



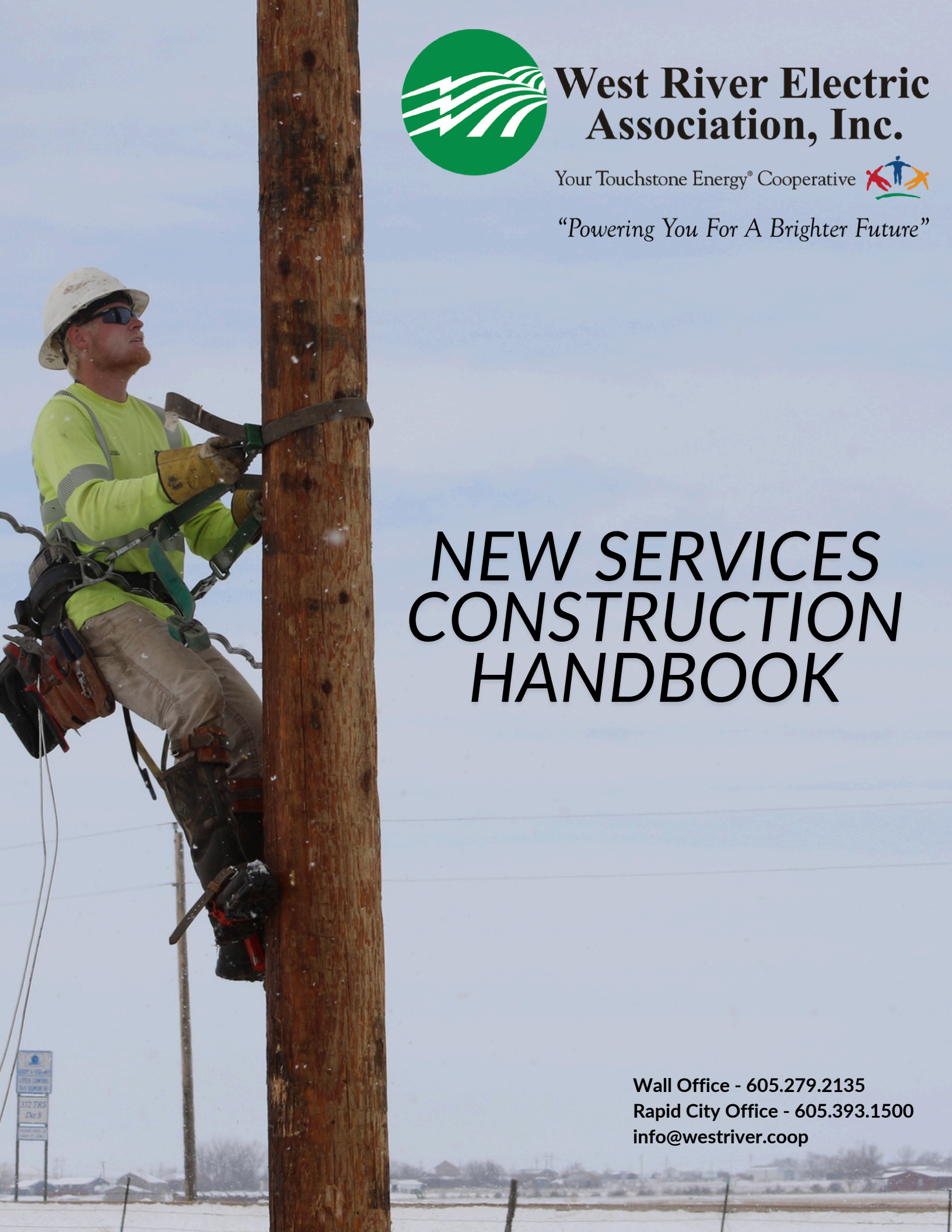
**West River Electric  
Association, Inc.**

Your Touchstone Energy® Cooperative 

*"Powering You For A Brighter Future"*

# NEW SERVICES CONSTRUCTION HANDBOOK

Wall Office - 605.279.2135  
Rapid City Office - 605.393.1500  
[info@westriver.coop](mailto:info@westriver.coop)





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# INTRODUCTION

West River Electric Association (WREA) is providing this handbook of service specifications and drawings. This handbook is intended to be used when bidding, installing, or upgrading service entrances in WREA service territory. If specifications cannot be followed, then prior approval shall be obtained from WREA before proceeding.

This handbook does not take precedence or redefine requirements in any Codes. Please consult with authority having jurisdiction in project area for compliance requirements. All installations shall comply with NEC, NESC, and any applicable codes.

WREA may update this booklet as deemed necessary at any time. For questions, please contact the staking personnel in the Rapid City office.

**Last updated 01/01/2025**

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# West River Electric Association

\*Service can be started after these items are completed by Member/Contractor\*

- ☐ Provide service description and information (i.e. pump, irrigation, seasonal, residential, commercial, type of heat, demand controller, etc.)
- ☐ Provide service requirements including voltage, amperage and number of phases
- ☐ Provide 911 address of new service
- ☐ Provide courthouse copy of plat and deed for service location
- ☐ If crossing neighbor's property, provide courthouse copy of neighbor's plat and deed
- ☐ Complete WREA new service application and new membership form
- ☐ Provide a photo ID
- ☐ Complete signatures on all required easements
- ☐ Complete and sign "Line Extension Agreement"
- ☐ Make applicable payments such as service charge, line extension costs, or aid of construction
- ☐ Pay either a deposit or have good credit reference with another utility or acceptable credit per a credit bureau check
- ☐ Remove trees or vegetation required by WREA
- ☐ Contact other utilities and coordinate installation of other utilities with WREA
- ☐ Contact SD One Call, 811 or 1-800-781-7474
- ☐ Supply approved trench, bedding, and backfill at appropriate times
- ☐ Inspection or wiring permit
- ☐ Wiring certificate and permit for temporary service at WREA office

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MEMBER/CONTRACTOR NEW SERVICE  
CHECKLIST



DRAWING NUMBER  
CHECK-1



## PERMANENT SERVICE REQUIREMENTS

This list applies to all PERM drawings on the following pages:

1. Member/Contractor new service checklist in this booklet completed
2. Member/Contractor is urged to make early contact with WREA for permanent service.
3. WREA will connect the service after copy of the State wiring certificate and/or City inspection is on file.
4. Permanent service location shall be determined and approved by WREA staking personnel and will vary depending on multiple factors.
5. Permanent service shall be located where the meter will be protected from damage.
6. Equipment shall be located according to clearance requirements found in this booklet. Should relocation be necessary, the cost shall be the responsibility of the Member/Contractor.
7. Member/Contractor owned metering equipment, switching devices, conduits, conductors, luminaries, etc. shall not be mounted to WREA poles.
8. Three phase services will, at the option of WREA, be CT metered provided by Contractor/Member.
9. Overhead permanent services shall be supported on a WREA approved pole, wall, or structure. The maximum service drop length from WREA's pole to the service will be dependent upon conductor size. Consult WREA's staking department to determine the maximum distance.
10. Standard voltage is 120/240V or 240/480V for single phase and 120/208V or 277/480V for three phase.
11. No delta connected three phase services are allowed
12. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

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### REQUIREMENTS PERMANENT SERVICE REQUIREMENTS



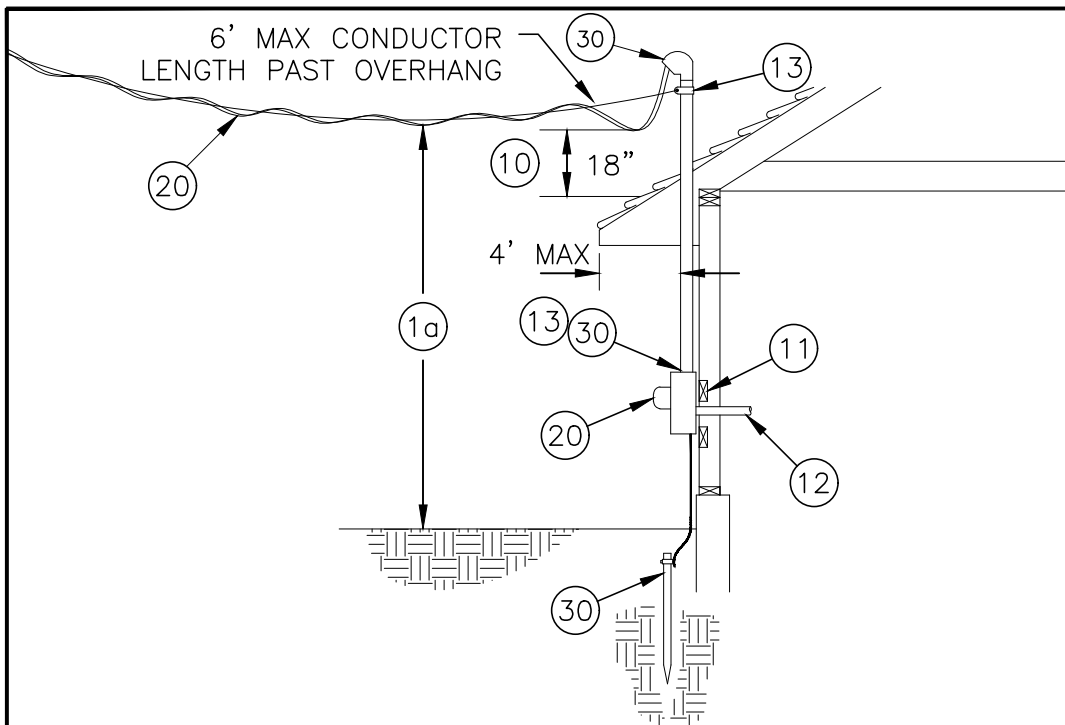
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DRAWING NUMBER  
PERM-1









(NOT TO SCALE)

NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
10. Cable drip loop must be at least 18" above roof when installed above an overhang roof penetration. Conductors shall not exceed 6' in length and 4' horizontally past the overhang
11. Adequate framing for anchoring meter can to structure. Minimum 2 horizontal 2x4 blocks installed behind sheathing as shown.
12. Connection to Member/Contractor panel from bottom lugs in the meter can
13. Member/Contractor to provide 2" rigid galvanized steel conduit attachment of adequate strength below weatherhead and directly above hub identified for service entrance equipment with no conduit couplings
20. WREA will furnish and install:
  - a. Meter
  - b. Secondary wire from WREA transformer to mast/weatherhead
30. Member/Contractor shall furnish and install
  - a. Meter can and mounting
  - b. Grounding with driven ground rod
  - c. Weatherhead
  - d. All 2" steel service entrance conduit 2"
  - e. Wire in conduit with 18" of length outside of weatherhead

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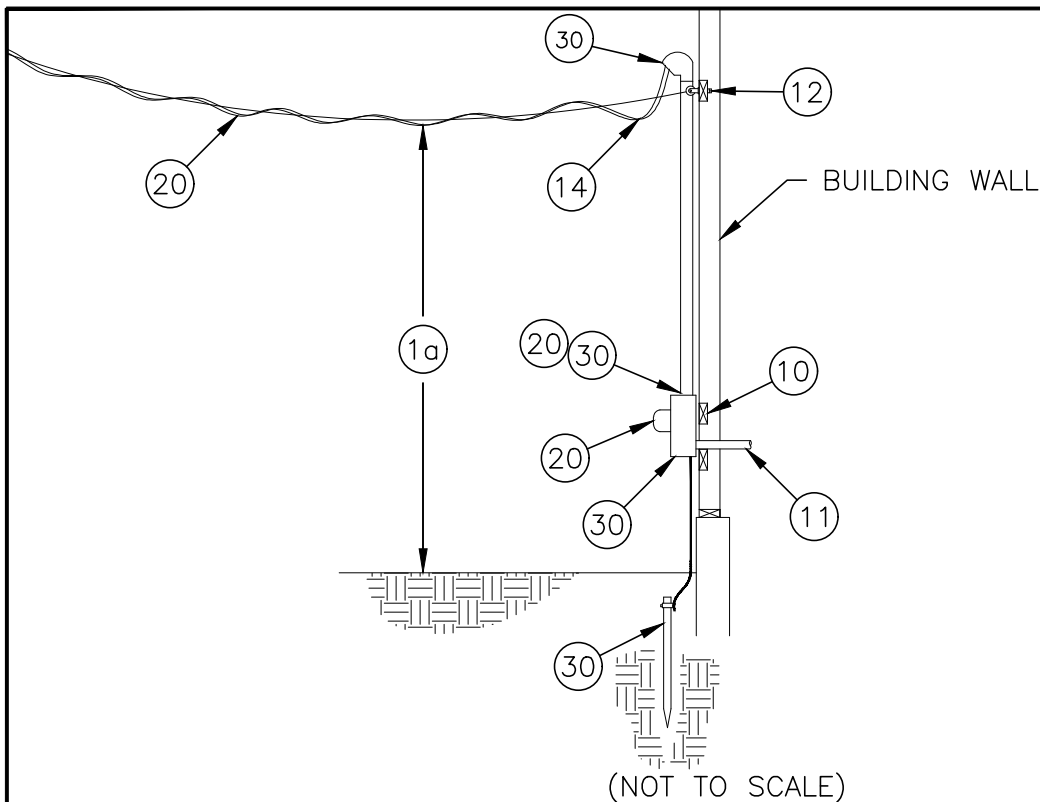
0-320 AMP OVERHEAD  
PERMANENT SERVICE



