



Roseville Electric

SPECIFICATIONS

FOR

RESIDENTIAL CONSTRUCTION

REVISED
05/30/24

Specifications for Residential Construction
Revision List

REVISION

<u>Date</u>	<u>Page No.</u>	<u>Description</u>
03/20/00	6.1-6.2	Added Armorcast to approved manufacturer list for boxes.
06/19/00	2.3,2.4 & 2.5.1	Added alternative grounding for hard soil conditions.
11/21/00	3.2	Added notes for maximum conduit lengths.
03/20/01	2.3-2.4	Revised Joint Utility Trench depth to 57".
04/17/01	3.1	Removed Kevlar pull tape & revised concrete slump from 7" to 5".
09/19/01	1.1 & 1.1.1	Revised for Developer's installation of conductor to service panel.
10/16/01	8.1-8.1.13	New section for Residential Service and Metering Requirements.
10/16/01	3.2	Increased amount of sweeps from 270° to 360°.
11/20/01	2.5,4.1 & 7.3	Added note "For Special Conditions Use Only".
11/20/01	2.5.1 & 4.1.1	Installation & Grounding Details for Above Ground J-box.
11/20/01	7.1.1	Added clearances for Above Ground J-box.
12/18/01	3.1-3.1.1	Added Approved List for pull tape.
01/15/02	9.1	New Clearances Requirement for Overhead conductors to Bldgs.
03/20/02	3.1-3.1.1	Added Testing Standards & updated approved vendors.
05/15/02	2.5.1	Lowered vault 12" & moved J-box back to get 24" clear opening.
09/30/02	3.1.1	Updated approved pull tape list.
11/21/02	2.8.1-2.8.2	New specifications for St. Lt's. in hard soil conditions.
12/18/02	6.1-6.2	Added one approved manufacturer for #30 box.
03/20/03	2.2.1	Revised notes to reference pages 2.8.1 & 2.8.2 for streetlights in hard soil conditions.
03/20/03	7.1.1 & 7.3.1	Revised working clearances for sides and back of Above Ground J-box to 3 feet.
01/21/04	2.8.1-2.8.2	Added property lines for reference.
10/27/04	2.8.1-2.8.2	Revised sonit tube to be deeper and be set 3" above walk.
03/23/05	2.3-2.4.1,5.1,5.2	Added wells under pads on 2.3 and 2.4. New specifications for the installation of wells and pads, 2.3.1 and 2.4.1. Revised 5.1 and 5.2
12/28/05	1.1-1.1.1	Revised dry utility contact information.
1/18/06		1.1- 1.1.1 Revised installation costs and additional note for indirect charges.
	4.1.1, 4.1.2	Added page 4.1.2 and clarify alternative ground wire placement in special conditions.
4/19/06	6.1 & 6.2	Added New Basis to the list of approved secondary boxes.
7/24/06	6.1 & 6.2	Removed New Basis from the list of approved secondary boxes.
2/20/07	1.1	Revised policy letter to show new payment amount.
5/12/08	2.2 & 2.2.1	Revised service notch excavation details
8/12/08	8.1.7, 8.1.9, 8.1.11	Added notes for additional Photovoltaic metering requirement
3/18/09		1.1 & 1.1.1 Updated installation cost for fiberglass, steel light poles and per lot cost.

Continued ...

Specifications for Residential Construction
Revision List

REVISION

<u>Date</u>	<u>Page No.</u>	<u>Description</u>
8/18/09	T.O.C., 8.1-8.1.5 & 8.2-8.2.7	Revised the specifications for Solar Electric metering and tagging.
9/20/10	1.1	Revised cost for items 6 (per-lot charge) and 8 (streetlight materials).
10/21/10	3.1, 3.1.1	Revised conduit specifications to include 6" conduit.
2/17/11	2.8.3	Revised part numbers to coordinate with the manufactures changes to existing lighting components.
7/21/11	8.1 & 8.2	Revised the drawings to better reflect the PV Disconnect locations and rearranged and updated the specification text for PV metering and information on the Roseville Electric Solar Electric Program.
1/19/12	8.1 & 8.2	Revised the drawings to call out line and load side of devices and specify the main and customer breakers. Added statement to specification text requiring visible air gap on disconnect devices.
2/06/12	1.1	Updated cost for items 6 (per-lot charge) and 8 (streetlight materials).
06/26/13	2.6	Added a 6" conduit standard for the mainline excavation detail.
01/30/14	8.1.2	Removed "visible air-gap" line in 4. Service Disconnects section.
09/03/14	1.1	Developer Responsibility fees increases.
11/17/14	2.8.3	100W Residential Decorative Street Light Install Spec
01/13/15	1.1	Developer Responsibility fees increases
08/11/15	2.8.3	100W Residential Decorative Street Light Install - add qty. set screws.
08/31/15	1.1	Developer responsibility fees increases.
01/11/16	1.1	Developer responsibility fees increases.
10/05/16	8.1.2	Sealing of metering equipment.
01/03/17	1.1	Developer responsibility fee increases.
10/03/17	1.1	Developer responsibility fee increases
01/22/18	1.1	Developer responsibility fee increases.
02/09/18	8.1.2	Language added to prohibit non-RE equipment in the Line side bussing.
04/25/18	2.1,2.1.1,2.2 2.2.1,2.2.2,2.3	Added "ATTACHED SIDEWALK/DETACHED SIDEWALK" language to joint trench details/specs.
07/30/18	8.2-8.2.7	Residential SOLAR/CUSTOMER GEN. REQUIREMENTS
02/28/19	8.1.4, 8.1.5	Electric service entrance requirements, underground
09/26/19	7.1, 7.1.1, 7.2, 7.3, 7.3.1	Landscape design requirements, Padmounts SWGR
2/10/22	8.1	Updated requirements for residential PV / Battery interconnection and removed defined developer fee dollar amount
2/14/22	3.1	Detectable Mule Tape requirements.
7/12/23	8.2	Removed Physical AC disconnect requirements.
5/30/24	8.1.4	Removed 400A aluminum service entrance conductors.

**ROSEVILLE ELECTRIC SPECIFICATIONS
FOR RESIDENTIAL CONSTRUCTION**

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Roseville Electric

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POLICY FOR NEW RESIDENTIAL ELECTRIC UTILITY INSTALLATIONS

(See Notes 1 through 3)

DEVELOPER RESPONSIBILITY

1. Land rights.
2. Trenching, excavation, backfill and grading, compaction, all surveying and staking of grades, property lines, rights-of-way, sidewalks, etc.
3. Furnish and install all materials not installed by Roseville Electric crews, which shall include, but not be limited to: primary junction boxes, pads, conduits (primary, secondary and streetlight), secondary service boxes, streetlight pull boxes, and all applicable fittings. These items are to be installed per Roseville Electric Specifications for Residential Construction.
4. Furnish and install secondary service entrance conduit and conductors from the secondary service box to the house per the National Electric Code.
5. Pay for all materials attributed to the development as determined by the Electric Utility Director and installed by Roseville Electric which shall include, but not be limited to: transformers, conductors, switchgear, meters and all applicable electric fittings.
6. Pay per lot fee for installation of materials in Item 5.
7. Pay for indirect charge as determined by the Electric Utility Director.
8. Pay for all street lighting materials (except conduit) per Roseville Electric Specifications and installation charges per fiberglass pole; and actual costs for other types of poles not listed.
9. Coordination with other utilities (SureWest, Pacific Gas & Electric, Comcast Cable Communications, Inc., and City Water, Sewer, Refuse, etc.). Any and all costs assessed by these utilities.
10. The Electric Utility Director will require Items 5, 6 and 7 above to be paid before Roseville Electric will purchase non-stock items or inspect any premises for acceptance and installation of electrical facilities.

ROSEVILLE ELECTRIC RESPONSIBILITY

1. Design of electrical system for providing service to the subdivision.
2. Installation of all materials in Item 5 under Developer Responsibility.
3. Installation of street lighting system in public roadways and testing of electrical circuits.
4. Installation of meters and current transformers as required.
5. Roseville Electric shall construct the necessary facilities to deliver power to the Developer's area of responsibility as determined by the Electric Utility Director and outlined in City Ordinance 2407 dated March 20, 1991.

-
- NOTE:
- (1) This policy shall be subject to change by the City Council at any time in accordance with procedures established by the laws of the State of California and the provisions of the City of Roseville Municipal Code.
 - (2) This policy for new residential subdivisions applies to single-family homes only. For apartments, condominiums, town homes, or mobile home parks, see Policy for Commercial Electric Utility Installations.
 - (3) All work to be performed by the Developer shall be subject to the approval of the Roseville Electric Utility Director.

POLICY NOTES:

1. The Engineer shall mean the Director of the City of Roseville Electric Department or any of his appointed representatives.
2. The Engineer reserves the right to make minor changes at any phase of the project to insure the proper installation of its facilities.
3. The Engineer has sole authority on the approval of any design or material changes requested by the owner or contractor.
4. Any material or design change made without prior approval by the Engineer is done so at the owners or contractors own risk.
5. It is the responsibility of the developer's contractor to provide all the necessary field surveying and staking to insure adequate control points for all utility inspectors to verify proper location and grade of all utilities. The Electric Department assumes no responsibility for placement of its facilities in or on improperly marked locations.
6. Installation of Electric Department facilities to be done according to Electric Department designed job print and City of Roseville Electric Department Specifications for Residential Construction.
7. All construction of electrical facilities shall conform to State of California General Order no. 128, "construction of underground electric supply and communication systems" as well as applicable OSHA regulations.
8. A 12.5' Public Utility Easement is required along all street frontages unless otherwise specified by the Electric Department.
9. Vertical conduit risers, at transformer, switch and secondary service box locations are to be adequately supported to prevent leaning during the backfill operation.
10. Bottom of all utility trenches to be square and clean.
11. Backfill for joint utility trench shall be sand compacted 85% to 6" above the 4 utilities occupying the joint trench. Then backfill with native material free of all deleterious materials, rocks or boulders compacted to 90% within one (1) foot of final grade and 95% the last foot. Sand shading material to be, screened free, No. 4 sieve, 4mm maximum particle size, free of sharp edges, and approved by each utility trench inspector. (DG will not be approved.)



ELECTRIC DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Sonny McChaw</i>		REVIEW COMMITTEE		
POWER ENG. MANAGER <i>K. T. [Signature]</i>		<i>MSB</i>	<i>DWB</i>	<i>R</i>
ELECTRONIC SUPERINTENDENT <i>[Signature]</i>		DR. MAH	DATE 07-15-96	DR.NO. <i>Phil Coul [Signature]</i>
		NEW SERVICES MANAGER <i>RML. for Tim Moore</i>		PAGE 1.2
CONSTRUCTION STANDARD				

SECTION

12. Street crossing shall be 24" wide and 57" deep from top back grade of sidewalk. If, during excavation, a shallow object is encountered, (water, sewer main, etc.), an excavation underneath the object shall be done with a minimum 20' gradual transition each side of the object to meet clearances as specified in State of California General Order #128, Construction of Underground Electric Supply and Communications Systems.
13. Sewer lateral cleanouts shall not be placed more than 3'-6" from back of sidewalk.
14. Work shall not proceed unless utility trenches are in accordance with all Cal OSHA requirements (see Page 2.1).
15. Developer's contractor shall assume all liability for open trenches and shall provide and maintain all barricades as required for safety.
16. All transformer pads, switch pads, junction boxes and secondary service boxes shall be set at final grade (including landscaping). Any facilities, which in Roseville Electric's judgement, require raising, lowering, leveling, or relocation to meet final grade requirements will be done by the developer at their expense.
17. Where mounded landscaping or severe slopes are planned or added at a later date the developer is responsible for providing retaining walls or appropriate grade changes to insure adequate clear, level workspace.



ELECTRIC DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Thomas M. Chow</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>K. T. Neely</i>		<i>msb</i>	<i>DJB</i>	<i>h</i>	<i>Richard J. S.</i>
ELECTRONIC SUPERINTENDENT <i>Th. G. ...</i>		DR. MAH	DATE 07-15-96	DR. NO.	
		NEW SERVICES MANAGER <i>Rec. For Tim Moore</i>		PAGE 1.2.1	

CONSTRUCTION STANDARD

SPECIFICATIONS FOR RESIDENTIAL CONSTRUCTION

PROCEDURES

1. Joint utility and street crossings may be placed before curb and sidewalk are formed, and in all cases after installation of water, sewer, storm drains and rough street subgrade has been accomplished.
2. Conduit proving, installation of secondary service boxes and transformer and switch pads to be done after streets, curb, gutter and sidewalk are installed. Also permanent front property markers (nail, pin or indentation) must be installed and lot numbers shall be painted on back of sidewalk.
3. City Electric Department crews will not begin final installation of equipment until all items in note 2 above have been completed and the Electric Department Inspector has released the project to the Electric Department Construction Division.
4. Projects may be phased into areas with sufficient workload for each utility to install their facilities in a cost effective manner, when approved by all joint trench utilities.
5. Developer shall contact the Assistant Construction Superintendent to gain approval of, proposed phasing, when delivery of power to specific areas is requested.

CITY OF ROSEVILLE ELECTRIC DEPARTMENT

D. Dodson 7/19/96

ROSEVILLE TELEPHONE COMPANY

Scott Bal 7/22/96

PACIFIC GAS & ELECTRIC COMPANY

James P. Livi 7/22/96

JONES INTERCABLE INCORPORATED (CABLE TV)

Ketty Blen 7/19/96



ELECTRIC DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT <u>Tommy McCrear</u>		REVIEW COMMITTEE			
POWER ENG. MANAGER <u>R. T. Gray</u>		MYB	DYB	R	R/C [Signature]
ELECTRONIC SUPERINTENDENT <u>Tom G. [Signature]</u>		DR. MAH	DATE 07-15-96	DR. NO.	
		NEW SERVICES MANAGER RMC FOR TIM MOORE			PAGE 1.3
		CONSTRUCTION STANDARD			

SPECIFICATIONS FOR RESIDENTIAL CONSTRUCTION

INSPECTION

1. Roseville Electric provides inspection for all facilities installed for its use. A minimum 24 hour advance notice is required for all work requiring inspection. To schedule an inspection, contact the Engineer in charge of the project or call Roseville Electric at 774-5600 between the hours of 8 am and 4 pm Monday through Friday.
2. All material and work shall be subject to inspection, examination, and testing by Roseville Electric at any time during installation or construction. The developer shall provide and maintain proper facilities and safe access for all such inspections or testing.
3. The developer shall give 24 hours advance notice to Roseville Electric for inspection of the following: backfilling trench, placement of vaults or boxes, mandrelling of conduit, and setting of pads for switches or transformers.
4. Failure of the developer to adhere to the above provisions may result in the developer being required, at his own expense, to remove, uncover, or otherwise enable inspection of such work by the Inspector.
5. Any unapproved material, design change, or improperly installed system not meeting Roseville Electric Specifications shall be replaced and properly installed by the developer or his contractor at the developers expense.
6. Rejected work will result in delaying electric service to the project until the inadequacies are corrected. Delays beyond the scheduled date for electric final construction may result in the project being rescheduled to the next available construction date for electric crews.

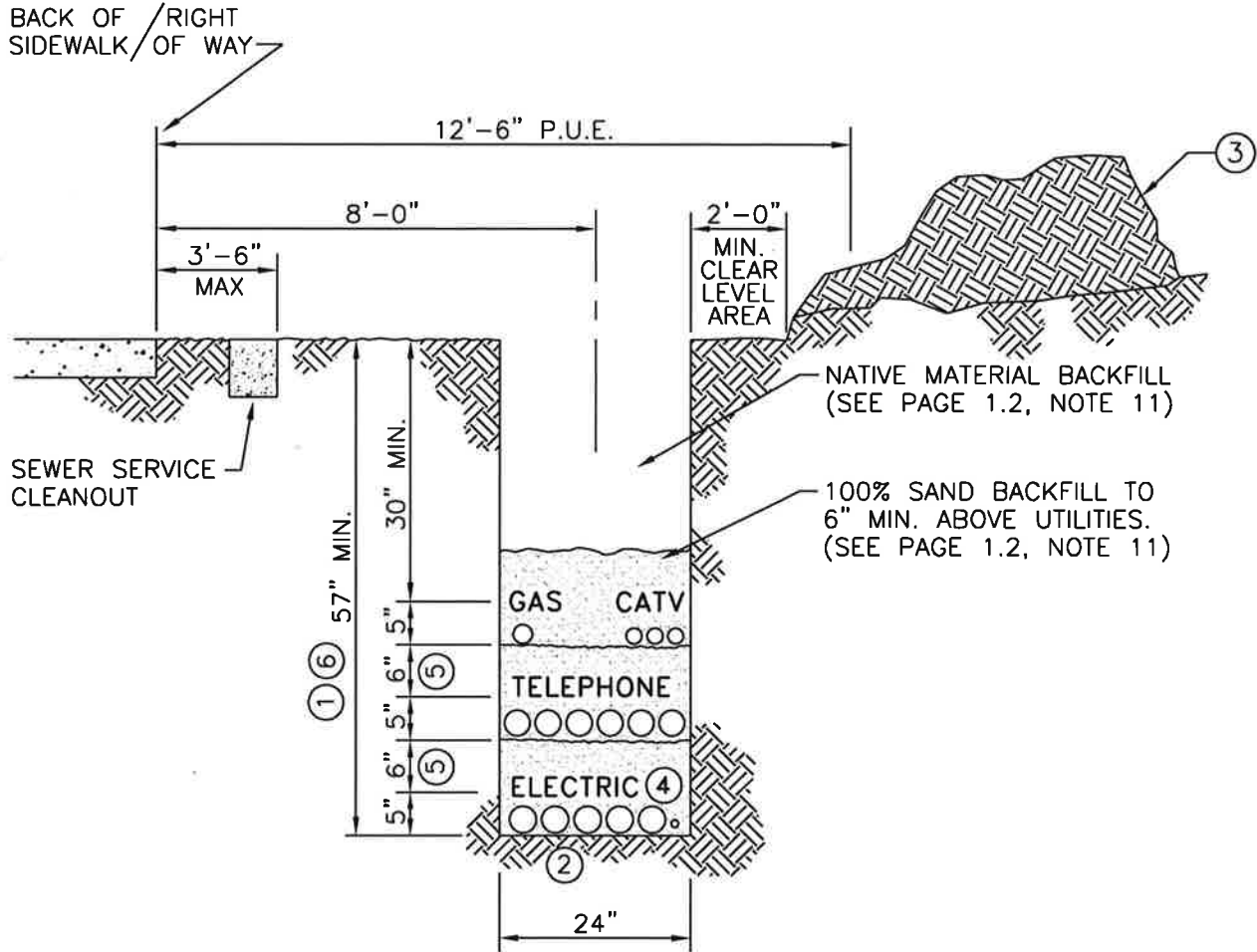


ELECTRIC DEPARTMENT
(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Sonny Mcha</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>CWR</i>		DR. <i>MYB</i>	MAH <i>R. Sam</i>	DATE 04-15-98	DR. NO. <i>DJB</i>
ELECTRONIC SUPERINTENDENT <i>KA</i>		NEW SERVICES MANAGER <i>Jim Moore</i>			

JOINT UTILITY TRENCH DETAIL ATTACHED SIDEWALK

N.T.S.



NOTES:

- ① Trench depth to be measured from top back of curb or sidewalk in areas where grade is level or inclining. Trench depth to be measured from the low point of finished grade at trench location in areas where grade is declining. Trenches must be in accordance with all Cal OSHA requirements.
- ② Bottom of trench to be square and clean.
- ③ Spoils to be placed on field side & observe Cal OSHA requirement on placement of spoils in relationship to open trench.
- ④ Electrical conduits are to be laid flat in the bottom of the trench.
- ⑤ Utility separation shown to be maintained except by mutual agreement between all utilities involved.
- ⑥ Trench depth shall not exceed 59".

ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

RESIDENTIAL TRENCHING SPECIFICATION ATTACHED SIDEWALK

REVIEW COMMITTEE

DATE

02/09/18

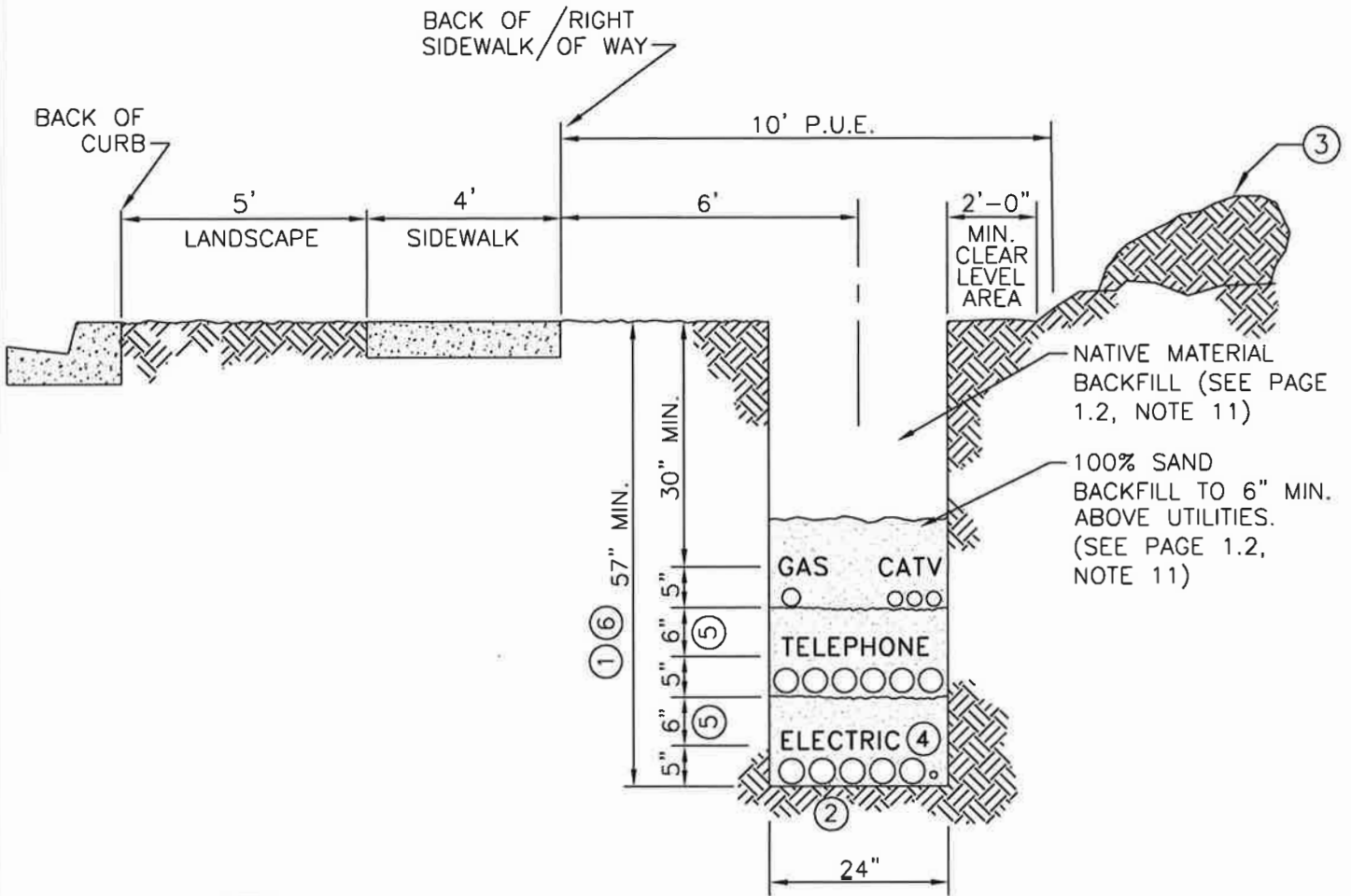
**CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

DR. NO.

2.1

JOINT UTILITY TRENCH DETAIL DETACHED SIDEWALK

N.T.S.



