
EXHIBIT A



Design Services Scope of Work

South Suburban Sanitary District WWTP Improvements. (10% - 100% Design, CM/GC Services)

Document Version

October 11, 2023

South Suburban Sanitary District
Klamath Falls, Oregon

Design Services Scope of Work

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Document History and Status

Revision	Date	Description	By	Review	Approved

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No work will proceed without written Notice to Proceed from District.

Project Description

This scope of work describes the services to be rendered by Jacobs for the design of the SSSD WWTP Improvements. The improvements are as described in Facilities Plan (West Yost, 2022) and as modified by the Facilities Plan Amendment (Jacobs, 2023) and shall include the following project elements, designed and constructed in one package.

- Moving Bed Biofilm Reactor (MBBR) Treatment System
- MBBR Blower Building
- Potential MBBR influent heating system
- Suspended air floatation for algae removal
- Disinfection Improvements (UV disinfection assumed). Demolition or abandonment of existing chlorine contact channel and related facilities.
- Chemical storage
- Tertiary Filtration
- Effluent pump station (back to pond or to disinfection)
- Site electrical (new electrical service, transformer)
- New Engine Generator and automatic transfer switch.
- Recycled water capability (including filtration and disinfection, and pump station)
- Effluent cooling facilities (potential cooling towers, following analysis)
- New Biosolids for processing algae and tertiary residuals.
- Odor control for biosolids facilities
- Influent Pump Station wet well spray system
- Headworks improvements: One Replacement headworks screen (multiple rake or perforated plate type assumed) and screenings handling, and one new manual bar screen; Channel blower (replacement); Sump pump (replacement); Ventilation improvements
- SCADA system improvements related to new processes
- Existing treatment lagoon rehabilitation (sludge removal)
- Improvements to existing lagoon dikes (potentially required following analysis).
- No Operations/Laboratory building is included in this design.
- Major yard piping work to include:
 - MBBR influent piping
 - MBBR effluent piping
 - Algae and Biosolids process piping to processing facility.

Basis of Design Scope and Fee Development

The following key assumptions were made in the compilation of this scope of work and the estimation of the level of effort:

South Suburban Sanitary District WWTP Improvements. (10% - 100% Design, CM/GC Services)

1. The design, permitting, and CM/GC support period work on this project will last 65 weeks from authorization to proceed in October 2023 through January 2025.
2. Submittals for Project Definition (10%), Schematic Design (30%) 60%, 90%, and 100% will be prepared. The project team will stop during formal Owner review of each design submittal.
3. The design will be based on the federal, state, and local codes and standards in effect on the effective date of the authorization to proceed. Any changes in these codes may necessitate a change in scope.
4. The design documents will be prepared for a single construction contract for SSSD WWTP Improvements.
5. The following permit applications and supporting documentation will be prepared by Jacobs:
Pre-Application Meeting, Klamath County Permits (Floodplain, Building, Grading and Drainage Permits); DEQ 1200C; FEMA Conditional Letter of Map Revision. District or their District Engineer (not Jacobs) will develop and submit the permit applications and required reports and District (not Jacobs) will pay all permit processing fees.
6. The Contract documents prepared under this scope will be based upon EJCDC General Conditions (2018 version) and Construction Specifications Institute (CSI) formatted technical specifications. Jacobs will furnish Division 0 and 1 specifications based on Jacobs master specifications and District will review including solicitation of input from District's insurer and legal counsel. Jacobs will prepare modifications of Division 0 and 1 files to suit this project and District will review and endorse final files. Jacobs master specifications will be used as the basis for all other specifications.
7. Two or three vendors will be named for each manufactured component or piece of equipment listed here, which provides competitive bidding but ensures the level of quality and features required by District. No "or equal" clause is anticipated for major equipment, although "equal" equipment will be allowed for less customized materials and equipment (ball valves, pipe, for example).
8. District anticipates construction the project via collaborative delivery methods, specifically Construction Manager/General Contractor (CM/GC). Jacobs will support the project as described herein, including preparing of draft ORS 279C "exemption from competitive bidding" document to be reviewed and adopted by the District's local contract review board, development of RFP, support for selection of CM/GC, negotiation assistance for contracting, negotiation assistance for guaranteed maximum price (GMP), and development of a post construction report.
9. Certain equipment procurement prior to GMP development is expected to be required to meet project schedule. Jacobs will prepare technical specifications for equipment procurement, and Contractor will provide all procurement and purchasing documentation.
10. No bid alternates are anticipated to be included on the bid form and contract documents.
11. Attachment A Exhibit 1 – Drawing Index lists the anticipated design drawings.
12. The drawings will follow Jacobs CAE/CAD standards which conform to the US National CAD standard. Microstation software will be used to develop the drawings. No AutoCAD translations of Microstation files will be prepared during design phase (translations of Record Drawings to AutoCAD are expected to be scoped in a future task).
13. The siting, location and design of all new underground utilities will be based on the existing underground utility drawings and related location information provided on record drawings and informed by utility potholing.
14. Where deliverables are identified, five hard copies of the deliverable (letter sized reports and specifications, or half-size (11"x17") drawings) shall be provided in addition to electronic versions in PDF and Word format (PDF format shall be capable of being annotated by District reviewers in

Bluebeam software). 100% Drawings will be provided in 22"x34" full size (5 copies), on bond paper (not mylar or vellum)

15. Potholing of existing piping and utilities will be performed by District during 10% design. Other potholes that can be deferred to an early Contractor Exploratory Excavation work will be identified.
16. District agrees or acknowledges that Jacobs and its subcontractors have no liability associated with any hazardous materials or hazardous wastes encountered on or near the project site or associated with the Work. Jacobs or its subcontractors shall at no time take title, risk of loss, or ownership of any hazardous materials or hazardous wastes.

Civil/Geotechnical

1. No portions of the existing plant roadways will be paved.
2. New topographic survey information will be used for the design of the new and modified facilities. Site boundary surveying and staking will be performed as described herein. Potholed utilities will be located through PK nails or staking provided at pothole locations and measure-down dimensions from pothole reports.
3. Legal, easement or plat surveys of the existing site will not be required, except that property boundary survey to locate and map boundary on south and west side of plant will be performed.
4. Civil sitework plans will be provided only for areas of the site involving significant disturbance to existing grading.
5. Site drawings will be prepared for those sectors in the plant where new grading piping or facility work is planned. .
6. Landscaping drawings will be limited to seeding. No existing irrigation systems exist and none will be designed.
7. The only new roadway work required is in the immediate area of the new treatment facilities (MBBR, SAF, effluent filters, MBBR system pump station).
8. The capacity of the existing storm water collection and control facilities is adequate to handle the new construction. New storm water collection and control facilities will be provided only for the new construction.
9. The foundation design of the new facilities will be based on currently available geotechnical information (none known at time of scoping) supplemented with new geotechnical data collected as part of this project. Geotechnical data collected during Schematic Design Phase will be incorporated into the design and made available in a Geotechnical Data Report for the Contractor.
10. New fencing is expected to be required around new facilities south of pond 3.
11. A new cell in existing lagoon is expected to be designed to receive pumped MBBR and algae residuals (solids) in addition to construction of a drying bed east of MBBR facilities and south of Pond 3.

Structural/Architectural/Geotechnical

1. It is assumed that conventional spread foundations will be required for all new facilities. Over excavation, preload, or piles will not be required.
2. Uplift due to high groundwater levels, if any, will be addressed with thickened base slabs. No underdrain systems will be required.
3. Building architecture (materials, construction) will be similar to existing structures.
4. It is assumed that building sprinkler systems are not required for the new and existing buildings.

5. Jacobs will performance-specify pipe support design in all facilities for pipes smaller than 30-inch diameter, including supports for all electrical conduits that are specifically shown on the drawings, and HVAC duct supports in the newly partitioned electrical room in the blower building. Most electrical conduits will have supports designed by Contractor as the detailed conduit routing not performed and such circuits are designated by "home run" delineation. An anticipated outcome of the design is a delineation in the drawings or specifications of pipe/duct/conduits that require design by Contractor, and that which is already fully designed in the Contract Documents.
6. Structures at new processes units will be as follows:
 - MBBR Tank – reinforced concrete, partially buried, open top. (outside)
 - MBBR blower building – new masonry building
 - Suspended air flotation – fabricated steel on slab, or reinforced concrete (not inside building)
 - Effluent filtration - fabricated steel on slab, or reinforced concrete with canopy (not inside building)
 - Disinfection – UV disinfection facilities, with canopy (not inside building)
 - Tertiary Treatment Pump Station – submersible pumps in pre-cast wet well.

Security

New remote camera system for MBBR related facilities will be provided, with multiple cameras. (up to 5). Such system will be integrated with SCADA system (not a stand alone CCTV system).

Process/ Mechanical

1. A hydraulic profile drawing will be provided.
2. A process flow diagram or liquids/solids balance will be provided.
3. Design concerning "plant-wide" utility systems such as basin drainage, potable and non-potable water, and in-plant waste collection/disposal will be limited to extensions and/or changes in existing piping. No new structures or equipment will be needed (except for one plant drain sump at new facilities). This scope will evaluate impact of new processes on plant water system supply, and return drainage.
4. Design of cathodic protection of buried ductile iron piping and cement mortar lined and coated piping will be provided with thermite-welded jumper cables across joints, anodes, and test stations.
5. No acoustical studies will be performed. Blower intake at new blower building will match configuration of existing blower intakes.
6. No evaluation for potential presence of lead based paint will be conducted as no demolition of existing metallic painted facilities is anticipated.

