Appendix H - Danvers Electric

Figures and Illustrations for the Terms and Conditions

Revision ID	Date	Notes	Approval (initials and date)
1.0	12-6-2011	The purpose of Version 1 is to release the associated figures and illustrations of the Terms and Conditions	
2.0	**4-13-2012**	**The purpose of Version 2 is to update the figures and illustrations based on the review committee's recommendations**	**MLB 06-19-2012**


WARNING
KEEP OUT
Electrical
Equipment Inside
If opened or damaged notify:
978-774-0005
UNDERGROUND
ELECTRIC CABLE
Call Before Digging!
Toll Free Statewide:
888-344-7233
Call 72 hours ahead
Obstructions can cause delays when restoring electric service.
No shrubs, fences, or permanent structures can be placed within 10 FT of the front and 3 FT of the sides and back. Your power company has the right to remove these obstructions without notice to owner.
For more information call telephone number listed above.
3FT
3FT
10FT
SHD003-S-2A-X82

FIGURE 1

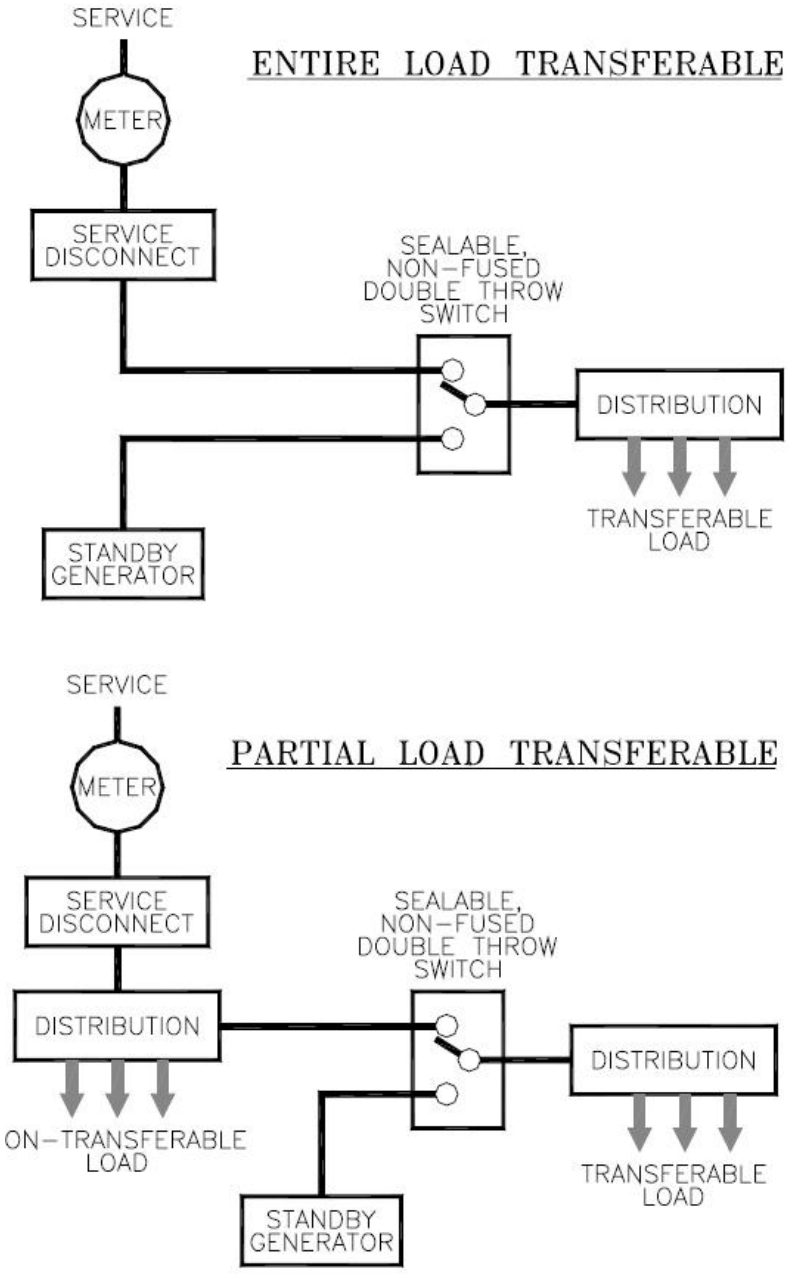
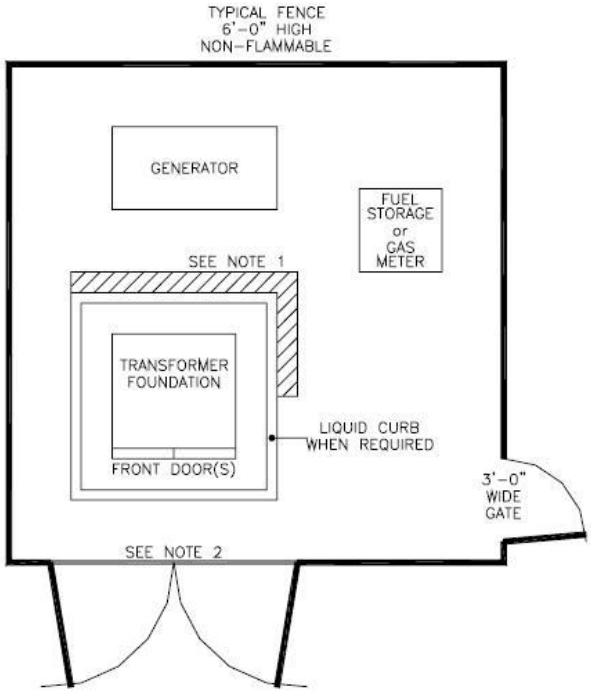


FIGURE 2

TYPICAL SWITCHING OF CUSTOMER'S EMERGENCY SUPPLY



NOTES: 1. If less than 20' feet separation between transformer and generator or fuel storage, customer to construct masonry wall.
Height above grade: 6'-0" minimum
Depth below grade: 2'-0" minimum

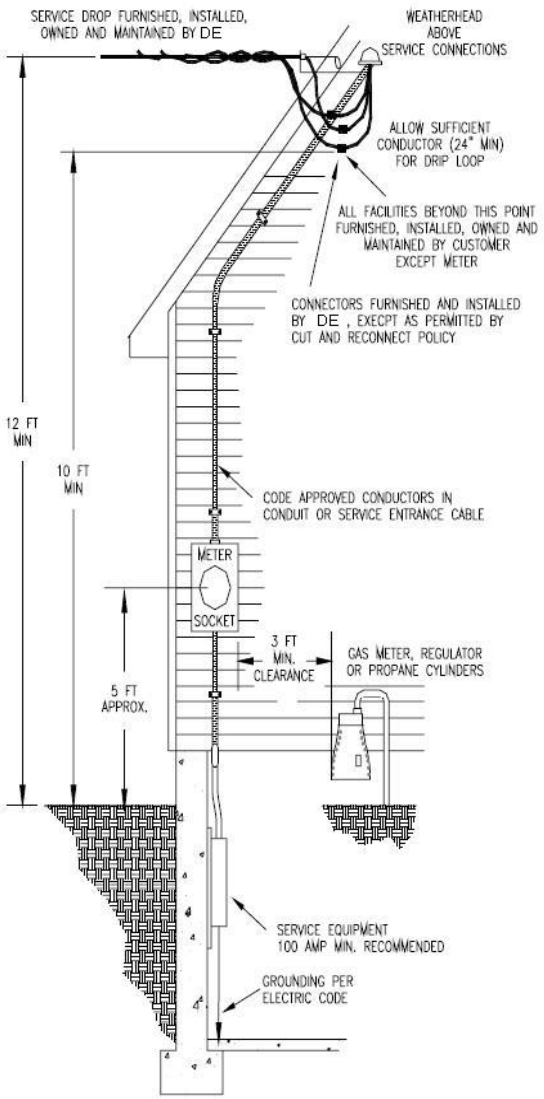
2. Fence, when installed in front of transformer doors shall have operable gate(s) for access

3. A minimum of 10'-0" working clearance MUST be maintained from the front of all equipment doors

4. A minimum of 3-0" clearance MUST be maintained from all sides of equipment

FIGURE 3

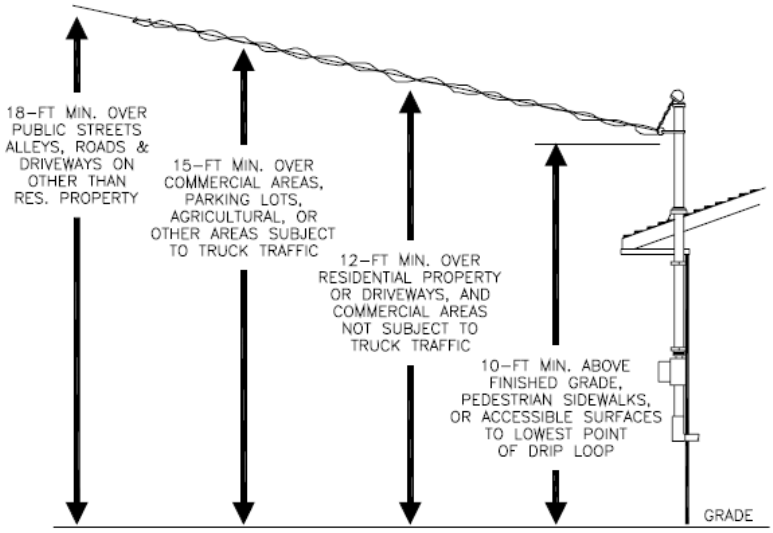
TYPICAL TRANSFORMER ENCLOSURE



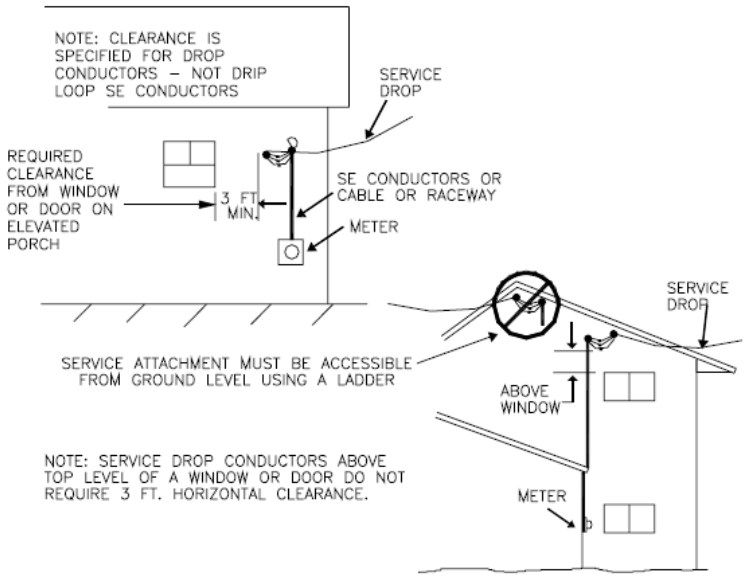
NOTES: 1. Electrician shall mark stud location for service attachment on homes with vinyl or aluminum siding

