

# Underground Residential Electric Service

# **For New Developments**

© Dominion Energy South Carolina, Inc. 2020

Revised: February 2020

# **Table of Contents**

### **Underground Residential Electric Service for New Developments**

Section	<u>Page</u>
Section 1: Purpose	.2
Section 2: Preliminary Conditions	.3
Section 3: Developer's Responsibilities	.5
Section 4: Company Responsibilities	.12
Section 5: Design Guidelines	.13
Definitions	.15
Information for Residential Service	.19
Developer Responsibility Checklist	.20
Construction Drawings	.21

# **Section 1: Purpose**

- 101. This booklet is issued as a general guideline for owners and Developers who desire single-phase underground service for residential subdivisions, apartment complexes, condominiums and mobile home parks. The Developer/owner should contact the Company as soon as possible in the planning stage of the project to address electrical service issues such as voltage, service point, etc.
- 102. Requests by individuals for underground service to their residence will be handled in accordance with current company policies.

# **Section 2: Preliminary Conditions**

The Company will consider furnishing underground, single-phase service for a Developer who proposes the erection, as a unit, of a group of new single-family dwelling units or a group of new individually metered apartments or condominiums or a group of mobile homes in accordance with the following conditions:

- 201. Development must be on a single parcel of land suitable for underground distribution. Developer will pay an aid to construction for special construction techniques, additional facilities required and/or additional installation costs for conditions such as but not limited to abnormal rock, open drainage, ditches, streams, unmanageable terrain, or bodies of water, flora or trees which must be avoided.
- 202. There must be a minimum of 24 dwelling units or lots in a contiguous arrangement. Residential developments of less than 24 dwelling units, lots that are larger than one (1) acre, or lots that require special consideration will require an aid to construction.
- 203. Acceptable project development plans and construction schedules must be provided and approved by appropriate governmental authorities.
- 204. The site shall have an established water, drainage and sewer system with a minimum separation of eight feet between electric facilities and any parallel run of these lines. In addition, a minimum separation of 15 feet between electric facilities and drainage fields and septic tanks is required.
- 205. The Developer or customer shall pay to the Company the total estimated cost (as determined by the Company) for that portion of all services in excess of 125 feet in length in the planned development.
- 206. The total estimated cost in providing underground service to the development, including meters and services, must be no more than the estimated annual revenue, excluding fuel surcharge, times a multiplier as determined by the Company in effect at the time agreements are signed; otherwise, the Developer shall be required to pay the difference in advance.
- 207. The total estimated cost to provide street lighting, including fixtures, poles, associated hardware, trenching and backfilling, must be no more than the estimated annual revenue, excluding fuel surcharge, times a multiplier as

determined by the Company in effect at the time agreements are signed; otherwise, the Developer shall be required to pay the difference in advance. Street lighting will be installed in a regular pattern and in accordance with an orderly schedule as mutually agreed upon between the Developer, Municipalities, and the Company. The schedule may be adjusted based on progress with the development of the tract.

- 208. The Company will provide one service per lot. Any additional services (i.e., garages, workshops, apartments, detached structures) will be treated as non-residential and Developer or owner will be required to purchase, install, own and maintain the service which will be run to a service point (typically transformer or pedestal) identified by the Company. The Company may offer to install the service to the additional structure at the customer's expense.
- 209. Developer is required to take service at point specified by the Company. This applies to residences, detached structures, apartment buildings, and mobile homes. All additional costs (initial and/or annual) will be paid by the Developer for additional services provided at locations other than specified by the Company.

# **Section 3: Developer's Responsibilities**

- 301. Furnish a plat (in electronic format, at no charge to the Company) showing detailed layout including property and lot lines, street names, buildings, dedicated easements, sediment and erosion control measures, water, sewage, drainage and any other underground facilities (see paragraph 401). Provide information concerning expected housing size, restrictions and other information, which may affect energy requirements.
- 302. Provide suitable easements for electric service as determined by the Company representative including restrictions to prevent encroachments, which may interfere with the continued operation and maintenance of the underground electric facilities.
- 303. Insert the following language (or equivalent) in the Restrictive Covenants covering this subdivision: "Developer has requested and Company has agreed to provide underground electrical distribution facilities, with Developer having approved the system. Anyone desiring the relocation of any portion of the underground facilities shall request this service from the Company and pay the cost, providing such requested relocation is determined to be practicable. Any property owner having a pad-mounted transformer on his property is required to maintain at least 12 feet of unencumbered space in front of the transformer doors for operation and maintenance of the equipment. Further, property owners will grant Company access for maintenance and/or replacement of transformers and underground power lines. Company shall perform such maintenance in good workmanship like manner and restore any disturbed property to as near original condition as practicable."
- 304. Specify length of time anticipated for completion of project. Building construction must be done in a period of time deemed reasonable by the Company. Project Development and building construction must follow a systematic pattern to allow consistent underground distribution construction. The Company reserves the right to collect construction costs up front to be reimbursed to the Developer as homes are built and to be reimbursed for facilities installed which do not generate adequate revenue (i.e., construction of homes or buildings is not completed as originally planned).
- 305. Identify, install and maintain permanent property corners with lot numbers identified on stakes in advance of any work to be performed by the Company.

- 306. Provide information and arrange field spotting of water, sewer, drainage, and other facilities when requested by the Company. Company will assume no responsibility for damage to facilities not marked. Underground electric facilities may be routed so as to avoid open drainage ditches, creeks and marsh areas.
- 307. Establish final grade before the start of any underground construction. Any changes in grade that require changes or relocation of facilities shall be at Developer's expense.
- 308. Initiate stabilization measures as required both before and after installation of underground lines and include this activity in sequencing of construction activities in the Storm Water Pollution Prevention Plan. Developer will be responsible for temporary stabilization, if necessary, once final grade is established and prior to Company trenching activities. Do not initiate final stabilization on easement prior to Company installing underground lines. Any inlet protection will be responsibility of the Developer.
- 309. Provide a reasonably flat (8' by 8') area at final grade for pad-mounted transformers locations.
- 310. Supplying and installing underground residential distribution (URD) road crossings (as specified by Company representative, typically 2"-6" gray schedule 40 electrical conduit; see drawing 16.01-06) during subdivision road construction. Having conduit in place before completion of the roads is critical. Developer has full responsibility for installing conduit road crossings at specified locations, to include boring and installing URD road crossings under existing roadways.
- 311. Notify the Company of any field changes in the original layout involving the relocation of its or other utilities' facilities. Developer shall be required to pay total cost of relocation of the Company's facilities (including engineering cost) due to field changes after print approval.
- 312. Furnish and install meter base, conduit, 36" radius sweep, fittings, ground rod and ground wire in accordance with Construction Drawing Section.
  - A. All work performed by the Developer shall be in compliance with the National Electrical Code (NEC), all local codes and Company requirements.
  - B. The meter socket is to be installed on an exterior wall. In all cases, a Company representative must spot the service point in the field. If the meter socket is not

installed at Company-spotted location, socket must be relocated at customer's expense.

- 313. For Apartments and Condominiums (Buildings with six (6) units or less)
  - A. Typical service voltage for apartments and condominiums is 120/240V singlephase. Requests for three-phase service must meet the requirements listed in paragraph 314 below and the <u>Electric Service and Meter Installations Manual</u>.
  - B. Based on load information provided by the Developer, the Company will estimate the maximum demand for individual buildings and size transformers accordingly. Individual buildings with demand that exceeds what can be served by one (1) single-phase pad mount transformer on each end of the building will require three-phase service and must meet the requirements in paragraph 314 below and the Electric Service and Meter Installations Manual.
  - C. Requests for multiple services to one structure may be treated as non-standard.
  - D. All meter sockets shall be ringless and be clearly and permanently marked with enamel paint showing units served. The markings shall be on the inside of the meter socket and on the outside of the meter cover.
  - E. Developer shall execute a street light agreement with Company prior to installation of any street or security lighting materials and/or equipment. All the lights will be totalized for single billing to the development owner.
- 314. For Apartments and Condominiums (Buildings with more than six (6) units)
  - A. Typical service voltage for apartments and condominiums is 120/240V singlephase. Requests for three-phase service must meet the requirements in paragraphs 314.C. thru 314.G. below and the <u>Electric Service and Meter</u> <u>Installations Manual</u>.
  - B. Based on load information provided by the Developer, the Company will estimate the maximum demand for individual buildings and size transformers accordingly. Individual buildings with demand that exceeds what can be served by one (1) single-phase pad mount transformer on each end of the building will require three-phase service and must meet the requirements in paragraphs 314.C. thru 314.G. below and the <u>Electric Service and Meter Installations</u>

<u>Manual</u>.

- C. Whether service is single-phase or three-phase, furnish and install all necessary conduits, pull wire, pull boxes, bends, including necessary trenching and back filling, in accordance with Company drawings and specifications, from each transformer location to each source and between each transformer location or junction as required. This shall include primary galvanized bends, transformer entrance conduit and the first section of PVC SCH40 conduit up the pole
- D. For three-phase service, furnish, install, own and maintain the concrete transformer pad, service conduit, service conductors, and vehicular protection bollards, if required. Installation of these items by the Developer shall comply with Company drawings 06.04-08, 17.02-01A, 17.02-01B, 17.02-01C and 17.02-01D.
- E. Keep the transformer and primary cable unencumbered and accessible for maintenance and provide suitable vehicular barriers where required per Company drawing 17.02-01D.
- E. Requests for multiple services to one structure may be treated as non-standard.
- F. All meter sockets shall be ringless and be clearly and permanently marked with enamel paint showing units served. The markings shall be on the inside of the meter socket and on the outside of the meter cover.
- G. Developer shall execute a street light agreement with Company prior to installation of any street or security lighting materials and/or equipment. All the lights will be totalized for single billing to the development owner.
- 315. Mobile Home Parks
  - A. Developers shall supply and install suitable metering facilities adjacent, but not attached to, mobile homes to include provisions for ground fault protection (where required by NEC Section 210.8(A)) in compliance with NEC, all local codes and Company requirements.
  - B. All metering facilities and pedestals furnished by the Developer shall be approved by the Company prior to installation and their locations are to be

spotted by a Company representative. The entire cost of any equipment changes or relocation of services that was caused by not receiving prior approval shall be borne by the Developer or the party causing the condition, which necessitates the relocation.

- C. All meter bases shall be clearly and permanently marked with enamel paint showing the lot number served. Marking shall be on the inside of the meter socket and on the outside of the meter cover.
- D. Developer shall furnish and install cable or conductors from metering facilities to mobile homes.
- E. Company and Developer will own and maintain their respective portion of the distribution system.
- F. Agree to operate park continuously for a minimum term of five years or pay to Company a termination charge not to exceed Company's total cost of installation, less depreciation, plus removal cost, less salvage.
- G. Shall execute a street light agreement with Company prior to installation of any street or security lighting materials and/or equipment. All the lights will be totalized for single billing to the park owner.
- 316. Install service (conductors and lugs) to commercial facilities (signs, leasing office, etc.) at the Developer's expense from the mutually agreed upon metering point to the commercial facility.
- 317. Supply, install, operate and maintain phase converters for three-phase loads (where Developer has elected not to utilize single-phase) in areas with only single-phase available. In some cases, Developer can elect to pay a difference in cost and monthly operating fee for three-phase service in lieu of installing phase converter.
- 318. Execute a street lighting agreement with the Company if street lighting is desired initially. If street lighting is desired at a later date, the Developer shall pay any additional cost of the installation. Street lighting inside municipal limits may need approval by the appropriate city official and comply with any applicable local ordinance.
- 319. Coordinate with the local governing body responsibility for monthly street lighting

charges. All lights not billed to a local governing body will be totalized for billing to the Developer or legally incorporated homeowner's association.