Electrical and Instrumentation & Control Systems

1. The new instrumentation and control system will be based on the use of programmable logic controllers. A package control system (PLC and panel provided by vendor) is expected to be provided with the suspended air flotation equipment, and effluent filtration facility. Custom programming for monitoring and control of MBBR, MBBR blowers, MBBR heating systems, chemical storage and feed systems, tertiary pump station, headwork screen, is anticipated to be required.
2. The District will provide "as-built" documentation of the existing process instrumentation and control system. This District provided information will include (as available): existing circuit diagrams, panel shop drawings, instrument information and software documentation for the process control system.

3. The new instrumentation and control system will be based on the use of programmable logic controllers. Monitoring of the plant status will be by a commercially available PC based software package. Remote control (that is, from SCADA system on-site) of plant components will generally be provided.
4. Jacobs may perform the work of developing process control system software for both the PLC and the computer interface. The scope of these services is expected to be negotiated in a subsequent agreement.
5. The existing emergency electrical power supply system is adequate to handle any new loads at existing facilities. A new generator will be provided for backup power for MBBR related facilities. A self-contained, enclosed, pad mounted standby generator with integral fuel tank will be provided. No building will be provided for the generator.
6. A new power will be brought in from the local electric utility to power new MBBR related facilities. Design of the primary switch gear is assumed to be by the utility, not Jacobs.
7. Design will be prepared assuming that Contractor, not Jacobs, performs Process Control System integration (including PLC and HMI programming, field startup and testing of controls system)

Permitting

1. Klamath County landuse and building permits will require certification that proposed development complies with floodplain development rules. FEMA has published draft floodplain mapping (February 2023) which has not yet been adopted by FEMA, and base flood elevation at the proposed facilities site south of Pond 3 is expected to require fill to bring finished floor of new buildings above the base flood elevation. Allowance to support no-rise analysis and preparation of a Conditional Letter of Map Revision (CLOMR) is included in this scope.

Funding Requirements Support

1. District anticipates obtaining funding from Oregon DEQ State Revolving Fund. An allowance to prepare federal "cross cutter" reports, and to provide on-call support to District in project funding compliance is included.

District's Role

1. Owner will provide to Jacobs all data in Owner's possession relating to Jacobs's services on the Project. Jacobs will reasonably rely upon the accuracy, timeliness, and completeness of the information provided by the Owner.
2. Owner will make its facilities accessible to Jacobs as required for Jacobs' performance of its services and will provide labor and safety equipment as required by Jacobs for such access. Owner will perform, at no cost to Jacobs, such tests of equipment, machinery, pipelines, and other components of Owner's facilities as may be required in connection with Jacobs's services.
3. Owner will give prompt notice to Jacobs whenever Owner observes or becomes aware of any development that affects the scope or timing of Jacobs's services, or of any defect in the work of Jacobs or the Contractor.
4. The Owner shall examine information submitted by Jacobs and render in writing or otherwise provide decisions in a timely manner.
5. The Owner shall furnish required information and approvals in a timely manner.
6. The Owner shall cause all agreements with the Contractor to be consistent with Jacobs's Agreement.

7. The Owner shall review all deliverables and offer comments within 14 calendar days of submission.

Work Approach

The project design work will be carried out using a phased design delivery approach to provide a logical and progressive completion of the design work. The phases, as described below, will be carried out sequentially. Each phase of design will include a specific list of work products and deliverables, which are identified in the individual sections. Design review workshops will be conducted with the District and County personnel, key individuals from the Jacobs project team and others as needed; the design review workshops will be conducted at critical design milestones as identified in the following section.

1. Design and Bid Phase Project Management

1.1 Project Management

Project manager will meet with District's project manager and District Engineer throughout design of the Project to review Project progress and discuss upcoming work activities (weekly conference calls, typically 30 minutes duration), with written notes issued following such calls. Project manager shall prepare, implement, monitor and update the Project Management Plan as required throughout the Project. Project manager will manage, administer, coordinate, and integrate work of the team as required to deliver the Project within budget and on schedule. Project manager will prepare and submit to the District's project manager on a monthly basis a brief cost and schedule status report and updated summary. The report shall include a narrative description of progress to-date, actual costs for each major task, estimates of percent complete and potential cost variances. Project manager will maintain project action item and decision logs.

Deliverables

Invoice and monthly report, action item and decision logs from meetings, weekly meeting notes.

1.2 Project Management Plan

Update Project Management Plan for this phase of design.

The purpose of this task is to prepare the detailed Project Management Plan that will be used during the execution of this project work. Specific elements of the plan will include:

- Project Instructions: Define District, County, and Jacobs project organization, communication, project cost control procedures, document control, health and safety considerations, change management and other project management requirements.
- CAD/CAE Standards: Define CAD/CAE software standards, graphic standards, file naming conventions and standards, revision/iteration control and other graphic standards.
- Quality Management Plan: Jacobs will use its standard continuous quality control process. The QMP will define the quality control process as customized for this project.
- Project Health and Safety Plan: Jacobs will develop a health and safety plan to apply to all employees working on this project. It will address safety in the office and during site visits and include any requirements by the District and County.

Deliverables

Project Management Plan.

1.3 Project Financing Support

This task is an allowance to provide support to the District, as District identifies and executes financing instruments. Work may include analysis of project cost estimates and anticipated cash flow requirements, or other engineering and project delivery technical support as requested. Work may include participation in meetings with financing authorities.

Deliverables

Cash flow estimate. As mutually agreed.

2. CM/GC Contracting Support

2.1 CM/GC Selection Services

Jacobs will provide services to assist District in selection of a single CM/GC contractor for the construction of the Project. These services will consist of the following:

2.1.1 Findings Report

Jacobs shall prepare draft Findings Report on behalf of District and provide materials to support the development of a final Findings Report (by District) to be used in seeking an exclusion to competitive bidding of the project. Jacobs will attend and delivery testimony at a public hearing as a proponent of the proposed CM/GC delivery approach.

Deliverables:

Develop a draft Findings Report and support materials with input from District and their legal counsel.

2.2 CM/GC Contractor RFP

With assistance from District, Jacobs shall prepare a request for proposal (RFP) for the selection of a CM/GC contractor to deliver the SSSD WWTP Improvements Project, in accordance with state requirements.

With assistance from District and their legal counsel, Jacobs will develop an RFP that will set out the process for selecting the CM/GC contractor that will include the following elements:

1. Advertisement
2. Proposal Instructions
3. Project/Proposal Information
4. General Instructions to Proposers
5. GMP Pricing Structure
6. Certification And Contract Offer Form
7. Attachment D - Phase I - Personal Services Agreement
8. Attachment E - Phase II - Construction Contract Forms Including:
 - a) Subcontractor Disclosure Form
 - b) Payment Bond

- c) Performance Bond
- d) Agreement
- e) General Conditions
- f) Draft Supplementary Conditions

The Construction Contract Forms will be the appropriate forms suitable for CM/GC delivery.

In consultation with District, Jacobs will develop the agenda and content of a pre-proposal conference. Jacobs will take minutes or make other provisions for documenting the results of the pre-proposal conference. Also, Jacobs will record all questions and requests for additional information and shall coordinate with District for issuing responses and additional information. Jacobs will host the pre-proposal conference. The Facilities Plan and Amendment will be provided to potential CM/GC contractors for their use in understanding the potential improvements and for their proposal development.

Deliverables:

Develop a draft and final RFP with input from District and their legal counsel. Advertisement for RFP.

2.3 Administration of RFP Advertisement

With assistance from District, Jacobs will prepare and place advertisements and notices announcing or soliciting proposals for the CM/GC Contractor for the PROJECT in up to three papers (Herald and News, The Oregonian, the Daily Journal of Commerce). District will pay for all advertisements and notices.

2.3.1 Preparation and Delivery of RFP Documents

The District maintains an OregonBuys (or other electronic bid administration platform) for posting bid advertisements and will post RFP documents and attachments. The District will provide all interface with OregonBuys. Jacobs will identify and assemble the RFP documents and deliver the RFP documents to District. The District, through OregonBuys, will maintain a list of prospective proposers receiving the RFP documents.

Deliverables

One set of RFP documents (PDF format).

2.3.2 Conduct Pre-Proposal Conference

With assistance from District, Jacobs will arrange and conduct one pre-proposal conference. In consultation with District, Jacobs will develop the agenda and content of the pre-proposal conference. Jacobs will take minutes or make other provisions for documenting the results of the pre-proposal conference. Also, Jacobs will record all questions and requests for additional information and shall, after coordination with District, issue responses and additional information. Jacobs will host the pre-proposal conference share information from the Facilities Plan and Amendment to facilitate the understanding of the project with potential bidders.

Deliverables

Attend and conduct pre-proposal conference, preparation of minutes, and coordinate issuance of responses, and coordinate issuance of responses and additional information.

2.3.3 Respond to Proposer Questions

Jacobs, with District approval, will develop and implement procedures for receiving and answering proposers' questions and requests for additional information. The procedures shall include a log of all proposers' substantive questions and requests and the response thereto. Jacobs will provide technical interpretation of the RFP Documents and will prepare, for District approval, proposed responses to all proposers' substantive questions and requests, which may be in the form of addenda. All substantive questions and answers will be forwarded to all prequalified proposers. Substantive questions will be questions that cannot be answered by referral of proposers to unambiguous RFP Documents' for resolution and require Jacobs' interpretation or clarification by addenda.

Deliverables

Log of proposal questions, interpretations, responses and addenda.

2.3.4 Prepare and Issue Addenda

Jacobs will issue all addenda to the RFP documents to the District who will post addenda to the proposers through OregonBuys. All addenda will be approved by District.

Deliverables

Addenda during proposal period.

2.3.5 Evaluate Proposals and Interview Participation

Jacobs will assist District in the review of all proposals that are received. Jacobs will evaluate them for responsiveness, responsibility, and approach according to the evaluation criteria established in the RFP. Jacobs will prepare a report of its review and evaluation and include recommendations for proposers to be interviewed, if interviews are warranted.

