Successful Completion of Stabilization and Infra-structure Construction at the Sydney Tar Ponds

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Overview

Clean-up of contamination stemming from 100 years of steel and coke production that spread to four areas around the former steel mill:

- North and South Tar Ponds
- Former Coke Ovens property
- An old landfill uphill from the Coke Ovens
- The Coke Oven Brook that carried contaminants from the Coke Ovens to the Tar Ponds

Overview

Mandate of the Sydney Tar Ponds Agency:

"To clean up the Sydney Tar Ponds and Coke Ovens in a safe, cost effective, timely and environmentally sound matter"

- **Dewater the pond (in phases) and stabilize sediments to performance specifications**
- **Build a channel through the stabilized monolith connecting the two influent brooks to the Harbour**
- **Provide a protective cap over the monolith**
- **Restore the land in accordance with future land use**

Overview (cont.)

17 Tenders issued to date - 9 Coke Oven; 7 Tar Ponds; 1 Future Land Use

Tar Pond Tenders:

- TP2: Material Processing Facility
- TP2 Ops: Operation of Facility
- TP6A: Flow Diversion
- TP6B: Solidification/Stabilization & Channel Construction
- TP6C: Ferry Street Bridge
- TP6D: Construction of Access Roads
- TP7: Tar Ponds Cap

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Tar Ponds Overview

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Scope of Tenders

- TP6A : Flow Diversion system to re-direct two brooks around north and south ponds to create water-controlled areas for solidification and stabilization work (MB JV)
- TP6B: Solidification and stabilization of contaminated sediments; Construction of channel within stabilized monolith to connect the two brooks to Sydney Harbour (Nordlys)

- TP6 C: Construct a new bridge structure to maintain traffic access along Ferry Street to the city core (Joneljim)
- TP7: Construction of a Cap over the treated sediments for protection and to divert surface flow away from the treated material (Hazco)

Progress

July 2008 **August 2012**

How we got here, and how we get to the end

De-watering

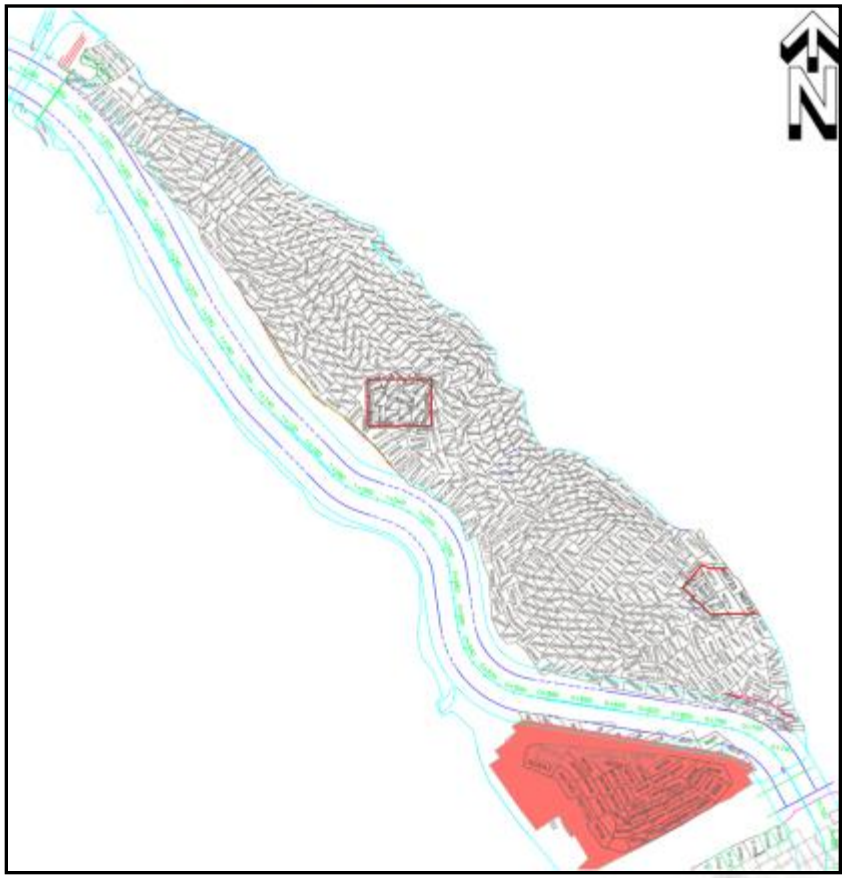
- Pumping stations set-up to divert water:
  - From Influent Brooks to Phase II
  - From Influent Brooks to Phase III
  - From Phase II (Narrows Bridge) to Harbour

