



# Offer and Acceptance

State of Arizona  
State Procurement Office

100 N. 15<sup>th</sup> Ave. Suite 201  
Phoenix, AZ 85007

SOLICITATION NO.: ADSP016-00005912 Request  
for Qualifications: 2016 Annual Professional  
Services List

PAGE  
1

Offeror: CR Engineers, Inc.

OF  
1

## OFFER

### TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies Small Business status.

CR Engineers, Inc.

Company Name

16719 E. Palisades Boulevard, Suite 202

Address

Fountain Hills, Arizona 85268

City

State

Zip

calcorn@creng.com

Contact Email Address

Signature of Person Authorized to Sign Offer

Catherine Alcorn

Printed Name

P.E. / President

Title

Phone: 480-816-5541

Fax: 480-816-5540

By signature in the Offer section above, the Offeror certifies:

1. The submission of the Offer did not involve collusion or other anticompetitive practices.
2. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, State Executive Order 2009-9 or A.R.S. §§ 41-1461 through 1465.
3. The Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause shall result in rejection of the offer. Signing the offer with a false statement shall void the offer, any resulting contract and may be subject to legal remedies provided by law.
4. The Offeror certifies that the above referenced organization  IS/  IS NOT a small business with less than 100 employees or has gross revenues of \$4 million or less.

## ACCEPTANCE OF OFFER

The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the solicitation, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by the State.

This Contract shall henceforth be referred to as Contract No. ADSP016-00005912

The effective date of the Contract is March 1, 2016

The Contractor is cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order, contract release document or written notice to proceed.

State of Arizona  
Awarded this 29 day of February 2016

Procurement Officer



ATTACHMENT I – General Qualifications  
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:  
ADSP016-00005912

STATE PROCUREMENT OFFICE  
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(If a firm has branch offices, complete for each specific branch office seeking work.)

1. Annual Request for Qualifications

a.	FIRM (OR BRANCH OFFICE ) NAME:	CR Engineers, Inc.
b.	FIRM (OR BRANCH OFFICE) STREET:	16719 E. Palisades Boulevard, Suite 202
c.	FIRM (OR BRANCH OFFICE) CITY:	Fountain Hills
d.	FIRM (OR BRANCH OFFICE) STATE:	Arizona
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	85268
f.	YEAR ESTABLISHED:	1985
(g1).	OWNERSHIP - TYPE:	S- Corporation
(g2)	OWNERSHIP - SMALL BUSINESS STATUS:	DBE / SBE
h.	POINT OF CONTACT NAME AND TITLE:	Catherine Alcorn P.E. / President
i.	POINT OF CONTACT TELEPHONE NUMBER:	480.816.5541
j.	POINT OF CONTACT E-MAIL ADDRESS:	calcorn@creng.com
k.	NAME OF FIRM (If block 1a is a branch office):	



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2. EMPLOYEES BY DISCIPLINE

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
CADD Technician	P	1	
Construction Inspector	P	2	
Electrical Engineer	P	2	
Senior Designer	P	1	
Other	P	1	
<b>Total</b>	P	7	



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3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number (see below)
25	Airports: Navaidis; Airport Lighting; Aircraft Fueling	3
1	Airports: Terminals and Hangars: Freight Handling	1
0	Auditoriums and Theatres	1
2	Community Facilities	1
12	Electrical Studies and Design	3
3	Garages; Vehicles Maintenance Facilities; Parking	1
5	Highways; Streets; Airfield Paving; Parking Lots	2
1	Lighting (Interior; Display; Theater, Etc.)	1
8	Lighting (Exteriors; Streets; Memorials; Athletic Fields; Etc.)	1
3	Outdoor Recreation	1
3	Recreation Facilities (Parks, Marinas, Etc.)	1
1	Swimming Pools	1
9	Testing and Inspections	2
1	Waste Water Treatment Facilities	1
1	Water Well Rehabilitation; Water Well Work	1

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

- |   |   |
|---|---|
| 1. Less than \$100,000                  | 6. \$2 million to less than \$5 million   |
| 2. \$100,000 to less than \$250,000     | 7. \$5 million to less than \$10 million  |
| 3. \$250,000 to less than \$500,000     | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million   | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 million | 10. \$50 million or greater               |



