

Attachment 1

GENERAL SCOPE OF SERVICES

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Task 1 – Project Management

1.1 Coordination with City of Lynnwood

Consultant shall coordinate with the City of Lynnwood (City) on a regular basis to keep the City's project manager informed about project progress, project issues and schedule. Regular communication with the City shall occur on a weekly basis. This work element shall also include preparing an Action Items Log and keeping the log updated throughout the duration of the project.

The Consultant shall attend up to 3 project status/coordination meetings or site visits at the City. These meetings under this work element shall include the following participation by the Consultant team:

- Up to 3 meetings attended by the Consultant with up to 3 people from the Consultant team.
- Weekly coordination conversations to cover project status.
- Subconsultant participation shall be as described under the subconsultant work elements.
- The Consultant shall prepare agendas and meeting notes/action items and distribute to attendees.

1.2 Project Schedule and Team Management

The Consultant shall develop an overall project schedule, which will include a detailed schedule by task to include major milestones. The Consultant shall prepare a draft and final schedule for the City review, and then the Consultant shall keep the schedule updated as the project progresses.

Updated schedules shall be provided with the monthly invoices or at a time period determined by the City's project manager or when changes occur with the project.

1.3 Progress Reports, Invoices, and Budget Management

As part of the project, the Consultant shall prepare monthly progress reports that describe the work items and percentage of work items that were accomplished that is independent of budget expended, as well as a forecast of work to be completed over the following month. Progress report shall include a status of budget spent and remaining for each individual task. The monthly progress reports will also identify any other issues or problems that may occur in any given month. The Consultant shall submit these monthly progress reports to the City's Project Manager with the monthly invoices. The monthly invoices will bill by individual tasks. The Consultant Project Manager shall notify City's Project Manager, in writing (memo format), of any out of scope and/or budgetary issues that are inconsistent with this Scope of Services. The Consultant shall also manage the subconsultant budgets and invoices, manage change, and prepare amendments under this sub-task.

Assumptions:

- The City's project manager will have phone and e-mail contact with the consultant on an as-needed basis.
- Project schedule will be updated monthly to reflect progress.
- Meetings between Consultants will be conducted under the various Scope tasks.

- Consultant will be responsible for setting up and maintaining a project file sharing site.
- Project duration is anticipated to be 5 months.

Deliverables:

- Project Schedule (Microsoft Project format) and up to 4 updates
- Project Meeting Agendas, meeting notes
- Action Items Log
- Monthly Invoices and Progress Reports
- Weekly project status correspondence with notes.

City Responsibilities:

- Preparation of supplement authorizations.
- Coordination with city staff and scheduling meetings held at City Hall or field visits.

Task 2 – Preliminary Design Report

2.1 Task Description

The Consultant shall allocate up to 100 hours' worth of engineering time on site to study the current incineration process, collect data, perform tests and root cause analysis to identify the root causes of coagulation of sludge in the exhaust duct and recommend engineering solutions that eliminate the negative consequences of incomplete combustion. The consultant's engineering solutions shall also be in compliance with applicable standards and guidance from Clean Air Act, EPA Standards for Waste Management, EPA Biosolids Laws and Regulations, Federal Plan Requirements for Sewage Sludge Incineration Units Constructed on or Before October 14, 2010 and City of Lynnwood NPDES (Waste Discharge Permit) requirements.

2.2 On-site Study

The Consultant shall utilize the on-site time to work with Wastewater Treatment Plant Staff on monitoring the current incineration process and data collection. Some of the measurements that may be required to be taken for the purpose of this study phase are:

- Temperature
- Dissolved Oxygen (DO)
- Biochemical Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Hydrogen Ion Concentration (PH)
- Alkalinity
- Odor

To ensure that an adequate residence time is maintained for the sewage sludge to be completely burned or any other negative consequence of an incomplete combustion, the consultant shall consider the following items in their studies:

- Mixing characteristics
- Sludge residence times
- Fluctuations in the sludge feed rate
- Total moisture content of the sludge fed to the incinerator
- Burning capacity of the incinerator and optimal rate of heat
- Different combustion zones, water evaporation and pyrolysis of organic material
- Wet scrubbers
- Fluidizing effect of the fluidizer
- Effect of chemical conditioners to the sewage sludge and the incineration process

2.3 Solution Alternatives

The Consultant shall develop 3 solution alternatives for the incinerator operations troubleshoot and repair and evaluation for each for each alternative in the final Technical Memorandum. In preparation of alternatives evaluation, the consultant shall consider capital cost, shut down impact on incineration operation during construction, timing of the project, efficiency of the solutions and construction feasibility of each alternative.

