

TOTE ROAD CV-079

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-079	Dates Surveyed:	2-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 525538 E 7937314 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Seasonal Stream Order: 3



BAFFINLAND IRON MINES
MARY RIVER PROJECT

 **North/South Consultants Inc.**
Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

TOTE ROAD CV-079

SITE SUMMARY

The Tote Road crosses an unnamed stream at site CV-079 that flows 700 m southwest into a small lake adjacent, and connected, to Phillips Creek. Flows from the CV-079 stream merge with those from the stream crossed by the road at CV-078 prior to emptying into the small lake. Although a bathymetric survey has not been conducted, the lake is believed to be of sufficient depth to support overwintering of both species based on review of available imagery. The stream is highly braided at the road crossing, with at least three channels that persist throughout the open-water period and several smaller ones that are intermittent.

Detailed habitat data were collected in the crossing area in spring 2023.

In spring 2023, water levels were relatively high and most of the intermittent channels were wetted. Habitat data were collected at the northernmost and largest channel where they have been collected in previous years. This stream was wide, with moderate depths and moderate to high velocities in spring 2023. Wetted widths ranged from 8.9-24.4 m. Measured maximum depths ranged from 0.07-0.46 m. Maximum velocities were consistently >0.80 m/s and exceeded 1.50 m/s. Stream morphology was mainly riffle/run and substrates were largely gravel/cobble with some sandy patches.

Juvenile Arctic char can use habitat in the vicinity of the Tote Road crossing at CV-079 for rearing/feeding throughout the open-water period. There is no char spawning or overwintering habitat in this stream.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009. It is unknown if they are present in the watershed.

TOTE ROAD CV-079

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	P	P

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	3.0	50	80	0	0	0.00	-
	NNST					0	0	0.00	-
Upstream	ARCH			50	46	0	0	0.00	-
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

No fish were captured/observed in spring 2023 upstream or downstream of the crossings. High flows and low water temperatures at the time of the survey likely restricted fish to the lower reaches near the potential downstream overwintering lake. Char have frequently been captured in this stream in previous years, using habitat for rearing. Stickleback have never been captured in this stream and it is unknown if they are present in the watershed.

TOTE ROAD CV-079

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	198	24.4	-	-	-	0.18	-	-	-	0.80
60D	252	22.8	-	-	-	0.21	-	-	-	1.62
20D	265	14.4	-	-	-	0.07	-	-	-	0.96
0 (Centreline)	UNDER TOTE ROAD									
20U	370	8.9	-	-	-	0.46	-	-	-	0.88
60U	347	15.0	-	-	-	0.31	-	-	-	1.83
100U	323	10.5	-	-	-	0.19	-	-	-	1.16

OTHER NOTES / OBSERVATIONS

This stream was wide, with moderate depths and moderate to high velocities in spring 2023. Wetted widths ranged from 8.9-24.4 m. Maximum depths ranged from 0.07-0.46 m. Maximum velocities were consistently >0.80 m/s and exceeded 1.50 m/s.

TOTE ROAD CV-079

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	65	10	-	25	-	-	-	10	45	40	5	-
60D	70	5	-	25	-	-	-	10	20	55	15	-
20D	60	5	15	20	-	-	-	20	15	30	30	5
0 (Centreline)	UNDER TOTE ROAD											
20U	40	10	40	10	-	-	-	30	20	40	10	-
60U	60	5	5	30	-	-	-	30	10	50	10	-
100U	70	5	-	25	-	-	-	5	10	60	25	-

OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle/run and substrates were largely gravel/cobble with some sandy patches.

TOTE ROAD CV-079

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-079

2-JUL-23



A



B



C

Photos 1-2. Photos taken 100 m downstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (right bank looking at left bank).

TOTE ROAD CV-079

2-JUL-23



A



B



C



D



E



F

Photos 1-3. Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-079

2-JUL-23



A



B



C

Photos 1-4. Photos taken 100 m upstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

TOTE ROAD CV-085

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-085	Dates Surveyed:	2-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 523877 E 7940904 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Intermittent Stream Order: 2



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Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

TOTE ROAD CV-085

SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site CV-079 that flows 280 m west into Phillips Creek. Previous surveys established that the stream is intermittent, becoming dry or being reduced to isolated pools near and upstream of the stream crossing by summer/fall.

Detailed habitat data were collected in the crossing area in spring 2023. The stream was split into two similar channels upstream of the road. Wetted widths ranged from 3.5-23.9 m, measured depths were shallow (typically <0.10 m), and velocities were typically <0.50 m/s, but did occasionally exceed 1.00 m/s. Stream morphology was mainly riffle/run with a few cascades downstream and greater proportions of pools upstream. Substrates were mainly gravel/cobble.

