INSPECTION REPORT: GREENS CREEK MINE

Tongass National Forest Minerals Group
8510 Mendenhall Loop Rd
Juneau, AK 99801
(907) 789-6276 – office
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Date of Inspection: Wednesday, December 7, 2022
Date of Report: January 5, 2023
USDA Forest Service Inspector: Pat Dryer

Ranger District: Admiralty National Monument, Juneau Ranger District
Weather Conditions: Overcast, light rain. Temperature: Mid 50's (◦F).

Exploration in accordance with operating plan	Not Applicable
Timber removal following timber sale contract	Not Applicable
BMP for erosion control	Satisfactory
Water Quality BMP	REQUIRES ACTION
Public safety & fire prevention	Satisfactory
Reclamation work adequate and timely	Satisfactory
Road maintenance adequate and current	Satisfactory
Tails placement in accordance with plan	Satisfactory
Waste Rock placement in compliance	Satisfactory
Company supervision of operation	Satisfactory
Operating in a clean and orderly manner	Satisfactory

Any conditions noted as UNSATISFACTORY will require follow up action by the Mine Inspector and a written memorandum to the operator, outlining the necessary work.
Any conditions noted as Requires Action will require attention from the operator and suggestions for necessary work are listed below

Transportation to the site was via the HGCMC crew boat.

David Landes (Chief Environmental Engineer) accompanied Pat Dryer (Hydrologist, USFS), Justin Anderson (Hydrologist, USFS) and Shannon Kelly (Mining Engineer, ADNR).

The site inspection included: The A and B access roads, 920 area, Site 23, Pond A, Site 23 pond, 7.4 mile B-Road Bridge (Killer Creek Bridge), 5.6 mile B-Road landslide area, 3.4 mile B-Road bridge (Falls Creek Bridge), 3.0 mile B-Road bridge (Zinc Creek Bridge), and the Tailings Disposal Facility (TDF).

STATUS OF ACTION ITEMS FROM PREVIOUS INSPECTIONS:

Date/Item No.	Item Description	Status
423-1; 7/28/2022	Increased turbidity of surface water runoff was observed at the 3.0 mile B-Road Zinc Creek Bridge uphill side stormwater BMPs.	**PENDING.** Hecla requested to use anionic polymers or "flocc logs" to reduce turbidity in stormwater BMP's on 9/26/2022. In a subsequent meeting with ADEC, ADF&G, ADNR, and the USFS Hecla was approved to test the polymers for use in BMP's.

424-2: 8/31/2022	Stormwater sediment BMPs on the downhill side of the Falls Creek Bridge abutment are in disrepair (Photo 19). BMPs require improvement to effectively contain sediment or prevent sediment from accumulating on the abutment.	**PENDING.** Freezing temperatures and winter conditions have decrease surface water runoff.
424-3: 8/31/2022	Sumps that precede the "Gnome Pond" along the B-Road are filled with sediment that should be removed to improve BMP efficiency (Photo 27).	**PENDING.** Freezing temperatures and snowfall have covered sumps.
426-1 10/26/2022	Stormwater sediment BMPs on the uphill side of the Falls Creek Bridge abutment are not functioning as designed and turbid water is reaching Falls Creek (Photos 21-22). BMPs require improvement to reduce turbidity of runoff prior to discharge into Falls Creek.	**PENDING.** Freezing temperatures and winter conditions have decrease surface water runoff.

NEW ACTION ITEMS
No new action items were observed during this inspection.

ACCESS ROADS
The A and B access roads appeared in good condition.

920 AREA
The Greens Creek discharge was 18 cfs (Photos 1-2) and 1.3 cfs was being withdrawn for operational use.

The Greens Creek bridge appeared in good condition, with sediment deflection concrete barriers preventing sediment from reaching bridge abutments (Photo 3).

Pond A was in good condition with substantial surge capacity (Photo 4).

Good housekeeping practices were observed at the 920 warehouse (GPO, Appendix 5 BMP Plan, page 39). All petroleum/chemicals observed were properly stored within secondary containment (Photo 5).

SITE 23
Class 1/2/3 waste rock continues to be placed at this location (Photo 6).

Site 23 pond was in good condition with substantial surge capacity (Photo 7).

7.4-MILE B-ROAD BRIDGE (KILLER CREEK BRIDGE)
The Killer Creek Bridge appeared in good condition, with sediment deflection concrete barriers preventing sediment from reaching bridge abutments (Photo 8-9).

5.6 MILE B-ROAD LANDSLIDE

The rock buttress fill that was placed adjacent to the roadway at the 5.6 mile of the B-road has been completed (Photo 10). Snow had covered the slope during this inspection and future inspections will document the completed repairs.

3.4-MILE B-ROAD BRIDGE (FALLS CREEK BRIDGE)
This bridge was replaced earlier this year. The new bridge wear surface was installed higher than the adjacent roadbed which is intended to prevent excessive ponding of water on the bridge surface (Photo 11).

PENDING ACTION ITEM 424-2: Stormwater sediment BMPs on the downhill side bridge abutment are in disrepair (Photo 12). These BMPs require improvement to effectively contain sediment or prevent sediment from accumulating on the abutment.

PENDING ACTION ITEM 426-1: Stormwater sediment BMPs on the uphill side of the Falls Creek Bridge abutment are not functioning as designed and turbid water is reaching Falls Creek. BMPs require improvement to reduce turbidity of runoff prior to discharge into Falls Creek. No turbid discharge was observed during this inspection, but freezing temperatures have reduced surface water runoff (Photo 13).

3.0-MILE B-ROAD BRIDGE (ZINC CREEK BRIDGE)

The Zinc Creek bridge appeared in good condition, with sediment deflection concrete barriers preventing sediment from reaching bridge abutments (Photo 14).

PENDING ACTION ITEM 423-1: Turbid water was observed being discharged from the stormwater BMP colloquially known as the "Gnome Pond" (Report 423). The "Gnome Pond" was observed covered in snow and ice with reduced inflow from runoff (Photo 15-16).

HGCMC staff has submitted a request to test anionic polymers or "flocc logs" to reduce turbidity in roadside BMP's. Due to limited available space to increase the size of settling ponds the anionic polymers will be tested to determine if appropriate for use in the BMP's. Hecla will conduct laboratory and field testing this fall to determine the effectiveness of the polymers and provide a report to the Forest Service on effectiveness and how the polymers could be used on the mine site.

PENDING ACTION ITEM 424-3: Sumps that precede the "Gnome Pond" along the B-Road were filled with sediment that requires removal (Photo 17). Winter conditions have reduced surface water runoff to the sumps and subsequent roadside BMP's.

