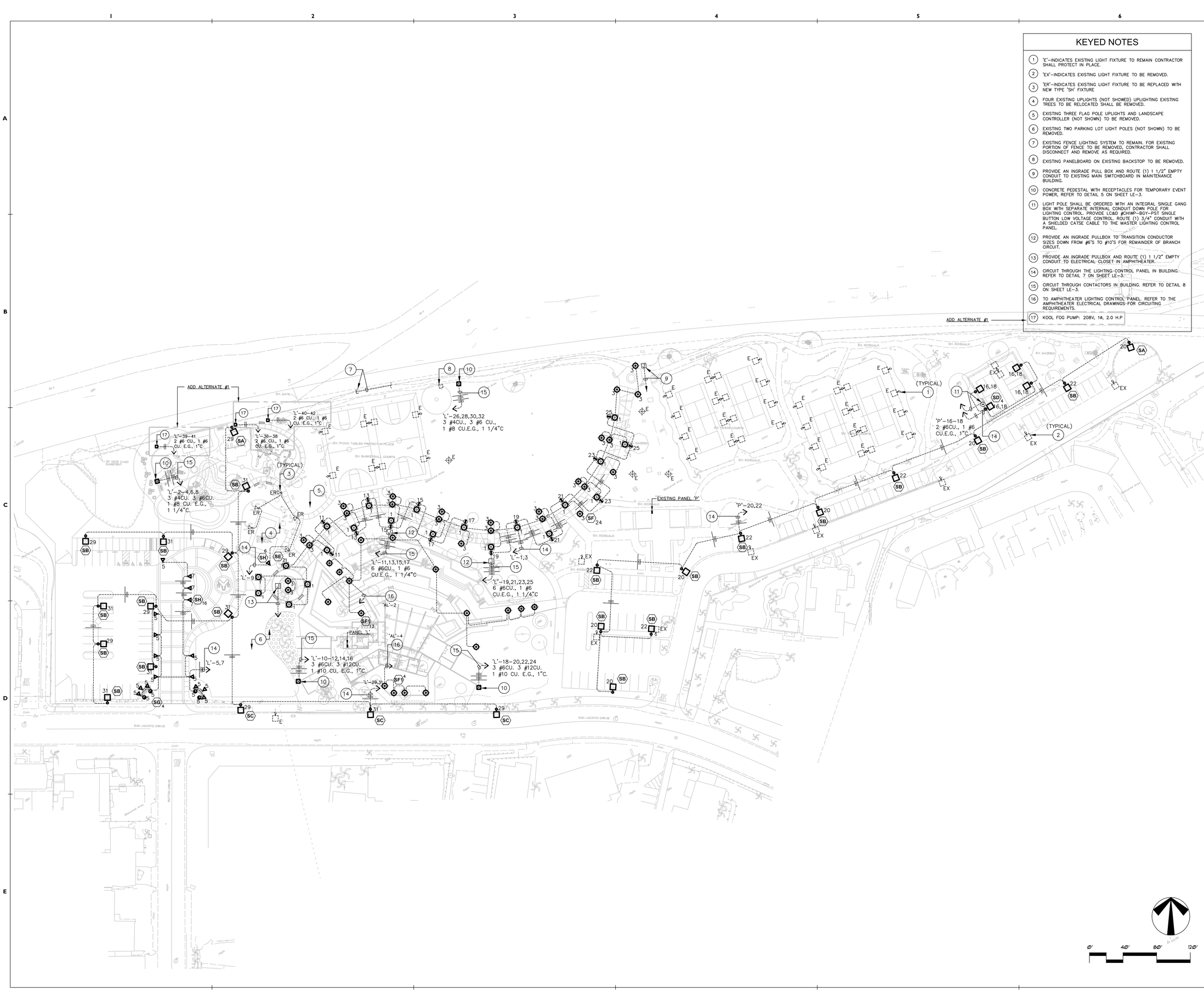
KEYED NOTES

1. 'E'–INDICATES EXISTING LIGHT FIXTURE TO REMAIN CONTRACTOR SHALL PROTECT IN PLACE.
2. 'EX'–INDICATES EXISTING LIGHT FIXTURE TO BE REMOVED.
3. 'ER'–INDICATES EXISTING LIGHT FIXTURE TO BE REPLACED WITH NEW TYPE 'SH' FIXTURE
4. FOUR EXISTING UPLIGHTS (NOT SHOWED) UPLIGHTING EXISTING TREES TO BE RELOCATED SHALL BE REMOVED.
5. EXISTING THREE FLAG POLE UPLIGHTS AND LANDSCAPE CONTROLLER (NOT SHOWN) TO BE REMOVED.
6. EXISTING TWO PARKING LOT LIGHT POLES (NOT SHOWN) TO BE REMOVED.
7. EXISTING FENCE LIGHTING SYSTEM TO REMAIN. FOR EXISTING PORTION OF FENCE TO BE REMOVED, CONTRACTOR SHALL DISCONNECT AND REMOVE AS REQUIRED.
8. EXISTING PANELBOARD ON EXISTING BACKSTOP TO BE REMOVED.
9. PROVIDE AN INGRADE PULL BOX AND ROUTE (1) 1 1/2" EMPTY CONDUIT TO EXISTING MAIN SWITCHBOARD IN MAINTENANCE BUILDING.
10. CONCRETE PEDESTAL WITH RECEPTACLES FOR TEMPORARY EVENT POWER, REFER TO DETAIL 5 ON SHEET LE–3.
11. LIGHT POLE SHALL BE ORDERED WITH AN INTEGRAL SINGLE GANG BOX WITH SEPARATE INTERNAL CONDUIT DOWN POLE FOR LIGHTING CONTROL. PROVIDE LC&D #CHWP–BGY–PST SINGLE BUTTON LOW VOLTAGE CONTROL. ROUTE (1) 3/4" CONDUIT WITH A SHIELDED CAT5E CABLE TO THE MASTER LIGHTING CONTROL PANEL.
12. PROVIDE AN INGRADE PULLBOX TO TRANSITION CONDUCTOR SIZES DOWN FROM #6'S TO #10'S FOR REMAINDER OF BRANCH CIRCUIT.
13. PROVIDE AN INGRADE PULLBOX AND ROUTE (1) 1 1/2" EMPTY CONDUIT TO ELECTRICAL CLOSET IN AMPHITHEATER.
14. CIRCUIT THROUGH THE LIGHTING CONTROL PANEL IN BUILDING. REFER TO DETAIL 7 ON SHEET LE–3.
15. CIRCUIT THROUGH CONTACTORS IN BUILDING. REFER TO DETAIL 8 ON SHEET LE–3.
16. TO AMPHITHEATER LIGHTING CONTROL PANEL. REFER TO THE AMPHITHEATER ELECTRICAL DRAWINGS FOR CIRCUITING REQUIREMENTS.
17. KOOL FOG PUMP: 208V, 1Ø, 2.0 H.P

ADD ALTERNATE #1



0' 40' 80' 120'

M|R|C ENGINEERING, INC.
Project Number: 13040.00
Professional Engineers & Lighting Consultants
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PALM DESERT | SANTA ANA | SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
SHAWN V. MRC
No. E13455
Exp. 09/30/14
ELECTRICAL
STATE OF CALIFORNIA

DRAWING DATE:	**12/16/13**
REVISIONS:	
ISSUE DATES:	
PLANNING SUBMITTAL SET: ☐	DRAWN BY: **GL**
DESIGN DEVELOPMENT SET: ☐	
PLAN CHECK SET: ☐	CHECKED BY: **VL**
PERMIT SET: ☐	
BID SET: ☐	-
CONSTRUCTION SET: ☐	**-**

Whitewater Park Expansion: AMPHITHEATER

C.P. 12-284

71-560 San Jacinto Drive
Rancho Mirage, CA
92270

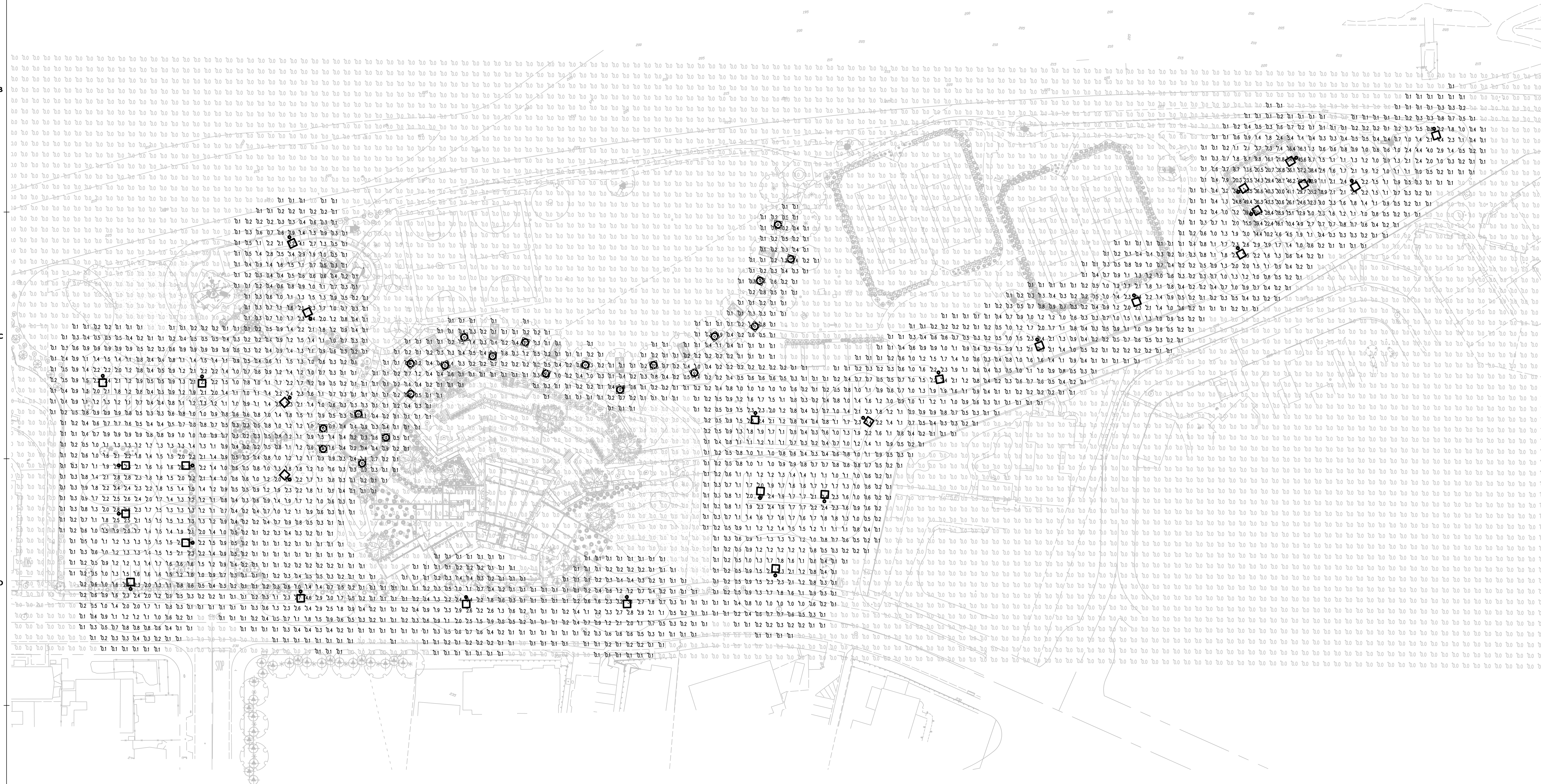
for

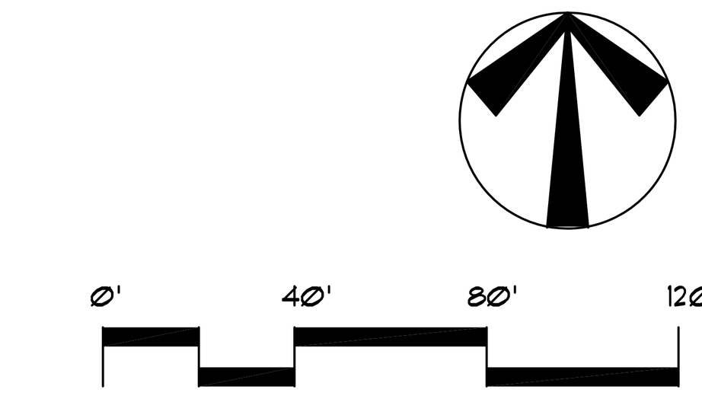
The City of Rancho Mirage

69-825 Highway 111
Rancho Mirage, CA
92270
760-324-4511

SHEET TITLE:
ELECTRICAL SITE PLAN

SHEET:
LE-1





MRC ENGINEERING, INC.

