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2018  
METER SERVICES  
SPECIFICATION GUIDE



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### INTRODUCTION

This guide provides detailed requirements for electrical equipment installations at the Point of Delivery for all metered services. The goal is to provide customers, electrical contractors, architects, engineers and electrical inspectors quick access to specific, detailed LES Meter Services department rules and requirements not otherwise contained in the LES Service Regulations.

### DISCLAIMERS

- If there are any conflicts between this document and LES Service Regulations (<http://www.les.com/pdf/rates/service-regulations.pdf>), the LES Service Regulations shall take precedence.
- If there are questions not covered in this guide, contact LES Meter Services at 402.467.7512.
- LES is not responsible for the quality, sufficiency or safety of customers' wiring or equipment.
- All electrical installations must be inspected and approved by the Authority Having Jurisdiction prior to LES' providing electric service.
- Large commercial or industrial installations require a consultation with LES to determine service requirements.
- LES reserves the right to refuse to provide connectivity to electrical installations which do not meet the requirements of this guide or the LES Service Regulations or which are not installed in accordance with requirements of the National Electrical Code (NEC), the National Electrical Safety Code or any state or local law or regulation.
- The contents of this document may change based on best available technology or LES requirements.
- If there are questions as to the meaning or definition of a word used in the text, reference should be made to the National Electrical Safety Code, the NEC and/or LES Service Regulations.
- LES provides electrical distribution services at 60 Hertz alternating current. If there are questions regarding the voltage and the number of phases requiring service or the character, size, or location of the load that are unanswered in this document, consult with LES prior to purchasing equipment or wire installation.
- LES meters all electric energy consumption, with a few exceptions. Contact LES' Customer Service Design department staff (page 3) for security lighting, demand or reactive metering, or other rate options that may be available.
- LES will consider options for Master Metering through an application process under limited circumstances.

## LES CONTACTS

### **LES Customer Service Design Department** (Quadrant center point is 27th and O Street)

Northwest Lincoln 402.467.7623

Southwest Lincoln 402.467.7620

Northeast Lincoln 402.467.7633

Southeast Lincoln 402.467.7634

**Meter Services Department** 402.467.7512

### **LES Mailing Address**

Lincoln Electric System

Attn: Meter Services Department/LES Customer Service Design Department

P.O. Box 80869

Lincoln, NE 68501



## DEFINITIONS

**Authority Having Jurisdiction:** Defined in the NEC as an organization, office or individual responsible for enforcing the requirements of a code or standard or for approving equipment, materials, an installation or a procedure.

**Meter:** The device or devices, including all auxiliary equipment necessary to measure and register an electrical quantity (energy, demand and reactive power), that is supplied by LES to a customer at a Point of Delivery between LES and a customer. For underground secondary service, the Meter will be the Point of Delivery.

**Point of Delivery:** The locations where LES supplies service to a customer and which, unless otherwise agreed upon between LES and the customer, shall be the point where the Service Wires are joined to the customer's Meter. For flat rate underground secondary service without a Meter (e.g.; Security Light), the customer-owned disconnecting means/overcurrent protective device will be the Point of Delivery. Exception: public traffic signal service.

### Service Drop:

**Conductors/Overhead** — Service Wires extending from the last pole or other aerial support, including splices, if any, connecting to the Point of Delivery at the customer's building or other structure. See Figure 19 (page 30).

**Conductors/Underground** — Service Wires between the pedestal, transformer, riser pole or other last point of supply and the first point of connection to the service-entrance conductors in a terminal box, Meter or other enclosure inside or outside of a building.

**Service Wires:** LES' lines connecting the LES distribution system to a customer's Point of Delivery.

## LES METER SERVICES DEPARTMENT REQUIREMENTS FOR APPROVAL OF CONNECTION TO LES

### GENERAL

- Always consult with LES prior to purchase and installation of demand or energy controls.
- LES can furnish energy and/or time pulses at the customer's cost.
- Load monitoring equipment can only be installed on the load side of the Meter. No customer or third-party equipment can be attached to the Meter, associated metering equipment, or inside a Meter or current transformer enclosure.

### GROUNDING

- All metallic conduits, metallic tubing and service entrance equipment shall be grounded in accordance with the latest version of the NEC.
- Equipment grounding conductors shall not be installed along with the Service Drop conductors being installed to the secondary compartment of LES' pad-mount transformers.

### METER LOCATION

- All Meters or metering equipment shall be located on the exterior of a structure.
- LES will provide the Meter specifications for indoor metering if location on the exterior of a structure is not practical.
- LES must approve the relocation of a Meter from its existing location.
- See Figure 1 (page 12) and Figure 2 (page 13).

### METER IDENTIFICATION

- On multi-occupancy buildings, all Meter sockets (including the inside of the socket and cover) and main service disconnect switches shall be plainly and permanently marked with numbers and/or letters by the owner to indicate the building address or apartment address served. The markings must be either engraved nameplates or clearly legible adhesive-type labels at least one inch high.
- Service will not be established until marking is complete. **Felt tip pens and label maker tape are not considered permanent markings.**
- LES will assume no responsibility for the accuracy of matching premise location as indicated on the Meter socket and main service disconnect switch.

### METER SOCKETS

- All new Meter sockets installed in the LES service area shall be a minimum of 200 amps.
- This requirement also applies to any rewired repair service work.
  - Exception – 100 amp Meter sockets will be allowed on gang sockets of (3) or more.
  - Exception – On Overhead (OH) services 100 amp Meter sockets will be allowed on rewires.
- Meter sockets purchased by the customer shall be UL listed and labeled in accordance with NEC.
- Transformer rated Meter socket requirements:
  - Durham Catalog No. STL8-1C or Milbank Catalog No. UC7444-XL for single-phase installations.
  - Durham Catalog No. STL13-1C or Milbank Catalog No. UC7445-XL for three-phase installations.
- Commercial self-contained Meter sockets:
  - All single and three-phase Meter sockets used in a commercial application shall be equipped with Meter bypass lever, this is a "ringless" type socket.
  - "Horn" bypass designs are prohibited.
  - Bypass Meter sockets will not be required for temporary services.
- Meter centers:
  - All multi-occupancy residential Meter centers with three or more Meter sockets shall use ring-type Meter sockets.
  - Ringless and ring-type Meter sockets may be used in duplex Meter sockets.
  - Single Meter sockets may be ringless or ring-type.



### SEALS

- All enclosures containing unmetered conductors shall be capable of being effectively sealed or locked by LES.
- The breaking of seals by anyone other than an authorized person (licensed electrician) or tampering with LES' Meters or monitoring/measuring devices is prohibited.
- When LES detects that its Meter or other equipment has been tampered with in a manner that may allow unauthorized use or loss of energy measured at the Meter, LES shall discontinue the supply of electric energy to the customer at any time without notice. The Meter and other equipment will be removed until such time as the customer has corrected the condition to the satisfaction of LES. (See the [LES Service Regulations](#).)

### TEMPORARY SERVICES

- LES will furnish temporary service in accordance with the requirements of the [LES Service Regulations](#).
- See Figures 3-5 (pages 14-16).

### LES SERVICES

- LES will install Service Wires to the Point of Delivery as specified by LES.
- Overhead Service Wires will be installed only to a properly secured and anchored overhead mast or properly sized and anchored attachments on a structure.
- See Figures 6-8 (pages 17-19).
- NOTE: LES owns and maintains only one Service Drop to a residence, whether it is before or after the customer's Meter. If there is a Service Drop serving a residence and other building, such as a barn, garage or customer-owned poles with lights or well service, LES does not own or maintain any of those service drops.
- NOTE: Electric poles that are now part of the LES system due to the acquisition of service area from other electric utilities, particularly those located in rural areas and on acreages, must conform to LES Service Drop requirements if any modifications are made to the configuration of the electric system on the property.

### RESIDENTIAL SERVICE

Residential electric service will be supplied by:

- A three-wire, single-phase system, nominally 120/240 volts.
- A network three-wire, nominally 120/208 volts where available or needed.
- Self-contained metering for single-phase 120/240 volts, for a total of main switches not exceeding 400 amps.
- LES permits self-contained metering for four-wire, three-phase 120/208 volts, for a total of main switches not exceeding 400 amps.
- LES requires services exceeding a sum of 400 amps on all main switches to be current transformer (CT) metered.

- Additional requirements:
  - Installations with nominal voltage up to 240 volts with anticipated load or demand of less than 200 amps require a self-contained Meter and Meter socket.
  - Installations with nominal voltage up to 240 volts with anticipated load or demand between 200 amps and 400 amps continuous (400 amp main, rated 80%) may use a self-contained Class 320 Meter.
  - All NEW single-family residences, rewired underground or overhead services, require a 200 amp ringless or ring-type socket with minimum dimensions of 14" x 11" x 4 1/8".
  - All underground services shall have a UL approved expansion joint supplied with the service supply conduit. Expansion joints shall not be clamped to restrict movement.

### COMMERCIAL AND INDUSTRIAL ELECTRIC SERVICE

Commercial and industrial electric service will be supplied by secondary distribution with a three-wire, single-phase system or a four-wire, three-phase system.

Additional requirements:

- Self-contained metering is allowed for single-phase 120/240 volt, for a total of main switches up to and including 320 amp services.
- See Figure 9 (page 20) and Figure 10 (page 21).
- Installations with anticipated load or demand between 200 amps and 320 amps (sum) may use a Class 320 Meter.
- Network metering on commercial and multi-occupancy residential services with 120/208 voltage, three-wire service on a single-phase Meter socket requires a fifth terminal to be installed horizontally at the 9 o'clock position (looking at the socket).
- **Service at voltages over 240 volts**
  - See [LES Service Regulations](#) for service voltage availability.
  - LES does not provide service to new 480 volt, three-phase, three-wire installations.
  - Primary voltage of 7,200/12,470 volt three-phase, four-wire and 34,500 volt three-phase, three-wire are standard system voltages.
- **Three-phase self-contained metering (320 amp maximum, not exceeding 240 volts)**
  - LES permits self-contained metering on three-phase, four-wire, single main not exceeding 320 amp (sum) for commercial services.
  - LES approval is required for factory assembled Meter centers that have three-wire or a 120/208 volts AC (VAC), three-phase, four-wire service.
  - Temporary overhead and underground 400 amp 120/240 VAC, single-phase three-wire and 120/208 or 120/240 three-phase, four-wire services will be allowed in lieu of CT metering.





- All three-phase services of 240 volts that do not exceed 200 amps (sum) will be metered with a self-contained Meter and a self-contained, seven-terminal ringless or ring-type Meter socket that meets NEC requirements and is UL approved.
- LES will not provide secondary service to any three-phase, three-wire service.
- Available fault current may limit its use.
- **480 volt cold sequence Meter socket**
  - Approval from LES must be obtained for each use of the socket. Available fault current will limit its use.
  - Only a UL listed single-unit assembly of a Meter socket and line-side Meter disconnect that is immediately adjacent to the Meter socket and equipped with a Meter bypass will be allowed for:
    - 200/320 amp five terminal single-phase, three-wire 240/480 or 277/480 volt.
    - 200/320 amp seven terminal three-phase, four-wire sockets for three-phase 277/480 volt services.
    - NOTE: A lockable/sealable socket cover and disconnect is required.
  - New sockets will be permanently manufacturer-marked 480 volts.
  - The socket can be used for overhead or underground services. Model numbers will be specified.
- **Current transformer cabinet requirements**

The minimum sizes required are:

  - Single-phase 600 amp and below:
    - Minimum cabinet size is 30" x 26" x 10".
  - Single-phase above 600 amp, up to and including 1200 amp:
    - Minimum cabinet size is 36" x 36" x 12".
  - Three-phase 800 amp and below:
    - Minimum cabinet size is 36" x 36" x 12".
  - Three-phase above 800 amp, up to and including 1000 amp:
    - Minimum cabinet size is 18"x 36"x16".
    - Hoffman Free Standing Enclosure #A60R3618FSLP is also accepted (1200 amps @ 208 VAC).
  - Three-phase above 1200 amp, up to and including 1800 amp:
    - Minimum cabinet size is 48" x 48" x 12".
    - Hoffman Free Standing Enclosure #A60R5218FSLP is also accepted (1200 amp @ 480 VAC).
  - Three-phase above 2000 amp, up to but NOT including 3000 amp:
    - Minimum cabinet size is 60" x 52" x 18".
    - Hoffman Free Standing Enclosure #A60R5218FSLP is also accepted.

- Three-phase 3000 amp:
  - Minimum cabinet size is 60" x 72" x 24".
  - Hoffman Free Standing Enclosure #A60R7224FSLP is also accepted.
- Services above 1500 amps:
  - LES will allow metering transformers in customer switchgear. Contact LES Customer Service Design and Meter Services departments in advance.
- **Transformer rated metering services**
  - Commercial and industrial services over 320 amps as well as large residential services over 400 amps if service voltage exceeds 240 volts will be metered using instrument transformers — current transformers and voltage transformers.
  - Current transformer compartments:
    - Must have a hinged door that can be padlocked.
    - Must be approved by LES.
    - Must have unobstructed access to the compartment and adjacent Meter socket.
    - Meter socket must be outside of the building.
    - Metering conduits (above grade) shall be a minimum of 1" inch and in a continuous rigid (RMC, IMC) conduit, no junction boxes or LB's allowed.
    - Free-standing switchgear services with current transformer compartment installations require consultation and approval by LES.
- **Free-standing switchgear**

The following requirements must be met for free-standing switchgear:

  - 1000 to 2000A:
    - A 40" minimum vertical distance from the nearest terminal to the upper or lower-most part of the enclosure;
    - A 25" minimum width; and
    - A 25" minimum depth of enclosure.
  - 2500A:
    - A 40" minimum vertical distance from the nearest terminal to the upper or lower-most part of the enclosure;
    - A 36" minimum width; and
    - A 36" minimum depth of enclosure.
  - 3000A to 4000A:
    - A 40" minimum vertical distance from the nearest terminal to the upper or lower-most part of the enclosure;
    - A 48" minimum width; and
    - A 48" minimum depth of enclosure.



