Rock Bay Remediation (Stage 3): Implementation and Tracking of Sediment Cleanup Project

Presented by
Mike Roberts and Anju Wicke
May 26, 2016
Outline

• Project Overview
• Forming a Strong Owner’s Team
• Change Management
• Quantity Tracking
• Lessons Learned
Overview: Stages of Work

<table>
<thead>
<tr>
<th>Stages</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>August 2004 to September 2005</td>
</tr>
<tr>
<td>Stage 2</td>
<td>September 2005 to August 2006</td>
</tr>
<tr>
<td>Barclay Point</td>
<td>September 2008 to October 2009</td>
</tr>
<tr>
<td>Stage 3</td>
<td>June 2014 to January 2016</td>
</tr>
</tbody>
</table>
Overview: The Plan

- Site preparation
- Cofferdam to seal off the bay
- Bypasses for 626 and 627 storm sewers
- Shoring along upland property lines
- Draining of the bay
- Excavation and transport of estimated 90,000 tonnes of material
- Treatment and disposal of contaminated soils
- Backfilling and shoreline restoration
Design-Build Parameters (why DB vs. DBB?)

• Risk management
• Cost control
• Allows contractors to utilize their creativity
• Allows innovative solutions balanced with practical engineering
• Quick response to project issues
Forming a Strong Owner’s Team

• Rock Bay 101
  – Project history
  – Team introduction
  – Project goals
Forming a Strong Owner’s Team (cont.)

• Standard Operating Procedures (SOPs)
  – Consistency in implementation
  – Allowed auditing for compliance
  – Adapted SOPs to real-world conditions
Forming a Strong Owner’s Team (cont.)

- Complex reporting structure
  - Multiple organizational charts
- Understanding roles and responsibilities
- Field presence
- Focus on communication
Forming a Strong Owner’s Team (cont.)

LEGEND
Green = Transport Canada
Blue = PWGSC
Yellow = Consultant
Red = Contractor
Solid line = Line authorities (e.g., primary instructions)
Dashed line = Functional support (e.g., secondary direction)
Arrows = flow of instructions/direction
Notes:
Not a communications chart.
Only major responsibilities listed.
Primary reporting flows in opposite direction of arrows.

Project Leader
Ian Chatwell

Communications
Zoe Polden

Remedial Monitoring
Michele Thompson

Financial/Environ Monitoring
Gary Watson

Project Monitoring
Rob Macdonald

Construction/Project Monitoring
Eddie Uyeda

Project Manager
Scott Tomlinson

Senior Project Manager
Raman Birk

Deputy Project Manager
Erin Shankie

Project Monitoring
Golder

Laboratory
Maxxam

Remedial Sampling
Anchor QEA/Hemmera

Environmental Monitoring Anchor QEA/Hemmera

Quality Assurance
Golder

Construction Monitoring
Anchor QEA

Contracting Officer
(Consultants)
Various

Document Controller
Cherry Tan

Business Support
Kuldeep Deol

Business Support
Lina Banh

Construction Safety Officer
Chris Patterson

Contracting Officer
Patty Liu

Departmental Representative
Rae-Ann Sharp

Construction Contractor
Quantum Murray
Change Management

• Submittal review
• Requests for information/on-site notifications
• Direction to contractor/on-site instructions
• Contractor responsible for means and methods on site
• Still allowed for changed conditions
• What constitutes a change
<table>
<thead>
<tr>
<th>Material Description</th>
<th>Actual Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Waste (HW Hydrocarbons and CL+Metals)</td>
<td>18,000 tonnes</td>
</tr>
<tr>
<td>Non-hazardous Contaminated Waste - Comingled (CL+Metals and CL+Hydrocarbons)</td>
<td>35,000 tonnes</td>
</tr>
<tr>
<td>Non-hazardous Contaminated Waste - Non-treatable (CL+Metals)</td>
<td>26,000 tonnes</td>
</tr>
<tr>
<td>TSS-released contaminants at disposal site</td>
<td>12,000 tonnes</td>
</tr>
</tbody>
</table>

**Summary of Quantities**

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Actual Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavated Soils</td>
<td>91,000 tonnes</td>
</tr>
<tr>
<td>Contaminated Soils</td>
<td>79,000 tonnes</td>
</tr>
<tr>
<td>Treated Soils</td>
<td>53,000 tonnes</td>
</tr>
<tr>
<td>Backfill Imported</td>
<td>76,500 tonnes</td>
</tr>
</tbody>
</table>

**Pre-classification of Materials**

Notes:

HW = Hazardous Waste  
CL = Commercial Landfill or Disposal Facility
Quantity Tracking
Quantity Tracking

- Use of slice diagrams
- Work done in the dry
- Truck counting and estimating quantity of material for each truck
- Truck scales used to correlate tonnage
Classification of Materials
Quantity Tracking

- Stockpile measurement
- Profiling of materials conducted at excavation and confirmed with post-excision sampling
- Survey checks to verify limits
- Estimate quantity at completion
Quantity Tracking (cont.)

![Graph of All Material: Excavation, Off-site Transport]

**Notes:**
1) Goal for Off-Site transport based on projections from QM.  
2) Excavation based on actual quantity summary.  
3) Off-Site Transport based on daily scale tickets provided by QM for both barge loading and on-island disposal.
Reporting of Progress, Schedule, and Budget

- Schedule review
- Monthly earned value reporting
  - Release the BEaST
- Progress reporting
  - Daily report
  - Weekly reporting
  - Monthly reporting
Lessons Learned

• Design-build
  – Permitted flexibility and adaptability during construction
  – Needed strong requirement for work plans
  – Left means and methods up to the Contractor

• Tracking quantities
  – Required all trucks to be weighed
  – Ensure clarity on measurement and payment
  – Provide progress surveys to verify progress and as-built of surface
Questions/Discussion