. DUCTS INSTALLED FOR HV CABLE SHALL CONTAIN A FISH WIRE OR ROPE AND THE ENDS SHALL BE CAPPED (SPARE DUCTS DO NOT REQUIRE A FISH WIRE).
10. THREE PHASE AND MULTI CONDUCTOR SERVICES MUST BE MARKED OR COLOR CODED.
11. ALL HARDWARE MUST BE HOT DIP GALVANIZED.



PROJECT

CUC
STANDARDS

DRAWING

STANDARD PRIMARY
UNDERGROUND
INSTALLATION

DATE: JUNE 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

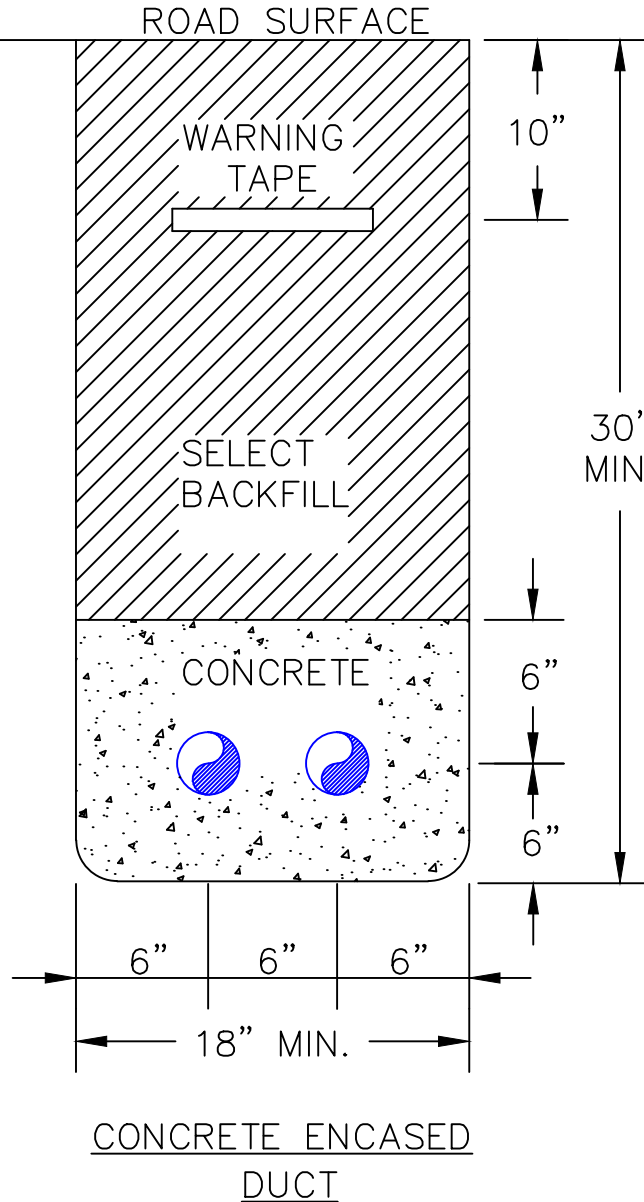
DRAWING # PL-01

SHEET # 01 of 01

REV. # A

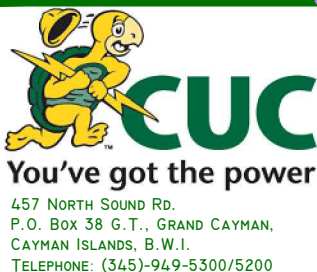
REV. DATE Oct. 2014

APPROVED



NOTES:

1. THE REQUIRED DUCT SIZE IS 3 INCHES FOR SINGLE PHASE AND 4 INCH FOR THREE HV CIRCUITS.
2. THE DUCT SHALL BE PVC OR APPROVED EQUIVALENT AND ALL JOINTS SHALL BE SEALED WITH SOLVENT WELD.
3. SPARE DUCT(S) SHALL BE INSTALLED FOR ALL HV CABLE INSTALLATION.
4. CONCRETE ENCASED DUCTS SHALL BE SUPPORTED BY PLASTIC SPACERS AT 48 INCH INTERVALS.
5. CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 LBS.
6. A FISH WIRE OR 3/8" ROPE SHALL BE INSTALLED IN EACH HV DUCT AND THE ENDS SECURELY CAPPED.
7. A WARNING TAPE INDICATING PRESENCE OF UNDERGROUND CABLE SHALL BE INSTALLED IN ALL TRENCHES.
8. ALL TRENCHES FOR HV CABLES INSTALLATION SHALL BE INSPECTED BY CUC PERSONNEL PRIOR TO BACK FILLING OR THE PLACEMENT OF CONCRETE
9. LOW VOLTAGE (SERVICE) DUCT SIZE WILL BE DETERMINED BY THE OWNER; TRENCH DETAILS SHALL BE AS REQUIRED.



PROJECT

CUC
STANDARDS

DRAWING

STANDARD TRENCH & DUCT
DETAIL

DATE: JUNE 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

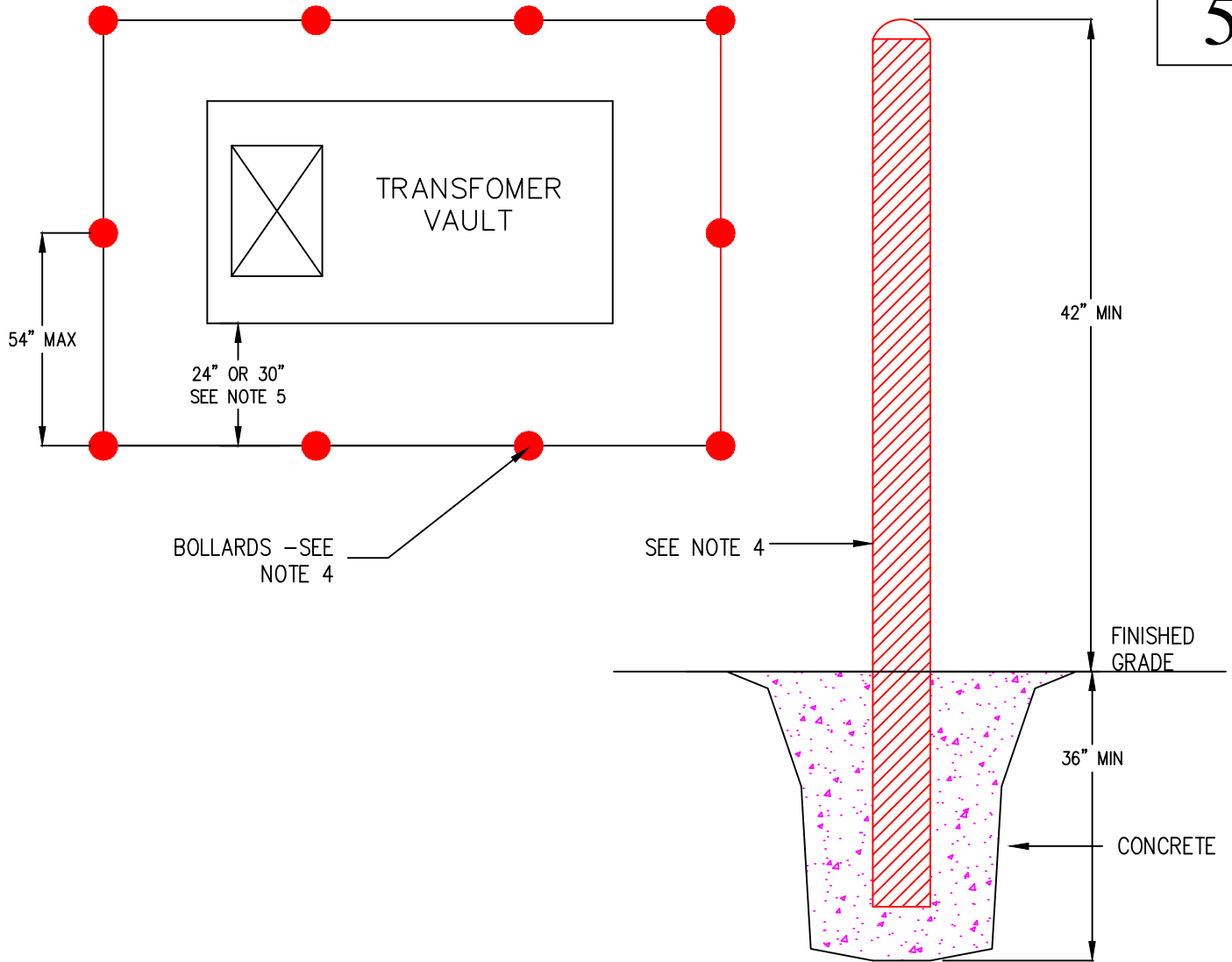
DRAWING # DT-01

SHEET # 01 of 01

REV. # A

REV. DATE Oct. 2014

APPROVED



NOTES:

1. WHEN TRANSFORMER VAULT IS LOCATED WHERE DAMAGE BY VEHICULAR TRAFFIC IS POSSIBLE – TRANSFORMER PROTECTION IS NECESSARY.

