

City of Campbell  
Electrical Specifications and Details  
December 8, 2006

**STREET LIGHTING POLES & FIXTURES**

Unless otherwise indicated on the Plans, street lighting fixtures shall be a 55 watt roadway luminaire, LPS (low pressure sodium) lamp, 120/240 volt HPF ballast, with PEC receptacle, drop acrylic lens and shall be a **Thomas & Betts/American Electric # SRX-55LD1MAC1** or approved equal.

The PEC (photoelectric cell) shall be a **Dark to Light #D124-1.5** or approved equal (NEMA twist-lock, 105-285 VAC, 1800VA, no time delay).

Unless otherwise indicated on the Plans, lighting standards shall be a Valmont or Ameron brand (or approved equal), **galvanized Caltrans type 15** lighting standard and **luminaire arm length shall be 8 feet.**

Unless otherwise indicated on the Plans, lighting standards shall have **underground feed** and that **voltage shall be 240 VAC.**

**CONSTRUCTION DETAILS**

Construction and installation of street lighting foundations, pull boxes, conduits and conductors shall conform to the specific project Plans, to City of Campbell Details No. E-1, E-2, E-3, E-4, E-5, E-6 and to the following:

**Unless otherwise indicated on the Plans or as directed by the Engineer, street lighting foundations shall be located at 30" (thirty inches) from face of curb to pole foundation centerline.**

The foundation anchor bolts shall be set at the appropriate height so that when the pole is set and plumbed on leveling nuts with washers, and secured with the top nuts with washers, at least 4 threads or 1/2", but no more than 1", of clear anchor bolt thread will be exposed above the top nut. The leveling nuts shall be above the cap and in the grout area and washers shall be placed between the pole flange and the nuts used to secure the pole. **There should remain a minimum of 1 inch and a maximum of 2 inches between the bottom of the pole flange and the top of the sidewalk or PCC cap.**

After the pole is erected and plumbed, the Contractor shall place grout between the sidewalk or PCC cap and the pole flange.

In unimproved or landscaped areas a PCC pad shall be placed around the base of the lighting standard. This pad shall also encompass the street lighting pull box located at the base of the standard and shall conform to City of Campbell Detail No. E-6.

Unless otherwise noted on the Plans, conduits placed between pull boxes shall be 1 ½" schedule 40 PVC. **Conduits into street light foundations shall be 1½" rigid galvanized steel (RGS).** PVC conduits shall have bell ends and RGS conduits shall have grounding bushings.

Unless otherwise indicated on the Plans or where the street light will be sourced from a PG & E secondary box less than 10 (ten) feet from the street light pole, a pull box shall be placed within 3 feet of the base of the new lighting standard and it shall contain the 5/8" x 8' copper-clad or ¾" x 10' galvanized steel ground rod and the fuse holder for the street light fixture. The lid for this box shall read "CAMPBELL STREET LIGHTING". Pull box installation shall conform to City of Campbell Details No. E-3 and E-4.

Unless otherwise indicated on the Plans , a service pull box shall be placed within 3 feet of the PG&E secondary pull box as depicted in City of Campbell Detail No. E-1. The lid for this pull box shall read "CAMPBELL SERVICE" and pull box installation shall conform to City of Campbell Detail No. E-5.

Unless otherwise indicated on the Plans, all street lighting pull boxes shall be Caltrans #3 ½ (Christy N9 or equal).

Conduit placed in a trench in paved areas shall be placed at 18" depth, back-filled with 2-sack sand-cement slurry and capped with 1 ½" A.C. as per Detail 9 of the CCSS. Conduit placed in a trench under future sidewalk or driveway shall be installed at a depth of 18" and back-filled with 6" of 2-sack sand-cement slurry and the remainder with compacted back-fill per Detail 10 of the CCSS. Conduit placed in a trench in unimproved or landscaped areas shall be placed at 18" depth, back-filled with 6" of 2-sack sand-cement slurry and 12" of compacted native material as per Detail 11 of the CCSS.

A bare, stranded #8 AWG copper bond wire shall be placed in all new conduits and shall be tied to the lighting standard's grounding bolt inside the hand hole area, the grounding bushings of the foundation's RGS conduit and to the ground rod in the pull box adjacent to the new lighting standard. Bonding and grounding of street lighting standards and the conduit system shall conform to City of Campbell Details No. E-3 and E-4.

Street lighting conductors between pull boxes shall be #8 AWG stranded copper with type TW or THW insulation for 240 volt street lighting (red and black or black and black). Conductors from lighting fixture down to fuse holder in pull box shall be solid copper #10 AWG with type TW or THW insulation for 240 volt street lighting (red and

black or black and black). **TWN, THHN or THWN (nylon jacketed) insulation is NOT acceptable for any street lighting conductors.**

Splicing of conductors shall be performed only in pull boxes and shall be made with crimped copper "C-taps". **Wire nuts shall NOT be used.** Splice insulation on conductor splices and on fuse holders shall be mastic-lined, heat-shrinkable, heavy wall polyolefin shrink tubing. **Self-fusing rubber tape, PVC electrical tape and/or brush-on waterproofing shall NOT be used as fuse holder or splice insulation.**

The fuse holders for 240 volt street lighting shall be Bussman "HEX" or Littelfuse "LEX" type. The fuses in the "CAMPBELL STREET LIGHTING" pull box shall be "BAF-3", "OTM-3" or equal and the fuses in the "CAMPBELL SERVICE" pull box shall be "BAF-30", "OTM-30" or equal.

A 2" schedule 40 PVC conduit stub shall be placed from the "CAMPBELL SERVICE" pull box into the PG & E secondary box. The minimum radius for bends and sweeps used between the "CAMPBELL SERVICE" pull box and the PG & E secondary box shall be 18 inches for a 90° bend and 24 inches for a 45° bend.

The street lighting conductors shall be run in this stub from the "CAMPBELL SERVICE" pull box to the PG & E secondary box and the pigtail from the "LINE" side of the fuse holder shall be coiled in the PG&E secondary box left with 3 feet of slack and the loose ends of the conductors shall be waterproofed with PVC tape.

When the Contractor has completed all work as specified in the Plans regarding the street lighting installation and it is the opinion of the Contractor that said installation is in conformance with the applicable City of Campbell Specifications, the City of Campbell's Public Works Inspector shall be notified that the street light installation is ready to be inspected.

