EAST BAY
MUNICIPAL UTILITY DISTRICT

September 12, 2023

ADDENDUM 1

TO PROSPECTIVE PROPOSERS UNDER RFP NO. 23-557-02, "WALNUT CREEK WATER TREATMENT PLANT PRETREATMENT PROJECT DESIGN SERVICES"

1. Notice is hereby given that RFP NO. 23-557-02 of the East Bay Municipal Utility District has been revised as follows:

   A. Replace RFP No. 23-557-02 main body "Statement of Work" in its entirety with the attached "Statement of Work", dated 09/12/23.

   B. On page 20 of the main RFP No. 23-557-02 body, Calendar of Events, add the following sentence after "Note: All dates are subject to change by District.":

      "Proposers who propose on only Contract #4 for Third-Party Review Services are not required to attend the mandatory site walk."

   C. On page 25 of main RFP No. 23-557-02 body, Evaluation Criteria, E. Presentation and Interview, replace sentence with:

      "A consultant team of no more than **5** individuals (Project Manager, Project Engineer, Technical Leads) are required to give a presentation and respond to the Selection Committee's questions regarding their approach, experience, and their specific RFP response."

   D. Replace "EXHIBIT A – RFP RESPONSE PACKET" in its entirety with the attached "EXHIBIT A – RFP RESPONSE PACKET," dated 09/12/23

   E. Add "EXHIBIT E – DESIGN DIVISION PROJECT PROCEDURES MANUAL" with the attached "EXHIBIT E – DESIGN DIVISION PROJECT PROCEDURES MANUAL", dated 09/12/23.

2. Pre-Proposal Questions & Answers:

   1. **Q:** Will the RFP site walk sign-in sheet be posted online?
      A: No, but the sign-in sheet is available upon request.

   2. **Q:** Clarify the use of 11"x17" pages in the proposal. Can 11"x17" pages be used in sections of the proposal that do not specify or require them?
      A: Where not specified (e.g. Sections 7, 8, and 11 of RFP Response Packet), use of an 11"x17" page may be substituted for two 8.5"x11" pages.

3. **Q:** For Exhibit A – RFP Response Packet, page 5, Proposal Form – the form cannot accommodate all the subconsultants on the team. How should this information be handled?
   A: The Proposal Form on page 5 of Exhibit A is provided as an example table and is for reference only. The Proposer can develop their own level of effort table as long as it provides the information requested and adheres to the limit of (4) 11"x17" pages.

4. **Q:** For Exhibit A – RFP Response Packet, page 7, Section 11 Sample Drawings - can the sample drawings be submitted as a separate volume from the main proposal?
   A: Yes, the sample drawings may be submitted as a separate volume from the main proposal.

5. **Q:** Does the project involve permitting actions with the Bay Area Air Quality Management District (BAAQMD) and if so, is it the consultant's responsibility to handle BAAQMD permitting as part of this contract?
   A: Yes, as part of the detailed design contract, it is the consultant's responsibility to handle BAAQMD permitting in collaboration with District forces. This includes BAAQMD permitting for an ozone generation plant and associated facilities, as well as any generators or other equipment that may be installed.

6. **Q:** RFP main body, page 16, states "For the proposal, provide a level of effort estimate and approach to Contracts #2 and #3 Tasks." Can you confirm the intent is to provide a detailed level of effort and approach for Contracts #2 and #3 with this proposal? If so, can you provide some assumptions for the basis of that effort?
   A: Level of effort estimates for Contracts #2 and #3 are not required with the proposal. Refer to revised Statement of Work referenced above in 1.A.

7. **Q:** Can you provide more detail on the interview including duration for presentation, duration for questions, AV equipment available, and AV equipment we are/are not allowed to bring?
   A: Total interview duration will be 1 hour, with 20 minutes allocated for a presentation including any set-up time, followed by 40 minutes for questions. The interview will take place in a District conference room with HDMI access to a large display. The Proposer is responsible for providing their own laptop, adapter(s), charger, or other equipment needed to connect to the display. Internet access is not guaranteed, and acceptable presentation material is limited to a slide deck (e.g. PowerPoint, Google Slides, Prezi).

8. **Q:** When will the WCWTP Pretreatment Draft Environmental Impact Report be published for public review?
   A: The draft EIR is scheduled for publication on September 28, 2023. Proposers can also refer to the update provided to the EBMUD Planning Committee on September 12, 2023 at the following link: 09122023_planning_presentations.pdf (ebmud.com)

ACKNOWLEDGMENT OF RECEIPT OF THIS ADDENDUM SHALL BE INDICATED BY INSERTING THE ADDENDUM NUMBER AND ITS DATE ON THE FORM LABELED "PROPOSER INFORMATION AND ACCEPTANCE" IN EXHIBIT A.

SARAH PLUMMER, PE
ASSOCIATE CIVIL ENGINEER

sfp RFP NO. 23-557-02

I. STATEMENT OF WORK

A. PURPOSE

The East Bay Municipal Utility District (EBMUD or District) supplies high-quality drinking water to 1.4 million customers in the San Francisco Bay Area. The District's Walnut Creek Water Treatment Plant (WCWTP) is a 115 million-gallon-per-day (MGD) facility located in Walnut Creek, CA. The WCWTP Pretreatment Project (Project) will add treatment processes to the WCWTP, including ballasted flocculation, ozone, solids handling, and supporting electrical power and maintenance facilities.

It is the intent of these specifications, terms, and conditions to request proposals for consultant services for the Project. Given the size, complexity, and length of the overall schedule required to complete the Project, EBMUD plans to take a phased approach by negotiating and issuing four separate consultant contracts as shown in Table A.

Table A: Overview of Consultant Contracts

	Contract	Deliverables	Estimated Award Date	Approximate Duration
Design Services	Contract #1: Pre-Design	Technical Memoranda, pre-design up to 30% drawings, 30% construction cost estimate and schedule.	Fall 2023	Fall 2023 – Summer 2025
	Contract #2: Detailed Design (future)	Bid documents (100% drawings and specifications), construction cost estimate, bid phase support. Detailed scope based on results of Contract #1.	Fall 2025	Fall 2025 – Summer 2027
	Contract #3: ESDC (future)	Construction support and O&M documentation.	Fall 2027	Fall 2027 – end of construction (TBD)
Third-Party Review	Contract #4: Third-Party Review Services (separate from Contracts #1 - #3)	10%, 30%, 50%, and 90% design technical review and constructability review.	Fall 2023	Fall 2023 – Summer 2027

After RFP proposals evaluation, EBMUD will select and retain the services of a consultant or team of consultants that it deems best qualified to support the Project. EBMUD will negotiate with the selected consultant or team of consultants to finalize a detailed scope of work and budget for Contract #1 to complete the pre-design for the Project. In addition, the District will negotiate and select a separate consultant or team of consultants for Contract #4 to provide third-party review services for the Project.

Proposers may submit proposals for either the design services contracts or third-party review contract, or both the design and third-party review services contracts, but the contracts for design and third-party review services will be awarded to separate consultants.

EBMUD anticipates that Contracts #2 and #3 will be negotiated and awarded in the future. The details of these future contracts will be based on the pre-design work in Contract #1, which will provide EBMUD information to assess the full design scope of the Project. Table A shows the anticipated schedule for Contracts #2 and #3.

EBMUD intends to retain the same consultant throughout Contracts #1, #2, and #3 of the Project to provide continuity. However, EBMUD retains the option of negotiating contracts with a different consultant for Contracts #2 and #3 contingent upon EBMUD's needs for the Project. EBMUD may issue multiple contracts with varying scope to multiple proposers depending on the needs of the Project and experience of proposers.

B. BACKGROUND

The WCWTP is located at 2201 Larkey Lane in Walnut Creek, CA. It was originally constructed in 1967 to treat Sierra Mountain snowmelt water stored in Pardee Reservoir and conveyed to the EBMUD service area by the Mokelumne Aqueducts. Where the Mokelumne Aqueducts connect to the WCWTP, the WCWTP has separate north and south treatment trains. Each treatment train includes a raw water pipeline, pH adjustment, rapid mix, and dual-media filters. The north and south trains flow into a combined filtered effluent pipeline, then into a 4 million-gallon (MG) chlorine contact chamber and a 16 MG clearwell. The WCWTP also has a spent filter backwash water reclaim system and a solids storage basin. The WCWTP is permitted for 115 MGD and primarily serves the District's East-of-Hills area, with emergency interties to neighboring water agencies. In recent years, source water quality has periodically degraded due to fires in the watershed, high-intensity storms, algae blooms, and utilization of drought water supplies. The WCWTP has limited ability to treat incoming source waters that can contain high levels of sediments, organic compounds, and other pollutants.

The Project will construct new pretreatment facilities that will remove sediments, organics, and pollutants in the source water and ensure reliable drinking production under a wide range of source water conditions. **Figure 1** shows the location and approximate footprint of the proposed pretreatment facilities and ancillary improvements at the WCWTP site. Construction will be completed in two phases. Phase 1 will upgrade one treatment train, adding 80 MGD of pretreatment capacity and increasing total WCWTP capacity to 125 MGD. Phase 2 will upgrade the second treatment train for a total pretreatment capacity of 160 MGD and is a future construction phase that will be scheduled as needed to supply service area demands. **Figure 2** is a schematic that shows the planned treatment process upgrades.

Construction of new Project facilities will impact the hydraulics of the WCWTP and, as a result, require raising of the weirs at the Lafayette WTP as part of the Phase 1 upgrades. The District completed a preliminary hydraulic analysis and design for the Lafayette No. 1 and No. 2 weirs, which includes construction of a new Lafayette No. 1 weir and raising of Lafayette No. 2 weir. **Figure 3** shows the location, approximate footprint, and site plan of the proposed Lafayette No. 1 and 2 weir modifications at the Lafayette WTP.

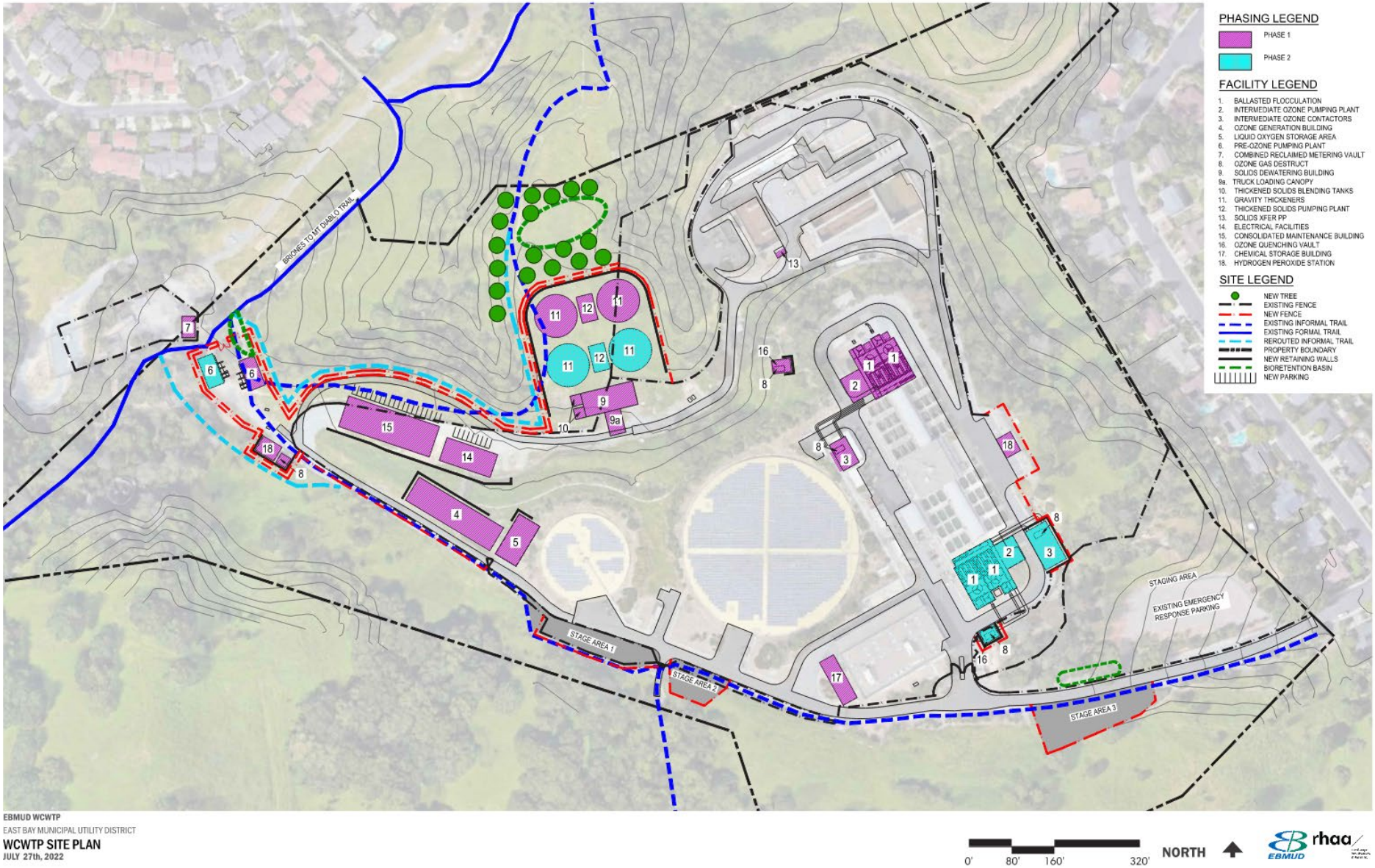

Figure 1: Walnut Creek WTP Pretreatment Site Plan – Location and Phasing of Proposed Facilities

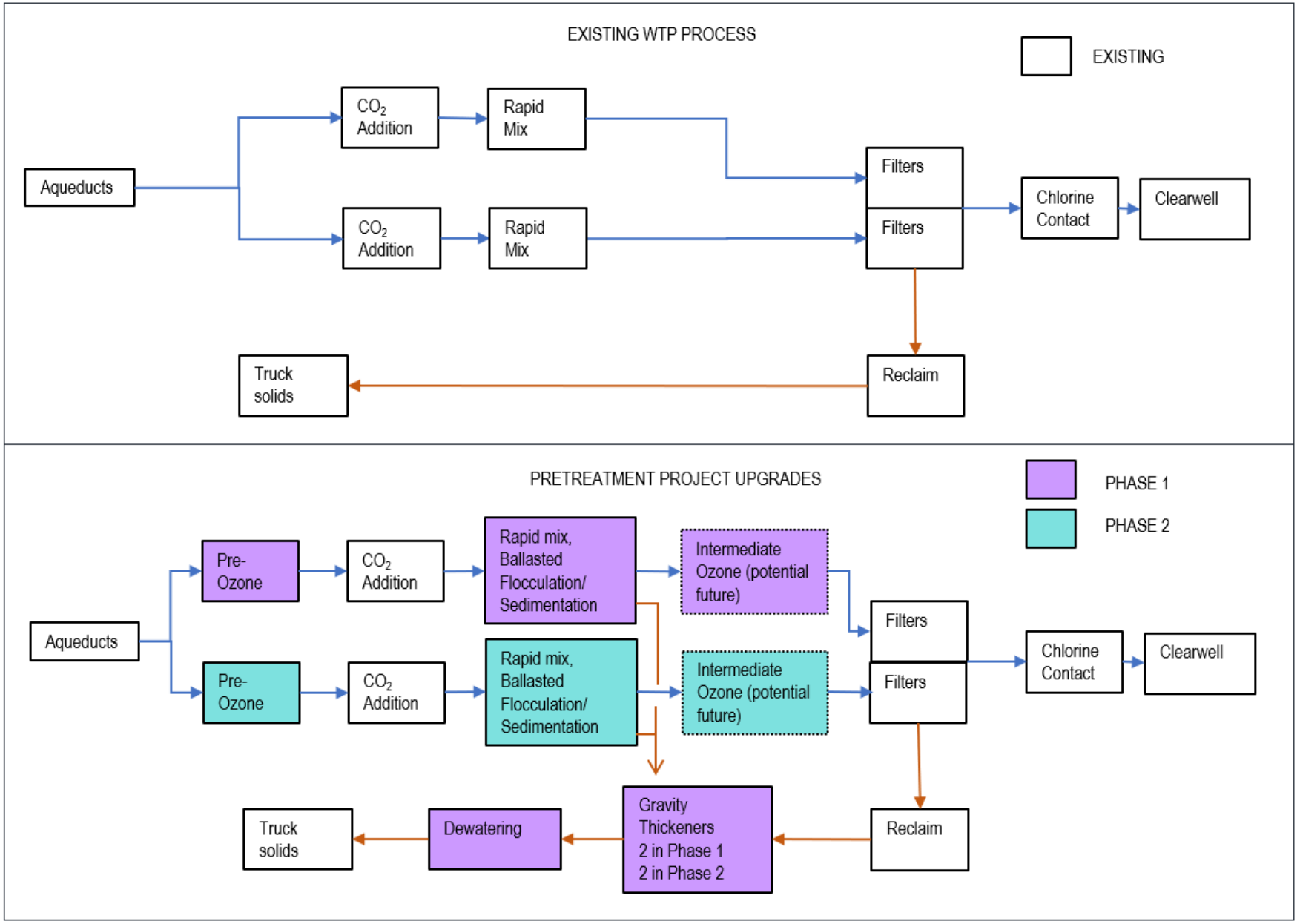

Figure 2: Walnut Creek WTP Process Schematic, Existing and with Proposed Pretreatment Upgrades Phase 1 and 2.

