

Master City of San José Consultant Agreement Approved Service Order Form – RWF Capital Projects Cover Page

1a. CPMS Contract No.: 9855-2	1b. Master Agreement AC Contract No. 32243
2. Approved Service Order No. 1	Master Agreement Records Database Contract No.: 667140-000
3. Consultant's Name: CDM Smith, Inc. ("Consultant")	
4. Project Name: Aeration Basin Modifications Phase 1 ("Project") – Feasibility and Alternative Analysis	
5. Project Location: San-Jose-Santa Clara Regional Wastewater Facility ("RWF")	
6. The Consultant and the City will implement this Approved Service Order in accordance with the Master Agreement, this cover page and Attachments "A" (Tasks), "B" (Terms and Conditions), and "C" (Compensation Table), and "D" (Level of Effort), which are incorporated herein by references.	
7. Budget/Fiscal:	
a. Current unencumbered amount in Master Agreement:	\$ 7,000,000.00
b. Maximum Service Order Compensation for this Approved Service Order:	\$ 1,107,153.00
c. New unencumbered balance in Master Agreement (7.a – 7.b):	\$ 5,892,847.00
d. Appropriation Certification: I certify that an unexpended appropriation in the amount of the Maximum Service Order Compensation is available in the following fund(s) and that such fund(s) will be encumbered to pay for this Approved Service Order.	
Fund: 512 Appn: 7677 RC: 207771 Amount: \$	1,107,153.00
Fund: _____ Appn: _____ RC: _____ Amount: \$	_____
Fund: _____ Appn: _____ RC: _____ Amount: \$	_____
Authorized Signature: <u><i>Harpal Singh</i></u>	Date: Mar 10, 2022
8. Division Analyst Approval: <u><i>Mary Crippen</i></u>	Date: Mar 10, 2022
9. Consultant Approval: <u><i>[Signature]</i></u> <small>Hala Titus (Mar 10, 2022 14:06 PST)</small>	Date: Mar 10, 2022
10. Approval as to Form (City Attorney):	
<input checked="" type="checkbox"/> Service Order Form Approved by the Office of the City Attorney (There are no material changes to the provisions of the Approved Service Order Form.)	
<input type="checkbox"/> Approved as to Form: _____ Date: _____ (Sr.) Deputy City Attorney	
11. City Director Approval: <u><i>Napp Fukuda</i></u> <small>Napp Fukuda (Mar 11, 2022 10:34 PST)</small>	Date: Mar 11, 2022

Attachment A: Tasks

The Consultant shall provide the services and deliverables set forth in this **Attachment A**. The Consultant shall provide all services and deliverables required by this **Attachment A** to the satisfaction of the City's Contract Manager.

General Description of Project for which Consultant shall Provide Services:

The secondary treatment process at the RWF is a biological nutrient removal (BNR) process consisting of 16 treatment trains in the "secondary area" (BNR1) and 8 treatment trains in the "nitrification area" (BNR2). The process provides a level of treatment to meet the National Pollutant Discharge Elimination System (NPDES) permit.

In 2021, the Capital Improvement Program (CIP) completed the Process Optimization Study to identify and evaluate options to improve RWF process treatment efficiencies while accounting for future regulations and future flows and loads. One key regulatory requirement that the study evaluated was the expected effluent load cap on dry season average total inorganic nitrogen (TIN). This requirement is anticipated to be included in Nutrient Watershed Permit No. 3, which the San Francisco Regional Water Quality Control Board (SFRWQCB) will issue in 2024. The study identified Simultaneous Nitrification Denitrification (SND) with inDENSE technology as the preferred treatment process to meet this future regulation.

The City is anticipated to implement the preferred treatment process in phases. This Project is the first phase of implementation of the preferred treatment process focusing on the following improvements:

- Aeration Basin Rehabilitation: Rehabilitation of the existing aeration basins, associated piping, mechanical, electrical and control equipment to address aging infrastructure;
- Process Modifications: Modifications to the existing BNR process to a SND/inDENSE process to meet the upcoming Nutrient Watershed Permit No.3 TIN load cap.

Once the improvements are implemented under this Project, RWF process engineering and operations staff will evaluate the performance of the SND/inDENSE process. This evaluation will inform the required improvements to the remaining aeration basins, which are anticipated to be completed in subsequent phases.

The objective of this Service Order No 1 ("SO") is to identify, evaluate and recommend strategies for the rehabilitation of existing infrastructure and implementation of the SND/inDENSE process in one or more of the 24 aeration basins that make up the secondary treatment process, and define the scope of the Project.

Additionally, the Consultant shall conduct a hazardous materials investigation to identify the presence of hazardous materials in the primary and secondary treatment processes.

This SO consists of the following tasks.

- Task No. 1: Project Management
- Task No. 2: Alternative Analysis
- Task No. 3: Hazardous Materials Investigation
- Task No. 4: Additional Services (Optional)

Task No. 1: Project Management

- A. Services:** Consultant's project manager ("PM") shall make staffing assignments, review, and track work progress, coordinate quality management, and review procedures, and serve as the primary point of contact when communicating with the City. Consultant's PM shall manage the budget,

schedule, and invoicing Consultant's PM shall also prepare and maintain a log to record decisions made by City throughout the Project and manage the quality of deliverables.

Consultant shall use the Microsoft SharePoint site (CIP Portal) used by the RWF CIP for document management.

Consultant shall follow the City's templates and guidelines. The deliverables submitted by Consultant shall conform to the City's templates and guidelines. The City will provide access to these templates and guidelines no later than ten (10) Business Days following the Kickoff Meeting. The templates and guidelines currently available include the following:

- CIP Cost Estimating Manual;
- Design Guidelines;
- Meeting Agenda;
- Meeting Minutes;
- Project Decision Log ("PDL");
- Project Quality Plan;
- Quality Management Certification;
- Quality Review Form;
- Risk Matrix and Assessment;
- Technical Memorandum;
- Technical Report;
- Triple Bottom Line + ("TBL+") Matrix and Net Present Value Calculator; and
- Triple Bottom Line + Report.

Consultant shall perform the following project management activities.