FIGURE 4

OVERHEAD SERVICE ENTRANCE FACILITIES



SERVICE DROP CLEARANCE TO GROUND



SERVICE DROP CLEARANCE TO BUILDING OPENINGS

FIGURE 5

SERVICE DROP CLEARENCE REQUIREMENTS

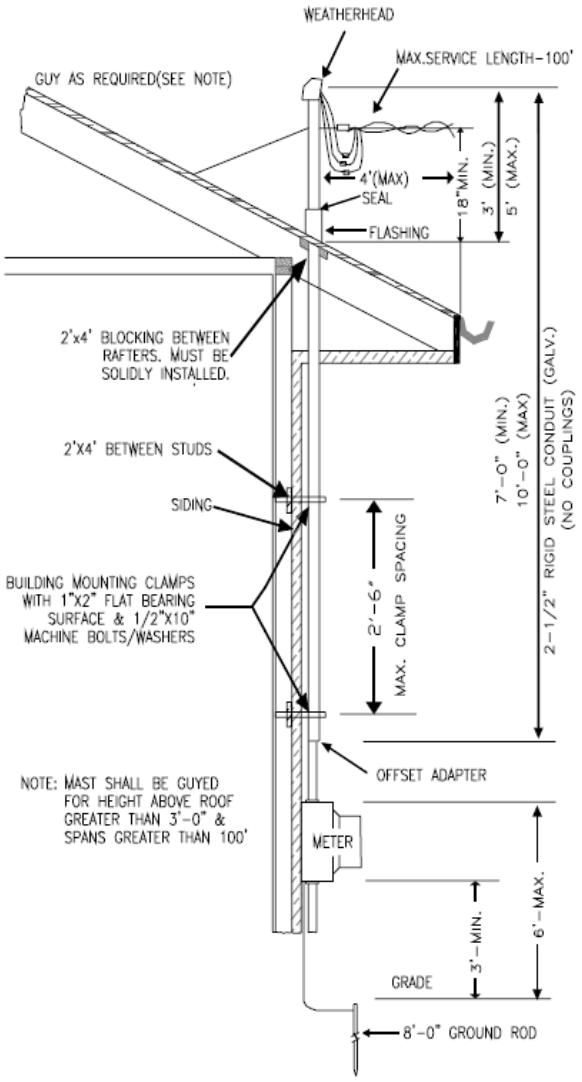


FIGURE 6

TYPICAL SERVICE MAST CONSTRUCTION
(SERVICE DROPS TO LOW BUILDINGS)

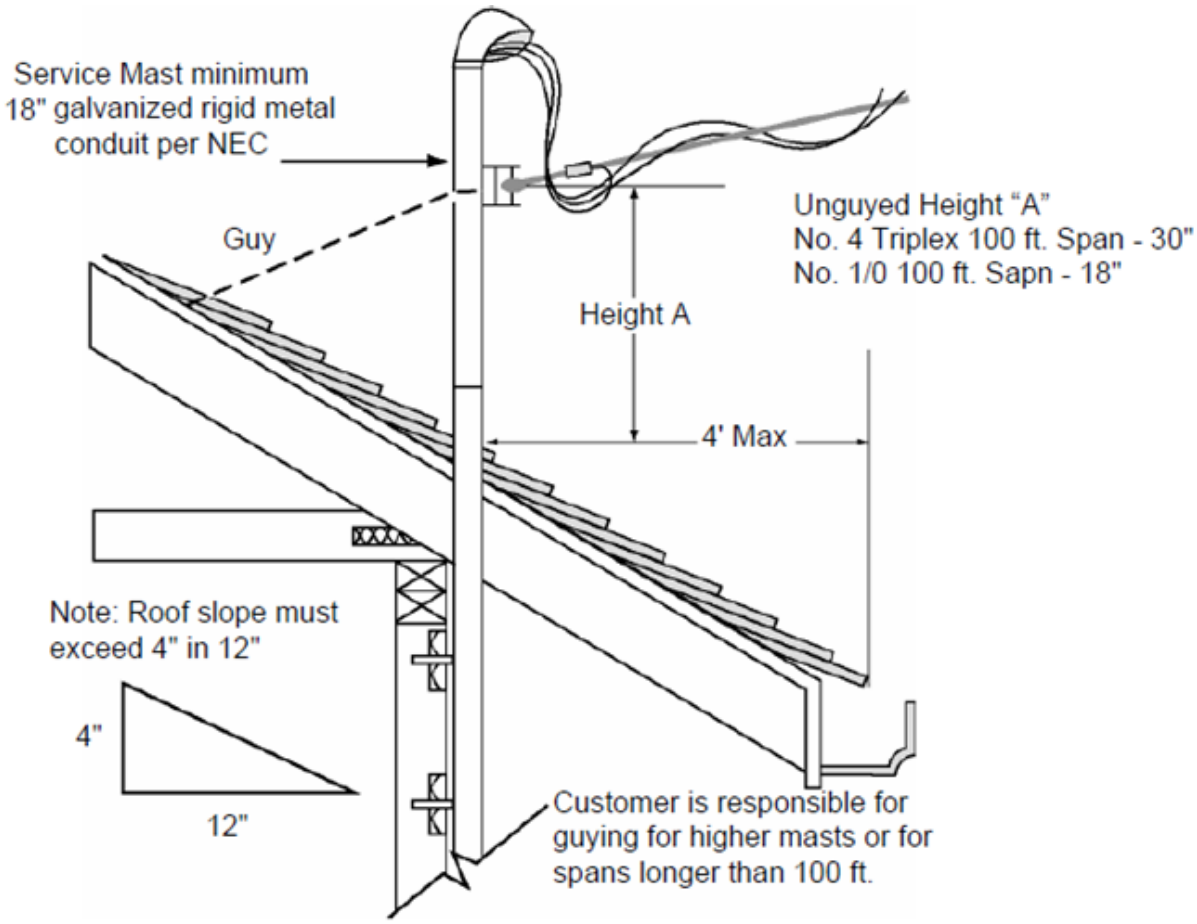


FIGURE 7: SERVICE MAST INSTALLATION

FIGURE 8
WARNING AND CLEARANCE DIAGRAM

NOTES: 1. All equipment, except watthour meter, shall be furnished and installed by the customer, unless specifically noted

2. DE will furnish and install wire from Department secondary conductors down to customer handhole

3. DE will make all service connections and disconnections

4. 24"x36"x15" fiberglass w/ steel cover & ground lug pentahead bolting

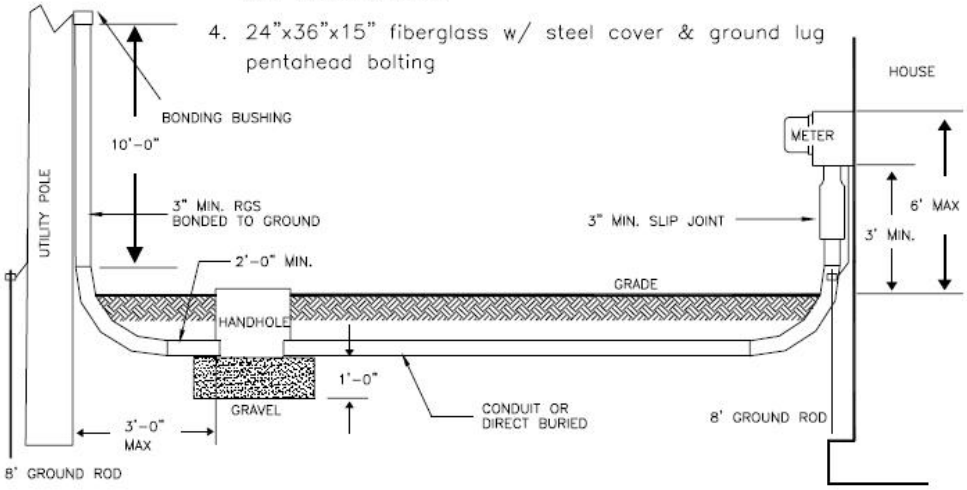
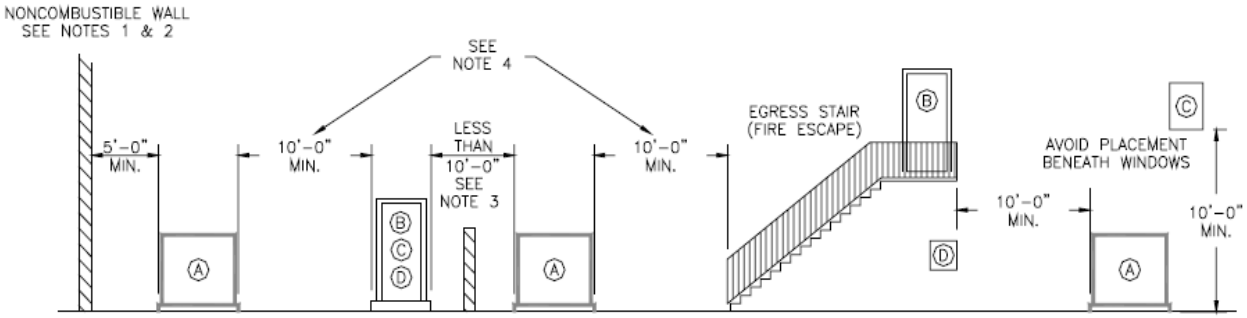


