

STATEMENT OF
QUALIFICATIONS

THE CITY OF
RANCHO
PALOS VERDES



ON-CALL
ENGINEERING
SERVICES
FOR PUBLIC WORKS

Michael Baker

INTERNATIONAL

Submitted by:
RBF Consulting
a Michael Baker International company

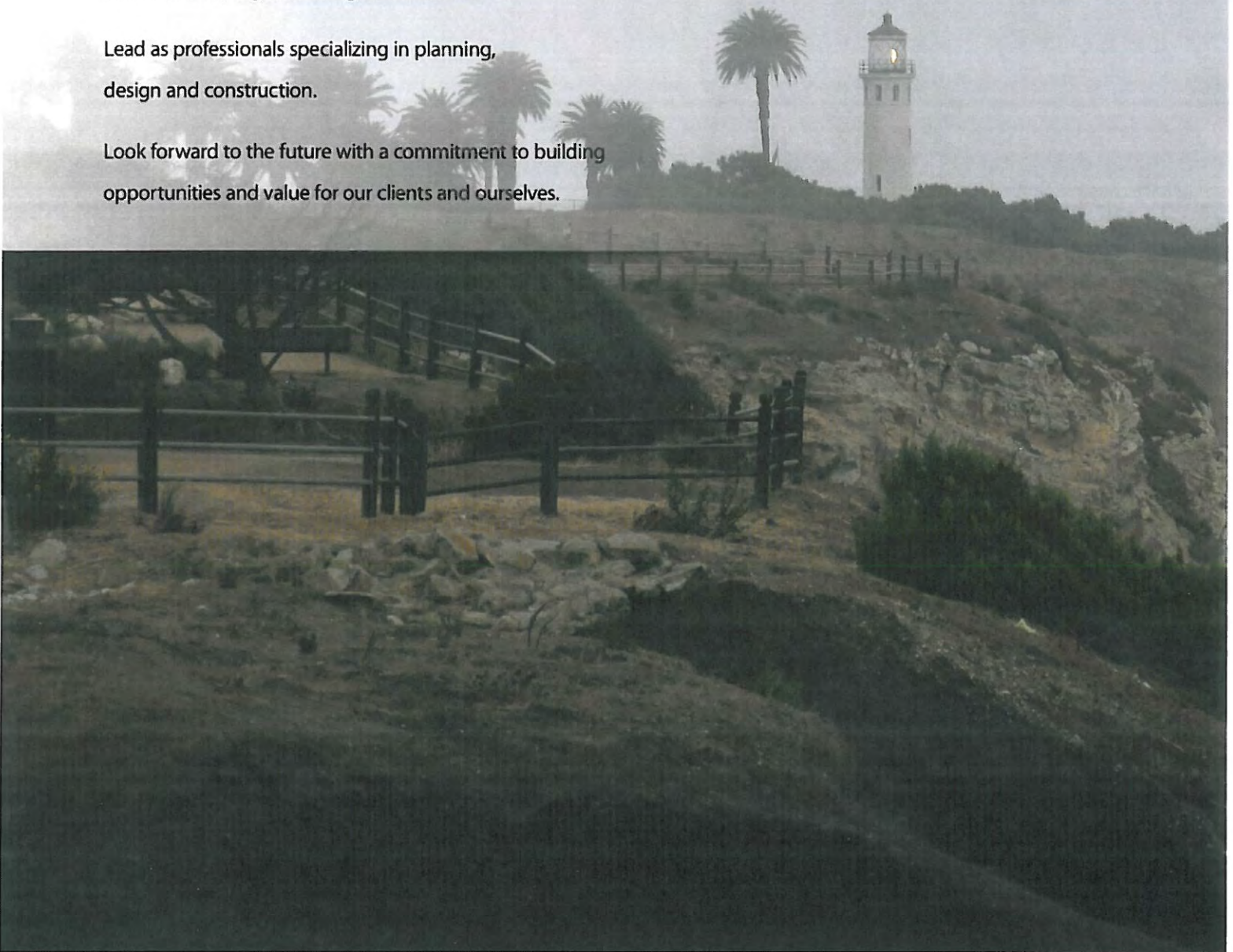
Our Mission

Make the world a better place through the application of the principle of sustainable development by providing professional design services that enhance the quality of life and the environment.

Provide development, infrastructure, planning and environmental services to private and public sector clients in local, regional and global markets.

Lead as professionals specializing in planning, design and construction.

Look forward to the future with a commitment to building opportunities and value for our clients and ourselves.



June 15, 2015

JN: 147179

Mr. Ron Dragoo, PE
Principal Engineer
City of Rancho Palos Verdes
30940 Hawthorne Boulevard
Rancho Palos Verdes, CA 90275

Subject: Statement of Qualifications for On-Call Professional Engineering Services

Dear Selection Panel Members:

To support the planning, design and construction of its infrastructure, the City of Rancho Palos Verdes needs a consultant with the right combination of experience, expertise, responsiveness and dependability with demonstrated success in delivering engineering services for public infrastructure. RBF Consulting, a Michael Baker International company (RBF), has worked side-by-side with municipalities and public agencies throughout Southern California for more than 70 years, and has been the consultant of choice for many of those agencies and cities. We have held on-call contracts for many years with public agencies, including the City of Long Beach, City of Cypress, City of Beverly Hills, Port of Long Beach, County of Los Angeles, County of Orange, OCTA, Metro and, Caltrans Districts 7, 8, 11 and 12. We have the necessary resources and expertise to assist the City in delivering on its infrastructure commitments.

"The RBF Team met and exceeded our expectations on this vital transportation improvement project (Alton Parkway) and I would not hesitate to recommend your team."

Robert L. Woodings, PE
*Former Director of Public Works/City Engineer
City of Lake Forest*

RBF is committed to delivering outstanding service and work products to the City of Rancho Palos Verdes. We are enthusiastic about serving the City with its engineering needs and we look forward to bringing the following benefits to the City:

- A Contract Manager with 35-years of proven experience managing on-call contracts with numerous concurrent / multiple task orders.
- A team with the flexibility and proven ability to modify the course of action to accommodate the City's changing needs.
- A wide array and depth of resources across the firm to provide the organizational strength to begin work immediately on any project assignment.
- 250 technical and support personnel available in our Irvine office, located only 45 minutes from the City, which facilitates timely and responsive project work assignments.

Michael Bruz will serve as the RBF principal point of contact for this City of Rancho Palos Verdes On-Call list. He will utilize his experience and expertise in multi-functional/discipline engineering and project management to deliver every task order on-time and within budget. Michael has effectively served as Program Manager/Contract Administrator for multi-disciplined contracts for other public agencies throughout California, delivering preliminary engineering, final design, and program management services for a variety of task order assignments. In addition, Michael has also managed complex design projects requiring multiple

resource agency approvals that required preliminary studies and design of related infrastructure components.

The RBF Team is very committed to partnering with Very/Small Business Enterprise (V/SBE) firms. As depicted in our Team's Organization Chart, we have augmented our capabilities with specialty very small/small business firms that have been carefully selected to accomplish the services for every task that may be requested by the City for this On-Call Contract. The skilled team that we have assembled is specifically designed to meet the diverse demands of this on-call contract and includes the following subconsultants:

CBelow (SBE) - Utility Locating/Potholing
Counts Unlimited (SBE) - Traffic Counts
Dudek - Professional Arborist Services

LaBelle Marvin (VSBE) – Pavement Testing/Design
Ninyo and Moore (MBE) - Geotechnical

We have focused our Statement of Qualifications on our public works qualifications and experience, and to assist you in evaluating our qualifications, we have included samples of our recent work that include a Project Management Plan (PMP), Quality Management Plan (QMP), Plans, Specifications and Quantity/Cost Estimates.

On behalf of RBF, we sincerely appreciate your consideration of our team for inclusion on the City's approved "On-Call" list of qualified consultants to provide On-Call Professional Engineering Services and we look forward to the opportunity to provide excellent service to the City of Rancho Palos Verdes Public Works Department.

If you have any questions and/or require additional information, please contact me at (949) 855-3640 or at michael.bruz@mbakerintl.com.

Respectfully submitted,
RBF Consulting, a Michael Baker International company



Michael J. Bruz, PE
Vice President Transportation/Public Works



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1. Project Understanding



1. Project Understanding

Protecting, maintaining and developing its infrastructure is one of the City's most important responsibilities. As a City that is largely built-out with no remaining large development(s) to generate development impact fees, the City of Rancho Palos Verdes must develop, maintain and operate its infrastructure in the most effective way possible to maximize the value of every dollar invested in it. Important to the residents are safe streets to drive on, working traffic signals, storm drain systems that function properly, adequate access (sidewalks/trails) and quality recreation spaces such as community centers and parks. To that end, the City has developed (and maintains) a 5-year Capital Improvement Program that provides a roadmap to its infrastructure needs. To effectively implement the CIP program, the City must prioritize its needs with a Consultant firm that has a thorough understanding of public works infrastructure. In addition, not all transportation experience is the same, so it is important to hire a Project Manager who understands the scale of local infrastructure projects and the nuances of what makes them successful (for example, finding solutions that work best for the individual neighborhood). **RBF Consulting, a Michael Baker International company (RBF)** is known for its creativity and for staying abreast of the latest software, design techniques and construction materials that help lower design and construction costs. To that end, we have proposed a comprehensive team of professionals who provide diverse expertise in each of the following disciplines:



Street Design

Water Quality and Compliance

Stormwater and Drainage Facilities

Traffic Engineering

Bridges and Structures

The City of Rancho Palos Verdes is requesting Statements of Qualifications from experienced consultants to provide engineering services on an on-call basis for public works projects located throughout the City. In order to successfully serve the City's needs, the consultant must have the right combination of experience, technical expertise, responsiveness and dependability, with a proven history of successfully delivering planning, design and construction support services for public works infrastructure projects. RBF has worked side-by-side with municipalities and public agencies for more than 70 years, and understands the time-sensitive nature of delivering on-call task orders.

RBF has completed and/or is currently providing services for over 220 on-call (as-needed) service contracts statewide, including several in Los Angeles and Orange Counties. Given RBF's long standing presence in Southern California, our team members have completed work for numerous public agencies, including the Cities of Beverly Hills, Redondo Beach and Long Beach, County of Los Angeles, Caltrans Districts 7, 8, 11 and 12, and transportation agencies such as Metro and OCTA. The RBF Team is well-versed in local, state, and federal design standards which benefits your community through our ability to develop responsive design solutions and accelerated project schedules. An example of this is our work on the highest profile retail segment of Rodeo Drive for the City of Beverly Hills, for which we completed the design to rehabilitate the roadway and build a landscaped median in only six weeks. Key components included all night work as well as washing the streets and sidewalks by 9:00 a.m. every morning in preparation for the daily visitors/shoppers. We met every Monday morning with the business owners along Rodeo Drive to discuss design and construction concerns/progress and the result was a very successful project that minimized disruption to the community.

RBF offers an array of in-house resources (all service areas), including more than 250 professionals within our Irvine, Long Beach and Los Angeles offices who are available to support the team in delivery of quick turn-around and/or concurrent task order assignments. Supplementing RBF's extensive in-house capabilities are five subconsultant firms with whom RBF has successfully worked with in the past. These companies and their anticipated roles include:

1. **C Below (SBE):** Potholing
2. **Counted Unlimited (SBE):** Traffic Counts
3. **Dudek:** Certified Arborist
4. **LaBelle Marvin (VSBE):** Pavement Testing
5. **Ninyo & Moore:** Geotechnical

2. Firm Profiles/Relevant Project Experience



2. Firm Profiles and Representative Projects

RBF COMPANY PROFILE

RBF Consulting, a Michael Baker International company (RBF), is a full-service planning, engineering, surveying, and construction management firm established in California in 1944. The company has played an active role in the development of public works projects throughout the region, providing planning and design services for streets, highways, bridges, stormwater and drainage facilities for new infrastructure as well as for rehabilitation or replacement of existing facilities.

Length of Time RBF has Provided Similar Services. RBF has been delivering professional consulting services for more than 70 years and has held hundreds of on-call contracts with state, local agencies, and municipalities during that time. RBF currently has on-call contracts with the Port of Long Beach, County of Los Angeles, Los Angeles Metropolitan Transportation Authority, Caltrans, Orange County Transportation Authority, as well as many local agencies and cities.

Specific Capabilities. We fully understand the critical and typically time-sensitive nature of delivering on-call services, and the need to have experienced and committed teams ready to successfully deliver your task orders.

The following is a list of services that RBF is interested in performing:

- Street Design
- Bridges and Structures
- Water Quality and Compliance
- Stormwater and Drainage Facilities
- Traffic Engineering

In addition, as a full-service, multi-discipline company, RBF offers a wide range of in-house services to support the efforts of our project teams:

Planning	Design	Construction
Land Planning	Transportation Engineering	Field Surveying
Transportation Planning	Structural Engineering	Mapping/Right-of-Way
Environmental Services	Civil Engineering	Construction
Urban Design	Flood Control Engineering	Management
Geographic Information Systems	Water Resources Engineering	Construction Inspection
Visual Analysis and Design	Traffic Engineering	
	Electrical Engineering	
	Landscape Architecture	



Entity:
California Corporation

Incorporation Date:
November 27, 1961

Year Established:
1944

Size of Staff:
5,000+ (250 in Irvine)

Ownership:
Michael Baker International

Servicing Office / Assigned Personnel Location:
14725 Alton Parkway
Irvine, CA 92618

Point of Contact:
Michael Bruz, P.E.
Vice President, Transportation /
Public Works
p. 949.855.3640
Michael.Bruz@mbakerintl.com

Location of California Offices:
Camarillo
Carlsbad
Irvine
Los Angeles
Oakland
Ontario
Palm Desert
Sacramento
San Diego
Temecula
Walnut Creek



Street Design



RBF has extensive experience in designing all types and sizes of street improvements. We can assist in large arterial projects, small ADA ramp design projects, safe routes to school, active transportation and everything in between. We have teams that focus on the street plan and profile and teams that focus on the traffic design elements such as signals, signal interconnect, striping, and traffic control.

Bridges and Structures



RBF provides a wide range of structural engineering services including design of bridges, buildings, flood control facilities, water resources structures, retaining, sound, and security walls, and special structures. Projects completed by RBF are designed under the supervision of State Licensed Structural Engineers. Additionally, during and after emergencies, we can provide structural engineers and registered disaster workers to evaluate the structural integrity of damaged buildings and structures.

Water Quality and Compliance



RBF has an extensive background in the development of comprehensive flood control engineering, stormwater management programs, and water quality. Our objectives focus on the development of a functional system providing the necessary level of flood protection, while addressing multi objective issues of stakeholders in the watershed. RBF is thoroughly familiar with flood control design criteria, watershed modeling techniques, stormwater system requirements, stormwater pollution control and assessment, agency processes, water quality, and regulatory issues.

Water Quality Sampling and Laboratory Analysis

The RBF Team has extensive experience in stormwater monitoring and data analysis and assessment for a variety of projects throughout the State of California and other areas of the nation. Our team has managed water quality sampling and monitoring using automated and grab sampler techniques for site runoff and receiving water characterization.

Stormwater and Drainage Facilities



RBF has experienced in the development, final design, and construction of flood control and drainage projects for public works and private sector projects. Our experience is concentrated in the field of stormwater management, including hydrology studies, floodplain analysis, drainage studies and runoff management plans, detailed hydraulic analyses, and improvement plan preparation. Our staff has prepared plans, specifications, and estimates (PS&E) for public and private sector clients, including the California Department of Transportation, U.S. Army Corps of Engineers, County of Riverside, County of Orange, County of Ventura, and various cities and private sector clients throughout California.

Traffic Engineering

The Traffic Engineering Department at RBF has an outstanding reputation in the field of traffic engineering. Traffic, whether it is from a residential area, planned community, shopping center, industrial park, or future highway, affects the transportation circulation system. Our experience includes signal operations, planning and design of traffic signals, legacy/ethernet traffic signal communication systems, in-pavement lighted crosswalk systems, traffic management centers (TMC), closed circuit television (CCTV) systems, dynamic message sign systems (DMS), transit priority system (TSP), Bus Rapid Transit (BRT) systems, red-light camera photo enforcement system, lighting systems, ramp metering systems, traffic surveillance systems, stage construction/traffic handling, and signing and striping.



Why Select RBF? *Exceptional service and teamwork are what sets us apart from our competition.*

The City of Rancho Palos Verdes is a valued client of RBF's and our team is committed to delivering excellent services for your capital improvements. RBF has provided engineering services for multiple projects in the city, including the Palos Verdes Drive East/Montemalaga Drive, West Palos Verdes Drive Drainage Study, Palos Verdes Drive North, Crestridge Senior Villas and Palos Verdes Peninsula Senior Center EIR, Rancho Palos Verdes Stormwater Master Plan, as well as many others. RBF has demonstrated experience providing on-call services for a wide range of projects and is available to step in as the City of Rancho Palos Verdes needs. With selection of RBF, the City will have at its disposal the resources of 250 employees located at our Irvine office to support the team in delivery of quick turn-around or concurrent assignments.

Below is a sampling of RBF's on-call contracts with various cities throughout Southern California.

Selected On-Call, As-Needed, and Street Improvement Projects

On-Call / As-Needed Services

- City of Anaheim, On-Call Water Quality Support Services
- City of Anaheim, As-Needed General inspection Support for Surface Water Quality Programs
- City of Anaheim, On-Call Water Resources Engineering
- City of Anaheim NPDES Permit Compliance
- City of Anaheim Construction Inspection Service
- Anaheim Redevelopment Agency On-call Services
- Army Corps of Engineers, Los Angeles Region
- City of Beverly Hills On-Call Water System Capital Improvement Projects
- City of Beverly Hills On-Call Engineering Contract (Water Resources / Public Works)
- City of Brentwood On-Call Surveying Services
- City of Cypress On-Call Services
- City of Cypress On-Call Traffic Engineering Services
- City of Cypress On-Call Engineering Street Design Services
- City of Irvine On-Call Services for General Civil Engineering Design
- City of Irwindale On-Call Services 2006 / 2007
- City of La Quinta On-Call Services / Development Review
- City of Long Beach As-Needed Engineering Services
- City of Long Beach As-Needed Landscape Architectural Services
- City of Long Beach On-Call Civil Engineering Services
- City of San Juan Capistrano On-Call Services
- City of San Ramon On-Call Services
- County of Los Angeles DPW As-Needed Survey Services
- County of Los Angeles On-Call Traffic Engineering Design Services
- County of Los Angeles As-Needed Environmental Assessment and Remediation
- County of Los Angeles On-Call Traffic Engineering Design Services
- County of Los Angeles Design and Inspection Services for Water Distribution System
- County of San Bernardino Report and On-Call Services
- San Diego Community College District On-Call Services
- County of Orange On-Call Services
- County of Orange On-Call Regulatory Permitting / Services



SUBCONSULTANTS

C Below, Inc. (SBE) | Potholing

C Below, Inc. has been in the utility locating business for six years and offers professional locating and mapping services including horizontal and vertical locations of underground utilities including water, gas power, waste, communications, and cable/TV. Methods used to locate these utilities include GPR (ground penetrating radar), CCTV, utility locators, electromagnetic locators, and pot holing. Established in 2009, C Below has been able to troubleshoot hard to find lines and provide locating solutions to utilities considered “un-locatable” by other companies.

Entity / Year Established	Servicing Office / Personnel Location:	Size of Staff	Point of Contact	Services
Corporation 2009	14280 Euclid Avenue Chino CA. 91710	30	Chris Loera 888.902.3569 x501	Utility locating / potholing

Counts Unlimited (SBE) | Traffic Counts

Counts Unlimited was founded in 1990, and incorporated in 1997. Counts Unlimited was established to provide accurate and comprehensive traffic data collection services at a reasonable cost to the transportation engineering community of Southern California, and surrounding areas. Counts Unlimited is headquartered in Corona, CA, with experienced staff in Orange County and Los Angeles. Counts Unlimited currently employ a full-time staff of 15 employees, and a support staff of approximately 15 employees that are located throughout Southern California. All staff members receive extensive training and testing before they begin collecting data, in order to ensure they are meeting the high levels of accuracy. Counts Unlimited, as a company understands the immense importance of the data they collect, and the impact that it has on transportation planning. With this in mind, it is their mission, and the mission of their employees to collect only the most accurate data possible.

