

DRAFT ENVIRONMENTAL ASSESSMENT
BNSF Sandpoint Junction Connector Project

Bonner County, Idaho



U.S. Coast Guard
District Thirteen
Seattle, Washington

August 14, 2018

U.S. COAST GUARD
ENVIRONMENTAL ASSESSMENT FOR
BNSF Sandpoint Junction Connector Project

This U.S. Coast Guard (USCG) Environmental Assessment (EA) was prepared in accordance with Commandant's Manual Instruction M16475.1D and is in compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council of Environmental Quality Regulations dated 28 November 1978 (40 CFR Parts 1500-1508).

This EA serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a finding of no substantial impact.

This EA concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This EA also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during EA preparation.

Date *Preparer/Environmental Project Manager Title/Position

Date **Environmental Reviewer Title/Position

In reaching my decision/recommendation on the USCG's proposed action, I have considered the information contained in this EA on the potential for environmental impacts.

Date Responsible Official Title/Position

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	vii
EXECUTIVE SUMMARY	ix
1.0 INTRODUCTION	1
1.1 Site Location and Existing Structure	1
1.1.1 Site Location	1
1.1.2 Existing Conditions and Structures	3
1.2 Purpose and Need	3
1.2.1 Project Purpose	3
1.2.2 Statement of Need	4
2.0 ALTERNATIVES	6
2.1 Alternative 1 – No Action Alternative	6
2.2 Alternative 2 – Proposed Action Alternative	6
2.2.1 Construction Process	9
2.2.2 Temporary Bridge Demolition	14
2.2.3 Site Rehabilitation	14
2.2.4 Construction Equipment	14
2.2.5 Construction Schedule and Design Year	16
2.3 Alternatives Eliminated from Further Consideration	16
2.3.1 New Track East of the Existing Main Line Track	18
2.3.2 Off-Site/Outside Existing BNSF Right-of-Way	19
2.3.3 Grade-Separated Crossings	19
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES	21
3.1 Air Quality	21
3.1.1 Affected Environment	21
3.1.2 Environmental Consequences	22
3.2 Geology, Soils, and Topography	24
3.2.1 Affected Environment	24
3.2.2 Environmental Consequences	24
3.3 Water Resources and Water Quality	26
3.3.1 Affected Environment	26
3.3.2 Environmental Consequences	29
3.4 Wetlands	31
3.4.1 Affected Environment	31
3.4.2 Environmental Consequences	32
3.5 Floodplains	32
3.5.1 Affected Environment	33
3.5.2 Environmental Consequences	33

3.6	Vegetation	35
3.6.1	Affected Environment.....	35
3.6.2	Environmental Consequences	36
3.7	Fish and Wildlife.....	37
3.7.1	Affected Environment.....	39
3.7.2	Environmental Consequences	42
3.8	Endangered Species Act Listed Species and Critical Habitat	45
3.8.1	Affected Environment.....	45
3.8.2	Environmental Consequences	48
3.9	Archaeological and Historic Resources.....	52
3.9.1	Affected Environment.....	52
3.9.2	Environmental Consequences	53
3.10	Environmental Justice	55
3.10.1	Affected Environment.....	55
3.10.2	Environmental Consequences	55
3.11	Land Use/Navigation/Recreation	56
3.11.1	Affected Environment.....	56
3.11.2	Environmental Consequences	58
3.12	Visual Quality	60
3.12.1	Affected Environment.....	60
3.12.2	Environmental Consequences	61
3.13	Noise.....	62
3.13.1	Affected Environment.....	62
3.13.2	Environmental Consequences	62
3.14	Hazardous Materials and Wastes	64
3.14.1	Affected Environment.....	70
3.14.2	Environmental Consequences	71
3.15	Traffic.....	72
3.15.1	Affected Environment.....	73
3.15.2	Environmental Consequences	73
3.16	Safety and Security	74
3.16.1	Affected Environment.....	74
3.16.2	Environmental Consequences	74
3.17	Cumulative Impacts	75
3.17.1	Environmental Consequences	77
3.18	Irreversible and Irretrievable Commitment of Resources	78
3.19	Comparative Analysis of the No Action Alternative and the Proposed Action Alternative	78
3.20	Statement of Environmental Significance of Proposed Action Alternative	81

4.0	MITIGATION	82
4.1	Avoidance and Minimization	82
4.2	Compensatory Mitigation	85
5.0	COORDINATION AND LIST OF PREPARERS.....	86
5.1	Agency and Tribal Consultation	86
5.2	Permits and Approvals.....	86
5.3	Agency Coordination	88
5.4	List of Preparers	89
6.0	REFERENCES	90

LIST OF FIGURES

Figure 1:	Project Location and Vicinity	2
Figure 2:	Simulation of new Bridge 3.9 from the north shoreline of the Pend Oreille River	7
Figure 3:	Simulation of new Bridge 3.1 over Sand Creek between US 95 and existing Bridge 3.1	7
Figure 4:	Simulation of new Bridge 3.1 over Sand Creek	8
Figure 5:	Simulation of new Bridge 3.0 from Bridge Street	8
Figure 6:	Construction Staging Areas and Access Points.....	10
Figure 7:	National Wetland Inventory Wetlands and Surface Water	27
Figure 8:	Floodplains.....	34
Figure 9:	Sandpoint Junction Connector Action Area	38
Figure 10:	Critical Habitat for Bull Trout	47

LIST OF TABLES

Table 1:	Number of Piles and Installation Detail	11
Table 2:	Construction Equipment List, Use, and Reference Maximum In-Air Noise Levels	15
Table 3:	General Work Activities Sequencing and Time Line	16
Table 4:	Alternatives Comparison Summary	17
Table 5:	Temporary and Permanent Floodplain Fill Volumes Associated with the Proposed Action Alternative	35
Table 6:	Birds of Bonner County	39
Table 7:	Fishes of Lake Pend Oreille	42
Table 8:	USFWS Listed and Proposed Species and Critical Habitat in Bonner County	45
Table 9:	Airborne Construction Noise Attenuation.....	63
Table 10:	Comparison of Potential Environmental Effects of Alternatives.....	79
Table 11:	Agencies and Persons Contacted	88
Table 12:	List of Environmental Assessment Preparers	89

LIST OF APPENDICES

- Appendix A: Bridge Permit Drawings
- Appendix B: Site Photographs
- Appendix C: Waters of the United States Impact Maps
- Appendix D: Biological Assessment
- Appendix E: Idaho Department of Lands Encroachment Permit
- Appendix F: Reasonable Needs of Navigation Analyses for Bridges 3.1 and 3.9
- Appendix G: Visual Impact Analysis
- Appendix H: Lake Pend Oreille Geographic Response Plan
- Appendix I: State Historic Preservation Office Concurrence

Preliminary Draft for
Agency Review

ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
BA	Biological Assessment
BFE	Base Flood Elevation
BMP	best management practice
BNSF	BNSF Railway Company
CAA	Clean Air Act
CFR	Code of Federal Regulations
City	City of Sandpoint
County	unincorporated Bonner County
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FMO	foraging, migration, and overwintering
FR	Federal Register
FRA	Federal Railroad Administration
GIS	geographic information system
GRP	geographic response plan
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Lands
ISDA	Idaho State Department of Agriculture
Jacobs	Jacobs Engineering Group Inc.
LPO	Lake Pend Oreille
LPO-B	Lake Pend Oreille Basin
MBTA	Migratory Bird Treaty Act
MP	milepost
mph	miles per hour
MRL	Montana Rail Link
NCP	National Contingency Plan
NEPA	National Environmental Policy Act

ABBREVIATIONS AND ACRONYMS (CONTINUED)

NFA	No Further Action
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWAC	Northwest Area Committee
OEM	Office of Emergency Management
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Act
OSRO	Oil Spill Response Organization
PAH	polycyclic aromatic hydrocarbon
PM	particulate matter
PM ₁₀	particulate matter 10 micrometers or smaller
Project	BNSF Sandpoint Junction Connector Project
RFFA	reasonably foreseeable future action
ROW	right-of-way
RRT	Regional Response Team
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TMDL	total maximum daily load
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
US 95	U.S. Highway 95
USC	U.S. Code
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compound
WDOE	Washington State Department of Ecology
WQC	Water Quality Certification
WQMPP	Water Quality Monitoring and Protection Plan
WSDOT	Washington State Department of Transportation
WTP	water treatment plant

EXECUTIVE SUMMARY

The U.S. Coast Guard as the lead agency, in coordination with BNSF Railway Company (BNSF) and their consultant Jacobs Engineering Group Inc., has prepared this document pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code 4321 et seq.). This Environmental Assessment examines the potential environmental effects of the proposed BNSF Sandpoint Junction Connector Project (Project). The Project consists of the construction of a second main line track connection between its Algoma main line track and the Sandpoint Junction, where BNSF and the Montana Rail Link main line tracks join.

The purpose of the Project is to reduce the delay of freight and passenger rail traffic by increasing the operational efficiency of the BNSF freight rail system between its Algoma main line track south of Sandpoint (BNSF milepost [MP] 5.1) and the Sandpoint Junction (MP 2.9), where BNSF and the Montana Rail Link main line tracks join just north of the Sandpoint Amtrak Station.

The Project need is based on the existing infrastructures' ability to handle the continued growth of freight rail service demands in the BNSF northern tier, a high-volume traffic corridor between the Midwest (Chicago Terminus) and the West Coast. Rail traffic volumes have risen steadily for the past three decades in this portion of the interstate main line as a result of population growth and the corresponding increase in the demand for freight and will likely continue this trend. The 2.2-mile segment of single main line track between BNSF MP 2.9 and MP 5.1 has become a constraint to safe and efficient rail movement in the BNSF northern tier, resulting in local and regional impacts to shipping and interstate commerce.

Several alternatives were considered and dismissed from further consideration including a second main line track east of the existing main line track, developing alternate routes or shifting traffic to other railroads, and grade-separated crossings (Section 2.3). Compared to a new track west of the existing main line track, a new track east of the existing main line track would result in greater impacts to waters of the United States, more disruption to the community and recreational users, and higher construction costs due to increased fill and staging area needs. Developing alternate routes or shifting traffic to other railroads is not economically or politically viable because BNSF is not guaranteed sufficient rail capacity on other railroads and off-site options would require acquisition of substantial property from private citizens. Constructing additional grade-separated crossings throughout North Idaho could improve vehicular traffic but would not substantially affect railroad operations because trains have the right-of-way through those crossings. As a result, this NEPA Environmental Assessment evaluates a No Action Alternative and a Proposed Action Alternative. Both alternatives are within the existing BNSF right-of-way. The No Action Alternative does not fulfill the Project purpose and need of improving operational efficiency.

The Proposed Action Alternative meets the Project purpose and need through the provision of a second main line track west of the existing track to connect the 2.2-mile segment of single main line track between MP 2.9 and MP 5.1. Improvements associated with the second track include track, switch, and signal upgrades; a new bridge over Lake Pend Oreille (LPO; Bridge 3.9) adjacent to (west of) the existing rail bridge; a bridge over Sand Creek (Bridge 3.1) adjacent to (west of) the existing rail bridge; and a new bridge over Bridge Street (Bridge 3.0) adjacent to (west of) the existing rail bridge. These improvements are expected to relieve system congestion of rail traffic and reduce hold times on sidings and wait times at grade crossings, both locally and regionally.