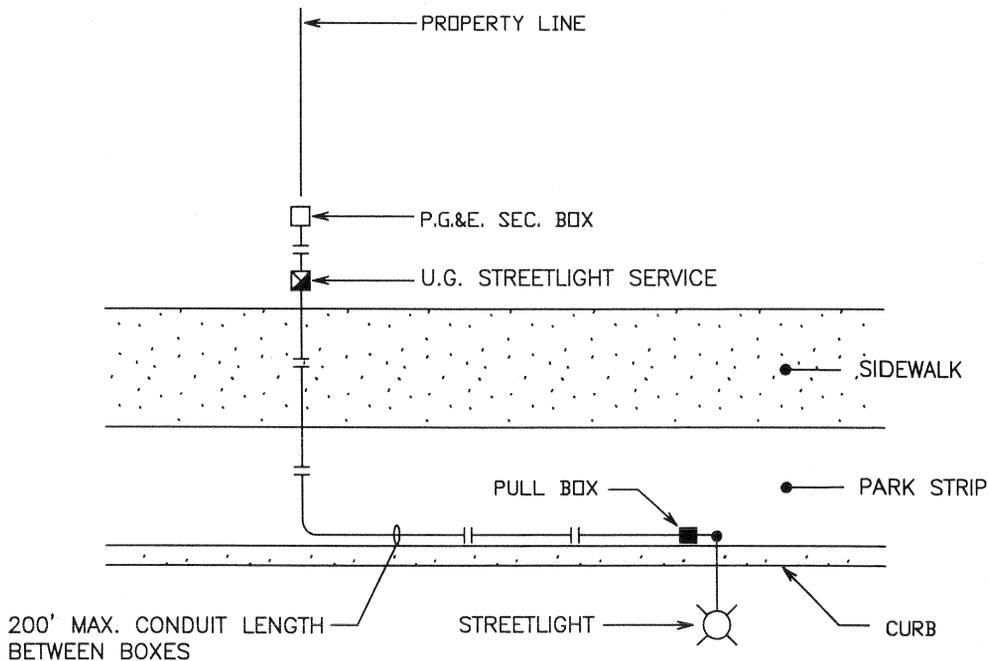
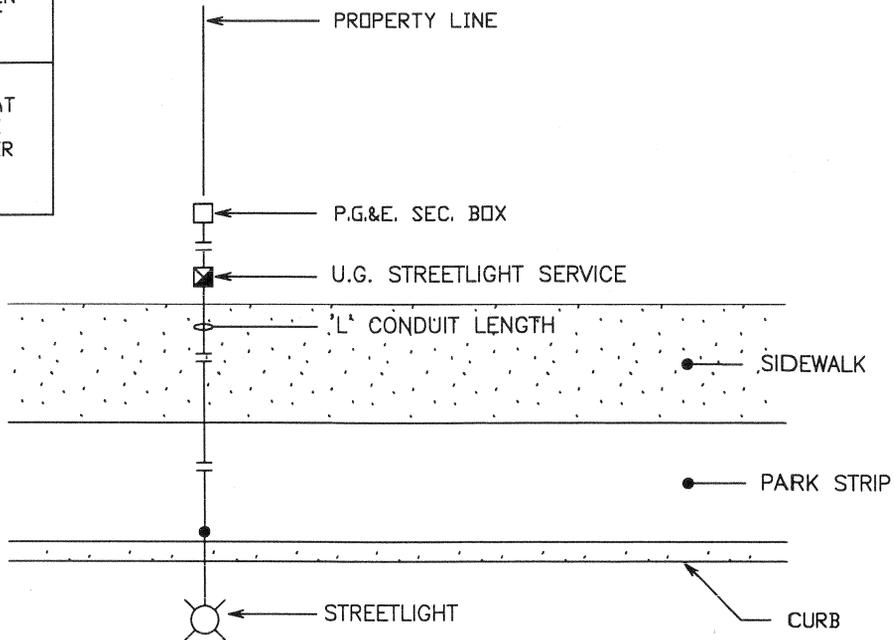
After the street light installation has been inspected and all deficiencies, if any, are corrected and the installation has been approved by the City of Campbell's Public Works Inspector and Lighting and Traffic Signal Supervisor, Campbell's Lighting and Traffic Signal Supervisor will formally request of PG & E that the new street lighting standard(s) be connected. This is contingent upon the submittal of adequate proof to the City of payment to PG & E of the associated street lighting connection fee. A photocopy of the receipt for fees paid to the PG & E clerk, showing date and amount paid, is acceptable and preferred.

Unless otherwise indicated on the Plans or as directed by the Engineer, the City of Campbell will furnish and apply the appropriate street light number labels to the new street light standard(s).

**CONDUIT LENGTH 'L' TABLE**

IF 'L' IS LESS THAN 10' - THEN PULL BOX IS NOT REQUIRED AT ELECTROLIER

IF 'L' IS GREATER THEN 10' - THEN PULL BOX IS REQUIRED AT ELECTROLIER, PLACE PULL BOX ADJACENT TO ELECTROLIER, PER "EXTENDED FOUNDATION CAP" DRAWING E-6

