



CONSENT CALENDAR

Agenda Item # 2

AGENDA REPORT SUMMARY

Meeting Date: November 10, 2020

Subject: Design Contract Award: Adobe Creek Sewer Main Replacement
Project WW0101221

Prepared by: Aida Fairman, Engineering Services Manager

Reviewed by: James Sandoval, Engineering Services Director

Approved by: Chris Jordan, City Manager

Attachment:

1. Consultant's Proposal

Initiated by:

City Council, CIP Project WW0101221

Previous Council Consideration:

None

Fiscal Impact:

\$692,297.52 (There are insufficient funds in the adopted budget for Project WW0101221)

\$500,000.00 (Approved project budget)

\$192,297.52 (Additional Appropriation needed from the Sewer Fund)

Based on the most qualified consultant fee proposal submitted, the estimated Project costs are:

Project Item	Project Budget
Total Design & Permitting Costs (Consultant's Fee Proposal)	\$573,164.60
Contingency (20%)	\$ 114,632.92
Printing/Advertising/Misc.	\$ 4,500.00
Total Project Expenses	\$ 692,297.52
Total Funds Available in Project Budget	\$ 500,000.00
Additional Appropriation	\$192,297.52

Environmental Review:

Categorically Exempt pursuant to CEQA Section 15301(b).

Reviewed By:

City Manager

CJ

City Attorney

JH

Finance Director

SE



Subject: Design Contract Award: Adobe Creek Sewer Main Replacement Project WW0101221

Policy Question(s) for Council Consideration:

Not Applicable

Summary:

The Adobe Creek Sewer Main Replacement Project includes replacing and/or realigning fifty-three sewer main segments located along or near Adobe Creek. This project consists of a total of 6,580 linear feet of sewer pipes. An agreement with a consultant is required to provide design and permitting services for the project.

Staff Recommendation:

Appropriate \$192,297.52 from the Sewer Fund to Project WW0101221; and authorize the City Manager to execute an agreement with Schaaf & Wheeler Consulting Civil Engineers (Schaaf & Wheeler) in the not-to-exceed amount of \$573,164.60 and up to a 20% contingency amount of \$114,632.92 on behalf of the City to provide professional design services for the Adobe Creek Sewer Main Replacement Project WW0101221



Subject: Design Contract Award: Adobe Creek Sewer Main Replacement Project WW0101221

Purpose

Appropriate \$192,297.52 from the Sewer Fund to Project WW0101221; and authorize the City Manager to execute an agreement with Schaaf & Wheeler Consulting Civil Engineers (Schaaf & Wheeler) in the not-to-exceed amount of \$573,164.60 and up to a 20% contingency amount of \$114,632.92 on behalf of the City to provide professional design services for the Adobe Creek Sewer Main Replacement Project WW0101221.

Background

This project scope includes replacing, and for some segments realigning, fifty-three sewer main segments, located along or near Adobe Creek. This comprises a total of 6,580 linear feet of pipe replacement. The existing 6-inch and 8-inch pipes will be replaced with new 8-inch pipe to increase capacity. The sewer line segments identified for this project are located near the City's border with the Town of Los Altos Hills, north of Manresa Avenue and south of Edith Avenue.

On April 28, 2020, City Council approved the staff request for appropriation of sewer funds for the creation of the Adobe Creek Sewer Main Replacement Project. The City's Maintenance Department identified this portion of the sewer system as an issue. Maintenance staff encountered difficulties when trying to perform flushing and video inspections of the sewer mains near Adobe creek due to structural deficiencies in the sewer mains. In addition, the project was prioritized due to the location of the sewer mains in proximity to the creek. There are approximately thirteen or more locations in the project areas where sewer mains cross under the creek. The proximity of these sewer mains to the creek causes an elevated potential for contamination in the event of sewer line failures or overflow. Replacement of these pipes is important to maintain the structural integrity of the sewer segments in these high-risk locations. Likewise, realignment, where possible, is an important improvement for feasibility of long-term maintenance and to reduce the risk of creek contamination in the event of an overflow. Completion of the entire project will require a phased approach and may take several years to complete.

Discussion/Analysis

On June 18, 2020, staff advertised a request for proposals for design of this project. Design includes, but is not limited to, predesign services, preparation of required environmental approvals and documentations from relevant permitting agencies, topographic survey, arborist and environmental services, geotechnical services, preparation of plans, specifications, cost estimates, contract bid documents, and construction phase support services. On July 21, 2020, the City received five proposals, which were reviewed and discussed by City staff. The City invited three of the five consulting firms to virtual interviews on September 10, 2020.

It is recommended that the award of the design contract be made to Schaaf & Wheeler in the not-to-exceed amount of \$573,164.60. Schaaf and Wheeler is the most qualified consulting firm based on their proposal and interview. Schaaf & Wheeler has been in business for more than thirty-five years



Subject: Design Contract Award: Adobe Creek Sewer Main Replacement Project WW0101221

and has satisfactorily completed similar projects for other municipalities in the Bay Area, including Port of Oakland, the City of San Mateo, and the City of Morgan Hill. Schaaf & Wheeler completed the Kingridge Sanitary Sewer Line Improvement Project in the City of San Mateo, which is comparable in size and complexity to the Adobe Creek Sewer Main Replacement Project.

Options

1) Appropriate \$192,297.52 from the Sewer Fund to Project WW0101221; and authorize the City Manager to execute an agreement with Schaaf & Wheeler Consulting Civil Engineers (Schaaf & Wheeler) in the not-to-exceed amount of \$573,164.60 and up to a 20% contingency amount of \$114,632.92 on behalf of the City to provide professional design services for the Adobe Creek Sewer Main Replacement Project WW0101221.

2)

Advantages: Completion of the Adobe Creek Sewer Main Replacement project provides necessary repairs to ensure proper maintenance and functioning of the City's sanitary sewer system to reduce risk of environmental harm in the event of a sewer overflow.

Disadvantages: None

3) Do not authorize the City Manager to execute an agreement on behalf of the City with Schaaf & Wheeler.

Advantages: None

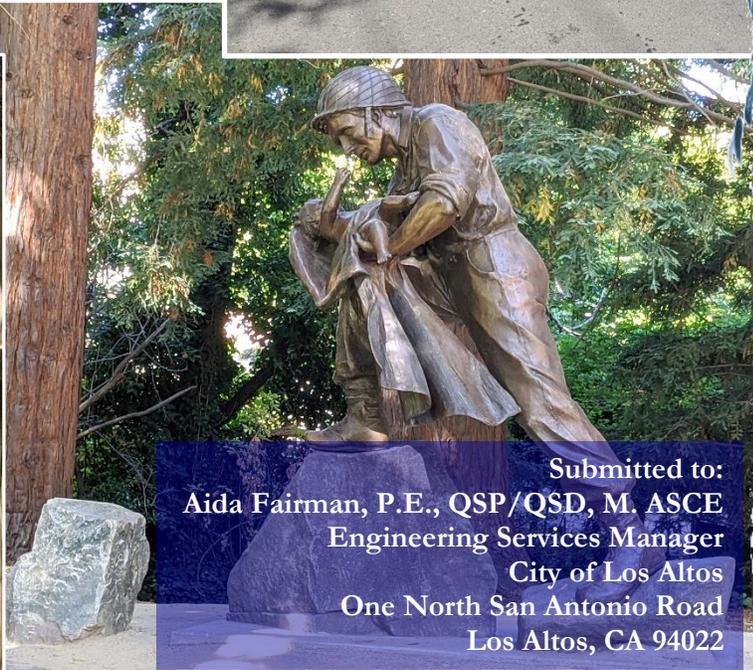
Disadvantages: Repair of the sanitary sewer segments would be delayed.

Recommendation

The staff recommends Option 1.



Proposal for City of Los Altos Adobe Creek Sewer Main Replacement Project WW0101220



Submitted to:
Aida Fairman, P.E., QSP/QSD, M. ASCE
Engineering Services Manager
City of Los Altos
One North San Antonio Road
Los Altos, CA 94022

July 21, 2020

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS



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Cost Proposal - Separately Sealed

Schaaf & Wheeler
CONSULTING CIVIL ENGINEERS

1171 Homestead Rd., Ste. 255
Santa Clara, CA 945050
408-246-4848
Fax 408-246-5624

July 21, 2020

Aida Fairman, P.E., QSP/QSD, M. ASCE
Engineering Services Manager
City of Los Altos
One North San Antonio Road
Los Altos, CA 94022

Subject: Qualifications for Professional Engineering Services Adobe Creek Sewer Main Replacement

Dear Ms. Fairman:

Schaaf & Wheeler is pleased to propose professional engineering services for design of the City's Adobe Creek Sewer Main Replacement Project. We have studied the available information, walked the pipeline alignment where accessible, and developed an approach and scope that will provide the City with a rehabilitated and replaced pipeline while minimizing the impacts to the surrounding areas.

To address the needs of this challenging project, we have included several specialty subconsultants, each of which Schaaf & Wheeler has a long history with:

Kier & Wright will provide land surveying, utility research, and easement documentation;
Engeo will provide geotechnical engineering services;
WRA will provide CEQA compliance and permitting, and;
Presidio Systems will provide CCTV inspection.

I will serve as the principal-in-charge for the project and bring more than 30 years of experience in municipal wastewater engineering services. I am authorized to bind the firm for any contracting negotiations. Glen M. Anderson, PE has been working on wastewater infrastructure projects since 2006, he will be the project manager. Benjamin L. Shick, PE will provide constructability review for the project. He brings extensive experience leading sewer projects throughout the Bay Area.

Our past experience will help us deliver work in a results-oriented manner, meeting the unique challenges of this project. The Schaaf & Wheeler team is available and would be pleased to continue working with the City of Los Altos. Should you need any further information, please contact Glen Anderson at 1171 Homestead, Ste. 255, Santa Clara, CA 95050; Ph: (408) 246-4848 or ganderson@swwsv.com

Sincerely,

Schaaf & Wheeler



Charles D. Anderson
President

Ph: 408-246-4848; Email: canderson@swwsv.com



Project Understanding and Approach

Project Understanding

The City's sewer system in this area runs mostly adjacent to Adobe Creek, interlaced between public and private parcels, and crossing the creek at several locations. The pipeline alignment in the scope of this project totals almost 6,600 linear feet of 6-inch and 8-inch pipe, with almost 90% of the pipes being 6-inch. Portions of the alignment have previously been CIPP lined, and portions of the liner are failing.

The City desires to replace the pipeline and upsize all of the 6-inch lines to 8-inch. Additionally, the City desires to evaluate the potential for realigning the pipeline to avoid private parcels and reduce the amount of pipe adjacent to Adobe Creek while also reducing the number of creek crossings.

Challenges and Mitigation

Outlined below are several of the key anticipated project challenges as well as Schaaf & Wheeler's cursory mitigation measures. It is important to note that each project segment presents unique challenges that cannot be fully realized until detailed design is being performed.

Impact to Residents: As noted, the pipeline as well as any potential realignments will require access, use and easements to a number of private parcels. Generally speaking, residents don't want utilities on their properties. This lack of enthusiasm is amplified when sanitary sewer systems are involved. As such, public outreach will be critical to project success. Schaaf & Wheeler would propose to work with the City to hold a series of public outreach meetings at the project outset to discuss required field work and access, and again during the design phase once conceptual alignments are developed. It is recommended that door hangers be provided to properties directly adjacent to or impacted by the project.

Environmental and Permitting: Because the project is adjacent to a creek, environmental and permitting will be required. Schaaf & Wheeler proposes to develop a CEQA and Permitting Strategy memo based on preliminary project designs. Preparation of this strategy memo will allow us to identify CEQA and Permitting requirements early on and also allow us an opportunity to shift the design in order to mitigate any potential problematic CEQA or Permitting requirements.



Similar Project: Kingridge Sanitary Sewer Line Improvements for City of San Mateo

- ✓ Sewer replacement adjacent to Kingridge Ravine, tributary of Laurel Creek
- ✓ Sewer line also crossed the ravine and required retaining walls affecting seasonal wetlands
- ✓ Environmentally sensitive area/habitat that required CEQA documentation and environmental permitting
- ✓ Areas temporarily disturbed due to grading, tree removal, retaining wall installation and sewer replacement were restored to original topography and seeded natively for erosion control.
- ✓ Permits Required:
 - US Army Corps of Engineers
 - Regional Water Quality Control Board (RWQCB)
 - California Department of Fish and Game (CDFG)

Tasks Included:

- ✓ topographic surveying,
- ✓ geotechnical investigation,
- ✓ hydraulic analysis
- ✓ condition assessment,
- ✓ improvement alternatives evaluation,
- ✓ open-cut, pipes supported on piers, and pipe rehabilitation with cured-in-place pipe (CIPP)
- ✓ bid documents
- ✓ Bid and construction support



Pipeline Condition: As part of the rehabilitation, and in an effort to minimize the residential and permitting impacts, Schaaf & Wheeler proposes to use trenchless pipe replacement techniques to the maximum extent possible. A critical requirement for trenchless replacement is to be certain that the existing pipe is suitable for trenchless replacement. The RFP did not list whether or not the City has existing CCTV data for the pipelines. As such, we have included CCTV efforts to help verify that pipe alignments are acceptable for trenchless methods.

Coordination: : Schaaf & Wheeler will maintain close coordination with City staff throughout the course of the project. Monthly progress updates will be provided in addition to general correspondence throughout the course of work.

Key Elements for Completing the 2020 Repairs and Replacements Successfully:

- Detailed review and assessment of CCTV data
- Appropriate repair method selection
- Prioritization of improvements
- Stakeholder engagement
- Supplementary field investigations
- Topographic surveys
- Minimizing environmental impacts
- Efficient and timely public outreach
- Close coordination with the specialty subconsultants

Approach

Project Management Approach:

Efficient and effective project management will be a key factor in completing the project on time and on budget. Schaaf & Wheeler's project management approach is described below.

1. Develop a team of qualified engineers with extensive experience with similar projects:
 - a. **Project Manager, Glen M. Anderson, P.E.**, has successfully managed multiple sanitary sewer system projects in and around sensitive water bodies and in sensitive areas..
 - b. **Charles D. Anderson, PE – Principal in-Charge** will ensure the completion of contractual and procedural obligations.
 - c. **Benjamin L. Shick, PE** will be the QA/QC engineer for Schaaf & Wheeler.
2. Outline critical tasks and phases of work that will impact the schedule.
3. Pull in expertise and workforce as needed
4. Develop detailed and robust construction documents that accurately reflect existing site conditions.
5. Maintain close coordination with City during design, bid, and construction support.

Technical Approach:

Schaaf and Wheeler will provide the scope of services outlined in the detailed scope included herein. Our approach to specific tasks are listed below.

Schaaf & Wheeler will facilitate a project kickoff meeting with the City and necessary stakeholders. The project goals, scope, budget, and schedule will be discussed to make sure everyone is on the same page. A data request list will be submitted to the City which will include all information that would be useful during the assessment and design of the pipeline replacement.

Schaaf & Wheeler firmly believes that engaging all stakeholders including management, public relations, engineering, and operations & maintenance, early in the process is a great way to ensure all parties are on the same page and everyone is working towards the same goal.

Schaaf & Wheeler's proposed approach for the design process is identified below:

1. **Kickoff Meeting** – Used to get all stakeholders in the same room and work through key project elements including:
 - a. Project Goals – Capacity, Engineering Requirements, O&M Requirements, City standards



- b. Project Constraints – Budget, schedule, physical site constraints, utility constraints and conflicts, traffic coordination
- c. Project Expectations – Construction contract type, deliverables, project management/staffing, schedule
- d. Site Visit – Document existing conditions, verify surveying basemap, identify existing utilities

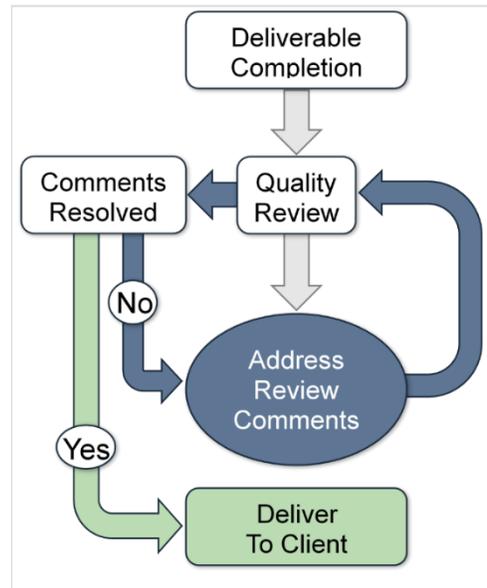
2. Predesign and Basis of Design Memorandum – Used to document design decisions and project information. The Basis of Design would serve as the starting point for detailed design and include discussions regarding construction constraints and limitations, environmental and permitting requirements, required right of way, costs, schedule, modifications to City’s pre-design information, and other key components for the design.

3. Detailed Design (65%, 100%, Bid Documents) – Each design submittal will be prepared and submitted as specified in the attached Design Services Terms. Stakeholder input is critical at each submittal level to ensure that the project meets the City’s expectations and goals. Schaaf & Wheeler will schedule and attend design review meetings with the City after each progress submittal.

4. QA/QC Process – Schaaf & Wheeler will perform an internal QA/AC review of each progress submittal prior to being submitted to the City. QA/QC staff will review all design documents, visit the site, and work with the project design team to identify and correct potential issues and conflicts.