NOTES:

- ① Trench depth to be measured from top back of curb or sidewalk in areas where grade is level or inclining. Trench depth to be measured from the low point of finished grade at trench location in areas where grade is declining. Trenches must be in accordance with all Cal OSHA requirements.
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ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH. SUPERVISOR

RESIDENTIAL TRENCHING SPECIFICATION DETACHED SIDEWALK

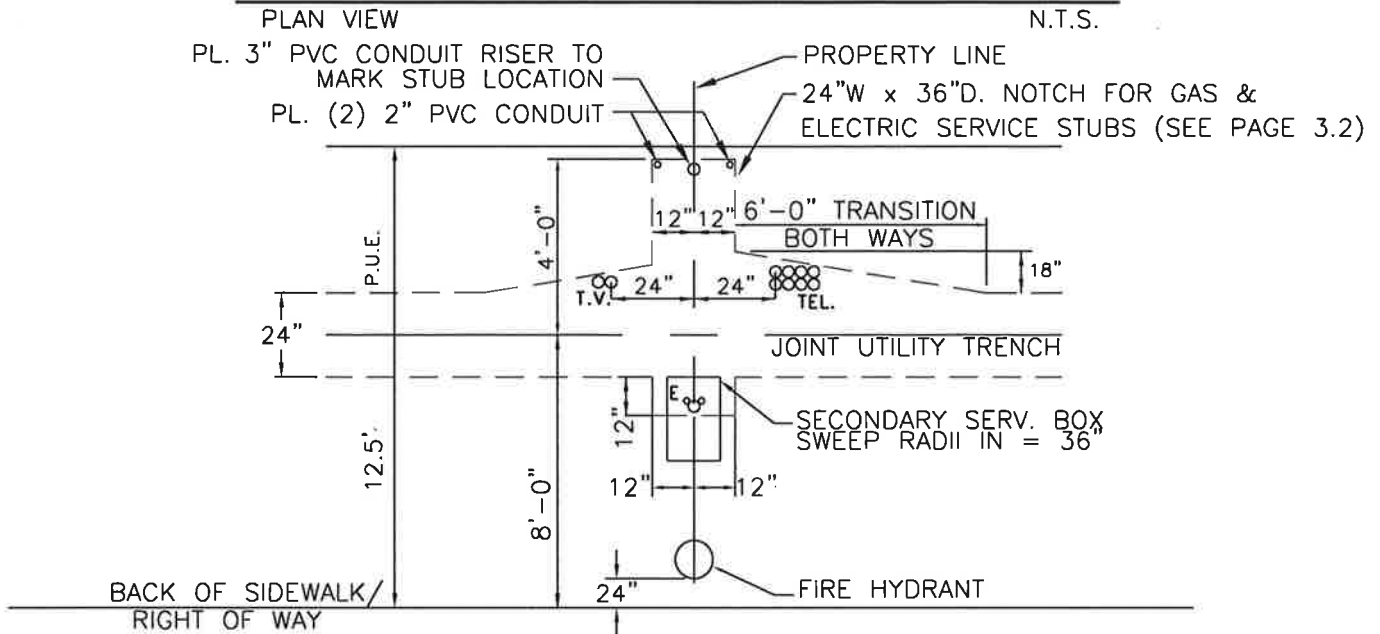
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ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

REVIEW COMMITTEE

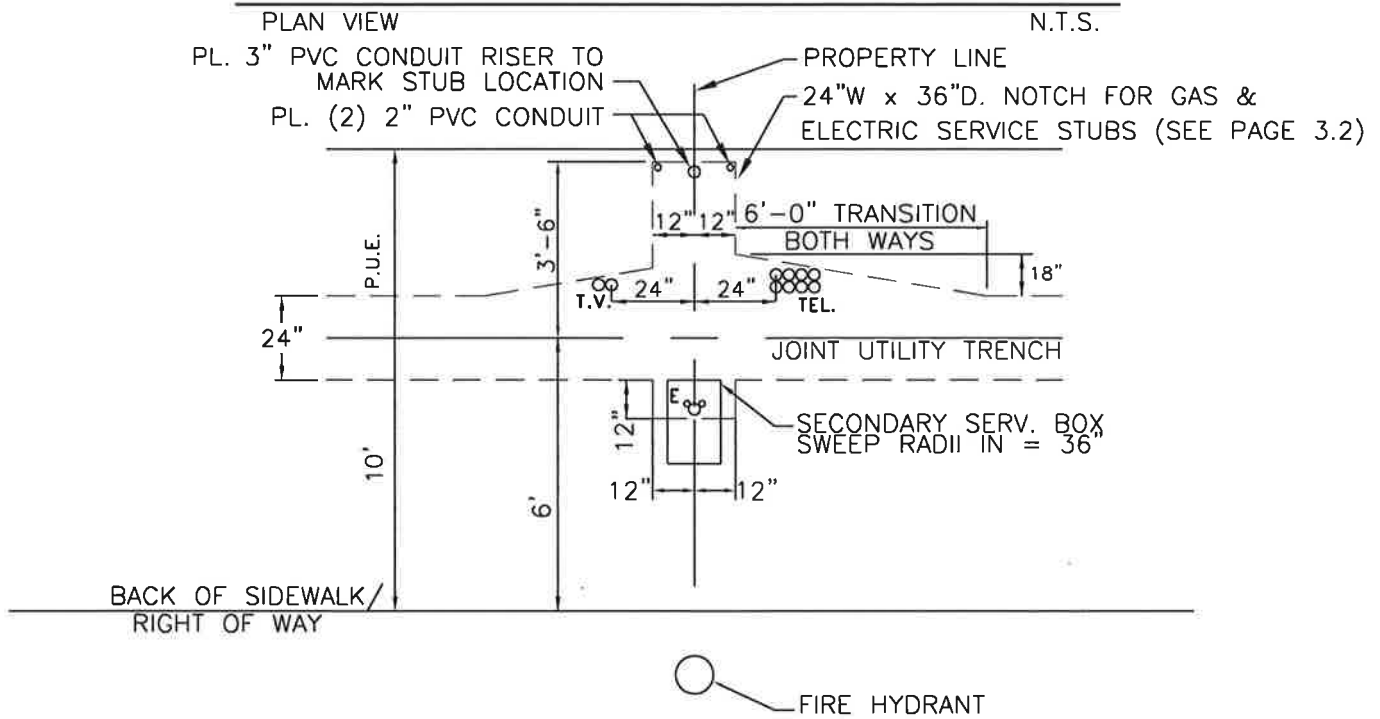
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DR.NO. **2.1.1**

SERVICE NOTCHES AT HYDRANT LOCATION ATTACHED SIDEWALK



SERVICE NOTCHES AT HYDRANT LOCATION DETACHED SIDEWALK



NOTES:

1. Service notches to be excavated to each utilities depth at the joint trench.

ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH. SUPERVISOR

SERVICE NOTCH EXCAVATION DETAILS

REVIEW COMMITTEE

DATE **02/09/18**

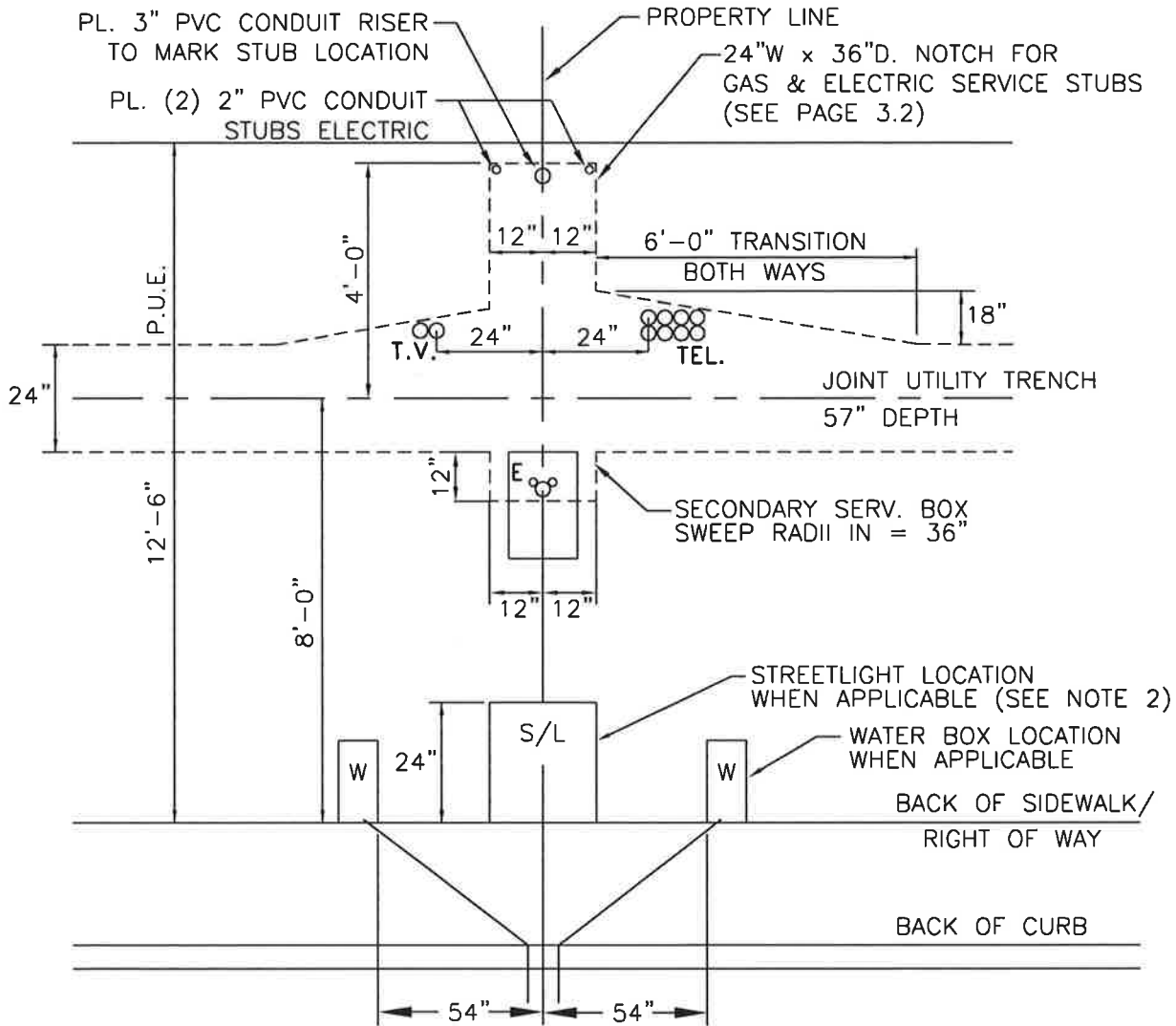
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ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

DR. NO. **2.2**

TYPICAL CENTER SERVICE NOTCHES ATTACHED SIDEWALK

PLAN VIEW

N.T.S.



NOTES:

1. Service notches to be excavated to each utilities depth at the joint trench.
2. The Developer shall be required to install a 1" conduit from the secondary service box to the back of sidewalk per the details on page 2.8 at all streetlight locations. In areas of hard soil conditions, the Developer shall be required to install a 1" conduit and sonit tube per the details on page 2.8.1 or 2.8.2 at all streetlight locations.

ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH. SUPERVISOR

SERVICE NOTCH EXCAVATION DETAILS- ATTACHED SIDEWALK

WLC | LR | JS | CST | M | R | 19m | DATE | 02/09/18

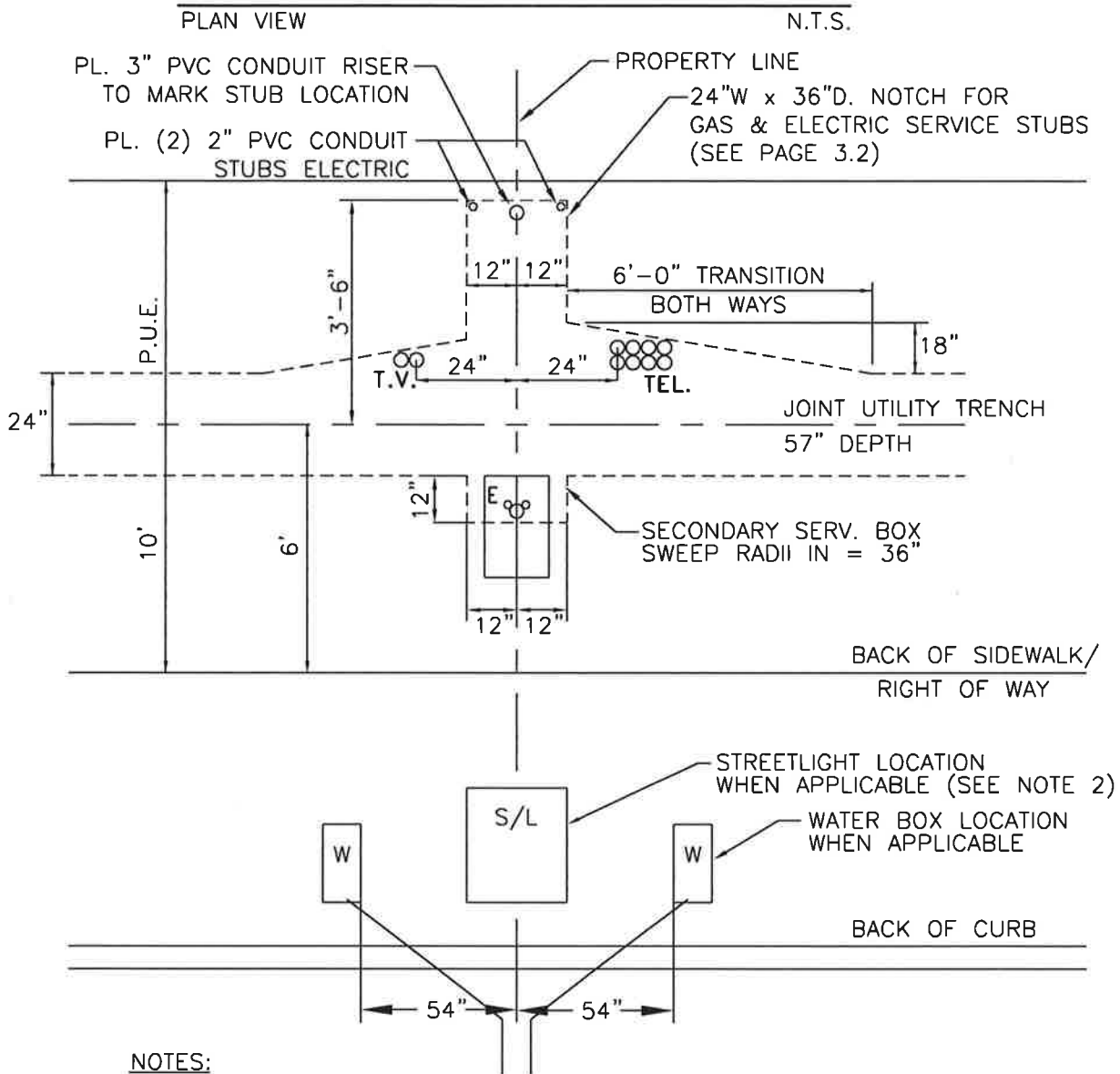
REVIEW COMMITTEE

DATE 02/09/18

**CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

DR. NO. 2.2.1

TYPICAL CENTER SERVICE NOTCHES DETACHED SIDEWALK



NOTES:

1. Service notches to be excavated to each utilities depth at the joint trench.
2. The Developer shall be required to install a 1" conduit from the secondary service box to the back of sidewalk per the details on page 2.8 at all streetlight locations. In areas of hard soil conditions, the Developer shall be required to install a 1" conduit and sonit tube per the details on page 2.8.1 or 2.8.2 at all streetlight locations.

ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH. SUPERVISOR

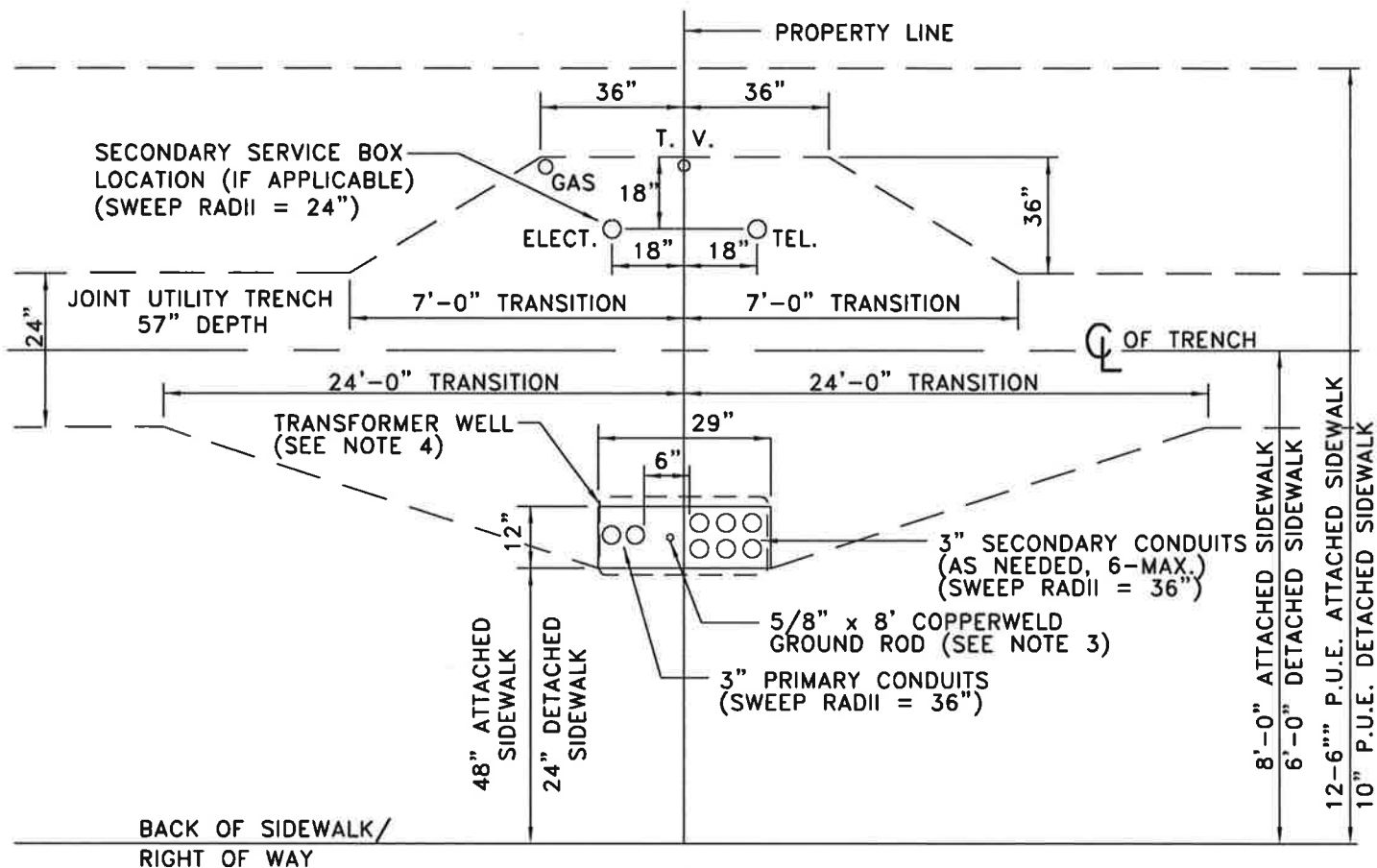
SERVICE NOTCH EXCAVATION DETAILS- DETACHED SIDEWALK

**CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

REVIEW COMMITTEE

DATE **02/09/18**

DR.NO. **2.2.2**



NOTES:

1. Developer to provide a clear level pad and retaining wall if necessary to meet the approval of the Roseville Electric inspector.
2. Backfill and compaction shall be in accordance with Page 1.2, note #11 of Roseville Electric's Specifications for Residential Construction. Disturbed earth under transformer pads shall be replaced with 12" of 3/4" A.B. material compacted in 6" lifts to prevent settlement. The Developer may be required to provide compaction reports from a certified soils testing firm if deemed necessary by a Roseville Electric inspector.
3. In hard soil conditions where the ground rod cannot be driven, the developer has the option of placing 35' of #4 bare copper strand wire. The #4 wire shall extend 5' above the finish elevation of the transformer pad and lay in the bottom of the trench for a minimum distance of 25'.
4. See Page 2.3.1 for transformer well requirements.
5. Developer to refer to Civil Improvement Plans to determine if sidewalk is attached or detached to curb and gutter.

ENGINEERING MANAGER
 OPERATIONS MANAGER
 ENG. TECH. SUPERVISOR

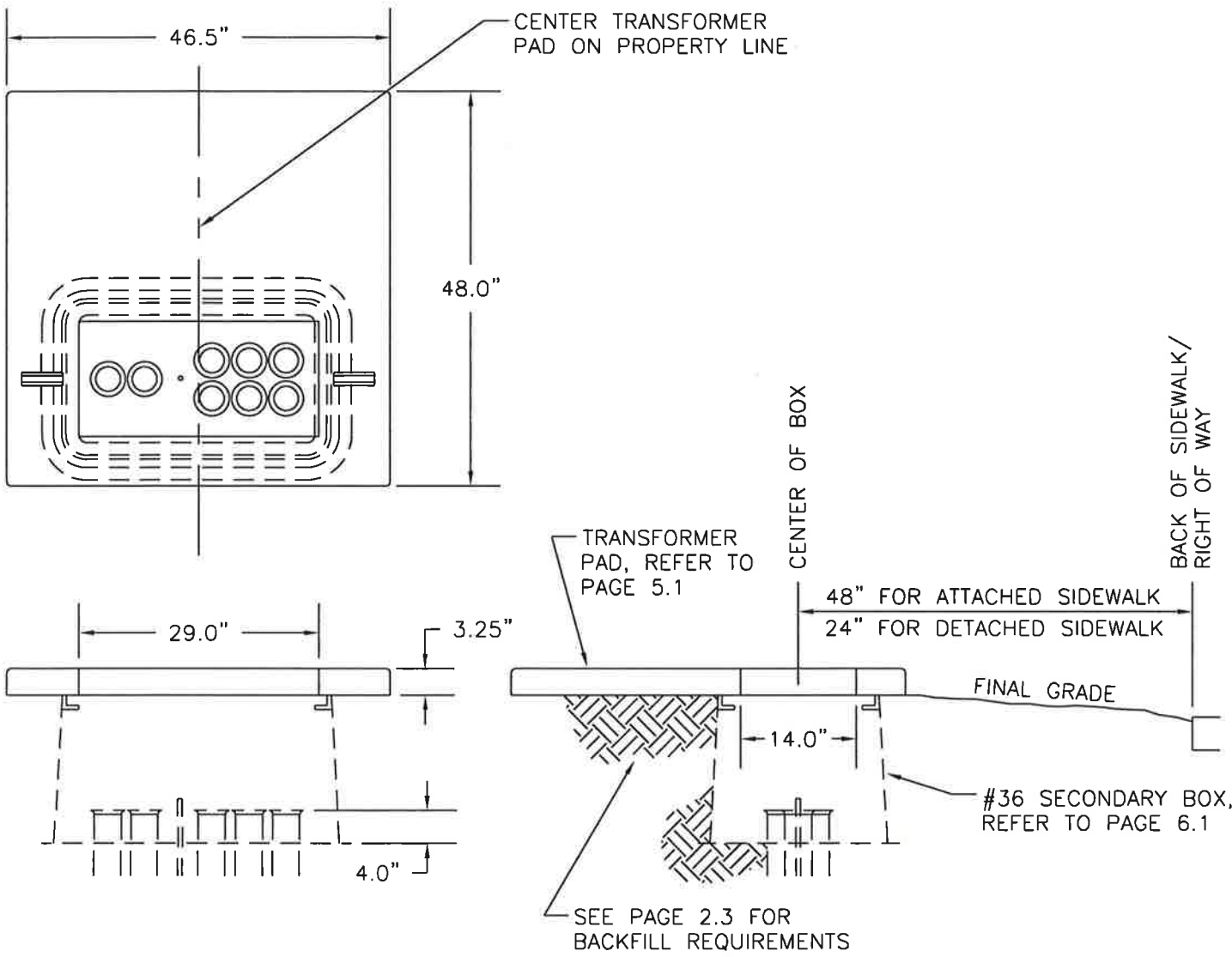
TRANSFORMER EXCAVATION DETAIL

**CITY OF ROSEVILLE
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 CONSTRUCTION STANDARD**

REVIEW COMMITTEE

DATE **02/09/18**

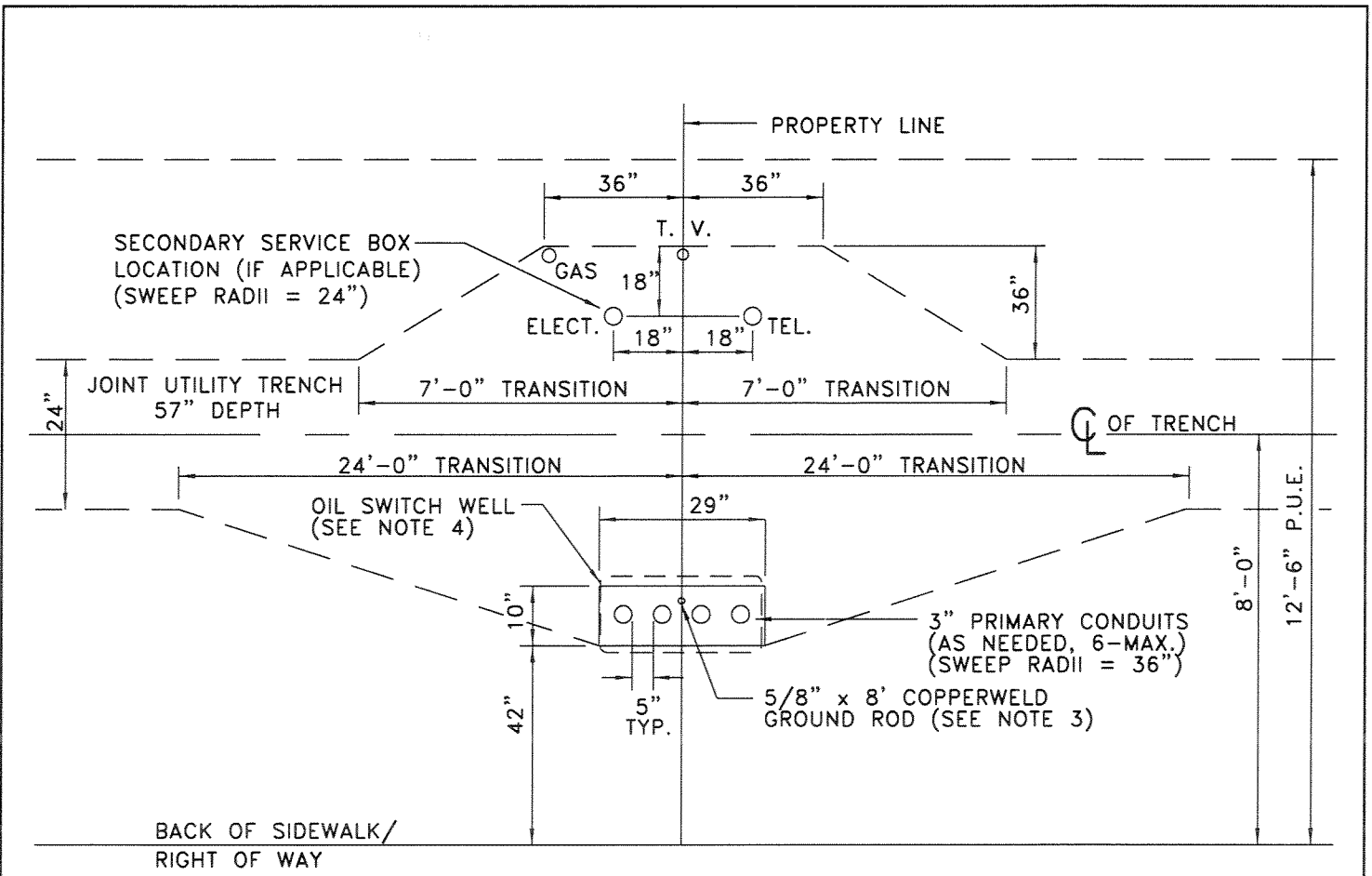
DR. NO. **2.3**



NOTES:

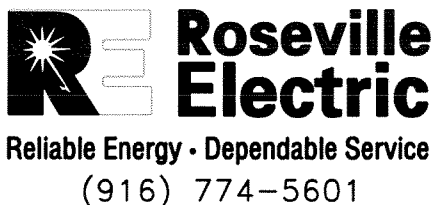
1. Conduits shall be terminated 4" above box floor with conduit end bells, temporarily capped.

