

Project: Harrington Dam EA **Meeting No.:** PIC 3
Project No.: 1505 **Meeting Date:** October 20, 2016
Recorder: M. Pushkar **Meeting Time:** 7 – 9 pm
Report date: October 24, 2016

Location: Harrington Hall and Library – 539 Victoria Street, Harrington, ON

Attendees: Rick Goldt, Bill Mackie, Karen Winfield (UTRCA)
 Wolfgang Wolter, Mariëtte Pushkar (ERI)
 Marie Keasey, Doug Matheson, Marcus Ryan, Margaret Lupton (Zorra Township)
 Members of the Public (31)

Purpose: Public Information Centre 3 – Harrington Dam

Item	Description	Action By
1.	<p>Presentation</p> <ul style="list-style-type: none"> • Presentation of study process, evaluation criteria and results, and preferred alternative was made by Wolfgang Wolter (ERI) and Mariëtte Pushkar (ERI) 	Info
2.	<p>Questions posed by members of the public and answers provided by team:</p> <p>1. What is the size of the existing pond? What is the size of the proposed pond? The existing pond covers an approximate area of 0.03 km². The size of the proposed offline pond would be determined during detailed design, based on:</p> <ul style="list-style-type: none"> • Technical considerations • Groundwater contributions • Berm width sized to separate offline pond from natural channel • Detailed design <ul style="list-style-type: none"> ○ Hydrogeological investigation for groundwater volume ○ Temperature modeling and circulation <p>2. Would the proposed pond be constructed closest to Victoria Street?</p> <p>The pond could be placed closest to Victoria Street so that water could be sluiced to the mill.</p> <p>3. Question regarding cost consideration; 1) what is cost for terrestrial component, 2) is the cost of landscape included?</p> <ol style="list-style-type: none"> 1) Terrestrial cost refers to the cost for natural materials to maintain the nature of existing pond 2) Yes, landscape cost is included. Landscape restoration includes; vegetative site enhancements. <p>4. Ponds (off-line) seemed stagnant on tour; could this occur here? Would this be a source for mosquitos and what could be done to mitigate?</p> <ul style="list-style-type: none"> • Adjust refresh rate to positively affect the pond with no negative effect to the creek • Ensuring groundwater infiltration will aid in mitigation • Properly size the pond surface area 	