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Catherine Alcorn	b. ROLE IN THIS CONTRACT Electrical Engineer/Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 21	2. WITH CURRENT FIRM 21
d. LOCATION <i>(City and State)</i> Fountain Hills, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> B.S.E. – Electrical Engineering		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona – 36696 Nevada – 016372 New Mexico - 15721	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> Application & Design Consideration for Power Quality Products; IESNA Lighting Fundamentals D 100/IES; Serco Aviation Ground and Approach Lighting Course; ACEC (of Arizona) Leadership in Engineering Administration Program (LEAP); Water/Wastewater for Consultants/BSE; Grounding of Electrical Systems/NTT; ACEC (of Arizona) Senior Officers & Associates Roundtable (SOAR); EasyPower Hands-On, Protective Device Coordination & ARC Flash Hazard Analysis & Implementation PowerClass: Fire Alarm Life Safety Education; Designing & Specifying Emergency Power System: National Electrical Code/NTT (1996); ADB Airfield Lighting Engineering Seminar			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>TUCSON AIRPORT AUTHORITY (TAA) 20106681 INSTALL RUNWAY 15/33 LIGHTING AND SIGNAGE - TUCSON, ARIZONA</b>	(2) YEAR COMPLETED	
		Professional Services 2015	Construction (if applicable) 2015 (In Progress)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CR Engineers (CRE) prepared designs, plans, specifications, Engineers Report, quantities, estimates, and bid phase services for the construction of new Medium Intensity Runway Lighting (MIRL) to Ryan Airfield's Crosswind Runway 15/33 with associated internally lit signage and installation of new Medium Intensity Taxiway Lighting (MITL) and internally lighted signage to Taxiways D and E. The estimated construction budget for the project was \$1,500,000.00. The major elements of work included: <ul style="list-style-type: none"> <li>Removal of existing taxiway edge retro-reflective markers and concrete duct markers.</li> <li>Demolition of existing unlighted airfield guidance signs.</li> <li>Construction of new runway edge lights, runway threshold lights and runway guidance signs.</li> <li>Construction of new taxiway edge lights and taxiway guidance signs.</li> <li>Construction of a new electrical ductbank system and four airfield lighting circuits originating from the electrical vault.</li> <li>Airfield Electrical Vault modifications including installation of four new Constant Current Regulators.</li> </ul>	<input checked="" type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>PMGA Runway 30C Threshold Reconstruction – Mesa, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2015	Construction (if applicable) 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE provided electrical construction designs, plans, specifications, quantities, estimates, and bid phase services for approximately 1000 feet of Runway 30C threshold reconstruction at Phoenix Mesa Gateway Airport. The electrical design included the following components: removal and reinstallation of the existing runway edge lights and isolation transformers in existing L-867 base cans, new L-867 base cans for reinstallation of existing runway threshold lights located in existing blast pad at Runway 30C, and temporary airfield lighting systems during construction phasing to maintain the runway lighting and signage circuits.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix - Cesar Chavez Skate Park Lighting – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared a set of electrical plans and specifications for the design of the additional lighting at the skate plaza, the open field area, and a new chilled water fountain at Cesar Chavez Park. At the skate plaza, the existing utility service and equipment was used to provide power to the new lighting system. LED fixtures with concrete poles were specified at the skate plaza. The open field area was designed with sports lighting for recreational soccer field use with additional security lighting fixtures at each sports pole. A new utility service entrance section was sized for additional future soccer field lighting.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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4.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix - Cortez Pool Design Services – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared a set of electrical plans and specifications for the design of the City of Phoenix Cortez Pool. The electrical design scope included the following: an upgrade to the existing electrical service entrance section with required utility coordination; grounding and bonding design per the National Electrical Code requirements; three phase electrical distribution for a motor control center at the equipment area; electrical distribution for underwater lighting, deck lighting, electrical infrastructure design for future PA system, and other miscellaneous convenience outlets. Photometric calculations of the deck lighting were also provided.	<input checked="" type="checkbox"/> Check if project performed with current firm	
5.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix - Cortez Park – Lighting Improvements – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE provided electrical construction designs, specifications, and cost estimate for the addition and upgrades to security lighting at Cortez Park. The existing utility service and equipment was reused. Additional poles and fixtures were specified around the parking lot area. Existing poles were reused with fixtures replaced and/or added to increase lighting levels. LED fixtures were specified.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME John Alcorn Jr.	b. ROLE IN THIS CONTRACT Electrical Engineer/Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 17	2. WITH CURRENT FIRM 17
d. LOCATION <i>(City and State)</i> Fountain Hills, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> B.S.E. – Electrical Engineering B.S. in Health Science		f. PROFESSIONAL TRAINING - REGISTRATIONS Arizona – 39727 California – 16786 Kansas - 18236	
h. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> IENSA Lighting Fundamentals ED 100/IES; Designing Electrical Systems; APS and Univ. New Mexico Solar Design and NEC Code Compliance; Application & Design Consideration Class for Power Quality Products; National Electrical Code/NTT (1999); Fire Alarm Safety Education; Liability IQ for Architects & Engineers; Problems and Solutions of Electrical Power Delivery; Grounding of Electrical Distribution Systems; PSMJ Principals’ Boot Camp; Crouse-Hinds Airport Lighting Systems Seminar; PV Power Systems/NEC with John Wiles; PV Interconnection and Inspections by APS			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Design Services during Construction Northwest Extension Light Rail Transit Project – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable) 2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CR Engineer’s prepared electrical design and specifications for the Northwest Light Rail Transit Extension begins at Dunlap Avenue in the vicinity of 19th Avenue and extends south ending Bethany Home Road in the vicinity of 19th Avenue (approximately 3 miles) the scope of work included Station Electrical, TPSS, and power related to ancillary components such as CCTV, train signaling, communications, and pedestrian lighting at Washington Park area.	<input checked="" type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Black Mountain Boulevard-VA Cemetery Well Site Equipment Relocation – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared a set of electrical plans and specifications for replacement and relocation of the VA Water Facilities along Black Mountain Boulevard. The water design included specification of all new electrical and mechanical equipment, which was identical to the existing equipment for the new location and new underground infrastructure at/from the existing location to the new location. Connection of the existing well head, coordination with the electrical utility company to provide a new service feeder to the site. Construction phasing plans and specifications to maintain the existing well operational during construction with minimal operation downtime for cut over from existing electrical/mechanical systems to new relocated equipment. Demolition plans for all existing electrical/mechanical equipment once the new systems are in place and are tested and fully operational.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix – Desert Sky Transit Center – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared a set of electrical plans and specifications for the design of the Desert Sky Transit Center. The project consisted of providing electrical, lighting and solar design (cost-neutral photovoltaic system) that consisted of: service entrance section design and utility coordination, load calculations, panel schedules, fault current calculations, conductor and conduit sizing. The Transit Center lighting design per City of Phoenix requirements included: driving area lighting, under canopy lighting, passenger platform lighting, landscape lighting, seating area lighting, signage lighting, entry road lighting and coordination with the design team for the best wiring routing, as well as power distribution to all lighting. Solar design included: analysis with a report showing cost comparisons of different solar installs, solar design incorporating a “grid tie-back” system, coordination with the utility company and the City of Phoenix to provide a cost-neutral solar design while acquiring the best available rates for solar, power distribution to all solar equipment, and provisions for possible future consideration (conduit infrastructure) and the use of solar panels (non-film). Power distribution and conduit infrastructure for CCTV and site special systems, building electrical and lighting design based on a building up to 2,500 square feet. Power distribution was provided to any interpretive displays that needed electricity and to site maintenance receptacles	<input checked="" type="checkbox"/> Check if project performed with current firm	