Section 3.19 compares the potential environmental effects of the No Action Alternative and the Proposed Action Alternative by resource area. The Proposed Action Alternative is expected to result in short-term disturbances to the built and natural environment during the three- to five-year construction period, as described in Section 2.2.1. Implementation of standard best management practices through a Stormwater Pollution Prevention Plan; Water Quality Monitoring and Protection Plan; Temporary Erosion and Sediment Control Plan; and Spill Prevention, Control, and Countermeasure Plan are proposed to reduce these construction-related disturbances.

The Proposed Action Alternative would improve local air quality (Section 3.1) compared to the No Action Alternative by reducing locomotive emissions associated with periods of idling and related “powering up” to resume travel. In terms of coal dust emissions and associated air quality impacts, the Proposed Action Alternative would not change loading procedures, which is where the potential for train-related coal dust emissions is at its greatest. BNSF trains that contain coal undergo several minimization measures to help ensure fugitive coal dust is not lost in transit; therefore, the Proposed Action Alternative does not generate coal dust and no mitigation is proposed. The Proposed Action Alternative would also result in a long-term decrease in rail and roadway traffic noise (Section 3.13) and an improvement in emergency response times (Section 3.16) due to reduced congestion and delays at-grade crossings (Section 3.15).

Construction of the bridges over LPO and Sand Creek would result in 0.88 acre of nearshore fill and 0.28 acre of wetland fill (Section 3.4). These impacts would be mitigated through the use of an agency-approved mitigation bank and a collaborative group of agencies and LPO and Sand Creek stakeholders (Section 4.0).

BNSF is a common carrier and by law has to carry all legal freight. BNSF is currently coordinating with federal, state, and local entities in the ongoing review, update, and implementation of the LPO Geographic Response Plan, which guides early actions if and/or when spills happen in the region. There is no increase to spill risk associated with the Proposed Action Alternative beyond the temporary risk associated with construction equipment working over the water (Section 3.14), which is minimized through implementation of construction best management practices (Section 4.0).

Project activities are likely to adversely affect individual adult and subadult bull trout in proximity to the Project during construction (Section 3.8.2). However, completion of the Proposed Action Alternative is unlikely to affect bull trout subpopulation indicators or critical habitat at the watershed or Columbia River Headwaters Recovery Unit scales, either temporarily or permanently.

Any potential direct and indirect effects in all resource areas would not reach a level of significant impact. Neither alternative would contribute significantly to cumulative impacts.

1.0 INTRODUCTION

The U.S. Coast Guard (USCG) as the lead federal agency, in coordination with BNSF Railway Company (BNSF) and their consultant Jacobs Engineering Group Inc. (Jacobs), has prepared this environmental document pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S. Code [USC] 4321 et seq.). This Environmental Assessment (EA) examines the potential environmental effects of the BNSF Sandpoint Junction Connector Project (Project). Where potential adverse impacts have been identified, this document discusses practical measures to avoid, minimize, or mitigate them.

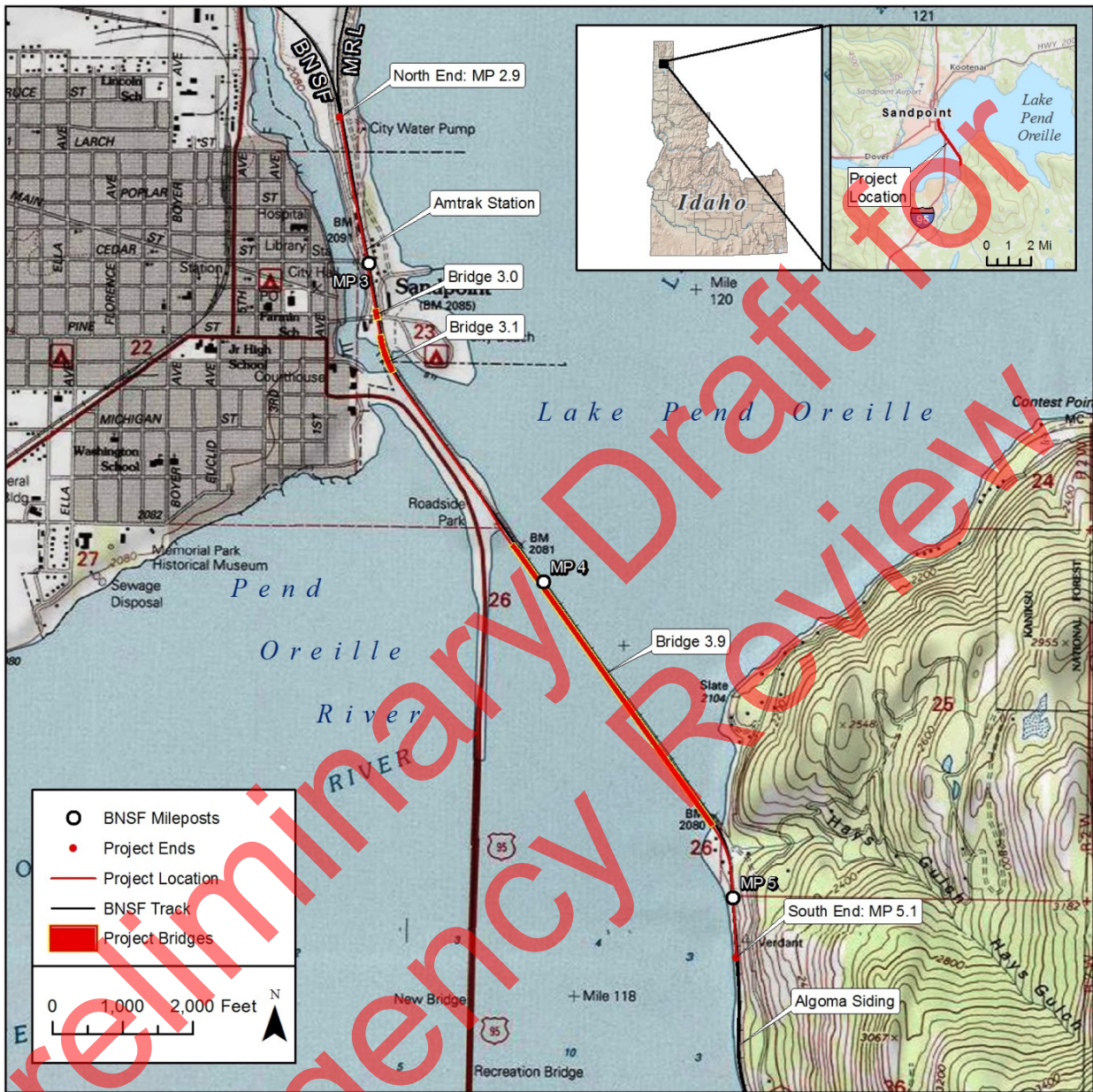
Compliance with NEPA is needed prior to issuance of federal permits for the Project, which include a Bridge Permit from the USCG under Section 9 of the Rivers and Harbors Act and an Individual Permit from the U.S. Army Corps of Engineers (USACE) under Section 404 and Section 10 of the Clean Water Act (CWA).

1.1 Site Location and Existing Structure

1.1.1 Site Location

The Project is located within the existing BNSF rights-of-way (ROWs) from milepost (MP) 2.9+/- to MP 5.1+/-, on Line Segment 45 within the Montana Division, Kootenai River Subdivision. The site is located within the incorporated limits of the City of Sandpoint (City) and unincorporated Bonner County (County), Idaho. The site encompasses portions of Sections 15, 22, 23, 23, 26, and 36; Township 57 North; Range 2 West, Boise Meridian. Latitudinal and longitudinal coordinates for the approximate Project center are 48°15'54.81"N, 116°32'13.05"W (**Figure 1**). The U.S. Geological Survey Hydrologic Unit Code is 17010214 within the Idaho Panhandle Basin, Lake Pend Oreille (LPO) Subbasin.

Figure 1: Project Location and Vicinity



1.1.2 Existing Conditions and Structures

The current track configuration involves a Montana Rail Link (MRL) siding and two main line tracks, BNSF and MRL, meeting at the Sandpoint Junction (BNSF MP 2.9) just north of the Sandpoint Amtrak Station, becoming a single main line track through Sandpoint and over Sand Creek and LPO to the BNSF Algoma (East) main line track (BNSF MP 5.1) where the single main line switches to two main lines. Key features of the Project corridor are described below:

- The north end of the Project (BNSF MP 2.9) is within the City of Sandpoint and is designated as an Urban Transportation Corridor (Bonner County 2017).
- From BNSF MP 2.9 to 3.9, the existing BNSF main line track is surrounded by the BNSF maintenance road, the Sandpoint Amtrak Depot, U.S. Highway 95 (US 95), and Sandpoint Marina to the west, and Sandpoint Avenue, Seasons of Sandpoint Condominiums, Best Western Edgewater Resort, Sandpoint Edgewater RV Park, and a portion of the Sandpoint City Beach Marina to the east.
- BNSF Bridge 3.0 spans Bridge Street in Sandpoint.
- BNSF Bridge 3.1 spans Sand Creek in Sandpoint.
- BNSF Bridge 3.9 spans the open water of LPO from MP 3.9–4.9.
- The south end of the Project (BNSF MP 5.1) is designated as a Rural-Residential Transportation Corridor (Bonner County 2017).

The existing BNSF Bridge 3.1 over Sand Creek is a fixed single-track bridge measuring 155 feet long and 19 feet wide with four concrete piers, two of which are abutments. It was originally constructed in 1902 but was modified in 1990 with replacement of the superstructure, concrete pier caps, deck, and walk.

The existing BNSF Bridge 3.9 is a fixed bridge that has both open-deck and ballast-deck spans and measures 4,769 feet long with 88 piers. Thirty-two of the original over 100-year-old, single-column concrete piers on wood pilings (16 on the north end and 16 on the south end of the bridge) were replaced in 2006–2009 with steel bents, each composed of 6 closed-end steel pipe piles. The existing bridge also has a non-operable swing span over the two existing, published 76.6-foot-wide navigation channels.

Appendix A includes a set of permit drawings showing the primary components of the existing bridges and trackwork along the Project work corridor.

1.2 Purpose and Need

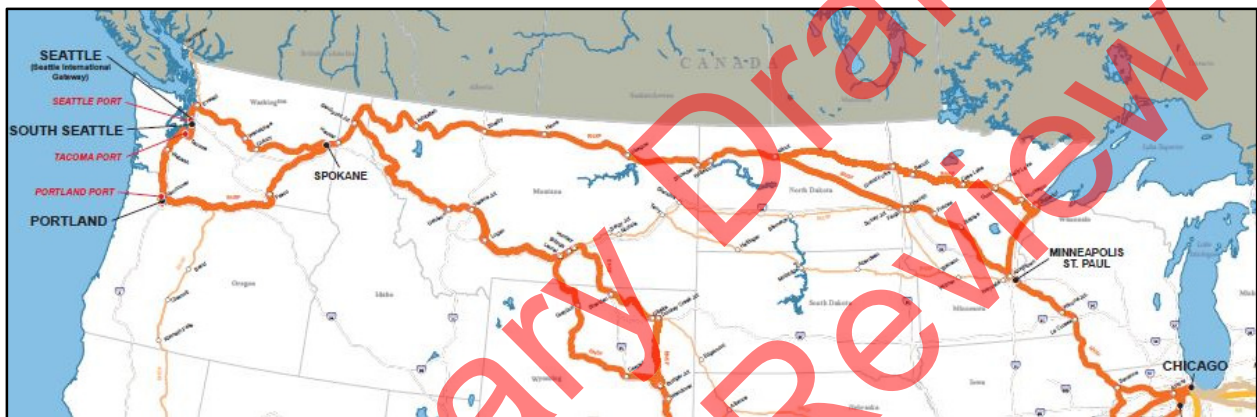
1.2.1 Project Purpose

The purpose of the BNSF Sandpoint Junction Connector Project is to reduce the delay of freight and passenger rail traffic by increasing the operational efficiency of the BNSF freight rail system between its Algoma main line track south of Sandpoint (BNSF MP 5.1) and the Sandpoint Junction (MP 2.9), where BNSF and the MRL main line tracks join just north of the Sandpoint Amtrak Station.

