

# Cover Sheet

<b>Document Title:</b>	<b>Approved Site Lighting Plans</b>
<b>Prepared By:</b>	San Bernardino County
<b>Date:</b>	07/18/2023
<b>Version:</b>	Permit ELEC-2022-02528
<b>Project Name:</b>	PPHCSD Civic Center Phase 1
<b>Client/Stakeholder:</b>	PPHCSD
<b>Confidentiality:</b>	[Public/Internal/Confidential]

## Document Overview

This specification document outlines the requirements, standards, and key details for the project or product described above. The cover sheet provides a summary of essential information to identify and track the document throughout its lifecycle.

**Use this set of plans for site pole lighting only**

## Contact Information

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- Engineer: Jerry Miles, P.E., 760-646-0203, jerryjm59@yahoo.com

## Revision History

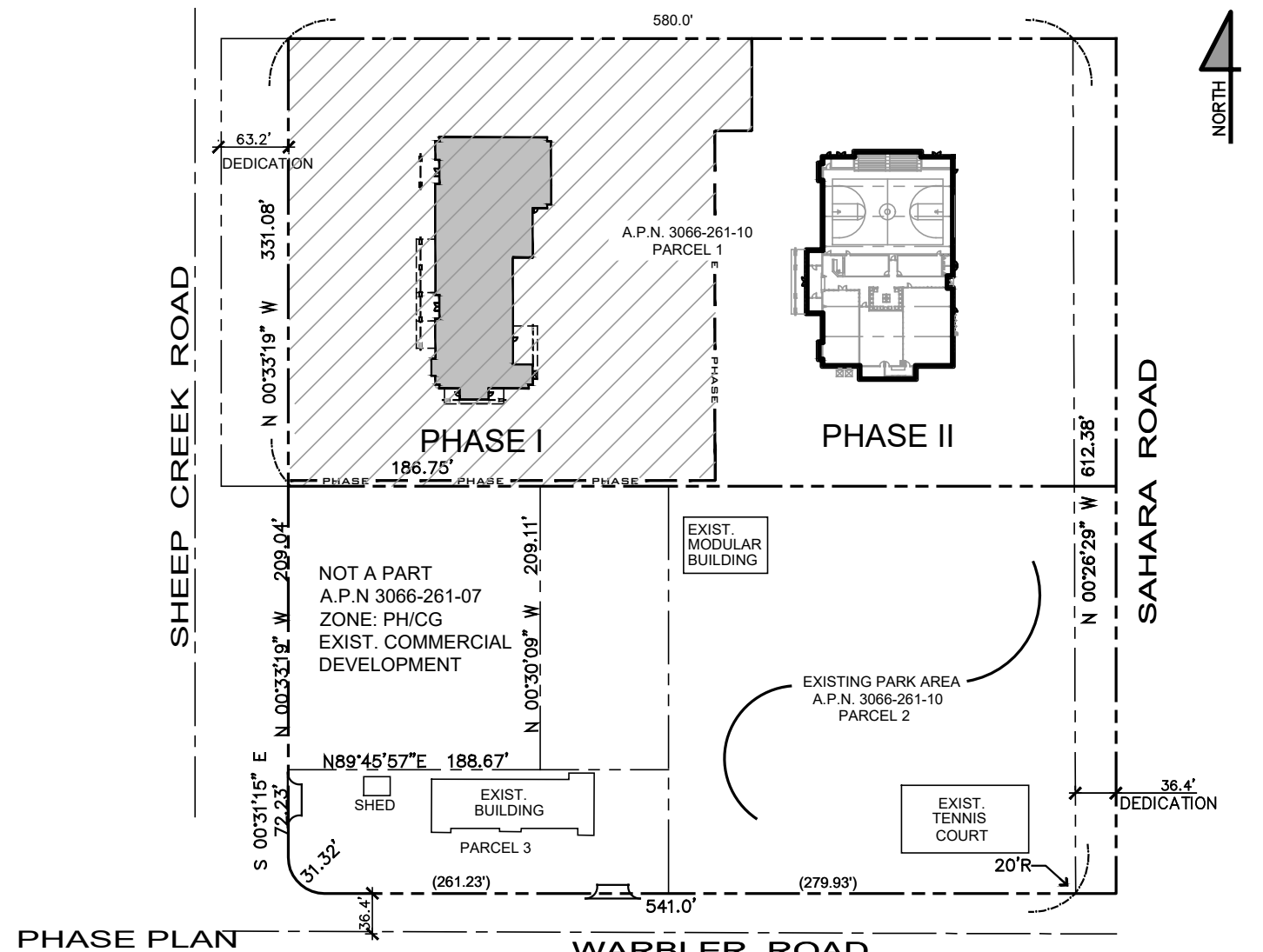
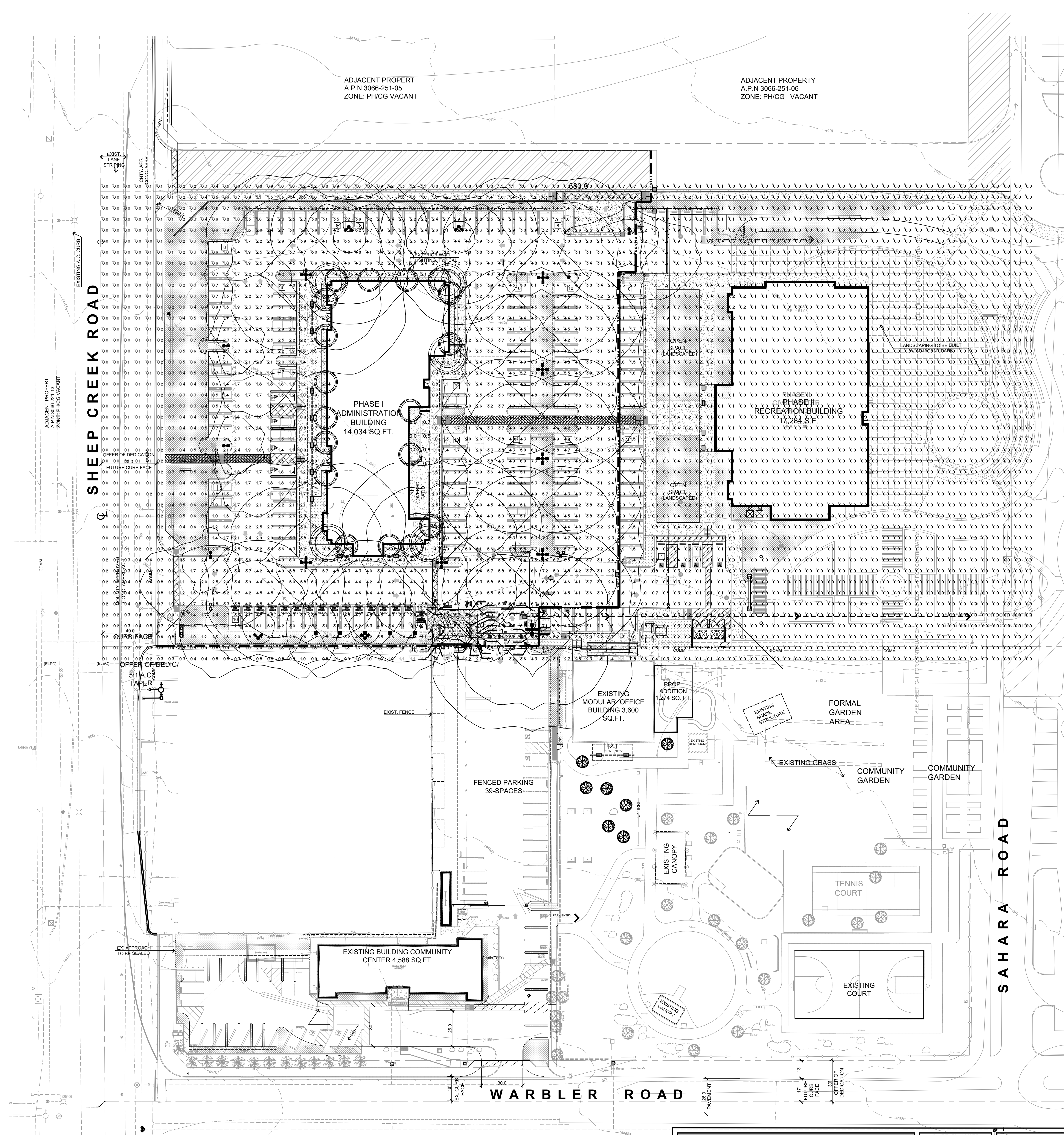
Version	Date	Description	Author

