

Olivehurst Public Utility District



Agenda Item Staff Report

Meeting Date: June 20th, 2019

Item description/summary:

Consider awarding contract to MHM/Jacobs for Wastewater Study in South Yuba County for Task Order 01 and Consider supplemental Services in Task Order 02.

Originally, three engineering firms were interested in submitting proposals for our RFP for a Wastewater Study in South Yuba County. One firm was unable to provide a proposal in the timeline provided and the remaining two (MHM and Jacobs) have partnered in their proposal. They have partnered together numerous times in the past. Their proposal includes a cost estimate of \$49,967 for task order 01 which includes the main focus of the study. Task order 02 includes supplemental services and their associated costs for another \$53,500. Attached is their proposal with their cost estimates proceeding page 23 of the proposal.

Fiscal Analysis:

Yuba County's Board of Supervisors approved funding for this study up to \$50,000.

Sample Motion/Staff Recommendation:

Move to award the contract to MHM/Jacobs for task order 01 in the amount of \$49,967.

Prepared by:

Christopher Oliver, Public Works Engineer

ATTACHMENT B: COVER SHEET

Name of Person, Business or Organization:	M-H-M. Inc
Federal Tax ID Number:	94-2325006
Contact Person – Name	Sean Minard. President
Contact Person – Address	1204 E Street Marysville, CA 95901
Contact Person – Phone Number (s)	(530) 742-6485
Contact Person – e-mail address	sminard@mhm-inc.com

By signing this *Cover Sheet* I hereby attest: that I have read and understood all the terms listed in the RFP; have read and understood all terms listed in this proposal; that I am authorized to bind the listed entity into this agreement; and that should this proposal be accepted, I am authorized and able to secure the resources required to deliver against all terms listed within the RFP as published by OPUD, including any amendments or addenda thereto except as explicitly noted or revised in my submitted proposal.



Signature of Authorized Representative

Sean Minard, President

Printed Name of Authorized Representative

June 13, 2019

Date



June 13, 2019

Mr. John Tillotson, P.E.
Olivehurst Public Utility District
1970 9th Avenue
Olivehurst, CA 95961

Subject: Proposal to Provide Consultant Civil Engineering Services
Wastewater Routes to South Yuba County

Dear Mr. Tillotson:

MHM Incorporated is pleased to submit this proposal to assist Olivehurst Public Utility District (OPUD) with engineering consulting work in connection with the Wastewater Routes to South Yuba County Project. We are a local engineering and surveying firm established in 1892 and incorporated in the State of California in 1975. The Company has maintained its main office in Marysville for over eighty (80) years and is a certified California Small Business (7781).

Our team consists of a highly qualified group of professionals, and the key team members proposed for this project have been with the company for many years. The key team members proposed from MHM are myself, Sean Minard, and John Mallen. In addition, we have included Jacobs Engineering for support on the Pump Station and Wastewater Treatment Plant. MHM and Jacobs have successfully teamed up on numerous projects during the last ten (10) years. Our clients include numerous public agencies such as cities, counties, and special districts, as well as private entities. All of the key team members indicated have direct experience working with OPUD.

We would like the opportunity to meet with you to discuss our proposal to assure that it is complete and that it conforms to your needs. The MHM Team will perform the services as described above and will strive to meet or exceed expectations in every detail. We look forward to providing the services requested. I can be reached at (530) 742-6485 or sminard@mhm-inc.com with any questions.

Sincerely,

MHM INCORPORATED

Sean Minard, P.E., P.L.S.
Project Engineer

Enclosures

SCOPE AND FEE ESTIMATE FOR ENGINEERING SERVICES TASK ORDER 01

Wastewater Route to South Yuba County Project

Olivehurst Public Utility District Olivehurst, California



OPUD
Olivehurst Public Utility District
*"Our mission is to provide high quality services to enhance
our community's quality of life"*

June 13, 2019

M·H·M

ENGINEERS & SURVEYORS SINCE 1892

1204 Street, P.O. Box B
Marysville, CA 95901

JACOBS

2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833

Introduction

Olivehurst Public Utility District (OPUD) is requesting proposals from interested providers of engineering service to development the most efficient route from the OPUD Wastewater Treatment Plant to the Employment Village, Rancho Road Corridor, and Sports and Entertainment Area in South Yuba County. The target area is south of Ostrom Road, west of South Beale Road, and east of Forty Mile Road. The target area is currently lacking a community wastewater system. There are some private wastewater treatment systems within the area. OPUD is currently in the process to annex the target area into their Service Boundary. Previously this area was added to their sphere of influence.

There have been numerous technical studies addressing sewer service within the target area. Some of the studies are the Technical Memorandum Sanitary Sewer for Magnolia Ranch Specific Plan prepared by MHM Incorporated, the Technical Master Plan for the Employment Village prepared by MHM Incorporated, the Beale AFB Wastewater Consolidation Project Technical Report prepared by CH2M Hill/Jacobs, and the Preliminary Planning for Wastewater Collection Facilities – State Route 65/Ranch Road Corridor prepared by Kennedy Jenks. There are numerous other unpublished studies prepared as part of the Hard Rock Fire Mountain Casino Project addressing the potential to contract to OPUD and from the Yuba County Motorplex and Sacramento Valley Amphitheatre. MHM was involved in these studies and will consider this information.

The MHM Team is capable of preparing design documents for the pipeline, pump station, plant headwork upgrades, etc. This team is fully qualified to perform both the work outlined in the RFP and future design work.

Scope of Work

The work outlined in this scope has been divided into tasks as outlined below.

- ◆ Project Management
- ◆ Review of Existing studies and reports
- ◆ Alternative Route Analysis
- ◆ Recommended Route Layout and Exhibit
- ◆ Pump Station Conceptual Layout
- ◆ Engineers' Estimate of Probable Construction Cost
- ◆ Supplementary Services

1. Project Management (MHM)

1.1. Project Management

MHM's project manager will manage the design contract scope, schedule, and budget for all MHM Team project activities outlined for Task Order 01. Project management will also occur at the task level for each team member as shown on the attached breakdown of hours. In addition, the project manager will coordinate with the Client, the subconsultant teams, agencies, and stakeholders throughout the duration of the project. This subtask includes project management activities from June 21, 2019 to December 31, 2019.

MHM will attend monthly in-person meetings with OPUD to provide an update of the design status and discuss program issues, and Task Order 01 activities will be added to the agenda.

Deliverables:

- ◆ Monthly QA tracking summaries (included in Progress Report)

Assumptions:

- ◆ Contract duration is from June 21, 2019 to December 31, 2019.
- ◆ 2-hour design management meetings are required are assumed to occur monthly.
- ◆ Environmental and Permitting are not included in the scope of work.
- ◆ Right of Way acquisition teams are not included in the scope of work.

1.2. Invoicing and Progress Reports

MHM will prepare separate monthly progress reports that document project activities and update the project schedule and budget status. Items that the progress report will include are:

- ◆ Financial status summary, including an earned value analysis by task
- ◆ Project schedule and deliverables
- ◆ Current activities list
- ◆ Issues list (design, schedule and QA/QC issues)
- ◆ QA/QC review status
- ◆ Decision log

MHM will provide design schedule updates to the OPUD Project Manager for the overall project schedule.

Deliverables:

- ◆ Monthly progress reports and schedule updates

2. Studies and Reports

2.1. Review Existing Studies and Report

MHM will review existing studies available in the proposed services area. Some of the studies are the Technical Memorandum Sanitary Sewer for Magnolia Ranch Specific Plan prepared by MHM Incorporated, the Technical Master Plan for the Employment Village prepared by MHM Incorporated, the Beale AFB Wastewater Consolidation Project Technical Report prepared by CH2M Hill/Jacobs, and the Preliminary Planning for Wastewater Collection Facilities – State Route 65/Ranch Road Corridor prepared by Kennedy Jenks. There are numerous other unpublished studies prepared as part of the Hard Rock Fire Mountain Casino Project addressing the potential to contract to OPUD and from the Yuba County Motorplex and Sacramento Valley Amphitheatre. MHM was involved in these studies and will consider this information. MHM will also meet with Gerald Shore, Casino Project Manager, and Don Brown, Casino Wastewater Treatment Plant Operator, to discuss their system and demands. MHM will work with OPUD on any other historic information available, including the as-built drawings for the existing highway pipe crossing. MHM previously worked with Garry Laughlin on the details of this existing State Route 65 crossing.

