Specifications for Electrical Underground Distribution Systems from Overhead Transformation, Apartments & Condominiums

Specification DDS-3 OH
Revision 10, March 2010

ONCOR ELECTRIC DELIVERY COMPANY
SPECIFICATIONS FOR ELECTRICAL UNDERGROUND DISTRIBUTION SYSTEMS FROM OVERHEAD TRANSFORMATION, APARTMENTS AND CONDOMINIUMS
SPECIFICATION NUMBER DDS-3 OH

TABLE OF CONTENTS

ATTACHMENTS:

ONCOR ELECTRIC DELIVERY COMPANY
SPECIFICATIONS FOR ELECTRICAL UNDERGROUND DISTRIBUTION SYSTEMS FROM OVERHEAD TRANSFORMATION, APARTMENTS AND CONDOMINIUMS
SPECIFICATION NUMBER DDS-3 OH

1. SCOPE

This document represents the minimum requirements and specifications for the installation of an electrical underground distribution system fed from overhead transformation, serving garden style apartments and condominiums, to be transferred to Oncor Electric Delivery Company ownership.

2. REFERENCES

This specification shall be used in conjunction with the latest revision of the following publications.

2.1 The Electric Service Guidelines, Oncor Electric Delivery Company.

3. DEFINITIONS

3.1 Company: Oncor Electric Delivery Company and its designated representatives.

3.2 Contractor: Individual or firm installing an electrical underground distribution service to garden style apartments and condominiums.

3.3 Authority Having Jurisdiction: Generally an incorporated City or Town, but may include an agency of the County, State or Federal Government.

3.4 Point of Delivery: The point where the Company's conductors are connected to premise's conductors, typically at the meter socket or service enclosure.

4. GENERAL

4.1 The latest edition of all applicable building and safety codes shall be followed in the installation of the electrical underground distribution system. Included, but not limited to, are the:

4.1.1 Local City Building and Fire Codes or any other applicable codes for a particular project location

4. GENERAL (continued)

4.1.2 National Electrical Safety Code (NESC)

4.1.3 The U. S. Occupational Safety and Health Act of 1970 (OSHA)

4.1.4 The American Concrete Institute (ACI)

4.1.5 The American Society for Testing and Materials (ASTM)

4.2 Upon receipt of all necessary information from the Contractor, a project sketch showing the route of the conduit line and other pertinent information will be furnished by the Company.

4.3 Prior to construction a meeting shall be held to coordinate construction and inspection.

4.4 The Company will require a signed easement at no cost or a filed plat incorporating Company easement requirements prior to the Company installing any electrical facilities.

4.5 Joint use ditch will be determined by the Company on an individual basis.

4.6 No electrical facilities shall be connected by the Company until after final inspection is made and approval by the Authority Having Jurisdiction, as required by code, has been received.

5. COMPANY RESPONSIBILITY- The following shall be performed by, and the responsibility of, the Company:

5.1 The Company inspector is to check all conduit installations prior to the placing of backfill.

5.2 The Company inspector is responsible for all field changes and coordinates changes with the local Engineering office.

5.3 After approval of the conduit system by the Company inspector, and after the Contractor has signed all appropriate contracts, agreements, easements and has paid any CIAC (contribution in aid of construction), the Company shall install service lateral cables up to the line side of the point of delivery.

5. COMPANY RESPONSIBILITY (continued)

5.4 Upon notification of final electrical inspection from the Authority Having Jurisdiction, the Company is to make final electrical connections at the point of delivery.

6. CONTRACTOR RESPONSIBILITY- The following shall be performed by, and the responsibility of, the Contractor:

6.1 The Contractor is to provide the Company a Site Plan, a Dimension Control Plan, an Elevation Plan, a Grading Plan and loading information.

6.2 The Contractor is to coordinate with the Company inspector for inspection of work prior to backfilling.

6.3 The Contractor is to provide personnel and vehicular access to the facility at all times.

6.4 The Contractor is to be held responsible for full direction and supervision of all work to be performed by his employees, agents or contractors. The Contractor shall also be responsible for the area at all times prior to acceptance, particularly in the prevention of damage to the electrical distribution system by the activities of other trades and utilities.

6.5 All testing of concrete and backfill which is deemed necessary by the Company is to be performed by an independent testing laboratory at the Contractor's expense.

6.6 The Contractor is to replace at his expense any damaged equipment or correct any work not in compliance with the requirements in these specifications, the project sketch, the DDS-3 OH Detail Sheets or as specified by the Company.

6.7 The Contractor is to furnish equipment and labor to lay out ditch, set grade, dig ditches, place conduit in ditch and place electrical connection boxes. The line shall run in as straight alignment as practicable. All conduit and bends shall be Schedule 40 PVC or Schedule 80 PVC and shall be electrical grade. All PVC conduit and bends shall be gray in color.

6.8 The Contractor is to complete rough site grading, establish final grade at electrical connection boxes and clear these locations of all obstructions. Any change in final grade which requires the lowering or raising of electrical conductors or associated equipment is at the expense of the Contractor.

6.9 Minimum vertical crossing clearance from other utilities is twelve (12) inches.

6. CONTRACTOR RESPONSIBILITY (continued)

6.10 A lateral separation of five (5) feet from other utilities is required on private property.

6.11 Backfilling of conduit trenches under paved areas and around conduit bends at riser poles is to be compacted to 95% of the density of surrounding undisturbed soil as per ASTM D 698. Stabilization must be uniform to bottom of ditch. An alternative method for backfilling around conduit bends consists of concrete backfill with bend. The method and location where used will be at the discretion of the Company.

6.12 Contractor is to pull a mandrel through each conduit to check and clear blockage and leave an approved pull tape in each conduit. Pull tape shall be furnished by the party providing conduit and shall be installed by Contractor. Mandrel shall be furnished by Contractor. Conduit shall be plugged at both ends. Reference DDS-3 OH Detail Sheet 8 for approved pull tapes.

6.13 Approved self- contained meter sockets or approved meter packs are to be provided and installed by the Contractor. Service enclosures (when required) are to be provided by the Company and installed by the Contractor. Reference the Electric Service Guidelines for approved self- contained meter sockets. **Contact Company for approval of meter packs prior to letting bids and installing equipment.**

6.14 For individually metered multi-family units utilizing ganged meter sockets or approved meter packs, the Contractor is to provide and install the service lateral raceway. Company shall provide, install, connect and maintain the service lateral conductors to the line side of the ganged meter socket or to the line side of the approved meter pack.

6.15 For individually metered multi-family units utilizing service enclosures, the Contractor is to provide and install (1) the service lateral raceway to the service enclosure and (2) the conductors and associated raceways from the service enclosure to the line side of the meters. The Company shall provide, install, connect and maintain the service lateral conductors to the line side of the service enclosure.

6.16 For Secondary Service Accounts (laundry rooms, office buildings and other commercial services) fed from overhead transformation, the Contractor is to install all meter sockets on the building(s) with the location approved by the Company and shall provide and install the underground raceway to the riser pole. The Company shall provide, install, connect and maintain the service lateral conductor.

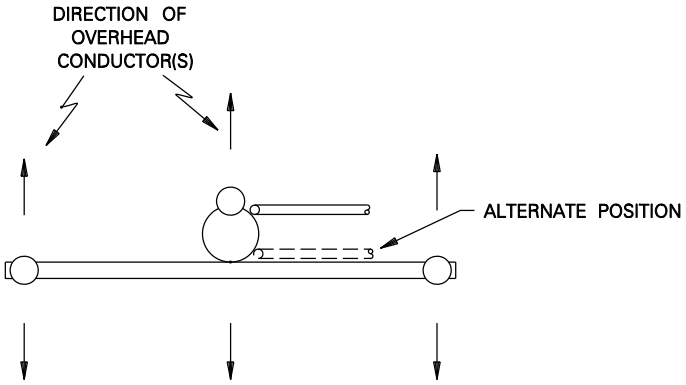
6.17 The Contractor is to secure inspection and approval of premise's facilities by the Authority Having Jurisdiction prior to connection of electrical facilities.

6. CONTRACTOR RESPONSIBILITY (continued)

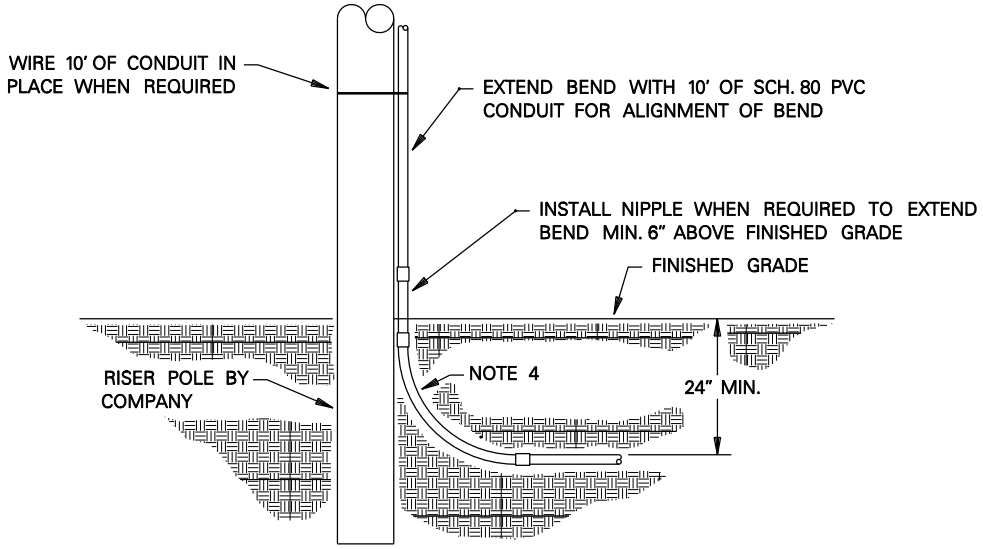
6.18 Meter sockets to multi-metered locations shall be clearly and permanently marked by the Contractor on the exterior and interior of the meter socket to indicate each apartment or location served. Engraved or stamped metal, weather resistant placards shall be used on the exterior of the meter socket and be permanently affixed. Permanent marker or other acceptable method shall be used to mark the apartment or location on the inside of the meter socket (at a location other than the cover) where it can be easily read.

