Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-101-1 **Dates Surveyed:** 4 July & 2 September, 2018 **UTM Coordinates:** 17 W 554664 7915456

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 3-10° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

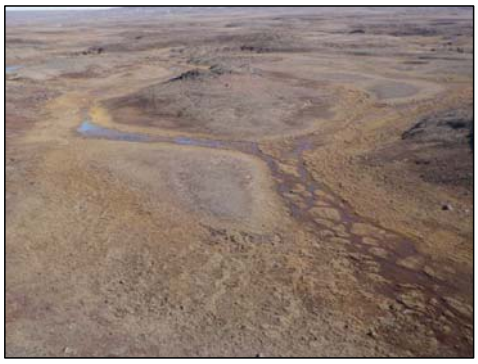
Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was shallow, broad, and often lacking a defined channel, particularly upstream and downstream of the rail alignment. In addition, surface flow periodically disappeared. There was no access from overwintering waterbodies. This site was also surveyed in 2017 with the same results. There is no fish use of habitat at this crossing.

Photographs

A



B

Figure 1. Views of CV-101-1 at the crossing during summer (A) and fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-101-1a | **Dates Surveyed:** 4 July & 2 September, 2018 | **UTM Coordinates:** 17 W 554772 7915455

General Physical Characteristics

Channel Confinement: UC | **Channel Gradient (range):** 1-8° | **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished | **Effort (min):** N/A | **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was very shallow, marshy habitat with periodic surface flow and no connections to overwintering habitat. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-101-1a at the crossing during summer (A) and fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-101-1b | **Dates Surveyed:** 4 July & 2 September, 2018 | **UTM Coordinates:** 17 W 554885 7915454

General Physical Characteristics

Channel Confinement: UC | **Channel Gradient (range):** 1-8° | **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished | **Effort (min):** N/A | **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was very shallow, broad and rocky with periodic surface flow loss and no connections to overwintering habitat. There is no fish use of habitat at this crossing.

Photographs

A

Figure 1. Views of CV-101-1b at the crossing during summer (A).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-101-2 **Dates Surveyed:** 4 July & 2 September, 2018 **UTM Coordinates:** 17 W 555200 7915449

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 1-8° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was very shallow, broad, lacked a defined channel, and had periodic surface flow loss and no connections to overwintering habitat. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-101-2 at the crossing during summer (A) and fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

General Physical Characteristics

Channel Confinement: C **Channel Gradient (range):** 2-5° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
60D	55.0	23.0 / 22.0	- / -	- / -	0.30 / 0.54-	>2.00 / >2.00	- / -	- / -	0.70 / 32	>1.00 / >1.00
40D	35.0	28.0 / 26.0	- / -	- / -	- / -	>2.00 / >2.00	- / -	- / -	- / -	>1.00 / >1.00
20D	33.0	27.0 / -	- / -	- / -	0.30 / -	>2.00 / >2.00	- / -	- / -	0.17 / -	>1.00 / >1.00
0	28.0	27.0 / -	- / -	- / -	- / -	>2.00 / >2.00	- / -	- / -	- / -	>1.00 / >1.00
20U	29.0	27.0 / -	- / -	- / -	0.34 / -	>1.00 / >2.00	- / -	- / -	0.82 / -	>1.00 / >1.00
40U	26.0	26.0 / -	- / -	- / -	- / -	>1.00 / >2.00	- / -	- / -	- / -	>1.00 / >1.00
60U	6.0	4.0 / -	- / -	- / -	- / -	>1.00 / >2.00	- / -	- / -	- / -	>1.00 / >1.00

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
60D	30	10	50	10	-	-	10	10	10	55	15
40D	30	15	50	5	-	-	30	15	35	15	5
20D	60	5	25	10	-	-	40	20	20	10	10
0	60	10	30	-	-	-	40	20	20	10	10
20U	60	-	-	40	-	-	-	-	10	10	80
40U	40	5	5	50	-	-	30	25	20	20	5
60U	80	10	10	-	-	-	10	-	10	10	70

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - IMPORTANT

Ninespine Stickleback – NOT FISH-BEARING

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Fisheries Data

Gear Used: Not fished **Transect length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	-	N/A	N/A	N/A
	Fall	-	N/A	N/A	N/A
NNST	Summer	-	N/A	N/A	N/A
	Fall	-	N/A	N/A	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	L	H	L
NNST	N	N	N	N

Comments & Summary

This rail crossing is a short distance upstream from Tote Road crossing CV-223 (also known as the Tom River), which has consistently provided abundant, important fish habitat for multiple size classes of juvenile char throughout the open-water period. The deep, high-velocity habitat makes backpack electrofishing this reach of the river unsafe, but many fish could be easily observed in the deep pools. NOTE: fall survey was actually conducted from 160 m DS to 40 m DS of the crossing due to a GPS issue, but this river shows negligible change from summer to early fall.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - IMPORTANT** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-102-1 at the 60 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

A B C

Figure 2. Summer (top) and fall (bottom) views of CV-102-1 at the 40 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

NO PHOTO

NO PHOTO

NO PHOTO

A **B** **C**

Figure 3. Summer (top) and fall (bottom) views of CV-102-1 at the 20 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

NO PHOTO

NO PHOTO

NO PHOTO

A **B** **C**

Figure 4. Summer (top) and fall (bottom) views of CV-102-1 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

NO PHOTO

NO PHOTO

NO PHOTO

A **B** **C**

Figure 5. Summer (top) and fall (bottom) views of CV-102-1 at the 20 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

NO PHOTO

NO PHOTO

NO PHOTO

A **B** **C**

Figure 6. Summer (top) and fall (bottom) views of CV-102-1 at the 40 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1 **Dates Surveyed:** 6 July & 2 September, 2018 **UTM Coordinates:** 17 W 555728 7915442

