

**CITY OF SANTA ROSA TRANSPORTATION AND PUBLIC WORKS
PROJECT WORK ORDER NO. A010135-2016-04**

PROJECT NAME: **DESIGN SERVICES FOR SANTA ROSA REGIONAL WATER REUSE
PLANT FLOOD PROTECTION**

CITY PROJECT MANAGER: **ANDY WILT, ASSOCIATE CIVIL ENGINEER**

CONSULTANT PROJECT MANAGER: **DAVID LONG, P.E.**

SCOPE OF SERVICE: See Consultant's Scope of Services/Proposal for Services and Fee Schedule dated March 25, 2017, attached as Exhibit B-1.

START DATE: **MAY 2017**

COMPLETION DATE: **DECEMBER 2019**

CHARGE NUMBER FOR PAYMENT: **70667**

NOT-TO-EXCEED AMOUNT FOR THIS PROJECT: **\$645,826.00**

TERMS AND CONDITIONS: This Project Work Order is issued and entered into as of the last date written below in accordance with the terms and conditions set forth in the "Master Professional Services Agreement with Brelje & Race Consulting Civil Engineers, Agreement No. A010135," dated October 11, 2016, which is hereby incorporated and made part of this Project Work Order. In the event of a discrepancy or conflict between the terms and conditions of the Project Work Order and the Master Agreement, the Master Agreement shall govern.

CITY OF SANTA ROSA,
A Municipal Corporation

By: _____
Daniel J. Galvin, III
Chair, Board of Public Utilities

Date: _____

BRELJE & RACE CONSULTING CIVIL ENGINEERS
A California corporation

By: _____
Name: _____
Title: _____

Date: _____

By: _____
Name: _____
Title: _____

Date: _____

APPROVED AS TO FORM:

By: _____
Santa Rosa City Attorney's Office

Attachments: Exhibit B-1 - Consultant's proposal and fee for services for this Project Work Order

Brelje & Race

CONSULTING ENGINEERS

March 25, 2017

Andrew Wilt
City of Santa Rosa
Transportation and Public Works Department
69 Stony Circle
Santa Rosa, CA 95401

**Subject: Santa Rosa Regional Water Reuse Plant Flood Protection
Design Engineering Services
B&R File No. 4415.00**

Dear Andy,

Brelje & Race Consulting Engineers is pleased to submit this proposal detailing our relevant experience, capabilities and approach towards providing professional engineering services for the design of flood protection facilities at the Regional Water Reuse Plant (WRP), the Biosolids and Compost Facilities and the Reclamation Pump Stations located immediately east and west of Llano Road.

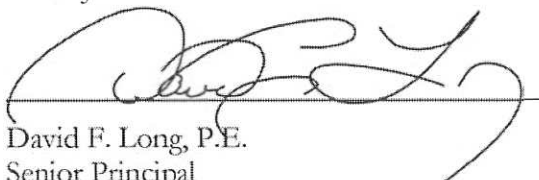
Brelje & Race is committed to providing innovative and cost effective solutions to problems that arise with the City's water reuse facilities. We have a strong knowledge base for these facilities, having providing design services as well as construction phase support numerous projects connected to the WRP.

Our proposed team partnered with the City on the recently completed Meadow Lane Pond rehabilitation projects and the West College Pond 1 Divider Levee projects. Brelje & Race is a proven team leader and has an excellent track record with respect to responsiveness, schedule adherence and project delivery.

Brelje & Race is the oldest, locally owned civil engineering firm in Sonoma County and client satisfaction is our number one priority. We appreciate being considered for providing professional services to the City and look forward to working with you and your staff again. Our proposal is valid for 90 days. Please feel free to contact me, at (707) 636-3755 or long@brce.com with any questions you might have.

Very truly yours,

BRELJE & RACE



David F. Long, P.E.
Senior Principal

INTRODUCTION

Brelje & Race has been providing professional engineering services in the North Bay Area for over 62 years. We take pride we continue to serve many clients 30 years and more after their original projects were completed.

The staff of Brelje & Race presently includes 19 professional engineers, an environmental planning and permitting specialist, a LEED accredited professional, and a supporting group of CAD technicians, EIT- credentialed engineering technicians, construction inspectors, land surveyors, and clerical personnel. The organization is extremely stable, as most of the key members of our firm have been with us for over 15 years.

Brelje & Race's proposal is arranged to reflect the submittal requirements delineated in the Request for Proposals (RFP). Our proposal is outlined as follows:

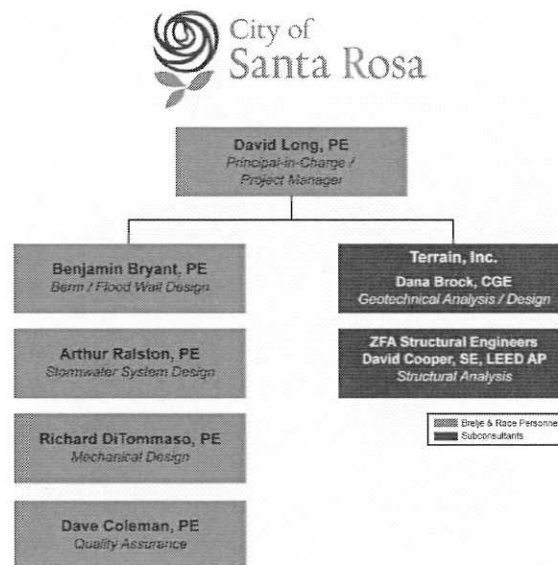
- **Project team members**
- **Team qualifications and responsibilities**
- **Work plan**
- **Reference projects**
- **Scope of services**

A cost proposal is provided separately as requested.

The City of Santa Rosa (City) has expressed their desire for complete yet concise proposals. Brelje & Race understands the importance of the City's request. If more information need to be provided, we are available to discuss at any time.

PROJECT TEAM

Our team is structured as follows:



The Brelje & Race Consulting Engineers office is located on 475 Aviation Boulevard, Santa Rosa, California 95403, in the Airport Business Center.

PROJECT TEAM QUALIFICATIONS AND RESPONSIBILITIES

Brelje & Race offers the City expertise and organizational stability. Our proposed team includes **David Long, Benjamin (Ben) Bryant, Arthur Ralston** and **Dave Coleman**. These key members provide the experience, expertise, and the effective communications needed to coordinate and complete the project successfully and on time, while keeping the City's Project Manager fully apprised of progress. Joining our team are **Dana Brock** (Terrain, Inc.) and **David Cooper** (ZFA Structural Engineers). Brelje & Race has partnered with Terrain, Inc. and ZFA on numerous occasions, including several projects for the City. The specific credentials of our individual team members, including licenses and certifications, are detailed in their resumes located in Appendix A.

David Long, Senior Principal, will serve as Principal-in-Charge/Project Manager. He will oversee the design team, be involved in all major project decisions and have responsibility for final review of all work products. David has served as Project Manager and Design Engineer for many of the City's Public Works CIP projects, therefore he is well acquainted with the standard procedures associated with their design. Ben Bryant, Associate, will develop the preliminary design layout for the site before preparing the civil drawings and specifications. Arthur Ralston, Senior Civil Engineer, has an extensive background in hydraulic and hydrologic modeling and analysis, as well as sewer and storm water system and flood plain studies for both the public and private sectors. He will be closely aligned to the hydraulic and hydrologic modeling consultant. Richard DiTommaso, Senior Mechanical Engineer, will focus on the mechanical aspects of the design, including the new "in-plant" stormwater system desired for the Llano Pump Station and Biosolids area located on the west side of Llano Road and roadway/driveway floodgates. Dave Coleman, Associate Principal, has served as Project Manager and Design Engineer on several recent City projects including the Brown Farm Pond Drain to Llano Trunk. Dave will be responsible for quality assurance for the floodwall design. Resumes for these key players are included in Appendix A.

Our team brings complementary strengths built on years of experience in site evaluation, project planning, design, construction administration, inspection and operations for municipal and private clients. An example of professional experience is highlighted as follows:

Team Member	Project Role/Relevant Experience
David Long, PE* Principal-in-Charge Project Manager	<ul style="list-style-type: none"> Senior Principal with more than 24 years of civil and mechanical engineering experience for public works projects with extensive experience in the planning, design and construction management of embankments for reservoirs holding surface water diversions, recycled water and wastewater, many under the jurisdiction of the Division of Safety of Dams (DSOD) Project Manager and Design Engineer for Sonoma County Water Agency Airport Larkfield Wikiup Sanitation Zone reclaimed water facilities upgrades and Reservoir D. Project Manager for City of Santa Rosa West College Pond No. 1 Divider Levee
Benjamin Bryant, P.E. Design Engineer	<ul style="list-style-type: none"> Associate with over 7 years of experience in the civil engineering field Experienced with embankment dam design and reservoir facility repair including the DSOD approval process Resident engineering, construction inspection, and project start up assistance for both public works projects and private developments Design experience in a broad range of projects, including hydraulic and hydrologic modeling, water storage and distribution, wastewater collection and treatment, roadways, and land development Design Engineer for the City of Santa Rosa the West College Pond No. 1 Divider Levee and Meadow Lane B, C, and D Pond repairs
Arthur Ralston, P.E. Senior Civil Engineer	<ul style="list-style-type: none"> Over 34 years of experience primarily in the design of roadways, creek diversion, flood control and stormwater management system Expertise includes: direct involvement with Caltrans design and review processes, City of Santa Rosa, County and other local agencies roadway design standards, hydraulic and hydrologic modeling/analysis, stormwater system and flood plain studies, stormwater management, large development projects at institutional facilities, construction management, and cost estimation

<p>Richard DiTommaso, P.E. Senior Mechanical Engineer</p>	<ul style="list-style-type: none"> ▪ More than 36 years of experience as a design engineer ▪ Responsible for design of pipelines and pipeline rehabilitation, water storage tanks, water wells, and municipal pumping stations. Extensive design experience for pumping systems including pump selection and sizing, controls, ancillary facilities including buildings, disinfection systems, piping, valves and appurtenances and flow metering ▪ Mechanical Designer for the City of Santa Rosa Regional Water Reuse Plant Primary Pump replacement and the Brown Farm Pump Station improvements
<p>Dave Coleman, P.E. Quality Assurance</p>	<ul style="list-style-type: none"> ▪ 33 years of experience in the civil engineering field. ▪ Emphasis in wastewater facility design, contract administration, quality assurance/control and project start up assistance for both public works projects and private developments. ▪ Project Manager and Design Engineer for City of Santa Rosa Long Drive Sewer Relocation and the Brown Farm Pond Drain to Llano Trunk

The individuals proposed for the project have sufficient time in their schedules to allow the needed commitment to this project.

*David Long, our proposed Project Manager, remains committed to ensuring that the Brelje & Race team represents the City with professionalism and integrity, and always performs as an extension of the City Staff. We have prioritized David's availability throughout the project life cycle and he will be dedicating 10% of his time to this project on a weekly basis. A list of his projects that are anticipated to coincide with this one is attached in Appendix B.

SUBCONSULTANTS**Terrain, Inc.**

Terrain, Inc. provides geotechnical services focusing on earthworks associated with heavy construction and water supply projects. Terrain's principal, Dana Brock, is a registered Civil Engineer, Registered Geologist and Certified Engineering Geologist. He is strongly field-oriented and for over 30 years has been responsible for project scoping and site characterization, regulatory interaction, and design and construction management of roads, dams, disposal sites, underground structures and water supply works, many of which involved remedial measures.

Dana has provided scoping, evaluation, design, field inspection and materials evaluation on successful projects for the City of Santa Rosa, the City of Petaluma, the Town of Windsor, the Sonoma County Water Agency, the City of Richmond, the City of Burlingame and the City and County of San Francisco. Our Public Agency clients and contractors that have worked with Dana have expressed to us their satisfaction with his extensive geotechnical expertise, innovative construction solutions, and engineering contributions to their projects.

Notable collaborations between Dana Brock and Brelje & Race include

- City of Santa Rosa West College Pond No. 1 Divider Levee – Geotechnical investigation, construction inspection and geotechnical testing.
- Town of Windsor Effluent Storage Pond No. 2 – Site and materials evaluation for an emergency repair of the embankments of the storage pond. Active input into design effort and daily inspection of the construction.
- City of Santa Rosa Meadow Lane Pond 'D' Repair – Guidance in the selection of the low permeability liner and cut-off wall alternatives, reviewing proposed construction techniques and the Brelje & Race design. Assistance with evaluation of project constructability and risk.
- City of Santa Rosa Geysers Pipeline Stabilization – Construction inspection and supplementary services to log bore holes and monitor inclinometer readings for slope stability analysis.
- Occidental County Sanitation District – Geotechnical oversight for a proposed municipal wastewater holding pond.