Entity / Year Established	Servicing Office / Personnel Location:	Size of Staff	Point of Contact	Services
S-Corporation 1990 / 1997	11711 Sterling Avenue, Suite H, Riverside, CA 92503	15	Kris Campos 951.268.6268	Traffic Counts

Dudek | Arboriculture

Dudek has conducted a wide range of arboriculture and urban forestry projects with extensive experience in development planning, tree preservation and monitoring on construction sites, individual tree evaluations, tree management and maintenance recommendations, and urban forest management. Dudek has provided on-call arboricultural and urban forestry services to many cities and agencies. Dudek has also advised on sidewalk and curb replacement projects that occur near existing trees by evaluating affected trees, determining the best approach for preservation, and recommending measures to reduce impacts to roots, trunks, and tree crown.

Entity / Year Established	Servicing Office / Personnel Location:	Size of Staff	Point of Contact	Services
California Corporation 1980	31878 Camino Capistrano, Ste. 200 San Juan Capistrano, CA 92675 (10 California office locations)	350	Chris Kallstrand 949.450.2525	Arboriculture



Labelle Marvin, Inc. (VSBE) | Pavement Testing

LaBelle Marvin, Inc. (LBI) has more than 40 years of experience serving the southern California market with full-service pavement engineering services including materials testing, construction inspection, and analysis and design. The firm offers the latest in pavement engineering services utilizing innovative techniques to test, analyze and design pavement related projects.

Entity / Year Established	Servicing Office / Personnel Location:	Size of Staff	Point of Contact	Services
Corporation 1969	2700 S. Grand Avenue Santa Ana, CA	11	Steve Marvin 714.546.3468	Pavement Engineering

Ninyo & Moore | Geotechnical Engineering

Ninyo & Moore provides high-quality consulting services in geotechnical engineering, construction inspection and materials testing, engineering geology, hydrogeology, hazardous waste remediation and environmental assessment. Ninyo & Moore has performed geotechnical evaluation for the Via Colinita and Roan Road Storm Drain Improvements project and the San Ramon Canyon Storm Drain System project. Ninyo & Moore has also provided geologic hazard evaluations for the Palos Verdes Peninsula Unified School District.

Entity / Year Established	Servicing Office / Personnel Location:	Size of Staff	Point of Contact	Services
S-Corporation/ CA/1987	475 Goddard, Ste. 200 Irvine, CA 92618 (15 office locations)	213	Kurt Yoshii 949.753.7070	Geotechnical Services



REPRESENTATIVE PROJECTS

Street Design

Description



Palos Verdes Drive East/Montemalaga Drive, Rancho Palos Verdes, CA

RBF was selected by the City of Rancho Palos Verdes for the preparation of plans, specifications, and cost estimates for the rehabilitation of approximately 2½ miles of Palos Verdes Drive East and approximately one mile of Montemalaga Drive. RBF's scope of work included pavement evaluation, drainage design, construction management, design and construction survey, and utility research and coordination. RBF was selected for this aggressively scheduled project to ensure submittals to obligate funds prior to the September 31, 1997 cutoff. Additional challenges included replacement of pavement areas of saturated subgrade and traffic handling for a heavily traveled two-lane arterial highway during construction, while minimizing disruption to the community and traveling public.



North Long Beach Street Enhancement Program, Long Beach, CA

RBF provided program management and engineering design services for the North Long Beach Street Enhancement Program that included improvements within the public rights-of-way in the North Long Beach Redevelopment Project Area. RBF coordinated the design initiation and approval process for three design consultants providing roadway and alley plans, specifications, and estimates (PS&E) packages. RBF coordinated the overall work program and developed a project web site to provide a central communication source for design directives and community outreach. RBF also prepared streetscape alternatives for Atlantic Avenue and South Street in the North Village Center area to facilitate its anticipated redevelopment. The project was completed on time, even with an aggressive schedule to meet the City's needs.



Cypress Acres Sidewalks, Cypress, CA

RBF prepared final PS&E for sidewalk improvements along Belmont Street, LaSalle Street, and Merten Avenue within the Cypress Acres community as part of the final phase of work to improve the streets and sidewalks. Cypress Acres is a recently annexed residential community with historical flooding problems and unimproved parkways, and RBF designed the final remaining sidewalk segments to complete the Cypress Acres improvements. RBF also designed handicapped access curb ramp improvements to facilitate pedestrian mobility and adhere to Americans with Disabilities (ADA) requirements.



Cherry Avenue Widening, Signal Hill, CA

RBF provided professional engineering services to the City of Signal Hill for the widening of approximately one mile of Cherry Avenue, a major thoroughfare which bisects the City. Design aspects of this vital roadway realignment and widening project included roadway grading, street improvements, 30 foot high retaining wall design, storm drain, water and sewer design, and signing, striping, and traffic signal improvements. RBF coordinated the efforts of several subconsultants including: geotechnical, electrical, landscape, and traffic engineers. In addition, RBF coordinated with over 30 utility owners in the relocation of their facilities and provided Construction Management services to the City.



Artesia Boulevard Improvement Project, Torrance, CA

RBF was retained by the City of Torrance to evaluate alternative improvement concepts and prepare plans, specifications and estimates for the Artesia Boulevard Improvement Project. This project, a 2.7 mile section of roadway rehabilitation, is part of the City's revitalization program to provide aesthetic enhancements and improve the safety and quality of life in the community. The work included design for pavement rehabilitation, parkways, medians, sidewalk, curb and gutter, driveways, bus pads, median and parkway landscaping, storm drain, street lighting, traffic analysis, signal timing, traffic signal modifications, signal communication system, signing and striping and federal funding applications.



Street Design

Description



Irvine Boulevard/Jamboree Road Street Improvements, Tustin, CA

RBF provided engineering design services for this road improvement project. The roadway involved one and a half miles of pavement removal and overlay that included topographic survey, pavement analysis coordination, utility coordination, traffic control and working with the City of Tustin on their annual road rehabilitation budgets. RBF coordinated with the City's pavement consultant to re-evaluate the rehabilitation recommendations and to work within the City's budget. This high-speed roadway included super-elevated sections, raised and planted medians, and ADA upgrades at all

intersections. RBF provided plans, specifications, and estimates (PS&E) for the project in various formats to comply with local and federal funding.



Rodeo Drive/Various Street Improvements, Beverly Hills, CA

RBF provided various street design and improvement services to the City of Beverly Hills including:

- **City Roadway Rehabilitation:** RBF has provided engineering, surveying and landscape architectural services to the City of Beverly Hills over the past twenty years on a variety of roadway rehabilitation projects. RBF performed field surveys, pavement testing services, plans, specifications and cost estimates for paving overlay and rehabilitation projects citywide. Additional services included traffic signal loop replacement, traffic signal modification, traffic striping, markings and traffic control, and coordination with citizens' committees. RBF also prepared landscape median improvements and

parkway planting along many of the arterial roadways. The projects consisted of various overlay and reconstruction methods along with miscellaneous curb and gutter reconstruction to improve drainage for both local residential as well as major arterial roadways. Projects also included evaluating locations for ADA compliance. These roadway paving and improvement projects included Rodeo Drive, Olympic Avenue, Wilshire Boulevard, Third Street, Lexington Drive, Whittier Avenue, as well as others.

- **Rodeo Drive:** RBF provided engineering and landscape architectural services for removal and reconstruction of world famous Rodeo Drive. With World Cup '94 coming to Southern California, the City wanted to complete design and construction of this project in less than two and one-half months.
- **Beverly Drive:** RBF provided professional engineering and transportation services to the City of Beverly Hills for the reconstruction and asphalt overlay of Beverly Drive and a portion of Beverwil Drive which makes up the highly valued Beverly Hills Business Triangle, including Rodeo Drive.
- **Citywide Traffic Control and Transit Signal Priority System:** RBF provided traffic engineering services to the City of Beverly Hills for the design and development of the citywide Traffic Control and Transit Signal Priority System. RBF was primarily responsible in the development of plans, technical specifications and engineer's estimates (PS&E) for the following major corridors in the City of Beverly Hills which included Wilshire and Olympic Boulevards.



Eldorado Palms Rehabilitation, Indian Well, CA

RBF provided professional engineering services to the City of Indian Wells for the roadway rehabilitation in this multi-tract neighborhood. The project involved pavement testing and evaluation of several pavement rehabilitation methods including cold milling and overlays, removals, and the use of rubberized asphalt. Over 180 homes within these tracts made construction phasing a key component of the project and RBF worked closely with the City to develop phasing plans that would minimize disruptions to the neighborhood. Plans included street improvements, signing,

striping, and construction phasing.



Long Beach Boulevard Rehabilitation and Pedestrian Improvements, Long Beach, CA

RBF assisted the City of Long Beach with the development of the Virginia Village theme as a part of the ongoing Long Beach Boulevard rehabilitation. With the oversight of the Redevelopment Agency, RBF prepared pavement overlay plans along with a portion of parkway improvement plans. The improvements consisted of new bus shelters, pedestrian lighting, replacement of street lighting, street trees, and decorative traffic signals. One-way streets were being designed to incorporate an earlier traffic study for the intersecting streets. Review of several vendors occurred to facilitate the

selection of uniform, decorative features while meeting traffic standards. The project involved the preparation and providing of plans, specifications, and engineering estimates (PS&E), modification of three existing traffic signals, signing and striping plans, and stage construction / traffic handling details.



Street Design

Description



Alton Parkway Extension, Orange County, CA

RBF provided design for a one-mile extension of Alton Parkway from its easterly terminus at Irvine Boulevard to the City of Lake Forest limits. This six-lane arterial is a vital link in the Foothill Corridor Phasing Plan and facilitates traffic flow through the former Marine Corps Air Station El Toro property between the communities of Baker Ranch, Foothill Ranch, Pacific Commercentre, and the City of Irvine, and provides a connection between I-5 and the Foothill Transportation Corridor (SR-241).

Awards:

2013, Award of Excellence, American Council of Engineering Companies, Orange County Chapter

2013, Project of the Year Award, American Society of Civil Engineers

2013, Engineering Project Achievement Award, Orange County Engineering Council

2012, Project of the Year Award, American Public Works Association, Southern California Chapter



Alessandro Boulevard Median (Indian Street To Perris Boulevard), Moreno Valley, CA

RBF evaluated, designed, and constructed raised medians and turn pockets along Alessandro Boulevard at the Perris Boulevard intersection. The project was funded by the Federal Highway Safety Improvement Program (HSIP) under Caltrans District 8 Local Assistance, requiring close agency coordination of environmental, traffic, and civil transportation services. The design and construction required modification of a traffic signal, ADA-compliant pedestrian ramps, and signing and striping. The improvements were intended to provide improved safety for both vehicles and pedestrians in the project area. RBF recommended alternative median types considering immediate cost versus anticipated future cost if the client should desire a landscaped median. RBF also assisted with the preparation and processing of National Environmental Policy Act (NEPA) documentation for the project.



John Wayne Airport Perimeter Road Improvements, Orange County, CA

RBF provided design services for reconstruction of the John Wayne Perimeter Road. The design included the reconstruction of approximately 4,000 linear feet of a 24-foot-wide asphalt concrete bi-directional roadway. Key to design development was providing continued access through the work site while maintaining security, access control, and monitoring. Phase One evaluated, by use of a feasibility study, construction of a new parallel perimeter service road system along the western property limit between the fuel farm and the northwest gate at Airport Loop Road. Phase Two design included preparation of the final plans, specifications, and estimates (PS&E) documents for the entire service road, including the new parallel roadway, if determined to be feasible, based on the results of the Phase One study.



Bridges and Structures

Description



La Jolla Cove Sea Wall Replacement and Bluff Stabilization, San Diego, CA

The goal for this project was to protect and add significant useful life to existing roadways, sidewalks, and drainage structures along the La Jolla Cove bluff areas while maintaining the character of the coastal bluffs, including the existing sea caves, and addressing sensitive environmental concerns such as visual aesthetics, maximizing public parking, and maintaining access and traffic flow for Coast Boulevard during construction. The primary objective was the replacement of an existing unsightly and unstable retaining wall at the Cove with a structure to be hidden underground. In addition, the design solution should minimize the loss of parking opportunities along Coast Boulevard at the top of the bluff. Geotechnically, the presence of sea caves along the bluff face presents a serious hazard to the Point Loma formation and could undermine the roadway and structures above. For this reason, road realignment (away from the bluff face) coupled with a protective underground retaining wall structure was proposed. Based on local community concerns, visible retaining wall structures were minimized throughout the improved areas by utilizing reinforced earth slopes, realigning the adjacent bluff top roads and walkways, and using protective deepened footings along sidewalk edges. New walkway fencing along the bluff was also designed with aesthetics in mind, using details preferred by the local community to maintain the character of the area.



Plaza La Playa Storm Channel Reconstruction Regulatory Services, San Clemente, CA

RBF prepared the Delineation of Jurisdictional Waters Report for the proposed Plaza La Playa Storm Channel Reconstruction and the resulting Plaza La Playa Floodwall PS&E, located in the City of San Clemente, east of Plaza La Playa Street, in Orange County, California. The project site consists of a man-made channel with concrete bottom and chain link fenced sides, approximately 430 feet in length, and is tributary to the Pacific Ocean. High storm flows and runoff from surrounding residential uses causes the channel to flood. This threatens the adjacent, most downstream residential structure. The project replaces approximately 112 feet of one side of the existing wood lagging channel wall with a reinforced concrete soldier pile retaining flood wall, to prevent further flooding and washout of the existing downstream home that adjoins the Channel to the west. Soldier piles were designed integral with the flood wall due to the close proximity to the existing home.



Marblehead Coastal Avenida Vista Hermosa and Commercial Site Bridges, San Clemente, CA

RBF provided bridge design and construction support services and prepared complete plans, specifications and estimate (PS&E) for the construction of these bridges over a canyon, under the jurisdiction of the Army Corps of Engineers. The bridge incorporates distinctive architectural features such as corbels, pedestrian lookout areas towards the ocean, and architectural towers adjacent to the abutments, complimenting the overall Spanish architectural theme of the site. The bridge is a 400-foot long 3-span cast-in-place post-tensioned concrete box girder supported on 3-column bents with large 120-inch diameter drilled shafts. The project required compliance with different agencies rules and regulations for construction access and permitting, including the California Coastal Commission and the Army Corps of Engineers.



West Bluff – Structures, Los Angeles, CA

RBF provided professional engineering services for the 44-acre West Bluffs project site which is located in the community of Westchester / Playa del Rey in the City of Los Angeles, approximately 1¼ miles inland from Santa Monica Bay. The site is partially in the Coastal Zone designated by the California Coastal Act. RBF's work on the project involved preparing and processing a tentative tract map, coastal development permit, EIR with the City of Los Angeles, and final civil engineering and structural engineering design. A unique feature was the construction of a retaining wall system required for bluff stabilization at the boundary of the property. The soldier pile wall system will support the developed site if erosion of bluffs (in front of wall) occurs. Photo shows construction of the wall, before backfill is placed for site development. The natural bluff is left intact on opposite side of wall.



Bridges and Structures

Description



Orange County Flood Control On-Call Contract, Orange County, CA

RBF under a 3-year on-call contract with the Orange County Public Work Flood Division, provided engineer services to support flood control projects. The projects included flood control, water quality, wildlife corridor / habitat conservation and protection. RBF also provided services to obtain resource agency permits. These projects included:

- San Diego Creek Master Plan Update
- Foothills Basins Restoration Plans and Operations and Maintenance Manual
- San Juan Creek Phase 4, 5, 6 and Trabuco Creek Phase 8
- Edinger Channel – 3D Structure Analysis for Reinforced Concrete Box
- Santa Ana River Reach 9 SARI Line Protection



El Moro Mobile Home Park Conversion, Crystal Cove State Park – Structures, Laguna Beach, CA

As a subconsultant, RBF provided water/wastewater, structural, electrical, traffic, civil engineering, and supporting services for CEQA environmental permitting and California Coastal Development permits on this high profile project. The State of California, Department of Parks and Recreation converted more than 300 mobile homes that had been in place since the 1950s into a campground, day use, and open beach. RBF provided structural engineering

for vehicular bridges, retaining walls, and buildings; creek restoration; grading; sewer and water resources, including force mains and the elimination of a septic system; traffic engineering and coordination with Caltrans; hydrology and hydraulics for the existing El Moro Creek; and design of improvements within the campground. RBF also provided design for new structures, including two steel truss vehicular bridges, pump stations, retaining walls, entry kiosk, comfort station buildings, a lifeguard building with lookout, emergency vehicle garage and office area, amphitheater, and picnic shelters.



Date Palm Drive Bridge over Whitewater River, Cathedral City, CA

RBF prepared the Delineation of Jurisdictional Waters and Natural Environment Study – Minimal Impact (NES-MI) for the Date Palm Drive Over the Whitewater River Project, located in the City of Cathedral City, Riverside County. The Date Palm Drive Bridge is a four-lane bridge approximately 757 feet long and 56 feet wide and is functionally classified as an urban minor arterial. Due to structural and operation deficiencies, the applicant has proposed to widen

and retrofit the existing Date Palm Drive Bridge. To preserve and expand the service life of the existing bridge, the project is proposing to: rehabilitate the existing bridge deck; widen the bridge width from four to six lanes; replace deficient portions of the existing structure; and include highway safety measures, such as adding sidewalks, matching medians, railings and approaches, which will enhance highway safety



Vista Village Redevelopment Sustainable Renovation Project, Vista, CA

RBF provided planning, engineering, and landscape architecture for an ambitious redevelopment project that encompassed approximately 40 acres of existing commercial and industrial parcels adjacent to the main street downtown area. The project demolished existing facilities and infrastructure, upgraded sewer and water systems, provided transportation improvements, relocated a transit center, and replaced a portion of a concrete flood control channel with a natural river corridor that runs through the spine of the project. The project required coordination with

adjacent and proposed commercial facilities and included integration of the Wave Water Park. Once the public infrastructure and creek walk improvements were completed, the city transformed the site into a destination commercial and entertainment center with shops, restaurants, and theaters. Project issues included impaired creek surface water quality; toxic groundwater associated with previous commercial uses at the site; space limitations; Americans with Disabilities Act (ADA) accessibility; and preparation of a Conditional Letter of Map Revision (CLOMR) for processing through FEMA for the entire site. As prime consultant, RBF provided planning; civil, water resources, traffic, and structural engineering; landscape architecture; surveying; mapping; construction support; and construction staking services.



Water Quality and Compliance

Description

Orange County Flood Control On-Call Contract, Orange County, CA

RBF Consulting, under a 3-year on-call contract with the Orange County Public Work Flood Division, provided engineer services to support flood control projects. The projects included flood control, water quality, wildlife corridor / habitat conservation and protection. RBF also provided services to obtain resource agency permits.

Highlights:

- On-Call Flood Control Planning and Engineering Services
- Geomorphology / Scour
- Hydrology / Planning Studies
- Creek Restoration Plans Structural Engineering for Sheet Pile / Levee Protection
- 3-Dimensional Analysis and Independent Review of Proposed RCB Structure
- SARI Line Protection

Caltrans Southern California On-Call Storm Water Compliance Services (Contract Nos. 43A0176, 43A0258, and 43A0307), Southern California, CA

RBF has contracted with the California Department of Transportation (Caltrans) in three, three-year, on-call technical and professional services contracts to formulate statewide stormwater solutions throughout Caltrans' Southern California districts. RBF's services include as regulatory agency permit coordination, storm drain system inventories, construction site and facility inspections, illegal discharge source investigations, and stormwater contract document reviews. RBF is working with Caltrans to consider and implement best management practices at project sites to achieve stormwater compliance; review draft compliance documents, such as a stormwater pollution prevention plan related to water quality for project sites; and help department district office staff comply with the department's National Pollutant Discharge Elimination System permit obligations that are related to the planning, design, construction, maintenance, and operation of transportation facilities.

