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Engineering_Standards@srpnet.com

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SUBMIT QUESTIONS, COMMENTS OR SUGGESTIONS TO:
Policy, Procedures & Standards
Engineering_Standards@srpnet.com
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NOTE: FOR UNDERGROUND CLEARANCES, REFER TO ELECTRICAL CLEARANCE STANDARDS BOOK.
I. Purpose and Scope
A. The following Underground Distribution Construction Standards attempt to address the majority of construction, however special conditions may occur requiring modification.

B. It is imperative to maintain standardization. Completed Job Orders must reflect any changes on the completed “Installation Records” to assure that all record keeping systems reflect the actual location and facilities as they have been constructed. The accuracy of construction in accordance with standards will allow SRP to expedite future locating, rebuilding or repairing of these facilities to improve customer service.

II. How to Use This Book
A. Revisions are indicated by red font.

B. Title blocks are used to hold information about the book, section, and standard and are located at the bottom of the page.
   1. “Approval” refers to the engineer responsible for that standard.
   2. “Issue Date” is when the standard was originally created.
   3. Revision Date (“Rev Date”) is the date the standard was last updated. Note that standards are reviewed periodically by the responsible engineer, and if no updates are necessary in that review, the Rev Date will remain unchanged.
   4. Revision statements are a summary of the changes made on the page and are located at the top of the title block.
   5. If a revision results in the complete removal of a diagram or an entire section of a diagram or a complete section of text, a brief explanation of the removal will be entered in the revision statement location of the title block.
   6. Revisions to formatting and corrections to typographical errors and/or page numbers will not be noted as a revision date change, however, it will be indicated in red and entered as a change in the Standards Revision Log.

C. Utilizing SRP Standards
   1. When utilizing SRP’s standards in design projects, modification of said standards is NOT permitted.
   2. Details or images may be extracted and used in design projects when they do not include the title block of the standard and are not presented as a standard.

III. Changes to Standards
These standards are subject to update and modification at any time. Printed copies of this manual are provided as a courtesy, but may not include the most up-to-date standards, references, or requirements.

To access current standards, visit our website:
### IV. Contact Information

#### A. Business and Residential

<table>
<thead>
<tr>
<th>Service</th>
<th>Note</th>
<th>Phone Number</th>
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<tr>
<td><strong>Electrical Emergencies</strong></td>
<td>NOTE: Call 9-1-1 first for medical emergencies</td>
<td>(602) 236-8811</td>
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<tr>
<td>Fallen Power Lines, Arcing, Electric Shock, Damage to SRP Facilities</td>
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<tr>
<td><strong>Residential</strong></td>
<td>General Information, Billing Inquiries, Power Outages, Maintenance of SRP Facilities, Temporary Disconnect from SRP Facilities</td>
<td>(602) 236-8888</td>
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<td><strong>Business Center</strong></td>
<td>General Information, Billing Inquiries, Municipal Customers, Public Agency Customers, Inspections, Temporary Disconnect from SRP Facilities</td>
<td>(602) 236-8833</td>
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<td><strong>Spanish</strong></td>
<td>La Linea – servicio en español</td>
<td>(602) 236-1111</td>
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<td><strong>SRP Water (Irrigation)</strong></td>
<td>Emergencies, Water (Irrigation), Flooding, General Information, Billing Inquiries, Irrigation Orders, Schedule Time Inquiries</td>
<td>(602) 236-3333</td>
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<td><strong>Location of Underground Facilities</strong></td>
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<tr>
<td><strong>Blue Stake</strong></td>
<td>Within Maricopa County</td>
<td>(602) 263-1100</td>
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<td>Outside of Maricopa County</td>
<td>(800) 782-5348</td>
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<td><strong>SRP Distributed Energy Programs</strong></td>
<td>Main Line</td>
<td>(602) 236-4448</td>
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<td>Residential Programs</td>
<td>(602) 236-4661</td>
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<td></td>
<td>Residential Solar Water Heaters</td>
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<td>Commercial Programs</td>
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#### B. Additional Resources

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<td><strong>Graphic Records:</strong></td>
<td>Contract construction companies can request printing services online at srpnet.com/electric/business/graphicrequest.aspx</td>
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<tr>
<td><strong>Shop Drawings:</strong></td>
<td>Customers are required to supply shop drawings for service entrance sections with non-pre-approved meter pedestals (single or double), non-pre-approved 320 amps, and all 400 amps and above. Email <a href="mailto:shopdraw@srpnet.com">shopdraw@srpnet.com</a> (PDF files are preferred).</td>
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<tr>
<td><strong>Standards-related questions:</strong></td>
<td>Email <a href="mailto:Engineering_Standards@srpnet.com">Engineering_Standards@srpnet.com</a></td>
<td></td>
</tr>
</tbody>
</table>

SRP’s website: srpnet.com
Residential / Business Electric / Water assistance information.
V. Area Business Office Locations

East Valley Service Center…………………………………...7050 E. University Dr., Mesa  85207
Project Administration Building……………………………….1500 N. Mill Ave., Tempe  85281
Pinal County Customer Center……………………………..3735 E. Combs Rd., San Tan Valley  85242
West Valley Service Center………………………………….…..221 N. 79th Ave., Tolleson  85353

VI. References

There are numerous documents and standards that were used in developing these guidelines. Many of
these documents are modified and updated over time; the equipment of an interconnected generator
shall conform to the most recent versions of these documents. A partial list of documents used is
included below:

• Electric Utility Service Equipment Requirements Committee (EUSERC) Manual
• Institute of Electrical and Electronics Engineers (IEEE)
• International Building Code (IBC)
• National Electric Code (NEC)
• National Electrical Manufacturers Association (NEMA)
• National Electric Safety Code (NESC)
• Underwriter Laboratories (UL)
• Various state and municipal requirements
INSTRUCTIONAL GUIDE

PURPOSE: FOR INSTALLATION, REMOVAL OR REPLACEMENT OF BASIC CONSTRUCTION ASSEMBLIES USED IN UNDERGROUND DISTRIBUTION CONSTRUCTION.
NOTES
1. GUARD POST TO BE INSTALLED WHERE NECESSARY TO PROTECT PAD-MOUNTED EQUIPMENT.
2. BACKFILL WITH CONCRETE (MATERIAL ITEM #: 5075323) OR BACKFILL WITH NATIVE SOIL AND COMPACT TO 95% DENSITY.
3. GUARD POST SHALL BE ONE AND A HALF LAP TAPED WITH 2" X 10 MIL. BLACK PVC TAPE (NOT REQUIRED WHEN BACKFILLED WITH CONCRETE).
4. APPLY REFLECTIVE TAPE (MATERIAL ITEM #: 5010577) 18" AND 30" ABOVE THE GROUND LINE.
5. TYPICAL INSTALLATIONS SHOWN BELOW:

### GUARD POST 6" X 6'

1/4" X 8" X 4" STEEL PLATE (8) WELDED TO PIPE AT 90 DEG ANGLES

EQUIPMENT PAD (VULNERABLE FROM SIDE)

EQUIPMENT PAD (VULNERABLE FROM FRONT)
UBGRD
8' COPPER CLAD GROUND ROD WITH CONNECTOR AND 6#4-3 CU WIRE

UBGRDGL
8' COPPER CLAD GROUND ROD WITH CONNECTOR AND 8#6 CU WIRE FOR STREET LIGHTS

NOTE:
THE TOP OF THE ROD AND CONNECTING WIRE ARE TO BE INSTALLED BELOW FINAL GRADE LEVEL EXCEPT WHEN INSTALLED IN PAD-MOUNTED ENCLOSURES.

UBGRDG
GROUND ROD ONLY FOR CONTRACTOR INSTALLATION

UBGRDL
8' COPPER CLAD GROUND ROD WITH CONNECTOR AND 8#6 CU WIRE FOR STREET LIGHTS

NEW INSTALLATIONS

UBGRDJ
PAD MOUNTED ENCLOSURES

UBGRDP
LIGHT POLES

ALTERNATE GROUNDING ELECTRODE FOR USE AT EQUIPMENT WHERE EXISTING FACILITIES CONFLICT WITH DRIVING A GROUND ROD.

BARE COPPER #4-3 STRAND (5033848) FOR ENCLOSURES
#6 SOLID (5033845) FOR LIGHT POLES

COPPER PLATE (5034834)

MARK WITH GREEN TAPE

FINAL GRADE

5' MINIMUM DEPTH

(PREFERRED)
RETROFIT
EXISTING INSTALLATIONS

(SECOND CHOICE)
RETROFIT
EXISTING INSTALLATIONS

UBGRDA
ALTERNATE GROUNDING ELECTRODE FOR USE AT PAD MOUNTED EQUIPMENT WHERE EXISTING FACILITIES CONFLICT WITH DRIVING A GROUND ROD.

CONNECTED TO DEVICE GROUNDING LUG

MARK WITH GREEN TAPE

FINAL GRADE

100 FT.

100 FT. OF #4 BARE COPPER (5033848) LAID STRAIGHT ALONG BOTTOM OF TRENCH.
UBPF1 IS TO BE USED FOR ALL SINGLE PHASE TRANSFORMERS AND ANY OTHER ENCLOSURE USED ON A SINGLE PHASE TRANSFORMER PAD.

UBPF3 IS TO BE USED FOR ALL SWITCHING AND FUSING ENCLOSURES

IF NEEDED, CONTACT POWER C&M TOOL ROOM FOR CONCRETE DRILLS AND WEDGE ANCHORS

3" X 3/8" REDHEAD WEDGE ANCHOR OR EQUIVALENT WITH 3/8" NUT AND WASHER
(1/2" BOLT, NUT AND WASHER MAY ALSO BE USED)

THIS IS FOR ALL PADS NOT COVERED BY UBPF1 OR UBPF3
**NOTE:**
1. END OF RUN METER PEDESTAL.
2. COMPATIBLE UNIT INCLUDES 10' OF SECONDARY CONDUCTOR FOR MAKE-UP INSIDE METER PEDESTAL.

**WIRE SIZES:**
- UTX10
- UTX350
- UTX40
- UTXK10
- UTXK40
- UTX10K
- UTX350K
- UTX40K

**NOTES:**
- SECONDARY IN ONLY
- SECONDARY IN AND SECONDARY OUT
**NOTES**

1. Bury at least 8" above energized conductor. Closer distance will cause the marker to be ineffective at 4 foot or greater depth.

2. The marker is to be buried flat and level.

3. Cover with at least 4" of select backfill to prevent accidental movement or damage during backfill. (For service conduit, it may be in bottom of trench.)

4. Care should be taken to insure that cable, tin foil, or other extraneous metal does not get discarded into the trench prior to backfill. Metal in close proximity will render the marker ineffective.

5. For permanent installation with a buried junction box: drill 2 holes in lid and secure marker to lid with nylon cable tie.
PAD-MOUNTED EQUIPMENT MUST BE SECURED FROM UNAUTHORIZED ACCESS AND OPERATION.

LOCKS

ALL PAD-MOUNTED EQUIPMENT (INCLUDING JUNCTION BOXES) WITH PROVISIONS TO CARRY A LOCK SHALL HAVE AN APPROVED LOCK INSTALLED. EQUIPMENT OPERATING HANDLES SHALL ALSO HAVE APPROVED LOCKS INSTALLED. DISTRICT PADLOCKS AVAILABLE FROM THE WAREHOUSE INCLUDE STOCK CODE 5014605 (SHORT SHANK), AND STOCK CODE 5014606 (LONG SHANK). A SHEAR HEAD LOCK, STOCK CODE 5014360, IS AVAILABLE FOR USE IN AREAS SUBJECT TO PADLOCK THEFT.

PENTAGRAM HEAD BOLTS

ALL PAD-MOUNTED EQUIPMENT (INCLUDING READILY ACCESSIBLE JUNCTION BOXES) WITH PROVISIONS TO CARRY PENTA-HEAD BOLTS SHALL HAVE THEM INSTALLED. SOME OLDER PIECES OF EQUIPMENT MAY NOT HAVE PROVISIONS TO INSTALL PENTA-HEAD BOLTS, THEREFORE ONE CANNOT BE INSTALLED. TO PREVENT CROSSTHREADING, THE BOLT SHALL BE STARTED BY HAND, THEN TIGHTENED USING A PENTA-HEAD WRENCH (STOCK CODE 5039838), OR SOCKET (STOCK CODE 5039839).

REPLACEMENT PENTA-HEAD BOLTS AVAILABLE IN IMPREST

<table>
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<td>3/8 X 1.25, 16</td>
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<tr>
<td>5034052</td>
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<td>5034056</td>
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<td>1/2 X 2.5, 13</td>
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<tr>
<td>5034284</td>
<td>1/2 X 3.0, 13</td>
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WHEN REPLACING MISSING 1/2" PENTAGRAM HEAD BOLTS IN PAD-MOUNTED EQUIPMENT, USE A PUSH NUT RETENTION WASHER (STOCK #5069569) TO HOLD THE BOLT CAPTIVE AND PREVENT FUTURE LOSS.
EQUIPMENT INSTALLATION

1. THE BASE OF ALL EQUIPMENT INSTALLED ON PADS SHALL BE BE FLUSH WITH THE SURFACE OF THE PAD, WITH NO GAPS BETWEEN THE PAD SURFACE AND BASE OF EQUIPMENT. WHEN A TRANSFORMER IS INSTALLED, VERIFY THE SILL IS FLUSH AGAINST THE SURFACE OF THE PAD. THIS MAY REQUIRE ADJUSTMENT TO CLOSE ANY GAPS BETWEEN THE SILL AND THE PAD.

2. PAD-MOUNTED EQUIPMENT SHALL BE SECURED TO THE ANCHOR PROVISIONS AVAILABLE IN THE PAD USING BRACKETS, STOCK CODES 5035026 OR 5035027. NOTE: CAPACITOR AND THREE-PHASE TRANSFORMER PADS DO NOT HAVE ANCHOR PROVISIONS.

VERMIN BARRIER (GOPHER PROOFING)

1. PAD MOUNTED EQUIPMENT WINDOW(S) SHALL BE SEALED TO PREVENT GOPHERS AND OTHER VERMIN FROM INFESTING THE EQUIPMENT.
   
   A. FOR NEW EQUIPMENT INSTALLATIONS, IF CONTROLLED LOW STRENGTH MATERIAL (CLSM ½ SACK, 5075313) IS NOT USED FOR TRENCH BACKFULL UNDER THE EQUIPMENT PAD, THE WINDOW(S) OF THE PAD SHALL BE SEALED WITH A CEMENT BASED MORTAR (SEE NOTE 2).
   
   B. FOR EXISTING EQUIPMENT INSTALLATIONS, IF EVIDENCE OF GOPHERS OR OTHER VERMIN EXISTS IN THE AREA NEAR THE EQUIPMENT, THE WINDOW(S) OF THE PAD SHALL BE SEALED WITH A CEMENT BASED MORTAR (SEE NOTE 2).

2. IF MORTAR IS USED, IT SHALL BE ONE-COMPONENT, RAPID-SET, POLYMER MODIFIED CEMENT BASED MORTAR SUCH AS “SPEED CRETE”.

3. WHEN CEMENT BASED MORTAR IS USED TO SEAL THE WINDOW(S) OF EQUIPMENT PADS, IT SHALL BE INSTALLED TO A THICKNESS OF 1 TO 2 INCHES. THE MORTAR SHALL NOT BE INSTALLED TO A THICKNESS THAT OVERFLOWS INTO THE CONDUIT. NOTE: NEITHER CLSM NOR MORTAR SHALL BE USED TO GOPHER PROOF SECONDARY WINDOWS OF THREE-PHASE TRANSFORMERS WITH SECONDARY PULLBOXES.

4. “SPEED CRETE” IS AVAILABLE IN IMPREST, STOCK CODE 5011902.
## PAD MOUNTED CAPACITORS

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<td>INSTRUCTIONAL GUIDE</td>
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<td>PROCEDURE FOR TESTING DISTRIBUTION CAPACITOR BANKS RATED 7.2KV, 60HZ</td>
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<tr>
<td>CAPACITOR CONTROL WIRING DIAGRAM</td>
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<tr>
<td>CODING FOR MAINTENANCE &amp; AUXILIARY EQUIPMENT</td>
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<td>MOUNTING PAD FOR FUTURE CAPACITOR</td>
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<td>CODING FOR RETIREMENT OF NON-STANDARD CAPACITOR BANKS</td>
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<tr>
<td>FIELD TEST REMOTE CONTROLLER/KYLE SWITCH OPERATION, JOSLYN (_OBSOLETE)</td>
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INSTRUCTIONAL GUIDE

PURPOSE: FOR INSTALLATION OF CAPACITOR BANKS ON THE 7.2/12.47KV DISTRIBUTION SYSTEM.

COMPATIBLE UNIT CODING FOR UG SECTION

GENERAL CRITERIA

THE TYPE OF CAPACITOR BANKS REFERENCED IN THIS SECTION ARE PAD MOUNTED, PRE-ASSEMBLED, 1200 KVAR SWITCHED BANK UNITS.

THE PREFIX LETTERS OF THE COMPATIBLE UNIT CODE INDICATE PAD MOUNT CONSTRUCTION. THE NEXT CHARACTERS IN THE CODE DESIGNATE THE TOTAL KVAR OF THE BANK. FOR INSTANCE, 12 INDICATES 1200 KVAR.

EXAMPLE

COMPATIBLE UNIT

UCA12

CAPACITOR BANK, PAD MOUNTED CONSTRUCTION

1200 KVAR (SINGLE PHASE CAPACITOR UNITS)

SWITCHED CAPACITOR BANKS

ALL CAPACITOR BANKS ARE PURCHASED WITH A 1/2 KVA, SINGLE PHASE TRANSFORMER TO PROVIDE THE CONTROL VOLTAGE FOR THE BANK SWITCHING.
PROCEDURE FOR TESTING 12.47KV PAD-MOUNT DISTRIBUTION CAPACITOR BANKS RATED 7.2KV, 60HZ

1. DE-ENERGIZE CAPACITOR BANK WITH AUTOMATIC CONTROL.
2. USE HIGH VOLTAGE AMP METER TO VERIFY OIL SWITCHES ARE OPEN.
3. DISCONNECT AND PARK PRIMARY ELBOWS ON INSULATED BUSHINGS, WAIT 5 MINUTES FOR CAPACITOR TO DISCHARGE.
4. USING A HOT STICK AND TEMPORARY JUMPERS, SHUNT ACROSS EACH OF THE THREE GROUPS OF CAPACITOR TANKS.
5. VISUALLY INSPECT ALL OIL SWITCHES, CAPACITOR TANKS, AND POTENTIAL TRANSFORMER; CHECKING FOR BROKEN BUSHINGS, BULGING TANKS AND OBVIOUS OIL LEAKS.
6. USING A MULTI-METER ON THE MICROFARAD SETTING, MEASURE THE MICROFARAD RANGE BETWEEN THE BUSHINGS OF EACH CAPACITOR TANK. IF THE MEASURED VALUE OF THE CAPACITOR TANK IS NOT IN THE ACCEPTABLE RANGE SHOWN IN THE CHART BELOW, THEN THE CAPACITOR NEEDS TO BE REPLACED.

<table>
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<tr>
<th>PHASE VOLTAGE (V)</th>
<th>TANK SIZE (KVAR)</th>
<th>MINIMUM VALUE (µF)</th>
<th>NOMINAL VALUE (µF)</th>
<th>MAXIMUM VALUE (µF)</th>
<th>MINIMUM PHASE CURRENT (A)</th>
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7. WHEN REMOVING CAPACITORS BANKS OR CAPACITOR TANKS FROM SERVICE, A PIECE OF CONDUCTOR SHALL BE INSTALLED BETWEEN THE BUSHINGS OF EACH TANK.

8. LOW VOLTAGE FUSES IN THE CONTROLLERS ARE:
   HD ELECTRIC (VARCOM) 15 AMP SLOW-BLOW (5034355)
   EATON COOPER 10-AMP FUSE (5089126)

NOTES

1. PRIOR TO PLACING IN SERVICE, ON-LINE TEST EACH PHASE OF THE CAPACITOR BANK USING THE ABOVE CHART FOR ACCEPTABLE PHASE CURRENT BASED ON CAPACITOR SIZE.
2. THE FIRST FOUR STEPS OF THE ABOVE PROCEDURE MAY BE OMITTED FOR NEW INSTALLATIONS THAT HAVE NEVER BEEN ENERGIZED.
3. MULTI-METER WITH MICROFARAD SETTING REPLACES THE CAPACITANCE AND SIMPSON METER FOR CHECKING CAPACITORS
4. USE #12 CU GROUND WIRE FROM THE METER SOCKET TO THE BOTTOM OF THE OUTSIDE OF THE CONTROLLER CABINET.
### COMPATIBLE UNIT CODING FOR MAINTENANCE OF CAPACITOR BANKS

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### COMPATIBLE UNIT CODING FOR AUXILIARY EQUIPMENT USED WITH CAPACITOR BANKS

<table>
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<tr>
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<th>Description</th>
<th>Material Item</th>
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<tbody>
<tr>
<td>UCBP</td>
<td>PARKING STAND EXTENSION</td>
<td>5035030</td>
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**NOTES**

1. A 400KVAR 1Ø CAPACITOR MAY BE REPLACED WITH TWO 200KVAR 1Ø CAPACITORS (5034238). #2 COPPER 600V, 7-STRAND (5033865) IS USED FOR CONNECTIONS.
FOR 1200KVA CAPACITOR, SM-637175-5069784 (APPROXIMATE WEIGHT: 1500 LBS.). INCLUDES PAD, CONDUIT AND END CAPS.
NOTES

1. CHOOSE THE TYPE OF SWITCH AND BUSHING POSITION ON WHICH THE CAPACITOR WILL BE INSTALLED. PARKING STAND EXTENSIONS ARE INCLUDED AND INSTALLED WHEN SERVED FROM THE LOWER BUSHINGS OF A DEAD FRONT SWITCH.

2. TERMINATE A #4 CU GROUND BUS INTO THE ENCLOSURE GROUND CONNECTOR. TRAIN THE #4 CU GROUND BUS IN FRONT AND ALONG THE BASE OF THE ENCLOSURE TO THE GROUND PLATE. TRAIN THE CONCENTRIC NEUTRALS DOWN ALONG THE PRIMARY CABLES AND CONNECT TO THE #4 CU GROUND BUS USING COMPRESSION CONNECTORS. NEUTRAL CURRENT SENSOR TO BE MOUNTED WITH LABEL FACING CABINET ON #4 CU GROUND BUS.

3. INSTALL CONTROLLER 5087354 IN THE DISTRIBUTION LINE PAD-MOUNTED CAPACITOR. FOR TIER 2 BASE STATIONS (T2B) INSTALL TC-CAPCTRL. FOR ENDPOINTS INSTALL TC-CAPCTRLEP.

4. CONNECT #12 CU GROUND WIRE FROM THE METER SOCKET TO THE BOTTOM OF THE OUTSIDE OF THE EATON COOPER CONTROLLER CABINET. (GREEN WIRE MAY EXIT SOCKET FROM THE TOP, BOTTOM, OR MAY NEED TO BE INSTALLED.)

5. SEE MISCELLANEOUS SECTION FOR ENCLOSURE AND CABLE IDENTIFICATION MARKING METHODS.

6. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS FRONT OF ENCLOSURE. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS THAT WOULD PROHIBIT ACCESS BY SRP PERSONNEL.

7. NEW CAPACITOR BANK SHALL BE ENERGIZED, TESTED, FUSES LEFT CLOSED WITH BANK OIL SWITCHES OPEN, PRIOR TO CREW LEAVING JOB (REFER TO 2-7-1). FOR EATON COOPER CONTROLLER, PERFORM 6 STEPS LISTED ON THE EATON COOPER DIAGRAM (REFER TO 2-7-2).

CAUTION
CAPACITORS SHALL BE SWITCHED VIA THE INTERNAL SWITCH(S) ONLY. LOAD BREAK ELBOWS SHALL NOT BE USED TO SWITCH CAPACITOR BANKS AND ARE TO BE USED ONLY UNDER NO LOAD CONDITIONS.
NOTES

1. LEAVE ANTENNA AND ITS ELBOW IN DOOR OF CONTROLLER.
NOTES

1. REMOVE THE FUSE FROM CONTROLLER BEFORE INSTALLATION.
2. VERIFY CONTROLLER IS PROPERLY MOUNTED.
3. ATTACH ANTENNA TO CONTROLLER.
4. VERIFY POWER CABLE & ETHERNET CABLE ARE BOTH CONNECTED TO CONTROLLER AND RADIO.
5. VERIFY THE CONTROLLER & THE NEUTRAL OF THE CAPACITOR BANK ARE PROPERLY GROUNDED.
   a. VERIFY THE GROUND LUG IS TIED DIRECTLY TO EARTH GROUND TO ENSURE THAT THE CASE & INTERNAL COMPONENTS ARE SAFELY GROUNDED.
6. REINSTALL CONTROLLER FUSE.
1. FRONT OF PAD SHALL FACE STREET.
2. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
3. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.
4. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATION NOTES (TRENCHING SECTION).
5. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE CAPACITOR BANK (DESIGNATED PARKING), FRONT OF CAPACITOR SHALL BE ROTATED 90° INTO EASEMENT. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD R/W.
6. CONDUIT INSTALLED AND CAPPED 6 INCHES BELOW PAD WHEN PROVIDED FOR FUTURE CAPACITOR BANK.
7. WIDEN LATERAL TRENCH PER STUB-UP DETAIL.
COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD CAPACITOR BANKS

**CONTROLLED CAPACITOR BANKS**

<table>
<thead>
<tr>
<th>BANK SIZE KVAR</th>
<th>UNIT SIZE KVAR</th>
<th>UNITS 1 Ø</th>
<th>COMPATIBLE UNIT CODE *</th>
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<tbody>
<tr>
<td>900</td>
<td>150</td>
<td>X</td>
<td>RUCC1509N</td>
</tr>
<tr>
<td>1200</td>
<td>200/400</td>
<td>X</td>
<td>RUCC20012N</td>
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* FOR LIVE FRONT OR DEAD FRONT
TESTING RC CONTROLLER/KYLE SWITCH OPERATION

OPEN THE RC CONTROLLER AFTER IT IS INSTALLED AND ENERGIZED.

Normally, the kyles will be in the open position and the green light should be on. With the toggle switch in the local position press the red button. The red light should flash for about one minute and then the red light will turn on continuous with an audible click and the kyles should close. After 30 seconds a relay picks up and the counter advances. Press the green button and the kyle switch will open. Leave toggle in the local position and fuses in. You are done.

Possible problems:
If the yellow or red light is flashing or there are no lights on pull the controller from the socket and reinstall it.
If the green light is not on, leave the fuses in, lock the cabinet and contact Doc or the capacitor technician.

Rarely, the red light may be on at first and the kyles are open. If this happens, press the green button and the green light should come on and the kyles should remain open. On the bottom dip switch move the cit slider to the right (this will remove a seven minute timer from the operation). Press the red button, the red light will flash for about one minute then the red light will turn on continuous and the kyles should close. After 30 seconds the counter will advance, press the green button again. The kyle switch will open. Leave the toggle in the local position, return the dip switch cit slider to the left. You are done.
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# SWITCHING AND FUSING

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COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD ENCLOSURES, SWITCHES, AND FUSES | 3-39-1

### 22KV SECTION

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22KV PRIMARY TAP ENCLOSURE, 1/0 TAP & RUN | 3-40-1
22KV SINGLE PHASE PRIMARY PULLING ENCLOSURE | 3-41-1
NOTES

ENCLOSURE GROUND CONNECTORS SHALL BE INSTALLED AS SHOWN FOR 2/0 OR #4 BARE COPPER BUS AS NOTED ON EQUIPMENT INSTALLATION STANDARD.
NOTES
1. WHEN USED IN DEAD FRONT AIR INSULATED FUSE ENCLOSURES THE PULLING EYE (RED HEAD) AND ARC STRANGLER MUST BE REMOVED BY CUTTING THE TOP OFF THE PULLING EYE.
2. WHEN USED IN LIVE FRONT FUSE ENCLOSURE (UFE), THE PULLING EYE REMAINS.
3. IN LIVE FRONT FUSE ENCLOSURES (UFE) OLDER THAN ABOUT 1968 USING THE KNUCKLE MOUNTING, THIS BLADE WILL NOT FIT.
ASSEMBLY INSTRUCTIONS

1. INSTALL EXPULSION FUSE INTO FUSE HOLDER AND THREAD TIGHTLY ONTO CURRENT LIMITING FUSE. THIS COMPATIBLE UNIT INCLUDES EXPULSION FUSE 5034440 WHICH IS MARKED 50 AMPS BUT IN THE AMBIENT OIL ENVIRONMENT IS RATED TO CARRY 80 AMPS. FOR OTHER FUSE SIZES, SEE THE TRANSFORMER FUSING CHART FOR DEAD FRONT FUSING.

2. INSTALL FUSE HOLDER CLAMP AND THREAD CURRENT LIMITING FUSE ONTO UPPER CONTACT. TIGHTEN ENTIRE FUSE ASSEMBLY TO 120-180 IN.-LBS.

3. SEE LUBRICATING PROCEDURE (PG 8-27-1) FOR TRANSFORMER BUSHINGS AND ELBOWS.

4. WHILE THE A.B. CHANCE FUSE HAS A REPLACEABLE LOW CURRENT (LOAD SENSING) ELEMENT, (5034440) THE COOPER FULL RANGE FUSE DOES NOT.

NOTE 1 & 2.
FUSE 5034440 WITH 50 AMP FUSE 5034440 NOTE 1 & 2.

NOTE 3
TYPE HL ELBOW VOLTAGE INDICATOR WITH PULSATING NEON LIGHT (WHEN ENERGIZED). (5035417)

NOTE 4 (CURRENT LIMITER AND LOW CURRENT FUSE COMBINED)
RE-FUSING INSTRUCTIONS FOR FUSED ELBOW

1. AN OPERATED FUSE WILL BE INDICATED BY A NON-FLASHING VOLTAGE INDICATOR, LOCATED ON THE BOTTOM TEST POINT OF THE FUSED ELBOW.

2. REMOVE AND PARK THE ELBOWS AT BOTH THE SOURCE AND LOAD ENDS OF THE CABLE RUN.

3. VERIFY THE CABLE IS DE-ENERGIZED AND GROUND AT THE LOAD END.

4. REMOVE THE PROBE FROM THE FUSED ELBOW BY UNSCREWING.

5. SEPARATE THE PROBE HALF HOUSING FROM THE FUSE HALF HOUSING, EXPOSING THE PROBE CONNECTOR.

6. REMOVE THE PROBE CONNECTOR BY LOOSENING THE ALLEN SCREW.

7. UNSCREW THE OPERATED FUSE FROM THE HOUSING.

8. INSTALL NEW FUSE (5034422) BY APPLYING A SMALL AMOUNT OF SILICONE GREASE TO THE BODY. INSERT THE THREADED END OF THE FUSE INTO THE FUSE HOUSING AND SCREW IT INTO THE CONNECTOR, HAND TIGHT.

9. RE-ASSEMBLE THE PROBE CONNECTOR ONTO THE EXPOSED FUSE TERMINAL, MAKING SURE THE FLATS ARE PERPENDICULAR WITH WITH THE BUSHING IT WILL MATE WITH.

10. APPLY SILICONE GREASE TO THE PROBE HALF OF THE FUSED ELBOW AND ASSEMBLE TOGETHER, MAKING SURE THE RUBBER SURFACES BUTT AND THE TEST POINTS ARE PARALLEL TO EACH OTHER.

11. RE-INSTALL PROBE INTO PROBE HOUSING AND TIGHTEN

12. RE-LUBRICATE THE BUSHING/ELBOW INTERFACES WITH SILICONE GREASE AND RETURN CIRCUIT TO OPERATION.
NOTES

1. (3) FEED THRU PARKING BUSHINGS & (6) #4/0 ELBOW TERMINATORS ARE PROVIDED IN THIS UNIT TO PROVIDE FOR (1) 3 Ø TRANSFORMER LOOP TAP.

2. PARKING BUSHING BASE SHALL BE CONNECTED TO ENCLOSURE GROUNDING BUS USING #6 CU AND SPLIT BOLT.

3. WHEN ORDERING FOR ANY DEVICE OTHER THAN A PDT, DELETE THE ELBOWS.
SWITCHING AND FUSING
DEAD FRONT SWITCH TERMINATING COMPONENTS

Underground Distribution
Construction Standards

PROPRIETARY MATERIAL

-issue date: 01/15/87
rev. date: 03/23/22
approval: J. Luera

3-6-1

8513E595.DGN
NOTES

1. CU INCLUDES COMPONENTS FOR A SINGLE TERMINATION.
2. SEE INDIVIDUAL SWITCH DETAIL FOR CU COMPONENTS AND INSTALLATION ORDER.
3. SUBSTITUTE CU UFBT74 FOR UFBT750D AND UWBT40E WHEN 600 A T-BODY WITH # 4/0 ELBOW CONNECTION IS REQUIRED.
4. SUBSTITUTE CU UWBR40BE FOR UFBEC AND UWBT40E WHEN BUSHING EXTENSION WITH # 4/0 ELBOW CONNECTION IS REQUIRED.
CONNECTOR

PREFERRED LOCATION
LOCATE THE FAULT INDICATOR ABOVE THE STRESS CONE NEAR THE CONNECTOR.

STRESS CONE

ELBOW CONNECTOR

SEE JACKET RESEALING INSTRUCTIONS

FAULT INDICATOR

CONCENTRIC NEUTRAL

ELBOW INSTALLATION
LOCATE THE FAULT INDICATOR BELOW THE ELBOW WITH THE YOKE SURROUNDING ALL CONCENTRIC NEUTRAL WIRES INCLUDING THE PIGTAIL.

ALTERNATE LOCATION
LOCATE THE FAULT INDICATOR BELOW THE STRESS CONE, WITH THE YOKE SURROUNDING ALL CONCENTRIC NEUTRAL WIRES INCLUDING THE PIGTAIL.

JACKETED CABLE

LIVE FRONT INSTALLATION

THE FAULT INDICATOR MUST BE MOUNTED VERTICALLY (COMPANY NAME LOCATED AT THE TOP), MAX. DEVIATION FROM VERTICAL LINE 15 DEG.

CAUTION:
FAULT INDICATOR MUST BE CONSIDERED ENERGIZED. DE-ENERGIZE CONDUCTOR BEFORE INSTALLING OR REMOVING.

NOTES
1. BE SURE TO INSTALL FAULT INDICATOR RIGHT SIDE UP.
ALL BOTTOM FEEDER TERMINATIONS SHALL HAVE FAULT INDICATORS

**INSTALLATION PROCEDURE (ALL SWITCHES)**

1. THREE LOCATIONS ARE AVAILABLE FOR FAULT DETECTOR INDICATORS. INSTALL THE INDICATORS TO FACE THE STREET.

2. INSTALL INDICATOR ON LOWER WINDOW IN DOOR USING 2-1/4" X 1/2" BOLTS AND FLAT WASHERS.

3. TRAIN CABLE DOWN ALONG DOOR AND BEHIND CABLES ON LOWER BUSHINGS. ATTACH SENSORS ON 500MCM OR 750 MCM CABLES. (SEE DETAIL)

**NOTES**

1. SENSOR MUST BE INSTALLED OVER TWISTED DRAIN WIRES OR CONCENTRIC NEUTRALS ON EACH OF THE LOWER BUSHING TERMINATIONS.

2. DRAIN WIRES TWISTED TOGETHER AND BONDED TO GROUND USING COMPRESSION CONNECTOR.

3. THREE SWITCHES AT UDA HAVE A FAULT DETECTOR WITH CONTACTS (STOCK 5035310).
ALL UPPER FEEDER TIE TERMINATIONS SHALL HAVE FAULT INDICATORS

INSTALLATION PROCEDURE (SWITCHES WITH FEEDER TIES)

1. THREE LOCATIONS ARE AVAILABLE FOR FAULT DETECTOR INDICATORS. INSTALL THE INDICATORS TO FACE THE STREET.

2. INSTALL INDICATOR ON UPPER WINDOW IN DOOR USING 2-1/4" X 1/2" BOLTS AND FLAT WASHERS.

3. TRAIN CABLE DOWN ALONG DOOR AND BEHIND CABLES ON UPPER BUSHINGS. ATTACH SENSORS ON 500MCM OR 750MCM CABLES. (SEE DETAIL)

NOTES

1. SENSOR MUST BE INSTALLED OVER TWISTED DRAIN WIRES OR CONCENTRIC NEUTRALS ON EACH OF THE SPECIFIED BUSHING TERMINATIONS.

2. DRAIN WIRES TWISTED TOGETHER AND BONDED TO GROUND USING COMPRESSION CONNECTOR.

SENSOR INSTALLATION DETAIL

SEE NOTE 1

SEE NOTE 2
1. FAULT INDICATOR INCLUDED, SEE UFB3F IN SECTION 3.

2. OBTAIN KNOCKOUT TOOL FROM TOOL ROOM.
   A. START WITH 3/8" PILOT HOLE
   B. THEN CUT A 1/2" KNOCKOUT

3. A TOOL IS AVAILABLE TO TIGHTEN LENS. STOCK CODE 5035412.

4. ONLY ONE FAULT INDICATOR IS INSTALLED WITH UFB3FW. SPACING FOR A SECOND WINDOW IS SHOWN IF NEEDED.
NOTES
1. FOR THREE PHASE LOAD TAPS, MAKE ALL CONNECTIONS TO LEFT OR RIGHT HAND BUSHINGS OF EACH PHASE.

SYMBOLS
- 2 1/2" CONDUITS FOR #2 AL.(OR 3" CONDUIT FOR 4/0)
- 3" CONDUITS FOR 4/0 AL. SWITCH INTERTIE

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY, (BLUE TOP) AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.
3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.
4. MAINTAIN A MINIMUM 18" SEPARATION BETWEEN THE SIDES OF THE ENCLOSURE PAD AND THE PAD OF ANY ADJACENT EQUIPMENT OR FENCE. ALLOW ENOUGH SPACE FOR CONDUIT ELBOWS.
5. STUB 2/0 BARE COPPER NEUTRAL FROM SWITCH TO ENCLOSURE GROUNDING PADS OR INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CABLE, CONNECT GROUND ROD TO CABINET GROUND WITH #4 COPPER WIRE.
6. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE FUSE ENCLOSURE (DESIGNATED PARKING) FRONT OF FUSING ENCLOSURE SHALL BE ROTATED 90 DEG. IN TO EASEMENT, ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD R/W.
NOTES

1. THE AIR-INSULATED DEAD-FRONT FUSING ENCLOSURE IS A DIRECT REPLACEMENT FOR THE OIL-FILLED FUSING ENCLOSURE.

2. TO PROVIDE FOR TELCO BONDING, RUN #6 COPPER WIRE FROM A GROUNDING LUG TO A POINT 12" OUTSIDE THE PAD, LOCATE AS NEAR THE CENTER OF THE PAD OPENING AS POSSIBLE IN THE PRIMARY TRENCH AT A DEPTH OF 12".

3. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS FRONT OF ENCLOSURE. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS (SEE ELECTRIC SERVICE SPECIFICATIONS).

4. SEE "MISCELLANEOUS" SECTION OF BOOK FOR ENCLOSURE AND CABLE IDENTIFICATION MARKING METHODS.

5. RUN 2/0 COPPER WIRE ACROSS INSIDE ENCLOSURE FRONT TO GROUNDING LUG. CONNECT FEEDER NEUTRAL AND CONCENTRIC NEUTRALS TO THIS WIRE.

6. RADIAL FEED WILL BE 4/0 ALUMINUM FROM A NEARBY SWITCHING ENCLOSURE OR 600A GANG-OP RISER.

7. SINGLE PHASE CIRCUITS REQUIRE A 100 AMP FUSE. COMPATIBLE UNIT INCLUDES CURRENT LIMITING FUSES.

8. INSTALL GROUND ROD (IF 2/0 BARE NEUTRAL FROM SWITCH NOT INSTALLED) SO IT DOES NOT INTERFERE WITH CABLES. CONNECT TO CABINET GROUND WITH #4 CU WIRE.

9. WHEN ADDING A FUSED TAP AFTER INITIAL INSTALLATION, CALL FOR COMPATIBLE UNIT UFBF100. THIS INCLUDES ELBOW WITH VOLTAGE INDICATOR AND 100 AMP FUSE ASSEMBLY.

10. FOR REPLACEMENT OF RUSTED OUT ENCLOSURE ONLY, ORDER UFADC OR UFADCN (NO PAD).

REFUSING INSTRUCTIONS

1. LOAD SIDE ELBOWS CONTAIN VOLTAGE LAMPS THAT FLASH WHEN FUSE IS INTACT (CAUTION: LAMP IS NOT FOOLPROOF).

2. LOAD SIDE ELBOW MUST BE REMOVED AND PARKED BEFORE UNLATCHING AND OPENING A FUSE DOOR.

3. REPLACE BLOWN FUSE WITH NEW UNIT 5034574.
1. If 2/0 CU neutral is present, connect to both enclosure ground lugs. Otherwise, run 2/0 CU across front of enclosure ground lugs. Connect drain wires or concentric neutrals to this ground bus.

2. To provide for telco bonding, run #6 CU wire from enclosure grounding to a point 12" outside the pad. Locate in the trench at a depth of 12".

3. Fences are not allowed across the front of enclosure. A gate is permissible if it is free of locks that would prohibit access by SRP personnel.

4. See the miscellaneous section for enclosure and cable identification marking methods.

5. Conduit shall be stubbed to 1" below the level of the pad (4" above grade).

6. Load tap or feeder tie shall always be on top switch bushings. (Only pad mounted capacitors may also be tapped to lower bushings.)

7. All cable terminations provided for CU chosen.

8. Insulating cap on load bushing (load break bushing provided for grounding elbow when needed).

9. The 4/0 cables shall be trained so they will reach a parking bushing in one of the parking stands provided along side each bushing.

10. If 2/0 CU neutral is not present, install ground rod (not to interfere with cables) and connect #4 CU cabinet ground bus to rod. (A ground rod is issued with all switches for 750MCM feeder.)

11. Mount fault detector indicators to face street. See fault indicator installation procedure in this section.
A. PRIEST

AVOIDS THE NEED FOR A PULL BOX AT THE SWITCH TO SEPARATE THE 4/0 AL OUT INTO 3 - 3" CONDUIT.

TRAFFIC SIGNALS (AUTO OR RAIL) MAY ONLY BE SERVED FROM FIRST TRANSFORMER OUT.

6. MAINTAIN A MINIMUM OF 12 FT CLEARANCE IN FRONT OF SWITCH DOORS.

7. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE SWITCH (E.G. DESIGNATED PARKING), THE SWITCH SHALL BE ROTATED 90° SO THE OPERATING HANDLE FACES ROAD RIGHT-OF-WAY. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD RIGHT OF WAY.

8. STUB UP ONE 4" CONDUIT AS SHOWN ABOVE WHEN TAPPING INTO AN EXISTING 3 - 4/0 AL IN ONE 4" CONDUIT. THIS AVOIDS THE NEED FOR A PULL BOX AT THE SWITCH TO SEPARATE THE 4/0 AL OUT INTO 3 - 3" CONDUIT.

9. SEE PAGES 3-13-3 AND 3-13-4 WHEN THIS SWITCH WILL BE TIED INTO DIRECT BURIED CABLE OR OVERHEAD SYSTEM THAT WILL BE CONVERTED TO ALL CONDUIT SYSTEM IN THE FUTURE.

10. 50KVA MAXIMUM. ONE 50KVA OR TWO 25KVA TRANSFORMERS. IF TWO 25KVA TRANSFORMERS ARE CONNECTED, TRAFFIC SIGNALS (AUTO OR RAIL) MAY ONLY BE SERVED FROM FIRST TRANSFORMER OUT.

NOTES

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP), AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.

3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.

4. MAINTAIN A MINIMUM OF 3 FT SEPARATION BETWEEN SWITCH PAD AND THE PAD OF ADJACENT EQUIPMENT.

5. IF 3 FT OF CLEAR SPACE ON THE RIGHT SIDE (NOTE 4) IS OBSTRUCTED, A SWITCH WITH THE OPERATING HANDLE ON THE LEFT IS AVAILABLE (STOCK CODE 5034823), BEWARE THIS SWITCH DOES NOT HAVE THE SINGLE-PHASE FUSED TOP CAPACITY.

6. MAINTAIN A MINIMUM OF 12 FT CLEARANCE IN FRONT OF SWITCH DOORS.

7. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE SWITCH (E.G. DESIGNATED PARKING), THE SWITCH SHALL BE ROTATED 90° SO THE OPERATING HANDLE FACES ROAD RIGHT-OF-WAY. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD RIGHT OF WAY.

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8. STUB UP ONE 4" CONDUIT AS SHOWN ABOVE WHEN TAPPING INTO AN EXISTING 3 - 4/0 AL IN ONE 4" CONDUIT. THIS AVOIDS THE NEED FOR A PULL BOX AT THE SWITCH TO SEPARATE THE 4/0 AL OUT INTO 3 - 3" CONDUIT.

9. SEE PAGES 3-13-3 AND 3-13-4 WHEN THIS SWITCH WILL BE TIED INTO DIRECT BURIED CABLE OR OVERHEAD SYSTEM THAT WILL BE CONVERTED TO ALL CONDUIT SYSTEM IN THE FUTURE.

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STUB-UP LOCATION DETAIL

IDENTIFICATION OF SYMBOLS

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>POSITION</th>
<th>CABLE TERMINATION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>TEMP</td>
<td>3&quot; CONDUIT FOR TEMPORARY CABLE: 500MCM FEEDER OR 750MCM FEEDER</td>
</tr>
<tr>
<td>2</td>
<td>TOP</td>
<td>3&quot; CONDUIT FOR EITHER: 500MCM FEEDER OR 750MCM FEEDER</td>
</tr>
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<td>3</td>
<td>TOP-TAP</td>
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</tr>
<tr>
<td>4</td>
<td>TOP-TAP</td>
<td>4&quot; CONDUIT FOR 3-4/0 AL (NOTE 8 - PG. 3-13-1)</td>
</tr>
<tr>
<td>5</td>
<td>TOP-TAP</td>
<td>2-1/2&quot; CONDUIT FOR FUSED SINGLE PHASE TRANSFORMER (NOTE 6) TAP INTERNALLY FUSED. (AØ TOP ONLY)</td>
</tr>
<tr>
<td>6</td>
<td>BOTTOM-TAP</td>
<td>3&quot; CONDUIT FOR 4/0 AL CAPACITOR TAP (W/ SYMBOL #7 BELOW REQUIRES PARKING STAND EXTENSION 5035030)</td>
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</tr>
<tr>
<td>8</td>
<td>GROUND ROD</td>
<td></td>
</tr>
</tbody>
</table>

NOTES

1. INSTALL CONDUIT AS SHOWN ABOVE WHEN INSTALLING A NEW SWITCH INTO EXISTING DIRECT BURIED FEEDER CABLE.
2. TEMPORARY CONDUIT SHALL BE STUBBED OUT 2 FT FROM DIRECT BURIED CABLE. INSTALL END CAPS ON THE CONDUIT AND SET FLAG AND ELECTRONIC MARKER (5035671) OVER STUB-OUT.
3. INSTALL FEEDER CABLE INTO TEMPORARY CONDUIT AND SPLICE INTO DIRECT BURIED CABLE. WHEN INSTALLING 500 MCM, A 2/0 BARE COPPER NEUTRAL IS ALSO REQUIRED TO BE INSTALLED.
4. EXTEND PERMANENT CONDUIT A MINIMUM 2 FEET PAST THE DIRECT BURIED SPLICES. INSTALL END CAPS ON CONDUIT AND SET FLAGS AND ELECTRONIC MARKER (5035671) OVER STUB-OUT.
5. DELETE STANDARD TEMPLATE 5031741 AND ADD NEW TEMPLATE 5031856 TO ALLOW FOR TEMPORARY CONDUIT STUB-UPS.
6. 50KVA MAXIMUM. ONE 50KVA OR TWO 25KVA TRANSFORMERS. IF TWO 25KVA TRANSFORMERS ARE CONNECTED, TRAFFIC SIGNALS (AUTO OR RAIL) MAY ONLY BE SERVED FROM FIRST TRANSFORMER OUT.
1. INSTALL CONDUIT AS SHOWN ABOVE TO SET UP FOR A FUTURE CONVERSION OF ADJACENT OVERHEAD FEEDER LINE.

2. TEMPORARY CONDUIT SHALL BE STUBBED UP AT FEEDER RISER POLE. INSTALL FEEDER CABLE INTO TEMPORARY CONDUIT AND RISER AND CONNECT TO OVERHEAD LINE.

3. EXTEND PERMAMENT CONDUIT PAST POLE RISER AS SPECIFIED BY DESIGNER. INSTALLED END CAPS ON CONDUIT AND SET FLAGS AND ELECTRONIC MARKER (5035671) OVER STUB-OUT.

4. DELETE STANDARD TEMPLATE 5031741 AND ADD NEW TEMPLATE 5031856 TO ALLOW FOR TEMPORARY CONDUIT STUB-UPS.

5. 50KVA MAXIMUM. ONE 50KVA OR TWO 25KVA TRANSFORMERS. IF TWO 25KVA TRANSFORMERS ARE CONNECTED, TRAFFIC SIGNALS (AUTO OR RAIL) MAY ONLY BE SERVED FROM FIRST TRANSFORMER OUT.

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<td>TOP-TAP</td>
<td>4&quot; CONDUIT FOR 3-4/0 AL (NOTE 8 - PG. 3-13-2)</td>
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NOTES

1. INSTALL CONDUIT AS SHOWN ABOVE TO SET UP FOR A FUTURE CONVERSION OF ADJACENT OVERHEAD FEEDER LINE.
2. TEMPORARY CONDUIT SHALL BE STUBBED UP AT FEEDER RISER POLE. INSTALL FEEDER CABLE INTO TEMPORARY CONDUIT AND RISER AND CONNECT TO OVERHEAD LINE.
3. EXTEND PERMAMENT CONDUIT PAST POLE RISER AS SPECIFIED BY DESIGNER. INSTALLED END CAPS ON CONDUIT AND SET FLAGS AND ELECTRONIC MARKER (5035671) OVER STUB-OUT.
4. DELETE STANDARD TEMPLATE 5031741 AND ADD NEW TEMPLATE 5031856 TO ALLOW FOR TEMPORARY CONDUIT STUB-UPS.
5. 50KVA MAXIMUM. ONE 50KVA OR TWO 25KVA TRANSFORMERS. IF TWO 25KVA TRANSFORMERS ARE CONNECTED, TRAFFIC SIGNALS (AUTO OR RAIL) MAY ONLY BE SERVED FROM FIRST TRANSFORMER OUT.
1. ONE 50KVA OR TWO 25KVA UNITS MAY BE FED. A TRAFFIC SIGNAL, AUTO OR RAIL, MAY BE FED FROM THE FIRST TRANSFORMER OUT ONLY.

2. FUSED BUSHING ASSEMBLY FOR ABB/MALTON SWITCHES, STOCK CODE 5034828. AVAILABLE FOR USE ON ABB/MALTON SWITCHES WITH MANUFACTURE DATE 02/98 AND LATER.

**INSTALLATION INSTRUCTIONS**

1. LUBRICATE BUSHING INSERT AND INSTALL INTO BUSHING ASSEMBLY WELL.

2. INSTALL FUSE ONTO END OF BUSHING ASSEMBLY WELL.

3. LUBRICATE PROTECTIVE CAP AND INSTALL ON BUSHING INSERT.

4. REMOVE PARKING STAND FROM TOP "A" PHASE LEFT SIDE BUSHING, EXPOSING ACCESS PORT.

5. INSTALL COMPLETE BUSHING ASSEMBLY INTO ACCESS PORT ON SWITCH USING HOT LINE TOOLS ON THE OPERATING BAIL. ROTATE TO LATCH.

6. INSTALL ELBOW TERMINATION ONTO TAP CABLE.

7. INSTALL VOLTAGE INDICATOR ONTO ELBOW.

8. USING HOT LINE TOOLS, REMOVE INSULATING CAP AND INSTALL ELBOW ONTO BUSHING INSERT TO ENERGIZE TAP CABLE.

**RE-FUSING INSTRUCTIONS**

1. VERIFY FUSE HAS OPERATED BY VISUAL EXAMINATION OF VOLTAGE INDICATOR AND BY HIGH VOLTAGE METER THRU BUSHING AFTER ELBOW HAS BEEN REMOVED AND PARKED ON AN ADJACENT PARKING STAND.

2. USING HOT LINE TOOLS, INSTALL PROTECTIVE CAP ONTO EXPOSED BUSHING INSERT.

3. USING HOT LINE TOOLS ON OPERATING BAIL, ROTATE BUSHING ASSEMBLY TO UNLATCH AND REMOVE BY PULLING OUT.

4. REMOVE OPERATED FUSE FROM BUSHING ASSEMBLY AND REPLACE WITH NEW FUSE. REMOVE FUSE EXTENDER FROM OPERATED FUSE AND INSTALL ONTO END OF NEW FUSE.

5. USING HOT LINE TOOLS ON OPERATING BAIL, INSTALL BUSHING ASSEMBLY. ROTATE TO LATCH.

6. REMOVE PROTECTIVE CAP.

7. RE-INSTALL ELBOW TO ENERGIZE THE CABLE.
SWITCH CU: UFD1D, UFD1D7, & UFD1D7C
FEEDER IN & OUT (NO TAP)

NOTE: WHEN A FUTURE FEEDER TIE WILL BE INSTALLED AT THE SWITCH
ADD NOTE AT SWITCH ON CONSTRUCTIONS PRINTS TO READ: "FUTURE
FEEDER TIE PLANNED; INSTALL UFBT750T AND UFBEC ON TOP BUSHINGS";
DESIGNER SHALL DELETE 3-UFBT750D AND ORDER 3-UFBT750T AND
3-UFBEC; THE SUBSTITUTION ALLOWS THE T-BODIES ON THE FIRST
FEEDER TO BE RE-USED WHEN THE FEEDER TIE IS INSTALLED

SWITCH CU: UFD1DF, UFD1DF7, & UFD1DF7C
FEEDER IN & OUT WITH FEEDER TIE

SWITCH CU: UFD1DR
RADIAL FEEDER WITH #4/0 TAP
(FEEDER TERMINATED IN BOTTOM POSITION)

NOTE:
BUSHING EXTENDER COMPONENTS
INCLUDED WITH UWBRE40BE

SWITCH CU: UFD1D7R
RADIAL FEEDER (NO TAP)
(FEEDER TERMINATED IN BOTTOM POSITION)

SWITCH CU: UFD1D7R
RADIAL FEEDER WITH 4/0 TAP
(FEEDER TERMINATED ON UPPER BUSHINGS)

SWITCH CU: UFD1DT, UFD1D7T, & UFD1D7T7C
FEEDER IN & OUT WITH #4/0 TAP

SWITCH CU: UFD1DF7R & UFD1D7RC
RADIAL FEEDER WITH FEEDER TIE
(ALL FEEDER TERMINATED ON UPPER BUSHINGS)

NOTES
1. SWITCH CU INCLUDES TERMINATING CU COMPONENTS AND FAULT INDICATOR(S).
2. INBOARD = CONNECTED TO SWITCH BUSHING; OUTBOARD = TAPPED OFF OF INBOARD TERMINATION.
3. TERMINATION CU FOR FEEDER SHOWN ON SCHEMATIC ASSUMES 750 MCM.
4. SEE PAGES 3-6-1 AND 3-6-2 FOR ARRANGEMENT OF COMPONENTS FOR EACH TERMINATION CU TYPE.
3. Train concentric neutral wires down along cables and connect to 2/0 Cu bus using compression connectors. Connect ground leads from insulated bushing caps to 2/0 Cu using split bolts.

4. Conduit shall be stubbed to 1" below the level of the pad (5" above grade).

5. Load break bushings provide point for testing and grounding.

6. If source feed-thru required, use three of UFBT750T. If 4/0 source, substitute stock no. 5033797 & 5033798 for 750 cable adapter 5033796 and 750 connector 5033795.

NOTES
1. All pad elevations shall be established by survey (blue top), and top of pad shall be 4" above final grade in immediate area.

2. Pad must be level before setting enclosure.

3. Area under pad must be compacted per trench specifications.

4. Maintain a minimum 18" separation between the sides of the enclosure pad and the pad of any adjacent equipment or fence. Allow space for conduit elbows between pads.

5. Stub 2/0 bare copper neutral from switch to enclosure grounding pads or install ground rod so it does not interfere with cable, connect ground rod to cabinet ground with #4 copper wire.

6. If obstacles are anticipated in front of the fuse enclosure (designated parking) front of fusing enclosure shall be rotated 90 deg. in to easement, additional labeling shall be placed on the side of the enclosure facing road r/w.

7. Conduits shall be stubbed-up 5 inches above final grade.
1. Install ground connectors into enclosure grounding nuts. Train 2/0 CU along front base of enclosure and connect to ground connectors.

2. Install ground rods to not interfere with conduits. Connect #4 CU lead from ground rod to ground connector.

3. Train concentric neutral wires down along cables and connect to 2/0 CU bus using compression connectors. Connect ground leads from insulated bushing caps to 2/0 CU using split bolts.

4. Conduit shall be stubbed to 1" below the level of the pad (5" above grade).

5. Load break bushings provide point for testing and grounding.

6. If source feed-thru required use three of UFBT750. If 4/0 source substitute 5033797 and 5033798 for 750 cable adapter 5033796 and 750 connector 5033795.
NOTES

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP), AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.

3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.

4. MAINTAIN A MINIMUM 18" SEPARATION BETWEEN THE SIDES OF THE ENCLOSURE PAD AND THE PAD OF ANY ADJACENT EQUIPMENT OR FENCE.

5. STUB 2/0 BARE COPPER NEUTRAL FROM SWITCH TO ENCLOSURE GROUNDING PADS OR INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CABLE, CONNECT GROUND ROD TO CABINET GROUND WITH #4 COPPER WIRE.

6. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE FUSE ENCLOSURE (DESIGNATED PARKING) FRONT OF FUSING ENCLOSURE SHALL BE ROTATED 90 DEG. IN TO EASEMENT, ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD R/W.

7. CONDUITS SHALL BE STUBBED-UP 5 INCHES ABOVE FINAL GRADE.
750 MCM IN/OUT (NO TIE)
750 MCM IN/OUT
750 MCM TIE
750 MCM IN/OUT 4/0 TAP
500 MCM IN/OUT (NO TIE)
500 MCM IN/OUT
500 MCM TIE
500 MCM IN/OUT 4/0 TAP

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</tr>
<tr>
<td>●</td>
<td>GROUND ROD</td>
<td>#4 CU</td>
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</table>

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1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP), AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.

3. IF OBSTRUCTIONS ARE ANTICIPATED IN FRONT OF THE SWITCH (E.G., DESIGNATED PARKING), THE SWITCH SHALL BE ROTATED 90° SUCH THAT "SO" AND "IVC" COMPARTMENTS FACE ROAD RIGHT OF WAY. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD RIGHT OF WAY.

4. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN 2/0 CU ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

5. INSTALL GROUND RODS TO NOT INTERFER WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTORS.

6. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO 2/0 CU USING SPLIT BOLTS.

7. CONDUIT SHALL BE STUBBED TO 1" BELOW THE LEVEL OF THE PAD (5" ABOVE GRADE).

8. LOAD BREAK BUSHINGS PROVIDE POINT FOR TESTING AND GROUNDING.

9. TWO COMMUNICATIONS CONDUIT ENTRANCES AT THIS APPROXIMATE LOCATION ON CABINET BOTTOM. SEE SWITCHING AND FUSING, REMOTE SUPERVISORY CONTROL.
TO NEXT SWITCH DEVICE OR ANTENNA POLE
CONNECT TO ANTENNA POLE GROUNDING LUG IN HAND HOLE

#6 BARE CU FROM FROM POLE TO NEAREST PAD MOUNTED DEVICE
NOTE 4

2" PVC BETWEEN DEVICES AND STREET LIGHT POLE
#6 BARE CU FROM FROM POLE TO NEAREST PAD MOUNTED DEVICE
ANTENNA POLE BASE

NOTES
1. STUB UP CONDUIT(S) AT LOCATION DIMENSIONED ON THE DEVICE PAD DETAIL.
2. EXTEND 2 INCH PVC CONDUIT 1' ABOVE GRADE AND PLUG. MAINTAIN A 2' X 2' PIT KEEPING ELBOW EXPOSED UNTIL CONNECTION TO SWITCH IS COMPLETE. PIT SHALL BE CENTERED AROUND ELBOW.
3. INSTALL THREADED PVC ADAPTER 6" BELOW GRADE AND INSTALL 2" GALVINIZED RIGID STEEL OR INTERMEDIATE METAL CONDUIT INTO LVC COMPARTMENT. INSTALL PLAST THROAT LINER ON END OF CONDUIT. WRAP CONDUIT FROM BOTTOM OF ADAPTER WITH UL APPROVED PVC TAPE OVERLAPPED WITH A MINIMUM HALF THE TAPE STARTING FROM BOTTEM OF ADAPTER TO 6" ABOVE GRADE. BACK FILL PIT.
4. RUN #6 BARE CU FROM ANTENNA POLE INTO WINDOW OF NEAREST PAD MOUNTED DEVICE. LEAVE 4' COIL AT DEVICE WINDOW AND 10 FOOT COIL AT POLE LOCATION. BOND #6 BARE CU TO HIGH VOLTAGE CABINET SYSTEM GROUND AND POLE GROUNDING LUG IN HAND HOLE.
**NOTES**

1. THERE IS NO WEATHERHEAD FOR THE POLE 5035378 (UFAP26).
2. YAGI ANTENNA INSTALLED BY SRP COMMUNICATIONS.
3. TYPICALLY A 10" DIAMETER HOLE IS NEEDED.
4. BACKFILL HOLE WITH FOAM, STOCK CODE 5012018.

---

**DETAIL A**

CONNECT #6 BARE COPPER TO GROUND CONNECTOR IN HAND HOLE

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**DETAIL B**

- O.D. = 4.5"
- 27'-5"
- 21'-0"
- 6'-6"
- EMBED 6'-6"
- EMBED 4'-0"
- 4'-0" NOTE 3
- 18" MIN.
- 12"
- 2 1/2" END CAP (5035082)
- CUT TO FIT AND SEAL WITH SILICONE GLUE (5012025)
- ONE SELF-DRILL/TAP SCREW (5028982)
- 2" CONDUIT (5035466)
- 3" MOLD (5031721)
- HAND-HOLE
- GROUND LUG
- ATTACH MOLD TO POLE WITH SELF-DRILL/TAP SCREW (5028982)
- GRADE
- 2" ELBOW (5033594)
- COAX CABLE FROM CONDUIT THROUGH POLE HAND-HOLE UP POLE TO YAGI ANTENNA AT TOP OF POLE. ANTENNA INSTALLED BY COM. SHOP.

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**APPLICATIONS**

- REMOTE SUPERVISORY CONTROL
- ANTENNA, POLE, 27'-5" & 21'-0"

---

**REFERENCES**

- PROPRIETARY MATERIAL

---

**REMARKS**

- SWITCHING AND FUSING
- UNDERGROUND DISTRIBUTION
- CONSTRUCTION STANDARDS

---

**ISSUE DATE:** 07/24/02

**REV. DATE:** 11/06/14

**APPROVAL:** B PRIEST

**8513E521.DGN**
NOTES

1. CONNECT POLE GROUND TO SYSTEM NEUTRAL GROUND IN SWITCH ELBOW TERMINATION COMPARTMENT WITH #6 BARE COPPER.
7. WHEN A 3Ø-4/0 AL TAP IS REQUIRED, THE DESIGNER SHALL INDICATE THE LOCATION FOR THE TAP.