### **"FOR REFERENCE ONLY"**

**Note: These plans had received prior approval from the appropriate approving agency and are issued as "For Reference Only" documents for prospective bidders to review only. Bidders must bid the "BID SET" drawings as changes have been made since approvals. "Bid Set" drawings will be resubmitted for approval during the bidding period and issued as "FOR CONSTRUCTION DRAWINGS" AFTER OBTAINING APPROVALS FROM APPROPRIATE APPROVAL AGENCY.**



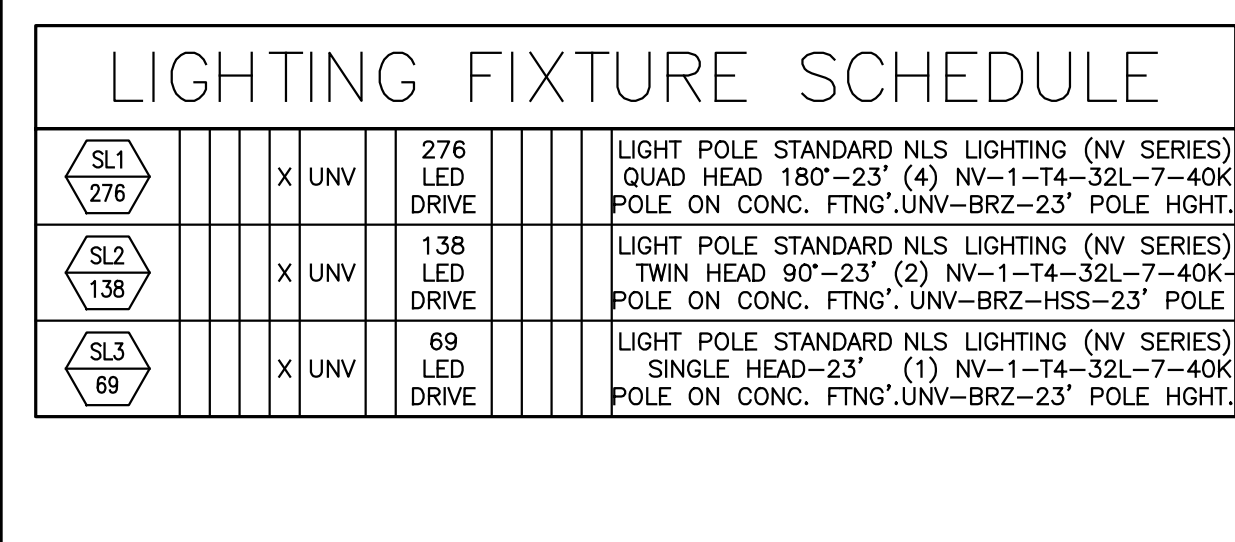
S:\2020 Aprojects\02 - Commercial - P\01 - PHHCSD Phelan Piñon Hills Community Service District\01 - Civic Center (Former Admin Bldg)\E01 PHHCSD Photometric SitePlan.dwg, 5/19/2023 10:02:02 AM, DWG to PDF.pc3, John, John



<b>STEENO</b> DESIGN STUDIO INC. ARCHITECTURE • DESIGN • PLANNING 11774 HESPERIA ROAD, SUITE 200 • HESPERIA, CA 92345 PHONE (760) 244-5001 • FAX (760) 244-1948 www.steenodesign.com	DATE FINISHED MAY 2022	THESE PLANS SHALL COMPLY WITH THE 2018 CALIFORNIA BUILDING CODE (CBC) AND THE 2018 CALIFORNIA ELECTRICAL CODE (CEC) AND THE 2018 ENERGY STANDARDS. THESE DOCUMENTS AND THE DESIGN AND CONSTRUCTION SHALL BE THE SOLE PROPERTY OF STEENO DESIGN STUDIO INC. ANY USE, IN WHOLE OR IN PART, FOR WHICH THEY WERE NOT PROVIDED SHALL BE UNLAWFUL.	PROJECT: CIVIC CENTER BUILDING - LIGHT STANDARDS	JOB NO. COM20-L01/01	PAGE <b>E-0.1</b>
	REVISIONS 03/28/23 05/16/2023		<b>PHELAN PIÑON HILLS C.S.D.</b>	SITE NAME: SITE PLAN PHOTOMETRIC	
	FOR REFERENCE ONLY		SITE ADDRESS: A.P.N. 3066-261-10 9535 SHEEP CREEK ROAD PHELAN, CA 92329		

Diagram illustrating the components of a light fixture assembly:

- MANUFACTURERS LIGHT FIXTURE SEE LIGHT FIXTURE SCHEDULE  
EPA=1.62 NET WT.=39 lbs.
- MANUFACTURERS FIXTURE BRACKET FOR POLE MOUNTING  
CAT. # EPA=0.2
- POLE w/MULTIPLE LIGHT FIXTURE AS SHOWN ON  
PLANS, MAX TOTAL FIXTURE E.P.A. = 3.24 SQ. FT. (2 @ 90°)



1. VERIFY EXISTING SITE CONDITION, SERVICE REQUIREMENTS & EXACT LOCATIONS OF SERVICE FACILITIES BEFORE SUBMITTING BID. SUBMITTAL OF BID INDICATES E.C. IS COGNIZANT OF ALL JOB SITE CONDITIONS & SHALL BE PERFORMED UNDER THIS CONTRACT.
2. HEIGHTS GIVEN ARE FROM FINISHED FLOOR TO CENTER LINE OF OUTLET. HEIGHTS & EXACT LOCATIONS SHALL BE VERIFIED WITH OWNER PRIOR TO INSTALLATION.
3. THESE PLANS ARE DIAGRAMMATIC ONLY. REFER TO ARCHITECTURAL, MECHANICAL & STRUCTURAL PLANS FOR DETAILS & EXACT LOCATIONS OF EQUIPMENT & MATERIALS.
4. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHERPROOF.
5. E.C. SHALL FURNISH AND INSTALL ALL POWER & CONTROL WIRES, CONDUITS, & OUTLETS TO RENDER MECHANICAL EQUIPMENT COMPLETE & OPERATIVE. VERIFY VOLTAGE & POWER REQUIREMENTS TO EACH PIECE OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN. REFER TO DRAWINGS FOR EXACT EQUIPMENT GRADE & LOCATIONS & FOR CONTROL SCHEMATICS. IF SEQUENCE OF CONTROL IS CHANGED FROM DESIGN AS INDICATED, THE E.C. SHALL CO-ORDINATE WITH MECHANICAL CONTRACTOR FOR ANY CHANGES & DELETIONS. ALL LOCATIONS SHALL BE VERIFIED BEFORE ROUGH-IN.
6. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC., WITH BLACK MARKERS. IN CONDUCTOR TAGS, THE WORDS "GRADE" & "HEALTH" OF #770 (OSHA). JUNCTION BOXES SHALL BE MARKED WITH PENTEL MARKING PEN.
7. INDOORS USE EMT CONDUIT (FLEX ALLOWED FOR TIGHT BENDS & FINAL CONNECTIONS). USE HEAVY GAGE R.S. GALVANIZED FOR CONDUIT EXPOSED TO WEATHER & SCHEDULE 40 FOR CONDUIT CONCEALED. USE EMT COATED LIQUID TIGHT CONDUIT FOR MOTOR CONNECTIONS & IN WET LOCATIONS.
8. E.C. SHALL PROVIDE ALL LABOR, MATERIAL, INSURANCE, EQUIPMENT, INSTALLATIONS, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE & PROPERLY OPERATING SYSTEM, ENERGIZED THROUGHOUT & AS REQUIRED ON THE JOB SITE IN ACCORDANCE HEREIN AND AS REQUIRED.
9. ALL MATERIAL & EQUIPMENT SHALL BE NEW & IN PERFECT CONDITION WHEN INSTALLED & SHALL BE OF THE BEST GRADE & OF THE SAME MANUFACTURE THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIAL SHALL BE SUPPLIED BY U.L. LISTED MANUFACTURERS. LABOR SHALL BE PROVIDED WITH THE APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY, & ALL GOVERNING BODIES HAVING JURISDICTION. MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY A.N.S.I. & N.E.M.A.
10. ALL CONDUITS SHALL BE INSTALLED CONCEALED EXCEPT AS NOTED.
11. E.C. SHALL CARRY OUT HIS WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE CALIFORNIA ELECTRICAL CODE, AS AMENDED AND ADOPTED BY THE CITY OF VICTORVILLE.
12. E.C. SHALL SECURE ALL NECESSARY BUILDING PERMITS, & PAY FOR SAME.
13. VERIFY ALL POWER & TELEPHONE REQUIREMENTS FOR PROPERTY LINE INTO BUILDING WITH RESPECTIVE SERVING UTILITY COMPANIES. INCLUDE ALL COSTS OF BID TO FURNISH A COMPLETE POWER & TELEPHONE SYSTEM TO BUILDING.

