

UNDERGROUND SERVICES (RESIDENTIAL) SINGLE FAMILY RESIDENTIAL, DUPLEXES, OR TOWNHOUSES

7.01 GENERAL

Also refer to Chapter 3 (Service Entrances), and Chapter 4 (Metering Installation).

OPPD will install, own, and maintain the underground service lateral and metering equipment in accordance with OPPD's applicable rates and extension rules and the requirements of Chapters 1, 2, 3, and 4, except:

- If required cable is larger than 350 KCMIL, the customer is required to provide and install the underground residential service lateral.
- Customer metering is located on padmounted transformer, (as mentioned below).
- OPPD cannot install an underground service due to physical conditions, (where there is a shelf of rock beneath the soil surface, or densely wooded areas).
- If the residence is served at other than the Residential rate.

Underground service lateral is defined as the underground service conductors from the last pole, pedestal, transformer, or other OPPD serving equipment, which runs to, and is connected to the customer's meter socket or current transformer metering at the customer's building or structure.

The customer shall install, own, and maintain all service entrance facilities other than the service lateral and metering equipment, regardless of metering location.

The customer shall make application to OPPD for the proposed underground service lateral and obtain approval of the location before starting installation of the service entrance. Any required, non-refundable, charges must be paid to OPPD before the service drop is installed.

Metering on Padmounted Transformer

If a residential customer has the metering on a padmounted transformer, installed for their sole use, the customer is required to provide, install, and maintain their own underground service cables to the residence. They should therefore follow the instructions of Chapter 8, which is for General Service underground services. This is necessary, since OPPD is not responsible for wiring which is down-stream of the metering.

Meter-Disconnect Combination on an Existing Home with a New Addition

In the case of an existing single family residence, where the customer is adding an addition which will enclose the POE and meter socket, a combination meter socket-disconnect may be used. The combination meter socket-disconnect shall be provided, installed, and maintained by the customer at a new POE, designated by OPPD's ESD, on the new addition. This will allow the customer to comply with the NEC requirement for a disconnect switch, when electrical conductors enter a building (the new addition), and feed to the existing distribution panel in the existing part of the house.

The combination meter socket-disconnect must meet the following requirements:

- There must be a separate cover for both the meter socket and disconnect (breaker) compartment. Either cover must be able to be removed without disturbing the other cover.
- The meter socket cover must be of ring-less design, and have a provision for the meter seal. OPPD reserves the right to lock the meter socket cover, in any manner, to insure the security of the socket and meter.
- The meter socket line-side lugs must be able to accept up to 250 KCMIL copper or aluminum conductors.
- The meter socket must have a 2½ inch knockout, for a breaker rated up to 200 amps, or a 3 inch knockout, for a breaker rated up to 400 amps. This knockout must be located on the bottom panel of the meter socket on either the right or left side, and will be used for the installation of the incoming riser pipe and service conductors. The disconnect must be located so as not to interfere with the installation of the service conductors and riser pipe into the bottom of the socket.
- OPPD's service conductors must be separated from the customer's load conductors by a permanent barrier.

Any other use of the combination meter socket-disconnect must be approved by the meter engineer on an individual basis prior to installation. Work through the AE or ESD to obtain this approval.

7.02 SERVICE LATERAL REQUIREMENTS

Conduit Installation

Underground service lines from underground distribution lines to individual lots or dwelling units will be provided by OPPD from a point of connection on the dwelling unit to OPPD's nearest point of power supply (150' maximum run). The lot owner or builder will be responsible for providing and installing a service conduit from OPPD transformer/pedestal to the meter socket for every individual lot, as shown on drawing 7.02.2.

Easements

The customer shall provide an easement, when required, at no expense to OPPD for the installation and maintenance of the service lines. No permanent building or tree shall be placed over the service lateral, or on this easement. No swimming pool, hot tub, or wading pool shall be installed over, or within 5 feet of, the service conduit or cables.

Grade Changes

If later changes in grade levels will reduce the depth of cover over cables or require equipment relocation, the customer must notify OPPD **before** grading, and pay the entire cost of grading or filling, as well as any subsequently-required cable or equipment relocation or replacement by OPPD. A similar situation may arise from the customer increasing the depth of ground cover above or near to, OPPD's cables, or equipment. For the location of OPPD-owned cable, the customer should contact the "Digger's Hotline of Nebraska" before digging. See Section 1.14 for the telephone number.