Photographs

NO PHOTO

NO PHOTO

NO PHOTO

A **B** **C**

Figure 7. Summer (top) and fall (bottom) views of CV-102-1 at the 60 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-1a | **Dates Surveyed:** 4 July & 2 September, 2018 | **UTM Coordinates:** 17 W 555891 7915441

General Physical Characteristics

Channel Confinement: UC | **Channel Gradient (range):** 1-5° | **Flow Regime:** Intermittent

Fisheries Data

Gear Used: Not Fished | **Effort (min):** N/A | **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was a nearly dry spot that is never connected to fish habitat. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-102-1a at the crossing during summer (A) and fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

General Physical Characteristics

Channel Confinement: Confined **Channel Gradient (range):** 4° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	14.8	7.8 / 7.2	0.04 / 0.08	0.02 / -	0.06 / 0.04	0.08 / 0.08	0.08 / 0.11	0.09 / -	0.15 / 0.11	0.15 / 0.12
80D	9.4	1.4 / 2.7	0.06 / -	0.14 / 0.14	0.06 / -	0.15 / 0.15	0.03 / -	0.06 / 0.20	0.40 / -	0.40 / 0.35
60D	6.8	1.9 / 1.3	0.14 / 0.06	0.08 / -	0.06 / 0.04	0.15 / 0.10	0.29 / 0.47	0.21 / -	0.02 / 0.15	0.35 / 0.50
40D	6.9	4.0 / 1.6	0.02 / 0.04	0.02 / -	0.06 / 0.10	0.10 / 0.10	0.39 / 0.21	0.33 / -	0.24 / 0.20	0.45 / 0.30
20D	14.7	3.1 / 2.0	0.06 / -	0.06 / 0.13	0.14 / -	0.18 / 0.13	0.00 / -	0.01 / 0.07	0.06 / -	0.06 / 0.07
0	9.5	5.3 / 2.8	0.10 / 0.04	0.01 / -	0.04 / 0.08	0.10 / 0.08	0.11 / 0.38	0.28 / -	0.35 / 0.37	0.35 / 0.40
20U	13.3	2.6 / 4.5	0.20 / 0.22	0.08 / -	0.02 / 0.08	0.20 / 0.22	0.06 / 0.01	0.08 / -	0.00 / 0.22	0.10 / 0.22
40U	8.6	2.0 / 2.9	0.02 / 0.02	0.06 / -	0.01 / 0.06	0.08 / 0.06	0.14 / 0.03	0.14 / -	0.00 / 0.18	0.20 / 0.20
60U	7.6	4.3 / 3.8	0.04 / 0.04	0.04 / -	0.10 / 0.04	0.10 / 0.06	0.00 / 0.12	0.05 / -	0.12 / 0.11	0.15 / 0.15
80U	6.8	5.5 / 4.0	0.10 / 0.10	0.02 / -	0.02 / 0.04	0.10 / 0.10	0.09 / 0.11	0.03 / -	0.08 / 0.04	0.10 / 0.15
100U	7.9	5.3 / 5.3	0.05 / 0.06	0.03 / -	0.03 / 0.10	0.08 / 0.10	0.09 / 0.12	0.11 / -	0.20 / 0.07	0.20 / 0.20

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	60	40	-	-	-	-	5	15	80	-	-
80D	60	40	-	-	-	-	5	10	80	5	-
60D	55	45	-	-	-	-	-	40	45	15	-
40D	78	22	-	-	-	-	-	5	80	15	-
20D	30	70	-	-	-	-	30	35	35	-	-
0	45	55	-	-	-	-	25	45	30	-	-
20U	20	80	-	-	-	-	30	65	5	-	-
40U	28	72	-	-	-	-	-	55	45	-	-
60U	50	50	-	-	-	-	-	20	80	-	-
80U	55	45	-	-	-	-	-	5	90	5	-
100U	60	40	-	-	-	-	-	5	90	5	-

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - IMPORTANT

Ninespine Stickleback – NOT FISH-BEARING

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	3.77	12	3.19	77 - 108
	Fall	5.88	0	-	N/A
NNST	Summer	3.77	0	-	N/A
	Fall	5.88	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	L
NNST	N	N	N	N

Comments & Summary

Several hundred metres upstream of CV-224 on the Tote Road. This stream provides important rearing habitat for smaller juvenile Arctic Char throughout the open-water season, but particularly during summer. During fall sampling, water temperatures in survey streams averaged approximately 5°C and fish had already begun downstream movements towards overwintering habitat.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - IMPORTANT** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-102-2 at the 100 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A **B** **C**

Figure 2. Summer (top) and fall (bottom) views of CV-102-2 at the 80 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 3. Summer (top) and fall (bottom) views of CV-102-2 at the 60 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 4. Summer (top) and fall (bottom) views of CV-102-2 at the 40 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 5. Summer (top) and fall (bottom) views of CV-102-2 at the 20 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A **B** **C**

Figure 6. Summer (top) and fall (bottom) views of CV-102-2 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 7. Summer (top) and fall (bottom) views of CV-102-2 at the 20 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A **B** **C**

Figure 8. Summer (top) and fall (bottom) views of CV-102-2 at the 40 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A **B** **C**

Figure 9. Summer (top) and fall (bottom) views of CV-102-2 at the 60 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 10. Summer (top) and fall (bottom) views of CV-102-2 at the 80 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-2 **Dates Surveyed:** 06 July & 2 September, 2018 **UTM Coordinates:** 17 W 556019 7915438

Photographs

A B C

Figure 11. Summer (top) and fall (bottom) views of CV-102-2 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-3 **Dates Surveyed:** 4 July & 2 September, 2018 **UTM Coordinates:** 17 W 556373 7915485