7. ACCEPTANCE

7.1 The Company inspector shall meet with the Contractor to review the project prior to acceptance. Electrical facilities will be installed as approved by the Company inspector only after acceptance of the project.



TOP VIEW



PLAN VIEW

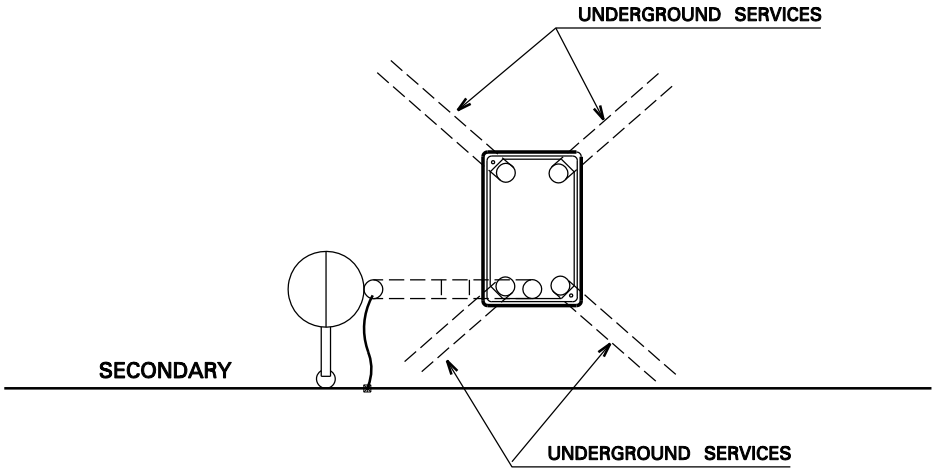
NOTES

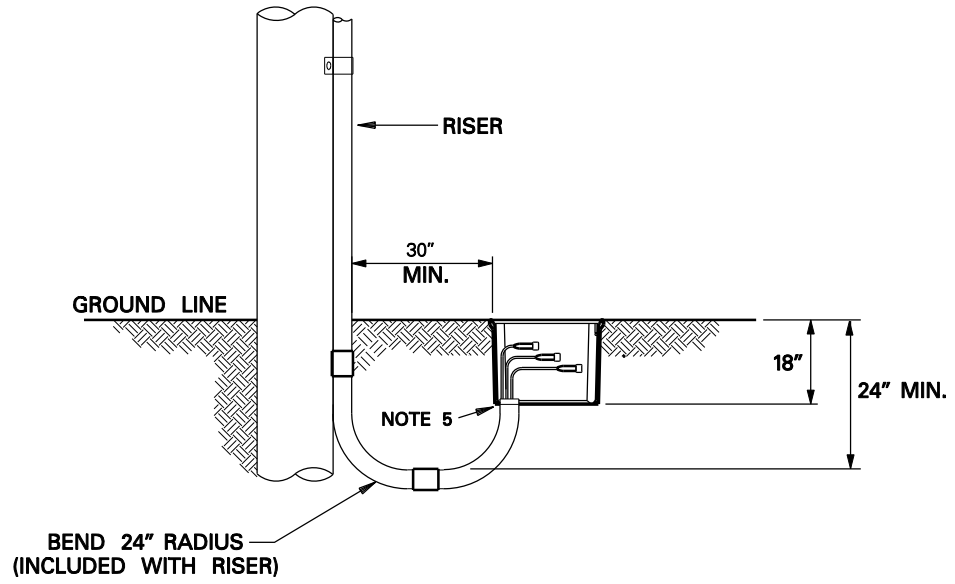
1. CONTACT COMPANY REPRESENTATIVE FOR (1) ROUTING OF CONDUIT LINE, (2) SIZE OF CONDUIT, AND (3) INSTALLATIONS REQUIRING MORE THAN ONE RISER ON POLE.
2. LIMIT RACEWAY TO THREE 90° BENDS. IF MORE THAN THREE 90° BENDS ARE REQUIRED, CONTACT COMPANY REPRESENTATIVE.
3. DISTANCE BETWEEN 90° BENDS TO FIVE FEET MINIMUM.
4. REFERENCE DETAIL SHEET 10 FOR BEND RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.

ONCOR

TERMINATION OF SECONDARY CONDUIT AT RISER POLE

DDS–3 OH DETAIL SHEET 1 OF 16





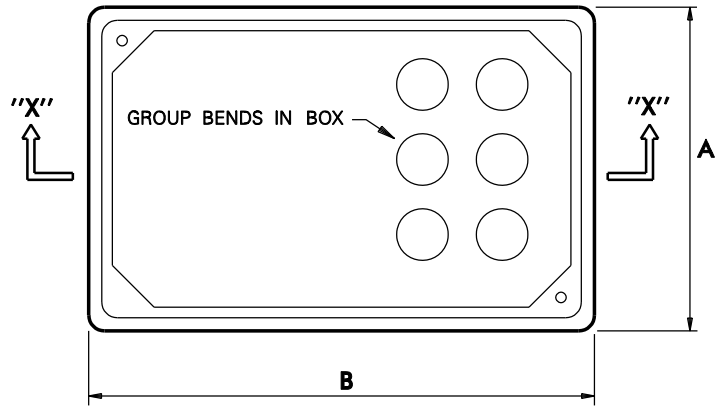
NOTES:

1. CONTACT COMPANY REPRESENTATIVE FOR (1) ROUTING OF CONDUIT LINE, (2) SIZE OF CONDUIT, AND (3) INSTALLATIONS REQUIRING MORE THAN ONE RISER ON POLE.
2. LIMIT RACEWAY TO THREE 90° BENDS. IF MORE THAN THREE 90° BENDS ARE REQUIRED, CONTACT COMPANY REPRESENTATIVE.
3. REFERENCE DETAIL SHEET 10 FOR BEND RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.
4. CUT OFF BEND FLUSH WITH BOTTOM OF SECONDARY/SERVICE BOX.

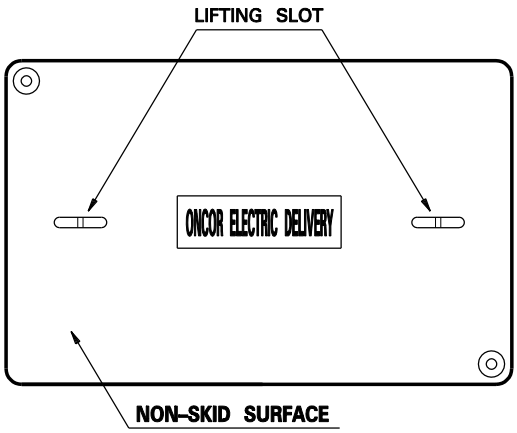
ONCOR

SECONDARY RISER WITH SECONDARY/SERVICE BOX, CONDUIT SYSTEM

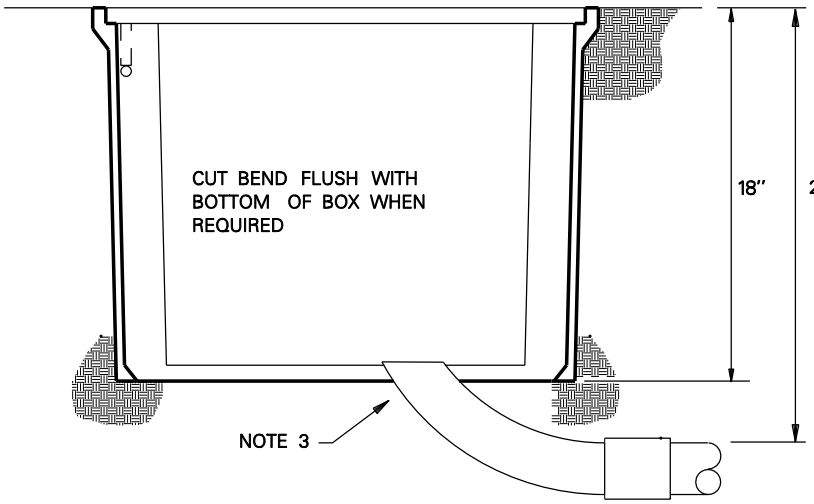
DDS–3 OH DETAIL SHEET 2 OF 16



PLAN
WITH COVER REMOVED



COVER – TOP VIEW



SECTION "X–X"

