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May 15, 2018
Raymond Wong, Project Manager
City of Mountain View
Public Works Department
P.O. Box 7540
Mountain View, CA 94039-7540

Re: Proposal for Professional Services for Sailing Lake Dam Improvements Project

Dear Mr. Wong:

AECOM is uniquely qualified to assist the City of Mountain View Public Works Department (City) in designing a cost-effective design to retrofit the Sailing Lake Dam. We understand that the ultimate goal of this project is to deliver a design that obtains the California Division of Safety of Dams (DSOD) approval. AECOM has a proven record of delivering successful dam retrofit projects. We have close working relationships with DSOD and will develop design recommendations that align with DSOD's requirements. Our team is excited about the opportunity to team with the City on this design project.

This proposal includes the following attachments:

- Scope of work for the engineering evaluation, detailed design, and permitting tasks.
- Proposed budget.
- Preliminary schedule.

The total estimated cost for this effort is \$450,711. Please note that this estimate includes \$19,806 for permitting work that would be required to permit a remediation alternative with permanent impacts in Coast Casey Forebay (Task 10 Optional). Per Progress Report #6, the current contract for this project has \$52,973 remaining as of May 4. We also understand that the City has a \$5,000 contingency on the purchase order.

Should you have any questions, please contact "Arul" Rajendram Arulnathan at 510.874.1763 or by email at rajendram.arulnathan@aecom.com.

Sincerely,

Rajendram Arulnathan, PhD, PE, GE
Project Manager

Eric Zagol, PE
Vice President

Erik Newman, PhD, PE
Deputy Project Manager



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PROPOSED SCOPE OF WORK

May 4, 2018

PROJECT UNDERSTANDING

The approximately 15-ft high Shoreline Sailing Lake embankment dam impounds 900 acre-feet of salt water. The salt water lake is filled by waters pumped from an intake and pump station currently located along the levee between Inner Charleston Slough and the Coast Casey Detention Basin. The water from the lake is discharged through a gravity outfall into the Permanente Creek. The Shoreline Lake offers a variety of recreational activities including sailing, windsurfing, kayaking and canoeing. Landscaping along the dam consists of pine trees, shrubs, and lawns. The crest of the dam consists of an approximately 10-foot width paved pathway mainly for pedestrian usage. We understand that this pathway would serve as the primary access route for construction equipment for the South Bay Salt Ponds Project to reach the Coast Casey north levee and the West Landfill's north side. The City of Mountain View (City) is concerned that this pathway may not be able to support the anticipated heavy truck load during construction. Additionally, there is evidence of ongoing seepage at the downstream toe of the dam.

The proposed Sailing Lake embankment dam improvement project includes a retrofit of Sailing Lake Dam to meet dam safety standards, including embankment strengthening and mitigating ongoing seepage issues. The main objective of the current study is to investigate and assess the condition of the embankment, to analyze its strength and stability under the anticipated loading conditions, and to develop remedial designs as needed to meet dam safety requirements and performance criteria.

A preliminary evaluation of the dam was performed in 2017 in advance of the planned field exploration program in order to develop a preliminary construction cost estimate that the City could use for planning purposes. The results of this evaluation were summarized in a memorandum dated January 16, 2018. The scope and cost described below for the evaluation and design has been revised to account for work done in the preliminary evaluation which does not need to be redone.

TECHNICAL ISSUES

Current dam safety standards in California require that all dams perform acceptably under the Maximum Credible Earthquake (MCE) on the controlling fault zone. Sailing Lake Dam is located within about 8 miles of the San Andreas Fault zone, which is capable of producing very strong ground shaking during a major earthquake. The dam fill consists of stiff sandy clay to clayey silt and the foundation consists of alluvial deposits of sands, silt and clay.

Need for Updated Analyses: Updated stability and seismic deformation analyses are needed to establish current stability safety factors against minimum requirements, and to quantify potential crest slumping and freeboard loss due to seismic loading. The seismic loading criteria for the analysis need to be developed using current earthquake attenuation relationships and site-specific data for the shear wave velocity of the foundation geology. Additionally, rapid drawdown stability analysis would also need to be performed using an acceptable drawdown criterion.

Remedial Design Considerations: In the event that stability analyses show the dam needs strengthening and modification to meet current standards and to accommodate the traffic load, further study will be needed to identify technically feasible and economically viable remedial alternatives. The remedial alternatives would likely include various configurations of upstream and downstream buttresses

and dam crest modifications. Technical issues that will need to be evaluated as part of the remedial study include the strengths and properties of the embankment fill and foundation materials. The design requirements for imported materials, such as riprap and processed sand and gravel (filter and drain) materials, will also need to be carefully evaluated, because these types of materials have a substantial influence on earthfill dam construction costs. Additionally, the study will also develop remedial alternatives for mitigating seepage problems. Seepage remedial alternatives would likely include various configurations of seepage collection incorporated into an anticipated downstream stability berm or a slurry cutoff wall.

California Division of Safety of Dams Interaction: Based on storage and height of dam, the Sailing Lake Dam should be considered as being under the jurisdiction of the California Division of Safety of Dams (DSOD). DSOD should be notified of the dam and the proposed evaluations. Interaction with DSOD will be required at many phases of the project, including proposed investigations, establishment of earthquake ground motions, results of analyses, proposed remedial measures, review of plans and specifications, and construction. It is important to engage DSOD from the start of the project to avoid impacts to the project schedule and rework. It is our experience that close co-ordination and communication with DSOD throughout this type of project is very beneficial to project efficiency and success.