Our typical process has multi-level review:

- Level I:** Identifying Serious Issues
- Level II:** Technical Comment – Addressed through Design
- Level III:** Editorial or Preferential
 - a. Constructability Review
 - b. Independent Peer review
 - c. City Review
 - d. Project Management Review
 - e. Calculation, Plans, Specifications and Estimates Review



Schaaf & Wheeler ‘s Typical QAQC Process to Ensure Quality Deliverables

5. Design Potholing – During the detailed design process the proposed alignments and depths of the new sewer mains will be established. Potential utility conflicts and unknowns will be identified and documented. Utility locations that cannot be accurately defined utilizing record documents and field measurements will be identified and coordinated with the City. Due to the limited available information as well as the proximity to the creek and to private residences, it is not clear how much potholing will be needed or possible. As such, Schaaf & Wheeler has included a potholing allowance within our proposed project fee. This allowance will be used only if agreed to by the City after the utility research and project alignment are developed.

6. Bid and Construction Support – Schaaf & Wheeler will stay actively involved with the project throughout construction, providing construction engineering services to review submittals, RFI’s change requests, and other items that may require the engineer’s input. At the close of construction, Schaaf & Wheeler will prepare record drawings from the Contractor supplied As-Builts.



Scope of Work and Schedule

Outlined below is a detailed scope of work that should be considered the Scope of Services Contractually proposed by Schaaf & Wheeler:

Task 1: Environmental Approvals

Task 1A: Biological Survey and Memorandum

Design team will conduct a site visit throughout the Project Area to assess existing biological conditions and to determine if sensitive biological resources would be impacted by the Project. In particular, design team will focus on identifying any potentially federal and/or state jurisdictional aquatic features that may be regulated by the Corps, the RWQCB, and the CDFW. In addition, habitats that may support special-status fish, wildlife, and plant species will be identified. This task includes time to conduct background research to determine if the site has previously been mapped as sensitive habitat by state or federal agencies, and if the site has the potential to contain special-status species. The results of the assessment will be documented in a biological resources survey memorandum for use in subsequent environmental and permitting (if required) approvals. One (1) draft memorandum describing existing conditions will be prepared, followed by a subsequent revision evaluating potential biological resources impacts from the project design will be prepared.

Task 1B: Cultural Resources Evaluation and Memorandum

If required by the permitting agencies, surveys of historic resources (Section 106) will be completed in the Project Area. This task will follow the recommendations and requirements for field work and reporting provided by the Corps and other appropriate agencies (e.g., California Office of Historic Preservation). A California licensed archaeologist with knowledge of the region will be subcontracted to complete all cultural resources work. This task assumes that reconnaissance level investigations will be required and that no detailed studies will be needed. One (1) draft memorandum summarizing findings will be prepared.

Task 1C: Arborist Survey and Report

This task includes a tree survey and arborist report. WRA's ISA-Certified arborist will conduct a tree survey to identify all trees in the Project Area, including trees that are both protected and not protected by the City of Los Altos. Data describing species, size (diameter at breast height or DBH), canopy spread, height, structural stability, health, and overall condition will be collected for each tree. The location of each tree will be captured using a handheld GPS unit with sub-meter accuracy. A photo of each tree will be taken to document condition at the time of the survey. This survey will be conducted concurrently with the biological survey discussed in Task 1B. Following the survey, the arborist will prepare a tree survey report describing the methods of the survey and including a table showing the pertinent information for all surveyed trees at the site, as well as a map depicting the location of all ordinance-size and non-ordinance-size trees, and a digital shapefile with tree location and attribute data attached. This task also includes time for one (1) round of revision to the report.

Task 1D: CEQA and Permitting Strategy

Based on the environmental technical studies described above, WRA will prepare a summary table(s) of key environmental constraints with thresholds for triggering permit requirements and additional CEQA review. The purpose of the table(s) will be to guide discussions with the engineering team and City to



evaluate the potential environmental impacts of the project design, as well as appropriate path forward for CEQA and permitting given the findings of the technical studies. This task includes time to develop the summary table, as well as up to 16 hours for email and verbal discussions about the potential path forward.

Task 1E: CEQA Support and Coordination

Based on existing available information, WRA assumes that the Project will qualify for a Categorical Exemption. This task will involve assisting the City during the CEQA determination process, including lead agency coordination, Project category recommendations, and drafting required documentation and forms. If additional CEQA analysis is deemed necessary, WRA will work with the City to determine the appropriate scope of that documentation and associated supplemental budget.

Task 1F. Geotechnical Hazard Report

We will review published geologic literature covering the project area, including reports and maps on file with the United States Geologic Survey (USGS) and the California Geologic Survey (CGS), as well as available geotechnical data from nearby sites. We will prepare a Geotechnical Hazard Report summarizing the general subsurface conditions, potential geologic hazards, seismicity and groundwater level.

Task 2: Permitting

Task 2A. Preparation of the Section 1602 Lake and Streambed Alteration Agreement Application for the CDFW

The CDFW requires any project proponent who may affect the bed or bank of a perennial, intermittent, or ephemeral river, stream, or lake to request a Section 1602 Lake and Streambed Alteration Agreement. The Lake and Streambed Alteration Agreement notification requires completion of an application form and project environmental questionnaire, and inclusion of supplemental data regarding issues covered in the project environmental questionnaire. While a CDFW permit is not required for subterranean stream crossings, it is strongly encouraged by CDFW, and would be required if staging areas for stream crossings impact riparian vegetation.

WRA will complete the application with supporting information and submit the permit application to CDFW. Additional information regarding anticipated construction means and methods beyond that required for the Corps and RWQCB permit will be required as part of the CDFW permit application. WRA will work with the Client to compile a list of construction equipment anticipated to be used during construction. Additional analysis of special-status species, including fish and avian species, will be required as part of the CDFW application. The complete Section 1602 permit application will be submitted to the CDFW after Client review. Additionally, time has been included for coordination with the Client during the permitting process. This subtask includes one (1) round or revision from the Client and one (1) response to comments provided by the regulatory agency.

Task 2B (if Required). Preparation of the Section 404 Nationwide Permit Application for the Corps

If project construction requires placement of fill or digging of channels for stream crossings, a Corps of Engineers Section 404 Permit would be required. Based on existing information, the Project should qualify for coverage under a nationwide permit. The nationwide pre-construction notification form will address potential impacts to Corps jurisdiction and the necessary permit requirements, including:



- Basic notification requirements as to site location; Project description; and type and amount of fill in potentially jurisdictional areas;
- Appropriate plan view figures that show proposed impacts to jurisdictional areas;
- Proposed mitigation;
- Information to support compliance with Section 106 of the National Historic Preservation Act through the State Historic Preservation Office; and
- Information to support an informal consultation with the U.S. Fish and Wildlife Service, or if supported by substantial evidence, determination that the project will have no effect on endangered species

WRA will act as the agent during the Corps permitting process. Typically, the Corps may request a site visit to discuss the proposed Project and potential impacts on areas within their jurisdiction. WRA will attend up to one (1) site visit with the Corps to assess the Project impacts if requested. WRA will also respond to any comments or questions related to the application and the processing of the application. Additionally, time has been included for coordination with the Client during the permitting process. This subtask includes one (1) round or revision from the Client and one (1) response to comments provided by the regulatory agency.

Task 2C (If Required). Preparation of the Section 401 Water Quality Certification Application for the RWQCB

The RWQCB must certify the use of the Corps permit and will process a 401 Water Quality Certification for the Project. WRA will act as the agent during the RWQCB permitting process. WRA will prepare a permit application for the RWQCB, which will first be reviewed by the internal team. The application contains information similar to that included in the Corps nationwide permit application; however, additional information that will be required for the RWQCB application includes:

- A storm water management plan for the Project (not scoped for herein)
- CEQA documentation (typically a Mitigated Negative Declaration, EIR, or Categorical Exemption) is required prior to issuance of the RWQCB permit
- An alternatives analysis (per the recently adopted State Wetland Definition and Procedures for Dredged or Fill Material into Waters of the State)
- A watershed profile analysis (per the recently adopted State Wetland Definition and Procedures for Dredged or Fill Material into Waters of the State)

WRA will also respond to any comments or questions related to the application. Typically, the RWQCB may request a site visit to discuss the proposed Project and potential impacts on areas within their jurisdiction. WRA will attend one (1) site visit with the RWQCB to assess the Project impacts, if requested. Additionally, time has been included for coordination with the Client during the permitting process. This subtask includes one (1) round or revision from the Client and one (1) response to comments provided by the regulatory agency.

Task 3: Right-of-Way Services

As discussed in the RFP, the sewer line is routed across 24 private parcels as well as entering the Town of Los Altos Hills. It will be necessary to obtain permanent easements for the locations where the pipeline must remain on these parcels. Where active construction must occur outside of the identified easements, it will be necessary to obtain temporary construction easements. As such, we have included the services outlined herein for 25 different easements, as necessary.



Title Report

We will order preliminary title report from First American Title Insurance Company for the property within the scope of work. We frequently utilize them for Kier & Wright projects completed in Silicon Valley and the South Bay. This translates to quick responses and turnaround times on our request.

Title Review

Title review consist of review of all the documents associated with the title report and ensuring that the boundary and easement are plotted based on these documents.

Plat & Legal for Sewer Easements

We will prepare a legal description and plat with metes and bounds legal description for new Sewer Easements.

Task 4: Predesign

Task 4A. Topographic Surveying

Design team will perform topographic surveys to locate all sewer manholes. Because the goal of the project is to utilize trenchless replacement to the maximum extent possible. As such, this task includes performing topographic surveying of approximately 50% (~3,300 LF) of the project alignment.

Task 4B. CCTV Work

Schaaf & Wheeler has included CCTV efforts for 3,300 linear feet of pipeline.

Task 4C. Alignment Study and Basis of Design

Design team will review potential alignments given site constraints and make recommendations for a preferred alignment as well as the option to replace the pipeline along the existing alignment. Basis of Design will compare the two alignments, and make a recommendation for which to implement. Report will identify site constraints, sensitive receptors, and potential environmental and permitting impacts for each alignment. Based on the City's review and preferred alignment, Schaaf & Wheeler will finalize the Basis of Design and highlight the selected rehabilitation.

Task 4D. Detailed Geotechnical Report

We will perform and geotechnical exploration and summarize our findings in a geotechnical exploration report as defined under Task IV Predesign. Based on our experience on similar pipeline projects, we propose the following geotechnical exploration program to provide design recommendations to support design of the project:

Project	# of Borings	Boring Depth
6580 LF Pipe Upgrade	Up to 10 total	15 to 25 feet below ground surface

Approximately 200 lineal feet of drilling is estimated. We anticipate the exploration outlined above will be completed in 3 days. We will contact Underground Services Alert after we marked the exploration locations and no less than 48 hours prior to drilling. We will also retain a private utility locator to clear the exploration locations. Prior to drilling, we will coordinate with Santa Clara Valley Water District (SCVWD) and City of



Los Altos to obtain required drilling and encroachment permits. Our engineer or geologist will observe the drilling, log subsurface conditions, and collect representative samples for visual classification, field testing, and laboratory testing described herein.

We will transport soil samples collected from the field exploration to our in-house laboratory to evaluate engineering characteristics of the soils. The samples will be reexamined in our laboratory to verify field classifications and will be tested for moisture content, dry unit weight, Plasticity Index, Liquid Limit, gradation, strength characteristics, and other physical properties as appropriate. Chemical testing of the site soils for full corrosion potential on buried metal pipes and foundation concrete will also be performed on select soil samples. We will prepare a Geotechnical Exploration Report, which will include a summary of data collected during the proposed field investigation, such as boring logs, laboratory test results, and groundwater measurements. We will also provide trench backfill, grading and dewatering recommendations as necessary in the Geotechnical Exploration Report.

Task 4E. Potholing Allowance

This optional allowance is to cover costs associated with potholing efforts that can not be well defined as part of this proposal.

Task 5: 65% Design

Task 5A. 65% Documents

Prepare and submit 65% level project plans, specifications, and cost estimates for City review.

Task 6: 100% Design

Task 6A. 100% Documents

Prepare and submit 100% level project plans, specifications, and cost estimates for City review. Documents shall include revisions based on comments received from City on 65% level documents. Plans will be complete and submittal is considered as a final opportunity for City review and comment.

Task 7: Final Design

Task 7A. Final Documents

Prepare and submit Bid level project plans, specifications, and cost estimates for City review. Documents shall include revisions based on comments received from City on 100% level documents.

Task 8: Bid Support

Task 8A. Bid Support

- Prepare up to two addenda to answer bidder questions
- Attend pre-bid Meeting

Task 9: Construction Support

Task 9A. Construction Support

- Review and Respond to up to 15 RFIs
- Review up to 25 material submittals and 13 resubmittals

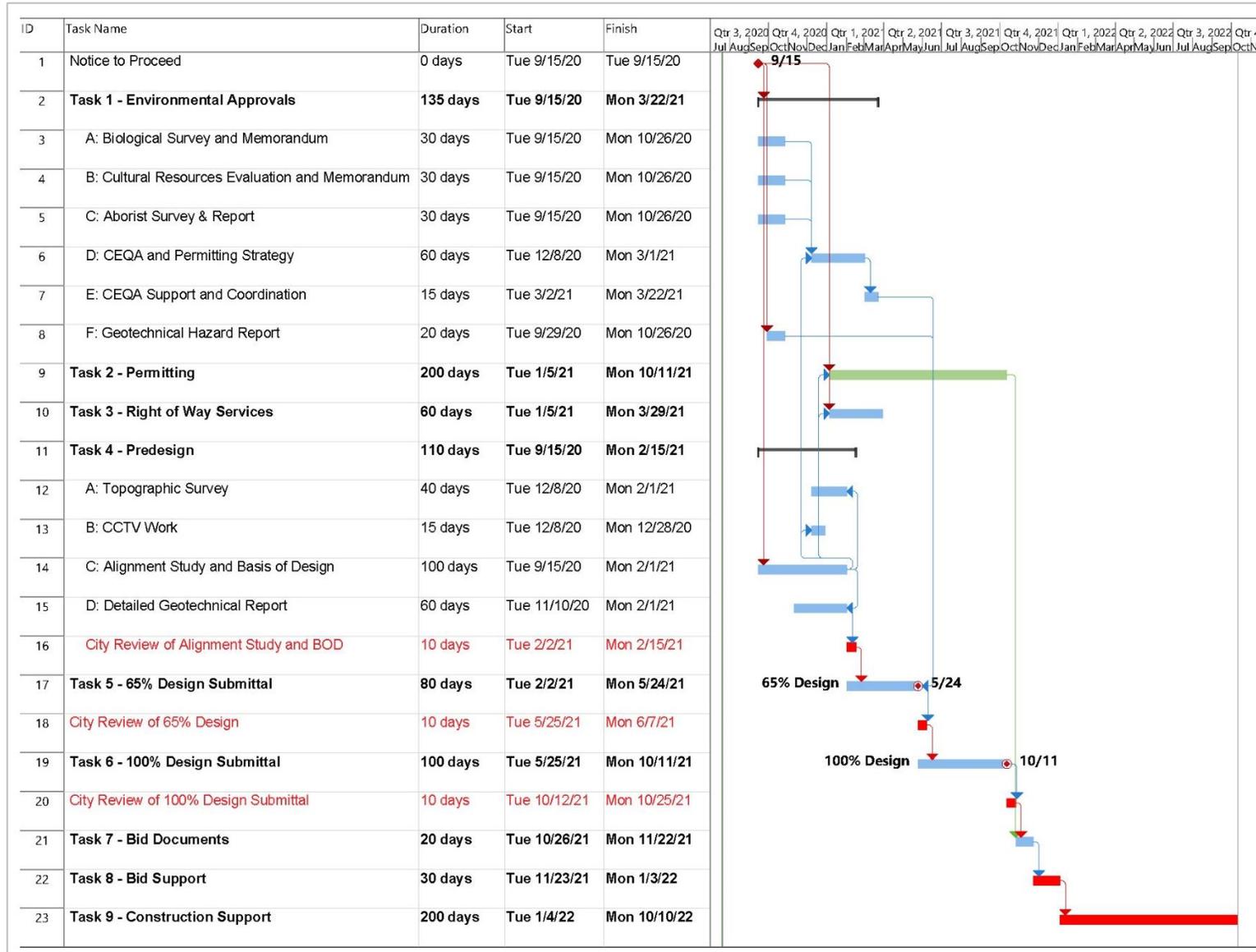


- Attend up to 18 site visits and provide summary notes for site visits
- Prepare record drawings based on Contractor-provided markups

Please note that because the scope, magnitude and alignment of the project will not be truly defined until detailed design begins, it is not possible to provide a relevant scope and fee for Biological surveys and Arborist support. Once the project scope(s) are defined, we recommend an amendment to add these services.