8. WHEN A 3Ø- 4/0 AL RUN IS REQUIRED, THE DESIGNER SHALL INDICATE THE LOCATION FOR THE RUN.

1. BOND 2/0 CU FEEDER NEUTRAL AND CONCENTRIC NEUTRALS TO ENCLOSURE GROUND BUS.

TO ORDER A FOUR-WAY SWITCH:

1. ORDER ONE COMPATIBLE UNIT "UFD", WHICH IS THE SWITCH AND PAD.
2. ORDER FROM THE FOLLOWING COMPATIBLE UNIT OPTIONS FOR EACH OF THE FOUR COMPARTMENTS:

<table>
<thead>
<tr>
<th>COMPATIBLE UNITS OPTIONS</th>
<th>MATERIAL QUANTITY TO ORDER</th>
<th>TERMINATION</th>
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<tbody>
<tr>
<td>UFBT750D</td>
<td>3</td>
<td>FEEDER 750 AL OR COPPER</td>
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<tr>
<td>UFBT74</td>
<td>3</td>
<td>FEEDER 750 AL WITH 4/0 TAP</td>
</tr>
<tr>
<td>UWBR40BE</td>
<td>3</td>
<td>4/0 RUN</td>
</tr>
<tr>
<td>UFBEC</td>
<td>3</td>
<td>EMPTY COMPARTMENT</td>
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NOTES
1. BOND 2/0 CU FEEDER NEUTRAL AND CONCENTRIC NEUTRALS TO ENCLOSURE GROUND BUS.
2. TO PROVIDE FOR TELCO BONDING, RUN #6 CU FROM GROUND BUS TO A POINT 12" OUTSIDE PAD IN PRIMARY TRENCH AT A DEPTH OF 12".
3. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS THE FRONT AND BACK OF ENCLOSURE. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS THAT WOULD PROHIBIT ACCESS BY SRP PERSONNEL.
4. SEE MISCELLANEOUS SECTION FOR ENCLOSURE AND CABLE IDENTIFICATION MARKING METHODS.
5. ENCLOSURE WILL BE BOLTED TO PAD PER UBPF3, AND LOCKED AT ALL TIMES.
6. IF A 2/0 BARE CU NEUTRAL IS NOT PRESENT IN SWITCH, INSTALL TWO 8' GROUND RODS (UBGRD) SO AS NOT TO INTERFERE WITH CABLES AND CONNECT TO CABINET GROUND WITH #4 CU. INSULATED CAP DRAIN WIRES SHALL BE CONNECTED TO GROUND BUS USING SPLIT BOLT CONNECTORS. ALL CONCENTRIC NEUTRALS SHALL BE CONNECTED TO THE GROUND WITH COMPRESSION CONNECTORS.
7. WHEN A 3Ø-4/0 AL TAP IS REQUIRED, THE DESIGNER SHALL INDICATE THE LOCATION FOR THE TAP.
8. WHEN A 3Ø- 4/0 AL RUN IS REQUIRED, THE DESIGNER SHALL INDICATE THE LOCATION FOR THE RUN.
9. FOR REPLACEMENT OF RUSTED SWITCH ONLY, ORDER UFDC OR UFDCN (NO PAD).
1. All pad elevations shall be established by survey (blue top), and top of pad shall be 4" above final grade in immediate area.

2. Pad must be level before setting enclosure.

3. Area under pad must be compacted per trench specifications.

4. If a 2/0 bare copper neutral is not available in switch, install two 8 ft. ground rods (UBGRD) so as not to interfere with cables and connect to cabinet ground with #4 cu.

This detail shows conduit dimensions relative to the pad. See pg. 3-19-3, 3-19-4 or 3-19-5 for the pad dimensions relative to the trench.

Symbols:
- ○ 3" conduits for 500MCM or 750MCM AL
- ○ Plus the following where a tap is required:
- ○ 3" conduits for 4/0 AL. Piggy backed to feeder termination.

Stub-up location detail

Notes:
LOCATE PER DESIGNER’s SKETCH

MAIN LINE TRENCH - 48" DEEP

ADDITIONAL 8X 12'-9" FRONT EASEMENT REQUIRED WHEN LOCATED ON PRIVATE RIGHT-OF-WAY.

18'-10" X 12'-9" EASEMENT REQUIRED

REQUIRED EASEMENT

12'-9"

18'-10" X 12'-9" EASEMENT

12'-9"

Front Doors

U1

U2

U3

U4

DOORS

3'-5"

2'-10"

3'

6'-9"

20"

2'-9"

3'

6'-4 1/2"

5"

5"

11"

25"

Required Easement

Front Doors

U1

U2

U3

U4

DOORS

3'-5"

2'-10"

3'

6'-9"

20"

2'-9"

3'

6'-4 1/2"

5"

5"

11"

25"
NOTES
1. 2'-4" X 30'-4 1/2" EASEMENT REQUIRED. ADJUST THESE DIMENSIONS IF THE PAD POSITION IS NOT AS SHOWN.
2. LOCATE PER DESIGNER'S SKETCH.
**NOTES**

1. **11’ - 2 1/2” X 12’ - 9” EASEMENT REQUIRED. ADJUST THESE DIMENSIONS IF THE PAD POSITION IS NOT AS SHOWN**

2. LOCATED PER DESIGNER'S SKETCH.
NOTES

1. SEE PAGE 3-20-2 FOR CONDUIT STUB UP AND GROUNDING DETAIL AND NOTES.

2. SEE PAGE 3-20-3 FOR CURRENT SENSOR DETAILS AND NOTES.

3. INSTALL GROUND CONNECTORS TO ENCLOSURE GROUNDING PADS. TRAIN 2/0 BUS BETWEEN COMPARTMENTS 1 & 2 AND 3 & 4 AND CONNECT TO GROUND CONNECTORS.

4. CONNECT #4 CU FROM GROUND RODS, #6 CU TELCO AND FAN ANTENNA POLE GROUNDS, AND 2/0 NEUTRAL BETWEEN PAD WINDOWS TO 2/0 BUS USING COMPRESSION CONNECTORS. SEE PAGE 8-11-1 FOR COMPRESSION CONNECTORS. TEMPORARY GROUNDING BUS SHALL NOT BE USED FOR A PERMANENT CONNECTION.

5. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS TO FROM INSULATED BUSHING CAPS TO 2/0 USING SPLIT BOLT CONNECTORS.

6. WHEN SERVING A SINGLE-PHASE TRANSFORMER WITH 4/0, ORDER (1) UWBT40E.

7. SEE MISCELLANEOUS SECTION FOR ENCLOSURE AND CABLE MARKING REQUIREMENTS AND METHODS.
SYMBOLS

- 3" CONDUITS FOR 750MCM AL. OR 750 MCM CU.SOURCES.
- 3" CONDUITS FOR 4/0,750MCM AL. OR 750MCM CU.LOADS.
- 3" SINGLE PHASE TAP
- NOT USED
- 2" CONDUIT FOR COMMUNICATION CONTROL CABLE
- GROUND ROD

NOTES

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP), AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD SHALL BE LEVEL BEFORE SETTING ENCLOSURE.

3. INSTALL TWO 5/8" X 8' GROUND RODS 5" ABOVE GRADE AT LOCATIONS SHOWN ON TEMPLATE.

4. INSTALL 2/0 BARE CU WITH CONDUITS UNDER PAD BETWEEN WINDOWS OF COMPARTMENTS 1 AND 4. LEAVE 1' LEAD ABOVE GRADE IN BOTH WINDOWS TO CONNECT TO 2/0 GROUND BUS BETWEEN COMPARTMENTS 1 & 4 AND COMPARTMENTS 3 AND 4 FOR BONDING, AND SYSTEM NEUTRAL TIE, IN ALL 4 COMPARTMENTS.

5. INSTALL #6 BARE CU FROM COMPARTMENT 1 AND RUN WITH 2" COMUNICATIONS CABINET TO FAN ANTENNA POLE OR COMMUNICATIONS CABIN. LEAVE 1' LEAD ABOVE GRADE TO CONNECT TO 2/0 GROUND BUS.

6. FOR TELCO BONDING (WHEN REQUIRED), INSTALL #6 BARE CU TO A POINT 12" OUTSIDE OF PAD IN PRIMARY TRENCH AT A DEPTH OF 12". LEAVE 1' LEAD ABOVE GRADE TO CONNECT TO 2/0 GROUND BUS.

7. MAINTAIN A 2' WIDE PIT KEEPING ELBOW(S) EXPOSED UNTIL CONNECTION TO SWITCH IS COMPLETE. ELBOW(S) SHALL BE CENTERED INSIDE PIT.
2. Install the current sensors as shown below. Sensors are to be placed around cable's grounded concentric neutral.

3. The "H" located on each gray and each black current sensor shall be installed facing up.

4. A voltage of approximately 60V can be on the current sensor terminals.
NOTES

1. NO BUILDINGS, FENCES OR OTHER OBSTRUCTIONS ARE TO BE PERMITTED IN THE INDICATED CLEAR AREA. THIS INCLUDES LANDSCAPING WHICH WOULD RESTRICT ACCESS OR CREATE OTHER SAFETY HAZARDS (i.e. TRIPPING). GATES WITH A MINIMUM 10 FOOT OPENING MAY BE INSTALLED ACROSS THE FRONT OR SIDES OF THE SWITCH, PROVIDED THEY ARE A MINIMUM OF 18 INCHES FROM THE SWITCH PAD AND HAVE NO LOCKS THAT WOULD PREVENT ACCESS BY SRP PERSONNEL.

2. SWITCH MUST HAVE A 16 FOOT WIDE TRUCK ACCESS FOR MAINTENANCE OR REMOVAL.
1. ORIENT TAP POSITIONS OF THE ENCLOSURE BY DIRECTING "FLAT TOPS" IN THE DIRECTION OF THE CONDUIT STUB OUTS OR FUTURE TRANSFORMERS WHEN FEASIBLE.

2. ON SCHEMATIC SYMBOL, "1" REPRESENTS THE LEFT TAP POSITION AND "2" REPRESENTS THE RIGHT TAP POSITION WHEN FACING THE FRONT OF THE ENCLOSURE.

1. INSTALL A FAULT INDICATOR ON THE INCOMING PRIMARY ON ALL TAP ENCLOSURES AND ANY SINGLE PHASE TRANSFORMER THAT IS INSTALLED DIRECTLY IN THE LATERAL.

2. INITIAL INSTALLATION MAY BE WITH NO TRANSFORMER SERVED. WHEN TRANSFORMER LOOP #1 OR TRANSFORMER LOOP #2 IS INSTALLED, CABLES ARE TERMINATED AND ELBOWS POSITIONED AS SHOWN IN THE SCHEMATIC DIAGRAM.

3. FOR EACH SINGLE PHASE TRANSFORMER LOOP IN AND OUT OF THIS ENCLOSURE, CALL FOR ONE UFB2T TO GET TERMINATING ELBOWS AND FEED THRU BUSHINGS, AND ONE UFB1F FOR THE SINGLE PHASE FAULT INDICATOR.

4. SINGLE PHASE LOOP SWITCHING AND SECTIONALIZING IS TO BE PERFORMED IN TRANSFORMERS OR PAD MOUNTED FUSES, BUT NOT IN THIS TAP ENCLOSURE.

5. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN #2/0 CU ALONG THE BACK BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

6. CONNECT #4 CU LEAD FROM GROUND ROD TO ENCLOSURE GROUND CONNECTOR.

7. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO #2/0 CU BUS USING COMPRESSION CONNECTORS. PROVIDE SUFFICIENT SLACK TO ALLOW FOR RELOCATING THE ELBOWS TO ADJACENT BUSHINGS.

8. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO #2/0 CU USING SPLIT BOLTS. CONNECT #6 CU WIRE TO THE BASE OF THE FEED THROUGH PARKING BUSHINGS, TRAIN DOWN TO THE #2/0 GROUND BUS AND CONNECT WITH COMPRESSION CONNECTORS.

9. CONDUIT STUB-UP SPACER INCLUDED IN UFTL ONLY.

10. FOR REPLACEMENT OF RUSTED OUT ENCLOSURE ONLY, ORDER UFTC OR UFTCN (NO PAD).
1. CONDUIT IS 2.5 INCHES IN DIAMETER.

2. CONDUIT STUB-OUTS FOR FUTURE ARE TO BE CAPPED.

3. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH ANY CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

4. STUB-OUTS FOR FUTURE MAY BE LOCATED AT DISTANCE AS REQUIRED AND MAY BE 45°, 90° OR OTHER.

5. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
1. Locate the fault indicator below the #2 elbow with the yoke surrounding all concentric neutral wires, including the pigtail.

2. A fence is not allowed to be built across front of enclosure. A gate is permissible if it is free of locks that would prohibit access by SRP personnel. Maintain a minimum 18" deep separation between sides of the enclosure pad and the pad of any adjacent equipment or fence.

3. Enclosure will be bolted to pad and locked at all times.

4. Install ground rod so it does not interfere with cables. Connect to cabinet switching device ground with #4 copper wire.

5. All pad elevations shall be established by survey (blue top) and top of pad shall be minimum of 4" above final grade in immediate area.

6. UFT1 has no conduit stub-up spacer.

7. For replacement of rusted out enclosure only, order UFTC or UFTCN (no pad).
NOTES

1. AN ENERGIZED CIRCUIT INDICATOR SHALL BE INSTALLED ON THE BOTTOM TEST POINT OF THE FUSED ELBOW.

2. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS FRONT OF ENCLOSURE. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS THAT WOULD PROHIBIT ACCESS BY SRP PERSONNEL. MAINTAIN A MINIMUM 18" DEEP SEPARATION BETWEEN SIDES OF THE ENCLOSURE PAD AND THE PAD OF ANY ADJACENT EQUIPMENT OR FENCE.

3. ENCLOSURE WILL BE BOLTED TO PAD AND LOCKED AT ALL TIMES.

4. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CABLES. CONNECT TO CABINET SWITCHING DEVICE GROUND WITH #4 COPPER WIRE.

5. FOR RE-FUSING INSTRUCTIONS, SEE UFBFE

6. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

7. UFT1 HAS NO CONDUIT STUB-UP SPACER.

8. FOR REPLACEMENT OF RUSTED OUT ENCLOSURE ONLY, ORDER UFTC OR UFTCN (NO PAD).
### 750 MCM FEEDER PULLING ENCLOSURE

**FEEDER CONDUCTOR**
- **UFFP** 750 MCM AL
- **UFFPC** 750 MCM CU
- **UFFPR** 750 MCM AL (RADIAL)
- **UFF** PAD CABINET NO TERMINATIONS
- **UFBBT750** TERMINATIONS FOR UFF, 750 MCM AL
- **UFBBT750C** TERMINATIONS FOR UFF, 750 MCM CU

**DEVICE DIMENSIONS**
- W/O PAD: H=52" W=48" D=22"
- CONDUIT STUB-UP
- 8' EASEMENT LINE
- **CONDUIT STUB-UP DETAIL #1**
- **CONDUIT STUB-UP DETAIL #2**

**NOTES**
1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN #2/0 CU ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS. GROUND JUNCTION BASE TO #2/0 USING #6 CU.
2. CLEAR SPACE PROVIDED FOR POSSIBLE FUTURE SWITCH REPLACEMENT.
3. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.
4. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO #2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO #2/0 CU USING SPLIT BOLTS.
5. WHEN ADDING FEEDER TERMINATIONS TO RADIAL INSTALLATION, USE THREE UFBT750D.
6. FOR USE ON 500 MCM FEEDER, CHANGE T-BODY CONNECTOR AND CABLE ADAPTER.
7. CONDUIT STUB-UP TEMPLATE IS SRP # 5031743.
8. IF PULLING ENCLOSURE IS CHANGED OUT WITH A SWITCH, THE LEFT-MOST TERMINATION OF EACH PHASE WILL BE RE-TERMINATED ON THE BOTTOM BUSHINGS OF THE SWITCH.
9. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
10. #2/0 COPPER GROUNDS BROUGHT UP INTO CABINET MUST BE LOOPED TO MAINTAIN SYSTEM GROUND CONTINUITY.

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**SWITCHING AND FUSING**

750 MCM FEEDER PULLING ENCLOSURE

**Underground Distribution Construction Standards**

**ISSUE DATE:** 04/30/93  
**REV. DATE:** 07/29/13  
**APPROVAL:** B. PRIEST  
**8513E168.DGN**
1. CONDUIT IS 3 INCHES IN DIAMETER.
2. CONDUIT A1 IS PROVISION FOR SINGLE PHASE TAP TO STREET LIGHTING TRANSFORMER.
3. CONDUIT STUBOUTS FOR FUTURE ARE TO BE CAPPED.
4. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH ANY CONDUITS.
5. STUB-OUT FOR FUTURE MAY BE LOCATED AT DISTANCE AS REQUIRED AND MAY BE 45 DEG.
6. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
1. **Initial Installation** may be with no transformer served as shown when transformer #1 or transformer #2 is installed, cables are terminated and elbows positioned as shown in the schematic diagram.

2. For each three phase transformer to be looped in and out of this enclosure, call for one UFB40T to get terminating elbows and feed-thru parking bushings.

3. Three phase loop switching and sectionalizing is to be performed in transformers or pad mounted switch, but not in the tap enclosure.

4. Install ground connectors into enclosure grounding nuts. Train 2/0 Cu along the front base of enclosure and connect to ground connectors.

5. Connect #4 Cu lead from ground rod to enclosure ground connector. When a telco and/or cable TV enclosure is within 5 ft., telco and/or cable TV will stub a bonding wire to the ground rod. SRP will connect this bond wire to the ground rod.

6. Train concentric neutral wires down along cables and connect to 2/0 Cu bus using compression connectors. Provide sufficient slack to allow for relocating the elbows to adjacent bushings.

7. Connect ground leads from insulated bushing caps to 2/0 Cu using split bolts. Connect #6 Cu wire to the base of the feed-thru parking bushings, train down to the 2/0 ground bus and connect with split bolts.

8. A single 25 kVA transformer which supplies street lights, a sprinkler control or similar load, but not traffic signals may be served from the AL position, using a UWBT2EF.
1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN 2/0 ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

2. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

3. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO 2/0 CU USING SPLIT BOLTS.

4. DETAIL "B" SHOWS DIMENSIONS FOR INSTALLATION WITH 2 - 4" CONDUITS USED IN EXISTING 4" CONDUIT SYSTEMS.

5. CONDUIT STUB-UP TEMPLATE IS SRP STOCK #5031847.

6. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA

7. GROUND FEED THRU BUSHING TO 2/0 CU GROUND BUS.
NOTES

1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN 2/0 ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

2. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

3. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO 2/0 CU USING SPLIT BOLTS.

4. GROUND FEED THRU BUSHING TO 2/0 CU GROUND BUS.

5. UFP1 HAS NO CONDUIT STUB-UP SPACER.
VERTICALLY MOUNTED ISO QUENSUR

HORIZONTALLY MOUNTED ISO QUENSUR
NOTES
1. To provide for TELCO bonding, run #6 copper wire from a grounding lug to a point 12" outside the pad. Locate as near the center of the pad opening as possible in the primary trench at a depth of 12".
2. Fences shall not be built across the front of enclosure. A gate is permissible if it is free of locks. (See Electric Service Specifications.)
3. See Miscellaneous section for enclosure and cable identification marking methods.
4. Run 2/0 copper wire across inside enclosure front to grounding lug. Connect feeder neutral and concentric neutrals to this wire.
5. Radial feed will be 4/0 aluminum from a nearby switching enclosure.
6. Check for proper oil level.
7. Single phase circuits require 80-amp fuse. Compatible Unit includes current limiting fuse (and expulsion fuse marked 50 amps). This combination is rated at 80 amps.
8. Enclosure will be locked and penta bolts securely fastened.
9. Install ground rod (if 2/0 bare neutral from switch not installed) so it does not interfere with cables; connect to cabinet ground with #4 CU wire.

RE-FUSING INSTRUCTIONS
1. Load-side elbows contain voltage lamps that flash when fuse is intact. (CAUTION – lamp is not foolproof.)
2. Load-side elbow must be removed and parked before a fuse is removed. The fuse is not a loadbreak device.
3. Relieve pressure in enclosure via pressure relief valve.
4. Unscrew eyebolt until fuse bail can be swung downward.
5. Install hot stick into bayonet eye, pull sharply approximately 1" to disconnect contacts.
6. Withdraw bayonet slowly to minimize oil dripping.
7. Fuse is a two-part assembly. Each part must be checked for continuity (never use a megger), indicating which one or both fuses are blown.
8. After replacing blown fuse(s), tighten fuse assembly to within 120 inch/pounds to 180 inch/pounds.
9. Reinstall fuse assembly and clean pan of any dripped oil.
### Table: Number of Fuses per Enclosure and Number of Double Lug Assemblies

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<th>Number of Double Lug Assemblies</th>
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</tr>
<tr>
<td>6</td>
<td>UFE55 UFE65</td>
</tr>
</tbody>
</table>

Add "R" to the Units for Radial Feeder

### Notes

1. To provide for TELCO bonding, run #6 copper wire from center grounding lug to a point 12" outside the pad. Locate as near the center of the pad opening as possible in the primary trench at a depth of 12".
2. A fence is not allowed to be built across front of enclosure. A gate is permissible if it is free of locks. See Electric Service Specification #UG-12.
3. See Underground Miscellaneous Procedure #1 for enclosure and cable identification marking methods.
4. Run 2/0 copper wire from right side grounding lug around rear of enclosure to left side grounding lug. Connect feeder neutral and concentric neutrals to this wire.
5. Bolt enclosure to pad making use of all four (4) Unistrut tie down brackets. Enclosure will be locked and penta bolt latches shall be latched.
6. Radial feeder requires one termination per phase only.
7. Single phase circuits require 80 amp fuses. Compatible unit includes 80 amp fuses.
8. If 500 MCM feeders are not present, install 8 ft. ground rod (UBGRD) and connect to cabinet ground.
9. For replacement of rusted out enclosure only, order UFEL or UFELN (no pad).
NOTES

1. All pad elevations shall be established by survey (blue top) and top of pad shall be 4” above final grade in immediate area.

2. Pad must be level before setting enclosure.

3. Area under pad must be compacted to 95% density (AASHO, T-99).
NOTES

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY, (BLUE TOP) AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.

3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.

4. MAINTAIN A MINIMUM 36" SEPARATION BETWEEN THE SIDES OF THE ENCLOSURE PAD AND THE PAD OF ANY ADJACENT EQUIPMENT OR FENCE.

5. STUB 2/0 BARE COPPER NEUTRAL FROM SWITCH TO ENCLOSURE GROUNDING PADS OR INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CABLE. CONNECT GROUND ROD TO CABINET GROUND WITH #4 COPPER WIRE.

6. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE FUSE ENCLOSURE, (DESIGNATED PARKING) FRONT OF FUSING ENCLOSURE SHALL BE ROTATED 90 DEG. IN TO EASEMENT. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD R/W.
NOTES

1. RUN #2/0 COPPER WIRE FROM RIGHT SIDE GROUNDING LUG TO LEFT SIDE GROUNDING LUG. CONNECT GROUND WIRES FROM TERMINATORS TO THIS WIRE.

2. TO PROVIDE FOR TELCO BONDING, RUN #6 COPPER WIRE FROM ENCLOSURE GROUNDING TO A POINT 12" OUTSIDE THE PAD. LOCATE IN THE PRIMARY TRENCH AT A DEPTH OF 12".

3. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS FRONT OF ENCLOSURE. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS THAT WOULD PROHIBIT ACCESS BY SRP PERSONNEL.

4. SEE MISCELLANEOUS PROCEDURE FOR ENCLOSURE AND CABLE IDENTIFICATION MARKING METHODS.

5. ENCLOSURE WILL BE BOLTED TO PAD AS PER UBPF3 AND LOCKED AT ALL TIMES.

6. IF 500MCM CABLE WITH A #2/0 BARE COPPER IS NOT PRESENT IN SWITCH, INSTALL 8 FT GROUND ROD (UBGRD) SO AS NOT TO INTERFERE WITH CABLES AND CONNECT TO CABINET GROUND WITH #4 COPPER WIRE.

7. IF CONDUIT IS USED, IT SHALL BE STUBBED TO 1/2" BELOW THE LEVEL OF THE PAD.

8. IF BARE CONCENTRIC NEUTRAL CABLE IS PRESENT IN THE CABINET, IT WILL BE NECESSARY TO INSTALL A WRAP AROUND HEAT SHRINK SLEEVE (5035824) OVER THE CONCENTRIC NEUTRAL ON THE AREA OF THE CABLE WHERE THE GROUT WOULD CONTACT THE CABLE.
NOTES:

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY. (BLUE TOP) AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN YARD IDL. AREA.

2. PAD MUST BE LEVEL BEFORE INSTALLING ENCLOSED.

3. AREA UNDER PAD MUST BE COMPACTED TO 80% DENSITY (AASHTO T-99).


5. IF 500 CABLE WITH A 2/0 BARE COPPER NEUTRAL IS NOT PRESENT IN SWITCH INSTALL 8' GROUND ROD (UGRD) SO AS NOT TO INTERFERE WITH CABLES, AND CONNECT TO CABINET GROUND WITH #4 COPPER WIRE.

SYMBOLS:

- 3, 4, or 6 CONDUITS OR DIRECT BURIED 500 MCM AL.
- PLUS ONE OF THE FOLLOWING:
  - 4/0 AL. DOUBLE LUGGED TO FRONT OF SWITCH USE WHEN TAP REQUIRED
  - 4" CONDUIT FOR 3- 4/0 AL. DOUBLE LUGGED TO FRONT OF SWITCH USE WHEN SINGLE CONDUIT IS REQUIRED.

NOTE:
THOSE SHOWN IN BLACK ARE CONNECTED TO BOTTOM OF SWITCH.

STUB-UP LOCATION DETAIL
NOTES

1. Bond 2/0 CU feeder neutral to enclosure grounding lug. Connect concentric neutrals to 2/0 CU wire, then connect to feeder neutral.

2. To provide for TELCO bonding, run #6 CU wire from enclosure.

3. Fences shall not be built across the front of enclosure. A gate is permissible if it is free of locks that would prohibit access by SRP personnel.

4. See Miscellaneous section for enclosure and cable identification marking methods.

5. If 500 MCM cable with 2/0 bare CU is not present in switch, install 8 ft. ground rod (UBGRD), so as not to interfere with cables, and connect to cabinet ground with #4 CU wire.

6. If conduit is used, it shall be stubbed to 1/2" below the level of the pad.

7. If bare concentric neutral cable is present in the cabinet, it will be necessary to install a wrap-around (heat shrink sleeve, 5035824) over the concentric neutral on the area of the cable where the grout would contact the cable.

8. See page 3 for all installation details, except S&C, which are on page 4.

9. For replacement of rusted out switch only, order UFDIC or UFDICN (no pad).
SYMBOLS

- 3” conduit or direct buried 500 MCM AL
  …Plus one of the following…
  - 2” conduits or direct buried 4/0 AL, double lugged to front of switch
  *** If a feeder tie is required (double 500 on one side of switch) substitute with 3” conduits or direct buried 500 MCM AL. ***
  - 4” conduit for 3 – 4/0 AL double lugged to front of switch. Use when single conduit is required.

NOTES

1. All pad elevations shall be established by survey (blue top) and top of pad shall be 4” above final grade in immediate area.

2. Pad must be level before setting enclosure.

3. Area under pad must be compacted to 80% density (AASHO, T-99).

4. Maintain a minimum 18” separation between the sides of the enclosure pad and the pad of any adjacent equipment or fence. Maintain a minimum 3-1/2’ separation between the back of the enclosure pad and any obstruction or fence.

5. If 500 MCM cable with a 2/0 bare copper neutral is not present in switch, install 8’ ground rod (UBGRD), so as not to interfere with cables, and connect to cabinet ground with #4 CU wire.
**NOTES**

1. BOND #2/0 C.U. FEEDER NEUTRAL AND CONCENTRIC NEUTRALS TO ENCLOSURE GROUND BUS.
2. TO PROVIDE FOR TELCO BONDING, RUN #6 C.U. FROM GROUND BUS TO A POINT 12" OUTSIDE PAD IN PRIMARY TRENCH AT A DEPTH OF 12".
3. FOR FENCING AND BUILDING RESTRICTIONS, SEE PAGE 3-462.
4. SEE MISCELLANEOUS SECTION FOR ENCLOSURE AND CABLE IDENTIFICATION MARKING METHODS.
5. ENCLOSURE WILL BE BOLTED TO PAD PER UBPF3 AND LOCKED AT ALL TIMES.
6. IF A #2/0 BARE COPPER NEUTRAL IS NOT PRESENT IN SWITCH, INSTALL TWO 8 FT. GROUND RODS (UBGRD) SO AS NOT TO INTERFERE WITH CABLES, AND CONNECT TO CABINET GROUND WITH #4 C.U. ALL CONCENTRIC NEUTRALS AND DRAIN WIRES SHALL BE CONNECTED TO GROUND BUS USING SPLIT BOLT CONNECTORS.
7. BLADE DISCONNECTS WILL NORMALLY BE USED IN THE FUSING COMPARTMENTS U3 AND U4. IF FUSES ARE REQUIRED, CONTACT ELECTRIC SYSTEM ENGINEERING.
SYMBOLS:

- 3" CONDUITS FOR POWER OR 750 MCM, FEEDER OR 4/0 AL.
- 3" CONDUITS FOR 4/0, 750 MCM OR 750 MCM AL.
- 2" CONDUITS FOR COMMUNICATION CONTROL CABLE

NOTES:

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY, (BLUE TOP) AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.
3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.
4. IF 2/0 BARE COPPER NERIAL IS NOT AVAILABLE INTO SWITCH, INSTALL TWO 8 FT, GROUND RODS (UGRADE) SO AS NOT TO INTERSECT WITH CABLES AND CONNECT TO CABINET GROUND WITH #4 CU.
5. FOR SINGLE CUSTOMER TAP USE POSITION *1 UNLESS SPECIFIED OTHERWISE BY DESIGNER.
1. NO BUILDING, FENCES OR OTHER OBSTRUCTIONS ARE TO BE PERMITTED IN THE INDICATED CLEAR AREA. THIS INCLUDES LANDSCAPING, GATES, WALLS OR ANY OTHER STRUCTURE. ACCESS OR OBSTRUCTIONS ACCESS OR OBSTRUCTIONS ARE TO BE PERMITTED ACROSS THE FRONT OR SIDES OF THE SWITCH PROVIDE CLEARANCE OF MINIMUM 12 INCHES PAST THE SWITCH AND HAVE NO OBstructions.

2. THE SWITCH MUST PROVIDE SUFFICIENT ACCESS FOR MAINTENANCE OR REMOVAL. TRUCK ACCESS: 15 FT. WIDE TO PRIMARY SERVICE TO CUSTOMER (AS NEEDED).

MINIMUM CLEARANCE:
- 21/2 FT. Minimum
- 3-0 FT.
- 5 FT.
- 24/0 FT.
- 6 FT.
- 8 FT.

LOCATION PER DESIGNER'S SKETCH
NOTES

1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN #2/0 CU ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

2. INSTALL GROUND RODS TO NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

3. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO #2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO #2/0 CU USING SPLIT BOLTS.

4. ENCLOSURE WILL BE BOLTED TO PAD AND LOCKED AT ALL TIMES.

5. CONDUIT SHALL BE STUBBED TO 1" BELOW THE LEVEL OF THE PAD (5" ABOVE GRADE).

6. LOAD BREAK BUSHINGS PROVIDE POINT FOR TESTING AND GROUNDING.
SWITCHING AND FUSING

VACUUM FAULT INTERRUPTER

NOTES

1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY, (BLUE TOP) AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.

2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.

3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.

4. MAINTAIN A MINIMUM OF 46" SEPARATION BETWEEN SWITCH PAD SIDES AND THE PAD OF ANY ADJACENT EQUIPMENT.


* NO STOCK CODE EQUIVALENT IN SAP.

Underground Construction Standards

PROPRIETARY MATERIAL

REV. DATE: 03-36-2

APPROVAL: B. PRIEST

ISSUE DATE: 04/20/96

8513E228.DGN
LEGEND

1  3" CONDUIT FOR FEEDER
2  3" CONDUIT FOR #4/0 TAP

NOTES
1. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP), AND TOP OF PAD SHALL BE 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.
3. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS.
4. MAINTAIN A MINIMUM OF 36" SEPARATION BETWEEN SWITCH PAD SIDES AND THE PAD OF ANY ADJACENT EQUIPMENT.
NOTES

1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN 2/0 CU ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

2. INSTALL GROUND RODS TO NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

3. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO 2/0 CU USING SPLIT BOLTS.

4. ENCLOSURE WILL BE BOLTED TO PAD AND LOCKED AT ALL TIMES.

5. CONDUIT SHALL BE STUBBED TO 1" BELOW THE LEVEL OF THE PAD (5" ABOVE GRADE).

6. LOAD BREAK BUSHINGS PROVIDE POINT FOR TESTING AND GROUNDING.

WHEN UNITS ARE INSTALLED IN THIS COMPARTMENT THE INFORMATION ON THE TAGS MUST BE RECORDED AS TO PHASE (USE YELLOW SHEET LOCATED IN COMMUNICATION CONTROL COMPARTMENT).

CURRENT SENSORS:

- UFDC1 500 MCM IN/OUT (NO TAP)
- UFDC2 750 MCM IN/OUT (NO TAP)
- UFDC3 500 MCM WITH 4/0 TAP
- UFDC4 750 MCM WITH 4/0 TAP

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Y
3. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.

4. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE SWITCH (E.G. DESIGNATED PARKING), THE SWITCH SHALL BE ROTATED 90 DEG. SO THE SIDE FACES ROAD RIGHT OF WAY. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD RIGHT OF WAY.

5. TWO COMMUNICATIONS CONDUIT ENTRANCES AT THIS APPROXIMATE LOCATION ON CABINET BOTTOM.

6. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO 2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT SWITCH TO CABINET AT GROUND PADS IN OPPOSITE CORNERS OF CABINET WITH 2/0 COPPER AND TLS CLAMPS. AT REAR CORNER ALSO CONNECT TOP CABINET GROUND PAD TO LOWER CABINET PAD WITH 2/0 COPPER AND TLS CLAMPS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO 2/0 CU BUS USING SPLIT BOLTS. CONNECT 2/0 BUS TO GROUND ROD.
NOTES

1. CONNECTION OF THE 1" PLASTIC COMMUNICATION CONDUIT TO THE COMMUNICATION CONTROL COMPARTMENT IS ACCOMPLISHED WITH THREADED ADAPTER.

2. SEE ANTENNA DETAIL UFAP26.
## ENCLOSURE PLUS SWITCH OR FUSE(S)

<table>
<thead>
<tr>
<th>Description</th>
<th>Compatible Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWITCH, 600A, 15KV, ISO QUENSUR</td>
<td>RUFA1</td>
</tr>
<tr>
<td>SWITCH, 6 - 200A, 15KV &amp; 6 FUSES</td>
<td>RUFA2</td>
</tr>
<tr>
<td>SWITCH CUBICLE; 3 - SINGLE Ø SWITCHES, 15KV, 600A</td>
<td>RUFA3</td>
</tr>
<tr>
<td>FUSE CUBICLE; 15KV - 15 TAPS</td>
<td>RUFA4</td>
</tr>
<tr>
<td>FUSING ENCLOSURE, 54&quot; X 54&quot;</td>
<td>RUFA5</td>
</tr>
<tr>
<td>ENCLOSURE, SPECIAL, GET-3114 GE (9 TAPS)</td>
<td>RUFA6</td>
</tr>
<tr>
<td>ENCLOSURE, SPECIAL, S&amp;C, PMH-6 (9 TAPS)</td>
<td>RUFA7</td>
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<tr>
<td>ENCLOSURE, SPECIAL, S&amp;C, PMH-9 (11 TAPS)</td>
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## ENCLOSURE ONLY

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<td>RUFB24</td>
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<tr>
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## SWITCH ONLY

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<tr>
<th>Description</th>
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<tr>
<td>SWITCH, BLADE, 1-THROW, 1-POLE</td>
<td>15KV, 1-WAY, 400A</td>
<td>RUFC50</td>
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<tr>
<td>SWITCH, BLADE, 1-THROW, 1-POLE</td>
<td>15KV, 1-WAY, 600A</td>
<td>RUFC51</td>
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<tr>
<td>SWITCH, OIL, MANUALLY OPERATED</td>
<td>15KV, 4-WAY, 300A</td>
<td>RUFC52</td>
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<tr>
<td>SWITCH, SECTIONALIZER</td>
<td>15KV, 1-WAY, 185A</td>
<td>RUFC53</td>
</tr>
<tr>
<td>SWITCH, ISO QUENSUR</td>
<td>15KV, 1-WAY, 600A</td>
<td>RUFC54</td>
</tr>
</tbody>
</table>
1. A fault indicator shall be installed on the "tap" cable.

2. A fence is not allowed to be built across front of enclosure. A gate is permissible if it is free of locks that would prohibit access by SRP personnel.

3. See distribution design standards, index, primary conductor, tee-tap, single-phase underground for application.

4. Locate the fault indicator (UFB1F) just below the I.D. strip on the cable. Make sure it surrounds all concentric wires, including the pigtail.

5. Install ground rod so it does not interfere with cables. Connect to cabinet switching device ground with #4 copper wire.
1. INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUNDING NUTS. TRAIN #2/0 ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.

2. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH CONDUITS. CONNECT #4 CU LEAD FROM GROUND ROD TO GROUND CONNECTOR.

3. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLES AND CONNECT TO #2/0 CU BUS USING COMPRESSION CONNECTORS. CONNECT GROUND LEADS FROM INSULATED BUSHING CAPS TO #2/0 CU USING SPLIT BOLTS.

4. GROUND FEED THRU BUSHING TO #2/0 CU GROUND BUS.

5. UFP12 HAS NO CONDUIT STUB UP SPACER.
<table>
<thead>
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<th>TITLE/DESCRIPTION</th>
<th>PAGE NO.</th>
</tr>
</thead>
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<td>4-2-1</td>
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<tr>
<td>COMMUNICATIONS OR STREET LIGHT CONDUIT INSTALLATION INSTRUCTIONS</td>
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<td>COMMUNICATIONS AND POWER CONDUIT AT MANHOLE AND PULL BOXES</td>
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<tr>
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<td>4-8-1</td>
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<td>SHORT RADIUS CORNER AND SPOOL-DUCT OR PVC TO SPOOL-DUCT JOINT</td>
<td>4-9-1</td>
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<tr>
<td>SERVICE INSTALLATION CONDUIT REPAIR FOR WRONG METER LOCATIONS</td>
<td>4-10-1</td>
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<tr>
<td>CODES FOR ELBOWS, END CAPS, SPACERS, CEMENT, PULL TAPE, CONDUIT AND COUPLINGS</td>
<td>4-11-1</td>
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<tr>
<td>CODES</td>
<td>4-12-1</td>
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<td>DUCT BANK SUPPORT</td>
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<tr>
<td>POLYETHYLENE SPOOLED DUCT, MINIMUM LENGTH RETAINED</td>
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<tr>
<td>COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD DUCT BANKS</td>
<td>4-18-1</td>
</tr>
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</table>
PROCEDURE FOR JOINING CONDUIT

THIS METHOD SHALL BE USED TO JOIN PVC TO PVC.

1. SELECT THE PROPER CEMENT AND PRIMER BY REFERRING TO THE CHART BELOW:

<table>
<thead>
<tr>
<th>TYPE OF CONDUIT BEING JOINED</th>
<th>SRP STOCK NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS TO ABS</td>
<td>CEMENT = 10-1135 *</td>
</tr>
<tr>
<td>ABS TO PVC</td>
<td>CEMENT = 5011975</td>
</tr>
<tr>
<td>PVC TO PVC</td>
<td>PRIMER = 5012035</td>
</tr>
<tr>
<td>PVC TO PVC</td>
<td>CEMENT = 5011976</td>
</tr>
</tbody>
</table>

CAUTION: CEMENT THAT IS JELLY-LIKE OR THAT HAS NOT BEEN USED WITHIN ONE YEAR OF THE DATE STAMPED ON THE CAN SHOULD BE REPLACED.

2. CUT THE CONDUIT SQUARE AND REMOVE ALL BURRS FROM BOTH THE INSIDE AND OUTSIDE WITH A FILE OR KNIFE.

3. REMOVE DIRT, GREASE AND MOISTURE FROM THE END OF THE CONDUIT AND INSIDE THE COUPLING.

4. APPLY PRIMER (PVC TO PVC) TO ALL SURFACES OF THE CONDUIT AND COUPLING TO BE JOINED.

5. APPLY AN EVEN LAYER OF CEMENT TO THE CONDUIT AND INSIDE THE COUPLING. A SECOND LAYER SHOULD BE APPLIED TO THE CONDUIT IF NECESSARY TO COMPLETELY FILL THE GAP.

6. ASSEMBLE THE JOINT IMMEDIATELY WHILE THE CEMENT IS STILL SOFT AND WET. FORCEFULLY BOTTOM THE CONDUIT INTO THE COUPLING. TURN THE PIPE OR FITTING DURING (BUT NOT AFTER) ASSEMBLY TO DISTRIBUTE THE CEMENT EVENLY. HOLD IN POSITION FOR 30 SECONDS. WIPE OFF EXCESS CEMENT.

7. ALLOW 15 MINUTES SETTING TIME FOR GOOD HANDLING STRENGTH. THE JOINT WILL BE COMPLETELY SET WITHIN 24 HOURS.

8. THE AVERAGE NUMBER OF CONDUIT JOINTS THAT MAY BE OBTAINED PER QUART OF CEMENT AND 1/2 QUART OF PRIMER IS:
<table>
<thead>
<tr>
<th>SIZE OF CONDUIT (INCHES)</th>
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<th>2.5</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF JOINTS</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

FOR STRAIGHT CONDUIT, FIGURE 1 JOINT PER 20 FEET.
FOR SWITCH/FUSE STUB-UP, FIGURE 24 JOINTS.
FOR SINGLE PHASE TRANSFORMER STUB-UP, FIGURE 30 JOINTS.
FOR ALL OTHER ELBOWS, FIGURE 2 JOINTS EACH.

9. ABS CONDUIT SHALL NOT BE USED.

* NO STOCK CODE EQUIVALENT EXISTS IN SAP.
1. Conduit shall be installed in a straight and orderly fashion and shall not be stacked more than 2 layers high. The top layer shall contain less conduit than the bottom layer.

2. Conduit shall not occupy more than 30 inches of horizontal width. For trenches wider than 30 inches, the conduit shall be contained within 30 inches of width.

3. The larger sized conduits should be arranged on the bottom of the trench whenever possible.

4. All of the conduits shall be secured from “floating” due to type of backfill material or installation methods. Individual conduits are not to be encircled with steel such as wire or rebar as excessive heating will result. Encirclement around all of the conduits in a trench is permissible.

5. Depth dimension shown is for one conduit directly above another, such as will occur at elbow turnouts.
NOTES

1. COMMUNICATIONS CONDUIT MAY BE INSTALLED WITH POWER CABLE DUCT BANK. POWER CABLE DUCT REQUIRES FULL ENCASEMENT (CLSM 1-1/2 SACK). COMMUNICATIONS CONDUIT (AND STREET LIGHT CONDUIT) WILL BE ENCASED WITH DUCT BANK ENCASEMENT. IT IS NOT NECESSARY TO CALL FOR ENCASEMENT WITH COMMUNICATIONS OR STREET LIGHT CONDUIT WHEN IT IS INSTALLED WITH POWER DUCT BANK.

2. STREET LIGHT CONDUIT SHOULD BE PLACED ON SIDE OF TRENCH CLOSEST TO STREET LIGHT POLE LOCATION.

3. COMMUNICATIONS CONDUIT MAY BE TIED TO DUCT BANK SPACERS, AND SHOULD BE LOCATED ON FIELD SIDE OF BANK IF POSSIBLE.

4. COMMUNICATIONS & STREET LIGHT CONDUIT MAY NOT BE DIRECT BURIED NEXT TO POWER CABLE OR POWER CABLE IN CONDUIT. IT MUST BE SEPARATED BY A MINIMUM OF 3 INCHES OF CLSM 1-1/2 SACK CONCRETE OR 12 INCHES OF EARTH.

5. FERROUS OR MAGNETIC TIE WIRE MUST NOT ENCIRCLE POWER CONDUIT WHEN INSTALLING COMMUNICATIONS OR STREET LIGHT CONDUIT.

6. INSTALL SRP COMMUNICATIONS WARNING TAPE 6" - 12" ABOVE COMMUNICATIONS CONDUIT. SEE COMMUNICATIONS CONSTRUCTION STANDARDS, CONDUIT SECTION.
2. POWER DUCT BANK TO BE ROUTED UNDER COMMUNICATIONS PULLBOX.

3. ALL DIELECTRIC FIBER OPTIC CABLE MAY BE PLACED IN POWER CABLE MANHOLE WHEN INSTALLED INTO FEEDER DUCT DURING FEEDER UPGRADE.

NOTES
CONDUIT INSTALLATION GUIDELINES

1. EXPANSION JOINTS ARE INSTALLED IN CONDUIT SYSTEMS AS NEEDED TO PREVENT EXCESSIVE CONDUIT MOVEMENT WHICH COULD CAUSE CONDUIT TO BUCKLE, BREAK, OR OTHERWISE BE DAMAGED.

2. EXPANSION JOINTS ARE TO BE USED WHEN THE FOLLOWING CONDITIONS EXIST:
   A. LARGE TEMPERATURE CHANGES ARE EXPECTED BETWEEN THE TIME THE CONDUIT IS INSTALLED AND THEN SHADED (MOSTLY A PROBLEM IN THE SUMMER.)
   AND
   B. STRAIGHT RUNS OF CONDUIT EXCEED 100 FT WITH NO INTERSET EQUIPMENT
   AND
   C. SHADING CANNOT BE COMPLETED THE SAME DAY THE CONDUIT IS INSTALLED IN THE TRENCH.

3. WHEN THE ABOVE CONDITIONS ARE MET, INSTALL EXPANSION JOINTS AS FOLLOWS:
   A. INSTALL ONE EXPANSION JOINT IN THE MIDDLE OF A STRAIGHT CONDUIT SECTION 100 TO 250 FT IN LENGTH.
   B. WHEN A STRAIGHT SECTION OF CONDUIT EXCEEDS 250 FT IN LENGTH, INSTALL ONE ADDITIONAL 250 FT, OR PORTION THEREOF, SECTION OF STRAIGHT CONDUIT REMAINING.

### CONDUIT SIZE STOCK CODE

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<th>CONDUIT SIZE</th>
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<td>5033573</td>
</tr>
<tr>
<td>3&quot;</td>
<td>5033574</td>
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<tr>
<td>4&quot;</td>
<td>5033575</td>
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</tbody>
</table>

### NOTES

- CONSTRUCTION STANDARDS
- UNDERGROUND DISTRIBUTION
- REMAINING
- ADDITIONAL 250 FT, OR PORTION THEREOF, SECTION OF STRAIGHT CONDUIT
- WHEN A STRAIGHT SECTION OF CONDUIT EXCEEDS 250 FT IN LENGTH, INSTALL ONE 100 TO 250 FT IN LENGTH.
3. BACKFILL AROUND ELBOWS WITH CLSM 1/2 SACK (5075313). SPEED CRETE (5011902) MAY ALSO BE USED.

NOTES
1. FOR ELBOWS WHICH WILL HAVE SIDEWALL PRESSURE GREATER THAN 300 LBS/FT OR FOR OTHER SITUATIONS AS REQUIRED.
2. DOES NOT APPLY TO CABLE PREASSEMBLED IN CONDUIT (C-I-C) OR TO CONTINUOUS SPOOLED DUCT.
3. BACKFILL AROUND ELBOWS WITH CLSM 1/2 SACK (5075313). SPEED CRETE (5011902) MAY ALSO BE USED.
NOTES

1. SPOOL DUCT STUB-OUTS SHALL BE INSTALLED STRAIGHT AND AT REQUIRED SPECIFIED DEPTH.

2. TWO OR MORE SPOOL DUCTS SHALL HAVE DUCT SPACERS INSTALLED. WHERE THREE FEET OR MORE OF SPOOLED DUCT IS EXPOSED IN BORE PIT, TWO SETS OF DUCT SPACERS SHALL BE INSTALLED AND SHOWN AND ARRANGED WITH SPECIFIED CONDUIT RACKING.

3. SPOOL DUCT STUB-OUTS SHALL BE CAPPED WITH PVC CONDUIT CAPS, BUT NOT GLUED.

4. STUB-OUT PIT MAY BE BACKFILLED IF REQUIRED, BUT MUST HAVE ELECTRONIC MARKER AND ARED FLAG OVER END OF CONDUIT.

5. WITH BLACK FELT TIP PEN, WRITE THE DEVICE CONDUIT IS FROM AND PHASE.
2. REMOVE THE DAMAGED PORTION OF THE DUCT.

3. BEVEL THE INSIDE ENDS OF THE DUCT BEING REPAIRED 30 DEG - 60 DEG.

4. PLACE HEAT SHRINK SLEEVES OVER THE ENDS OF THE DUCT, FOR CIC REPAIR ONLY.

5. CUT PVC CONDUIT TO LENGTH REQUIRED AND THREAD COUPLINGS COMPLETELY ONTO SPOOL-DUCT.

6. INSERT PULL STRING (IF PRESENT) THROUGH PVC CONDUIT AND TIE TOGETHER. INSTALL PVC CONDUIT INTO PLACE.

7. CEMENT LENGTH OF PVC ONTO COUPLINGS.

NOTES

1. REMOVE ANY CABLE FROM THE DUCT, ATTACH PULL STRING TO OPPOSITE END OF CABLE BEFORE PULLING IT OUT.

2. REMOVE THE DAMAGED PORTION OF THE DUCT.

3. BEVEL THE INSIDE ENDS OF THE DUCT BEING REPAIRED 30 DEG - 60 DEG.

4. PLACE HEAT SHRINK SLEEVES OVER THE ENDS OF THE DUCT, FOR CIC REPAIR ONLY.

5. CUT PVC CONDUIT TO LENGTH REQUIRED AND THREAD COUPLINGS COMPLETELY ONTO SPOOL-DUCT.

6. INSERT PULL STRING (IF PRESENT) THROUGH PVC CONDUIT AND TIE TOGETHER. INSTALL PVC CONDUIT INTO PLACE.

7. CEMENT LENGTH OF PVC ONTO COUPLINGS.
JOIN SPOOL-DUCT ENDS AT 45° OR 90° IN CLOSE QUARTERS

NOTES
1. GLUE COUPLING ONTO PVC CONDUIT AND BEVEL INSIDE ENDS OF SPOOL-DUCT 30°-60°.
2. PLACE HEAT SHRINK SLEEVES OVER ENDS OF DUCT AND INSERT SPOOL-DUCT INTO COUPLING (OR BELL END).
3. SHRINK HEAT SHRINK TUBE OVER COUPLING AND ONTO SPOOL-DUCT TO HOLD THEM TOGETHER.
4. GROUT FINAL ASSEMBLY PER CONDUIT ELBOW REINFORCEMENT DETAILS ON PAGE 4-6-1.
5. JOINING SPOOL-DUCT WITH A PVC ELBOW IS TO BE USED IN CLOSE QUARTERS WHERE SPOOL-DUCT CAN NOT BE INSTALLED IN ONE CONTINUOUS PIECE.
6. ADD A "G" TO THE END OF ANY ABOVE COMPATIBLE UNIT FOR MATERIAL PROVIDED BY SRP AND INSTALLED BY CUSTOMER.
CONDUIT OPENING FOR CABLE PULLING (APPROX. 3 FT.)

WRONG METER LOCATION

INTENDED METER LOCATION

HOUSE

NOTES
1. TO BE USED WHEN SERVICE CAN NOT BE INSTALLED DUE TO EXCESSIVE PULLING TENSION.

2 1/2" CONDUIT

3" CONDUIT
5035470 (LENGTH OF OPENING PLUS 6" OR MORE)

INSTALL BEFORE PULLING CABLE

HEAT SHRINK CUT IN TWO PIECES (NOT SHRUNK) 5031738

OPENING LARGE ENOUGH TO PULL CABLE

USKJ25

3" OR MORE OVERLAP BOTH ENDS

HEAT SHRINK TO SEAL BOTH ENDS

CONDUIT
SERVICE INSTALLATION CONDUIT REPAIR
FOR WRONG METER LOCATIONS
<table>
<thead>
<tr>
<th>CODE NUMBER</th>
<th>DESCRIPTION</th>
<th>STOCK NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKES24G</td>
<td>ELBOW, 2&quot;, 45 DEG, 24&quot;R</td>
<td>5033587</td>
</tr>
<tr>
<td>UKE2G</td>
<td>ELBOW, 2&quot;, 90 DEG, 36&quot;R</td>
<td>5033602</td>
</tr>
<tr>
<td>UKE25G</td>
<td>ELBOW, 2.5&quot;, 22.5 DEG, 36&quot;R</td>
<td>5033708</td>
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<tr>
<td>UKE254G</td>
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<tr>
<td>UKE3G</td>
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<td>UKE42G</td>
<td>ELBOW, 4&quot;, 22.5 DEG, 36&quot;R</td>
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<td>UKE44G</td>
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<tr>
<td>UKE4G</td>
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<tr>
<td>UKE5G</td>
<td>ELBOW, 5&quot;, 90 DEG, 36&quot;R</td>
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**ELBOWS FOR SERVICES**

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<tr>
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<tr>
<td>USE3</td>
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<tr>
<td>USE34</td>
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<td>USE44</td>
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**END CAPS**

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<tr>
<td>UK15EC</td>
<td>END CAP 1.5&quot;</td>
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<td>UK2EC</td>
<td>END CAP 2&quot;</td>
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<td>UK25ECG</td>
<td>END CAP 2.5&quot;</td>
<td>5035082</td>
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<td>UK3ECG</td>
<td>END CAP 3&quot;</td>
<td>5035086</td>
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<td>UK4ECG</td>
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<tr>
<td>UKX</td>
<td>END CAP 5&quot;</td>
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**SPACERS ARE FOR 3" CONDUIT**

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</thead>
<tbody>
<tr>
<td>UK3AG</td>
<td>SPACER, 3 HOLE</td>
<td>5031862</td>
</tr>
<tr>
<td>UK4AG</td>
<td>SPACER, 4 HOLE</td>
<td>5031863</td>
</tr>
<tr>
<td>UK6AG</td>
<td>SPACER, 6 HOLE</td>
<td>5031864</td>
</tr>
<tr>
<td>UK8AG</td>
<td>SPACER, 8 HOLE</td>
<td>5031865</td>
</tr>
<tr>
<td>UK9AG</td>
<td>SPACER, 9 HOLE</td>
<td>5031866</td>
</tr>
<tr>
<td>UK12AG</td>
<td>SPACER, 12 HOLE</td>
<td>5031867</td>
</tr>
<tr>
<td>UK16AG</td>
<td>SPACER, 16 HOLE</td>
<td>5031868</td>
</tr>
<tr>
<td>UKXG</td>
<td>SPACER, 1Ø TRANSFORMER STUB-UP</td>
<td>5031848</td>
</tr>
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</table>

* *ADD "E" TO THE ELBOW CODE FOR GROUT REINFORCEMENT. SEE ELBOW REINFORCEMENT DETAILS ON PG. 4-6-1* **NOT STOCKED BY SRP (PROVIDED BY CUSTOMER ONLY).**

**NOTES**

1. UNITS ENDING IN "G" ARE PROVIDED BY SRP AND INSTALLED BY A CONTRACTOR.
<table>
<thead>
<tr>
<th>CODE NUMBER</th>
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</tr>
</thead>
<tbody>
<tr>
<td>UKSCG</td>
<td>CEMENT, 1 QUART</td>
<td>5011976</td>
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<tr>
<td>UKSC</td>
<td>PRIMER, 0.5 QUART</td>
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<tr>
<td>UKMTG</td>
<td>MULETAPE, 1500 FT. ROLL</td>
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<td>UK25ECPMG</td>
<td>CAP, PLUG, E-MARKER, RED MARKER</td>
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<td>UK25ECPM</td>
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**PVC PATIENT COUPLING**

<table>
<thead>
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<tbody>
<tr>
<td>UK1C</td>
<td>COUPLING, 1”</td>
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<tr>
<td>UK12C</td>
<td>COUPLING, 1.25”</td>
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<tr>
<td>UK2C</td>
<td>COUPLING, 2”</td>
<td>5034163</td>
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<tr>
<td>UK25C</td>
<td>COUPLING, 2.5”</td>
<td>5034166</td>
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<tr>
<td>UK3C</td>
<td>COUPLING, 3”</td>
<td>5034168</td>
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<tr>
<td>UK4C</td>
<td>COUPLING, 4”</td>
<td>5034171</td>
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<tr>
<td>UK25CG</td>
<td>COUPLING, 2.5”</td>
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**PVC 5 DEG. ANGLE COUPLING**

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<tbody>
<tr>
<td>UK2AC</td>
<td>2.5”</td>
<td>5034167</td>
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<tr>
<td>UK3AC</td>
<td>3”</td>
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<td>UK4AC</td>
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**PVC REPAIR SLEEVE COUPLING**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>SLEEVE, 1.25” X 6” LONG</td>
<td>5034184</td>
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</tr>
<tr>
<td>SLEEVE, 2” X 6” LONG</td>
<td>5034180</td>
<td></td>
</tr>
<tr>
<td>SLEEVE, 2.5” X 6” LONG</td>
<td>5034179</td>
<td></td>
</tr>
<tr>
<td>SLEEVE, 3” X 6” LONG</td>
<td>5034181</td>
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</tr>
<tr>
<td>SLEEVE, 3” X 9” LONG</td>
<td>5034182</td>
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<tr>
<td>SLEEVE, 4” X 9” LONG</td>
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**SPLIT DUCT FOR CONDUIT REPAIR**

<table>
<thead>
<tr>
<th>CODE NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>SPLIT DUCT, 2”</td>
<td>5035467</td>
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<tr>
<td>SPLIT DUCT, 2.5”</td>
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</tr>
<tr>
<td>SPLIT DUCT 3”</td>
<td>5035471</td>
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<tr>
<td>SPLIT DUCT 4”</td>
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**SPLIT COUPLING**

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<thead>
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<th>CODE NUMBER</th>
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</thead>
<tbody>
<tr>
<td>SPLIT COUPLING, 2”</td>
<td>5034186</td>
<td></td>
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<tr>
<td>SPLIT COUPLING, 2.5”</td>
<td>5033570</td>
<td></td>
</tr>
<tr>
<td>SPLIT COUPLING, 3”</td>
<td>5033571</td>
<td></td>
</tr>
<tr>
<td>SPLIT COUPLING, 4”</td>
<td>5033572</td>
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**CONDUIT END PLUGS**

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<thead>
<tr>
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<th>DESCRIPTION</th>
<th>STOCK NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK2EP</td>
<td>END PLUG, 2”</td>
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</tr>
<tr>
<td>UK25EP</td>
<td>END PLUG, 2.5”</td>
<td>5035183</td>
</tr>
<tr>
<td>UK3EP</td>
<td>END PLUG, 3”</td>
<td>5035184</td>
</tr>
<tr>
<td>UK4EP</td>
<td>END PLUG, 4”</td>
<td>5035185</td>
</tr>
</tbody>
</table>

**CONDUIT TO CABLE SEALING PLUG**

<table>
<thead>
<tr>
<th>CODE NUMBER</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>SEAL PLUG, 3”, 500 &amp; 750 MCM FEEDER</td>
<td>5031729</td>
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</tr>
<tr>
<td>SEAL, FOAM</td>
<td>5012047</td>
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</tbody>
</table>

**NOTES**

1. UNITS ENDING IN "G" ARE PROVIDED BY SRP AND INSTALLED BY A CONTRACTOR.
### Construction Standards

#### Codes for Underground Distribution

<table>
<thead>
<tr>
<th>Conduit Size</th>
<th>PVC Codes</th>
<th>Polyethylene Codes</th>
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<tbody>
<tr>
<td>2&quot;</td>
<td>USK2_</td>
<td>UKF2</td>
</tr>
<tr>
<td>2 1/2&quot;</td>
<td>USK25_</td>
<td>UKF25</td>
</tr>
<tr>
<td>3&quot;</td>
<td>USK3_</td>
<td>UKF3</td>
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<td>4&quot;</td>
<td>USK4_</td>
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</tr>
<tr>
<td>5&quot;</td>
<td>USK5_</td>
<td>UKF5</td>
</tr>
</tbody>
</table>

**Notes**

1. **Number of Conduits (Distribution Account Only)**
   - **Straight PVC**: 1 & 5" = 1 or 4 Conduits
   - 2, 2 1/2, 3 & 4" = 1 to 12 Conduits
2. **SPOOLED - DUCT**: 2, 2 1/2 & 3" = 1 to 12 Conduits
   - 4" = 1 or 2 Conduits
3. **Number of Conduits (Dusk to Dusk, Street Lights & Communications)**
   - **Straight PVC**: See Note 2 & 2-1/2" = 1 or 2 Conduits
   - **SPOOLED - DUCT**: 2 & 2 1/2" = 1 or 2 Conduits
   - Install pull tape (0646901) tied to end plugs on both ends of run when any spool-duct is installed.
4. **Conduit Encaissement**
   - **E**: Lean Mix Backfill (1-1/2 Sack 5075315).
   - **F**: 2,000 PSI Concrete (SRP Stock # 5075320 or Mag C may be used with 2, 2.5, 3 & 4 inch straight PVC conduit, developer or contractor installed).
5. **Accounts Other Than Distribution (1 or 2 Conduits Only)**
   - **D**: Dusk to Dusk Lighting (1", 2" or 2 1/2" Conduit Only)
   - **L**: Street Lighting (1", 2" or 2 1/2" Conduit Only)
   - **K**: See Communications Book
6. **Conduit Supplied by SRP & Installed by Others**
   - **G**: Developer or Contractor installed (maximum conduits same as Note 1)

**Flexible Conduit (Corrugated)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UX1G</td>
<td>Conduit, Flexible, 1&quot;</td>
<td>UX1</td>
<td>Conduit, Flexible, 2&quot;</td>
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<tr>
<td></td>
<td></td>
<td>UX3</td>
<td>Conduit, Flexible, 2.5&quot;</td>
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<td></td>
<td></td>
<td>UX5</td>
<td>Conduit, Flexible, 3&quot;</td>
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<td></td>
<td></td>
<td>UX7</td>
<td>Conduit, Flexible, 4&quot;</td>
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</tbody>
</table>

**Example**

For a distribution duct bank of 12 straight 3" PVC conduits concrete encased:

- **UK312F**

* Not applicable
"UKB" DUCT BANK SPECIFICATIONS

1. WHEN IDENTIFIED ON CONSTRUCTION PRINTS, 2/0 BARE COPPER NEUTRALS SHALL BE INSTALLED PER INSTRUCTIONS ON PAGE 4-13-2.

2. DUCT BANKS SHALL BE CONSTRUCTED AS FOLLOWS:
   A. SPACERS CONFIGURED AS ABOVE OR AS SHOWN ON CONSTRUCTION PRINTS.
   B. SPACERS SHALL BE PLACE ON THE BOTTOM OF THE TRENCH AND SPACED AT 6 FOOT INTERVALS.
   C. UNLESS NOTED OTHERWISE, DUCT BANK SHALL BE ENCASED IN CONTROLLED LOW STRENGTH MATERIAL (CLSM) 1-1/2 SACK CEMENT PER CUBIC YARD (SRP MATERIAL ITEM 5075315/0000106). MINIMUM ENCASEMENT SHALL BE 2 INCHES ON SIDES AND 3 INCHES ON TOP. SEE NOTES BELOW WHEN A DIFFERENT ENCASEMENT BACKFILL IS REQUIRED.

3. INDIVIDUAL CONDUITS ARE NOT TO BE ENCIRCLED WITH STEEL SUCH AS WIRE OR REBAR. ENCIRCLEMENT OF THE COMPLETE DUCT BANK IS PERMISSIBLE.

4. THE ABOVE DIMENSIONS ARE NOMINAL BASED ON SPACER DIMENSIONS AND ENCASEMENT REQUIREMENTS.

NOTES

1. FOR THE FOLLOWING ENCASEMENT BACKFILLS, THE DUCT BANK CODE SHALL INCLUDE A SUFFIX AS SHOWN:
   A. ADD "F" FOR 2000 PSI MINIMUM CONCRETE (SRP MATERIAL ITEM 5075320). I.E. UKB6F.
   B. ADD "FE" FOR 2000 PSI MINIMUM RED CONCRETE (CONTACT SRP TO ORDER). I.E. UKB6FE.

