

**CITY OF DANVILLE  
DANVILLE, VIRGINIA**

**FOUNDATIONS AND OIL CONTAINMENT FOR  
AIRSIDE, WESTFORK, AND BALLOU SUBSTATIONS**

**Pre-Bid Meeting Notes**

**Wednesday, January 18, 2023  
1:30 p.m., E.T.**

1. **INTRODUCTIONS:**

Owner: Danville Utilities  
Philip Haley, Keith Daniel, Carol Henley

Engineer: UtilityEngineering, LLC  
H. Michael Taylor, PE – Sealing Engineer/Project Manager

Contractors: See Attached Sign-in Sheet

2. **ATTENDANCE:**

Please complete the Pre-Bid Meeting sign-in sheet to record your company's representatives and attendance for this meeting. Please complete information in all of the appropriate columns on the sign-in sheet. All attendees will receive a copy of the finalized notes.

3. **PURPOSE:**

The purpose of this Pre-Bid Meeting is to provide:

- The Owner and Engineer the opportunity to emphasize portions of the bid document and bidding requirements,
- The Bidders an opportunity to review the site and to ask questions of the Owner and/or Engineer,
- Provide information which may affect the Contractor's bid,
- Allow the Bidder to visit the project location(s).

Only portions of the Contract will be discussed and emphasized. However, lack of discussion or clarification of any portion of the Contract does not relieve the Bidder/Contractor from conforming to the provision of the same.

#### 4. BIDDING REQUIREMENTS

- All questions must be submitted in writing by January 25 at 5:00 pm. Questions must be emailed to [purchasing@danvilleva.gov](mailto:purchasing@danvilleva.gov) .
- Proposals and all supporting documents required to be enclosed must be submitted on the forms supplied in a sealed envelope. Sealed Bids shall be accepted no later than February 3, 2023, at 5:00 p.m. at the Purchasing Department, 427 Patton Street, Room 304, Danville, VA 24541. The outside of the envelope must clearly state:

##### **Proposal for Foundations and Oil Containment for Airside, Westfork, And Ballou Substations**

- Proposals must be accompanied by a Bid Bond from a Virginia licensed company, cash, or a certified check from a bank who is a FDIC Member, in an amount equal to five percent (5%) of the total bid price.
- The Bidder's proposal shall specify price, time for completion, and any applicable terms. Any exceptions or clarifications to specifications or terms specified must be clearly noted in the proposal. The Engineer shall be responsible for interpreting all specifications. Any questions or ambiguities should be directed to the Engineer prior to submission of a proposal. Unless clearly noted otherwise, submission of proposal will indicate acceptance of specifications.
- Each bidder shall include and shall be deemed to have included in the prices quoted all applicable taxes which will be imposed by any taxing authority upon the sale, purchase, or use of materials, supplies, or equipment included in the items furnished. The Bidder will be responsible for paying all such taxes and render a receipt for payment to the Owner.
- The successful Bidder shall commence work on the project within ten (10) calendar days after the Engineer has given written notice to proceed and will prosecute diligently and complete construction to the satisfaction of the Owner within the specified time after the giving of such notice. The time of completion of the construction of the facilities is of the essence of this contract, and the Liquidated Damages clause will be applicable for overrun of this period.
- Proposals will be publically opened and initially checked for proper bonding requirements, signatures, license and addenda issued. Any proposals which, when opened, are found not having a bid bond, cash, or certified check in the amount of five percent (5%) or not duly signed will be rejected and returned to the bidder un-read.

## 5. SAFETY CONDITIONS

- The contractor will be required to work over, or near energized 12.47/7.2 kV and secondary voltage electric distribution facilities and 69 kV transmission facilities. The contractor shall use, maintain, and provide enough insulation materials and tools as necessary for the proper protection of property and personnel.
- The contractor shall coordinate all switching with the Owner.
- The 69 kV at Airside and Westfork will remain energized at all other times. The 12.5 kV at Airside will be de-energized prior to the start of work. The contractor shall install his own grounds on the lines at each end of the work area. Grounds shall remain in place until the line section is ready to be energized.
- The contractor shall coordinate with the Owner's Engineering Department to limit all outages on distribution facilities to as short duration as possible. All work, switching, outages, and other activities shall be thoroughly planned in advance to provide a safe work environment.
- The contractor is responsible for safety of his crews and others in and around the work site while working for the Owner. A copy of the Contractor's Safety manual shall be maintained on site at all times during the project, and the contractor shall provide for all provisions of his safety program. The Contractor shall provide for regular safety inspections and daily and activity specific tailgate safety meetings. Unsafe practices by the Contractor or any of the Contractor's personnel may result in work stoppage, removal of an individual or crew from the Owner's system or termination of the Contract, at the Owner's discretion.

## 6. CONSTRUCTION SCHEDULE AND LIQUIDATED DAMAGES

- Throughout the progress of the work the Contractor shall keep at the job site, a competent superintendent or supervisory staff satisfactory to the Engineer and the Owner.
- The Contractor shall examine and study the drawings and specifications and fully understand the project design, and shall provide constant and efficient supervision to the work. Should he discover any discrepancies of any sort in the drawings or specifications, he shall report them to the Engineer without delay.
- The Contractor is required to attend job site progress conferences as called by the Engineer or the Owner. The Contractor shall be represented at these job progress conferences by both home office and project personnel. These representatives shall have authority to act on behalf of the Contractor. The Engineer or his authorized representative shall be the coordinator of the conferences and shall preside as chairman.

- The proposed project construction schedule shall be presented to the Engineer no later than ten (10) days after written notice to proceed.
- The contractor shall be responsible for his work activities and shall notify the Engineer of any necessary changes or adjustments to his work. The Contractor shall maintain the project construction schedule, making monthly adjustments, updates, corrections, etc., that are necessary to finish the project within the Contract time, keeping the Engineer fully informed.
- The construction portion of this project is to be completed by June 30, 2021. The start date will be stated in the Notice to Proceed as well as at the Pre-Construction Meeting.

## 7. LAYDOWN/STAGING AREA

The contractor will be responsible for locating and obtaining the use of his own laydown/staging area for this project. The Owner will assist the contractor in locating such an area, if requested. However, the substation site should be sufficient to meet this need.

The contractor must maintain the security of all owner-furnished materials in his possession. The contractor will hold the Owner harmless for any items missing or stolen under his charge from his storage area.

## 8. MATERIALS

All materials shall be furnished by the Contractor

## 9. OPEN MEETING FOR DISCUSSION AND QUESTIONS

The following additional items were presented and discussed during the meeting.

1. Mid-February to early-March 2023 is the projected mobilization date, but can be sooner if contracts are executed and contractor crew is ready to start. Completion is preferred by end of May 2023. Ballou should be done last.
2. A fairly detailed description of the work to be done by the contractor at each substation and within each unit is in the "Scope of Work" section of the bid documents.
3. The two (2) new 69 – 12.5 kV transformers are due to arrive in March to April time frame. New transformer pads for T2 at Airside and T1 at Ballou will need to set up 7 days minimum before placing transformers.
4. At Westfork Substation the new expansion area with all grading and fencing needed will be done by Danville Utilities prior to the start of construction.
5. Removals and disposals will be totally the responsibility of the contractor.
6. All materials removed from service shall be disposed of by the contractor.

7. The Circuit Switcher at Airside weighs 2,860 lbs. with the oil still in it and it contains 30 gals of oil. The 15 kV circuit breakers weigh 2000 lbs. each.
8. First task to be done is to install transformer foundations.
9. On removal of old foundations, cut-off 6" below final grade except when they will be replaced.
10. The pad for the 69 kV Siemens breaker in the back of Airside has been removed from the project.
11. At Ballou, the scope of work has been revised to include removal of all vegetation within the fenced area.
12. Work may be performed between 7-5 M-F except holidays. Other hours may be worked with prior approval from Danville Utilities.
13. Anchor bolts for new steel structure foundations will be provided by DU. All breaker anchor bolts will need to be provided by the contractor.
14. Revised new foundation drawings for Airside are attached. Unfortunately, no foundation drawings for Ballou or pad foundation detail drawings for Airside are available.

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<b>Name</b>	<b>Representing</b>	<b>Telephone/Cell Phone</b>	<b>E-mail</b>
Carol Henley	City of Danville	(434) 799-5268	<a href="mailto:henlecg@danvilleva.gov">henlecg@danvilleva.gov</a>
Philip Haley	City of Danville	(434) 799-5270 x 2051	<a href="mailto:Philip.Haley@danvilleva.gov">Philip.Haley@danvilleva.gov</a>
Keith Daniel	City of Danville	(434) 251-4682	<a href="mailto:daniekd@danvilleva.gov">daniekd@danvilleva.gov</a>
<b>Pike Engineering, LLC</b>			
H. Michael Taylor, PE	UtilityEngineering, LLC	(919) 906-0886	<a href="mailto:mtaylor@utilityengineering.com">mtaylor@utilityengineering.com</a>



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**FOUNDATION SURVEY NOTES**

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- THE TOP OF NEW PIER FOUNDATION ELEVATIONS, PIERS 8 & 9, SHALL MATCH EXISTING TOP OF CONCRETE OF PIER 7.
- THE TOP OF NEW SPREAD FOOTER FOUNDATION ELEVATIONS, FDN 10, SHALL MATCH EXISTING TOP OF CONCRETE OF PIER 3.
- THE TOP OF NEW SPREAD FOOTER FOUNDATION ELEVATIONS, FDN 11, SHALL MATCH EXISTING TOP OF CONCRETE OF PIER 4.
- THE TOP OF NEW PAD FOUNDATION ELEVATIONS, PADS 12, 13, 14 & 15, SHALL BE SET AT 1.0' ABOVE SUBGRADE ELEVATION (0.5' ABOVE FINAL GRADE).