Project Schedule





Company Profile

About Schaaf & Wheeler

Firm Name	Schaaf & Wheeler CONSULTING CIVIL ENGINEERS
Principal Place of Business and Project Team Location	1171 Homestead Rd., Ste. 255, Santa Clara, CA 95050 Phone: (408) 246-4848 ; Fax: (408) 246-5624
Main Contact	Glen M. Anderson, PE - Project Manager 1171 Homestead Rd., Ste. 255, Santa Clara, CA 95050 Phone: (408) 246-4848; Cell: (408) 966-5341 Email: ganderson@swsv.com Charles D. Anderson, PE – Principal-in-Charge Phone: (408) 246-4848; Email: canderson@swsv.com
Tax Identification Number	77-0061375
Year of Establishment and Years in Business	1985 – 35 Years in Civil Engineering Design
Type of Organization	Corporation, Incorporated in California
Company Certifications	State of California Certified Small Business Enterprise (SBE) Certification No. 40527

Schaaf & Wheeler is a civil engineering firm focused in water resources. With over thirty years of commitment to solving flood control, stormwater, wastewater, potable water, and recycled water problems; Schaaf & Wheeler is recognized by public and private sector clients for its value-adding engineering. Certified as a small business enterprise by the State of California, Schaaf & Wheeler engineers operate from four locations: Santa Clara, San Francisco, Santa Rosa and Salinas.



Our Areas of Focus: Schaaf & Wheeler has ten areas of focus:

- **Waste water** system master planning, engineering, and design of conveyance systems, including lift stations and pump stations;
- **Stormwater** management and drainage services, including master planning, engineering, and design of urban storm drain systems and pump stations;
- **Potable water** system master planning, modeling, engineering; and design of supply, storage, distribution systems, including tanks and booster stations;
- **Recycled water** systems planning, engineering, and design; including reclamation feasibility studies and customer retrofits;
- **Hydrology and hydraulics** analyses, including site evaluations and modeling;
- **Flood control analyses**, including floodplain studies and channel design, filing of letters of map revision, and FEMA coordination;
- **Watershed assessments**, erosion and sediment control, and bioengineered channel stabilization;
- **Water quality**, including design or review of best management practices (BMPs) for storm water treatment and hydromodification flow control facilities;

We will serve the City from our Santa Clara Office and the Santa Rosa Office

✓ *Currently Completing City-wide Sewer Design Projects for:*

- City of Belmont
- City of San Mateo
- Town of Corte Madera
- City of Milly Valley
- City of Morgan Hill

✓ *Assessed and Designed more than 200 pump stations*

✓ *Proficient in CIP Design, Bid and Construction Support*



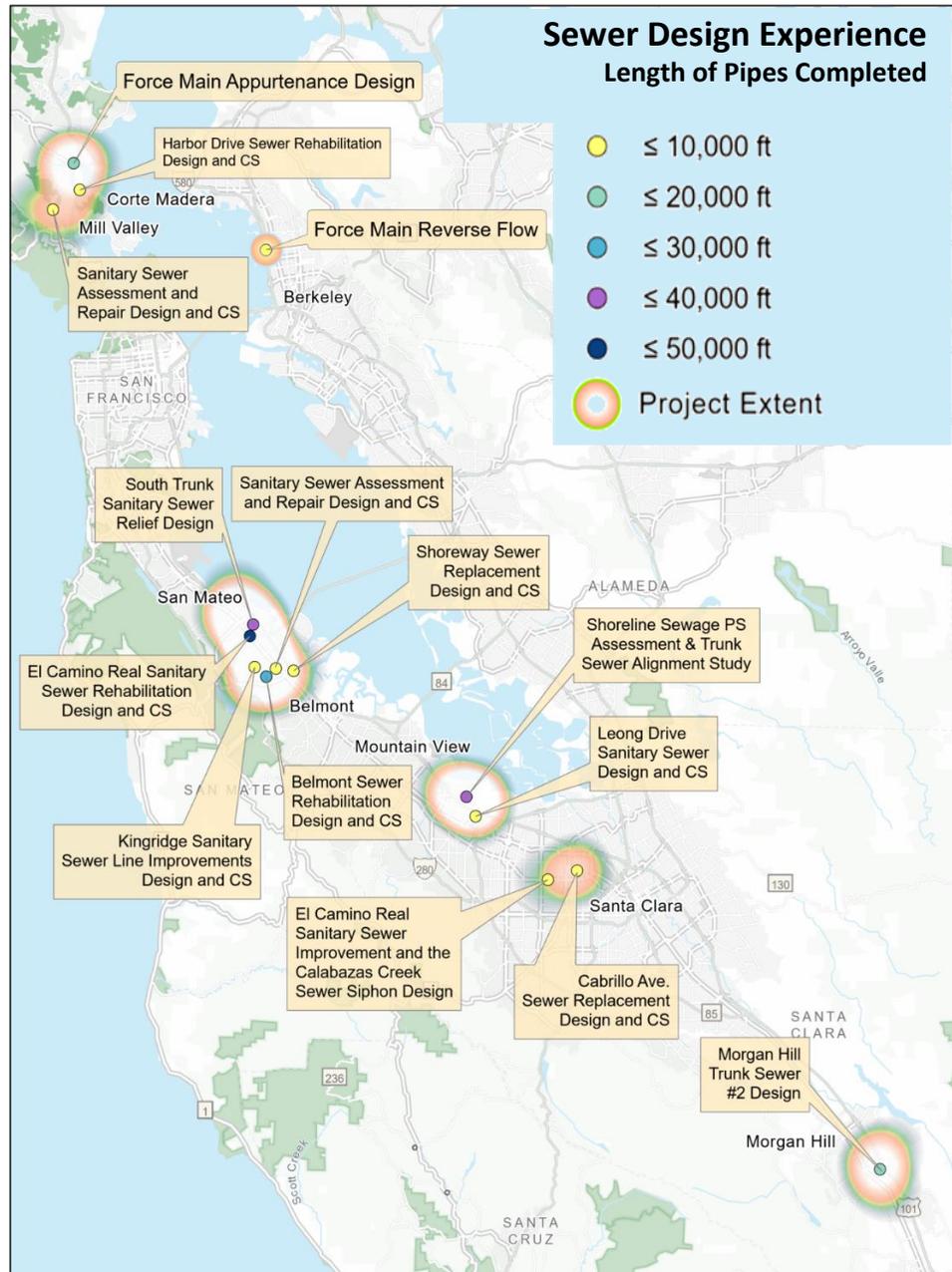
- **Construction management**, construction site observation, construction inspection services, value engineering, construction cost analysis, and constructability reviews;
- **H6 d Program management**, including management of subconsultants, containment of schedule and cost, and communications with client and stakeholders.

Schaaf & Wheeler’s Experience in Wastewater Infrastructure Planning, Design and Construction Support

Sewer Design - The following table and map present Schaaf & Wheeler’s experience in sanitary sewer replacement/rehabilitation, trunk alignment study and design.

The represented projects include:

- inspection,
- trenchless technology,
- CIPP,
- pipe reaming,
- pipe bursting,
- horizontal directional drilling (HDD)
- siphon design
- condition assessment,
- surveying and mapping,
- constructability review, and
- construction support



Award-Winning Projects

- ✓ Water/ Sewer Main Replacement Project ,Mid-Peninsula Water District/ City of Belmont, APWA Honor Award for 2019
- ✓ Shoreway Sewer Replacement Project, City of Belmont, Project of the Year Award for 2019



Schaaf & Wheeler Experience in Design of Wastewater Infrastructure

Project	Client	Services Provided								
		Detailed Assessment	Detailed Design	Project Prioritization	Trenchless Design	CIPP	Construction Plans	Engineering Estimates	Bid Support	Construction Support
Sanitary Sewer Improvement Project	City of Morgan Hill	•	•	•	•	•	•	•	•	•
Sanitary Sewer Assessment and Repair Design and CS	City of Mill Valley	•	•	•	•	•	•	•	•	•
Woodland Sewer Improvement Project	San Rafael Sanitation District	•	•	•			•	•	•	•
Harbor Drive Sewer Rehabilitation Design and CS, CIP Project #18-201	Sanitary District No. 2 of Marin County	•	•	•			•	•	•	•
El Camino Real Sanitary Sewer Rehabilitation Design and CS	City of San Mateo	•	•	•	•	•	•	•	•	•
Leong Drive Sanitary Sewer Design and CS	City of Mountain View	•	•	•		•	•	•	•	•
Pump Station Q Force Main Reverse Flow Project	East Bay Municipal Utility District		•	•			•	•	•	•
Force Main Appurtenance Projects	Ross Valley Sanitary District	•	•	•			•	•	•	•
Sewer and Water Replacement Design and CS	City of Belmont and Mid-Peninsula Water District	•	•	•		•	•	•	•	•
Shoreway Sewer Replacement Design and CS	City of Belmont	•	•	•			•	•	•	•
2018 Sanitary Sewer Rehabilitation Project – Various Locations	City of San Mateo	•	•	•	•	•	•	•	•	•
Force Main Appurtenance Design	Ross Valley Sanitary District	•	•				•	•	•	•
Shoreline Sewage PS Assessment & Trunk Sewer Alignment Study	City of Mountain View	•		•	•			•		
El Camino Real Sanitary Sewer Improvement, and the Calabazas Creek Sewer Siphon Design	BRE Properties & City of Santa Clara	•	•		•	•	•	•	•	•
Cabrillo Ave. Sewer Replacement Design and CS	City of Santa Clara	•	•				•	•	•	•
Belmont Sewer Rehabilitation Design and CS	City of Belmont	•	•	•	•	•	•	•	•	•
Kingridge Sanitary Sewer Line Improvements Design and CS	City of San Mateo	•	•	•	•	•	•	•	•	•
South Trunk Sanitary Sewer Relief Design	City of San Mateo	•	•	•	•	•	•	•	•	
Sewer Infrastructure Evaluation and Design	City of Morgan Hill	•	•	•	•	•	•	•	•	•
Morgan Hill Trunk Sewer #2 Design	City of Morgan Hill	•	•	•	•		•	•	•	•



Our Subconsultants



WRA – CEQA/NEPA and Permitting. WRA provides full service environmental consulting services including plant, wildlife, and wetland ecology, regulatory compliance and agency permitting, mitigation banking, CEQA/ NEPA, GIS, and landscape architecture. Formed in 1981, WRA is a certified small business (OSBCR ref. #13333) with 70 professionals that have completed more than 3,000 projects for public agencies, non-profit, and private organizations. WRA has a wide range of project experience throughout California in a variety of region-specific habitats.

WRA has a local office in Emeryville with more than 20% of total company staff working and residing in the East Bay. Their team provides expertise in the local habitats and species and has a large portfolio of regional projects. This has helped develop positive relationships with regulatory agency personnel at federal, state, and local levels.

WRA has a long history in the San Francisco Bay Area with more than 300 unique and diverse projects that include infrastructure and public works projects. Their portfolio includes biological assessment, environmental planning, and regulatory permitting for public agencies, focused on sensitive plants, wildlife, wetlands and streams, natural communities, and sensitive species.



Kier & Wright – Survey and Mapping. Kier & Wright Civil Engineers & Surveyors, Inc. (K&W) has been committed to providing both public and private sector clients with high-quality, cost-effective, efficient land surveying and civil engineering services since 1972. Kier & Wright maintains a large-scale field survey, survey scheduling, and survey drafting operation and is resourced to efficiently produce a high volume of topographic surveys concurrently. Related services include:

- Topographic & Utility Surveys
- Right-of-Way Surveying
- Field Cross-Section Surveys
- Horizontal & Vertical Control Surveys
- ADA Surveys
- Topographic Boundary Surveys
- GPS Surveys
- As-Built Surveys
- Surveying for Due Diligence
- 3-D Laser Scanning

Kier & Wright’s field survey operation is one of the largest in the Northern California. Kier & Wright surveyors successfully prepare and process parcel maps, records of survey, lot line adjustments, and other survey documents involved in establishing and recording the precise locations of property lines. Kier & Wright’s ALTA surveys conform to the Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys and include additional

<i>Years in Business: 38</i>
<i>DIR Registration Number: 1000014971</i>
<i>SLEB Status: Certified small business in Alameda County SLEB #17-00033; Exp: 2/28/2021</i>

WRA has a long history working with Schaaf & Wheeler staff on public infrastructure projects. Schaaf & Wheeler and WRA are currently working together on several sewer replacement and pump station rehabilitation.

- Some other relevant projects include:*
- ✓ *Ross Valley Sanitary District, Force Main Appurtenance Project, Larkspur*
 - ✓ *City of Alameda, Phase 4 Sanitary Sewer Pump Stations Upgrades*

<i>Years in Business: 47</i>
<i>DIR Registration Number: 1000005105</i>
<i>Contact Information: Ryan Amaya, PLS Ph: 408-727-6665 ramaya@kierwright.com</i>

Kier & Wright has been working with Schaaf & Wheeler engineers for more than 15 years to provide wastewater, storm water and potable water services for Bay Area municipalities. K&W provided survey and mapping services for the:

- ✓ *San Rafael Sanitation District, Woodland Ave Sewer*
- ✓ *City of Belmont, North Road Pump Station and Force Main Project*



details, such as land use zoning classifications and FEMA flood zone designations. Kier & Wright has prepared ALTA surveys for large real estate portfolios comprised of as many as 104 separate properties.

ENGEO **ENGEO – Geotechnical Engineers.** ENGEO is an employee-owned, award-winning firm of geotechnical and civil engineers, geologists, hydrologists, environmental scientists, construction quality assurance representatives, and laboratory testing specialists. Founded in 1971, we have offices throughout California, Nevada, New Zealand, and Australia. ENGEO serves projects in transportation; infrastructure; water storage, conveyance and treatment; industrial facilities; geologic hazard mitigation; flood control facilities; civic structures; healthcare; education; energy; manufacturing; ports, harbors and waterfront development; residential and mixed-use communities; and urban development.

ENGEO's engineers and geologists have helped companies and public agencies manage their project development risk, drive down construction costs, and improve schedules.

ENGEO's geotechnical services are uniquely designed to address client objectives. Geotechnical services include:

- Foundation Engineering
- Seismic Analysis
- Construction-Phase Testing and Observation
- Grading Design
- Earthquake Engineering
- Laboratory Testing
- Seismic Retrofit
- Slope Analysis and Stabilization
- Levee and Dam Design
- Subgrade Stabilization
- Subsurface Characterization
- Slope Instrumentation and Monitoring
- Pavement Analysis and Design
- Fault Characterization

Presidio Systems Inc. – CCTV Inspection. Presidio Systems, Inc. (PSI) is a certified small, woman-owned business enterprise that provides professional storm water and sewer pipe inspection. PSI has dedicated Vac-Con trucks for initial cleaning of pipes and a fleet of state-of-the-art camera inspection trucks, fully equipped computerized camera vans, mobile hand held camera crews for smaller non-accessible projects, fully equipped Vector trucks, mobile Vector crews for smaller cleaning projects and a full crew for routine and emergency repairs. PSI also provides mechanical, electrical plumbing, industrial process controls, construction, environmental, and specialized engineering services to private and public sector clients throughout the United States. PSI delivers services for diverse projects to government agencies including the US Department of Defense Air Force and US Army COE, the Department of Energy - Sandia and Pacific Northwestern Laboratories, and the Department of Homeland Security - Customs and Border Patrol US Coast Guard and National Nuclear Safety Agency, among many others.



PSI has dedicated Vac-Con trucks for initial cleaning of pipes and a fleet of state-of-the-art camera inspection trucks, fully equipped computerized camera vans, mobile hand held camera crews for smaller non-accessible projects, fully equipped Vector trucks, mobile Vector crews for smaller cleaning projects and a full crew for routine and emergency repairs. PSI also provides mechanical, electrical plumbing, industrial process controls, construction, environmental, and specialized engineering services to private and public sector clients throughout the United States. PSI delivers services for diverse projects to government agencies including the US Department of Defense Air Force and US Army COE, the Department of Energy - Sandia and Pacific Northwestern Laboratories, and the Department of Homeland Security - Customs and Border Patrol US Coast Guard and National Nuclear Safety Agency, among many others.

<i>Years in Business: 48</i>
<i>DIR Registration Number: 1000009116</i>
<i>Contact Information: Janet Kan, GE, CEG, LEED AP Ph: 925-570-7982 jkan@engeo.com</i>

✓ *Corporation Way System Upgrades and Pump Station, West Bayshore Road Pump Station and West Bayshore Road Trunkline Improvements Project, City of Palo Alto*

<i>Years in Business: 29</i>
<i>DIR Registration Number: 1000015049</i>
<i>CSLB Number: 832413</i>
<i>Contact Information: Mike Schratz Ph: 925-575-0175 mike.schratz@presidio-inc.com</i>

Presidio is currently working with Schaaf & Wheeler to provide CCTV inspection services in the

- ✓ *Cities of Mill Valley and the Town of Corte Madera.*
- ✓ *Previously they have provided CCTV services for the Storm Drain Master Plan for the Town of Moraga and Sinkhole Rehabilitation project; and the*
- ✓ *Port of Oakland, 7th Street Outfall Investigation project.*



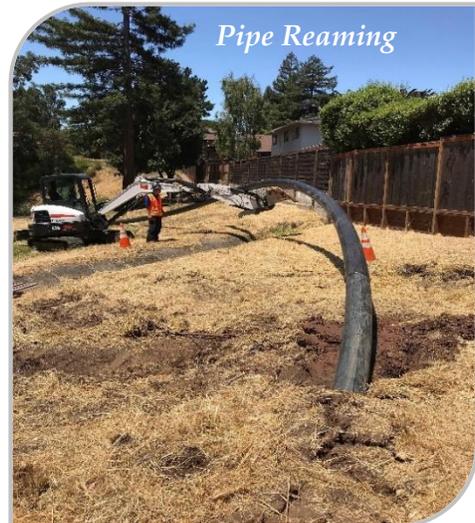
What does the Schaaf & Wheeler Team Bring?