2. WHEN CROSSING UNDER EXISTING DUCT BANKS, REFER TO PAGE 4-16-1 FOR SUPPORTING SPECIFICATIONS.

3. THE INNER SPACES SHALL NOT BE USED.

4. DUCT BANKS CONTAINING NINE CONDUITS OR LESS MAY BE ROTATED 90 OR 180 DEGREES.
INSTALLATION NOTES FOR 2/0 BARE COPPER NEUTRALS

1. INSTALL 2/0 BARE COPPER NEUTRALS AS SHOWN ON THE CONDUIT ONE LINE UNLESS NOTED OTHERWISE. NEUTRALS SHALL BE PLACED ON THE BOTTOM OF THE TRENCH AS SHOWN ON THE DUCT BANK DETAILS.

2. DIRECT BURIED CONNECTIONS OF 2/0 BARE COPPER NEUTRALS SHALL USE TWO (2) COMPRESSION CONNECTORS, STOCK CODE #5035168. INSTALLED BY SRP PERSONNEL.

3. COIL 8 FT ON THE END OF THE 2/0 BARE COPPER INSIDE MANHOLES. SEE DETAIL ON PAGE 7-9-3 FOR CONNECTION OF 2/0 BARE COPPER NEUTRAL TO 2/0 BARE COPPER RINGS INSIDE EACH MANHOLE.

4. PROVIDE AN 8 FT LOOP OF 2/0 BARE COPPER INTO THE WINDOW OF EACH PAD MOUNT DEVICE WHERE 2/0 BARE COPPER RUNS IN AND OUT OF THE DEVICE. ON A RADIAL 2/0 BARE COPPER RUN INTO A PAD MOUNTED DEVICE, PROVIDE AN 8' COIL INTO THE WINDOW.

5. ON 2/0 BARE COPPER RUNS INTO A FOUR WAY SWITCH, PROVIDE AN 8 FT COIL INTO THE WINDOWS AS SHOWN. CREWS TO CONSTRUCT 2/0 BARE COPPER LOOP UNDER THE PAD TO BOND ALL FOUR COMPARTMENTS TOGETHER.

6. LEAVE 12 INCHES 2/0 BARE COPPER STUBBED UP AT RISER POLE. WHERE A ONE INCH CONDUIT STUB UP HAS BEEN PROVIDED, RUN THE 2/0 BARE COPPER THROUGH THE ONE INCH CONDUIT.
NOTES
1. STEEL BORE CASING NOT INCLUDED IN THESE UNITS.
2. LOCATE SPACERS AT 6' INTERVALS.
3. INSTALL COPPER NEUTRAL IN CASING AS REQUIRED FOR NUMBER OF FEEDER CIRCUITS.
4. SPACERS FOR UKBS ARE NOT STOCKED AND MUST BE SPECIAL ORDERED. CASE BORE CONTRACTOR SHALL ORDER SPACERS AND PROVIDE SRP WITH CASE BORE AND SPACER PROJECT PLANS FOR APPROVAL. ELECTRICAL CONDUIT SHALL BE PLACED ON THE OUTSIDE POSITIONS, NOT INSIDE, FOR HEAT DISSIPATION. MINIMUM 2" SEPARATION BETWEEN CONDUITS.
5. CONDUIT AND COPPER NEUTRAL TO EXTEND 2' BEYOND CASE ON EACH END FOR FUTURE EXTENSION.
6. SPARE CONDUIT ENDS MUST BE CAPPED.
7. GROUT SHALL BE PUMPED INTO CASING UNTIL FULL FOR THERMAL CONDUCTIVITY (5075316 DBS).
8. CONDUIT NOT INCLUDED IN UKBS ONLY.
NOTES
1. DUCT BANKS WITH 13 OR MORE CONDUIT SHALL BE RACKED AND ENCASED AS FOLLOWS:
   RACKING. PLASTIC SPACERS LOCATED AT 6' INTERVALS WITH 2" MINIMUM SEPARATION BETWEEN CONDUITS.

ENCASEMENT
A. SRP 106 CSLM 1 1/2 SACK WASHED GRAVEL AND SAND OR CLEAN ABC, WITH CEMENT, STRUCTURAL BACKFILL
   UNDER FOUNDATIONS AND AS THERMAL FILL AND/OR MECHANICAL PROTECTION OF DUCT BANKS.
B. 1" ENCASEMENT AROUND DUCT BANK.
C. 3" MINIMUM SLURRY CAP ON TOP OF DUCT BANK.
D. BACKFILL - SLURRY RECEIPTS TO BE SAVED AND PRESENTED TO SRP INSPECTIONS.
1Ø TRANSFORMER WITHOUT ABOVE GROUND J-BOX SERVICES

UKY
STUB-UP TEMPLATE

UKYG
STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

1Ø TRANSFORMER W/ABOVE GROUND J-BOX SERVICES

UKX
STUB-UP TEMPLATE

UKXG
STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

AIR INSULATED FUSE

UKF
STUB-UP TEMPLATE

UKFG
AIR INSULATED FUSE STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION
750 MCM Feeder Pulling Enclosure

3 Phase Primary Pulling Enclosure

#2 Single Phase Primary Loop
1 φ TRANSFORMER W/ 6 - 4"
CONDUITS FOR APARTMENTS

UKD STUB-UP TEMPLATE
UKDG STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

DEAD FRONT SWITCH

UKS STUB-UP TEMPLATE
UKSG DEAD FRONT SWITCH STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

DEAD FRONT SWITCH IN DIRECT BURIED AREAS

UKSD STUB-UP TEMPLATE
UKSDG STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

4/0 TAP ENCLOSURE

UK4T STUB-UP TEMPLATE
UK4TG STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

THE TEMPLATE HAS "F" STAMPED INTO THE TOP FRONT LEFT AS SHOWN.
4 - WAY SWITCH, PME10
2 PER PAD

AUTO TRANSFER SWITCH, PME9
2 PER PAD

0-500KVA 3Φ TRANSFORMER
- UK500 STUB-UP TEMPLATE
- UK500G STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

750KVA 3Φ TRANSFORMER
- UK750 STUB-UP TEMPLATE
- UK750G STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION

1000-2500KVA 3Φ TRANSFORMER
- UK2500 STUB-UP TEMPLATE
- UK2500G STUB-UP TEMPLATE FOR CONTRACTOR INSTALLATION
3. FOR SUPPORT OF EXISTING DUCT BANKS NOT SPECIFIED OR SUPPORT OF DUCT BANKS MORE THAN 12” LARGER THAN THE COMPATIBLE UNIT, CONTACT ELECTRIC SYSTEM ENGINEERING.

4. IF THE TOP WIDTH OF THE TRENCH EXCEEDS THE MAXIMUM POLE SPAN DISTANCE L, CONTACT ELECTRIC SYSTEM ENGINEERING.

5. SPACING BETWEEN SUPPORTS d, SHALL NOT EXCEED THE MAXIMUM SELF-SUPPORTING DISTANCE SHOWN IN THE TABLE.

6. THE MAXIMUM EXPOSED DUCT BANK LENGTH B, SHALL NOT EXCEED THE MAXIMUM POLE SPAN DISTANCE L.

7. TRENCH WALLS SHALL BE SHORED OR SLOPED AS REQUIRED BY THE SRP EXCAVATION SAFETY MANUAL; LATEST REVISION.

8. CONTACT ELECTRIC SYSTEM ENGINEERING PRIOR TO USING THIS STANDARD FOR CIVIL REQUIREMENTS.

NOTES

1. INSTALL SUPPORTS BEFORE FULL EXCAVATION. EXCESS POLES AND SALVAGEABLE MATERIAL BACK INTO STOCK AFTER COMPLETION OF WORK.

2. BACK FILL TO BOTTOM OF EXISTING DUCT BANK WITH LEAN CONCRETE OR ABC SLURRY. DO NOT COMPACT UNDER DUCT BANK WITH SOIL.

3. PREFERRED 1. WOOD POLE SEGMENT - MIN. 11” DIAMETER
   ALTERNATE 2. 4” X 4” X 3/8” STEEL TUBE
   3. 8” X 14” DOUGLAS FIR #2 BEAM

4. IF THE TOP WIDTH OF THE TRENCH EXCEEDS THE MAXIMUM POLE SPAN DISTANCE L, CONTACT ELECTRIC SYSTEM ENGINEERING.

5. SPACING BETWEEN SUPPORTS d, SHALL NOT EXCEED THE MAXIMUM SELF-SUPPORTING DISTANCE SHOWN IN THE TABLE.

6. THE MAXIMUM EXPOSED DUCT BANK LENGTH B, SHALL NOT EXCEED THE MAXIMUM POLE SPAN DISTANCE L.

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8. CONTACT ELECTRIC SYSTEM ENGINEERING PRIOR TO USING THIS STANDARD FOR CIVIL REQUIREMENTS.
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*BASED ON THE COST OF MAKING A SPLICE PLUS ADDITIONAL MARGIN FOR OTHER FACTORS AND THEN ROUNDED UP.
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## Compatible Unit Coding for Retirement of Non-Standard Duct Banks

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# RISERS

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<td>PRIMARY RISER - FOUR CONDUCTORS #2 AL. OR THREE 4/0 AL. WITH ONE #2 AL.</td>
<td>5-27-1</td>
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<tr>
<td>PRIMARY RISER - SINGLE CONDUCTOR, #4/0 AL., FEEDING AN OVERHEAD LINE</td>
<td>5-28-1</td>
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<td>PRIMARY RISER - THREE CONDUCTORS, #4/0 AL.</td>
<td>5-29-1</td>
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<td>PRIMARY RISER - THREE CONDUCTORS, #4/0 AL., FEEDING AN OVERHEAD LINE</td>
<td>5-30-1</td>
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<tr>
<td>PRIMARY RISER - THREE CONDUCTORS, #4/0 AL. FOR DOUBLE CIRCUIT TANGENT</td>
<td>5-31-1</td>
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<tr>
<td>FEEDER RISER - POLE MOUNTED DISCONNECTS</td>
<td>5-32-1</td>
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<td>FEEDER RISER - POLE MOUNTED DISCONNECTS, STEEL POLES</td>
<td>5-33-1</td>
</tr>
<tr>
<td>SUBSTATION RISER, POLE MOUNTED DISCONNECTS, DOUBLE CIRCUIT WITH ONE CIRCUIT DEAD-ENDED</td>
<td>5-34-1</td>
</tr>
<tr>
<td>FEEDER RISER - THREE CONDUCTORS, FOR FUTURE OVERHEAD LINE RELOCATION</td>
<td>5-35-1</td>
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<tr>
<td>FEEDER RISER WITH GANG OPERATED SWITCH</td>
<td>5-36-1</td>
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<tr>
<td>FEEDER RISER WITH GANG OPERATED SWITCH - STEEL POLE</td>
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## OBSOLETE - FOR REFERENCE ONLY

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<td>5-38-1</td>
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<td>5-41-1</td>
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# RISERS

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INSTRUCTIONAL GUIDE

PURPOSE

FOR INSTALLATION, REMOVAL OR REPLACEMENT OF POLE RISERS USED IN UNDERGROUND DISTRIBUTION CONSTRUCTION.

COMPATIBLE UNIT CODING FOR "UR" SECTION

POLE RISERS

PRIMARY AND SECONDARY POLE RISERS ARE CODED WITH THE PREFIX UR. THE NEXT DIGIT FOLLOWING THE PREFIX IS A NUMBER THAT DESIGNATES A VARIATION IN MATERIAL AND FRAMING. THE LETTER "K" IS ADDED TO THE COMPATIBLE UNIT NUMBER IF A CONDUIT STUB UP IS REQUIRED.

FEEDER RISERS

FEEDER RISERS ARE CODED WITH THE PREFIX URF. THE NEXT DIGIT IS A NUMBER ASSIGNED TO A VARIATION IN MATERIAL AND FRAMING. EXAMPLE: URF1UA750K THE SHADING ON THE STANDARD DRAWINGS INDICATES WHICH MATERIAL IS INCLUDED IN THE BILL OF MATERIAL AND FRAMING.

GRID SKETCH APPLICATION

THE COMPATIBLE UNIT IS SHOWN ON EACH DRAWING ENCLOSED IN A BLOCK WITH TWO DASHES TO INDICATE THAT A CONDUCTOR/CABLE SIZE IDENTIFIER IS NEEDED TO COMPLETE THE CODE NUMBER.

EXAMPLE

UR1: TO COMPLETE THE CODE NUMBER, UA2K HAS TO BE ADDED TO UR1K. THIS CAN BE DONE BY EITHER OF TWO METHODS:

1. ENTER THE WIRE SIZE UA2K ON LINE 4 OF THE GRID SKETCH AND UR1K ON LINE 5.
2. ENTER UR1KUA2K IN THE AREA OF LINE 13 THROUGH LINE 18 ON THE GRID.
### 600V

<table>
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<th>PHASE</th>
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<th>RISER SIZE</th>
</tr>
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<tbody>
<tr>
<td>SINGLE PHASE</td>
<td>2 – 1/0, (#2 N)</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>2 – 4/0, (1/0 N)</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>2 – 350MCM,(4/0 N)</td>
<td>3”</td>
</tr>
<tr>
<td></td>
<td>2 – 500MCM,(350MCM N)</td>
<td>3”</td>
</tr>
<tr>
<td>THREE PHASE (120/240 V)</td>
<td>2 – 1/0, #2 PL, (#2 N)</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>2 – 4/0, 1/0 PL, (1/0 N)</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>2 – 350MCM,4/0 PL, (4/0 N)</td>
<td>3”</td>
</tr>
<tr>
<td></td>
<td>2 – 500MCM, 350MCM PL, (350MCM N)</td>
<td>3”</td>
</tr>
<tr>
<td>THREE PHASE (120/208 V OR 277/480 V)</td>
<td>3 – 1/0, (#2 N)</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>3 – 4/0, (1/0 N)</td>
<td>3”</td>
</tr>
<tr>
<td></td>
<td>3 – 350MCM,(4/0 N)</td>
<td>3”</td>
</tr>
<tr>
<td></td>
<td>3 – 500MCM,(350MCM N)</td>
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### 15KV

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<tbody>
<tr>
<td>SINGLE PHASE</td>
<td>1 – #2</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>1 – 1/0</td>
<td>2”</td>
</tr>
<tr>
<td></td>
<td>2 – #2</td>
<td>3”</td>
</tr>
<tr>
<td>THREE PHASE</td>
<td>3 – #2</td>
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<tr>
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<td>3 – 4/0</td>
<td>3”</td>
</tr>
<tr>
<td></td>
<td>3 – 500MCM</td>
<td>4”</td>
</tr>
<tr>
<td></td>
<td>3 – 750MCM</td>
<td>4”</td>
</tr>
</tbody>
</table>
NOTES

1. TLS CONNECTOR IS FOR ARRESTER EXTENSION ROD CONNECTION TO LIGHTING ARRESTER.

2. BALL STUD IS FOR GROUNDING.

3. BALL STUD IS TO BE INSTALLED WITH FLAT WASHERS AND BELLEVILLE WASHER AS SHOWN ON PAGE 8-12-1.
NOTES

1. 24" SPACING MAY BE USED WHEN CROSSARM IS LOCATED AT OR BELOW 37' ABOVE FINAL GRADE. 34" SPACING MUST BE USED WHEN CROSSARM IS LOCATED AT 37'-10" ABOVE FINAL GRADE.

2. WHEN CROSSARM IS MOUNTED AT 35' AND BELOW, CUTOUT AND ARRESTORS MAY BE MOUNTED DIRECTLY ON ARM.

3. FUSED CUTOUTS AND SWITCHES ON RISERS SHALL BE LIMITED TO 35' ABOVE GROUND.

4. 18" SPACING MAY BE USED WHEN BOTTOM PHASE IS LOCATED AT OR BELOW 36'-6" ABOVE FINAL GRADE. 42" SPACING MUST BE USED WHEN BOTTOM PHASE IS LOCATED AT 38'-6" ABOVE FINAL GRADE.

5. THERE SHALL NOT BE MORE THAN 42" BETWEEN THE TOP MOUNTING BOLT OF THE SWITCHES AND THE BOTTOM PHASE CONDUCTOR. FOR PRIMARY CONDUCTOR CONSTRUCTION AT LEVELS HIGHER THAN THOSE INDICATED IN NOTES 1 & 3, CONSULT ENGINEERING SERVICES.

6. THE MOUNTING HEIGHT OF BLADE DISCONNECT SWITCHES IS LIMITED TO 35' ABOVE GROUND.
NOTES

1. ALL PRIMARY HIGH VOLTAGE LEADS AND JUMPERS SHALL BE INSULATED FOR PROTECTION OF BIRDS. THIS INSULATION IS NOT ADEQUATE FOR PERSONNEL PROTECTION OR CLEARANCE REDUCTION. THESE CONDUCTORS SHALL BE INSTALLED AND OPERATED THE SAME AS BARE CONDUCTORS.

2. THE MOUNTING HEIGHT OF BLADE DISCONNECT SWITCHES IS LIMITED TO 35 FT ABOVE GROUND.
* EXTENDED BRACKETS TO BE USED WITH DOUBLE CIRCUIT OVERHEAD.
URB2CA3
FUSE CUTOUT ARRESTER

URBD3
300A BLADE DISCONNECT

RISERS
300A BLADE DISCONNECT
SINGLE PHASE BLADE DISCONNECT

ISSUE DATE: 11/14/88
REV. DATE: 09/28/12
APPROVAL: B. PRIEST
1. REPLACES FUSE TUBE IN HIGH FIRE RISK AREAS 5091194.
OUTDOOR TERMINATIONS FOR #2, #4/0, 500MCM AND 750MCM PRIMARY CABLE:

- URBT2A FOR SHRINK-TYPE TERMINATIONS
- URBT40A
- URBT500A
- URBT750A
THERMAL EXPANSION.

1. IF PLATE THICKNESS IS 1/2" OR LESS THE SELF DRILL/SELF TAPPING SCREWS (5028982) MAY BE USED.

   IF PLATE THICKNESS IS GREATER THAN 1/2" DRILL 3/16" DIAMETER HOLE FOR SELF DRILL/SELF TAP SCREWS (5028982). SCREWS SHALL BE PLACED IN SLOTS AND NOT DRILLED THROUGH U-GUARD FLANGE TO ALLOW THERMAL EXPANSION.

NOTES
NOTES

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   THERMAL EXPANSION.
### WOOD POLE RISERS

<table>
<thead>
<tr>
<th>MATERIAL ITEM</th>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>5028002</td>
<td>SCREW, LAG, HOT DIP GALVANIZED, 1/4&quot; DIA.</td>
<td>36</td>
<td>EA.</td>
</tr>
<tr>
<td>5039124</td>
<td>SIGN, DECAL, 5&quot; X 9&quot;</td>
<td>1</td>
<td>EA.</td>
</tr>
<tr>
<td>5035064</td>
<td>BOOT, POLE RISER, CLASS 2 AND LOWER POLES</td>
<td>1</td>
<td>EA.</td>
</tr>
<tr>
<td>5031717 - 5031721, 5091123, 5091465</td>
<td>MOLD, POLE RISER</td>
<td>VARIOUS</td>
<td>EA.</td>
</tr>
<tr>
<td>5035065</td>
<td>BOOT, POLE RISER</td>
<td>1</td>
<td>EA.</td>
</tr>
<tr>
<td>5087791</td>
<td>BOOT, EXTENSION (NOTE 1)</td>
<td>1</td>
<td>EA.</td>
</tr>
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</table>

### STEEL POLE RISERS

<table>
<thead>
<tr>
<th>MATERIAL ITEM</th>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UOI</th>
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<tbody>
<tr>
<td>5004959</td>
<td>WASHER, FLAT, CUT STEEL, ZINC PLATED, 1/4&quot;</td>
<td>0.25</td>
<td>LB.</td>
</tr>
<tr>
<td>5028982</td>
<td>SCREW, STEEL, SELF DRILLING</td>
<td>36</td>
<td>EA.</td>
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<td>SIGN, DECAL, 5&quot; X 9&quot;</td>
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<tr>
<td>5035065 - 5035066</td>
<td>BOOT POLE RISER</td>
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<td>5031717 - 5031721, 5091123, 5091465</td>
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### NOTES

1. OPTIONAL BOTTOM BOOT EXTENSION USED WHEN CONDUIT IS OFFSET FROM POLE (MAX. 16").

USE MATERIAL ITEM TO ORDER.
### STEEL POLE RISERS

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<td>5035065</td>
<td>BOOT POLE RISER</td>
<td>1</td>
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</tr>
<tr>
<td>5031717 - 5031720</td>
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<td>5087791</td>
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<tr>
<td>5035065</td>
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**NOTES**

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<tr>
<td>5035064</td>
<td>BOOT, POLE RISER, CLASS 2 AND LOWER POLES</td>
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<td>EA.</td>
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<tr>
<td>5031717 - 5031721</td>
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**STEEL POLE RISERS**

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</tr>
<tr>
<td>5039124</td>
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<td>EA.</td>
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<tr>
<td>5035065 - 5035068</td>
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<td>5031717 - 5031721</td>
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<td>5087791</td>
<td>BOOT, EXTENSION (NOTE 1)</td>
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<td>EA.</td>
</tr>
</tbody>
</table>

**NOTES**

1. OPTIONAL BOTTOM BOOT EXTENSION USED WHEN CONDUIT IS OFFSET FROM POLE (MAX. 16"). USE MATERIAL ITEM TO ORDER.
ANTI-CLIMBING BARRIER FOR STEEL CONDUIT RISERS WITH STANDOFF BRACKETS.

**URCB**

INSTALLATION: ONE PAIR OF FLAT SHEET BARRIERS ARE POSITIONED FROM GROUND LINE UP ON EACH SIDE OF THE RISER. BOLTS, WASHERS AND NUTS ARE INSTALLED ACROSS THE STANDOFF BRACKETS TO SECURE. ADDITIONAL BOLTS, WASHERS AND NUTS MAY BE INSTALLED IF NECESSARY.

**URBR4BE**

IF THE STEEL CONDUIT MUST BE REMOVED AND A CONCRETE FOUNDATION PREVENTS THE CONDUIT FROM BEING MOVED TO THE POLE, USE URBR4BE WITH BOOT 5035068.

![Diagram]

- **4" MOLD**
- **REMAINING STEEL CONDUIT STUB**
- **CONCRETE FOUNDATION**
- **POLE TO TOE OF BOOT**

**GROUND LINE**

**RISERS STANDOFF RISER CONVERSION OPTIONS**

**8513E244.DGN**

**ISSUE DATE:** 04/29/97  **REV. DATE:** 07/30/13  **APPROVAL:** B PRIEST

**5-13-1**
PLASTIC CONDUIT ELLS TO BE 36" RADIUS
BACKFILL AS SPECIFIED
OR EQUIVALENT
MIN. 2000 PSI CONCRETE
CONNECTORS
(2) COPPER COMPRESSION

NOTES
1. HEIGHT OF CONCRETE ENCASEMENT TO BE:
   2 INCHES ABOVE GRADE TYPICAL FOR WOOD POLE.
   24 INCHES ABOVE GRADE WHERE PROTECTION FROM VEHICLES IS NECESSARY.
   FLUSH WITH FOUNDATION OF STEEL POLE OR AS SPECIFIED.

2. CONCRETE SHALL NOT FLOW AROUND WOOD POLE. 12" SONOTUBE OR EQUIVALENT FORM MAY BE USED FOR
   CONCRETE ENCASEMENT FROM 2 FEET BELOW GRADE TO TOP. SLOPE TOP AWAY FROM POLE.

3. RISER INSTALLATION DETAILS FOR STEEL POLE MUST BE APPROVED BY SUPERVISOR OR PRINCIPAL ENGINEER OF
   ESD&C PRINCIPAL ENGINEER OF ESD&C PRIOR TO CONSTRUCTION.
**NOTES**

1. CONDUIT ENCASEMENT TO PROVIDE FLAT PLATFORM FOR RISER BOOT.

2. FOR RISER STUB UP AT DIRECT IMBEDDED POLE, CONTACT E&D'S SUPERVISOR OR PRINCIPAL ENGINEER FOR SPECIFIC DETAILS.

3. FOR THIS DIMENSION:
   - 7" OR LESS, ORDER BOOT URBRBLT7
   - GREATER THAN 7", ORDER BOOT URBRB8

---

**WOOD POLE DETAILS**

- **FOUNDATION STYLE STEEL POLE**
- **4" U-GUARD**
- **TRANSITION BOOT 5035069** (MACHINE SHOP MUST FABRICATE)

**STEEL POLE DETAILS**

- **DIRECT IMBEDDED STEEL POLE**
- **4" U-GUARD**
- **STEEL TRANSITIONAL BOOT 5035069 OR RISER MOLD BOOT 5035066**
1. FOR STEEL POLE ADD AN "S" TO SUPPLY SELF DRILL / SELF TAP SCREWS AND WASHERS.

2. IF PLATE THICKNESS IS 1/2" OR LESS THE SELF DRILL / SELF TAPPING SCREWS (5028982) MAY BE USED. IF PLATE THICKNESS IS GREATER THAN 1/2" DRILL 3/16" DIAMETER HOLE FOR SELF DRILL / SELF TAP SCREWS (5028982).
RISERS
SECONDARY RISER FROM
OVERHEAD TRANSFORMER

NOTES
1. FOR STEEL POLE ADD AN "S" TO SUPPLY SELF DRILL / SELF TAP SCREWS AND WASHERS.

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CONDUIT STUB-UP

- TWO SINGLE PHASE RISERS ON A POLE SEE UR2KUA2K
- THREE SINGLE PHASE RISERS ON A POLE SEE UR3KUA2K
- FOUR SINGLE PHASE RISER ON A POLE SEE UR4KUA2K

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8" FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 5" ABOVE AND 8" BELOW THE NEUTRAL.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

STEM CONNECTOR

FUSE 5034502
85 A
5034505
100 A
5091194
100 A
(SEE HIGH FIRE RISK AREA IN DDS)

ARRESTER 5033988
9 KV

#2 POLE GROUND

2" MOLD

BOOT 5035065
(FOR 2" TO 3" MOLD)

12"

2"

FINAL GRADE

34' MAX. ABOVE FINAL GRADE

LINE DIRECTION

45°

5034502
85 A
5034505
100 A
5091194
100 A
(SEE HIGH FIRE RISK AREA IN DDS)

CONSTRUCTION STANDARDS

UNDERGROUND DISTRIBUTION

RISERS
PRIMARY RISER
SINGLE CONDUCTOR #2 AL.

ISSUE DATE: 01/15/87
REV. DATE: 09/16/21
APPROVAL: J. LUERA
POLE RISER WITH CONDUIT STUB-UP

- TWO SINGLE PHASE RISERS ON A POLE SEE URV2UA2K
- THREE SINGLE PHASE RISERS ON A POLE SEE URV3UA2K

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

ARRESTER 5033988
9 KV

STEM CONNECTOR
#2 POLE GROUND

12" MIN. CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

#6 CU INSULATED

2" MOLD BOOT 5035065 (FOR 2" TO 3" MOLD)

CONDUIT STUB-UP POLE RISER WITH SECURING ANY PRIMARY ATTACHMENT.

FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

#2 POLE GROUND

STEM CONNECTOR

ARRESTER 5033988 9 KV

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MIN. CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.
LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT. UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND ANY GROUND (CONCENTRIC NEUTRAL OR TRANSFORMER TANK).

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

2" MOLD

35' MAX. ABOVE FINAL GRADE

90 DEG

45 DEG

FUSED FOR TRANSFORMER SIZE (OVERHEAD STANDARDS CHAPTER 7)

ARRESTER 5033988 9KV

Connecting concentric neutrals directly to system neutral using compression connector.

Located sign "DANGER HIGH VOLTAGE INSIDE KEEP OUT" vertically on riser mold with right hand side at top approx. 8' from grade.

Locate riser at 45 deg angle to line direction on a non-traffic quadrant. Unless exact location is shown on job sketch.

12" minimum clearance between SW blade and any ground (concentric neutral or transformer tank).

2" mold

3' 6"

2' 6"

90 deg

45 deg

Fused for transformer size (overhead standards chapter 7)

Arrester 5033988 9KV

Connecting concentric neutrals directly to system neutral using compression connector.

Located sign "DANGER HIGH VOLTAGE INSIDE KEEP OUT" vertically on riser mold with right hand side at top approx. 8' from grade.

Locate riser at 45 deg angle to line direction on a non-traffic quadrant. Unless exact location is shown on job sketch.
POLE RISER WITH CONDUIT STUB-UP
MAY BE USED FOR TWO SINGLE PHASE RISER.

THIS DIMENSION SHALL BE 6" MIN.
FROM THE BOTTOM THRU BOLT
SECURING ANY PRIMARY ATTACHMENT.

#6 CU INSULATED
#2 CU INSULATED
(USE COMPRESSION CONNECTOR)

ARRESTER
5033988
9 KV

STEM CONNECTOR

#2 POLE GROUND

FUSE
5034502
85 A
5034632
100 A
5091194
100 A
(SEE HIGH FIRE RISK AREA IN DDS)

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

35' MAX. ABOVE FINAL GRADE

FINAL GRADE

3" MOLD
BOOT 5035065
(FOR 3" MOLD)

12"

100 A
5034632
100 A
5091194

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

35' MAX. ABOVE FINAL GRADE

FINAL GRADE

3" MOLD
BOOT 5035065
(FOR 3" MOLD)

12"

100 A
5034632
100 A
5091194

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

35' MAX. ABOVE FINAL GRADE

FINAL GRADE

3" MOLD
BOOT 5035065
(FOR 3" MOLD)

12"
MAY BE USED FOR TWO SINGLE PHASE RISERS

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

DIRECTLY TO SYSTEM NEUTRAL CONNECT CONCENTRIC NEUTRALS.

35 MAX. ABOVE FINAL GRADE

#6 CU INSULATED

3' 6"

3" MOLD

2"

12"

ARRESTER 5033988 9kV

STEM CONNECTOR

#2 POLE GROUND

SW BLADE 300A

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

INSULATED #6 CU CONNECTOR (USE COMPRESSION #2 CU INSULATED)

3'-6" GRADE FINAL ABOVE FINAL GRADE

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

SEATING ANY PRIMARY ATTACHMENT.

FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

DIRECTLY TO SYSTEM NEUTRAL CONNECT CONCENTRIC NEUTRALS.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

LOCATE SIGNAL "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

DIRECTLY TO SYSTEM NEUTRAL CONNECT CONCENTRIC NEUTRALS.

35 MAX. ABOVE FINAL GRADE

#6 CU INSULATED

3' 6"

3" MOLD

2"

12"

ARRESTER 5033988 9kV

STEM CONNECTOR

#2 POLE GROUND

SW BLADE 300A

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

INSULATED #6 CU CONNECTOR (USE COMPRESSION #2 CU INSULATED)

3'-6" GRADE FINAL ABOVE FINAL GRADE

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

DIRECTLY TO SYSTEM NEUTRAL CONNECT CONCENTRIC NEUTRALS.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

LOCATE SIGNAL "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

DIRECTLY TO SYSTEM NEUTRAL CONNECT CONCENTRIC NEUTRALS.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

LOCATE SIGNAL "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.
NOTES

1. FUSED FOR TRANSFORMER SIZE (SEE ODCS CHAPTER 7), USE TRANSFORMER COMPATIBLE UNIT FOR TRANSFORMERS.
2. DELETE (2) ARRESTERS (5033988) FROM TRANSFORMER COMPATIBLE UNIT.
3. BLADE SWITCH USED FOR RISER.
DANGER HIGH VOLTAGE INSIDE KEEP OUT

#2 CU INSULATED
#6 CU INSULATED

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO POLE GROUND USING COMPRESSION CONNECTOR.

USE CABLE TIES TO ATTACH CONCENTRIC NEUTRALS ALONG CABLE.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

NOTES
1. FUSED FOR TRANSFORMER SIZE (SEE ODCS CHAPTER 7). USE TRANSFORMER COMPATIBLE UNIT FOR TRANSFORMERS.
2. DELETE (3) ARRESTERS (5033988) FROM TRANSFORMER COMPATIBLE UNIT.
3. BLADE SWITCH USED FOR RISER.
4. EVALUATE 3 PHASE PAD (PREFERRED) BEFORE INSTALLATION.
POLE RISER WITH CONDUIT STUB-UP MAY BE USED FOR TWO SINGLE PHASE RISER.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 6' FROM GRADE.

LOCATE RISER AT 45° ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

ARRESTER 5033988 9 KV

STEM CONNECTOR

#2 POLE GROUND

FUSE 5034502
85A
5034632
100 A
5091194
100 A

(SEE HIGH FIRE RISK AREA IN DDS)

USING COMPRESSION CONNECTOR.

RISERS
PRIMARY RISER
THREE CONDUCTORS #2 AL.
MAY BE USED FOR THREE SINGLE PHASE RISERS

DANGER HIGH VOLTAGE INSIDE KEEP OUT

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

BOOT 5035065 (FOR 3" MOLD)

12"

2"

3'-6"
MAY BE USED FOR THREE SINGLE PHASE RISERS

12" MINIMUM CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-Traffic Quadrant, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.
MAY BE USED FOR FOUR 10 RISERS OR THREE 4/0 AL. CONDUCTORS WITH ONE #2 AL.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL. CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD

LOCATION ON NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.
LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

#6 CU INSULATED

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRA LS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

#2 COPPER INSULATED JUMPERS

#2 POLE GROUND

ARRESTER 5033988 9KV

STEM CONNECTOR

SW BLADE 300A

35' MAX. ABOVE FINAL GRADE

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

#2 POLE GROUND

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

#6 CU INSULATED

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.
UNDERGROUND DISTRIBUTION

CONSTRUCTION STANDARDS

RISERS
PRIMARY RISER
THREE CONDUCTORS #4/0 AL.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.
CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

#2 POLE GROUND

#6 CU INSULATED
(SW BLADE 300A)

ARRESTER 5033988 9kV

STEM CONNECTOR

#2 CU INSULATED
(USE COMPRESSION CONNECTORS)

#6 CU

#6 CU INSULATED

BOOT 5035067 (FOR 3" MOLD)

3" MOLD

3'-6"

5033988

#2 POLE GROUND

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8" FROM GRADE.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.
CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.
**Underground Distribution Construction Standards**

**RISERS**

**PRIMARY RISER - THREE CONDUCTORS #4/0 AL. FEEDING AN OVERHEAD LINE**

- **URV3UA40K** (3" MOLD) POLE RISER WITH CONDUIT STUB-UP
- **URV34UA40K** (4" MOLD) FOR REMOVAL OF OLD 4" RISERS

- **12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL.**
- **CONNECT CONCENTRIC NEUTRAL DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.**
- **LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.**
- **TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.**
- **3" MOLD**
- **BOOT 5035067 (FOR 3" MOLD)**
- **2"**
- **12"**
- **35' MAX. ABOVE FINAL GRADE**
- **THIS DIMENSION SHALL BE 6" MIN. FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.**
- **#2 POLE GROUND**
- **#6 CU INSULATED**
- **USE COMPRESSION CONNECTORS**
- **ARRESTER 5033988 9kV**
- **STEM CONNECTOR**
- **SW BLADE 300A**

**LINE DIRECTION**

**LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.**

**CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.**

**#2 POLE GROUND**

**ARRESTER 5033988 9kV**

**STEM CONNECTOR**

**SW BLADE 300A**

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**#2 POLE GROUND**

**ARRESTER 5033988 9kV**

**STEM CONNECTOR**

**SW BLADE 300A**

**LINE DIRECTION**
CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL

#6 CU INSULATED

#6 CU INSULATED

#6 CU INSULATED

#2 CU INSULATED (USE COMPRESSION CONNECTORS)

#2 POLE GROUND

SW BLADE 300A

ARRESTER 5033988 9kV

BOOT 5035067 (FOR 3" MOLD)

(4" MOLD) FOR REMOVAL OF OLD 4" RISERS

(3" MOLD) POLE RISER WITH CONDUIT STUB-UP

#2 POLE GROUND

35' MAX. ABOVE FINAL GRADE

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL.

3" MOLD BOOT 5035067 (FOR 3" MOLD)

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL

FINAL GRADE

12" MINIMUM CLEARANCE BETWEEN SW BLADE AND CONCENTRIC NEUTRAL
1. FOR 750MCM CABLE, SEE TERMINATION DETAILS ON PAGE 5-3-1.
2. IF RUNNING LINE IS 266A, 600V 350A JUMPER MAY BE USED.
3. TO CONVERT EXISTING TO G.O.S., REMOVE ONE DB6VE AND CONSTRUCT ONE DGR6. SEE DGR6 CLEARANCE REQUIREMENTS.
1. If plate thickness is 1/2 inch or less, the self drill/self tapping screws (5028982) may be used.
2. If plate thickness is 5/8 inch or greater, drill and tap for the 1/4 inch bolts. Use 3/16 inch drill bit.
3. Use Lock-Tite with the 1/4 inch bolts.
4. If U-Guard is ever removed, the drilled and tapped holes must have bolts reinstalled.
5. The attaching screws shall be installed in all available slots. See "Steel Pole Mounting" pages 5-10-1 and 5-11-1.

6. Individual proposed installation must be approved by Manager of Transmission.
7. For 750MCM cable, see termination details on page 5-3-1.
8. Designer: A boot is not included in this compatible unit and must be ordered. See UBRBF, "Steel Pole Details" note 3 to determine proper boot. If boot URBRBS is needed, contact machine shop.
9. If running line is 266A, 600V 350A jumper may be used.

U-Guard Risers can be bolted to the steel poles by drilling and tapping holes in the pole or by using self drill/self tap screws (5028982), when the following conditional requirements are met:

- The attaching screws shall be installed in all available slots. See "Steel Pole Mounting" pages 5-10-1 and 5-11-1.
- If plate thickness is 5/8 inch or greater, drill and tap for the 1/4 inch bolts. Use 3/16 inch drill bit.
- Use Lock-Tite with the 1/4 inch bolts.
- If U-Guard is ever removed, the drilled and tapped holes must have bolts reinstalled.
- The jumper between switch and line shall be 397 MCM AA and covered with insulating tube. Note 9.
- The dimension shall be 6" minimum from the bottom primary attachment band.
FOR 750 MCM CABLE TERMINATION, SEE PAGE 5-3-1.

397 AL. JUMPERS. USE COMPRESSION OR POWER GRIP CONNECTORS AND INSULATING TUBE

NOTE; TO CONVERT EXISTING TO G.O.S.: REMOVE ONE DB6VE CONSTRUCT ONE DGR6. SEE DGR6 CLEARANCE REQUIREMENTS

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH

LOCATE SIGN "WARNING HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE

TOP OF MOLD MUST BE LOCATED BETWEEN 6" ABOVE AND 8" BELOW THE NEUTRAL

#2/0 CU TO NEUTRAL

#2/0 CU

#2/0 CU

TLS CONNECTOR (5016725)

ARRESTER EXTENSION ROD (5033987)

CONNECTOR ARRESTER CLAMP (5033989)

ARRESTER GROUND LEAD (5033990)

BALL STUD (5016640)

#5033991 9KV HEAVY DUTY

URF7UA500K 500MCM AL

URF7UA750K 750MCM AL

URF7UC750K 750MCM CU

POLE RISER WITH STUB-UP AND BOOT

6'-0" 12'-6"

12" MIN.

12"

35' MAX.

ABOVE FINAL GRADE

SEE UNDERGROUND DUCTS SUBSTATION RISER STUB-UP FOR DETAIL

FOR 500 MCM TERMINATION, SEE PAGE 5-3-1.
FOR 750MCM CABLE TERMINATION, SEE PAGE 5-3-1.

LOCATE SIGN "WARNING HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

NOTE: THIS FRAMING IS FOR INSTALLATION ON POLES 45' OR TALLER.

POLE RISER WITH CONDUIT STUB-UP AND BOOT (SEE UNDERGROUND DUCTS SUBSTATION RISER STUB-UP FOR DETAIL)

1. THIS STANDARD IS PROVIDED FOR USE WHEN INSTALLING A FEEDER RISER OUT OF LINE WITH AN OVERHEAD WHICH IS GOING TO BE RELOCATED. THE RISER POLE IS TO BE SET IN THE NEW ALIGNMENT.
FOR 750MCM CABLE, SEE TERMINATION DETAILS ON PAGE 5-3-1.

2. OPERATING ROD GUIDES: TOP BOLT EYE SHALL NOT BE GREATER THAN 5 FT FROM SWITCH CRANK; BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8 FT FROM GRADE; INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5 FT.

3. IF RUNNING LINE IS 266A, 600V 350A JUMPER MAY BE USED.
LOCATE SIGN "WARNING HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROXIMATELY 8' FROM GRADE. U-GUARD RISERS CAN BE BOLTED TO THE STEEL POLES BY DRILLING AND TAPPING HOLES IN THE POLE, OR BY USING SELF DRILL/SELF TAP SCREWS (5028982) WHEN THE FOLLOWING CONDITIONAL REQUIREMENTS ARE MET:

1. IF PLATE THICKNESS IS 1/2 INCH OR LESS, THE SELF DRILL/SELF TAPPING SCREWS MAY BE USED.
2. IF PLATE THICKNESS IS 5/8 INCH OR GREATER, DRILL AND TAP FOR THE 1/4 INCH BOLTS. USE 3/16 INCH DRILL BIT.
3. USE LOCK-TITE WITH THE 1/4 INCH BOLTS.
4. IF U-GUARD IS EVER REMOVED, THE DRILLED AND TAPPED HOLES MUST HAVE BOLTS REINSTALLED.
5. THE ATTACHING SCREWS SHALL BE INSTALLED IN ALL AVAILABLE SLOTS. "STEEL POLE MOUNTING" PAGES 5-10-1 AND 5-11-1.
6. INDIVIDUAL PROPOSED INSTALLATION MUST BE APPROVED BY MANAGER OF TRANSMISSION.
7. FOR 750MCM CABLE, SEE TERMINATION DETAILS ON PAGE 5-3-1.
8. DESIGNER: A BOOT IS NOT INCLUDED IN THIS COMPATIBLE UNIT AND MUST BE ORDERED. SEE URBRF, "STEEL POLE DETAILS" NOTE 3, TO DETERMINE PROPER BOOT. IF BOOT URBRBS IS NEEDED, CONTACT MACHINE SHOP.
9. OPERATING ROD GUIDES: TOP BOLT EYE SHALL NOT BE GREATER THAN 5 FT FROM SWITCH CRANK; BOTTOM BOLT EYE SHALL NOT BE LOWER THAN 8 FT FROM GRADE; INTERMEDIATE BOLT EYES SHALL NOT BE SPACED GREATER THAN 5 FT.
10. IF RUNNING LINE IS 266A, 600V 350A JUMPER MAY BE USED.
APPLICATION INSTRUCTIONS

1. Use band from roll and cut to fit.
2. Bend end of band under buckle.
3. Slide bracket and clamp onto band.
4. Place remaining end of band thru buckle and using tool, tighten until band doesn't move.
5. Bend band over buckle using the tool while releasing tension.
6. Cut band and bend tabs over band.

COMPLETE ASSEMBLY

BUCKLE
Buckle 5035078
Band 5034955

BRACKET 5035071
CLAMP 5021105

1 INCH STEEL RISER

6' MAX.

2' MAX.
WIRE SIZES:
- UDX2
- UDX2D
- UDX2L
- UDX6D
- UDX8L
- UTXK6D
- UTXK8L

WHEN SERVING STREET LIGHT OR D. TO D. LIGHT WITH #8 TX, GROUND THE BLACK/GREEN STRIPED CONDUCTOR

LOCATION OF RISER TO BE DETERMINED ON ESTIMATOR GRID SKETCH

FINAL GRADE

STUB UP ENOUGH CiC TO REACH THE TRANSFORMER BUSHINGS. REMOVE CONDUIT TO WITHIN 1 FOOT OF BOTTOM OF THE RISER. PUSH CONDUCTORS UP THRU STEEL RISER.
NOTES
1. A MINIMUM OF SIX CLAMPS ARE TO BE UTILIZED SPACED AT EVEN INTERVALS.
2. NO SAP MATERIAL NUMBER EXISTS.
OBSCOLETE: FOR REFERENCE ONLY
This dimension shall be 6" min. from the bottom thru boll securing any primary attachment.

Locate sign "Danger High Voltage Inside Keep Out" vertically on riser mold with right hand side top approx. 6" from grade.

Locate URBR4 at 45° angle to line direction on non-traffic apparatus, unless exact location is shown on job sketch.

2/0 cu. pole ground

# 6 cu.

36" Max. above final grade

Coil of mogj must be located between 6" above and 8" below the neutral.

See detail 'A' on UR3 for support grip installation.

URF1UA500K
URF1UA750K

Pole riser with conduit stub-up and boot
(See Underground Ducts Substation Riser Stub-up for detail)

For 750mcm cable
See termination details page 5-558
LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

NOTES
1. SEE UNDERGROUND DUCTS SUBSTATION RISER STUB-UP FOR DETAIL.
2. SEE DETAIL "A" ON UR3 FOR SUPPORT GRIP INSTALLATION.
3. FOR 750MCM CABLE, SEE TERMINATION DETAILS ON PAGE 5-3-1.
4. NO SAP MATERIAL NUMBER EXISTS.
Underground Distribution Construction Standards

PROPRIETARY MATERIAL

RISERS
SUBSTATION RISER – POLE MOUNTED DISCONNECTS

ISSUE DATE: 01/15/87
REV. DATE: 09/28/12
APPROVAL: B. Priest

UG5-44-1.doc

INCLUDES POLE RISER, ARRESTOR, TERMINATION AND SWITCH

EXCLUDES THE SWITCH

This dimension shall be 6" min. from the bottom thru bolt securing any primary attachment.
RISERS
SUBSTATION RISER POLE MOUNTED
DISCONNECTS, DOUBLE CIRCUIT WITH ONE
CIRCUIT DEAD-ENDED

- 397 AL jumpers use compression connectors
- Top of mold must be located 6" above the neutral for heat shrink termination
- Locate riser at 45° angle to line direction on a non traffic quadrant
- Final grade
- Locate sign "Danger High Voltage Inside Keep Out" vertically on riser mold with right hand side at top approx. 8" from grade.

Underground Distribution Construction Standards

ISSUE DATE: 06/90
REV. DATE: 09/28/12
APPROVAL: B. Priest
## COMPATIBLE UNIT CODING FOR RETIREMENT OF NON-STANDARD POLE RISERS

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<th>DISTRIBUTION (PRIMARY &amp; SECONDARY)</th>
<th>STREETLIGHT</th>
<th>SECURITY LIGHT</th>
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<td><strong>RISER MATERIAL: STEEL</strong></td>
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<td></td>
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</tr>
<tr>
<td>1”</td>
<td>RUR1</td>
<td>RUR1L</td>
<td>RUR1D</td>
</tr>
<tr>
<td>1-1/2”</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>RUR2</td>
<td>RUR2L</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>RUR3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4”</td>
<td>RUR4</td>
<td>RUR4L</td>
<td></td>
</tr>
<tr>
<td>5”</td>
<td>RUR5</td>
<td></td>
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</tr>
<tr>
<td>6”</td>
<td>RUR6</td>
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<tr>
<td><strong>RISER MATERIAL: ALUMINUM</strong></td>
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<tr>
<td>3”</td>
<td>RUR3A</td>
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<tr>
<td>4”</td>
<td>RUR4A</td>
<td></td>
<td></td>
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<tr>
<td>5”</td>
<td>RUR5A</td>
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<tr>
<td><strong>RISER MATERIAL: PLASTIC</strong></td>
<td></td>
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<tr>
<td>1”</td>
<td>RURBR1</td>
<td>RURBR1L</td>
<td>RURBR1D</td>
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<tr>
<td>2”</td>
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<tr>
<td>3”</td>
<td>RURBR3</td>
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<tr>
<td>4”</td>
<td>RURBR4</td>
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**SERVICE RISERS**

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<tr>
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<tbody>
<tr>
<td>PLASTIC – ALL SIZES</td>
<td>RURBSR</td>
<td></td>
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<tr>
<td>STEEL – ALL SIZES</td>
<td>RURBSRS</td>
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</table>

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.
NOTES
1. SEE 12kV RISER SECTION FOR BRACKETS ONLY.
Underground Distribution
Construction Standards

22kV RISERS
CUTOUT-ARRESTER COMBINATIONS

ISSUE DATE: 01/15/87
REV. DATE: 09/28/12
APPROVAL: B. PRIEST

URBC12
URBC32
URBC52
URBC42
URBA18
URBCF12M
POLE RISER WITH CONDUIT STUB-UP

12" MINIMUM CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

#6 CU INSULATED

#6 CU

2'-6"

34' MAX. ABOVE FINAL GRADE

#2 POLE GROUND

ARRESTER 5034088 18KV

STEM CONNECTOR

#2 CU INSULATED (USE COMPRESSION CONNECTOR)

CONNECT CONCENTRIC NEUTRALS DIRECTLY TO SYSTEM NEUTRAL USING COMPRESSION CONNECTOR.

#6 CU INSULATED

#6 CU

12" MINIMUM CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT, UNLESS EXACT LOCATION IS SHOWN ON JOB SKETCH.

FINAL GRADE

2"
LOCATE RISER AT 45 DEG ANGLE TO LINE DIRECTION ON A NON-TRAFFIC QUADRANT.

12" MIN CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.

#2CU INSULATED JUMPERS USE COMPRESSION CONNECTOR

THIS DIMENSION SHALL BE 3" FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT.

POLE RISER WITH CONDUIT STUB-UP (AS SHOWN ON UR1K)

12" MIN CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT" VERTICALLY ON RISER MOLD WITH RIGHT HAND SIDE AT TOP APPROX. 8' FROM GRADE.
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12" MIN. CLEARANCE BETWEEN FUSE TUBE AND CONCENTRIC NEUTRAL.

3'-6"

35' MAX. TO FINAL GRADE

12"

FINAL GRADE

2"

2"

#2CU INSULATED JUMPERS USE COMPRESSION CONNECTOR

THIS DIMENSION SHALL BE 3" FROM THE BOTTOM THRU BOLT SECURING ANY PRIMARY ATTACHMENT

ARRESTER 5034088 18KV

POLE RISER WITH CONDUIT STUB-UP (AS SHOWN ON UR1K)

UR3KUA102K

URBC32

LOCATE SIGN "DANGER HIGH VOLTAGE INSIDE KEEP OUT"
TRENCHING

TITLE/DESCRIPTION                                                                  PAGE NO.

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CITY OWNED STREET LIGHTS, POINT OF DELIVERY DETAIL                              6-3-1
SERVICE TO MOBILE HOMES, RENTAL OR PURCHASE LOTS                                6-4-1
FEEDER AND PRIMARY CABLE LOCATION, FRONT LOT INSTALLATION                      6-5-1
JOINT TRENCH WITH GAS, ACCEPTABLE LOCATIONS                                    6-6-1
JOINT USE WITH GAS, TRENCH REQUIREMENTS                                         6-7-1
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EXCAVATION CODES                                                                6-11-1
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GUIDED BORING CODES                                                             6-17-1

OBSOLETE - FOR REFERENCE ONLY

TITLE/DESCRIPTION                                                                  PAGE NO.
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RESIDENTIAL CONDUIT, STUB-UP DETAIL – LARGE LOT                                 6-19-1
RESIDENTIAL CONDUIT SYSTEM, LARGE LOT                                           6-20-1

Underground Distribution Construction Standards

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<tr>
<td>TRANSFORMER AND SERVICE LOCATION, FRONT LOT INSTALLATION</td>
<td>6-30-1</td>
</tr>
<tr>
<td>TRANSFORMER AND SECONDARY LOCATION, FRONT LOT INSTALLATION</td>
<td>6-31-1</td>
</tr>
</tbody>
</table>
INSTRUCTIONAL GUIDE

PURPOSE

TO PROVIDE SPECIFICATIONS FOR TRENCHING.

COMPATIBLE UNIT CODING FOR "UT" SECTION

1. TRENCHING

EXCAVATION CODES HAVE BEEN ESTABLISHED FOR TRENCH DIGGING ONLY.
USE MULTIPLIERS TO ACCOMMODATE A WIDE VARIATION OF WIDTHS AND DEPTHS.

2. BACKFILL

BACKFILL CODES HAVE BEEN ESTABLISHED TO BACKFILL A TRENCH AND REMOVE
NATIVE SOIL WHEN REQUIRED. USE MULTIPLIERS TO PROVIDE THE CORRECT QUANTITY
OF BACKFILL. VARIOUS TYPES OF BACKFILL MATERIAL ARE REPRESENTED.

3. STREET REPAIR

STREET REPAIR CODES HAVE BEEN ESTABLISHED TO PERFORM VARIOUS KINDS OF
STREET REPAIRS.

4. ENCASEMENT

USE FULL STRENGTH CONCRETE (MAG B), RATED AT A MINIMUM OF 2,500 PSI, FOR
MAXIMUM PHYSICAL PROTECTION. USE 1 - 1/2 SACK CLSM (5075315) FOR NORMAL
PHYSICAL PROTECTION. USE DBS (5075316) FOR GROUTING AROUND CONDUIT IN
STEEL PIPE SLEEVES. THESE TYPES OF ENCASEMENT PROVIDE THERMAL
CONDUCTIVITY FOR THE CABLE.

5. TRENCH SHORING AND SAFETY

FOR TRENCH SHORING AND SAFETY SPECIFICATIONS, REFER TO THE EXCAVATION
SAFETY RESOURCE MANUAL PUBLISHED BY THE SAFETY SERVICES DEPARTMENT.
FOR SUPPORTING EXISTING CONDUIT BANKS FOR NEW EXCAVATIONS, SEE UKBS2
IN CONDUIT SECTION.
Underground Distribution Construction Standards

Trenching
Conduit Stub-Out to Residence
Joint Trench with Gas

A. Verify minimum cover for gas & Telco, CATV

B. 39" min. w/o gas
   With gas B = A" + 12" + 3"

Compacted at 85%-90% of maximum backfill soil density per ASTM D698, at or near optimum moisture.
Mechanical compaction is not allowed within 6" of electric conduit.

Side Property Line

18" min.

House Side

Final Grade

A

B

12" min.
NOTES

1. FOR CITY OWNED AND INSTALLED STREET LIGHTS TO BE SERVED BY SRP WITH UNDERGROUND WIRE, THE POINT OF DELIVERY (P.O.D.) WILL BE IN A JUNCTION BOX INSTALLED BY SRP OR AN APPROVED BOX INSTALLED BY THE CITY. THE CITY IS TO PROVIDE THE LOCATION OF THE LIGHTS.


3. THE CITY IS TO PROVIDE APPROPRIATE POLE GROUNDING IF METAL POLES ARE USED. THE CITY MAY INSTALL A GROUND ROD IN THE JUNCTION BOX IF THEY DO NOT DAMAGE SRP CONDUCTORS.

4. IN RESIDENTIAL STREETS, P.O.D. JUNCTION BOX IS TO BE AT FRONT OF UTILITY EASEMENT AND ON PROPERLY LINE BETWEEN LOTS.
NOTES

1. PREFER RIGHT SIDE OF LOT SERVICE
NOTES

1. IDENTIFY CABLES PER MISCELLANEOUS SECTION OF THIS BOOK.
2. LOCATE THE SWITCH, FUSE, AND OR CAPACITOR BANK ON SIDE LOT LINES WHENEVER POSSIBLE AND DO NOT INSTALL IN FRONT OF HOUSES.
3. INSTALL EQUIPMENT AWAY FROM DRIVEWAYS. IF A DRIVEWAY IS WITHIN 2' OF THE EQUIPMENT, INSTALL A GUARD POST AS SHOWN IN THE UBG OF THE BASIC ASSEMBLY UNITS SECTION.
### CONDUCTOR TYPE

<table>
<thead>
<tr>
<th>CONDUCTOR TYPE</th>
<th>ACCEPTABLE LOCATIONS FOR JOINT TRENCH WITH GAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE, SECONDARY AND #2 PRIMARY</td>
<td>ALL LOCATIONS IN RESIDENTIAL SUBDIVISIONS</td>
</tr>
<tr>
<td>SERVICE, SECONDARY, #2 AND 4/0 PRIMARY</td>
<td>COMMERCIAL PRIVATE PROPERTY ONLY (NOT IN PUE)</td>
</tr>
<tr>
<td>FEEDER</td>
<td>NONE (SEE NOTE 2)</td>
</tr>
</tbody>
</table>

### NOTES

1. ALL JOINT TRENCH LOCATIONS SHALL HAVE A MAXIMUM BACK FILL SOIL DENSITY PER ASTM D698, AT OR NEAR OPTIMUM MOISTURE (SEE PAGE 6-9-1). MECHANICAL COMPACTION IS NOT ALLOWED WITHIN 6" OF ELECTRICAL CONDUIT.

2. JOINT USE TRENCH WITH FEEDER IS NOT ALLOWED BECAUSE IT PRESENTS AN OBSTACLE TO FUTURE FEEDER ACCESS. THE FOLLOWING ACCEPTABLE ALTERNATIVES WILL BE ALLOWED:
   - A. A SEPARATE FEEDER AND GAS TRENCH WITH A MINIMUM OF 2 FEET OF UNDISTURBED EARTH BETWEEN THE TWO TRENCHES.
   - B. A SHELF-TYPE TRENCH WITH A MINIMUM HORIZONTAL CLEARANCE OF 6’ AND A MINIMUM VERTICAL CLEARANCE OF 12” BETWEEN THE FEEDER AND GAS.
TRENCH WIDTHS SHOWN ARE THE MINIMUM REQUIRED FOR ELECTRIC CONDUIT ONLY. TELCO, CATV AND GAS MUST BE CONTACTED ON A JOB-BY-JOB BASIS TO DETERMINE THEIR SPECIFIC TRENCH WIDTH AND SEPARATION NEEDS.

**TRENCH WIDTHS SHOWN ARE THE MINIMUM REQUIRED FOR ELECTRIC CONDUIT ONLY. TELCO, CATV AND GAS MUST BE CONTACTED ON A JOB-BY-JOB BASIS TO DETERMINE THEIR SPECIFIC TRENCH WIDTH AND SEPARATION NEEDS.**

1. 85% OF MAXIMUM BACKFILL SOIL DENSITY PER ASTM D698, AT OR NEAR 12 INCH SEPARATION, (MINIMUM)

2. MECHANICAL COMPACTION NOT ALLOWED WITHIN 6" OF ELECTRICAL CONDUIT.

**OUTPUT MOISTURE (SEE CHAPTER 6, SECTION 9).**
**APPROXIMATELY 34"**
This dimension not critical to SRP

Street Side

House Side

**GAS LINE MUST BE INSTALLED ON SHELF.**

**SEPARATION BACKFILL**
Can be native, ABC, ABC slurry or lean mix backfill. Water settling allowed, must be firm. (See Page 6-9-1)

**TO ALLOW THIS TYPE OF CONSTRUCTION, SOIL MUST BE ABLE TO HOLD SHELF DURING INSTALLATION.**

GAS LINE MUST BE INSTALLED ON SHELF.

TRENCH TO BE INSPECTED BY SRP
(A) VERIFY SHELF STABILITY
(B) VERIFY CLEARANCES
(C) VERIFY GAS LINE IS FIRMLY IN PLACE ON SHELF DURING BEDDING.

**TRENCH WIDTHS SHOWN ARE THE MINIMUM REQUIRED FOR ELECTRIC CONDUIT ONLY. TELCO, CATV AND GAS MUST BE CONTACTED ON A JOB-BY-JOB BASIS TO DETERMINE THEIR SPECIFIC TRENCH WIDTH AND SEPARATION NEEDS.**

**GAS LINE MUST BE INSTALLED ON SHELF.**

**STREET SIDE HOUSE SIDE**

**PRIMARY/SECONDARY TRENCH**

24" MIN. COVER

48" MIN. COVER

**SERVICE TRENCH**

48" MIN. COVER

12" MIN. COVER

12" MIN. COVER

12" MIN.
SOIL TYPES, BACKFILL MATERIAL AND COMPACTION REQUIREMENTS

THIS INFORMATION IS TO BE SUPERSEDED BY ANY CONFLICTING INFORMATION THAT MAY BE PUBLISHED IN THE SRP "EXCAVATION SAFETY RESOURCE MANUAL".

NOTES

1. MEASURE TRENCH DEPTHS FROM FINAL GRADE STAKES. FOLLOW ALL TRENCH DEPTHS SPECIFIED ON A JOB DRAWING. SEE CLEARANCE SECTION FOR MINIMUM COVER AND SEPARATION REQUIREMENTS.

2. SHORE OR SLOPE TRENCH WALLS AS REQUIRED BY THE LATEST REVISION OF THE SRP EXCAVATION SAFETY MANUAL.

3. BACKFILL AND COMPACTION FOR CONDUIT IN NATIVE SOIL

WITHIN 6 INCHES OF THE CONDUIT, BACKFILL MATERIAL SHALL BE FREE OF BROKEN CONCRETE, PAVING, WOOD, GLASS OR OTHER SOLID MATERIAL GREATER THAN 1-1/2 INCHES. THIS BACKFILL SHALL CONTAIN MORE THAN 50 PERCENT FINES OF A SIZE THAT IS 3/8 INCH OR SMALLER. THE BALANCE OF THE TRENCH BACKFILL SHALL BE FREE OF SOLID MATERIAL GREATER THAN 4 INCHES IN MAXIMUM DIMENSION AND SHALL CONTAIN MORE THAN 50 PERCENT FINES OF A SIZE THAT IS 3/8 INCH OR SMALLER.

COMPACTED FILLS

<table>
<thead>
<tr>
<th>STOCK CODE</th>
<th>MATERIAL</th>
<th>DESCRIPTION</th>
<th>RECOMMENDED COMPACTION METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>5075319</td>
<td>GRANULAR MAG AGGREGATE BASE COARSE (ABC)</td>
<td>WELL GRADED UNWASHED SAND AND GRAVEL USED IN COMPACTED SUBGRADES FOR PAVEMENTS AND GENERAL BACKFILL</td>
<td>STEEL WHEEL, VIBRATORY PLATE OR RUBBER-TIRED COMPACTION</td>
</tr>
<tr>
<td></td>
<td>SAND</td>
<td>SOIL MOSTLY MADE OF PARTICLES LESS THAN 3/16&quot; IN SIZE, BUT CONTAINING LITTLE OR NO SILT OR CLAY</td>
<td>STEEL WHEEL, VIBRATORY PLATE OR RUBBER-TIRED COMPACTION</td>
</tr>
<tr>
<td></td>
<td>NATIVE SOIL</td>
<td>SOIL PLACED BY NATURE THAT HAS NOT BEEN ALTERED BY MAN AND MEETS REQUIREMENTS OF NOTE 3</td>
<td>SHEEPSFOOT OR RUBBER-TIRED ROLLER (KNEADING)</td>
</tr>
</tbody>
</table>

4. USE OTHER BACKFILL IF IT IS MORE ECONOMICAL. NOTIFY CIVIL INSPECTORS AT LEAST 48 HOURS PRIOR TO START OF WORK TO ARRANGE FOR COMPACTION TESTING.
5. COMPACT BACKFILL TO AT LEAST THE PERCENTAGE OF MAXIMUM DENSITY LISTED IN THE FOLLOWING M.A.G. SPECIFICATION (AS DETERMINED BY ASTM D698) UNLESS OTHERWISE SPECIFIED.

CONTACT THE MUNICIPALITY CONCERNED FOR REPAIR REQUIREMENTS WHEN A TRENCH WILL BE UNDER PAVEMENT. THE FOLLOWING TABLE APPLIES WHEN THERE ARE NO SUPPLEMENTAL MUNICIPAL REQUIREMENTS.

**M.A.G. SPEC. 601-2**
MODIFIED TO MEET MOST MAG AGENCY REQUIREMENTS.

<table>
<thead>
<tr>
<th>FROM SURFACE TO 2’ BELOW SURFACE</th>
<th>FROM 2’ BELOW SURFACE TO TRENCH BOTTOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. UNDER OR WITHIN 2’ EXISTING OR PROPOSED PAVEMENT, CURB, GUTTER OR SIDEWALK</td>
<td>NATIVE ..........95% GRANULAR.100% ALL 95%</td>
</tr>
<tr>
<td>B. ON ANY UTILITY EASEMENT STREET, ROAD OR ALLEY RIGHT-OF-WAY OUTSIDE LIMITS OF ‘A’</td>
<td>90% 90%</td>
</tr>
<tr>
<td>C. AROUND AND UNDER ANY STRUCTURES OR PAD MOUNTED EQUIPMENT OR EXPOSED UTILITIES</td>
<td>95% 95%</td>
</tr>
<tr>
<td>D. ALL OTHER AREAS</td>
<td>80% 80%</td>
</tr>
</tbody>
</table>

NOTE: DO NOT USE MACHINE COMPACTION WITHIN 6 INCHES OF CABLE OR CONDUIT.