**FOUNDATION GENERAL NOTES**

- THE CONTRACTOR SHALL EXERCISE GREAT CARE DURING EXCAVATION. THE CONTRACTOR SHALL PREDETERMINE UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY IF DEVIATION FROM PLANS EXIST. THE CONTRACTOR IS RESPONSIBLE FOR SAFE CONSTRUCTION METHODS AND PRACTICES, WHICH WILL COMPLY WITH ALL OSHA STANDARDS, AND OWNER SAFETY STANDARDS. THE ENGINEER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES FOR NON-COMPLIANCE OF ALL SAFETY STANDARDS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS, AND MAINTAINING A COPY ON SITE.
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- ALL ANCHOR BOLTS SHALL BE SET WITH THE AID OF AN ANCHOR BOLT SETTING TEMPLATE. ANCHOR BOLT QUANTITIES AND SPACING SHALL BE VERIFIED WITH APPROVED STEEL MANUFACTURER ANCHOR BOLT PLAN AND DETAILS DRAWINGS PRIOR TO POURING CONCRETE.
- CONSTRUCTION JOINTS OTHER THAN THOSE INDICATED ON DRAWINGS WILL REQUIRE APPROVAL OF THE ENGINEER.
- PROVIDED 1" CHAMFER FOR ALL EXPOSED CONCRETE EDGES.
- ALL REINFORCING SHALL BE SET ON CHAIRS OR RUNNERS AND BE TIED IN PLACE.
- PROVIDE CORNER BARS AT ALL LOCATIONS WHERE REINFORCEMENT CHANGES DIRECTION. PROVIDE STRAIGHT AND DIAGONAL BARS AT EDGES OF ALL OPENINGS.
- CONCRETE AND RELATED WORK SHALL BE MIXED, PLACED, AND CURED PER THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318, LATEST EDITION. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT, UNLESS NOTED OTHERWISE:  
 (A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"  
 (B) CONCRETE EXPOSED TO EARTH & WATER 2"
- REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED TYPE.
- CONCRETE SHALL DEVELOP AN ULTIMATE COMPRESSIVE STRENGTH OF 4,000 PSI WITH A SLUMP OF 3"-4" (EXCEPT FOR DRILLED PIERS WHICH REQUIRE A SLUMP OF 6"±1") AT TIME OF PLACING. WATER CEMENT RATIO NOT TO EXCEED 0.45.
- THE PORTLAND CEMENT SHALL CONFORM TO THE "STANDARD SPECIFICATION FOR PORTLAND CEMENT" ASTM DESIGNATION C150-LATEST REVISION, TYPE I OR TYPE IA.
- MAXIMUM AGGREGATE SIZE SHALL BE 1". AGGREGATE SHALL CONFORM TO ASTM C33.
- AIR-ENTRAINING AGENT SHALL MEET THE REQUIREMENTS OF ASTM C260. AIR CONTENT SHALL BE BETWEEN FOUR AND SIX PERCENT (4% - 6%).
- CONCRETE TESTING FOR QUALITY CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR AND THE FREQUENCY AND TYPE OF TESTING SHALL BE DETERMINED BY THE OWNER.
- ALL CONCRETE POURS MADE WHEN TEMPERATURE RANGE IS BETWEEN 50° AND 90° CAN BE MADE WITHOUT ANY SPECIAL PROVISIONS. CONCRETE SHALL BE VIBRATED DURING PLACEMENT UNTIL ALL VOIDS ARE FILLED.
- SEE NOTE ON FOUNDATION PLAN DRAWING FOR THE TOP OF NEW FOUNDATIONS ELEVATION. AFTER INSTALLATION OF FOUNDATIONS, CONTRACTOR SHALL RESTORE SUBGRADE BACK TO ITS ORIGINAL ELEVATION AND RESTORE EXISTING GRAVEL (4" CRUSHER RUN AND 2" WASHED STONE) TO ACHIEVE THE FINAL GRADE.
- THE USE OF CALCIUM CHLORIDE AS AN ADMIXTURE OR THE USE OF FIBER REINFORCED CONCRETE SHALL NOT BE PERMITTED.
- WATER SHALL BE CLEAR AND FREE FROM INJURIOUS AMOUNTS OF OIL, ACID, SALT, ALKALI, INDUSTRIAL WASTE, SANITARY SEWAGE, SUGAR, ALGAE OR OTHER DELETERIOUS SUBSTANCES.
- WHEN READY-MIXED CONCRETE IS SPECIFIED, IT SHALL MEET THE REQUIREMENTS OF THE "STANDARD SPECIFICATION FOR READY-MIXED CONCRETE" ASTM DESIGNATION C94-LATEST REVISION. OPTION A SHALL BE USED AS A BASIS FOR DETERMINING THE PROPORTIONS OF THE CONCRETE TO PRODUCE THE REQUIRED QUALITY.
- A DELIVERY TICKET SHALL BE PREPARED FOR EACH LOAD OF READY-MIXED CONCRETE DELIVERED AND HANDED TO THE OWNER BY THE TRUCK OPERATOR AT THE TIME OF DELIVERY. TICKETS SHALL SHOW THE NUMBER OF YARDS DELIVERED, THE QUANTITIES OF EACH MATERIAL IN THE BATCH, THE OUTDOOR TEMPERATURE IN THE SHADE, THE TIME AT WHICH THE CEMENT WAS ADDED, AND THE NUMERICAL SEQUENCE OF THE DELIVERY.

**DRILLED PIER GENERAL NOTES**

- WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
- SPLICES IN REINFORCEMENT SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED.
- USE OF A TEMPORARY WATER-TIGHT CASING SHALL BE REQUIRED. FOUNDATION DESIGN ASSUMES CASING WILL NOT BE LEFT IN PLACE. CONCRETE PIER SHALL NOT BE ADVERSELY DISTURBED UPON CASING REMOVAL.
- FOR DRILLED PIERS, THE REQUIRED CONCRETE SLUMP IS 6"±1". ACHIEVE THE ADDITIONAL SLUMP OVER 4" BY USING CHEMICAL ADMIXTURES.
- INSTALLATION SHALL BE PER DIVISION II, SECTION 5.4 OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION, EXCLUDING SECTIONS 5.4.15 & 5.4.17.

**SPECIAL NOTES:**

- ALL FOUNDATIONS SHALL BE POURED ON FIRM, LEVEL, UNDISTURBED OR WELL-COMPACTED EARTH. IF SOFT SOIL LAYERS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE, WELL-COMPACTED STRUCTURAL FILL OR WASHED STONE. IF WASHED STONE IS USED, INSTALL A 6 mil POLY VAPOR BARRIER BETWEEN CONCRETE AND STONE.
- ALL PADS SHALL BE POURED AFTER ADJACENT DRILLED PIERS ARE INSTALLED.
- CONTRACTOR MAY ENCOUNTER EXISTING CONDUITS/CABLES WHILE EXCAVATING FOR NEW FOUNDATIONS. CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO BEGINNING EXCAVATION FOR NEW FOUNDATIONS.

**REFERENCE:**

GENERAL ARRANGEMENT PLAN \_\_\_\_\_ DWG. No. 120  
 OIL CONTAINMENT PLAN, SECTION, & NOTES \_\_\_\_\_ DWG. Nos. 131 & 132  
 FOUNDATION DETAILS \_\_\_\_\_ DWG. Nos. 132 & 133  
 FOUNDATION SPECIFICATIONS \_\_\_\_\_ DWG. No. 330

**LEGEND**

○ □ EXISTING FOUNDATIONS  
 ○ □ NEW FOUNDATIONS TO BE INSTALLED

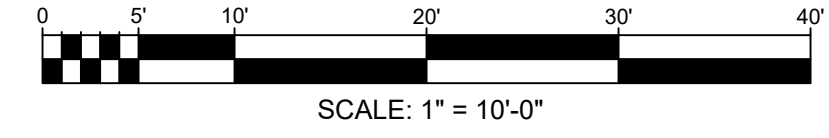
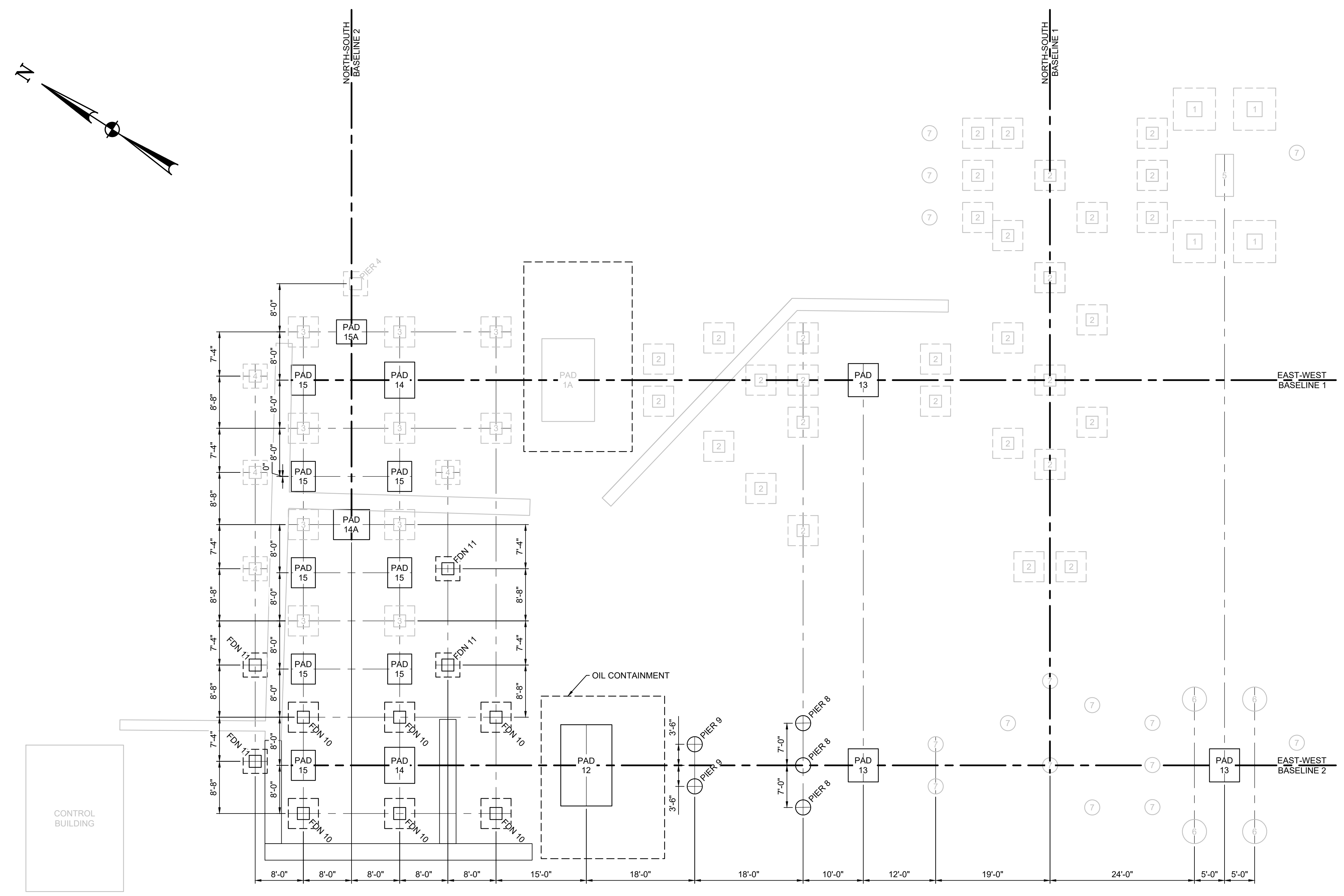
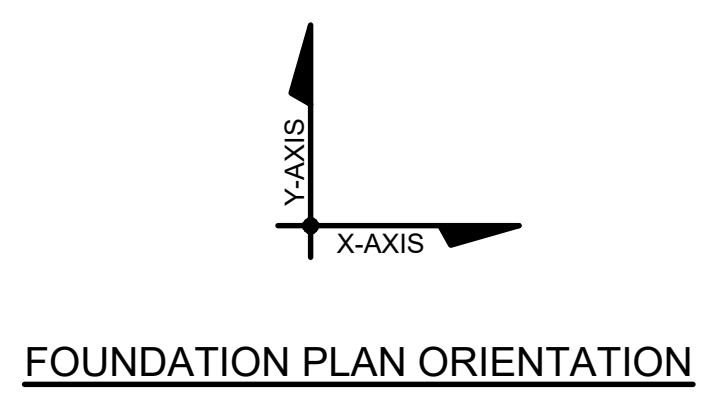
BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (FOR THIS PROJECT)	SUPPLIED BY:	
CONCRETE	77	CONTRACTOR	CUBIC YARDS OF CONCRETE
REBAR	5,860	CONTRACTOR	LBS. OF REBAR
AB-1	28	SUBSTATION ENTERPRISES	3/4"Ø x 2'-0" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-2	32	SUBSTATION ENTERPRISES	1"Ø x 2'-6" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-3	12	SUBSTATION ENTERPRISES	1"Ø x 2'-0" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-4	48	SUBSTATION ENTERPRISES	3/4"Ø x 1'-9" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
WA-1	60	CONTRACTOR	4" x 4" x 1/2" SQ. WASHERS

