

SCOPE: THIS STANDARD SHOWS THE METHODS AND REQUIREMENTS FOR INSTALLATION OF UNDERGROUND AND OVERHEAD SERVICES IN RESIDENTIAL BUILDINGS, UNLESS OTHERWISE SPECIFIED ON THE WORK ORDER DRAWINGS.

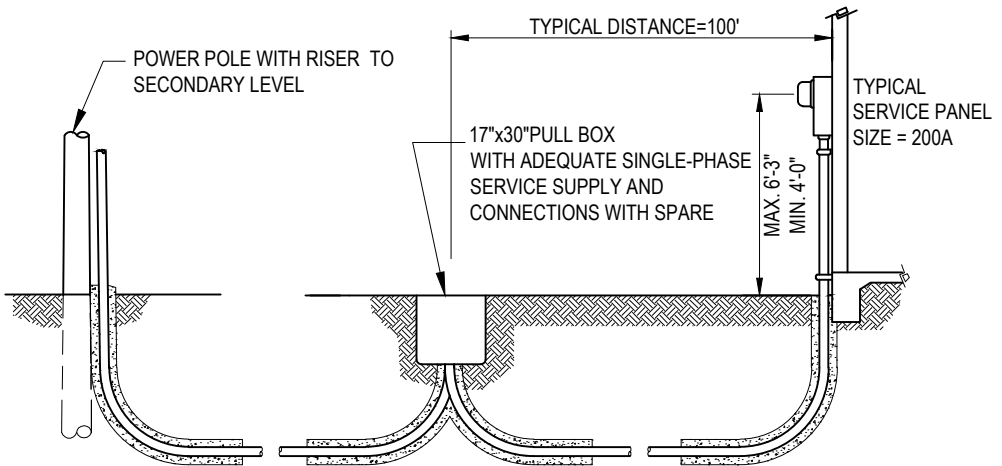
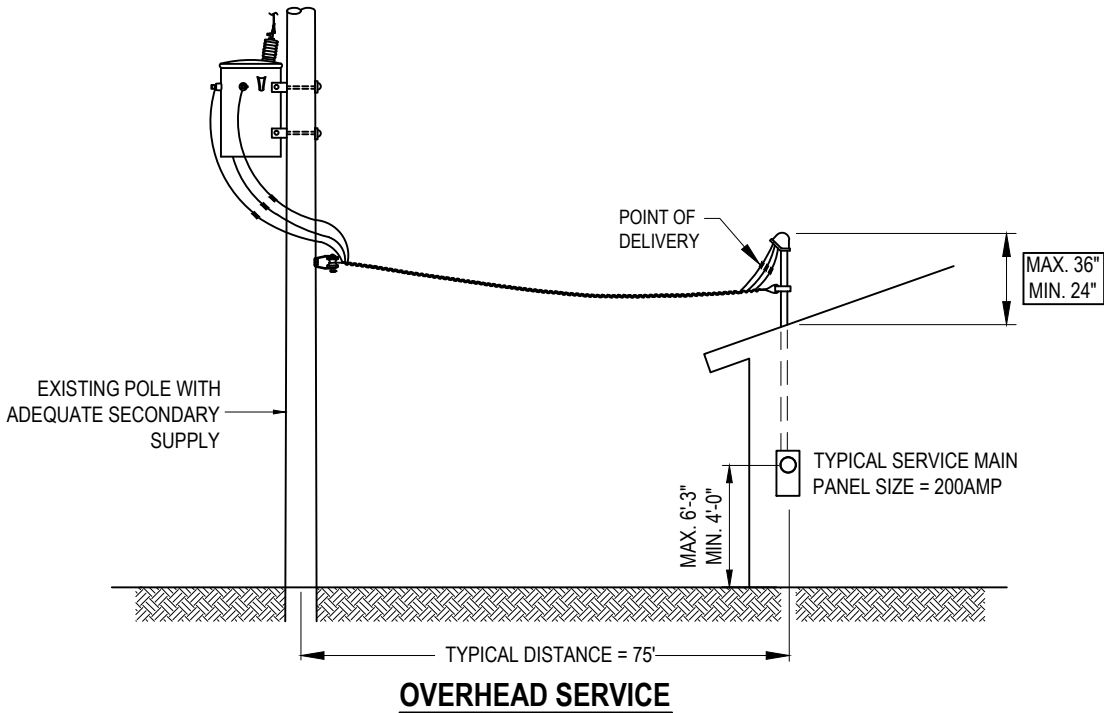
GENERAL INFORMATION:

- A. THIS CONSTRUCTION STANDARD COVERS THE INSTALLATION, CABLE AND CONDUIT REQUIREMENTS FOR RESIDENTIAL SERVICES, WITH SINGLE PHASE, 120/240 VOLTS UP TO 600 AMP PANELS.
- B. A "RESIDENTIAL SERVICE" IS A SINGLE PHASE SERVICE TO A SINGLE OR MULTI-METERED RESIDENTIAL BUILDING.
- C. FOR ALL UNDERGROUND SERVICES:
 - C.1. CONTRACTOR SHALL FURNISH AND INSTALL ALL TRENCHING, BACKFILL, COMPACTING, & CONDUITS FROM ELECTRICAL SERVICE PANEL UP TO SECONDARY LEVEL. THE SECONDARY LEVEL COULD BE EITHER TO THE SECONDARY PULL BOX, UG TRANSFORMER, AND/OR SECONDARY RISER POLE.
 - C.2. THE RISER SHALL BE AFFIXED TO STAND OFF BRACKETS (PROVIDED BY THE CITY) ON THE POWER POLE AWAY FROM TRAFFIC. ELECTRICAL ENGINEERING OR ELECTRICAL INSPECTOR WILL DESIGNATE THE EXACT QUADRANT AT THE TIME OF INSTALLATION.
 - C.3. ALL CONDUITS AND CABLES SHALL BE PER TABLES I AND II, AND **WORK ORDER DRAWINGS**, AND SHALL BE APPROVED BY ELECTRIC UTILITIES INSPECTORS.
 - C.4. ALL CONDUIT RUNS PASSING BENEATH ANY BUILDING SLAB SHALL BE OF THE MATERIAL SHOWN IN TABLE I. A MINIMUM OF ONE (1) SPARE CONDUIT WILL BE REQUIRED.
 - C.5. ANY CONDUIT ANGLE IN THE HORIZONTAL RUN GREATER THAN 22.5°, INCLUDING A 10 FOOT SECTION ON BOTH SIDES, SHALL BE IN THE CONDUIT MATERIAL LISTED IN TABLE I.
 - C.6. THE SWEEPS ARE TO BE ANCHORED AND SECURED TO WITHSTAND THE PULLING TENSIONS REQUIRED FOR INSTALLATION OF CONDUCTORS.
 - C.7. BORING AND INSTALLATION OF GALVANIZED STEEL CONDUIT OR PVC SCHEDULE 80 IS ACCEPTABLE FOR LOCATIONS UNDER CONCRETE SLABS OR LANDSCAPE AREAS. (CHECK WORK ORDER DRAWINGS FOR DIRECTION).
- D. FOR ALL OVERHEAD SERVICES:
 - D.1. CONTRACTOR SHALL PROVIDE ALL WIRES, CABLES, AND MATERIALS REQUIRED FROM SERVICE PANEL TO THE POINT OF DELIVERY, DESIGNATED BY THE ELECTRICAL ENGINEERING AND WORK ORDER DRAWING.
- E. ELECTRICAL DIVISION FIELD CREWS WILL ASSIST:
 - E.1. ON OVERHEAD SERVICES: SUPPLY AND PULL SERVICE CONDUCTOR FROM SECONDARY POWER POLE TO THE POINT OF DELIVERY AND CONNECTION.
 - E.2. ON UNDERGROUND SERVICES: SUPPLY AND PULL SERVICE CONDUCTOR FROM SECONDARY PULL BOX TO SERVICE PANEL, UNLESS OTHERWISE SHOWN ON THE WORK ORDER DRAWING.
- F. CONTRACTOR SHALL FURNISH ALL GROUNDING MATERIALS FOR THE UNDERGROUND AND OVERHEAD SERVICES, PER CONSTRUCTION STANDARDS CO 782 AND CO 784.
- G. FOR 400 AMP AND ABOVE PANELS INSTALL THREE (3) TWO BOLT-TWO SET SCREW ALLEN CONNECTORS PER DETAIL ON SHEET 4 OF 5.
- H. **FOR ALL CONSTRUCTION DETAILS AND INSTRUCTIONS SEE WORK ORDER DRAWINGS AND CONSULT UTILITIES INSPECTOR.**