- 320. Perform necessary right-of-way clearing and clean up of debris from right-of-way clearing operations for overhead and underground line construction. This would include limbs, trees and stumps.
- 321. Grading or site work performed on right-of-way (i.e., landscaping, erosion control, etc.)
- 322. Notify Palmetto Utility Protection Service (811) for marking of underground facilities prior to digging. Hand dig foreign utility trenches in areas crossing electrical cables already in place to eliminate contact with electrical cables.
- 323. Coordination of the approval of governmental agencies required for the development (i.e.; buffer zones, wetlands, storm water permitting, zoning, etc.)

#### Wetlands

Provide official verification and confirmation of the wetlands and permits that have been issued, as stated in a letter from the U.S. Army Corps of Engineers (USACE). The letter must reference the detailed site plan drawing (same dated version) and include a file number. Stake or mark the wetlands boundaries prior to construction by the Company.

If unable to provide the above information, the Company will provide a Wetlands Determination Authorization Form for Developer to sign giving the Company permission to have the impacted property surveyed for jurisdictional wetlands, which could include the USACE entering the property. Any costs associated with survey and resulting delineation required will be at Developer's expense.

#### • Storm Water

Obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities for all easements and areas of electric line construction and provide official verification of this coverage. Provide site maps showing the locations of all sediment and erosion control measures planned for electric line construction and include these areas in the Storm Water Pollution Prevention Plan.

Developer will be responsible for installation, maintenance, and inspection of all sediment and erosion control measures around electric lines. Notice of

Termination will not be submitted by Developer prior to Company completing all electric line installation.

- 324. The Developer will be fully responsible for compliance with any tree or buffer ordinances affecting Company easements. Any funding or tree replacement will be the responsibility of the Developer. Buffer requirements are in addition to and separate from Company easements. The Developer should make himself fully aware of all appropriate ordinances that can affect Company's right of way and should take this into account when assigning the easement.
- 325. The Developer shall be fully responsible, as required by local ordinances, to establish and maintain tree barricades around all trees that are required to be preserved. Any required barricades shall be in place prior to Company beginning design or installation of underground facilities. The standard method of construction will be by an open-trench (trencher or back hoe). Any encroachments in barricaded areas will require directional bores to protect trees and shall be considered as non-standard service to the Developer and at the Developer's expense. The Developer shall be solely responsible and liable for any tree damage incurred during the installation of underground electric facilities, caused by the Developer's failure to properly barricade any significant trees, as prescribed by local ordinances.

# **Section 4: Company Responsibilities**

- 401. Prepare electrical distribution layout and lighting layout for Developer's written approval prior to construction, after which changes requested by the Developer that result in additional costs to the Company will be at the Developer's expense. Written approval may be defined as a signed copy of the distribution layout prepared by the Company.
- 402. With the exception of Apartment and Condominium Buildings with more than six (6) units (see paragraph 314), perform necessary trenching and backfilling to install facilities. Developer is responsible for all stabilization requirements, sediment and erosion control measures, and clean up of debris from right-of-way clearing operations. Company will utilize proper installation techniques, but is not responsible for damage to landscape, bodies of water, trees or flora during installation of facilities.
- 403. Furnish, install, connect, and maintain all required single-phase and three-phase primary distribution cables, single-phase and three-phase pad-mounted transformers, single-phase transformer pads, single-phase secondary conductors and single-phase services up to 125 feet.

# **Section 5: Design Guidelines**

- 501. The determination for the need of conduit for underground. primary, secondary and street light conductor or cables shall rest solely with the Company.
- 502. Only single-phase 120/240V, three wire service is available to residences.
- 503. All apartments and condominiums must be individually metered.
- 504. Environmentally sensitive areas must be shown on proposed layouts. (Wetlands, bodies of water, cemeteries, historical sites, etc.)
- 505. Lots adjacent to overhead lines may be served from pole-mounted transformers with underground services.
- 506. Company will select type of construction and location of main feeders. Main feeders will be overhead. Cable dip poles will be located on Developer's property. If the Developer desires underground main feeders, these may be provided if site conditions are acceptable to the Company and the Developer agrees to incur any additional costs that may apply.
- 507. Pad-mounted transformers will be located as to allow access for maintenance or replacements. Clearance shall be 12 feet from equipment.
- 508. If street lighting and/or area lighting layouts are required, they shall be designed concurrent with project layout and installation coordinated with other trenching. Such lighting can be installed only upon execution of an appropriate lighting contract.
- 509. Temporary service may be furnished from overhead facilities or from pad-mounted transformers. Reasonable time must be allowed for construction of needed facilities. Temporary facilities will be installed and removed at the Developer's expense.
- 510. Piles of dirt, trees and brush, construction materials residue and equipment on or near the planned facilities shall have been cleared away by the Developer prior to construction.
- 511. Underground service routes will run as straight as possible from Company secondary facilities to customer's house and must be free of obstacles such as

patios, driveways, walkways, etc. Conduit furnished by the Developer shall extend from the meter to a point beyond any surfaced areas adjacent to the building wall.

# Definitions

- 1) **Application for Service**: a mail, phone or personal request by the customer to the Company stating a desire for electric service to be furnished at a certain location.
- 2) **Building**: a structure which stands alone or which is cut off from adjoining structures by firewalls, as defined by the pertinent building codes, with all openings therein protected by approved fire doors.
- 3) **Class of Service**: the characteristics of electric service described in terms of voltage, phase, frequency and number of wires.
- 4) **Code**: the National Electrical Code (NEC), the National Electric Safety Code (NESC), and/or other electrical codes or regulations in effect in the area served.
- 5) **Company, our, we, us**: Dominion Energy South Carolina, Inc. ("Dominion Energy South Carolina") ("DESC").
- 6) **Cost or Expense**: includes all labor, material and other applicable charges, plus overheads.
- 7) **Customer**: either a present or a prospective user of the Company's electric service.
- 8) **Developer**: the party entering into the agreement with the Company.
- 9) **Customer's Installation**: all wiring, conduit, service disconnecting devices, appliances, lighting, and other equipment installed and owned by the customer on his premises for his use.
- 10)**Customer Will Provide: or "will install" or "will have installed" or "will furnish" and similar references**: the Company expects the customer to provide and install the equipment in question. It is assumed that the customer will delegate this obligation to his bona fide agents. Actual electrical work and the furnishing of required materials are usually delegated to an electrician or an electrical contractor.
- 11)**Distribution Lines**: company lines located in or along streets, alleys, highways, rear lot lines or elsewhere, and by easements, when used or intended for use for general distribution of electric service to customers.

- 12)**Electrical Installation**: the total electrical wiring and equipment installed on the customer's premises.
- 13) Fraudulent Use: obtaining electric and/or gas service by unlawful means.
- 14)**Ground**: a conducting connection between an electric circuit or equipment and earth, or some conducting body that serves in place of the earth
- 15)**Instrument Transformer**: transformers used for reducing the current or voltage to quantities suitable for metering. There are indoor and outdoor types. Indoor types must be installed in cabinets whether installed indoors or outdoors. Outdoor types are usually installed without cabinets but may sometimes be put in cabinets.
- 16)**Instrument Transformer Cabinet**: a sealable indoor metal box for housing instrument transformers.
- 17)**Line**: a system of poles, wires and fixtures, or the equivalent ducts, conduits, cables, etc. used for the distribution of electricity. It may be located in a street, highway, alley, or on a private right-of-way.
- 18)**Line Extension**: any addition to the Company's existing distribution lines and facilities, which must be made to render electric service to a customer.
- 19) **Manufactured Home**: formally known as a mobile home which has been specifically designed to meet HUD provisions. For information pertaining to electrical service attached to the manufactured home, see section 217 of the <u>Electric Service and Meter</u> <u>Installations Manual</u>.
- 20)Meter: a device for measuring the electric power and energy supplied to a customer.
- 21)**Meter Enclosure**: a wood or metal cabinet, or metal socket, installed indoors or outdoors, in which the Company's metering equipment is located.
- 22)**Meter Socket**: a meter socket is the base portion of a socket type meter. There are numerous kinds of meter sockets such as light duty, heavy duty, multi-terminal, etc. all with various numbers and sizes of conduit openings. Each particular socket has a preferred application although some are interchangeable. See drawing 19.01-01.
- 23)**Meter Tampering**: any attempt to alter the registration of use on an electric or gas meter.

- 24)**Modular Home**: any building including the necessary electrical, plumbing, heating, ventilating and other service systems manufactured off site and transported to the point of use for installation or erection with or without other specified components, as a finished building and not designed for ready removal to another site. This must qualify under the S.C. Modular Building Construction Act, Regulation #19-460.15. Any home considered a modular home will have a certification label. This label verifies it to be a modular home and must be shown to the service representative before any electrical connection is made. See the <u>Electric Service and Meter Installations Manual</u> for additional details.
- 25)**Overhead Distribution Areas**: those areas in which the customer's premises abut on company overhead distribution facilities.
- 26)**Rate Schedule Classification**: the classification of the customer's electric service for rate application as determined by the class of service, the amount of electric power supplied and the purpose for which the electric service is to be used.
- 27)**Service**: the conductors and equipment for delivering energy from the Company's line to the wiring system of the premises served.
  - a) **Service drop**: that portion of the overhead conductors between the Company's distribution facilities and the point of attachment at customer's structure.
  - b) **Service lateral**: a system of underground conductors and equipment for delivering electricity from the Company's distribution system to the wiring system of a building or premises.
  - c) **Service entrance**: the part of the wiring from the point of attachment or termination of the service drop or service lateral to and including the service equipment on the customer's premises.
  - d) Service equipment: the necessary disconnecting and protective equipment, usually consisting of a circuit breaker or a switch and fuses and their accessories, owned by the customer, located near the point where the service entrance conductors enter a building and intended to constitute the main control and means of cutoff for the supply to that building.
  - e) **Service connection**: one service drop or a service lateral and its associated service entrance.

- f) Service entrance conductors: the supply conductors that extend from the point of attachment or termination of the service drop or service lateral to the service equipment on the premises being served.
- g) **Service entrance equipment**: the service entrance conductors, raceway and fittings or service entrance cable and fittings which are installed on the customer's premises to connect the electric service to the wiring inside the building.
- h) **Service Raceway**: the conduit containing the service entrance conductors.
- 28) Shall: mandatory in nature.
- 29)Temporary or seasonal service: will be furnished under the appropriate General Service Rate Schedule to any Customer. Temporary service shall include all construction services and other services having a life expectancy of one year or less. Payment is required in advance for the full cost of erecting and removing all lines, transformers, and other service facilities necessary for the supply of such service.
- 30)**Wetlands**: those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil condition. Wetlands generally include swamps, marshes, bogs and similar areas

# Information for Residential Service

PROJECT NAME:	DATE:		
Location: County:	Municipality:		
<u>Developer/Contact</u> : Name of Company:	<u>Engineering Firm</u> : Name of Company:		
Name of contact person:			
Address:			
Phone #'s:			
Email:	Email:		
Do site drawings have State, County or City approval' Project Start Date: Completion Date: TMS#	Phases of Development:		
Type of Development:			
Single-Family Homes Mobile Homes Duplexes For Multi-Family, what are the firewall ratings? Size of Lots: Number of Lots: Numbe	· ·		
<u>Main Panel Size</u> : 100 Amps 150 Amps 200 Amps	400 Amps Other: Amps		
HVAC Capacity:1-tons2-tons3-tons	4-tons Other: tons		
Pump Station Required: Yes or No			
Single-Phase or Non-Standard Three-Phase Power Horsepower Rating:	Voltage: 120/240 120/208 277/480		
Street Lights required: Yes or No			
Type:HPSSize:150 watt400 wattNumber of Lights:Style:TraditionalClassType of Billing:DeveloperHOAMunicipalC	sic Round Octagonal Other:		
<u>Utilizing natural gas?</u> Yes or No If yes: Heat	Water Heater Other:		
I HEREBY CERTIFY THAT THE INFORMATION PRE	ESENTED HERE IS ACCURATE.		
AUTHORIZED SIGNATURE:	DATE:		
TITLE:	PHONE:		

# **Developer Responsibility Checklist**

Please initial each line and sign at the bottom acknowledging acceptance of these responsibilities:

Comply with all current Company policies, including, but not limited to, the following (copies of policies are on file with the Public Service Commission of South Carolina and are available from the Company upon request):

- \_\_\_\_\_ General Terms and Conditions
- \_\_\_\_\_ Underground Residential Electric Service policy
- \_\_\_\_\_ Underground Commercial Electric Service policy
- \_\_\_\_\_ Electrical Service and Meter Installation policy
- Comply with all Federal, State and Local regulatory restrictions and ordinances, including, but not limited to, those that pertain to tree ordinances, protected trees, buffer zones, building codes and electrical codes
- Provide official verification and confirmation of the wetlands and permits that have been issued as stated in a letter from the U.S. Army Corps of Engineers or sign the Wetlands Determination Authorization form provided by the Company.
- \_\_\_\_\_ Pay any required Contribution In Aid of Construction fees
- Grant suitable easement for the installation of Company's electric and/or gas facilities that will allow the installation of utility facilities by standard & conventional construction methods
- \_\_\_\_\_ Approve Company's proposed electrical design and communicate the plan and its requirements to all others involved in the project.