SCOPE OF WORK

The proposed scope of work for the Sailing Lake Dam improvement project is divided into a logical progression of tasks. Note that Tasks 1-5 are modified from our existing contract scope and Tasks 6-10 are new. Task 5 (Project Management) is described out of sequence at the end of this document.

TASK 1: GEOTECHNICAL INVESTIGATION

Task 1 consists of data review and field and laboratory investigations.

1.1 Data Review and Site Reconnaissance

AECOM completed a review of available data and historical information as part of the preliminary dam embankment stability evaluation described above. Site topography was available from the nearby South Bay Salt Ponds Project but no survey of existing utilities or surface features was available from the City and no bathymetry was available for the lake.

A reconnaissance-level geologic investigation will be performed by experienced field geologists to develop a geology map. This map will guide the preparation of the work plan for field investigation and help in establishing the dam footprint and abutments.

1.2 Field Investigation

A geotechnical exploration work plan will be developed by AECOM describing in detail the purpose of the proposed field explorations and the procedures to be followed by AECOM staff and subcontractors in executing the exploration program. This plan will be reviewed by DSOD and all DSOD comments will be addressed before the work begins. It is assumed that a conference call will be sufficient for this purpose.

The investigation will include up to three borings and four cone penetration tests (CPT) through the dam embankment and into foundation materials. Drilling and sampling of subsurface materials will be conducted. Piezometers for monitoring and recording groundwater levels will be installed. Representative soil samples will be obtained for laboratory testing of index and engineering properties, for characterization and analysis. AECOM will also prepare a Health and Safety Plan covering the geotechnical investigation fieldwork activities.

As part of the investigation planning process, AECOM will apply for and obtain a drilling permit from the City. AECOM will also be responsible for field-marking of the planned boring locations and contacting Underground Service Alert (USA) for underground utility clearance before the start of drilling. In addition, a private utility locator subconsultant will be hired to locate any underground utilities near the proposed exploration locations to finalize the exploration locations.

All drill cuttings from the borings will be collected in 55-gallon drums or roll-away bins and hauled offsite for disposal after screening to confirm the absence of hazardous or toxic materials. Soil samples retrieved from the borings will be carefully logged and labeled. Selected samples will be transported to a laboratory for further examination and testing.

In addition to the geotechnical field exploration, a terrestrial and bathymetric survey will be conducted to identify the location of existing utilities and other surficial features that need to be considered in the detailed design. The survey will also provide bathymetry required for hydrological analyses of the lake and to identify the geometry of the upstream slope of the dam. The terrestrial survey will be performed after the geotechnical exploration program so that the as-built locations of the borings and CPTs can be measured.

1.3 Laboratory Testing

The laboratory testing program will be refined and finalized after the soil samples have been inspected in the laboratory. Index tests will be conducted; including grain size, specific gravity, water content, density, Atterberg limits, permeability and others as appropriate. For compacted clayey embankment soils considered non-liquefiable, undrained shear-strength measurements will be conducted using consolidated undrained triaxial tests with pore pressure measurements. For sandy soils, residual shear strengths will be estimated using the results of SPT measurements and correlations with published charts.

1.4 Piezometer installation & monitoring

Standpipe piezometers using slotted PVC pipe casing will be installed in up to two of the exploratory borings. The wells will incorporate in-situ data loggers to record water levels daily. AECOM staff will travel to the site to retrieve data from the instruments monthly for up to a year after installation so that information on groundwater levels through the embankment can be incorporated into the evaluation and design.

TASK 2: ENGINEERING ANALYSES OF DAM RETROFIT

Under this task, AECOM will perform appropriate engineering analyses to assess the dam performance under both static and seismic loading conditions, and to assess seepage conditions, for existing and potential improvement conditions.

2.1 Dam Seepage and Stability Analyses

The dam seepage and stability analyses subtask will be divided into three sub-activities, as described below. The results will be incorporated into a Technical Memorandum prepared under Subtask 2.3. Material characterization was performed and a representative analysis section was developed as part of the completed preliminary analysis, but some updates will be required using the additional geotechnical data and survey information collected in Task 1. The analyses will consider existing conditions and remediated conditions.

Seepage Analysis: AECOM will prepare an analysis of subsurface seepage from the lake through and under the dam into Coast Casey Forebay. The analysis will consider normal operating levels. Two-dimensional steady state seepage analyses will be performed using the computer program SEEP/W to model the phreatic surface and pore pressures within the embankment and foundation, including calibration against the data collected from the proposed standpipe piezometers. Seepage analyses will also be carried out for the proposed retrofit alternatives to assess their relative effectiveness at controlling seepage gradients and limiting seepage.

Long-Term and Rapid Drawdown Stability: Limit-equilibrium slope stability analyses will be performed to evaluate the static and rapid-drawdown stability of the embankment slopes. The static stability analyses will be performed for long-term steady-state seepage conditions and for rapid draw down conditions. The analyses for steady-state seepage will be performed using effective strength parameters. The stability analysis of the dam will also be performed considering temporary truck load using undrained shear strengths as appropriate.

Pseudostatic Stability: Pseudostatic stability analyses will be used to estimate the yield acceleration for potential sliding surfaces. These surfaces will be used in the seismic deformation analyses, as described below. The strength parameters used in these analyses will include the undrained strengths for clays, with possible reductions due to cyclic softening where appropriate. Residual strengths will be used for cohesion less soils found to be susceptible to liquefaction.