The Schaaf & Wheeler team brings a number of assets that the City of Los Altos can benefit from, including the following:

- Schaaf & Wheeler is a small, local firm, responsive towards clients, specializing in wastewater systems design and engineering. *The work will be conducted from our local Santa Clara Office.*
- Our engineers provide cost-effective, implementable solutions and designs that expedite the project completion with *minimal change orders during the construction phase.*
- Our proposed team is proficient at *assessing existing condition and recommending pipe repairs* for optimal performance.
- Our engineers specialize in various technologies including *open-cut, trenchless technologies, CIPPs, pipe reaming, pipe bursting, etc.*
- Our engineers regularly *work with the agencies* identified for this project and will be *instrumental in obtaining permits* to keep the project on schedule
- We are *familiar with the issues and conditions specific to the City* and have identified a number of specific issues and solutions for this project in our proposal.
- Schaaf & Wheeler has been *providing engineering services to the City of Los Altos since 2010* and have completed several wet utility projects. Our engineers are familiar with the City's standards, procedures and regulations.
- We bring a strong team under the leadership of a detailed-oriented, experienced, and skillful *Project Manager – Glen M. Anderson, PE*. He is currently providing City-wide sewer repair service to the City of Morgan Hill and has recently completed a \$7.5 million gravity main and force main project for EBMUD. He regularly obtains permits for projects and lead multidisciplinary teams.
- *Benjamin L. Shick, PE is the QAQC Manager* and will provide *constructability review* for this project. Ben has completed several ward-winning sewer projects and intimately experienced in *alternatives analysis* and provides *cost-effective construction methods*.
- Our subconsultants and our engineers together bring a collaborative multidisciplinary team to provide a complete set of services required to prepare bid-ready sewer replacement and rehabilitation projects.
- We have more than *30 years of experience* providing engineering services for large infrastructure projects in busy urban corridors and rural settings and understand the challenges involved with these settings and the methods to resolve them.



Open Trench



Pipe Reaming



CIPP Lining

Our multidisciplinary team consists of all the services required to successfully complete the projects in time and schedule.



Project Team Qualifications and Experience

Team and its Management - Our Project Manager

Has Necessary Experience - Our results-oriented team for the City of Los Altos Adobe Creek Sewer Replacement project is under the strong leadership of **Glen M. Anderson, PE**. **Glen has more than 14 years of experience** in infrastructure planning, assessment; and design of waste water conveyance systems, water supply and distribution systems and stormwater systems. Most of these projects have required multidisciplinary subconsultant coordination including geotechnical engineering, structural engineering, RWQCB compliance, electrical engineering, survey and mapping, utility relocation, environmental permitting and stakeholder involvement.

Is an Accomplished Project Manager – Glen M. Anderson, PE is an owner and Senior Project Manager at Schaaf & Wheeler. He will provide his expertise in assessment, design and construction support of sewer pipe replacement. **Glen has completed design of more than 15,000 LF of Sewer pipes. He brings experience in open-cut and trenchless technologies.** Additionally, he has worked on numerous pump station rehabilitation/replacement design projects throughout the Bay Area. Glen Anderson has performed condition assessments for more than 150 pump stations and designed about 100 of them.

Glen has served as project manager and project engineer of gravity sewers, force mains, sewage lift stations, water pipes, water booster stations, storm drains and stormwater pumping stations for public agencies throughout Northern California. His management skills in every phase of the project - from assessment and feasibility studies to construction document preparation and construction support – help complete the projects within schedule and budget.

Some of his relevant projects are:

- City-wide Sewer Repairs, City of Morgan Hill
- Assessment and Engineering for Sanitary Sewer Main Rehabilitation, City of San Mateo
- Crestmoor & Lomita Pump Stations and Forcemain, City of San Bruno
- Force Main Appurtenance Projects ESDC, Ross Valley Sanitary District
- Cabrillo Avenue Sewer Main Abandonment and Replacement, City of Santa Clara
- South Trunk Sewer Relief Line, City of San Mateo
- Morgan Hill Trunk Sewer No. 2 - City of Morgan Hill
- PSQ Reserve Flow and URD Project, East Bay Municipal Utility District

Project Role: *Glen will be responsible for day-to-day project management for the entire length of the project. He will focus and maintain the project schedule and budget as well as undertake ultimate responsibility for the quality of all work products. Glen will hold regular team meetings to make sure issues are resolved effectively and to allocate resources to critical tasks. He will work closely with the City*



Education

BSCE, Civil and Environmental Engineering, University of California, Davis

Licenses

Registered Civil Engineer
California C 76720

Certifications

NASSCO PACP, MACP and LACP Certified, Cert. No. U-714-06021855

Hydraulic Institute, Pump System Assessment Certified

Years with S&W: 12

District's Day-to-Day Contact:

1171 Homestead Rd., Ste. 255,
Santa Clara, CA 95050

Ph: 408.246.4848

Email: ganderson@swsv.com

Qualification Highlights:

- ✓ Knowledge and Experience in Open Cut and Trenchless Technologies: CIPP, Pipe Bursting, Pipe Reaming
- ✓ Project Design Manager for Sewer Rehabilitation Projects for:
 - City of San Mateo
 - City of Santa Clara
 - City of Morgan Hill
- ✓ Completed design and CS of a \$7.5 million gravity main and force main project for EBMUD

Total Years of Experience: 14

Years with Schaaf & Wheeler: 14



staff to make sure contractual and procedural issues are exposed and resolved. Glen will attend all the field assessments and meetings with the City Department personnel.

Other Key Personnel

Charles D. Anderson, P.E. – Principal-in-Charge - Chuck is the president and an owner of Schaaf & Wheeler. He will provide expert peer review for the project. He brings **30 years of experience** encompassing the areas of wastewater conveyance and pumping, stormwater collection and pumping, water supply and distribution, flood mapping and protection design, tide gate structures, FEMA requirements, sea level rise assessment, and groundwater and surface water hydrology. Chuck has led numerous multidisciplinary project teams to deliver responsively and responsibly from concept verification to design and construction. He has managed two large award winning levee projects for the City of Foster City and San Mateo. He has interacted often with FEMA, having completed numerous flood insurance studies (FIS) and letters of map revision (LOMRs) on behalf of public and private clients. His management skills in every phase of the project - from feasibility studies to construction document preparation and construction support - help complete projects within schedule and budget.

Qualification Highlights:

- ✓ Completed Design and CS for CIP Projects since 1998
- ✓ Proficient at Providing QA/QC for Infrastructure Projects, especially Storm and Sewer Design
- ✓ Completed Award Winning Projects
- ✓ Completed Design of more than 40 Stormwater and Wastewater Pump Stations.

Total Years of Experience: 30+

Years with Schaaf & Wheeler: 25

Benjamin L. Shick, P.E. - Quality Control and Quality Assurance and Constructability Review – Ben Shick is a vice president and owner at Schaaf & Wheeler. Ben has more than **17 years of experience** in infrastructure planning and design of wastewater, stormwater and potable water systems. He provides expertise in alternative analyses, trenchless technologies, design and construction support sewer main rehabilitation. He has served as project manager and project engineer for design of large diameter pipes, sewage lift stations, stormwater pumping stations and gravity sewers.

Qualification Highlights:

- ✓ Design & CS of ~150,00 LF of sanitary sewer pipes
- ✓ Knowledge and Experience in Open Cut and Trenchless Technologies: CIPP, Pipe Bursting, Pipe Reaming
- ✓ 10 Years of QA/QC experience
- ✓ Resource optimization and cost control
- ✓ Stakeholder coordination
- ✓ Award-Winning Projects
- Water/ Sewer Main Replacement Project Completed for Mid-Peninsula Water District/ City of Belmont, APWA Honor Award for 2019
- Shoreway Sewer Replacement Project Completed for City of Belmont, Project of the Year Award for 2019

Total Years of Experience: 17+

Years with Schaaf & Wheeler: 17

Ben's sewer rehabilitation/replacement projects generally include flow monitoring, CCTV inspections, pipe rehabilitation and replacement, manhole rehabilitation and replacement, pipe placed on structural supports, etc. Ben is proficient in water resources modeling tools: AutoCAD, WaterCAD, HEC-RAS, HEC-HMS, GeoRAS, MOUSE, and ArcGIS 9.0.

Ben is currently providing On-Call engineering services to the City of San Mateo, City of Belmont, and the City of Alameda. Some of his relevant sewer projects are:

- Woodland Avenue Sewer Improvement Project, San Rafael Sanitation District
- Harbor Drive Sewer Rehabilitation Project, Town of Corte Madera
- Sanitary Sewer Rehabilitation and Replacement Projects, City of Belmont
- Sanitary Sewer Repair Project, City of Mill Valley
- El Camino Real Sanitary Sewer Rehabilitation, City of San Mateo
- North Road Pump Station Rehabilitation Project, City of Belmont
- Belmont Sewer and Water Main Replacement, City of Belmont and Mid-Peninsula Water District
- Sanitary Sewer Rehabilitation Projects, City of San Mateo
- Force Main Appurtenance Projects, Ross Valley Sanitary District



- El Camino Real Sanitary Sewer/Water Improvement Project, BRE Properties/City of Santa Clara
- Cabrillo Avenue Sewer Main Abandonment and Replacement, City of Santa Clara
- Kingridge Sanitary Sewer and Storm Drain Improvement Project – City of San Mateo
- Sanitary Sewer Pump Station Evaluation and Design, Town of Hillsborough
- Rehabilitation and Replacement Design of 32 Sanitary Sewer Pump Station, City of Alameda
- Rehabilitation and Replacement Design of Sanitary Sewer Pump Stations, City of Oakland

Project Role: Ben will ensure quality control and quality assurance for all deliverables of the project. He will perform quality control several times throughout the project to minimize the need to fix problems further along in the project. Ben will work with Glen Anderson at Schaaf & Wheeler to provide critical reviews of alternatives and design methods. He will also scrutinize improvements for constructability and cost.

Subconsultant Key Personnel



Ryan Amaya, PLS - Principal Surveyor. Ryan Amaya is a Principal Engineer at K&W. He has over 21 years of land surveying experience, including construction surveying, boundary surveying, mapping, and subdivision work related to land development. Specific survey experience includes construction staking, topographic surveys, benchmark-level circuits, elevation monitoring surveys, tentative maps, parcel maps, final maps, condominium plans, plats and legal descriptions, lot line adjustments, lot combinations, reversion to acreage maps and ALTA/ACSM Land Title Surveys. Mr. Amaya has had the privilege of managing the topographic survey scope for a variety of public improvement projects throughout the San Francisco Bay Area. He has managed land surveying/base mapping scope for a number of municipal design contracts held by Schaaf & Wheeler and is experienced in working with the proposed project team. Mr. Amaya has been at Kier & Wright since February of 1999.

Qualification Highlights:

- ✓ Managed the survey scope for Schaaf & Wheeler projects completed for public agencies throughout the Bay Area.
- ✓ Manages all mapping and survey operations based in Kier & Wright's Santa Clara and Gilroy offices.

Total Years of Experience: 21

Years with Kier & Wright: 21

Project Role: Ryan will serve as the lead surveyor and project manager for K&W's services for this contract.



Greg Sproull – Biologist. Greg Sproull is an associate biologist and project manager in WRA's San Rafael office. He has over a decade of

scientific experience in the private and academic sectors in the United States and abroad. Greg manages floristic surveys, vegetation mapping, and habitat assessments; coordinates and performs wetland delineations; and authors and manages regulatory permit applications, biological resource assessments for CEQA documents, and client reports. Greg regularly interfaces with local, state, and federal regulatory agencies, including the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), California Coastal Commission (CCC), and the Bay Conservation and Development Commission (BCDC). Greg combines his scientific expertise, critical thinking, and scientific editing experience to address clients' natural resource challenges with an efficient, measured, and objective approach.

Some of his relevant projects are:

Qualification Highlights:

- ✓ Experienced project manager for biological and regulatory agency permitting projects
- ✓ Established relationships with local, state, and federal regulatory agencies
- ✓ Instructor for wetland delineation training at San Francisco State's Romberg-Tiburon Center
- ✓ CDFW Plant Voucher Collecting Permit Holder (#2081a-18-008-V)
- ✓ Professional Wetland Scientist (PWS; ID 3193)
- ✓ Serves as Association of Environmental Professionals, North Bay Vice President

Total Years of Experience: 11

Years with WRA, Inc.: 2



- Alameda County Water District, Curtner Road and Canyon Heights Booster Stations Improvements
- Department of Water Resources/Ecosystem Investment Partners, Lookout Slough Restoration Project, Dixon
- Santa Clara Valley Water District, Rancho Cañada de Pala Preserve Annual Monitoring Project – Santa Clara County

Project Role: Greg Sproull will lead the environmental documentation and permitting. He will lead WRA's team for this project.



Janet Kan, GE, CEG, LEED AP – Geotechnical Engineering.

Janet Kan is a Principal Engineer at ENGEO. She brings extensive experience in geotechnical engineering. She has managed numerous large-scale projects in the South Bay including residential, commercial, mixed-use and master planned developments. Furthermore, Janet is familiar with preparation of geotechnical reports according to Caltrans, SP 117, and OSHPD guidelines.

Both as geotechnical engineer and a professional geologist, Janet's expertise includes developments on compressible deposits; mitigation of liquefiable sites; and seismic analyses including site response and spectral acceleration development. Janet is a proven and adept lead geotechnical engineer for many complex projects with technical challenges and multiple stakeholders.

Some of her relevant projects are:

- City of San Mateo Basin 2 and 3 - Pipelines and Pump Stations—San Mateo, CA
- City of San Mateo South Trunk Sanitary Sewer Relief Line—San Mateo, CA
- San Mateo Bayfront Levee Improvement—San Mateo, CA

Project Role: Janet will serve as the lead geotechnical engineer and project manager for ENGEO's services for this contract.



Mike Schratz - CCTV Inspector.

Mike Schratz is a Project Manager at Presidio Systems, Inc. He has over 10 years of experience in sewer and storm drain maintenance projects. Mike is proficient at sewer pipe and storm water CCTV inspections, hydrocleaning and condition assessment. He uses dedicated video equipment, state-of-the art systems and highly trained inspection personal to provide a complete turnkey inspection system. He leads the team with dedicated Vac-Con trucks for initial cleaning of pipes and a fleet of state-of-the-art camera inspection trucks, fully equipped computerized camera vans, mobile hand held camera crews for smaller non-accessible projects, fully equipped Vactor trucks, mobile Vactor crews for smaller cleaning projects and a full crew for routine and emergency repairs. He also prepares CCTV assessment reports that can be easily used to analyze repair methods.

Project Role: Mike will serve as the lead CCTV inspector and project manager for Presidio's services for this contract.

Qualification Highlights:

- ✓ Experienced project manager for infrastructure geotechnical projects
- ✓ Geotechnical analysis and environmental investigations and reporting
- ✓ Familiar with Caltrans, OSHPD and USACE guidelines
- ✓ Has been working with Schaaf & Wheeler engineers for more than a decade

Total Years of Experience: 11

Years with WRA, Inc.: 2

Qualification Highlights:

- ✓ NASSCO, PACP, LACP, MACP 40-Hour OSHA Hazwoper Training OSHA Confined Space Certified Manages all mapping and survey operations based in Kier & Wright's Santa Clara and Gilroy offices.
- ✓ Working with Schaaf & Wheeler since 2014 on wastewater and stormwater infrastructure projects
- ✓ CCTV on Storm Drain System at LBNL, Berkeley

Total Years of Experience: 10

Years with PSI: 10



The table below presents our entire team’s role, experience and qualifications.