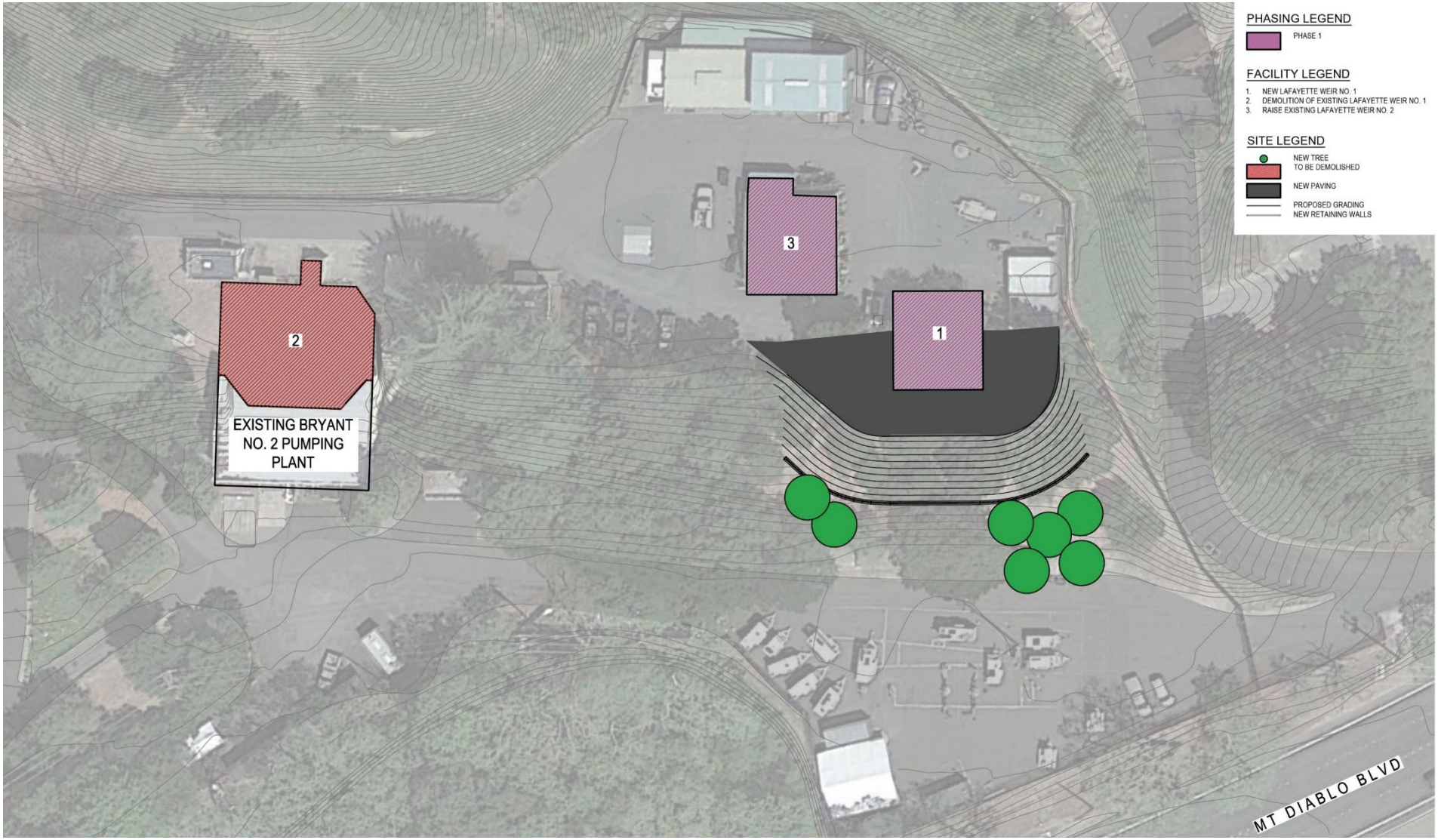

Figure 3: Proposed Lafayette WTP Weir No. 1 and No. 2 Modifications

C. OVERVIEW OF TASKS

This section provides a summary of main tasks and deliverables. For details, refer to Section E Scope of Work.

1. **Contract #1, Pre-Design**

Develop Technical Memoranda: Review and update EBMUD's existing draft WCWTP Basis of Design Report (BODR) along with previous technical reports and planning studies and develop comprehensive design criteria for the following Project elements:

a) Power system upgrades: primary, standby, distribution, and emergency facilities
b) Ozone system: injection system, generators, liquid oxygen (LOX) storage facilities, architectural layouts
c) Dewatering building: centrifuges, dewatered solids handling, polymer system, architectural layout
d) Process chemical upgrades
e) Landscaping, grading, and drainage
f) Traffic control

Produce 10% and 30% deliverables for Phase 1 of the Project. Drawings will incorporate space planning and process connections for future Phase 2 facilities. In addition to producing drawings, prepare a detailed scope, budget, and schedule for final design and construction of the Phase 1 improvements. Refer to Exhibit E for a detailed summary of District standards and deliverables at each milestone.

Phase 1 Improvements include the following and are shown in **purple** on Figure 1.

a) Two gravity thickeners
b) Thickened solids pumping plant
c) Solids blending tanks
d) Dewatering building and truck loading facility
e) Combined reclaim control vault
f) Electrical power facilities, including unit substation, plant backup generator, and fuel storage.
g) LOX storage
h) Ozone generation facility
i) North pre-ozone sidestream injection pumping plant (PP)[1]
j) North intermediate ozone sidestream injection pumping plant[1]

[1]District will be conducting pilot testing of pre-ozone and intermediate ozone concurrently with Contract #1 Pre-Design. Incorporation of intermediate ozone under Phase 1 detailed design to be determined using pilot testing results in Summer 2025.

k) North intermediate ozone contactor[1]
l) North ozone destruct facilities
m) North ballasted flocculation basins
n) Chemical storage and feed systems
o) Consolidated maintenance building
p) Large diameter underground pipelines (not shown on figures)

Phase 2 Improvements include the following and are shown in **teal** on Figure 1.

q) Two gravity thickeners
r) Thickened solids pumping plant
s) Large diameter buried pipelines (not shown on figures)
t) South pre-ozone sidestream injection pumping plant[2]
u) South intermediate ozone sidestream injection pumping plant[2]
v) South intermediate ozone contactor[2]
w) South ballasted flocculation basins
x) South ozone destruct facilities

An overview of the WCWTP existing processes as well as Phase 1 and Phase 2 process improvements is shown in Figure 2.

Hydraulic Analysis and BODR for Lafayette Weir Modifications: Review the preliminary hydraulic analysis and design completed by District staff, perform an independent hydraulic analysis, and develop a hydraulic model for the WCWTP to the Lafayette No. 1 and No. 2 weirs. Investigate the hydraulic impacts of new pretreatment facilities on Walnut Creek WTP, as well as the impacts of future aqueduct relining, currently being designed by the District and provide a Technical Memorandum (TM) with design criteria for the detailed design for the Lafayette No. 1 and No. 2 weir modifications.

Optional Contract #1 Tasks

- *Lidar Scan:* provide lidar scan of the WCWTP including the existing filter plant and reclaim facilities, as well as proposed locations for pretreatment facilities, consolidated maintenance building, and new solids dewatering facilities.

- *Pilot Study Support:* provide guidance to EBMUD piloting efforts to optimize ballasted flocculation and ozone with filtration and reclaim processes.

2. **Contract #2, Detailed Design (future, not included in this RFP)**

[2] District will be conducting pilot testing of pre-ozone vs. intermediate ozone concurrently with Contract #1 Pre-Design. Space planning and process connections for Phase 2 ozone to be completed only.

Prepare 50%, 90% and final drawings, specifications, cost estimate, and construction schedule for Phase 1 improvements. Support the bid and award process.

3. **Contract #3, Engineering Services During Construction (ESDC) for Construction of Phase 1 Improvements (future, not included in this RFP)**
   Provide ESDC including review of shop drawings and submittals, assistance with review of construction change orders and claims, review of Requests for Information (RFIs) and design change requests, and assistance with as-built record drawings.

4. **Contract #4, Third-Party Review Services (to be awarded to separate Consultant from Contract #1)**
   Serve as Owner's Engineer for EBMUD on the Project, which will be designed by a separate consultant or consultants under Contracts #1 and #2. Attend design progress meetings and workshops and review design packages, including the 10%, 30%, 50%, and 90% design submittals. Conduct construction cost and constructability review and facilitate review workshops after completion of each design milestone. No third-party review services to be provided during ESDC.

D. PROPOSER QUALIFICATIONS

1. Proposer Minimum Qualifications

   The proposed key team members shall meet the following qualifications:

   a. Shall have designed at least two (2) ballasted flocculation (e.g., Actiflo) systems greater than 30 MGD in the last ten (10) years.

   b. Shall have designed at least two (2) sidestream ozone injection systems for water treatment plants greater than 30 MGD in the last ten (10) years.

   c. Shall have designed at least two (2) mechanical dewatering systems for water treatment plants greater than 30 MGD in the last ten (10) years.

   d. Shall have experience with process evaluation and facilities planning for retrofits of at least two (2) water treatment plants greater than 30 MGD.

   e. Shall have experience with electrical, power, and control systems design for at least two (2) water treatment plants in the last ten (10) years.

f. Shall have designed at least two (2) water treatment plant retrofit projects using Building Information Modeling (BIM) software.

g. Shall possess all permits, licenses, and professional credentials necessary to perform services as specified under this RFP.

E. SCOPE OF WORK

Common Standards for Deliverables

0.1 Drawings

All drawings produced for the District will be compatible with MicroStation V8 – V8i Edition (version 8.11). All new drawing numbers and Piping and Instrumentation Diagrams (P&ID) device tagging will follow the District's Engineering Standard Practices. Project drawings will be stored on a BIM collaboration platform server, as described in Task 2.

0.2 3D Models

3D design deliverables shall use the following 3D BIM Platforms

(a) Process Mechanical – Plant 3D
(b) Building Mechanical HVAC & Plumbing – Revit MEP 2023
(c) Structural – Revit Structural 2023
(d) Architectural – Revit Architecture 2023
(e) Civil Paving, grading, and drainage – Civil 3D 2023
(f) Civil Yard Piping/Trenches – Civil 3D 2023
(g) Electrical general sheets – AutoCAD 2023
(h) Electrical power, control, lighting, and receptacle plans – Revit MEP 2023
(i) Electrical single line diagrams and conduit schedules – AutoCAD Electrical
(j) Instrumentation and control, P&IDs – AutoCAD Plant 3D
(k) Design review and clash detection – Navisworks Manage 2023
(l) The 3D models shall be delivered as Revit (.rvt) or AutoCAD (.dwg) models as appropriate for each specified platform. CAD/BIM Standards and templates shall be provided by the consultant
(m) Design documents shall be delivered as 2D AutoCAD and PDF exports

0.3 Design Reviews

Design reviews for drawings shall be conducted via a Bluebeam Studio session. District reviewer comments will be submitted in Bluebeam and via email and spreadsheet, and the consultant shall create a final compilation of comments and responses in Excel spreadsheet format. PDFs of draft and final design review documents shall be stored on the BIM collaboration platform server. For review meetings that use 3D model presentations and live model walk-throughs, the consultant shall record verbal and written comments and incorporate them into the review documents.

0.4 Written Reports

For each report, assume one draft and one final version, with a minimum 4-week duration for District comments on the draft. Reviews shall be conducted using both Bluebeam Studio and MS Word. Final reports shall be submitted in MS Word, latest version, and PDF.

0.5 Specifications (Future Contracts #2 and #3)

(a) The District will upload current Master Specs to the Project folder. The District uses Construction Specifications Institute (CSI) MasterFormat 2004. All specifications will be in this format. The final specifications will be submitted in both Adobe Acrobat and in Microsoft Word formats.

(b) The District's Master Specifications will be submitted to the consultant in MS Word format to use as the base specifications for preparing the Project's specifications. The consultant shall use the "Track Changes" feature in the MS Word when making changes to the District Master Specifications.

Contract #1, Task 1 – Project Management

The consultant will provide a sufficient and well-organized project administration team to manage the Project throughout the entire period of the Contract consistent with the principles of the Project Management Institute.

Task 1.1 – Project Management Plan

The consultant will develop and implement a Project Management Plan (PMP) detailing the manner in which the Project will be planned, managed and executed. The PMP will be updated as necessary to reflect changes in the Project, and all revisions must be submitted to the District for review and comment. As a minimum, the PMP will be reviewed and updated at the initiation of a new phase of Project delivery.

Task 1.2 – Project Kick-off Meeting

Upon completion of the PMP, the consultant will facilitate a meeting with the District to review the PMP including discussion of the planned roles and responsibilities, Project scope, schedule, budget, Project controls processes, deliverables, and workshops. The purpose of the meeting is to create alignment among the key project stakeholders on the Project delivery plan, goals, objectives, expectations of all stakeholders, and measurements of success.

Task 1.3 – Progress Reports and Meetings

The consultant will conduct bi-weekly progress meetings and major milestone meetings with District staff. Meetings will include a review of progress; discussion of items requiring feedback; list of outstanding issues requiring resolution; status of scope, schedule and budget; and review of risks. Meetings will be managed by the consultant. In addition, the consultant will conduct weekly teleconference calls to update the District on work

performed, effort planned for the following week, and all issues that may affect scheduled delivery dates and costs.

The consultant will prepare and submit monthly progress reports. The monthly reports will be clear and concise to facilitate quick understanding of key Project achievements, statuses, and critical issues. The monthly progress reports will include:

(1) An assessment of actual versus planned progress in completing the Scope of Services, including a description of the tasks and deliverables completed to date.
(2) For each task, the percentage of services performed versus the percentage of fees incurred for such task, and explanation of any significant variances in percentage of services performed compared to percentage of fees incurred.
(3) For each task, the percentage of the fees incurred for such task compared to dollar amount allocated to such task.
(4) A look-ahead schedule listing deliverables and activities planned for the next month.
(5) A summary of proposed changes to the Scope of Services including justifications for such changes.
(6) Action Item and Decision Log: This log will document action items and Project concerns and issues throughout the Agreement duration which require resolution by District and/or the consultant.

Task 1.4 – Monthly Invoices

The consultant will prepare a monthly invoice which includes a full accounting of all staff, number of hours, loaded hourly rate, subconsultants and other direct costs organized by individual scope.

Task 1.5 – Deliverables

The consultant will provide the following deliverables:

1. Project Management Plan
2. Web-based Project Management System
3. Quality Management Plan
4. Meeting Agendas and Minutes – The consultant will provide the agenda for all the meetings at least two (2) business days prior to the meetings and the meeting minutes within three (3) business days after the meetings. The minutes will focus on decisions made and open action items.
5. Monthly progress reports
6. Monthly invoices

Contract #1, Task 2 – Document Review and Management

Task 2.1 – Document Review

The consultant will review all reports, memoranda, drawings, process data, permits, and other background documents for the WCWTP. The District will provide copies of pertinent documents. Two key reports are the *Walnut Creek WTP Pretreatment Upgrades, Basis of Design Report* (2020) and the *Inline WTPs Pretreatment Alternatives* (2018).