FIGURE 9

CUSTOMER SECONDARY RISER AND SERVICE LATERAL
600 VOLTS & BELOW



LEGEND

Ⓐ Equipment, oil insulated

Ⓑ Door

Ⓒ Window, operable

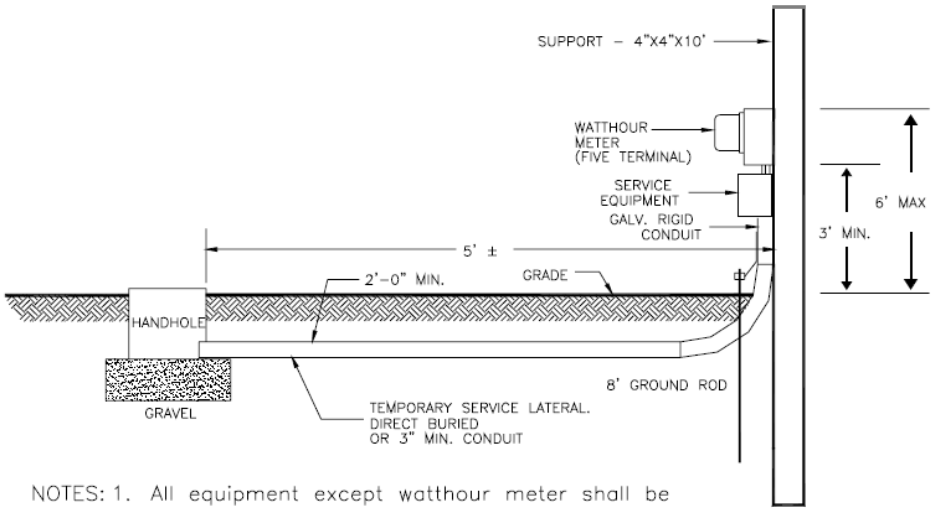
Ⓓ HVAC duct

NOTES:

1. Noncombustible material is defined as a meterial that will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. (NFPA 220–1979)
2. Building or any element of a building structure shall not overhang any part of the pad–mounted equipment.
3. When minimum required distances cannot be met, a noncombustible barrier, of minimum 6' height, shall be constructed
4. The minimum clearance of 10' shall be increased to 25' for exits from places of public assembly, such as an auditorium.

FIGURE 10

LOCATION OF PADMOUNTED EQUIPMENT



NOTES: 1. All equipment except watthour meter shall be furnished and installed by customer

2. DE will make all service connections and disconnections

3. Install eight foot (8') loop of service wire around handhole for DE connections

FIGURE 11

TEMPORARY SERVICE

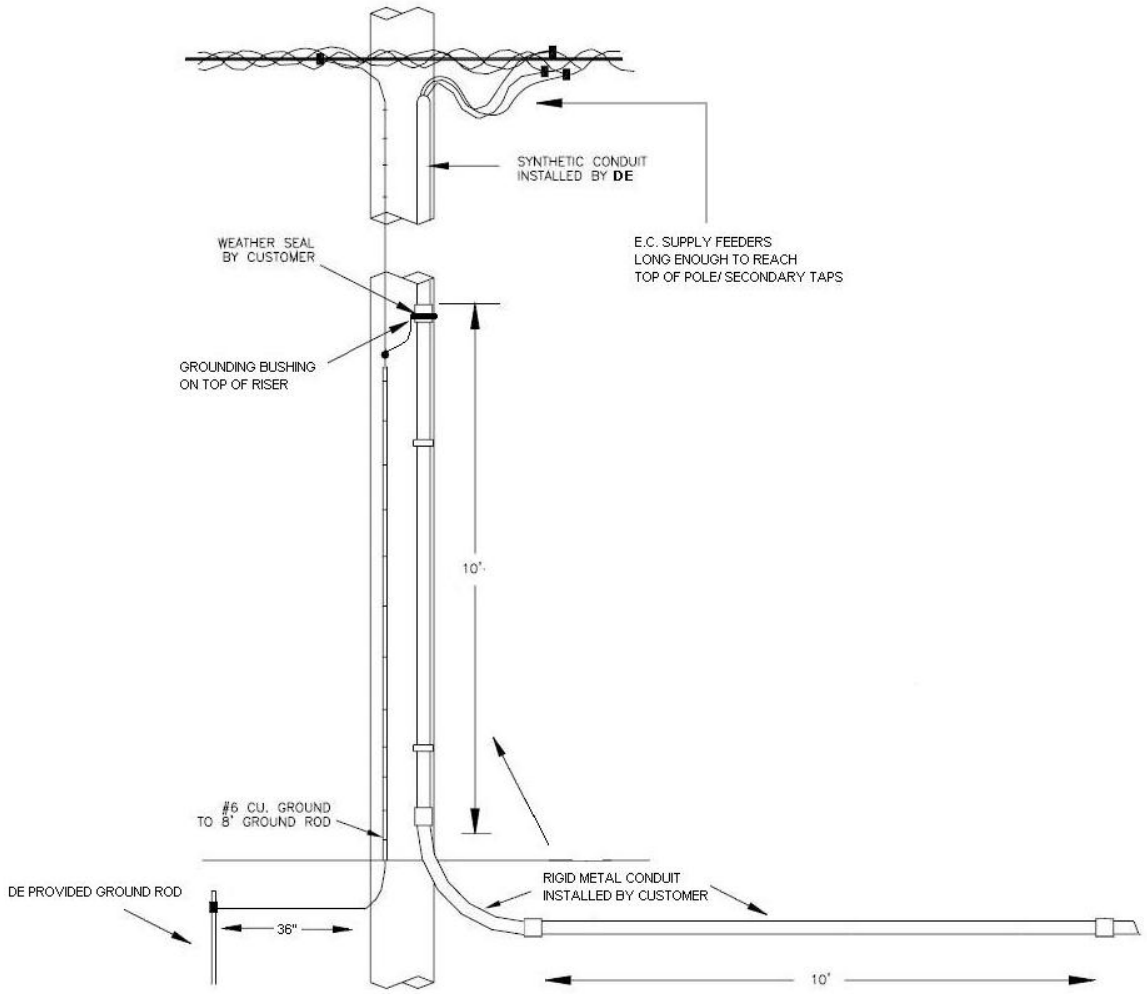
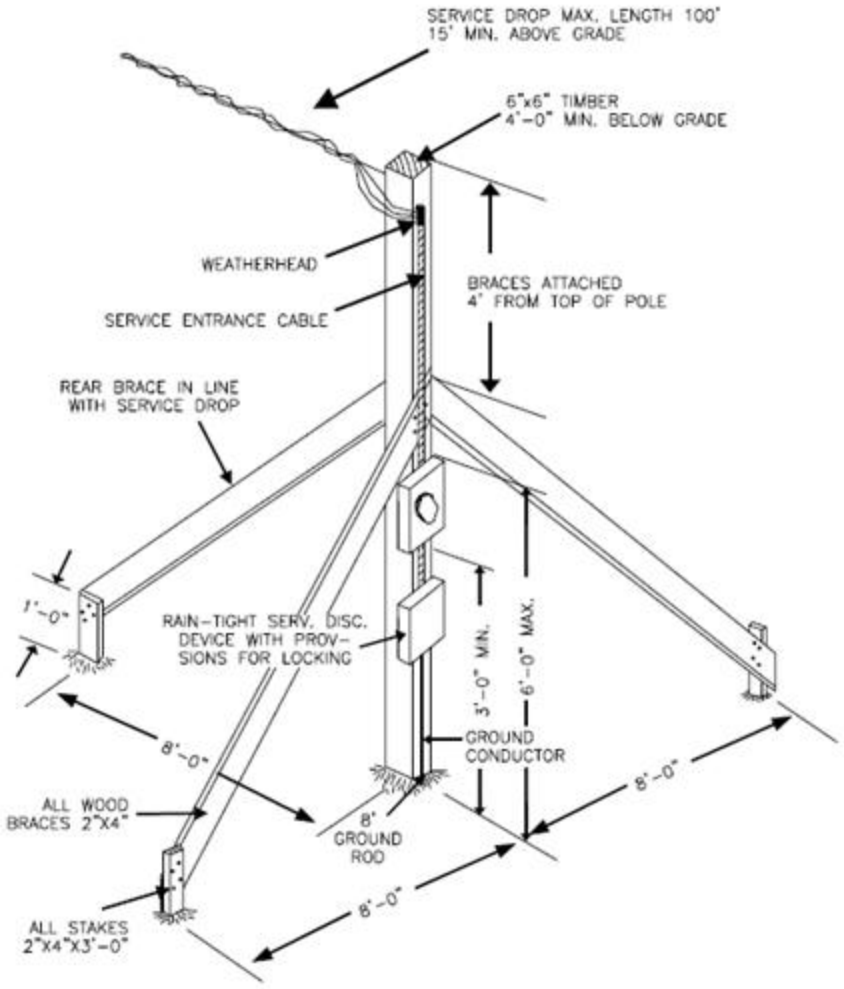


FIGURE 12

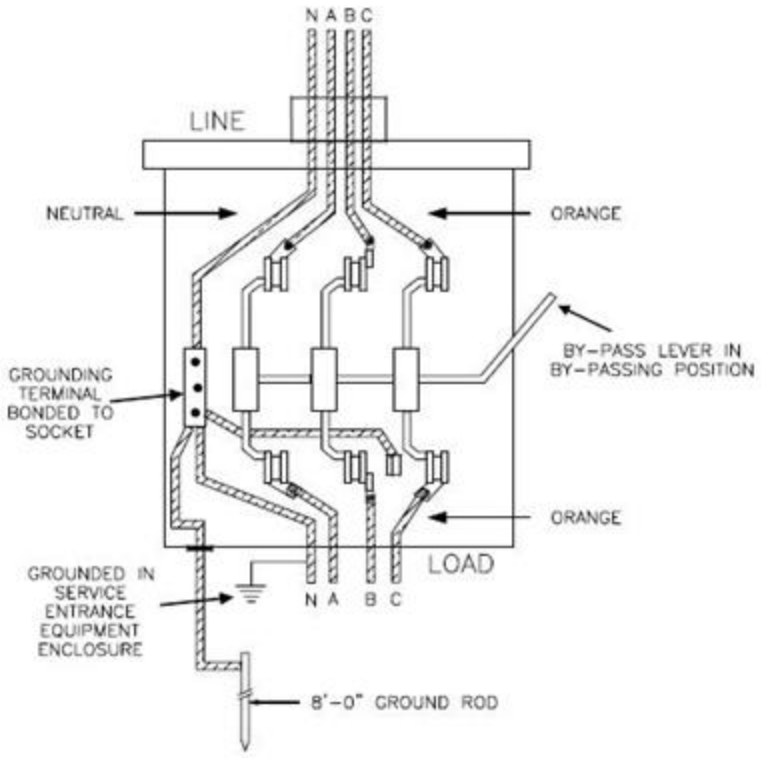
CUSTOMER SECONDARY RISER
600 VOLTS AND BELOW



NOTES: Ground fault protection where required.
Refer to applicable code.