2.2 Dam Seismic Stability

The proposed methodology for assessing the seismic performance of the dam will follow the state-of-the-practice procedures for evaluating the potential for liquefaction and earthquake-induced deformations of earthfill embankments. The analysis will include the following subtasks:

Develop Site-Specific Design Earthquake Motions: The design ground motions will be developed in two steps: 1) earthquake parameters and 2) time histories. The design earthquake parameters and MCE spectrum were developed as part of the completed preliminary analysis and will be submitted for DSOD review and concurrence before proceeding with the second step. Any comments on the response spectra will be resolved with DSOD before the acceleration time histories are developed. It is assumed that a conference call will be sufficient for this purpose.

After DSOD approval, three sets of time histories will be developed for each approved design spectrum. The time histories will represent the site-specific ground motions associated with the controlling near-field or far-field earthquake event, and will consider the magnitude, distance, and Arias Intensity. The approved time histories will be used as input motions for the dynamic response and deformation analyses described below.

Seismic Response Analyses: The response of the dam to the earthquake ground motions will be developed in this subtask. The potential for liquefaction of the embankment materials will also be evaluated. The earthquake-induced stresses in the dam will be estimated using the two-dimensional equivalent linear dynamic finite-element analysis program QUAD4MU. The representative maximum cross section of the dam will be analyzed.

Liquefaction Analyses: The liquefaction potential will be evaluated using the results of the two-dimensional dynamic response analyses and empirically based methods such as Boulanger and Idriss (2014). The dynamic response analyses will first be used to evaluate the earthquake-induced accelerations and cyclic shear stresses within the embankments. The in situ SPT measurements will be corrected for overburden pressure, hammer energy, and other factors, and then will be used to estimate the cyclic strength and liquefaction resistance. The results of these analyses will also be used to estimate the reduction in shear strength (if any) that may occur in the clayey embankment soils due to cyclic loading.

Seismic Deformation and Cracking Analyses: Permanent seismically induced deformations of the embankment slopes will be estimated using the yield acceleration concept proposed by Newmark (1965) and modified by Makdisi and Seed (1978). The dynamic response analyses will provide average seismic coefficient time histories within potential sliding masses in the upstream and downstream slopes of the embankments. The results will be used to assess the overall stability of the embankment. These analyses will be performed for both the existing dam and selected retrofit alternatives.

2.3 [Technical Memorandum on Dam Analysis Results](#)

A technical memorandum describing the engineering analyses results for the dam will be prepared and presented to the City for review and comment. This memorandum will summarize the findings in tasks 2.1 and 2.2.

2.4 [Develop PMF](#)

We will develop a probably maximum flood (PMF) based on available precipitation data and the watershed geometry. The lake's watershed will be delineated from adjacent areas based on existing lidar topographic contours. Stormwater infrastructure in adjacent residential and industrial areas will be checked to verify if flows from those areas contribute to watershed flows during a storm event. Once a watershed is established the probable maximum precipitation (PMP) estimates can be used to develop spatial and temporal characteristics of a probable maximum storm (PMS), which will then be used with a precipitation-runoff simulation model to calculate the PMF hydrograph.

2.5 [Evaluate Outlet](#)

We will evaluate the capacity of the existing outlet to Permanente Creek and use it with the PMF flow estimated in Task 2.4 to determine whether the outlet can pass the PMF without

overtopping the dam. A spreadsheet model will be developed to estimate how quickly the water can be discharged from the outlet during the PMS. Any rise in lake level would be used to design a crest raise as part of the detailed design.

2.6 Perform Dambreak Analysis

We will perform a dambreak analysis assuming catastrophic failure of the dam under sunny-day flow conditions with Coast Casey Forebay modeled as empty. A HEC-RAS model will be used to determine flood levels in Coast Casey Forebay following the failure. Should the berms forming Coast Casey Forebay be overtopped in the model options will be assessed for routing the flows to adjacent sloughs.

2.7 Technical Memorandum on Outlet Evaluation

A technical memorandum describing the engineering analyses results for the outlet evaluation will be prepared and presented to the City for review and comment. This memorandum will summarize the findings in tasks 2.4 to 2.6.

Deliverables:

- Technical Memorandum on Dam Analysis Results
- Technical Memorandum on Outlet Evaluation

TASK 3: CONCEPTUAL-LEVEL ALTERNATIVES FOR DAM RETROFIT

To kick off this task, AECOM will conduct a meeting and brainstorming session with the City of possible remedial alternatives to stabilize and retrofit the dam. The results of the investigations carried out under Task 1 and the initial analyses carried out under Task 2 will be considered along with other factors that may differentiate the possible retrofit approaches. Using subjective evaluation and engineering judgment, AECOM will identify a short list (of at least two) alternatives to remediate the dam. The short-listed alternatives will be laid out to meet dam safety standards and provide suitable performance for dual purpose recreation and short-term use of the dam crest pathway for construction operations. Once the preferred alternative has been accepted by the City, AECOM will start the retrofit design. This meeting will also serve to give the City the opportunity to weigh in on design or operation constraints before work begins on the detailed design.