1.2.2 Statement of Need

The BNSF northern tier is a high-volume traffic corridor that connects both the Midwest Chicago Terminus and Canada to the West Coast (see inset map below). This rail corridor moves key commodities such as wheat, corn, and soybeans from the northern tier of Midwest states to the West Coast ports of Seattle, Tacoma, and Vancouver, Washington, making it a critical transportation link in the international delivery of agricultural products. This corridor also serves as Amtrak's only route across the northern United States (the "Empire Builder"), connecting the Midwest (Chicago) with the West Coast, making it an important piece of the passenger rail system.

Rail traffic volumes have risen steadily for the past three decades on this portion of the interstate main line, increasing the economic significance of the corridor. Currently, approximately 60 trains use this section of track per day, resulting in nearly 22,000 overwater crossings per year.

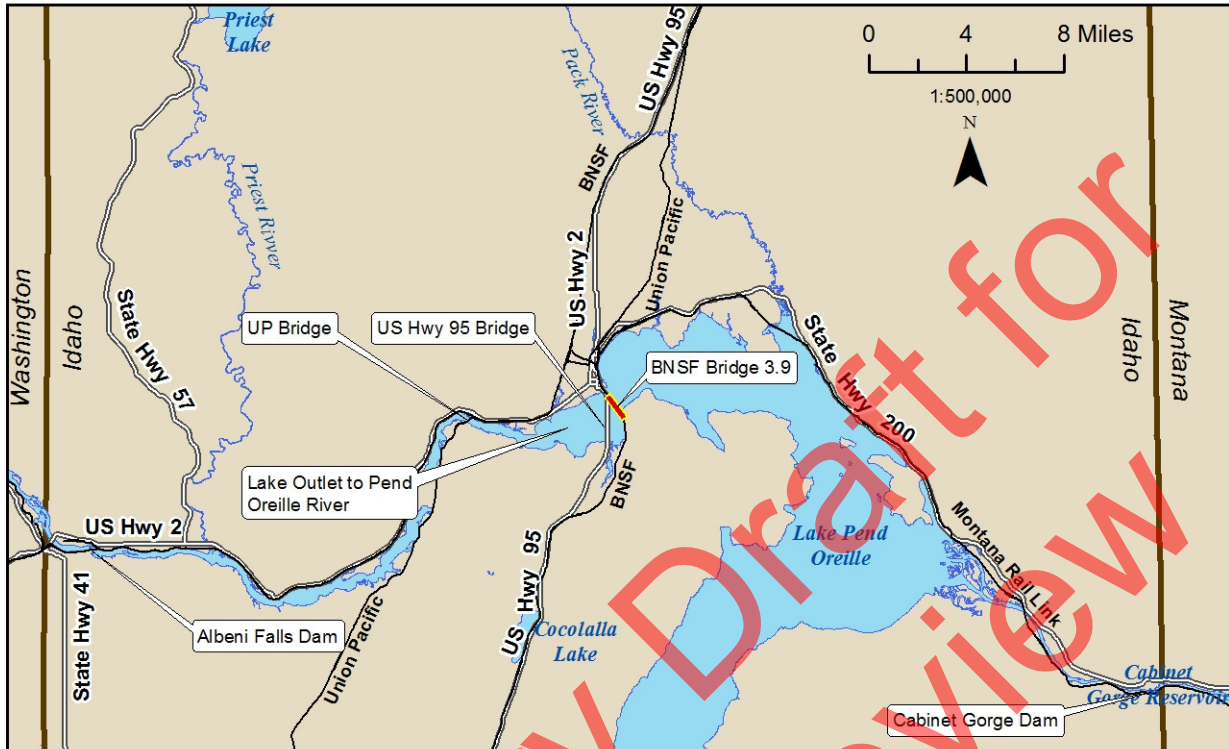


BNSF Northern Tier Corridor

Two sections containing two main line tracks end at Algoma (BNSF MP 5.1) and Sandpoint Junction (BNSF MP 2.9). These two main line track sections are separated by a 2.2-mile section with only one main line track over Sand Creek and LPO, which dates from the early 1900s (**Figure 1**). Sandpoint Junction is located at the north end of the single-track section, just north of the Sandpoint Amtrak Station, where an MRL siding track meets two main line tracks (BNSF and MRL). At the south end of the single-track section, the main line intersects with the BNSF Algoma (East) main line track.

The 2.2-mile segment of single main line track is a constraint to safe and efficient rail movement in the BNSF northern tier, resulting in local and regional impacts to shipping and interstate commerce. The existing single-track configuration causes trains to back up on existing sidings and rail yards for up to 30 minutes waiting for an opening to cross the bottleneck (see inset figure below).

Trains waiting for a crossing opportunity cause long vehicular wait times on local County and City streets at public at-grade rail crossings. The delay in train and truck traffic results in a delay of the local and regional transport of people, goods, and services.



Sandpoint is known as “The Funnel”

Rail traffic in this corridor has increased as a result of population growth and the corresponding increase in the demand for freight and will likely continue this trend. The existing bridges over Sand Creek and LPO have the physical capacity to move more trains, but additional train volumes would increase congestion and delays, negatively impacting North Idaho communities and communities throughout the BNSF network. If the constriction at this location is not addressed, the delay is expected to increase, resulting in a lower level of service for both rail and vehicle traffic and further constraining the movement of goods and services at a local, regional, national, and international level.

Deteriorating rail service may also cause shippers with alternative options, such as consumer product containers, to convert to highway transportation by truck. One double-stack intermodal train carries the same cargo as 280 trucks that would be diverted to publicly funded highways, producing negative highway congestion, economic, and safety impacts.

2.0 ALTERNATIVES

2.1 Alternative 1 – No Action Alternative

Under the No Action Alternative, the current track configuration would stay the same (two main line tracks that switch to a single main line track through Sandpoint and over the Sand Creek and LPO bridges). This includes continued, ongoing inspection and maintenance of the single track, bridges, and associated infrastructure in compliance with the 1995 Interstate Commerce Commission Termination Act and the 1970 Federal Railroad Safety Act.

The No Action Alternative is projected to result in continued and increased levels of trains waiting on regional sidings, with associated continued and increased idling emissions and noise at locations where trains wait for clearance as well as increased time to clear trains from local and regional at-grade crossings. Rail traffic in this corridor has increased as a result of population growth and the corresponding increase in the demand for freight, and will likely continue this trend. As additional trains are delayed and commerce does not meet expected transportation goals, it is assumed that freight train use could decline and truck and other road traffic could increase.

The No Action Alternative does not meet the purpose or need of the Project and does not address specific conditions that currently result in delays to passenger and freight service or delays of traffic at local and regional road crossings.

2.2 Alternative 2 – Proposed Action Alternative

The Proposed Action Alternative involves the construction of an approximately 2.2-mile-long second main line track west of the existing BNSF main line to connect the Algoma main line track (MP 5.1) south of Sandpoint, to the Sandpoint Junction switch (MP 2.9), where the BNSF and the MRL main lines converge in Sandpoint. This action consists of:

- A new main line track west of the existing BNSF main line track.
- A new bridge over LPO (Bridge 3.9) adjacent to (west of) the existing rail bridge (Figure 2).
- A new bridge over Sand Creek (Bridge 3.1) adjacent to (west of) the existing rail bridge (Figures 3 and 4).
- A new bridge over Bridge Street (Bridge 3.0) adjacent to (west of) the existing rail bridge (Figure 5).
- Track, switch and signal upgrades.
- Temporary construction bridges over LPO and Sand Creek.
- Development of temporary construction material/equipment work staging areas.
- 0.88 acre of permanent and 0.38 acre of temporary nearshore fill below the jurisdictional ordinary high water mark (OHWM) elevation of 2,062.50 feet, associated with bridge abutments and the south switch.
- 0.28 acre of wetland fill in one location between the rail grade and the multiuse public pathway south of the Sand Creek Bridge 3.1.



Figure 2: Simulation of new Bridge 3.9 from the north shoreline of the Pend Oreille River



Figure 3: Simulation of new Bridge 3.1 over Sand Creek between US 95 and existing Bridge 3.1



Figure 4: Simulation of new Bridge 3.1 over Sand Creek



Figure 5: Simulation of new Bridge 3.0 from Bridge Street

Appendix A includes a set of permit drawings with design details of the Proposed Action Alternative. The existing BNSF bridges over LPO, Sand Creek, and Bridge Street would remain unchanged, with the exception of routine maintenance and repair activities. Similar to the No Action Alternative, the Proposed Action Alternative includes continued, ongoing inspection and maintenance of the main line track, bridges, and associated infrastructure in compliance with federal railroad regulations.

2.2.1 Construction Process

The construction process includes all assumed Project activities: mobilization of equipment and materials needed for construction, reestablishing and improving existing access roads at the north and south ends of the Project corridor, improvements to staging areas within the existing BNSF ROW, construction of temporary work bridges, construction of new permanent bridges, removal of temporary work bridges, site restoration, and demobilization of equipment. Potential construction staging areas and access points are shown on **Figure 6**. The anticipated construction process is summarized as follows:

1. Mobilization. Mobilization of equipment and materials to staging areas would be an ongoing process during construction. All staging areas are within BNSF ROW.
2. Site Preparation. Site Preparation includes clearing and grubbing activities, removing existing fencing, installing temporary construction fencing, and installing temporary erosion control measures. Site preparation also includes improvement of existing access roads and staging areas in the existing BNSF ROW. The improvements may include repaving, such work necessary to improve safety (e.g., line of sight clearing), and environmental protection measures such as sediment tracking and containment. For the most part, these areas have already been cleared and overlaid with compacted gravels. Site access would be from US 95 and Bridge Street at the north end of the Project and from Bottle Bay Road at the south end.
3. Construct temporary work bridges (Table 1). Two temporary work bridges would be constructed requiring 0.38 acre of temporary nearshore fill placement. The temporary work bridges would be used to facilitate construction of the new permanent bridges.
 - a. Temporary work bridge over LPO. A temporary timber deck construction bridge would be constructed immediately adjacent to and west of the new LPO bridge location. The temporary bridge over LPO would measure approximately 4,800 feet long and 32 feet wide, with 101 approximately 48-foot-long spans and one 24-foot-long span at the north end. Additionally, eight 64-foot-wide staging set-outs would be installed at approximately 500-foot intervals along the bridge for safety and material staging and to provide continuous through-access for the length of the temporary bridge.