ZFA Structural Engineers

For 40 years, ZFA Structural Engineers has collaborated with public and private clients to help build high quality communities and facilities throughout California and nationally. With a commitment to excellence, we offer our clients innovative, practical design solutions for their projects. With a staff of over 50 people, our firm has fully integrated offices in San Francisco, Silicon Valley, Sacramento, Santa Rosa, and Napa including 26 Structural Engineers and 13 Professional Engineers. The firm is both a Federal licensed and a California State licensed Small Business Enterprise (SBE).

ZFA has a wide variety of experience providing structural designs for public projects, including construction of new buildings and retrofit and revitalization of existing structures. With a strong understanding of the public process, ZFA has provided structural design services for local, regional, and state civic centers, fire stations, schools, correctional facilities, law enforcement facilities, maintenance facilities, and more.

ZFA engineers have worked closely with public agencies such as the County of Sonoma and many cities, including: Santa Rosa, Napa, San Rafael, Rohnert Park and Healdsburg. ZFA holds On- Call contracts with Sonoma County, City of Santa Rosa, and GE Energy. In addition, for the past four years ZFA has been PG&E's Post-Earthquake Inspections Structural Engineer.

WORK PLAN

Our approach to conducting this project will be associated with three primary categories of engineering service:

- Fully vetting the methodology and strategies used to determine the design water surface elevation for which flood protection needs to be provided,
- Developing and evaluating options to the 6,500 linear feet of flood protection walls, berms and gates presented in the July 2016 Feasibility Study, and
- Conducting field investigations, and preparing preliminary designs and construction documents for the preferred flood protection facilities.

The above services will be conducted in close collaboration with other members of the project team which include City CIP Engineering, Water Reuse Plant (WRP) and Community Development staff, consultants selected to perform CEQA and hydrologic/hydraulic modeling, and outside regulatory/resource agencies charged with granting permissions associated with the project.

In describing the details of our approach, we focus attention on the early-project work that is essential to “get right” prior to beginning, in earnest, the preparation of construction documents. To help frame our intended approach to the project, we reviewed the March 2006, April 2008 and July 2016 studies listed in Exhibit A, Task 1.1 attached to the Request for Proposal. Based on that review, we certainly recognize the critical need to add flood protection measures, but found some of the methodologies and conclusions described in the July 2016 Study to be overly conservative or incomplete. We are prepared and have full capability to deliver all of the professional services necessary to design flood protection facilities that closely follow the conceptual project identified in the 2016 Study, but we also have several major alternative engineering concepts that deserve further exploration and consideration prior to the City committing to spend \$10 million or more on flood protection for the WRP. Wherever we use “WRP” to refer to physical facilities, it is understood to also include the Biosolids, Composting and Reclamation Pumping Stations on the west side of Llano Road.

The following descriptions and discussions of the 2016 Study limitations are intended to lay the groundwork for the initial effort on the project, wherein a preliminary flood protection plan will be developed that achieves the best collective balance of cost effectiveness and level of acceptable risk. Following each description is our proposed approach to evaluating the issues in order to reach, what we believe will be, more appropriate criteria to be applied in developing the project design. Unless otherwise noted, all elevations cited in this proposal are based on NAVD88.

2016 Study: The design flood elevation of 95.0 was selected to meet the criteria of the base (100-year) flood level plus 3 feet or the 500-year flood level, whichever is greater. The primary reason for using this criteria is based on the desire by the City to use federal funds or the need to acquire federal agency permits to conduct work at the WRP. This is a narrow and overly conservative application of Executive Order 13690, Section 6(c), especially given the nature of the floodplain modeling conducted. Executive Order 13690 established a Federal Flood Risk Management Standard and defined this Standard as “a flexible framework to increase resilience against flooding...”

Proposed Approach: The “flexible framework” should provide those required to follow the Standard with the confidence to strongly weight the use of empirical data when determining flood protection design elevations. Observations during the December 2005 storm event set flood waters at elevation 87.17 at the WRP. This elevation was converted by Brelje & Race from that reported on Page 6 of the April 2008 report by HDR – 84.4 (NGVD29) using CorpsCon software. The December 2005 storm was widely accepted as a 100-year storm. Adding 3 feet of freeboard to the observed flood elevation produces a design flood elevation of 90.17. Even though flood elevations

predicted by the model output for the 100-year and 500-year storms appear to be overstated, applying the lesser, rather than the greater, of the two elevation parameters described above, would produce a design flood elevation of 92.5.

We will help guide analysis and consideration of design flood elevations that are significantly less than 95.0. This work will be conducted as part of Task 1.3 “Project Chartering Refinement.”

2016 Study: Peak flood stages were estimated using a one-dimensional (1D) steady-state model developed with HEC-RAS 5.0. Although the model was calibrated to the December 2005 flood observations, a 1D model produces very conservative results when applied to channels and adjacent floodplains with the physical characteristics of the Laguna de Santa Rosa where significant lateral movement of water occurs. The 2016 Study also described the dataset of stream gage recordings and rainfall data since 1998 as capturing no storm with greater than a 15-year return frequency.

Proposed Approach: We agree with the recommendation in the July 2016 Study that further modeling of some type be conducted, but will seek to guide that modeling through a process that challenges the modeler to substantiate assumptions and criteria to be used as heavily weighted to the empirical rather than the theoretical side. We find the notion that the dataset since 1998 captured no storm with greater than a 15-year return frequency difficult to believe in the context of rainfall and floodwater elevations reached during the December 2005 event.

Use of theoretical NOAA Atlas 14 rainfall data with its single, very large intensity spike, may be responsible for inflating flow rates derived by hydrologic modeling and, in turn, floodwater elevations reached using one-dimensional (1D) pure longitudinal flow modeling for the theoretical 100-year and 500-year events. Two-dimensional (2-D) hydraulic modeling, although likely costly compared to the 1D effort, should be considered, but the most important use of the model will be to predict the effect on the selected design flood elevation that results from construction of the proposed barriers. Using modeling to establish a design flood elevation is not nearly as important because that elevation is most accurately derived from data already published and from empirical observation during recent storm events, including the storms during December 2016 and January 2017.

Use of Federal funds for projects at the WRP can be justified purely using published FEMA Flood Insurance Study (FIS) 100-year and 500-year flood elevations from the latest revised version dated March 7, 2017 – 86.1 and 86.9, respectively, immediately upstream of the Llano Road bridge and 87.0 and 87.8 at 2,000 feet upstream from the bridge.

We will help guide the team to arrive at a design flood elevation that provides the City an appropriately conservative and justifiable hedge against flood risk. This work will be conducted as part of Task 1.3 “Project Chartering Refinement.”

2016 Study: The 2016 Study suggests constructing approximately 6,500 linear feet of floodwalls, berms and gates.

Proposed Approach: This length can be drastically reduced by implementing the following concepts. We will guide meetings with project team members to thoroughly vet these ideas and develop a preferred concept-level layout for the flood protection barriers during Task 1.3, “Project Chartering Refinement.”

- a. The length of proposed flood protection barriers alongside and roughly parallel to Llano Road total approximately 2,800 linear feet. That entire length, including seven (7) gates could be eliminated by

cutting off the flood waters at the north and south ends of the project across Llano Road. The northern barrier could be accomplished by constructing a gradual rise and fall of the roadway, a watertight gate structure that could be erected and dismantled, or a watertight mechanism that could be closed and opened. Due to its proximity to the bridge over the Laguna, the southern barrier would need to be a watertight structure or mechanism. One option to consider for a watertight mechanism is FloodBreak, a manufacturer of self-opening and closing roadway gates that are hydraulically powered by rising and falling floodwaters.

- b. The length of those facilities running north-south along the eastern edge of the WRP total approximately 1,600 linear feet, which is comprised entirely of structural floodwall and a gate, could be eliminated by extending the proposed berm from the southeast corner of the WRP approximately 500 feet to the east across private land to beyond the 500-year flood elevation.
- c. We realize that the options in (a) and (b) above add some complexity to the planning and construction, but collectively they have the potential to eliminate over 65% of the proposed flood protection barriers, including all eight (8) plant access gates, and save perhaps \$2 million in construction costs.
- d. In addition to the pure construction cost savings associated with eliminating the berms/walls/gates along both sides of Llano Road, this removes the need to address potential construction conflicts with utilities that cross Llano Road and also drastically reduces the effort and need to evaluate the risks associated with floodwater entering the WRP through utility trenches, conduits and pipes.

2016 Study: Initial screening of options in 2016 Study appears to have been solely based on qualitative criteria (1 through 5 scoring) which did not appear to consider potential projects being considered by other agencies that may affect flood elevations.

Proposed Approach: Although we generally agree with the reasoning behind selection of Option E (Berms and Floodwalls) as the preferred, or part of the preferred, alternative, we feel that Option D (Detention Basin) also deserved to be carried forward in some fashion, in part due to its ability to lower flood elevation. For the past several years, the City of Rohnert Park has been planning to construct a 200 acre-foot detention basin along the Copeland Creek drainage immediately east of Petaluma Hill Road. While this volume is relatively small compared to the overall storage volumes that could meaningfully affect floodwater elevations at the WRP, the potential benefits of this project should have at least been mentioned as something that could partially offset the perceived qualitative disadvantages of Option D.

We will lead an effort to attempt discovery of these types of projects, as well as partnering opportunities with public agencies and/or private entities that might produce greater volumes of detention or other floodplain improvement concepts by interviewing Sonoma County Water Agency and City of Rohnert Park staff during Task 1.3 "Project Chartering Refinement."

2016 Study: Unit costs identified for construction of floodwalls in the 2016 Study are in sharp contrast to those presented in the 2008 Study.

Proposed Approach: Although very little information is provided in either Study relative to how the unit costs were derived, we would estimate the construction of reinforced concrete retaining walls with heights ranging from 8 to 10 feet to be more in line with the

\$1,250 per linear foot as presented in the 2008 Study rather than \$500 per linear foot as presented in the 2016 Study. With approximately 3,800 linear feet of wall to be constructed, using \$1,000 per linear foot translates to an increase of \$1.2 million in the average subtotal construction cost presented in the 2016 Study. This unit cost could move even higher if aesthetic fill to conceal the outside face of the floodwalls is added as shown on the wall detail included in the 2016 Study.

The Project Initiation Plan (PIP) mentioned the potential use of “rammed earth” for the floodwalls to trim cost and increase aesthetics. Our structural subconsultant, ZFA Structural Engineers, has significant experience with retaining wall design and rammed earth (otherwise known as “stabilized earth”) technology and will evaluate the applicability of the technology to this project. ZFA has expressed initial caution against its use due to the expense and risk associated with the need for ongoing surface treatment to ensure that weathering and erosion do not compromise wall integrity.

Once a preferred project has been identified, we will prepare a new concept level project cost estimate and present it to the City for discussion before proceeding with Preliminary Design. This work will be completed during Task 1.3 “Project Chartering Refinement.”

2016 Study: The 2016 Study mentions a 60 to 80 cfs peak pumping rate for stormwater runoff collected internal to the floodwall from the portion of WRP east of Llano Road.

Proposed Approach: Although internal floodwall drainage from this portion of the WRP has been identified as not being the responsibility of the Consultant that will be selected to design the flood barriers, the identified pumping rate coupled with the concept plan to convey it to the Flow Equalization Basins (FEB), as mentioned in the City’s PIP, strikes us as alarming. We pose the following rhetorical questions to spur thinking by others.

“Were the hydrologic data and analysis used to predict this rate overly conservative?”

“What excess capacity is available in the Flow Equalization Basins (FEB) to accept up to 1 million gallons every 30 minutes during a storm event?”

“Could just the ‘first flush’ of the dirtiest runoff be conveyed to the FEB with the remainder being discharged to the Laguna?”

We will be exploring questions similar to these as we develop the design for facilities to capture and convey internal floodwall drainage from the southerly portion of the WRP on the west side of Llano Road. The magnitude of potential cost for this problem deserves additional critical, outside-the-box thinking during the conceptual stage to produce a reasonable solution.

Once Project Chartering work has concluded, we will begin Task 2, Field Investigations and Task 3, Preliminary Design. Under these tasks, the following special circumstances will come into play and be considered.