Deliverables:

- ◆ Review existing studies, reports, and as-built plans

2.2. Alternative Route Analysis

MHM will consider the two existing proposed routes outlined in the Beale AFC Base Consolidation Project and the Preliminary Planning for Wastewater Collection Facilities. The route proposed in the Magnolia Ranch and Employment Village Technical Master Plan was the same or very similar to the Beale AFB Consolidation Project alignment. The goal will be to determine the most efficient route. Some hydraulic modeling will be performed to determine the pipe size and layout of the system. The most efficient system could be the least costly route, or it could be the route that provides the greatest area of gravity sewer to the proposed target area. The future potential connections to City of Wheatland and Beale AFB need to also be considered. The most efficient route shall also consider which portions shall be pressure pipe and which can be gravity. For instance, there has been consideration to have the portion of the route within George Avenue to be gravity to allow the adjacent homesites to connect to the gravity sewer.

Deliverables:

- ◆ Technical Memorandum on Alternative Route Analysis

Assumptions:

- ◆ The budget assumes consideration of two routes. Additional route analysis will need to be consider a supplementary task.

2.3. Recommended Route Layout and Exhibit

The route that is determined to be the most efficient route will be the recommended route. This task will include preparation of a plan view of the entire alignment from the target area to the wastewater treatment plant. This will assist in the development of a detailed Engineers' Estimate of Probable Construction Cost. This information can be used for future environmental area of potential effects (APE) maps and other studies required for the full design. This will be the starting point for a thirty (30) percent design. MHM has some high-resolution aerials from the DWR Flood Plain studies over the entire alignment. These photos are from 2007, and therefore we have a supplementary survey task to use our drone to prepare new high-resolution aerials covering the alignment. These will cover any recent construction. There could be some limitations on the ability to fly within Beale AFB base restricted air space. In these areas, we will consider using the older aerials but cross referencing with Google Earth Aerials. The plan views will be 1 inch = 60 feet. This will result in about 20 to 25 sheets. We can consider a higher scale to limit the number of sheets.

MHM would be the designer of the pipeline if OPUD elects to move towards the design phase.

Deliverables:

- ◆ Plan Sheet at 1 Inch = 60 feet for the length of the project.

2.4. Pump Station Conceptual Layout

Jacobs will prepare a conceptual pump station layout. The conceptual design will be used to prepare the detailed Engineers' Estimate of Probable Construction Cost for the pump station. MHM will provide information on pump station sizing requirements as part of their basic services.

Deliverables:

- ◆ Conceptual Layout of Pump Station.

2.5. Construction Cost Estimate

MHM and Jacobs will prepare detailed Engineers' Estimates of Probable Construction Costs for the pipelines and pump station work outlined in this RFP. The basis of the construction cost estimates will be the recommended route and the detailed route layout and exhibits. The cost estimate will consider pump stations, creek crossings, bridge crossings, railroad crossings, wetlands, right-of-way, manholes, and other features determined to be required to for the route from target area to the Wastewater Treatment Plant.

Deliverables:

- ◆ Engineers' Estimate of Probable Construction Cost of the Recommended Route.

3. Supplementary Services Project Management (not part of scope)

3.1. Supplementary Project Management

MHM's project manager will manage the design contract scope, schedule, and budget for all MHM Team project activities determined to be required as supplementary services. This will be considered Task Order 02 unless the supplementary services are added to the base contract. Project management will also occur at the task level for each team member as shown on the attached breakdown of hours. In addition, the project manager will coordinate with the Client, the subconsultant teams, agencies, and stakeholders throughout the duration of the project. This subtask includes project management activities from August 1, 2019 to December 31, 2019.

MHM will attend monthly in-person meetings with OPUD's Project Manager to provide an update of the design status and discuss program issues, and Task Order 02 activities will be added to the agenda.

Deliverables:

- ◆ Monthly QA tracking summaries (included in Progress Report)

Assumptions:

- ◆ Contract duration is from August 1, 2019 to December 31, 2019.
- ◆ 2-hour design management meetings are required are assumed to occur monthly.

3.2. Supplementary Invoicing and Progress Reports

MHM will prepare separate monthly progress reports that document project activities and update the project schedule and budget status. Items that the progress report will include are:

- ◆ Financial status summary, including an earned value analysis by task
- ◆ Project schedule and deliverables
- ◆ Current activities list
- ◆ Issues list (design, schedule and QA/QC issues)
- ◆ QA/QC review status
- ◆ Decision log

MHM will provide design schedule updates to the OPUD Project Manager for the overall project schedule.

Deliverables:

- ◆ Monthly progress reports and schedule updates – the report will separately reference pump station, drainage, and roadway work

4. Supplementary Studies and Reports (not part of scope)

The supplementary services discussed below are recommended for a number of reasons:

First, OPUD has committed to the State Water Resources Control Board that they will commence work on the reduction of Sewer System Overflows in their collection system in the next few years. This commitment was made as part of the Sewer System Management Plan that OPUD submitted to the State.

The second reason is that the South County Pipeline Project has the potential to substantially reduce the costs for SSO reductions in that portion of the District's collection system that is in proximity to the South County Pipeline. Incremental oversizing of pipelines is an extremely cost-effective solution to providing increased pipeline capacity, and a number of SSO locations within the OPUD community could take advantage of this one-time opportunity. It is therefore appropriate to consider SSO reductions for these areas as part of the South County Pipeline evaluation.

4.1. Recycled Water Cost Estimate (not part of scope)

MHM will prepare detailed Engineers' Estimates of Probable Construction Costs for the recycled water pipelines and pump station work. The scope will also include adding the recycled water pipeline to the layout outlined in Task 2.3. The cost estimate will consider pump stations, creek crossings, bridge crossings, railroad crossings, wetlands, right-of-way, manholes, and other features determined to be required to for the route from target area to the Wastewater Treatment.

Jacobs will provide information including a cost estimate for the preparation of an Engineer's Report to the Office of Drinking Water. This will be approved by the Office of Drinking Water before recycled water use will be permitted within the community, and it will allow for reclassification of the existing WWTP to produce and distribute recycled water. The existing plant meets the numerical discharge requirements for recycled water but the Engineer's Report will be required, and cost estimates for this necessary component should be considered as part of the OPUD Board's decision-making.

Deliverables:

- ◆ Engineers' Estimate of Probable Construction Cost for Recycled Water System
- ◆ Engineer's Report to Office of Drinking Water

4.2. Consideration of Collection Systems for Beale AFB (not part of scope)

MHM and Jacobs will consider the modifications to the collection systems to handle wastewater conveyance to the OPUD WWTP from Beale AFB WWTP. The scope of work will be to determine the flow, pipe sizing, pump stations, and construction cost estimates. A lot of this information is outlined in the Beale AFB consolidation report but will be refined for the purposed

of this study. The scope of work will include a technical memorandum addressing the modifications.

Deliverables:

- ◆ Technical Memorandum addressing the Findings of Conveyance of Beale AFB Wastewater
- ◆ Engineers' Estimate of Probable Construction Cost

4.3. Consideration of Collection Systems for Wheatland (not part of scope)

MHM and Jacobs will consider the modifications to the collection systems to handle wastewater conveyance to the OPUD WWTP from City of Wheatland. The scope of work will be used to determine the pipe sizing, pump stations, and construction cost estimates. The City of Wheatland will need to provide information regarding the flow and other details of the Wheatland wastewater. The scope of work will include a technical memorandum addressing the modifications.