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	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Salt River Pima-Maricopa Indian Community (SRPMIC) Lonely Cactus Senior Housing Solar – Scottsdale, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input checked="" type="checkbox"/> Check if project performed with current firm	
4.	CRE prepared a set of electrical plans and specifications for the design of the solar design for the Lonely Cactus Senior Housing. The scope of work included solar design incorporating a “grid tie-back” system to offset 80% of the electrical consumption, power distribution to all solar equipment, solar conduit infrastructure and conductor design, inverter, combiner, panel, disconnect sizing, solar panel rack system, and structural analysis for additional roof load. The electrical plans provided met ECS and SRP-MIC requirements and SRP requirements for commercial solar projects.		
	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Southwest College of Naturopathic Medicine (SWCNM) – Solar and Electrical – Tempe, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2014	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input checked="" type="checkbox"/> Check if project performed with current firm	
5.	CRE prepared a photovoltaic design for the SWCNM project. The project consisted of providing approximately a 535 KW solar design system. Two service entrance sections needed modification for this design. The scope of work for this project consists of: complete PV module layout, complete electrical calculation and electrical design system to interconnect for two service entrance sections, service entrance section load calculations, site plan, solar array design with calculations, solar and electrical single line diagrams, solar three line diagram, PV layout details, solar general details and notes, electrical panel schedules, conductor, conduit and circuit breaker sizing.		