	<p>5. Does the cost estimate include trail and bridges? The trail has a low cost and is included. Bridges have a higher cost and, ideally, the design would not require a bridge (i.e., they are optional).</p> <p>6. We are happy to see the proposed sluice to the Mill. The Mill requires a certain amount of energy (head); will the off-line pond provide sufficient head to enable the Mill operations? The off-line pond could have potential limitations (e.g., volume recharge due to groundwater contributions). Operations could be established to enable 'turn-on, close' valves for the sluice so that water is used only when needed for demonstration purposes. Further considerations, during detailed design could be examined to enable some flow diversion during lower flows.</p> <p>7. The social evaluation refers to boating potential. What boating can occur on the off-line pond – it seems too small. Ideally, the pond will be big enough to allow for a rowboat or canoe, or raft. The size of the pond would be determined at detailed design.</p> <p>8. For the “Do Nothing” option, what are the risks associated with failure? Under Do-Nothing, the risk for dam failure remains:</p> <ul style="list-style-type: none">○ As water overtops, hydraulic conditions of the water erode the embankment slope and thereby weaken the embankment materials, leading to failure.○ Embankment dams tend to fail when overtopped; most embankment dams are unable to withstand sustained overtopping without a high probability of failure (US Department of the Interior Bureau of Reclamation, 2013). (note: Acres (2007) indicated that the spillway has inadequate capacity and insufficient freeboard). (<i>this bullet point was added to the minutes and not directly discussed at the meeting</i>)○ Notching of the upstream embankment face may occur over time due to wave action; this weakens the embankment materials. (note: Acres (2007) observed benching due to wave action in the left embankment; Acres (2007) also noted signs of wash-out in the contact between left embankment fill and concrete spillway that may have occurred during last dam overtopping in the year 2000). (<i>this bullet point was added to the minutes and not directly discussed at the meeting</i>)○ Over time, seepage through the embankment erodes fine materials from the soil matrix; piping and cavities may develop which weaken the embankment materials. (note: Acres (2007) had observed seepage on the downstream slope of the embankment and bulging in the lower left embankment which may be due to high groundwater pressure). (<i>this bullet point was added to the minutes and not directly discussed at the meeting</i>)○ If/when the dam fails, then sediment from the failing embankment and from within the pond will move downstream into the channel. The sediment will be deposited on the floodplain and in the channel where it can damage/destroy aquatic habitat. Sediment would also be conveyed into Wildwood Reservoir.○ This creates risk to biotic, aquatic and channel stability○ Potential impacts to roadway.○ Downstream properties would be affected. <p>Has there been any consideration to providing a capture area downstream, to enable sediment deposition and water detention? This can be examined</p>	
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	<p>9. What is the volume of water in the pond? Based on DSA report, the existing pond contains approximately 20,000 m³.</p> <p>10. Will the off-line pond only replenish during a flood or will there be another method? There are different options, including providing an intake from the channel with a pipe and valve to the pond. The design would need to establish an inflow threshold at the channel during bankfull to 2 year flows.</p> <p>11. There exists sediment in the existing pond; will this continue to be an issue for the off-line pond?</p> <ul style="list-style-type: none">• The off-line pond is not expected to fill-in given that most sediment will move through the channel• There are currently multiple sources of sediment to the pond including the upstream watershed (e.g., runoff from fields enters small channels that flow into the creek), erosion within the creek corridor (e.g., banks), local drainage into the pond (surface water runoff from adjacent properties)• Landuse changes have been occurring, which is reducing the volume of sediment delivered to the pond. Establishment of a vegetative buffer between fields and pond by the community is beneficial to reducing sediment runoff into the pond from local sources.• The first 25 mm of precipitation is typically correlated with flows/discharge that fills the channel (i.e., the bankfull flow). During such flow events, water will move sediment downstream through the channel. As the discharge in the creek increases, water will overtop channel banks and a portion of the sediment may be deposited on the floodplain. Only a small portion of sediment would continue to fill the off-line pond. <p>Cost is provided for removal but no removal has occurred yet; is costing erroneous?</p> <ul style="list-style-type: none">• Online pond alternatives looked at sediment removal to maintain depth for cooler water. The actual sediment removal rate will depend on the future sediment loading into the pond.• Historically, the dam has failed (1903, 1949); sediment would have moved downstream at that time.• Landuse practices have changed over time (e.g., buffers have become established which has reduced sediment loading to the pond)• Sediment will continue to impact the pond <p>Would the off-line pond be dredged?</p> <ul style="list-style-type: none">• The existing sediment would be moved or removed to construct the off-line pond. <p>Most sediment in pond now was from adjacent field (planting) and not upstream; community planting efforts created a buffer to reduce sediment loading... has the sediment source stopped now?</p> <ul style="list-style-type: none">• Sediment in the pond would also have originated from upstream areas in the watershed and from within the upstream channel corridor. Sediment supply/loading has not stopped but may have been reduced over time due to changes in landuse and establishment of vegetative buffers. Establishment of the vegetative buffer between fields and pond, by the community, is beneficial to reducing sediment runoff into the pond from local sources. <p>12. How was Alternative 7 cost determined;</p> <ul style="list-style-type: none">• A clay core would be required to be 4 m deeper than existing ground• Cost was based on material, removals, compaction etc.	
