



Capital Projects

Capital Projects Committee Meeting

Thursday, September 1, 2016

(Meeting Held at the Village of Richfield Town hall, Finance Department Conference Room)

Called to Order: The meeting was called to order at 5:44 p.m.

Roll Call: Mr. Cugini, Mr. Becker and Mr. McNerney (Not Present)

Also in attendance: Mr. Shy, Capital Projects Manager and Mrs. Bluso Rogers, Administrator

Business:

The only item of business was to review and discuss the dam assessment report and recommendations provided by GPD, Mr. Matt LaScola, Civil Engineer. Per the April 22, 2016 GPD Proposal, the RJRD Board passed the resolution on May 9, 2016 to enter into an agreement for professional engineering services as described below by Mr. LaScola. Further, Mr. LaScola presented the assessment report as attached at the end of these minutes.

Project Description

The property contains two lakes in series, each created by run-of-the-river dam structures. The dammed up streams drain a 1.78 square mile watershed and are tributary to the East Branch of the Rocky River.

The **upper dam**, installed in 1926 and known as Camp Hilaka Lake Dam, is 30.5' high and 520' long. The dam is ODNR jurisdictional as a Class II Dam based on downstream hazard conditions. The latest ODNR Dam Safety Inspection Report (File Number: 1115-002, Inspection dated April 23, 2014) indicates that no investigation or engineering action required as a result of the inspection; only monitoring of deteriorating concrete on the spillway and monitoring of observed seepage is required. Based on our site observation, the concrete principal spillway has significant spalling and possible displacement of the structure base, which in our opinion, warrants the need for a current conditions assessment. Note that our visit was made nearly two years after the ODNR inspection.

The **lower dam**, installed in 1920 and known as Camp Julia Crowell Lake Dam, is 25.1' high and 140' long. The dam is also ODNR jurisdictional as a Class II Dam based on downstream hazard conditions. The latest ODNR Dam Safety Inspection Report (File Number: 1115-003, Inspection dated April 23, 2014) indicates that investigation and engineering action is required. In order to address the ODNR requirements, a multiple-phased program should be considered, which would include field survey, conditions assessment, geotechnical investigation, stability analysis, hydraulic modeling, and an alternatives analysis study.

However, prior to progressing into an all-inclusive study, we recommend that the RJRD first consider a physical assessment of the concrete dam structures. Based on our initial site observation, we believe that both the upper and lower dams should be assessed. In order to consider alteration improvements of the existing dam(s) and/or emergency spillway in response to the 2014 ODNR inspection, the condition of the 90+ year old concrete structures must first be determined.

The physical integrity of the concrete dams must be studied to ascertain if rehabilitation and modification can be considered to meet ODNR requirements, or if full structure replacement is necessary. The results of the Structural Concrete Conditions Assessment will assist the RJRD Board of Trustees in the decision how to proceed with the appropriate management of the lakes and dam structures. Identification of need for dam rehabilitation versus replacement will determine the necessary action and additional scope of services required.

The RJRD has requested GPD to provide a proposal for the following summarized items based on the recommended Structural Concrete Conditions Assessment task:

1. Review existing dam plan records
2. Generate CAD base mapping (per current state/county mapping and provided dam records); field topographic survey is not recommended at this stage of the project
3. Conduct a field inspection and concrete structure assessment of the visible surfaces (surface inspection, including soundings testing to be performed by professional structural engineer)
4. Conduct a minor sediment dredging (expose approximately 3' to 5' of the dam face at upper lake) utilizing subcontractor excavator equipment and labor
5. Obtain concrete core samples, including petrographic analysis and report of the concrete conditions; soils subsurface investigation is not recommended at this stage of the project
6. Prepare a Structural Condition Assessment report with summary of results and recommendation for rehabilitation or replacement, including order of magnitude opinion of probable costs for repair or replacement; hydraulic modeling, dam alternatives analysis, and/or pricing of options to meet ODNR criteria is not recommended at this stage of the project
7. Client meeting and review of report; provide support for next steps

Scope of Services

The principal spillway structure at the upper dam is showing visible areas of deterioration. Therefore, we would like to perform an inspection on the front and back face of the structure. Due to the accumulation of sediment at the dam face, we will retain a contractor to mechanically clear the sediment and provide/operate a man-lift to allow access for our structural inspection. We require that the RJRD operate the lake drain to release 3' to 5' of the dam pool prior to this operation. We do not intend to expose or inspect the front face (water side) of structure at lower dam.