1. Daily Oversight: Consultant shall oversee the daily management of scope, deliverables, schedule, and budget.
2. Coordination: Consultant shall coordinate work with internal staff, subconsultants, City staff, and other City consultants as appropriate and necessary. All work performed and all work products should be coordinated with other CIP projects currently underway to avoid duplication, confusion, and conflicts.
3. Progress Meetings: Consultant shall participate in weekly status teleconferences with the City to discuss overall work progress, status of near-term efforts and requirements and any other issues as needed. Topics discussed at the weekly meetings shall be determined in collaboration with the City. Consultant shall prepare agendas and meeting materials in advance of the weekly meetings and shall prepare meeting minutes following each weekly meeting within three (3) Business Days after the meeting. Weekly meetings shall be held unless otherwise determined by the City. Communication that is more frequent may occur if necessary, and as requested by the City's Contract Manager.
4. Project Work Plan: Consultant shall prepare and submit a Project Work Plan ("PWP") detailing tasks to be performed, schedule, deliverables (including their requirements and resources needed), and risk management plan. The PWP does not need to be updated monthly.
5. Project Schedule: Consultant shall prepare and maintain a Project schedule utilizing the Critical Path Method technique and electronic scheduling software (e.g., Primavera or Microsoft Project). The schedule shall adopt a work breakdown structure that reflects the Project scope and that is based on City Business Days for activity durations (i.e., start and finish dates) and link activities with the appropriate logic (i.e., predecessors and successors). The schedule shall include required constraints, sequences, milestones, and a baseline to track actual progress to date and anticipated future performance. No changes shall be made to the baseline without approval from the City's Contract Manager. As appropriate, Consultant shall summarize significant changes in the updated schedule from the previous submitted schedule and propose corrective actions to mitigate negative variances (i.e., delays) to the baseline as soon as they are identified. Consultant shall update the schedule on a monthly basis and submit the updated schedule with the summary of significant changes and proposed corrective actions along with

Monthly Progress Reports. The Consultant has based their fee estimate on a nine (9) month Service Order duration.

6. Health and Safety Plan: Consultant shall prepare and submit a Health and Safety Plan (“HASP”) for the portion of Consultant’s work that will involve field work, assessments, or investigations of certain Project elements. If required, the HASP shall describe Consultant’s confined space entry program and how Consultant plans to complete field work, assessments, and/or investigations at the RWF. Consultant’s HASP must comply with the CIP HASP and shall be updated as new conditions are encountered.
7. Quality Management: Consultant shall develop and implement a Project-specific Quality Management Plan (“QMP”) to support the execution of the work required by this SO. The QMP shall describe Consultant’s overall quality management process, identify the quality reviewers and the review levels associated with each Project milestone and deliverable.
 - a. The quality management efforts that shall be addressed by Consultant in the QMP include:
 - Coordinating work products, milestones, and staff assigned for review activities;
 - Conducting milestone technical and readability reviews for deliverables;
 - Documenting comments and work product modifications in the PDL; and
 - Completing and submitting Quality Review Forms and Quality Management Certifications for draft and final deliverables.
 - b. Consultant’s quality reviewers and their respective qualifications shall be identified in the QMP. Quality reviewers shall be independent (i.e., not part of Consultant’s core team for the Project) and shall be qualified to provide technical reviews. Each deliverable shall be reviewed by quality reviewers for technical correctness and completeness and proofread by a technical writer for readability prior to the submittal of the deliverable to the City. Consultant shall submit a Quality Management Certification signed by the quality reviewers confirming the quality review process was completed for each draft and final deliverable. The City may request Consultant to submit additional evidence that Consultant is following the procedures in the QMP.
 - c. Comments from the City’s review of the Consultant’s draft and final deliverables will be recorded on a Quality Review Form or in BlueBeam. Consultant shall review the City’s comments, confirm with the City how Consultant shall address the comments in the next iteration of the deliverable or a subsequent deliverable, and then submit a Quality Review Form with responses to the City’s comments.
8. Kickoff Meeting: Consultant shall organize and facilitate a three (3) hour Kickoff Meeting with City staff. Consultant’s PM and the appropriate Project team members shall attend the Kickoff Meeting. Topics to be discussed at the meeting shall include the following:
 - a. Introduction of key Consultant and City Project team members;
 - b. Presentation of Consultant’s QMP;
 - c. Review of Consultant’s understanding of the Project need and objectives;
 - d. Summary of SO scope, work plan, schedule, and deliverables;
 - e. Recap of previously completed analyses, studies, and reports associated with the study, including the 2021 Process Optimization Study that documents the selection of the SND/inDENSE process;
 - f. Discussion of other CIP or maintenance projects underway and planned that may be dependent on and/or have implications for the Project;
 - g. Additional information Consultant has deemed relevant to or necessary for the Project and for which City may address by transmitting an existing document; and
 - h. Confirmation of next steps.

Consultant shall prepare an agenda and meeting materials in advance of the Kickoff Meeting and shall prepare meeting minutes following the Kickoff Meeting.

9. Risk Register: Consultant shall prepare and maintain a risk register that identifies project risks,

probabilities, mitigation measures, and ownership using the Program's Risk Matrix and Assessment template. The risk register shall list interfaces with other projects, possible schedule impacts, and contingency plans. The risk register shall be updated on a monthly basis and submitted with Monthly Progress Reports.

10. Project Decision Log: Consultant shall prepare and maintain a PDL that documents the City's comments and decisions made related to the Project and Consultant's work. As applicable, the PDL shall reference other documents such as meeting minutes, technical memoranda, and reports for all decisions made. The PDL shall be updated every on a monthly basis and submitted with Monthly Progress Reports.
11. Monthly Progress Reports: Consultant shall prepare and submit a Monthly Progress Report by the tenth of each month, unless requested otherwise by the City's Contract Manager. The Monthly Progress Report shall be a brief written summary of the progress made on each task, estimate the overall task's percent completion, and include the status of each deliverable. The Monthly Progress Report shall also include any significant issues encountered, risks, or concerns Consultant has (e.g., anticipates difficulty meeting deadline for work due within the next 30 days for some reason beyond their control).
12. Monthly Invoices: Consultant shall prepare and submit invoices on a monthly basis by the tenth of each month, unless requested otherwise by the City's Contract Manager. The invoices shall be accompanied by the Monthly Progress Report that describes the work completed during the invoice's billing period.