TASK 4: BASIS OF DESIGN MEMORANDUM

Task 4 is to develop a basis of design for the dam retrofit design. The criteria for design of the improvements to the dam will include layout and civil design, geotechnical, seismic hazard, hydrological, operational, and construction requirements and constraints. This basis of design memorandum will incorporate the results of the brainstorming session with the City to refine the key layout, engineering, hydrological, operational, and construction criteria.

TASK 6: 50% DESIGN AND COST ESTIMATE

The objective of this task is to develop the retrofit alternative identified in the Task 3 into 50% plans and specifications. Engineering analyses will be performed with the preferred retrofit alternative to confirm the proposed alternative will provide the intended performance and meet the design criteria. 50% design construction plans and specifications defining the project site conditions and the improvements to the dam will be developed in one package to meet the design criteria. The 50% design will include the general layout and size of significant features, and important details.

A potential list of drawings and specifications are presented in Table 1. The project will use City of Mountain View Standard Provisions where applicable. The specifications will be prepared using the concise and clear Construction Specification Institute (CSI) format. A constructability review of the 50% plans and specifications will be performed prior to submission to the City to ensure clarity and completeness of the construction documents. It is assumed that the City would prepare Division 0 (General Conditions and Bid Requirements) and Division 1 (General Requirements) to complete the bid package.

Design Report: The basis of design memorandum will be updated to a design report to support the 50% design and will include a summary of the design criteria, and assumptions, procedures and calculations utilized during the design process.

Cost Estimate and Construction Schedule: A Class 3 construction cost estimate in accordance with the definition established by the Association for the Advancement of Cost Engineering International (AACE, 1997) will be prepared for the 50% design. The construction cost estimate and schedule will be documented in a separate report that will include all assumptions and support documentation associated with the detailed cost estimate.

Deliverables: 50% Plans and Specifications, Design Report, and Construction Cost Estimate: The submittal will include the 50% plans and specifications and construction cost estimate report. The submittal will be followed by a review period to get input from the City and other stakeholders that will conclude with an in-person meeting with DSOD in which clarifications can be provided, and comments can be presented, documented, and addressed. The resolution of comments will be incorporated in Task 7, 90% Design.

TASK 7: 90% DESIGN AND COST ESTIMATE

The objective of this task is to advance the 50% plans and specifications to the 90% level based on input received during the 50% design review. To properly address review comments related to the 50% submittal and incorporate those comments into the 90% design, additional engineering analyses such as revised slope stability and seismic deformation evaluations may be necessary. While it is difficult to estimate what kind of analyses or how much effort will be required, we expect that only limited engineering analysis will be required during this stage of design. The 90% design will include layout of all features and the majority of the necessary details.

The plans and specifications will be advanced to a 90% level and will be nearly ready for bidding purposes. A constructability reviews of the 90% plans and specifications will be performed prior to submission to the City to ensure clarity and completeness of the construction documents.

Design Report: The design report will be updated to support the 90% design and will include a summary of the design criteria, and assumptions, procedures and calculations utilized during the design process.

Cost Estimate: A Class 2 construction cost estimate in accordance with the definition established by the Association for the Advancement of Cost Engineering International (AACE, 1997) will be prepared for the 90% design. The construction cost estimate and schedule will be documented in a separate report that will include all assumptions and support documentation associated with the detailed cost estimate.

Deliverable: 90% Plans and Specifications, Design Report, and Cost Estimate: The submittal will include the 90% plans and specifications, design report, and construction cost estimate report. The submittal will be followed by a short review period by the City. Comments will be addressed and resolved in writing and incorporated in Task 8, 100% Design.

TASK 8: 100% DESIGN AND COST ESTIMATE

The objective of this task is to produce 100% plans and specifications addressing comments on the 90% documents. It is assumed that no additional engineering analysis will be performed during this final stage of design. The plans and specifications will be advanced to 100% level and will be considered complete for bidding purposes.

Design Report: The design report will be updated to support the 100% design and will include a summary of the design criteria, and assumptions, procedures and calculations utilized during the design process.

Cost Estimate: A Class 1 construction cost estimate in accordance with the definition established by the Association for the Advancement of Cost Engineering International (AACE, 1997) will be prepared for the 100% design for the purpose of comparison with bids. The construction cost estimate and schedule will be documented in a separate report that will include all assumptions and support documentation associated with the detailed cost estimate.

Deliverables: 100% Plans and Specifications, Design Report and Construction Cost Estimate: The submittal will include the 100% plans and specifications, design report, and construction cost estimate report. The submittal will be followed by a review period to get input from the City and other stakeholders that will conclude with a meeting via conference call with DSOD in which clarifications can be provided, and comments can be presented, documented, and addressed. The resolution of comments will be incorporated in Task 9, Final Design.

TASK 9: FINAL DESIGN AND COST ESTIMATE

The objective of this task is to produce final plans and specifications complete for bidding. It is assumed that no additional engineering analysis will be performed during this final stage of design.

Design Report: The design report will be updated to support the final design and will include a summary of the design criteria, and assumptions, procedures and calculations utilized during the design process.

Cost Estimate: The Class 1 construction cost estimate prepared for the 100% design will be updated as necessary for comparison with bids. The final construction cost estimate and schedule will be documented in a separate report that will include all assumptions and support documentation associated with the detailed cost and schedule estimate.

Deliverables: Final Plans and Specifications, Design Report and Construction Cost Estimate: The submittal will include the final plans and specifications, design report, and construction cost estimate report.