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PERM-3





NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
10. Adequate framing for anchoring meter can to structure. Minimum 2 horizontal 2x4 blocks installed behind sheathing as shown.
11. Connection to Member/Contractor panel from bottom lugs in the meter can
12. Member/Contractor to provide insulated deadend with 1/2" eye bolt that fastens with nut and washer inside structure
13. Weatherhead must be located above and within 12" of the point of attachment to the structure
14. Drip loop must be installed
20. WREA will furnish and install:
  - a. Meter
  - b. Secondary wire from WREA transformer to mast/weatherhead
30. Member/Contractor shall furnish and install
  - a. Meter can and mounting
  - b. Grounding with driven ground rod
  - c. Weatherhead
  - d. All 2" steel service entrance conduit 2"
  - e. Wire in conduit with 18" of length outside of weatherhead

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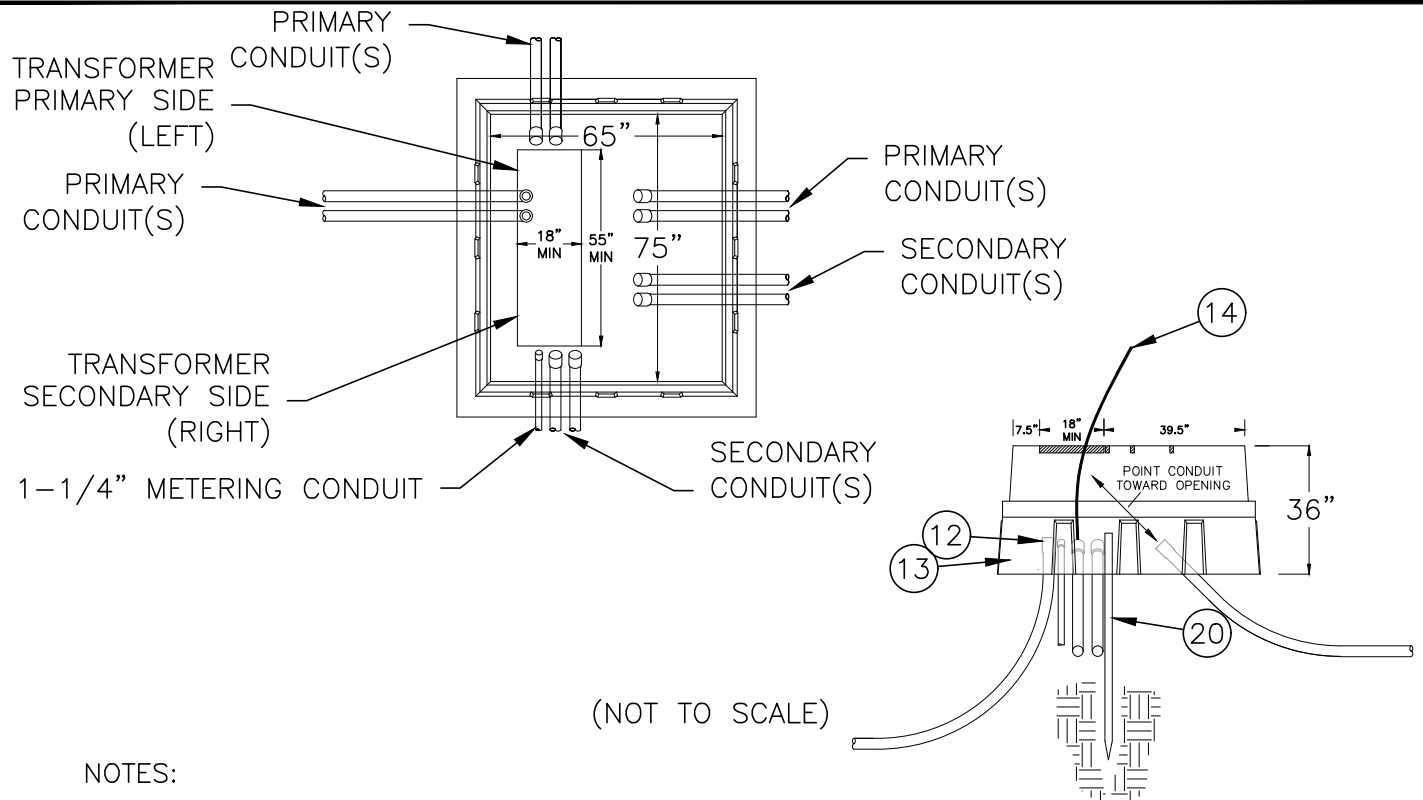
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0-320 AMP OVERHEAD TO STRUCTURE  
PERMANENT SERVICE



DRAWING NUMBER  
PERM-4





NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. PAD
  - e. TRENCH
10. Transformer will be 75-1,500 kVA, maximum 6 connections per phase
11. Meter shall not be mounted to or in the transformer cabinet
12. Bell ends shall be installed on all conduits
13. Conduits shall be exposed 4" to 6" inside transformer pad
14. Member/Contractor shall extend secondary wires 7' above transformer pad with a maximum of six wires per phase with maximum size of 750 kcmil copper or aluminum.
20. WREA will furnish and install:
  - a. Transformer
  - b. Primary cable to transformer
  - c. Grounding of transformer
  - d. Transformer secondary lugs
30. Member/Contractor shall furnish and install
  - a. Transformer base purchased from WREA
  - b. Trenching and backfilling
  - c. All conduits
  - d. All conductors and equipment past transformer secondary lugs

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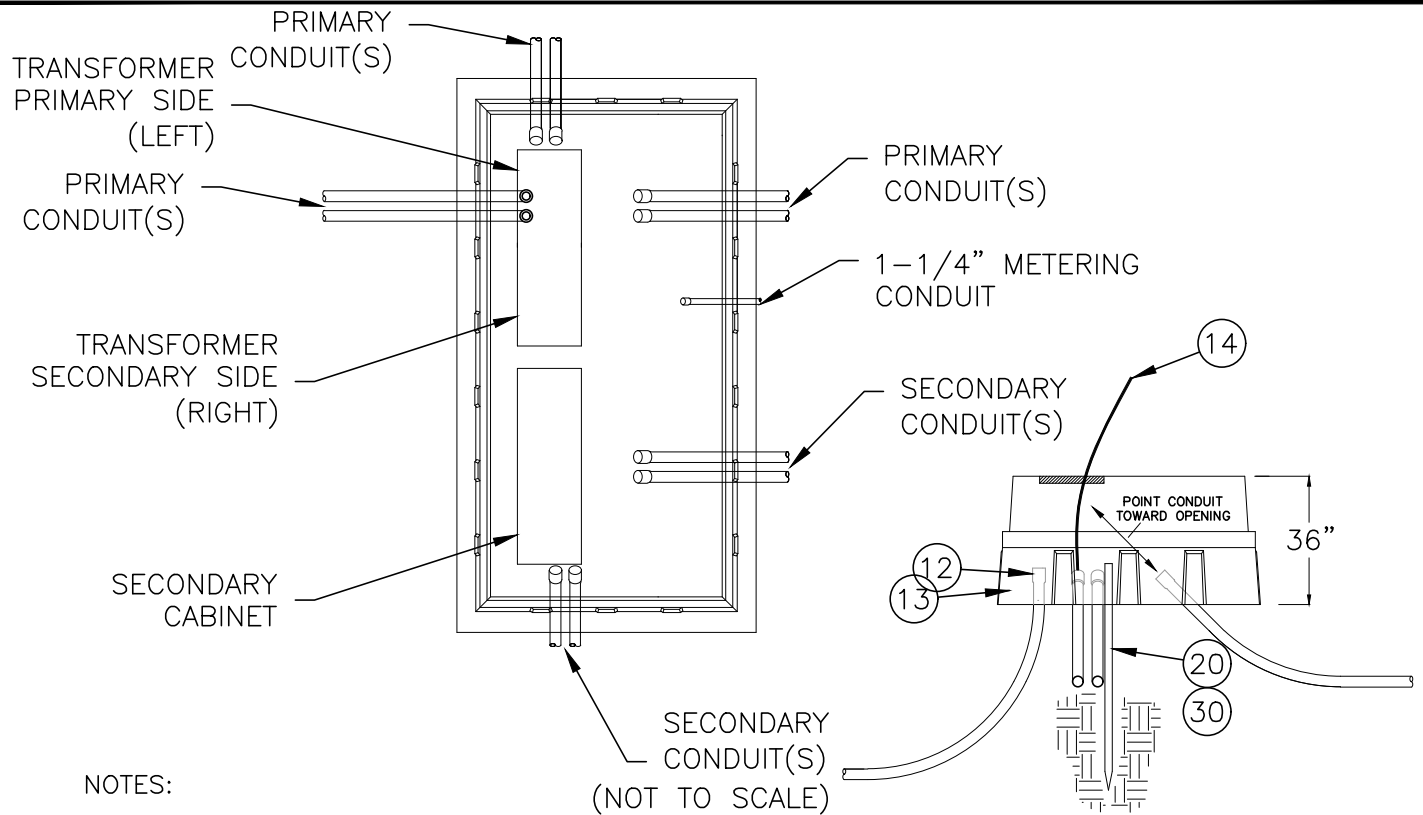
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3Ø TRANSFORMER PAD  
PERMANENT SERVICE

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PERM-5





NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. PAD
  - e. TRENCH
10. Transformer will be 75-1,500 kVA, maximum 6 connections per phase
11. Meter shall not be mounted to or in the transformer cabinet
12. Bell ends shall be installed on all conduits
13. Conduits shall be exposed 4" to 6" inside transformer pad
14. Member/Contractor shall extend secondary wires 7' above transformer pad with a maximum of six wires per phase with maximum size of 750 kcmil copper or aluminum.
20. WREA will furnish and install:
  - a. Transformer
  - b. Primary cable to transformer
  - c. Grounding of transformer
  - d. Transformer secondary lugs
30. Member/Contractor shall furnish and install
  - a. Transformer and secondary cabinet base purchased from WREA
  - b. Secondary cabinet
  - c. Grounding of secondary cabinet
  - d. Trenching and backfilling
  - e. All conduits
  - f. All conductors and equipment past transformer secondary lugs

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3Ø TRANSFORMER WITH SECONDARY PAD  
PERMANENT SERVICE



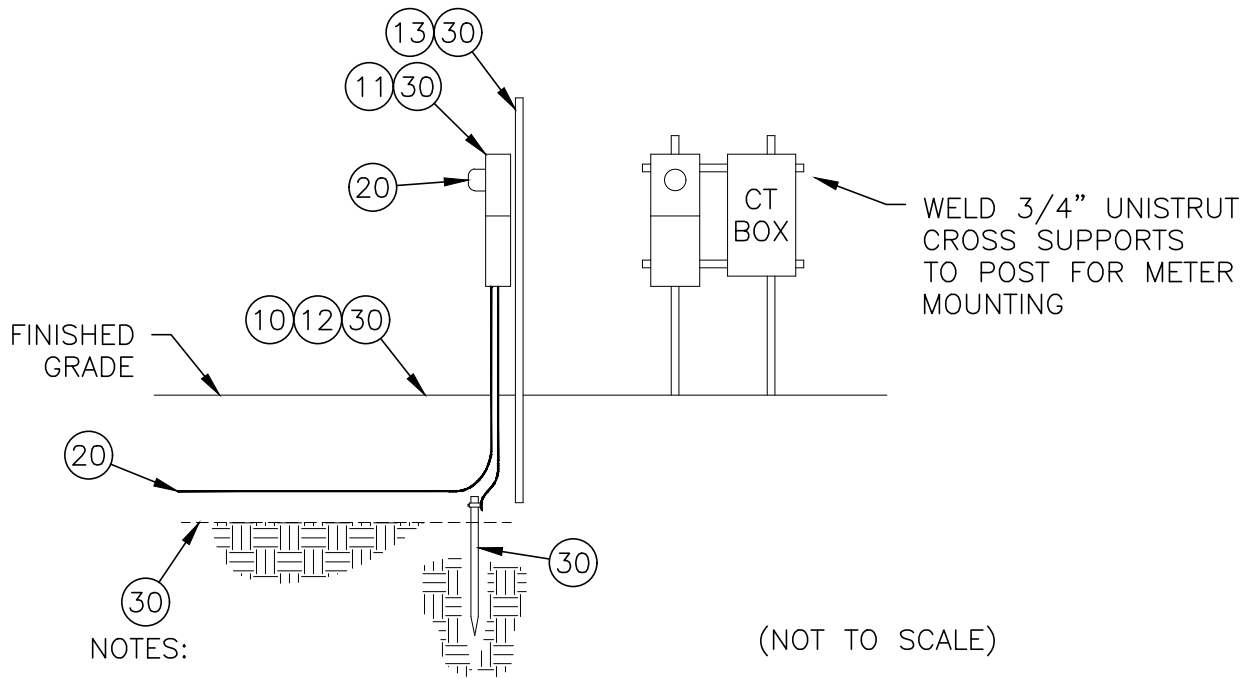
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DRAWING NUMBER  
PERM-6









1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Service shall be
  - a. WREA approved
  - b. Over 200 amp ct metered
  - c. Any 480V service shall be instrument rated
  - d. Commercial meters shall have mechanical bypass
12. Underground service line shall be backfilled before energizing service
13. 3" rigid galvanized pipe or 3" square tubing (1/4" min wall thickness) painted gray
20. WREA will furnish and install:
  - e. Meter
  - f. CTs
30. Member/Contractor shall furnish and install
  - a. Three phase Member provided secondary wire.
  - b. Meter rack and mounting
  - c. Grounding with driven ground rod
  - d. Trench, clean backfill, and conduit as explained in this booklet
  - e. All conduit, conductors, and equipment past meter