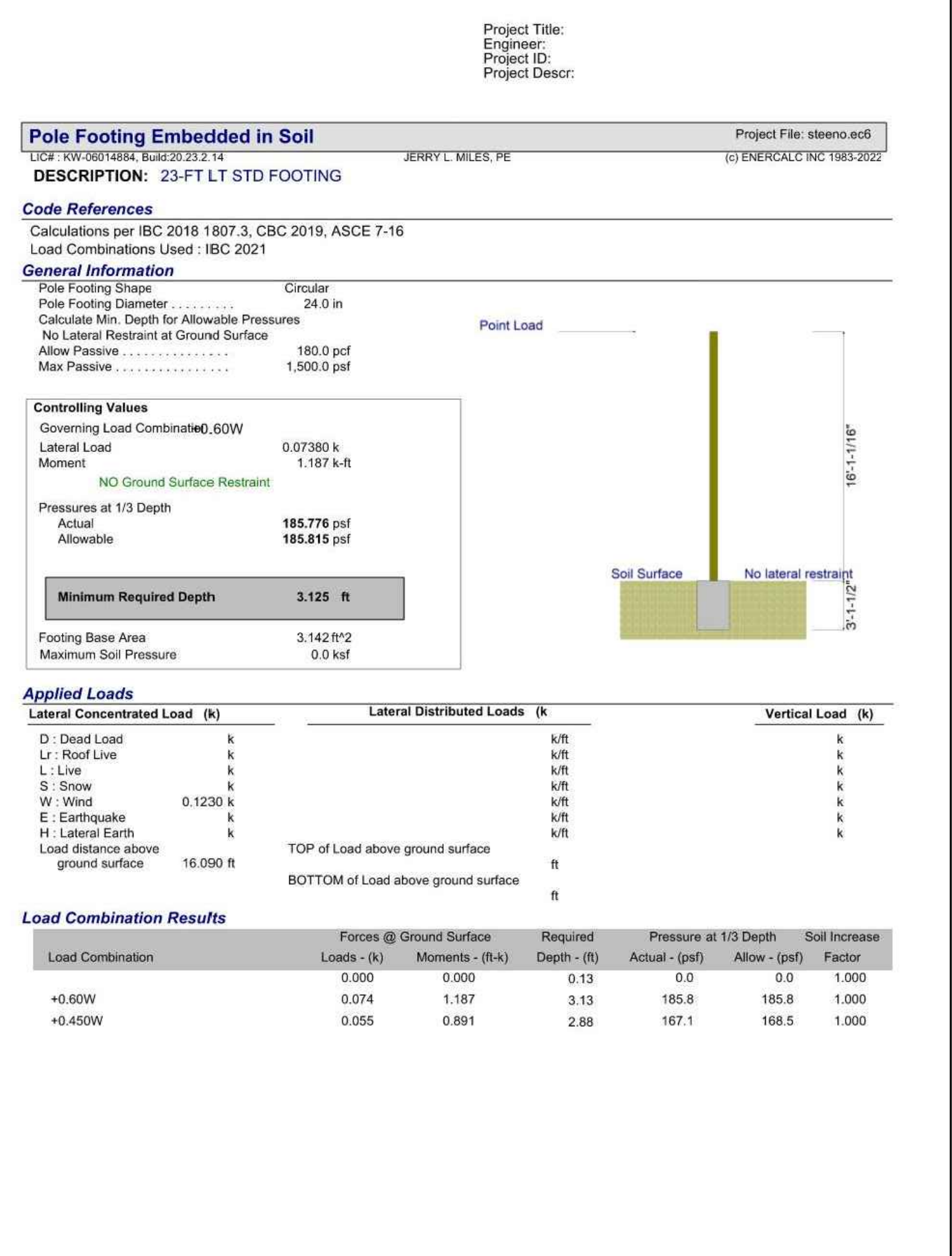
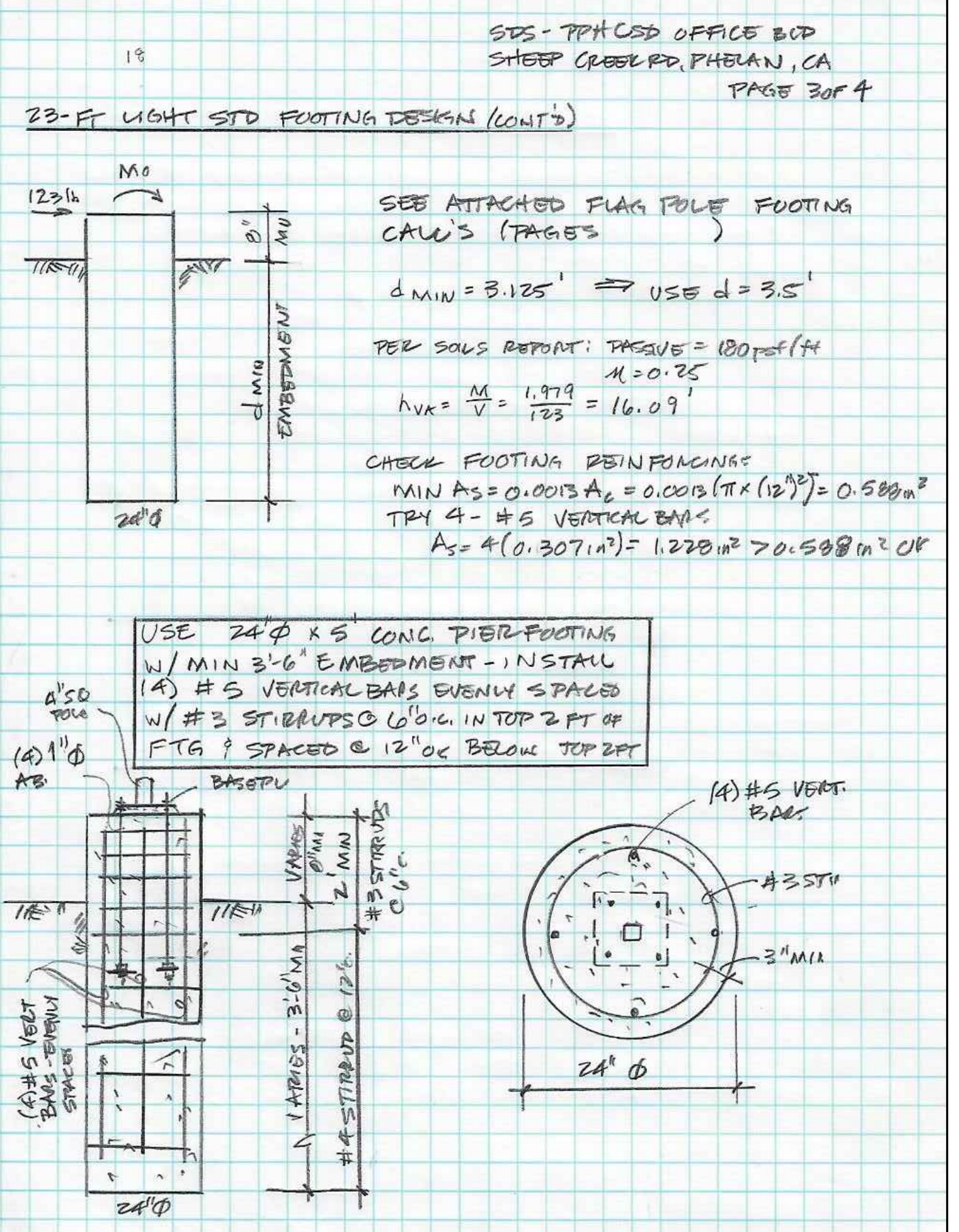
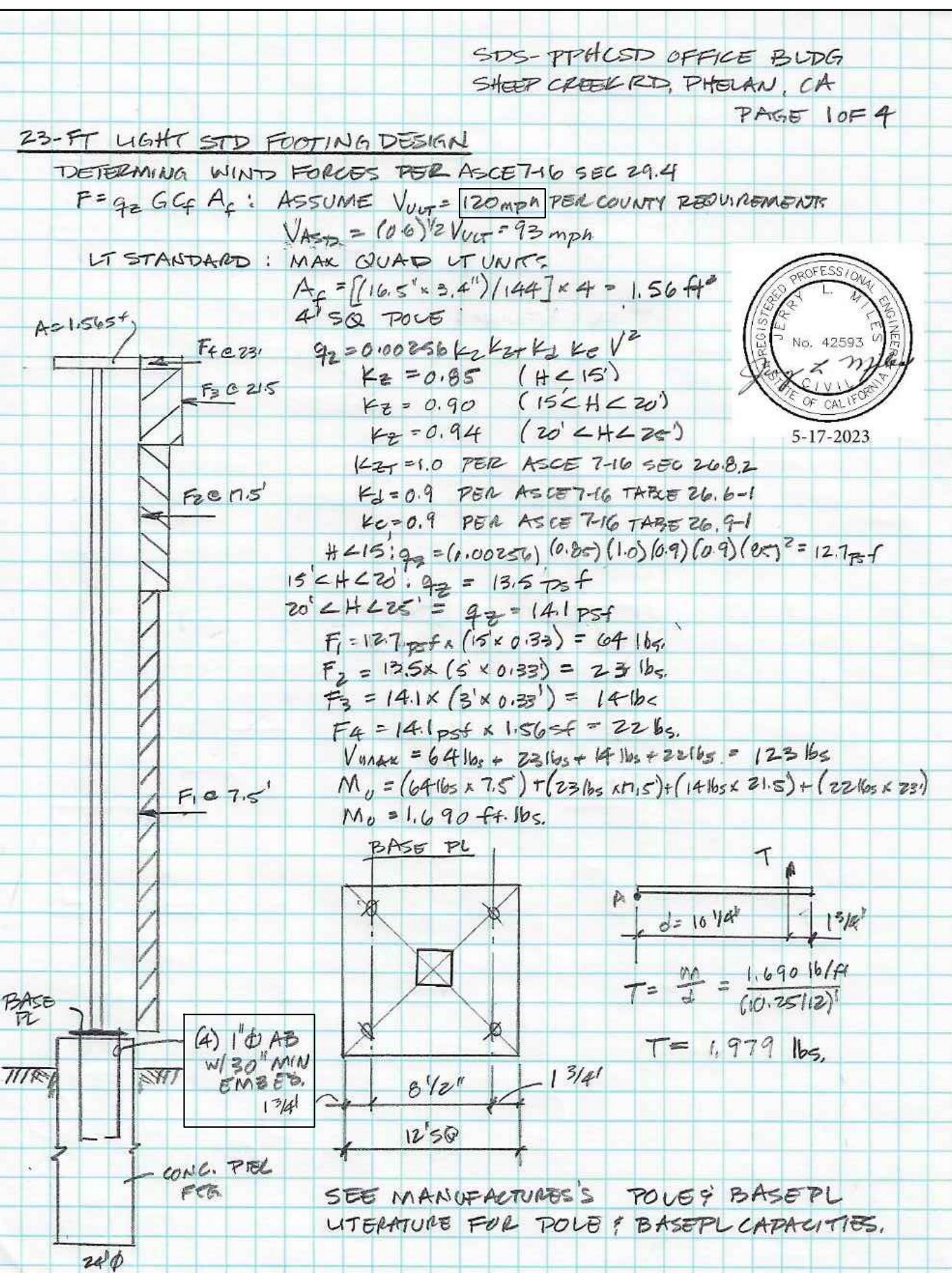
- 1) ALL FLUORESCENT FIXTURES TO HAVE ELECTRONIC BALLASTS AND T-8 LAMPS.
- 2) CONTRACTOR TO PROVIDE ALL HARDWARE, BRACKETS, TUBES, LAMPS, ETC. FOR A COMPLETE INSTALLATION
- 3) ALL INTEGRALLY BALLASTED FIXTURES SHALL HAVE THERMALLY PROTECTED BALLAST.
- 4) FIXTURES MOUNTED IN WET/DAMP LOCATIONS TO CARRY APPROPRIATE U.L. LABEL.
- 5) ALL EMERGENCY FIXTURES SHALL RE-ENERGIZE WITHIN 1/2 SECOND OF POWER FAILURE AND MAINTAIN ILLUMINATION FOR 90 MINUTES (MINIMUM)
- 6) EMERGENCY (EM) FLUORESCENT FIXTURES ARE TO BE INSTALLED IN FLOODED AREA. EMERGENCY FACTORY INSTALLED BALLAST FOR EMERGENCY MODE OPERATION SHALL CONTAIN RECHARGER, DISCONNECT, READY LIGHT AND TEST SWITCH. SEE NOTE #5.
- 7) LUMINAIRES AND BALLAST MUST BE CERTIFIED PER 2-5 AND 2-5.3(C) ENERGY EFFICIENT STANDARDS.
- 8) ALL ONE AND THREE LAMP LUMINAIRES SHALL BE TAND WIRED PER 2-5.31(9) ENERGY EFFICIENT STANDARDS.
- 9) LIGHT FIXTURE WITH CONTACT WITH INSULATION TO BE U.L. LISTED FOR THERMAL BARRIER OR PROVIDE 3" MINIMUM CLEARANCE.
- 10) EXITS SHALL BE ILLUMINATED AT ANY TIME THE BUILDING IS OCCUPIED WITH LIGHT HAVING AN INTENSITY OF NOT LESS THAN 1 FOOTCANDLE (0.76 LUX) AT FLOOR LEVEL.