ENGINEERING MANAGER	TRANSFORMER PAD INSTALLATION DETAILS				CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD
OPERATIONS MANAGER					
ENG. TECH. SUPERVISOR	[Signature]	[Signature]	[Signature]	[Signature]	DATE 02/09/18
REVIEW COMMITTEE					DR. NO. 2.3.1



NOTES:

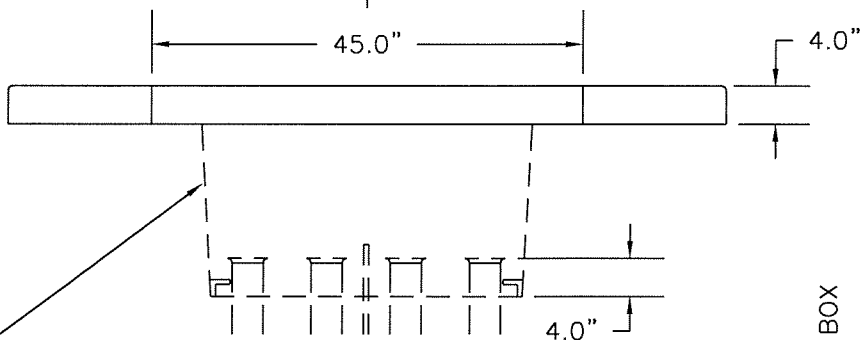
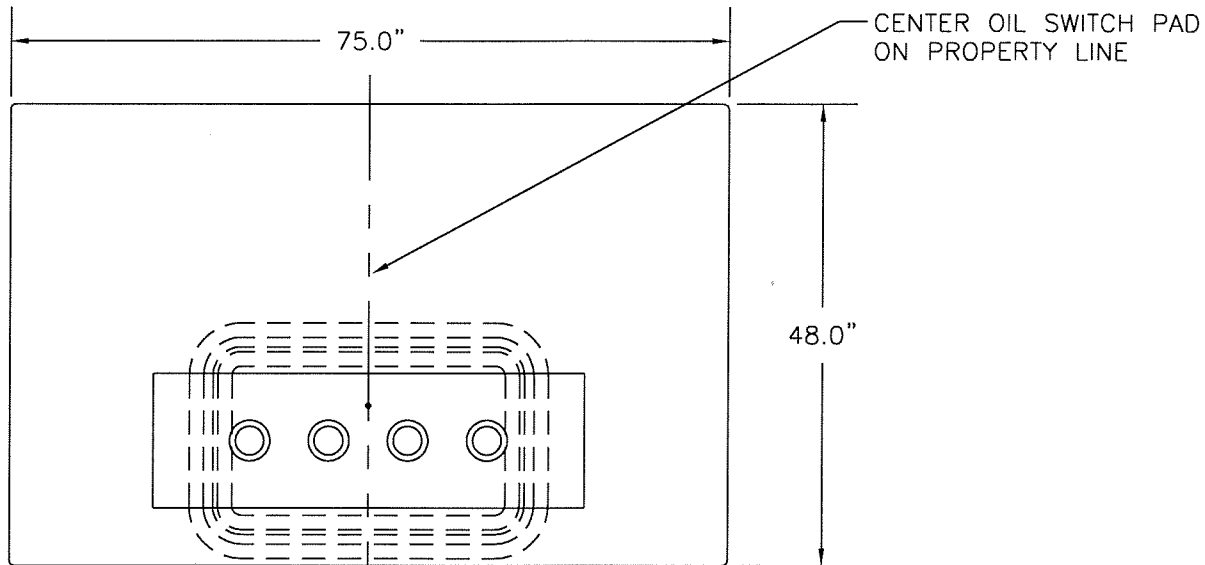
1. Developer to provide a clear level pad and retaining wall if necessary to meet the approval of the Roseville Electric inspector.
2. Backfill and compaction shall be in accordance with Page 1.2, note #11 of Roseville Electric's Specifications for Residential Construction. Disturbed earth under oil switch pads shall be replaced with 12" of 3/4" A.B. material compacted in 6" lifts to prevent settlement. The Developer may be required to provide compaction reports from a certified soils testing firm if deemed necessary by a Roseville Electric inspector.
3. In hard soil conditions where the ground rod cannot be driven, the developer has the option of placing 35' of #4 bare copper strand wire. The #4 wire shall extend 5' above the finish elevation of the oil switch pad and lay in the bottom of the trench for a minimum distance of 25'.
4. See Page 2.4.1 for oil switch well requirements.



ELECTRIC SUPERINTENDENT <i>Johnny McLaw</i>		REVIEW COMMITTEE	
POWER ENG. MANAGER		<i>TML</i>	<i>CM Son</i>
ELECTRONICS MANAGER		DR. MAH	DATE 3-25-05
		NEW SERVICES MANAGER	DR. NO.

PAGE 2.4

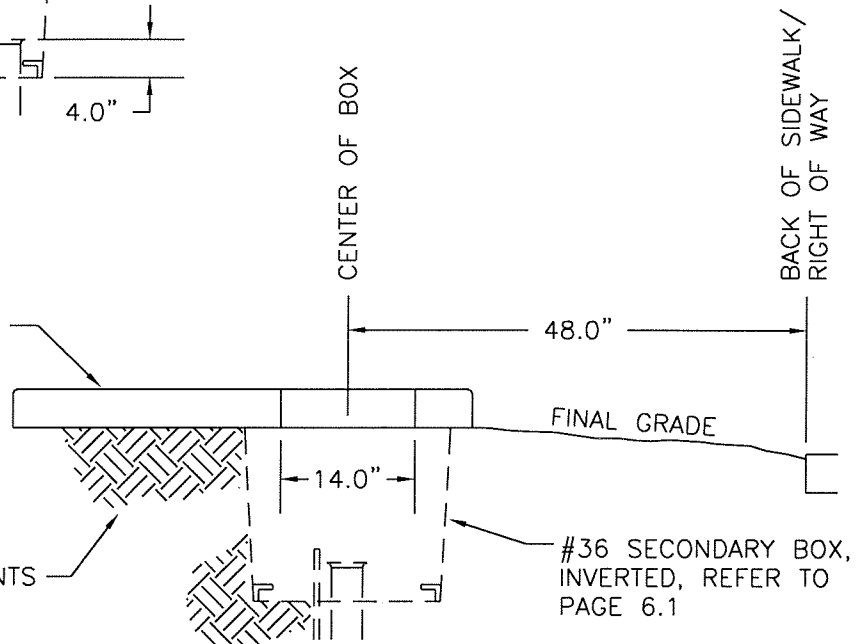
CONSTRUCTION STANDARD
**3 AND 4 WAY PADMOUNT OIL SWITCH
EXCAVATION DETAIL**



#36 SECONDARY BOX,
INVERTED, REFER TO
PAGE 6.1

OIL SWITCH PAD,
REFER TO PAGE 5.2

SEE PAGE 2.3 FOR
BACKFILL REQUIREMENTS



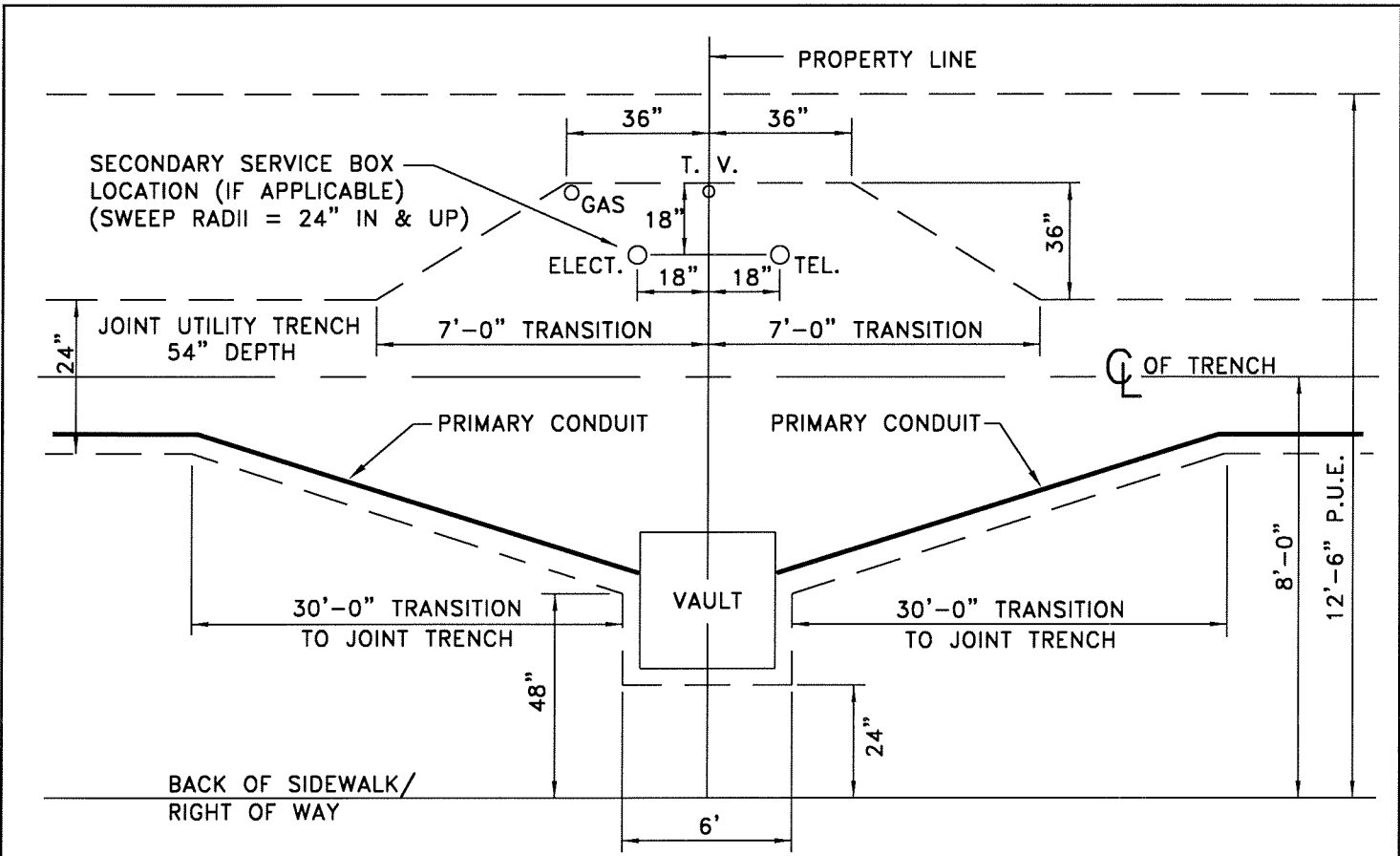
NOTES:

1. Conduits shall be terminated 4" above box floor with conduit end bells, temporarily capped.

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ELECTRIC SUPERINTENDENT <i>Tommy McHale</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>Tommy McHale</i>		DR. <i>RMC</i>	<i>Am</i>	<i>Jon</i>	<i>John</i>
ELECTRONICS MANAGER <i>Tommy McHale</i>		DATE 3-28-05	DR. NO. <i>MAH</i>		
		NEW SERVICES MANAGER <i>J. J. Moore</i>			PAGE 2.41
CONSTRUCTION STANDARD					

OIL SWITCH PAD INSTALLATION DETAILS




4'X4' PRIMARY JUNCTION BOX VAULT EXCAVATION DETAIL

N.T.S.

NOTES:

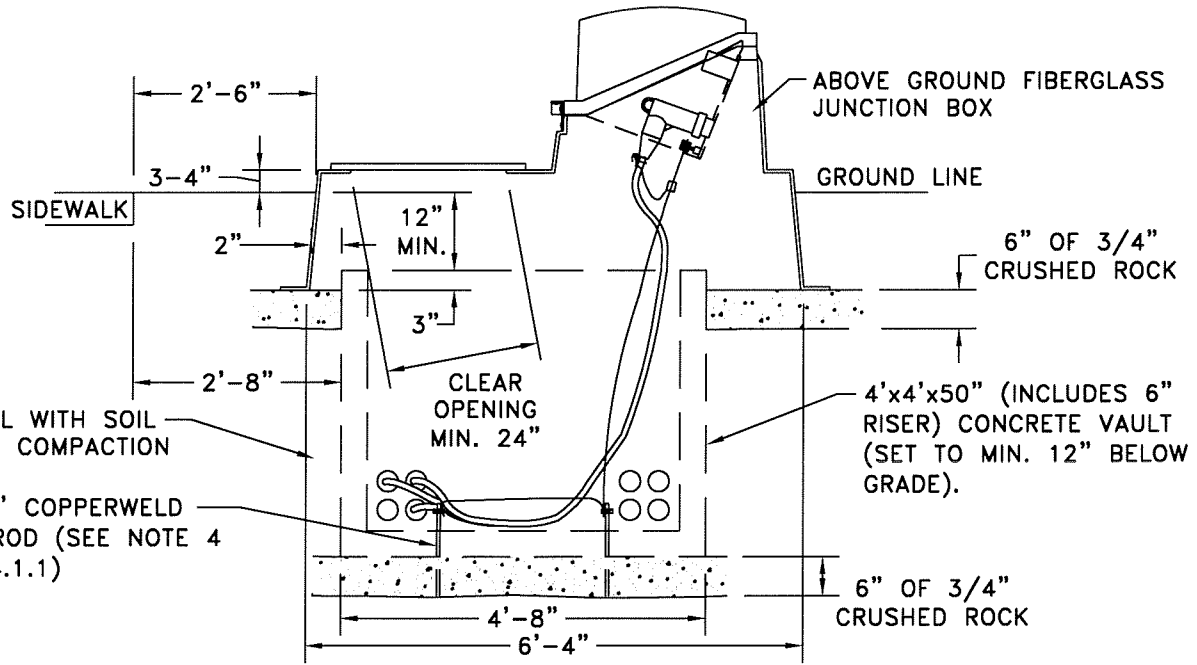
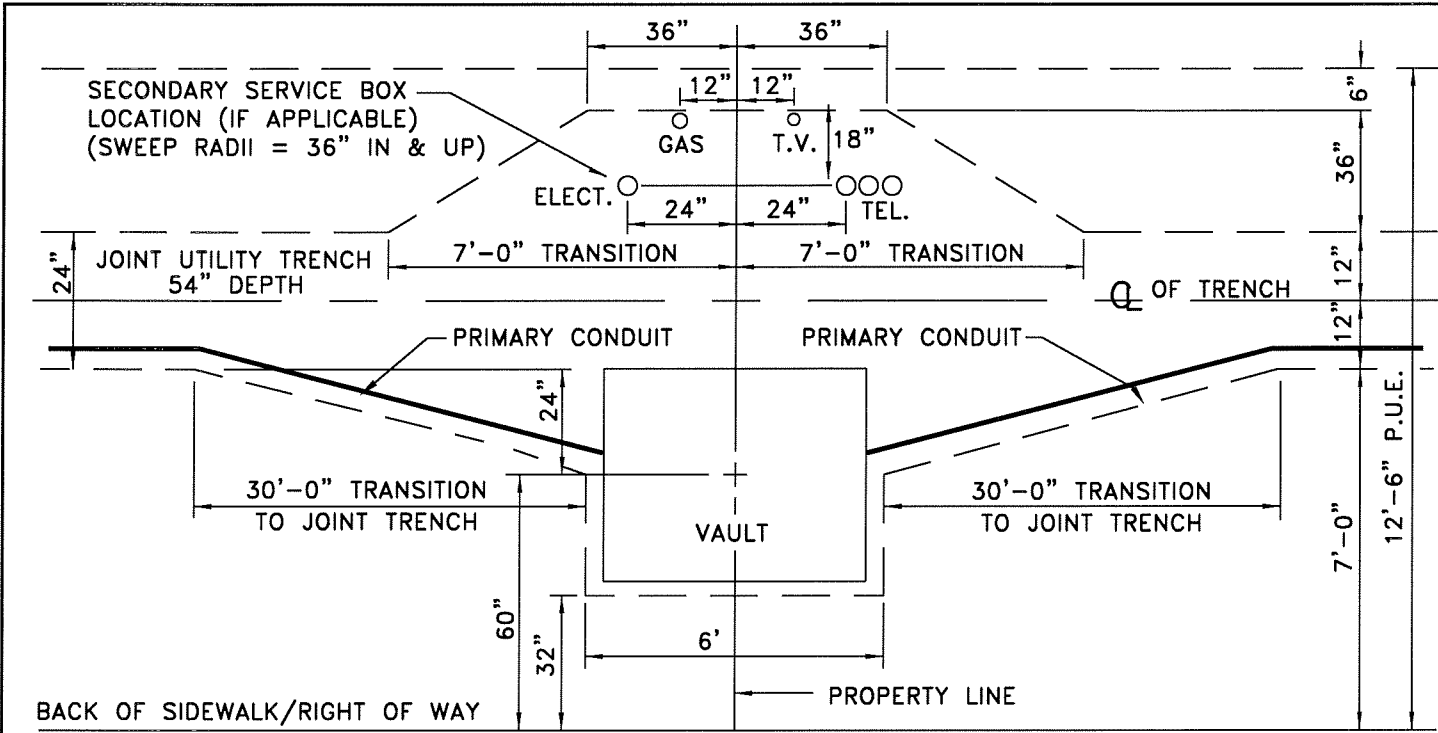
VAULT EXCAVATION TO BE 64" IN DEPTH.
 CONTRACTOR TO PLACE 6" OF 3/4" CRUSHED
 ROCK IN VAULT EXCAVATION. FINISH EXCAVATION
 58".
 EXACT VAULT HEIGHT DIMENSIONS MAY VARY
 BETWEEN MANUFACTURERS. VERIFY PRIOR TO
 INSTALLATION.

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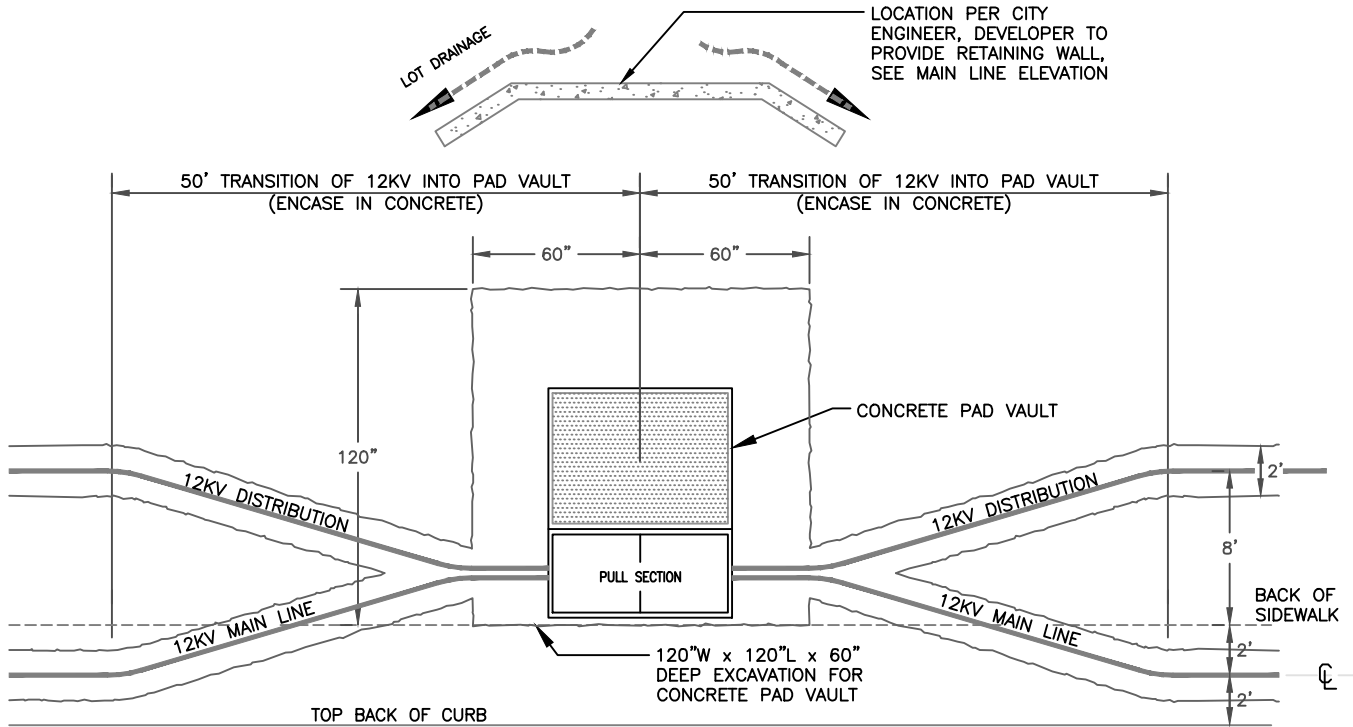
ELECTRIC SUPERINTENDENT <i>Jonny Michon</i> POWER ENG. MANAGER <i>Charles Clarke</i> ELECTRONIC SUPERINTENDENT <i>Tom</i>	REVIEW COMMITTEE <i>MAH</i> <i>MAH</i> <i>MAH</i> <i>MAH</i> DR. MAH DATE 11-20-01 DR.NO. NEW SERVICES MANAGER <i>Tom</i> CONSTRUCTION STANDARD
--	--



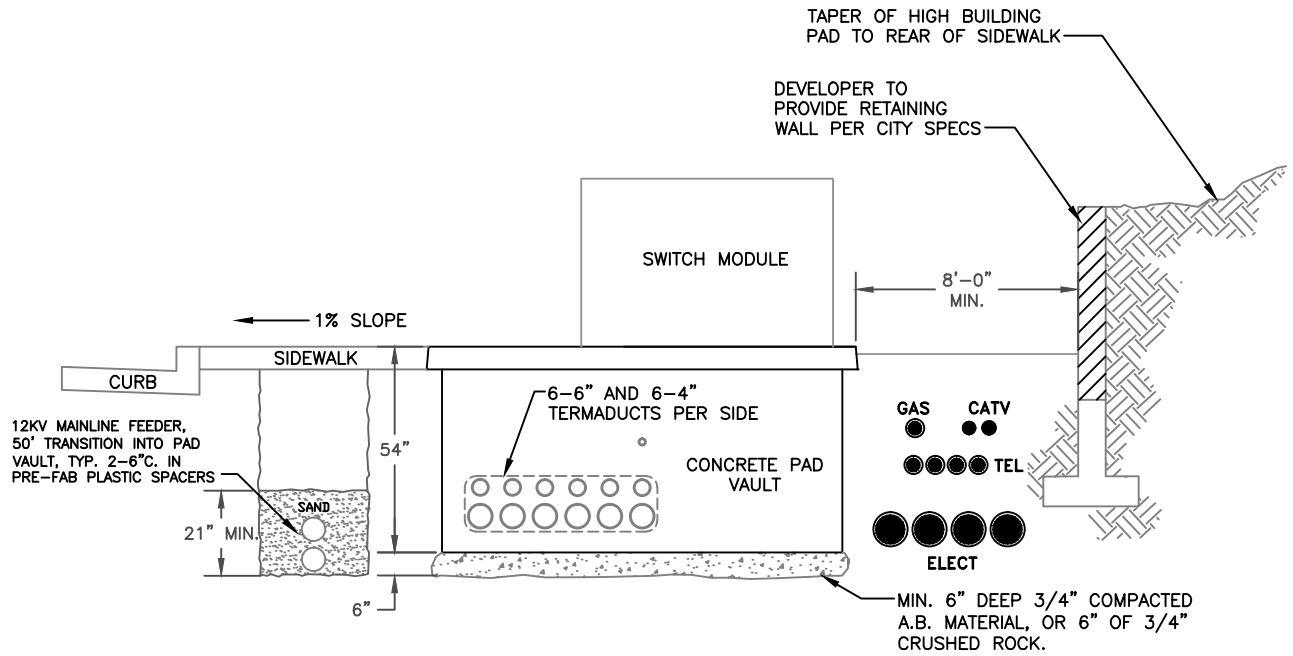
NOTES:

1. Vault excavation to be 68" in depth. Contractor to place 6" of 3/4" crushed rock in vault excavation. Finish excavation 62". Exact vault dimensions may vary between manufacturers. Verify prior to installation.
2. Developer to provide a clear level pad and retaining wall if necessary to meet the approval of the Roseville Electric inspector.
3. Above ground portion of Junction Box will be supplied by Roseville Electric and installed by developer. Developer supplies and installs the 4'x4' concrete vault and grounding.
4. In hard soil conditions where the ground rod cannot be driven, the Developer has the option of placing 35' of #4 bare copper strand wire. See page 4.1.1.

ELECTRIC SUPERINTENDENT <i>A. Bauer</i>		REVIEW COMMITTEE	
POWER ENG. MANAGER <i>Chadwick</i>		DR. MAH	DATE 5-15-02
ELECTRONIC SUPERINTENDENT <i>Ph. G. J.</i>		NEW SERVICES MANAGER <i>Jim Moore</i>	
CONSTRUCTION STANDARD			
ABOVE GROUND JUNCTION BOX EXCAVATION AND INSTALLATION DETAIL			



PLAN

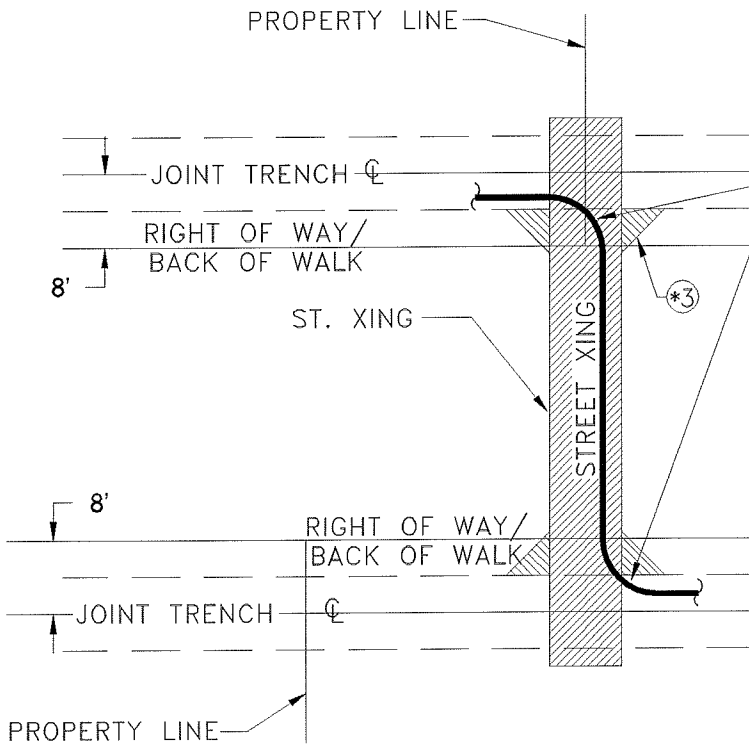


* 8' MIN. CLEARANCE AT SWITCH MODULE DOORS, 4' MIN. CLEARANCE AT SIDES OF SWITCH MODULE FROM WALLS, BUILDINGS, PLANTERS, OR DIRT EMBANKMENTS. SLOPES TO BE 2% MAX. WITHIN THESE AREAS

ELEVATION

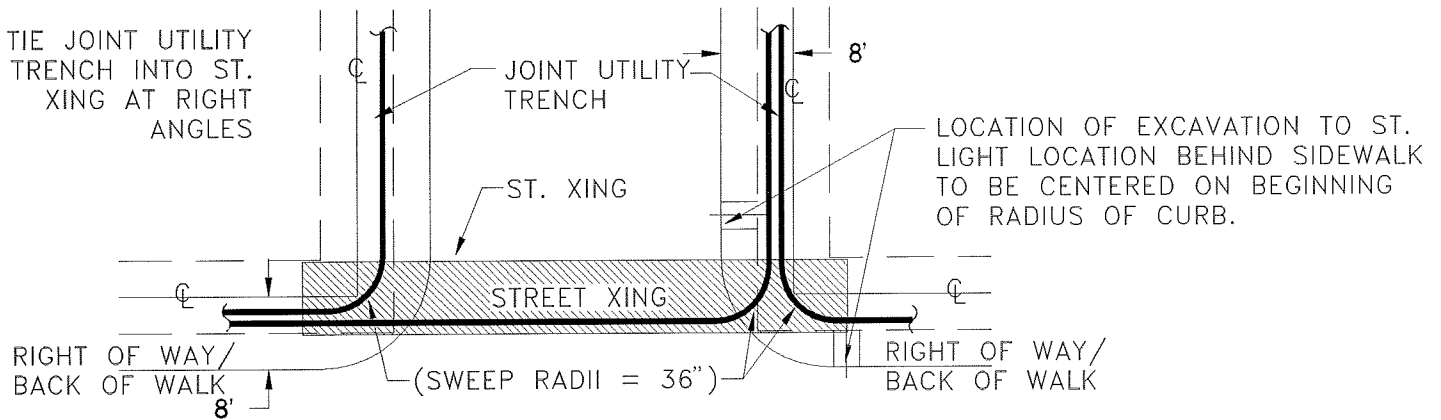
ENGINEERING MANAGER	RESIDENTIAL MAINLINE MODULE EXCAVATION DETAIL						CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD									
OPERATIONS MANAGER								<table border="1"> <tr> <td>WES</td> <td>CP</td> <td>Tm</td> <td>Qm</td> <td>ML</td> <td>RF</td> <td>ML</td> </tr> <tr> <td colspan="7">REVIEW COMMITTEE</td> </tr> </table>	WES	CP	Tm	Qm	ML	RF	ML	REVIEW COMMITTEE
WES	CP	Tm	Qm	ML	RF	ML										
REVIEW COMMITTEE																
ENGINEER SUPERVISOR	DATE 06/20/13															

STREET XING AT MID-BLOCK DETAIL



- NOTES:
THIS DETAIL SHALL BE FOLLOWED UNLESS OTHERWISE NOTED OR SHOWN ON UTILITY IMPROVEMENT PLANS.
1. ST. XING SHALL BE 24" WIDE & 57" DEEP FROM TOP BACK GRADE OF SIDEWALK.
 2. ST. XING AT MID-BLOCK WILL BE AT RIGHT ANGLES TO JOINT TRENCH.
 - *3. ST. XING AT MID BLOCK TO BE EXCAVATED TO BACK OF SIDEWALK, CONDUITS EXPOSED A MIN. 24" & ENDS CUT SQUARE, EXCAVATE THE CORNERS WHERE XING TRENCH MEETS JOINT TRENCH AT A 45° ANGLE A MIN. 24" TO ALLOW PROPER INSTALLATION OF 90° CONDUIT SWEEPS.