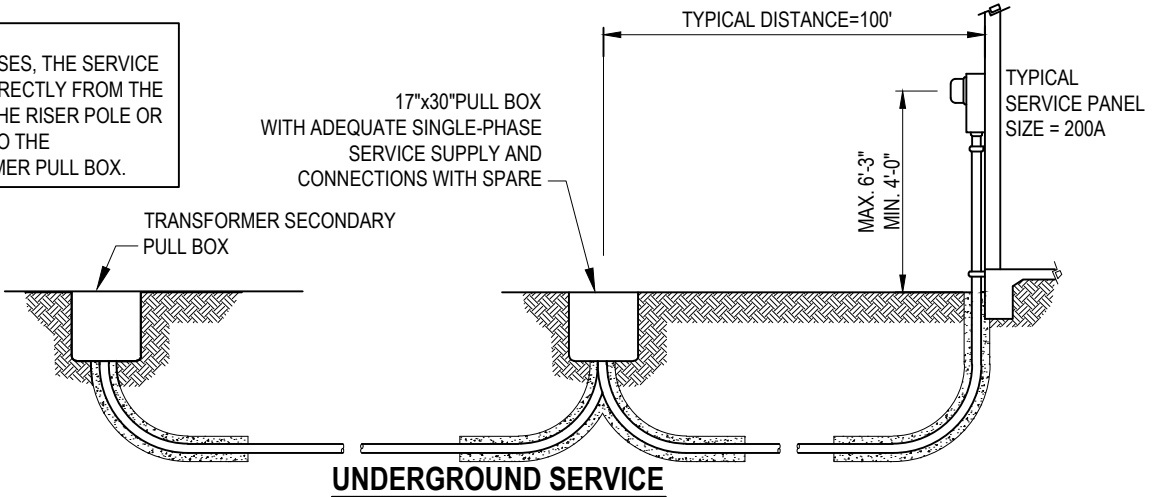
COMPLETELY MODIFIED FROM 1500-2, 2A AND 2C

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		RESIDENTIAL SERVICES METHODS AND REQUIREMENTS			
APPROVALS					
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NOTE:
IN SOME CASES, THE SERVICE MAY RUN DIRECTLY FROM THE PANEL TO THE RISER POLE OR DIRECTLY TO THE TRANSFORMER PULL BOX.