**SLURRY BACKFILL MIXES (NO COMPACTION REQUIRED)**

<table>
<thead>
<tr>
<th>STOCK NO.</th>
<th>ABBV.</th>
<th>SLURRY TYPE</th>
<th>DESCRIPTION</th>
<th>COARSE AGGREGATE ASTM C33</th>
<th>FINE AGGREGATE GATE</th>
<th>SLUMP RANGE</th>
<th>MIN. CEMENT CONTENT (LBS/CU. YD.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5075311</td>
<td>ASB</td>
<td>AGGREGATE SLURRY BACKFILL</td>
<td>WASHED GRAVEL AND SAND OR CLEAN ABC, NO CEMENT, BACKFILL AROUND WOOD AND CONCRETE TRANSMISSION LINE POLES AND IN TRENCHES (NO LOADS).</td>
<td>NO. 67 [3/4&quot; (19MM) NOM. MAX.]</td>
<td>NOTES 11, 12</td>
<td>6&quot;-9&quot;</td>
<td>NONE</td>
</tr>
<tr>
<td>5075313</td>
<td>CLSM 1/2 SACK</td>
<td>CONTROLLED LOW STRENGTH MATERIAL W/ 1/2 SACK CEMENT PCY</td>
<td>WASHED GRAVEL AND SAND OR CLEAN ABC, WITH CEMENT, TRENCH BACKFILL (LOW LOAD AREAS- STREETS AND LOTS).</td>
<td>MIXES IN ACCORDANCE WITH MAG 728 (13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5075314</td>
<td>CLSM 1 SACK</td>
<td>CONTROLLED LOW STRENGTH MATERIAL W/ 1 SACK CEMENT PCY</td>
<td>WASHED GRAVEL AND SAND OR CLEAN ABC, WITH CEMENT, TRENCH BACKFILL IN LOW LOAD AREAS (STREETS AND LOTS). USE IN LIEU OF CLSM 1/2 SACK AS REQUIRED BY CITIES.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5075315</td>
<td>CLSM 1- 1/2 SACK</td>
<td>CONTROLLED LOW STRENGTH MATERIAL W/1- 1/2 SACK CEMENT PCY</td>
<td>WASHED GRAVEL AND SAND OR CLEAN ABC, WITH CEMENT, STRUCTURAL BACKFILL UNDER FOUNDATIONS AND AS THERMAL FILL AND/OR MECHANICAL PROTECTION OF DUCT BANKS.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5075316</td>
<td>DBS</td>
<td>DUCT BANK BACKFILL W/SAND SLURRY</td>
<td>GROUT FOR PUMPING AROUND CONDUITS PLACED IN PIPE SLEEVES.</td>
<td>NONE</td>
<td>NOTE 11</td>
<td>6&quot;-9&quot;</td>
<td>376</td>
</tr>
</tbody>
</table>
6. WHEN TRENCHING IN AN AREA WHERE MANY UNDERCROSSINGS OF OTHER UTILITY LINES OR CONFLICTS ARE ENCOUNTERED, INSTALLATION OF CONDUIT UNDER ALL OF THE CONFLICTS IS MORE DIFFICULT. WIDER TRENCHES SHOULD BE USED FOR THESE INSTALLATIONS.

7. WATER FLOODING OF TRENCHES, IN ORDER TO PROVIDE COMPACTION, IS ONLY ALLOWED PROVIDED THE VOLUME OF WATER DOES NOT SATURATE THE BACKFILL, WATER PRESSURE DOES NOT DISPLACE THE BACKFILL, AND IS PRE-APPROVED BY ESE. (STANDING WATER IS AN INDICATION OF SATURATION.)

8. TRENCH SPOIL SHALL BE PLACED 6 TO 10 FT. FROM EDGE OF A TRENCH. IF NOT POSSIBLE, TRENCH SPOIL MAY BE PLACED ON ONE SIDE OF THE TRENCH, WITHIN 4 FT. OF THE EDGE, PROVIDED THE OPPOSITE SIDE OF THE TRENCH IS LEVEL, WITHOUT OBSTRUCTIONS, AND ACCESSIBLE BY MEN AND EQUIPMENT.

9. IF COMPACTION IS UNECONOMICAL AROUND OR UNDER STRUCTURES, PAD MOUNTED EQUIPMENT OR EXPOSED UTILITIES, CLSM 1/2 SACK (5075313) MAY BE USED.

10. FINE AGGREGATES (SAND) SHALL BE IN ACCORDANCE WITH ASTM C33.

11. FINE AGGREGATES 45-50% OF THE TOTAL AGGREGATE WEIGHT.

12. PURCHASER MAY REQUEST MATERIAL AT LOWER SLUMPS.
NOTES

1. EXCAVATE 4' BELOW PAD. PIT SHALL EXTEND ON ALL SIDES 4" PAST EDGE OF PAD.

2. BACKFILL MATERIAL UNDER TRANSFORMER PAD SHALL BE CLSM 1/2" SACK MATERIAL ITEM 5075313. FOR INSTALLATIONS IN WHICH SERVICE CONDUITS REQUIRE RACKING AND ENCASEMENT, BACKFILL MATERIAL SHALL BE 1 - 1/2 SACK CLSM MATERIAL ITEM 5075315.
UTCRA  CUT AND REMOVE ASPHALT.
       PER LINEAR FOOT.

UTCRC  CUT AND REMOVE CONCRETE. COMPATIBLE UNIT CODES FOR CUTTING AND REMOVING PAVED AREAS. DOES NOT INCLUDE TRENCHING OR BACKFILL.
       PER LINEAR FOOT.

UTCP   COMPATIBLE UNIT CODE FOR 3000 PSI CONCRETE PATCHING ONLY, COVERS 2' X 2' AREA, 4" THICK. USE FOR AREAS 60 SQUARE FEET OR LESS (STOCK #5075323).

UTSW   COMPATIBLE UNIT CODE FOR 3000 PSI CONCRETE NEW SIDEWALK, COVERS 4' X 1' AREA, 4" THICK. TO BE USED FOR AREAS GREATER THAN 60 SQUARE FEET (STOCK #5075323).

UTEXS  COMPATIBLE UNIT CODE FOR EXCAVATIONS AT OR NEAR EXISTING FACILITIES. APPROXIMATELY 15 CUBIC FEET. INCLUDES 2.25 MAN-HOURS ONLY.

UTEX   COMPATIBLE UNIT CODE FOR EXCAVATIONS AT OR NEAR EXISTING FACILITIES. APPROXIMATELY 30 CUBIC FT. INCLUDES 4.5 MAN-HOURS ONLY.

UTEXH  COMPATIBLE UNIT CODE FOR HAND-DIG AT OR NEAR EXISTING FACILITIES. APPROXIMATELY 30 CUBIC FT. INCLUDES 12 MAN-HOURS ONLY.

UTDP   THIS COMPATIBLE UNIT WILL BE USED TO COMMUNICATE TO CONSTRUCTION THE NEED FOR A DUST CONTROL PLAN AND PERMIT. THIS UNIT MUST BE SHOWN ON LINES 13 THROUGH 18 OF THE GRID SKETCH BY DESIGN PERSONNEL.

UNDERGROUND ELECTRICAL EXTENSIONS IN EXCESS OF 2,000 LINEAR FEET IN LENGTH OUTSIDE A SUBDIVISION CURRENTLY UNDER CONSTRUCTION WILL REQUIRE THE DUST CONTROL PLAN AND PERMIT.

UTT    MARKER TAPE; INSTALL DIRECTLY ON TOP OF PRIMARY DIRECT BURIED CABLES OR CONDUITS. USE WHEN REQUIRED BY OTHER AUTHORITIES.

RED CONCRETE

RED CONCRETE COLORANT FOR UNDERGROUND DUCT BANKS SHALL BE DRY POWDERED MIX READY DISINTEGRATING BAG CONCRETE COLORANT AS MANUFACTURED BY DAVIS COLORS AND SUPPLIED LOCALLY BY BORDER PRODUCTS, OR EQUAL PRODUCT. COLOR SHALL BE BAJA RED OR EQUAL COLOR, MIXED AT THE RATE OF 9 POUNDS OF DRY COLORANT PER CUBIC YARD OF CONCRETE (SRP STOCK NUMBER 5075320, MAG 'C' 2000 PSI). COLORANT SHALL BE ADDED TO THE CONCRETE MIX AT THE JOB SITE BY THE READY-MIX TRUCK OPERATOR, AND THEN MIXED IN ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS UNTIL THOROUGHLY BLENDED (TYPICALLY AT CHARGING SPEED FOR 5 MINUTES).

NOTES

1. ALL COMPATIBLE UNIT HOURS INCLUDE BACKFILL TIME.
NOTES

1. TRENCH DEPTHS AND CONDUIT COVER ARE TO BE MEASURED FROM FINAL GRADE STAKES. ALL TRENCH DEPTHS OR CONDUIT COVER REQUIREMENTS SPECIFIED ON A JOB DRAWING SHALL BE FOLLOWED.

2. THESE TRENCH CODES PROVIDE MAN-HOURS FOR EXCAVATION ONLY AND DO NOT PROVIDE FOR TRENCH BACKFILL.

3. THE TOTAL TRENCH FOOTAGE LENGTH WILL BE SHOWN IN THE GRID AS STANDARD TRENCH, EITHER UTP FOR PRIMARY OR UTS FOR SECONDARY, STREET LIGHT, OR SERVICE. WHEN TRENCH IS PROVIDED BY CUSTOMER, THIS IS THE ONLY CODING REQUIRED ON THE JOB GRID.

4. NON STANDARD TRENCH LOCATIONS WILL BE IDENTIFIED ON THE JOB ORDER SKETCH WITH REQUIRED WIDTH AND DEPTH DIMENSIONS GIVEN.

5. WHEN TRENCHING IS PROVIDED BY SRP, NON STANDARD TRENCHES SHALL HAVE 2 COMPATIBLE UNIT CODES IN THE GRID. UTP PLUS THE UTPX, TO ADJUST THE TIME FOR DIGGING.

6. WHEN SPECIFIED DEPTH CANNOT BE OBTAINED BECAUSE OF SOLID ROCK, A MINIMUM EARTH COVER OF 24" IS ACCEPTABLE, PROVIDED A MINIMUM 2" ENCASEMENT OF CONCRETE SURROUNDS THE CONDUIT.

7. USE EXAMPLE SHOWN TO FIGURE LENGTH OF UTPX TRENCH, UNLESS THE ENTIRE TRENCH IS NON STANDARD.

8. IF SECONDARY/SERVICE OR STREET LIGHT MUST BE PLACED IN P.U.E. OR ROAD R.O.W., USE UTP TRENCH DIMENSIONS AND ENTER UTS AS THE COMPATIBLE UNIT.

9. PROVIDES 1.5 TIMES REGULAR MAN-HOURS.

10. TRENCH BOTTOM TO BE SMOOTH AND FREE OF SHARP ROCKS. WHERE EXCAVATION IS IN ROCK, BOTTOM OF TRENCH TO HAVE PROTECTIVE LAYER OF CLEAN, LEVEL, TAMPERED BACKFILL OR SAND.
### TRENCHING EXCAVATION CODES UT*X CHART

#### TRENCH WIDTH (INCHES)

<table>
<thead>
<tr>
<th>TRENCH DEPTH (FEET)</th>
<th>6</th>
<th>12</th>
<th>18</th>
<th>24</th>
<th>30</th>
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#### PERSONNEL IN TRENCH REQUIRE PROTECTION*

<table>
<thead>
<tr>
<th>TRENCH DEPTH (FEET)</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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* SEE EXCAVATION SAFETY RESOURCE MANUAL NOTES

1. THE MULTIPLIERS ON THIS CHART ARE USED TO CALCULATE AND ADJUST CONSTRUCTION MAN-HOURS AND MATERIAL WHEN DIGGING AND/OR BACKFILLING TRENCHES THAT ARE DIFFERENT THAN THE “STANDARD” COMPATIBLE UNITS.

2. THE MULTIPLIERS ARE USED WITH COMPATIBLE UNITS UTPX, UTPCX, UTNBPX, UTABPX, AND UT1BPX TO ADD OR DELETE THE DIFFERENCES FROM THE STANDARD PRIMARY TRENCH COMPATIBLE UNITS.

3. WHEN A NEGATIVE MULTIPLIER IS NEEDED IN THE COMPATIBLE UNIT ESTIMATING (CUE) APPLICATION, ENTER "C" IN THE WORK FUNCTION FIELD, AND A NEGATIVE VALUE IN THE QUANTITY FIELD. THIS ENTRY WILL LAUNCH THE EXPANDED/SUBTRACTING FROM FIELD WHERE THE TRENCH TYPE CU BEING ADJUSTED IS ENTERED.

4. USE THE VALUES IN THE CHART THAT ARE THE CLOSEST TO THE ACTUAL TRENCH DIMENSIONS BY ROUNDING UP OR DOWN.

5. THESE MULTIPLIERS AND THE UTPX CODE MAY NOT BE USED WITH THE TRENCH CODE UTS.

6. SEE PG. 6-14-1 FOR AN EXAMPLE.
EXCAVATION BACKFILL CODES

1. UTNPB = COMPLETE NATIVE BACKFILL FOR A UTP TRENCH
2. UTNBS = COMPLETE NATIVE BACKFILL FOR A UTS TRENCH
3. UTNPBX = NATIVE BACKFILL, USE FOR ADDING OR DELETING MAN-HOURS FOR NON-STANDARD TRENCH (SEE UT-X CHART, PG. 6-11-2)
4. UTABP = COMPLETE ABC BACKFILL (5075318) FOR A UTP TRENCH
5. UTABX = COMPLETE ABC BACKFILL (5075318) FOR UTS TRENCH
6. UTABPX = ABC BACKFILL (5075318), USED FOR ADDING OR DELETING MAN-HOURS AND MATERIAL FOR NON-STANDARD SIZE TRENCH (SEE UT-X CHART AND EXCAVATION NOTES)
7. UTLBP = COMPLETE LEAN MIX BACKFILL (CLSM 1/2 SACK 5075313) OF A UTP TRENCH
8. UTLBS = COMPLETE LEAN MIX BACKFILL (CLSM 1/2 SACK 5075313) OF A UTS TRENCH
9. UTLBPX = LEAN MIX (CLSM 1/2 SACK 5075313) USED FOR ADDING OR DELETING MAN-HOURS AND MATERIAL FOR NON-STANDARD SIZE TRENCH (SEE UT-X CHART AND EXCAVATION NOTES)
10. UTSPB = COMPLETE SLURRY BACKFILL (CLSM 1-1/2 SACK 5075315) OF A UTP TRENCH
11. UTSPS = COMPLETE SLURRY BACKFILL (CLSM 1-1/2 SACK 5075315) OF A UTS TRENCH
12. UTSPBX = SLURRY (CLSM 1-1/2 SACK 5075315) USED FOR ADDING OR DELETING MAN-HOURS AND MATERIAL FOR NON-STANDARD SIZE TRENCH (SEE UT-X CHART AND EXCAVATION NOTES)
13. UT1BP = COMPLETE 1 SACK BACKFILL (5075314) OF A UTP TRENCH
14. UT1BS = COMPLETE 1 SACK BACKFILL (5075314) OF A UTS TRENCH
15. UT1BPX = 1 SACK (5075314) USED FOR ADDING OR DELETING MAN-HOURS AND MATERIAL FOR NON-STANDARD SIZE TRENCH (SEE UT-X CHART AND EXCAVATION NOTES)

NOTES

THE UT-X CHART (PG. 6-11-2) IS TO BE USED WHEN CALCULATING MAN-HOUR AND MATERIAL ADJUSTMENTS FOR NON-STANDARD PRIMARY TRENCH BACKFILL WHEN THE FOLLOWING CONDITIONS EXIST:

1. THE TRENCH IS NARROWER, SHALLOWER, WIDER AND/OR DEEPER THAN THE STANDARD UTP TRENCH BY 6" OR MORE.
2. THE BACKFILL CONSISTS OF TWO OR MORE DIFFERENT TYPES (I.E. ABC AND NATIVE WILL BE USED TO FILL THE TRENCH).
3. THERE IS A CONCRETE ENCASED CONDUIT BANK PARTIALLY BACKFILLING THE TRENCH AND ADJUSTMENT TO THE REMAINING AMOUNT OF BACKFILL NEEDS TO BE MADE.

EXCEPTION: TRENCHES REQUIRING SLOPING ASSUME A DUCT BANK WILL BE INSTALLED. TIME AND MATERIAL HAVE BEEN ADJUSTED ALREADY.

4. ANYTIME IT IS KNOWN THAT APPROXIMATELY ONE FOOT OR MORE OF THE TRENCH BOTTOM WILL BE COMPLETELY FILLED WITH SOMETHING OTHER THAN THE NATIVE FILL, EXCESS NATIVE FILL CANNOT BE PLACED BACK INTO THE TRENCH AND WILL HAVE TO BE HAULED OFF SITE.

5. THE MAN-HOURS INCLUDE TIME TO HAUL AWAY NATIVE BACKFILL.
STREET CROSSING SURFACE REPAIR CODES

1. UTSRAP= ASPHALT CONCRETE (A.C.) HOT MIX PAVEMENT STREET REPAIR FOR A UTP TRENCH, 1’ X 2’ WIDTH X 2” DEPTH (0.06 TON HOT MIX ASPHALT). SEE NOTE 5.

2. UTSRAPX= SAME AS #1 BUT IN 1 SQ. FT. INCREMENTS (0.03 TON HOT MIX ASPHALT). SEE NOTES 1 AND 5.

3. UTSCX= CONCRETE STREET REPAIR, 1’ X 4’ WIDTH X 8” DEPTH (0.1 CUBIC YARD STOCK #5075323).

4. UTSCX= SAME AS #3 BUT IN 1 SQ. FT. INCREMENTS (0.03 CUBIC YARD STOCK #5075323). SEE NOTE 1.

5. UTSMC= ABC AND A.C. PAVEMENT COURSE REPAIR, 1’ X 4’ WIDTH X 2” DEPTH (0.1 TON HOT MIX ASPHALT). SEE NOTE 5.

6. UTSMCX= SAME AS #5 BUT IN 1 SQ. FT. INCREMENTS (0.03 CUBIC YARD STOCK #5075323). SEE NOTES 1 AND 5.

7. UTSRCA= COMPACTED ABC OR 1 SACK CLSM AND A.C. PAVEMENT COURSE REPAIR, 1’ X 4’ WIDTH X 2” DEPTH EACH (0.15 CUBIC YARD STOCK #5075134 & 0.10 TON HOT MIX ASPHALT). SEE NOTE 5.

8. UTSRCX= SAME AS #7 BUT IN 1 SQ. FT. INCREMENTS (0.04 CUBIC YARD STOCK #5075134 & 0.03 TON HOT MIX ASPHALT). SEE NOTES 1 AND 5.

9. UTRGC= CURB AND GUTTER REPAIR (ROLLED OR SQUARE) FOR ONE FOOT OF LENGTH (0.04 CUBIC YARD STOCK #5075323).

NOTES

1. MULTIPLY THE LENGTH OF THE REPAIR (IN FEET) TIMES THE WIDTH OF THE REPAIR (IN FEET) FOR THE QUANTITY TO BE USED. ROUND OFF DIMENSIONS TO NEAREST FOOT.

2. MINIMUM TRENCH WIDTH IN PUBLIC RIGHT-OF-WAY IS 12”.

3. THESE CODES MAY BE USED TO REPAIR ASPHALT OR CONCRETE IN OTHER LOCATIONS, NOT IN A PUBLIC RIGHT-OF-WAY (E.G. PARKING LOTS OR PRIVATE DRIVEWAYS).

4. SPOIL REMOVAL TIME IS INCLUDED IN THE CONCRETE, CLSM AND ABC BACKFILL COMPATIBLE UNIT CODES.

5. HOT MIX ASPHALT SHALL MEET THE GOVERNING MUNICIPALITIES’ REQUIREMENTS.
TRENCHING
TRENCH CODES EXAMPLE

1. FIRST, ACCOUNT FOR THE NECESSARY STANDARD TRENCH DIGGING CODES IN THE GRID:
   A. THE STANDARD TRENCH DIGGING CODE WILL ALWAYS BE IN THE GRID WITH THE ACTUAL LENGTH OF THE TRENCH. IN THIS CASE, 235 FEET OF PRIMARY TRENCH IS NEEDED.
      THE GRID SHOWS UTP = 235
   B. EXTRA TIME IS NEEDED TO DIG BECAUSE THE TRENCH IS 6 FEET DEEP. USING THE UT-X CHART, LOOK UP THE MULTIPLIER FOR A 2-FOOT WIDE BY 6-FOOT DEEP TRENCH, WHICH IS 0.3. MULTIPLY THE LENGTH OF THE TRENCH BEING DUG, IN THIS CASE ALL 235 FEET, BY THE MULTIPLIER, 235 X 0.3 = (70.5), ROUND TO 71.
      THE GRID SHOWS UTPX = 71
   C. TO CUT AND REMOVE THE ASPHALT, SHOW THE LENGTH CUT REQUIRED.
      THE GRID SHOWS UTCRA = 50

NOTE: THIS COMPLETES DIGGING OF THE TRENCH AND REMOVAL OF ASPHALT.
2. SECOND, ACCOUNT FOR THE NECESSARY STANDARD TRENCH BACKFILL CODES IN THE GRID. THE STANDARD TRENCH BACKFILL CODES WILL ALWAYS BE IN THE GRID WITH THE ACTUAL TRENCH LENGTH OF EACH TYPE OF BACKFILL REQUIRED. THIS CASE HAS MULTIPLE TYPES OF BACKFILL REQUIRED.

A. NATIVE BACKFILL MAY BE USED FOR THE ENTIRE TRENCH EXCEPT UNDER THE ASPHALT. PER THE EXAMPLE, 185 FEET WILL HAVE NATIVE BACKFILL.

   THE GRID SHOWS  UTNB = 185

B. NEXT, CALCULATE MAN-HOURS AND MATERIAL. THIS TRENCH HAS BEEN PARTIALLY FILLED WITH A DUCT BANK AND IS DEEPER THAN THE STANDARD. USING THE UT-X CHART, LOOK UP THE MULTIPLIER FOR THE SIZE OF TRENCH REMAINING TO BE FILLED WITH NATIVE BACKFILL. IN THIS CASE, THE MULTIPLIER IS 0.1 (2 FT. WIDE X 5 FT. DEEP). MULIPLY THE LENGTH OF TRENCH, 185 X 0.1 = 18.5, ROUND TO 19.

   THE GRID SHOWS  UTNBX = 19

3. CONTROLLED LOW STRENGTH MATERIAL BACKFILL IS REQUIRED FOR THE ROAD-CROSSING PORTION OF THE TRENCH.

   THE GRID SHOWS  UTSBP = 50

4. CALCULATE THE MAN-HOURS AND MATERIAL AS IN 2.B. USING THE UT-X CHART, THE MULTIPLIER IS THE SAME AS 2.B. MULTIPLY 50 FT. X 0.1 = 5.0

   THE GRID SHOWS  UTSBPX = 5.0

5. A.C. PAVEMENT REPAIR IS REQUIRED FOR THE STREET-CROSSING PORTION OF THE TRENCH. STANDARD REPAIR IS FOR A 2 FT. WIDE TRENCH WITH 1 FT. ON EACH SIDE FOR "T" TOP.

   THE GRID SHOWS  UTSR = 50

6. ADJUSTMENT FOR ADDITIONAL TRENCH WIDTH IS NOT REQUIRED IN THIS CASE. FOR THIS TYPE OF REPAIR IN ANY OTHER WIDTH TRENCH, USE THE COMPATIBLE UNIT UTSRACX INSTEAD FOR THE ACTUAL WIDTH INVOLVED.
**Gopher Bore**

**No Casing**

**NOTES**

1. This bore is installed with a gopher (unguided).
2. Plastic conduit sized at least 1/2" smaller than the bore may be installed but must be called for separately.
3. No multiple bores may be installed.
4. For 2" & 3" bores, maintain a minimum clearance of 2' from other utilities to avoid possible damage. For 4" & 5" bores, maintain a minimum clearance of 3'.
5. Maximum length of this bore is 80'.
6. This bore is mainly for use under sidewalks, driveways and parking lots.
7. Entrance and exit pits shall be shored or sloped as required by the SRP excavation safety manual, latest revision.
8. Compatible units must be requested on a per foot basis.
NOTES

1. THIS CASING IS INSTALLED WITH A BORE AUGER MACHINE. MINIMUM CASING THICKNESS SHALL BE:
   - 12 INCH I.D. CASING = 3/16”
   - 18 INCH I.D. CASING = 1/4”
   - 24 INCH I.D. CASING = 1/4”
   - 30 INCH I.D. CASING = 5/16”
   
   THE GRADE OF STEEL SHALL BE ASTM A-283, GRADE C. CASINGS OF GREATER THICKNESS MAY BE REQUIRED
   FOR SOME OR ALL OF DIFFICULT INSTALLATIONS OR FOR OTHER GOVERNING AGENCIES’ REQUIREMENTS.

2. SEE UKB3C-UKB12C FOR CONDUIT ARRANGEMENTS.

3. USE DB TYPE CONDUITS INSIDE BORE CASING.

4. THE INSIDE CASING AREA AROUND THE CONDUITS MUST BE FILLED WITH GROUT TO PROVIDE
   ADEQUATE COOLING FOR THE CONDUCTORS AND MUST BE INSTALLED BY PRESSURE PUMPING.
   A. INSTALL A 2” PVC CONDUIT THROUGH THE BORE CASING (ON TOP OF THE RACKED CONDUITS
   B. GROUT ONE END OF CASING TO CAP. (END OPPOSITE GROUT PUMPING EQUIPMENT)
   C. PUMP GROUT THROUGH THE 2” CONDUIT INTO THE CAPPED END OF THE BORE CASING. AS THE
      GROUT FILLS THE BORE CASING, THE 2” CONDUIT WILL BE FORCED OUT OF THE OPEN END.
      NOTE: SUFFICIENT FORCE MUST BE MAINTAINED ON THE 2” CONDUIT WHILE PUMPING TO ENSURE
      COMPLETE CASING FILL
   D. THE EXCESS 2” CONDUIT WILL NEED TO BE CUT OFF AS IT IS FORCED OUT OF THE CASING
      THE LENGTH OF THE SECTIONS DEPENDS ON THE SIZE OF THE BORE PIT.
   E. FILL CASING COMPLETELY FROM END CAP TO FILLING END.

5. LARGER CASINGS THAN CALLED FOR MAY BE REQUIRED IF RIVER ROCK OR ADVERSE CONDITIONS
   ARE ENCOUNTERED.

6. AREA FOR SPOIL NEEDS TO BE PROVIDED FOR AT THE JOB SITE. IF NOT POSSIBLE, SPECIAL
   ARRANGEMENTS MUST BE MADE TO HAUL SPOIL OFF SITE AND RETURN IT. THE AVERAGE SIZE
   ENTRANCE PIT WILL NEED AN AREA 25’ SQUARE FOR SPOIL.

7. COMPATIBLE UNITS MUST BE REQUESTED ON A PER FOOT BASIS.

8. CASE BORE CONTRACTOR TO PROVIDE SRP WITH CASE BORE AND Spacer PROJECT PLANS FOR APPROVAL.
   ELECTRICAL CONDUIT SHALL BE PLACED ON THE OUTSIDE POSITIONS FOR HEAT DISSIPATION.
GUIDED BORING

COMPATIBLE UNITS FOR GENERATING ESTIMATED COSTS:

1. OUTSIDE CONTRACTORS PROVIDE ALL GUIDED BORES. TO GENERATE
ESTIMATED JOB COSTS, DO NOT USE THE "G" (GIFT) WORK FUNCTION, SINCE SRP
IS RESPONSIBLE FOR THE COSTS.

2. LISTED BELOW ARE THE GUIDED BORING COMPATIBLE UNITS. CHOOSE THE APPROPRIATE
CU DEPENDING ON THE DIAMETER AND LENGTH OF THE BORE. ENTER THE ACTUAL BORE
FOOTAGE INTO THE COMPATIBLE UNIT ESTIMATING SYSTEM.

3. THE GUIDED BORING COMPATIBLE UNITS LISTED BELOW INCLUDE COSTS ASSOCIATED WITH
BORE PITS, SUCH AS BACKFILL, AND CONCRETE AND ASPHALT CUTTING AND REPAIR.

GUIDED BORING, 200 LINEAR FEET OR LESS

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<td>6&quot; GUIDED BORE</td>
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<td>UTHG161</td>
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GUIDED BORING, MORE THAN 200 LINEAR FEET

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<td>UTHG162</td>
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CONDUIT AND GROUND ROD INSTALLATION DETAIL

SINGLE PHASE CONDUIT STUB UP FORM 5031740 AT FINAL GRADE

GROUND ROD

CAP OVER MULE TAPE (MULE TAPE IN SERVICE CONDUIT ONLY).

MULE TAPE, PRE-LUBED, 2500 LB. TENSILE STRENGTH, LEAVE ADEQUATE LENGTH IN SERVICE CONDUIT STUB-OUT TO REACH FUTURE SERVICE ENTRANCE.

FINAL CONFIGURATION

CONDUIT STUB UP FORM IN PLACE BETWEEN PAD AND COMPACTED FINAL GRADE.

NOTES

1. CONDUIT STUB UP INTO TRANSFORMER PAD IS TO BE PER DETAIL ON PAGE 9-11-1.

2. EVERY CONDUIT END SHALL BE CAPPED BUT NOT GLUED.

3. CUSTOMER SERVICE CONDUIT EXTENSION IS TO BE PER ELECTRIC SERVICE SPECIFICATION (ESS) PAGES 317-320.

4. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS AND LEVELED TO FINAL GRADE.

5. PAD TO BE SET ON TOP OF SINGLE PHASE CONDUIT STUB-UP FORM.
NOTES

1. CONDUIT STUB UP INTO TRANSFORMER PAD IS TO BE PER DETAIL ON PAGE 9-11-1.
2. EVERY CONDUIT END SHALL BE CAPPED BUT NOT GLUED.
3. CUSTOMER SERVICE CONDUIT EXTENSION IS TO BE PER ELECTRIC SERVICE SPECIFICATIONS (ESS) PAGES 317-320.
4. AREA UNDER PAD MUST BE COMPACTED PER TRENCH SPECIFICATIONS AND LEVELED TO FINAL GRADE.
5. PAD TO BE SET ON TOP OF SINGLE PHASE CONDUIT STUB UP FORM.
STREET CROSSING TO BE ON NEAR SIDE OF PROPERTY LINE WHENEVER POSSIBLE.

NOTE
IF PROPERTY LINE IS OFFSET 0 TO 60 INCHES IN THE FAR DIRECTION, STREET CROSSING MUST BE ON FAR SIDE OF PROPERTY LINE.

SEE DETAILS ON PAGE 8-109 & 9-312

SERVICE STUB OUTS SHALL HAVE ELECTRONIC MARKER UBM15
1. Street light conductors will be connected when secondary is installed.

2. A T-tap connector shall be installed at the end of the secondary run when the services are installed. If the location of the second meter cannot be determined, stub service out as shown.

3. Refer to CONNECTORS, SPLICES AND TERMINATIONS section for installation of T-tap and street light conductors where applicable.
NOTES

1. Cable shall be identified per Miscellaneous section, Procedure #1.
NOTES
1. For typical service entrance details, see Electric Service Specifications.
2. Locate meter on corner of building nearest to the transformer or junction box. Location must be approved by SRP prior to installation of meter loop.
NOTES
1. No improvement shall be made which will prevent access to the j-box (i.e. paving or concrete cover).
2. For service other than 1 Ø, 200 amp, consult Electric Service Specifications for conduit size.
3. Maximum service length shall be 100 ft. with equivalent bends not exceeding 270°.
4. Contact Policies, Procedures and Standards for situations not covered.
* SRP service conduit shown; phone conduit is as specified by TELCO.
NOTES

1. No improvement shall be made which will prevent access to the j-box (i.e. paving or concrete cover).
2. For service other than 1 Ø, 200 amp, consult Electric Service Specifications for conduit size.
3. Maximum service length shall be 100 ft. with equivalent bends not exceeding 270°.
4. Contact Policies, Procedures and Standards for situations not covered.

* SRP service conduit shown; phone conduit is as specified by TELCO.
NOTES

1. This installation, as indicated, is when transformer location is unknown.
2. If location is known, cable shall be extended to that point and looped.
3. Mark the cable with dymo tape indicating which existing facilities they are located between. (Example: from PE-0603 to PE-0604)
NOTES

1. ASPHALT CONCRETE (AC) SHALL MEET THE GOVERNING MUNICIPALITIES' REQUIREMENTS FOR REPAIR IN ROAD RIGHT-OF-WAY.

2. WHEN TRENCH IS PARALLEL TO THE CURB:
   a. CITY OF TEMPE - REMOVE AND REPLACE ASPHALT TO CURB IF 18" OR LESS.
   b. CITY OF MESA - REMOVE AND REPLACE ASPHALT TO CURB IF 48" OR LESS.

3. THE JOB ORDER DRAWING WILL SPECIFY WHICH TYPE TRENCH BACKFILL AND STREET REPAIR IS REQUIRED.

4. BACKFILLS ARE DEFINED ON PAGES 6-9-1 AND 6-9-2.
1. Slope trench from 48" at property or easement line to 36" at B in from the line. Sub-cut 1/2 triplex and cap ends with vinyl caps (65-1000 & 65-1002).

2. Mark location with cable marker (65-2775).

Min. 6" rock free backfill (only when lid is used without box).

Junction box (65-740) to be used only in townhouse developments or where specified on construction drawings.

DETAIL 'A'

DETAIL 'B'
NOTES
1. IDENTIFY CABLES PER THE MISCELLANEOUS SECTION OF THIS BOOK.
2. CONNECT STREET LIGHT CONDUCTORS AT XFMR. WHEN STREET LIGHTS MUST BE INSTALLED AT PAD MOUNTED EQUIPMENT LOCATIONS/LOT LINE, LOCATE THE STREET LIGHT POLES A MINIMUM OF 18" FROM EITHER SIDE OF EQUIPMENT TO ALLOW FOR MAINTENANCE AND OPERATION. IF LOCATED NEXT TO PAD MOUNTED TRANSFORMER, PLACE LIGHT POLE ON SECONDARY SIDE OF TRANSFORMER TO ALLOW FOR MAINTENANCE AND OPERATION.
3. THE TRANSFORMER SHOULD BE LOCATED AWAY FROM DRIVEWAYS. IF A DRIVEWAY IS WITHIN 2' OF THE TRANSFORMER, INSTALL A GUARD POST AS SHOWN IN UBG OF THE BASIC ASSEMBLY UNITS SECTION.
STREET

TYPICAL EXAMPLE

(For developments on one side of street only)
1. Cables shall be identified per Underground Miscellaneous Section Procedure of the Standards Book.

2. A mole connector shall be installed at the end of the secondary run when the services are installed. (See service stub-up detail in this section.)

3. Street light conductors will be connected at Xfmr when secondary is installed. See lighting section for street light conductor stub-up detail. When street lights must be installed at pad mounted equipment locations/lot line, the street light poles shall be located a minimum of 18” from either side of equipment to allow for maintenance and operation. If located next to pad mounted transformer, light pole should be set on secondary side of transformer to allow for maintenance and operation. Refer to underground cable and accessories section of the Standards Book for installation of connectors and street light conductor where applicable.

4. The transformer should be located away from driveways. If a driveway is within 2’ of the transformer, a guard post must be installed as shown in UBG of the Basic Assembly Unit Section.
Underground Distribution
Construction Standards

TRENCHING
TRANSFORMER AND SECONDARY LOCATION
FRONT LOT INSTALLATION

8" FRONT LOT EASEMENT
60"

SERVICE IN CUSTOMER'S CONDUIT

METER

TYPICAL EXAMPLE

(FORE DEVELOPMENTS ON ONE SIDE OF STREET ONLY)
# VAULTS, MANHOLES, AND BOXES

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INSTRUCTIONAL GUIDE

PURPOSE
FOR INSTALLATION, REMOVAL OR REPLACEMENT OF VAULTS, MANHOLES AND BOXES USED IN
UNDERGROUND DISTRIBUTION CONSTRUCTION.

COMPATIBLE UNIT CODING FOR "UV" SECTION

1. TEMPORARY CABLE ENCLOSURES
   ENCLOSURE IS CODED WITH THE PREFIX UVB. THE NEXT DIGIT IS A NUMBER DESIGNATING
   SPECIFIC MATERIAL.

2. VAULTS
   VAULTS ARE CODED WITH THE PREFIX UVE. THE NEXT DIGITS DESIGNATE KVA SIZE OF THE
   VAULT.

3. JUNCTION BOXES
   JUNCTION BOXES ARE CODED WITH THE PREFIX UVJB. THE NEXT DIGIT DESIGNATES A
   VARIATION IN SIZE AND MATERIAL.

4. MANHOLE AND CABLE RACKING
   MANHOLES ARE CODED WITH THE PREFIX UVMH. THE NEXT DIGIT DESIGNATES A
   VARIATION IN SIZE. CABLE RACKING CODES HAVE A PREFIX UVMW. THE NEXT DIGIT
   DESIGNATES THE NUMBER OF CIRCUITS TO BE RACKED.

5. PULL BOXES
   PULL BOXES ARE CODED WITH THE PREFIX UVPB. THE NEXT DIGIT DESIGNATES A
   VARIATION IN MATERIAL.

6. GRID SKETCH APPLICATION
   ALL COMPATIBLE UNIT CODES IN THE UV SECTION ARE ENTERED ON LINES 13 THRU 18
   ONLY.
NOTES

1. FOR A PAD MOUNTED SWITCH INSTALLED WITHIN A 4-CIRCUIT DUCT BANK, THE CONCENTRIC NEUTRALS SHALL NOT BE CONNECTED TO GROUND. THE CONCENTRIC NEUTRALS OF THE SAME PHASE MUST BE CONNECTED TOGETHER, BUT NOT CONNECTED TO ANY OTHER PHASE, TERMINATION PART, CABINET OR GROUND ROD. THE TERMINATION PARTS, ELBOWS, INSULATED CAPS AND ENCLOSURE SHALL BE CONNECTED TO GROUND ROD OR #2/0 BARE COPPER NEUTRAL, IF PRESENT.

2. FOR SPLICES IN ONE CIRCUIT OF A 4-CIRCUIT DUCT BANK CONTINUING FROM A MANHOLE OR VAULT, THE CONCENTRIC NEUTRALS SHALL NOT BE GROUNDED. THE CONCENTRIC NEUTRALS OF THE SAME PHASE MUST BE CONNECTED TOGETHER OVER THE SPLICE, BUT NOT TO ANOTHER PHASE OR TO GROUND.
### EXAMPLES

For each example below, assume you are in the manhole with the example duct bank entering or leaving the manhole. It doesn’t matter where the duct goes, only the number and type of circuits in the duct.

<table>
<thead>
<tr>
<th>Number of Feeder Circuits in Trench or Duct Bank</th>
<th>Size/Type of Feeder Cable to Be Installed</th>
<th>Number of 2/0 Copper Bare Required in Bottom of Trench</th>
<th>Drain Wire or Concentric Neutral at Splice or Termination</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>750 CU</td>
<td>1</td>
<td>Note 5</td>
</tr>
<tr>
<td>2</td>
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<td>Grounded</td>
</tr>
<tr>
<td>3</td>
<td>750 CU</td>
<td>1</td>
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<tr>
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<td>750 AL</td>
<td>2</td>
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<tr>
<td>6</td>
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</tr>
<tr>
<td>7</td>
<td>750 AL</td>
<td>0</td>
<td>Grounded</td>
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</tbody>
</table>

#### Notes

1. **Note 1**: Not to be used.
2. **Note 2**: Distribution Planning will advise the type of feeder cable, copper or aluminum, to be used and the duct or trench segments the cable type is to occupy.
3. **Note 3**: The concentric neutral or wire shield drain wire shall not be connected to ground in a substation breaker. See Chapter 8 “Substation Switchgear Termination”. Show example on job print.
4. **Note 4**: Designer shall identify on electrical schematic the grounding requirements for 750AL splices and terminations.
5. **Note 5**: Except when located at the substation breaker, the wire shield of the 750 MCM CU is to be connected to ground if exposed.
6. **Note 6**: Connections to the 2/0 copper shall occur in a pad-mounted device or manhole. Direct buried connections shall be avoided. If a direct buried connection is unavoidable, install two compression connectors at that point. Coil 8 ft. on each end of 2/0 copper in manhole. Provide an 8 foot loop of 2/0 copper in pad mounted device window. Leave 12 in. of 2/0 copper stubbed up at pole riser.
7. **Note 7**: For examples not shown, contact distribution design engineer.
1. AT SUBSTATION BREAKER. WIRE SHIELDS OR CONCENTRIC NEUTRALS ARE NEVER GROUNDED IN THE BREAKER. SEE CHAPTER 8. A #2/0 BARE COPPER NEUTRAL IS REQUIRED FOR TWO FEEDER CIRCUITS, AN ADDITIONAL #2/0 BARE COPPER NEUTRAL IS REQUIRED FOR AN ODD NUMBER OF FEEDER CIRCUITS.

2. AT MH-1. ANY EXPOSED WIRE SHIELDS ARE CONNECTED TO THE GROUND. ANY EXPOSED CONCENTRIC NEUTRALS ARE NOT CONNECTED TO GROUND SINCE FOUR CIRCUITS ENTER AND EXIT THIS MANHOLE IN THE SAME DUCT BANK.

3. AT PD-1001. ANY EXPOSED WIRE SHIELDS ARE CONNECTED TO GROUND. ANY CONCENTRIC NEUTRALS ARE NOT CONNECTED TO GROUND SINCE THE CIRCUIT EXITS AND RE-ENTERS A FOUR CIRCUIT DUCT BANK.

4. AT PD-1002. ANY EXPOSED WIRE SHIELDS ARE CONNECTED TO GROUND. THE CONCENTRIC NEUTRALS OF THE CIRCUIT EXITING THE FOUR CIRCUIT DUCT BANK BUT NOT RE-ENTERING ARE CONNECTED TO GROUND. A 750MCM CU MAY NOT TRANSITION TO 750MCM AL WITHIN A FOUR CIRCUIT DUCT BANK.

5. AT MH-2. A FOUR CIRCUIT DUCT BANK ENTERS BUT DOES NOT EXIT. ANY EXPOSED WIRE SHIELDS ARE CONNECTED TO GROUND. ANY EXPOSED CONCENTRIC NEUTRALS ARE CONNECTED TO GROUND. A 750MCM CU MAY TRANSITION TO 750MCM AL. IF A 750MCM CU ENTERS AND LEAVES THIS MANHOLE. THE #2/0 BARE CU MUST ACCOMPANY IT. 750MCM AL 750MCM AL ENTERS AND LEAVES THIS MANHOLE WITHOUT SPLICES. THEREFORE THE CONCENTRIC NEUTRALS ARE NOT EXPOSED AND CAN'T BE GROUNDED, SPLICES THEREFORE THE CONCENTRIC NEUTRALS ARE NOT EXPOSED AND CAN'T BE GROUNDED, SO THE #2/0 BARE COPPER CONTINUES TO THE NEXT DEVICE.
NOTES
1. CARE MUST BE TAKEN TO PROVIDE A SMOOTH, LEVEL, WELL COMPACTED BASE TO SET THE BOX ON. COMPACT AROUND SIDES OF BOX TO PREVENT SETTLING.
85% MINIMUM COMPACTION AROUND BOX.
ALL CONDUIT STUB-OUTS SHALL BE INSTALLED PRIOR TO COMPACTION.

LOCATIONS FOR:
- 2 1/2" CONDUITS
- 3" CONDUITS
- GROUND ROD NEEDED ONLY FOR DUSK TO DAWN
LIGHT POLE SERVED DIRECT FROM PEDESTAL

PEDESTAL - TOP VIEW

FINAL
GRADE

SERVICE
SECONDARY IN
ADDITIONAL
SECONDARY OR SERVICES

SERVICE
SECONDARY OUT

LOCATIONS FOR:
- 4-POSITION
SET OF 3 (5034923)
4 CONDUCTORS MAX.

- 6-POSITION
SET OF 3 (5034924)
6 CONDUCTORS MAX.

- 8-POSITION
SET OF 3 (5034925)
8 CONDUCTORS MAX.
1. Set location to place existing service conductors as close as possible to wall/corner of the junction box.

2. Install new conduits in close proximity to existing service conductors to provide sufficient length for connections to the mole connectors.

3. Bend conductors and mole connectors towards the unoccupied side of the box.

**NOTE 1**

**NOTE 2**

**NOTE 3**

**SYMBOL LEGEND**

- **N**: New secondary conduits
- **E**: Existing service conductors
- **E**: Abandoned direct buried primary conductors
- **.**: Existing ground rod
1. **EXISTING TRANSFORMER PAD TO REMAIN IF IN GOOD CONDITION. OTHERWISE, REPLACE WITH PULLING ENCLOSURE PAD.**

2. **SAW CUT WINDOW OF EXISTING PAD AS NECESSARY TO INSTALL NEW SECONDARY CONDUITS. DO NOT CUT PAD BEYOND DIMENSIONED FLANGE ON THE BOTTOM OF ENCLOSURE.**

3. **INSTALL GROUND CONNECTORS INTO ENCLOSURE GROUND NUT. TRAIN 2/0 ALONG FRONT BASE OF ENCLOSURE AND CONNECT TO GROUND CONNECTORS.**

4. **INSTALL 2" CONDUIT WITH BARE 2/0 CU GROUND WIRE FROM NEW TRANSFORMER. CONNECT TO 2/0 CU ENCLOSURE GROUND WIRE.**

5. **CONNECT #4 CU LEAD FROM EXISTING GROUND ROD (IF PRESENT) TO 2/0 CU ENCLOSURE GROUND WIRE.**

6. **FASTEN ENCLOSURE TO PAD AT ALL FOUR CORNERS. SEE BASIC ASSEMBLY UNITS SECTION FOR FASTENING METHODS.**

7. **INSTALL MAXIMUM TWO MOLE BAR ASSEMBLIES PER PHASE AND NEUTRAL (MAX. 8 TOTAL). SEE CABLES AND ACCESSORIES SECTION FOR AVAILABLE MOLE BAR ASSEMBLIES. EIGHT POSITION MOLE BAR ASSEMBLIES SHALL NOT BE USED.**

8. **EXISTING STREET LIGHT CIRCUITS SHALL NOT BE SERVED OUT OF THE JUNCTION BOX, BUT SUPPLIED BY NEW TRANSFORMER.**

9. **SEE THE MISCELLANEOUS SECTION FOR JUNCTION BOX MARKING METHODS.**

10. **SEE CHAPTER 11 FOR UNIQUE SERVICE COLOR ID STANDARDS.**
DETERMINATION OF ABOVE GROUND J-BOX ELEVATION

1. FIND THE ELEVATION OF THE DRIVEWAY AT THE EASEMENT LINE CROSSING.
2. THE BOTTOM OF THE ABOVE GROUND J-BOX SHALL BE SET 0.85 FEET BELOW THIS ELEVATION.
3. THE COMPACTED BASE SHALL BE LEVEL AND EXTEND 2 FEET ON ALL SIDES.
4. THE MOLDED GROUND LINE MARK ON THE SIDE OF THE J-BOX WILL BE 1 INCH ABOVE THIS ELEVATION.

NOTES
1. ALL SRP EQUIPMENT IN PUE AND ON ROAD RIGHT-OF-WAYS MUST BE SET AT TOP OF BLUE TOP STAKES UNLESS OTHERWISE NOTED.

ABOVE GROUND J-BOX MUST HAVE A 3' MIN. CLEARANCE FROM DRIVEWAYS OR TRAFFIC AREAS.
DETERMINATION OF ABOVE GROUND J-BOX ELEVATION

1. Find the elevation of the driveway at the easement line crossing.
2. The bottom of the above ground J-box shall be set 0.85 feet below this elevation.
3. The compacted base shall be level and extend 2 feet on all sides.
4. The molded ground line mark on the side of the J-box will be 1 inch above this elevation.

NOTES

1. All SRP equipment in PUE and on road right-of-ways must be set at top of blue top stakes unless otherwise noted.
NOTES

1. FOR NO TRAFFIC, NON-LOAD BEARING APPLICATIONS, SUCH AS LANDSCAPED AREAS.

2. FOR LOAD BEARING APPLICATIONS, SUCH AS AN ALLEY WITH LOW SPEED VEHICLES THIS BOX SHALL HAVE 12 INCHES OF COVER. WHEN INSTALLED IN AREAS WHERE SUBJECT TO FINAL GRADE CHANGES, THIS BOX SHALL HAVE 18 TO 24 INCHES OF COVER.

3. ELBOWS INTO PULLBOX SHALL BE GROUTED IN. (ELBOWS NOT INCLUDED IN THIS COMPATIBLE UNIT).

4. CARE SHALL BE TAKEN TO PROVIDE A SMOOTH, LEVEL, WELL COMPACTED BASE TO SET THE BOX ON. COMPACT AROUND SIDES OF BOX TO PREVENT SETTLING.

5. CUSTOMER SUPPLIED PULL BOX MUST MEET SPECIFICATIONS LISTED IN STOCK DESCRIPTION # 5034694.

6. CONDUITS MUST EXTEND A MINIMUM OF 4 INCHES INSIDE OF BOX.

7. DIMENSIONS AT BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF 6 FEET BY 8 FEET.

8. ABOVE GROUND PULL BOXES ARE PREFERRED. USE UVPB1 OR UVPBG AS A LAST RESORT ONLY.

VAULTS, MANHOLES AND BOXES
5'x 3'x 3' PULL BOX
BELOW GRADE (LOAD BEARING)

Underground Distribution
Construction Standards

PROPRIETARY MATERIAL

ISSUE DATE: 01/15/87
REV. DATE: 07/31/13
APPROVAL: B PRIEST

8513E101.DGN
NOTES
1. THIS UNIT IS LOAD BEARING FOR USE IN AREAS SUCH AS A PARKING LOT, BUT NOT IN THE TRAVELLED WAY. FOR APPLICATION WHERE NO VEHICLE TRAFFIC EXISTS THIS BOX MAY BE INSTALLED WITHOUT THE CONCRETE RING.
2. ELBOWS INTO PULL BOX SHALL BE GROUTED IN (ELBOWS NOT INCLUDED IN THIS COMPATIBLE UNIT).
3. CARE SHALL BE TAKEN TO PROVIDE A SMOOTH, LEVEL, WELL COMPACTED BASE TO SET THE BOX ON. DIMENSIONS AT BOTTOM OF EXCAVATION SHALL BE A MINIMUM OF 6 FEET BY 8 FT. COMPACT AROUND SIDES OF BOX TO PREVENT SETTLING AROUND BOX.
4. WHEN INSTALLED IN CONCRETE, ASPHALT, OR A FIXED GRADE, THE BOX SHALL BE FLUSH MOUNTED WITH EXISTING GRADE PER DETAIL ON NEXT PAGE.
5. CUSTOMER SUPPLIED PULL BOX MUST MEET SPECIFICATIONS LISTED IN STOCK DESCRIPTION OF 5034694.
6. CONDUITS MUST EXTEND A MINIMUM OF 4 INCHES INSIDE OF BOX.
7. ABOVE GROUND PULL BOXES ARE PREFERRED. USE UVPB2 OR UVPB2G AS A LAST RESORT ONLY.
8. A STEEL LID (#5034693 FOR A QUAZITE/HUBBLE BOX, OR #5034688 FOR AN ARMORCAST BOX) IS AVAILABLE FOR REPLACEMENT OF DAMAGED LIDS. NOT FOR STREET INSTALLATION. BEFORE STEEL LID IS SET, LAY FIBERBOARD (2#5034048) ON TOP OF CABLE. ALL CABLE SHOULD BE BELOW THE FIBERBOARD BARRIER.

VAULTS, MANHOLES AND BOXES
5' x 3' x 3' PULL BOX
FLUSH MOUNT (LOAD BEARING)

Underground Distribution
Construction Standards
PROPRIETARY MATERIAL

ISSUE DATE: 01/15/87
REV. DATE: 07/31/13
APPROVAL: B PRIEST
8513E102.DGN
CONCRETE RING AROUND BOX

ASPHALT PAVEMENT

COMPOSOLITE BOX & COVER

IN ASPHALT PAVEMENTS

CONCRETE PAVEMENT

CONCRETE RING AROUND BOX

COMPOSOLITE BOX & COVER

IN CONCRETE PAVEMENTS

CONCRETE RING AROUND BOX

COMPACTED EARTH

IN COMPACTED EARTH

NOTES

1. CONCRETE ENCASEMENT TO BE 3,000 PSI MINIMUM.
2. CONCRETE ENCASEMENT RING DIMENSION, D, TO BE EQUAL TO DESIGN PAVEMENT DEPTH.
3. PAVEMENT AND SUBGRADE TO BE AS SHOWN ON THE ENGINEERING PLANS.
TWO 2/0 BARE CU RINGS INCLUDED WITH MANHOLE ARE TO BE INSTALLED AROUND THE MANHOLE. ONE UPPER AND ONE LOWER AND CONNECTED TOGETHER AND TO SYSTEM NEUTRALS WHEN PRESENT (SEE PG. 7-9-3). TOP CABLE RACKS SHALL BE BONDED TO THE UPPER 2/0 CU RING, BOTTOM CABLE RACKS TO LOWER 2/0 CU RING. BOTH USING SERVICE POST CONNECTOR 5016629. IF SPLICES ARE TO BE GROUNDED, USE A BOND JUMPER TO THE CONCENTRIC NEUTRALS OR DRAIN WIRES OF SPLICES TO THE CLOSEST 2/0 CU RING. (SEE CABLE AND ACCESSORIES, SEALING OF 500 AND 750 MCM JACKET AT SPLICES).

CONDUITS MUST EXTEND AT LEAST 4" INTO MANHOLE & WITHOUT END BELL.

1. USE BOTTOM WINDOWS FOR INITIAL FACILITIES.
2. MAXIMUM 12 CONDUITS PER WINDOW.
3. DO NOT ENTER AND EXIT SAME WALL.
CONDUIT SPACER (5031871) IN MANHOLE WINDOW

1. USE BOTTOM WINDOWS FOR INITIAL FACILITIES. USE UPPER WINDOWS FOR FUTURE ADDITIONAL FACILITIES.
2. MAXIMUM OF 12 CONDUITS PER WINDOW.
3. DO NOT ENTER AND EXIT SAME WALL.

EXCAVATION TO BE 8' x 13' x 11' DEEP FROM FINAL GRADE AND OFFSET FROM CENTER OF TRENCH TO WINDOW LOCATIONS. VAULT OUTSIDE DIMENSIONS 11' X 5'-10".

TWO 2/0 BARE CU RINGS INCLUDED WITH MANHOLE ARE TO BE INSTALLED AROUND THE MANHOLE, ONE UPPER AND ONE LOWER AND CONNECTED TOGETHER AND TO SYSTEM NEUTRALS WHEN PRESENT (SEE PG 7-9-3). TOP CABLE RACKS SHALL BE BONDED TO THE UPPER 2/0 CU RING, BOTTOM CABLE RACKS TO LOWER 2/0 CU RING, BOTH USING SERVICE POST CONNECTOR 5016629. IF SPLICES ARE TO BE GROUNDED, USE A BOND JUMPER TO THE CONCENTRIC NEUTRALS OR DRAIN WIRES OF SPLICES TO THE CLOSEST 2/0 CU RING. (SEE CABLE AND ACCESSORIES, SEALING OF 500 AND 750 MCM JACKET AT SPLICES).

SUPPORT BRACKET (5035072) TY-WRAP (5031993) CONDUIT (5035466)

CHANNEL PROVIDED IN MANHOLE WALL

TWO 12" AND ONE 6" GRADING RINGS, ONE 6" FRAME & COVER.

INSTALL GROUNDING ELECTRODE UBGADA (PAGE 1-3-1). NOT REQUIRED IF 2/0 CU IS INSTALLED WITH FEEDER CABLE.

ALL SPLICES ARE TO BE MADE BETWEEN CABLE RACKS.

DUCT BANK

SERVICE POST CONNECTOR (5016629)

UPPER 2/0 RING

SPICE

CONSTRUCTION STANDARDS

VAULTS, MANHOLES AND BOXES

5' x 10' MANHOLE, CABLE RACKING
NOTES
1. SEE CONDUIT ONE LINE AND / OR ELECTRICAL SCHEMATIC FOR NUMBER OF 2/0 BARE COPPER NEUTRAL RUNS INTO MANHOLE.
2. THE NUMBER OF 2/0 BARE COPPER RINGS IN MANHOLES SHALL BE EQUAL TO THE HIGHEST NUMBER OF 2/0 BARE COPPER NEUTRALS ENTERING THROUGH ANY ONE SIDE OF THE MANHOLE.
3. CONNECT ENDS OF EACH RING TOGETHER. BOND RINGS TOGETHER AT TWO LOCATIONS.
CAST IRON RING FOR COVER-ADJUSTED TO ROAD LEVEL

GROUT FILL FOR HEIGHT ADJUSTMENT

RAMNECK (ASPHALTIC MASTIC SEAL) BETWEEN RINGS (SUPPLIED BY MANUFACTURER WITH MANHOLE)

MATERIAL ONLY (GENERALLY INSTALLED BY OTHERS)

FOR ADDITIONAL GRADING RINGS
6" HIGH #5034695

**UVMHR** # 5034695
MATERIAL ONLY
(GENERALLY INSTALLED BY OTHERS)

**UVMHCA**
(LABOR ONLY)
FRONT SECTION OF SWITCH TO BE REMOVED FOR ACCESS TO TERMINALS; SEE SWITCH MODIFICATIONS NOTE 1, PG 7-9-3.
### Switch Vault Legend

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>MATERIAL ITEM</th>
<th>QUANTITY</th>
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<tr>
<td>A</td>
<td>Spring Nut Clamp</td>
<td>5031724</td>
<td>100 EACH</td>
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<tr>
<td>B</td>
<td>Compression Connector for 2/0 Cu</td>
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<td>15 EACH</td>
</tr>
<tr>
<td>C</td>
<td>Channel Framing</td>
<td>5035191</td>
<td>60 FEET</td>
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<tr>
<td>D</td>
<td>Wire, Bare 2/0 Cu</td>
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<td>E</td>
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<td>F</td>
<td>Angle, Corner for Framing</td>
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<td>10 EACH</td>
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<td>K</td>
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<tr>
<td>L</td>
<td>Conductor Channel Clamps</td>
<td>SEE STANDARDS ENGINEERING</td>
<td>21 EACH</td>
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</table>
NOTES

CHANNEL FRAMING CONSTRUCTION
1. CUSTOMER TO SUPPLY AND INSTALL SUPPORT CHANNELS ATTACHED TO WALLS AND CEILING.
2. SRP CREWS TO CONSTRUCT CHANNEL FRAMING STRUCTURE TO SUPPORT CONDUCTORS AS SHOWN.
3. CHANNEL FRAMING SHALL INCLUDE LOCKING WASHERS AT ALL CONNECTIONS.

SWITCH MODIFICATION
1. PRIOR TO CONSTRUCTION IN A VAULT, A SWITCH SHALL HAVE THE TOP OF THE TERMINATING COMPARTMENT REMOVED BY THE TRANSFORMER SHOP. IF THE SWITCH IS FROM AZZ THE ROOF CAN BE REMOVED AND REPLACED WITH A PARTIAL ROOF USING SAP ITEM 5088393.
2. SRP TO SUPPLY AND INSTALL SWITCH PAD.

GROUNDING INSTRUCTIONS
1. INSTALL 2/0 BARE CU RING AROUND THE VAULT PERIMETER. BOND 2/0 TO SUPPORT CHANNELS ATTACHED TO THE WALL.
2. BOND CUSTOMER’S SUPPLIED GROUND TO VAULT GROUND RING.
3. INSTALL 2/0 BARE CU AROUND THE REAR PANEL OF THE SWITCH ENCLOSURE. BOND 2/0 TO ENCLOSURE AT PRE-DRILL HOLES ON THE TOP AND BOTTOM OF ENCLOSURE. CONNECT DRAIN WIRES AND CONCENTRIC NEUTRALS TO THIS GROUND BUS.
4. INSTALL AND BOND 2/0 BARE CU FROM GROUND RING TO SWITCH GROUND, CLAMP WIRE TO THE FLOOR.

DIMENSIONS

FOR THE DRIVE IN SWITCH VAULT, CONSTRUCTION STANDARDS WILL BE THE SAME AS THE WALK IN VAULT EXCEPT FOR VAULT HEIGHT AND DOOR HEIGHT. SEE GENERAL DESIGN CRITERIA UNDERGROUND DESIGN VAULT SPECIFICATIONS IN THE DISTRIBUTION LINE DESIGN STANDARDS FOR ACTUAL DIMENSIONS.
NOTES

CHANNEL FRAMING CONSTRUCTION
1. CUSTOMER TO SUPPLY AND INSTALL SUPPORT CHANNELS ATTACHED TO WALLS AND CEILING.
2. SRP CREWS TO CONSTRUCT CHANNEL FRAMING STRUCTURE TO SUPPORT CONDUCTORS AS SHOWN.
3. CHANNEL FRAMING SHALL INCLUDE LOCKING WASHERS AT ALL CONNECTIONS.
4. COVER CHANNELING THAT SUPPORTS SERVICE RUNS (SHOWN IN ITEM N) WITH 3 FOOT CONDUIT.

SECTION B-B

TRANSFORMER CONSTRUCTION
1. SRP CREW REMOVE FRONT END OF TRANSFORMER.
2. CUSTOMER TO SUPPLY AND INSTALL TRANSFORMER PAD.

GROUNDING INSTRUCTIONS
1. INSTALL 2/0 BARE CU RING AROUND THE VAULT PERIMETER. BOND 2/0 TO SUPPORT CHANNELS ATTACHED TO THE WALL.
2. BOND CUSTOMER'S SUPPLIED GROUND TO VAULT GROUNDING RING.
3. INSTALL AND BOND 2/0 CU FROM GROUND RING TO TRANSFORMER GROUNDING LUG IN PRIMARY COMPARTMENT.
4. TRAIN AND CLAMP THE GROUND WIRE TO THE TRANSFORMER TO THE VAULT FLOOR.
<table>
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<tr>
<th>ITEM</th>
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<th>2000KVA 277/480V</th>
<th>2500KVA 277/480V</th>
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<td>1 BX.</td>
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<tr>
<td>M</td>
<td>CONDUCTOR CHANNEL CLAMPS</td>
<td>SEE STANDARDS ENGINEERING</td>
<td>9 EA.</td>
<td>9 EA.</td>
<td>9 EA.</td>
</tr>
<tr>
<td>N</td>
<td>CONDUIT, PVC, 3&quot;</td>
<td>5035470</td>
<td>3 FT.</td>
<td>3 FT.</td>
<td>3 FT.</td>
</tr>
<tr>
<td>O</td>
<td>WASHER, CONICAL</td>
<td>5034050</td>
<td>32 EA. (16 EA.)</td>
<td>48 EA.</td>
<td>16 EA.</td>
</tr>
<tr>
<td></td>
<td>CONNECTOR, COMPR, 500 MCM</td>
<td>5035292</td>
<td>16 EA. (32 EA.)</td>
<td>24 EA.</td>
<td>32 EA.</td>
</tr>
<tr>
<td></td>
<td>TAPE, PLASTIC, YELLOW</td>
<td>5016173</td>
<td>40 EA. (80 EA.)</td>
<td>60 EA.</td>
<td>80 EA.</td>
</tr>
<tr>
<td></td>
<td>WASHER, FLAT, 1/2&quot;</td>
<td>5004963</td>
<td>21 EA. (45 EA.)</td>
<td>32 EA.</td>
<td>45 EA.</td>
</tr>
<tr>
<td></td>
<td>BOLT, HEX 1/2&quot;</td>
<td>5069529</td>
<td>40 EA. (80 EA.)</td>
<td>60 EA.</td>
<td>80 EA.</td>
</tr>
<tr>
<td></td>
<td>NUT, HEX 1/2&quot;</td>
<td>5069398</td>
<td>80 EA. (160 EA.)</td>
<td>120 EA.</td>
<td>160 EA.</td>
</tr>
</tbody>
</table>
1. Neutral may be off either end transformer. The neutral must tie to the primary neutral on the transformer used for the service neutral.