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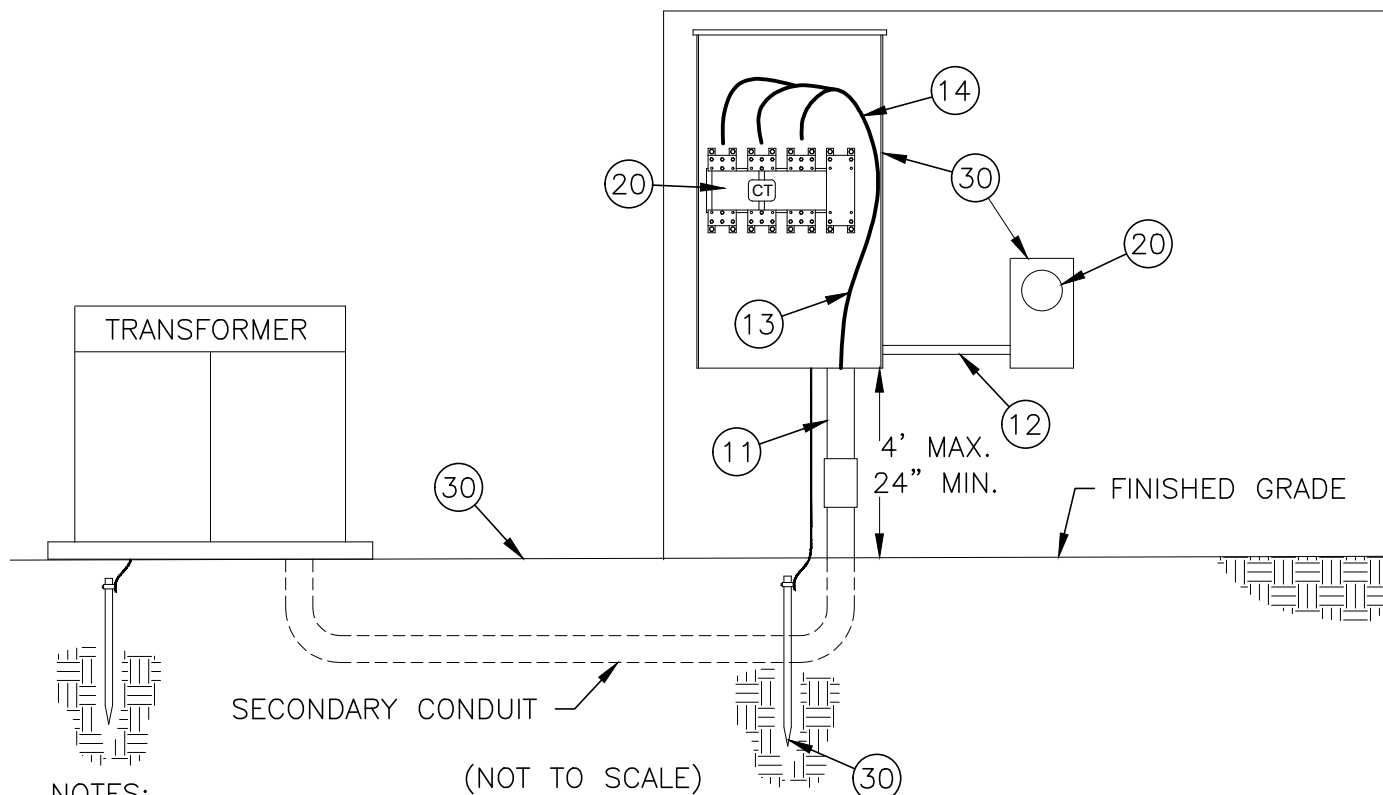
### THREE PHASE STEEL POST PERMANENT SERVICE



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DRAWING NUMBER  
PERM-8





#### NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. CT metering is required on:
  - a. Single phase loads 400 Amps & above
  - b. Three phase loads above 200 Amps
  - c. 480 Volt service
11. Service entrance conductors shall pass directly from transformer to CT cabinet (i.e. no intermediate cabinets)
12. 1-1/4" GRC or EMT bonded
13. Conductors shall pass behind bus or CT
14. White dot on CTs shall be incoming line from transformer
15. Underground service line shall be backfilled before energizing service
20. WREA to furnish and install:
  - d. Meter
  - e. Furnish CTs
30. Member/Contractor to furnish and install
  - a. CT cabinet and meter can purchased from WREA
  - b. Installation of CTs
  - c. Meter can mounting
  - d. Grounding with driven ground rod
  - e. All conduit, conductors, and equipment past transformer secondary lugs

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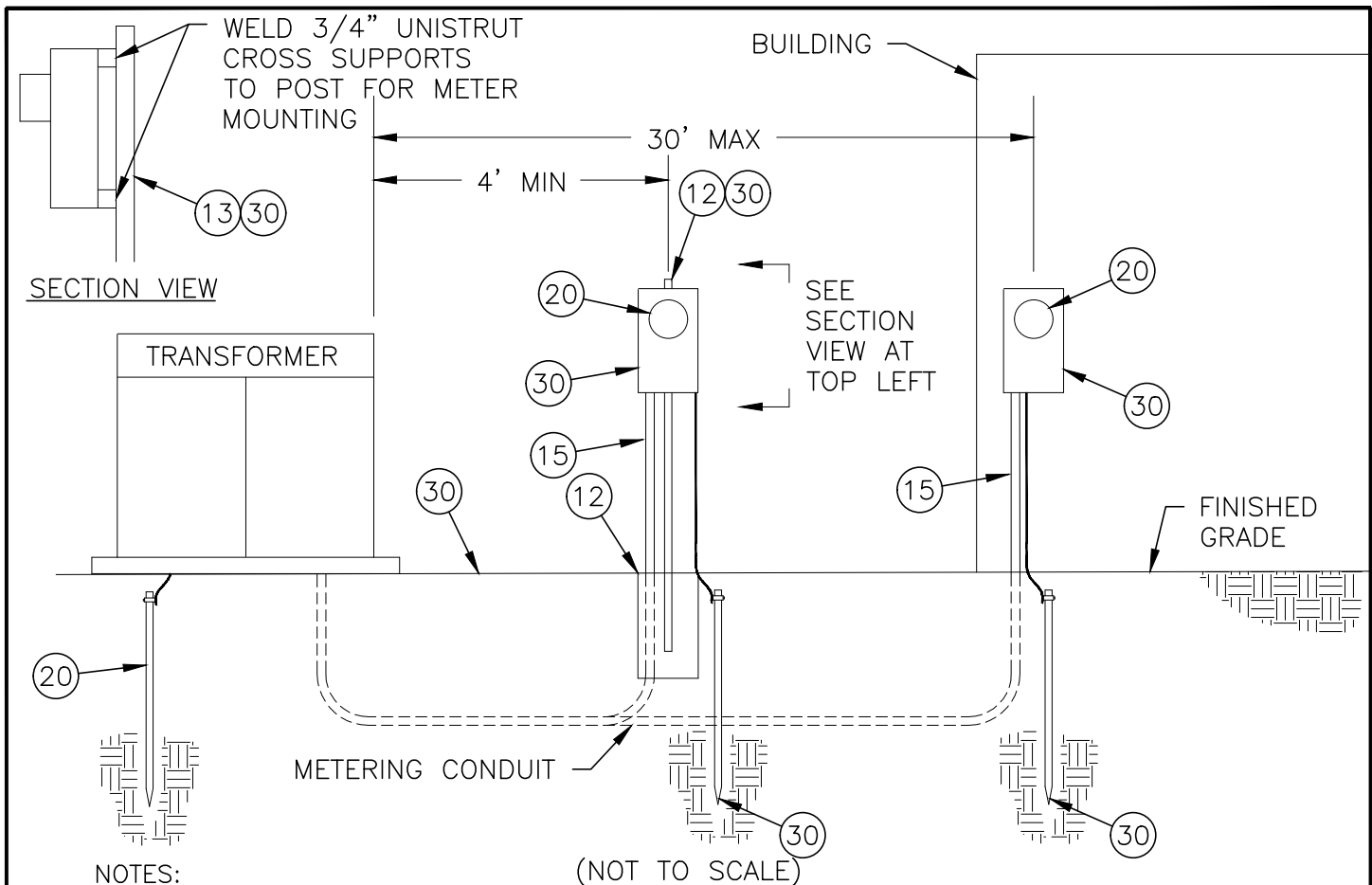
CT CABINET METERING  
PERMANENT SERVICE



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DRAWING NUMBER  
PERM-9





NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. GUARD
  - b. METER
  - c. TRENCH
  - d. CLEARANCES
10. Transformer shall be for single service only
11. Meter shall not be mounted to or in the transformer cabinet
12. Meter is preferred to be mounted to building. If distance between transformer and building exceed 30', meter pedestal set in concrete shall be used.
13. 3" rigid galvanized pipe or 3" square tubing (1/4" min wall thickness) painted gray
14. Underground service line shall be backfilled before energizing service
15. Metering conduit 1-1/4" PVC below grade and 1-1/4" GRC or EMT above grade.
20. WREA to furnish and install:
  - a. Transformer Grounding
  - b. Meter
30. Member/Contractor to furnish and install
  - b. Meter can, 9S & 4S meter purchased from WREA installed by contractor
  - c. Meter can mounting
  - d. Grounding with driven ground rod
  - e. All conduit, conductors, and equipment past transformer secondary lugs

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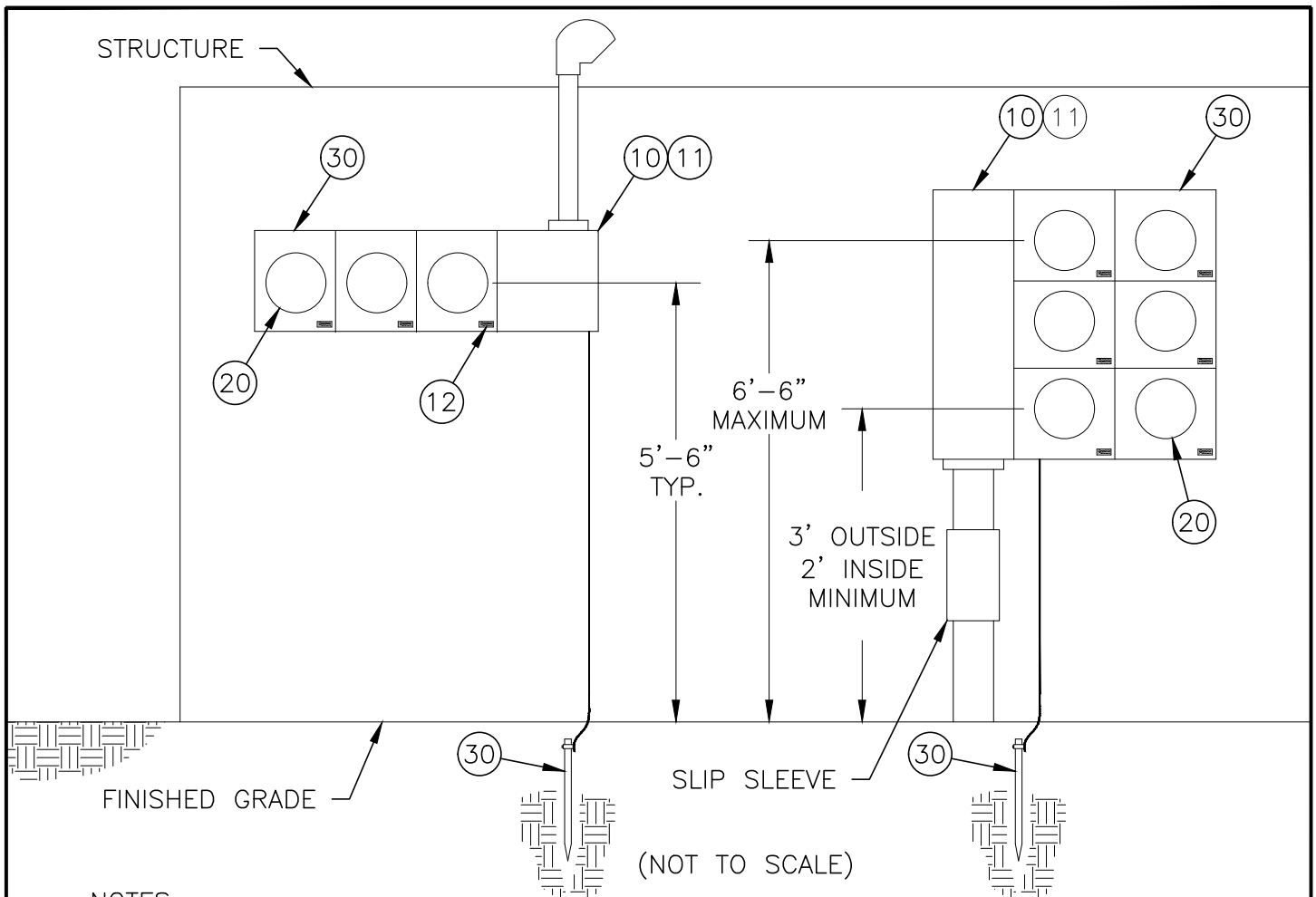
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CT'S IN TRANSFORMER METERING  
PERMANENT SERVICE

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PERM-10





NOTES:

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  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. Locking provisions provided and utilized after energization
11. Lever operated bypass shall be installed on all commercial sockets
12. Permanently affixed identification tags shall be installed
13. Meter modules shall be approved by WREA
14. CT compartments and/or switchgear shall be approved by WREA
15. Meter modules shall be mounted between 24" and 78" to centerline from finished grade as shown above Single meter height shall be mounted per METER REQUIREMENTS drawings in this booklet.
20. WREA will furnish and install:
  - a. Meters
30. Member/Contractor shall furnish and install
  - a. Meter modules
  - b. Meter mounting as described in PERMANENT SERVICE in this booklet
  - c. Grounding with driven ground rod
  - d. Secondary wire from WREA transformer to meter
  - e. All conduit, conductors, and equipment past meter