When water levels are sufficient, juvenile Arctic char can use habitat in the vicinity of the Tote Road crossing at CV-085 for rearing/feeding. There is no char spawning or overwintering habitat in this stream. There is a risk of fish stranding as this stream is reduced to isolated pools in summer/fall. Stranded char were observed in isolated pools upstream of the crossing in August 2019.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2019. It is unknown if they are present in the watershed.

TOTE ROAD CV-085

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	P	P

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	8.0	50	81	0	0	0.00	-
	NNST					0	0	0.00	-
Upstream	ARCH			50	103	0	0	0.00	-
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

No fish were captured/observed in spring 2023. Small numbers of char have been captured in this stream in previous years, using habitat for rearing. Stickleback have never been captured in this stream and it is unknown if they are present in the watershed.

TOTE ROAD CV-085

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	8.4	3.5	0.05	0.07	0.05	0.25	0.14	0.56	0.87	1.82
60D	48.5	3.6	0.04	0.15	0.03	0.29	0.19	1.40	0.22	1.63
20D	17.6	10.0	0.05	0.07	0.15	0.15	0.48	0.56	0.45	0.89
0 (Centreline)	UNDER TOTE ROAD									
20U	18.2	10.5	0.08	0.04	0.04	0.10	0.36	0.27	0.30	0.60
60U (Right)	28.9	4.7	0.09	0.01	0.04	0.11	0.29	0.15	0.34	1.10
60U (Left)	28.9	6.8	0.02	0.08	0.04	0.10	0.22	0.37	0.26	1.01
100U (Right)	79.5	23.9	0.02	0.06	0.05	0.32	0.30	0.10	0.12	0.61
100U (Left)	110.2	4.0	0.05	0.05	0.06	0.14	0.12	0.03	0.28	0.62

OTHER NOTES / OBSERVATIONS

In spring 2023, wetted widths ranged from 3.5-23.9 m. Water depths were shallow (typically <0.10 m) and velocities were generally <0.50 m/s but occasionally exceeded 1.00 m/s.

TOTE ROAD CV-085

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	40	5	5	10	40	-	-	-	10	40	30	20
60D	60	5	5	20	10	-	-	10	15	50	20	5
20D	70	10	-	20	-	-	-	20	40	35	5	-
0 (Centreline)	UNDER TOTE ROAD											
20U	60	20	-	20	-	-	-	10	30	55	5	-
60U (Right)	70	10	-	20	-	-	-	-	40	50	10	-
60U (Left)	70	10	-	20	-	-	-	-	20	70	10	-
100U (Right)	40	20	10	30	-	-	-	-	30	50	20	-
100U (Left)	50	30	-	20	-	-	-	10	40	50	-	-

OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle/run with a few cascades downstream and greater proportions of pools upstream. Substrates were mainly gravel/cobble.

TOTE ROAD CV-085

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-085

2-JUL-23



A



B



C

Photos 1-2. Photos taken 100 m downstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (right bank looking at left bank).

TOTE ROAD CV-085

2-JUL-23



A



B



C

Photos 1-3. Photos taken 20 m upstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

TOTE ROAD CV-085

2-JUL-23



A



B



C



D



E



F

Photos 1-4. Photos taken 60 m upstream right branch (top) and 60 m upstream left branch (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-085

2-JUL-23



A



B



C



D



E



F

Photos 1-5. Photos taken 100 m upstream right branch (top) and 100 m upstream left branch (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-099

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-099	Dates Surveyed:	2-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 521886 E 7948843 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Seasonal Stream Order: 3+



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FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

TOTE ROAD CV-099

SITE SUMMARY

The Tote Road crosses a large, unnamed stream at site CV-099 that flows 400 m west into Phillips Creek.

Detailed habitat data were collected for CV-099 in spring 2023. Measurements could only be recorded near the righthand bank due to high flows and unsafe wading conditions towards the thalweg. In spring 2023, wetted widths ranged from 12.8-25.6 m. Nearshore water depths were moderate (generally 0.20-0.40 m) and likely exceeded 1.0 m in the thalweg. Nearshore velocities were high (generally >0.60 m/s) and offshore velocities likely exceeded 2.00 m/s in some locations. Stream morphology was mainly riffle/rapids with a few scattered deep pools, including a large pool at the downstream end of the culverts. Substrates were mainly cobble/boulder.

Juvenile Arctic char can use habitat in the vicinity of the Tote Road crossing at CV-099 for rearing/feeding throughout the open-water period. There is no char spawning or overwintering habitat in this stream.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009. It is unknown if they are present in the watershed.