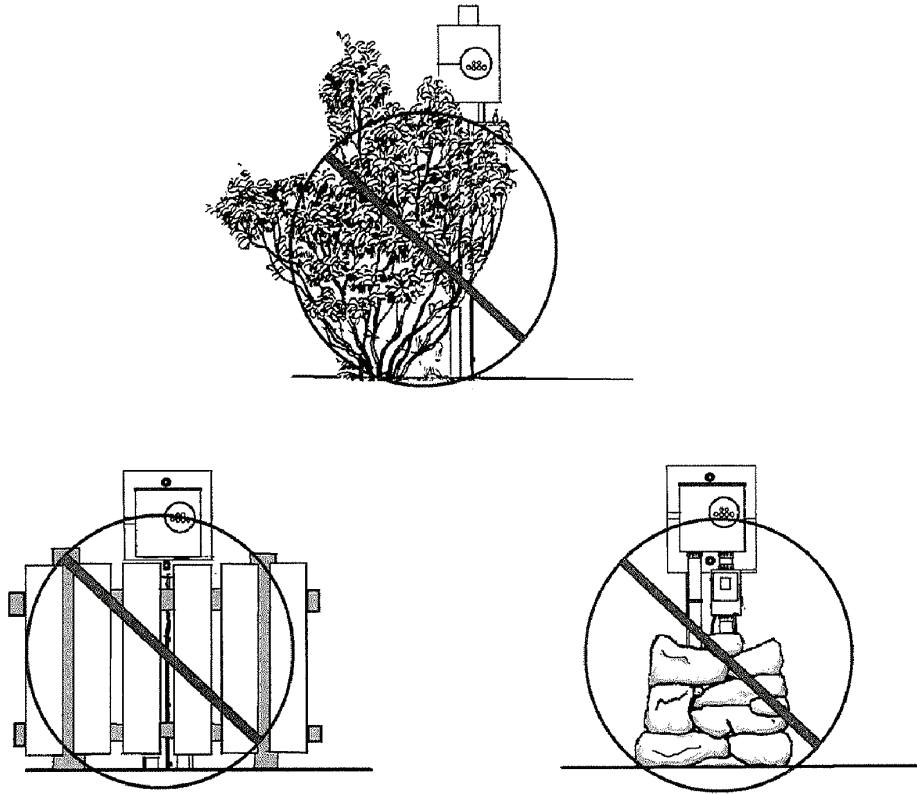
### *LES SERVICE AREA ACQUISITIONS*

- o Existing services are grandfathered.
- o If any upgrades or modifications are made, these services must be configured to meet all LES requirements contained in this guide and in the LES Service Regulations.
- o Figures 11-18 (pages 22-29) are included only to illustrate the range of non-compliant Service Drops that may be encountered primarily in rural areas or acreages.

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# **LES** Meter Services Specification Guide



LES WILL BE RESPONSIBLE FOR:

- (a) ASSISTING THE CUSTOMER IN LOCATING THE METER IN A SUITABLE LOCATION.
- (b) ACCESSING THE METER FOR MAINTENANCE AND CONTROL PURPOSES.

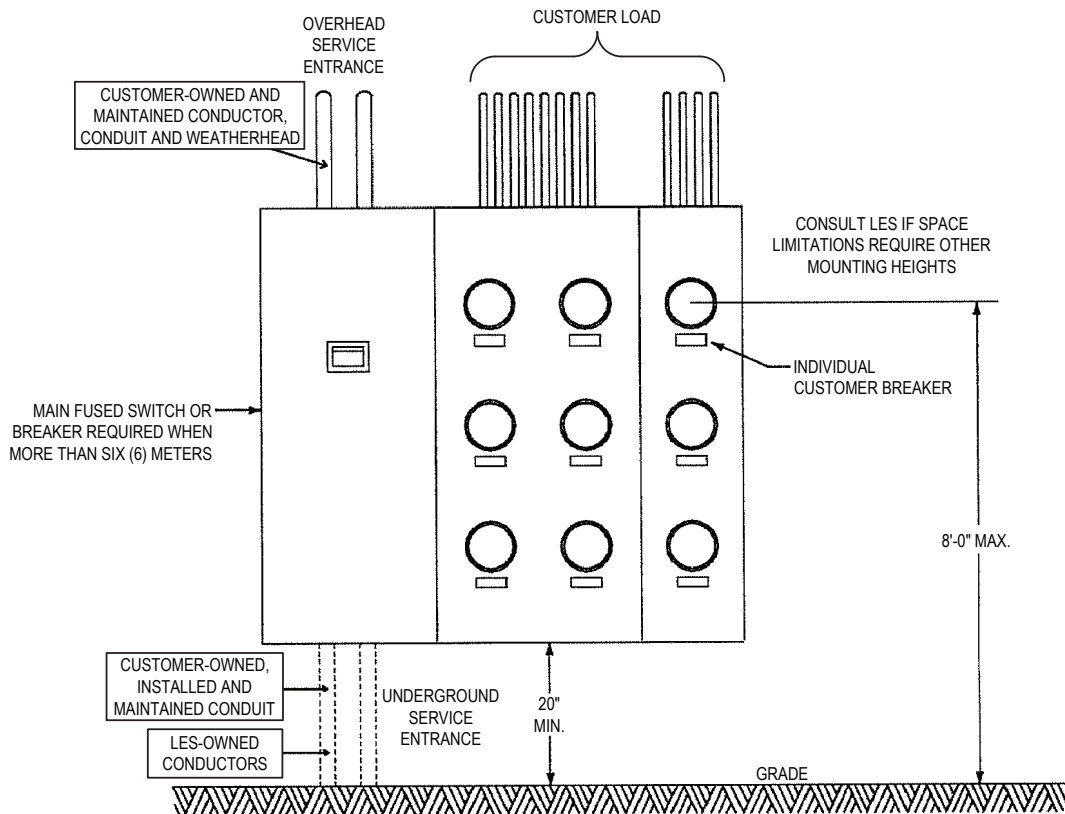
THE CUSTOMER WILL BE RESPONSIBLE FOR:

- (a) COORDINATING WITH LES TO ENSURE A SUITABLE LOCATION FOR THE METER.
- (b) PROVIDING UNOBSTRUCTED ACCESS TO ALL LES EQUIPMENT.
- (c) PROVIDING LES WITH UNRESTRICTED ACCESS TO BUILDINGS THAT HAVE METERS MOUNTED INTERNALLY.
- (d) IF ACCESS CANNOT BE PROVIDED TO LES, TRANSFERRING METERS TO THE EXTERIOR OF THE BUILDING AT CUSTOMER'S EXPENSE.

\* SEE LES SERVICE REGULATIONS FOR DISCONNECTING SERVICE METER THAT IS OBSTRUCTED OR INACCESSIBLE.

 <b>Lincoln Electric System</b>	<b>UNOBSTRUCTED METER ACCESS</b>	DATE: 3 May 2016
		FIGURE: 01


# LES Meter Services Specification Guide



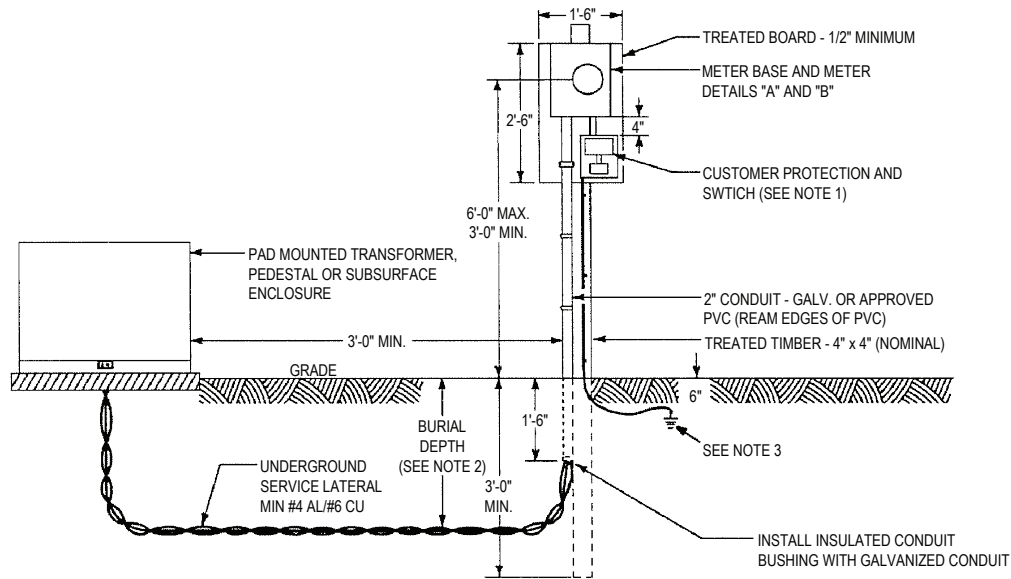
- (1) CUSTOMER MUST CONSULT WITH LES FOR POINT OF DELIVERY PRIOR TO INSTALLATION.
- (2) CUSTOMER WORK MUST BE COMPLETED AND INSPECTED BEFORE LES WILL PROVIDE SERVICE.
- (3) CUSTOMER SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND CONNECTING ALL SERVICE ENTRANCE WIRING FROM TERMINAL BOX OR MAIN DISCONNECT TO METER SOCKETS AND FOR ENSURING THAT TERMINAL BOX OR MAIN DISCONNECT HAS PROPER NUMBER, SIZE, AND TYPE OF TERMINALS TO ACCEPT LES SERVICE LATERAL.
- (4) WIRE WAYS OR MAIN DISCONNECTS FOR UN-METERED CONDUCTORS SHALL HAVE PROVISIONS FOR BEING EFFECTIVELY SEALED OR LOCKED BY LES PERSONNEL.

LINE AND LOAD CONDUCTORS SHALL NOT PASS THROUGH OR BE MIXED IN THE SAME WIRE-WAY, TROUGH OR MAIN-LINE DISCONNECT.

\* SEE LES SERVICE REGULATIONS FOR LABELING MULTIPLE METERS.

 <b>Lincoln Electric System</b>	<b>PREASSEMBLED MULTIPLE METER INSTALLATION</b>	DATE: 3 May 2016
		FIGURE: 02

# LES Meter Services Specification Guide



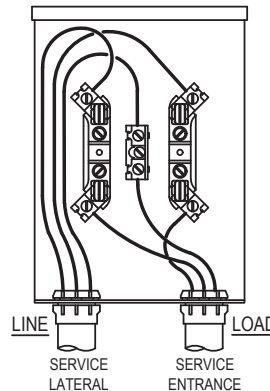
**GENERAL CONDITION NOTES:**

LES WILL BE RESPONSIBLE FOR:

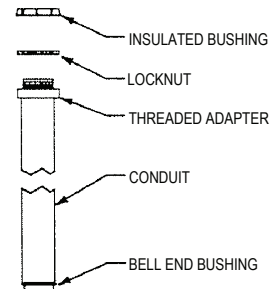
- (a) COMPLETING THE TRENCHING TO EITHER THE TRANSFORMER OR THE SECONDARY PEDESTAL AND MAKING THE CONNECTIONS TO THE UNDERGROUND SERVICE LATERAL TO EITHER THE TRANSFORMER OR SECONDARY PEDESTAL.
- (b) INSTALLING AND REMOVING THE METER.
- (c) DISCONNECTING THE CONNECTIONS IN THE TRANSFORMER OR SECONDARY PEDESTAL AND REMOVING THE METER.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

- (a) PROVIDING AND INSTALLING THE TEMPORARY STRUCTURE, PROTECTION AND SWITCH, CONDUIT, UNDERGROUND SERVICE LATERAL AND CABLE TERMINAL LUGS (IF NEEDED), GROUND ROD, GROUND CLAMP, AND GROUND WIRE.
- (b) TRENCHING THE DESIGNATED DISTANCE BETWEEN THE TEMPORARY POST AND LES' TRANSFORMER OR PEDESTAL. CUSTOMER TO DETERMINE LOCATION OF ALL UTILITIES BEFORE TRENCHING.
- (c) PROVIDING WEATHERPROOF (OR COVERED) SERVICE ENTRANCE EQUIPMENT (UL LISTED WITH FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER - 3 WIRES). EQUIPMENT SHALL BE SIZED AS REQUIRED AND MOUNTED ON A BOARD BASE.
- (d) SECURELY MOUNTING THE METER BASE IN A PLUMB POSITION.
- (e) MAKING ALL CONNECTIONS IN THE METER SOCKET.
- (f) PROVIDING THE INSPECTION IF NECESSARY.
- (g) REMOVING EQUIPMENT AFTER BEING DISCONNECTED.