Retaining Walls

If a retaining wall interferes with the intended cable path on the customer's property, the customer will install a schedule 40 PVC conduit for the service cables, as shown on drawing 7.02.1.

7.03 CONNECTIONS

OPPD will connect the underground service cables to the customer's metering equipment, (either the socket lugs, or the CT's in a cabinet).

7.04 CLEARANCES

To avoid damage to OPPD facilities when the customer may be digging, the underground service lateral shall have a minimum horizontal clearance of 6 feet from swimming pools, fuel storage tanks, septic systems, etc.

A minimum 2'-6" working clearance above, below, and on all sides of the meter socket, or metering enclosures, as well as 3' horizontally in front of the metering shall be maintained at all times.

For single residential underground meter sockets, the socket shall be mounted no higher than 4' above finished grade to the **middle** of the meter for a 200 amp socket. For a 320 amp socket, the socket shall be mounted no higher than 3'-6" above finished grade to the **middle** of the meter to facilitate reading without need of a ladder or raised platform. In addition, for both a 200 amp socket and a 320 amp socket, the **middle** of the meter shall not be installed lower than 2'-6" from the bottom of the socket down to finished grade. This is done to provide sufficient space to install the slip-fit riser pipe down from the bottom of the socket to below grade level.

If the metering location is under a deck or similar structure, the minimum clearance between the deck bottom and finish grade must be 6 foot, 6 inches to allow access for meter reading without having to stoop or crawl.

Cantilevers

If the meter socket is installed on a cantilever, the riser pipe shall be backed by a 4 x 4 treated wood post, securely fastened to the house, and buried a minimum of 18" below grade. This will provide physical protection for the pipe from either damage, or dislocation. (See drawing 7.04.1).

If the meter socket is installed under the cantilever, the cantilever must be a minimum of 6'-6" above grade. This will provide sufficient height above the meter socket for working clearance, and below the meter socket to provide sufficient length for installation of the slip-fit riser pipe. (See drawing 7.04.2).

Brick Ledge

In the case where the residence wall has a protruding brick ledge, the customer is to install the socket out from the wall with an adequate support, so the riser pipe clears the brick ledge.

7.05 UNDERGROUND SERVICE TO SINGLE OR DUPLEX METER SOCKET SINGLE-PHASE 100 through 320 AMPS, 240 VOLTS AND UNDER

See drawings 7.05.1, 7.05.2, and 7.05.3.
Also see section 4.02 for socket detail drawings.

OPPD furnishes, installs, and maintains: ○

1. A single underground service lateral.
2. Socket-type meter.

The Customer installs, provides and maintains: △

3. A slip-joint riser pipe assembly: Schedule 80 PVC, 2 ½" for a 200 amp service or 3" for a 320 amp service.
4. The meter socket.
5. ½" x 8' copper clad supplemental ground rod per current "National Electrical Code".
6. Continuous copper ground wire, not less than #6 AWG, from ground rod to meter socket.
7. Conduit. (See drawing 7.02.2.)

NOTE:

- A. Minimum working clearances as required by NEC 110.26 shall be provided and maintained by the customer at all times. OPPD requires a minimum of 2'-6" of side clearance on all metering equipment.

7.06 FREE-STANDING SUPPORT FOR UNDERGROUND SERVICE ENTRANCE
100 through 200 AMP, or 320 AMP - 240 VOLTS AND UNDER

Refer to Chapter 9 for mobile homes.

Refer to drawing 7.06.

The customer shall consult with OPPD before this installation is planned or started, to determine availability.

Where no building or structure is available, the customer shall install a freestanding support for OPPD's meter, and for terminating OPPD's underground service lateral. Support posts must be 4 X 4 treated wood, galvanized pipe, or metal channel suitable for earth contact and set in concrete. Height of the support must be such as to provide for the mounting of the bottom of the meter socket between 2'-6" minimum and a maximum of 4' above finished grade for a 200 amp socket. The support must provide for the mounting of the bottom of the meter socket between 2'-6" minimum and a maximum of 3'-6" above finished grade for a 320 amp socket.

