

Co-Mo Electric Cooperative, Inc.
Underground Installation and Specifications

Co-Mo Electric requires a 30' easement for all underground installations (15' of each side of the centerline where the cable or equipment will be installed). The easement is recommended be at final grade before any installations commence. Transformer vaults and switch gear must be truck assessable during all weather seasons. The contractor or member is required to open all ditches and excavations for the underground cable and equipment. The contractor or member is also responsible for covering these ditches and excavations in the manor described below.

Primary and secondary equipment is installed as follows:

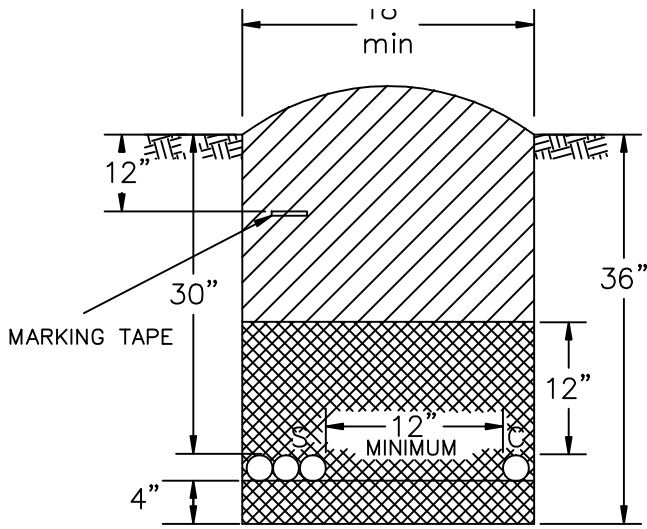
Cable: Primary underground cable (25kV) is installed to minimum depth (top of cable) of 42". Secondary cable (600 Volts) is installed to a minimum depth (top of cable) of 30" in approved conduit (SCH40 or greater). All cable will have a minimum of 6" of bedding with sand or equivalent. The first 12" of fill will be sand, economy base, chat screenings or equivalent. Marking tape will be installed vertically inline of the cable at a distance 12" below final grade. The remainder of the fill will be clean dirt or equivalent (no flint rock). The ditches and excavations will be crowned to allow for future settling of the fill. The tip of the crown will be no less than 12" above grade. Cable will not be bent over the manufacturers' recommended maximum bending radius. No more than 270 degrees of totaling turning will take place between junctions. Turns exceeding 45 degrees will be done with rigid 3 ft or greater sweeps for secondary installations. Primary installations will not exceed 45 degree turns. All road crossing will be sleeved with SCH80 or heavier conduit. Multiple conduits will be installed to accommodate for future installations and repairs. The conduit will be sized to accommodate the needed cable. All cable will be handled with care to the manufactures' specifications. Abused cable and equipment will not be installed. Co-Mo Electric reserves the right to accept or decline the use of joint trenches. These situations will be handled on a case by case basis. See drawing UDG-1 for more information on primary and secondary cable installations and UDG-2 for joint use situations.

Transformer vaults, switch gear cabinets, primary junctions, secondary junctions and pedestals: Transformer vaults, switch gear cabinets and primary junctions will need a 6'X6'X30" vacancy for installation. Some switch gear cabinets will need larger excavations which will be handled on a case by case basis. Secondary junctions and pedestals will need a 3'X3'X30" vacancy for installation. All equipment will be bedded with a minimum of 4" of sand or equivalent. The remainder of the fill will be clean dirt or equivalent. Curbing of the fill will take place around the equipment to accommodate for future settling. All installation sites for the equipment must be level and accessible by truck. Transformer vaults, primary junctions, and switch gear cabinets must be installed within 12 ft of a passable road. The member or contractor must supply a level approach to the equipment for future maintenance. No foreign obstacles (trees, bushes, phone pedestals, statues, yard ornaments, etc.) shall be place within 10 ft in front of the opening of the equipment and 3 ft on the other three sides of the equipment.

Installation options: Underground installations can be performed by Co-Mo Electric or an approved contractor. The contractor will follow all of Co-Mo Electric's specifications. Co-Mo Electric will have an inspector on site at all times during the installation procedure. Co-Mo Electric reserves the rights to stop construction whenever the inspector feels necessary. The member or contractor is responsible for the opening and closing of all ditches and excavations. Extra bedding will be available to Co-Mo Electric to properly level equipment.