Project Number: 13046.00

Professional Engineers & Lighting Consultants
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PALM DESERT | SANTA ANA | SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
RANDALL V. MOSS
No. E13453
Exp. 09/30/14
ELECTRICAL
STATE OF CALIFORNIA

INSTRUMENTS OF SERVICE

DRAWING DATE: **12/16/13**

REVISIONS:

ISSUE DATES:

PLANNING SUBMITTAL SET: ☐	DRAWN BY: GL
DESIGN DEVELOPMENT SET: ☐	
PLAN CHECK SET: ☐	CHECKED BY: VL
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Whitewater Park Expansion: AMPHITHEATER

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for

The City of Rancho Mirage

69-825 Highway 111
Rancho Mirage, CA
92270
760-324-4511

SHEET TITLE:

SITE PHOTOMETRIC PLAN

SHEET:

LE-2

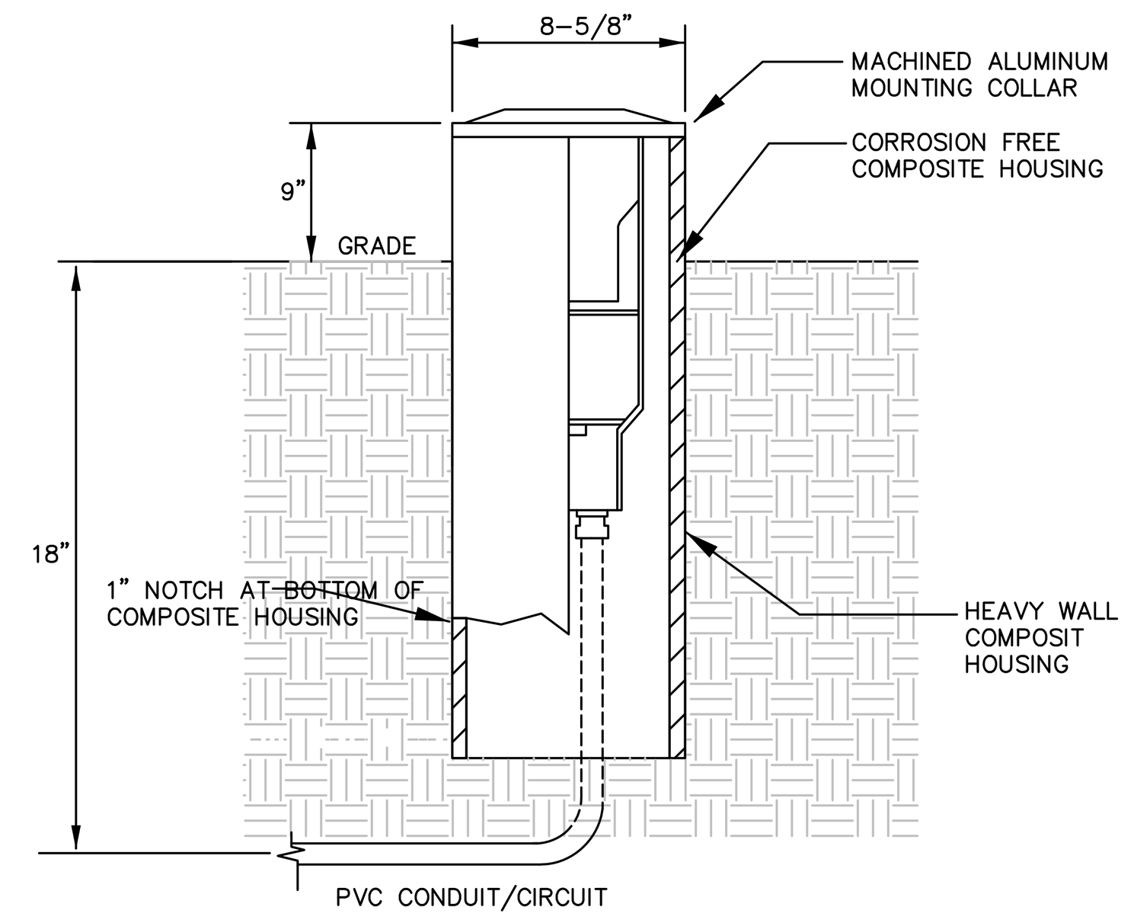
PANEL: P (EXIST.) LOCATION: MAINT. BLDG MOUNTING: SURFACE				PANELVOLTAGE: 120/240 1P, 3W BUS: 200 A MAIN: L.O. AIC RATING: 10,000												CIRCUIT CODE: N : NON-CONTINUOUS L : LONG-CONTINUOUS R: DEMANDABLE RECEPTACLES K: KITCHEN					
CIRC	VA LOAD		LOAD DESCRIPTION	CODE	TYPE			C.B.		BUS		C.B.		TYPE			CODE	LOAD DESCRIPTION	VA LOAD		CIRC
	A	B			M	R	L	TR	P	A	B	TR	P	L	R	M			A	B	
1	1920		EXIST. CIRCUIT	N				30	2	X		30	2				N	EXIST. CIRCUIT	1920		2
3		1920	–	N				–	–		X	–	–				N	–		1920	4
5	500		EXIST. CIRCUIT	N				20	2	X		20	1				N	EXIST. CIRCUIT	900		6
7		500	–	N				–	–		X	20	1				N	EXIST. CIRCUIT		900	8
9	1920		EXIST. CIRCUIT	N				30	2	X		30	2				N	EXIST. CIRCUIT	1920		10
11		1920	–	N				–	–		X	–	–				N	–		1920	12
13	2250		EXIST. CIRCUIT	N				40	2	X		20	1				N	EXIST. CIRCUIT	500		14
15		2250	–	N				–	–		X	30	2				L	LIGHTING– PICKLEBALL		2200	16
17			SPARE					20	1	X		–	–				L	–	2200		18
19			SPARE					20	1		X	20	1				L	LIGHTING– PARKING LOT		450	20
21			SPARE					20	1	X		20	1				L	LIGHTING– PARKING LOT	450		22
23			SPACE								X							SPACE			24
25			SPACE							X								SPACE			26
27			SPACE								X							SPACE			28
29			SPACE							X								SPACE			30
	6590	6590	PHASE TOTALS															PHASE TOTALS	7890	7390	
Total Phase A:			14480															CONNECTED VA (CODE N):			23160
Total Phase B:			13980															CONNECTED VA (CODE L):			5300
																		CONNECTED VA (CODE R):			
																		CONNECTED VA (CODE K):			
																		TOTAL CONNECTED KVA:			28.5
																		DEMAND KVA:			
																		TOTAL ADJUSTED KVA:			28.5
																		TOTAL PANEL AMPS:			118.7
																		AMPS W/LCL:			124.3

PANEL SCHEDULE 'P' SCALE: NONE (10)

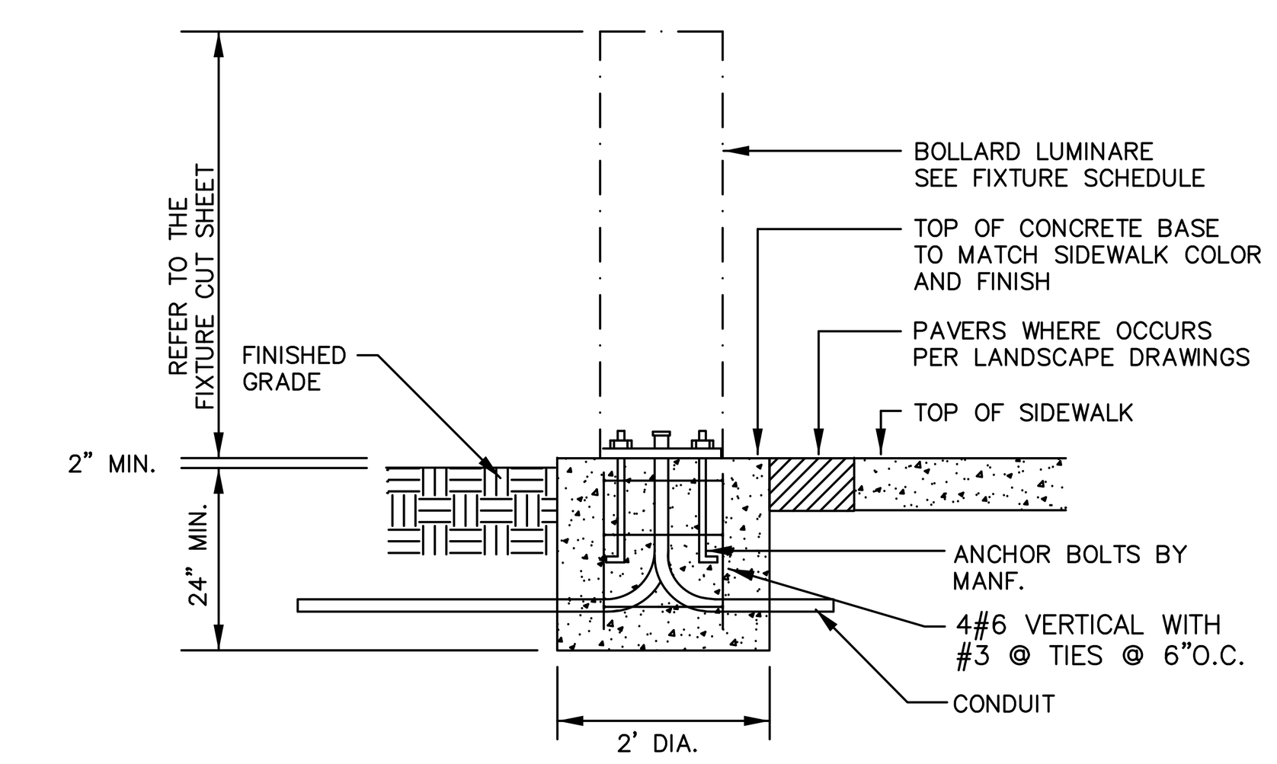
PANEL: L (NEW) LOCATION: ELEC. CLOSET MOUNTING: SURFACE					PANELVOLTAGE: 120/208 3P, 4W BUS: 200 A MAIN: L.O. AIC RATING: 10,000 SERIES RATED														CIRCUIT CODE: N : NON-CONTINUOUS L : LONG-CONTINUOUS R: DEMANDABLE RECEPTACLES K: KITCHEN					
CIRC	VA LOAD			LOAD DESCRIPTION	CODE	TYPE			C.B.		BUS			C.B.		TYPE			CODE	LOAD DESCRIPTION	VA LOAD			CIRC
	A	B	C			M	R	L	TR	P	A	B	C	TR	P	L	R	M			A	B	C	
1	735			LIGHTING– PROMENADE	L				20	1	X			50	2				N	EVENT POWER PEDESTAL #1	4080			2
3		360		LIGHTING– PROMENADE	L				20	1		X		–	–				N	(PLAYGROUND)		4080		4
5			250	LIGHTING– LANDSCAPE	L				20	1			X	20	1				N	RECEPT.– EVENT PEDESTAL #1			600	6
7	90			LIGHTING– FLAG POLE	L				20	1	X			20	1				N	RECEPT.– EVENT PEDESTAL #1	600			8
9		300		LIGHTING– RANCHITO	L				20	1		X		50	2				N	EVENT POWER PEDESTAL #2		4080		10
11			360	RECEPTS.– PROMENADE	N				20	1			X	–	–				N	(AMPHITHEATER WEST)			4080	12
13	360			RECEPTS.– PROMENADE	N				20	1	X			20	1				N	RECEPT.– EVENT PEDESTAL #2	600			14
15		360		RECEPTS.– PROMENADE	N				20	1		X		20	1				N	RECEPT.– EVENT PEDESTAL #2		600		16
17			360	RECEPTS.– PROMENADE	N				20	1			X	50	2				N	EVENT POWER PEDESTAL #3			4080	18
19	360			RECEPTS.– PROMENADE	N				20	1	X			–	–				N	(AMPHITHEATER EAST)	4080			20
21		360		RECEPTS.– PROMENADE	N				20	1		X		20	1				N	RECEPT.– EVENT PEDESTAL #3		600		22
23			360	RECEPTS.– PROMENADE	N				20	1			X	20	1				N	RECEPT.– EVENT PEDESTAL #3			600	24
25	360			RECEPTS.– PROMENADE	N				20	1	X			50	2				N	EVENT POWER PEDESTAL #4	4080			26
27		200		LIGHTING CONTROLS	N				20	1		X		–	–				N	(BASKETBALL COURT)		4080		28
29			525	LIGHTING– PARKING LOT	L				20	1			X	20	1				N	RECEPT.– EVENT PEDESTAL #4			600	30
31	525			LIGHTING– PARKING LOT	L				20	1	X			20	1				N	RECEPT.– EVENT PEDESTAL #4	600			32
33				SPACE								X								SPACE				34
35				SPACE									X	25	2				L	KOOL FOG PUMP			1584	36
37				SPACE							X			–	–				L	–	1584			38
39		1584		KOOL FOG PUMP	N				25	2		X		25	2				L	KOOL FOG PUMP		1584		40
41			1584	–	N				–	–			X	–	–				L	–			1584	42
	2430	3164	3439	PHASE TOTALS																PHASE TOTALS	15624	15024	13128	
Total Phase A:				18054																CONNECTED VA (CODE N):			43688	
Total Phase B:				18188																CONNECTED VA (CODE L):			9121	
Total Phase C:				16567																CONNECTED VA (CODE R):				
NOTES:																				CONNECTED VA (CODE K):				
																				TOTAL CONNECTED KVA:			52.9	
																				DEMAND KVA:				
																				TOTAL ADJUSTED KVA:			52.9	
																				TOTAL PANEL AMPS:			147.1	
																				AMPS W/LCL:			155.4	

