Ashbridges Bay Treatment Plant Landform

Working with Stakeholders for Innovative Solutions

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Toronto and Region Conservation Authority

BACKGROUND

Planning Context

- **Toronto and Region Remedial Action Plan (1994)**
  - Measures to improve Toronto's waters and habitats
  - Delist City's waterfront as an Area of Concern

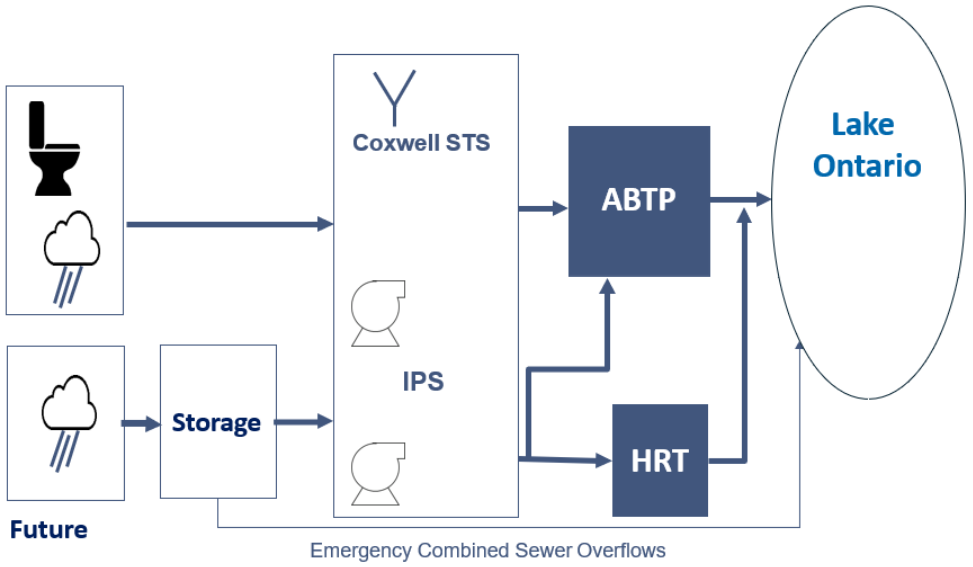
- **City-wide Wet Weather Flow (Management) Master Plan (2003)**

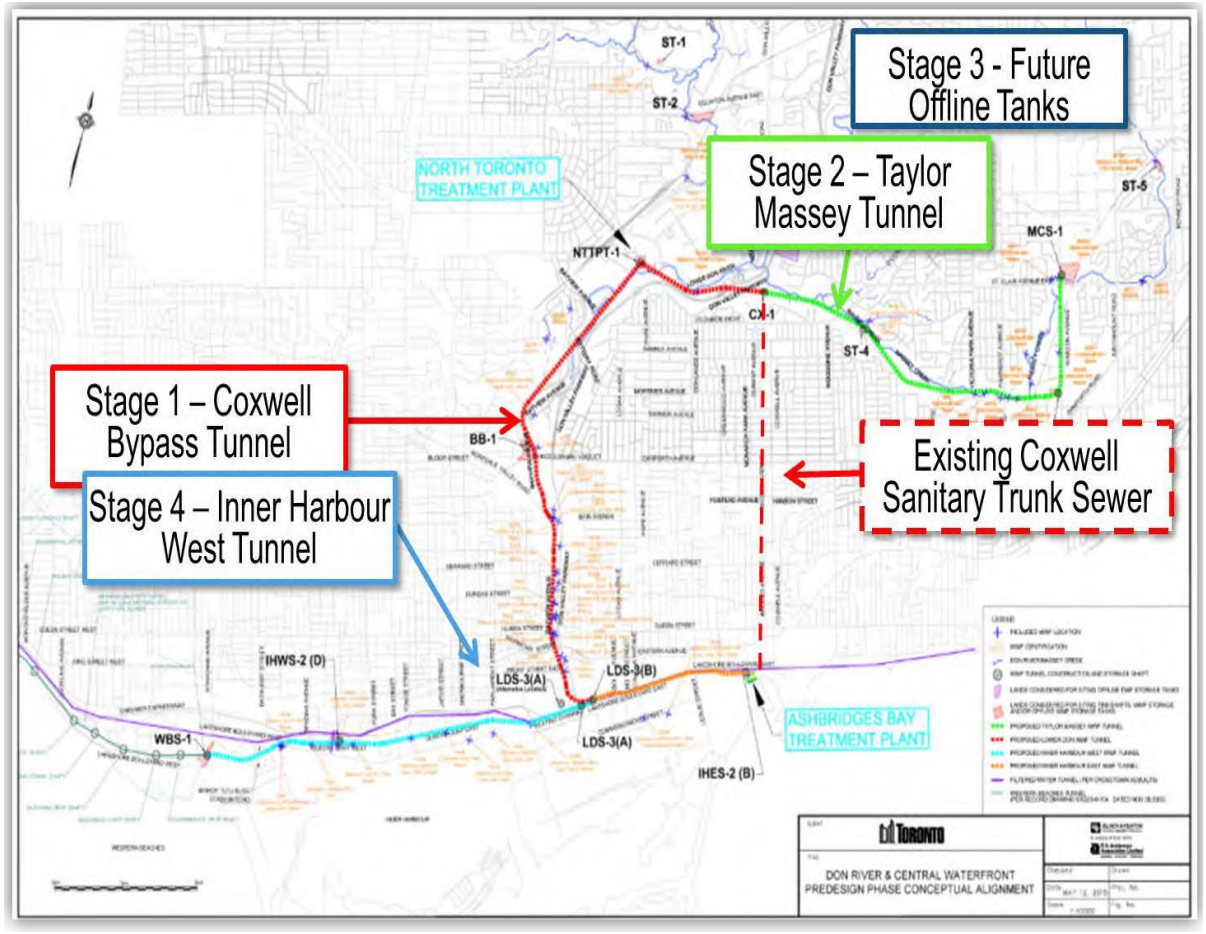
  25-year Implementation Plan
  - Reduce stormwater runoff/combined sewer overflow discharges to waterways
  - Improve water quality and ecosystem health on City's waterfront

- **Environmental Assessments (EAs)**
  - Coatsworth Cut Combined Sewer Overflow (2008)
  - Ashbridges Bay Treatment Plant ("ABTP") (2008)
  - Don River and Central Waterfront (2012)
  - Integrated Pumping Station (2012)
  - **Ashbridges Bay Erosion and Sediment Control (2014)**

Wet Weather Flow Strategy

- Three (3) integrated tunnels (total 22 km)
- Underground storage shafts (12)
- Stormwater and CSO connections to tunnels (27)
- Off-line storage tanks (7)
- Real-Time Control (RTC) to regulate flows in the City's sewer system
- Dedicated High Rate Treatment (HRT) Facility in the vicinity of ABTP