2. Each schematic shows the correct number and size of service and secondary conductors for that size and voltage of bank.

VAULTS, MANHOLES AND BOXES
VAULT INSTALLATION
POLE TYPE TRANSFORMERS
CHANNEL FRAMING DETAIL

*REQUIRED WHEN SIX TRANSFORMERS ARE INSTALLED IN VAULT
NOT REQUIRED FOR A THREE TRANSFORMER VAULT.
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Stock No.</th>
<th>UVE15B 3-500kVA 277/480V Delta Grounded Wye 1500kVA</th>
<th>UVE30A 6-500kVA 277/480V 3000kVA</th>
<th>UVE15A 3-500kVA 120/208V 1500kVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Alum. Cable, 15kV, 4/0</td>
<td>5035037</td>
<td>120 ft.</td>
<td>120 ft.</td>
<td>120 ft.</td>
</tr>
<tr>
<td>B</td>
<td>Alum. Cable, 15kV, #2 (220 Mil.)</td>
<td>5035034</td>
<td>150 ft.</td>
<td>300 ft.</td>
<td>150 ft.</td>
</tr>
<tr>
<td>C</td>
<td>Wire, 600V, THHN/THWN, 500 MCM Cu</td>
<td>5008580</td>
<td>275 ft.</td>
<td>550 ft.</td>
<td>550 ft.</td>
</tr>
<tr>
<td>D</td>
<td>Wire, Bare, Cu, 2/0 Soft</td>
<td>5033854</td>
<td>300 ft.</td>
<td>300 ft.</td>
<td>300 ft.</td>
</tr>
<tr>
<td>E</td>
<td>Wire, Bare, Cu, #6 Medium</td>
<td>5033844</td>
<td>100 ft.</td>
<td>100 ft.</td>
<td>100 ft.</td>
</tr>
<tr>
<td>F</td>
<td>Bus Bar, Cu, for Pin Cap, 1/4&quot; x 2&quot; x 9&quot;</td>
<td>—</td>
<td>3 ea.</td>
<td>6 ea.</td>
<td>3 ea.</td>
</tr>
<tr>
<td>G</td>
<td>Bus Bar, Cu, for Trans., 8-Hole</td>
<td>5034307</td>
<td>2 ea.</td>
<td>4 ea.</td>
<td>5 ea.</td>
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<tr>
<td>H</td>
<td>Conduit, Plastic, 2&quot; DB</td>
<td>5035466</td>
<td>80 ft.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>Pipe Clamp, Steel</td>
<td>5035462</td>
<td>3 ea.</td>
<td>15 ea.</td>
<td>3 ea.</td>
</tr>
<tr>
<td>J</td>
<td>Insulator, Pincap</td>
<td>5016793</td>
<td>3 ea.</td>
<td>6 ea.</td>
<td>3 ea.</td>
</tr>
<tr>
<td>K</td>
<td>Fuse Mounting, 200A (UFBF2) note 2</td>
<td>5035297</td>
<td>3 ea.</td>
<td>3 ea.</td>
<td>3 ea.</td>
</tr>
<tr>
<td>L</td>
<td>Fuse Holder, 200A, 14.4kV</td>
<td>5034309</td>
<td>3 ea.</td>
<td>3 ea.</td>
<td>3 ea.</td>
</tr>
<tr>
<td>M</td>
<td>Fuse Refill, 14.4kV</td>
<td>5034420</td>
<td>3 ea.</td>
<td></td>
<td>3 ea.</td>
</tr>
<tr>
<td>N</td>
<td>Clamp Ass’, Cable Support, 1.25 O.D.</td>
<td>5035163</td>
<td>67 ea.</td>
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<td>67 ea.</td>
</tr>
<tr>
<td>O</td>
<td>Connector, T.L.S., 1/4” #1</td>
<td>5016723</td>
<td>9 ea.</td>
<td>18 ea.</td>
<td>9 ea.</td>
</tr>
<tr>
<td>P</td>
<td>Connector, T.L.S., 1/4” 500 MCM Bronze</td>
<td>5016727</td>
<td>30 ea.</td>
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<td>60 ea.</td>
</tr>
<tr>
<td>Q</td>
<td>Bus Bar, Cu, for Trans., 12-Hole (Neut.)</td>
<td>5034309</td>
<td>—</td>
<td></td>
<td>1 ea.</td>
</tr>
<tr>
<td>R</td>
<td>Connector, Term., Comp., #2 Al, Stem</td>
<td>5035297</td>
<td>12 ea.</td>
<td>30 ea.</td>
<td>12 ea.</td>
</tr>
<tr>
<td>S</td>
<td>Connector, Service, Cu, Max. 4/0</td>
<td>5016635</td>
<td>2 ea.</td>
<td>12 ea.</td>
<td>12 ea.</td>
</tr>
<tr>
<td>T</td>
<td>Connector, Ground</td>
<td>5016629</td>
<td>35 ea.</td>
<td>35 ea.</td>
<td>35 ea.</td>
</tr>
<tr>
<td>U</td>
<td>Fuse Refill, 200A, 14.4kV, SC SM4</td>
<td>5034420</td>
<td>—</td>
<td>3 ea.</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>Channel, Framing</td>
<td>5035191</td>
<td>200 ft.</td>
<td>200 ft.</td>
<td>200 ft.</td>
</tr>
<tr>
<td>W</td>
<td>Angle, Corner for Channel Framing</td>
<td>5034954</td>
<td>16 ea.</td>
<td>16 ea.</td>
<td>16 ea.</td>
</tr>
<tr>
<td>X</td>
<td>Bracket, U-Shape for Channel Framing</td>
<td>5035076</td>
<td>30 ea.</td>
<td>30 ea.</td>
<td>60 ea.</td>
</tr>
<tr>
<td>Y</td>
<td>Nut, Clamping, w/Spring, 3/8”</td>
<td>5031723</td>
<td>12 ea.</td>
<td>12 ea.</td>
<td>12 ea.</td>
</tr>
<tr>
<td>Z</td>
<td>Nut, Clamping, w/Spring, 1/2”</td>
<td>5031724</td>
<td>250 ea.</td>
<td>250 ea.</td>
<td>250 ea.</td>
</tr>
<tr>
<td>AA</td>
<td>Screw, Cap, Steel, 1/2” X 1”</td>
<td>5069527</td>
<td>4 bx.</td>
<td>4 bx.</td>
<td>4 bx.</td>
</tr>
<tr>
<td>BB</td>
<td>Washer, Flat, 1/2” CAD</td>
<td>5004963</td>
<td>50 ea.</td>
<td>50 ea.</td>
<td>50 ea.</td>
</tr>
<tr>
<td>CC</td>
<td>Kit, Terminator, Indoor</td>
<td>5035696</td>
<td>12 ea.</td>
<td>30 ea.</td>
<td>12 ea.</td>
</tr>
<tr>
<td>DD</td>
<td>Kit, Stress Relief Cone, 15kV, 4/0</td>
<td>5035696</td>
<td>6 ea.</td>
<td>6 ea.</td>
<td>6 ea.</td>
</tr>
<tr>
<td>EE</td>
<td>Tape, Track Resistant Silicone</td>
<td>5033912</td>
<td>13 rl.</td>
<td>25 rl.</td>
<td>13 rl.</td>
</tr>
<tr>
<td>FF</td>
<td>Connector, Term., Comp., 4/0 Al, Stem</td>
<td>5035299</td>
<td>6 ea.</td>
<td>6 ea.</td>
<td>6 ea.</td>
</tr>
</tbody>
</table>

**NOTES**

1. See pg. 9-28-1 for transformer Compatible Unit coding.
2. See pg. 9-29-1 for fusing Compatible Unit coding.
1. LOCATE THE TEMPORARY CABLE ENCLOSURE WHERE THE PAD OPENING WILL BE WHEN THE PAD IS INSTALLED (SEE APPROPRIATE CABLE STUB-UP DETAIL)

2. LOOP THE PRIMARY CABLES (#2 OR #4/0 ONLY) THRU THE ENCLOSURE SO THAT IT MAY BE ENERGIZED PRIOR TO THE INSTALLATION OF THE PAD AND EQUIPMENT.

3. MARK THE CABLES WITH "DYMO" TAPE INDICATING WHICH EXISTING FACILITIES THEY ARE LOOPED BETWEEN. (EXAMPLE: FROM PE-0603 TO PR-0604)

4. UNIT UVB9 IS TO BE USED IN INDUSTRIAL TRACTS AND IN THE FOUNTAIN HILLS AREA WHERE THE FINAL LOCATION IS KNOWN BUT THE INSTALLATION OF TRANSFORMERS OR OTHER ENCLOSURES IS TO BE DEFERRED.
COVER TO BE FLUSH MOUNTED WITH FINAL GRADE

3 X 3 LOAD BEARING STEEL COVER AND CONCRETE FRAME 1,573 LBS.

FLOOR 4,686 LBS.

11” X 11” KNOCKOUTS 4 PER SIDE

USE BOTTOM WINDOWS FOR INITIAL FACILITIES
USE UPPER WINDOWS FOR FUTURE ADDITIONAL FACILITIES.

NOTES
1. THIS UNIT MAY BE USED IN SUBSTATION, SIDEWALK OR LIGHTLY LOADED TRAFFIC AREAS (MAXIMUM OF ONE 18000 lb. SINGLE AXLE LOAD/DAY).
2. MINIMUM EXCAVATION SIZE TO BE 6'-6" X 6'-6" DEPTH REQUIRED.
3. CARE SHALL BE TAKEN TO PROVIDE A SMOOTH, LEVEL, WELL COMPACTED BASE TO SET THE BOX ON. COMPACT AROUND SIDES OF BOX TO PREVENT SETTLING AROUND BOX.
4. CONDUITS MUST EXTEND A MINIMUM OF 4 INCHES INSIDE OF BOX.
NOTEs

1. THIS UNIT IS LOAD BEARING AND MAY BE USED IN TRAFFIC AREAS.

2. MINIMUM EXCAVATION SIZE TO BE 6'-6" X 6'-6" DEPTH REQUIRED.

3. CARE SHALL BE TAKEN TO PROVIDE A SMOOTH, LEVEL, WELL COMPACTED BASE TO SET THE BOX ON. COMPACT AROUND SIDES OF BOX TO PREVENT SETTLING AROUND BOX.

4. CONDUITS MUST EXTEND A MINIMUM OF 4 INCHES INSIDE OF BOX.
PEDESTAL - TOP VIEW

STUB UP CONDUITS WITHIN AREA SHOWN ABOVE

* NO EQUIVALENT STOCK NUMBER EXISTS IN SAP
### Compatible Unit Coding for Retirement of Non-Standard Vaults

<table>
<thead>
<tr>
<th>Description</th>
<th>Compatible Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vault, Electrical, 4,000kVA or Less, SRP Owned</td>
<td>RUVEP40</td>
</tr>
<tr>
<td>Vault, Electrical, 4,000kVA or Less, Customer Owned</td>
<td>RUVE40</td>
</tr>
</tbody>
</table>
CABLE AND ACCESSORIES

TITLE/DESCRIPTION                                      PAGE NO.
INSTRUCTIONAL GUIDE, CONDUCTOR CODING                  8-1-1
INSTRUCTIONAL GUIDE, GENERAL INSTRUCTIONS FOR CONNECTIONS 8-2-1
INSTRUCTIONAL GUIDE, GENERAL INSTRUCTIONS FOR SPLICING 8-3-1
INSTRUCTIONAL GUIDE, CABLE BENDING AND LUBRICATION     8-4-1
INSTRUCTIONAL GUIDE, CABLE PULLING TENSION LIMITS      8-5-1
TAPS TO OVERHEAD PRIMARY                                8-6-1
CONNECTOR - AMPACT, HOT OR COLD PRIMARY WORK, #2 THRU 397.5 MCM 8-7-1
CONNECTOR AND DIE CHART (NON-TENSION) FOR USE WITH SECONDARY OR COLD PRIMARY RISERS, 1/0 THRU 1033.5 STR. 8-8-1
CONNECTOR AND DIE CHART (NON-TENSION) FOR USE WITH HOT PRIMARY AT RISER LOCATIONS, #6 SOL. THRU 397.5 STR. 8-9-1
CONNECTOR AND DIE CHART (NON-TENSION) FOR USE WITH SECONDARY AND COLD PRIMARY RISERS, #6 SOL. THRU 500 STR. 8-10-1
COPPER COMPRESSION CONNECTORS FOR GROUND/NEUTRAL CONDUCTORS, #6 SOL. THRU 4/0 8-11-1
2-HOLE TERMINAL CONNECTORS                              8-12-1
SLEEVE AND CONNECTORS                                   8-13-1
REEL HANDLING AND STORAGE GUIDELINES                   8-14-1
PRIMARY AND SECONDARY CABLE END MOISTURE SEAL          8-15-1
CONNECTORS, SPLICES, AND TERMINATORS, GENERAL INFORMATION, 600V CLASS 8-16-1
CONNECTORS, SPLICES, AND TERMINATORS, GENERAL INFORMATION, 15 & 25KV CLASS 8-17-1
SEALING OF PRIMARY AND FEEDER CABLE JACKET              8-18-1
SEALING OF SPLICED, JACKETED #2 AND 4/0 CONCENTRIC NEUTRAL CABLE 8-19-1
SEALING OF SPLICED, JACKETED TO UNJACKETED CONCENTRIC NEUTRAL CABLE 8-20-1
SEALING OF 500 AND 750 MCM JACKETS AT SPLICES          8-21-1
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<thead>
<tr>
<th>TITLE/DESCRIPTION</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTERNATE NEUTRAL BONDING AT SPLICE, BARE CONCENTRIC NEUTRAL CABLE</td>
<td>8-22-1</td>
</tr>
<tr>
<td>CABLE SEMICON EXTENSION FOR CONVERTING LIVE FRONT TO ELBOW TERMINATIONS ON EXISTING #2 &amp; 4/0 15KV CABLE</td>
<td>8-23-1</td>
</tr>
<tr>
<td>MULTIPLE CABLE TERMINATION (DOUBLE LUG)</td>
<td>8-24-1</td>
</tr>
<tr>
<td>SUBSTATION SWITCHGEAR TERMINATION</td>
<td>8-25-1</td>
</tr>
<tr>
<td>TERMINATION GROUNDING INSTRUCTIONS</td>
<td>8-26-1</td>
</tr>
<tr>
<td>LUBRICATING PROCEDURE FOR BUSHING/TERMINATION INTERFACES ON DEAD FRONT, PAD MOUNTED EQUIPMENT</td>
<td>8-27-1</td>
</tr>
<tr>
<td>TAP INTO PRIMARY OR FEEDER</td>
<td>8-28-1</td>
</tr>
<tr>
<td>SPlicing INTO EXISTING CIC CABLE RUNS</td>
<td>8-29-1</td>
</tr>
<tr>
<td>0-600V TAP, MOLE CONNECTORS</td>
<td>8-30-1</td>
</tr>
<tr>
<td>ALTERNATE STREET LIGHT TAP ON EXISTING SERVICE OR SECONDARY</td>
<td>8-31-1</td>
</tr>
<tr>
<td>SET SCREW BAR CONNECTORS, TORQUE VALUES</td>
<td>8-32-1</td>
</tr>
<tr>
<td>600V SPLICES, JACKET REPAIR SLEEVE</td>
<td>8-33-1</td>
</tr>
<tr>
<td>15KV SPLICING AND TERMINATING DEVICES</td>
<td>8-34-1</td>
</tr>
<tr>
<td>ALUMINUM CONDUCTOR CODING</td>
<td>8-35-1</td>
</tr>
<tr>
<td>COPPER CONDUCTOR CODING</td>
<td>8-36-1</td>
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<tr>
<td>SINGLE PHASE SERVICE CONDUCTOR CODING</td>
<td>8-37-1</td>
</tr>
<tr>
<td>THREE PHASE SERVICE CONDUCTOR CODING</td>
<td>8-38-1</td>
</tr>
<tr>
<td>600V MOLE ASSEMBLY</td>
<td>8-39-1</td>
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<tr>
<td>600V T-TAP ASSEMBLY</td>
<td>8-40-1</td>
</tr>
<tr>
<td>ALTERNATE STREET LIGHT TAP ON EXISTING SERVICE OR SECONDARY</td>
<td>8-41-1</td>
</tr>
<tr>
<td>GROUNDING JACKETED CONCENTRIC NEUTRAL PRIMARY CABLE #2, 1/0 &amp; 4/0, 500 MCM, 750 MCM</td>
<td>8-42-1</td>
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# CABLE AND ACCESSORIES

## TITLE/DESCRIPTION

<table>
<thead>
<tr>
<th>Title/Description</th>
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<tbody>
<tr>
<td>15KV CIC, INSTALLATION INSTRUCTIONS</td>
<td>8-43-1</td>
</tr>
<tr>
<td>PRIMARY CABLE MOISTURE SEAL FOR STUB-OUT AND STUB-UP ENDS</td>
<td>8-44-1</td>
</tr>
<tr>
<td>GROUNDING PROVISIONS, LIVE FRONT EQUIPMENT</td>
<td>8-45-1</td>
</tr>
<tr>
<td>SERVICE REMOVAL CODES</td>
<td>8-46-1</td>
</tr>
<tr>
<td>CONDUCTOR CODING, REMOVAL OR ABANDONMENT ONLY</td>
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## 22KV SECTION (YELLOW PAGES)

<table>
<thead>
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<tr>
<td>CONDUCTOR CODING</td>
<td>8-48-1</td>
</tr>
<tr>
<td>INDOOR TERMINATION DEVICES</td>
<td>8-49-1</td>
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PURPOSE

TO PROVIDE COMPATIBLE UNIT CODE NUMBERS FOR CABLE/CONDUCTORS, SPLICES, TERMINATIONS AND INSTRUCTIONS IN THEIR USE.

COMPATIBLE UNIT CODING FOR “UW” SECTION

1. TERMINATIONS AND SPLICES ARE CODED WITH THE PREFIX UWB. THE NEXT DIGIT IS A NUMBER DESIGNATING SPECIFIC MATERIAL.
2. SERVICES ARE CODED WITH THE PREFIX US. THE NEXT DIGITS ARE NUMBERS DESIGNATING SPECIFIC COMBINATIONS OF CONDUCTORS AND ASSOCIATED MATERIALS.
3. CONDUCTOR AND CABLE CODES CONSIST OF A LETTER PREFIX DESIGNATING THE TYPE (CONSTRUCTION) OF THE CONDUCTOR AND A NUMBER DESIGNATING THE CONDUCTOR SIZE.

EXAMPLE:

Compatible Unit

15kV Concentric Neutral Al Cable
#2 AWG
“K” designates installation in conduit

CODING SYMBOLS ARE AS FOLLOWS:

<table>
<thead>
<tr>
<th>CODE LETTERS</th>
<th>TYPE OF CONDUCTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UA</td>
<td>15KV ALUMINUM CABLE</td>
</tr>
<tr>
<td>UC</td>
<td>15KV COPPER CABLE</td>
</tr>
<tr>
<td>U6A</td>
<td>600V INSULATED SINGLE CONDUCTOR, ALUMINUM</td>
</tr>
<tr>
<td>U6C</td>
<td>600V INSULATED SINGLE CONDUCTOR, COPPER</td>
</tr>
<tr>
<td>UDX</td>
<td>DUPLEX CABLE, ALUMINUM</td>
</tr>
<tr>
<td>UTX</td>
<td>TRIPLEX CABLE, ALUMINUM</td>
</tr>
<tr>
<td>_ _ _ _ K</td>
<td>CONDUCTOR INSTALLED IN CONDUIT</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>CODE NUMBERS</th>
<th>CONDUCTOR SIZE</th>
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<tbody>
<tr>
<td>8</td>
<td>#8 AWG</td>
</tr>
<tr>
<td>6</td>
<td>#6 AWG</td>
</tr>
<tr>
<td>4</td>
<td>#4 AWG</td>
</tr>
<tr>
<td>2</td>
<td>#2 AWG</td>
</tr>
<tr>
<td>10</td>
<td>1/0 AWG</td>
</tr>
<tr>
<td>20</td>
<td>2/0 AWG</td>
</tr>
<tr>
<td>40</td>
<td>4/0 AWG</td>
</tr>
<tr>
<td>250</td>
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<tr>
<td>350</td>
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<tr>
<td>500</td>
<td>500 MCM</td>
</tr>
<tr>
<td>750</td>
<td>750 MCM</td>
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4. CONDUCTORS (REMOVAL): USE CODES LISTED IN THE REMOVAL ONLY CONDUCTOR CODING CHART FOR THE REMOVAL AND RETIREMENT OF NON-STANDARD CONDUCTORS.
INSTRUCTIONAL GUIDE

PURPOSE
THE PRIMARY PURPOSE OF THIS SECTION IS TO PROVIDE INSTALLATION INSTRUCTIONS SUPPLEMENTAL TO THOSE SUPPLIED BY THE MANUFACTURER WHICH ARE PARTICULAR TO SRP FOR CONNECTORS, SPLICES AND TERMINATIONS USED ON THE UNDERGROUND DISTRIBUTION SYSTEM.

GENERAL INSTRUCTIONS FOR CONNECTORS
1. AFTER REMOVING THE CONDUCTOR'S INSULATION, WIRE BRUSH THE CONDUCTOR STRANDS AND APPLY INHIBITING GREASE (5012038).

2. DO NOT REMOVE THE PENETROX GREASE SUPPLIED IN THE CONNECTOR. ALLOW EXCESS GREASE TO OOZE OUT WHEN THE CONDUCTOR IS PLACED IN THE CONNECTOR.

3. CONNECTOR RANGE AND DIE OR SHELL SIZES ARE INDICATED ON THE CONNECTOR BODY. CONNECTORS STOCKED BY SRP ARE ALSO SHOWN IN THIS SECTION. ONE CRIMP IS REQUIRED BETWEEN EACH SET OF KNURLED OR PRINTED INDICATORS FOUND ON THE CONNECTOR. IF THESE INDICATORS ARE ABSENT, CRIMP THE CONNECTOR OVER ITS ENTIRE LENGTH.

4. WHEN CRIMPING END-TO-END OR TERMINAL CONNECTORS, BEGIN AT THE END OF THE CONDUCTOR AND WORK IN SEQUENCE TOWARD THE CABLE. CRIMP PARALLEL GROVE CONNECTORS BY BEGINNING AT ONE END OF THE CONNECTOR AND PROCEEDING TO THE OTHER END, OR BY BEGINNING IN THE MIDDLE OF THE CONNECTOR AND PROCEEDING TOWARD ONE END, THEN TO THE OTHER.

5. APPLY EACH SUCCESSIVE CRIMP WITH THE TOOL ROTATED 90° ABOUT THE CONNECTOR TO HELP PREVENT BENDING OR BOWING. IF LIMITED SPACE PREVENTS ROTATING THE TOOL ABOUT THE CONNECTOR, THE ROTATE TOOL 180° ABOUT ITS OWN HANDLE AXIS WITH EACH CRIMP.

6. EXCESS GREASE SHOULD BE REMOVED.
PRIMARY CABLE SPLICING GUIDE

CONSTRUCT PRIMARY CABLE SYSTEMS SO AS TO REDUCE THE NUMBER OF CABLE SPLICES TO A
MINIMUM. DO NOT SPLICE SHORT PIECES OF CABLE TOGETHER TO COMPLETE A RUN. SIZE CABLE
LENGTHS TO THE RUN, SO THAT SPLICES ARE NOT REQUIRED.

DO NOT "STUB OUT" PRIMARY CABLES FOR FUTURE CONNECTION. INSTEAD, INSTALL CONDUIT
RUNS FOR FUTURE CONNECTIONS. THE JOB DESIGNER IS RESPONSIBLE FOR CALCULATING
PULLING TENSIONS TO ASSURE THAT CABLE CAN BE PULLED THROUGH THE CONDUIT RUN.

CONDITIONS THAT PERMIT THE USE OF SPLICES ARE:
1. TAPPING INTO EXISTING SYSTEMS, E.G. INDUSTRIAL SUBDIVISIONS.
2. WHEN A CABLE RUN IS LONGER THAN AVAILABLE FULL REEL LENGTHS.
3. CONDUIT SYSTEM MANHOLES AND PULLBOXES.
4. REPAIR OF DAMAGED CABLES.

CONTACT POLICIES, PROCEDURES AND STANDARDS WITH PRIMARY SPLICE APPLICATIONS
THAT DIFFER FROM THOSE ABOVE.

NOTES IF CABLE LENGTHS ARE LESS THAN THE FOLLOWING, SEND TO MATERIAL RECLAMATION:

<table>
<thead>
<tr>
<th>CABLE</th>
<th>LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 AL, 15KV</td>
<td>500 FT.</td>
</tr>
<tr>
<td>4/0 AL, 15KV</td>
<td>400 FT.</td>
</tr>
<tr>
<td>500 MCM AL, 15KV</td>
<td>500 FT.</td>
</tr>
<tr>
<td>750 MCM AL, 15KV</td>
<td>700 FT.</td>
</tr>
<tr>
<td>750 MCM CU, 15KV</td>
<td>400 FT.</td>
</tr>
</tbody>
</table>

* BASED ON 2X THE AMOUNT OF CABLE COST EQUALLING AN INSTALLED SPLICE.

MATERIAL RECLAMATION WILL RETAIN CABLE LENGTHS, LESS THAN THOSE LISTED ABOVE, FOR
USE IN CABLE REPAIR AND FOR JOBS WHERE ONLY SHORT LENGTHS OF CABLE ARE REQUIRED.
INSTRUCTIONAL GUIDE

CABLE BENDING - PRIMARY AND FEEDER (15KV & 25KV)

THE MINIMUM BENDING RADIUS FOR #2, 1/0, 4/0, 500 MCM AND 750 MCM PRIMARY CABLES SHALL NOT BE LESS THAN 12". IN NO CASE SHALL THE ABOVE PRIMARY CABLES BE BENT INTO AN ARC THAT IS SMALLER THAN A 12" RADIUS (24" DIAMETER CIRCLE). CONTACT POLICIES, PROCEDURES AND STANDARDS TO OBTAIN THE PROPER MINIMUM BENDING RADIUS FOR PRIMARY CABLES OTHER THAN THOSE LISTED ABOVE.

WHEN INSTALLING PRIMARY CABLE, TRAVERSES MUST HAVE A MINIMUM DIAMETER OF 24" IN ORDER TO MAINTAIN A MINIMUM BENDING RADIUS OF 12".

CABLE BENDING - SECONDARY AND SERVICE (600V AND LESS)

<table>
<thead>
<tr>
<th>CABLE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGLE CONDUCTOR OR TRIPLEX</td>
</tr>
<tr>
<td>1/0</td>
</tr>
<tr>
<td>4/0</td>
</tr>
<tr>
<td>350</td>
</tr>
<tr>
<td>500</td>
</tr>
<tr>
<td>750</td>
</tr>
</tbody>
</table>

TRAVERSES MUST HAVE A MINIMUM DIAMETER OF TWICE THE MINIMUM BENDING RADIUS FOR THE CABLE BEING PULLED.

CABLE LUBRICATION REQUIREMENTS (IN GALLONS)

<table>
<thead>
<tr>
<th>CONDUIT SIZE (IN INCHES)</th>
<th>LENGTH OF PULL (IN FEET)</th>
<th>2</th>
<th>2.5</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>300</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>400</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>500</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>600</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>700</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>800</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>900</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>1000</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1100</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>1200</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>1300</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
INSTRUCTIONAL GUIDE

THE FOLLOWING TABLE LISTS THE MAXIMUM ALLOWABLE PULLING TENSIONS FOR VARIOUS CABLES AND THEIR COMBINATIONS UTILIZING BASKET GRIPS.

<table>
<thead>
<tr>
<th>MAXIMUM ALLOWABLE CABLE PULLING TENSIONS</th>
<th>MAXIMUM ALLOWABLE SIDEWALL BEARING PRESSURE (LBS./FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>25KV CABLE</strong></td>
<td></td>
</tr>
<tr>
<td>1/C 1/0</td>
<td>1440 LBS.</td>
</tr>
<tr>
<td>2/C 1/0</td>
<td>2880</td>
</tr>
<tr>
<td>3/C 1/0</td>
<td>2880</td>
</tr>
<tr>
<td><strong>15KV CABLE</strong></td>
<td></td>
</tr>
<tr>
<td>1/C #2 AL</td>
<td>880 LBS.</td>
</tr>
<tr>
<td>2/C #2 AL</td>
<td>1760</td>
</tr>
<tr>
<td>3/C #2 AL</td>
<td>1760</td>
</tr>
<tr>
<td>1/C 4/0 AL</td>
<td>2882</td>
</tr>
<tr>
<td>2/C 4/0 AL</td>
<td>5000</td>
</tr>
<tr>
<td>3/C 4/0 AL</td>
<td>5000</td>
</tr>
<tr>
<td>1/C 500 MCM</td>
<td>5466</td>
</tr>
<tr>
<td>3/C 500 MCM</td>
<td>5000</td>
</tr>
<tr>
<td>1/C 750 MCM</td>
<td>5466</td>
</tr>
<tr>
<td>3/C 750 MCM</td>
<td>5000</td>
</tr>
<tr>
<td><strong>600V CABLE</strong></td>
<td></td>
</tr>
<tr>
<td>#8 TRIPLEX</td>
<td>360 LBS.</td>
</tr>
<tr>
<td>#6 TRIPLEX</td>
<td>577</td>
</tr>
<tr>
<td>ALL OTHERS *</td>
<td>2000</td>
</tr>
</tbody>
</table>

* ANY COMBINATION OF 1 TO 4 CONDUCTORS

**BASIS FOR TENSION LIMITS**

**600V**: #8 & #6, CONDUCTOR STRESS LIMITED TO 14,000 PSI.
ALL OTHERS: EPRI GUIDE LIMIT

**15KV**: #2 & 4/0, CONDUCTOR STRESS LIMITED TO 14,000 PSI.
500 & 750 MCM: LIMITED BY BASKET GRIP TENSION WITH SAFETY FACTOR OF 3

**25KV**: 1/0, CONDUCTOR STRESS LIMITED TO 14,000 PSI.
COMMUNICATIONS: MANUFACTURER RECOMMENDED LIMITS
1. Conductors must be brushed and greased before applying compression connectors.

2. When compressing aluminum to copper, the aluminum conductor must be above the copper in the connector.

3. Aluminum compression connectors shall be used on aluminum or copper runs to aluminum taps.

4. Copper compression connectors shall be used on copper runs to copper taps.

5. Two or three phase taps must be installed so that all of the taps are fed from the same side of any jumpers or switches in the primary line.

6. With hot stick tighten 2 to 2 1/2 turns after finger tight.

### POWER GRIP CONNECTOR FOR ALUMINUM OR COPPER CONDUCTORS

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TAP SIZE</th>
<th>RUN SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5035724</td>
<td>#8 - #2</td>
<td>#4 - 1/0</td>
</tr>
<tr>
<td>5035725</td>
<td>#8 - #2</td>
<td>1/0 - 397</td>
</tr>
<tr>
<td>5033937*</td>
<td>1/0 - 397</td>
<td>1/0 - 397</td>
</tr>
</tbody>
</table>

*The end of the tap conductor shall protrude approximately 3 in. from side of connector.
FLEXIBLE BRAID CONNECTOR

HOT LINE CONNECTOR (5035723, 5035724, 5035725, OR 5035726).

FLEXIBLE BRAID (5028383).

COMPRESSION CONNECTOR (5035164).

#6 INSULATED COPPER WIRE TO EQUIPMENT.

Flexible braid for #6 copper equipment taps for use on spans subject to vibration (200 ft. and greater) and as replacement on broken tap conductor.

NOTES

1. REMOVE SUFFICIENT INSULATION FROM TAP CONDUCTOR FOR DEPTH OF COMPRESSION CONNECTOR.
2. COMPRESS CONNECTION BETWEEN CABLE AND FLEXIBLE BRAID.
3. INSTALL FLEXIBLE BRAID INTO TAP POSITION ON HOT LINK OR POWER GRIP CONNECTOR.
4. BRUSH AND GREASE CONDUCTOR PRIOR TO INSTALLATION ONTO RUNNING LINE.
### "A" Groove

<table>
<thead>
<tr>
<th>Conductor Dia.</th>
<th>Conductor Size &amp; Configuration</th>
<th>Shell Shell Shell Shell</th>
</tr>
</thead>
<tbody>
<tr>
<td>.464</td>
<td>3/0 Str.</td>
<td></td>
</tr>
<tr>
<td>.586</td>
<td>266.8 Str.</td>
<td></td>
</tr>
<tr>
<td>.642</td>
<td>312.8 AAAC</td>
<td></td>
</tr>
<tr>
<td>.724</td>
<td>397.5 Str.</td>
<td></td>
</tr>
</tbody>
</table>

### "B" Groove

<table>
<thead>
<tr>
<th>Conductor Dia.</th>
<th>Conductor Size &amp; Configuration</th>
<th>Shell Shell Shell Shell</th>
</tr>
</thead>
<tbody>
<tr>
<td>.265</td>
<td>266.8 Str.</td>
<td></td>
</tr>
<tr>
<td>.303</td>
<td>312.8 AAAC</td>
<td></td>
</tr>
<tr>
<td>.357</td>
<td>397.5 Str.</td>
<td></td>
</tr>
</tbody>
</table>

### Range Tap Shell Amp No.

<table>
<thead>
<tr>
<th>Range</th>
<th>Tap</th>
<th>Shell</th>
<th>Amp No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5033834</td>
<td>5033935</td>
<td>600448</td>
</tr>
<tr>
<td>2</td>
<td>59-1663**</td>
<td>5033935</td>
<td>600459</td>
</tr>
<tr>
<td>3</td>
<td>5033835</td>
<td>5033936</td>
<td>602000</td>
</tr>
<tr>
<td>4</td>
<td>59-1665**</td>
<td>5033936</td>
<td>602003</td>
</tr>
<tr>
<td>5</td>
<td>5033836</td>
<td>5033936</td>
<td>602007</td>
</tr>
<tr>
<td>6*</td>
<td>5033837</td>
<td>5033936</td>
<td>1-602031-5</td>
</tr>
</tbody>
</table>

* Connector #6 has a large and small groove. The smaller conductor must be in the smaller groove.

** No stock code equivalent exists in SAP.
<table>
<thead>
<tr>
<th>Range No.</th>
<th>Material Item</th>
<th>Tool</th>
<th>Dies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5035728</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>5035729</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5035730</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5035731</td>
<td>Y46</td>
<td>P-DR</td>
</tr>
<tr>
<td>5</td>
<td>5031526</td>
<td>Y45</td>
<td>S-KR or S-Z</td>
</tr>
<tr>
<td>6</td>
<td>5031527</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES**

1. ALUMINUM CONNECTORS MAY BE USED ON ALUMINUM OR COPPER CONDUCTORS.
### Connector & Die Chart (Non – Tension)

**For Use With Hot Primary at Riser Locations, #6 Sol. Thru 397.5 Str.**

#### Stock Numbers and Connectors

<table>
<thead>
<tr>
<th>RANGE</th>
<th>STOCK NO.</th>
<th>BURNDY **</th>
<th>DIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5033822</td>
<td>YP26 AU2</td>
<td>O</td>
</tr>
<tr>
<td>2</td>
<td>5033823</td>
<td>YP27 AU4</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>5033824</td>
<td>YPC 28U4</td>
<td>D</td>
</tr>
<tr>
<td>4</td>
<td>5033825</td>
<td>YP27 AU2</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>5033826</td>
<td>YP 28U2</td>
<td>D</td>
</tr>
<tr>
<td>6</td>
<td>5033827</td>
<td>YP25 U25</td>
<td>D</td>
</tr>
<tr>
<td>7</td>
<td>5033828</td>
<td>YP27 AU26</td>
<td>D</td>
</tr>
<tr>
<td>8</td>
<td>5033829</td>
<td>YP28 U26</td>
<td>D</td>
</tr>
<tr>
<td>9</td>
<td>5033830</td>
<td>YPC28U28</td>
<td>N</td>
</tr>
<tr>
<td>10</td>
<td>5033831</td>
<td>YPC33R28U</td>
<td>N</td>
</tr>
<tr>
<td>11</td>
<td>5033832</td>
<td>YPC33R28R</td>
<td>N</td>
</tr>
<tr>
<td>12</td>
<td>5033833</td>
<td>YPC33R33R</td>
<td>N</td>
</tr>
</tbody>
</table>

- () Indicates number of crimps
- * Hydraulic only
- ** These connectors are also acceptable for copper-to-copper connections.
- = Not Imprest Bin Stock

### Notes

1. Aluminum connectors may be used on aluminum or copper conductors.
<table>
<thead>
<tr>
<th>CONDUCTOR SIZE AND CONFIGURATION</th>
<th>VENDOR NO. &amp; CRIMPS ( )</th>
<th>STOCK NO.</th>
<th>DIE</th>
<th>SIZING CHART NO.</th>
<th>SECONDARY COVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 SOL. - #3 STR. TO #6 SOL. - #3 STR.</td>
<td>YHO-100 (4) OB44 (4)</td>
<td>5033812</td>
<td>0</td>
<td>1</td>
<td>5034083</td>
</tr>
<tr>
<td>#2 STR. - 1/0 ACSR TO #6 SOL. - #1 STR.</td>
<td>YHO-150 (5) OB101 (4)</td>
<td>5033813</td>
<td>0</td>
<td>2</td>
<td>5034083</td>
</tr>
<tr>
<td>2/0 ACSR – 3/0 STR. TO #6 SOL. - #1 STR.</td>
<td>YHD-200 (5) DB202 (4)</td>
<td>5033814</td>
<td>D3</td>
<td>3</td>
<td>5034080</td>
</tr>
<tr>
<td>4/0 STR. – 4/0 ACSR TO #6 SOL. - #1 STR.</td>
<td>YHD-250 (5) DB404 (4)</td>
<td>5033815</td>
<td>D3</td>
<td>4</td>
<td>5034080</td>
</tr>
<tr>
<td>1/0 STR. – 3/0 STR. TO 1/0 STR. – 2/0 ACSR</td>
<td>YHD-300 (5) DB2020 (5)</td>
<td>5033816</td>
<td>D3</td>
<td>5</td>
<td>5034080</td>
</tr>
<tr>
<td>4/0 STR. – 4/0 ACSR TO 1/0 STR. – 2/0 ACSR</td>
<td>YHD-350 (7) DB4020 (6)</td>
<td>5033817</td>
<td>D3</td>
<td>6</td>
<td>5034080</td>
</tr>
<tr>
<td>3/0 ACSR – 4/0 ACSR TO 3/0 ACSR</td>
<td>YHD-400 (7) DB4040 (6)</td>
<td>5033818</td>
<td>D3</td>
<td>7</td>
<td>5034080</td>
</tr>
<tr>
<td>250 STR. – 500 STR. TO #6 SOL. – 3/0 STR.</td>
<td>YHN-500 (2) NB50040 (2)</td>
<td>5033819</td>
<td>N</td>
<td>8</td>
<td>5034081</td>
</tr>
<tr>
<td>250 STR. – 500 STR. TO 2/0 ACSR – 4/0 ACSR</td>
<td>YHN-550 (2) NB50040 (2)</td>
<td>5033820</td>
<td>N</td>
<td>9</td>
<td>5034081</td>
</tr>
<tr>
<td>250 STR. – 500 STR. TO 250 STR. – 500 STR.</td>
<td>YHN-525 (3) NB500 (3)</td>
<td>5033821</td>
<td>N</td>
<td>10</td>
<td>5034081</td>
</tr>
</tbody>
</table>

NOTES
1. USE THESE CONNECTORS ON ALUMINUM OR COPPER CONDUCTORS.
2. NUMBER OF CRIMPS SHOWN IN PARENTHESES ( ).
**NOTES**

1. USE ALUMINUM CONNECTORS ON ALUMINUM OR COPPER CONDUCTORS.

2. SEE PREVIOUS PAGE FOR STOCK CODE NUMBER, VENDOR NUMBER AND DIE INFORMATION.
### Underground Distribution Construction Standards

#### COPPER COMPRESSION CONNECTORS FOR GROUND / NEUTRAL CONDUCTORS

**#6 SOL. THRU 4/0**

**ISSUE DATE:** 01/15/87  
**REV. DATE:** 01/01/15  
**APPROVAL:** B. PRIEST

---

#### TOOLS (CRIMPS)

<table>
<thead>
<tr>
<th>STOCK CODE NUMBER</th>
<th>RUN</th>
<th>TAP</th>
<th>CONDUCTOR RANGE</th>
<th>TO CONDUCTOR</th>
<th>MD6-8 (HAND TOOL)</th>
<th>Y-35 (HYD. TOOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5033933</td>
<td>2 SOL. 2 STR.</td>
<td>8 SOL. 4 STR.</td>
<td></td>
<td>—</td>
<td>—</td>
<td>W-C (2) U-C (1)</td>
</tr>
<tr>
<td>5035164</td>
<td>6 SOL. 2 STR.</td>
<td>6 SOL. 2 STR.</td>
<td>1 #2AA 1 #1/0AA 1 #4/0AA</td>
<td>#4CU</td>
<td>—</td>
<td>U-0 (1)</td>
</tr>
<tr>
<td>5035165</td>
<td>2 STR. 1/0 STR.</td>
<td>4 STR.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>U-0 (1)</td>
</tr>
<tr>
<td>5035166</td>
<td>2 STR. 1/0 STR.</td>
<td>2 STR. 1/0 STR.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>U-0 (1)</td>
</tr>
<tr>
<td>5035167</td>
<td>2/0 STR. 4/0 STR.</td>
<td>2 STR. 1/0 STR.</td>
<td>1 750AA 4 500AA (DRAIN WIRE) 4 750CU (DRAIN WIRE) 2 #2AA 2 #4/0AA</td>
<td>#2/0CU</td>
<td>—</td>
<td>D (1)</td>
</tr>
<tr>
<td>5035168</td>
<td>2/0 STR. 4/0 STR.</td>
<td>2/0 STR. 4/0 STR.</td>
<td>3 #4/0AA 2 OR 3 750AA</td>
<td>#2/0CU</td>
<td>—</td>
<td>U-D3 (1)</td>
</tr>
<tr>
<td>5035169</td>
<td>1 STR. 2/0 STR.</td>
<td>1 STR. 2/0 STR.</td>
<td>3 #2AA</td>
<td>#2/0CU</td>
<td>—</td>
<td>U-0 (1)</td>
</tr>
</tbody>
</table>

---

#### NOTES

1. "MULTIPLES OF CONCENTRIC NEUTRALS" MEANS FOLDING OR INSTALLING SEPARATE FILLER WIRES IN THE CONNECTOR. IT DOES NOT MEAN USING A SINGLE CONNECTOR FOR MULTIPLE CABLES. EXCEPTION: THE NEUTRALS OF 2 OR 3 FEEDER CABLES CONNECTED TO THE SAME WIRES IN THE CONNECTOR. IT DOES NOT MEAN USING A SINGLE CONNECTOR PROVIDED THE NEUTRALS ARE TRAINED WITH SUFFICIENT SLACK TO ALLOW THE TERMINATIONS TO BE MOVED TO A PARKING BUSHING.

2. BASIS: CROSS SECTIONAL AREA OF CONDUCTOR IS WITHIN WIRE RANGE OF CONNECTOR.

3. PRIMARY CABLE CONCENTRIC NEUTRAL EQUIVALENTS

   - #2AA
   - #1/0AA
   - #4/0AA
   - 750AA
   - 500AA & 750CU DRAIN WIRES

---

**CABLES AND ACCESSORIES**

<table>
<thead>
<tr>
<th>SMALL &quot;C&quot;</th>
<th>LARGE &quot;C&quot;</th>
<th>SMALL &quot;6&quot;</th>
<th>LARGE &quot;6&quot;</th>
<th>SMALL &quot;H&quot;</th>
<th>LARGE &quot;H&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Small &quot;C&quot;]</td>
<td>![Large &quot;C&quot;]</td>
<td>![Small &quot;6&quot;]</td>
<td>![Large &quot;6&quot;]</td>
<td>![Small &quot;H&quot;]</td>
<td>![Large &quot;H&quot;]</td>
</tr>
</tbody>
</table>
**BURNDY COMPRESSION TOOLS & DIE INDEX NUMBERS**

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>STOCK CODE NO.</th>
<th>MD6-HAND TOOL</th>
<th>Y35 OR Y39 HYDRAULIC TOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>5035281</td>
<td>BG</td>
<td>BG OR 243</td>
</tr>
<tr>
<td>1/0</td>
<td>5035282</td>
<td>BG</td>
<td>BG OR 243</td>
</tr>
<tr>
<td>1/0</td>
<td>5035283</td>
<td>BG</td>
<td>BG OR 243</td>
</tr>
<tr>
<td>2/0</td>
<td>5035284</td>
<td>249 OR 840</td>
<td>249 OR 840</td>
</tr>
<tr>
<td>3/0</td>
<td>5035285</td>
<td>249 OR 840</td>
<td>249 OR 840</td>
</tr>
<tr>
<td>4/0</td>
<td>5035286</td>
<td>249 OR 840</td>
<td>249 OR 840</td>
</tr>
<tr>
<td>4/0</td>
<td>5035287</td>
<td>249 OR 840</td>
<td>249 OR 840</td>
</tr>
<tr>
<td>266.8 MCM</td>
<td>5035288</td>
<td>NONE</td>
<td>251</td>
</tr>
<tr>
<td>350 MCM</td>
<td>5035289</td>
<td>NONE</td>
<td>299 OR 31ART</td>
</tr>
<tr>
<td>350 MCM</td>
<td>5035290</td>
<td>NONE</td>
<td>299 OR 31ART</td>
</tr>
<tr>
<td>397 MCM</td>
<td>5035291</td>
<td>NONE</td>
<td>316</td>
</tr>
<tr>
<td>500 MCM</td>
<td>5035292</td>
<td>NONE</td>
<td>317</td>
</tr>
<tr>
<td>500 MCM</td>
<td>5035293</td>
<td>NONE</td>
<td>317</td>
</tr>
<tr>
<td>750 MCM</td>
<td>5035294</td>
<td>NONE</td>
<td>608</td>
</tr>
<tr>
<td>750 MCM</td>
<td>5035295</td>
<td>NONE</td>
<td>608</td>
</tr>
</tbody>
</table>

1. THE LETTER "W" USUALLY PRECEDES MD6 DIE NUMBERS
2. THE LETTER "U" USUALLY PRECEDES Y35 DIE NUMBERS
3. "U" DIES MAY BE USED IN Y45 TOOLS WITH BURNDY ADAPTER PT-6515.
4. "U" DIES MAY BE USED IN Y46 TOOLS WITH BURNDY ADAPTER P-UADP
### DEAD FRONT T-BODY CONNECTOR

![Diagram of a dead front T-body connector]

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>STOCK CODE</th>
<th>DIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/0 AL.</td>
<td>5033798</td>
<td>U28 ART</td>
</tr>
<tr>
<td>500 MCM AL.</td>
<td>5033801</td>
<td>U34 ART</td>
</tr>
<tr>
<td>750 MCM AL. CU.</td>
<td>5033795</td>
<td>S39 ART</td>
</tr>
</tbody>
</table>

### STEM CONNECTOR

![Diagram of a stem connector]

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>STOCK CODE</th>
<th>DIE</th>
</tr>
</thead>
<tbody>
<tr>
<td># 1/0</td>
<td>5035298</td>
<td>BG</td>
</tr>
<tr>
<td># 2 AL.</td>
<td>5035297</td>
<td>BG</td>
</tr>
<tr>
<td>4/0 AL.</td>
<td>5035299</td>
<td>840</td>
</tr>
</tbody>
</table>

### REDUCER SLEEVE-ALUMINUM

<table>
<thead>
<tr>
<th>WIRE SIZE</th>
<th>STOCK CODE</th>
<th>DIE</th>
</tr>
</thead>
<tbody>
<tr>
<td>350 MCM TO 4/0</td>
<td>5035816</td>
<td>U317</td>
</tr>
<tr>
<td>4/0 TO # 1/0</td>
<td>5035817</td>
<td>840</td>
</tr>
<tr>
<td>4/0 TO # 2</td>
<td>5035818</td>
<td>840</td>
</tr>
<tr>
<td># 1/0 TO # 2</td>
<td>5035819</td>
<td>840</td>
</tr>
<tr>
<td>600 MCM TO 500 MCM OR LESS</td>
<td>5035820</td>
<td>U34ART REQUIRE BORING SOLID END</td>
</tr>
<tr>
<td>750 MCM TO 500 MCM</td>
<td>5035821</td>
<td>608</td>
</tr>
</tbody>
</table>
3. Forklifts must lift the reel by contacting both flanges.

4. Store reels on hard surface so that the flanges will not sink and allow reel weight to rest on cable.

5. Place a board under both flanges to prevent rolling when in storage, in addition to other securing methods in shipping.

NOTES
### 15kV

<table>
<thead>
<tr>
<th>CABLE SIZE</th>
<th>CAP STOCK CODE</th>
<th>CAP COLOR</th>
<th>SIZE (INCH IDxL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 AL</td>
<td>5035159</td>
<td>GRAY</td>
<td>1.062x1.5</td>
</tr>
<tr>
<td>4/0 AL</td>
<td>5035160</td>
<td>ORANGE</td>
<td>1.25x1.5</td>
</tr>
<tr>
<td>500MCM (WIRE SHIELD)</td>
<td>5035161</td>
<td>BLACK</td>
<td>1.5x1.5</td>
</tr>
<tr>
<td>750MCM AL or CU</td>
<td>5035162</td>
<td>BLUE</td>
<td>1.875x1.5</td>
</tr>
</tbody>
</table>

### 25kV

<table>
<thead>
<tr>
<th>CABLE SIZE</th>
<th>CAP STOCK CODE</th>
<th>CAP COLOR</th>
<th>SIZE (INCH IDxL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/0 AL (CN)</td>
<td>5035159</td>
<td>GRAY</td>
<td>1.062x1.5</td>
</tr>
</tbody>
</table>

### 600 VOLT

<table>
<thead>
<tr>
<th>CABLE SIZE</th>
<th>CAP STOCK CODE</th>
<th>CAP COLOR</th>
<th>SIZE (INCH IDxL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 AL</td>
<td>#2 AL</td>
<td>BLUE</td>
<td>0.375x1.5</td>
</tr>
<tr>
<td>1/0 AL</td>
<td>5035154</td>
<td>BLUE</td>
<td>0.375 I.D.x1.5 LONG</td>
</tr>
<tr>
<td>4/0 AL</td>
<td>5035155</td>
<td>RED</td>
<td>0.437 I.D.x1.5 LONG</td>
</tr>
<tr>
<td>350MCM</td>
<td>5035156</td>
<td>YELLOW</td>
<td>0.625x1.5</td>
</tr>
<tr>
<td>500MCM</td>
<td>5035157</td>
<td>GRAY</td>
<td>1.062x1.5</td>
</tr>
<tr>
<td>750MCM</td>
<td>5035160</td>
<td>ORANGE</td>
<td>1.25x1.5</td>
</tr>
</tbody>
</table>

### NOTES

1. ALL EXPOSED PRIMARY AND SECONDARY CABLE ENDS SHOULD BE SEALED IF LEFT EXPOSED TO PREVENT MOISTURE INGRESS.
2. COVER EXPOSED ENDS WITH A CAP AND TAPE THE CAP ON AS SHOWN.
THIS SECTION CONSISTS OF INFORMATION DESCRIBING THE VARIOUS TYPES OF 600V CLASS CONDUCTORS AND THEIR TYPICAL INSTALLATIONS.

USE THE SPECIFIC INSTRUCTIONS, PACKAGED WITH EACH DEVICE BY THE MANUFACTURER, FOR ASSEMBLY.

**EXCEPTION:** DETAILED INSTRUCTIONS ARE PROVIDED FOR STREETLIGHTS AND SPLICES.

DEVICES COVERED BY THIS SECTION INCLUDE:

1. STREET LIGHT
2. SECONDARY STUB OUT
3. MOLE CONNECTOR
4. T-TAP INSTALLATION
5. SPLICES
# Types of Underground Cable

<table>
<thead>
<tr>
<th>Voltage Class</th>
<th>Size</th>
<th>Insulation Thickness (Mils)</th>
<th>Insulation O.D. (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15KV</td>
<td>4/0</td>
<td>175</td>
<td>0.89 - 0.99</td>
</tr>
<tr>
<td>15KV</td>
<td>750 MCM</td>
<td>175</td>
<td>1.32 - 1.43</td>
</tr>
<tr>
<td>15KV</td>
<td>#2</td>
<td>220</td>
<td>0.75 – 0.83</td>
</tr>
<tr>
<td>25KV</td>
<td>1/0</td>
<td>260</td>
<td>0.93 - 1.00</td>
</tr>
<tr>
<td>15KV</td>
<td>#2</td>
<td>220</td>
<td>0.75 – 0.83</td>
</tr>
<tr>
<td>15KV</td>
<td>500 MCM</td>
<td>175</td>
<td>1.18 - 1.28</td>
</tr>
</tbody>
</table>

## Notes

1. SRP does not use grounding adapters on drain wire cable. Instead, the drain wires are twisted together and connected to ground (as is done with concentric neutrals).

## Terminations and Splices

Consult the following supplemental SRP instructions in addition to the manufacturer’s instructions.

1. Cable Preparation
2. Connector Selection and Bolting Procedure (not applicable for elbows and splices)
3. End Sealing of Primary Stub Outs and Stub Ups
4. Jacket Resealing, Terminations and Splices
5. CIC TERMINATION SEALING (15KV)

6. ANTI-TRACKING PROCEDURE, NOT APPLICABLE FOR OUTDOOR TERMINATIONS, ELBOWS, SPLICES AND HEAT SHRINK INDOOR TERMINATIONS

7. MULTIPLE CABLE TERMINATIONS ON THE SAME PHASE (NOT APPLICABLE FOR OUTDOOR TERMINATIONS, ELBOWS AND SPLICES)

8. GROUNDING

9. LUBRICATING

**CABLE PREPARATION**

1. TRAIN CABLE SO THAT ITS PATH IS STRAIGHT AND STRAIN FREE.
2. DO NOT CUT OR NICK CABLE SEMI-CONDUCTING LAYER WHEN REMOVING CABLE JACKET.
3. CUT CABLE SQUARELY TO PROPER LENGTH, LEAVING ENOUGH CONCENTRIC NEUTRALS OR DRAIN WIRES TO FORM A GROUND PROTECTION.
4. DO NOT CUT OR NICK THE CABLE INSULATION WHEN REMOVING THE SEMI-CONDUCTING LAYER.
5. DO NOT USE WATER FOR CABLE CLEANING.
6. DO NOT USE CLEANING SOLVENT (5012124, TOWELETTES) ON CABLE SEMI-CONDUCTING LAYER.
7. THOROUGHLY CLEAN THE SURFACE OF THE EXPOSED CABLE INSULATION USING CLEANING SOLVENT (5069354, GAL.).
8. USE MARKING TAPE, TEMPORARILY, FOR ALL REQUIRED REFERENCE MARKS. REMOVE TAPE BEFORE COMPLETING THE INSTALLATION.
9. KEEP THE CABLE INSULATION CLEAN.
10. SILICONE LUBRICANT, DOW CORNING 5 (5012044), MAY BE USED TO SUPPLEMENT LUBRICANT PROVIDED IN THE KIT.
11. FOR LUBRICATION OF TRANSFORMER, DEAD FRONT SWITCH BUSHINGS AND DEAD FRONT TERMINATIONS (SEE SPECIFIC PROCEDURE FOR THIS PURPOSE).
STEP 1

CUT A STRIP OF WATER SEALANT (5035804) 3" LONG AND WRAP AROUND JACKET 1/2" FROM JACKET END.

STEP 2

BEND CONCENTRIC NEUTRAL WIRES BACK OVER SEALANT AND IMBED.

STEP 3

INSTALL HEAT SHRINK TUBE TO COVER WATER SEALANT.

(5031733) FOR #2
(5031733) FOR #4/0
(5031734) FOR 500 & 750
STEP 1

PRIOR TO SPLICE INSTALLATION, SLIDE HEAT SHRINK TUBE (5031735) OVER ONE OF THE CABLE ENDS.

CABLE 2

HEAT SHRINK TUBE (5031735) CABLE 1

STEP 2

INSTALL SPLICE PER THE MANUFACTURER'S INSTRUCTIONS PACKAGED WITH THE SPLICE.

STEP 3

USING THE INDICATED COMPRESSION CONNECTOR BOND THE TWO NEUTRALS TOGETHER.

FOR #2 USE 5035164
FOR 4/0 USE 5035166

STEP 4

SLIDE THE HEAT SHRINK TUBE OVER THE COMPLETED SPLICE, AND SHRINK ONLY THE ENDS OF THE TUBE DOWN ONTO THE CABLE JACKET.
STEP 1
INSTALL SPLICE PER THE MANUFACTURER'S INSTRUCTIONS PACKAGED WITH THE SPLICE.

STEP 2
PRIOR TO TWISTING AND BONDING THE TWO NEUTRALS, SEAL ONLY THE JACKETED CABLE END USING AQUA SEAL (5035803) AND VULCANIZING RUBBER TAPE OR HEAT SHRINK TUBE AS SHOWN FOR JACKET RESEALING FOR TERMINATIONS.

STEP 3
TWIST EACH CABLE NEUTRAL INTO A CABLE AND USING THE INDICATED COMPRESSION CONNECTOR, BOND THE TWO NEUTRALS TOGETHER.

CONCENTRIC NEUTRAL CABLE

COMPRESSION CONNECTOR
FOR #2 USE 5035164
FOR 4/0 USE 5035166
STEP 1

Prior to splice installation slide heat shrink tube (5031736) over one of the cable ends.

HEAT SHRINK TUBE (5031736)

CABLE 1

CABLE 2

STEP 2

Install splice per the manufacturer's instructions packaged with the splice.

STEP 3

Using the indicated compression connector, bond the two wires together.

COMPRESSION CONNECTOR
FOR 500 USE 5035164
FOR 750 AL USE 5035166
FOR 750 CU USE 5035164

STEP 4

When grounding is required - (go to step 5 when grounding is not required)

Using the indicated compression connector and jumper size, run the jumper along the cable towards the jacket. Place a strip of water seal (5035804) on the jacket and imbed the jumper wire. Connect the jumper wire to a ground rod or #2/0 bare copper.

JUMPER SIZE
#6 CU
#4 CU

STEP 5

Slide the heat shrink tube over the completed splice, and shrink only the ends of the tube down onto the cable jacket. Make sure the tube is shrink over the Aqua seal imbedded jumper, if present.

MAKE SURE TUBE IS SHRUNK OVER SEALANT, IF PRESENT.

HEAT SHRINK TUBE

CABLE AND ACCESSORIES
SEALING OF 500 AND 750 MCM
JACKETS AT SPLICES

Underground Distribution
Construction Standards

ISSUE DATE: 01/15/87
REV. DATE: 08/01/13
APPROVAL: B. PRIEST

8-21-1

8513E175.DGN
STEP 1
INSTALL SPLICE PER THE MANUFACTURER’S INSTRUCTIONS PACKAGED WITH THE SPLICE.

STEP 2
TWIST THE CONCENTRIC NEUTRALS TOGETHER TO FORM PIGTAILS ON EACH END.

STEP 3
WRAP A LENGTH OF COPPER BRAID (5033904) APPROXIMATELY 4 TIMES AROUND AND ALONG THE SPLICE BODY.

STEP 4
SECURE THE COPPER BRAID TO THE SPLICE BODY USING THREE CABLE TIES, TWO AT EACH END AND ONE IN THE MIDDLE OF THE SPLICE BODY.

STEP 5
CONNECT THE COPPER BRAID TO THE CONCENTRIC NEUTRAL PIGTAILS USING COMPRESSION CONNECTORS.
5035164 FOR #2
5035166 FOR 4/0
1. REMOVE EXISTING LIVE FRONT TERMINATION AND ANTI-TRACKING TAPE. DO NOT NICK CABLE INSULATION.

2. MEASURE AND CUT REQUIRED LENGTH OF CABLE FOR NEW ELBOW TERMINATION AND NEW BUSHING HEIGHT.

3. CLEAN EXPOSED CABLE INSULATION.

4. APPLY STRESS RELIEF MASTIC BEGINNING ON CABLE INSULATION AT EDGE OF SEMICON. TENSION TO 1/2 ITS WIDTH, APPLY 3 WRAPS EVENLY OVERLAPPING THE CABLE SEMICON AND INSULATION FILLING THE STEP. TEAR OFF EXCESS AND DISPOSE.

5. DETERMINE REQUIRED LENGTH OF SEMICON HEAT SHRINK TUBING. CUT SQUARE AND SMOOTH.

6. PLACE CUT LENGTH OF SEMICON TUBING ONTO CABLE. OVERLAP CABLE SEMICON BY 1-1/2 IN. HEAT SHRINK ONTO CABLE INSULATION STARTING AT THE BOTTOM AND WORKING UP TOWARD TOP. SHRINK COMPLETELY LEAVING NO VOIDS.

7. ALLOW TO COOL AND INSTALL NEW ELBOW TERMINATION.
GUIDELINES FOR MULTIPLE CABLE TERMINATIONS (DOUBLE-LUG) ON THE SAME PHASE

WHEN MAKING MULTIPLE CABLE TERMINATIONS ON THE SAME PHASE, CABLES SHOULD BE TRAINED SO THE GROUND PLANES ARE WITHIN 45 DEG OF EACH OTHER (e.g., 1" OUT, 1" UP OR DOWN) (FIG. 1). NOTE: HORIZONTAL SEPARATION SHALL NOT BE LESS THAN 1". IN ORDER TO ADJUST THE POSITION OF THE GROUND PLANE OF A TERMINATION, THE CUT BACK LENGTH OF THE SEMICON SHALL BE INCREASED AS REQUIRED TO PLACE ITS GROUND PLANE IN THE SHADED AREA. THIS WILL RESULT IN EXPOSED CABLE INSULATION FROM THE TOP OF TERMINATION TO THE LUG, WHICH SHALL BE HALF-LAPPED WRAPPED WITH TWO LAYERS OF TRACK RESISTANT SILICONE TAPE (5033912).

FIG. 2 SHOWS THE APPROXIMATE LOCATION OF THE GROUND PLANES.

FIG. 1

FIG. 2

*APPROXIMATE MIDDLE OF TERMINATION

NOTES
1. THE ACCEPTABLE POSITION FOR THIS GROUND PLANE IS ANY LOCATION WITHIN THE SHADED AREA

ACCEPTABLE RANGE (SHADED)
CONCENTRIC NEUTRAL OR COPPER WIRE FROM 750MCM FEEDER CABLE. DO NOT GROUND. TWIST WIRES TOGETHER AND LEAVE 6" LONG. KEEP A MINIMUM OF 1" CLEARANCE FROM GROUNDS AND OTHER CABLES.

1. SEE PAGE 8-24-1 FOR GROUND PLANE INSTRUCTIONS.
2. FOR ADDITION OF FEEDER TO EXISTING SUBSTATION USE 4" HEAT SHRINK SRP # 5033923.
OUTDOOR TERMINATIONS FOR #2, 4/0, 500 MCM AND 750 MCM PRIMARY CABLE

COLD SHRINK

HEAT SHRINK

SEE JACKET RESEALING INSTRUCTIONS

DRAIN WIRES OR CONCENTRIC NEUTRALS TWISTED TOGETHER AND BOND TO GROUND USING COMPRESSION CONNECTOR
INDOOR TERMINATION T-BODY (1)

BOND CAP JUMPER TO GROUND USING COMPRESSION CONNECTOR

USE 2 - DRAIN WIRES FROM CABLE OR 1 CONCENTRIC NEUTRAL WIRE THRU GROUNDING EYE.

DRAIN WIRES OR CONCENTRIC NEUTRAL WIRES TWISTED TOGETHER AND BOND TO GROUND USING COMPRESSION CONNECTOR.