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	<ul style="list-style-type: none">• Costs are based on current material and labour costs based on other projects and estimates <p>13. What is the timeframe from construction to walking around and thinking that the area looks good?</p> <ul style="list-style-type: none">• It could take up to 20 years for the site to become fully mature (e.g., trees)• Six (6) weeks for the site to start greening up <p>14. Archaeologist going to be there any time?</p> <ul style="list-style-type: none">• If the works extend outside of the pond area, then a Phase 2 assessment may be required. Similarly, if the excavation is intended to go deeper than existing elevations, then archaeological assessments may be required.• If work remains within the existing footprint of the pond, which was assessed as disturbed ground, then it is unlikely to require archaeological assessments. <p>15. Did community input make a difference in the weighting process?</p> <ul style="list-style-type: none">• Yes, community input did impact the weighting process – additional criteria were used to evaluate the alternatives based on public input at PIC 2 and comments received.• The community input influenced the off-line pond alternative <p>16. Question regarding funding sources? Potential sources include:</p> <ul style="list-style-type: none">• Conservation Authority project and land• Generally, funds for repair/rehabilitate dams is more difficult to attain• The funding depends on the alternative and its elements• Community and municipality contributions• Potential federal funding initiatives – these tend to be focused on recreational fisheries enhancement <p>17. What can be done if funding is not received? Would a lower scoring option be chosen?</p> <ul style="list-style-type: none">• Implementing the preferred alternative may take a few years. Another alternative may be selected, but objective is to go with preferred. <p>18. In terms of permits, who do you have to answer to?</p> <ul style="list-style-type: none">• All agencies with interest in the project; DFO, MNR, UTRCA, MOECC (e.g., PTTW). <p>It has been 10 years since the last investigation. Has there been substantial changes to the dam (i.e. deterioration) and if so, how much?</p> <ul style="list-style-type: none">• Information is provided in the dam reports.• UTRCA has changed their management of the pond (reduced head, etc.) in response to the dam safety reports. <p>Any dam failures recently (last 20 years)?</p> <ul style="list-style-type: none">• None in the UTRCA jurisdiction <p>19. What are the impacts to groundwater?</p> <ul style="list-style-type: none">• Shallow wells may be impacted• A more detailed look at the impacts would be required during detailed design <p>Was the cost of groundwater impacts taken into consideration?</p> <ul style="list-style-type: none">• Yes	
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	<p>20. Opportunity to send comments to MOE</p> <ul style="list-style-type: none">• Send comments to UTRCA first to see if they can be resolved.• If comments cannot be resolved, then once the project is filed, there is a 30 day review period in which comment could be sent to MOE. <p>Will the 30 days be well publicized?</p> <ul style="list-style-type: none">• Yes, public notices would be provided to indicate that the report is completed and a 30 day review period is in effect. <p>21. Regarding cost for the “Do Nothing” alternative, what is the existing operation and maintenance cost?</p> <ul style="list-style-type: none">• \$10,000 is received annually from the township for operation and maintenance and funds for studies <p>Did those funds get used to pay for the EA?</p> <ul style="list-style-type: none">• Yes, they paid, in part, for the EA study <p>What is the impact to private property; is there any consideration on property value?</p> <ul style="list-style-type: none">• The selection of an alternative should not be based on individual landowner property values, as an EA study is a provincial process. <p>22. The pond is now used by fire fighters for water and training. How will this be affected? Will removal of the dam affect surrounding water bodies?</p> <ul style="list-style-type: none">• Determination of the potential for the pond to continue to be used by the fire fighters will be made during detailed design.• If the body of water changes then there may be another cost for building a new feature as a water source (e.g., a storage tank)• The township is waiting for outcome of this study before reviewing potential alternatives. <p>Was this cost considered in the alternatives</p> <ul style="list-style-type: none">• No. <p>Firefighting is an essential service, this needs to be included</p> <ul style="list-style-type: none">• noted <p>23. Evaluation Process – Social/Cultural: Can the economic criteria be dropped? What if the community came up with the money for dam reconstruction (Alternative 7)? Wont Alternative 7 come out ahead then?</p> <ul style="list-style-type: none">• This would be considered a funding source and would be evaluated accordingly• Besides funding, permit approvals will be difficult to obtain for a new dam structure.• This is a provincial process and needs to follow rules <p>24. How has the change in management of the dam bought us time? Have any other temporary measures been looked at (e.g. bentonite)?</p> <ul style="list-style-type: none">• The main issue is the foundation of the dam.• Geotechnical investigation determined that if anything was done to the dam, it could compromise stability. <p>25. What is Q100? In 2000, 3 inches of rain occurred in 6 hours.</p> <ul style="list-style-type: none">• This refers to storm event frequency (i.e., the 100-year flood event)• The existing capacity is less than Q100	
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	<ul style="list-style-type: none">• Concern raised with engineering report pertain to its foundation, failure can occur anytime. The reports are available on the website. <p>26. Have considerations been made to reduce risk (e.g. roads) in the event of dam failure due to sediment and water? This would mitigate some impacts and reduce severity of do-nothing alternative?</p> <ul style="list-style-type: none">• ERI had done modeling to look at the effects; this was presented at PIC 2. <p>27. Concern raised with regards to firefighting. Could a water holding tank be constructed at the ball diamond?</p> <ul style="list-style-type: none">• Yes, a cistern could be constructed	
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