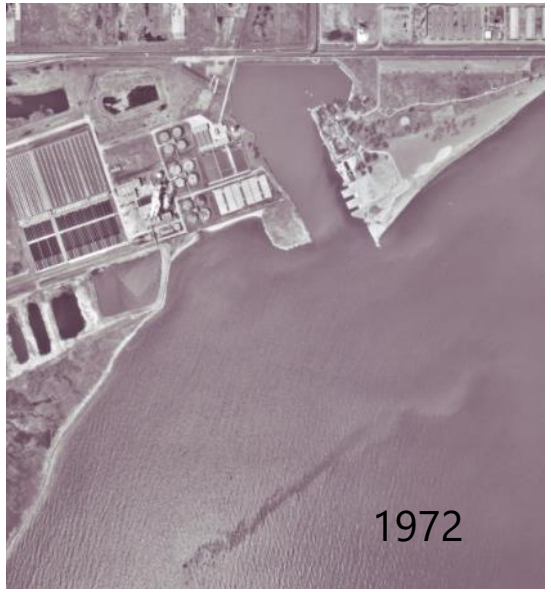


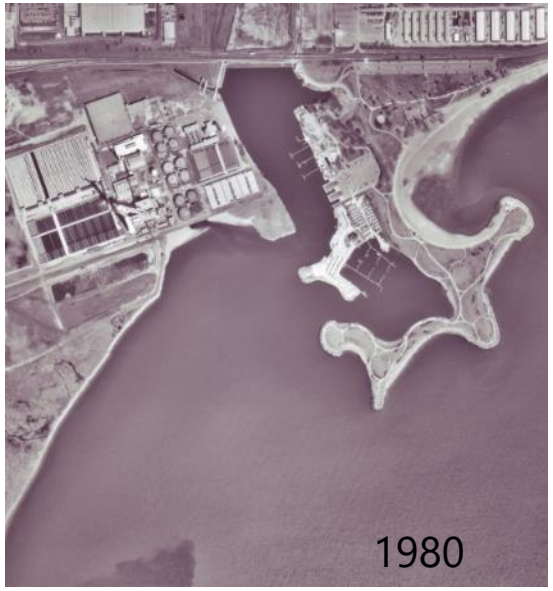


ASHBRIDGES BAY EROSION AND SEDIMENT CONTROL CLASS EA

TRCA's Problem Identification

- Mid-1970's: Ashbridge's Bay Park constructed
- Early 1980's: Start of dredging in Coatsworth Cut
- 1990's: Reports indicate ~10,000.00 m^3 of sand per year bypass the Ashbridge's Bay Park headland
- Annual maintenance dredging has been required to ensure safe navigation.



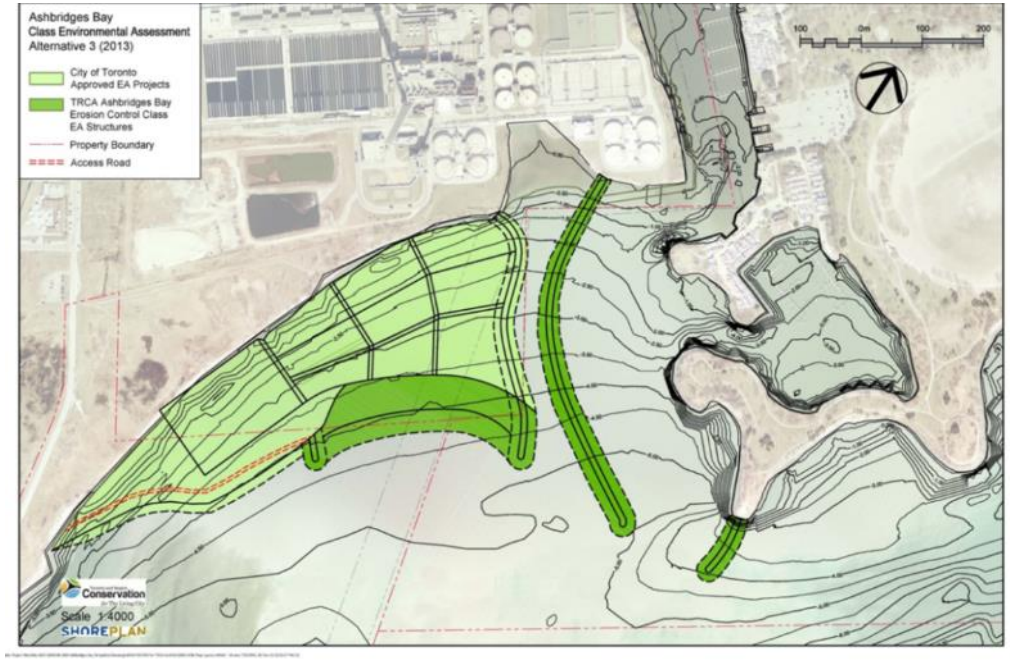


Ashbridges Bay Erosion and Sediment Control EA Objective

To identify a preferred solution that will mitigate the risk to navigation due to sediment erosion and deposition at the harbour entrance of Ashbridges Bay and Coatsworth Cut while considering the various approved facilities , planning initiatives and current uses in the study area.

Ashbridges Bay Erosion and Sediment Control Preferred Alternative (2014)

- Least impact to water quality in the recreational areas with a potential positive impact on E.coli levels in the recreational boating areas;
- Best integration of current Ashbridges Bay Wastewater Treatment Plant operations (sea wall gates) and flexibility with future approved City of Toronto infrastructure
- Decades of safe navigation without on-going maintenance (dredging)

