

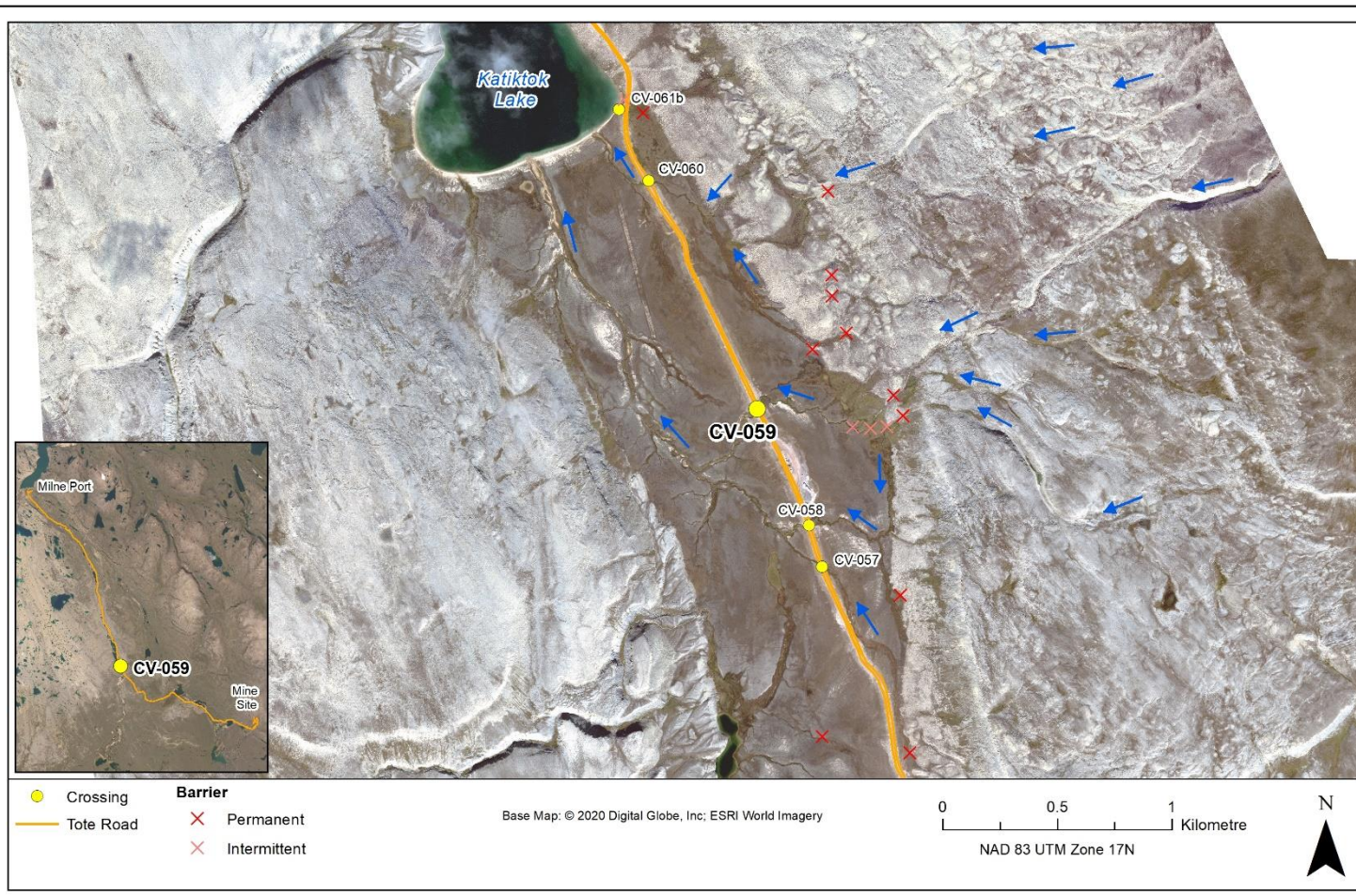
# TOTE ROAD CV-059

## LOCATION AND CROSSING DESCRIPTION

|                             |                   |                         |                        |                        |        |
|-----------------------------|-------------------|-------------------------|------------------------|------------------------|--------|
| <b>Site ID:</b>             | CV-059            | <b>Dates Surveyed:</b>  | 14-Jul-24              | <b>Waterbody Type:</b> | Stream |
| <b>Project Interaction:</b> | Tote Road Culvert | <b>UTM Coordinates:</b> | 17W 528094 E 7929347 N |                        |        |