TAILINGS DISPOSAL FACILITY (TDF) AREA
The current active tailings deposition location is the northern S3P1 expansion area, approximately adjacent to 1.0 mile of the B-Road.

At the time of the inspection, Pond 7 (Photo 18) was collecting contact and process water, and Pond 10 (Photo 19) was not receiving water.

The water treatment plant was discharging approximately 610 gpm to Outfall 002.

A-Road Culverts

Several culverts were inspected during this visit to discuss options for future replacement. HGCMC has completed the replacement of the culvert at the 2.5 mile of the A-road in November 2022 as approved by the USFS (Photos 20-21).

PHOTOS (Image files available upon request)

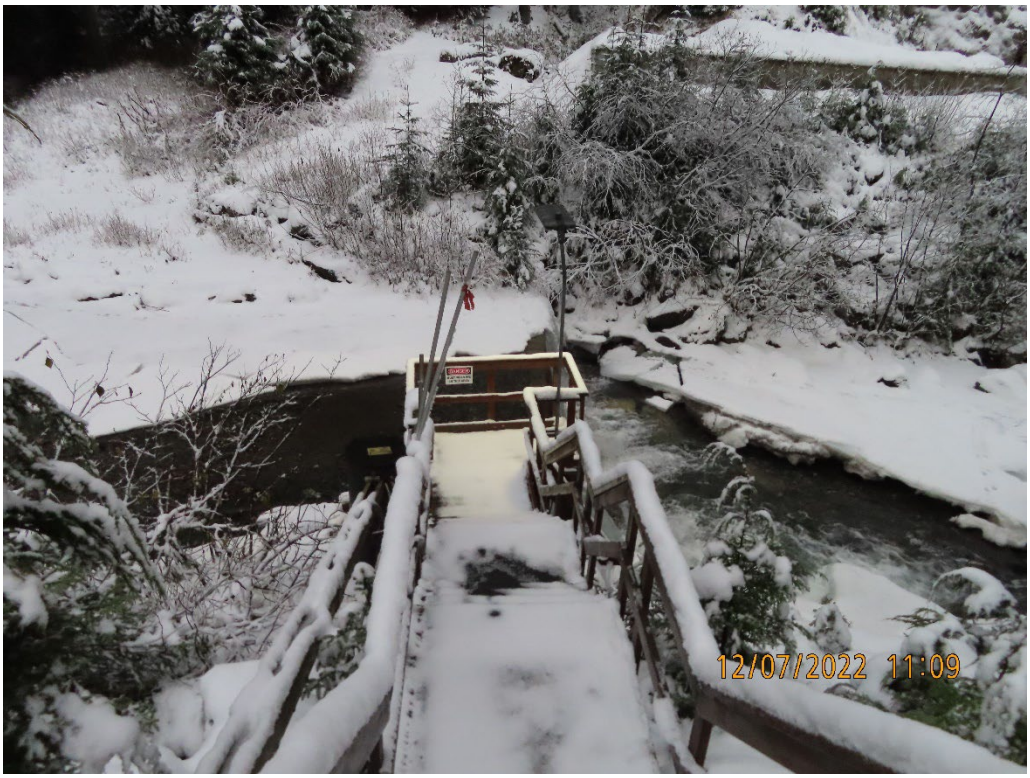

Photo 1. Greens Creek looking down towards the 920 weir.

Photo 2. Greens Creek looking upstream of the 920 weir.

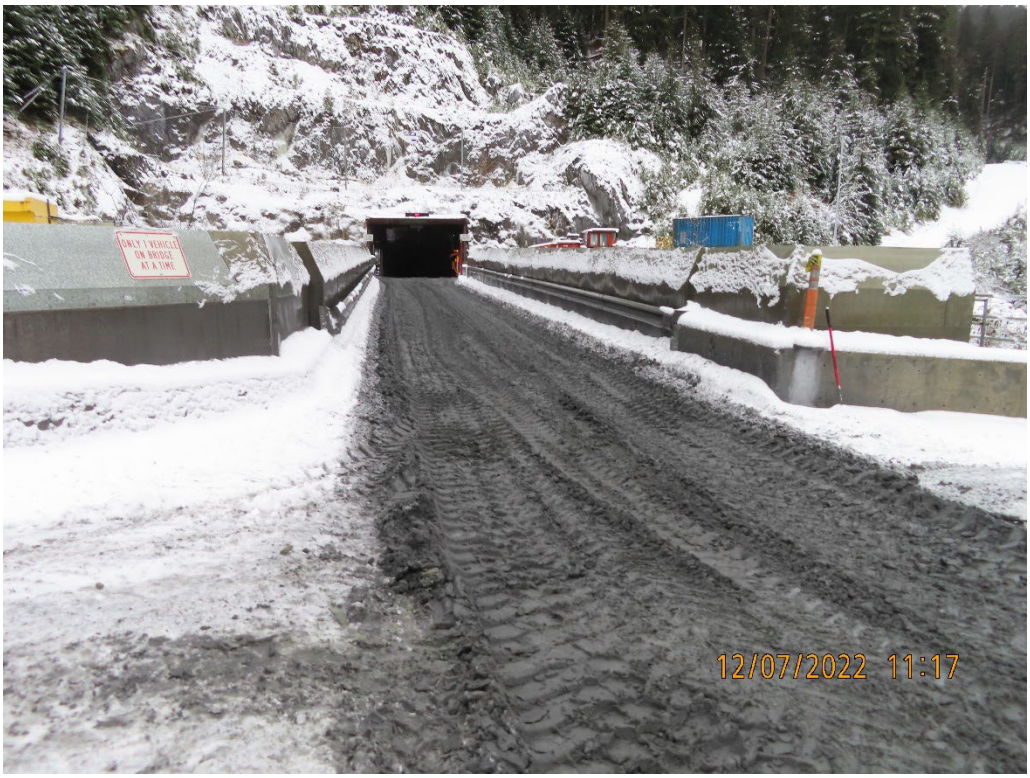

Photo 3. Greens Creek bridge and 920 portal.