	RECESSED 2x4 FIXTURE 3 LAMP
	RECESSED 2x4 FIXTURE 1 LAMP
	RECESSED 2x4 FIXTURE 3 LAMP TANDEM WIRED
	RECESSED 2x4 FIXTURE 2 LAMP
	SURFACE 1x4 WRAP
	RECESSED DOWN LIGHT INCANDESCENT
	RECESSED DOWN LIGHT FLUORESCENT
	SHOE BOX STYLE FIXTURE (WATTAGE AS NOTED)
	WALL PACK (WATTAGE AS NOTED)
	EXIT SIGN (ARROWS AS NOTED)
	NIGHT LIGHT (ON 24 HOURS)
	INS
	DISCONNECT SWITCH, RATING AS NOTED
	COMBINATION STARTER, RATING AS NOTED
	EXHAUST FAN CONNECT ONLY
	SWITCH WITH PILOT LIGHT, MANUAL STARTER, KEY KEY
	SWITCH 3 OR 4 WAY, AS NOTED
	PANIC BUTTON (CONTROL AS SHOWN)
	MOTION SENSOR, WALL MOUNT 48"
	MOTION SENSOR CEILING MOUNT
	RELAY FOR MOTION SENSOR
	JUNCTION BOX (SIZE AS REQUIRED)
	DUPLEX RECEPTACLE 15"
	DUPLEX RECEPTACLE WEATHER PROOF
	DOUBLE DUPLEX RECEPTACLE (F1 +44" IN RESTROOMS)
	DUPLEX RECEPTACLE 48" OR COUNTER HEIGHT (F1 +44" IN RESTROOMS)
	DUPLEX RECEPTACLE ISOLATED
	FLOOR BOX (RECEPTACLE, DATA, & PHONE AS SHOWN)
	FLOOR BOX (DUPLEX RECEPTACLE ONLY)
	TELEPHONE RING WITH 3/4" CONDUIT TO CEILING
	DATA RING WITH 3/4" CONDUIT TO CEILING
	COMBINATION PHONE & DATA RING WITH 3/4" CONDUIT TO CEILING
	THERMOSTAT RING WITH 1/2" CONDUIT TO CEILING
	CONDUIT UP
	CONDUIT DOWN
	CONDUIT IN WALL, CEILING, OR EXPOSED
	CONDUIT UNDERGROUND
	1/2" CONDUIT #2 WIRES (1/2"-2 #12 cu. OR AS NOTED)
	1/2"-3 #12 cu. OR (AS NOTED)
	1/2"-4 #12 cu. OR (AS NOTED)



1. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND MAKE HIMSELF FAMILIAR WITH ALL CONDITIONS. HE SHALL AUGMENT HIS BID TO IN-CORPORATE ALL AREAS AFFECTED BY RENOVATIONS NOT DIRECTLY SHOWN ON HIS PLAN. HIS BID SHALL BE COMPLETE FOR A PERMANENT AND COMPLETE SYSTEM. NO EXTRAS WILL BE HONORED FOR FAULTY TO VISIT THE WORK SITE.
2. ALL WORK PERFORMANCE SHALL BE IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, LOCAL CODES, OSHA, AND THE 2009 CEC ELECTRICAL CODE
3. ALL WIRE TO BE COPPER TYPE "THWN/THHN", UNLESS NOTED OTHERWISE.
4. ALL ELECTRICAL WORK AND EQUIPMENT SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE, EXCEPT LAMPS, ON THE CONTRACTORS LETTERHEAD AND TURNED OVER TO THE OWNER.
5. ALL MATERIALS SHALL BE NEW AND LISTED BY THE UNDERWRITERS LABORATORY AS INSPECTED AND APPROVED.
6. THE ELECTRICAL CONTRACTOR SHALL TAKE OUT ALL REQUIRED PERMITS, PAY FOR PERMITS, GFI TEST, INSPECTIONS, AND EXAMINATIONS WITHOUT ADDITIONAL COST TO THE OWNER.
7. THE ELECTRICAL CONTRACTOR SHALL PREPARE AND MAINTAIN A SET OF "AS BUILT" BLUELINE PRINTS WITH ALL CHANGES INDICATED IN RED INK.
- NOTE: SUPERVISORY ALARM SYSTEM IF APPLICABLE: E.C. SHALL FURNISH AND INSTALL 54" O.D. FROM DETECTOR FROM VALVE TO BUILDING AND (1) 3/4" O.C. FROM EACH P.I.V. TO ITS RESPECTIVE SPRINKLER RISER IN BUILDING. SEE SPRINKLER DRAWINGS FOR EXACT LOCATIONS.
9. TITLE 24 INSPECTION NOTE FOR ALL ROOMS WITH AN AREA GREATER THAN 100 SQ. FT. WHICH THE CONNECTED LIGHTING LOAD EXCEEDS 10 WATTS PER SQUARE FOOT. SWITCHING MUST BE PROVIDED TO REDUCE LIGHTING LOAD IN A UNIFORM PATTERN BY AT LEAST 50%. THE MAXIMUM AREA THAT CAN BE SERVED BY ANY TWO SWITCHING DEVICES MUST BE LIMITED TO THAT WHICH CAN BE SERVED BY TWO SINGLE POLE SWITCHES LOADED TO NO MORE THAN 80% OF RATED CAPACITY.
10. ALL TENANT IMPROVEMENTS NOT SHOWN-HEREIN MUST BE SUBMITTED TO LOCAL DEPARTMENT OF BUILDING AND SAFETY FOR APPROVALS PRIOR TO CONSTRUCTION.
11. GFI OF MAIN PANEL TO BE TESTED AND CERTIFIED BY A QUALIFIED PERSON AND CERTIFICATION TO BE SUBMITTED TO LOCAL DEPARTMENT DEPARTMENT
12. PROVIDE 36" HIGH 4" DIA. STEEL TUBE CONCRETE FILLED BOLLARD 40" ON CENTER (O.C.) AND A MINIMUM OF 42" FROM FACE OF ALL ELECTRICAL SWITCHGEAR, TRANSFORMERS, PANELS ETC.. PAINT BOLLARDS SAFETY YELLOW.
13. INSTALL CONDUITS PER TABLE 300-5 AS FOLLOWS.  
A) PVC-1" MINIMUM COVER ON ALL LANDSCAPE AND PLANTING AREAS.  
B) PVC-2" MINIMUM COVER ON ALL PARKING AND DRIVE AREAS.  
C) ELECTRIC UTILITY/TVS C.E. PVC-30" MINIMUM COVER.  
D) TELEPHONE UTILITY PVC-18" MINIMUM COVER.

A, AMP	AMPERES	GFP	GROUND FAULT PROTECTION
AF	ABOVE FINISHED FLOOR	HP	HORSEPOWER
AT	AT FRAME	JB	JUNCTION BOX
AT	AMP TRIP	KA	KILO AMPERE INTERRUPTING CURRENT
BLDG.	BUILDING	KL	KILOVOLT
	WIRE GAUGE	KW	KILOWATTS
	CONDUIT	LM	LARGEST MOTOR LOAD
CB	CIRCUIT BREAKER	MH	MOUNTING HEIGHT
	CONTINUOUS LOAD	N	NEUTRAL
CKT	CIRCUIT ONLY	N#	NUMBER
C.V.	COPPER	P	PIECE
DISC. SW.	DISCONNECT SWITCH	PH	PHASE
DIST. X	DISTRIBUTION	PNL	PANEL
EXIST.	EXISTING	PWR	POWER
EQUIP.	EQUIPMENT	TRANS.	TRANSFORMER
	FULL LOAD AMPS	TY	TYPE
G.	GROUND	V	VOLTS
G. GND.	GROUND FAULT INTERRUPTER	W	WIRE
		WT	WATER THERMOP



LIGHT STANDARDS FOR PPHCSD CIVIC CENTER  
DEVELOPMENT. ALL OTHER ELECTRICAL INFORMATION  
SHOWN IS FOR REFERENCE ONLY









# For Reference Only

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SHEEP CREEK RD, PHELAN, CA

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## 23-FT LIGHT STD FOOTING DESIGN

DETERMINING WIND FORCES PER ASCE 7-16 SEC 29.4

$F = q_z G C_f A_f$ : ASSUME  $V_{ULT} = 120 \text{ mph}$  PER COUNTY REQUIREMENTS

$$V_{ASD} = (0.6)^{1/2} V_{ULT} = 93 \text{ mph}$$

LT STANDARD: MAX QUAD LT UNITS

$$A_f = [(16.5' \times 3.4') / 144] \times 4 = 1.56 \text{ ft}^2$$

4' SQ POLE

$$A = 1.56 \text{ sf}$$

$F_4 @ 23'$

$F_3 @ 21.5'$

$F_2 @ 17.5'$

$F_1 @ 7.5'$

$$q_z = 0.00256 K_z K_{zt} K_d K_e V^2$$

$$K_z = 0.85 \quad (H < 15')$$

$$K_z = 0.90 \quad (15' < H < 20')$$

$$K_z = 0.94 \quad (20' < H < 25')$$

$$K_{zt} = 1.0 \text{ PER ASCE 7-16 SEC 26.8.2}$$

$$K_d = 0.9 \text{ PER ASCE 7-16 TABLE 26.6-1}$$

$$K_e = 0.9 \text{ PER ASCE 7-16 TABLE 26.9-1}$$

$$H < 15': q_z = (0.00256)(0.85)(1.0)(0.9)(0.9)(93)^2 = 12.7 \text{ psf}$$

$$15' < H < 20': q_z = 13.5 \text{ psf}$$

$$20' < H < 25': q_z = 14.1 \text{ psf}$$

$$F_1 = 12.7 \text{ psf} \times (15' \times 0.33') = 64 \text{ lbs.}$$

$$F_2 = 13.5 \text{ psf} \times (5' \times 0.33') = 23 \text{ lbs.}$$

$$F_3 = 14.1 \text{ psf} \times (3' \times 0.33') = 14 \text{ lbs.}$$

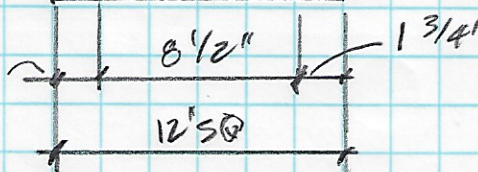
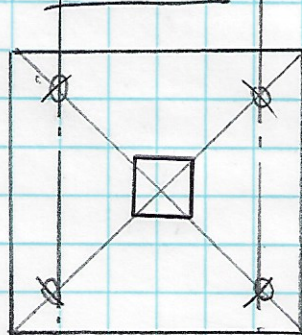
$$F_4 = 14.1 \text{ psf} \times 1.56 \text{ sf} = 22 \text{ lbs.}$$

