

**RANDLE REEF SEDIMENT REMEDIATION PROJECT
PUBLIC MEETING
FORMAL PRESENTATIONS & QUESTION AND ANSWER SESSION**

**NOVEMBER 18, 2008
HAMILTON CHAMBER OF COMMERCE
7:00 P.M. TO 8:30 P.M.**

PARTICIPANTS:

Dianne Damman	D.C. Damman and Associates
Shawn Duncan	AECOM
Kathy Forde	Hamilton Harbour Remedial Action Plan Office
John Hall	Hamilton Harbour Remedial Action Plan Office
Mark Mahoney	Arcadis
Brian McCarry	McMaster University
Roger Santiago	Environment Canada

Approximately 70 participants attended the public open house.

1. WELCOME AND OPENING REMARKS

Brian McCarry welcomed everyone to the public meeting. The presenters for the evening were introduced, including the project manager from Environment Canada, and representatives from the various consultant firms working on the project. The following overview comments were provided by Brian.

The open house provides an opportunity to present progress on the Randle Reef Sediment Remediation Project and to gather public comments.

The community of Hamilton Harbour Stakeholders began work in 1985 and in 1992 the Stage 1 and 2 documents were prepared in an attempt to deal with contaminants in Hamilton Harbour. Between 2002 and 2003, a Project Advisory Group (PAG) met to discuss and reach consensus on various options for the Remediation of Randle Reef. The PAG represents a thorough cross-section of government, community and expert participants. The PAG recommended the option of utilizing an Engineered Containment Facility (ECF) in order to minimize disturbance of the contaminants. The volume of contaminated sediments in Randle Reef is equivalent to filling Cops Coliseum three times over. Once the option was selected, detailed engineering design began and continues today.

2. REMEDIATION PROJECT OVERVIEW

Roger Santiago provided an overview of the project. In partnership with the Ontario Ministry of the Environment and Hamilton Port Authority, Environment Canada is leading the project for remediation of contaminated sediment in Randle Reef. Current efforts are focused on advancing the engineering design work. The project site measures 60 hectares in size and has been compared to a spill in slow motion. PAHs have been moving throughout the harbour and acting as a source of contamination. The objective is to stop the migration of impacted sediments throughout the harbour and to safely contain the contaminated sediment in an Engineered Containment Facility (ECF).

An ECF measuring 7.5 hectares will be built over the most highly contaminated sediments. Approximately 130,000 cubic metres of sediments are impacted. A double sheet pile wall will be constructed with the outer wall serving as a structural wall. Once sediments are contained, a three-meter cap will be placed on top to stop any upward migration. The steel wall will stop any lateral movement. In the end, two-thirds of the site will be used for future port activity and one-third will be used for open green space. The cost is estimated at \$90M. The final project budget will be established in 2009. Work ahead includes ECF construction, environmental dredging, water handling and capping. Engineering design work will be completed by February 2009. Full project funding will be required by March 2009. A public comment period on the Environmental Assessment will take place April 2009. The Environmental Assessment will conclude by late summer 2009. Construction is expected to start in 2010 and be completed by 2019.

In terms of environmental benefits, the project is essential for preserving the health of the harbour, improving fish and wildlife habitat and for delisting Hamilton Harbour as an Area of Concern. Regarding economic and social benefits, the future economic impact is estimated at \$126M (job creation, business development, tourism). The project will provide enhancements for recreational opportunities (beaches, boating, fishing) and shipping and port facilities. Remediation will promote a positive image of the harbour and community.

3. ENGINEERING DESIGN OVERVIEW

Mark Mahoney presented an overview of the engineering design. The project team for the engineering design includes various Canadian and U.S. consultant groups with Arcadis as project lead. Following review of an extensive range of options, the approach selected for sediment remediation involves removal combined with containment. A detailed feasibility analysis determined this would be a sound approach. Containment is common for a project of this magnitude. The approach offers an optimum combination of environmental protection, practicality and cost-effectiveness. Engineered Containment Facility (ECF) technology has been successfully applied at various sites throughout the U.S.