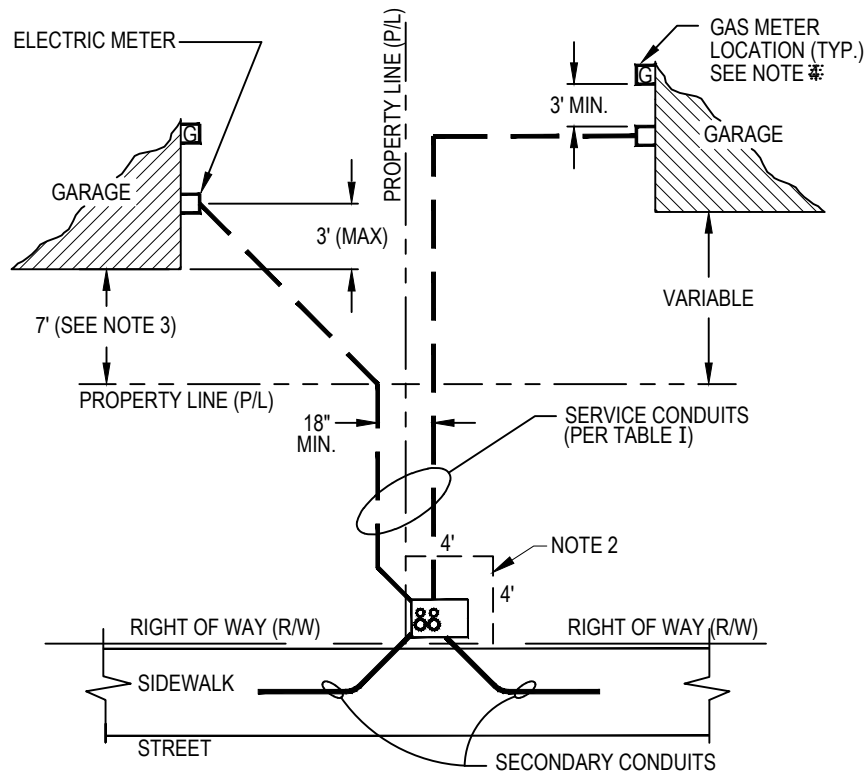
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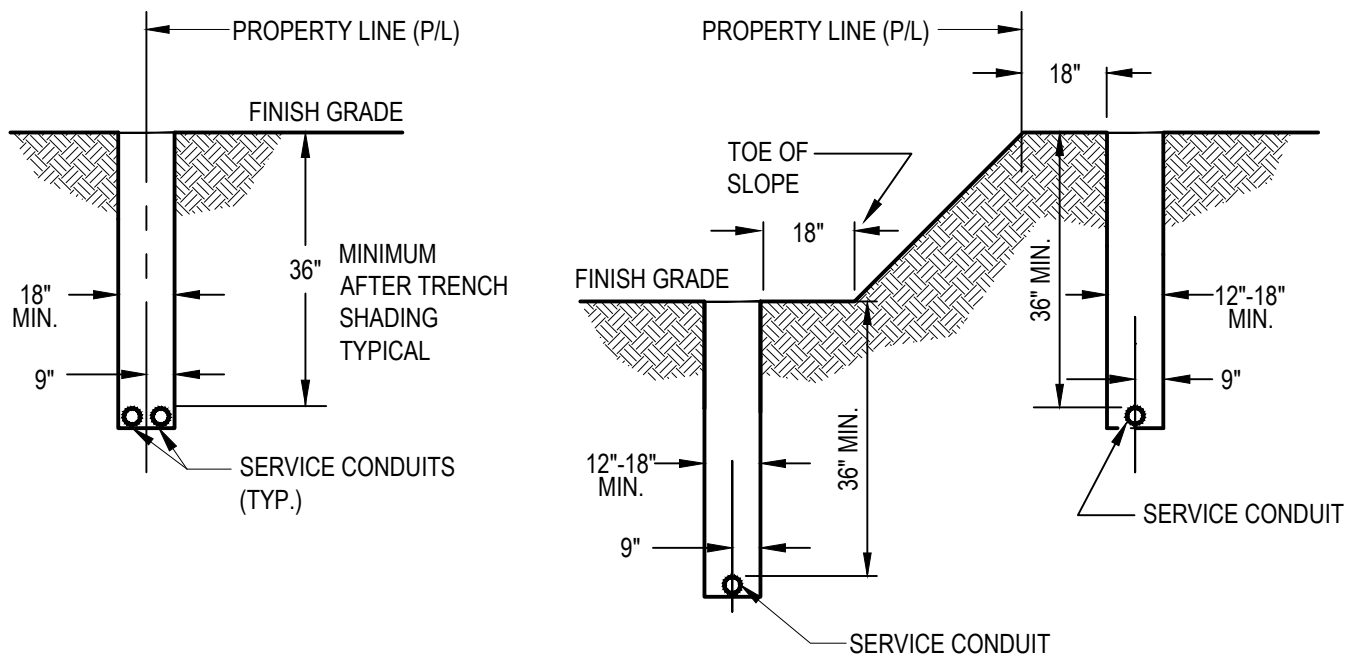
**RESIDENTIAL SERVICES
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PLAN

