

Blue Lake Expansion Engineering Task 2 and 3

1. Request for Proposal – Tasks 2 and 3

1.1 GENERAL

The City and Borough of Sitka (CBS) is requesting a proposal for engineering services on the Blue Lake Expansion Project. Two tasks will be included in this RFP. Task 2 will include the development of equipment and material specifications for procurement contracts and Task 3 will include the final design of the expansion project. This work will be a continuation of work, and based on, the Task 1 Design Development Study completed in February 2010 by Hatch Acres. All work will be performed under the professional services agreement between CBS and Hatch Acres signed March 31 and April 2, 2009.

The CBS is convinced there are important lessons learned in the Task 1 work that demand changes in how Tasks 2 and 3 will be approached. These changes include improvements in Hatch Energy's engineering team, your design tools, communication, and quality control. Our perspective on these lessons learned is provided in Part 2 of this document. Part 3 describes improvements in the Hatch design team and tools that are required before the CBS will agree to continue this project with Hatch Energy as its consultant

Tasks 2 and 3 are intended to include all engineering services and material procurement specifications required to bring the project to the completion of design. We desire that these design services include support during the bidding process for the procurement and construction contracts. Design services shall end with the engineer's issuance of "Recommendation for Contract Award" letters, for each supply or construction contract, followed by delivery of the design record documents described in the following.

We expect that Hatch will edit this scope of work, adding detail as needed until you feel the work scope is well delineated, comfortably defining the proposed work effort, required schedule, and cost. The CBS considers the following scope discussion as a starting point for Hatch to develop a more complete scope of services, cost estimate, and schedule as part of your proposal for the Task 2 and 3 services.

1.2 SCOPE OF WORK - OVERVIEW

The following bid-ready procurement documents shall be generated. These documents will generally include the following: Technical specifications, contract special provisions, modifications to Sitka's general contract conditions; drawings; bid forms; instructions to bidders and any necessary addenda. Hatch's services shall include a review of the City's normal contract provisions, with edits to all Hatch-provided documents (or modifications of Sitka's general provisions) as required to make the contract documents a cohesive whole.

Hatch shall be responsible for printing, mailing documents to prospective bidders and managing the bidding process. You should assume 30 sets of contract documents will be mailed for each procurement contracts and 100 sets for the construction contract.

For each contract, Hatch shall furnish an engineer's estimate of probable cost prior to each bid date. Hatch shall assist in review of bids and shall obtain from bidders any needed bid clarifications. Hatch shall provide a written recommendation for award to the City, for each contract. Hatch shall compile and deliver to the City conformed contract documents that include all contract changes that result from addenda,

NOTE: any required support for execution of these contracts, such as shop drawing review and construction inspection would be provided by Hatch or others in Task 4, Services during construction of the project. The City anticipates that engineering services for Tasks 2 and 3 will end at the conclusion of the contract bidding process, following the engineer's submitting its recommendations for contract award.

1.3 PROCUREMENT SPECIFICATIONS - TASK 2

The following procurement contracts for equipment and materials shall be prepared for bidding by the CBS. Work shall include all underlying design services needed to assemble these bid packages and ensure that the equipment and materials are appropriate for the overall project.

- a. Turbine Generator Package (continuation of work in progress, includes FVU supply)
- b. Switchgear (12.4kV)
- c. Station Service Switchgear and Transformers 480V
- d. Gates and Hoists
- e. Penstock and Tunnel Liner Extensions
- f. Main Transformers (continuation of work in progress)
- g. Bridge Crane
- h. Steel Building

1.4 FINAL DESIGN – TASK 3

Final design of the expansion project shall include all engineering services required to prepare the construction contract bid documents. The listing below represents the CBS's understanding of what work elements are required. Hatch shall expand this list to include the activities you feel need to be included in the final design effort.

For your proposal please assume that all of the on-site construction will be completed under three construction contracts:

- a. Tunneling and underground openings
- b. Reservoir clearing

- c. A general construction contract for all surface structures, the powerhouse, the dam, the intake gate chamber, tunnel breaches and plugs.

Hatch shall prepare bid-ready drawings of the following project features and systems. As part of its proposal Hatch shall provide a list of all drawings you anticipate preparing for the project, broken down by contract.