$$V_{max} = 64 \text{ lbs.} + 23 \text{ lbs.} + 14 \text{ lbs.} + 22 \text{ lbs.} = 123 \text{ lbs.}$$

$$M_u = (64 \text{ lbs} \times 7.5') + (23 \text{ lbs} \times 17.5') + (14 \text{ lbs} \times 21.5') + (22 \text{ lbs} \times 23')$$

$$M_u = 1,690 \text{ ft. lbs.}$$

BASE PL



SEE MANUFACTURER'S POLE & BASE PL LITERATURE FOR POLE & BASE PL CAPACITIES.

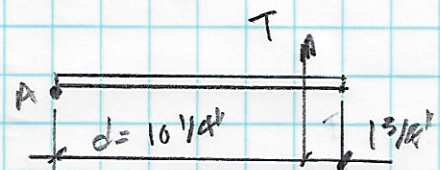


5-17-2023



COUNTY APPROVED PLANS FOR 15 PAGES

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$$T = \frac{M_u}{d} = \frac{1,690 \text{ lb/ft}}{(10.25/12)}$$

$$T = 1,979 \text{ lbs.}$$

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SHEEP CREEK, PHOENIX, CA

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## 23- FT LIGHT STD FOOTING DESIGN (CONT'D)

CHECK ANCHOR BOLT (A.B.) CAPACITY.

ASSUME: (2) 1" Ø AB RESIST TENSION (UP/LIFT) (A36)

CHECK A.B. CAPACITY PER ACI 318 APPENDIX D - <sup>CRACKED CONC</sup>

CHECK TENSION CAPACITY OF ANCHORS - ACI 318-D5

$$(A36: f_y = 36,000 \text{ psi}; f_{ut} = 58,000 \text{ psi})$$

$$N_{sa} = n A_{se} (f_{uta})$$

$$f_{ut} \leq f_{uta} \leq 1.9 f_{ut}; f_{uta} = f_{ut} = 58,000 \text{ psi}$$

$$A_{se} = \pi/4 (d_b - 0.9743/n)^2; n=8$$

$$A_{se} = \pi/4 (1" - 0.9743/8)^2 = 0.6897 \text{ in}^2$$

$$N_{sa} = (2)(0.6897 \text{ in}^2)(58,000 \text{ psi}) = 80.0 \text{ K}$$

D.5.2: CONCRETE BREAKOUT STRENGTH OF ANCHORS IN TENSION ( $f'_c = 2.5 \text{ ksi}$ )

$$N_{cbg} = (A_{nc}/A_{nc0}) \psi_{ec} \psi_{ed} \psi_c \psi_{cp} (N_b)$$

$$A_{nc0} = 9(d_{eff})^2; A_{nc} = (c_1 + c_2)^2; (A_{nc}/A_{nc0}) \geq 1.0$$

$$c_{min} = 6" ; d_{eff} = \frac{c_{min}}{1.5} = 4"$$

$$\psi_{ec} = 1.0 : \text{NO ECCENTRIC LOADING}$$

$$\psi_{ed} = 1.0 : c_{min} > 1.5 d_{eff}$$

$$\psi_c = 1.0 : \text{CRACKED CONC.}$$

$$\psi_{cp} = 1.0 : \text{CAST-IN-PLACE ANCHORS}$$

$$N_b = k(f'_c)^{1/2}(d_{eff})^{1.5}; k_c = 24 \rightarrow \text{CAST-IN-PLACE ANCHORS}$$

$$N_b = 24(2.500)^{1/2}(4)^{1.5} = 9.6 \text{ K}$$

$$A_{nc0} = (9)(4)^2 = 144; A_{nc} = (6+6)^2 = 144; A_{nc}/A_{nc0} = 1.0$$

$$N_{cbg} = (1.0)(1.0)(1.0)(1.0)(1.0)(9.6 \text{ K})(2) = 19.2 \text{ K}$$

D.5.3 ANCHOR PULL OUT STRENGTH ( $f'_c = 2.500 \text{ psi}$ )

1" Ø AB w/ DBL NOT @ 1/4" x 3" SQ WASHER

$$N_{pn} = \psi_{cp} N_p$$

$$\psi_{cp} = 1.0 : \text{CRACKED CONCRETE}$$

$$N_p = A_{BA} (8) f'_c = 3 \text{ in}^2 (8) 2,500 \text{ psi} \times 2 = 120 \text{ K}$$

GOVERNING TENSION CAPACITY

$$T_{ALL} = \phi \leq N_{cbg}; \phi = 0.7 \quad SF = 0.75$$

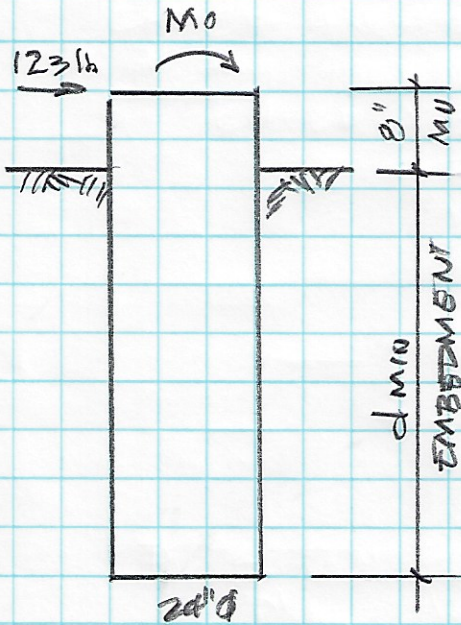
$$T_{ALL} = (0.7)(0.75)(19.2 \text{ K}) = 10.1 \text{ K} > T = 1.98 \text{ K} \quad \text{OK.}$$

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SHEEP CREEK RD, PHELAN, CA

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## 23-FT LIGHT STD FOOTING DESIGN (CONT'D)



SEE ATTACHED FLAG POLE FOOTING  
CALL'S (PAGES )