2. THE USE OF BOLLARDS, LOCATED AS SHOWN, IS RECOMMENDED; THESE BOLLARDS NEED ONLY BE USED ON THE SIDE(S) WHERE VEHICULAR TRAFFIC MAY BE A HAZARD.

3. A CONCRETE OR CONCRETE BLOCK WALL MAY ALSO BE ACCEPTABLE, HOWEVER APPROVAL OF THE CUC PLANNING DEPARTMENT IS REQUIRED.

4. THESE BOLLARDS SHALL BE FABRICATED USING RIGID STEEL PIPE (4 INCHES MINIMUM SIZE, PREFERABLY GALVANIZED), FILLED WITH CONCRETE OR MORTAR. THEY SHALL EXTEND A MINIMUM OF 42 INCHES ABOVE FINISHED GRADE AND BE EMBEDDED TO A MINIMUM OF 36 INCHES.

5. THE MAXIMUM SPACING BETWEEN BOLLARDS IS 54 INCHES AND THE MINIMUM CLEARANCE FROM THE PAD/VAULT IS 30 INCHES AT THE FRONT (CABLE CLOT SIDE) AND 24 INCHES ON ALL OTHER SIDES.



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PROJECT

CUC
STANDARDS

DRAWING

STANDARD PADMOUNT
TRANSFORMER VAULT
PROTECTION

DATE: JUNE 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

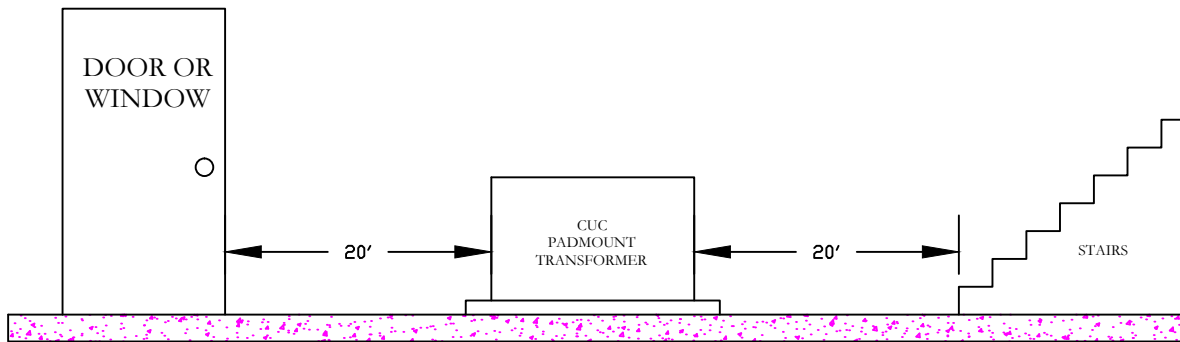
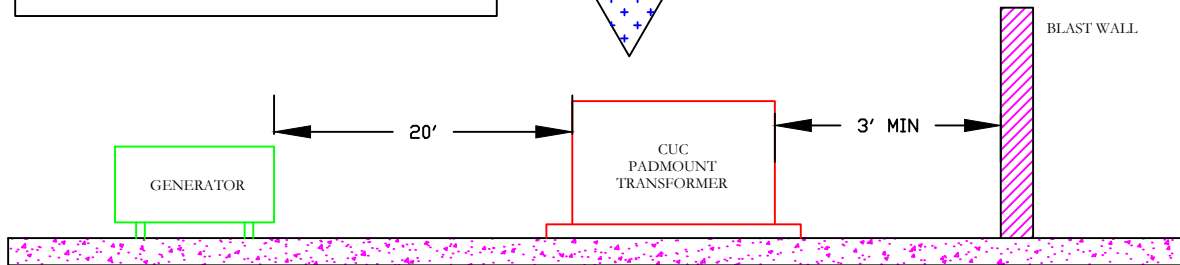
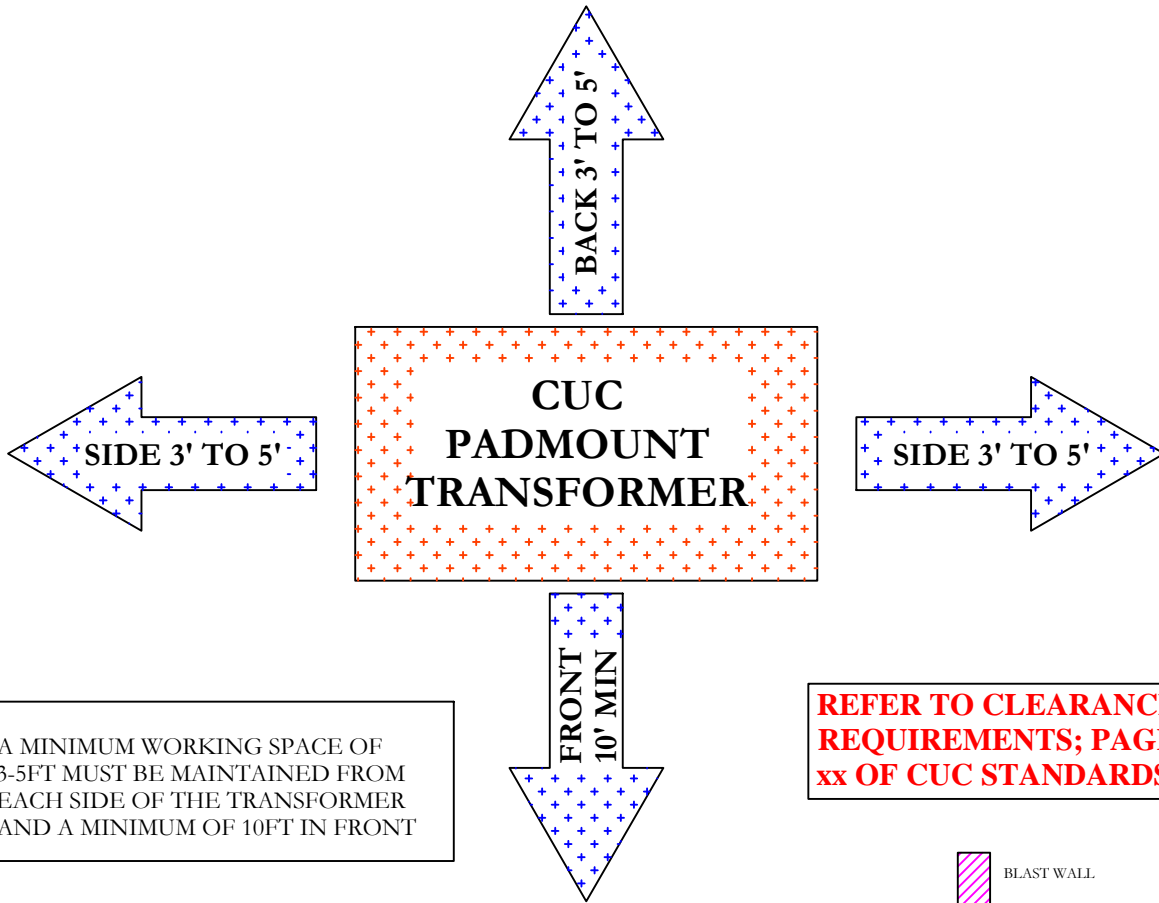
DRAWING # TXV-04