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**4. Resumes of Key Personnel Proposed for this Contract** *(Complete one Section #4 for each key person.)*

a. NAME Kerry Leonard	b. ROLE IN THIS CONTRACT Senior Designer	c. YEARS EXPERIENCE	
		1. TOTAL 26	2. WITH CURRENT FIRM 23
d. LOCATION <i>(City and State)</i> Fountain Hills, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> Mesa Community College: Electrical/Mechanical Drafting I & II; Computer Aided Drafting I, II, & III; Auto Lisp Programming I & II Gateway Community College: Electrical Construction Fundamentals		f. PROFESSIONAL TRAINING - REGISTRATIONS IES – Illuminating Engineering Society, Manager 1998, Arizona Chapter IES – Illuminating Engineering Society, Secretary 1999, Arizona Chapter	
i. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> NCQLP – National Council on Qualifications for Lighting Professionals; Wonderware; Windows NT; Ruud Lighting Specifier; WI; Microsoft Windows Solution; Lithonia Lighting Specifier; Holophane Advanced Roadway Lighting; Lighting and Law; ASHRAE/IESNA Standards; APS and Univ. of New Mexico Solar Design and NEC Code Compliance			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	<b>Town of Florence – Territory Square Library and Recreation Complex – Florence, Arizona</b>	2014	2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared a set of electrical plans and specifications for the design of the Aquatic Center, the Library/Recreation Complex and the site sport fields and courts for the Town of Florence Municipal Complex. The scope of work also included: separate 3 Phase 480V Service Entrance Section for each of the three locations the Aquatic Center, Library/Recreational Complex and the Site.	<input checked="" type="checkbox"/> Check if project performed with current firm	
	<b>The Aquatic Center included:</b> utility coordination, panel board design, exterior deck and building LED lighting, motor controls for the pumps, electrical design for the HVAC, interior lighting for the concessions and bath house, underwater lighting design, PA systems, fire alarm and telephone design.  <b>The Library/Recreation Complex included:</b> utility coordination for incoming electrical service, panel board design, building exterior and interior LED lighting design, HVAC electrical design, PA system, fire alarm and CCTV system design, access control system, communications system design (telephone, data, etc.). <b>The Site included:</b> utility coordination, switchboard/panel board design for site, sports fields and courts, general exterior lighting per Town of Florence requirements, lighting design for all sports fields and courts and necessary pathway lighting and parking lot lighting, as well as provisions for future lighting/electrical for areas.		
2.	<b>City of Phoenix – Avenida Rio Salado Broadway Road – Phoenix, Arizona</b>	2014	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE provided the electrical and lighting design for 27 <sup>th</sup> Avenue to the 17 <sup>th</sup> Avenue Segment. The scope of work included LED lighting design per City of Phoenix Planning and Design Guidelines, coordination with the City of Phoenix for LED light fixture selection and demolition plans for the existing lights and poles.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	<b>Light Rail Transit Northwest Extension – Phoenix, Arizona</b>	2014	2015
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE CRE prepared electrical design and specifications for the Northwest Light Rail Transit Extension beginning at Dunlap Avenue in the vicinity of 19th Avenue and extending south ending at Bethany Home Road in the vicinity of 19th Avenue (approximately 3 miles). The scope of work included Station Electrical, TPSS, and power related to ancillary components such as CCTV, train signaling, communications, and pedestrian lighting at Washington Park area.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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	(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix – Cesar Chavez Skate Park Lighting – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
4.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input checked="" type="checkbox"/> Check if project performed with current firm	
	CRE prepared a set of electrical plans and specifications for the design of the additional lighting at the skate plaza, the open field area, and a new chilled water fountain at Cesar Chavez Park. At the skate plaza, the existing utility service and equipment was used to provide power to the new lighting system. LED fixtures with concrete poles were specified at the skate plaza. The open field area was designed with sports lighting for recreational soccer field use with additional security lighting fixtures at each sports pole. A new utility service entrance section was sized for additional future soccer field lighting. Electrical Engineer – Prime Consultant thru On-Call Contract.		
	(1) TITLE AND LOCATION <i>(City and State)</i> <b>Phoenix Sky Harbor International Airport Police Department K9 Hangar – Phoenix, Arizona</b>	(2) YEAR COMPLETED	
		Professional Services 2013	Construction (if applicable) 2014
5.	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE	<input checked="" type="checkbox"/> Check if project performed with current firm	
	CRE provided electrical construction designs, plans and specifications for the upgrades to the Police Department K9 Hangar at PSHIA. The design documents included specification of new lighting fixtures, convenience receptacles, circuits for a new stove and washer/dryer, and coordination of electrical power requirements for replaced and relocated mechanical equipment. Circuit tracing was provided to properly label existing sub-panels		