$$d_{MIN} = 3.125' \Rightarrow \text{USE } d = 3.5'$$

PER SOILS REPORT: PASSIVE = 180 psf/ft  
 $\mu = 0.25$

$$h_{VK} = \frac{M}{V} = \frac{1.979}{123} = 16.09'$$

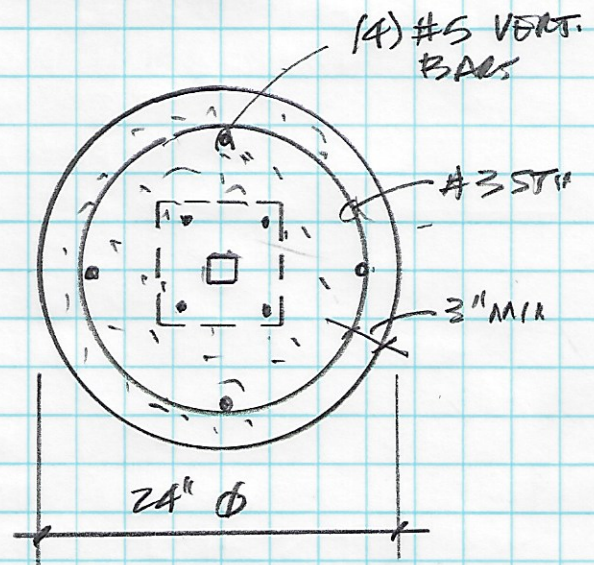
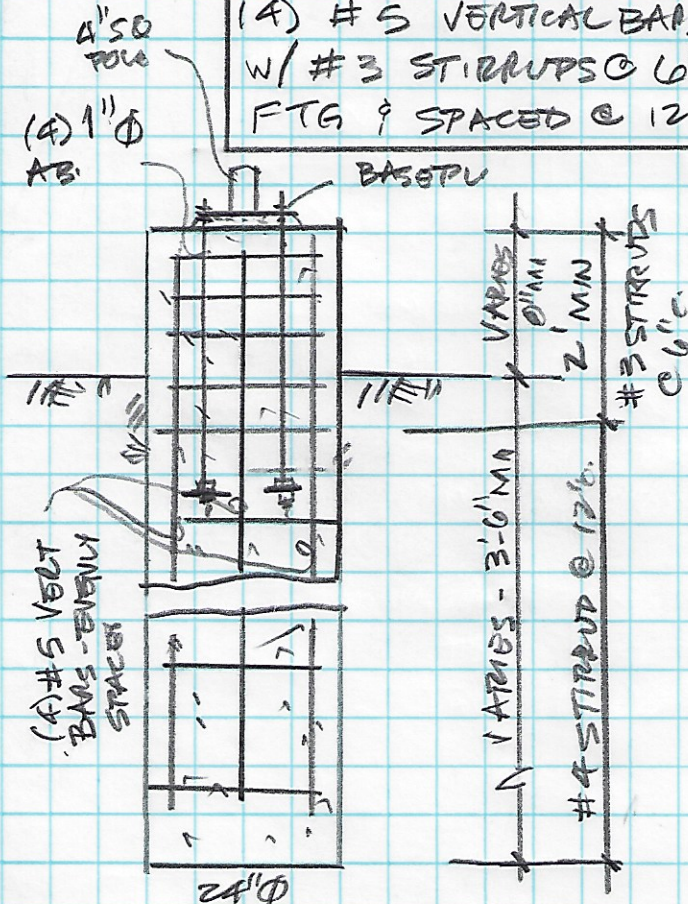
CHECK FOOTING REINFORCING

$$MIN A_s = 0.0013 A_c = 0.0013 (\pi \times (12'')^2) = 0.588 \text{ in}^2$$

TRY 4 - #5 VERTICAL BARS

$$A_s = 4(0.307 \text{ in}^2) = 1.228 \text{ in}^2 > 0.588 \text{ in}^2 \text{ OK}$$

USE 24"  $\phi$  x 5' CONC. PIER FOOTING  
W/ MIN 3'-6" EMBEDMENT - 1 N STALL  
(4) #5 VERTICAL BARS EVENLY SPACED  
W/ #3 STIRRUPS @ 6" O.C. IN TOP 2 FT OF  
FTG & SPACED @ 12" O.C. BELOW TOP 2 FT



# For Reference Only

Project Title:  
Engineer:  
Project ID:  
Project Descr:

## Pole Footing Embedded in Soil

Project File: steeno.ec6

LIC# : KW-06014884, Build:20.23.2.14

JERRY L. MILES, PE

(c) ENERCALC INC 1983-2022

### DESCRIPTION: 23-FT LT STD FOOTING

#### Code References

Calculations per IBC 2018 1807.3, CBC 2019, ASCE 7-16

Load Combinations Used : IBC 2021

#### General Information

Pole Footing Shape Circular  
Pole Footing Diameter . . . . . 24.0 in  
Calculate Min. Depth for Allowable Pressures  
No Lateral Restraint at Ground Surface  
Allow Passive . . . . . 180.0 pcf  
Max Passive . . . . . 1,500.0 psf

#### Controlling Values

Governing Load Combination 0.60W  
Lateral Load 0.07380 k  
Moment 1.187 k-ft

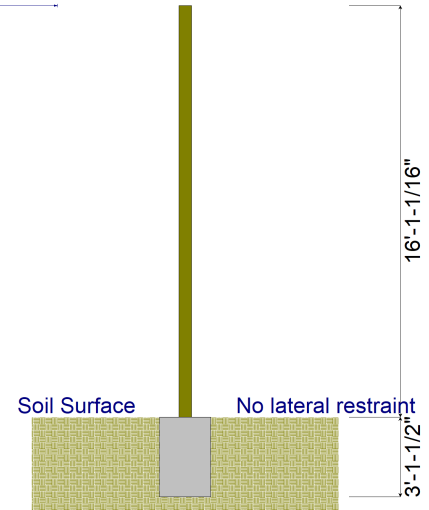
NO Ground Surface Restraint

Pressures at 1/3 Depth  
Actual 185.776 psf  
Allowable 185.815 psf

**Minimum Required Depth 3.125 ft**

Footing Base Area 3.142 ft<sup>2</sup>  
Maximum Soil Pressure 0.0 ksf

Point Load

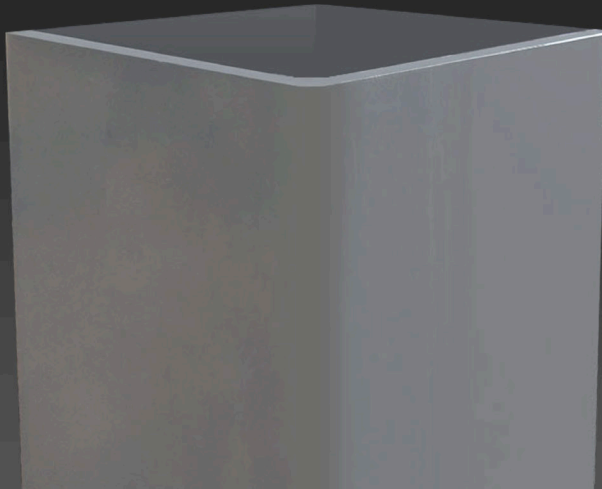


#### Applied Loads

Lateral Concentrated Load (k)		Lateral Distributed Loads (k)		Vertical Load (k)
D : Dead Load	k		k/ft	k
Lr : Roof Live	k		k/ft	k
L : Live	k		k/ft	k
S : Snow	k		k/ft	k
W : Wind	0.1230 k		k/ft	k
E : Earthquake	k		k/ft	k
H : Lateral Earth	k		k/ft	k
Load distance above ground surface	16.090 ft	TOP of Load above ground surface	ft	
		BOTTOM of Load above ground surface	ft	

#### Load Combination Results

Load Combination	Forces @ Ground Surface		Required Depth - (ft)	Pressure at 1/3 Depth		Soil Increase Factor
	Loads - (k)	Moments - (ft-k)		Actual - (psf)	Allow - (psf)	
	0.000	0.000	0.13	0.0	0.0	1.000
+0.60W	0.074	1.187	3.13	185.8	185.8	1.000
+0.450W	0.055	0.891	2.88	167.1	168.5	1.000



#### Height

10' - 35'

#### Pole Shaft

The pole shaft material is a weldable grade hot rolled commercial quality carbon steel tubing with a minimum yield of 46,000 psi. Conforms to ASTM A500 Grade B Standards. Poles have ground lug welded inside hand-hole opposite side of the hand-hole. Pole shaft is welded to base plate on top and bottom of base plate.

#### Base Plate

The Base Plate is manufactured from structural hot rolled steel that meets or exceeds a minimum yield strength of 36,000 psi, conforms the ASTM-A36 standards. Base Plate vary in size from 1" thick for poles 21 feet and over, 3/4" thick for poles 10 to 20 feet.

#### Anchor Bolts

All anchor bolts are hot dipped galvanized steel and come with two galvanized nuts and washers per bolt. Minimum yield strength 50,000 psi. Anchor bolts are not included for Custom Bolt Circle.

#### Base Cover

All base covers are fabricated two-piece 6063 aluminum and powder coated to match the pole.

#### Hand-Hole

A reinforced hand-hole is 12" on center from the base plate and is constructed of 3"x 5" rectangular steel tubing which is welded to pole shaft for added strength. The hand-hole covers are provided with internal bridge support and powder coated to match pole finish.

#### Pole Cap

All poles come with a removable polymer pole cap installed. All pole caps are black finish.

