

UNDERGROUND ELECTRIC RESIDENTIAL SERVICE

1.0 INDEX

- 1.0 INDEX
- 2.0 PURPOSE
- 3.0 LIMITS
- 4.0 CUSTOMER RESPONSIBILITY
- 5.0 NVE RESPONSIBILITY
- 6.0 LOCATION OF TERMINATION FACILITIES
- 7.0 UNDERGROUND SERVICES FROM UNDERGROUND DISTRIBUTION
- 8.0 UNDERGROUND SERVICES FROM OVERHEAD DISTRIBUTION
- 9.0 PERMANENT U/G SERVICE ON A WOOD POST
- 10.0 TERMINATION FACILITIES DETAIL
- 11.0 TRENCHING

2.0 PURPOSE

The purpose of this standard is to assist the customer and his engineer and/or contractor in planning for an acceptable location and type of termination for underground service from NVE's overhead or underground electric distribution system.


3.0 LIMITS

The requirements in this standard are limited to single or multiple dwelling residences with a maximum of 1000 Amp, single phase service entrances. In areas where NVE establishes and maintains an underground distribution system or where required by local ordinances, service laterals will be underground only. If the length of service is such that it would prove electrically prohibitive, a transformer may be required on the customer's property; in which case, NVE's underground line extension rules will be applied.

4.0 CUSTOMER'S RESPONSIBILITY

See NEC, Article 700, NVE Standard, RM0001M, Metering Section and NVE Standard ENG04U, Vol. 5, for generator transfer switch requirements.

The customer is required to provide and maintain or to make arrangements and pay for the trench excavation, backfill, conduits with pull lines and any required substructures (pull boxes or vaults) and transformer pads on his property in accordance with NVE specifications. See notes in Section 7.0, 9.0 & 10.0.

				VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD		US0001M
				UNDERGROUND ELECTRIC RESIDENTIAL SERVICE		
Drawn:	Eng:	Appr:	Date:			Revision: 12
RN	MB	DA	7/17			Page 1 of 7

Prior to backfilling trench, NVE must inspect service conduit in the trench to confirm installation and backfill material. Please contact local NVE office to schedule inspection. The customer will provide all easements and right of ways to install NVE facilities. It is the customer’s responsibility to install service equipment with proper grounding in accordance with provisions of the National Electric Code.

5.0 NVE RESPONSIBILITY

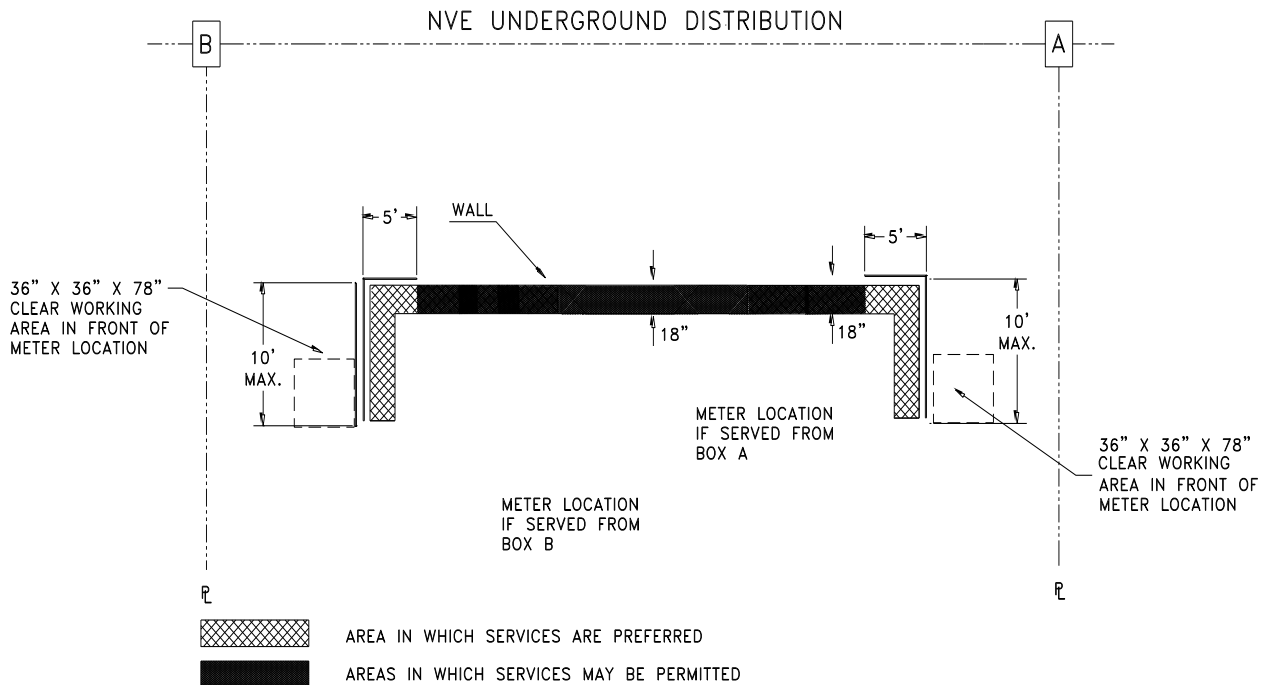
NVE will furnish (subject to the provisions of Rule 9), install, and maintain all cables from NVE's service connection point, (last box, pole or transformer), to the customer's service termination point.