\*QUANTITY HERE IS FOR STRUCTURE & EQUIPMENT FOUNDATIONS, AND DOES NOT INCLUDE ENCASEMENT CIRCUIT EXITS WHEN REQUIRED.

SCHEDULE FOR TYPICAL DRILLED PIER DETAILS						
PIER No.	TOTAL REQ'D	PIER SIZE		ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		DIAMETER	LENGTH		PER PIER	TOTAL
PIER 8	3	2'-6"	7'-0"	"A"	1.27	3.81
PIER 9	2	2'-6"	7'-0"	"B"	1.27	2.54

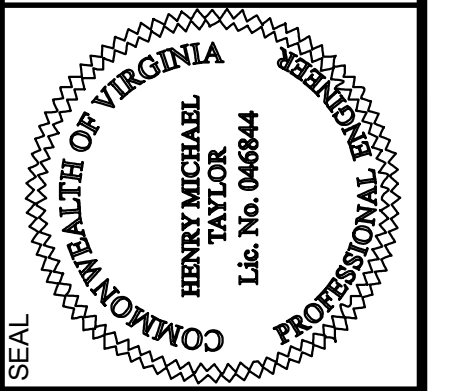
SCHEDULE FOR TYPICAL SPREAD FOOTING FOUNDATION DETAILS										
FDN No.	TOTAL REQ'D	PIER			FOOTER			ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		LENGTH x WIDTH	HEIGHT	LENGTH x WIDTH	THICKNESS	PER FDN.	TOTAL			
FDN 10	6	2'-0" x 2'-0"	5'-0"	5'-0" x 5'-0"	1'-0"	"C"	1.67	10.00		
FDN 11	4	2'-0" x 2'-0"	5'-0"	4'-0" x 4'-0"	1'-0"	"D"	1.33	5.33		

SCHEDULE FOR TYPICAL PAD DETAILS							
PAD No.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU. YDS. CONCRETE		
		LENGTH x WIDTH	DEPTH		PER FDN.	TOTAL	
12	1	13'-6" x 8'-6"	5'-0"	N/A	21.25	21.25	
13	3	6'-0" x 5'-6"	2'-6"	"E"	3.06	9.18	
14 & 14A	3	6'-0" x 5'-0"	2'-6"	"F"	2.78	8.34	
15 & 15A	9	5'-0" x 4'-0"	2'-6"	"G"	1.85	16.65	



**PLAN VIEW**

**UTILITY ENGINEERING**  
 LICENSE # 0407007987  
 700 OBERLIN ROAD, SUITE 230  
 RALEIGH, NC 27605  
 UTILITYENGINEERING.COM



REV	DATE	DESCRIPTION
0	12/23/22	ISSUED FOR BIDS

CLIENT PROJ. REF. No.: UTILITYENGINEERING, LLC  
 PROJ. No.: 22-108-14  
 DATE: 12/23/2022  
 SCALE: AS SHOWN  
 DWN BY: SSS  
 CKD BY: HMT  
 APPVD BY: HMT

CITY OF DANVILLE  
 DANVILLE, VIRGINIA  
**AIRSIDE 69/15KV SUBSTATION**  
**FOUNDATION PLAN**

DWG. NO. **130**

THIS DRAWING SIZE IS 24" X 36" WHEN PLOTTED FULL SIZE. THIS LINE WILL PLOT AS 1/16".

COPYRIGHT 2022 © BY UTILITYENGINEERING, LLC

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**DRILLED PIER GENERAL NOTES**

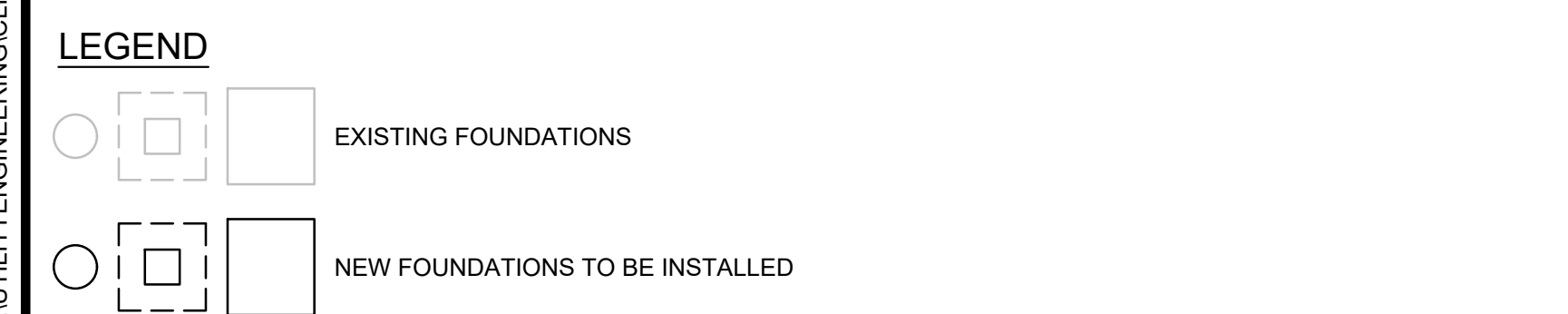
- WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
- SPLICES IN REINFORCEMENT SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED.
- USE OF A TEMPORARY WATER-TIGHT CASING SHALL BE REQUIRED. FOUNDATION DESIGN ASSUMES CASING WILL NOT BE LEFT IN PLACE. CONCRETE PIER SHALL NOT BE ADVERSELY DISTURBED UPON CASING REMOVAL.
- FOR DRILLED PIERS, THE REQUIRED CONCRETE SLUMP IS 6"±1". ACHIEVE THE ADDITIONAL SLUMP OVER 4" BY USING CHEMICAL ADMIXTURES.
- INSTALLATION SHALL BE PER DIVISION II, SECTION 5.4 OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION, EXCLUDING SECTIONS 5.4.15 & 5.4.17.

**SPECIAL NOTES:**

- ALL FOUNDATIONS SHALL BE POURED ON FIRM, LEVEL, UNDISTURBED OR WELL-COMPACTED EARTH. IF SOFT SOIL LAYERS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE, WELL-COMPACTED STRUCTURAL FILL OR WASHED STONE. IF WASHED STONE IS USED, INSTALL A 6 mil POLY VAPOR BARRIER BETWEEN CONCRETE AND STONE.
- ALL PADS SHALL BE POURED AFTER ADJACENT DRILLED PIERS ARE INSTALLED.
- CONTRACTOR MAY ENCOUNTER EXISTING CONDUITS/CABLES WHILE EXCAVATING FOR NEW FOUNDATIONS. CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO BEGINNING EXCAVATION FOR NEW FOUNDATIONS.

**REFERENCE:**

GENERAL ARRANGEMENT PLAN	DWG. No. 120
OIL CONTAINMENT PLAN, SECTION, & NOTES	DWG. Nos. 131 & 132
FOUNDATION DETAILS	DWG. Nos. 132 & 133
FOUNDATION SPECIFICATIONS	DWG. No. 330



**BILL OF MATERIAL**

ITEM	TOTAL QUANTITIES (FOR THIS PROJECT)	SUPPLIED BY:	
CONCRETE	74	CONTRACTOR	CUBIC YARDS OF CONCRETE
REBAR	5,557	CONTRACTOR	LBS. OF REBAR
AB-1	28	SUBSTATION ENTERPRISES	3/4"Ø x 2'-0" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-2	32	SUBSTATION ENTERPRISES	1"Ø x 2'-6" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-3	8	SUBSTATION ENTERPRISES	1"Ø x 2'-0" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-4	48	SUBSTATION ENTERPRISES	3/4"Ø x 1'-9" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
WA-1	60	CONTRACTOR	4" x 4" x 1/2" SQ. WASHERS

\*QUANTITY HERE IS FOR STRUCTURE & EQUIPMENT FOUNDATIONS, AND DOES NOT INCLUDE ENCASEMENT CIRCUIT EXITS WHEN REQUIRED.