The temporary work bridge would support large cranes that would be working to construct the new permanent bridge over LPO. The bridge would maintain a 42-foot horizontal and 15-foot vertical clearance at the location of the marked navigation channel under the existing bridge.

The temporary work bridge piles would be vibrated to resistance, and one pile per pier would be proofed with an impact hammer at an estimated 20 to 50 strikes for a short duration. The work bridge would require seven hundred 24-inch-diameter steel pipe piles, with 600 of those being installed in water.

Figure 6: Construction Staging Areas and Access Points

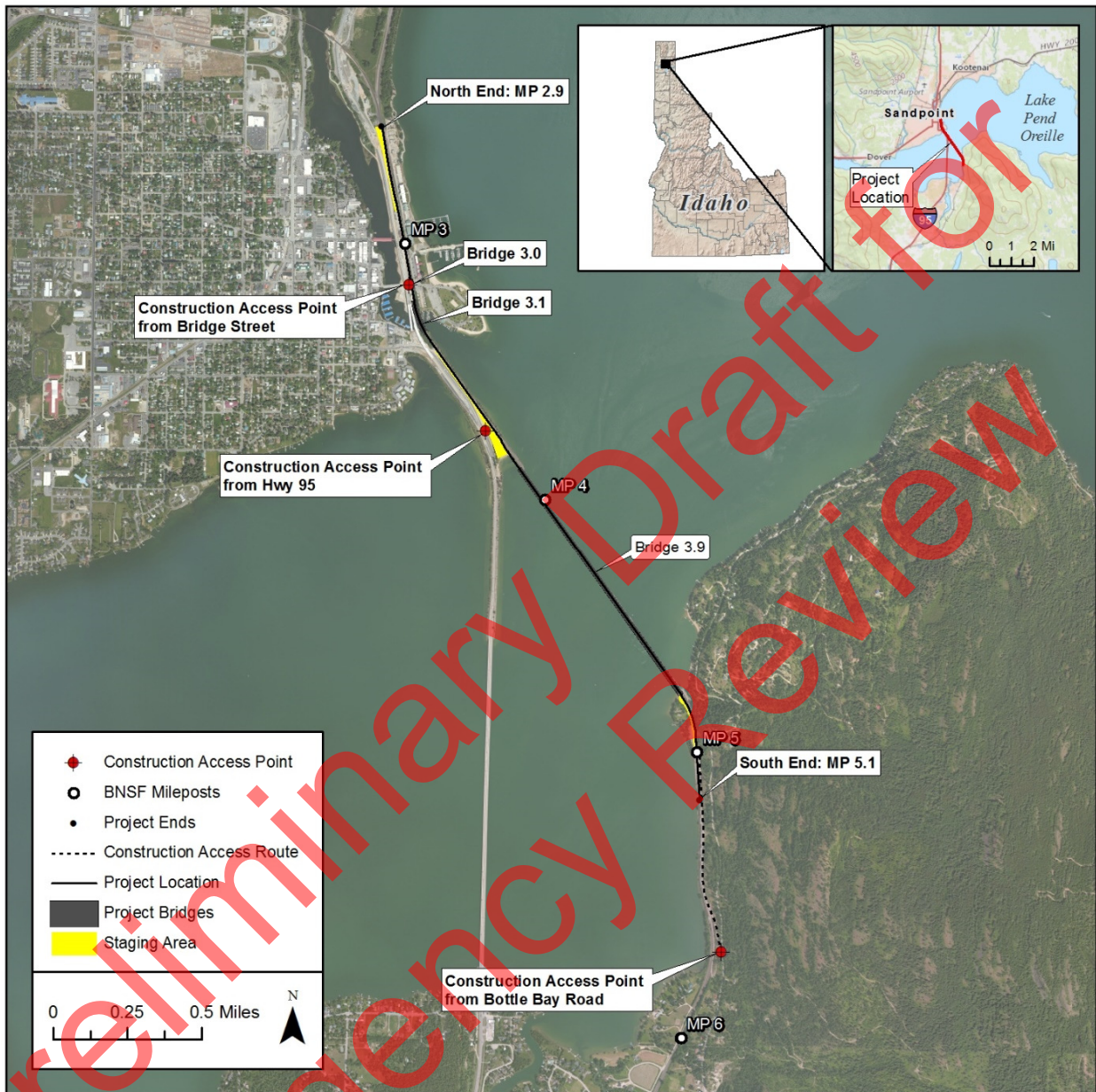


Table 1: Number of Piles and Installation Detail

Action	Support Type	Installation Method	Total Quantity	In-Water Quantity
Temporary Work Bridges				
Bridge 3.1 Install and remove temporary work bridge piles.	24-inch Steel Pipe Pile	Install: Vibratory to refusal and impact hammer for proofing, estimated 20 to 50 strikes per pile. Removal would be vibratory extraction.	48	Up to 40
Bridge 3.9 Install and remove temporary work bridge piles.	24-inch Steel Pipe Pile	Install: Vibratory to refusal and impact hammer for proofing, estimated 20 to 50 strikes per pile. Removal would be vibratory extraction.	700	600
Install and remove temporary platforms on west side of bridges (staging setouts).	24-inch Steel Pipe Pile	Install: Vibratory to refusal and impact hammer for proofing, estimated 20 to 50 strikes per pile. Removal would be vibratory extraction.	Included in overall temporary bridge pile quantities	Included in overall temporary bridge pile quantities
New Bridges				
Bridge 3.1 Install bridge piles.	24-inch Steel Pipe Pile	Install: Vibratory to resistance and finished with an impact hammer, estimated 1,200 strikes per pile.	64	22
Bridge 3.9 Install bridge piles.	36-inch Steel Pipe Pile	Install: Vibratory to resistance and finished with an impact hammer, estimated 1,600 strikes per pile.	288	288
TOTAL			1,100	950

Impact and vibratory pile driving would occur during daylight working hours. Assuming that two temporary work bridge piles can be driven per day, pile driving is expected to occur for an estimated one calendar year for the temporary work bridge over LPO, dependent on weather or other interruptions.

The vertical clearance of the temporary work bridge over LPO would gradually rise from the abutments. Spans 1 through 16 at the north end of the bridge would have less than 10 feet of vertical clearance, with the low-chord gradually rising from 10 to 15 feet for Spans 17 through 67. Spans 68 through 71 would provide 15 feet of vertical clearance, with the low chord gradually lowering back down from 15 feet to 10 feet at the south end for Spans 72 through 101.

The temporary work bridge over LPO would be constructed first and would remain in place until the new, permanent bridge is placed into service. The temporary work bridge went through many design iterations to identify the least impacts to navigation while providing a safe working platform for the large, heavy equipment required to construct the new LPO railroad bridge. The majority of the work bridge would retain an equivalent vertical and horizontal clearance as the existing railroad bridge during construction.

All marine traffic that now passes below the existing bridge would be able to pass under the temporary work bridge throughout construction. Signage, lighting, and other notices would be in place to direct marine traffic on LPO away from restrictive spans to the safe, non-restrictive boating passage spans.

- b. Temporary work bridge over Sand Creek. A temporary timber deck construction bridge would be constructed immediately adjacent to and west of the new Sand Creek bridge location.

The temporary bridge over Sand Creek would measure approximately 528 feet long and 32 feet wide with eleven 48-foot-long spans. The temporary work bridge over Sand Creek would be supported by 10 piers partially or fully below the OHWM. Eight piers would consist of four 24-inch-diameter, open-ended steel pipe piles, and two piers would consist of eight 24-inch-diameter, open-ended steel pipe piles. In total, 30 to 40 piles would be below the OHWM to account for minor adjustments in span support needs and site conditions. The temporary work bridge would support large cranes that would be working to construct the new permanent bridge over Sand Creek.

The temporary work bridge piles would be vibrated to resistance, and one pile per pier would be proofed with an impact hammer at an estimated 20 to 50 strikes for a short duration. Impact and vibratory pile driving would occur during daylight working hours. Assuming that two temporary work bridge piles can be driven per day, pile driving is expected to occur for about a month for the temporary work bridge over Sand Creek, dependent on weather or other interruptions.

The temporary work bridge span over the Sand Creek marked and lighted navigation channel would be limited to the period when no navigational access up Sand Creek is available, from approximately October 15 to April 15, depending on Albeni Falls Dam fall drawdown and spring fill. The temporary work bridge span over the marked and lighted navigation channel for Sand Creek would be removed between April 15 and October 15. As a result, the temporary bridge will not impact navigation for marine traffic in Sand Creek as it will not be an obstruction when navigational access up Sand Creek is available.

4. Construct new permanent bridges over LPO and Sand Creek (Table 1). Some of this work may occur concurrently with the construction of the temporary work bridges. Construction of the new permanent bridges includes pile driving; setting concrete pier caps and abutments, including excavation for foundations at each abutment; setting the new bridge girders; installing decking, drainage, and handrails; and final grading.

The new permanent bridge over LPO would be constructed approximately 50 feet west of the existing rail bridge in existing BNSF ROW and measure approximately 4,874 feet long by 18 feet wide. The new bridge would have 49 spans at the following lengths: forty-two at 104 feet in length; six at 75 feet 11 inches in length; and one at 47 feet 10 inches in length.

Each pier bent would consist of six, open-ended, 36-inch-diameter steel pipe piles for a total of 288 piles below the regulated summer pool elevation of 2,062.5 feet that makes up the jurisdictional OHWM of the lake. The new piers would align approximately with every other pier of the existing bridge.

The new permanent bridge over LPO would have 10 spans at, and adjacent to, the designated navigation spans on the existing bridge that would closely match those longer-span horizontal clearances. The maximum vertical clearance (low chord) of the new bridge would be 15 feet above the regulated summer pool elevation of 2,062.5 feet. These 15-

foot clearances would consist of six 75-foot-11-inch spans, four of which would align with the existing rail bridge's 77-foot spans that are equal to or greater than 15-foot vertical clearance. The new bridge would not reduce the horizontal or vertical clearance over the marked navigation channel under the existing bridge.

The new permanent LPO bridge would require vibrating 288 piles to resistance into the lake bed and finishing with an impact hammer with an average of 1,600 strikes per pile. All piles would be installed in water. Pile driving would occur during daylight working hours. Assuming that up to two piles could be driven per day, pile driving would occur for an estimated six months, dependent on weather-related or other interruptions. Air bubble curtains would be used during impact pile driving to attenuate in-water sound pressure levels (when water is more than 3 feet deep) per U.S. Fish and Wildlife Service (USFWS) protocol, and a turbidity curtain would surround the area where bubble curtains would be utilized.

The new permanent bridge over Sand Creek would be constructed approximately 35 feet west of the existing rail bridge in existing BNSF ROW and measures approximately 505 feet long by 21 feet wide. The new bridge would be supported by 11 piers, each consisting of open-ended, 24-inch-diameter steel pipe piles. Two piers within the OHWM of the creek channel would consist of eight piles each; seven piers (one partially or wholly within the OHWM and six fully upland) would consist of six piles each; and two piers upland of the OHWM would consist of three piles each. A total of 64 piles would be placed, 22 of which would be below the OHWM. Piles within the main channel of Sand Creek would be driven during low-water conditions/winter pool elevation.