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**4. Resumes of Key Personnel Proposed for this Contract** *(Complete one Section #4 for each key person.)*

a. NAME Randy Despain	b. ROLE IN THIS CONTRACT Senior Field Inspector	c. YEARS EXPERIENCE	
		1. TOTAL 34	2. WITH CURRENT FIRM 7
d. LOCATION <i>(City and State)</i> Fountain Hills, Arizona			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> B.S. in Construction Engineering		f. PROFESSIONAL TRAINING - REGISTRATIONS	
j. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> OSHA Safety Training and First Aid; Generac Power Systems; IAEI – International Association Electrical Inspectors Associated Member			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
1.	<b>City of Phoenix – Photometric and Blue Light Testing – Phoenix, Arizona</b>	2014	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE  CRE provided photometric and blue light testing. The scope of work for this project consisted of providing photometric and blue light testing three separate times for a specific area of lights on Roosevelt Street. The three photometric tests and blue light testing consisted of measuring both levels of light and blue light of the light source.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	<b>Avondale, WRF Crane – Avondale, Arizona</b>	2014	2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE  CRE provided electrical construction designs, plans, specifications, cost estimate, and construction phase services for the installation of a new 3 ton bridge crane at the Avondale WRF.	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	<b>Salt River Pima-Maricopa Indian Community (SRPMIC) Lehi Community Pool Upgrades</b>	2013	2014
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE  Inside of the mechanical building at the Lehi swimming pool, the existing electrical equipment has deteriorated from chemical exposure to a point that it needs to be replaced. The electrical design scope included the following: the replacement of the existing electrical panel, receptacles, controls, pumps, lighting, and conduit system with required utility coordination; grounding and bonding design per the National Electrical Code requirements. Additionally, the scope also included electrical design for the proposed new pre-engineered chemical building. Electrical Engineer – Prime Consultant.	<input checked="" type="checkbox"/>	Check if project performed with current firm