1. Site plans, work areas, and survey control drawings
2. Reservoir clearing
3. Roads, excavation, and site development
4. Site erosion control and remediation
5. Tunneling and underground excavations
 - a. Intake Tunnel
 - b. Intake Gate Shaft
 - c. Surge Chamber and adit tunnel
 - d. Gate installations, rock traps, steel liner extensions and misc features
6. Dam related drawings:
 - a. Site prep, abutment excavation
 - b. Grouting and drainage systems
 - c. Thrust blocks and access modifications
 - d. Dam concrete
 - e. Spillway and all appurtenant concrete
 - f. Plunge pool modifications
 - g. Mechanical-electrical, including gates, valves and misc features
7. Civil, Structural, Mechanical, and Electrical drawings for the following features:
 - a. Trashrack structure
 - b. Gate shaft structural and gate house
 - c. Fish Valve Unit Building Modifications
 - d. Existing Utilities Relocation
 - e. Penstock and thrust blocks
 - f. Powerhouse
 - g. Switchyard Modifications
 - h. Electrical Design, coordinated by Hatch between contracts

Reports and Documents shall be prepared as follows:

- a. Supporting Design Report
- b. Interim design progress documents for FERC Board meetings
- c. Design calculation books, including all calculations for sizing structural members, equipment and systems. These shall be arranged by discipline and project feature
- d. Construction cost estimates
 1. Two interim estimates during final design
 2. Engineer's estimate of probable cost for each contract

Project schedules shall be developed and maintained as follows:

- a. Design schedule (updated monthly)

b. Project construction schedule

Hatch shall participate in regular coordination meetings with CBS staff or its designees. We expect as a minimum weekly conference calls to review design progress and monthly face-to-face review and status meetings conducted in New York or Seattle. Base your proposal on 1 Hatch staff member travelling for each meeting.

Attendance at BOC meetings as required. Base your proposal on the assumption that there will be two Board meetings during the design effort, one in Seattle and one in Sitka, with attendance of 3 Hatch staff at each meeting.

1.5 Notes on Project Documentation

Design Documents shall be provided in MS Word, Excel, or AutoCAD, along with duplicate Adobe Acrobat .pdf copies of all documents. At the conclusion of each design task record copies of all documents shall be provided to the City. All computations performed in MathCAD, ANSYS or other software shall be provided with the most recent analytical software file that will allow the City to review the details of each technical analysis. File naming conventions shall be a logical naming of the activity or task, with the date of issue incorporated into the file name. File names generated by Hatch's IPAS system will not be acceptable for any interim or final file name.

Microsoft SharePoint, (a web-based communication tool) or functional equivalent shall be used to publish record, file and organize the documentation generated in Task 2 and 3.

The record keeping system must be capable of sorting and storing documents by subject, title, revision, author or date directly. The ipas system used during the design development study may be used internally at Hatch but is unacceptable for tracking and documenting the work products transmitted to and within the City, FERC, the FERC Board, agencies, or other outside parties.

Drawings must be organized, filed and numbered in a method similar to the Green Lake Project. The City will review and approve all drawing naming, numbering and file name conventions used for Tasks 2 and 3.

1.6 Proposal Format

Your Proposal Must Include:

1. Proposed scope and schedule of work outlining your work for the tasks to be performed, schedule milestones, and list of deliverables at each milestone.
2. Cost breakdown by task and subtask.

The existing Professional Services agreement defines the Hatch Project Team. All proposed and required changes in this team must be described in your proposal as follows:

Description of engineering team, including, fee schedule for each key individual and job classification. Hourly rates in the fee schedule shall include all overhead and profit for key staff and other labor classifications. Hourly rates shall be valid through December 31, 2010. In addition to the hourly rates through 2010 include a proposed billing rate adjustment to be applied to all staff for a calendar year 2011.

3. Resumes of individuals who are new to the Hatch team. Resumes shall include the individual's role on the project and the percentage of projected work hours for each key individual.

4. Identification of work to be subcontracted. Names of possible subcontractors and billing rates for subcontract work.

5. Description of where the project team is located and where the engineering work will be performed.

6. Actions and approvals required of the CBS and/or CBS contractors. Describe the expected services and materials to be provided by the CBS.