2.4 Preliminary Engineering report (Technical Memorandum)

The Consultant shall prepare a Preliminary Engineering Design report (Technical Memorandum) that documents the results of the work described in this scope of services.

The Preliminary Engineering Design report shall be prepared by the Consultant in draft form and submitted to the City Project Managers for review. The City staff will complete their review and provide one set of consolidated comments to the Consultant. The Consultant shall revise the draft Preliminary Engineering Design report to respond to the comments of the City staff. A final Preliminary Engineering Design report shall be submitted to the City Project Manager.

The Consultant shall attend the City Council meeting where staff will present the results of the study to the Lynnwood City Council

Assumptions:

- The City PM shall determine which personnel from various departments such as: operations and maintenance, construction, and environmental shall attend the site visits.
- Consultant should identify and communicate all areas and issues that may be encountered to proceed to design phase.
- The city will provide available as-built drawings and any descriptive information of changes to the incinerator system since original installation.
- The consultant will spend (up to 100 hours) time at the Wastewater Treatment Plant, watching and learning our processes, shadowing operators , collect data, collect samples from influent and effluent, perform tests and root cause analysis to identify and resolve the issues subject to this project.

Deliverables:

- Draft Technical Memorandum for city's review and feedback (one electronic copy)
- Final Technical Memorandum (one electronic copy) that illustrates:
 - An executive summary
 - Description of current and future project conditions
 - Description of recommendations for modifications and engineering solutions to the incinerator process and structure
 - Alternatives evaluation and comparison of proposed alternatives based on the criteria outlined in section 6.3 of this scoping document
 - Cost estimates for each alternative
 - A summary of required maintenance and operations to extend useful life of the incinerator
 - Appendices that include supporting information

City Responsibilities:

- Provide review and feedback on Preliminary Engineering Design Report, design alternatives, and estimates
- Provide As-built information as requested
- Provide key evaluation criteria for Preliminary Engineering Design Report
- Scheduling and coordinating meetings with City staff on City premises
- The city will provide access to the exterior of the heat exchangers for inspections and to verify as-built conditions.
- The City will provide the Consultant proper working space during the on-site study time.

Task 3 – Plans, Specifications and Estimates (PS&E) Preparation

This task includes preparation of a 60%, 90% PS&E submittal and Final Submittal consisting of plans, specifications and cost estimate. This task also includes review and incorporation of City comments from the 60% and after the 90% PS&E submittal. The design and preliminary PS&E shall be based on the requirements of the City of Lynnwood Wastewater NPDES permit, and in compliance with applicable standards and guidance from Clean Air Act, EPA Standards for Waste Management, EPA Biosolids Laws and Regulations and Federal Plan Requirements for Sewage Sludge Incineration Units Constructed on or Before October 14, 2010.

3.1 60% PS&E

The Consultant shall update the design criteria that were established during the Preliminary Engineering phase. The Consultant shall then prepare 60% plans, specifications, and opinion of costs for the construction contract based on the results obtained from the Preliminary Engineering Phase. The plans, specifications, and opinion of cost shall be submitted to the City for review and comment.

3.1.1 60% Plans

60% plans shall include details for the construction of the proposed improvements in the Technical Memorandum. The plans shall be prepared in accordance with accepted industry practices. Plans shall be prepared and provided in AutoCAD 2018 format. It is anticipated that the 60% plans shall consist of the following sheets:

- Cover Sheet w/Vicinity Map and Index
- Legend, Abbreviations and Construction Notes
- Plans Sheet Index
- Site Preparation Plan
- Demolition Plan and Detail Plan
- Process Schematic Plan
- Mechanical Plan
- Electrical Plan

3.1.2 60% Opinion of Costs

The Consultant shall calculate 60% level quantities and opinion of construction costs based upon the 60% construction plans and current unit bid prices. A contingency shall be included to accommodate additional construction costs not yet specifically identified and account for yearly inflation if project exceeds one year.

3.1.3 60% Specifications

The Consultant shall prepare Contract Provisions ("Specifications") for the 60% submittal. These shall include Project specific Special Provisions for the items of work that are not covered by the current WSDOT/APWA Standard Specifications, including City of Lynnwood General Standard Provisions (GSP).