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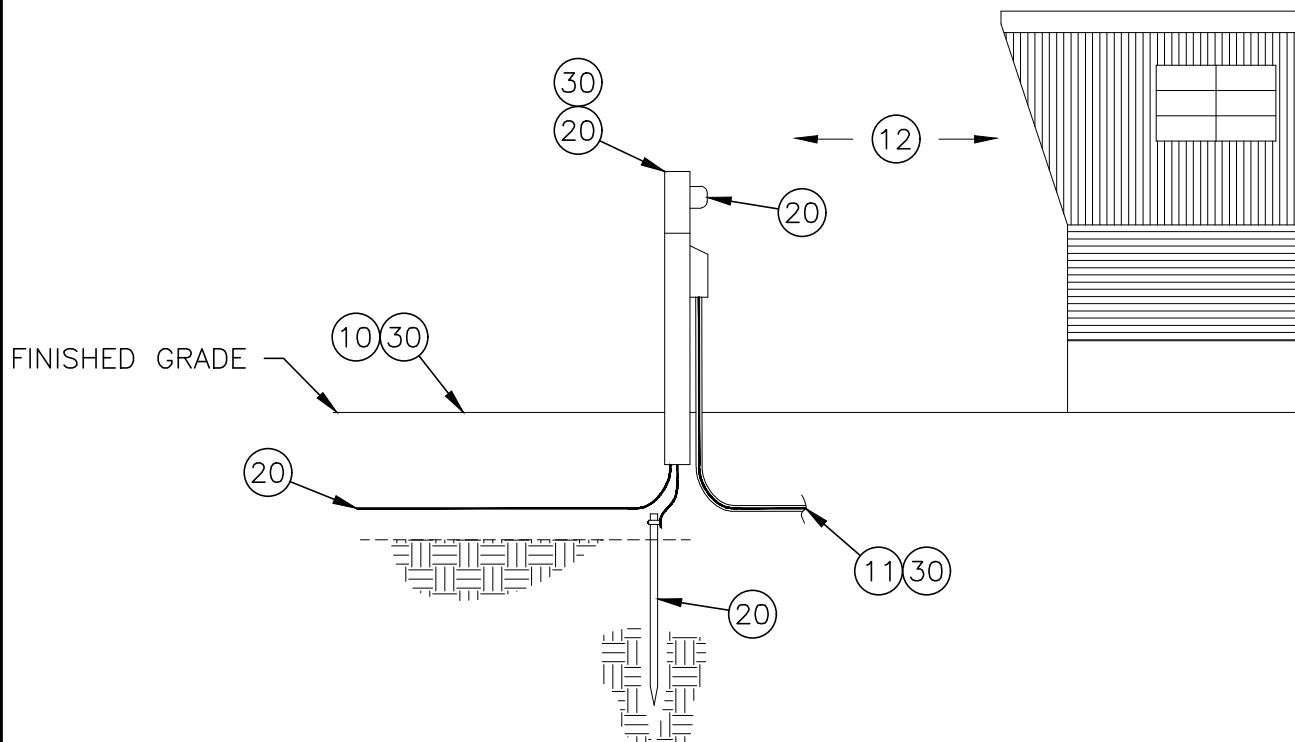
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GANG METER MODULES  
PERMANENT SERVICE

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DRAWING NUMBER  
PERM-11



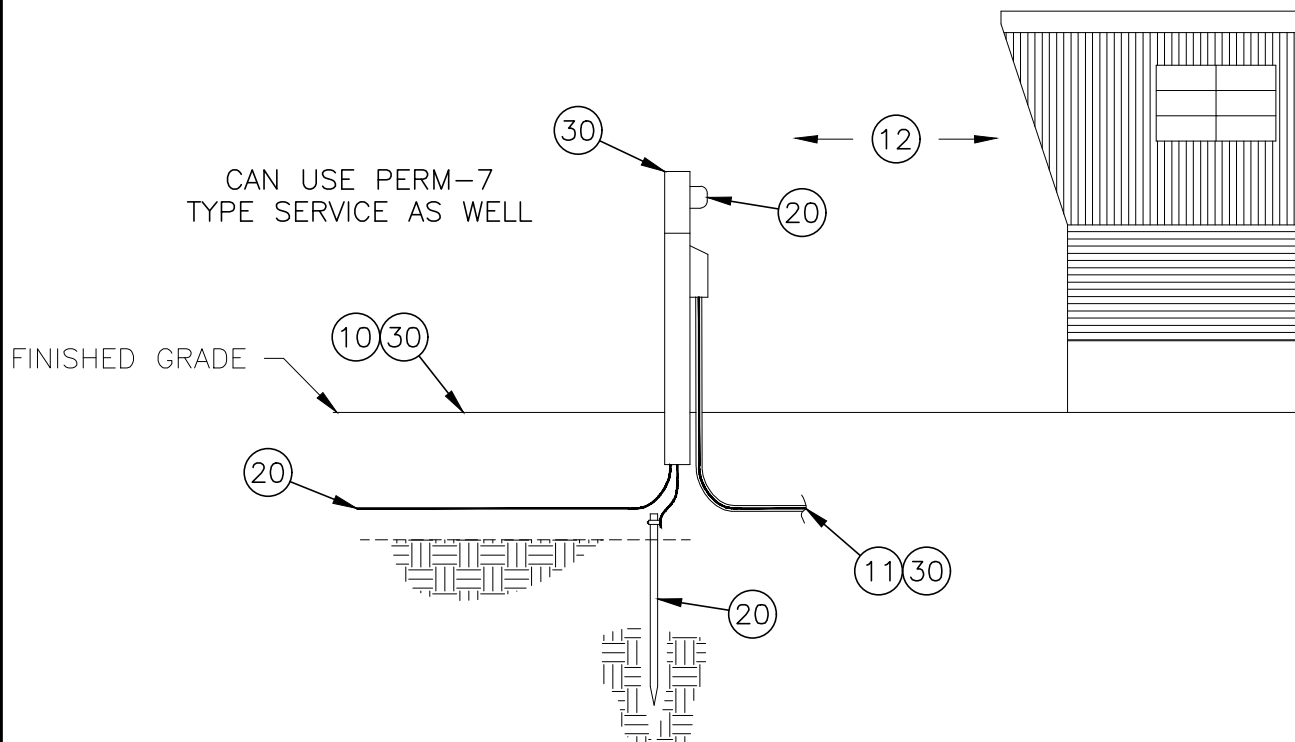


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  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Mobile home feeder cable shall be adequately protected and sized.
12. Mobile home shall be located at least 5' and no more than 30' from meter pedestal. Meter not allowed to be attached to mobile home unless prior approval from WREA.
13. Underground service line shall be backfilled before energizing service
20. WREA will:
  - a. Furnish and install meter pedestal
  - b. Furnish and install secondary wire from WREA transformer to meter
  - c. Furnish and install ground rod and grounding
  - d. Furnish and install meter
30. Member/Contractor shall
  - a. Furnish and install mobile home feeder cable
  - b. Furnish and install trench, clean backfill, and conduit as explained in this booklet





# NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. WREA will flag trench route from transformer to service for member/contractor to provide.
11. Mobile home feeder cable shall be adequately protected and sized.
12. Mobile home shall be located at least 5' and no more than 30' from meter pedestal. Meter not allowed to be attached to mobile home unless prior approval from WREA.
13. Underground service line shall be backfilled before energizing service
20. WREA will:
  - a. Furnish and install secondary wire from WREA transformer to meter
  - b. Furnish and install meter
30. Member/Contractor shall
  - a. Furnish and install meter pedestal or metering point
  - b. Furnish and install ground rod and grounding
  - c. Furnish and install mobile home feeder cable
  - d. Furnish and install trench, clean backfill, and conduit as explained in this booklet



## TEMPORARY SERVICE REQUIREMENTS

1. Checklist in this booklet completed
2. Member/Contractor is urged to make early contact with WREA for temporary service.
3. WREA will connect the service after copy of the State wiring certificate and/or City inspection is on file.
4. Temporary service for construction work must be located where the meter will be protected from damage and usable throughout the construction period. Should relocation be necessary, the cost shall be the responsibility of the Member/Contractor.
5. Member/Contractor owned metering equipment, switching devices, conduits, conductors, luminaries, etc. shall not be mounted to WREA poles.
6. Standard voltage is 120/240V for single phase and 120/208V or 277/480V for three phase.
7. No delta connected three phase services are allowed
8. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

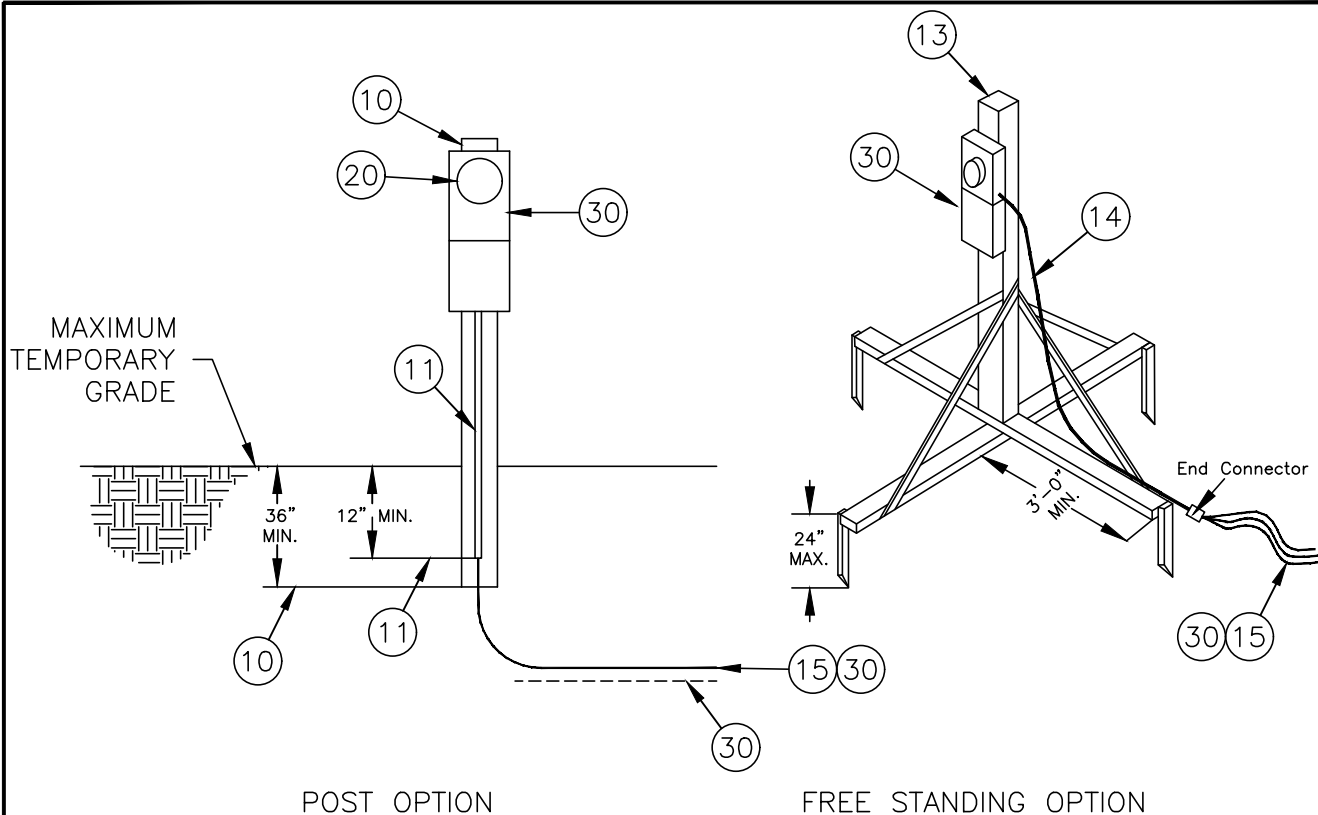
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REQUIREMENTS  
TEMPORARY SERVICE



