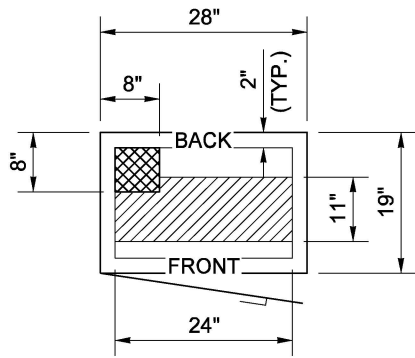
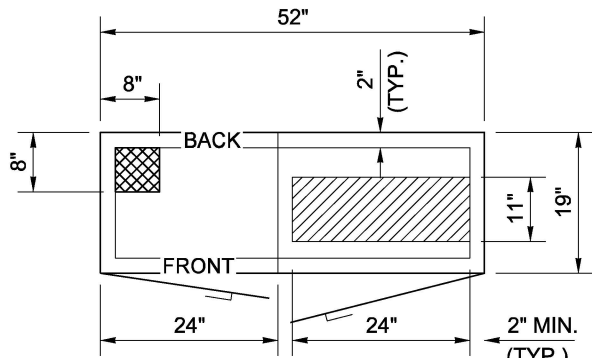


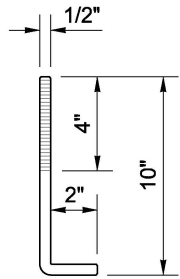
TYPE B MODIFIED
SERVICE CABINET



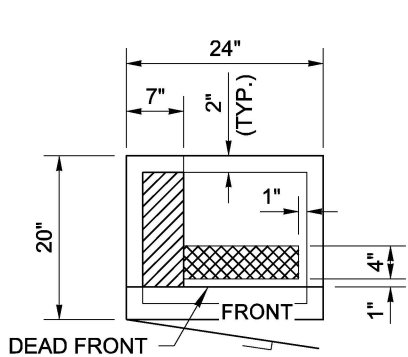
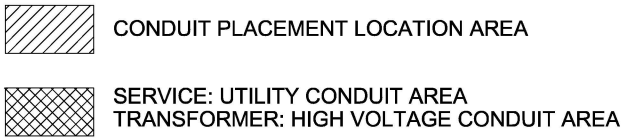
TYPE D
SERVICE CABINET



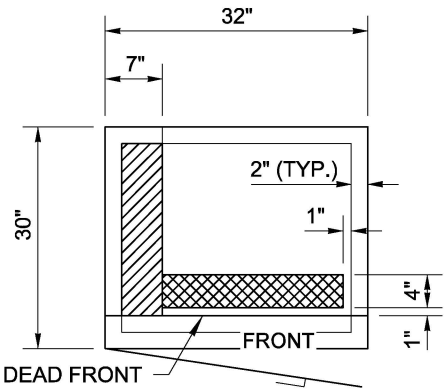
TYPE E
SERVICE CABINET



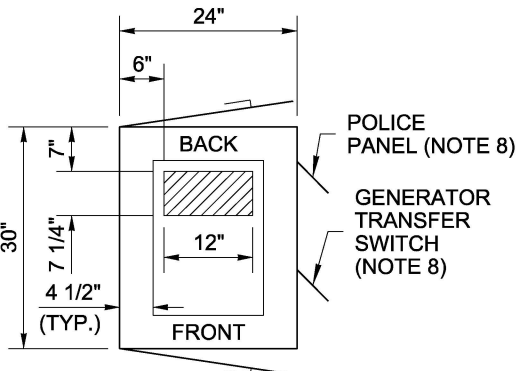
ANCHOR BOLT
(SEE NOTE 1)



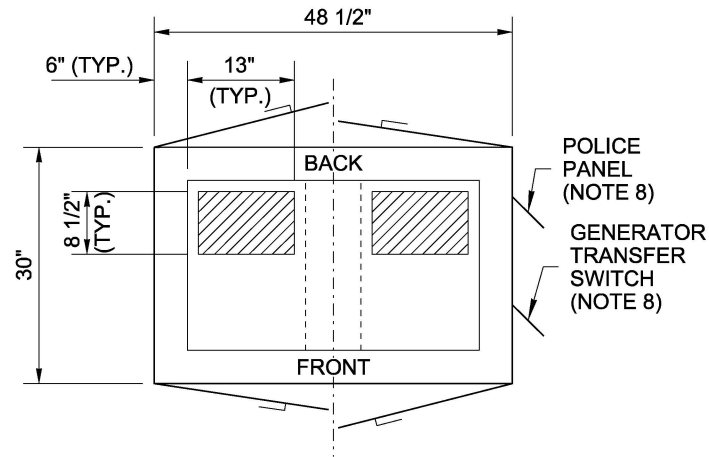
XFMR-S
(TRANSFORMER - SMALL)
(UP TO 12.5 KVA)



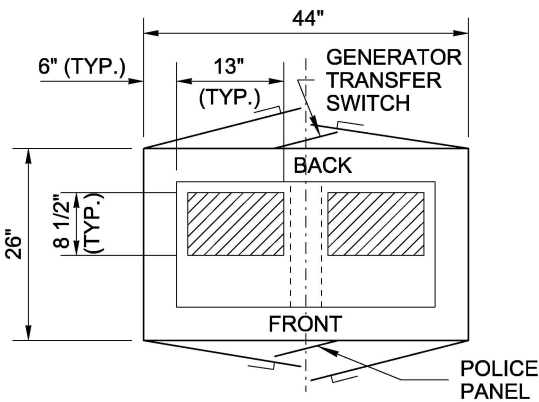
XFMR-L
(TRANSFORMER - LARGE)
(12.6 TO 37.5 KVA)