FIGURE 13

TEMPORARY SERVICE STRUCTURE
OVERHEAD DISTRIBUTION

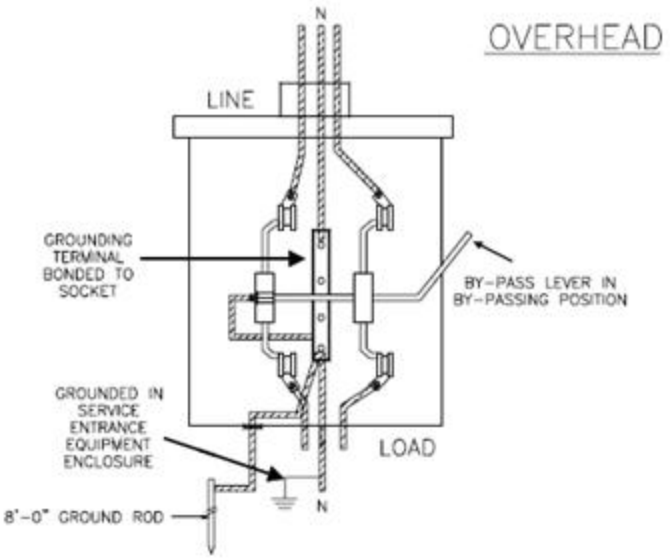


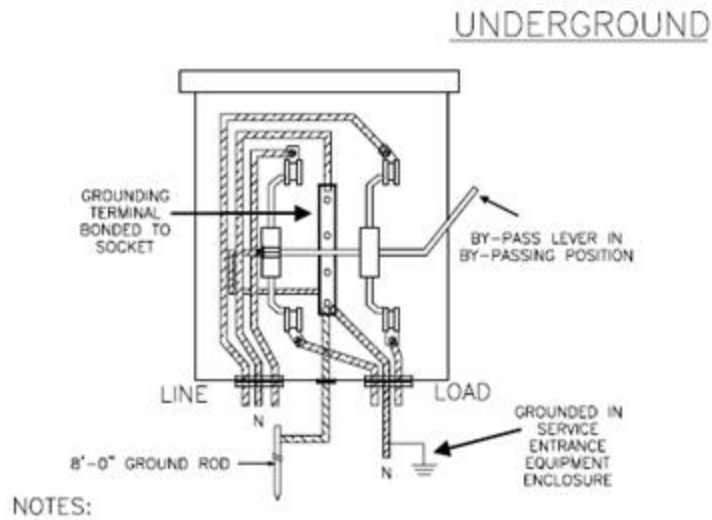
NOTES:

1. For installation on the following four-wire services
   A. 208/120 VOLT WYE
   B. 240/120 VOLT DELTA
2. For underground service, the supply must be connected to top terminals of meter socket
3. For 240/120 Volt Delta service, "C" phase conductor shall be the higher voltage-to-ground conductor, and be marked orange in color

FIGURE 14

3ø-4W SERVICE
7 TERMINAL METER SOCKET
200 AMP MAXIMUM



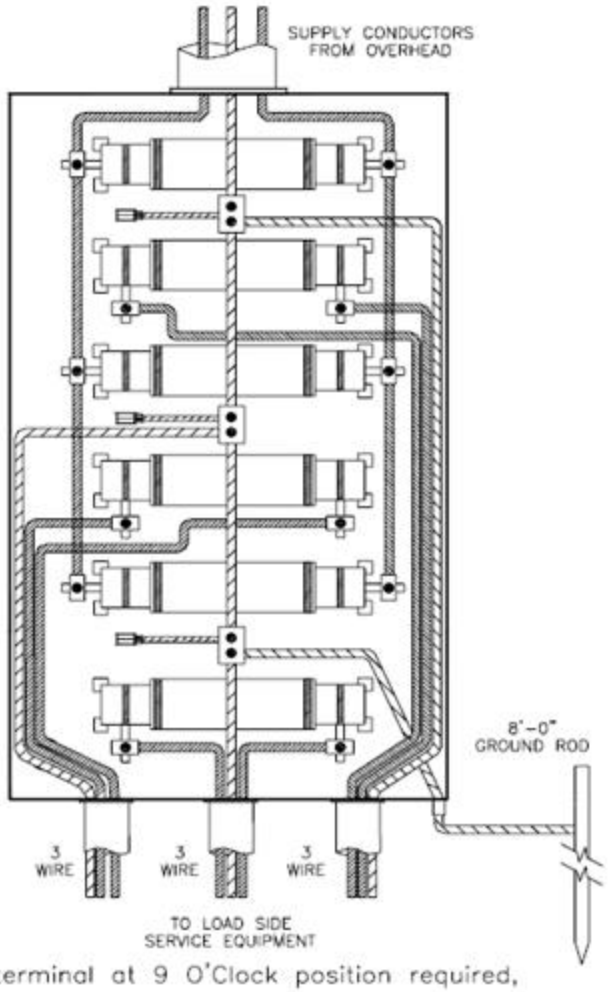


NOTES:

1. Fifth terminal at 9 O'Clock position required.
2. All meter sockets shall have a lever operated manual bypass with jaw release and flash shield

FIGURE 15

1ø-3W SERVICE
5 TERMINAL METER SOCKET
320 AMP MAXIMUM



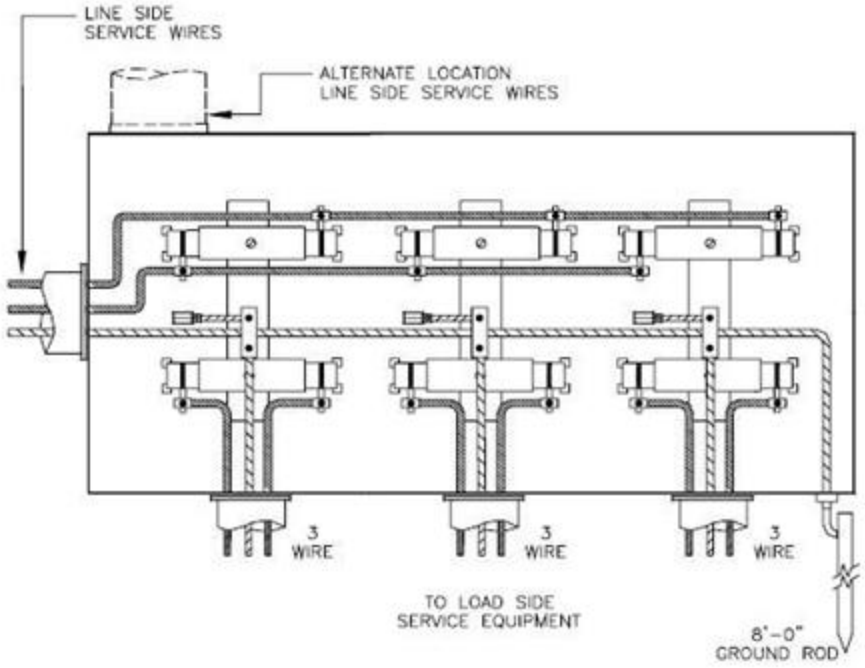
NOTES:

1. Fifth terminal at 9 O'Clock position required,
2. All meter sockets shall have a lever operated manual bypass with jaw release and flash shield
3. Outdoor installations limited to height of 3 vertical socket positions
4. For installations greater than 3 socket positions or 3ø consult DE for additional requirements

FIGURE 16

MULTIPLE METERS–VERTICAL MOUNTED TROUGH
1ø–3w SERVICE

1ø–3W SERVICE
5 TERMINAL METER SOCKET
320 AMP MAXIMUM



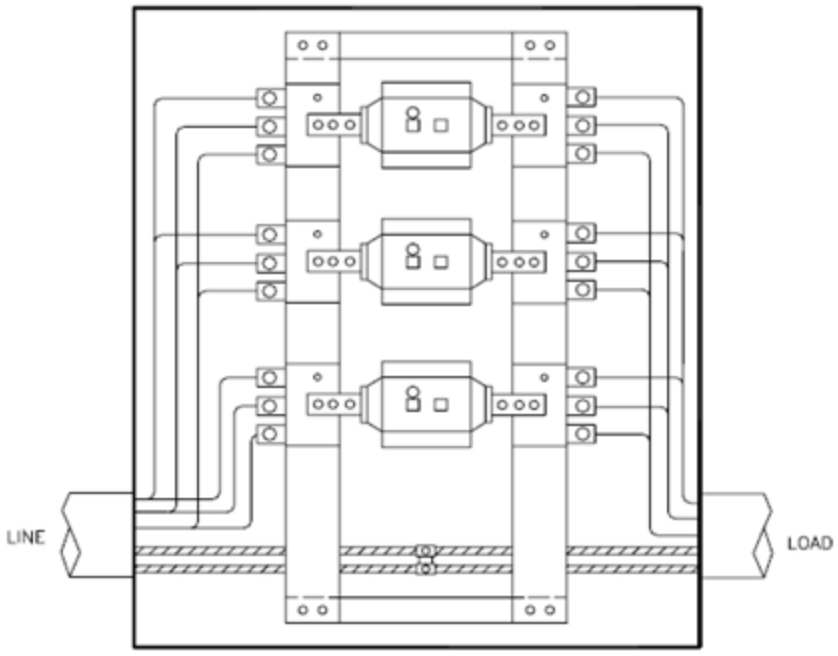
NOTES:

1. Fifth terminal at 9 O'Clock position required,
2. All meter sockets shall have a lever operated manual bypass with jaw release and flash shield
3. For installations greater than 3 socket positions or 3ø, consult DE for additional requirements

FIGURE 17

MULTIPLE METERS–HORIZONTALLY MOUNTED TROUGH
1ø–3W SERVICE

1ø–3W SERVICE
5 TERMINAL METER SOCKET
320 AMP MAXIMUM



NOTES:

1. Customer to furnish and install meter socket and conduit from CT cabinet
2. DE to furnish and install all required conductors from CT cabinet to meter socket
3. Consult DE regarding CT cabinet sizes

FIGURE 1S

CURRENT TRANSFORMER INSTALLATION
3ø–4W SERVICE
208Y/120 & 480Y/277

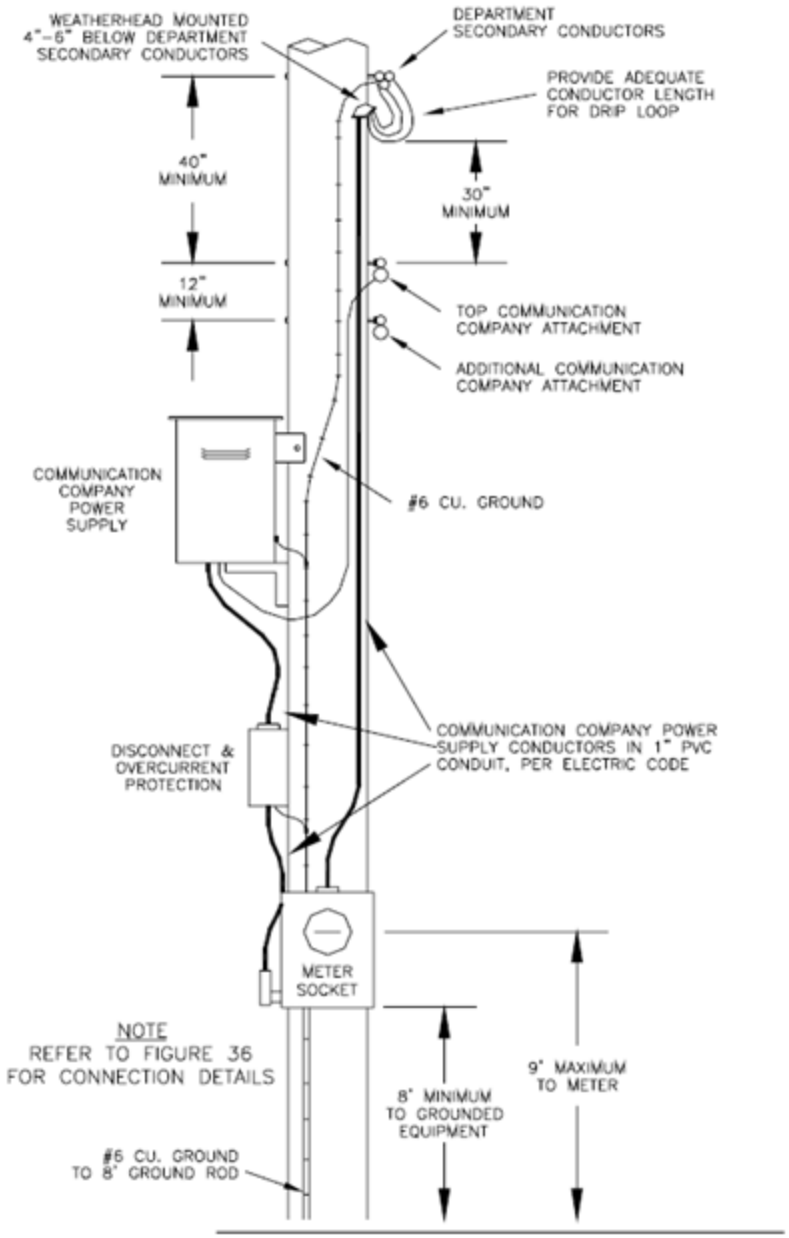


FIGURE 19

WOOD POLE INSTALLATION DETAILS
METERED POWER SUPPLY
TO COMMUNICATION INSTALLATIONS

LEGEND

A. Weatherhead – located to allow for driploop and secondary connections by DE

B. Conductors – #10 stranded copper, type THHN or THWN two black and one white

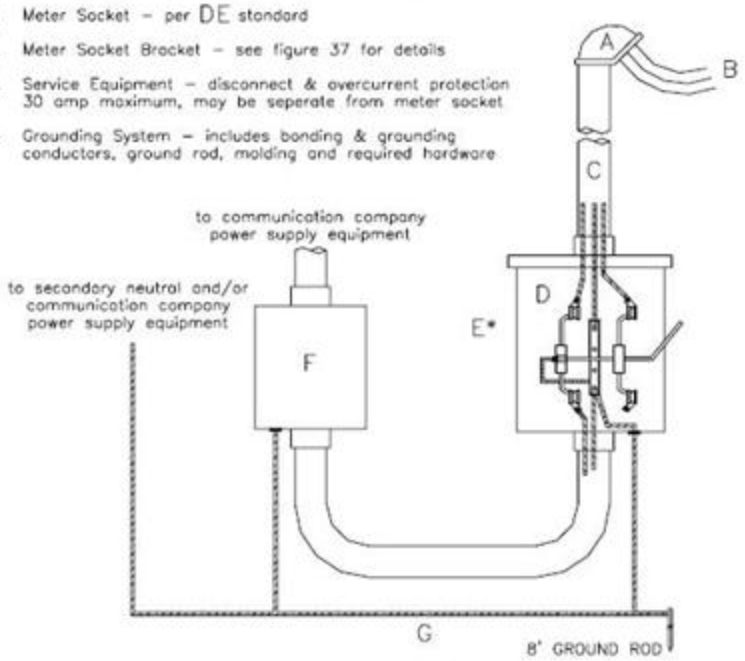
C. Conduit – 1" PVC, weather sealed to meter socket

D. Meter Socket – per DE standard

E. Meter Socket Bracket – see figure 37 for details

F. Service Equipment – disconnect & overcurrent protection 30 amp maximum, may be seperate from meter socket

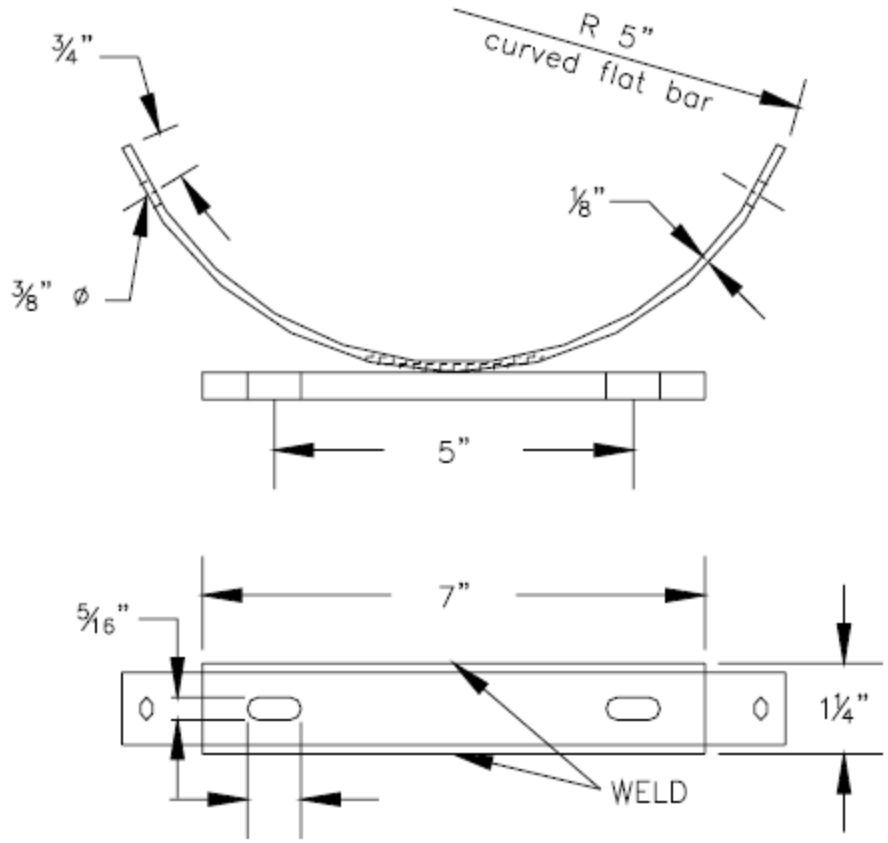
G. Grounding System – includes bonding & grounding conductors, ground rod, molding and required hardware



1. Communication company shall furnish and install items A through G, shown above
2. Item D (meter socket) shall be located on the quarter of the pole downsteam from traffic
3. Installer shall provide adequate grounding conductor at weatherhead for connection to DE aerial ground
3. DE will furnish and install all connections to department secondary conductors and aerial ground

FIGURE 20

WOOD POLE INSTALLATION
DETAIL OF CONNECTIONS
FOR COMMUNICATION INSTALLATIONS



NOTES:

1. Meter bracket assembly shall be hot-dip galvanized after fabrication

FIGURE 21

WOOD POLE INSTALLATION
DETAIL OF METER SOCKET BRACKET

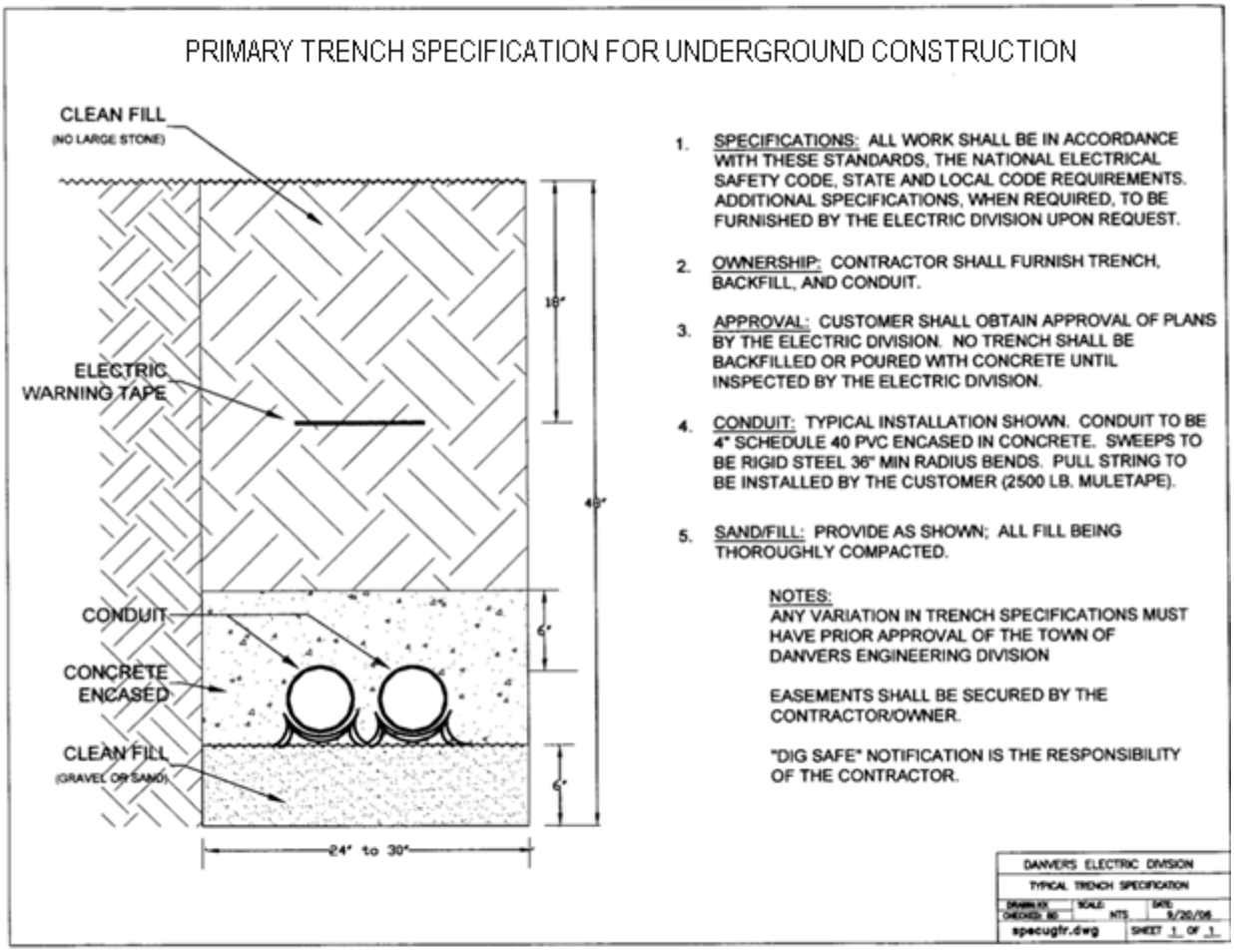
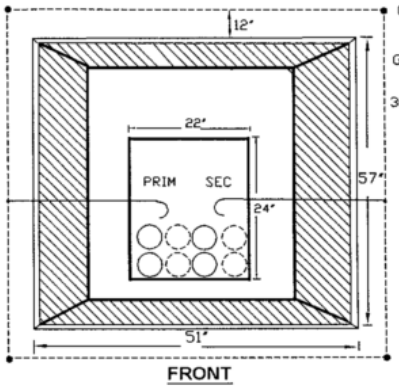


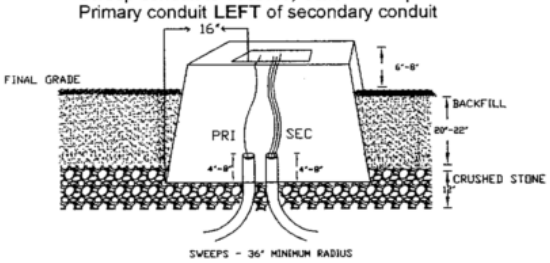
Figure 22

PRIMARY TRENCH SPECIFICATIONS

SPECIFICATIONS FOR FIBERGLASS PAD



Sweep conduit to **FRONT, CENTER** of pad location
Primary conduit **LEFT** of secondary conduit



1. SPECIFICATIONS: ALL WORK SHALL BE IN ACCORDANCE WITH THESE STANDARDS, THE NATIONAL ELECTRICAL SAFETY CODE, STATE AND LOCAL CODE REQUIREMENTS. ADDITIONAL SPECIFICATIONS, WHEN REQUIRED, TO BE FURNISHED BY THE ELECTRIC DIVISION UPON REQUEST.
2. OWNERSHIP: CONTRACTOR SHALL FURNISH AND OWN GROUND GRID, CONDUITS AND GROUNDING WIRES.
3. APPROVAL: CUSTOMER SHALL OBTAIN APPROVAL OF PLANS BY THE WIRE INSPECTOR AND ELECTRIC DIVISION. PLANS SHALL SHOW FIBERGLASS PAD, ALSO CONDUITS, LOCATION, TYPE, SIZE AND NUMBER.
4. LOCATION / PROTECTION: PAD LOCATION TO BE APPROVED BY ELECTRIC DEPT. THERE SHALL BE NO OBSTRUCTIONS WITHIN 36" OF THE REAR, 36" OF THE SIDES, AND 72" OF THE FRONT. IN AREAS OF VEHICULAR ACTIVITY, APPROVED BARRIERS SHALL BE INSTALLED, BY THE CUSTOMER, AROUND THE PAD FOR MECHANICAL PROTECTION OF THE TRANSFORMER.
5. CONDUIT: INSTALL AS SHOWN. PRIMARY CONDUIT TO BE 4" RIGID STEEL, GALVANIZED, UNLESS OTHERWISE APPROVED. SWEEPS TO BE RIGID STEEL 36" MIN RADIUS BENDS. TERMINATION OF CONDUITS SHALL BE LOCATED EXACTLY AS SHOWN IN DIAGRAM. PULL STRING INSTALLED BY CONTRACTOR (2500 LB. MULETAPE).
6. GROUND GRID: 1/0 STR. (7 STRANDS) BARE COPPER WIRE LOOP 12" BELOW PAD GRADE. BOND TO ALL EXPOSED METAL CONDUIT. LEAVE 36" WIRE ABOVE PAD AT TWO OPPOSITE POINTS IN THE CONDUIT OPENINGS, FOR GROUNDING OF THE TRANSFORMER. DRIVE FOUR (4) 3/4" BY 8' COPPERWELD GROUND RODS IN EACH CORNER OF THE PAD AS SHOWN, AND BOND TO GRID WIRE. ALL GROUND CONNECTIONS TO BE CAD WELD. GROUNDING BUSHINGS REQUIRED ON ALL METAL CONDUIT.

   *** GROUNDING INSTALLATION MUST BE APPROVED BY INSPECTOR***
7. BACK FILL: PROVIDE AS SHOWN; ALL FILL BEING THOROUGHLY COMPACTED.
8. CONDUCTORS: SECONDARY CONDUCTORS AND CONNECTIONS INSTALLED BY THE CUSTOMER. MUST USE 3/4" HARDWARE, 2 WASHERS, 1 LOCK WASHER. INSPECTION, TESTING, AND FINAL TORQUE BY D.E.D.

"DIG SAFE" NOTIFICATION IS THE RESPONSIBILITY OF THE CONTRACTOR

DANVERS ELECTRIC DIVISION		
5KV 1 PHASE FIBERGLASS PAD		
DRAWN: KK	SCALE:	DATE:
CHECKED: CM	NTS	7/2002
pad spec 5kV FIBERGLASS-NEW.dwg		