DRAWING NUMBER  
TEMP-1





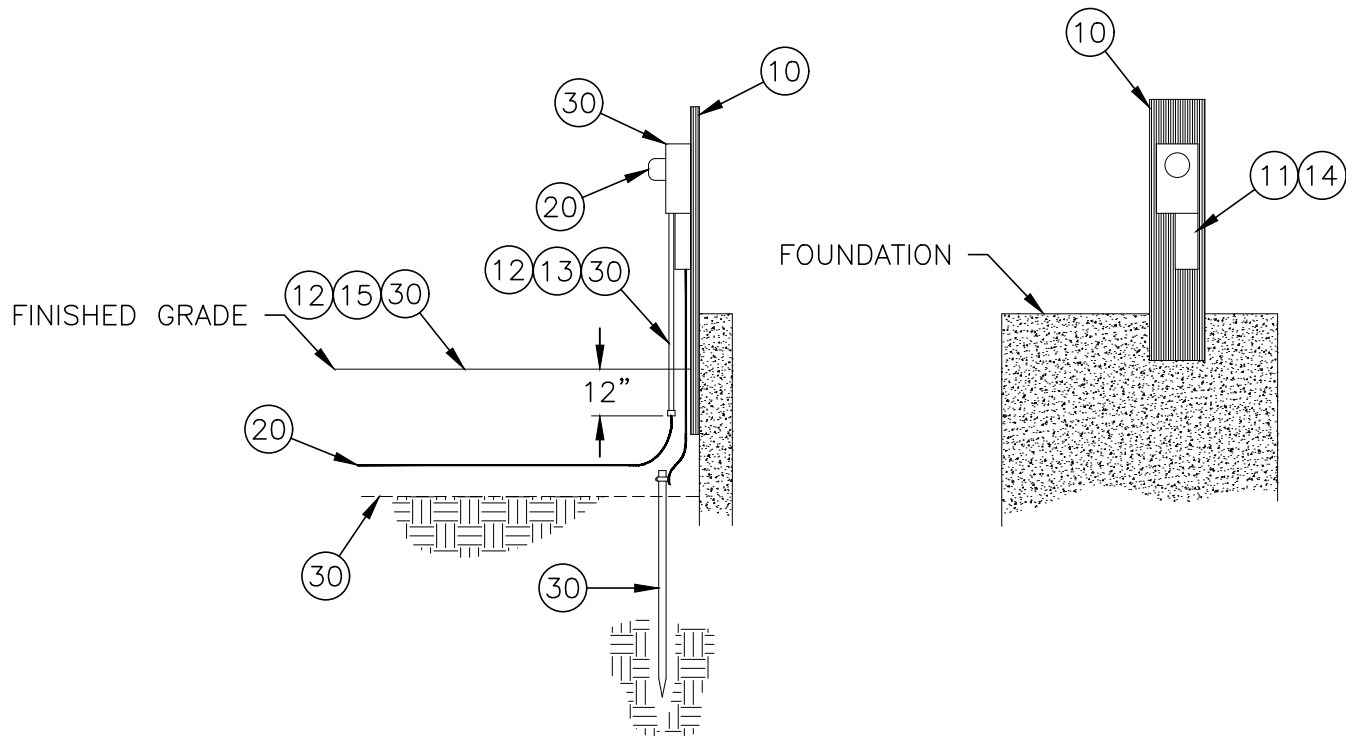
NOTES:

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1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. Pressure treated 4x4 wood post and installed as shown above
11. Post conduit 2" PVC and installed as shown above
12. All underground temporary meter loops shall be located at the transformer or secondary service wire on the lot line.
13. Free standing pedestal must be adequately braced and anchored with minimum 4x4 post. This pedestal will be used with pad mount transformer.
14. Qty. 4 #6 minimum conductors installed in 1-1/2" liquid tight flexible conduit. 8' min. and 12' max. length between meter and transformer
15. Adequate length conductor tails left for pad mount transformer or secondary junction box connections by WREA.
20. WREA will furnish and install:
  - a. Meter
  - b. Transformer or secondary junction box connection, no secondary conductors
30. Member/Contractor shall furnish and install
  - a. Meter pedestal
  - b. Meter mounting
  - c. Secondary and ground wires from WREA transformer or secondary junction box to meter
  - d. Trench and clean backfill

UNDERGROUND METER MOUNTING  
TEMPORARY SERVICE





(NOT TO SCALE)

NOTES:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER
  - d. TRENCH
10. Temporary 2"x12" plank attached to foundation
11. Temporary breakers and outlets, remove and plug hole in meter when permanent service is installed
12. If paved area is adjacent to building foundation, the conduit must be installed beyond the pavement. All elbows shall be long sweep variety.
13. WREA will flag route for secondary trenching for Member/Contractor to provide.
14. Connection to Member/Contractor temporary panel from bottom lugs in the meter can
15. Underground service line shall be backfilled before energizing service
16. Meter shall be securely attached to final structure after temporary plank is removed
20. WREA will furnish and install:
  - a. Meter
  - b. Secondary wire from WREA transformer to meter
30. Member/Contractor shall furnish and install
  - a. Meter can and mounting
  - b. Grounding with driven ground rod
  - c. All service conduit 3" minimum schedule 80 with slip sleeve
  - d. Trench, clean backfill, and conduit as required in this handbook

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0-320 AMP UNDERGROUND  
TEMPORARY SERVICE



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DRAWING NUMBER  
TEMP-3



# THREE PHASE OR HIGH VOLTAGE PRIMARY NOTES

(P) CONDUIT SHALL BE:

HDPE BLACK ENDLESS WITH 3 RED STRIPS OR PVC SCHEDULE 40  
(SCHEDULE 80 UNDER ROAD RIGHT OF WAY)

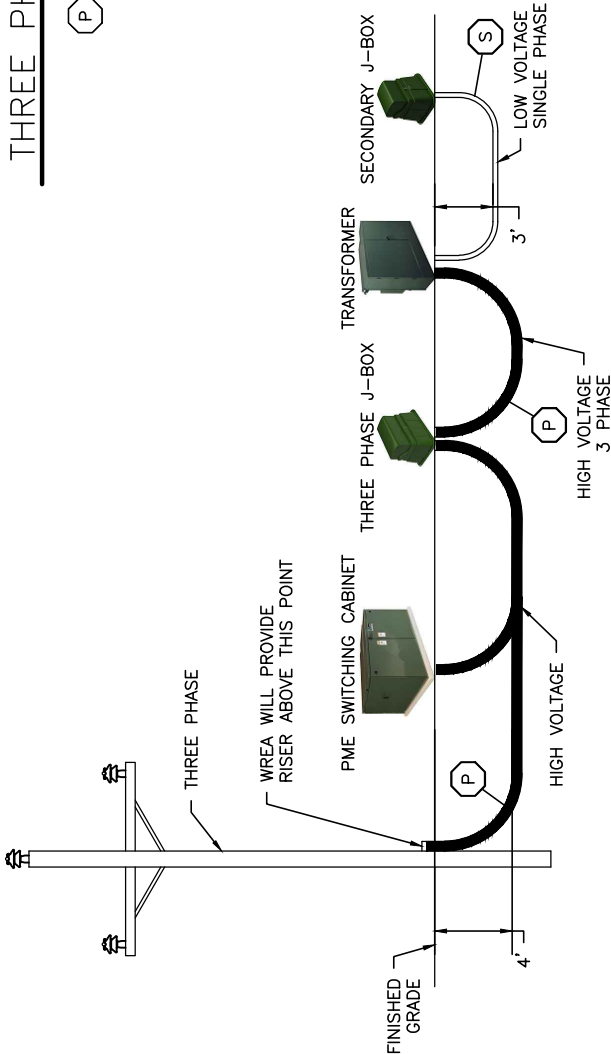
- 4' BURIED DEPTH
- 6" CONDUIT FOR 3 PHASE 3" FOR SINGLE PHASE

CONTRACTOR SHALL INSTALL:

- PVC COUPLINGS EPOXYED TO THE ENDS OF EACH CONDUIT
- 1/2" 1,200 LB MINIMUM MULE TAPE AT EACH END OF CONDUIT
- CONDUIT END WITH PULL TAPE EXTENDED 4-8" ABOVE FINAL GRADE
- 48" RADIUS FIBERGLASS SWEEPS FOR 90° AND 45° CORNERS



MULE TAPE



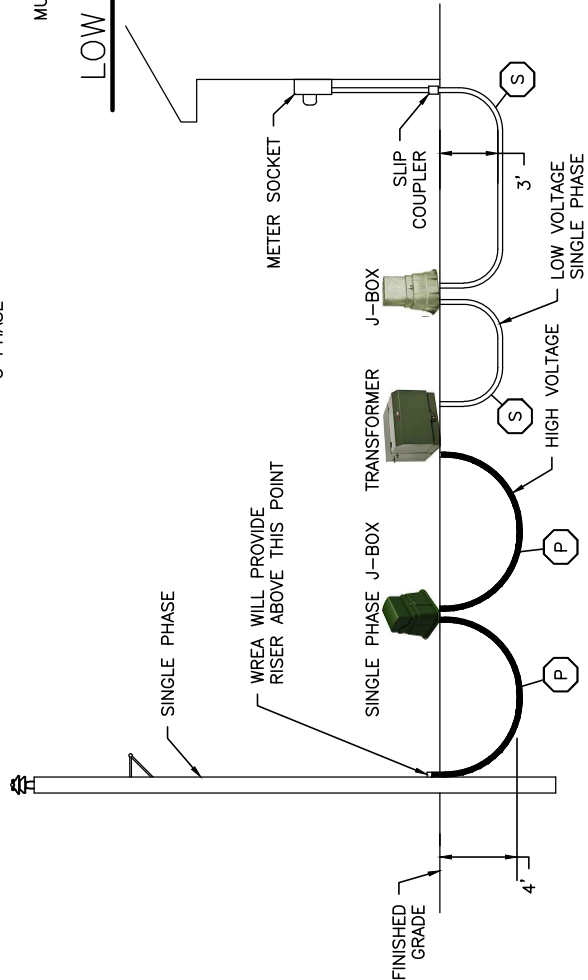
# LOW VOLTAGE SINGLE PHASE SECONDARY NOTES

(S) CONDUIT SHALL BE:

- 3" PVC SCHEDULE 40 (SCHEDULE 80 UNDER ROAD RIGHT OF WAY)
- 3' BURIED DEPTH
- LESS THAN 250' IN LENGTH AND NO MORE THAN 270' IN BENDS

CONTRACTOR SHALL INSTALL:

- BELL ENDS ON END OF EACH CONDUIT
- 24" RADIUS PVC SWEEPS. IF CONDUIT IS LONGER THAN 150' OR HAS 270° IN BENDS WILL NEED FIBERGLASS SWEEPS



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CONDUIT DEPTH  
CONTRACTOR DRAWING



West River Electric  
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DRAWING NUMBER  
CONDUIT-1



## METER REQUIREMENTS

1. Checklist in this booklet completed
2. Meter can must be ringless type, WREA approved, and installed level in all directions
3. All meter sockets shall be rated 200 amp unless WREA approves otherwise
4. Member/Contractor disconnect equipment must be weatherproof and covered when inspected
5. All meters shall be outside of buildings and accessible to WREA employees.
6. Meter base and conduit must be securely attached to temporary or permanent structures including street light services.
7. Commercial or 320 amps meter service shall have a lever bypass socket.
8. West River Electric will supply the 9S and 4S instrumnet meter bases at cost. All current metering will be done at 120 volts. See CT cabinet drawings in this booklet.
9. All elbows shall be of the long sweep type when conduit is used on the line side of meter
10. Service disconnect shall be installed on the load side or adjacent to the meter housing if a self contained meter housing is not attached to a building. Both the disconnect and conductor on the load side shall be Member/Contractor furnished and maintained.
11. All conduits shall be schedule 80 above grade
12. When using a multiple meter housing, the service shall be clearly marked and securely attached to the meter socket.
13. All risers shall have slip sleeve installed.
14. For the following drawings, a number in a bubble "##" references to the note at the bottom of the page.

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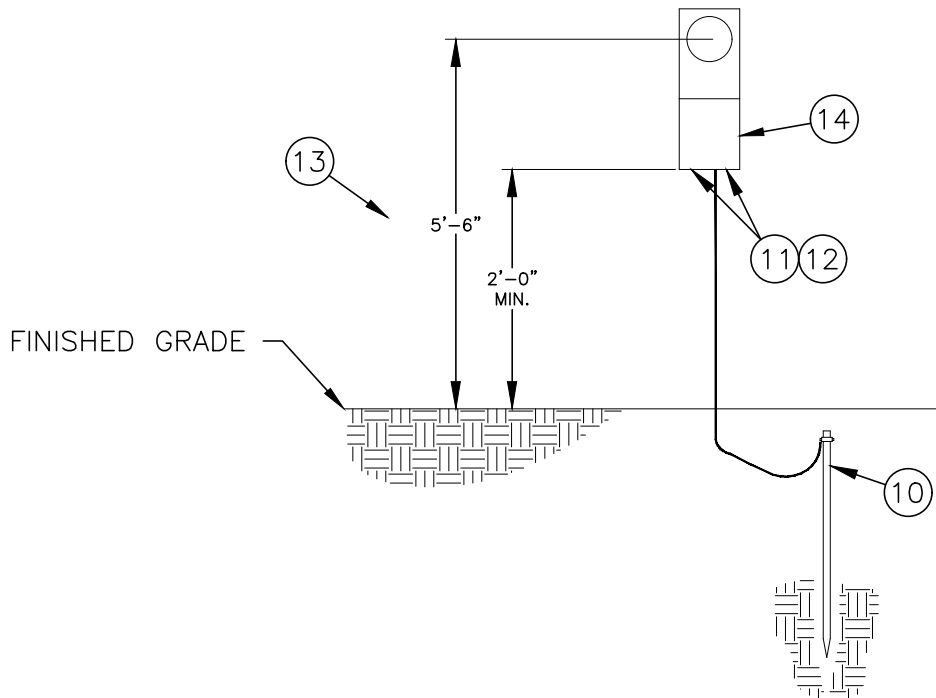
METER CAN  
METER REQUIREMENTS



**West River Electric  
Association, Inc.**  
Your Touchstone Energy® Cooperative

DRAWING NUMBER  
METER-1





NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. CLEARANCES
  - b. GUARD
  - c. METER