Table: Key Personnel Qualifications, Experience and Role

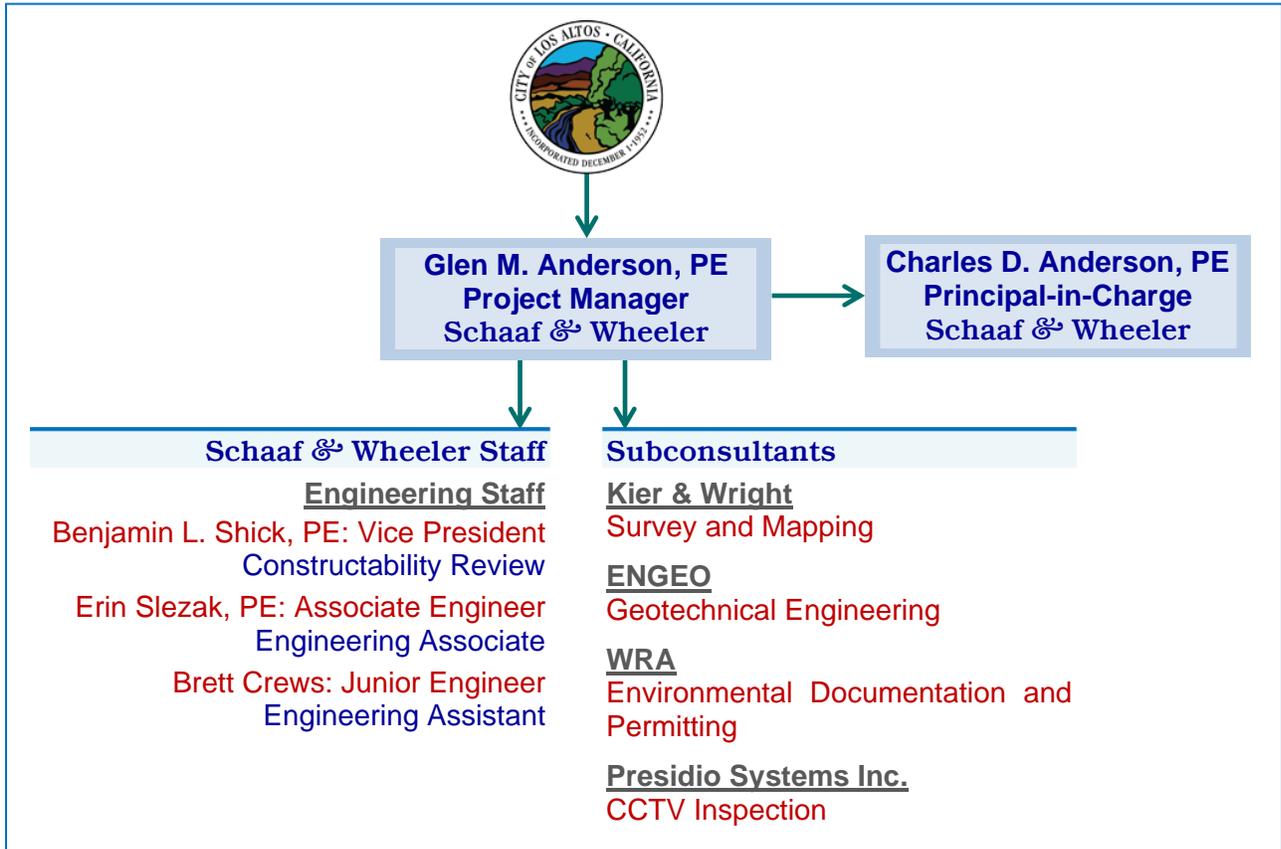
Name & Firm	Years of Experience	Role and Responsibility	License, Certifications and Education
Glen M. Anderson, PE, PACP S&W	13	Project Manager	Registered Civil Engineer, California C76720 BSCE, Civil and Environmental Engineering, University of California, Davis NASSCO PACP Cert. U-714-06021855 Hydraulic Institute, Pump System Assessment Certified
Charles D. Anderson, PE	Principal- in-Charge	30	Registered Civil Engineer California C43776 Hawaii 15647; Nevada 11518; Washington 39715 MSCE (Water Resources Engineering), Stanford University, California BCE, Georgia Institute of Technology
Benjamin L. Shick, PE S&W	17	Quality Control and Quality Assurance	Registered Civil Engineer, California C68813 MSCE, Montana State University-Bozeman BSCE, Montana State University-Bozeman
Subconsultants			
Ryan Amaya, PLS Kier & Wright	20	Survey and Mapping, Utility Research	Professional Land Surveyor, California L8134
Gregory Sproull WRA, Inc.	11	Biologist	Professional Wetland Scientist (PWS) from the Society of Wetland Scientists (SWS) (ID 3193) Plant Voucher Collection Permit from the California Department of Fish and Wildlife (ID 2081(a)-18-008-V) Master of Science, Biological Sciences, University of Denver; Bachelor of Science, Integrated Science and Technology, James Madison University; Fulbright Research Scholar in Ecology
Janet Kan, PE, GE, CEG Engeo	18	Geotechnical Engineer	Registered Civil Engineer, California C67311 Registered Geotechnical Engineer, California 2880 Certified Engineering Geologist, California 2590 MS, Civil Engineering, University of California, Berkeley BS, Geological Engineering, University of British Columbia
Mike Schratz Presidio Systems, Inc.	10	CCTV	CCTV/Controls/ Pump Stations Upgrades to Plant NASSCO LACP,PACP,MACP



Team Organization

We have put together a dedicated team for the City of Los Altos. The team will be led by Glen Anderson, who has successfully completed sewer design projects in Bay Area. *Detailed resumes of the entire team are attached as Appendix.*

Organization Chart





Relevant Project Experience

Sanitary Sewer CCTV Inspection and Data Review, Port of Oakland, 2020

Client and Contact:

Quynh Nguyen
Port of Oakland
Engineering Division
530 Water St
Oakland, CA 94607
Ph: 510. 627.1240
qnguyen@portoakland.com

Contract Value:

\$429,094

Construction Cost: NA**Team Members:**

Glen M. Anderson, PE
Erin Slezak, PE

Subconsultants:

Presidio Systems Inc.

**Key Elements:**

- ✓ 50,000 LF of sanitary sewer inspection, 6" to 36"
- ✓ CCTV data review and evaluation for all sewer infrastructure within and connected to the Port
- ✓ Manhole inspections and assessment
- ✓ Evaluation of condition related deficiencies
- ✓ Rehabilitation strategies

The includes the cleaning and CCTV inspection of approximately 50,000 linear feet of sanitary sewer piping within the Port of Oakland's Seaport Facility including the TraPac, 7th Street, Middle Harbor Road, Middle Harbor Shoreline Park, Joint Intermodal Terminal, Matson Terminal, and other areas as requested by the Port. CCTV inspection reports are generated in conformance to NASSCO PACP and LACP standards. The findings of these inspections are summarized in a technical memorandum that ranks the pipeline segments in order of severity and provides recommended improvements for pipelines receiving a level 4 or level 5 rating through the ranking process. Manholes with observed deficiencies are noted and assessed in conformance NASSCO MACP standards. The inspected pipeline that shows breakage, Inflow and infiltration, blockage are identified and made known to the Port in real-time.

Tasks included:

- Pre-Inspection Investigations and Field Reconnaissance
- Hydro-jetting and CCTV inspections of Port and City of Oakland Sewers
- Technical memorandum including maps, tables, and figures
- Ranking and grouping for rehabilitation prioritization
- Suggest rehabilitation strategies



El Camino Real Sanitary Sewer Rehabilitation, City of San Mateo, 2017 – 2020

Client and Contact:

Jimmy Vo
City of San Mateo
330 W. 20th Avenue
San Mateo, CA 94403
Ph: 650.522.7300
jvo@cityofsanmateo.org

Contract Value:

\$500,000

Construction Cost (2020):

\$3,100,000

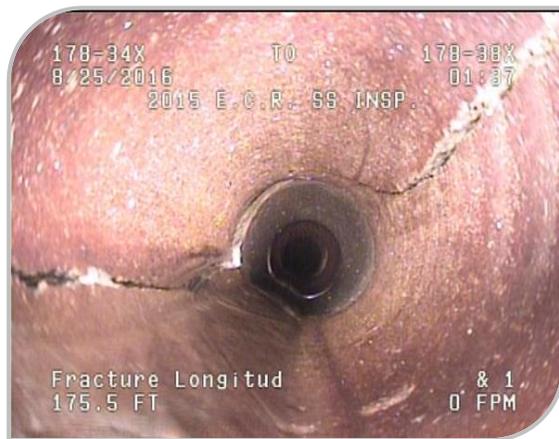
The design was completed in time and budget.

Team Members:

Benjamin L. Shick, PE
Glen M. Anderson, PE
Curran L. Price, PE
Larry D. Johnson, PE
Jonathan F. Ondracek

Subconsultants:

Kier & Wright
Bess Testlab

**Key Elements:**

- ✓ 9,500+ LF of sanitary sewer rehabilitation, 6" to 18"
- ✓ CCTV data review and evaluation for all sewer infrastructure within and connected to El Camino Real.
- ✓ Manhole inspections and rehabilitation design
- ✓ Evaluation of condition related deficiencies
- ✓ Rehabilitation with cured-in-place pipe (CIPP), pipe bursting, open-trench, and spot repairs
- ✓ Utility investigation

The project includes addressing all of the City's condition related deficiencies along the El Camino Real corridor. Schaaf & Wheeler reviewed and evaluated the condition of all the City's sanitary sewer pipes and manholes within and adjacent to El Camino Real and developed a recommended improvement project to address all significant condition related issues. Subsequently Schaaf & Wheeler designed the rehabilitation and replacement of 9,050 LF of pipe and the rehabilitation and replacement of 110+ manholes. Rehabilitation methods were primarily cured-in-place pipe (CIPP) and spot repairs; however, pipe bursting and open trench replacement methods were also used.

Tasks included:

- Review and evaluation of CCTV data
- Manhole inspections and rehabilitation
- Develop and design recommended improvements
- Replacement of sewer lines in easements with tight access
- Sewer line rehabilitation with cured-in-place pipe (CIPP)
- Sewer main replacement

The work included geotechnical investigations, easement research, Utility investigations, and Caltrans Encroachment Permit.

The project required close coordination with the City and the City's consultants working on additional sewer improvement projects in the area to ensure there weren't conflicts and overlap between projects. The project also required a detailed Caltrans Encroachment Permit application which was successfully handled and obtained by Schaaf & Wheeler.



Sanitary Sewer Rehabilitation Projects, 2015 – Ongoing. Contract Value: ~\$191,000; Construction Cost: \$885,000; Construction Dates: June 2018 – October 2018. The project includes 6”, 8”, and 12” of 4,000+ LF of sanitary sewer rehabilitation. Schaaf & Wheeler completed site investigations, inspections, researched existing data, and developed recommended alternatives for various sewer rehabilitation projects within the City. As directed, Schaaf & Wheeler proceeded with detailed design of the recommended alternatives which consisted of:

- Sewer line rehabilitation with cured-in-place pipe (CIPP)
- Sewer main replacement and realignment
- Sewer replacement across drainage channels (both above ground on piers and below ground)
- Replacement of sewer lines through large drainage box culverts
- Manhole rehabilitation and replacement

The work included geotechnical investigations, easement research, topographical surveying, and environmental permitting. S&W also assisted with environmental permitting and Caltrans E.P.

Kingridge Sanitary Sewer Line Improvements, City of San Mateo, 2008 - 2014

Client and Contact:

Jimmy Vo
City of San Mateo
330 W. 20th Avenue
San Mateo, CA 94403
Ph: 650.522.7300
jvo@cityofsanmateo.org

Contract Value:

\$927,673

Construction Cost:

\$2.5 million

Team Members:

Benjamin L. Shick, PE
Glen M. Anderson, PE

Subconsultants:

Environmental
Geotechnical
Structural
CCTV and Potholing



Key Elements:

- ✓ 3,000 LF of sanitary sewer main replacement, 6”
- ✓ Open-cut, pipes supported on piers, and pipe rehabilitation with cured-in-place pipe (CIPP)
- ✓ Obtained construction and regulatory permits from CDFW, RWQCB, US Army Corps of Engineers
- ✓ Project outreach program for the design and construction phases

The Kingridge sewer line improvement project rehabilitates the 6-inch sanitary sewer main located within a 10-foot utility easement in a steeply-sloped and wooded canyon behind homes on Kingridge Drive. The City has experienced very high maintenance issues with the sewer pipe and due to several operational issues, the RWQCB issued a Cease and Desist Order requiring immediate action.

This main is located within a 10-foot utility easement in a steeply-sloped and wooded canyon behind homes on Kingridge Drive, between 36th and 42nd Avenues. The sewer main is constructed out of vitrified clay pipe (VCP) with cement joints. The City has experienced very high maintenance issues with the sewer pipe including root intrusion, overflows and physical displacement of the pipeline. Slope failures in this steep terrain have torn away portions of the pipe. Access to the sewer main for maintenance and repairs was also an issue, because it was located on a steep embankment and did not have a trail or roadway for access.



Due to several issues with the operation of the sewer, the Regional Water Quality Control Board (RWQCB) issued a Cease and Desist Order (CDO) requiring immediate action - the main impetus for the improvements.

Similar Scope and Complexity. Schaaf & Wheeler provided consulting services to the City of San Mateo including:

- Investigation of existing conditions
- Hydraulic analysis of the existing Kingridge Canyon sewer system
- Development of improvement alternatives for the sewer main
- Development and production of construction documents for the selected alternative

The selected improvement alternative included slope stabilization, access improvements, pipe replacement, pipe rehabilitation with cured-in-place pipe (CIPP), pipe placed on structural supports, and various drainage improvements. Limited site access required the use of specialty construction methods and materials.

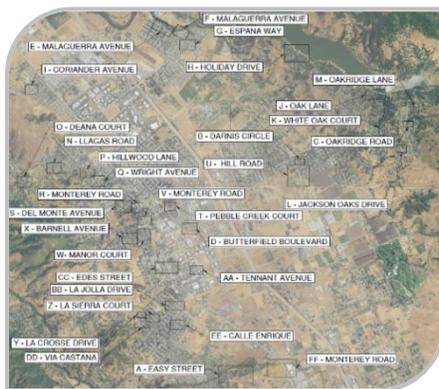
The project also included close coordination with subconsultants for environmental permitting and mitigation, geotechnical/geological investigation, surveying, and structural design. Access to the sewer line required entry through private property during design and construction. Schaaf & Wheeler worked with the City to develop and implement a project outreach program for the design and construction phases of the project. The public outreach aimed to engage residents throughout the project duration, providing transparency and a collaborative atmosphere.

Sanitary Sewer Rehabilitation Projects for City of Morgan Hill, 2019 – Present

Client and Contact:
 Yat Cho
 Senior Project Manager
 City of Morgan Hill
 17575 Peak Avenue
 Morgan Hill, 95037
 Ph: 408.310.4641
Yat.cho@morganhill.ca.gov

Contract Value: \$162,285
Construction Cost:
 \$1,000,000 (estimate)

Key Personnel:
 Benjamin L. Shick, PE
 Glen M. Anderson, PE
 Curran L. Price, PE
 Jonathan F. Ondracek



City-Wide Rehabilitations

Key Elements:

- ✓ Sanitary sewer infrastructure evaluations
- ✓ Sanitary sewer design and CS
- ✓ Open trench excavation
- ✓ Pipe Bursting
- ✓ CIPP lining

The City of Morgan Hill identified 47 pipe segments that need to be reviewed and evaluated. Schaaf & Wheeler assisted the City with evaluating and assessing the existing sewer infrastructure. The City’s existing sanitary sewer model was reviewed to evaluate the sizes of the pipe segments in question and recommend the rehabilitation/replacement method. Schaaf & Wheeler also visited each site to collect additional field data to properly assess the pipes and make recommendations.



Schaaf & Wheeler prepared a Technical Memorandum which summarized the assessment and provided capital improvement recommendations and estimated construction costs. Subsequently the City contracted with Schaaf & Wheeler to design the recommended improvements. Detailed design tasks include project basemapping, detailed utility investigations, evaluations to re-route sewer mains and laterals from backyard easements, plan and profiles of sewer lines, construction details, technical specifications, and estimate of probable construction costs.

The proposed construction methods were tailored to minimize the impacts and costs at each location while meeting the City’s goals of addressing the condition and maintenance related issues. Proposed construction methods include pipe bursting, open trench, spot repairs, and cured-in-place pipe rehabilitation.

Shoreway Sanitary Sewer Rehabilitation, City of Belmont, 2017 - 2019

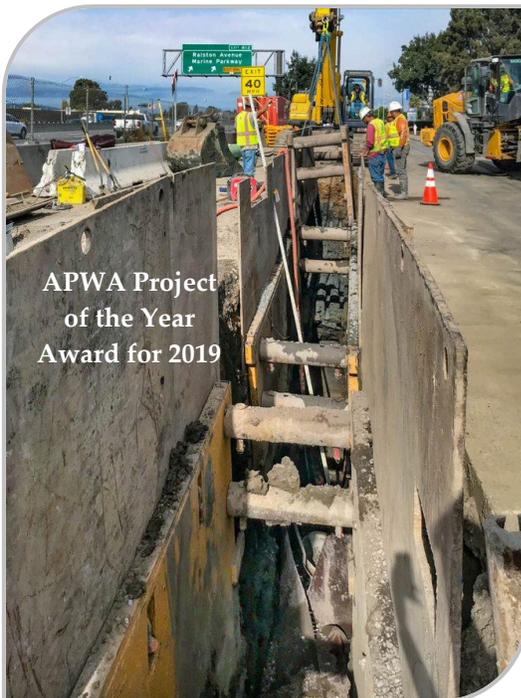
Client and Contact:
Bozhena Palatnik
Associate Civil Engineer
Department of Public Works
City of Belmont
1 Twin Pines Lane
Belmont, CA 94002
Ph: 650.595.7463
bpalatnik@belmont.gov

Contract Value:
\$129,000
Construction Cost (2018):
\$1,857,000

The design was completed in time and budget.

Team Members:
Benjamin L. Shick, PE
Curran L. Price, PE
Jonathan F. Ondracek

Subconsultants:
Kier & Wright
Bess Testlab



Key Elements:

- ✓ Sanitary sewer rehabilitation and replacement, 8” to 18”
- ✓ CCTV data review, evaluation, and prioritization to identify project
- ✓ Hydraulic Analysis and Modeling of sewer system
- ✓ Utility investigation, potholing, utility relocation, etc.
- ✓ Easement evaluation and relinquishment
- ✓ Deep linear excavations within poor soils (Bay Mud) and high ground water
- ✓ Construction support services

Schaaf & Wheeler assisted the City of Belmont with the assessment of the feasibility of eliminating the existing sanitary sewer pump station along Shoreway Drive by installing a new deeper gravity sewer main. The feasibility analysis included detailed topographic surveying, geotechnical investigations, detailed utility investigations, sewer system modeling, and alternative evaluation.