SEE JACKET RESEALING INSTRUCTIONS

INDOOR TERMINATION T-BODIES (2)

BOND CAP JUMPER TO GROUND USING COMPRESSION CONNECTOR. SEE JACKET RESEALING INSTRUCTIONS.

USE 2 - DRAIN WIRES FROM CABLE OR 1 CONCENTRIC NEUTRAL WIRE THRU GROUNDING EYE.

DRAIN WIRES OR CONCENTRIC NEUTRAL WIRES TWISTED TOGETHER AND BOND TO GROUND USING COMPRESSION CONNECTOR.

SEE JACKET RESEALING INSTRUCTIONS

SEE JACKET RESEALING INSTRUCTIONS

INDOOR TERMINATION T-BODY WITH 4/0 TAP

USE 2 - DRAIN WIRES FROM CABLE OR 1 CONCENTRIC NEUTRAL WIRE, THRU GROUNDING EYE.

1-CONCENTRIC NEUTRAL THRU GROUNDING EYE

CONCENTRIC NEUTRALS TWISTED TOGETHER AND BOND TO GROUND USING COMPRESSION CONNECTOR.

SEE JACKET RESEALING INSTRUCTIONS

DRAIN WIRES OR CONCENTRIC NEUTRAL WIRES TWISTED TOGETHER AND BOND TO GROUND USING COMPRESSION CONNECTOR.

SEE JACKET RESEALING INSTRUCTIONS
LUBRICATING PROCEDURE FOR BUSHINGS / TERMINATION INTERFACES
ON DEAD FRONT, PAD MOUNTED EQUIPMENT

DE-ENERGIZED CONDITIONS

1. USING A CLEAN, DRY RAG, WIPE THE MATING SURFACES OF THE BUSHING AND DEAD FRONT TERMINATION. DO NOT USE A SOLVENT-SATURATED RAG.

2. UNIFORMLY COAT THE OUTER SURFACE OF THE BUSHING USING ONLY NOVAGUARD OR POLYSI SILICON LUBRICANT (S/C 5012043). DO NOT APPLY LUBRICANT TO THE ARC INTERRUPTING MATERIAL, CONTACTS OR TO THE INSIDE SURFACE OF THE TERMINATION.

3. INSTALL THE TERMINATION ON THE LUBRICATED BUSHING.

NOTES

1. IN A PAD MOUNT TRANSFORMER OR SWITCH WHERE AN ELBOW WILL NOT INITIALLY BE INSTALLED ON A BUSHING (OPEN POINT), THE ELBOW MUST BE INSTALLED ON A LUBRICATED PARKING BUSHING (S/C 5034295) AND THE UNUSED BUSHING MUST BE LUBRICATED AND COVERED BY A PROTECTIVE INSULATING CAP (S/C 5034291) WITH ITS WIRE LEAD CONNECTED TO GROUND, USING A COMPRESSION CONNECTION.

2. THE PROTECTIVE COVERS PROVIDED BY THE MANUFACTURER ON TRANSFORMER OR SWITCH BUSHINGS ARE NOT SUITABLE FOR ENERGIZED USE AND ARE TO BE DISCARDED WHEN INSTALLING THE DEVICE.

ENERGIZED CONDITIONS

GENERAL NOTICE: AVOID CONTACT WITH ADJACENT PARKED ENERGIZED ELBOW.

1. THE MATING SURFACES OF BUSHINGS AND TERMINATION MUST BE FREE OF DIRT OR DUST. IF CLEANING IS REQUIRED, THE UNIT AND CABLE MUST BE DE-ENERGIZED AND GROUNDED. AT THIS POINT, CLEAN AND LUBRICATE THE SURFACES, ACCORDING TO THE DE-ENERGIZED CONDITIONS PROCEDURE.

2. TO LUBRICATE AN ENERGIZED ELBOW: COAT THE OUTER SURFACE OF THE PARKING BUSHING (S/C 5034291) WITH NOVAGUARD OR POLYSI SILICON LUBRICANT ONLY (S/C 5012043). USING A HOT STICK, INSTALL THE PARKING BUSHING ADJACENT TO THE ELBOW. DO NOT APPLY LUBRICANT TO THE ARC INTERRUPTING MATERIAL.

3. USING A HOT STICK, REMOVE THE ELBOW AND INSTALL ON THE LUBRICATED PARKING BUSHING. THEN REMOVE THE NOW LUBRICATED ELBOW AND REINSTALL ON THE BUSHING.


NOTES

1. THE 600A BUSHING ON A SWITCH CANNOT BE LUBRICATED WHEN IT IS ENERGIZED.
NOTES
1. EXCAVATION SHOULD EXTEND FROM NEW EQUIPMENT LOCATION TO EXISTING CABLE RUN (DISTANCE B), AND ALONG EXISTING CABLE FOR A DISTANCE OF "A" PLUS THE DISTANCE TO MAKE CABLE SPLICES.
2. DISTANCE "A" SHOULD EQUAL DISTANCE "B" PLUS TOTAL STUB-UP LENGTH TO EQUIPMENT TERMINATIONS.
3. "B" DISTANCE: WIRE SIZE

<table>
<thead>
<tr>
<th>FEET</th>
<th>#2 D.B.</th>
<th>4/0 D.B.</th>
<th>500 D.B.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>0-60</td>
<td>0-90</td>
<td></td>
</tr>
</tbody>
</table>

NOTES
1. EXCAVATE A HOLE OVER EXISTING CABLE LARGE ENOUGH FOR TWO SETS OF SPLICES
2. CABLE TRAINING SHOULD BE SUCH THAT NO CABLE BENDING OCCURS AT THE SPLICE.
3. IF NEW EQUIPMENT IS TO BE DIRECTLY OVER EXISTING CABLE, SPLICES SHOULD BE TO ONE SIDE OF EQUIPMENT.
4. "B" DISTANCE: WIRE SIZE

<table>
<thead>
<tr>
<th>FEET</th>
<th>#2 D.B.</th>
<th>4/0 D.B.</th>
<th>500 D.B.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVER 30</td>
<td>OVER 60</td>
<td>OVER 90</td>
<td></td>
</tr>
</tbody>
</table>
NOTES

1. EXCAVATION SHOULD EXTEND FROM NEW EQUIPMENT LOCATION TO EXISTING CABLE RUN (DISTANCE "B") AND ALONG EXISTING CABLE FOR A DISTANCE OF "A".

2. DISTANCE "A" EQUALS DISTANCE "B" PLUS TOTAL STUB-UP LENGTH NEEDED TO TERMINATE EXISTING CABLE.
SEAL IS NOT USED

REMOVABLE CABLE

FOR 350 MCM THE
PERFORMANCE SIZE IS CRUCIAL

PROPER WIRE CUTTING TO

PROPRIETARY MATERIAL

REV. DATE:
02/25/16

APPROVAL:
S. DURAN

ISSUE DATE:
01/31/92

Underground Distribution
Construction Standards

CABLE AND ACCESSORIES
0 - 600V TAP
MOLE CONNECTORS

ALTERNATE SOURCE AND LOAD CONDUCTORS ACROSS MOLE BAR ASSEMBLY

6 PLACE MOLE

UBM8P
SET OF 3 (5034925) #12 - 350 MCM

2 PLACE MOLE

UWMC
SET OF 2 (5034921) #12 - 350 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

FOR 350 MCM THE REMOVABLE CABLE SEAL IS NOT USED

6 PLACE MOLE

UBM6
SET OF 3 (5034924) #12 - 350 MCM

UBM62
SET OF 2 (5094799) #10 - 500 MCM

4 PLACE MOLE

UBM4
SET OF 3 (5034926) #10 - 500 MCM

UBM44
SET OF 4 (5034926) #10 - 500 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

REMOVE PVC LINER FOR 500 MCM AND ABOVE

6 PLACE MOLE

UBM6R

SET OF 4 (5075652) #2 SOLID - 750 MCM

4 PLACE MOLE

UWMB
SET OF 3 (5034923) #12 - 350 MCM

UWMB2
SET OF 2 (5034923) #12-350 MCM

SET OF 2 (5075652) #2 SOLID - 750 MCM

8 PLACE MOLE

UBM8

SET OF 4 (5034925) #12 - 350 MCM

2 PLACE MOLE

UWMC
SET OF 2 (5034921) #12 - 350 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

FOR 350 MCM THE REMOVABLE CABLE SEAL IS NOT USED

6 PLACE MOLE

UBM6
SET OF 3 (5034924) #12 - 350 MCM

UBM62
SET OF 2 (5094799) #10 - 500 MCM

4 PLACE MOLE

UBM4
SET OF 3 (5034926) #10 - 500 MCM

UBM44
SET OF 4 (5034926) #10 - 500 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

REMOVE PVC LINER FOR 500 MCM AND ABOVE

6 PLACE MOLE

UBM6R

SET OF 4 (5075652) #2 SOLID - 750 MCM

4 PLACE MOLE

UWMB
SET OF 3 (5034923) #12 - 350 MCM

UWMB2
SET OF 2 (5034923) #12-350 MCM

SET OF 2 (5075652) #2 SOLID - 750 MCM

8 PLACE MOLE

UBM8

SET OF 4 (5034925) #12 - 350 MCM

2 PLACE MOLE

UWMC
SET OF 2 (5034921) #12 - 350 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

FOR 350 MCM THE REMOVABLE CABLE SEAL IS NOT USED

6 PLACE MOLE

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SET OF 3 (5034924) #12 - 350 MCM

UBM62
SET OF 2 (5094799) #10 - 500 MCM

4 PLACE MOLE

UBM4
SET OF 3 (5034926) #10 - 500 MCM

UBM44
SET OF 4 (5034926) #10 - 500 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

REMOVE PVC LINER FOR 500 MCM AND ABOVE

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UBM6R

SET OF 4 (5075652) #2 SOLID - 750 MCM

4 PLACE MOLE

UWMB
SET OF 3 (5034923) #12 - 350 MCM

UWMB2
SET OF 2 (5034923) #12-350 MCM

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UBM8

SET OF 4 (5034925) #12 - 350 MCM

2 PLACE MOLE

UWMC
SET OF 2 (5034921) #12 - 350 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

FOR 350 MCM THE REMOVABLE CABLE SEAL IS NOT USED

6 PLACE MOLE

UBM6
SET OF 3 (5034924) #12 - 350 MCM

UBM62
SET OF 2 (5094799) #10 - 500 MCM

4 PLACE MOLE

UBM4
SET OF 3 (5034926) #10 - 500 MCM

UBM44
SET OF 4 (5034926) #10 - 500 MCM

CUTTING TO PROPER WIRE SIZE IS CRUCIAL TO PERFORMANCE

REMOVE PVC LINER FOR 500 MCM AND ABOVE

6 PLACE MOLE

UBM6R

SET OF 4 (5075652) #2 SOLID - 750 MCM

4 PLACE MOLE

UWMB
SET OF 3 (5034923) #12 - 350 MCM

UWMB2
SET OF 2 (5034923) #12-350 MCM

SET OF 2 (5075652) #2 SOLID - 750 MCM
STREET LIGHT TAP TO EXISTING DIRECT BURIED TX SECONDARY
OR STREET LIGHT SECONDARY

4-PLACE MOLES (5034923)

* INCLUDED IN ALL COMPATIBLE UNITS
THREE 4-PLACE MOLE CONNECTORS
ONE GROUND ROD & CONNECTOR
15' 1 FLEX CONDUIT
15' PULLING TAPE
15' BARE #6 CU WIRE

CONNECTOR AND HEATSHRINK

COMPATIBLE UNIT *  EXISTING DIRECT BURIED SECONDARY  ADDITIONAL MATERIAL INCLUDED
UWBB  8TX OR DX  60' 6 DX 5034032  5035807  5031731
UWBB  6TX OR DX  60' 6 DX 5034032  5035806  5031731
UWBB  1/0 TX  40' 1/0 AA 5034035  5035809  5031731
UWBB  4/0 TX  40' 4/0 AA 5034038  5035812  5031732
UWBB  350 TX  40' 350 AA 5034042  5035813  5031733

STREET LIGHT TAP TO SECONDARY IN CONDUIT

1. SPLICE IN ELBOWS AND CONDUIT TO NEW J-BOX
2. PULL OUT SHORTEST EXISTING SECONDARY AND PULL IN NEW CABLE
3. MAKE CONNECTIONS WITH 4-PLACE MOLE.

* INCLUDED IN ALL COMPATIBLE UNITS
THREE 4-PLACE MOLE CONNECTORS
ONE GROUND ROD & CONNECTOR
15' 1 FLEX CONDUIT
15' PULLING TAPE
15' BARE 6 CU WIRE

NOTES
1. DESIGNER TO ORDER APPROPRIATE LENGTH OF NEW SECONDARY

COMPATIBLE UNIT *  EXISTING CONDUIT  ADDITIONAL MATERIAL INCLUDED
UWBB  2.0"  2-2" (90 DEG 36" SWEEP) ELBOWS, 2-2" X 20' CONDUIT
UWBB25  2.5"  2-2.5" (90 DEG 36" SWEEP) ELBOWS, 2-2.5" X 20' CONDUIT
UWBB3  3.0"  2-3" (90 DEG 36" SWEEP) ELBOWS, 2-3" X 20' CONDUIT

STREET LIGHT TAP TO EXISTING DIRECT BURIED TX SECONDARY
OR STREET LIGHT SECONDARY

4-PLACE MOLES (5034923)

* INCLUDED IN ALL COMPATIBLE UNITS
THREE 4-PLACE MOLE CONNECTORS
ONE GROUND ROD & CONNECTOR
15' 1 FLEX CONDUIT
15' PULLING TAPE
15' BARE #6 CU WIRE

CONNECTOR AND HEATSHRINK

COMPATIBLE UNIT *  EXISTING CONDUIT  ADDITIONAL MATERIAL INCLUDED
UWBB  8TX OR DX  60' 6 DX 5034032  5035807  5031731
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UWBB  4/0 TX  40' 4/0 AA 5034038  5035812  5031732
UWBB  350 TX  40' 350 AA 5034042  5035813  5031733

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1. SPLICE IN ELBOWS AND CONDUIT TO NEW J-BOX
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* INCLUDED IN ALL COMPATIBLE UNITS
THREE 4-PLACE MOLE CONNECTORS
ONE GROUND ROD & CONNECTOR
15' 1 FLEX CONDUIT
15' PULLING TAPE
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UWBB  2.0"  2-2" (90 DEG 36" SWEEP) ELBOWS, 2-2" X 20' CONDUIT
UWBB25  2.5"  2-2.5" (90 DEG 36" SWEEP) ELBOWS, 2-2.5" X 20' CONDUIT
UWBB3  3.0"  2-3" (90 DEG 36" SWEEP) ELBOWS, 2-3" X 20' CONDUIT

CABLE AND ACCESSORIES
ALTERNATE STREET LIGHT TAP
ON EXISTING SERVICE OR SECONDARY

Underground Distribution Construction Standards

ISSUE DATE: 01/02/13
REV. DATE: 08/02/13
APPROVAL: B. PRIEST

8-31-1

8513E292.DGN
## Set Screw Bar Connectors
### Recommended Torque Values

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>Inch-Pounds</th>
<th>Foot-Pounds</th>
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<tbody>
<tr>
<td>#14 TO #3</td>
<td>120</td>
<td>10</td>
</tr>
<tr>
<td>#2 TO 350 MCM</td>
<td>240</td>
<td>20</td>
</tr>
<tr>
<td>400 MCM TO 750 MCM</td>
<td>360</td>
<td>30</td>
</tr>
<tr>
<td>800 MCM TO 1,000 MCM</td>
<td>500</td>
<td>42</td>
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</table>

240 Inch-Pounds for 5/8" and 1" stud.
480 Inch-Pounds for hardware to pad.
**INSTRUCTIONS**

1. PRIOR TO SPLICE INSTALLATION, SLIDE HEAT SHRINK TUBE OVER ONE OF THE CABLE ENDS.
2. REMOVE INSULATION FROM BOTH CABLE ENDS, AS REQUIRED FOR THE CONNECTOR, AND APPLY COMPRESSION CONNECTOR.
3. CENTER HEAT SHRINK TUBE OVER THE CONNECTOR AND CABLE. SHRINK INTO PLACE.
4. ALLOW HEAT SHRINK TO COOL BEFORE MOVING CABLE.
5. EXCAVATIONS MUST BE CALLED FOR SEPARATELY.

* USE 5035825 WRAP AROUND GEL INSULATED SLEEVE, IN JOINT USE TRENCHES WITH GAS
1. Add "X" to compatible unit number when used with transformers.

2. For use with substation switchgear.

**Notes**

1. When excavation is required, use compatible unit UTEx. This unit provides the additional man hours necessary to dig a hole.

**Splice Stock Code**

- **15kV Cable Splices**
  - 5033779 UWBA2 #2 (220 Mil or 175 Mil)
  - 5033779 UWBA2J #2 JACKETED (220 Mil)
  - 5033781 UWBA2R #2 Repair Splice
  - 5033780 UWBA40 #4/0
  - 5033780 UWBA40J #4/0 JACKETED
  - 5033783 UWBA40R #4/0 Repair Splice
  - 5033784 UWBA500 500 MCM AL
  - 5033785 UWBA750 750 MCM AL
  - 5033786 UWBA575 500 MCM TO 750 MCM
  - 5033785 UWBC750 750 MCM CU

**Notes**

15kV Splicing and Terminating Devices

**Cables and Accessories**

Underground Distribution Construction Standards

PROPRIETARY MATERIAL

ISSUE DATE: 01/15/87
REV. DATE: 01/27/15
APPROVAL: B. PRIEST

8-34-1
<table>
<thead>
<tr>
<th>CONDUCTOR DESCRIPTION</th>
<th>STOCK CODES</th>
<th>DISTRIBUTION (PRI.&amp; SEC.)</th>
<th>STREET LIGHTS</th>
<th>D TO D LIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2AL (CN)</td>
<td>5035034</td>
<td>UA2K</td>
<td></td>
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</tr>
<tr>
<td>4/0 AL (CN)</td>
<td>5035037</td>
<td>UA40K</td>
<td></td>
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</tr>
<tr>
<td>500 MCM AL WIRE SHIELD</td>
<td>5035039</td>
<td>UA500K</td>
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<tr>
<td>750 MCM AL (CN)</td>
<td>5035041</td>
<td>UA750K</td>
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**CABLE, 25KV ALUMINUM**

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<th>DISTRIBUTION (PRI.&amp; SEC.)</th>
<th>STREET LIGHTS</th>
<th>D TO D LIGHTS</th>
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</thead>
<tbody>
<tr>
<td>1/0 AL (CN)</td>
<td>50345036</td>
<td>UA102K</td>
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**WIRE, 600 VOLT ALUMINUM**

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<th>CONDUCTOR DESCRIPTION</th>
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<th>D TO D LIGHTS</th>
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<tbody>
<tr>
<td>#6 DUPLEX</td>
<td>5034032</td>
<td>UDX6K</td>
<td>UDX6LK</td>
<td>UDX6DK</td>
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<tr>
<td>1/0 TRIPLEX</td>
<td>5034035</td>
<td>UTX10K</td>
<td>UTX10LK</td>
<td>UTX10DK</td>
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<td>4/0 TRIPLEX</td>
<td>5034038</td>
<td>UTX40K</td>
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<td></td>
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<tr>
<td>1/0 QUADRUPLEX</td>
<td>5034037</td>
<td>UQX10K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/0 QUADRUPLEX</td>
<td>5034040</td>
<td>UQX40K</td>
<td></td>
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<tr>
<td>350 MCM TRIPLEX</td>
<td>5034042</td>
<td>UTX350K</td>
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<tr>
<td>500 MCM TRIPLEX</td>
<td>5034044</td>
<td>UTX500K</td>
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</tr>
<tr>
<td>350 MCM QUADRUPLEX</td>
<td>5034043</td>
<td>UQX350K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 MCM QUADRUPLEX</td>
<td>5034045</td>
<td>UQX500K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>750 MCM QUADRUPLEX</td>
<td>5034046</td>
<td>UPL750K</td>
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REMOVE "K" ON THE ABOVE COMPATIBLE UNIT CODE NUMBER IF THE CONDUCTOR WILL NOT BE INSTALLED IN CONDUIT OR SPOOLED DUCT.
<table>
<thead>
<tr>
<th>CONDUCTOR DESCRIPTION</th>
<th>STOCK CODES</th>
<th>DISTRIBUTION (PRI. &amp; SEC.)</th>
<th>STREET LIGHTS</th>
<th>D TO D LIGHTS</th>
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<tbody>
<tr>
<td><strong>CABLE, 15KV COPPER</strong></td>
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<tr>
<td>750 MCM CU (DRAIN WIRE)</td>
<td>5035046</td>
<td>UC750K</td>
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**WIRE, 600 VOLT XLPE COPPER - SINGLE CONDUCTOR**

<table>
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<th>CONDUCTOR DESCRIPTION</th>
<th>STOCK CODES</th>
<th>DISTRIBUTION (PRI. &amp; SEC.)</th>
<th>STREET LIGHTS</th>
<th>D TO D LIGHTS</th>
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<td>#8 5008698 U6C8K U6C8LK U6C8DK</td>
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<td>#4 5008703 U6C4K U6C4LK U6C4DK</td>
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<td>1/0 5008706 U6C10K U6C10LK U6C10DK</td>
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<tr>
<td>2/0 5008707 U6C20K</td>
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<td>4/0 5008708 U6C40K</td>
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<td>350 MCM 5033965 U6C350K</td>
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<td>500 MCM 5033966 U6C500K</td>
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REMOVE “K” ON THE ABOVE COMPATIBLE UNIT CODE NUMBER IF THE CONDUCTOR WILL NOT BE INSTALLED IN CONDUIT, OR SPOOLED DUCT.

**WIRE, BARE COPPER**

<table>
<thead>
<tr>
<th>CONDUCTOR DESCRIPTION</th>
<th>STOCK CODES</th>
<th>DISTRIBUTION (PRI. &amp; SEC.)</th>
<th>STREET LIGHTS</th>
<th>D TO D LIGHTS</th>
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<tbody>
<tr>
<td>#6 SOLID 5033845 UC6B</td>
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<td>#4 STRANDED 5033847 UC4B</td>
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<td>#2 STRANDED 5033850 UC2B</td>
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<tr>
<td>2/0 STRANDED 5033854 UC20B</td>
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<td></td>
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</tr>
<tr>
<td>4/0 STRANDED 5033859 UC40B</td>
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</tbody>
</table>

* NO STOCK CODE EQUIVALENT EXISTS IN SAP.
### SINGLE PHASE SERVICES

**LENGTH OF WIRE IN COMP. UNIT (FEET)** | **TYPE OF SERVICE INSTALLATION** | **COMPATIBLE UNIT CODING FOR SINGLE PHASE SERVICES SERVICE STOCK CODE NUMBER AND CONDUCTOR SIZE**
| **ALUM. DUPLEX** | **ALUMINUM TRIPLEX** | **SINGLE CONDUCTORS** |
| **FROM** | **TO** | 5034032 #6 | 5034035 1/0 | 5034038 4/0 | 5034042 350 MCM | 5034044 PHASE 500 MCM | 5034030 PHASE 750 MCM | 5033930 NEUTRAL 350 MCM |
| 100 | MOLE ASSEMBLY | P.O.D. | USD6M | US10M | US40M | US350M | ——— | ——— |
| 125 | POLE TYPE TRANSF. | P.O.D. | USD6RX | US10RX | US40RX | US350RX | US500RX* | ——— |
| 100 | PAD MOUNT TRANSF. | P.O.D. | USD6X | US10X | US40X | US350X | US500X* | US750X* |
| 100 | PEDESTAL | P.O.D. | USD6B | US10B | US40B | US350B | ——— | ——— |

**NOTES**

1. ALL SERVICES ARE INSTALLED IN CONDUIT.
2. THE COMPATIBLE UNIT WITH AN R INCLUDES THE RISER MATERIAL.
3. SINGLE PHASE SERVICE CONDUCTOR FOOTAGE MUST BE ADJUSTED WHEN THE LENGTH EXCEEDS THE “LENGTH OF WIRE IN COMP. UNIT (FEET)” IN THE TABLE ABOVE. ADDITIONAL FOOTAGE MUST BE ORDERED BY SAP STOCK CODE.

*SEE PAGE 9-7-1 FOR ADDITIONAL CONNECTORS REQUIRED. COMPATIBLE UNIT HAD CONNECTORS TO FIT 5/8” TRANSFORMER STUD, WILL NOT FIT TRANSFORMERS LARGER THAN 75KVA.*
### Three Phase Services

<table>
<thead>
<tr>
<th>Voltage Rating</th>
<th>Type</th>
<th>Phase Conductor 3</th>
<th>Neutral Conductor 1</th>
<th>4 Single Conductors</th>
<th>Quadruplex</th>
<th>Quadruplex Conductor &amp; Pole Riser Note 2</th>
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<tbody>
<tr>
<td>600 V</td>
<td>Aluminum</td>
<td>#1/0</td>
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<td>USC10A</td>
<td>USC10AR</td>
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<td>#4/0</td>
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<td>USC40A</td>
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<td></td>
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<td>350 MCM</td>
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<td>500 MCM</td>
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<td>USC500AR</td>
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<td></td>
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<td>750 MCM</td>
<td>350 MCM</td>
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<td>15 KV</td>
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<td>#2/0 BARE CU.</td>
<td>USC10C</td>
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<td>Notes 3 &amp; 4</td>
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<td></td>
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</tr>
</tbody>
</table>

#### Notes

1. All services are installed in conduit.
2. The compatible unit with an R includes the riser material.
3. Compatible units for 15 kV rated cable include terminations at transformer and service entrance section.
4. 2400/4160 V wye and 2400 V delta services use 15 kV rated cable. 2400/4160 V services require a neutral conductor; 2400 V services do not.

Compatible units include 65 feet of conductors; services from a pole riser include 90 feet. This length shall include the stub-ups and risers field crews will install amount as required. Service sizes 350 MCM and larger and for cable lengths exceeding 65 feet (90 feet for riser), additional cable shall be ordered. Additional services shall be ordered by footage using the material item numbers below.

<table>
<thead>
<tr>
<th>Voltage Rating</th>
<th>Conductor Size</th>
<th>Single Conductor Copper</th>
<th>Quadruplex Aluminum</th>
<th>Single Conductor Aluminum</th>
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<tbody>
<tr>
<td>600 V</td>
<td>#2/0 BARE</td>
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<td>#2</td>
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<td>#1/0</td>
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<td>750 MCM</td>
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<td>15 KV</td>
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### MOLE BARS AND CONNECTOR

### TYPICAL INSTALLATION

- **MARKER STRIP**: FINAL GRADE
- **ELECTRONIC MARKER**: (ATTACHED TO LID)
- **J-BOX**: (ATTACHED TO LID)
- **FINAL GRADE**: MOLE ASSEMBLIES

### COMPATIBLE UNIT

<table>
<thead>
<tr>
<th>UNIT DESCRIPTION</th>
<th>UNIT DESCRIPTION</th>
<th>UNIT DESCRIPTION</th>
<th>UNIT DESCRIPTION</th>
<th>UNIT DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>THREE 4-POSITION MOLES W/EM-NO SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-NO SECONDARY OUT</td>
</tr>
<tr>
<td>THREE 4-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-NO SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
</tr>
<tr>
<td>THREE 4-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-NO SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
</tr>
<tr>
<td>THREE 4-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-NO SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
<td>THREE 4-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
</tr>
<tr>
<td>THREE 6-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td></td>
<td>THREE 6-POSITION MOLES W/EM-NO SECONDARY OUT</td>
<td>THREE 6-POSITION MOLES W/EM-1/0 SECONDARY OUT</td>
<td>THREE 6-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
</tr>
<tr>
<td></td>
<td>THREE 6-POSITION MOLES W/EM-350 MCM SECONDARY OUT</td>
<td></td>
<td>THREE 6-POSITION MOLES W/EM-4/0 SECONDARY OUT</td>
<td></td>
</tr>
</tbody>
</table>

### NOTES

1. **ONE MARKER STRIP 5035669 INCLUDED WITH EACH COMPATIBLE UNIT.**

2. **SECONDARY SIDE INTO MOLE IS SPECIFIED BY WIRE SIZE ADDED TO COMPATIBLE UNIT NUMBER (UTX10, UTX40 OR UTX350 AND DIRECT BURIED, J C1C OR CONDUIT).**

**EXAMPLE:** (UTX10 IN-UTX10 OUT-4 POSITION MOLE)
- DB-UWM41UTX10
- C1C-UWM41UTX10
- RIGID CONDUIT UWM41UTX10K

### CONNECTORS FOR SECONDARY OR SERVICES

<table>
<thead>
<tr>
<th>CONDUCTOR SIZE</th>
<th>MATERIAL ITEM</th>
<th>DIE INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINUM</td>
<td>COPPER</td>
<td></td>
</tr>
<tr>
<td>#4 STR.</td>
<td>#2SOL.-#4STR.</td>
<td>5035170</td>
</tr>
<tr>
<td>#2 STR.</td>
<td>#2STR.-#1/0SOL.</td>
<td>5035171</td>
</tr>
<tr>
<td>#1/0 STR.</td>
<td>#1/0STR.</td>
<td>5035172</td>
</tr>
<tr>
<td>#2/0 STR.</td>
<td>#2/0SSTR.</td>
<td>63-1896*</td>
</tr>
<tr>
<td>#4/0 STR.</td>
<td>#4/0SSTR.</td>
<td>5035174</td>
</tr>
<tr>
<td>250 MCM</td>
<td>250 MCM</td>
<td>299</td>
</tr>
<tr>
<td>350 MCM</td>
<td>-</td>
<td>299</td>
</tr>
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</table>

### TOOLS, DIESET & NO. OF CRIMPS

<table>
<thead>
<tr>
<th>TOOLS, DIESET &amp; NO. OF CRIMPS</th>
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</thead>
<tbody>
<tr>
<td>MD6</td>
</tr>
<tr>
<td>Y35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOOLS, DIESET &amp; NO. OF CRIMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-BG (1)</td>
</tr>
<tr>
<td>B-G (3)</td>
</tr>
<tr>
<td>W-243 (2)</td>
</tr>
<tr>
<td>U-249 (2)</td>
</tr>
<tr>
<td>U-249OT (3)</td>
</tr>
<tr>
<td>U-249 (2)</td>
</tr>
<tr>
<td>WK840 (5)</td>
</tr>
<tr>
<td>WK840 (7)</td>
</tr>
<tr>
<td>5035174</td>
</tr>
<tr>
<td>299</td>
</tr>
</tbody>
</table>

### NOTES

1. **CONDUCTORS MUST EMERGE FROM THE FLOOD SEAL SLEEVE IN A STRAIGHT LINE FOR A MINIMUM OF 4" BEFORE BEING TRAINED IN A RADIUS.**
T-TAP ASSEMBLY

NOTES

1. CONDUCTORS MUST EMERGE FROM THE T-TAP IN A STRAIGHT LINE FOR A MINIMUM OF 6” BEFORE BEING TRAINED INTO A RADIUS.

* NO STOCK CODE EQUIVALENT EXISTS IN SAP.

<table>
<thead>
<tr>
<th>T-CONN STOCK NO.</th>
<th>WIRE SIZE</th>
<th>DIE &amp; CRIMPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>63-1880 *</td>
<td>1/0 Run</td>
<td>#2 Tap</td>
</tr>
<tr>
<td>63-1882 *</td>
<td>4/0 Run</td>
<td>1/0 Tap</td>
</tr>
<tr>
<td>63-1884 *</td>
<td>350 MCM Run</td>
<td>1/0 Tap</td>
</tr>
</tbody>
</table>

* NO STOCK CODE EQUIVALENT EXISTS IN SAP.
THIS METHOD IS TO BE USED WHEN #1/0 TX. STREET LIGHT SECONDARY, #4/0 TX SECONDARY OR 350MCM TX SECONDARY IS THE SOURCE OF SUPPLY FOR THE STREET LIGHT. OTHERWISE STREET LIGHT IS SUPPLIED USING #6 TX FROM TRANSFORMER, FOR WHICH GROUND IS FROM TRANSFORMER AND NO GROUND ROD IS NEEDED AT POLE.

### NOTES
1. ABANDON THE BLACK/GREEN STRIPE #8 FROM STREET LIGHT CONDUCTOR AND REPLACE WITH BARE #6 C.U. FROM GROUND ROD.

<table>
<thead>
<tr>
<th>SECONDARY OR SERVICE CONDUCTOR</th>
<th>CONDUCTOR SIZE</th>
<th>CONNECTOR SIZE</th>
<th>CONNECTOR STOCK NO.</th>
<th>DIE</th>
<th>HEAT SHRINK TUBING STOCK NO.</th>
<th>COMPATIBLE UNIT CODE</th>
<th>HEAT SHRINK ENCAPSULATOR STOCK NO.</th>
<th>COMPATIBLE UNIT CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1/0 AL.TX.</td>
<td>#2</td>
<td>#1/0</td>
<td>61-1120</td>
<td>0</td>
<td>5031732</td>
<td>UWMTC5</td>
<td>5035302</td>
<td>UWMTC7</td>
</tr>
<tr>
<td>#1/0 AL.TX.</td>
<td>#1/0</td>
<td>#1/0</td>
<td>61-1120</td>
<td>0</td>
<td>5031732</td>
<td>UWMTC5</td>
<td>5035302</td>
<td>UWMTC8</td>
</tr>
<tr>
<td>#4/0 AL.TX.</td>
<td>#1/0</td>
<td>#1/0</td>
<td>61-1120</td>
<td>0</td>
<td>5031732</td>
<td>UWMTC5</td>
<td>5035302</td>
<td>UWMTC8</td>
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<tr>
<td>#4/0 AL.TX.</td>
<td>#4/0</td>
<td>#4/0</td>
<td>61-1125</td>
<td>0</td>
<td>5031732</td>
<td>UWMTC5</td>
<td>5035302</td>
<td>UWMTC8</td>
</tr>
<tr>
<td>350MCM TX.</td>
<td>350MCM</td>
<td>59-1727</td>
<td>N</td>
<td></td>
<td>5035823</td>
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</tbody>
</table>

**Underground Distribution Construction Standards**

**CABLE AND ACCESSORIES**

**ALTERNATE STREET LIGHT TAP**

**ON EXISTING SERVICE OR SECONDARY**

**ISSUE DATE:** 01/15/87

**REV. DATE:** 08/02/13

**APPROVAL:** B. PRIEST

8-41-1
1) CAREFULLY REMOVE OUTER JACKET FROM CABLE.

2) WRAP THE 3/8" COPPER BRAID (5033904) OVER EXPOSED CONCENTRIC NEUTRAL ABOUT 3 WRAPS.

3) INSTALL HOSE CLAMP (5035519) OVER COPPER BRAID.

4) COMPLETELY WRAP THE HOSE CLAMP WITH ELECTRICAL TAPE TO COVER ALL SHARP EDGES AND HOLD THE EXTRA LENGTH OF CLAMP STRAP DOWN.

5) INSTALL WRAP AROUND HEAT SHRINK SLEEVE OVER EXPOSED NEUTRAL.

6) ATTACH 3/8" COPPER BRAID TO THE GROUND ROD.

FOR REPLACEMENT ONLY. USE ABOVE GROUND DEVICE FOR NEW CONSTRUCTION.
1. The minimum bending radius of #2 C-I-C is 18 inches. Therefore, a minimum 36-inch dia. sheave is required for pulling operations. (See Fig.'s 1 & 2)

2. The safe pulling tension for 1-1/4 inch duct is 1040 #. A pulling grip with a minimum 32 inch long mesh must be used. The pulling grip must be installed as shown in Fig. 3.

3. End caps must be installed during all operations except terminating, when the cap is replaced by the end seal.

4. The maximum pulling length is 1000 feet, and the total number of bends (both horizontal & vertical) is limited to 6 (90°) when equipment access is possible. When equipment access is not available, the limit for straight lengths without any bends is 450 ft. Where horizontal bends exist, but the sum is less than 90°, the length limit is 360 ft.

5. Two methods are possible when installing in an open trench.

**NOTE** A length difference between the duct and the cable will occur when the C-I-C is installed. This difference should be no more than 15 ft in 1,000 ft. (The conductor length will be 15 ft less than the length of the duct for a 1,000 ft run)

A) Prior to removing C-I-C cable from the reel, the attachments (both ends) of the cable to the duct, and the duct to the reel must be removed.

B) Unroll the C-I-C from a stationary reel trailer. (The duct will be longer than the cable at the end being pulled.)

C) Secure the end and move the reel trailer along the trench route. (The duct will be longer than the cable at the secured end.)

6. C-I-C is to be installed as a continuous run (no splices), and laid in the trench as straight as possible, and backfilled. The backfill should be free of aggregate larger than 1-1/2 inch. Within 2 inches of the duct, when pulling lengths or bend limits are exceeded a pull box is necessary, to provide a terminating point.

**REPAIR**

1. When C-I-C has been damaged the cable is to be removed, the duct repaired, and new cable installed. (See Page 4-8-1.)
**PRIMARY AND FEEDER STUB-OUT**

FOR JACKETED CABLE DO NOT STRIP BACK JACKET

HEAT SHRINK END CAP

WRAP CONCENTRIC NEUTRAL OVER END CAP AFTER INSTALLATION

THIS MOISTURE SEAL INSTALLATION IS FOR DE-ENERGIZED CABLE ONLY.

ELECTRONIC CABLE MARKER (5035671)

FINAL GRADE

NOTE: ALL NEW STUB-OUTS WILL BE CONDUIT.

END CAPS

**CABLE AND ACCESSORIES**

**PRIMARY CABLE MOISTURE SEAL FOR STUB-OUT AND STUB-UP ENDS**

<table>
<thead>
<tr>
<th>CABLE SIZE</th>
<th>VOLTAGE CLASS</th>
<th>HEAT SHRINK END CAP STOCK NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>15 KV</td>
<td>5035152</td>
</tr>
<tr>
<td>1/0</td>
<td>25 KV</td>
<td>5035153</td>
</tr>
<tr>
<td>4/0</td>
<td>15 KV</td>
<td>5035153</td>
</tr>
<tr>
<td>500 MCM</td>
<td>15 KV</td>
<td>5035153</td>
</tr>
<tr>
<td>#2CIC</td>
<td>15 KV</td>
<td>5035153</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>END CAP COLOR</th>
<th>CABLE SIZE</th>
<th>VOLTAGE CLASS</th>
<th>VINYL CAP * STOCK NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAY</td>
<td>#2</td>
<td>15 KV</td>
<td>5035159</td>
</tr>
<tr>
<td></td>
<td>1/0</td>
<td>25 KV</td>
<td>5035160</td>
</tr>
<tr>
<td>BROWN</td>
<td>4/0</td>
<td>15 KV</td>
<td>5035160</td>
</tr>
<tr>
<td>BLACK</td>
<td>500 MCM</td>
<td>15 KV</td>
<td>5035161</td>
</tr>
<tr>
<td></td>
<td>#2CIC</td>
<td>15 KV</td>
<td>5035162</td>
</tr>
<tr>
<td>BLUE</td>
<td>750 MCM</td>
<td>15 KV</td>
<td>5035162</td>
</tr>
</tbody>
</table>

* FOR DE-ENERGIZED USE ONLY

MOISTURE SEALS MUST BE USED ON ALL PRIMARY CABLE ENDS UNTIL THEY ARE TERMINATED.
LIVE FRONT SWITCHES, FUSING ENCLOSURES AND CAPACITORS

B. PRIEST

NOTES
1. WHEN WORKING IN DE-ENERGIZED LIVE FRONT EQUIPMENT;
   A. REMOVE ONE BOLT FROM EACH FEEDER CABLE TERMINATION CONNECTION.
   B. INSTALL A BALL STUD IN PLACE OF EACH REMOVED BOLT WITH BALL END TOWARD DOOR OPENING.

THE BALL STUD WILL PROVIDE EASY EQUIPMENT GROUNDING WITH SPECIAL BALL STUD SOCKET ON GROUNDING CABLE.
SERVICE REMOVAL CODES

RU2W ................................................................. 2-WIRE SERVICE, REGARDLESS OF SIZE
RU3W ................................................................. 3-WIRE SERVICE, REGARDLESS OF SIZE
RU4W ................................................................. 4-WIRE SERVICE, REGARDLESS OF SIZE
## Compatible Units for Removal or Abandonment of Non-Standard Conductors

### Cable, 15KV

<table>
<thead>
<tr>
<th>Description</th>
<th>Compatible Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 Copper</td>
<td>RUC2</td>
</tr>
<tr>
<td>2/0 Copper</td>
<td>RUC20</td>
</tr>
<tr>
<td>4/0 Copper</td>
<td>RUC40</td>
</tr>
<tr>
<td>400 MCM Copper</td>
<td>RUC400</td>
</tr>
<tr>
<td>500 MCM Copper</td>
<td>RUC500</td>
</tr>
<tr>
<td>600 MCM Copper</td>
<td>RUC600</td>
</tr>
<tr>
<td>2/0 Aluminum</td>
<td>RUA20</td>
</tr>
<tr>
<td>#2 Aluminum C-I-C</td>
<td>RUAK2</td>
</tr>
</tbody>
</table>

### Cable, 5KV Copper, Lead Sheath

<table>
<thead>
<tr>
<th>Description</th>
<th>Compatible Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>#8 or smaller 3 Conductors</td>
<td>RUL8</td>
</tr>
<tr>
<td>#6 3 Conductors</td>
<td>RUL6</td>
</tr>
<tr>
<td>#4 3 Conductors</td>
<td>RUL4</td>
</tr>
<tr>
<td>#2 3 Conductors</td>
<td>RUL2</td>
</tr>
<tr>
<td>1/0 3 Conductors</td>
<td>RUL10</td>
</tr>
<tr>
<td>2/0 3 Conductors</td>
<td>RUL20</td>
</tr>
<tr>
<td>3/0 3 Conductors</td>
<td>RUL30</td>
</tr>
<tr>
<td>250 MCM 3 Conductors</td>
<td>RUL250</td>
</tr>
<tr>
<td>#6 1 Conductor</td>
<td>RUL61</td>
</tr>
</tbody>
</table>

### Cable, 600V

<table>
<thead>
<tr>
<th>Description</th>
<th>Compatible Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/0 Aluminum</td>
<td>RU6A10</td>
</tr>
<tr>
<td>1/0 Aluminum D to D</td>
<td>RU6A10D</td>
</tr>
<tr>
<td>1/0 Aluminum St. Lt.</td>
<td>RU6A10L</td>
</tr>
<tr>
<td>4/0 Aluminum</td>
<td>RU6A40</td>
</tr>
<tr>
<td>350 MCM Aluminum</td>
<td>RU6A350</td>
</tr>
<tr>
<td>500 MCM Aluminum</td>
<td>RU6A500</td>
</tr>
<tr>
<td>750 MCM Aluminum</td>
<td>RU6A750</td>
</tr>
<tr>
<td>#10 2 Conductor Copper</td>
<td>RU6CDX010</td>
</tr>
<tr>
<td>#10 2 Conductor Copper D to D</td>
<td>RU6CDX010D</td>
</tr>
<tr>
<td>#10 2 Conductor Copper St. Lt.</td>
<td>RU6CDX010L</td>
</tr>
<tr>
<td>#2 Aluminum</td>
<td>RU6A2</td>
</tr>
<tr>
<td>#2 Aluminum St. Lt.</td>
<td>RU6A2L</td>
</tr>
<tr>
<td>3/0 Copper</td>
<td>RU6C30</td>
</tr>
<tr>
<td>300 MCM Copper</td>
<td>RU6C300</td>
</tr>
<tr>
<td>#6 Copper</td>
<td>RU6C6</td>
</tr>
<tr>
<td>600 MCM Copper</td>
<td>RU6C600</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>COMPATIBLE UNIT</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>#2 TRIPLEX ALUMINUM</td>
<td>RUTX2</td>
</tr>
<tr>
<td>#2 TRIPLEX ALUMINUM D TO D</td>
<td>RUTX2D</td>
</tr>
<tr>
<td>#2 TRIPLEX ALUMINUM ST. LT.</td>
<td>RUTX2L</td>
</tr>
<tr>
<td>#6 TRIPLEX ALUMINUM</td>
<td>RUTX6</td>
</tr>
<tr>
<td>#6 TRIPLEX ALUMINUM IN DUCT</td>
<td>RUTX6K</td>
</tr>
<tr>
<td>#6 TRIPLEX ALUMINUM D TO D</td>
<td>RUTX6DK</td>
</tr>
<tr>
<td>#6 TRIPLEX ALUMINUM ST. LT.</td>
<td>RUTX6LK</td>
</tr>
<tr>
<td>#8 TRIPLEX ALUMINUM</td>
<td>RUTX8</td>
</tr>
<tr>
<td>#8 TRIPLEX ALUMINUM D TO D</td>
<td>RUTX8D</td>
</tr>
<tr>
<td>#8 TRIPLEX ALUMINUM ST. LT.</td>
<td>RUTX8L</td>
</tr>
<tr>
<td>#8 TRIPLEX C-I-C ALUMINUM</td>
<td>RUTXK8</td>
</tr>
<tr>
<td>#8 TRIPLEX C-I-C ALUMINUM D TO D</td>
<td>RUTXK8D</td>
</tr>
<tr>
<td>#8 TRIPLEX C-I-C ALUMINUM ST. LT.</td>
<td>RUTXK8L</td>
</tr>
<tr>
<td>#6 TRIPLEX C-I-C ALUMINUM</td>
<td>RUTXK6</td>
</tr>
<tr>
<td>#6 TRIPLEX C-I-C ALUMINUM D TO D</td>
<td>RUTXK6D</td>
</tr>
<tr>
<td>#6 TRIPLEX C-I-C ALUMINUM ST. LT.</td>
<td>RUTXK6L</td>
</tr>
<tr>
<td>1/0 TRIPLEX C-I-C ALUMINUM</td>
<td>RUTXK10</td>
</tr>
<tr>
<td>1/0 TRIPLEX C-I-C ALUMINUM D TO D</td>
<td>RUTXK10D</td>
</tr>
<tr>
<td>1/0 TRIPLEX C-I-C ALUMINUM ST. LT.</td>
<td>RUTXK10L</td>
</tr>
<tr>
<td>4/0 TRIPLEX C-I-C ALUMINUM</td>
<td>RUTXK40</td>
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<tr>
<td>#2 DUPLEX ALUMINUM</td>
<td>RUDX2</td>
</tr>
<tr>
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<td>RUDX2D</td>
</tr>
<tr>
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<tr>
<td>#8 DUPLEX ALUMINUM</td>
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<td>RUDX8D</td>
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<tr>
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<td>RUDX8L</td>
</tr>
<tr>
<td>#8 DUPLEX C-I-C ALUMINUM</td>
<td>RUDXK8</td>
</tr>
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<td>#8 DUPLEX C-I-C ALUMINUM D TO D</td>
<td>RUDXK8D</td>
</tr>
<tr>
<td>#8 DUPLEX C-I-C ALUMINUM ST. LT.</td>
<td>RUDXK8L</td>
</tr>
<tr>
<td>#6 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C6</td>
</tr>
<tr>
<td>#4 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C4</td>
</tr>
<tr>
<td>#2 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C2</td>
</tr>
<tr>
<td>1/0 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C10</td>
</tr>
<tr>
<td>2/0 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C20</td>
</tr>
<tr>
<td>4/0 CABLE, 600V COPPER, LEAD SHEATH</td>
<td>RUL36C40</td>
</tr>
<tr>
<td>3/0 CABLE, BARE COPPER</td>
<td>RUC30B</td>
</tr>
<tr>
<td>CONDUCTOR DESCRIPTION</td>
<td>DISTRIBUTION (PRIMARY &amp; SECONDARY)</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------------</td>
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<tr>
<td>25KV ALUMINUM CABLE</td>
<td></td>
</tr>
<tr>
<td>1/0 AL (CN)</td>
<td></td>
</tr>
</tbody>
</table>
22kV CABLE SPLICE

UWBA2102
#2 TO 1/0 (SEE NOTE)

UWBA102
1/0 TO 1/0

NOTES
1. DO NOT USE KIT-SUPPLIED CONNECTOR, USE 1/0 TO #2 REDUCER, STOCK # 5033788, THAT IS SUPPLIED IN THE COMPATIBLE UNIT.
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<td>PRECAST CONCRETE FIRE BARRIER WALL FOR SINGLE PHASE (ONLY), PAD MOUNTED TRANSFORMER</td>
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<td>SINGLE PHASE RESIDENTIAL TRANSFORMER PAD CONDUIT STUB-UP DETAIL WITH ABOVE GROUND JUNCTION BOXES. ALSO, TYPICAL PAD STAKING, BACK OF PUE</td>
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<td>SINGLE PHASE RESIDENTIAL TRANSFORMER PAD CONDUIT STUB-UP DETAIL WITH ABOVE GROUND JUNCTION BOXES. ALSO, TYPICAL PAD STAKING, FRONT OF PUE, PREFERRED</td>
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<td>MULTIPLE SERVICE CONDUITS IN A SINGLE PHASE TRANSFORMER SERVING APARTMENTS, CONDUIT STUB-UP</td>
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<td>THREE PHASE, 2 TRANSFORMER BANK, OPEN WYE PRIMARY - OPEN DELTA SECONDARY</td>
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<td>With Double Pull Box, Secondary Pit (From Rear)</td>
<td>9-33-2</td>
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</table>

### 22KV Section

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<td>Single Phase, Pad Mounted Fuse Chart</td>
<td>9-36-1</td>
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<tr>
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<td>9-37-1</td>
</tr>
<tr>
<td>Three Phase Pad Mounted Fuse Chart, 12.47/21.6KV</td>
<td>9-38-1</td>
</tr>
</tbody>
</table>
INSTRUCTIONAL GUIDE

PURPOSE
FOR INSTALLATION, REMOVAL, OR REPLACEMENT OF TRANSFORMERS USED ON THE UNDERGROUND DISTRIBUTION SYSTEM.

COMPATIBLE UNIT CODING FOR "UX" SECTION

SIZE AND TYPE CODING:
EACH UNDERGROUND SERVED TRANSFORMER, OR BANK OF TRANSFORMERS, HAS BEEN ASSIGNED AN INDIVIDUAL CODE NUMBER. "UX" IS THE PREFIX FOR ALL TRANSFORMER CODE NUMBERS.

"UX" CODED MATERIAL:
THE FOLLOWING MATERIALS WILL BE PROVIDED WITH PAD MOUNTED TRANSFORMERS WHEN ANY COMPATIBLE UNIT FROM UX21 THROUGH UX68 IS REQUESTED.

- TRANSFORMER REQUIRED
- TRANSFORMER PAD (IF REQUIRED)
- PRIMARY TERMINATIONS
- SECONDARY TERMINALS
- FUSE LINK
- GROUND ROD
- CONNECTORS, HARDWARE, ETC.

TO PROVIDE THE TRANSFORMER PAD, REMOVE "N" FROM THE COMPATIBLE UNIT.

"UPX" CODED MATERIAL:
USE UPX CODING WHEN BANKING SINGLE PHASE TRANSFORMERS TO PROVIDE THREE PHASE SERVICE. THE FOLLOWING MATERIAL WILL BE PROVIDED WHEN UXP2 AND UXP3 ARE REQUESTED:

- WARNING DECALS
- 4/0 CU GROUND WIRE
- CONDUIT

THE SINGLE PHASE PAD MOUNTED TRANSFORMERS WHICH WILL MAKE UP THE THREE PHASE BANK ARE TO BE SELECTED FROM THE TABLE CONTAINING UNITS UX64 THROUGH UX68 OF THE TRANSFORMER SECTION.

TRANSFORMER REPLACEMENT:
WHEN EXISTING TRANSFORMERS MUST BE REPLACED, THE REPLACEMENT TRANSFORMERS SHOULD BE THE SAME SIZE AS THE ONES THEY ARE REPLACING, UNLESS INFORMATION FROM ELECTRIC SYSTEM PLANNING & PERFORMANCE SHOWS THEM TO BE OVERLOADED, OR A FIELD MEASUREMENT OF LOAD CURRENT INDICATES AN OVERLOAD. PEELING PAINT MAY OR MAY NOT INDICATE AN OVERLOAD.
FERRO-RESONANCE IS A COMPLEX ELECTRICAL PHENOMENON THAT CAN CAUSE AN OVERVOLTAGE OF UP TO 10 TIMES NORMAL SYSTEM VOLTAGE.

CONDITIONS THAT MAY CAUSE FERRO-RESONANCE ON SRP’S DISTRIBUTION SYSTEM ARE SINGLE PHASE SWITCHING, THROUGH A LENGTH OF UNDERGROUND CABLE, OF A THREE-PHASE DELTA PRIMARY WINDING TRANSFORMER WITH NO SECONDARY LOAD.

TO AVOID THE POSSIBLE OCCURRENCE OF FERRO-RESONANCE DO ONE OF THE FOLLOWING:

A. PERFORM THREE-PHASE SWITCHING. ACCEPTABLE THREE PHASE SWITCH LOCATIONS:
- OIL SWITCH IN TRANSFORMER
- FEEDER GANG SWITCH
- SUBSTATION BREAKER

B. SWITCH AT THE TRANSFORMER BEING ENERGIZED OR DE-ENERGIZED USING LOAD BREAK ELBOWS OR LOAD BREAK FUSES, SO CABLE IS NOT IN SERIES WITH THE TRANSFORMER.

CAUTION: THIS METHOD PREVENTS REMOTE SWITCHING.

C. LOAD THE TRANSFORMER PER THE MINIMUM LOAD TABLE BELOW, AND UTILIZE LOAD BREAK SWITCHING (ELBOWS OR LOAD-BUSTER TOOL)

D. PERFORM SINGLE-PHASE SWITCHING IF THE CABLE LENGTH IN SERIES WITH THE TRANSFORMER IS LESS THAN OR EQUAL TO THE VALUES IN THE TABLE.

<table>
<thead>
<tr>
<th>MAXIMUM LENGTH ALLOWABLE TO AVOID FERRO-RESONANCE (FT.)</th>
<th>MINIMUM LOAD TO AVOID FERRO-RESONANCE (AMPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVA</td>
<td>#2</td>
</tr>
<tr>
<td>75</td>
<td>8</td>
</tr>
<tr>
<td>150</td>
<td>17</td>
</tr>
<tr>
<td>225</td>
<td>26</td>
</tr>
<tr>
<td>300</td>
<td>35</td>
</tr>
<tr>
<td>500</td>
<td>59</td>
</tr>
<tr>
<td>750</td>
<td>88</td>
</tr>
<tr>
<td>1000</td>
<td>118</td>
</tr>
<tr>
<td>1500</td>
<td>177</td>
</tr>
<tr>
<td>2000</td>
<td>236</td>
</tr>
<tr>
<td>2500</td>
<td>295</td>
</tr>
<tr>
<td>3000</td>
<td>354</td>
</tr>
</tbody>
</table>

EXAMPLE:
AS SHOWN ABOVE AN UNLOADED 75 KVA TRANSFORMER THAT IS SWITCHED 1 POLE AT A TIME, WITH MORE THAN 8 FEET OF #2 AND LESS THAN 21 AMPS OF LOAD, AT 120 VOLTS, MAY PRODUCE A FERRO-RESONANCE CONDITION.

NOTES
1. ANY ARRESTER ON A 3 PHASE RISER WHICH HAS BEEN BACK FED BECAUSE OF A HIGH SIDE STINGER FAILURE SHOULD BE REPLACED BECAUSE OF POSSIBLE DAMAGE FROM FERRO-RESONANCE.
ENERGIZATION PROCEDURE FOR NEW 1 PHASE UNDERGROUND LOOPS CONTAINING SINGLE PHASE PADMOUNT TRANSFORMERS

1. TERMINATE CABLES IN ALL TRANSFORMERS PER STANDARDS.
2. REMOVE FUSES FROM ALL TRANSFORMERS.
3. HI-POT CABLE USING HI-POT TOOL FROM SOURCE TO END. PREFERRED END IS AN ALTERNATE SOURCE OF THE LOOP. THIS ALLOWS ONE HI-POT TEST FOR THE ENTIRE CABLE RUN. WHEN THE ALTERNATE SOURCE CANNOT BE USED AS THE END, THE END SHALL BE A NORMAL OPEN POINT LOCATED WITHIN THE LOOP. TWO HI-POT TESTS WILL BE REQUIRED TO TEST THE WHOLE LOOP.
4. IF THE HI-POT TEST IS NOT SUCCESSFUL, LOCATE FAULT AND REPAIR BEFORE PROCEEDING.
5. BEGINNING AT TRANSFORMER 1:
   A. CHECK TORQUE OF FUSE CARTRIDGE (BOTH HOLDER AND NUT ENDS). INSTALL FUSE AND ENERGIZE TRANSFORMER 1 FROM THE SOURCE.
   B. VERIFY CABLE MARKINGS ARE CORRECT BY SWITCHING OPEN THE CABLE LABELED AS GOING TO TRANSFORMER 2, TOWARDS THE ALTERNATE SOURCE.
      1) IF TRANSFORMER 1 REMAINS ENERGIZED, CABLES ARE CORRECTLY MARKED.
      2) IF TRANSFORMER 1 BECOMES DE-ENERGIZED, CABLE MARKING IS REVERSED. CORRECT LABELING BEFORE PROCEEDING.
   C. TEST FOR CORRECT SECONDARY VOLTAGE.
6. REPEAT STEP 5 FOR THE REMAINING TRANSFORMERS, ENERGIZING THE TRANSFORMER FROM THE PREVIOUS TRANSFORMER.
7. AT THE END, VERIFY THE PHASING IS CORRECT. IF NOT CORRECT, LOCATE CAUSE AND CORRECT.
8. ESTABLISH NORMAL OPEN PER JOB.
ENERGIZATION PROCEDURE
FOR NEW 3 PHASE PAD MOUNT TRANSFORMERS

1. OBTAIN HOLD TAG(S) ON CIRCUIT(S):
   A. FROM THE PLANNED ENERGIZATION POINT.
   B. FROM THE PHASING POINT.
2. VERIFY WITH DOC THAT THE HOLD TAG(S) ARE ON THE CORRECT CIRCUIT(S)
3. PARK ALL ELBOWS IN THE TRANSFORMER BEING BROUGHT ONLINE. (ALL SOURCES TO THIS TRANSFORMER SHALL BE REMOVED.)
4. REMOVE FUSES FROM TRANSFORMER.
5. CLOSE ALL SWITCHES IN TRANSFORMER.
6. USING AN OHMMETER, VERIFY ACROSS BUSHINGS THAT CONNECTIONS ONLY EXIST ACROSS SAME PHASE. A-A, B-B, C-C SHALL SHOW CONTINUITY. A-B, A-C, B-C SHALL SHOW NO CONTINUITY.
7. REPLACE FUSES.
8. INSTALL ELBOW CONNECTIONS. (ALL CONNECTIONS IN ADJACENT SOURCES SHALL BE PARKED.)
9. AT THE PLANNED REMOTE ENERGIZATION POINT, APPLY THE A-B CHANCE HOT STICK HI-POT TOOL ACROSS ANY PHASE CONNECTION TO THE NEW TRANSFORMER AND AN ENERGIZED BUSHING.
10. IF A CONNECTION TO GROUND EXISTS IN EITHER THE TRANSFORMER OR THE CABLES TO AND FROM THIS TRANSFORMER, THE HI-POT WILL INDICATE A POTENTIAL DIFFERENCE. IF SUCH A CONDITION IS DISCOVERED, THE PROBLEM MUST BE CORRECTED.
11. THIS TEST WILL NOT DETERMINE IF A CONNECTION ACROSS PHASES, BUT ISOLATED FROM GROUND, EXISTS. IN ORDER TO TEST FOR THIS CONDITION, THE FUSES NEED TO BE REMOVED FROM THE TRANSFORMER. ALL SWITCHES NEED TO BE CLOSED AND THE SOURCE CABLES, EXCEPT THE ONE UNDER TEST, GROUNDED IN THE ADJACENT SOURCE. THE HI-POT TOOL IS THEN APPLIED TO EACH PHASE WHILE THE OTHER PHASES ARE GROUNDED.
NOTES

1. TRENCH SHALL NOT APPROACH A SINGLE PHASE TRANSFORMER FROM BEHIND. TRENCH MAY APPROACH SINGLE PHASE TRANSFORMER FROM EITHER SIDE OR FRONT.

2. WHEN A NEW SERVICE IS ADDED TO AN EXISTING SINGLE PHASE TRANSFORMER THE CONTRACTOR SHOULD TRENCH TO WITHIN 2 FEET OF THE PAD AND DIG A 2 FOOT DIAMETER HOLE 30 INCHES DEEP TO ALLOW LATER HAND - DIG TO CONNECT CONDUCTOR.

3. COVER ALL OPEN TRENCH AND HOLE BEFORE LEAVING SITE WITH PLYWOOD OR EQUIVALENT FOR SAFETY.
UXBC

INSULATED COVER FOR AN ENERGIZED BUSHING. THIS COVER MUST BE USED ON ENERGIZED BUSHINGS AT ALL TIMES WHEN A CABLE TERMINATION ELBOW IS NOT INSTALLED.

NOTE:
BRAD FROM INSULATED CAP SHALL BE CONNECTED TO SYSTEM GROUND.

NOTE:
BECAUSE THE PARKING BUSHING IS NOT GROUNDED IT MUST BE CONSIDERED AT LINE POTENTIAL WHEN CARRYING AN ELBOW.

UXBPB

PARKING BUSHING AND INSULATED COVER FOR PARKING AN ENERGIZED ELBOW TERMINATOR AND COVERING AN ENERGIZED BUSHING.
UXBP1  FOR 1 Ø TRANSFORMER PAD, 25-100KVA (SM-637155-5034698)
APPROX. WT.: 90 LBS. (POLYMER PAD)
825 LBS. (CONCRETE PAD)

UXBP1G  CONTRACTOR INSTALLED 1 TRANSFORMER PAD.

UXBP3  FOR 3 Ø TRANSFORMER PAD, 0-500KVA (SM-637160-5069778)
APPROX. WT.: 2,700 LBS.

UXBP3A  FOR 3 Ø TRANSFORMER PAD, 750KVA (SM-637162-5069779)
APPROX. WT.: 6,000 LBS.

UXBP3B  FOR 3 Ø TRANSFORMER PAD, 1000-2500KVA (SM-637163-5034800)
APPROX. WT.: 9,500 LBS.

UXBP4  FOR PADS TO BE POURED IN PLACE (NON-STANDARD). DIMENSIONS AND
CONSTRUCTION RESPONSIBILITY ARE TO BE NOTED ON THE JOB ORDER SKETCH.