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 2-8° **Flow Regime:** Intermittent

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

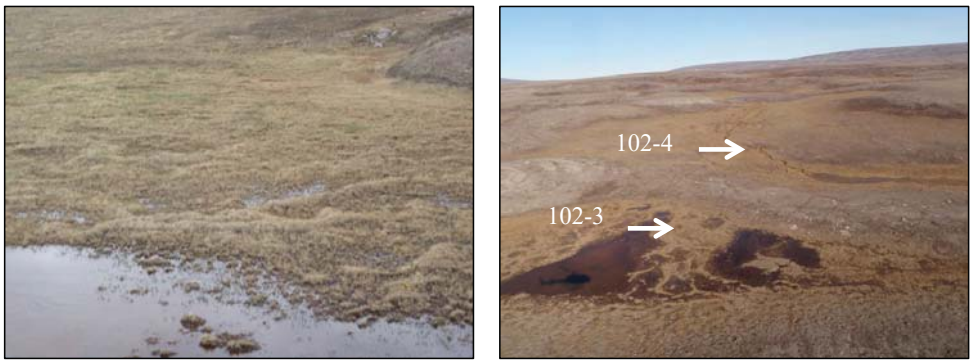
Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was a marshy area that has periodic surface flow loss and is never connected to fish habitat. There is no fish use of habitat at this crossing.

Photographs



A **B**

Figure 1. Views of CV-102-3 at the crossing during summer (A) and during fall with nearby 102-4 (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-4 **Dates Surveyed:** 4 July & 2 September, 2018 **UTM Coordinates:** 17 W 556461 7915488

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 2-10° **Flow Regime:** Intermittent

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

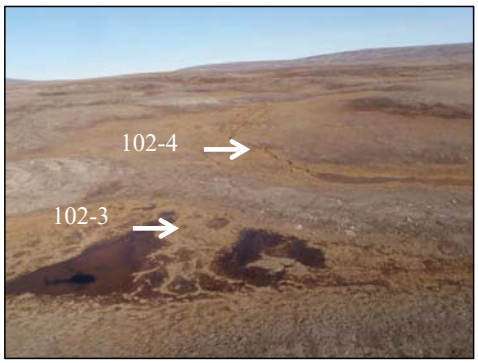
Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was shallow, steep and shared all the same downstream barriers (loss of surface flow) as CV-102-3. There is no fish use of habitat at this crossing.

Photographs

A



B

Figure 1. Views of CV-102-4 at the crossing during summer (A) and during fall with nearby 102-3 (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-102-5 **Dates Surveyed:** 4 July & 2 September, 2018 **UTM Coordinates:** 17 W 557111 7915356

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 5 to > 10° **Flow Regime:** Intermittent

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was nearly dry, steep, and lacked surface flow downstream. In addition, there is a permanent vertical barrier between the crossing and the nearest overwintering habitat. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-102-5 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

General Physical Characteristics

Channel Confinement: C **Channel Gradient (range):** 8-10° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	TOTE ROAD CROSSING									
80D										
60D										
40D	11.5	- / 8.0	- / 0.06	- / 0.10	- / 0.07	- / 0.20	- / 0.51	- / 0.35	- / 0.23	- / 0.60
20D	7.4	- / 4.4	- / 0.09	- / 0.14	- / 0.22	- / 0.25	- / 0.23	- / 0.75	- / 0.09	- / 0.80
0	9.0	8.0 / 5.4	0.10 / 09	0.25 / 0.15	0.12 / 0.12	0.30 / 0.20	0.23 / 0.21	1.01 / 0.24	0.50 / 0.36	1.20 / 0.50
20U	17.0	15.5 / 9.5	0.18 / 0.10	0.15 / 0.15	0.12 / 0.16	0.25 / 0.20	0.52 / 0.14	0.79 / 0.13	0.13 / 0.58	0.85 / 0.65
40U	10.0	6.5 / 4.7	0.37 / 0.17	0.20 / 0.13	0.10 / 0.14	0.40 / 0.25	0.96 / 0.75	0.21 / 0.59	0.29 / 0.46	1.10 / 0.85
60U	10.0	9.5 / 8.0	0.22 / 0.17	0.12 / 0.10	0.20 / 0.26	0.25 / 0.30	0.66 / 0.58	0.86 / 0.54	0.33 / 0.03	1.00 / 0.65
80U	7.0	6.0 / 2.9	0.28 / 0.25	0.16 / 0.08	- / 0.18	0.30 / 0.30	0.52 / 0.55	1.36 / 0.75	- / 0.32	1.50 / 0.80
100U	8.0	7.5 / 5.8	0.26 / 0.14	0.22 / 0.17	0.14 / 0.06	0.30 / 0.25	0.84 / 0.17	0.65 / 0.21	0.72 / 0.19	1.00 / 0.30

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	TOTE ROAD CROSSING										
80D											
60D											
40D	60	40	-	-	-	-	-	-	80	20	-
20D	60	35	5	-	-	-	-	-	80	20	-
0	20	10	30	-	40	-	-	-	70	25	5
20U	20	10	30	-	40	-	-	-	60	35	5
40U	10	15	15	-	60	-	-	-	55	35	10
60U	5	25	10	-	60	-	-	-	50	35	15
80U	5	15	15	-	65	-	-	-	20	65	15
100U	5	15	15	-	65	-	-	-	20	65	15

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - IMPORTANT

Ninespine Stickleback – NOT FISH-BEARING

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Fisheries Data

Gear Used: Backpack Electrofisher **Transect length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	4.90	11	2.24	78 - 119
	Fall	4.53	3	0.66	88 - 153
NNST	Summer	4.90	0	-	N/A
	Fall	4.53	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	N
NNST	N	N	L	N