Malibu Creek Watershed Feasibility Study, Los Angeles County, CA

RBF performed a study to identify retrofitting opportunities in the Malibu Creek Watershed to address multiple pollutants in stormwater runoff. RBF's services included identification of potential retrofit sites for regional and local structural best management practices (BMP), evaluation of watershed water quality data, assessment of the feasibility of implementing BMPs in the identified sites, the development of an implementation plan, preparation of conceptual designs for 24 BMPs, and preparation of final designs for four of the BMPs. RBF performed a desktop survey, field evaluation, environmental analysis, prioritization of sites, data analysis, BMP sizing, water quality benefit analysis for each site, and developed an implementation strategy. RBF used the iWATR® program, a web-based geographic information system (GIS) application that RBF developed, to identify more than 100 potential regional, subregional, and local BMP opportunities.

Los Angeles Unified School District Storm Water Management Services, Los Angeles, CA

RBF is assisting the Los Angeles Unified School District (LAUSD) with on-call storm water management services. The District will eventually be subject to the Phase II Small Municipal Separate Storm Sewer System (MS4) Permit. RBF's on-call contract consists of providing assistance with the development of and regularly updating the Storm Water Management Program (SWMP) for the District. Work under this contract includes on-call services for development and implementation of the LAUSD stormwater program including assistance with development of a program for best management practices (BMPs) and schedules for implementing required minimum control measures (MCMs). RBF has assisted the District with evaluation of school sites for erosion control stabilization and incorporation of BMPs.



Stormwater and Drainage Facilities

Description



Altamira Canyon Drainage Improvement Project, Rancho Palos Verdes, CA

RBF was retained by the City of Rancho Palos Verdes to prepare a final design plan for the drainage and erosion control improvements to Altamira Canyon in the Abalone Cove Landslide area boundary. Previous concepts for the proposed improvements for Altamira Canyon were assessed based on hydraulics, constructability, utility impacts, construction / maintenance costs and environmental impacts. Due to difficult site conditions, RBF visited the site with a Construction Contractor and materials supplier to gain valuable insight into the construction issues. RBF, in conjunction with geotechnical studies prepared by Zeiser Kling Consultants, Inc., developed project alternatives and identified the recommended improvements for final design. The RBF team provided services for the final plans, specifications, and estimates for the canyon improvements, along with constraints mapping and legal descriptions and exhibits, field survey of the canyon, and assistance with public outreach and stakeholder meetings.



West Palos Verdes Drive Drainage Study, Rancho Palos Verdes, CA

RBF prepared a relocation study of the existing drainage system for Palos Verdes Drive to prevent further erosion to a large bluff area in Rancho Palos Verdes. The work included evaluation of an alternative drainage system diversion system and watershed analysis, including beach outlet systems.



Cypress Acres Phase IV Street and Storm Drain Improvements

RBF provided conceptual design, preliminary engineering, and final PS&E for street rehabilitation on Merten Avenue and La Salle Street; a storm drain system on Merten Avenue in newly annexed area in Orange County called Cypress Acres. The analysis consisted of a proposed 450 linear feet of mainline storm drainpipe and associated catch basins. Storm drain system hydrology reports included Moody Creek Channel hydraulic grade line / mainline. A Water Quality Management Plan was developed pursuant to City criteria. A public information presentation was conducted to effectively facilitate design consensus and obtain vital community input.



Spring Street Hydrology/Hydraulic Study and Storm Drain Design, Signal Hill, CA

RBF has been involved in a number of studies pertaining to Spring Street storm drain design and overall roadway widening in the City of Signal Hill, California. The project included a total of approximately 1,300 lineal feet of reinforced concrete pipe with a minimum diameter of 24 inches. Extensive coordination with various agencies such as Los Angeles County Department of Public Works (LACDPW), the City of Long Beach, and the City of Signal Hill was required. The proposed system would be tying into an existing City of Long Beach storm drain system in Spring Street. In order to obtain the initial hydraulic control of the proposed system, the overall hydrology and hydraulics of the existing City of Long Beach and LACDPW storm drains (in Spring Street from West of Junipero Street to Redondo Avenue) were analyzed.



Riverside County Transportation Department NPDE-Assistance, Riverside County, CA

RBF holds an on-call contract with Riverside County Transportation Department (RCTD) to provide assistance with implementation of its National Pollutant Discharge Elimination System (NPDES) Program. Services that RBF provided include:

- Construction site inspection for construction general permit compliance,
- SWPPP review including redlines, specific comments, and assistance to staff,
- Best management practice evaluation,
- Post construction BMP selection and design, including WQMP development,
- Development and delivery of extensive CGP and MS4 compliance training,
- Creation of a central tracking database to manage all NPDES related documents.



Stormwater and Drainage Facilities

Description



Midway City Street and Storm Drain Master Plan and Improvements

Orange County Public Works selected RBF to provide professional services for the preparation of drainage and street master plans and estimates for the recommendation of improvements for the Midway City area of unincorporated Orange County. The recommended improvements were necessary to alleviate flooding within a residential area of "Midway Cities" by designing roadway rehabilitation improvements and installing storm drain mainline and local improvements to convey

the area storm drain runoff, and to provide increased protection for motorists and pedestrians. The work included hydrology and hydraulic modeling, and the planning and final design for approximately 4.6 miles of street rehabilitation and storm drain facilities, located within a drainage area of approximately 218 acres. The recommended improvements and ultimate design also provided for 1.2 miles of an offsite main line storm drain outletting into the C05S05 Edinger Channel facility. Various alternatives and cost estimates were developed to identify the recommended alignment and sizing for the offsite facility



Los Angeles Community College District, Stormwater Use and Water Reuse, Los Angeles, CA

RBF has developed four stormwater harvest and use feasibility studies for the Los Angeles Community College District. RBF has performed feasibility studies for East Los Angeles College, West Los Angeles College, Pierce College and Los Angeles City College for harvest and use stormwater to meet stormwater permit requirements if they are eventually designated under the Phase II permit, reduce campus potable water demand, and meet the sustainability goals of the District. RBF identified regional locations to capture runoff from drainage areas for each campus.

RBF characterized stormwater discharges and fire pump discharges and identified locations for implementation of the capture and use systems through evaluations of site constraints. RBF identified that water demand for each of the campuses including irrigation and physical plant water needs. Each of the collection systems were sized to ensure at a minimum collection of the 85th percentile storm event for future potential compliance with Phase II MS4 permit. Pre-treatment systems remove pollutants prior to storage and filtration and disinfection system to meet Title 22 requirements were evaluated. RBF also investigated the regulations regarding use of harvested stormwater and coordinated with Los Angeles County Department of Public Health to identify the requirements for the use of stormwater. RBF also coordinated with the Division of the State Architect which regulates development on the LACCD campuses



Traffic Engineering

Project Detail	Description
	Claremont Boulevard and First Street Traffic Engineering Improvements, Claremont, CA RBF provided traffic engineering services to the City of Claremont for various traffic signal design and signing/stripping projects citywide. The objective of the Claremont Boulevard and First Street project was to provide traffic safety, traffic circulation and operational benefits to roadway users by adding Class II bicycle lanes and exclusive two-way left-turn lanes along First Street between Mills Avenue and the existing Class I bike trail system in the City of Montclair. The project included the preparation of conceptual plans showing two alternatives and associated preliminary engineer's estimates, and final improvement plans, specifications and estimates (PS&E) for signage, striping and roadway improvements.
	Pasadena Traffic Calming Project, Pasadena, CA RBF provided conceptual design and photo simulation services for traffic calming measures at five existing intersections in the South Allen / San Pasqual residential neighborhood within the City of Pasadena. A total of two design schemes, traffic circles and bulb outs, were included in the conceptual design and photo simulations. RBF conducted field verification of the neighborhood and the associated existing conditions and identified the proposed/required improvements for these intersections. RBF also worked with the City to develop conceptual entry monuments for the neighborhood and prepared concept exhibits and technical reference information for the City as well as participated in a neighborhood meeting for the proposed project.
	On-Call Traffic Engineering Services, Cypress, CA As part of the City of Cypress On-Call Traffic Engineering Services, RBF has prepared traffic signal, and signing and striping plans for various locations throughout the City, and Temporary Construction Easement (TCE) Legal Descriptions and Plat for a specific location in the City of Cypress. Specific Projects include: - Valley View Street at Fred Drive and Valley View Street at Orangewood Avenue Traffic Signal Modification Improvements - Crescent Avenue at Watson Street Traffic Signal Improvements - Walker Street Temporary Construction Easement
	Sepulveda Boulevard (SR-1) & Mariposa Avenue Intersection Improvements, El Segundo, CA Responsible for preparing signing and striping plans, traffic signal plans, and traffic control plans for intersection improvements. In-N-Out Burger developed and occupied the northeast corner of the intersection at Sepulveda Boulevard (SR-1) and Mariposa Avenue. The intersection needed to be updated to meet the current ADA standards, while adding a second left turn lane on westbound Mariposa Avenue turning onto southbound Sepulveda Boulevard. The project included: field investigation; review of existing signal operation; review of existing cabling and conduits capacity; review of existing signal communication interconnect; signal design; signing and striping; and traffic control design.
	On-Call Traffic Engineering Services, Anaheim, CA As part of the City of Anaheim's "On-Call" Traffic Engineering Services, RBF prepared traffic signal, signal communication plans, Split Cycle Offset Optimization Technique (SCOOT) plans, and signing and striping plans for various locations throughout the City. Specific projects included: - Magnolia Avenue at Greenleaf Avenue Traffic Signal Improvements - Brookhurst Street at Brookmore Avenue Traffic Signal Improvements - Western Avenue at Faircrest Drive and Serrano Avenue at Canyon Crest/Wildflower Lane Traffic Signal Improvements - Lincoln Avenue from West City Limits to Brookhurst Street Traffic Signal Improvements



SUBCONSULTANTS - REPRESENTATIVE PROJECTS

C Below:

1. **Terranea Potholing, Rancho Palos Verdes, CA**

C Below provided Vacuum Excavation at (9) locations on the resort where the client will be adding in an additional pool. A detailed Pothole report was provided to the client showing the depths, locations, and swing tie information.

2. **The Terrance Shopping Center Sewer Line Utility Locating: Rancho Palos Verdes, CA**

C Below provided Utility Locating and Ground Penetrating Radar per the clients request. The client was provided with a detailed report showing the depth, routing, and the size of the sewer line.

Counts Unlimited, Inc.:

1. **On-Call Traffic Data Collection Contract, Long Beach, CA**

Counts Unlimited, Inc. held an On-Call Traffic Data Collection contract with the Port of Long Beach from 2011-2014. The On-Call traffic data collection tasks would typically require 72-hour classification ADT counts throughout the Port, with many locations being on SR-47 (Ocean Boulevard), and 3 Hour AM / 4 Hour PM Peak Period Classified Turning Movement Counts. Counts Unlimited, Inc. was able to provide the Port with very detailed visual turning movement counts that separated Vehicles classes to: Passenger Vehicles, Bobtail Trucks, Chassis Trucks, Container Trucks, and Semi Trucks.

2. **On-Call Traffic Data Collection Contract, Irvine, CA**

Counts Unlimited, Inc. currently holds an On-Call Traffic Data Collection contract with the City of Irvine to provide On-Call Data Collection Services, in addition to annual citywide counts. On an annual basis, Counts Unlimited, Inc. will conduct over 300 24-hour ADT counts, and on a biannual basis, we will conduct over 200 Turning Movement Counts. On-Call Traffic Data Collection requests are typically in support of traffic calming measures, and traffic monitoring.

Dudek & Associates

1. **NBC Universal City Studios Lankershim Boulevard Liquidambar Protection Project, Los Angeles, CA**

Dudek provided arboricultural services related to preservation of 13 liquidambar trees along Lankershim Boulevard. The project included documentation of the existing condition of the trees and the growing environment; monitoring the removal of the existing concrete sidewalk; supervising and directing root pruning and root shaving (reduction of the root size by removing the upper portion of the root and retaining the lower portion); monitoring use of equipment around the trees; and overseeing the placement of decomposed granite for a temporary period of time, and then pouring of concrete.

2. **Pasadena Urban Forest Management Plan, Pasadena, CA**

Dudek contracted with the City of Pasadena, California in 2014 to prepare and develop an Urban Forest Management Plan (UFMP). The project includes: extensive review of existing urban forest and tree management policies and procedures; tree inventory data review and analysis; stakeholder and public outreach through an online survey; integration of stakeholder input; documentation of tree management programs; and overall analysis and recommendation formulation. The project also compared Pasadena's urban forestry program and its financial costs and benefits with local and nationwide cities to provide perspective on the efficient, yet high level of tree management Pasadena achieves.



SUBCONSULTANTS - REPRESENTATIVE PROJECTS

LaBelle Marvin, Inc.:

1. Anaheim Street

Anaheim Street from 9th Street to the LA River Bridge, Long Beach, California is being considered for improvement in the near future. The existing roadway includes distress of varying severity. Continued deterioration of the pavement surface is impacting ride qualities, with continued maintenance required to address developing potholes and similar irregularities. LaBelle Marvin provided a comprehensive evaluation of the current structural integrity of the travel lanes combined with developing corresponding structural section requirements in areas of required reconstruction (if any). LaBelle Marvin provided a combination of visual evaluation, pavement strength testing (FWD) and component analysis, field coring and boring sampling, laboratory analysis, pavement evaluation, ground penetrating radar and the final report.

2. Beverly Boulevard, Melrose Avenue and Robertson Boulevard

The City of West Hollywood, California in conjunction with community business leaders are currently exploring methods of resurfacing and/or rehabilitating Beverly Boulevard and Melrose Avenue from Doheny Drive to East City Limits and Robertson Boulevard from Santa Monica Boulevard to Southerly City Limits (Beverly Boulevard). The investigation by LaBelle Marvin provides evaluation of both the present structural integrity of the existing travel lanes combined with stress transfer between the existing Portland cement concrete joints and cracks. The combined field strength measurements and cross joint measurements were compared to current and projected future traffic use providing a basis for development of improvement requirements to meet long-term City performance expectations. LaBelle Marvin's scope of work included a combination of visual evaluation, pavement strength testing (FWD) and component analysis, field coring and boring sampling, laboratory analysis, pavement evaluation, and the final report.

Ninyo & Moore:

1. San Ramon Canyon Storm Drain System, Rancho Palos Verdes, CA

The City of Rancho Palos Verdes planned to improve drainage conditions along the San Ramon Canyon, which traverses the South Shores Landslide to the ocean. The drainage improvements include construction of canyon subdrain systems, partial canyon filling and buttressing of the Tarapaca Landslide, construction of 4,000 feet of 54-inch storm drain, nearly 2,000 feet of tunneling, construction of a mid-canyon inlet structure, construction of a sea-bluff outlet structure and construction of access roads in the relatively steep landslide and canyon terrain. The project is intended to improve drainage along the canyon and reduce the potential for future landslide movement. Ninyo & Moore performed a geotechnical evaluation for the design of the project elements. Services included coordination with the City geologist and design team, review of geologic background data, field geologic mapping, exploratory borings to depths up to 131 feet, continuous core sampling, optical televiewer and suspension logging of boreholes, backhoe test pits, laboratory testing and engineering analysis.

2. Via Colinita and Roan Road, Storm Drain Improvements Project, Rancho Palos Verdes, CA

Ninyo & Moore performed a geotechnical evaluation for the Via Colinita and Roan Road storm drain improvements project located in Rancho Palos Verdes, California. The project included installation of three new storm drain laterals on Via Colinita and one new lateral on Roan Road. The purpose of our study was to evaluate the subsurface conditions and to provide geotechnical design parameters for planned improvements. Our subsurface evaluation consisted of drilling, logging, and sampling several small-diameter borings up to approximately 50 feet. laboratory testing of representative soil samples and engineering analysis. Our report presented our findings, conclusions, and recommendations based on our background review, site reconnaissance, subsurface evaluation, laboratory testing, and geotechnical analyses.

3. Project Manager and Team Qualifications



3. Project Manager and Team Qualifications

CONTRACT MANAGER QUALIFICATIONS

Michael Bruz, PE / Contract Manager

Mr. Bruz is a Senior Project Manager and leads the Los Angeles and Orange County Municipal/Public Works efforts for RBF. With over 35 years of public works expertise, he is a knowledgeable, proactive and confident leader who delivers on a commitment to excellence. He offers the right balance of leadership, experience, communication skills, team building capabilities and technical insight needed to successfully deliver each task order assignment on time and within budget.

Michael (Mike) has a total of 35 years of experience with the last 30 years focused on public works projects. He is adept at managing multi-discipline, multi-agency and multi-stakeholder teams through the project development process. His experience includes a wide array of planning and design projects throughout California and Arizona totaling more than \$500 million in construction costs. Mike has served in a similar leadership and/or technical management role for similar on-call contracts including high profile communities such as Beverly Hills, Newport Beach and Sedona, Arizona.

Mike is driven by his attention to detail and an equally strong desire to develop solutions that are the “right fit” for his clients. An example of this includes the award winning MacArthur Boulevard Widening Project, a 2.5 mile widening and reconstruction project that Mike led as Project Manager. Mike developed solutions that included incorporating a meandering sidewalk into a hillside to take advantage of panoramic ocean vistas and he also was able to create a local community park by using excess (export) soils materials as fill material in a used low lying area adjacent to a family neighborhood.

Mike has proven his ability to translate complex engineering ideas into meaningful graphics, studies, plans and final reports for a wide audience. Through his leadership on the Uptown Sedona Streetscape Improvements and Parking Lot Projects, the RBF Team received positive feedback from the community on the public involvement and final outcome of the projects.

Mike has spent 24 of his 35 year career with RBF — a rarity in the consulting business. His longevity with the firm provides great benefit to the City of Rancho Palos Verdes in terms of continuity of leadership. This translates into project momentum, quality of work products, continuity of decision making and institutional knowledge.