STANDARD DRAWINGS
SM-637160-5069778  3 Ø TRANSFORMER PAD, 0-500KVA
SM-637161-5034704  3 Ø TRANSFORMER PAD, 750KVA (WITH PIT)
SM-637163-5034800  3 Ø TRANSFORMER PAD, 1000-2500KVA
## SINGLE PHASE 240/480 V (PRIMARY VOLTAGE 12.47 KV GROUND WYE/7.2 KV)

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>COMPATIBLE UNIT</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>UX74</td>
<td>850 LBS.</td>
</tr>
<tr>
<td>50</td>
<td>UX76</td>
<td>1,100 LBS.</td>
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</table>

## SINGLE PHASE 120/240 V (PRIMARY VOLTAGE 12.47 KV GROUND WYE/7.2 KV)

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>COMPATIBLE UNIT</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>UX64 (NOTE 1)</td>
<td>850 LBS.</td>
</tr>
<tr>
<td>50</td>
<td>UX66 (NOTE 1)</td>
<td>1,100 LBS.</td>
</tr>
<tr>
<td>75</td>
<td>UX67 (NOTE 1)</td>
<td>1,250 LBS.</td>
</tr>
<tr>
<td>100</td>
<td>UX68 (NOTE 1)</td>
<td>1,400 LBS.</td>
</tr>
<tr>
<td>167 (NOTE 2)</td>
<td>UX69N</td>
<td>2,100 LBS.</td>
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## SINGLE PHASE 120/240 V, CORROSION RESISTANT (PRIMARY VOLTAGE 12.47 KV GROUND WYE/7.2 KV)

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>COMPATIBLE UNIT</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 (NOTE 3) #5091777</td>
<td>UXC64 (NOTE 1)</td>
<td>850 LBS.</td>
</tr>
<tr>
<td>50 (NOTE 3) #5039324</td>
<td>UXC66 (NOTE 1)</td>
<td>1,100 LBS.</td>
</tr>
<tr>
<td>75 (NOTE 3) #5039328</td>
<td>UXC67 (NOTE 1)</td>
<td>1,250 LBS.</td>
</tr>
</tbody>
</table>

## SINGLE PHASE 120/240 V, LESS FLAMMABLE FLUID FILL (PRIMARY VOLTAGE 12.47 KV GROUND WYE/7.2 KV)

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>COMPATIBLE UNIT</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 (NOTE 4) #5039322</td>
<td>UXF64 (NOTE 1)</td>
<td>1,000 LBS.</td>
</tr>
<tr>
<td>50 (NOTES 3 &amp; 4) #5039325</td>
<td>UXF66 (NOTES 1 &amp; 4)</td>
<td>1,100 LBS.</td>
</tr>
<tr>
<td>75 (NOTES 3 &amp; 4) #5039329</td>
<td>UXF67 (NOTES 1 &amp; 4)</td>
<td>1,250 LBS.</td>
</tr>
</tbody>
</table>

## SINGLE PHASE 120/240 V, CORROSION RESISTANT W/LESS FLAMMABLE FLUID FILL (PRIMARY VOLTAGE 12.47 KV GROUND WYE/7.2 KV)

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>COMPATIBLE UNIT</th>
<th>APPROXIMATE WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (NOTES 3 &amp; 4) #5039326</td>
<td>UXCF66 (NOTES 1 &amp; 4)</td>
<td>1,100 LBS.</td>
</tr>
<tr>
<td>75 (NOTES 3 &amp; 4) #5039330</td>
<td>UXCF67 (NOTES 1 &amp; 4)</td>
<td>1,250 LBS.</td>
</tr>
</tbody>
</table>

## ACCESSORIES FOR SINGLE PHASE PAD-MOUNTED TRANSFORMERS

- UXBC INSULATED BUSHING CAP FOR RADIAL INSTALLATION.
- UXBPB INSULATED BUSHING CAP AND INSULATED PARKING BUSING FOR NORMAL OPEN OR RADIAL INSTALLATION WITH CABLE STUB OUTS.
NOTES

1. ADD “N” TO THE COMPATIBLE UNIT WHEN A PAD IS NOT REQUIRED.
2. ONLY TO BE USED FOR CHANGE OUT OF OVERLOADED 100 KVA PAD MOUNTS.
3. CORROSION RESISTANT TRANSFORMER. USED FOR REPLACEMENT OF EXISTING CORRODED TRANSFORMER.
4. RESTRICTED USE. SEE THE DISTRIBUTION DESIGN STANDARDS, GENERAL DESIGN CRITERIA FOR REQUIREMENTS.
5035177 FITS 5/8" OR 1" STUD THREAD STUD BUSHING ON 25 TO 167 KVA UNITS ONE SET OF 3" EACH "KIT" (5035175). #2 TO 500 MCM 8 MAX. PLUS 2 STREETLIGHTS.

5035178 FITS 5/8" OR 1" THREAD STUD BUSHING ON 25 TO 167 KVA UNITS. 1/0 TO 750 MCM AL OR CU MAX. WITH ONE STREETLIGHT.

NOTES

1. 25-100 KVA SINGLE PHASE TRANSFORMER (NOT CORROSION RESISTANT) COMES WITH A KIT (5035175). THE KIT IS MADE UP OF:
   #2 ELBOWS (2)
   SECONDARY CONNECTORS (5035177) (3)
   GROUND ROD CLAMP AND LUG (1)
   BRACKETS, BOLTS & WASHERS (2)
   CONNECTOR, COPPER, COMPRESSION (5033933) (1)

2. SECONDARY STUDS ON 25, 50 AND 75 KVA TRANSFORMERS ARE 5/8" - 11 THREAD. SECONDARY STUDS ON 100 AND 167 KVA TRANSFORMERS ARE 1" - 14 THREAD.


4. PLACE STREETLIGHT CONDUCTOR IN ONE OF THE TWO STREET LIGHT CONDUCTOR POSITIONS ONLY UNLESS MORE THAN TWO POSITIONS ARE REQUIRED. STREETLIGHT POSITIONS FIT #6 TO 1/0 AL. DO NOT PLACE MORE THAN ONE CABLE IN EACH CONNECTOR POSITION.

5. FOR MAINTENANCE USE ONLY IN EXISTING TRANSFORMERS WITH EXISTING 750 MCM.
# 7.2/12.47KV System

<table>
<thead>
<tr>
<th>Single Phase Transformer (KVA)</th>
<th>Fuse Mounting</th>
<th>Fuse Size (in Amps)</th>
<th>Stock Code No.</th>
<th>See Note #</th>
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</thead>
<tbody>
<tr>
<td>15 AND 25</td>
<td>RTE - Bayonet Style</td>
<td>8</td>
<td>5034437</td>
<td>1</td>
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<tr>
<td></td>
<td>S&amp;C</td>
<td>6</td>
<td>5034565</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>LM - Arc Strangler</td>
<td>8</td>
<td>5034550</td>
<td>2</td>
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<tr>
<td></td>
<td>WEST. - EFD OR EFD11</td>
<td>5</td>
<td>5034560</td>
<td>2</td>
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<tr>
<td>37-1/2</td>
<td>RTE - Bayonet Style</td>
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<td>5034438</td>
<td>1</td>
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<tr>
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<td>LM - Arc Strangler</td>
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<td>5034551</td>
<td>2</td>
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<tr>
<td></td>
<td>WEST. - EFD OR EFD11</td>
<td>8</td>
<td>5034561</td>
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**Notes**

1. All dead front transformers utilize the RTE bayonet style fuse. Prior to energizing the transformer, the installation crew must check fuse for proper size and tightness of fuse assembly.

2. For re-fusing live front transformers, utilize the indicated fuse mountings.
NOTES

1. PRIOR TO THE TRANSFORMER PAD BEING SET, TELCO AND/OR CABLE TV WILL STUB A BONDING WIRE TO THE GROUND ROD. SRP WILL CONNECT THIS BOND WIRE TO THE GROUND ROD.

2. A FENCE IS NOT ALLOWED TO BE BUILT ACROSS FRONT OF TRANSFORMER. A GATE IS PERMISSIBLE IF IT IS FREE OF LOCKS THAT WOULD PROHIBIT ACCESS BY SRP PERSONNEL.

3. FOR CABLE AND TRANSFORMER IDENTIFICATION, SEE IDENTIFICATION MARKING METHODS IN THE MISCELLANEOUS SECTION.

4. ALL CONCENTRIC NEUTRAL WIRES MUST BE CONNECTED TOGETHER WITH A COMPRESSION CONNECTOR. ONE CONCENTRIC NEUTRAL IS TO BE CONNECTED TO THE GROUND ROD. THE OTHER CONCENTRIC NEUTRAL IS TO BE CONNECTED TO THE TANK GROUND.

5. SEE LUBRICATING PROCEDURE FOR TRANSFORMER BUSHINGS AND ELBOWS IN THE CABLE AND ACCESSORIES SECTION.

6. WHEN PRIMARY CABLES ARE CUT TO LENGTH, THEY MUST BE LONG ENOUGH TO REACH ONE BUSHING AND PARKING STAND.

7. THE PENTA BOLT MUST BE TIGHTENED AND THE CABINET LOCKED AT ALL TIMES.

8. SECONDARY PHASE BUSHINGS X1 AND X3 ARE TO HAVE A QUICK CONNECT BAR INSTALLED WITHOUT USE OF JAM NUTS. REMOVE FACTORY INSTALLED JAM NUTS. THE NEUTRAL BUSHING X2 WILL REQUIRE THE USE OF ONE JAM NUT TO TIGHTEN THE GROUND STRAP AGAINST THE INSTALLED BAR CONNECTOR. THE NEUTRAL BUSHING DOES NOT REQUIRE AN INSULATING COVER.

9. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH PRIMARY AND SECONDARY SERVICE CABLES. NOT REQUIRED WHEN DIRECT-BURIED BARE CONCENTRIC NEUTRAL CABLE IS PRESENT.

10. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP) AND TOP OF PAD SHALL BE MINIMUM OF 4" ABOVE FINAL GRADE IN IMMEDIATE AREA.
5. Concrete finish to be smooth, any aggregate holes/gaps to be filled in with approved filler.

2. Insure ground is level and compacted under wall.

3. No grounding of this fire barrier wall is required.

4. Concrete: f'c to be a minimum of 4000 PSI at 28 days.

1. Order by material item number 5077557.

REFERENCES:
SRP ELECTRICAL CLEARANCE STANDARDS PG. 2-13-1.
Concrete shall be in accordance with CES-05500-001, -003 & -004.

NOTES
1. Order by material item number 5077557.
2. Insure ground is level and compacted under wall.
3. No grounding of this fire barrier wall is required.
4. Concrete: f'c to be a minimum of 4000 PSI at 28 days.
5. Concrete finish to be smooth, any aggregate holes/gaps to be filled in with approved filler.
5. CONCRETE FINISH TO BE SMOOTH, ANY AGGREGATE HOLES/GAPS TO BE FILLED IN WITH APPROVED FILLER.

2. INSURE GROUND IS LEVEL AND COMPACTED UNDER WALL.

3. NO GROUNDING OF THIS FIRE BARRIER WALL IS REQUIRED.

4. CONCRETE: f'c TO BE A MINIMUM OF 4000 PSI AT 28 DAYS.

1. ORDER BY MATERIAL ITEM NUMBER 5077557.

REFERENCES:
SRP ELECTRICAL CLEARANCE STANDARDS PG. 2-13-1.
CONCRETE SHALL BE IN ACCORDANCE WITH CES-05500-001, -003 & -004.

NOTES
1. IN LIEU OF F-62'S AND BENT STEEL PLATE, B-16 COIL LOOP INSERTS, 1/2" DIA. x 6" LONG MAY BE USED TO ATTACH WALLS

DETAIL 1

BENT PLATE

SECTION B

NOTES
1. ORDER BY MATERIAL ITEM NUMBER 5077557.
2. INSURE GROUND IS LEVEL AND COMPACTED UNDER WALL.
3. NO GROUNDING OF THIS FIRE BARRIER WALL IS REQUIRED.
4. CONCRETE: f'c TO BE A MINIMUM OF 4000 PSI AT 28 DAYS.
5. CONCRETE FINISH TO BE SMOOTH, ANY AGGREGATE HOLES/GAPS TO BE FILLED IN WITH APPROVED FILLER.
THE MAX. NO. OF SERVICE & SECONDARY CONDUITS IS 8.

S1 - SECONDARY CONDUIT 3" POPULATE FIRST FOR SECONDARY
L - LIGHT CONDUIT 2-1/2"
S - SERVICE CONDUIT 2-1/2"
P - PRIMARY CONDUIT 2-1/2"
M1-O - MULTI-USE, EITHER SERVICE OR A SECONDARY
      (2-1/2" OR 3" CONDUIT)
2 1/2" O.D. = 2.875
3" O.D. = 3.5"

NOTES
1. CONNECT GROUND ROD TO TRANSFORMER GROUND LUG WITH #4 CU WIRE.
2. TOP OF GROUND ROD AND ALL CONDUITS ARE TO BE 5 INCHES ABOVE FINAL
   GRADE FOR ALL NEW TRANSFORMER INSTALLATIONS.
3. ALL REQUIRED CONDUITS SHALL BE INSTALLED PRIOR TO BACKFILL.
4. INSTALL PLUGS IN ALL CONDUIT STUB-UPS. DO NOT GLUE PLUGS.
5. IF ONLY ONE SECONDARY IS TO BE INSTALLED, PLACE IT IN POSITION SE2.
6. IF NO SECONDARY NEEDED, SE1, SE2 & SE3 MAY BE USED FOR SERVICES 6, 7 & 8.

SECONDARY/SERVICE CONDUIT MARKING & MULE TAPE
(BY PARTY INSTALLING THE CONDUIT)

CONDUIT PLUG
MULE TAPE, PRE-LUBED,
2500 LB. TENSILE
STRENGTH MIN.
(INSIDE SECONDARY
& LIGHTING SERVICE
CONDUIT ONLY)

PRINT LOT # INSIDE
CONDUIT BACK SIDE
FACING STREET.
ALSO MARK
"SPARE"
CONDUIT.

MULE TAPE, ONE CONTINUOUS PIECE (NO KNOTS) PRE-LUBED,
2500 LB. TENSILE STRENGTH, LEAVE 50 FT. OF LENGTH IN
SERVICE CONDUIT STUB-OUT TO REACH FUTURE SERVICE
ENTRANCE.
1. Developer to establish final grade at rear (house side) of PUE. The back of the transformer pad will be 6" from the back easement line. The final grade for the transformer pads will be staked by the developer's engineers, per SRP Plan, and shall be equal to the elevation of the driveway at a point 7 1/2 feet into PUE.

2. The pad will be placed on a compacted level soil base 6 1/2 X 7 1/2 feet.

NOTES
CONDUIT ARRANGEMENT IN PAD

THE MAX. NO. OF SERVICE & SECONDARY CONDUITS IS 8.

S - SECONDARY CONDUIT 3" POPULATE FIRST FOR SECONDARY
L - LIGHT CONDUIT 2-1/2"
S - SERVICE CONDUIT 2-1/2"
P - PRIMARY CONDUIT 2-1/2"
M1 - MULTI-USE, EITHER SERVICE OR A SECONDARY
(2-1/2" OR 3" CONDUIT)

NOTES
1. CONNECT GROUND ROD TO TRANSFORMER GROUND LUG WITH #4 CU WIRE.
2. TOP OF GROUND ROD AND ALL CONDUITS ARE TO BE 5 INCHES ABOVE FINAL GRADE FOR ALL NEW TRANSFORMER INSTALLATIONS.
3. ALL REQUIRED CONDUITS SHALL BE INSTALLED PRIOR TO BACKFILL.
4. INSTALL PLUGS IN ALL CONDUIT STUB-UPS. DO NOT GLUE PLUGS.
5. IF ONLY ONE SECONDARY IS TO BE INSTALLED, PLACE IT IN POSITION SE2.
6. IF NO SECONDARY NEEDED, SE1, SE2 & SE3 MAY BE USED FOR SERVICES 6, 7 & 8.

SECONDARY/SERVICE CONDUIT MARKING & MULE TAPE

PRINT LOT # INSIDE CONDUIT BACK SIDE FACING STREET.
ALSO MARK "SPARE" CONDUIT.

CAP OVER MULE TAPE
(MULE TAPE IN SERVICE CONDUIT ONLY)

MULE TAPE, ONE CONTINUOUS PIECE (NO KNOTS) PRE-LUBED,
2500 LB. TENSILE STRENGTH. LEAVE 50 FT. OF LENGTH IN SERVICE CONDUIT STUB-OUT TO REACH FUTURE SERVICE ENTRANCE.
NOTES

1. DEVELOPER TO ESTABLISH FINAL GRADE AT REAR (HOUSE SIDE) OF PUE. THE BACK OF THE TRANSFORMER PAD WILL BE 4' - 6" FROM THE BACK EASEMENT LINE. THE FINAL GRADE FOR THE TRANSFORMER PADS WILL BE STAKED BY THE DEVELOPER'S ENGINEERS, PER SRP PLAN, AND SHALL BE EQUAL TO THE ELEVATION OF THE DRIVEWAY AT A POINT 3 - 1/2 FEET INTO PUE.

2. THE PAD WILL BE PLACED ON A COMPACTED LEVEL SOIL BASE 6 - 1/2 X 7 - 1/2 FEET.

3. IN THE SCENARIO SHOWN, THERE IS A SIDEWALK ASSUMED TO BE A MINIMUM OF 4' WIDE AND SOME ADDITIONAL SPACE BETWEEN THE SIDEWALK AND THE TRANSFORMER PAD. WHEN THE SIDEWALK DOES NOT EXIST, A 4' MINIMUM DISTANCE BETWEEN THE TRANSFORMER PAD AND THE HOUSE SIDE EDGE OF CURB IS STILL REQUIRED. THIS SPACE IS THE ABSOLUTE MINIMUM DETERMINED TO SAFELY OPERATE THE TRANSFORMER CONNECTIONS. GUARD POSTS, WHEN REQUIRED TO PROTECT THE TRANSFORMER, DO NOT REDUCE THIS 4' MINIMUM REQUIREMENT.
NOTES

1. EXISTING CONDITIONS WILL VARY. VERIFY STUB UP LOCATION BY OPENING TRANSFORMER.
2. DO NOT STUB UP CONDUITS PER THE CONDUIT ONE LINE DRAWING. CONDUIT ONE LINE SHOWS ONLY THE NUMBER OF CONDUITS TO STUB UP. PLEASE REFER TO THE UNDERGROUND DISTRIBUTION LINE CONSTRUCTION STANDARDS, PAGE 9-11-1, FOR PROPER CONDUIT PLACEMENT.
3. WHEN STUBBING UP PRIMARY CONDUITS INTO EXISTING TRANSFORMER WINDOWS WITH EXISTING DIRECT BURIED PRIMARY CABLES, POSITION THE CONDUITS TO MATCH UP WITH THE EXISTING PRIMARY CABLES.
4. THE TOP OF THE GROUND ROD AND ALL CONDUITS ARE TO BE 1 INCH ABOVE THE TOP OF THE PAD WHEN INSTALLED IN EXISTING TRANSFORMERS. INSTALL A MINIMUM OF 6 INCHES OF PVC HARD STICK FROM THE ELBOWS INTO THE TRANSFORMER PAD WINDOW.
5. INSTALL PLUGS IN ALL CONDUIT STUB UPS. DO NOT GLUE PLUGS.
6. IF ONLY ONE SECONDARY CONDUIT IS TO BE INSTALLED, PLACE IT IN POSITION SE2.

LEGEND

MAXIMUM NUMBER OF SERVICE/SECONDARY CONDUITS IS 8.

S - SECONDARY CONDUIT 3" POPULATE FIRST
POPULATE FIRST FOR SECONDARY

L - LIGHT CONDUIT 2-1/2"

S - SERVICE CONDUIT 2-1/2"

P - PRIMARY CONDUIT 2-1/2"

M - MULTI-USE, EITHER SERVICE OR A SECONDARY (2-1/2" OR 3" CONDUIT)

2 - 1/2" O.D = 2.875"
3" O.D. = 3.5"

Underground Distribution Construction Standards

1Ø TRANSFORMER STUB-UP DETAIL
FOR EXISTING TRANSFORMERS
(CABLE REPLACEMENT)

ISSUE DATE: 02/16/12
REV. DATE: 08/05/21
APPROVAL: J. LUERA

8513E573.DGN
NOTES

1. EXISTING CONDITIONS WILL VARY. VERIFY STUB UP LOCATION BY OPENING TRANSFORMER.

2. DO NOT STUB UP CONDUITS PER THE CONDUIT ONE LINE DRAWING. CONDUIT ONE LINE SHOWS ONLY THE NUMBER OF CONDUITS TO STUB UP. PLEASE REFER TO THE UNDERGROUND DISTRIBUTION LINE CONSTRUCTION STANDARDS, PAGE 9-22-1, FOR PROPER CONDUIT PLACEMENT, AND PAD WINDOW DETAIL.

3. WHEN STUBBING UP PRIMARY CONDUITS INTO EXISTING TRANSFORMER WINDOWS WITH EXISTING DIRECT BURIED PRIMARY CABLES, POSITION THE CONDUITSTO MATCH UP WITH THE EXISTING PRIMARY CABLES.

4. THE TOP OF THE GROUND ROD AND ALL CONDUITS ARE TO BE 1 INCH ABOVE THE TOP OF THE PAD WHEN INSTALLED IN EXISTING TRANSFORMERS. INSTALL A MINIMUM OF 6 INCHES OF PVC HARD STICK FROM THE ELBOWS INTO THE TRANSFORMER PAD WINDOW.

5. INSTALL PLUGS IN ALL CONDUIT STUB UPS. DO NOT GLUE PLUGS.
NOTES

1. THE J-BOX SHALL BE INSTALLED IN ALL MULTI-FAMILY HOUSING COMPLEXES OR WHEN THREE OR MORE 4" SERVICE CONDUITS ARE REQUIRED. WHEN ONE OR TWO 4" SERVICE CONDUITS (NON MULTI-FAMILY) ARE REQUIRED, CONDUITS ARE PERMITTED TO BE STUBBED UP AT GRADE USING TEMPLATE (50314848).

2. FILL SERVICE CONDUIT IN THIS ORDER:

3. 6 - 4" CONDUITS MAXIMUM.

4. INSTALL ONE 5/8" X 8' GROUND ROD THRU THE 1" HOLE IN THE TEMPLATE TO 1" ABOVE THE TOP OF THE J-BOX.

5. CENTER THE BOTTOM OPENING OF J-BOX (5034689) OVER THE TEMPLATE (5031849).

6. PULL TAPE INSTALLED IN 4" CONDUITS, AND 2 - 1/2" STREET LIGHT CONDUITS. (PRE-LUBED 2500 LB TENSILE STRENGTH MINIMUM)

7. CUT ALL CONDUITS 2" ABOVE THE BOTTOM OF J-BOX.
NOTES

1. ALL MEASUREMENTS ARE WITH RESPECT TO THE P2 PRIMARY CONDUIT CENTER.

2. THIS 12" MINIMUM DIMENSION DESCRIBES THE SPACE REQUIREMENT BETWEEN THE SRP PAD AND THE TELCO OR CATV PEDESTAL. WHEN STUBBING UP TELCO OR CATV CONDUIT ALLOW ADDITIONAL SPACE TO INSURE THE TELCO OR CATV PEDESTAL DOES NOT ENTER THE 12 INCH MINIMUM SPACE.

3. NO TELCO OR CATV PEDESTALS, WATER BOXES, POLES, PERMANENT OBSTRUCTIONS OR TRIPPING HAZARDS BETWEEN LINES. CLEAR AREA IS FROM PUE (HOUSE SIDE) TO STREET OR 12 FEET MAX IN FRONT OF PAD.

4. GAS TO ALWAYS BE ON STREET SIDE.

5. IF A LIGHT POLE OR OTHER UTILITY IS REQUIRED IN THIS AREA, IT IS PREFERRED THAT IT BE INSTALLED A MINIMUM OF 18" FROM THE PROPERTY LINE.
NOTES

1. ALL MEASUREMENTS ARE WITH RESPECT TO THE P2 PRIMARY CONDUIT CENTER.

2. THIS 12" MINIMUM DIMENSION DESCRIBES THE SPACE REQUIREMENT BETWEEN THE SRP PAD AND THE TELCO OR CATV PEDESTAL. WHEN STUBBING UP TELCO OR CATV CONDUIT ALLOW ADDITIONAL SPACE TO INSURE THE TELCO OR CATV PEDESTAL DOES NOT ENTER THE 12 INCH MINIMUM SPACE.

3. GUARD POSTS MAY BE NEEDED. SEE UBG

4. THIS DETAIL ASSUMES THE PAD IS BEHIND A SIDEWALK. IF NO SIDEWALK EXISTS, THE PAD WOULD BE BACK, AWAY FROM THE STREET. SEE TRANSFORMERS, RESIDENTIAL TRANSFORMER PAD LOCATION DETAIL, BACK OF PUE.

5. WITH THE TRANSFORMER AT THE FRONT OF THE PUE, AS SHOWN, THE GAS LINE IS ON THE HOUSE SIDE OF TRENCH. SEE ELECTRIC SERVICE SPECIFICATIONS, CLEARANCES, CONDUIT STUB-OUT TO RESIDENCE, JOINT TRENCH WITH GAS.
CONDUIT DETAIL

STUB ALL CONDUITS AND GROUND RODS 5" ABOVE GRADE

G I PLP P

12" TO 24"

PRIMARY CONDUIT (2)

#4 COPPER GROUND
DIRECT BURIED
NO CONDUIT

1-3" FLEX CONDUIT

G I PLP P

SERVICES
INTERTIES
PRIMARY PHASES
PL POWER LEG

G BARE #4 COPPER
T BARE #6 COPPER
SEE NOTE 8
P PRIMARY PHASES
I INTERTIES
S SERVICES
X NOT USED

CONDUIT DETAIL

5034698

TEMPLATE 5031740
GROUND ROD

MATCH UP

5034698

TEMPLATE 5031740
GROUND ROD

CONDUIT STUB-UP

DETAIL

COVER X2 BUSHING
IT IS ENERGIZED (5035156)

REMOVE GROUNDING STRAP
(SEE NOTE 11)

A B C D

N

MARK BLUE WITH
ORANGE TRACER

CONCENTRIC NEUTRAL
SEE NOTE 15

L

CONCENTRIC NEUTRAL
SEE NOTE 15

T

#4 COPPER GROUND
SEE NOTE 7

SEE NOTE 5

SEE NOTE 5

SEE NOTE 2

SEE NOTE 5

SEE NOTE 2

SEE NOTE 5

CONCRETE BUSHING
(5035156)

IT IS ENERGIZED

POWER LEG

12" TO 24"

5" ABOVE GRADE
AND GROUND RODS
STUB ALL CONDUITS

SEE NOTES 1 & 2 FOR ADDITIONAL MATERIAL ORDERING

REV. UPDATED MATERIAL ITEM

TRANSFORMERS
3Ø-2 TRANSFORMER BANK
OPEN WYE PRIMARY - OPEN DELTA SECONDARY

ISSUE DATE: 07/17/96
REV. DATE: 07/05/23
APPROVAL: J. LUERA

Underground Distribution
Construction Standards

REV. DATE: 07/05/23
APPROVAL: J. LUERA

8513E252.DGN

9-14-1

See Notes 1 & 2 for additional material ordering.
NOTES

1. SEE PAGE 9-7-1 FOR PAD-MOUNTED TRANSFORMER CODING WHEN ORDERING TRANSFORMERS.

2. SECONDARY INTERTIE CONDUCTORS ARE BASED ON TEASER TRANSFORMER SIZE. ORDER BY THE MATERIAL ITEM NUMBER LISTED BELOW.

<table>
<thead>
<tr>
<th>TEASER (kVA)</th>
<th>INTERTIE NUMBER, SIZE, &amp; TYPE</th>
<th>MATERIAL ITEM #</th>
<th>LENGTH (FT.)</th>
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<tbody>
<tr>
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<tr>
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<tr>
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<td>2-350 MCM Al.</td>
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<tr>
<td>100</td>
<td>3-350 MCM Al.</td>
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</table>

3. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP).

4. TOP OF GROUND ROD AND ALL CONDUITS SHALL BE 5" INCHES ABOVE FINAL GRADE.

5. INSTALL 5/8" X 8' GROUND ROD AT EACH TRANSFORMER AT LOCATION SHOWN ON TEMPLATE.

6. INTERTIE CONDUITS BETWEEN TRANSFORMER SHALL BE CORRUGATED 3" PVC.

7. INSTALL #4 BARE CU GROUNDS BETWEEN TRANSFORMER AS SHOWN. LEAVE 2’ LEADS ABOVE GRADE.

8. FOR TELCO OR CATV BONDING (WHEN REQUIRED), INSTALL #6 BARE CU TO A POINT 12" OUTSIDE OF LIGHTER TRANSFORMER PAD IN PRIMARY TRENCH AT A DEPTH OF 12”. LEAVE 2’ LEAD ABOVE GRADE.

9. CONDUIT AND GROUNDS RUNS BETWEEN TRANSFORMERS SHALL HAVE MINIMUM OF 36" OF COVER.

10. PADS SHALL BE LEVEL BEFORE SETTING TRANSFORMERS.

11. REMOVE GROUNDING STRAP AND MAKE NO CONNECTIONS TO THE X2 BUSHING IN TEASER TRANSFORMER. COVER BUSHING STUDS USING 5035156.

12. NEUTRAL CONDUCTOR OF ALL SERVICE CABLE SHALL BE CONNECTED TO SECONDARY NEUTRAL X2 BUSHING IN LIGHTER TRANSFORMER ONLY.

13. VOLTAGE MEASURED BETWEEN POWER LEG C AND NEUTRAL N SHOULD BE APPROXIMATELY 208 V. DO NOT CONNECT ANY 120 V SERVICES TO THIS PHASE.

14. CONNECT #4 CU FROM GROUND RODS, #4 CU GROUND INTERTIES, AND #6 CU TELCO/CATV GROUND TO GROUND LUGS IN TRANSFORMERS.

15. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLE AND CONNECT TO #4 CU FROM GROUND ROD USING COMPRESSION CONNECTORS. SEE PAGE 8-11-1 FOR COMPRESSION CONNECTORS.

16. SEE MISCELLANEOUS SECTION FOR TRANSFORMER AND CABLE MARKING REQUIREMENTS AND METHODS.

17. INSTALL WARNING DECAL (MATERIAL ITEM # 5035826) INSIDE COMPARTMENT THAT STATES “THIS TRANSFORMER IS BANKED WITH THE ADJACENT TRANSFORMER OR TRANSFORMERS AND REMAINS ENERGIZED UNTIL ALL TRANSFORMERS IN THE BANK ARE DE-ENERGIZED.”

18. INSTALL CAUTION DECAL (MATERIAL ITEM # 5034939) WARNING AGAINST SINGLE PHASING IN EACH TRANSFORMER TERMINATING COMPARTMENTS AND THE FUSING ENCLOSURE IN THE LOOP ON THE PRIMARY CABLES.

19. SEE CONNECTORS, SPLICES, AND TERMINATIONS IN CABLES AND ACCESSORIES SECTION FOR LUBRICATION PROCEDURES FOR TRANSFORMER BUSHINGS.

20. WHEN A NORMAL OPEN IS LOCATED AT A TWO POT BANK, IT APPLIES TO BOTH PHASES.

21. TIGHTEN PENTA BOLT AND LOCK CABINET AT ALL TIMES.
CONDUIT STUB-UP DETAIL

5034698

TEMPLATE 5031740

GROUND ROD

X X X X

G BARE #4 COPPER
T BARE #6 COPPER
SEE NOTE 9

5034698

TEMPLATE 5031740

GROUND ROD

X X X X

P PRIMARY PHASES
I INTERTIES

5034698

TEMPLATE 5031740

GROUND ROD

X X X X

S SERVICES
PL POWER LEG

X NOT USED

CONDUIT DETAIL

T1

12" TO 24"

1-3" FLEX CONDUIT

PRIMARY CONDUIT (3)

#4 COPPER GROUND
DIRECT BURIED NO CONDUIT

T2

12" TO 24"

1-3" FLEX CONDUIT

SERVICE CONDUITS
NOTES

1. SEE PAGE 9-7-1 FOR PAD-MOUNTED TRANSFORMER CODING WHEN ORDERING TRANSFORMERS.

2. THE IMPEDANCE OF LIGHTER TRANSFORMER L SHALL NOT EXCEED 4.1%. THE LARGEST NAME PLATE IMPEDANCE SHALL NOT BE MORE THAN 1.14 TIMES THE SMALLEST IMPEDANCE.

3. SECONDARY INTERTIE CONDUCTORS ARE BASED ON TEASER TRANSFORMER SIZE. ORDER BY THE MATERIAL ITEM NUMBER LISTED BELOW.

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<td>3-350 MCM Al.</td>
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</table>

4. ALL PAD ELEVATIONS SHALL BE ESTABLISHED BY SURVEY (BLUE TOP).

5. TOP OF GROUND ROD AND ALL CONDUITS SHALL BE 5" INCHES ABOVE FINAL GRADE.

6. INSTALL 5/8" X 8' GROUND ROD AT EACH TRANSFORMER AT LOCATION SHOWN ON TEMPLATE.

7. INTERTIE CONDUITS BETWEEN TRANSFORMERS SHALL BE CORRUGATED 3" PVC.

8. INSTALL #4 BARE CU GROUNDS BETWEEN TRANSFORMER AS SHOWN. LEAVE 2' LEADS ABOVE GRADE.

9. FOR TELCO OR CATV BONDING (WHEN REQUIRED), INSTALL #6 BARE CU TO A POINT 12" OUTSIDE OF LIGHTER TRANSFORMER PAD IN PRIMARY TRENCH AT A DEPTH OF 12". LEAVE 2' LEAD ABOVE GRADE.

10. CONDUIT AND GROUNDS RUNS BETWEEN TRANSFORMERS SHALL HAVE MINIMUM OF 36" OF COVER.

11. PADS SHALL BE LEVEL BEFORE SETTING TRANSFORMERS.

12. REMOVE GROUNDING STRAP AND MAKE NO CONNECTIONS TO THE X2 BUSHING IN TEASER TRANSFORMERS T1 AND T2. COVER BUSHING STUDS USING 5035156.

13. NEUTRAL CONDUCTOR OF ALL SERVICE CABLE SHALL BE CONNECTED TO SECONDARY NEUTRAL X2 BUSHING IN LIGHTER TRANSFORMER ONLY.

14. VOLTAGE MEASURED BETWEEN POWER LEG C AND NEUTRAL N SHOULD BE APPROXIMATELY 208 V. DO NOT CONNECT ANY 120 V SERVICES TO THIS PHASE.

15. CONNECT #4 CU FROM GROUND RODS, #4 CU GROUND INTERTIES, AND #6 CU TELCO/CATV GROUND TO GROUND LUGS IN TRANSFORMERS.

16. TRAIN CONCENTRIC NEUTRAL WIRES DOWN ALONG CABLE AND CONNECT TO #4 CU FROM GROUND ROD USING COMPRESSION CONNECTORS. SEE PAGE 8-11-1 FOR COMPRESSION CONNECTORS.

17. SEE MISCELLANEOUS SECTION FOR TRANSFORMER AND CABLE MARKING REQUIREMENTS AND METHODS.

18. INSTALL WARNING DECAL (MATERIAL ITEM # 5035826) INSIDE COMPARTMENT THAT STATES "THIS TRANSFORMER IS BANKED WITH THE ADJACENT TRANSFORMER OR TRANSFORMERS AND REMAINS ENERGIZED UNTIL ALL TRANSFORMERS IN THE BANK ARE DE-ENERGIZED."

19. INSTALL CAUTION DECAL (MATERIAL ITEM # 5034939) WARNING AGAINST SINGLE PHASING IN EACH TRANSFORMER TERMINATION COMPARTMENT AND THE SOURCE FUSING ENCLOSURE ON THE PRIMARY CABLES.

20. SEE CONNECTORS, SPLICES, AND TERMINATIONS IN CABLES AND ACCESSORIES SECTION FOR LUBRICATION PROCEDURES FOR TRANSFORMER BUSHINGS.

21. TIGHTEN PENTA BOLT AND LOCK CABINET AT ALL TIMES.
### THREE-PHASE PRIMARY VOLTAGE 12.47KV L-L, DELTA CONNECTED

#### SECONDARY VOLTAGE

<table>
<thead>
<tr>
<th>TRANSF. SIZE (KVA)</th>
<th>208Y/120 V LOOP THRU (SEE NOTES)</th>
<th>480Y/277 V LOOP THRU (SEE NOTES)</th>
<th>2400 V DELTA RADIAL FEED</th>
<th>2400 V DELTA LOOP THRU (SEE NOTES)</th>
<th>4160Y/2400 V LOOP THRU (SEE NOTES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>UX41LN</td>
<td>UX31LN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>UX43LN</td>
<td>UX33LN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>225</td>
<td>UX44LN</td>
<td>UX34LN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>UX45LN</td>
<td>UX35LN</td>
<td>UX21DN</td>
<td>UXS25DLN**</td>
<td>UX21N</td>
</tr>
<tr>
<td>500</td>
<td>UX46LN</td>
<td>UX36LN</td>
<td>UX22DN</td>
<td>UXS26DLN**</td>
<td>UX22N</td>
</tr>
<tr>
<td>750</td>
<td>UX47LN</td>
<td>UX37LN</td>
<td>UX23DN</td>
<td>UXS27DLN**</td>
<td>UX23N</td>
</tr>
<tr>
<td>1,000</td>
<td>UX48LN</td>
<td>UX38LN</td>
<td>UX24DN</td>
<td>UXS28DLN**</td>
<td>UX24N</td>
</tr>
<tr>
<td>1,500</td>
<td>UX49LN</td>
<td>UX39LN</td>
<td>UX25DN</td>
<td>UXS29DLN**</td>
<td>UX25N</td>
</tr>
<tr>
<td>2,000</td>
<td>UX310LN</td>
<td>UX310LN</td>
<td>UX210DLN**</td>
<td>UX210LN**</td>
<td></td>
</tr>
<tr>
<td>2,500</td>
<td>UX311LN</td>
<td>UX311LN</td>
<td>UX211DLN**</td>
<td>UX211LN**</td>
<td></td>
</tr>
<tr>
<td>3,000</td>
<td>UX313LN*</td>
<td></td>
<td></td>
<td></td>
<td>UX28LN</td>
</tr>
</tbody>
</table>

*NOT FOR NORMAL USE (NOT STOCKED). CONTACT ELECTRIC SYSTEM ENGINEERING IF THIS ITEM IS NECESSARY.

**THESE UNITS ARE SET 4160Y/2400V FROM THE MANUFACTURER BUT MAY BE CONVERTED TO 2400 V DELTA.

**PROCEDURE FOR CONVERTING 4160Y/2400 V TRANSFORMERS TO 2400 V DELTA:**

1. DESIGN WILL REQUEST SHOPS CONVERT THE REQUIRED SIZE TRANSFORMER FROM 4160Y/2400 V TO 2400 V DELTA.
2. SHOPS WILL OPERATE THE SWITCH, RE-LABEL THE VOLTAGE ON THE DOOR TO "2400 V DELTA", CHANGE THE MATERIAL ITEM NUMBER, ADVISE DESIGN WHEN WORK IS COMPLETED AND ADVISE WAREHOUSING TO REFLECT THE CHANGE IN STOCK ON HAND.

### THREE-PHASE PRIMARY VOLTAGE 12.47 KV – GROUNDED Y CONNECTED

**FOR CO-GENERATION SERVICE ONLY**

#### SECONDARY VOLTAGE

<table>
<thead>
<tr>
<th>TRANSF. SIZE (KVA)</th>
<th>480Y/277 V LOOP THRU (SEE NOTES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>UX38GLN</td>
</tr>
<tr>
<td>2,000</td>
<td>UX310GN</td>
</tr>
<tr>
<td>2.500</td>
<td>UX311GN</td>
</tr>
</tbody>
</table>
NOTES

1. ALL LOOP-THRU TRANSFORMERS ARE PROVIDED ELBOWS FOR 4/0 AL.
2. REMOVE "N" FROM THE COMPATIBLE UNIT WHEN A PAD IS TO BE PROVIDED BY SRP.
3. FOR RADIAL FEED, ORDER 3 UXBC AND DELETE 3 OF #5035425.
4. UXBPB INSULATED BUSHING CAP AND INSULATED PARKING BUSING FOR NORMAL OPEN OR RADIAL INSTALLATION WITH CABLE STUB OUTS.
NOTES

1. INSTALL ENCLOSURE ON PAD SO THAT IT IS NEXT TO, BUT NOT COVERING SERVICE OPENING IN TRANSFORMER PAD.

2. TERMINATE PRIMARY CONDUCTORS 6" HIGHER THAN PARKING BUSHING TO PROVIDE SLACK TRAINING.

3. INSTALL FEED THRU PARKING BUSHING AS SHOWN FOR FEED THRU APPLICATION OF 4/0 LOOP.

4. FASTEN ENCLOSURE TO PAD.

5. WHEN INSTALLING THIS ENCLOSURE IN AN AREA WITH EXISTING 4" CONDUIT, USE THIS PRIMARY WINDOW CONFIGURATION, NOT THE ONE SHOWN WITH 6 - 2.5" OR 3" CONDUIT.

6. USE 1/2" - 13 X 1 - 3/4" BOLTS AND WASHERS, SUPPLIED WITH SAFETY COVER (5034684), TO FASTEN THE SAFETY COVER TO PAD OVER THE PAD SECONDARY WINDOW GAP COVER PLATE. PLACE THE 1/2" BOLTS, SUPPLIED WITH THE PAD'S SECONDARY GAP COVER PLATE, INSIDE THE PDP ENCLOSURE COVER SHOULD LAY FLAT ON PAD, DO NOT OVER-TIGHTEN BOLTS.

7. TOP OF PAD SHALL BE 4" MINIMUM ABOVE SURROUNDING FINISH GRADE AND AT SUFFICIENT ELEVATION TO PREVENT FLOODING.

8. GROUND FEED THRU BUSHING TO 2/0 CU GROUND BUS.
### RADIAL FEED TRANSFORMERS – FUSING

<table>
<thead>
<tr>
<th>THREE PHASE TRANSFORMER (KVA)</th>
<th>IN TRANSFORMER PRIMARY COMPARTMENT</th>
<th>IN LIVE-FRONT OR DEAD-FRONT AIR INSULATED FUSE ENCLOSURE (NOTE 3)</th>
<th>IN DEAD-FRONT OIL INSULATED FUSE ENCLOSURE (NOTE 4)</th>
<th>AT POLE RISER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SIZE</td>
<td>STOCK CODE NO.</td>
<td>SIZE</td>
<td>STOCK CODE NO.</td>
</tr>
<tr>
<td>75</td>
<td>8</td>
<td>5091265</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>112.5</td>
<td>10</td>
<td>5091259</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>150</td>
<td>12</td>
<td>5034553</td>
<td>8</td>
<td>5034437</td>
</tr>
<tr>
<td>225</td>
<td>18</td>
<td>5034555</td>
<td>15</td>
<td>5034438</td>
</tr>
<tr>
<td>300</td>
<td>25</td>
<td>5034557</td>
<td>25</td>
<td>5034439</td>
</tr>
<tr>
<td>500</td>
<td>40</td>
<td>5034559</td>
<td>25</td>
<td>5034439</td>
</tr>
<tr>
<td>750</td>
<td>80</td>
<td>5034573</td>
<td>50</td>
<td>5034440</td>
</tr>
<tr>
<td>1,000</td>
<td>80</td>
<td>5034573</td>
<td>50</td>
<td>5034440</td>
</tr>
<tr>
<td>1,500 (NOTE 5)</td>
<td>100</td>
<td>5034416</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,000 (NOTE 5)</td>
<td>125</td>
<td>5034417</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,500 (NOTE 5)</td>
<td>150</td>
<td>5034418</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### NOTES

1. CHECK UNIT FOR FUSING IN THE TRANSFORMER’S PRIMARY COMPARTMENT. FOLLOW RULES ON PAGE 9-18-2 FOR UNITS WITH BAYONET FUSING. CONTACT STANDARDS IF FUSING OTHER THAN BAYONET EXISTS.

2. CHECK UNIT FOR FUSING IN THE TRANSFORMER’S PRIMARY COMPARTMENT. UNITS MAY CONTAIN PARALLEL 40A FUSES PER PHASE, STOCK CODE NUMBER 5034559.

3. REMOVE PULLING EYE AND ARC STRANGLER ON 8 A TO 40 A FUSES WHEN INSTALLED IN DEAD-FRONT, AIR-INSULATED FUSING ENCLOSURE.

4. FUSE IN USED IN SERIES WITH A CURRENT LIMITING FUSE, STOCK CODE NUMBER 5034572.

5. FUSE HOLDERS ARE STOCK CODE NUMBER 5034427 (SM-4Z) OR 5034428 (SML-4Z)
## LOOP FEED TRANSFORMERS - FUSING

### IN TRANSFORMER PRIMARY COMPARTMENT (NOTE 1)

<table>
<thead>
<tr>
<th>THREE PHASE TRANSFORMER (KVA)</th>
<th>FUSE SIZE (AMPS)</th>
<th>STOCK CODE NO.</th>
<th>IN LIVE-FRONT OR DEAD-FRONT AIR INSULATED FUSE ENCLOSURE (NOTE 4)</th>
<th>IN DEAD-FRONT OIL INSULATED FUSE ENCLOSURE</th>
<th>AT POLE RISER (NOTE 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>75</td>
<td>8</td>
<td>5034437</td>
<td>100 A FUSE • STOCK CODE NO. 5034574 SEE PAGE 3-12-1</td>
<td>80 A FUSE • STOCK CODE NO. 5034440 (50 A BAY-O-NET) WITH 5034572 (CURRENT LIMITER) ------OR------ 5034572 (FULL RANGE FUSE)</td>
<td>85 A FUSE • STOCK CODE NO. 5034502 ------OR------ 100 A FUSE • STOCK CODE NO. 5034632 • WHEN LOOP EXCEEDS 1500 KVA</td>
</tr>
<tr>
<td>112.5</td>
<td>15</td>
<td>5034438</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>150</td>
<td>15</td>
<td>5034438</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>225</td>
<td>25</td>
<td>5034439</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>300</td>
<td>25</td>
<td>5034439</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>500</td>
<td>50</td>
<td>5034440</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>750</td>
<td>65</td>
<td>5034441</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1,000</td>
<td>65</td>
<td>5034441</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1,500</td>
<td>140</td>
<td>5034443</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2,000</td>
<td>140 ---OR--- 125</td>
<td>5034443</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>2,500 (NOTE 2)</td>
<td>125</td>
<td>5034442</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>3,000 (NOTE 3)</td>
<td>146</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### NOTES

1. PRIOR TO ENERGIZING ANY TRANSFORMER WITH A BAYONET FUSE, THE INSTALLATION CREW MUST CHECK FUSE FOR PROPER SIZE AND TIGHTNESS OF FUSE ASSEMBLY. 5034442 IS AN INTEGRAL CARTRIDGE.

2. UNITS HAVE EITHER BAYONET FUSE OR INTERNALLY MOUNTED EXPULSION FUSES. BAYONET IS FIELD REPLACEABLE, OTHERS ARE NOT.

3. INTERNALLY MOUNTED EXPULSION FUSE. NON-FIELD REPLACEABLE.

4. USE BLADE DISCONNECTS WHEN LOAD CABLE IS #4/0 AL.
### Transformer Tap Setting Chart

<table>
<thead>
<tr>
<th>Transformer Name Plate Voltage Rating</th>
<th>Customer's Service Voltage</th>
<th>Transformer Taps Provided 2-1/2% Each</th>
<th>Tap Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7200 12470</strong></td>
<td>240/120 208Y/120 480Y/277</td>
<td>4 BELOW 2 ABOVE, 2 BELOW</td>
<td>1 OR A ---</td>
</tr>
<tr>
<td></td>
<td>240/120 208Y/120 480Y/277</td>
<td>4 BELOW 2 ABOVE, 2 BELOW</td>
<td>2 OR B ---</td>
</tr>
<tr>
<td></td>
<td>240/120 208Y/120 480Y/277</td>
<td>4 BELOW 2 ABOVE, 2 BELOW</td>
<td>3 OR C * ---</td>
</tr>
<tr>
<td></td>
<td>240/120 208Y/120 480Y/277</td>
<td>4 BELOW 2 ABOVE, 2 BELOW</td>
<td>4 OR D ---</td>
</tr>
<tr>
<td></td>
<td>2400/4160Y/2400 2400/4160Y/2400</td>
<td>2 ABOVE, 2 BELOW</td>
<td>3 OR C ---</td>
</tr>
<tr>
<td><strong>12000</strong></td>
<td>240/120 208Y/120 480Y/277</td>
<td>2 ABOVE, 2 BELOW</td>
<td>--- 3 OR C</td>
</tr>
<tr>
<td><strong>12470 21600</strong></td>
<td>240/120 208Y/120 480Y/277</td>
<td>2 ABOVE, 2 BELOW</td>
<td>--- 4 OR D</td>
</tr>
<tr>
<td></td>
<td>2400/4160Y/2400 2400/4160Y/2400</td>
<td>2 ABOVE, 2 BELOW</td>
<td>--- 4 OR D</td>
</tr>
</tbody>
</table>

TAP SETTINGS OTHER THAN SHOWN ABOVE SHOULD BE USED TO MAINTAIN THE VOLTAGE AT THE CUSTOMER'S METER WITHIN THE FOLLOWING LIMITS (SEE PAGE 9-19-2):

<table>
<thead>
<tr>
<th>Nominal System Voltage</th>
<th>Service Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum</td>
</tr>
<tr>
<td>240/120</td>
<td>228/114</td>
</tr>
<tr>
<td>208Y/120</td>
<td>197/114</td>
</tr>
<tr>
<td>480Y/277</td>
<td>456/263</td>
</tr>
<tr>
<td>480</td>
<td>456</td>
</tr>
</tbody>
</table>

**NOTE**

* MINIMUM SERVICE VOLTAGE IS GIVEN AT FULL LOAD.
* MAXIMUM SERVICE VOLTAGE IS GIVEN AT NO LOAD.

**NOTES**

* THIS TAP SETTING IS FOR ALL NEW INSTALLATIONS. FOR CHANGE OUT OF EXISTING TRANSFORMERS, CHECK THE EXISTING TAP SETTING AND VOLTAGE, AS SOME OLDER EQUIPMENT WAS DESIGNED FOR 440 VOLTS. FOR THOSE CASES THE TAP SETTING SHOULD BE 2 OR B.

** THIS TAP RESULTS IN HIGHER THAN DESIRED NOMINAL VOLTAGE. REMAINING TAPS WILL INCREASE SECONDARY VOLTAGE FURTHER.
DISTRIBUTION TRANSFORMER
TAP SETTING ADJUSTMENT PROCEDURE

1. PRIMARY TAP SETTINGS TO ADJUST SECONDARY VOLTAGE:
   TRANSFORMER NAMEPLATE WILL SHOW TAP POSITION AND ASSOCIATED PRIMARY VOLTAGE.
   THE HIGHEST PRIMARY VOLTAGE IS LABELED TAP 1 OR “A”, BY STANDARDS.

2. FOR A TRANSFORMER WITH 2 ABOVE AND 2 BELOW PRIMARY TAPS:
   NOMINAL TAP POSITION IS 3 OR “C” (E.G. 12470 V OR 100%)
   MOVING TO TAP 4 (E.G. 12158 V OR 97.5%, A LOWER PRIMARY VOLTAGE) WILL INCREASE THE
   SECONDARY VOLTAGE BY APPROXIMATELY 2.5%.
   MOVING TO TAP 2 (E.G. 12781 V OR 102.5%, A HIGHER PRIMARY VOLTAGE) WILL DECREASE THE
   SECONDARY VOLTAGE BY APPROXIMATELY 2.5%.

3. FOR A TRANSFORMER WITH 4 BELOW PRIMARY TAPS:
   NOMINAL TAP POSITION IS 1 OR “A” (E.G. 12470 V OR 100%). BECAUSE ALL TAP POSITIONS ARE
   BELOW, EACH TAP POSITION WILL INCREASE THE SECONDARY VOLTAGE BY APPROXIMATELY 2.5%.
   THE TAP SETTING TABLE PROVIDES THE RECOMMENDED INITIAL PRIMARY TAP FOR NEW
   INSTALLATIONS.
   TAKE VOLTAGE MEASUREMENTS AT THE SERVICE ENTRANCE SECTION(S) AND ADJUST TAP
   POSITION, IF NECESSARY, TO PROVIDE THE SECONDARY VOLTAGE WITHIN THE ACCEPTABLE
   RANGE, PER THE TABLE. THESE VALUES ARE CONTINUOUS LIMITS. DO NOT USE TAP
   POSITIONS TO COMPENSATE FOR FLICKER, AS THIS WILL LIKELY RESULT IN VALUES
   EXCEEDING THE MAXIMUM, UNDER NO LOAD CONDITIONS.
   NOTE: OBTAIN THE MAXIMUM VOLTAGE WITHOUT LOAD APPLIED (BREAKERS OPEN). OBTAIN
   THE MINIMUM VOLTAGE WITH LOAD APPLIED (BREAKERS CLOSED).
### SINGLE PHASE

<table>
<thead>
<tr>
<th>kVA</th>
<th>120</th>
<th>240</th>
<th>277</th>
<th>480</th>
<th>2400</th>
<th>4160</th>
<th>7200</th>
<th>12000</th>
<th>12470</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>25.0</td>
<td>12.5</td>
<td>10.8</td>
<td>6.3</td>
<td>1.25</td>
<td>.72</td>
<td>.42</td>
<td>.25</td>
<td>.24</td>
</tr>
<tr>
<td>5</td>
<td>41.7</td>
<td>20.8</td>
<td>18.1</td>
<td>10.4</td>
<td>2.08</td>
<td>1.20</td>
<td>.69</td>
<td>.42</td>
<td>.40</td>
</tr>
<tr>
<td>10</td>
<td>83.3</td>
<td>41.7</td>
<td>36.1</td>
<td>20.8</td>
<td>4.17</td>
<td>2.40</td>
<td>1.39</td>
<td>.83</td>
<td>.80</td>
</tr>
<tr>
<td>15</td>
<td>125.0</td>
<td>62.5</td>
<td>54.2</td>
<td>31.3</td>
<td>6.25</td>
<td>3.61</td>
<td>2.08</td>
<td>1.25</td>
<td>1.20</td>
</tr>
<tr>
<td>25</td>
<td>208.0</td>
<td>104.0</td>
<td>90.3</td>
<td>52.1</td>
<td>10.40</td>
<td>6.01</td>
<td>3.47</td>
<td>2.08</td>
<td>2.00</td>
</tr>
<tr>
<td>37.5</td>
<td>313.0</td>
<td>156.0</td>
<td>135.0</td>
<td>78.1</td>
<td>15.60</td>
<td>9.01</td>
<td>5.21</td>
<td>3.01</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>417.0</td>
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<td>180.0</td>
<td>104.0</td>
<td>20.80</td>
<td>12.00</td>
<td>6.94</td>
<td>4.17</td>
<td>4.01</td>
</tr>
<tr>
<td>75</td>
<td>625.0</td>
<td>313.0</td>
<td>271.0</td>
<td>156.0</td>
<td>31.30</td>
<td>18.00</td>
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<td>6.01</td>
</tr>
<tr>
<td>100</td>
<td>833.0</td>
<td>417.0</td>
<td>361.0</td>
<td>208.0</td>
<td>41.70</td>
<td>24.00</td>
<td>13.90</td>
<td>8.33</td>
<td>8.02</td>
</tr>
<tr>
<td>167</td>
<td>1392.0</td>
<td>696.0</td>
<td>603.0</td>
<td>348.0</td>
<td>69.60</td>
<td>40.10</td>
<td>23.20</td>
<td>13.90</td>
<td>13.40</td>
</tr>
<tr>
<td>250</td>
<td>2083.0</td>
<td>1042.0</td>
<td>903.0</td>
<td>521.0</td>
<td>104.00</td>
<td>60.10</td>
<td>34.70</td>
<td>20.80</td>
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</tr>
<tr>
<td>333</td>
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<td>1388.0</td>
<td>1191.0</td>
<td>694.0</td>
<td>139.00</td>
<td>80.00</td>
<td>46.30</td>
<td>27.70</td>
<td>26.70</td>
</tr>
<tr>
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<td>4167.0</td>
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<td>1805.0</td>
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**FULL LOAD CURRENT** = \( \frac{\text{kVA \times 1000}}{\text{LINE TO GROUND VOLTAGE}} \)

### THREE PHASE *

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<tr>
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<td>200.0</td>
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</table>

* **APPLIES TO 3-POT BANKS HAVING EQUAL SIZE TRANSFORMERS, OR THREE PHASE PAD MOUNT.**

**FULL LOAD CURRENT** = \( \frac{\text{kVA \times 1000}}{(1.732 \times \text{LINE TO LINE VOLTAGE})} \)
NOTES
1. SERVICE CONDUIT ORDER IS FROM THE REAR IN BOTH THE TRANSFORMER PAD WINDOW AND SES.
2. SECONDARY WINDOW GAP COVER PLATE PROVIDED BY THE PAD MANUFACTURER.

*PAD 5069779 WILL ALSO ACCOMMODATE A 1000 KVA TRANSFORMER. 10 SERVICE CONDUITS MAX. SEE NOTE 2.

FOR EXISTING 4" CONDUIT SYSTEMS
- OR -
2-1/2" OR 3" CONDUIT
1 CONDUCTOR EACH
FOR EXISTING 4" CONDUIT SYSTEMS
- OR -
4" CONDUIT
3 CONDUCTORS EACH
DENOTES 8' GROUND ROD
FRONT DETAIL A
FRONT DETAIL B
NOTE 1

4" CONDUIT
( FOR 11 TO 13 CONDUITS USE 10' X 10' PAD)

FOR EXISTING 4" CONDUIT SYSTEMS
- OR -
1 CONDUCTOR EACH
4" CONDUIT
3 CONDUCTORS EACH
DENOTES 8' GROUND ROD
FRONT DETAIL A
FRONT DETAIL B
NOTE 1

4" CONDUITS
( FOR MORE THAN 13 CONDUITS USE PAD WITH SECONDARY PIT SHOWN ON PAGE 9-23-1)
NOTES

1. INITIAL SERVICE CABLES INSTALLED SHALL OCCUPY THE REARMOST CONDUITS OF THE TRANSFORMER SECONDARY WINDOW IN ORDER NUMBERED ABOVE. COMPLETE ROWS SHALL BE USED. FUTURE CABLE ADDITIONS WILL THEN BE IN FRONT OF CONDUIT WITH EXISTING CABLE.

2. WHEN CABLES ARE INSTALLED, THEY ARE PULLED THROUGH THE OPEN COVERED SECTION OF THE BOX.

3. CABLES ARE CUT AND FED THROUGH PAD WINDOW GAP TO TRANSFORMER BUSHINGS.

4. DIMENSION FOR AN 8’ X 8’ PAD IS 28”.

5. FOR NEW INSTALLATIONS OR UPGRADES IN WHICH SERVICE CONDUITS ARE NOT RACKED AND ENCASED, BACKFILL MATERIAL UNDER THE PULL BOX SHALL BE 1/2 SACK CLSM, MATERIAL ITEM NUMBER 575313.

6. FOR NEW TRANSFORMER INSTALLATIONS SEE UNDERGROUND DISTRIBUTION CONSTRUCTION STANDARDS SECTION 6. FOR BACKFILL REQUIREMENTS UNDER THE PAD. UNDISTURBED NATIVE BACKFILL CAN REMAIN FOR MODIFICATIONS WHEN A PULL BOX IS ADDED.

7. CONCRETE ENCASEMENT TO BE 3,000 PSI MINIMUM.

8. CONCRETE ENCASEMENT RING DIMENSION “D” TO BE EQUAL TO DESIGN PAVEMENT DEPTH PLANS.

9. PAVEMENT AND SUBGRADE TO BE AS SHOWN ON THE ENGINEERING PLANS.

10. 1” MAXIMUM OVERLAP OF PAD AND BOX LID.
WARNING

1. UXBG is only needed if extensions are installed, and the clearance between the extensions and the transformer door is less than 2 inches.
2. If the gap is over 1/2" the door latch mechanism may get jammed.
3. Make sure the s-hook is bent over the plastic such that it cannot be removed from the plastic sheet.

S-HOOKS AND PLASTIC SHEET ARE STOCK CODE 5234928

NOTES
NOTES

1. PRIMARY AND SECONDARY CONDUITS ARE STUBBED UP SIDE BY SIDE IN THE CENTER OF EACH PAD OPENING. CONDUIT STUB-OUTS SHALL BE PER SRP JOB ORDER DRAWINGS. IF INDIVIDUAL CONDUITS ARE USED FOR PRIMARY CONDUCTOR, ARRANGE 3 IN LINE FRONT TO BACK FOR INCOMING AND FOR OUTGOING CIRCUITS.

2. SEE LUBRICATING PROCEDURE FOR BUSHINGS AND DEAD FRONT TERMINATIONS IN THE CABLE AND ACCESSORIES SECTION.

3. TRANSFORMER SHALL BE LOCKED AT ALL TIMES.


5. THE GROUNDING STRAP FROM THE SECONDARY X₀ BUSHING SHALL BE CONNECTED TO THE CASE GROUND IN THE SECONDARY COMPARTMENT.

6. SRP STANDARDS REQUIRE THAT EACH CONDUIT HAVE ONE (1) 3Φ, 4-WIRE CIRCUIT. FOR ANY EXCEPTION, CONTACT ELECTRIC SYSTEM ENGINEERING.

7. INSTALL GROUND ROD SO IT DOES NOT INTERFERE WITH ANY CONDUCTORS. CONNECT THE #4 CU. LEAD TO THE GROUND ROD. THE GROUND ROD IS NOT REQUIRED WHEN BARE CONCENTRIC NEUTRAL IS DIRECT BURIED.

8. ORDER 3 UXBC WHEN USED AS A RADIAL.
FOUR POSITION ROTARY SWITCH

SWITCH POSITION

1. LINE "A" - TRANSFORMER IS CONNECTED TO SOURCE "A" ONLY.
2. LINE "A & B" - TRANSFORMER IS CONNECTED TO SOURCE "A" AND SOURCE "B" (SOURCES FEED-THRU)
3. LINE "B" - TRANSFORMER IS CONNECTED TO SOURCE "B" ONLY.
4. OPEN - TRANSFORMER IS NOT CONNECTED TO EITHER SOURCE.

IF THE INTERNAL SWITCH IS A "T" BLADE:
SOURCE "A" AND "B" ARE TIED TOGETHER
IF THE INTERNAL SWITCH IS A "V" BLADE:
SOURCE "A" AND "B" ARE NOT TIED TOGETHER

NOTES

1. ON SOME TRANSFORMERS THE INDEX PLATE MUST FIRST BE SET TO THE NEXT DESIRED POSITION OF THE SWITCH AS IT PREVENTS THE SWITCH FROM ROTATING MORE THAN ONE POSITION AT A TIME.
   IF SWITCH IS NOT AS SHOWN, REFER TO NAMEPLATE.
2. OPERATION OF A V BLADE OR T BLADE SWITCH RESULTS IN A MOMENTARY OUTAGE (LESS THAN A SECOND).

TWO SWITCHES (TWO POSITION)

SWITCH "A"  SWITCH "B"
1. CLOSE OPEN - TRANSFORMER IS CONNECTED TO SOURCE "A" ONLY.
2. CLOSED CLOSED - TRANSFORMER IS CONNECTED TO SOURCE "A" AND SOURCE "B" (SOURCES FEED-THRU)
3. OPEN CLOSED - TRANSFORMER IS CONNECTED TO SOURCE "B" ONLY
4. OPEN OPEN - TRANSFORMER IS NOT CONNECTED TO EITHER SOURCE.
   SOURCES ARE NOT TIED TOGETHER.

NOTES

1. THERE IS NO MOMENTARY OUTAGE DURING THE OPERATION OF THIS TYPE OF SWITCH AS THERE IS WITH THE ABOVE V AND T BLADES.
NOTES

1. ALL DIMENSIONS SHOWN ARE MINIMUMS.

2. USING 750MCM 15kV CLASS INDOOR/OUTDOOR TERMINATIONS (SEE CH. 8, CABLE AND ACCESSORIES), INSTALL THE LOWEST PHASE BUSHING (X2) TERMINATION PER COMPATIBLE UNIT STANDARDS INSTRUCTIONS. FOR THE "X" AND "X" BUSHINGS THE SEMICON CUTOFF MUST BE INCREASED TO LOCATE ALL TERMINATIONS ON THE SAME PLANE. TRAIN THE CABLES SO THEY RISE VERTICALLY TO THE BUSHINGS, MAINTAINING A MINIMUM OF 3" FROM THE TRANSFORMER TANK OR OTHER METAL SURFACES.

3. ALL CONCENTRIC NEUTRAL WIRES MUST BE CONNECTED TOGETHER WITH A COMPRESSION CONNECTOR AND THEN ATTACHED TO THE TRANSFORMER GROUNDING LUG.