Two of the piers would be fully within the Sand Creek navigational channel. The new bridge navigational horizontal clearance is 74 feet; the existing bridge has an approximately 45-foot horizontal clearance. Vertical clearance of the new bridge would match the vertical clearance of the existing bridge, which is 17 feet above the 2,062.5-foot OHWM elevation. The new permanent Sand Creek bridge piles would be vibrated to resistance into the creek bed and finished with an impact hammer with an average of 1,200 strikes per pile. Pile driving would occur during daylight working hours. Assuming that up to two piles could be driven per day, pile driving would occur for about one month, dependent on weather-related or other interruptions.

5. Construction of Bridge 3.0. Construction would generally follow typical upland construction. The track grade would be built to the abutment locations and then concrete abutments, per the plan, would be formed/poured in place. Pre-cast bridge components would be placed/set. Temporary closures of Bridge Street may be required. If closures are required, a traffic control plan would be utilized as described in Section 3.15.2.
6. Construct new second main line track on new permanent bridges. Once the new permanent bridges over LPO and Sand Creek are completed, BNSF employees, with contractor support, would construct the new second main line track on the new permanent bridges. The temporary work bridges would be used to facilitate placement of ties and track on the new permanent bridges.
7. Dismantle and remove temporary work bridges and temporary nearshore fills. The temporary work bridges would be removed in sections, stockpiled in upland staging areas as needed, and ultimately removed from the site. The temporary work bridge piles would be removed with a vibratory hammer as needed. The temporary nearshore fills would be removed once temporary work bridge removal allows.

8. Final grading, cleanup, and stabilization. While the temporary work bridges are being dismantled and removed from site, all remaining final grading and track construction would be occurring in upland areas within the Project limits. All disturbed areas within the Project limits would be stabilized as required by permits. Permanent fencing, where appropriate to promote safety, would be constructed within BNSF ROW; and temporary construction fencing and erosion control measures would be removed and stabilized. Final inspection punch-list items would be addressed at this time.
9. Demobilize. All construction supplies and equipment would be removed from the staging areas; Project completed. Staging areas would be restored to BNSF standards.

2.2.2 Temporary Bridge Demolition

The temporary bridges would not be demolished until the new bridge(s) are in place and work is complete. At that time, bridge components would be partially disassembled, breaking the spans down to more manageable pieces that can be safely removed from the temporary work bridges. A crane would be used to hoist sections of the bridge to either a flatbed or dump truck. These parts would either be removed entirely from the Project area and/or stockpiled at the staging areas to be further dismantled or removed after construction has been completed.

Appendix B includes site photographs of existing conditions that depict the location of the bridges along with conceptual renderings of the relationship between the proposed new bridges and the existing bridges. Best management practices (BMPs) would be implemented during the temporary work bridge demolition to prevent temporary bridge materials from entering Sand Creek or LPO.

Demolition includes removal of the temporary work bridges, including staging setouts or work platforms. This work would occur in sequential order and generally proceed toward the abutments. All temporary piles would be removed with a vibratory extractor.

2.2.3 Site Rehabilitation

Site rehabilitation includes final grading along the new rail grade and around upland areas associated with the new bridge abutments, removal of temporary fills associated with the access roads, temporary at-grade crossings, seeding/mulching open disturbed areas where there is sufficient soil, shoreline planting of riparian trees and shrubs, and removal of temporary construction materials such as fencing, signage, and erosion control products. These are the final construction-related actions associated with this Project.

2.2.4 Construction Equipment

The Project would require the use of a wide array of construction equipment. **Table 2** includes a list of Project equipment expected to be used on the site, as well as the expected use and the typical maximum noise level(s) for each piece of equipment as measured from 50 feet away (Washington State Department of Transportation [WSDOT] 2018). If other types of equipment are needed during this Project, specifications, size, and noise levels would fall within the parameters of the equipment in **Table 2**.

Table 2: Construction Equipment List, Use, and Reference Maximum In-Air Noise Levels

Equipment	Expected Use	L _{max} (dBA)
Backhoe	Access road and abutment construction	78
Chainsaw	Clear work area and construction pad	84
Compactor	Compact fill material for ramps, access roads, and staging areas	83
Compressor	Bubble curtain and hand tools	78
Concrete Mixer Truck	New abutments, piles, and decking	79
Concrete Pump Truck	New abutments, piles, and decking	81
Crane	Bridge construction, work trestles, piles, etc.	81
Drill Rig Truck	Geotechnical or subsurface investigation	79
Drum Mixer	Mix concrete or fill material	80
Dump Truck	Deliver supplies and remove rock and soil	76
Excavator	Access road and abutment work	81
Flat Bed Truck	Move supplies and bridge components	74
Front End Loader	Move supplies and bridge components	79
Generator	Power for hand tools and small equipment	81
Generator (<2kVA)	Power roadway signage	73
Vibratory Pile Driver	Installation and removal of in-water piles	101
Impact Pile Driver	Installation of upland and in-water piles	110
Lift	Access	75
Pickup Trucks	Construction worker site access	75
Pneumatic Tools	Power hand tools	85
Rock Drill	Rock removal	81
Roller	Compact fill for access roads	80
Welder/Torch	Welding of steel bridge components	74

Notes:
 dBA – A-weighted decibels
 L_{max} = highest time-weighted sound level measured

2.2.5 Construction Schedule and Design Year

LPO has no in-water work window for avoiding impacts to aquatic resources, such as listed endangered species or designated critical habitat. However, due to the fact that LPO water levels are controlled the downstream Albeni Falls Dam, nearshore fills are proposed to be completed during low- or no-water times in the winter months. **Table 3** summarizes the general work activities sequencing and a three-year construction time line, although construction may take up to five years. The current proposed start date is Spring 2019.

Table 3: General Work Activities Sequencing and Time Line

2019	Develop/improve existing access and staging areas Wetland and nearshore structural fills Begin temporary work bridges
2020	Finish structural fills Finish temporary work bridge(s) construction Begin permanent bridge(s) pile driving
2020–2021	Finish permanent bridge(s) pile driving Install permanent bridge spans Track and infrastructure construction Remove temporary work bridge (3.1) before summer pool 2021
2022	Finish track and infrastructure construction Remove temporary work bridge (3.9) Remove temporary fill, stabilize, and restore Demobilize construction equipment and materials

2.3 Alternatives Eliminated from Further Consideration

Reasonable alternatives for improving operational efficiency within the Project area are limited due to the linear nature of the existing rail line and the existing BNSF-owned property (i.e., ROW). The following alternatives were considered, but eliminated because they do not fulfill the purpose and need of the Project; are not technically or economically feasible for BNSF to construct, operate, and maintain; or they result in greater social or environmental impacts than the Proposed Action Alternative:

- New track east of the existing main line track
- Off-site/outside existing BNSF ROW
- Grade-separated crossings

The rationale for elimination of each alternative is summarized in the following subsections. **Table 4** provides a comparison of the eliminated alternatives to the No Action Alternative and the Proposed Action Alternative.

Table 4: Alternatives Comparison Summary

Criteria Type	Screening Criteria	Analyzed Alternatives		Eliminated Alternatives		
		No Action	New Track West of Existing Main Line (Proposed)	New Track East of Existing Main Line	Off-Site/Outside Existing Right-of-Way	Grade-Separated Crossings
Purpose and Need	Improves operational efficiency (Y/N)	No	Yes	Yes	No	No
Economic Feasibility	Reduces freight rail delay (Y/N)	No	Yes	Yes	Yes	No
	Accommodates continued growth in rail traffic (Y/N)	No	Yes	Yes	Yes	No
	Construction cost (millions of dollars) ⁽¹⁾	\$0	\$100 ⁽²⁾	\$130	>\$130	>\$130
	Viability depends on approval from other entities (Y/N)	No	No	No	Yes	Yes
Built and Natural Environment	Aquatic impact (acres)	0 acre	1.54 acres	5.36 to 7.36 acres	13 to 18 acres ⁽³⁾	≤1.54 acres
	Reduces vehicular delay at at-grade crossings (Y/N)	No	Yes	Yes	Yes	Yes
	Reduces passenger rail delay (Y/N)	No	Yes	Yes	Yes	No
	Requires permanent ROW acquisition (Y/N)	No	No	No	Yes	No
	Construction disturbance to local community (high/moderate/low)	Low	Moderate	High	High	Low
Constructability	Construction would occur within BNSF ROW (Y/N)	Yes	Yes	No	No	Yes
	Requires use of barges in LPO (Y/N)	No	No	Yes	Unknown	No
	Construction complexity (High/Moderate/Low)	Low	Moderate	High	High	Moderate

Notes:

BNSF = BNSF Railway Company

LPO = Lake Pend Oreille

ROW = right-of-way

⁽¹⁾Excludes maintenance activities, ROW acquisition, mitigation, and costs external to BNSF Railway.⁽²⁾Approximate cost based upon conceptual engineering.⁽³⁾GIS data sources: U.S. Fish and Wildlife Service 2018b; U.S. Department of Transportation 2018.

2.3.1 New Track East of the Existing Main Line Track

This alternative would have essentially all of the same work elements described under the Proposed Action Alternative, but places the new tracks on the east side of the existing main line. Track, switch, and signal upgrades would remain generally the same as the Proposed Action Alternative. A new track east of the existing main line track meets the purpose and need for the Project, but was determined not to be practical as it has greater social and environmental impact than the Proposed Action Alternative as summarized in the following bullets:

- For a new main line track to the east of the existing BNSF main line track, access to all the work by large equipment within Sandpoint city limits is either limited to Bridge Street or would need to be barged in from LPO. This would likely have a measurable increase in traffic congestion in the Bridge Street corridor. Additionally, approximately 0.5 mile of rail grade was already constructed at the time of the US 95 Sandpoint Bypass Project on the west side of the existing tracks. To provide an equivalent area on the east side of the existing tracks would require approximately 2.9 acres of nearshore fill from Bridge 3.1 (Sand Creek) to Bridge 3.9 (LPO). No wetland impacts would be required.
- To construct a new bridge over LPO east of the existing rail bridge (Bridge 3.9) would require substantially more nearshore fills beyond what is suggested under the Proposed Action Alternative. The cranes necessary to construct the bridge foundations would need to be brought in by barge and require a large fill area for a barge landing, crane assembly, and staging. Pilings and bridge decks would also need to be barged to the site and require landing and staging areas. The estimated additional nearshore fill for the minimum staging area required is approximately 1.2 acres. This staging area would also require a large barge landing area for staging access, the landing area would result in both lake-bottom excavations and adjacent fill of up to 2 acres. No land is available to lease or purchase for the staging, assembly, and landing areas. All Project elements would need to be built in regulated areas adjacent to a high-use recreational boating corridor where Sand Creek enters LPO.
- A new bridge over Sand Creek east of the existing rail bridge (Bridge 3.1) would have approximately the same nearshore fills as the Proposed Action Alternative, and 0.28-acre less fill to the wetlands just south of the bridge on the west side. However, this alternative would experience the same limitation for access to the area with equipment and materials as with Bridge 3.9, described above. Generally, the same staging for both bridges could be used other than some additional staging that would be required where the Sandpoint Marina encroaches on BNSF ROW, with a subsequent loss of boat slips and access.
- A new bridge over Bridge Street would be approximately the same as described with the Proposed Action Alternative. However, due to close proximity, increased disruptions would be anticipated to existing public and private access roads and parking lots for residents east of the tracks, and to the Edgewater Hotel adjacent to (east of) existing Bridge 3.0.