Task 2.2 Document Management

The consultant will host, administer, and maintain a cloud BIM collaboration platform folder to store shared Project documents and deliverables. The folder will be read/write accessible by District stakeholders, reviewers, and design staff for the duration of the Project. At a minimum, the platform folder will contain the following sub-folders:

1. Meetings and Presentations
2. Technical Memoranda
3. Models
4. Drawings
5. Specifications
6. Geotech
7. Survey
8. Equipment Info
9. Construction Schedule
10. Cost Estimate
11. Process Control Descriptions
12. Traffic Control
13. Drafting Table

Contract #1, Task 3 – Technical Memoranda

The consultant will produce the following TMs prior to the 10% Design milestone:

Task 3.1 – TM for Power System Upgrades

a) Review existing power supply, distribution, and generation facilities.
b) Determine if current electrical equipment needs replacement during a site visit with District electricians.
c) Assess future loads for Pretreatment Phases 1 and 2, and determine which loads are legally required standby loads vs emergency standby loads. New chemicals hazards should be evaluated along with California Building Code requirements.
d) Evaluate size of existing generators and discuss outage and cutover considerations.
e) Formulate alternatives for power facilities including:
    i. Upgrade of primary switchgear and standby generator at existing location.
    ii. Installation of new, relocated primary switchgear and standby generator.
f) Create a site plan for power distribution and a preliminary single-line diagram.
g) Estimate life-cycle energy costs.
h) Identify long-lead items and prepurchase items.

Task 3.2 – TM for Ozone Process Upgrades

The District will be performing pilot testing of pre-ozone and intermediate ozone concurrently with Contract #1 to verify which alternative(s) meet the District's water quality and project goals. Refer to Optional Task 6.2 for Pilot Study Support. Pilot testing completion is not anticipated until Summer 2025.

The consultant shall proceed with design criteria development for both pre-ozone and intermediate ozone and perform the following sub-tasks. Final determination for construction of pre-ozone and/or intermediate ozone under Phase 1 will be completed prior to Contract #2, Detailed Design.

a) Evaluate BODR design criteria for the ozonation process and any available pilot testing data
b) Hold one 4-hour Ozone Process Design Criteria Workshop with District stakeholders to discuss the following topics:
    i. Pre-ozone vs intermediate ozone: pilot data needed, advantages and disadvantages, construction phasing.
    ii. Sidestream injection vs. fine bubble diffusers for intermediate ozone.
    iii. Contactor design criteria: pipeline and contact basin alternatives.
    iv. Need for Advanced Oxidation Process (e.g., with hydrogen peroxide).
c) Hold one 4-hour Ozone Facilities Design Criteria Workshop to determine design criteria for the following new buildings:
    i. Ozone generation buildings
    ii. Pre-ozone injection PP
    iii. Intermediate injection PP

Task 3.3 – TM for Dewatering Building

a) Evaluate BODR design criteria for the solids dewatering system.
b) Hold one 4-hour workshop with District stakeholders to discuss the following topics:
    i. Solids loading assumptions.
    ii. Mechanical dewatering alternatives (belt press, centrifuge).
    iii. Sludge cake handling alternatives (screw conveyor, storage bins, etc.).
    iv. Dewatering building design criteria:
        - Process area
        - Storage
        - Bathroom
        - Lab spaces

Task 3.4 – TM for Process Chemical Upgrades

a) Evaluate BODR design criteria and Chemical System Safety Improvements for process chemical system background information.
b) Hold one 4-hour workshop with District stakeholders to discuss the following topics:

i. Aluminum sulfate vs. polyaluminum chloride as primary coagulant
ii. Liquid ammonium sulfate vs. aqueous ammonia for chloramination
iii. Treatment polymer options
iv. Tank sizing criteria (days of storage) for new chemicals
v. Chemical piping options (chased vs. neat, single vs. double wall)

Task 3.5 – TM for Landscaping

a) Review viewshed analysis in California Environmental Quality Act (CEQA) documents.
b) Create a landscaping plan to provide screening of new facilities consistent with CEQA documents.

Task 3.6 – TM for Traffic Control

a) Evaluate truck routes and construction vehicle traffic during construction consistent with CEQA documents.
b) Formulate a traffic control plan for the various stages of construction.

Contract #1, Task 4 – 10% Pre-Design

The consultant shall complete the following 10% deliverables for the Project:

Task 4.1 – 10% Design Criteria Summary Report

This report provides a concise, tabular summary of the design criteria for each major Project element. At a minimum, each of the proposed Phase 1 and 2 improvements listed above shall have a table in the report that lists the existing conditions (if applicable), design criteria, and assumptions. Design criteria for major process components includes size, number, redundancy, capacity, power requirement, and electrical and control system design criteria, using the District's Electrical and Control System Design Guides as the basis for the consultant's work. Summary Report to include a list of major equipment, with alternatives identified and as needed, prepurchase options analyzed.

Task 4.2 – 10% Stakeholder Meeting

Lead and conduct a 10% meeting with District stakeholders that covers the information listed below. The presentation materials shall be made available to the District.

1) Project objectives and description.
2) Detailed scope of work.
3) Design and construction considerations, including facility outage requirements and temporary generator/pump/building needs.
4) Design criteria summary.

5) Regulatory requirements (e.g., air quality, waste discharge, sludge disposal, fire codes) as applicable.
6) Required permits, easements, or utility coordination.
7) Summary of geotechnical information.
8) Major equipment selection – list of major equipment; alternatives identified and evaluated; analysis of prepurchase options.
9) Preliminary process control strategies, alarms, etc. (electrical and instrumentation).
10) Preliminary cost estimate.
11) Preliminary construction schedule, including discussion of Phase 1 and 2 Project components, critical path activities, and long-lead procurements.

Task 4.3 – 10% Drawing Package for Phase 1

Produce a 10% drawing set that contains the information listed below. The drawings shall include Phase 1 facilities and connections and space planning for Phase 2 facilities to be constructed at a later date. The drawings shall be distributed to District stakeholders for comments.

1) Flow diagram
2) Hydraulic profile
3) Site plan layout
4) Equipment layouts showing:
    i) Pumps
    ii) Major pipes
    iii) Large valves
    iv) Major electrical equipment from electrical one-line diagram
    v) Major control panels
5) Yard piping layout showing:
    i) Major process lines
    ii) Sewer
    iii) Storm drain
6) Electrical duct bank layout
7) Floor plan of buildings and structures
8) Architectural elevations
9) Electrical one-line diagram
10) P&IDs
11) Delineation of Phase 1 and Phase 2 facilities on all drawings

Task 4.4 – 10% Design Comments and Responses

Compile and respond to District comments on the 10% Drawing Package. All comments and responses will be tabulated in a report.

Task 4.5 – Process Control Narratives

Write narrative descriptions of process system descriptions keyed to each P&ID for each new and updated process. These narratives do not need to detail all interlocks, alarm points, control capabilities, etc. However, they need to be sufficiently detailed to give reviewers an overview of the consultant's proposed control strategies.

Task 4.6 – Construction Schedule
Estimate the length of the construction phase and provide a construction sequencing plan. The plan shall include the overall duration for Phase 1, and a construction schedule by major activity for Phase 1.

Task 4.7 – 10% Cost Estimate
Compute an estimate of probable construction costs. Accuracy of the cost estimate will conform to the Association for the Advancement of Cost Engineering (AACE) International Recommended Practice 17R-97 2020 Edition, Class 4. The cost estimate shall consist of unit costs for all major equipment, as well as quantity takeoffs for earthwork, concrete, piping, conduit, wire, and other bulk materials.

Contract #1, Task 5 – 30% Pre-Design

The consultant shall address comments on the 10% Design, incorporate any required scope changes, and further develop the design criteria, drawings, control descriptions, construction schedule, and cost estimate. Per District Procedures, at the 30% milestone a Project scope "freeze" is enacted, and scope additions require approval by EBMUD's Design Division Manager. The deliverables for this task are as follows:

Task 5.1 – 30% Design Criteria Summary Report
Update the 10% Design Criteria Summary Report with any added scope, refinements to process assumptions and equipment, and design criteria. This report shall include a detailed description of each process area and facility. For documentation purposes, the report shall include a description of scope elements that were considered for addition after the 10% Stakeholder Meeting but were ultimately not included.

Task 5.2 – 30% Stakeholder Meeting
The consultant shall conduct a 30% meeting with District stakeholders that covers the information listed below. The information below is the same list as the 10% Design Meeting, but the presentation materials will focus on changes since the 10% Design. The presentation materials shall be made available to the District.

1) Project objectives and description.
2) Detailed scope of work, with focus on changes since 10% Design.
3) Design and construction considerations, including facility outage requirements and temporary generator/pump/building needs.
4) Design criteria summary.

5) Regulatory requirements (e.g., air quality, waste discharge, sludge disposal, fire codes) as applicable.
6) Required permits, easements, or utility coordination.
7) Summary of geotechnical information.
8) Major equipment selection – alternatives identified and evaluated; analysis of prepurchase options.
9) Preliminary process control strategies, alarms, etc. (electrical and instrumentation).
10) Preliminary cost estimate.
11) Preliminary construction schedule, including discussion of Phase 1 and 2 project components, critical path activities, and long-lead procurements.

Task 5.3 – 30% Drawing Package

The consultant shall submit a 30% drawing set that contains the information listed below. The drawings shall include Phase 1 facilities, and connections and space planning for Phase 2 facilities to be constructed at a future date. The drawings shall be distributed to District stakeholders for comments.

1) Flow diagram
2) Hydraulic profile
3) Site plan layout
4) Equipment layouts showing:
    i) Pumps
    ii) Major pipes
    iii) Large valves
    iv) Major electrical equipment from electrical one-line
    v) Major control panels
5) Yard piping layout showing:
    i) Major process lines
    ii) Sewer
    iii) Storm Drain
6) Electrical duct bank layout
7) Floor plan of buildings and structures
8) Architectural elevations consistent with the CEQA documents
9) Electrical one-line diagram
10) P&IDs
11) Delineation of Phase 1 and Phase 2 and interim facilities (if needed) on all drawings.

Task 5.4 – 30% Design Comments and Responses

Compile District comments on the 30% Design Drawing Package and provide responses. All comments and responses shall be tabulated in a report.

Task 5.5 – Process Control Narratives
Update the Process Control Narratives from the 10% Design. Provide English-language process system descriptions keyed to each P&ID. It is not expected that these narratives will detail all interlocks, alarm points, control capabilities, etc. However, they need to be sufficiently detailed to give a preliminary overview of the proposed control strategies.

Task 5.6 – Construction Schedule
Estimated construction schedule and construction sequencing plan. These include the overall duration for Phase 1 and 2 and a construction schedule by major activity for Phase 1.

Task 5.7 – 30% Cost Estimate
Consultant's estimate of probable construction costs. Accuracy of cost estimate will conform to AACE International Recommended Practice 17R-97, Class 3. The cost estimate shall consist of unit costs for all key equipment, as well as quantity takeoffs for earthwork, concrete, piping, conduit, wire, and other bulk materials.

Contract #1, Task 6 – Hydraulic Analysis for Lafayette Weir Modifications Design

The consultant shall complete and produce the following deliverables:

Task 6.1 – WCWTP Hydraulic Model
a) Develop a hydraulic model for WCWTP to the Lafayette No. 1 and No. 2 weirs. The hydraulic model shall include analysis of hydraulic impacts for Phase 1 and Phase 2 processes including pre-ozone and intermediate ozone.
b) Review the design criteria for the future Lafayette No. 1 relining project and model the hydraulic impacts of the relining. The District will provide all existing documents including the selected relining pipe material, O.D., and the existing aqueduct hydraulic model. The relining project is currently at 10% design and all work will be completed prior to WCWTP Pretreatment Phase 1 construction completion.

Task 6.2 – Lafayette No. 1 and No. 2 Weir Modifications TM
a) Review all existing documents related to the Lafayette No. 1 and No. 2 weirs modification design, including hydraulic assumptions, calculations, proposed weir modifications, and site plan.
b) Summarize the WCWTP Hydraulic Model developed in Task 6.1 and identify hydraulic impacts from the Project and future aqueduct relining on the existing weirs.
c) Develop design criteria for weir modifications including weir elevation required for Phase 1 and Phase 2 construction.

Contract #1, Task 7 – Optional Tasks

Task 7.1 – Lidar Scan
Provide lidar scanning of the WCWTP including the existing filter plant and reclaim facilities, and proposed locations for pretreatment facilities, consolidated maintenance building, and new reclaim facilities.

Task 7.2 – Pilot Study Support
Provide technical guidance to EBMUD staff engaged in ballasted flocculation, ozone, and filtration process piloting to optimize process parameters and refine design criteria. Assist with determination of whether pre-ozone is able to meet District project goals. Anticipated pilot testing completion is in Summer 2025.

- End of Contract #1 Tasks -

Future Contracts #2 and #3 Tasks:

For the proposal, provide an approach to Contract #2 and #3 Tasks. ***No award of these services will occur until after completion of the 30% Design milestone****.*

Contract #2, Task 1 – 50% Design *(Future)*

The consultant shall complete 50% Design documents of Phase 1 of the Project. The design will include drawings and key specifications that represent all of the major Project concepts. The consultant will provide the necessary review, validation, and vetting of the scope items and concepts identified in the BODR and the 50% Design documents will reflect final agreements made by all stakeholders for the fundamental design elements. The 50% Design deliverables include the following:

a) Final drawing list and specifications table of contents.
b) Design drawings (nearly complete civil and mechanical drawings; advanced plan and profile, structural, HVAC, electrical, plumbing and fire protection drawings; and completed P&IDs).
c) Draft specifications for major items (equipment, pipe, and concrete), including item-specific testing and startup requirements that meet District standards.
d) Final calculations for all equipment and piping.
e) Final electrical calculations.
f) Final process and major equipment calculations.
g) Final draft control narratives or strategies, including controls documentation for design integration and controls schematic of new and existing equipment.
h) Final operational impacts during construction report.
i) AACE Class 2 (50% Design Cost Estimate) consultant's Estimate and Basis of Estimate Report.
j) Critical Path Method Construction Schedule and Basis of Schedule Report.
k) 50% Design Submittal Review Meeting: prepare for and conduct a meeting with District stakeholder workgroups to summarize the main design elements included in the 50% design drawings and specifications being submitted for review and comments.
l) Outage plan.

Contract #2, Task 2 – 90% Design *(Future)*

The 90% Design consists of the consultant's completed drawings and specifications including resolution and incorporation of all comments submitted during the 50% Design review. The 90% Design is a finished product ready for the District's final review. In general, the 90% Design includes the following:

a) Final draft design drawings (all sheets for all disciplines, ready for submission to the District for review and approval).
b) Final draft specifications for all divisions (ready for submission to the District for review and approval).

c) Final calculations for all Project elements.
d) Final AACE Class 1 (100% Design Cost Estimate) consultant's Estimate and Basis of Estimate Report.
e) Final Critical Path Method Construction Schedule and Basis of Schedule Report.
f) 90% Design Submittal Review Meeting: prepare for and conduct a meeting with District stakeholder workgroups to summarize the 90% drawings and specifications being submitted for the District's final review and comments.

The 90% Design shall be submitted to the local fire agency or governing agency responsible for reviewing regulatory and hazardous material storage.

Contract #2, Task 3 – 100% Design *(Future)*

The final 100% Design submittal consists of all drawings and specification sections necessary for a complete construction bid package. All District comments will be addressed in this set and all disagreements and open issues will be resolved prior to submittal. The consultant shall prepare a final cost estimate for bidding purposes.

Contract #2, Task 4 – Bid and Award Support *(Future)*

The consultant will support the District in providing information during the bid and award phase and in reviewing the submitted bidder(s) information to support this phase.

Task 4.1 – Attend Pre-Bid Meeting and Walk-Through
The consultant will attend the pre-bid conference and site visit and be available to answer questions as necessary.

Task 4.2 – Addendum Preparation
All technical questions from prospective bidders requiring clarification to the contract will first be responded to by the consultant, prior to review by the District. Responses will then be issued by the District to all prospective bidders through the District website and if needed by addendum(s).

Task 4.3 – Bid Evaluation
Upon opening of the bids, the consultant will assist the District in evaluating the bids to determine if they are reasonable and suitable for award.

Task 4.4 – Evaluation of Contractor Substitutions
The consultant is required to review requested substitutions from named vendors submitted as part of the contractor's bid. It is expected that the consultant will complete the analysis within 30 days of receipt of a complete and comprehensive substitution submittal from the contractor.

Task 4.5 – Conformed Contract Drawings
Upon conclusion of the bid period, the consultant will incorporate all modifications from addenda into the contract documents and issue a set of Conformed Contract Documents by EBMUD Board award date.