**DETAIL "A"**  
METER BASE



**DETAIL "B"**  
RISER ASSEMBLY

**GENERAL CONSTRUCTION NOTES:**

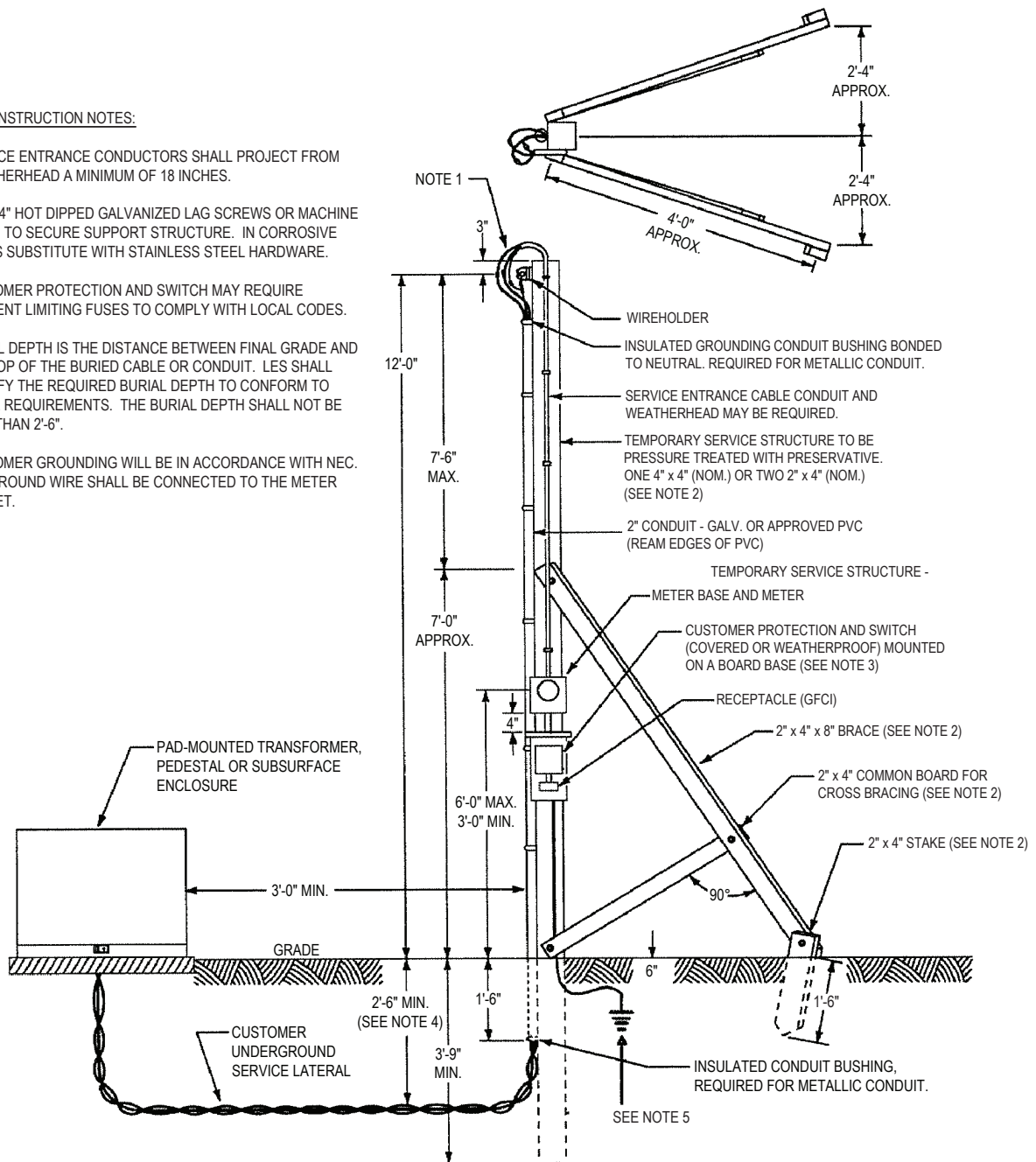
- (1) CUSTOMER PROTECTION AND SWITCH MAY REQUIRE CURRENT LIMITING FUSES TO COMPLY WITH LOCAL CODES.
- (2) BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. LES SHALL SPECIFY THE REQUIRED BURIAL DEPTH TO CONFORM TO LOCAL REQUIREMENTS. THE BURIAL DEPTH SHALL NOT BE LESS THAN 2'-6".
- (3) CUSTOMER GROUNDING WILL BE IN ACCORDANCE WITH NEC. THE GROUND WIRE SHALL BE CONNECTED TO THE METER SOCKET.


 <b>Lincoln Electric System</b>	<b>TEMPORARY SERVICE INSTALLATION FROM EXISTING URD SECONDARY</b>	DATE: 3 May 2016
		FIGURE: 03

# LES Meter Services Specification Guide

**GENERAL CONSTRUCTION NOTES:**

- (1) SERVICE ENTRANCE CONDUCTORS SHALL PROJECT FROM WEATHERHEAD A MINIMUM OF 18 INCHES.
- (2) USE 1/4" HOT DIPPED GALVANIZED LAG SCREWS OR MACHINE BOLTS TO SECURE SUPPORT STRUCTURE. IN CORROSIVE AREAS SUBSTITUTE WITH STAINLESS STEEL HARDWARE.
- (3) CUSTOMER PROTECTION AND SWITCH MAY REQUIRE CURRENT LIMITING FUSES TO COMPLY WITH LOCAL CODES.
- (4) BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. LES SHALL SPECIFY THE REQUIRED BURIAL DEPTH TO CONFORM TO LOCAL REQUIREMENTS. THE BURIAL DEPTH SHALL NOT BE LESS THAN 2'-6".
- (5) CUSTOMER GROUNDING WILL BE IN ACCORDANCE WITH NEC. THE GROUND WIRE SHALL BE CONNECTED TO THE METER SOCKET.



 <b>Lincoln Electric System</b>	<b>ALTERNATE TEMPORARY SERVICE INSTALLATION FROM EXISTING URD SECONDARY</b>	DATE: 3 May 2016
		FIGURE: 04



# LES Meter Services Specification Guide

**GENERAL CONDITION NOTES:**

LES WILL BE RESPONSIBLE FOR:

- (a) PROVIDING AND INSTALLING OVERHEAD SERVICE DROP (#2 OR #4 TRIPLEX SERVICE DROP).
- (b) INSTALLING AND REMOVING THE METER.

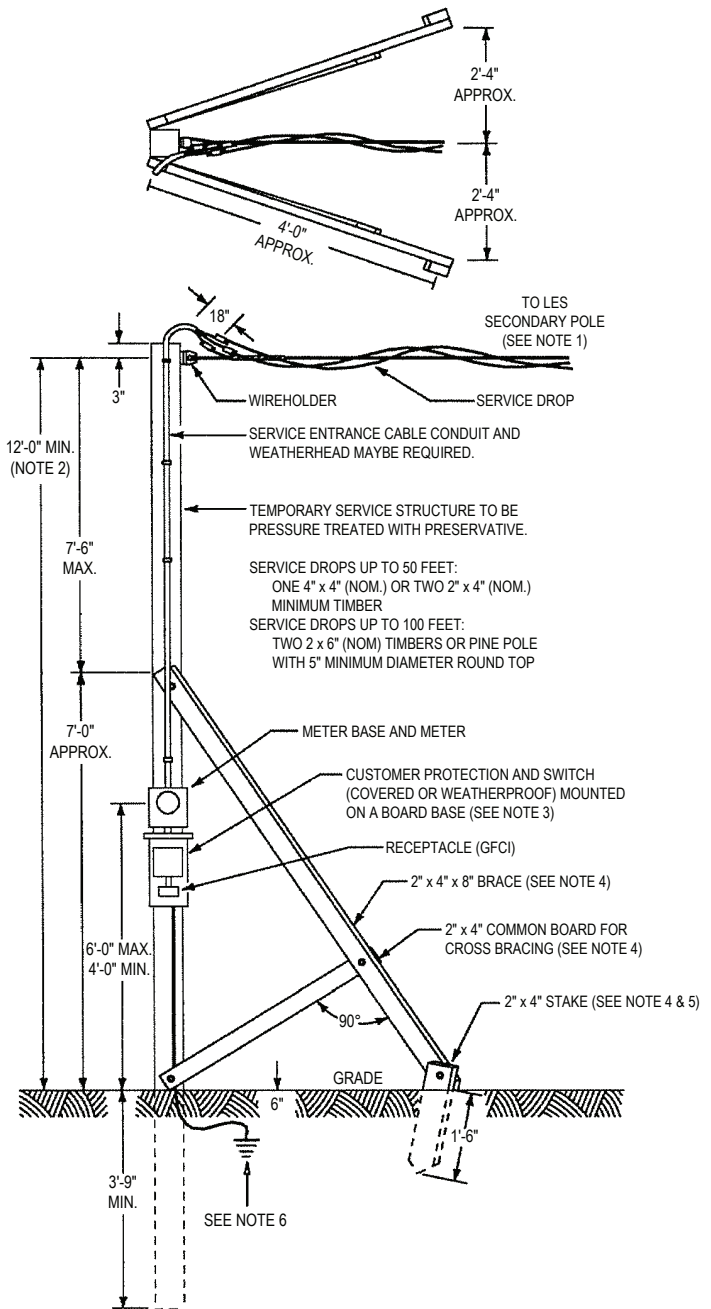
THE CUSTOMER WILL BE RESPONSIBLE FOR:


- (a) PROVIDING AND INSTALLING THE COMPLETED TEMPORARY STRUCTURE TO WHICH SERVICE DROP WILL BE ATTACHED. INSTALLATION MUST MEET LES' REQUIREMENTS. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT A MINIMUM OF 18 INCHES FROM WEATHERHEAD.

NOTE: A TOOL SHED (IF AVAILABLE) OR OTHER TYPE OF FIXED SUPPORT MAY BE USED AS A TEMPORARY SERVICE DROP ATTACHMENT IF SUCH SUPPORT PROVIDES EQUAL STRENGTH AND PROPER CLEARANCES.

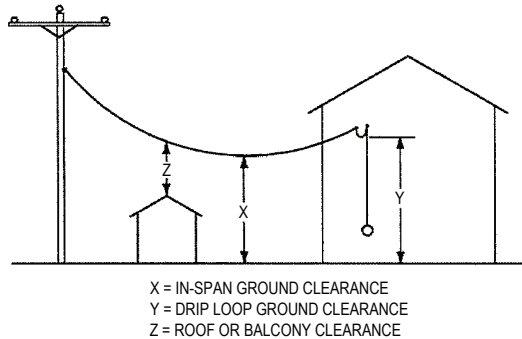
**GENERAL CONSTRUCTION NOTES:**

- (1) TEMPORARY SERVICE DROPS NOT TO EXCEED 100 FEET.
- (2) THE SERVICE ATTACHMENT SHALL BE INSTALLED AT A HEIGHT THAT MAINTAINS PROPER CLEARANCES FOR SERVICE DROP CONDUCTORS. REFER TO FIGURE 6.
- (3) CUSTOMER FUSE BOX AND SWITCH MAY REQUIRE CURRENT LIMITING FUSES TO COMPLY WITH LOCAL CODES.
- (4) USE 1/4" x 4" HOT DIPPED GALVANIZED LAG SCREWS OR MACHINE BOLTS TO SECURE SUPPORT STRUCTURE. IN CORROSIVE AREAS SUBSTITUTE WITH STAINLESS STEEL HARDWARE.
- (5) A 2" x 4" STAKE IS RECOMMENDED BUT DEPENDENT ON SOIL CONDITIONS. OTHER MATERIAL SUCH AS CONCRETE FORM STAKES MAY BE USED TO SECURE THE SUPPORT STRUCTURE.
- (6) CUSTOMER GROUNDING WILL BE IN ACCORDANCE WITH NEC. THE GROUND WIRE SHALL BE CONNECTED TO THE METER SOCKET.



 <b>Lincoln Electric System</b>	<b>TEMPORARY SERVICE INSTALLATION FROM EXISTING OVERHEAD SECONDARY</b>	DATE: 3 May 2016
		FIGURE: 05

# LES Meter Services Specification Guide



SERVICE DROP CABLE CLEARANCES

NATURE OF SURFACE UNDERNEATH SERVICE DROP CABLE	VERTICAL CLEARANCE ABOVE SURFACE FOR SERVICE DROP CABLE (SEE NOTES 1 & 2)
TRACK RAILS OF RAILROADS	24'-6"
ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC (SEE NOTE 3)	16'-6"
DRIVEWAYS, PARKING LOTS, AND ALLEYS	16'-6"
SPACES AND WAYS SUBJECT TO PEDESTRIANS OR RESTRICTED TRAFFIC ONLY (SEE NOTE 5)	12'-6"
ACCESSIBLE ROOFS OR BALCONIES	11'-0"
SWIMMING POOLS	22'-0"

NOTES:

- (1) ALL CLEARANCES LISTED ARE SPECIFIED BY THE NESC. THESE ARE MINIMUM CLEARANCES THAT MUST BE MET FOR THE SAG CONDITION THAT CAN OCCUR EITHER AT: MAXIMUM OPERATING CONDUCTOR TEMPERATURE OR MAXIMUM LOADING AT 32°F, NESC ICE, FINAL SAG.

AN INCREASE IN DESIGN CLEARANCE AT TIME OF INSTALLATION IS RECOGNIZED AND ACCEPTABLE TO ACCOUNT FOR FUTURE RESURFACING OR GRADE CHANGES. A 12 INCH INCREASE IS TYPICAL IN LIEU OF ANY SPECIFIC INFORMATION. IT IS RECOMMENDED THAT THIS FACTOR SHOULD BE CONSIDERED AND, AS APPROPRIATE, INCLUDED WHEN PLANNING SERVICE INSTALLATIONS.