Any questions should be directed to Co-Mo Electric's engineering department c/o:

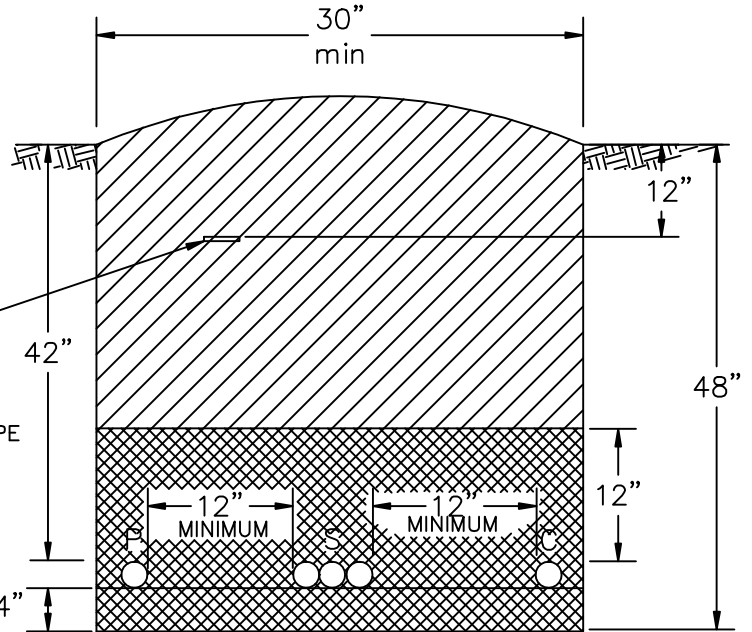
Jon Schulte
Engineering Manager
P.O. Box 220
Tipton, MO 65081
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(660) 433-5521 ext 225



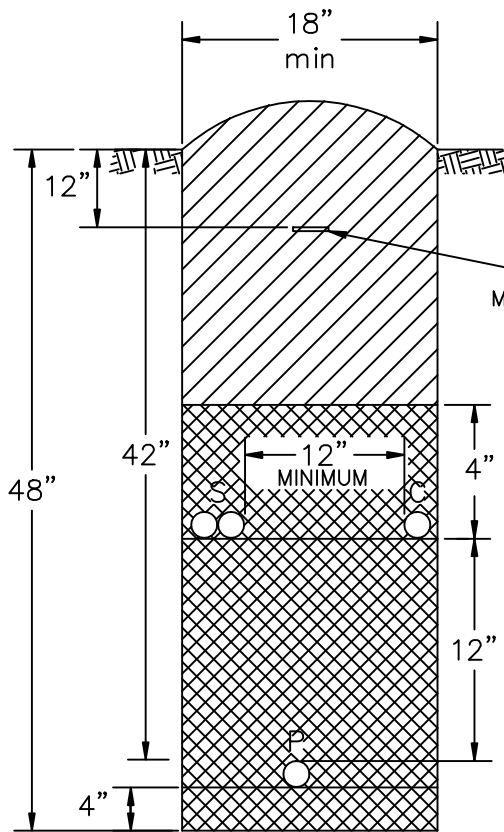
(36" x 18")
SERVICE OR SECONDARY
AND
COMMUNICATION/WATER