Deliverables:

- ◆ Technical Memorandum addressing the Findings of Conveyance of Wheatland Wastewater
- ◆ Engineers' Estimate of Probable Construction Cost

4.4. Sewer System Overflow (SSO) Reductions (not part of scope)

Jacobs will perform supplementary services for Sewer System Overflow (SSO) Reductions. The scope of work will include consultation with MHM on location of SSO locations that will impact the South County Pipeline sizing, and development of a conceptual layout that will assist in the reduction of SSOs in those locations (only those locations in proximity to the CH2M HILL/Jacobs Beale AFB alignment are included as part of this work—e.g., goal is to take advantage of potential oversizing of the South County Pipeline to save OPUD ratepayers considerable money for SSO reductions in those areas). Other SSO locations in the community are not close enough to the proposed new pipeline to take advantage in those economies of scale, and they are therefore excluded from this effort. Jacobs estimates that this approach can result in the following minimum savings to District ratepayers:

- ◆ Instead of constructing approximately 5500 lineal feet of 21-inch pipeline in Donald Avenue to the WWTP, construct only 1500 lineal feet from Donald to Mary Avenue and then incrementally oversize the new South County pipeline to the WWTP.
- ◆ Additional, and very substantial, savings can be accomplished by obviating the need for a new replacement pipeline from Basin #2. OPUD staff have determined the existing pipeline needs replacement from Basin #2 all the way to Donald Avenue. Oversizing the South County Pipeline from Basin #2 to Mary Avenue saves both major construction costs and also reduces flowrates into the 21-inch pipeline on Donald Avenue.

- ◆ Quantify the SSO flowrates that are recommended for diversion into the new pipeline

Deliverables:

- ◆ Technical Memorandum on Sewer System Overflow (SSO) Reductions
- ◆ Engineers' Estimate of Probable Construction Cost

4.5. Sewer Pump Station Oversizing Analysis and Cost Estimates

Jacobs will prepare conceptual layout for oversizing of the two pump stations (one at McGowan Parkway and Mary Avenue, and the Primary Influent PS at the WWTP) that will convey the diverted flow. The cost estimate will consider wet-well, motor control, generator, piping, lids, SCADA, and other features determined to be required for a sewer pump station.

Deliverables:

- ◆ Conceptual Layout of Sewer Pump Station
- ◆ Engineers' Estimate of Probable Construction Cost of the Sewer Pump Stations.

4.6. Wastewater Treatment Plant Conceptual Study

Jacobs will conduct a conceptual study for WWTP Improvements, including cost estimates, for the following:

- ◆ Equalization basin at the WWTP to store the incremental peak wet weather flow from both SSO diversions and for the additional South County wet weather flows.
- ◆ In plant piping needs for said improvements outlined in Task 4.4.
- ◆ Consideration of Primary clarifier (in order to avoid sending solids and floatables to the equalization basin), to include cost estimates for the primary clarifier. Discussions with OPUD staff will be conducted to determine if the existing primary clarifier can be renovated and placed into service; that cost will be compared to the cost of a new primary clarifier or screening device to minimize materials sent to the proposed equalization basin prepare a conceptual layout and detailed

Deliverables:

- ◆ Conceptual Layout of Wastewater Sewer Treatment Plant.
- ◆ Engineers' Estimate of Probable Construction Cost of the Sewer Pump Stations.

5. Supplementary Survey Services (not part of scope)

MHM can provide full survey services including topographic surveys, boundary and right-of-way surveys, and bathymetric surveys of creek crossings. We have not provided a detailed scope work for this work. We have included a scope of work for new aerals along the recommended route.

5.4. Drone Aerial of Recommended Route

Field Operations

The consultant shall use data derived from Unmanned Aircraft System (UAS) technology and field ground surveys to provide aerial ortho rectified aerial photos. This data will also be joined into a seamless three-dimensional reconstruction of the ground surface.

Deliverables:

- ◆ Ortho Rectified Aerial Photos

Comments/Assumptions:

- ◆ Because of Beale AFB restricted airspace, there are going to be some aeriels that UAS technology will be limited or restricted.

Future Design Engineering (MHM Team)

The MHM Team is capable of performing the scope of work outlined in the Request for Proposal. The Team is also capable of performing the design phase, including environmental permitting, surveying, right-of-way, and construction management. MHM and Jacobs have successfully teamed on projects in the past and are currently working on the design of a pipeline project for the City of Yuba City. The Team is working together on the Water Intake Access Road and their Sewer Pond Project. Our Team would like to be considered for the design phase of this work and can provide more detail as needed. The Team was formed with this in consideration.

Fee Estimate (MHM Team)

Attached please find the MHM Team's fee estimate for the scope of work described herein for Task Order 01. The rates used in the individual fee tables correspond to the 2019 rates. See the attached fee estimate for details.

Schedule (MHM Team)

The schedule assumes the following general schedule milestones when preparing this scope of work and fee estimate:

- ◆ Design Notice to Proceed – June 21, 2019
- ◆ Review Existing Studies and Reports – July 3, 2019
- ◆ Alternative Route Analysis – August 2, 2019
- ◆ Pump Station Conceptual Layout – August 23, 2019
- ◆ Recommended Route Layout and Exhibit – September 6, 2019
- ◆ Engineers' Estimate of Probable Construction Cost – October 4, 2019
- ◆ Supplementary Schedule to be determined as part of negotiation and scope development.

Contract Requirements

In putting together the scope of work for this RFP, it was noted that Section 11 of Attachment A: Personal Services Contract (Sample) calls for an indemnity clause that goes above and beyond the reasonable allowance for normal industry standards. We would ask to negotiate this portion of the contract to allow for proportional indemnification.

Background and Experience (MHM Team)

MHM provides a wide range of civil engineering and land surveying services. Typical engineering projects include water/wastewater systems, storm drainage, flood control, irrigation, and transportation projects. We routinely prepare studies and reports, including regional storm drainage plans, hydraulic and hydrologic studies, and feasibility studies, as examples. In addition to engineering design and studies, we also provide project planning and management as well as construction management and inspection. MHM's services include a soils testing laboratory that is AASHTO Materials Reference Laboratory certified. Our surveying department utilizes advanced technology and equipment in both field and office operations to undertake a wide variety of survey tasks. Typical surveying projects include property boundary surveys, aerial control surveys, topographic and bathymetric surveys, and the preparation of basemapping for engineering design. We also provide surveying services in support of right-of-way acquisition. Our surveyors have extensive experience in construction surveying, including quality control surveys. With our versatile capabilities in both engineering and surveying, MHM is able to accomplish a wide variety of projects, and we are able to take a project from the initial planning stages to construction completion.

MHM has prepared improvement plans for sewer pipelines and sewer lift pump stations throughout Northern California and fully understands the requirements of Yuba County and Olivehurst Public Utilities District (OPUD). We have completed numerous projects within the Employment Village and Sports and Entertainment Area, including water lines, sewer lines, and storm drainage lines. MHM has been working on these projects since 1997 and understands the issues and constraints within the area. MHM has also worked with Magnolia Ranch, Motorplex, Sacramento Valley Amphitheater, Hard Rock Fire Mountain Casino, and within the City of Wheatland. MHM has prepared the sphere of influence modification for this area and is currently working with OPUD on the LAFCO Annexation Map.

MHM has worked on a wide range of projects from parks to levees for various agencies that have been funded by local, State, and Federal funding through grants and other funding sources. We are well aware of the extensive documentation, approvals, and other issues associated with these funding sources for public works projects. The most recent projects that we have worked on with special funding requirements are the SBFCA, TRLIA, WSAFCA, SAFCA levee improvement projects and the Yuba City Prop 84 Waterline project that MHM designed for the City.

CH2M HILL/Jacobs has been the principal designer of all work at the OPUD WWTP since the mid-1970s. OPUD has one of the lowest monthly operation and maintenance cost rates in the State of California for a tertiary wastewater plant, and that is, in large part, due to the design philosophy that has been brought to the District by CH2M HILL/Jacobs.

MHM has not been a party to any current, pending, or past litigation within the last ten (10) years.



The following are several projects completed by MHM that demonstrate our combined specific experience and qualifications in completing engineering services for projects such as this RFP describes.