NOTE: A POINT OF CLARIFICATION IS NECESSARY REGARDING WHAT CAN APPEAR TO BE A 2 FOOT INCONSISTENCY BETWEEN THE NESC AND THE NEC FOR CLEARANCES OVER "ROADS, STREETS, DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC" (NESC - 16 FEET vs. NEC - 18 FEET). NEC CLEARANCES ARE SPECIFIED (WITH LESS SAG) AT A CONDUCTOR TEMPERATURE OF 60°F, NO WIND, WITH FINAL UNLOADED SAG IN THE CONDUCTOR. THE 2 FOOT DIFFERENCE IS PARTIALLY ATTRIBUTED TO COMPARATIVELY LARGER SAG BY NESC SPECIFICATIONS. ADDITIONAL ALLOWANCES MADE FOR RESURFACING, ETC. IN APPLICATION OF THE NESC RULE WILL ACCOUNT FOR THE REST OF THE 2 FOOT DIFFERENCE. A SERVICE INSTALLED TO EITHER SPECIFICATION WOULD BE VERY SIMILAR WHEN ANALYZED BY THE OTHER. THEREFORE, THERE IS NO PRACTICAL INCONSISTENCY BETWEEN THE TWO CODES IN THIS SITUATION..

- (2) IN ADDITION TO PROPER DESIGN FOR GROUND/SURFACE CLEARANCES, BE CAREFUL TO PROVIDE CLEARANCES FROM BUILDING OPENINGS, WINDOWS, DOORS, ETC. (TYPICALLY 3'-0"). PROVIDE A MINIMUM CLEARANCE OF THREE (3) INCHES FROM DOWNSPOUTS AND EAVES FOR SERVICE CONDUCTORS 0 TO 750 VOLTS. FOR CONDUCTORS MEETING NESC RULE 230C1, 230C2, OR 230C3 THIS CLEARANCE MAY BE REDUCED TO ONE (1) INCH. ROUTE SERVICES SO THAT RAISED PATIO/DECK AREAS CAN BE AVOIDED IF POSSIBLE. AS AN ALTERNATIVE, CONSIDER PROVIDING ADDITIONAL CLEARANCE, WHEN FEASIBLE.
- (3) TRUCKS ARE DEFINED AS ANY VEHICLE WITH A MAXIMUM 14 FEET IN HEIGHT. AREAS NOT SUBJECT TO TRUCK TRAFFIC ARE AREAS WHERE TRUCK TRAFFIC IS NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.

- (4) FOR RESIDENTIAL DRIVEWAYS ONLY, WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 15 FEET CLEARANCE, THE CLEARANCES MAY BE REDUCED TO:

SERVICES 277 VLG:  
 IN-SPAN GROUND CLEARANCE - 12.5 FEET  
 DRIP LOOP GROUND CLEARANCE - 10.5 FEET

SERVICES 120 VLG:  
 IN-SPAN GROUND CLEARANCE - 12.0 FEET  
 DRIP LOOP GROUND CLEARANCE - 10.0 FEET

- (5) SPACES AND WAYS SUBJECT TO PEDESTRIAN OR RESTRICTED TRAFFIC ONLY ARE THOSE AREAS WHERE RIDERS ON HORSEBACK, VEHICLES OR OTHER MOBILE UNITS EXCEEDING 8 FEET IN HEIGHT, ARE PROHIBITED BY REGULATION OR PERMANENT TERRAIN CONFIGURATIONS OR ARE OTHERWISE NOT NORMALLY ENCOUNTERED NOR REASONABLY ANTICIPATED.


- (6) FOR RESIDENTIAL DRIVEWAYS ONLY, WHEN A BUILDING DOES NOT HAVE SUFFICIENT HEIGHT TO ALLOW A SERVICE ATTACHMENT LOCATION WHICH WILL PROVIDE 12 FEET CLEARANCE, THE CLEARANCES MAY BE REDUCED TO:

SERVICES 277 VLG:  
 IN-SPAN GROUND CLEARANCE - 10.5 FEET  
 DRIP LOOP GROUND CLEARANCE - 10.5 FEET

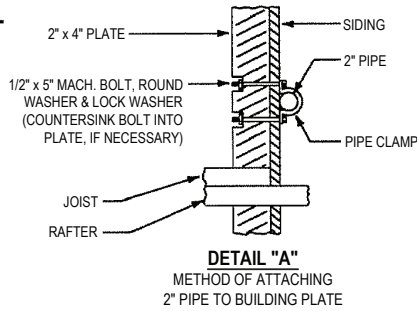
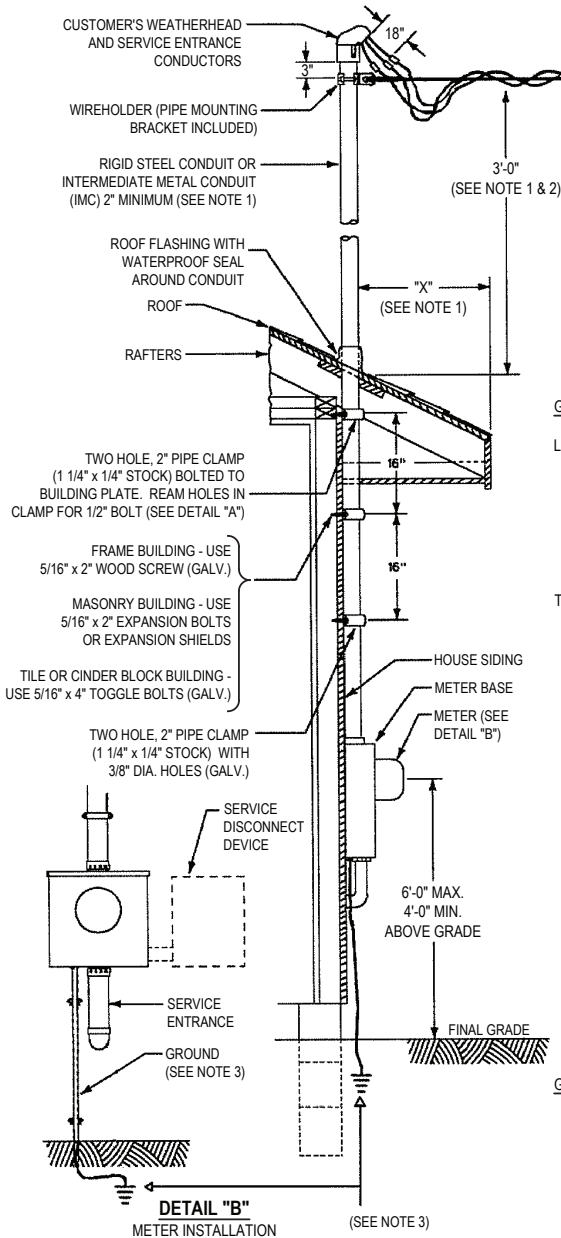
SERVICES 120 VLG:  
 IN-SPAN GROUND CLEARANCE - 10.0 FEET  
 DRIP LOOP GROUND CLEARANCE - 10.0 FEET

- (7) WHERE ROOFS OR BALCONIES ARE NOT READILY ACCESSIBLE AND WHERE VOLTAGE BETWEEN SERVICE CONDUCTORS DOES NOT EXCEED 300 VOLTS OR WHERE CABLES MEETING NESC RULE 230C2 OR 230C3 AND VOLTAGE DOES NOT EXCEED 750 VOLTS, CLEARANCE REDUCED TO 3.0 FEET.

- (8) CLEARANCE IN ANY DIRECTION FROM THE POOL WATER LEVEL, EDGE OF POOL, BASE OF DIVING PLATFORM OR ANCHORED RAFT. CLEARANCE IN ANY DIRECTION TO A DIVING PLATFORM IS 14 FEET.

 Lincoln Electric System	SERVICE DROP CABLE CLEARANCES FOR DUPLEX, TRIPLEX, AND QUADRUPLE X CONDUCTORS	DATE: 1 Sep 2016
		FIGURE: 06

# LES Meter Services Specification Guide



**GENERAL CONDITION NOTES:**

LES WILL BE RESPONSIBLE FOR:

- (a) DESIGNATING THE LOCATION OF THE SERVICE MAST AND METER.
- (b) PROVIDING AND INSTALLING THE OVERHEAD SERVICE DROP. SEE APPENDIX SPEC 1310.A.
- (c) INSTALLING AND REMOVING THE METER.

THE CUSTOMER WILL BE RESPONSIBLE FOR:

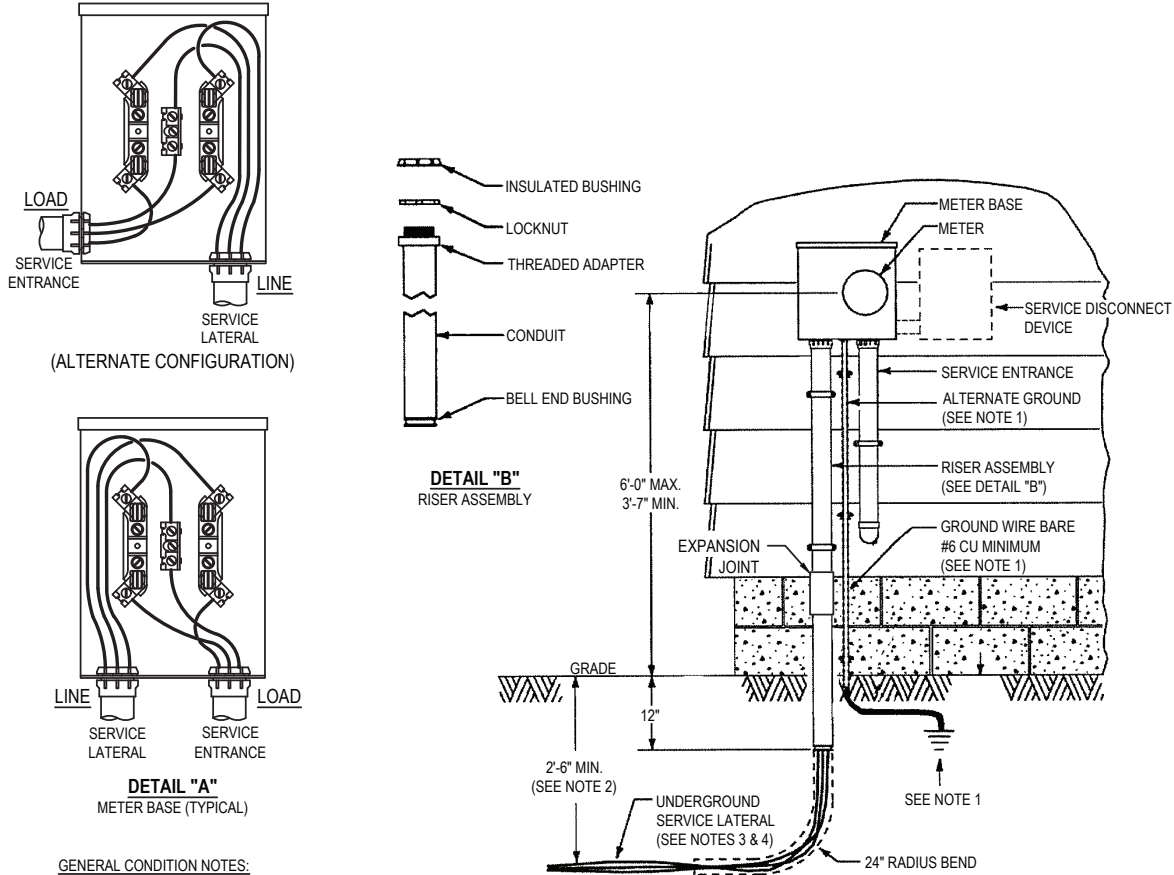
- (a) PROVIDING AND INSTALLING THE WEATHERHEAD, SERVICE MAST, ROOF FLASHING, BUILDING PLATE ATTACHMENT, BUILDING ATTACHMENTS AND SERVICE ENTRANCE CONDUCTORS. SERVICE ENTRANCE CONDUCTORS SHALL PROJECT A MINIMUM OF 18 INCHES FROM WEATHERHEAD.
- (b) PROVIDING A MAST SUPPORT STRONG ENOUGH TO WITHSTAND THE STRAIN IMPOSED BY THE SERVICE DROP.
- (c) INSTALLING MAST PIPE THROUGH A 2-3/8" DIA. HOLE IN A 2" x 12" MIN. BLOCK SOLIDLY BETWEEN RAFTERS - USE 3/8" x 4" WOOD SCREWS, FOUR ON EACH SIDE. MINIMUM ALLOWABLE SEPARATION BETWEEN ROOF AND SERVICE ATTACHMENTS MAY BE 1"-6". IF DIMENSION "X" IS 4'-0" OR LESS. MAXIMUM CONDUCTOR FILL IN 2" PIPE IS (3)-4/0 CONDUCTORS OR SERVICE ENTRANCE CABLE EQUIVALENT.
- (d) PROVIDING AND INSTALLING THE GROUND ROD, GROUND CLAMP & GROUND WIRE.
- (e) PROVIDING, INSTALLING, AND MAKING METER CONNECTIONS FOR THE SERVICE ENTRANCE CONDUCTORS.
- (f) SECURELY MOUNTING THE METER BASE IN A PLUMB POSITION.
- (g) INSTALLING EQUIPMENT IN ACCORDANCE WITH LES STANDARDS AND/OR LOCAL ORDINANCES OR CODES.