Figure 23

SPECIFICATIONS FOR FIBERGLASS PAD

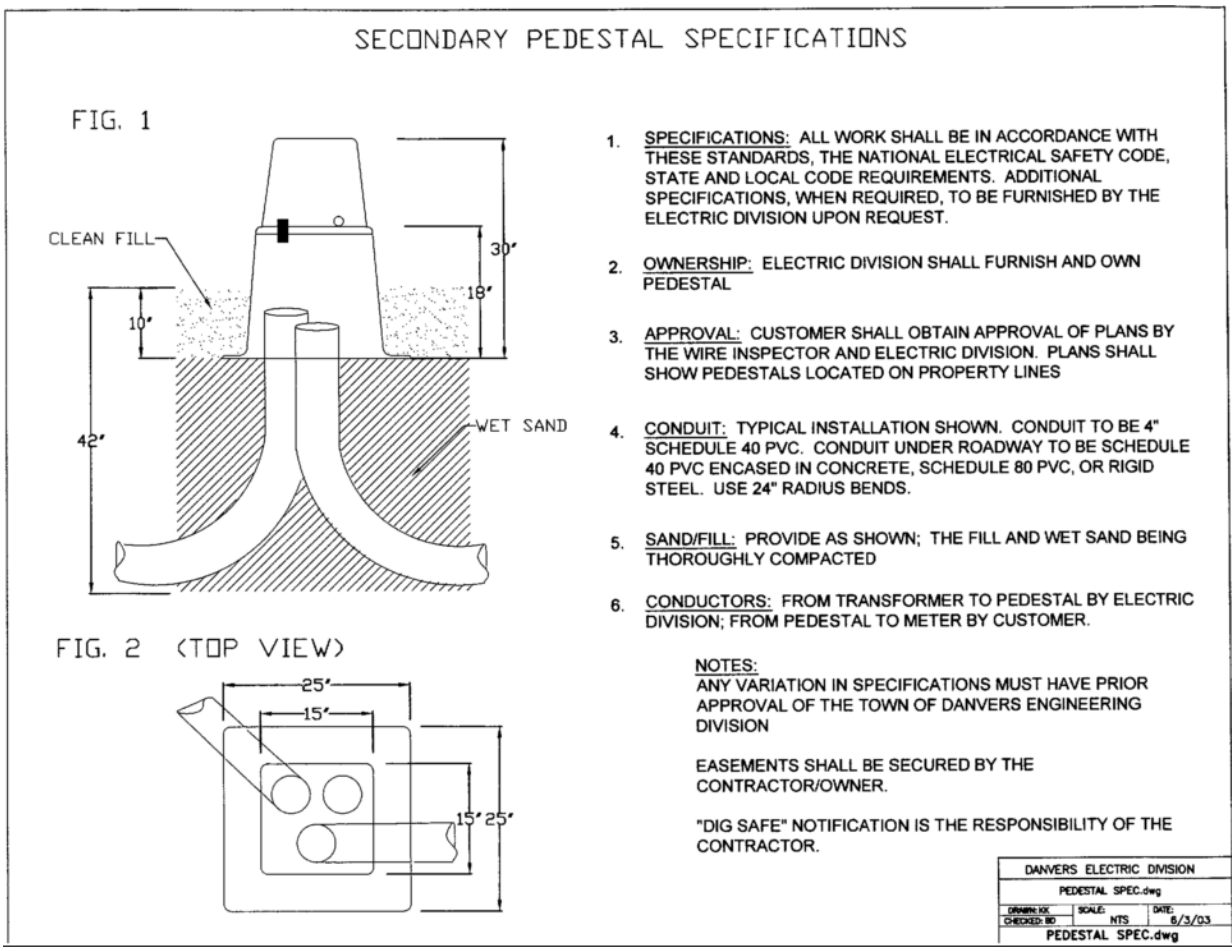


Figure 24

SECONDARY PEDESTAL SPECIFICATIONS

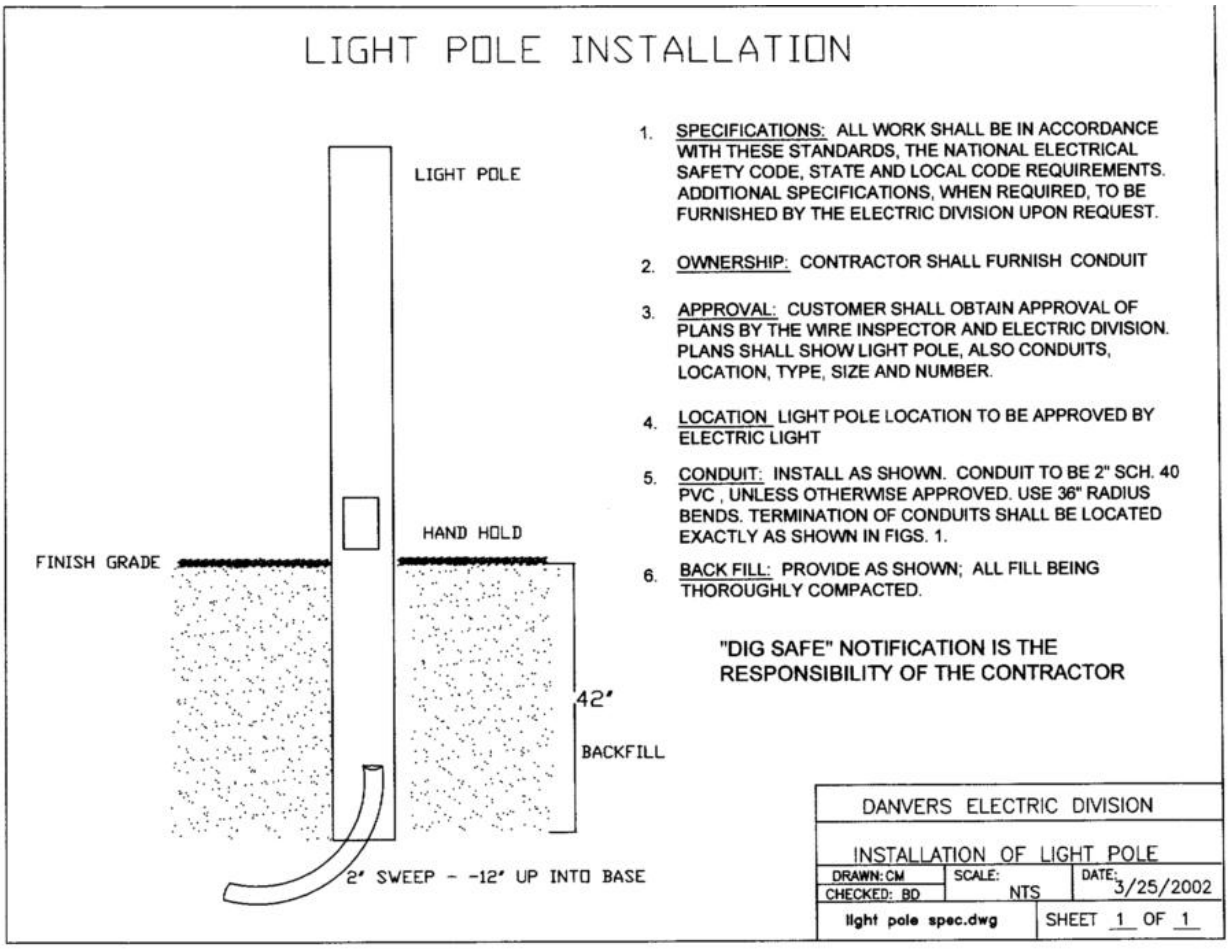


Figure 25

LIGHT POLE INSTALLATION

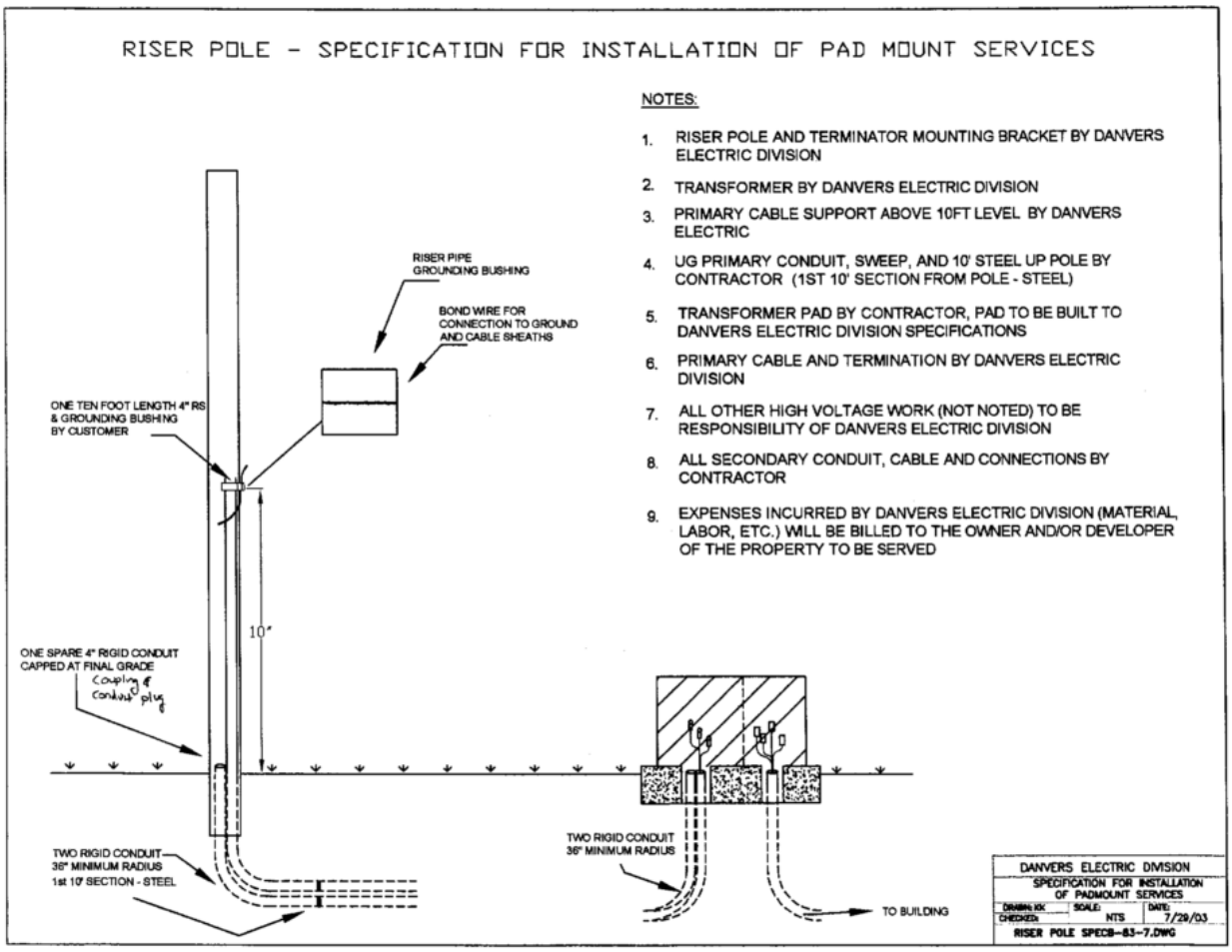


Figure 26

RISER POLE - SPECIFICATION FOR INSTALLATION OF PADMOUNT SERVICES