## GENERAL PHYSICAL CHARACTERISTICS

**Flow Regime:** Seasonal      **Stream Order:** 2



BAFFINLAND IRON MINES  
MARY RIVER PROJECT

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

FISH HABITAT:

ARCTIC CHAR - YES

NINESPINE STICKLEBACK - POTENTIAL

# TOTE ROAD CV-059

## SITE SUMMARY

The Tote Road crosses a small, unnamed stream at site CV-059 that flows southwest, merging with other small drainages, and then northwest into the south end of Katiktok Lake 2 km downstream of the crossing. Katiktok Lake is of sufficient depth to support overwintering of both species. This stream is part of the same catchment as streams crossed by the road at sites CV-057 and CV-058 and collectively they represent the southernmost streams in the Phillips Creek drainage area. This crossing was remediated in winter 2023/2024. There is now a large, embedded culvert with a cobble apron and in-culvert cobble that allows unimpeded fish passage. No issues with the crossing were identified and successful passage of Arctic Char was observed.

This stream is generally deep, and slow moving. Wetted widths in spring 2024 ranged from 1.1 to 6.6 m. Maximum depths reached as high as 0.96 m with a range of 0.3-0.96 m. Measured velocities ranged from 0.00-0.64 m/s. Stream morphology varied in accordance with wetted width. In wider areas, morphology tended to be primarily deep pools, whereas riffle-run was more common where the stream narrowed. Wider areas of the stream were nearly uniformly composed of fine substrate, with cobble/gravel dominating in the narrow areas. There are greater proportions of cobble within 20 m of the culvert since remediation due to the new cobble aprons.

Similar numbers of juvenile Arctic char were captured downstream and upstream of the crossing in spring 2024. Char use habitat in the vicinity of the Tote Road crossing at CV-059 for rearing/feeding throughout the open-water period. There is no char spawning habitat and no overwintering habitat for either species in this stream.

Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009 despite an abundance of suitable habitat. It is unknown if they are present in Katiktok Lake.

# TOTE ROAD CV-059

## 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    | 14-Jul-24   | 4.0              | 50                  | 203              | 5               | 0               | 1.478                      | 69-108            |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |
| Upstream   | ARCH    |             |                  | 50                  | 150              | 6               | 0               | 2.400                      | 84-86             |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |

## OTHER NOTES / OBSERVATIONS

Similar numbers of juvenile Arctic char were captured downstream and upstream of the crossing in spring 2024. Most of the captured char, including all fish captured upstream, were <100 mm in length. Ninespine Stickleback have never been captured or observed in this stream since the monitoring program began in 2009 despite an abundance of suitable habitat. It is unknown if they are present in Katiktok Lake.

TOTE ROAD CV-059

HYDROLOGY CHARACTERISTICS: 14-JUL-24

Wetted/Dry/Shallow (<0.02 m)/Unconnected Pools:      Wetted      Stage:      Low-Moderate