1. Although the pressure exerted by flood waters on barriers such as berms, walls and gates embankments and walls can be similar to those exerted by water in impoundments, such as the Meadow Lane Ponds, the duration of such pressures and the resultant potential for seepage through the soils beneath the barrier is much less. Nevertheless, geotechnical exploration, evaluation and observations during construction will all account for the fact that the entire WRP complex is constructed over alluvial soils, some lenses of which are extremely porous. Where

such lenses are predicted or encountered, we will evaluate and determine the extent to which to construct appropriate cut-off measures to limit the risk of flood waters seeping beneath the barriers and into the WRP.

The extent and type of geotechnical exploration necessary will strongly depend on the conceptual design that is approved during Project Chartering. Borings and test pits will certainly be required, but review of the 2008 Miller Pacific report probably offers sufficient information to conduct the conceptual design exercises. Should the pipeline along the south and east sides of the WRP as shown on the Disinfection Improvements Project Overall Site Plan be constructed in the near future, it would present a great opportunity to learn about subsurface conditions along a significant length of the proposed floodwall.

2. According to California Water Code, Division 3, Dams and Reservoirs, Part 1, Supervision of Dams and Reservoirs, Chapter 1, Definitions, 6000-6008., berms that are constructed for the purposes of this project (control floodwaters) do not fall under the jurisdiction of the Division of Safety of Dams (DSOD).
3. The erosive forces of moving water in the Laguna, even though velocities are low, will be considered in the design of protective measures on the outside slopes of earth berms. This will include evaluation of fetch wind wave forces on south facing slopes.
4. Depending on funds and construction materials availability, some elements of the flood protection barriers may need to be constructed over several seasons using a phased approach. We will develop phased construction guidelines and discuss them with City staff. Should materials for berm construction from known stockpiles (e.g. trench spoils placed at the West College Facility) be in short supply, use of soil from the failing interior dike separating Meadow Lane Ponds C and D could be considered. Depending on the volumes required, reduced hauling costs from the Meadow Lane Complex could offer a significant cost savings over other sources.
5. Options for establishing reasonably watertight flood gates across vehicular WRP driveway access points or roadways will be developed and discussed with City staff to determine preferred alternatives to be fully designed and specified during the construction documents phase. Placement of roadway gates across Llano Road will require significant coordination with the County of Sonoma to establish procedures and warning systems for effecting temporary road closure shortly before the onset of flooding that would cause the gates to be operated or erected.
6. From our previous work at the site, we are familiar with the stormwater pumping system that conveys runoff from the northern portion of the compost and biosolids facility, and anticipate little, if any modification unless additional stormwater needs to be collected and conveyed as a result of Llano Road being contained within the protected area.
We envision the stormwater pumping system for conveying internal floodwall drainage collected from the southerly portion of the WRP on the west side of Llano Road being located near the roadside ditch adjacent to the Geysers Pump Station. Rainwater falling on the Geysers Pump Station site currently flows into this roadside ditch before reaching the Laguna. The stormwater pumping system would be conveniently located to easily collect additional stormwater from Llano Road that is contained within the protected area.
A main storm drain pipe to convey stormwater via gravity past the floodwall and into the Laguna during non-flooding events would be equipped with a "Tideflex" type duckbill check valve. The check valve would automatically close when necessary to prevent floodwaters from pushing upstream through the storm drain pipe and into the protected area. During flood events, stormwater from the protected area would back-up into a new stormwater pump station wet well for pumping past the floodwall and into the Laguna.
Included with the stormwater pumping system would be an automatic 'first flush' diverter (typically sized to capture the first ten minutes of a storm event) which would bypass the main storm drain pipe and stormwater pumping station and convey the 'first flush' to the WRP for treatment, or to a Low Impact Development (LID) treatment area such as a vegetated swale,

extended detention basin, vegetated buffer strip, or bio-retention area. Overflow from the LID treatment area would flow to the stormwater pumping system for discharge to the Laguna.

Our approach to conducting the Preliminary Design and Contract Document Tasks Phases will closely follow the work described in the Scope of Services section under Tasks 4, 5 and 6 with a constant eye towards maintaining continuity with the concepts developed in the earlier stages of the project. This is a complex project that will demand a high degree of communication and coordination amongst the members of the project team as well as the multitude of agencies from whom permits will need to be acquired. Brelje & Race understands the complexities of the project will manage it with the utmost level of care and attention to ensure that City staff are consistently well-informed of project progress, unforeseen circumstances and well in advance of any special needs and critical decision points.

Brelje & Race understands the City desires the project, including permitting to be complete by Fall 2018. We are prepared to staff and start the project immediately upon being provided with a Notice to Proceed, but given our experience with the CEQA process and securing permits from the various resource agencies that will be involved, doubt that a Fall 2018 completion schedule is achievable. Absent the need for regulatory approvals, we could complete the construction documents within that time frame, but realizing the uncertain and often lengthy time frames associated with permitting, we can only suggest that we will employ as many “squeaky wheel” techniques as possible and prudent to help the City acquire the necessary permits within the shortest time possible.

REFERENCE PROJECTS

Brelje & Race has provided services similar to those required by the RFP. We have selected the following projects that demonstrate our relevant experience and provide references for those clients. We encourage you to contact our references to gain additional insight into the superior quality of service that Brelje & Race provides.

WEST COLLEGE POND NO. 1 DIVIDER LEVEE

City of Santa Rosa

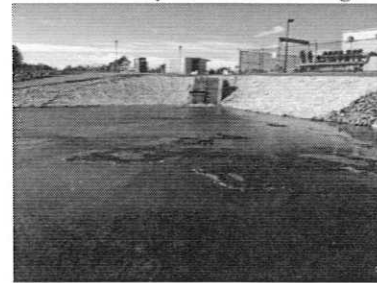
Reference:	Andrew Wilt, Associate Civil Engineer, City of Santa Rosa, (707) 543-4519, awilt@srcity.org
Design Fee:	\$75,000
Construction Estimate	\$990,000
Actual Construction Cost:	\$803,000
Construction Dates:	Summer 2014
Key Team Members:	David Long, Principal-in-Charge/Project Manager; Ben Bryant, Design Engineer; Dana Brock, Geotechnical Engineer

A new divider levee within the existing West College Pond No. 1 was designed and constructed allowing storage of recycled water on one side and high flow wastewater storage on the other. Recycled water storage at the West College Facility is a critical element in controlling suction side hydraulics for pumping stations on the City of Santa Rosa Urban Reuse water recycling system.

The project eliminated difficulties associated with dual-purpose operation of the pond and increased the usable depth in the recycled water pond by reconfiguring the inlet connection to the pump station wet well. Brelje & Race also identified sand channels within the bottom of the high flow storage pond, likely due to an old stream remnant, which were excavated and capped to eliminate a potential path for seepage.

Key Project Elements

- Engineering Design Services
- Construction Management
- Construction Inspection



Pond 1 Channel Intake

The construction included 1,500 feet of 48-inch diameter recycled water pipe, 450 feet of stormwater force main piping, over 27,500 cubic yards of grading, and riprap slope protection. The contractor successfully utilized AutoCAD generated surfaces for mass grading using GPS equipment, minimizing the need for construction staking and surveying during construction.

Major project accomplishments included:

- Fully designed, constructed and commissioned in 12 months
- Change orders and overruns less than 6.5% of bid price
- Design, construction management and inspection all provided by Brelje & Race for 61% of proposal price – a \$100,000 savings for the City

MEADOW LANE POND REPAIR PROJECTS (PONDS B, C, AND D)

City of Santa Rosa

Reference:	Tracy Duenas, Associate Engineer, City of Santa Rosa, (707) 543-3952, tduenas@srcity.org
Design Fee:	\$440,000
Construction Estimate	\$3.75 million
Actual Construction Cost:	Not available
Construction Dates:	2012 through 2014
Key Team Members:	Ben Bryant, Design Engineer; Dana Brock, Geotechnical Engineer

The Meadow Lane Pond Repairs were three discrete projects designed by Brelje & Race and constructed in three consecutive construction seasons between 2012 and 2014. The projects included preliminary design, a dam break analysis and preparation of an Emergency Action Plan and construction documents to satisfy the requirements of the State of California Division of Safety of Dams (DSOD). Brelje & Race provided sole-source coordination with DSOD from the initial preliminary design discussions through plan approval, construction and project close-out.

Pond D work centered on repairing 700 feet of a 30-foot tall dike that had shown signs of worsening seepage. Brelje & Race engineered a repair plan that required removing the top three feet of the dike's interior face, laying out that material in the bottom of the pond, blending it with bentonite clay at a specified percentage, and then replacing the blended material on the dike face. Engineered riprap was then placed to protect the repaired portion from erosion. Finally, a 30-foot deep cement-bentonite slurry trench was constructed along the interior dike toe to inhibit seepage beneath the dike.

Key Project Elements

- Dam Break Analysis
- Design Innovation
- Cut-off / Seepage Prevention
- DSOD Coordination
- Construction Support
- Wastewater/Recycled Water

Pond B involved the repair of a failed 48-inch diameter pipe fitting located 25 feet beneath the center of the dike between Ponds B and C. The design required removal of the failed fitting, adjacent pipe and a large section of the surrounding dike. Brelje & Race analyzed the pipe's hydraulic requirements and determined that a smaller diameter replacement pipe installed at a lesser depth would easily meet all operations parameters.

For the Pond C Project, more than 1,600 feet of dike was repaired using the same techniques developed for the Pond D project.

Brelje & Race served as the Engineer of Record for all three projects and worked directly with DSOD Field Branch staff to acquire necessary approval of all changes during construction. Our solid working relationship with DSOD facilitated rapid resolution of the few changes and allowed the project to progress without delay.

Major project accomplishments included:

- The repair of Ponds C and D were an unqualified success. The area outside the dikes adjacent to the Laguna de Santa Rosa and Compost Facility, which had been marshy quagmires, have remained firm and dry since the ponds were refilled.
- The modified approach to the Pond B repair saved the City tens of thousands of dollars.



*City of Santa Rosa Pond "C"
During Construction*

AIRPORT-LARKFIELD-WIKIUP (ALW) SANITATION ZONE RESERVOIR D RECLAIMED WATER RESERVOIR

Sonoma County Water Agency

The Sonoma County Airport-Larkfield-Wikiup area is served by the largest zero discharge water recycling system in Sonoma County. Effluent is stored in three storage reservoirs with a combined capacity of 290 million gallons and is irrigated on over 220 acres of airport land by a fixed head irrigation system.

Since the early 1980's, Brelje & Race has provided engineering services for this facility, including planning, design, assessment district engineering, contract administration, and construction engineering. One notable component of our services consisted of disposal system improvements, which entailed the siting and design of a new storage reservoir (Reservoir D) for secondary effluent. The reservoir has a capacity of approximately 100 million gallons and the design included related piping between the treatment

Key Project Elements

- Engineering Planning and Design
- Dam Break Analysis
- Water Balance Modeling
- Bid Assistance
- DSOD Coordination
- Wastewater/Recycled Water

plant, reservoir and reclamation system, and a pump station to provide pressure to the existing site irrigation. Due to the size of the storage reservoir, the design and construction fell under the jurisdiction of the DSOD.

The reservoir design posed some challenges as calculations had to be made as soon as it was determined that bentonite clay was required to blend with the native material to construct the embankment wall, thereby ensuring the reservoir was seismically sound.

Major project accomplishments included:

- Increased storage capacity for the zero discharge facility.
- In-flow projections based on population growth.



*ALW Reservoir "D"
During Construction*

Reference:	Cordell Stillman, Capital Projects Manager, Sonoma County Water Agency, (707) 547-1953, cordel.stillman@scwa.ca.gov
Design Fee:	\$336,000
Construction Estimate	\$2.4 million
Actual Construction Cost:	Not Available
Construction Dates:	Completed 2000
Key Team Members:	David Long, Project Manager; Richard DiTommaso, Mechanical Engineer

PROCTOR HEIGHTS WATER STORAGE TANKS

City of Santa Rosa

Faced with a growing population and uncertainty surrounding future regional water resources, the City of Santa Rosa realized a need for additional water storage in their aqueduct (lower) pressure zone to improve system reliability and supplement emergency reserves. Preliminary planning identified a City-owned parcel of land, located in the Proctor Heights area of Santa Rosa, as a potential site for new water tank construction.

The Proctor Heights tank site is located in a wooded neighborhood, bordered on three sides by City streets and houses on the fourth side.