The alternative of constructing a new 13 foot deep 18” PVC sewer main, demolishing and removing the existing sewer pump station, and re-routing all sewer laterals was selected as the most feasible and economical solution. Subsequently Schaaf & Wheeler developed detailed construction documents for the design and provided bid and construction support services.

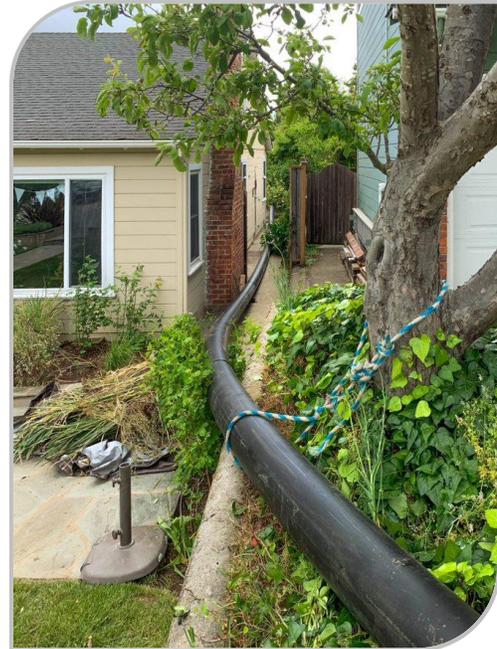


Shoreway Drive is located in an area of shallow Bay Mud, high ground water, congested utilities, heavy traffic, and it parallels U.S. 101. Schaaf & Wheeler developed detailed construction documents identifying the existing conditions and requirements for excavation, trenching, shoring, dewatering, and backfilling.

The Shoreway sewer project was successfully designed and constructed within budget and schedule. The project resulted in significant long-term savings by eliminating an existing sewer pump station and reducing the operation and maintenance of the previously undersized flat sloped sewer mains (two sewer mains were replaced with one larger and deeper sewer main).

City of Belmont Sanitary Sewer Rehabilitation Projects, 2014, 2015, 2016 and 2017. Contract Value: 2014 - \$98,840; 2015 - \$567,000; 2016 - \$456,961; 2017 - \$194,000; Construction Cost: \$1,530,000 (2015 Project). Construction Dates: 2015 - Current.

The City of Belmont selected Schaaf & Wheeler to evaluate, prioritize, and design the rehabilitation and replacement of their high priority gravity sewer lines throughout the City. Construction methods include pipe bursting, pipe reaming, horizontal directional drilling (HDD), open trench excavation, and CIPP lining. Schaaf & Wheeler has completed the rehabilitation and replacement design and construction support for:



Liner Feet (lf) of Sewer	Year
2.5 miles of City sewer gravity lines and associated manholes	2014
2 miles of gravity sewer lines and associated manholes	2015
5 miles of gravity sewer lines	2016
2.5 miles of sewer rehabilitation	2017
1,500 lf of sewer rehabilitation, Shoreway Sewer Replacement Project	2018
3,200 lf of force main and gravity sewer mains within El Camino Real	2019
1,600 linear feet of gravity sewer mains within El Camino Real	2020

These sewer lines (some of them, gravity sewer lines) are located throughout the City in back yard easements and in City streets. Schaaf & Wheeler also applied for and obtained two separate Caltrans Encroachment Permits for se



Appendix: Resumes

Glen M. Anderson, P.E. – Senior Project Manager - Schaaf & Wheeler

Education

BSCE, Civil and
Environmental Engineering,
University of California,
Davis

Licenses

Registered Civil Engineer
California C76720

Certifications

NASSCO PACP, MACP
and LACP Certified, Cert.
No. U-714-06021855
Hydraulic Institute, Pump
System Assessment
Certified

Affiliations

Pipe Users Group - NorCal



Years of Experience: 13

Project Management Experience: 10 years

Completed Design of 15,000 LF of Sewer

*Knowledge and Experience in Sewer Rehabilitation Trenchless
Technologies: CIPP, Pipe Bursting, Pipe Reaming, etc.*

Glen M. Anderson, P.E., has 13 years of experience in sanitary sewer system, stormwater and potable water assessment and design, as well as the construction support and management associated with these projects. Glen has successfully completed work on several sanitary sewer main and trunk rehabilitation projects. He has worked on sanitary sewer pump station rehabilitation projects throughout the Bay Area. Additionally, Glen has performed condition assessments for more than 150 sanitary sewer and stormwater pump stations. Glen's potable water experience projects include the assessment and rehabilitation of booster pump stations, design of a water, wells and pipelines. Most of his projects require multidisciplinary subconsultant coordination including structural and electrical engineering, survey and mapping, utility relocation, environmental permitting, RWQCB compliance and stakeholder involvement. In addition to design, Glen provides construction support and management services for a variety of projects, including pump stations, pipelines, wells, storage tanks, and generator installations.

Relevant Projects

Sanitary Sewer CCTV Inspection and Data Review, Port of Oakland (2020 – 2022), Contract Value: \$429,094. As Project Manager, Glen Anderson is leading the cleaning and CCTV inspection of approximately 50,000 linear feet of sanitary sewer piping within the Port of Oakland's Seaport Facility including the TraPac, 7th Street, Middle Harbor Road, Middle Harbor Shoreline Park, Joint Intermodal Terminal, Matson Terminal, and other areas as requested by the Port. CCTV inspection reports are generated in conformance to NASSCO PACP and LACP standards. The findings of these inspections are summarized in a technical memorandum that ranks the pipeline segments in order of severity and provides recommended improvements for pipelines receiving a level 4 or level 5 rating through the ranking process. Manholes with observed deficiencies are noted and assessed in conformance NASSCO MACP standards. The inspected pipeline that shows breakage, Inflow and infiltration, blockage are identified and made known to the Port in real-time.

Pump Station Q Force Main Reverse Flow Project, East Bay Municipal Utility District (2015 – 2019), Contract Value: \$1,100,000. As Project Manager, Glen Anderson led the design and construction support for the pump station and the force main. This project involved the design of a 36" gravity sewer interceptor and relief structure that utilized an existing 36-inch force main via gravity to provide additional conveyance to the District's North Interceptor that serves the Cities of El Cerrito, Albany, Berkeley and Oakland. The 36-inch gravity portion was extended past an existing bottleneck in the District's north interceptor to effectively double it's capacity. The 36-inch line utilizes valves which allow it to operate as a gravity system when draining to the south and can still be switched back to a pressurized system to be utilized as a force main during extreme precipitation conditions. Extensive modeling was developed for this project using historical flows and rain events to determine the benefits of proposed improvements.

Sanitary Sewer Rehabilitation Projects, City of San Mateo, (2014 – 2017), Contract Value: \$190,913; 2017 – 2018 - \$500,000. As Project Engineer, Glen Anderson led and completed site investigations, inspections, researched existing data, and developed recommended alternatives for various sewer rehabilitation projects within the City. Provided detailed design of the recommended alternatives which consisted of: replacement of sewer lines across drainage channels (both above ground on piers, and below ground); in back yard easements with tight access; through large drainage box culverts; sewer line rehabilitation with cured-in-place pipe (CIPP); sewer main replacement and realignment; manhole rehabilitation and replacement; the work included geotechnical investigations, easement research, topographical surveying, environmental permitting, and Caltrans Encroachment Permit.

Cabrillo Avenue Sewer Main Abandonment and Replacement, City of Santa Clara (2013 – 2014), Contract Value: \$101,650. As Project Manager, Glen Anderson provided design and construction support services for the replacement of sewer pipe located within Cabrillo Avenue, running parallel to the existing sewer line. Design included plan and



Glen M. Anderson, P.E. – Senior Project Manager - Schaaf & Wheeler

profile of a new 12-inch PVC sewer main, associated manholes, and lateral connections. An inverted siphon was required to cross under an existing 24-inch storm drain line. The siphon consists of two 8-inch barrels, inlet structures, outlet structures, and an air jumper. In addition to the 12-inch mainline design, replacement of several smaller sewer and storm drain lines necessary to facilitate the installation of the new sewer mainline were also designed.

El Camino Real Sanitary Sewer Rehabilitation, City of San Mateo (2017 - 2018), Contract Value:\$500,000 . As Project Engineer, Glen Anderson reviewed and evaluated the condition of all of the City's sanitary sewer pipes within and adjacent to El Camino Real and developed a recommended improvement project to address all significant condition related issues. Subsequently the rehabilitation and replacement design of 10,050 LF of pipe and the rehabilitation and replacement design of 110 manholes were also prepared. Rehabilitation methods were primarily cured-in-place pipe (CIPP), pipe bursting and open trench replacement methods were also used.

Sanitary Sewer Rehabilitation Projects, City of Belmont (2015, 2016 and 2017), Contract Value: 2015 - \$567,000; 2016 - \$456,961; 2017 - \$194,000. As Project Engineer, Glen assisted with the evaluation, prioritization, and design of the rehabilitation and replacement of their high priority gravity sewer lines throughout the City. The 2015 Sewer Rehabilitation project consisted of the replacement and rehabilitation of approximately 2 miles of gravity sewer lines and associated manholes. Schaaf & Wheeler team provided detailed utility investigations, potholing, and sewer modeling services. The 2016 sewer rehabilitation project consisted of evaluating and preparing design documents for approximately 5 miles of gravity sewer lines located throughout the City in back yard easements and in City streets. Construction methods include pipe bursting, open trench excavation, and CIPP lining. A large portion of the sewer mains included within the City of Belmont sewer rehabilitation projects are located within backyard and side yard easements with difficult access and easement issues.

Basin 2 and 3 Collection System Improvements Project: Sanitary Sewer Pump Stations Rehabilitation, City of San Mateo (2016 – 2019), Contract Value: \$410,140. As Project Manager, Glen Anderson completed the preliminary evaluation, alternatives analysis, and design for the rehabilitation of the 38th Avenue pump station, 41st Avenue pump station, and Dale Avenue pump stations. The 38th Ave and 41st Ave pump stations are significantly under capacity. Tasks included alternatives analyses for capacity augmentation, upgrade of the standard equipment including flygt rail-mounted submersible pumps; modern electrical panels, pump starters, and automatic transfer switch; Hydroranger 200 pump controller; Motorola ACE6300 RTU; and Cummins standby diesel engine generator. Dale Avenue pump station upgrades include: replacement of existing pumps and motors; replacement of control panels; installation of new VFDs; replacement of engine generator; improved SCADA and controls system; and wetwell improvements.

Force Main Appurtenance Projects - Ross Valley Sanitary District, San Rafael, Contract Value: Preliminary Design: \$220,885; Design: \$155,570. As Project Engineer, Glen Anderson assisted the preliminary design of the replacement of five air release valves. The project includes replacement of four failing air-release valves (ARVs) on District-owned force mains and install a new ARV at a critical location, install four cathodic protection (CP) test stations at various locations along Pump Station 13 (PS13) force main, and to install an impressed current cathodic protection (ICCP) system at PS13. This project required Caltrans and environmental permitting coordination. It also involved pipeline excavation, removal and disposal of existing ARV and piping and site restoration to pre-construction condition.

El Camino Real Sanitary Sewer Improvement Project and the Calabazas Creek Sewer Siphon Design Projects, City of Santa Clara, 2006 – 2009; Contract Value: \$480,520. As Project Manager, Ben Shick led the design of 2,600 feet of parallel sewer line in El Camino Real from Flora Vista Avenue to Calabazas Boulevard. The project also included a separate design plan set for a replacement sewer siphon with dual pipes under Calabazas Creek as part of a Santa Clara Valley Water District channel improvement project. The project also included cured-in-place pipe (CIPP) lining of 2,600 feet of parallel collector sewer and reconstruction of existing lateral connections. Tasks included the design of relocation of existing water mains, storm drains, sewer laterals, and traffic signals to accommodate the design of new sewer mains.

**Benjamin L. Shick, P.E. – Principal-In-Charge – Schaaf & Wheeler****Education**

BSCE, Montana
State University-
Bozeman

MSCE, Montana
State University-
Bozeman

Licenses: Registered
Civil Engineer
California C68813

Affiliations:

American Society of
Civil Engineers;
Floodplain
Management
Association



Years of Experience: 17+

Completed Design & Construction of ~150,000 LF of Sewer

Project Management Experience: 13+ years

Knowledge and Experience in Sewer Rehabilitation Trenchless

Technologies: CIPP, Pipe Bursting, Pipe Reaming, etc.

Benjamin L. Shick, P.E., has more than 17 years of experience in water resources infrastructure planning and design of wastewater conveyance systems, water supply and distribution systems, stormwater systems, and pump stations. Ben has completed the design of 50,000+ LF of sewer main rehabilitation and replacement projects in the recent past. Ben has conducted floodplain investigation, shoreline protection studies, drainage studies, channel design and modeling, water rights permitting, wetland analysis and design, small bridge design, infrastructure design, surveying, construction management, and construction quality control testing. He has been involved with all project phases from project initiation to construction document preparation and construction support. Ben is proficient in water resources modeling tools: AutoCAD, WaterCAD, HEC-RAS, HEC-HMS, GeoRAS, MOUSE, and ArcGIS.

Relevant Projects

Shoreway Sanitary Sewer Rehabilitation Design, City of Belmont, 2017 - 2019, Contract Value: \$129,000. As Project Manager, Ben Shick led the assessment of the feasibility of eliminating the existing pump station along Shoreway Drive by installing a new deeper gravity sewer main. The feasibility analysis included detailed topographic surveying, geotechnical investigations, detailed utility investigations, sewer system modeling, and alternative evaluation. Subsequently Schaaf & Wheeler developed detailed construction documents and provided bid and construction support services. The Shoreway sewer project was successfully designed and constructed within budget and schedule.

Sanitary Sewer Rehabilitation Projects, City of Belmont 2015 - 2020, Contract Value: 2015 - \$567,000; 2016 - \$456,961; 2017 - \$194,000. As Project Manager, Ben Shick led the evaluation, prioritization, and design of the rehabilitation and replacement of their high priority gravity sewer lines throughout the City. The 2015 Sewer Rehabilitation project consisted of the replacement and rehabilitation of approximately 2 miles of gravity sewer lines and associated manholes. Under Ben's supervision, Schaaf & Wheeler team provided detailed utility investigations, potholing, and sewer modeling services. The 2016 sewer rehabilitation project consisted of evaluating and preparing design documents for approximately 5 miles of gravity sewer lines located throughout the City in back yard easements and in City streets. Construction methods include pipe bursting, open trench excavation, and CIPP lining. A large portion of the sewer mains included within the City of Belmont sewer rehabilitation projects are located within backyard and side yard easements with difficult access and easement issues.

San Mateo Sanitary Sewer Rehabilitation Projects, City of San Mateo, 2014 – 2017, Contract Value: 2015 - \$191,000; 2017 – 2018 - \$500,000. As Project Manager, Ben Shick led site investigations, inspections, researched existing data, and developed recommended alternatives for sewer rehabilitation projects within the City. Provided detailed design of the recommended alternatives which consisted of: replacement of sewer lines across drainage channels (both above ground on piers, and below ground); replacement of sewer lines in back yard easements with tight access; replacement of sewer lines through large drainage box culverts; sewer line rehabilitation with cured-in-place pipe (CIPP); sewer main replacement and realignment; manhole rehabilitation and replacement; the work included geotechnical investigations, easement research, surveying, environmental permitting, and Caltrans Encroachment Permit.

Sanitary Sewer Rehabilitation Projects for City of Morgan Hill, 2019 – Present, Contract Value: \$162,285. Project Manager for 47 pipe segments. Evaluated and assessed the existing sewer infrastructure. Reviewed the existing sewer model to evaluate the pipe sizes and recommend the rehabilitation/replacement method. Visited each site to collect additional field data to properly assess the pipes and make recommendations. Prepared a TM summarizing the assessments, capital improvement recommendations and construction cost estimates. Subsequently designed the recommended improvements that include project basemapping, detailed utility investigations, evaluations to re-route sewer mains and laterals from backyard easements, plan and profiles of sewer lines, construction details, technical specifications, and cost estimates. The proposed construction methods were tailored to minimize impacts and costs at each location. Construction methods include pipe bursting, open trench, spot repairs, and CIPP rehabilitation.

**Benjamin L. Shick, P.E. – Principal-In-Charge – Schaaf & Wheeler**

Woodland Sewer Improvement Project, San Rafael Sanitation District, 2019 – 2020, Contract Value: \$237,213. This project includes pipe replacement, rehabilitation, adjusting pipe slope, and re-routing laterals along B Street, Woodland Avenue, Warner Court, Woodland Place, and Octavia Street. As Project Manager, Ben Shick coordinated topographic surveying, utility investigations and geotechnical investigation. Tasks included condition assessment and development of alternatives. Subsequently detailed design and bid documents are being prepared.

Harbor Drive Sewer Rehabilitation, Town of Corte Madera Sanitary District No. 2, 2019 – 2020, Contract Value: \$234,060. This project includes rehabilitation/replacement of 7,100+ LF of existing 6” and 8” VCP pipes - existing sewer mains within the Harbor Drive area. As Project Manager, Ben Shick coordinated CCTV inspection, conducted assessments and identified rehabilitation and replacement alternatives and methods. Subsequently the improvements were designed; currently our team is providing support services during construction.