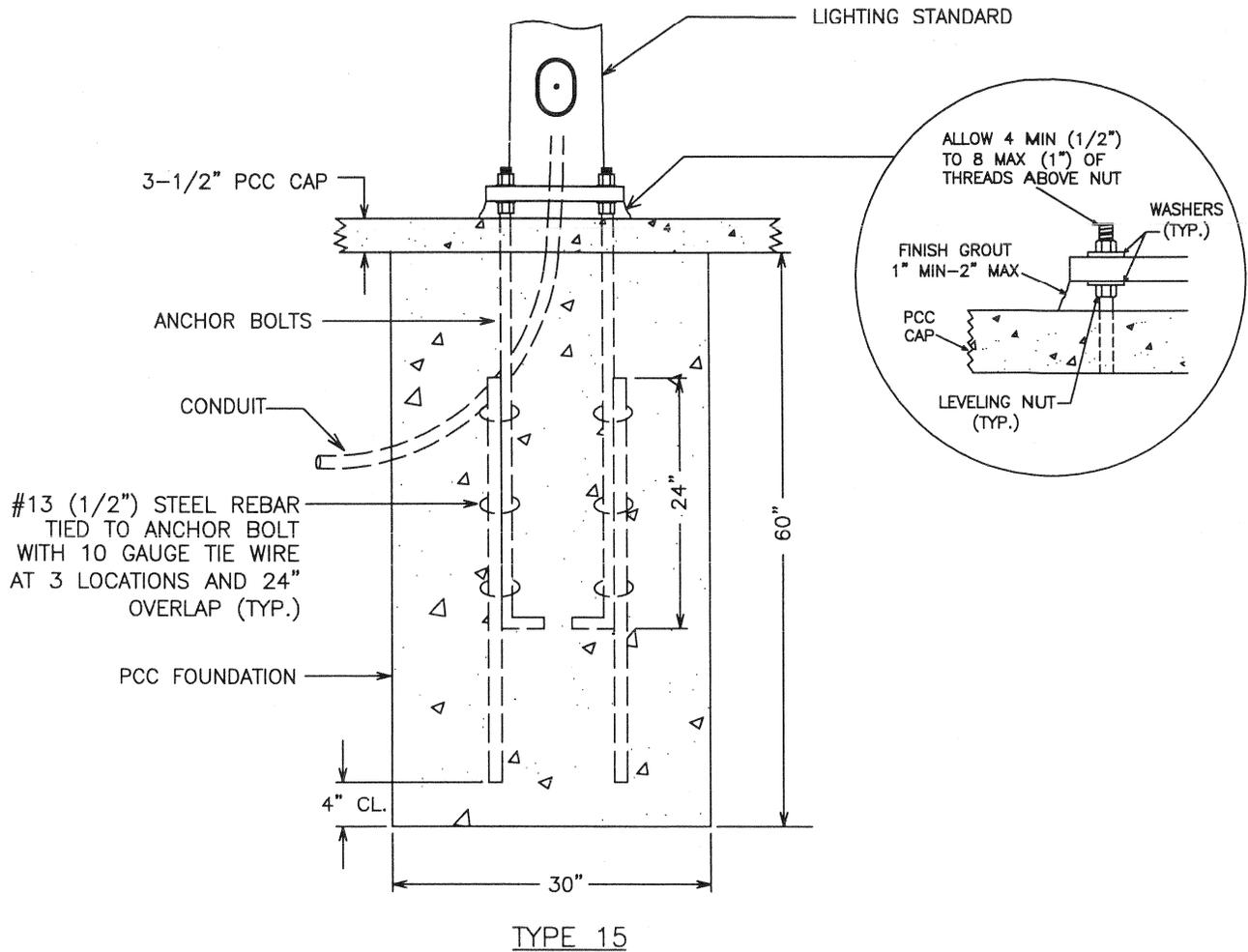


**CITY OF CAMPBELL  
PUBLIC WORKS DEPARTMENT**

DRAWN BY:	DATE <i>12/8/06</i>
CHECKED BY:	DATE
APPROVED BY: <b>MICHELLE QUINNEY CITY ENGINEER</b>	

**P.G.&.E. SECONDARY/U.G.  
STREETLIGHT SERVICE  
PULL BOX LOCATION FOR  
NEW U.G. RESIDENTIAL  
DEVELOPMENT**

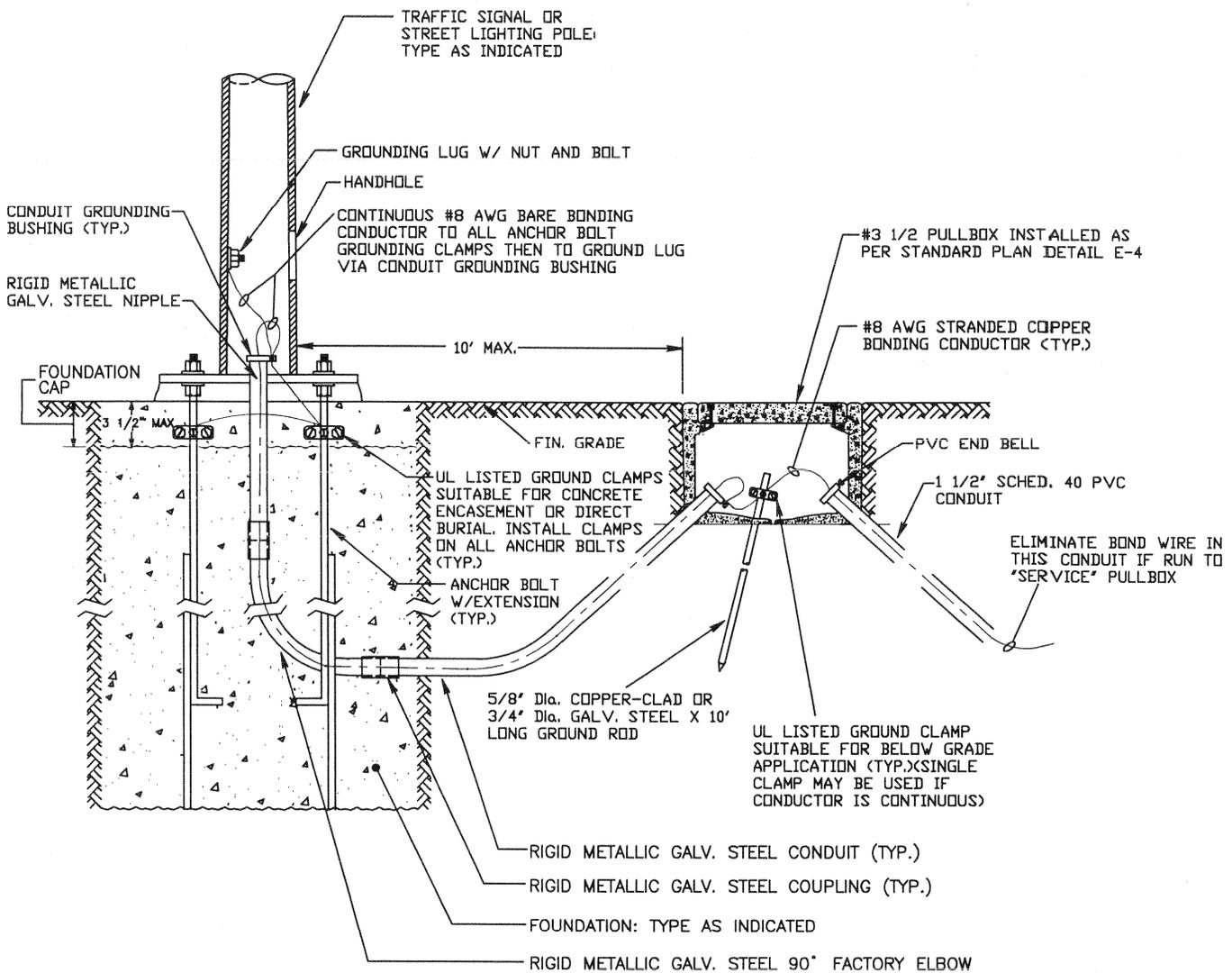
**DETAIL  
NO.  
E-1**



**NOTES:**

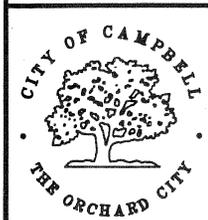
1. STOP FOUNDATION POUR 3-1/2" BELOW GRADE. PLACE FINISH CAP AFTER STANDARD IS SET AND PLUMBED. BUILD UP GROUT UNDER STANDARD BASE ON LOW SIDE, 1" MIN. TO 2" MAX. (TYP.)
2. SURFACE OF FINISH CAP TO BE AT GRADE AND SLOPED TO MATCH EXISTING OR FUTURE SIDEWALK (TYP.).
3. ANCHOR BOLT SIZE AND LENGTH SHALL BE 1"x36"x4" GALVANIZED L ANCHOR BOLT, 4 EACH. ALL NUTS AND WASHERS SHALL BE GALVANIZED.
4. SECTION OF ANCHOR BOLT BENT TO 90° RIGHT ANGLE (TYP.).
5. STANDARDS TO BE SET AT 30" TO CENTER FROM FACE OF CURB UNLESS SHOWN OTHERWISE.
6. SEE DRAWING E-6 FOR PLAN LOCATION AND FOUNDATION CAP DETAIL REQUIREMENTS OF STREET LIGHT.
7. GROUND ROD SET OBLIQUELY THROUGH FOUNDATION IN UNDISTURBED SOIL FOR STREET LIGHTS FED OVERHEAD AND SET IN PULL BOX FOR STREET LIGHTS FED UNDERGROUND.
8. SEE DRAWING E-3 FOR POLE BONDING REQUIREMENT.

	<b>CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT</b>		<b>LIGHTING STANDARD - GALVANIZED TYPE 15 FOUNDATION DETAIL</b>	<b>DETAIL NO. E-2</b>
	DRAWN BY:	DATE 12/8/06		
	CHECKED BY:	DATE		
	APPROVED BY:  MICHELLE QUINNEY CITY ENGINEER			



NOTES:

1. BONDING/ GROUNDING DETAIL FOR USE WITH GALVANIZED RIGID STEEL CONDUIT AND PULL BOX WITHIN 10' FROM POLE.
2. THE GROUND ROD SHALL BE INSERTED AT AN OBLIQUE ANGLE NOT TO EXCEED 45° DEGREES FROM THE VERTICAL.
3. TERMINATE BONDING CONDUCTOR AT POLE GROUNDING LUG WITH UL APPROVED GROUNDING LUG.
4. SEE FOUNDATION DETAILS, DRAWING E-2
5. SEE PULLBOX DETAILS, DRAWING E-4.



<b>CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT</b>	
DRAWN BY:	DATE 12/8/06
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APPROVED BY:	MICHELLE QUINNEY CITY ENGINEER