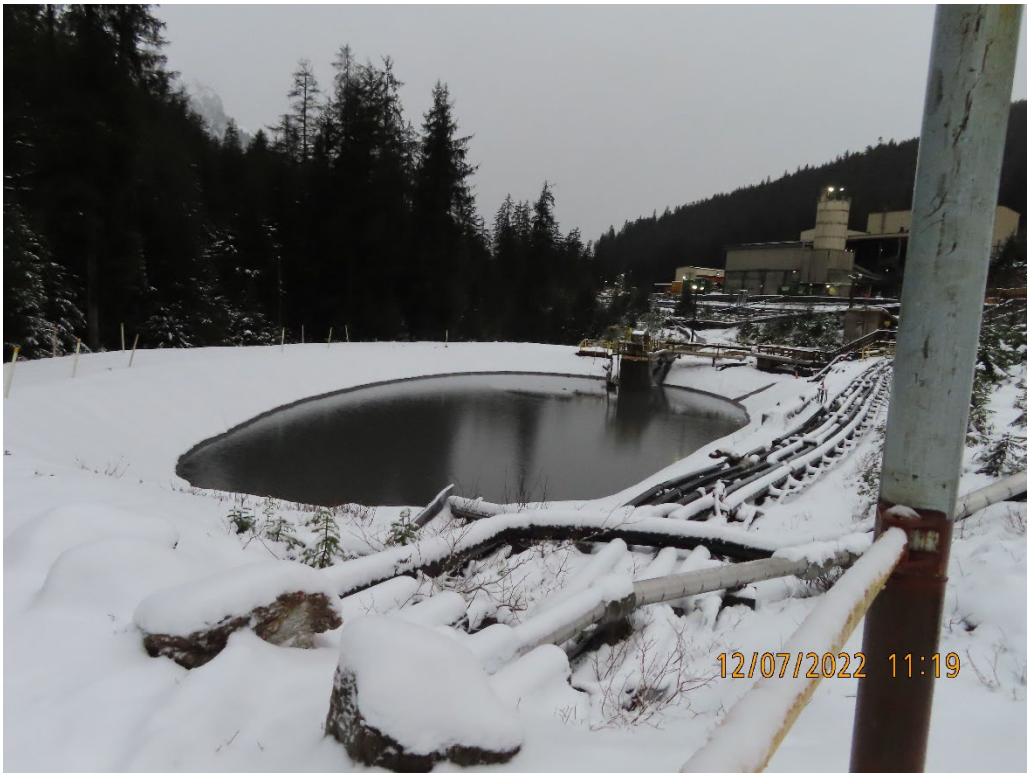

Photo 4. Pond A, below the 920 area.

Photo 5. Chemicals stored in appropriate secondary containment at the 920 warehouse area.

Photo 6. Upper Site 23 waste rock storage area.

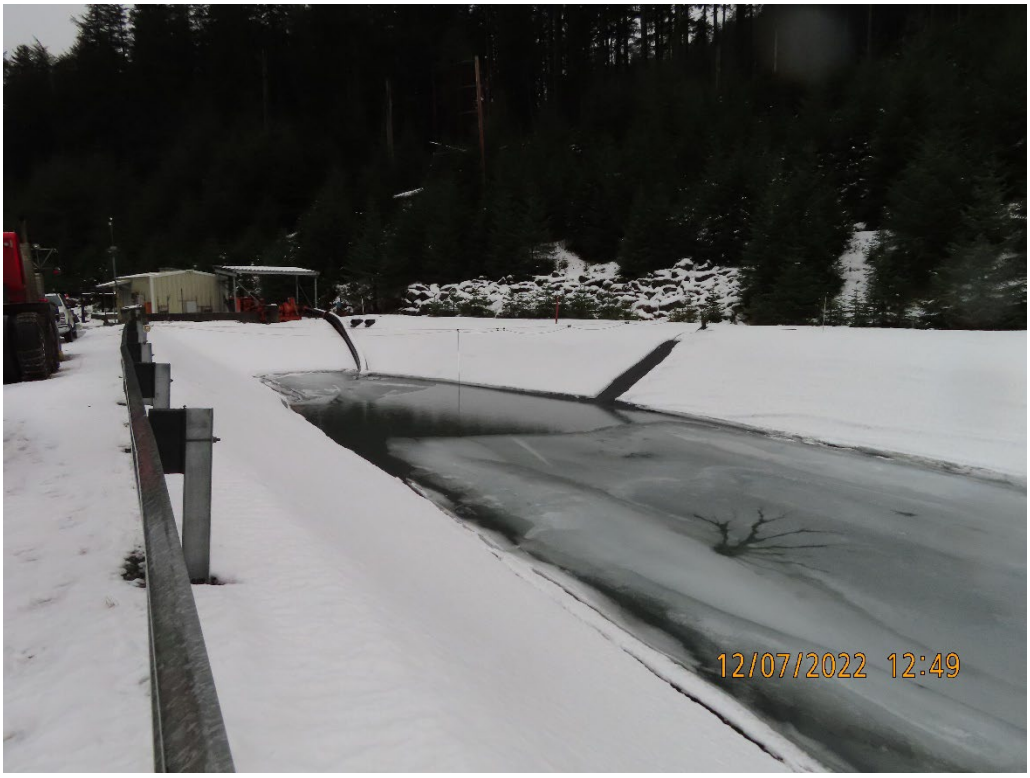

Photo 7. 23 Pond with substantial surge capacity.

Photo 8. Killer Creek Bridge surface.

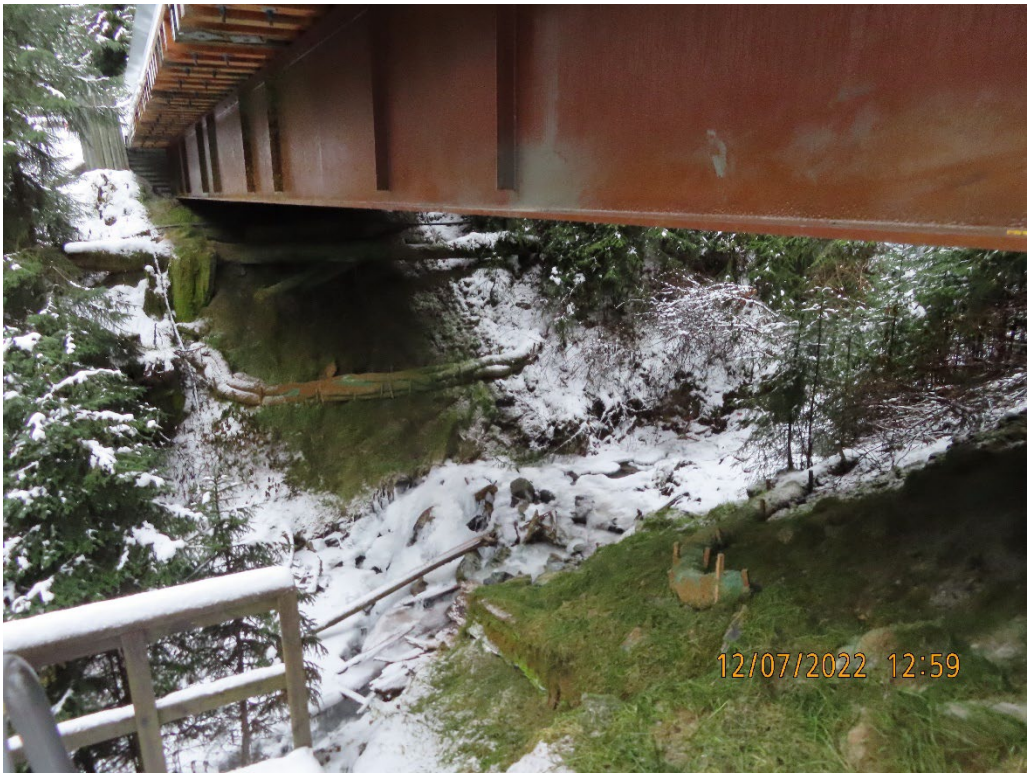

Photo 9. Killer Creek Bridge abutment BMP's.