6.0 LOCATION OF TERMINATION FACILITIES

NOTE: All service locations must be approved by NVE. Installation of additional facilities or future relocation at the customer's expense may be prevented by early consultation with NVE.

The customer shall provide service termination or meter facilities within the first 10' of structure. The service location must not be fenced or otherwise obscured from view of meter readers or the access of operations personnel. Where NVE allows the meter facilities to be fenced, the customer shall provide a means for direct access by NVE personnel (i.e., easily opened, unobstructed gate).

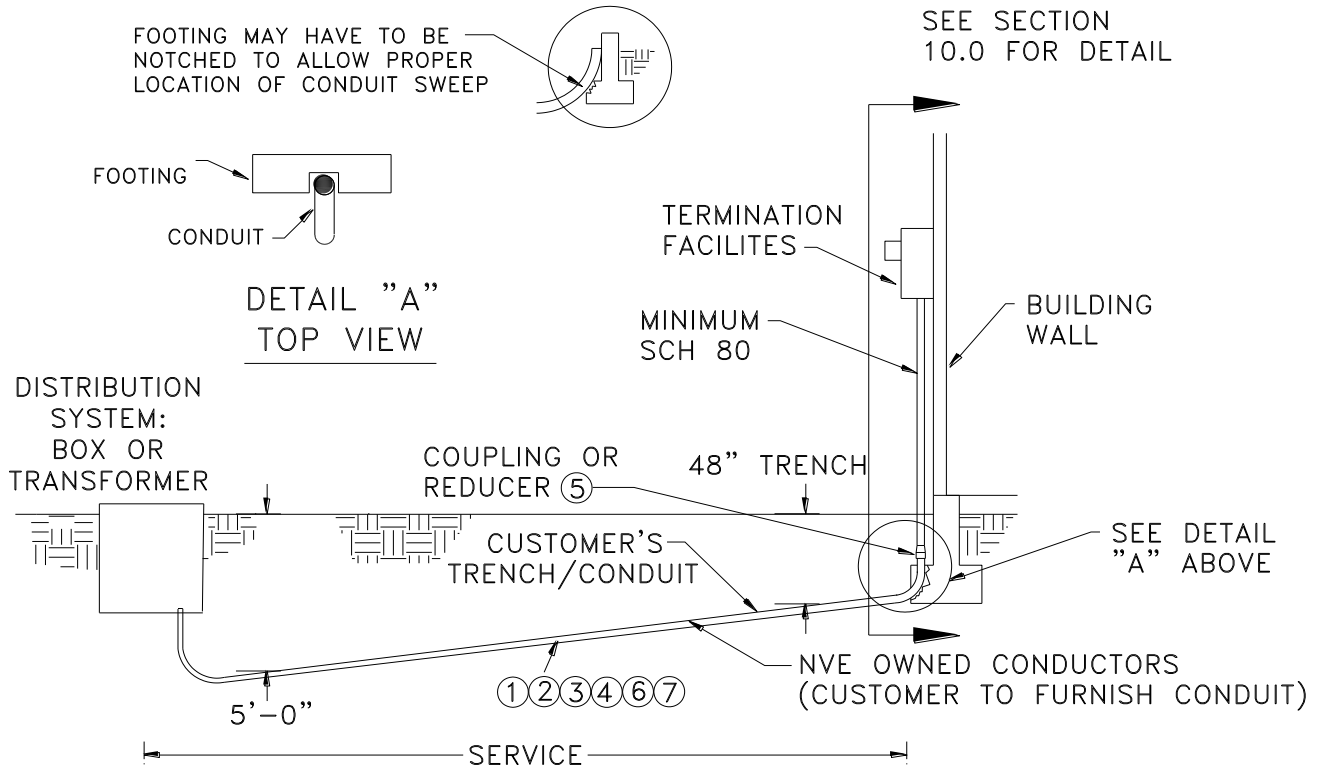
The customer for architectural reasons may conceal or recess the service entrance and meter panel where permitted by local codes. For detailed clearance requirements, see Section 5.2 of GM0001M, Electric Metering, General, Vol. 17, Section 8.



	VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD			US0001M
	UNDERGROUND ELECTRIC RESIDENTIAL SERVICE			
Drawn:	Eng:	Appr:	Date:	Revision: 12
RN	MB	DA	7/17	Page 2 of 7

7.0 UNDERGROUND SERVICES FROM UNDERGROUND DISTRIBUTION SYSTEM

The customer will be served with an underground service if his site or lot is located within an area that is supplied with existing underground distribution system or if required by local ordinances.



NOTES:

1. Minimum conduit size shall be:

Panel Size	Length of Service	Conduit Size	Wire Size	Maximum Distance*
100 amp	All	3"	#2 Tx.	125'
200 amp	All	3"	2/0 Tx.	100'
400 amp	All	3"	350 Tx.	100'
600 amp	All	4"	750 Tx	Consult NVE
800 amp	All	2-3"	2-350 Tx	Consult NVE

* Note: Maximum Distance (conduit) between panel and box or panel and transformer. If exceeding the distances additional boxes will be required. (See Section 8 for overhead service requirements.) The customer should consult with the local NVE representative to confirm the required service conduit size and distances prior to commencing construction. For additional conduit sizing details, refer to CB0003U, 600V Underground Cable and Conduit Selection Guide, Vol. 17, Section 4.

	VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD			US0001M
	UNDERGROUND ELECTRIC RESIDENTIAL SERVICE			
Drawn:	Eng:	Appr:	Date:	Revision: 12
RN	MB	DA	7/17	Page 3 of 7


2. Maximum service distance and conduit bends are to be determined by the local customer service planner or inspector. Contact the local NVE office for an acceptable layout.
3. Underground conduit must be rigid steel, or electrical, gray, PVC (minimum ANSI/ASTM F512, DB-120). **DB-120 conduit can not be exposed.** For more detail, see CD0004U, Conduit Application Standard, Vol. 17, Section 4.
4. Minimum 36" radius sweep for 2" & 3" conduits. **Sweep material to match first section of riser material.** Example: PVC to PVC, steel to steel.
5. Reducers, when needed, shall be a tapered, smooth wall design to facilitate cable pulling. The preferred location for the reducer is at the conduit entrance at the bottom of the panel. An alternative location is below grade, at the **top** of the elbow below the service termination equipment.
6. A 1/4" polyester, pull line with sequential footage markings and minimum breaking strength of 400 pounds to be installed in each conduit by customer at time of conduit installation.
7. Pull line shall extend 3 feet from the conduit end at the service panel, and 5 feet from the conduit at the secondary service box.
8. A **36"x 36"x 78"** working space in front of all meters is required to permit installation and provide a safe working environment for NVE personnel. **Very limited exceptions from this requirement must be approved by NVE.**

