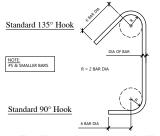
NOTES: LIGHT POLE FOUNDATIONS DESIGNED FOR POLE, ARM & LUMINAIRE COMBINATIONS: HAPCO RTA25D7B4M16 w/ AEL AUTOBAN SERIES ATB2 LUMINAIRE HAPCO RTA25D8B4T1A w/ AEL AUTOBAN SERIES ATB2 LUMINAIRE ROUND TAPERED ALUMINUM POLE BY OTHERS 25'-0" LIGHT POLE DESIGN IGNORES TOP (4) 1"Ø HDG ATR (GRADE 55) w/ DBL NUT & WASHER @ BOTTOM 2'-0" OF SOIL 2 Z (3) #4 CLOSED TIES @ 3" @ - #4 CLOSED TIES @ 10" TYP w/ STD 135° HKS EA END A DEPTH IS ACHIEVED VERTS PER SECTION ROCK AS APPROVED BY GEOTECH 2'-0" (6) #6 VERT EVENLY SPACED (A) SECTION

Light Pole Foundation Section

STANDARD CURRENT AS OF:	01/01/2025	
APPROVED BY:	FMD	
NOTES:		



LIGHT POLE BASE #1- ALL-THREAD



Typ. Hoop, Stirrup, & Crossties Hooks

VERTICAL BAR LAP SPLICE SCHEDULE							
	1 = LAP SPLICE LENGTH						
	CMU		CON	RETE			
BAR SIZE	f'm=1500	fc=2500	fc=2500 fc=3000 fc=4000 fc=5000				
#3	19°	24"	24" 22" 19" 17"				
#4	34"	32"	32" 29" 25" 23"				
#5	45"	39" 36" 31" 28"					
#6	54"	47"	43"	37"	34"		
#7	63"	69"	63"	54"	48"		
#8	72*	78"	72"	62"	55"		
#9	81"	88*	81"	70"	62"		
#10	NA	100°	91"	79"	69"		
#11	NA	110"	101"	87"	76"		

CONCRETE COVER REQUIREMENT (NON-PRESTRESSED)	S
COVER FOR REINFORCEMENT SHALL NOT BE LESS THAN THE FOLLOWING:	CONCRETE COVER (in.)
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.	3
B. CONCRETE EXPOSED TO EARTH OR WEATHER: B.1. No. 6 THROUGH No. 18 BARS B.2. No. 5 BAR, W31 OR D31 WIRE, AND SMALLER	2 1-1/2
C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS: C.1. No. 14 AND No. 18 BARS C.2. No. 11 BAR AND SMALLER	1-1/2 3/4
BEAMS, COLUMNS: C.3. PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS	1-1/2
SHELLS, FOLDED PLATE MEMBERS: C.4. No. 6 BAR AND LARGER C.S. No. 5 BAR, W31 OR D31 WIRE, AND SMALLER	3/4 1/2

GENERAL STRUCTURAL NOTES

- These structural darking and general rootes represent the finished structure. Unless otherwise indicated, they do not specify the method of structure. Unless otherwise indicated, they do not specify the method of construction. The Contractor shall provide all measures necessary to such reasours shall include but not be limited to. busing of utilities structure shall be shall be be limited to. busing the structure shall be shall be limited to. busing in the structure shall not not be shall be s

- Special inspection in accordance with Section 1704 of the CBC shall be provided by a qualified person who is acceptable to the Engineer and Building Department for the following types of work:
- See Statement and Schedule of Special Inspection.

- All site work and grading shall be done in accordance with the CBC.
- Excavations for foundations shall conform to the lines and dimensions shown on the drawings. Remove all loose material and debris from excavations and de-water excavations as required to maintain dry working conditions. A Solis Engineer shall approve all site work and foundation excavations prior to installing entificiency saled or placing concrete.

- All concrete work shall be performed in accordance with the latest edition of the ACI Building Code (ACI 318) and the latest edition of the ACI Manuals of Concrete Practice.
- 3 Submit concrete mix designs to Engineer for review

- Aggregate size: 1". Provide the maximum ratio of coarse aggregate to fine aggregate consistent with placing requirements.

- Reinforcing materials: a) ASTM AG15 Grade 60. b) Welded wire fabric. ASTM A1064 c) Reinforcing for welded inserts: ASTM A706 Grade 60. All bars to be welded shall be marked with a W to designate weldability. d) Cold drawn spiral reinforcing. ASTM A1064.

- Miscellaneous material:

 a) Sand base under slab on grade: Clean sand with less than 3% passing the #200 sieve and no deleterious material content.

 b) Capillary break base under slab on grade: Clean, coarse sand and/or gravel with 100% passing the 3" sieve, 0-20% passing the 4"16 sieve, and 0-3% passing the #6200 sieve, and no deleterious material content.
- content.