ADD ALTERNATE #1

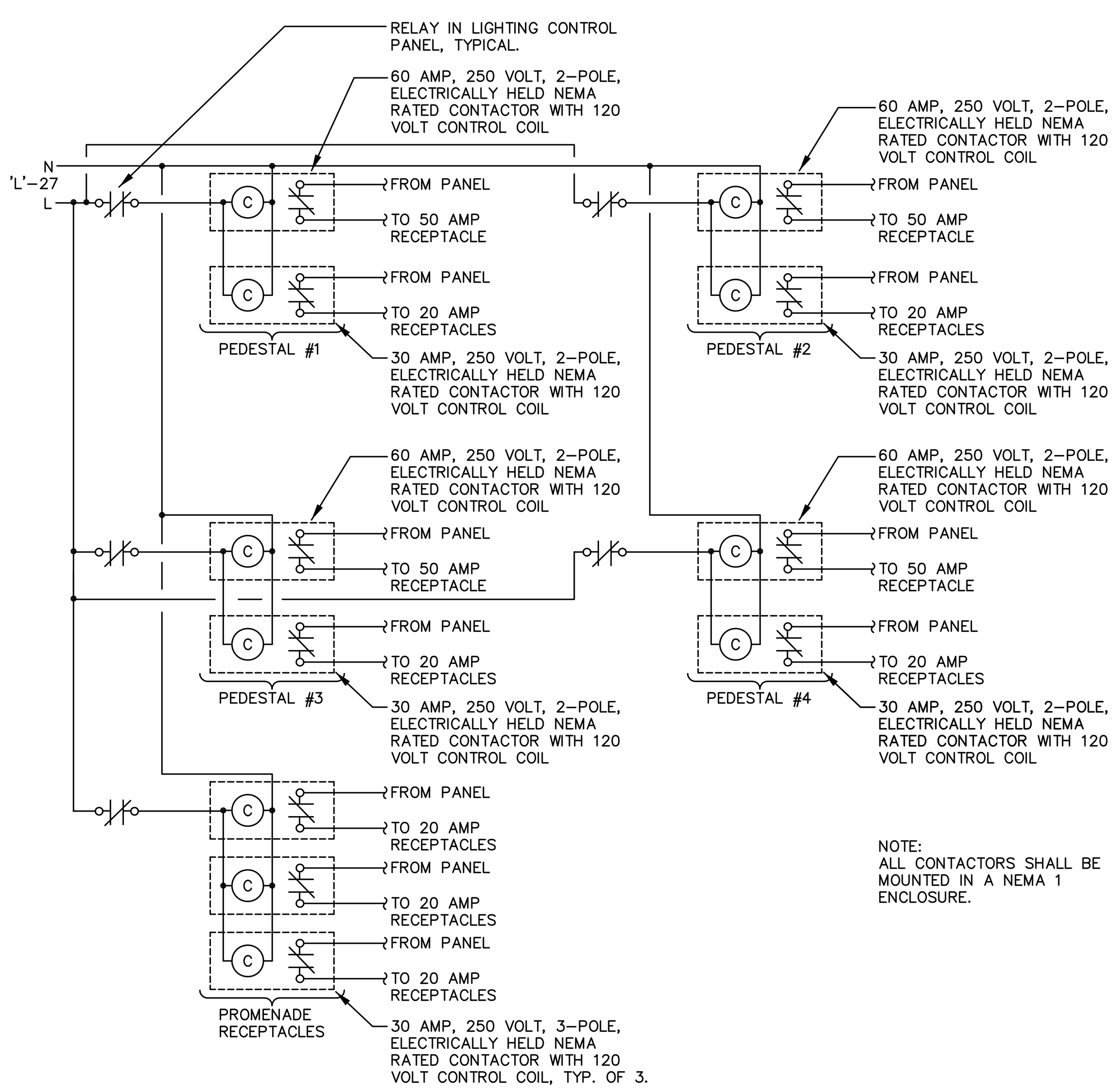
PANEL SCHEDULE 'L' SCALE: NONE (9)



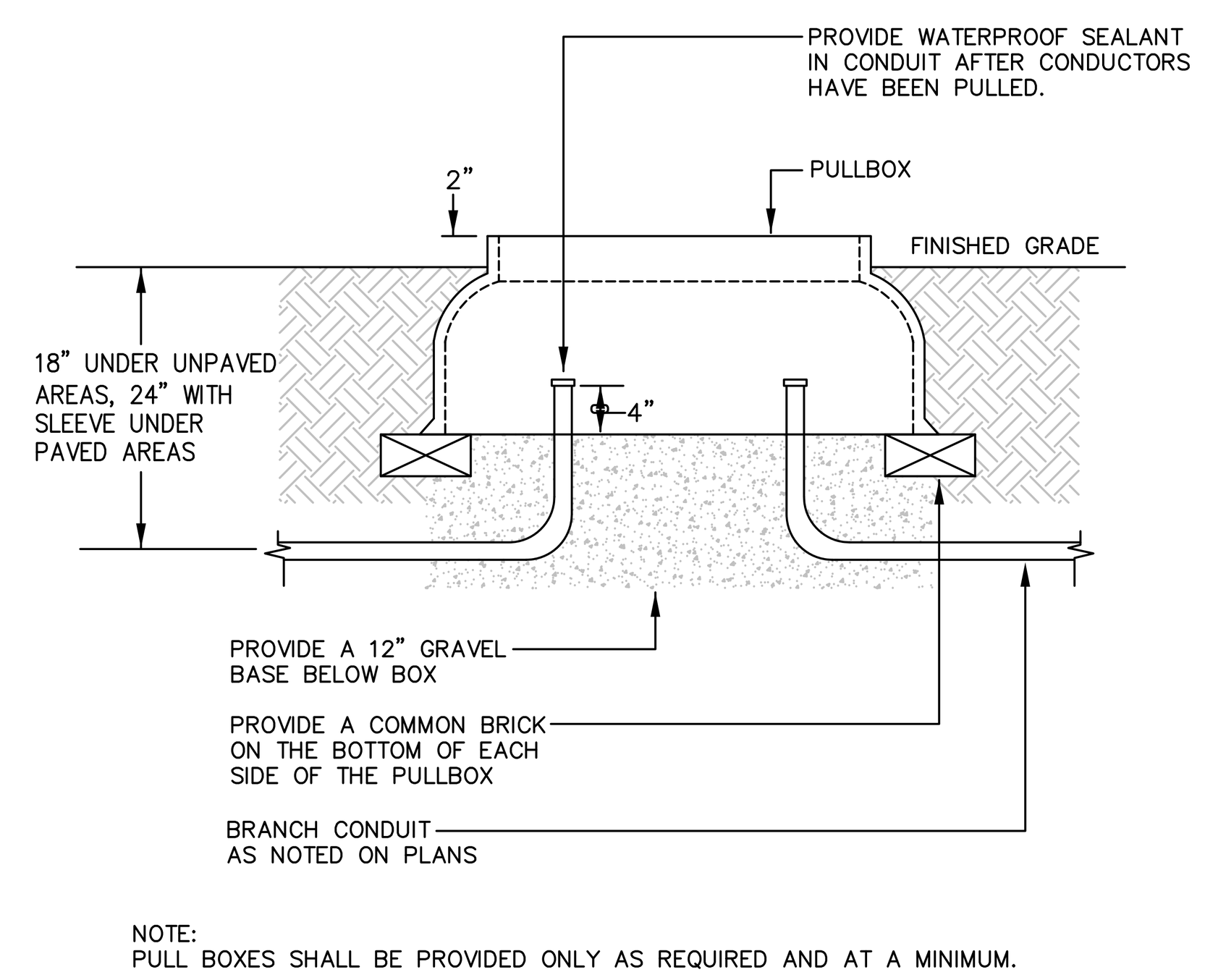
FIXTURE TYPE 'SF' BASE DETAIL SCALE: NONE (4)



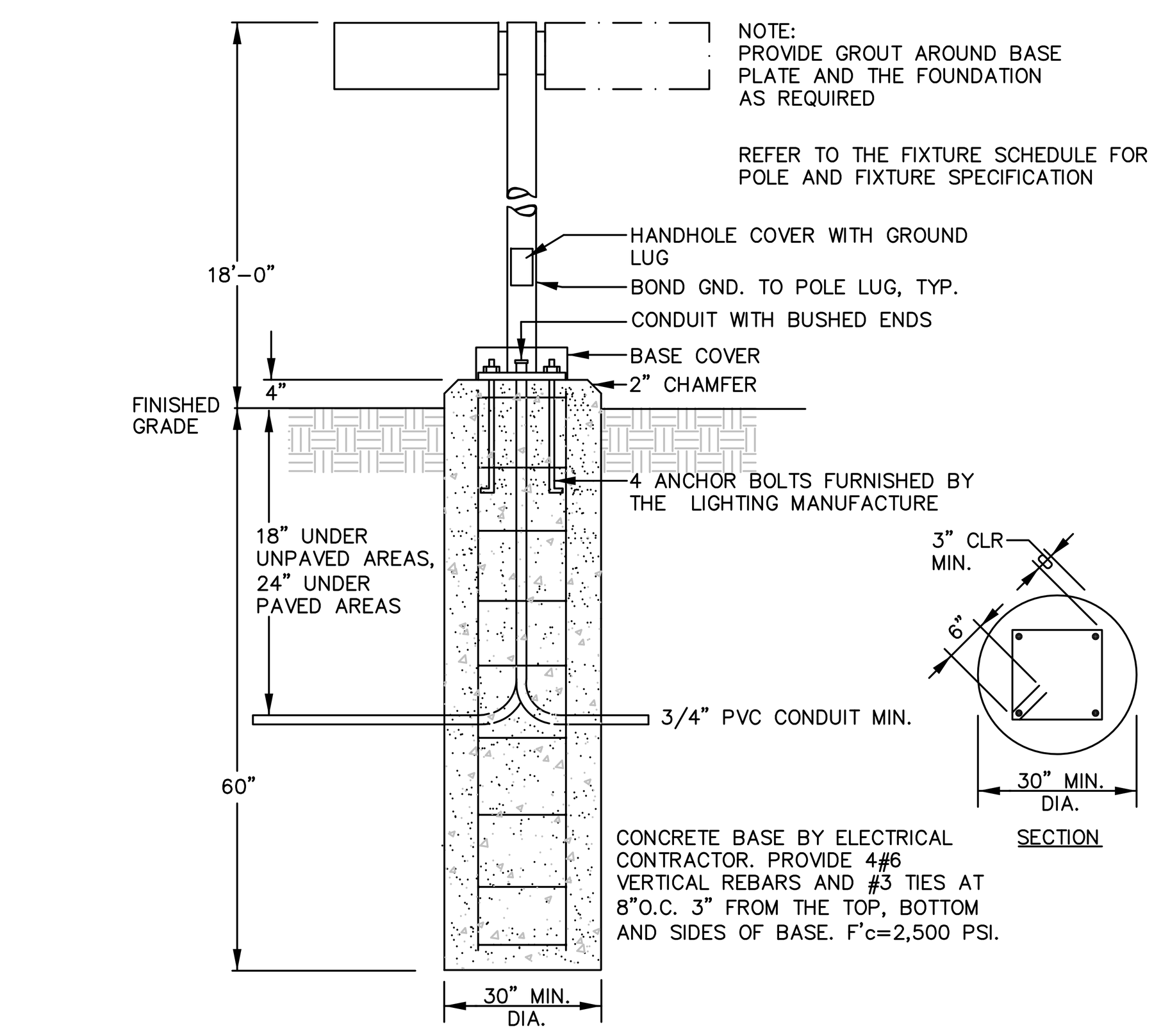
FIXTURE TYPE 'SE' BASE DETAIL SCALE: NONE (3)



