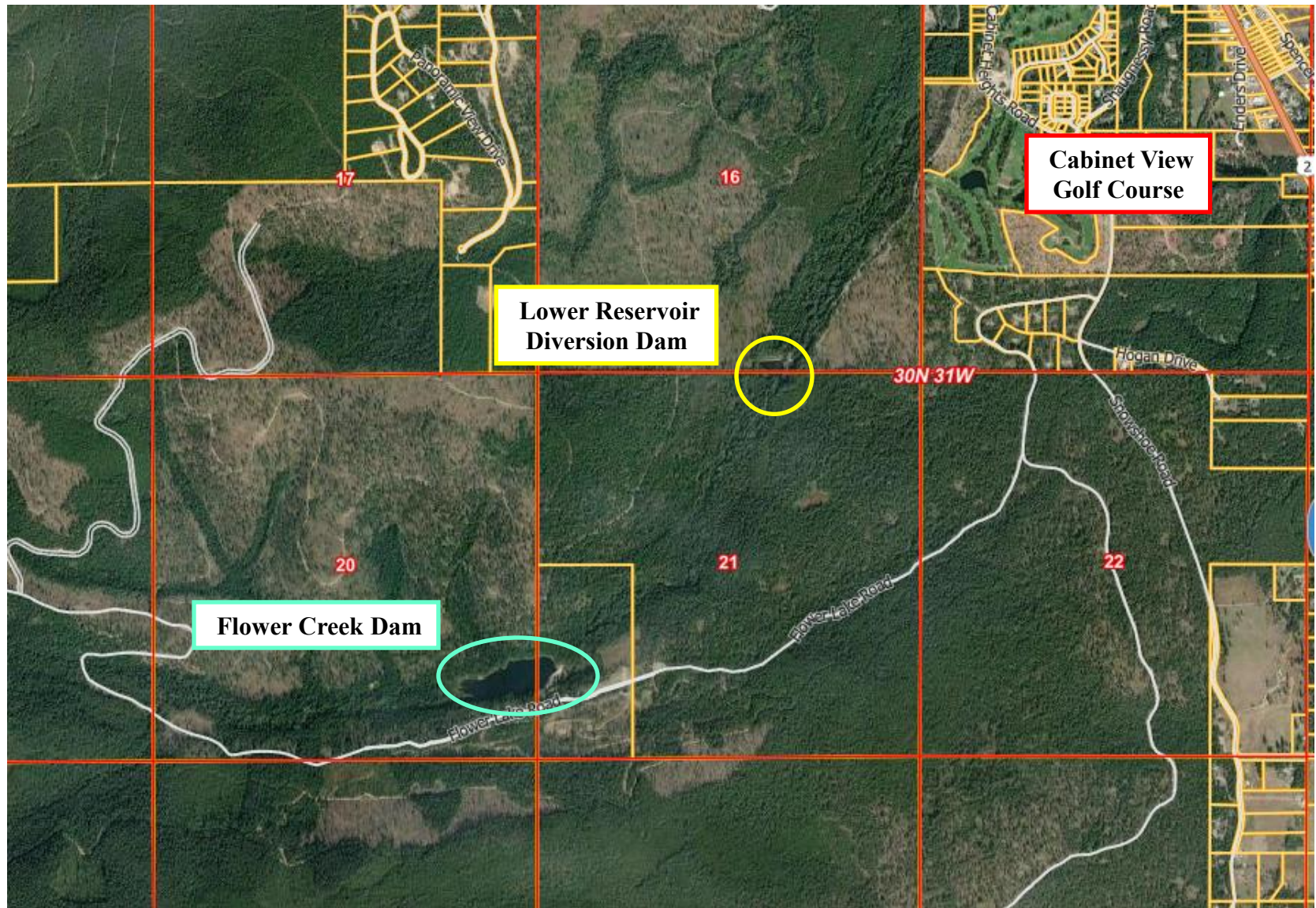


Flower Creek Dam and Lower Reservoir/Diversion Dam



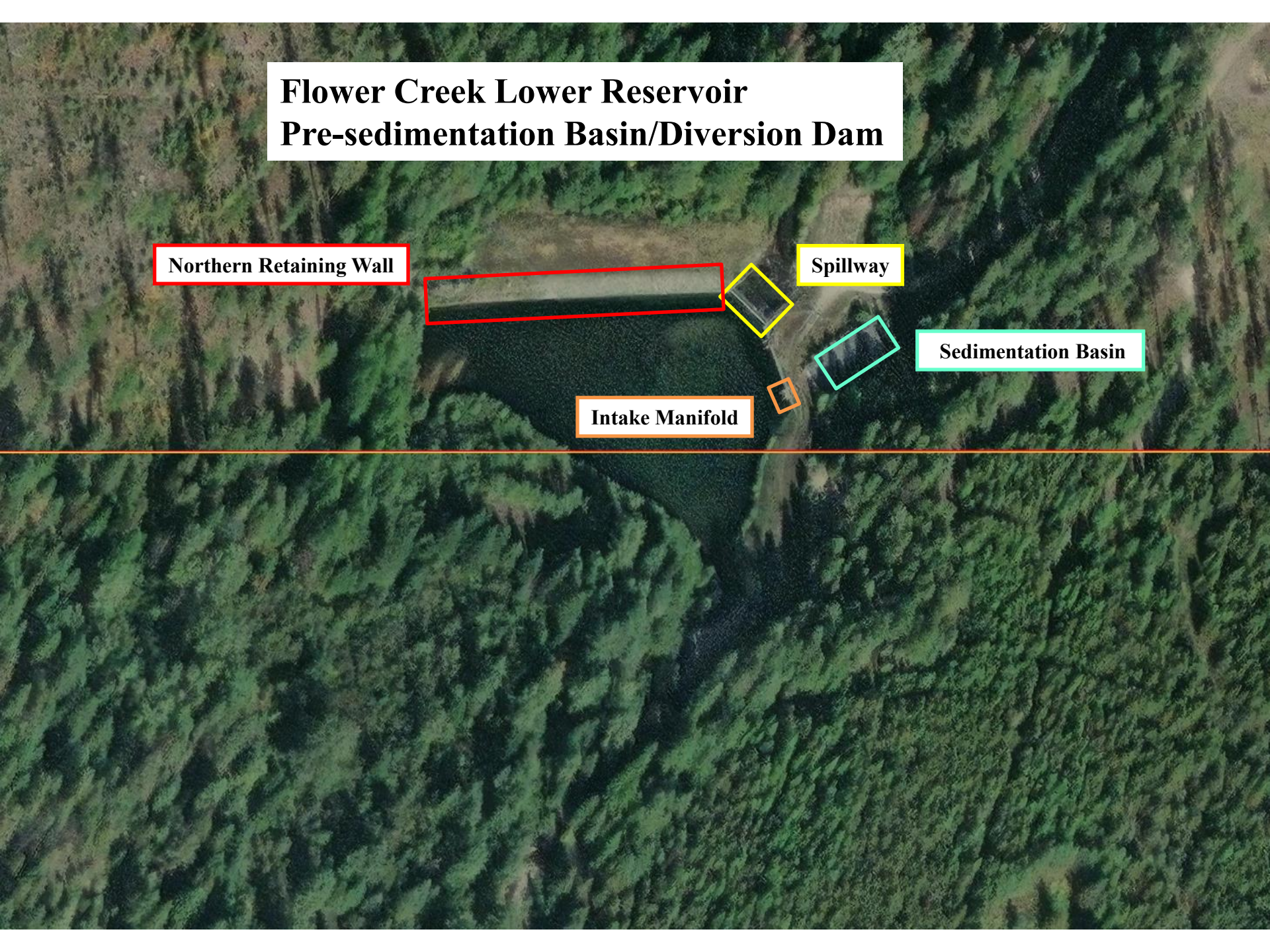
Flower Creek Lower Reservoir Pre-sedimentation Basin/Diversion Dam