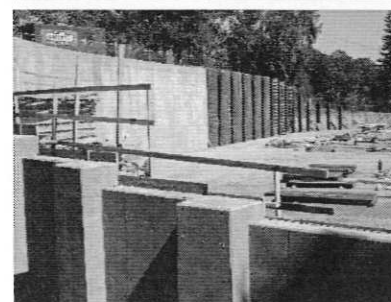
Key Project Elements

- Engineering Planning and Design
- Drilled Pier, Cantilever Retaining Wall
- Sensitive Environmental and Neighborhood Conditions
- Storage Tank and Water Transmission Main Design
- Booster Pump Station with VFD Pumps
- Construction Support
- Right-of-Way Acquisition
- ADA Access

Inside the curve of a busy roadway and highly visible, the tank design required special attention to aesthetics and safety that otherwise would not have been an issue.

Preliminary designs determined that two 2.6 MG tanks would grant the largest possible volume of storage on the site; also fulfilling the City's desire to have twin tanks for reliability purposes. Fitting two welded steel tanks on the relatively small site required the use of a retaining wall ranging

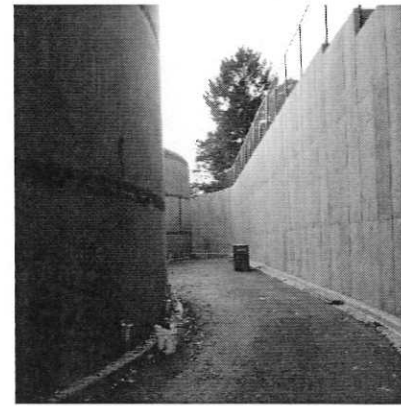
in height from four to 22 feet and stretching around both tanks for a distance of approximately 400 linear feet.



*Proctor Heights Tanks
Retaining Wall During Construction*

Major project accomplishments included:

- Design included modular block retaining structures, stairs and ADA compliant driveway crossing to dovetail with future pathway and sidewalk improvements
- Modified initial scope of work to add features that allowed water from City owned well to be blended with water in tanks prior to entering distribution system.
- New onsite pump station to send water directly from the new tanks to the higher pressure distribution zones, maintaining high water quality in the tanks during low demand periods, and increasing water supply reliability to the upper pressure zones



*Retaining Wall
 Post Tank Construction*

Reference:	Mike Prinz, Deputy Director – Operations, City of Santa Rosa, Subregional Operations, (707) 543-3357, mprinz@srcity.org
Design Fee:	\$392,000
Construction Estimate	\$6.32 million
Actual Construction Cost:	Not Available
Construction Dates:	April 2004 to October 2006
Key Team Members:	David Long, Project Manager; Richard DiTommaso, Mechanical Engineer; ZFA Structural Engineers

ADDITIONAL RELEVANT PROJECT INFORMATION

Brelje & Race provided design and construction management services for the following projects:

- Ponds 8, 9, and 10 Repairs – Town of Windsor
- Shone Farm Reclaimed Water Reservoir – Santa Rosa Junior College District
- Spillway Repair – Windsor Oaks Vineyards
- 10 MG Surface Water Reservoir – Timber Cove County Water District
- 300 AF Surface Water Reservoir – The Sea Ranch Water Company

SCOPE OF SERVICES

The following phases of work and associated tasks describe Brelje and Race's recommended scope of work to complete Design Engineering Services for Santa Rosa Regional Water Reuse Plant Flood Protection project. The work includes items described in the "Design Services Terms for Capital Improvement Projects," attached hereto as Appendix C.

We have reviewed the Scope of Services provided as Appendix "A" to the project RFP and find that it provides an excellent framework for use in our proposal. It has been reproduced below with changes, additions and corrections by Brelje & Race highlighted.

DESIGN DEVELOPMENT PHASE

Task 1. Background Information Review and Project Chartering

1.01 Review of Background Information

Consultant shall assemble and review existing project related studies, plans, and regulatory permits related to the project. Consultant shall review list of available information and submit a list of additional information needs. Studies, plans, and permits may include, but are not limited to, the following:

- Flood maps
- County design criteria
- Photographs documented during the 2005 storm event
- Existing topographic data collected by the City and other agencies, including data developed through the Sonoma County Vegetation Mapping (sonomavegmap.org/) dated September 2013.
- Two separate conceptual studies of flood protection dated March 2006 and April 2008.
- Geotechnical investigation for a levee and flood wall dated December 2008.
- July 2016 Laguna Treatment Plant Flood Protection Feasibility Study.

Consultant shall summarize the key findings, additional information needed and any questions arising from review of the background information in a Technical Memorandum.

1.02 Initial Project Chartering

Following review of background information, conduct a kick-off meeting to confirm project work plan, scope, project expectations, and goals.

1.03 Project Chartering Refinement

- Collaborate with City staff and hydrologic/hydraulic modeling consultant to re-evaluate and finalize design flood elevation to be used for project.
- Interview Sonoma County Water Agency and City of Rohnert Park to discover any plans or opportunities to realize improvements separate from this project that may lower Laguna de Santa Rosa floodwater elevations.
- Prepare concept-level alternative layout for flood protection berms/walls/gates based on selected design flood elevation and collaborate with City staff to finalize.
- Prepare cost estimate for approved concept level layout.

Task 1 Deliverables

- Technical Memorandum described above. Submit five (5) copies of the draft for City review and comment.

Scope of Services Summary

Design Development Phase

- Task 1 Background Information Review and Project Chartering
- Task 2 Field Investigations
- Task 3 Permit Agency Coordination
- Task 4 Preliminary Design

Contract Documents Development Phase

- Task 5 Contract Documents
- Task 6 Project Management
- Task 7 Bid Phase Services

- Draft work plan for review by City prior to the kickoff meeting and provide a meeting summary highlighting key points from the kickoff meeting.
- Technical Memorandum describing project conceptual design as agreed upon during Project Chartering Refinement, including project cost estimate
- Letter report summarizing discussions during meetings with Sonoma County Water Agency and City of Rohnert Park.

Task 1 Meetings

Meeting No. 1.01 – Kickoff Meeting

Meeting No. 1.02 – Modeling Refinement Meeting

Meeting No. 1.03 – Conceptual Design Refinement Meeting

Task 2. Field Investigations

The field investigations are intended to support the engineering and design tasks. As part of the July 2016 Feasibility Study, limited surveying and geotechnical work was completed. In addition, there is an on-going geotechnical study being performed as part of the LTP Ultraviolet Disinfection Replacement project located at the southwest corner of WRP. For the design effort more extensive geotechnical investigations and surveying is expected.

The field investigation may include, but are not limited to, the following:

- Surveying and Mapping
- Geotechnical

2.01 Surveying and Mapping

Consultant shall coordinate with the City who will provide surveying services for the project. The City and the Sonoma County Water Agency (SCWA) have extensive topographic information of the Laguna de Santa Rosa channel upstream of Llano Road and limited cross sectional data downstream. The City has obtained channel cross sectional information at approximately fifteen specific locations from Llano Road to just west of Todd Road to coincide with prior FEMA mapping and other modeling efforts. For a portion of the April 2008 conceptual level flood protection study, topographic data was obtained via on-line services (intermap.com). The topographic information was overlaid with the current FEMA work map which includes an aerial photo. The on-line topography did not match consistently with the current site conditions.

Field surveys shall be used to establish both horizontal and vertical alignment for the design. Consultant shall perform a search of utilities located in the vicinity of the projects and shall coordinate with WRP staff and other utility agencies as necessary. The search shall include the records and plans of LTP projects as well as prior projects by other agencies and utilities. The April 2008 and the July 2016 studies identified potential utilities that could affect the project.

An on-site walk-through shall be made in the project areas with a WRP representative.

Provide subsurface potholes for potential utility interferences. Assume 15 existing utility interferences for the purposes of estimating the work.

2.02 Geotechnical Investigation

Consultant shall perform a detailed geotechnical investigation for the project based on existing information and previous investigations/studies at WRP and surrounding area. The investigation shall cover soil classifications and properties that affect design and construction, geologic hazards/potential seismicity, liquefaction, groundwater levels, soil stability and strength, settlement potential, excavation potential/shoring needs, and potential location of poor soils. The geotechnical investigation shall inform the detailed design of the project.

The efforts shall be summarized in a geotechnical report that is in letter format.

Review of the final plans is required along with a letter approving the design.

Task 2 Deliverables

- Geotechnical report for the project consistent with the level of effort required for the project.
- Pothole report.
- Five (5) copies of the draft reports for City review and comment and five (5) copies of the final reports.
- A letter stamped by the Geotechnical Engineer approving the design plans.

Task 2 Meetings

Meeting No. 2.01 – Field investigations coordination meeting to discuss survey requirements.

Meeting No. 2.02 – Field investigations review meeting to discuss preliminary geotechnical findings.

Meeting No. 2.03 – Field investigations coordination meeting to discuss potholing requirements.

Task 3. Permit Agency Coordination

Consultant shall organize and conduct preliminary agency coordination meetings.

3.01 Agency Coordination

To understand the regulatory agency requirements and inform the design, the design Consultant shall organize meetings with the regulatory permitting agencies, City staff, program manager, environmental third party consultant, grant funding consultant, and Hydrologic and Hydraulic (H&H) Consultant. The third party CEQA consultant will be responsible for permitting applications with the natural resource agencies and will serve as the primary coordinator and meeting organizer with those agencies. Consultant will coordinate with the natural resources agencies regarding the engineering elements of the project as requested and coordinated by the third party CEQA consultant.

Anticipated regulatory permitting agencies include, but are not limited to the following:

- US Army Corps of Engineers,
- North Coast Regional Water Quality Control Board Industrial Stormwater Permit,
- City of Santa Rosa design review and Grading/Building Permit,
- FEMA,
- Sonoma County Water Agency, and
- Sonoma County PRMD.

The meetings will assist with the determination of the type of permits required, CEQA needs, and the technical requirements of the project. Consultant shall prepare an agenda in advance of each meeting and shall prepare a memorandum summarizing each meeting.

3.02 Permit Assistance

Consultant shall assist the City with the preparation of permits. Consultant will prepare draft permits and submit to City for review and signatures. City will pay fees and submit the permits. Consultant shall provide technical assistance with project specific write ups and attachments such as figures.

Task 3 Deliverables

- Technical memorandum summarizing the findings of the permit agency meetings and the permitting needs.
- Assist with the preparation of the permit applications.
- Submit five (5) copies of the draft submittal for City review and comment.

Task 3 Meetings

Meeting No. 3.01 – Agency coordination/pre-application meetings, as required.

Meeting No. 3.02 – Consultant shall conduct a meeting to review the findings of the regulatory agency meetings and discuss the implications to the project.

Task 4. Preliminary Design

The purpose of this activity is to advance the design process for the project to the approximate 25-30% level of completion and to produce a Preliminary Design Memorandum that defines the project, finalizes outstanding fundamental design decisions and design criteria, develops conceptual system schematics and layouts, and sets the standards and conventions that will drive the design activities for the remainder of the design effort for the projects. A draft Preliminary Design Memorandum (PDM) shall be submitted and presented to the City for review and discussions at a workshop that will be facilitated by the Consultant. Consultant shall incorporate the comments of the City's review staff, and submit the final PDM. Activities to be considered during this phase include, but are not limited to, the following:

1. Confirm the design criteria to clearly define the basis of the detailed design for the projects.
2. Selection of main alignment of the berm/wall.
3. Develop conceptual schematics, conceptual site arrangements, and primary elements of the project.
4. Conceptual construction cost estimates and schedule for all facilities included in the projects.

Identify remaining design decisions that must be made for the **Contract Documents Development Phase** to proceed and assist the City in making a determination on such decisions.

4.01 Establish Design Criteria and Define Outstanding Design Issues

The Consultant shall review the July 2016 Feasibility Study design criteria and outstanding issues and alternatives, define alternatives with enough detail to evaluate performance, and prepare a probable construction cost estimate. The Consultant shall incorporate requirements of the CEQA mitigation monitoring program (that will be developed as part of the CEQA Consultant scope) and anticipated permit requirements (that will be developed during the initial phase of the design).

We anticipated that work under Task 1.3 will significantly alter the design criteria presented in the July 2016 Feasibility Study.

4.02 Prepare Alternatives Comparison and Preliminary Cost Estimate

The Consultant shall perform an alternatives comparison including probable construction cost estimates and summarize the findings in a preliminary design memorandum detailing the results of the comparison. Activities to be considered during this phase include, but are not limited, to the following:

- Selection of major systems such as flood gates at WRP entry points. The Consultant shall discuss with City their preferences for selection of major systems.
- Prepare construction phasing, identifying the provision of temporary systems to maintain plant operations during construction.
- Prepare preliminary equipment list in consultation with the City.
- Prepare a preliminary schedule for final design, construction, and commissioning of the project.
- Prepare a preliminary estimate of probable construction cost for all facilities included in the projects.