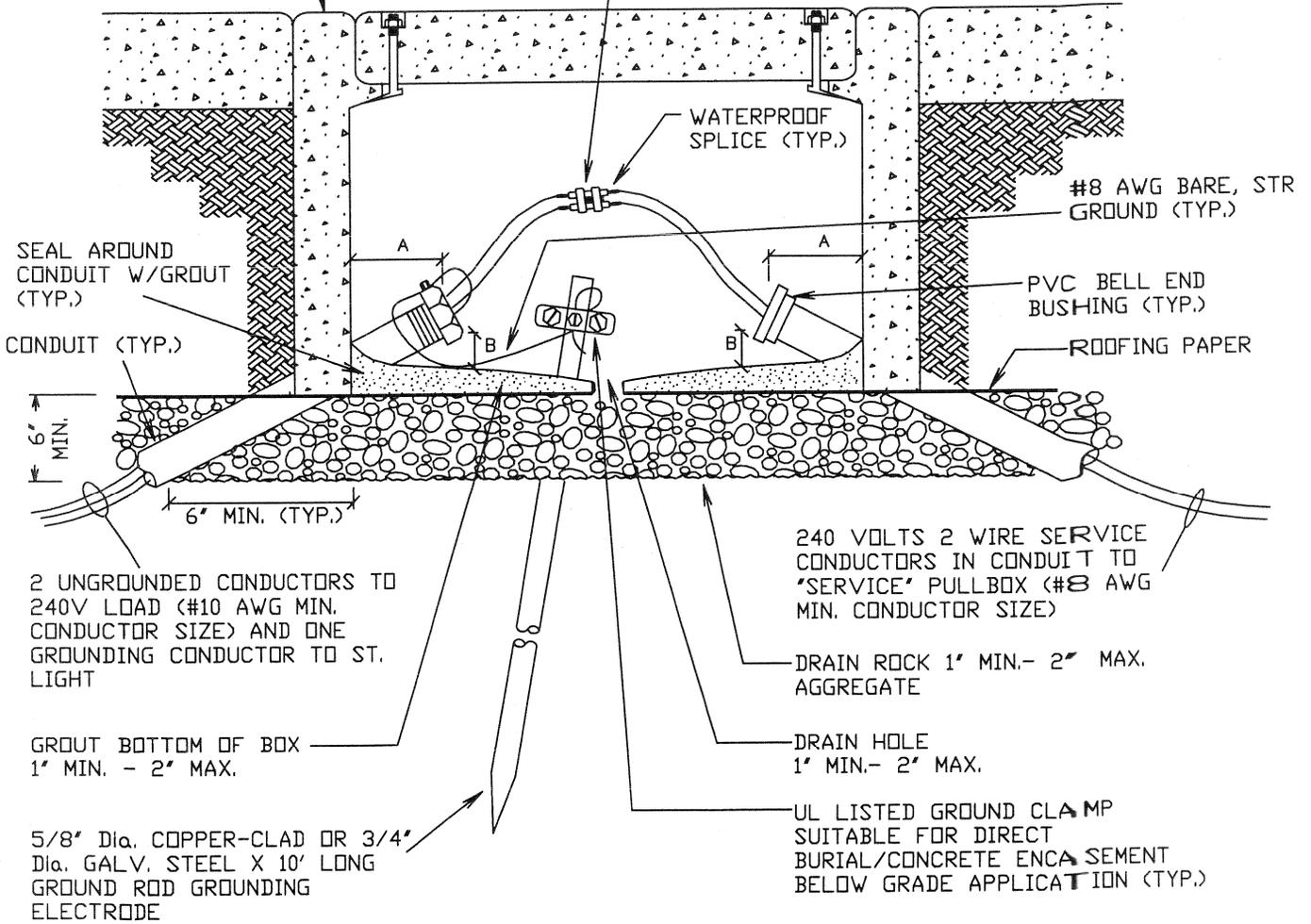
POLE BONDING

DETAIL  
NO.  
E-3

#3 1/2 PRECAST CONCRETE BOX MIN., WITH LID MARKED "CAMPBELL ST. LIGHTING" OR AS SPECIFIED ON DRAWINGS

WATERPROOF 2 POLE FUSED SPLICE CONNECTOR RATED 30A, 600V WITH TWO 3A FUSES

SIDEWALK OR TOP OF CURB GRADE



DIMENSION A: 1" MIN., 2" MAX. (TYP.- ALL CONDUITS)  
 DIMENSION B: 1" MIN., 2" MAX. ABOVE GROUT (TYP.- ALL CONDUITS)

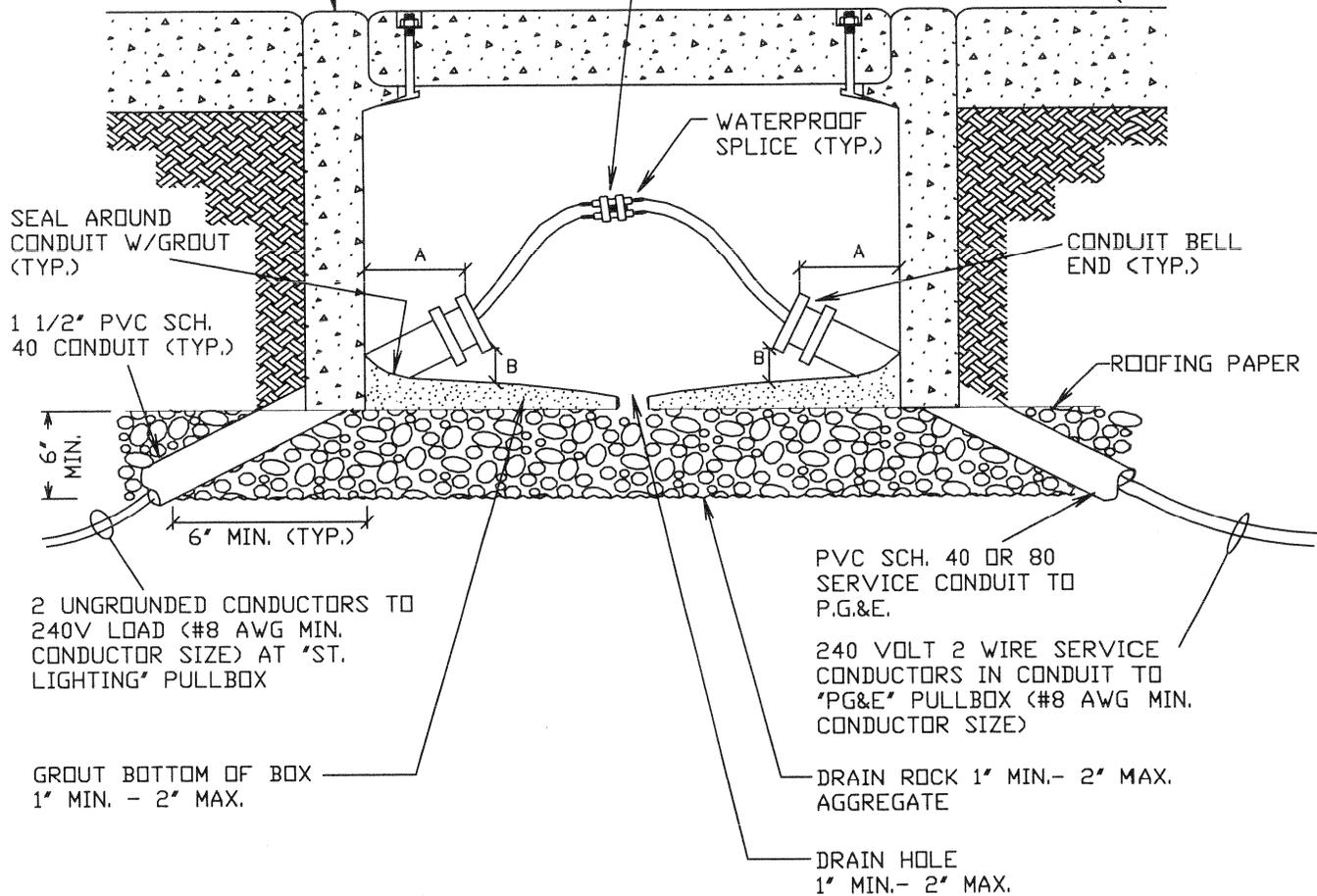
NOTES:  
 1. SEE NOTES DRAWINGS E-1, E-3, E-5  
 2. PROVIDE 3' OF SLACK IN ALL CONDUCTORS IN ACCORDANCE WITH SPECIFICATIONS. (SLACK NOT SHOWN).

	CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT		UNDERGROUND STREETLIGHT PULLBOX, 240V	DETAIL NO. E-4
	DRAWN BY:	DATE 12/8/06		
	CHECKED BY:	DATE		
	APPROVED BY:	MICHELLE QUINNEY CITY ENGINEER		

#3 1/2 PRECAST CONCRETE BOX MIN., WITH LID MARKED "CAMPBELL SERVICE" OR AS SPECIFIED ON DRAWINGS

WATERPROOF 2 POLE FUSED SPLICE CONNECTOR RATED 30A, 600V WITH TWO 30A FUSES

SIDEWALK OR TOP OF CURB GRADE



PVC SCH. 40 OR 80 SERVICE CONDUIT TO P.G.&E.

240 VOLT 2 WIRE SERVICE CONDUCTORS IN CONDUIT TO "PG&E" PULLBOX (#8 AWG MIN. CONDUCTOR SIZE)

DRAIN ROCK 1" MIN.- 2" MAX. AGGREGATE

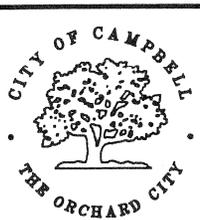
DRAIN HOLE 1" MIN.- 2" MAX.

2 UNGROUNDED CONDUCTORS TO 240V LOAD (#8 AWG MIN. CONDUCTOR SIZE) AT "ST. LIGHTING" PULLBOX

GROUT BOTTOM OF BOX 1" MIN. - 2" MAX.