MHM PROJECT NAME: *Lower Elkhorn Basin Levee Setback Project – Pump Station Relocation*

KEY PERSONNEL: Sean Minard, PE, PLS
John Mallen, PE, PLS

CLIENT: Mr. Dan Tibbitts, Project Manager
SAFCA
1007 Seventh Street, 7th Floor
Sacramento, California 95814-3407
Ph (916) 875-0639
TibbittsD@SacCounty.net

The Lower Elkhorn Basin Levee Setback Project includes levee setbacks to widen portions of the Yolo and Sacramento Bypasses to increase conveyance capacity and reduce flood risk. The project is part of a series of proposed flood risk management improvements contemplated under DWR's Central Valley Flood Protection Plan and its related Sacramento Basin-Wide Feasibility Report. The project includes the following elements: (1) widening the Yolo Bypass by constructing a setback levee east of the Tule Canal in the Lower Elkhorn Basin, (2) widening the Sacramento Bypass by constructing a setback levee north of the existing levee, and (3) implementing improvements in the Lower Elkhorn Basin and Sacramento Bypass to mitigate project impacts. MHM is working to relocate the reclamation district pump station affected by this project. The project is currently under design, and MHM has recently performed surveys for the project fall within the proposed survey area.

MHM PROJECT NAME: *PL84-99 Emergency Levee Repair,
Colusa County, Sutter, San Joaquin Counties, California*

KEY PERSONNEL: Sean Minard, PE, PLS
John Mallen, PE, PLS

CLIENT: U.S. Army Corps of Engineers, Sacramento District
CESPK-PM-C
Mr. Gerard Slattery
1325 J Street, Sacramento, California 95814-2922
Ph (916)-557-6603
Gerard.L.Slattery@usace.army.mil

PARTNER: AECOM Technical Services, Inc.
Kenneth Myers, Vice President – Water Resources
2020 L Street, Suite 400
Sacramento, CA 95811
Ph 916) 414-5800
ken.myers@aecom.com

The scope of this project included preparation of the following for each site: Quality Control Plan, an Existing Subsurface Information Report, a geotechnical survey and site investigation, analysis of geotechnical data, and preparation of an Alternative Analysis Report, Geotechnical Basis of Design Report, and geotechnical specifications. The SOW also included preparation of 65%, 100%, and final plans, specifications, bid schedule, and Current Working Estimate (CWE) for each site. It also included conducting a Safety Assurance Review for one of the sites, which had been preliminarily determined to include construction of a cutoff wall. Meetings, Progress Reports, Technical Support, and preparation of the AT/OPSEC clearance documentation were also included.

MHM performed a field survey to determine the existing levee geometry at the damaged area and adjacent undamaged levee then obtained bathymetry data on the waterside of the damaged levee site. MHM also obtained a cross-section of the levee prism and any associated damages outside the levee prism every 50 feet, measured along the levee crest, along the length of the repair, or more frequently in order to encompass any significant variations in geometry across the levee and adjacent features to support the geotechnical analysis and geotechnical basis for design. MHM also provided the USACE final survey cross-sections, topographic survey with 1-foot contours, and survey data points in AutoCad files according to USACE Cad Standards. Final locations of cross sections were provided with respect to stationing using WGS84. The work was completed in 2018.

JACOBS RELEVANT PROJECTS**KEY PERSONNEL:** Steven DeCou, PE

Design Manager/Project Manager, Advanced Wastewater Treatment Plant Design and Upgrade, Olivehurst Public Utility District, CA. Involved in major plant modifications to the wastewater treatment plant for the last 40 years. In the mid-1970s, was responsible design engineer for major secondary unit processes of the plant, prepared the O&M manual, and led plant startup and the training of District staff. In 2005 Mr. DeCou was asked to lead the District's latest plant expansion, to include requirements to meet the California Toxics Rule, nutrient removal, and end of pipe discharge requirements due to lack of dilution water. That project was estimated by the CH2M team at \$23M, and the final project was completed at almost exactly that amount, with close to no change orders. Additionally, CH2M's time schedule, from original Notice to Proceed through project start-up was 18 months. This included the study phase, final design, and construction, and also included the acquisition of a new NPDES permit for the expanded plant. Equipment pre-purchase was required to maintain the schedule for long lead time equipment. Mr. DeCou continues to serve this client on all matters related to their wastewater treatment needs.

Project Manager, Wastewater Treatment Plant Improvements, City of Tracy, CA. Worked on multiple studies and plant expansions for the Tracy WWTP since 1977. Served as PM for a total of two plant expansions in that time, increasing the facility from 5.5 to 9 mgd. Expansion included rectangular primary clarifiers, mesophilic anaerobic digesters, sludge thickening with dissolved flotation thickeners, solar drying beds for dewatering, and a 435 KW engine generator for digester gas utilization. Later, served as senior reviewer when plant was expanded from 9 to 12 mgd, with the addition of more primary clarifiers and anaerobic digesters. Prepared the operations and maintenance (O&M) manual for the constructed improvements for two of the three expansion projects. Mr. DeCou recently was Project Manager for a wastewater master plan for both the wastewater collection system and treatment plant for this client, capping involvement at this facility for close to 40 years.

Project Manager, East Roseville Raw Sewage Pumping Plant, City of Roseville, CA. Project Manager for this pumping plant replacement project. Led an initial assessment and preliminary design of all plant improvements required to expand the Dry Creek WWTP, with anticipated costs in the range of \$80M; recommendations included use of MBR technology to meet future discharge requirements. Liquid and solids processes were evaluated in a workshop environment for this preliminary design effort, and project elements were selected by the team for later implementation. Mr. DeCou later served as project manager for the influent pumping plant replacement project when the recession slowed growth in the community and the remainder of the project was cancelled. The East Roseville Raw Sewage Pumping Plant was delivered using the CMAR delivery approach. A Guaranteed Maximum Price was negotiated with the selected construction contractor, and together the Contractor and Mr. DeCou's design team, with heavy City involvement, completed the design. This project was successfully completed on time and on budget, with no construction claims.

Approximately one year after completion of the Pumping Station improvement's completion, Mr. DeCou was asked by the City to lead their SCADA Replacement Project, another CMAR delivery project. CH2M prepared a SCADA Master Plan, and prepared the preliminary design for the replacement of the existing DCS system for three plants (two wastewater plants and one water treatment plant). Mr. DeCou assisted the City in contractor (system

integrator) selection and GMP negotiations, and continues to assist the City with services during construction on this project.

Project Manager, City of Turlock Wastewater Improvements, Turlock, CA. Served in multiple capacities for the 15.5-mgd expansion of the Turlock WWTP. Facilities included major improvements to the secondary treatment system (activated biofilter activated sludge system), new anaerobic digesters, gravity belt thickeners for sludge thickening, and drying beds for dewatering. Also included were two 500 KW engine generators for digester gas utilization. Responsible for the preparation of the plant O&M manual and startup assistance. Steve ran two pilot plants to allow for the selection of the appropriate process train for this extremely high strength waste from local canneries, served as Design Engineer during the design process, and was elevated to Project Manager during the construction phase of the project. The project was completed on budget (but not on schedule), even though a tornado hit the plant site during construction; Mr. DeCou successfully assisted the Owner with negotiations with the Contractor relative to their claim for damages.

Project Manager, Arden Pumping Plant and Force Main, Sacramento Regional County Sanitation District, CA. Evaluated hydraulic conditions of the District's critical pumping plant and force main system to determine its short- and long-term viability. This important schedule-driven project included hydraulic modeling, pumping plant evaluation, alternative analysis and decision science, collaboration with operations and maintenance staff, and public outreach. The District initially directed that preliminary design be conducted on the "Central Interceptor Extension." Mr. DeCou recommended the initial project direction be reconsidered, and recommended implementation of the Arden pumping plant and parallel force main improvements. The revised project offered monetary, operational, and environmental benefits to the District not found in the original project. The upgraded pumping plant has an increased capacity of 167 cfs, and the new 60-inch-diameter force main allows maintenance of the existing pipeline. Mr. DeCou led the design effort for the full rehabilitation of this five pump, 3000 HP station, to include all sub-elements (pumps, motors, electrical systems (including VFDs), valves, I&C, controllers, and associated improvements. He also led the transient surge analysis which concluded that transient surge protection for the system was required, and he also led the design of the Parallel Force Main Project, which consisted of approximately 20,000 feet of 60-inch diameter force main with two micro-tunneled crossings of the American River.