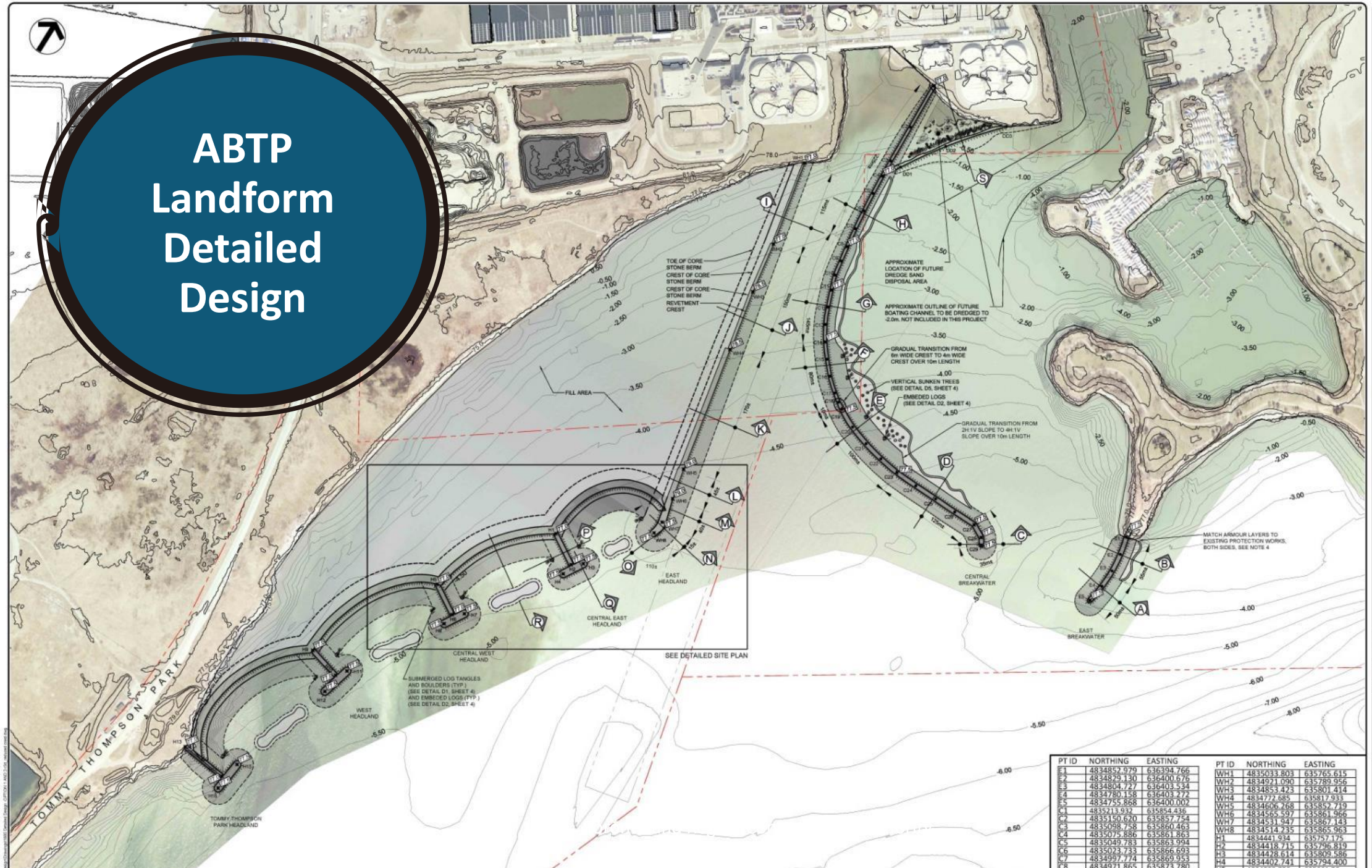


*Dark green depicts the components of TRCA's Class EA, light green are other planning initiatives.


N
Ashbridges Bay Treatment Plant
DUNDAS ST E
QUEEN ST E
LK SHORE BLVD E
EASTERN AVE
DON VALLEY PKY N
F G GARDINER EXPY E
COMMISSIONERS ST
LESLIE ST
UNWIN AVE
Leslie St. Allotment Gardens
TommyThompson Park Entrance and Parking Lot
Ashbridges Bay
Woodbine Beach
Ashbridges Bay Park
Coatsworth Cut
Tommy Thompson Park Vehicle Access Control Gate
Toronto and Region Conservation for The Living City
TORONTO
Ashbridges Bay
Erosion and Sediment Control Project
City of Toronto Approved Infrastructure and Proposed Erosion and Sediment Control Structures
Metres
0 245 490 980

DETAILED DESIGN

ABTP Landform Detailed Design



GENERAL NOTES

1. All dimensions in millimeters unless indicated otherwise.
2. All elevations in meters, GSC. Soundings below chart datum (74.2m I.G.L.D. 1985).
3. Grading of backfill material to be designed by others.
4. Remove existing armour stone prior to the placement of core material and re-use suitable armour stone in the new works.

PT ID	NORTHING	EASTING
E1	4834852.979	636394.766
E2	4834829.130	636400.676
E3	4834804.727	636403.534
E4	4834780.158	636403.272
E5	4834755.868	636400.002
C1	4835213.932	635854.436
C2	4835150.620	635857.754
C3	4835098.758	635860.463
C4	4835075.886	635861.863
C5	4835049.783	635863.994
C6	4835023.733	635866.693
C7	4834997.774	635869.953
C8	4834971.865	635873.780