Comments & Summary

This rail crossing is a short distance upstream from Tote Road crossing CV-225, which has consistently provided important fish habitat for juvenile char throughout the open-water period.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - IMPORTANT** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A

B

C

Figure 1. Summer (top) and fall (bottom) views of CV-103-1 at the 40 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A

B

C

Figure 2. Summer (top) and fall (bottom) views of CV-103-1 at the 20 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A B C

Figure 3. Summer (top) and fall (bottom) views of CV-103-1 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A **B** **C**

Figure 4. Summer (top) and fall (bottom) views of CV-103-1 at the 20 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A **B** **C**

Figure 5. Summer (top) and fall (bottom) views of CV-103-1 at the 40 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A B C

Figure 6. Summer (top) and fall (bottom) views of CV-103-1 at the 60 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A B C

Figure 7. Summer (top) and fall (bottom) views of CV-103-1 at the 80 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-103-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557447 7915244

Photographs

A **B** **C**

Figure 8. Summer (top) and fall (bottom) views of CV-103-1 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557574 7915202

General Physical Characteristics

Channel Confinement: C **Channel Gradient (range):** 5 to > 10° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was shallow and narrow with a permanent vertical barrier downstream near the confluence with CV-103-1. There is no access to this site from overwintering habitat. There is no fish use of habitat at this crossing.

Photographs

A B C

Figure 1. Views of CV-104-1 at the crossing during summer, looking upstream (A) downstream (B) and across (C).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-1 **Dates Surveyed:** 10 July & 30 August, 2018 **UTM Coordinates:** 17 W 557574 7915202

Photographs

A **B** **C**

Figure 2. Views of CV-104-1 at the crossing during fall, looking upstream (A) downstream (B) and across (C).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING**
			Ninespine Stickleback – NOT FISH-BEARING

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

General Physical Characteristics

Channel Confinement: PC **Channel Gradient (range):** 4-5° **Flow Regime:** Intermittent

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	6.8	2.3 / 1.0	0.02 / -	0.07 / 0.06	0.04 / -	0.10 / 0.10	0.19 / -	0.06 / 0.29	0.24 / -	0.25 / 0.30
50D	3.7	3.4 / 3.0	0.06 / 0.04	0.05 / 0.04	- / 0.03	0.10 / 0.10	0.12 / 0.07	0.14 / 0.15	- / 0.24	0.20 / 0.25
0	3.3	1.2 / 1.3	- / -	0.11 / 0.20	- / -	0.15 / 0.15	- / -	0.62 / 0.41	- / -	0.65 / 0.50
50U	10.0	8.9 / 7.6	0.05 / 0.02	0.03 / 0.02	0.03 / 0.02	0.10 / 0.05	0.25 / 0.07	0.37 / 0.05	0.38 / 0.13	0.40 / 0.20
100U	23.2	9.0 / 7.4	0.03 / 0.06	0.08 / 0.03	0.05 / 0.08	0.10 / 0.10	0.03 / 0.11	0.18 / 0.14	0.24 / 0.31	0.30 / 0.35

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	70	30	-	-	-	-	-	25	75	-	-
50D	60	40	-	-	-	-	-	30	70	-	-
0	80	20	-	-	-	-	-	15	85	-	-
50U	30	25	-	-	45	-	-	10	80	10	-
100U	25	25	-	-	50	-	-	5	80	15	-

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - NOT FISH-BEARING

Ninespine Stickleback – NOT FISH-BEARING

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	-	N/A	N/A	N/A
	Fall	2.12	0	-	N/A
NNST	Summer	-	N/A	N/A	N/A
	Fall	2.12	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

Fish were not captured or observed in 2018, but no barrier between the crossing and downstream Tote Road stream BG-01 was identified. Fish should have access, but may be prevented by relatively low water levels compared with the much larger BG-01.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Photographs

A B C

Figure 1. Summer (top) and fall (bottom) views of CV-104-2 at the 100 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Photographs

A B C

Figure 2. Summer (top) and fall (bottom) views of CV-104-2 at the 50 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Photographs

A B C

Figure 3. Summer (top) and fall (bottom) views of CV-104-2 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Photographs

A B C

Figure 4. Summer (top) and fall (bottom) views of CV-104-2 at the 50 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557882 7915099

Photographs

A B C

Figure 5. Summer (top) and fall (bottom) views of CV-104-2 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-3 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 557574 7915202

General Physical Characteristics

Channel Confinement: PC **Channel Gradient (range):** 1-5° **Flow Regime:** Intermittent

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This is a very small side channel of CV-104-2 that likely only occasionally has sufficient water levels to support fish use. Fish were not observed during either survey in 2018. Fish use of habitat at this crossing is intermittent.

Photographs

A **B** **C**

Figure 1. Views of CV-104-3 at the crossing during summer (A), fall (B) and looking downstream towards CV-104-2 (C).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558154 7914976

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** N/A **Flow Regime:** None

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was a dry low point. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-104-4 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