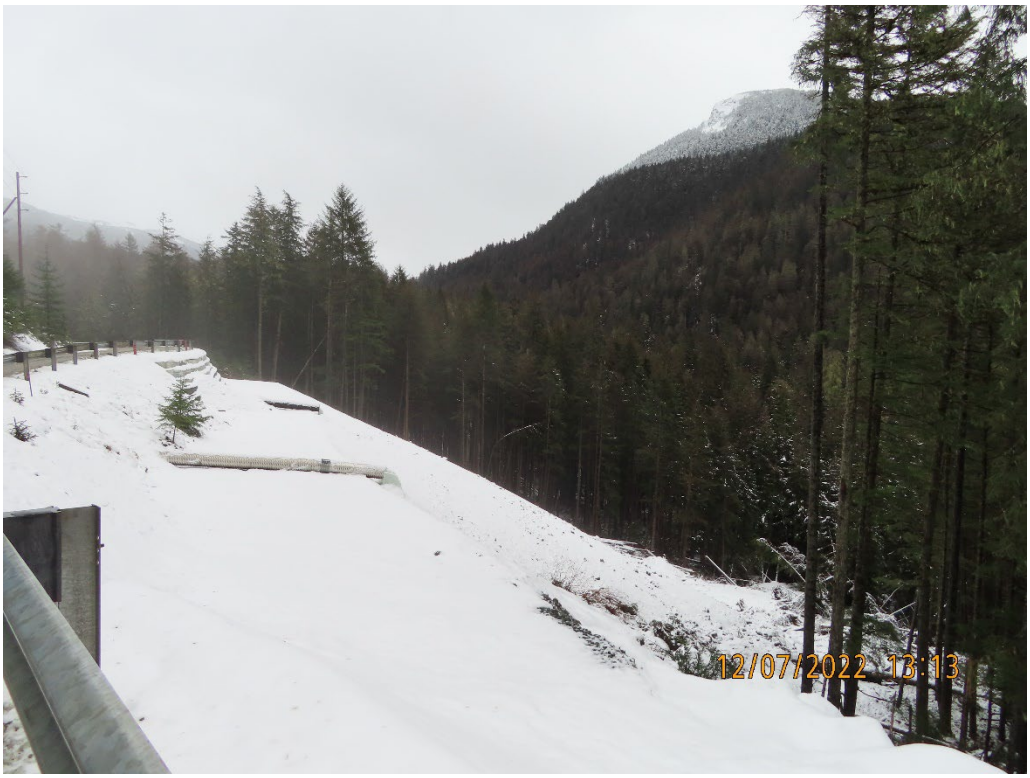

Photo 10. 5.6 mile B-road landslide repairs.

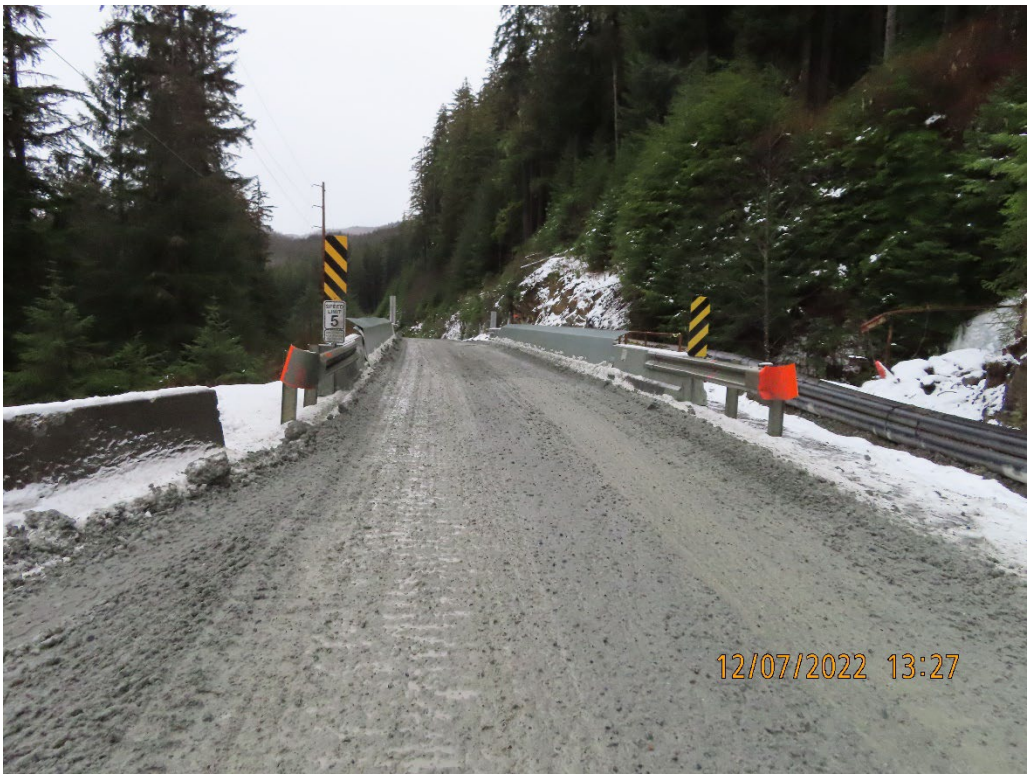

Photo 11. Falls Creek Bridge surface.