10. 8' long 5/8" diameter ground rod shall be driven not laid in the ditch

11. Conduit shall come into the bottom of meter can on right or left side not in the center.

12. Protective bushing required on all conduit ends above or below grade

13. Meter height shall be as shown

14. Disconnect

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METER CAN INSTALLATION  
METER REQUIREMENTS



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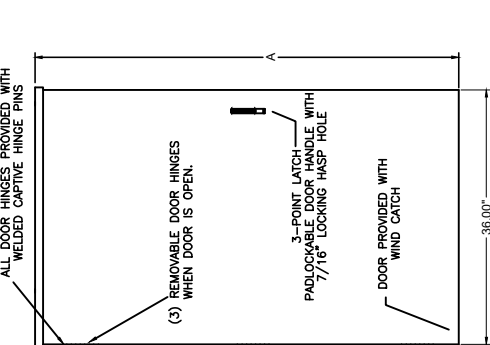
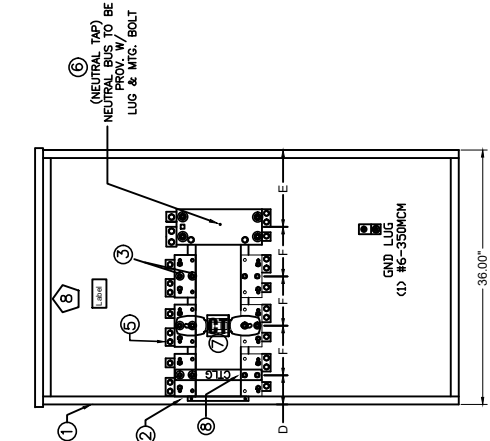
DRAWING NUMBER  
METER-2



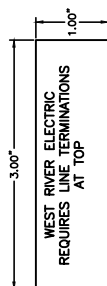
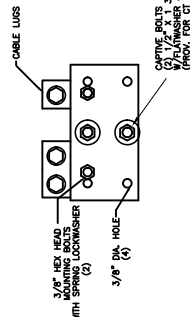
**GENERAL NOTES**

- 1- CURRENT TRANSFORMER CABINET COUPLES WITH A 3 POINT DOWEL LATCH AND PADLOCKABLE HANDLE.
- 2- WITH 7/16" LOCKING HAFS HOLE.
- 3- 1- 60 AMP. SHIPING LUG FOR THIS PANEL WITH 1 3/8" NUTS AND WASHERS.
- 4- 2- 1/2" TRANSFORMER MOUNTING BOLTS, 1 3/4" CENTER TO CENTER FOR MOUNTING POWER CO. CT'S
- 5- 2- 1/2" TRANSFORMER MOUNTING BOLTS, 1 3/4" CENTER TO CENTER FOR MOUNTING POWER CO. CT'S
- 6- 1- COPPER-ALUMINUM (1) 750MCM #6 (2) 300MCM #6 CABLE CONNECTION LUG (UP TO 4 MAX.) SEE TABLE
- 7- 1- NEUTRAL OR GROUNDED CONDUCTOR PROVIDED WITH 1/2"-24NC BOLT & AS3 LUG FOR NEUTRAL TAP.
- 8- 1- 1/2"-24NC BOLT & AS3 LUG FOR NEUTRAL TAP. 15.3W
- 9- 1- SHIPING LUG / TEMPORARY SHIPING INSTALLED ON EACH PHASE
- 10- \* FAULT CURRENT RATINGS FOR ALL APPERAGES 85,000 AMPS AT 6000VAC WITH NO CABLE BRACING REQUIRED.

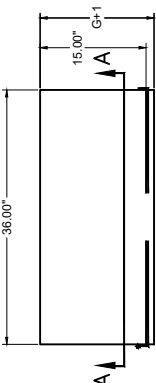
ALL CABINETS ARE ITL LABELED FOR TYPE-3R APPLICATION PER IEEE 383-1997. ALL MATERIALS SHALL MEET ALL NATIONAL ELECTRICAL CODES & NEMA STANDARDS.



SECTION VIEW A-A



***LABEL***



PLAN VIEW

\* CT CABINET APPROVED FOR WEST RIVER ELECTRIC WITH ADDITION OF CTL2 BUS LINKS INSTALLED ON EACH PHASE.  
400A CABINET REQUIRES QTY. 1 CTL-2 PER Ø  
800A CABINET REQUIRES QTY. 3 CTL-2 PER Ø

### PHASE BUS PAD DETAILS

**\*APPROVED FOR LINE & LOAD CONDUCTORS  
TO ENTER AND EXIT SAME END OF ENCLOSURE\***

AMPACITY	LUGS	MINIMUM DIMENSION										CATALOG NUMBER			
		A	B	C1	C2	D	E	F	G	H	CABINET	3 $\phi$	CABINET	1 $\phi$	CABINET
400	1	48"	36"	11,007	21,007	4,125"	10,50"	7"	15"	4,5"	CR48SL	BHC174-4TM	BHC174-3TM	BHC174-3TM	
600/800	2/3	48"	36"	11,007	21,007	4,125"	10,50"	7"	15"	4,5"	CR48SL	BHC1768-4TM	BHC1768-3TM	BHC1768-3TM	

NOTE: FOR SINGLE PHASE UNITS, OMIT BØ BUS ASSEMBLY

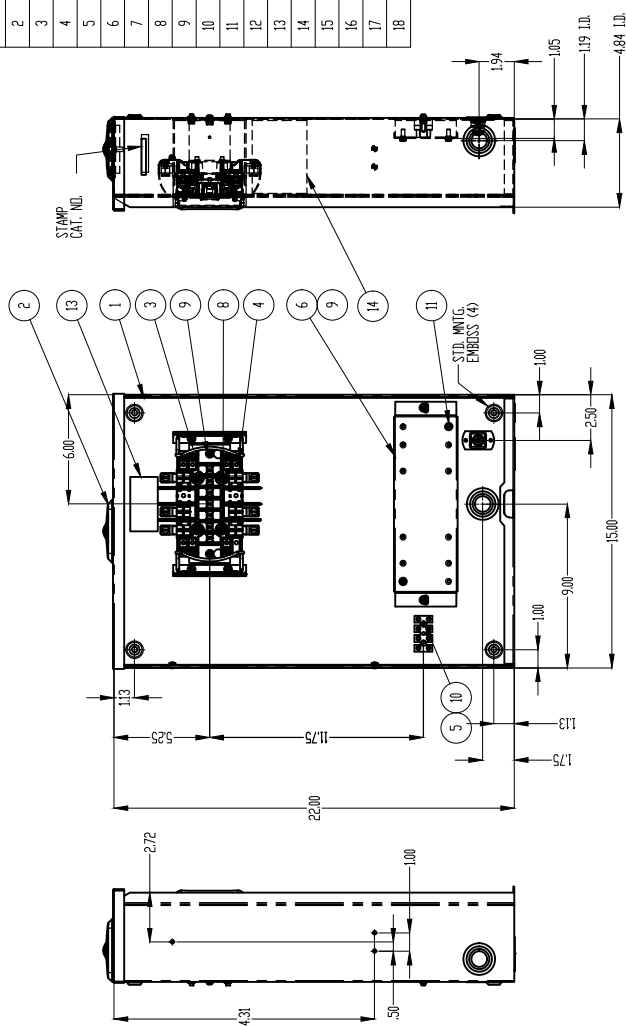
DATE OF BIRTH	SSN	NAME	TYPE
		WEST RIVER ELECTRIC METERING TRANSFORMER CABINET APPROVAL DRAWING	400-500 AMP. 480 VOLT OR LESS METERING TRANSFORMER CABINET
DRAWN	TK	SHEET	CUSTOMER
		DO NOT SCALE	
	03/24/20	SCALE	
		NTS	
		American Midwest Power	CUSTOMER NUMBER
		MINNEAPOLIS, MINN.	BHCT4-8TM
		PHONE (763) 251-1555 FAX: (763) 251-19275	
			SHEET 1 OF 1

NOTES:

1. WREA WILL PROVIDE CT'S
2. CT CABINET PURCHASED & INSTALLED BY MEMBER

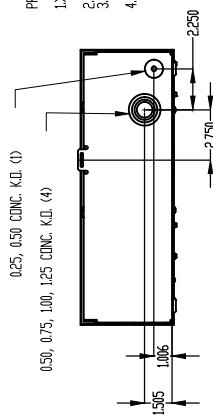


ITEM	QTY.	PART NUMBER	DESCRIPTION
1	1	1167973	SHELL, WELDMENT
2	1	1028222	CLOSING PLATE ASSY
3	1	1153700	BRIDGE
4	1	1028536	NO BYPASS BLOCK ASSY.
5	1	1138903	4 POS. TERM. CONN.
6	1	1159106	T/S BRIDGE
7	1	1153698	FRONT ASSY.
8	4	1025353	SCREW 10-32 x 1
9	8	1000183	SCREW 12-24 x 5/16
10	2	1022084	SCREW 8-32 x 3/4
11	2	100131	SHW-SC. 10-32 5 SR ST
12	1	N/A	STAMP CAT. NO.
13	1	1000444	LABEL, HUB OPENING
14	1	1153701	LABEL, INSTRUMENT TRANSFORMER
15	1	1000664	LABEL, DANGER
16	1	1000158	PAID WIREMAN, 8.37 x 7.50
17	2	1212980	RISER ASSY 478 HEIGHT
18	1	1172462	CARTON 1-PER (NOT SHOWN)



### PRODUCTION NOTES:

- 1) SCREW 1022084 TO BE INSTALLED FINGER TIGHT ONLY IF TERMINAL STRIP NOT INSTALLED.
- 2) SCREW001311 TO BE INSTALLED FINGER TIGHT ONLY.
- 3) INSTALL PLASTIC BACKER STRIP TIED TO TERMINAL CONNECTOR WHICH IS SUPPLIED WITH WIRING HARNESS.
- 4) WHEN WIRING HARNESS IS USED, THE WIRES ARE ROUTED INTO THE TOP OF THE 4 PINS, TERM. CONNECTOR.



SUFFIX	CUSTOMER	#138903 TERM. QTY.
-N/S	WEST RIVER ELECTRIC	0
-STRIP	TWO SOCKETS TWO METER	1

[illegible]

REV.	DATE	DESCRIPTION	ECD No.	BY
B	9-1-16	ADD NOTE #3, REMOVE 1138923	024770	KSP
B	09/05/18	ADD NOTE 4, CORRECT K.O. AND MNTG. EMOSS QTY;	024874	BU
C	04/17/18	ATTACH DIRECT 1210000 (2), SYDNEY 100002 (2), UAS (A)	024841	SYA

NOTES:

1. WREA WILL SELL METER CAN TO MEMBER/CONTRACTOR AT SPECIFIED COST

## WREA APPROVED METER CAN METER REQUIREMENTS



**West River Electric  
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DRAWING NUMBER  
METER-4

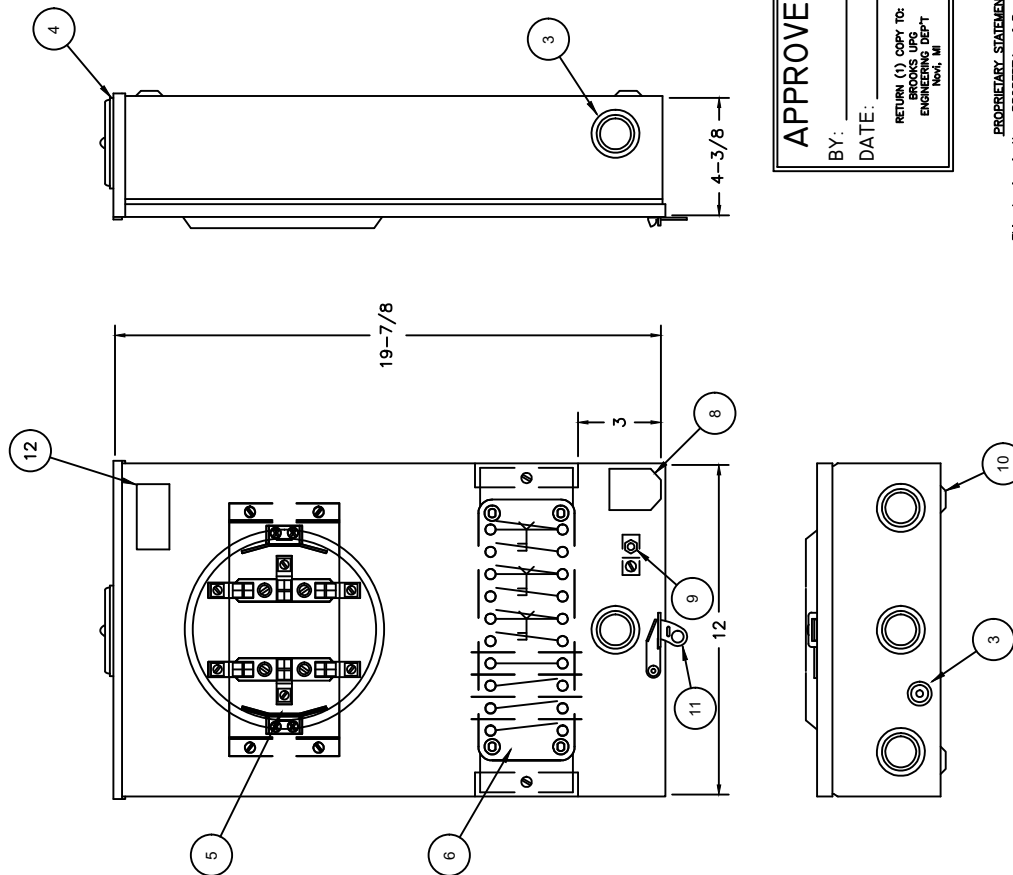


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**West River Electric Association, Inc.**  
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DRAWING NUMBER  
METER-5



**FEATURES:**

1. MATERIAL: 16GA G-90 GALVANIZED STEEL
2. FINISH: GRAY POWDER COAT (MUNSELL 70 5.0BG 7.0/0.4)
3. KNOCKOUTS:
  - (3) 3/4" x 1" x 1-1/4" BACK PAN (1 EA SIDE, 1 CENTERED)
  - (3) 3/4" x 1" x 1-1/4" BOTTOM
  - (1) 1/4"DIA x 5/8"DIA x 1/2" KO IN BOTTOM
4. HUB OPENING W/HUB CLOSURE PLATE
5. 6-TERMINAL HUB W/SOURCE BRACKET ASSY
6. 110W/288V-18TSTE 10-POLE TEST SWITCH, TIN, NO COVER (UL)
7. PRE-WIRED PER WHI-1650
8. #12 AWG THHN 600V STRANDED CU WIRE
9. HIGH VOLTAGE WARNING LABEL
9. #2 - 14 ILSCO CONNECTOR FOR GROUND
10. 3/16" DEEP MOUNTING EMBOSSEMENTS WITH 5/16"DIA KO (4 PROVIDED)
11. STN STL HASP & SWINGING LATCH W/WIRE SEAL OR PADLOCKING CAPABILITIES
12. UL LISTING LABEL

**APPROVED**

BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

RETURN (1) COPY TO:  
BROOKS UPG  
ENGINEERING DEPT  
Novi, MI

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## NOTES:

1. WREA WILL SELL METER CAN TO MEMBER/CONTRACTOR AT SPECIFIED COST



DEFINITIONS:

Electric Utilities:

Power, lighting, telephone, cable t.v., signal circuits, etc...