TOTE ROAD CV-099

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	P	P

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	2.0	50	N/A	0	0	0.00	-
	NNST					0	0	0.00	-
Upstream	ARCH			50	N/A	0	0	0.00	-
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

No fish were captured/observed in spring 2023. High flows and low water temperatures likely restricted fish access to the stream. Char have frequently been captured in this stream in previous years, using habitat for rearing. Stickleback have never been captured in this stream and it is unknown if they are present in the watershed.

TOTE ROAD CV-099

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	41.0	12.8	-	-	0.39	-	-	-	0.61	-
60D	41.6	23.5	-	-	0.39	-	-	-	0.97	-
20D	39.9	20.2	-	-	0.32	-	-	-	0.44	-
0 (Centreline)	UNDER TOTE ROAD									
20U	-	-	-	-	-	-	-	-	-	-
60U	30.9	18.3	-	-	0.22	-	-	-	1.62	-
100U	32.8	25.6	-	-	0.14	-	-	-	0.64	-

OTHER NOTES / OBSERVATIONS

In spring 2023, wetted widths ranged from 12.8-25.6 m. Depth and velocity measurements could only be recorded near the righthand bank due to high flows and unsafe wading conditions towards the thalweg. Nearshore water depths were moderate (typically 0.20-0.40 m) and likely exceeded 1.0 m in the thalweg. Nearshore velocities were high (generally >0.60 m/s) and offshore velocities likely exceeded 2.00 m/s in some locations.

TOTE ROAD CV-099

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	50	10	10	10	-	20	-	5	5	5	65	20
60D	30	-	10	10	-	50	-	10	10	20	50	10
20D	10	-	50	5	-	30	-	5	5	30	40	20
0 (Centreline)	UNDER TOTE ROAD											
20U	-	-	-	-	-	-	-	-	-	-	-	-
60U	20	-	50	20	-	10	-	5	10	70	10	5
100U	50	-	-	30	-	20	-	5	10	60	20	5

OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle/rapids with a few scattered deep pools, including a large pool at the downstream end of the culverts. Substrates were mainly cobble/boulder.

TOTE ROAD CV-099

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-099

2-JUL-23



A



B



C

Photos 1-2. Photos taken 100 m downstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (right bank looking at left bank).

TOTE ROAD CV-099

2-JUL-23



A



B



C



D



E



F

Photos 1-3. Photos taken 60 m upstream (top) and 100 m upstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