Contract #3, Task 1 – Engineering Services During Construction *(Future)*

Once construction begins, the consultant will provide design-related services and carry out coordination responsibilities throughout the active construction period. The consultant is expected to clearly understand the construction schedule including recently completed work and upcoming planned work. The consultant will work closely and collaboratively with the District's Construction Management (CM) staff to ensure coordination of critical engineering information throughout construction.

Task 1.1 – Progress Meetings
The consultant will attend all weekly construction progress meetings to support coordination with the key project stakeholders. The consultant will be prepared to discuss status of all deliverables (shop drawings, RFIs, change orders, etc.) and support timely resolution of design-related issues that may impact the project budget or schedule.

Task 1.2 – Site Visits
The consultant will conduct periodic site visits to ensure that the work is progressing per the contract documents and design intent. Visits will occur no less frequently than monthly and appropriate technical expertise will be provided based on work progress. The appropriate technical expert of the consultant team will also be on-site during identified "high-risk" work that would benefit from visual observation by the consultant. All high-risk work will be identified by the consultant and transmitted to the District's CM as a TM.

Notes will be prepared after each site visit and will include observations on the quality of progressed work and identification of any areas that require closer oversight attention or upcoming work that requires specific instruction.

Task 1.3 – Submittal/Shop Drawings Review
The consultant will complete the initial review of all shop drawings submitted by the contractor(s) to ensure compliance with the Contract Documents, prior to District final review/approval. The target turnaround time (metric) is 14 calendar days. It is expected that all shop drawings will be returned to the contractor as Furnish as Corrected or Furnish as Submitted within no more than 3 submittal rounds. If issues with the quality of the shop drawings are identified, the consultant will bring it to the District's attention to take corrective action with the contractor.

Task 1.4 – Requests For Information/Clarification

The consultant will evaluate and respond to the RFIs generated by the contractor and Requests for Clarification generated by the CM within five (5) calendar days unless it is a particular complex issue requiring additional examination.

Task 1.5 – Preparation of Design-Related Change Orders

In the event of a design-related change to the contract in which the contractor is entitled to a change in compensation, a change order must be processed. The consultant will evaluate and prepare all necessary design-related technical documents for change orders and participate in a scoping meeting with the CM and contractor for complex change orders that benefit from collaboration prior to scope finalization. In some cases, the consultant may be asked to support negotiation of the final change order with the CM and contractor.

Task 1.6 – Factory Acceptance Testing and Field Testing Support

The consultant will support the District with Factory Acceptance Testing and field testing of equipment. The consultant will review submitted test plans and report and provide on-site presence for Factory Acceptance Testing and field testing.

- End of Contracts #2 and #3 Tasks -

Contract #4 Tasks for Third Party Review Services:

Contract #4 will be awarded separately from Contracts #1, #2, and #3.

Contract #4, Task 1 – Project Management

The consultant will provide a sufficient and well-organized project administration team to manage the Project, consistent with the principles of the Project Management Institute, throughout the entire period of the Contract.

Task 1.1 – Project Kick-off Meeting

The consultant will facilitate a kick-off meeting with key District and consultant personnel to review planned roles and responsibilities, Project scope, schedule, budget, deliverables, and workshops.

Task 1.2 – Monthly Progress Reports and Invoices

The consultant will prepare monthly progress reports, which will include a status update by task with a brief description of work/activities performed, original budget, current invoice expenditures, budget spent to date, remaining budget, percent completion, and planned work for the next invoice period. The monthly invoice will be broken down by task and will include employee name, billing rate classification, hours billed, and costs billed.

Contract #4, Task 2 – Design Progress Meetings and Workshops

Task 2.1 – Design Progress Meetings

The consultant will participate in and provide technical input during Project design conference calls and progress meetings. Assume the consultant's senior technical experts will attend bi-weekly one-hour meetings to be held virtually over the entire design period.

Task 2.2 – Design Technical Workshops

The consultant will participate in and provide technical input during Project technical meetings. Assume each meeting will last 4 hours and be facilitated by the design services consultant(s). The meetings will include:

a) Review meeting for power systems upgrades
b) Review meeting for ozone process systems
c) Review meeting for 10% design submittal
d) Review meeting for 30% design submittal
e) Review meeting for Phase 1 50% design submittal
f) Review meeting for Phase 1 90% design submittal

Contract #4, Task 3 – Technical, Constructability, and Value Engineering Review of Deliverables

Task 3.1 – Design Submittals Review

The Consultant will perform technical review of the 10%, 30%, 50%, and 90% design submittals including drawings and specifications. The technical review will be performed by consultant staff with expertise in the applicable disciplines. Project file sharing with the District and design services consultant(s) will be via a BIM collaboration platform server. The review will include an assessment of the following:

a) Documents are complete and of satisfactory quality.
b) Appropriate codes and standards are considered.
c) Design layouts and configurations are reasonable.
d) Operations and maintenance assumptions and cost estimates are reasonable and established using correct methods.
e) Opportunities to save money, lessen risk, or improve functionality.

Task 3.2 – Constructability Review and Workshops

Consultant will facilitate constructability review workshops after the 10%, 30%, 50%, and 90% submittals. Each workshop will last 4 hours or less. The constructability review will include:

a) Recommendations for potential design changes that could simplify construction, reduce risk, or improve the schedule.
b) Review of the construction schedule prepared by the design consultant(s) and determination of whether the schedule is reasonable, conservative, or aggressive.
c) Identification of cost saving/value engineering opportunities where feasible.
d) Review of the construction scope with respect to proposed outages and whether a typical contractor can perform the required work within the specified construction period.

- End of Contract #4 Tasks -

Work performed by the District

The following Tasks will be performed by the District in support of the Project:

1. General site survey of water treatment plant site.
2. Provide the consultant with all the water treatment plant drawings in MicroStation, AutoCAD, or Plant3D (for P&IDs) format.
3. Provide the consultant with any available process data, water quality data, and laboratory analyses of all related chemical feed systems.
4. Facilitate consultant's field verification of existing chemical, electrical, and mechanical systems.
5. Provide existing on-site utility maps.
6. Provide meeting rooms.
7. Provide assistance and coordination of key District staff required for the Project.
8. Integration of control signals into the Experion DCS Control System, programming of control points and process loops.
9. Updates on Hazardous Materials Business Plan/Plant Risk Management Plan.
10. CEQA preparation and approval, which is currently ongoing.
11. All front end of the construction contract specifications including Division 00 – Procurement and Contracting Document. Consultant support for development of specific front end specification sections will be captured as a task under Contract #2.
12. Overall contract administration, construction management, and day-to-day construction inspection, with support from the consultant, per Contract #3.

- *End of Scope of Work* -

EXHIBIT A
RFP RESPONSE PACKET
RFP For – Walnut Creek Water Treatment Plant Pretreatment Project Design Services

To: The EAST BAY MUNICIPAL UTILITY DISTRICT ("District")

From: _____
(Official Name of Proposer)

RFP RESPONSE PACKET GUIDELINES

- **SUBMITTAL SHALL CONTAIN THE FOLLOWING:**
  - **EXHIBIT A – RFP RESPONSE PACKET**
    - **INCLUDING ALL REQUIRED DOCUMENTATION AS DESCRIBED IN "EXHIBIT A-REQUIRED DOCUMENTATION AND SUBMITTALS"**
    - **NOTE: SEPARATE DOCUMENTATION AND SUBMITTALS ARE REQUIRED FOR PROPOSING ON DESIGN SERVICES, CONTRACTS #1 THROUGH #3, AND/OR THIRD-PARTY REVIEW SERVICES, CONTRACT #4**

- **PROPOSERS THAT DO NOT COMPLY WITH THE REQUIREMENTS AND/OR SUBMIT AN INCOMPLETE RFP RESPONSE MAY BE SUBJECT TO DISQUALIFICATION AND THEIR RFP RESPONSE REJECTED IN WHOLE.**

- **IF PROPOSERS ARE MAKING ANY CLARIFICATIONS AND/OR AMENDMENTS, OR TAKING EXCEPTION TO ANY PART OF THIS RFP, THESE MUST BE SUBMITTED IN THE EXCEPTIONS, CLARIFICATIONS, AND AMENDMENTS SECTION OF THIS EXHIBIT A – RFP RESPONSE PACKET. THE DISTRICT, AT ITS SOLE DISCRETION, MAY ACCEPT AMENDMENTS/EXCEPTIONS, OR MAY DEEM THEM TO BE UNACCEPTABLE, THEREBY RENDERING THE RFP RESPONSE DISQUALIFIED.**

- **PROPOSERS SHALL NOT MODIFY DISTRICT LANGUAGE IN ANY PART OF THIS RFP OR ITS EXHIBITS, NOR SHALL THEY QUALIFY THEIR RFP RESPONSE BY INSERTING THEIR OWN LANGUAGE OR FALSE CLAIMS IN THEIR RESPONSE. ANY EXCEPTIONS AND CLARIFICATIONS MUST BE PLACED IN THE "EXCEPTIONS/ CLARIFICATIONS" PAGE, NOT BURIED IN THE PROPOSAL ITSELF.**

PROPOSER INFORMATION AND ACCEPTANCE

1. The undersigned declares that all RFP documents, including, without limitation, the RFP, Addenda, and Exhibits, have been read and that the terms, conditions, certifications, and requirements are agreed to.

2. The undersigned is authorized to offer, and agrees to furnish, the articles and services specified in accordance with the RFP documents.

3. The undersigned acknowledges acceptance of all addenda related to this RFP. List Addenda for this RFP on the line below:

Addendum #	Date

4. The undersigned hereby certifies to the District that all representations, certifications, and statements made by the Proposer, as set forth in this RFP Response Packet and attachments, are true and correct and are made under penalty of perjury pursuant to the laws of California.

5. The undersigned acknowledges that the Proposer is, and will be, in good standing in the State of California, with all the necessary licenses, permits, certifications, approvals, and authorizations necessary to perform all obligations in connection with this RFP and associated RFP documents.

6. It is the responsibility of each Proposer to be familiar with all of the specifications, terms, and conditions and, if applicable, the site condition. By the submission of an RFP response, the Proposer certifies that if awarded a contract it will make no claim against the District based upon ignorance of conditions or misunderstanding of the specifications.

7. Patent indemnity: General or Professional Service Providers who do business with the District shall hold the District, its Directors, officers, agents, and employees harmless from liability of any nature or kind, including cost and expenses, for infringement or use of any patent, copyright or other proprietary right, secret process, patented or unpatented invention, article, or appliance furnished or used in connection with the contract or purchase order.

8. Insurance certificates are not required at the time of submission. However, by signing Exhibit A – RFP Response Packet, the Proposer agrees to meet the minimum insurance requirements stated in the RFP. This documentation must be provided to the District prior to execution of an agreement by the District and shall include an insurance certificate which meets the minimum insurance requirements, as stated in the RFP.

9. The undersigned acknowledges that RFP responses, in whole or in part, are NOT to be marked confidential or proprietary. The District may refuse to consider any RFP response or part thereof so marked. RFP responses submitted in response to this RFP may be subject to public disclosure. The District shall not be liable in any way for disclosure of any such records.

10. The undersigned Proposer hereby submits this RFP response and binds itself to the District. The RFP, subsequent Addenda, Proposer's Response Packet, and any attachments, shall be used to form the basis of a Contract, which once executed shall take precedence.

11. The undersigned acknowledges ***ONE*** of the following (please check only one box)*:

☐ Proposer is not an SBE nor a DVBE and is ineligible for any Proposal preference; **OR**

☐ Proposer is an SBE or DVBE as described in the Contract Equity Program (CEP) and Equal Employment Opportunity (EEO) Guidelines, and has completed the CEP and EEO forms at the hyperlink contained in the CEP and EEO section of this Exhibit A.

*If no box is checked it will be assumed that the Proposer is ineligible for Proposal preference, and none will be given. For additional information on SBE/DVBE Proposal preference please refer to the Contract Equity Program and Equal Employment Opportunity Guidelines at the above referenced hyperlink.

Official Name of Proposer (exactly as it appears on Proposer's corporate seal and invoice): _____

Street Address Line 1: _____

Street Address Line 2: _____

City: _____ State: _____ Zip Code: _____

Webpage: _____

Type of Entity / Organizational Structure (check one):

☐ Corporation ☐ Joint Venture

☐ Limited Liability Partnership ☐ Partnership

☐ Limited Liability Corporation ☐ Non-Profit / Church

☐ Other: _____

Jurisdiction of Organization Structure: _____

Date of Organization Structure: _____

Federal Tax Identification Number: _____

Department of Industrial Relations (DIR) Registration Number: _____

Primary Contact Information:

Name / Title: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

Street Address Line 1: _____

City: _____ State: _____ Zip Code: _____

SIGNATURE: _____

Name and Title of Signer (printed): _____

Dated this _____ day of _____ 20_____

PROPOSAL FORM

No alterations or changes of any kind to the Proposal Form(s) are permitted. RFP responses that do not comply may be subject to rejection in total.

In spreadsheet format, show estimated labor hours for each prime and subconsultant job classification for the entire proposed scope of work. Estimate level of effort for mandatory and optional services. An example level of effort and cost estimate table is provided below for reference.

LABOR DISTRIBUTION

	Consultant				Subconsultants							
					Sub. #1			Sub. #2				
	Project Manager	Project Eng.	Drafting	Subtotal	Project Eng.	Assist. Eng.	Subtotal	Project Eng.	Assist. Eng	Subtotal	Total
Services***(*)***											
I. Contracted Services											
Task 1:											
Task 2:											
Task 3:											
Task 4:											
Task 5:											
Optional Task 6:											
TOTAL											

(* Include both Consultant and subconsultant hours. Also, include the percent time commitment for key personnel if a critical issue for success of the project.)

REQUIRED DOCUMENTATION AND SUBMITTALS – DESIGN SERVICES CONTRACTS #1 THROUGH #3

All of the specific documentation listed below is required to be submitted with the Exhibit A – RFP Response Packet for proposing on design services, Contracts #1 through #3, or both design and third-party review services, Contracts #1 through #4. Proposers shall submit all documentation, in the order listed below, and clearly label each section of the RFP response with the appropriate title (e.g., Table of Contents, Letter of Transmittal, Key Personnel).

1. **Letter of Transmittal (maximum 2 pages):** The proposal response shall include a description of the Proposer's capabilities and approach in providing its services to the District and provide a brief synopsis of the highlights of the proposal and overall benefits to the District. This synopsis should not exceed two (2) pages in length and should be easily understood.

2. **Table of Contents (1 Page):** The proposal shall include a table of contents listing the individual sections of the proposal and their corresponding page numbers.

3. **Project Understanding, Project Approach, and Project Team Description (maximum 10 pages):** The RFP response should include a narrative describing the proposer's understanding of the project, project approach, and project team description. The project approach can include proposals to improve the proposed processes, reduce cost, improve reliability, shorten the schedule, and simplify construction sequencing while still meeting the project objectives. This section shall not exceed ten (10) pages in length and should be clearly written.

4. **Key Personnel:** The RFP response shall include an organizational chart for the project team that shows a complete list of all key personnel associated with the RFP (maximum 2 pages for organizational chart and list of personnel). For each person on the list, the following information shall be included:

    a. The person's relationship with the Proposer, including job title and years of employment with the Proposer;
    b. The role that the person will play in connection with the RFP;
    c. The person's primary office location, telephone number, and e-mail address;
    d. The person's educational background; and
    e. The person's relevant experience, certifications, and/or merits (maximum 2 pages per person)

5. **Staffing Plan for Local Tasks (maximum 1 page):** This section shall designate which personnel will perform field verifications and other design tasks requiring a significant on-site presence. Include a description of how the Proposer plans to provide staff for on-site tasks (e.g., use local staff within driving distance of the facilities, have staff travel in weekly for task durations, temporarily relocate staff).

6. **Experience and Relevant Projects (6 Pages):** Consultants must submit information demonstrating, for the proposed personnel, technical experience relevant to the scope of work described in the RFP, including:

    a. Client name(s) and project name;
    b. Project scope of work summary;
    c. Proposer roles and responsibilities on the project;
    d. Proposer team members who worked on the project, if any; and
    e. Date when the project was performed (start/end dates).

7. **Contract #1 Implementation Plan (maximum 3 pages) and Schedule (maximum 2 pages, 11"x17"):** The proposal shall include an implementation plan and schedule. Using the calendar of events as guide, the plan shall include a detailed schedule indicating how the Proposer will ensure adherence to the timetables for services, including identification and mitigation of risks that the Proposer believes may adversely affect the schedule.