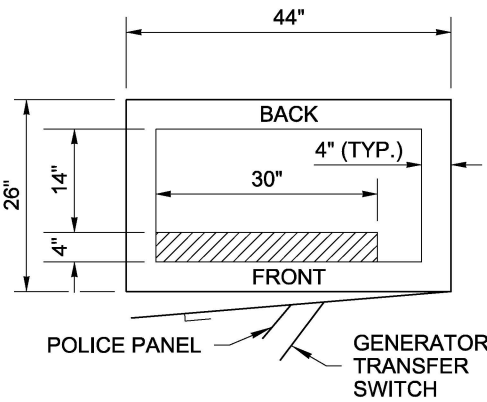
TYPE 33x CABINET



TYPE 33xD CABINET



TYPE 342LX CABINET



NEMA P44 CABINET

CABINET REFERENCE TABLE			
SERVICE CABINETS	SIZE W x D (IN)	CAPACITY CONDUIT DIAMETER (IN)	STANDARD PLAN
TYPE B MOD.	40" x 19"	12"	J-10.20
TYPE D	28" x 19"	24"	J-10.21
TYPE E	52" x 19"	48"	J-10.22
TRANSFORMER CABINETS	SIZE W x D (IN)		
XFMR-S (UP TO 12.5 KVA)	24" x 20"	12"	J-10.25
XFMR-L (12.6 TO 37.5 KVA)	32" x 30"	15"	J-10.25
SIGNAL AND ITS CABINETS	SIZE W x D (IN)		
TYPE 33x	24" x 30"	12"	J-12.15
TYPE 33xD	48.5" x 30"	24" \diamond 1	J-12.16
TYPE 342LX	44" x 26"	24" \diamond 1	J-12.16
NEMA P44	44" x 26"	15"	N/A

\diamond 12" (IN) OF CONDUIT IN EACH LOCATION SHOWN

GENERAL NOTES

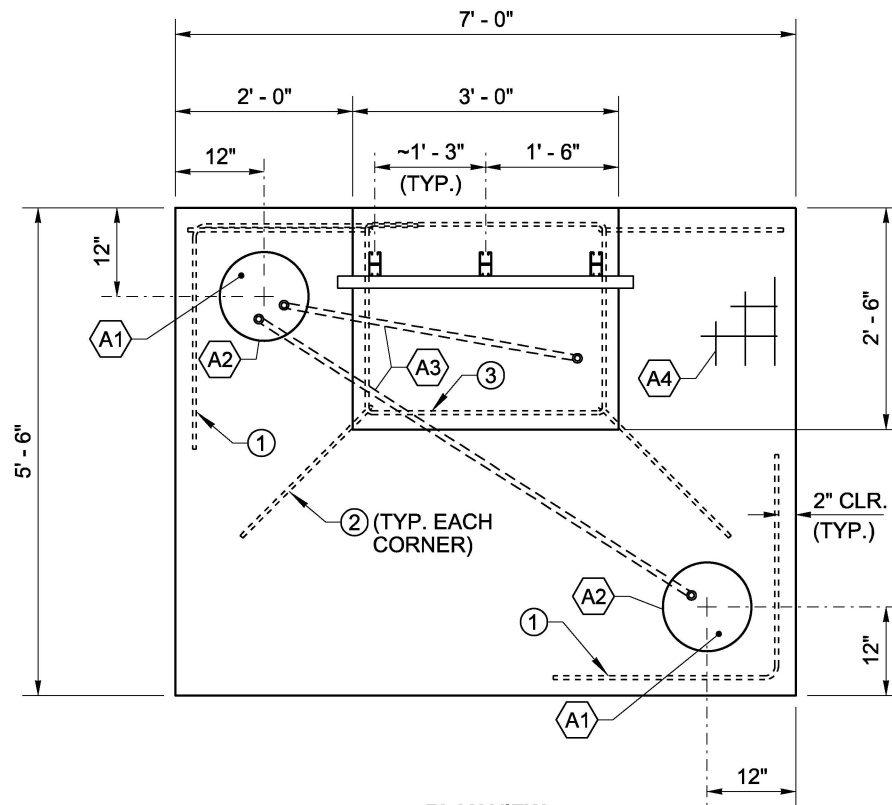
- Each pad mounted cabinet shall be attached to the foundation with four 1/2" (in.) x 10" (in.) x 2" (in.) x 4" (in.) anchor bolts (see Anchor Bolt Detail this Sheet). Bolts, washers, and nuts shall be hot-dip galvanized in accordance with **AASHTO M232** and meet the requirements of Standard Specification 9-06.5(1). Stainless steel epoxy anchors may be used as an alternative, and shall be 1/2" (in.) diameter x 9" (in.) or 5/8" (in.) diameter x 8" (in.). Epoxy anchors shall use Type 304 stainless steel hardware: ASTM F593 all threaded rod, ASTM A240 washers, and ASTM F594 nuts. Anchor bolts shall extend 1 1/2" (in.) min. to 2" (in.) max. above the concrete pad.
- All reinforcing steel shall be embedded 2" (in.) below the surface of concrete.
- A 1/2" (in.) bead of silicone is required between each cabinet and the concrete foundation.
- Concrete shall be Class 3000, in accordance with **Standard Specification 8-20.3(4)**. All concrete corners shall have a 1" (in.) chamfer, unless abutting sidewalk, where it shall be square and seaparated from the sidewalk with joint filler.
- Foundations installed in, or adjacent to, sidewalks shall be constructed with the top flush with the sidewalk surface and grade, not including concrete risers for cabinets.
- Foundations require additional level clear space to achieve a minimum of 4 feet of level clear space between the face of any cabinet or cabinet riser and the edge of the level clear space. Clear space beyond the edge of the concrete pad shall be made up of crushed surfacing meeting the requirements of **Standard Specification 9-03.9(1)**. Special design may be required where slopes are 3H : 1V or steeper. As an alternative, the concrete pad may be extended out to provide the required clear space.
- Verify overall pad and concrete riser dimensions with the Engineer prior to placing concrete.
- Not all Type 33x and 33xD cabinets have a police panel and/or a generator transfer switch (GTS) panel. See Contract for specific cabinet requirements.



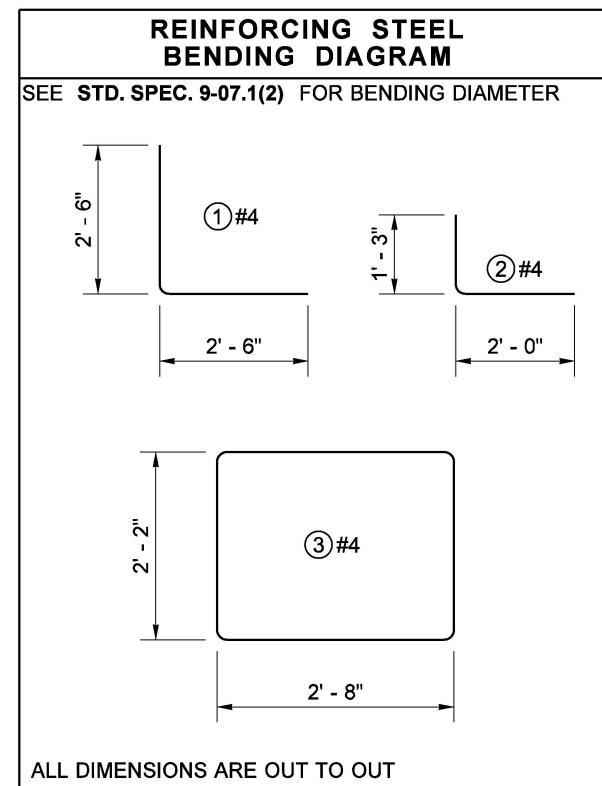
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**CABINET ORIENTATION
CONDUIT LAYOUT AND
FOUNDATION DETAIL**
STANDARD PLAN J-10.10-04