**SCHEDULE FOR TYPICAL DRILLED PIER DETAILS**

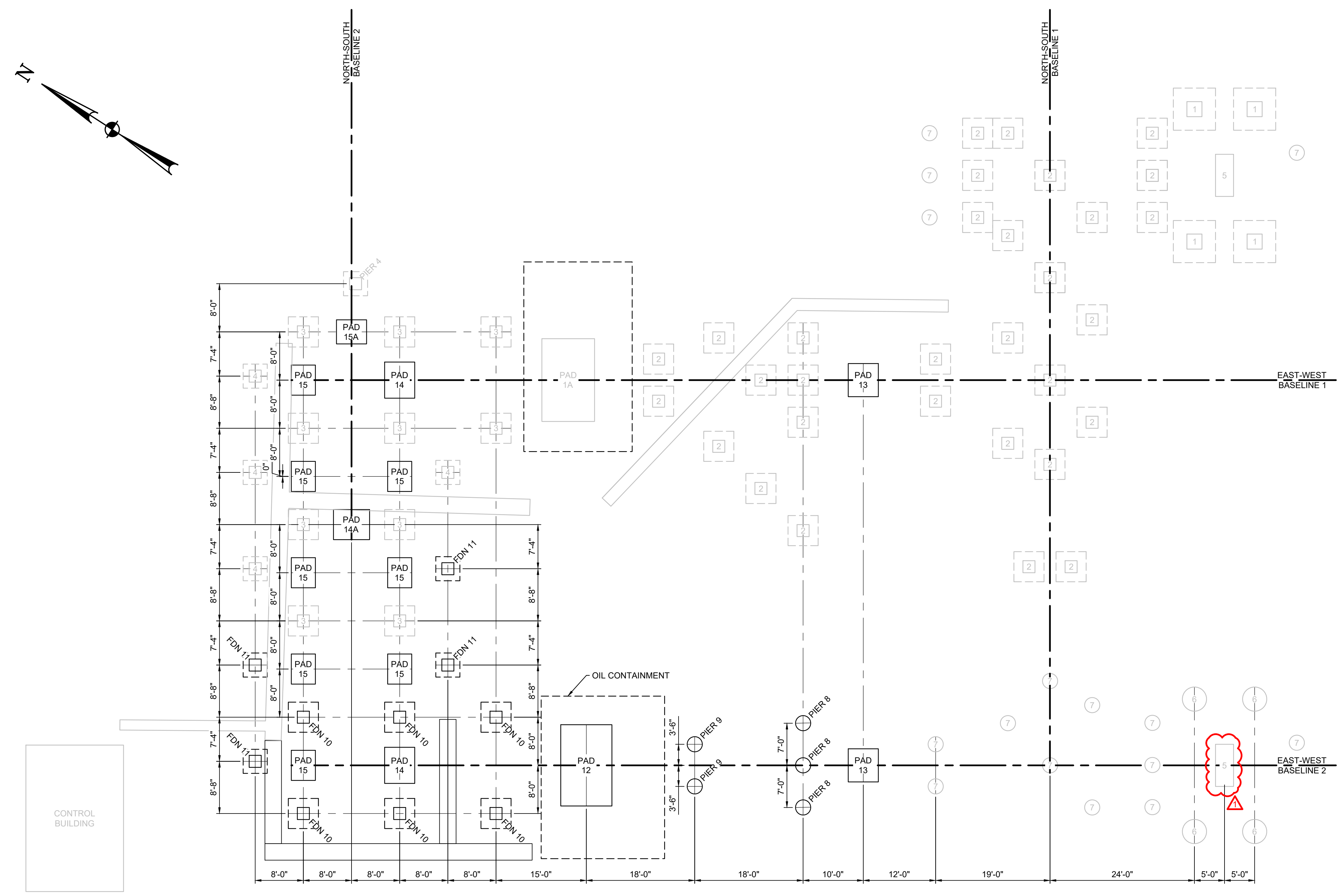
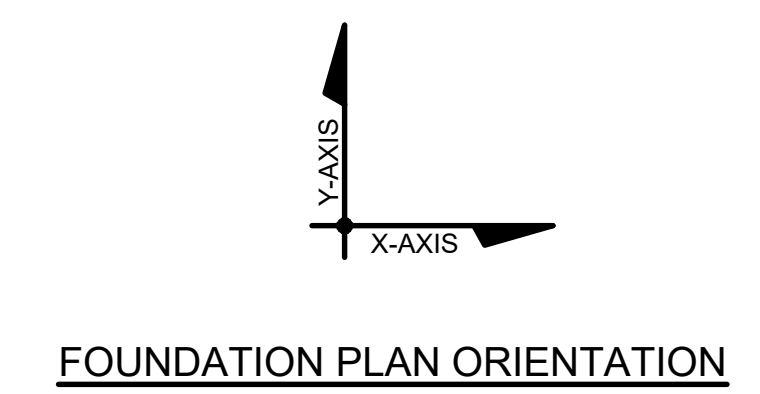
PIER No.	TOTAL REQ'D	PIER SIZE		ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		DIAMETER	LENGTH		PER PIER	TOTAL
PIER 8	3	2'-6"	7'-0"	"A"	1.27	3.81
PIER 9	2	2'-6"	7'-0"	"B"	1.27	2.54

**SCHEDULE FOR TYPICAL SPREAD FOOTING FOUNDATION DETAILS**

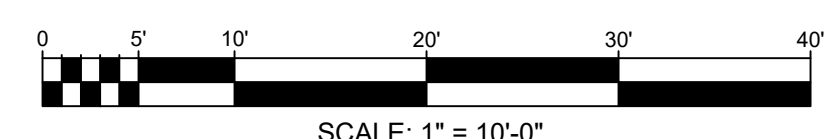
FDN No.	TOTAL REQ'D	PIER		FOOTER		ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		LENGTH x WIDTH	HEIGHT	LENGTH x WIDTH	THICKNESS		PER FDN.	TOTAL
FDN 10	6	2'-0" x 2'-0"	5'-0"	5'-0" x 5'-0"	1'-0"	"C"	1.67	10.00
FDN 11	4	2'-0" x 2'-0"	5'-0"	4'-0" x 4'-0"	1'-0"	"D"	1.33	5.33

**SCHEDULE FOR TYPICAL PAD DETAILS**

PAD No.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		LENGTH x WIDTH	DEPTH		PER FDN.	TOTAL
12	1	13'-6" x 8'-6"	5'-0"	N/A	21.25	21.25
13	2	6'-0" x 5'-6"	2'-6"	"E"	3.06	6.12
14 & 14A	3	6'-0" x 5'-0"	2'-6"	"F"	2.78	8.34
15 & 15A	9	5'-0" x 4'-0"	2'-6"	"G"	1.85	16.65



**PLAN VIEW**



UTILITY ENGINEERING

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 HERBERT A. TAYLOR  
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 PROFESSIONAL ENGINEER

LICENSE # 0407007987  
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 RALEIGH, NC 27605  
 UTILITYENGINEERING.COM

REV	DATE	DESCRIPTION
0	12/23/22	ISSUED FOR BIDS
1	1/20/23	REMOVED ONE OF PAD 13s

CLIENT PROJ. REF. No.: UTILITYENGINEERING, LLC  
 PROJ. No.: 22-108-14  
 DATE: 12/23/2022  
 SCALE: AS SHOWN  
 DWN BY: SSS  
 CKD BY: HMT  
 APPVD BY: HMT