A sampling of Mike’s On-Call experience includes:

- Annual Engineering Support Services, Beverly Hills, CA
- Annual Engineering Support Services, Signal Hill, CA
- Annual Engineering Support Services, Indian Wells, CA
- On-Call Engineering Services (Caltrans Districts 5, 6, 9, 10)
- On-Call Engineering Services (Port of Oakland)
- Annual Engineering Support Services, Phoenix, AZ



Years of Experience: 35

Office Location: Irvine

Education:

B.S., Civil Engineering, Michigan State University

Registrations:

Professional Engineer, CA, #36198

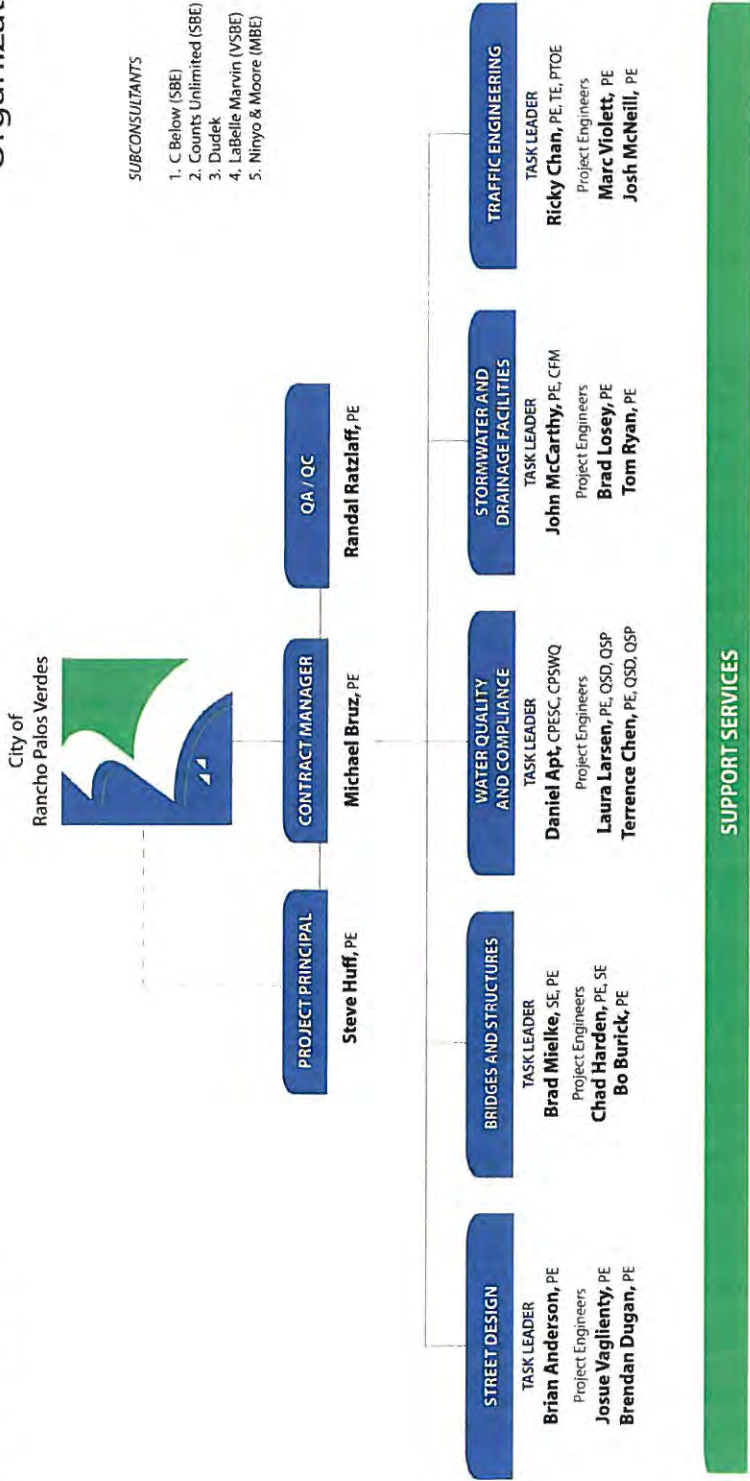
Professional Affiliations:

American Public Works Association
American Society of Civil Engineers

Key Qualifications:

Extensive PS&E Expertise
Proven Creative Thinker
30 Years of Municipal Engineering Experience
Successfully Delivered Every Project Managed

Organization Chart





TASK LEADER QUALIFICATIONS



Years of Experience: 29
Office Location: Irvine
Education: B.S., Civil Engineering
Registration/Certification:
Civil Engineer, CA, 1996, #55298

Brian Anderson, PE | Task Leader, Street Design

Mr. Anderson's management role is concentrated in the final design and development of transportation and public works facilities; various commercial and general aviation airfield projects; complex roadway and highway system development; rail grade separation; underground utility; large-scale drainage; and commercial site development projects. His focus has been in the management and development of multi-agency projects meeting federal, state, and local funding and design standards.

Selected projects demonstrating his experience include the Alton Parkway Extension, Sand Canyon Avenue Grade Separation at Metrolink/BNSF Railroad Crossing, Port of Long Beach On-Call Services, and Washington Boulevard Reconstruction.



Years of Experience: 37
Office Location: Irvine
Education: B.S., Architectural/
Structural Engineering
Registration/Certification:
Civil Engineer, CA, 1981, #33334
Also in AZ, NV
Structural Engineer, CA, 1986, #2817
Also in AZ, NV, UT
Registered Disaster Service Worker, CA
SA0158

Brad Mielke, PE, SE | Task Leader, Bridges and Structures

Mr. Mielke is specialized in structural engineering for transportation structures, flood control and water resource facilities, and earth retaining structures. His bridge design experience includes new steel and concrete bridges, inspections, evaluations, repairs, and seismic retrofit design of existing bridges using AASHTO and Caltrans standards. Water resource facilities includes pump station buildings; large pumping fore bay reservoirs; tanks; buried reservoirs; and flood control facilities such as channels, box culverts, vaults, tanks, retaining walls and tie-back walls. He also has a strong background in building design for commercial, industrial, and civic buildings, along with parking structures using IBC, CBC, and FEMA design criteria constructed of concrete, masonry, steel, and timber. Mr. Mielke also specializes in analyzing and retrofitting existing structures that require repair or require strengthening to resist current seismic loads.

Selected projects demonstrating his experience include the S.R. 73/Jamboree Road Overcrossing, Marblehead Coastal Avenida Vista Hermosa Bridge and Commercial Site Bridges, Improvement to the Coachella Canal at Madison Street and Avenues 40 and 50 50, and La Jolla Cove Sea Wall Replacement and Bluff Stabilization.



Years of Experience: 19
Office Location: Irvine
Education: M.A., Marine Affairs and
Policy
B.A., Political Science/Social Ecology
Registration/Certification:
Certified Professional Storm Water
Quality, 2006, #187
Qualified SWPPP Developer (QSD);
Qualified SWPPP Practitioner (QSP),
CA 2010, #00003
Certified Inspector of Sediment &
Erosion Control, 2006, 3754

Daniel Apt, CPESC, CPSWQ | Task Leader, Water Quality and Compliance

Mr. Apt's experience is in storm water management and water quality. His has extensive experience in municipal NPDES stormwater permit compliance assistance, Best Management Practices (BMP) research, design and implementation including Low Impact Development, hydromodification management, erosion and sediment control, watershed planning, and TMDL development and implementation. His experience includes developing storm water management plans, water quality management plans, municipal stormwater permit renewal, and stormwater training. Mr. Apt has experience working with numerous regulatory agencies including the State Water Resources Control Board, several Regional Water Quality Control Boards, U.S. Environmental Protection Agency, the California Coastal Commission, and many others.

Selected projects demonstrating his experience include the Orange County Flood Control On-Call Contract, Storm Water Permit Implementation Assistance for the County of Orange, On-Call NPDES Support Services for Riverside County Flood Control Water Conservation, and Watershed Management Assistance for Caltrans.



Years of Experience: 27
Office Location: Irvine
Education: B.S., Civil Engineering
Certificate, Light Construction and
Development Management
Registration/Certification:
Civil Engineer, CA, 1991, #47583
Also in AZ, NV
Certified Floodplain Manager, US,
2005, #05-01596

John McCarthy, PE, CFM | Task Leader, Stormwater and Drainage Facilities

Mr. McCarthy is experienced in the development, final design, and construction of flood control and drainage projects for public works and private sector projects. His experience is concentrated in the field of stormwater management, including hydrology studies, floodplain analysis, drainage studies and runoff management plans, detailed hydraulic analyses, and improvement plan preparation. He has extensive experience in flood control and storm drain facility design, including the design of flood channels, storm drain pipes, debris and detention basins, and ecosystem restoration projects. He is highly experienced at managing "on-call" projects for hydrology, hydraulics, and sedimentation studies and flood engineering.

Over the past 12 years, he has served as the Project Manager for 'on-call' services with the USACE Los Angeles District, Orange County Public Works, Riverside County Flood Control and Water Conservation District, County of Los Angeles County Flood Control District, and Ventura County Watershed Protection District.



Years of Experience: 14
Office Location: Irvine
Education: B.S., Civil Engineering
Registration/Certification:
Civil Engineer, CA, 2007, #71389
Also in AZ, NV
Traffic Engineer, CA, 2013, #TR2673

Ricky Chan, PE, TE, PTOE | Task Leader, Traffic Engineering

Mr. Chan has 14 years of experience in transportation, traffic, and municipal engineering projects. He has worked on a variety of bikeway, roadways, and traffic related projects. His experience includes bridges, retaining walls, hydrology and hydraulic reports and computer simulations, drainage design, intersection widening, traffic signal operations, traffic signal design, and Caltrans PS&E.

Selected projects demonstrating his experience include the Sepulveda Boulevard (SR-1) and Mariposa Avenue Intersection Improvements, Monterey Avenue at I-10 Ramp Modifications, Pacific Coast Highway (SR-1) and 2nd Street Intersection Widening, and the Newport Boulevard at Hospital Road Widening.



Years of Experience: 22
Office Location: Irvine
Education: M.S., Structural
Engineering; B.S., Civil Engineering
Registration/Certification:
Civil Engineer, CA, 1997, #56867
Also in AZ, NV, UT

Randal Ratzlaff, PE | QA/QC, Plan Checking

Mr. Ratzlaff has 22 years of experience in civil engineering and design for public works projects to Caltrans standards. Mr. Ratzlaff specializes in arterial geometric alignments, roadway rehabilitation, utility coordination and project specification writing. He was previously employed by Caltrans as a Transportation Engineer and has extensive knowledge of Caltrans policies and procedures.

Selected projects demonstrating Mr. Ratzlaff's experience include the SR-91 Westbound Widening - Final PS&E, the I-605 Congestion Hot Spots Feasibility Study for Los Angeles County Metropolitan Transportation Authority, and the I-5 / Jamboree Road Interchange Improvement Project.



Team Qualifications

Name / Role	Years Exp.	Education	Registration / Certification
Category: Street Design			
Josue Vaglienty, PE Project Engineer	12	B.S., Civil Engineering	Civil Engineer, CA, #70783
Brendan Dugan, PE Project Engineer	9	B.S., Civil Engineering	Civil Engineer, CA, #79075
Category: Bridges and Structures			
Chad Harden, PE, SE Project Engineer	16	M.S., Structural Engineering B.S., Civil Engineering	Civil Engineer, CA, #67648 Structural Engineer, CA, #5232
Bo Burick, PE Project Engineer	21	M.S., Civil Engineering B.S., Civil Engineering	Civil Engineer CA, #60456
Category: Water Quality and Compliance			
Laura Larsen, PE, QSD/QSP Project Engineer	15	M.S., Environmental Engineering B.S., Civil Engineering	Civil Engineer, CA, #63265 Qualified SWPPP Developer & Practitioner, CA, #23529
Terrence Chen, PE, QSD/QSP Project Engineer	15	M.S., Civil Engineering B.S., Environmental Engineering	Civil Engineer, CA, #72085 Qualified SWPPP Developer & Practitioner, CA, #01000
Category: Stormwater and Drainage Facilities			
Brad Losey, PE Project Engineer	16	B.S., Civil Engineering	Civil Engineer, CA, #65140
Tom Ryan, PE Project Engineer	18	M.S., Environmental Engineering B.S., Civil Engineering	Civil Engineer, CA, #61701
Category: Traffic Engineering			
Mark Violett, PE Project Engineer	10	B.S., Civil Engineering	Civil Engineer, CA, #73486
Josh McNeill, PE Project Engineer	7	M.S., Civil Engineering B.S., Civil Engineering	Civil Engineer, CA, #79151
Support Services			
Bill Cox, PLS Survey/Mapping	36	B.S., Business Administration	Land Surveyor, CA, #6673 Transportation Worker ID Credential, CA
Steve Bein, PE, GISP GIS	29	M.S., Civil Engineering-Water Resources B.S., Civil Engineering	Civil Engineer, CA, #43800 GIS Professional, US & Canada, #00025441
Rhonda Tijerina, PE, LEED AP Electrical	31	B.S., Electrical Engineering	Electrical Engineer, CA, #15473 LEED Accredited Professional
Jeremy Franzini, PLA Landscape Architecture	19	M.L.A., Landscape Architecture B.S., Environmental Studies	Licensed Architect, CA #4514
John Nagle, PE Domestic Water	28	M.S., Civil Engineering B.S., Civil Engineering	Civil Engineer, CA, #46972, Also in AZ, NV Water Rights Surveyor, NV, #1101
Tori Yokoyama, PE Sanitary Sewer	10	B.S., Civil Engineering	Civil Engineer, CA, #71482 Transportation Worker ID Credential, CA
David Brandt Agency Coordination/Permits	31	A.A., Fine Arts	
Jenna Tourje, AICP Public Outreach	8	M.U.R.P., Urban and Regional Planning B.A., International Development	American Institute of Certified Planners FEMA Basic Professional Development Series, CA
Brian Fujimoto Utilities Coordination	16	B.S., Civil Engineering	Engineer-in-Training, CA, #XE104363

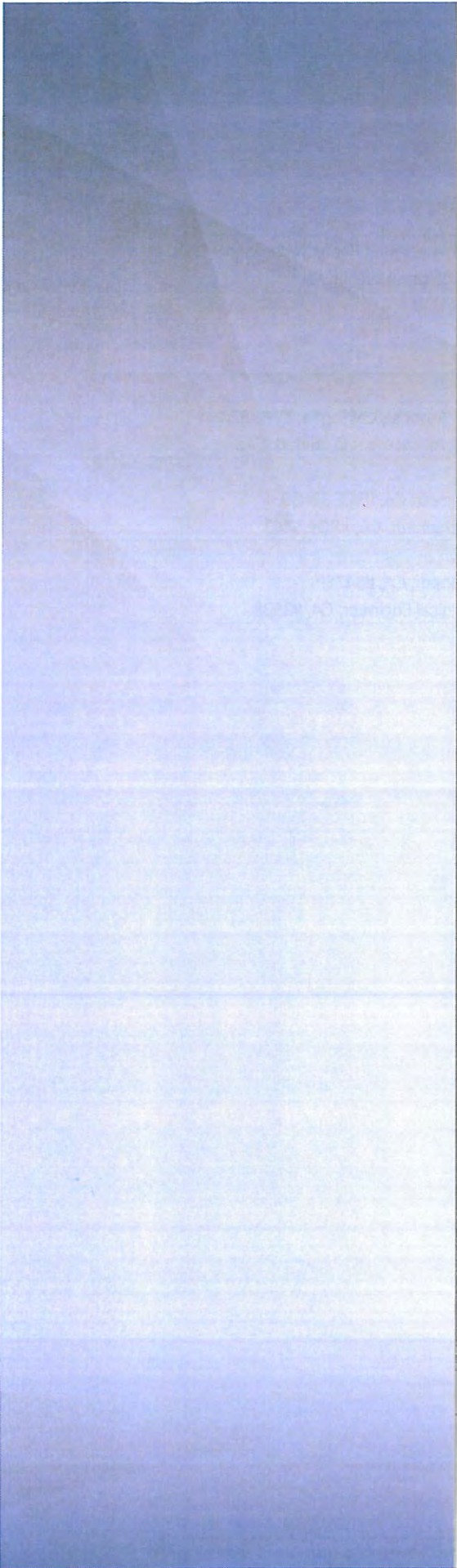


ON-CALL ENGINEERING SERVICES FOR PUBLIC WORKS



Name / Role	Years Exp.	Education	Registration / Certification
Subconsultant Key Personnel			
C Below			
Chris Loera Potholing	15	Construction Inspection	Ground Penetrating Radar Technician – Level III; Utility Locator – Level III
Counts Unlimited			
Kris Campos Traffic Counts	14	B.A., Business Administration and Management	
Dudek			
Christopher Kallstrand, CA Certified Arborist	10	B.S., Forestry – Natural Resource Conservation,	Certified Arborist, California, #WE-8208A Tree Risk Assessment Qualified. CAa
LaBelle Marvin			
Steve Marvin, PE Pavement Testing	35	B.S., Civil Engineering	Civil Engineer, CA, #RCE 30659 Quality Engineer, CA, #RQE 5463
Ninyo & Moore			
Kurt Yoshii, PE, GE Geotechnical	24	B.S., Civil Engineering	Civil Engineer, CA, #54759 Geotechnical Engineer, CA, #2508

4. Technical and Management Approach





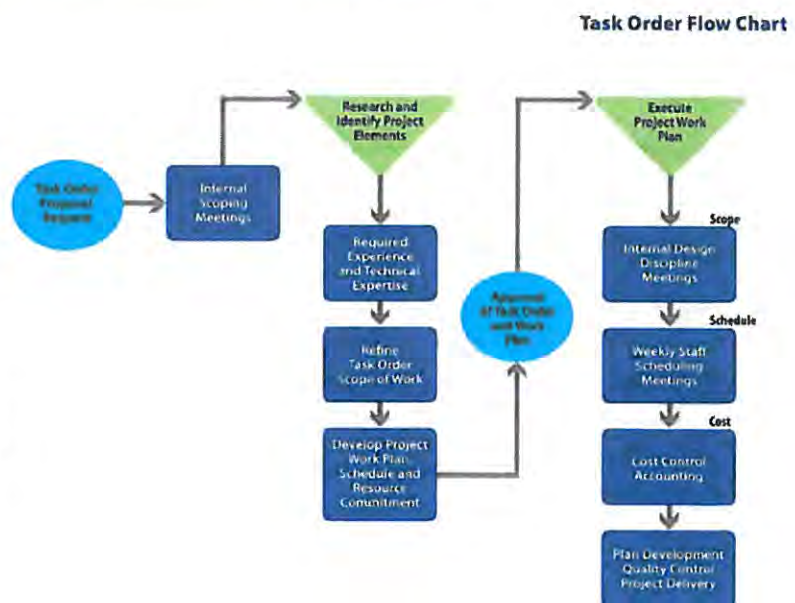
4. Technical and Management Approach

TASK ORDER MANAGEMENT

Leadership is important to the successful management of any contract, even more so on contracts that require potential multiple task orders and services. Successful project delivery starts with assigning a skilled manager who is responsive to the needs of the client and builds an effective team. RBF has selected **Michael Bruz, PE**, to serve as Contract Manager based upon his strong management abilities and comprehensive background with similar contracts. Combining his 35-years of experience with a proactive leadership style and eye for innovation means that this design team will effectively and efficiently deliver high quality products. Michael will be supported by five highly qualified Task Leaders who will lead the technical work performed under their designated service area. Quality Control will be performed throughout all phases of each task order to ensure accuracy of the deliverables, and to ensure budget and schedule goals are being met. RBF's Project Principal, **Steve Huff, PE**, is Senior Vice President of Transportation and brings 32 years of experience to this contract. Steve will ensure all resources are available to the team to successfully complete any task order assignment.

TECHNICAL APPROACH/MANAGEMENT APPROACH/METHODOLOGY

The RBF Team will utilize the same techniques, which have proven to be successful on previous on-call contracts throughout Southern California as that require the resources of an experienced team for On-Call services. RBF will provide on-call engineering and related technical services from our Irvine office as our Contract Manager, Michael Bruz, PE, and key task leaders are located in our Irvine office. Upon notice of a task order, our Contract Manager will meet with the City of Rancho Palos Verdes staff to discuss the task order objectives, schedule and budget. Subsequent to discussing each task order(s) with the City, RBF will provide a written scope of services and budget required to complete the assigned task order.



Management Approach

RBF's management approach has been proven to be effective in meeting or exceeding client goals for specific assigned tasks on or ahead of schedule and within or below budget. With an effective management approach and continuous close coordination with the City of Rancho Palos Verdes staff and our project team, each task order should be straightforward with a logical progression through the various work tasks. Continuous close coordination, communication and a focused project development process are the keys to successful completion of each assignment.

Understanding Agency Objectives | Prior to initiating our efforts, a thorough understanding of the objectives for the various stakeholder agencies is essential in order to obtain the successful design, documentation and timely approval of projects.



Project Scoping | A critical step to ensuring that an effective project schedule can be developed and maintained is preparing a comprehensive scope of work that clearly identifies the various project tasks and deliverables. RBF will also identify assumptions that are critical for understanding the intent of the project delivery process.

Critical Path Method Scheduling | RBF uses Microsoft Project scheduling software to regularly monitor project progress and define critical path tasks. As the task order progresses, if any schedule changes are anticipated, we will promptly notify the City and submit an updated detailed Project Schedule

Project Initiation | Following agreement of the scope of work and schedule, RBF initiates and maintains project momentum by following the established schedule milestones. Project meetings are scheduled and documented on a regular basis. Meeting documentation includes preparation of an agenda to provide structure for the participants. Decisions regarding items of discussion and critical issues requiring resolution are documented in meeting minutes that become part of the project file.

Critical Issues | Every project involves matters that require discussion and agreement between the affected parties. RBF works to foster a partnership between all members of the Project Team to achieve “buy-in” so that the stakeholder expectations are met. Early identification, resolution and documentation of critical issues is imperative to keeping each task order assignment on schedule and within budget.

Preliminary Design | To build a solid foundation of accurate scheduling, budgeting and funding of subsequent phases of project development, a thorough preliminary evaluation and comprehensive engineering analysis is essential. RBF conducts and documents field reviews when we initially scope a project and strongly encourages that at-least one Project Team Meeting is held in the field to provide a better understanding of project issues for all members of the Project Team.