STREET XING AT STREET INTERSECTION + JOINT UTILITY TRENCH TIE IN DETAIL



1. ST. XINGS ARE TO BE PLACED BEFORE CURB & SIDEWALK ARE FORMED AND AFTER STREET SUBGRADE HAS BEEN ACCOMPLISHED.
2. ST. XINGS SHALL BE 24" WIDE & 57" DEEP FROM TOP BACK OF SIDEWALK.
3. IF IN EXCAVATION, A SHALLOW OBJECT IS ENCOUNTERED (WATER OR SEWER MAIN), AN EXCAVATION SHALL BE MADE UNDERNEATH THE OBJECT. (SEE NOTE #12 PAGE 1.2.1).
4. SUBDIVISION CONTRACTOR SHALL EXPOSE & EXCAVATE TRANSITIONS TO ALLOW PROPER INSTALLATION OF 90° CONDUIT SWEEPS FOR A MIN. 24" OF ST. XING CONDUIT WHEN JOINT UTILITY TRENCHES ARE EXCAVATED INTO A BACKFILLED STREET XING.
5. MISALIGNMENT OF EITHER A VERTICAL PLANE OR A HORIZONTAL PLANE TIE IN OF JOINT UTILITY TRENCHES INTO INTERSECTION ST. XING SHALL BE CAUSE FOR REJECTION OF TRENCH BY UTILITIES. SUBDIVISION CONTRACTOR SHALL BE REQUIRED TO BORE A NEW CROSSING TO ACHIEVE A PROPER ALIGNMENT.



ELECTRIC
DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT

John McLean
POWER ENG. MANAGER

ELECTRONIC SUPERINTENDENT

Bob...

REVIEW COMMITTEE

MJB

DJB

Bill...

DR. MAH

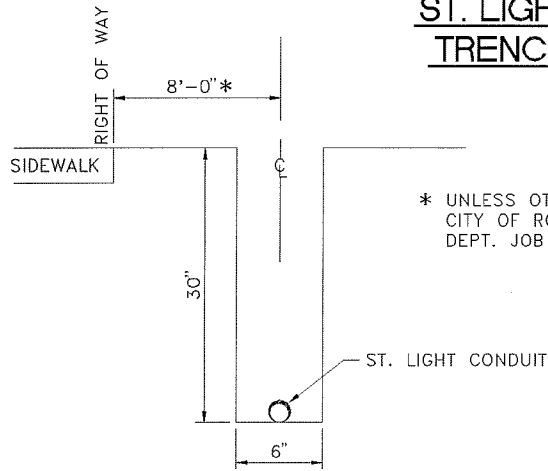
DATE 04-15-96

DR.NO.

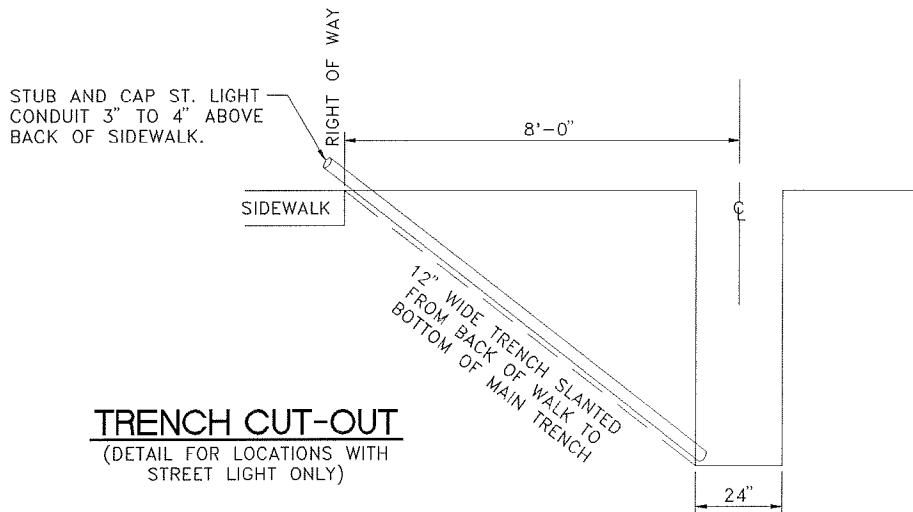
NEW SERVICES MANAGER
TRAC FOR Tim Moore
CONSTRUCTION STANDARD

PAGE 27

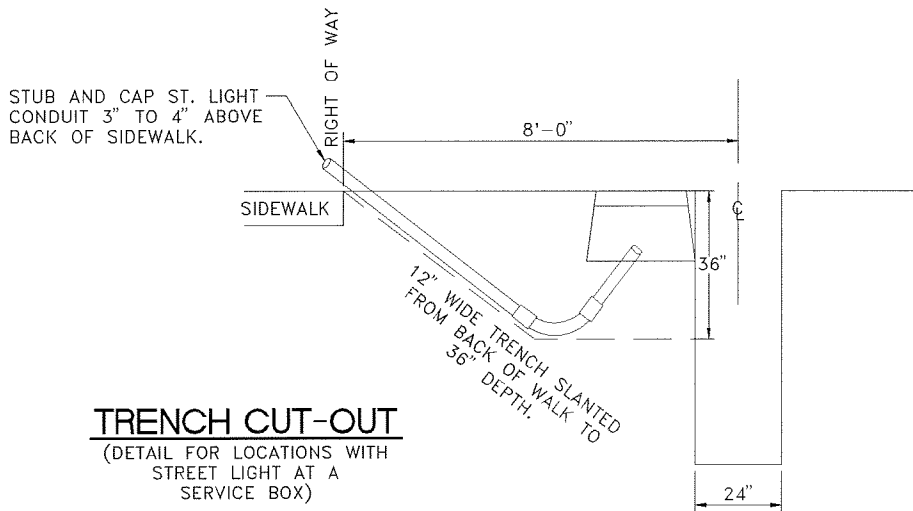
ST. LIGHT SYSTEM TRENCH DETAIL



* UNLESS OTHERWISE NOTED ON CITY OF ROSEVILLE ELECTRIC DEPT. JOB MAP.



TRENCH CUT-OUT
(DETAIL FOR LOCATIONS WITH STREET LIGHT ONLY)



TRENCH CUT-OUT
(DETAIL FOR LOCATIONS WITH STREET LIGHT AT A SERVICE BOX)



**ELECTRIC
DEPARTMENT**

(916) 774-5601

ELECTRIC SUPERINTENDENT

Johnny McChaw
POWER ENG. MANAGER

ELECTRONIC SUPERINTENDENT

John A. ...

REVIEW COMMITTEE

mjb *DJR* *RUC* *JSB*

DR. MAH DATE 04-15-96

DR.NO.

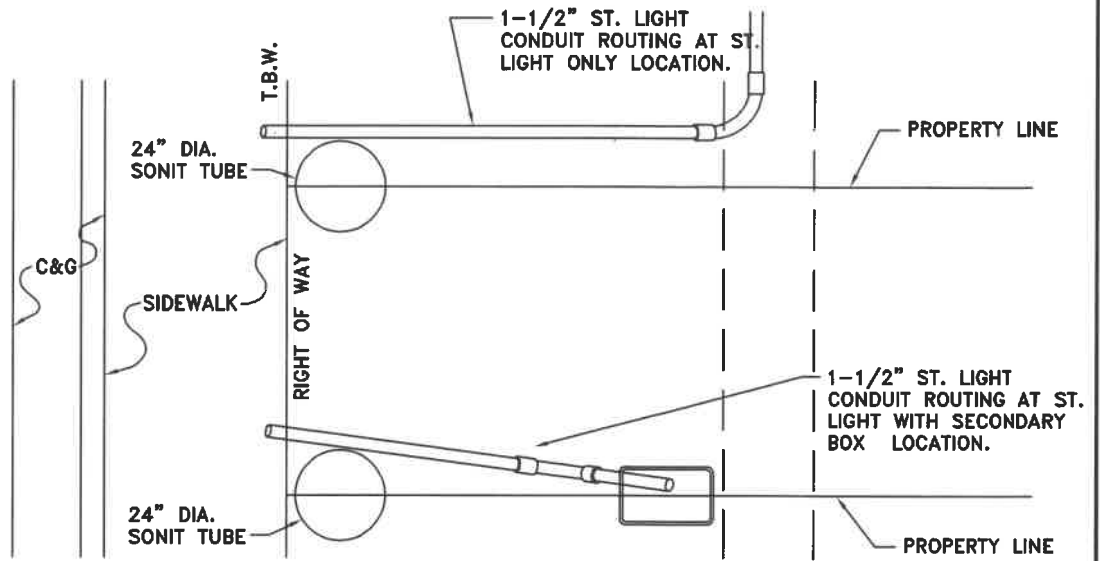
NEW SERVICES MANAGER
RMC For Tim Moore

PAGE 28

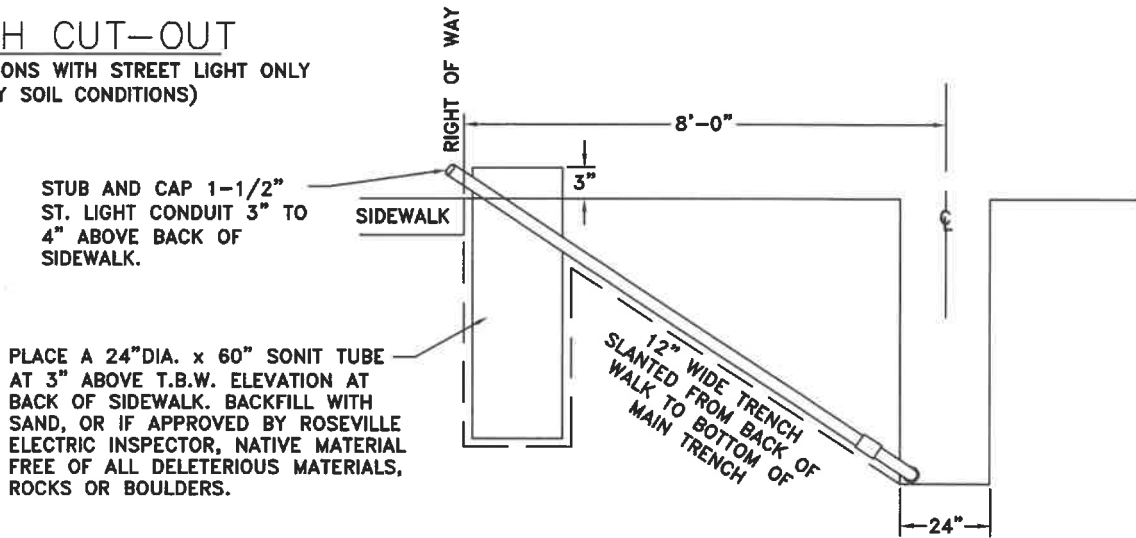
CONSTRUCTION STANDARD

RESIDENTIAL TRENCHING SPECIFICATIONS

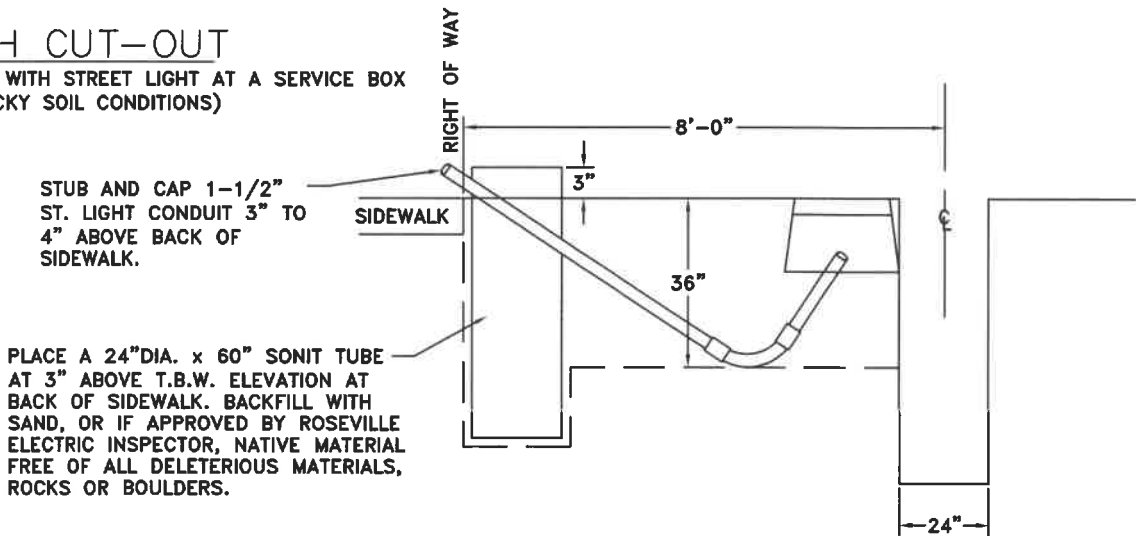
ST. LIGHT SYSTEM PLAN VIEW



TRENCH CUT-OUT (DETAIL FOR LOCATIONS WITH STREET LIGHT ONLY IN ROCKY SOIL CONDITIONS)



TRENCH CUT-OUT (DETAIL FOR LOCATIONS WITH STREET LIGHT AT A SERVICE BOX IN ROCKY SOIL CONDITIONS)



ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

RESIDENTIAL STREET LIGHT SPECIFICATIONS FOR HARD SOIL CONDITIONS

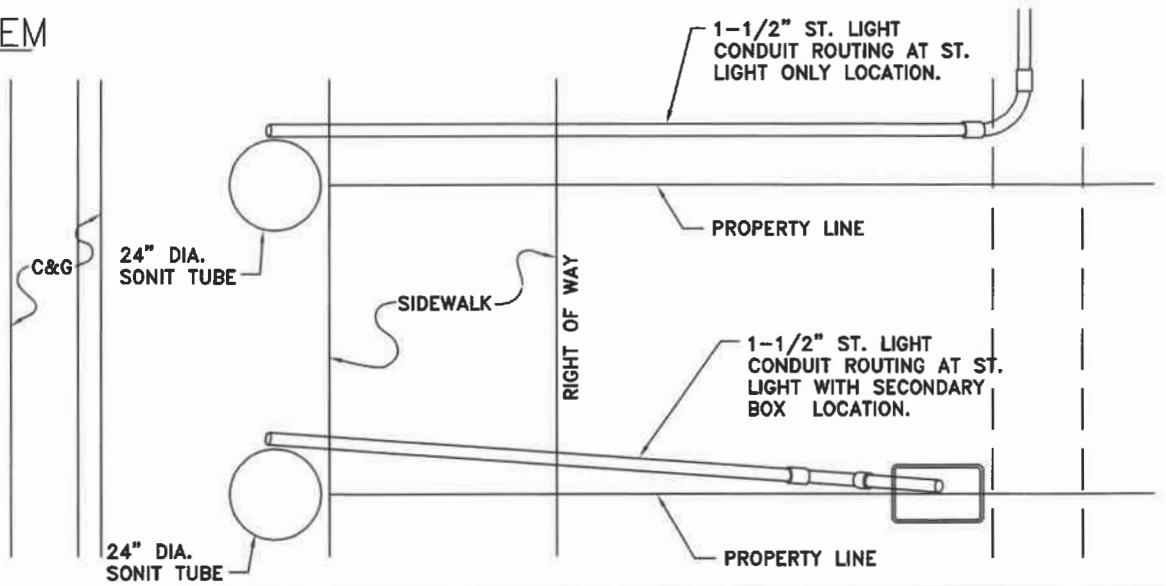
CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

REVIEW COMMITTEE

DATE 02/06/20

DR.NO. PAGE 2.8.1

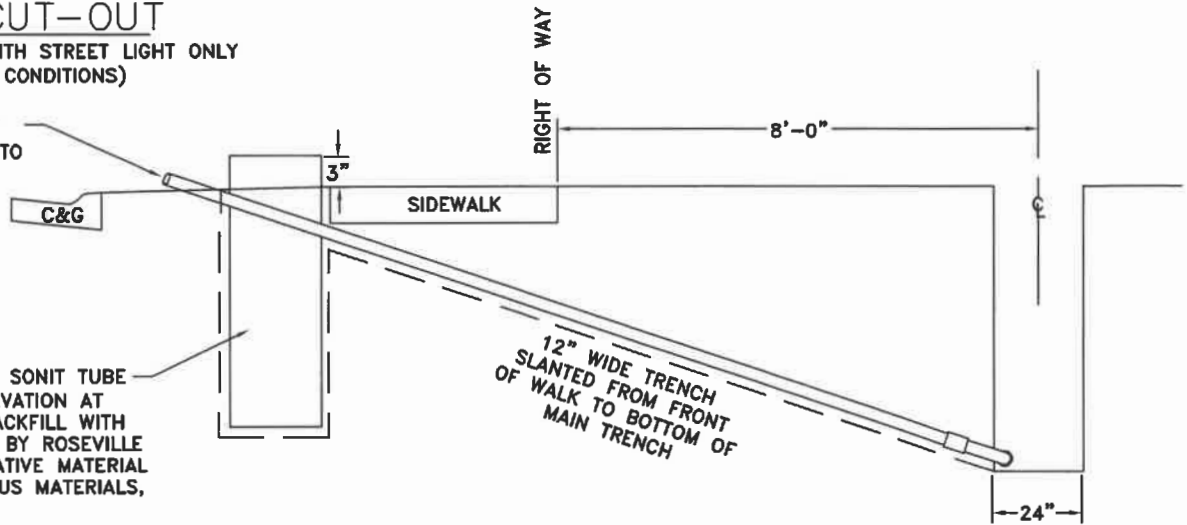
ST. LIGHT SYSTEM PLAN VIEW



TRENCH CUT-OUT

(DETAIL FOR LOCATIONS WITH STREET LIGHT ONLY
IN ROCKY SOIL CONDITIONS)

STUB AND CAP 1-1/2"
ST. LIGHT CONDUIT 3" TO
4" ABOVE FRONT OF
SIDEWALK.

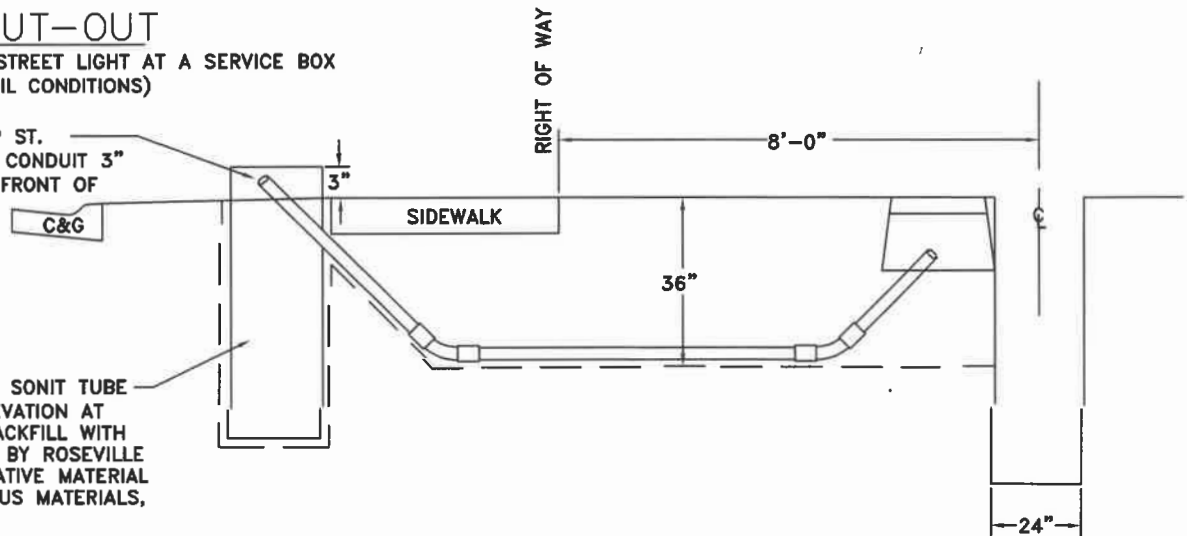


PLACE A 24"DIA. x 60" SONIT TUBE
AT 3" ABOVE WALK ELEVATION AT
FRONT OF SIDEWALK. BACKFILL WITH
SAND, OR IF APPROVED BY ROSEVILLE
ELECTRIC INSPECTOR, NATIVE MATERIAL
FREE OF ALL DELETERIOUS MATERIALS,
ROCKS OR BOULDERS.

TRENCH CUT-OUT

(DETAIL FOR LOCATIONS WITH STREET LIGHT AT A SERVICE BOX
IN ROCKY SOIL CONDITIONS)

STUB AND CAP ST.
1-1/2" LIGHT CONDUIT 3"
TO 4" ABOVE FRONT OF
SIDEWALK.



PLACE A 24"DIA. x 60" SONIT TUBE
AT 3" ABOVE WALK ELEVATION AT
FRONT OF SIDEWALK. BACKFILL WITH
SAND, OR IF APPROVED BY ROSEVILLE
ELECTRIC INSPECTOR, NATIVE MATERIAL
FREE OF ALL DELETERIOUS MATERIALS,
ROCKS OR BOULDERS.

ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

RESIDENTIAL STREET LIGHT SPECIFICATIONS FOR HARD SOIL CONDITIONS - DETACHED SIDEWALKS

REVIEW COMMITTEE

DATE 02/06/20

CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

DR. NO. PAGE 2.8.2



Lighting fixture to be post top decorative 100w (equivalent) LED. Maximo Part number 10572 per approved Roseville Electric Lighting Specifications.

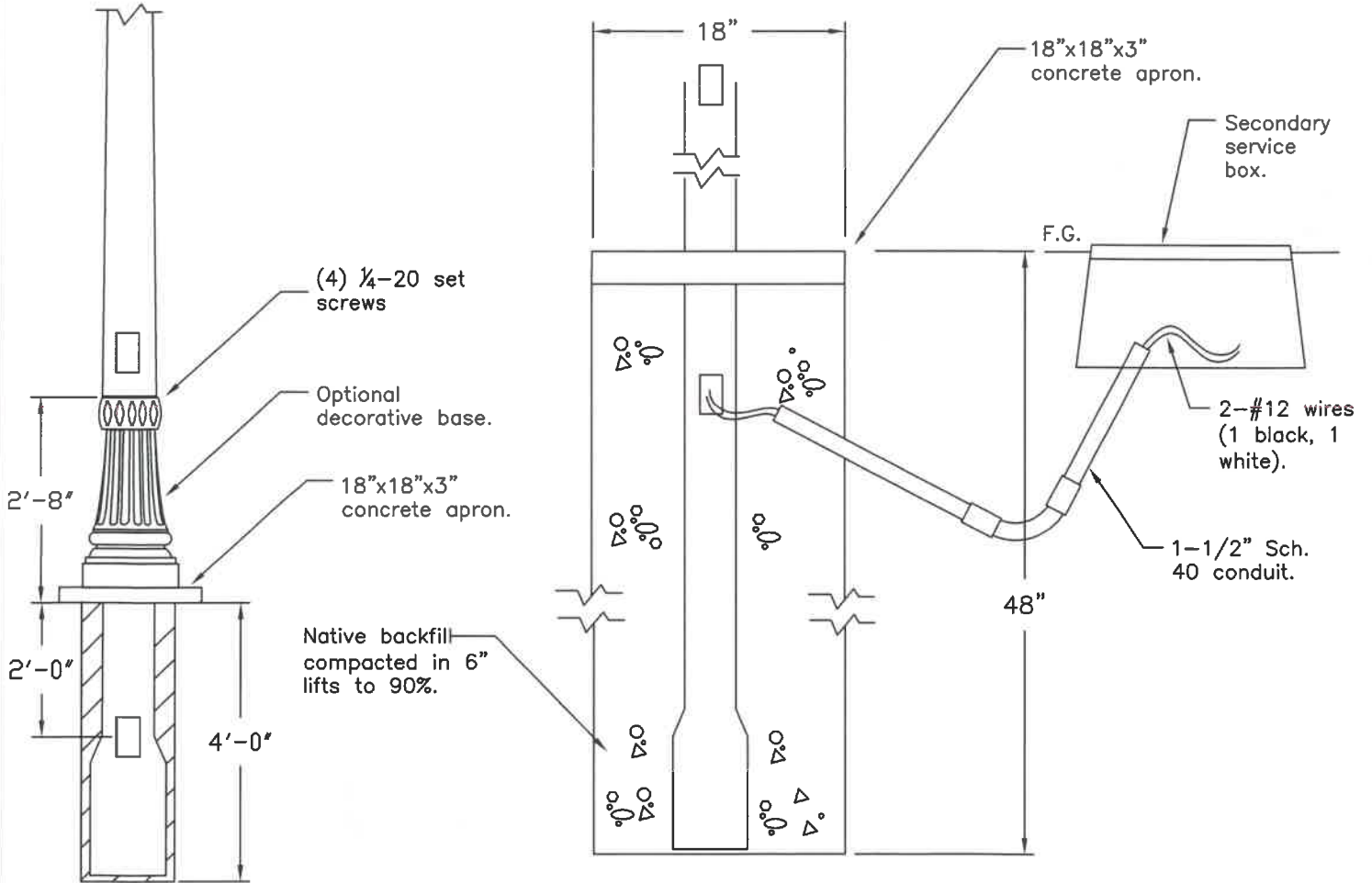
Install 2-#12 conductors (1 black, 1 white) from secondary service box to Luminaire.

100W DECORATIVE STREET LIGHT POLE STANDARD:

1. Pole base shall be Whatley model: TS34-306-20-DE-BLK-SMS-30-30 (Roseville stock#10481) smooth round tapered direct embedded fiberglass pole with optional decorative base. (BC-306-BLACK, Roseville stock#10482)
2. All poles shall be black in color.

DEVELOPER RESPONSIBILITY:

1. Developer shall install lighting conduit system per Roseville Electric Department job print.



ENGINEERING MANAGER
 OPERATIONS MANAGER
 ENG. TECH SUPERVISOR

**100W RESIDENTIAL DECORATIVE STREET LIGHT
 INSTALLATION SPECIFICATION**

REVIEW COMMITTEE

DATE **02/06/20**

**CITY OF ROSEVILLE
 ROSEVILLE ELECTRIC
 CONSTRUCTION STANDARD**
 DR.NO. **2.8.3**

POWER CONDUIT RUNS:

The number and size of all conduits to be installed on any project is determined solely by the Roseville Electric Job Print.