Compared to the Proposed Action Alternative, a new track east of the existing main line track would substantially increase temporary and permanent impacts to waters of the United States, would result in increased disruption to the community and recreation users, and would cost approximately \$30 million more to construct due to the need for substantial rock blasting, increased fill in LPO, retaining wall requirements, and staging area needs. Therefore, this alternative was eliminated from further consideration in this EA.

2.3.2 Off-Site/Outside Existing BNSF Right-of-Way

This alternative includes developing alternate routes or shifting traffic to other railroads. Developing alternate routes would require incorporation of property outside the proposed Project limits as well as the need to purchase or acquire new ROW to meet up with the existing track configuration. Shifting large volumes of rail traffic to another railroad would be operationally impractical, highly inefficient, and would impose an unreasonable cost on rail customers. It would slow down overall train movements on the corridor for freight and passengers. This alternative does not meet the purpose and need for the Project and was determined to have greater social, environmental, and economic impacts than the Proposed Action Alternative for the following reasons:

- Large tracts of property to build new tracks outside the BNSF transportation corridor are not available. Available property is further constrained by track grade requirements, which cannot exceed one-half percent.
- Developing a new ROW for an alternate route would require acquisition of a substantial amount of property from private citizens that would result in social and environmental impacts that far exceed those of the Proposed Action Alternative.
- A crossing of LPO and Sand Creek would still be required, and would be outside an existing transportation corridor. Based upon a 100-foot ROW containing 53 acres of jurisdictional waters, aquatic impacts are estimated between 13 and 18 acres (representing 25 to 33 percent of waters of the United States within the ROW).
- This alternative would cost substantially more than a new main line track adjacent to the existing main line. Assuming the other local competing railroad (Union Pacific Railroad [UPRR]) was interested in allowing BNSF trains to utilize its corridor, a new main line track adjacent to the existing UPRR main line would be needed to preserve UPRR's current and future operations. This may require the construction of approximately 32 miles of new main line track along the existing UPRR main line, between a point north of Sandpoint, where the BNSF and UPRR main lines run closely together, to a close running point near Athol, Idaho, where another separate connection between the two competing railroads could be created. The cost to construct an entirely new route, such as a route that parallels Interstate 90, would far exceed the cost of an alternative that utilizes an existing rail corridor.
- When possible, BNSF chooses those options that utilize infrastructure on property and facilities owned by BNSF. BNSF is not guaranteed sufficient rail capacity on the UPRR railroad bridge that exists downstream of BNSF Bridges 3.1 and 3.9; therefore, it is not a viable business option.

For these reasons, an alternative off-site/outside of existing BNSF ROW is considered impractical and was eliminated from further consideration in this EA.

2.3.3 Grade-Separated Crossings

This alternative includes additional grade-separated crossings in North Idaho in lieu of constructing an additional bridge. There are no public at-grade crossings located within the Project corridor between BNSF MP 2.9 and 5.1; therefore, this alternative would greatly expand the Project area across the railroad network in North Idaho. Eliminating public at-grade crossings reduces safety risks and provides convenience for vehicle traffic, but it does not substantially affect railroad operations because trains have the ROW through those crossings. This alternative does not address the efficiency of trains crossing the Project area and therefore does not meet the purpose and need for the Project.

The determination to grade separate a crossing is made by the appropriate road authority using their own calculations or other driving factors. BNSF participates in the process by conducting reviews of construction plans that would impact BNSF's ROW. Under federal law (23 CFR 646.212), there is a formula for cost-sharing between a community and the railroad for providing a grade-separated crossing when the grade separation results in the elimination of an at-grade crossing. BNSF regularly participates in such projects across its system.

Based on the large number of grade crossings and road authorities in North Idaho (approximately 24 public at-grade crossings are located within 20 miles of Sandpoint Junction), it is not feasible or practical for BNSF to pursue this alternative. Assuming an average construction cost of \$5.5 million for each grade separation, this alternative would cost substantially more than a new main line track adjacent to the existing main line. This alternative was eliminated from further consideration in this EA.

Preliminary Draft
Agency Review

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The study area used to evaluate impacts associated with the No Action Alternative and the Proposed Action Alternative in this EA is the BNSF ROW which varies between 100 and 400 feet (the ROW extends between 50 and 200 feet on either side of the tracks, starting from the track centerline) from BNSF MP 2.9 to MP 5.1.

3.1 Air Quality

The Clean Air Act (CAA) established a comprehensive program for improving and maintaining air quality throughout the United States. The focus of the CAA is to reduce ambient concentrations of air pollutants and toxins that degrade air quality; the reduction of air pollution, in turn, improves the human and biologic environment. The intent of the CAA is achieved through permitting of stationary sources, restriction of toxic substance emissions from stationary and mobile sources, and the establishment of National Ambient Air Quality Standards as set by the U.S. Environmental Protection Agency (EPA).

The CAA prohibits federal agencies from funding, authorizing, or approving plans, programs, or projects that do not meet or conform to the National Ambient Air Quality Standard requirements. The Idaho Department of Environmental Quality (IDEQ) is responsible for ensuring compliance with federal, state, and local air quality regulations in the state of Idaho.

3.1.1 Affected Environment

The EPA sets the national air quality standards for six common pollutants (referred to as “criteria” pollutants) emitted by any stationary and mobile (marine and/or terrestrially based) source. These standards consist of threshold levels for carbon monoxide, lead, nitrogen oxides, ozone, particulate matter (PM), and sulfur dioxide. The CAA requires the EPA to designate each area of Idaho in one of three ways: attainment (meeting a standard), nonattainment (failing to meet a standard), and unclassifiable (not enough information to classify).

The Sandpoint area was designated nonattainment for PM smaller than 10 micrometers (PM₁₀) in 1997. An emissions inventory identified the primary PM₁₀ source as residential wood burning. Fugitive road dust and some industrial sources were also considered contributors.

In December 2011, IDEQ submitted a PM₁₀ Limited Maintenance Plan and Re-Designation Request to the EPA to redesignate the area to attainment status. The plan focused on a comprehensive residential wood combustion program, controls on fugitive road dust, and emission limitations on industrial sources. In April 2013, the EPA redesignated the Sandpoint area to attainment for PM₁₀ (IDEQ 2017). The Sandpoint area is in attainment for all other criteria pollutants.

Locomotives can generate various emissions including fugitive dust (PM_{2.5}, PM₁₀, and total suspended particulates) and combustion (carbon monoxide, nitrogen oxides, sulfur dioxide, PM_{2.5}, PM₁₀, total suspended particulates, volatile organic compounds [VOCs], hazardous air pollutants, and diesel PM; Washington State Department of Ecology [WDOE] and Cowlitz County 2017). During both idle and drive-through states, trains emit hydrocarbons, carbon monoxide, nitrogen oxides, and PM₁₀.

Drive-through trains have relatively low PM emissions while optimizing fuel efficiency; however, high-combustion temperatures also result in higher nitrogen oxide emissions than are observed during idle states. During idle, emissions of other pollutants tend to be higher due to lower fuel efficiency. The amount of smoke opacity is relatively similar between idle and various throttle positions but varies depending on the test unit used (EPA 1998).

Fugitive Coal Dust

The potential for train related coal dust emissions is greatest at the point of loading and unloading. An extensive overview of studies regarding coal emissions via train transport is provided in the Millennium Bulk Terminal Environmental Impact Statement (EIS), which proposed increasing coal transport, as well as coal stockpiling and transfer. In evaluating indirect impacts associated with coal emissions for the BNSF main line, the Millennium Bulk Terminal EIS concluded that PM₁₀ and PM_{2.5} emissions at 100 feet would be below applicable federal standards (WDOE and Cowlitz County 2017). In addition, the EIS for the Tongue River project, which proposed adding new rail lines for coal transport, concluded that “concentrations of coal dust constituents . . . in soil, dust, water, and fish would be below screening levels for human exposure for all evaluated pathways” (WDOE and Cowlitz County 2017).

Monitoring by the Northwest Clean Air Agency found no evidence of harmful air pollution levels in more than a year’s worth of air sampling data that the agency collected between February 2012 and September 2013 in Bellingham at a rail crossing (Washington Research Council 2014). Trains passing through the study area carry coal sourced from the Powder River Basin in Montana and Wyoming. These trains travel through Idaho and into Washington. The Missoula City-County Health Department conducted an analysis of PM along the rail line in 2012, and results showed no substantial findings of coal dust (Missoulian 2012; McCrone Associates, Inc. 2012). Anecdotally, local resident Steve Geiger commented at the BNSF May 10, 2018, Sandpoint Junction Connector public meeting in Ponderay that during many years of people snowshoeing near the railroad there has not been evidence of coal dust in the vicinity of the ROW.

BNSF trains that contain coal undergo several minimization measures to help ensure fugitive coal dust is not lost in transit. Coal cargo is properly shaped and sprayed with a suppressant which binds the coal (BNSF 2011).

3.1.2 Environmental Consequences

No Action Alternative

BNSF is entering a third year of bridge structural maintenance and repairs on existing Bridge 3.9 over LPO, which is over 100 years old. These types of repairs are expected to continue and increase in order to maintain service and safety on the bridge under the No Action Alternative. Thus, when performing this maintenance, an ongoing level of equipment emissions would occur each year from diesel and gasoline-powered equipment. This may result in temporary and localized increases in some criteria pollutants.

In the long term, the No Action Alternative would result in a continued and increased need for train idling in regional sidings and associated power-up starts from those holds. This would likely exacerbate vehicular idling on the local roadway system as vehicles queue waiting for a train to clear. This localized increase in emissions is not expected to change the status of regional air quality attainment.

Proposed Action Alternative

Temporary Construction and Diesel Emissions

The Proposed Action Alternative is expected to result in short-term and localized increases of air emissions from the operation of diesel and gasoline-powered equipment during construction, as well as the potential for localized increase in dust under dry soil conditions. This would be expected to represent a slight increase over background air quality levels for the duration of construction activities. By implementing BMPs such as maintained emission control devices on equipment and proper dust and erosion control, this temporary emissions increase would not be expected to result in a measurable impact on local or regional air quality.

Although the existing corridor has physical capacity to move more trains, additional train volumes would increase congestion and delays throughout the corridor. The need to construct a second main line track and new bridges is a response to an existing condition in which the volume of trains has increased and the single track and bridge crossing from Sandpoint Junction to the existing two main line track configuration starting at BNSF MP 5.1 has created a delay to trains and local traffic. This volume of traffic has steadily grown over the past three decades.

As a result of this existing high train traffic volume, trains must stop and wait as other trains cross and clear the existing bridges. This results, at times, in long periods of locomotives idling and an interrelated higher rate of fuel consumption and emissions associated with trains having to power up from idle holding. Enabling trains to drive through the study area, versus idle until clear tracks are available, would increase fuel efficiency, which results in slight increases in nitrogen oxides but typically results in lower emissions of other pollutants such as hydrocarbons, carbon monoxide, and PM₁₀ (EPA 1998). Overall, having the trains present in the study area for shorter durations and reducing idling times would result in a slight improvement in local air quality as it relates to train emissions.