Northern Retaining Wall

Spillway

Sedimentation Basin

Intake Manifold



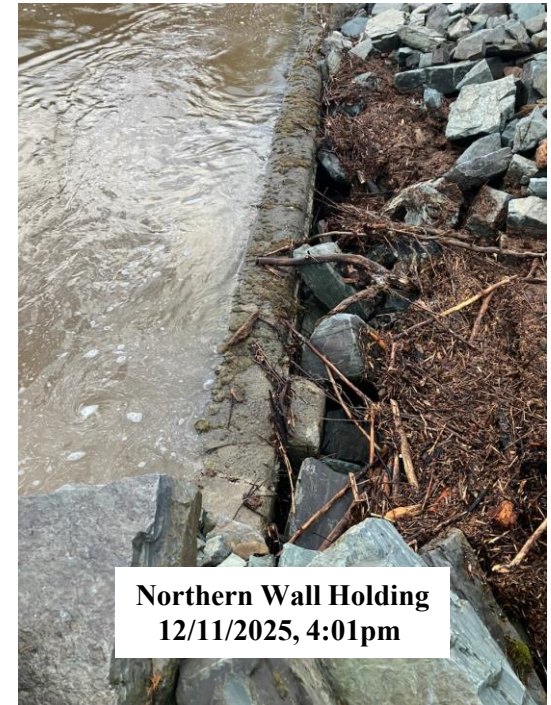
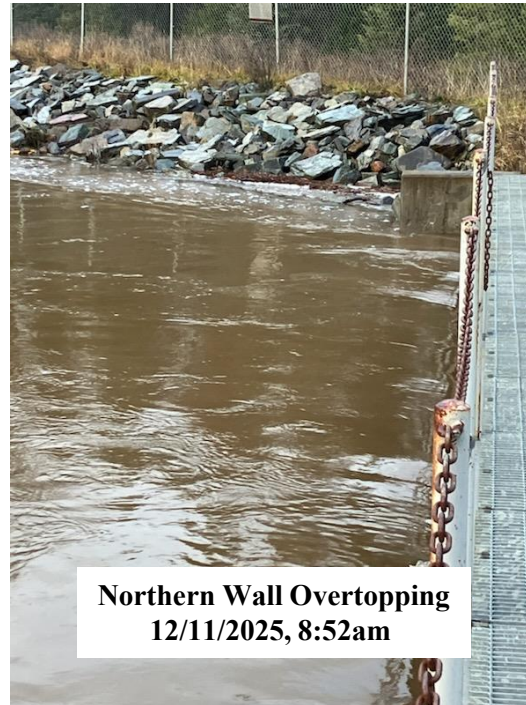
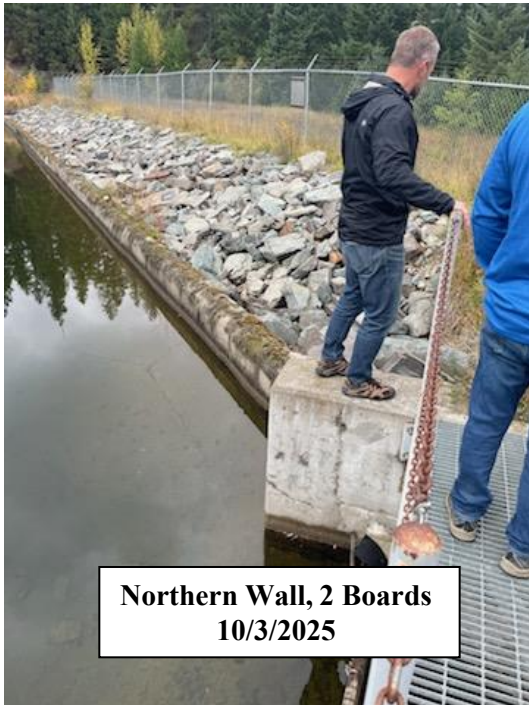
Spillway October 2025