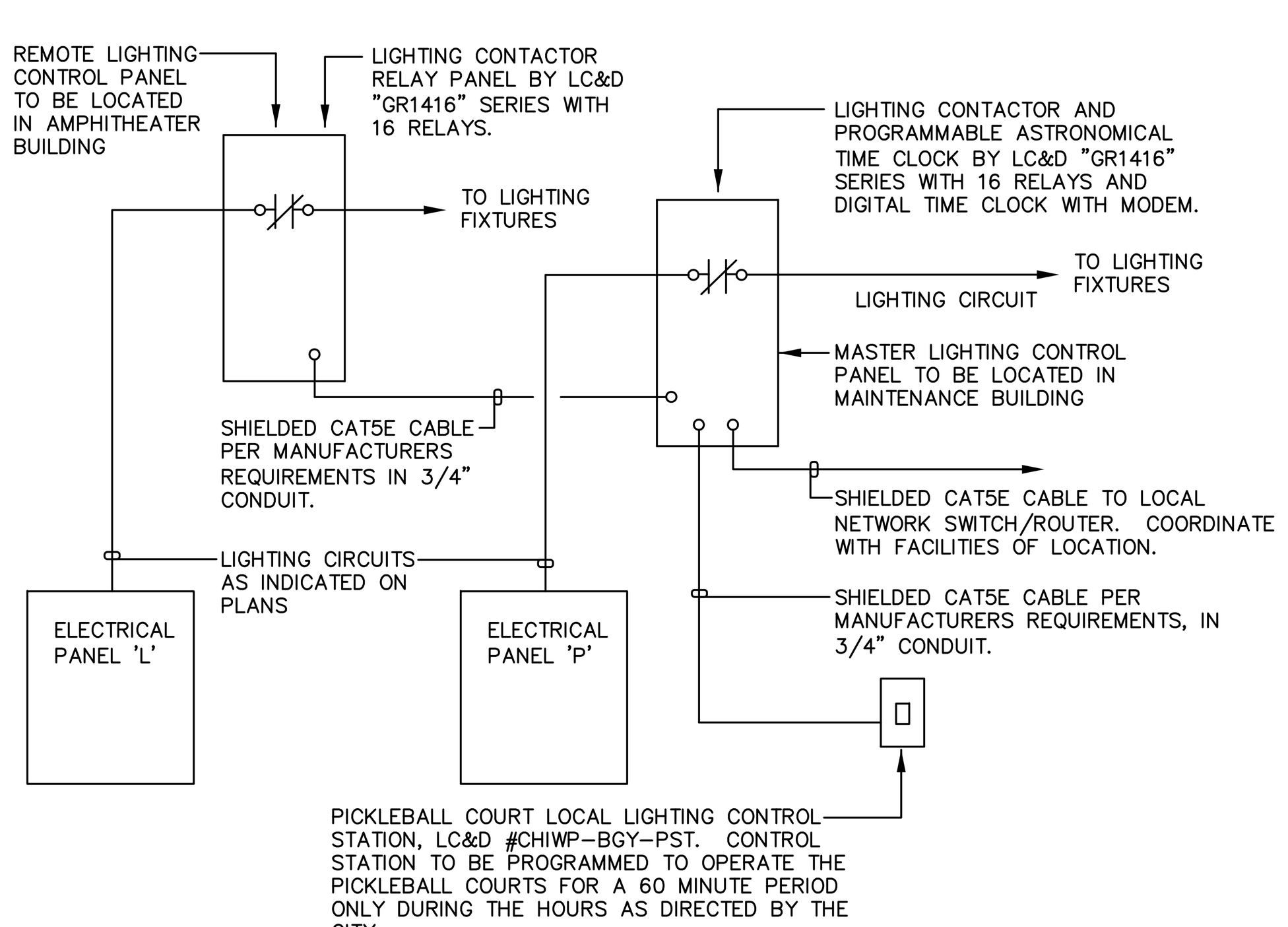
EVENT POWER PEDESTAL CONTROL DIAGRAM SCALE: NONE (8)



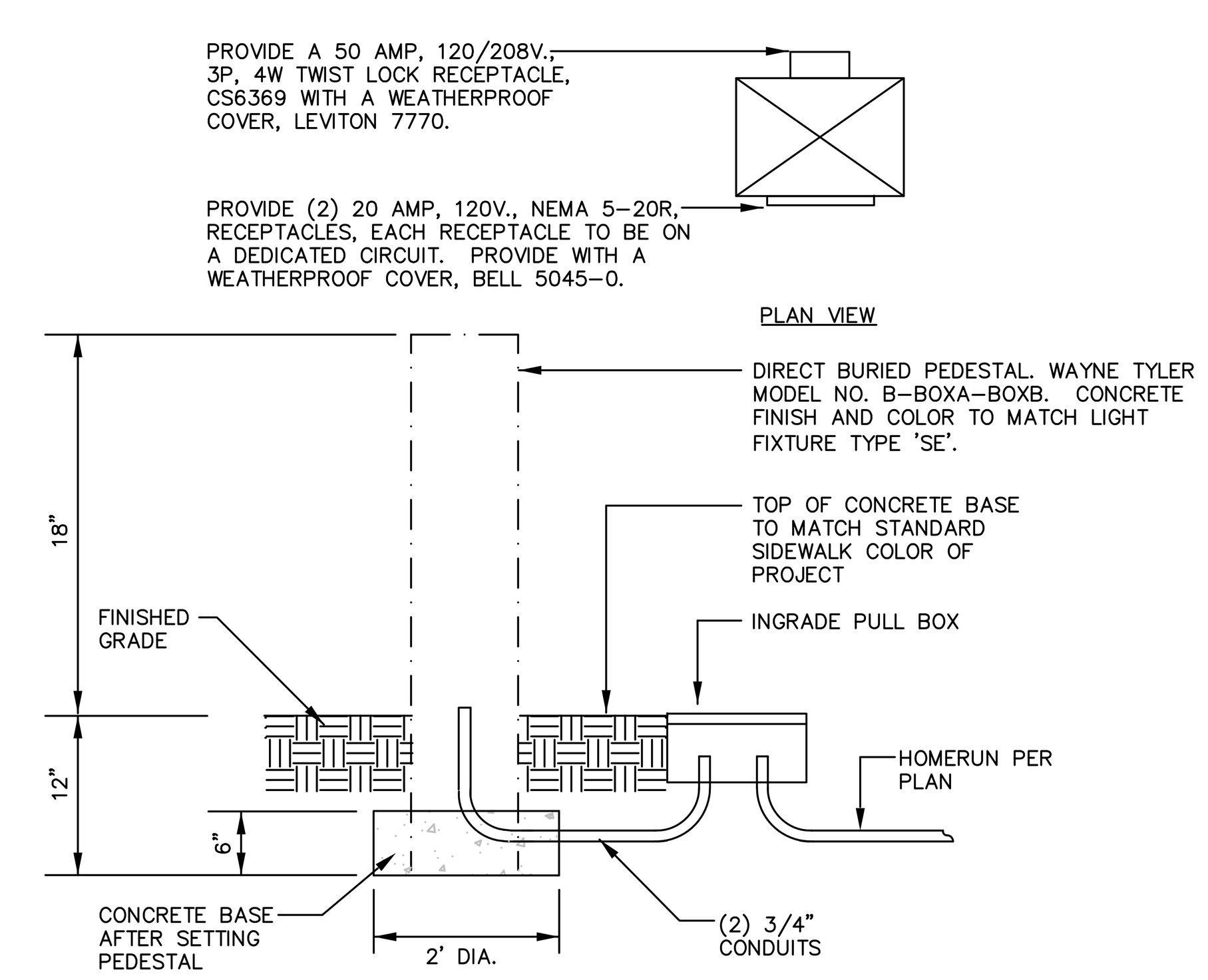
TYPICAL INGRADE PULLBOX SCALE: NONE (6)



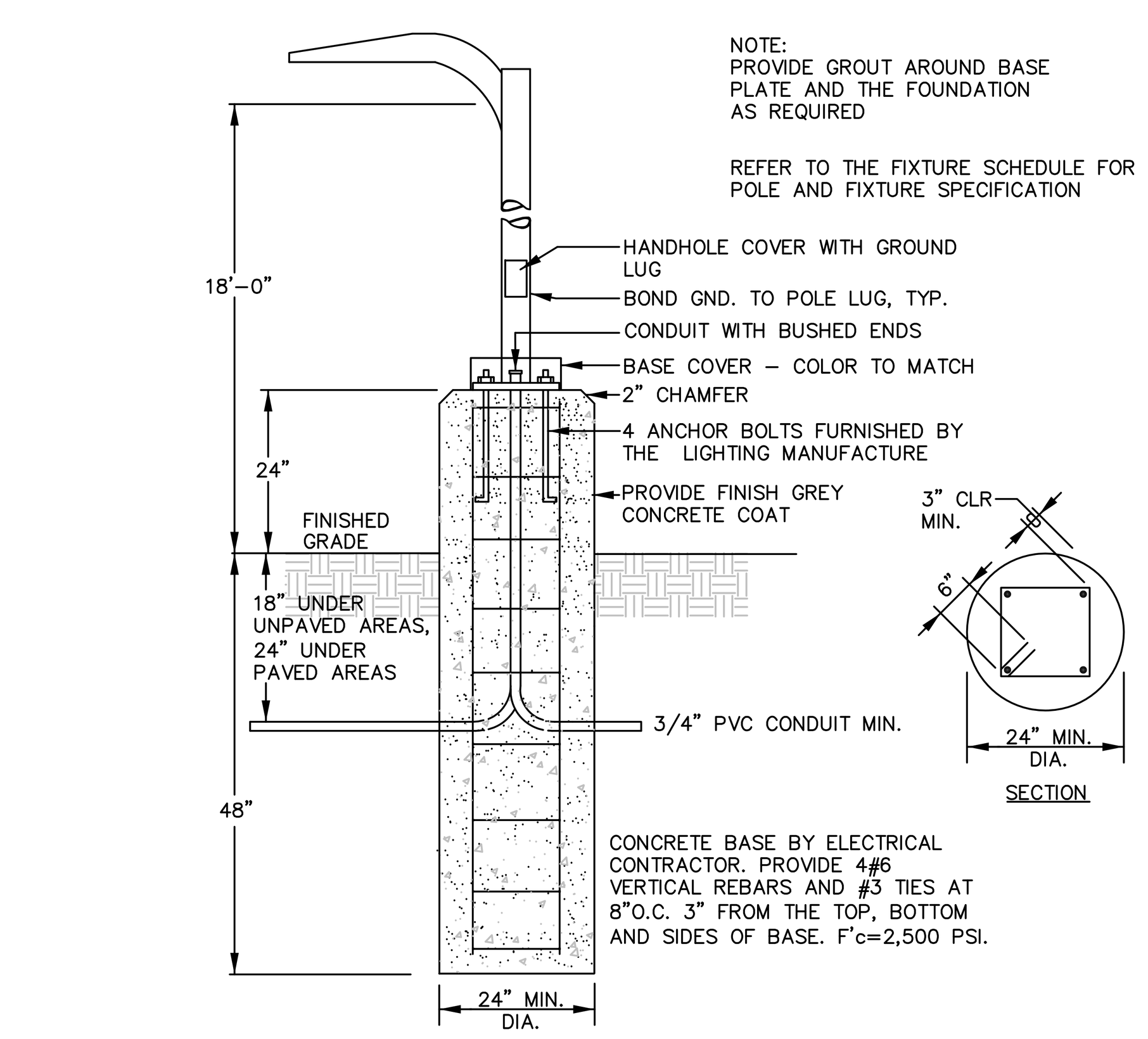
FIXTURE TYPE 'SD' BASE DETAIL SCALE: NONE (2)



EXTERIOR LIGHTING CONTROL SYSTEM SCALE: NONE (7)



FIXTURE TYPE 'SE' BASE DETAIL SCALE: NONE (5)



FIXTURE TYPE 'SA', 'SB' AND 'SC' BASE DETAIL SCALE: NONE (1)

MRC ENGINEERING, INC.
Project Number: 13046.00
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PALM DESERT | SANTA ANA | SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER RANDALL V. MOSS No. E13453 Exp. 09/30/14 ELECTRICAL STATE OF CALIFORNIA

INSTRUMENTS OF SERVICE

DRAWING DATE: **12/16/13**

REVISIONS:

ISSUE DATES:

PLANNING SUBMITTAL SET:	DRAWN BY: GL
DESIGN DEVELOPMENT SET:	
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Whitewater Park Expansion: AMPHITHEATER

C.P. 12-284

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for

The City of Rancho Mirage

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SHEET TITLE: **ELECTRICAL DETAILS**