Table 1
Sailing Lake Dam Improvement Project
Sample List of Drawings

Drawing No.	Drawing Title
1	Title Sheet and Drawing Index
2	General Notes, Instructions and Abbreviations
3	Existing Conditions
4	General Arrangement
5	Plan of Improvements (Sheet 1 of 2)
6	Plan of Improvements (Sheet 2 of 2)
7	Longitudinal Profile
8	Sections and Details (Sheet 1 of 2)
9	Sections and Details (Sheet 2 of 2)

ASSUMPTIONS AND LIMITATIONS

The scope and cost estimate for Tasks 1 through 9 assume the following:

- For each review deliverable, the City will provide a single, consolidated set of comments in electronic format.
- Access to all areas of work will be provided by property owners and will be negotiated by the City.
- None of the explorations will require drilling through landfill waste.
- DSOD review will occur for the work plan, the 50% design, and the final design. Each DSOD review will take about three months, including time to respond to and address comments.
- City reviews will take about four weeks, including time to respond to and address comments. City reviews will be concurrent with DSOD reviews where applicable.
- DSOD will accept the current condition of the abandoned outlet pipe beneath the dam and will not require investigation or remediation of the pipe itself beyond the remediation work necessary for embankment stability.
- DSOD will not require evaluation of other site elements (e.g. other levees surrounding the lake) aside from the outlet and the approximately 200-foot-long embankment described in the preliminary evaluation.
- Piezometers will be installed in two borings and monitored monthly for one year.

- Once detailed design begins, the work can continue without changes to design scope.
- Detailed design will not include changes to the outlet.
- The City will prepare Division 0 (General Conditions and Bid Requirements) and Division 1 (General Requirements) specifications to complete the bid package.

TASK 10: PERMITTING

CEQA Document – Initial Study/Mitigated Negative Declaration (IS/MND)

This scope of work assumes that the necessary level of California Environmental Quality Act (CEQA) documentation for either project alternative (stability berm or insitu treatment) is an Initial Study/Mitigated Negative Declaration (IS/MND) and that the IS/MND will only analyze the potential effects of one of the alternatives.

AECOM will develop the CEQA project description. The CEQA project description for the IS/MND will include project objectives, as well as figures and tables appropriate for analyses. The project description will include the project location, the relation to existing facilities, proposed project components, and project construction details, such as methods, site preparation, construction staging, workforce, and schedule. AECOM will submit the draft CEQA project description for review by the City. Review comments on the draft CEQA project description will be incorporated into the Administrative Draft IS/MND submittal.

AECOM will prepare an Administrative Draft IS/MND for review by the City. AECOM will confirm the format and table of contents with the City prior to starting work on the environmental document. AECOM will complete the IS Checklist, providing an analysis and discussion for each impact question with supported conclusions for impact significance-level determinations. We will work with the City to develop feasible mitigation measures to address potentially significant adverse impacts.

AECOM will incorporate the comments received on the Administrative Draft IS/MND into the Screencheck Draft IS/MND. The Screencheck Draft IS/MND submittal will include a tracked changes version of the document identifying all comments on the Administrative Draft and how they were addressed.

Following City review of the Screencheck Draft IS/MND, AECOM will prepare a Public Draft IS/MND for publication. AECOM will prepare the Notice of Completion (NOC) for submittal to the State Clearinghouse and the Notice of Availability and Intent to Adopt at MND (NOA) for distribution.

Based on public comments received during the 30-day public comment period, AECOM will prepare a draft comment responses table, identifying comments that warrant potential revisions to the IS/MND, for the City's review. AECOM will prepare final responses to comments and any necessary revisions to the IS/MND. AECOM will also prepare a Draft Mitigation Monitoring and Reporting Program (MMRP) that lists the mitigation measures identified in the MND necessary to minimize or reduce significant environmental impacts to a less-than-significant level. The MMRP will identify all construction and post-construction monitoring to meet environmental and regulatory requirements.

AECOM will submit the Administrative Draft Final IS/MND and Draft MMRP for City review and comment. AECOM then will address comments received and finalize and submit the Final IS/MND and MMRP to the City. AECOM will prepare the Notice of Determination for the City to file with the County Clerk.

Deliverables

- Draft CEQA Project Description (electronic)
- Administrative Draft IS/MND and Screencheck Draft IS/MND (electronic)
- Public Draft IS/MND (electronic and up to 10 printed copies for distribution)
- Draft and Final NOA and NOC (electronic)
- Draft and Final Responses to IS/MND comments (electronic)
- Administrative Draft Final IS/MND (electronic)
- Final IS/MND (electronic and up to 10 printed copies)
- Draft and Final MMRP (electronic)

Aquatic Resource Permitting Support

Under this task, AECOM will assist the City in obtaining regulatory permits related to temporary and permanent impacts to aquatic features in the project area that would result from the project. Based on the information provided, AECOM assumes the following permits will be required:

- Clean Water Act (CWA) Section 404 Permit (United States Army Corp of Engineers [USACE])
- CWA Section 401 Water Quality Certification (San Francisco Regional Water Quality Control Board [SFRWQCB])
- Biological Opinion (United States Fish and Wildlife Service[USFWS])

To support the Section 404 permit, a Biological Assessment (BA) will be provided for the required consultation with the USFWS, in compliance with Section 7 of the federal Endangered Species Act (ESA). It is assumed the project will be able to rely on the wetland delineation for the South Bay Salt Pond Restoration Project (which included the project area), and performance of a separate wetland delineation for this project will not be required.