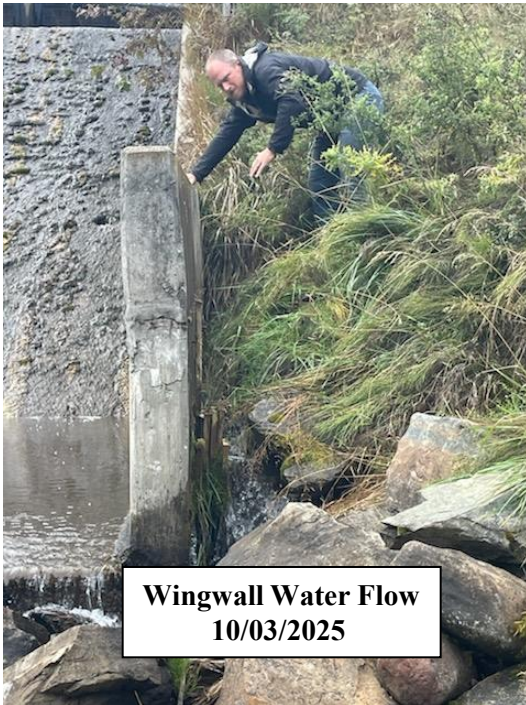
Reservoir November 2025



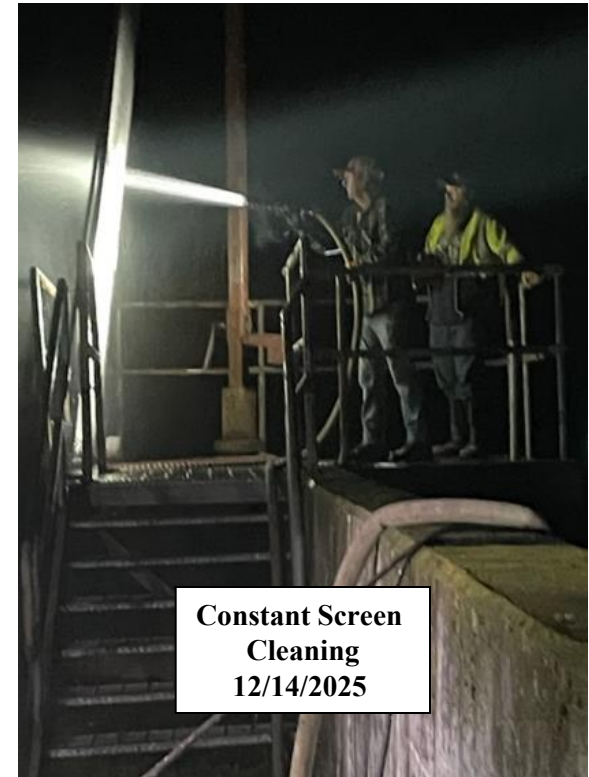
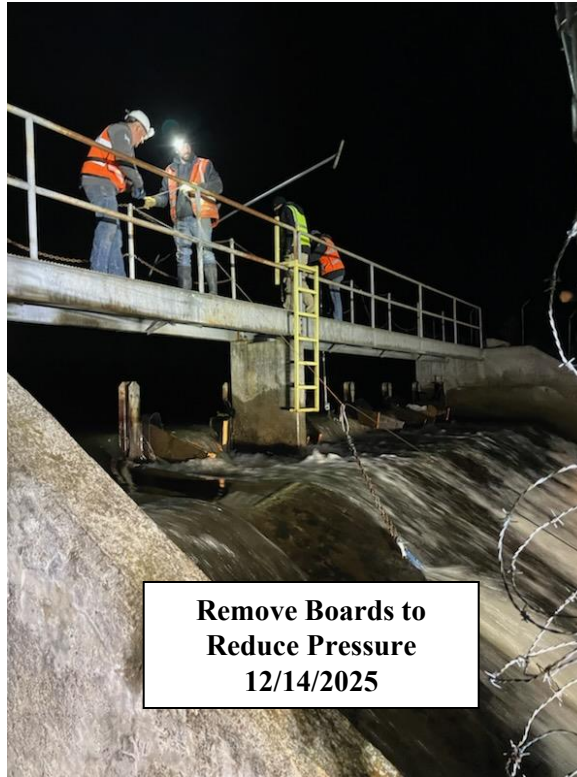
Lower Reservoir Northern Retaining Wall



Lower Reservoir Spillway



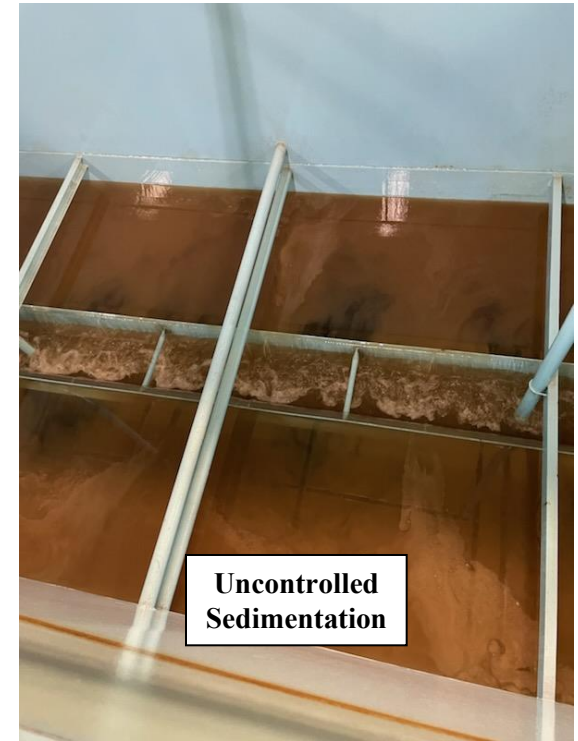
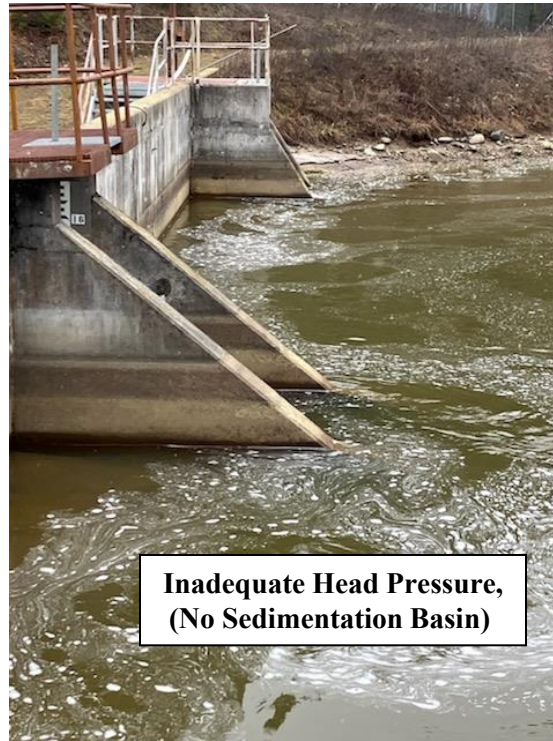
Emergency Protective Measures