BOX SIZE (IN.)	OVERALL DIM. (IN.)		MAX. NO. CIRCUITS
	A	B	
13 X 24	16	25	5
17 X 30	20	33	8

BOX SIZE (IN.)	REPLACEMENT LID TSN
13 X 24	326506
17 X 30	326509S

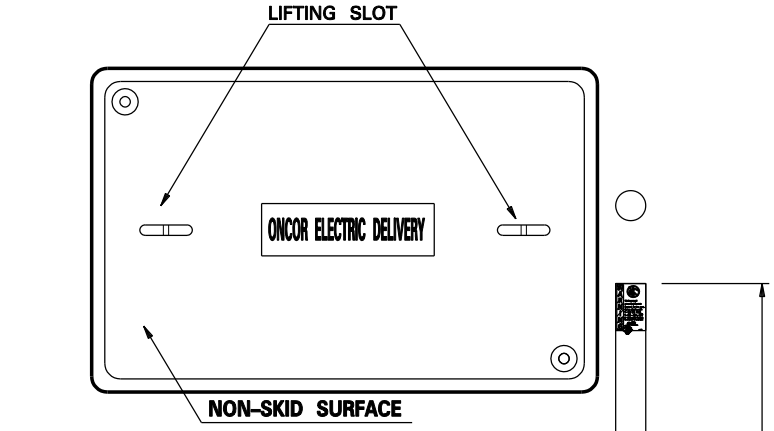
NOTES:

1. CONSULT COMPANY REPRESENTATIVE FOR (1) APPROVED PRECAST SECONDARY SUBSURFACE BOXES, (2) SIZE OF CONDUIT, AND (3) ROUTING PATH OF CONDUIT INTO SECONDARY SUBSURFACE BOX.
2. FOR INSTALLATION OF CONDUIT TO IN– SERVICE SECONDARY SUBSURFACE BOXES, CONSULT COMPANY REPRESENTATIVE FOR DETAILS.
3. REFERENCE DETAIL SHEET 10 FOR BEND RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.

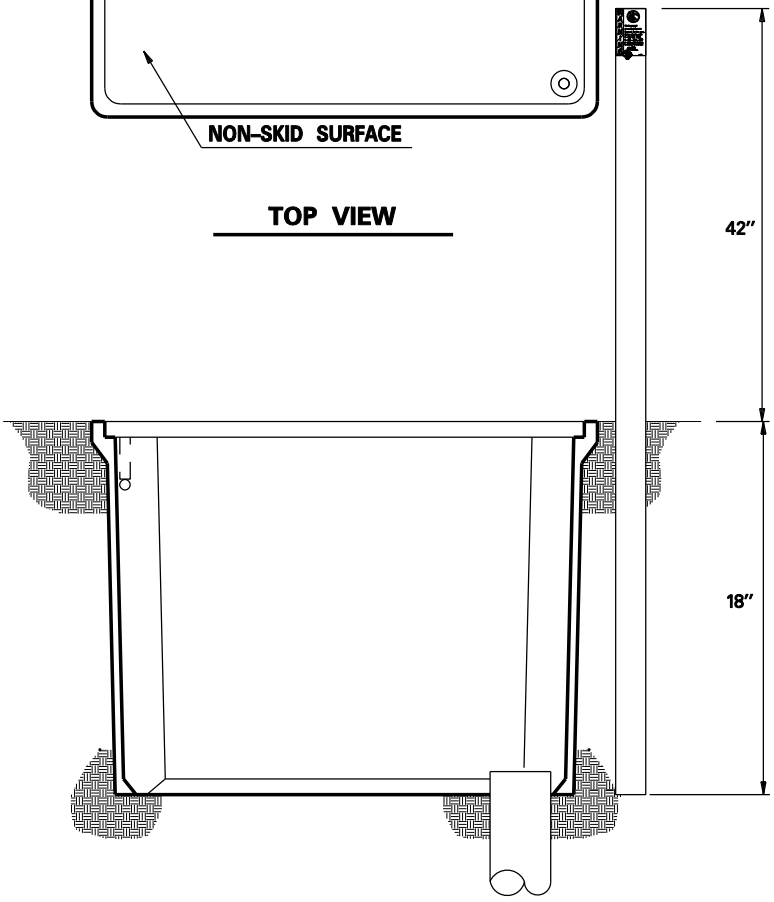
ONCOR

TYPICAL SERVICE AREA– SUBSURFACE SECONDARY/SERVICE BOX

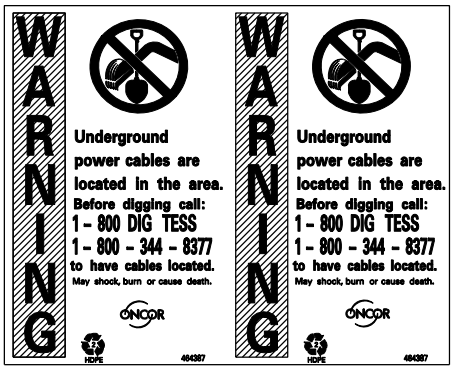
DDS–3 OH DETAIL SHEET 3 OF 16



TOP VIEW



SIDE VIEW



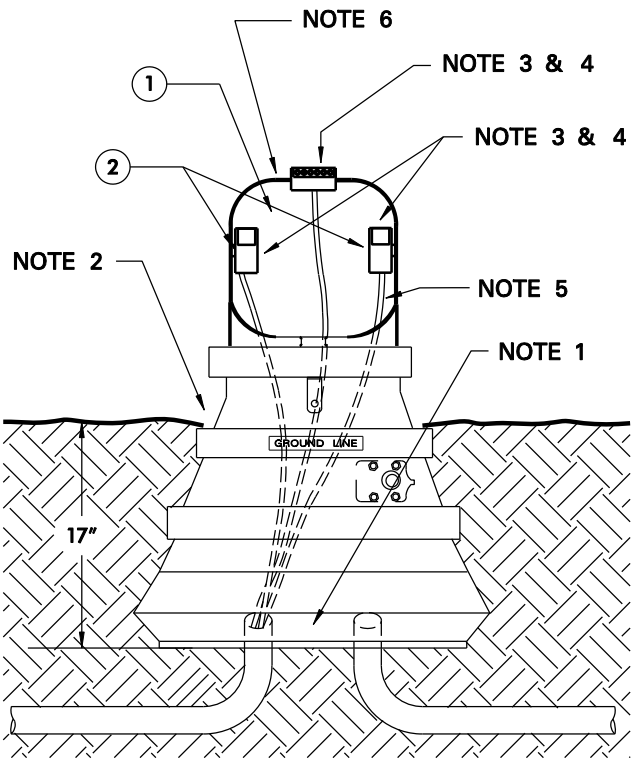
NOTES:

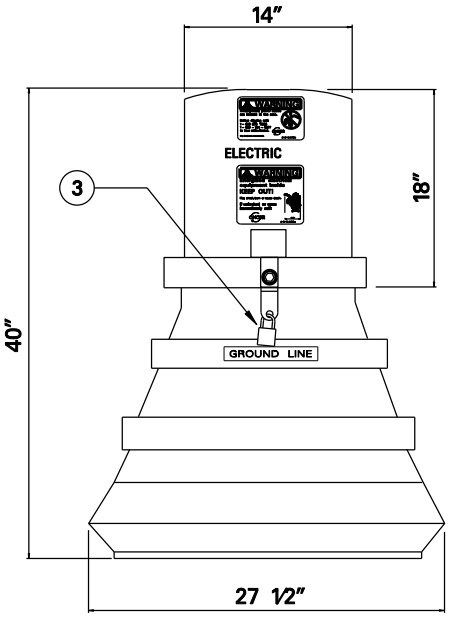
1. CONSULT COMPANY REPRESENTATIVE ON WHERE TO ACQUIRE MARKER POST.
2. INSTALL MARKER POST WITHIN 3 INCHES OF ONE END OF SUBSURFACE BOX WHEN BOX IS BEING INSTALLED.
3. REMOVE MARKER POST WHEN THE LAST PERMANENT METER IS SET.

ONCOR

MARKER POST FOR SECONDARY/SERVICE BOX

DDS–3 OH DETAIL SHEET 4 OF 16





REPLACEMENT PARTS	
PART	TSN.
6 POSITION CONNECTOR #6 – 350 CONDUCTOR	397461
6 POSITION CONNECTOR #6 – 500 CONDUCTOR	397463
CLEAR LEXAN CONNECTOR COVER	397462
COVER TIE	386181

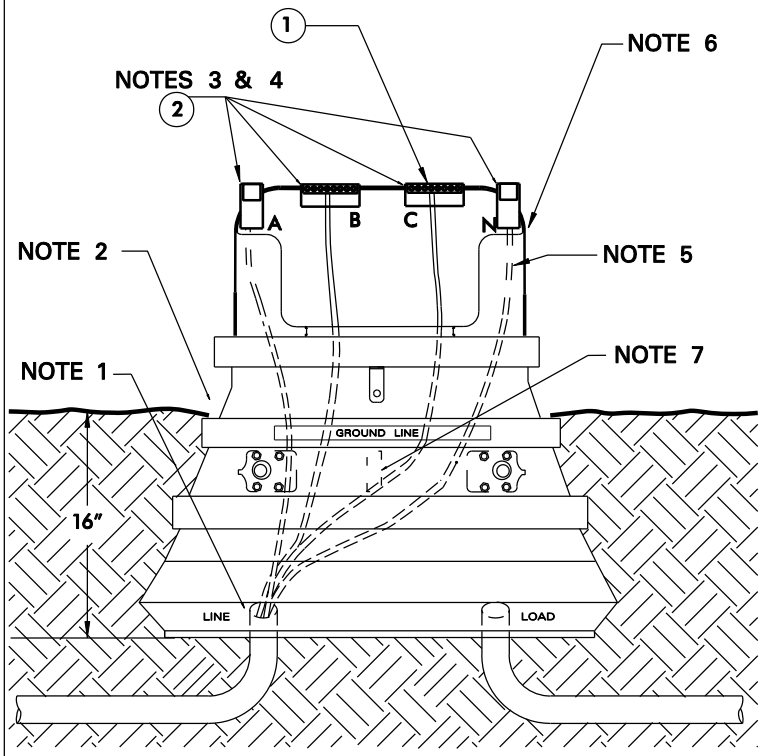
INSTALLATION NOTES:

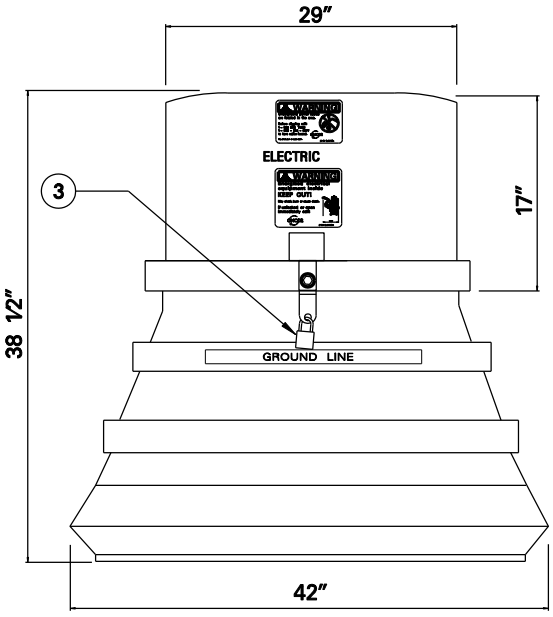
1. CENTER THE CONDUITS/CABLES IN THE BOTTOM OPENING OF THE PEDESTAL.
2. BURY THE PEDESTAL TO THE GROUND LINE MARKER AND TAMP THE SOIL AROUND THE UNIT TO SECURE IT IN THE UPRIGHT POSITION.
3. THE CONNECTOR COVER IS A REUSEABLE ITEM. IF MISSING OR DAMAGED REPLACE WITH PARTS AS SHOWN. ALL CONNECTOR COVERS MUST BE SECURED WITH TIES. IF THE TIES ARE CUT OR DAMAGED IN ANY WAY, REPLACE WITH STOCK REPLACEMENT PARTS AS SHOWN.
4. USE THE CENTER TOP MOUNTED CONNECTOR FOR THE NEUTRAL CONDUCTOR. USE THE SIDE MOUNTED CONNECTORS FOR THE "HOT" CONDUCTORS.
5. POSITION, CUT AND REMOVE CABLE INSULATION. FOR GOOD SET SCREW COMPRESSION ON THE CONDUCTORS, EXTEND BARE CONDUCTOR 1/4 INCH ABOVE THE CONNECTOR. BRUSH CONDUCTORS TO REMOVE OXIDE BEFORE INSTALLING IN CONNECTOR AND APPLY INHIBITOR.
6. LOCATE PEDESTAL TO MINIMIZE CHANCE OF PEDESTAL BEING STRUCK BY VEHICULAR TRAFFIC.
7. CONSULT COMPANY REPRESENTATIVE FOR (1) APPROVED SECONDARY PEDESTALS, (2) SIZE OF CONDUIT, AND (3) ROUTING PATH OF CONDUIT INTO SECONDARY PEDESTAL.
8. FOR INSTALLATION OF CONDUIT TO IN– SERVICE SECONDARY PEDESTALS, CONSULT COMPANY REPRESENTATIVE FOR DETAILS.
9. REFERENCE DETAIL SHEET 10 FOR BEND RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.

ONCOR

TYPICAL SERVICE AREA– SINGLE PHASE SECONDARY PEDESTAL

DDS–3 OH DETAIL SHEET 5 OF 16





REPLACEMENT PARTS	
PART	TSN.
8 POSITION CONNECTOR #6 – 500 CONDUCTOR WITH CLEAR FLEXIBLE CONNECTOR COVER	476321

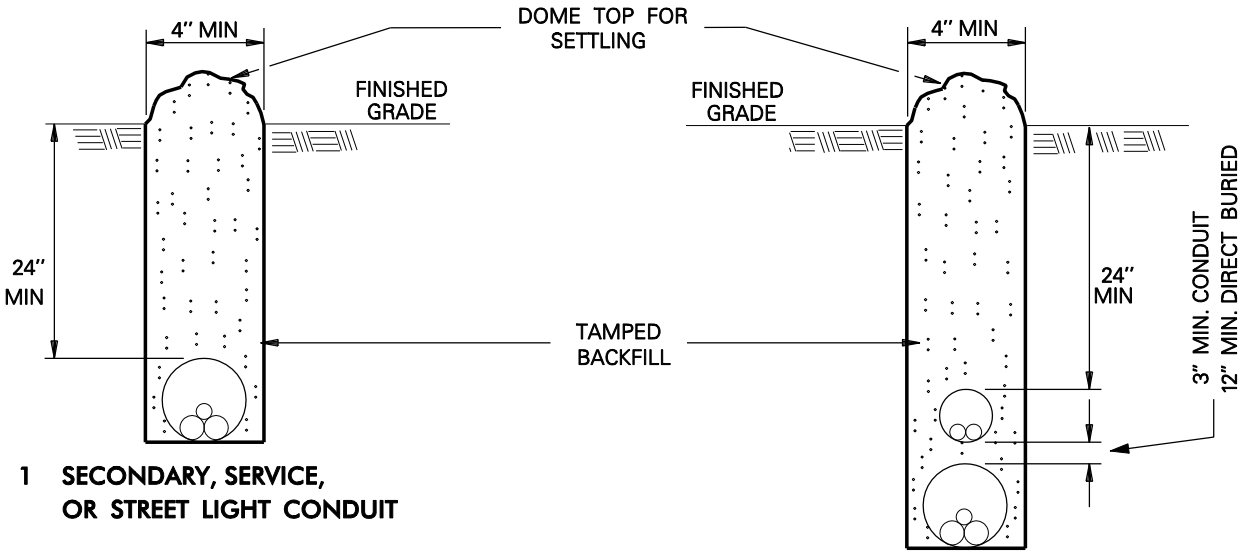
INSTALLATION NOTES:

1. CENTER THE CONDUITS/CABLES IN THE BOTTOM OF THE PEDESTAL AS SHOWN.
2. BURY THE PEDESTAL TO THE GROUND LINE MARKER AND TAMP THE SOIL AROUND THE UNIT TO SECURE IT IN THE UP–RIGHT POSITION.
3. THE CONNECTOR COVER IS A REUSABLE ITEM. IF MISSING OR DAMAGED REPLACE WITH STOCK REPLACEMENT PARTS AS NECESSARY.
4. USE A CLOCKWISE PHASE ROTATION WITH THE MOUNTED CABLE CONNECTORS. POSITION THE "A" PHASE CONNECTIONS @ THE 9:00 CONNECTOR, "B" PHASE @ 11:00, "C" PHASE @1:00 AND THE NEUTRAL @ 3:00, AS SHOWN.
5. POSITION, CUT, AND REMOVE CABLE INSULATION. FOR GOOD SET SCREW COMPRESSION ON THE CONDUCTORS, EXTEND BARE CONDUCTOR 1/4 INCH ABOVE THE CONNECTOR. BRUSH CONDUCTORS TO REMOVE OXIDE BEFORE INSTALLING IN CONNECTOR AND APPLY INHIBITOR.
6. LOCATE PEDESTAL TO MINIMIZE CHANCE OF PEDESTAL BEING STRUCK BY VEHICULAR TRAFFIC.
7. 2" X 4" WOOD BRACE HAS BEEN INSTALLED TO PREVENT THE PEDESTAL FROM COLLAPSE DURING INSTALLATION COMPACTION. AFTER INSTALLATION IS COMPLETE, CUT TO REMOVE IF NECESSARY. IF BRACE IS NOT A SPACE CONFLICT, LEAVE IT IN PLACE.
8. CONSULT COMPANY REPRESENTATIVE FOR (1) APPROVED SECONDARY PEDESTAL, (2) SIZE OF CONDUIT, AND (3) ROUTING PATH OF CONDUIT INTO SECONDARY PEDESTAL.
9. FOR INSTALLATION OF CONDUIT TO IN– SERVICE SECONDARY PEDESTALS, CONSULT COMPANY REPRESENTATIVE FOR DETAILS.
10. REFERENCE DETAIL SHEET 10 FOR END RADIUS FOR ALL HORIZONTAL AND VERTICAL CONDUIT BENDS.