OPPD furnishes, installs, and maintains: ○

1. Underground service lateral to the meter socket.
2. Socket type meter.

The customer furnishes, installs and maintains: △

3. The meter socket.
4. A slip-joint riser pipe assembly: 2 ½" for a 200 amp service or 3" for a 320 amp service.
5. The support structure.
6. ½" x 8' copper clad supplemental ground rod per current "National Electrical Code".
7. Continuous copper ground wire, not to be less than a #6 AWG, from ground rod to meter socket.
8. Conduit. (See drawing 7.02.2.)

NOTE:

- A. A minimum clear working space of 2'-6" above, below and on both sides of the metering enclosure, for working clearance, as well as 3 feet horizontally in front of the metering, shall be provided and maintained, by the customer, at all times.

7.07 UNDERGROUND SERVICE TO CT CABINET
SINGLE-PHASE, 400 through 800 AMP - 120/240 VOLTS

Refer to Section 4.06 for CT metering requirements.

Refer to Section 6.10 for General Service and Residential overhead CT installation details.

Refer to Section 8.06 for General Service underground CT installation details.

See drawing 7.07 & 4.06.3.

OPPD furnishes, installs, and maintains: ○

1. Underground service lateral, unless the conductors are larger than 350 KCMIL aluminum. The customer provides all conductors larger than 350 KCMIL aluminum.
2. Meter and instrument wiring (see Chapter 4)

OPPD furnishes, and the customer installs, and maintains: □

3. Current transformers. For lug connections on current transformers up to 600 amperes, minimum bolt size is 3/8". For over 600 amperes, minimum bolt size is 1/2". For all ratings, two-hole lugs are required, and one-hole lugs are not allowed.
4. Meter socket for CT application.

The Customer furnishes, installs, and maintains: △

5. A riser pipe sized for the conductors, per the NEC.
6. Metering transformer cabinet (see Chapter 4). Customer is to furnish "National Electrical Code" grade steel cabinet of adequate size for the instrument transformers and all wiring connections.
7. 1/2" x 8' copper clad supplemental ground rod per current "National Electrical Code".
8. Continuous copper ground wire, not less than a # 6 AWG, from ground rod to meter socket.
9. Conduit. (See Paragraph 7.02.2)

10. 1" conduit from instrument cabinet to meter socket.
11. Two-hole line-side lugs and the load side lugs.

NOTES:

- A. The customer shall consult OPPD before this installation is planned or started.
- B. T-condulet conduit bodies are not permitted in the conduit run containing the customer's underground service conductors ahead of the meter.
- C. A minimum 3' clear working space must be provided in front of the metering transformer cabinet to allow for full door opening. In addition, a minimum 2'-6" clear working space must be provided and maintained above, below, and on all sides of the metering transformer cabinet.

7.08 REQUIREMENTS FOR PRIMARY AND SECONDARY CABLES AND EQUIPMENT ON LARGE LOT RESIDENTIAL PRIVATE PROPERTY (ACREAGES)

For one, and two unit residences, OPPD installs, owns, and maintains an underground service lateral to a suitable point of termination on the customer's premises. This is in accordance with OPPD's applicable extension rules, except as mentioned in Section 1.03.1.C, (metering on a padmounted transformer), and for large services, (where the required conductor size exceeds 350 KCMIL aluminum). OPPD will specify the installation and service requirements, and will designate the location of OPPD's equipment from which a customer is to be served, as well as the POE on the residence.

Underground service lines from underground distribution lines will be provided by OPPD from a point of connection on the dwelling unit to OPPD's nearest point of power supply. The lot owner or builder will be responsible for providing and installing a service conduit from OPPD transformer/pedestal to the meter socket for every individual lot, as shown on drawing 7.02.2.

Easement

The customer shall provide an easement when required, at no expense to OPPD, for the installation and maintenance of OPPD cable and equipment. No permanent building, structure, or tree shall be placed on this easement.

Grade Changes

If later changes in grade levels will reduce the depth of cover over cables or require equipment relocation, the customer must notify OPPD **before** grading, and pay the entire cost of grading or filling, as well as any subsequently-required

cable or equipment relocation or replacement by OPPD. A similar situation may arise from increasing depth of ground cover above or near to, OPPD's cables, or equipment. For the location of OPPD owned cable, contact the "Digger's Hotline of Nebraska" phone number before digging. See Section 1.14 for the telephone number.

Retaining Walls

If a retaining wall is along the intended cable path on the customer's property, the customer shall install a schedule 40 PVC conduit for OPPD's cables, as shown on drawing 7.02.1.