B. Deliverables: Consultant shall provide the following documents to the City's Contract Manager.

1. PWP:
 - a. A draft PWP shall be provided in an electronic editable file and PDF file within ten (10) Business Days from issuance of NTP. Consultant shall allow City ten (10) Business Days to review, compile, and provide comments.
 - b. The final PWP addressing City comments shall be provided as an electronic editable file and as a PDF file within five (5) Business Days after receipt of City comments.
2. Schedule:
 - a. The initial schedule shall be provided in an electronic editable file and PDF file no later than the Kickoff Meeting.
 - b. Updated schedules, including summaries of significant changes, and proposed corrective actions, shall be provided as an electronic editable file and as a PDF file submitted along with Monthly Progress Reports.
3. HASP:
 - a. A draft HASP shall be provided in an electronic editable file at least twenty (20) Business Days prior to first scheduled field work, assessment, or investigation. Consultant shall allow City ten (10) Business Days to review, compile, and provide comments.
 - b. The final HASP addressing City comments shall be provided as an electronic editable file and as a PDF file within ten (10) Business Days after receipt of City comments.
 - c. Updated plans shall be provided, as new conditions are encountered and/or as requested by the City.
4. QMP:
 - a. A draft QMP shall be provided in an electronic editable file when the draft PWP is provided to City. Consultant shall allow City ten (10) Business Days to review, compile, and provide comments. The draft QMP can be included in the draft PWP.
 - b. The final QMP addressing City comments shall be provided as an electronic editable file and as a PDF file within five (5) Business Days after receipt of City comments. The final

QMP can be included in the final PWP.

5. A Quality Review Form with Consultant's responses to the City's comments shall be submitted within five (5) Business Days after receipt of City comments on the draft deliverable.
 6. Kickoff meeting/conference call agenda, materials, and minutes:
 - a. The draft agenda and presentation materials shall be provided in an electronic editable file ten (10) Business Days in advance of the meeting date. Consultant shall allow City five (5) Business Days to review, compile, and provide comments.
 - b. The final agenda and materials addressing City comments shall be provided as electronic editable files and as PDF files no later than two (2) Business Days before the meeting. Consultant shall also provide sufficient printed copies of the final agenda and any handouts for meeting attendees.
 - c. Draft minutes shall be provided in an electronic editable file within five (5) Business Days after the meeting. Consultant shall allow City a minimum of five (5) Business Days to review, compile, and provide comments.
 - d. Final minutes addressing City comments shall be provided as an electronic editable file and as a PDF file within three (3) Business Days after receipt of City comments.
 7. Risk Register:
 - a. The initial risk register shall be provided within 30 Business Days of the NTP in an electronic editable file.
 - b. An updated risk register shall be provided monthly as an electronic editable file and as a PDF file with each Monthly Progress Report.
 8. PDL:
 - a. The initial PDL shall be provided within 30 Business Days of the NTP in an electronic editable file.
 - b. An updated PDL shall be provided monthly shall be provided as an electronic editable file and as a PDF file with each Monthly Progress Report.
 9. Monthly Progress Reports shall be provided as a PDF file.
 10. Monthly invoices shall be provided as a PDF file with each Monthly Progress Report and include an estimate at completion (EAC) forecast.
- C. Completion Time:** Consultant must complete the services and deliverables for this task in accordance with whichever one of the following times is marked:
- On or before the following date: March 31, 2023
- On or before ____ Business Days from _____.

Task No. 2: Alternative Analysis

- A. Services:** Consultant shall understand the Project's history before developing alternatives and recommending a preferred alternative. The preferred alternative shall be based on Consultant's findings from completing the following activities.
1. Project Familiarization
 - a. **Background Review:** Consultant shall become familiar with the operating procedures and systems relevant to the Project by reviewing and analyzing existing background information provided by the City; reviewing previous assumptions; visiting the RWF to confirm site conditions and conducting interviews with RWF staff. The City will provide copies of available record drawings, reports, Computerized Maintenance Management System

("CMMS") data, historical operational and maintenance data, condition assessments, and any other existing documents pertaining to the Project. The reference documents will include:

- i. Nitrification Clarifiers Condition Assessment, AECOM, October 2011
- ii. Secondary Clarifier Modeling, HDR, November 2011
- iii. Evaluation of Scum Removal Alternatives for Secondary Clarifiers, CH2M Hill and HDR, February 2012
- iv. Secondary Clarifiers Condition Assessment, CH2M Hill, May 2012
- v. Aeration Demands and Biosolids Study Production Assessment (Process Modeling), Carollo, June 2015;
- vi. Flow Management Study Report, Stantec, July 2017;
- vii. Aeration Tanks Rehabilitation Condition Assessment and Alternatives Analysis, ("Condition Assessment Report"), Brown and Caldwell (BC), January 2018;
- viii. Aeration Tanks Rehabilitation Condition Assessment and Alternatives Analysis, ("Aeration Analysis Study"), BC, June 2018;
- ix. Flow and Load Projection Update, Stantec, July 2019;
- x. Nitrification Clarifier Rehabilitation Project Phase 1, HDR, April 2019;
- xi. Chemically Enhanced Primary Treatment (CEPT) Report, CIP, July 2020; and
- xii. Process Optimization Study, BC, September 2021.

Consultant shall bring to the attention of the City any incorrect or inconsistent information encountered during their background review and request additional information from the City, if available.