SHEET 1 OF 6 SHEETS

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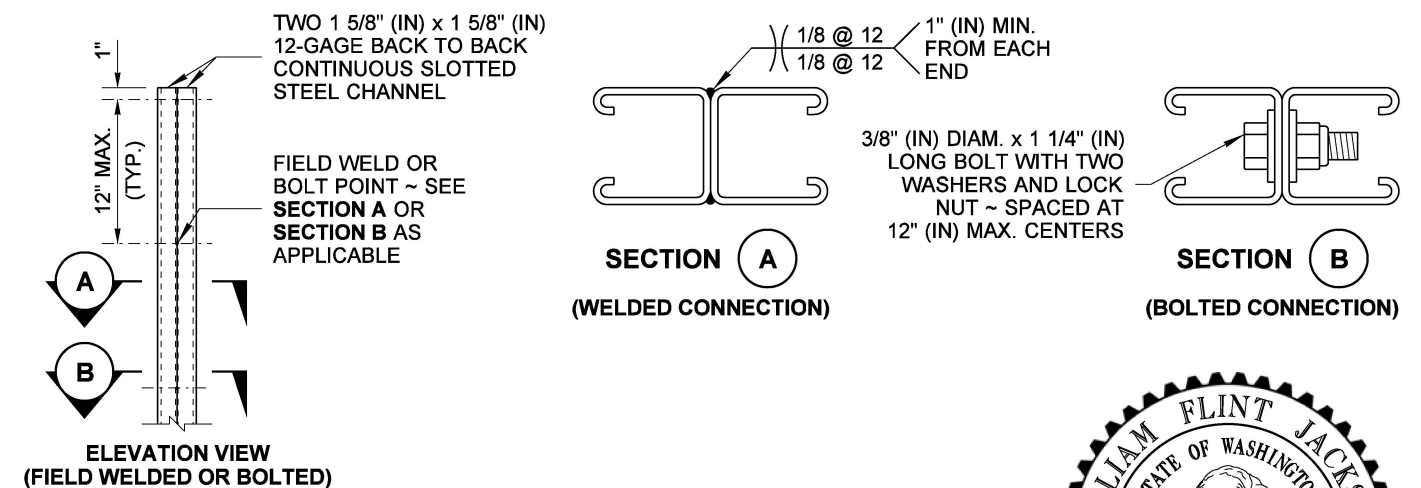
PLAN VIEW



ALL DIMENSIONS ARE OUT TO OUT

NOTES - SINGLE STRUT MOUNT CABINET (SHEET 2 OF 6)

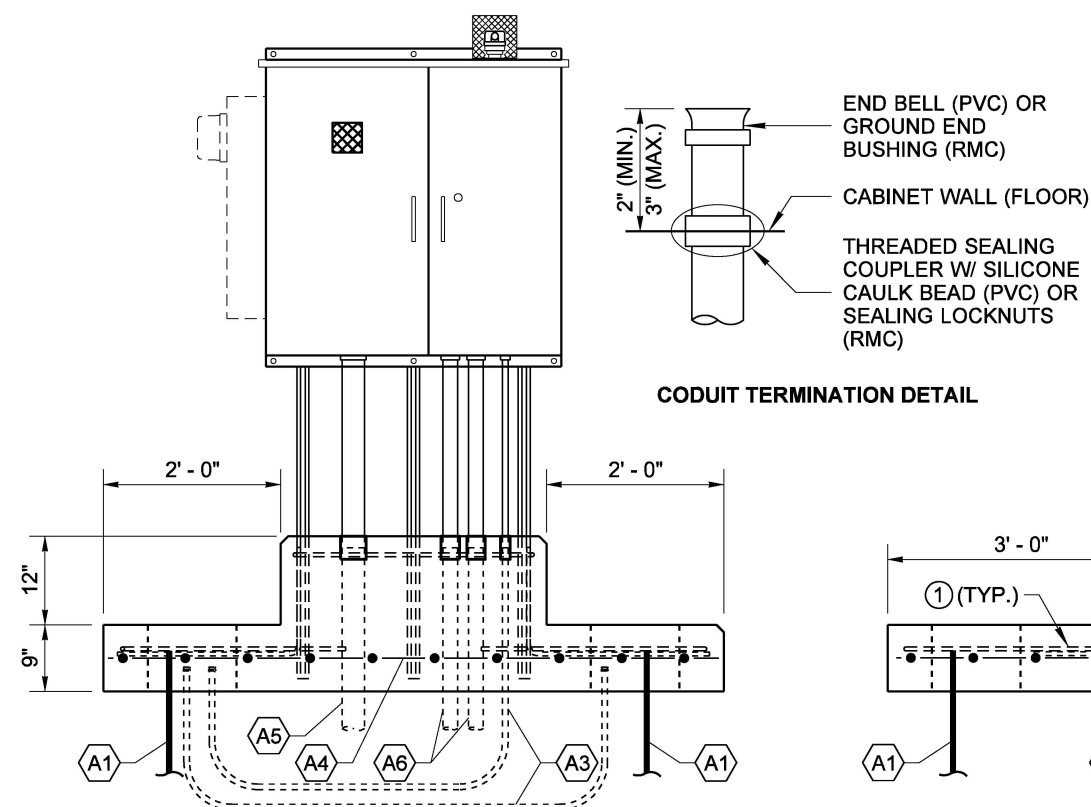
- A1. Drive ground rods before placing concrete. Ground rods shall be a minimum of 6 feet apart. **See Standard Plan J-60.05** for additional details.
- A2. Welded Wire Fabric (WWF) shall be 4.0 (in.) x 4.0 (in.) ~ W4.0 x W4.0 ~ meeting the requirements of **Standard Specification 9-07.7**. As an alternative, a grid of #3 rebar may be used, with bars spaced at 1'- 0" centers laterally and longitudinally.
- A3. Install conduit couplings on all conduits. Couplers shall be installed with the top of the coupler flush with the top of concrete. For PVC conduits, the conduit segment above the coupler shall not be glued to the coupler.
- A4. Vertical steel supports shall be two continuous 1 5/8" (in.) x 1 5/8" (in.) 12-gage slotted steel channels installed back-to-back (3 pairs required) ~ see Strut Mount Support Details this sheet for connection details. As an alternative, continuous 1 5/8" (in.) x 3 1/4" (in.) 12-gage slotted steel channel may be used in place of each channel pair. Channels shall be embedded a minimum of 12" (in.) into the concrete foundation. Supports shall be evenly spaced, with the center support centered in the concrete riser, and the outer supports tied to the riser rebar hoop.
- A5. Horizontal steel supports shall be continuous 1 5/8" (in.) x 1 5/8" (in.) 12-gage slotted steel channels (two required).
- A6. Cabinet height shall be determined by the required height of the utility meter - verify height with serving utility (typically 5 to 6 feet).
- A7. Serving utility may require meter socket to be installed on the outside of the cabinet. Utility feeder conduit shall still terminate in the utility section of the cabinet unless otherwise required by the utility.
- A8. Additional gravel pad not shown. Gravel pad shall extend two feet in front of the concrete pad for the full width of the concrete pad. If the utility meter socket is installed on the outside of the service cabinet, gravel pad shall also extend three feet from the utility side of the cabinet pad. Final gravel area shall be a rectangle.