2. Lessons Learned In Task 1 – Design Development Study

Interaction and Communication with Hatch Staff

In the Task 1 effort, Hatch's project management leads responded promptly to most all requests and were uniformly courteous. However, the task 1 work efforts were not completed on schedule. This was due in part to a combination of delays in geotechnical data and expanded work scopes. However, we feel that Hatch's project management team was not focused on schedule performance, particularly in planning the sequence of work, management of deadlines, and keeping the CBS up to date on schedule slippage. It was often hard to get specific delivery dates for the Task 1 work products from your management team and, once a delivery date was offered, these deadlines were often missed. Also your project manager did not appear able to contribute effectively in the civil-structural design review or QA role—thus not improving the civil engineering work products that we feel were seriously lacking in the Task 1 work.

In Task 1, interaction with Hatch technical staff was for the most part quite acceptable. The geotechnical, dam design, mechanical, transient analysis, and electrical leads of the Hatch team were consistently prompt, technically astute, adequately organized, and comprehensive in their day-to-day communication efforts and delivered work products. We look forward to continuing the final design efforts with these individuals.

The civil-structural work products provided in Task 1 were below the standard of the industry, in our opinion. Of particular concern to us was our perception that Hatch provided design concepts that simply lacked understanding of site specific issues, resulting in needlessly expensive facility arrangements or structures. In several instances we received suggested arrangements that were based on what was “easy for us (Hatch) to design” instead of an arrangement that might provide good functionality and lower cost to us, your client. On several worrisome occasions we feel that your civil-structural staff lacked a basic understanding of the technical problems they were trying to solve. The Hatch team you provided clearly lacked a senior engineer with a comprehensive understanding of how to efficiently arrange and organize the civil-structural design of our Blue Lake expansion project.

Communications and Management of Work Products

The IPAS system offered by Hatch was not used by your staff to facilitate any communication or delivery of work products to the CBS. The only effect of this IPAS system was the arbitrary naming of files sent to us, in such a way that was not intuitive, did not allow any version tracking, did not allow any understanding of the review process, and which interfered with the flow of information. Frankly, this system is a hindrance to our project and we don't want to see it again.

Not once in Task 1 was any WebEx meeting held. It seems that use of this technology is rare in the Hatch team that worked on our Task 1. During Task 1 communication of work products was limited to email attachments and the use of Hatch's ftp site. For the final design, some significantly improved communication and work product management tools are needed.

Reviews and Quality Assurance

We realize that from December through January 15, the Hatch team was working steadily to issue the technical memos and design report. However, we observed a surprisingly low quality in many of the documents sent to us for review. These included issues with grammatical construction, labeling of figures, and incomplete or misleading description of the work performed. We are uncertain whether Hatch senior management is aware of our feelings here, but it seemed that CBS staff and our outside consultants were becoming the de-facto quality assurance members of the Hatch team. This is a role we do not want.

We want this comment on quality assurance and review taken to heart by Hatch management. Many of the documents sent to us were incomplete, misleading or technically incorrect. Had they been sent to the FERC or the Board of Consultants, these documents would have been very poorly received.

Our major concern related to reviews and quality assurance is the lack of adequate civil-structural review (or leadership) in the Hatch team. The Task 1 effort was marked by numerous instances where our reviewers (a group of mechanical and electrical engineers) pointed out what we thought were obvious errors or easy improvements in the civil design concepts developed by Hatch. It seems that these omissions and opportunities for easy improvement are not being caught by your project manager or your QA staff. We are curious what level of civil engineering technical review is taking place in your team.

3. Improvements Required for Performance of Tasks 2 and 3

Project Engineer

In summary, the civil engineering performed during the design development study has been less than adequate. The draft work products delivered during the design development study demonstrated a lack of common sense in the layout of the project structures. I believe that if the CBS had not objected to the layouts proposed, the result would have been very costly to the CBS. As stated previously, the development of draft work products appeared to be based more on the ease of design than the cost of construction. The CBS is not willing to undertake the risk of having this type of thinking on the job; Oversights of this nature will cost the CBS far more than the cost of the engineering if they continue during the final design.

Technical Project Engineer

We would like Hatch to appoint or agree to a Project Engineer to oversee the project from a technical standpoint. The Engineer must be able to layout, coordinate and review the technical work performed by the lead engineers. This individual should have extensive experience with power generation design and construction. The individual would be most effective if he were located where the design is being performed. Hatch's selection of a Project Engineer will be a key factor in the CBS approval of the Task Order 2 and 3 proposal.

Project Documentation

The project documentation must be changed as outlined above.