UNDERGROUND SERVICES



TYPICAL SERVICE TRENCH

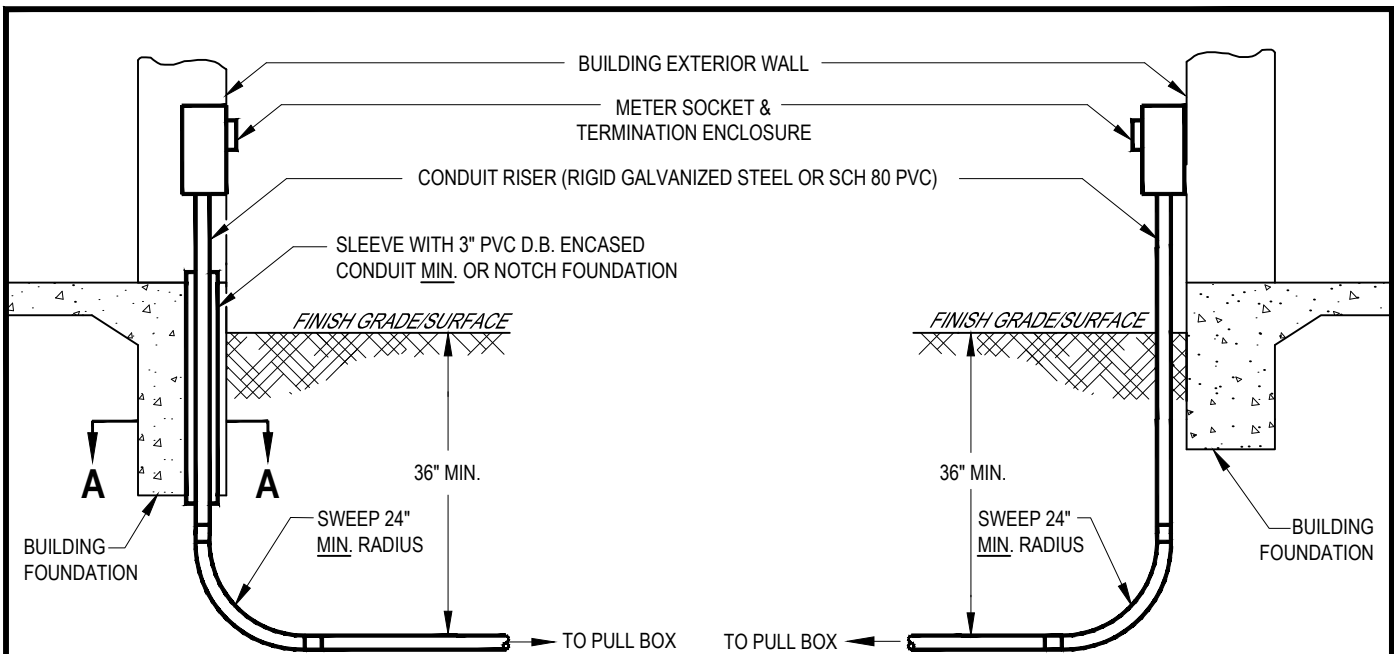
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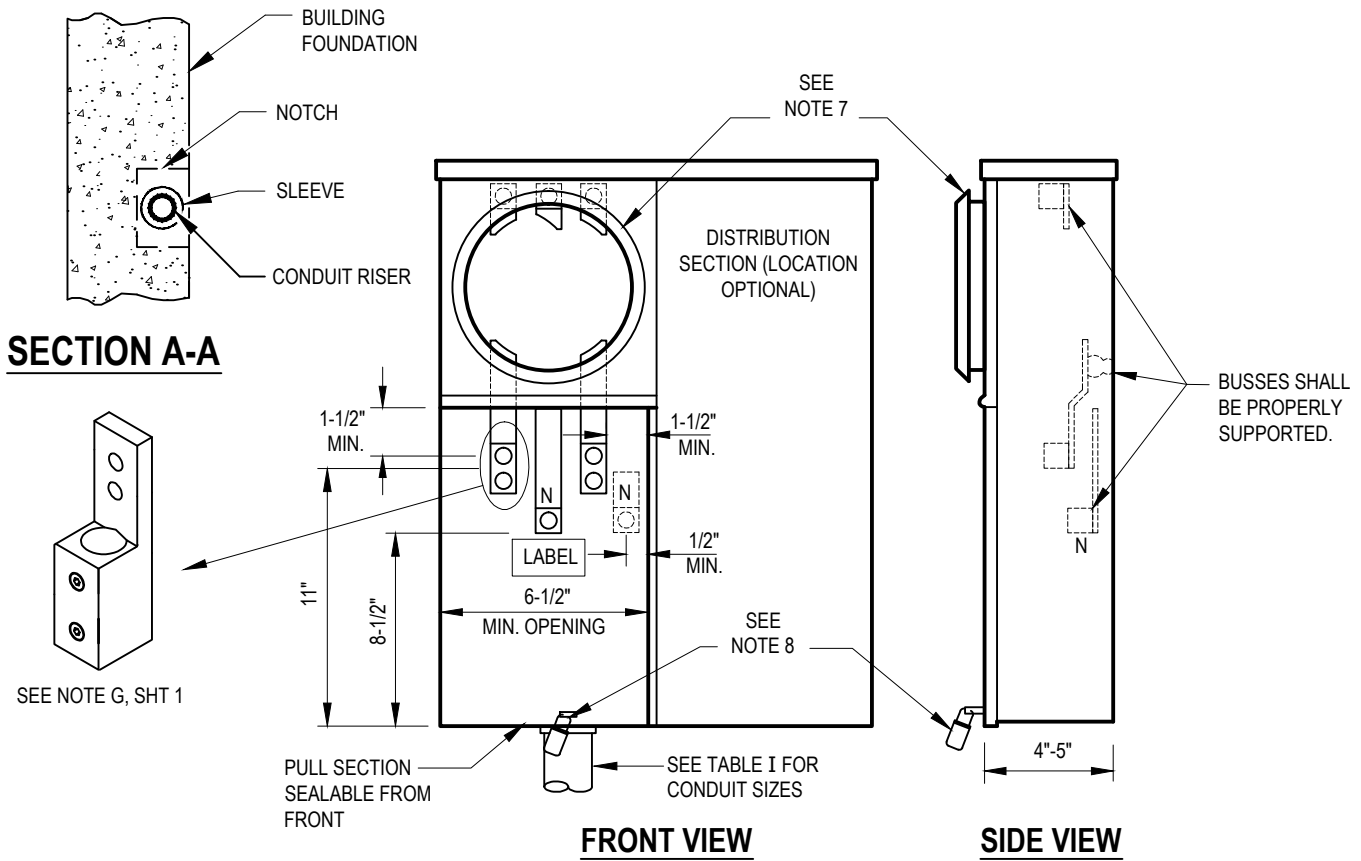
**RESIDENTIAL SERVICES
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**RECESS / FLUSH MOUNTED
(PREFERRED)**