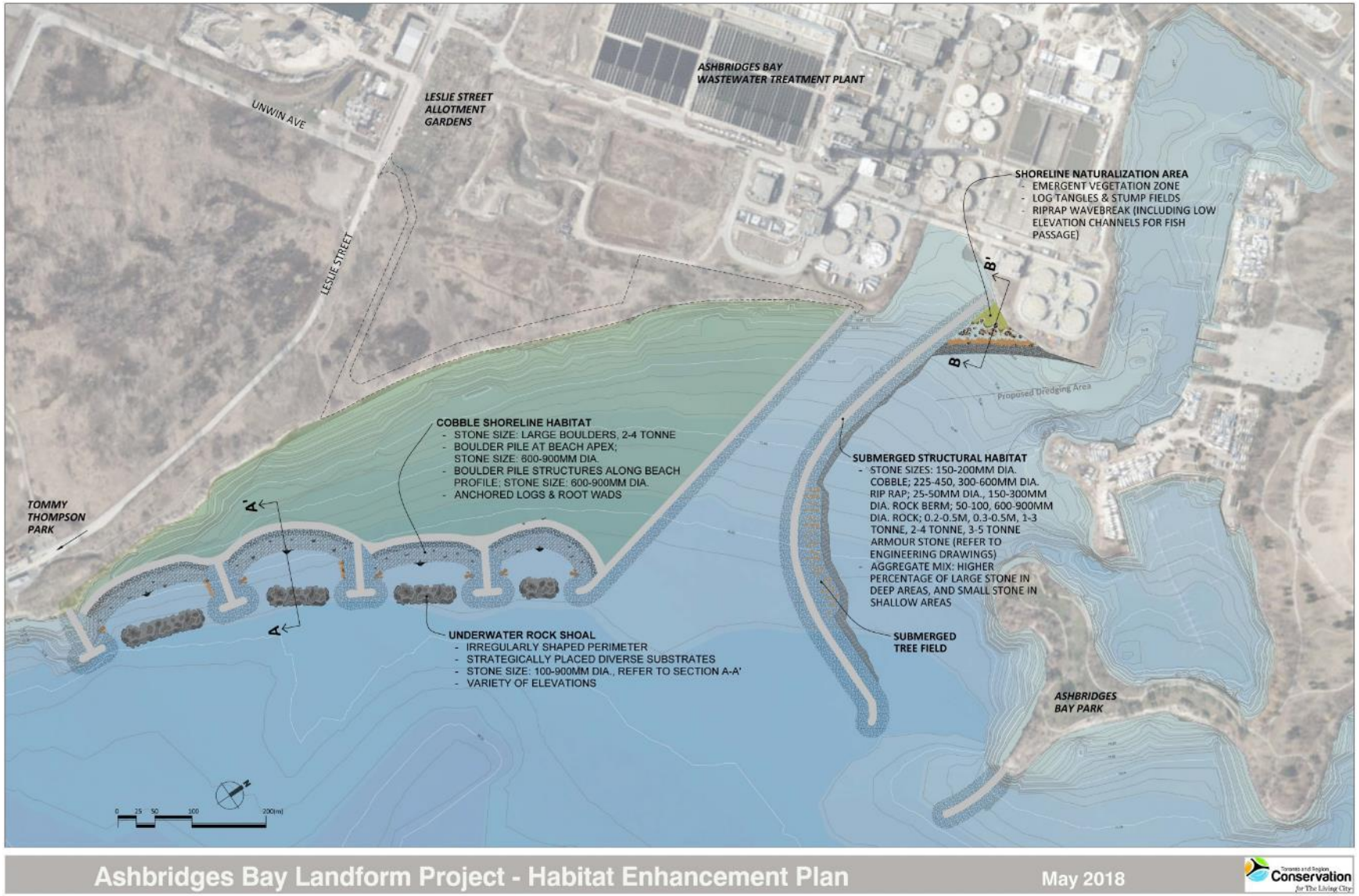
PT ID	NORTHING	EASTING
WH1	4835033.803	635765.615
WH2	4834921.090	635789.956
WH3	4834853.423	635801.414
WH4	4834772.685	635817.933
WH5	4834606.268	635852.719
WH6	4834565.597	635861.966
WH7	4834531.947	635867.143
WH8	4834514.235	635865.963
H1	4834441.934	635757.175
H2	4834418.715	635796.819
H3	4834428.614	635809.586
H4	4834402.741	635794.400

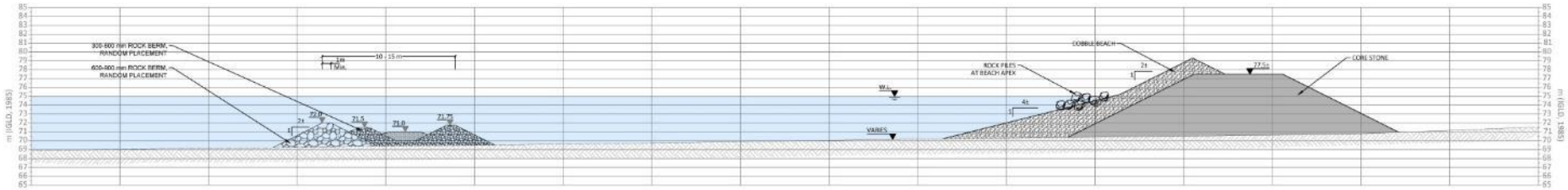
No	Date	Revisions	By
3	2018/07/09	Issued for Approval	M.S.
2	2018/02/22	Issued for Discussion, 90 %	M.S.
1	2017/12/13	Issued for Comments Only, 60%	M.S.

SHOREPLAN
Shoreplan Engineering Limited
20 Holly Street, Suite 202
Toronto, Ontario
M4S 3B1 Tel. (416) 487-4756

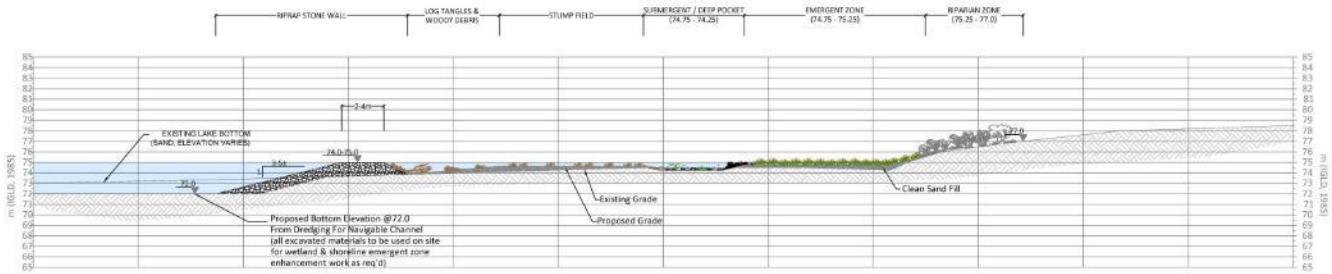
M. STURM

Onsite Aquatic Habitat Compensation



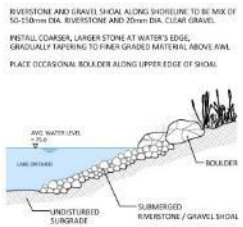


SECTION A - A'
Habitat Island & Cobble Beach

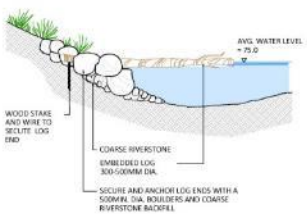


SECTION B - B'
Naturalized Shoreline Typical

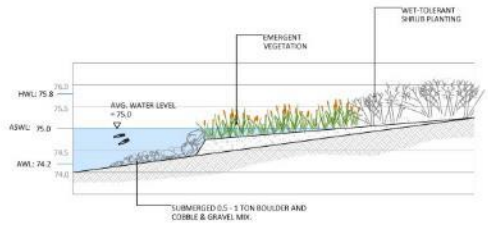
D4 SUBMERGED LOG TANGLES & STONE PILES N.T.S.



D1 SHORELINE SHOAL N.T.S.



D2 EMBEDDED LOG N.T.S.