Multiple Conveyance Projects, Sacramento Regional County Sanitation District, CA. Mr. DeCou served as Project Manager for the above-mentioned Arden Force Main, the Upper Northwest Interceptor, and the West Sacramento Force Main for this client. All three conveyance projects had pipelines between 60 and 84 inches in diameter, and all included trenchless crossings. The trenchless crossings included a combination of two pass tunneling (for pipe reaches above the water table) and micro tunneling (for pipe reaches below the groundwater table). All three of these projects were completed with less than 0.7 percent change orders, and on time and on budget. Mr. DeCou led project workshops for critical decision making for each project with this owner. He and his team were competitively selected on these three successive projects without a loss, indicating the Owner's satisfaction with the proposed method of project execution on pending projects and their satisfaction with prior results on completed projects.

JACOBS RELEVANT PROJECTS**KEY PERSONNEL:** Mike Reiss, ME

Clear Creek Wastewater Treatment Plant Expansion and Upgrade Project; City of Redding, CA. Role: Lead Mechanical Engineer. Selected and designed piping and pumping systems, including piping specialties; stainless steel slide gates; valves; jib cranes and hoisting equipment; primary and secondary clarifier equipment; and pumps, including self-priming, induced-flow, peristaltic, submersible non-clog, and submersible chopper type. This \$103.5 million project is phased in multiple bid packages that will expand the wastewater treatment plant capacity from 20 to 40 mgd when complete.

Freeport Regional Water Authority; Intake Pump Station Design; Sacramento, CA. Role: Mechanical Engineer. Provided mechanical engineering services for a 185-mgd, 16,000-hp raw water intake pump station. Provided hydraulic modeling and analysis of variable-speed raw water pumps and 36- to 84-inch-diameter conveyance piping. Designed and selected support systems, including river sediment control equipment consisting of chain and flight collectors, slurry pumps, slurry decant pumps, and associated piping; sodium hypochlorite storage and injection systems; 54,000-gallon, 200-psi American Society of Mechanical Engineers pressure vessels for pipeline surge mitigation; and rotary screw and reciprocating air compressors.

Wastewater Treatment Plant Expansion and Upgrade Project; Olivehurst, CA. Role: Mechanical Design Engineer. Provided mechanical engineering design support for plant expansion and upgrade. Designed the utility water pumping system, consisting of parallel adjustable-speed multi-stage vertical turbine pumps, associated pump discharge and distribution system piping, and retrofit of existing pump station intake structure for addition of new pumps. Designed effluent discharge system, consisting of parallel, single-stage, mixed-flow vertical propeller pumps, associated discharge and yard piping, and new pump station intake structure. Designed through-levee outfall structure and associated parallel gravity and pumped discharge piping. Sized and provided specifications for miscellaneous ancillary equipment.

Well 16 Pump Station Design; City of Vacaville, CA. Role: Project Design Manager/Lead Mechanical Engineer. Oversaw 12 technical staff and 1 subconsultant and managed design of a 2.6-mgd well pump station with fluoride and chlorine chemical feed systems to meet future water supply needs. The well building allows for chemical rooms and potential building expansion to meet future regulatory requirements such as corrosion control and removal of arsenic to proactively manage the City's potable water supply sources.

Sacramento River Replacement Intake and Pumping Plant; City of Sacramento, CA. Role: Mechanical Design Engineer. Assisted in the mechanical design aspects of the \$29 million, 163-mgd raw water intake and pump station for the City of Sacramento water supply system. Assisted in selecting valves, piping, pumps, a fish screen, and plumbing design. The pump station includes six 23-mgd, 300-hp and two 11.5-mgd, 150-hp constant-speed vertical turbine pumps.

JACOBS RELEVANT PROJECTS**KEY PERSONNEL:** Ted Couch, PE

Project Engineer; Olivehurst Wastewater Treatment Plant Master Plan; Olivehurst Public Utilities District; Olivehurst, CA. Wrote major portions of the 2017 Olivehurst WWTP Master Plan, addressing plant expansion from 3 MGD to 8 MGD. Expansion recommendations included a new oxidation ditch and secondary clarifiers and biosolids dewatering capacity. Researched WWTP energy use and Pacific Gas and Electric Company rate structures to optimize system process loads with onsite solar, and natural gas turbine generation.

Project Manager; Wastewater Treatment Plant Upgrade Design; Sewerage Commission-Oroville Region; Oroville, CA. Project manager responsible for delivery of 30% design for major upgrades to the Sewerage Commission – Oroville Region (SC-OR) treatment plant. Upgrades included conversion of secondary treatment process to full nitrification/denitrification to address anticipated future nitrogen discharge regulations. Managed all client interactions, workshops, and tasks, including field investigations, control system evaluation, permitting, and detailed design.

Project Manager/Process Engineer; Disinfection Facilities Plans; City of Redding, Redding CA. Led the effort to develop disinfection system facility plans for each of Redding's two wastewater treatment plants. Produced detailed alternatives analysis with a triple bottom line approach. Considered established, as well as novel disinfection technologies to produce a recommended alternative for each treatment plant, including system sizing, site layouts, and cost estimates.

Project Manager/Process Engineer; Master Plan and Financial Assistance Study; Sewerage Commission-Oroville Region; Oroville, CA. Project manager responsible for delivery of master plan analyzing changes to the Sewerage Commission-Oroville Region (SC-OR) wastewater treatment plant (WWTP) over a 20-year horizon. Primary focus on future, more stringent nutrient discharge regulations, and the secondary treatment and disinfection upgrades necessary to address these regulations. Analyzed influent flow and quality and conducted alternatives analysis to determine optimal future process configuration.

Task Manager; San Mateo Wastewater Treatment Plant Facility Plan, San Mateo, CA. Led effort to plan the facilities and layout for the \$900-million upgrade to the San Mateo WWTP and collection system. Involved workshops with managers, engineers and operators to determine optimal treatment process and configuration to address anticipated future nitrogen discharge regulations, as well as sizing and layout.

Task Manager; Water Reuse Study; City of San Mateo, San Mateo, CA. Led the long-term strategic planning effort on beneficial reuse of San Mateo Wastewater Treatment Plant effluent. Coordinated with national experts on developing regulations and technologies as well as local potable water agencies on potential partnerships. Analyzed potential treatment trains as well as costs to provide guidance on the most beneficial options for effluent reuse.

Staffing

MHM has chosen to team with Jacobs Engineering for the design work on this project. The key members proposed to provide services to OPUD are:

Sean Minard, PE, PLS

John Mallen, PE, PLS

Steve DeCou, PE

Ted Couch, PE

Mike Reiss, ME

MHM - Principal-in-Charge / Quality Assurance

MHM - Director of Engineering / Project Manager

JACOBS – Principal Program Manager

JACOBS – Project Manager / Process Engineer

JACOBS - Mechanical Engineering Lead

SEAN MINARD / MHM**PRINCIPAL-IN-CHARGE / QUALITY ASSURANCE*****Education***

AS, Engineering, Yuba College, 1988

BS, Civil Engineering, California Polytechnic State University, 1991

Professional Registrations and Certifications

Civil Engineer, CA, License No. 52593 (1993)

Land Surveyor, CA, License No. 8397 (2007)

Relevant Experience

Mr. Minard currently serves as the President of MHM and has over twenty-seven years of experience with the company in a variety of engineering design and construction coordination projects. He has been responsible for the design of numerous levee related projects and served as the lead Designer on the Natomas Cross Canal and Pleasant Grove Creek Canal project of SAFCA as well as the West Feather project for SAFCA. He has also worked as the lead designer on projects for West Feather River Reconstruction Agency, Reclamation Districts No. 10, 537, 556, 784, 785, 813, 827, 900, 1500, 2060, and 2103, Marysville Levee District, Levee District No. 1 of Sutter County, Levee District No. 9, Lake County Flood Control District, and numerous other agencies. He performed construction management services for some of the various projects listed above, including numerous roadway and subdivision projects. Mr. Minard has worked with SpecIntact and the requirements of 44 CFR 65.10; he is fully versed in the use of numerous computer programs and modeling software for design, construction management, and analysis.

