

LIGHTING & ELECTRICAL SPECIFICATIONS

SCOPE OF WORK:
 TO SUPPLY QUALIFIED LABOR AND INSTALL LANDSCAPE LIGHTING SYSTEM PER PLANS, WHICH INCLUDES THE FIXTURES SPECIFIED ON THE LIGHTING LEGEND, INSTALLATION OF LOW VOLTAGE TRANSFORMERS, DIRECT BURIAL CABLE, GFI, OUTLETS AND SWITCHES OR REMOTE CONTROL SYSTEMS.

THE LIGHTING PLAN IS DIAGRAMMATIC AND IS INTENDED TO SHOW GENERAL FIXTURE LOCATIONS AND CONTROLS. CONTRACTOR IS RESPONSIBLE FOR NECESSARY LINE 120V AND LOW VOLTAGE (20V) WORK TO COMPLETE THE LIGHTING DESIGN AS SHOWN. THE ELECTRICAL CONTRACTOR IS REQUIRED TO DETERMINE FINAL ELECTRICAL SYSTEM LAYOUT, SWITCHING, SIZING OF CIRCUITS/BREAKERS, AND COORDINATE ALL TRENCHING WITH GENERAL CONTRACTOR AND LANDSCAPE ARCHITECT.

CODES & STANDARDS:
 CONTRACTOR IS TO COMPLY WITH THE UNIFORM BUILDING CODE, CALIFORNIA ELECTRICAL CODE TITLE 9, AND ALL LOCAL CODES AND ORDINANCES. CONTRACTOR SHALL POSSESS ALL NECESSARY LICENCES TO COMPLETE DESCRIBED WORK AND SHALL CARRY GENERAL LIABILITY AND WORKMAN'S COMPENSATION INSURANCE. CONTRACTOR IS TO PAY FEES & OBTAIN ALL NECESSARY PERMITS TO COMPLETE WORK DESCRIBED. CONTRACTOR SHALL COORDINATE INSPECTION OF WORK WITH LOCAL JURISDICTION AND OBTAIN FINAL PERMIT APPROVAL.

INSTALLATION:
 CONTRACTOR IS TO VERIFY SITE MEASUREMENTS, GRADES, EXISTING CHASE LINE SLEEVES, EXISTING PLANT LOCATIONS, EXISTING UTILITIES, EQUIPMENT AND SWITCHING CONTROLS WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. CALL UNDERGROUND SERVICE ALERT (USA) 48 HOURS PRIOR TO EXCAVATION OR TRENCHING OPERATIONS, AT 1-800-942-2444.

1. SUBMITTALS:
 CONTRACTOR IS TO PROVIDE CUT SHEETS FOR ALL NECESSARY COMPONENTS AND ACCESSORIES TO COMPLETE INSTALLATION AS SPECIFIED AND PUT TOGETHER IN A BOOK FORM FOR OWNER AND ARCHITECT APPROVAL PRIOR TO ORDERING. CONTRACTOR SHALL PROTECT ALL EXISTING WORK AND UNDERGROUND UTILITIES FROM DAMAGES DURING CONSTRUCTION & REPAIR ANY DAMAGE TO ORIGINAL CONDITION AND THE SATISFACTION OF THE OWNER, AT NO ADDITIONAL COSTS.

2. FIXTURES:
 ALL LIGHT FIXTURE LOCATIONS ARE TO BE FLAGGED OUT AND VERIFIED WITH LANDSCAPE ARCHITECT BEFORE COMMENCING INSTALLATION. ALL FIXTURES SHALL BE IN A NEW, UNUSED CONDITION. EQUIPMENT SHALL BE THE TYPE SPECIFIED - THERE WILL BE NO SUBSTITUTIONS WITHOUT PRIOR APPROVAL FROM LANDSCAPE ARCHITECT. INSTALL ALL EQUIPMENT AS PER MANUFACTURER'S RECOMMENDATIONS, SPECIFICATIONS AND DETAILS.