SHEET: **LE-3**

GENERAL

1. THE FOLLOWING NOTES REFLECT THE REQUIREMENTS OF THE ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE AND OPERABLE ELECTRICAL SYSTEM.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MATERIALS, CONDUIT, WIRING, CONTROL DEVICES AND EQUIPMENT REQUIRED TO INSURE ALL SYSTEMS ARE COMPLETE AND OPERABLE.
3. THE DIAGRAMS AND SYMBOLS ILLUSTRATED ON THESE DRAWINGS REFLECT THE INTENT OF THE ELECTRICAL SYSTEMS AND ARE SHOWN DIAGRAMMATICALLY.
4. THE CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS AND VISIT THE PROJECT EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS.
5. THE CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONSTRUCTION DOCUMENTS, SPECIFICATIONS, SHOP DRAWINGS, ADDENDUM'S AND CHANGE ORDERS ON THE JOB SITE.
6. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE PROJECT MANAGER AND ARCHITECT SHOULD A CONFLICT EXIST BETWEEN THESE DRAWINGS AND THE ACTUAL FIELD CONDITIONS.
7. COORDINATE THE INSTALLATION OF THE ELECTRICAL SYSTEMS WITH ALL PROJECT TRADES AND NOTIFY THE PROJECT MANAGER IF A CONFLICT EXISTS.
8. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A WARRANTEE FOR THE ELECTRICAL WORK INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE PROJECT BY THE OWNER. NO ADDITIONAL COST FOR LABOR OR REPLACEMENT OF PARTS, MATERIALS AND EQUIPMENT SHALL BE INCURRED BY THE OWNER.
9. RETURN OPERATING MANUALS, COPIES OF SHOP DRAWINGS, BROCHURES AND EQUIPMENT WARRANTIES TO THE OWNER AT THE COMPLETION OF THE PROJECT.
10. MAINTAIN AND UPDATE DAILY A COMPLETE SET OF AS-BUILT ELECTRICAL DOCUMENTS AND RETURN TO THE PROJECT MANAGER AT THE END OF THE PROJECT.
11. ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST A HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:
 11.1. FIXED EQUIPMENT ON GRADE: 33 PERCENT OF OPERATING WEIGHT.
 11.2. FIXED EQUIPMENT ON STRUCTURE: 40 PERCENT OF OPERATING WEIGHT.
 11.3. FOR FLEXIBLY MOUNTED EQUIPMENT, USE 4 TIMES ABOVE VALUES. SIMULTANEOUS VERTICAL FORCE, USE ONE-THIRD TIMES HORIZONTAL FORCE.
12. THESE NOTES DO NOT REPLACE BOOK SPECIFICATIONS. IF A CONFLICT IS FOUND THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE PROCEEDING WITH WORK.

REGULATIONS, CODES AND PERMITS

1. THE COMPLETE ELECTRICAL SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2010 CALIFORNIA ELECTRICAL CODE (CEC). REFER TO THE ARCHITECTURAL DRAWINGS FOR A LIST OF CODES THAT PERTAIN TO THIS PROJECT.
2. NOTHING ON THE DRAWINGS, GENERAL NOTES OR SPECIFICATIONS IS TO BE INTERPRETED AS PERMITTING WORK NOT CONFORMING WITH ANY CODE, REGULATION OR CITY ORDINANCES.

MATERIALS

1. ELECTRICAL MATERIALS AND PARTS SHALL BE PROVIDED BY THE SAME MANUFACTURE FOR EACH CLASS OR GROUP OF MATERIALS.
2. ALL MATERIALS, PARTS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED.

SERVICES

1. THE CONTRACTOR SHALL COORDINATE ALL SERVICE REQUIREMENTS WITH EACH UTILITY COMPANY PRIOR TO BIDDING THE PROJECT. IF FINAL UTILITY PLANS ARE NOT AVAILABLE THE CONTRACTOR SHALL PROVIDE A SEPARATE ALLOWANCE IN THE BID FOR CONDUITS AND STRUCTURES AS A SEPARATE LINE ITEM FOR EACH UTILITY SYSTEM.
2. THE CONTRACTOR SHALL VERIFY ALL UTILITY COMPANY SERVICE REQUIREMENTS (POWER, TELEPHONE AND CABLE), POINT OF CONNECTIONS, QUANTITY OF CONDUITS AND SIZES, CONDUIT INSTALLATION, CONDUIT ENCASEMENT, PULL BOX, VAULTS, EQUIPMENT PADS, JOINT TRENCHES AND EQUIPMENT GROUNDING REQUIREMENTS PRIOR TO STARTING CONSTRUCTION.
3. VERIFY THE AVAILABLE FAULT CURRENT WITH THE UTILITY COMPANY PRIOR TO SUBMITTING ELECTRICAL DISTRIBUTION EQUIPMENT SHOP DRAWINGS.
4. COORDINATE ALL UTILITY COMPANY INSPECTIONS DURING THE INSTALLATION OF CONDUITS AND STRUCTURES.

SHOP DRAWINGS AND SUBSTITUTIONS

1. THE CONTRACTOR SHALL NOT RELEASE ELECTRICAL EQUIPMENT OR LIGHTING FIXTURES UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED AND REVIEWED.
2. PRODUCT SUBSTITUTIONS WILL ONLY BE ALLOWED AFTER THE PROJECT PLANS AND SPECIFICATIONS ARE BID AS SPECIFIED.
3. SUBSTITUTIONS WILL ONLY BE CONSIDERED DURING THE SHOP DRAWING PROCESS AND ONLY IF THE SUBMITTAL INCLUDES UNIT PRICES FOR EACH SPECIFIED AND ALTERNATE PRODUCTS AND A TOTAL PROJECT SAVINGS.
4. SUBSTITUTION PRODUCTS SHALL BE EQUAL TO THE PERFORMANCE, QUALITY AND WORKMANSHIP OF THE SPECIFIED PRODUCT. WORKING SAMPLES MAY BE REQUIRED.
5. SHOP DRAWINGS SHALL BE PROVIDED FOR THE FOLLOWING ITEMS; GENERAL ELECTRICAL MATERIALS, CONDUIT AND WIRE, SWITCHGEAR, PANELS, TRANSFORMERS, LIGHTING FIXTURES, LAMPS, CONTROL EQUIPMENT, FIRE ALARM SYSTEMS, AND SPECIAL SYSTEMS NOTED ON DRAWINGS OR SPECIFICATIONS.
6. ELECTRICAL EQUIPMENT, PARTS AND MATERIALS SHALL BE RELEASED TO INSURE THE CONSTRUCTION SCHEDULE IS NOT JEOPARDIZED DUE TO LATE DELIVERIES.
7. MAIN SWITCHBOARD SHOP DRAWINGS SHALL BE SUBMITTED TO THE SERVING UTILITY COMPANY FOR REVIEW PRIOR TO RELEASING EQUIPMENT FOR FABRICATION. METERING FACILITIES AND UNDERGROUND PULL SECTIONS SHALL MEET THE LOCAL UTILITY COMPANY REQUIREMENTS.

GROUNDING

1. THE COMPLETE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 – GROUNDING, OF THE CALIFORNIA ELECTRICAL CODE (CEC).
2. VERIFY SYSTEM GROUNDING REQUIREMENTS AND PROVIDE GROUND RODS AS REQUIRED TO INSURE THAT THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.
3. THE COMPLETE ELECTRICAL SYSTEM SHALL BE TESTED TO INSURE COMPLIANCE GROUNDING REQUIREMENTS.
4. THE METHOD OF OBTAINING GROUND RESISTANCE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE JAMES G. BIDDLE MANUAL PUBLISHED ON THE SUBJECT.

SERVICE AND DISTRIBUTION EQUIPMENT

1. PANELBOARDS WITH MOLDED CASE CIRCUIT BREAKERS SHALL BE FURNISHED WITH HINGED LOCKABLE DOORS THAT ARE KEYED ALIKE, INDEX CARD HOLDERS AND PERMANENT DEVICE NUMBERS. PANELS SHALL BE AS MANUFACTURED BY SEIMENS, EATON OR EQUAL.
2. WHEN ALLOWED, LOAD CENTERS SHALL BE FURNISHED WITH PLUG-IN CIRCUIT BREAKERS. LOAD CENTERS SHALL BE AS MANUFACTURED BY SEIMENS, EATON OR EQUAL.
3. SEPARATE COMPARTMENTS ABOVE PANEL BOARDS SHALL BE PROVIDED FOR TIME CLOCKS, RELAYS ETC. AS REQUIRED.
4. REFER TO PANEL SCHEDULES FOR PANEL MOUNTING REQUIREMENTS, VOLTAGE AND INDIVIDUAL DEVICE REQUIREMENTS.
5. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE UNLESS OTHERWISE NOTED, WITH A MINIMUM GROUND FAULT RATING OF 10,000 AIC. FOR 120/208 AND 120/240 VOLT SYSTEMS.
6. PROVIDE WIRE GUTTERS BELOW AND ABOVE PANEL BOARDS TO FACILITATE MULTIPLE BRANCH CIRCUIT CONDUITS.
7. NO PIPES, DUCTS OR EQUIPMENT FOREIGN TO THE ELECTRICAL SYSTEM SHALL BE PERMITTED TO BE LOCATED WITHIN THE DEDICATED SPACE ABOVE THE MAIN SWITCHBOARD, DISTRIBUTION OR ELECTRICAL PANELS.
8. THE MAIN SWITCHBOARD SHALL BE PROVIDED WITH UNDERGROUND PULL SECTIONS AND METERING FACILITIES THAT MEETS THE SERVING UTILITY COMPANY REQUIREMENTS.
9. THE COMPLETE SYSTEM SHALL BE "SERIES RATED" FOR THE AVAILABLE FAULT CURRENT. THE SERIES CONNECTED DEVICES SHALL HAVE BEEN INVESTIGATED BY UL IN COMBINATION WITH THE END USE EQUIPMENT. EQUIPMENT IN WHICH THESE DEVICES ARE USED SHALL BE LABELED WITH THE SERIES CONNECTED RATING. ALL EQUIPMENT SHALL BE LABELED IN ACCORDANCE WITH CEC 110.22.
10. FEEDER CONNECTIONS AT ALL ELECTRICAL DISTRIBUTION EQUIPMENT SHALL BE TIGHTENED BEFORE GROUND TESTS ARE TAKEN.
11. ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE PROVIDED WITH WEATHERPROOF ENCLOSURE MANUFACTURED BY THE SAME MANUFACTURE.
12. PROVIDE ENGRAVED NAMEPLATES ON THE SWITCHBOARD AND DEVICES, DISTRIBUTION PANELS AND DEVICES, PANEL BOARDS AND TRANSFORMERS. NAMEPLATES SHALL BE 3 PLY WITH BLACK FACE AND WHITE CORE PERMANENTLY ATTACHED WITH STAINLESS STEEL LOCKING SCREWS.
13. THE CONTRACTOR SHALL CONFIRM THAT EQUIPMENT WORKING SPACE AND GUARDING IN FRONT OF ALL SWITCHBOARDS, PANELS, DISCONNECT SWITCHES AND ALL OTHER EQUIPMENT REQUIRE SERVICING OR ADJUSTMENT AS OUTLINE IN SECTION 110.26 OF THE C.E.C.
14. APPLICABLE EQUIPMENT MANUFACTURER'S SHALL BE RSE SIERRA, SIEMENS, SQUARE D OR EATON.

DEVICES

1. SWITCHES SHALL HAVE A RATING OF 20 AMPERE AND BE TOTALLY ENCLOSED TOGGLE TYPE WITH 277V A.C. RATING FOR FULL CAPACITY. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
2. DEVICE AND COVER PLATE COLORS SHALL BE COORDINATED WITH THE PROJECT MANAGER AND ARCHITECT PRIOR TO INSTALLATION.
3. RECEPTACLES SHALL BE GROUNDED TYPE 120 VOLT RATED AT 20 AMPERE TOTALLY ENCLOSED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.
4. GFCI RECEPTACLES SHALL BE PROVIDED AT LOCATIONS INDICATED AND IN ACCORDANCE WITH THE CALIFORNIA ELECTRICAL CODE ARTICLE 210.8.
5. SPECIFICATION GRADE SWITCHES AND RECEPTACLES SHALL BE PROVIDED. MANUFACTURED BY PASS & SEYMOUR, HUBBELL OR LEVITON.