| Site           | Channel Width (m) |        | Water Depth (m) |      |      |      | Water Velocity (m/s) |      |      |      |
|----------------|-------------------|--------|-----------------|------|------|------|----------------------|------|------|------|
|                | Bankfull          | Wetted | 25%             | 50%  | 75%  | Max  | 25%                  | 50%  | 75%  | Max  |
| 100D           | 9.30              | 6.60   | 0.10            | 0.06 | 0.03 | 0.16 | 0.11                 | 0.08 | 0.11 | 0.17 |
| 60D            | 7.50              | 3.50   | 0.05            | 0.09 | 0.10 | 0.75 | 0.06                 | 0.09 | 0.02 | 0.09 |
| 20D            | 10.20             | 3.60   | 0.08            | 0.20 | 0.25 | 0.44 | 0.03                 | 0.07 | 0.08 | 0.64 |
| 0 (Centreline) | UNDER TOTE ROAD   |        |                 |      |      |      |                      |      |      |      |
| 20U            | 6.50              | 4.20   | 0.49            | 0.39 | 0.46 | 0.62 | 0.00                 | 0.00 | 0.00 | 0.00 |
| 60U            | 7.50              | 5.00   | 0.50            | 0.51 | 0.44 | 0.96 | 0.00                 | 0.00 | 0.00 | 0.00 |
| 100U           | 2.20              | 1.10   | -               | 0.55 | -    | 0.80 | -                    | 0.07 | -    | 0.07 |

OTHER NOTES / OBSERVATIONS

Wetted widths in spring 2024 ranged from 1.1 to 6.6 m. Maximum depths reached as high as 0.96 m with a range of 0.3-0.96 m. Measured velocities ranged from 0.00-0.64 m/s.

# TOTE ROAD CV-059

## HABITAT CHARACTERISTICS: 14-JUL-24

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

**Stage:** Low-Moderate

| 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 |
| <b>100D</b>           | 10                                | 30            | -             | 60  | -       | -      | -    | 90                        | 10     | -            | -            | -        |
| <b>60D</b>            | -                                 | 40            | 40            | 20  | -       | -      | -    | 70                        | 20     | 10           | -            | -        |
| <b>20D</b>            | 10                                | 30            | 20            | 40  | -       | -      | -    | 20                        | 40     | 20           | 20           | -        |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD                   |               |               |     |         |        |      |                           |        |              |              |          |
| <b>20U</b>            | 10                                | 10            | 80            | -   | -       | -      | -    | 60                        | -      | 20           | 10           | 10       |
| <b>60U</b>            | -                                 | 10            | 90            |     | -       | -      | -    | 100                       | -      | -            | -            | -        |
| <b>100U</b>           | -                                 | 10            | 80            | 10  | -       | -      | -    | 90                        | 10     | -            | -            | -        |

## OTHER NOTES / OBSERVATIONS

Stream morphology varied in accordance with wetted width. In wider areas, morphology tended to be primarily deep pools, whereas riffle-run was more common where the stream narrowed. Wider areas of the stream were nearly uniformly composed of fine substrate, with cobble-gravel dominating in the narrow areas. There are greater proportions of cobble within 20 m of the culvert since remediation due to the new cobble aprons.



# TOTE ROAD CV-059

14-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

## TOTE ROAD CV-059

14-JUL-24



**A**



**B**



**C**

**Photos 1-2.** Photos taken 100 m downstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).



# TOTE ROAD CV-059

14-JUL-24



A



B



C



D



E



F

**Photos 1-3.** Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



## TOTE ROAD CV-059

14-JUL-23



**A**



**B**



**C**

**Photos 1-4.** Photos taken 100 m upstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).

# TOTE ROAD CV-059

14-JUL-23



**A**



**B**

**Photos 1-5.** Photos taken of the culverts in spring 2024: (A) downstream end; and (B) upstream end.



# TOTE ROAD CV-078

## LOCATION AND CROSSING DESCRIPTION

|                             |                   |                         |                        |                        |        |
|-----------------------------|-------------------|-------------------------|------------------------|------------------------|--------|
| <b>Site ID:</b>             | CV-078            | <b>Dates Surveyed:</b>  | 13-Jul-24              | <b>Waterbody Type:</b> | Stream |
| <b>Project Interaction:</b> | Tote Road Culvert | <b>UTM Coordinates:</b> | 17W 523852 E 7936787 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-078

## SITE SUMMARY

The Tote Road crosses an unnamed stream at site CV-078 that flows 100 m west before splitting into two main channels; one channel flows 640 m southwest to Phillips Creek at its outflow from Katiktok Lake and the other flows 700 m west to a small lake adjacent ,and connected, to Phillips Creek. Flows from the CV-078 stream merge with those from the stream crossed by the road at CV-079 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. Katiktok Lake is of sufficient depth to support overwintering. This site has been identified for remediation.