Jacobs will participate in interviews of up to three of the proposers. Jacobs will assist District in the development of interview questions. District will make the final decision on the selection of the CM/GC contractor if one is to be made. Jacobs will provide technical (but not legal) advice in proposal protest situations.

Deliverables

Proposal evaluation report. Recommendation for conducting interviews. Interview questions.

2.3.6 Assist with Award of Contract

Jacobs will assist District in preparing the Notice of Intent to Award, the Notice of Award; assembly, delivery and execution of the contract for pre-construction and construction services; and preparation of the Notice to Proceed. District will sign the Notice of Intent to Award, the Notice of Award and the Notice to Proceed. Jacobs, if required, will also provide reasonable assistance with negotiations with the selected bidder prior to execution of the contract for construction.

Deliverables

Draft documents for Notice of Intent to Award, Notice of Award, and Notice to Proceed.

2.3.7 Assistance with Subcontractor Selection and Review of GMP

Jacobs will assist District in the review the major subcontractors the CM/GC solicits bids from during the development of the guaranteed maximum price (GMP), as outlined in the RFP. Jacobs will prepare a report of its review and evaluation and include recommendations for subcontractor selection.

Jacobs will review the GMP developed by the CM/GC. Jacobs will develop a GMP review report and associated recommendation for acceptance or rejection.

Deliverables

Review report and recommendations relating to subcontractor selections. Review report on contractor's GMP.

2.3.8 Respond to CM/GC Questions during GMP Preparation and Presentation to Board of Directors

Jacobs, with District approval, will develop and implement procedures for receiving and answering CM/GC's questions during the bid phase of the GMP preparation. Respond to CM/GC's questions and requests for additional information. The procedures shall include a log of all CM/GC's substantive questions and requests and the response thereto. Jacobs will provide technical interpretation of the contract bid documents and will prepare, for District approval, proposed responses to all bidders' substantive questions and requests, which the CM/GC may issue in the form of addenda during their solicitation of bids to establish the GMP. All substantive questions and answers will be forwarded to the CM/GC. Substantive questions will be questions that cannot be answered by referral of the CM/GC to unambiguous Bid Ready Documents' specifications and drawings for resolution and require Jacobs' interpretation or clarification.

Jacobs will prepare two formal presentations with supporting materials to assist the Board with the review of the project need, project development, GMP review, and identify potential GMP reduction options.

Deliverables

Log of bid questions, interpretations, responses and addenda. PowerPoint presentations and background materials from Board presentations.

2.3.9 CM/GC Construction Cost Estimating Coordination

Jacobs will assist with the development and review of the CMGC generated 30% and 60% construction cost estimates. Jacobs will provide project information as required to supplement the CMGC's own takeoffs based on the 30% and 60% design documents. Jacobs will meet up to three times in person or via phone and MS Teams to assist with questions arising during the cost estimate preparation. Jacobs will review the completed construction cost estimates for completeness.

Deliverables

Comments and meeting notes.

2.3.10 Value Engineering and Constructability Workshops

Jacobs will organize and participate in up to one 2 full-day workshop to solicit value engineering (VE) and constructability input from the CMGC during the execution of the 60% and 90% design. Workshops will be held at District offices in Klamath Falls unless otherwise directed by the District.

Deliverables

Meeting notes and value engineering/cost saving summaries. Note that the VE savings will be identified and used in the project completion documentation required by the state of Oregon.

2.3.11 Preliminary Construction Schedule Review

Jacobs will assist with the review of the CMGC generated preliminary construction schedule anticipated to follow the CMGC review of the Jacobs 30% construction cost estimate.

Deliverables

Comments and meeting notes

3. Permitting through 100% design phase

Several permitting activities are required to allow regulatory authorities to authorize construction. These activities are described as follows.

3.1 Landuse Permitting Support

Jacobs will support Landuse Permitting process led by Adkins Engineering, the District Engineer. Jacobs will provide technical information, drawings, and specifications to support site plan approval.

Deliverables

As mutually agreed.

3.2 Building Permitting Support

Jacobs will prepare technical information in support of building permits including calculations for structural, electrical, and building mechanical disciplines. Jacobs will participate in a meeting with the applicable authorities of building permitting to establish criteria of subsequent design phases.

Deliverables

- Meeting Minutes - Preliminary building permit application meeting
- Calculations

3.3 Floodplain Permitting Support

This task is an allowance as the extent of proposed facilities are not yet known. New facilities south of pond 3 are expected be located in a regulatory floodplain as indicated on draft Federal Emergency Management Agency (FEMA) floodplain mapping. Following 30% design, with location of new facilities confirmed, Jacobs will perform no-rise analysis and prepare conditional letter of map revision (CLOMR) for submission to FEMA. Approval of such CLOMR is expected to be a critical schedule predecessor to issuance of landuse and building permits.

Following construction, District will be required by FEMA to file documentation demonstrating that the facilities were constructed as proposed and file letter of map revision (LOMR). Support for this LOMR process is not included in the current scope, but can be negotiated in a future engineering services during construction agreement.

During preapplication meeting, Jacobs and District will approach Klamath County building officials and confirm if no-rise analysis is required, to allow District to claim that any letter of map change would solely be for purpose of issuance of building permits for structures. If so, then hydraulic modeling to show that preliminary design could achieve no-rise outcome is the minimumwork that is required. If such modeling shows that the proposed development causes no-rise in the base flood elevation, then no additional analysis is expected to be required, and the development permit would be based on this no-rise analysis.

Letter of map change due to fill, will be submitted locally, certified by surveyor documenting that finished floors are above base flood elevation and file with Klamath County. If the proposed development can't satisfy no-rise criteria, then interact with FEMA to establish a new flood map taking improvements into account which follow CLOMR process.

Assumptions

- 2023 floodplain mapping is the basis of floodplain ordinance that will apply at the time of submittal for landuse permits.
- Hydraulic model for 2023 study will be considered best available information for analysis and that it will be readily available from FEMA for use.
- Survey allowance for two river cross sections showing bathymetry are included.
- District (not Jacobs) will file CLOMR with FEMA.

Deliverables

- Draft and final CLOMR, and supporting documentation (calculations)
- Professional Engineer stamped civil and grading drawings of the proposed improvements, based on 30% drawings.

3.4 Federal Cross Cutter Documentation

This task is an allowance as the extent of proposed facilities are not yet known. Jacobs will prepare environmental and cultural documentation to satisfy Oregon DEQ State Revolving Fund (SRF) federal "cross cutter" documentation requirements, including: review of historical and cultural resources in accordance with National Historic Preservation Act and Archeological and Historic Preservation Act, review wetlands impact in accordance with Protection of wetlands (Executive Order 11990), review floodplains in accordance with Floodplain Management (Executive Order 11988), review of productive farmland in accordance with Farmland Protection Policy Act, review applicability of Wild and Scenic Rivers Act, Endangered Species Act, Clean Air Act, and Safe Drinking Water Act.

Assumptions

- Existing publicly available documentation will be used as basis of cross cutter reports. No field work and on-site resource investigations are required (wetlands, historic, cultural, endangered species, and similar resource).

Deliverables

Summary of environmental review determinations.

4. Project Definition (10% Deliverables)

The primary purpose of the project definition phase is to firmly establish the project design criteria. Work of this project definition phase as defined below will culminate in the preparation of the Project Definition Report. The report will contain the following information:

4.1 Define Client Objectives, Standards and Preferences

The purpose of this task is to define the District objectives and success factors for the project and to document the District institutional standards as they pertain to this work. Jacobs will conduct a half-day kick-off workshop with key District personnel and other stakeholders to obtain the pertinent information.

(Workshop attendees will include: PM, DM, process engineering lead,) Project objectives and standards in the following areas will be considered:

- Project objectives: Discussion of the overall purpose for this project to ensure that all participants have the same understanding. The District and County will define for the project team what will make this a successful project from their perspective.
- Communications procedures: Joint definition of the verbal and written communications practices and procedures.
- District design criteria standards and preferences: Identify any District standards for design criteria or standard products. Discuss any District -preferred equipment types, suppliers and vendors.
- Procurement policies: Bidding/procurement requirements, sole source restrictions, any existing master agreement for the purchase of materials, and equipment.
- Labor standards and policies: Design provisions for staff/visitors with accessibility limitations, any existing noise restrictions, any existing labor union restrictions, site security requirements, parking requirements etc.
- Equipment and materials:
 - Discussion of alternative systems and equipment that District are interested in having the design team investigate.
 - Preferences on indoor versus outdoor locations for equipment, preferred equipment types and suppliers, local control/local disconnect preferences (lockable motor control centers, versus local disconnect switches), preferences regarding the use of adjustable frequency drives etc.

Deliverables

Kick-off workshop agenda and notes.

The purpose of this task is to define the external standards and criteria that influence the project design work. The standards and criteria in the following areas will be considered:

- Regulatory Agencies: Define the regulatory agencies with jurisdiction for this project and specific contact people. The following permits are expected Klamath County Landuse Permit, Klamath County Building Permit, Oregon DEQ 1200C; FEMA conditional letter of map revision. The following permits are assumed to not be required Section 401/404 USACE /Wetlands/ Oregon DSL cut/fill;
- Civil: Identify local stormwater control agency, document restrictions as they pertain to the proposed project, define permitting requirements; identify any local public work standards as they pertain to roads, stormwater, sewer etc; any local restriction regarding dust control, demolition, construction traffic/noise, excess earthwork disposal, any existing floodplain restrictions etc.
- Structural/Architectural/Mechanical: Identify local permitting agency, obtain current local design codes and standards that are in effect, define permitting requirements.
- Electrical/I&C: Define redundancy requirements, identify primary contact at local utility.
- Construction Phasing Constraints: Identify which existing unit treatment processes and facilities must remain in service while any improvements or expansion facilities are being constructed.