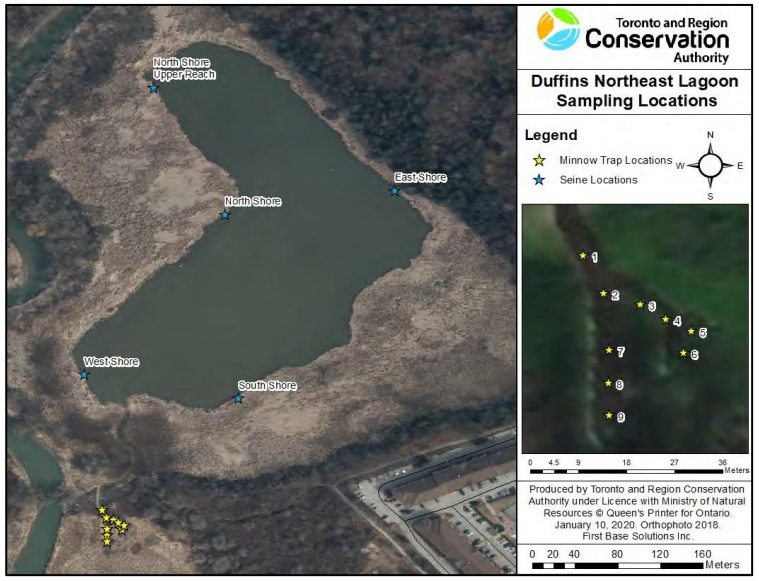
D3 SURCHARGED EMBAYMENT N.T.S.

D5 VERTICAL SUNKEN TREES N.T.S.

Ashbridges Bay Landform Project - Cross Sections & Details March 2018

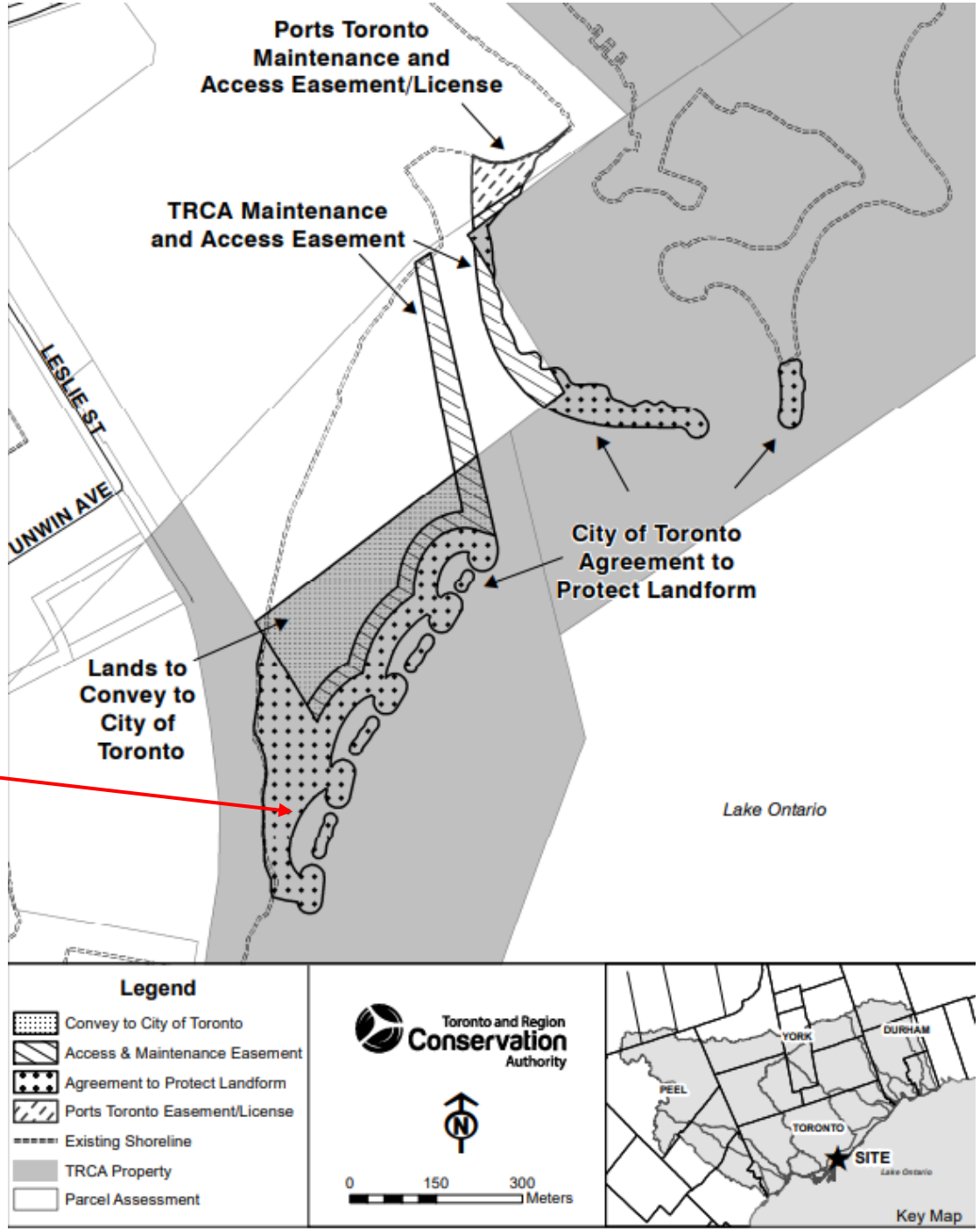
Toronto and Region Conservation for The Living City