CITY OF DANVILLE  
 DANVILLE, VIRGINIA  
 AIRSIDE 69/15KV SUBSTATION

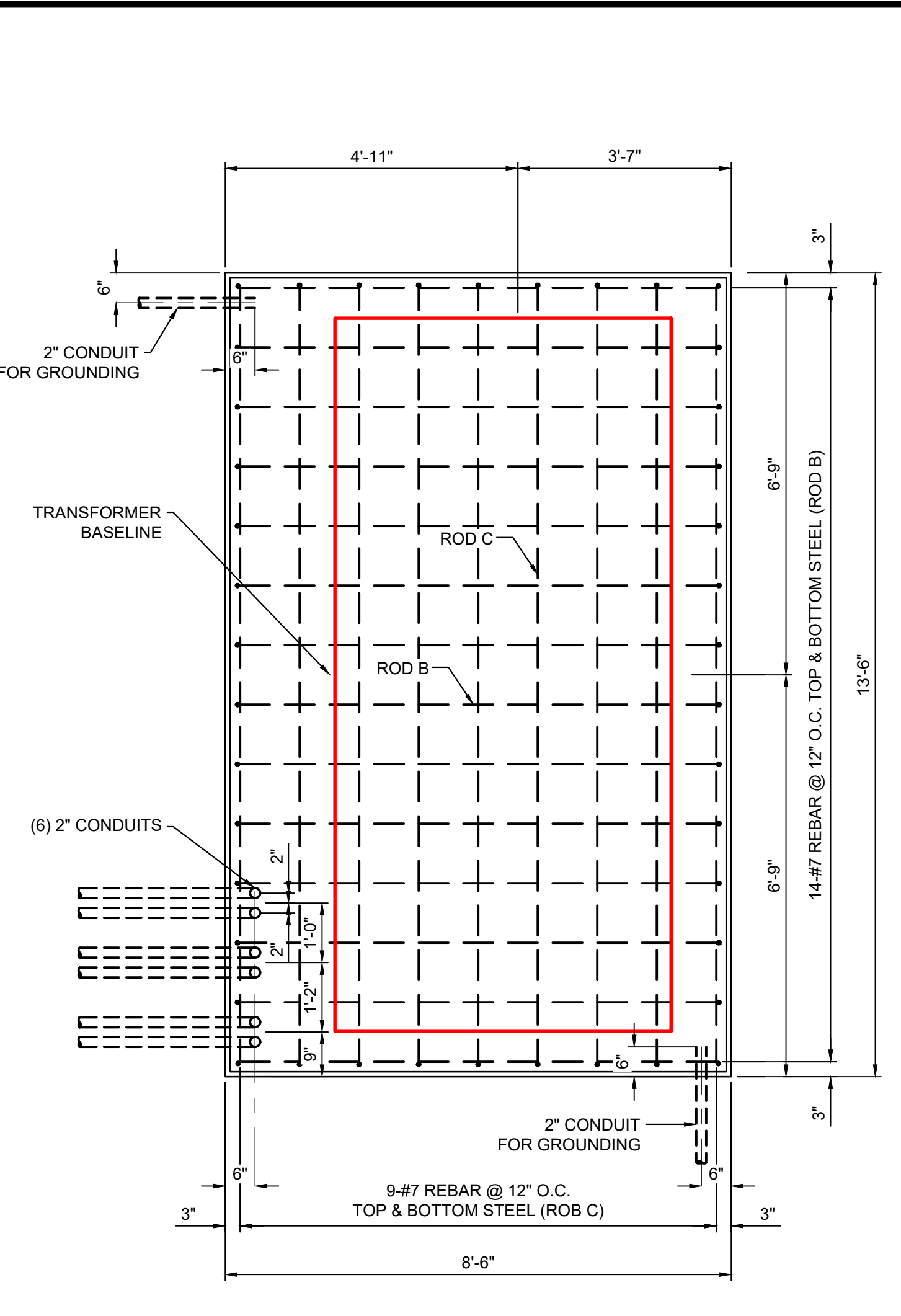
FOUNDATION PLAN

ISSUED FOR BIDS

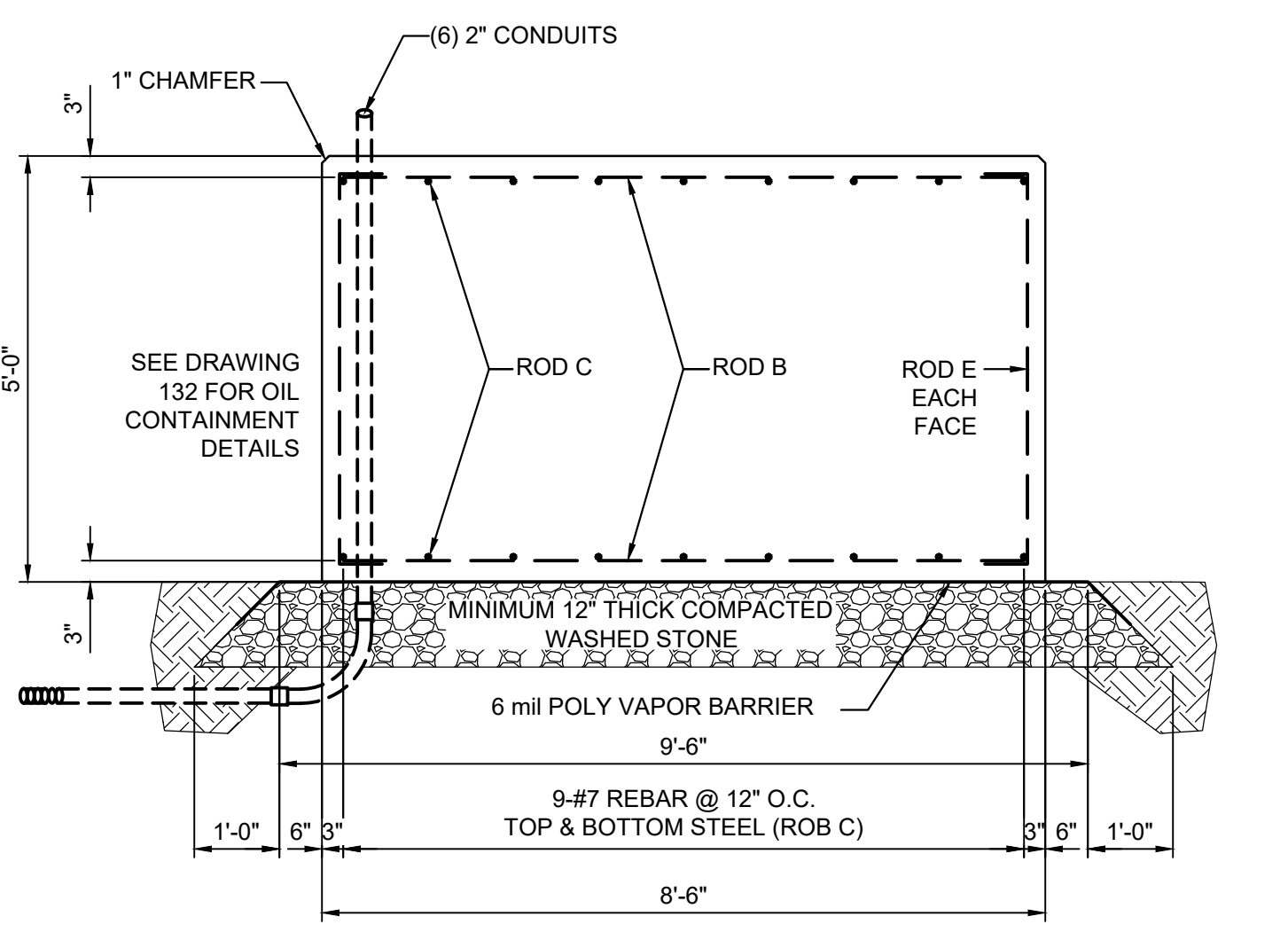
DWG. NO. 130

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THIS DRAWING SIZE IS 24" X 36" WHEN PLOTTED FULL SIZE. THIS LINE WILL PLOT AS 1/4" INCH.