Contract Administration | Control of project costs and unnecessary design changes is an important element of Contract Administration. We are committed to informing the City as soon as possible of any potential or proposed design revisions that will affect the established budget. RBF's adherence to the original scope of work and initial construction cost budget is achieved through timely, open/honest and continuous communications with City Staff.

Budget Control | Frequent monitoring and early identification of any design change affecting project costs will control engineering costs. This monitoring is accomplished through RBF's Work Breakdown Structure and construction costs will be evaluated at each milestone submittal to assure the City that the project can be built within budget.

Project Progress and Design Review Meetings | On a monthly or as-needed basis, RBF will attend and chair Project Team meetings with the City and other involved stakeholders. Project objectives, schedule, and work progress to-date will be discussed to identify and resolve critical issues promptly, address budget issues and other related items. Another effective management tool used by RBF includes conducting Design Workshops and focused Design Review Meetings with appropriate functional or management groups of the Project Team.

Coordination and Communication with Public Agencies | RBF's proactive, spirited approach to building positive team relationships while maintaining the mutual respect of all parties has been paramount to our success. Maintaining open lines of communication and having the entire Project Team develop a commitment to fostering cooperative teamwork will result in the resolution of critical issues in a timely manner.

Community Participation | Community members are the true planning and design experts when it comes to their neighborhoods, villages, and community development. RBF believes in the value of community involvement and the importance of local ownership of planning and design projects. As part of this commitment to community and the City, public participation will continue to be a valued cornerstone of any task order led by our team.

Project Delivery and Coordination | Design of a project may bring forth a variety of issues that could require interface with jurisdictional agencies and other affected entities. RBF is proud of its recent accomplishments in maintaining and accelerating project delivery in partnership with our agency team members. RBF's management approach has been tested by numerous agencies.



TECHNICAL SUPPORT APPROACH / METHODOLOGY

RBF is familiar with the local design policies, standards, and procedures for PS&E to meet schedules and budgets. General civil engineering projects typically include a variety of design tasks related to the alignment, profile, and construction sequence of the project. Work efforts for each Task Order must be performed in a logical sequence in order to be efficient.

As an example, the RBF general work approach for street improvement projects are developed from a full understanding of the coordination and development processes needed to implement the City's goals. The process for implementing the proper design of street improvement projects are divided into two distinct phases: Preliminary Engineering and Final PS&E.

Preliminary Engineering Phase

The Preliminary Engineering phase of work is critical in defining the project work within the anticipated funding parameters. RBF utilizes a proven and successful process of investigation, reporting, and defining appropriate working limits during each project start up. Transportation/Transit Planning & Engineering Improvement Projects typically include a variety of project development tasks that could include all or a portion of the following:

- Meet with City and reviewing agencies to determine design criteria and funding constraints
- Research existing project data (City record drawings, geotechnical reports, property mapping, utility records, field exploration, etc.)
- Obtain supplemental field and aerial topographic survey data as needed
- Coordinate with utility companies and identify potential relocation/ conflicts
- Perform right-of-way and boundary analysis and create property constraint map if needed
- Prepare Project Study Report/Project Report to clarify work process
- Develop environmental clearance documents/ and initiate public outreach
- Prepare traffic studies
- Evaluate transit, bike master plans, requirements (civil engineering, technical studies draft and final report)
- Conduct a geotechnical investigation and develop pavement rehabilitation methods
- Complete hydrologic/ hydraulic analysis
- Prepare preliminary landscape concepts
- Develop Water Quality Management Plan (WQMP) and Best Management Practices (BMPs)
- Prepare Geometric approval drawings or concept plans and verify right-of-way requirements
- Develop preliminary cost estimate(s)

The City may elect to utilize all or portions of the above-mentioned services to best fit the needs of a specific task order. To further clarify some of the critical preliminary task, the following sections provide a brief description of the services anticipated, as identified in the above task description.

Utility Research and Notification

Provide utility research and coordination services by obtaining available existing utility records within the project limits and compile a Utility Notification and Response Log. Notification and Response logs will be formatted within spreadsheet tables and include necessary information such as dates of notification, contact person information, type and size of existing utilities, critical operation/ investigation information, and all utility response correspondence. Copies of this information will be provided to the City. Notification documentation will include:

- Initial Utility Information Request, and a follow-up notification for subsequent plan submittals
- Prepare to Relocate Notice (if applicable)
- Notice to Relocate (if applicable)
- Support plan document (composite utility plan)
- Pot hole investigation information (if applicable)



All utilities identified in our initial search and through our record drawing search will be sent notices. RBF will utilize our underground service alert (USA) – Database information through our existing service account to facilitate discovery of existing utility information. Should no relocation be required, RBF will obtain a written confirmation from each identified utility agency prior to completing design. RBF will coordinate with the City to address all notifications under City letterhead. RBF will coordinate with each utility agency throughout the design phase to obtain utility recognition. If the proposed improvements appear to interfere with existing utilities, RBF will request for potholing to be performed by the utility agencies. Otherwise, RBF will provide utility investigation services utilizing CBelow as our subconsultant under approval and negotiated task order with the City.

Topographic / Design Survey

Perform design topographic land surveys in conformance with the State Land Surveyors Act and performed under the direct supervision of a CA Registered Land Surveyor to include features that influence the project design. If not specified, or directed otherwise, RBF will use California State Plane Coordinate System NAD83, Zone v, and US Survey Feet. Vertical Survey control shall be based on the North American Vertical Datum of 1988 (NAVD88).

Services include:

- Establishing horizontal and vertical survey and construction control for the complete length of the project
- Perform topographic survey to include cross-sections elevations at preferred intervals; locate existing improvements and street features (i.e. manholes, valve covers, curbs, gutters, sidewalks, trees, poles, signal poles and equipment, catch-basins, ADA access ramps, etc.)
- Identify survey monuments – and perform tie-out location survey
- Reduce data to a form showing centerline stationing, offsets from centerline, and elevations
- Right-of-Way Mapping for easement exhibits and legal descriptions

Right-of-way, property lines, and easement of record depicted on topographic mapping exhibits will be based on the Los Angeles County Surveyors GIS data base.

FINAL PLAN, SPECIFICATION AND ESTIMATE

The Final Plan, Specification and Estimate (PS&E) design development phase of work begins with the acceptance from the City of the preliminary concept design, permit approvals, and order of magnitude costs estimates performed. The PS&E work logically follows the completion of final design reporting, plan, specification and final quantity and cost estimating. The following list outlines the necessary steps to facilitate the final engineering phase:

Final Plans Specifications & Estimate Phase

- Incorporate applicable findings usually from preliminary planning and engineering phase of work
- Prepare final roadway, structures, drainage, signals, signing, striping, traffic control, landscaping, and related improvement plans
- Prepare Project Specifications
- Develop final cost estimate
- Prepare final Best Management Practices documents
- Prepare final hydraulic/ hydrology reporting, as necessary
- Prepare legal descriptions and right-of-way maps for required right-of-way or construction easements as required
- Coordinate utility relocation/adjustments
- Submit PS&E for City and agency reviews/ address comments
- Prepare and process applicable encroachment and regulatory permit agency applications
- Prepare construction bid documents
- Provide engineering bid and construction support services

As with the preliminary phase of work, the City may elect to utilize all or portions of the services to best fit the needs of a specific task order. To further clarify some of the critical final PS&E task, the following sections provide a brief description of the anticipated services.



Pavement Rehabilitation. Through the refinement performed in our initial site investigation, and laboratory testing the RBF team will provide detailed recommendations to the City in report format. Recommendations developed within the report shall in part consider such items as pavement life cycle assessment; availability of materials and construction methodologies; and anticipated construction costs. Any restrictions presented from our Public Outreach meetings shall be considered and discussed with the City prior to finalizing the pavement report. A preferred rehabilitation method or series of methods will be developed provided for the City's consideration.

PS&E Plan Development. RBF will prepare final PS&E documents in compliance with the scope of services. It is anticipated that the improvement documents shall consist of final design drawings, specifications, and engineering estimates of construction costs. These documents will be developed following the City of Rancho Palos Verdes Standard Plans; Architectural Guidelines for Building Design Services; Engineering Bureau CADD Standards; Design Quality Assurance/Quality Control (QA/QC) Procedures Manual; Standard Specifications for Public Works Construction (Greenbook); and other materials specifically addressed with this SOQ. It is anticipated that the design documents shall include: typical roadway cross-sections and structural pavement sections (including overlays, and localized reconstruction detailing as appropriate to establish clear direction to the Contractor). Plan and profile sheets, as required will be created. Modified standard details will be incorporated in the design with reference to specific dimensioning as needed. Items such as demolition, protection, adjustment, or reconstruction will be identified on the plan sheets. Utility base file information provided from record drawings shall be plotted on the base files with appropriate modifications from field records or verification by utility pothole investigation. The RBF Team will prepare the final documents and submit to the City for review and approval. Final approved documents will be sealed by a professional engineer and released for bid.

Traffic Signals, Signing and Striping, Traffic Controls. If required, RBF will implement traffic engineering concepts to confirm the adequacy of transportation facilities, to determine the need for traffic control devices, and to ensure the safe and efficient operation of the transportation system in the City of Rancho Palos Verdes. RBF will utilize City of Rancho Palos Verdes, Caltrans and County of Los Angeles Standard Plans and Specifications, California Manual on Uniform Traffic Control Devices (CMUTCD), Institute of Transportation Engineers (ITE), California Vehicle Code and industry policies and standards for the evaluation and analysis of intersection, roadway and bikeway systems and the preparation of the specific traffic engineering design.

Traffic Engineering Plans, Specifications, and Estimates (PS&E). Provide PS&E for traffic control/stage construction, detour, signing and striping, in-pavement flashing systems, street lighting, and traffic signal installation/modification. In addition, RBF will evaluate and/or provide PS&E for traffic signal communication systems (hardwired, fiber optic, microwave, wireless and hybrid), and Intelligent Transportation Systems (ITS), including dynamic message signs (DMS), closed circuit television (CCTV) and control systems.

Traffic Signal Timing and Coordination Plans. Provide traffic signal timing and coordination plans as requested by the City. RBF will evaluate traffic signal parameters and provide recommendations to improve the signal timing at each intersection and/or improvements of coordinated corridors. If required, RBF will also collect traffic volumes.

Construction Staging and Traffic Control and Detours. Provide detailed construction staging and Traffic Control planning specific to the anticipated construction improvements for the street rehabilitation projects. The construction improvements for the City will be staged to minimize impacts to vehicle, truck transit, bicyclist, and pedestrian traffic. Specific construction work areas will be protected from traffic in accordance to each construction stage, type of construction, and construction equipment that will be required within the work area. The construction stage areas will be designed to maximize lane usage for all traffic movements, maintain pedestrian and bicyclist access routes on local streets, and provide a safe workable area.

ADA Compliance. As anticipated under most pavement rehabilitation projects, existing ADA access ramps, sidewalks, and driveway approaches may not be current with ADA compliance standards. RBF routinely reviews current Title 24, Americans with Disabilities Act, regulations to identify updates to standards. In addition, RBF is aware of the current Caltrans changes to their ADA guidelines restricting gradients to less than the maximum ADA compliance standards.



Specifically, the Caltrans standards require flatter cross-fall slopes (from 2% to 1.5%), increased ramp lengths, flatter longitudinal gradients (8.33% to 7.5%), and landing pad dimensioning. The added detailing and clarification of standards is required for all plan design encroachments within State Right of Way. In addition, Caltrans is requiring certification of ADA compliance at acceptance of the final construction, which should be considered in the project bid.

Utility Coordination. The final design coordination required for utility coordination shall be specified in the contract scope of services with the City. Typically this work includes plotting record utilities onto the plan base mapping, and verifying the accuracy by comparing manholes, valve covers, and other above ground appurtenances from field verification with the record information. Second order utility investigation including verification of existing utilities by: ground penetrating radar (GPR) investigation, and pot-hole excavation and verification. The collected information shall be logged into the Utility Notification and Response Log as described above. All impacts requiring relocation of facilities shall be forwarded to the utility agency for coordination. Work windows, service orders, and general coordination and contact information shall be included in the contract documents. The contractor shall be notified of utility schedules and anticipated delays for utility work required within the project schedule.

Final Storm Drain Plans. Provide final storm drain plans, specifications and hydraulic calculations and construction costs estimates incorporating digital topography, and utility information for the task order. Utilities within the proximity of the construction will be located on the plan, and crossings will be shown on the profile. Storm drain alignments will be based on re-establishing the connections for any relocated catch basins or new system extensions, as appropriate. The plans will include storm drain plan and profile and drainage details related to the proposed facilities.

Outreach. As deemed appropriate by the City, RBF will work closely with City staff to provide public outreach and public relations services to maximize community awareness, involvement and understanding. RBF's team members will work collaboratively with the City to develop a variety of materials to aid in outreach efforts to reach out to a broad array of stakeholders through media, online/social media tools, printed notices, event management, signage and face-to-face interaction.

Technical Assistance. RBF can provide technical assistance that may take the form of translating technical information into community friendly graphics and presentation materials, orally presenting technical details in an understandable manner, and/or producing handouts and other educational materials designed to foster greater understanding of technical information.

QUALITY CONTROL AND QUALITY ASSURANCE

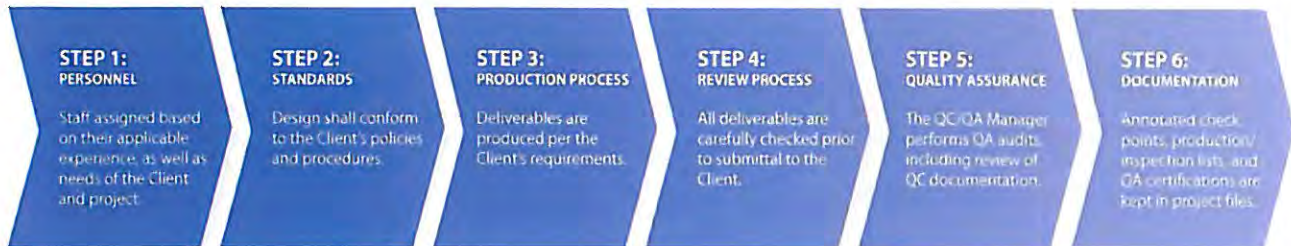
The RBF Team's Quality Control/Quality Assurance Program is a continuous process used not just at project milestones but also on a daily basis, as work flows from desk to desk, discipline to discipline, and consultant to client. RBF utilizes this QC/QA program on each and every project undertaken to ensure that a high quality product is delivered on schedule and within budget. Our approach ensures that deliverables are free of errors in accordance with the standard of care in the industry. RBF's key organizational elements for QC/QA are adaptable to any project. RBF has developed project specific QC/QA plans for other clients such as Caltrans and other state and local agencies. Recognizing the design consultant's responsibility for the accuracy and completeness of the plans and other design documents, RBF is dedicated to its established program of strict quality assurance and control. This program assigns specific individuals to, and defines the requirements for quality control activities. This program consists of the following key elements:



Quality Control Key Elements

- Project Manager Supported by Permanent Design Teams
- Design Discipline Scope of Work and Responsibilities
- Design Criteria Establishment
- "Over the Shoulder" Reviews
- In-House Project Team Meetings/Coordination
- Project Communication/Documentation
- Milestone Submittal Reviews
- Constructability Reviews
- Utility Location Cross Check
- Quality Assurance

RBF's QC/QA Process



RBF's Commitment to Sustainable Practices

The RBF Team understands the importance of environmental stewardship. We are very proactive in incorporating sustainable design in our projects, as well as promoting and implementing sustainable practices within our offices. As such, RBF is equally committed to implementing engineering practices and design solutions that minimize or eliminate environmental impacts. RBF has LEED® Accredited Professionals serving our clients and communities.

5. Hourly Rates



5. Hourly Rates

Michael Baker

INTERNATIONAL

RBF Consulting, A Michael Baker International company

HOURLY RATE SCHEDULE

Effective January 2015 through December 2015

OFFICE PERSONNEL	\$/ Hr.
Senior Principal.....	\$275.00
Principal.....	250.00
Project Director.....	225.00
Program Manager.....	215.00
Senior Project Manager.....	200.00
Project Manager.....	195.00
Structural Engineer.....	195.00
Technical Manager.....	185.00
Senior Engineer.....	168.00
Senior Planner.....	168.00
Electrical Engineer.....	168.00
Landscape Architect.....	154.00
Senior GIS Analyst.....	154.00
Project Engineer.....	152.00
Project Planner.....	152.00
Survey Crew Support Manager.....	149.00
Environmental Specialist.....	142.00
Design Engineer/Senior Designer/Mapper.....	139.00
GIS Analyst.....	126.00
Designer/Planner.....	122.00
Project Coordinator.....	113.00
Graphic Artist.....	100.00
Environmental Analyst/Staff Planner.....	100.00
Design Technician.....	100.00
Assistant Engineer/Planner.....	96.00
Permit Processor.....	85.00
Engineering Aid/Planning Aid.....	77.00
Office Support/ Clerical.....	65.00
SURVEY PERSONNEL	
2-Person Survey Crew.....	\$250.00
1-Person Survey Crew.....	165.00
Licensed Surveyor.....	185.00
Field Supervisor.....	175.00
CONSTRUCTION MANAGEMENT PERSONNEL	
Principal Construction Manager.....	\$220.00
Construction Manager.....	195.00
Contract Manager.....	170.00
Resident Engineer.....	165.00
Construction Inspector (Prevailing Wage).....	140.00
Construction Inspector (Non-Prevailing Wage).....	120.00
Field Office Engineer.....	115.00
Construction Technician.....	97.00

Note:

Blueprinting, reproduction, messenger service and other direct expenses will be charged as an additional cost plus 15%. A Sub-consultant Management Fee of fifteen-percent (15%) will be added to the direct cost of all sub-consultant services to provide for the cost of administration, sub-consultant consultation and insurance. Vehicle mileage will be charged as an additional cost at the IRS approved rate.

6. Samples of Consultant's Work



6. Samples of Consultant's Work for Similar Projects

The following section contains RBF's sample project management tool plans for the City's review.

Included are the following documents:

Sample Project Management Plan

State Route 91 Improvement from SR-57 to SR-55

Sample Quality Management Plan

State Route 91 Improvement Plan from SR-57 to SR-55

Sample of Project Plans

Cow Camp Road (Chiquita Canyon Bridge to 6950' East of Antonio Parkway) Improvements

Sample Special Provisions (including bid item measurement and payment clauses)

Washington Boulevard Reconstruction Project

Sample Quantity and Cost Estimate

Date Palm Drive Bridge over Whitewater River

Sample Project Schedule

Alessandro Boulevard Median Improvements from Indian Street to Perris Boulevard



ON-CALL
ENGINEERING SERVICES
FOR PUBLIC WORKS



Sample Project Management Plan

State Route 91 Improvements from SR-57 to SR-55

FINAL

PROJECT MANAGEMENT PLAN

For the Project Report and Environmental Document for the
State Route 91 (SR-91) Improvements Project From State Route
57 to State Route 55

Prepared for:



May 13, 2015



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1.0 INTRODUCTION

1.1 PURPOSE

The Project Management Plan (PMP) is a collection of documents intended to define how the SR-91 (SR-55 to SR-57) Project Approval / Environmental Document (PA/ED) project is to be executed, monitored and controlled.

1.2 PROJECT DESCRIPTION

The role of RBF Consulting, a Michael Baker International company and its subconsultants (the RBF Team) is to provide professional and technical services to OCTA and Caltrans for developing the Project Report and Environmental Document for proposed improvements to State Route 91 (SR-91), from State Route 55 (SR-55) to State Route 57 (SR-57). This segment of SR-91 is located within the Cities of Anaheim, Orange and Placentia, in the County of Orange. See the attached project vicinity map, Attachment A.

The anticipated environmental documentation for the Project will be an Initial Study/Environmental Assessment (IS/EA) with an anticipated Mitigated Negative Declaration (MND) and Finding of No Significant Impact (FONSI).

