



Strand Associates, Inc.®
910 West Wingra Drive
Madison, WI 53715
(P) 608.251.4843

March 12, 2021

Mr. Brian Hein
Assistant Superintendent – WWTP
City of La Crosse
905 Joseph Houska Drive
La Crosse, WI 54601

Re: Proposal – Pammel Creek Sanitary Station Controls Upgrade Project, Project #405

Dear Mr. Hein:

On behalf of Strand Associates, Inc.®, we are pleased to submit our proposal to provide design engineering services for the Pammel Creek Sanitary Station Controls Upgrade project.

Project Approach

As is the case with nearly any existing sewage lift station, one of the key technical issues is to maintain operation of equipment throughout construction. To provide continuous service throughout the construction process, detailed construction sequencing will need to be defined in the construction documents. This will require the involvement of City staff and our design engineers to properly develop outage plans, equipment installation schedules, construction sequence descriptions, and contingency planning, all of which will be included in the final specifications and drawings. Based on recent project experience, we feel that this is a critical component of the project and one that should not be left up to the contractor.

One idea for keeping the station in service during construction is to utilize the existing generator to power the pumping station while the first section (farthest left section) of the electrical gear is removed and a new service entrance rated automatic transfer switch (ATS) is installed in its place. The new ATS will be temporarily wired to the two existing motor control center (MCC) sections and then energized from the Utility service. This work could likely be completed in a single workday. The next step will remove the existing ATS section (second section from the left) of the electrical gear and install one of the new pump starter MCC sections in its place. Extra lugs will be specified on the ATS to allow the ATS to feed this new MCC section as well as the existing MCC sections. If desired, the existing generator could be temporarily wired to the new service entrance ATS at this time to provide backup power to the station. This second step could also likely be completed in a single workday. The final step in replacing the electrical gear is to remove the two existing MCC sections and install the remaining new MCC sections. Since one new pump starter will have been installed in step two, one of the two pumps will be operational during this step. Like the other two steps, this work could likely be completed in a single workday.



Electrical gear lineup.

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With the new electrical gear in place and energized, the existing control panel can be removed and the new supervisory control and data acquisition (SCADA) panel installed in its place. Temporary float controls will be wired to the two new starters to control the pumps while the new SCADA panel is installed.

The existing generator can also be installed at this time. If desired, we can specify that the contractor provide a portable generator temporarily connected to the new service entrance ATS while the new generator is installed. The temporary generator can be setup for automatic, unattended operation.

Scope of Services

The design phase includes the following services.

- Conduct a kickoff meeting at the site to review project schedule and deliverable milestones, further develop project parameters, and gather information and take field measurements for design. Additional items to be discussed at this meeting include NFPA 820 compliance.
- Prepare drawings for demolition of the existing MCC, SCADA panel, level sensor and backup floats, generator, ATS, unit heaters, exhaust fans, and lighting.
- Prepare drawings and specifications for installation of the new MCC, SCADA panel, level sensor and backup floats, generator, ATS, unit heaters, exhaust fans, and lighting. The drawings and specifications will require the contractor to maintain continuous operation of the station throughout construction. It is assumed that the existing communication media from the pumping station to the wastewater treatment plant will be reused.
- Prepare drawings and specifications for minor interior painting and wall touch up. It is assumed that this does not include any work within the wet well or any major repainting within the building and dry well.
- Conduct a teleconference review meeting at approximately 60 percent project completion. Drawings and specifications will be submitted for the City's review 1 week prior to the meeting, and comments from this meeting will be incorporated, as appropriate.
- Conduct a 1-day review meeting at approximately 95 percent project completion. This meeting will be held at the site. Drawings and specifications will be submitted for the City's review 1 week prior to the meeting, and comments from this meeting will be incorporated, as appropriate.
- Prepare pre-bid opinions of probable construction costs for the project at the 60 and 95 percent design completion stages and submit for City review.
- Communicate with the electric Utility for electrical connection modifications, as needed.

The above services are based on our understanding of the City's project, as well as our extensive lift station design experience on similar projects. Should the City desire to modify the above services, we would be happy to discuss ideas.

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Engineering Fee

Our limiting fee for the services indicated above is \$47,000. This fee was established based on the estimated number of hours and associated expenses required to complete each task. The City will be billed on an hourly basis for only the time actually spent on the project.

This letter is not to be considered an agreement between the City of La Crosse and Strand Associates, Inc.®. Once selected, we will prepare an agreement and submit to the City for review and signature. Following the execution of this agreement, work on the project will begin.

Once again, thank you for this opportunity. We look forward to working with the City on this project.