SHEET # 01 of 01

REV. # A

REV. DATE Sept. 2014

APPROVED



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PROJECT

CUC
STANDARDS

DRAWING

PADMOUNT TRANSFORMER
CLEARANCES

DATE: AUG, 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

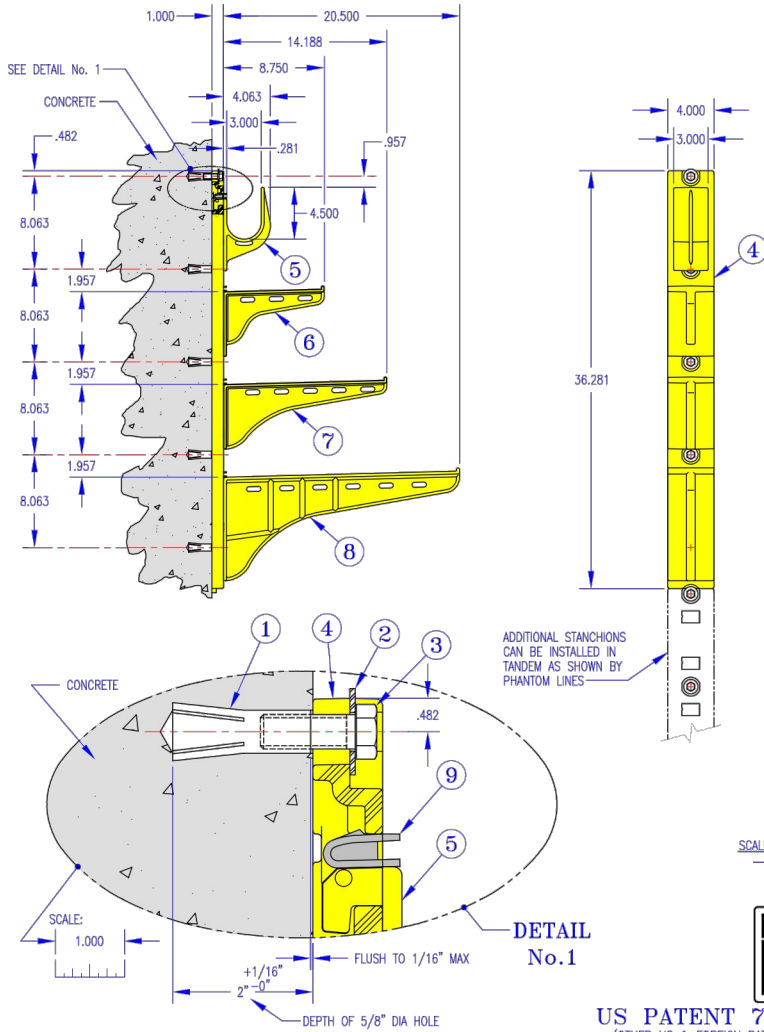
DRAWING # 6

SHEET # 01 of 01

REV. # A

REV. DATE Oct. 2014

APPROVED



BILL OF MATERIAL			
ITEM NUMBER	CATALOG NUMBER	DESCRIPTION	QUANTITY REQUIRED
①	FSRM-12	1/2"-13 DROP-IN ANCHOR Material: 303 STAINLESS STEEL	5
②	FW316-18-40	FLAT WASHER ID=.562, OD=1.250, THK=.078 Material: 316 STAINLESS STEEL	5
③	FHC316-16-044	1/2"-13 X 1-3/8" LG. HEX HEAD CAP SCREW Material: 316 STAINLESS STEEL	5
④	CR36-B	CR36-B STANCHION Material: 50% Glass Reinforced Nylon	1
⑤	3HDS	3HDS SADDLE Material: 50% Glass Reinforced Nylon	1
⑥	RA08	RA08 ARM (8" LONG) Material: 50% Glass Reinforced Nylon	1
⑦	RA14	RA14 ARM (14" LONG) Material: 50% Glass Reinforced Nylon	1
⑧	RA20	RA20 ARM (20" LONG) Material: 50% Glass Reinforced Nylon	1
⑨	HDL	HDL LOCK (OPTIONAL) Material: Polycarbonate	1 PER ARM
NOT SHOWN	FRT-112	SETTING TOOL (Used to install Catalog No. FSRM-12 Drop-In Anchor)	AS REQ'D

GENERAL INSTALLATION GUIDELINES

For the highest cable rack load capacity:

- BE SURE THE SURFACE OF THE CONCRETE WALL IS SMOOTH, FLAT AND PLUMB.
- INSTALL ONE FASTENER IN EVERY ELONGATED STANCHION HOLE.
- INSTALL EACH DROP-IN ANCHOR AS SHOWN ON THIS DRAWING AND AS DESCRIBED BELOW:
 - DRILL A 5/8" DIAMETER HOLE 2" DEEP.
 - BLOW OUT HOLE.
 - DRIVE ANCHOR FLUSH TO 1/16" BELOW SURFACE OF CONCRETE.
 - EXPAND ANCHOR WITH FRT-112 SETTING TOOL. ANCHOR IS PROPERLY SET WHEN SHOULDER OF SETTING TOOL IS FLUSH WITH THE TOP OF ANCHOR.
- INSTALL THE FLAT WASHER AND TIGHTEN THE CAP SCREW JUST ENOUGH TO ATTAIN A SLUG FIT. AVOID HIGH SCREW TORQUE WHICH INDUCES COMPRESSIVE STRESS.
- AFTER ASSEMBLING THE ARMS TO THE STANCHION, TAP THE ARM DOWN WITH A LIGHT Mallet BLOW. THE LIGHT Mallet BLOW WILL FULLY SEAT AND LOCK ARM IN PLACE.
- INSTALL OPTIONAL HDL LOCK BY PLACING THE LOCK ON THE ARM WITH THE LOCKING BARBS UP. PUSH THE LOCK INTO THE RECTANGULAR HOLE IN THE STANCHION. WHEN THE STOP FLANGES ON THE LOCK HIT THE STANCHION, THE LOCK WILL CLICK INTO PLACE. SEE DETAIL No.1 AT LEFT.

NOTES:

- THE ANCHOR ARRANGEMENT SHOWN ON THIS INSTALLATION DRAWING ALLOWS FOR COMPLETE VARIABILITY OF ARM SIZE & LOCATION OF ARM ON STANCHION.
- SEE UDI "MOUNTING HARDWARE" CATALOG SHEET (FORM 120292AC) FOR ANCHOR LOAD CAPACITY, GENERAL ANCHOR NOTES AND HEX HEAD CAP SCREW NOTES.
- SEE UDI "TECHNICAL DATA" CATALOG SHEET (FORM 111391AE) FOR LOAD CARRYING CAPACITY.
- SEE UDI "GUIDE SPECIFICATION" (FORM 123191AJ) FOR GENERAL SPECIFICATIONS ON THE HEAVY DUTY NON-METALLIC CABLE RACK.



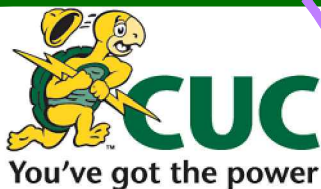
US PATENT 7,140,500
(OTHER US & FOREIGN PATENTS PENDING)

HEAVY DUTY NON-METALLIC CABLE RACK
Installation Details For 1 Ea. CR36-B Stanchion With 1 Ea. 3HDS Saddle, 1 Ea. RA08, 1 Ea. RA14 & 1 Ea. RA20 Arm Using Drop-In Anchors

SIZE: See At Left	DESIGNED BY: Don McCoy	REMOVED BY: Alan Armstrong	REMOVED BY: Don McCoy
DATE: 12-3-03	APPROVED BY:	REVISION: F-23-07	