BRANCH CIRCUITING

1. BRANCH CONDUIT AND WIRE HASH MARKS MAY NOT BE DEPICTED ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE BRANCH CONDUITS AND WIRING TO ALL CIRCUITS INDICATED AND AS REQUIRED FOR A COMPLETE AND OPERABLE BRANCH CIRCUIT DISTRIBUTION SYSTEM IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE CALIFORNIA OR NATIONAL ELECTRICAL CODE.
2. MINIMUM CONDUCTOR SIZE SHALL BE #12 COPPER WITH A MINIMUM CONDUIT SIZE OF 3/4".
3. PROVIDE A GREEN GROUND CONDUCTOR IN ALL BRANCH CIRCUIT AND FEEDER CABLES OR CONDUITS.
4. AT THE END OF THE PROJECT, THE CONTRACTOR SHALL PROVIDE A DETAILED AS-BUIT DRAWING TO THE OWNER AND ENGINEER.

CONDUCTORS & WIRING

1. ALL CONDUCTORS SHALL BE COPPER WITH AMPACITY RATINGS IN ACCORDANCE WITH ARTICLE 310.15 AND TABLE 310.16.
2. ALUMINUM CONDUCTORS ARE NOT APPROVED FOR THIS PROJECT.
3. CONDUCTORS SHALL BE CODE GRADE THHN/THWN (DRY/WET) 600 VOLT 75 DEGREE C. COPPER WITH MARKINGS (24" O.C.) INDICATING MANUFACTURE, WIRE TYPE, AMPERAGE AND SIZE.
4. THE MINIMUM WIRE SIZE SHALL BE #12 AWG SOLID. WIRE SIZE #8 AND LARGER SHALL BE COPPER STRANDED.
5. SOLDERLESS CONNECTORS AND TERMINALS SHALL BE USED FOR TERMINATING STRANDED CONDUCTORS #8 AND LARGER. APPROVED MANUFACTURES ARE BURNDY OR T&B.
6. BRANCH CIRCUIT AND FIXTURE WIRING, SPLICES AND TAPS FOR CONDUCTORS #10 AND SMALLER SHALL BE MADE WITH UL LISTED 600 VOLT CONNECTORS AS MANUFACTURED BY IDEAL OR SCOTCHLOCK.
7. CONDUCTORS IN PANELS, TERMINAL CABINETS, PULL BOXES AND WIRING GUTTERS SHALL BE NEATLY GROUPED AND TAPES TOGETHER WITH 3M "SCOTCH #33 PLASTIC ELECTRICAL TAPE OR T&B #TY-RAP CABLE STRAPS.
8. REMOVE ALL DEBRIS AND MOISTURE FROM CONDUITS, BOXES AND CABINETS BEFORE THE INSTALLATION OF CONDUCTORS.
9. WHEN REQUIRED MINERALAC OR LINSEED SOAP ARE APPROVED WIRE PULLING COMPOUNDS. OIL, GREASE OR SIMILAR SUBSTANCES ARE NOT APPROVED AS PULLING COMPOUNDS.
10. ALL CONDUCTORS SHALL BE PERMANENTLY TAGGED TO INDICATE SYSTEM OR CIRCUIT NUMBER.
11. LOW VOLTAGE CONDUCTORS FOR HVAC AND OTHER SYSTEMS REQUIRING LOW VOLTAGE CONTROL SIGNALS SHALL SIZED IN ACCORDANCE TO SPECIFIC SYSTEM REQUIREMENTS.
12. CONDUCTOR FOR SPECIAL SYSTEMS (DATA, TELEPHONE, SIGNAL, FIRE ALARM ETC.) SHALL MEET THE SYSTEM SPECIFICATION AND CODE REQUIREMENTS GOVERNING SYSTEM INSTALLATION REQUIREMENTS.
13. CONNECTIONS OR SPLICES LOCATED IN PULL BOXES OR OTHER SPACE BELOW GRADE SHALL BE WEATHERPROOF. #8 CONDUCTORS AND SMALLER SHALL USE SCOTCHLOK CONNECTORS IMBEDDED WITHIN A "UNIPAK" 3M SCOTCHCAST EPOXY TYPE RESIN. #6 AND LARGER SHALL USE "HI-PRESS" HYDRAULICALLY COMPRESSED HEAVY WALL CONNECTOR AS MANUFACTURED BY THOMAS & BETTS #HS-LR OR RAYCHEM #MWTM OR #WCSM SERIES PRE-APPLIED SEALANT, POLYLEFIN HEAT SHRINKABLE TUBE INSULATOR FOR EACH CONDUCTOR OR OR COLD SHRINK TUBE INSULATORS RAYCHEN #RVS.
14. BOLT TYPE SODERLESS CONNECTORS SHALL BE TIGHTEN TWICE AT 24 AND 48 HOURS AFTER THE ORIGINAL INSTALLATION AND BEFORE TAPING.
15. RESIDENTIAL SERVICE ENTRANCE CABLES TYPE "SER" 600-VOLT CLASS COPPER CONDUCTORS WITH GROUND CONDUCTOR MAY BE USED FOR PANEL FEEDERS IN MULTIPLE UNIT RESIDENTIAL BUILDING.
16. TYPE "MC" CABLE 600-VOLT CLASS COPPER CONDUCTORS WITH GROUND CONDUCTOR AND STEEL INTERLOCKING ARMOR MAY BE USED FOR ALL WIRING OUTSIDE OF A DWELLING UNIT IN MULTIPLE UNIT RESIDENTIAL BUILDINGS AND ON SECONDARY RUNS BETWEEN DEVICES. HOME RUNS ON NON-RESIDENTIAL BUILDING SHALL BE MADE WITH ELECTRICAL METALLIC TUBING CONDUITS.
17. RESIDENTIAL ROMEX TYPE "NM-B" CABLE 600-VOLT CLASS COPPER CONDUCTORS WITH GROUND CONDUCTOR AND COLOR CODED JACKET IS APPROVED FOR SINGLE FAMILY AND MULTI-FAMILY RESIDENTIAL PROJECT.

CONDUIT

1. ELECTRICAL METALLIC TUBING UP TO 4" SHALL BE USED AS PERMITTED BY THE ELECTRICAL CODE.
2. PVC SCHEDULE 40 CONDUITS SHALL BE USED FOR UNDERGROUND INSTALLATIONS WHEN CONDUIT IS IN CONTACT WITH EARTH.
3. CONDUIT RISERS SHALL BE GALVANIZED WITH HALF LAPPED IMC TAPE COVERING.
4. RIDGED GALVANIZED CONDUIT SHALL BE USED IN WET OR DAMP AREAS, ON ROOFS, EMBEDDED IN CONCRETE OR MASONRY WALLS AND EXPOSED IN ALL AREAS WHERE CONDUIT IS EXPOSED TO PHYSICAL DAMAGE.
5. LIQUID TIGHT FLEXIBLE CONDUITS SHALL BE USED FOR ALL FINAL CONNECTIONS TO MOTORS AND CONTROL DEVICES MOUNTED ON VIBRATING OR ROTATING EQUIPMENT.
6. THE MINIMUM CONDUIT SIZE PERMITTED SHALL BE 3/4".
7. PROVIDE GALVANIZED SEAMLESS COUPLINGS AND CONNECTORS (SET SCREW OR COMPRESSION TYPE) WITH FACTORY APPLIED INSULATED THROAT. DEVICES SHALL BE USED IN ACCORDANCE WITH THE ARTICLE 358 – ELECTRICAL METALLIC TUBING.
8. CONDUITS INSTALLED UNDER GROUND SHALL BE INSTALLED A MINIMUM OF 18" BELOW FINISHED GRADE. CONDUITS INSTALLED UNDER STREETS AND PARKING AREAS SHALL BE INSTALLED 24" BELOW FINISHED GRADE.
9. CONDUIT RUNS FOR UNDERGROUND FEEDERS RUN OUTSIDE OF THE BUILDING SHALL BE INSTALLED 24" BELOW GRADE.
10. PROVIDE A CODE SIZED COPPER GROUND CONDUCTOR IN ALL UNDERGROUND PVC CONDUIT SYSTEMS. ELECTRICAL METALLIC RACEWAY SYSTEMS SHALL BE GROUNDED TO THE SAME GROUND SYSTEM.
11. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL TO AND AT RIGHT ANGLES WITH THE BUILDING FLOOR. EXPOSED CONDUITS SHALL BE GALVANIZED WHEN INSTALLED BELOW 9 FEET. EXPOSED CONDUITS ARE NOT APPROVED IN PUBLIC AREAS.
12. EXPOSED CONDUITS THAT PENETRATE WALLS OR CEILINGS SHALL BE MADE WITH 90 DEGREE "LB" CONDUIT BODIES FOR EMT OR RIGID CONDUITS AT PENETRATION POINTS. CONDUIT SWEEP PENETRATIONS ARE NOT ACCEPTABLE.
13. CONDUIT INSTALLED WITHOUT CONDUCTORS SHALL BE INSTALLED WITH PULL ROPES, CONDUIT CAPS AND PERMANENTLY LABELED TO ITS DESTINATION AND SYSTEM.
14. PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS AND FLOORS SHALL BE MADE MADE WITH APPROVED FIRE RATED MATERIALS. THE FIRE RATING SHALL BE MAINTAINED AFTER PENETRATIONS ARE MADE. FIRE RATING MATERIALS SHALL BE AS MANUFACTURED BY HILTI OR 3M.
15. CONDUITS SHALL BE SUPPORTED AND BRACED TO THE STRUCTURE PER OSHPD ANCHORAGE PRE-APPROVAL #OPA-0003, #OPA-0114 AND #OPA-0120 OR OTHER OSHPD PRE-APPROVAL SYSTEM.

OUTLET, JUNCTION AND PULL BOXES

1. BOXES OR SPLICE BOX ENCLOSURES SHALL SIZED AND INSTALLED IN ACCORDANCE WITH THE ELECTRICAL CODE ARTICLE 314. BOXES LOCATED OUTDOORS, WET OR DAMP LOCATIONS SHALL BE WEATHERPROOF.
2. OUTLET BOXES FOR GFCI RECEPTACLE DEVICES LOCATED OUTDOORS ON COMMERCIAL APPLICATIONS SHALL BE WEATHERPROOF TYPE WITH HINGED LOCKABLE DOOR AS MANUFACTURED BY PASS & SEYMOUR #4600/4600-26/4609-KEY.
3. OUTLET BOXES INSTALLED IN RATED WALL LOCATIONS SHALL BE RATED BOXES OR INSTALLED WITH FIRESTOP PUTTY PADS AS MANUFACTURED BY HILTI OR EQUAL.
4. PROVIDE OUTLET BOX SUPPORTS AND BRACING AT ALL LOCATIONS INTENDED FOR PENDENT LIGHT FIXTURES, FANS, ETC.
5. VERIFY THE MOUNTING HEIGHT OF ALL OUTLET BOXES PRIOR TO INSTALLATION. COORDINATE WITH OTHER TRADES AND CONSTRUCTION DOCUMENTS.
6. OUTLETS BOXES (POWER, DATA, ETC.) INSTALLED AT COUNTER LOCATIONS SHALL BE INSTALLED HORIZONTALLY 6" ABOVE THE COUNTER SPLASH. COORDINATE ALL COUNTER LOCATIONS WITH THE ARCHITECTURAL DRAWINGS AND PROJECT MANAGER.
7. OUTLET BOXES INTENDED FOR WALL SCONCE LIGHTING, RECEPTACLES AND SWITCH DEVICES SHALL BE INSTALLED TO MEET ADA REQUIREMENTS.
8. OUTLET BOXES SHALL BE INSTALLED TO WITHIN 1/4" OF THE FINISHED NON-COMBUSTIBLE WALL OR CEILING AND FLUSH WITH COMBUSTIBLE MATERIALS IN ACCORDANCE WITH ARTICLE 314.20. REFER TO ARCHITECTURAL FINISH SCHEDULE FOR WALL AND CEILING FINISHES.
9. JUNCTION, OUTLET AND PULL BOXES SHALL BE PERMANENTLY MARKED INDICATING THE ELECTRICAL AND CIRCUITS INSTALLED.

LIGHTING

1. THE LIGHTING FIXTURES ARE SPECIFIED WITH A GENERIC MOUNTING FORMAT. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND PROVIDING ALL HANGARS, CLIPS AND NECESSARY HARDWARE TO INSTALL LIGHTING FIXTURE AT THE LOCATION INDICATED ON THE ARCHITECTURAL AND ELECTRICAL DRAWINGS.
2. THE CONTRACTOR SHALL VERIFY THE LIGHTING FIXTURE VOLTAGE PRIOR TO SUBMITTING SHOP DRAWINGS.
3. VERIFY THE COLOR TEMPERATURE OF ALL LED AND FLUORESCENT LAMPS PRIOR TO ORDERING AND INSTALLATION OF FIXTURE.
4. PROVIDE A TYPED WRITTEN LIST OF A LAMP TYPES, WATTAGE'S AND BEAM SPREADS FOR EACH FIXTURE LOCATION TO THE PROJECT MANAGER AT THE COMPLETION OF THE PROJECT.
5. THE CONTRACTOR SHALL AIM EXTERIOR ADJUSTABLE LIGHT FIXTURES DURING THE EVENING HOURS WITH THE ARCHITECT AND/OR ENGINEER PRESENT.