Assumptions:

- The City will provide the Consultant with any Lynnwood General Special Provisions and Requirements to be used on the project.
- Bid forms will not be included in the 60% submittal - the Opinion of Costs will reflect the bid items at this submittal level.
- The City will provide the Consultant with their standard, current, boilerplate contract language ("front end docs") to be used for the project.
- City will provide existing available as-built information.
- City review will take minimum 2 to 4 weeks

Deliverables:

- Electronic copy of the 60% plan set in PDF format
- Electronic copy of the 60% opinion of cost summary submitted in PDF format
- Electronic copy of the 60% Specifications in PDF format

City Responsibilities:

- Provide the Consultant with any Lynnwood General Special Provisions and Requirements to be used on the project.
- Provide the Consultant with their standard, current, boilerplate contract language (“front end docs”) to be used for the project.
- Provide existing available as-built information.
- City to consolidate all review comments

3.2 90% PS&E

The Consultant shall prepare 90% plans, specifications, and opinion of costs for the construction contract, and incorporate applicable comments received from the City based on the 60% submittal deliverables. The plans, specifications, and opinion of cost shall be submitted to the City for review and comment.

3.2.1 Response to 60% Comments

The Consultant shall review the City’s 60% review comments for incorporation into the 90% design phase. The Consultant shall attend up to 2 comment review meetings with the City staff, and provide the City with written responses to the City’s comments. Responses shall be provided on the commented documents provided by the City.

3.2.2 90% Plans

The Consultant shall revise the 60% design and plans based on the City’s comments and prepare the 90% plans. The 90% design shall attempt to finalize the major elements of design for the project. All project elements shall be detailed out/expanded and shown in the 90% plans.

It is anticipated, that in addition to the plan sheets prepared at the 60% design level, the following sheets shall be provided for the 90% design level:

- Construction Sequencing Plans
- Summary of Quantities
- Any other Plans/Details

3.2.3 90% Opinion of costs

The Consultant shall calculate 90% level quantities and opinion of construction costs based upon the approved 90% construction plans and current unit bid prices. The Opinion of Costs shall reflect the bid items at this submittal level.

3.2.4 90% Specifications

The Consultant shall prepare Contract Provisions ("Specifications") for the 90% submittal. These shall include Special Provisions for the items of work that are not covered by the current WSDOT/APWA Standard Specifications, including City of Lynnwood General Requirements.

Assumptions:

- The Consultant will attend up to 2 comment review meeting at the City offices or the wastewater treatment plant
- The City will provide the Consultant with any updates to the standard, current, boilerplate contract language (“front end docs”) to be used for the project.
- City review will take minimum of 2-4 weeks
- All comments will either be responded to or incorporated in the 90% submittal for all reviews and meetings that have occurred.

Deliverables:

- Written responses to 60% comments (prior to comment resolution meeting)
- Electronic copy of the 90% plan set in PDF format
- Electronic copy of the 90% opinion of cost summary submitted in PDF format
- Electronic copy of the 90% Specifications in PDF format
- Summary of all changes to plans, specifications, and estimate based on 60% comments with 90% submittal.

City Responsibilities:

- Provide the Consultant with any updates to Lynnwood General Special Provisions and Requirements to be used on the project.
- Provide the Consultant with any updates to the standard, current, boilerplate contract language (“front end docs”) to be used for the project.
- City to consolidate all review comments

3.3 Final PS&E

The Consultant shall prepare 100% plans, specifications, and opinion of costs for the construction contract, and incorporate applicable comments received from the City based on the 90% submittal deliverables. The plans, specifications, and opinion of cost shall be submitted to the City for review and comment.

3.3.1 Response to 90% Comments

The Consultant shall review the City’s 90% review comments for incorporation into the 100% design PS&E. The Consultant shall attend up to 2 comment review meeting with the City staff and provide the City with written responses to the City’s comments. Responses shall be provided on the commented documents provided by the City.

3.3.2 100% Plans

The Consultant shall revise the 90% design and plans based on the City’s comments and prepare the 100% plans. All project elements shall be finalized and shown in the 100% plans.

3.3.3 100% Opinion of Costs

The Consultant shall calculate 100% level quantities and opinion of construction costs based upon the approved 90% construction plans and current unit bid prices. The Consultant shall address applicable 90% review comments and make revisions as necessary.

3.3.4 100% Specifications

The Consultant shall prepare the 100% Specifications based upon the 100% design. The Consultant shall address applicable 90% review comments and make revisions as necessary. Bid forms, including the bid schedule, shall be filled out with the project quantities with this submittal.

Assumptions:

- The City will provide one set of City review comments to the Consultant, reflective of all City staff comments, for the 90% plans and opinion of costs.
- Conflicting comments will be resolved by City staff prior to transmitting to the Consultant.
- The Consultant will attend up to 2 comment review meeting at the City offices.