8. **Level of Effort (maximum 4 pages, 11"x17" acceptable):** For each of the tasks, provide an estimated level of effort for all staff. In spreadsheet format, show estimated labor hours, direct rate, and loaded rate for Proposer's staff, including subconsultants.

9. **Quality Assurance and Control (QAC) Plan (maximum 2 pages):** The proposal shall include a Quality Assurance and Control (QAC) Plan that is specific and customized to this project, detailing the methodology the Proposer will use to ensure a high-quality work product. The QAC plan must include an independent review by an individual that is an expert in safety and code compliance.

10. **References:** References should have similar scope, volume, and requirements to those outlined in these specifications, terms, and conditions.

    a. Proposers must use the templates in the "References" section of this Exhibit A – RFP Response Packet to provide references.
    b. Proposers must verify the contact information for all references provided is current and valid.
    c. Proposers are strongly encouraged to notify all references that the District may be contacting them to obtain a reference.
    d. The District may contact some or all of the references provided in order to determine Proposer's performance record on work similar to that described in this RFP. The District reserves the right to contact references other than those provided in the RFP response and to use the information gained from them in the evaluation process.

11. **Sample Drawings (Not counted in page count):** Provide sample drawings (no more than 30) in 11"x17" format that show sample ballasted flocculation, ozone, and/or dewatering systems, site layouts, mechanical details, P&IDs, and single-line diagrams. Drawings created in 3D BIM platform are preferred.

12. **Exceptions, Clarifications, Amendments (Not counted in page count):**

a. The RFP response shall include a separate section calling out all clarifications, exceptions, and amendments, if any, to the RFP and associated RFP documents, which shall be submitted with the proposer's RFP response using the template in the "Exceptions, Clarifications, Amendments" section of this Exhibit A – RFP Response Packet.
b. **THE DISTRICT IS UNDER NO OBLIGATION TO ACCEPT ANY EXCEPTIONS, AND SUCH EXCEPTIONS MAY BE A BASIS FOR RFP RESPONSE DISQUALIFICATION.**

13. **Contract Equity Program (Not counted in page count):** Every proposer must fill out, sign, and submit the appropriate sections of the Contract Equity Program and Equal Employment Opportunity documents located at the hyperlink contained on the last page of this Exhibit A. **Special attention should be given to completing Form P-25, "Employment Data and Certification"; and Form P-46, "Designation of Subcontractors."** Any proposer needing assistance in completing these forms should contact the District's Contract Equity Office at (510) 287-0114 prior to submitting an RFP response.

REQUIRED DOCUMENTATION AND SUBMITTALS – THIRD-PARTY REVIEW SERVICES CONTRACT #4

All of the specific documentation listed below is required to be submitted with the Exhibit A – RFP Response Packet for proposing on only third-party review services, Contract #4. Proposers shall submit all documentation in the order listed below and clearly label each section of the RFP response with the appropriate title (e.g., Table of Contents, Letter of Transmittal, Key Personnel).

1. **Letter of Transmittal (maximum 2 pages):** The proposal response shall include a description of the Proposer's capabilities and approach in providing its services to the District and provide a brief synopsis of the highlights of the proposal and overall benefits to the District. This synopsis should not exceed two (2) pages in length and should be easily understood.

2. **Key Personnel:** The RFP response shall include an organizational chart for the project team that shows a complete list of all key personnel associated with the RFP (maximum 2 pages for organizational chart and list of personnel). For each person on the list, the following information shall be included:

    a. The person's relationship with the Proposer, including job title and years of employment with the Proposer;
    b. The role that the person will play in connection with the RFP;
    c. The person's primary office location, telephone number, and e-mail address;
    d. The person's educational background; and
    e. The person's relevant experience, certifications, and/or merits (maximum 2 pages per person)

3. **Level of Effort (maximum 2 pages, 11"x17" acceptable):** For each of the tasks, provide an estimated level of effort for all staff. In spreadsheet format, show estimated labor hours, direct rate, and loaded rate for Proposer's staff, including subconsultants.

4. **References:** References should have similar scope, volume, and requirements to those outlined in these specifications, terms, and conditions.

    a. Proposers must use the templates in the "References" section of this Exhibit A – RFP Response Packet to provide references.
    b. Proposers must verify the contact information for all references provided is current and valid.
    c. Proposers are strongly encouraged to notify all references that the District may be contacting them to obtain a reference.
    d. The District may contact some or all of the references provided in order to determine Proposer's performance record on work similar to that described in this RFP. The District reserves the right to contact references other than those provided in the RFP response and to use the information gained from them in the evaluation process.

5. **Exceptions, Clarifications, Amendments (Not counted in page count):**
    a. The RFP response shall include a separate section calling out all clarifications, exceptions, and amendments, if any, to the RFP and associated RFP documents, which shall be submitted with the proposer's RFP response using the template in the "Exceptions, Clarifications, Amendments" section of this Exhibit A – RFP Response Packet.
    b. **THE DISTRICT IS UNDER NO OBLIGATION TO ACCEPT ANY EXCEPTIONS, AND SUCH EXCEPTIONS MAY BE A BASIS FOR RFP RESPONSE DISQUALIFICATION.**

6. **Contract Equity Program (Not counted in page count):** Every proposer must fill out, sign, and submit the appropriate sections of the Contract Equity Program and Equal Employment Opportunity documents located at the hyperlink contained on the last page of this Exhibit A. **Special attention should be given to completing Form P-25, "Employment Data and Certification"; and Form P-46, "Designation of Subcontractors."** Any proposer needing assistance in completing these forms should contact the District's Contract Equity Office at (510) 287-0114 prior to submitting an RFP response.

REFERENCES

RFP For – Walnut Creek Water Treatment Plant Pretreatment Project Design Services

Proposer Name: _____

Proposer must provide a minimum of three references.

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

Company Name:	Contact Person:
Address:	Telephone Number:
City, State, Zip:	E-mail Address:
Services Provided / Date(s) of Service:	

EXCEPTIONS, CLARIFICATIONS, AMENDMENTS

RFP For - Walnut Creek Water Treatment Plant Pretreatment Project Design Services

Proposer Name:_____

List below requests for clarifications, exceptions, and amendments, if any, to the RFP and associated RFP documents, and submit with your RFP response.

The District is under no obligation to accept any exceptions and such exceptions may be a basis for RFP response disqualification.

Reference to:			**Description**
Page No.	Section	Item No.	
p. 23	**D**	**1.c.**	***Proposer takes exception to…***

EXAMPLE

*Print additional pages as necessary

CONTRACT EQUITY PROGRAM & EQUAL EMPLOYMENT OPPORTUNITY

The District's Board of Directors adopted the Contract Equity Program (CEP) to enhance equal opportunities for business owners of all races, ethnicities, and genders who are interested in doing business with the District. The program has contracting objectives, serving as the minimum level of expected contract participation for the three availability groups: white-men owned businesses, white-women owned businesses, and ethnic minority owned businesses. The contracting objectives apply to all contracts that are determined to have subcontracting opportunities, and to all General or Professional Service Providers regardless of their race, gender, or ethnicity.

All Contractors and their subcontractors performing work for the District must be Equal Employment Opportunity (EEO) employers and shall be bound by all laws prohibiting discrimination in employment. There shall be no discrimination against any person, or group of persons, on account of race, color, religion, creed, national origin, ancestry, gender including gender identity or expression, age, marital or domestic partnership status, mental disability, physical disability (including HIV and AIDS), medical condition (including genetic characteristics or cancer), genetic information, or sexual orientation.

Contractor and its subcontractors shall abide by the requirements of 41 CFR §§ 60-1.4(a), 60-300.5(a) and 60-741.5(a). These regulations prohibit discrimination against qualified individuals based on their status as protected veterans or individuals with disabilities and prohibit discrimination against all individuals based on their race, color, religion, sex, sexual orientation, gender identity, or national origin in the performance of this contract. Moreover, these regulations require that covered prime contractors and subcontractors take affirmative action to employ and advance in employment individuals without regard to race, color, religion, sex, national origin, protected veteran status or disability.

All Contractors shall include the nondiscrimination provisions above in all subcontracts.
Please include the required completed forms with your proposal. Non-compliance with the Guidelines may deem a proposal non-responsive, and therefore, ineligible for contract award. Your firm is responsible for:

1) Reading and understanding the CEP guidelines.

2) Filling out and submitting with your proposal the appropriate forms.

   The CEP guidelines and forms can be found at the following direct link:
   Contract Equity Guidelines and Forms

The CEP guidelines and forms can also be downloaded from the District website at the following link:
http://ebmud.com/business-center/contract-equity-program/

If you have questions regarding the Contract Equity Program, please call (510) 287-0114.

EXHIBIT E
DESIGN DIVISION PROJECT PROCEDURES MANUAL

DESIGN DIVISION
PROJECT PROCEDURES MANUAL – SELECT EXCERPTS

Table of Contents

Section 401 – General Design Procedures
Section 505 – Preliminary Design Report
Section 601 – Drawings
Section 602 – Specifications
Section 603 – Calculations
Section 604 – Design Milestones

GENERAL DESIGN PROCEDURES: OVERVIEW

1.0 General

Each project usually has three phases (planning, design, and construction). Design Division personnel usually have differing roles in each. This role changes depending on whether a job is being contracted out or if it will be done by District Forces.

The planning phase is usually handled by other Departments within the District. Typically, Design Division provides support for the preparation of environmental documentation and review of proposed projects in this phase.

The design and construction phases are described in Sections 400 through 800.

The attached tables summarize the responsibilities of the District work units involved in the three project phases. One table (Attachment A) outlines roles assumed for contract construction jobs, and the second table (Attachment B) outlines roles assumed for District Forces jobs.

ATTACHMENT A

CONTRACT CONSTRUCTION

	PROJECT PHASE		
	PLANNING PHASE	DESIGN PHASE	CONSTRUCTION PHASE
PLANNING	Prepare Environmental Documentation Prepare Project Authorization (PA) Prepare Project Transfer Memorandum	Review specifications for compliance with environmental documentation	
DESIGN DIVISION	Provide support for preparation of environmental documentation	Assemble Project Team Input to PA or prepare PA if not initiated in Planning Manage design budget Keep project on schedule Prepare contract documents Track overall project budget Obtain permits Coordinate with ESD on drafting, bidding and award Review construction documents	Manage Vendor and/or Consultant contracts (if applicable) Review submittals, Requests for Information (RFIs) Track overall project budget Specialty inspections Review as-built drawings CSG staff to coordinate all Commissioning tasks and witness all factory (as specified) and field testing of equipment
ENGINEERING SERVICES DIVISION (ESD)	Provide support for preparation of environmental documentation	Provide drafting, specifications, bidding, award, and geotechnical support	
CONSTRUCTION DIVISION	Provide support for preparation of environmental documentation		Construction Lead Coordinate submittals, RFIs Manage construction contract Manage Construction Management budget Initiate Construction Change Orders (CCOs) with no impact on design intent Verify as-built information

ATTACHMENT B

DISTRICT FORCES CONSTRUCTION

	PROJECT PHASE		
	PLANNING PHASE	DESIGN PHASE	CONSTRUCTION PHASE
PLANNING	Prepare Environmental Documentation Prepare Project Authorization (PA) Prepare Project Transfer Memorandum	Review specifications for compliance with environmental documentation	
DESIGN DIVISION	Provide support for preparation of environmental documentation	Assemble Project Team Input to PA or prepare PA if not initiated in Planning Manage design budget Keep project on schedule Prepare drawings and technical specifications Track overall project budget Obtain permits Coordinate with ESD on drafting, bidding and award Review construction documents Issue Shop or Field Orders	Review submittals, Requests for Information (RFIs) Track overall project budget Specialty inspections Review as-built drawings
ENGINEERING SERVICES DIVISION (ESD)	Provide support for preparation of environmental documentation	Provide drafting, specifications, bidding, award, and geotechnical support	
CONSTRUCTION DIVISION	Provide support for preparation of environmental documentation		Inspection for conformance to plans and specifications
MAINTENANCE		Review plans and specifications	Order equipment Submit as-built drawings to Project Engineer (PE) for review

1.0 Purpose

Define project elements before starting a detailed design. This process may vary depending on the project type.

1.1. Facility Projects

This section, Facilities Projects, is typically applicable to pumping plants, reservoirs, regulators, and rate control stations. It applies equally to new facilities and facility rehabilitation projects.

The following information must be identified for distribution facilities before starting the production phase of design. Normally, these items are developed by the Planning Division and transferred to Design via a Transfer to Design memorandum or Facility Plan. These items should be reviewed by Operations and Maintenance (O&M), Design, and Construction before transferring to Design. Not all projects may have the same level of detail. For a simpler project, this may be accomplished with only an outage plan memorandum, design criteria memorandum, or other documentation. The Project Manager (PM) will review the following list of items and determine if a pre-design phase is required to define all items or if full design production can begin (Design Kickoff).

- Design criteria
- Pumping plant criticality determination
- Alternatives evaluations
    - Pressure zone/operational improvements (such as upgrade pipe vs. pump rehabilitation)
    - Site selection criteria and justification (such as higher rated pressure vs. elevation of the pumping plant)
- Outage plan
    - Power requirements during outage
    - Pumping during outage
    - Discussion of potential neighborhood impacts (such as noise levels and visual impacts of temporary facilities)
- Identification and verification of ability to isolate facility
- Preliminary site layout including survey and property map
- Reservoir recommendations to include seismic valves and analyzers in water quality cabinets

- Completion of required property or easement acquisitions
- CEQA completed for non-NOEs
- Identify public outreach plan and initiate outreach as appropriate per plan
- Miscellaneous considerations
    - Drainage
    - Sound
    - Visual mitigation (tall antennas, paint color, etc.)
    - Site-specific challenges (creek, bird nesting, fire, hot work, PSPS, etc.)
    - Construction staging locations identified
    - Security and fencing requirements
    - Environmental Health and Safety concerns
- Meeting minutes with O&M and other stakeholders demonstrating that stakeholder concerns have been addressed

If the PM determines a pre-design phase is necessary, the items determined during the pre-design phase will be documented. The PM is responsible for determining if this should be documented in a Basis of Design Report (BODR) developed by the Design Division or other, less-detailed documentation.

1.2. Water Treatment Plant Improvements

For Water Treatment Plant Improvement Projects, Design Division typically leads the pre-design phase, which results in a BODR documenting the scope and design basis for the project. The BODR serves as a tool to develop the initial project scope and as the design guide for members of the detailed design team. The BODR should represent the conclusions reached during the planning, process development, and evaluation of alternatives stages of the project. Any unusual project features or procedures (e.g., equipment pre-purchase in advance of construction contract award) shall be discussed and highlighted for specific concurrence at this stage. The BODR should be prepared after the preliminary design work is essentially complete and there is agreement among the participating parties as to what alternatives will be adopted and what general course of action should be taken. The main emphasis of the BODR should not be to list alternatives considered and the evaluation process. Instead, the BODR should define in some detail the alternatives selected.

The BODR should describe the project in enough detail to establish what facilities will be designed, what functions they will perform (or will not perform), and how

they will operate. Detailed design work should not be started until after the report is issued and approved.

A formal BODR is usually necessary on large, complex projects where there are many alternatives or where the facilities or operations description is extensive. A BODR should be used on new facilities or large and complicated projects. On smaller or more routine rehabilitation projects, the same function of defining the scope of the project can be achieved at the 10% Design Review Meeting and documented in the 30% scope document. See Section 501 – Implementation Plan.

2.0 Suggested BODR Outline

The following is a list of potential report contents that is intended as a suggested outline. It should be modified to meet the requirements of each individual project.

A. INTRODUCTION

-- Purpose of the Report

-- General Project Description or Design Criteria

B. SUMMARY AND CONCLUSIONS

C. BACKGROUND

-- Project History

-- Project Goals

-- Regulatory Requirements

D. EXISTING CONDITIONS

-- Existing Site Description

-- Existing Facilities

-- Existing Environmental Conditions

E. DESCRIPTION OF PROPOSED PROJECT

-- Process Description

-- Operational Description

-- Potential work restrictions and required outages

-- Flow Sheets

-- Piping and Instrument Diagrams

-- Physical Improvements

-- Site Plan

-- General Arrangements

-- Architecture

-- Need for Pre-Purchase of Equipment

F. ANALYSIS OF ALTERNATIVES

-- List of Alternatives Considered

-- Justification of Final Selection

-- Existing Environmental Conditions

G. ESTIMATE OF CONSTRUCTION COST, SCHEDULE

3.0 Procedures

3.1. Preparation

The PM has the primary responsibility for the organization and preparation of the BODR. Project team members will usually be assigned individual sections of the report to prepare, but the coordination and final editing for standardization and consistency is the PM's responsibility. The report should be bound in an appropriate-size binder.