404 Permit

Based on preliminary project information, it is assumed that the CB wall/DSM alternative temporary impacts to jurisdictional waters of the U.S. will qualify for coverage under a USACE Nationwide Permit. In order to obtain coverage under a NWP, AECOM will prepare a Preconstruction Notification package, which will include the project location, project description, quantification of project impacts, avoidance and minimization measures, and a description of how the project complies with the conditions of Nationwide Permit, including the San Francisco District Regional Conditions.

The draft package for the selected alternative will be submitted in electronic format to the City for review. AECOM will address the City's comments and prepare a final application package for submittal

to the USACE. Up to 20 staff hours of coordination time with the USACE prior to and following application submittal are included.

It is anticipated that the stability berm alternative, which would have permanent impacts to jurisdictional wetlands, may require a Standard (Individual) Permit or Letter of Permission. Although this represents a different level of permit processing by the USACE, the level of effort for preparing information needed to complete the permit application would be similar to that for the CB wall/DSM alternative, with the exception of the potential need for a 404(b)(1) analysis and mitigation plan which are presented as separate tasks below.

Biological Assessment

AECOM will prepare a BA for species under the jurisdiction of the USFWS that have the potential to occur within the project area. This scope of work assumes the BA will only need to address the following species: salt marsh harvest mouse, California least tern, California Ridgeway's rail, and western snowy plover. The BA will evaluate potential effects of the proposed project on these species. The BA will propose measures to avoid and/or minimize take of these potentially affected species. The Draft BA will be provided to the City for review. AECOM will incorporate comments and will prepare a Final BA for submittal to USFWS by the USACE.

401 Water Quality Certification

The project will be required to obtain a Section 401 Water Quality Certification. AECOM will prepare the Section 401 application package and will submit it to the City for review. After incorporation of comments and edits, the final application package will be submitted to the SFRWQCB. Up to 20 staff hours of coordination time with the SFRWQCB prior to and following application submittal are included.

CWA 404(b)(1) Analysis– Stability Berm Alternative Only

In its evaluation of permit applications to discharge dredged or fill material into jurisdictional waters and wetlands, the USACE is required to analyze alternatives to the proposed project that achieve its purpose. The USACE must evaluate alternatives that are practicable and reasonable. In accordance with the Guidelines at 40 CFR 230.10(a), a Section 404 permit cannot be issued if a practicable alternative exists that would have less adverse impact on the aquatic ecosystem (known as the Least Environmentally Damaging Practicable Alternative [LEDPA]), provided that the LEDPA does not have other significant adverse environmental consequences to other natural ecosystem components. Practicable alternatives are those alternatives that are "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." If required by the USACE, AECOM will prepare an alternatives analysis per the 404(b)(1) Guidelines. The draft 404(b)(1) analysis will be provided to the City for review. AECOM will incorporate comments and will prepare the final 404(b)(1) analysis for submittal to the USACE.

Mitigation Plan/Agreement – Stability Berm Alternative Only

Because the stability berm alternative would have permanent impacts to aquatic features, it is assumed the USACE and SFRWQCB will require compensatory mitigation for this alternative. This mitigation plan/agreement task assumes that the City will be able to mitigate its project through the South Bay Salt Pond Restoration Project at no cost. However, up to 60 hours of staff time has been included to support

drafting of Co-op agreements/MOA's/etc. and obtaining USACE and RWQCB concurrence on the proposed mitigation.

Deliverables

- Draft and Final Pre-Construction Notification for Nationwide Permit (electronic and two final hardcopies) for CB wall/DSM alternative; or Draft and Final Standard Permit or Letter of Permission application package (electronic and two final hardcopies) for the stability berm alternative
- Draft and Final Biological Assessment (electronic and two final hardcopies)
- Draft and Final 401 Water Quality Certification application package (electronic and two final hardcopies)
- Mitigation plan (submitted as part of permit applications) (for stability berm alternative only)
- Draft and Final CWA 404(b)(1) alternatives analysis (electronic and two final hardcopies) (for stability berm alternative only)

Assumptions and Limitations

The scope and cost estimate for Task 10 assumes the following:

- For each review deliverable, the City will provide a single, consolidated set of comments in electronic format.
- Access to all areas of work will be provided by property owners and will be negotiated by the City.
- One site visit will be conducted by an AECOM environmental planner, biologist, and archaeologist to collect data for the IS/MND, permit applications, and the BA.
- A stable project description will be available prior to commencing the draft IS/MND analysis.
- No standalone technical studies for specific resource topics will be required to support the IS/MND.
- Minimal public comments (i.e., fewer than 25 individual (distinctive) comments) will be submitted on the Public Draft IS/MND, and that the responses to comments will require no new field surveys or extensive data-gathering.
- The City will be responsible for compliance with AB52 as part of the CEQA process.
- No public meetings will be held on the IS/MND.