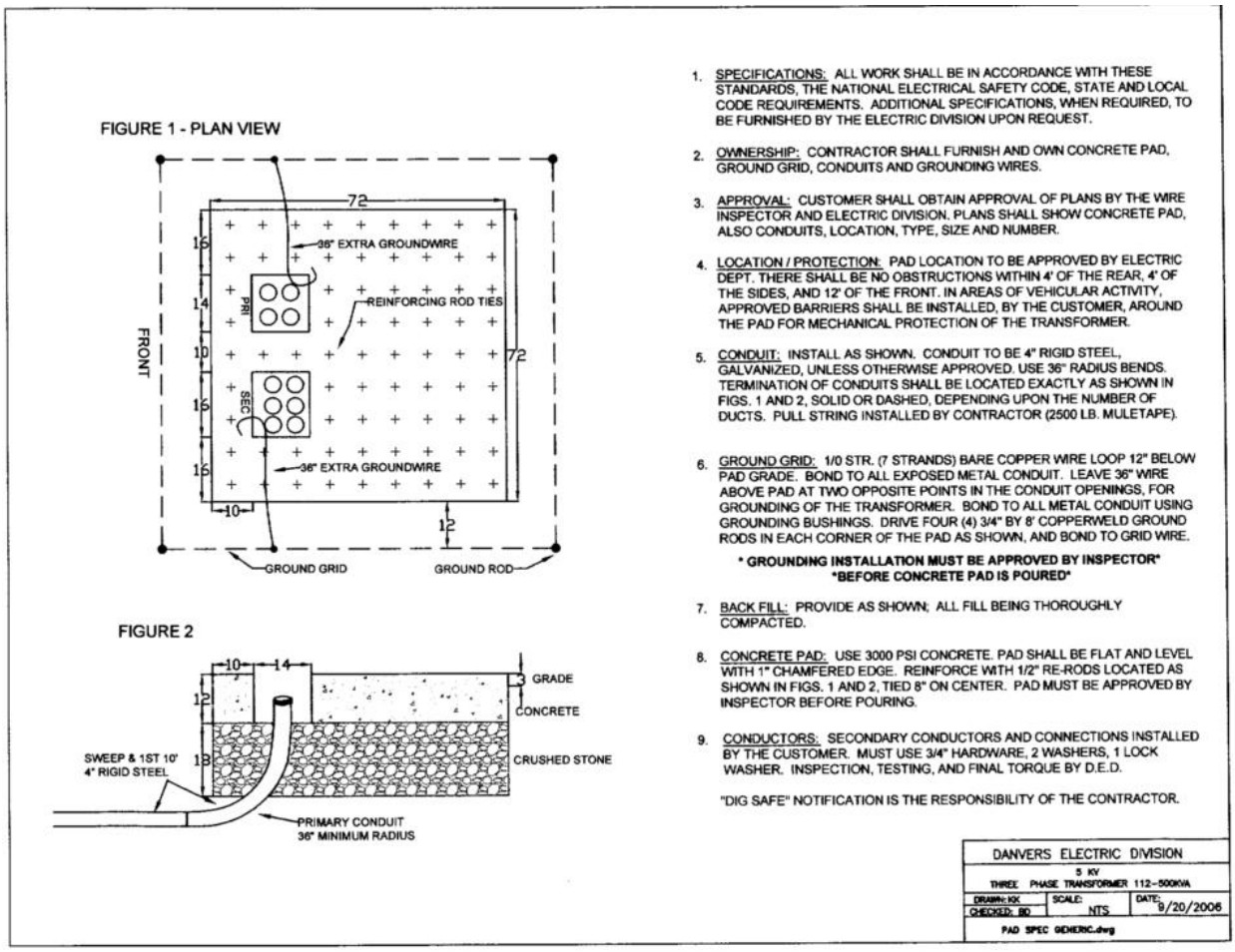


Figure 26 -con't

5 kV Three Phase Transformer – 112-500 kVa

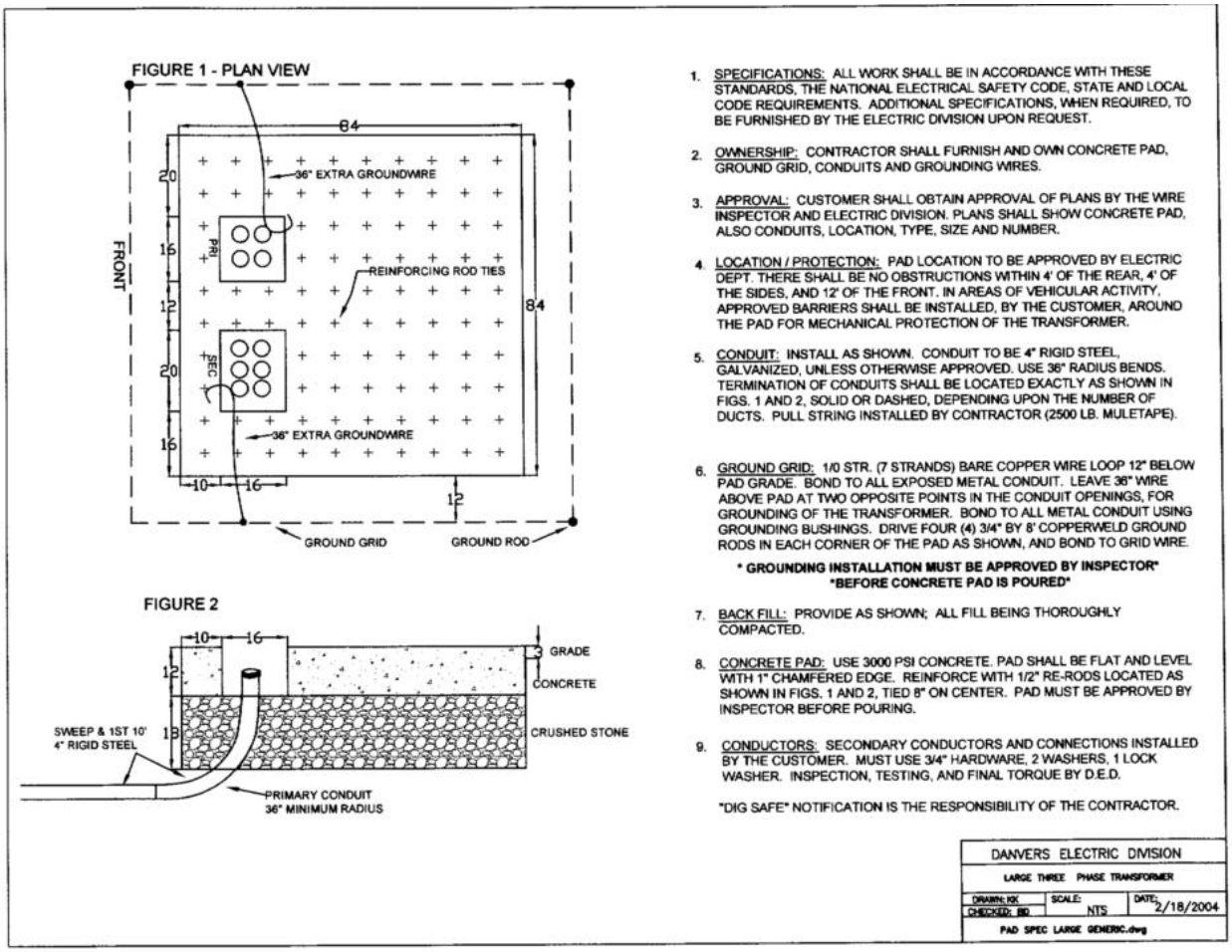


Figure 26 -con't

Large Three Phase Transformer

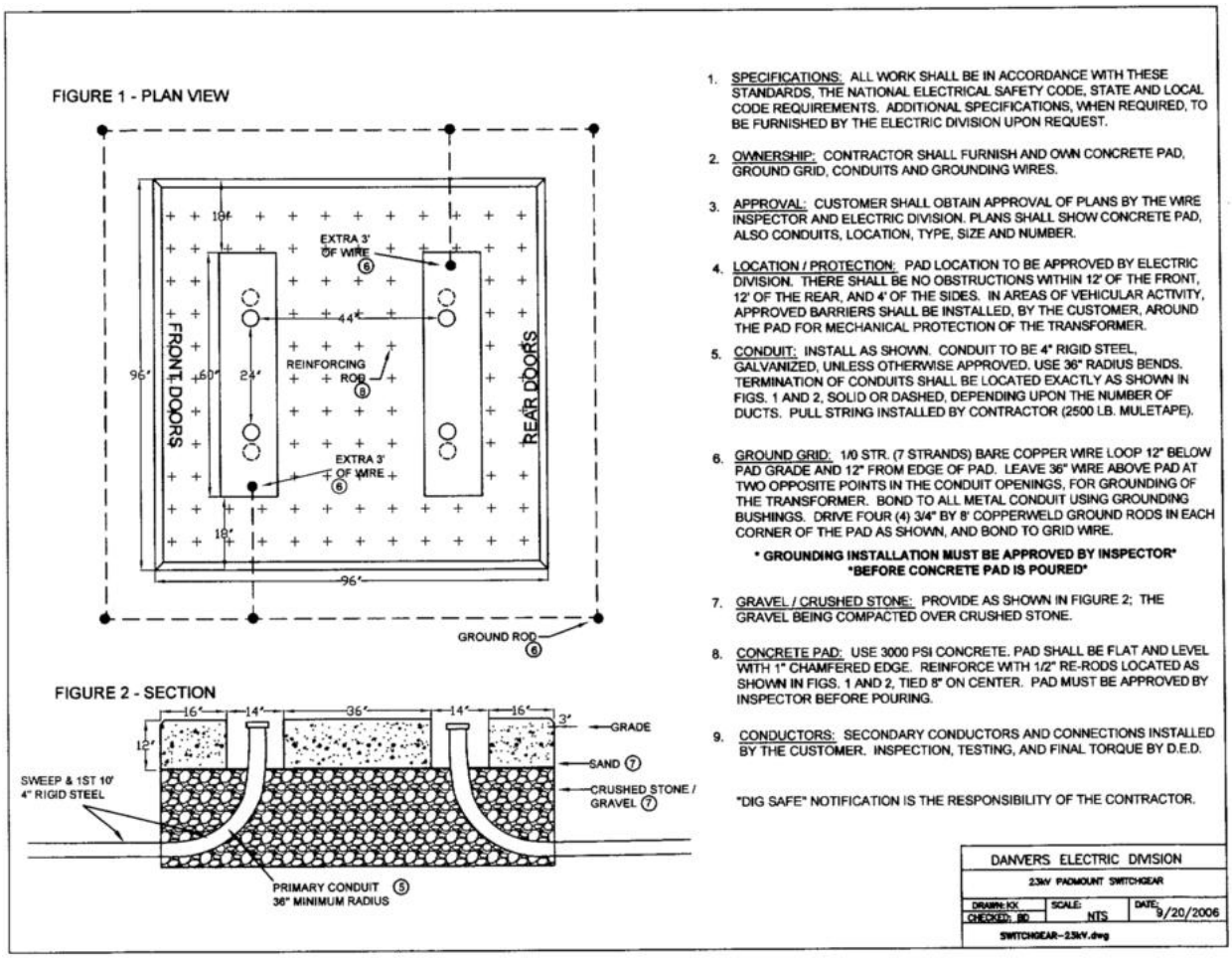


Figure 26 -con't

23 kV Padmount Switchgear