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<p>(1) TITLE AND LOCATION <i>(City and State)</i> <b>City of Phoenix – East Baseline Park and Ride – Phoenix, Arizona</b></p>	<p>(2) YEAR COMPLETED</p> <table border="1"> <tr> <td data-bbox="906 365 1203 417">Professional Services</td> <td data-bbox="1203 365 1469 417">Construction (if applicable) 2014</td> </tr> </table>		Professional Services	Construction (if applicable) 2014
Professional Services	Construction (if applicable) 2014			
<p>(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE</p>	<input checked="" type="checkbox"/>	<p>Check if project performed with current firm</p>		
<p>CRE prepared electrical and photovoltaic construction documents for the East Baseline Park and Ride, near East Baseline Road and 24<sup>th</sup> Street. The project consisted of providing electrical, lighting and solar design that consist of: service entrance section design and utility coordination, load calculations, panel schedules, fault current calculations, conductor and conduit sizing and power distribution to all lighting. The park and ride lighting design per City of Phoenix requirements included: Park and Ride lighting requirements, landscape lighting design, bus bay lighting, seating area lighting design, signage lighting design, entry road lighting design, obstruction lights. The solar design included: analysis with report showing cost comparisons of different solar installs, solar design incorporates a “grid tie-back” system passive solar design</p>				
<p>(1) TITLE AND LOCATION <i>(City and State)</i> <b>Salt River Pima-Maricopa Indian Community (SRPMIC) Lonely Cactus Senior Housing Solar – Scottsdale, Arizona</b></p>	<p>(2) YEAR COMPLETED</p> <table border="1"> <tr> <td data-bbox="906 747 1203 800">Professional Services 2013</td> <td data-bbox="1203 747 1469 800">Construction (if applicable) 2014</td> </tr> </table>		Professional Services 2013	Construction (if applicable) 2014
Professional Services 2013	Construction (if applicable) 2014			
<p>(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE</p>	<input checked="" type="checkbox"/>	<p>Check if project performed with current firm</p>		
<p>CRE prepared a set of electrical plans and specifications for the design of the solar design for the Lonely Cactus Senior Housing. The scope of work included solar design incorporating a “grid tie-back” system to offset 80% of the electrical consumption, power distribution to all solar equipment, solar conduit infrastructure and conductor design, inverter, combiner, panel, disconnect sizing, solar panel rack system, and structural analysis for additional roof load. The electrical plans provided met ECS and SRP-MIC requirements and SRP requirements for commercial solar projects. Electrical Engineer – Prime Consultant. Services included design and construction administration</p>				



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Phoenix, Arizona 85007

**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

a. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
Phoenix Sky Harbor International Airport Police Department K9 Hangar – Phoenix, Arizona	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Phoenix – Aviation Department	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$262,529.00 /	e. TOTAL COST OF PROJECT \$309,075.00 – Change order was processed to complete Permaliner and sewer replacement of degraded lines.
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

CRE provided electrical construction designs, plans, and specifications for the upgrades to the Police Department K9 Hangar at PSHIA. The design documents included specification of new lighting fixtures, convenience receptacles, circuits for a new stove and washer and dryer, and coordination of electrical power requirements for replaced and relocated mechanical equipment. Circuit tracing was provided to properly label existing sub-panels. Role of Firm: Electrical Engineer – Sub - consultant.



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION (City and State)	b. YEAR COMPLETED	
Phoenix Sky Harbor International Airport Advertising Signage Replacement – Phoenix, Arizona	PROFESSIONAL SERVICES 2013	CONSTRUCTION (If applicable) 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix – Aviation Department	\$464,455.00	\$583,385.00

g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

CRE provided electrical construction documents for the signage replacements as specified by Alliance Airport Advertising. Electrical design included demolition of existing electrical systems as necessitated to incorporate the signage modifications, specification for new electrical circuits required for the new signage locations and circuit tracing of all existing signs that were replaced. The scope of work included specification of new communication conduit infrastructure to new signs. Role of Firm: Electrical Engineer – Sub - consultant. Services included design and construction administration.



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(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION (City and State)	b. YEAR COMPLETED	
City of Phoenix – Cortez Pool Design – Phoenix, Arizona	PROFESSIONAL SERVICES 2013	CONSTRUCTION (If applicable) 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	\$3.5M	\$3.3M

h. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

CRE prepared a set of electrical plans and specifications for the design of the City of Phoenix Cortez Pool. The electrical design scope included the following: an upgrade to the existing electrical service entrance section with required utility coordination; grounding and bonding design per the National Electrical Code requirements; three phase electrical distribution for a motor control center at the equipment area; electrical distribution for underwater lighting, deck lighting, electrical infrastructure design for future PA system, and other miscellaneous convenience outlets. Photometric calculations of the deck lighting were also provided. Role of Firm: Electrical Engineer – Sub-consultant. Services included design and construction administration.