**GENERAL CONSTRUCTION NOTES:**

- (1) SERVICE MAST TO BE USED WHERE IT IS IMPOSSIBLE TO ATTACH WIREHOLDERS TO THE BUILDING WALL AND MAINTAIN PROPER CLEARANCE ACCORDING TO FIGURE 9. FOR PROPER ROOF TO SERVICE ATTACHMENT CLEARANCES, REFER TO CUSTOMER RESPONSIBILITY (c). ONLY POWER SERVICE CONDUCTORS ARE ALLOWED TO CONTACT THE SERVICE MAST NEC 230-28.
- (2) MINIMUM HEIGHT OF 18", MAXIMUM HEIGHT OF 36" WITHOUT GUYING
- (3) CUSTOMER GROUNDING WILL BE IN ACCORDANCE WITH NEC. THE GROUND WIRE SHALL BE CONNECTED TO THE METER SOCKET. METER SOCKET USED ON COMMERCIAL CUSTOMER SHALL HAVE A LEVER OPERATED BY-PASS FOR THREE PHASE AND SINGLE PHASE.

	<b>SERVICE ATTACHMENT TO MAST OF LOW PROFILE OR OTHER BUILDING</b>	DATE: 1 Sep 2016
		FIGURE: 07

# LES Meter Services Specification Guide



**GENERAL CONDITION NOTES:**

LES WILL BE RESPONSIBLE FOR:

- (a) DESIGNATING THE LOCATION FOR THE TRENCH AND THE METER.
- (b) PROVIDING AND INSTALLING THE UNDERGROUND SERVICE LATERAL.
- (c) INSTALLING AND REMOVING THE METER.
- (d) MAKING THE CONNECTIONS IN THE METER BASE FOR THE UNDERGROUND SERVICE LATERAL (SEE DETAIL "A").

THE CUSTOMER WILL BE RESPONSIBLE FOR:

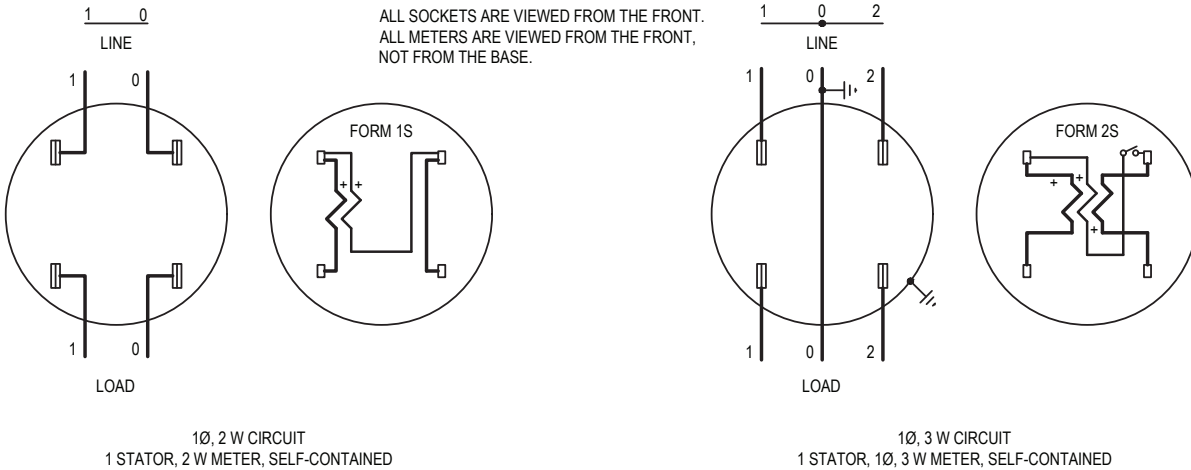
- (a) PROVIDING AND INSTALLING THE RISER ASSEMBLY. RISER ASSEMBLY TO CONSIST OF AN INSULATING BUSHING, LOCKNUT, THREADED ADAPTER, GALVANIZED OR SCHEDULE 40 PVC CONDUIT WITH BELL END AND CLAMP.
- (b) PROVIDING AND INSTALLING THE GROUND ROD, GROUND CLAMP, AND GROUND WIRE.
- (c) PROVIDING, INSTALLING, AND MAKING METER CONNECTIONS FOR THE SERVICE ENTRANCE CABLE.
- (d) SECURELY MOUNTING THE METER BASE IN A PLUMB POSITION.
- (e) INSTALLING AN EXPANSION JOINT ON EVERY RISER.

**GENERAL CONSTRUCTION NOTES:**

- (1) CUSTOMER GROUNDING WILL BE IN ACCORDANCE WITH NEC. THE GROUND WIRE SHALL BE CONNECTED TO THE METER SOCKET.
- (2) BURIAL DEPTH IS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED CABLE OR CONDUIT. LES SHALL SPECIFY THE REQUIRED BURIAL DEPTH TO CONFORM TO LOCAL REQUIREMENTS. THE BURIAL DEPTH SHALL NOT BE LESS THAN 2'-6".
- (3) IF THE CUSTOMER DOES THE TRENCHING, THE TRENCH IS TO EXTEND NO CLOSER TO LES' TRANSFORMER OR PEDESTAL THAN A DISTANCE SPECIFIED BY LES. CUSTOMER TO DETERMINE LOCATION OF ALL UTILITIES BEFORE TRENCHING.
- (4) ADDITIONAL PVC CONDUIT AND A 24 INCH BEND MAY BE INSTALLED IN ORDER TO EXTEND CONDUIT BEYOND ANY GROUND LEVEL OBSTRUCTION (PATIO, DECK, DRIVEWAY, WALKWAY, ETC.). IF ADDITIONAL PVC CONDUIT IS REQUIRED TO CLEAR OBSTRUCTIONS, REFER TO LES FOR APPROVED PVC USAGE.
- (5) METER SOCKET USED ON COMMERCIAL CUSTOMER SHALL HAVE A LEVER OPERATED BY PASS FOR THREE PHASE AND SINGLE PHASE.

 <b>Lincoln Electric System</b>	<b>SINGLE PHASE UNDERGROUND SERVICE METER INSTALLATION</b>	DATE: 1 Sep 2016
		FIGURE: 08

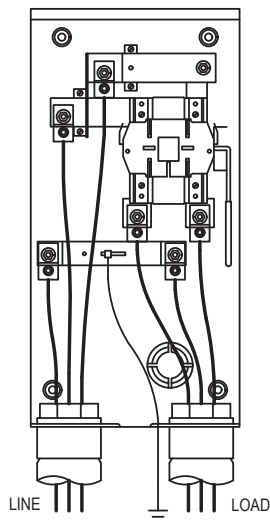
# LES Meter Services Specification Guide



## 2 WIRE 120 VOLT SINGLE PHASE

## 3 WIRE 120/240 VOLT SINGLE PHASE

- 200A AND BELOW - 1 PHASE
- RING OR RINGLESS TYPE
- 4-TERMINAL FOR 1Ø, 3W, 600V, 200A CONTINUOUS DUTY
- PROVISIONS TO FIELD INSTALL 5TH TERMINAL IN 9 O' CLOCK POSITION
- LINE/LOAD/NEUTRAL LUGS UP TO 350 MCM CU/AL
- GROUND LUG UP TO #2 CU/AL
- OH/UG FEED WITH OH HUB OPENING AND BLANK COVER
- KNOCKOUTS IN THE FOLLOWING SIZES & POSITIONS:  
ONE (1) 2 1/2" ON THE BACK PANEL AT THE BOTTOM CENTER  
ONE (1) 1/2" FOR EQUIPMENT GROUND IN BOTTOM PANEL
- NO BYPASS LEVER REQUIRED
- MINIMUM ENCLOSURE SIZE: 11" x 14" x 4 1/8"



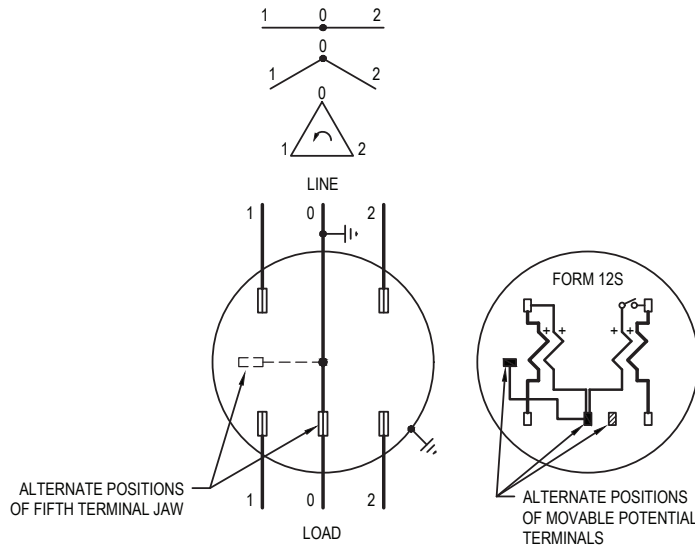
## 400A SOCKET (CLASS 320 METER)

- 1 PHASE
- 4-TERMINAL FOR 1Ø, 3W, 600V, 320A CONTINUOUS DUTY
- PROVISIONS TO INSTALL 5TH TERMINAL IN 9 O' CLOCK POSITION
- LINE CONNECTORS: #4-600 MCM CU/AL OR (2) 1/0-250 MCM CU/AL
- KNOCKOUTS IN THE FOLLOWING SIZES & POSITIONS:  
THREE (3) 3 1/2" ON THE BOTTOM PANEL  
ONE (1) 1/2" FOR EQUIPMENT GROUND IN BOTTOM PANEL
- LEVER BYPASS REQUIRED
- MINIMUM ENCLOSURE SIZE: 13" x 28" x 4 7/8"

FOR 3 PHASE 400A SOCKET (CLASS 320 METER)  
SPECIFICATIONS PLEASE CONTACT LES METER  
SERVICES DEPARTMENT

 <b>Lincoln Electric System</b>	<b>SELF-CONTAINED METER DIAGRAMS</b>	DATE: 8 Feb 2018
		FIGURE: 09

# LES Meter Services Specification Guide



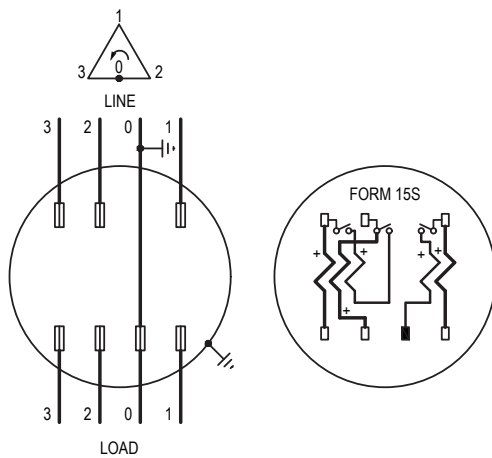
### 3 WIRE (NETWORK) 120/208 VOLT

2 STATOR, 3Ø, 3 W (NETWORK) METER, SELF-CONTAINED

- 200A AND BELOW - 1 PHASE SOCKETS (120/208 VOLT)
- RING TYPE UNLESS BY-PASS EQUIPPED
- 5-TERMINAL FOR 1Ø, 3W, 600V, 200A CONTINUOUS DUTY
- 5TH TERMINAL INSTALLED IN 9 O' CLOCK POSITION
- LINE/LOAD/NEUTRAL LUGS UP TO 350 MCM CU/AL
- GROUND LUG UP TO #2 CU/AL
- KNOCKOUTS IN THE FOLLOWING SIZES & POSITIONS:  
THREE (3) 2" ON THE BOTTOM PANEL  
ONE (1) 1/2" FOR EQUIPMENT GROUND IN BOTTOM PANEL
- MINIMUM ENCLOSURE SIZE: 11" x 14" x 4 1/8"

### 3 WIRE DELTA 240 VOLT 3-PHASE (MAINTENANCE ONLY)

ON 3-PHASE, 3-WIRE CIRCUITS, A GROUND IS OPTIONAL. WHERE A 3-PHASE CIRCUIT IS GROUNDED, THE NEUTRAL CONNECTOR IN THE SOCKET SHOULD BE GROUNDED. WHERE A 3-PHASE CIRCUIT IS UNGROUNDED, THE NEUTRAL CONNECTOR IN THE SOCKET SHOULD BE INSULATED.