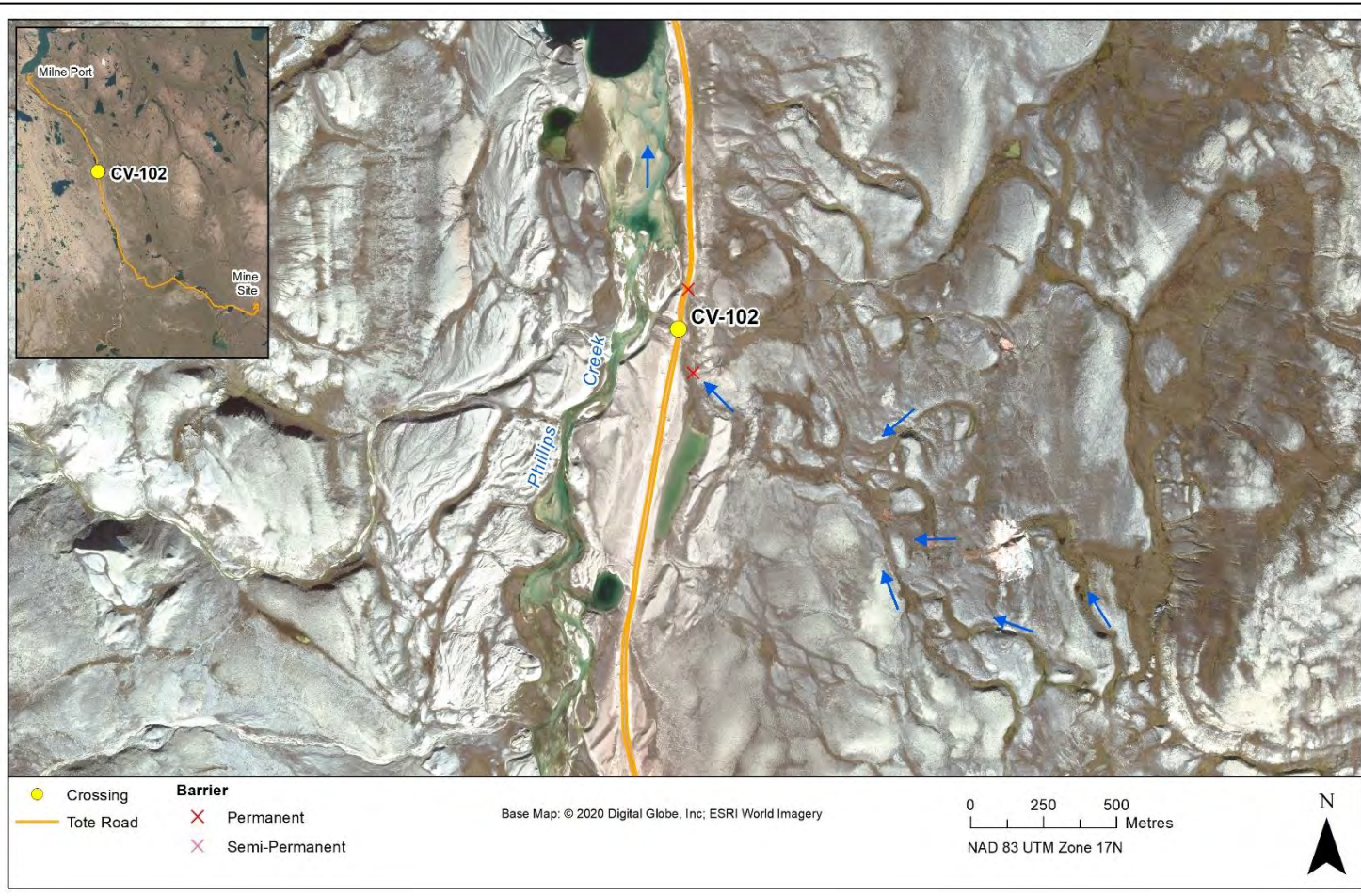
TOTE ROAD CV-102

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-102	Dates Surveyed:	2-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 521934 E 7950591 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Seasonal Stream Order: 3+



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FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - YES

TOTE ROAD CV-102

SITE SUMMARY

The Tote Road crosses an unnamed stream at site CV-102 that flows 80 m west into Phillips Creek.

Detailed habitat data were collected in the crossing area in spring 2023. Wetted widths ranged from 1.1 to 5.0 m, with the widest areas downstream near the confluence with Phillips Creek. Measured depths were shallow, rarely exceeding 0.10 m, with a maximum measured depth of 0.28 m. Velocities ranged from 0.00 to 1.07, with higher velocities in the narrower constricted areas. Stream morphology was typically riffle and run. Substrate was primarily gravel/cobble.

Arctic Char were captured/observed upstream and downstream of the road in spring 2023. Juvenile char use habitat in this stream for rearing throughout the open-water period. There is insufficient depth for char spawning or overwintering.

Ninespine Stickleback were captured for the first time in this stream in spring 2023, indicating they are present, though likely uncommon, in the watershed. Stickleback use habitat in this stream for rearing/feeding and potentially spawning. There is no overwintering habitat in this stream for stickleback.

TOTE ROAD CV-102

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	Y	Y

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	9.0	50	86	0	3	2.09	~75
	NNST					2	0	1.40	55-57
Upstream	ARCH			50	105	1	2	1.71	154
	NNST					0	0	N/A	-

OTHER NOTES / OBSERVATIONS

Juvenile char were captured upstream and downstream of the crossing in spring 2023. Char use habitat in the stream for rearing in the open-water season. Stickleback were captured for the first time since monitoring began in 2009. Although uncommon, stickleback can use habitat in the stream for rearing/feeding and potentially spawning. There is no overwintering habitat for either species.

TOTE ROAD CV-102

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	PHILLIPS CREEK									
60D	21.1	6.6	0.11	0.02	0.04	0.09	0.93	0.10	0.21	1.07
20D	26.9	5.5	0.04	0.04	0.05	0.09	0.11	0.42	0.79	0.92
0 (Centreline)	UNDER TOTE ROAD									
20U	57.1	10.4	0.13	0.09	0.07	0.24	0.0	0.16	0.19	0.33
60U	79.3	22.3	0.04	0.03	0.02	0.15	0.15	0.26	0.13	0.42
100U	50.9	38.6	0.03	0.09	0.06	0.28	0.19	0.02	0.31	0.48

OTHER NOTES / OBSERVATIONS

Wetted widths ranged from 1.1 to 5.0 m and generally increased downstream from the crossing. Water depths were shallow, rarely exceeding 0.10 m, with a maximum measured depth of 0.28 m. Velocities were typically <0.20 m/s but exceeded 1.00 m/s in one location.