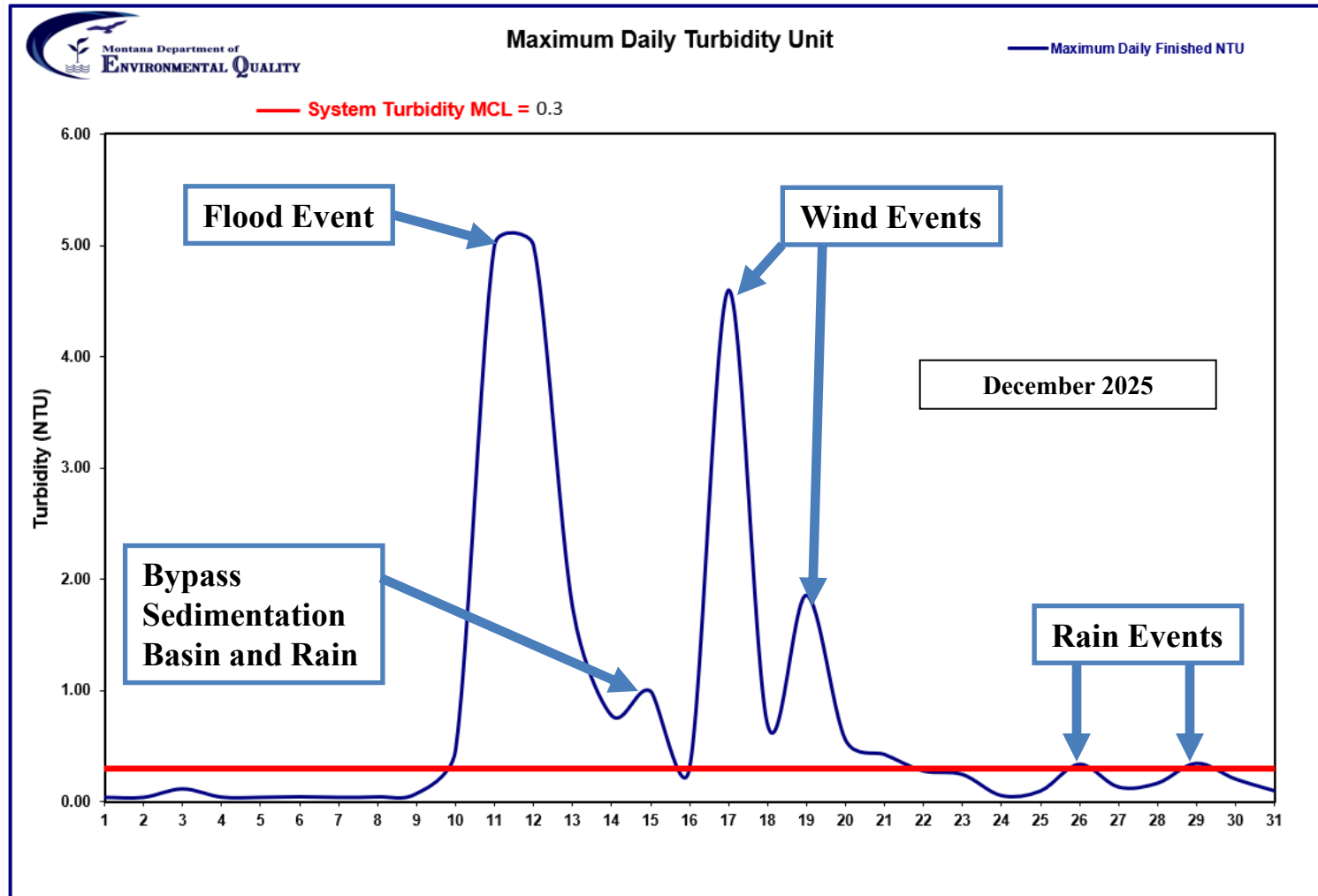
Emergency Protective Measures



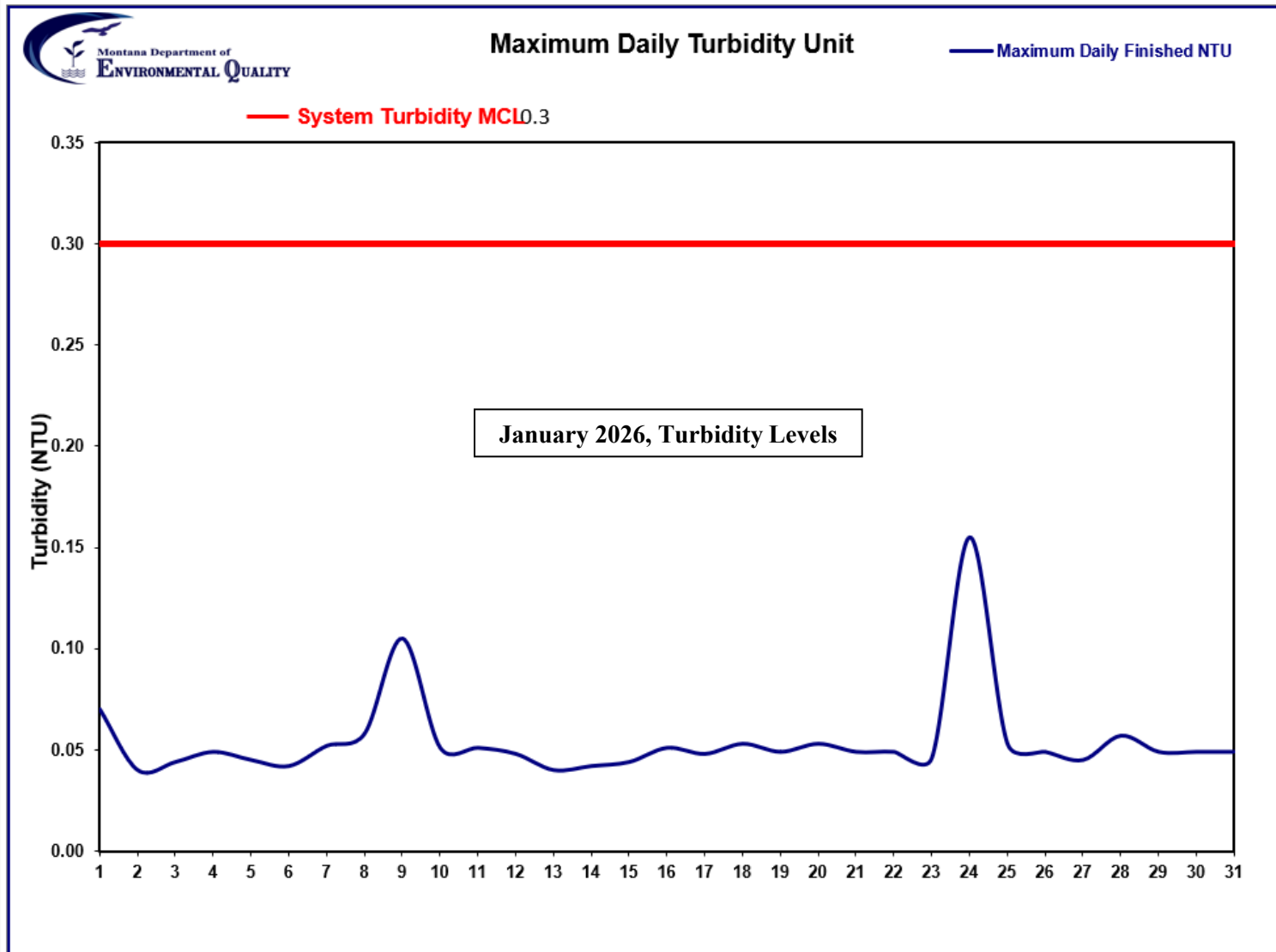
Emergency Protective Measures Negative Effects