Provide and install suitable conduits for road crossings as specified by Company representative

Install permanent property pins and establish final grade prior to the installation of electrical facilities

- Provide immediate written notification to the Company of any changes to the original development layout.
- \_\_\_\_\_ Notify contractors, sub-contractors and future owners of their responsibility to comply with current Company policies.
- Insert appropriate Company language in the Restrictive Covenants for the development concerning the accessibility for operations, meter reading, and maintenance, as well as the requirements for unencumbered utility easements and proper clearances from Company equipment.

SIGNATURE:	DATE:		
TITLE:	PHONE:		

# **Drawing Table of Contents**

### Drawing <u>Title</u>

06.01-01	Secondary and Service Construction
06.01-02	Service Details
06.03-02A	Temporary Overhead Service Notes
06.03-02B	Temporary Overhead Service Pole
06.04-01A	Mobile Home Underground Service Notes
06.04-01B	Mobile Home Underground Service Pedestal
06.04-02A	Temporary Underground Service Notes
06.04-02B	Temporary Underground Service Pole / Pedestal
06.04-03C	Underground Service
06.04-08	Commercial Requirements for Pad Mount Transformer Service
	Pad Mount Switchgear Clearance Requirements
14.02-03D	Two-Hole Nema ShearBolt Lugs for 3Φ Pad Mount Transformers
16.01-04	Joint Use with Communication & Gas at Transformer Locations
16.01-05	Non-Joint Use Trenching Detail
16.01-06	Road Crossing Detail
17.02-01A	.3Φ Pad Mount Transformer Concrete Pad Notes
17.02-01B	.3Φ Pad Mount Transformer Concrete Pad Detail
17.02-01C	.3Φ Transformer Concrete Pad Supplemental Details
17.02-01D	Guide for Locating/Spotting 3Φ Pad Mount Transformer
17.02-02A	Conduit Placement for Future Service Installations
17.02-02B	Guide for Locating/Spotting 1Φ Pad-Mounted Transformer
19.01-01	Meter Sockets
19.01-03	Meter Clearance Requirements
19.01-05	Modular (Ganged) Meter Assembly
19.02-01	Single-Phase 120V 2W Meter
19.02-02A	Single-Phase 120/240V 3W Meter (200 Amps)
19.02-02B	Single-Phase 120/240V 3W Meter (201 - 600 Amps)

NOTES:

- 1. THE NEUTRAL SHALL BE COMMON TO BOTH PRIMARY AND SECONDARY CIRCUITS ON WYE SYSTEMS AND THE NEUTRAL SHALL BE MULTI-GROUNDED (SEE SECTION 8 FOR ADDITIONAL INFORMATION).
- 2. THE NEUTRAL CONDUCTOR SHALL **ALWAYS** BE IN THE TOP POSITION ON ALL OPEN WIRE SECONDARY CIRCUITS.
- 3. SIZING OF SECONDARY AND SERVICE CONDUCTORS WILL DEPEND ON THE AMOUNT OF LOAD, THE TYPE OF LOAD (SUCH AS MOTORS, ETC.) AND THE VOLTAGE DROP. THE REQUIRED SIZE SHALL BE SPECIFIED BY THE DESIGNER AND IDENTIFIED ON ALL WORK ORDERS.
- 4. WHEN USED WITH A 477 AAC (SAC) NEUTRAL, THE PULLEY BRACKET WILL NOT ACCOMMODATE SERVICE PAYOFFS. AS SUCH, A SECOND PULLEY BRACKET SHALL BE INSTALLED UNDERNEATH THE NEUTRAL PULLEY BRACKET.
- 5. STREETLIGHT CIRCUITS ARE CONSIDERED AS SECONDARY.
- 6. SEE DRAWING 01.03-06 FOR CLEARANCE FROM SWIMMING POOLS.
- 7. SEE DRAWING 03.01-03 FOR OVERHEAD SECONDARY/SERVICE CONDUCTOR AMPACITIES.
- 8. SEE DRAWING 14.02-01 FOR UNDERGROUND SECONDARY/SERVICE CONDUCTOR AMPACITIES.
- 9. SEE DRAWINGS 15.01-04, 15.01-05A AND 15.01-05B FOR PAD MOUNT TRANSFORMER AND CABLE IDENTIFICATION METHODS.
- 10. SEE DRAWING 06.01-02 FOR SERVICE DETAILS.
- 11.SEE THE CONTRIBUTIONS IN AID OF CONSTRUCTION (CIAC) MANUAL FOR ADDITIONAL DETAILS.
- 12. SEE SECTION 19 FOR METER SOCKET AND METERING DETAILS.
- 13. SEE THE TABLE BELOW FOR MAXIMUM UNGUYED MULTIPLEX SPAN LENGTH.

LIMIT FOR ALUMINUM MULTIPLEX WIRES NOT REQUIRING GUYING					
WIRE SIZE	SPAN LENGTH				
#4 DUPLEX	150'				
#2 TRIPLEX	150'				
1/0 TRIPLEX	125'				
4/0 TRIPLEX	75'				
1/0 QUADRUPLEX	100'				
4/0 QUADRUPLEX	60'				
500 QUADRUPLEX	50'				

EFFECTIVE DATE: 04-29-19

#### OVERHEAD SERVICES

THE POINT OF ATTACHMENT AT THE HOUSE, BUILDING OR OTHER APPROVED POINT OF ATTACHMENT SHALL PROVIDE SUFFICIENT GROUND CLEARANCE AND BE OF SUFFICIENT STRENGTH TO SUPPORT THE MAXIMUM EXPECTED LOAD OF THE SERVICE CONDUCTORS. ALL SECONDARIES AND SERVICES SHALL MEET MINIMUM CLEARANCE REQUIREMENTS OVER ROOF, SIDEWALK AND/OR STREET (SEE DRAWINGS 01.02-01, 01.03-01A AND 01.03-01B).

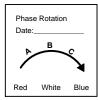
WIRE HOLDERS SHALL BE FURNISHED BY THE COMPANY AND INSTALLED BY THE CUSTOMER. SEE DRAWING 06.01-07 FOR SERVICE ATTACHMENT DEVICES. SCREW-TYPE WIRE HOLDERS (HOUSE KNOBS) OR OTHER ATTACHMENTS (TOGGLE BOLT OR LAG BOLT) SHALL BE SECURELY ANCHORED INTO A STRUCTURAL MEMBER SUCH AS A STUD OR RAFTER OF WOOD FRAME BUILDINGS. POINTS OF ATTACHMENT INSTALLED IN BRICK OR BLOCK STRUCTURES SHALL EMPLOY THE USE OF LEAD-SHIELDS OR TOGGLE BOLTS. THESE DEVICES SHALL NOT BE INSTALLED IN MORTAR JOINTS; RATHER THEY SHALL BE INSTALLED INTO OR THROUGH THE BRICK OR BLOCK ITSELF.

#### UNDERGROUND AND HYBRID SERVICES

- 1. FOR SERVICE IN CONDUIT, THE CONDUIT SHALL BE INSTALLED 30 INCHES BELOW GRADE WITH A MINIMUM OF 36 INCH RADIUS SWEEPS. IF NECESSARY, CUSTOMER MUST MODIFY STRUCTURE FOOTING TO ALLOW 36 INCH RADIUS SWEEP.
- 2. NO MORE THAN THREE (3) 90 DEGREE BENDS ARE PERMITTED IN A SERVICE WITHOUT APPROVAL.
- 3. ALL CONDUIT SHALL BE ELECTRICAL GRADE SCHEDULE 40 PVC (GRAY).
- 4. 2 INCH CONDUIT IS REQUIRED FOR 200 AMP METERS.
- 5. 3 INCH CONDUIT IS REQUIRED FOR 201 600 AMP METERS.
- 6. SERVICE ROUTE MUST NOT BE IMPEDED BY DRIVEWAY, SIDEWALK OR OTHER OBSTRUCTION.
- 7. WEATHERHEAD IS REQUIRED IF SERVICE WIRE IS OWNED BY CUSTOMER.

#### MARKING OF PHASE ROTATION

ALL NEW THREE PHASE SERVICES SHALL BE MARKED TO IDENTIFY THE PHASE ROTATION. THIS SHALL BE ACCOMPLISHED BY USING A PHASE ROTATION METER (STOCK CODE 071.1200.0055) AND EITHER THE CLOCKWISE STICKER OR COUNTERCLOCKWISE STICKER SHOWN BELOW.



CLOCKWISE ROTATION STOCK CODE: 080.7960.0120

Phase Rotation Date:\_\_\_\_\_ Red White Blue

COUNTERCLOCKWISE ROTATION STOCK CODE: 080.7960.0122

THE APPROPRIATE STICKER SHALL BE PLACED INSIDE THE METER BASE OR PAD MOUNTED TRANSFORMER. FOR OVERHEAD CT SERVICES, THE ROTATION SHALL BE CHECKED AT THE CT'S ON THE POLE AS FOLLOWS: TOP TO BOTTOM (RED, WHITE, BLUE), WITH THE HIGH LEG (IF PRESENT) IN THE BOTTOM CT. VERIFY THE ROTATION IN THE CT METER BASE AS FOLLOWS: LEFT TO RIGHT (RED TO RED, WHITE TO BLUE AND BLUE TO BLACK). ONCE VERIFIED, PLACE THE APPROPRIATE ROTATION STICKER INSIDE THE CT METER BASE.

DURING STORM TROUBLE SERVICE RESTORATION, REMOVE THE CUSTOMER'S METER AND USE A PHASE ROTATION METER TO ENSURE THE RECONNECTION WILL PROVIDE THE PROPER PHASE ROTATION FOR THAT CUSTOMER AS INDICATED BY THE STICKER. IN ADDITION, IF THE SERVICE IS DELTA, USE A VOLTMETER AT THE METER SOCKET TO ENSURE PROPER RECONNECTION OF THE HIGH LEG/POWER LEG CONDUCTOR.