CONDUIT TYPES:

All 3", 4" and 6" Conduits shall PVC - Power and Communications, type D.B., Rated for 90°C., TC-8, DB-120 ASTM F512, Heavy Wall, . Conduits up to 2" shall be minimum Schedule 40 PVC

COUPLINGS:

Shall be minimum Schedule 40 long type PVC (except for end bell couplings provided on a P&C Conduit)

SOLVENT AND GLUING OF CONDUIT:

Shall be in accordance with ASTM - 2564 for PVC.

CONDUIT TERMINATORS:

Conduits shall be terminated in all concrete Manholes, Pad Vaults, Pull Boxes and J-Boxes with precast termaduct terminators (See Detail C, Page 2.2). For existing structures without precast termaducts, conduits shall be installed with end bells grouted in place flush with interior walls. (See Detail B, Page 2.2)

CONDUIT SWEEPS AND BENDS:

All sweeps with a radius of less than 15' shall be of prefab construction and be a minimum schedule 40. No field bent sweeps with a radius of less than 15' are allowed. The minimum sweep radius shall be per the Roseville Electric job print or the chart below, whichever is greater:

- 6" Conduit = 60" Radius (VERTICAL), 120" (HORIZONTAL)
- 4" Conduit = 48" Radius
- 3" Conduit = 36" Radius
- 1-1/2" Conduit = 18" Radius

No conduit run shall have more than a total of 360 degrees of bend unless specified by the Roseville Electric job print.

CONCRETE ENCASEMENT:

Conduits requiring concrete encasement shall be a minimum of two-sack sand slurry per Caltrans Standard Spec 19-3.062. The conduit shall have a minimum of 3" surrounding all sides of the conduit. Concrete encasement may be approved by inspector for shallow trench sections.

CONDUIT PROVING:

All conduits shall be blown free of water and debris. All 1-1/2", 3", 4" and 6" conduits shall be provided with an approved pull tape. All conduits shall be proven with a Roseville Electric Department personnel observing. Use a proving Mandrel equal to 80% of the conduits diameter (Mandrel supplied by Roseville Electric).

CONDUIT MEASURING PULL TAPE:

Pull tape shall:

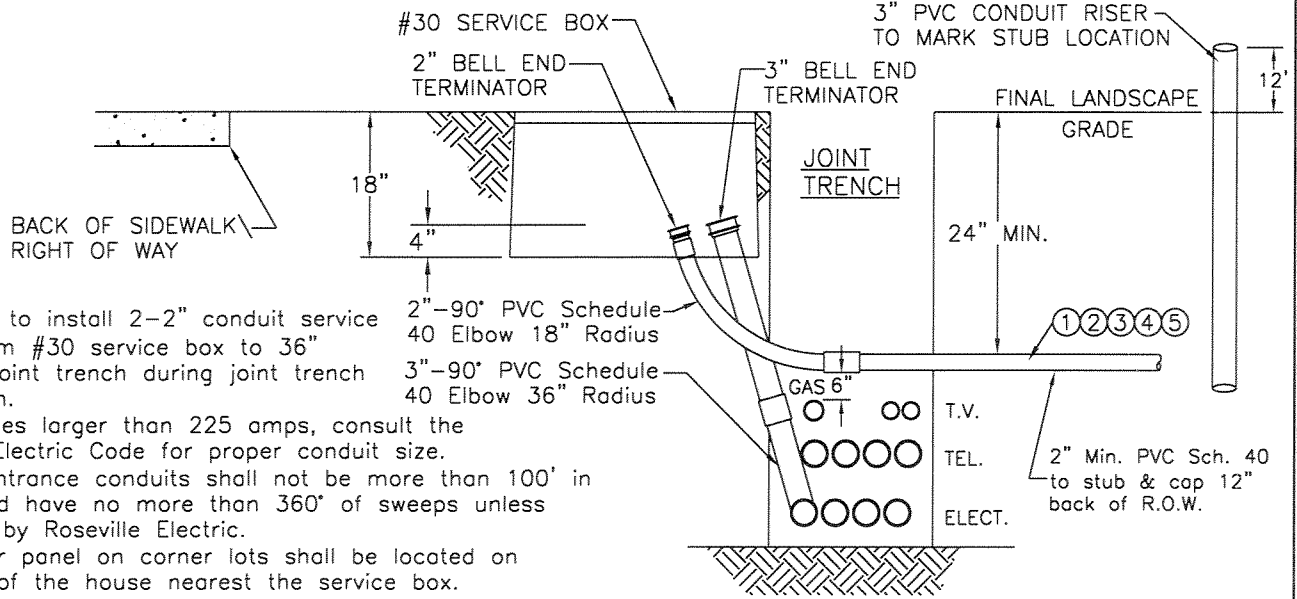
- Be made from or 1/2" Polyester.
- Have a minimum strength of 1800 lbs.
- Be one continuous length (no splices)
- Be pre-lubricated.
- Be printed with footage markings.
- Have a minimum of 22 Gauge Detectable Copper Conductor

The pull tap shall extend 10' past end of conduit.

CONDUIT BANKS:

Conduit Banks larger than 2 ducts shall be constructed with the use of pre fabricated spacers, (See Detail A, Page 2.2), placed at a minimum of 10'-0" O.C. to maintain spacing shown by details on Job Map.

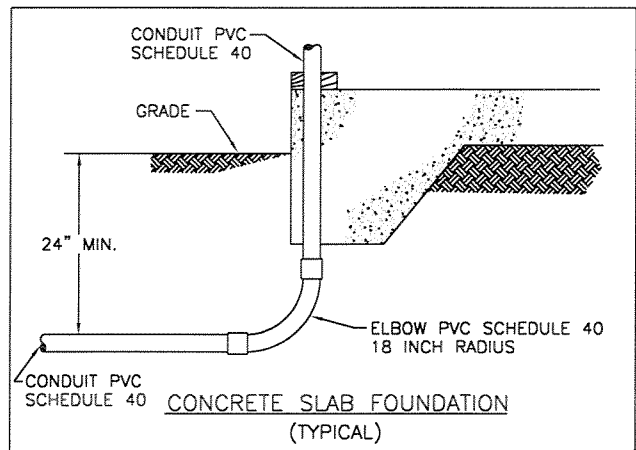
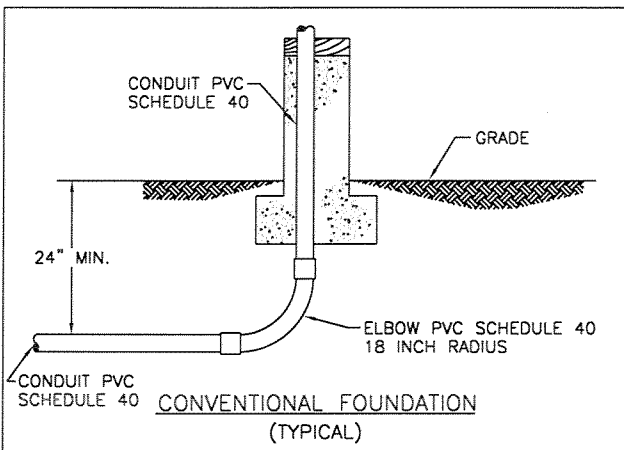
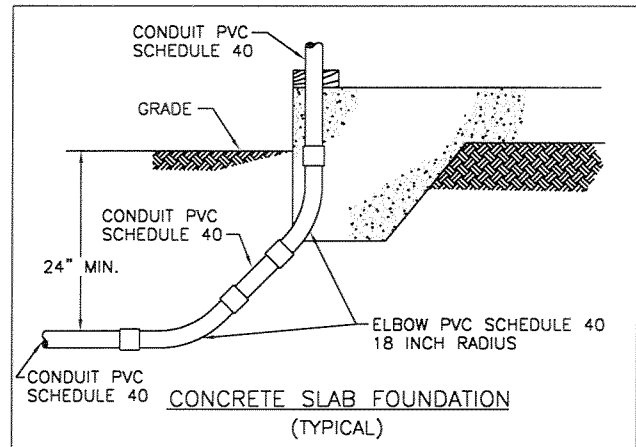
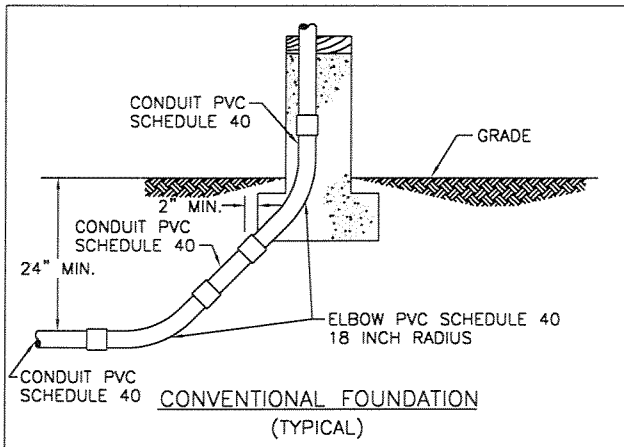
ENGINEERING MANAGER <i>Chris Porter</i>	CONDUIT REQUIREMENTS AND SPECIFICATIONS						CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD		
OPERATIONS MANAGER <i>[Signature]</i>								AK	JB
ENG. TECH. SUPERVISOR <i>Joseph McKinney</i>	REVIEW COMMITTEE								



NOTES:

- ① Developer to install 2-2" conduit service stubs from #30 service box to 36" back of joint trench during joint trench installation.
- ② For services larger than 225 amps, consult the National Electric Code for proper conduit size.
- ③ Service entrance conduits shall not be more than 100' in length and have no more than 360' of sweeps unless approved by Roseville Electric.
- ④ The meter panel on corner lots shall be located on the side of the house nearest the service box.
- ⑤ The total length of the secondary run from the transformer to the meter panel shall not exceed 400' in length unless approved by Roseville Electric.

SERVICE ENTRANCE CONDUIT AT SERVICE BOX



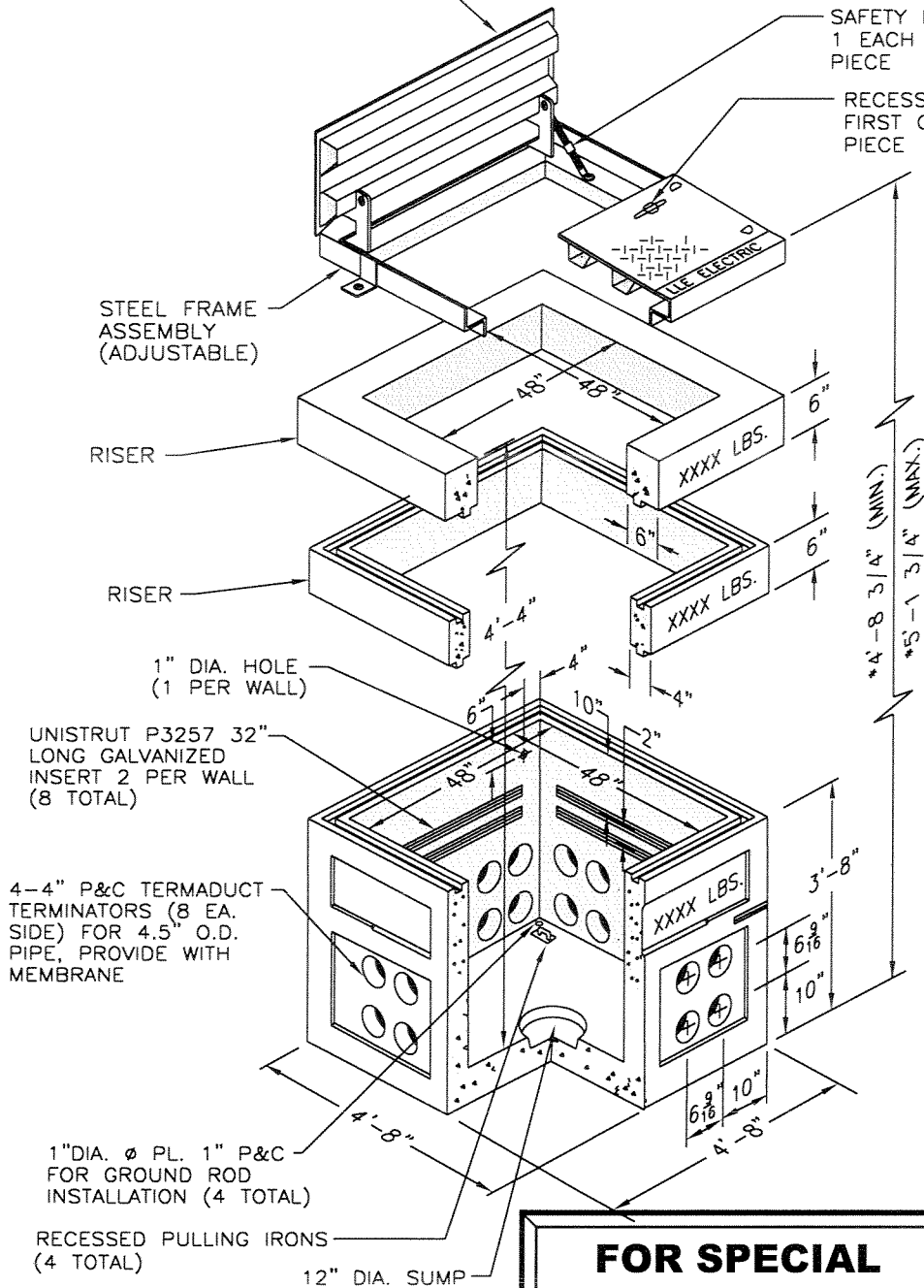
SERVICE ENTRANCE CONDUIT AT HOUSE FOUNDATION

RE Roseville Electric
 Reliable Energy • Dependable Service
 (916) 774-5601

ELECTRIC SUPERINTENDENT <i>James McChew</i>		REVIEW COMMITTEE <i>[Signatures]</i>	
POWER ENG. MANAGER <i>Charles Cumber</i>	DR. MAH	DATE 10/16/01	DR.NO. <i>001</i>
ELECTRONIC SUPERINTENDENT <i>[Signature]</i>	NEW SERVICES MANAGER <i>[Signature]</i>		PAGE 3.2
CONSTRUCTION STANDARD			

SERVICE ENTRANCE CONDUIT INSTALLATION

4'x 4' (NOMINAL) 2 PIECE HINGED, SPRING OR TORSION ASSISTED, EPOXY COATED, PENTAHEAD LOCKDOWN** AS PER (W.U.C.) WESTERN UNDERGROUND SPECIFICATIONS, ADJUSTABLE FRAME AND COVER WITH 1 EACH SAFETY HINGE LOCK PER COVER PIECE. MARKED "ROSEVILLE ELECTRIC" H-10 TRAFFIC LOADING EACH COVER PIECE MUST HAVE THE CAPABILITY OF BEING OPENED TO 180° BY MEANS OF A PIN THAT CAN BE REMOVED WITHOUT THE USE OF TOOLS.



NOTE:

* Exact height dimension may vary between manufacturers. Verify prior to installations.
 ** Pentahead bolt and springnut to be stainless steel material.

DESIGN NOTES:

1. Provide lifting inserts as required for box, lid & riser.
2. Grout all interior seams & lid section after final adjustment.
3. Provide gasket seal at each joint.
4. Vault manufacturer to mark each section with gross weight.

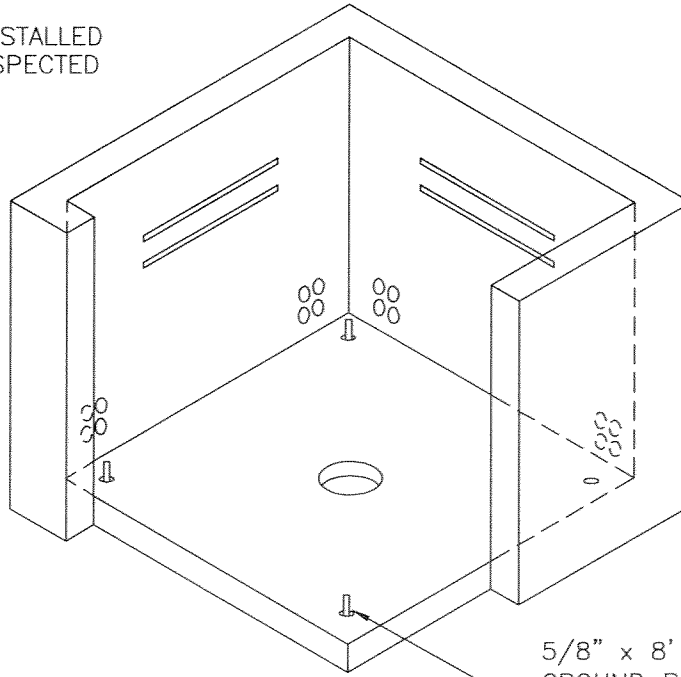
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CONDITIONS
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 (916) 774-5601

ELECTRIC SUPERINTENDENT <i>Anthony Richard</i>		REVIEW COMMITTEE	
POWER ENG. MANAGER <i>Charles Umba</i>		DR. MAH	DATE 11-20-01
ELECTRONIC SUPERINTENDENT <i>Bob Low</i>		NEW SERVICES MANAGER <i>Tom Moore</i>	
		CONSTRUCTION STANDARD	

NOTES:

- GROUND RODS TO BE INSTALLED BY CONTRACTOR AND INSPECTED BY ROSEVILLE ELECTRIC INSPECTORS.

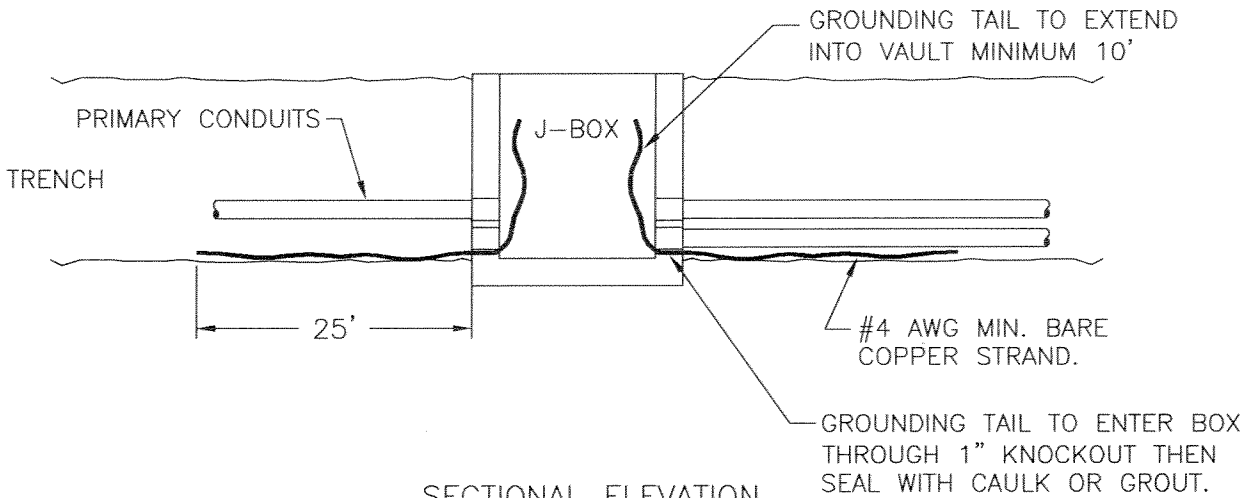


5/8" x 8' COPPER WELD
GROUND ROD (3 TYP.)
LEAVE 3" OF ROD IN VAULT

TYPICAL GROUND INSTALLATION

NOTES:

- In hard soil conditions where the ground rods cannot be driven, the developer has the option of placing two 35' lengths of #4 bare copper strand wire. The wire shall extend into the vault 10' and lay in the bottom of the trench (min. 48" depth) for a distance of 25' in different directions. The wire shall be encased in 3" of concrete.

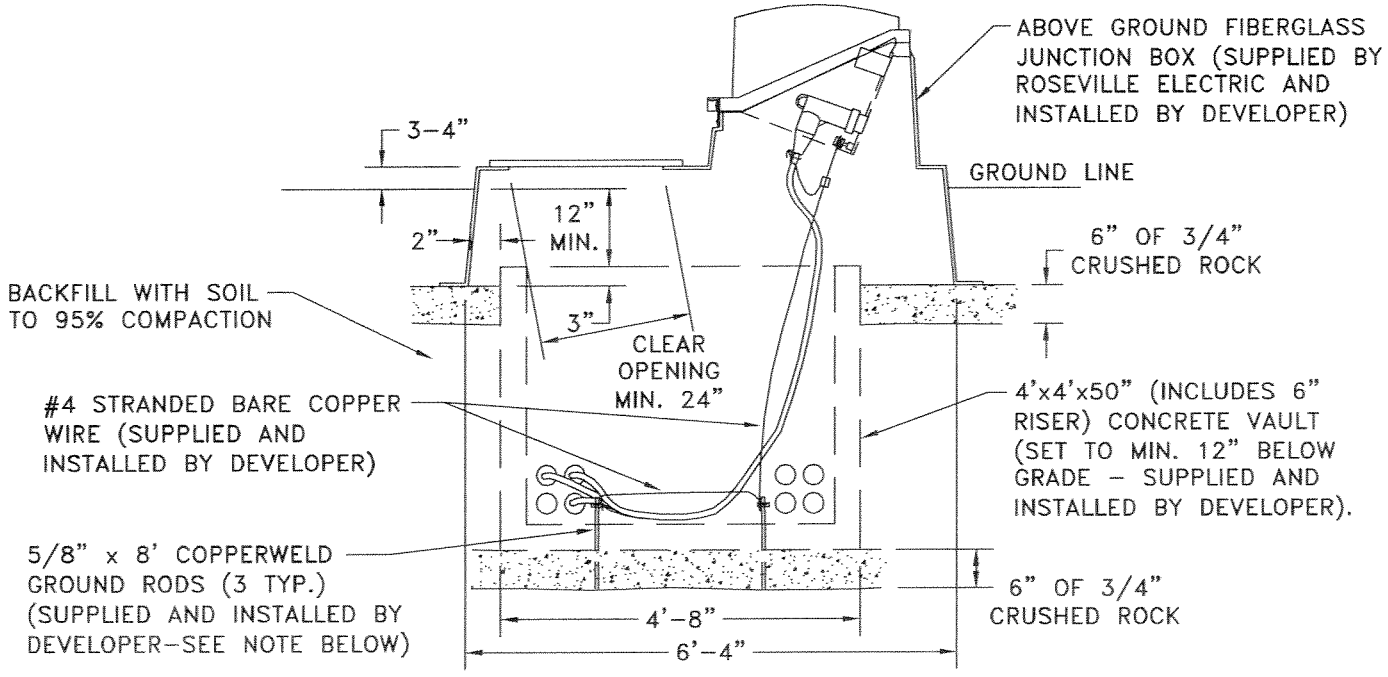


SECTIONAL ELEVATION

ALTERNATIVE GROUND INSTALLATION IN HARD SOIL CONDITIONS

Roseville Electric
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(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Sonny McGowan</i>	REVIEW COMMITTEE <i>RK J.L. [Signature] [Signature] [Signature] [Signature]</i>
POWER ENG. MANAGER <i>[Signature]</i>	DR. NEB DATE 1/18/06 DR.NO.
ELECTRONICS MANAGER <i>[Signature]</i>	NEW SERVICES MANAGER <i>[Signature]</i>
CONSTRUCTION STANDARD	

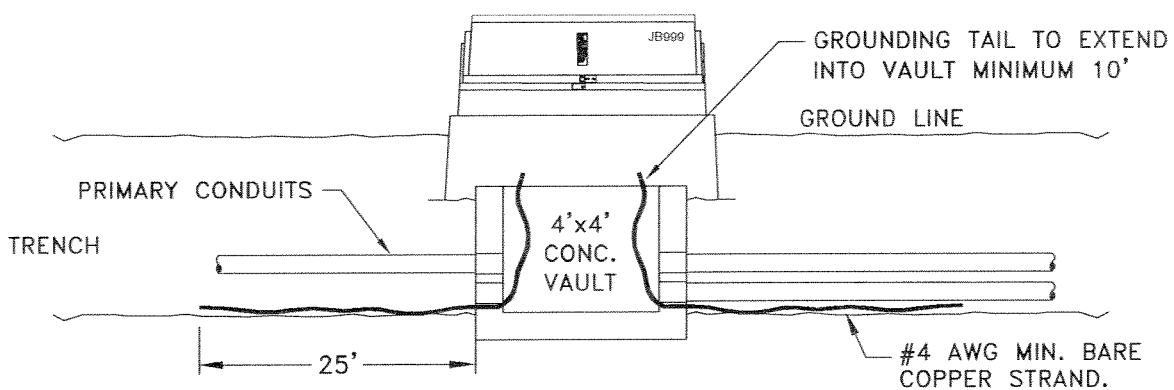


NOTE: IN HARD SOIL CONDITIONS WHERE THE GROUND RODS CANNOT BE DRIVEN, THE DEVELOPER HAS THE OPTION TO USE THE ALTERNATIVE GROUNDING METHOD AS SHOWN BELOW.

TYPICAL INSTALLATION

Notes:

1. In hard soil conditions where the ground rods cannot be driven, the developer has the option of placing two 35' lengths of #4 bare copper strand wire. The wire shall extend into the vault 10' and lay in the bottom of the trench (min. 48" depth) for a distance of 25' in different directions. The wire shall be encased in 3" of concrete.



ALTERNATIVE GROUND INSTALLATION IN HARD SOIL CONDITIONS

NOTES:

1. Developer to provide clear level pad and retaining wall if necessary around junction box.
2. Above ground fiberglass portion of Junction Box will be supplied by Roseville Electric and installed by the Developer's contractor.