Detailed habitat data were collected in the stream crossing area in late spring 2024. This stream was wide, with low to moderate depths and moderate velocities. Wetted widths ranged from 7.9-18.1 m, measured depths ranged from 0.07-0.36 m, and measured velocities ranged from 0.10-0.82 m/s. Morphology was mainly riffle/run and substrates were largely cobble throughout.

Three juvenile Arctic char were captured downstream and none upstream of the crossing in spring 2024. Char can use habitat in the vicinity of the Tote Road crossing at CV-078 for rearing/feeding throughout the open-water period. There is no char spawning habitat and no overwintering habitat for either species 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-078

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    | 13-Jul-24   | 8.5              | 50                  | 296              | 3               | 0               | 0.608                      | 61-101            |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |
| Upstream   | ARCH    |             |                  | 50                  | 194              | 0               | 0               | 0.00                       | -                 |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |

OTHER NOTES / OBSERVATIONS

Three juvenile Arctic char were captured downstream and none upstream in spring 2024. 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-078

## HYDROLOGY CHARACTERISTICS: 13-JUL-24

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

**Stage:**    Low-Moderate

| Site                  | Channel Width (m) |        | Water Depth (m) |      |      |      | Water Velocity (m/s) |      |      |      |
|-----------------------|-------------------|--------|-----------------|------|------|------|----------------------|------|------|------|
|                       | Bankfull          | Wetted | 25%             | 50%  | 75%  | Max  | 25%                  | 50%  | 75%  | Max  |
| <b>20U</b>            | 19.10             | 7.90   | 0.20            | 0.12 | 0.14 | 0.36 | 0.43                 | 0.24 | 0.16 | 0.82 |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD   |        |                 |      |      |      |                      |      |      |      |
| <b>20D</b>            | 19.10             | 18.10  | 0.10            | 0.11 | 0.07 | 0.16 | 0.35                 | 0.10 | 0.32 | 0.51 |

## OTHER NOTES / OBSERVATIONS

This stream was wide, with low to moderate depths and moderate velocities. Wetted widths ranged from 7.9-18.1 m. Measured depths ranged from 0.07-0.36 m. Measured velocities ranged from 0.10-0.82 m/s.



# TOTE ROAD CV-078

## HABITAT CHARACTERISTICS: 13-JUL-24

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

**Stage:** Low-Moderate

| 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 |
| 20U            | 30                                | 10            | 10            | 50  | -       | -      | -    | -                         | -      | 45           | 45           | 10       |
| 0 (Centreline) | UNDER TOTE ROAD                   |               |               |     |         |        |      |                           |        |              |              |          |
| 20D            | 30                                | 20            | -             | 50  | -       | -      | -    | -                         | 10     | 70           | 15           | 5        |

## OTHER NOTES / OBSERVATIONS

Morphology was mainly riffle/run and substrates were largely cobble throughout.

# TOTE ROAD CV-078

13-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).



# TOTE ROAD CV-078

13-JUL-24



**A**



**B**



**C**

**Photos 1-2.** Photos taken of the culverts in spring 2024: (A) downstream end; and (B) upstream end.



# TOTE ROAD CV-079

## LOCATION AND CROSSING DESCRIPTION

|                             |                   |                         |                        |                        |        |
|-----------------------------|-------------------|-------------------------|------------------------|------------------------|--------|
| <b>Site ID:</b>             | CV-079            | <b>Dates Surveyed:</b>  | 13-Jul-24              | <b>Waterbody Type:</b> | Stream |
| <b>Project Interaction:</b> | Tote Road Culvert | <b>UTM Coordinates:</b> | 17W 525538 E 7937314 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-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. This crossing has been identified for remediation.