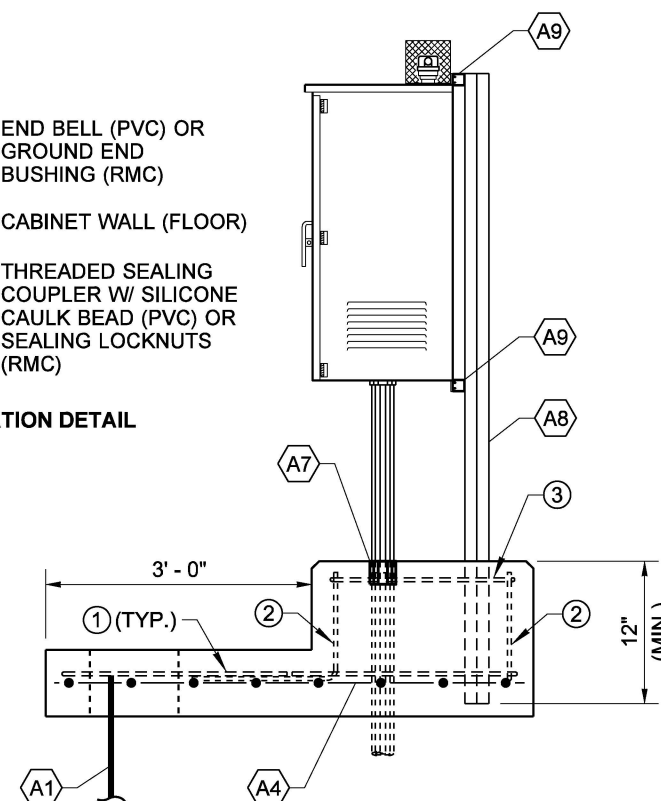
STRUT MOUNT SUPPORT DETAILS
(SEE NOTE A4)

KEY NOTES - SHEET 2 OF 6

- A1** Ground rod ~ See Note A1, this sheet.
- A2** Ground rod well (Ground tile) - 12" diameter concrete
- A3** Service ground electrode conduits.
- A4** Welded wire fabric ~ See Note A2, this sheet.
- A5** Utility entrance conduit. Conduit shall terminate in the utility section of the service cabinet.
- A6** Conduits to field equipment. Conduits shall terminate in the customer section of the service cabinet.
- A7** Conduit couplers ~ See Note A3, this sheet.
- A8** Vertical support steel channel ~ See Note A4, this sheet.
- A9** Horizontal support steel channel ~ See Note A5, this sheet.



CODUIT TERMINATION DETAIL



RIGHT SIDE ELEVATION VIEW

FRONT ELEVATION VIEW

STRUT MOUNT SERVICE CABINET
(TYPE B MODIFIED SERVICE CABINET SHOWN)



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SHEET 2 OF 6 SHEETS

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Figure 1 is a technical drawing showing the typical layout of a 12' x 9' x 2' cabinet. The drawing includes dimensions and callouts for various components and wiring paths.

- Dimensions:**
 - Height: 12'
 - Depth: 9'
 - Width: 2' - 0"
- Callouts:**
 - B1: Points to the front panel/lower section.
 - B3: Points to the lower section.
 - B4: Points to the lower section.
 - B5: Points to the lower section.
 - B6: Points to the lower section.
 - B7 (TYP.): Points to the upper section.
- Note:** (NOTE B3) is located near the 9' dimension.

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1'-0"

6" 6"

2'-0"

12"

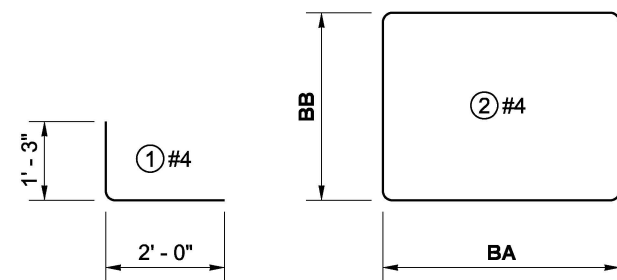
9"

C1 C5 C6 (TYP.)