TOTE ROAD CV-102

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100D	PHILLIPS CREEK											
60D	80	10	-	10	-	-	-	5	14	80	1	-
20D	80	10	-	10	-	-	-	10	20	60	10	-
0 (Centreline)	UNDER TOTE ROAD											
20U	30	20	30	20	-	-	-	85	10	5	-	-
60U	50	20	-	30	-	-	-	20	40	40	-	-
100U	40	20	5	35	-	-	-	30	20	50	-	-

OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle downstream with increasing proportions of run upstream. Substrate was primarily gravel cobble, with patches of fines in some areas.

TOTE ROAD CV-102

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-102

2-JUL-23



A



B



C



D



E



F

Photos 1-2. Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-102

2-JUL-23



A



B



C

Photos 1-3. Photos taken 100 m upstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

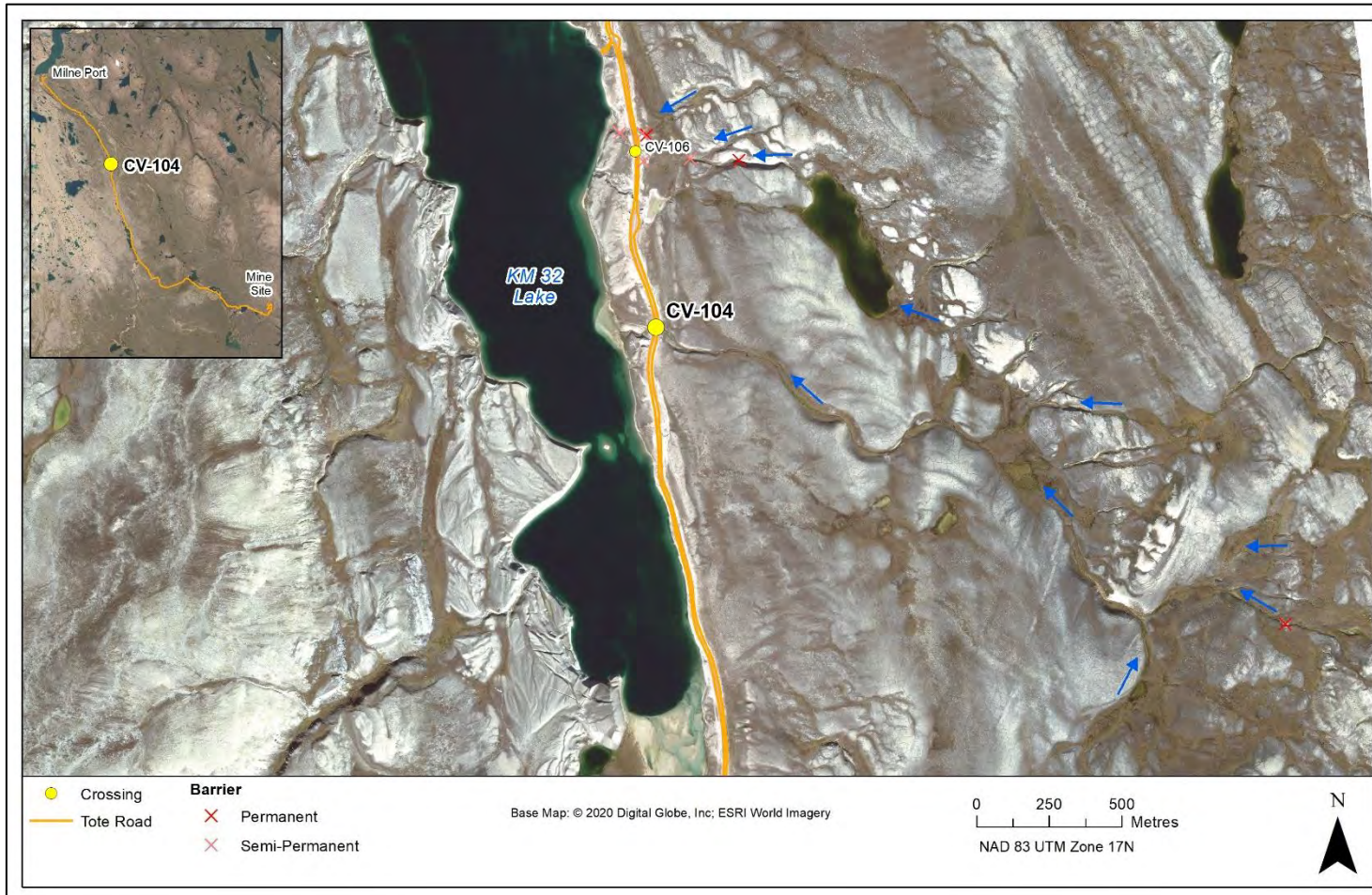
TOTE ROAD CV-104

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-104	Dates Surveyed:	5-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 521732 E 7952788 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Seasonal Stream Order: 3+



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Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

TOTE ROAD CV-104

SITE SUMMARY

The Tote Road crosses an unnamed stream at site CV-104 that flows 140 m west into Km 32 Lake. Km 32 Lake is of sufficient depth to support overwintering of both species. The stream is split into two channels downstream from the road.