In late spring 2024, water levels were relatively low and most of the intermittent channels were dry. In addition, the leftmost channel typically carries the majority of the flow, but the rightmost channel carried the majority of the flow during the 2024 survey. Habitat data were collected in all three main channels. This stream had highly variable wetted widths, depths, and velocities across the three channels. Wetted widths in the left, middle, and right channels ranged from 2.6-10.6, 1.9-3.5, and 2.6-23.5 m, respectively. Measured depths ranged from 0.02-0.36 m across all channels. Average measured velocities were lowest in the left channel (0.15 m/s) and highest in the right channel (0.49 m/s). Stream morphology was mainly riffle/run with some shallow pools and substrates were largely gravel/cobble in all three channels.

Electrofishing was conducted in the left channel and juvenile Arctic char were captured downstream and upstream of the crossing. Although not fished, char were also observed upstream and downstream in the middle and right channels during visual inspections. Char in upstream reaches were slightly larger than those downstream. 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    | 13-Jul-24   | 5.0              | 50                  | 181              | 10              | 0               | 3.315                      | 53-91             |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |
| Upstream   | ARCH    |             |                  | 50                  | 144              | 7               | 0               | 2.917                      | 72-122            |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.00                       | -                 |

## OTHER NOTES / OBSERVATIONS

Electrofishing was conducted in the left channel and juvenile Arctic char were captured downstream and upstream of the crossing. Although not fished, char were also observed downstream and upstream in the middle and right channels during visual inspection. Char in upstream reaches were slightly larger than those downstream. 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

## HYDROLOGY CHARACTERISTICS: 13-JUL-24

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

**Stage:**      Low

| Site                  | Channel Width (m) |        | Water Depth (m) |      |      |      | Water Velocity (m/s) |      |      |      |
|-----------------------|-------------------|--------|-----------------|------|------|------|----------------------|------|------|------|
|                       | Bankfull          | Wetted | 25%             | 50%  | 75%  | Max  | 25%                  | 50%  | 75%  | Max  |
| <b>20D – Left</b>     | 28.20             | 10.60  | 0.02            | 0.12 | 0.11 | 0.36 | 0.07                 | 0.07 | 0.03 | 0.12 |
| <b>20D - Middle</b>   | 8.40              | 1.90   | 0.04            | -    | 0.02 | 0.05 | 0.12                 | -    | 0.21 | 0.23 |
| <b>20D – Right</b>    | 265               | 29.80  | 23.50           | 0.14 | -    | 0.10 | 0.22                 | 0.61 | -    | 0.34 |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD   |        |                 |      |      |      |                      |      |      |      |
| <b>20U – Left</b>     | 5.80              | 2.60   | 0.04            | 0.11 | 0.04 | 0.15 | 0.16                 | 0.06 | 0.09 | 0.59 |
| <b>20U – Middle</b>   | 10.40             | 3.50   | 0.05            | -    | 0.04 | 0.14 | 0.12                 | -    | 0.04 | 0.21 |
| <b>20U - Right</b>    | 36.10             | 2.60   | 0.05            | -    | 0.14 | 0.16 | 0.34                 | -    | 0.34 | 0.66 |

## OTHER NOTES / OBSERVATIONS

This stream had highly variable wetted widths, depths, and velocities across the three channels. Wetted widths in the left, middle, and right channels ranged from 2.6-10.6, 1.9-3.5, and 2.6-23.5 m, respectively. Measured depths ranged from 0.02-0.36 m across all channels. Average measured velocities were lowest in the left channel (0.15 m/s) and highest in the right channel (0.49 m/s).