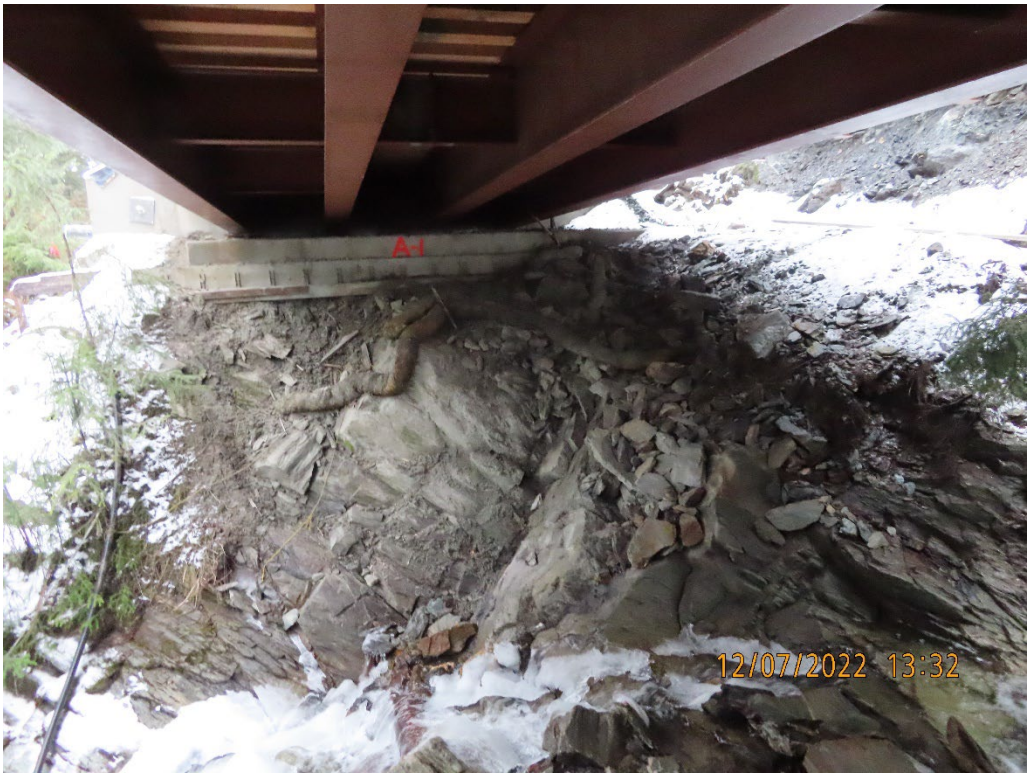

Photo 12. Falls Creek Bridge downhill side abutment BMPs in disrepair.

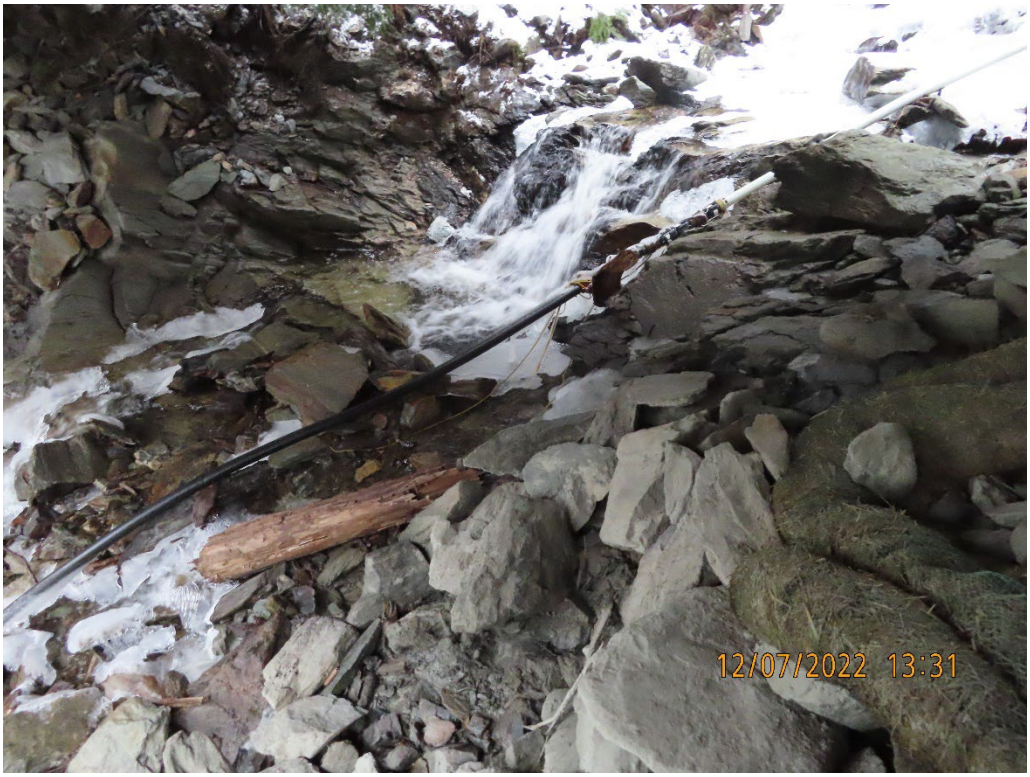

Photo 13. Area where turbid waters were observed entering Falls Creek from bridge abutment during previous inspection. Turbid water was not observed during this inspection.