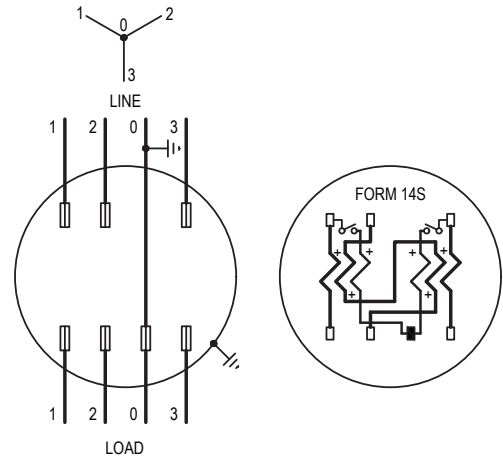


3Ø, 4 W, Δ CIRCUIT  
2 STATOR, 3Ø, 4 W, Δ METER, SELF-CONTAINED

### 4 WIRE DELTA 120/240 VOLT 3 PHASE


208 VOLT (WILD LEG) INSTALLED  
ON RIGHT HAND SIDE

- 200A - 3 PHASE
- RING OR RINGLESS ACCEPTED
- 7-TERMINAL FOR 3Ø, 4W WYE OR DELTA, 600V, 200A CONTINUOUS DUTY
- LINE/LOAD/NEUTRAL LUGS UP TO 350 MCM CU/AL
- GROUND LUG UP TO #2 CU/AL
- OH/UG FEED WITH OH HUB OPENING AND BLANK COVER
- KNOCKOUTS IN THE FOLLOWING SIZES & POSITIONS:  
TWO (2) 3" ON THE BOTTOM PANEL  
ONE (1) 1/2" FOR EQUIPMENT GROUND IN BOTTOM PANEL
- LEVER BYPASS RECOMMENDED
- MINIMUM ENCLOSURE SIZE: 13" x 19" x 4 7/8"



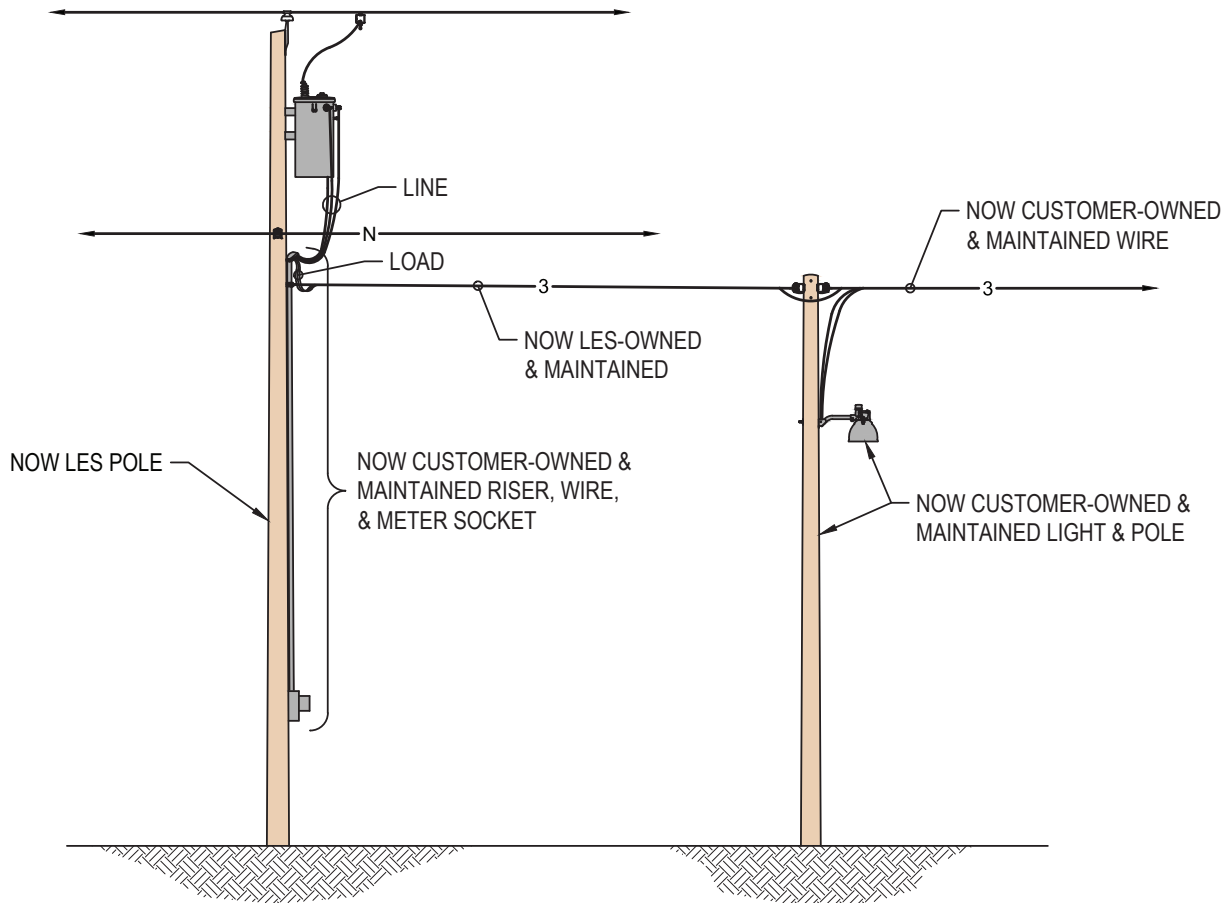
3Ø, 4 W, Y CIRCUIT  
2 STATOR, 3Ø, 4 W, Y METER, SELF-CONTAINED  
(ALSO CALLED 2 1/2 STATOR)

### 4 WIRE WYE 120/208 VOLT 3 PHASE

 <b>Lincoln Electric System</b>	<b>SELF-CONTAINED METER DIAGRAMS</b>	DATE: 8 Feb 2018

# LES Meter Services Specification Guide

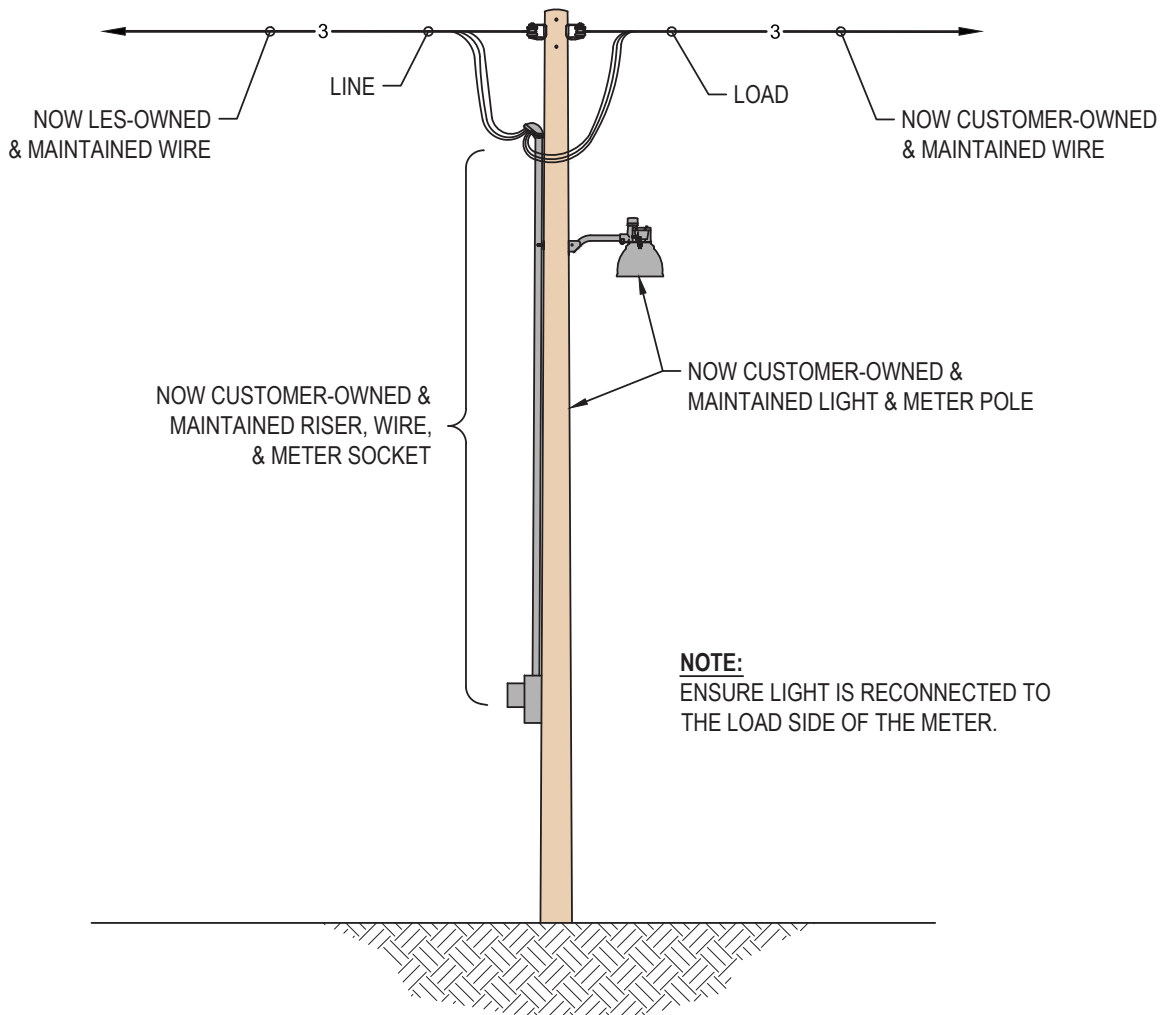
**NOTICE:** THESE ARE "GRANDFATHERED" SERVICES AND ARE NOT INTENDED AS REFERENCE TO RE-WIRE AND/OR NEW CONSTRUCTION APPLICATIONS. THESE ARE REFLECTIVE OF LES AND CUSTOMER OWNERSHIP. PLEASE DIRECT ANY QUESTIONS TO CUSTOMER SERVICE DESIGN DEPARTMENT (402-467-7632).



 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018

# LES Meter Services Specification Guide

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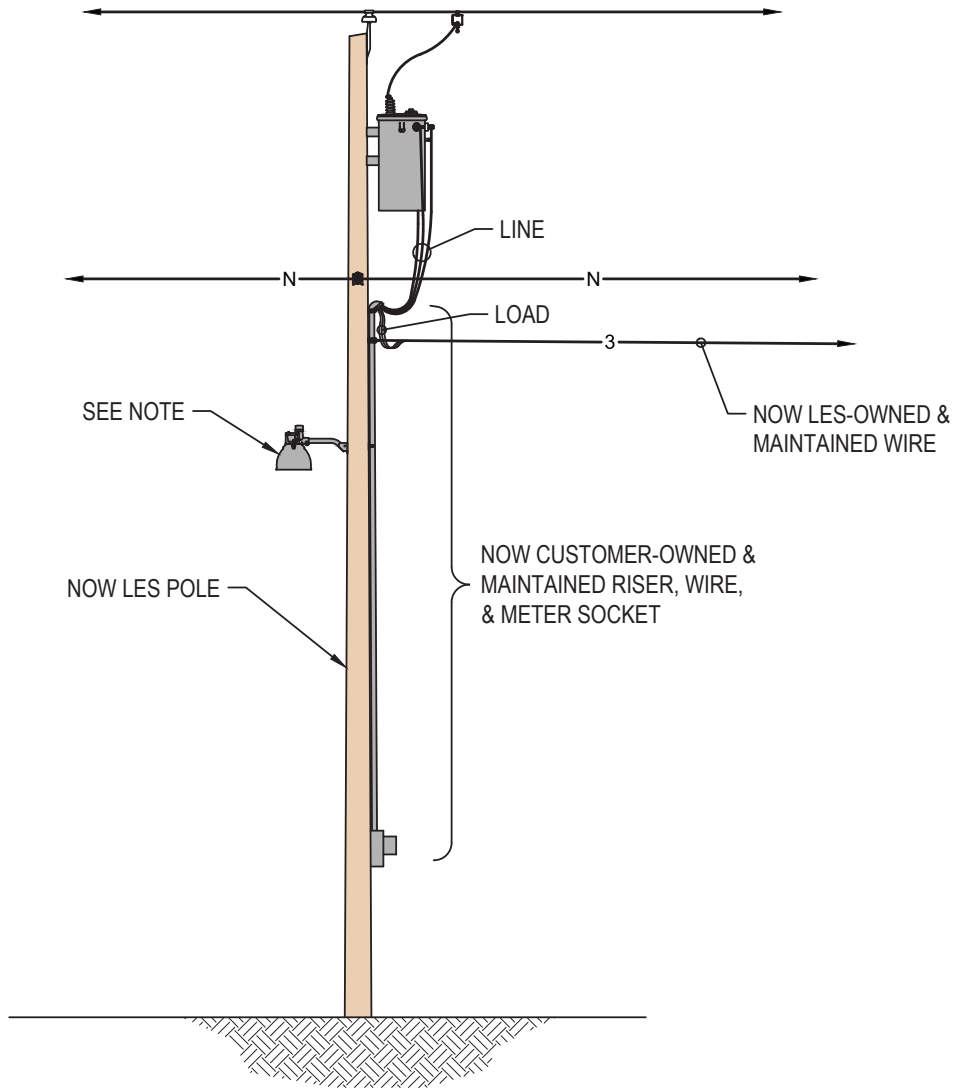
**NOTE:** THERE MAY EXIST METER POLES ACQUIRED YEARS AGO WHERE THERE IS AN LES NAIL OR NUMBER TAG. THOSE POLES ARE OWNED BE LES. CONTACT LES FOR DISPOSITION OF THESE POLES.