Based on prior studies and analyses accomplished in the Project Study Report/Project Development Support (PSR-PDS) phase of project development, three alternatives have been identified for further, more detailed analysis in the PA/ED. In addition to a No Build Alternative (Alternative 1), two build alternatives (Alternative 2A and Alternative 2B) will be analyzed.

Alternative 2A consists of the following:

- Add one General Purpose Lane in each direction, generally maintaining full standard lane and shoulder widths except at joins to existing nonstandard lanes and at isolated bridge column constraints;
- Re-establish all existing auxiliary lanes;
- Add auxiliary lanes;
- Add ramp lanes and modified ramps at selected locations; and
- HOV continuous access will be considered.

Alternative 2B is the same as Alternative 2A except it includes reduced lane and shoulder widths in specific areas.

1.3 CLIENT

The RBF Team has been contracted by the Orange County Transportation Authority (OCTA) to prepare both the Project Report and Environmental Document for the proposed improvements to SR-91 in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) procedures per the Caltrans Project Development Procedures Manual (PDPM), Caltrans Standard Environmental Reference (SER), along with the guidelines of the Federal Highway Administration (FHWA) and Caltrans District 12 (Orange County).

1.4 CONTACT INFORMATION

The client main point of contact is:

Doug Pekrul – Project Manager
Orange County Transportation Authority
550 S Main Street, Orange CA
Telephone: (714) 560-5822
Email: dpekrul@octa.net

See Attachment B for the project contact list and organization chart.

1.5 CONTRACT

Contract Type: Lump sum (firm fixed price)

The executed contract between OCTA and RBF Consulting, a Michael Baker International company can be found in Attachment C.

2.0 PROJECT SCOPE & PROGRAM

2.1 SCOPE OF WORK

See Attachment D for the project scope of work. The execution of the scope of work is shared among RBF and its subconsultants. The following table provides a summary of which tasks are assigned to each firm that is part of the RBF Team. In some tasks, two or more firms share responsibility for the task.

TASK 3.1 - PROJECT MANAGEMENT / COORDINATION / ADMINISTRATION	RESPONSIBLE STAFF
3.1-1 Coordination/Administration	Mike Chesney (RBF)
3.1-2 Schedules/Project Controls	Alan Su (RBF)
3.1-3 Progress Report	Alan Su (RBF)
3.1-4 Quality Management Plan	Alan Su (RBF)
TASK 3.2 - ENGINEERING DEVELOPMENT	
3.2-0 Feasibility Assessment	Mike Chesney (RBF), Tom Choe (SMG), Joe Sawtelle (TranSystems), Lianyu Chu (CLR)
3.2-1 Data Collection	Brendan Dugan (RBF), Wayne Richardson (MARRS)
3.2-2 Aerial Topographic Mapping	Bill Cox (RBF), Paul Rivers (GPSi)
3.2-3 Geometric Development	Alan Su (RBF), Joe Sawtelle (TranSystems)
3.2-4 Modified Access Report - (This task is not required.)	
3.2-5 Fact Sheets (Mandatory and Advisory)	Randy Ratzlaff (RBF), Joe Sawtelle (TranSystems)
3.2-6 Construction Staging/Traffic Handling	Michael Han (TranSystems)
3.2-7 Transportation Management Plan	Michael Han (TranSystems)
3.2-8 Structures Advanced Planning Studies	Bo Burick (RBF)
3.2-9 Structure Preliminary Geotechnical Report	Lino Cheang (EMI)
3.2-10 RW and Utility Identification	Brendan Dugan (RBF), Wayne Richardson (MARRS)
3.2-11 Conceptual Drainage Study	Brad Losey (RBF)
3.2-12 Storm Water Data Report	Terrence Chen (RBF)
3.2-13 Preliminary Geotechnical Design Report	Lino Cheang (EMI)
3.2-14 Life Cycle Cost Analysis	Brendan Dugan (RBF)
3.2-15 Preliminary Materials Report	Lino Cheang (EMI)
3.2-16 Noise Abatement Decision Report	Peter Hardie (ICF)
3.2-17 Cost Estimates	Alan Su (RBF)
3.2-18 Railroad Coordination	Joe Sawtelle (TranSystems)
3.2-19 Value Analysis	George Hunter (VMS)
3.2-20 Aerially Deposited Lead Report - (This task is not required.)	

3.2-21 Asbestos Survey Report - (This task is not required.)	
TASK 3.3 - PROJECT REPORT PREPARATION	
3.3-1 Administration Draft Project Report	Alan Su (RBF)
3.3-2 Draft Project Report	Alan Su (RBF)
3.3-3 Administrative Final Project Report	Alan Su (RBF)
3.3-4 Final Project Report	Alan Su (RBF)
TASK 3.4 - ENVIRONMENTAL DOCUMENT	
3.4-1 Base Maps for Environmental Studies	Namrata Cariapa (ICF)
3.4-2 Issuance of Environmental Notices and Scoping Meeting Notice	Mike Amling (ICF)
3.4-3 Conduct Environmental Evaluation	Namrata Cariapa (ICF)
3.4-3a Preliminary Baseline Traffic Analysis	Tom Choe (SMG)
3.4-3b Traffic Impact/Circulation Study	Tom Choe (SMG)
3.4-3c Water Quality Assessment Report	Nora Jans (RBF)
3.4-3d Floodplain Evaluation Report	Brad Losey (RBF)
3.4-3e Location Hydraulics Study	Brad Losey (RBF)
3.4-3f Noise Study Report	Peter Hardie (ICF)
3.4-3g Visual Impact Assessment	Kristen Bogue (RBF)
3.4-3h Air Quality Report	Eddie Torres (RBF)
3.4-3i Air Quality Conformity Report	Eddie Torres (RBF)
3.4-3j Paleontological Identification Report/Paleontological Evaluation Report	Mark Robinson (ICF)
3.4-3k Area of Potential Effects Map/Records Search	Namrata Cariapa (ICF)
3.4-3l Historic Property Survey Report	Namrata Cariapa (ICF)
3.4-3m Initial Site Assessment	Mark Peabody (Kleinfelder)
3.4-3n Jurisdictional Delineation Report	Tricia Campbell (ICF)
3.4-3o Natural Environment Study	Tricia Campbell (ICF)
3.4-3p Relocation Impact Statement	Shilpa Trisal (ICF)
3.4-3q Community Impact Assessment	Peter Feldman (ICF)
3.4-3r Section 4(f) Resources Identification	Tricia Campbell (ICF)
3.4-4 Screen Check Draft Environmental Document with Checklist	Mike Amling (ICF)
3.4-5 Draft Environmental Document with Checklist	Namrata Cariapa (ICF)
3.4-6 Public Hearing and Public Outreach Support	Karen Cohoe (ACT)
3.4-7 Prepare Response to Comments Matrix	Namrata Cariapa (ICF)
3.4-8 Screencheck Final Environmental Document	Namrata Cariapa (ICF)
3.4-9 Final Environmental Document	Namrata Cariapa (ICF)
3.4-10 Mitigation, Monitoring and Reporting Record/Environmental Commitment Record	Namrata Cariapa (ICF)

The organization chart (Attachment B) illustrates the management structure and lines of authority within the RBF Team. Each of the three major technical disciplines required to accomplish the scope of work (engineering, environmental and traffic analysis) have a discipline manager reporting to the RBF Project Manager. The RBF Project Manager in turn reports to the OCTA Project Manager. Each technical discipline manager is responsible for the management and direction of the technical staff from RBF and its subconsultants assigned to perform the scope of work within each discipline. The RBF Project Manager is responsible for the management and direction of the discipline managers to perform the overall scope of work.

2.2 PROJECT SCHEDULE

The Project Master Schedule (PMS) is developed using the critical path method (CPM), which identifies the interrelationships of the technical activities included in the scope of work, including activities outside of the control of the consultant team. These interrelationships will then allow the identification of the critical path activities for the project.

Each month, as a part of reporting project progress, all tasks in the PMS will be updated to reflect their current percent complete. If the resulting updated schedule does not forecast project completion by the date agreed upon in the baseline PMS, the sequencing and/or duration of current and future tasks and activities will be revised to the extent feasible to bring the forecast project completion date back to the agreed upon date.

The project master schedule can be found in Attachment E.

Start Date: January 26, 2015
Completion Date: May 30, 2018
Anticipated Duration: 40 months

3.0 COMMUNICATIONS PLAN

3.1 METHODS OF COMMUNICATION

Emails are the preferred method of communication for the project as they maintain a written record for future reference and are convenient for all project participants.

Proactive communications will be a key to the successful execution of this project, therefore timely written and oral communications among all project participants is essential. By consistently applying a few simple and consistent procedures, discussed here, communications will be more effective, given the size and complexity of the project and the various technical disciplines required.

The RBF Team Project Manager (Mike Chesney) will be the primary point of contact for the RBF Team with OCTA, Caltrans, the cities and other agencies and affected parties outside of the RBF Team. All project relevant communications between RBF Team members and OCTA, Caltrans and other affected parties will either be through the Project Manager or with the knowledge of the Project Manager.

The RBF Project Administrator (Alan Su) will be a secondary point of contact and is a project resource to answer questions, and email reminders. All correspondence to OCTA, the OCTA Project Manager, or other groups shall be directed through the PM, or as approved by the PM. Correspondence with OCTA (hard copy or electronic) should be directed to the OCTA Project Manager or should be copied to the OCTA Project Manager if directed to do so by the OCTA Project Manager.

Consistent contact will be maintained with clients, members of the PDT, City representatives, subconsultants and partners throughout the lifecycle of the project in order to maintain communication with all key parties. A project contact list containing both the primary and secondary points of contact for agencies and partners will be created and updated throughout the project lifecycle.

3.2 ELECTRONIC COMMUNICATION

Email has become an integral part of business communications and the principal medium for communication on this project will be email. Including attachments of other documents with emails will be acceptable for certain document distribution.

For formal submittals, in addition to PDF files, hard copies will also be provided to OCTA / Caltrans per the Project Scope of Work.

3.3 MEETINGS

Monthly Project Development Team (PDT) meetings are scheduled to take place the 3rd Wednesday of the month from 2:00 pm until 4:00 pm at OCTA office located in Santa Ana, California. The purpose of the PDT meetings will be to discuss policy, procedures and make decisions affecting the direction of the Project Report and Environmental Document. The PDT meetings will be attended by project staff from OCTA, Caltrans Dist. 12, Anaheim, Orange, Placentia and Fullerton, along with The RBF Team PM and discipline managers, as well as

other staff depending upon agenda items. The meeting agendas will be distributed at least 2 days in advance of each meeting. Meeting minutes will be sent to OCTA for review within a week and distributed to the PDT within two weeks after each meeting.

The RBF project management team will have regularly scheduled bi-weekly meetings to discuss the status and any issues with the RBF Team's scope, schedule and budget. As needed, the Technical Team may also hold special topic workshops or meetings in addition to regularly scheduled meetings to address additional issues. Meetings will be documented with summary minutes copied to attendees, project files and the PM.

3.4 OTHER AGENCIES

Only with prior approval from Caltrans and OCTA, may RBF Team members establish direct contact with governmental regulatory agencies and other agencies. Only with prior approval from Caltrans, may RBF Team members establish contact with governmental resource agencies. When contacts have been approved, the RBF Team will maintain a record of each communication and provide copies of those records to both OCTA and Caltrans.

3.5 PUBLIC & PRESS

Communication with the public or press will be through OCTA, unless the RBF Team PM has been specifically directed otherwise by OCTA in advance of any such communication. If RBF Team staff members are contacted directly by the press or members of the public, they should be referred to the OCTA for a response to their inquiries. OCTA Community Relations is leading the public involvement aspects of the project through a Community Relations Project Manager with support from a community involvement consultant team led by Arellano Associates. RBF Team staff will attend speaking engagements and public meetings at the request of the OCTA PM, in coordination with OCTA's Community Relations team.



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Sample Quality Management Plan

State Route 91 Improvements from SR-57 to SR-55

Final

QUALITY MANAGEMENT PLAN

For the Project Report and Environmental Document for the State Route 91 (SR-91) Improvements Project From State Route 57 to State Route 55

Prepared for:



May 13, 2015

Michael Baker
INTERNATIONAL

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A. INTRODUCTION

SECTION 1 GENERAL

This plan establishes the Quality Management Plan (QMP) procedures that will be followed by RBF Consulting and its subconsultant (the RBF Team). All RBF Team members are required to become familiar with and follow these procedures.

1.1 Project Description

The Orange County Transportation Authority (OCTA), in cooperation with the California Department of Transportation (Caltrans) District 12, is evaluating alternatives to increase freeway capacity and improve traffic operations on State Route 91 (SR-91) from Post Mile (PM) 5.3 to PM R10.4, on SR-57 from PM 15.0 (North of Lincoln Avenue) to PM 16.3 (Orangethorpe Avenue), and on SR-55 from PM 16.6 to PM R17.9 in the Cities of Anaheim and Orange in the County of Orange.

The proposed project would provide improvements to the SR-91 between SR-57 and SR-55 to increase freeway capacity and improve traffic operations on State Route 91 (SR-91) from Post Mile (PM) 5.3 to PM R10.4, on SR-57 from PM 15.0 (North of Lincoln Avenue) to PM 16.3 (Orangethorpe Avenue), and on SR-55 from PM 16.6 to PM R17.9 in the Cities of Anaheim and Orange in the County of Orange. Proposed improvements include freeway mainline widening and modifications to various interchanges, ramps, and intersections. The project will improve both traffic circulation of the mainline and access to the freeway from surrounding cities. Construction is estimated to begin in 2025 and completed in 2027. The project is classified as Category 4A as described in Chapter 8 of the Project Development Procedures Manual.

There are three proposed alternatives, including the "Baseline" or No-Build Alternative 1, Alternative 2A and 2B. Alternative 2A provides one general purpose (GP) lane in each direction while maintaining the existing left shoulder width. Alternative 2B provides one general purpose lane in each direction with a standard left shoulder width (10').

The capital outlay construction estimate for Alternative 2A ranges from \$221.3 million to \$339.8 million and Alternative 2B ranges from \$369.6 million to \$568.3 million.

1.2 Quality Management Plan (QMP)

The QMP is implemented throughout the performance of the project and is intended to ensure that the reports, plans, studies, estimates, and other documents submitted are complete, accurate, checked, and proofread to meet standard of care professional practices.

The following quality control elements are required throughout the Project Approval and Environmental Document (PA/ED) phase for the project:

- Plans and Reports shall be marked clearly as being checked, signifying that the preparation of the material followed the QMP established for the project;
- Route pertinent project related correspondence and memoranda to affected personnel and bind in appropriate project files;
- Establish appropriate means to avoid conflicts and misalignments between both new and existing improvements, particularly where several drawings show different elements of work in the same area;
- Include critical quality control activities within the project schedule;

- The QMP shall include a procedure where each deliverable is certified by the Quality Control Manager (QCM) and Project Manager (PM) as being prepared and checked in accordance with the approved QMP;
- Each deliverable shall be certified by the QCM and PM as being prepared and checked in accordance with the approved QMP.
- Ensure compliance with the Environmental quality control process as outlined in the Caltrans Standard Environmental Reference (SER) for both CEQA and NEPA and completion of the Caltrans checklist for External Certifications – Environmental Document Quality Control Review (Appendix E)

Prior to the submittal of milestone submittal documents to OCTA and Caltrans, the RBF Team professionals experienced in the appropriate disciplines shall complete a quality control review. The RBF QC reviewers shall verify that the milestone submittal documents were prepared in such a manner to verify that they are in conformance with the Contract Documents. The reviews shall verify the following:

- Documents are neat, organized, clear and concise, and technically/grammatically correct;
- Documents have been checked in accordance with the QMP;
- Documents comply with generally accepted professional standards of engineering and/or architectural practices;
- Final submittal documents have been stamped, signed and dated by a responsible California registered engineer or architect where required under the Contract Documents;
- Every milestone submittal package includes QMP compliance documentation.

Caltrans Staff will provide Independent Quality Assurance (IQA) for this project.

OCTA staff will provide independent quality surveillance, monitoring and audits. OCTA Quality Manager will perform this task.

1.3 Definitions

Quality Assurance and Quality Control are not synonymous. Quality Assurance is an auditing function whereas Quality Control is a checking function. As a matter of definition:

Quality Assurance (QA) – is a program-wide approach that establishes and oversees project-related policies, procedures, standards, guidelines, and training aimed at producing an acceptable level of quality. Quality assurance includes all actions (including general oversight) to ensure that the Quality Control procedures are working.

Quality Control (QC) – is the project specific activities that apply the QMP procedures, standards, guidelines, and training to maintain an acceptable level of quality to assure conformity to the requirements of the Contract Documents through the application of sound project management, guidance, and review. The Quality Control procedures include independent reviews, calculation checking, constructability review, plan reviews, documentation, and reporting of all design work.



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Sample of Project Plans

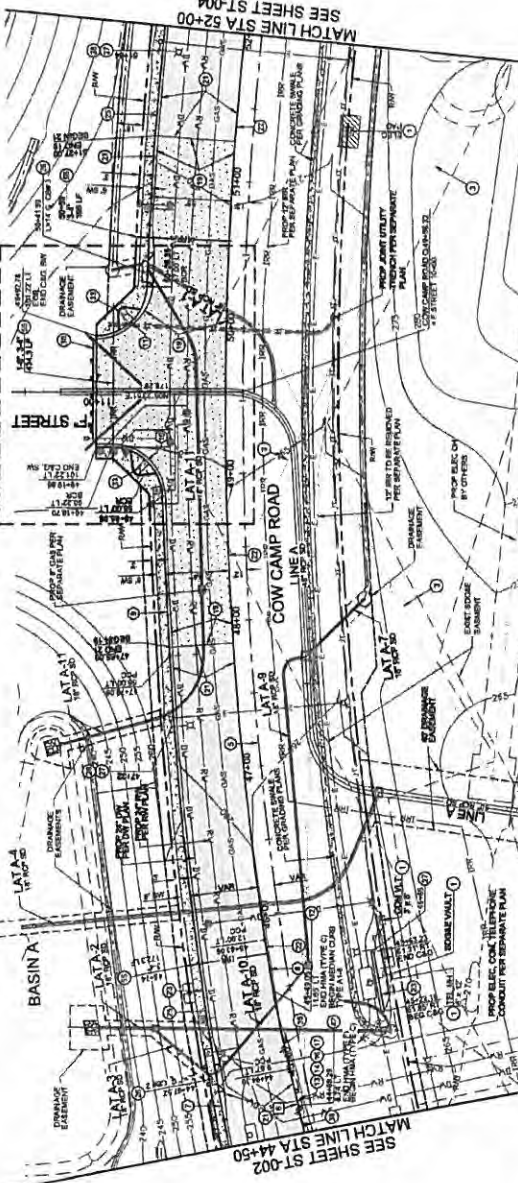
Cow Camp Road Improvements



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Sample Special Provisions

Washington Boulevard Reconstruction Project

**SECTION E
SPECIAL PROVISIONS**

**STANDARD SPECIFICATIONS FOR PUBLIC WORKS
CONSTRUCTION "GREEN BOOK"**

**PART 1
GENERAL PROVISIONS
(Sections 1-9)**

This Section of the Technical Specifications is in accordance with the Standard Specifications for Public Works (Green Book Standard Specifications), 2012 Edition with modifications herein.

This Section E applies to all project work.

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Add the following section:

9-4 PROJECT ITEMS MEASUREMENT & PAYMENT

9-4.1 Mobilization. Payment for MOBILIZATION shall be at the contract unit price per LUMP SUM and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in mobilization as specified in these Special Provisions, and as directed by the Engineer.

9-4.2 Construction Schedule. Payment for CONSTRUCTION SCHEDULE shall be at the contract unit price per LUMP SUM and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, including determining the baseline schedule and all future updates/revisions, and for doing all the work involved in CONSTRUCTION SCHEDULE as specified in these Special Provisions, and as directed by the Engineer.

9-4.3 Field Office, Class A. Payment for FIELD OFFICE, CLASS A shall be at the contract unit price per MONTH and shall include all labor, tools, equipment, materials, and incidentals necessary to furnish facility complete and in place, rent (if applicable), applying and paying applicable utility fees and charges, and shall be considered as included in the Contract MONTH price paid for FIELD OFFICE, CLASS A and no additional compensation will be allowed therefor.