8.0 UNDERGROUND SERVICE FROM OVERHEAD DISTRIBUTION SYSTEM

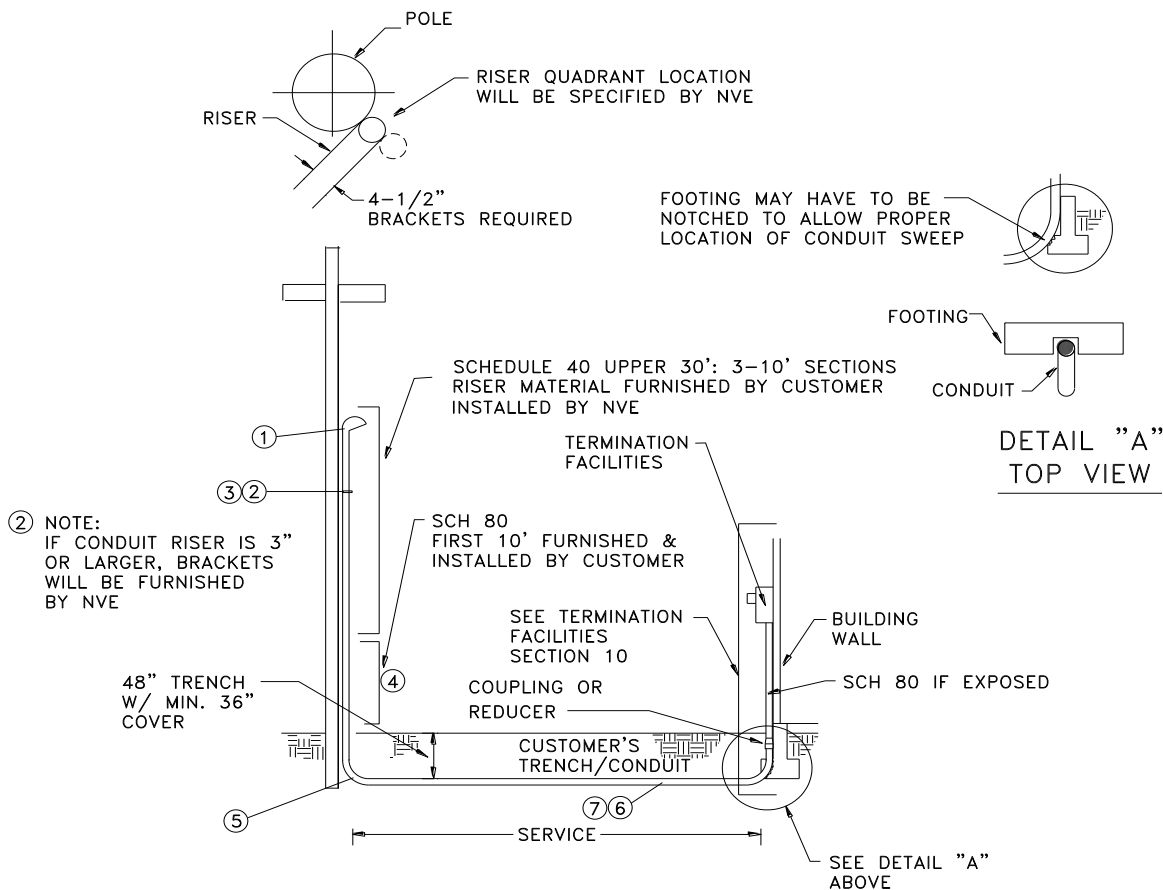
If the customer is located in an area served by an overhead system and prefers to have the service installed underground, or if the local ordinance requires underground service, the service may be provided by means of a riser installed on an existing pole. Customer shall contact local NVE office for trench and riser requirements regarding location on pole.

NOTES: (Customer to provide and install)

1. Provide a clamp-on (bolted) weatherhead and upper sections of conduit 3-ten foot sections (see drawing below). Steel is not allowed in the upper sections.
2. Minimum Schedule 40 PVC electrical, gray, conduit. Straps, every 30". If conduit riser is 3" or larger, standoff brackets will be provided and installed by NVE.
3. Rigid steel or Schedule 80 PVC electrical, gray, conduit for the first 10' above ground.

				VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD		US0001M
				UNDERGROUND ELECTRIC RESIDENTIAL SERVICE		
Drawn:	Eng:	Appr:	Date:			Revision: 12
RN	MB	DA	7/17			Page 4 of 7