4.2 Define Process Functional Requirements

The purpose of this task is to select the treatment processes required based on the influent wastewater characteristics, required effluent quality and other project-specific considerations. Project specific issues

including costs, suitability to the project needs, general performance history, reliability, vendor reputation and responsiveness, and operation and maintenance simplicity will be considered.

Issues and criteria to be defined and considered in the selection will include:

- Regulatory requirements for effluent quality and biosolids
- Design flow rates
- Influent characteristics
- Initial and build-out plant capacity
- Effluent and biosolids reuse or disposal options
- Treatment requirements
- Other process related issues
- General process control strategy

Selection of all unit treatment processes and ancillary systems will be selected based on the above information. Review concepts, selection and draft work products with and seek approval from quality control reviewer.

4.3 Project Definition Design

Perform project definition design activities. Perform calculations and analyses to establish basis of design for all new facilities. Perform facility layouts, identify preliminary electrical and control system requirements.. Develop draft process flow diagrams (PFDs).

Develop preliminary construction schedule.

Discipline engineering during the Project Definition phase will include the following:

Survey

Consultant shall be responsible for land surveying practices including conformance to all state statutes pertaining to survey and land boundary laws under this Scope of Work (SOW). These include, but are not limited to, the following state statutes: ORS Chapter 92, Subdivisions and Partitions, ORS Chapter 93, Conveyancing and Recording, ORS Chapter 209, County Surveyors and map requirements, and ORS Chapter 672 Professional Engineers and Land Surveyors.

Consultant's licensed land surveyor shall provide land survey and mapping services as detailed below.

Topographic Survey and DTM. Jacobs shall gather topographic data for this project by field surveying techniques consistent with preparing a Digital Terrain Model (DTM). The DTM must depict the actual existing ground surfaces shape adequate to prepare base mapping with one-foot contour intervals.

Mapping limits are as follows.

- Approximately 600 by 250 feet south of Pond 3.
- Tying in all structures on-site.

Within the project mapping limits, Jacobs shall collect topographical and planimetric data including:

- Visible planimetric features (utility structures, roadway surfaces, curbs, walks, fences, retaining walls, signs, guardrails, bollards, building corners, fences, piping etc.).
- All trees

- Vegetation limits and major landscaping plants (shrubs, brushes, etc.).
- Visible overhead and surface utilities (luminaries, traffic control devices, culverts, valves, fire hydrants, manholes, wells, etc.).
- Public Utility Locates
 - Underground location paint marks using Oregon "One-Call" Utility Location services.
 - Coordinate pothole location surveying.
- Invert elevations of storm and sanitary systems, where accessible. Immediate upstream and downstream storm and sanitary structures will be included where accessible.
- Wetland delineation

Control, Vertical and Horizontal datum:

- Consultant shall establish inter-visible Primary Survey Control stations at a maximum interval of 700 linear feet near proposed facilities. These control stations will be marked with suitable materials that are of semi-permanent nature.
- Horizontal Datum – project control shall be referenced to the applicable coordinate system (e.g., Central Oregon Coordinate System).
- Vertical Datum – project control shall be referenced to the National Geodetic Vertical Datum of 1929 (NAVD 88).

Assumptions

- District will provide access to all private properties within the mapping limits.
- Private utility locates, other than those provided through the Oregon Utility Notification Center, will not be required. Private locate services are not included in this Scope of Work.
- Assumes surveying potholing locations at the WWTP site.
- Assumes that existing wetwells and other subsurface features with inverts that need to be tied will be open and available during the survey work and that additional trips to tie these facilities will not be required.
- Boundary Survey is included to tie in property line to west and south of the site
- County GIS tax lot mapping will be used to illustrate property lines. Resolution of existing right-of-way or property boundaries is included only for western property line.
- Assumes all work to be completed in 2023.
- Assumes no legal description preparation.

Deliverables

- Utility locates requested through Oregon "One-Call" – AGPS and WSPS sites.
- Surveyed pothole locations
- Topographic Survey Base Map in Civil3D or Microstation with a digital terrain model at a one-foot (1') contour interval, drafted at a scale of 1" = 20', or a scale approved by the client.
- Klamath County tax lot GIS data overlaid with Topographic Survey Base Map.
- Control point file of Primary Control points (csv, or txt) upon request.

Architecture

- A District-controlled contingency allowance for performing investigation of regulated building materials including asbestos, lead, PCBs, mercury, and universal waste, in the built environment is included related to potential modifications or demolition at the existing disinfection facility. Such report could be used as reference information for Contractor. is included.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Civil and Site Development

- Work with facility leads and geotechnical engineer to develop preliminary site layout plan.
- Confirm required potholing locations.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Electrical

- Investigate power feed and supply to new construction including rerouting of electrical feeds and consideration of temporary power requirements or limitations in allowable power outages during rerouting.
- Investigate backup electrical power supply requirements in accordance with NFPA 820 ventilation requirements and the existing and proposed ventilation scheme for the preliminary and primary treatment processes.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Odor Control

- Investigate odor control design criteria and alternatives for solids treatment processes. Determine required size/capacity of odor control treatment processes and ancillary systems.
- Develop preliminary process flow diagrams (PFDs).
- Prepare for and participate in workshop to review major equipment vendor alternatives, in advance of planned site visits to operating facilities. Workshop will review primary alternative vendors, and equipment configurations and provide background to prepare District staff for participating in site visits.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Process Mechanical

- **Process**
 - Review facilities plan and amendment and verify required size/capacity of all unit treatment processes and ancillary systems.
 - Develop preliminary process flow diagrams (PFDs).
 - Prepare for and participate in workshop to review major equipment vendor alternatives, in advance of planned site visits to operating facilities. Workshop will review primary alternative vendors, and equipment configurations and provide background to prepare District and County staff for participating in site visits.
 - Develop discipline specific section for Project Definition Report.

- Review concepts and draft work products with and seek approval from quality control reviewer.

▪ **Mechanical**

- Review facilities plan and amendment and verify required size/capacity of all major process equipment including blower and pumps.
- Assemble catalog cuts for all major process equipment alternatives.
- Prepare preliminary sketches for equipment arrangements for coordination.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Building Mechanical

- Identify ventilation, air conditioning, and drain/waste/vent requirements for new facilities.
- Prepare for and participate in workshop to review Building Mechanical approaches.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Instrumentation and Control Systems (I&CS)

- I&CS engineer will conduct site visit to document existing control system configuration. Develop concepts for connecting to existing system including networking, PLC and remote input/output terminals, operator work stations (assume one new work station at new facilities), software version, alarm dialer, and data historian.
- Coordinate with the process engineer(s) to help prepare a preliminary process flow drawing (PFD) for each treatment process.
- Develop overall control philosophy including local control approach, control system, level of automation, supervisory control.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Structural

- Consult with lead process engineer on structure layouts.
- Coordinate with geotechnical engineer on location, excavation and construction of new facilities.
- Develop discipline specific section for Project Definition Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Geotechnical Engineering

- Perform background research on existing geotechnical data and develop plans for field explorations during 10% design.

Project Automation Lead

- Perform Project Automation lead tasks managing BIM and CAD files.

Design Management

- Perform Design Management activities.

Construction Cost Estimating

Prepare construction cost estimate for Project Definition phase. This is expected to be performed prior to CM/GC being onboarded.

Alternative Systems and Equipment Review Workshop

Jacobs will conduct a half-day workshop with District personnel to review the project definition report. The workshop will be held at District offices with remote attendance by certain Jacobs leads. (Workshop attendees will include: PM, DM, and six engineering leads). Final notes from the workshop will be submitted to the District.

Assumptions

- New stand-alone operational control and laboratory building is not included in the project.
- No changes to existing headworks screening building components will be required. Existing components will not be brought up to current building code standards (such as structural, ventilation, electrical facilities).
- Project will not replace the facility's current SCADA system in its entirety.

Deliverables

Project definition workshop agenda and meeting notes; brief project definition report documenting client objectives, standards and preferences, facility layouts, and equipment basis of design summary.

4.4 Geotechnical Investigation/Report

Perform geotechnical test pits and borings at location of new MBBR facilities, and in lagoon 3 embankment, and install piezometer, and perform slug testing to confirm subsurface permeability and provide information for bidders to support potential dewatering requirements. Prepare geotechnical data report.

Assumptions

No existing geotechnical data reports exist for the site.

District will furnish backhoe and operator for test pits. Jacobs will engage third party drilling contractor.

Deliverables

Geotechnical data report.

4.5 Lagoon embankment stability evaluation

Evaluate existing lagoon 3 embankment stability based on existing design records. Perform up to three geotechnical borings in embankment no more than 50-ft below ground surface. Evaluate static and seismic stability and initial assessment of liquefaction. Based on evaluation of lagoon 3 embankment, recommend additional evaluations as applicable. Design of embankment improvements is not included in this scope, but could be negotiated as additional services.

Assumptions

Jacobs will engage third party drilling contractor. Cyclic testing for liquefaction assessment is assumed not needed.

Deliverables

- Geotechnical data report
- Lagoon 3 embankment stability technical memo

4.6 Equipment Vendor Review and Site Visits

4.6.1 Site visits to operating facilities

Arrange, and one staff person will attend one site visits with District staff as required for evaluation of suspended air flotation. One trip to California area (suspended air flotation facilities including, with a single overnight trip is assumed.

Deliverables

Trip summary memorandum.

