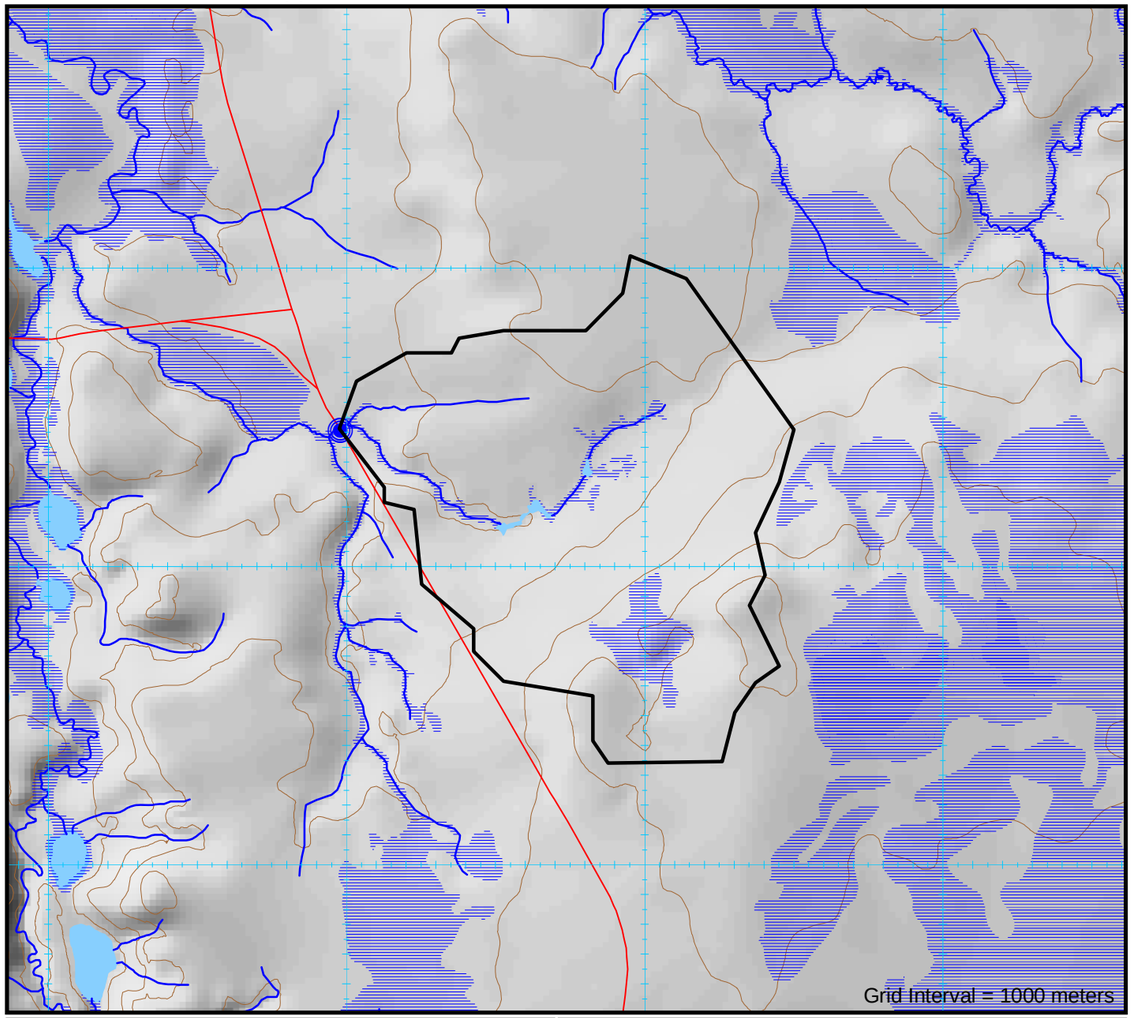
Abitibi River Forest Appendix 1: Form for Submission of Information on a Proposed Crossing



Shaded Area for Office Use Only	ARFMI Road Network No.	312	Previously Used Crossing ID	Crossing Evaluation Reference Number	**A1380**

Publication Date: February 26, 2024

Abitibi River Forest - S.F.L. # 551832

Proponent: Rayonier AM
c/o P.O. Box 867
New Liskeard, Ontario
P0J 1P0
(705) 680-0033

Plan Term: 2022-2032

AWS Year: 2024-25

Fisheries Operational Management Zone (OMZ):

Standard for Self-assessed Water Crossing Construction, Removal and/or Decommissioning: Conditions of standard not met for first structure. See red text.