ELECTRIC SUPERINTENDENT <i>Sony McLean</i>		REVIEW COMMITTEE		
POWER ENG. MANAGER		DR. NEB	DATE 1/18/06	DR. NO.
ELECTRONICS MANAGER		NEW SERVICES MANAGER		

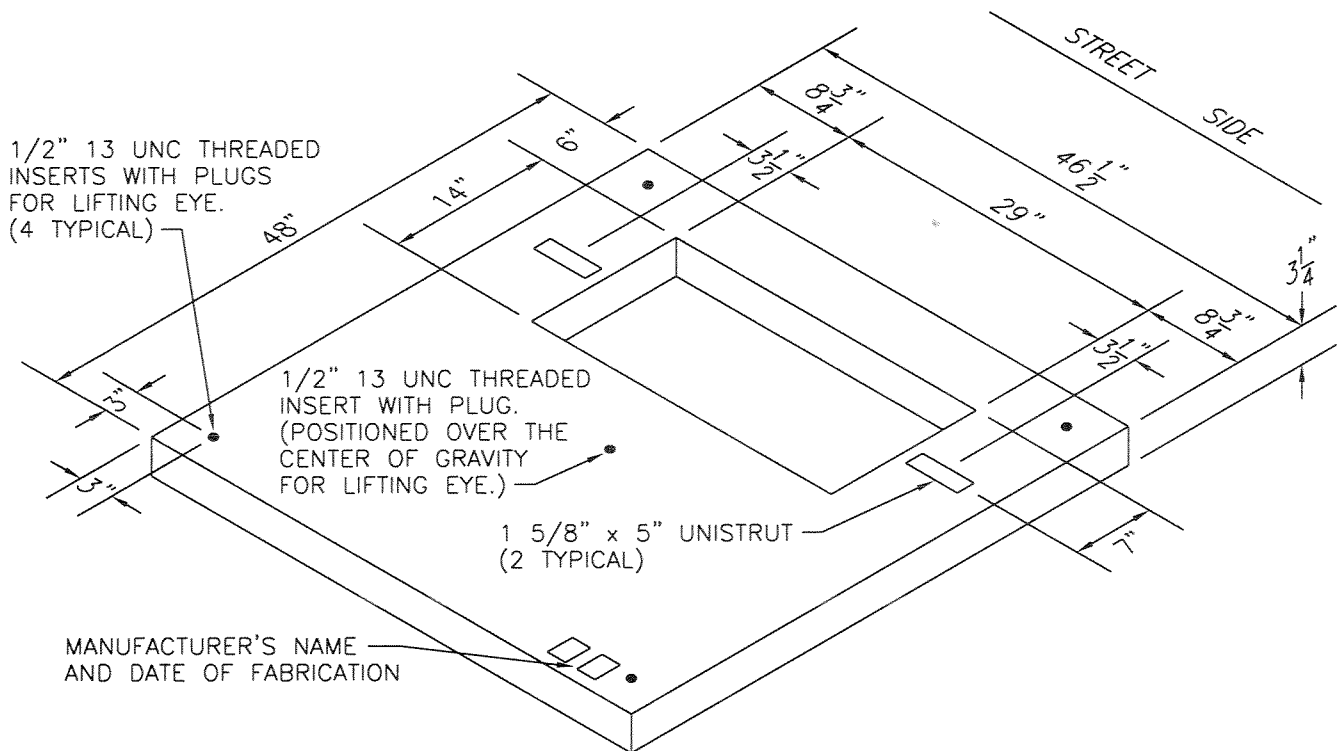
PAGE 4.12

CONSTRUCTION STANDARD
**INSTALLATION AND GROUNDING DETAIL FOR ABOVE GROUND
1 PHASE JUNCTION BOXES**

PAD FOR SINGLE PHASE, DEADFRONT, PADMOUNTED TRANSFORMER

LIGHT WEIGHT POLYMER CONCRETE (48" x 46 1/2" x 3 1/4")

N.T.S.



NOTES:

1. Pad shall be Replacon Cat. No. 2006, CDR Cat. No. PP-4848-03 or an approved equal that conforms to this detail and provisions of Western Underground Committee guide 2.15 (flat., single phase transformer pad)
2. Pad shall be permanently identified with manufacturer's name and date of fabrication (see detail for location). The weight of the pad shall not exceed 175 lbs. and be stenciled on the pad.
3. The supplier shall furnish a Material Safety Data Sheet with each delivery.
4. Material to be an aggregate of sand and gravel bound together with a polymer and reinforced with continuous woven glass strands.
5. All exposed edges shall have a 3/4" chamfer or radius.
6. The surface of the pad shall be flat and level.
7. The supplier shall, upon request of approval of use, furnish all test results and material specifications.



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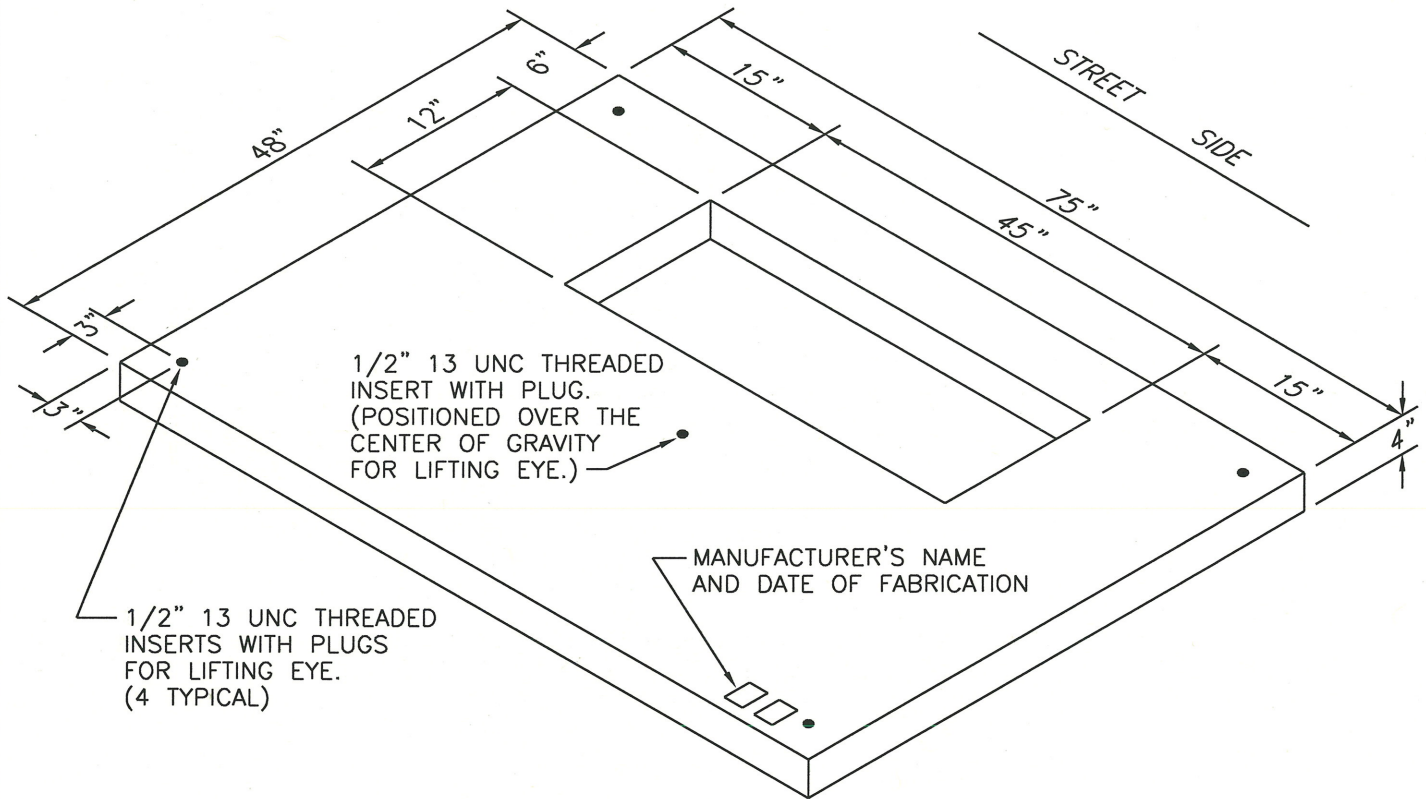
ELECTRIC SUPERINTENDENT <i>Sony McHaw</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>awc</i>		DR. RAC	DR. CM	DR. JON	DR. JPH
ELECTRONICS MANAGER <i>John D...</i>		DR. MAH	DATE 3-23-05	DR. NO.	
		NEW SERVICES MANAGER <i>J. Moore</i>		PAGE 51	

CONSTRUCTION STANDARD
**PAD FOR SINGLE PHASE, DEADFRONT,
 PADMOUNTED TRANSFORMER**

PAD FOR SINGLE PHASE, 3 WAY AND 4 WAY OIL SWITCH

LIGHT WEIGHT POLYMER CONCRETE (48" x 75" x 4")

N.T.S.



NOTES:

1. Pad shall be Replacon Cat. No. 2022, CDR Cat. No. PP-4875-04 or an approved equal that conforms to this detail and provisions of Western Underground Committee guidelines.
2. Pad shall be permanently identified with manufacturer's name and date of fabrication (see detail for location). The weight of the pad shall be stenciled on the pad.
3. The supplier shall furnish a Material Safety Data Sheet with each delivery.
4. Material to be an aggregate of sand and gravel bound together with a polymer and reinforced with continuous woven glass strands.
5. All exposed edges shall have a 3/4" chamfer or radius.
6. The surface of the pad shall be flat and level.
7. The supplier shall, upon request of approval of use, furnish all test results and material specifications.



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ELECTRIC SUPERINTENDENT <i>Bruce McHaw</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>awe</i>		<i>RMC</i>	<i>CM</i>	<i>Jon</i>	<i>Alan</i>
ELECTRONICS MANAGER <i>John Dwyer</i>		DR. MAH	DATE 3-26-05	DR. NO. <i>MM</i>	
		NEW SERVICES MANAGER <i>D. Moore</i>			PAGE 5.2
CONSTRUCTION STANDARD					

PAD FOR SINGLE PHASE, 3 WAY AND 4 WAY OIL SWITCH

SECONDARY BOX SPECIFICATIONS

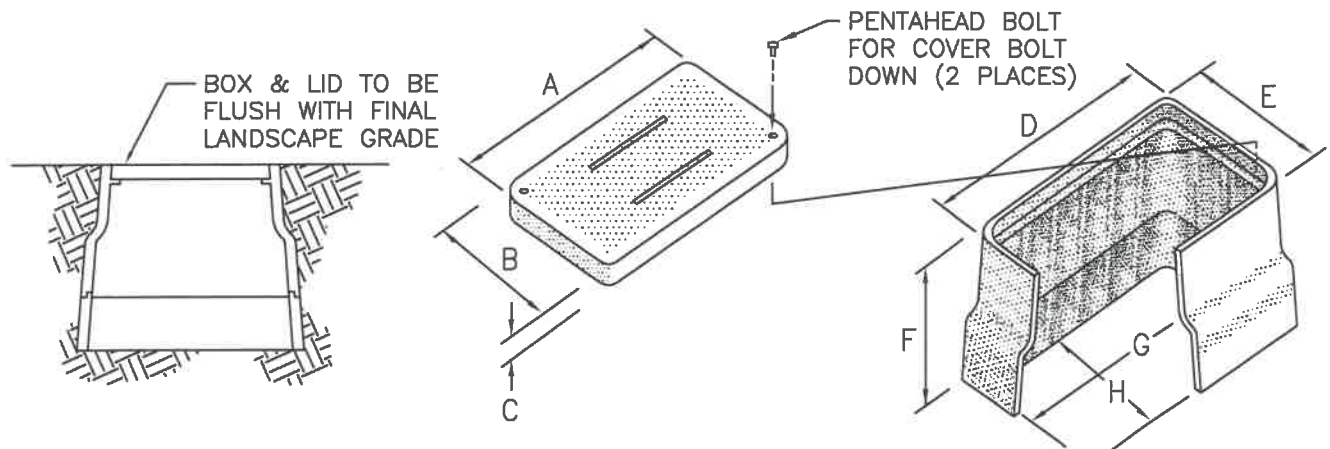
1. LID TO HAVE TWO (2) PENTAHEAD LOCK DOWN BOLTS. BOLTS ARE TO BE #16-3/8" x 2 1/4" x .834 HEAD INCHES OR CORROSION RESISTANT 1/2"-6 x 2 1/2" PENTA HEAD COIL BOLTS.
2. LID TO BE MARKED "ROSEVILLE ELECTRIC".
3. TRAFFIC LID RATED H-20 TO BE USED IN ALL TRAFFIC AREAS.
4. BOX AND LID TO BE FLUSH WITH FINAL GRADE.
5. ONLY THOSE BOXES LISTED IN THIS SPEC ARE APPROVED FOR INSTALLATION BY OR FOR THE CITY OF ROSEVILLE ELECTRIC DEPARTMENT.

13"Wx24"Lx18"D STANDARD #30 BOX AND LID DIMENSIONS

MANUFACTURER	CATALOG NO.	LID DIMENSIONS			BOX DIMENSIONS				
		A	B	C	D	E	F	G	H
CDR SYSTEMS	PB10-1324-18 BOX				25.25	15.75	18.00	29.50	20.00
	PC10-1324-02 ITC LID								
	PC12-1324-02 FTC LID	23.25	13.75	2.00					
REPLACON PRODUCTS	RP1324-18IT BOX				24.50	15.25	18.00	27.75	18.50
	RP1324 ITC LID RP1324								
	FTC LID	23.12	13.75	2.00					
QUAZITE PRODUCTS	PE 1324 Z 505 BOX				24.625	15.125	18.00	29.00	19.50
	& LID ASSEMBLY								
	INCIDENTIAL H-10	23.375	13.875	2.00					
ARMORCAST PRODUCTS	A6001946X18 BOX				25.375	15.875	18.00	27.50	18.125
	A6001866 ITC LID								
	A6001969 FTC LID	23.25	13.75	2.00					

17"Wx30"Lx18"D LARGE #36 BOX AND LID DIMENSIONS

CDR SYSTEMS	PB10-1730-18 BOX				32.50	19.50	18.00	36.75	23.75
	PC10-1730-02 ITC LID								
	PC12-1730-02 FTC LID	30.50	17.50	2.00					
REPLACON PRODUCTS	RP1730-18IT BOX				32.50	19.50	18.00	36.50	23.50
	RP1730 ITC LID RP1730								
	FTC LID	30.37	17.50	2.00					
QUAZITE PRODUCTS	PE 1730 Z 504 BOX &				32.125	19.00	18.00	37.00	24.00
	LID ASSEMBLY INCIDENTIAL								
	H-10	30.625	17.625	2.00					
ARMORCAST PRODUCTS	A6001640X18 BOX				32.75	19.625	18.00	37.00	24.00
	A6001643 ITC LID								
	A6001947T FTC LID	30.50	17.50	2.00					



ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

SECONDARY SERVICE BOX SPECIFICATIONS STANDARD AND LARGE BOX

CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

DATE 09/26/19

DR. NO. PAGE 6.1

REVIEW COMMITTEE

STREET LIGHTING BOX SPECIFICATIONS

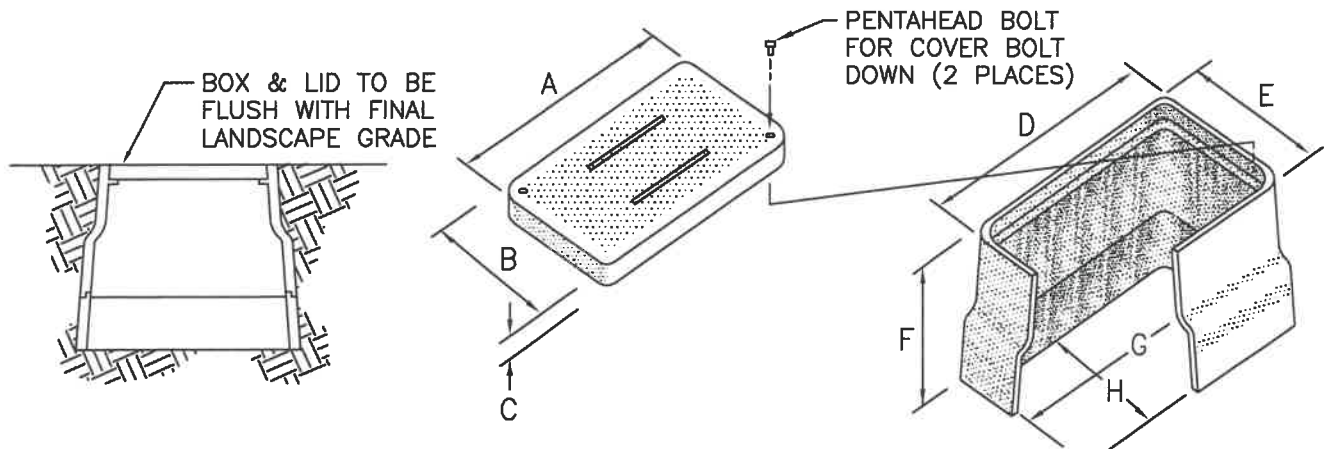
1. LID TO HAVE TWO (2) PENTAHEAD LOCK DOWN BOLTS. BOLTS ARE TO BE #16-3/8" x 2 1/4" x .834 HEAD INCHES OR CORROSION RESISTANT 1/2"-6 x 2 1/2" PENTA HEAD COIL BOLTS.
2. LID TO BE MARKED "STREET LIGHTING".
3. TRAFFIC LID RATED H-20 TO BE USED IN ALL TRAFFIC AREAS.
4. BOX AND LID TO BE FLUSH WITH FINAL GRADE.
5. ONLY THOSE BOXES LISTED IN THIS SPEC ARE APPROVED FOR INSTALLATION BY OR FOR THE CITY OF ROSEVILLE ELECTRIC DEPARTMENT.

10"Wx17"Lx12"D STANDARD #9 BOX AND LID DIMENSIONS

MANUFACTURER	CATALOG NO.	LID DIMENSIONS			BOX DIMENSIONS				
		A	B	C	D	E	F	G	H
CDR SYSTEMS	PB10-1015-12 BOX				17.06	11.81	12.00	21.25	16.00
	PC10-1015-02 ITC LID								
	PC12-1015-02 FTC LID	15.36	10.12	1.75					
REPLACON PRODUCTS	RP1017-12IT BOX				16.00	10.75	12.00	18.00	12.50
	RP1017 ITC LID								
	RP1017 FTC LID	15.25	10.00	1.75					
QUAZITE PRODUCTS	PC 1118 Z 506 BOX & LID ASSEMBLY				20.50	13.50	12.00	17.00	10.00
	INCIDENTIAL H-10	18.50	11.50	0.75					
ARMORCAST PRODUCTS	A6001921X12 BOX				17.50	12.25	12.00	18.00	12.625
	A6001922 ITC LID								
	A6001922T FTC LID	15.375	10.125	1.75					

13"Wx24"Lx18"D LARGE #30 BOX AND LID DIMENSIONS

CDR SYSTEMS	PB10-1324-18 BOX				25.25	15.75	18.00	29.50	20.00
	PC10-1324-02 ITC LID								
	PC12-1324-02 FTC LID	23.25	13.75	2.00					
REPLACON PRODUCTS	RP1324-18IT BOX				24.50	15.25	18.00	27.75	18.50
	RP1324 ITC LID								
	RP1324 FTC LID	23.12	13.75	2.00					
QUAZITE PRODUCTS	PE 1324 Z 505 BOX & LID ASSEMBLY				24.625	15.125	18.00	29.00	19.50
	INCIDENTIAL H-10	23.375	13.875	2.00					
ARMORCAST PRODUCTS	A6001946X18. BOX				25.375	15.875	18.00	27.50	18.125
	A6001866 ITC LID								
	A6001969 FTC LID	23.25	13.75	2.00					



ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

STREET LIGHTING BOX SPECIFICATIONS STANDARD AND LARGE BOX

CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

DATE **09/26/19**

DR. NO. **PAGE 6.2**

REVIEW COMMITTEE

CITY OF ROSEVILLE ELECTRIC DEPARTMENT
REQUIREMENTS FOR LANDSCAPE DESIGNS

The following items will need to be addressed within your landscape design:

1. All plans submitted to the City of Roseville Electric Department shall include existing and proposed electric facilities, roadway centerline and roadway stationing. The landscape architect shall contact the Electric Department for locations of existing and proposed facilities.
2. Electric service point for irrigation controllers and landscape lighting must originate from a metered service point at a location to be determined by the Electric Department. The developer is responsible for the installation of all service facilities from the service point to the metered pedestal and its associated circuits. All installations shall conform to the National Electric Code as adopted by the City of Roseville.
3. Sidewalks shall be installed to avoid all electric facilities with the exception of secondary service and street light splice boxes (#9, #30 and #36 boxes). When placing sidewalk over these facilities, it is the developer's responsibility to set these boxes flush with the sidewalk surface.
4. Sidewalks, grass, ground covers or similar landscaping may be placed above utility trenches where required as long as they do not interfere with access to enclosures or above ground equipment.
5. No trees shall be planted directly over an underground joint utility trench. The typical trench centerline is located behind back of curb along roadway frontages.
6. Trees placed within P.U.E.'s that contain overhead electric lines will be restricted to a maximum height of 15 feet at maturity and may be prohibited in some locations due to safety. In all cases, adequate access shall be maintained for personnel and equipment to provide routine maintenance to existing electric facilities as determined by the Electric Department.
7. Trees being planted along public roadways where street lights are installed must be located so as to provide minimum clearance from light standards and maximum lighting to roadways. See electric department "Specification for Residential Trenching", page 7.5, for minimum street light clear areas.

ENGINEERING MANAGER	ELECTRIC DEPARTMENT LANDSCAPE DESIGN REQUIREMENTS				CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD
OPERATIONS MANAGER					
ENG. TECH SUPERVISOR		DATE	09/26/19	DR. NO.	PAGE 7.1
REVIEW COMMITTEE					

8. When placing trees, shrubs, walls, or any other above ground facilities near existing or proposed electric equipment, the following clearances must be maintained:

<u>EQUIPMENT</u>	<u>MINIMUM CLEARANCES REQUIRED (IN FEET)</u>		
	<u>FRONT</u>	<u>SIDES</u>	<u>BACK</u>
12kv Padmount Switchgear (See Page 7.2)	8	4	8
12kv Padmount Capacitor Bank (See Page 7.2)	8	4	8
12kv Junction Box (Below Ground Type - See Page 7.3) (Above Ground Type - See Page 7.3.1)	4 8	4 3	4 3
Padmount Transformer (See Page 7.4)	8	3	3
Manhole Entry	8	8	8
Pull Box, Splice Box (4'x4', 3'x6', 4'x6')	4	4	4
Metered Pedestal	3	3	3

All minimum clearances shown above shall be flat and level surfaces with a slope no greater than 2% to provide a safe working area for field personnel.

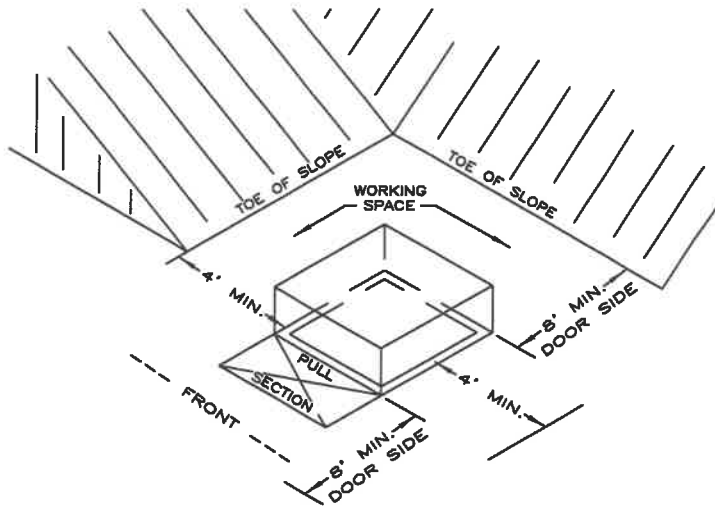
Only turf or low growth ground covers less than 4 inches in height and suitable for walking on are permitted within the clear area. Where retaining walls are required to provide minimum clearances in areas with severe grade changes, contact the Electric Department for approval prior to installation.

9. Landscaping being installed around electrical equipment shall be installed to meet the existing equipment grades with the following exceptions:
- A. Street light bases may be raised a maximum of 2 feet from existing grade. Beyond 2 feet, pole heights must be adjusted.
 - B. Manhole risers may be raised a maximum of 12 inches.

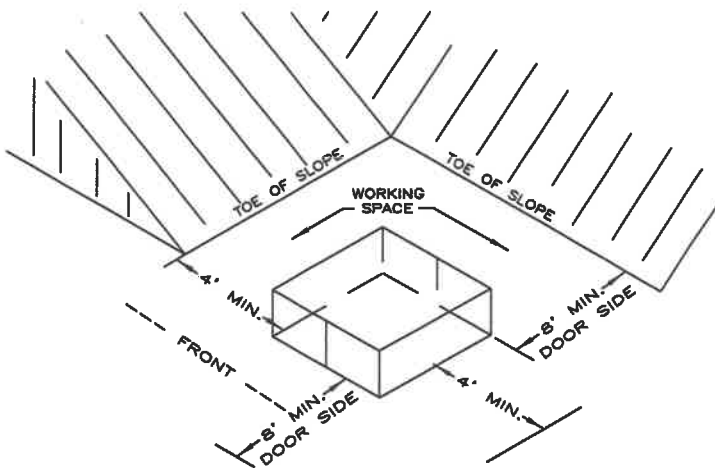
Any changes to electric equipment grades are the developer's responsibility and shall be completed at the developer's expense to electric department specifications.

10. Any conflicts between existing electric facilities and landscaping installed will be resolved by the developer at his expense to the satisfaction of the Electric Department.

ENGINEERING MANAGER 	ELECTRIC DEPARTMENT LANDSCAPE DESIGN REQUIREMENTS	CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD	
OPERATIONS MANAGER			
ENG. TECH. SUPERVISOR 	REVIEW COMMITTEE 	DATE	09/26/19
		DR.NO.	PAGE 7.1.1



SWITCHGEAR MOUNTED ON PAD VAULT



SWITCHGEAR OR CAPACITOR BANK MOUNTED ON CONCRETE PAD

NOTES:

1. Maintain a clear and level working space around switchgear or capacitor bank as shown.
2. No slopes greater than 2% sloping away from switchgear or capacitor bank will be allowed within the required minimum clear working space shown. A retaining wall may be required to maintain the 2% maximum grade.
3. Vehicular access from street, parking lot or other hard drivable surface shall be maintained.
4. Parking barriers shall be installed whenever switchgear or capacitor banks are not protected from vehicular traffic.

ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH SUPERVISOR

**12KV PADMOUNT SWITCHGEAR & CAPACITOR BANK
CLEARANCE DETAIL**

[Handwritten signatures and initials]

REVIEW COMMITTEE

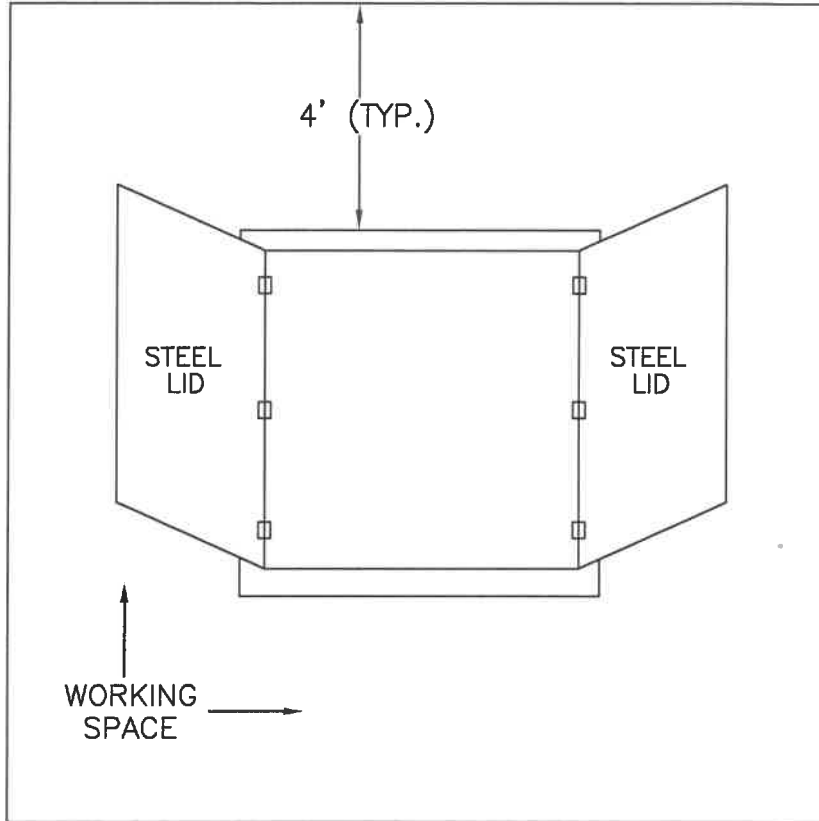
DATE **08/29/19**

**CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

DR.NO. **PAGE 7.2**

4'x4' J-BOX WORKING CLEARANCE DETAIL

N.T.S.