Emergency Protective Measures Negative Effects



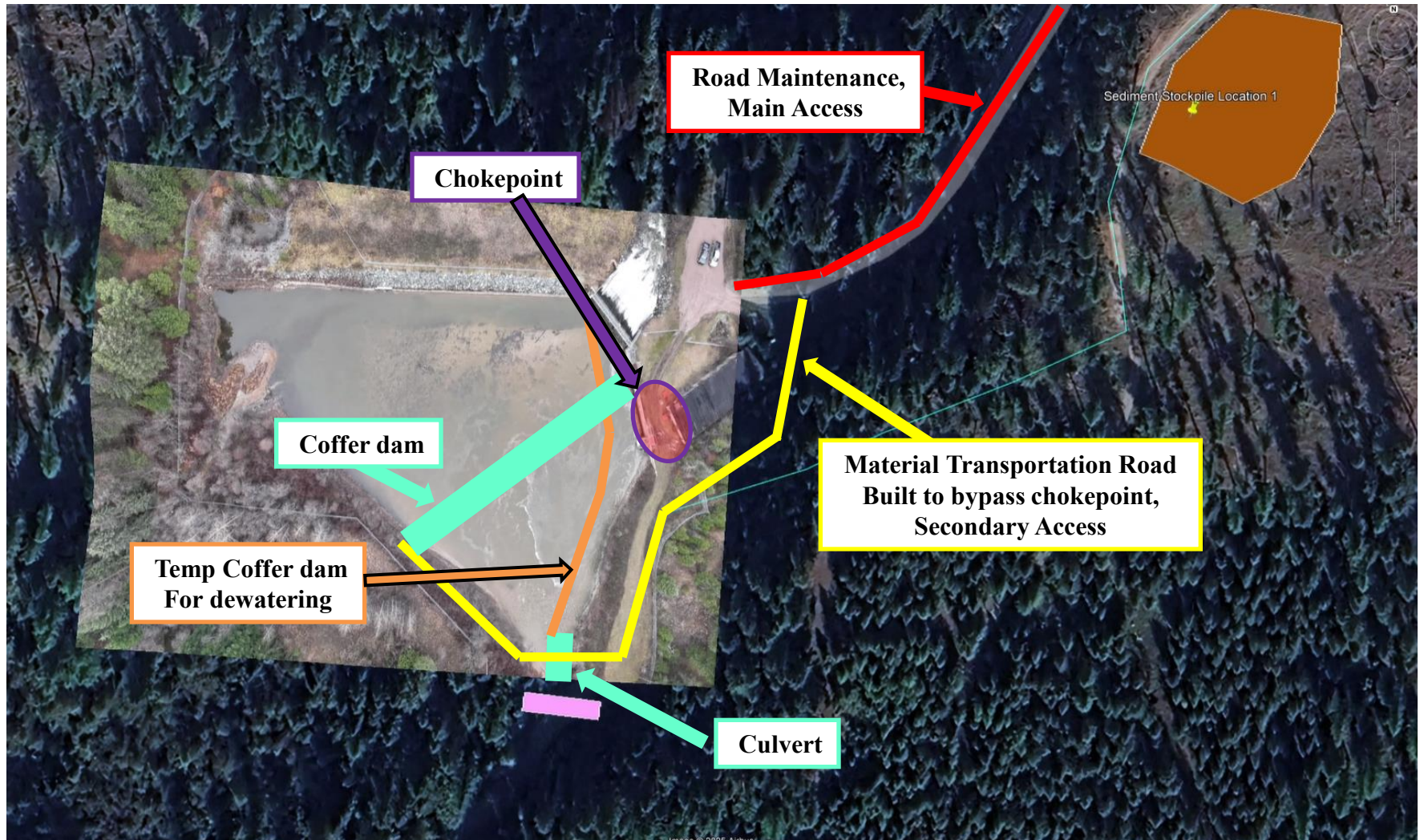
Emergency Protective Measures Solutions/Actions