Previous Assessment Year (incl. SA): **2024**

SAR species likely to be impacted: **NO**

Preconstruction photos available: **NO**

Within 500m of Brook Trout stream: **YES**

Culvert Design Options	Q_{25}	Q_{10}	Q_5	$Q_{2.33}$
Design Flow	1.986 m^3/sec	1.668 m^3/sec	1.390 m^3/sec	1.073 m^3/sec
1 Round	1400mm	1200mm	1200mm	1000mm
2 Round	1000mm	900mm	900mm	800mm
3 Round	900mm	800mm	800mm	800mm
1 Arch (BxD)	1630x1120mm	1630x1120mm	1390x970mm	1390x970mm
2 Arch (BxD)	1390x970mm	1150x820mm	1030x740mm	1030x740mm
3 Arch (BxD)	1030x740mm	910x660mm	910x660mm	910x660mm

• Required Opening for bridges is calculated as per the Crown Land Bridge Management Guidelines.

Conditions on Culvert Design Options

- Initial Fisheries Review based on one pipe. Two or more pipes requires a re-assessment.
- Round culvert calculations assume 10% fill. For 20% fill, increase diameter to next highest standard diameter.
- For 40% fill, use a round culvert diameter of the Base distance of the corresponding Arch style culvert.
- All calculations are for projecting ends. Total pipe length normally not to exceed 20m.
- All calculations assume a Headwater Depth of 1.0.
- MP = Multi-Plate (i.e. SPCSP)

General Standards

- No watercourse realignment, nor use of explosives is permitted.
- Minimize loss or disturbance to riparian vegetation. Restrict removal of riparian vegetation to the disturbance footprint required for construction, maintenance and decommissioning of the water crossing.
- Install erosion and sediment control measures prior to commencement of construction or decommissioning to prevent release of sediment or other deleterious substances into watercourse.
- Fill material placed below the normal high water mark must be erosion-resistant and/or protected from erosion.
- Direct storm water runoff from bridge decks, side slopes, road approaches and ditches away from the watercourse and into a retention pond or vegetated area.
- Ensure erosion and siltation in ditch lines adjacent to the watercourse crossing approaches are controlled using sediment traps such as rock/soil dams or log jams as site conditions warrant.
- Do not block or impede the free passage of water and fish at any time of year up and down stream, with the exception of potential and temporary blockage due to water crossing construction/decommissioning activities.
- Abide by fisheries in-water timing windows in the approved FMP and/or forest management guides. Where fishery communities are not well documented, the most restrictive in-water timing window must be used.
- Complete all in-water construction and decommissioning activities in an uninterrupted fashion and in an appropriate timeframe to minimize potential for site disturbance.
- If installation requires inwater work, do not locate within 100m of spawning or sensitive fish habitat eg. rapids, riffles, known overwintering areas.
- Maintain machinery free of fluid and fuel leaks. Wash, refuel and service machinery at least 30m from watercourse. Store fuel and other materials for machinery a minimum of 30m from the watercourse.
- Operate machinery on land with tracks/wheels above the normal high water mark, or on ice in a manner that avoids disturbance to the banks of the watercourse and adjacent riparian vegetation areas.
- Remove all debris from construction and decommissioning work from the site following completion of the undertaking.
- If machinery fording is required, limit to a one-time event (over and back) per piece of equipment essential to implementating the project, and only if using an existing crossing at another location is not available or practical.
  - If minor rutting is likely, watercourse bank and bed protection methods (e.g., swamp mats, pads) are to be used provided they do not constrict flows or block fish passage;
  - Grading of the watercourse banks for the approaches is not permitted;
  - If the watercourse bed and banks are steep and highly erodible (e.g., dominated by organic materials and silts) and erosion or degradation is likely, use a temporary crossing structure or other practice to protect them;
  - The one-time fording must adhere to the appropriate in-water timing windows; Fording must occur under low-flow conditions and not when flows are elevated due to local rain events or seasonal flooding.

Standards for Single, Small Closed-Bottom Round Culverts

- This standard applies to single, round, corrugated, closed-bottom steel, aluminum, or plastic culverts less than or equal to 1200mm in diameter that do not require site-specific engineering approval per MNRF's Crown Land Bridge Manual.
- 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.
- Mix 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 corrugated 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.