General Physical Characteristics

Channel Confinement: Confined **Channel Gradient (range):** 2-5° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	3.9	3.9 / 2.7	0.13 / 0.33	0.28 / 0.20	0.14 / 0.14	0.40 / 0.35	0.31 / 0.17	0.38 / 0.19	0.64 / 0.21	0.75 / 0.30
80D	2.8	2.8 / 2.5	0.20 / 0.10	0.26 / 0.20	0.29 / 0.18	0.35 / 0.25	0.31 / 25	0.41 / 0.27	0.38 / 0.23	0.50 / 0.35
60D	7.0	6.7 / 4.4	0.11 / 0.06	0.23 / 0.11	0.10 / 0.07	0.25 / 0.15	0.07 / 0.05	0.44 / 0.38	0.32 / 0.35	0.55 / 0.45
40D	7.0	6.8 / 4.6	0.08 / 0.10	0.25 / 0.14	0.12 / 0.15	0.30 / 0.20	0.72 / 0.29	0.59 / 0.35	0.38 / 0.24	0.75 / 0.40
20D	5.4	5.0 / 3.5	0.22 / 0.13	0.18 / 0.13	0.17 / 0.14	0.25 / 0.20	0.21 / 24	0.26 / 0.20	0.36 / 0.31	0.45 / 0.35
0	5.4	5.1 / 3.9	0.08 / 0.14	0.20 / 0.14	0.20 / 0.10	0.25 / 0.20	0.02 / 0.28	0.22 / 0.19	0.35 / 0.07	0.40 / 0.35
20U	5.2	5.0 / 4.5	0.18 / 0.02	0.22 / 0.18	0.10 / 0.09	0.25 / 0.20	0.38 / 0.12	0.38 / 0.37	0.55 / 0.05	0.60 / 0.45
40U	6.0	4.8 / 4.3	0.26 / 0.22	- / 0.22	- / -	0.30 / 0.25	0.55 / 0.10	- / 0.17	- / -	0.65 / 0.20
60U	6.0	5.5 / 4.3	0.18 / 0.23	0.19 / -	- / 0.04	0.25 / 0.25	0.61 / 1.03	1.08 / -	- / 0.34	1.10 / 1.05
80U	8.1	7.7 / 7.2	0.08 / 0.06	0.20 / 0.06	0.08 / 0.09	0.25 / 0.15	0.45 / 0.23	0.26 / 0.31	0.31 / 0.57	0.60 / 0.60
100U	5.5	5.0 / 3.9	0.18 / 0.09	0.10 / 0.18	- / 0.09	0.25 / 0.20	1.13 / 0.41	0.66 / 0.39	- / 0.16	1.15 / 0.60

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	55	25	5	15	-	-	-	-	60	40	-
80D	30	25	5	40	-	-	-	-	80	20	-
60D	60	35	5	-	-	-	-	-	80	20	-
40D	45	25	5	25	-	-	-	-	60	40	-
20D	60	25	5	10	-	-	-	-	60	40	-
0	30	35	5	30	-	-	-	5	60	35	-
20U	20	30	5	45	-	-	-	15	65	20	-
40U	35	30	5	-	30	-	-	-	50	45	5
60U	30	25	5	-	40	-	-	-	60	30	10
80U	55	35	5	-	5	-	-	5	45	45	5
100U	65	25	5	5	-	-	-	-	50	40	10

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	5.70	23	4.04	67 - 100
	Fall	5.18	28	5.40	85 - 157
NNST	Summer	5.70	0	-	N/A
	Fall	5.18	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	H
NNST	N	N	L	L

Comments & Summary

Upstream of BG-01 on the Tote Road. This stream is one of the most important tributaries of Camp Lake and provides important rearing habitat for juvenile Arctic Char throughout the open-water season. Stickleback have occasionally been captured in this stream during Tote Road surveys and were captured upstream of the rail crossing area in 2018.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - IMPORTANT** **Ninespine Stickleback – MARGINAL**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 1. Summer (top) and fall (bottom) views of CV-104-5 at the 100 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 2. Summer (top) and fall (bottom) views of CV-104-5 at the 80 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 3. Summer (top) and fall (bottom) views of CV-104-5 at the 60 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 4. Summer (top) and fall (bottom) views of CV-104-5 at the 40 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 5. Summer (top) and fall (bottom) views of CV-104-5 at the 20 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A **B** **C**

Figure 6. Summer (top) and fall (bottom) views of CV-104-5 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 7. Summer (top) and fall (bottom) views of CV-104-5 at the 20 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 8. Summer (top) and fall (bottom) views of CV-104-5 at the 40 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A **B** **C**

Figure 9. Summer (top) and fall (bottom) views of CV-104-5 at the 60 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 10. Summer (top) and fall (bottom) views of CV-104-5 at the 80 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-104-5 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 558340 7914885

Photographs

A B C

Figure 11. Summer (top) and fall (bottom) views of CV-104-5 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558521 7914785

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 1-3° **Flow Regime:** Intermittent

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
0	-	-	-	-	-	~0.30	-	-	-	0.10

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
0	30	65	5	-	-	-	20	40	40	-	-

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558521 7914785

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 50

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	-	N/A	N/A	N/A
	Fall	265	0	-	N/A
NNST	Summer	-	N/A	N/A	N/A
	Fall	265	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	L	N
NNST	N	N	N	N

Comments & Summary

This is a branch of CV-104-5, an important juvenile char stream. However, it was disconnected during 2018 surveys and likely only supports fish during periods of flooding. Habitat use is intermittent.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558521 7914785

Photographs

A B C

Figure 1. Summer (top) and fall (bottom) views of CV-105-1 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 1-2° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	POND									
20D	16.5	5.0 / 6.0	- / -	0.06 / -	- / -	0.10 / 0.10	- / -	0.07 / -	- / -	0.10 / 0.10
0	5.5	4.5 / 2.9	- / -	0.14 / -	- / -	0.15 / 0.10	- / -	0.05 / -	- / -	0.05 / 0.05
50U	3.4	3.0 / 2.7	0.26 / -	0.18 / -	- / -	0.30 / 0.25	0.00 / -	0.13 / -	- / -	0.15 / 0.15
80U	-	- / 4.3	- / -	- / -	- / -	- / -	- / -	- / -	- / -	- / -
100U	POND									

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	POND										
20D	-	100	-	-	-	-	80	10	10	-	-
0	-	100	-	-	-	-	60	25	15	-	-
50U	25	75	-	-	-	-	25	20	55	-	-
80U	10	90	-	-	-	-	80	5	15	-	-
100U	POND										