Offsite Aquatic Habitat Compensation



Layers of Land Ownership and Management

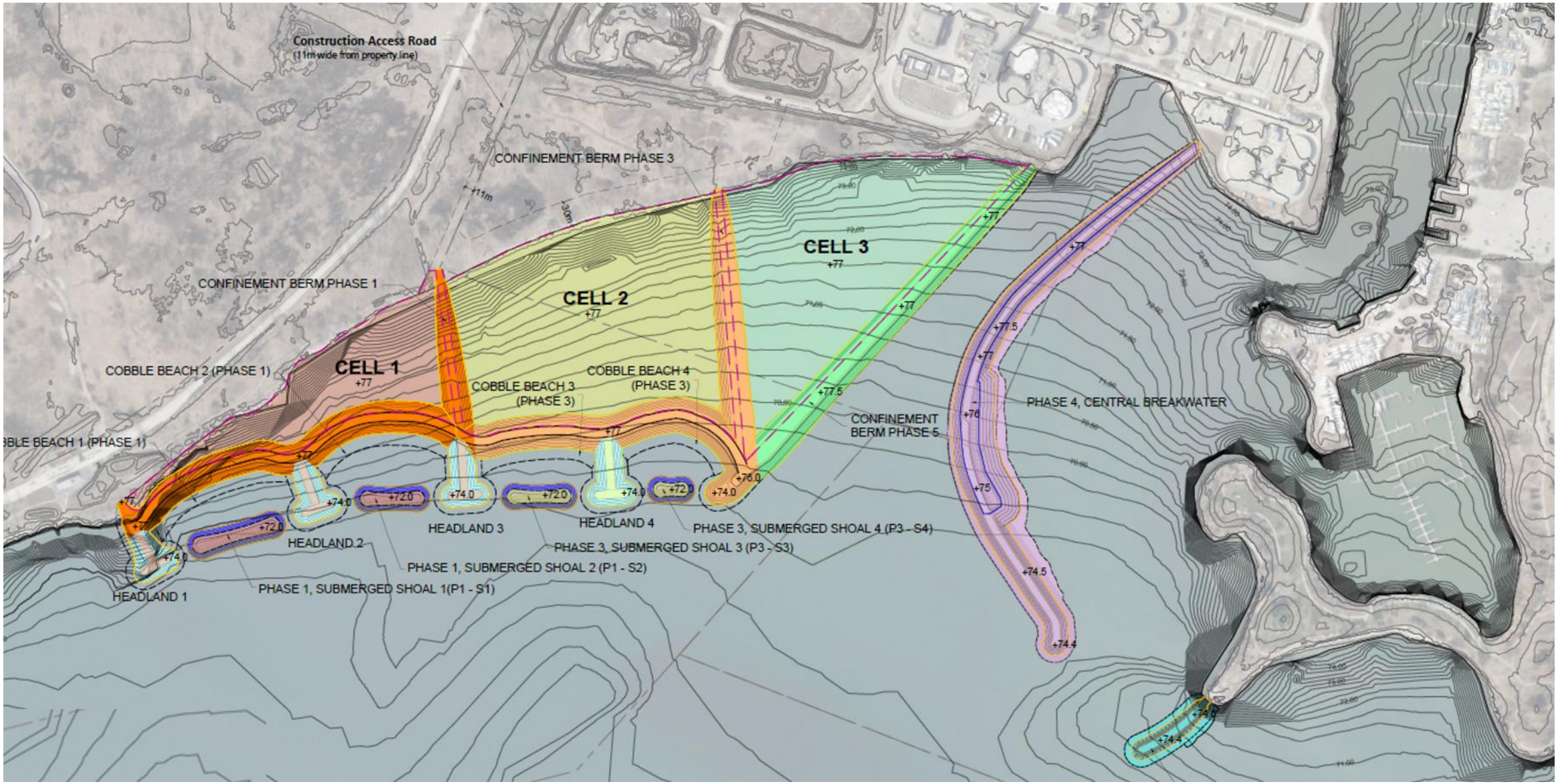
- 22 ha of ‘bottom area’ for the landform and breakwaters
- ~16.5 ha of landbase on the main landform
- ~3 ha of landbase will be added to Tommy Thompson Park
- A public trail is proposed along the shoreline of the main landform
- The remainder of the main landform will be used for Toronto Water infrastructure



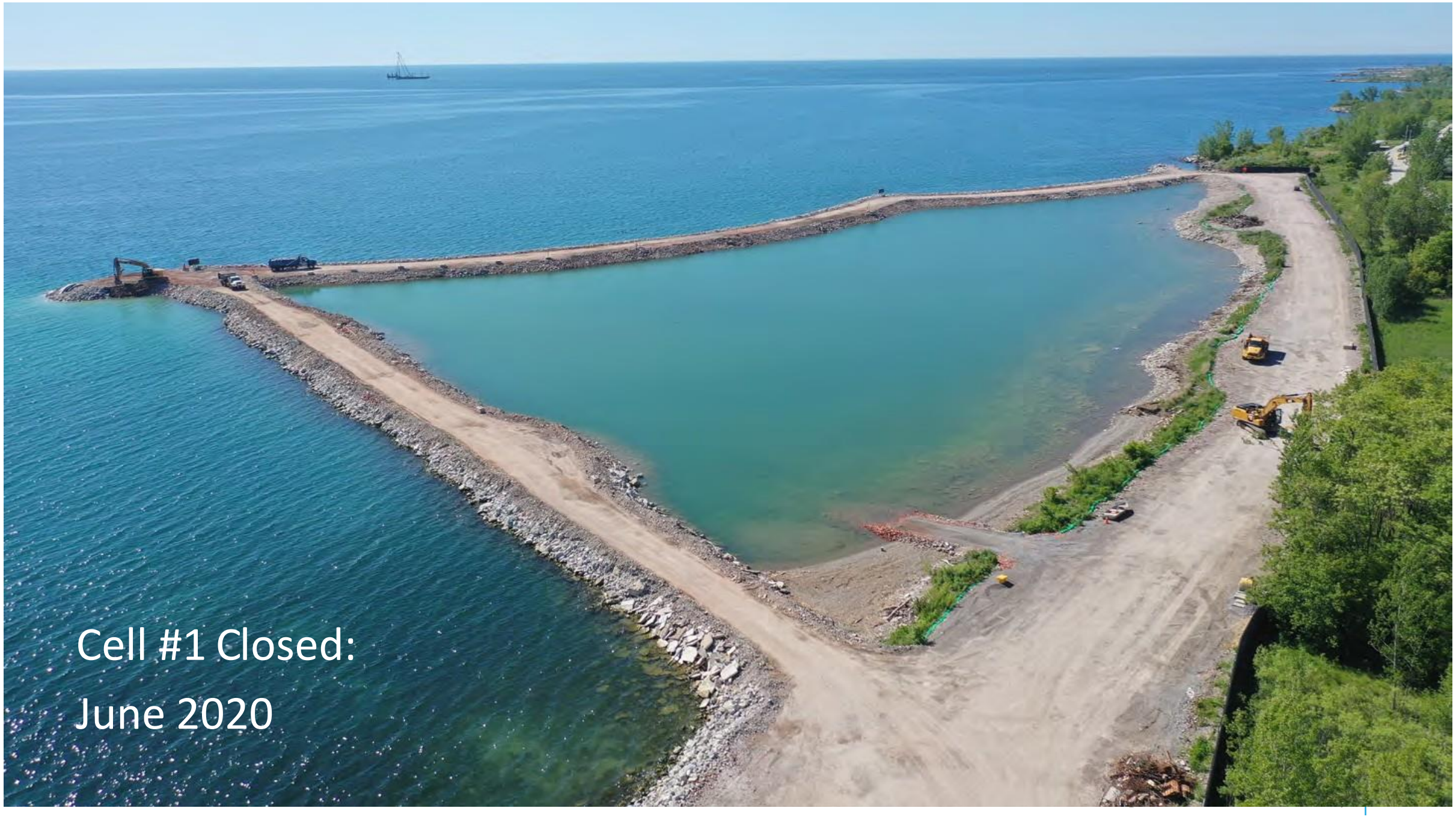
CONSTRUCTION

Landform Construction

- Fill material: Rock (shale) from City of Toronto projects:
  - Coxwell by-pass tunnel
  - Treated effluent outfall tunnel
  - Integrated pumping station, tunnels and adits
- Strict quality criteria - Fill Quality Guide and Good Management Practices for Shore Infilling
- Available storage capacity: 756,000 m^3
- Estimated savings: up to $20M