ONCOR

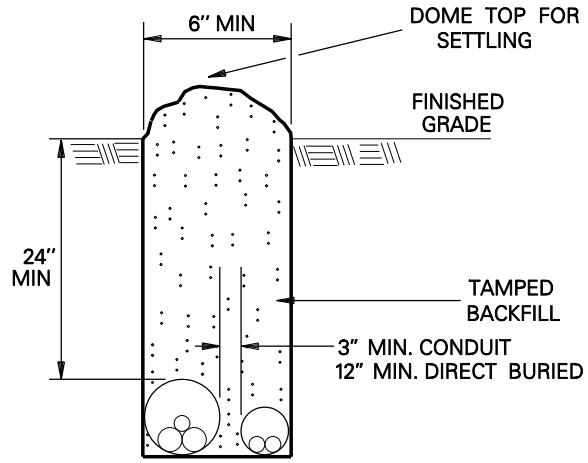
TYPICAL SERVICE AREA– THREE PHASE SECONDARY PEDESTAL

DDS–3 OH DETAIL SHEET 6 OF 16



1 SECONDARY, SERVICE, OR STREET LIGHT CONDUIT

1 SECONDARY CONDUIT AND 1 STREET LIGHT CONDUIT VERTICALLY ARRANGED



1 SECONDARY CONDUIT AND 1 STREET LIGHT CONDUIT HORIZONTALLY ARRANGED

LEGEND:

- PRIMARY CABLE
- SECONDARY/SERVICE CABLE
- STREET LIGHT CABLE

NOTE:

1. CONSULT COMPANY REPRESENTATIVE FOR CONDUIT SIZE.
2. REFERENCE SHEETS 8 AND 9 FOR NOTES AND INSTRUCTIONS.
3. SEPARATION DIMENSIONS APPLY TO COMPANY CONDUITS OR CABLES ONLY. MAINTAIN 12" SEPARATION BETWEEN COMPANY CONDUITS OR CABLE AND FOREIGN CONDUITS OR CABLE.

ONCOR

TRENCH REQUIREMENTS

DDS–3 OH DETAIL SHEET 7 OF 16

1. TRENCH ALIGNMENT SHALL BE AS STRAIGHT AS CONDITIONS PERMIT. ANY DEVIATIONS FROM PLANNED ALIGNMENT SHALL HAVE PRIOR APPROVAL BY THE PROJECT ENGINEER/INSPECTOR. ALL TRENCH CUTS SHALL BE IN ACCORDANCE WITH EXISTING SAFETY REGULATIONS IN EFFECT.

2. TRENCH BOTTOM SHOULD BE UNDISTURBED, TAMPED, OR RELATIVELY SMOOTH EARTH. WHERE EXCAVATION IS IN ROCK, THE CONDUIT SHOULD BE LAID ON A LAYER OF CLEAN BACKFILL.

3. ALL BACKFILL SHOULD BE FREE OF DEBRIS OR OTHER MATERIAL THAT MAY DAMAGE THE CONDUIT SYSTEM OR CAUSE SETTLING. THE MATERIAL SHOULD FILL THE VOIDS AROUND THE CONDUIT TO PREVENT HOT SPOTS & SETTLING.

4. BACKFILL SHOULD BE ADEQUATELY COMPACTED. BACKFILL NOT UNDER PAVEMENT SHOULD BE COMPACTED TO THE DENSITY OF THE SURROUNDING UNDISTURBED SOIL. BACKFILL UNDER PAVEMENT SHOULD BE COMPACTED TO NOT LESS THAN 95% OF THE DENSITY OF UNDISTURBED SOIL AS DETERMINED BY ASTM D–698.

5. SEE SHEET 9 FOR INSTRUCTIONS FOR JOINING PVC CONDUIT.

6. EACH CONDUIT RUN SHALL BE CHECKED BY PULLING A MANDREL THROUGH THE ENTIRE LENGTH AT THE COMPLETION OF THE CIVIL INSTALLATION.

7. A PULL TAPE SHALL BE LEFT IN EACH CONDUIT. CONDUIT SHALL BE PLUGGED AT BOTH ENDS.

APPROVED PULL TAPES

CONDUIT SIZE	MANUFACTURER	CATALOG NO.	TSN
1", 2", 3" & 4"	ARNCO	BL–WP25	321068
	NEPTCO, INC.	WP2500P	
6"	ARNCO	BL–WP60	397616
	NEPTCO, INC.	RP6000N	

8. CONTACT COMPANY REPRESENTATIVE FOR TRENCH DIMENSIONS FOR MORE THAN 2 CONDUITS IN SAME DITCH.

ONCOR

INSTALLATION OF CONDUITS NOTES AND INSTRUCTIONS

DDS–3 OH DETAIL SHEET 8 OF 16

THE CHEMICALS USED IN SOLVENT WELDING OF CONDUIT ARE INTENDED TO PENETRATE THE SURFACE OF BOTH PIPE AND FITTING, WHICH AFTER CURING RESULT IN A COMPLETE FUSION AT THE JOINT. THE OVER–USE, OR THE UNDER–USE OF CHEMICALS RESULTS IN LEAKY JOINTS OR WEAKENED PIPE.

A. CLEAN CONDUIT BY WIPING OFF ALL DUST, DIRT, AND MOISTURE FROM SURFACES TO BE CEMENTED, EITHER BY MECHANICAL OR CHEMICAL CLEANING.

1. MECHANICAL CLEANING – FINE ABRASIVE PAPER OR CLOTH (180 GRIT OR FINER) OR CLEAN OIL–FREE STEEL WOOL.

2. CHEMICAL CLEANING – CLEANER RECOMMENDED BY MANUFACTURER OR EQUIVALENT (METHYL ETHYL KETONE – MEK).

B. WITH A NON–SYNTHETIC BRISTLE BRUSH, APPLY AN EVEN COATING OF CEMENT TO THE OUTSIDE OF THE PIPE AND INSIDE THE SOCKET. MAKE SURE THAT THE AMOUNT OF CEMENT APPLIED TO THE CONDUIT IS EQUAL TO THE DEPTH OF THE SOCKET. BEFORE ASSEMBLY, IF SOME EVAPORATION OF SOLVENT FROM THE SURFACES TO BE JOINED IS NOTED, REAPPLY CEMENT, THEN ASSEMBLE.

IF CEMENT BEING USED HAS AN APPRECIABLE CHANGE IN VISCOSITY OR SHOWS SIGNS OF JELLING, IT SHALL BE DISCARDED. IN NO CASE SHALL THINNER BE USED IN AN ATTEMPT TO RESTORE JELLED PVC CEMENT. THINNER MAY ONLY BE USED TO CHANGE THE VISCOSITY OF A MEDIUM BODIED CEMENT TO THAT OF A REGULAR BODIED CEMENT FOR APPLICATION ON PVC PIPE SMALLER THAN 2 1⁄2 INCH DIAMETER. A MEDIUM BODIED CEMENT SHALL BE USED ON 2 1⁄2 TO 6 INCH PVC PIPE.

IN COLD WEATHER, USE A PRIMER TO SOFTEN THE JOINING SURFACES BEFORE APPLYING CEMENT. ALLOW LONGER CURE TIME. (SEE ITEM E).

C. JOIN PIPE WITHIN 20 SECONDS OF APPLYING CEMENT, TURN THE PIPE 1⁄4 TURN TO ENSURE EVEN DISTRIBUTION OF CEMENT ON SURFACES TO BE BONDED. MAKE SURE THAT PIPE IS INSERTED TO THE FULL DEPTH OF THE SOCKET.

D. CLEAN OFF ANY BEAD OR EXCESS CEMENT THAT APPEARS AT THE OUTER SHOULDER OF THE FITTING. EXCESS CEMENT ALLOWED TO REMAIN IN CONTACT WITH THE MATERIAL IS APT TO CAUSE WEAKENING OF THE MATERIAL AND SUBSEQUENT FAILURE.

E. NEWLY ASSEMBLED JOINTS SHOULD BE HANDLED CAREFULLY UNTIL THE CEMENT HAS CURED THE RECOMMENDED SET PERIOD. SET PERIODS ARE RELATED TO THE AMBIENT TEMPERATURE AS FOLLOWS:

30 MIN. MINIMUM AT 60° TO 100°F
1 HR. MINIMUM AT 40° TO 60°F
2 HR. MINIMUM AT 20° TO 40°F
4 HR. MINIMUM AT 0° TO 20°F

ONCOR

INSTRUCTIONS FOR JOINING PVC CONDUIT

DDS–3 OH DETAIL SHEET 9 OF 16

CONDUIT NOMINAL SIZE (IN.)	MINIMUM BEND RADIUS (IN.)	TYPE OF BEND MATERIAL FOR PULLS:
1	18	PVC
2	24	PVC
3	24	PVC
4	24	PVC
6	36	PVC