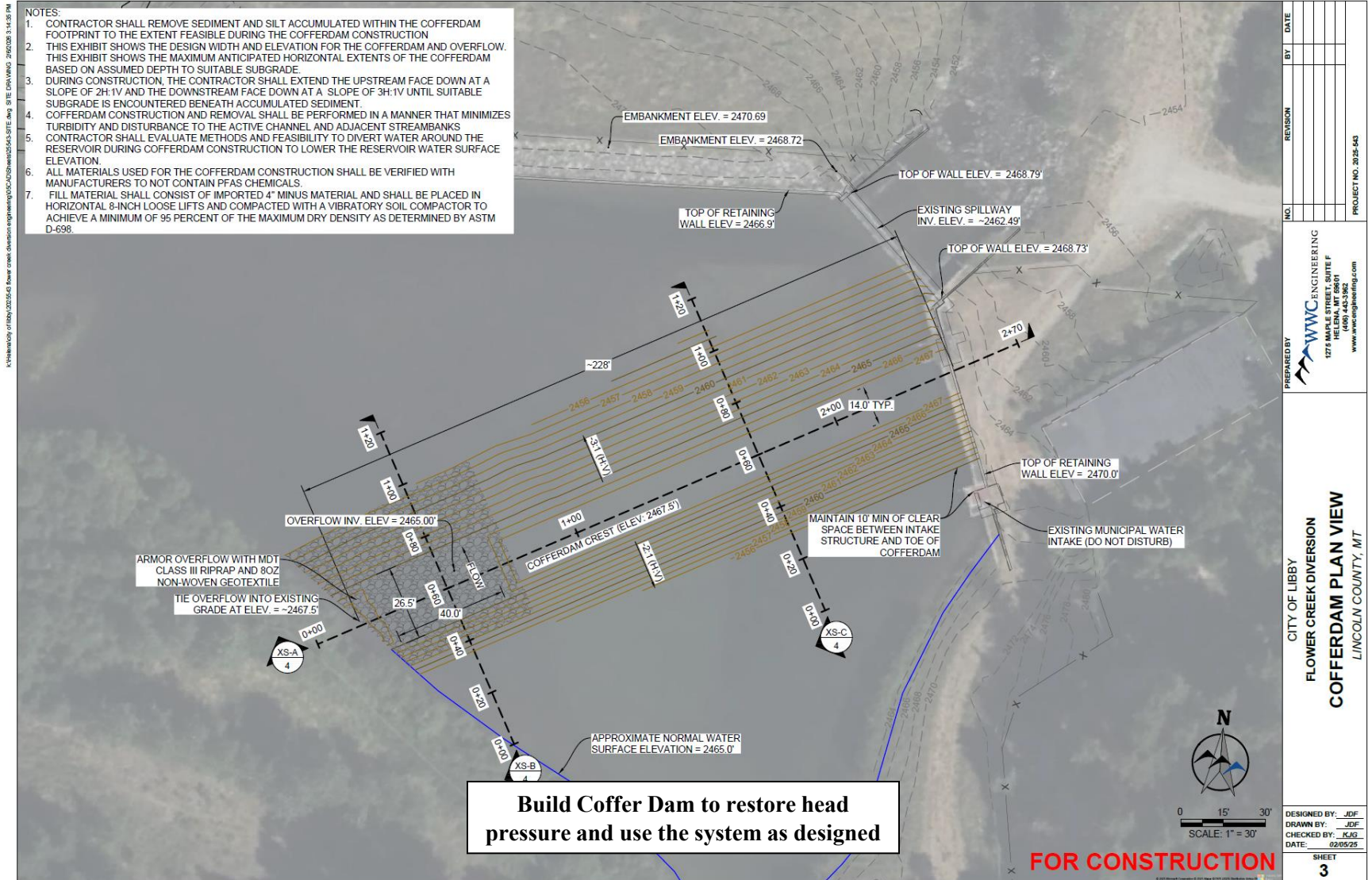
Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



INDUSTRIAL DEVELOPMENT BANK OF CANADA

1. CONTRACTOR TO REMOVE SILT/SEDIMENT UNTIL SUITABLE SUBGRADE IS FOUND
2. COFFERDAM BOTTOM ELEVATION SHALL BE DETERMINED IN THE FIELD AND VERIFIED BY THE ENGINEER
3. REDUCE WATER SURFACE ELEVATION DURING COFFERDAM CONSTRUCTION TO THE EXTENT FEASIBLE BASED ON INFLOWS AND BYPASS PUMPING CAPABILITIES. (CONTRACTOR TO COORDINATE WITH ENGINEER)
4. CONTRACTOR SHALL INSTALL, IN THE FOLLOWING ORDER ON THE UPSTREAM FACE OF THE COFFERDAM: (1) A 12-INCH-THICK LAYER OF 1/4-INCH MINUS AGGREGATE, (2) 8-OZ NONWOVEN GEOTEXTILE, AND (3) A 40-MIL POLYPROPYLENE LINER. SEE SHEET 5.
5. TENSAR HX5.5 GEOGRID SHALL BE PLACED IN LOCATIONS WHERE EXCAVATION TO A SUITABLE SUBGRADE CANNOT BE ACHIEVED (CONTRACTOR TO COORDINATE WITH ENGINEER).

The diagram is a cross-section profile of a proposed concrete retaining wall and overflow structure. The vertical axis represents elevation in feet, ranging from 2450 to 2480. The horizontal axis represents stationing, ranging from 0+00 to 2+70. Key features and labels include:


- Overflow Structure:** Located between stations 0+20 and 0+80. The overflow invert is at elevation 2465.00'. The top of the cofferdam is at elevation 2467.50'. The structure is 40.0' long.
- Retaining Wall:** Extends from station 0+80 to 2+40. The footing elevation is unknown, and the existing reservoir bed is to be determined in the field.
- Existing Features:** The existing grade is shown as a dashed line. The existing reservoir bed is shown as a solid line.
- Dimensions and Slopes:** The overflow structure has a 3H:1V slope on the left and a 2.5' vertical height. The retaining wall has a 2.0' vertical height.
- Notes:**
 - "TIE INTO EXISTING BANK (ELEV. = 2467.5) at station 0+20.
 - "OVERFLOW SHALL BE ARMORED WITH GEOTEXTILE AND MDT CLASS III RIPRAP.
 - "TENSAR HX5.5 GEOGRID TO BE PLACED ON RESERVOIR BED OR SUITABLE SUBGRADE.
 - "EXISTING RESERVOIR BED AFTER SILT/SEDIMENT REMOVAL (ELEVATION TO BE DETERMINED IN FIELD).
 - "FOOTING ELEV. UNKNOWN (DO NOT DISTURB EXISTING HEADWALL OR FOOTING).
 - "TOP OF COFFERDAM ELEV. = 2467.50'.
 - "TOP OF HEADWALL ELEV. = 2469.91'.