- All filing/permit application fees and legal advertisements will be paid directly by the City.
- The permit applications will be submitted once the design has advanced to an adequate stage to produce sufficient information to assess permit impacts.
- The project will be able to rely on the wetland delineation for the South Bay Salt Pond Restoration Project, and performance of a separate wetland delineation for this project will not be required. No in-water work in Sailing Lake will occur.
- The insitu treatment alternative qualifies for Clean Water Act, Section 404 NWP and will only have temporary impacts to jurisdictional waters that will not require mitigation.
- The 404(b)(1) analysis for the stability berm can be scaled relative to the size of the proposed project and will not require more than 80 hours of staff time, including coordination with the USACE.
- The BA will only address the following species: salt marsh harvest mouse, California least tern, California Ridgeway's rail, and western snowy plover. No mitigation or compensation plan is required to support the Section 7 consultation process for the project.
- The project would obtain a "no effect" or a "may affect, but not likely to adversely affect" determination from USFWS. No in person meetings with USFWS in Sacramento will be needed.
- No species under the jurisdiction of the National Marine Fisheries Service (NMFS) occur at the project sites or will be affected by the project; therefore, Section 7 consultation with NMFS will not be necessary.
- The BA will be prepared using existing information and data collected during one reconnaissance-level survey. No additional survey work, including protocol-level wildlife or botanical surveys, will be required.
- Neither an Incidental Take Permit (ITP) (Section 2081) nor a consistency determination (Section 2080.1) from California Department of Fish and Wildlife will be required.
- A Lake or Streambed Alteration Agreement from California Department of Fish and Wildlife will not be required.
- The project will be outside the jurisdiction of and will not require a permit from the San Francisco Bay Conservation and Development Commission.

TASK 5: PROJECT MANAGMENT

Our project manager is responsible for ensuring that the communication and coordination necessary for successful project management are accomplished on both personal and institutional levels. The project manager is responsible for staffing, schedule and budget tracking, and quality control. This task also includes client meetings (up to four meetings are assumed) and DSOD interaction.

The project budget will be tracked using the AECOM in-house accounting system. The finalized task list (scope) will be entered into the project management system, accessible to all AECOM staff. The accounting system records personnel hours and other direct costs for each task on a weekly basis, using real time accounting data. Monthly subcontractor invoices will provide data on their labor and other direct charges for each task and will also be entered into the accounting system.

The quality assurance/quality control procedures will follow standard AECOM corporate policies per out ISO 9001 certification. As part of the QA/QC process, a Project Management Plan will be developed upon project initiation and updated, as necessary. The Project Management Plan describes how the flow of information takes place for the project, including a description of the different types of documents used on the project (incoming and outgoing correspondence, meeting minutes, internal and external memoranda, project reports, project deliverables, transmittals, etc.), the required number of copies of each document, the routing and routing sequence to project staff and the project organization, document control procedures and requirements, and project filing system structure.

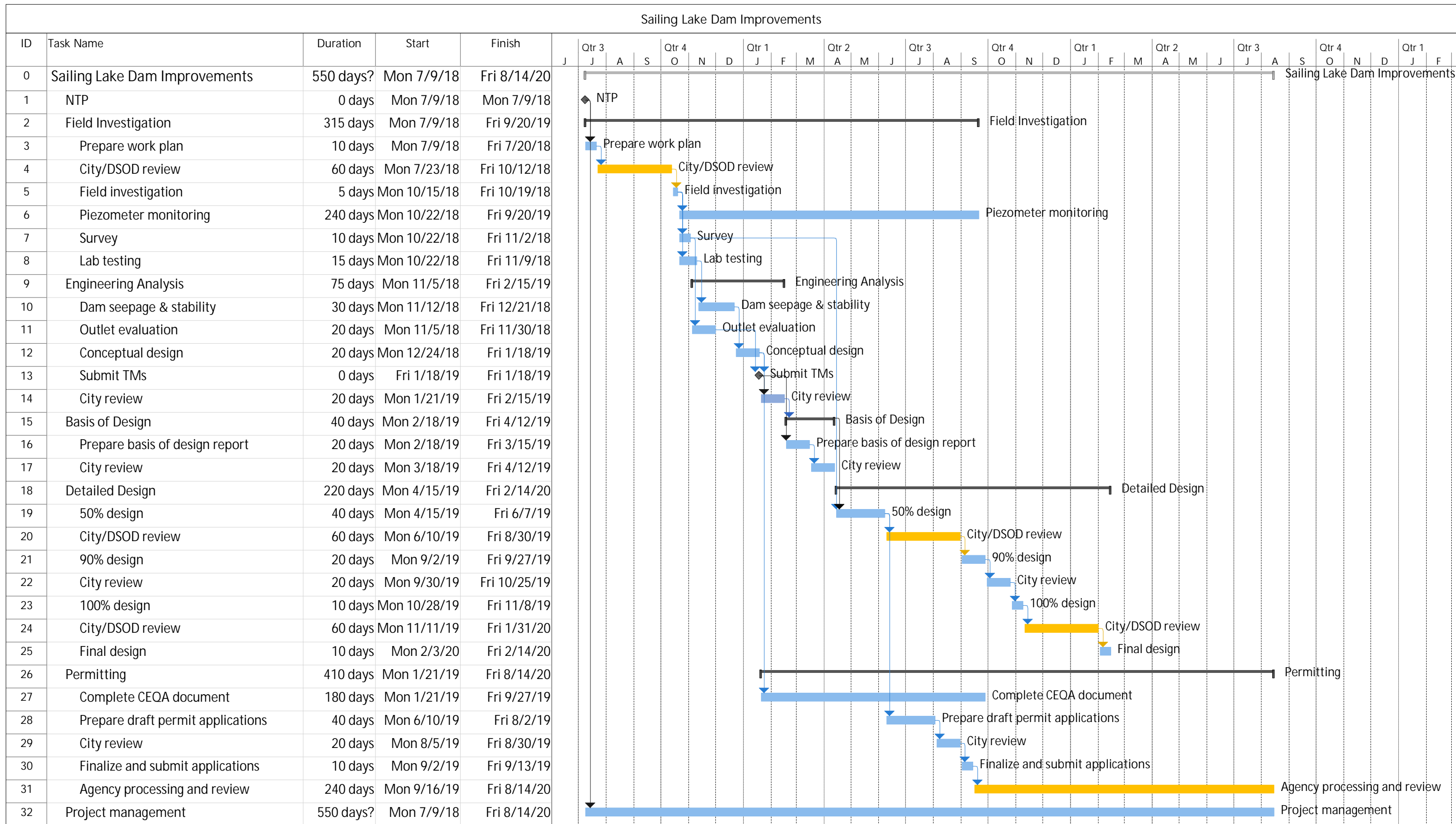
In addition to implementing the Project Management Plan, an independent quality assurance audit will be conducted on our work at least once per year. This audit is conducted by AECOM corporate personnel and is conducted to ensure that the quality control program is being conducted in accordance with the Project Management Plan at no charge to the client.