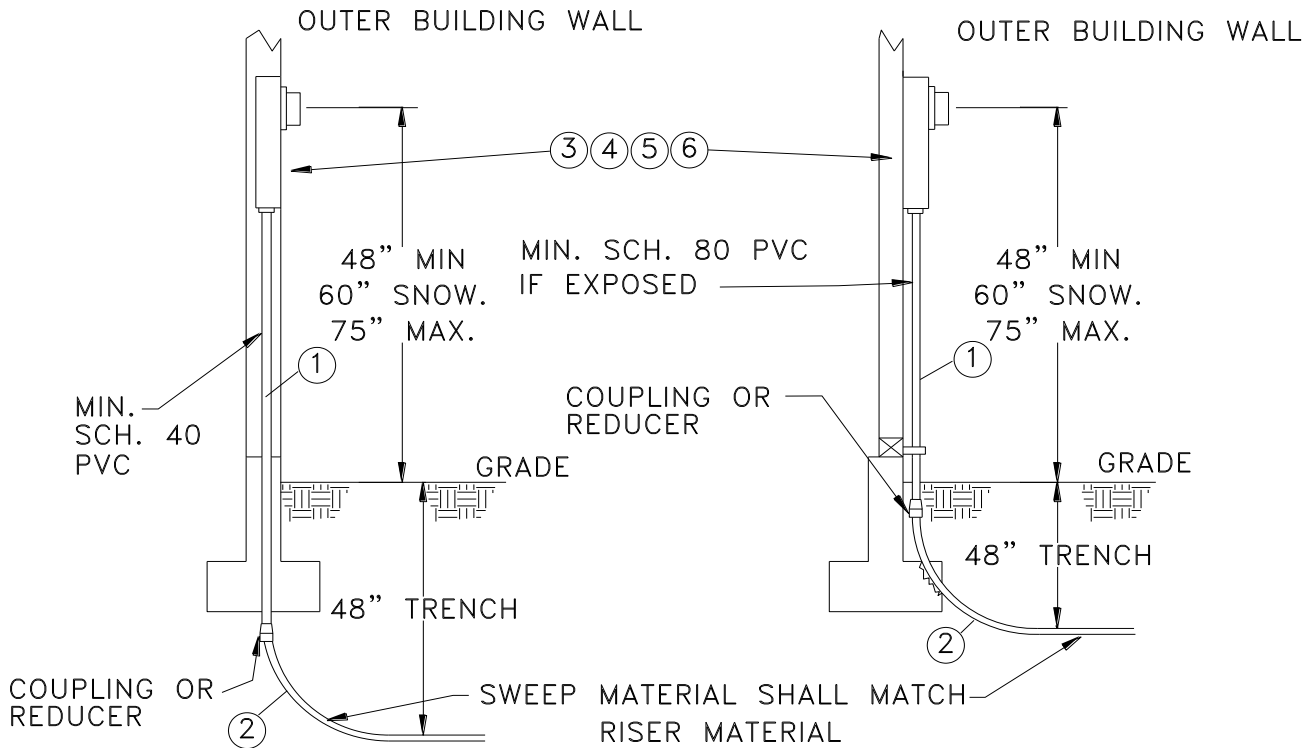
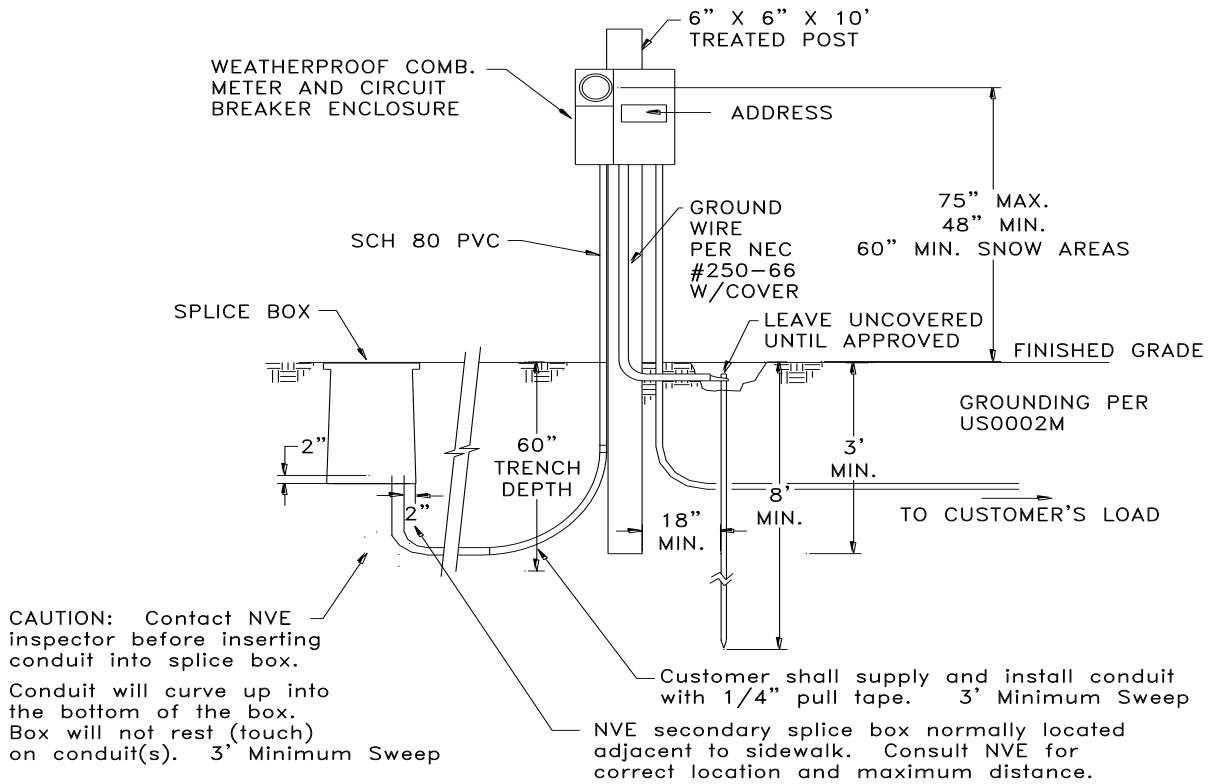
5. Minimum 36" radius sweep for 2" and 3" conduits. **Sweep material to match first section of riser material.** Example: PVC to PVC, steel to steel.
6. Minimum ANSI/ASTM F512, DB-120 electrical, gray, w/ a 1/4" polyester, pull line with sequential footage markings and minimum breaking strength of 400 pounds to be installed by customer. **DB-120 conduit cannot be exposed.**
7. If service is over 75' in length from pole weatherhead, a 17"x30" box may be required at/near the base of pole (see VB0052U).