# TOTE ROAD CV-079

## HABITAT CHARACTERISTICS: 13-JUL-24

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

**Stage:** Low

| 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 |
| <b>20D – Left</b>     | -                                 | 70            | 10            | 20  | -       | -      | -    | 30                        | 40     | 30           | -            | -        |
| <b>20D - Middle</b>   | 20                                | 20            | -             | 60  | -       | -      | -    | -                         | 60     | 40           | -            | -        |
| <b>20D – Right</b>    | 30                                | 20            | 20            | 30  | -       | -      | -    | -                         | 20     | 50           | 30           | -        |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD                   |               |               |     |         |        |      |                           |        |              |              |          |
| <b>20U – Left</b>     | 20                                | 20            | -             | 60  | -       | -      | -    | 10                        | 30     | 50           | 10           | -        |
| <b>20U – Middle</b>   | 20                                | 20            | -             | 60  | -       | -      | -    | -                         | 45     | 45           | 10           | -        |
| <b>20U - Right</b>    | 30                                | 20            | -             | 50  | -       | -      | -    | -                         | 20     | 80           | -            | -        |

## OTHER NOTES / OBSERVATIONS

Stream morphology was mainly riffle/run with some shallow pools and substrates were largely gravel/cobble in all three channels.

# TOTE ROAD CV-079

13-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in the lefthand channel in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).



# TOTE ROAD CV-079

13-JUL-24



A



B



C



D



E



F

**Photos 1-2.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in the middle channel in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).



# TOTE ROAD CV-079

13-JUL-24



A



B



C



D



E



F

**Photos 1-3.** Photos taken 20 m downstream (top) and 20 m upstream (bottom) in the righthand channel in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (right bank looking at left bank).



# TOTE ROAD CV-079

13-JUL-24



A



B



C



D



E



F

**Photos 1-4.** Photos taken of the culvert at the downstream end (top) and upstream end (bottom) in spring 2024: (A,D) lefthand channel; (B,E) middle channel; and (C,F) righthand channel.