NOTES:

1. Maintain a clear and level working space of 4' on all sides of junction box as shown.
2. No slopes greater than 2% sloping away from box will be allowed within the required minimum clear working space shown. A retaining wall may be required to maintain the 2% maximum grade.
3. Vehicular access from street, parking lot or other hard drivable surface shall be maintained.
4. Junction box lid section shall be adjusted to one (1) to two (2) inches above final grade except when placed within or immediately adjacent to sidewalk, where lid shall be adjusted to sidewalk grade.

**FOR SPECIAL
CONDITIONS
USE ONLY**

ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH SUPERVISOR

**12kV PRIMARY 4' X 4' J-BOX
CLEARANCE DETAIL**

**CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD**

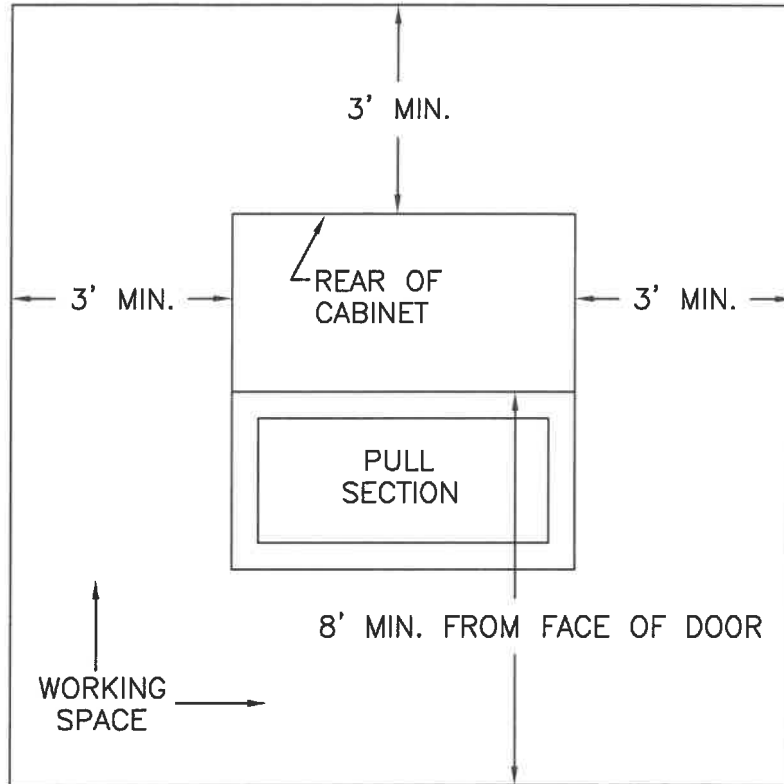
REVIEW COMMITTEE

DATE **09/26/19**

DR.NO. **PAGE 7.3**

3-PHASE ABOVE GROUND J-BOX OVER 4'x4' PRECAST WORKING CLEARANCE DETAIL

N.T.S.



NOTES:

1. Maintain a clear and level working space of 3 feet on 3 sides and 8 feet in front of door of junction box as shown.
2. No slopes greater than 2% sloping away from box will be allowed within the required minimum clear working space shown. A retaining wall may be required to maintain the 2% maximum grade.
3. Vehicular access from street, parking lot or other hard drivable surface shall be maintained.
4. Junction box pull section lid shall be installed to one (1) to two (2) inches above final grade.

ENGINEERING MANAGER
OPERATIONS MANAGER
ENG. TECH SUPERVISOR

3-PHASE ABOVE GROUND J-BOX CLEARANCE DETAIL

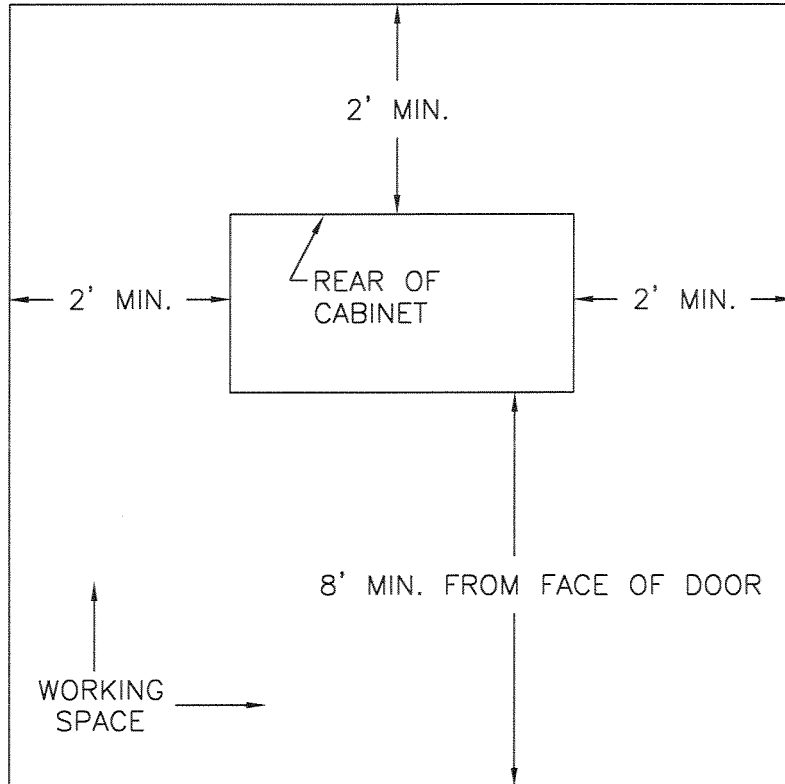
CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

REVIEW COMMITTEE

DATE **09/26/19**

DR.NO. **PAGE 7.3.1**

ABOVE GROUND J-BOX WORKING CLEARANCE DETAIL N.T.S.



NOTES:

1. Maintain a clear and level working space of 2' on 3 sides and 8' in front of junction box as shown.
2. No slopes greater than 2% sloping away from box will be allowed within the required minimum clear working space shown. A retaining wall may be required to maintain the 2% maximum grade.
3. Vehicular access from street, parking lot or other hard drivable surface shall be maintained.
4. Finish grade shall be three (3) to four (4) inches below locking device on door face of J-box.



**ELECTRIC
DEPARTMENT**

(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Tommy McGraw</i> POWER ENG. MANAGER ELECTRONIC SUPERINTENDENT <i>Chris Lee</i>	REVIEW COMMITTEE <table style="width: 100%; text-align: center;"> <tr> <td><i>MLB</i></td> <td><i>DJB</i></td> <td><i>RB</i></td> <td><i>TL</i></td> <td><i>MP</i></td> </tr> </table> DR. MAH DATE 3-16-98 DR.NO. NEW SERVICES MANAGER <i>Tom McGraw</i> CONSTRUCTION STANDARD	<i>MLB</i>	<i>DJB</i>	<i>RB</i>	<i>TL</i>	<i>MP</i>
<i>MLB</i>	<i>DJB</i>	<i>RB</i>	<i>TL</i>	<i>MP</i>		

PAGE 7.3.2

ABOVE GROUND J-BOX CLEARANCE DETAIL

TRANSFORMER WORKING CLEARANCE DETAIL

N.T.S.

FIGURE NO. 1
MINIMUM TRANSFORMER
CLEARANCE REQUIREMENTS

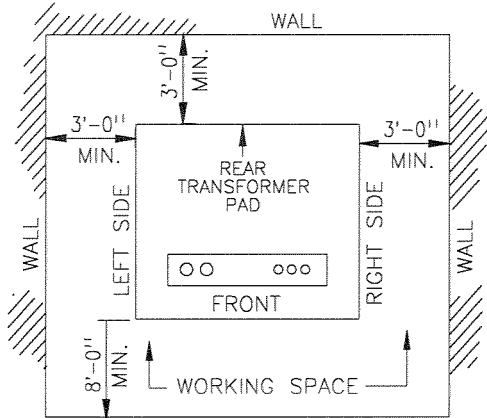


FIGURE NO. 2
REMOVABLE POST DETAIL

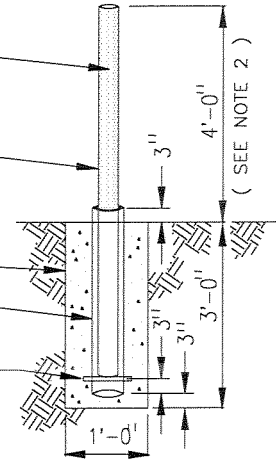
SEE NOTE NO. 2

FILL WITH SUFFICIENT
CONCRETE TO WEIGH
APPROXIMATELY 150 LB.S

4" STANDARD PIPE
GALVANIZED & PAINTED
HIGHWAY YELLOW

CONCRETE
5" STANDARD PIPE
GALVANIZED

MACHINE BOLT 3/4" MIN.
SIZE APPROX 8" LONG



NOTES:

1. The concrete pad should be located so that its associated transformer will be three feet minimum from the side of any building wall. If the wall is fireproof, the minimum clearance can be reduced to two feet. At least eight feet of clear space shall be provided in front of pad to allow complete opening of transformer cabinet doors and allow City personnel sufficient working room for Hot Stick work. Figure No. 1, shows the preferred location of a transformer pad with reference to other construction.
2. If a pad-mounted transformer can not be located away from vehicular traffic, the customer shall provide suitable barriers for the protection of the transformer. Roseville Electric Department shall determine the type, size and number of any such barrier(s) required. A removable type post is shown in Figure No. 2.
3. If a pad-mounted transformer is to be installed under a roof, at least 5 feet of head room shall be provided for lifting of the transformer. Contact Roseville Electric Department for each particular case.
4. If the customer wishes to install a decorative wall to hide the transformer from public view, the requirement shall be in accordance with Note 1 and that additional air space be required for sufficient air circulation as determined by the Roseville Electric Department. Walls are allowed only on 3 sides with opening at front of transformer, no gates are allowed. Vehicular access from street, parking lot or hard drivable surface shall be maintained.
5. No slopes greater than 2% sloping away from transformer pad will be allowed within the required minimum clear working space shown. A retaining wall may be required to maintain the 2% maximum grade.



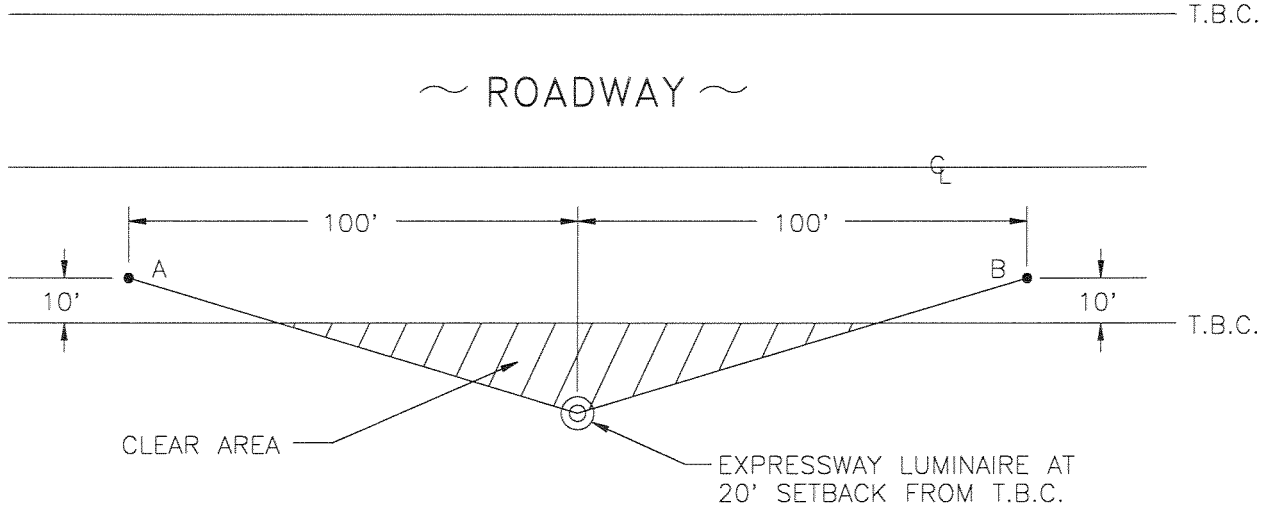
ELECTRIC
DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Sonny McLean</i> POWER ENG. MANAGER CASE ELECTRONIC SUPERINTENDENT <i>Ra</i>	REVIEW COMMITTEE <i>Mr. Ball</i> <i>DJB</i> <i>Mr. [unclear]</i> DR. MAH DATE 2-18-97 DR. NO. NEW SERVICES MANAGER <i>Jim [unclear]</i> CONSTRUCTION STANDARD
--	--

PAGE 7.4

12 KV PADMOUNT TRANSFORMER CLEARANCE DETAIL



NOTES:

1. No plants, shrubs or trees which grow to a height greater than 4 feet at maturity shall be planted in the Clear Area shown above.
2. To determine the Clear Area required for any street light, proceed as follows:
 - A. From a point located at top back of curb where street light is located, go 100' along roadway to the right and left and locate points A & B at a distance of 10' into the roadway from T.B.C.
 - B. Draw a straight line from the street light location to points A & B.
 - C. The area between the street light and T.B.C. on road side of line described above is the Clear Area.
3. Trees planted outside the Clear Area should have no more than 20% of their canopy projected to encroach within the Clear Area at maturity. This 20% encroachment is based on the diameter of the trees canopy at maturity.



ELECTRIC DEPARTMENT

(916) 774-5601

ELECTRIC SUPERINTENDENT <i>Sunny McChaw</i>		REVIEW COMMITTEE			
POWER ENG. MANAGER <i>Cure</i>		<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
ELECTRONIC SUPERINTENDENT <i>[Signature]</i>		DR. MAH	DATE 2-18-97	DR.NO.	
		NEW SERVICES MANAGER <i>[Signature]</i>		PAGE 7.5	
		CONSTRUCTION STANDARD			

MINIMUM STREET LIGHT CLEAR AREAS

RESIDENTIAL SERVICE AND METERING REQUIREMENTS

ENGINEERING MANAGER

OPERATIONS MANAGER

ENG. TECH. SUPERVISOR

RESIDENTIAL SERVICE AND METER

CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

REVIEW COMMITTEE

DATE

02/09/18

DR. NO. PAGE 8.1

RESIDENTIAL SERVICE AND METERING REQUIREMENTS

I SERVICE VOLTAGES

The following table outlines the residential service voltages that Roseville Electric can serve and the corresponding meter socket requirements for each. See Page 8.1.5 for meter connection diagrams.

TYPE OF SERVICE	NUMBER OF CLIPS	
	SELF CONTAINED METER SOCKETS <=320 AMPS*	TRANSFORMER RATED SOCKETS >320 AMPS*
1 PHASE, 3 WIRE, 120/240 VOLT	4	6
* Consult utility when installing service <200 amps		

II METERING REQUIREMENTS

GENERAL:

1. EUSERC - Electric Utility Service Equipment Requirements Committee

EUSERC is an organization comprised of utility representatives from the western section of the United States that work to promote the standardization of electric service requirements and the design and engineering of metering and service equipment.

All metering and service equipment approved for use in the areas served by Roseville Electric shall be built to the requirements developed by EUSERC. Approved metering and service equipment is available to customers and contractors through electrical wholesale distributors.

2. Approval of Installed Panels

All electric service panels shall meet EUSERC requirements. Purchase or installation of any equipment that does not conform to EUSERC requirements is done at the developer's risk. Any electrical service panels that do not comply with EUSERC will be required to have field modifications completed or be replaced at the developer's expense.

3. Electric Metering Directly Outside Accessible

All electric meters shall be directly outside accessible at **all** times.

4. Service Disconnects

All service disconnects, (main breakers) shall be directly outside accessible.

5. Meter Heights and Clearances

See Page 8.1.4, Electric Service Entrance Requirements.

6. Sealing/Locking of Meters and Metering Equipment

All meters and enclosures for meters, metering equipment, and service entrance equipment on the line side of the meter will be sealed or locked by RE. The RE seal or lock shall not be broken except by an authorized RE representative. This includes (but not limited to) un-metered bussing. Any unauthorized breaking of the seal or lock will be cause to initiate a tampering/vandalism investigation. Customers are not permitted to install any equipment including but not limited to monitoring equipment in any sealed or un-metered compartment/s. RE will remove and discard any customer equipment including any monitoring equipment not installed by RE that are found inside the sealed compartments and this will also become a tampering/vandalism investigation.

7. Customer equipment shall not be connected or installed on the unprotected line side bussing of the electric panel's main circuit breaker, even if the line side bussing is unsealed. Customer equipment is only allowed to be connected or installed on the load side of the main breaker, per applicable standards.

III SERVICES 320 AMPS AND BELOW

1. Self-contained Meters Defined

A self-contained meter is capable of carrying the total current and voltage of the electric service supplied to the customer. This type of meter is connected directly to the service entrance conductors when it is plugged into the meter sockets.

2. Self-contained Meter Sockets

Sockets for use with self-contained meters are available in two pre-approved ratings. When connected to properly sized service entrance conductors, the approved standard-duty socket has a nominal capacity of 100 amperes, and the approved heavy-duty sockets have a nominal capacity of 200. For extra heavy-duty sockets rated at 320 amperes, contact the utility for approval before installation.

3. Meter Socket Connections

All self-contained meter sockets shall be connected to the service entrance conductors by the contractor. Connection diagrams for the various types of services are shown in Appendix "A".

4. Wire Size Capacity of Self-contained Meter Sockets

Meter sockets shall not be equipped with circuit closing or by-pass devices that automatically close when the meter is removed from the socket.

6. Self-Contained Meter Installation

The meter is furnished and installed by Roseville Electric.

Customer's Responsibility	Utility's Responsibility
Purchase and Install EUSERC Approved Enclosure	Purchase and Install Electric Meter *
Note: * indicates Utility provided items at customer's expense.	

IV SERVICES GREATER THAN 320 AMPS

1. Transformer Rated Meters

When the electrical supply needs of the customer exceed the 320 ampere capacity of the self-contained meter and its heavy duty socket, current transformers which are connected to the service entrance conductors must be used. A transformer rated meter is installed to measure the energy delivered to the customer. A current transformer capacity multiplier is applied to the billing register on the meter. The current transformers and the meters are furnished and installed by Roseville Electric.

The transformer rated meter, when inserted into its socket, is wired to the current transformer. The current transformers are located in the enclosure behind the meter and test switch panel cover(s).

2. Transformer Rated Meter Sockets

An approved current transformer (C.T.) rated meter socket and enclosure are used with transformer rated meters. The meter sockets and enclosures are furnished and installed by the customer.

3. Transformer Rated Meter Installation

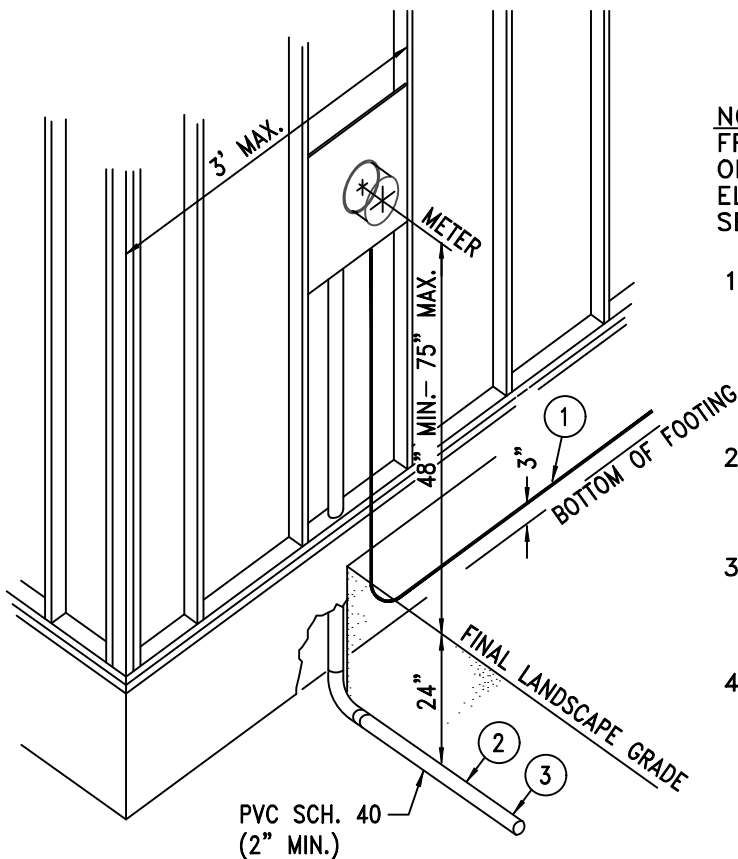
The current transformers, test switches, wiring, and meter are furnished, installed, and connected by Roseville Electric.

Customer's Responsibility	Utility's Responsibility
Purchase and Install EUSERC Approved Enclosure	Purchase and Install Current Transformers *
Purchase and Install Transformer Rated Meter Socket(s)	Purchase and Install Transformer Rated Meter(s) *
Note: * indicates Utility provided items at customer's expense.	

UNDERGROUND INSTALLATION

NOTE: THE FOLLOWING STATEMENTS ARE DERIVED FROM THE CALIFORNIA ELECTRIC CODE. ANY VIOLATION OF THESE STATEMENTS OR ANY OTHER CALIFORNIA ELECTRIC CODE WILL RESULT IN REFUSAL OF SERVICE HOOK UP BY ROSEVILLE ELECTRIC.

1. UFER GROUND TO BE MIN. 20' LENGTH AND MAINTAIN A 3" CLEARANCE TO BOTTOM OF FOOTING. IT IS TO BE CONSTRUCTED OF COPPER (SEE BELOW FOR SIZE) OR #4 REBAR. SEE C.E.C. 250.52.
2. SERVICE ENTRANCE CONDUIT TO BE INSTALLED BY OWNER. SEE PAGE 2 FOR INSTALLATION REQUIREMENTS.
3. WHERE TRENCH IS PARALLEL TO FOUNDATION A MINIMUM DISTANCE OF 2' IS REQUIRED TO EDGE OF TRENCH.
4. PLEASE SCHEDULE YOUR UNDERGROUND CONDUIT INSPECTION ONLINE AT permitsonline@roseville.ca.us PRIOR TO BACKFILLING.



SERVICE ENTRANCE CONDUCTORS

ALUMINUM

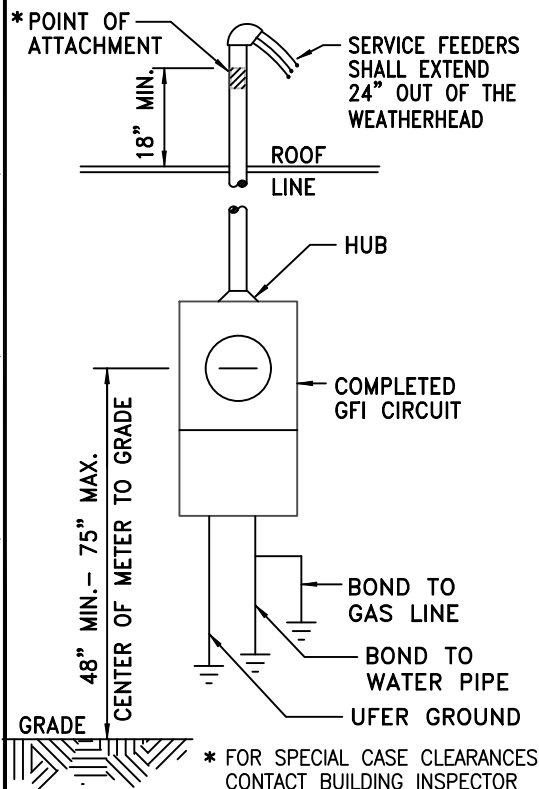
100-AMPERES 3-#2 RHW OR THW 1 1/4" RISER or 2" U.G. CONDUIT 1-#8 GROUND CU.	200-AMPERES 2-#4/0 RHW OR THW 1-#2/0 RHW OR THW 2" RISER/U.G. CONDUIT 1-#4 GROUND CU.
125-AMPERES 3-#1/0 RHW OR THW 1 1/2" RISER or 2" U.G. CONDUIT 1-#8 GROUND CU.	300-AMPERES 2-#350 MCM 1-#250 MCM 3" RISER/U.G. CONDUIT 1-#2 GROUND CU.
125-AMPERES 2-#1/0 RHW OR THW 1-#2 RHW OR THW 1 1/2" RISER or 2" U.G. CONDUIT 1-#8 GROUND CU.	350-AMPERES 2-#500 MCM 1-#350 MCM 3" RISER/U.G. CONDUIT 1-#2 GROUND CU.
200-AMPERES 3-4/0 RHW OR THW 2" RISER/U.G. CONDUIT 1-#4 GROUND CU.	

COPPER

100-AMPERES 3-#4 RHW OR THW 1 1/4" RISER or 2" U.G. CONDUIT 1-#8 GROUND CU.	300-AMPERES 2-#250 MCM 1-#4/0 3" RISER/U.G. CONDUIT 1-#2 GROUND CU.
125-AMPERES 3-#2 THW 1 1/2" RISER or 2" U.G. CONDUIT 1-#8 GROUND CU.	350-AMPERES 2-#350 MCM 1-#250 MCM 3" RISER/U.G. CONDUIT 1-#2 GROUND CU.
200-AMPERES 3-#2/0 THW 2" RISER/U.G. CONDUIT 1-#4 GROUND CU.	400-AMPERES 2-#400 MCM 1-#300 MCM 3" RISER/U.G. CONDUIT 1-#2 GROUND CU.
200-AMPERES 2-#2/0 THW 1-#1 THW 2" RISER/U.G. CONDUIT 1-#4 GROUND CU.	