Mill Valley Sewer Repair Project, City of Mill Valley, 2019 – 2020, Contract Value: \$131,000. As Project Manager, Ben Shick provided evaluation, assessment, and design services for the City of Mill Valley’s sanitary sewer system. This project prioritizes and develops a strategic plan to address the most critical infrastructure needs for future repairs to be constructed under the 2020 budget. Project tasks include surveys, investigations, and inspections for each project location to identify proposed improvements. 75% and 100% design documents along with construction support were provided for this project.

Belmont Water/Sewer Main Replacement, Mid-Peninsula Water District, 2017, Contract Value: \$87,610. As Project Manager, Ben Shick prepared engineering design for this joint CIP for the water and sewer mains. The project consists of replacing and rehabilitating the water mains, service lines and meters to address condition issues with the sewer mains. The project also includes additional street improvements. This project required close coordination and approval with multiple agencies including the City of Belmont, Mid-Peninsula Water District, Fire Marshal, Caltrans, and private developers. A Caltrans Encroachment Permit for work along El Camino Real was prepared, submitted, and obtained.

Kingridge Sanitary Sewer Improvements (6” and 8”; 3,100 LF), City of San Mateo, 2010 – 2015; Contract Value: \$927,673. As Project Manager, Ben Shick led the team for system evaluation, hydraulic analysis of the existing Kingridge canyon sewer and storm drain system, development of improvement alternatives for the sewer main, and development and production of construction documents for the selected alternative of the project to replace and rehabilitate the 6-inch sanitary sewer main. Some of the key features were: Alternative evaluation for alignment and construction methods; Emergency repairs to mitigate active land movement; Capacity evaluation; Open cut pipe replacement, CIPP rehabilitation, pipe on piers, retaining walls, etc.; Securing right-of-access to project location including permanent sewer easements; Environmental permitting, mitigation, and monitoring; Construction support, special inspection, and material testing services.

El Camino Real Sanitary Sewer Improvement Project and the Calabazas Creek Sewer Siphon Design Projects, City of Santa Clara, 2006 – 2009; Contract Value: \$480,520. As Project Manager, Ben Shick led the design of 2,600 feet of parallel sewer line in El Camino Real from Flora Vista Avenue to Calabazas Boulevard. The project also included a separate design plan set for a replacement sewer siphon with dual pipes under Calabazas Creek as part of a Santa Clara Valley Water District channel improvement project. Existing lateral connections were improved through cured-in-place pipe (CIPP) lining of 2,600 feet of parallel collector sewer and reconstruction. Tasks included the design of relocation of existing water mains, storm drains, sewer laterals, and traffic signals.

Cabrillo Avenue Sewer Replacement Project, City of Santa Clara, 2013 – 2014; Contract Value: \$104,793. As Project Manager, Ben Shick led the installation of a new 12-inch sewer line in Cabrillo Ave to replace the existing sewer line that ran in a utility easement through residential parcels. Design included plan and profile of a new 12-inch PVC sewer main, associated manholes, and lateral connections. This project also included the design for replacement of several smaller sewer and storm drain lines necessary to facilitate the installation of the new sewer mainline.

**Charles D. Anderson, P.E., President – Schaaf & Wheeler****Education**

BCE, Georgia Institute of Technology

MSCE (Water Resources Engineering), Stanford University, California

Licenses

Registered Civil Engineer
California C43776 Hawaii
15647

Nevada 11518

Washington 39715

Affiliations

FMA, ASCE



Charles D. Anderson, P.E. has 30+ years of experience in the areas of wastewater and stormwater collection and pumping, water supply and distribution, flood control and drainage, surface water hydrology and groundwater. As a project manager he is involved in all phases of project management and implementation from project feasibility to construction document preparation and construction support for a wide range of public and private clients. He has completed numerous flood insurance studies (FIS) and letters of map revision (LOMRs) for FEMA. Chuck's projects generally have multidisciplinary teams that help policy makers to arrive at reliable decisions that protect

communities from flood risk and the threat of climate change, most particularly sea level rise. His San Mateo Bayfront Levee Improvement project has won several state and regional awards. Chuck has demonstrated expertise in watershed and stochastic hydrology, open channel hydraulics, closed conduit hydraulics, pump station design, and storm drainage as well. His background also includes pipeline design, storage tank design, pump station design, hydraulic network modeling, wastewater collection includes septic systems, sanitary sewer design, pump station design, sanitary sewer modeling, and master planning.

Relevant ProjectsWastewater System Planning and Design

Rehabilitation of So. San Francisco Industrial Sewage Pump Stations 1, 2, 3, 4, 6, 7 and 8 (2010-19)

Sierra Point Sewage Pump Station – City of Brisbane/Wilsey Ham (2019)

Sanitary Sewer Pump Station Assessments - Cities of Alameda and San Mateo (2010)

South Trunk Relief Line - City of San Mateo (2010)

Sanitary Sewer Disposal System and Leachfields for Coyote Creek Golf Club – Castle & Cooke (1998)

Purissima Sanitary Pumping Station - Los Altos Hills (2000)

O'Keefe Road Sanitary Pump Station Relocation, Los Altos Hills - Biggs Cardosa Inc. (2003)

Mariner's Island No. 2 Sanitary Sewer Pump Station Rehabilitation - City of San Mateo (2004)

Stormwater System Planning and Design

Diridon Station Area Infrastructure Analysis – HMM Engineers (2016)

Warren Avenue Storm Drain Assessment – City of San Mateo (2016)

Storm Drain Master Plans - Half Moon Bay (2017), Santa Clara (2015), Milpitas (2012), Alameda (2008), Livermore (2006), and San Mateo (2004)

Laguna Area Storm Drain Analysis - City of Burlingame (2012)

Esplanade Storm Drain Outfall Replacement - Cotton Shires/City of Pacifica (2010)

Storm Drain Infrastructure PM and E. Laurel Creek Culvert Repair and Erosion Control - City of Belmont (2006)

Greenwood Avenue and Barroihlet Avenue Storm Drain Improvements - City of San Mateo (2006)

Soscol Area Residual Drainage Master Plan - City of Napa (2005)

Interior Drainage Analysis/LOMR for Lower Guadalupe River Project - CH2M-Hill and SCVWD (2005)

Stormwater Pump Stations

Chrysler Drive Pump Station Rehabilitation (230 cfs) – City of Menlo Park (2017)

Coyote Point and Poplar Avenue Pump Station Rehabilitation (250 cfs each) - City of San Mateo (2017)

Matadero Creek Storm Water Pump Station (390 cfs) - City of Palo Alto (2017)

PLC Programming Upgrades to 11 Stormwater Handling Sites – City of Palo Alto (2015 – 2017)

Design of Gippetti Pump Stations, Stormwater and Sewer Pump Stations – RJA & Assoc. (2015-2016)

City of Sunnyvale WPCP Master Plan and Primary Treatment Design – HDR, Inc. (2015)

Northside Pump Station Upgrades (180 cfs) - City of Alameda (2010)

San Francisquito Creek Storm Water Pump Station (300 cfs) - City of Palo Alto (2009)

Baylands Storm Water Pump Station No. 1 - City of Sunnyvale (2006)

Railroad Avenue OC Pumping Plant for Route 4 in Pittsburg - Mark Thomas & Company/Caltrans (2003)

Freedom Circle Stormwater Pump Station (70 cfs) - City of Santa Clara (2003)

Nelo-Victor Stormwater Pump Station Rehabilitation (200 cfs) - City of Santa Clara (2003)

Rambo Pump Station (150 cfs) - City of Santa Clara (2000)

Water Supply, Storage, and Distribution

**Charles D. Anderson, P.E., President – Schaaf & Wheeler**

Anderson Dam Seismic Retrofit Project - Santa Clara Valley Water District (ongoing)
San Jose General Plan Update, Water Supply Summary – David J. Powers & Assoc. (2015)
Kahakuloa Acres Private Water System Evaluation and Two Storage Tanks - Maui, Hawaii (2014)
Upper Miocene Canal, Paradise - Cotton Shires and Associates (2012)
Vista Pump Station and Water Tank Improvement - Town of Hillsborough/CSG Consultants (2010)
Kern River Raw Water Pumping Plant Forensic Investigation- Noriega and Bradshaw, LLP (2008)
Konocti Harbor Water Treatment, Storage, and Distribution Evaluation - Page Mill Properties (2007)
Potable wells, storage tanks, and water mains for Coyote Valley Specific Plan - City of San Jose (2006)
Waimanalo Reservoir Assessment, Martin v. State of Hawaii - State of Hawaii (2003)
Carmel Development Company Water System Mediation, Monterey - Harry & Linker, LLP (2000)
Highlands Booster Pump Station and Water Storage Tanks - Great Oaks Water Company (1998)
Well Nos. C-20, C-21, C-22, and C-23 - City of San Jose (2002)
Potable and Irrigation Water Supply, Storage & Distribution Systems for Coyote Creek Golf Club (1998)
Water System Network Modeling, Flow Testing, & Fire Flow Calculations - City of San Jose (2006)
[Floodplain Management and Infrastructure](#)
West Channel Enhancement – Google, Inc. (2018-2019)
San Francisquito-Adobe Creek Flood Study - Wood Rogers/ SCVWD (2016 – 2017)
Deer Island Flood Detention Basin – Marin County (2016-2017)
Drainage Review of Emergency Stabilization for Bear Gulch Road – Foundation Technologies, Inc. (2017)
Foster City Levee Improvements - City of Foster City (2016 – 2020)
Climate Change Impact Analyses - Alameda, Foster City, Menlo Park, Newark, San Jose, San Mateo (ongoing)
Berryessa/Penitencia Watershed Flood Study - Wood Rogers/SCVWD (2016)
Palo Alto Flood Basin Sea Level Rise Impact Study - SCVWD (2016)
Lower Penitencia Creek Improvements - Wood Rogers/SCVWD (2016)
Annual Levee Inspection - City of San Mateo (2016)
Colma Creek Floodplain Analysis – City of South San Francisco (2016)
Guadalupe River Bridge Hydraulics at Railyard Place - Biggs Cardosa Associates (2016)
Upper Llagas Creek Flood Protection Project - RMC Water & Environment/SCVWD (2016)
Permanente Creek Flood Protection Project - Hatch Mott MacDonald/SCVWD (2016)
Storm Water Detention Basins at Truckee River Floodwall - Reno-Sparks Indian Colony (2016)
San Francisquito Creek Hydrology Study Peer Review – SCVWD (2015)
Christopher Ranch Flood Study (2015)
Bayfront Canal Redwood City Flooding Issues – Stanford Real Estate (2015)
Old Mountain View Alviso Rd. Bridge Replacment Hydraulic Study - Biggs Cardosa Associates (2015)
Highway 101 Pedestrial/Bicycle Overcrossing at Adobe Creek – Biggs Cardosa Associates (2015)
Wrigley-Ford Creek Long Term Monitoring – HT Harvey & Associates (2015)
North Gilroy Neighborhood District Urban Services Area Amendment – EMC Planning Group (2014-2015)
Silicon Valley BART Extension Floodplain Analysis - Santa Clara Valley Transportation Authority (2013)
Bayfront Levee Improvement Project - City of San Mateo (2012)
San Tomas Aquino Creek Flood Study - Santa Clara Valley Water District (2012)
Recertification of Uvas, Stevens and Lower Penitencia Creek Levees – SCVWD (2009)
Truckee River Levee and Floodwall System - CFA Engineers (Sparks, NV) (2008)
O’Neill Slough Tide Gate Structure - City of San Mateo (2007)
Julian Street and William Street Bridge Retrofits at Coyote Creek - Biggs Cardosa Associates (2007)
S. Sutter County Flood Control Alternatives - Sacramento Area Flood Control Agency (2004)
SW Lemmon Valley Flood Control Master Plan/Channel Improvements - CFA, Inc. (Reno, NV) (2003)
Wooster Avenue Bridge Replacement - Advanced Engineering Design (San Jose) (2001)



Ryan Amaya, PLS

Principal Surveyor, Kier & Wright

Ryan Amaya has over 20 years of land surveying experience. His experience includes construction surveying, boundary surveying, mapping, and subdivision work related to land development. Specific survey experience includes construction staking, topographic surveys, benchmark level circuits, elevation monitoring surveys, tentative maps, parcel maps, final maps, condominium plans, plats and legal descriptions, lot line adjustments, lot combinations, reversion-to-acreage maps and ALTA/ACSM Land Title Surveys.



He is one of two managing principals in Kier & Wright's Silicon Valley office. He manages all land surveying operations provided out of Kier & Wright's Santa Clara and Gilroy office locations.

CERTIFICATION

California Professional Land Surveyor 8134

REPRESENTATIVE PROJECT EXPERIENCE

Hayne Pump Station & Sugar Hill Pump Station Gravity Sewer Line Survey, Hillsborough
City of San Mateo South Trunk Sanitary Sewer Relief Line, San Mateo
City of San Mateo 42nd Avenue Sanitary Sewer Pump Station Project, San Mateo
City of San Mateo B Street Storm Drain Project, San Mateo
City of San Mateo Pump Station Laurie Meadows Site, San Mateo
City of Half Moon Bay Bell Moon Sanitary Sewer Pump Station, Half Moon Bay
City of San Bruno Crestmoor & Lomita Pump Station, San Bruno
Old County Road Corridor Survey, Belmont
Mid-Block Crossing for Google 475 Ellis Street, Mountain View
Mid-Block Crossing for Google 1500 Salado, Mountain View
Coleman/Hedding Intersection Improvements (permitted), San Jose
Lexington Avenue Street Extension, San Jose
City of Sunnyvale Tasman-Fair Oaks Pedestrian & Bicycle Circulation Plan, Sunnyvale
1900, 1950 & 2000 Charleston Rd. (surveying for pedestrian bike path), Mountain View
Bubb Road Sidewalk Improvements, Cupertino
Google Moffett Place Pedestrian & Bike Lane Improvements, Sunnyvale
City of San Jose Coyote Creek Trail/Ridder Park Drive, San Jose
City of Sunnyvale City-wide Water Line Replacement, Sunnyvale
Alta Loma Park, South San Francisco
Brentwood Park, South San Francisco
City of Santa Clara El Camino Sanitary Sewer Improvements, Santa Clara
City of Hermosa Beach Storm Drain Master Plan, Hermosa Beach
Lafayette Street & Franklin Street Crosswalk, Santa Clara
Lafayette Street & Lexington Street Crosswalks, Santa Clara
City of Palo Alto Colorado Avenue Storm Drain Improvements, Palo Alto
Topographic Survey for all Redwood City School District campuses (campuses located in Atherton, Menlo Park & Redwood City)



GREG SPROULL
Associate Biologist
sproull@wra-ca.com
o: 415.454.8868 x1870
c: 717.329.4451

Years of Experience: 11

Education

Master of Science, Biological Sciences, University of Denver, 2014

Bachelor of Science, Integrated Science and Technology, James Madison University, 2006

Professional Affiliations/Certifications

Association of Environmental Professionals, North Bay Vice President

Professional Wetland Scientist (PWS)-Society of Wetland Scientists (ID 3193)

CDFW Plant Voucher Collecting Permit Holder (#2081a-18-008-V)

California Native Plant Society

Northern California Botanists

Specialized Training

Basic Wetland Delineations (40 hrs), Wetland Training Institute, 2017

Advanced Hydric Soils, Wetland Training Institute, 2019

Special Recognitions

Fulbright Research Scholarship Award Winner, Department of State, Ecological Research, Poland, 2014

Integrated Science and Technology Methodology Award Winner, James Madison University, 2006



Greg Sproull is an associate biologist and project manager in WRA's San Rafael office. He has over a decade of scientific experience in the private and academic sectors in the United States and abroad. Prior to his time at WRA, Greg was a regulatory permitting specialist, wetland scientist, and botanist for an environmental consulting firm in the South San Francisco Bay Area, where he contributed to more than 50 environmental services projects. At WRA, Greg manages floristic surveys, vegetation mapping, and habitat assessments; coordinates and performs wetland delineations; and authors and manages regulatory permit applications, biological resource assessments for CEQA documents, and client reports. Greg regularly interfaces with local, state, and federal regulatory agencies, including the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (RWQCB), the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), California Coastal Commission (CCC), and the Bay Conservation and Development Commission (BCDC), for land use permits associated with restoration, development, mining, and mitigation banking. He also teaches a weeklong basic delineation course and a two-day advanced wetland delineation course at San Francisco State's Romberg-Tiburon Center. Greg combines his scientific expertise, critical thinking, and scientific editing experience to address clients' natural resource challenges with an efficient, measured, and objective approach.

Representative Projects

Curtner Road and Canyon Heights Booster Stations Improvement Project, Alameda County, California

Greg manages the biological resources and regulatory permitting component of the Curtner Road and Canyon Heights Booster Stations Improvement Project for the Alameda County Water District. Partnering with a development firm, Greg drafted a competitive proposal that won the bid for this project. Greg is responsible for supervising a team of biologists that will ensure that the rehabilitation of the subject booster stations is permitted effectively with the Corps, RWQCB, and CDFW. Greg has overseen the drafting of jurisdictional delineation memos, CEQA and permitting memos, CEQA-level biological resources assessments, and tree survey reports for this project. Greg's work in this capacity has been a boon to the County's timeline and overall vision of project implementation.