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION (City and State)	b. YEAR COMPLETED	
City of Phoenix – Cortez Park – Lighting Improvements – Phoenix, Arizona	PROFESSIONAL SERVICES 2013	CONSTRUCTION (if applicable) 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Phoenix	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$ 51,072.00	e. TOTAL COST OF PROJECT \$ 74,823.07
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i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

CRE provided electrical construction designs, specifications, and cost estimate for the addition and upgrades to security lighting at Cortez Park. The existing utility service and equipment was reused. Additional poles and fixtures were specified around the parking lot area. Existing poles were reused with fixtures replaced and/or added to increase lighting levels. LED fixtures were specified. Role of Firm: Electrical Engineer – Prime Consultant thru On-Call Contract. Services included design and construction administration.



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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

(Present no more than five (5) projects. Complete one Section 5 for each project.)

a. TITLE AND LOCATION (City and State)	b. YEAR COMPLETED	
VA Cemetery Well Equipment Relocation – Phoenix, Arizona	PROFESSIONAL SERVICES 2014	CONSTRUCTION (If applicable) 2014

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	Unknown – Sub-Consultant	Unknown – Sub-Consultant

j. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

CRE prepared a set of electrical plans and specifications for replacement and relocation of the VA Water Facilities along Black Mountain Boulevard. CRE complied with current City of Phoenix standards for plans, specifications and cost estimate for this project. The water design included specification of all new electrical and mechanical equipment, which was identical to the existing equipment for the new location and new underground infrastructure at/from the existing location to the new location. Connection of the existing well head, coordination with the electrical utility company to provide a new service feeder to the site. Construction phasing plans and specifications to maintain the existing well operational during construction with minimal operation downtime for cut over from existing electrical/mechanical systems to new relocated equipment. Demolition plans for all existing electrical/mechanical equipment once the new systems are in place and are tested and fully operational. Role of Firm: Electrical Engineer – Sub-consultant.



## 6. ADDITIONAL INFORMATION

a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

### Firm’s Capabilities and Resources:

CR Engineers Inc. (CRE) is a local and acclaimed consulting electrical engineering firm employing highly skilled individuals with hands-on technical backgrounds in various areas of electrical expertise. Established in 1985, CRE has been committed to providing various City of Phoenix Departments with electrical engineering design and construction administration services for over 25 years. These City Departments include Aviation, Parks and Recreation, Public Works, Street Transportation, and Water Services. CRE is a woman-owned small business and maintains the following business certifications: **SBE/SBC, with the City of Phoenix, and DBE certified with Arizona Unified Certification Program through the City of Phoenix.** Listed below are the electrical consulting engineering services we provide:

### Airfield Electrical Systems Design



CRE has substantial experience in this field of Aeronautical Ground Lighting (AGL) systems as well as electrical design for additional airport facilities. Our AGL experience encompasses electrical airfield lighting vault design, runway, apron, and taxiway lighting, Automated Weather Observing Systems (AWOS), airfield guidance signage, and other NAVAID systems. CRE also has extensive experience in designing AGL control and monitoring systems as well as standby systems. Over and above designing AGL systems for an airport, our experience includes designs for terminal buildings, hangars, perimeter fences and access gates, and airport parking facilities. We can provide electrical design for any airport building, which may require interior lighting, security communications, and/or fire protection systems. At CRE, our design philosophy is governed by the essential requirement for AGL systems to be safe, dependable, and provide maximum efficiency and ease of maintenance for the respective airport, while maintaining minimal downtime of airfield electrical systems during construction.

### Transportation



CR Engineers, Inc. (CRE) has extensive history in street and roadway lighting design, providing numerous such designs for the various cities throughout Arizona including: ADOT, City of Phoenix, Scottsdale, Tempe, Glendale, Mesa, Chandler, Gilbert, and Casa Grande. We have expertise in AGI-32, and Genesys II programs. Our use of this software allows us to produce a lighting model that helps us optimize light distribution, conserve energy, and maintaining safe light levels in public areas. The graphic representations substantially aid in visualizing the effectiveness of the lighting design at a glance. It only takes a few minutes to produce the lighting models, so several computer runs using different input data (height, spacing, type of luminaries, etc.) can be cost-effectively produced to help optimize our designs. Combined with our other CAD and Micro Station software packages, we are prepared to perform any lighting design task to meet the projects needs.