- b. **SND/inDENSE Survey:** Consultant shall contact five (5) wastewater treatment plants that are currently operating and maintaining either an SND/inDENSE, SND, or InDENSE at the secondary treatment process for SVI reduction with an installed capacity of greater than twenty (20) million gallons per day (MGD) to understand challenges related to design, operations, maintenance, and constructability. Consultant shall agree with the City as to which plants shall be contacted. Consultant shall supplement their findings with available peer-reviewed literature and discuss findings with the City.
 - c. **Site Visits:** Consultant shall visit the RWF up to two (2) times to determine existing conditions, equipment and pipeline locations, process layout and flow, access requirements, and other features related to the Project. Consultant shall provide at least seven (7) days advance notice to the City of the planned site visit to allow the City time to coordinate with RWF security and staff accordingly.
 - d. **Technical Memorandum No. 1 ("TM1"):** Consultant shall prepare a draft and final TM1 to record findings from the background review, SND/inDENSE survey and site visits, and advise the City of any significant differences or omissions of the information provided.
2. **Alternative Development and Screening**
- a. **Define Screening Criteria**
 - i. Consultant shall develop screening criteria in collaboration with the City. These screening criteria will be used to develop the initial Project alternatives for further evaluation.
 - ii. The screening process will be qualitative and will not include cost assessment or biokinetic process performance differences.
 - iii. **Workshop No. 1:** Consultant shall organize and facilitate a three (3) hour workshop with the City to discuss the findings and impacts from subtask 1, present screening criteria and review potential Project alternatives.
 - b. **Identify Initial Alternatives**
 - i. Consultant shall identify up to eight (8) alternatives for implementing improvements in

BNR1 or BNR2, including the following three alternatives identified by the City:

- 1) One treatment train in BNR1 and two remote clarifiers;
- 2) One treatment train in BNR2 and two clarifiers;
- 3) One battery in BNR2 with four treatment trains and eight clarifiers.

ii. The initial alternatives shall comprise at least one treatment train consisting of four “quads” and may involve the addition of new infrastructure, isolation of channels or basins, and modifications to the existing processes to accommodate any improvements.

c. Select Shortlisted Alternatives

- i. Consultant shall screen the initial alternatives based on the previously defined screening criteria and arrive at a shortlist of up to four (4) viable alternatives.
- ii. Workshop No.2: Consultant shall organize and facilitate a three (3) hour workshop with the City to present the initial alternatives and get feedback on the recommended shortlisted alternatives.

3. Preferred Alternative Selection

- a. Consultant shall develop the details of the shortlisted project alternatives before performing a business case analysis, using the CIP’s TBL+ methodology, to compare and rank various project alternatives. Consultant shall also assist the City with performing a sensitivity analysis to confirm the validity of the alternatives analysis and preferred alternative resulting from the TBL+ methodology.
- b. The Consultant shall develop a one-page fact sheet for each of the shortlisted alternatives with the following information.
 - i. Alternative description
 - ii. Preliminary site layout and/or conceptual process flow diagram
 - iii. Advantages and disadvantages
 - iv. Process isolation requirements
 - v. Constructability constraints and sequencing complexity
 - vi. Rehabilitation Requirements
 - vii. Presence of Hazardous Material
 - viii. Construction Schedule
 - ix. Opinion of Probable Construction Cost (“OPCC”) and life-cycle cost
 - x. Any key features that differentiate an alternative from the others
- c. Consultant shall evaluate the extent of rehabilitation and process modifications, and define the scope of work required for each shortlisted alternative as follows:
 - i. Aeration Basin Rehabilitation
 - 1) Review and validate the recommendations for rehabilitation of the aeration basins and associated ancillary process equipment from the 2018 Condition Assessment Report and Alternative Analysis Report.
 - 2) Prioritize the rehabilitation required for each shortlisted alternative based on the severity of the deficiency, importance of the restoration to Project implementation, difficulty of implementation, and cost. Additional prioritization criteria will be discussed and developed during Progress Meetings as required.
 - 3) Recommend the level of rehabilitation and timeline of implementation required for each shortlisted alternative.
 - ii. Process Modifications and Constructability Constraints
 - 1) Determine the optimal size of each treatment zone required for implementing the SND/inDENSE process.

- 2) Calculate the projected aeration demand and determine whether the existing blowers are able to meet this demand. Compare the projected aeration demand to the output range of the existing blowers and determine whether insufficient blower turndown is likely to be a concern during Project implementation or during full-scale implementation.
 - 3) Evaluate the layout of the existing BNR process and the extent of process modifications required to implement the Project.
 - 4) Determine constructability constraints, including impacts of construction on existing structures, conflicts between existing infrastructure and proposed modifications and construction sequencing.
- iii. Preliminary Seismic Evaluation
- 1) Perform a preliminary structural and seismic evaluation on the shortlisted alternatives to determine whether proposed alterations to existing structures trigger the need for a detailed evaluation of seismic rehabilitation and retrofit requirements as specified in CIP's 2021 Structural Design Guidelines. Provide a qualitative indication of the extent of the seismic rehabilitation and retrofit required for each shortlisted alternative. If directed by the City, Consultant will perform a detailed seismic evaluation for the preferred alternative as part of Additional Services.
- iv. Process Isolation and Impacts on Existing Operation
- 1) Review ease of process isolation and evaluate impacts on ongoing operations and maintenance activities and other CIP projects.
 - 2) Develop preliminary construction sequencing requirements for the shortlisted alternatives.
- v. Impact on Treatment Capacity and Effluent Quality
- 1) Determine the remaining secondary treatment capacity of the RWF excluding the capacity of the modified aeration basins by the Project.
 - 2) Assess whether isolating a limited number of secondary clarifiers for the Project impacts solids loading and evaluate its impact on remaining clarifiers and overall treatment capacity using an MS Excel based state-point analysis.
 - 3) Determine the impact on the overall RWF effluent water quality from blending the anticipated effluent from the modified aeration basins with the effluent from the rest of the RWF during the dry season (May 15 – Oct 15) and wet season (Oct 16 – May 14) maximum month condition.
- vi. OPCC
- 1) Perform a life-cycle cost analysis including preparing estimates of the annual operating and maintenance costs as well as a Class 4 OPCC for each shortlisted alternative. The OPCCs shall be prepared to a level of accuracy consistent with the standards of AACE International, formerly known as the American Association of Cost Engineering and the Association for the Advancement of Cost Engineering, and the Program's cost estimating guidelines. The OPCC shall include the costs for rehabilitation, process modifications, and hazardous material abatement.
- vii. BioWin Modeling
- 1) Use a previously calibrated, whole-plant BioWin model provided by the City to evaluate the impact of the preferred alternative on existing RWF operation and performance.