Hamilton Harbour is an extensively studied waterway. Recent sediment quality data is available. Contaminated sediments have been categorized into three priority areas. Areas with the highest concentrations will be addressed first (Priority 1). An ECF will be constructed over the footprint for maximum effectiveness. The remaining Priority 1, Priority 2 and 3 sediments will then be dredged and placed in the ECF. The remaining portion of the lower levels of contaminated sediment that will not be dredged, or which are residuals left after dredging will be covered and isolated with a thin layer cap. The majority of contaminated sediments are concentrated in the Priority 1 and 2 zones. A steep concentration gradient is tied to the footprint of the ECF. Ninety-six percent of contaminants will be addressed in Priority Areas 1 and 2. Work in the Priority 3 zone will take remediation efforts to approximately 100 percent of contaminated sediments in the Randle Reef study area.

The ECF will be constructed in multiple steps. Double walls will be built. Initial dredging and backfilling will occur between the walls using a mechanical dredge. Internal cell walls and a final settling cell will be constructed within the ECF to manage dredged material. Hydraulic production dredging will be used for priority sediments. Dredged material will be dewatered and dewatering effluent will be treated to remove the contaminants. A multi-layer cap will be placed over the dredged material. The first layer composed of gravel will act as a sponge to remove excess water. Final capping and landscaping will occur in the latter stages of construction. An engineered cap will be installed at the U. S. Steel channel to isolate in place contaminated sediment. There will be no dredging within the U. S. Steel channel to ensure integrity of the intake/outfall at the dock wall.

Environmental protection measures will be incorporated. Extensive air and water monitoring programs will take place. Verification sampling will be conducted regularly to ensure no residuals above appropriate removal criteria. Multiple passes may be deployed, if necessary, to address residuals. A thin layer cap may also be applied if necessary. Sediment profile imaging will be undertaken to complete verification surveys. As the ECF is filled and sediment is dewatered, the sediment consolidates whereby grains will lock together, which translates into increased strength of the sediment. Multiple layers of the three-meter cap serve a specific purpose. Layers will include a foundation, under liner drainage system, hydraulic barrier and over liner drainage system. Dredging in the U. S. Steel channel is not an option. In this area, a special cap will be constructed to accommodate the integrity of the intake and outfall operations.

Work continues with the technical project team to finalize drawings and specifications. Complete design, drawings and tender specifications will be finalized early 2009.

4. ENVIRONMENTAL ASSESSMENT OVERVIEW

Dianne Damman provided an overview of the EA process for the project. A federal EA is required because the federal government is a proponent and is providing funding. The project is being assessed in accordance with the Canadian Environmental Assessment Act, specifically related to Bill C-13. Various federal and provincial key players are involved. The Comprehensive Study Report (CSR) provides details on the work undertaken and on public comments. Factors to be considered include the purpose of the project, alternatives means of carrying out the project, environmental effects and mitigation measures, public comments, and requirements for a follow-up program (to examine accuracy of the effects predicted and to ensure mitigation measures are appropriate). Valued Ecosystem Components (VECs) are also considered in terms of environmental, socio-economic and cultural factors. Potential adverse effects on surface water quality, residential areas, recreational uses of the harbour, and shipping and navigation were reviewed. Various potential mitigation measures have been suggested to minimize impacts.

Comments from the public meeting will be considered in completing the CSR. The CSR will be submitted to the Canadian Environmental Assessment Agency (CEA Agency) for review in April 2009. The CEA Agency will hold a formal public comment period. The Minister's response is anticipated during the summer 2009. Various notifications will be posted to keep the public informed. The CSR will be posted on the project website.

5. QUESTION AND ANSWER SESSION

John Hall facilitated the question and answer session. Input from the public, stakeholders and science community is valuable to the project.

Questions and Answers

Q1. What sort of migration rates of organics or metals will occur through the thin cap layer?

A1. *Contaminant concentrations in the area are so low (less than 100 ppm), so are not a concern. The 200-year service life will be good. (Mark Mahoney)*

Q2. In 1949, I fished for pike in the harbour. I could catch fish up to four feet. There was a lot of turbulence around Stelco. After dropping an anchor in, it came up black. What is the highest peak of the three hills of Randle Reef? How deep are the contaminants?