Non-electric Utilities:

Water, gas, sewer, storm drains, etc...

Approved Conduit Bedding Material:

4" of sand, fines, or clean dirt around each conduit free of rocks with proper moisture levels

Approved Conduit:

- a. HDPE black endless with 3 red stipes
- b. PVC
  - Schedule 40 for under open ground
  - Schedule 80 for under roadways
- c. SIZE
  - 3" for residential services
  - 6" for three phase services
- d. Bends
  - Primary conduit to use fiberglass 48" sweeps on all corners
  - Residential to use fiberglass 24" radius sweeps on all corners if length exceeds 150'
  - Maximum of 270° of turns (e.g. three right turns)
- d. Length
  - Residential secondary maximum length of 250'

Approved Pull Tape:

Minimum 1/2" width, 1,200lb in strength

Adequate Trench Compaction:

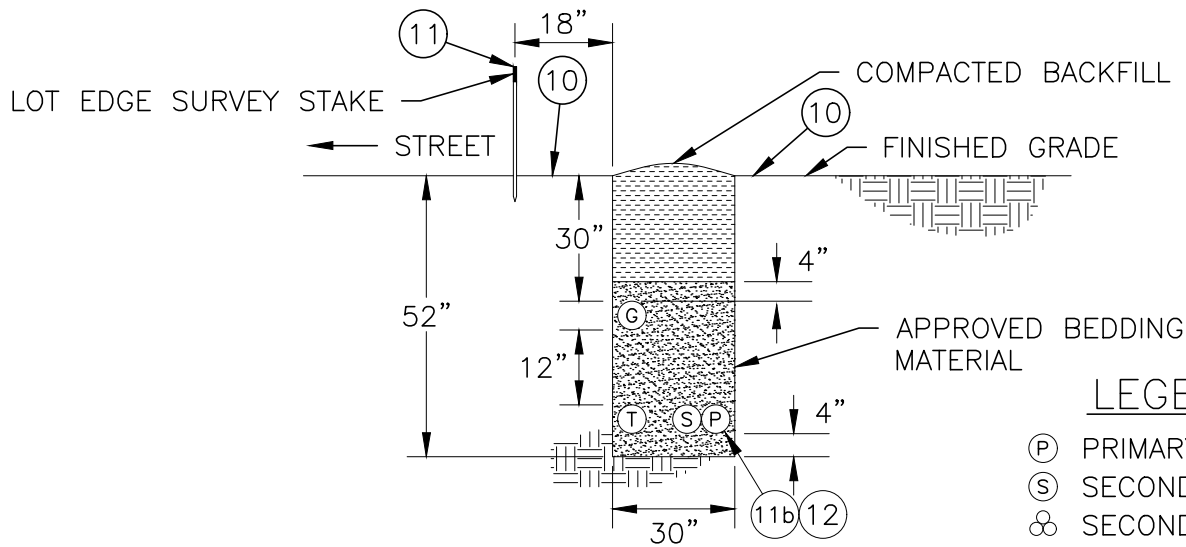
Follow project geotechnical evaluation for procedures and recommendations to achieve proper compaction to avoid settling. If geotechnical evaluation is not available, Member/Contractor shall use compaction methods to ensure the trench does not settle. Using compaction machinery, loose lifts no greater than 6", and proper moisture levels should provide acceptable results.

NOTES:

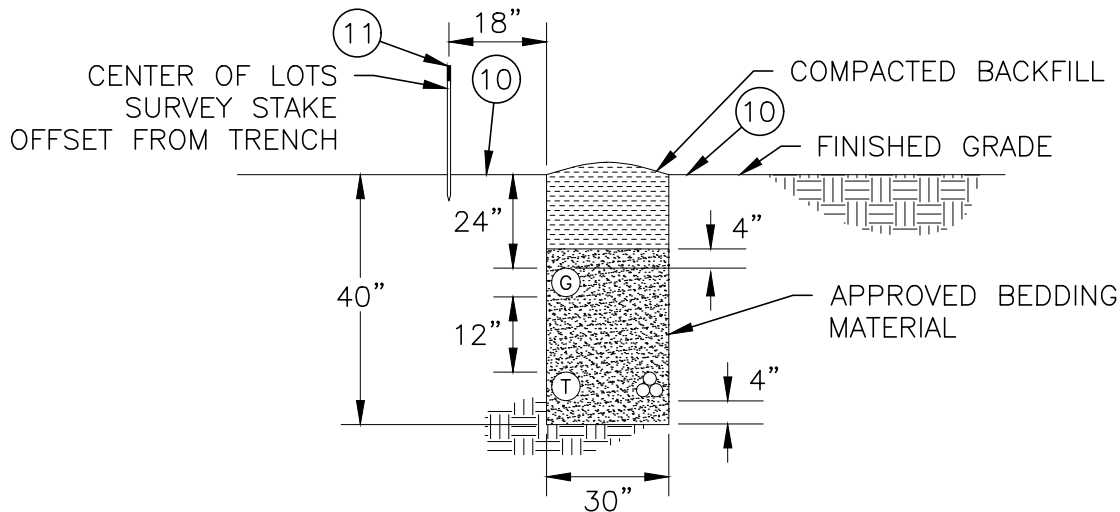
1. Member/Contractor shall follow all trenching and excavation local, state, and federal OSHA regulations regarding safe work practices.
2. Before digging, Member/Contractor shall locate underground utilities and verify clearances by contacting One Call of South Dakota at 811 or 1-800-781-7474 if calling from out of state.
3. WREA will flag all trench routes to be followed before excavation.
4. Secondary trench shall run at a right angle from the meter socket for at least 6' before turning 90 degrees.
5. LB elbows not allowed on the line side conduit
6. All corners shall be of the long sweep variety
7. Slip sleeves are required on all PVC risers
8. Maintain 6' of separation from building footing, water and sewer lines
9. Curb and gutter shall be installed prior to utility installation
10. Final grading shall be completed before underground utilities are installed
11. WREA will provide conduit plan with number and size of conduits needed for each project.
12. Approved Pull Tape shall be installed in all conduits with care taken to ensure pull tape is free to pull
13. Conduit ends shall be sealed with plug and pull tabs and extend 4" to 8" above final grade or be marked with a conduit marker
14. WREA will inspect trench before backfilling. Member/Contractor responsible for re-excavating if inspection not completed in time.
15. Compaction machinery shall not be used within 6" of conduits
16. All primary trenches shall be backfilled before services can be energized.



# PRIMARY UTILITY TRENCH



## SECONDARY TRENCH

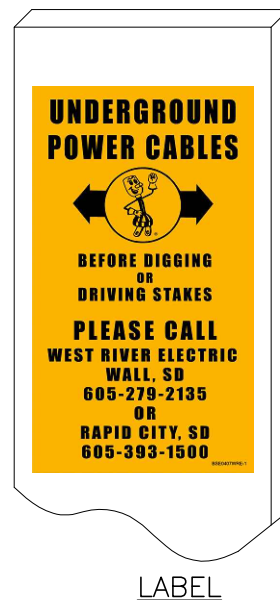
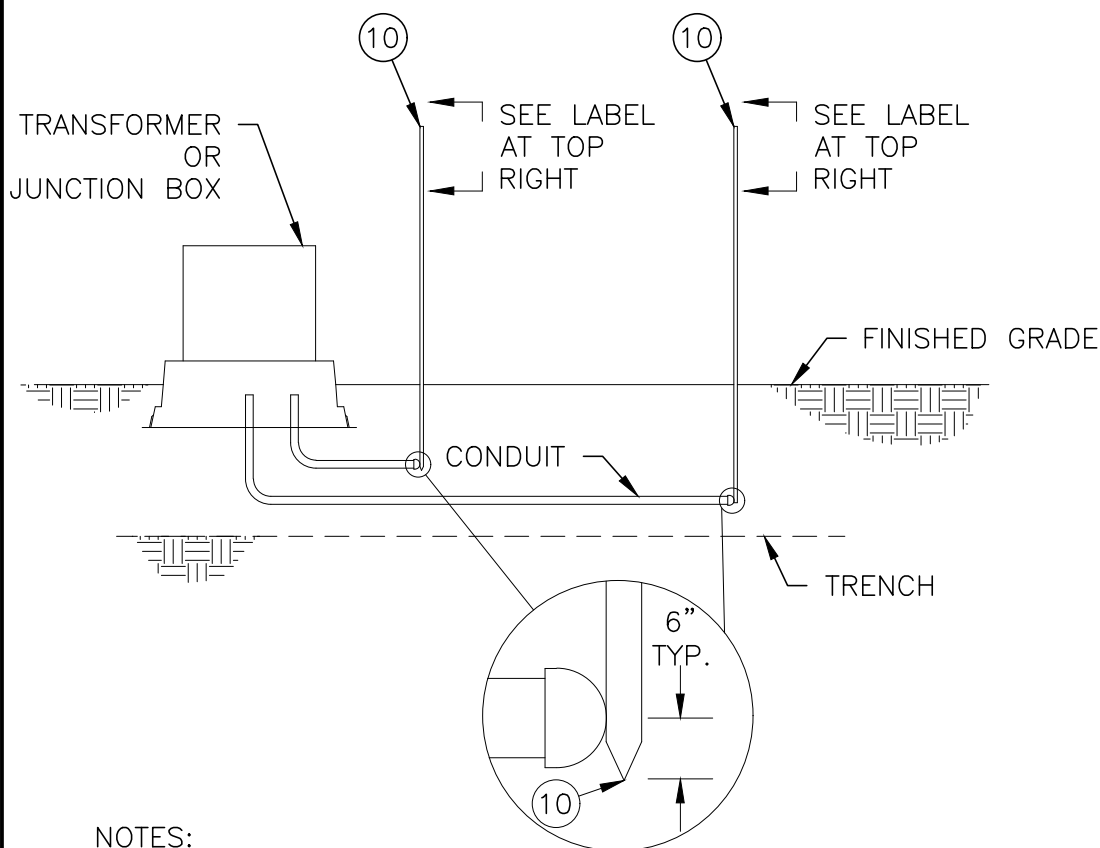


NOTES:

(NOT TO SCALE)

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. TRENCH
10. Member/Contractor shall allow adequate space along and around the trench for personnel to access and work during construction.
11. Member/Contractor shall furnish and install:
  - a. Survey of lot corners by Professional Land Surveyor
  - b. Approved Conduits
  - c. Trench excavation
  - d. Approved Conduit Bedding Material
  - e. Adequate Trench Compaction
12. Primary conduit shall be installed always to the outside of the trench





NOTES:

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. TRENCH
10. WREA will furnish red fiberglass service stub markers
11. WREA will inspect conduits and install markers when trench is opened
12. Member/Contractor shall maintain marker location during backfill

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CONDUIT MARKER  
TRENCH REQUIREMENTS