- 2) Review and validate the model input (treatment process kinetic parameters, dry-and wet-season wastewater characterization and fractionation, diurnal flow and load curves, configuration of the plant, future projections, etc.) and indicate to the City any incorrect or inconsistent information encountered during this review.
 - 3) Review an additional 24-months of RWF flow and load data, collected by the City subsequent to calibration of the existing BioWin model, and report to the City any incorrect or inconsistent information encountered during this review
 - 4) Perform up to two (2) dynamic BioWin modeling runs for up to four (4) shortlisted alternatives for both the dry season and wet season.
4. Workshop No. 3: Consultant shall organize and facilitate a three (3) hour workshop with the City to review the shortlisted alternatives, present and confirm the TBL+ evaluation criteria, sub-criteria and the weighting of the evaluation categories, complete live scoring with the City for each shortlisted alternative, and reach an agreement on the preferred alternative.
5. Implementation of Preferred Alternative:
- a. Consultant shall develop an implementation plan for the preferred alternative that includes a proposed sequence of implementation and construction schedule for the Project based on the preferred project delivery method.
6. Technical Memorandum No. 2 ("TM2"): Consultant shall prepare the draft and final TM2 using the CIP's TBL+ Report template. TM2 shall cover the following contents:
- a. Executive Summary
 - b. Introduction
 - c. Project Background and Purpose of Alternative Analysis
 - d. Existing Secondary Treatment Process and comparison to the SND/inDENSE Process
 - e. Screening Criteria and Development of Project Alternatives
 - f. Shortlisted Project Alternative Description and Evaluation
 - g. TBL+ Evaluation
 - h. Hazardous Materials Investigation
 - i. Cost Models
 - j. TBL+ Sensitivity Analysis
 - k. Implementation Plan
 - l. Conclusions and Recommendations
 - m. Next Steps
 - n. Biowin and/or Spreadsheet Models and Results

B. Deliverables: Consultant shall provide the following documents to the City's Contract Manager.

1. TM1 and TM2
 - a. Draft TM provided as eight (8) bound printed copies, one electronic editable Microsoft Word file and one (1) electronic PDF file. Consultant shall allow the City fifteen (15) Business Days to review, compile and provide comments.
 - b. Final TM addressing the City comments provided as eight (8) bound printed copies, one electronic editable Microsoft Word file and one (1) electronic PDF file within ten (10) Business Days after receipt of the City comments.
2. Model Files
 - a. BioWin model files for the following:
 - i. Input and output for each of the four shortlisted alternatives
 - ii. Input and output for the preferred alternative
 - iii. Two diurnal input files for each alternative (summer and winter)

- iv. Two wastewater fractionation input files (summer and winter)
- v. PDF files showing the output from the BioWin model runs.
- b. Configuration data for the ABAC or DO control simulation files
- c. Native excel files for aeration demand calculations.
- 3. Workshop Agenda, Materials and Summary:
 - a. Draft agenda, slide deck and materials provided in an electronic editable file ten (10) Business Days in advance of each workshop date. Consultant shall allow City five (5) Business Days to review, compile and provide comments.
 - b. Final agenda, slide deck, and materials addressing City comments provided as an electronic editable file and as PDF files no later than two (2) Business Days before each workshop. Consultant shall also provide sufficient printed copies of the final agenda and any handouts for meeting attendees.
 - c. Draft workshop summary provided in an electronic editable file within five (5) Business Days after each workshop. Consultant shall allow City five (5) Business Days to review, compile, and provide comments.
 - d. Final workshop summary addressing City comments provided as an electronic editable file and a PDF file within five (5) Business Days after receipt of City comments.

C. Completion Time: Consultant must complete the services and deliverables for this task in accordance with whichever one of the following times is marked:

- On or before the following date: March 31, 2023
- On or before ____ Business Days from _____.

Task No. 3: Hazardous Materials Investigation

A. Services: Consultant shall conduct an onsite hazardous materials investigation to identify the locations and quantities of suspect hazardous materials in the east and west primary clarifiers, BNR1 and BNR2 aeration basins and secondary clarifiers, and associated process equipment, pipe and appurtenances located in the tunnels. The hazardous materials to be assessed shall include asbestos, lead-based paint, and polychlorinated biphenyls (PCBs). Specific locations to be sampled will be identified in the Sampling Plan discussed below.

1. Hazardous Materials Site Assessment

- a. Sampling Plan: Consultant shall use information obtained from site visits and prior CIP hazardous materials assessments for this investigation and develop a hazardous material sampling plan for representative areas and infrastructure within the identified process facilities.
- b. The sampling plan and subsequent hazardous materials investigation shall follow applicable procedures described in the following City guideline:
 - i. Hazardous Materials Investigation and Remediation Protocol, Technical Memorandum No. 1, BC, March 2019
- c. Consultant shall conduct up to eight (8) site visits to collect the following samples in selected locations in the west primary clarifiers, east primary clarifiers, and BNR1 and BNR2 basins and clarifiers.
 - i. Polarized Light Microscopy (PLM): Seventy-three (73) asbestos samples from concrete, caulking, and sealants, and for the process, equipment, gaskets, and sealants.
 - ii. Point Count Analysis (PCA): Twenty-one (21) higher resolution PCA sampling will