LIGHTING COMPONENTS ARE AVAILABLE THROUGH: CALIFORNIA LANDSCAPE LIGHTING, 1-800-457-0710. LIGHTING FIXTURES ARE TO BE PURCHASED BY AND INSTALLED BY LANDSCAPE CONTRACTOR, UNLESS NOTED OTHERWISE.

3. ELECTRICAL DESIGN AND TRANSFORMER SIZING:
 ELECTRICAL AND LANDSCAPE CONTRACTOR SHALL SIZE ELECTRIC (120V) WIRING, DIRECT BURIAL CABLES & CONDUIT SIZES BASED ON SELECTED ROUTES FOR PROPER OPERATION OF FIXTURES AND MAXIMUM BULB LIFE. PREFERRED ROUTE IS PARALLEL TO WALKS AND BUILDINGS FOR PROTECTION. MINIMUM UNDERGROUND LOW VOLTAGE CABLE SIZE IS 12-GAUGE MULTI-STRAND DIRECT BURIAL.

DUE TO THE VARYING FIELD CONDITIONS IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO DETERMINE THE ACTUAL WATTS ON EACH RUN. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THAT THE SIZE OF THE CABLE IS ADEQUATE TO CARRY THE AMOUNT OF WATTAGE ON EACH RUN.

4. DIRECT BURIAL CABLE:
 CABLEING SHOWN ON PLAN IS DIAGRAMMATIC FOR FIXTURE GROUPING ONLY. CABLE IS TO BE CIRCUITED AND SIZED TO PROVIDE A MINIMUM OF 10.5 VOLTS AND A MAXIMUM OF 11.5 VOLTS TO ALL LOW VOLTAGE LIGHTING FIXTURES.

HOME RUN WIRE MINIMUM DEPTH 12" AND LEAD WIRE MINIMUM DEPTH OF 4" IS RECOMMENDED. 12-2 WIRE SHALL NOT EXCEED 182 WATTS. 10-2 WIRE SHALL NOT EXCEED 268 WATTS. 8-2 WIRE SHALL NOT EXCEED 300 WATTS. ALL HOME RUN WIRES SHALL RUN TOGETHER WHERE POSSIBLE.

INSTALL CABLE ALONG THE EDGE OF HARDSCAPE AND MOWSTRIPS WHENEVER POSSIBLE. MINIMUM CABLE DEPTH IS 4". ALL WIRES SHALL BE PULLED THROUGH SCH. 40 PVC SLEEVES UNDER ALL PAVED SURFACES. 1" MINIMUM PVC CHASE LINE SLEEVES WITH SWEEP CORNERS FOR ANY CABLE RUN UNDER HARDSCAPE OR DIFFICULT TO ACCESS AREAS AND/OR TRELLIS POSTS. ALL FIXTURES TO HAVE A 25' CORD ATTACHED FOR UNIFORM VOLTAGE DROP FROM HUB. LEAVE 24" MIN. LOOP AT ALL FIXTURE LOCATIONS FOR FINAL ADJUSTMENT.

COORDINATE ELECTRICAL TRENCHING WITH IRRIGATION & DRAIN LINES AND PROVIDE ADDITIONAL TRENCH AS NECESSARY.

ALL WIRE JUNCTIONS SHALL BE WATERPROOFED USING ONLY FULLY ENCAPSULATED WATERPROOF CONNECTORS RATED FOR DIRECT BURIAL. BLACK-TAPED CONNECTIONS WILL BE REJECTED. MAKE ALL CONNECTIONS IN HUBS. SPLICE CABLE WITH A COPPER RING LUG, SCOTCH COAT, AND SEAL WITH DUCT TAPE. FULLY ENCAPSULATED WATERPROOF CONNECTORS CAN ALSO BE USED.