#### Finish

All poles are treated with shot blast media for a near white finish, power blasted with 100 psi prior to powder coat application. Electrostatically applied polyester powder coat with a 3 to 5 mil thickness for maximum adherence.

#### Marine Grade Finish

All poles are washed through a 5-stage cleaning system with a deionized rinse, a 3 to 5 mils zinc rich durable polyester primer powder coat, followed by a 3 to 5 mils super durable polyester powder coat finish.

#### Galvanized Finish

All poles are Hot Dipped Galvanized in a multi stage process. Galvanizing Specification, Zinc (Hot Dipped Galvanized) per ASTM A 123/A 123M - 02

Zinc coatings on threaded materials shall conform to specification A 153 /A 153M. The coating shall be continuous and reasonably smooth and uniform in thickness and in weight.

Galvanizing Adherence - The Zinc coating shall withstand handling consistent with the nature and thickness of the coating and normal use of the article without peeling or flaking.

#### Galvanized Under Powder

Galvanized Under Powder (GUP) adheres to above galvanized specification, and the second stage is a light sand blast on the outside of the pole, third stage is a 3-5 mils polyester powder coat finish for maximum adherence.

#### Vibration Dampener

The Vibration Dampener is factory installed. The Vibration Dampener consists of a rugged galvanized chain coated with heavy duty polyester tubing that is factory secured at the bottom 2-3rds of the pole and field secured by contractor at the base during installation.



Project Name:

SSSP ORDERING GUIDE

Cat#	Height	Pole Dimension	Gauge	Base Pattern
Square Straight Steel Pole (SSSP)	10' (10)	4" Square (4S)	.120 Wall Thickness (11G)	(10'-20') 9"- 10 3/8" Bolt Circle (9BC)
	12' (12)			
	14' (14)			
	16' (16)	5" Square (5S)	.180 Wall Thickness (7G)	(22'-35') 11 1/2"- 14" Bolt Circle (12BC)
	18' (18)			
	20' (20)	6" Square (6S)		
	22' (22)			
	24' (24) Cut to 23'			
	25' (25)			
	26' (26)			
	28' (28)			
	30' (30)			
	35' (35)			Custom Bolt Circle (CBC) <i>* Consult Factory</i>
Mounting	Color	Bolts	Options	
Single (SGL)	Bronze Textured (BRZ)	3/4" x 30" (3430)	GFI Kit (GFI20A) 20 Amp Weather Proof Receptacle	
Double (D-90) (D-180)	White Textured (WHT)	1" x 36" (136)		
Triple (T-90)	Smooth White Gloss (SWT)	Less Anchor Bolts (LAB)	GFI Provision Only (PROV)	
Quad (QD)	Silver (SVR)		Galvanized (GLV)	
No Drill (ND) <i>*Tenon Option</i>	Green Textured (GRN)		Galvanized Under Powder (GUP)	
<b>Tenon</b>	Hunter Green Textured (HGN)		1/2" Coupling (COUP) <i>* Specify Location</i>	
2 3/8" Round (T2R)	Black Textured (BLK)		Vibration Dampener (VD)	
3" Round (T3R)	Smooth Black Gloss (SBK)		Extra Hand Hole (XHH) <i>* Specify Location</i>	
3 1/2" Round (T312R)	Graphite Textured (GPH)		Marine Grade Finish (MGF)	
4 1/2" Round (T412R)	Grey Textured (GRY)			
3 1/2" Square (T312S)	Custom (CS)			
4 1/2" Square (T412S)				
5 1/2" Square (T512S)				



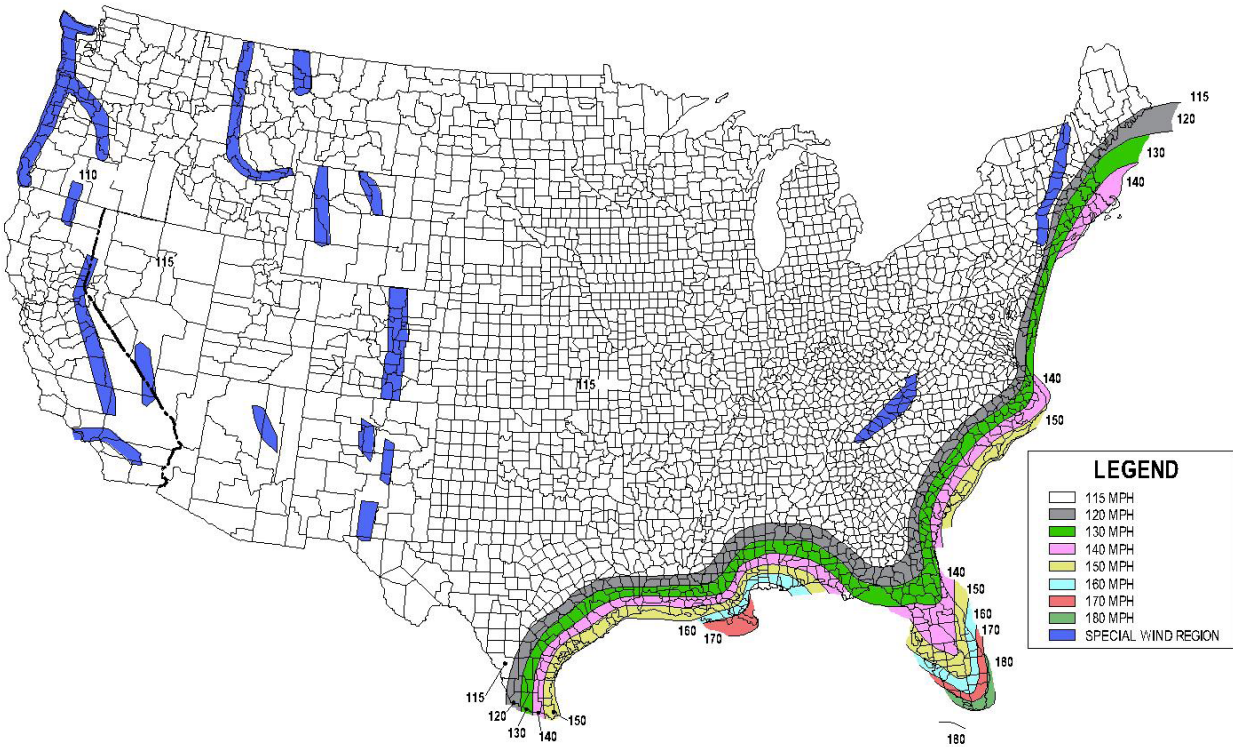


FIG. 3.8-1b - 700-Year MRI Basic Wind Speed, mph (AASHTO LRFDLTS-1)

- 1) All wind load calculations are based on sustained wind force plus and additional 1.3 gust
- 2) Wind Map is to be used as a reference only. Please coordinate with local agencies for further review.
- 3) Wind Map values are based on a 50 year mean recurrence. These values do not account for severe conditions, such as hurricanes, tornadoes, etc...
- 4) For review of poles with additional configurations (arms, banners, shorter/longer pole lengths, etc...), please contact factory.

## MOUNTING CONFIGURATION



Single  
(SGL)



Double  
(D-90)



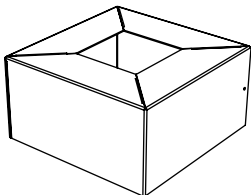
Double  
(D-180)



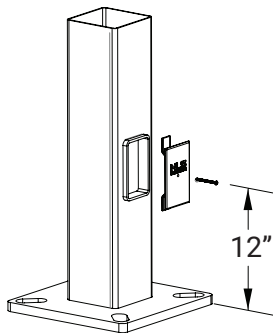
Triple  
(T-90)



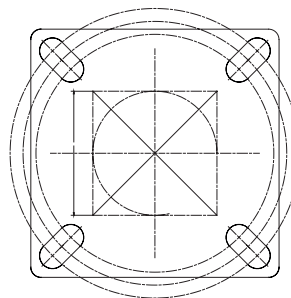
Quad  
(QD)



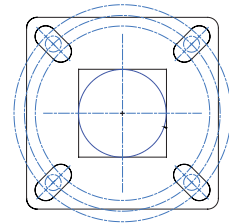
Base Cover



Base Detail



12" Base Detail



9" Base Detail