- be performed if the regular PLM analysis for asbestos bulk samples provides a <1% result.
- iii. FlameAA Analysis: Thirty-eight (38) paint samples from concrete basins, clarifiers, various pipes, and equipment.
 - iv. PCB Analysis: Sixty-one (61) PCB samples from paint, caulking and sealant, pipes, and equipment.
- d. Consultant shall ship the collected samples to an appropriate testing lab approved by the City for analysis.
 - e. Consultant shall prevent contaminating other materials and equipment in the area during sampling and clean up any debris released after sampling. Consultant shall apply a temporary patch to the sampling area that may not match the original finish. Sampling shall not result in any leaks. All debris and cleaning materials shall be collected and appropriately disposed of by Consultant.
 - f. The asbestos investigation shall be performed by a California Certified Asbestos Consultant (CAC) who conforms with the procedures outlined as part of the CAC certification process.
 - g. Consultant shall log samples on Chain-of-Custody forms and ship them to the appropriate laboratory in accordance with standard industry procedures following chain-of-custody protocols.
 - h. All labs performing asbestos-content analysis shall be USEPA-accredited and shall participate in USEPA's "Interim Asbestos Bulk Sample Analysis Assurance Program". The laboratory shall also be accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
 - i. The laboratory performing paint chip lead analysis shall be California NELAP certified.
 - j. Suspect materials that are not accessible (such as pipe gasket) or unsafe (such as wire insulation) for sampling will be assumed to be hazardous until proper sampling can be performed when the condition allows.
 - k. For areas such as aeration basins and clarifiers that are unable to be drained, sampling will only be performed at accessible areas above water.
 - l. Consultant shall summarize findings and recommendations of the hazardous materials investigation, including procedures for managing the existence, safe removal, and/or disposal of the hazardous materials. These findings and recommendations shall be included as a separate appendix in TM2.
2. Process Shutdown Requests: Consultant shall determine if the condition assessment requires a temporary shutdown of a portion of the RWF's treatment process. If so, Consultant shall prepare and submit a Process Shutdown Request (PSR) for each shutdown needed to complete the condition assessment using the City's PSR template and coordinate the approval of the PSR prior to the commencement of the hazardous material assessment work. The PSR shall detail the purpose of the condition assessment, duration, areas of work, safety requirements, adherence to confined space entry protocol, and other activities necessary to accommodate the condition assessment. The PSR shall be submitted to the City twenty-eight (28) days prior to any required shutdown activities.
3. Confined Space Entry and Rescue Services
- a. Consultant shall provide confined space entry and rescue services for the hazardous materials investigation, which is expected to occur over six (6) days.
 - b. Consultant shall determine if Consultant's entry into certain spaces for field investigation meet the regulatory requirements to be classified as either non-permit-required confined space or permit-required confined space in accordance with California Code of Regulations

Title 8 Sections 5156, 5157, and 5158. If the space is classified as a permit-required confined space on the basis of the presence or potential for the presence or potential for the presence of an atmospheric hazard only, Consultant shall evaluate if “alternative procedures” outlined in California Code of Regulations Title 8 Section 5157(c)(5) can be employed to allow the space to be reclassified. If the space is classified as a permit-required confined space, Consultant shall submit a copy of Consultant’s confined space program along with a request to enter the confined space to the City’s Contract Manager. If approved to enter, Consultant shall follow the applicable California Code of Regulations, including the provision for onsite rescue services, and the procedures described in the Environmental Services Department’s Confined Space Program.

- c. Consultant shall provide rescue services associated with confined space entry during the field investigation. A specialized contractor whose rescue team has at least five (5) years of experience in rescue training and is certified in confined space rescue training and emergency medical training shall provide the rescue services. All Consultant personnel associated with the field investigation shall be properly training and certified per California’s Division of Occupational Safety and Health (“Cal/OSHA”) regulations and the City’s requirements.
- d. Consultant shall confirm that adequate rescue services, confined space access, and all confined space equipment needed are available when staff enters the various confined spaces. Consultant shall participate in debriefing sessions with the RWF’s Industrial Safety Officer following confined space entries and make available the material safety data sheets of any hazardous materials Consultant plans to use in the confined space.

B. Deliverables: Consultant shall provide the following documents to the City’s Contract Manager.

1. Hazardous Materials Sampling Plan

- a. Draft plan provided as an electronic editable Microsoft Word file and one (1) electronic PDF file. Consultant shall allow City ten (10) Business Days to review, compile and provide comments.
- b. Final plan addressing City comments provided as an electronic editable Microsoft Word file and one (1) electronic PDF file within five (5) Business Days after receipt of City comments.

2. Hazardous Material Investigation Findings and Recommendations

- a. Final report provided as a separate Appendix in TM2.

C. Completion Time: Consultant must complete the services and deliverables for this task in accordance with whichever one of the following times is marked:

- On or before the following date: March 31, 2023
- On or before ____ Business Days from _____.

Task No. 4: Additional Services (Optional)

A. Services: Upon written authorization from the City, Consultant shall provide the additional services as described below. Consultant shall perform additional services only upon written request of the City’s Contract Manager. There is no guarantee that the following services will be authorized by the City.

- 1. Structural and Seismic Evaluation: This evaluation shall be performed only if it is determined that proposed alterations to BNR1 and BNR2 trigger the need for a detailed evaluation of seismic rehabilitation and retrofit requirements.
 - a. Consultant shall perform a structural and seismic analysis, evaluating the existing structure against current design ACI 350 and ACI 350.3 design codes. Consultant shall confirm seismic evaluation criteria with the City prior to commencing evaluation.

- b. Seismic analysis shall include a preliminary desktop geotechnical evaluation of existing site conditions to evaluate potential geotechnical hazards such as liquefaction. The geotechnical investigation shall be based on available existing geotechnical studies.
 - c. Consultant shall perform materials testing for six (6) concrete cores and three (3) rebar test samples, which may be needed for the seismic analysis. No confined space entry is assumed to be required for the material testing.
 - d. Consultant shall identify the required seismic upgrades and develop the associated cost. This cost shall be incorporated into the OPCC for BNR1 and BNR2.
 - e. Technical Memorandum No. 3 ("TM3"): Consultant shall prepare a draft and final TM3 to document the findings and recommendations for structural and seismic upgrade and associated cost.
2. BioWin Modeling Runs: Consultant shall perform two (2) additional dynamic BioWin model runs to review the impact of the selected alternative on the existing RWF treatment process.
 3. Workshops: Consultant shall conduct two (2) additional workshops with the City. Consultant shall organize and facilitate the workshops and prepare meeting agenda and materials in advance and workshop summary following the workshop.
 4. Site Visits: Consultant shall conduct two (2) additional site visits to determine existing conditions, equipment and pipeline locations, process layout and flow, access requirements, and other features related to the Project.
 5. Scope of Work and OPCC for the Remainder of the Aeration Basins
 - a. Define the scope of work that describes the extent of process modifications and rehabilitation required for the remainder of the BNR1 and BNR2 aeration basins and associated ancillary process equipment. The implementation of the process modifications and rehabilitation will be performed in subsequent phases and the timeline will be provided by the City.
 - b. Prepare a Class 4 OPCC for implementing the rehabilitation and process modifications for the remainder of the BNR1 and BNR2 aeration basins and associated ancillary process equipment. The OPCC shall include the costs for rehabilitation, process modifications, hazardous material abatement and seismic upgrades if required. See Task No. 2 for OPCC requirements.