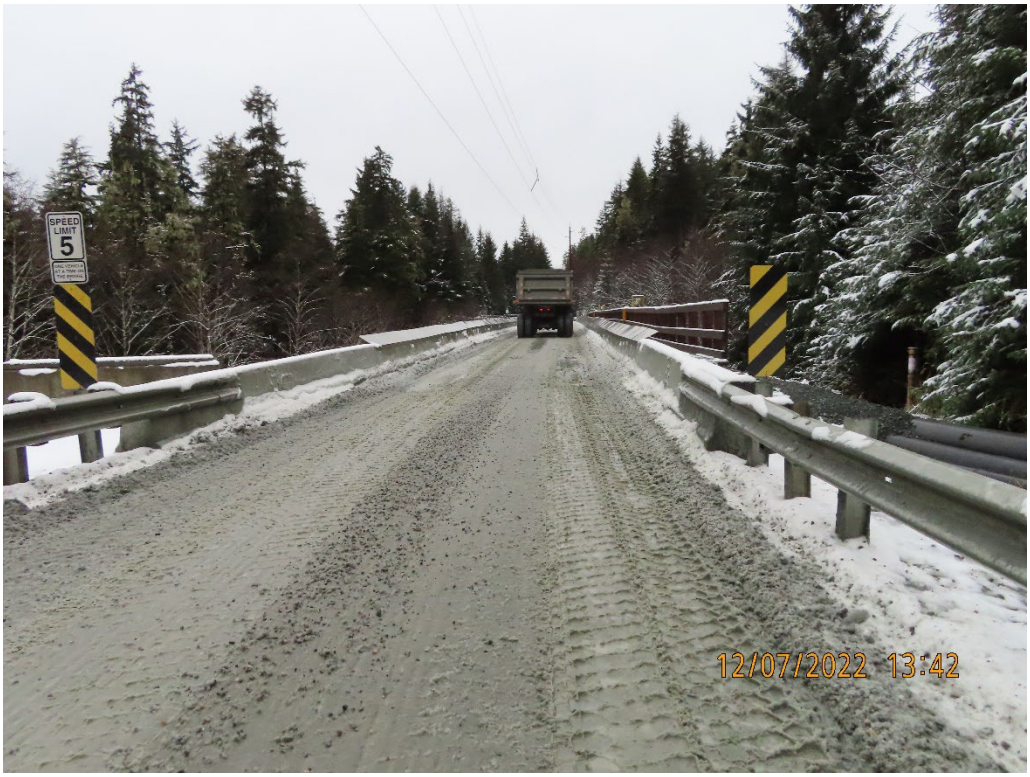

Photo 14. Zinc Creek Bridge.

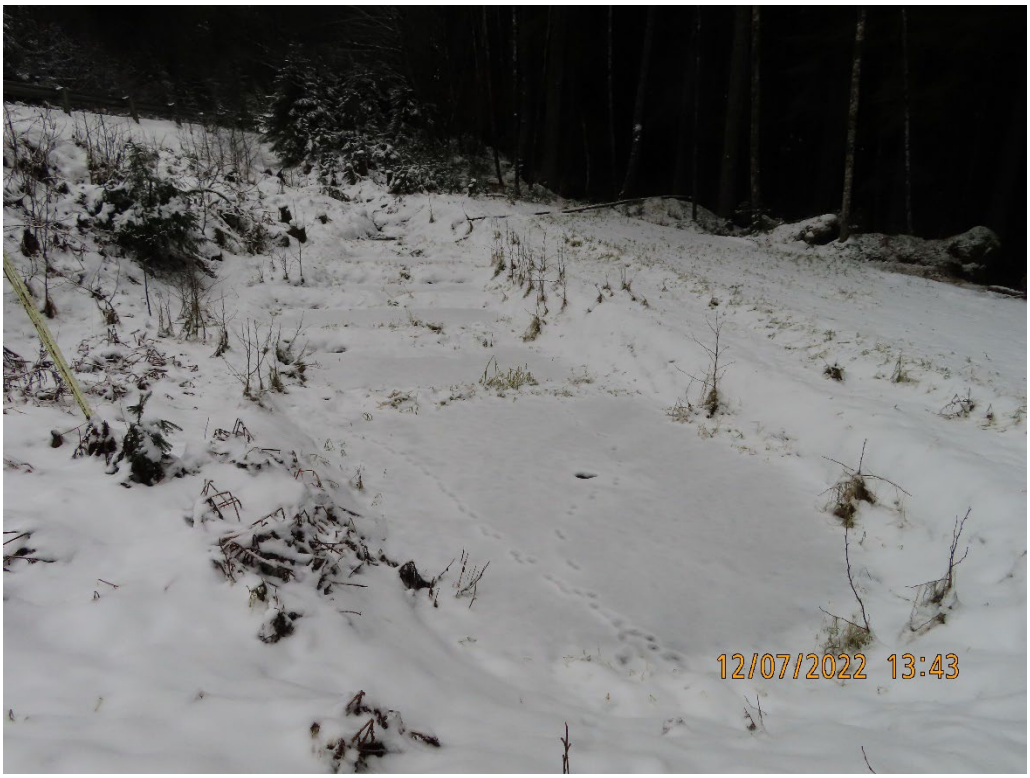

Photo 15. "Gnome Pond" BMPs frozen and snow covered.

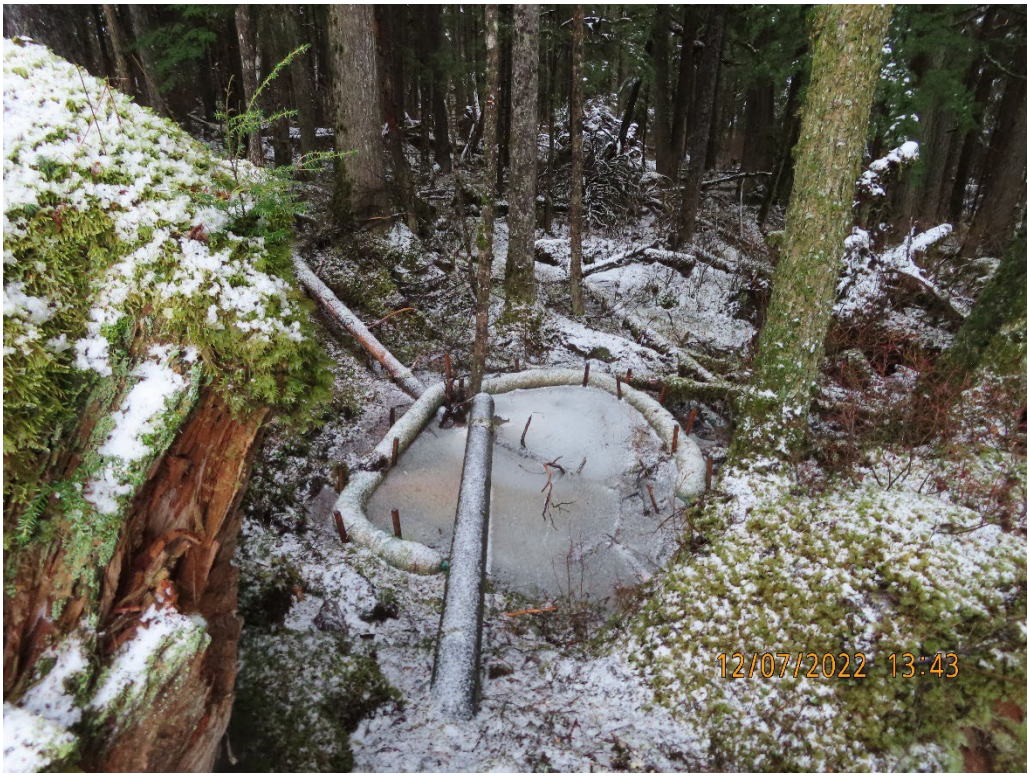

Photo 16. Outlet pipe of the "Gnome Pond" BMPs located adjacent to the Zinc Creek Bridge.