County of San Mateo, Mid-Coast Multi-Modal Trail Project, Unincorporated San Mateo County, California

The County's Department of Public Works proposed to construct a new two-directional multi-use trail parallel to Highway 1 from Coronado Street to Alto Avenue, which would be open for public access year-round. Greg coordinated with regulatory agencies, including the RWQCB and CDFW, to apply for permits that would enable the project to be implemented with a small environmental impact footprint. Greg's work facilitated a streamlined approach to regulatory permitting and provided agencies with pertinent guidance and feedback.



GREG SPROULL

Department of Water Resources/EIP, Lookout Slough Restoration Project, Dixon, California

The Lookout Slough Restoration project will create, restore, and maintain ideal habitat conditions to encourage the proliferation of Delta smelt, winter-run and spring-run Chinook salmon, as well as Central Valley steelhead, and longfin smelt. Restoration of the site will provide important spawning and rearing habitat, would support the aquatic food web, and would be generally beneficial to the recovery of these imperiled species. For this project, Greg managed applicable aquatic resource permits, including a Section 404 Nationwide permit for the Corps, a Section 401 Water Quality Certification for the RWQCB, and a Section 1602 Lake and Streambed Alteration Agreement for the CDFW. Additionally, Greg was a contributing author of the biological resources assessment that was included in the permit package.

Halo Ranch and North Bay Wetland Mitigation Banks, Petaluma and Unincorporated Marin County, California

The Halo Ranch Wetland Mitigation Bank proposed to convert undeveloped/agricultural land into a mitigation bank. Restoration would include establishment, re-establishment and rehabilitation of intermittent streams, tidal wetlands, and seasonal wetlands. These restored aquatic resources would mimic the historical conditions of the area and provide valuable ecosystem services for the watershed. Similarly, the North Bay Wetland Mitigation Bank proposed to construct a wetland mitigation bank to provide seasonal wetland re-establishment and enhancement mitigation credits for impacts to wetlands and waters regulated by Sections 404 and 401 of the Clean Water Act and the Porter-Cologne Act. For both mitigation bank projects, Greg served as project lead for all aquatic resource permits including Section 404 Nationwide Corps permits, Section 401 RWQCB Water Quality Certifications, Section 1602 CDFW Lake and Streambed Alteration Agreements, and BCDC permits.

Bayview Development Project, Mountain View, California

Greg is project manager of all biological requests associated with the construction of an extensive office park in Mountain View, California. In this capacity, Greg manages a team of four staff members who conduct invasive species and burrowing owl surveys, while also coordinating and contributing to ancillary projects for the client, including photometric analyses, biological monitoring, nesting bird surveys, and biological document review requests as they pertain to mitigation strategies. Greg also manages the project's budget, provides applicable guidance and instruction to staff, and regularly interfaces with an array of stakeholders with varying needs in his role with this project.

Malakoff Diggins Historic State Park Remediation Project, Nevada City, California

Greg manages this project from a biological resources and regulatory permitting perspective. Greg oversaw the completion of a large-scale (617-acre) biological resources assessment and actively coordinates with a diverse array of stakeholders associated with the project. Greg is also responsible for managing a formal wetland delineation of the property, as well as a series of focused rare plant surveys. Greg provides high-level guidance on regulatory permitting pathways with the Corps, RWQCB, and CDFW to ensure that the project is implemented as effectively as possible.

Santa Clara Valley Water District, Rancho Cañada de Pala Preserve Annual Monitoring Project, Santa Clara County, California

In December of 2015, the Santa Clara Valley Water District purchased the Rancho Cañada de Pala Preserve from The Nature Conservancy for providing mitigation for impacts associated with their Stream Maintenance Program. On the preserve, Greg conducted quarterly assessments of biological resources as they related to grazing. Additionally, Greg authored the majority of the annual monitoring reports for the site.

**JANET KAN, GE, CEG, LEED AP**
Principal Engineer

Janet joined ENGEO in 2003 and has extensive experience in geotechnical engineering. She has managed numerous large-scale projects in the South Bay including residential, commercial, mixed-use and master planned developments. Furthermore, Janet is familiar with preparation of geotechnical reports according to Caltrans, SP 117, and OSHPD guidelines.

Both a geotechnical engineer and a professional geologist, Janet's expertise includes developments on compressible deposits; mitigation of liquefiable sites; and seismic analyses including site response and spectral acceleration development. Janet is a proven and adept lead geotechnical engineer for many complex projects with technical challenges and multiple stakeholders.

EDUCATION

MS Civil Engineering University of California, Berkeley 2003

BS Geological Engineering University of British Columbia 2000

EXPERIENCE

Years with ENGEO: 16

Years with Other Firms: 2

REGISTRATIONS & CERTIFICATIONS

Geotechnical Engineer, CA 2880

Professional Engineer, CA 67311

Certified Engineering Geologist, CA 2590

Professional Geologist, CA 8557

LEED AP, CA

Professional Engineer, BC 45683

SPECIALIZATIONS

- Compressible Soils
- Construction Observation
- Deep Foundations
- Earth Retaining Structures
- Excavation and Shoring
- Foundation Design
- Levee Analyses
- Liquefaction Analyses
- Seepage Evaluation
- Seismic Spectra Development
- Slope Stability
- Tunneling

AFFILIATIONS

ASCE American Society of Civil Engineers

**SELECT PROJECT EXPERIENCE****City of San Mateo Basin 2 and 3 - Pipelines and Pump Stations—San Mateo, CA**

Principal Engineer. Janet is the geotechnical lead for the Basin 2 and 3 Collection System improvement project in San Mateo. She oversaw and reviewed geotechnical analysis and geotechnical and environmental reports. She is in charge of quality control of the geotechnical data reports and supported the design team during 30 and 60 percent design. The proposed collection system improvements include a new 5.2MG storage tank, new pump stations, rehabilitation of over 5 miles of existing and new pipelines in the City of San Mateo. The project is part of the Clean Water Program to upgrade aging infrastructure, enhance reliability, and provide capacity for wet weather flows in the collection system.

City of San Mateo South Trunk Sanitary Sewer Relief Line—San Mateo, CA

Senior Engineer. Janet provided technical review and oversight on the geotechnical and environmental studies for the South Trunk Sanitary Sewer relief project. She performed technical of the exploration program and laboratory testing program scheme improvements. She guided the project team with implementing micro-tunneling and trenchless pipeline installation technology in a seismically active area. The planned 8,025 linear foot, South Trunk Sanitary Sewer Relief Line extends from the Dale Avenue Pump Station to the intersection of Delaware Street and 25th Avenue. The currently planned South Trunk consists of a 36- to 54-inch-diameter pipe installed roughly 18 to 27 feet below grade. The South Trunk extends under Highway 101, the 16th Avenue culvert, and the 19th Avenue culvert. The planned 8,025 linear foot, South Trunk Sanitary Sewer Relief Line extends from the Dale Avenue Pump Station to the intersection of Delaware Street and 25th Avenue, aligned along Sunnybrae Boulevard and Delaware Street. The plan consists of a 36- to 54-inch-diameter pipe installed roughly 18 to 27 feet below existing grade at a very mild gradient. The South Trunk extends under three major undercrossings including Highway 101.

**JANET KAN, GE, CEG, LEED AP**
Principal Engineer**San Mateo Bayfront Levee Improvement—San Mateo, CA**

Project Manager. Janet prepared a supplemental geotechnical report for the Seal Slough Levee and the East End Levee of the master San Mateo Bayfront Levee Improvement project. The supplemental geotechnical services included drilling boreholes followed by settlement and liquefaction analyses, seepage analyses and slope stability analyses performed in accordance with guidelines provided by the U.S. Army Corp of Engineers. Janet provided recommendations for a below-grade slurry cut-off wall, sheet piling, and flood wall foundations design. In addition, Janet reviewed the project plans and specifications, and she assisted the civil engineer in preparing the bid package. The San Mateo Bayfront Levee Improvement project includes construction of over 2,000 feet of flood walls, reconstruction of several thousand feet of select sections of the Bayfront levee system, and construction of below-grade slurry wall cut-off structures. *This project received the 2012-13 CalGeo Outstanding Project Award and the 2013 ASCE Region 9 Outstanding Geotechnical Project Award.*

Northwest Wastewater Treatment Plant—Rio Vista, CA

Project Engineer. Janet performed geotechnical exploration and provided recommendations during grading operations of the project. She performed geotechnical analysis to evaluate soil strength, compressibility and risk of liquefaction. She developed different design recommendations for the bioreactor and pipeline due to difference in desired performance. The Northwest Wastewater Treatment Plant consists of constructing the bioreactor, detention and retention basins, solar drying beds, and other administrative and mechanical buildings. In addition, it also includes an effluent pipeline that extends into the Sacramento River.

Taube Koret Campus for Jewish Life—Palo Alto, CA

Project Manager. Janet oversaw the construction monitoring services provided for the project. She made frequent site visits and provided recommendations to mitigate shallow groundwater conditions and soft soil conditions within the project site. Mitigation efforts included ground improvement using compaction grouting. A sand slurry grout mixture was injected into soft ground to create grout columns roughly three feet in diameter.

Janet coordinated a cone penetration test within the soft ground area before and after ground improvement efforts. Janet worked closely with the client, contractor, and environmental team to handle hazardous materials removal problem. The Campus for Jewish Life project is a community center campus consisting of nine concrete buildings, ranging from 3 to 6 stories high, supported on shallow footings. The ground floors of the buildings are used as the parking garage and the buildings are linked by elevated walkways. The community center includes two elevated pools (a covered children's pool and an uncovered full-size lap pool), a soccer field, a senior center, a pre-school, and numerous rooms for community activities.



Mike Schratz - Project Manager

Experience: More than 10 years of experience in sewer and storm drain maintenance projects

Certifications:

NASSCO, PACP, LACP, MACP
40-Hour OSHA Hazwoper Training
OSHA Confined Space Certified

OSHA Fall Protection/Competent Person Certification
Certificate Flagger
Certified Traffic Control



Regular Sewer and Storm Drain Project Work at Presidio Systems, Inc. (PSI)

PSI utilizes Pipeline Observation System Management (POSM), the industry's preeminent sewer, storm drain, manhole, and pipeline inspection system.

Evaluation - Currently, PSI operates 3 mobile units to inspect and plot structural and maintenance deficiencies, grade the deficiency and prioritize the work load for the repair crews. PSI's PACP certified technicians go to assigned quadrants behind the cleaning crews. The data produced by PSI is standardized and reproducible, quality control verified and easily incorporated into GIS and other commonly used maintenance information systems. Once inspections are complete all information is uploaded on PSI's internal server and is pushed to the GIS program so that repair or engineering crews can click on a pipe tangent in the GIS and have access to the reports. Once repairs are completed there is a quadrant that is cleaned, inspected, and repaired in one operation.

Tracking - PSI tracks maintenance deficiencies to get a better idea of what is required for upcoming budgets. This feature is a specialty of PSI. PSI supports key clients to establish routine preventative maintenance schedules and often times PSI is requested to maintain or support a customized database of completed work. PSI has also assisted clients with tracking their problem areas so that they can properly assign cleaning crews, if needed.

Data Management - PSI clients focuses on the storm water system inventory, sewer audits, repair and rehabilitation programs on the lines that need it the most. The ability to look at pipe defects in GIS allows more cost benefit analysis to be conducted when making decisions on what repairs to conduct.

Action - PSI helps present the condition of the sewer to the decision-makers and enables the staff to visually present the efforts made to repair and rehabilitate the system. The database of sewer video inspections is made available to the field and office staff and contains the most up to date information from the video inspections.

Relevant Project

Mill Valley Stormwater Master Plan and Flood Control, Mill Valley, CA (2018). As a subconsultant to Schaaf & Wheeler, Presidio provided CCTV Inspection for 16 separate locations in Mill Valley for the Storm Drain Master Plan. The watersheds within Mill Valley are a combination of steep, highly vegetated lands in the upper reaches that flatten out quickly and outlet to Richardson Bay. The runoff is conveyed by natural gullies and creek channels; however, urbanization has modified this natural process. Many of the natural channels have been constrained by road crossings (culverts) and encroachment of the floodplain. The urbanized portions of Mill Valley rely on pipes, ditches and pumps to drain roads and parcels. **Contract Value: \$6,600. Role: CCTV Inspector**

Moraga Storm Drain Master Plan and Sinkhole Rehabilitation, Moraga, CA (2014 – 2017). As a subconsultant to Schaaf & Wheeler, Presidio provided CCTV Inspection for up to 15,000-ft of linear pipe along with as required cleaning and additional televising on as need basis. Much of the current storm drain system of the Town of Moraga is made up of hillside systems that incorporate pipe networks, ditches and culverts. These are in various conditions ranging from good to highly corroded. **Contract Value: \$15,000. Role: CCTV Inspector**

CCTV on Storm Drain System at LBNL, Berkeley, CA (Ongoing). CCTV inspection on the Storm Drain system at LBNL. Work is on incredibly steep grades and has to be all done at night. It also involves traffic control of all the equipment. The work is 3 weeks long with 40 hours a week. Services include CCTV truck and crew and one traffic control flagger all at night. **Contract Value: \$57,000 - 3 Man certified crew. Role: CCTV Inspections Project Manager**

Port of Oakland, 7th Street Outfall Investigation, Oakland, CA (2017). As subcontractor to Schaaf & Wheeler, Presidio Systems provided Hydro-Cleaning and CCTV for a 75 linear foot section of the outfall pipe located at the Port. The work was done at low tide. The existing outfall is an 18-inch reinforced concrete pipe and is embedded in the existing rip-rap covered shoreline. There is an existing hydro-dynamic separator trash capture unit directly upstream of the outfall. **Contract Value: \$4,500. CCTV Inspections Project Manager**

Blue Line Transfer Facility CCTV, San Francisco, CA (2018). This project investigates industrial discharge to improve water quality to meet NPDES discharge limits or to compare to diversion to SSF WTP. As subcontractor to Schaaf & Wheeler, Presidio Systems CCTV/Hydro-Clean approximately 3,000 linear feet of storm drain pipe located at Blue Line Transfer Facility in San Francisco. Due to the traffic at the facility the work was done off hours. The cleaning took 4 days as there was large amount of debris in the line. **Contract Value: \$11,000. Role: CCTV Inspections/Hydro-Clean Project Manager**

City of Los Altos Adobe Creek Sewer Replacement Schaaf & Wheeler Revised September 23, 2020						Principal Project Manager	Senior Project Manager	Associate Engineer	Junior Engineer	Drafter	Schaaf & Wheeler Total	Geotechnical Subconsultant - Engo	Environmental and Permitting Subconsultant - WRA	Surveying Consultant - Kier & Wright	CCTV Subconsultant - Presidio Systems Inc.	Project Total
Task:	\$225.60	\$211.50	\$178.60	\$155.10	\$145.70											
1 Environmental Approval	0	12	0	0	0	\$2,538.00	\$10,000.00	\$35,500.00								\$48,038.00
A Biological Survey and Memorandum						\$0.00		\$9,600.00								\$9,600.00
B Cultural Resources Evaluation and Memorandum						\$0.00		\$9,500.00								\$9,500.00
C Arborist Survey and Report						\$0.00		\$8,500.00								\$8,500.00
D CEQA and Permitting Strategy		4				\$846.00		\$3,900.00								\$4,746.00
E CEQA Support and Coordination		4				\$846.00		\$4,000.00								\$4,846.00
F Geotechnical Hazard Report		4				\$846.00	\$10,000.00									\$10,846.00
2 Permitting & CEQA (Optional/As-Required)	0	16	0	0	0	\$3,384.00	\$0.00	\$77,200.00								\$80,584.00
A Preparation of Section 1602 Lake and Streambed Alteration Agreement Application for the CDFW		4				\$846.00		\$7,700.00								\$8,546.00
B Preparation of Section 404 Nationwide Permit Application for the Corps		4				\$846.00		\$16,700.00								\$17,546.00
C Preparation of the Section 401 Water Quality Certification Application for the RWQCB		4				\$846.00		\$17,800.00								\$18,646.00
D Preparation of Initial Study/Mitigated Negative Declaration		4				\$846.00		\$35,000.00								\$35,846.00
3 Right-of-Way Services (15 Plat & Legal Descriptions, 25 Title Reports)		6	6			\$2,340.60						\$112,500.00				\$114,840.60
4 Predesign	8	76	48	28	0	\$30,794.40	\$60,000.00	\$0.00	\$78,900.00	\$25,000.00						\$194,694.40
A Topographic Survey (3,300 LF)			8	8		\$2,669.60			\$78,900.00							\$81,569.60
B CCTV and Potholing Allowance		8				\$1,692.00				\$25,000.00						\$26,692.00
C Alignment Study and Basis of Design	8	60	40	20		\$24,740.80										\$24,740.80
D Detailed Geotechnical Report		8				\$1,692.00	\$60,000.00									\$61,692.00
5 65% Design	8	32	80	80	120	\$52,752.80	\$6,000.00									\$58,752.80
6 100% Design	8	32	60	60	84	\$40,833.60	\$6,000.00									\$46,833.60
7 Final Design	8	16	20	24	40	\$18,311.20	\$5,000.00									\$23,311.20
8 Bid Support	2	20	8			\$6,110.00										\$6,110.00
Total (Including Optional Task)	34	210	222	192	244	\$157,064.60	\$87,000.00	\$112,700.00	\$191,400.00	\$25,000.00						\$573,164.60
Total (Excluding Optional Task)	34	194	222	192	244	\$153,680.60	\$87,000.00	\$35,500.00	\$191,400.00	\$25,000.00						\$492,580.60