5. REMOTE CONTROL:
 COORDINATE WITH HOME CONTROL SYSTEM AND ELECTRICIAN.

6. TRANSFORMERS:
 ALL TRANSFORMERS MUST BE UL LISTED, AND HAVE PRIMARY AND SECONDARY FUSE OR CIRCUIT BREAKER PROTECTION. ALL REMOTE TRANSFORMER LOCATIONS TO BE VERIFIED BY LANDSCAPE ARCHITECT. USE ABOVEGROUND TRANSFORMERS WHEREVER POSSIBLE. THESE UNITS SHALL BE STAINLESS STEEL, MULTI-TAP, AND SIZED TO BE 80% LOADED OF MAXIMUM RATING. ABOVE GROUND TRANSFORMERS TO BE INSTALLED INCONSPICUOUSLY USING PLANT MATERIAL OR SITE FEATURES TO OBSCURE A DIRECT VIEW OF THEIR LOCATIONS.

AVOID LOCATIONS THAT ARE EASILY ACCESSIBLE TO CHILDREN OR THAT ARE IN A DIRECT PATH OF SIGHT OR IRRIGATION TOWER. INSTALL TRANSFORMERS AT MINIMUM OF 12" OFF FINISH GRADE AND LEVEL. ALL WIRES LEADING TO OR FROM TRANSFORMER SHALL BE IN CONDUIT SLEEVE THAT IS FIRMLY AFFIXED TO MOUNTING SURFACE. INSTALL PERMANENTLY GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE CEC 2007.

7. TRELLIS LIGHTING:
 VERIFY FINAL FIXTURE LOCATION PRIOR TO INSTALLATION. ALL WIRING SHALL BE CONCEALED FROM PRIMARY VIEW BY ROUTING OUT TRELLIS POSTS OR BY OTHER METHODS APPROVED BY LANDSCAPE ARCHITECT. ALL 120 VOLT WIRING SHALL BE IN APPROVED ELECTRICAL METAL TUBING AND POSITIONED TO BE NOT VISIBLE. ALL EQUIPMENT SHALL BE PAINTED IF NECESSARY TO MATCH THE SURFACE ON WHICH IT IS MOUNTED.

8. TREE LIGHTING:
 LANDSCAPE ARCHITECT TO VERIFY IN FIELD FLAGGED FINAL FIXTURE LOCATION PRIOR TO INSTALLATION. TREE CABLE FOR OWN LIGHTS SHALL BE BROWN OR BLACK LOW VOLTAGE MULTI-STRAND TWO-CONDUCTOR CABLE. INSTALL CABLE ON THE SIDE OPPOSITE PRIMARY VIEW. SECURE CABLE WITH NYLON ZIP TIE WITH SCREW LOOP (HARDOOR M-11, 3M STANDARD MOUNTING CABLE TIE #05016- BLACK WEATHER RESISTANT) OR OTHER 3M EQUIVALENT CABLE TIE) AND A SINGLE STAINLESS STEEL SCREW. DO NOT USE STAPLES. LEAVE A SLIGHT SLACK IN TREE CABLE TO ALLOW FOR EXPANSION OF THE TREE.

9. LAMPING:
 THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THE PROPER VOLTAGE TO EACH LAMP. ACCEPTABLE VOLTAGE FOR ALL LAMPS IS BETWEEN 10.8 AND 12 VOLTS. RELAMPING WILL OCCUR BEFORE CLIENT OCCUPIES THE RESIDENCE. LANDSCAPE CONTRACTOR WILL PROVIDE ALL LAMPS, LENSES, AND LOUVERS FOR THE LIGHTING LEGEND AS WELL AS FINAL ADJUSTMENTS AT COMPLETION OF PROJECT.

10. BELOW GRADE LIGHTING:
 ENSURE ALL GASKETS AND SEALING SURFACES ARE CLEAN AND FREE OF DIRT AND DEBRIS. CONFIRM THE LENSES ARE PROPERLY SECURED AFTER INSTALLATION OR RELAMPING TO ENSURE PROPER OPERATION OF THE SEALS. ALWAYS MAINTAIN FIXTURES BY KEEPING LENSES FREE FROM DIRT, VEGETATION, LEAVES, TRASH, AND OTHER DEBRIS. DRY INTERIOR OF FIXTURES PRIOR TO RESEALING.