LEGEND

- SAND, ECONOMY BASE, FINES, OR EQUIVALENT
- COMPACTED BACKFILL UNLESS OTHERWISE SPECIFIED
- UNDISTURBED EARTH



(48" x 30")
PRIMARY, SECONDARY
AND
COMMUNICATION/WATER

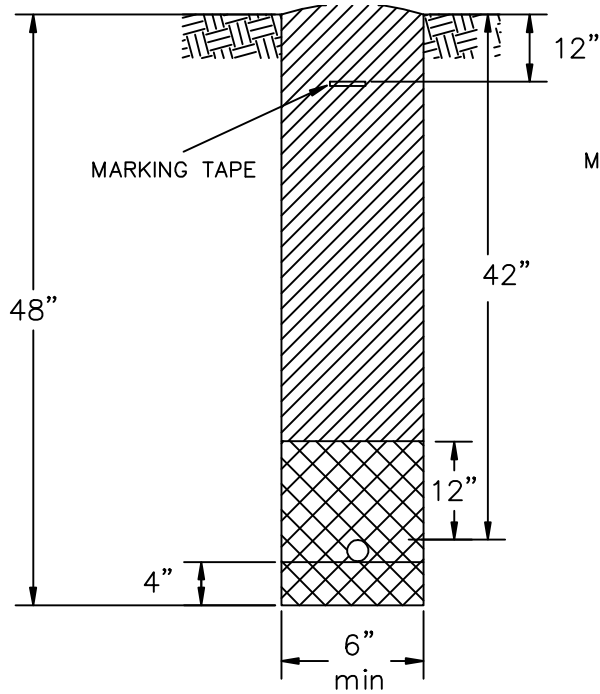


(48" x 18")
PRIMARY
AND
SECONDARY OR COMMUNICATION/WATER

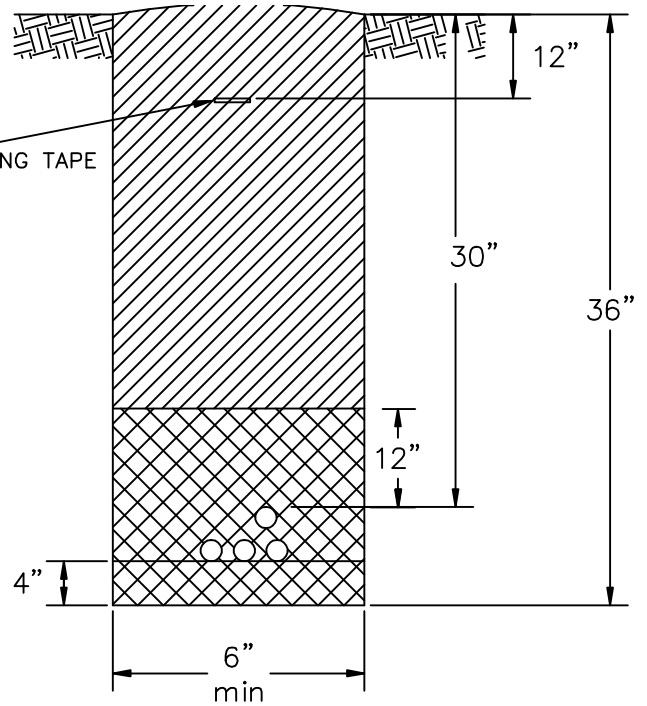
NOTES:

1. DEPTH AND WIDTH ARE SPECIFIED.
2. DEPTHS SPECIFIED ARE TO FINISHED GRADE.
3. OVER-EXCAVATE TRENCHES AS NECESSARY TO ALLOW FOR (a) SAND BEDDING OR (b) LOOSE AND SANDY SOILS OR (c) WHERE MORE THAN ONE CABLE WILL BE INSTALLED IN TRENCH AND LAYING OF FIRST CABLE MAY CAUSE TRENCH DAMAGE AND REDUCTION IN DEPTH.
4. SAND BEDDING IS NOT PART OF THESE UNITS AND WILL BE SPECIFIED AS NEEDED.
5. BACKFILLING IS PART OF ALL TRENCHING UNITS INCLUDING JOINT-USE TRENCHES.
6. WARNING TAPE IS TO BE PLACED VERTICALLY IN-LINE OF THE INSTALLED CABLE 12" FROM FINAL GRADE.

JOINT USE SPECIFICATIONS	CO-MO ELECTRIC COOPERATIVE, INC. DIMENSIONS FOR CABLE INSTALLATION		
	JPS	3/20/08	UDG-2


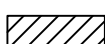



TRENCHING UNIT
SINGLE CABLE INSTALLATION



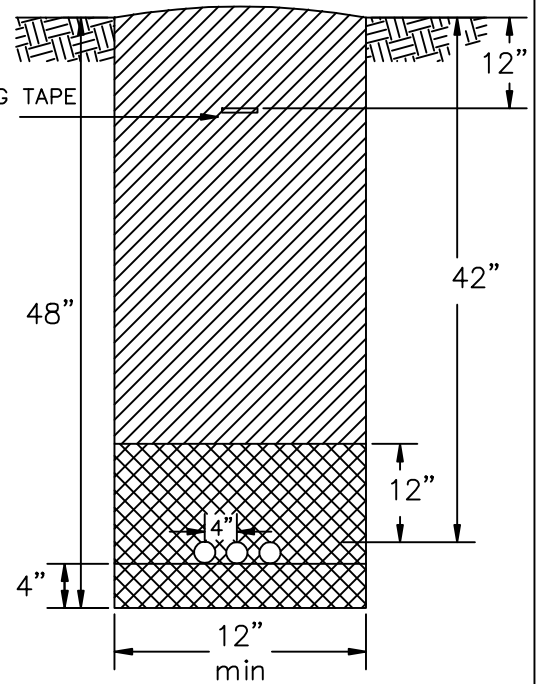
TRENCHING UNIT
MULTIPLE SECONDARY OR SERVICE CABLES

LEGEND

-  SAND, ECONOMY BASE, FINES, OR EQUIVALENT
-  COMPACTED BACKFILL UNLESS OTHERWISE SPECIFIED
-  UNDISTURBED EARTH

NOTES:

1. DEPTH AND WIDTH ARE SPECIFIED.
2. DEPTHS SPECIFIED ARE TO FINISHED GRADE.
3. OVER-EXCAVATE TRENCHES AS NECESSARY TO ALLOW FOR (a) SAND BEDDING OR (b) LOOSE SANDY SOILS OR (c) WHERE MORE THAN ONE CABLE WILL INSTALLED IN TRENCH AND LAYING FIRST CABLE MAY CAUSE TRENCH DAMAGE AND REDUCTION IN DEPTH.
4. SAND BEDDING IS NOT PART OF THESE UNITS AND WILL BE SPECIFIED AS NEEDED.
5. BACKFILLING IS PART OF ALL TRENCHING UNITS.
6. WARNING TAPE IS TO BE PLACED VERTICALLY IN-LINE OF THE INSTALLED CABLE 12" FROM FINAL GRADE.



TRENCHING UNIT
MULTI-CABLE INSTALLATION

NON-JOINT USE SPECIFICATIONS	CO-MO ELECTRIC COOPERATIVE, INC. DIMENSIONS FOR CABLE INSTALLATION		
	DRAWN BY: JPS	3/18/08	UDG-1