4.6.2 Equipment vendor review

One Jacobs engineer (Barber) will arrange, and participate with District representatives, in equipment review with vendors at WEFTEC annual conference and exhibition (October 2 – 4) in Chicago. Prepare summary of anticipated vendors for all major equipment in consideration for this expansion, and prepare exhibition tour plan, and appointments with vendors and regional vendor representatives. Prepare tour summary memorandum that identifies apparent consensus decision on major equipment vendors to carry forward in design.

Deliverables

List of vendors, tour plan, exhibit hall floor map, scheduled appointments with selected vendors. Tour summary memorandum.

5. Schematic Design (30% Deliverables)

The purpose of this task is to use the data and guidelines developed in Task 4, develop and evaluate alternative design concepts, and agree upon a single design concept. The end products from this task will include a Schematic Design report primarily consisting of discipline technical memoranda described under each discipline subheading below, drawings, a list of specifications, work sequence and constraints narrative which will provide sufficient information for District review and design team coordination and review. Jacobs will conduct one interactive workshop with the District personnel prior to the conclusion of this task.

Work of this task will result in a Schematic Design Report that is intended to satisfy "Guidelines for Writing Wastewater Engineering Design and Pre-design Reports, 1994", (Oregon DEQ).

Discipline engineering during the Schematic Design phase will include the following:

Architectural

- Perform a code review of existing facilities that require retrofit/rehabilitation to identify areas where the facilities do not meet current codes. Develop a plan to bring existing facilities into code compliance where necessary.

South Suburban Sanitary District WWTP Improvements. (10% - 100% Design, CM/GC Services)

- Establish preliminary room sizes. Establish architectural theme for exterior of building. Select interior and exterior construction materials for each building. Select roof type, slope, and roof support system for each building.
- Assign code classification to each building. Meet with local code official to review code classifications.
- Compile list of chemicals and amounts to be used. Coordinate with other disciplines (mechanical and electrical) to resolve code compliance issues specific to these disciplines (e.g., National Electrical Code and National Fire Protection Association 820 issues).
- Prepare preliminary building layouts (hand sketches or CAD equivalent including plans, sections, and elevations). Develop alternative layouts if required.
- Confirm snow/ice mitigation measures, if any, as recommended.
- Confirm if any hazardous materials are expected to be encountered by the project (including demolition).
- Prepare Schematic Design Report technical memorandum.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Civil and Site Development

- Confirm adequacy of topographical and boundary mapping. Evaluate legal, ownership, permitting and zoning constraints. Identify environmentally sensitive areas such as wetlands, flood plains, known hazardous waste areas, etc
- Develop alternative plant site layouts as required. This will include activities such as: (1) determine structure size, location, and orientation; (2) layout roadways/truck access corridors and define maneuvering requirements (design vehicle); (3) size and locate parking lots for employees and visitors to the facility; (4) determine emergency vehicle access requirements. (4) evaluate flood plain impacts and constraints; (5) locate storm water management facilities. (6) locate utility and piping corridors (horizontal and vertical).
- Coordinate with surveyors; define surveyors' scope of work; coordinate with geotechnical engineer on boring locations; record boring locations on site drawings.
- Develop preliminary erosion control plan for project. Determine if erosion control ponds are required; locate ponds on site plan drawings as required. Prepare preliminary storm water calculations suitable for submission to local site permitting authorities. Develop preliminary storm water control concepts (swales, curb, and gutter). Meet with local storm water and erosion and sediment control agency to determine permitting requirements for site plans, and impact of requirements on preparation of contract documents. Document findings.
- Set building/structure elevations, and preliminary finished floor levels for new structures. Establish preliminary finished grades; overall major surfaces, road profiles, etc. Iterate preliminary surfaces and structures to optimize earthwork if necessary.
- Define demolition requirements and limits. Define contractor staging, storage, access, and off-site access corridors.
- Develop preliminary yard piping and plant drain layouts. Identify corridors for smaller piping and other utilities.
- Prepare Schematic Design Report technical memorandum.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Electrical

- Prepare preliminary overall one-line diagram for proposed facilities. Determine number and location of motor control centers (MCCs) to be provided (if any) and existing MCC's to power new loads, and confirm equipment to be powered out of each MCC. Size electrical rooms for layout purposes.
- Prepare preliminary load calculations.
- Determine number of electrical feeds to be provided to facility. Coordinate with local power utility to determine locations of power feeds, voltage, billing details (peak usage rates), requirements for reduced voltage starters, substation requirements
- Determine redundancy requirements for power supplies and power distribution.
- Establish preferred voltages for power distribution and utilization equipment.
- Perform an electrical code review of existing facilities that require retrofit/rehabilitation to identify areas where the facilities do not meet current codes. Develop a plan to bring existing facilities into code compliance where necessary.
- Coordinate with other disciplines (architectural, mechanical) to resolve code compliance issues specific to these disciplines. Develop preliminary schedule of hazardous and corrosive locations.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Odor Control

- Finalize size/capacity of odor control treatment processes and ancillary systems.
- Size and route HVAC and odor control ductwork. Identify and resolve conflicts with existing and future anticipated facilities.
- Prepare process flow diagrams (PFDs).
- Develop process narratives.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Process Mechanical and Mechanical

- **Process**
 - Finalize size/capacity of all unit treatment processes and ancillary systems. Evaluate MBBR heating system alternatives (submerged tank heaters assumed)
 - *Evaluate the following process and equipment alternatives:*
 - *Headworks screen type including hydraulic capacity requirements*
 - *MBBR process equipment*
 - *Blower type (turbo blower, multi-stage centrifugal, or rotary lobe positive displacement)*
 - *MBBR heating technology*
 - *Effluent cooling infrastructure (cooling towers, pond cooling)*
 - *DAF vs. SAF, including equipment type and vendors*
 - *Effluent filtration equipment type and vendors*
 - *Biosolids stabilization, handling.*

- Determine size/capacity of all unit treatment processes and ancillary systems.
- Review capacity of all existing processes and equipment to remain in service where appropriate. Assign capacity to existing processes.
- Prepare process flow diagrams (PFDs).
- Prepare preliminary solids balance.
- Develop process narratives.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.
- **Mechanical**
 - Select and size all major process equipment including pumps. Prepare sizing calculations and obtain review. Establish level of redundancy required for all process equipment.
 - Prepare equipment list with sizing for major equipment. Coordinate with the District on preferences and features provided with preferred equipment.
 - Prepare preliminary hand sketches for equipment arrangements.
 - Prepare preliminary hydraulic profile.
 - Confirm freeze protection measures required and extent/limits.
 - Review capacity and condition of all existing equipment to remain in service where appropriate. Assign capacity to existing equipment.
 - Finalize equipment selection (type, size, weight, arrangement).
 - Complete equipment data sheets or equipment list on all major equipment items.
 - Prepare discipline technical memorandum for Schematic Design Report.
 - Review concepts and draft work products with and seek approval from quality control reviewer.

Instrumentation and Control Systems (I&CS)

- Develop P&IDs. Information to be included on each P&ID includes at a minimum: Information to be included on each PFD includes at a minimum: Process configuration, flow streams, valve and gate locations (manual and powered), chemical additions points/types, process equipment location/type including packaged control panels and adjustable-speed drives, flow meters and other process control devices.
- Develop equipment/instrument tag numbering, naming, and abbreviation conventions.
- Select control system configuration (local control panels, PLC-based controls, or DCS-based controls) with input from owner.
- Work with Process Engineer to prepare written process control narrative (operational description) of each major process.
- Develop overall control philosophy including local control approach, control system, level of automation, supervisory control.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Structural

- Coordinate with architectural discipline on the selection of building concepts. Consult with lead process engineer on building/structure layouts.
- Where existing building or structures require upgrade or modifications, conduct a feasibility study to make sure the proposed modifications can be implemented cost-effectively.
- Evaluate any structural problems associated with any existing plant facilities to be modified in this project. Describe the problem and a recommended solution.
- Develop building foundation and structure concepts based on schematic building layouts.
- Develop plans for excavation and shoring with geotechnical engineer.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Geotechnical Engineering

- Determine site specific geotechnical conditions for each facility and structure. Develop specific foundation requirements.
- Verify constructability (shoring and bracing requirements, dewatering issues).
- Conduct geotechnical investigations. Obtain data on soil corrosivity.
- Prepare discipline technical memorandum for Schematic Design Report.
- Review concepts and draft work products with and seek approval from quality control reviewer.

Project Automation Lead

- Perform Project Automation lead tasks managing Building Information Model (BIM) and CAD files.

Specifications

- Support specifications development, including list of specifications and preparing project records with draft versions of specifications.

Design Management

- Perform Design Management activities.

Construction Cost Estimating

- Prepare construction cost estimate for Schematic Design phase, as CM/GC may not be onboarded in time for estimate preparation

Schematic Design Workshops

Jacobs will conduct two half-day workshops with the District and County personnel to review the work products from tasks as defined above and confirm that the Schematic Design documents meet the intended design approach. Workshops will be held at midpoint and completion of Schematic Design phase. The workshops will be held at the District offices or remote (Workshop attendees will include: PM, Assistant PM, DM, and three engineering leads). Final minutes from the workshop, and the work products as defined above will be submitted to the District.

Assumptions

- None

Deliverables

Schematic Design Report including technical memoranda for each unit process and discipline, preliminary process control narratives, and information on work sequence and constraint descriptions; 30% Design Drawings, Technical Specifications List; 30% design review workshop agenda and meeting notes; 30% review meeting comments resolutions document; construction cost estimate review and schedule review.

District will submit Schematic Design report, and Drawings to Oregon DEQ for review and approval.