9.0 PERMANENT U/G SERVICE ON A WOOD POST

An approved manufactured steel pedestal is the preferred construction but a terminating facility of 200 amps (maximum) single phase self-contained meter/service panel attached to a 6" x 6" x 10' full length pressure treated wood or redwood post is acceptable. Posts/pedestals shall be located out of the way of vehicular traffic. Drawing on next page.

	VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD			US0001M
	UNDERGROUND ELECTRIC RESIDENTIAL SERVICE			
Drawn:	Eng:	Appr:	Date:	Revision: 12
RN	MB	DA	7/17	Page 5 of 7



	VOLUME 17 - ENGINEERING & CONSTRUCTION STANDARD			US0001M
	UNDERGROUND ELECTRIC RESIDENTIAL SERVICE			
Drawn:	Eng:	Appr:	Date:	Revision: 12
RN	MB	DA	7/17	Page 6 of 7

10.0 TERMINATION FACILITIES


For detailed Meter Equipment Dimensions & Requirements, see RM0001M, Vol. 17, Section 8, Electric Metering Residential.

NOTES: (Customer to provide and install)

1. Conduit riser shall be minimum Schedule 40 PVC electrical, gray, conduit if recessed or minimum Schedule 80 PVC electrical, gray, conduit if exposed. For further details see CD0004U, Conduit Application Guide.
2. Minimum 36" radius sweep for 2" and 3" conduits. Sweep material to match first section of riser material. Example: PVC to PVC, steel to steel.
3. The socket and enclosure of termination point shall be specially designed to receive service cable from underground source. **Combination designed service panels are acceptable as long as they meet NVE requirements for underground feed.**
4. Termination enclosure (pull section) to include termination lugs located below meter socket.
5. A working space (36" x 36" x 78" high) in front of all meters is required to permit metering installation and provide a safe working environment for personnel.
6. The meter location will have an assigned address.

11.0 TRENCHING

See TE0003U, Vol. 17, Section 3, and your NVE representative for more detailed information.

				VOLUME 17 – ENGINEERING & CONSTRUCTION STANDARD		US0001M
				UNDERGROUND ELECTRIC RESIDENTIAL SERVICE		
Drawn:	Eng:	Appr:	Date:	Revision: 12		Page 7 of 7
RN	MB	DA	7/17			