The diagram illustrates the cross-section of a bridge deck and approach slab. Key features include:

- Bridge Deck:** 26.5' wide, with a 2.0' thick riprap overflow on the right side. The overflow invert elevation is 2465.00'.
- Approach Slab:** 26.5' wide, sloping at 2.0% (2'-11" (US)) on the left and 3.0% (3'-11" (D/S)) on the right. The normal U/S water elevation is 2465.00' and the normal D/S water elevation is 2462.45'.
- Materials:** 40MIL POLYPROPYLENE LINER, GEOTEXTILE, AND MDT CLASS III RIPRAP are specified for the overflow area. TENSAR HX5.5 GEOGRID is shown under the approach slab.
- Subgrade:** REFER TO SHEET 5 FOR U/S LINER. APPROXIMATE SUITABLE SUBGRADE (TO BE VERIFIED BY ENGINEER).
- Elevations:** The diagram shows elevations from 2450 to 2480. The bridge deck is at 2465.00' and the approach slab is at 2462.45'.
- Dimensions:** The bridge deck is 26.5' wide, and the approach slab is 26.5' wide. The overflow is 2.0' thick.

0 10' 20'

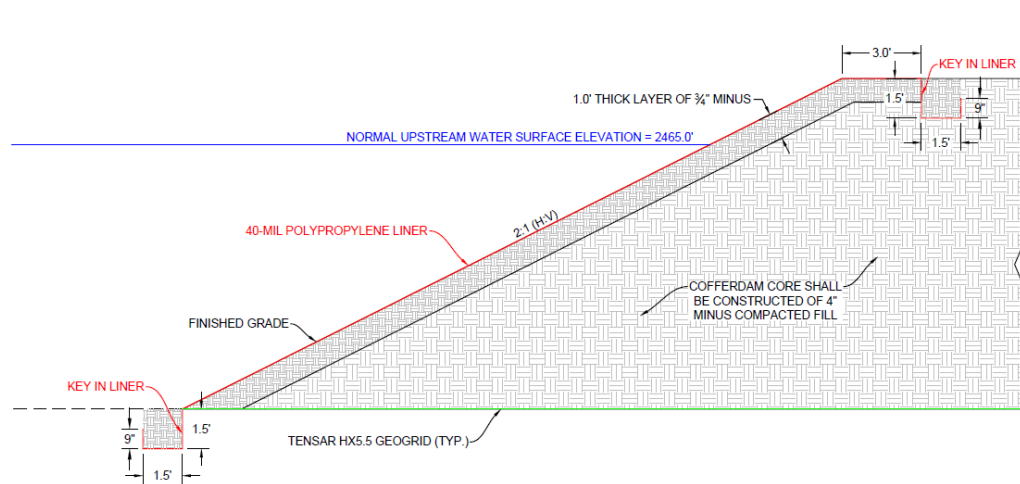
SCALE: 1" = 20' (HORIZONTAL)
SCALE: 1" = 10' (VERTICAL)

CITY OF LIBBY FLOWER CREEK DIVISION COFFERDAM SECTION VIEWS LINCOLN COUNTY, MT		 WVC ENGINEERING 1275 MAPLE STREET, SUITE F HELENA, MONTANA 46161-443-5891 www.wvcengineering.com		NO. _____ REVISION _____ BY _____ DATE _____ PROJECT NO. 2032-443
DESIGNED BY: <u>JDF</u> DRAWN BY: <u>JDF</u> CHECKED BY: <u>KLG</u> DATE: <u>02/05/25</u>		SHEET 4		

Emergency Protective Measures Solutions/Actions

NOTES:

1. REMOVE ANY PROTRUDING OR JAGGED MATERIAL FROM LINER ANCHOR TRENCH BEFORE PLACING LINER.
2. ANCHOR TRENCH SHALL BE BACKFILLED WITH $\frac{3}{4}$ " MINUS MATERIAL AND COMPACTED TO 95% STD. PROCTOR
3. EXCESS 40-MIL POLYPROPYLENE LINER BEYOND WHAT IS NEEDED FOR THE ANCHOR TRENCH AT THE UPSTREAM TOE SHALL BE DRAPED ON THE RESERVOIR FOOTPRINT UPSTREAM FROM THE COFFERDAM TO FURTHER LIMIT SEEPAGE
4. CONTRACTOR SHALL SECURE THE 40-MIL POLYPROPYLENE LINER TO THE EXISTING CONCRETE HEADWALL ON THE EAST SIDE OF THE COFFERDAM.



① UPSTREAM COFFERDAM LINER
SCALE: NOT TO SCALE

**Build Coffe Dam to restore head
pressure and use the system as designed**

FOR CONSTRUCTION

NO.	REVISION	BY	DATE

PREPARED BY
WWC ENGINEERING
1275 MAPLE STREET, SUITE F
LINCOLN, MT 59104
(409) 442-3862
www.wwcengineering.com

CITY OF LIBBY
FLOWER CREEK DIVERSION
DETAILS
LINCOLN COUNTY, MT

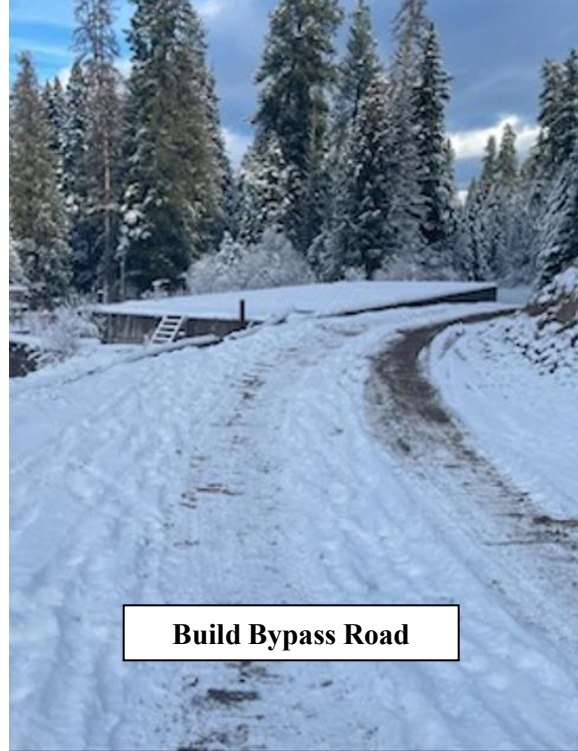
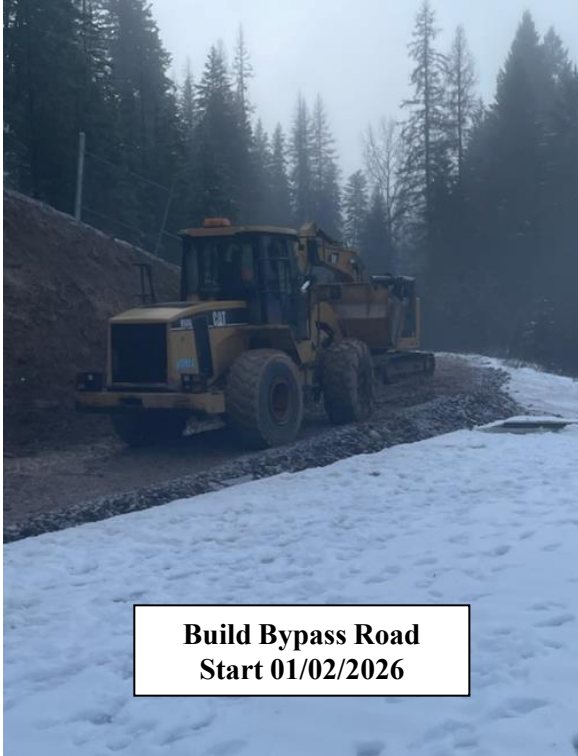
DESIGNED BY: JDF
DRAWN BY: JDF
CHECKED BY: KJS
DATE: 02/05/25