**SURFACE MOUNTED
(ALTERNATE)**



TYPICAL METER SOCKET TYPE

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RESIDENTIAL SERVICES METHODS AND REQUIREMENTS			

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TABLE I
MINIMUM REQUIREMENTS FOR SERVICE CONDUITS, TYPES AND APPLICATIONS

TYPE	SPECIFICATION	APPLICATION
PVC (CONCRETE ENCASED)*	ASTM F12 DB 100	FROM TRANSFORMER VAULT TO SECONDARY PULL BOX & FROM SECONDARY PULL BOX TO SERVICE PULL BOX
PVC (CONCRETE ENCASED)*	ASTM F12 DB 100	FROM SERVICE PULL BOX TO METER PANEL
HOT DIPPED GALVANIZED	ANSI SPEC C80.1	8' ABOVE GRADE AND/OR FROM GRADE TO PULL BOX OR METER PANEL, UNDER SLABS, AND LANDSCAPE AREAS.
PVC SCHEDULE 40	UL APPROVED 90C	POWER POLE WITH RISERS FROM 8' ABOVE GROUND
PVC SCHEDULE 80	UL APPROVED 90C	8' ABOVE GRADE LEVEL ON RISERS AND FROM GRADE TO PULL BOX OR METER PANEL, UNDER SLABS, AND LANDSCAPE AREAS