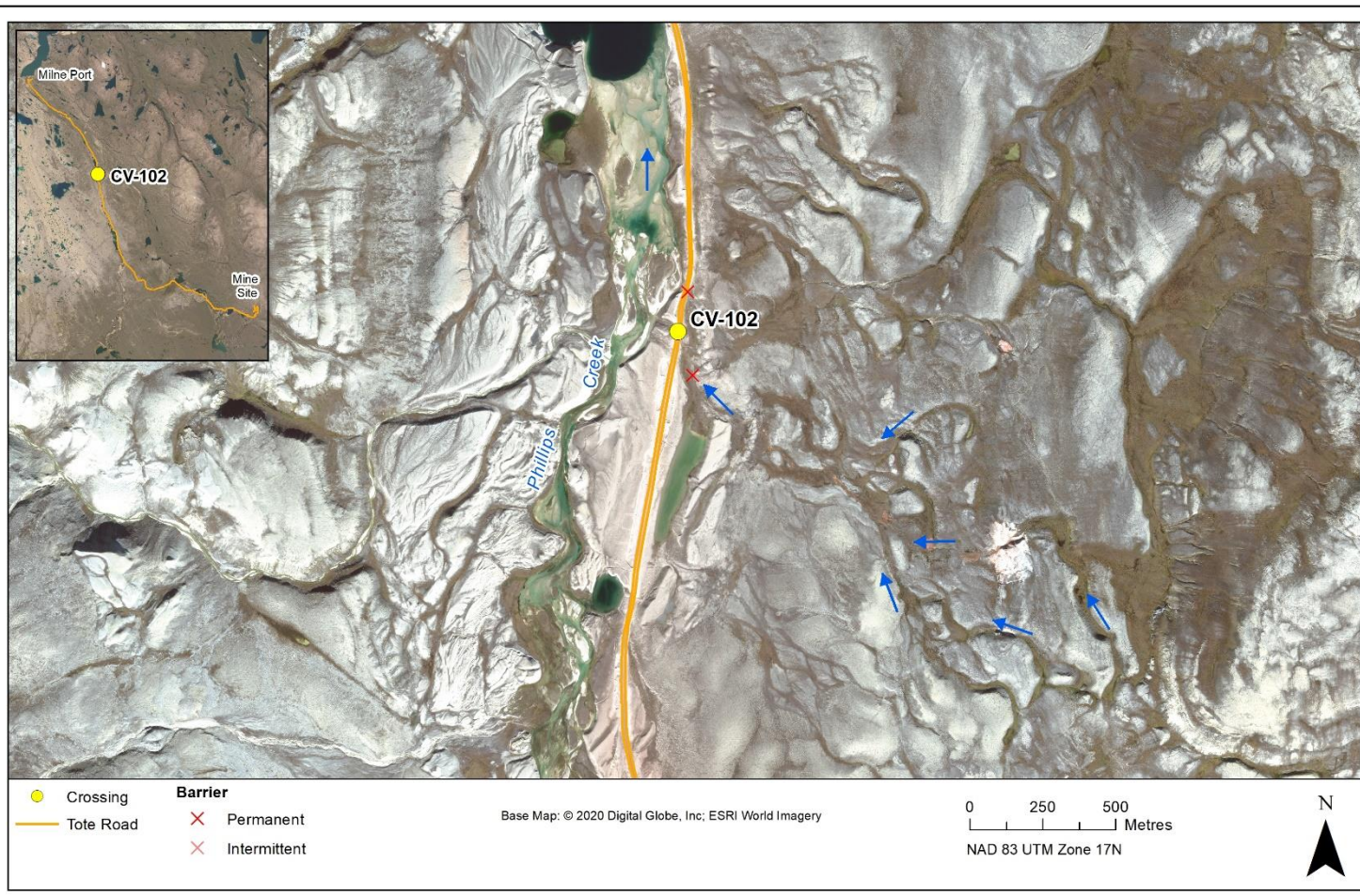
# TOTE ROAD CV-102

## LOCATION AND CROSSING DESCRIPTION

|                             |                   |                         |                        |                        |        |
|-----------------------------|-------------------|-------------------------|------------------------|------------------------|--------|
| <b>Site ID:</b>             | CV-102            | <b>Dates Surveyed:</b>  | 12-Jul-24              | <b>Waterbody Type:</b> | Stream |
| <b>Project Interaction:</b> | Tote Road Culvert | <b>UTM Coordinates:</b> | 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.

This crossing was remediated in winter 2023/2024. There is now a large, embedded culvert at the crossing, however the large aggregate material used in the apron and inside the culvert appears to be too large for typical flows in this stream. As a result, by the site visit on 12 July, flows had become subsurface under the aprons. Fish no longer had access to upstream habitat and fish that had moved upstream earlier had become stranded upstream.

Detailed habitat data were collected in the crossing area in late spring 2024. Wetted widths ranged from 3.3-10.1 m, with the widest areas upstream of the crossing. Measured depths were shallow, rarely exceeding 0.10 m, and ranging from 0.01-0.15 m. Measured velocities ranged from 0.00 to 0.37, with higher velocities in the narrower constricted areas. Stream morphology was typically riffle and run with greater proportions of pools upstream. Substrate was primarily gravel/cobble with some fines accumulated among the large cobble/boulder aprons.

One small juvenile Arctic Char was captured downstream of the culvert in spring 2024. Eleven small char were captured upstream with no access to return downstream at the time of the survey. Substantive increases in water levels would have been required to allow fish to return to overwintering habitat. Juvenile char typically use habitat in this stream for rearing throughout the open-water period. There is insufficient depth for char spawning or overwintering.

Ninespine Stickleback were not captured in spring 2024 and have only been captured once (spring 2023) in this stream since monitoring began. 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    | 12-Jul-24   | 10.5             | 50                  | 85               | 1               | 0               | 0.706                      | 45                |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.000                      | -                 |
| Upstream   | ARCH    |             |                  | 50                  | 138              | 11              | 0               | 4.783                      | 47-97             |
|            | NNST    |             |                  |                     |                  | 0               | 0               | 0.000                      | -                 |

## OTHER NOTES / OBSERVATIONS

One small juvenile Arctic Char was captured downstream of the culvert in spring 2024. Eleven small char were captured upstream with no access to return downstream at the time of the survey. Substantive increases in water levels would have been required to allow fish to return to overwintering habitat. Ninespine Stickleback were not captured in spring 2024 and have only been captured once (spring 2023) in this stream since monitoring began.