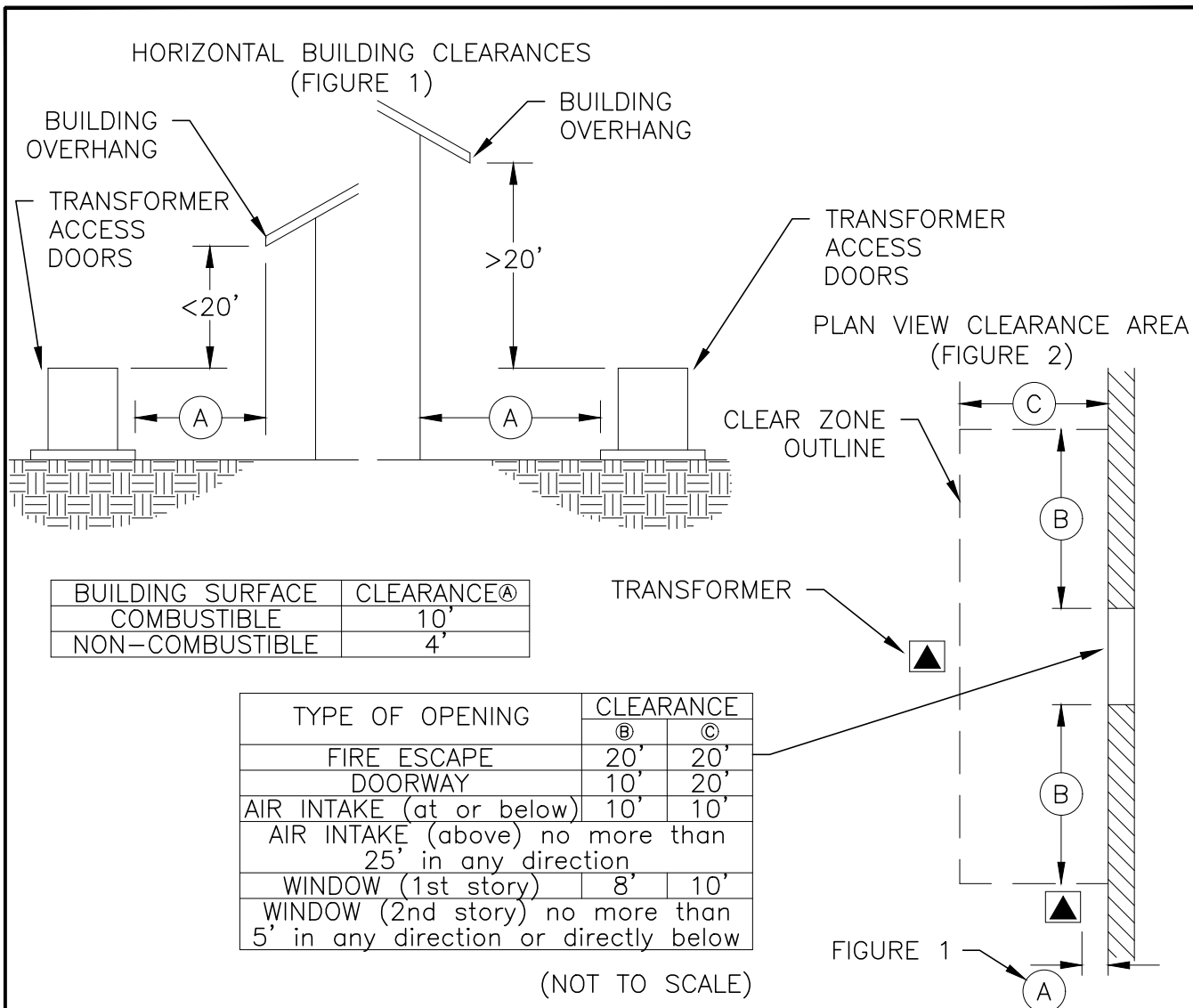
DRAWING NUMBER  
TRENCH-3





1. 3' – Measured horizontally from any gas equipment
2. 3' – Measured horizontally from any air vents, downspouts, or anything that may drip water/moisture from above
3. 3' – From any structure opening (e.g. window, door, air intake, etc..)
4. 3' – All directions from any obstruction (e.g. shrubs, A/C equipment, etc.)
5. Meter shall not be enclosed inside buildings, porches, or anywhere which inhibits access to WREA personnel
6. Meter shall not be located under or over decks

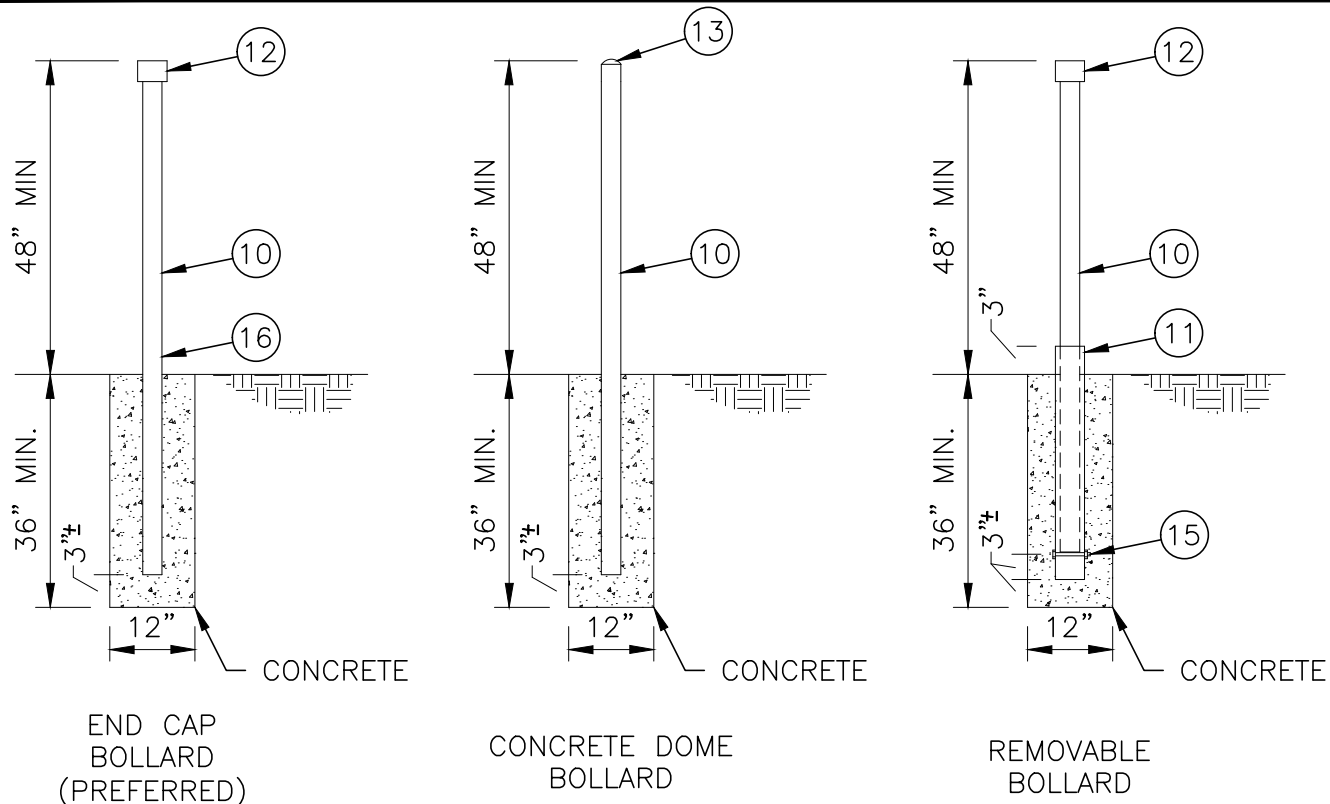




**Notes:**

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. GUARD
  - b. CLEARANCES
10. Transformers shall be located in areas:
  - a. Easily accessible to WREA personnel and equipment
  - b. Protected from landslides, flooding, land movement, etc...
11. Member/Contractor shall not install any fencing, enclosures, retaining walls, etc. around transformer without contacting WREA for approval.
12. Member/Contractor shall install and maintaining safeguards for transformer (e.g. retaining walls, bollards, etc...)
13. Transformer shall have 10' of working space directly in front of the doors free and clear of items at all times.
14. Transformer shall have greater than the minimum clearances shown in figures 1 and 2.
15. Transformer shall not be located within 5' of fire or water hydrants





(NOT TO SCALE)

Notes:

The pages listed below must also be followed when using this page. For example, read "GUARD-1" and any other pages that start with these names (note: there may be multiple pages in each):

a. GUARD

10. 6" standard galvanized pipe
11. 6"+ standard galvanized pipe for removable bollard to set into
12. End cap
13. Concrete dome top, pipe shall be free of sharp edges
14. Removable bollard filled with cured concrete before installation, approximate weight 150 lbs
15. 3/4" galvanized bolt to set removable bollard height
16. Drill weep holes as needed to avoid pipe burst from water freezing
17. Bollards shall be yellow

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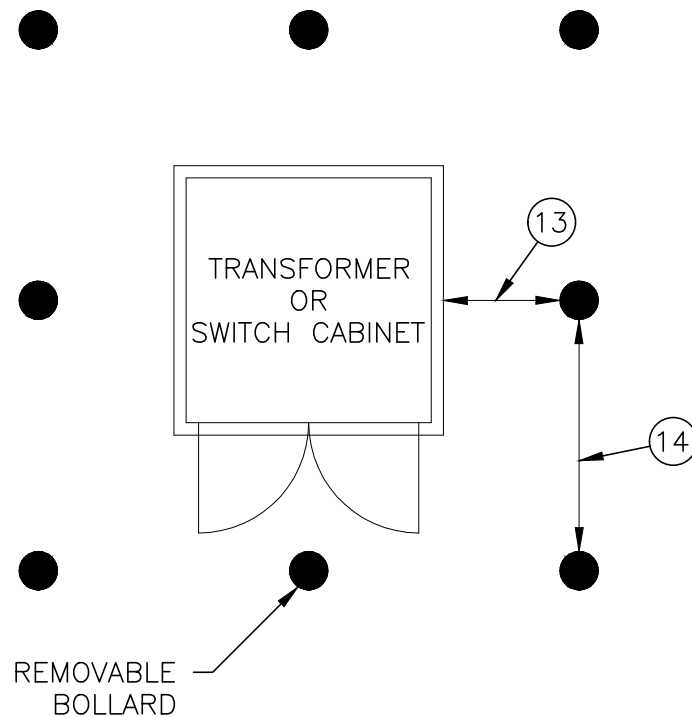
BOLLARD CONSTRUCTION  
GUARDING REQUIREMENTS



West River Electric  
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DRAWING NUMBER  
GUARD-1





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Notes:

1. The pages listed below must also be followed when using this page. For example, read "CLEARANCES-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. GUARD
  - b. CLEARANCES
10. Any equipment located in areas close to or adjacent to vehicle traffic shall be protected by bollard
11. Member/Contractor shall provide protection at the request of and which is acceptable to WREA.
12. Bollards shall be removable if they prevent WREA from accessing equipment, interfere with operation of equipment doors, or at the request of WREA.
13. Bollards shall be installed 2' from the equipment
14. Bollards shall not exceed 5' spacing
15. Building walls will provide acceptable guarding if located consistent with bollard requirements above
16. Square faced street curb parallel to normal traffic flow will provide acceptable guarding if equipment is located 6' or more behind the curb.
17. Bollards shall be 4' or greater from any fire hydrant

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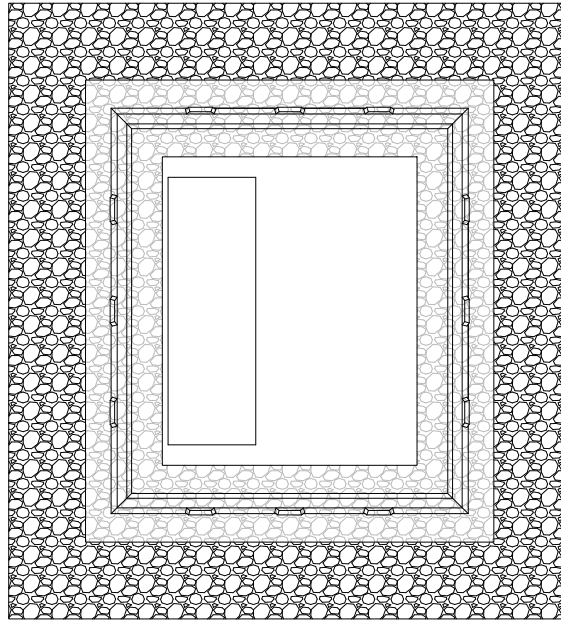
BOLLARD PLACEMENT  
GUARDING REQUIREMENTS



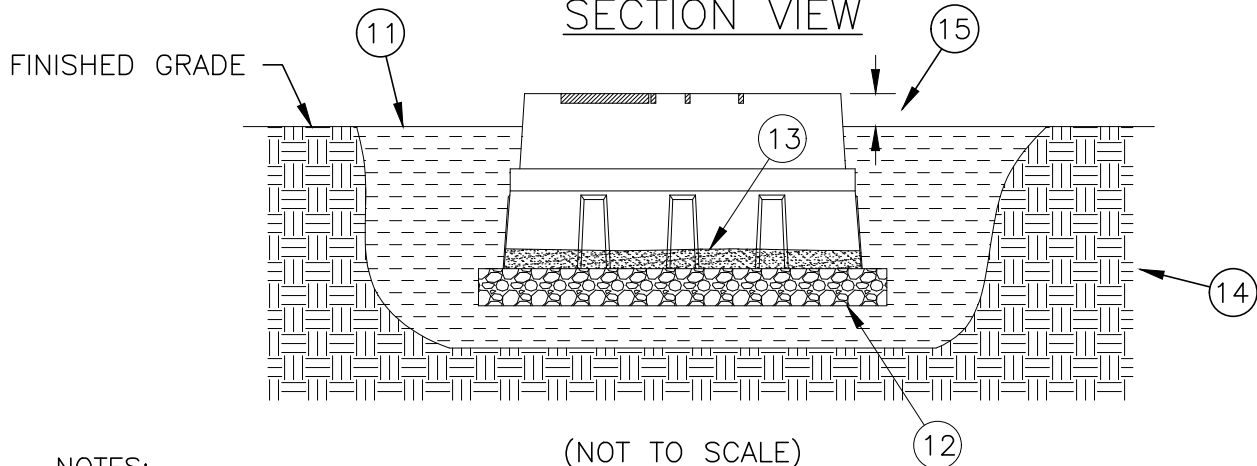
DRAWING NUMBER GUARD-2
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## PLAN VIEW



## SECTION VIEW



(NOT TO SCALE)

### NOTES:

1. The pages listed below must also be followed when using this page. For example, read "TRENCH-1" and any other pages that start with these names (note: there may be multiple pages in each):
  - a. TRENCH
10. Member/Contractor shall achieve proper compaction in and around pad to avoid settling.
11. Compacted fill
12. 8" compacted base course 12" wide around the edge of pad
13. 4" engineered fill
14. Undisturbed soils
15. 3" to 15" of pad exposed depending on size of pad (consult with WREA for desired elevation)

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## TYPICAL BASEMENT INSTALLATION PAD REQUIREMENTS



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PAD-1





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