*CONCRETE ENCASED PVC DB100 OR PVC SCHEDULE 80 OR GALVANIZED STEEL

TABLE II
CABLES AND CONDUITS REQUIRED FOR RESIDENTIAL SERVICES- MINIMUM




MAIN SERVICE PANEL RATING	VOLTAGE	CONDUIT SIZE	CABLE SIZES (ALL ALUMINUM) WITH XHHW-2 INSULATION	
	SINGLE PHASE 120/240		PHASE	NEUTRAL
100-125	●	3"	#2	#2
200-225	●	3"	1/0	1/0
400	●	CONTACT ELECTRICAL ENGINEERING FOR DETAIL DESIGN		
600	●	CONTACT ELECTRICAL ENGINEERING FOR DETAIL DESIGN		

*CABLES AND ACCESSORIES FOR PANELS BELOW 400 AMPS WILL BE SUPPLIED BY THE CITY.

UNDERGROUND SERVICE NOTES:

- FOR SERVICE PULL BOX 17" x 30", SEE CITY OF ANAHEIM CONSTRUCTION STANDARD CU 1500-1B AND WORK ORDER DRAWING.
- LOCATE PULL BOX IN A 4'x4' AREA BORDERING AT RIGHT SIDE OF LOT'S PROPERTY LINE (P/L) AND FRONT OF RIGHT-OF-WAY (RW).
- SERVICE CONDUITS SHALL DIVERGE FROM PROPERTY LINE (P/L) AT A POINT 7 FEET BEFORE GARAGE WALL, CLOSEST TO STREET (IF APPLICABLE).
- GAS METER SHALL HAVE A MINIMUM OF 3' HORIZONTAL CLEARANCE FROM ELECTRIC METER.
- SEPARATE SERVICE TRENCH TO EACH HOUSE IF TERRACED SLOPES EXIST BETWEEN HOUSES AND/OR AS REQUIRED BY ELECTRICAL ENGINEERING OR THE ELECTRICAL UTILITIES INSPECTOR.
- CONNECT URD SERVICE CONDUCTORS TO FACTORY INSTALLED LUGS USING PENETROX OR APPROVED OXIDATION INHIBITOR AND CONNECTION COMPOUND AND TORQUE TERMINAL SET SCREWS TO PANEL MANUFACTURER'S RECOMMENDED TORQUE.
- COVER BLANK METER SOCKET WITH AN APPROVED PLASTIC METER SOCKET COVER, INSTALL METER RING WITH APPROVED SEAL.
- AFTER ELECTRICAL SYSTEM IS ENERGIZED TO BLANKED OFF METER SOCKET AND THE PROPER VOLTAGE AND LINE SIDE CONNECTIONS HAVE BEEN VERIFIED, SEAL THE UNDERGROUND PULL/TERMINATION SECTION WITH APPROVED SEAL. (SEE EUSERC PAGE 301 FOR REFERENCE).

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	RESIDENTIAL SERVICES METHODS AND REQUIREMENTS										
APPROVALS <table border="1"> <tr> <td>PREP BY</td> <td>T&D MGR</td> <td>SYS PLN MGR</td> <td>OPS MGR</td> <td>SUB MAINT</td> </tr> <tr> <td>MH</td> <td>EB</td> <td>-</td> <td>CMR</td> <td>-</td> </tr> </table>	PREP BY	T&D MGR	SYS PLN MGR	OPS MGR	SUB MAINT	MH	EB	-	CMR	-	REVISION NO. 5 ISSUE DATE: 01-14 SHEET 5 OF 5 CONSTRUCTION STANDARD: CU 1500-2
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