# TOTE ROAD CV-102

## HYDROLOGY CHARACTERISTICS: 12-JUL-24

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

**Stage:** Low

| Site                  | Channel Width (m) |        | Water Depth (m) |      |      |      | Water Velocity (m/s) |      |      |      |
|-----------------------|-------------------|--------|-----------------|------|------|------|----------------------|------|------|------|
|                       | Bankfull          | Wetted | 25%             | 50%  | 75%  | Max  | 25%                  | 50%  | 75%  | Max  |
| <b>100D</b>           | PHILLIPS CREEK    |        |                 |      |      |      |                      |      |      |      |
| <b>60D</b>            | 6.70              | 4.30   | 0.02            | 0.02 | -    | 0.04 | 0.06                 | 0.17 | -    | 0.24 |
| <b>20D</b>            | 11.80             | 6.90   | 0.02            | 0.01 | 0.02 | 0.04 | 0.18                 | 0.03 | 0.12 | 0.36 |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD   |        |                 |      |      |      |                      |      |      |      |
| <b>20U</b>            | 8.20              | 3.30   | 0.04            | 0.05 | 0.02 | 0.14 | 0.02                 | 0.10 | 0.00 | 0.37 |
| <b>60U</b>            | 16.30             | 10.10  | 0.02            | 0.02 | 0.02 | 0.05 | 0.06                 | 0.07 | 0.09 | 0.10 |
| <b>100U</b>           | 21.20             | 10.00  | 0.03            | 0.02 | 0.03 | 0.15 | 0.12                 | 0.15 | 0.10 | 0.21 |

## OTHER NOTES / OBSERVATIONS

Wetted widths ranged from 3.3-10.1 m, with the widest areas upstream of the crossing. Measured depths were shallow, rarely exceeding 0.10 m, and ranging from 0.01-0.15 m. Measured velocities ranged from 0.00 to 0.37, with higher velocities in the narrower constricted areas.

# TOTE ROAD CV-102

## HABITAT CHARACTERISTICS: 12-JUL-24

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

**Stage:** Low

| 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 |
| <b>100D</b>           | PHILLIPS CREEK                    |               |               |     |         |        |      |                           |        |              |              |          |
| <b>60D</b>            | 30                                | 10            | -             | 60  | -       | -      | -    | 10                        | 40     | 50           | -            | -        |
| <b>20D</b>            | 30                                | 10            | -             | 60  | -       | -      | -    | 35                        | 30     | 30           | 5            | -        |
| <b>0 (Centreline)</b> | UNDER TOTE ROAD                   |               |               |     |         |        |      |                           |        |              |              |          |
| <b>20U</b>            | 10                                | 30            | -             | 60  | -       | -      | -    | 40                        | 10     | 20           | 25           | 5        |
| <b>60U</b>            | 10                                | 30            | -             | 60  | -       | -      | -    | -                         | 30     | 60           | 10           | -        |
| <b>100U</b>           | 10                                | 30            | -             | 60  | -       | -      | -    | 5                         | 5      | 90           | -            | -        |

## OTHER NOTES / OBSERVATIONS

Stream morphology was typically riffle and run with greater proportions of pools upstream. Substrate was primarily gravel/cobble with some fines accumulated among the large cobble/boulder aprons.



# TOTE ROAD CV-102

12-JUL-24



A



B



C



D



E



F

**Photos 1-1.** Photos taken 20 m downstream (top) and 60 m downstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).



# TOTE ROAD CV-102

12-JUL-24



A



B



C



D



E



F

**Photos 1-2.** Photos taken 20 m upstream (top) and 60 m upstream (bottom) in spring 2024: (A,D) facing upstream; (B,E) facing downstream; and (C,F) across (left bank looking at right bank).

# TOTE ROAD CV-102

12-JUL-24



**A**



**B**



**C**

**Photos 1-3.** Photos taken 100 m upstream in spring 2024: (A) facing upstream; (B) facing downstream; and (C) across (left bank looking at right bank).