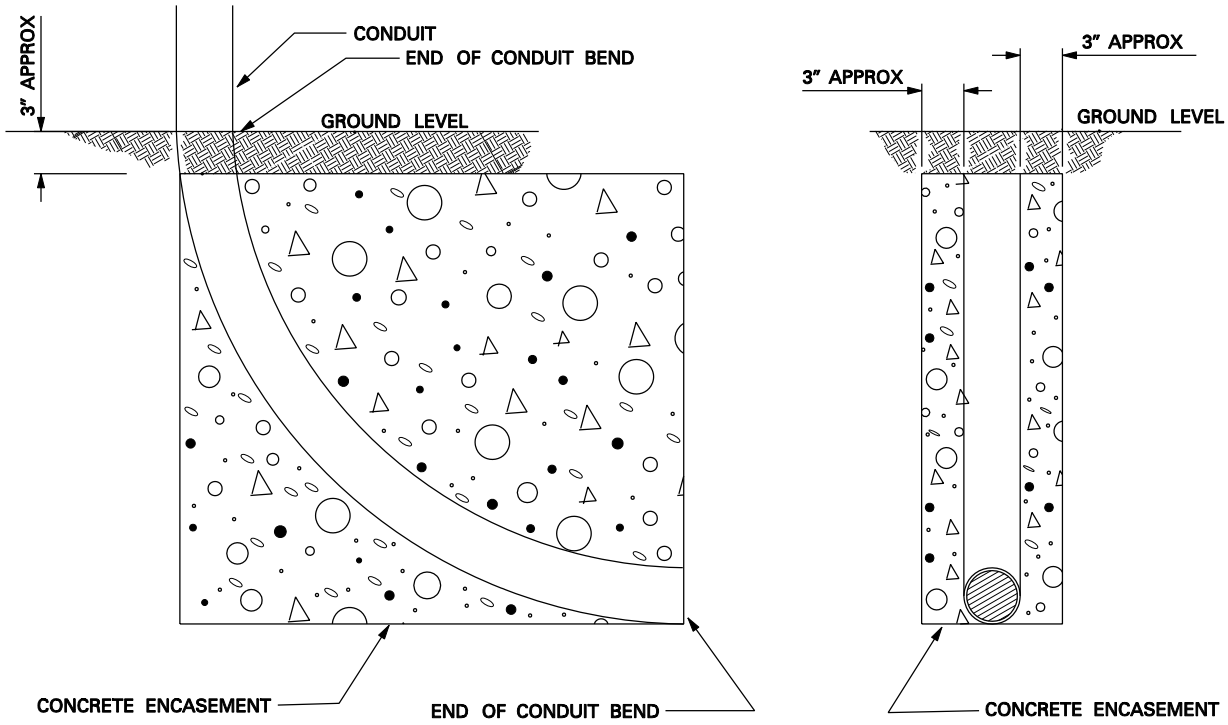
NOTES:

1. SCH. 80 PVC CONDUIT SHALL BE USED FOR ALL ABOVE GROUND INSTALLATIONS (POLE AND METER RISERS). SCH. 40 MAY BE USED FOR ALL BELOW GROUND INSTALLATIONS.

ONCOR

CONDUIT BEND RADIUS AND MATERIAL

DDS–3 OH DETAIL SHEET 10 OF 16



BEND	CONCRETE
1 INCH BEND	1.2 CUBIC FT.
2 INCH BEND	1.5 CUBIC FT.
3 INCH BEND	1.6 CUBIC FT.
4 INCH BEND	3.2 CUBIC FT.
6 INCH BEND	8.9 CUBIC FT.

TABLE 1

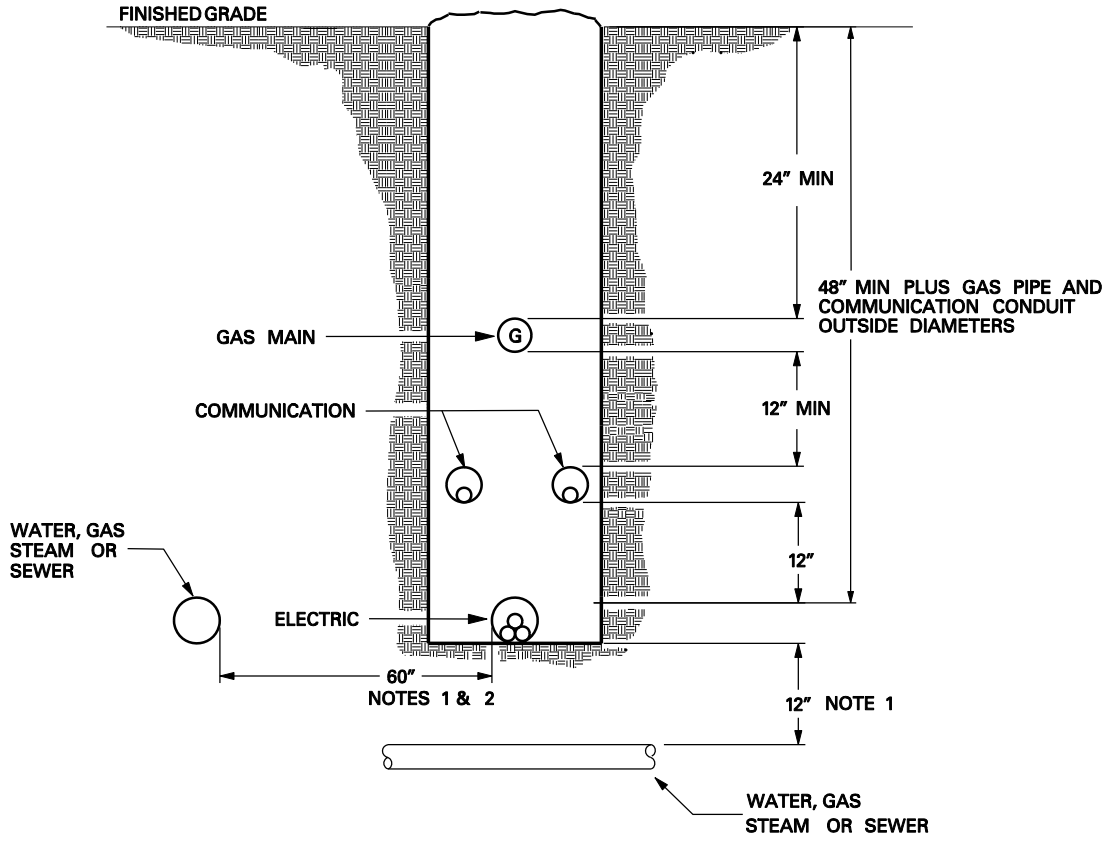
NOTES:

1. CONTACT COMPANY INSPECTOR TO DETERMINE REQUIREMENT FOR BEND ENCASEMENT.
2. DO NOT BOND CONCRETE TO POLE WHEN ENCASING A POLE RISER BEND.

ONCOR

CONCRETE ENCASED BENDS

DDS–3 OH DETAIL SHEET 11 OF 16



NOTES:

1. VERTICAL CROSSING CLEARANCE FROM OTHER UTILITIES SHALL BE 12 INCHES. A 60 INCH LATERAL SEPARATION OF PARALLELING FOREIGN UTILITIES (EXCLUDING GAS AND COMMUNICATIONS) SHALL BE REQUIRED. AN EXCEPTION WOULD BE TO ALLOW GAS, TELEPHONE AND /OR CATV IN THE SAME DITCH AS COMPANY CONDUIT SYSTEM PROVIDING THE NESC REQUIREMENTS FOR CONDUIT SEPARATION ARE MET OR EXCEEDED AND THE COMMUNICATIONS CIRCUITS ARE INSTALLED IN CONDUIT.

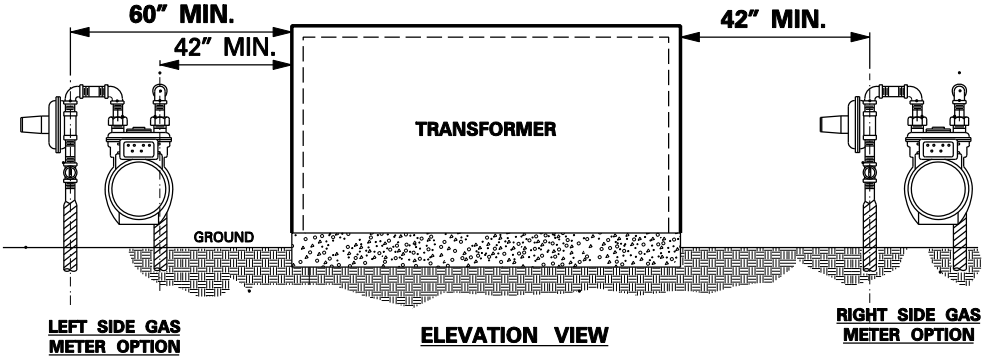
2. IT IS UNDERSTOOD THAT ONLY 12 INCH SEPARATION IS REQUIRED ON PUBLIC RIGHTS–OF–WAY. PERSONNEL INVOLVED IN EXCAVATION ON PUBLIC RIGHTS–OF–WAY ARE FULLY AWARE OF THE HAZARDS INVOLVED. HOWEVER, EXCAVATION ON PRIVATE PROPERTY CAN BE DONE BY INDIVIDUALS WHO ARE NOT LIKELY TO BE FULLY AWARE OF THE HAZARDS. THEREFORE, THE 60 INCH LATERAL SEPARATION IS REQUIRED TO HELP PREVENT INJURY TO PERSONNEL DOING EXCAVATION ON PRIVATE PROPERTY.