3.2. Distribution for Review

The BODR is initially issued for review and approval by all parties that have an interest in the final project outcome. This would normally include the end users and their management, the appropriate Maintenance Department Divisions and their management, the Construction Division, and the key members of the design team and Engineering management. Anyone who could influence the project scope should be included in the distribution.

The report should be accompanied by a cover memo prepared by the PM that explains the purpose of the report and requests that the report be reviewed and returned with comments by a certain date, usually within two weeks. The cover memo should emphasize that this is the reviewer's last opportunity to make significant changes to the scope of the project and that detailed design will be based on the approved version of the report.

3.3. Basis of Design Review Meeting

It may sometimes be desirable to hold a meeting for the purpose of reviewing the preliminary design of the project. The necessity of this meeting will depend on the complexity of the project and the previous participation of O&M personnel during the preliminary design phase of the project. If there are unresolved questions that can best be resolved by a meeting, or if there are doubts that key participants understand all aspects of the project, then it may be advisable to hold a meeting shortly after issuing the BODR. The PM and Engineering management should

make this determination. All conclusions reached in the meeting should be documented and incorporated in the final version of the BODR.

3.4. Incorporating Review Comments

When the review copies of the report are received, the PM, with the aid of design team members, must review the comments and either revise the report to incorporate them or reconcile any differences with the reviewer. This process should be done in much the same manner that reviewer's comments are incorporated on design review sets. See Section 604 – Design Milestones. All original comments from key reviewers should be filed until project completion.

If changes are minimal, they may be documented in a memo which would then be included with the original version of the BODR. If extensive changes are required, the report should be revised and reissued.

3.5. Final Distribution

Copies of the final BODR should be distributed to all the key participants in Water Planning, Operations, Maintenance, and Engineering. Every member of the design team should have ready access to a copy of the report for their use as a guide during detailed design. A copy should be placed in the folder 03.1 BODR within the electronic file system. Refer to Section 402 – File System for more information regarding the electronic file system structure.

A copy should also be uploaded to DOCS as described in Section 403 – Uploading Files to DOCS.

1.0 Introduction

Production of drawings and specifications is the main effort in the Detailed Design Phase of a project. The complete production of the drawings is a joint effort by the Design Division and the Facilities Drafting unit of the Engineering Services Division.

All drawings must conform to District standard practices and must be compatible with the Engineering Services Division's computer-aided design and drafting (CADD) system and standards. All signed drawings become the responsibility of Engineering Records for safe storage and retrieval.

2.0 Responsibilities

Engineers are responsible for the content and accuracy of the drawings. Facilities Drafting is responsible for drawing presentation and to ensure all drawings are conformed to the District Drafting Standards. Drafting of District facilities other than pipelines is done by the Drafting Section, which includes electrical, mechanical, civil, and structural disciplines. The Pipeline Drafting Section performs the drafting for all pipeline drawings.

Refer to Section 100 – Introduction to the Manual for a complete description of Project Manager (PM) and Project Engineer (PE) responsibilities.

2.1. Project Management / Drafting Coordination

a) Drawing Schedule and Coordination with Drafting Section

Before drafting work begins, or drawing markups are produced on a particular project, the PM and the Drafting Section Supervisor will review the project together, specifically the following items:

- Scope of work – provided by the PM
- Design phase schedule – provided by the PM
- Drawing numbers – initiated by the PE and generated by Engineering Records
- Job number – provided by the PM

b) Ongoing Drafting Coordination

While drafting work is progressing on a particular project, the PM is responsible for the following:

- Ensure the design team is aware of and adhering to these procedures. This may be accomplished by discussing these procedures at the Project Kickoff meeting.
- Ensure that proper coordination takes place between all disciplines and Drafting Section.

- Be aware of all work that is being submitted to the Drafting Section.
- Inform the appropriate drafting supervisor of any changes in the project schedule or status.
- A site visit with assigned draftsperson(s) and/or pipeline designer may be arranged after the start of work, depending on the size and complexity of the project.

3.0 Procedures

Project directory ***6.02 Latest Drawings*** should always contain the most recent version drafted version of the project drawings.

3.1. Drawing Numbers

It is the responsibility of the PE to develop the list of all drawings that will be required on their project. For pipeline base drawings, the drafter has the responsibility for obtaining drawing numbers. For non-pipeline design drawings, the PM is responsible for obtaining drawing numbers. ESP 120.4 – Drawing Control: Issuing New Drawing Numbers and ESP 120.6 – Drawing Numbering System for Structure-Related Projects should be consulted for the procedures for obtaining the drawing numbers. See ESP 120.4 for obtaining pipeline "base drawings and Removal From Service (RFS)" function numbers. The drawing numbers are issued by Engineering Records. Drawing numbers must be obtained prior to starting any drafting.

3.2. Drawing Markups for Drafting

Drawing markups submitted to Drafting should be submitted in rough form. Markups are not required to be drawn to scale, but adequate dimensions are required to allow Drafting to produce an accurately scaled drawing.

Whenever possible, drawings from previously completed projects should be used as a basis for a new project. Similar types of drawings can be quickly marked up by indicating changes in dimensions and materials on a print of the older drawing. By copying and modifying a CADD drawing from another project, significant time can be saved both in creating the sketch and in drafting.

If the markups were not already performed in a digital format, then the engineer must scan the document prior to submitting to drafting.

3.3. Instructions for Submitting Drafting Request

Drawing markups should be submitted to the Drafting Supervisor via email, with Project Manager copied.

To maintain version control, use the following PDF naming convention:

Drawing Number_Engineer's Initials_Last Edited Date (yymmdd)

for example: "594C001_LL_230117.pdf".

If it is an old drawing to be renumbered, file shall be named with the new drawing number.

Emails to Drafting Supervisor shall contain the following information:

a) Markups as PDF attachments.
b) Project Number.
c) Expected return date, which should be approximately 2 weeks before the next project milestone date.
d) Brief description of the markups.

In parallel with submitting the drawing to the Drafting Supervisor, the engineer should also upload the markups to the ***6 Drafting*** of the project directory. ***6.01 Markups for Drafting*** should contain all markups that are attached in the email to the Drafting Supervisor. Once drawing markups are incorporated and received from Drafting section, the engineer should place the PDF in ***6.02 Latest Drawings*** folder. In addition, the engineer should move the markup in folder ***6.01 Markups for Drafting*** to the completed directory ***6.01.0 Completed*** within that folder.

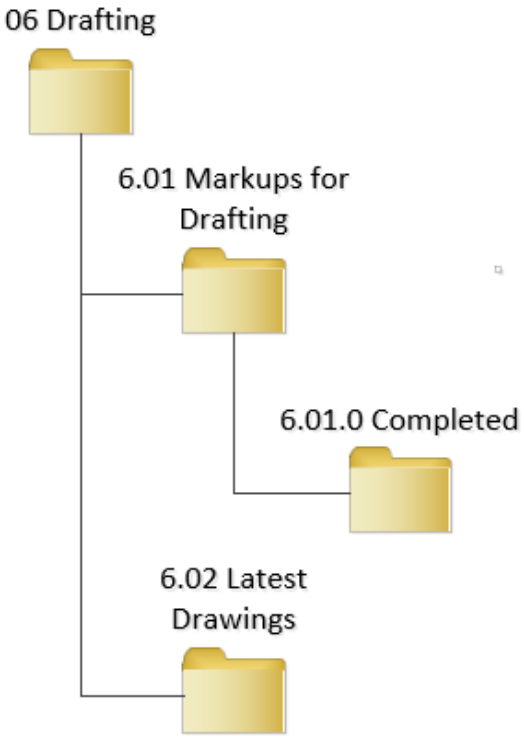

Figure 1 – Drafting Folder Structure

3.4. Instructions for Drawings Drafted Outside of Drafting Section

In some cases, the engineer performs their own drafting in support of various project milestones. In these cases, the engineer is responsible to upload the completed PDF to the ***6.02 Latest Drawings*** folder.

3.5. CADD Interface Procedures (Design/Drafting Section)

Civil/Structural/Mechanical/Electrical Drawings

PM discusses the project with the Drafting Section Supervisor to determine similarities to previous jobs and general approach (e.g., will the engineer use CADD or manual methods for design work).

Civil/Site

Drafting Section creates base drawing based on survey information, as-built drawings, etc.

Structural/Mechanical/Electrical (3 cases)

Retrofit work – Drafting creates base drawing based on as-built drawings.

New work very similar to old work – Drafting prepares a base drawing using old job drawings, adding known changes per initial instructions.

New work not similar to old work – Drafting prepares a base drawing which is blank except for details requested by the PM.

Drafting Section gives the markup file to the PM. The markup file is an empty drawing which simply references the base drawing and any references of the base drawing. The markup file shall have the same name as the base drawing but with an extension of "MRK" instead of "R00." The markup file will be placed in a reserved directory on the network, along with read-only copies of the appropriate background files. Depending on preference, the engineer can copy all files to their workstation or reference the files directly from the VAX. The former approach is more common.

A R00 file with multiple reference attachments would necessitate the use of a custom program to create the MRK file conveniently. It can be done manually, but the procedure is time consuming.

Engineering staff modifies the markup drawing (MRK) as follows:

- Provides instructions to the drafter on Level 63, including deletion marks, comments, etc. The engineer will not use Level 63 for other purposes.
- Places new drawing features, including necessary notes and dimensions. Level conventions should be observed to the extent practical. However, undue time should not be spent producing presentation-quality markups.
- Makes very simple modifications by way of instructions to the drafter.

- Makes more complex modifications by fence-copying the minimum relevant portion to the side and modifying it. When needed for clarity, a common origin on the original and the modified copy should be indicated by placing a note on Level 63.

The engineer shall place only the information needed either to verify the design or to convey information to the drafter. The engineer shall not attempt to produce final drawings. Once the engineer has made notes in the MRK, the engineer should delete their copies of the original MRK and any reference files so that they will not be confused with current copies.

The engineer shall submit a hard copy of their markup to the drafter and place the MRK file in the common directory on the file server. The hard copy shall be printed to highlight changes. Per ESP 209.1 – Color Code for Marking Drawings, the engineer shall put their initials, telephone number, date, and job number on the markup prior to it being given to the Drafting Section.

If only simple changes (dimension changes, notes) are needed, they should be done using a hard copy rather than by the procedure being described. Therefore, after the first submittal of an MRK to the Drafting Section by the engineer, changes will generally be made via hard copy only (there may be exceptions).

The Drafting Section completes the drawing as follows:

After receiving a markup (either an MRK or a manual redline) from engineering staff, the Drafting Section will update the CADD file and produce the final plot. The Drafting Section may use selected portions of an MRK file directly as appropriate, after revising it as needed to conform to CADD standards.

Compatibility Notes: Until the Drafting Section is using MicroStation, engineers should provide files to Drafting that are downward-compatible. This means that "shared" cells and multilines should not be used and that dimension elements should be "dropped" prior to giving the files to the Drafting Section. A simple way to drop all dimensions is to select all elements (via the Edit pull-down menu), and then key in "drop dim." Use of common rather than shared cells is accomplished by turning off the "shared cells" switch in the Settings-Cells dialog box.

The term, "CADD Design" denotes, for pipeline, pipe design on MicroStation by the Pipeline Designer. Pipeline drafting may be requested to complete the final drawing.

3.6. Review of Drafting

a) Back-Checking Drafting

All work done by Drafting shall be checked by the appointed Discipline Engineer. Comments and corrections made during back checking shall be color coded to include:

RED	Items to add to drawing

GREEN	Items to delete from drawing
BLUE	Comments/instructions to the Drafter
YELLOW	Items that are correct as is
PURPLE	Used by Drafter to indicate completed drafting

For additional information, see ESP 209.1 – Color Code for Marking Drawings.

When checking CADD-generated drawings, care should be taken to always work with the most recent version of the drawing. The **date** and **time** of the drawing can be found at the bottom left corner.

3.7. Drawing Revisions

When a drawing must be modified after it is signed, the procedure for revising drawings must be followed.

If the construction contract has not been awarded, ESP 209.41 – Pre-Construction Drawing Revisions should be consulted.

If the construction contract has been issued, the procedures outlined in ESP 209.4 – Drawing Revisions should be followed. For pipeline projects, insert "orders" for contract and request 80000- billable job numbers.

3.8. As-Built Drawing Revisions

a) District Drawings from Contract Documents: After construction is completed, the Construction Division forwards marked-up as-built prints to the Drafting Supervisor. The discipline Senior is responsible for the project drawings through the completion and signing of the as-built revisions.

See ESP 209.2 – As-Built Drawings - Facilities and ESP 209.3 – As-Built Drawings: Signatures for additional information and procedures.

3.9. Drawing Standards

a) Standard Legend

District Standard Drawing 9492-G-001 thru G-001.3 (Electrical Legend and Symbols) can be found in DOCS and shall be used for all projects that require an Electrical Legend. This drawing will be updated as required.

b) Abbreviations and Symbols

1. ESP 207.1 - Abbreviations for Surveying and Mapping and ESP 251.1 – Pipe Designations for 100 ft/in Distribution and Service Map. Additional abbreviations may be used as defined in ANSI Y1.1-1972 – Abbreviations for Use on Drawings and in Text.

2. In plan, when the elevation symbol "x" is used, there is no need for the abbreviation EL, but in section the abbreviation EL must be used (e.g., EL 342.50).

c) Standard Drawings and Typical Details

Whenever possible, standard drawings and typical details shall be used throughout the design. It is the responsibility of the Project Engineer and Discipline Engineer to determine the applicability of District standard details for specific project conditions.

Typical details may be modified to meet the needs of the project.

d) Section and Detail Designation

Sections and Details are designated by fractional symbols. Sections are to be given a letter identifier and details are to be numbered. The letter or number is shown in the numerator of the fraction and the sheet number is shown in the denominator. See ESP 208.2 – Designation of Sections and Details.

e) Schedules

To provide for a concise and rapid enumeration of various items on the project, schedules shall be used within drawings. References will be made to the drawings, standard details, and project specifications. Potential schedule categories include the following:

- Doors
- Windows
- Architectural finish (including concrete)
- HVAC equipment
- Lighting fixtures
- Retaining walls
- Electrical cable and conduit

4.0 CADD Standards – Procedures

4.1. CADD Standards

CADD standards are symbols, libraries, specifications, or guidelines that are used and followed to create computer generated drawings. The consistent use of CADD standards results in drawings that are uniform in appearance and easily maintained and modified.

There are many types of data that fall under the heading of CADD standards.

4.2. Development of CADD Standards

The Drafting Section Supervisor directs the development and maintenance of CADD standards. Electronic data included in the CADD standards will be created and documented by the Drafting Section Unit in cooperation with other affected Divisions and Sections.

4.3. Standard Symbols and Cell Libraries

The term "symbol" refers to standard engineering symbols that are used on drawings to depict specific items, including mechanical valves and electrical switches and devices. Cells are electronically stored graphics that often represent symbols. A symbol is stored in a cell library and recalled to be used on drawings. A cell can be any combination of graphics that aids in the production of drawings. While most cells are also symbols, many cells are simply tools to assist in creating drawings.

Symbols should conform to general engineering practice and to industry standards. Each engineering discipline Senior shall work with the Drafting Section Supervisor to develop a library of symbols and a Standard Drawing Legend that meet the needs of that engineering discipline. The Discipline Standards Coordinator shall provide the necessary support for successful implementation of the symbols within that discipline and shall be responsible for updates to the applicable Standard Drawing Legend.

4.4. Revisions/Additions to CADD Standards

Regular modifications to the CADD standards are expected. All changes to the standards should take into consideration all CADD systems in use and should be downward compatible.

a) Symbols – Additions and Revisions

Any modifications to the symbols should be submitted to the Discipline Standards Coordinator for the specific engineering discipline. Revisions should be submitted on the attached form, CADD Symbol Request. The Discipline Standards Coordinator shall review and approve the revision and submit the approved form to the Drafting Section Supervisor for implementation.

Revised CADD standards electronic files shall be issued every six months. If a significant number of revisions are required, updated files may be issued more frequently. When an update is issued, the affected files will be placed in a common location on the network, and the CADD Discipline Standards Coordinators shall be notified.

4.5. Documentation of CADD Standards

CADD standards are documented in the EBMUD Drafting Section CADD Manual. This manual covers all of the major areas of CADD standards. Standard symbols are documented in the cell library documentation and on EBMUD Standard Drawings.