 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018
		FIGURE: 12



# LES Meter Services Specification Guide

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**NOTE:**

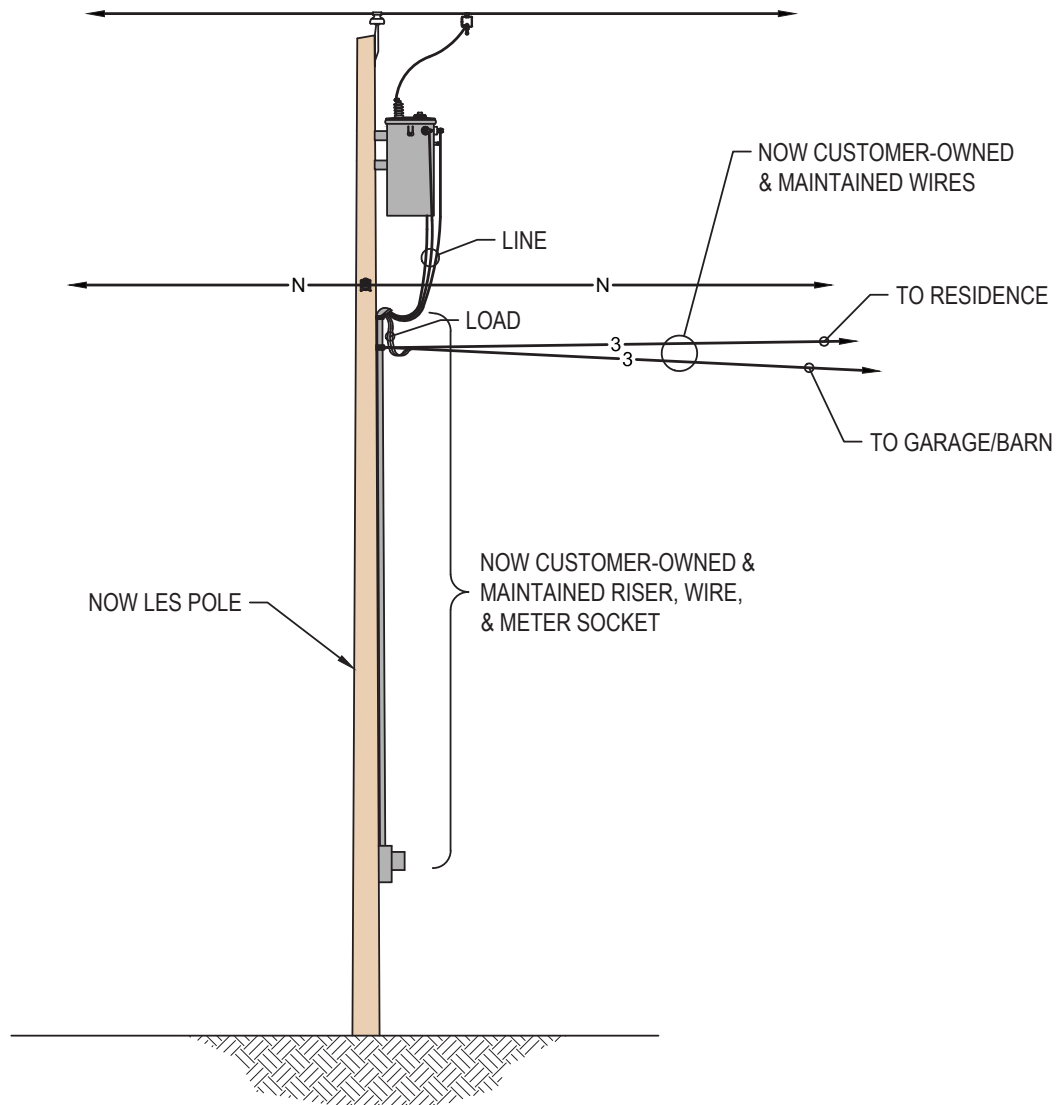
PRIVATELY OWNED SECURITY LIGHTS ARE NOT ALLOWED. IF SECURITY LIGHT WAS OWNED BY NORRIS AND LEASED TO CUSTOMER, LES WILL RECONNECT LIGHT TO THE LINE SIDE. LES WILL OWN & MAINTAIN THE SECURITY LIGHT.

 <b>Lincoln Electric System</b>	<b>NORRIS/LES ACQUIRED SERVICE</b>	DATE: 8 Feb 2018
		FIGURE: 13

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# LES Meter Services Specification Guide

**NOTICE:** THESE ARE "GRANDFATHERED" SERVICES AND ARE NOT INTENDED AS REFERENCE TO RE-WIRE AND/OR NEW CONSTRUCTION APPLICATIONS. THESE ARE REFLECTIVE OF LES AND CUSTOMER OWNERSHIP. PLEASE DIRECT ANY QUESTIONS TO CUSTOMER SERVICE DESIGN DEPARTMENT (402-467-7632).

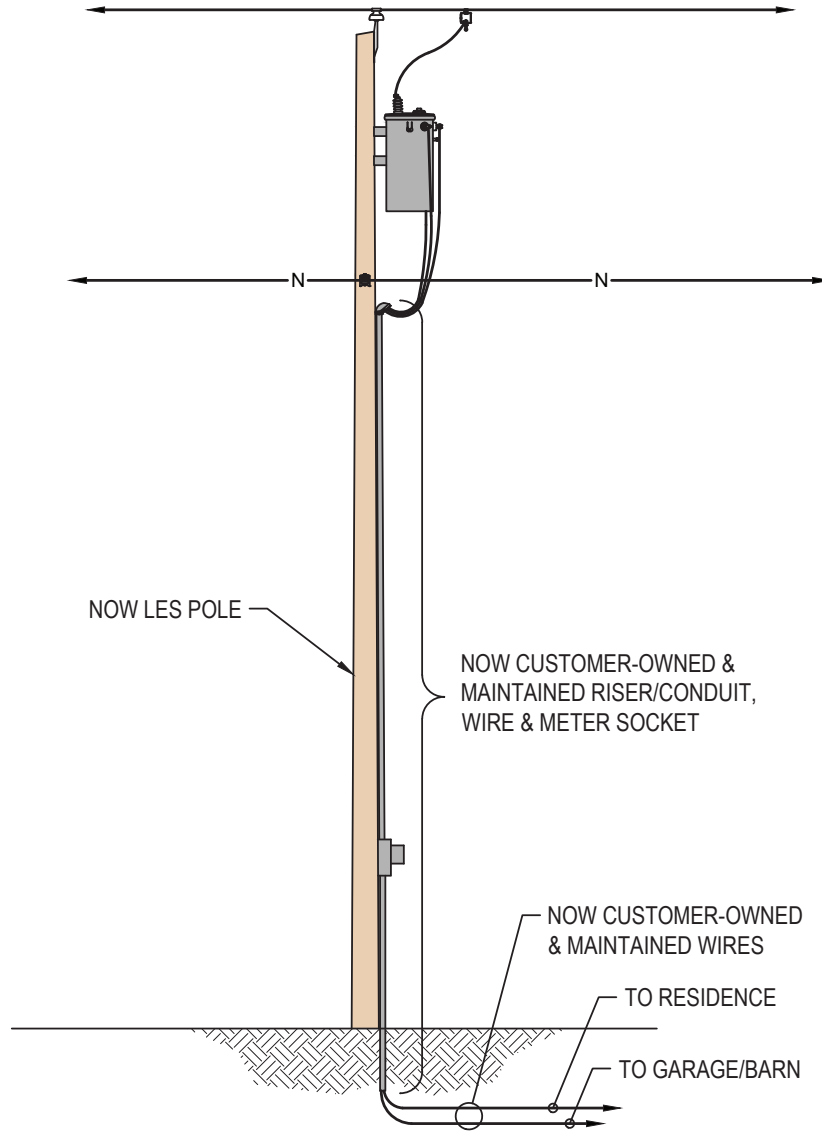


LES OWNS AND MAINTAINS ONE SERVICE DROP REGARDLESS OF WHETHER IT IS BEFORE OR AFTER THE CUSTOMER'S METER TO A RESIDENCE ONLY. HOWEVER, IF THERE ARE DROPS SERVING A RESIDENCE AND OTHER BUILDINGS (SUCH AS A BARN OR GARAGE) OR CUSTOMER-OWNED POLES WITH CUSTOMER LIGHTS, WELLS, ETC., LES DOES **NOT** OWN ANY OF THE SERVICE DROPS.

 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018
		FIGURE: 14

# LES Meter Services Specification Guide

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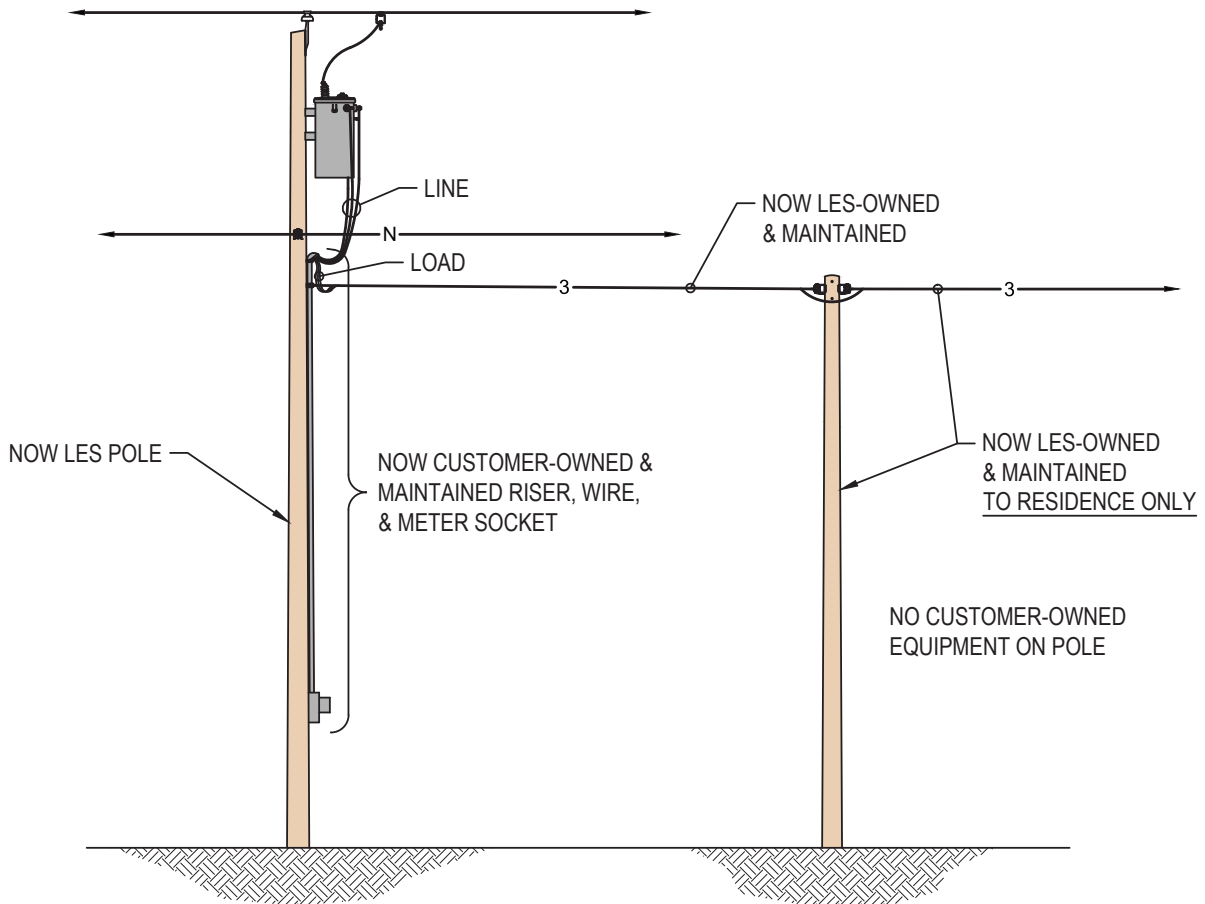
LES OWNS AND MAINTAINS ONE SERVICE DROP REGARDLESS OF WHETHER IT IS BEFORE OR AFTER THE CUSTOMER'S METER TO A RESIDENCE ONLY. HOWEVER, IF THERE ARE DROPS SERVING A RESIDENCE AND OTHER BUILDINGS (SUCH AS A BARN OR GARAGE) OR CUSTOMER-OWNED POLES WITH CUSTOMER LIGHTS, WELLS, ETC., LES DOES **NOT** OWN ANY OF THE SERVICE DROPS.

 <b>Lincoln Electric System</b>	<b>NORRIS/LES ACQUIRED SERVICE</b>	DATE: 8 Feb 2018
		FIGURE: 15

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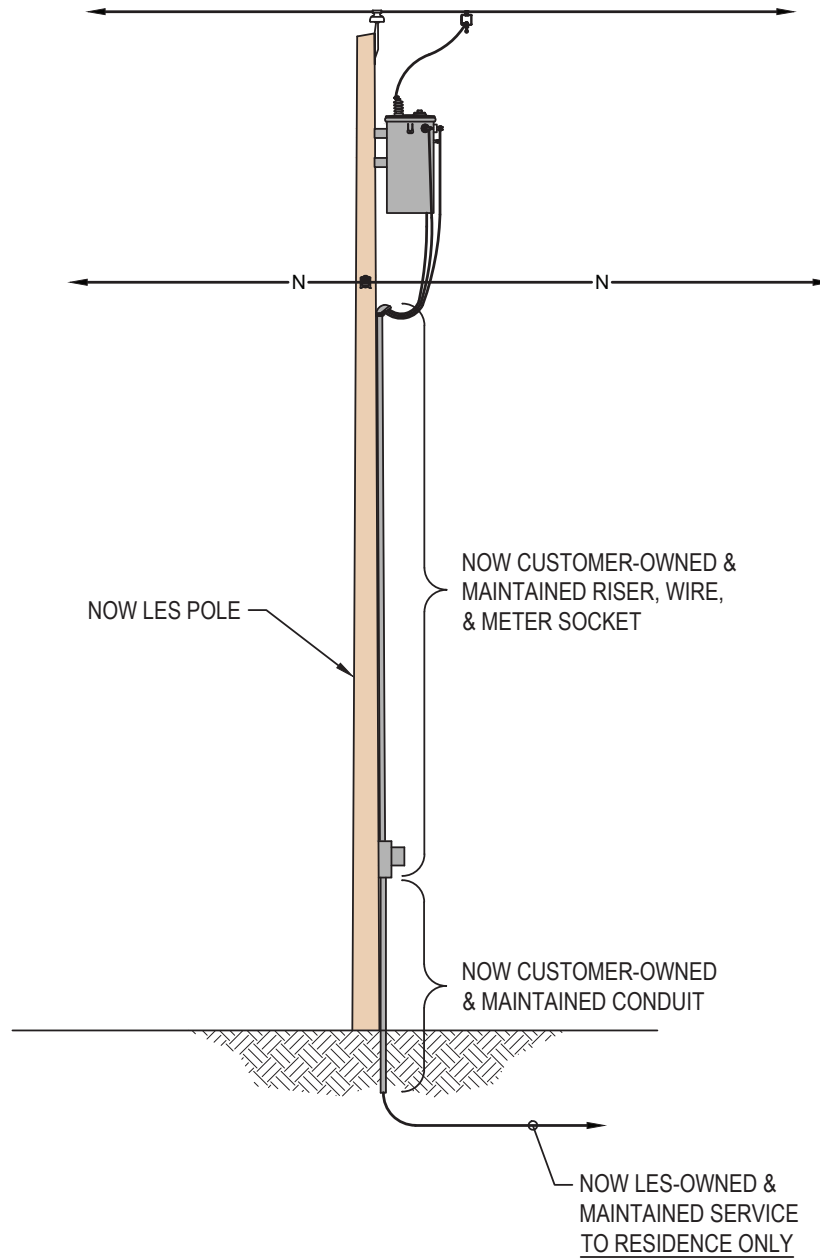


LES OWNS AND MAINTAINS ONE SERVICE DROP REGARDLESS OF WHETHER IT IS BEFORE OR AFTER THE CUSTOMER'S METER TO A SINGLE RESIDENCE. LES WILL OWN AND MAINTAIN SERVICE DROP SUSTAINING POLES AS LONG AS THERE IS NO CUSTOMER-OWNED EQUIPMENT ON THEM AND THE SERVICE SERVES ONLY A SINGLE RESIDENCE.