Task 4 Deliverables

- Five (5) copies of the Preliminary Design Memorandum (PDM) for review by City prior to the preliminary design review meeting. The PDM shall provide the basis and details for the detailed design and construction of the proposed facilities.
- After the design review meeting and receiving City comments, Consultant shall finalize the PDM and submit Five (5) hard copies and one electronic version to the City.

Task 4 Meetings

Meeting No. 4.01 – Attend preliminary design review meeting and prepare meeting minutes.

CONTRACT DOCUMENT DEVELOPMENT PHASE

The purpose of the Contract Document Development Phase (40%, 75%, 90% and 100% Complete Design Development) task is to complete the detailed design of the project as outlined in the final preliminary design memorandum, including the preparation of contract documents, contract drawings and technical specifications. Detailed design review packages are required at 40%, 75% and 90% design and a final bid package at 100%. At this point, all major design decisions should have been documented clearly and agreed by the City and all outstanding issues from the preliminary design memorandum must be resolved. Activities to be considered during this phase include, but are not limited, to the following:

1. Establish a project-specific QA/QC program.
2. Prepare technical specifications.
3. Prepare final equipment list.
4. Prepare final drawings, including general sheets, demolition plans, Civil, Structural, Mechanical, Electrical, and Instrumentation and Control drawings, as appropriate.
5. Prepare a final schedule for construction, commissioning and post-construction services of the project.
6. Prepare Estimates of Probable Construction Cost for the project. This cost will be used as the engineer's estimate.
7. Provide services during the bid period, assisting the City in answering questions from bidders and preparing Addenda as required for distribution.
8. Assist City in reviewing contractor bids.

Task 5. Contract Documents

Consultant shall prepare 75%, 90%, and 100% Contract Documents consistent with the City's Exhibit B-2 "Design Service Requirements for Capital Improvement Projects."

- 5.01 75% Design Documents
- 5.02 90% Design Documents
- 5.03 100% Plans, Technical Specifications and Construction Cost Estimate

The degree of design progress that will be achieved during Task 4 Preliminary Design, makes preparation, submittal and review of a 40% Design Documents package superfluous; therefore, we propose to proceed directly into preparing 75% Design Documents following completion of Preliminary Design.

Task 5 Deliverables

Five (5) sets each of 75%, 90%, and 100% Contract Documents for review by City.

Task 5 Meetings

Meeting No. 5.01 through 5.03 – Attend review meetings and prepare minutes of each meeting.

Task 6. Project Management

Consultant shall assemble a project team to provide services as described herein. The Consultant's Project Manager shall manage the efforts of the Consultant's project team members and subconsultants so as to achieve completion of the scope of work within established project budget, schedule, and recognized industry standards of care. All work included in this scope of work will be conducted by the Consultant or its subconsultants unless otherwise approved by the City.

Consultant will provide a level of effort in the management of this project commensurate with its high level of importance and ensure that the design activities proceed in a timely manner, are sufficiently resourced and are conducted per scope, schedule and budget and work plan.

The project management work shall include, as a minimum, the following components: project setup; progress monitoring; project coordination; communication with the City; document control and management; development of subconsultant agreements, subconsultant management; and invoicing. The scope shall include the coordination of project meetings and agency meetings, conducting the meetings, and preparation of agendas and minutes of the meetings.

Task 7. Bid Phase Services

The following bid phase services shall be performed by the Consultant:

- 7.01 Attend Pre-Bid Walk
- 7.02 Prepare Addenda as necessary for City to send
- 7.03 Assist the City in responses to bidder questions
- 7.04 Attend Bid Opening
- 7.05 Assist with the analysis of bids
- 7.06 Prepare conformed contract documents to include all contract addenda

APPENDIX A – RESUMES

BRELJE & RACE CONSULTING ENGINEERS

David Long, P.E.

Benjamin Bryant, P.E.

Arthur Ralston, P.E.

Dave Coleman, P.E.

TERRAIN, INC.

Dana Brock, P.E., C.G.E.

ZFA STRUCTURAL ENGINEERS

David Cooper, SE, LEED AP

DAVID F. LONG, P.E.

Project Role

Principal-in-Charge

Education

B.S., Civil Engineering,
San Jose State University,
1993

Registration

Professional Civil Engineer,
CA No. C57429

Professional Endeavors

Brelje & Race
1994 to Present

Professional Affiliations

American Council of
Engineering Companies,
California (Board of
Directors and Chairman
Water Resources Committee)

Chi Epsilon (National Civil
Engineering Honor Society)

Wine Country Water Works
Association

A Senior Principal at Brelje & Race since 2002, David has over 20 years of experience in the civil engineering field that include a wide range of projects in pipeline replacement and rehabilitation, wastewater collection and treatment, recycled water, water supply, and winery facilities. As liaison to the City of Santa Rosa Public Works Engineering Division and Principal-in-Charge of their projects, David has played a role in more than 40 municipal utility projects. He has also been instrumental in the design and construction of numerous water pumping and treatment systems, embankment dams for off-stream storage, welded steel tanks and high-strength wastewater treatment systems.

David is the District Engineer for the Forestville Water District. During his 15 year tenure with the District, David has overseen a broad range of services including environmental, planning, design and construction administration.

In addition to his civil engineering design projects and construction administration activities, David also specializes in business development, client relations, master planning, and revenue program development.

Earth Embankment / Reservoir

City of Santa Rosa

- West College Pond 1 Divider Embankment

Sonoma County Water Agency

- Airport-Larkfield-Wikiup Sanitation Zone Reservoir "D" and Pump Station

Timber Cove Water District

- 300-Acre Feet Surface Water Reservoir

The Sea Ranch Water Company

- 10 MG Surface Water Reservoir

Wastewater and Recycled Water

City of Santa Rosa

- Los Alamos Trunk Sewer Replacement Master Plan
- S13/S14 Booster Pump Station Improvements
- Silva Avenue and King Street Sewer Replacement
- A Place to Play Pump Station
- North Trunk Sewer Replacement
- Barnett/Davis/Earle Street Sewer Replacement
- Hewitt Street Sewer and Water Replacement
- West Cotati Reclamation Pipeline
- King Street Sewer and Water Replacement

Sonoma County Water Agency

- Airport-Larkfield-Wikiup Sanitation Zone Trunk Sewer Capacity Study
- Airport-Larkfield-Wikiup Sanitation Zone Reservoir "D" and Pump Station

Town of Windsor

- Master Trunk Sewer Plan

DAVID F. LONG, P.E.

Forestville Water District

- Kay Lane Recycled Water Pipeline
- Report of Waste Discharge for NPDES Permit Renewal
- Recycled Water Users Technical Report
- Effluent Storage Pond Technical Report
- Sewer Rate Study and Structure Modifications

Sutter Medical Center Santa Rosa

- LBC Wastewater Treatment Plant Decommissioning
- Annexation to ALW Sanitation Zone

Water

City of Santa Rosa

- Tank Seismic Upgrades Phase III, R2A, R4B, & R14
- Silva Avenue and King Street Water Replacement
- Summerfield Road Water Main Sliplining
- Bennett Valley Golf Course Irrigation Improvements
- Commercial, Industrial, Institutional Water Use Efficiency Studies

Yulupa Mutual Water Company

- Upper Well Replacement
- Iron and Manganese Treatment Plant

Diamond A Mutual Water Company

- Zone 1 and Zone 3 Water Tank Replacements

City of Sonoma

- New Norrbom Road Tank and Booster Pump Station

Town of Bodega

- 1.3 MG Raw Water Storage Tank and Treatment Plant Upgrade

Town of Windsor

- Shiloh Ridge Water System Improvements

Timber Cove County Water District

- Surface Water Storage Reservoir and Treatment Plant
- Distribution System Performance Evaluation
- Amanita Circle Water Main Replacement
- Raw Water Lift Station Controls

Forestville Water District

- Young Ranch Storage Tank and Pressure Zone Control Modifications

BENJAMIN BRYANT, P.E.

Project Role

Project Engineer

Education

B.S., Civil Engineering,
California State University,
Chico, 2009

Registration

Professional Civil Engineer,
CA No. 79218

Professional Endeavors

Brelje & Race
2009 to Present

Brelje & Race
Civil Engineering Intern
Summer 2006, 2007, 2008

Certifications

LEED, AP

Professional Affiliations

American Council of
Engineering Companies
(ACEC)

California Water
Environment Association
(CWEA)

U.S. Green Building Council
(USGBC)

Wine Country Water Works
Association

Water Environment
Federation (WEF)

Benjamin (Ben) Bryant is an Associate Civil Engineer with the firm and has experience in the fields of geotechnical, water, and wastewater engineering. He has a project portfolio of embankment reservoirs and reservoir repairs, which include project scheduling, field exploration, geotechnical coordination, bid document development, bidding assistance, regulatory agency coordination and approval, earthwork calculations, cost estimating, and assistance during construction. His broad range of experience includes pump station design, selection and sizing; piping, valves and appurtenances; instrumentation and controls; and project start-up and commissioning. Additionally, Ben is proficient at development of computer models to evaluate the hydraulics of pressure and gravity flow pipe, and open channel flow systems. Ben also has experience as a construction manager and inspector on public works projects.

Earth Embankment / Reservoir

City of Santa Rosa

- West College Pond 1 Divider Levee Project
- Meadow Lane Effluent Pond 'D' Repair, Geotech Exploration, DSOD (Division of Safety of Dams) Approval Process
- Meadow Lane Effluent Pond 'B' Repair, DSOD Approval Process
- Meadow Lane Effluent Pond 'C' Repair, Geotech Exploration, and DSOD Approval Process
- Meadow Lane Dam Breach Model and Inundation Study

Town of Windsor

- Effluent Storage Pond 5 Dike Repair
- Effluent Storage Pond 5 Outlet Piping

Wastewater and Recycled Water

City of Santa Rosa

- Los Alamos Trunk Sewer Replacement Preliminary Design
- Geysers Pipeline Stabilization – Pine Flat Road
- West College Pond 1 Divider Levee Project
- Brown Farm Pond Drain Pipeline to Llano Trunk Sewer
- Spring Lake Lift Station Improvements and Geotechnical Corrections
- Laguna Plant Sludge Pump Station
- Brown Farm Pump Station

Town of Windsor

- Aeration Basin Air Piping Improvements
- Treatment Plant Mapping

County of Sonoma

- Leachate Pipeline Cotati Trunk Sewer Connection
- Leachate Storage Tank Analysis for Closed Landfills

Forestville Water District

- Sewer Service Charge Methodology Modification, Study and Implementation
- Recycled Water Availability Evaluation

BENJAMIN BRYANT, P.E.

- Wastewater Treatment Plant Chlorination System
- Sewer System Planning Map and Modeling
- Civil Liabilities Compliance Project

Sutter Medical Center of Santa Rosa

- Wastewater Treatment Plant Decommissioning Plan

City of St. Helena

- Biosolids Evaluation and Sampling

Water

City of Santa Rosa

- Water Pump Station 3 Modifications
- Station 13 Booster Pump Upgrades and Reservoir 12A Site Security
- Summerfield Rd. and Sonoma Ave. Zone 6 and 9 Water Pumper Connections

Timber Cove County Water District

- Amanita Circle Water Main Replacement
- Runoff Emergency Water Supply Well Source Water Permitting
- Raw Water Pumping System Modifications

Forestville Water District

- Water System Asset Management Plan
- Young Ranch Storage Tank and Pressure Zone Control Modifications

Town of Windsor

- Storage Tank Recoating and Access Improvements

Yulupa Mutual Water District

- Source Water Well Permitting
- Iron and Manganese Removal System Design

City of Rohnert Park

- Anderson 53 Tank and Transmission Main Modeling, Peer Review, Program Management, and Bidding Services

RICHARD DITOMMASO, P.E.