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - MARGINAL

Ninespine Stickleback – IMPORTANT

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	3.70	6	1.62	112 - 156
	Fall	5.98	12	2.01	84 - 121
NNST	Summer	3.70	8	2.16	60 - 74
	Fall	5.98	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	H
NNST	M	N	H	H

Comments & Summary

This is a tributary in the same system as CV-104-5 and provides rearing habitat for both species throughout the open-water period. Stickleback are known to spawn in the ponds and slower moving streams in this area during summer. In addition, this stream would be part of a migratory route between Camp Lake and some large upstream ponds such as CV-106-3.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-105-2 at the 20 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

Photographs

A B C

Figure 2. Summer (top) and fall (bottom) views of CV-105-2 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

Photographs

A B C

Figure 3. Summer (top) and fall (bottom) views of CV-105-2 at the 50 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558750 7914656

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 4. Summer (top) and fall (bottom) views of CV-105-2 at the 80 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558875 7914578

General Physical Characteristics

Channel Confinement: N/A **Channel Gradient (range):** N/A **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
0	N/A	N/A	N/A	N/A	N/A	0.50 – 1.00	N/A	N/A	N/A	0.00

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
0	-	50	50	-	-	-	100	-	-	-	-

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558875 7914578

Fisheries Data

Gear Used: Not fished **Transect Length (m):** N/A

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	0	N/A	N/A	N/A
	Fall	0	N/A	N/A	N/A
NNST	Summer	0	N/A	N/A	N/A
	Fall	0	N/A	N/A	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	M	H
NNST	H	N	H	H

Comments & Summary

This pond provides rearing habitat for both species throughout the open-water period. Both species were observed, but not captured. Stickleback, in particular, extensively use the ponds in this area for feeding, migration and spawning during summer. This pond is part of a series of interconnected ponds and small streams that link Camp Lake with a suspected stickleback overwintering pond at CV-106-3. Habitat is considered marginal for char and important for stickleback. The encroachment itself is very shallow and likely only used by stickleback.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 558875 7914578

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-105-3; (A) crossing substrate; (B) looking downstream towards CV-105-2; and (C) looking across the pond.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 1-2° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	2.0	1.7 / 1.2	- / -	0.11 / -	- / -	0.15 / -	- / -	0.21 / -	- / -	0.25 / -
50D	21.8	5.5 / 8.0	0.04 / -	0.08 / -	- / -	0.10 / -	0.07 / -	0.26 / -	- / -	0.30 / -
0	17.7	7.8 / 2.7	- / -	0.10 / -	- / -	0.10 / -	- / -	0.23 / -	- / -	0.25 / -
50U	15.4	8.0 / 3.9	0.03 / -	0.05 / -	- / -	0.05 / -	0.05 / -	0.10 / -	- / -	0.15 / -
100U	12.5	11.3 / 7.8	0.04 / -	0.05 / -	- / -	0.05 / -	0.12 / -	0.18 / -	- / -	0.20 / -

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	15	70	-	-	-	15	100	-	-	-	-
50D	-	35	-	-	-	65	100	-	-	-	-
0	10	20	-	-	-	70	85	10	5	-	-
50U	5	25	-	-	-	70	85	10	5	-	-
100U	55	40	-	-	-	5	65	10	15	-	-

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - MARGINAL

Ninespine Stickleback – IMPORTANT

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	0	N/A	N/A	N/A
	Fall	3.10	1	0.32	98
NNST	Summer	0	N/A	N/A	N/A
	Fall	3.10	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	M	H
NNST	L	N	M	H

Comments & Summary

This is a tributary in the same system as CV-104-5 and provides marginal (due primarily to the very shallow stretches) rearing habitat for both species throughout the open-water period. Stickleback are known to spawn in the nearby ponds and slower-moving streams in this area during summer, and spawning may also occur in this stream. More importantly, this stream is part of a migratory route between Camp Lake and large upstream ponds such as CV-106-3.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-105-4 at the 100 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Photographs

A B C

Figure 2. Summer (top) and fall (bottom) views of CV-105-4 at the 50 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Photographs

A **B** **C**

Figure 3. Summer (top) and fall (bottom) views of CV-105-4 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Photographs

A B C

Figure 4. Summer (top) and fall (bottom) views of CV-105-4 at the 50 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-105-4 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559196 7914375

Photographs

NO PHOTO

A B C

Figure 5. Summer (top) and fall (bottom) views of CV-105-4 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559334 7914281

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 1-2° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
50D	2.0	- / 2.9	- / -	- / 1.40	- / -	- / 1.40	- / -	- / 0.10	- / -	- / 0.10
0	18.0	17.0 / 17.2	0.10 / -	0.13 / 0.30	- / -	0.20 / 0.30	0.09 / -	0.16 / 0.10	- / -	0.20 / 0.10
50U	15.4	- / 4.4	- / -	- / 0.20	- / -	- / 0.20	- / -	- / 0.30	- / -	- / 0.30

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
50D	-	40	50	10	-	-	100	-	-	-	-
0	20	50	30	-	-	-	90	-	10	-	-
50U	60	40	-	-	-	-	40	40	20	-	-

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559334 7914281

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	0	N/A	N/A	N/A
	Fall	3.18	14	4.40	83 - 202
NNST	Summer	0	N/A	N/A	N/A
	Fall	3.18	1	0.31	62

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	H
NNST	M	N	H	H

Comments & Summary

Although this is designated as a pond encroachment, the crossing is really just a widening of a small stream. This is a tributary in the same system as CV-104-5 and provides marginal to important rearing habitat for both species throughout the open-water period. Stickleback are known to spawn in the nearby ponds and slower-moving streams in this area during summer, and spawning may also occur in this stream. More importantly, this stream is part of a migratory route between Camp Lake and large upstream ponds such as CV-106-3.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559334 7914281