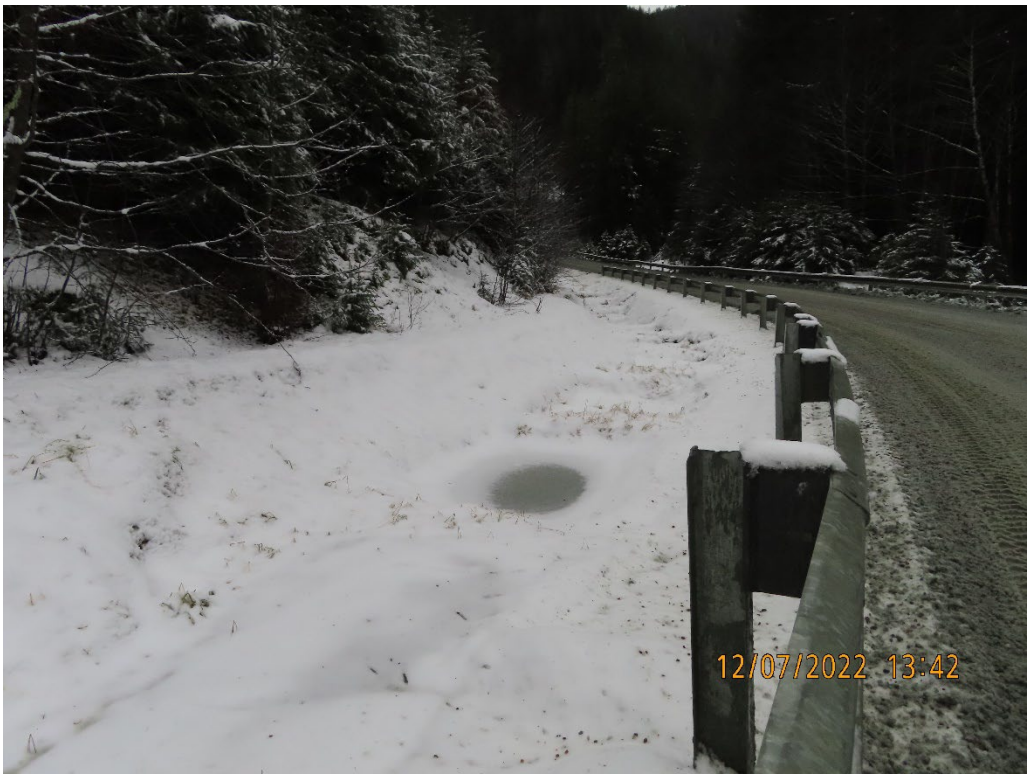

Photo 17. Small sumps above the Gnome Ponds covered in snow and ice.

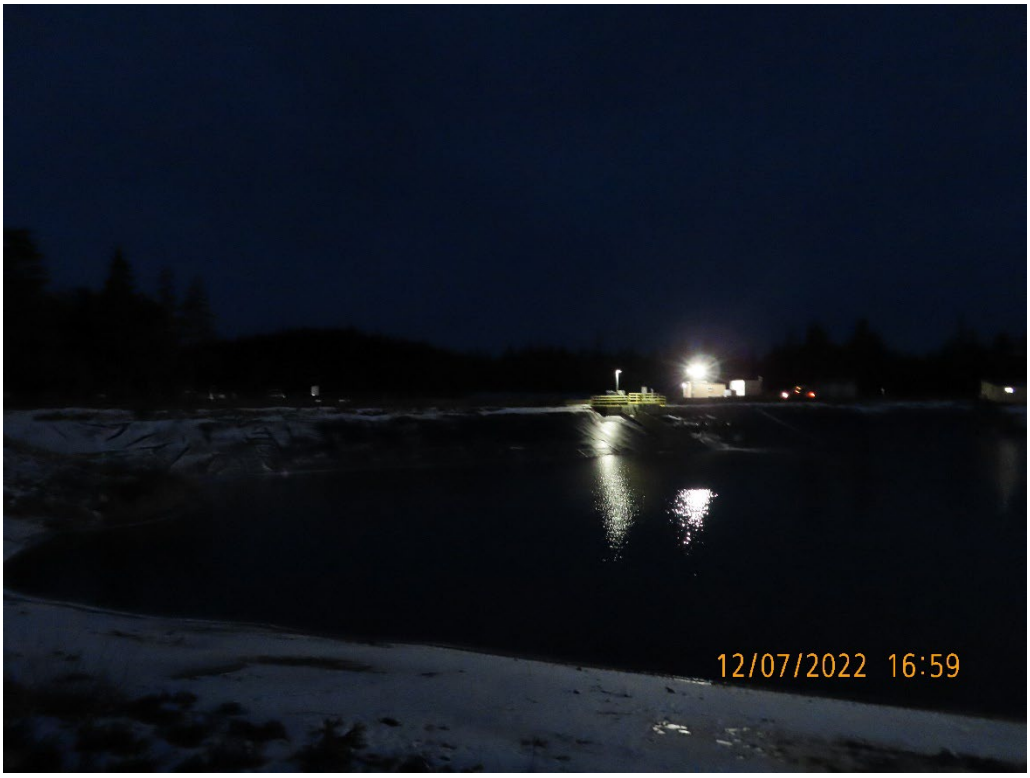

Photo 18. Pond 7.