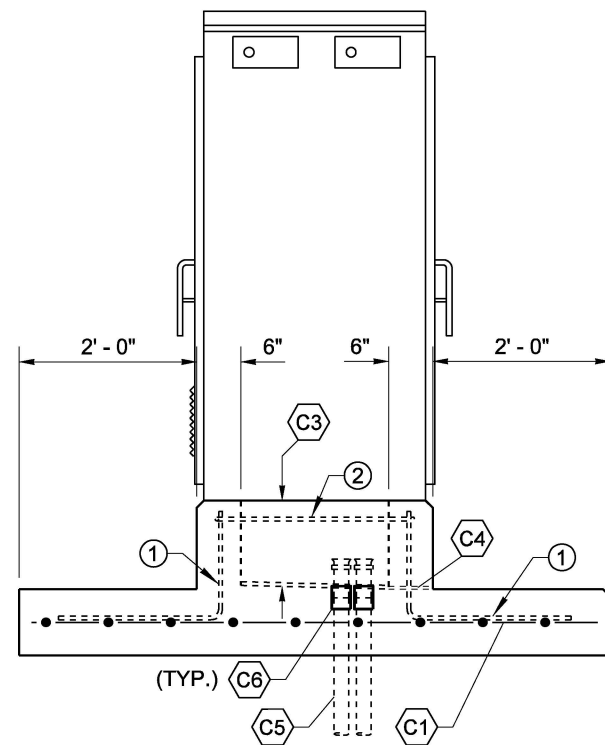
KEY NOTES - SHEET 4 OF 6

- C1 Welded wire fabric ~ See Note C1, this sheet.
- C2 Generator Tie-Down Anchor ~ See Note C2, this sheet.
- C3 Cabinet Well ~ See Note C3, this sheet.
- C4 3/8" (in.) diam. polyethylene or copper tubing for drain. Tubing shall be straight, but slope downward a minimum of 1" (in.)
- C5 Conduits ~ See Contract Plans for number, type, and function.
- C6 Conduit couplers ~ See Note C4, this sheet.

SEE STD. SPEC. 9-07.1(2) FOR BENDING DIAM.



NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
BAR 3 DIMENSIONS ARE ALWAYS FOUR INCHES SMALLER
THAN THEIR ASSOCIATED CONCRETE RISER DIMENSIONS.

[illegible]

2" (TYP.)

4"

HOT-DIP GALVANIZED AFTER FABRICATION

A

Technical drawing illustrating the construction of a drainage well assembly, showing cross-section and plan views.

Cross-Section View (Top):

- Foundation thickness: 9"
- Foundation width: 4 1/2"
- Drainage well width: 6"
- Drainage well depth: 3"
- Drainage well opening diameter: 3"
- Drainage well cover thickness: 1/4"
- Drainage well cover material: 1/4" (IN) STEEL PLATE (TYP.)
- Drainage well cover material: 3/8" (IN) POLYETHYLENE DRAIN TUBE
- Drainage well cover spacing: 12" (TYP.)

Plan View (Bottom):

- Drainage well width: 18" SQUARE
- Drainage well depth: 18"
- Drainage well cover material: 1/4" (IN) STEEL PLATE (TYP.)
- Drainage well cover material: 3/8" (IN) POLYETHYLENE DRAIN TUBE
- Drainage well cover material: GEOTEXTILE ~ WRAP TWICE AROUND ENTIRE DRAINAGE WELL
- Drainage well cover material: GRAVEL BACKFILL

SECTION A

FOUNDATION SIZE REFERENCE TABLE						
SIGNAL AND ITS CABINETS	PAD WIDTH (X)	PAD DEPTH (Y)	RISER WIDTH (A)	RISER DEPTH (B)	HOOP ② WIDTH (BA)	HOOP ② DEPTH (BB)
TYPE 33x	5' - 2"	6' - 8"	2' - 2"	2' - 8"	1' - 10"	2' - 4"
TYPE 33xD	6' - 3"	6' - 8"	4 - 3"	2' - 8"	3' - 11"	2' - 4"
TYPE 342LX / NEMA P44	5' - 10"	6' - 4"	3' - 10"	2' - 4"	3' - 6"	2' - 0"

SIGNAL AND ITS CABINETS	PAD WIDTH (X)	PAD DEPTH (Y)	RISER WIDTH (A)	RISER DEPTH (B)	HOOP ② WIDTH (BA)	HOOP ② DEPTH (BB)
TYPE 33x	5' - 2"	6' - 8"	2' - 2"	2' - 8"	1' - 10"	2' - 4"
TYPE 33xD	6' - 3"	6' - 8"	4 - 3"	2' - 8"	3' - 11"	2' - 4"
TYPE 342LX / NEMA P44	5' - 10"	6' - 4"	3' - 10"	2' - 4"	3' - 6"	2' - 0"

- C1. Welded Wire Fabric (WWF) shall be 4.0 (in.) x 4.0 ~ W4.0 ~ meeting the requirements of **Standard Specification 9-07.7**. As an alternative, a grid of #3 rebar may be used, with bars spaced at 1'- 0" centers laterally and longitudinally.
- C2. Generator Tie-Down Anchors are only required for cabinets with Generator Transfer Switches (GTS). Anchor shall along the side of the cabinet near the back corner of the cabinet riser as shown.
- C3. Cabinet well shall be a nominal 10" (in.) deep, sloping towards the corner where the drain tube is installed. Well dimensions are 12" (in.) smaller than the riser length and width dimensions (**A** and **B**). See Cabinet Well Reference Table, this sheet.
- C4. Install conduit couplings on all conduits. Couplers shall be installed with the top of the coupler flush with the top of concrete. For PVC conduits, the conduit segment above the coupler shall not be glued to the coupler.
- C5. Conduits shall extend a minimum of 2" (in.) and a maximum of 3" (in.) into the cabinet, as measured from the concrete surface to the top of the end bell (PVC) or ground bushing (RMC).
- C6. Additional gravel pad not shown. Gravel pad shall extend two feet beyond the front, right, and back of the cabinet pad where the pad is two feet wide. Final gravel area shall be a rectangle.