### Photovoltaic Power System Design



CRE has the expertise to provide complete photovoltaic power system designs from sizing of solar modules to engineering the connectivity to the conventional electrical panel. All of our electrical and solar designs meet the requirements of the National Electrical Code, Electrical Utility Standards and specific City Standards. We can also provide our clients with a cost benefit analysis that includes all current and state cost incentives, solar options, power output, payback times and related construction costs for each photovoltaic option provided.

### Recreation



CRE can offer the following engineering services for your recreational facility: design and specifications for electrical power distribution, lighting, public address and security systems, computer aided photometric calculations, and design of lighting controls. Our extensive experience in the lighting design of soccer and baseball fields, skate parks, volleyball, basketball, tennis and racquetball courts, children’s playgrounds, pathway and parking lot lighting, and electrical designs for aquatic centers is unsurpassed by any other firm in the Phoenix area. Our innovative design approaches have won CRE numerous recognition and awards. We understand the importance of creating an inviting and safe area for the public to enjoy.

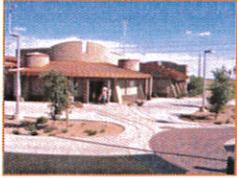


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**Building/Special Systems Design**



CRE has an extensive variety of expertise in providing electrical and special system designs for buildings, including commercial, industrial, municipal, church, and medical facilities. Energy management, electrical designs for the healthcare industry, and special system designs including fire alarm, security and CCTV systems, and telecommunications using fiber optic technology are also part and parcel of the CRE skill set. Our team attends frequent training classes and seminars in order to remain updated with the latest advances in technology concerning all life safety system design applications. We are dedicated to providing our staff with frequent educational opportunities in all National Electrical Code changes, and we can renovate and update systems to correct Electrical Code violations. We are experienced in forensic electrical engineering, light level verification, ultrasonic light pole testing, blue light test and other electrical testing of existing conditions.



**Water/Wastewater Electrical Instrumentation and Control Design**

CRE has performed numerous electrical and instrumentation and control systems design for industrial water and wastewater facilities. Our experience includes designing electrical and instrumentation systems for wastewater treatment plants, lift stations, water treatment plants, well pumping facilities, booster stations, and reservoirs for a multitude of municipalities including: Phoenix, Glendale, Mesa, Chandler, Avondale, and Surprise, just to name a few. CRE can provide power distribution design for low, medium, and high voltage systems for complex motor controllers, such as variable frequency drives and solid state starters. We will also design and specify any required instrumentation used for controls, such as ultrasonic level sensors and differential pressure transmitters. Our team is highly experienced in designing Supervisory Control and Data Acquisition Systems (SCADA) utilizing various mediums including radio, phone, and fiber optics. We can integrate Programmable Logic Controllers (PLCs) into our design for a completely automated system.

**Construction Administration Services**



CRE can also provide full electrical construction management and inspection services. We have a highly trained staff of dedicated electrical inspectors to provide numerous services during construction. Our extensive experience and knowledge of National Electrical Code, IBC, and multiple Arizona city code requirements enable us to fulfill all project needs. Services include: load and meter testing and diagnostics; submittal review; site observations, punch list preparation, and record drawings. CRE can provide electrical design and construction services for UPS, standby and emergency generator design; medium voltage distribution design; inspections and renovations of existing systems to correct National Electric Code (NEC) violations; ground testing; and ARC flash analysis.

**Principal/Home Office Location:**

CR Engineers, Inc. (CRE) principal/home office location:

16719 East Palisades Boulevard, Suite 202

Fountain Hills, Arizona 85268

Phone: (480) 816-5541; Fax: (480) 816-5540; [www.creng.com](http://www.creng.com)

**All work will be performed from this location, and all key staff members will perform 100% of the work from this location.**



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7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	
b. Percentage of Total Work Attributable to Non-Government Work:	

8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.

Signature: Catherine Alcorn

Date: Dec. 21, 2015

Name: Catherine Alcorn

Title: P.E. / President