Construction Access Road
(11m wide from property line)
CONFINEMENT BERM PHASE 3
CONFINEMENT BERM PHASE 1
CELL 1
CELL 2
CELL 3
COBBLE BEACH 2 (PHASE 1)
COBBLE BEACH 3
(PHASE 3)
COBBLE BEACH 4
(PHASE 3)
CONFINEMENT
BERM PHASE 5
PHASE 4, CENTRAL BREAKWATER
HEADLAND 1
HEADLAND 2
HEADLAND 3
HEADLAND 4
PHASE 1, SUBMERGED SHOAL 1(P1 - S1)
PHASE 1, SUBMERGED SHOAL 2 (P1 - S2)
PHASE 3, SUBMERGED SHOAL 3 (P3 - S3)
PHASE 3, SUBMERGED SHOAL 4 (P3 - S4)

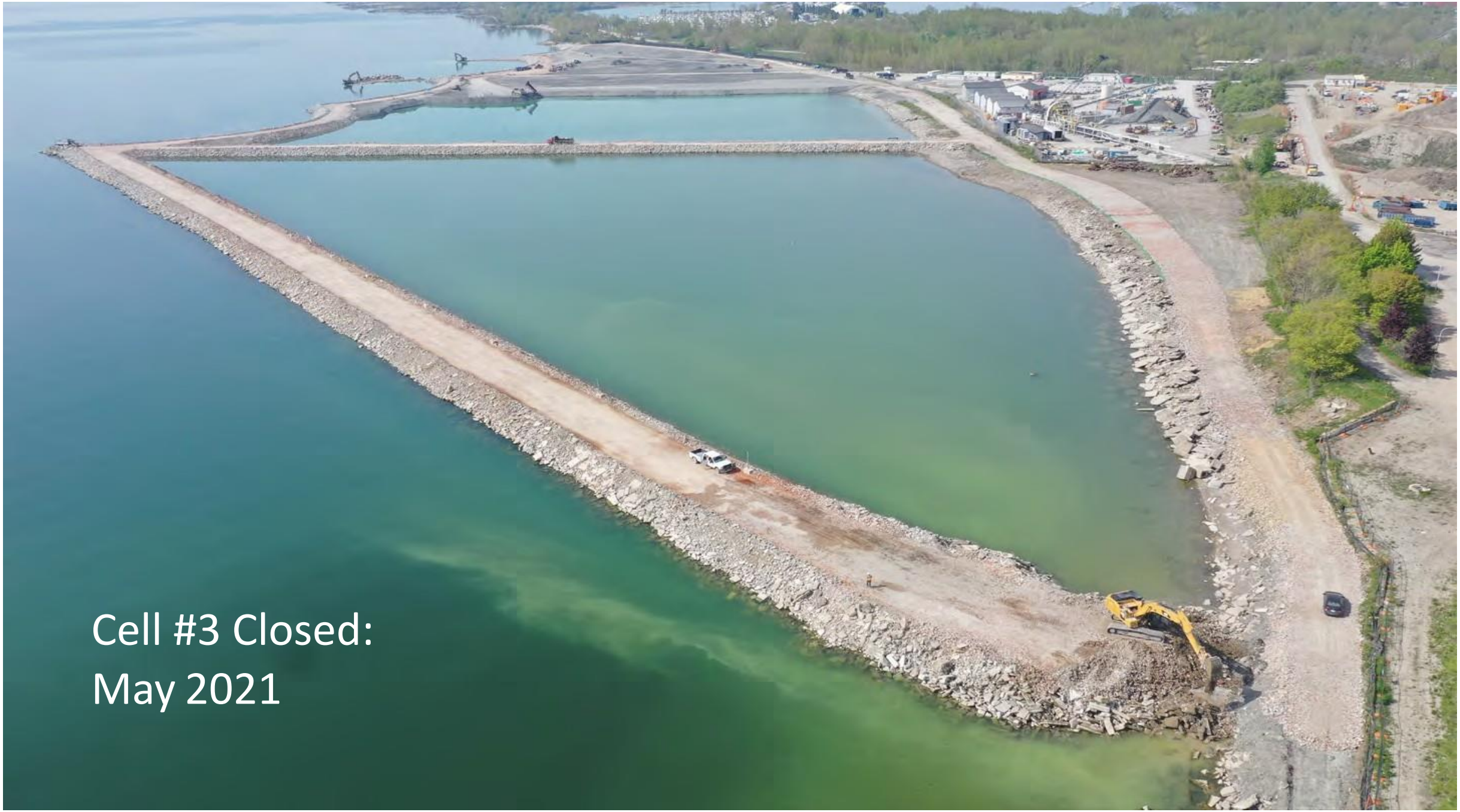

Cell #1 Started:
January 2020


Cell #1 Closed:
June 2020


Cell #2 Closed:
October 2020

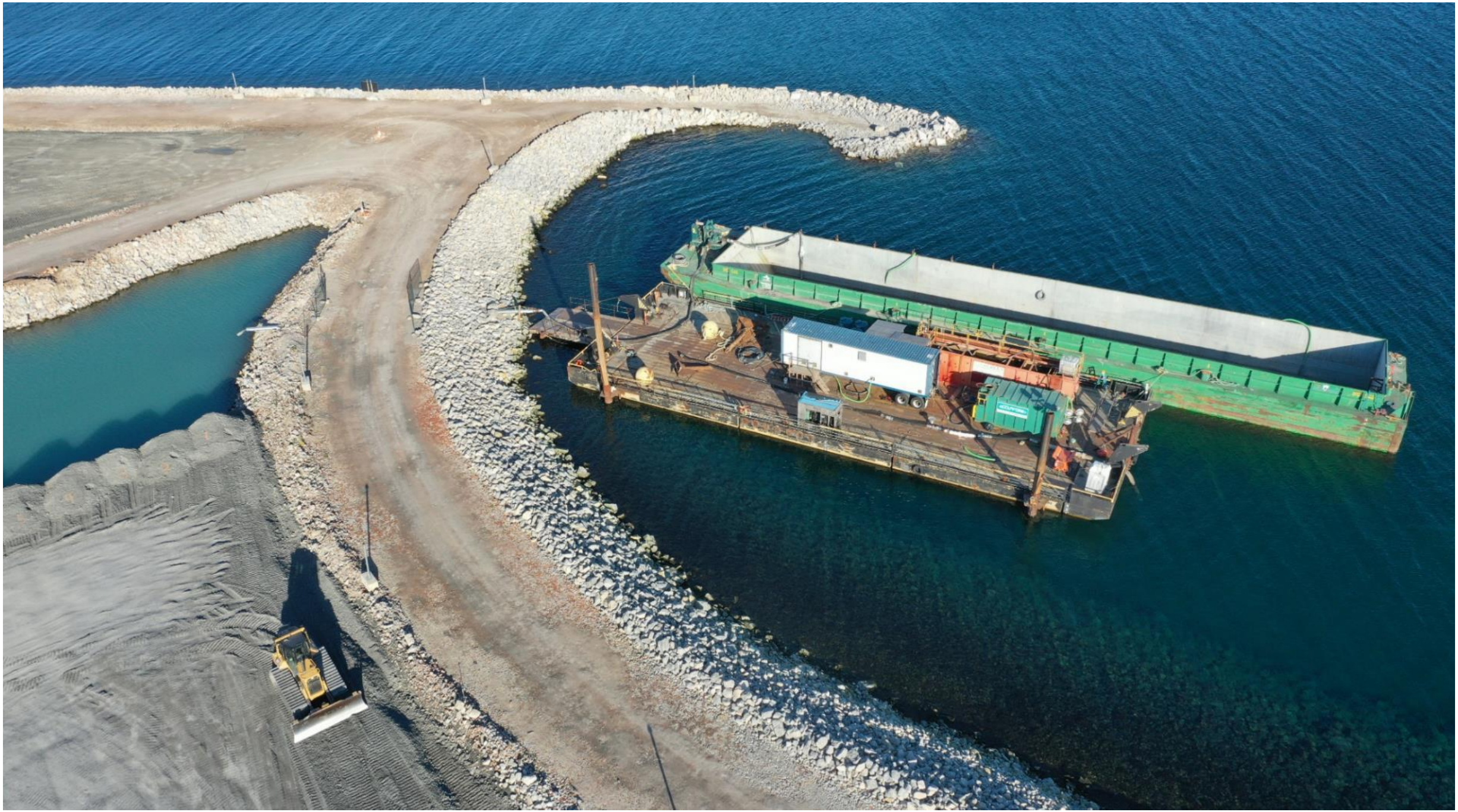

Eastern Breakwater Complete:
December 2020


Cell #1 Filled:
January 2021

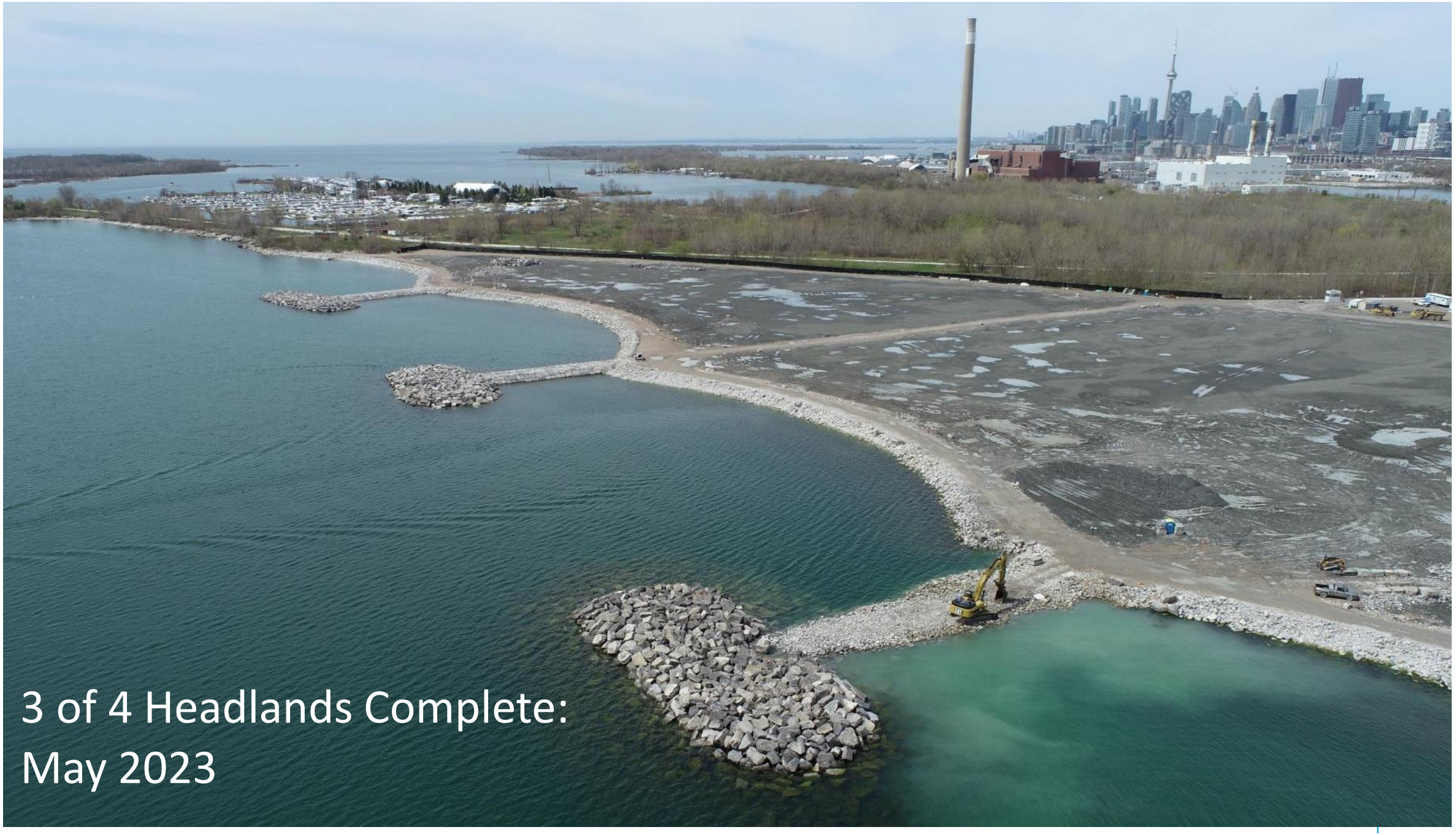

Cell #3 Closed:
May 2021

Headlands Construction: July 2021


Cell #2 Filling:
November 2021




Cell #3 Filled:
April 2023


3 of 4 Headlands Complete:
May 2023


Central Breakwater:
August 2023

Summary

- Undertaking the planning to find a remedial solution for TRCA's erosion and sediment issues was complicated due to a large number of other planning initiatives underway in the study area.

- By waiting to progress planning to address this issue the project was able to integrate infrastructure approved through other planning processes to ensure the best use of resources and minimize impacts environmentally and socially.

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Toronto and Region Conservation Authority