The Proposed Action Alternative does not propose to change or increase train traffic volumes within the study area. Since the Project is anticipated to reduce car and vehicle traffic idling at railroad crossings, the Project is anticipated to indirectly result in an overall reduction in operational emissions at the Project site and, therefore, no mitigation is proposed.

Fugitive Coal Dust

There is no proposal to load and/or unload coal; or change loading procedures within the vicinity of the Project. Since the Project does not propose to transfer, load, unload, dig, pile or handle coal, no direct coal-related impacts would occur. Research shows that BNSF drive-through trains are not associated with substantial levels of fugitive coal dust (Missoulian 2012; McCrone Associates, Inc. 2012; Washington Research Council 2014; WDOE and Cowlitz County 2017); therefore, the Project would not generate harmful levels of coal through fugitive dust and no mitigation is proposed.

Since air quality impacts beyond baseline conditions are not proposed, and there is likely to be an improvement in air quality related to reduced wait times and traffic queues at at-grade crossings, no mitigation is proposed.

3.2 Geology, Soils, and Topography

3.2.1 Affected Environment

The geology, soils, and topography of the study area are directly related to its geomorphology. Major geologic events that have influenced existing geomorphology in the Project vicinity include prehistoric volcanic eruptions, uplift processes, epic floods, and massive landslides. No documented unique geologic features are in the work corridor.

Two levels of information were used to define the soils in the work corridor: preliminary research using the published data in the Bonner County Soil Survey (including information obtained from the Natural Resources Conservation Service Web Soil Survey and site-specific soil evaluations at wetland field data points. The Soil Survey Report of Bonner County Area, Idaho (USDA 2006), defines two main soil series in the study area: (31) Mission silt loam, 0 to 2 percent slopes and (35) Pend Oreille silt loam, 5 to 45 percent slopes.

The northern portion of the study area is mapped as (31) Mission silt loam, 0 to 2 percent slopes. The Mission series consists of somewhat poorly drained soils on terraces and terrace escarpments that formed in glaciolacustrine sediments with a mantle of volcanic ash and loess. Permeability is very slow, and slopes range from 0 to 30 percent. This soil is not on the Bonner County Hydric Soil List.

The southern portion of the study area near MP 5.1 is mapped as (35) Pend Oreille silt loam, 5 to 45 percent slopes. The Pend Oreille series consists of very deep, well drained soils on mountain slopes, foothills, outwash terraces, and lateral moraines, formed in glacial till with a thick mantle of volcanic ash. Permeability is moderate in the upper part and moderately rapid below. Overall, throughout the length of the study area corridor within the BNSF ROW, the native soils have been buried or replaced with fills consisting of compactable soils and structural rock since the time of the railroad construction in the late nineteenth century. Anthropogenic constituents within the soils are discussed in Sections, 3.1.1, 3.3.1, and 3.14.1.

The overall topography within the BNSF ROW is by design generally flat or has grades less than 1 percent. Although the slopes adjacent to the main line may be considered steep (45 to 65 percent) they are designed cut-and-fill slopes associated with the structural fills on which the railroad is built. At the south end of the Project, bedrock outcrops are present on the west side of the tracks.

3.2.2 Environmental Consequences

No Action Alternative

The No Action Alternative would not alter any geologic, soil, or topographic features.

Proposed Action Alternative

The Proposed Action Alternative does not substantially affect or alter geology, soils, or topography within the limits of the Project. The proposed work is limited to constructing a parallel grade immediately to the west of the existing main line grade within the BNSF ROW. Essentially all of the areas proposed for construction are already altered through past construction and maintenance activities. Some small areas of existing bedrock outcrop on the west side of the tracks may be cut and excavated for improving the existing access road and at-grade crossing

for safety. However, expansive cuts or alterations to these outcrops have been avoided by the Project design. While the earthwork associated with the Proposed Action Alternative is greater than that of the No Action Alternative, it would not result in a significant impact on local geology or soils. The Project would not affect the topography with the exception of the minor lakeshore fills located adjacent to the existing rail grade for the construction of the proposed second track. The existing track/grade elevation would remain the same and the new rail grade embankment slope would remain at a 2:1 slope per standard rail specifications.

The Proposed Action Alternative would require development of access roads, staging areas, and general construction access, which would result in an overall construction footprint of approximately 50+/- acres. Generally, most of the area proposed for use for construction purposes was previously cleared and is currently composed of predominately compacted gravels used for BNSF maintenance vehicles.

Construction of bridge abutments for the new bridges would require removal of approximately 2,500+/- square feet of uplands. However, these areas currently have minimal vegetation, so clearing/grubbing/excavation activities would be minimal. Approximately 100+/- cubic yards of soil would be excavated from the area where a bridge abutment would be built. The excavated soil would be disposed of in an upland location, away from wetlands and waters of the United States, and outside the floodplain, at an approved facility or location. Any soil removed from any part of the ROW must be tested for the presence of hazardous materials prior to its leaving BNSF property any contaminated soil would be handled appropriately and disposed of at an approved disposal location.

The installation of in-water support piles for the temporary work bridges would displace 2,000+/- square feet of substrate. However, the substrate would revert back to its natural condition once the piles have been removed after construction. Pile driving is expected to temporarily increase turbidity within several meters of construction actions (Jacobs 2018c). The surface flow speeds are approximately 1 to 3 knots in the location of the bridge (Jacobs 2018a and 2018b) and are not expected to transport sediments outside of the work area. In addition, a turbidity curtain would be used during pile driving and removal activities associated with Bridge 3.9 over LPO, which would further help ensure that sediments remain localized and temporary increases in turbidity are isolated. Turbidity curtains were successfully employed by BNSF during construction of the Bridge 3.9 North/South Pier Replacement Projects in 2007 and 2008, resulting in no water quality violations.

3.3 Water Resources and Water Quality

The CWA governs the release of pollutants into waterways. Wetlands and Floodplains are discussed under Sections 3.4 and 3.5 respectively. Four sections of the Act potentially apply to the Project Action Alternatives: Sections 401, 402, 404, and 303(d):

- Section 401 requires Water Quality Certification (WQC) from the State when a 404 permit or USCG bridge permit is triggered. Typically, this certification is granted by the State to which the EPA has delegated authority to certify that the discharge would not violate the State's water quality standards. EPA retains jurisdiction in limited cases. In Idaho the IDEQ regulates permit reviews and issuance under Section 401.
- Section 402 authorizes the EPA, or states to which the EPA has delegated authority, to permit the discharge of pollutants under the National Pollutant Discharge Elimination System (NPDES) program. Construction projects that disturb one or more acres of ground and discharge to surface waters are required to obtain an NPDES Storm Water Construction General Permit.
- Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Section 404 requires a permit from the USACE before dredged or fill material may be discharged into waters of the United States. The basic premise of the 404 program is that no discharge of dredged or fill material may be permitted if (1) a practicable alternative exists that is less damaging to the aquatic environment or (2) the nation's waters would be considerably degraded.
- Section 303(d) of the CWA establishes that states are to list waters which are not meeting applicable water quality standards. The list includes priority rankings set by the states for the listed waters. Once the impaired waters are identified, Section 303(d) requires that the states establish total maximum daily loads (TMDLs) that would meet water quality standards for each listed waterbody.

The Safe Drinking Water Act is the main federal law that ensures the quality of Americans' drinking water. Under the act, the EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The best way to maintain high-quality drinking water is to prevent contaminants from reaching drinking water sources. The Safe Drinking Water Act was amended in 1986 to require states to develop Wellhead Protection Programs.

3.3.1 Affected Environment

The proposed Project is located adjacent to and over LPO and Sand Creek, as shown in **Figure 7**. Although it is known locally known as Sand Creek and is considered to be Sand Creek by the Idaho Department of Lands (IDL; IDL 2017), the IDEQ and federal agencies consider the lower portion of Sand Creek, from LPO upstream to State Highway 200, as an inlet of LPO (USFWS 2018a; IDEQ 2018a). It is within the U.S. Geological Survey's Hydrologic Unit Code 17010214, within the Idaho Panhandle Basin, LPO Subbasin.

LPO is a natural, temperate, oligotrophic lake. It is the largest natural lake in Idaho and the fifth deepest lake in the United States, with a mean depth of 538 feet, a maximum depth of 1,152 feet at its southern end, and a surface area of 94,720 acres. It is fed by over 20 streams originating in the Selkirk Mountains to the northwest, the Cabinet Mountains to the northeast, and the Coeur d'Alene Mountains to the east. The shoreline is composed mostly of largely undeveloped, steep, rocky terrain. The remaining littoral zone at the lake's northern end and bays consists of gradual or moderately sloping bottom, surrounded by level to gently sloping uplands and floodplain.

Figure 7: National Wetland Inventory Wetlands and Surface Water



The Clark Fork River, originating in western Montana, is the largest tributary into the lake, providing 92 percent of the lake's inflow at the river's mouth near the City of Clark Fork, east of Sandpoint. The Pend Oreille River is the lake's only surface water outlet west of Sandpoint near the City of Dover. The river flows approximately 27 miles from LPO in Idaho into eastern Washington and then north into Canada where it joins the Upper Columbia River. The Pend Oreille River (along with the Lake) is impounded by the Albeni Falls hydroelectric dam, constructed in 1955 near the Idaho/Washington border, which regulates the lake's surface elevation/pool at 2,062.5 feet from approximately mid-June through September and at 2,051 to 2,056 feet from October through May.

The Sand Creek watershed covers 38 square miles, or 24,209 acres, and includes Jack Creek, Little Sand Creek, Swede Creek, and Schweitzer Creek northeast of Sandpoint. Sand Creek generally flows from north to south for approximately 16 miles and discharges into LPO within the City of Sandpoint, where it is subject to the regulated levels of LPO. The average gradient of Sand Creek in the Project vicinity is 1 percent, and the primary channel substrate is sand.

LPO and Sand Creek within the Project study area are listed for water quality impairments that have been addressed by established loading targets (TMDLs). These include Sand Creek TMDLs for temperature and sediment approved by EPA in 2007, and a LPO nearshore TMDL for total phosphorus approved by EPA in 2002. LPO and Sand Creek within the Project study area are also currently listed as impaired by mercury; development of a TMDL is a medium priority for 2018. Additionally, the Pend Oreille River (including the outlet arm of LPO within the Project study area) is currently in need of TMDLs (medium priority for 2019) for temperature and dissolved gas supersaturation impairments (IDEQ 2017; IDEQ 2014).

The average annual precipitation is about 33 inches, and average annual air temperature is about 45 degrees Fahrenheit with a fairly typical Inland Northwest climate of cold, snowy winters and dry summers with large diurnal temperature swings from hot in the day to very cool at night. The majority of precipitation occurs as winter snowfall and spring rain. High-volume runoff occurs during spring snowmelt and major rain-on-snow events (IDL 2003).