9-4.4 Water Pollution Control. Payment for WATER POLLUTION CONTROL shall be at the contract unit price per LUMP SUM and shall include full compensation for preparation of the SWPPP, revisions to the SWPPP, testing, implementation, and SWPPP maintenance, which may include hydroseeding, straw mulch, sediment traps, check dams, fiber rolls, silt fences, storm drain inlet protections, and all appurtenances, as indicated on the AGENCY approved CONTRACTOR prepared Storm Water Pollution Prevention Plans, and all other related costs for labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, necessary to perform all the work involved in WATER POLLUTION CONTROL, Best Management Practices (BMPs), and Storm Water Pollution Prevention Plan (SWPPP), and as directed by the City, complete in place, conforming to the requirements herein, and as directed by the Engineer.

The WATER POLLUTION CONTROL LUMP SUM amount shall also include, but not be limited to, full compensation for the following:

1. Submit Permit Registration Documents (PRDs) per Attachment B of the CGP to the ENGINEER.

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2. Develop a SWPPP to conform to Risk Levels identified in the Agency's Notice of Intent and the NPDES and the CONTRACTOR's actual construction practices;
3. Administer, implement, maintain, and ensure adequate functioning of the various water quality control measures identified within the SWPPP during construction including all Numeric Action Level (NAL) and Numeric Effluent Limitation (NEL) sampling, monitoring and reporting requirements statutorily required for the determined Risk Level of the project site. These tasks must be performed by a Qualified SWPPP Practitioner (QSP).
4. Pay all annual permit fees;
5. Provide and maintain all documentation (at the jobsite) and administration for the entire Contract period;
6. Perform all work required for compliance with the requirements of the CGP including preparation of all Rain Event Action Plans (REAPs), construction of effective treatment control BMPs, i.e: contingency basins, chemical treatments, etc.;
7. Provide all labor, tools, equipment, and materials for any additional BMPs which may be required to comply with the requirements of the CGP.

9-4.5 Stage Construction/Traffic Control. Payment for STAGE CONSTRUCTION/TRAFFIC CONTROL shall be at the contract unit price per LUMP SUM and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, placing, maintaining, repairing, replacing and removing barricades, flashing arrow signs, portable delineators, portable flashing beacons, construction areas signs, channelizers, telescoping flag trees, traffic cones, portable changeable message signs; temporary traffic stripes and pavement markings, and temporary pavement markers; temporary pavement; temporary safety fence, chain link fence and gates with privacy fence screen; temporary lighting; temporary shoring, bracing, and sheeting; utility adjustments; and for doing all the work involved in Traffic Control as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

The cost of furnishing all flaggers, including transporting flaggers, to provide for passage of public traffic through the work area will be borne by the CONTRACTOR and included in the prices paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and no additional compensation will be allowed therefor.

Construction area signs, shown on the plans, and those signs required for traffic control system for lane closures, unless otherwise specified, will be included in the prices paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing construction area signs required for the direction of public traffic through or around the work and for erecting or placing, maintaining (including covering

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and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans.

Removing, salvaging, reconstructing, relocating or resetting of roadside signs will be considered as included in the prices paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and no additional compensation will be allowed therefor.

The cost for the Construction Project Information and Funding Identification signs shall be included in the price paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and no additional compensation will be allowed therefor.

No separate payment will be made for removing temporary traffic stripes and pavement markings and full compensation therefor will be considered as included in the prices paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and no additional compensation will be allowed therefor.

No separate payment will be made for removing, salvaging, reconstructing, relocating or resetting the various types of fence and full compensation therefor will be considered as included in the prices paid for STAGE CONSTRUCTION/TRAFFIC CONTROL and no additional compensation will be allowed therefor.

STAGE CONSTRUCTION/TRAFFIC CONTROL shall be considered complete and eligible for payment when all improvements affecting public traffic are complete and accepted.

STAGE CONSTRUCTION/TRAFFIC CONTROL shall not include TEMPORARY RAILING (K-RAIL), but TEMPORARY RAILING (K-RAIL) will be paid for separately.

- 9-4.6 Temporary Railing (K-Rail).** Payment for TEMPORARY RAILING (K-RAIL) shall be at the contract unit price per LINEAR FOOT and shall include full compensation for furnishing all labor, materials (including reinforcement, Type P marker panels and reflectors), tools, equipment and incidentals, and for doing all the work involved in furnishing, placing, maintaining, repairing, replacing, repositioning and removing the temporary railing, including excavation and backfill, drilling holes and bonding threaded rods or dowels when required, removing threaded rods or dowels and filling the drilled holes with mortar and moving and replacing removable panels as required, complete in place, as shown on the plans, specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer. Payment for TEMPORARY RAILING (K-RAIL) shall include all overhead and profit specific to this item of work. Basis of payment will be limited to actual TEMPORARY RAILING (K-RAIL) placed and shall be considered complete compensation for this item of work.

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TEMPORARY RAILING (K-RAIL) shall be paid for the initial placement, for a given length of Temporary Railing, and no additional compensation shall be allowed for moving, or relocating for the particular stage of traffic control. Measurement for TEMPORARY RAILING (K-RAIL) payment shall only apply to the number of Temporary Railing, on-site and in-use, for protection within the work zone.

TEMPORARY RAILING (K-RAIL) shall be considered complete and eligible for payment when all improvements affecting public traffic are complete and accepted.

9-4.7 Lead Compliance Plan. Payment for LEAD COMPLIANCE PLAN shall be at the contract unit price per LUMP SUM including furnishing all the labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Lead Compliance Plan, including paying a Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in these Special Provisions, and as directed by the Engineer.

9-4.8 Unclassified Excavation. Payment for UNCLASSIFIED EXCAVATION shall be at the contract unit price per CUBIC YARD and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, for all roadway excavation, hauling, placing, compaction, export, stockpiling, disposal fees, removing the existing pavement section for the construction of the proposed pavement, saw cutting, existing AC and PCC pavement section removal, including base materials, disposal of material, as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.

Measurement of Unclassified Excavation shall be based on the theoretical volume it occupied prior to being excavated (i.e. volume based on measurement between existing/original topographic ground elevations and finished grade elevations as shown on the approved plans). The Agency may employ any approximate measurement methods it deems appropriate to determine the amount of progress payments. Placement and compaction of excavated materials as unclassified fill shall be considered incidental to Unclassified Excavation, and no additional compensation shall be allowed therefore.

Unclassified Excavation shall only be paid for once for a given volume of material and no additional compensation shall be allowed for additional moving or stockpiling.

9-4.9 Roadway Excavation (Type Z-2) (Aerially Deposited Lead). Payment for ROADWAY EXCAVATION (TYPE Z-2) (AERIALY DEPOSITED LEAD) shall be at the contract unit price per CUBIC YARD and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, including

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hazardous waste management while excavating, stockpiling, transporting, placing, and disposing of material containing hazardous waste concentrations of Type Z-2 aerially deposited lead (ADL), excavation of the contaminated soils, disposal of material per an Agency accepted Lead Compliance Plan, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.

9-4.10 Demolition. Payment for DEMOLITION shall be at the contract unit price per LUMP SUM and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, including: items of work identified as Clearing and Grubbing; saw cutting; removal and disposal of concrete curb (with possible gutter), concrete curb and gutter, AC and PCC sidewalk, AC and PCC driveways, ramps, detectable warning surfaces, AC dikes, and underlying subgrade or base, fences, gates, bollards, benches, removing and salvaging banner poles to Agency, and removal and disposal of all other objectionable material, as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.

Payment will be on a percentage of completion basis, and shall include full compensation for complete removal and disposal of materials regardless of size or depth; removal, disposal, and backfill of trees and shrubs regardless of height; and removal and disposal of unsuitable and excess material not specifically mentioned herein, or included in a specific bid item, found within the work limits or as noted on the Plans or as directed by the Engineer.

Payment for DEMOLITION of a particular area will be made once. If vegetation later appears at previously-cleared areas, the CONTRACTOR shall clear and grub the areas again to the satisfaction of the Engineer and no additional payment.

All stockpiling of cleared and grubbed material designated by the CONTRACTOR for final removal shall be considered incidental to this bid item and no additional compensation will be allowed.

Sawcutting of existing improvements to be removed as specified shall be considered incidental to the removal of the various improvements.

Reinforcing or other steel may be encountered in portions of existing concrete items to be removed. No additional compensation will be allowed for the removal of concrete containing reinforcing or other steel.

Payment for miscellaneous removals and relocations shall be considered as included in the Contract Unit Price for DEMOLITION.

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- 9-4.11 Cold Mill Existing Asphalt Pavement.** Payment for COLD MILL EXISTING ASPHALT PAVEMENT shall be at the contract unit price per SQUARE YARD and shall be considered full compensation for furnishing all labor, tools, equipment, and shall include utility protection, sweeping, hauling, disposal costs, and incidentals to accomplish cold milling as specified herein and as indicated on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.
- 9-4.12 Remove Tree.** REMOVE TREE shall be limited to trees larger than 6" diameter. Trees equal or less than 6" diameter shall be included in the price of DEMOLITION. Payment for REMOVE TREE shall be at the contract unit price per EACH and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved, complete in place, including, but not limited to, tagging, cutting and complete removal of trunks, branches, stumps and roots, hauling, disposal, and incidentals, as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.
- 9-4.13 Remove Storm Drain Pipe.** Payment for REMOVE STORM DRAIN PIPE, regardless of size, shall be at the contract unit price per LINEAR FOOT and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved removing existing storm drain pipe and associated bedding material, including the construction of brick and mortar plugs and abandonment seals, and also including disposal of materials, trenching, excavation, backfill, and protection of adjacent utilities as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.
- 9-4.14 Remove Catch Basin.** Payment for REMOVE CATCH BASIN shall be at the contract unit price per EACH and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved removing existing catch basins, including the construction of brick and mortar plugs and abandonment seals, and also including disposal of materials, trenching, excavation, backfill, and protection of adjacent utilities as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.
- 9-4.15 Remove and Reinstall Concrete Barrier.** Payment for REMOVE AND REINSTALL CONCRETE BARRIER shall be at the contract unit price per EACH and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved removing existing, storing, and reinstalling decorative concrete barriers, including the notification and protection of concrete barriers when being moved and stored, as shown on the Plans, as specified in the Standard Specifications, these Technical Specifications, and as directed by the Engineer.

**SECTION F
SPECIAL PROVISIONS**

**STANDARD SPECIFICATIONS FOR PUBLIC WORKS
CONSTRUCTION “GREEN BOOK”**

**PART 2 - CONSTRUCTION MATERIALS
(Section 200s)**

and

**PART 3 – CONSTRUCTION METHODS
(Section 300s)**

This Section of the Technical Specifications is in accordance with the Standard Specifications for Public Works (Green Book Standard Specifications), 2012 Edition with modifications herein.

This Section F applies to all work items within the City of Commerce right of way and all other areas not specifically addressed within other sections of these technical specifications.

PART 2 CONSTRUCTION MATERIALS

SECTION 200 – ROCK MATERIALS

200-2 UNTREATED BASE MATERIALS.

200-2.1 General. *Replace this section with the following:*

Subbase (AS) shall conform to Caltrans Standard Specification Section 25, "AGGREGATE SUBBASES" Class 2. Refer to Caltrans Specifications in Section G of these Special Provisions.

Aggregate Base (AB) shall conform to Caltrans Standard Specification Section 26, "AGGREGATE BASES" per class specified on the plans. Refer to Caltrans Specifications in Section G of these Special Provisions.

Crushed Miscellaneous Base (CMB) shall conform to Caltrans Class 2 Aggregate Base.

For work within the City Right-of-Way, submittals to Caltrans and their labs are not required. The Contractor shall still submit materials for Agency approval.

200-4 LEAN CONCRETE BASE (LCB).

200-4.1 General. *Replace this section with the following:*

Lean concrete base shall conform to Caltrans Standard Specification Section 28-2, "LEAN CONCRETE BASE". Refer to Caltrans Specifications in Section G of these Special Provisions.

Bond Breaker shall be accordance with Section 41-9.02C "Bond Breaker," of the Caltrans Standard Specification and Section 36-2 of the Caltrans SSPs in Section G of these Special Provisions

For work within the City Right-of-Way, submittals to Caltrans and their labs are not required. The Contractor shall still submit materials for Agency approval.

Cement for non-Rapid Strength (non-RSC) Lean Concrete Base (LCB) Pavement shall conform to the Standard Specifications Section 200-4.2.1, "Portland Cement."

SECTION 201 – CONCRETE, MORTAR, AND RELATED MATERIALS

201-1 PORTLAND CEMENT CONCRETE.

201-1.1 General. *Replace this section with the following:*

Jointed Plan Concrete Pavement (JPCP), including bus pads, shall conform to Caltrans Standard Specification Section 40-2, "JOINTED PLAIN CONCRETE PAVEMENT". Refer to Caltrans Specifications in Section G of these Special Provisions. For work within the City Right-of-Way, submittals to Caltrans and their labs are not required. The Contractor shall still submit materials for Agency approval.

**Washington Boulevard Reconstruction Project
City Project No. 1401; Federal Project No. HPLUL-5362(019)**

Cement for non-Rapid Strength Concrete (non-RSC) Pavement shall conform to the requirements of ASTM C 150 Type II, unless otherwise shown on the plans, and the concrete class shall be 580-A-3500 per the Standard Specifications Section 201, "Concrete, Mortar and Related Materials."

Concrete Drainage Structures

Unless otherwise specified, the minimum compressive strength of concrete at 28 days shall be 560-C-4000. Twenty-eight (28) day 4000 psi or higher compressive strength concrete shall contain an Agency-approved water-reducing admixture. The combined aggregate grading shall be Grading B for inverts.

Portland cement structures for the roadway drainage shall conform to the provisions in Subsection 303-1, "Concrete Structures," of the Standard Specifications, these Special Provisions and the details shown on the plans and shall include:

1. Concrete Collars
2. Manholes
3. Parkway Drains
4. Other Minor Structures

For concrete used in non-precast structures, cement shall be Type II and conforming to the requirements for sulfate exposure, with a maximum water/cement materials ratio in accordance with American Concrete Institute (ACI) 318.

Other Concrete Items

Portland cement concrete for the construction of (PCC) curb ramps, curbs, curb and gutters, cross gutters, sidewalks, and driveways shall be of the class, compressive strength, and other requirements prescribed in the Standard Specifications Section 201, "Concrete, Mortar and Related Materials," Table 201-1.1.2(A).

Bollard concrete for the foundation and post filling shall be per Standard Specifications Section 201, "Concrete, Mortar and Related Materials," Table 201-1.1.2(A), for "Fence and Guardrail Post Foundations".

201-2 REINFORCEMENT FOR CONCRETE

201-2.2 Steel Reinforcement. *Add the following:*

Reinforcing steel shall be grade 60-billet steel conforming to ASTM A 615.

SECTION 202 – MASONRY MATERIALS

Add the following section:

202-4 CONCRETE INTERLOCKING PAVERS.

202-4.1 General. *Add the following:*

Washington Boulevard Reconstruction Project
City Project No. 1401; Federal Project No. HPLUL-5362(019)

Concrete pavers shall meet the requirements set forth in ASTM C 936, Standard Specification for Interlocking Concrete Paving Units. The average compressive strength shall be 8,000 psi with no individual unit under 7,200 psi. The average water absorption shall be 5 percent with no unit greater than 7 percent when tested in accordance with ASTM C 140. Pigment shall conform to ASTM C 979.

Concrete pavers shall be "Castle Cobble" 60 mm, color 'Tuscan' by Angeles Paving Stones (951-328-9115) or approved equal.

202-4.2 Concrete Base.

The concrete base shall meet the strengths shown on the Construction Drawings and shall be per Section 201-1.1.1 and Section 201-1.1.2.

202-4.3 Crushed Aggregate Base. The Crushed Aggregate base shall be per Section 200-2.2.

202-4.4 Bedding and Joint Sand.

Sand shall be washed, clean, non-plastic, free from deleterious or foreign matter, symmetrically shaped, natural or manufactured from crushed rock.

Do not use limestone screening, stone dust, or sand for the bedding sand material that does not conform to the grading requirements of ASTM C 33.

Do not use mason sand or sand conforming to ASTM C 144 for bedding sand.
 Sieve according to ASTM C 136.

Bedding sand shall conform to the grading requirements of ASTM C 33 with modifications as shown in the Table below.

Grading Requirements for Bedding Sand ASTM C 33	
Sieve Size	Percent Passing
3/8 in. (9.5 mm)	100
No. 4 (4.75 mm)	95 to 100
No. 8 (2.36 mm)	85 to 100
No. 16 (1.18 mm)	50 to 85
No. 30 (0.600 mm)	25 to 60
No. 50 (0.300 mm)	10 to 30
No. 100 (0.150 mm)	2 to 10
No. 200 (.0075 mm)	1

The joint sand shall conform to the grading requirements in ASTM C 144 shown with the modifications in the table below.

Grading Requirements for Joint Sand		
	ASTM C 144 Natural Sand	ASTM C 144 Manufactured Sand
Sieve Size	Percent Passing	Percent Passing
No. 4 (4.75 mm)	100	100
No. 8 (2.36 mm)	95 to 100	95 to 100
No. 16 (1.18 mm)	70 to 100	70 to 100



ON-CALL
ENGINEERING SERVICES
FOR PUBLIC WORKS



Sample Quantity and Cost Estimate

Date Palm Drive Bridge over Whitewater River

Date Palm Drive Bridge Improvement - Preliminary Engineers Estimate - 100% Submittal
Federal Aid Project # BHLS 5430 (027)
Cathedral City Project # 8914
5/19/2015

Item No.	Item Description	Unit	Quantity	Unit Cost	Unit Total	Section Subtotals	Non-Participating	Agency
GENERAL CONDITIONS								
1	MOBILIZATION (5%)	LS	1	\$725,000.00	\$725,000			
2	CLEARING AND GRUBBING	LS	1	\$275,000.00	\$275,000			
3	TRAFFIC CONTROL	LS	1	\$240,000.00	\$240,000			
4	DUST CONTROL	LS	1	\$25,000.00	\$25,000			
5	SWPPP PREPARATION AND IMPLEMENTATION	LS	1	\$40,000.00	\$40,000			
6	UNCLASSIFIED EXCAVATION	CY	1,500	\$50.00	\$75,000			
7	UNCLASSIFIED FILL	CY	2,500	\$10.00	\$25,000			
8	SIGNING AND STRIPING	LS	1	\$60,000.00	\$60,000			
SUBTOTAL						\$1,465,000		
ROADWAY IMPROVEMENTS								
9	AGGREGATE BASE (0.40' CMB)	CY	431	\$35.00	\$15,085			
10	ASPHALT CONCRETE PAVEMENT (T=0.4"-III-B2-P6 7070)	TON	872	\$95.00	\$82,840			
11	CONSTRUCT 0.65' AC (FULL DEPTH, III-B2-PG 70-10)	TON	43	\$95.00	\$4,085			
12	CONSTRUCT CURB RAMP PER CALTRANS STANDARD PLAN RSPA88A CASE C	EA	8	\$1,700.00	\$13,600			
13	CONSTRUCT CURB RAMP PER CALTRANS STANDARD PLAN RSPA88A CASE CM	EA	3	\$1,700.00	\$5,100			
14	CONSTRUCT CURB RAMP PER CALTRANS STANDARD PLAN RSPA88A CASE G	EA	1	\$1,700.00	\$1,700			
15	CONSTRUCT 6" CURB & GUTTER, PER RCTD STD. 200	LF	2,022	\$20.00	\$40,440			
16	CONSTRUCT 8" MEDIAN CURB PER RCTD STD. 204	LF	2,402	\$20.00	\$48,040			
17	CONSTRUCT 4" PCC SIDEWALK PER RCTD STD. 400 & 401	SF	9,625	\$3.75	\$36,094			
18	CONSTRUCT CROSS GUTTER PER RCTD STD. 209	EA	3	\$12,250.00	\$36,750			
19	CONSTRUCT COLORED STAMPED CONCRETE MEDIAN PER DETAIL CD-01	SF	10,370	\$6.50	\$67,405			
20	CONSTRUCT MODIFIED CONCRETE DRIVEWAY PER RCTD STD. 207	EA	2	\$1,200.00	\$2,400			
21	CONSTRUCT 6" AC DIKE PER RCTD STD. 212	LF	259	\$20.00	\$5,180			
SUBTOTAL						\$358,719		
DRAINAGE IMPROVEMENTS								
22	CONSTRUCT CATCH BASIN NO. 1 PER RCFC STD. CB 100 (W=4')	EA	1	\$3,400.00	\$3,400			
23	CONSTRUCT CATCH BASIN NO. 1 PER RCFC STD. CB 100 (W=7')	EA	2	\$5,100.00	\$10,200			
24	CONSTRUCT STORM DRAIN MANHOLE NO. 1 PER RCFC&WCD STD MH 251	EA	2	\$5,950.00	\$11,900			
25	CONSTRUCT MH #1 WITH DRYWELL PER RCFC&WCD STD MH251 AND DETAIL	EA	1	\$12,000.00	\$12,000			
26	JOIN CHANNEL LINING USING RCFC&WCD JS231	EA	1	\$4,250.00	\$4,250			
27	CONSTRUCT CONCRETE COLLAR PER RCFC&WCD STD M803	EA	3	\$1,700.00	\$5,100			
28	CONSTRUCT LOCAL DEPRESSION NO. 2 - CASE B PER RCFC&WCD STD. LD201	EA	1	\$1,000.00	\$1,000			
29	CONSTRUCT LOCAL DEPRESSION NO. 2 - CASE C PER RCFC&WCD STD. LD201	EA	2	\$1,500.00	\$3,000			
30	INSTALL 30" RCP, BEDDING PER RCFC STD. M815	LF	231	\$152.00	\$35,112			
31	INSTALL 18" RCP, BEDDING PER RCFC STD. M815	LF	52	\$140.00	\$7,280			
32	INSTALL RIPRAP PER DETAIL	CY	7	\$460.00	\$3,220			
33	CONCRETE BACKFILL STORM DRAIN	CY	2.5	\$450.00	\$1,125			
SUBTOTAL						\$97,587		