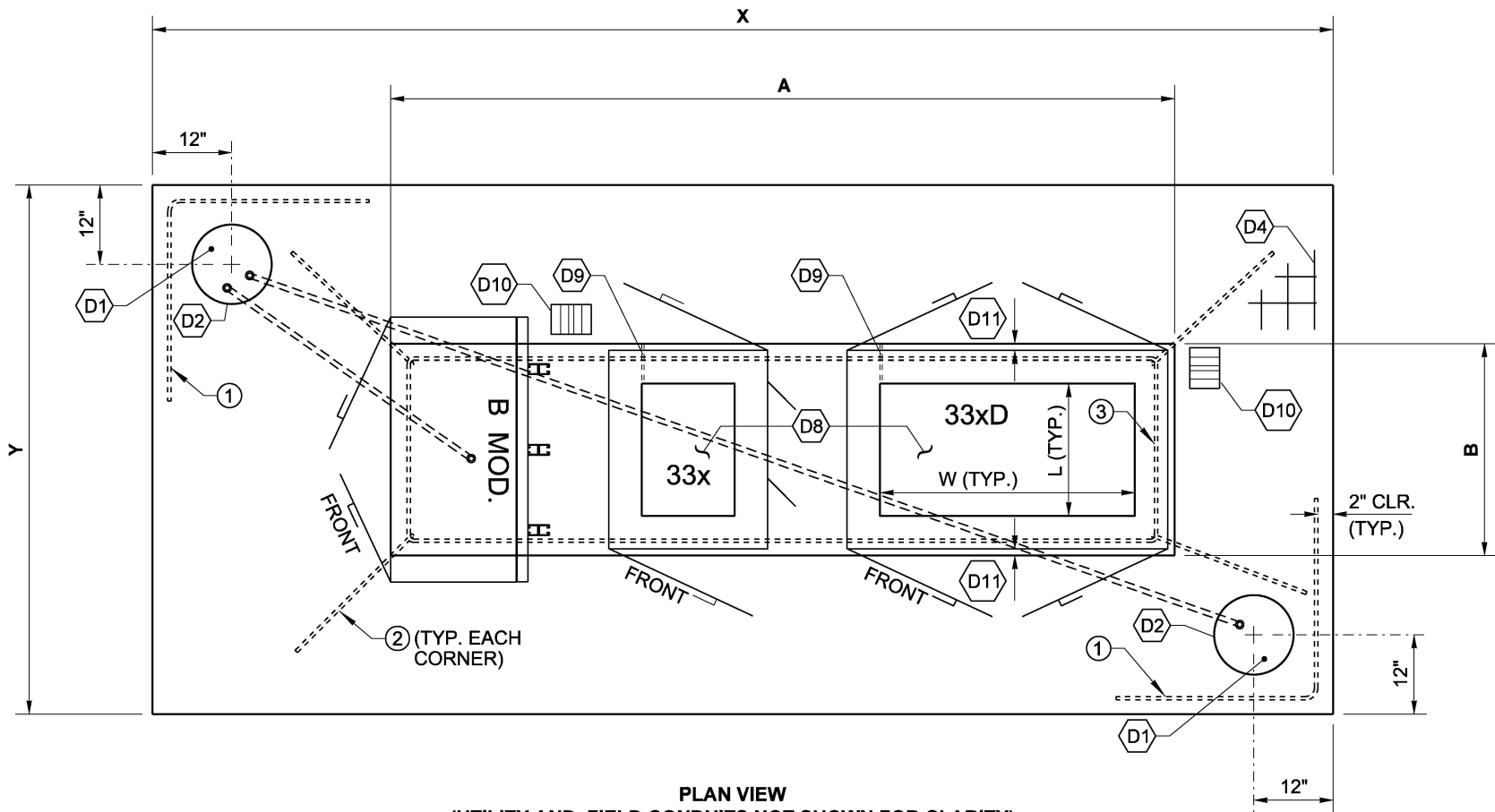
SIGNAL AND ITS CABINETS	WELL WIDTH (C)	WELL LENGTH (D)
TYPE 33x	1' - 2"	1' - 8"
TYPE 33xD	3' - 2"	1' - 8"
TYPE 342LX / NEMA P44	2' - 10"	1' - 4"



**CABINET ORIENTATION
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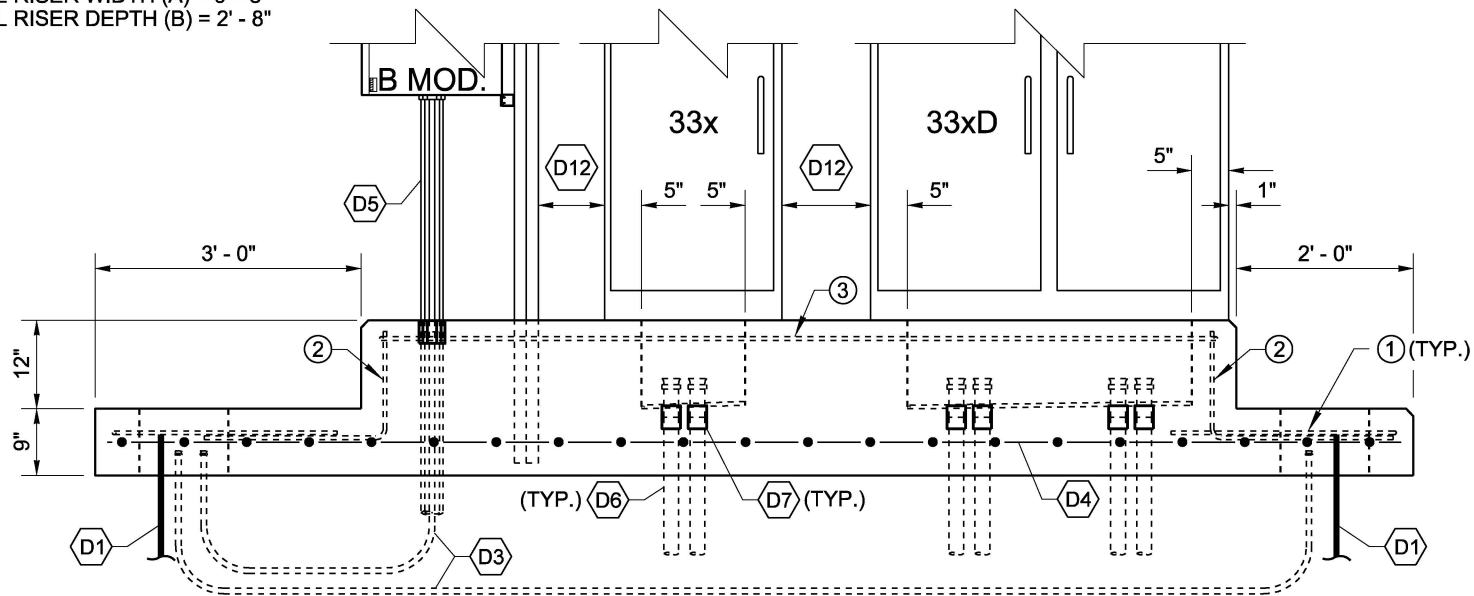


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FOR THE EXAMPLE PAD SHOWN HERE:
- SPACE BETWEEN TYPE B MOD. CABINET AND 33x CABINET IS 6" (IN.)
- SPACE BETWEEN 33x AND 33xD CABINET IS 1' - 0"
- OVERALL PAD WIDTH (X) = 14' - 8"
- OVERALL PAD DEPTH (Y) = 6' - 8"
- OVERALL RISER WIDTH (A) = 9' - 8"
- OVERALL RISER DEPTH (B) = 2' - 8"

FOUNDATION PAD DIMENSIONS X, Y, A, AND B SHOULD BE PROVIDED IN THE CONTRACT PLANS.



