

November 2, 2009

City Council
City of Independence
P.O. Box 189
Independence, WI 54747

Re: Bugle Lake Dredging
Independence, WI
Phase 2
October 6, 2009

Dear Council Members:

Ayres Associates, in conjunction, with Mary Anderson, River Country RC & D was contracted to complete the next step in the planning process for dredging of Bugle Lake. It is our understanding that a grant was secured to fund this portion of the project. The scope of this phase of the project was to further investigate three disposal sites chosen by the City, field check the dam to plans, complete topographic survey upstream of the dam and survey benchmarks to convert the project survey to real world coordinates.

Disposal Site Assessment

Three sites were assessed to determine the feasibility of disposing of dredged sediment from Bugle Lake. The sites were provided by Mary Anderson from River Country RC & D. Available maps including soil survey maps, Wisconsin Wetland Inventory (WWI) maps and United States Geographical Survey (USGS) topographical maps were reviewed to determine site conditions. These maps were also used to estimate the capacities of the sites.

A site visit was conducted to assess the potential of the proposed disposal sites. The three sites are shown on Sheet 4 of the project drawings.

Potential Disposal Site #1 – owned by Joe Woychik located on CTH Q 600 feet from lake.

This site is not feasible as proposed. The slopes on the site are up to 15% with an elevation change of 60 feet across the site. Due to the slopes at this site a great deal of earthwork would be required to construct a containment cell for the sediment. This site could be used if the proposed area was expanded to include the entire valley.

The aerial photo outlines a recommend area that could be used to construct a large containment cell. The cell would cover approximately 935,000 sf at an average depth of 27.5 feet to contain approximately 950,000 cy of sediment.

The soil map indicates silt loam soils with slopes ranging from 6 to 45 percent. These soils are well drained with a moderate infiltration rate. The water table is not near the surface. No wetlands are indicated on the WWI maps at this site.

Potential Disposal Site #2 – owned by Charlie and Jennifer Woychik located on Marsolek Lane. Linear distance from lake is 3000 feet and 1.6 miles by road.

This site is feasible for both hydraulically and mechanically dredged material. It appears to be a borrow site where material was excavated from the hillside. The site is approximately 0.8 acres. If an average depth of 18 feet is assumed across the site the capacity is 22,800 cy.

The soil is mapped as not hydric, well drained sandy loam and silt loam with 20 to 30 percent slopes and partially hydric sandy alluvial land near the road. Hydric soils are soils formed in wetlands. The water table in the loam is deep. The water table in the sandy alluvial land ranges from 3 to 6 feet from March through October and is frequently flooded for brief periods March through November. No wetlands are indicated on the WWI maps on the site.

Potential Disposal Site #3 – owned by Ed and Deb Maliszewski located on Moga Road. Linear distance from lake is 1.8 miles and 4.8 miles by road.

This site is feasible for both hydraulically and mechanically dredged material. It appears to be a borrow site where material was excavated from the hillside. The site is approximately 2.7 acres. If an average depth of 16 feet is assumed the site capacity is 69,000 cy.

The soil is mapped as loamy sand with 2 to 6 percent slope and loamy terrace escarpment. Both soils have a deep water table and are not hydric. The ag field that abuts this site to the north is mapped as partially hydric. No wetlands are indicated on the WWI maps on the site.

Recommendations for Disposal Sites

Wetland delineations should be completed on sites 2 and 3 since partially hydric soils are mapped on or near these sites. If wetlands are present on these sites it may affect the construction of containment cells and the discharge of water from the sites. Both sites 2 and 3 may be suitable for hydraulically dredge material; however, the distance to them may prohibit pumping to these sites.

The proposed sites do not have adequate capacity to contain the proposed dredge volume. Site 1 is not feasible as proposed due to the slopes and amount of earth work that would be required. Sites 2 and 3 have a combined estimated capacity of 91,800 cy. The capacity of the sites was estimated using aerial photos, USGS topographic maps and visual assessment. The area of the sites was estimated by measuring the perimeter of the sites on aerial photos. The depth of the fill was assumed based on visual assessment and topographic maps. To accurately determine the capacity of each site a topographic survey and a conceptual design would need to be completed.

Field Check of Dam

During the site visit to assess the disposal sites the dam was visually compared to the plans. It appears that the dam is per plans dated Jan 1991. The survey shots on the sill of the dam correspond with the plans also.

Survey and Drawings

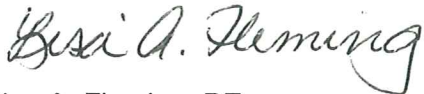
A topographic survey was completed to determine sediment elevation upstream of the dam and to locate benchmarks for the drawings. A survey beginning at the face of the dam extending to the dredge limits was required to determine the elevation of the accumulated sediment. The elevations of the sediment indicate a low area where a channel will likely form during drawdown. This is located at the north end of the bridge and dam. For this reason the gates at the north end of the dam are discussed as follows. The survey indicated that the sediment elevation at the face of the dam is below the sill elevation of the dam. The sediment ranges from 767.5 feet to 771.3 feet. The sill elevations are 771.2 to 771.4 feet. The sediment elevation 100 feet upstream of the dam is approximately 772 feet. The gradual slope will result in minimal erosion of the lake bed during drawdown. According to the survey minimal excavation may be required to facilitate the drawdown.

The benchmark on the dam was surveyed so the project drawings could be converted to a real datum. The drawings received from NRCS were in an assumed coordinate system. To determine elevations and locations of the plans in relation to the dam and real coordinates the benchmark on the dam was used. The project drawings were then converted to the same coordinate system. The NRCS information was moved to the real world datum by matching the northeast and southeast bridge corners. An existing footbridge near the north end of the lake was also surveyed and used to check the moved survey.

In conclusion, we have completed the next phase of the dredging report as outlined in our contract. If you have any further questions please do not hesitate to contact us.

Sincerely,

Ayres Associates



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LAF:dlf

Cc: Mary Anderson, River Country RC & D.