- A2. *The bathymetry is very detailed and recent. It is a high resolution. Many cores were taken in close proximity to the intakes in the Priority 1 area. Borings were deep. Although exact depth and location cannot be referenced right now, I believe contaminants are a couple of meters down. I have seen fish there as well. (Mark Mahoney)*
- Q3. How long will construction affect access to Pier 14 and possibly to Pier 15? Ship repairs need to continue. Will there be limited access? Will there be a major or minor effect and for how long?
- A3. *Everything will be done to minimize impacts. Work will proceed around the fish window to ensure fish spawning and migration is protected. Areas may be closed off to prolong the construction season. Work will proceed in consultation with the HPA and tenants/stakeholders to minimize navigational impacts in the construction phase. Any impacts should not be significant. Much of the work will take place in the ECF. (Mark Mahoney)*
- Q4. Will major dredging occur on the east face of Pier 14?
- A4. *There will be some interference but I cannot specify the duration. (Mark Mahoney)*
- Q5. What level of certainty can be provided to ensure that funding will be available from all levels of government?
- A5. *We currently have a committee to address funding. Environment Canada has committed \$30M, the Ontario Ministry of the Environment has committed \$30M and \$7M will come from the Hamilton Port Authority. The Hamilton Port Authority and the City of Hamilton will lead an exercise to acquire the remaining funding from local stakeholders. Groups being approached include U. S. Steel for in-kind steel, the City of Burlington and other local stakeholder groups. Different materials will be needed and potential for in-kind opportunities will be considered which factor into the remaining one third of funding. Opportunities are currently being pursued. Funding is to be in place by March 2009.*
- Q6. How old is the budget? How current is the \$90M figure?
- A6. *The 100 percent cost estimate was prepared in June 2008. Since then, different things will affect the number, such as the cost of steel and cost of fuel. As we move forward to establish final agreements, we will revisit costs and as we move into the implementation stage, final numbers will be identified to proceed with the project. Full funding needs to be in place by March 2009.*
- Q7. Where is the steel coming from? Can it be shipped in or trucked in? Can the special rock be trucked or shipped in?
- A7. *Steel for the inner wall will be similar to that of a Waterloo barrier. Most items are prescribed, as proposed by the contractor or an acceptable alternative. Steel and rock could be brought to the site by ship, barge or truck. (Mark Mahoney)*
- Q8. What do you expect will be required after the 200 years?
- A8. *This is a common question. Advances beyond the 200 years would be anticipated. Sheets can be replaced if corroded or needed. With available technology, you would stand off a metre and*

circle the ECF with a new structure and new material. A monitoring and maintenance program will be implemented to extend the service life as much as possible. (Mark Mahoney)

Q9. When are comments due?

A9. *Comments are due by the end of December 2008. Once the project is submitted to the CEA Agency, an additional comment period will be provided. Details on the project are available by visiting the BARC website at www.hamiltonharbour.ca. (Roger Santiago)*

Q10. If the project is to be completed in 2019, does this mean that delisting would be postponed?

A10. *The remediation work is scheduled to last for 9 years. Dredging should be complete by 2015 and capping of the U. S. Steel channel should be completed during 2016. In 2015, approximately 95 percent of targeted sediments will be removed and contained within the ECF structure so in terms of environmental protection, sediments will be securely stored within the ECF thus meeting the project objective prevent the spread of PAH contaminated sediment throughout Hamilton Harbour. From 2015 to 2019 we will be capping the ECF, and preparing the surface for the green space and port facility. (Roger Santiago)*

Q11. Will the proposal from Public Works include performance clauses to ensure contractors do not fall behind timelines to ensure delisting is achieved?

A11. *We expect Public Works and Government Services Canada will do something like this. Work will proceed under contractual terms and conditions. (Roger Santiago/Mark Mahoney)*

Q12. During review of the process and concept of the design, were other schedules and equipment looked at to optimize the timeline?

A12. *We have tried to develop an optimized timeline. Different contractors will have different approaches. We need to be descriptive. A contractor can suggest something that may work faster but must be within budget. We did look at other equipment to work faster. Time is money. We feel we have an optimized timeline. We will need a contractor to submit a schedule. The schedule will need to fall within the budget and timelines. We have to be open-minded. The construction contractor will be important in the next phase. (Mark Mahoney)*

6. CLOSING REMARKS

Project team members were available to answer any further questions. If needed, arrangements could be made to meet with individual groups. Engagement with the citizens, scientists and civil servants is vital for success. Presentation material is available at www.hamiltonharbour.ca for information.

Roger Santiago and Brian McCarry thanked everyone for participating in the Public Open House and for expressing interest in the project. Randle Reef is a very important endeavour. Many years of time and dedication have been devoted to the project. Comments are a valuable part of the process. Delisting will put Hamilton and Canada on the map and will be a truly magnificent day.

7. ADJOURN

The public meeting adjourned at 8:30 P.M.