Detailed habitat data were collected in the crossing area in spring 2023. Wetted widths ranged from 2.6 to 20.1 m in both channels with the widest areas downstream near the confluence with Phillips Creek. Water depths were shallow, rarely exceeding 0.20 m, with a maximum measured depth of 0.42 m. Velocities ranged from 0.00 to 1.63, with higher velocities in the narrower righthand channel downstream. Stream morphology was typically riffle and run. Substrate was primarily gravel/cobble.

Juvenile Arctic char can use habitat in the vicinity of the Tote Road crossing at CV-102 for rearing/feeding throughout the open-water period. There is no char spawning or overwintering habitat in this stream.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009. It is unknown if they are present in the watershed.

TOTE ROAD CV-104

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	P	P

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	1.0	50	117	0	0	0.00	-
	NNST					0	0	0.00	-
Upstream	ARCH			50	56	0	0	0.00	-
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

No fish were captured/observed in spring 2023. High flows and, in particular, low water temperatures likely restricted fish movements into the stream from overwintering habitat. Char have frequently been captured in this stream in previous years, using habitat for rearing. Stickleback have never been captured in this stream and it is unknown if they are present in the watershed.

TOTE ROAD CV-104

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100U	13.8	-	0.21	0.13	0.08	0.21	0.47	0.81	0.32	0.94
60U	84.4	20.1	0.06	0.11	0.09	0.14	0.31	0.40	0.26	0.75
20U	19.1	13.5	0.33	0.14	0.22	0.33	0.18	0.41	0.11	0.89
0 (Centreline)	UNDER TOTE ROAD									
20D (Left)	59.1	2.7	0.04	0.03	0.04	0.10	0.14	0.64	0.46	0.56
20D (Right)	59.1	2.7	0.10	0.13	0.16	0.19	0.49	0.22	1.00	1.63
60D (Left)	104.7	3.6	0.15	0.03	0.07	0.18	0.62	0.05	0.18	0.75
60D (Right)	104.7	12.3	0.08	0.59	0.42	1.30	0.78	0.49	0.00	1.23
100D (Left)	116.4	8.0	0.12	0.03	0.02	0.18	0.40	0.15	0.10	0.40
100D (Right)	116.4	2.6	0.16	0.16	0.11	0.59	0.13	0.63	0.98	1.61

OTHER NOTES / OBSERVATIONS

The stream is split into two channels upstream from the road. Wetted widths in spring 2023 ranged from 2.6 to 20.1 m in both channels with the widest areas downstream near the confluence with Phillips Creek. Water depths were shallow, rarely exceeding 0.20 m, with a maximum measured depth of 0.42 m. Velocities ranged from 0.00 to 1.63, with higher velocities in the narrower righthand channel upstream of the road.

TOTE ROAD CV-104

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Stream Morphology Composition (%)							Substrate Composition (%)				
	Riffle	Pool (<0.2 m)	Pool (>0.2 m)	Run	Cascade	Rapids	Flat	Fines	Gravel	Small Cobble	Large Cobble	Boulders
100U	90	5	-	5	-	-	-	-	10	50	30	10
60U	80	10	-	10	-	-	-	5	20	50	20	5
20U	40	10	30	20	-	-	-	30	40	30	-	-
0 (Centreline)	UNDER TOTE ROAD											
20D (L)	60	10	-	30	-	-	-	10	30	50	10	-
20D (R)	50	-	-	40	10	-	-	10	20	60	10	-
60D (L)	60	10	-	30	-	-	-	10	10	75	5	-
60D (R)	40	-	50	10	-	-	-	20	30	40	10	-
100D (L)	60	10	-	30	-	-	-	10	20	60	10	-
100D (R)	40	-	30	30	-	-	-	10	30	50	10	-

OTHER NOTES / OBSERVATIONS

Stream morphology was typically riffle and run. Substrate was primarily gravel/cobble.