DIMENSION A: 1" MIN., 2" MAX. (TYP.- ALL CONDUITS)  
 B: 1" MIN., 2" MAX. ABOVE GROUT (TYP.- ALL CONDUITS)

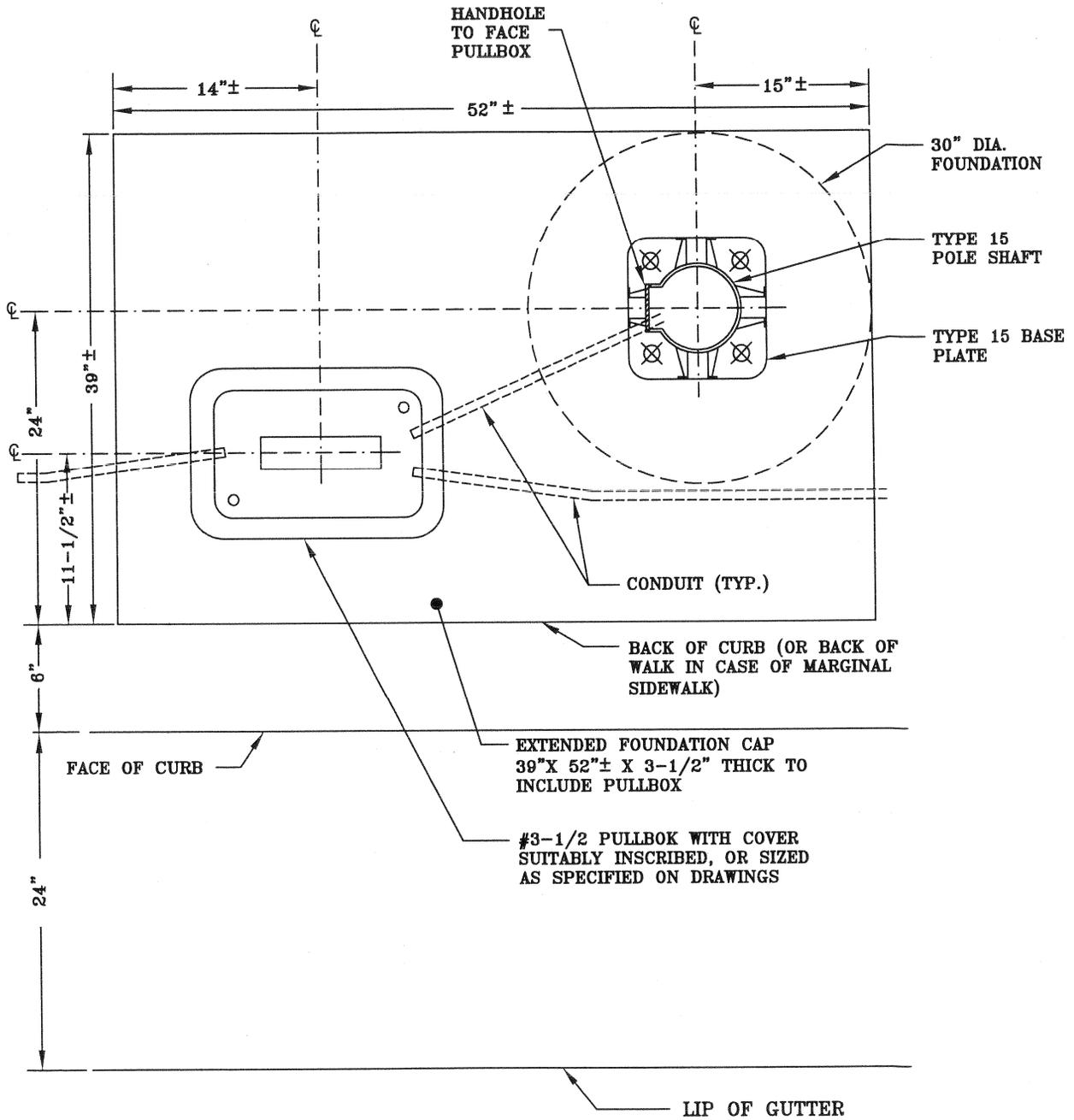
NOTES:  
 1. SEE NOTES DRAWINGS E-1, E-3, E-4  
 2. PROVIDE 3' OF SLACK IN ALL CONDUCTORS IN ACCORDANCE WITH SPECIFICATIONS. (SLACK NOT SHOWN).



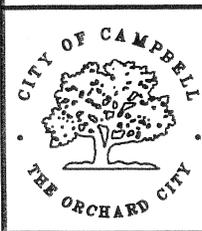
<b>CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT</b>	
DRAWN BY:	DATE 12/8/06
CHECKED BY:	DATE
APPROVED BY:	MICHELLE QUINNEY CITY ENGINEER

**UNDERGROUND  
STREETLIGHT SERVICE  
PULLBOX, 240V**

**DETAIL  
NO.  
E-5**



NOTES: SEE PULLBOX DETAILS, DRAWING E-4 AND FOUNDATION DETAILS DRAWINGS E-2 & E-3.



CITY OF CAMPBELL  
PUBLIC WORKS DEPARTMENT

DRAWN BY:      DATE 12/8/06

CHECKED BY:      DATE

APPROVED BY:   
MICHELLE QUINNEY  
CITY ENGINEER

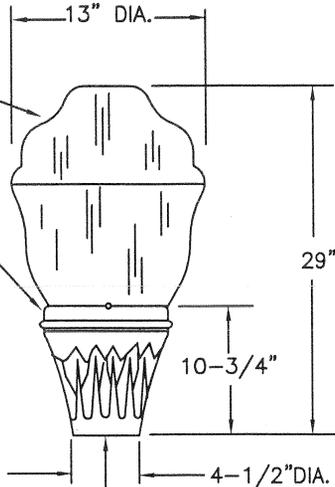
ELECTROLIER / PULLBOX  
& FOUNDATION CAP  
DETAIL

DETAIL  
NO.  
E-6

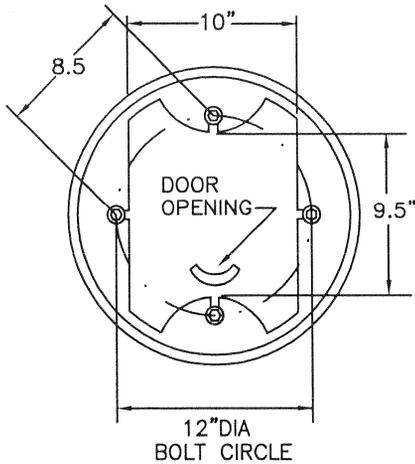
GRANVILLE SERIES  
PRISMATIC GLASS  
REFLECTOR/REFRACTOR  
TYPE IV DIST.  
# GV-4-N-N-U

SET SCREWS, BOTH  
TOP AND BOTTOM

SLIPFITTER TO ACCEPT  
A TENON 3" O.D. BY 3" TALL



UNIQUE SOLUTION  
# W12C/17-CA/PP  
WADSWORTH SERIES  
STD. CAST ALUMINUM, TAPERED,  
FLUTED, PRIME PAINTED  
17 INCH DIA. BASE  
12 FT. HEIGHT



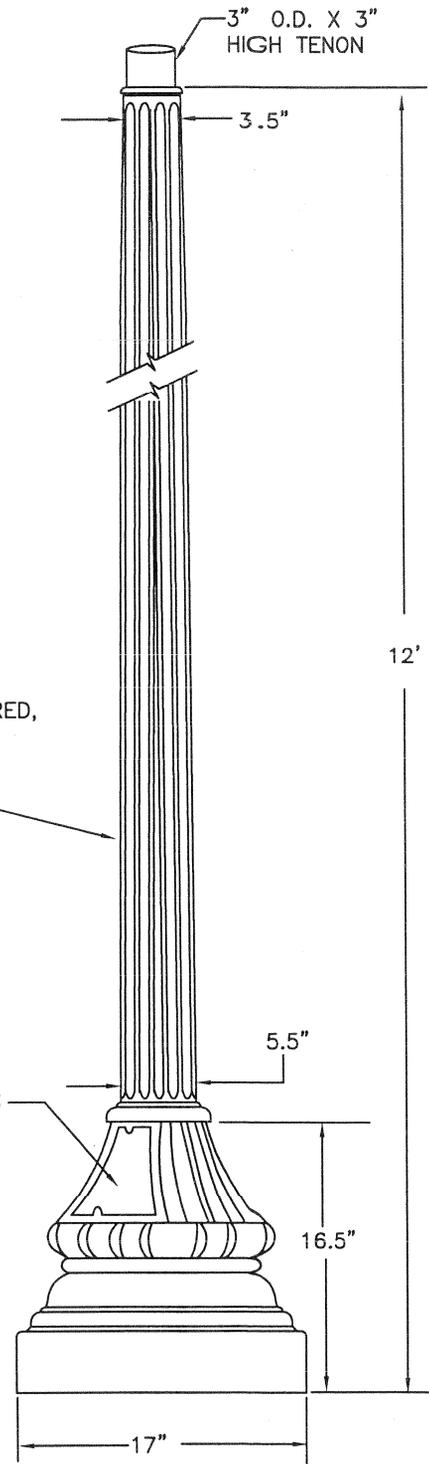
ANCHORAGE DETAIL

GENERAL NOTES

STREET LAMP SHALL BE # MH-175/U

LUMINAIRE SHALL BE 175W METAL HALIDE (MOGUL BASE),  
MULTI-VOLT, LEAF STYLE BALLAST HOUSING, BLACK,  
GRANVILLE SERIES; WITH REFRACTOR, PRISMATIC GLASS,  
TYPE IV DISTRIBUTION, GRANVILLE SERIES,  
NO TRIM, NO FINIAL:

HOLOPHANE/UNIQUE SOLUTIONS  
#GV-175MH-MT-L-B-4-N-N-U



NTS



CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT		REV.	DATE	BY
DRAWN BY:	DATE 12/8/06			
CHECKED BY:	DATE			
APPROVED BY:	MICHELLE QUINNEY CITY ENGINEER			

DOWNTOWN/ORCHARD  
CITY GREEN  
DECORATIVE  
STREET LIGHT  
DETAIL

J./Details/Lights/ST7&8

DETAIL  
NO.  
ST7

## POLE PAINTING NOTES:

Do NOT order poles pre-painted from factory. It is preferable to order the poles prime painted (as indicated by the "PP" suffix under the pole ordering information) and have them painted by a local professional painting contractor.

The primer and finish is each a two part process, low VOC and, in order to achieve the paint thickness, gloss and longevity desired, **should be applied to manufacturer's specifications by an experienced professional.** A factory-recommended painter is Stockton Tri Industries of Stockton, CA., USA. Contact Kevin at telephone 1-209-948-9701.

The two part primer and two part polyurethane finish coat is available from: Carboline Co. represented by Bill Eggers, 925-283-1177

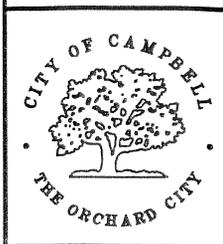
- Primer, **Carboline # 890** epoxy primer
- Finish coat, **Carboline # 134 HG** polyurethane finish, color #G-342

Decorative Street Light Distributors:

Graybar Electric  
 2345 Paragon Dr.  
 San Jose, CA 95131  
 Phone: 408-441-9009  
 Fax: 408-441-9022  
 Attention: Ernie Jimenez

Consolidated Electrical Distributors  
 255 Commercial St.  
 San Jose, CA 95112  
 Phone: 408-297-2200  
 Fax: 408-286-2414  
 Attention: Pete Viviano

Electrical Distributors  
 1135 Auzerais Ave.  
 San Jose, CA 95112  
 Phone: 408-293-5818  
 Fax: 408-287-1152  
 Attention: Doug Clifford



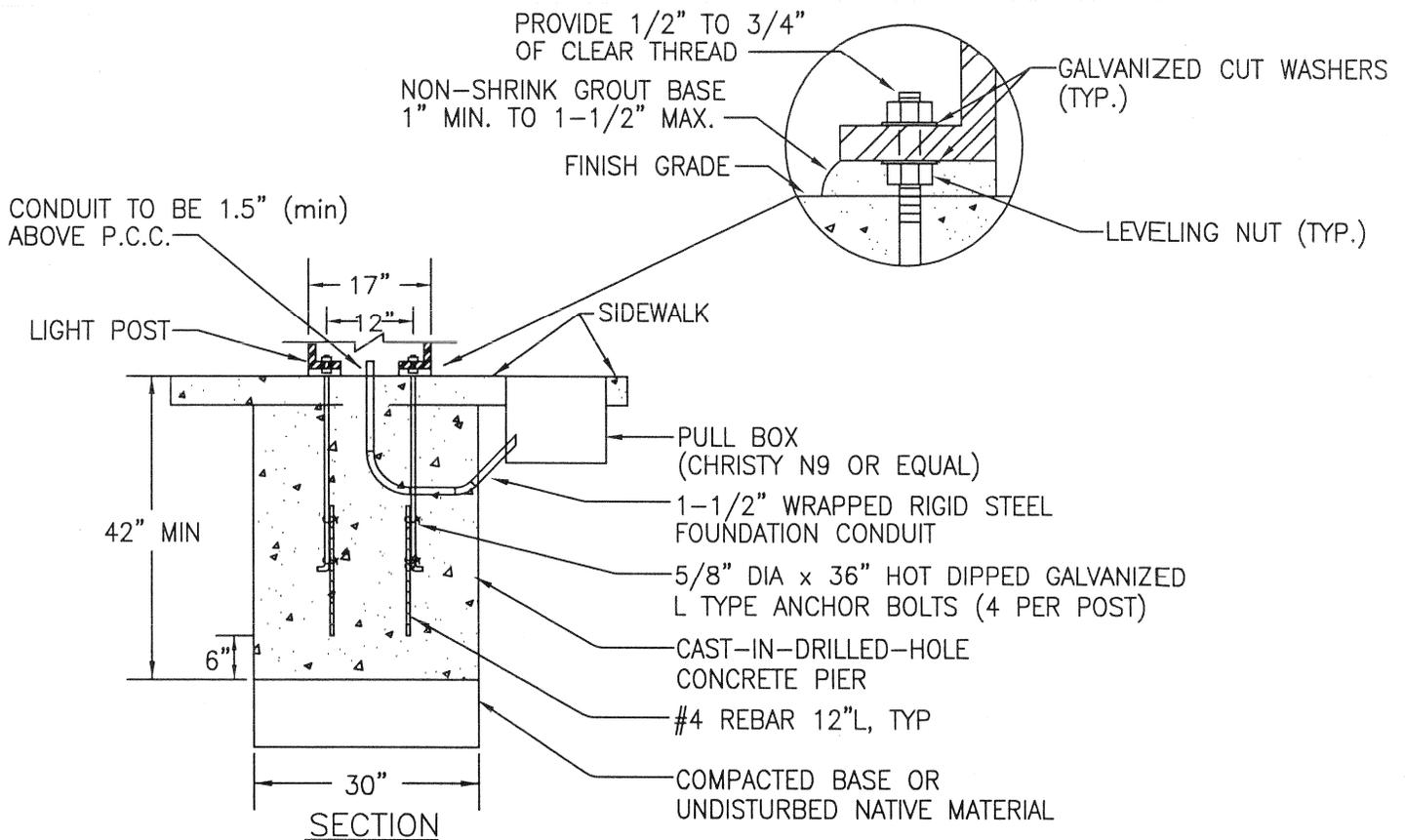
CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT		REV.	DATE	BY
DRAWN BY:	DATE 12/8/06			
CHECKED BY:	DATE			
APPROVED BY: MICHELLE QUINNEY CITY ENGINEER				