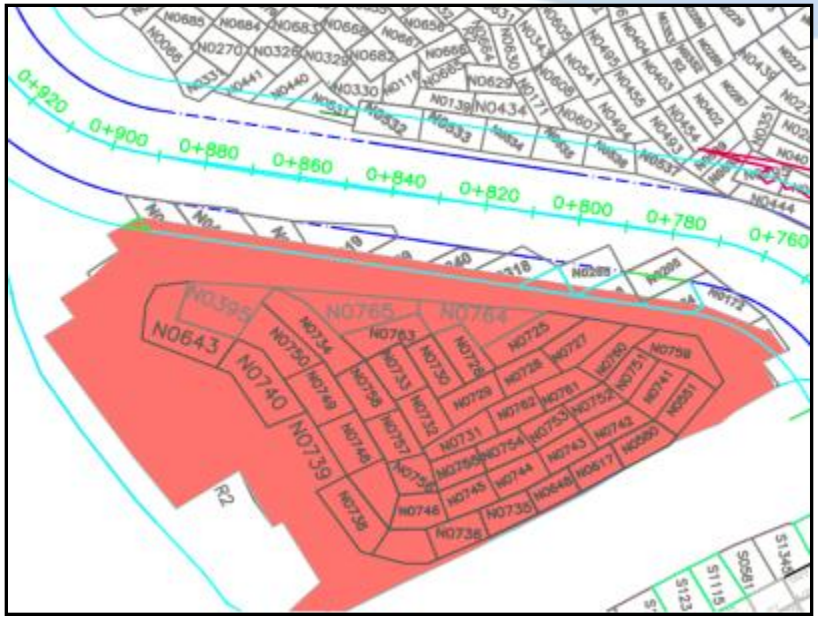
De-watering

- Designed to divert streamflows during stabilization and channel construction
- Must handle 1 in 5 year storm flows; Max Design = 112,599 US gpm
- Stop logs have duckbill or backflow preventer valves; can be raised if higher flows are anticipated
- Diesel and electric pumps are used

Stabilization

Stabilization





- **Mix Design**
- **Cell Design**
- **Re-work of cells not meeting criteria**
- **Receiving Pit**

Stabilization

Property	Test Method	Criteria
Strength (UCS)	ASTM D 1633 Method B	≥ 0.17MPa (25psi)
Hydraulic Conductivity	ASTM 5084 (Flex Wall)	≤ 1 x 10^{-6}cm/sec
Leachate	Modified SPLP 1312 (as monolithic structural integrity procedure)	Greater of Site Specific Leachate Criteria or 500 x pre-leachate value

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TP6B

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Channel Construction

Protective Cover & Restoration

- Stabilized material certified to have met treatment and grading requirements
- Grade adjustments in specific areas to allow for placement of displaced stabilized material

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Protective Cover, and Restoration