TYPE A (NARROW) MULTI-CABINET FOUNDATION PAD
(TYPE B MODIFIED SERVICE CABINET, TYPE 33x CABINET, AND TYPE 33xD CABINET SHOWN)

NOTES - TYPE A (NARROW) AND TYPE B (WIDE) MULTI-CABINET FOUNDATION PAD
(SHEETS 5 AND 6 OF 6)

- D1. Drive ground rods before placing concrete. Ground rods shall be a minimum of 6 feet apart. See **Standard Plan J-60.05** for additional details.
- D2. Welded Wire Fabirc (WWF) shall be 4.0 (in.) x 4.0 (in.) ~ W4.0 x W4.0 ~ meeting the requirements of **Standard Specification 9-07.7**. As an alternative, a grid of #3 rebar may be used, with bars spaced at 1'-0" centers laterally and longitudinally.
- D3. See Sheet 3 for reinforcing steel bending diagrams.
- D4. Concrete riser shall not include Type D or Type E Service Cabinets.
- D5. Install conduit couplings on all conduits. Couplers shall be installed with the top of the coupler flush with the top of concrete. For PVC conduits, the conduit segment above the coupler shall not be glued to the coupler.
- D6. Conduits shall extend a minimum of 2" (in.) and a maximum of 3" (in.) into the cabinet, as measured from the concrete surface to the top of the end bell (PVC) or ground bushing (RMC).
- D7. Serving utility may require meter socket to be installed on the outside of the cabinet. Utility feeder conduit shall still terminate in the utility section of the cabinet unless otherwise required by the utility.
- D8. Additional gravel pad not shown. Gravel pad shall extend two feet in front of the concrete pad for the full width of the concrete pad. If the utility meter socket is installed on the outside of the service cabinet, gravel pad shall also extend three feet from the side of the cabinet pad where the meter is installed. Final gravel area shall be a rectangle.
- D9. Cabinet wells shall be provided for all Type 33x, Type 33xD, Type 342LX, and NEMA P44 Cabinets. See Note C3 on sheet 4 for Cabinet Well dimensions.
- D10. At least one Generator Tie-Down Anchor shall be provided for each multi-cabinet pad foundation. A second Anchor shall be provided if there is a second cabinet with a Generator Transfer Switch (GTS). If a service or transformer cabinet is present, install one Anchor at either of the locations shown, closest to the cabinet with the GTS. If there is no service or transformer cabinet, install Anchors only at the ends of the cabinet riser.

KEY NOTES - SHEET 5 OF 6

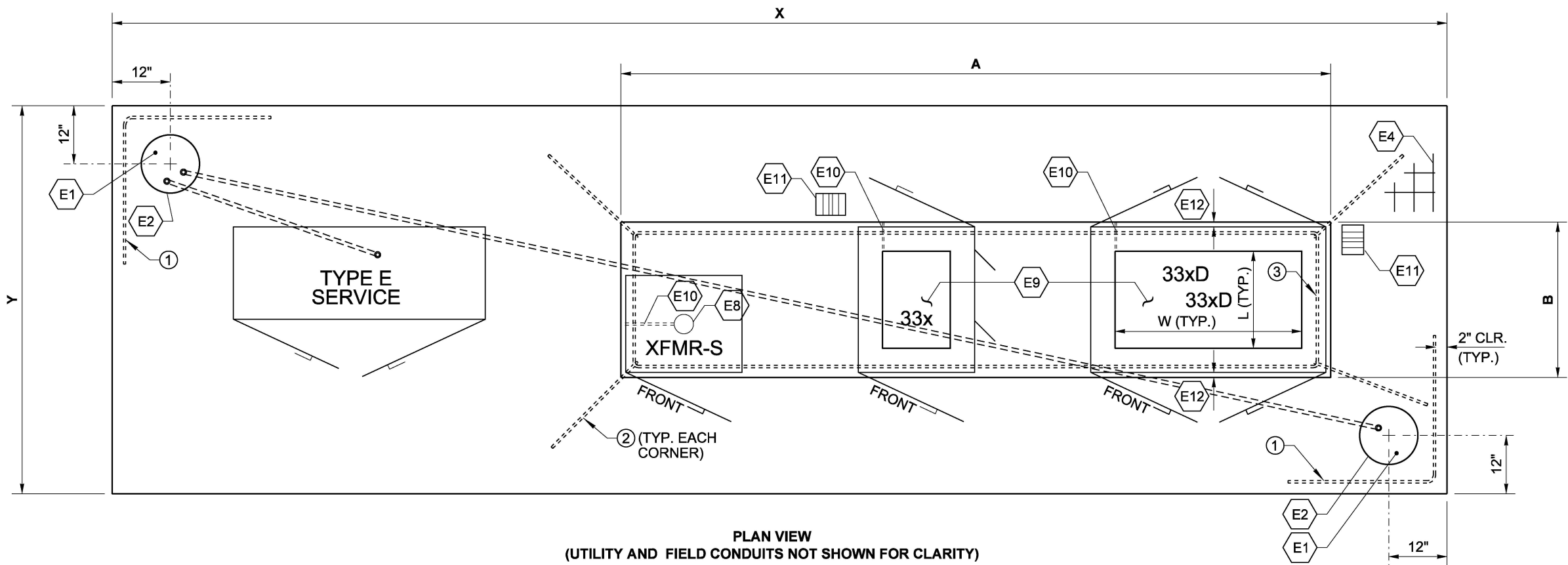
- D1 Ground rod ~ See Note D1, this sheet.
- D2 Ground rod well (Ground tile) - 12" diameter concrete
- D3 Service ground electrode conduits.
- D4 Welded wire fabric ~ See Note D2, this sheet.
- D5 Utility entrance (service cabinet) or input power (transformer cabinet) conduit. Conduit shall terminate in the utility or high voltage section of the cabinet (as applicable).
- D6 Conduits to field equipment. Conduits shall terminate in the customer section (service cabinet) or low-voltage (transformer cabinet) of the cabinet.
- D7 Conduit couplers ~ See Note D5, this sheet.
- D8 Cabinet Well ~ See Note D9, this sheet.
- D9 3/8" (in.) diam. polyethylene or copper tubing for drain. Tubing shall be straight, but slope downward a minimum of 1" (in.)
- D10 Generator Tie-Down Anchor ~ See Note D10, this sheet.
- D11 Riser lip shall be 1" (in.) from the base edge of the largest cabinet to the face of the concrete riser. Smaller cabinets shall be positioned so that the front riser lip is 1" (in.) wide.
- D12 For a Type A (Narrow) Pad, cabinet spacing shall be as follows:
a. 12" (in.) between cabinets where at least one cabinet has a police panel or GTS door.
b. 6" (in.) between cabinets where no police panel or GTS door is present.