 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018
		FIGURE: 16

# LES Meter Services Specification Guide

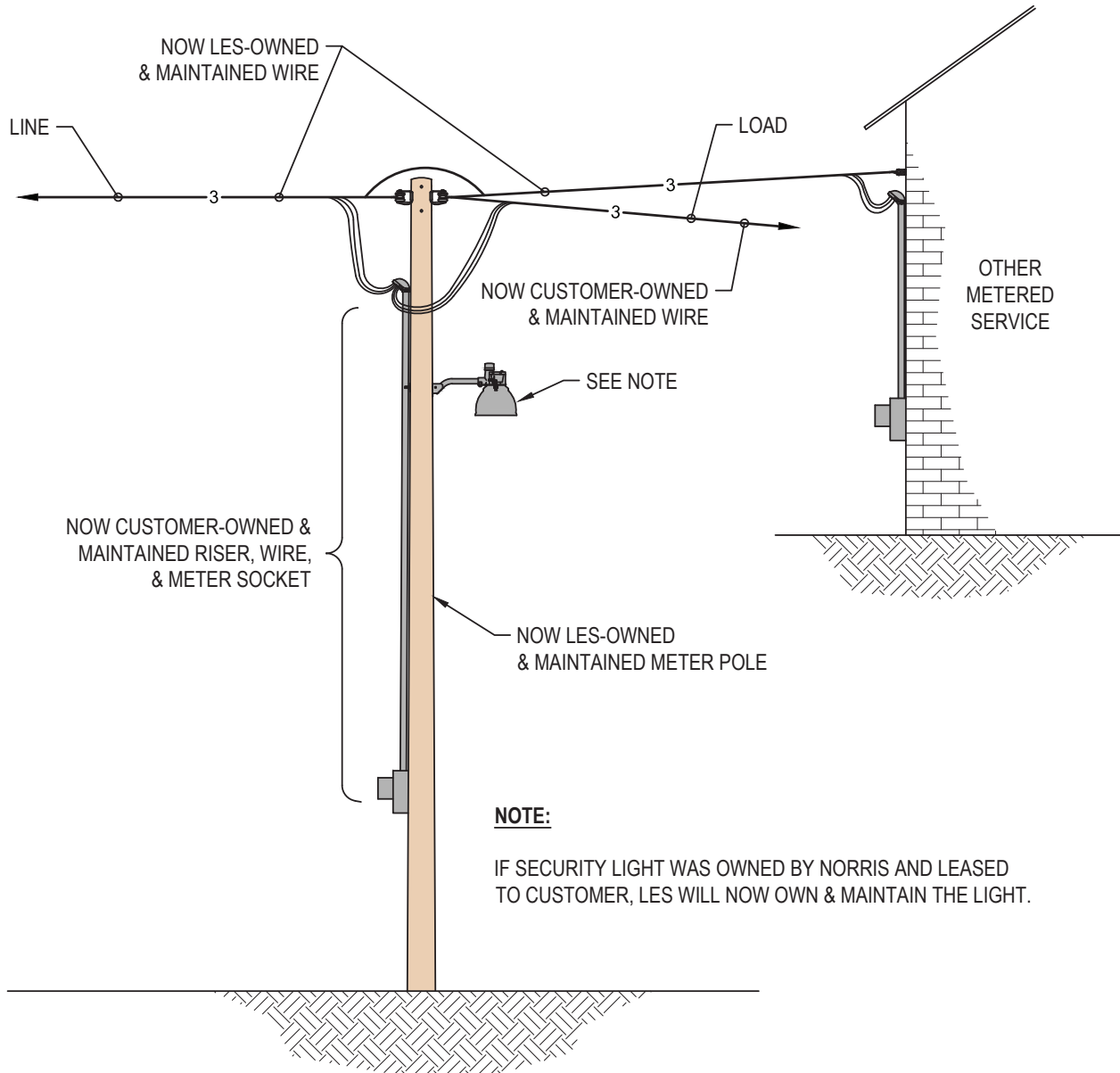
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 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018
		FIGURE: 17

# LES Meter Services Specification Guide

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WHEN ACQUIRING NEW SERVICE AREA, SOME POLES MAY HAVE A METER SOCKET/LOOP ATTACHED AND A SERVICE GOING TO ANOTHER METER. BOTH METERS MAY SERVE THE SAME CUSTOMER ON THE SAME PROPERTY. IN THE CASE, LES WILL OWN AND MAINTAIN THE POLE WITH THE CUSTOMER'S METER/LOOP ON IT.

 <b>Lincoln Electric System</b>	NORRIS/LES ACQUIRED SERVICE	DATE: 8 Feb 2018
		FIGURE: 18

SERVICE SIZE SPECIFICATIONS - TABLE A			
SERVICE SIZE (AMPS)	# OF ATTACHMENTS	1Ø CABLE TYPE	3Ø CABLE TYPE
150A OR LESS	1	#2 TRIPLEX	#1/0 QUADRUPLIX
200/225A	1	#1/0 TRIPLEX	#1/0 QUADRUPLIX
400A	1	#4/0 TRIPLEX	#4/0 QUADRUPLIX
600A	2	#4/0 TRIPLEX	#4/0 QUADRUPLIX
800A	2	#4/0 TRIPLEX	#4/0 QUADRUPLIX
1000A	3	#4/0 TRIPLEX	#4/0 QUADRUPLIX
1200A	3	#4/0 TRIPLEX	#4/0 QUADRUPLIX
1400A	4	#4/0 TRIPLEX	#4/0 QUADRUPLIX
1600A	4	#4/0 TRIPLEX	#4/0 QUADRUPLIX
1800A	5	#4/0 TRIPLEX	#4/0 QUADRUPLIX
2000A	5	#4/0 TRIPLEX	#4/0 QUADRUPLIX

1Ø SERVICE CABLE TENSION - TABLE B (6)			
APPROX. SPAN LENGTH (6)	#2 TRIPLEX	#1/0 TRIPLEX	#4/0 TRIPLEX
50' SPAN, ~2' SAG	235 LBS	280 LBS	371 LBS
100' SPAN, ~3' SAG	627 LBS	747 LBS	989 LBS
150' SPAN, ~5' SAG	847 LBS	1009 LBS	1335 LBS

3Ø SERVICE CABLE TENSION - TABLE C (5)			
APPROX. SPAN LENGTH (6)	#1/0 QUADRUPLIX	#4/0 QUADRUPLIX	
50' SPAN, ~2' SAG	314 LBS	428 LBS	
100' SPAN, ~3' SAG	838 LBS	1136 LBS	
150' SPAN, ~5' SAG	1131 LBS	1533 LBS	

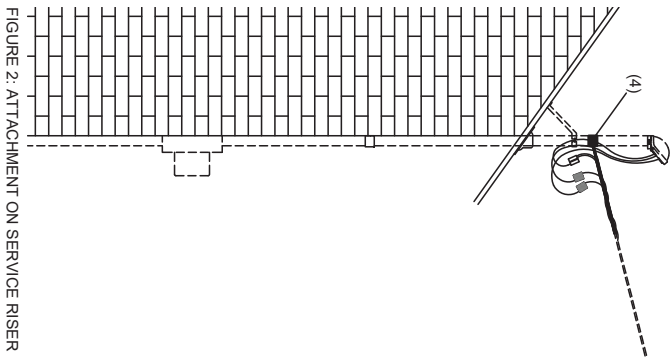
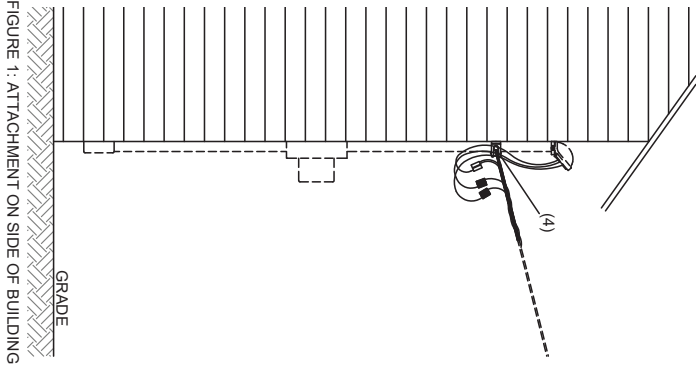


FIGURE 1: ATTACHMENT ON SIDE OF BUILDING

FIGURE 2: ATTACHMENT ON SERVICE RISER

**HOW TO USE THIS SPECIFICATION DIAGRAM:**

- (1) FIND THE SERVICE SIZE ON THE SERVICE SIZE SPECIFICATIONS TABLE (TABLE A).
- (2) FOR A SINGLE PHASE SERVICE, USE THE 1Ø CABLE TYPE COLUMN TO FIND THE SERVICE CABLE SIZE AND TYPE. THEN FIND THE NUMBER OF ATTACHMENTS FOR THE SERVICE SIZE IN THE # ATTACHMENTS COLUMN. FINALLY, LOOK UP THE SPECIFIED CABLE TYPE IN THE 1Ø SERVICE CABLE TENSION TABLE (TABLE B) AT THE APPROXIMATE SPAN LENGTH.
- (3) FOR A THREE PHASE SERVICE, USE THE 3Ø CABLE TYPE COLUMN TO FIND THE SERVICE CABLE SIZE AND TYPE. THEN FIND THE NUMBER OF ATTACHMENTS FOR THE SERVICE SIZE IN THE # ATTACHMENTS COLUMN. FINALLY, LOOK UP THE SPECIFIED CABLE TYPE IN THE 3Ø SERVICE CABLE TENSION TABLE (TABLE C) AT THE APPROXIMATE SPAN LENGTH.
- (4) ENSURE THE PULL-OUT STRENGTH OF THE CUSTOMER'S ATTACHMENT HARDWARE, WHEN USED WITH A PROPERLY SUPPORTED SERVICE RISER OR SPECIFIC BUILDING MATERIAL, IS GREATER THAN AND CAN WITHSTAND THE CONSTANT APPLIED TENSION SHOWN.
- (5) TENSION CALCULATED USING HEAVY LOADING CONDITIONS ON SUPPLY CABLE DETERMINED BY THE N.E.S.C. USING 1/2 INCH RADIAL ICE 4 LBS/FT<sup>2</sup> (4Ø MPH) WIND, AND A 0.3 OVERLOAD CAPACITY FACTOR. THIS IS NOT THE INITIAL (INSTALLED) TENSION. THIS TENSION IS BASED ON WHAT CAN BE EXPECTED OF ICE COVERED CABLES WITH WIND.
- (6) CONDUCTOR SAG AT DIFFERENT SPAN LENGTHS IS DETERMINED ON A CASE-BY-CASE BASIS WITH MAINTAINING CLEARANCE REQUIREMENTS THE TOP CONSIDERATION. THE AMOUNT OF SAG USED FOR THESE CALCULATIONS IS THE PRACTICAL MINIMUM SAG EXPECTED ON INSTALLED SUPPLY CABLE, REPRESENTING THE HIGHEST EXPECTED CABLE TENSION. CONDUCTOR SAG CAN VARY OVER TIME AND WITH CHANGES IN TEMPERATURE.

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED BY	W LARSON	06/20/2016
CHECKED BY	S YOUNG	10/27/2016
APPROVED BY	E TURK	10/31/2016

DESIGNED BY	V STRATTON	10/14/2016
CHECKED BY	W LARSON	06/20/2016
APPROVED BY	S YOUNG	10/27/2016



OVERHEAD SERVICE DROP CONNECTIONS  
1Ø AND 3Ø - 480V OR LESS  
1310.A

SCALE	NONE
DRAWING NO.	1310.A
SHT. 1 of 1	

FIGURE 19