SEAL CONDUIT CONNECTIONS WITH TEPLOX TAPE OR OTHER THREAD SEALANT. EVACUATE ALL WATER FROM CONDUIT. SEAL THE INTERIOR OF THE CONDUIT TO PREVENT ANY WATER IN THE CONDUIT FROM INFILTRATING THE FIXTURES. PROMOTE WATER DRAINAGE AROUND FIXTURES. ENSURE FIXTURES ARE NOT INSTALLED IN AN AREA WHERE WATER WILL POOL AND SUBMERGE THE FIXTURE. INSTALL FIXTURES SO THAT VEGETATION WILL NOT INTRUDE AND OVERGROW THEM.

11. TESTING:
 CONTRACTOR IS TO COORDINATE A CONVENIENT TIME IN THE EVENING TO TEST AND AIM ALL EQUIPMENT TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT. THE INSTALLING CONTRACTOR IS TO USE AN AMP PROBE TO FIELD VERIFY THAT ALL AMPERAGE LOADS ON EACH TRANSFORMER DO NOT EXCEED THE MAXIMUM. ALL MAXIMUM LOADS ARE LISTED ON THE LABEL OF EACH TRANSFORMER.

12. 120 VOLT SERVICE:
 CONTRACTOR TO PROVIDE SEPARATE POWER SUPPLY AND CONTROLS FOR ALL ELECTRICAL EQUIPMENT, WATER FEATURES, POOLS, SPAS AND 120 VOLT LIGHT FIXTURES. ALL JUNCTION BOXES AND OTHER EQUIPMENT SHALL BE UL APPROVED FOR WET LOCATION. ALL ELECTRICAL DUPLEX OUTLETS SHALL BE GFI PROTECTED. PROVIDE SWITCHES AND DIMMERS FOR APPROVAL PRIOR TO LAYOUT. MATCH EXISTING WHERE APPROPRIATE. ALL 120 VOLT WIRE RUNS SHALL BE IN SCH40 ELECTRICAL PVC PIPE. 120' MAXIMUM RUN WITHOUT JUNCTION BOX.

CAHILL LANE

LIGHTING FIXTURE LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER #
⊕	WALKWAY LIGHT, LOW VOLTAGE	TEKA MBP-2310-NATURAL FIN (BPI) 25 WATT BULB, MOUNT ON TEKA #50 OR EQUAL
⊙	FLOOD UP-LIGHT, LOW VOLTAGE	KIM KLV 205-DB W/ KLV 400 STAKE & L12 LOUVER, PROVIDE MR16, 50 WATT BULBS
⊛	WALL WASHER LIGHT, LOW VOLTAGE, 35W.	UNIQUE LIGHTING - STARBURST
⊞	RECESSED WALL LIGHT, LOW VOLTAGE	HADCO LOUVERED BRICKLYTE-BRONZE #RSL2HK6812 (18 WATT)
⊚	UP/DOWN LIGHT - SEE DETAIL I, SHEET L6.2	NIGHTSCAPING, TULLIER #UD-0405-CU-L0812, COPPER FINISH, 12V, 15 WATTS
⊗	INGROUND WELL LIGHT, LOW VOLTAGE	VISTA 5280 CM-Z-HL-DL, 12V, 50 WATT BULB, WIDE FLOOD
⊕	FOUNTAIN LIGHT, LOW VOLTAGE, 75w.	LUMIERE ATLANTIS #1407, MR-16 LAMP, 35 WATT BULB
⊕	FLOOD DOWN LIGHT - TREE MOUNT	VISTA 3218-TR-Z-HL AND LOUVER WITH TMS-150 TREE MOUNT KIT (55 WATT)
⊕	HANGING LIGHT	TO BE SELECTED BY OWNER/ARCHITECT