1st Designed For TYPICAL INSTALLATION OF CABLE RACKS

UNDERGROUND DEVICES, INC. 90-3161
NORTHBROOK, ILLINOIS 60062 - PHONE: (847) 205-9000 PAGE 1 OF 1



457 NORTH SOUND RD.
P.O. Box 38 G.T., GRAND CAYMAN,
CAYMAN ISLANDS, B.W.I.
TELEPHONE: (345)-949-5300/5200

PROJECT

CUC
STANDARDS

DRAWING

RACKING ORIENTATION -
UNDERGROUND
MANHOLE/VAULT

DATE: OCT. 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

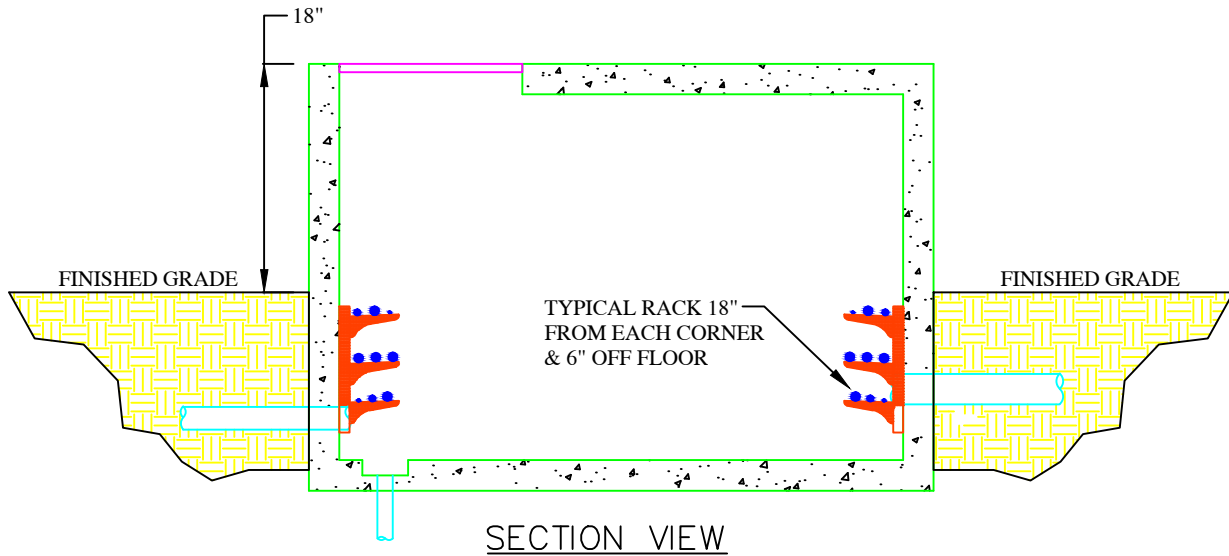
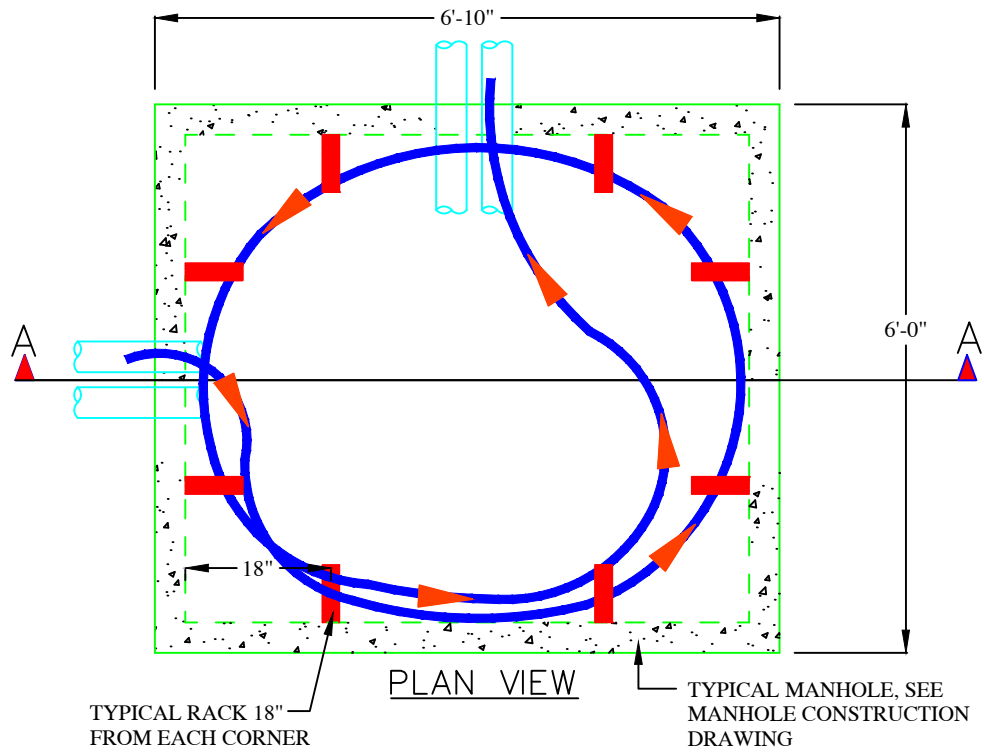
DRAWING #

SHEET #

REV. #

REV. DATE

APPROVED



ITEM NO.	QUANTITY	MATERIAL	STOCK NO.
123	8	STANCHION, 36" (BRACKET)	836-00002
26B	40	SCREW, HEX HEAD	744-00004
38D	40	ANCHOR, DROP IN 1/2"-13	029-00010



457 NORTH SOUND RD.
 P.O. Box 38 G.T., GRAND CAYMAN,
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PROJECT

CUC
 STANDARDS

DRAWING

RACKING ORIENTATION -
 UNDERGROUND
 MANHOLE/VAULT

DATE: OCT. 2014

SCALE: NTS

DRAWN BY: DCM

CHECKED BY: CP

APPROVED BY: CUC SC

PROJECT #

DRAWING # 7A

SHEET # 01 of 01

REV. # A

REV. DATE Oct. 2014

APPROVED

NOTES:

1. THIS VAULT WILL ACCOMMODATE TRANSFORMER UP TO 500KVA NOT TO EXCEED 6 SERVICE CABLES.

2. VAULT SHALL EXTEND APPROXIMATELY 18" INCHES ABOVE FINISHED GRADE; APPROXIMATELY 6 INCHES OF CRUSHED STONE SHALL BE PLACED UNDER THE FLOOR SLAB.

3. THE FLOOR SLAB SHALL HAVE A MINIMUM OF 4 INCHES OF CONCRETE REINFORCED WITH 1 LAYER OF #4 @8" CENTRES.

4. THE TOP SLAB SHALL HAVE A MINIMUM THICKNESS OF 4" OF CONCRETE REINFORCED WITH 1 LAYER OF #4 @ 8" CENTRES.

5. THE WALLS MAY BE CONSTRUCTED USING CONCRETE REINFORCED OR CONCRETE BLOCK WITH REINFORCING AND CONCRETE FILL. THE REINFORCING IN THE WALLS SHALL BE #4 @ 8" o/c TIED TO THE REINFORCING IN THE TOP AND FLOOR SLABS.

6. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI.

7. THE TOP SLAB SHALL BE LEVEL AND HAVE A SMOOTH SURFACE TO ALLOW WATER TO RUN OFF.

8. PRIMARY (HV) DUCTS SHALL BE MIN. 4" WITH ONE SPARE DUCT FOR EACH FEED DUCT SHALL BE INSTALLED 3" ABOVE THE BOTTOM OF DUCT FLOOR AND FLUSH WITH THE INSIDE OF THE VAULT WALL; THE BELL END OF THE CONDUIT SHALL BE USED IN THE VAULT WALL.

9. THE HV DUCTS SHALL NORMALLY BE PLACED IN THE END(S) OF VAULT TO ACCOMODATE CABLE INSTALLATION PARTICULARLY FOR LONG RUNS. HV DUCTS IN THE SIDES IS ONLY ACCEPTABLE FOR THE DUCT FEED ON LOOP FEED SYSTEM.

10. A 2 INCH DRAIN HOLE REQUIRED IN THE FLOOR SLAB FOR DRAINAGE AND SHALL BE LOCATED DIRECTLY UNDER THE CENTRE OF THE MANHOLE OPENING.