 Vapor retateder. Per Geotschnical Report, 15 mil STEGO Wap or approved equal.

 Vapor retateder. Per Geotschnical Report, 15 mil STEGO Wap or approved equal.

 Vapor retateder. A vapor vapor
- Welding of reinforcing steel. Reinforcing steel shall not be welded unless specifically detailed on the drawings or directed by the Engineer. All welding of reinforcing steel shall be in accordance with the latest edition of Connection in Reinforced Connected contractional by the AME (AMS D1 A). Use low hydrogen EBDox or E9Dox electrodes for welding of reinforcing steel.
- 13. Lap splices: See Schedule.
- 14. Cover to bars: See Schedule.

- Outside diameter of conduit or pipe embedded in slab shall not exceed 30% of slab thickness, or 1-1/2°, whichever is smaller, unless specifically detailed otherwise, All Conduits or pipe slarger than the 1-1/2° a 30% slab thickness (O.D.) shall be placed under the slab. Conduits can be grouped in thickness (O.D.) shall be placed under the slab. Conduits can be grouped in Similary March and State of Stevens ingle conduits or pairs shall be 6°. Conduits shall be wapped in a marrier suitable to provide a bond break, and allow concrete expansion/phrinking.

- sing:
 Laboratory. The Owner shall retain the services of a Testing
 Laboratory where samples will be tested in accordance with these
 structural rotes and the applicable sandersto of the ASIM. Work
 Laking and storage of samples and their delivery to the laboratory.
 Minimum samples: Make a minimum of 3 test opinders for each
 vily your, and a required by ACI 316.
 Minimum testing of samples. Test opinders as follows: 1 at 7 days,
 and the samples of their delivery of their samples
 set reports. A copy of all test reports shall be submitted to the
 Engineer.

STRUCTURAL STEEL AND MISC METALS

- Boits: ASTIM A307.

 Nuts: ASTIM A563A.
 High strength boits: ASTIM F3125 A325-N.
 High strength boits: ASTIM F3125 A325-N.
 High strength boit washers: ASTIM A563DH.
 High strength boit washers: ASTIM A163 Type 1.
 Welded headed study: ASTIM A108.
 Stainless steel all thread roots and boits: ASTIM F593 CW1 or CW2
 (1616).
- Installation of high strength bolts: In accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts" turn-of-nut method.

- Galvaniang: Steel sections, assemblies, and miscellaneous into angles, clips, connection hardware, and other elements exposed to weather skill be hard eig palvanised; after finely galvanised site firming shall be per ATIM. Not here dig palvanised site firming shall be per ATIM hard palvanised site firming shall be per ATIM. A per ATIM ANI SI or 7228. High-strength boths per ATIM FATIS or 87228. High-strength boths per ATIM FATIS SAZE may be mechanized galvanised per ATIM BROS (Loss S. Maring boths and nuts shall receive the same zinc-costain). Repair all uncosted, damaged, or all stated galvanised strates per ATIM ATIM (Where field weeks are galvanised stated per ATIM ATIM (Where field weeks are galvanised stated or per ATIM ATIM (Where field weeks). On not water quarterly advantaged members as laberations.

AB ALDOL ALUMA ALU EMBEDWANT SHEARWALL ENGE NAUING SHEARWALL ENGE NAUING SHEARWALL ENGE NAUING SHEARWALL ENGE NA FOOR BEAM FOUNDATION FOUNDATION FOUNDATION FOUNDATION FIELD NAUING GUILE LAMMATTED BEAM HOLDOWN GUILE LAMMATTED BEAM HOLDOWN GUILE SEAM HOLDOWN HOLD SHEET METAL SCREW SQUARE STANDARD STANDARD STANDARD TO STANDARD TO STANDARD TO STANDARD TO STANDARD ST

ABBREVIATIONS

DESIGN NOTES:

a) Light Pole: b) Light Fixtures Self Weight - Per manufacturer Self Weight - Per manufacturer

Wind design data:

a) Occupancy Risk Category = II b) Basic Wind Speed (3-sec gust) = 93 mph b) Wind Exposure(s) = C

Earthquake design data:

Estimiquate resign catal:

30 Occupano, Risk Calspoyn = II

30 Seasine, Importance Factor, I = 1,00

30 Seasine Seasone Certificients, Sp₀ = 0,86g & S₀₁ = 0,40g

6) Selectin Ghesign Calspoyn = 0

5 Selectin Chesign Seasone (Selectin Selectin Selection Sel

Design Allowable Values of Soils (1-1/3rd increase for wind and seismic loading assumed):

a) Skin friction = 150 psf b) Friction coefficient = not using c) Passive pressure = 500 pcf (In Rock), 100 pcf (In Soil) acting over 1.5x foundation Diameter