DOWNTOWN/ORCHARD  
 CITY GREEN  
 DECORATIVE  
 STREET LIGHT  
 NOTES

J./Details/Lights/ST7&8

DETAIL  
 NO.  
 ST8

**MATERIALS AND DIMENSIONS:**  
 CEMENT-6 SACK 3/4" MIX  
 FOUNDATION-42"DIA.X30"DIA.  
 REBAR - 4#4 12"L

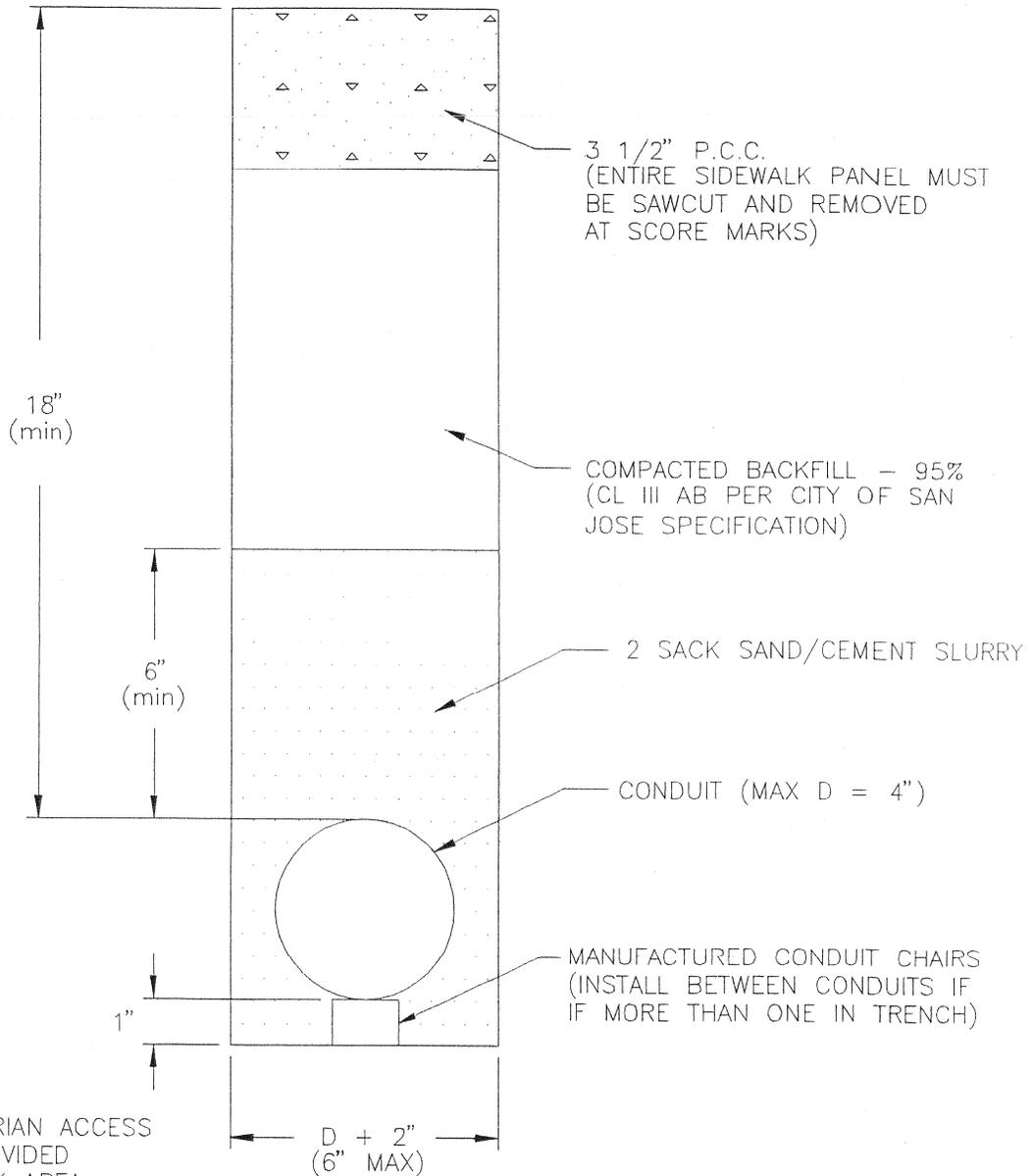


**GENERAL NOTES:**

1. FOUNDATION IS TO BE POURED MONOLITHIC.
2. PAD WILL BE POURED IN 2 POURS. CAP TO BE POURED LAST. CAP IS TO BE 4" HIGH.
3. CONDUIT IS TO ENTER THROUGH SIDE OF BOX AT A 45 DEGREE ANGLE.
4. GROUND ROD AND FUSE HOLDER SHALL BE PLACED WITHIN THE PULL BOX.
5. SEE PULL BOX DETAIL E-4
6. SEE POLE BONDING DETAIL E-3
7. STANDARDS TO BE SET 30" TO CENTER FROM FACE OF CURB UNLESS SHOWN OTHERWISE

NTS

	<b>CITY OF CAMPBELL          PUBLIC WORKS DEPARTMENT</b>		REV.	DATE	BY	<b>TYPE A FOOTING          (SIDEWALK)          DETAIL</b>	<b>DETAIL          NO.           ST9</b>
	DRAWN BY:	DATE 12/8/06					
	CHECKED BY:	DATE					
	APPROVED BY:	<b>MICHELLE QUINNEY          CITY ENGINEER</b>					
						J:/Details/Lights/ST9	



NOTES

- ① SAFE PEDESTRIAN ACCESS MUST BE PROVIDED AROUND WORK AREA.
- ② PERMANENT IMPROVEMENTS SHALL BE INSTALLED WITHIN 5 DAYS OF TRENCHING.

NOT TO SCALE

LEGEND

D = CONDUIT OUTSIDE DIAMETER

SIGNAL, LIGHTING, AND ELECTRICAL CONDUIT INSTALLATION  
WALKWAY AREAS

REVISED

DATE: 12/8/06

DRAWN BY: CAD CHECKED BY: MD

APPROVED: [Signature]

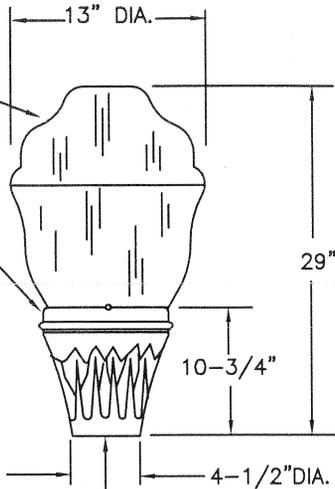
CITY OF CAMPBELL

DETAIL 10

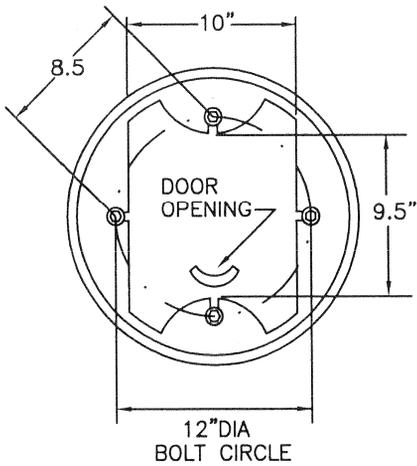
GRANVILLE SERIES  
 PRISMATIC GLASS  
 REFLECTOR/REFRACTOR  
 TYPE IV DIST.  
 # GV-4-N-N-U

SET SCREWS, BOTH  
 TOP AND BOTTOM

SLIPFITTER TO ACCEPT  
 A TENON 3" O.D. BY 3" TALL



UNIQUE SOLUTION  
 # W12C/17-CA/PP  
 WADSWORTH SERIES  
 STD. CAST ALUMINUM, TAPERED,  
 FLUTED, PRIME PAINTED  
 17 INCH DIA. BASE  
 12 FT. HEIGHT

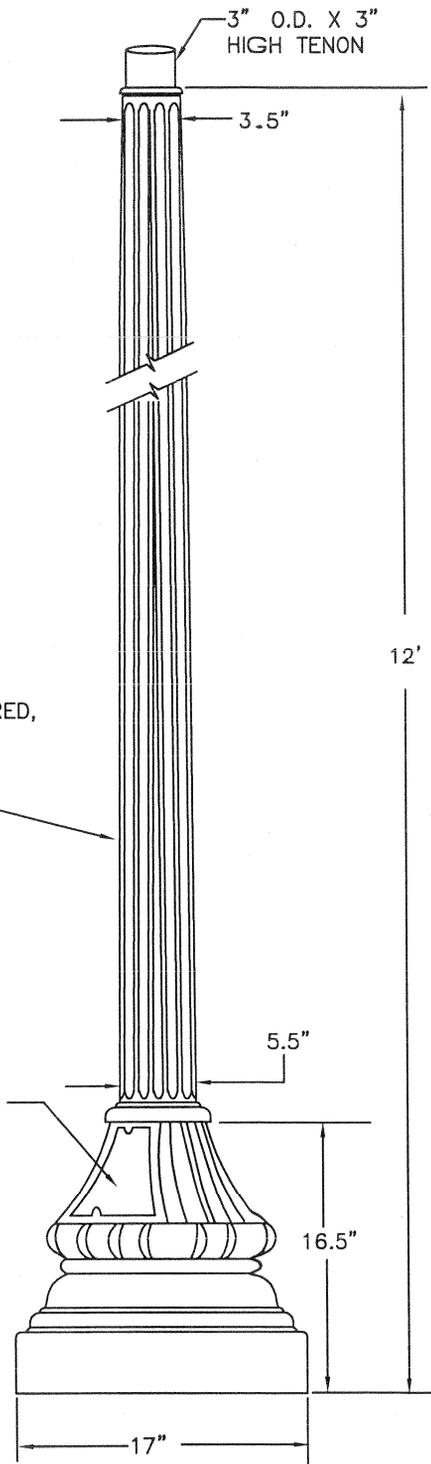


ANCHORAGE DETAIL

GENERAL NOTES

STREET LAMP SHALL BE # LU-150/155 OR C150S55

LUMINAIRE SHALL BE 150W HIGH PRESSURE SODIUM  
 (MOGUL BASE), MULTI-VOLT, LEAF STYLE BALLAST  
 HOUSING, BLACK, GRANVILLE SERIES; WITH REFRACTOR,  
 PRISMATIC GLASS, TYPE IV DISTRIBUTION, GRANVILLE  
 SERIES, NO TRIM, NO FINIAL:  
 HOLOPHANE/UNIQUE SOLUTIONS  
 #GV-15AHP-MT-L-B-4-N-N-U



