Appendix V5-6X

Fish Bearing Status of Four Ponds in Proximity to Boston, 2017

Memorandum

Date:	November 20, 2017
To:	Oliver Curran and John Roberts, TMAC Resources Inc.
From:	Véronique Thériault and Geneviève Morinville, ERM Consultants Canada
Cc:	Nicole Bishop, ERM and Marc Wen, ERM
Subject:	**Fish-bearing Status of Four Ponds in Proximity to Boston, 2017**

1.   INTRODUCTION

This memorandum summarizes the fish community and fish habitat surveys completed for four ponds in summer 2017. Surveys were performed to assess suitability for use as alternative Water Management Ponds to support water management options at Boston as part of the Madrid-Boston Final Environmental Impact Statement (FEIS).

2.   ERM ASSESSMENT

Four ponds (Figure 1) were visited and assessed for fish-bearing status and fish habitat littoral characteristics between August 2 and August 10, 2017 to determine if the ponds were fish-bearing (Table 1). A total of three fishing techniques were used: minnow trap, electrofishing and gillnetting. Ninespine sticklebacks were observed and caught at Boston Pond 1 and Boston Pond 2 by minnow trapping and electrofishing. No fish were observed or captured in Boston Pond 3 and Boston Pond 4.

Table 1. Summary of Assessed Ponds during 2017 Surveys

Pond	Dates	Surface Area (m²)	Max Depth (m)[1]	Fishing Gear[2]	Fishing Effort[3]	Fish-bearing Status Y/N	Fish-bearing Status Species[4]
Boston Pond 1	August 2, 2017	68,980	3	MT / EF	13.3 / 514	Y	NNSB
Boston Pond 2	August 2, 2017	36,625	2	MT / EF	16.1 / 500	Y	NNSB
Boston Pond 3	August 2, 6 and 10, 2017	80,365	2 to 3	MT / EF / SGN	39.9 / 1,005 / 5	N	NA
Boston Pond 4	August 2, 6 and 10, 2017	10,520	1	MT / EF	74 / 1,008	N	NA

Notes:

NA = Not applicable

[1] Maximum (Max) Depth was approximated in meters from land and aerial observations

[2] Fishing gear: MT = Minnow Trap, EF = Electrofishing, SGN = Sinking Gillnet

[3] Fishing effort: MT = hours, number of hours per trap x number of traps, EF = seconds, number of seconds total, SGN = number of hours per gillnet x number of net sets

[4] Species: NSSB = Ninespine Stickleback

2.1 Boston Pond 1

Fish-bearing: Minnow traps (4 traps for 3h20) and electrofishing (514 seconds). Boston Pond 1 (Figure 1; Plate 1) has a surface area of 68,980 m² and has a maximum depth of approximately 3 m. Its outflow towards Aimaokatalok Lake was assessed for fish-bearing status at road crossing C-MBR-17 on July 26, 2017 and stickleback were captured. Downstream of the road crossing location the connectivity to Aimaokatalok Lake for fish passage was poor in June and July 2017 (data not included).

Plate 1. Aerial photo of Boston Pond 1, August 2, 2017.

2.2 Boston Pond 2

Fish-bearing: Minnow traps (3 traps for 5h22) and electrofishing (500 seconds). Boston Pond 2 (Figure 1; Plate 2) has a surface area of 36,625 m² and a maximum depth of approximately 2 m. Its outflow towards Pond 1 was dry during August 2017 survey dates.

2.3 Boston Pond 3

Non-fish-bearing: Minnow traps (9 traps for 3h40 to 5h30 for a total of 39.9 h), electrofishing (1,005 seconds) and gillnetting (5 h). Boston Pond 3 (Figure 1; Plate 3) has a surface area of 80,365 m² and a maximum depth of approximately 3 m. The outflow towards Trout Lake was dry coming out of the pond but merged with some flow from a surface drainage to the west. The channel was wetted over a section but did not appear to be connected to Trout Lake at 2017 August flow levels. No flowing inflows were observed along the pond's perimeter during surveys.

Figure 1
2017 Fish Presence in Sampled Freshwater Habitats, 1993-2017

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Proj # 0394395-0007 | GIS # HB-06-265

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Date: November 20, 2017
Projection: NAD 1983 UTM Zone 13N

Fish Presence

No Fish Caught
Fish Present

Sampling Technique (2017)

Minnow Trap
Electrofisher
Gillnet

Wetland
Watershed
Local Study
Regional Study
Permitted Infrastructure
Proposed Madrid-Boston Infrastructure and Facilities
Project Development

1:75,000

0   2.5   5
Kilometres

Pond Q25
Pond Q24
Pond Q10
Boston Pond 1
Boston Pond 2
Boston Pond 3
Boston Pond 4
Trout Inflow
Trout Outflow
Trout Lake
Stickleback Lake
Stickleback Outflow
Pond Q11
Q23
Aimaokatalok River
Aimaokatalok Lake
Aimaokatalok Outflow
Pond Q08
Aimaokatalok Inflow BP10
Boulder Creek Tributary
Reference Lake Boston