ONCOR

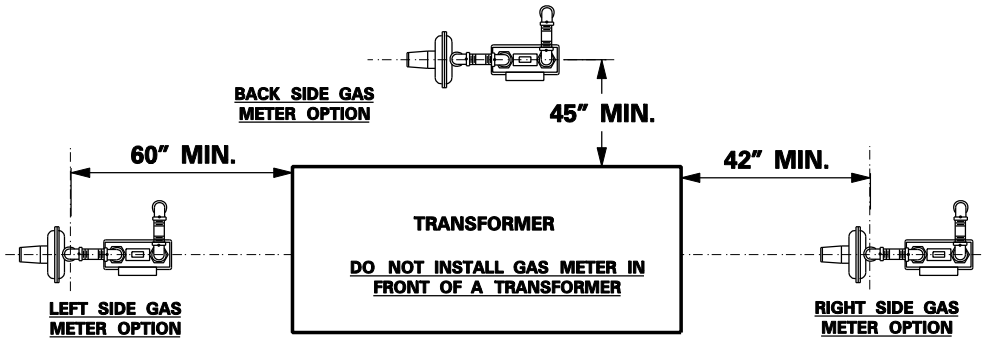
CLEARANCE REQUIREMENTS FROM FOREIGN UTILITIES ON PRIVATE PROPERTY

DDS–3 OH DETAIL SHEET 12 OF 16

TRANSFORMER CLEARANCE DETAILS

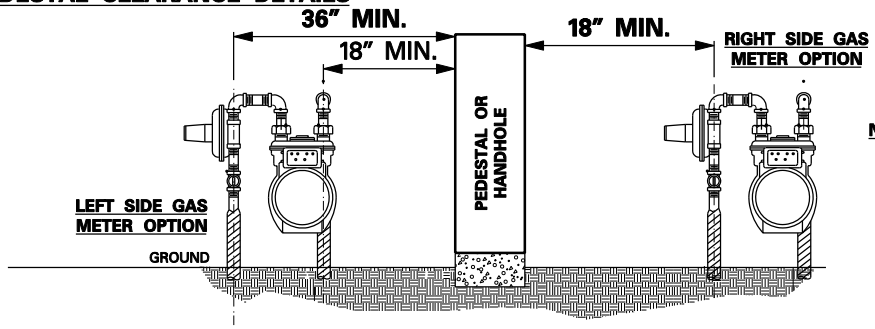


ELEVATION VIEW

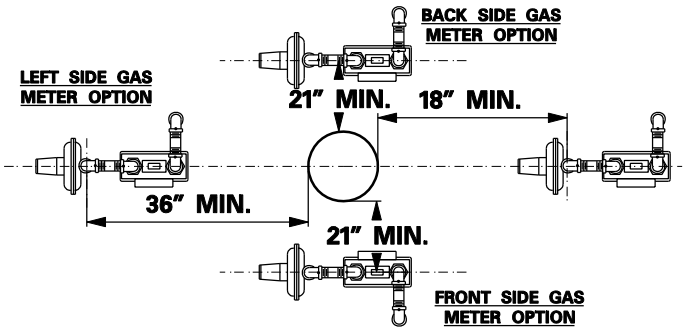


PLAN VIEW

PEDESTAL CLEARANCE DETAILS



ELEVATION VIEW



PLAN VIEW

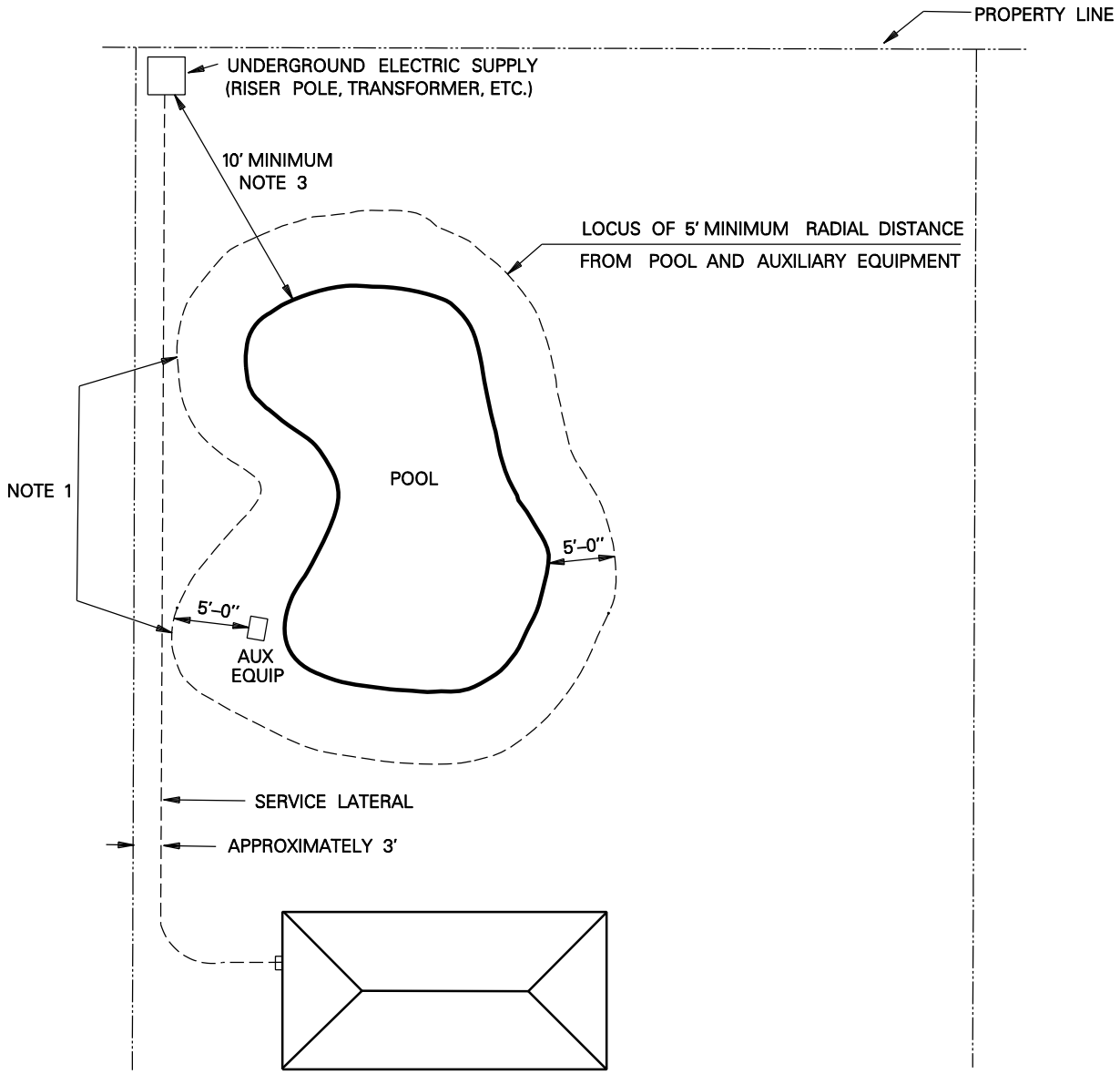
NOTES:

1. MEASUREMENTS ARE REFERENCED FROM THE INLET GAS RISER.
2. THE MEASUREMENTS WILL ENSURE:
   - A. THAT A MINIMUM CLEARANCE OF 36" IN. IS ATTAINED BETWEEN THE ENTIRE GAS METER INSTALLATION AND THE TRANFORMER AND
   - B. THAT A MINIMUM CLEARANCE OF 12 IN. IS ATTAINED BETWEEN THE ENTIRE GAS METER INSTALLATION AND ALL OTHER ABOVEGROUND FACILITIES INCLUDING ELECTRIC AND OTHER UTILITY PEDESTALS AND HANDHOLES.
3. THIS STANDARD APPLIES TO 630 GAS METER INSTALLATIONS AND SMALLER. FOR LARGER METER INSTALLATIONS, CONTACT COMPANY REPRESENTATIVE FOR ASSISTANCE.
4. THIS DRAWING IS TYPICALLY USED WHEN THE GAS MAIN IS LOCATED IN AN ALLEY OR DEDICATED UTILITY EASEMENT.

ONCOR

ABOVEGROUND CLEARANCES FROM GAS METER INSTALLATIONS

DDS–3 OH DETAIL SHEET 13 OF 16



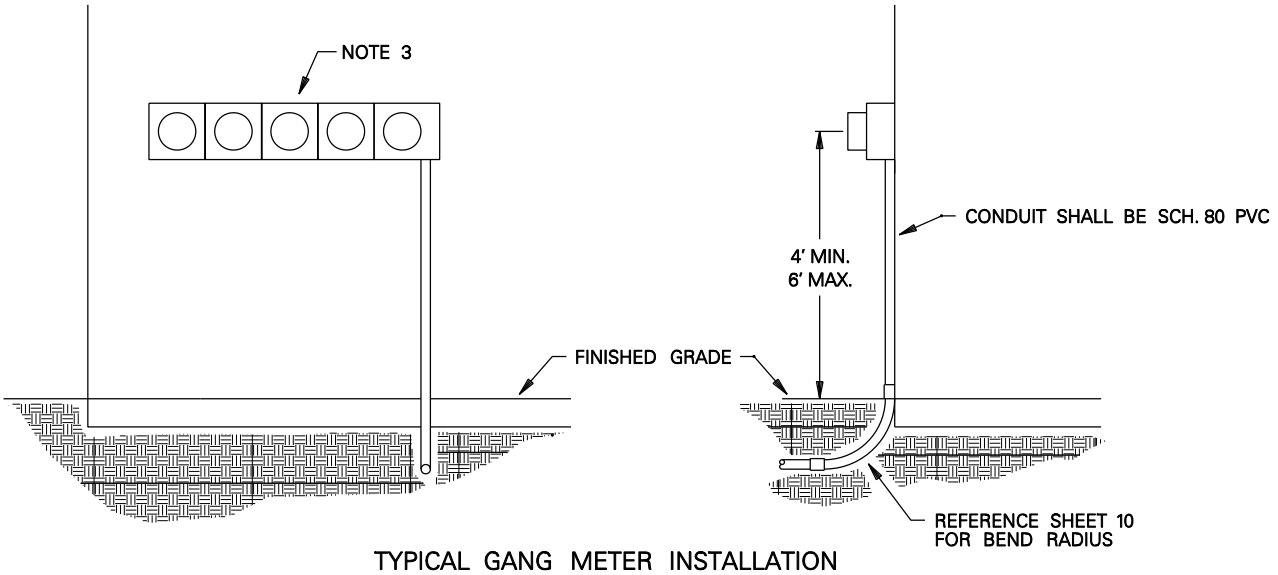
NOTES:

1. A SWIMMING POOL OR ITS AUXILIARY EQUIPMENT OR WATER PIPES SHALL NOT BE INSTALLED WITHIN 5 FEET OF AN EXISTING DIRECT BURIED UNDERGROUND SERVICE LATERAL.
2. WHERE A SWIMMING POOL MUST BE INSTALLED WITHIN 5 FEET OF EXISTING ITEMS MENTIONED IN NOTE 1, THE CLIENT SHALL PROVIDE AND INSTALL A CONDUIT INCLUDING PULL WIRE FROM THE SERVICE CONNECTION POINT TO THE METER.
3. PADMOUNTED EQUIPMENT MUST BE LOCATED 10 FEET OR MORE FROM THE WATER'S EDGE.