SHEET
5

Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



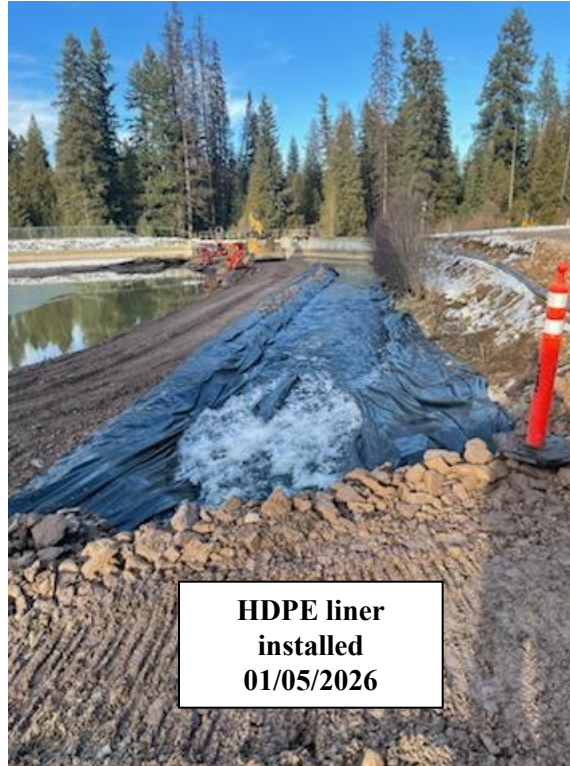
Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



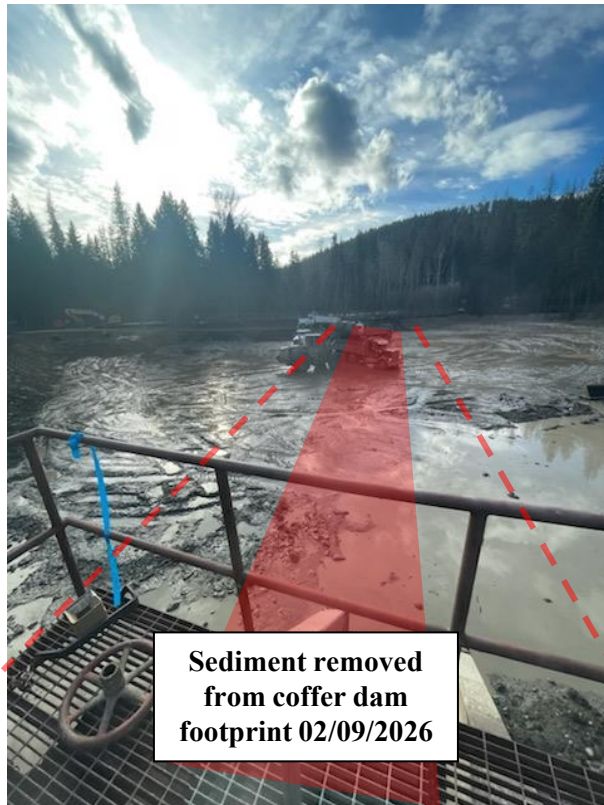
Emergency Protective Measures Solutions/Actions



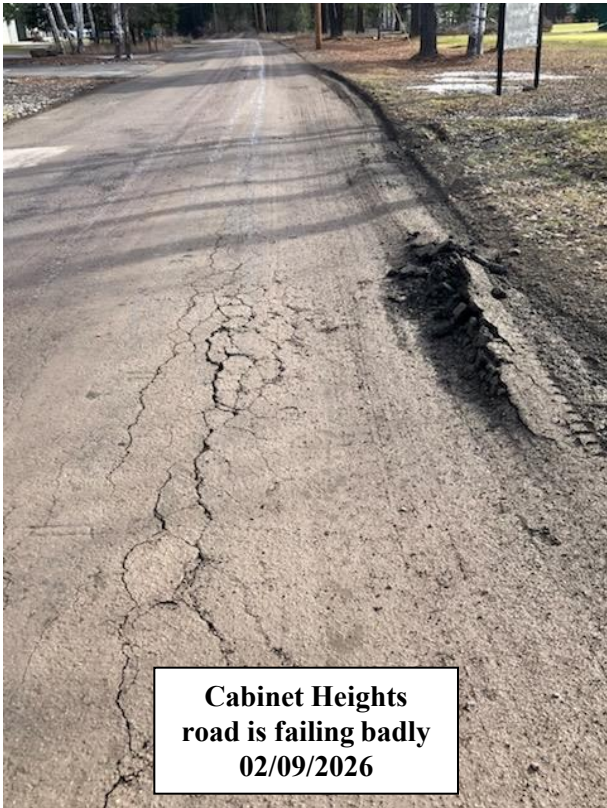
Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Emergency Protective Measures Solutions/Actions



Upcoming Activity

Emergency Protective Measures Solutions/Actions

Upcoming Actions

Build coffer dam

**Inspect
Northern wall**

Remove Bypass