6. Design Development Phase (60% Deliverables)

The purpose of this task is to utilize the conceptual decisions of the project that were made in the previous phase and to complete and finalize the preliminary calculations of the previous phase, develop the project design to achieve a true "design freeze" at the conclusion of this phase. Structures, equipment, major plant piping, process, site plan are all finalized during this phase to allow final detailing of the same in the next phase of design. Drawings and other materials that may be required exhibits for environmental permit applications will be available at the conclusion of this phase. The majority of the quality control review and approval will occur prior to the finalization of the work products from design development phase. Specific activities and work products from this phase are described in the following subtasks.

Architecture

- Develop building 3-D electronic models or floor plans and elevations for all buildings.
- Coordinate with I&C and electrical disciplines to size and locate electrical and control rooms.
- Coordinate with the mechanical discipline to select the type of HVAC equipment, locate HVAC equipment rooms, determine space requirements and routing for ductwork if required, and establish design R-values for all exterior walls.
- Coordinate with structural engineer to define the structural design concepts for the facilities.
- Establish applicable codes for all buildings/structures with local code officials and fire marshal. Complete building and fire code analysis. Meet with local code official to review floor plans.
- Prepare first draft of technical specifications.
- Review design development and draft work products with and seek approval from quality control reviewer.

Civil and Site Development

- Freeze civil design concept. Structures, road, and major site element horizontal locations are finalized. Structure floor/control levels, and finished grades are finalized.
- Update demolition requirements and limits from previous phase. Update contractor staging, storage, access, and off-site access corridors.
- Prepare preliminary site grading drawings.
- Update preliminary yard piping and plant drain layouts. Identify corridors for smaller piping and other utilities. Show storm water control concepts (swales, curb, and gutter) on the design development drawings.
- Download survey data to create site-drawing files for final design.
- Set final building and structure elevations.
- Show storm water control concepts (swales, curb, and gutter) on the design development drawings.

- Finalize traffic flow, parking, and lay out road access to all buildings and structures. Coordinate handicap requirements with architectural discipline and local site plan regulations.
- Prepare first draft of technical specifications.
- Review design development and draft work products with, and seek approval from, quality control reviewer.

Security

- Design site camera system, integrated with SCADA system

Electrical

- Update layout drawings and one-line diagrams from prior design phase.
- Update layout of the major electrical equipment located in each electrical room.
- Coordinate with lead process engineers to size equipment motors.
- Prepare detailed electrical load calculations.
- Size electrical rooms and prepare a preliminary layout of the major electrical equipment located in each electrical room. Determine equipment requiring uninterruptable power supplies (UPS) and locations of UPS equipment. Coordinate with I&C discipline to determine space requirements and locations for control equipment. Locate major I/O termination panels, TJB's, and control panels.
- Define/document requirements and concepts for special systems:
 - Telephone (including incoming service location, scope of supply, etc.). Assume VOIP on existing plant office network, not copper.
 - Data highway (control system),
 - Data highway (LAN, office automation),
 - Fire alarm system,
 - Paging system, (not required)
 - Security system, (assume provide buried raceways and conductors to connect back to existing administration building. Coordinate requirements with current District security vendor, Basin Alarm)
 - Closed-circuit television system, (no separate system required, rather provide cameras integrated with SCADA network)
 - Cable TV system and others as required by the Owner. (none required).
- Submit load calculations and one-lines to electric utility for review. Identify rights-of-way and routing methods for electrical conduit and tray. Lay out duct bank system (major runs/manholes). Coordinate with civil yard piping. Locate manholes and hand holes.
- Develop detailed lighting concepts; select luminaire types in conjunction with Architect. Prepare preliminary lighting layouts and initial lighting calculations. Prepare preliminary site lighting layout.
- Prepare detailed electrical load calculations.
- Identify rights-of-way and routing methods for electrical conduit and tray. Lay out duct bank system (major runs/manholes). Continue to coordinate with civil yard piping. Locate manholes and hand holes.
- Prepare preliminary site lighting layout.

- Define hazardous locations (NFPA 820) and document. Define corrosive locations and document.
- Prepare first draft of technical specifications including performance specifications for interior lighting design by the contractor (if any).
- Review design development and draft work products with and seek approval from quality control reviewer.

Process Mechanical

- **Process**
 - Final major equipment sizing calculations.
 - Coordinate with Instrumentation & Control (I&C) discipline on finalizing P&IDs.
 - Coordinate with I&C on development of process control narratives.
 - Prepare first draft of technical specifications.
 - Review design development and draft work products with and seek approval from quality control reviewer.
- **Mechanical**
 - Calculate the hydraulic profile for all-major gravity process pipelines and hydraulic structures. Establish maximum and minimum water surface elevations for all process tanks.
 - Prepare 3-D electronic models or building and structure layouts (plans and major section(s)).
 - Assemble catalog cuts for all major process equipment. Complete equipment data sheets or equipment list on all major equipment items.
 - Coordinate with I&CS in the finalization of P&IDs
 - Select piping and ducting materials.
 - Final ancillary equipment sizing and line sizing calculations.
 - Final equipment selection (type, size, weight, arrangement).
 - Prepare first draft of technical specifications.
 - Review design development and draft work products with and seek approval from quality control reviewer.

Building Mechanical

- Prepare sizing calculations for HVAC equipment based on energy code requirements and selected building construction materials. Prepare HVAC equipment data sheets and cut sheets.
- Create ventilation concept drawing (louver locations, fan locations, type of equipment, air flows).
- Identify routing or right-of-way for major duct runs. Locate major air handling equipment. Confirm size of mechanical equipment rooms.
- Prepare HVAC system block diagrams. Define HVAC system control philosophy.
- Coordinate with civil engineer for potable water and fire water supply and distribution, as well as plant drain system.
- Prepare first draft of technical specifications.
- Review design development and draft work products with and seek approval from quality control reviewer.

Instrumentation and Control

- Prepare final CAD-based P&ID drawings including loop numbers and all instrumentation.
- Prepare preliminary I/O count. Size and locate I/O locations for distributed PLC-based control systems. Coordinate I/O rack room sizing with electrical and architectural disciplines.
- Summarize I&C system design philosophy for each major process in a process control narrative. Include a description of the field elements to be used for each application and preliminary set points for major I&C elements. Update/finalize control system block diagram. Finalize typical control diagrams/loop diagrams for each type of control scheme to be used.
- Coordinate with HVAC engineer regarding control system requirements.
- Define control interfaces for all package systems with local control, including adjustable frequency drives.
- Prepare first draft of technical specifications.
- Review design development and draft work products with and seek approval from quality control reviewer.

Structural

- Coordinate with geotechnical engineer to establish foundation design criteria for proposed facilities. Review geotechnical report and discuss foundation design approach with geotechnical engineer and senior structural reviewer
- Document structural design concept for each building (room by room) and structure. Finalize materials of construction (cast-in-place vs. precast concrete, roof structures, etc). Summarize in a memo.
- Preliminary framing plan for buildings and other structures.
- Prepare 3-D electronic models or preliminary floor plans for all major structures.
- Prepare first draft of technical specifications.
- Review design development and draft work products with and seek approval from quality control reviewer.

Geotechnical Engineering

- Support design of new facilities with geotechnical discipline input.

Project Automation Lead

- Manage computer aided design (CAD), and coordinate work of all technician staff.

Specifications

- Prepare, edit, and manage project specifications.

Design Management

- Perform Design Management Activities

Construction Cost Estimating

- No work required. Coordinate with CM/GC cost estimate review authorized in Task 2.

Design Development Workshops

Jacobs will conduct two half-day workshops with District personnel to review the work products from subtasks as defined above and confirm that the Design Development documents meet the intended design approach. Workshops will be held at midpoint and completion of the Design Development phase. The midpoint workshop will be presented through screen-sharing technology with conference call, and the wrap-up workshop will be attended in person. Jacobs will prepare a list of questions for staff prior to the midpoint workshop in each phase. Where applicable, Jacobs will provide an excerpt from specs to get clear direction from District. This approach is taken to minimize travel time. Project Manager (PM) and Design Manager (DM) anticipate being present for meeting with discipline engineers connecting remotely. The workshops will be held at District offices (final Workshop attendees will include: PM, Assistant PM, DM, and three engineering leads). The review drawings provided to the District will be extractions from 3-D models with limited annotation. Final workshop minutes documenting the key decisions, and the work products produced through subtasks above will be submitted to the District.

Deliverables

60% Design Drawings; Draft Technical Specifications; process control narratives, 60% design review workshop agenda and meeting notes; 60% review meeting comments resolutions document; construction cost estimate review, and schedule.

7. Draft Contract Documents Preparation (90% Deliverables)

The purpose of this task is to develop the final contract drawings, specifications, and schedules for competitive bidding. Key activities during this phase will include:

- Finalize specification front-end documents, including General Conditions, General Requirements,. District input is required at this point to determine construction contract requirements and insurance requirements.
- Coordinate with District on CM/GC GMP development process
- Prepare final construction drawings.
- Prepare final technical specifications.
- Prepare final calculations.
- Complete final checking and coordination review.

- Jacobs will modify the contract documents to reflect all agreed upon final review comments from the District, applicable regulatory agencies and Jacobs' quality control review team. The final documents will then be stamped and submitted to the District.

Architecture

- Prepare architectural design of new facilities.

Civil and Site Development

- Prepare site/civil design of new facilities.

Security

- Design site camera system.

Electrical

- Prepare electrical design of new facilities.

Process Mechanical

- Prepare process mechanical design of new facilities.

Instrumentation and Control

- Prepare instrumentation and control design of new facilities.

Structural

- Prepare structural design of new facilities.

Geotechnical Engineering

- Support design of new facilities with geotechnical discipline input.

Project Automation Lead

- Manage computer aided design (CAD), and coordinate work of all technician staff.

Specifications

- Prepare, edit, and manage project specifications.

Design Management

- Perform design management activities.