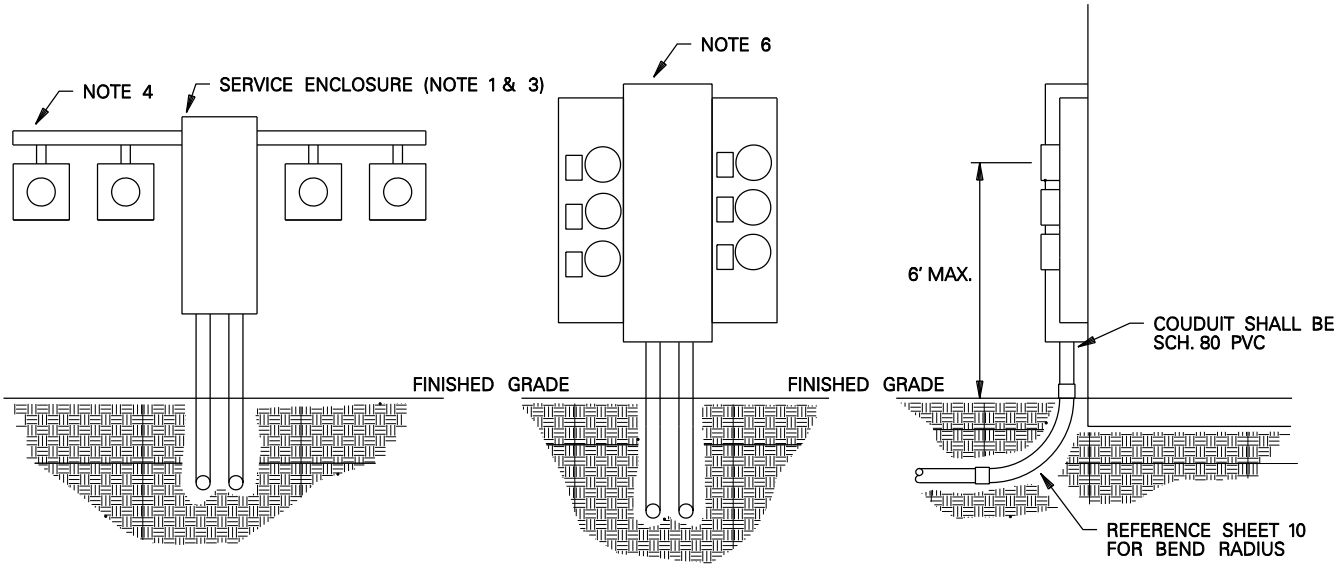
ONCOR

LOCATION OF SERVICE LATERAL NEAR A SWIMMING POOL

DDS–3 OH DETAIL SHEET 14 OF 16



TYPICAL GANG METER INSTALLATION
WITHOUT SERVICE ENCLOSURE



TYPICAL GANG METER
WITH SERVICE ENCLOSURE

TYPICAL METER PACK

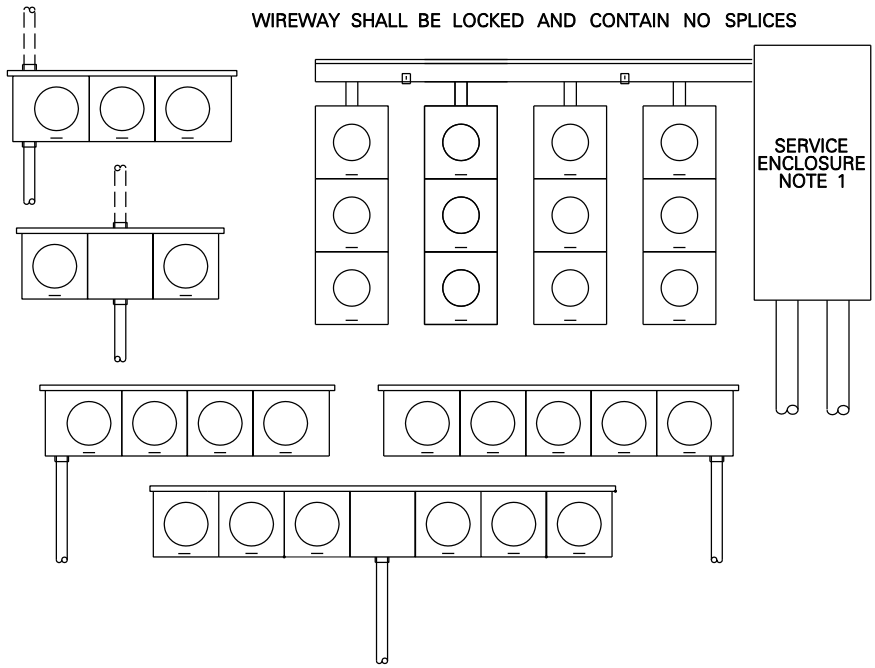
NOTES:

1. SERVICE ENTRANCE ENCLOSURE (FOR MULTIPLE METER INSTALLATIONS) PROVIDED BY COMPANY AND INSTALLED BY CONTRACTOR. CONTACT COMPANY REPRESENTATIVE FOR INFORMATION.
2. METER SOCKETS PROVIDED AND INSTALLED BY CONTRACTOR.
3. REFERENCE ONCOR'S "ELECTRIC SERVICE GUIDELINES" FOR METER AND SERVICE ENCLOSURE INFORMATION.
4. CONDUCTORS, RACEWAY AND GUTTER PROVIDED AND INSTALLED BY CONTRACTOR.
5. SERVICE ENTRANCE CONDUCTORS TO BE CONTINUOUS FROM METER SOCKET INTO SERVICE ENCLOSURE.
6. **CONTACT COMPANY FOR APPROVAL OF METER PACKS PRIOR TO LETTING BIDS AND INSTALLING EQUIPMENT.**

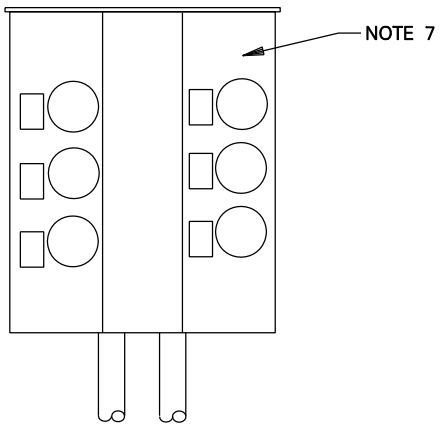
ONCOR

TYPICAL APARTMENT METER INSTALLATIONS

DDS–3 OH DETAIL SHEET 15 OF 16



TYPICAL GANG METER INSTALLATIONS NOTE6



TYPICAL METER PACK INSTALLATION

NOTES:

1. SERVICE ENTRANCE ENCLOSURE (WHEN REQUIRED FOR MULTIPLE METER INSTALLATIONS) PROVIDED BY COMPANY AND INSTALLED BY CONTRACTOR. CONTACT COMPANY REPRESENTATIVE FOR INFORMATION.
2. METER SOCKETS PROVIDED AND INSTALLED BY CONTRACTOR.
3. REFERENCE ONCOR'S "ELECTRIC SERVICE GUIDELINES" FOR METER AND SERVICE ENCLOSURE INFORMATION.
4. CONDUCTORS, RACEWAY AND GUTTER PROVIDED AND INSTALLED BY CONTRACTOR.
5. SERVICE ENTRANCE CONDUCTORS TO BE CONTINUOUS FROM METER SOCKET INTO SERVICE ENCLOSURE.
6. EACH SOCKET MUST BE CLEARLY AND PERMANENTLY MARKED ON THE INTERIOR AND EXTERIOR OF THE METER SOCKET TO INDICATE EACH APARTMENT OR LOCATION SERVED.
7. **CONTACT COMPANY FOR APPROVAL OF METER PACKS PRIOR TO LETTING BIDS AND INSTALLING EQUIPMENT.**
8. **CONTACT COMPANY FOR APPROVAL OF LAYOUTS OTHER THAN THOSE SHOWN ABOVE PRIOR TO LETTING BIDS AND INSTALLING EQUIPMENT.**

ONCOR

METER SOCKETS TYPICAL LAYOUTS

DDS–3 OH DETAIL SHEET 16 OF 16