B. Deliverables: Consultant shall provide the following documents to the City's Contract Manager.

1. TM3
 - a. Draft TM provided as an electronic editable Microsoft Word file and one (1) electronic PDF file. Consultant shall allow City ten (10) Business Days to review, compile and provide comments.
 - b. Final TM addressing City comments provided as an electronic editable Microsoft Word file and one (1) electronic PDF file within five (5) Business Days after receipt of City comments.
2. Workshop Agenda, Materials and Summary
 - b. Draft agenda, slide deck and materials provided in an electronic editable file format ten (10) Business Days in advance of each workshop date. Consultant shall allow City five (5) Business Days to review, compile, and provide comments.
 - c. Final agenda, slide deck, and materials addressing City comments provided as an electronic editable file and as PDF files no later than five (5) Business Days before each workshop. Consultant shall also provide sufficient printed copies of the final agenda and any handouts for meeting attendees.
 - d. Draft workshop summary provided in an electronic editable file within five (5) Business Days after each workshop. Consultant shall allow City five (5) Business Days to review,

compile, and provide comments.

- e. Final workshop summary addressing City comments provided as an electronic editable file and a PDF file within five (5) Business Days after receipt of City comments.

3. Model Files

- a. BioWin model files for the following:
 - i. All modeled configurations, including input and output files
 - ii. PDF files showing the output from the BioWin model runs.

4. OPCC and Cost Model Report

- a. Draft report provided as an electronic editable Microsoft Excel file and one (1) electronic PDF file. Consultant shall allow City ten (10) Business Days to review, compile and provide comments.
- b. Final report addressing City comments provided as an electronic editable Microsoft Excel file and one (1) electronic PDF file within five (5) Business Days after receipt of City comments.

C. Completion Time: Consultant must complete the services and deliverables for this task in accordance with whichever one of the following times is marked:

- On or before the following date: March 31, 2023
- On or before ____ Business Days from _____.

Attachment B: Terms and Conditions

1. **City's Contract Manager:** The City's contract manager for this Approved Service Order is:

Name: Lily Zhu	Phone No.: 408-635-4048
Department: ESD	E-mail: lily.zhu@sanjoseca.gov
Address: 700 Los Esteros Road	City/State/Zip: San Jose, CA 95134

2. **Consultant's Contract Manager and Other Staffing:** Identified below are the following: (a) the Consultant's contract manager for this Approved Service Order, and (b) the Consultant(s) and/or employee(s) of the Consultant who will be principally responsible for providing the services and deliverables. ***If an individual identified below does not have a current Form 700 on file with the City Clerk for a separate agreement with the City, and is required to file a Form 700, the Consultant must comply with the requirements of Subsection 17.5 of the Master Agreement, entitled "Filing Form 700."***

		<u>Required to File Form 700?</u>		
		Yes Already Filed (Date Filed)	Yes Need to File	No
<u>Consultant's Contract Manager</u>				
Name: Hala Titus	Phone No.: Work: (925) 296-8055 <u>Cell: (925) 212-2228</u>	1/24/22		
Address: CDM Smith 2300 Clayton Road, Suite 950 <u>Concord, CA 94520</u>	E-mail: <u>titushz@cdmsmith.com</u>			
<u>Other Staffing</u>				
Name:	Assignment:			
1. Jan Davel	Project Manager	1/17/2022		
2. Jenny Strehler	Treatment Process Lead		X	
3. Mark Takemoto	Process Mechanical Lead	1/17/2022		

3. Subconsultants: Whichever of the following is marked applies to this Approved Service Order:

- The Consultant can **not** use any subconsultants.
- The Consultant can use the following subconsultants to assist in providing the required services and deliverables:

<u>Subconsultant's Name</u>	<u>Area of Work</u>
1. Forensic Analytical Consulting Services	Hazardous Material Assessment
2. Voss Laboratories, Inc.	Materials Strength Testing

4. Contract Personnel: Whichever of the following is marked applies to this Approved Service Order:

- The Consultant can **not** use any Contract Personnel.
- The Consultant can use the following Contract Personnel to assist in providing the required services and deliverables:

<u>Personnel/Agency Name</u>	<u>Area of Work</u>

CPMS Contract No.: 9855-2
 Service Order No. 1
 Consultant: CDM Smith, Inc.

Attachment C: Compensation Table

The City will compensate the Consultant for providing the services and deliverables set forth in **Attachment A** in accordance with this Compensation Table. This Compensation Table is subject to the terms and conditions set forth in the Master Agreement, including without limitation Section 10 of the Master Agreement and **Exhibit B**, Basis of Compensation.

Column 1 Task No. and Task Title from Attachment A	Column 2 Invoice Period	Column 3 Multiplier Compensation	Column 4 Contract Personnel	Column 5 Reimbursable Expenses (Including applicable markup)	Column 6 Subconsultant Costs (Including markup)	Column 7 Total Compensation
Task No. 1: Project Management	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$145,275	\$0	\$0	\$0	\$145,275
Task No. 2: Alternative Analysis	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$607,254	\$0	\$16,200	\$0	\$623,454
Task No. 3: Hazardous Materials Investigation	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$9,820	\$0	\$0	\$86,278	\$96,098
Task No. 4: Additional Services (Optional)						
Task No. 4.1: Structural and Seismic Evaluation	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$98,672	\$0	\$300	\$16,000	\$114,972
Task No. 4.2: BioWin Modeling Runs	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$9,770	\$0	\$0	\$0	\$9,770
Task No. 4.3: Workshops	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$60,831	\$0	\$0	\$0	\$60,831
Task No. 4.4: Site Visits	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$28,700	\$0	\$3,600	\$0	\$32,300
Task No. 4.5: Scope of Work and OPCC for the Remainder of the Aeration Basins	<input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Completion of Task(s) <input type="checkbox"/> Completion of Work	\$24,453	\$0	\$0	\$0	\$24,453
Maximum Compensation		\$984,775	\$0	\$20,100	\$102,278	\$1,107,153

CPMS Contract No.: 9855-2
Service Order No. 1
Consultant: CDM Smith, Inc.