NTS



CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT		REV.	DATE	BY
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CHECKED BY:	DATE			
APPROVED BY:	MICHELLE QUINNEY CITY ENGINEER			

CITY PARK  
 DECORATIVE  
 LIGHT  
 DETAIL

J:/Details/Lights/ST10 & 11

DETAIL  
 NO.  
 ST10

## POLE PAINTING NOTES:

Do NOT order poles pre-painted from factory. It is preferable to order the poles prime painted (as indicated by the "PP" suffix under the pole ordering information) and have them painted by a local professional painting contractor.

The primer and finish is each a two part process, low VOC and, in order to achieve the paint thickness, gloss and longevity desired, **should be applied to manufacturer's specifications by an experienced professional.** A factory-recommended painter is Stockton Tri Industries of Stockton, CA., USA. Contact Kevin at telephone 1-209-948-9701.

The two part primer and two part polyurethane finish coat is available from: Carboline Co. represented by Bill Eggers, 925-283-1177

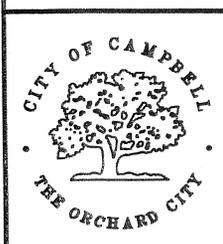
- Primer, **Carboline # 890** epoxy primer
- Finish coat, **Carboline # 134 HG** polyurethane finish, color #G-342

### Decorative Street Light Distributors:

Graybar Electric  
 2345 Paragon Dr.  
 San Jose, CA 95131  
 Phone: 408-441-9009  
 Fax: 408-441-9022  
 Attention: Ernie Jimenez

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 255 Commercial St.  
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 Phone: 408-293-5818  
 Fax: 408-287-1152  
 Attention: Doug Clifford

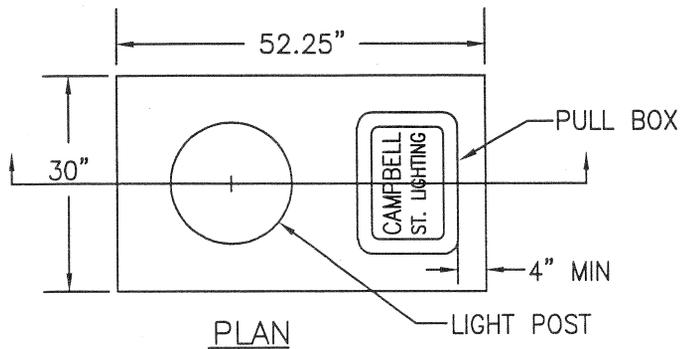


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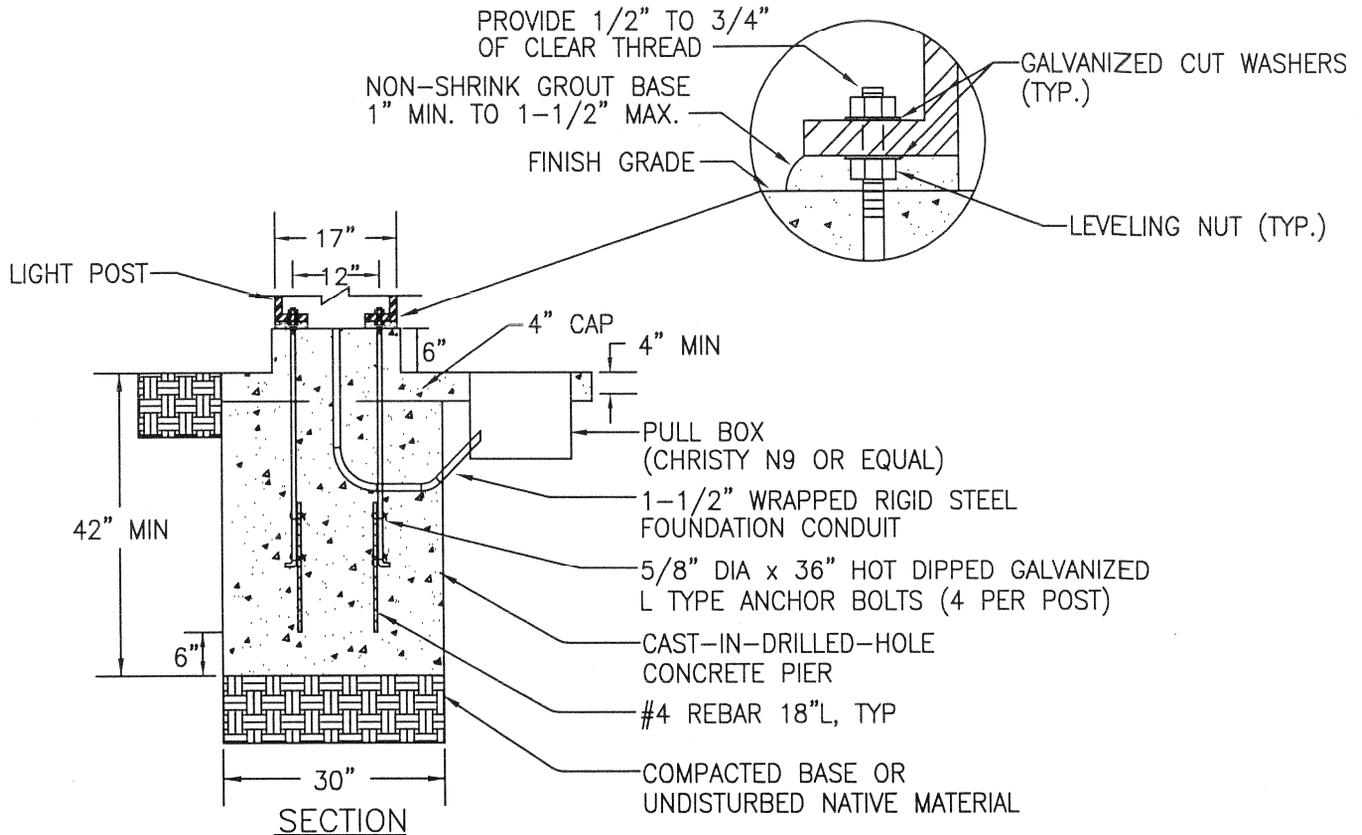
CITY PARK  
 DECORATIVE  
 LIGHT  
 NOTES

J:/Details/Lights/ST10 & 11

DETAIL  
 NO.  
 ST11



**MATERIALS AND DIMENSIONS:**  
 CEMENT-6 SACK 3/4" MIX  
 FOUNDATION-42"DIA.X30"DIA.  
 REBAR - 4#4 18"L



**GENERAL NOTES:**

1. FOUNDATION IS TO BE POURED MONOLITHIC.
2. PAD WILL BE POURED IN 2 POURS. CAP AND SONOTUBE TO BE POURED LAST. CAP IS TO BE 4" HIGH. SONOTUBE IS TO BE 18" DIA. X 6" HIGH.
3. CONDUIT IS TO ENTER THROUGH SIDE OF BOX AT A 45 DEGREE ANGLE.
4. GROUND ROD AND FUSE HOLDER SHALL BE PLACED WITHIN THE PULL BOX.
5. SEE PULL BOX DETAIL E-4.
6. SEE POLE BONDING DETAIL E-3.

NTS

	<b>CITY OF CAMPBELL PUBLIC WORKS DEPARTMENT</b>		REV.	DATE	BY	<b>TYPE B FOOTING (LANDSCAPE) DETAIL</b>	<b>DETAIL NO.  ST12</b>
	DRAWN BY:	DATE 12/8/06					
	CHECKED BY:	DATE					
	APPROVED BY:						
	MICHELLE QUINNEY CITY ENGINEER						