11. FIVE GROUND RODS SHALL BE INSTALLED AS SHOWN. SHALL BE CONNECTED TO 2/0 BARE COPPER CABLE BURIED 1' DEEP, CONNECTIONS TO THE GROUND RODS AND GROUND GRID WILL BE EXOTHERMIC WELD 10' OF CABLE TO EXTEND INTO BOTTOM OF VAULT. ONE GROUND ROD SHALL BE INSTALLED DIRECTLY BELOW THE MANHOLE BEFORE THE FLOOR SLAB IS POURED. A MINIMUM OF 6" OF GROUND ROD MUST EXTEND ABOVE FLOOR. A 3/4" HOLE TO BE DRILLED FOR CABLE ACCESS

12. THE JUNCTION MANHOLE SHALL BE LOCATED AT AN END WALL AS SHOWN. THE MANHOLE SHALL MEASURE 2' SQUARE WITH A LOCKING LID AND THE JUNCTION BOX HOLE 2'x2'-6" WITH MINIMUM DISTANCE OF 12" BETWEEN.

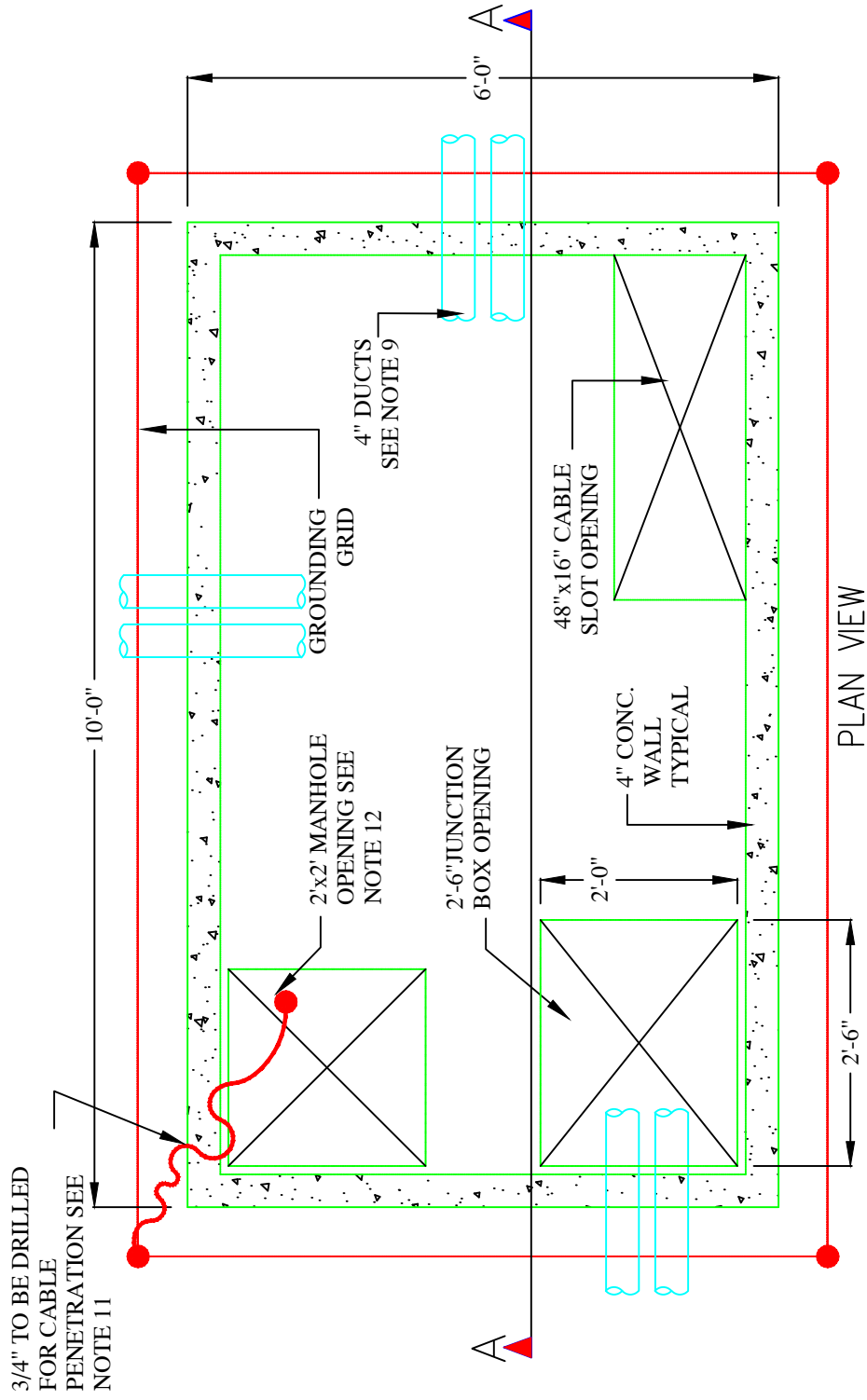
13. 10" EYEBOLTS 5/8" GALVANIZED CABLE PULLING PURPOSE SHALL BE EMBEDDED IN THE WALL DIRECTLY OPPOSITE EACH SET OF THE DUCTS AND IN THE FLOOR SLAB BELOW THE MANHOLE OPENING.

14. IF LESS THAN 6 SERVICE CABLES, THE OPENING FOR THE JUNCTION BOX MUST BE COVERED WITH 1/4" ALUMINUM PLATE.

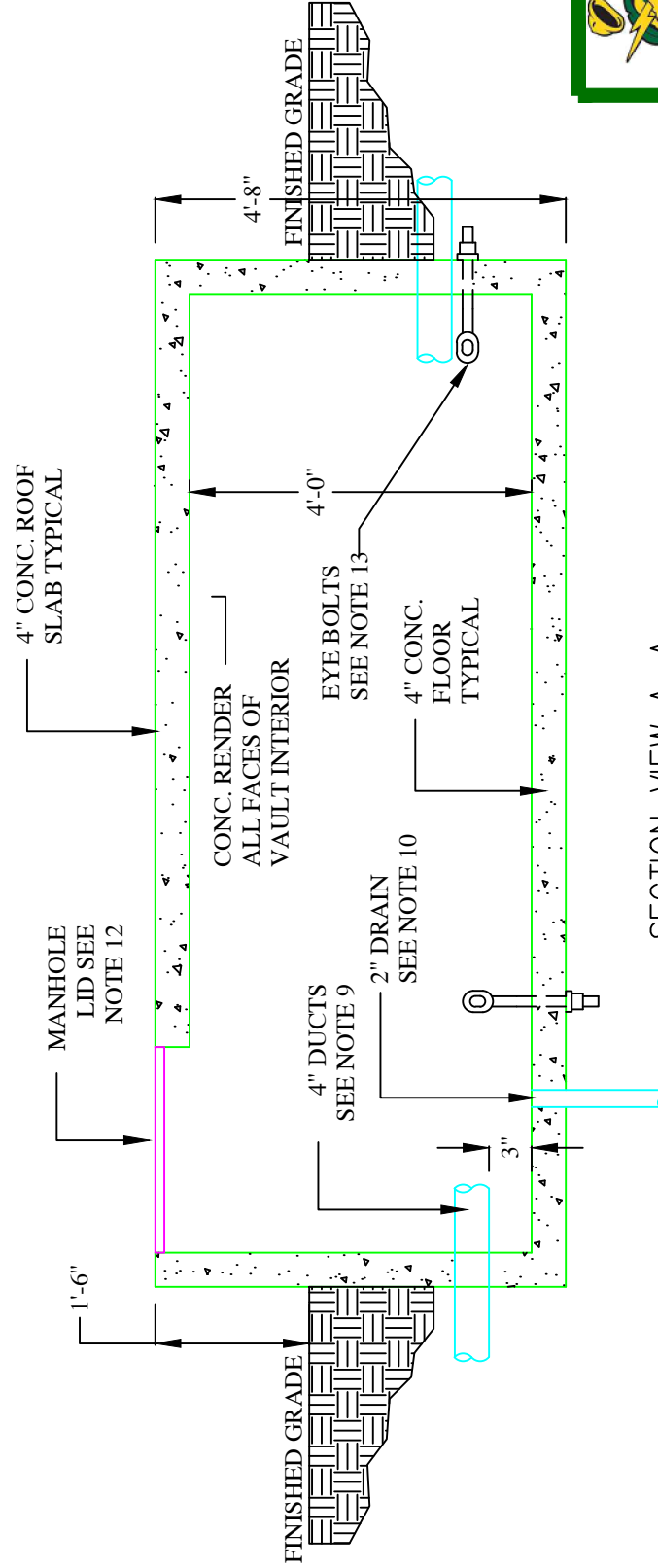
15. IF MORE THAN 6 SERVICE CABLES, A JUNCTION BOX WILL BE REQUIRED.