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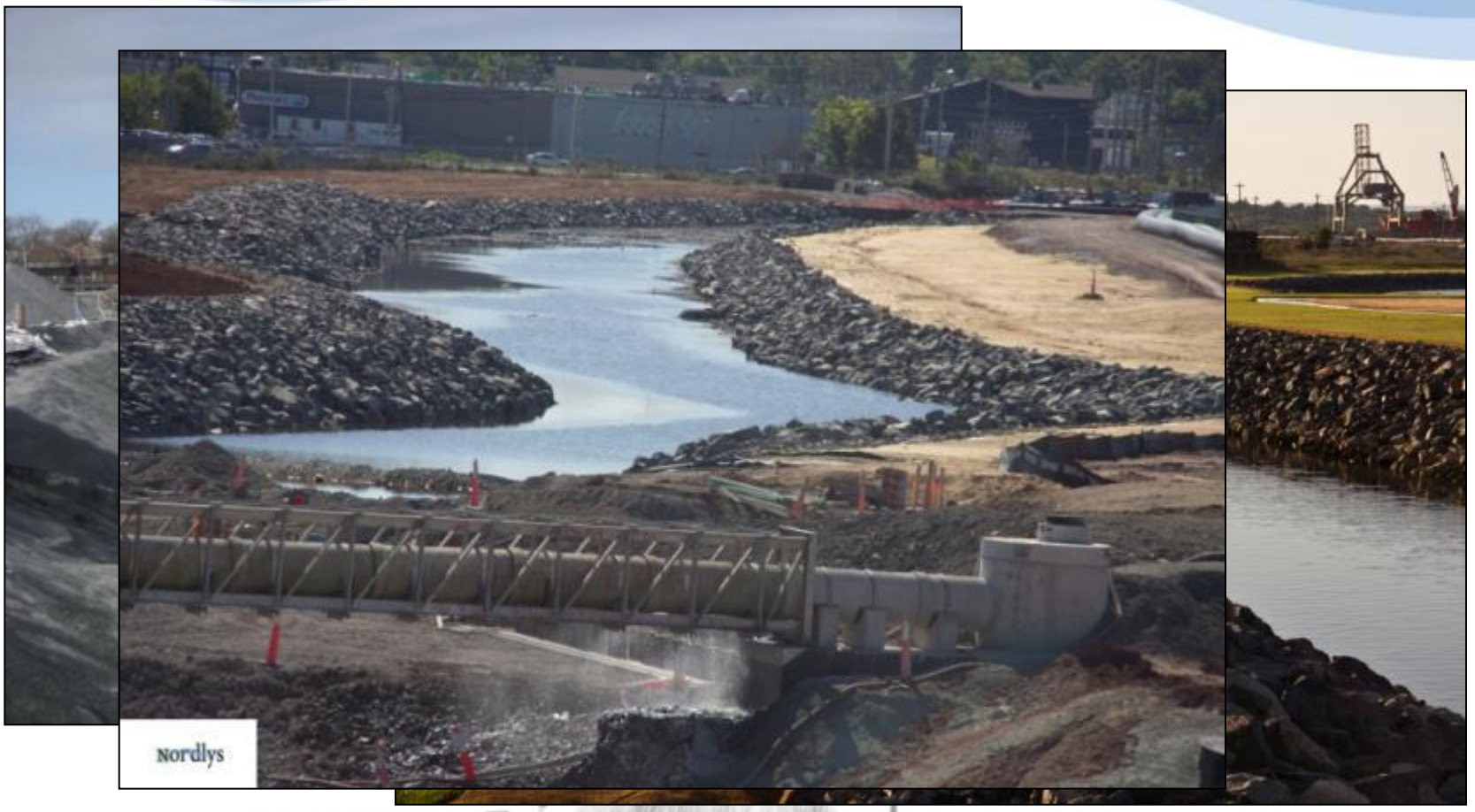

Ferry Street Bridge

- Pouring abutments
- Backfill around abutments
- Attachment of channel liner to abutments

Ferry Street Bridge

•New Ferry Street Bridge ties into the downtown improvements underway by Cape Breton Regional Municipality (CBRM)

Phase III

As we near the end, the challenges increase

- **Issues regarding working below sea level becomes pronounced**
- **Sediment depths increase significantly from previous observations**

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Solutions

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Divide and Conquer

Solutions

Pumps and sumps – constant water management

Solutions

- Use alternate methods – ALLU Mixer supplements bucket mixing for deeper areas

ALLU Video

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ALLU

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The Finish Line

Stabilization continues towards Battery Point with protective cap installation on it's heels

Construction of final stretch of channel adjacent to sheet pile at Battery Point

The Results

Quality of the project has been exemplary (various contractors above 95% on multiple quality indicators)

The project is substantially completed, ahead of schedule and executed within program budget

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Thank You!

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Questions ?

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