TOTE ROAD CV-104

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream left branch (top) and 20 m downstream right branch (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-104

2-JUL-23



A



B



C



D



E



F

Photos 1-2. Photos taken 60 m downstream left branch (top) and 60 m downstream right branch (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).

TOTE ROAD CV-104

2-JUL-23



A



B



C



D



E



F

Photos 1-3. Photos taken 100 m downstream left branch (top) and 100 m downstream right branch (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-104

2-JUL-23



A



B



C



D



E



F

Photos 1-4. Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-104

2-JUL-23



A



B



C

Photos 1-5. Photos taken 100 m upstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

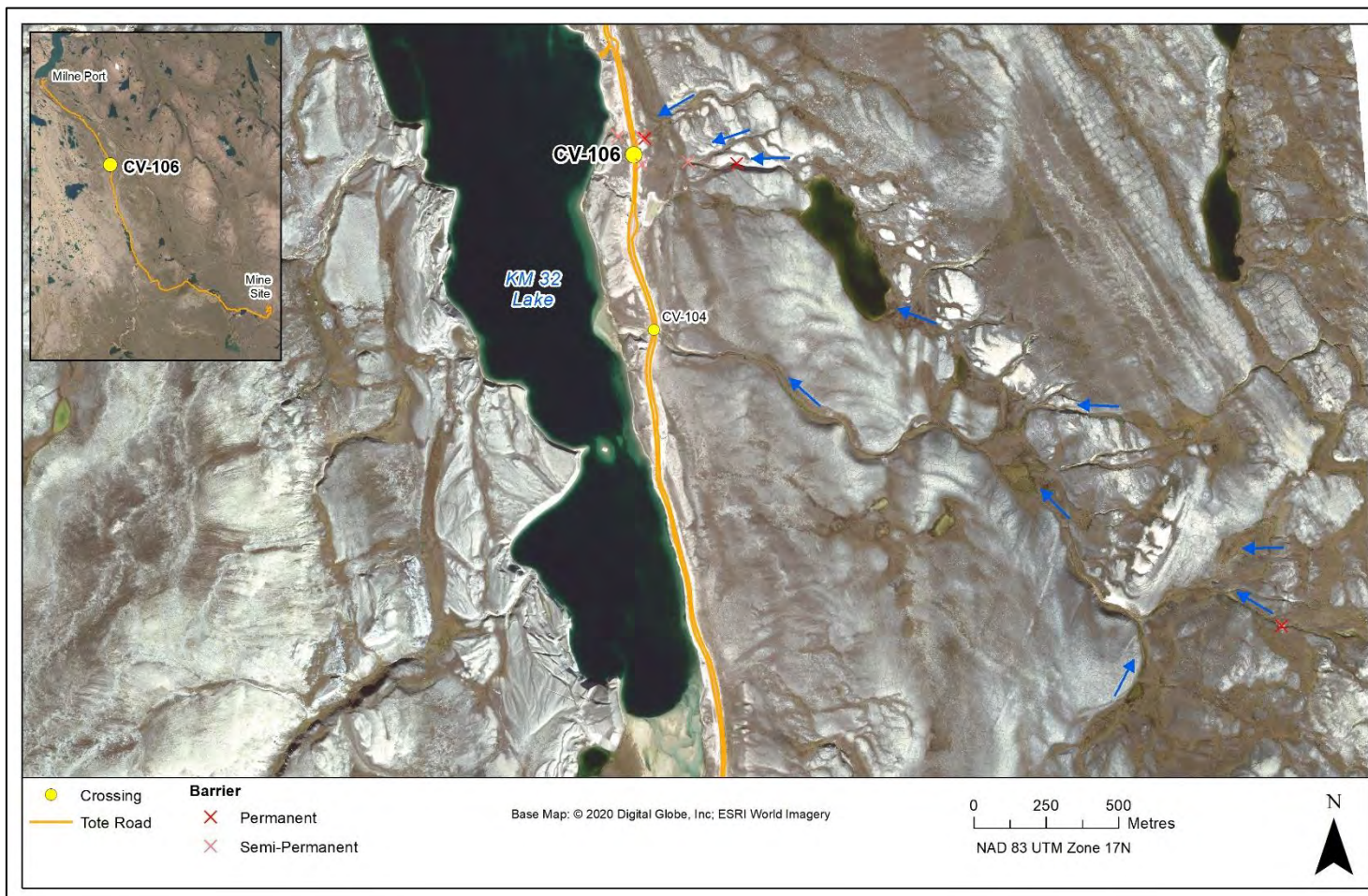
TOTE ROAD CV-106

LOCATION AND CROSSING DESCRIPTION

Site ID:	CV-106	Dates Surveyed:	2-Jul-23	Waterbody Type:	Stream
Project Interaction:	Tote Road Culvert	UTM Coordinates:	17W 521663 E 7953392 N		

GENERAL PHYSICAL CHARACTERISTICS

Flow Regime: Intermittent Stream Order: 2



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Aquatic Environment Specialists

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

TOTE ROAD CV-106

SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site CV-106 that flows 120 m west into Km 32 Lake. The lake is of sufficient depth to support overwintering of both species.