16. ALL CABLES SHALL BE INSTALLED ON RACKS BY CUC

17. A MINIMUM CLEAR WORKING SPACE OF 3'-5" MUST BE MAINTAINED AND A MIN. OF 10' FROM, THE FRONT.



PLAN VIEW



SECTION VIEW A-A

You've got the power
 457 NORTH SOUND RD.
 P.O. BOX 38 G.T., GRAND CAYMAN,
 CAYMAN ISLANDS, B.W.I.
 TELEPHONE: (345)-949-5300/5200

PROJECT
 CUC
 STANDARDS

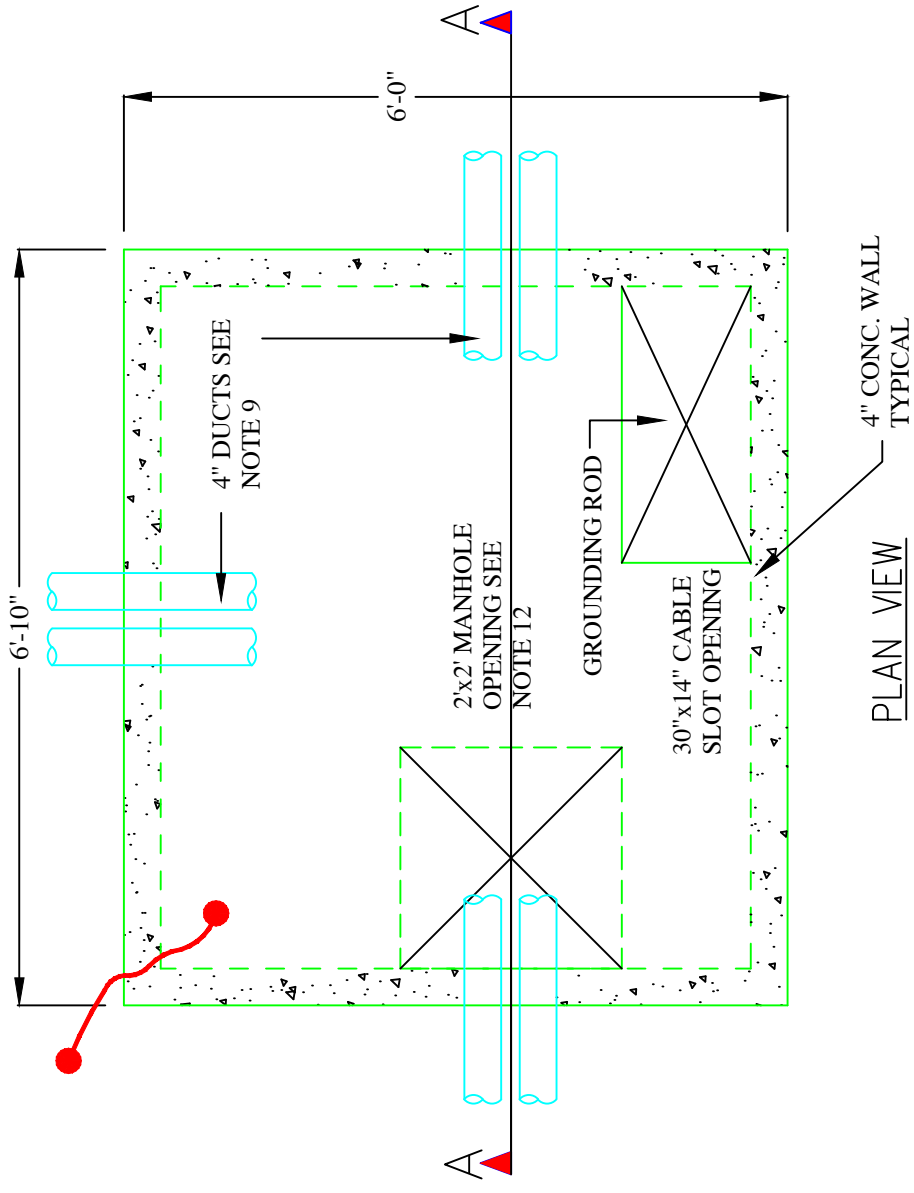
DRAWING
 THREE PHASE
 TRANSFORMER
 UP TO 500KVA

DATE:	MARCH 2011	PROJECT #	
SCALE:	NTS	DRAWING #	16-6 500KVA
DRAWN BY:	DCM	SHEET #	01 of 01
CHECKED BY:	CP	REV. #	
APPROVED BY:	CUC-SC	REV. DATE	

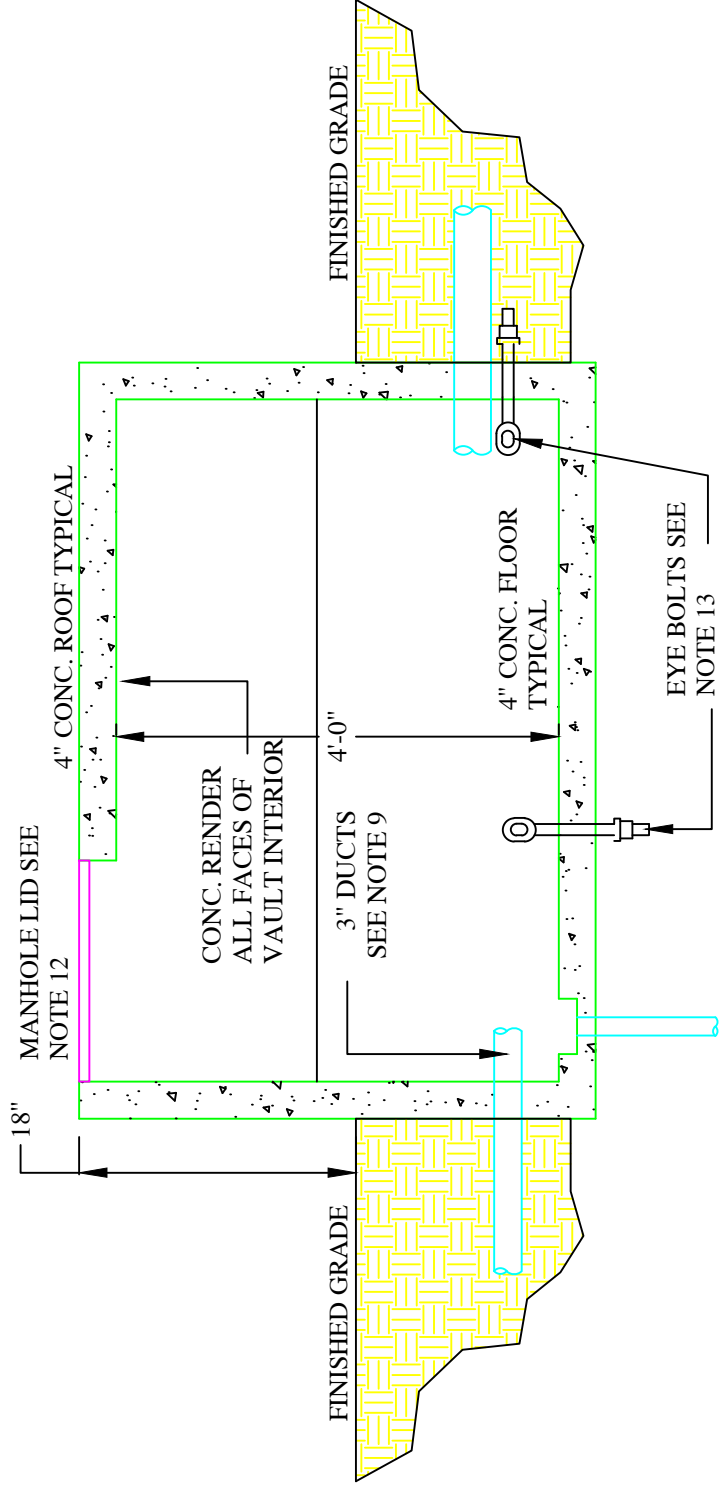
APPROVED

NOTES:

1. THIS VAULT WILL ACCOMMODATE TRANSFORMERS UP TO 250 KVA.
2. THE VAULT SHALL BE POSITIONED TO SUITABLE DEPTH TO MATCH THE TRENCH DUCT, BUT MUST BE NO LESS THAN 18" ABOVE GRADE.
3. THE FLOOR SLAB SHALL HAVE A MINIMUM OF 4 INCHES OF CONCRETE REINFORCED WITH 1/2" REBAR AT 12 INCH CENTRES.
4. THE TOP SLAB SHALL HAVE A MINIMUM THICKNESS OF 4" OF CONCRETE REINFORCED WITH 1/2" REBAR AT 8 INCH CENTRES.
5. THE WALLS MAY BE CONSTRUCTED USING CONCRETE (REINFORCED) OR CONCRETE BLOCK WITH REINFORCING AND CONCRETE FILL. THE REINFORCING BAR IN THE WALLS SHALL BE TIED TO THE REINFORCING IN THE TOP AND FLOOR SLAB.
6. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI.
7. THE TOP SLAB SHALL BE LEVEL AND HAVE A SMOOTH SURFACE TO ALLOW WATER TO RUN OFF.
8. PRIMARY (HV) DUCTS SHALL BE MIN. 3" WITH ONE SPARE DUCT FOR EACH FEED. DUCT SHALL BE INSTALLED 3 INCHES ABOVE THE FLOOR AND FLUSH WITH THE INSIDE OF THE VAULT WALL; THE BELL END OF THE CONDUIT SHALL BE USED IN THE VAULT WALL.
9. THE HV DUCTS WILL NORMALLY BE PLACED IN THE END(S) OF VAULT TO ACCOMMODATE CABLE INSTALLATION PLACEMENT OF THE HV DUCT IN THE SIDES IS ONLY ACCEPTABLE FOR THE OUT FEED ON LOOP FEED SYSTEMS.
10. A 2 INCH DRAIN HOLE IS REQUIRED IN THE FLOOR SLAB AND SHALL BE LOCATED DIRECTLY UNDER THE CENTRE OF THE MANHOLE OPENING.
11. ONE OR MORE GROUND ROD(S), SHALL BE INSTALLED DIRECTLY BELOW THE CABLE SLOT BEFORE THE FLOOR SLAB IS POURED. A MINIMUM OF 6 INCHES OF EACH ROD MUST EXTEND ABOVE THE FLOOR.
12. THE MANHOLE SHALL BE LOCATED AT AN END WALL AS SHOWN; MANHOLE OPENINGS NEED NOT BE CENTERED.
13. FOR CABLE PULLING PURPOSE SHALL BE EMBEDDED IN THE WALL DIRECTLY OPPOSITE EACH SET OF THE DUCTS AND IN THE FLOOR SLAB BELOW THE MANHOLE.
14. A MINIMUM CLEAR WORKING SPACE OF 3'-5" MUST BE MAINTAINED AND A MIN. OF 10' FROM, THE FRONT.
15. MANHOLE/VAULTS TO BE RACKED IN ACCORDANCE WITH PAGE 7



PLAN VIEW



SECTION A-A



PROJECT
CUC
STANDARDS

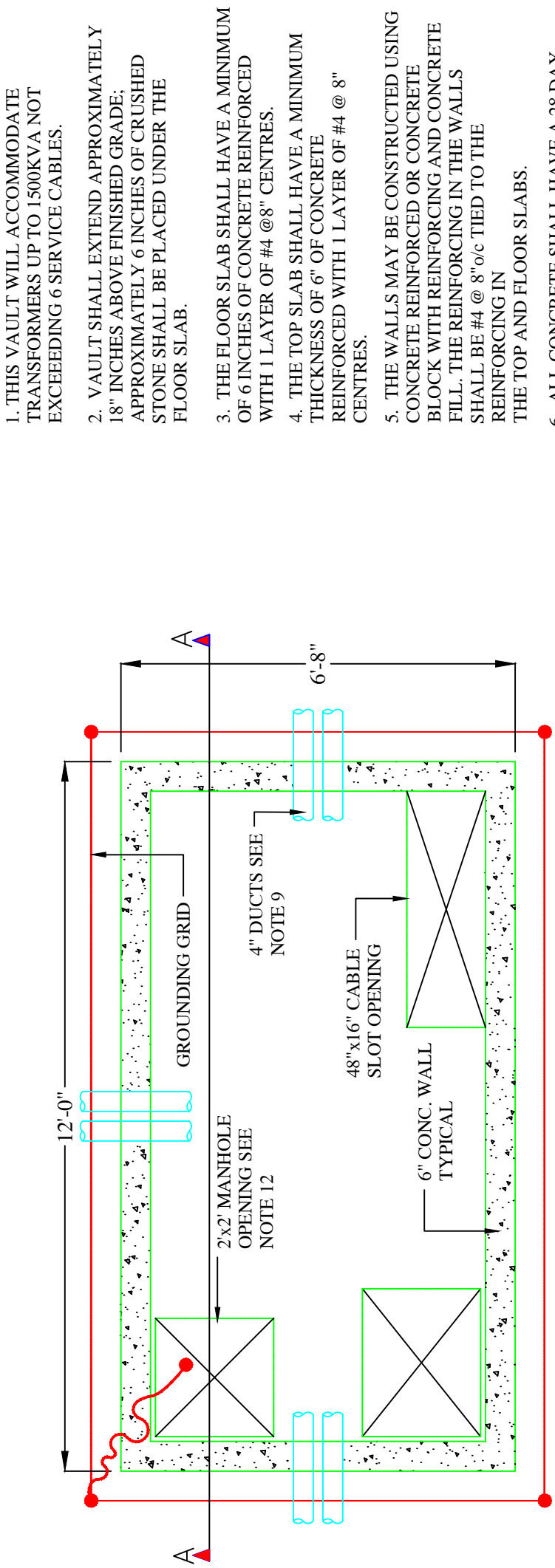
DRAWING
SINGLE PHASE TRANSFORMER
VAULT

DATE:	JUNE 2014	PROJECT #	TXV-05
SCALE:	NTS	DRAWING #	01 of 01
DRAWN BY:	DCM	REV. #	
CHECKED BY:	CP	REV. DATE	
APPROVED BY:	CUC-SC		

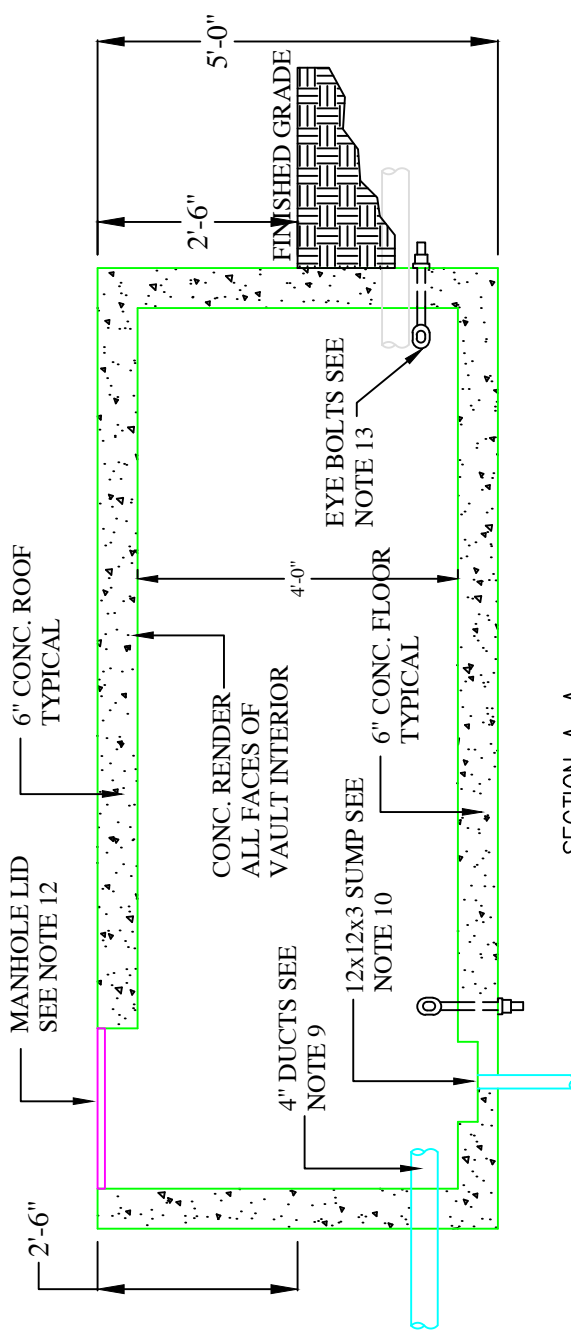
APPROVED

NOTES:

1. THIS VAULT WILL ACCOMMODATE TRANSFORMERS UP TO 1500KVA NOT EXCEEDING 6 SERVICE CABLES.
2. VAULT SHALL EXTEND APPROXIMATELY 18" INCHES ABOVE FINISHED GRADE; APPROXIMATELY 6 INCHES OF CRUSHED STONE SHALL BE PLACED UNDER THE FLOOR SLAB.
3. THE FLOOR SLAB SHALL HAVE A MINIMUM OF 6 INCHES OF CONCRETE REINFORCED WITH 1 LAYER OF #4 @8" CENTRES.
4. THE TOP SLAB SHALL HAVE A MINIMUM THICKNESS OF 6" OF CONCRETE REINFORCED WITH 1 LAYER OF #4 @ 8" CENTRES.
5. THE WALLS MAY BE CONSTRUCTED USING CONCRETE REINFORCED OR CONCRETE BLOCK WITH REINFORCING AND CONCRETE FILL. THE REINFORCING IN THE WALLS SHALL BE #4 @ 8"o/c TIED TO THE REINFORCING IN THE TOP AND FLOOR SLABS.
6. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI.
7. THE TOP SLAB SHALL BE LEVEL AND HAVE A SMOOTH SURFACE TO ALLOW WATER TO RUN OFF.
8. PRIMARY (HV) DUCTS SHALL BE MIN. 4" WITH ONE SPARE DUCT FOR EACH FEED DUCT SHALL BE INSTALLED 3" ABOVE THE FLOOR AND FLUSH WITH THE INSIDE OF THE VAULT WALL; THE BELL END OF THE CONDUIT SHALL BE USED IN THE VAULT WALL.
9. THE HV DUCTS SHALL NORMALLY BE PLACED IN THE END(S) OF VAULT TO ACCOMMODATE CABLE INSTALLATION PARTICULARLY FOR LONG RUNS. HV DUCTS IN THE SIDES IS ONLY ACCEPTABLE FOR THE DUCT FEED ON LOOP FEED SYSTEM.
10. A 2 INCH DRAIN HOLE WITH SUMP IS REQUIRED IN THE FLOOR SLAB FOR DRAINAGE AND SHALL BE LOCATED DIRECTLY UNDER THE CENTRE OF THE MANHOLE OPENING.
11. FIVE GROUND RODS SHALL BE INSTALLED AS SHOWN. SHALL BE CONNECTED TO 2/0 BARE COPPER CABLE BURIED 1' DEEP. CONNECTIONS TO THE GROUND RODS AND GROUND GRID WILL BE EXOTHERMIC WELD 10' OF CABLE TO EXTEND INTO BOTTOM OF VAULT. ONE GROUND ROD SHALL BE INSTALLED DIRECTLY BELOW THE MANHOLE SLOT BEFORE THE FLOOR SLAB IS POURED. A MINIMUM OF 6" OF GROUND ROD MUST EXTEND ABOVE FLOOR.
12. THE MANHOLE SHALL BE LOCATED AT AN END WALL AS SHOWN; MANHOLE OPENINGS NEED NOT BE CENTERED. THE MANHOLE SHALL MEASURE 2' SQUARE WITH A LOCKING LID.
13. 10" EYE BOLTS 5/8" GALVANIZED FOR CABLE PULLING PURPOSE SHALL BE EMBEDDED IN THE WALL DIRECTLY OPPOSITE EACH SET OF THE DUCTS AND IN THE FLOOR SLAB BELOW THE MANHOLE OPENING.
14. IF LESS THAN 6 SERVICE CABLES, THE OPENING FOR THE JUNCTION BOX MUST BE COVERED WITH 1/4" ALUMINUM PLATE.
15. IF MORE THAN 6 SERVICE CABLES A JUNCTION BOX WILL BE REQUIRED.
16. ALL CABLES SHALL BE INSTALLED ON RACKS BY CUC.
17. A MINIMUM CLEAR WORKING SPACE OF 3'-5" MUST BE MAINTAINED AND A MIN. OF 10' FROM, THE FRONT.



PLAN VIEW



SECTION A-A

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PROJECT
 CUC
 STANDARDS

DRAWING
 THREE PHASE
 TRANSFORMER
 FROM 750KVA

DATE:	MARCH 2011	PROJECT #	
SCALE:	NTS	DRAWING #	16-7 750KVA
DRAWN BY:	DCM	SHEET #	01 of 01
CHECKED BY:	CP	REV. #	
APPROVED BY:	CUC.SC	REV. DATE	

APPROVED

CLEARANCE REQUIREMENTS **PADMOUNT TRANSFORMERS**

Combustible Materials and Containers AND Windows, Doors and Stairwells of Buildings

GENERAL:

This document establishes the minimum clearance and proximity distances required by Caribbean Utilities Company, Ltd. to ensure the safe operation of high voltage electrical lines and equipment near combustible materials and/or containers of combustible materials and/or windows, doors and stairwells of buildings.

DESCRIPTION OF COMBUSTIBLE MATERIALS AND CONTAINERS OF COMBUSTIBLE MATERIALS:

Any material that has a flash point of 70°C or less is a Combustible Material for this Standard and is consider capable of causing a fire or explosion if ignited or heated to the flash point temperature. Any container of Combustible Materials is considered to have the same or greater potential for causing a fire or explosion whether, or not, it is full, partially full, or empty.

DESCRIPTION OF PROXIMITY TO WINDOWS, DOORS AND STAIRWELLS:

Any public access route to building or any window that is within the blast radius of CUC energized high voltage equipment.

MINIMUM CLEARANCE AND PROXIMITY DISTANCES:

The minimum clearance and proximity distance for CUC high voltage equipment shall be:

Either,

- 1) Twenty feet (20') from nearest point of CUC's energized high voltage equipment to the Combustible Materials or a container of Combustible Materials or window, door or stairwell of building. Examples of Combustible Materials include but are not limited to the following:

EXAMPLES:

- Building materials with a flash point of 60°C or greater
- Liquefied Petroleum tanks
- Service Station Fuel Pumps
- Fuel Storage Tanks
- Carbon based fueled equipment storage

Or,

- 2) Three feet (3') from a fire/blast wall that protects CUC's high voltage equipment from a fire or explosion of Combustible Materials. The fire/blast wall shall have minimum construction requirements as follows:
- The height shall be either, a) at least one foot (1') taller than the Combustible Materials or Combustible Materials Container, or b), at least one foot (1') taller than the CUC high voltage equipment, whichever is the highest.
 - The width shall be at least one and one-half times wider than either, a) the width of the Combustible Materials or Combustible Materials Container, or b), the width of the CUC high voltage equipment, whichever is the greater width.
 - The thickness shall be at least six inches (6") thick solid concrete with steel reinforcement (including the foundation) and able to withstand fire and explosion of the Combustible Materials or Combustible Materials Container.
 - The fire/blast wall design and installation shall be approved by CUC before service is allowed to customers affected by this Standard.

Working Space

A minimum working space of 3-5ft must be maintained from each side of the transformer and a minimum of 10 ft from the front. Clear space for safe access to and egress from the working space must be maintained.

CLEARANCE REQUIREMENTS

- 1) Three feet (3') from a fire/blast wall that protects CUC's high voltage equipment from a fire or explosion. The fire/blast wall shall have minimum construction requirements as follows:
 - The height shall be at least one foot (1') taller than the CUC high voltage equipment,
 - The width shall be at least one and one-half times wider than either, the width of the CUC high voltage equipment.
 - The thickness shall be at least six inches (6") thick solid concrete with steel reinforcement (including the foundation) and able to withstand fire and explosion.
 - The fire/blast wall design and installation shall be approved by CUC before service is allowed to customers affected by this Standard.