With years of experience and knowledge in levee-related projects and construction management, Mr. Minard is able to lead and provide expertise contributing to the success of any project. He currently serves as District Engineer for the following public agencies:

- Reclamation District No. 900, Yolo County
- Reclamation District No. 784, Yuba County
- Marysville Levee District, Marysville, California
- Levee District No. 1, Sutter County, California
- Levee District No. 9, Sutter County, California

As Principal-In-Charge, Mr. Minard will be responsible for overall project success. He will ensure that the work of all project team members is coordinated, that all required processes are followed, and that the requirements of all regulatory agencies are met. He will provide the daily organization, leadership, communication, budget control, and schedule management for the team's efforts. He will also have full authority to administer all aspects of the contract.



ENGINEERS & SURVEYORS SINCE 1892

JOHN MALLEN / MHM

DIRECTOR OF ENGINEERING / PROJECT SURVEYOR

Education

BS, Civil Engineering, University of California, Davis, 1998
Caltrans Resident Engineer Academy, 2001

Professional Registrations and Certifications

Professional Engineer, California 62315 (2001)
Professional Land Surveyor, California 8457 (2008)

Relevant Experience

Mr. Mallen serves as the Director of Engineering & Materials Testing at MHM. He is a registered Civil Engineer and Professional Land Surveyor with over twenty-two years of experience in various diverse engineering design and construction projects. Mr. Mallen has managed teams of engineers in the preparation of analyses, planning documents, and construction plans and specifications for projects involving residential subdivisions, habitat restoration, irrigation systems, pipelines, levees, pumping plants, pavement rehabilitation, hydraulic structures, detention basins, channels, flumes, box culverts, soil testing, floodwalls, and miscellaneous water supply, flood control, and drainage facilities. Mr. Mallen was the lead designer on the Sutter Butte Flood Control Project for the utility work, and he has worked with RD 784, LD 1, LD 9, and Marysville Levee District on numerous other levee-related projects. He served as the lead on the Southport and North Streams projects for the surveying portions of those projects. Mr. Mallen has also provided support as the construction manager and project surveyor on many levee-related projects with experience in contract administration, construction inspection, change management, and claims negotiation. He currently serves as the City of Marysville consultant City Engineer and Surveyor. He is in charge of MHM's certified AASHTO lab and has overseen materials testing for numerous projects.



ENGINEERS & SURVEYORS SINCE 1892

STEVEN DECOU / JACOBS

PRINCIPAL PROGRAM MANAGER

Education

BS, Civil Engineering, California State University, Sacramento

BA, Physics, California State University, Chico

Graduate Studies, Civil Engineering and Business Administration, California State University, Sacramento

Professional Registrations and Certifications

Civil Engineer, CA, License No. 27807 (1977)

Relevant Experience

With over 43 years of engineering and project management experience, Steve brings a demonstrated record of success managing the delivery of large-scale conveyance and treatment projects within budget and on schedule. His valuable experience includes recent work with numerous California treatment utilities and regulatory agencies, giving him a deep understanding of the water and wastewater needs. Steve successfully manages large programs with multidisciplinary teams and multiple task orders, under constrained schedules and aggressive schedules, leading our staff to deliver solutions that are affordable, efficient, and flexible.

TED COUCH / JACOBS

PROJECT MANAGER & PROCESS ENGINEER

Education

MS, Engineering (Specialization in Water Engineering), California Polytechnic State University, San Luis Obispo

BA, American Studies (Minor Spanish), Pomona College, Claremont, California

Professional Registrations and Certifications

Professional Engineer: CA

Relevant Experience

Mr. Couch has worked for municipal, state, federal and private clients in all facets of water engineering, with a focus on municipal wastewater treatment. This includes coordination with clients on conceptual solutions to technical challenges, delivering detailed designs, as well as onsite equipment testing and staff training. Mr. Couch has completed various and wastewater recycled water system master plans, and managed teams to deliver pumping and pipeline design projects. Mr. Couch has also planned and conducted trainings with treatment plant staff to instruct them on the operation of new equipment and processes.

MIKE RIESS / JACOBS**MECHANICAL ENGINEERING LEAD*****Education***

BS, Mechanical Engineering, University of Nevada, Reno

Professional Registrations and Certifications

Mechanical Engineer, CA, License No. 33737

Mechanical Engineer, NV, License No. 019251

Relevant Experience

Mike specializes in designing mechanical process systems. He designs and provides specifications for pumping facilities, wastewater treatment plant influent and effluent pumping facilities, water conveyance systems, compressed natural gas and conventional fuel vehicle refueling facilities, process air and blower facilities, HVAC design, piping systems, compressed air systems, drain systems, monorail and crane systems, engine generator systems, fuel oil storage systems, and multiple other water and wastewater treatment process equipment. He also has experience in centrifugal pump manufacturing, design testing, repair, and inspection. Mike has served as the lead process mechanical engineer for several recent wastewater design projects, including the Truckee Meadows WRF near-term dewatering project, South Truckee Meadows WRF Biosolids project, South Truckee Meadows WRF headworks screening improvements, Naval Air Station Fallon WWTP Design.

ATTACHMENT NO. 1
MHM - Engineering Services OPUD - Wastewater Route to South Yuba County
TOTAL FEE SUMMARY

No.	Task Description	MHM	Jacobs	Total Costs
SURVEYING AND ENGINEERING DESIGN SERVICES - CONCEPTUAL ENGINEERING ASSISTANCE				
1 Project Management and Coordination				
1.1	Project Management (June 21, 2019 through December 31, 2019)	\$ 3,184	\$ 1,173	\$ 4,356
1.2	Invoicing and Progress Reports	\$ 2,263	\$ -	\$ 2,263
Subtotal Project Management and Coordination		\$ 5,446	\$ 1,173	\$ 6,619
2 Studies and Reports				
2.1	Review existing studies and reports	\$ 5,804	\$ -	\$ 5,804
2.2	Alternative Route Analysis (CH2M Hill and Kennedy Jenks Route)	\$ 10,977	\$ -	\$ 10,977
2.3	Recommended Route Layout and Exhibit	\$ 7,431	\$ -	\$ 7,431
2.4	Pump Station Conceptual Layout	\$ 1,281	\$ 5,283	\$ 6,565
2.5	Construction Cost Estimate	\$ 9,476	\$ 2,226	\$ 11,703
Subtotal Studies and Reports		\$ 34,971	\$ 7,510	\$ 42,480
Subconsultants Markup (10%)		\$868		\$868
TOTAL EFFORT		\$41,285	\$8,682	\$49,967

No.	Task Description	MHM	Jacobs	Total Costs
ENGINEERING DESIGN SERVICES - SUPPLEMENTARY SERVICES				
3 Project Management and Coordination				
3.1	Project Management (August 1, 2019 through December 31, 2019)	\$ 2,244	\$ 2,696	\$ 4,940
3.2	Invoicing and Progress Reports	\$ 1,569	\$ -	\$ 1,569
Subtotal Project Management and Coordination		\$ 3,813	\$ 2,696	\$ 6,509
4 Supplementary Services				
4.1	Recycled Water Cost Estimate - Recommended Route	\$ 4,268	\$ -	\$ 4,268
4.2	Consideration of Collection Systems to accommodate Beale AFB	\$ -	\$ -	\$ -
4.3	Consideration of Collection Systems to accommodate Wheatland	\$ -	\$ -	\$ -
4.4	Sewer System Overflow (SSO) Reductions	\$ 3,716	\$ 6,126	\$ 9,842
4.5	Pump Station Oversizing Analysis and Cost Estimates	\$ 1,281	\$ 3,097	\$ 4,378
4.6	Wastewater Treatment Plant Conceptual Study	\$ 2,093	\$ 17,457	\$ 19,550
Subtotal Supplementary Services		\$ 11,358	\$ 26,679	\$ 38,037
5 Supplementary Survey Services				
5.1	Boundary and ROW Surveys (Includes record research and boundary resolu	\$ -	\$ -	\$ -
5.2	Topographic Surveying and Mapping	\$ -	\$ -	\$ -
5.3	Bathymetric Survey of Reeds and Hutchinson Creeks	\$ -	\$ -	\$ -
5.4	Drone Aerials of Recommended Route (except in Beale no flight area)	\$ 6,015	\$ -	\$ 6,015
Subtotal Supplementary Survey Services		\$ 6,015	\$ -	\$ 6,015
Subconsultants Markup (10%)		\$2,938		\$2,938
TOTAL EFFORT		\$24,124	\$29,376	\$53,500