EFFECTIVE DATE: 04-29-19

### TEMPORARY OVERHEAD SERVICE NOTES

#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY COMPANY:

ITEM # DESCRIPTION

- 1 METER
- 2 PULLEY BRACKET
- 3 SERVICE (SOURCE) CONDUCTORS

#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY CUSTOMER:

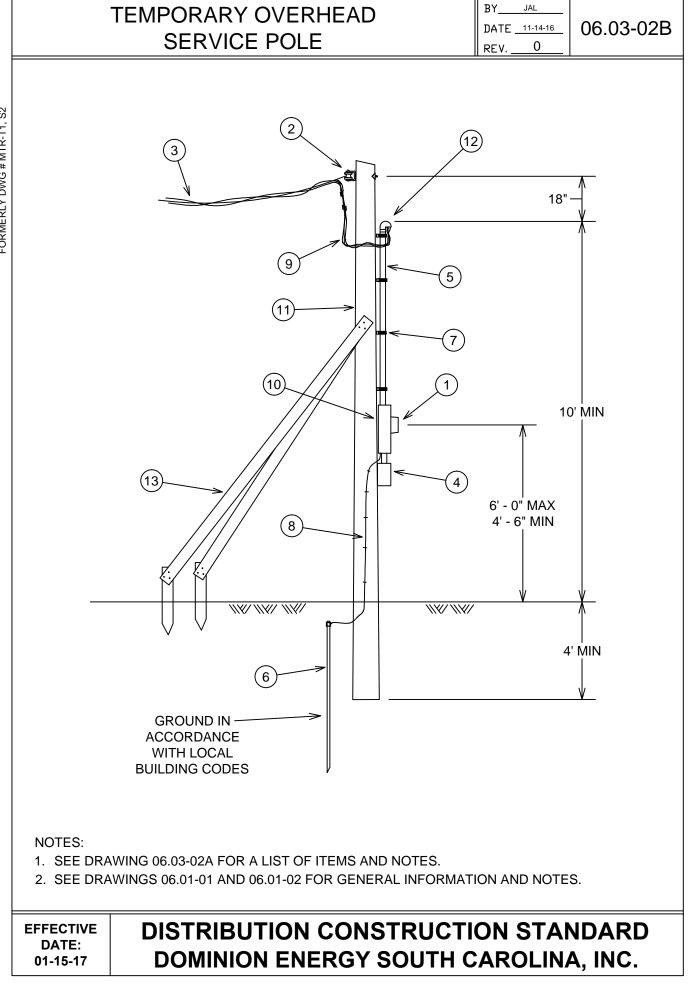
#### ITEM # DESCRIPTION

- 4 CIRCUIT BREAKER(S) AND RECEPTACLES.
- 5 CONDUIT (GALVANIZED IRON OR PVC) 2 INCH MIN DIAMETER
- 6 GROUND ROD (5/8" X 8' GALVANIZED OR COPPER CLAD)
- 7 PIPE STRAPS (SECURELY ATTACHING CONDUIT)
- 8 COPPER GROUND WIRE #6 MIN. (ALUMINUM NOT ACCEPTABLE)
- 9 SERVICE CONDUCTORS (FROM WEATHERHEAD TO METER SOCKET)
- 10 METER SOCKET (RINGLESS AND UL APPROVED)
- 11 TREATED TIMBER/POLE (4 X 6 TIMBER OR 5 INCH DIAMETER @ POLE TOP MINIMUM)
- 12 CONDUIT SERVICE WEATHERHEAD
- 13 LUMBER (2 EACH 2 X 4 MINIMUM) SECURELY FASTENED TO POLE AND STAKE

#### NOTES:

- 1. SOURCE AND LOAD SIDE CONNECTIONS IN METER SOCKET TO BE MADE BY CUSTOMER.
- 2. HEIGHT OF POLE MUST MEET NESC CLEARANCE REQUIREMENTS. (MINIMUM CLEARANCE IS 12 FEET FOR PEDESTRIAN TRAFFIC, 15.5 FEET FOR DRIVEWAY AND 16.5 FEET FOR TYPICAL ROADWAY).
- 3. TEMPORARY SERVICE POLE CAN NOT BE INSTALLED FURTHER THAN 125 FEET FROM COMPANY POLE/TRANSFORMER.
- 4. SERVICE ENTRANCE CONDUCTOR (ITEM 9) SHALL EXTEND MINIMUM OF 3 FEET OUT OF WEATHERHEAD.
- 5. POLE MUST SUPPORT COMPANY SERVICEMAN ON A LADDER. UNSAFE CONDITIONS ARE NOT ACCEPTABLE.
- 6. GROUNDING CONDUCTOR (ITEM 8) TO BE SECURELY ATTACHED TO STRUCTURE.
- 7. IF DOWN GUY AND ANCHOR ARE REQUIRED, THE CUSTOMER SHALL BE RESPONSIBLE TO FURNISH, INSTALL AND MAINTAIN.
- 8. ENTIRE ASSEMBLY TO MEET COMPANY, NEC AND LOCAL CODE REQUIREMENTS.
- 9. CALL PALMETTO UTILITIES PROTECTION SERVICE (PUPS) AT 811 BEFORE YOU DIG.

#### EFFECTIVE DATE: 04-29-19



FORMERLY DWG # MTR-T1, S2

### MOBILE HOME UNDERGROUND SERVICE NOTES

#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY COMPANY:

ITEM # DESCRIPTION

- 1 METER
- 2 SERVICE (SOURCE) CONDUCTORS

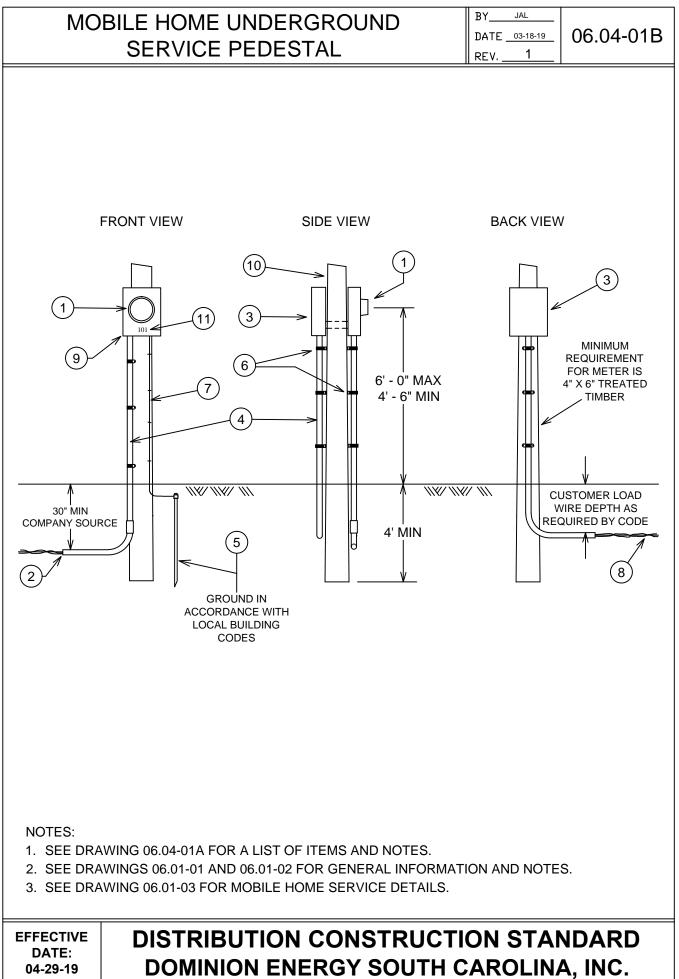
#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY CUSTOMER:

- ITEM # DESCRIPTION
  - 3 CABINET AND CIRCUIT BREAKER(S)
  - 4 CONDUIT (GALVANIZED IRON OR PVC) 2 INCH MIN DIAMETER
  - 5 GROUND ROD (5/8" X 8' GALVANIZED OR COPPER CLAD)
  - 6 PIPE STRAPS (SECURELY ATTACHING CONDUIT)
  - 7 COPPER GROUND WIRE #6 MIN. (ALUMINUM NOT ACCEPTABLE)
  - 8 SERVICE CONDUCTORS
  - 9 METER SOCKET (RINGLESS AND UL APPROVED)
  - 10 TREATED TIMBER / POLE
  - 11 ADDRESS OR LOT NUMBER (PERMANENTLY MARKED ON METER SOCKET COVER)

#### NOTES:

- 1. SOURCE SIDE CONNECTIONS IN METER SOCKET TO BE MADE BY COMPANY. LOAD SIDE CONNECTIONS IN METER SOCKET TO BE MADE BY CUSTOMER.
- 2. METER POLE MUST BE SPOTTED BY COMPANY REPRESENTATIVE AND CANNOT BE INSTALLED FURTHER THAN 125 FEET FROM COMPANY POLE/TRANSFORMER.
- 3. GROUNDING CONDUCTOR (ITEM 7) TO BE SECURELY ATTACHED TO STRUCTURE.
- 4. ENTIRE ASSEMBLY TO MEET COMPANY, NEC AND LOCAL CODE REQUIREMENTS.
- 5. CALL PALMETTO UTILITIES PROTECTION SERVICE (PUPS) AT 811 BEFORE YOU DIG.

EFFECTIVE DATE: 04-29-19



REV. 1 (03/18/19) - CHANGED SCE&G TO COMPANY

### TEMPORARY UNDERGROUND SERVICE NOTES

#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY COMPANY:

ITEM # DESCRIPTION

- 1 METER
- 2 PAD MOUNTED TRANSFORMER

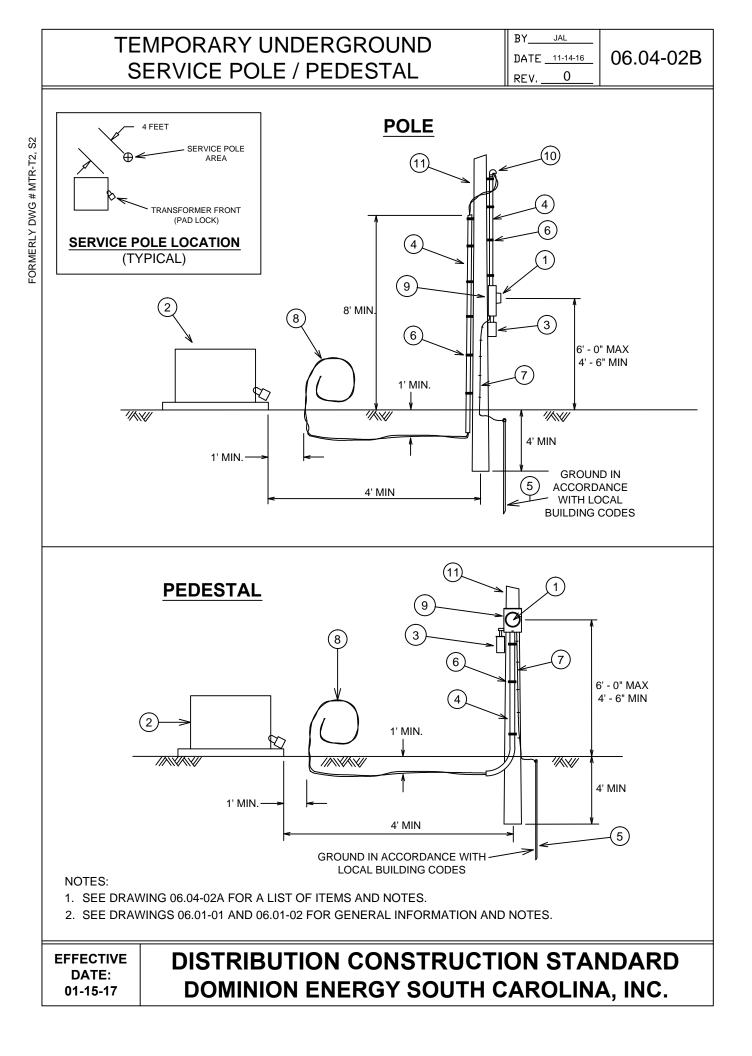
#### TO BE FURNISHED, INSTALLED AND MAINTAINED BY CUSTOMER:

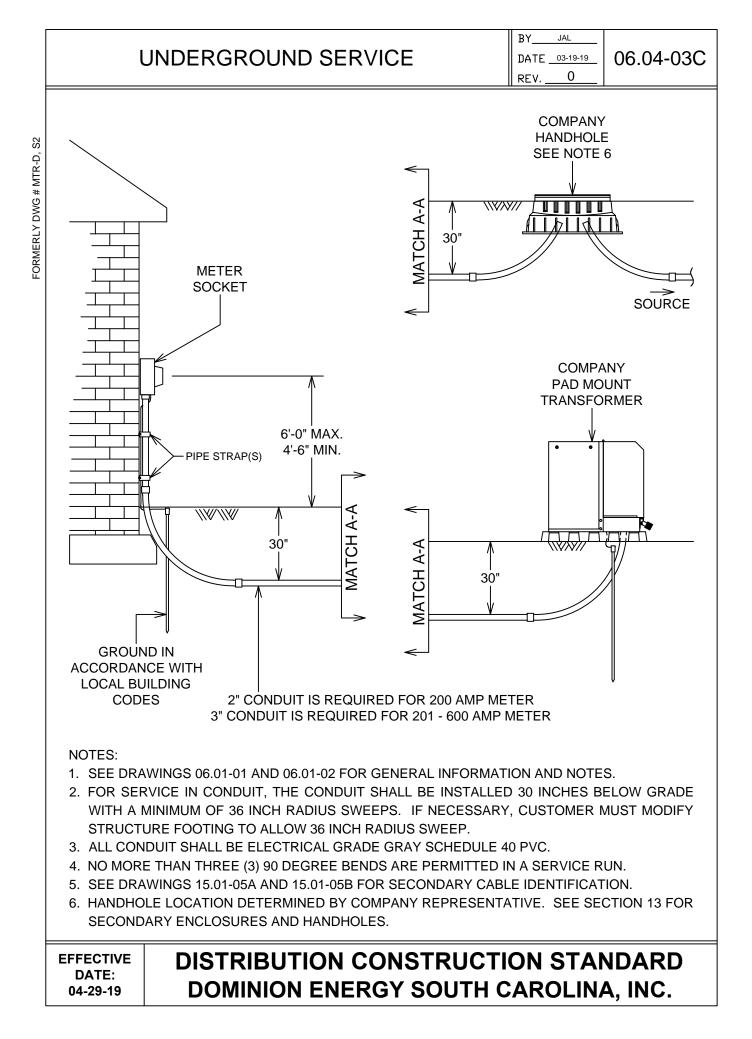
- ITEM # DESCRIPTION
  - 3 CIRCUIT BREAKER(S) AND RECEPTACLES
  - 4 CONDUIT (GALVANIZED IRON OR PVC) 2 INCH MIN DIAMETER
  - 5 GROUND ROD (5/8" X 8' GALVANIZED OR COPPER CLAD)
  - 6 PIPE STRAPS (SECURELY ATTACHING CONDUIT)
  - 7 COPPER GROUND WIRE #6 MIN. (ALUMINUM NOT ACCEPTABLE)
  - 8 SERVICE CONDUCTORS #4 MIN.-#2 MAX. (FROM TRANSFORMER TO METER SOCKET)
  - 9 METER SOCKET (RINGLESS AND UL APPROVED)
  - 10 CONDUIT SERVICE WEATHERHEAD
  - 11 TREATED TIMBER / POLE (4X4 TIMBER OR 5 INCH DIAMETER AT POLE TOP MINIMUM)

#### NOTES:

- 1. SOURCE AND LOAD SIDE CONNECTIONS IN METER SOCKET TO BE MADE BY CUSTOMER.
- 2. TEMPORARY SERVICE POLE TO BE INSTALLED FRONT (DOOR/PAD LOCK) RIGHT SIDE OF TRANSFORMER AND NO CLOSER THAN FOUR (4) FEET.
- 3. TEMPORARY SERVICE POLE CAN BE CONNECTED AT SECONDARY HANDHOLE OR PEDESTAL.
- 4. CUSTOMER TO INSTALL SERVICE CONDUCTOR (ITEM 8) MINIMUM OF 12 INCHES BELOW GRADE AND TO WITHIN ONE (1) FOOT OF POINT OF SERVICE (I.E., TRANSFORMER). WITHIN ONE (1) FOOT OF TRANSFORMER, COMPANY REQUIRES AN ADDITIONAL 10 FEET OF SERVICE CONDUCTOR TO MAKE CONNECTIONS.
- 5. GROUNDING CONDUCTOR (ITEM 7) TO BE SECURELY ATTACHED TO STRUCTURE.
- 6. ENTIRE ASSEMBLY TO MEET COMPANY, NEC AND LOCAL CODE REQUIREMENTS.
- 7. CALL PALMETTO UTILITIES PROTECTION SERVICE (PUPS) AT 811 BEFORE YOU DIG.

EFFECTIVE DATE: 04-29-19

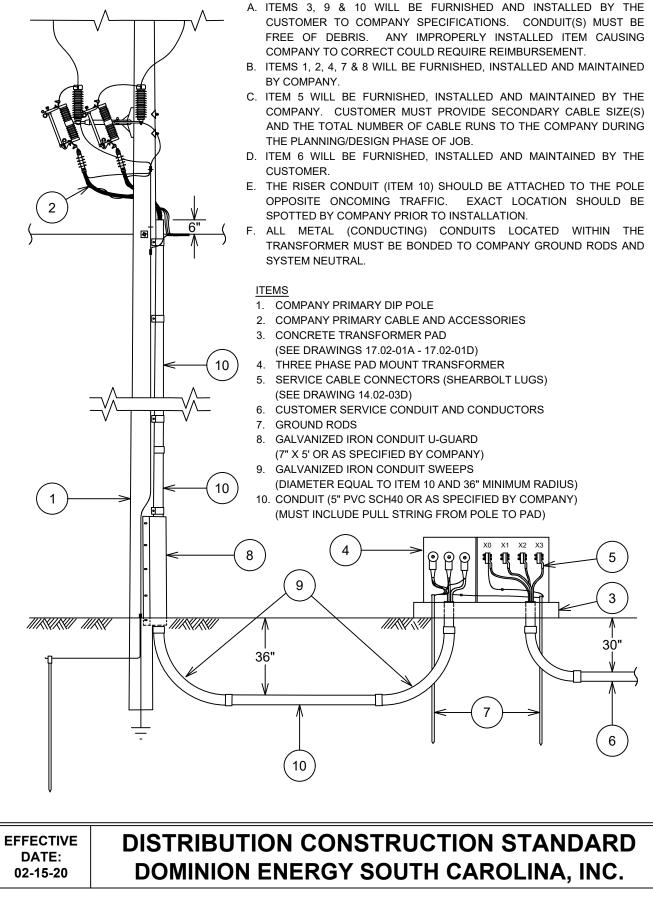


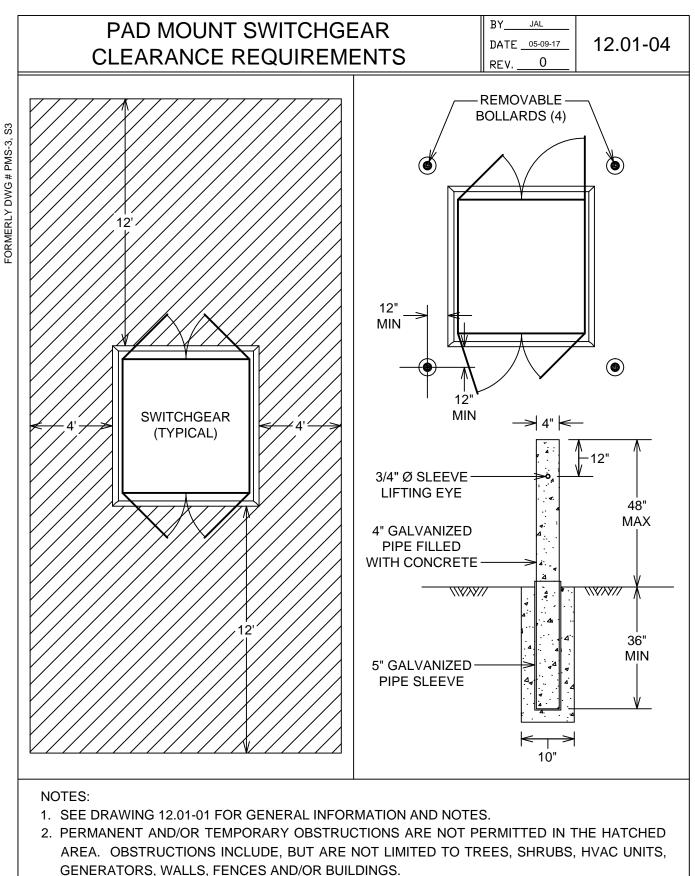


NOTES

(12/16/19) - UPDATED NOTE C AND ITEM 5 (CONNECTORS NOW COMPANY PROVIDED

REV. 4





3. BOLLARDS ARE REQUIRED WHERE VEHICLE TRAFFIC IS EXPECTED AND ARE INSTALLED AND MAINTAINED BY THE CUSTOMER.

EFFECTIVE DATE: 08-07-17

TWO-HOLE NEMA SHEARBOLT LUGS FOR USE IN THREE-PHASE PAD MOUNT TRANSFORMERS

BY\_\_\_\_\_AL\_\_\_\_ DATE <u>12-10-19</u> REV, 0

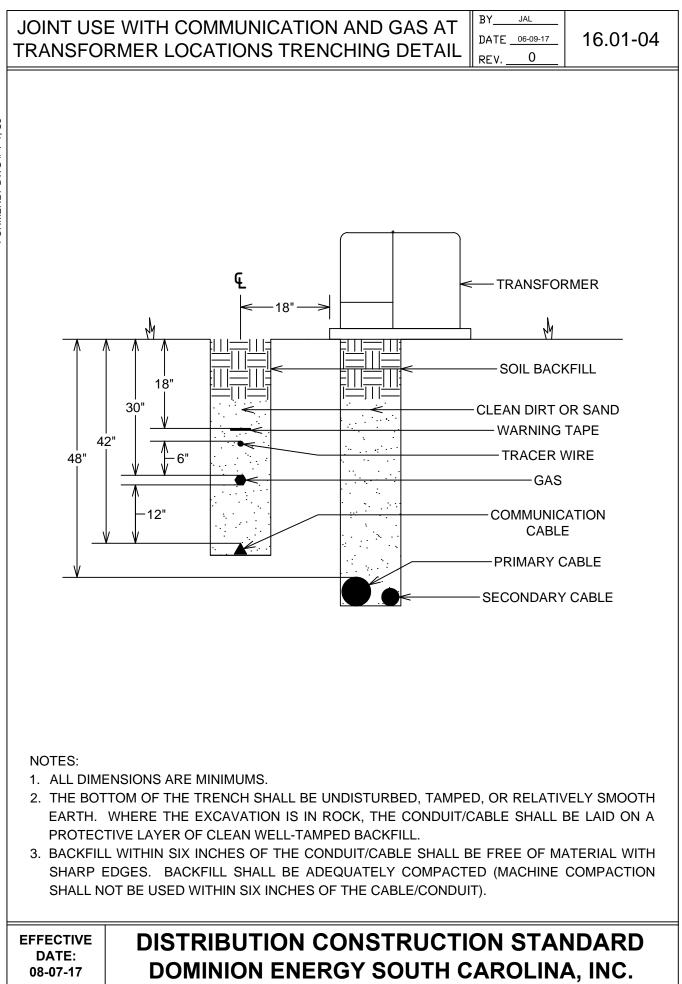
14.02-03D

TWO-HOLE NEMA SHEARBOLT LUGS						
CONNECTOR			CONDUCTOR			
STOCK CODE	CU CODES	PAD WIDTH	SOCKET SIZE	CONDUCTOR RANGE (AL/CU)	STRIP LENGTH	REMOVE INSERT FOR CONDUCTOR SIZE GREATER THAN (SEE NOTE 1)
015.1150.0500	ULUGS YLUGS	1.22"	11/16" (2-BOLT)	1/0 COMPACT STRANDED TO 350 KCMIL STRANDED (0.268" TO 0.681")	1-3/4"	4/0 STRANDED (0.528")
015.1150.0510	ULUGL YLUGL	1.67"	7/8" (3-BOLT)	350 KCMIL COMPACT STRANDED TO 750 KCMIL STRANDED (0.616" TO 0.998")	3-1/8"	600 KCMIL COMPACT STR (0.813")
BOLT TIGHTENING SEQUENCE (SEE NOTE 7) #1 #2 #1 #2 INSERT (SEE NOTE 1)						