4. IF A NEUTRAL CONDUCTOR IS REQUIRED (4-WIRE SERVICES) TRAIN THE CABLES SO IT RISES VERTICALLY TO THE "X" BUSHING.
POLE TYPE TRANSFORMER FOR USE IN VAULTS OR ENCLOSURES

120/208V
(7.2 / 12.47kV PRIMARY)

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<tr>
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<td>UX8100</td>
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<td>UX8167</td>
<td>167</td>
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<td>UX8333</td>
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<tr>
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120/240V
(7.2/12.47kV PRIMARY)

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277/480V
(7.2/12.47kV PRIMARY)

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<td>UX10500</td>
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## Fusing for Pole Type Transformers Installed in a Vault
### 7.2KV, 12.47KV System

<table>
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<tr>
<th>3 Phase Transformer Bank KVA</th>
<th>Fuse Mounting</th>
<th>Fuse Holder</th>
<th>Fuse</th>
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<td>NONE REQUIRED</td>
<td>40 AMP 5034559 MCGRAW EDISON FA4A40</td>
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### NOTES
1. THE FUSE HOLDER IS INCLUDED IN UFBF2 BUT NOT THE FUSE. REQUEST FUSE SEPARATELY.
2. FUSE MOUNTINGS ARE SINGLE PHASE UNITS. THREE SEPARATE MOUNTINGS, FUSE HOLDERS AND FUSES ARE REQUIRED FOR A 3 PHASE TRANSFORMER BANK.
NOTES

1. TOP OF PAD MUST BE 2" ABOVE FINAL GRADE.
2. PAD MUST BE LEVEL BEFORE SETTING ENCLOSURE.
3. AREA UNDER PAD TO BE COMPACTED PER TRENCH SPECIFICATION NOTES IN TRENCHING SECTION.
4. SEE TRENCHING AND CONDUIT SECTIONS FOR SERVICE STUB-OUT DETAIL.
5. IF OBSTACLES ARE ANTICIPATED IN FRONT OF THE TRANSFORMER (DESIGNATED PARKING), FRONT OF TRANSFORMER SHALL BE ROTATED 90 DEG INTO EASEMENT. ADDITIONAL LABELING SHALL BE PLACED ON THE SIDE OF THE ENCLOSURE FACING ROAD R/W.
NOTES

1. Lightning arresters are required on 500kVA and larger transformers. All arrester connections shall be made using #6 Cu.

2. Train the primary cables to maintain a minimum 3 inch clearance between the arresters and terminations. The clearance between any primary terminal and the grounded transformer tank must be a minimum of 6 inches. Otherwise, the connector must be properly insulated.

3. Transformer shall be locked at all times.

4. Install a tap lug (5016730) onto the transformer grounding pad. Terminate the #4 Cu ground bus and the #6 Cu arrester ground lead into this connector. Train the #4 Cu ground bus in front and along the base of the transformer. Train the concentric neutrals down along the primary cables and connect to the #4 Cu ground bus using compression connectors.

5. The grounding strap from the secondary X1 bushing shall be connected to the case ground in the secondary compartment.

6. For Telco bond: A #6 Cu wire connected to the #4 Cu ground bus using a compression connector shall be run to a point 12 inches outside the pad at a depth of 12 inches in the primary trench.

7. Install ground rod so it does not interfere with any conductors. Connect the #4 Cu lead to the ground rod. Not required when direct buried bare concentric neutral is present.
GUIDELINES FOR TERMINATIONS IN THE PRIMARY COMPARTMENT OF PAD MOUNTED TRANSFORMERS WITH S&C FUSING:


PRIOR TO TERMINATING, VERIFY THAT CONNECTION TO THE TRANSFORMER BUSHINGS IS FROM THE BOTTOM OF THE FUSE MOUNTING. IF THEY ARE DIFFERENT, CONTACT ENGINEERING SERVICES.

CONNECTIONS MADE BY MANUFACTURER (TYPICAL)

FUSE HOLDERS ARE 5034427 (SM-4Z) OR 5034428 (SML-4Z)
PULL BOX PLACEMENT DETAIL
TWO 36"X60"X36" BOXES INSTALLED UNDER TRANSFORMER PAD

CABLE INSTALLATION
1. BOX IS INSTALLED TO ALLOW A COVER TO BE USED FOR A SECURED ACCESS TO PIT.
2. INITIAL CABLES INSTALLED SHALL OCCUPY LOWER MOST CONDUITS AND TERMINATE ON BACK MOST BUSHING POSITIONS. COMPLETE ROWS SHALL BE USED.
3. CABLE PULLING SHALL BEGIN WITH THE BOTTOM ROW. THIS PLACES THE ROWS TO BE USED IN THE FUTURE ABOVE THOSE OCCUPIED BY CABLES.
4. WHEN CABLES ARE INSTALLED, THEY ARE PULLED THROUGH THE PAD WINDOW.
5. THE ANCHOR AND EYEBOLT PROVIDE RIGGING LOCATION.

NOTES
1. CONCRETE ENCASEMENT TO BE 3,000 psi MINIMUM
2. CONCRETE ENCASEMENT RING DIMENSION D TO BE EQUAL TO DESIGN PAVEMENT DEPTH.
3. PAVEMENT AND SUBGRADE TO BE AS SHOWN ON THE ENGINEERING PLANS.

CUT 2 - 15" X 15" WINDOWS IN LOWER PULL BOX FOR CONDUIT ACCESS. LEAVE VERTICAL REINFORCEMENT RIB INTACT. GROUT CONDUITS IN PLACE.

CONCRETE RING AROUND BOX

ASPHALT PAVEMENT

COMPOSILITE BOX & COVER

12"X12"X1/4" STEEL PLATE WITH CORROSION PROTECTION AND EYEBOLT

PULL BOX 1
PULL BOX 2
PULL BOX 1
PULL BOX 2

2' DEEP GRAVEL SUMP

12"X12"X1/4" STEEL PLATE WITH CORROSION PROTECTION AND EYEBOLT

IN ASPHALT PAVEMENTS
PULL BOX PLACEMENT DETAIL
TWO 36"X60"X36" BOXES INSTALLED UNDER TRANSFORMER PAD

NOTES
1. BOX IS INSTALLED TO ALLOW A COVER TO BE USED FOR A SECURED ACCESS TO PIT.
2. INITIAL CABLES INSTALLED SHALL OCCUPY UPPER MOST CONDUITS AND TERMINATE ON BACK MOST BUSHING POSITIONS. COMPLETE ROWS SHALL BE USED.
3. CABLE PULLING SHALL BEGIN WITH THE TOP ROW. THIS PLACES THE ROWS TO BE USED IN THE FUTURE BELOW THOSE OCCUPIED BY CABLES.
4. WHEN CABLES ARE INSTALLED, THEY ARE PULLED THROUGH THE PAD WINDOW.
5. THE ANCHOR AND EYEBOLT PROVIDE RIGGING LOCATION.

12"X12"X1/4" STEEL PLATE WITH CORROSION PROTECTION AND EYEBOLT

CABLE INSTALLATION

1. BOX IS INSTALLED TO ALLOW A COVER TO BE USED FOR A SECURED ACCESS TO PIT.
2. INITIAL CABLES INSTALLED SHALL OCCUPY UPPER MOST CONDUITS AND TERMINATE ON BACK MOST BUSHING POSITIONS. COMPLETE ROWS SHALL BE USED.
3. CABLE PULLING SHALL BEGIN WITH THE TOP ROW. THIS PLACES THE ROWS TO BE USED IN THE FUTURE BELOW THOSE OCCUPIED BY CABLES.
4. WHEN CABLES ARE INSTALLED, THEY ARE PULLED THROUGH THE PAD WINDOW.
5. THE ANCHOR AND EYEBOLT PROVIDE RIGGING LOCATION.
### SINGLE PHASE, PAD MOUNTED TRANSFORMER

**120/240V (21.6KV PRIMARY)**

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<td>UX672</td>
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**120/240V - NO PAD (21.6KV PRIMARY)**

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<td>UX672N</td>
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**240/480V (21.6KV PRIMARY)**

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**240/480V - NO PAD (21.6KV PRIMARY)**

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### 12.47 / 21.6KV SYSTEM

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<tr>
<th>SINGLE PHASE TRANSFORMER KVA</th>
<th>FUSE AND/OR SWITCH ASSEMBLY TYPE</th>
<th>FUSE SIZE</th>
<th>STOCK CODE NO.</th>
<th>SEE NOTE #</th>
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<tbody>
<tr>
<td>15 AND 25</td>
<td>RTE - BAYONET STYLE</td>
<td>3 AMP</td>
<td>5034436</td>
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<td>RTE - BAYONET STYLE</td>
<td>25 AMP</td>
<td>5034439</td>
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### NOTES
1. ALL DEAD FRONT TRANSFORMERS UTILIZE THE RTE BAYONET STYLE FUSE. PRIOR TO ENERGIZING THE TRANSFORMER, THE INSTALLATION CREW MUST CHECK FUSE FOR PROPER SIZE AND TIGHTNESS OF FUSE ASSEMBLY.
THREE PHASE, PAD MOUNTED TRANSFORMER

**PRIMARY VOLTAGE 21.6KV**

<table>
<thead>
<tr>
<th>TRANSFORMER SIZE (KVA)</th>
<th>120/208V</th>
<th>277/480V</th>
<th>2400V</th>
<th>APPROX. WEIGHT (IN LBS.)</th>
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<tr>
<td></td>
<td>RADIAL FEED</td>
<td>LOOP-THRU (SEE NOTE 1)</td>
<td>RADIAL FEED</td>
<td>LOOP-THRU (SEE NOTE 1)</td>
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<tr>
<td>75</td>
<td>UX412L</td>
<td>UX312L</td>
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<tr>
<td>150</td>
<td>UX432L</td>
<td>UX332L</td>
<td></td>
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<tr>
<td>300</td>
<td>UX452L</td>
<td>UX352L</td>
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<tr>
<td>500</td>
<td>UX462L</td>
<td>UX362L</td>
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<td>750</td>
<td>UX472LN</td>
<td>UX372LN</td>
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<td>1000</td>
<td>UX482LN</td>
<td>UX382LN</td>
<td></td>
<td></td>
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<tr>
<td>1500</td>
<td></td>
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<td></td>
</tr>
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<td>2000</td>
<td></td>
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<tr>
<td>2500</td>
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**PRIMARY VOLTAGE 21.6KV, Y CONNECTED**
– FOR CO-GENERATION SERVICE ONLY –

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<td></td>
<td>20000</td>
</tr>
<tr>
<td>2500</td>
<td></td>
<td>21000</td>
</tr>
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</table>

**NOTES**
1. ALL LOOP THRU TRANSFORMERS ARE PROVIDED ELBOWS FOR 1/0 AL.
2. ADD ‘N’ TO THE COMPATIBLE UNIT CODE FOR TRANSFORMERS 500KVA AND SMALLER WHEN A PAD IS NOT REQUIRED.
<table>
<thead>
<tr>
<th>THREE PHASE TRANSFORMER KVA</th>
<th>FUSING IN THE TRANSFORMER PRIMARY COMPARTMENT</th>
<th>FUSING IN DEAD FRONT FUSE ENCLOSURE</th>
<th>FUSING AT THE POLE RISER</th>
</tr>
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<tbody>
<tr>
<td>75</td>
<td>3 AMP RTE *</td>
<td>2-1/2 AMP</td>
<td>5034487</td>
</tr>
<tr>
<td>150</td>
<td>8 AMP RTE *</td>
<td>5-1/2 AMP</td>
<td>5034489</td>
</tr>
<tr>
<td>300</td>
<td>15 AMP RTE *</td>
<td>10 AMP</td>
<td>5034491</td>
</tr>
<tr>
<td>500</td>
<td>25 AMP RTE *</td>
<td>20 AMP</td>
<td>5034493</td>
</tr>
<tr>
<td>750</td>
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<td>5034495</td>
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<td>1000</td>
<td></td>
<td>40 AMP</td>
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<td>65 AMP</td>
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<td>5034501</td>
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<tr>
<td>2500</td>
<td></td>
<td>85 AMP</td>
<td>5034502</td>
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</table>

**RADIAL FEED TRANSFORMERS**

**LOOP FEED TRANSFORMERS**

| 75                          | 3 AMP RTE *                                   | 5034436 358C03                       | PREFERRED: 1/0 AL PRIMARY, 85 AMP, TYPE 'N' FUSES (5034502) AND 100 AMP CUTOUTS (5034371), REQUESTED BY COMPATIBLE UNIT. |
| 150                         | 8 AMP RTE *                                   | 5034437 358C05                       | NOTE: MAX. 3Ø LOOP LOADING = 3000KVA |
| 300                         | 15 AMP RTE *                                  | 5034438 358C08                       |                                        |
| 500                         | 25 AMP RTE *                                  | 5034439 358C10                       |                                        |
| 750                         | 50 AMP RTE *                                  | 5034440 358C12                       |                                        |
| 1000                        |                                               |                                     |                                        |

* ON ALL TRANSFORMERS WITH RTE “BAYONET” STYLE FUSES, THE FUSE LINK MUST BE CHECKED BY THE INSTALLATION CREW FOR PROPER SIZE PRIOR TO ENERGIZING THE TRANSFORMER.
<table>
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<th>TITLE/DESCRIPTION</th>
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<td>DRY LANDSCAPE, CONTROLLED AREA DETAIL</td>
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<td>GROUND SLOPE, FILL AND HORIZONTAL CLEARANCE REQUIREMENTS FOR PAD MOUNTED EQUIPMENT</td>
<td>10-3-1</td>
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<tr>
<td>EROSION PREVENTION METHOD, ENCLOSURES INSTALLED ON SLOPES</td>
<td>10-4-1</td>
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<tr>
<td>EROSION PREVENTION METHODS, PRE-MANUFACTURED WALL</td>
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</tr>
<tr>
<td>CONDUIT INSTALLATION NEAR TREES</td>
<td>10-6-1</td>
</tr>
</tbody>
</table>
1. ELEVATION OF LANDSCAPE CURB TO MATCH SIDEWALK OR TOP OF STREET CURB.

2. ALL CONCRETE CURB WORK SHALL BE DONE IN ACCORDANCE WITH MAG SECTION 340.

3. CURBING OF OTHER MATERIAL OR DESIGN IS ALLOWED WITH THE APPROVAL OF THE HOME BUILDER MANAGEMENT CENTER ENGINEER OR CONSTRUCTION SPECIALIST.
NOTES

1. EASEMENT GRANTOR SHALL MAINTAIN A CLEAR AREA THAT EXTENDS 3 FEET FROM AND AROUND ALL EDGES OF ALL TRANSFORMER PADS AND OTHER EQUIPMENT PADS AND A CLEAR OPERATIONAL AREA THAT EXTENDS 12 FEET IMMEDIATELY IN FRONT OF ALL TRANSFORMER AND OTHER EQUIPMENT OPENINGS. NO OBSTRUCTION, TREES, SHRUBS, FIXTURES OR PERMANENT STRUCTURES SHALL BE PLACED WITHIN SAID AREAS.

2. AREA TO BE DRY LANDSCAPED.

3. SPRINKLER HEADS SHALL BE DIRECTED AWAY FROM PAD MOUNTED EQUIPMENT, AS SHOWN ABOVE. SPRINKLER HEADS SHALL NOT SPRAY ON PAD MOUNTED EQUIPMENT OR DRY LANDSCAPED AREA AROUND EQUIPMENT.

4. DRY LANDSCAPE SURFACE MAY BE CRUSHED GRANITE OR GRAVEL WITH A MAXIMUM PARTICLE SIZE NO GREATER THAN 1", NATIVE SOIL, CONCRETE OR ASPHALT PAVEMENT.

5. SEE PG. 10-1-1 FOR LANDSCAPE BORDER IF REQUIRED.
NOTES

1. REVIEW GEOTECHNICAL REPORT OF AREA FOR PROPER COMPACTION OF FILL OR SOIL BELOW ELECTRICAL EQUIPMENT PADS. FILL SHALL BE NATIVE COMPACTED FILL. ALL FILL MATERIAL SHALL BE IN COMPLIANCE WITH THE GEOTECHNICAL REPORT. SEE TRENCHING, SOIL TYPES, BACKFILL MATERIAL AND COMPACATION REQUIREMENTS.

2. THE MAXIMUM SLOPE PER SRP REQUIREMENTS IS 3 HORIZONTAL TO 1 VERTICAL. IF 3 HORIZONTAL TO 1 VERTICAL SLOPE IS EXCEEDED, SUBMIT A SET OF ENGINEERED CALCULATIONS SHOWING A SLOPE STABILITY ANALYSIS OR A RETAINING WALL DESIGN TO POLICIES, PROCEDURES AND STANDARDS FOR APPROVAL.
NOTES

1. WHEN IT BECOMES NECESSARY TO NOTCH OUT OR FILL A SLOPE TO INSTALL AN ENCLOSURE, THE CLEARED AREA SHOULD BE OF SUFFICIENT SIZE TO ACCOMMODATE THE ENCLOSURE AND SHORINGS. SLOPE IN FRONT OF ENCLOSURE SHALL NOT BE GREATER THAN 30" IN 12 FEET. ALL GrADING IS TO BE DONE BY DEVELOPER.

2. AREA UNDER AND BEHIND PAD MUST BE LEVEL AND COMPACTED TO 95% DENSITY (SEE BACKFILL REQUIREMENTS ON PAGE 6-9-2).

3. A BACK RETAINING WALL IS REQUIRED WHEN THE CHANGE IN GROUND ELEVATION IS 12 INCHES OR MORE AT ANY POINT 18 INCHES OR LESS BEHIND THE PAD.

4. A SIDE RETAINING WALL IS REQUIRED WHEN THE CHANGE IN GROUND ELEVATION IS 18" OR MORE AT ANY POINT 18 INCHES OR LESS BEHIND THE PAD.

5. A SIDE RETAINING WALL IS REQUIRED WHEN THE CHANGE IN GROUND ELEVATION IS 12" OR MORE AT ANY POINT 18 INCHES OR LESS TO THE SIDE OF THE PAD.

6. A FRONT RETAINING WALL IS REQUIRED WHEN THE CHANGE IN GROUND ELEVATION IS 12" OR MORE AT ANY POINT 12 FEET OR LESS IN FRONT OF THE PAD.

7. THIS DIMENSION MAY BE REDUCED TO 4 FEET IF MEASURED FROM A STREET CURB.

8. DEVELOPER SHALL INSTALL GUARDRAIL PER THE AUTHORITY HAVING JURISDICTION.

9. 3 FOOT MINIMUM ON ALL EQUIPMENT EXCEPT SINGLE PHASE TRANSFORMERS. ON SINGLE PHASE TRANSFORMERS 18 INCH MINIMUM ALLOWED FOR FIRE AND RETENTION WALLS.

Underground Distribution Construction Standards

LANDSCAPING

EROSION PREVENTION METHOD

ENCLOSURES INSTALLED ON SLOPES
NOTES

1. WHEN IT BECOMES NECESSARY TO NOTCH-OUT OR FILL A SLOPE TO INSTALL AN ENCLOSURE, THE CLEARED AREA SHOULD BE OF SUFFICIENT SIZE TO ACCOMMODATE THE ENCLOSURE AND SHORINGS. SLOPE IN FRONT OF ENCLOSURE SHALL NOT BE GREATER THAN 30 INCHES IN 12 FEET.

2. AREA UNDER AND BEHIND PAD MUST BE LEVEL AND COMPACTED, PER TRENCH SPECIFICATION NOTES IN TRENCHING SECTION.

3. A WALL IS REQUIRED IF THIS DIMENSION IS 12" OR MORE.

4. PACK SOIL AROUND WALL TO SURROUNDING GRADE TO HOLD WALL IN PLACE.

5. PACK SOIL BETWEEN WALL AND PAD TO ONE HALF PAD LEVEL.

6. REMOVE ALL SOIL FROM SURFACE OF PAD.

7. IF ASSISTANCE IS REQUIRED, CONTACT ELECTRIC SYSTEM ENGINEERING.

8. THIS DIMENSION MAY BE REDUCED TO 4 FEET IF MEASURED FROM A STREET CURB.

9. SEE ALSO ELECTRICAL CLEARANCE STANDARDS BOOK.

10. THIS WALL FOR 1Ø PADS ONLY.

11. TOP OF PAD SHALL BE 4" MINIMUM ABOVE SURROUNDING FINISH GRADE AND AT SUFFICIENT ELEVATION TO PREVENT FLOODING.
CONDUIT INSTALLATION NEAR TREES

1. WHEN POSSIBLE, KEEP BORES ADJACENT TO TREES AT THE MINIMUM DIMENSIONS SHOWN BELOW:

2. WHEN POSSIBLE, KEEP OPEN CUTS AT LEAST AS FAR AWAY FROM TREES AS SHOWN BELOW:

GENERAL GUIDELINES

A. WHEN POSSIBLE, ADHERE TO THE NATIONAL ARBOR DAY FOUNDATION'S GUIDE, "TRENCHING AND TUNNELING NEAR TREES - A FIELD POCKET GUIDE FOR QUALIFIED UTILITY WORKERS" (LATEST EDITION).

B. ANY ROOT 2" OR LARGER THAT IS ACCIDENTALLY CUT SHALL BE SAWED CLEAN THROUGH AN UNDAMAGED PORTION OF THE ROOT. MAKE CUTS FLUSH WITH THE SIDE OF THE TRENCH CLOSEST TO THE TREE.

C. MOISTEN CLEAN SOIL TO BE PLACED BACK INTO THE TRENCH. BACKFILL AS SOON AS POSSIBLE TO PREVENT ROOT DRYING. TAMP SOIL TO ITS ORIGINAL FIRMNESS, BUT DO NOT COMPACT. WATER BACKFILL AFTER PLACEMENT.

D. DO NOT DRIVE EQUIPMENT OR VEHICLES UNDER TREES OR WITHIN THE DRIP LINE. IF NEEDED, PROTECT TREE TRUNK FROM SCRAPING OR GOUGING BY EQUIPMENT WITH FENCING, WOOD SLATS OR OTHER METHODS.
## UNDERGROUND MISCELLANEOUS SECTION

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<td>IDENTIFICATION MARKING METHODS, CABLE/CONDUCTORS</td>
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### UNDERGROUND MISCELLANEOUS SECTION

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<td>IDENTIFICATION MARKING METHODS, MAPPING</td>
<td>11-24-1</td>
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<td>CABLE IDENTIFICATION PLATE</td>
<td>11-25-1</td>
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<td>SIGN, CAUTION, UNDERGROUND ELECTRIC FACILITIES</td>
<td>11-26-1</td>
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<td>TAG, NOTICE</td>
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MAPPING SYMBOLS

SRP STANDARDS FOR DESIGN SYMBOLS, SCHEMATIC AND CONDUIT ONE-LINE SYMBOLS ARE CATALOGUED IN THE OVERHEAD AND DISTRIBUTION DESIGN STANDARDS BOOK. NEW ADDITIONS OR MODIFICATIONS TO THESE SYMBOLS ARE COORDINATED THROUGH POLICY, PROCEDURES & STANDARDS.

NEW OR CHANGED SYMBOL OPTIONS CAN BE SUBMITTED FOR CONSIDERATION THROUGH THE STANDARDS CHANGE PROCESS BY SUBMITTING A CHANGE REQUEST FORM TO DEPARTMENT ENGINEER OR DEPARTMENT MANAGER.
POLE RISER

DEVICE

STREET LIGHT
(NOTE 5)

MILE POST

TRANSMISSION
STRUCTURE NUMBER

TRANSMISSION
SWITCH

INSPECTION TAG

SRP OWNERSHIP TAG

NOTES

1. ANY POLE LOCATED AT A MILE COORDINATE POINT IN AN AREA LACKING AN INTERSECTION OF BOTH MILE ROADS IS TO BE LABELED WITH THAT COORDINATE POINT. THE COORDINATE LABELING IS TO READ IN A HORIZONTAL DIRECTION ON THE POLE, WITH ONE DIRECTION COORDINATE IMMEDIATELY BELOW THE OTHER.

2. ANY POLE HAVING A STREETLIGHT, RECLOSER, CAPACITOR BANK, SET OF SINGLE BLADE DISCONNECTS, GANGED LOADBREAK SWITCH, OR POLE RISER IS TO BE LABELED WITH THE PROPER LINE DEVICE NUMBER. THIS NUMBER IS TO BE ATTACHED IN A VERTICAL DIRECTION READING TOP TO BOTTOM ON THE POLE.

3. POLES ARE TO HAVE MARKINGS INSTALLED ON THE MOST VISIBLE SIDE OF THE POLE; e.g; A POLE ON A NORTHEAST CORNER OF AN INTERSECTION SHOULD HAVE MARKINGS FACING WEST, OR SOUTH. THE MARKINGS SHALL NOT COVER THE POLE BRAND.

4. THE ALUMINUM SHEETS ARE ATTACHED TO THE WOOD POLES WITH SPECIAL SCREW NAILS STOCK # 5006221. THE 1 INCH ADHESIVE LABELS FOR STREETLIGHTS ARE APPLIED TO A 10 INCH PLASTIC LATE WHICH IS THEN ATTACHED TO THE POLE WITH THE SPECIAL SCREW NAILS. ON STEEL POLES, IF PLATE THICKNESS IS 1/2" OR LESS THE SELF DRILL/SELF TAPPING SCREWS (5028982) MAY BE USED. IF PLATE THICKNESS IS GREATER THAN 1/2" DRILL 3/16" DIAMETER HOLE FOR SELF DRILL/SELF TAP SCREWS (5028982).

5. SRP CREW SHALL PLACE STREET LIGHT NUMBERS AT 12' ON SHARED POLES (AS SOWN ABOVE) AND 8' ON DEDICATED "STREET LIGHT" POLES.

6. PLACEMENT OF POLE MARKINGS SHALL BE IN ACCORDANCE WITH FIGURE 1. IF THRU-BOLTS OR OTHER SRP HARDWARE IMPEDE THE SPECIFIED LOCATION OF THE POLE MARKINGS, PLACEMENT OF POLE MARKINGS MAY BE ADJUSTED. EVERY EFFORT MUST BE MADE TO LOCATE THE MARKINGS AS CLOSE AS POSSIBLE TO THE INDICATED POSITIONS.
WOOD POLES ARE INSPECTED AND CLASSIFIED AS: SERVICEABLE - POLE STRENGTH MEETS CODE REQUIREMENTS.
REINFORCEABLE - POLE MUST BE REINFORCED DUE TO WEAKENED GROUND LINE.

MOST INSPECTED POLES HAVE ALUMINUM INSPECTION TAGS WITH THE YEAR OF INSPECTION AND THE NAME OF THE INSPECTION CONTRACTOR. POLES TREATED WITH OSMOPLASTIC HAVE NO TAG. THE VARIOUS TYPES OF INSPECTION TAGS ARE SHOWN BELOW. FOR QUESTIONS REGARDING OBSOLETE OR INDISCERNIBLE POLE TAGS, CONTACT LINE MAINTENANCE ENGINEERING.

INSPECTED VISUALLY NO TREATMENT: POLE VISUALLY INSPECTED ON DATE BY CONTRACTOR SHOWN. NO TREATMENTS.

INSPECTED VISUALLY AND TREATED: SERVICEABLE POLE INSPECTED ON DATE BY CONTRACTOR SHOWN AND TREATED WITH PRODUCT SHOWN.

TREATMENT TAGS

- FUMIGANT, INTERNAL VOID

- REFERENCE ONLY

- MITC-FUME

- OSMOSE

- INTEC - 2009

- ULTRA FUME

- INTEC - 2009

- INTEC - 2009

- INTEC - 2009

- INTEC - 2009

REINFORCE POLE, INSPECTED AND TREATED:
CAPACITY LESS THAN 70%. SCHEDULED FOR REINFORCEMENT SINGLE TAG WHITE

PRIORITY REINFORCE POLE, INSPECTED AND TREATED:
CAPACITY LESS THAN 40%. SCHEDULED FOR IMMEDIATE REINFORCEMENT DOUBLE TAG WHITE

NOTES

1. CONTACT LINE MAINTENANCE ENGINEERING PRIOR TO UPGRADING OR ADDING FACILITIES TO TAGGED POLES

REJECT AND REPLACE POLE, NOT SERVICEABLE OR REINFORCEABLE CAPACITY LESS THAN 70%. NO TREATMENT APPLIED. SCHEDULED FOR REPLACEMENT

PRIORITY REJECT AND REPLACE POLE, NOT SERVICEABLE OR REINFORCEABLE. CAPACITY LESS THAN 40%. NO TREATMENT APPLIED. SCHEDULED FOR IMMEDIATE REPLACEMENT DOUBLE TAG RED

NOTES

1. FOR REPLACEMENT POLES, ARROW DENOTES DIRECTION OF REJECTION.
THE THREE TYPES OF PRESERVATIVE TREATMENTS ON SRP POLES ARE:

1) EXTERIOR:

BRAND NAMES INCLUDE "OSMOPLASTIC", "CURAP 20" AND "BIO GUARD PASTE". THESE TREATMENTS ARE APPLIED TO THE POLE BELOW GROUND LEVEL AND COVERED WITH PAPER THAT HAS A PROTECTIVE MEMBRANE FACING THE POLE TO CONFINING THE CHEMICALS. OSMOPLASTIC IS A BLACK CREOSOTE PASTE APPLIED TO THE POLE AND COVERED WITH A BLACK KRAFT PAPER (NOT TAGGED - LOOK FOR KRAFT PAPER TO DETERMINE IF TREATED). BOTH THE CURAP 20 AND BIO GUARD PASTE ARE COVERED WITH A TAN PAPER SIMILAR TO BUTCHER PAPER WITH A WAXY INSIDE MEMBRANE TO CONFINE THE CHEMICALS. POLES TREATED WITH CURAP 20 AND BIO GUARD PASTE ARE TAGGED.

2) INTERNAL VOID:

EITHER COPPER-NAPTHENATE OR PERME8. BOTH ARE A GREEN LIQUID CONSISTING OF COPPER AND DIESEL OIL, APPLIED TO VOIDS IN POLE (TAG "INT TR" OR "IT").

3) FUMIGANT:

EITHER "MITC-FUME" OR "ULTRA-FUME". "MITC-FUME" CONSISTS OF METHYLISOTHICOCYANATE IN ALUMINUM CARTRIDGES, INSERTED INTO HOLES DRILLED IN POLE (TAG "MITC-FUME"). "ULTRA-FUME CONSIST OF DAZOMET IN GRANULAR FORM AND IS "ACTIVATED" USING PERM E8 AND SHOULD BE ABSORBED INTO THE POLE AND LEAVES NO RESIDUAL EVIDENCE IN THE HOLES DRILLED IN POLE (TAG "ULTRA-FUME" AND "PERM E8"). POLES TREATED WITH MITC-FUME WILL ALSO HAVE A MONTH TAG INDICATING THE MONTH THE POLE WAS TREATED.

PRECAUTIONS FOR HANDLING:

* FOR SKIN CONTACT WITH ANY OF THESE CHEMICALS, WASH IMMEDIATELY WITH SOAP AND WATER.

* TO DISPOSE OF LOOSE MITC-FUME CARTRIDGES, PICK UP ALUMINUM CARTRIDGES WITH A SHOVEL - DO NOT PICK UP WITH HANDS! PUT IN PLASTIC BUCKET AND COVER WITH DIRT. TRANSPORT ON OUTSIDE OF VEHICLE AND RETURN BUCKET TO TEMPE SERVICE CENTER.
MARKING OF CONSTRUCTION STAKES

OFFSET DISTANCE FROM NAIL TO CONSTRUCTION.

CUT OR FILL FROM TOP OF STAKE TO GRADE.

NOTES 1. CUT OR FILL STAKE ARE NEVER BLUE TOPPED.
STAKES THAT ARE BLUE TOPPED ARE GRADE.
OFFSET DISTANCE ALWAYS FACES CONSTRUCTION.

SLOPE STAKES:

SLOPE STAKE - FILL SECTION
FILL FROM GROUND AT STAKE TO TOP OF FILL.
DISTANCE FROM STAKE TO TOP OF FILL.
SLOPE OF FILL SECTION.

SLOPE STAKE - CUT SECTION
CUT FROM GROUND AT STAKE TO TOE OF CUT.
DISTANCE FROM STAKE TO TOE OF CUT.
SLOPE OF CUT SECTION.

OFFSET SLOPE STAKES:

OFFSET DISTANCE FROM STAKE TO TOP OF CUT.
CUT FROM GROUND AT STAKE TO TOP OF CUT.
INFORMATION IS SAME AS ON SLOPE STAKE.

STATION NUMBER - DESIGNATES DISTANCE IN FEET FROM STARTING POINT ALONG CENTER LINE.
DESIGNATES RIGHT OR LEFT OF CENTER LINE. RIGHT OR LEFT IS DETERMINED BY LOOKING TOWARD INCREASING STATIONS.
LETTER ABBREVIATION – 4-DIGIT NUMBER IDENTIFICATION STANDARD

1. EACH SYSTEM COMPONENT SHALL BE IDENTIFIED BY A TYPE LETTER AND DEVICE NUMBER.

THE FOLLOWING TYPE STANDARD ABBREVIATIONS SHALL BE USED ON CONSTRUCTION DRAWINGS AND AS THE FIELD IDENTIFICATION.

A SINGLE UNIT MAY HAVE MULTIPLE TYPES AND DEVICE NUMBERS.

<table>
<thead>
<tr>
<th>Device Description</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/0 PRIMARY TAP ENCLOSURE</td>
<td>PDT</td>
</tr>
<tr>
<td>CAPACITOR</td>
<td>CB</td>
</tr>
<tr>
<td>PULLING ENCLOSURE</td>
<td>PDP</td>
</tr>
<tr>
<td>INDIVIDUAL CONTROLLED SWITCH COMPARTMENTS OF A REMOTE CONTROLLED AUTO TRANSFER (COMPARTMENTS WITHIN A PEA OR PDA)</td>
<td>C</td>
</tr>
<tr>
<td>INDIVIDUAL MANUAL SWITCH COMPARTMENTS OF A MULTIPLE SWITCH ENCLOSURE (COMPARTMENTS WITHIN A PEA OR PDA)</td>
<td>U</td>
</tr>
<tr>
<td>INTERRUPTER, VACUUM</td>
<td>PDI</td>
</tr>
<tr>
<td>MANHOLE</td>
<td>MH</td>
</tr>
<tr>
<td>PAD ENCLOSURE – DEAD FRONT</td>
<td>PD</td>
</tr>
<tr>
<td>PAD ENCLOSURE – LIVE FRONT</td>
<td>PE</td>
</tr>
<tr>
<td>POLE, ANTENNA, RC SWITCH</td>
<td>AP</td>
</tr>
<tr>
<td>PRIMARY METER</td>
<td>PM</td>
</tr>
<tr>
<td>PRIMARY POLE RISER</td>
<td>PR</td>
</tr>
<tr>
<td>PRIMARY POLE RISER WITH GANG OPERATED LOAD BREAK SWITCH</td>
<td>PRL</td>
</tr>
<tr>
<td>PRIMARY POLE RISER WITH REMOTE OPERATED LOAD BREAK SWITCH</td>
<td>PRC</td>
</tr>
<tr>
<td>PULL BOX</td>
<td>PB</td>
</tr>
<tr>
<td>RECLOSER</td>
<td>PD…R</td>
</tr>
<tr>
<td>SWITCH ENCLOSURE, DEAD FRONT, 4 COMPARTMENT REMOTE CONTROLLED AUTO TRANSFER</td>
<td>PDA</td>
</tr>
<tr>
<td>SWITCH ENCLOSURE, LIVE FRONT, 4 COMPARTMENT REMOTE CONTROLLED AUTO TRANSFER</td>
<td>PEA</td>
</tr>
<tr>
<td>SWITCH, DEAD FRONT, REMOTE CONTROLLED</td>
<td>PDC</td>
</tr>
<tr>
<td>SECTIONALIZER</td>
<td>PE…S</td>
</tr>
<tr>
<td>TRANSFORMER – PAD MOUNTED</td>
<td>P</td>
</tr>
<tr>
<td>VAULT</td>
<td>V</td>
</tr>
</tbody>
</table>


"U" OR "C" FOLLOWED BY 1-4, AS APPLICABLE, IS USED TO IDENTIFY SWITCH COMPARTMENTS WITHIN A MULTIPLE SWITCHING DEVICE (PD, PE, PDA, AND PEA). "C" INDICATES THE SWITCH HAS REMOTE SUPERVISORY CONTROL. "U" INDICATES LOCAL MANUAL OPERATION.

PROPERTY MAPPING ASSIGNS THESE NUMBERS PRIOR TO DESIGN ISSUE.
3. CABLE IDENTIFICATION

A. PRIMARY & FEEDER

PRIMARY AND FEEDER SHALL HAVE AT LEAST TWO MARKINGS AT EACH DEVICE.

1) PHASE ID (COLORED TAPE)

THE ENDS OF EACH PRIMARY OR FEEDER CABLE SHALL BE IDENTIFIED WITH COLORED TAPE AS FOLLOWS:

RED - “A” PHASE, YELLOW - “B” PHASE, BLUE – “C” PHASE.

NOTE:
PHASE LOCATIONS IN ENCLOSURES: PHASES SHALL BE A-B-C LEFT TO RIGHT WHEN FACING THE FRONT OF THE ENCLOSURE, EXCEPT AS SHOWN IN FIGURE 9, PAGE 11-7-1 FOR THE 4-WAY, GANG-OPERATED DEAD FRONT SWITCH.

(DO NOT RELY ON TAPE COLOR ALONE; VERIFY PHASING WITH A PHASING TOOL.)

2) OPERATING AND/OR INTERMEDIATE DEVICE (LETTER NUMBER CODE)

EACH CABLE END SHALL BE LABELED WITH THE NEXT OPERATING DEVICE TO WHICH THE CABLE IS CONNECTED.

IF THE CABLE PASSES THROUGH AN INTERMEDIATE NON-OPERATING DEVICE, A SECOND LABEL ON EACH CABLE END SHALL IDENTIFY THE DEVICE’S NUMBER. (SEE EXAMPLE A-G PAGES 11-3-4 THROUGH 11-3-6)

EXCEPTION: CABLES BETWEEN PDTS SHALL BE LABELED WITH THE NEXT DEVICE ONLY.


WHEN AN INTERMEDIATE SINGLE-PHASE TRANSFORMER IS INSTALLED BETWEEN TWO DEVICES, THE SINGLE-PHASE TRANSFORMER SHALL BE IDENTIFIED EITHER BY INSTALLING AN ADDITIONAL CABLE PLACARD ON THE END OF THE PHASE CONDUCTORS AT EACH OF THE NEXT OPERABLE DEVICES IN EITHER DIRECTION, OR BY LABELING APPLIED TO THE INTERNAL SURFACE OF OPERABLE DEVICES.

CABLE PLACARD

CABLE SHALL BE IDENTIFIED BY PLACING 1” X 1 ½” ADHESIVE LETTERS AND NUMBERS ON A 1 ½” X 10” PLASTIC STRIP SECURED WITH PLASTIC TIES. PLACARDS SHALL BE USED FOR THE FOLLOWING EQUIPMENT TYPES (SEE FIGURES FOR SPECIFIC REQUIREMENTS):

- GENERAL CABLE/CONDUCTOR: 11-3-7, FIG. 1 THROUGH 4
- PAD MOUNTED 4/0 TAPPING ENCLOSURE: 11-10-1, FIG. 11
- PAD MOUNTED FEEDER PULLING ENCLOSURE: 11-11-1, FIG. 12
- #2 PRIMARY LOOP TAPPING ENCLOSURE: 11-14-1, FIG. 16
- PAD MOUNTED SINGLE PHASE PRIMARY PULLING ENCLOSURE: 11-15-1, FIG 17
- PRIMARY TAP ENCLOSURE: 11-15-2
DEVICE INTERNAL SURFACE

CABLE SHALL BE IDENTIFIED BY PLACING 1 ¾” X 2 ⅞” ADHESIVE LETTERS AND NUMBERS ON THE INTERNAL SURFACE OF THE DEVICE FOR THE FOLLOWING EQUIPMENT TYPES (SEE FIGURES FOR SPECIFIC REQUIREMENTS):

- PAD MOUNTED SINGLE PHASE TRANSFORMERS: 11-4-1, FIG. 5
- PAD MOUNTED THREE PHASE TRANSFORMERS: 11-5-1, FIG. 6
- PAD MOUNTED CAPACITOR BANKS: 11-6-1, FIG. 7
- PAD MOUNTED 4-WAY GANG-OPERATED DEAD FRONT SWITCHES: 11-7-1, FIG. 8
- PAD MOUNTED DEAD FRONT SWITCHES: 11-8-1, FIG. 9
- PAD MOUNTED AUTOMATIC TRANSFER LIVE FRONT SWITCH WITH REMOTE SUPERVISORY CONTROL: 11-9-1, FIG. 10
- PAD MOUNTED DEAD FRONT AIR INSULATED FUSING ENCLOSURE: 11-21-1, FIG. 14
- DEAD FRONT CONTROLLED SWITCHING CUBICLE: 11-13-1, FIG. 15
- LIVE FRONT SWITCHING ENCLOSURE: 11-16-1, FIG. 19
- AUTOMATIC TRANSFER SWITCH: 11-17-1, FIG. 20
B. SECONDARY, SERVICE & STREETLIGHT

1) SINGLE PHASE

THE ENDS OF EACH SECONDARY CABLE SUPPLIED FROM A TRANSFORMER SHALL BE IDENTIFIED WITH A UNIQUE COLOR TAPE.

WHEN MULTIPLE SERVICES ARE SUPPLIED FROM A SINGLE TRANSFORMER OR JUNCTION BOX, THE ENDS OF EACH SERVICE CABLE SHALL BE IDENTIFIED WITH A UNIQUE COLOR TAPE. (SEE EXAMPLE F, PG. 11-3-6)

2) THREE PHASE

THE ENDS OF EACH CABLE ARE IDENTIFIED BY THE EXTRUDED COLOR AS FOLLOWS:


CUSTOMER-OWNED SERVICE CABLES: WHERE SRP FACILITIES CONNECT TO CUSTOMER-OWNED CABLES, THE CUSTOMER SHALL IDENTIFY THE ENDS OF EACH CABLE ACCORDING TO SRP COLOR IDENTIFICATION STANDARDS.

THE ENDS OF THE "C" PHASE CABLE OF A 120/240 V FOUR-WIRE DELTA SERVICE (WILD LEG) SHALL ALSO BE IDENTIFIED WITH ORANGE COLORED TAPE.

WHEN MULTIPLE SERVICE SECTIONS ARE SUPPLIED FROM A SINGLE TRANSFORMER, THE ENDS OF EACH CABLE(S) SUPPLING THAT SECTION SHALL BE IDENTIFIED WITH A UNIQUE COLOR TAPE.

C. SINGLE RISER (PRIMARY & FEEDER)

AN ALUMINUM SHEET ATTACHED TO THE POLE WILL CARRY THE RISER IDENTIFICATION NUMBER USING ADHESIVE LABELS, PG. 11-1-1.

D. SINGLE RISER (PRIMARY & FEEDER)

MULTIPLE SINGLE- OR TWO-PHASE RISERS: THE RISER IDENTIFICATION SHALL BE ON THE CABLES, FIG. 1, PG. 11-3-7.

THE MOLDING SHALL HAVE NO IDENTIFICATION.

COMBINED SINGLE- AND THREE-PHASE RISERS: THE SINGLE-PHASE RISER IDENTIFICATION SHALL BE ON THE SINGLE-PHASE CABLE, FIG.1, PG. 11-3-7. THE THREE-PHASE RISER SHALL BE IDENTIFIED BY ADHESIVE LABELS ON AN ALUMINUM SHEET ATTACHED TO THE POLE, PG. 11-1-1.

4. ENCLOSURE IDENTIFICATION

EACH PAD-MOUNTED ENCLOSURE SHALL BE MARKED WITH IDENTIFICATION OF THE DEVICE, ITS LOCATION, INFORMATION FOR THE PUBLIC, AND WARNINGS TO OPERATORS. SEE THE FIGURE FOR EACH DEVICE ON THE FOLLOWING PAGES FOR THESE MARKINGS.
EXAMPLES

EXAMPLE A - SINGLE PHASE PRIMARY

EXAMPLE B - THREE PHASE PRIMARY

EXAMPLE C - UNDERGROUND TIE BETWEEN TWO OVERHEAD CIRCUITS
EXAMPLE D- WIRE COLOR AND IDENTIFICATION CODING AT 3Ø TRANSFORMERS

EXAMPLE E-1Ø CIRCUITS FROM DEAD FRONT FUSE ENCLOSURE AØ SHOWN
EXAMPLE F - SECONDARY AND SERVICE CODING
TAPE IDENTIFICATION UNLESS EXTRUDED STRIPES

EXAMPLE G - 3Φ 4/0 LOOPS THROUGH PAD MOUNTED TAP ENCLOSURES

*PLACARD INSTALLED ON PHASE CONDUCTOR FEEDING INTERMEDIATE SINGLE-PHASE TRANSFORMER.
IDENTIFICATION OF TWO 3Φ CIRCUITS IN A SINGLE DUCT BANK ENTERING VAULT OR MANHOLE

LOCATION OF MARKERS IN VAULTS, MANHOLES & PULL BOXES

IDENTIFICATION OF TWO 3Φ CIRCUITS IN A SINGLE DUCT BANK ENTERING VAULT OR MANHOLE

NOTES
1. CONDUCTORS OF DIFFERENT VOLTAGE CLASSIFICATIONS (PRIMARY, SECONDARY OR COMMUNICATION CABLE) SHALL NOT BE INSTALLED IN THE SAME RISER MOLD.
NOTES

1. THE LETTER NUMBER CODE AS DESIGNATED IN FRONT AND BACK DETAIL, PAGE 11-7-1 (P2222).
2. THE CPT NUMBER IS ONLY NEEDED ON AUXILIARY POWER TRANSFORMERS IN SUBSTATIONS.
3. CUSTOMER OWNED/SRP MAINTAINED PAD MOUNTED TRANSFORMERS SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN "F" (P2222F).
4. A. BANKED UNITS - PLACE STICKER (5035826) "CAUTION - THIS TRANSFORMER IS BANKED WITH THE ADJACENT..." ON EACH SINGLE PHASE TRANSFORMER MAKING UP THE BANK.
   B. THE "P" NUMBER WILL END WITH THE PHASE IDENTIFICATION CHARACTER ADDED (A, B, C) CUSTOMER OWNED/SRP MAINTAINED BANKED SINGLE PHASE UNITS WILL EACH BE MARKED WITH A PAD NUMBER FOLLOWED BY AN "F" FOLLOWED BY THE PHASE (P2222FA) (P2222FB) (P2222FC) NOTES 3 & 4A, B COVER THIS.
   C. ATTACH CAUTION TAG 5034939 TO CABLES.
5. TRANSFORMER IS FILLED WITH LESS FLAMMABLE FLUID ONLY IF "BIO TEMP" CHECK BOX IS CHECKED BY MANUFACTURER.
6. CO-GENERATION - PLACE STICKER (5091494) "CAUTION - POSSIBLE BACKFEED - EQUIPMENT CONNECTED TO TWO OR MORE SOURCES OF POWER.
FIGURE 7

NOTES

1. THE LETTER NUMBER CODE AS DESIGNATED IN FRONT AND BACK DETAIL, PAGE 11-7-1 (P2222).
2. CUSTOMER OWNED/SRP MAINTAINED PAD MOUNTED TRANSFORMERS SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN "F" (P2222F).
3. ON PARALLELED THREE PHASE TRANSFORMERS PLACE STICKER (5035826) "CAUTION - THIS TRANSFORMER IS BANKED WITH THE ADJACENT..." (5035826)
4. NEXT OPERATING DEVICE IDENTIFICATION
5. CO-GENERATION - PLACE STICKER (5091494) "CAUTION - POSSIBLE BACKFEED - EQUIPMENT CONNECTED TO TWO OR MORE SOURCES OF POWER.

MISCELLANEOUS
IDENTIFICATION MARKING METHODS
THREE PHASE PAD MOUNTED TRANSFORMERS

Underground Distribution
Construction Standards

PROPRIETARY MATERIAL
CUSTOMER OWNED/SRP MAINTAINED PAD MOUNTED CAPACITOR SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F' (PD2222F).
CUSTOMER OWNED/SRP MAINTAINED 4-WAY GANG OPERATED DEAD FRONT SWITCH SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F' (PD333F).
NOTES

1. The letter number code as designated in front and back detail, page 11-7-1 (PD2222).
2. The letter number code as designated in 1 (PD2222) shall also be placed above the operator access door.
3. Fault indicator windows - Place the labels with device identification of the next operating device to which the monitored feeder connects.
4. Customer owned/SRP maintained dead front switch shall be marked with the pad number followed by an "F" (PD2222F).
5. When the single-phase tap position is utilized, the transformer shall be identified using Dymo tape and cable placard.

Underground Distribution Construction Standards

MISCELLANEOUS
IDENTIFICATION MARKING METHODS
PAD MOUNTED DEAD FRONT SWITCHES

11-8-1
FIGURE 10

FACTORY SUPPLIED OR (5039122) WARNING/NOTICE

NOTE 1

FACTORY SUPPLIED OR (5039122) WARNING/NOTICE

LOAD DEVICE IDENTIFICATION

(5039122) IF IT'S NOT GROUNDED
IT'S NOT DEAD

GANG SWITCH AND DISCONNECT SIDES (2)
REVERSE ORDER ON OPPOSITE SIDE

NOTES

1. THE LETTER NUMBER CODE AS DESIGNATED IN FRONT AND BACK DETAIL, PAGE 11-7-1 (PEA2222).
2. CUSTOMER OWNED/SRP MAINTAINED PAD MOUNTED AUTOMATIC TRANSFER SWITCH SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F' (PEA2222F).
3. THE SOURCE DEVICE I.D. OF THE NEXT OPERABLE DEVICE IS MARKED IN THE GANG SWITCH COMPARTMENTS.
4. THE SOURCE DEVICE I.D. OF THE NEXT OPERABLE DEVICE IS MARKED IN THE SOURCE TRANSFER CONTROL (STC) COMPARTMENT.
5. THE SUBSTATION LETTER CODE AND SUBSTATION CIRCUIT NUMBER IS MARKED IN THE STC COMPARTMENT.
DEVICE IDENTIFICATION

FACTORY SUPPLIED OR (5039122) WARNING/ NOTICE

EXAMPLE DIAGRAMS
AØ ONLY

NO XFMR:

PD1101 PD1105

PD1101

PD1105

ONE XFMR P1107

P1107

PD1101 PD1105

CABLE IDENTIFICATION PLATE UMBNP

DYMO TAPE

FACTORY SUPPLIED OR (5039126) DANGER

(1Ø LIGHTING XFMR TAP POSITION)

TWO XFMRs

P1107 AND P1108

XFMR 2 & RADIAL SINGLE PHASE XFMR

DYMO TAPE

P1107 P1108

PD1101 PD1105

P1109

NOTES
1. NO SWITCHING TO OCCUR IN A PDT EXCEPT THE 1Ø RADIAL SERVED FROM AL
2. CUSTOMER OWNED/SRP MAINTAINED PAD MOUNTED 4/0 TAP ENCLOSURE SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN "F".

FIGURE 11
CUSTOMER OWNED/ SRP MAINTAINED ADD F (PDT2222F)
CUSTOMER OWNED/SRP MAINTAINED FEEDER PULLING ENCLOSURE SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F'. (PDP2222F)
NOTES

LABEL CABINET IN THE FOLLOWING ORDER:

1) SRP.
2) SECONDARY VOLTAGE I.E. 120-208 V. ROTATE LETTER "I" TO REPRESENT THE DASH LINE SYMBOL.
3) SERVICE(S) ADDRESS (ES) SHALL CONSIST OF STREET NUMBER, STREET NAME (DO NOT INCLUDE AVE, PL, ST, DR) AND SERVICE IDENTIFICATION I.E. "C01".
NOTES

1. FOR THREE PHASE LOAD TAPS, MAKE ALL CONNECTIONS TO LEFT OR RIGHT HAND BUSHINGS OF EACH PHASE.

CUSTOMER OWNED/SRP MAINTAINED AIR INSULATED FUSE SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F' (PD2222F)
NOTES

1. ANTENNA POLE NUMBER IS "AP" FOLLOWED BY LAST 2 DIGITS OF SWITCH NUMBER.
2. CUSTOMER OWNED/ SRP MAINTAINED ADD F (PDS2222F)

Underground Distribution
Construction Standards

MISCELLANEOUS
IDENTIFICATION MARKING METHODS
SWITCHING CUBICLE DEAD FRONT
CONTROLLED SWITCH (UFDCF7-UFDCF12)

SRP
PROPRIETARY MATERIAL

ISSUE DATE: 07/08/09
REV. DATE: 01/06/15
APPROVAL: B. PRIEST
11-13-1
8513E507.DGN
Underground Distribution Construction Standards

MISCELLANEOUS
IDENTIFICATION MARKING METHODS
PAD MOUNTED #2 PRIMARY LOOP

CUSTOMER OWNED/ SRP MAINTAINED ADD F (PDT1102F)

FIGURE 16

FACTORY SUPPLIED OR (5039126) DANGER

FACTORY SUPPLIED OR (5039002) IF IT'S NOT GROUNDED IT'S NOT DEAD

FACTORY SUPPLIED OR (5039122) WARNING/ NOTICE

PDT1102

NO XFMR:
L1 P L1 G L2 P L2
P1101  PD1103

XFMR LOOP 1:
P1104 L1 P L1 G L2 P L2
P1101  PD1103

XFMR LOOP 2:
P1104 L1 P L1 G L2 P L2 P1106
P1101  PD1103

DYMOM TAPE
FIGURE 17

DEVICE IDENTIFICATION

FACTORY SUPPLIED OR
(5039122) WARNING/ NOTICE

PDP2222

DANGER
FACTORY SUPPLIED OR
(5039126)

IF IT IS NOT GROUNDED
IT IS NOT DEAD
FACTORY SUPPLIED OR
(5039002)

INSIDE FRONT

DYMO TAPE

P1104
PR1105

CUSTOMER OWNED/ SRP MAINTAINED ADD F (PDP2222F)
MARKINGS ARE NOT TO BE PUT ON REMOVABLE FRONT BARRIERS. MARKINGS TO BE ARRANGED VERTICALLY, ON THE NEAREST PHASE BARRIER. WHEN LUGS ARE STACKED, THE OUTER LUG SHALL BE MARKED CLOSEST TO THE BARRIER EDGE, AND THE INNER LUG SHALL BE MARKED 1 LEVEL IN.

FIGURE 18a
3 PHASE BLADE DISCONNECT SWITCH

FIGURE 18b
3 PHASE GANG OPERATED SWITCH

TAP TO PE1212
FEEDER TO 1206
FEEDER TO 1208
TAP TO PD1212
FEEDER TO PE1208
FEEDER TO PE1206
TAP TO PE1212

MARKINGS ARE NOT TO BE PUT ON REMOVABLE FRONT BARRIERS. MARKINGS TO BE ARRANGED VERTICALLY, ON THE NEAREST PHASE BARRIER. WHEN LUGS ARE STACKED, THE OUTER LUG SHALL BE MARKED CLOSEST TO THE BARRIER EDGE, AND THE INNER LUG SHALL BE MARKED 1 LEVEL IN.
MISCELLANEOUS
IDENTIFICATION MARKING METHODS
PAD MOUNTED AUTOMATIC TRANSFER DEAD FRONT SWITCH
WITH REMOTE SUPERVISORY CONTROL
CONDUIT AND CONDUCTOR CODE KEY TO SRP UNDERGROUND DISTRIBUTION MAPS

TOTAL NUMBER OF CONDUIT
NUMBER OF SPARE CONDUITS
NUMBER OF ABANDONED CONDUIT OR ABANDONED CONDUCTOR/NEUTRAL
NUMBER OF CONDUCTOR/NEUTRAL COMBINATIONS

12 AC 3 (3)

TWO CHARACTER CODE IDENTIFYING CONDUIT SIZE AND TYPE, ENCASEMENT MATERIAL AND COLOR, AND DUCT BANK CONSTRUCTION.

PRIMARY CONDUCTOR ROUTE CODE IDENTIFYING WIRE SIZE AND TYPE, QUANTITY, AND NEUTRAL TYPE AND SIZE.

SEE NOTE 1.

SEE NOTE 2.

EXAMPLE – CONDUIT MAPPING CODE:

3” PL-EC-RD-B

DUCT BANK (CONDUIT INSTALLED WITH SPACERS)
B = CONDUIT INSTALLED IN A DUCT BANK
* = DUCT BANK STATUS UNKNOWN
BLANK INDICATES CONDUIT IS NOT INSTALLED WITH SPACERS

ENCASEMENT COLOR
RD = RED
** = ENCASEMENT COLOR UNKNOWN
BLANK INDICATES COLOR OTHER THAN RED.

ENCASEMENT
EC = CONCRETE
EG = GROUT (CLSM BACKFILL)
E* = ENCASEMENT MATERIAL UNKNOWN
NE = NO ENCASEMENT

MATERIAL
A = ALUMINUM
PL = PVC OR PLASTIC
PF = FLEXIBLE PLASTIC OR SPOOLED DUCT
ST = STEEL
TR = TRANSITE (ASBETOS)
** = MATERIAL TYPE UNKNOWN

SIZE
CONDUIT NOMINAL DIAMETER IN INCHES.
** = SIZE UNKNOWN
EXAMPLE – CONDUCTOR MAPPING CODE:

UNDERGROUND

- 3

3 CONDUCTOR/NEUTRAL COMBINATIONS
3-UA750 WITH (CC) CONCENTRIC NEUTRAL

OVERHEAD

3-397A (3/0AN)

NOTES

1. FOR A COMPLETE LIST OF CONDUIT INDEX BY CODE MAP SYMBOLOGIES, GO TO HTTPS://INSRPTEAMS/COMMUNITY/IS/DDA/RESOURCES/CONDUIT%20INDEX%20BY%20CODE.XLSX

2. FOR A COMPLETE LIST OF PRIMARY INDEX BY CODE MAP SYMBOLOGIES, GO TO INSRPTEAMS/COMMUNITY/IS/DDA/RESOURCES/PRIMARY%20INDEX%20BY%20CODE.XLSX
Underground Distribution Construction Standards

MAPPING IDENTIFICATION MARKING METHODS

1/4 SECTION

40 ACRE

1 2
7 8

SECTION

5N McDOWELL RD
4N BUCKEYE RD
3N L. BUCKEYE RD
2N BROADWAY RD
1N SOUTHERN AVE
0N BASELINE RD

TOWNSHIP

6N  McDOWELL  RD
5N VAN BUREN
4N BUCKEYE RD
3N L. BUCKEYE RD
2N BROADWAY RD
1N SOUTHERN AVE
0N BASELINE RD

1 MILE

1/2 MILE

1/4 MILE

1 MILE

6 MILES

1 MILE

6 MILES

1 MILE

6 MILES

1 MILE

6 MILES
NOTES

1. USED FOR IDENTIFICATION OF MULTIPLE CIRCUITS IN ONE RISER.
2. USED FOR IDENTIFICATION OF INDIVIDUAL CABLES IN PAD MOUNTED EQUIPMENT.
3. REQUEST ONE UMBNP FOR EACH CABLE TO BE MARKED.
4. REQUEST ONE UMBNR FOR EACH EXISTING CABLE TO BE RE-MARKED.
NOTES

1. SECURE SIGN TO POST WITH NUTS, BOLTS AND LOCK WASHERS.

2. BEND BOLTS TO PREVENT UNAUTHORIZED REMOVAL.

3. THESE SIGNS ARE ALSO REQUIRED WHEN UNDERGROUND FACILITIES ARE PLACED WITHIN RAILROAD RIGHT OF WAY. REFER TO ELECTRICAL CLEARANCE STANDARDS.

UMCM
SRP INSTALLED

UMCMG
CONTRACTOR/ CUSTOMER INSTALLED SRP SUPPLIED

Underground Distribution Construction Standards

MISCELLANEOUS
SIGN, CAUTION
UNDERGROUND ELECTRIC FACILITIES

ISSUE DATE: 01/15/87
REV. DATE: 09/20/12
APPROVAL: B. PRIEST

11-22-1
8513E270.DGN

CAUTION
UNDERGROUND ELECTRIC FACILITIES
BEFORE DIGGING IN THIS AREA PLEASE CALL SRP AT 602-236-8888

GRADE

NATURAL GAS CO. LINE

SRP

RIGHT-OF-WAY

ELEVATION

RIGHT-OF-WAY
SRP STOCK CODE
5039251

3 1/4" x 5 1/2" BLANK UNDER CLEAR PLASTIC LAMINATE OVERLAY.

SRP STOCK CODE
5039248
CUSTOMER MUST OBTAIN PRIOR WRITTEN CONSENT OF SRP TO INCREASE THE CONNECT LOAD.

PLEASE CONTACT SRP AT 602-236-8833 FOR ASSISTANCE.

NOTES

1. AMPACITY AND LOAD FACTOR WILL BE DETERMINED BY ENGINEERING
COMPATIBLE UNIT TO GENERATE ADDITIONAL MANHOURS TO PERFORM WORK THAT WILL TAKE MORE TIME THAN WHAT WAS GENERATED BY THE JOB FOR THE LABOR ESTIMATE. THE CODE GENERATES ONE (1) HOUR AND IS TO BE USED WITH A QUANTITY APPROPRIATE FOR THE CONDITIONS AND NEEDS TO THE JOB. THIS CODE SHOULD BE USED ONLY FOR UNUSUAL CIRCUMSTANCES.

INCLUDES 5 HOURS FOR A 4-MAN CREW FOR PHASE BALANCE WORK. INCLUDES #2 SPLICE AT BOTH ENDS (STOCK #5033779) AND 8 FEET OF #2 CABLE (STOCK #5035034).
MARKINGS ARE NOT TO BE PLACED ON THE REMOVABLE FRONT BARRIERS

* LOCATED ON INSIDE OF DOOR

FACTORY SUPPLIED OR (73-2215) WARNING

FACTORY SUPPLIED OR (73-2216) DANGER

(73-2210) FENCING AND SHRUB PLANTING INST.

(73-2145) IF IT'S NOT GROUNDED IT'S NOT DEAD
LIVE FRONT PAD MOUNTED SWITCHES

FIGURE 11

(5039002) IF IT'S NOT GROUNDED
IT'S NOT DEAD.

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FACTORY SUPPLIED OR (5039122)
FENCING INSTRUCTIONS AND
WARNING/NOTICE.

P E 2 2 2 2

INSIDE OF DOOR FRONT
(AND REAR)

R

E

FRONT

FACTORY SUPPLIED
OR (5039126) DANGER

REAR DOOR OR LIFT
OFF PANEL

INSIDE REAR WITH LIFT
OFF PANEL REMOVED

(5039002) IF IT'S NOT GROUNDED IT'S NOT DEAD.
LOCATE ON PERMANENT PANEL BEHIND BUS SO THAT
IT IS VISIBLE WHEN REMOVABLE BARRIERS ARE IN PLACE.

Underground Distribution
Construction Standards
R

MISCELLANEOUS
IDENTIFICATION MARKING METHODS
(PAD MOUNTED, LIVE FRONT SWITCHES)

PROPRIETARY MATERIAL

11-27-1

ISSUE DATE: 01/15/87

REV. DATE:

08/06/13

APPROVAL: B. PRIEST

8513E231.DGN


**NOTES**

1. FOR THREE PHASE LOAD TAPS: MAKE ALL CONNECTIONS TO LEFT HAND BUSHING OF EACH PHASE.

MISCELLANEOUS MARKING METHODS

(IDENTIFICATION MARKING METHODS)

PAD MOUNTED, DEAD FRONT FUSING ENCLOSURE

**CONNECTIONS TO RIGHT HAND BUSHING OF EACH PHASE OR MAKE ALL**

**WARNING/NOTICE**

FACTORY SUPPLIED OR (5039022)

DANGER

FACTORY SUPPLIED OR (5039126)

GROUNDED IT'S NOT DEAD

(5039122)

IF IT'S NOT GROUNDED IT'S NOT DEAD

FIGURE 13

DEAD FRONT FUSING ENCLOSURE

IDENTIFICATION MARKING METHODS

MISCELLANEOUS

NOTES

CONNECTIONS TO RIGHT HAND BUSHING OF EACH PHASE OR MAKE ALL

LOCATION ON INSIDE OF DOOR

PAD MOUNTED, DEAD FRONT FUSING ENCLOSURE

**NOTES**

1. FOR THREE PHASE LOAD TAPS: MAKE ALL CONNECTIONS TO LEFT HAND BUSHING OF EACH PHASE.
**NOTES**

1. ANTENNA POLE NUMBER IS "AP" FOLLOWED BY LAST 2 DIGITS OF SWITCH NUMBER.
CUSTOMER OWNED/SRP MAINTAINED VACUUM INTERRUPTERS SHALL BE MARKED WITH THE PAD NUMBER FOLLOWED BY AN 'F'.

WARNING/DANGER (5039122)

IF IT IS NOT GROUNDED IT IS NOT DEAD (5039002)

DANGER (5039126)