DORIS
MADRID NORTH
MADRID SOUTH
BOSTON
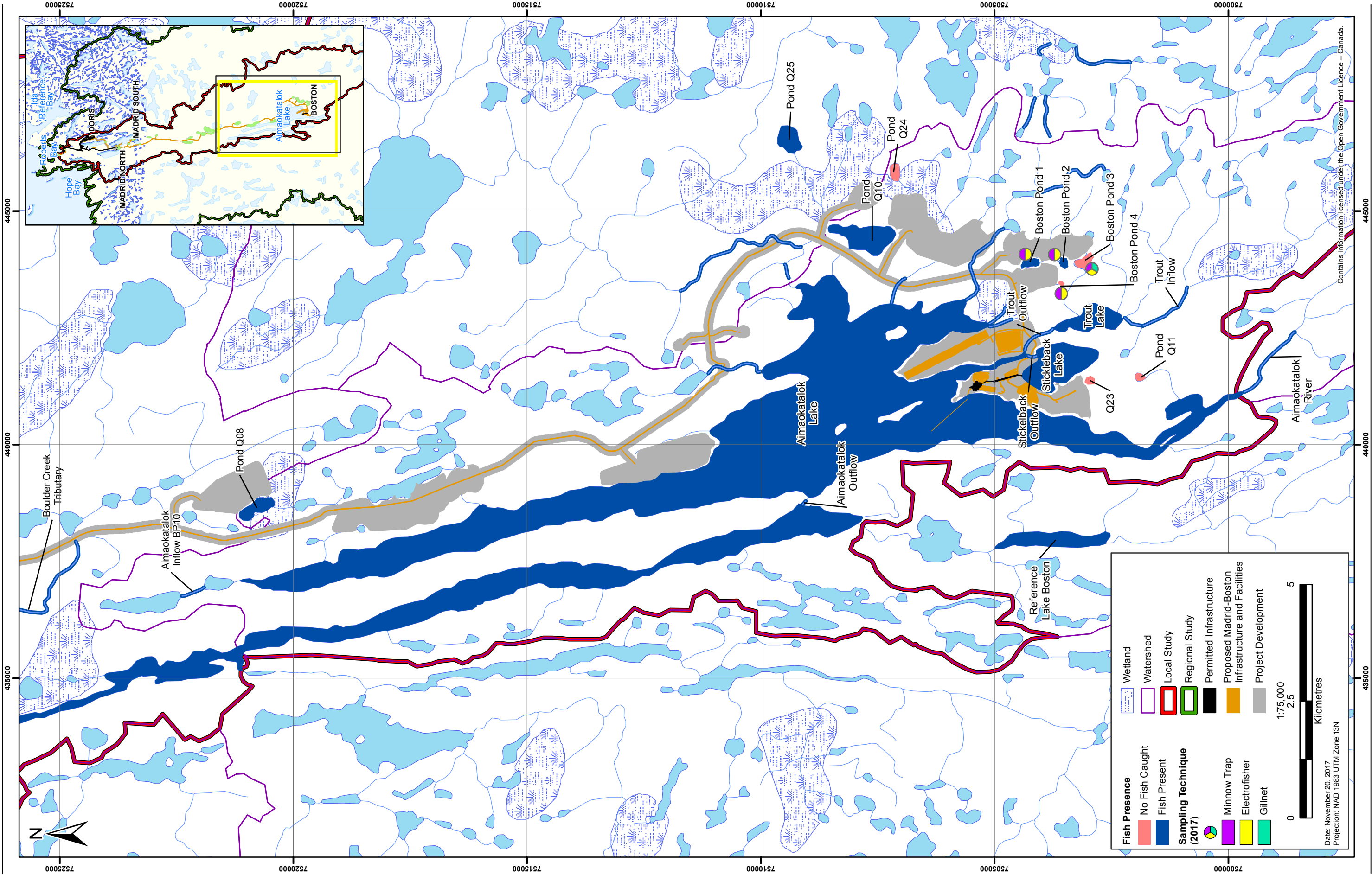Aimaokatalok Lake
Hope Bay
Tidal Reference Bay
Roberts Bay

Plate 2. Aerial photo of Boston Pond 2. Boston Pond 1 is in the background, August 2, 2017.

Plate 3. Aerial photo of Boston Pond 3, August 2, 2017.

2.4   Boston Pond 4

Non-fish-bearing: Minnow traps (20 traps for 1h to 5h for a total of 74 h), electrofishing (1,008 seconds). Boston Pond 4 (Figure 1; Plate 4) has a surface area of 10,520 m² and a maximum depth of approximately 1 m. The outflow towards Aimaokatalok Lake was dry on survey dates. This outflow was assessed downstream at road crossing C-MBR-18 in June and July; during both visits the outflow was assessed as a Non-Classified Drainage (NCD). The area was wetted but the connectivity for fish passage was very poor (data not included).
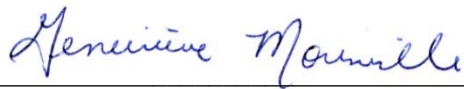

Plate 4. Aerial photo of Boston Pond 4, August 2, 2017.

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