Modifications and additions to the CADD Standards Manual will be issued on a regular basis, with the issue of the updated electronic files. The documentation will be issued in the form of replacement pages for the manual.

4.6. Use of CADD Standards

Consistent use of CADD standards improves the CADD output and reduces the time required to produce and revise a drawing. All CADD Drafters and all District Consultants shall utilize all CADD Standards in the production of drawings. Output that is non-standard will not be acceptable in the permanent CADD archive.

CADD users who are not producing final drawings on the CADD system should try to observe the CADD standards to the extent possible. However, undue time should not be spent producing presentation-quality CADD output.

4.7. Engineering or Drafting Consultants' Use of Standards

Consultants hired by the District to produce CADD drawings shall adhere to the CADD standards. All contracts that include CADD drafting should be coordinated with the Drafting Section Supervisor to ensure that adequate language is included in the contract to cover the use of these standards. Exceptions to this procedure shall be reviewed on a case-by-case basis by the PM and the Drafting Section Supervisor.

District CADD standards, including cell libraries, standard details, and other electronic data, shall not be released to any consultant without a signed contract that limits the use of that data.

4.8. CADD Data "Ownership"

Design engineers and survey staff use the CADD system to produce a wide variety of electronic data. Many copies of an electronic file may exist. In order to maintain a good recordkeeping system, it is necessary to assign responsibility to specific work units ("Owners") to maintain the data. Ownership means the responsibility to maintain, document, retrieve, revise, and archive the data. Data will be classified into the following categories. Only the assigned Owner of that category can revise or retrieve the archived data in that particular category.

Electronic data is transferred regularly from one person to another. In order to ensure that the data used is up to date and complete, copies of electronic files should always be requested from the assigned Owner.

Data Category	Owner
CADD standards	Drafting Section
Cell/Symbol libraries	Drafting Section
Topography/Property drawings	Survey
Survey data	Survey
Sketches	Originators

Working drawings	Drafting Section
Markup drawings	Originators
Issued drawings	Drafting Section
Consultant-generated drawings	Drafting Section

All signed drawings (hard copies), including topography and property drawings, shall be archived by Engineering Records. On each hard copy, location and Owner of the electronic data should be indicated.

5.0 Other Drawing Practices

a) Standard drawing sizes are 11" x 17" and 22" x 34". The EBMUD title block appears at the bottom right side of all drawings. See ESP 208.1 – Title Block Format.

b) Drawings will be reduced to half scale (11” x 17”) for bidding so lettering should be sized accordingly. The scale selected shall be large enough that full detail will be presented when plans are reduced.

c) Plan views should be oriented with NORTH up if possible. Otherwise, orient NORTH to the left. (Plan/profile drawings may vary.)

d) Drawings shall have both a numerical scale and a graphic scale. Reduced drawings should be labeled as such.

e) Drawing and detail scales should be adequate to clearly show all information when the drawing is reduced to half scale. Scales used should be consistent between drawings in the same project.

f) Do not over-detail drawings. Generally, equipment shall be shown in single-line outline.

g) Do not repeat notes and dimensions needlessly. Do not use more dimensions and notes than necessary to convey the required information. Keep all notes concise and to the point.

1.0 Introduction

All project Technical Specifications should follow the Construction Specifications Institute (CSI) format for organization.

The Specifications and Engineering Support Section of the Engineering Services Division controls the master project specification sections developed for all types of water system projects. Design Division Senior Engineers oversee the technical content of the master specifications. Other, previously used specification sections are also available. The goal of the master specifications is to provide the Project Engineer (PE)with good, standardized specification sections that can be readily modified for the specific project needs.

2.0 Responsibilities

The Project Manager (PM) and Project Engineer (PE) are responsible for coordinating with the Discipline Engineers (DEs) to ensure that the total specifications package is complete and technically accurate. It is the responsibility of the PM to see that these portions are written and coordinated with the Specifications and Engineering Support Section and that the latest master specifications are used as a starting point. The PM shall also check the master specifications in the Design Division Site – Documents/Specifications/3 -Ready for Posting SharePoint folder for updates to technical specifications and bring any updates to the attention of the DE.

Front-end specifications (Div 00 and Div 01) are typically the responsibility of the PM. The technical specifications are typically the responsibility of the DE. An outline of typical responsibilities can be found in the SharePoint file Specifications & Engineering Support Site – MasterSpecs\Master_Spec_List.xlsm.

The responsible engineer shall review the master specifications for relevance to the specific project and make edits accordingly. To facilitate more rapid review, all edits to the specifications shall be done using track changes.

On some projects, consultants such as architects and landscape designers may provide portions of the specifications. These portions should be reviewed first by the PM and then by the Specifications and Engineering Support Section for suitability and conformance to CSI format.

During the Design and Construction phase of projects, it is common to identify deficiencies or areas for improvement within the master specifications. The DE shall propose revisions to the master specifications as these deficiencies or areas for improvement are discovered, following the procedure outlined in *Master Specifications Modification Guidelines* within this section.

3.0 New Technical Specifications

When existing specifications do not cover the needs of a given project, a new specification section is written. The 50 divisions of the CSI format are fixed, but the sections grouped under each division are adapted to the specific needs of each individual project. The CSI publishes a guide with a listing of section titles and numbers that fit the 50-division format. The Specifications and Engineering Support Section has a CSI manual (SectionFormat) that can be used in developing section numbers and titles under each division.

The PM and DEs are responsible for ensuring that new technical specifications submitted by a design consultant meet District design requirements and conform to CSI format.

Each section is usually divided into three basic parts:

Part 1: General

Scope, related work, submittals, inspection requirements, testing, training, certificates, etc.

Part 2: Products

Technical specifications for all materials, equipment, fabricated items, factory testing, etc.

In no case is it proper to show any installation requirements in this part or to specify quality of workmanship in this part.

Part 3: Execution

Qualitative standards relating to workmanship, etc.; covers installation, erection, construction, field testing, etc.

In no case is it proper to cover any product, materials, equipment, or fabricated-item requirements in this part.

A few items must be kept in mind when writing a new specification.

Precise language is crucial. For example, pronouns must have their reference noun proximate, or the noun must be repeated.

An element, device, or procedure must be identified always by the same name, and that name must be the same as shown on the drawings. The following are some items of common use or interest for writing specifications:

- Standards/References - Ascertain that requirements agree with the General and Special Conditions and with sections in the specification covering general requirements.
- Language
  - Observe rules of grammar.
  - Do not use abbreviations not defined in the specifications, except for commonly used units of measure such as ft., lb., gal., H.P.

  - Use "shall" for acts the Contractor must perform.
  - Use "will" for acts the Engineer or District is to perform.
  - Do not use the auxiliaries "must" or "should"; limit or avoid the use of the words "all," "any," and "to be."
  - Avoid ambiguous language such as "workmanlike manner" and "neat."
  - Avoid the use of "and/or." The expression has been found to be "deliberately ambiguous" in a court case.
  - Use short sentences.
- Units - Use standard abbreviations. If metric units are used, ASTM Standard E380 (Metric Practice) is recommended.
- Subdivision - Organize the text so that the subject matter is covered under titles followed by two or three paragraphs. Very long blocks of text make it difficult to find information.
- Direction - The requirements should be directed to the Contractor. Requirements directed to the manufacturer or supplier are non-binding because the contractual relationship is between the District and the Contractor.
- Conflict of Information - This is perhaps the most common problem. It occurs when dimensions, capacities, or other features are called out in more than one place. The rule to prevent this from happening is "say it once, say it right, and say it in the right place." Specifications should be used to define functionality, performance, and quality and to provide administrative information. Drawings show physical relationships, layouts, quantities, schematics, cable conduit schedules, and present graphics of processes, etc.
- Standards - References to standards such as AWWA, NSF-60 or NSF-61, ASTM, ANSI, and ASME should be up to date and checked by the DE. It is a common problem to find references to standards that are outdated or no longer exist. The designer should check the standard to ascertain (1) that the specified requirements are possible within the provisions of the standard, and (2) whether information must be added to define options available in standards. At times, standards require that information be added.
- Approved - This word should not be used. Do not write "the Contractor shall submit for the Engineer's approval...". This statement seems to imply that the Engineer has no choice but to approve. It should be sufficient to say, "the Contractor shall submit..."
- Two or equal - List in the specification two or more manufacturers, followed by the words "or equal as approved by the Engineer," when a product is specified by name or manufacturer. Salient features of the product should be described. The product should be specified to the same detail for each manufacturers listed (e.g., if model number is given for one, it should be given for the other). If listing

specific equipment manufacturers, the DE shall verify that the detailed product description and other specification requirements can be met by the listed equipment manufacturer.

4.0 Master Specifications Modification Guidelines

This section describes the procedures for modifying master specifications.

4.1. Start with Current Master Specification: Find the existing master specification section in the Specifications & Engineering Support Site – Masterspecs\Masterspecs directory. A list of existing master specifications, along with the engineer responsible for each section (Contact Engineer), is also available (Specifications & Engineering Support Site – Masterspecs\Master_Spec_List.xlsm). Check with the Contact Engineer to see if the section you want to edit is currently being edited by others. You should also check the following folders on the Design Division SharePoint site Design Division Site – Documents\Specifications\ to see if other engineers are in the process of editing the section: 1-Working Drafts, 2-Senior Review, 3-Ready for Posting. If the section is being modified by others, coordinate your edits with those engineers.

If the specification section is new with no existing master specification, then coordinate with the Specifications Section to get an appropriate section number. Ensure that the section follows the District standard outline formats (MS Word Headings).

4.2. Save File to Working Drafts: Save the existing master specification file to the 1-Working Drafts folder under the appropriate discipline heading. Keep the same file name and append "rev" followed by the date (year and month; e.g., "40 20 20 Liquids Process Piping.doc" saved as "40 20 20 Liquids Process Piping Rev201010.doc"). Accept all previous tracked changes. The Specifications Section does not accept previous tracked changes, so it is important that Design Division completes this step. This step is important because it will differentiate previous Senior-approved master specification edits from current working draft edits.

4.3. Section Editing and Review: All modifications to the specification sections should be in "Track Changes". All proposed changes should be coordinated with and reviewed by the Contact Engineer responsible for the section.

Comments: Comments should be added that will assist engineers when they edit the master specification for future projects. Useful comments include when to apply (or not apply) a particular article, or references to outside standards or websites that apply to the article and might be useful to research during the design. Mandates by the client or other work groups are also important comments to document within the master specification comment fields. Comments that should not be added to the master specifications include a running dialog of incidental corrections like routine model number updates, phone number updates, grammar changes, etc. These sorts of comments have no value to the engineers

when using these master specifications, and they tend to clutter the comment section.

4.4. Ready for the Senior: When the modified section has been reviewed and approved by the section Contact Engineer and is ready for Senior review, move the file from the Working Drafts folder to the appropriate discipline folder under 2-Senior Review and notify the Senior Engineer that the section is ready for their review. Be sure to move the file; do not simply copy it. If a specification section is new with no existing master specification, then the edits do not need to be in Track Changes.

4.5. Senior Review: After the discipline Senior Engineer has completed their review of the modified specification section, the Senior Engineer must move the file to the 3-Ready for Posting folder and then notify the Specifications Section supervisor that the section is ready for Engineering Services review and posting in the Specifications & Engineering Support Site – Masterspecs\Masterspecs drive as the new master specification section.

4.6. After Notification: The Senior Engineer, or their designees, should monitor the 3-Ready for Posting directory and follow-up with Engineering Services as necessary to ensure that the section is posted in a timely fashion. Two weeks is usually sufficient time to review and post the new masters; however, some sections with extensive or controversial edits might require additional review time by Engineering Services and others. Once the section has been posted to the Specifications Section SharePoint site as the new master specification, the file is typically removed from the 3-Ready for Posting folder on the Design Division SharePoint site by the Specifications Section supervisor so that it will not be confused with other sections that have not yet been posted. The Specifications Section supervisor usually notifies the Senior Engineer when the section is posted; however, it is the Senior Engineer's responsibility to monitor the progress of the final review through Engineering Services to ensure that the process has not stalled.

4.7. Old Documents: Design Server administrators will search the Specifications folder directories for old files on a periodic basis. Files with save dates older than 1 year will be moved to the 4 - Old File subdirectory, and the respective discipline Senior Engineer will be notified. If the files in the 4 - Old File directory have not been claimed after 1 month, they will be deleted without further notice. This procedure will help keep the "Working Drafts" directories free from extraneous files.

1.0 Purpose

During design of a project, calculations are generated. These calculations are needed for documenting the basis of design, for reference, and sometimes for backup material for permit applications. All calculations shall have an originator and a checker.

2.0 Procedure Overview

The calculations should be presented in a concise, organized, and neat fashion. Calculations may be performed using software tools such as Microsoft Excel, Mathcad, or AFT Fathom. They may also be handwritten but should be dark and legible enough for photocopying.

All calculations should be organized in a manner such that any qualified engineer will be able to follow them without assistance. All reference material and sketches should be copied and included with the calculations, whenever possible, to assist the checker. If sections of codes and/or standards were used in the calculations, these should be noted (attachment of copies of codes and standards is optional).

Working calculation files should be placed in the ...\04 Design\{*DISCIPLINE*}\Calculations subdirectory, but they may be stored in an alternate location as directed by the Senior Engineer. Refer to Section 402 – File System for additional information.

All calculations should be checked and signed by the designer and checker. The expectation is that calculations are performed throughout the design process. Calculations shall be completed and checked by designer and checker by the 90% design milestone. Final calculations shall be reviewed and approved by the designer’s Senior Engineer and uploaded to DOCS by the time the Authorization to Advertise (ATA) is signed.

3.0 Format

Calculations should be performed in an organized and legible form. The calculation shall include the following components:

3.1. Calculation Cover Sheet

Each calculation file shall use the standard cover sheet which is available from the Design Division SharePoint in the *…\Design Guides\Forms and Templates/Calculations* subdirectory. Select "Save" and save this file to your project directory with a descriptive name. A sample cover sheet can be found in Attachment 1. The cover sheet defines the following information:

a) Unique Calculation DOCS Identifier

b) Organization Number

c) Facility Name

d) Project Title and Specification Number

e) Prepared By, Checked By, and Approved by Signatures and Dates

f) Record of Revisions

3.2. Table of Contents (if required for complex or multi-calculations compiled into a single calculations)

A table of contents, which clearly indicates each section of the calculations, shall be provided.

3.3. Calculations

Each calculation shall have:

a) Calculation

b) Supporting information as appropriate (references, sketches, manufacturer, software output or vendor data)

2.0 Calculation Identifier

All calculation identifiers shall have the following format

CALC - {Facility Number} – {Discipline} – {Unique Number}

3.4. Facility Number

This should reflect the Facility number for which the calculation is being performed. If the calculation applies to several facilities, choose any one of the facilities for the calculation number. Write the other related facilities numbers on the cover sheet.

1.a. Discipline

The Discipline field shall be a letter to indicate which discipline is performing the calculation:

- C = Civil Engineering – Structural Engineering
- M = Mechanical Engineering
- E = Electrical Engineering
- I = Industrial Control System Engineering

3.5. Unique Number

The Unique Number field should be incremented (001, 002, 003, etc.) to ensure that all calculation files have a unique number in DOCS.

4.0 Calculations by Others

Calculations by vendors are usually coordinated by the discipline engineer (DE). Calculations by design consultants are usually coordinated by the Project Manager (PM).

These calculations are typically reviewed, formally approved, accepted, or acknowledged by the District. When calculations are performed by others, they are typically not signed by District staff. Vendor or consultant calculations should have their own coversheet for their own checks and approval. The vendor or design consultant's calculation shall be stamped and signed by the vendor or design consultant. The PM/DE shall attach a District coversheet (not signed by District staff) with the vendor or consultant's signed calculation and upload the calculation to DOCS once they have been formally approved or accepted by the District.

The PM or DE shall be responsible for obtaining, assembling, and uploading the vendor or design consultant calculations into DOCS and saving the working file into the project folder.

5.0 Uploading Calculations to DOCS

The calculations shall be converted to PDF format prior to uploading to DOCS. Refer to Section 403 – Uploading Files to DOCS for procedures on how to upload calculations to DOCS.

Attachment 1
Sample Cover Sheet

EAST BAY MUNICIPAL UTILITY DISTRICT

CALCULATION COVER SHEET

Calculation Number:	CALC	314	E	001
		Facility	Discipline	Number

Org/Org Name: 554-Electrical Engineering
Facility Name: Maloney Pumping Plant
Other Related Facility Numbers: Greenridge Pumping Plant (298), La Honda Rate (475)

Purpose of Calculation:
This is for Spec 2135 Maloney Pumping Plant and Sobrante Water Treatment Plant Improvements.
Refer to separate calculation for Sobrante WTP.