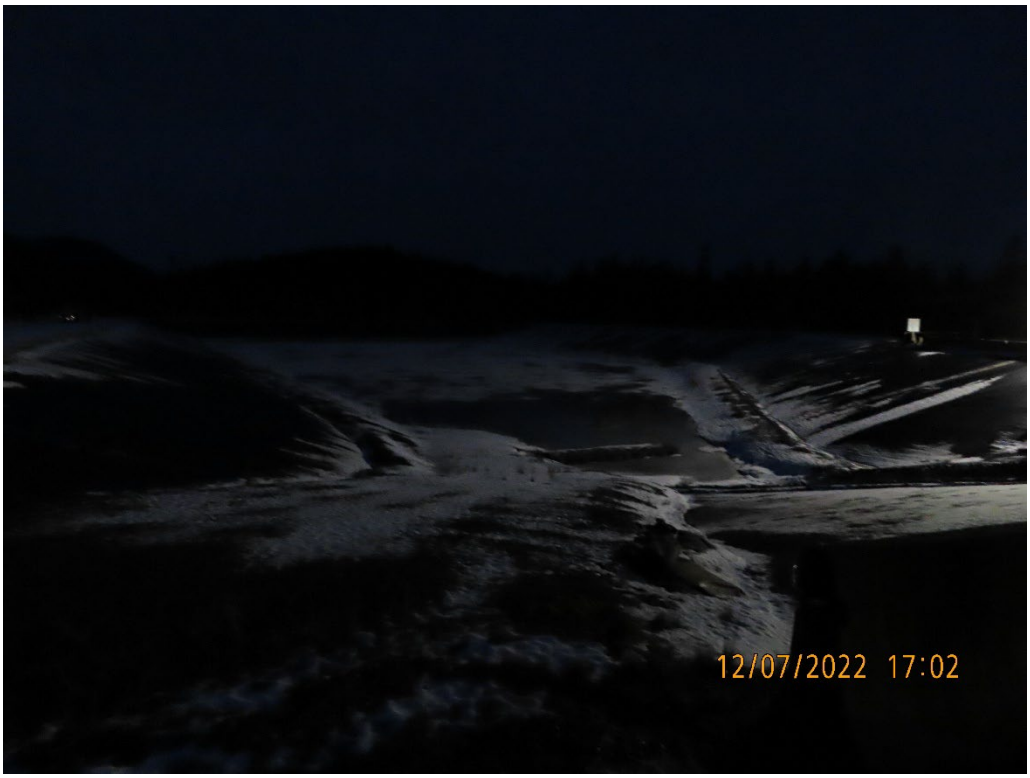

Photo 19. Pond 10.

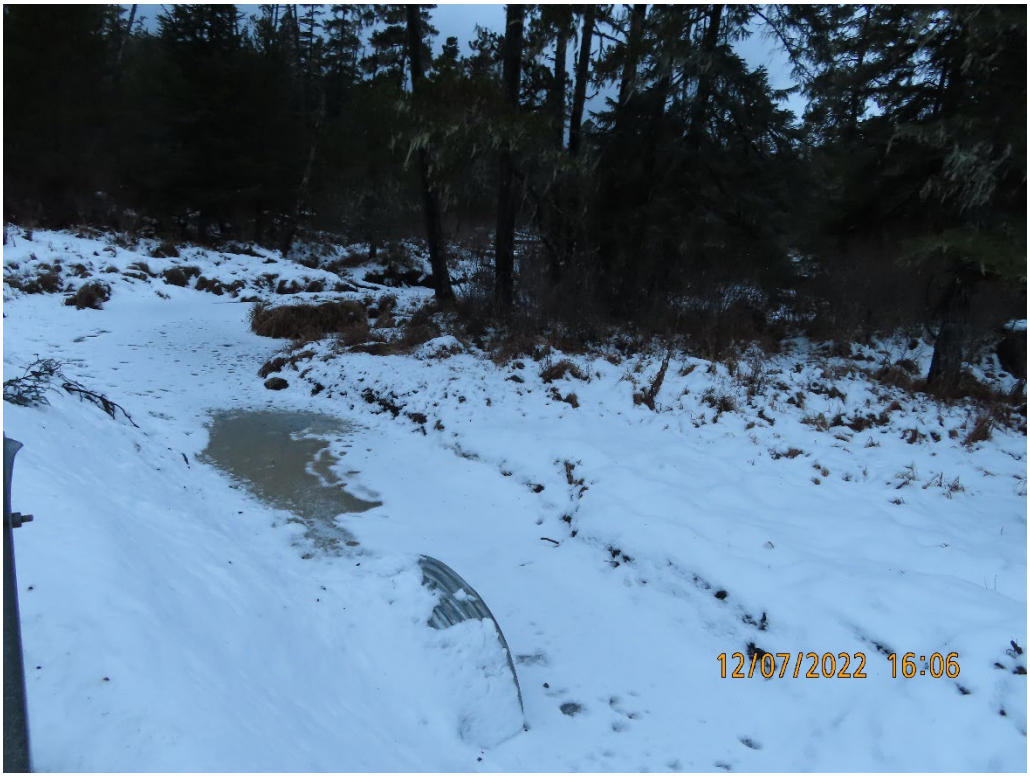

Photo 20. View upstream from new 2.5 mile A-road culvert.

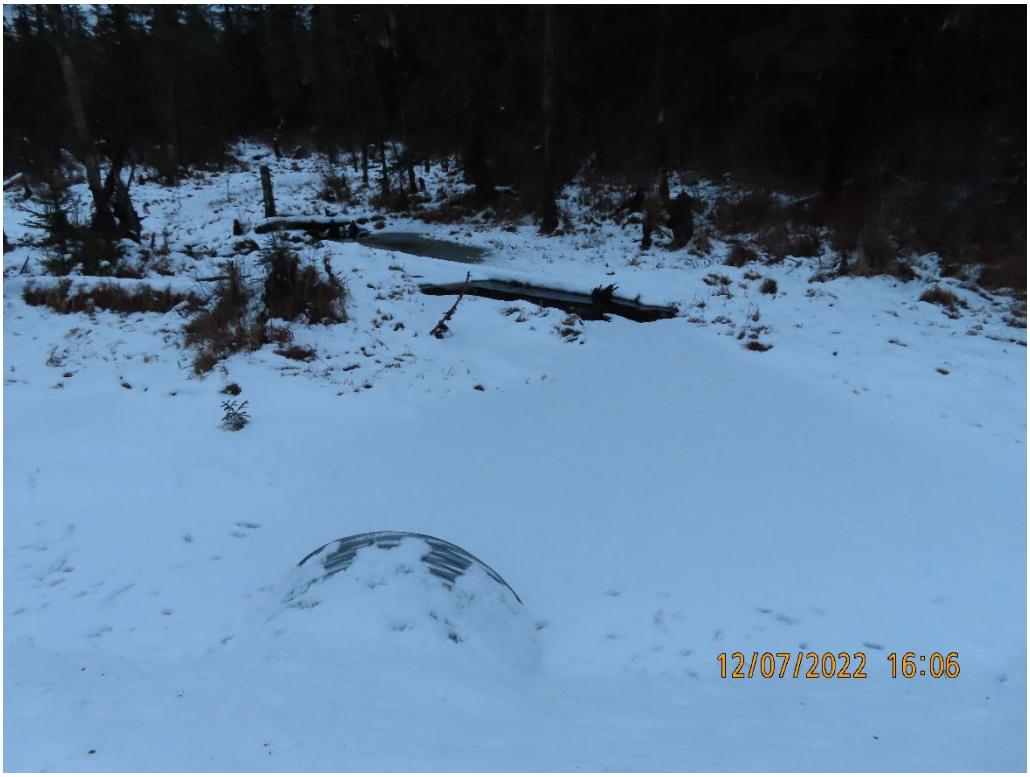

Photo 21. View downstream from new 2.5 mile A-road culvert.

Thanks to HGCMC for a safe visit.

/s/ Pat Dryer