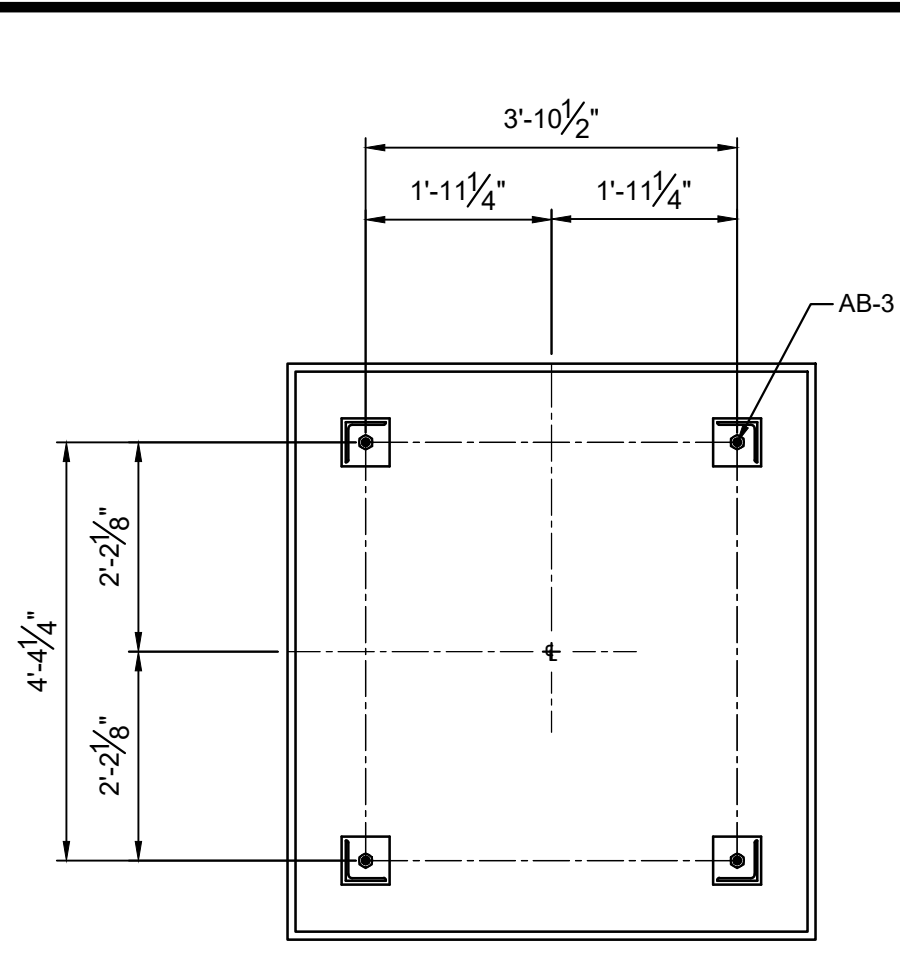


PLAN

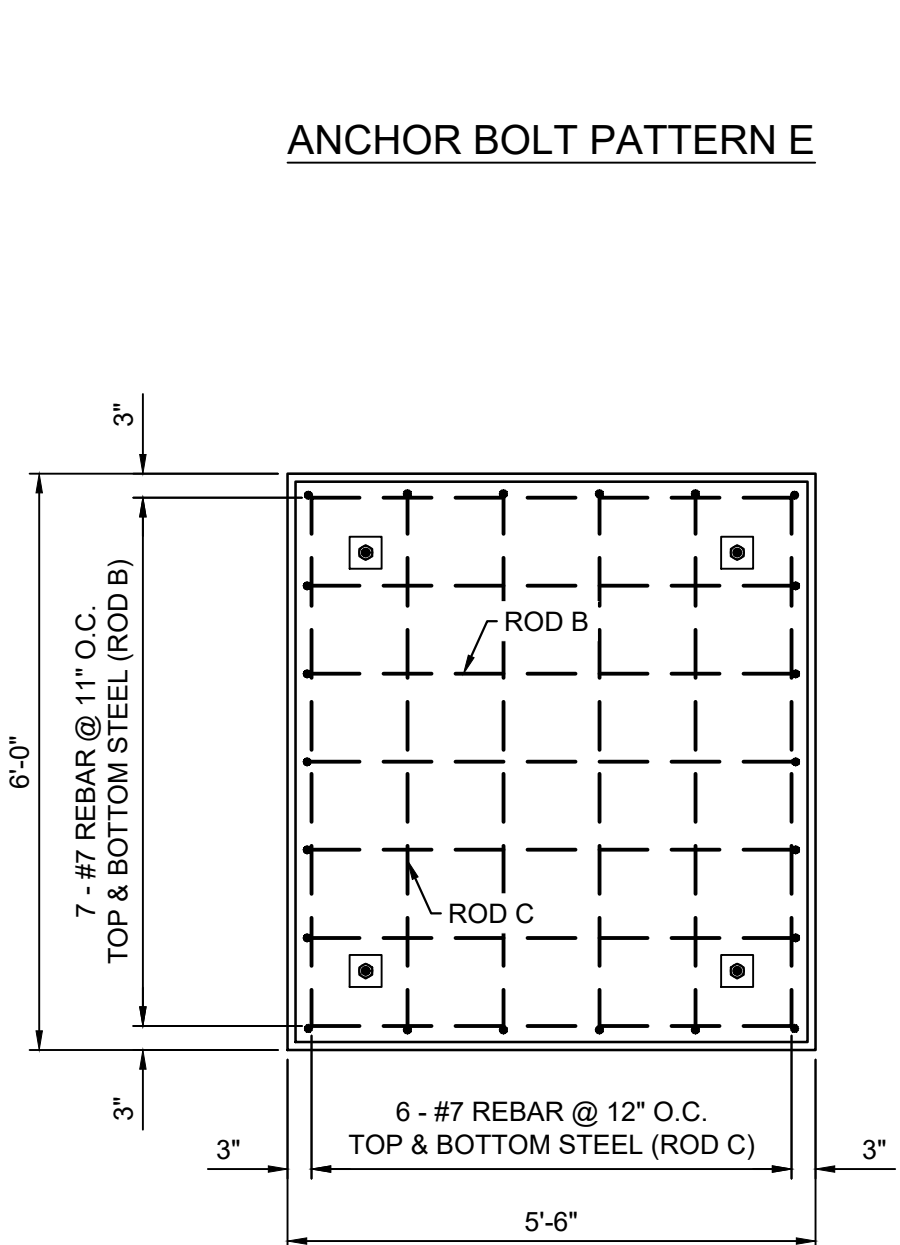


SECTION

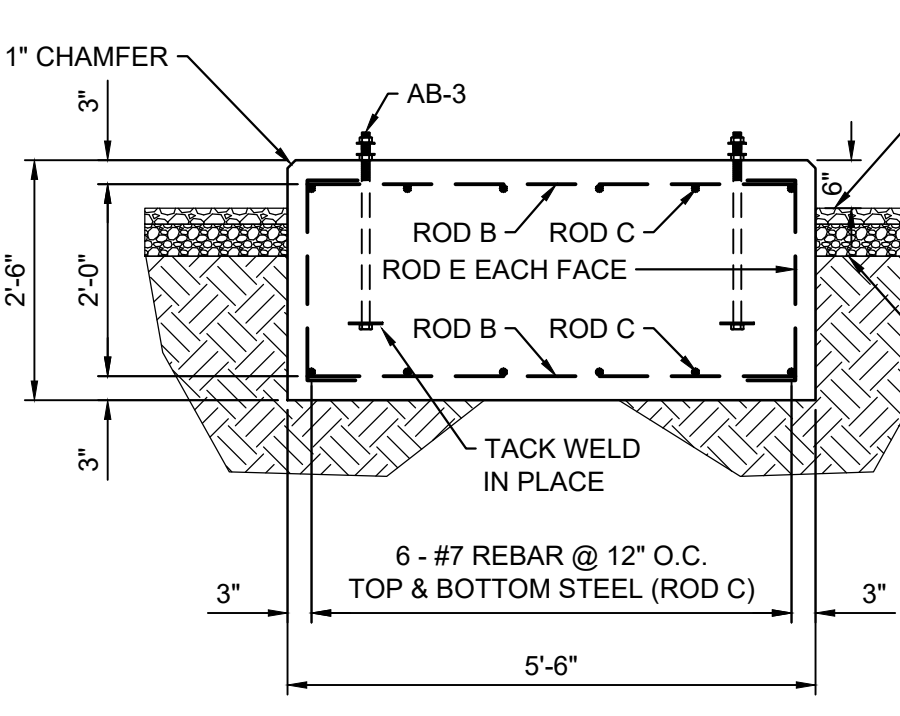
**PAD 12**  
**TRANSFORMER T2**  
SCALE: 1/2" = 1'-0"



ANCHOR BOLT PATTERN E

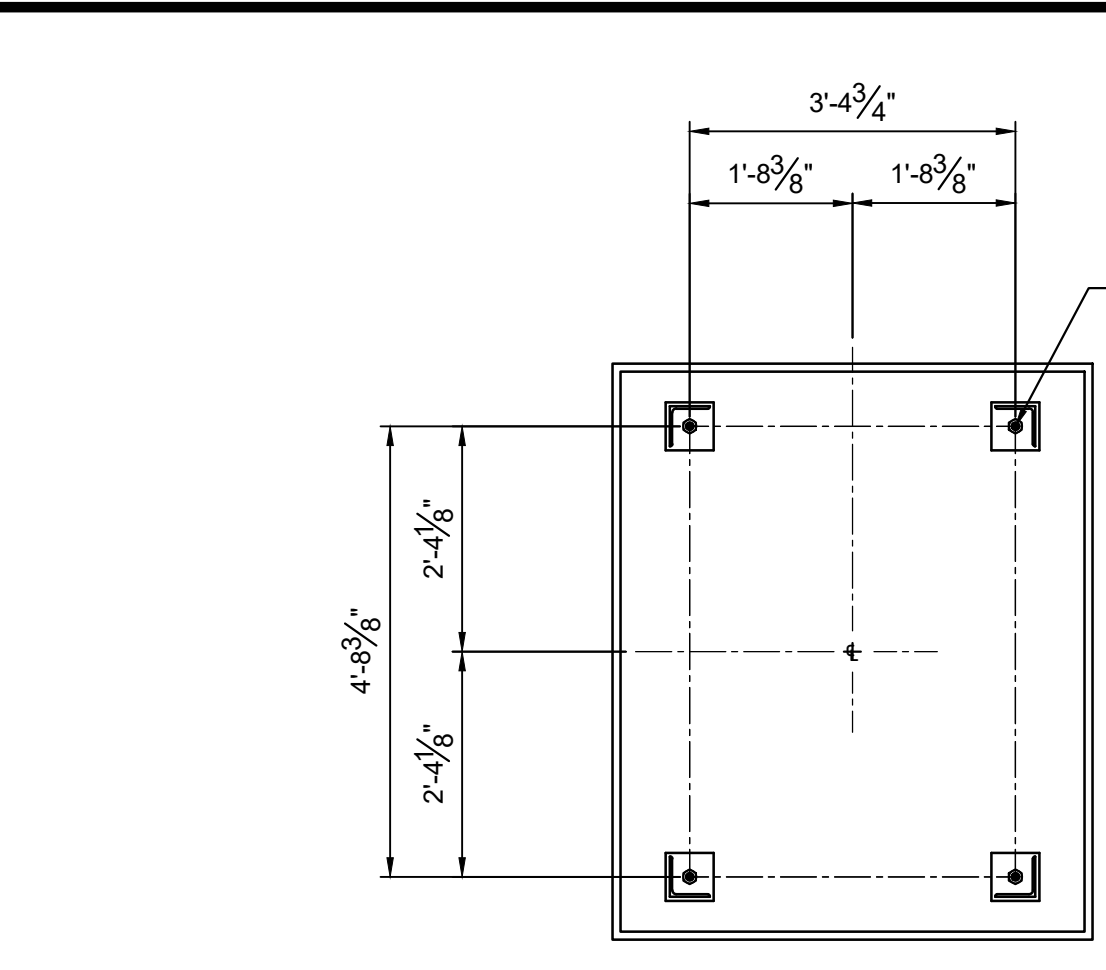


PLAN

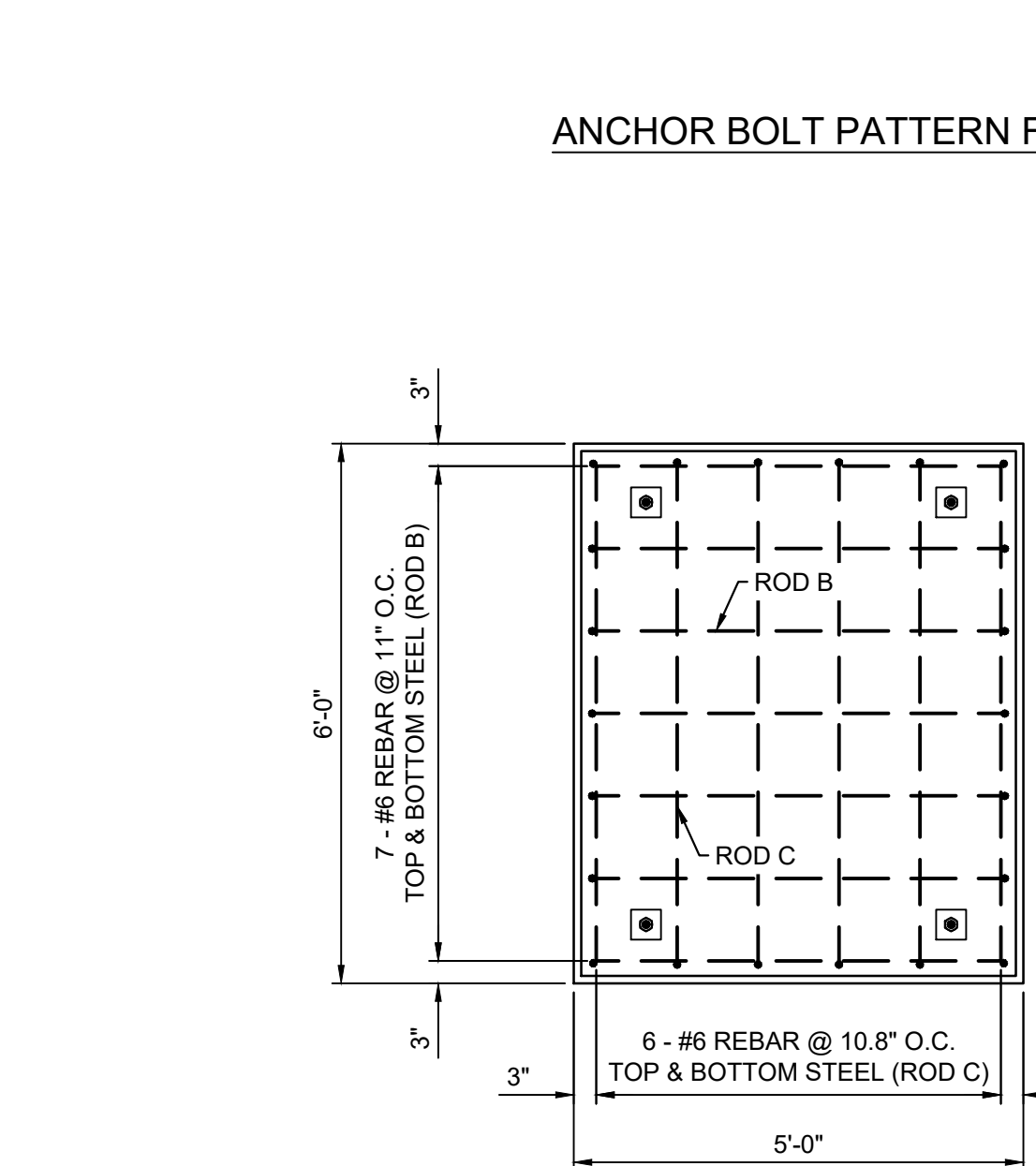


SECTION

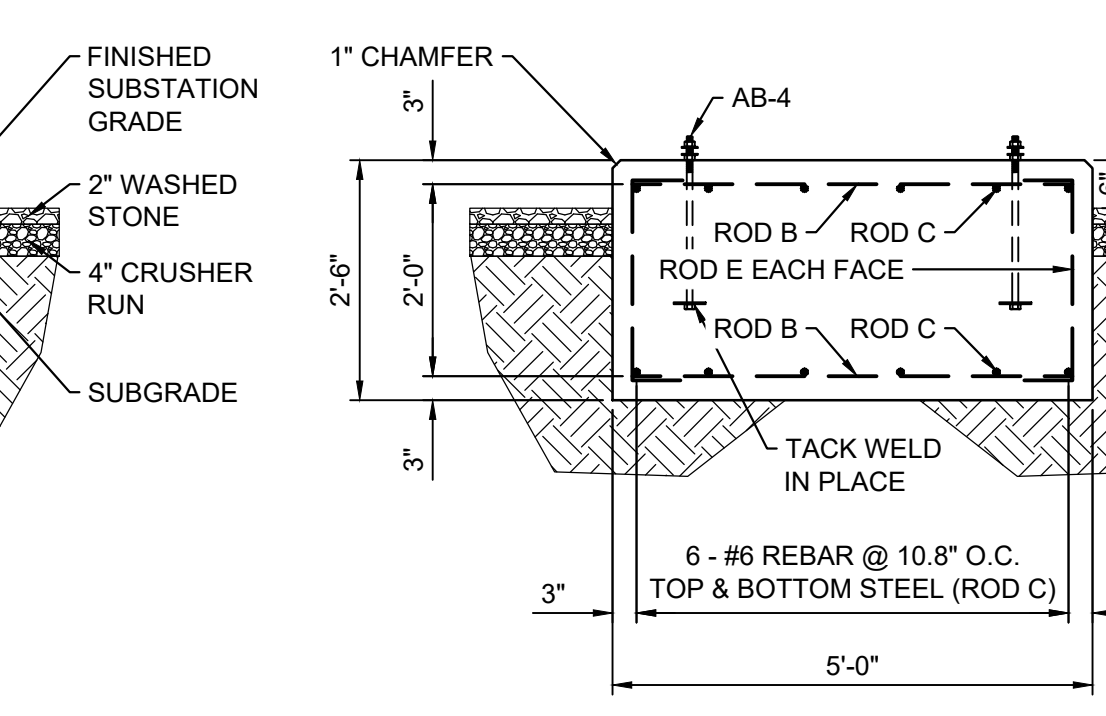
**PAD 13**  
**72.5kV SIEMENS BREAKER**  
SCALE: 1/2" = 1'-0"