01/01/2025 STANDARD CURRENT AS OF: **FMD** APPROVED BY: NOTES:



LIGHT POLE BASE #1- ALL-THREAD



August 26, 2024

California Polytechnic State University 1 Grand Avenue, Bldg. 01, Room 129 San Luis Obispo, CA 93407

Subject:

Proposed Concrete Mixture Design Highland Drive Light Pole Bases California Polytechnic State University

San Luis Obispo, California

Gentlemen:

The attached concrete mixture design is proposed for your use on the above referenced project in accordance with your request. The attached substantiating data indicates that the concrete mixture, when properly batched, sampled, and tested, is capable of providing the indicated strength characteristics. The mixture design is referenced as follows:

MIX NUMBER 611RN1040

USE

Light Pole Bases

DESCRIPTION

6.5 sks; 1" max.; PM ADA W/CM=0.46; 4" Slump 4500 psi @ 28 days

The weights are in pounds per cubic yard of fresh concrete. Aggregate and water weights are for materials in saturated-surface dry condition and must be adjusted for moisture at the time of batching.

The substantiating data for this mixture is derived from similar Mixture No. 564RN1040. The California Building Code allows the use of a similar mixture to qualify a new mixture as long as the data is less restrictive than what is proposed. The primary difference between the two mixtures is that Mixture No. 611RN1040 has a higher cementitious material content. This change will lead to increased compressive strengths at all ages. The following analysis of Mixture Number 564RN1040 is per the California Building Code, Section 1905A. The average compressive strength, 5331 psi, must exceed the following minimum requirements for acceptability.

 $f'_{cr} = f'_{c} + 1.34ks = 4500 + (1.34)(1.096)(511) = 5250 \text{ psi} < 5331 \text{ psi}$ $f'_{cr} = f'_{c} + 2.33ks - 500 = 4500 + (2.33)(1.096)(511) - 500 = 5305 \text{ psi} < 5331 \text{ psi}$

: acceptable

: acceptable

In accordance with ASTM C 94, please provide CalPortland with copies of all results of tests performed on the concrete samples that will be taken on this project.

Please do not hesitate to call if you have questions regarding the proposed mixture desi

Very truly yours, CalPortland Co.

Patrick W. Imhoff, P.E. Technical Service Manager

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P.O. Box 1280 • Santa Maria, CA 93456

Telephone: (805) 345-3400 • Fax: (805) 345-3577

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EXPECT MORE... WE DELIVER!

01/01/2025 STANDARD CURRENT AS OF: **FMD** APPROVED BY: NOTES:





Concrete Mix Submittal

Submittal Information

Mix Information

Submittal Name Highland Drive Light Pole Bases

Date Submitted 08/26/2024

Customer California Polytechnic State University

Project Name Highland Drive Light Pole Bases

Mix ID 611RN1040

Mix Name 4500 psi 1" Crushed

Compressive Strength (f'c) 4500 psi @ 28 Days

Aggregate Nominal Size 3/4"

Air Entrained

Project Location Cal Poly, SLO

Use Light Pole Bases

Mix Properties

Slump	4"	Sack Content	6.5	94 lb/sack	Total Mass	3921	lb
Air	1.5%	Total Water	33.9	gal	Total Volume	27.00	ft3
W/CM Ratio	0.46	Water/Sack	5.2	gal	Unit Weight	145.2	lb/ft3

Group	Material Description	Supplier	Specific Gravity	Mass Ib	Volume ft3
Cement	ADVANCEMENT HS	CalPortland	3.1	519	2.683
Additive	Fly Ash, Class F	ECO Material Technolgies	2.4	92	0.614
Water	Water		1	283	4.535
Aggregate	Rocky Canyon 1" x #4 Crushed Granite	CalPortland	2.59	1750	10.828
	Garey Concrete Sand	CalPortland	2.58	1277	7.934
Admixture	Zyla 625 Dosage: 6 fl oz/100 lb CM	GCP Applied Technologies, Inc.	1.12		
Air	Air				0.405

Mix Notes

The weights are in pounds per cubic yard of fresh concrete. Aggregate and water weights are for materials in saturated-surface dry condition and must be adjusted for moisture at the time of batching.

Mixes intended for pump placement should be reviewed by the pumping contractor prior to use to ensure compatibility with equipment.

Approval of this mixture design carries the inclusion of CalPortland on the distribution list for all concrete test results. In accordance with ASTM C94, please provide CalPortland with copies of all results of tests performed on the concrete samples that will be taken on this project.