CONTROL DEVICES

1. ELECTRONIC TIME CLOCK SHALL BE A MULTI-FUNCTIONAL DEVICE WITH ASTRONOMICAL AND MULTIPLE FUNCTIONS AS MANUFACTURED BY INTERMATIC #ET7000 SERIES PRODUCT. PROVIDE CIRCUIT RELAYS AS INDICATED ON THE PANEL SCHEDULES AND CONNECT THROUGH THE INTERMATIC TIME CLOCK.

ELECTRICAL GENERAL NOTES

SCALE: NONE (4)

TYPE	SYMBOL	FIXTURE MANUFACTURE / MODEL NUMBER	WATTAGE	VOLTAGE	LAMPS QTY.	LAMPS TYPE	DESCRIPTION AND NOTES	FINISH	MOUNTING TO	MOUNTING TYPE	MOUNTING HEIGHT
SA		VISIONAIRE LIGHTING VLX-I-T3-64LC-3-4K-UNV-AM-BZ-	71	120	N/A	LED – INCLUDED WITH FIXTURE	PARKING AREA LIGHT WITH A TYPE III DISTRIBUTION, 16'-0" POLE MOUNT	BRONZE	POLE – SQUARE	SURFACE	18'-0" A.F.G.
SB		VISIONAIRE LIGHTING VLX-I-T5-64LC-3-4K-UNV-AM-BZ	71	120	N/A	LED – INCLUDED WITH FIXTURE	PARKING AREA LIGHT WITH A TYPE V DISTRIBUTION, 16'-0" POLE MOUNT	BRONZE	POLE – SQUARE	SURFACE	18'-0" A.F.G.
SC		VISIONAIRE LIGHTING VLX-I-T2-64LC-3-4K-UNV-AM-BZ	71	120	N/A	LED – INCLUDED WITH FIXTURE	PARKING AREA LIGHT WITH A TYPE II DISTRIBUTION, 16'-0" POLE MOUNT	BRONZE	POLE – SQUARE	SURFACE	18'-0" A.F.G.
SD		VISIONAIRE LIGHTING CCS-I-T4-T-1000-M-240-SFA-BZ-	1100	240	1	1000W MH	SPORTS COURT LIGHT FIXTURE WITH A TYPE IV DISTRIBUTION, 18'-0" POLE MOUNT	BRONZE	POLE – SQUARE	SURFACE	18'-0" A.F.G.
SE		WAYNE TYLER 1105-LED32-120	32	120	N/A	LED – INCLUDED WITH FIXTURE	42" BOLLARD. PROVIDE SINGLE GANG OPTION FOR BOLLARDS INDICATED WITH A RECEPTACLE.	CONCRETE – VERIFY COLOR AND TEXTURE	BASE	SURFACE	3'-6" A.F.G.
SF		BK LIGHTING HP2-LED-TR-X22-WFL-BZP-D15-120	15	120	N/A	LED – INCLUDED WITH FIXTURE	INGRADE UPLIGHT WITH WIDE FLOOD OPTICS	BRONZE	GRADE	SURFACE	9" A.F.G.
SF1		BK LIGHTING HP2-LED-TR-X22-WFL-BZP-D15INC-120	15	120	N/A	LED – INCLUDED WITH FIXTURE	INGRADE UPLIGHT WITH WIDE FLOOD OPTICS AND DIMMABLE	BRONZE	GRADE	SURFACE	9" A.F.G.
SG		KIM LIGHTING EL21853/8L3KUV-DB-FH215 SMI8DB	10	120	N/A	LED – INCLUDED WITH FIXTURE	STANCHION MOUNT FLOOD LIGHT	BRONZE	STANCHION	SURFACE	9" A.F.G.
SH		BK LIGHTING HP2-LED-TR-X22-SP-BZP-D15-120	15	120	N/A	LED – INCLUDED WITH FIXTURE	INGRADE UPLIGHT WITH WIDE FLOOD OPTICS	BRONZE	GRADE	SURFACE	9" A.F.G.

LIGHTING FIXTURE SCHEDULE

SCALE: NONE (3)

- A 5 — LIGHT FIXTURE CALL OUT – NUMBER INDICATES THE QUANTITY OF LIGHTS, REFER TO THE FIXTURE SCHEDULE
- DUPLEX RECEPTACLE – WALL MOUNTED +18" AFF OR AS NOTED
- QUADPLEX RECEPTACLE – WALL MOUNTED +18" AFF OR AS NOTED
- GFCI DUPLEX RECEPTACLE – WALL MOUNTED MOUNTED ABOVE COUNTER OR AS REQUIRED. CONTRACTOR SHALL VERIFY MOUTNING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
- GFCI WEATHERPROOF RECEPTACLE – WALL MOUNTED +18" OR AS NOTED
- SPECIALLY RATED RECEPTACLE, SIZE AND NEMA CONFIGURATION AS REQUIRED OR AS NOTED
- DUPLEX RECEPTACLE – WIRED FOR HALF HOT AND HALF SWITCHED +18" AFF OR AS NOTED
- $ — SINGLE POLE SWITCH – WALL MOUNTED +42" OR AS NOTED, SUBSCRIPT SYMBOLS INDICATE THE FOLLOWING:
  - 3 – THREE WAY SWITCH
  - M – MOTOR RATED SWITCH
  - a,b,c, etc. – INDICATES THE NUMBER OF SWITCHES AND ITEMS CONTROLLED
- D — DIMMER CONTROL DEVICE – WALL MOUNTED +42" OR AS NOTED
- OCCUPANCY OR VACANCY SENSOR – WALL MOUNTED +42" OR AS NOTED
- J — JUNCTION BOX – ACCESSIBLE FOR THE APPLICATION SHOWN ON THE DRAWINGS
- J — JUNCTION BOX – WALL MOUNTED +18" AFF OR AS NOTED
- FLUSH MOUNTED PANELBOARD OR LOAD CENTER – REFER TO PANEL SCHEDULE AND GENERAL NOTES
- SURFACE MOUNTED PANELBOARD OR LOAD CENTER – REFER TO PANEL SCHEDULE AND GENERAL NOTES
- FLUSH MOUNTED TERMINAL CABINET OR SPECIAL SYSTEM TERMINAL CABINET
- SYSTEM GROUND IN ACCORDANCE WITH ELECTRICAL CODE ARTICLE #250
- DISCONNECT SWITCH – FUSED AND HP RATED ACCORDING TO THE DEVICE BEING SERVED
- A-2,4,6 — CIRCUIT HOME RUN TO PANEL "A" CIRCUITS 2,4,6 – HASH MARKS INDICATE NUMBER OF CONDUCTORS. NO HASH MARKS INDICATE ONE PHASE CONDUCTOR AND ONE NEUTRAL CONDUCTOR. PROVIDE CODE SIZED COPPER BOND CONDUCTOR AS REQUIRED AND REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
- CONDUIT CONCEALED WITHIN BUILDING WALLS OR CEILING SPACE. HASH MARKS INDICATE QUANTITY OF CONDUCTORS. NO HASH MARKS INDICATE ONE PHASE CONDUCTOR AND ONE NEUTRAL CONDUCTOR. PROVIDE CODE SIZED COPPER BOND CONDUCTOR AS REQUIRED AND REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
- CONDUIT CONCEALED BELOW GRADE OR IN CONCRETE SLAB. HASH MARKS INDICATE QUANTITY OF CONDUCTORS. NO HASH MARKS INDICATE ONE PHASE CONDUCTOR AND ONE NEUTRAL CONDUCTOR. PROVIDE CODE SIZED COPPER BOND CONDUCTOR AS REQUIRED AND REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
- EXHAUST FAN – REFER TO HVAC DRAWINGS AND SPECIFICATIONS
- MOTOR – REFER TO MOTOR SPECIFICATIONS
- AC-1 — MECHANICAL EQUIPMENT CALL OUT – LETTER IDENTIFIES UNIT TYPE, NUMBER IDENTIFIES UNIT REFER TO HVAC DRAWINGS AND SPECIFICATIONS FOR SPECIFIC REQUIREMENTS
- TELEPHONE OUTLET – WALL MOUNTED +18" OR AS NOTED. PROVIDE A CAT-5E CABLE TO THE COMMUNICATION BACKBOARD UNLESS OTHERWISE NOTED.
- COMBINATION DATA / TELEPHONE OUTLET – PROVIDE 2 CAT-5E CABLES TO THE COMMUNICATION BACKBOARD AND TERMINATE TO THEIR RESPECTIVE TERMINATION POINTS UNLESS OTHERWISE NOTED.
- TV — TELEVISION OUTLET BOX – WALL MOUNTED +18" OR AS NOTED. PROVIDE A COAXIAL CABLE TO THE COMMUNICATION BACKBOARD UNLESS OTHERWISE NOTED.
- SD — COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR, SELF-CONTAINED, AC/DC, 120V., WITH BATTERY BACK-UP.
- COMMUNICATION BACKBOARD – SIZE AND TYPE AS NOTED ON DRAWINGS.
- MAIN SWITCHBOARD AND METERING ASSEMBLY – REFER TO THE SINGLE LINE DIAGRAM.

ELECTRICAL LEGEND

SCALE: NONE (2)

ADA – AMERICAN WITH DISABILITIES ACT
AFF – ABOVE FINISH FLOOR OR GRADE
AWG – AMERICAN WIRE GAUGE
AMP, A – AMPERES
AIC – INTERRUPTING CAPACITY (SYMMETRICAL)
AFCI – ARC FAULT CIRCUIT INTERRUPTER
CIRC, CKT – CIRCUIT
CB – CIRCUIT BREAKER
CO – CONDUIT CONDUIT ONLY
CEC – CALIFORNIA ELECTRICAL CODE
CU –COPPER
DIA – DIAMETER
DWG – DRAWING
EC – ELECTRICAL CONTRACTOR
EMT – ELECTRICAL METALLIC TUBING
ENT – ELECTRICAL NON-METALLIC TUBING
EF – EXHAUST FAN
EG – EQUIPMENT GROUND (GREEN)
E – EXISTING
F – FUSED
FT – FEET
FA – FIRE ALARM
FLA – FULL LOAD AMPS
FACP – FIRE ALARM CONTROL PANEL
FF – FINISHED FLOOR
GFCI – GROUND FAULT CIRCUIT INTERRUPTER
GRN – GROUND
HVAC – HEATING, VENTILATING AND AIR CONDITIONING
HP – HORSEPOWER
INC – INCANDESCENT
JB –JUNCTION BOX
K – KELVIN
KVA – KILOVOLT AMPERES
KW – KILOWATT
LCL – LONG CONTINUOUS LOAD
LTG – LIGHT, LIGHTS, LIGHTING
MCB – MAIN CIRCUIT BREAKER
MIN – MINIMUM
MLO – MAIN LUGS ONLY
MFGR – MANUFACTURER
MTD, MTG – MOUNTED, MOUNTING
NC – NORMALLY CLOSED
NO – NORMALLY OPENED
NTS – NOT TO SCALE
NIC – NOT IN CONTRACT
P – POLE
PB – PULL BOX
PC – PHOTOCELL
PH – PHASE
PVC – POLYVINYL CHLORIDE CONDUIT
PWR – POWER
PIV – POST INDICATOR VALVE
PNL – PANEL
REC, RECEPT – RECEPTACLE
SHT – SHEET
SQ – SQUARE
SW – SWITCH
TV –TELEVISION
TYP – TYPICAL
UNO – UNLESS NOTED OTHERWISE
UGPS – UNDERGROUND PULL SECTION
V – VOLTS
VA – VOLT AMPERES
WP – WEATHERPROOF
W – WIRE
XFMR – TRANSFORMER

ELECTRICAL ABBREVIATIONS

SCALE: NONE (1)

MRC ENGINEERING, INC.
Project Number: 13046.00
Professional Engineers & Lighting Consultants
o: 760-340-9005 f: 760-340-9100
PALM DESERT | SANTA ANA | SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER
RANDALL V. MOSS
No. E13453
Exp. 09/30/14
ELECTRICAL
STATE OF CALIFORNIA

DRAWING DATE: 12/16/13

REVISIONS:

ISSUE DATES:
PLANNING SUBMITTAL SET: ☐
DESIGN DEVELOPMENT SET: ☐
PLAN CHECK SET: ☐
PERMIT SET: ☐
BID SET: ☐
CONSTRUCTION SET: ☐

DRAWN BY: GL
CHECKED BY: VL
-
-

Whitewater Park Expansion: AMPHITHEATER

C.P. 12-284
71-560 San Jacinto Drive
Rancho Mirage, CA
92270

for

The City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, CA
92270
760-324-4511

SHEET TITLE: ELECTRICAL DETAILS

SHEET: LE-4

LIGHTING MANDATORY MEASURES: NONRESIDENTIAL — LTG-MM

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

Indoor Lighting Measures:

§131(d):	**Shut-off Controls**
1.	For every floor, all interior lighting systems shall be equipped with a separate automatic control to shut off the lighting. This automatic control shall meet the requirements of Section 119 and may be an occupancy sensor, automatic time switch, or other device capable of automatically shutting off the lighting.
2.	Override for Building Lighting Shut-off: The automatic building shut-off system is provided with a manual, accessible override switch in sight of the lights. The area of override is not to exceed 5,000 square feet.
§119(h):	Automatic Control Devices Certified: All automatic control devices specified are certified, all alternate equipment shall be certified and installed as directed by the manufacturer.
§111:	Fluorescent Ballast and Luminaires Certified: All fluorescent fixtures specified for the project are certified and listed in the Directory. All installed fixtures shall be certified.
§131(a):	Individual Room/Area Controls: Each room and area in this building is equipped with a separate switch or occupancy sensor device for each area with floor-to-ceiling walls.
§131(b):	Uniform Reduction for Individual Rooms: All rooms and areas greater than 100 square feet and more than 0.8 watts per square foot of lighting load shall be controlled with bi-level switching for uniform reduction of lighting within the room.
§131(c):	Daylight Area Control: All rooms with windows and skylights that are greater than 250 square feet and that allow for the effective use of daylight in the area shall have 50% of the lamps in each daylit area controlled by a separate switch; or the effective use of daylight cannot be accomplished because the windows are continuously shaded by a building on the adjacent lot. Diagram of shading during different times of the year is included on plans.
§131(c):	Display Lighting. Display lighting shall be separately switched on circuits that are 20 amps or less.6.