Watershed Characteristics

Watershed Area :	**1.60 km^2**
Lake Area :	**0.00 km^2**
Swamp Area :	**0.00 km^2**
Retention Area :	**0.00 km^2**
Retention Factor :	**0.00 %**
Base Class :	**7.24**
Watercourse Type :	**Permanent**

Crossing Location Characteristics

NOTE: See current AWS Tables 1 and 2 and AWS maps for approved AWS details for year of installation.

Evaluation ID No. :	A1380
Geographic Township :	Abbotsford
UTM Coordinates (NAD83) :	582980E, 5438457N
Road Type :	Primary
Stream Gradient :	0%
Slope > 30% (17°) :	NO
Installer Experience :	As Per Approved Implementation Toolkit

ABITIBI RIVER Forest Management Inc

Company Name _____ (Print)

Company Signature _____

Operator Name _____ (Print)

Operator Signature _____

Date _____

Proposed Structures

		Structure 1	Structure 2	Structure 3
Structure Type		Culvert		
Design Flow		Q25		
Fill Material		Pit Run Gravel		
Dates for In Water Work (if required)	Start	July 16		
	Finish	August 31		
Removal Timeframe		>2 Years		

Calculations performed by First Resource Management Group (FRMG). Neither Abitibi River Forest Managment Inc., nor FRMG guaratee the accuracy of any information presented on this form. Coordinates and map are UTM projection, Zone 17 NAD83 datum.

Reviewed by MNRF. Follow standard(s) as well as any Appendix 2 conditions.

MNRF Appendix 2: Biologist Risk Evaluation
Concerns and Conditions on Construction

Watershed Thermal Code : UF

MNRF Assigned Thermal Code at Crossing **C D**

The crossing is proposed at a previously approved and existing crossing site. Installation is suggested at this site rather than creating new approaches, abutments, landings, etc. This ranking does not authorize any undertaking that results in serious harm to fish, but suggests a low risk of causing serious harm to fish in compliance with the Fisheries Act following best practices such as those described in the DFO measures to avoid causing harm to fish and fish habitat and the standard mitigation techniques outlined in the FMP.
— A coldwater system and, according to OWIT, a considerable channel slope of 1.50%. However, the risk would drop to LOW if the installers ensure it can be embedded properly in the channel before final selection of the culvert option.

— FRMG Note: Existing crossing site.

	Structure 1	Structure 2	Structure 3
Risk Evaluation:	**MEDIUM**		
Site Inspection Required:	**NO**		

ARFMI Crossing Installation Report

(Must be completed for each crossing location)

Shareholder: _____ **Block ID:** _____

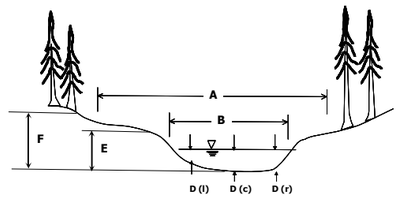
Contractor: _____ **Road Name:** _____

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

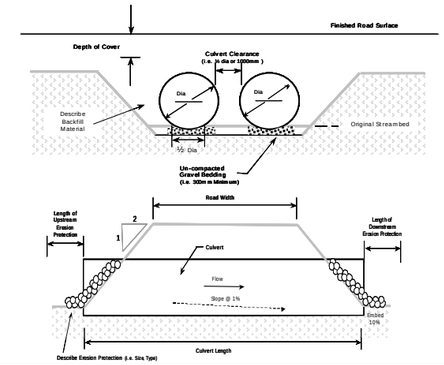
Inspector Name: _____

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

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 :	



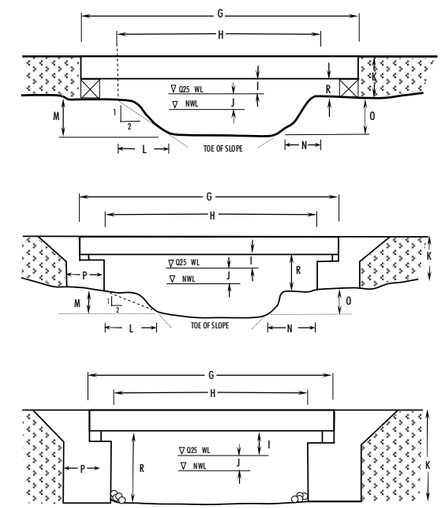
4 Photos must be Attached

- ( ) 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



Bridge Used (Identification #) :

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: _____