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-106-1 at the 50 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559334 7914281

Photographs

A **B** **C**

Figure 2. Summer (top) and fall (bottom) views of CV-106-1 at the rail crossing; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-1 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559334 7914281

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 3. Summer (top) and fall (bottom) views of CV-106-1 at the 50 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559615 7914085

General Physical Characteristics

Channel Confinement: N/A **Channel Gradient (range):** N/A **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
0	N/A	N/A	N/A	N/A	N/A	0.20	N/A	N/A	N/A	0.00

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
0	-	100	-	-	-	-	100	-	-	-	-

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559615 7914085

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** N/A

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	0	N/A	N/A	N/A
	Fall	3.15	0	-	N/A
NNST	Summer	0	N/A	N/A	N/A
	Fall	3.15	4	1.27	14 - 26

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	L	M
NNST	H	N	H	M

Comments & Summary

This side pond is connected to CV-106-1. It primarily provides rearing habitat for stickleback throughout the open-water period. The fall electrofishing catch consisted of young-of-the-year stickleback, suggesting that spawning occurred nearby. Char were observed in the vicinity, but not captured. Habitat is considered marginal for char and important for stickleback.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-2 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559615 7914085

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-106-2; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559980 7913834

General Physical Characteristics

Channel Confinement: N/A **Channel Gradient (range):** N/A **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
0	N/A	N/A	N/A	N/A	N/A	> 3.00	N/A	N/A	N/A	0.00

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
0	SEE DETAILED BATHYMETRY AND SUBSTRATE SURVEY DATA										

Baffinland Iron Mines **Mary River Project**	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559980 7913834

Fisheries Data

Gear Used: Backpack Electrofisher **Transect length (m):** N/A

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	0	N/A	N/A	N/A
	Fall	3.37	0	-	N/A
NNST	Summer	0	N/A	N/A	N/A
	Fall	3.37	17	5.05	45 - 68

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	M	M	N
NNST	H	H	H	N

Comments & Summary

This large pond provides important habitat for all life history stages of Ninespine Stickleback and may also provide overwintering habitat for any juvenile char that don't return to Camp Lake. A detailed bathymetry/substrate survey (see maps) indicated that the maximum depth of the pond was about 3.5 m, which is sufficient for some overwintering. The pond does not support an adult char population.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - MARGINAL** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-106-3 **Dates Surveyed:** 11 July & 26 August, 2018 **UTM Coordinates:** 17 W 559980 7913834

Photographs

A **B** **C**

Figure 1. Summer (top) and fall (bottom) views of CV-106-3; (A) looking downstream; (B) looking across; and (C) looking upstream.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-1 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560409 7913682

General Physical Characteristics

Channel Confinement: N/A **Channel Gradient (range):** N/A **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
0	N/A	N/A	N/A	N/A	N/A	0.30	N/A	N/A	N/A	0.00

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
0	-	100	-	-	-	-	80	-	-	-	20

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-1 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560409 7913682

Fisheries Data

Gear Used: Backpack Electrofisher **Transect length (m):** N/A

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	2.02	0	-	N/A
	Fall	0	N/A	N/A	N/A
NNST	Summer	2.02	0	-	N/A
	Fall	0	N/A	N/A	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This pond is shallow with no cover/vegetation. Fish were not captured or observed during either survey period in 2018. It is connected downstream to CV-106-3, so occasional fish use cannot be ruled out, but is likely limited to stickleback summer feeding.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-1 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560409 7913682

Photographs

A B C

Figure 1. Summer (top) and fall (bottom) views of CV-107-1 from various angles.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-2 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560529 7913655

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** N/A **Flow Regime:** None

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was a dry low point. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-107-2 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-3 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560660 7913555

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** N/A **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

The crossing was shallow, isolated roadside ditch/pond. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-107-3 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

General Physical Characteristics

Channel Confinement: PC **Channel Gradient (range):** 2-5° **Flow Regime:** Open Water

Hydrology & Habitat Characteristics

Site	Channel Width (m)		Water Depth (m) (Summer/Fall)				Water Velocity (m/s) (Summer/Fall)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	2.8	- / 2.0	- / 0.09	- / 0.08	- / -	- / 0.10	- / 0.10	- / 0.31	- / -	- / 0.35
80D	9.0	- / 8.3	- / 0.02	- / -	- / 0.02	- / 0.05	- / 0.25	- / -	- / 0.35	- / 0.40
60D	7.0	- / 4.8	- / 0.02	- / -	- / 0.04	- / 0.05	- / 0.36	- / -	- / 0.54	- / 0.55
40D	4.5	- / 2.3	- / 0.02	- / -	- / 0.03	- / 0.05	- / 0.39	- / -	- / 0.47	- / 0.50
20D	TOTE ROAD CROSSING									
0										
20U										
40U	6.0	5.8 / 6.0	0.10 / 0.03	0.06 / -	0.14 / 0.06	0.15 / 0.10	0.42 / 0.29	0.27 / -	0.49 / 0.42	0.55 / 0.50
60U	7.8	5.7 / 7.1	0.10 / 0.04	0.02 / 0.02	0.04 / -	0.15 / 0.05	0.35 / 0.33	0.22 / 0.19	0.07 / -	0.40 / 0.35
80U	9.7	9.6 / 5.0	0.09 / 0.08	0.08 / 0.02	0.02 / -	0.10 / 0.10	0.38 / 0.43	0.19 / 0.16	0.08 / -	0.45 / 0.45
100U	10.6	10.6 / 9.8	0.10 / 0.03	0.12 / -	0.03 / 0.02	0.15 / 0.10	0.15 / 0.25	0.08 / -	0.17 / 0.26	0.25 / 0.30