ANCHOR BOLT PATTERN F

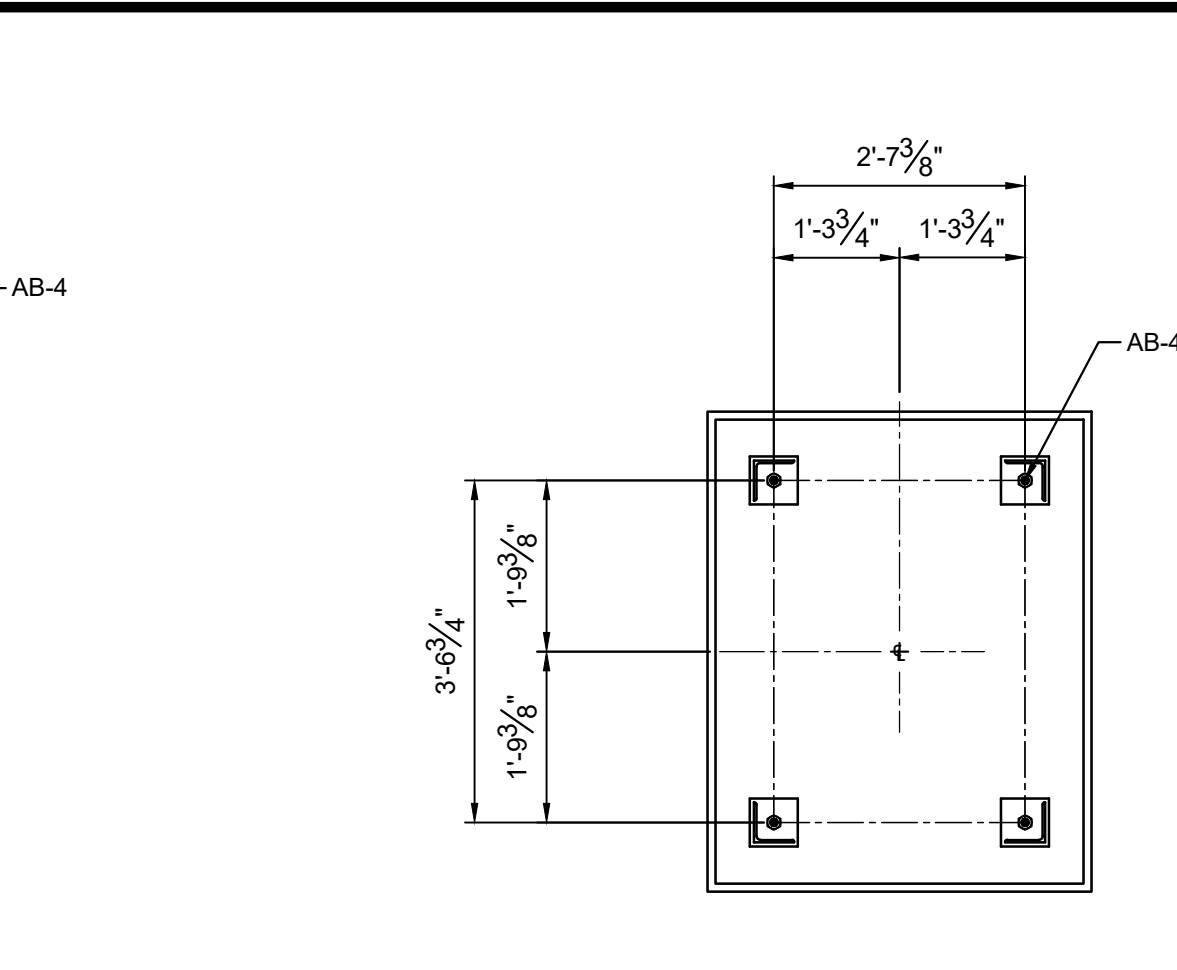


PLAN

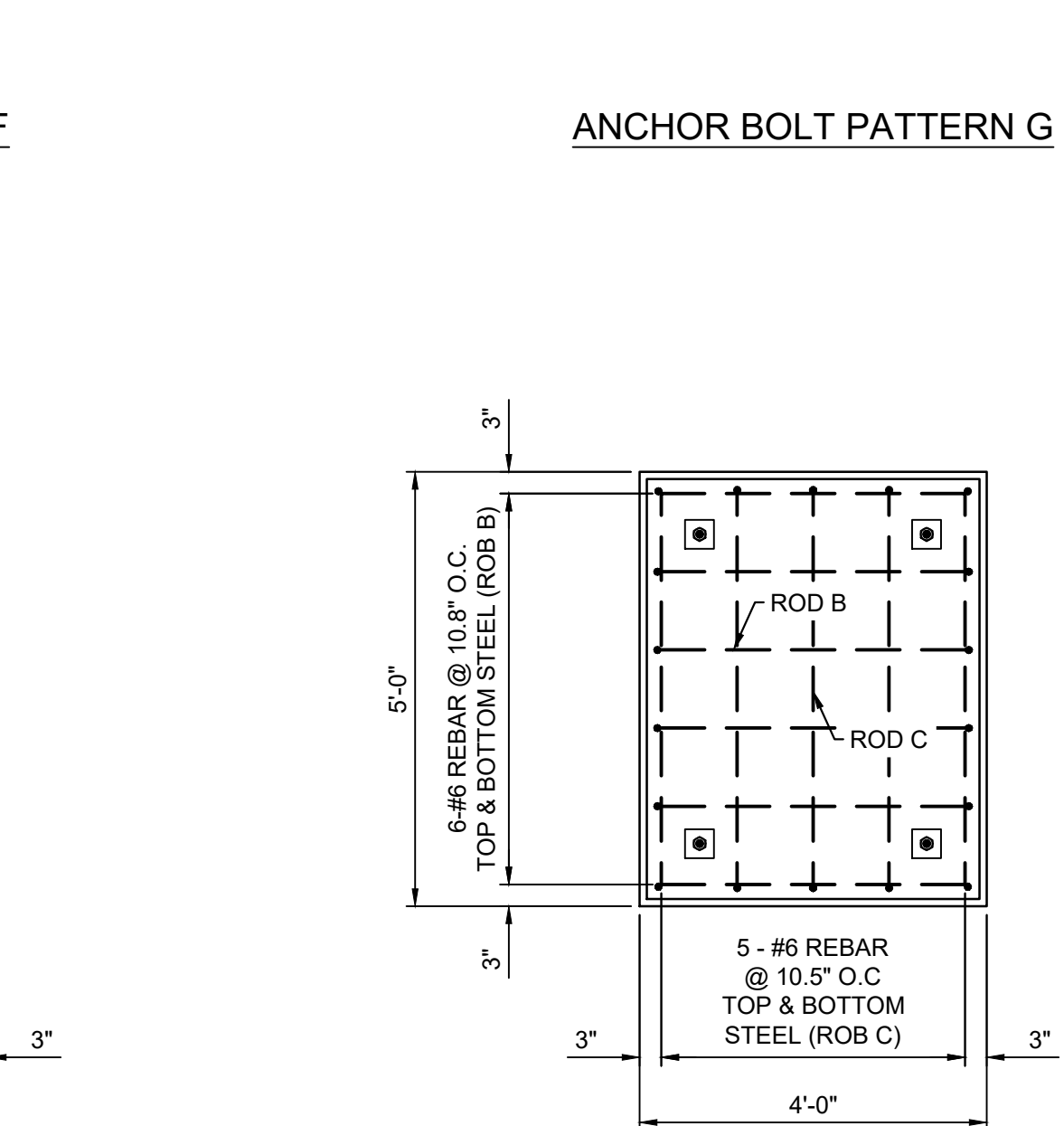


SECTION

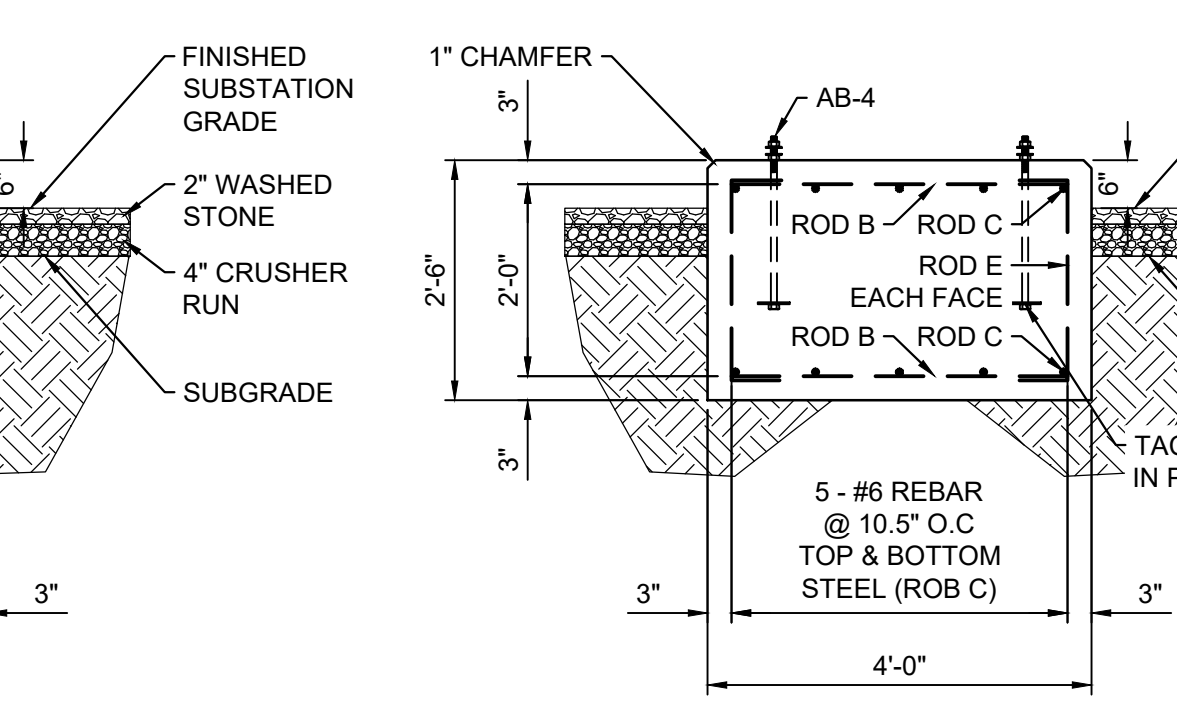
**PAD 14 & 14A**  
**15kV ABB 2000A BREAKER**  
SCALE: 1/2" = 1'-0"