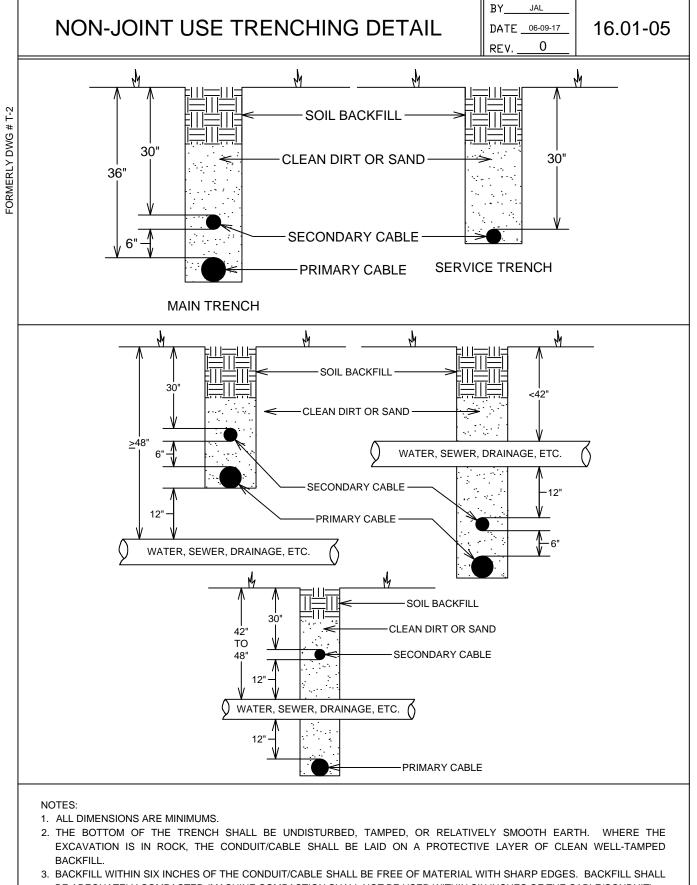
INSTALLATION INSTRUCTIONS:

- 1. DETERMINE IF INSERT SHOULD BE REMOVED ACCORDING TO CONDUCTOR SIZE (SEE TABLE ABOVE). IF INSERT REMOVAL IS REQUIRED, USE SCREWDRIVER TO LIFT THE INSERT FROM THE CONNECTOR BODY. IF INSERT IS NOT REMOVED, ENSURE IT IS PROPERLY POSITIONED IN THE CONNECTOR BARREL DURING INSTALLATION (INSERT INDENT SEATED IN CONNECTOR NOTCH). **DO NOT** REMOVE THE INHIBITOR CONTAINED INSIDE THE CONNECTOR.
- 2. BACK OUT ALL BOLTS ONLY FAR ENOUGH TO GIVE CLEARANCE FOR THE CONDUCTOR IN THE CONNECTOR BODY. DO NOT COMPLETELY REMOVE BOLTS FROM THE CONNECTOR BODY.
- 3. ENSURE SECONDARY CONDUCTOR END HAS A STRAIGHT (RIGHT ANGLE) CUT.
- 4. STRIP CONDUCTOR END TO THE STRIP LENGTH DIMENSION SHOWN IN TABLE ABOVE.
- 5. USING A WIRE BRUSH DEDICATED FOR USE ON ALUMINUM OR COPPER CONDUCTORS, THOROUGHLY CLEAN THE BARE SURFACE STRANDS OF EACH CONDUCTOR END. CLEANED CONDUCTOR END SHOULD BE INSTALLED IMMEDIATELY TO PREVENT REFORMATION OF FRESH OXIDES.
- 6. INSERT THE CONDUCTOR INTO THE CONNECTOR BODY.
- 7. TIGHTEN BOLTS IN A THREE-STEP PROCESS:
- 7.1. HAND-TIGHTEN THE BOLTS TO FIRMLY GRIP CONDUCTOR IN PLACE. FOLLOW THE TIGHTENING SEQUENCE SHOWN ABOVE (#1, #2, #3).
- 7.2. USING AN IMPACT WRENCH WITH HEXAGONAL SOCKET, REPEAT THE SEQUENCE IN 7.1 AND TIGHTEN EACH BOLT ONE TO ONE AND A HALF TURNS (TIGHTEN WITH IMPACT WRENCH FOR APPROXIMATELY ONE SECOND). BOLTS SHOULD REMAIN UNSHEARED.
- 7.3. REPEAT THE SEQUENCE IN 7.2 AND TIGHTEN EACH BOLT UNTIL THE HEAD OF THE BOLT SHEARS OFF. THE WRENCH SHOULD REMAIN PARALLEL TO THE CONNECTOR BODY WHILE TIGHTENING.
- 8. IF NECESSARY, SMOOTH SHARP EDGES OF PROTRUDING BOLTS USING PROVIDED SANDPAPER.

#### EFFECTIVE DATE: 02-15-20

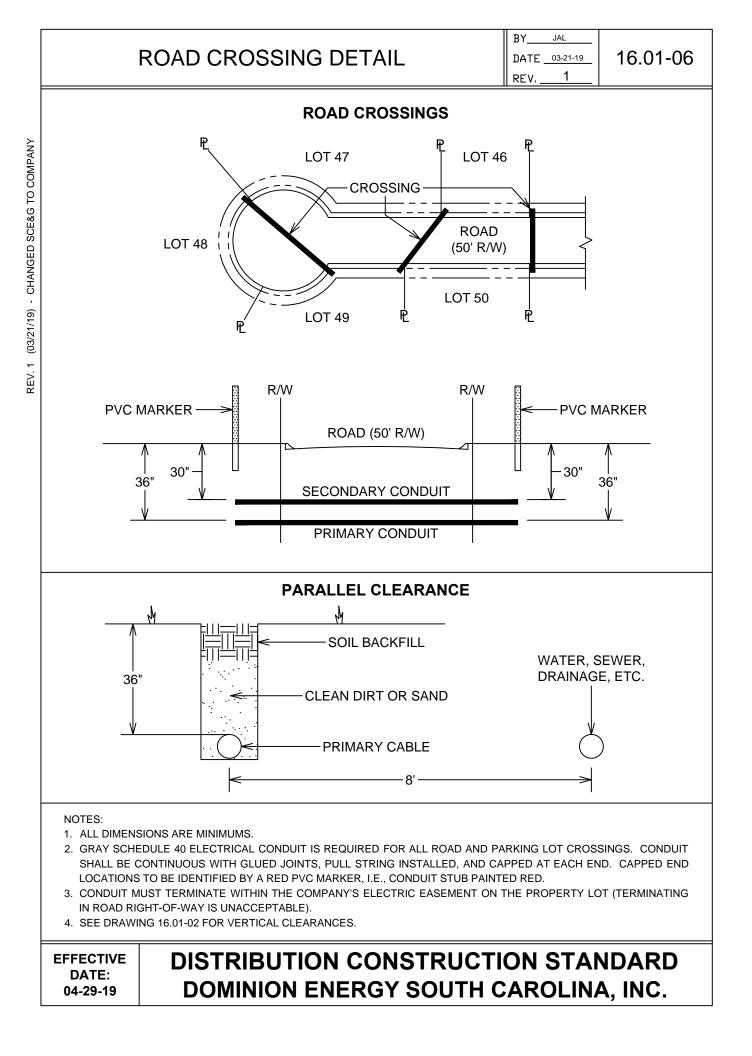


FORMERLY DWG # T-1, S5



BE ADEQUATELY COMPACTED (MACHINE COMPACTION SHALL NOT BE USED WITHIN SIX INCHES OF THE CABLE/CONDUIT).

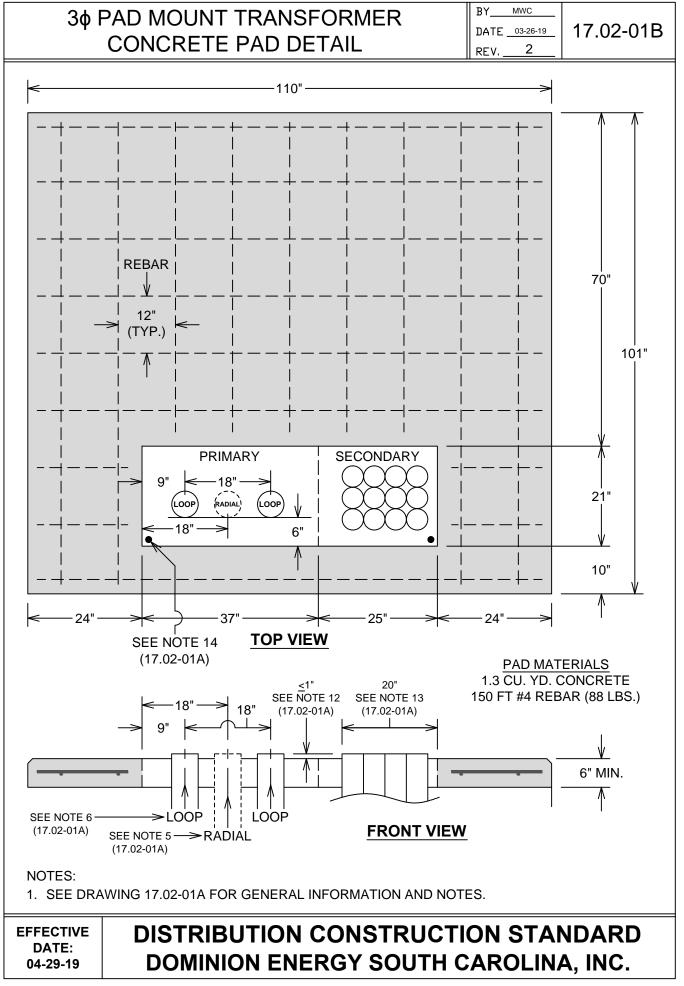
EFFECTIVE DATE: 08-07-17



NOTES:

- 1. SEE DRAWING 06.04-08 FOR CUSTOMER REQUIREMENTS.
- 2. SEE DRAWING 17.02-01B FOR CONCRETE PAD DETAILS.
- 3. PAD LOCATION IS TO BE SPOTTED BY COMPANY REPRESENTATIVE BEFORE FORMING OR POURING CONCRETE. SEE DRAWING 17.02-01D FOR CLEARANCE AND ACCESS REQUIREMENTS.
- 4. PAD MUST BE BUILT TO DIMENSIONS GIVEN AND CONDUITS MUST BE INSTALLED CORRECTLY.
- 5. FOR **RADIAL FEED TRANSFORMERS**, THE CENTER OF THE RADIAL PRIMARY CONDUIT SHALL BE POSITIONED 18" FROM THE LEFT EDGE OF THE CONDUIT WINDOW AND THE FRONT OF THE CONDUIT SHALL BE POSITIONED 6" FROM THE FRONT EDGE OF THE CONDUIT WINDOW AS SHOWN ON DRAWING 17.02-01B.
- 6. FOR **LOOP FEED TRANSFORMERS**, THE CENTER OF THE LEFT LOOP PRIMARY CONDUIT SHALL BE POSITIONED 9" FROM THE LEFT EDGE OF THE CONDUIT WINDOW; THE CENTER OF THE RIGHT LOOP PRIMARY CONDUIT SHALL BE POSITIONED 27" FROM THE LEFT EDGE OF THE CONDUIT WINDOW; THE FRONT OF BOTH CONDUITS SHALL BE POSITIONED 6" FROM THE FRONT EDGE OF THE CONDUIT WINDOW AS SHOWN ON DRAWING 17.02-01B.
- 7. PAD FOUNDATION MUST SUPPORT THE WEIGHT OF THE TRANSFORMER (SEE DRAWING 17.02-01C). IF SOIL CONDITION WILL NOT SUPPORT THE WEIGHT (POUNDS PER SQUARE FOOT AS INDICATED ON DRAWING 17.02-01C), THEN THE AREA THE OF PAD MUST BE INCREASED OR PILINGS INSTALLED TO MEET THE WEIGHT REQUIREMENT.
- 8. STEEL REINFORCING REBAR SHALL BE INTERMEDIATE GRADE BILLET STEEL WITH 40,000 PSI MINIMUM YIELD STRENGTH, CONFORMING TO ASTM A615 GRADE 40.
- 9. CONCRETE OF PAD TO CONFORM TO CLASS A STRUCTURAL CONCRETE AND SHALL HAVE 28 DAY STRENGTH OF 4000 PSI, CONTAIN NO MORE THAN 6 PERCENT ENTRAINED AIR AND HAVE NO LARGER THAN 1 INCH AGGREGATE MIXTURE.
- 10.LIMESTONE AGGREGATE IS NOT ACCEPTABLE. ALL OTHER CONCRETE MATERIALS SHALL BE IN ACCORDANCE WITH PORTLAND CEMENT STANDARD ASTM C150.
- 11.IF PAD IS LOCATED IN AREA SUBJECT TO FLOODING, IT MUST BE ELEVATED ABOVE WATER LINE.
- 12. ALL CONDUITS MUST BE FLUSH OR UP TO 1 INCH ABOVE FINISHED PAD.
- 13. SECONDARY CONDUIT(S) MUST NOT BE INSTALLED MORE THAN 20 INCHES FROM RIGHT EDGE OF WINDOW. CONDUIT(S) EDGE SHALL BE MINIMUM OF 2 INCHES FROM EDGE OF WINDOW OPENING.
- 14. CUSTOMER MUST PROVIDE AND MARK TWO (2) SUITABLE LOCATIONS WITHIN THE CONDUIT WINDOW FOR INSTALLATION OF TWO (2) 10 FOOT GROUND RODS. ONE SHALL BE LOCATED ON THE PRIMARY SIDE AND ONE SHALL BE LOCATED ON THE SECONDARY SIDE.
- 15. CONDUIT WINDOW MUST BE OPEN (NO REBAR, FORMS OR CONCRETE ALLOWED).
- 16. SEE DRAWING 17.02-01C FOR MAXIMUM ALLOWABLE SECONDARY RUNS AND OTHER PAD INFORMATION.

EFFECTIVE DATE: 04-29-19



REV. 2 (03/25/19) - CHANGED DWG TITLE; STANDARDIZED ON LOOP PAD

### 3¢ TRANSFORMER CONCRETE PAD SUPPLEMENTAL DETAILS

BY<u>MWC</u> DATE <u>01-07-19</u> REV. 1

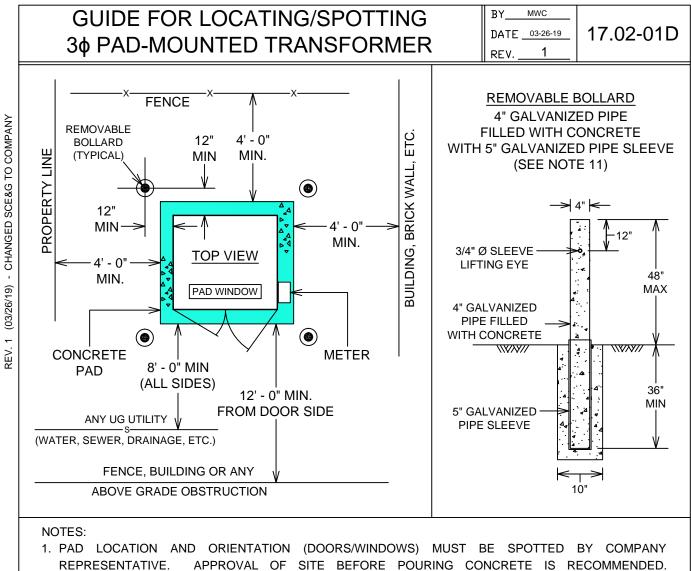
TRANSFORMER PROPERTIES				
TRANSFORMER KVA	MAXIMUM CONDUCTORS PER PHASE			APPROXIMATE
	VOLTAGE 120 / 208 Y	VOLTAGE 277 / 480 Y	WEIGHT (LBS)	LBS/FT^2
150	16	14	4,000	150
225	16	14	4,500	150
300	16	14	5,000	300
500	16	14	6,000	300
750	16	14	10,000	400
1000	-	14	10,000	400
1500	-	14	12,000	500
2000	-	16	14,500	500
2500	-	18	15,000	500

NOTES:

1. PAD MUST BE DIMENSIONALLY CORRECT, INCLUDING LOCATION OF CONDUITS. FAILURE TO DO SO CAN DELAY SERVICE AND REQUIRE CORRECTIVE ACTION BY THE CUSTOMER.

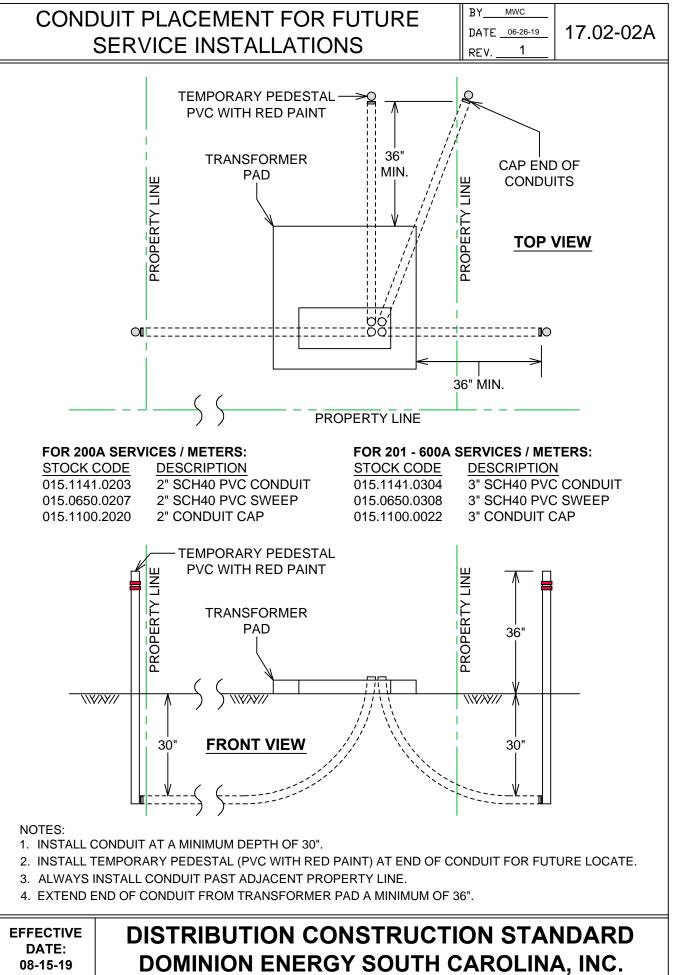
- 2. ALLOWABLE NUMBER OF SECONDARY RUNS IS LIMITED BY TRANSFORMER KVA SIZE.
- 3. SECONDARY CONDUCTOR IS ALLOWED ONLY IN SECONDARY COMPARTMENT.
- 4. LIMIT CUSTOMER CONDUCTORS PER PHASE TO ENSURE THAT SPACE IS AVAILABLE FOR LIGHTING AND CT METERING WHEN APPLICABLE.

EFFECTIVE DATE: 02-15-19



- REPRESENTATION AND ORIENTATION (DOORS/WINDOWS) MUST BE SPOTTED BY COMPANY REPRESENTATIVE. APPROVAL OF SITE BEFORE POURING CONCRETE IS RECOMMENDED. UNACCEPTABLE CONSTRUCTION WILL BE REJECTED AND CORRECTION REQUIRED BEFORE PLACEMENT OF COMPANY EQUIPMENT.
- 2. TRUCK ACCESS 10 FEET MINIMUM CORRIDOR IS REQUIRED TO WITHIN 1 FOOT OF PAD FOUNDATION.
- 3. TRUCK WORK AREA SETTING OR REMOVING TRANSFORMER REQUIRES KNUCKLE BOOM TRUCK AND TRAILER. THEREFORE 30' X 18' CLEAR WORK AREA ADJACENT TO TRANSFORMER PAD IS REQUIRED.
- 4. OVERHANGING VERTICAL CLEARANCE OF 40 FEET IS REQUIRED ABOVE CONCRETE PAD.
- 5. MINIMUM <u>SAFE WORKING ZONE</u> OF 12 FEET IS REQUIRED FROM TRANSFORMER ACCESS DOOR. ONLY EXCEPTION IS EASILY REMOVABLE FENCE/OBJECT.
- 6. IF ALL SIDES ARE SCREENED, AN INSIDE VENTILATION AREA OF 625 SQUARE FEET (25' X 25') MINIMUM MUST BE PROVIDED.
- 7. FUEL STORAGE TANKS, FUEL DISPENSING POINTS, AND CUSTOMER OWNED GENERATORS MUST BE A MINIMUM OF 20 FEET FROM THE PAD EDGE.
- 8. FLAMMABLE WALLS OR FENCING MUST BE MINIMUM OF 10 FEET FROM PAD EDGE.
- 9. NO UNDERGROUND UTILITIES UNDER OR WITHIN 8 FEET OF THE PAD (CONCRETE FOUNDATION).
- 10.MINIMUM "ABOVE GRADE" CLEARANCE ON ALL SIDES IS 4 FEET MINIMUM; EXCEPTION IS FRONT OR DOOR SIDE REQUIRING <u>SAFE WORKING ZONE</u> OF 12 FEET.
- 11.REMOVABLE BOLLARDS ARE REQUIRED WHERE VEHICLE TRAFFIC IS EXPECTED. THESE DEVICES ARE TO PROTECT THE PAD MOUNT TRANSFORMER FROM VEHICLE DAMAGE. REMOVABLE BOLLARDS ARE PROVIDED, INSTALLED AND MAINTAINED BY THE CUSTOMER.