Attachment D: Level of Effort for Service Order 1 Aeration Basin Modifications Phase 1 – Feasibility and Alternative Analysis

Staff List, Estimated Hours for each Consultant staff and the Level of Effort Summary attached.

Form Name: Master City of San José Consultant Agreement – RWF Capital Projects
Attachment D: Level of Effort
Form/File No.: 1820427/T-30389
City Attorney Approval Date: August 2021

Modeling	Offsite	\$66.50	3.08	\$204.81	\$204.81	11.0	7.6	1.9	2
ctibility Lead	Offsite	\$92.54	3.08	\$285.01	\$285.01	5.8	6.6	35.6	
ons Lead	Offsite	\$80.19	3.08	\$246.97	\$246.97				
timating Lead	Offsite	\$98.36	3.08	\$302.96	\$302.96				2
ing	Offsite	\$56.56	3.08	\$174.20	\$174.20	1.5	1.8	1.4	
draulics & Pumps	Offsite	\$75.03	3.08	\$231.08	\$231.08				16.0
	Offsite	\$87.06	3.08	\$268.16	\$268.16				16.0
al	Offsite	\$66.92	3.08	\$206.11	\$206.11				16.0
al	Offsite	\$43.39	3.08	\$133.65	\$133.65				
al	Offsite	\$80.19	3.08	\$246.97	\$246.97				
al	Offsite	\$50.80	3.08	\$156.46	\$156.46				
n	Offsite	\$101.52	3.08	\$312.67	\$312.67				
n	Offsite	\$49.14	3.08	\$151.36	\$151.36				
n	Offsite	\$36.54	3.08	\$112.53	\$112.53				
al/ I&C	Offsite	\$75.16	3.08	\$231.49	\$231.49	4.9	11.5	17.7	
	Offsite	\$62.02	3.08	\$191.01	\$191.01	4.0			
s/CADD	Offsite	\$47.74	3.08	\$147.04	\$147.04	2.3	28.6	17.1	
	Offsite	\$108.76	3.08	\$334.97	\$334.97				
	Offsite	\$95.01	3.08	\$292.62	\$292.62				
	Offsite	\$87.76	3.08	\$270.29	\$270.29				
	Onsite	\$106.66	2.45	\$261.31	\$261.31				
	Offsite	\$118.23	3.08	\$364.16	\$364.16	6.2	1.9	0.9	
al Editor	Offsite	\$47.05	3.08	\$144.92	\$144.92	0.0	3.6	3.4	
	Offsite	\$101.94	3.08	\$313.97	\$313.97	1.2	1.4	1.1	
	Offsite	\$45.12	3.08	\$138.98	\$138.98	2.8	3.3	2.6	
	Offsite	\$55.55	3.08	\$171.09	\$171.09	2.8	3.3	2.6	

	Compensation		Expenses		
Management	\$ 145,275.00	\$ -	\$ -	\$ -	\$ -
Stability Analysis	\$ 607,254.00	\$ -	\$ 16,200.00	\$ -	\$ -
Geotechnical Materials Investigation	\$ 9,820.00	\$ -	\$ -	\$ 86,278.00	\$ -
Professional Services					
Structural and Seismic Evaluation	\$ 98,672.00	\$ -	\$ 300.00	\$ 16,000.00	\$ -
Stability Modeling Runs	\$ 9,770.00	\$ -	\$ -	\$ -	\$ -
Workshops	\$ 60,831.00	\$ -	\$ -	\$ -	\$ -
Site Visits	\$ 28,700.00	\$ -	\$ 3,600.00	\$ -	\$ -
Scope of Work and OPCC for the Remainder of the Design Basins	\$ 24,453.00	\$ -	\$ -	\$ -	\$ -
MAXIMUM COMPENSATION	\$ 984,775.00	\$ -	\$ 20,100.00	\$ 102,278.00	\$ -

City of San José Contract/Agreement Transmittal Form

Route Order

Attached / Completed

Electronically Signed

TO: City Attorney
 City Manager
 City Clerk **OR** Return to Dept. (circle one)

Insurance Certificates / Waivers Electronically Signed: Yes
 Business Tax Certificate Audit Trail Attached (if applicable)
 Contacted Clerk re: Form 700 Scanned Signature Authorization
 Supplemental Memorandums (if applicable): Select One

Type of Document: Service Order

Type of Contract: Consulting Services

REQUIRED INFORMATION FOR ALL CONTRACTS:

Existing GILES # 667140 -001

Contractor: CDM Smith, Inc.

Address: 2300 Clayton Road, Suite 950, Concord, CA 94520

Phone: (925) 296-8055

Email: titushz@cdmsmith.com

Contract Description: Service Order 1 - Aeration Basin Modifications Phase 1 - Feasibility and Alternative Analysis

Term Start Date: Contract Date Term End Date: 03/31/2023 Extension: No

Method of Procurement: Select one RFB, RFP or RFQ No.: _____ Date Conducted: _____

Agenda Date (if applicable): _____ Agenda Item No.: _____

Resolution No.: _____ Ordinance No.: _____

Original Contract Amount: \$1,107,153.00 Amount of Increase/Decrease: _____

Option #: ___ of ___ Option Amount: _____ NTE/Updated Contract Amount: _____

Fund/Appropriation: _____

Form 700 Required (Selection mandatory for processing): Yes

Revenue Agreement: No

Tax Certificate No.: 5277362010

Expiration Date: 03/15/2023

Department: ESD (76)

Department Contact: Lily Zhu / 635-4048 Customer (Finance Only): ^^^ ^^^^^^^^^^^^^^^^^

Notes:



Department Director Signature: _____ Date

Office of the City Manager Signature: _____ Date