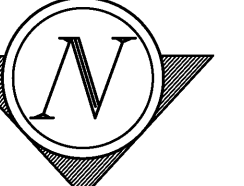
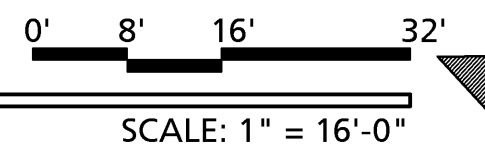
LIGHTING LEGEND

SYMBOL	DESCRIPTION
⊞	EXISTING
⊞	TRANSFORMER NUMBER - SEE TRANSFORMER CHART BELOW FOR SIZE & TYPE. CONTRACTOR SHALL VERIFY LOCATION IN FIELD WITH LANDSCAPE ARCHITECT IN FIELD
⊞	120V. WATER PROOF DUPLEX W/ GFI, VERIFY LOCATION W/ LANDSCAPE ARCHITECT IN FIELD
⊞	FOUNTAIN PUMP, SIZE BY BUILDER W/ GFI
---	25' LEAD, DIRECT BURIAL, 16-2 LOW VOLTAGE CABLE. RUN SAME LENGTH OF WIRE FROM FIXTURE TO HUB.
---	DIRECT BURIAL, LOW VOLTAGE CABLE, SIZE PER VOLTAGE DROP & LENGTH OF RUN REQUIREMENTS (10-2, 10-2 AND 8-2 CABLES)
---	STANDARD 120V. LINE VOLTAGE, QUANTITY AND SIZES OF CONDUIT AND WIRES PROVIDED BY ELECTRICAL CONTRACTOR. USE SCH. 40 PVC AT 18" MIN, WITH RIGID STEEL RISERS AND 12" DIA. x 18" CONC. FTG. FOR ALL RISERS
⊞	HUB IDENTIFICATION NUMBER & TRANSFORMER
⊞	LIGHT SWITCH - (match house type) HARDWARE & CONNECT TO TRANSFORMER
⊞	THREE WAY LIGHT SWITCH - (match house type) HARDWARE & CONNECT TO TRANSFORMER

TRANSFORMER LEGEND

TRANSFORMER #	TOTAL WATTS	MANUFACTURER #
1. GUEST PARKING/ENTRY - TREES	xxx w	UNIQUE, DIRECT BURIAL, xxxw TRANSFORMER
2. GUEST PARKING/ENTRY - PATHWAYS/WALLS	xxx w	UNIQUE, DIRECT BURIAL, xxxw TRANSFORMER
3. PATH/POOL/SPA LIGHTING (EAST SIDE)	xxx w	UNIQUE, WALL MOUNT, xxxw TRANSFORMER
4. REAR YARD PATH/OUTDOOR FIREPLACE LIGHTING	xxx w	UNIQUE, DIRECT BURIAL, xxxw TRANSFORMER
5. PATH LIGHTING (WEST SIDE)	xxx w	UNIQUE, DIRECT BURIAL, xxxw TRANSFORMER
6. FIREPIRE/TRELLIS/WALLS (WEST SIDE)	xxx w	UNIQUE, DIRECT BURIAL, xxxw TRANSFORMER

Lighting Plan

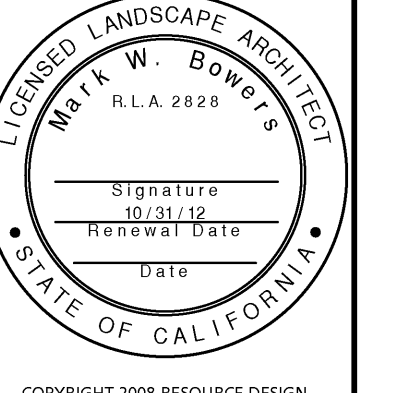


RESOURCE DESIGN

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DATE	DESCRIPTION
REVISION	DESCRIPTION

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Lighting Plan

PHASE: PRELIMINARY
 DRAWN BY: MB/AC
 DATE: 12.03.10

SHEET NUMBER:
L3.0

PRELIMINARY

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