Item No.	Item Description	Unit	Quantity	Unit Cost	Unit Total	Section Subtotals	Non-Participating	Agency
ELECTRICAL								
34	TRAFFIC SIGNAL MODIFICATION (DATE PALM DR/PEREZ RD)	LS	1	\$161,000.00	\$161,000.00			
35	TRAFFIC SIGNAL MODIFICATION (DATE PALM DR/GERALD FORD DR)	LS	1	\$156,000.00	\$156,000.00			
36	BRIDGE LIGHTING	LS	1	\$130,000.00	\$130,000.00			
37	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION (120	LS	1	\$60,000.00	\$60,000.00			
SUBTOTAL						\$507,000		
BRIDGE/RETAINING WALLS								
38	BRIDGE REMOVAL	LS	1	\$50,000.00	\$50,000			
39	FURNISH PRECAST PRESTRESSED CONCRETE GIRDER (70' TO 80')	EA	16	\$13,000.00	\$208,000			
40	FURNISH PRECAST PRESTRESSED CONCRETE GIRDER (80' TO 90')	EA	32	\$14,000.00	\$448,000			
41	FURNISH PRECAST PRESTRESSED CONCRETE GIRDER (90' TO 100')	EA	24	\$15,000.00	\$360,000			
42	ERECT PRECAST PRESTRESSED CONCRETE GIRDER	EA	72	\$3,500.00	\$252,000			
43	STRUCTURE EXCAVATION (BRIDGE)	CY	2,038	\$60.00	\$122,280			
44	STRUCTURE EXCAVATION (RET WALL)	CY	400	\$50.00	\$20,000			
45	STRUCTURE BACKFILL (BRIDGE)	CY	432	\$75.00	\$32,400			
46	STRUCTURE BACKFILL (RET WALL)	CY	700	\$60.00	\$42,000			
47	STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	1,307	\$400.00	\$522,800			
48	STRUCTURAL CONCRETE, BRIDGE	CY	3,040	\$700.00	\$2,128,000			
49	STRUCTURAL CONCRETE, RET WALL	CY	170	\$550.00	\$93,500			
50	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	CY	150	\$750.00	\$112,500			
51	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	CY	122	\$900.00	\$109,800			
52	AGGREGATE BASE (APPROACH SLAB)	CY	132	\$300.00	\$39,600			
53	PERVIOUS BACKFILL MATERIAL (RET WALL)	CY	11	\$180.00	\$1,980			
54	JOINT SEAL ASSEMBLY (MR=1")	LF	306	\$50.00	\$15,300			
55	JOINT SEAL ASSEMBLY (MR=2")	LF	306	\$75.00	\$22,950			
56	BAR REINFORCING STEEL (BRIDGE)	LB	1,550,000	\$1.00	\$1,550,000			
57	BAR REINFORCING STEEL (RET WALL)	LB	23,000	\$1.00	\$23,000			
58	MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE)	LB	13,900	\$10.00	\$139,000			
59	CONCRETE BARRIER (TYPE 26 MODIFIED)	LF	1,652	\$225.00	\$371,700			
60	CONCRETE BARRIER TYPE 26 (MOD)	LF	135	\$225.00	\$30,375			
61	24" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	10,400	\$200.00	\$2,080,000			
62	DRILL AND BOND DOWEL	LF	1,700	\$30.00	\$51,000			
63	FURNISH POLYESTER CONCRETE OVERLAY	CF	8,000	\$80.00	\$640,000			
64	PLACE POLYESTER CONCRETE OVERLAY	SF	64,000	\$5.00	\$320,000			
65	METAL HAND RAILING	LF	35	\$70.00	\$2,450			
66	COLOR STAMPED CONCRETE MEDIAN (T=9 1/2")	SF	6,536	\$6.50	\$42,484			
67	BRIDGE DECK DRAINAGE SYSTEM	LS	1	\$15,000.00	\$15,000			
68	TUBULAR HAND RAILING	LF	1,787	\$70.00	\$125,090			
SUBTOTAL						\$9,971,209		

Item No.	Item Description	Unit	Quantity	Unit Cost	Unit Total	Section Subtotals	Non-Participating	Agency
CHANNEL IMPROVEMENTS								
69	GRADE CONTROL STRUCTURE	LS	1	\$1,441,000.00	\$1,441,000			
70	CHANNEL SLOPE PROTECTION (NORTH BANK)	CY	375	\$633.00	\$237,375			
71	BIKE TRAIL/ACCESS ROAD/SLOPE PROTECTION (SOUTH BANK)	CY	1,150	\$345.00	\$396,750			
72	ACCESS ROAD (DATE PALM TO SLOPE PROTECTION)	CY	23	\$200.00	\$4,520			
73	CONSTRUCT 12" STANDARD PIPE GATE PER SPPWC STD. PLAN 602-3	EA	1	\$5,000.00	\$5,000			
SUBTOTAL						\$2,084,645		
BASE BID					\$14,484,160			
CONTINGENCY (5%)					\$724,208			
BASE BID TOTAL					\$15,208,368			

Alternate Bid No 1								
74	OVERLAY (0.125', III-D-PG 70-10)	TON	730	\$110.00	\$80,300		\$80,300	
75	COLD MILL AC PAVEMENT (0.125")	SF	77,721	\$0.30	\$23,316		\$23,316	
SUBTOTAL							\$103,616	

Alternate Bid No 2								
76	RELOCATE WATER METER PER CVWD STD. W-11	EA	1	\$3,000.00	\$3,000		\$3,000	CVWD (PER EU-01)
77	RELOCATE BACKFLOW PREVENTER (CVWD)	EA	1	\$3,000.00	\$3,000		\$3,000	CVWD (PER EU-01)
78	ADJUST WATER VALVE TO GRADE PER CVWD STD. W-17A UNDER DIRECT CVWD INSPECTION	EA	3	\$2,500.00	\$7,500		\$7,500	CVWD (PER EU-01)
79	ADJUST SEWER MANHOLE FRAME AND COVER PER CVWD STD. S-1B	EA	2	\$1,300.00	\$2,600		\$2,600	CVWD (PER EU-01)
80	18" DIP WATER MAIN W/ RESTRAINED JOINTS (on Bridge)	LF	765	\$370.00	\$283,050		\$283,050	CVWD WATER PLANS
81	18" DIP WATER MAIN W/ RESTRAINED JOINTS & POLY WRAPPED (In Roadway)	LF	1,208	\$255.00	\$308,040		\$308,040	CVWD WATER PLANS
82	FURNISH AND INSTALL 2" AIR VAC (BURIED PORTION)	EA	2	\$8,000.00	\$16,000		\$16,000	CVWD WATER PLANS
83	FURNISH AND INSTALL 24" STEEL CASING PER CT STD	LF	46	\$400.00	\$18,400		\$18,400	CVWD WATER PLANS
84	REMOVE INTERFERRING PORTION, CAP AND ABANDON EXISTING 18-INCH WATER MAIN, SLURRY	CY	127	\$150.00	\$19,050		\$19,050	CVWD WATER PLANS
85	REMOVE EXISTING AIR VALVE ASSEMBLY	EA	1	\$2,000.00	\$2,000		\$2,000	CVWD WATER PLANS
86	FURNISH AND INSTALL 24" EXTRA STRENGTH VCP SEWER MAIN (incl. Temp. Bypass)	LF	97	\$350.00	\$33,950		\$33,950	CVWD SEWER PLANS
87	FURNISH AND INSTALL 60" DIA MANHOLE (base, riser, frame and cover)	EA	2	\$12,000.00	\$24,000		\$24,000	CVWD SEWER PLANS
88	REMOVE AND DISPOSE EXISTING MANHOLE	EA	2	\$2,000.00	\$4,000		\$4,000	CVWD SEWER PLANS
89	REMOVE INTERFERRING PORTION, CAP AND ABANDON EXIST 24-INCH SEWER LINE	LF	104	\$50.00	\$5,200		\$5,200	CVWD SEWER PLANS
SUBTOTAL							\$729,790	

Alternate Bid No 3								
90	ADJUST GAS VALVE TO GRADE	EA	5	\$800.00	\$4,000		\$4,000	SoCA Gas
91	RELOCATE GAS WARNING SIGN	EA	4	\$250.00	\$1,000		\$1,000	SoCA Gas
SUBTOTAL							\$4,000	

Item No.	Item Description	Unit	Quantity	Unit Cost	Unit Total	Section Subtotals	Non-Participating	Agency
Alternate Bid No 4								
92	ADJUST TO GRADE SCE MANHOLE FRAME AND COVER	EA	2	\$1,300.00	\$2,600		\$2,600	SCE
93	RELOCATE VAULT	EA	1	\$5,000.00	\$5,000		\$5,000	SCE
94	RELOCATE AIR VENTS	EA	2	\$700.00	\$1,400		\$1,400	SCE
SUBTOTAL							\$9,000	

Alternate Bid No 5								
95	REMOVE INTERFERING PORTION OF TWC LINE	LF	140	\$15.00	\$2,100		\$2,100	TWC
96	REMOVE TWC PULL BOXES	EA	3	\$650.00	\$1,950		\$1,950	TWC
SUBTOTAL							\$4,050	

Alternate Bid No 6								
97	ADJUST TO GRADE Verizon MANHOLE FRAME AND COVER	EA	5	\$1,300.00	\$6,500		\$6,500	Verizon
SUBTOTAL							\$6,500	

Alternate Bid No 7								
98	ADJUST TO GRADE WATER VALVE AND FRAME PER DWA STD. W109	EA	2	\$2,500.00	\$5,000		\$5,000	DWA
99	RELOCATE FIRE HYDRANT PER DWA STD. W113	EA	1	\$3,000.00	\$3,000		\$3,000	DWA
100	RELOCATE SEWER AIR VAC ASSEMBLY PER DWA	EA	1	\$2,500.00	\$2,500		\$2,500	DWA
101	ADJUST SEWER CLEANOUT FRAME AND COVER PER DWA	EA	1	\$1,300.00	\$1,300		\$1,300	DWA
SUBTOTAL							\$11,800	

ALTERNATIVE BID NO. 1 THROUGH 7					\$856,956
CONTINGENCY (5%)					\$42,848
ALTERNATIVE BID NO. 1 THROUGH 7 TOTAL					\$899,804

TOTAL PROJECT BID		\$16,108,172
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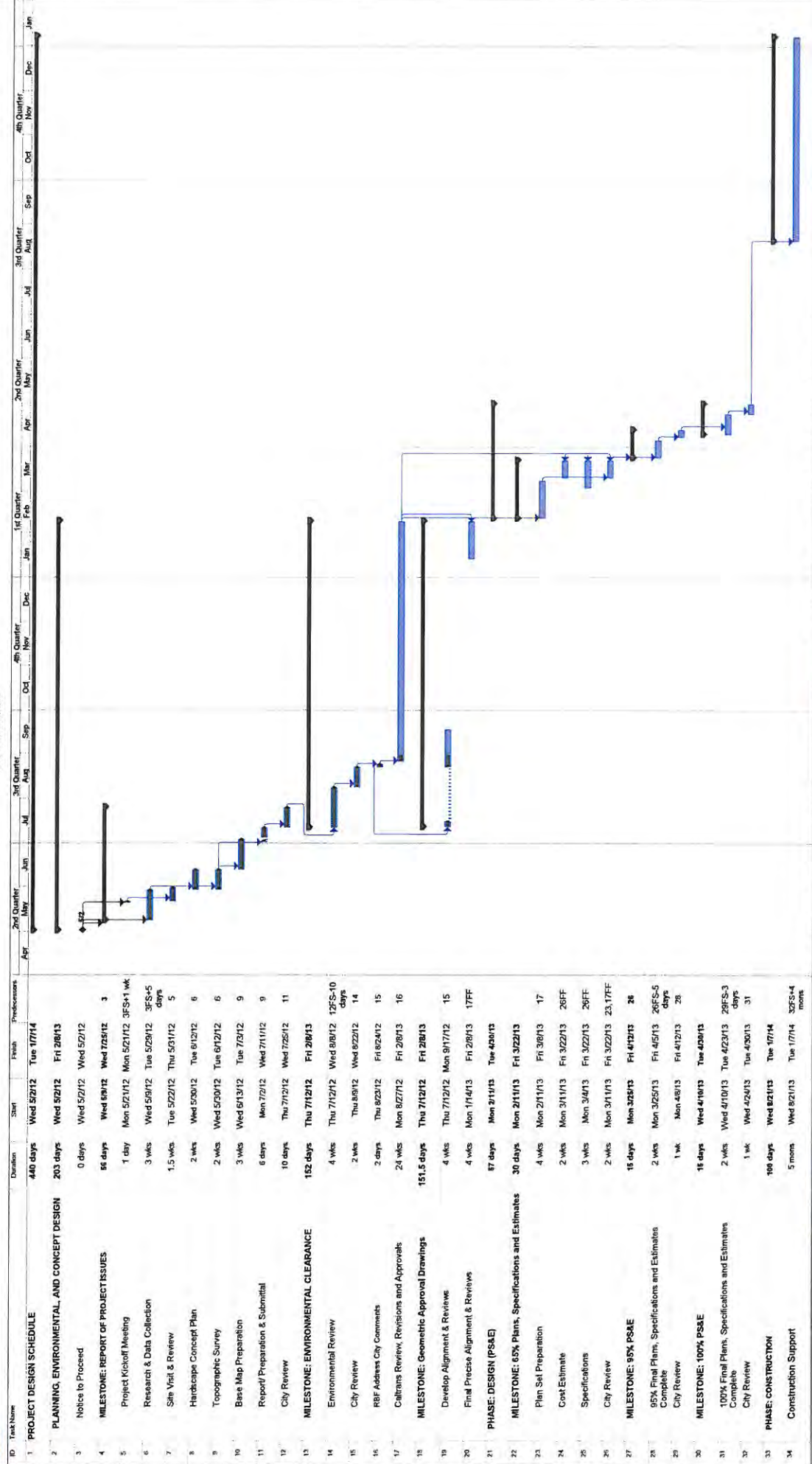


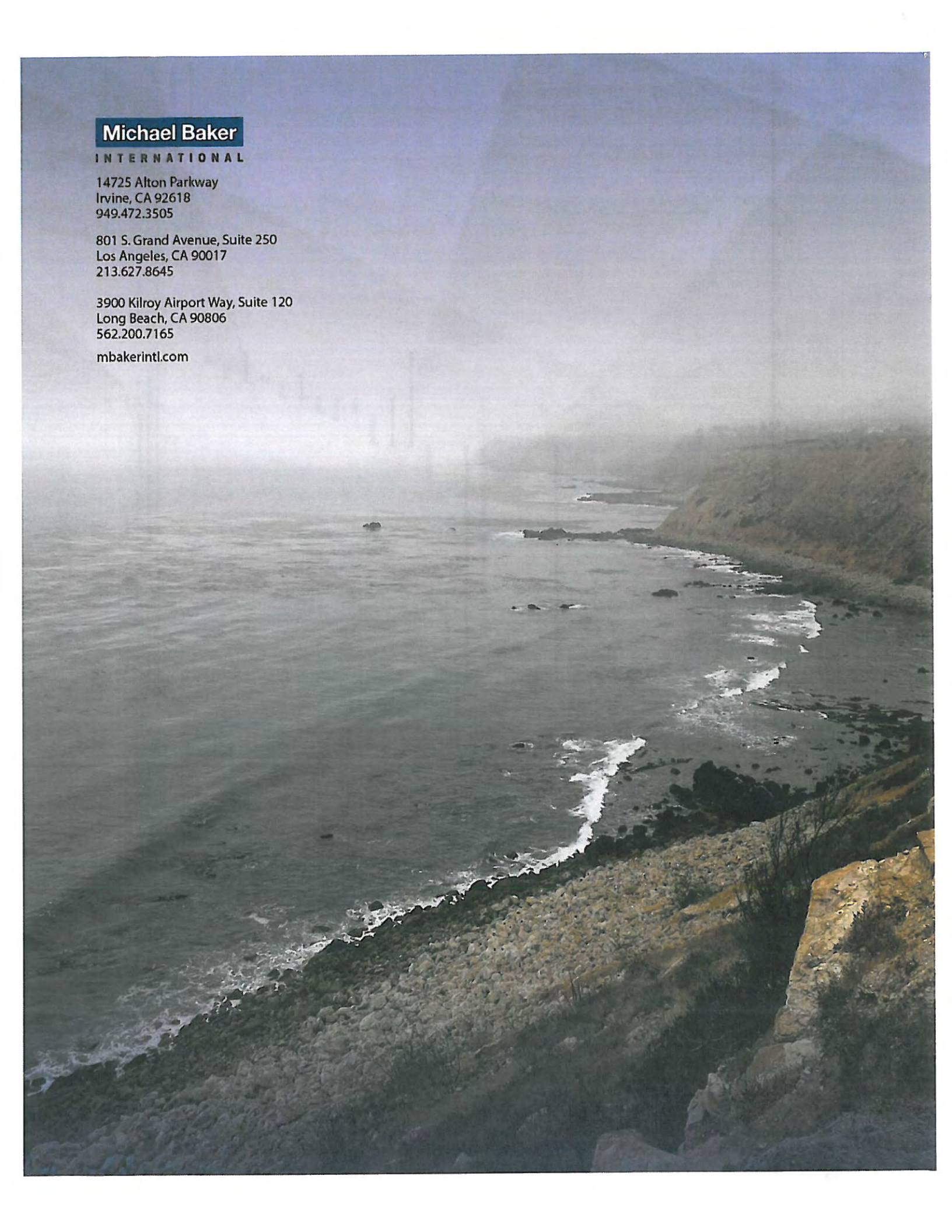
ON-CALL
ENGINEERING SERVICES
FOR PUBLIC WORKS



Sample Project Schedule

Alessandro Boulevard Median Improvements





Michael Baker

INTERNATIONAL

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Los Angeles, CA 90017
213.627.8645

3900 Kilroy Airport Way, Suite 120
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