- Cable tray calculation
- Conduit fill calculation
- Voltage drop calculation
- Lighting calculation
- Short-circuit calculation

		Date
Prepared by:	Jong Lee	03.07.2019
Checked by:	Sonja Mah	03.07.2019
Approved by:	Doug Handran	03.07.2019

RECORDS OF REVISIONS

Revision	Date	Reasons for Revision	Prepared	Checked	Approved

Save final calculation in WebDOX as a *Plan, Report, Study or Presentation: Design Calculation*

1.0 Introduction

Projects go through a series of milestones and design reviews as the design work progresses. The design reviews are referred to as 10%, 50%, and 90% Design Reviews. Not all projects will have all reviews. A smaller project may have only a 10% and 90% Design Review. On larger, complex projects, the 10% Design Review may be replaced by the preparation and distribution of a formal Basis of Design Report (BODR). See Section 505 – Preliminary Design Report. The Project Manager (PM) should determine which reviews are appropriate, and a schedule clearly defining key milestone dates should be established at Project Kickoff.

The purpose of the reviews is to give client Departments and the Construction Division an opportunity to review and comment on the design work in progress. Each review has a specific purpose, and it is the PM's responsibility to communicate this purpose to the reviewers. The PM should also determine the appropriateness of the reviewers' comments. Reviewers should not treat the reviews as an opportunity to significantly add to, or change, the original project design basis and scope. If significant changes become necessary, it is the PM's responsibility to revise the scope and obtain the appropriate approvals. See Section 605 – Scope Changes.

2.0 10% Design Review

2.1. Purpose

The purpose of a 10% Design Review is to formally establish the project scope of work and convey the conceptual design to stakeholders for feedback. On larger projects, this function may have already been accomplished in the Preliminary Design Phase through meetings and the BODR. During this phase of the project, requests for scope modifications are encouraged in order to minimize scope creep later in the design phase.

2.2. Procedure

A 10% Design Review meeting should be held. The PM arranges for the meeting and requests the attendance of the Director of Engineering and Construction and appropriate representatives from Maintenance, Operations, and Construction.

Prior to holding the 10% Design Review meeting, the PM should send out the agenda, drawing package, and any applicable BODR to the invitees and stakeholders.

The PM shall assemble the 10% review package and place it in the ***7.01 Complete 10 pct*** project directory. This package shall be assembled by inserting drawings from the ***6.02 Latest Drawings*** project directory. The 2.3 Components section below provides further guidance on what should be contained within this package. This package will serve as a snapshot of the project at this milestone and will not need to be updated once the milestone has passed.

It is the PM's responsibility to conduct the 10% Design Review meeting and to prepare and issue the meeting minutes. These minutes should include all conclusions reached during the meeting. See Section 211 – Project Meetings. A plan of action to resolve any issues not brought to conclusion during the meeting must be developed and executed.

2.3. Components

The following list outlines possible content of the 10% Design Meeting.

a) Description

This should cover:

1. Project objectives and description, including criticality of facility
2. Detailed scope of work
3. Design and construction considerations, including facility outage requirements and portable pump needs
4. Design criteria – unit sizing criteria
5. Regulatory requirements (e.g., air quality, waste discharge, sludge disposal) as applicable
6. Required permits, easements, or utility coordination
7. Summary of existing geotechnical information, if applicable
8. Major equipment selection – alternatives identified and evaluated; analysis of prepurchase option
9. Preliminary process control strategies, alarms, etc. (electrical and instrumentation)
10. Preliminary cost estimate
11. Preliminary construction schedule, including discussion of project sequencing, critical path activities, and long-lead procurements.

b) Preliminary Drawings and Information

1. Flow diagram (for water treatment plant projects)
2. Hydraulic profile (for water treatment plant projects)
3. Site plan layout
4. Equipment layout showing:
    i. Pumps
    ii. Pipes
    iii. Large valves
    iv. Major electrical equipment from electrical one-line

v. Major control panels

5. Consideration of construction constraints – existing utilities, site access, shutdowns, etc.

6. Yard piping layout showing:

i. Major process lines

ii. Sewer

iii. Storm drain

7. Electrical duct bank layout

8. Floor plan of buildings and structures

9. Architectural elevations (if available)

10. Electrical one-line diagram

11. Communications strategy

12. Piping and Instrumentation Diagrams (P&IDs)

Projects of all types may have additional specific requirements that are not outlined here.

c) Additional Information

At the 10% Design milestone, the project team shall also have the following:

1. Preliminary list of required drawings and specifications

2. Radio Path Survey

3. Determination of California Environmental Quality Act (CEQA) strategy and requirements

3.0 30% Internal Deliverables

3.1. Purpose

Between the 10% and 50% project milestones, there are several deliverables that must occur. There is not a single milestone that will be declared but rather a set of several independent deliverables required so that each workgroup can accomplish their tasks. This section defines these deliverables.

3.2. Procedure

Between the 10% and 50% project milestones, the PM shall coordinate with the Project Engineer and Discipline Engineers to track that the following components are in place.

The PM shall assemble a 30% package when the milestone is declared and place it in the ***7.02 Complete 30 pct*** project directory. This package shall be assembled by inserting drawings from the ***6.02 Latest Drawings*** project directory. The 3.3

Components section below provides further guidance on what should be contained within this package. This package will serve as a snapshot of the project at this milestone and will not need to be updated once the milestone has passed. The 30% milestone is not typically submitted to stakeholders external to the project design team.

3.3. Components

The following stakeholder coordination shall be accomplished after the 10% Design Review and before the design is 50% complete:

a) Stakeholder engagement & follow-up: Feedback from the 10% design meeting is critical to the design process. The PM is responsible for coordinating stakeholder engagement and the design team's response to 10% design feedback. This may include written responses to comments, coordination meetings on specific topics with stakeholder groups, or (for complicated issues) the establishment of a project task to address issues identified by stakeholders. The PM shall coordinate and track the design team's outreach and responses to stakeholders.

b) Scope of work document: The PM shall finalize and memorialize the project scope of work once follow-up, as outlined in (a) above, is complete. The scope of work shall then be distributed to the design team and primary District stakeholders (e.g., Distribution or Treatment Operations). Once the scope of work is distributed, any requested scope changes shall follow Procedure Section 605 – Scope Changes. This

document should include a narrative of the project objectives and an outline of major project components.

The following 30% internal deliverables shall be accomplished after the 10% Design Review. These are needed by the design team before the 50% milestone as they are required by other Design disciplines to complete their 50% deliverables.

a) 3D modeling: All main plan views and section cuts for drawings shall be made with borders and placed into **6.02 Latest Drawings**.

1. Mechanical

i. Plan of main mechanical equipment with structural building

ii. Plan of wired instrumentation location

2. Civil/Structural

i. Site plan

ii. Structural Building plan

b) Load list delivered, including mechanical equipment using power such as:

1. Pumps & portable pumps
2. Crane
3. Electric actuated valves
4. Flow meter
5. Sump pump
6. HVAC
7. Process equipment instrumentation

c) PG&E Application started

d) Discipline Engineers have discussed the expected calculations with their Senior. This does not need to be a list tracked by the Project Manager

4.0 50% Design Review

4.1. Purpose

The 50% Design Review refines the drawings submitted at 10% Design Review and adds new drawings. Specifications should be started for non-standard equipment or any items for which a master specification does not exist. All plan drawings should be started, including site plans, building layouts, and major equipment layouts with sufficient detail to complete an initial interdisciplinary conflict review. P&IDs and architectural elevations should be considered final at this level of design.

The PM shall assemble a 50% package when the milestone is declared and place it in the ***7.03 Complete 50 pct*** project directory. This package shall be assembled by inserting all available drawings from the ***6.02 Latest Drawings*** project directory. The 4.3 Components section below provides further guidance on what should be contained within this package. This package will serve as a snapshot of the project at this milestone and will not need to be updated once the milestone has passed. The 50% milestone is not typically submitted to stakeholders external to the project design team. The intent of the 50% package is to be reviewed internally by the PM and the design team to improve coordination (inter-drawing references, etc.) and to eliminate conflicts and obvious errors.

The 50% milestone will serve as a hold point until all the information listed in the Components section below is complete. This includes the information listed in the Components section of the 10% and 30% milestones. The intent of these Components sections is to highlight all relevant coordination information needed between workgroups so the design team can begin full production of the 90% deliverables.

4.2. Procedure

Usually, no meeting is held at the 50% Design Review stage. The determination of whether to hold a 50% Design Review meeting will be made by the PM in consultation with the client Departments. Instead of a meeting, project drawings are compiled and issued to the appropriate individuals for review. The intent is to reach consensus on major layouts and equipment selections.

Relevant drawings may also be sent for review to a limited list of representatives from other Departments that have an interest in the project. The drawings are not expected to be complete, but they should form a reasonable basis for review. All drawings issued for review shall be in a B-size (11" x 17") format.

The PM develops a distribution list and establishes a due date for the return of all comments. Usually about two weeks should be allowed for distribution and review.

If the client Departments have highlighted topics of concern, focused meetings should be held to address and resolve any related issues.

4.3. Components

a) The function and size requirements of buildings and structures should be close to completion.

b) Plans, sections, and building and structural concept drawings should be firm at this stage.

c) On projects that have buildings, final architectural elevation views should be near final.

d) P&IDs should be near final at this stage of the project. Only minor changes in P&IDs are expected between the 50% and 100% Design Reviews.

e) For water treatment plant projects, the final hydraulic profile should be submitted. Only minor changes in the hydraulic profile are expected between the 50% and 100% Design Reviews.

f) The following list summarizes the typical requirements for the 50% Design Review:

1. Refinement of 10% drawings
2. Plan and section of buildings and structures
3. Final architectural elevations
4. P&IDs final
5. Hydraulic profile final
6. Response to 10% Design Review comments
7. Specifications for major non-standard equipment items
8. Control Strategies specification, including local/remote control and sequencing, near final

5.0 90% Design Review

5.1. Purpose

The drawings and specifications should be very close to complete by the 90% Design Review. This is the last opportunity for the reviewers to have input prior to going out to bid. There should be no significant changes to the basic design and scope at this stage. The review should be focused only on the details of execution of the design scope.

5.2. Procedure

The procedure for issuing the drawings and specifications for the 90% Design Review is handled by the Specifications and Engineering Support Section. The reviewers will be expecting to look at complete plans and specifications.

Between the 50% and 90% milestones, it is the responsibility of each Discipline Engineer to coordinate with the other Discipline Engineers to identify the work packages required to enable a coordinated 90% milestone completion. These work packages should be discussed at regular project status meetings and tracked by the PM.

Prior to the declaration of the 90% milestone, each discipline shall have performed their own internal reviews in accordance with each design discipline's checklist. This includes the Discipline Engineer responding to comments from the Senior Engineer and the checker. The Senior Engineers may declare their own

discipline-specific deadlines in advance of the 90% milestone to provide time for these internal, discipline-specific reviews.

The design project team submits all drawings and specifications to the Specifications and Engineering Support Section. The Specifications and Engineering Support Section compiles the 90% deliverable. Since this deliverable is compiled by the Specifications and Engineering Support Section, there is no need for the PM to compile a separate set into the ***7.04 Complete 90 pct*** directory. Instead, the PM should insert a link within this directory to the deliverable compiled by the Specifications and Engineering Support Section. It is the PM/PE's responsibility to ensure that the entire package is complete and properly assembled. The Specifications and Engineering Support Section issues the 90% deliverable for review.

As of October 2021, the Specifications and Engineering Support Section issues the 90% deliverable (drawings and specifications) in PDF format via a Bluebeam review session. The Bluebeam review session allows for multiple reviewers to make comments on a single PDF on a shared platform. The Specifications and Engineering Support Section may also issue hard copy drawing sets in a B-size (11" x 17") format for distribution to the project team and a select number of reviewers.

In coordination with the Specifications and Engineering Support Section, the PM develops a distribution list and establishes a due date for the return of all comments to both the drawings and the specifications. Approximately two weeks should be allowed for distribution and review.

A 90% Design Review meeting may be held for larger projects such as water treatment plant improvements. 90% Design Review meetings are not typically held for pumping plant and reservoir rehabilitation projects. The determination of whether a meeting is necessary is at the discretion of the PM and the discipline Senior Engineers. If a meeting is deemed necessary, the PM arranges the meeting and requests the attendance of the Director of Engineering and Construction and appropriate representatives from Maintenance, Operations, and Construction.

Prior to holding the 90% Design Review meeting, the PM should send out the agenda and coordinate with the Specifications and Engineering Support Section to issue the 90% deliverable to the invitees and stakeholders.

It is the PM's responsibility to conduct the 90% Design Review meeting and to prepare and issue the meeting minutes. These minutes should include all conclusions reached during the meeting. See Section 211 – Project Meetings. A plan of action to resolve any issues not brought to conclusion during the meeting must be developed and executed.

Drawing comments should be made in the Bluebeam review session, though hard copy markups may be provided to the Specifications and Engineering Support Section. Specification comments should be made on the Excel comment spreadsheet distributed with the 90% deliverable.

All 90% Design Review comments shall be returned to the Specifications and Engineering Support Section for compilation. The PM shall review the compiled comments before distributing them to the respective disciplines for revision.

PMs shall make an initial assignment of comments to each discipline. Each of the comments on the individual review sets must be addressed, and the PM is responsible for returning all comment responses to the reviewer. Engineers shall respond to comments provided in Bluebeam with a yellow highlight for comments incorporated; a blue highlight shall be used for comments not incorporated, and blue text shall be used to explain the reasons the comments were not incorporated. Engineers shall respond to comments provided in the Excel comment spreadsheet using the following options:

1. A – indicating comment will be incorporated
2. B – indicating response offered as resolution to comment
3. C – indicating comment not incorporated for reasons given

If the designer does not agree with the reviewer's comment or cannot incorporate it for some reason, it is the PM's responsibility to get the issue resolved with the reviewer. All comments must be responded to before drawings are signed.

5.3. Components

The 90% plans and specifications include the following:

a) Drawings: All drawings (civil, structural, mechanical, corrosion, electrical, process, pipeline, etc.) must be included in the review set. These drawings are to be correctly referenced on the title sheet and accurately referenced in the review set.

b) Specifications: The 90% specifications shall include a Table of Contents, Notice to Contractors, offices to contact within EBMUD, Bidding Form, Summary of Work, and all technical specifications (Divisions 00 through 49).

c) Sole-source procurements: A listing of items that are required to be a sole-source purchase by the contractor shall be included.

d) The incorporation of previous review comments.

Although the following items may not specifically be routed for review with the plans and specifications, they typically must be completed prior to issuing 90% plans for review:

e) Project Authorization/Fiscal Impact: An approved Project Authorization (PA) with any required PA Revisions for Design and Construction. Unobligated appropriations sufficient to cover the cost of construction shall be identified at the Reference Project and Segment levels within the Capital Improvement Program Reference Project funding the construction.

f) Environmental documentation: Complete environmental documentation, such as CEQA.

g) Property: Obtain necessary property requirements (easements, rights-of-way, temporary construction easements, fee title, etc.).

h) Design calculations: Design calculations have been assembled and checked by the designated checker. During the 90% Design Review period, the calculations may be further reviewed by the appropriate Senior Engineers.

i) Checker review: Design checkers have checked reviewed plans following the Project Procedures Manual and the color method specified in Engineering Standard Practice 209.1.

j) Prior reviews: Prior reviews have been completed at 10% and/or 50% Design Review levels. The client and Construction Division have reviewed the major scope items. Senior Engineers for each design discipline have reviewed the 90% plans and are in agreement with the design plans.

k) Outage plans: Outage plans, if required, have been completed for the project.

l) Permits: Appropriate permits needed to construct the project have been obtained, and requirements of the permits are included in the plans and specifications. Any exceptions must be approved by the Director of Engineering and Construction and noted in the review package.

m) New technologies: New technologies used in the design are called out in the specifications and have been reviewed by the discipline Senior Engineer.

n) District notifications: Notifications of intent to contract out work are sent to the Manager of Facility Maintenance and Construction and the Local 444 Union President, if applicable.

Completed copies of the documentation cited in the above checklist shall be filed in DOCS. Links to the documents shall be provided to the Specifications Engineer prior to 90% Design Review. Further requirements are listed in detail on the Specifications Section’s Project Checklist.