

Grid Interval = 1000 meters

Watershed Area :	0.25 km²
Lake Area :	0.00 km²
Swamp Area :	0.00 km²
Retention Area :	0.00 km²
Retention Factor :	0.00 %
Base Class :	0.00
Watercourse Type :	Permanent

Installer Experience : **As Per Approved Implementation Toolkit**

		Structure 1	Structure 2	Structure 3
Structure Type		Culvert	Bridge	Ice
Design Flow		Q25	Q25	Q2
Fill Material		Pit Run Gravel	Pit Run Gravel	Snow and Ice
<div> <div>Dates for In Water Work (if required)</div> <div>Start Finish</div> </div>	July 16	July 16		
	August 31	August 31		
Removal Timeframe		>2 Years	>7 Years	By March 31st



Date _____

Shaded Area for Office Use Only	ARFMI Road Network No. 343	Previously Used Crossing ID	Crossing Evaluation Reference Number A3151
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Within 500m of Brook Trout stream: **NO**

Culvert Design Options	Q ₂₅	Q ₁₀	Q ₅	Q _{2.33}
Design Flow	0.000 m³/sec	0.000 m³/sec	0.000 m³/sec	0.000 m³/sec
1 Round	450mm	450mm	450mm	450mm
2 Round	N/A	N/A	N/A	N/A
3 Round	N/A	N/A	N/A	N/A
1 Arch (BxD)	450x340mm	450x340mm	450x340mm	450x340mm
2 Arch (BxD)	N/A	N/A	N/A	-
3 Arch (BxD)	N/A	N/A	N/A	-
• Required Opening for bridges is calculated as per the Crown Land Bridge Management Guidelines.				

- This standard only applies if the project does not:
 - Replace an existing open-bottom crossing (e.g., clear span bridge, arch culvert);
 - Replace an existing closed-bottom culvert larger in diameter than that being installed; or
 - Involve the installation of more than one closed-bottom culvert at the crossing location.
- Locate, design and construct to minimize likelihood of ongoing outlet scour, culvert undermining or erosion of fill in order to provide stable, non-perched culverts that provide for fish passage.
- Do not locate on meander bends, braided streams, or any other area inherently unstable that may result in alteration of natural stream functions or erosion and scouring of the structure.
- Size to a minimum Q25 design flow. If an unmapped stream is encountered and proper analysis cannot be completed to determine Q25, size to ensure it spans from bank to bank.
- Do not install where channel slope at crossing location is of a gradient greater than 2.0%.
- Do not install where slope of road approaches or either bank approach is greater than 30% (17°).
- Locate where culvert can be embedded below grade of stream bed.
- Use site-specific mitigation measures to ensure no ongoing erosion of fill. As a minimum:
 - Stabilize both inlet and outlet ends with appropriately sized non-erodible material;
 - Rock used is clean, free of fine materials and of sufficient size to resist peak flood events;
 - Place rock at original bank grade to ensure no infilling or narrowing of watercourse;
 - Fill material placed below normal high water mark must be erosion resistant and/or protected from erosion.

The Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales refers to the normal high-water mark as the edge of vegetation communities capable of providing an effective barrier to the movement of sediment.

- Do not locate within 100 metres of fisheries spawning or sensitive habitat.
- Do not locate within 500 metres of any brook trout spawning or upwelling areas.
- Do not locate on watercourses that flow into, and are within 500m of, known naturally reproducing brook trout lakes.
- Max of size, length, slope & drainage area must not increase flows to consistently & predictably impede fish passage.
- Install under low-flow conditions and not when flows are elevated due to local rain events or seasonal flooding.
- Both interior and exterior of culverts must be conformed to ensure structural stability and facilitate fish passage.
- The grade of the culvert must reflect the grade of the natural watercourse bed.
- Compact backfill adequately around the culvert. Use only clean sand or gravel and compact around the culvert in layers.
- Length of culverts must permit banks to be sloped at an angle of 2:1 or a stable angle of repose for the materials used.

MNRF Assigned
Thermal Code
at Crossing

	Structure 1	Structure 2	Structure 3
Risk Evaluation:	LOW	LOW	LOW
Site Inspection Required:	NO	NO	NO



ARFMI Crossing Installation Report

(Must be completed for each crossing location)

Shareholder: _____ Block ID: _____

Contractor: _____ Road Name: _____

SITE CONDITIONS ENCOUNTERED

Crossing Located By:

Date Measurements Taken:

Stream Measurements
(meters)

Flood Plain Width :	A
Bankful Width :	B
Channel width :	C
Depth - 25% of Channel :	D (l)
Depth - 50% of Channel :	D (c)
Depth - 75% of Channel :	D (r)
Depth - Bankful Flow :	E
Depth — Floodplain :	F
Stream Velocity :	m /sec