Project Role

Senior Mechanical Engineer

Education

B.S., Mechanical Engineering,
University of California,
Santa Barbara, 1979

Registration

Professional Mechanical
Engineer, CA No. 22823

Professional Endeavors

Brelje & Race
1989 to Present

GEO Operator Corporation
1986 to 1989

Unocal, Geothermal Division
1979 to 1986

Professional Affiliations

American Society of
Mechanical Engineers

Wine Country Water Works

American Water Works
Association

Richard (Rich) DiTommaso is a Senior Engineer with over 36 years of experience as a mechanical engineer in both the municipal and private sector, specifically in the fields of water, wastewater, and geothermal engineering. He has worked with a variety of public agencies in the area of pipeline design, pipeline rehabilitation, water storage tank design, water well design, and municipal pumping stations. He has extensive experience in the design of pumping systems including pump selection and sizing, controls, ancillary facilities including buildings, disinfection systems, piping, valves and appurtenances and flow metering. He also coordinates with electrical, instrumentation and controls professionals for the design of SCADA, telemetry systems and emergency power systems.

Rich has provided construction phase services for many of his design projects as well as for similar projects designed by others. These services have included inspection, contract administration, and start-up assistance.

Wastewater and Recycled Water

City of Santa Rosa

- Laguna Treatment Plant Primary Sludge Pump Replacement
- Brown Farm Pump Station Improvements

Lake County Special Districts

- Anderson Springs Sewer Improvements
- Middletown Wastewater Treatment Plant Improvements

City of Rohnert Park

- East Side Trunk Sewer Phases II & III – Peer Review & Value Engineering

Circle Oaks County Water District, Napa, CA

- Sewer Rehabilitation

Town of Windsor

- Wastewater Treatment Plant Expansion and Renovation Designs
- Influent Pump Station
- Reclamation Plant Aeration Basin Air Piping Improvements
- Flocculation Tanks and AWT Clarifier No. 3 Recoating

Sonoma Raceway, Sonoma, CA

- Wastewater Influent Pump Station, Headworks with Cylindrical Perforated Plate Screen, Aerated Ponds and Disinfection Facilities

Bohemian Grove, Monte Rio, CA

- Central Wastewater Pump Station

Sonoma Valley County Sanitation District

- Eighth Street East Sewer Collection System

Sonoma State University, Rohnert Park, CA

- Wastewater Equalization Facilities

RICHARD DITOMMASO, P.E.

Calpine Geysers

- Unit 14 Pump Station
- Unit 14 Cooling Tower Basin Improvements
- Big Sulfur Creek Pump Station

City of Lakeport

- Ashe Street Sewage Pump Station Replacement

Water

City of Rohnert Park

- Water Storage Tanks 1, 3, 4, and 5 Exterior Coating
- Booster Pump Station Improvements
- Wilfred Ave. PRV Relocation

City of Cloverdale

- Water Deaeration System

City of Santa Rosa

- Fountaingrove Zone 1 Tank
- Proctor Heights Pump Station
- S-3 Pump Station Improvements

City of Petaluma

- Paula Lane Reservoir No. 1 Improvements

Sonoma Raceway, Sonoma, CA

- Water System and Treatment Facility

Town of Windsor

- Tank Recoating and Access Improvements
- Russian River Well Field Improvements (Well No. 9)

Additional Water Projects

Projects for these clients included well design, pump station and facility design, startup, and testing, and construction management.

- City of Sebastopol
- Town of Windsor
- Bodega Bay Public Utility District

ARTHUR W. RALSTON III, P.E.

Project Role

Hydraulic and Hydrology
Analysis and Review/Storm
Water System Design

Education

B.S., Civil Engineering,
University of Hawaii, 1977

Registration

Professional Civil Engineer,
CA No. 42821

Professional Endeavors

Brelje & Race
1994 to Present

Majors Engineering
1988 to 1994

The Austin Company
1981 to 1988

Professional Affiliations

American Society of Civil
Engineers

Arthur Ralston is a Senior Engineer with over 34 years of accomplishments and experience in engineering project management, planning and conceptual design. His experience includes a wide range of projects such as water resource and utility infrastructure; hydraulic and hydrologic modeling and analysis; sewer and storm water system and flood plain studies; site development and improvements; site layout and parking lot improvements; recycled water irrigation; fire protection calculations; construction management; and cost estimation for commercial, industrial, educational, and residential subdivisions. Arthur's project experience also includes Caltrans freeway improvements as well as other roadway and highway design, including roundabouts.

Hydrologic / Hydraulic Modeling and Analysis

Jacobs Ranch/Jack London State Park, North Slope Sonoma Mountain Ridge Trail, Sonoma County, CA

- Hydraulic analysis of South fork of Matanzas Creek

Sonoma County Airport Runway Extension and Safety Improvements, Santa Rosa, CA

- Hydrology and Hydraulic Models of Lower Airport and Ordinance Creek and Culvert Sizing for Creek Realignment.

Northeast Rohnert Park Annexation District, Rohnert Park, CA

- Hydrologic and Hydraulic Modeling Analysis of the Crane Creek, Five Creek and Cook Creek Watersheds.

Shiloh Park Industrial Subdivision, Windsor, CA

- Hydraulic modeling of Pruitt Creek and design of reinforced box culvert bypass conduit.

Cardinal Point 2 Assisted Living, Alameda, CA

- Hydrology and Hydraulic Reports, BCDC Sea Level Rise Report, SWPPP

Delco Live/Work Project, Windsor, CA

- Hydraulic modeling of Pool and Faught Creeks.

Vintage Greens Subdivision, Windsor, CA

- Hydraulic modeling of East Windsor Creek and Windsor Creek including design of trapezoidal bypass channel for flood control. Floodway modeling and application for FEMA Flood Insurance Rate Map Letter of Map Revision.

Oakmont of Concord 2, Concord, CA

- Hydrology and Hydraulic Report

Skyfarm 3 Subdivision Improvements, Santa Rosa, CA

- Hydrology and Hydraulic Reports, Final Stormwater Management Report

American Ag Credit Headquarters, Santa Rosa, CA

- Hydrology and Hydraulic Report

ARTHUR W. RALSTON III, P.E.

Federal Express Distribution Facility, Santa Rosa, CA

- Hydrologic modeling of Upper Airport Creek.

Roseland Elementary School, Santa Rosa, CA

- Hydraulic modeling of Roseland Creek.

Foxtail Golf Club, Rohnert Park, CA

- Hydraulic analysis of Coleman Creek to qualify golf cart bridge designs

Sonoma Academy, Santa Rosa, CA

- Hydraulic modeling of Kawana Springs (Colgan) Creek.

Vintage Oaks on the Town Green Subdivision, Windsor, CA

- Hydrology and Hydraulic Report

Oken Open Space Parcels, Rohnert Park, CA

- Hydrologic Modeling of Coleman Creek Watershed

Farmstand Subdivision, Healdsburg, CA

- Hydrology and Hydraulic Report

Canyon Oaks Subdivision, Santa Rosa, CA

- Hydrology and Hydraulic Report

The Villas Subdivision, Santa Rosa, CA

- Standard Urban Stormwater Mitigation Plan
- Hydrology and Hydraulic Report

Oakmont Senior Living Housing Project, Novato, CA

- Stormwater Control Plan

Plan Check / Peer Review

- Grading and Drainage Plan Check, County of Sonoma Permit and Resource Management Department

Site Development

Santa Rosa Junior College District, Santa Rosa, CA

- Site Components of SRJC Master Planning Update and Facilities Assessment Report

DAVID COLEMAN, P.E.

Project Role

Project Manager

Education

B.S., Environmental
Engineering, Pennsylvania
State University, 1982

B.A., Physics, California
University of Pennsylvania,
1980

Graduate-level coursework in
wastewater treatment and
hazardous waste issues,
1982-1989

Registration

Professional Civil Engineer,
CA No. 71902
PA No. 040337-R
VA No. 18146
Guam No. 1801

Professional Endeavors

Brelje & Race
October 2014 to Present

GHD (Winzler & Kelly)
2006 to 2014

Uni-Tec Consulting
Engineers
1989-2006

William C. Overman
Associates
1985-1989

Clean Air Engineering
1982-1985

Professional Affiliations

California Water
Environment Association

Water Environment
Federation

American Society of Civil
Engineers

David Coleman, an Associate Principal, has over 30 years of experience as a civil engineer in the environmental, sanitary, and industrial disciplines for the federal, state, municipal and private sectors. His experience includes direct responsibility for the design of utility systems, industrial waste discharge, and waste minimization systems.

David's knowledge base includes process kinetics, hydraulics and process control strategies as it applies to wastewater and water treatment technologies, and water and sewer conveyance systems. His experience with wastewater collection, conveyance and treatment projects include equalization basins, raw sewage and recycled water pump stations, complete tertiary treatment facility design, biological nutrient removal, infiltration/inflow abatement and abatement investigation, and sewer rehabilitation.

Water projects have included distribution systems, raw and finished water booster pump stations, standpipe and elevated storage tanks, and gravity multi-media and pressure filtration systems. Chemical feed systems designed include coagulation, precipitation, corrosion control, disinfection and sequestration.

Quality Assurance Review / Project Manager

City of Santa Rosa

- Laguna Treatment Plant Filter Valve Actuators and Valve Refurbishment
- Brown Farm Pond Drain to Llano Trunk
- Long Drive Sewer Relocation
- Llano Trunk Sewer CIPP – Emergency Review
- Urban Water Reuse System Pre-Design

United States Coast Guard, Sonoma County

- Training Center Wastewater Treatment Plant Improvements (Secondary and Tertiary Treatment) – Lead Engineer and Civil Design as well as Engineering Support during construction for New Wastewater Treatment Facility to replace Facultative Pond Treatment System. New facility included Preliminary Treatment System, Secondary Treatment System capable of BNR and Tertiary Filtration System for Title 22 Irrigation.

City of Ukiah, Mendocino County

- Wastewater Treatment Plant Nitrogen Engineering Study – Project Manager and Lead Engineer for Process Monitoring, Modeling and Feasibility Study

Napa Sanitation District, Napa County

- Wastewater Treatment Plant Pond Aeration System Design – Lead Design Engineer and Engineering Support During Construction
- Stonecrest Pump Station and Force Main – Quality Assurance Review of final contract documents

Petaluma Poultry, Sonoma County

- Resizing Replacement of Dissolved Air Flotation Pretreatment Unit
- Equalization Basin Process Analysis
- Design of 350,000 gallon Equalization Basin and Pumping System
- Design of Sanitary Sewer Pump Station and Force Main

DAVID COLEMAN, P.E.

City of Petaluma, Sonoma County

- Mountain View Sewer Rehabilitation – 5,000 LF Replacement and CIPP of Existing Sewers

City of Milpitas, Santa Clara County, CA

- Ayer Pump Station Improvements – Quality Assurance Review

City of Healdsburg, Sonoma County

- Recycled Water Distribution System Design – Quality Assurance Review for 16,000 LF 16 and 12-inch distribution main, reservoir renovation and recycled water pump station

Smith River Rancheria, Del Norte County, CA

- Wastewater Treatment System & Disposal System – Quality Assurance Review

South Tahoe Public Utility District, El Dorado County, CA

- Final and Secondary Effluent Pump Station Improvements – Quality Assurance Review of final contract documents.

Department of the Navy, Twenty-Nine Palms Facility, San Bernardino County, CA

- Mainside Wastewater Treatment Plant Repair Primary Treatment Project – Quality Assurance Review

City of Rohnert Park, Sonoma County, CA

- Eastside Trunk Sewer, Phase I – Quality Assurance Review

City of American Canyon, Napa County, CA

- Wetlands Edge Forcemain Replacement – Quality Assurance/Peer Review

City of Cotati, Sonoma County, CA

- Laguna Sewer Relocation Project – QA Review of 90% submittal of Laguna Sewer Relocation Project, Phase 1. Project includes 3,300 LF of 24", 21" and 18 inch gravity sewer mains and submersible sanitary sewer pump station.

DANA J. BROCK, P.E., C.E.G.

Terrain, Inc.
Engineering and Applied Geology
5940 Guerneville Road
Sebastopol, CA 95472
(415) 850-4943

Project Role

Geotechnical and
Engineering Geology / Field
Inspection

Education

B.S., Civil Engineering,
B.S., Geology, University of
California, Davis 1978

Registration

Professional Civil Engineer,
CA No. 34379

Professional Geologist,
CA No. 3967

Certifications

Certified Engineering
Geologist, CA No. 1241

Professional Endeavors

Terrain, Inc.