** U.G. = UNDERGROUND

OVERHEAD INSTALLATION



* FOR SPECIAL CASE CLEARANCES CONTACT BUILDING INSPECTOR

ENGINEERING MANAGER
Christopher Foster

OPERATIONS MANAGER
Jason Vaeger

ENG. TECH SUPERVISOR
Justin Kirt

ELECTRIC SERVICE ENTRANCE REQUIREMENTS

CITY OF ROSEVILLE
ROSEVILLE ELECTRIC
CONSTRUCTION STANDARD

William Jordan
REVIEW COMMITTEE

William Jordan
REVIEW COMMITTEE

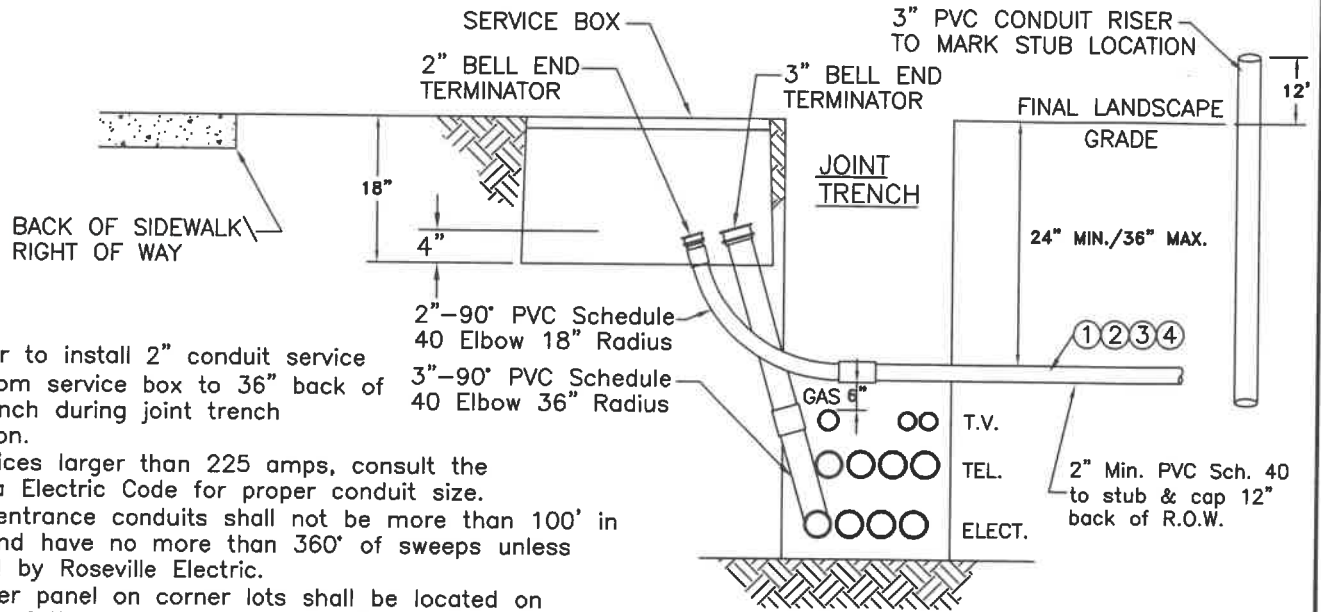
William Jordan
REVIEW COMMITTEE

03/21/24

DR. NO.
1 of 2

PAGE 8.1.4

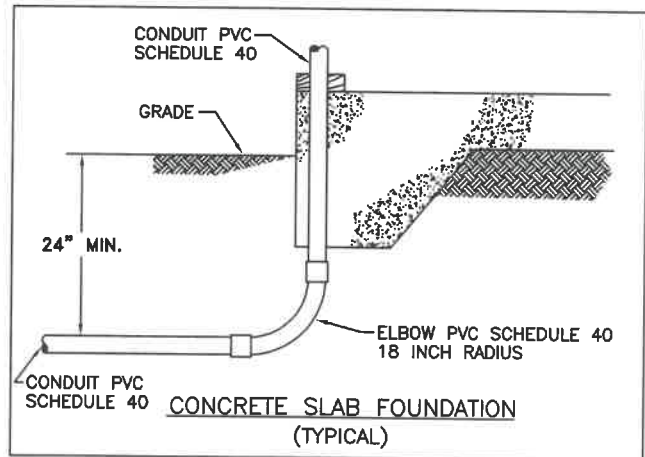
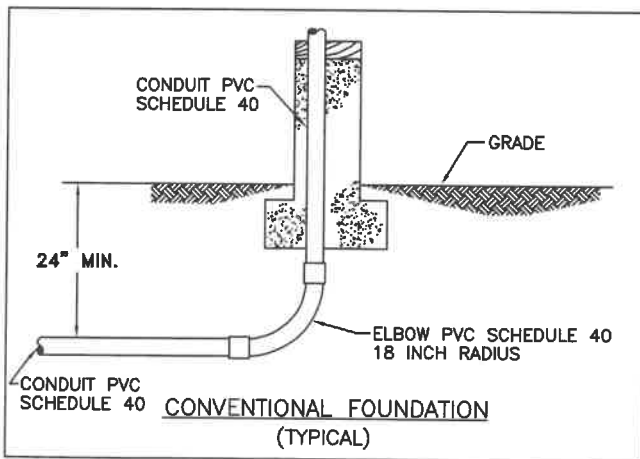
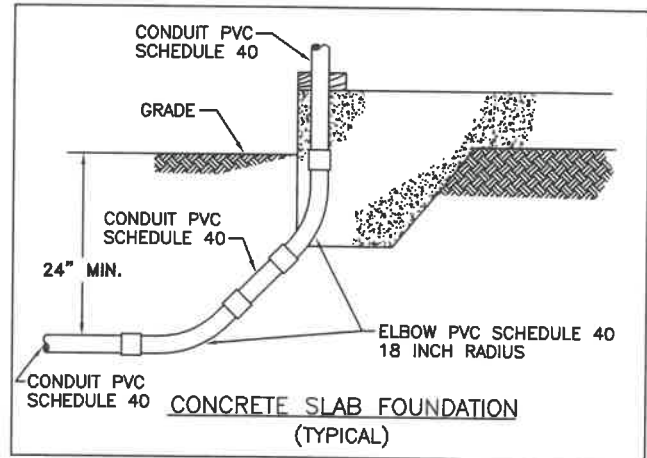
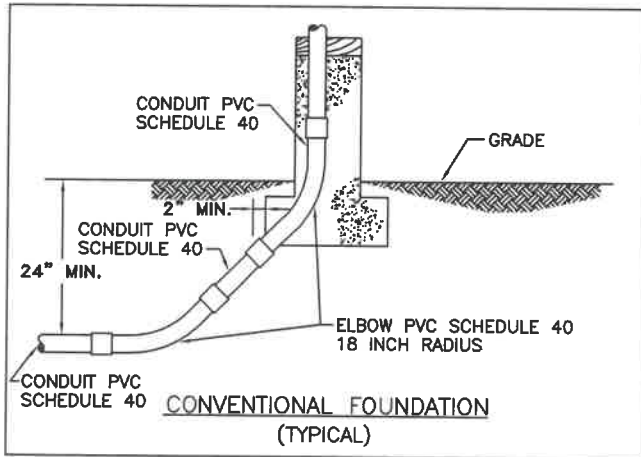
SERVICE ENTRANCE CONDUIT AT SERVICE BOX



NOTES:

- ① Developer to install 2" conduit service stubs from service box to 36" back of joint trench during joint trench installation.
- ② For services larger than 225 amps, consult the California Electric Code for proper conduit size.
- ③ Service entrance conduits shall not be more than 100' in length and have no more than 360' of sweeps unless approved by Roseville Electric.
- ④ The meter panel on corner lots shall be located on the side of the house nearest the service box.

SERVICE ENTRANCE CONDUIT AT HOUSE FOUNDATION



ENGINEERING MANAGER
 OPERATIONS MANAGER
 ENG. TECH. SUPERVISOR

ELECTRIC SERVICE ENTRANCE REQUIREMENTS

CITY OF ROSEVILLE
 ROSEVILLE ELECTRIC
 CONSTRUCTION STANDARD

REVIEW COMMITTEE

DATE **02/28/19**

DR. NO. **2 of 2** PAGE **800-134**

SERVICES RATED 320 AMPS OR LESS – NOTE 2

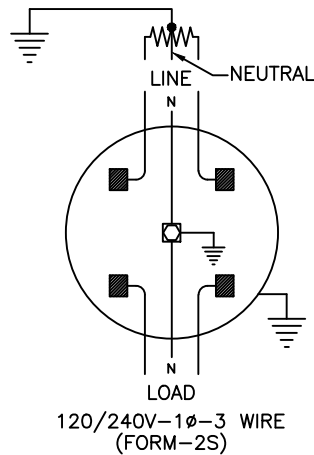


FIG. 1
4 CLIP

SERVICES RATING GREATER THAN 320 AMPS – NOTE 2

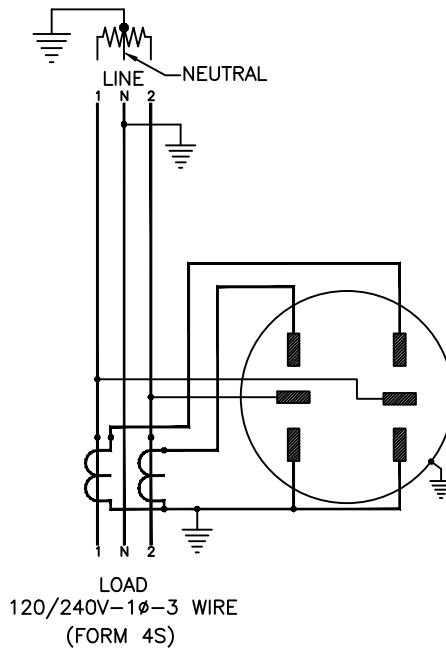


FIG. 2
6 CLIP

- NOTE:
1. ALL CURRENT TRANSFORMER SERVICES WILL HAVE TEST/BYPASS (NOT SHOWN)
 2. A SELF-CONTAINED 320 AMP SERVICE IS PERMITTED FOR RESIDENTIAL ONLY.
 3. ALL VIEWS ARE SHOWN FROM THE FRONT.

RE **Roseville Electric**
 Reliable Energy • Dependable Service
 (916) 774-5601

ELECTRIC SUPERINTENDENT	REVIEW COMMITTEE		
POWER ENG. MANAGER	DR. C. Mah	DATE 10-16-01	DR.NO.
ELECTRONIC SUPERINTENDENT	NEW SERVICES MANAGER		PAGE 8.1.5 APPENDIX A
CONSTRUCTION STANDARD			
CONNECTION DIAGRAM FOR METERED SERVICES			

RESIDENTIAL CUSTOMER OWNED INTERCONNECTED GENERATION REQUIREMENTS



ENGINEERING MANAGER

Christopher Porter

OPERATIONS MANAGER

Grace (Aug 28, 2023 07:08 PDT)

ENGINEERING SUPERVISOR

Joseph McKinney (Aug 26, 2023 06:52 PDT)

REVIEW COMMITTEE

AK *wj* *WK* *MDM* *KL* *AM* *VB*

DATE

7/12/23

DR.NO.

CONSTRUCTION STANDARD

PAGE 8.2

RESIDENTIAL CUSTOMER OWNED ELECTRIC
INTERCONNECTION GENERATION REQUIREMENTS

RESIDENTIAL CUSTOMER OWNED INTERCONNED GENERATION (COIG) ELECTRIC METERING REQUIREMENTS

GENERAL

All Roseville Electric Utility Customer-Generators installing distributed generation (DG) systems (solar, energy storage, wind, etc.) greater than 1.0 CEC-AC kilowatt of installed capacity in parallel with Roseville Electric Utility's electric service territory shall at all times comply with Roseville Electric Utility's Rule 21, construction standards, and all applicable laws, tariffs, electrical codes and applicable requirements of the City of Roseville.

Under no circumstance shall the DG system's electric production (kWh) be designed exceed 100% of the Customer-Generator's most recent 12 month energy use (kWh). Residents that are proceeding with new residential construction that do not have the preceding 12 months' of energy use may use 3kWh per square foot as the maximum allowed size.

1. Certified Components or Systems

A nationally recognized testing laboratory must certify all flat plate solar electric modules and inverters. The modules must meet the requirements of the Underwriters Laboratory Standard 1703. The inverters must meet the requirements of UL 1741. The solar electric (PV) generation system must use components that are listed on the California Energy Commission's (CEC) list of "Eligible Equipment", as found on the CEC websites, "GO SOLAR CALIFORNIA" list.

2. Net Metering

Distributed generation systems installed before October 1, 2018 are considered "net metered" meaning there will be a meter that is able to spin in both directions. The system will connect to a breaker in the customer's panel. For a one line diagram of the connection refer to pages 8.2.4 & 8.2.5.

3. Multi-Register Metering – Roseville Solar 2.0

As of October 1, 2018, all new DG systems, and existing DG systems expanding more than 10%, a Roseville Solar 2.0 multi-register revenue meter shall be installed. The Roseville Solar 2.0 meter is capable of measuring the Customer-Generator's kWh consumption from the Utility's electric grid, and in the event the energy generated by the DG system exceeds the energy consumed, the meter will also measure the kWh that Roseville Electric Utility receives back to the electric grid from the Customer-Generator's DG energy system. For a one line diagram of the connection refer to pages 8.2.4 & 8.2.5.

4. Tagging

All DG systems will have special tags required on the customer's electric panel. Markings will also be placed on all DC equipment between the solar array and the inverter, and AC equipment between the inverter and utility service entrance meter to include all conduit, raceways, enclosures, combiner boxes, junction boxes, and cable assemblies, every 10 feet at turns and above and/or below penetrations.

For tagging and label requirements refer to section 5 and pages 8.2.3 – 8.2.5.

5. BATTERY STORAGE SYSTEMS

If using a COMBINER/GENERATION PANEL, signage stating, “NO ADDITIONAL LOADS / GENERATION IS TO BE ADDED TO THIS PANEL” shall be used.

Inverter systems operating solely with battery storage will be treated as a “PV ONLY” system for interconnection purposes.

A CRITICAL/EMERGENCY load panel can be used if desired. See page 8.2.5.

6. LINE SIDE TAPS

PV/Battery systems shall not be connected to the line side of a customer main breaker in any fashion. Also, see City of Roseville Municipal Code section 16.04.410 for service requirements.

7. PLANS AND SPECIFICATIONS

The Customer will submit to The City of Roseville for review, equipment specifications and detailed plans for the proposed installation of all interconnection facilities to be furnished by the Customer. Roseville Electric’s review of the Customer’s design and detailed plans does not confirm or endorse the Customer’s design or the equipment’s safety, durability, or capacity of equipment, nor is Roseville Electric’s acceptance an endorsement of any equipment.

8. INTERCONNECTION FACILITIES

The Customer will be fully responsible to furnish, install, operate, and maintain in good order and repair, without cost to Roseville Electric, equipment, and any control, protective and safety devices as Roseville Electric may require for interconnected generation.

9. CUSTOMER-OWNED METERING

Any equipment needed for monitoring/metering including CT’s, must be installed on the load side of the customer main breaker.

REQUIRED LABELS FOR RESIDENTIAL ELECTRIC (DG) SYSTEMS

- LABELS SHALL BE MADE OF RED PLASTIC MATERIAL WITH ENGRAVED WHITE LETTERS.
- LETTERS SHALL BE A MINIMUM 3/8" IN SIZE.
- THE LABELS SHALL BE PERMANENTLY ATTACHED TO THE APPROPRIATE PANEL.
- AC & DC CONDUIT, RACEWAY, ENCLOSURES, CABLE ASSEMBLIES AND JUNCTION BOXES SHALL BE RED BACKGROUND MATERIAL WITH WHITE LETTERING MADE OF DURABLE ADHESIVE, REFLECTIVE, WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT PER UL 969; TO ALERT FIRE SERVICE TO AVOID CUTTING THEM OFF.

WARNING!
**DUAL POWER SUPPLY
GENERATION ELECTRIC
SYSTEM**

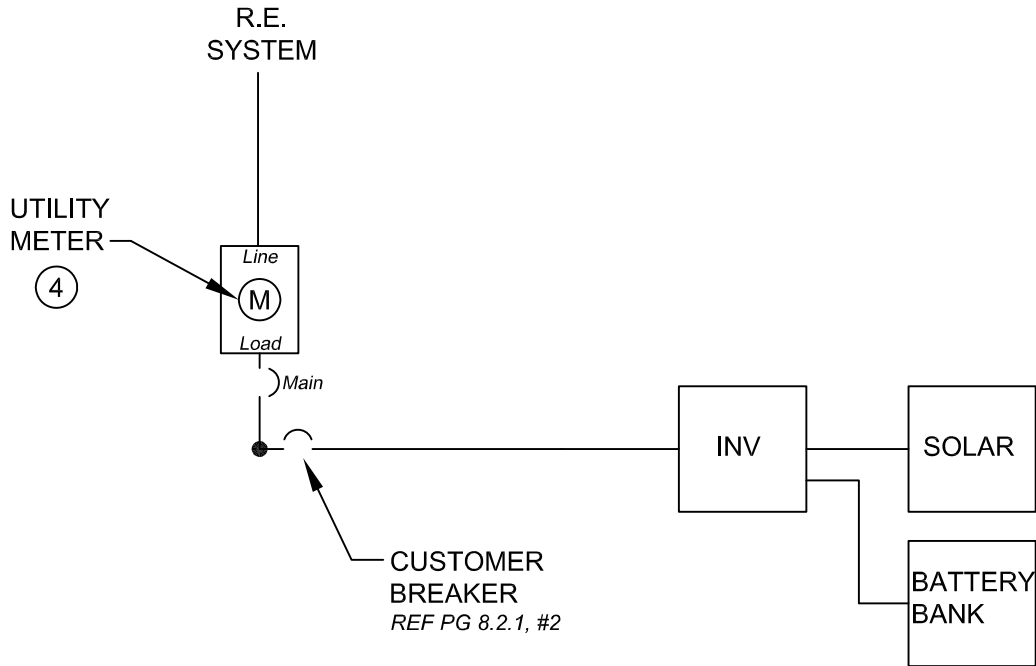
THIS LABEL TO BE ATTACHED TO METER PANEL

CAUTION:
**GENERATION ELECTRIC
CIRCUIT**

THIS LABEL TO BE ATTACHED TO AC AND DC CIRCUIT EQUIPMENT

ENGINEERING MANAGER <small>Joseph P. Farris</small>	RESIDENTIAL CUSTOMER OWNED INTERCONNECTED GENERATION REQUIREMENTS - LABELS						CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD
OPERATIONS MANAGER <small>Joseph P. Farris</small>	AK	WJ	WK	WJ	KZ	AM	VB
ENG. TECH. SUPERVISOR <small>Joseph P. Farris</small>	REVIEW COMMITTEE						DATE 07/12/23 DR. NO. PAGE 8.2.3

"NET METERED" CONNECTION DIAGRAM FOR RESIDENTIAL INTERCONNECTED GENERATION SYSTEMS

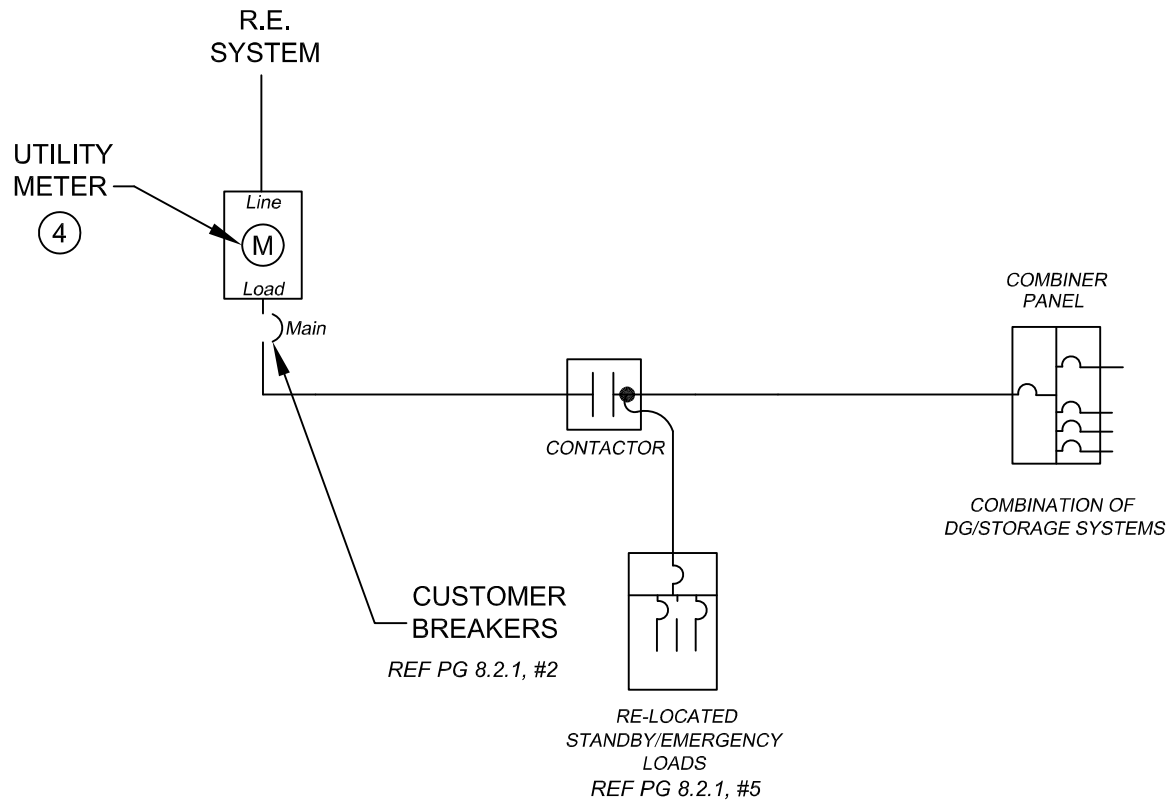


NOTES:

1. SERVICE ENTRANCE CONDUCTORS TO MEET N.E.C. FOR RESIDENTIAL APPLICATIONS ALSO REFER TO ELECTRIC SERVICE ENTRANCE REQUIREMENTS ON PAGE 8.1.4.
2. ALL ELECTRICAL MUST MEET CITY OF ROSEVILLE BUILDING CODES.
3. TAG TO SAY: "WARNING! DUAL POWER SUPPLY SOLAR ELECTRIC SYSTEM".
4. FOR TAGGING LABELS REFER TO PAGE 8.2.3

ENGINEERING MANAGER <i>Christopher P. Foster</i>	RESIDENTIAL CONNECTION DIAGRAM FOR INTERCONNECTED GENERATION & METERING						CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD	
OPERATIONS MANAGER <i>[Signature]</i> <small>10/10/2023 07:08 PDT</small>	<i>AK</i>	<i>WJ</i>	<i>WK</i>	<i>[Signature]</i>	<i>KL</i>	<i>AM</i>	<i>VB</i>	DR.NO. PAGE 8.2.4
ENG. TECH. SUPERVISOR <i>Joseph McKinley</i> <small>10/10/2023 06:52 PDT</small>	REVIEW COMMITTEE						DATE 07/12/23	

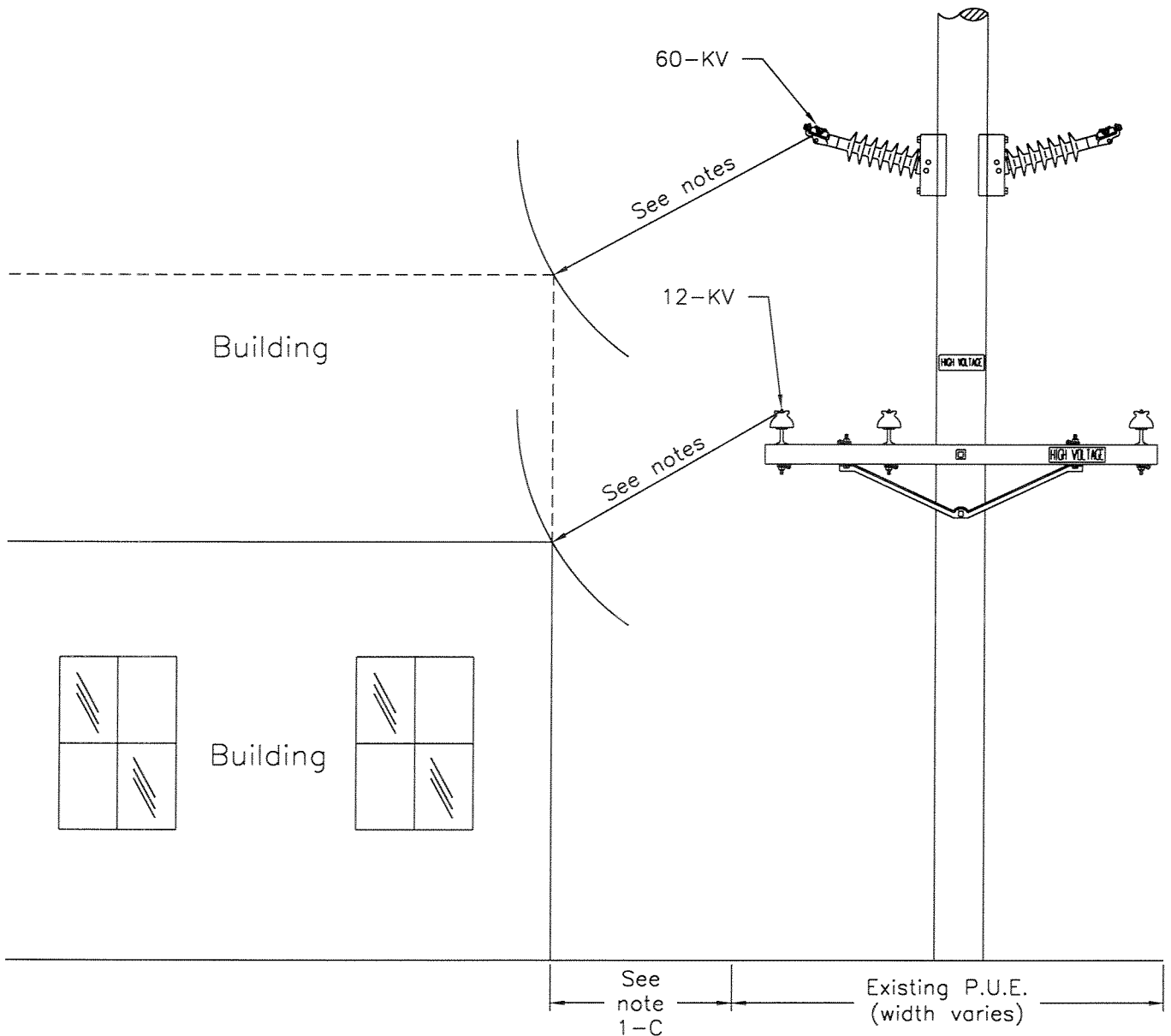
CONNECTION DIAGRAM FOR DG SYSTEMS FOR PARTIAL/WHOLE HOME BACKUP.



NOTES:

1. SERVICE ENTRANCE CONDUCTORS TO MEET N.E.C. FOR RESIDENTIAL APPLICATIONS ALSO REFER TO ELECTRIC SERVICE ENTRANCE REQUIREMENTS ON PAGE 8.1.4.
2. ALL ELECTRICAL MUST MEET CITY OF ROSEVILLE BUILDING CODES.
3. TAG TO SAY: "WARNING! DUAL POWER SUPPLY SOLAR ELECTRIC SYSTEM".
4. FOR TAGGING LABELS REFER TO PAGE 8.2.3.

ENGINEERING MANAGER <i>Joseph McKinley</i>	RESIDENTIAL CUSTOMER OWNED ELECTRIC INTERCONNECTION GENERATION REQUIREMENTS						CITY OF ROSEVILLE ROSEVILLE ELECTRIC CONSTRUCTION STANDARD
OPERATIONS MANAGER <i>AK</i>	<i>AK</i>	<i>WJ</i>	<i>WK</i>	<i>WJ</i>	<i>KL</i>	<i>AM</i>	<i>VB</i>
ENG. TECH. SUPERVISOR <i>Joseph McKinley</i>	REVIEW COMMITTEE						DATE 07/12/2023 DR.NO. PAGE 8.2.5



Notes:

1. All buildings and/or structures must be constructed in such a manner to maintain a minimum clearance of 15' from all existing or proposed Roseville Electric overhead power lines. This clearance will be measured to the conductor at maximum sag and sway. Roseville Electric Engineering Department will provide the calculations necessary to obtain the maximum sag and sway of the conductors. This required clearance can be obtained by any of the following at the developer's expense:
 - A. Raise the power lines by setting new power pole(s).
 - B. Place a new pole mid-span to minimize the sway of the conductor.
 - C. Locate the building to obtain the 15' required clearance.
 - D. Underground the 12kv high-voltage lines per Roseville Electric design.