Deliverables:

- Written responses to 90% comments (prior to comment resolution meeting)
- Electronic copy of the 100% Project Manual in PDF format
- Electronic copy of the 100% plan set in PDF format
- Electronic copy of the 100% opinion of cost summary submitted in PDF format
- Summary of all changes to plans, specifications, and estimate based on 90% comments with 100% submittal.

City Responsibilities:

- City to consolidate all review comments

Task 4 – Construction Contract Administration

The Consultant shall prepare Final Ad-Ready signed plans, specifications, and opinion of costs, suitable for reproduction for advertisement.

4.1 Assistance with Bidding and Award

The Consultant shall respond to Contractor questions as requested by the City during the bidding process. The Consultant shall provide clarifications to the City, which may include Plan sheet revisions, Special Provision language, or information clarification for review and approval by the City. The Consultant shall prepare Addenda and submit to Builders Exchange. The Consultant shall fill in engineer's estimate portion of bid tabulation spreadsheet via template provided by the City.

4.1.1 Pre-bid Meeting and Contractor Questions

This work element also includes attendance by the Consultant at the pre-bid meeting. The Consultant shall take meeting minutes and provide a draft and final copy of the meeting minutes to the City. The Consultant shall log questions received by Contractors for the purposes of issuing an informational addendum.

4.1.2 Contract Addenda

Consultant to provide assistance with clarifying or updating contract plans and project manual through addendum process. Consultant to post addenda to Builders Exchange.

4.1.3 Preparation of Contract Documents

The Consultant shall prepare a Conformed Set of Contract Documents that reflect the changes made through addenda, if any. Consultant shall follow outline of final Project Manual provided by the City. All applicable permits and reports shall be included as appendices in the conformed Project Manual.

Assumptions:

- The City will advertise the project for construction.
- The City will forward all Contractor questions to the Consultant.
- The City will determine if the bids are responsive/responsible or not.

Deliverables:

- Meeting minutes and notes from pre-bid meeting
- Electronic copies of addenda, including an informational addendum.
- List of potential contractors to perform the designed work
- Bid tabulation spreadsheet with engineer's estimate and bid item portion completed
- Conformed plan set, 2 full size, 3 half size bound hard copies and electronic copy
- Conformed Project Manual, 3 bound hard copies and electronic copy

City Responsibilities:

- City to provide bid tabulation template
- City to provide format for conformed project manual
- City to provide addendum template
- City will schedule and coordinate City staff and facilities for pre-bid meeting

City to provide final contract information for conformed Project Manual.

Task 5 – Verification Testing and Quality Control

5.1 Testing

The consultant shall provide technical representatives, test equipment and any other specialized equipment as may be required to carry out final nondestructive tests and inspections of the finished

product upon completion of construction to verify the modifications to the incinerator fulfill their purpose. Services under this task may include but not limited to:

- Examine incinerator exhaust performance
- Conduct data analysis collected from the on-site monitory equipment determining the result of modifications to the incinerator
- Ensure that all testing equipment and methods are to determine enhanced functionality of the incinerator
- Develop a manual for inspection and a repair log describing the work performed on the equipment, consistent with the manufacturer's recommendations.
- Advise Wastewater Treatment staff at the end of each visit or test of any abnormal conditions with regards to the incinerator operation
- Inform and instruct the Wastewater Treatment Plant operators on the KPIs (Key Performance Indicators) that prevents incinerator from stoppage and malfunction.
- Ensure the Sludge Incineration is still in compliance with the City's NPDES permit requirements or any other applicable standards and regulations after modifications.

The testing services shall be provided during normal hours of peak periods.

5.2 Test results

After conducting all the necessary tests, the consultant shall compile the data obtained from the final inspections and analysis and submit a final Technical Memorandum within a month two weeks from the completion of work.

Assumptions:

- The Consultant will verify the functionality of the modifications to the incinerator process or structure by conducting the required tests.
- The consultant will finish testing and verification with a month from completion of work.
- The Consultant will have technical staff and equipment to perform the required tests and quality control.

Deliverables:

- Final Technical Memorandum that includes:
 - Modification results and enhancement in the incineration process
 - An operation and maintenance schedule that helps preventing the incinerator from potential stoppage and malfunction

City Responsibilities:

- The Wastewater Treatment Plant staff will assist the Consultant representatives on site to perform the tests and have access to monitory equipment

- The City will provide any available information such as data logs and internal lab results that may help the verification tests.