President, Principal Engineer
2006 to present

Underground Construction
Managers (UCM)

Principal Engineer
2000 to 2005

Veizades & Associates
1996 to 2000

Project Manager

Directed Technologies

VP Operations
1994-1996

Dames & Moore

Associate Engineer
1989 to 1994

Herzog & Associates

Senior Engineer
1986 to 1989

Unocal Geothermal

Production Engineer
1978 to 1986

Dana Brock is a Civil Engineer and Certified Engineering Geologist with 35 years of experience in civil and geotechnical project scoping, permitting and execution. For the past 30 years, he has been a Project Manager in responsible charge and has directed engineering design projects, geotechnical investigations, and provided engineering during construction for public works projects, geothermal industries, and private development infrastructure. His design and construction experience spans a broad range of engineering projects in the U.S. and in ten other countries, including geotechnical evaluations, excavations, embankments and reservoirs, pipeline installations, pump stations, water collection, storage and distribution facilities, wastewater facilities, roadways, retaining structures, foundations and soil and materials testing. Dana's areas of expertise also include vertical and horizontal drilling techniques, microtunneling, structural settlement and underground piping remediation, facilities siting and cost estimates, regulatory interaction, geologic hazard investigations, subsidence evaluation, litigation technical support, and failure analyses.

PROJECT EXPERIENCE

Civil Engineering Design / Construction

Town of Windsor

- Effluent Storage Pond 2 Leakage Evaluation and Dike Repair
- Effluent Storage Pond 5 Leakage Evaluation and Dike Repair
- Effluent Storage Pond 5 Outlet Piping
- Effluent Storage Ponds 8, 9, 10 Leakage Evaluation and Repair

City of Santa Rosa

- West College Wet Weather Facility Pond #1 Interior Dike Addition
- Meadow Lane Effluent Pond 'D' Repair Options and Constructability
- Geysers Pipeline Stabilization – CM for soldier pile walls, horizontal drains, subdrains, slope indicators and vibrating wire piezometers
- Santa Rosa Geothermal Recharge Project, Pipeline River Crossings
Microtunneling Methods and Constructability Analysis
- Water Supply Test Well Logging and QC

Occidental County Sanitation District

- Geotechnical and geologic oversight of lined pond site evaluation

Various Local Private Clients

- Geotechnical evaluation, design support and CM for a synthetic lined pond
- Evaluation, design and CM of several water storage reservoirs
- Evaluation and remedial measures for several reservoirs
- Shallow and deep foundations for buildings, tanks and equipment
- Landslide identification and remediation
- Retaining structures
- Other private property infrastructure (wells, piping, roads, pads, ponds)

DANA J. BROCK, P.E., C.E.G.

City of Petaluma

- Zone IV Water System, Pump Station, and Reservoir Improvements

City of Burlingame

- Mills Canyon Trunk Sewer Replacement Project
- City-wide Sewer Replacement Program (pipe bursting and trenching)
- Sewer Evaluation Litigation Support, Structural Foundation Failure Claim
- 66" Microtunneled Sewer Outfall Beneath HWY 101 to San Francisco Bay

City and County of San Francisco

- Muni 3rd Street Rail Project, Mission Creek and Islais Creek 36" diameter HDD (Horizontal Directional Drilling) Crossings

Lawrence Berkeley National Laboratory

- Soldier pile walls, existing wall toe reinforcement, grading, temporary excavations, demolition of existing concrete retaining walls and slabs

Coso Operators

- 8 Mile Water Supply Pipeline, Rose Valley to Coso Injection Wells
- Power Plant Condenser Foundation Repairs Using Compaction Grouting
- Navy I Geothermal Facility, Cooling Tower Reservoir Repair

CalEnergy

- Construction management of a 16 acre Class II landfill

Sonoma County Water Agency

- Russian River Water System Long, Large Diameter Collector Well Laterals
- Russian River Water Wells, Drilling and Microtunneling Alternative Study
- Sonoma Valley Aquifer Storage and Recovery Investigation
- Emergency Water Supply Wells Water Quality Investigation

Calpine

- Santa Rosa Geothermal Recharge Pipeline and Tank siting in Geysers
- Waste Impoundment Embankment Materials Investigation
- Several Pipelines; Units 9 & 10 Access Road in Geysers

Fuji Electric

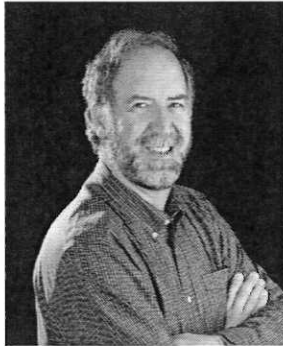
- Wayang Windu Geothermal Field, West Java Indonesia, Thermal Pond Composite Liner System Failure Analysis

Mission Energy

- The Geysers, Designated Waste Management Unit

Unocal Geothermal

- The Geysers, Many Well Sites, Class II Disposal Sumps, Pipeline Routing
- The Geysers, Unit 12 and Thermal 4 Landslides, Horizontal Deep Drains, Slope Survey Network, Stabilization Measures
- The Geysers, Evaluation of Unstable Fills, Slopes, and Landside Sites
- Designated Waste Management Unit



DAVID R. COOPER SE, LEED AP
PRINCIPAL

For more than 30 years, David Cooper has performed structural design, construction review, and project management for a variety of public, commercial, winery, and residential projects. At ZFA, he has built a broad portfolio that emphasizes winery design, together with a variety of other commercial and industrial work.

Dave is very adept at the innovative design use of building materials – some of which are beyond the standard repertoire of most structural engineers – including light gage steel stud framing (both exterior curtain wall and complete building design), aluminum design, and 'stabilized earth' technology.

Dave has also been a structural consultant for General Electric Company power plants and has assisted civil engineers in the design of concrete wells, tanks, and other structures at treatment plants. He has experience with drilled pier and driven pile foundations in addition to typical spread footings.

In past years ZFA has held Master Agreements with the City of Santa Rosa and for the past decade has held the Open Contract for Various Projects with the County of Sonoma.

EDUCATION

- B.S., Civil Engineering,
1977, Montana State
University, Bozeman

PROFESSIONAL REGISTRATION

- CA Structural Engineer
2768
- United States Green
Building Council LEED
AP
- State of California
Department of
Emergency Services
Disaster Services Worker
Safety Assessment
Program ID #10816

PROFESSIONAL MEMBERSHIPS

- Structural Engineers
Association of Northern
California (SEAONC)
- American Concrete
Institute
- Applied Technology
Council
- Cold Formed Steel
Engineers Institute
- Steel Framing Alliance

RELEVANT PROJECT EXPERIENCE

- | | |
|--|-----------------------|
| ▪ Santa Rosa Laguna Treatment Plant Additions | Santa Rosa, CA |
| ▪ City of Santa Rosa Laguna Cogen Pipes | Santa Rosa, CA |
| ▪ Santa Rosa Laguna 400 Gal. Air Tank Anchorage | Santa Rosa, CA |
| ▪ City of Santa Rosa Water Tank Seismic Upgrades | Santa Rosa, CA |
| ▪ Santa Rosa Water Tank Rehabilitations | Santa Rosa, CA |
| ▪ Calpine Geysers - Misc. Projects | Sonoma County, CA |
| ▪ Laguna Solids Storage System - Hopper | Santa Rosa, CA |
| ▪ Willits Water Tank | Willits, CA |
| ▪ Willits Drinking Water Plant Additions | Willits, CA |
| ▪ Graton Waste Water Treatment Plant | Graton, CA |
| ▪ American Canyon Wastewater Plant Upgrades | American Canyon, CA |
| ▪ Napa Sanitation District Administrative Building | Napa CA |
| ▪ Electrical Generation Power Plants | Various Locations, CA |
| ▪ LADWP – Valley Generating Station | Los Angeles, CA |
| ▪ MMWD Indian Fire Trail Tank Rehabilitation | Corte Madera, CA |

APPENDIX B**CONCURRENT PROJECTS FOR DAVID LONG, PROJECT MANAGER**

Cobblestone Drive R2-R4 Main Connection

Los Alamos Trunk Sewer Preliminary Design & Replacement (Streamside to Elaine Drive)

Oakmont Treatment Sewer Trunk Relocation

Twin Hill Winery

Kellogg Ranch Water Diversion Facilities

Forestville ACL Compliance Project

Yulupa Mutual Water Company Upper Storage Tank Replacement

Timber Cove Water Treatment Plant Improvements

APPENDIX C

DESIGN SERVICES TERMS FOR CAPITAL IMPROVEMENT PROJECTS

Document marked with proposed edits.

City of Santa Rosa

Design Services Terms for Capital Improvement Projects

Consultant shall: Brelje & Race understands that the City's Design Terms, although comprehensive, are appropriately focused towards utilities projects within the public right of way. Section V, Design Information for Pipeline Improvements is not applicable.

I. Deliverables

1. Provide design memo summarizing project information such as environmental concerns, required right of way, water quality impacts, any non-standard conditions, and modification of City's pre-design information.
2. Provide a 40% submittal that includes: 8 sets of project plans on 22" x 34" white bond paper (typical 40, 75, 90 submittals), and 3 copies of the preliminary engineer's estimate created using the City supplied Microsoft (MS) Excel spreadsheet template. The primary scale of the drawings shall be 1 inch = 20 feet unless otherwise approved by the City. Show the plan-view alignment on the topo. Identify utility conflicts. Determine the right of way needs, and indicate the status of environmental permits.
3. Provide a 75% submittal that includes: 8 sets of project plans, 3 copies of draft Technical Specifications (based on City's MS Word "boilerplate" templates), and 3 updated engineer's estimates. Incorporate 40% review comments in project plans. Send copies of project plans to utility companies for their review.
4. Provide a 90% submittal that includes: 8 sets of project plans, 3 copies of 90% Technical Specifications, proposed edits to "front end" general specifications, and 3 copies of updated engineer's estimate. Incorporate all remaining comments into the project plans and technical specifications.
5. Provide a 100% submittal that includes: final stamped and signed mylar project plans, final Technical Specifications in electronic MS Word format, stamped and signed Technical Specifications cover sheet in PDF format (City provides MS Word format cover sheet template), an itemized Bid Sheet (MS Excel format), and proposed edits to "front end" general specifications. Final project plans shall be on archival quality white mylars (durable, dimensionally stable polyester) that are 22" x 34" and made with archival quality permanent ink that does not smear even if wet. Pencil originals and sticky backs are not acceptable.
6. Provide final approved project plans in electronic AutoCAD format, and all related files in MS Word, MS Excel, and PDF formats as appropriate.
7. Complete Consultant/City evaluations upon completion of project.

II. Software

2017

1. Prepare project plans using Autodesk AutoCAD Civil 3D 2011 to ~~2014~~. Obtain prior written approval from the City's project manager to use a different product version of AutoCAD. Provide final approved electronic project plans to the City in AutoCad (*.dwg) format and all related files on CD or DVD with instructions to the City regarding how to access and use the files and the interrelationships among them. These instructions shall include a list describing what is contained in each drawing (.dwg) file.
2. Prepare most other documents using Microsoft (MS) Word and Excel 2007 or more recent versions.

III. Plans

1. Submit project plans that conform to the City's drafting standards manual and contain the original unedited topographic and control layers along with the design layers. Coordinates shall be based on City's coordinate system. Consultant shall use the same coordinates provided in the topographic survey and shall not modify any value.
2. Utilize the City established plan, profile, and cover sheet templates in AutoCAD. Each plan and/or profile sheet submitted by Consultant shall include the following:
 - A. Location and coordinates of control points, point number, elevation and description.
 - B. Graphic scale.
 - C. North arrow.
 - D. Mapping showing streets (edge of pavement, face of curb).
 - E. Elevations of all existing features, structures, or utilities.
 - F. Match lines with appropriate sheet numbers.
3. Use City established title blocks and layer convention.
4. Indicate the plan completion percentage (40%/75%/90%) near the project title area of the border on sheet one of the plans.

IV. Special Provisions/Technical Specifications

1. Prepare Technical Specifications of the Special Provisions utilizing the City CIP supplied "boilerplate" templates. Modify only as necessary. All changes shall be highlighted by developing the technical specifications with MS Word "track changes" activated, or through a similar process.
2. Review 'front end' general specifications of the special provisions (white pages), Sections 1-9 (to be provided by City), especially Order of Work, Number of Working Days, and Liquidated Damages. Consultant shall propose changes to Sections 1-9 as necessary. However, the changes to Sections 1-9 shall be made by City Staff only.
3. Verify that all items in the engineer's estimate are covered in the special provisions and that it is clear how all work is paid for. List items in the same order and with the same title as on the special provisions. Do not add headers or footers to the technical specifications.
4. Stamp and sign final Technical Specifications cover page (utilizing the City supplied template) and submit to City in PDF format. Provide camera-ready final approved technical specifications in Microsoft Word format to City via email and/or on CD, DVD, or other format designated by City.
5. Include Order of Work or any other process-related provisions, as required.
6. Include any required environmental permits, applicable regulations, and mitigation monitoring requirements in the special provisions.
7. Identify any supplementary reports used for design and indicate they are available for contractor viewing during bidding. Also indicate that such reports are not part of the contract.
8. Include any project specific provisions relating to the public outreach process in the special provisions.
9. Verify that the project plans and special provisions reference the same project name.