Detailed habitat data were collected in the crossing area in spring 2023. Previous surveys have indicated this stream can become very shallow or completely dry by summer/fall, particularly during years with less precipitation. In spring 2023, this stream was narrow, shallow, and slow-moving. Wetted widths ranged from 1.1 to 5.0 m. Water depths were low, rarely exceeding 0.10 m, with a maximum measured depth of 0.27 m. Velocities were also low, typically <0.30 m/s but exceeding 1.00 m/s at one location. Stream morphology was mostly riffle and run throughout. Substrate was primarily gravel/cobble.

Juvenile Arctic Char use habitat in the vicinity of the Tote Road crossing at CV-106 for rearing/feeding when water levels are sufficient. There is no char spawning or overwintering habitat in this stream. The culvert is currently perched and partially crushed and is likely preventing fish access to upstream areas.

Ninespine Stickleback were not captured in spring 2023 and have not been captured or observed in this stream during previous site surveys. It is unknown if the species is present in the watershed.

TOTE ROAD CV-106

FISH HABITAT POTENTIAL

Species	Spawning	Overwintering	Rearing	Adults Present
ARCH	N	N	Y	N
NNST	P	N	P	P

FISHERIES DATA

Location	Species	Survey Date	Temperature (°C)	Distance Fished (m)	Effort (Seconds)	# Fish Captured	# Fish Observed	CPUE (No. Fish/60 Seconds)	Length Range (mm)
Downstream	ARCH	2-Jul-23	9.0	50	109	3	0	1.65	61-75
	NNST					0	0	0.00	-
Upstream	ARCH			50	65	0	0	0.00	-
	NNST					0	0	0.00	-

OTHER NOTES / OBSERVATIONS

A few small char were captured downstream of the crossing in spring 2023. Due to the limited amount of habitat and typically shallow water conditions in this stream, char have only infrequently been captured in previous years of monitoring. The stream has intermittent barriers that prevent access to the crossing area during periods of low water. Stickleback have never been captured in this stream and it is unknown if they are present in the watershed.

TOTE ROAD CV-106

HYDROLOGY CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

Site	Channel Width (m)		Water Depth (m)				Water Velocity (m/s)			
	Bankfull	Wetted	25%	50%	75%	Max	25%	50%	75%	Max
100D	8.4	2.5	0.05	0.04	0.08	0.14	0.11	0.13	0.29	0.66
60D	45.6	5.0	0.26	0.14	0.09	0.27	0.00	0.17	0.20	0.59
20D	5.5	1.2	0.10	-	0.09	0.20	0.49	-	0.20	1.18
0 (Centreline)	UNDER TOTE ROAD									
20U	6.7	1.8	0.02	0.08	0.04	0.12	0.16	0.34	0.09	0.70
60U	6.1	1.4	0.07	0.18	0.04	0.18	0.09	0.06	0.03	0.20
100U	2.9	1.1	0.13	0.04	0.02	0.18	0.12	0.09	0.01	0.25

OTHER NOTES / OBSERVATIONS

This stream is narrow, shallow, and slow moving. Wetted widths ranged from 1.1 to 5.0 m. Measured depths were low, rarely exceeding 0.10 m, with a maximum measured depth of 0.27 m. Velocities were low, typically <0.30 m/s but exceeding 1.00 m/s at one location.

TOTE ROAD CV-106

HABITAT CHARACTERISTICS: 2-JUL-23

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools: Wetted

Stage: High

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

OTHER NOTES / OBSERVATIONS

Stream morphology was largely riffle and run. Substrate was primarily gravel cobble, with some patches of fines.

TOTE ROAD CV-106

2-JUL-23



A



B



C



D



E



F

Photos 1-1. Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-106

2-JUL-23

No Photo



A

B

C

Photos 1-2. Photos taken 100 m downstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

TOTE ROAD CV-106

2-JUL-23



A



B



C



D



E



F

Photos 1-3. Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2023: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

TOTE ROAD CV-106

2-JUL-23



A



B



C

Photos 1-4. Photos taken 100 m upstream in spring 2023: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).