ANCHOR BOLT PATTERN G



PLAN



SECTION

**PAD 15 & 15A**  
**15kV ABB 1200A BREAKER**  
SCALE: 1/2" = 1'-0"

BILL OF MATERIAL - PADS 12 THRU 15A			
ITEM	TOTAL QUANTITIES (FOR THIS SHEET)	SUPPLIED BY:	
CONCRETE	52.36	CONTRACTOR	CUBIC YARDS OF CONCRETE
REBAR	3711.24	CONTRACTOR	LBS. OF REBAR
AB-3	8	SUBSTATION ENTERPRISES	1"Ø X 2'-0" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
AB-4	48	SUBSTATION ENTERPRISES	3/4"Ø X 1'-9" ANCHOR BOLT W/2-FW, 2-LW, 3-HHN
WA-1	60	CONTRACTOR	4" x 4" x 1/2" SQ. WASHERS

\*QUANTITY HERE IS FOR STRUCTURE & EQUIPMENT FOUNDATIONS, AND DOES NOT INCLUDE ENCASUREMENT CIRCUIT EXITS WHEN REQUIRED.

SCHEDULE FOR TYPICAL PAD DETAILS						
PAD No.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU. YDS. CONCRETE	
		LENGTH x WIDTH	DEPTH		PER FDN.	TOTAL
12	1	13'-6" x 8'-6"	5'-0"	N/A	21.25	21.25
13	2	6'-0" x 5'-6"	2'-6"	"E"	3.06	6.12
14 & 14A	3	6'-0" x 5'-0"	2'-6"	"F"	2.78	8.34
15 & 15A	9	5'-0" x 4'-0"	2'-6"	"G"	1.85	16.65

PAD No. "12"		TOTAL No. OF FDN REQ'D - 1			
ROD No.	SIZE OF REBAR	No. REQ'D PER FDN	DIM A	DIM B	WEIGHT LBS. PER ROD
B	#7	28	8'-0"	-	16.35
C	#7	18	13'-0"	-	26.57
E	#4	42	4'-6"	6"	3.67
TOTAL WEIGHT OF REBAR PER FDN =					1090.20
TIMES TOTAL No. OF FDN'S REQ'D =					1090.20

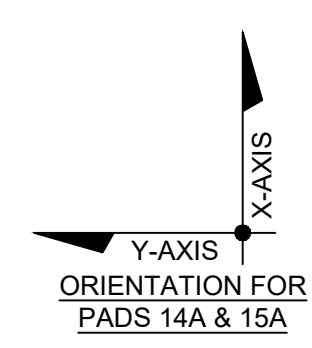
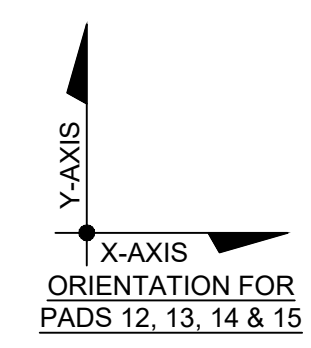
PAD No. "13"		TOTAL No. OF FDN REQ'D - 2			
ROD No.	SIZE OF REBAR	No. REQ'D PER FDN	DIM A	DIM B	WEIGHT LBS. PER ROD
B	#7	14	5'-0"	-	10.22
C	#7	12	5'-6"	-	11.24
E	#3	22	2'-0"	6"	1.13
TOTAL WEIGHT OF REBAR PER FDN =					302.82
TIMES TOTAL No. OF FDN'S REQ'D =					605.64

PAD No. "14 & 14A"		TOTAL No. OF FDN REQ'D - 3			
ROD No.	SIZE OF REBAR	No. REQ'D PER FDN	DIM A	DIM B	WEIGHT LBS. PER ROD
B	#6	14	4'-6"	-	6.76
C	#6	12	5'-6"	-	8.26
E	#3	22	2'-0"	6"	1.13
TOTAL WEIGHT OF REBAR PER FDN =					218.62
TIMES TOTAL No. OF FDN'S REQ'D =					655.86

PAD No. "15 & 15A"		TOTAL No. OF FDN REQ'D - 9			
ROD No.	SIZE OF REBAR	No. REQ'D PER FDN	DIM A	DIM B	WEIGHT LBS. PER ROD
B	#6	12	3'-6"	-	5.26
C	#6	10	4'-6"	-	6.76
E	#3	18	2'-0"	6"	1.13
TOTAL WEIGHT OF REBAR PER FDN =					151.06
TIMES TOTAL No. OF FDN'S REQ'D =					1359.54

**SPECIAL NOTES:**

- ALL FOUNDATIONS SHALL BE POURED ON FIRM, LEVEL, UNDISTURBED OR WELL-COMPACTED EARTH. IF SOFT SOIL LAYERS ARE ENCOUNTERED, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE, WELL-COMPACTED STRUCTURAL FILL OR WASHED STONE. IF WASHED STONE IS USED, INSTALL A 6 mil POLY VAPOR BARRIER BETWEEN CONCRETE AND STONE.
- FOR TOP OF FOUNDATION ELEVATIONS AND FOUNDATION NOTES, SEE FOUNDATION PLAN DWG. 130.

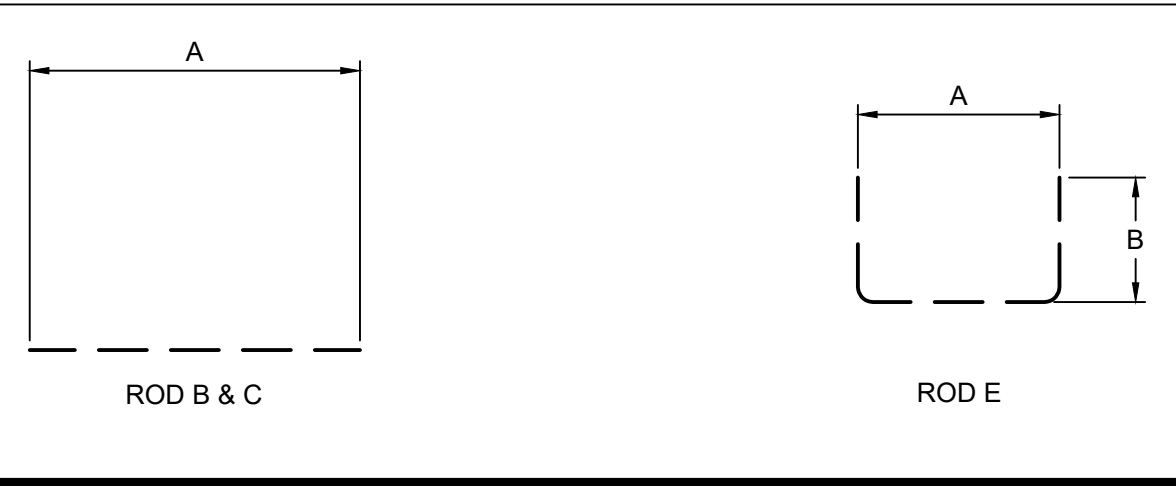


**FOUNDATION/ ANCHOR BOLT SUMMARY**

FND. DESIGNATION	SERVICE	No. REQ'D. STRUCT.'S	No. OF FND. REQ'D. PER STRUCTURE	LABEL	QTY./ FND.	TOTAL QTY. REQ'D.	ANCHOR BOLTS					WASHER QTY. - DESC.	NUT QTY. - DESC.	
							DIA.	EMBED.	PROJ.	LENGTH THRU MIN.	HOOK			TOTAL
PADS 13	72.5kV SIEMENS BREAKER	1	1	AB-3	1	1	1"	1'-8 1/2"	3 1/2"	6"	NA	2'-0"	2-FW	2-HHN
PADS 14 & 14A	15kV ABB 2000A BREAKER	3	1	AB-4	4	12	3/4"	1'-6"	3"	4 1/2"	NA	1'-9"	2-FW	2-HHN
PADS 15 & 15A	15kV ABB 1200A BREAKER	9	1			36								

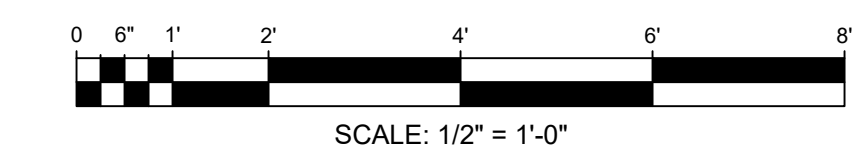
ANCHOR BOLT & HARDWARE SUPPLIED BY:  
ANCHOR BOLT & HARDWARE PROVIDED BY SUBSTATION ENTERPRISES  
CONTRACTOR TO SUPPLY (4) 4" x 4" x 1/2" SQUARE WASHER PER FOUNDATION (ITEM WA-1)

**ROD BENDING LEGEND (NOT TO SCALE)**



**REFERENCE:**

FOUNDATION PLAN \_\_\_\_\_ DWG. No. 130  
OIL CONTAINMENT PLAN, SECTION, & NOTES \_\_\_\_\_ DWG. Nos. 131 & 132  
FOUNDATION DETAILS \_\_\_\_\_ DWG. No. 133  
FOUNDATION SPECIFICATIONS \_\_\_\_\_ DWG. No. 330



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ISSUED FOR BIDS

CITY OF DANVILLE  
DANVILLE, VIRGINIA

AIRSIDE 69/15kV SUBSTATION

FOUNDATION DETAILS

PAD 12, PAD 13, PAD 14, PAD 14A,  
PAD 15 & PAD 15A

DWG. NO. 134

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