Notes:

Foundation Soil Description :

Sand ☐

Muck ☐

Silt ☐

Rubble ☐

Clay ☐

Gravel ☐

Channel Type:

Ephemeral ☐

Intermittent ☐

Permanent ☐

ARFMI Notification Provided :

(ARFMI Advised- 'Change to Operation' made)

FRI Incorrect ☐

Unmapped ☐

INSTALLATION CONDITIONS

Installation Supervised By:

Date of installation:

Crossing Permanency : Refer to Structure Removal Timeframe specified in AWS 4 and 5

Month / Year

Permanent ☐

Temporary ☐

Decommissioned Date: _____

Note: Measurements (★) must be included for all structures which remain in place beyond date of inspection

Scheduled Removal Date: _____

Crown Land Bridge

☐ Bridge Record Form submitted (i.e. MNR / ARFMI)

NAD 83 (Record Actual Crossing Location on Stream Segment):

E

N

New Crossing Type:

Box Culvert ☐

Arch Culvert ☐

Round Culvert ☐

Portable Bridge ☐

Steel Stringer Bridge ☐

Winter Snow Pack ☐

Structure Description:

Steel ☐

Plastic ☐

Wood ☐

Concrete ☐

Ford (Engineered) ☐

Type of Fill:

Sand ☐

Gravel ☐

Rock Rubble ☐

Other ☐

Erosion Prevention and Control (X):

(Indicate applicable measures taken)

Stable slopes on stream banks and drainage ditch banks ☐

Course, clean rock to high water mark ☐

Re-vegetate or seed slopes (stream banks and ditch banks) ☐

Divert drainage ditches to green belt ☐

Line drainage ditches with rock ☐

Use rock weirs in drainage ditches to impede water flow ☐

Use filter cloth on upstream side of culverts ☐

No grubbing or stripping of ground vegetation ☐

Use filter cloth (On top of ice if fill is used for Winter Crossings) ☐

Other: ☐

WATER CROSSING OPERATIONS CHECKLIST

Only certified inspectors are allowed to conduct Forest Operations Inspections for submission to the FOIP database

Inspector Name: _____

FOIP Report Number : _____

CULVERT

* 'As Built' Culvert Installation Measurements
(meters)

Installed Diameter :	
Structure Length :	
Road Width :	
Depth of Cover:	
Water Depth in Pipe :	
Number of Culverts :	
Spacing Between Pipes :	

4 Photos must be Attached

() Approaches

() Inlet

() Outlet

() Inside Pipe

☐ Remedial action required

BRIDGE

* 'As Built' Bridge Installation Measurements
(meters)

Bridge length :	G
Clear Opening Width :	H
Freeboard (min 0.5m) :	I
Flood Rise :	J
Fill Height :	K
Left Slope Length :	L
Left Slope Rise :	M
Right Slope Length :	N
Right Slope Rise :	O
Crib Width :	P
Crib Height :	R

5 Photos must be Attached

() Approaches

() Deck

() Underside

() Upstream (Inlet)

() Downstream (Outlet)

☐ Remedial action required

☐ Verified 'As Built' measurements consistent with proposed bridge dimensions on 'Bridge Site Data Form'

Verification :

☐ I have confirmed that the final crossing condition satisfies the mandatory water crossing standards and will not impede future transfer of responsibility

Notes:

Water Crossing Activity (X):

☐ Water crossing location same as AWS submission

☐ Installation of culvert and size same as described in AWS water shed calculations.

☐ No sediments or woody debris left in water body or streams

☐ Construction materials removed from site

☐ Embankment sloped properly (e.g. 2:1) with no possibility of slumping

☐ Timing restriction met

☐ Culvert properly installed (i.e. refer to FMP Standards)

☐ Sediment Control Plan in AWS followed

☐ No Erosion or Sedimentation present (e.g. filter cloth used to prevent material from entering waterway)

☐ No signs of equipment or machinery in stream (i.e. culvert installed before equipment progresses past crossing)

☐ Coarse clean rock used on all culvert crossings

☐ Natural vegetation protected

☐ Additional measures used to prevent erosion (e.g. seed, filter cloth, rip rap etc.)

☐ Drainage ditches properly installed

☐ Crossing removed before March 31 unless left for silviculture activities

☐ Road right of way width through unallocated stands , no larger than FMP requirement

☐ Road right of way width through AOC's (reserves), no larger than FMP requirement

Note: All of the above activities must be checked. ✓ - Verified to be within acceptable limits ✗ - Outside of acceptable limits. Refer to comments for additional details N/A — Not applicable

I certify that the activities inspected are fully compliant based on an inspection appropriate to support this decision. Signature: _____ Date: _____