Section V. Not applicable to this solicitation.

V. Design information for Pipeline Improvements

1. City will provide Consultant with water, sewer, and storm drain base maps, available record plans for existing water and sewer system, as well as underground utility base maps from Pacific Gas & Electric, Comcast, and ATT. Utility base maps are schematic and should not be used for determining locations of existing underground utilities. After reviewing maps, advise City where utility markout requests should be made to PG&E, Comcast, and ATT before proceeding with design.
2. Detail project plans sufficiently with enough survey information so that the project can be completed from the project plans. The project plans should stand alone, without the need for additional information.
3. "X-Ref" the topographic survey into the design drawing.
4. Show survey control points and their coordinates on the project plans.
5. Show centerline or control line stations and coordinates at all beginning and ending points, BCs, PRCs, ECs, angle points, and tees (when control line is the pipeline alignment). Table format is acceptable.
6. Include curve data for each curve, including delta, radius, length, tangent bearing and tangent length.
7. Show enough information on the project plans so that the centerline (or control line) is locatable in the field from the information on the plans. This can be accomplished in several ways:
 1. Show coordinates of entire centerline. A table showing BCs, PIs, ECs, etc. is the preferred format, or;
 2. Show ties to existing monuments at beginning and ending of centerline or control line, or;
 3. Show coordinates and basis of bearings at beginning and end of centerline or control line.
8. Reference the locations of improvements on the project plans using one of three acceptable methods:
 1. Where a single pipeline, such as a sewer, water, or storm drain is to be installed Consultant may show station runs along the alignment of the pipeline.
 2. Where multiple improvements (sewer, water, storm drain, curb and gutter, etc.) are to be referenced by station and offset to a single centerline or a control line, centerline information shall be shown on the plans. If project includes reconstruction of the roadway structural section position centerline at appropriate location to establish the street crown line.
 3. Coordinates - This method uses coordinates to locate and control the layout of all planned improvements. All BCs, PIs, PRCs, ECs, angle points, beginnings, endings, etc. of all improvements are indicated individually on each plan sheet or listed in a table.
9. Include striping information in the project plans. Separate plan sheets may be used if necessary.
 1. Striping plans are used by the survey crew to lay out the location of the new striping on the pavement. The striping shall be able to be located and laid out from the information on the plans alone. This information shall be presented on the plans so that it can be located and laid out in the field using only a pocket tape and a rag tape.
 2. Show lane widths, lengths or turn pockets and tapers, lengths to transition points, angle points, BCs and ECs on the plans. Lengths can be referenced to cross walks, stop bars, curb returns, angle points in the curb and gutter or other easily identifiable features.
10. Locate and accurately depict (including drawing to scale) all underground utilities on the project plans.

11. Check for potential utility conflicts. Advise City on appropriate pothole locations, if any, to confirm clearances. Show water main in profile with grade changes or drop structures necessary to clear conflicts. Water valve data may be helpful.
12. Offset alignments for replacement water mains from existing water mains a minimum of four feet in order to maintain water service during construction.
13. Complete the profile and details after the City approves the alignment.
14. Verify sewer and water service to each address.
15. Check water service and sewer lateral locations for conflicts with trees or other obstructions.
16. Show all plugged wyes on existing sewer mains. If the TV logs indicate that a wye is plugged, do NOT draw a lateral in its place.
17. Include "in" or "out" in invert grade callouts (e.g. INV 6" IN = 175.25', INV 8" OUT = 175.15'). Please use N/S/E/W references for secondary clarification only.
18. Include an item in the technical specifications and the estimate for Leaded Joint Removal. Where leaded joints are encountered during excavation of existing water mains (such as during tie-in operations) the excavation will be modified so as to remove the leaded joint. Section 4-1.03B of the Standard Specifications should be explicitly excluded from contract language for this item.
19. Assess the potential for rocky soil conditions and advise the City as to the need for geotechnical borings during design.
20. Evaluate potential curb & gutter, sidewalk, and valley gutter replacement needs. If areas of potential replacement are significantly greater than would normally be required for completion of the utility work, the City may elect to include additional replacement of these features in the construction contract.
21. Show pavement rehabilitation details on project plans per City Materials Engineering input.
22. Provide centerline profile and structural cross-sections at maximum 50' intervals for project limits requiring street reconstruction.
23. Design pedestrian ramps adjacent to areas to be paved as part of the project where they do not currently exist.

VI. *Surveying (As directed)*

1. Perform all surveying required to prepare the project plans and right of way documents, unless a topographic map is provided by City. Horizontal and vertical control monuments shall be set in the field under the direction of the City after the preliminary survey is completed. The monuments shall be of sufficient durability as determined by City and the Consultant to enable City forces to set line and grade for construction purposes. The interval between control points shall be determined by the Consultant and City prior to actual construction of the project.
2. Vertical control shall be based on the City Bench Mark datum and set to an accuracy ratio of $0.05' \times$ the square root of the distance in miles. Horizontal control points shall be assigned coordinates with an accuracy ratio of 1:20,000 based on the City Coordinate System. The engineer shall verify that all existing utilities have been marked-out in the field prior to surveying or have been plotted on the drawings.
3. Perform all topographical surveys required to prepare the project plans (1"=20') and right of way documents. The surveys shall generally include the street right of way from the back of sidewalk on one side of the street to the back of sidewalk on the other side of the street and shall include existing features, structures and utilities such as water services, cleanouts, valves, storm drain inlets/manholes, trees, etc. Dip all sewer and storm drain manholes and determine distance to top of valve nut at all critical water main locations.
4. Set control and monuments. Use the City bench mark datum and coordinate system. Show approximate right of way and property addresses on base maps.
5. Include pavement markings and complete street cross sections in survey scope of work for street-based projects. A complete street cross section includes, at a minimum: backs of sidewalks, faces of curbs, lips of gutters, and crown. Where a sidewalk does not exist, the edge of pavement and any adjacent drainage ways (top + flow line) should be surveyed for road reconstruction purposes.

VII. Soils Report (As directed)

1. Develop safety and disposal plans for excavated contaminated soil in accordance with any applicable permit requirements.
2. Provide boring logs when unstable or deep excavations are anticipated.
3. Provide all documents in printed and electronic formats.

VIII. Plan Coordination and Research (As directed)

1. Coordinate with and obtain approval from all affected local agencies and companies, including but not limited to the City Departments of Community Development, Transporations and Public Works, Water, Sonoma County Water Agency, Sonoma County Road Department, California Regional Water Quality Control Board, Pacific Gas and Electric Company, , Comcast, and AT&T. Coordination shall include preparation and processing of all correspondences, check prints, forms, applications, permits, diagrams, viewfoils, and any other necessary items as determined by the City Engineer. This

coordination shall continue until the project plans are approved by the City. The Consultant shall also be responsible for assisting the City in obtaining review and approval from any affected County, State, and Federal agencies. This assistance shall include but not be limited to applying for public funds and supplying check prints of project plans, special provisions, estimates, and right of way plats and descriptions as directed by the City. Copies of all correspondence shall be transmitted to the City.

IX. Right of Way (As directed)

1. Prepare and coordinate all necessary right of way descriptions and individual plats (R-sheets). Deliver original completed R sheets to the City. Obtain preliminary title reports for all affected parcels within the right of way. Provide aerial photography or field data as needed for right of way, property line, and easement determination in the field. Locate any required right of way lines, property lines, or easements for right of way purposes in the field.

X. Contract Assistance (As directed)

1. Promptly respond to questions, inquiries, and correspondences concerning the project until the Notice of Completion is filed. Display Consultant's name and telephone number on the project plans and in the special provisions. Answer all questions and resolve problems regarding the design of the project. Prepare and make City Council presentations when required. Prepare any necessary addenda to the Special provisions. Assist City in obtaining approval of the addenda. Prepare the final Engineer's estimate. Attend a pre-bid conference for the prospective bidders at City facilities or at the project site. Coordinate with the City's construction management team to solve field-related problems.

XI. Public Outreach (As directed)

1. Assist City with all public outreach, including but not limited to correspondence, mailings, exhibits, and meetings.

XII. Environmental (As directed)

1. Assist City with environmental document processing including, but not limited to, meetings, exhibits, studies, and postings. Obtain permits necessary for construction of the project. Any provisions relating to environmental permits, regulations, and mitigation requirements shall be included in the project special provisions.
2. Provide Phase I site assessment for all easements to be acquired by the City.
3. Determine if any permits are required for project construction such as from the Army Corps of Engineers, The California Department of Fish and Game, and the RWQCB. Initiate permit process as soon as possible.
4. City will investigate underground contamination and obtain a one-time discharge permit from the City's Environmental Compliance Section of the Water Department.

Brelje & Race

CONSULTING ENGINEERS

March 25, 2017

Andy Wilt
City of Santa Rosa
Transportation and Public Works Department
69 Stony Circle
Santa Rosa, CA 95401

**Subject: Santa Rosa Regional Water Reuse Plate Flood Protection
Design Engineering Services
B&R File No. 4415.00**

Dear Andy,

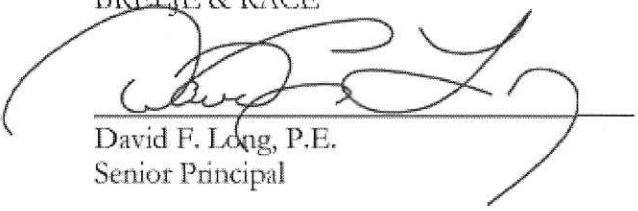
Brelje & Race Consulting Engineers is pleased to submit the enclosed cost proposal for the subject project.

In accordance with the current Master Agreement for Professional Services with Brelje & Race Consulting Engineers for Engineering Services, the work described in our proposal will be accomplished on a time and materials not-to-exceed basis within a budget of **\$645,826**. Since the City often requests that ten percent of the total proposed budget be allocated as a contingency fund for unanticipated extra work, we have included this amount in the total budget.

Also enclosed is our Services Rate Schedule. Please note that our hourly rates used to develop this fee are inclusive of all expenses. Unless requested by the City, Brelje & Race does not charge separately for expenses that are traditionally recouped from the City as "reimbursable", such as mileage, surveying materials, copies of recorded documents, and in-house reproduction and computer maintenance and equipment costs.

Very truly yours,

BRELJE & RACE



David F. Long, P.E.
Senior Principal

Santa Rosa Regional Water Reuse Plant Flood Protection
City of Santa Rosa
TASK, WORK HOUR and COST TABULATION
March 25, 2017

[illegible]

SERVICES RATE SCHEDULE EFFECTIVE MARCH 1, 2017

PROFESSIONAL SERVICES

Senior Principal.....	\$200.00/hour
Senior Project Advisor	200.00/hour
Associate Principal.....	180.00/hour
Associate	165.00/hour
Senior Engineer.....	165.00/hour
Engineer.....	150.00/hour
Engineering Technician.....	125.00/hour
Senior Planner.....	150.00/hour
Planner	120.00/hour
Senior Surveyor.....	150.00/hour
Surveyor.....	130.00/hour
Survey Technician	120.00/hour
CAD Technician.....	120.00/hour
Construction Engineer	140.00/hour
Construction Technician 2.....	125.00/hour
Construction Technician 1.....	100.00/hour
Technical Writer	90.00/hour

EXPERT WITNESS & MEDIATION SERVICES \$350.00/hour

FIELD SURVEYING

One-man Party (Including Survey Equipment & Vehicle)	\$180.00/hour
Two-man Party (Including Survey Equipment & Vehicle)	\$235.00/hour
Three-man Party (Including Survey Equipment & Vehicle)	\$290.00/hour

CLERICAL SERVICES \$75.00/hour

OUTSIDE CONSULTANTS Cost + 10% Handling Charge

OUTSIDE PLOTTING AND REPRODUCTION Cost + 10% Handling Charge

IN-HOUSE PLOTTING

Vellum or Bond	\$8.00/sheet
Mylar	20.00/sheet

Note

Brelje & Race does not charge separately for many of the expenses that are traditionally recouped from the Client as "reimbursable". The hourly rates listed above are inclusive of all expenses for vehicle mileage, surveying materials, incidental copying services and computer hardware, software and other information technology costs.