Outdoor Lighting Measures:

§130(c)1:	Mandatory lighting power determination for medium base sockets without permanently installed ballasts
§132(a):	All permanently installed luminaires with lamps rated over 100 Watts either have a lamp efficacy of at least 60 lumens per Watt or are controlled by a motion sensor.
§132(b):	All Luminaires with lamps rated greater than 175 Watts in hardscape area, including parking lots, building entrances, canopies, and all outdoor sales areas meet the Cutoff Requirements.
§132(c)1:	All permanently installed outdoor lighting meets the control requirements listed.
§132(c):	Building facades, parking lots, garages, canopies, and outdoor sales areas meet the Multi-Level Lighting Requirements listed.

CERTIFICATE OF COMPLIANCE (Part 1 of 4) — OLTG-1C

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

Project Address: *71560 San Jacinto Drive Rancho Mirage, CA 92270* | Total Illuminated Area: *118,691*

GENERAL INFORMATION

Phase of Construction: ☑ New Construction ☐ Addition ☐ Alteration

Documentation Author's Declaration Statement

I certify that this Certificate of Compliance documentation is accurate and complete.

Name: *Victor Leon*	Signature:
Company: *MRC Engineering, Inc.*	Date: *1/27/2014*
Address: *72-860 Fred Waring Drive Suite C-11*	CEA # / CEPE #
City/State/Zip: *Palm Desert, CA 92260*	Phone: *760-340-9005*

Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professional Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name: *Randall V. Moss*	Signature:
Company: *MRC Engineering, Inc.*	Phone: *760-340-9005*
Address: *72-860 Fred Waring Drive, Suite C-11*	License #: E13453
City/State/Zip: *Palm Desert, CA 92260*	Date: 1/27/2014

Principal Lighting Designer's Declaration

☑ I certify that this Certificate of Compliance documentation is accurate and complete, and accounts for all outdoor lighting power, including building mounted, pole mounted, as well as all other lighting designed for the site, and that Additional Lighting Power Allowances for Specific Applications or Additional Lighting Power Allowances for Ordinance Requirements have not been counted more than one time for the same area, in accordance with Section 147 of the Standards.

Outdoor Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: LE-5

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheets is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms: please refer to the Nonresidential Manual published by the California Energy Commission.

☑	OLTG-1C	Certificate of Compliance. All 4 pages required on plans for all submittals.
☑	OLTG-2C	(Pages 1 of 3) Lighting Wattage Allowances for General Hardscape, Sales Frontage, or Ornamental Lighting. Optional on plans.
☐	OLTG-2C	(Pages 2 of 3) Lighting Wattage Allowance for Per Application or Per Area. Optional on plans.
☐	OLTG-2C	(Pages 3 of 3) Additional Lighting Power Allowance for Ordinance Requirements. Optional on plans.

CERTIFICATE OF COMPLIANCE (Part 2 of 4) — OLTG-1C

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

COMPLIANCE FIXTURE / LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

INSTALLATION CERTIFICATE, OLTG-1INST (Retain a copy and verify form is completed and signed.) — **Field Inspection** ☐

CERTIFICATE OF ACCEPTANCE, OLTG-2A (Retain a copy and verify form is completed and signed.) — **Field Inspection** ☐

Luminaire Schedule					Installed Watts				
A	B	C	D	E	F		G	H	I
					How wattage was determined				Field Inspector[2]
Name or Item Tag	Luminaire Description[1] See footnote below (i.e.: 1 lamp pole-top shoe-box 400 watt metal halide)	Cutoff Designation	Watts per Luminaire	Special Features	Default from NAs	According to §130 (D or E)	Number of Luminaires	Installed Watts (D X G)	Pass / Fail
SA	*71w LED*		*71.0*	☐	☑	☐	*2*	*142*	☐ ☐
SB	*71w LED*		*71.0*	☐	☑	☐	*19*	*1,349*	☐ ☐
SC	*71w LED*		*71.0*	☐	☑	☐	*3*	*213*	☐ ☐
SE	*32w LED*		*32.0*	☐	☑	☐	*21*	*672*	☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐
				☐	☐	☐			☐ ☐

Enter total into OLTG-1C; Page 4 of 4: Row H; Total Installed Watts: *2,376*

1. Type of luminaire (i.e.: post top, wall pack, surface, shoe box); for non-incandescent luminaires, indicate nominal lamp wattage and lamp type (i.e.: fluorescent, incandescent, HID); ballast type (i.e.: electronic or magnetic); number of lamps and number of ballasts per luminaire. For incandescent luminaires, the luminaire wattage listed in column D shall be the maximum relamping rated wattage on a permanent factory-installed label on the luminaire. NOT the wattage of the lamp (bulb) used, in accordance with Section 130(d or e).
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

EXEMPT LUMINAIRES — **Field Inspection** ☐

Name or Symbol	Description of exempt luminaires in accordance with §147

MANDATORY CONTROLS — **Field Inspection** ☐

#	Description	Location	#	Description	Location

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of OLTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Filed Inspector Notes or Discrepancies:

CERTIFICATE OF COMPLIANCE (Part 3 of 4) — OLTG-1C

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

A. OUTDOOR LIGHTING ZONE

OUTDOOR LIGHTING ZONE: ☐ OLZ 1 ☐ OLZ 2 ☑ OLZ 3 ☐ OLZ 4

Is the Outdoor Lighting Zone: ☑ Default in accordance with §10-114, or ☐ Amended by JHA

Complete the information below if the default Outdoor Lighting Zone has been amended by the local jurisdiction having authority (JHA):

☐ The site is a government designated park, recreational area, wildlife preserve, or portion thereof, and has been designated as LZ2 or LZ3, in accordance with Table 10-114-A, because the site is contained within such a zone.

☐ The local jurisdiction having authority has officially adopted a change to the State Default Lighting Zone and has notified the Energy Commission by providing the materials required in §10-114(d) to the Executive Director.

☐ The adopted change is posted on the Energy Commission website.

B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS

Are additional lighting power allowances for ordinance in Table 147-C used? ☐ Yes ☑ No

Complete the information below if additional lighting power allowances for ordinance requirements are used:

☐ The local jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.

☐ The local jurisdiction having authority which adopted specific outdoor light levels and has notified the Commission by providing the following materials required §10-114(f) to the Executive Director.

C. ACCEPTANCE FORMS

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **OLTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The **NA7** Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **OLTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **OLTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Certificate of Acceptance

Luminaires Controlled				OLTG-2A[1]
Equipment Requiring Testing	Description	Qty. of Like Controls	Location	Outdoor Lighting Acceptance Tests

1. Insert: **OMS** for Outdoor Motion Sensor; **OLSC** for Outdoor Lighting Shutoff Controls; **OP** for Outdoor Photocontrol; **ATS** for Astronomical Time Switch; and, **STS** for Standard (non-astronomical) Time Switch acceptance.

CERTIFICATE OF COMPLIANCE (Part 4 of 4) — OLTG-1C

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER

		Lighting Wattage Power Allowance
A	Lighting power allowance for general hardscape (from OLTG-2C Page 1 of 3)	*11,690*
B	Specific application lighting wattage allowance per unit length (from OLTG-2C Page 1 of 3)	*0*
C	Specific application lighting wattage allowance for ornamental lighting (from OLTG-2C Page 1 of 3)	*0*
D	Specific application lighting wattage allowance per application (from OLTG-2C Page 2 of 3)	*0*
E	Specific application lighting wattage allowance per area (from OLTG-2C Page 2 of 3)	*0*
F	Specific application lighting wattage allowance for ordinance requirements (from OLTG-2C Page 3 of 3)	*0*
G	Total Allowed Wattage = Sum of rows A through F:	*11,690*
H	Total installed watts (from Compliance Fixture Schedule, (from OLTG-2C Page 1 of 3)	*2,376*

Complies if wattage in row H is less than or equal to the wattages in row G ☑ Yes ☐ No

OUTDOOR LIGHTING WORKSHEET (Part 1 of 3) — OLTG-2C

Project Name: *Whitewater Park Expansion* | Date: *1/27/2014*

A. LIGHTING POWER ALLOWANCE FOR GENERAL HARDSCAPE

AREA WATTAGE ALLOWANCE (AWA)			LINEAR WATTAGE ALLOWANCE (LWA)			INITIAL WATTAGE ALLOWANCE	TOTAL GENERAL HARDSCAPE LIGHTING ALLOWANCE
A	B	C	D	E	F	G	H
Illuminated Hardscape Area	AWA Per Square Foot	AWA (A X B)	Perimeter Length of General Hardscape	LWA Per Linear Foot	LWA (D X E)	IWA (Watts)	C + F + G
92,294	*0.092*	*8,491*	*0*	*0.920*	*0*	*770*	*9,261*
26,397	*0.092*	*2,429*	*0*	*0.920*	*0*	*0*	*2,429*
						Enter total into OLTG-1C; Page 4 of 4; Row A: Lighting Power Allowance for General Hardscape	*11,690*

☑ **Yes AWA, LWA, and IWA from Table 147-A was used as appropriate for the Outdoor Lighting Zone**

B. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER UNIT LENGTH (Available only for sales frontage)

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Linear Foot of Frontage	Sales Frontage Allowance for OLZ (Watts per LF)	Wattage Allowance (B X C)	Name or Symbol	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I
						Enter total into OLTG-1C; Page 4 of 4; Row B: Specific Application Lighting Wattage Allowance Per Unit Length			*0*

C. SPECIFIC APPLICATION WATTAGE ALLOWANCE FOR ORNAMENTAL LIGHTING

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Square feet of Hardscape	Ornamental Lighting Allowance for OLZ (Watts per ft²)	Wattage Allowance (B X C)	Name or Symbol	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I
						Enter total into OLTG-1C; Page 4 of 4; Row C: Specific Application Wattage for Ornamental Lighting			*0*

M|R|C ENGINEERING, INC.
Project Number: 13046.00
Professional Engineers & Lighting Consultants
o: 760-340-9005 f: 760-340-9100
PALM DESERT | SANTA ANA | SAN DIEGO

REGISTERED PROFESSIONAL ENGINEER — RANDALL V. MOSS — No. E13453 — Exp. 09/30/14 — ELECTRICAL — STATE OF CALIFORNIA

DRAWING DATE: **12/16/13**

REVISIONS:

ISSUE DATES:

PLANNING SUBMITTAL SET:	DRAWN BY: **GL**
DESIGN DEVELOPMENT SET:	
PLAN CHECK SET:	CHECKED BY: **VL**
PERMIT SET:	
BID SET:	-
CONSTRUCTION SET:	**-**

Whitewater Park Expansion: AMPHITHEATER

C.P. 12-284

71-560 San Jacinto Drive
Rancho Mirage, CA
92270

for

The City of Rancho Mirage

69-825 Highway 111
Rancho Mirage, CA
92270
760-324-4511

SHEET TITLE: **TITLE 24**

SHEET: **LE-5**