Sincerely,

STRAND ASSOCIATES, INC.®



Randy J. Langer, P.E.



Troy A. Larson

P210.220/SPZ:mah



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March 12, 2021

Mr. Brian Hein
Assistant Superintendent – WWTP
City of La Crosse
905 Joseph Houska Drive
La Crosse, WI 54601

Re: Proposal – Hagar Station Pump Addition Project, Project #206

Dear Mr. Hein:

On behalf of Strand Associates, Inc.®, we are pleased to provide our proposal for professional engineering services for addition of a submersible pump at the Hagar Pumping Station.

Project Understanding

Based on our discussions with you and other City staff, and our site visit on February 23, 2021, we understand that the City desires to add a second pump to the ‘new’ Hagar Pump Station. The station has one existing vertical turbine pump with space for two additional pumps. The project involves design of the necessary improvements to add this new submersible pump to the station, including necessary floor modifications, piping, and controls.

As discussed in detail over the phone, Wisconsin Administrative Code Chapter NR110, specifically NR110.14, (3), (e) and NR110.14 (5), (c), 2 require that the electrical equipment located in areas where hazardous gases may be present comply with National Electrical Code (NEC) requirements for Class I, Group D, Division 1 locations. Because the wet well is directly below the control room and there are hatches and other penetrations to the wet well, all the new electrical equipment in this space must be rated for Class I, Group D, Division 1 locations. Because this is not feasible, we discussed locating the new electrical equipment on the exterior of the building. However, after our conversations, we determined that the existing motor control center does not have a breaker for the new pump. Adding this breaker inside the building, even with the new controls located on the exterior of the building, would not comply with this code.



Existing Hagar Pumping Station.

To move forward with the addition of the submersible pump and its associated equipment within the building, variances from both the Wisconsin Department of Natural Resources and the local electrical inspector would be required. We propose the following scope of services for design of the improvements, **providing that the City is successful in securing the necessary variances for the project.** We can only offer these services if the necessary variances are secured. If variances are not granted, we would need to further discuss the other options we previously presented to the City.

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We also discussed the importance of proper pump selection. The City has indicated the existing vertical turbine pump is not efficient and has other issues when running. Our approach to pump selection involves identifying pump options that have the necessary peak flow capacity, while also maintaining peak efficiency at average flows. The pump will run at or near average flows for 90 percent of its operating hours. Considering the size of the pump needed, maintaining peak efficiencies at these flow rates will save thousands of dollars in energy costs over the life of the pump. We accomplish this by accurately modeling the pumping system (piping and force mains) and developing an accurate system curve using software we developed in house. We can then input different pump models into the software and review capacities and efficiencies at different flow regimes. This level of detail and attention during pump selection results in the overall lowest cost of operation.

Scope of Services

The design phase includes the following services.

- Conduct a kickoff meeting at the site to review project schedule and deliverable milestones, further develop project parameters, and gather information and take field measurements for design. Additional items to be discussed at this meeting include code and NFPA 820 compliance.
- Prepare a system model using in-house software. Review various pump options based on capacity, efficiency at various flow regimes, and space constraints. We are assuming that the design peak and average pump capacities are known and we do not need to project flow rates.
- Prepare drawings for necessary demolition and modification to the floor slab for installation of the new pump.
- Prepare drawings and specifications for installation of the new pump and piping. Because the 'old' Hagar Station is still in operation, the contractor will have the luxury of taking this station completely offline, as necessary, for construction of this project. The drawings and specifications will include the necessary piping and controls. It is assumed that all other pumping station structures and appurtenances will be left as is.
- Conduct a teleconference review meeting at approximately 60 percent project completion. Drawings and specifications will be submitted for the City's review 1 week prior to the meeting, and comments from this meeting will be incorporated, as appropriate.
- Conduct a 1-day review meeting at approximately 95 percent project completion. This meeting will be held at the site. Drawings and specifications will be submitted for the City's review 1 week prior to the meeting, and comments from this meeting will be incorporated, as appropriate.
- Prepare pre-bid opinions of probable construction costs for the project at the 60 and 95 percent design completion stages and submit for City review.

The above services are based on the City's request for proposal dated February 10, 2021, our understanding of the City's project, as well as our extensive lift station design experience. Should the City desire to modify the above services, we would be happy to discuss ideas.

Engineering Fee

Our limiting fee for the services indicated above is \$38,000. This fee was established based on the estimated number of hours and associated expenses required to complete each task. The City will be billed on an hourly basis for only the time actually spent on the project.


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Once again, thank you for this opportunity. We look forward to working with the City on this project.

Sincerely,

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Randy J. Langer, P.E.


Troy A. Larson

P210.220/RJL:mah