Construction Cost Estimating

-
- No work required. Coordinate with CM/GC cost estimate review authorized in Task 2.
-

Contract Documents Review Workshops

Jacobs will conduct two half-day workshops with the District personnel to review the work products from subtasks as defined above and confirm that the Contract Document deliverables meet the intended design approach. The midpoint workshop will be presented through screen-sharing technology with conference call, and wrap-up workshop will be attended in person. Jacobs will prepare a list of questions for staff prior to the midpoint workshop in each phase. Where applicable, provide an excerpt from specs to get clear

direction from District/County. This approach is taken to minimize travel time. PM and DM anticipate being present for meeting with discipline engineers connecting remotely. The workshops will be held at midpoint and completion of Contract Document phase. The workshops will be held at the SCTP office (Final Workshop attendees will include: PM, Assistant, PM, DM, and three engineering leads). Final workshop minutes, documenting the key decisions and responses to the District's comments will be submitted to the District.

Deliverables

Stamped 90% Design Drawings and Technical Specifications for use in building permits submittal; 90% design review workshop agenda and meeting notes; process control narratives, 90% review meeting comments resolutions document; construction cost estimate review comments and schedule. Building permits will be submitted at 90% design phase with stamped drawings.

8. Final Contract Documents Preparation (100% Deliverables)

The purpose of this task is to develop the final contract drawings, specifications, and schedules for competitive bidding. Stamp with professional seal as required, all final contract documents. Key activities during this phase will include:

- Finalize specification front-end documents, including General Conditions, General Requirements, bidding documents, bonds, and Instruction to Bidders.
- Coordinate with District on advertising and bidding process.
- Prepare final construction drawings.
- Prepare final technical specifications.
- Prepare final calculations.
- Complete final checking and coordination review.
- Jacobs will modify the contract documents to reflect all agreed upon final review comments from the District, applicable regulatory agencies and Jacobs' quality control review team. The final documents will then be stamped and submitted to the District.

Architecture

- Prepare architectural design of new facilities.

Civil and Site Development

- Prepare site/civil design of new facilities.

Security

- Prepare site camera design.

Electrical

- Prepare electrical design of new facilities.

Process Mechanical

- Prepare process mechanical design of new facilities.

Instrumentation and Control

- Prepare instrumentation and control design of new facilities.

Structural

- Prepare structural design of new facilities.

Geotechnical Engineering

- Support design of new facilities with geotechnical discipline input.

Project Automation Lead

- Manage BIM and CAD, and coordinate work of all technician staff.

Specifications

South Suburban Sanitary District WWTP Improvements. (10% - 100% Design, CM/GC Services)

- Prepare, edit, and manage project specifications.

Design Management

- Update workplan.
- Purge project files of irrelevant and extraneous material. File all relevant information.

Construction Cost Estimating

- No work required as GMP will have been established by this point in project.

Deliverables

response to District's 90% review comments, 100% contract documents; Permit applications to accompany submittal of 100% documents to required permitting authorities.

9. Quality Management 10% - 100% Design

This task is authorized through 100% design. As part of each design phase, Jacobs will carry out a quality assurance program (QAP). The purpose of this QAP is to monitor the quality of the Project through the use of internal quality assurance/quality control (QA/QC) reviews as described herein. Jacobs will manage multidiscipline internal QA/QC review activities with senior review team. Formal internal QA/QC reviews will be performed prior to the District's review of design deliverables.

A Quality Management Plan (QMP) will be prepared for the project to serve as a guide for all phases of the project. Key features of the QMP will include:

- A single point of contact responsible for all quality management.
- Independent quality review performed by discipline-specific quality reviewers to provide critical analysis without bias.
- Procedures for engineers; detailed checks of reports, calculations, drawings and specifications.

Audits by QA personnel will be conducted to verify conformance with the approved QMP and confirm that required checking and review functions are completed.

Design quality review documentation will demonstrate that the quality review process is complete and review comments are acceptably addressed as a component of the overall records management system. The following documentation will be prepared, collected and properly stored in the project records system:

- Quality review forms used during internal quality reviews and issue tracking forms used to document those issues.
- District will review drawings in Bluebeam Revu (free license provided by Jacobs). Design review forms used by the District to document review comments.
- Project checklists or milestone checklists.
- Review-related correspondence with District staff and other external agencies or entities.

The level of effort for this task includes preparation of the QMP and QC reviews for each of the design phases.

Deliverables

Quality Management Plan; Written documentation of QC reviews.

Additional Services

The following services will be provided by Jacobs upon authorization of the Owner and agreement on compensation to Jacobs.

1. Services related to development of the Owner's project financing and/or budget.
2. Services related to disputes over pre-qualification, bid protests, bid rejection and re-bidding of the contract for construction.
3. Services related to provision of Owner furnished equipment, materials, and supplies.
4. Services related procurement or management of third party contractors other than testing, inspection and survey firms.

5. Performance of materials testing, specialty testing and surveying services.
6. Services necessary due to the default of the Contractor.
7. Services related to damages caused by fire, flood, earthquake or other acts of God.
8. Services related to the Owner's operation and use of the completed project other than as specifically provided in the above scope of work.
9. Services related to warranty claims, enforcement and inspection.
10. Services for the investigation and analysis of contractor claims; preparation of reports on contractor claims; provision of professional claims analysis services; participation in litigation or alternative dispute resolution of claims.
11. Preparation for and serving as a witness in connection with any public or private hearing or other forum related to the project.
12. Services supporting the Owner in public relations activities.
13. Development, coordination or participation in partnering programs.
14. Value engineering or similar value analysis studies, except as defined herein.
15. Services for review and/or preparation of Owner or Contractor proposed changes to the project.
16. Services to support, prepare, document, bring, defend, or assist in litigation undertaken or defended by the Owner.
17. Performing periodic labor evaluations and processing prevailing wage documentation.
18. Jacobs shall perform miscellaneous and supplemental services related to the project as requested by the Owner
19. Any other services designated in this scope of services as additional services.

Compensation

Compensation shall be as set forth in Attachments B1 Fee Estimate and B2 Schedule of Charges.

Schedule

The design phase project shall commence upon receipt of Notice to Proceed. Project duration will be approximately 15 months (October 2023 to January 2025)

Master List of Assumptions

The following assumptions were used when determining the compensation to Jacobs. These assumptions are in addition to the scope and additional services set forth in the foregoing scope of work.

Attachments

1. Attachment A Exhibit 1 – Drawing Index.
2. Attachment B – Budget.
3. Attachment C – Schedule.

Attachment A
Exhibit 1 – Drawing Index Divider

South Suburban Sanitary District
Concept Drawing List
Treatment Plant Improvements - 2023

Count	Facility Code	Discipline	Drawing Title
1	1	PAL (Proj Lead Technician)	Cover, Location & Vicinity Map
2	1	PAL (Proj Lead Technician)	Index to Drawings
3	1	PAL (Proj Lead Technician)	Index to Drawings
4	1	PAL (Proj Lead Technician)	Abbreviations & Legends
5	1	Civil/Yard Piping	Civil & Yard Piping Legend & Notes
6	1	Civil/Yard Piping	Erosion & Control Legend & Notes
7	1	Architecture	Architectural Notes, Symbols, Legend
8	1	Architecture	Life Safety Plan & Code Data
9	1	Architecture	Architectural Schedules
10	1	Structural	Structural Notes
11	1	Structural	Structural Notes
12	1	Structural	Special Inspections - 1
13	1	Structural	Special Inspections - 2
14	1	Structural	Special Inspections - 3
15	1	Process Mechanical	Process Mechanical Legend
16	1	Electrical	Electrical Legend
17	1	Electrical	Electrical Legend
18	1	Instrumentation & Controls	Instrumentation & Control Legend
19	1	Instrumentation & Controls	Instrumentation & Control Legend
20	1	Process Mechanical	Process Flow Diagram
21	1	Process Mechanical	Hydraulic Profile
22	1	Process Mechanical	Design Criteria
23	1	Process Mechanical	Piping Schedule
24	1	HVAC	HVAC & Plumbing Legend
25	1	HVAC	HVAC Schedule
26	5	Instrumentation & Controls	P&ID - Influent Pump Station
27	5	Instrumentation & Controls	P&ID - Headworks
28	5	Instrumentation & Controls	P&ID - Pond Flow Equalization
29	5	Instrumentation & Controls	P&ID - Floatation Thickening
30	5	Instrumentation & Controls	P&ID - MBBR
31	5	Instrumentation & Controls	P&ID - MBBR Blowers
32	5	Instrumentation & Controls	P&ID - MBBR Boiler and Heat Exchanger
33	5	Instrumentation & Controls	P&ID - Effluent Filtration System
34	5	Instrumentation & Controls	P&ID - Disinfection System
35	5	Instrumentation & Controls	P&ID - Chemical Dosing
36	5	Instrumentation & Controls	P&ID - Solids Processing
37	5	Instrumentation & Controls	Network Diagram - Fiber Optic Ring
38	5	Instrumentation & Controls	Network Diagram - Influent Pumping & Headworks
39	5	Instrumentation & Controls	Network Diagram - MBBR Basins
40	5	Instrumentation & Controls	Network Diagram - MBBR Blowers
41	5	Instrumentation & Controls	Network Diagram - Floatation Thickening
42	5	Instrumentation & Controls	Network Diagram - Filtration
43	5	Instrumentation & Controls	Network Diagram - Disinfection
44	5	Instrumentation & Controls	Network Diagram - Control Building
45	10	Civil/Yard Piping	Overall Demo Plan and Key
46	10	Civil/Yard Piping	Site Demo Area 1
47	10	Civil/Yard Piping	Site Demo Area 2
48	10	Civil/Yard Piping	Site Demo Area 3
49	10	Civil/Yard Piping	Overall Site Survey Control
50	10	Civil/Yard Piping	Civil Site Location Plan and Key
51	10	Civil/Yard Piping	Site Location Plan 1
52	10	Civil/Yard Piping	Site Location Plan 2
53	10	Civil/Yard Piping	Site Location Plan 3
54	10	Civil/Yard Piping	Site Location Plan 4
55	10	Civil/Yard Piping	Site Location Plan 5
56	10	Civil/Yard Piping	Site Enlarged Plan 1
57	10	Civil/Yard Piping	Site Enlarged Plan 2
58	10	Civil/Yard Piping	Site Enlarged Plan 3
59	10	Civil/Yard Piping	Overall Grading Plan
60	10	Civil/Yard Piping	Site Grading Plan 1
61	10	Civil/Yard Piping	Site Grading Plan 2
62	10	Civil/Yard Piping	Site Grading Plan 3
63	10	Civil/Yard Piping	Site Grading Plan 4
64	10	Civil/Yard Piping	Site Grading Plan 5
65	10	Civil/Yard Piping	Overall Yard Piping Plan and Key Map
66	10	Civil/Yard Piping	Site Yard Piping Plan 1
67	10	Civil/Yard Piping	Site Yard Piping Plan 2
68	10	Civil/Yard Piping	Site Yard Piping Plan 3
69	10	Civil/Yard Piping	Site Yard Piping Plan 4
70	10	Civil/Yard Piping	Site Yard Piping Plan 5