#### EFFECTIVE DATE: 04-29-19

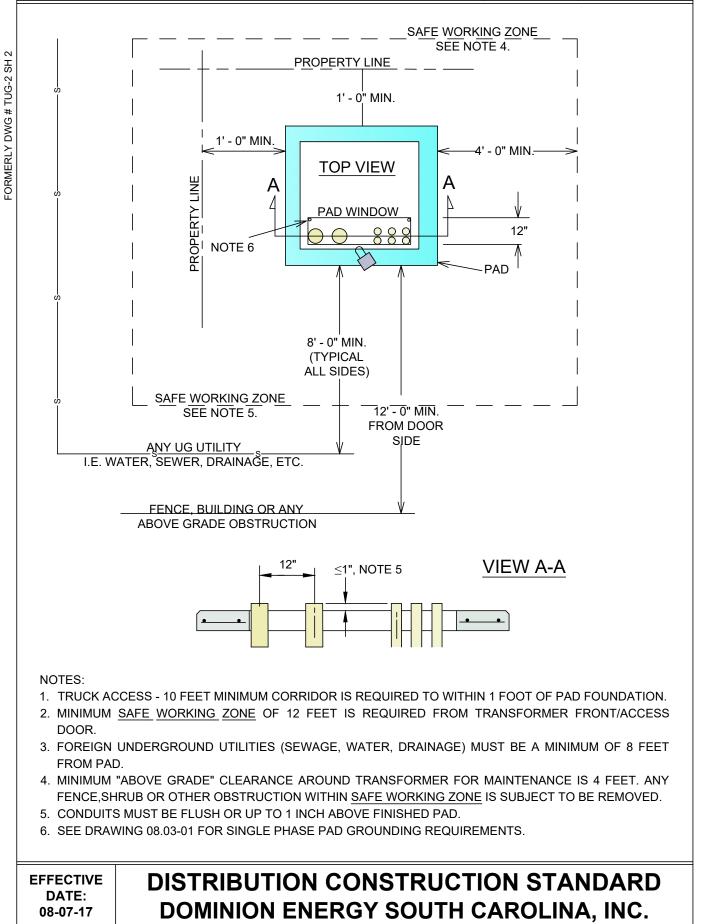


### GUIDE FOR LOCATING/SPOTTING 1¢ PAD-MOUNTED TRANSFORMER

BY <u>MWC</u> DATE <u>07-07-17</u>

17.02-02B

rev. <u>0</u>



### METER SOCKETS

METER SOCKETS ARE FURNISHED, INSTALLED AND MAINTAINED BY THE CUSTOMER. ALL METER SOCKETS SHALL BE RINGLESS, HAVE UL APPROVAL, AND COMPLY WITH ANSI C12.7 SPECIFICATIONS.

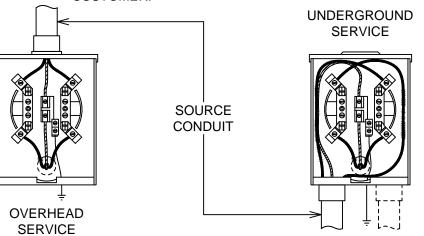
METER SOCKETS SHALL BE INSTALLED WHERE READILY ACCESSIBLE (REFERENCE SECTION 5 OF THE ELECTRIC SERVICE AND METER INSTALLATIONS MANUAL). METER SOCKET LOCATIONS SHALL BE APPROVED BY A COMPANY REPRESENTATIVE PRIOR TO INSTALLATION. 100 AMP METER SOCKETS ARE FOR LOW CURRENT APPLICATIONS ONLY (TEMPORARY SERVICES, CATV AMPLIFIER SERVICES, TRAFFIC SIGNAL LIGHTS, AND BILLBOARD SERVICES).

### METER SOCKET CONNECTIONS

ALL NEW 100 AMP AND 200 AMP SELF-CONTAINED METER SOCKETS MAY BE EQUIPPED WITH LAY-IN MECHANICAL TERMINALS OR STUDS FOR ONE-HOLE COMPRESSION LUGS. COMPRESSION LUGS ARE PROVIDED BY THE CUSTOMER AND SHALL BE APPROVED BY THE COMPANY (SEE SECTION 14). ALL FOUR-GANG OR LARGER METER SOCKETS SHALL HAVE TWO (2) LAY-IN CONNECTIONS ON EACH TERMINAL IN THE CENTER WIRING COMPARTMENT.

**OVERHEAD SERVICE:** SOURCE AND LOAD WIRES ARE TERMINATED IN METER SOCKET BY THE CUSTOMER.

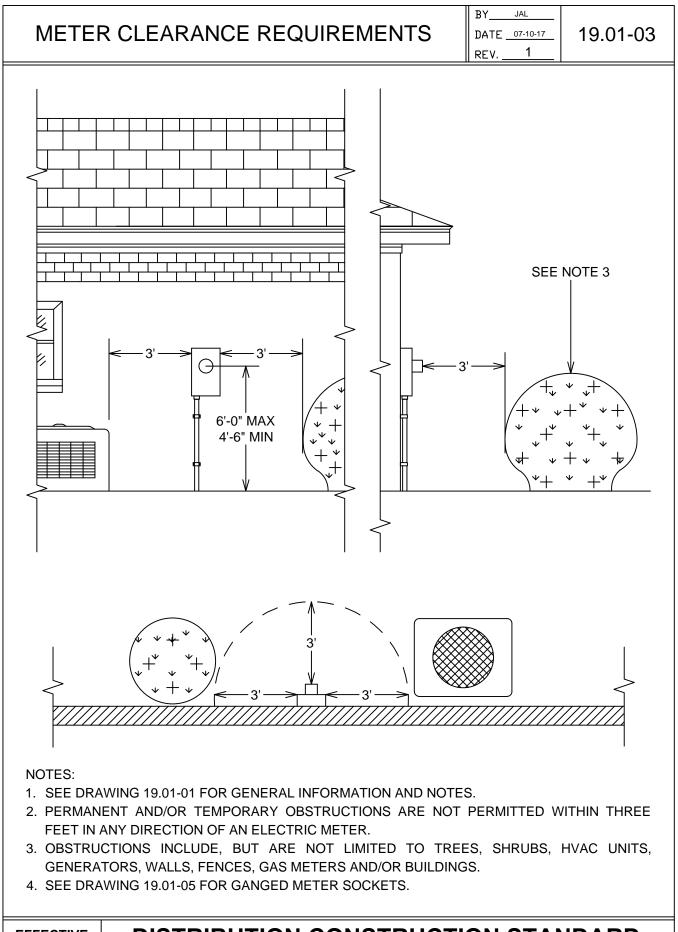
UNDERGROUND SERVICE: CONDUIT TERMINATES AT METER SOCKET ON BOTTOM LEFT OR BOTTOM RIGHT (NEVER IN THE CENTER); SOURCE WIRES ARE TERMINATED BY COMPANY; LOAD WIRES ARE TERMINATED BY THE CUSTOMER.



NOTES:

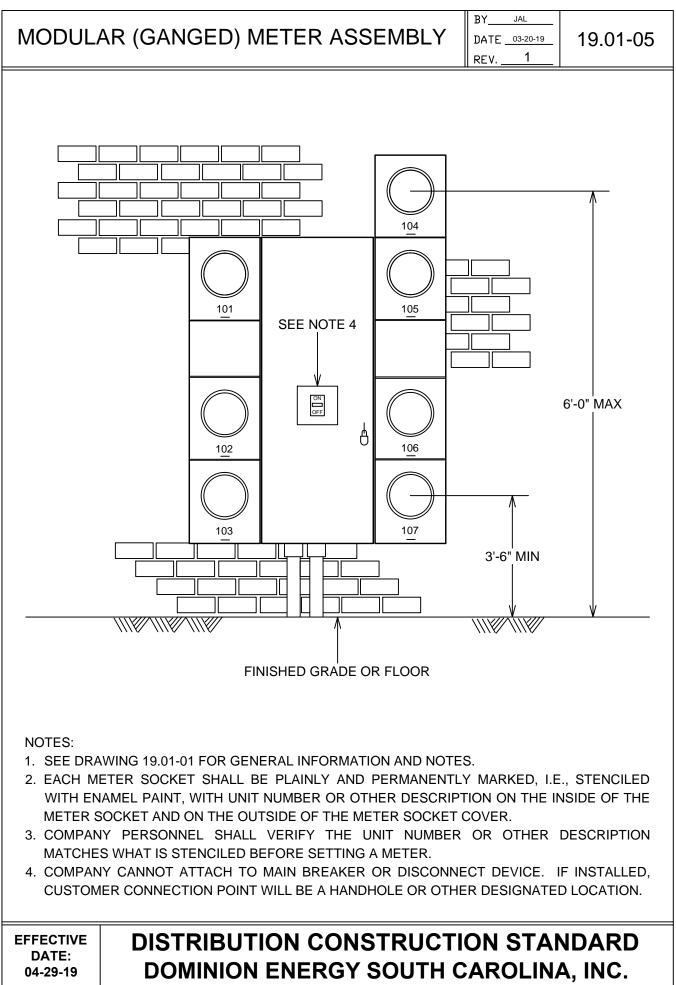
- 1. ALL INSTALLATIONS SHALL MEET COMPANY, NEC AND LOCAL CODE REQUIREMENTS.
- 2. SOURCE CONDUCTORS SHALL ALWAYS BE TERMINATED IN THE TOP SIDE OF THE METER. FOR CUSTOMER GENERATION APPLICATIONS, I.E., SOLAR, COMPANY IS ALWAYS THE SOURCE/LINE AND THE CUSTOMER IS ALWAYS THE LOAD.
- 3. METER SOCKETS FOR UNDERGROUND MUST BE SIZED TO ACCOMMODATE THE BEND RADIUS OF THE CONDUCTORS BEING INSTALLED (REFERENCE NEC TABLE 312.6(B)).
- 4. METERED AND UNMETERED CONDUCTORS SHALL NOT OCCUPY THE SAME RACEWAY.
- 5. ONLY COMPANY OWNED EQUIPMENT IS ALLOWED IN METER SOCKET.

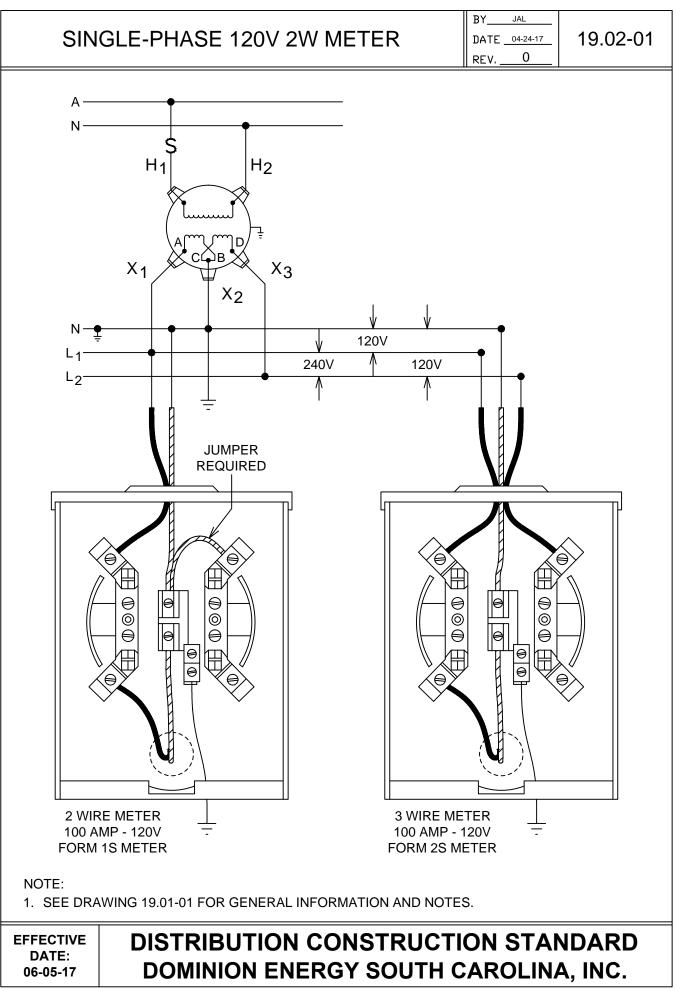
#### EFFECTIVE DATE: 04-29-19



EFFECTIVE DATE: 06-05-17

REV. 1 (07/10/17) - ADDED GAS METERS TO NOTE 3





FORMERLY DWG # MTR-1, S1