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CONDUIT LAYOUT AND
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SHEET 5 OF 6 SHEETS

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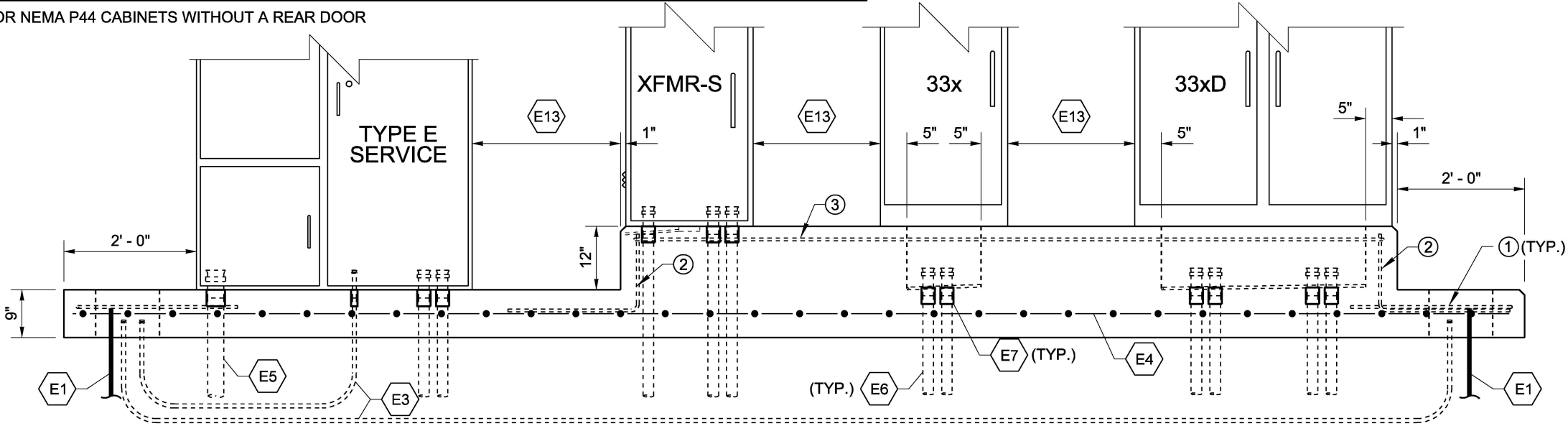
CABINET CLEARANCE REFERENCE TABLE								
SERVICE CABINETS	LEFT SIDE	RIGHT SIDE	TRANSFORMER CABINETS	LEFT SIDE	RIGHT SIDE	SIGNAL AND ITS CABINETS	LEFT SIDE	RIGHT SIDE
TYPE B MOD.	1' - 10"	1' - 6"	XFMR-S (UP TO 12.5 KVA)	2' - 0"	6"	TYPE 33x	2' - 0"	2' - 0"
TYPE D	2' - 4"	6"				TYPE 33xD	2' - 0"	2' - 0"
TYPE E	2' - 0"	2' - 4"	XFMR-L (12.6 TO 37.5 KVA)	3' - 8"	6"	TYPE 342LX	1' - 10"	1' - 10"
						NEMA P44	3' - 8" ①	3' - 8"

① 6" FOR NEMA P44 CABINETS WITHOUT A REAR DOOR

FOR THE EXAMPLE PAD SHOWN HERE:

- SPACE BETWEEN TYPE E CABINET AND FACE OF CONCRETE RISER IS 2' - 4"
- SPACE BETWEEN XFMR-S CABINET AND 33x CABINET IS 2' - 0"
- SPACE BETWEEN 33x AND 33xD CABINET IS 2' - 0"
- OVERALL PAD WIDTH (X) = 22' - 11"
- OVERALL PAD DEPTH (Y) = 6' - 8"
- OVERALL RISER WIDTH (A) = 12' - 3"
- OVERALL RISER DEPTH (B) = 2' - 8"

FOUNDATION PAD DIMENSIONS X, Y, A, AND B SHOULD BE PROVIDED IN THE CONTRACT PLANS.



FRONT ELEVATION VIEW

TYPE B (WIDE) MULTI-CABINET FOUNDATION PAD
(TYPE E SERVICE CABINET, XFMR-S CABINET, TYPE 33x CABINET, AND TYPE 33xD CABINET SHOWN)

KEY NOTES - SHEET 6 OF 6

- E1 Ground rod ~ See Note D1, Sheet 5 of 6.
- E2 Ground rod well (Ground tile) - 12" diameter concrete
- E3 Service ground electrode conduits.
- E4 Welded wire fabric ~ See Note D2, Sheet 5 of 6.
- E5 Utility entrance (service cabinet) or input power (transformer cabinet) conduit. Conduit shall terminate in the utility or high voltage section of the cabinet (as applicable).
- E6 Conduits to field equipment. Conduits shall terminate in the customer section (service cabinet) or low-voltage (transformer cabinet) of the cabinet.
- E7 Conduit couplers ~ See Note D5, Sheet 5 of 6.
- E8 4" (in.) diam. x 1/2" (in.) deep sump. Slope foundation within cabinet footprint toward sump.
- E9 Cabinet Well ~ See Note D9, Sheet 5 of 6.
- E10 3/8" (in.) diam. polyethylene or copper tubing for drain. Tubing shall be straight, but slope downward a minimum of 1" (in.).
- E11 Generator Tie-Down Anchor ~ See Note D10, Sheet 5 of 6.
- E12 Riser lip shall be 1" (in.) from the base edge of the largest cabinet to the face of the concrete riser. Smaller cabinets shall be positioned so that the front riser lip is 1" (in.) wide.
- E13 For a Type B (Wide) Pad, spacing between the cabinets shall match the widest door of the two adjacent cabinets. For Type D and Type E Service Cabinets, the clearance is to the face of the adjacent concrete riser (when present). See left and right clearance table this sheet.



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SHEET 6 OF 6 SHEETS

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