PROPOSED BUDGET

		Project Manager	QA/QC Officer	Senior Project Manager	Lead Planner/Scientist/Estimator	Senior Project Professional	Project Professional	Professional	Project Admin	URS Labor Hours	URS Labor Cost	URS ODCs	Subcontractors and Vendors	Total Task Cost	
Task Number	Task Description	Billing Rate (\$)	\$195.00	\$208.00	\$208.00	\$170.00	\$143.00	\$117.00	\$104.00	\$93.60	(#)	(\$)	(\$)	(\$)	(\$)
Task 1	Field Geotechnical Investigations	6	0	4	28	36	68	68	0	210	\$ 26,938	\$ 2,110	\$ 62,001	\$ 91,049	
1.1	Data Review and Site Reconnaissance				8	8				16	\$ 2,504	\$ 100	\$ -	\$ 2,604	
1.2	Field Investigation	4		4		4	34	38		84	\$ 10,114	\$ 500	\$ 52,081	\$ 62,695	
1.3	Laboratory Testing						4			4	\$ 468	\$ -	\$ 8,530	\$ 8,998	
1.4	Piezometer installation & monitoring	2			20	24	30	30		106	\$ 13,852	\$ 1,510	\$ 1,390	\$ 16,752	
Task 2	Engineering Analyses of Dam Retrofit	22	13	36	0	60	160	64	0	355	\$ 48,438	\$ 100	\$ -	\$ 48,538	
2.1	Dam Seepage and Stability Analysis	2					12	24		38	\$ 4,290	\$ -	\$ -	\$ 4,290	
2.2	Dam Seismic Stability	2	1	4		16	16	40		79	\$ 9,750	\$ -	\$ -	\$ 9,750	
2.3	Technical Memorandum on Dam Analysis Results	4	8	4		8	16			40	\$ 6,292	\$ 50	\$ -	\$ 6,342	
2.4	Develop PMF	4		10		24	20			58	\$ 8,632	\$ -	\$ -	\$ 8,632	
2.5	Evaluate outlet	2		4			16			22	\$ 3,094	\$ -	\$ -	\$ 3,094	
2.6	Dambreak analysis	4		10		12	40			66	\$ 9,256	\$ -	\$ -	\$ 9,256	
2.7	Technical Memorandum on Outlet Evaluation	4	4	4			40			52	\$ 7,124	\$ 50	\$ -	\$ 7,174	
Task 3	Conceptual-Level Alternatives for Dam Retrofit	12	0	28	0	8	0	0	0	48	\$ 9,308	\$ 50	\$ -	\$ 9,358	
Task 4	Basis of Design Memorandum	6	5	10	0	60	32	8	0	121	\$ 17,446	\$ -	\$ -	\$ 17,446	
Task 6	50% Design and Cost Estimate	28	20	84	40	62	92	140	0	466	\$ 68,082	\$ 100	\$ -	\$ 68,182	
Task 7	90% Design and Cost Estimate	6	7	18	40	8	32	40	0	151	\$ 22,218	\$ -	\$ -	\$ 22,218	
Task 8	100% Design and Construction Cost Estimate	6	6	14	20	8	12	36	0	102	\$ 15,022	\$ -	\$ -	\$ 15,022	
Task 9	Final Design and Construction Cost Estimate	4	3	4	16	4	8	16	0	55	\$ 8,128	\$ 100	\$ -	\$ 8,228	
Task 10	CEQA Document and Permitting	10	16	128	128	80	334	154	0	850	\$ 120,196	\$ 500	\$ -	\$ 120,696	
Task 10 Optional	Additional Permitting for Permanent Impacts	2	0	22	0	16	106	0	0	146	\$ 19,656	\$ 150	\$ -	\$ 19,806	
Task 5	Project Management	64	4	38	16	16	0	0	40	178	\$ 29,968	\$ 200	\$ -	\$ 30,168	
	TOTAL	166	74	386	288	358	844	526	40	2682	\$ 385,400	\$ 3,310	\$ 62,001	\$ 450,711	

PRELIMINARY SCHEDULE

Sailing Lake Dam Improvements



Project: Sailing Lake Dam Improv
Date: Fri 5/4/18

Manual schedule █ Task ◆ Milestone ▬ Summary ▬ Project Summary ▬