A soundings test of the visible surfaces of both concrete spillway structures will be conducted using hammer and chaining techniques.

We will also retain a specialist to retrieve three (3) four-inch diameter core samples at each concrete spillway structure, followed by a petrographic analysis of the concrete samples. Refer to the attached article describing the various concrete/steel characteristics evaluated during the petrographic analysis. The petrographic analysis results will provide pertinent information relative to the integrity and remaining life-span of the concrete and steel within the spillway structure. This information will support our professional opinion and recommendation for rehabilitation or replacement.

Upon the authorization of the RJRD, GPD shall notify the Ohio Department of Natural Resources Dam Safety Division prior to the start of the Structural Conditions Assessment. The intent will be to provide cursory notice that a concrete structure inspection and assessment shall be initiated in response to the latest ODNR inspection report.

The assessment of the dam structures will initiate a process strategized to provide informative results to assist the RJRD to make decisions and determine the scope of services needed to complete the following future tasks (not included in this proposal):

- Lower Lake: Crowell Lake Dam H&H/PMF Study
- Lower Lake: Crowell Lake Dam Structural Alternatives Study
- Upper Lake: Hilaka Lake Dam Rehabilitation or Replacement
- Emergency Action Plan (EAP) for both dams
- Operations, Maintenance, and Inspection (OMI) manual for both dams

If the concrete condition of either dam is not suited to support a rehabilitation or dam modification project, then redirection for alternatives to replace or remove the structure may be considered. A decision to remove one or both of the dams would omit the need to perform a PMF study and the alternatives analysis study. Given this circumstance, various alternatives for protection of the historic mill house structure, as well as restoration of the lake bed would need to be considered per a separate defined scope.

Exclusions

The following services are not included in this proposal; however, if necessary, can be added to our scope per separate fee:

- Operation of Lake Drains (to be provided by RJRD)
- Topographic Survey
- Bathymetric Survey
- Ecological Assessments (i.e., lake fringe & tributary streams)
- Geotechnical Subsurface Investigation
- Dam Structure and Earthen Embankment Slope Stability Analysis
- Dam Seepage Analysis
- Hydrologic & Hydraulic Analysis (including PMF Study)
- Dam Structure Alternatives Analysis
- Detailed Engineering & Construction Documents
- ODNR Construction Document Approval
- FEMA coordination, submittals or map revision
- Emergency Action Plan (EAP)
- Operations, Maintenance, and Inspection (OMI) manual

There was some brief discussion, clarification and questions posed to Mr. LaScola from the members of the committee and the RJRD Administrator.

The Capital Projects Committee made no recommendation regarding the proposal and the information will be included in the Master Plan per the scope of services.

In closing, Mr. LaScola strongly recommended that the committee take appropriate and necessary steps to ensure public safety by closing the upper lake and lower lake bridges based on his and other GPD professional engineers' expertise and observation.

Mr. Becker concurred with this information and the Administrator was tasked to obtain signs and arrange for quotes as soon as possible. A briefing memo would be generated for discussion for the full board. Action would be taken due to a "safety emergency to the public" by waiving first discussion on September 12, 2016.

Meeting adjourned at 6:44 p.m.

Respectfully submitted,

Debbie Bluso Rogers, Administrator to RJRD Board

**THE STRUCTURAL CONCRETE CONDITIONS ASSESSMENTS
UPPER LAKE
LOWER LAKE
FOLLOW THE LAST PAGE OF CAPITAL PROJECTS COMMITTEE MEETING**