71	10	Civil/Yard Piping	Pipe Profiles 1
72	10	Civil/Yard Piping	Pipe Profiles 2
73	10	Civil/Yard Piping	Pipe Profiles 3
74	10	Civil/Yard Piping	Dike Rehab/Repair - Plan
75	10	Civil/Yard Piping	Dike Rehab/Repair - Sections and Details
76	10	Civil/Yard Piping	Dike Rehab/Repair - Sections and Details
77	10	Civil/Yard Piping	Dike Rehab/Repair - Sections and Details
78	10	Civil/Yard Piping	Dike Rehab/Repair - Sections and Details
79	10	Civil/Yard Piping	Dike Rehab/Repair - Sections and Details
80	10	Civil/Yard Piping	Pond Liner Plan
81	10	Civil/Yard Piping	Pond Liner Sections and Details
82	10	Civil/Yard Piping	Pond Liner Sections and Details
83	10	Civil/Yard Piping	Pond Liner Sections and Details
84	10	Civil/Yard Piping	Foundation Improvement - MBBR process area
85	10	Civil/Yard Piping	Foundation Improvement - MBBR process area
86	10	Civil/Yard Piping	Civil - Geotech Sections
87	10	Civil/Yard Piping	Civil - Geotech Sections
88	10	Civil/Yard Piping	Civil - Geotech Sections
89	15	Process Mechanical	Pump Station Plan & Profile
90	15	Electrical	Pump Station Process Plan
91	15	Electrical	Pump Station Facility Plan
92	20	PAL (Proj Lead Technician)	Headworks - Rendering
93	20	Process Mechanical	Headworks Demo Plan
94	20	Process Mechanical	Headworks Plan & Section
95	20	Process Mechanical	Headworks Section & Detail
96	20	HVAC	Headworks HVAC
97	20	Electrical	Headworks Power Plan
98	30	PAL (Proj Lead Technician)	MBBR Basins - Rendering
99	30	Structural	MBBR Foundation Plan
100	30	Structural	MBBR Lower Plan
101	30	Structural	MBBR Upper Plan
102	30	Structural	MBBR Sections
103	30	Structural	MBBR Enlarged Plan & Section
104	30	Structural	MBBR Sections
105	30	Structural	MBBR Details
106	30	Structural	MBBR Details
107	30	Process Mechanical	MBBR Details
108	30	Process Mechanical	MBBR Lower Plan
109	30	Process Mechanical	MBBR Upper Plan
110	30	Process Mechanical	MBBR Sections
111	30	Process Mechanical	MBBR Sections
112	30	Electrical	MBBR Process Plan
113	40	PAL (Proj Lead Technician)	Blower Bldg. Rendering
114	40	Architecture	Blower Bldg. - Floor Plan & Roof Plan
115	40	Architecture	Blower Bldg. Elevations
116	40	Architecture	Blower Bldg. Sections
117	40	Structural	Blower Bldg. Foundation & Roof Framing Plans
118	40	Structural	Blower Bldg. Sections
119	40	Structural	Blower Bldg. Sections
120	40	Process Mechanical	Blower Bldg. Plan
121	40	Process Mechanical	Blower Bldg. Section & Details
122	40	Electrical	Blower Bldg. Process Plan
123	40	Electrical	Blower Bldg. Facility Plan
124	40	Electrical	Blower Bldg. Grounding
125	50	PAL (Proj Lead Technician)	Floatation Thickener - Rendering
126	50	Structural	Floatation Thickener - Foundation
127	50	Process Mechanical	Floatation Thickener - Plan
128	50	Process Mechanical	Floatation Thickener - Section
129	50	Process Mechanical	Floatation Thickener - Details
130	50	Electrical	Floatation Thickener - Power Plan
131	50	Electrical	Floatation Thickener -Lighting & Grounding Plans
132	60	PAL (Proj Lead Technician)	Chemical Storage Rendering
133	60	Architecture	Chemical Storage - Floor Plan
134	60	Architecture	Chemical Storage - Elevations
135	60	Structural	Chemical Storage - Foundation and Framing Plans
136	60	Structural	Chemical Storage - Sections & Details
137	60	Process Mechanical	Chemical Storage - Plan
138	60	Process Mechanical	Chemical Storage - Sections
139	60	Process Mechanical	Chemical Storage - Sections/Isometric
140	60	HVAC	Chemical Storage - HVAC
141	60	Electrical	Chemical Storage - Process plan
142	60	Electrical	Chemical Storage - Facility Plan
143	70	PAL (Proj Lead Technician)	Effluent Filtration - Rendering
144	70	Architecture	Effluent Filtration - Floor Plan & Elevations
145	70	Structural	Effluent Filtration - Foundation Plan
146	70	Structural	Effluent Filtration - Enlarged Plan

147	70	Structural	Effluent Filtration - Sections
148	70	Structural	Effluent Filtration - Details
149	70	Process Mechanical	Effluent Filtration - Plan
150	70	Process Mechanical	Effluent Filtration - Sections
151	70	Process Mechanical	Effluent Filtration - Sections
152	70	Process Mechanical	Effluent Filtration - Pump Plan & Section
153	70	Electrical	Effluent Filtration - Process Plan
154	70	Electrical	Effluent Filtration - Facility Plan
155	80	PAL (Proj Lead Technician)	Disinfection - Rendering
156	80	Structural	Disinfection - Foundation
157	80	Structural	Disinfection - Top Plan
158	80	Structural	Disinfection - Section
159	80	Structural	Disinfection - Section
160	80	Process Mechanical	Disinfection - Plan
161	80	Process Mechanical	Disinfection - Section & 3W Pumps
162	80	Electrical	Disinfection - Process Plan
163	80	Electrical	Disinfection - Facility Plan
164	90	Structural	Solids Drying - Foundation Plan
165	90	Structural	Solids Drying - Sections
166	90	Process Mechanical	Solids Drying - Plan
167	90	Process Mechanical	Solids Drying - Sections
168	90	Electrical	Solids Drying - Process Plan
169	90	Electrical	Solids Drying - Facility Plan
170	900	Electrical	Electrical Site Plan and Key
171	900	Electrical	Electrical Area 1
172	900	Electrical	Electrical Area 2
173	900	Electrical	Electrical Area 3
174	900	Electrical	Genset Plan
175	900	Electrical	Luminaire Schedule
176	900	Electrical	Ductbank Sections
177	900	Electrical	Ductbank Schedules
178	900	Electrical	One-Line Diagram DEMO
179	900	Electrical	One-Line Diagram
180	900	Electrical	Switchboard and MCC Elevations
181	900	Electrical	MCC Elevations
182	900	Electrical	Circuit Schedule
183	900	Electrical	Circuit Schedule
184	900	Electrical	Circuit Schedule
185	900	Electrical	Panelboard Schedule
186	900	Electrical	Panelboard Schedule
187	900	Electrical	Luminaire Schedule
188	900	Electrical	Control Diagram
189	900	Electrical	Control Diagram
190	900	Electrical	Control Diagram
191	900	Electrical	Security
192	DET	Civil/Yard Piping	Std. Details
193	DET	Civil/Yard Piping	Std. Details
194	DET	Civil/Yard Piping	Std. Details
195	DET	Structural	Std. Details
196	DET	Structural	Std. Details
197	DET	Structural	Std. Details
198	DET	Structural	Std. Details
199	DET	Structural	Std. Details
200	DET	Structural	Std. Details
201	DET	Architecture	Std. Details
202	DET	Architecture	Std. Details
203	DET	Architecture	Std. Details
204	DET	Process Mechanical	Std. Details
205	DET	Process Mechanical	Std. Details
206	DET	Process Mechanical	Std. Details
207	DET	Process Mechanical	Std. Details
208	DET	Process Mechanical	Std. Details
209	DET	Process Mechanical	Std. Details
210	DET	Process Mechanical	Std. Details
211	DET	HVAC	Std. Details
212	DET	Plumbing	Std. Details
213	DET	Electrical	Std. Details
214	DET	Electrical	Std. Details
215	DET	Electrical	Std. Details
216	DET	Electrical	Std. Details
217	DET	Electrical	Std. Details
218	DET	Instrumentation & Controls	Std. Details
219	DET	Instrumentation & Controls	Std. Details
220	DET	Instrumentation & Controls	Std. Details