ATTACHMENT NO. 2
MHM - Engineering Services OPUD - Wastewater Route to South Yuba County
DETAILED FEE ESTIMATE

No.	Task Description	Labor															Total Hours	Total Labor (\$)	Expenses	Total		
		E7	E6	E5	E4	E3	E2	E1	T4	T3	T2	T1	Inspect	Survey	Acct	Clerical						
	Rates	227.00	196.00	165.00	144.00	134.00	124.00	113.00	124.00	113.00	98.00	88.00	155.00	221.00	108.00	88.00			3.50%			
SURVEYING AND ENGINEERING DESIGN SERVICES - CONCEPTUAL ENGINEERING ASSISTANCE																						
1	Project Management and Coordination																					
1.1	Project Management (June 21, 2019 through December 31, 2019)	12															4	16	\$ 3,076	\$ 108	\$ 3,184	
1.2	Invoicing and Progress Reports	6															2	14	\$ 2,186	\$ 77	\$ 2,263	
	Subtotal Project Management and Coordination	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	\$ 5,262	\$ 184	\$ 5,446	
2	Studies and Reports																					
2.1	Review existing studies and reports	8	8		12		4											32	\$ 5,608	\$ 196	\$ 5,804	
2.2	Alternative Route Analysis (CH2M Hill and Kennedy Jenks Route)	10	24		8		20											62	\$ 10,606	\$ 371	\$ 10,977	
2.3	Recommended Route Layout and Exhibit	4	16		8		16											44	\$ 7,180	\$ 251	\$ 7,431	
2.4	Pump Station Conceptual Layout	2	4															6	\$ 1,238	\$ 43	\$ 1,281	
2.5	Construction Cost Estimate	12	16		16		8											52	\$ 9,156	\$ 320	\$ 9,476	
	Subtotal Studies and Reports	36	68	0	44	0	48	0	0	0	0	0	0	0	0	0	0	196	\$ 33,788	\$ 1,183	\$ 34,971	
TOTAL FFORT		54	68	0	44	0	48	0	0	0	0	0	0	0	0	0	6	6	226	39,050	1,367	40,417

No.	Task Description	Labor															Total Hours	Total Labor (\$)	Expenses	Total			
		E7	E6	E5	E4	E3	E2	E1	T4	T3	T2	T1	Inspect	Survey	Acct	Clerical							
	Rates	227.00	196.00	165.00	144.00	134.00	124.00	113.00	124.00	113.00	98.00	88.00	155.00	221.00	108.00	88.00			3.50%				
ENGINEERING DESIGN SERVICES - SUPPLEMENTARY SERVICES																							
3	Project Management and Coordination																						
3.1	Project Management (August 1, 2019 through December 31, 2019)	8															4	12	\$ 2,168	\$ 76	\$ 2,244		
3.2	Invoicing and Progress Reports	4															2	10	\$ 1,516	\$ 53	\$ 1,569		
	Subtotal Project Management and Coordination	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	6	\$ 3,684	\$ 129	\$ 3,813		
4	Supplementary Services																						
4.1	Recycled Water Cost Estimate - Recommended Route	4	8		8		4											24	\$ 4,124	\$ 144	\$ 4,268		
4.2	Consideration of Collection Systems to accommodate Beale AFB	Scope to be determined - MHM can provide Cost Proposal															0	\$ -	\$ -	\$ -			
4.3	Consideration of Collection Systems to accommodate Wheatland	Scope to be determined - MHM can provide Cost Proposal															0	\$ -	\$ -	\$ -			
4.4	Sewer System Overflow (SSO) Reductions	2	16															18	\$ 3,590	\$ 126	\$ 3,716		
4.5	Pump Station Oversizing Analysis and Cost Estimates	2	4															6	\$ 1,238	\$ 43	\$ 1,281		
4.6	Wastewater Treatment Plant Conceptual Study	2	8															10	\$ 2,022	\$ 71	\$ 2,093		
	Subtotal Supplementary Services	10	36	0	8	0	4	0	0	0	0	0	0	0	0	0	0	58	\$ 10,974	\$ 384	\$ 11,358		
5	Supplementary Survey Services																						
5.1	Boundary and ROW Surveys (Includes record research and boundary resolution)	Scope to be determined - MHM can provide Cost Proposal															0	\$ -	\$ -	\$ -			
5.2	Topographic Surveying and Mapping	Scope to be determined - MHM can provide Cost Proposal															0	\$ -	\$ -	\$ -			
5.3	Bathymetric Survey of Reeds and Hutchinson Creeks	Scope to be determined - MHM can provide Cost Proposal															0	\$ -	\$ -	\$ -			
5.4	Drone Aerials of Recommended Route (except in Beale no flight area)		6						16									34	\$ 5,812	\$ 203	\$ 6,015		
	Subtotal Supplementary Survey Services	0	6	0	0	0	0	0	16	0	0	0	0	0	0	0	0	34	\$ 5,812	\$ 203	\$ 6,015		
TOTAL FFORT		22	42	0	8	0	4	0	16	0	0	0	0	0	0	0	12	4	6	58	20,470	716	21,186

ATTACHMENT NO. 3
Labor Rate Schedule
MHM Incorporated

0% 2018 and 100%
2019

Fully Burdened Labor Rates		3.00%	3.00%	3.00%	3.00%			
Labor Classification		2018 Labor Rates	2019 Labor Rates	2020 Labor Rates	2021 Labor Rates	2022 Labor Rates	Avg	Weighted
E7 - Principal-in-Charge	Senior Professional - Grade 8	\$ 220.00	\$ 227.00	\$ 234.00	\$ 241.00	\$ 248.00	\$ 234.00	\$ 227.00
E6 - Project Manager	Senior Professional - Grade 7	\$ 190.00	\$ 196.00	\$ 202.00	\$ 208.00	\$ 214.00	\$ 202.00	\$ 196.00
E5 - Project Engineer / Project Surveyor	Senior Professional - Grade 6	\$ 160.00	\$ 165.00	\$ 170.00	\$ 175.00	\$ 180.00	\$ 170.00	\$ 165.00
E4 - Senior Engineer / Senior Surveyor	Senior Professional - Grade 5	\$ 140.00	\$ 144.00	\$ 148.00	\$ 152.00	\$ 157.00	\$ 148.20	\$ 144.00
E3 - Associate Engineer/ Associate Surveyor	Senior Professional - Grade 4	\$ 130.00	\$ 134.00	\$ 138.00	\$ 142.00	\$ 146.00	\$ 138.00	\$ 134.00
E2 - Assistant Engineer/ Assistant Surveyor	Senior Professional - Grade 3	\$ 120.00	\$ 124.00	\$ 128.00	\$ 132.00	\$ 136.00	\$ 128.00	\$ 124.00
E1 - Junior Engineer/ Surveyor	Staff Professional - Grade 2	\$ 110.00	\$ 113.00	\$ 116.00	\$ 119.00	\$ 123.00	\$ 116.20	\$ 113.00
T4 - Senior CADD Technician / Senior Technician	Senior CADD Drafter and Designer	\$ 120.00	\$ 124.00	\$ 128.00	\$ 132.00	\$ 136.00	\$ 128.00	\$ 124.00
T3 - Staff CADD Technician/ Associate Technician	CADD Drafter/Designer and Senior Technician	\$ 110.00	\$ 113.00	\$ 116.00	\$ 119.00	\$ 123.00	\$ 116.20	\$ 113.00
T2 - Assistant CADD Technician/ Asst. Technician	Staff Professional - Grade 1	\$ 95.00	\$ 98.00	\$ 101.00	\$ 104.00	\$ 107.00	\$ 101.00	\$ 98.00
T1 - Junior Technician	Technician, Word Processor, Administrative Staff	\$ 85.00	\$ 88.00	\$ 91.00	\$ 94.00	\$ 97.00	\$ 91.00	\$ 88.00
E4 - Resident Engineer/Lead Inspector	Senior Professional - Grade 4	\$ 150.00	\$ 155.00	\$ 160.00	\$ 165.00	\$ 170.00	\$ 160.00	\$ 155.00
T4 - Building/Construction Inspector	Building/Construction Inspector	\$ 145.00	\$ 149.00	\$ 153.00	\$ 158.00	\$ 163.00	\$ 153.60	\$ 149.00
E4 - Resident Engineer/Lead Inspector - OT	Senior Professional - Grade 4 - Overtime	\$ 165.00	\$ 170.00	\$ 175.00	\$ 180.00	\$ 185.00	\$ 175.00	\$ 170.00
T4 - Building/Construction Inspector - OT	Building/Construction Inspector - Overtime	\$ 160.00	\$ 165.00	\$ 170.00	\$ 175.00	\$ 180.00	\$ 170.00	\$ 165.00
Survey Crew - 1 Man (prevailing)	Survey Crew - 1 Man (prevailing)	\$ 178.00	\$ 183.00	\$ 188.00	\$ 194.00	\$ 200.00	\$ 188.60	\$ 183.00
Survey Crew - 2 Man (prevailing)	Survey Crew - 2 Man (prevailing)	\$ 245.00	\$ 252.00	\$ 260.00	\$ 268.00	\$ 276.00	\$ 260.20	\$ 252.00
Survey Crew - 3 Man (prevailing)	Survey Crew - 3 Man (prevailing)	\$ 355.00	\$ 366.00	\$ 377.00	\$ 388.00	\$ 400.00	\$ 377.20	\$ 366.00
Survey Crew - 1 Man (prevailing) - OT	Survey Crew - 1 Man (prevailing) - Overtime	\$ 190.00	\$ 196.00	\$ 202.00	\$ 208.00	\$ 214.00	\$ 202.00	\$ 196.00
Survey Crew - 2 Man (prevailing) - OT	Survey Crew - 2 Man (prevailing) - Overtime	\$ 285.00	\$ 294.00	\$ 303.00	\$ 312.00	\$ 321.00	\$ 303.00	\$ 294.00
Survey Crew - 2 Man (non-prevailing)	Survey Crew - 2 Man (non-prevailing)	\$ 215.00	\$ 221.00	\$ 228.00	\$ 235.00	\$ 242.00	\$ 228.20	\$ 221.00
Survey Crew - 3 Man (non-prevailing)	Survey Crew - 3 Man (non-prevailing)	\$ 290.00	\$ 299.00	\$ 308.00	\$ 317.00	\$ 327.00	\$ 308.20	\$ 299.00
Accounting	Technician, Word Processor, Administrative Staff	\$ 105.00	\$ 108.00	\$ 111.00	\$ 114.00	\$ 117.00	\$ 111.00	\$ 108.00
Clerical	Office Aide	\$ 85.00	\$ 88.00	\$ 91.00	\$ 94.00	\$ 97.00	\$ 91.00	\$ 88.00