Sincerely,

Name/Title Patrick Imhoff, P.E. / Technical Services Manager

Contact Patrick Imhoff, P.E. Phone (805) 345-3472

Email Plmhoff@CalPortland.com

STANDARD CURRENT AS OF:	01/01/2025	
APPROVED BY:	FMD	

NOTES:



STATEMENT OF SPECIAL INSPECTIONS, 2022 CBC Project:

This Statement of Special Inspections is submitted in fulfillment of the requirements of CBC Sections 1704. Included are:

- Schedule of Special Inspections and tests applicable to this project:
 - □ Special Inspections per Sections 1704 and 1705
 - ☐ Special Inspections for Seismic Resistance
 - ☐ Special Inspections for Wind Resistance
- List of Testing Agencies and other special inspectors that will be retained to conduct the tests and inspections.

Special Inspections and Testing will be performed in accordance with the approved plans and specifications, this statement and CBC Sections 1704 and 1705.

The Schedule of Special Inspections summarizes the Special Inspections and tests required. Special Inspectors will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Interim reports will be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with CBC Section 1704.2.4.

A Final Report of Special Inspections documenting required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy (Section 1704.2.4). The Final Report will document:

- Required special inspections.
- Correction of discrepancies noted in inspections.

The Owner recognizes his or her obligation to ensure that the construction complies with the approved permit documents and to implement this program of special inspections. In partial fullilliment of these obligations, the Owner will retain and directly pay for the Special Inspections as required in CBC Section 1704.2.

This plan has been developed with the understanding that the Building Official will:

- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Monitor special inspection activities on the job site to assure that the Special Inspectors are qualified and are
 performing their duties as called for in this Statement of Special Inspection.
- Review submitted inspection reports.
- Perform inspections as required by the local building code.

SCHEDULE OF INSPECTION, TESTING AGENCIES, AND INSPECTORS

The following are the testing agencies and special inspectors that will be retained to conduct tests and inspection on this project.

Responsibility	Firm	Address, Telephone
Special Inspection (except for geotechnical)		
2. Material Testing		
3. Geotechnical Inspections		

SEISMIC REQUIREMENTS (Section 1704.3.2)

Identify seismic-force-resisting system and designated seismic systems subject to special inspections as per Section 1705.11:

N/A

The extent of the seismic-force-resisting system is defined in more detail in the construction documents

WIND REQUIREMENTS (Section 1704.3.3)

Identify main wind-force-resisting system and designated wind resisting components subject to special inspections as per Section 1705.10:

N/A

NOTES:

The extent of the main wind-force-resisting system is defined in more detail in the construction documents.

Per CBC 1704.4: Each contractor responsible for the construction of a main wind or seismic force resisting system, designated seismic system or a wind or seismic resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following: (1) Acknowledgement of awareness of the special requirements contained in the statement of special inspections. (2) Acknowledgement that control will be exercised to obtain conformance with the construction documents approved by the building official. (3) Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of the reports. (4) Identification and qualification of the person(s) exercising such control and their position(s) in the organization.

SCHEDULE OF SPECIAL INSPECTION

Notation Used in Table:

Caluman handom

Х

C Indicates continuous inspection is required.

P Indicates periodic inspections are required. The notes and/or contract documents should Box entries:

--- Denotes an activity that is either a one-time activity or one whose frequency is defined in some other manner

Additional detail regarding inspections and tests are provided in the project specifications or notes on the drawings.

Is placed in the appropriate column to denote either "C" continuous or "P" periodic inspections.

Req'd This Job	Verification and Inspection	С	P	Notes
х	1705.3 - Concrete Construction			
х	Inspection of reinforcing steel, including prestressing tendons and verify placement		х	
	Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706;		х	
	 b. Inspect single-pass fillet welds, maximum ¹/₁₆; and c. Inspect all other welds 	Х	Х	
х	Inspection of anchors cast in concrete		Х	
	Inspection of anchors post-installed in hardened concrete members: a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads b. Mechanical anchors and adhesive anchors not defined in 4.a	х	x	Verify with manufacturer
Х	5. Verify use of required design mix		Х	
х	Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete	х		
х	7. Inspect concrete and shotcrete placement for proper application techniques	Х		
х	Verify maintenance of specified curing temperature and techniques		х	
	Inspection of prestressed concrete for: a. Application of prestressing forces; and b. Grouting of bonded prestressing tendons	X X		
	Inspect erection of precast concrete members		х	
	Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs		х	
х	Inspect formwork for shape, location and dimensions of the concrete member being formed		х	
Х	1705.8 - Required Special Inspections and T	ests o	f Cast-	In-Place Deep Foundation Elements
х	Observe drilling operations and maintain complete and accurate record for each element.	х		
х	 Verify locations of piers and their plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes. 	х		
х	For concrete elements, perform additional inspections in accordance with CBC Section 1705.3.			

STANDARD CURRENT AS OF: 01/01/2025

APPROVED BY: FMD



LIGHT POLE BASE #1- ALL-THREAD