Site	Stream Morphology Composition (%)						Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Other	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	70	30	-	-	-	-	-	-	40	60	-
80D	70	30	-	-	-	-	-	30	70	-	-
60D	70	30	-	-	-	-	-	40	60	-	-
40D	80	20	-	-	-	-	-	40	60	-	-
20D	TOTE ROAD CROSSING										
0											
20U											
40U	70	30	-	-	-	-	-	10	70	20	-
60U	65	35	-	-	-	-	-	10	70	20	-
80U	65	35	-	-	-	-	-	-	80	20	-
100U	55	45	-	-	-	-	-	-	80	20	-

Baffinland Iron Mines
Mary River Project

North/South Consultants Inc.
Aquatic Environment Specialists

Fish Habitat Quality

Arctic Char - IMPORTANT

Ninespine Stickleback – IMPORTANT

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Fisheries Data

Gear Used: Backpack Electrofisher **Transect Length (m):** 100

Species	Season	Effort (min)	Total Caught/Observed	CPUE	Length Range (mm)
ARCH	Summer	4.38	27	6.16	55 - 137
	Fall	3.45	9	2.61	61 - 109
NNST	Summer	4.38	0	-	N/A
	Fall	3.45	0	-	N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	H	N
NNST	N	N	L	N

Comments & Summary

The rail crossing is on the existing Tote Road CV-186 crossing. This stream is the most important tributary for Sheardown Lake juvenile char in terms of the quality and quantity of available habitat. Stickleback have also often been captured in this stream during Tote Road surveys.

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char - IMPORTANT** **Ninespine Stickleback – IMPORTANT**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A

B

C

Figure 1. Summer (top) and fall (bottom) views of CV-107-4 at the 100 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 2. Summer (top) and fall (bottom) views of CV-107-4 at the 80 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 3. Summer (top) and fall (bottom) views of CV-107-4 at the 60 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

NO PHOTO **NO PHOTO** **NO PHOTO**

A **B** **C**

Figure 4. Summer (top) and fall (bottom) views of CV-107-4 at the 40 m downstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

A B C

Figure 5. Summer (top) and fall (bottom) views of CV-107-4 at the 40 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

A B C

Figure 6. Summer (top) and fall (bottom) views of CV-107-4 at the 60 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

A B C

Figure 7. Summer (top) and fall (bottom) views of CV-107-4 at the 80 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-107-4 **Dates Surveyed:** 11 July & 30 August, 2018 **UTM Coordinates:** 17 W 560706 7913502

Photographs

A **B** **C**

Figure 8. Summer (top) and fall (bottom) views of CV-107-4 at the 100 m upstream cross-section; (A) looking upstream; (B) looking downstream; and (C) looking across.

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-108-1 & CV-108-2

Dates Surveyed: 4 July & 30 August, 2018

UTM Coordinates: 17 W 560926 7913247 & 17 W 560963 7913204

General Physical Characteristics

Channel Confinement: UC

Channel Gradient (range): N/A

Flow Regime: None

Fisheries Data

Gear Used: Not Fished

Effort (min): N/A

Transect Length (m): N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

These two crossings were assessed as not fish-bearing during mine site baseline studies and current infrastructure has already altered them. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-108-1 & 108-2 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-108-3 **Dates Surveyed:** 4 July & 30 August, 2018 **UTM Coordinates:** 17 W 561364 7912739

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** 3 to > 15° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This crossing is upstream of a known permanent fish barrier identified during baseline studies. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-108-3 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-109-1 **Dates Surveyed:** 4 July & 30 August, 2018 **UTM Coordinates:** 17 W 561856 7912346

General Physical Characteristics

Channel Confinement: C **Channel Gradient (range):** 2 to > 10° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This crossing is upstream of a known permanent fish barrier identified during baseline studies. There is intermittent use of the low-gradient marshy/pond area at the downstream confluence with a fish-bearing lake, but the barrier prevents any further upstream access. There is no fish use of habitat at this crossing.

Photographs

A **B** **C**

Figure 1. Views of CV-109-1 at the crossing during summer (A), during fall (B), and looking towards the downstream confluence (C).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-109-2 **Dates Surveyed:** 4 July & 30 August, 2018 **UTM Coordinates:** 17 W 561973 7912254

General Physical Characteristics

Channel Confinement: C **Channel Gradient (range):** 2 to > 10° **Flow Regime:** Open Water

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This crossing is upstream of a known permanent fish barrier identified during baseline studies. The site is steep, marshy and lacks a defined channel. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-109-2 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**

Phase 2 Milne Rail Corridor Aquatic Habitat Assessment

Location

Crossing ID: CV-109-3 **Dates Surveyed:** 4 July & 30 August, 2018 **UTM Coordinates:** 17 W 562024 7912215

General Physical Characteristics

Channel Confinement: UC **Channel Gradient (range):** N/A **Flow Regime:** N/A

Fisheries Data

Gear Used: Not Fished **Effort (min):** N/A **Transect Length (m):** N/A

Fish Habitat Potential

Species	Spawning	Overwintering	Rearing	Migration Corridor
ARCH	N	N	N	N
NNST	N	N	N	N

Comments & Summary

This crossing is a dry low point. There is no fish use of habitat at this crossing.

Photographs

A

B

Figure 1. Views of CV-109-3 at the crossing during summer (A) and during fall (B).

Baffinland Iron Mines Mary River Project	North/South Consultants Inc. Aquatic Environment Specialists	**Fish Habitat Quality**	**Arctic Char – NOT FISH-BEARING** **Ninespine Stickleback – NOT FISH-BEARING**