Other Direct Costs (ODCs)

Item	Unit
<i>(Some EXAMPLES below; add others if needed:)</i>	
Vehicle Equipped with Survey Equipment	\$12.50/hr
Vehicle Equipped with GPS Survey Equipment	\$45.00/hr
Boat Equipped with GPS and Sounding Equipment	\$14.50/hr
Vehicle Equipped with Nuclear Gage Equipment	\$7.50/hr
Computer & Peripherals	\$4.60/hr
Travel Expenses/Per Diem	T&M
Vehicle Mileage	IRS Standard Rate
Photocopies	\$0.50/ea
Plotting - 20 Ib Bond	\$0.40/sq ft
Plotting - Mylar	\$6.00/sq ft
Mailings and Communication	T&M
Miscellaneous Supplies	T&M
Outside Equipment and Services	15% Markup

ATTACHMENT NO. 4
JACOBS - Engineering Services OPUD - Wastewater Route to South Yuba County
DETAILED FEE ESTIMATE

No.	Task Description	Labor															Total Hours	Total Labor (\$)	Expenses	Total
		E7	E6	E5	E4	E3	E2	E1	T5	T4	T3	T2	Inspect	Survey	Acct	Clerical				
	Rates	319.00	298.00	274.00	250.00	181.00	161.00	139.00	190.00	161.00	137.00	107.00			107.00	107.00			10.00%	
SURVEYING AND ENGINEERING DESIGN SERVICES - CONCEPTUAL ENGINEERING ASSISTANCE																				
1	Project Management and Coordination																			
1.1	Project Management (June 21, 2019 through December 31, 2019)	2													4					
1.2	Invoicing and Progress Reports																			
A.3	Progress Meetings																			
	Subtotal Project Management and Coordination	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0				
2	Studies and Reports																			
2.1	Review existing studies and reports																			
2.2	Alternative Route Analysis (CH2M Hill and Kennedy Jenks Route)																			
2.3	Recommended Route Layout and Exhibit																			
2.4	Pump Station Conceptual Layout	1		10				4	4							4				
2.5	Construction Cost Estimate			6					2											
	Subtotal Studies and Reports	1	0	16	0	0	0	4	6	0	0	0	0	0	0	4				
TOTAL FFORT		3	0	16	0	0	0	4	6	0	0	0	0	0	4	4				

No.	Task Description	Labor															Total Hours	Total Labor (\$)	Expenses	Total
		E7	E6	E5	E4	E3	E2	E1	T5	T4	T3	T2	Inspect	Survey	Acct	Clerical				
	Rates	319.00	298.00	274.00	250.00	181.00	161.00	139.00	190.00	161.00	137.00	107.00	0.00	0.00	107.00	107.00			3.50%	
ENGINEERING DESIGN SERVICES - SUPPLEMENTARY SERVICES																				
3	Project Management and Coordination																			
3.1	Project Management (August 1, 2019 through December 31, 2019)	5													8					
3.2	Invoicing and Progress Reports																			
	Subtotal Project Management and Coordination	5	0	0	0	0	0	0	0	0	0	0	0	0	8	0				
4	Supplementary Services																			
4.1	Recycled Water Cost Estimate - Recommended Route																			
4.2	Consideration of Collection Systems to accommodate Beale AFB																			
4.3	Consideration of Collection Systems to accommodate Wheatland																			
4.4	Sewer System Overflow (SSO) Reductions	11				6			4							2				
4.5	Pump Station Oversizing Analysis and Cost Estimates	3		6												2				
4.6	Wastewater Treatment Plant Conceptual Study	14		18			16		16							8				
	Subtotal Supplementary Services	28	0	24	0	6	16	0	20	0	0	0	0	0	0	12				
5	Supplementary Survey Services																			
5.1	Boundary and ROW Surveys (Includes record research and boundary resolution)																			
5.2	Topographic Surveying and Mapping																			
5.3	Bathymetric Survey of Reeds and Hutchinson Creeks																			
5.4	Drone Aerials of Recommended Route (except in Beale no flight area)																			
	Subtotal Supplementary Survey Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
TOTAL FFORT		3	0	24	0	6	16	0	20	0	0	0	0	0	8	12				

**ATTACHMENT NO. 5
Labor Rate Schedule
JACOBS**

**CH2M HILL/Jacobs
Professionals and Technicians*
2019 Hourly Billing Rates****

Classification	Rate
Principal-In-Charge/Principal Program Mana	\$319
Principal Technologist/Principal Project Ma	\$298
Sr. Technologist*/Sr. Project Manager	\$274
Engineer Specialist*/Project Manager	\$250
Project Engineer*/Associate Project Manage	\$224
Associate Engineer*	\$181
Staff Engineer 2*	\$161
Staff Engineer 1*	\$139
Engineering/Environmental Tech 5	\$190
Engineering/Environmental Tech 4	\$161
Engineering/Environmental Tech 3	\$137
Engineering/Environmental Tech 2	\$107
Engineering/Environmental Tech 1	\$93
Office/Clerical/Accounting	\$107

Notes:

* includes engineering, consulting, planner and scientist disciplines

**These rates are effective January 1, 2019 through December 31, 2019; annual increase of 3% anticipated

A markup of 7% shall be applied to all Subcontract, Travel, and Other Direct Costs

An additional \$6 per labor hour for computers and communication costs will be assessed

An additional premium of 25% will be added to the above rates for Expert Witness and Testimony Services