Drinking water for surrounding residents and businesses outside of the City of Sandpoint is supplied by private wells. The City of Sandpoint supplies drinking water from its Little Sand Creek and LPO water treatment plants (WTPs). During the fall, winter and spring, approximately 50 percent of the Sandpoint's drinking water supply comes from the Little Sand Creek WTP, and 50 percent from the LPO WTP. During the summer, the Little Sand Creek WTP provides approximately 25 percent of the water supply and the LPO WTP provides approximately 75 percent of the supply (Jacobs 2018f). The Little Sand Creek WTP inlet is over 5 miles upstream of the study area (Jacobs 2018f) and the LPO WTP inlet is located approximately 0.67-mile north of the Project site (IDEQ 2018a). The City of Sandpoint met and/or exceeded all standards for drinking water quality reported from 2005 through 2017 (City of Sandpoint 2005-2017).

The Spokane Valley-Rathdrum Prairie Aquifer stretches southwest from the southernmost tip of LPO in Bayview, ID, to downtown Spokane, WA, where it turns north-northwest to discharge groundwater into the little Spokane and Spokane Rivers. The aquifer covers approximately 250 square miles in Idaho and 120 square miles in Washington. Designated by EPA as a sole-source aquifer in February 1978, it supplies drinking water to over 500,000 people in Kootenai County, ID and Spokane County, WA. The south end of LPO contributes 32 million gallons per day of water to the aquifer, or less than 4 percent of the aquifer's daily 951 million gallons per day recharge/inflow (MacInnis 2009). The Project site is located approximately 22 miles north of the aquifer and the Kootenai County, ID Aquifer Protection District boundaries (IDEQ 2018b).

No wellhead protection areas are located within the immediate Project vicinity (IDWR 2018). In addition, the State of Idaho does not contain national coastal areas; therefore, the state and this Project are not subject to Coastal Zone Management Act regulations.

Existing environmental conditions found within the Project work corridor from BNSF MP 2.9 to MP 5.1 are summarized below and illustrated in **Appendix C**:

- MP 2.9–3.1: BNSF track and access road, and either bare ground or disturbed upland grasses, are on both sides of the track from the Sandpoint Junction switches at MP 2.9, south to the riparian area associated with Sand Creek at Bridge 3.1.
- MP 3.1–3.14: BNSF Bridge 3.1 over Sand Creek; and Sand Creek with riparian vegetation is on both sides above the OHWM.
- MP 3.14–3.15: A small wetland area (Wetland A) is on the west side of the track (between the track and the multiuse public pathway) with riparian, scrub-shrub, and open water wetland vegetation; and the OHWM of LPO with riparian vegetation is on the east side of the track.
- MP 3.15–3.8: BNSF track and access road with sparse upland grasses are on the west side of the track, and the OHWM of LPO with riparian vegetation is on the east side of the track.
- MP 3.8–3.9: OHWM of LPO with riparian vegetation is on both sides of the track.
- MP 3.9–4.89: BNSF Bridge 3.9 spans LPO.
- MP 4.89–4.9: OHWM of LPO with riparian vegetation is the east side of the tracks, and an existing access and staging area is on the west side of the tracks.
- MP 4.9–5.0: Steep upland forest and an unnamed seasonal creek is on the east side of the track and a BNSF access road, rock covered staging area, and residential lots are west of the tracks.
- MP 5.0–5.1: OHWM of LPO with riparian vegetation is west of the track, and steep upland forest and rock outcrops occur on the east side.

3.3.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no new construction would occur. However, ongoing maintenance and repair of the existing railroad tracks and bridges would continue as needed. These maintenance actions would require the use of construction equipment that contains petroleum products. Spills associated with the use of petroleum products during these actions could impact water quality in LPO and Sand Creek. BNSF would maintain water quality standards during maintenance activities through implementation of BMPs defined in a Spill Prevention, Control, and Countermeasure (SPCC) plan.

Safe, efficient operation of the line is in everyone's best interest, particularly BNSF's as the owner and operator. Safety practices are implemented to minimize those risks and response plans are in place for addressing potential results as described in Section 3.14. Accident risk is a function of ton-miles of freight moved and number of rail miles travelled. Rail traffic in this corridor is likely to continue to increase as a result of population growth and the corresponding increase in the demand for freight and passenger transport. BNSF has no record of hazardous material spills or

incidents associated with bridges in the study area. In the unforeseeable event of a spill, BNSF would implement the LPO Geographic Response Plan (GRP) to efficiently and safely respond, recovering the spill, and restoring damaged resources. Section 3.14 provides additional information regarding response strategies and equipment available to BNSF as part of the LPO GRP, including boat access points.

Proposed Action Alternative

The primary water quality impacts associated with the Proposed Action Alternative are temporary and related to construction, including potential sedimentation, potential petroleum spills from construction equipment operations, and potential spills from concrete work above the OHWM of LPO. Suspension of sediments (increased turbidity) may temporarily occur during pile driving activities within LPO, but would be limited by a turbidity curtain (Jacobs 2018e). As discussed in Section 3.1.1, coal dust has not been identified within the study area, and therefore is not expected to impact water resources during construction despite increases in turbidity localized and contained near pile driving.

The LPO WTP, over a half mile upstream from the study area, and the Little Sand Creek WTP, over 5 miles upstream of the study area, are well outside of areas that could be impacted by suspended sediments during pile driving. Therefore, the Project would not impact drinking water. Water quality impacts associated with suspended sediments are further discussed in Section 3.2.

The primary pollutants of concern for this Project are sediment and phosphorus (IDEQ, 2081a). As the water intake for the City of Sandpoint's LPO WTP is located 0.67-mile north of the Project site, and the general flow pattern of water in the vicinity of the intake is south toward the proposed Project construction, IDEQ has reasonable assurance that water quality standards for this domestic water supply use would be met (IDEQ 2018a).

Construction projects in Idaho that disturb greater than one acre of ground must acquire an NPDES Permit in compliance with Section 402 of the CWA. The Proposed Action Alternative would require approximately 20 acres of ground-disturbing activities within the 50-acre construction footprint, exceeding the threshold that triggers this permit. A Stormwater Pollution Prevention Plan (SWPPP), including a Temporary Erosion and Sediment Control Plan and an SPCC plan would be prepared in accordance with the requirements of the NPDES authorization via the EPA.

Implementation of BMPs defined within the Water Quality Monitoring and Protection Plan (WQMPP) and the SWPPP as well as ongoing adaptive management adjustments throughout construction would be the means to maintain water quality standards during construction (see Section 4.0). Specifically, to minimize sediment impacts, a turbidity curtain would be used during in-water ground disturbance activities in waters greater than 3 feet deep. To prevent and minimize spill impacts, fully stocked petroleum containment spill kits would be located at power equipment work sites and construction staging areas during construction. Potential temporary impacts to water quality during construction are considered less than significant.

In the long-term, the Proposed Action Alternative would not result in increased impacts to water quality from operations. There are no proposed freight origin or destination facilities related to the Project or anticipated to be initiated due to this Project. The type of freight currently carried would not change with the proposed main line track. As indicated for the No Action Alternative, accident risk is a function of the number of rail miles travelled by trains and BNSF has safety practices and response plans in place to minimize risk and address potential results. The Proposed Action

Alternative adds a second set of main line tracks and would not increase the overall length of the rail line or the number of trains travelling on it. Although it may be reasonable to expect that train traffic may increase as population increases and demand for movement of freight and passenger increases, the main factors driving this increase would exist independent of the Proposed Action Alternative. In the unforeseeable event of an accident or spill, BNSF would respond in accordance with the LPO GRP (see Section 3.14), just as under the No Build Alternative.

As discussed in Section 3.1.2, having trains present in the study area for shorter durations, and reducing idle times, would result in a slight reduction in train-related emissions which should reduce any water quality impacts related to emissions. In addition, some of the trains travelling through the study area would travel on new, modern, more reliable infrastructure requiring less maintenance.

The construction of a second main line track would impact 1.54 acres of waters of the United States, including wetlands, as described below and illustrated in **Appendix C**:

- 0.88 acre related to permanent nearshore fill below the LPO OHWM elevation of 2,062.5 feet above mean sea level for both new bridges and a south switch area
- 0.28 acre of permanent wetland fill at the south end of Bridge 3.1
- 0.38 acre of temporary nearshore impacts for construction access at various locations throughout the Project work limits

The wetland and in-water fill required for construction of the new, second main line track and bridges is further discussed in Section 3.4. This work triggers the need for a CWA Section 404 (Individual Permit and/or Section 10 permit) from the USACE and a Bridge Permit from the USCG. These impacts would be fully mitigated in compliance with the CWA through the use of a mitigation bank and a collaborative group of agencies and LPO and Sand Creek stakeholders as discussed in Section 4.0. DEQ would review the Project for compliance with CWA Section 401 WQC.

3.4 Wetlands

Executive Order 11990 – Protection of Wetlands requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Wetlands adjacent to navigable waters, tributaries of navigable waters, or with a major nexus to interstate commerce are regulated pursuant to the CWA. Section 404 of the CWA defines wetlands as areas that are “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.” Wetlands generally include swamps, marshes, bogs, and similar areas.

3.4.1 Affected Environment

The National Wetland Inventory mapping did not identify any wetlands in the Project work corridor but mapped LPO as L2UBH (lacustrine, littoral, unconsolidated bottom, permanently flooded). During the Project plan development, one jurisdictional wetland (Wetland A) was identified, delineated, and mapped at the south end of Bridge 3.1 between the rail grade and US 95 multiuse public pathway (**Figure 7**). This wetland, at 0.28 acre, is connected to, and appears to be associated with, the high water inundation of the lake and may be a direct result of the construction of the Albeni Falls Dam in the 1950s. It fulfills all of the jurisdictional criteria of hydrology, hydric soils, and hydrophytic vegetation presence.

3.4.2 Environmental Consequences

No Action Alternative

The No Action Alternative would not require ground disturbance and, therefore, would not result in any wetland impacts.

Proposed Action Alternative

As stated in Section 3.3.2, the Proposed Action Alternative would result in the unavoidable filling of 1.54 acres of jurisdictional waters of the United States. This includes 0.28 acre of permanent fill of Wetland A at the south end of Bridge 3.1 for the bridge and development of new rail grade/support for the second main line track. Permanent impacts to Wetland A are illustrated in **Appendix C**. Proposed fill into the open water of LPO or Sand Creek that don't fully meet the wetland functions and values required by the EPA and the USACE for delineating wetlands are considered open water.

The lake is regulated for flood control and power production so the water depth varies seasonally and as part of the operations of the reservoir. This fill is further clarified as 'nearshore fill' which occurs below the regulated OHWM of 2,062.5 feet. Per the 1987 wetland delineation manual the LPO meets the definition of "Deepwater Aquatic Habitats" not wetland, "Deepwater aquatic habitats are areas that are permanently inundated at mean annual water depths >6.6 feet or permanently inundated areas ≤6.6 feet in depth that do not support rooted-emergent or woody plant species" (Environmental Laboratory 1987).

As Wetland A would be entirely filled, no temporary impacts are characterized for this feature. Temporary impacts, including the implementation of piles required to support a temporary work bridge, would occur in LPO. Temporary piles would be removed upon installation of the permanent structure.

Permanent impacts associated with fill in Wetland A would be fully mitigated through an agency-approved mitigation bank, the Valencia Wetland Mitigation Bank/Valencia Wetlands Trust (bank) located in Priest River, Idaho. As discussed in Section 4.0, bank credits totaling 3.64 credits would be purchased to compensate for the 0.28 acre of wetland fill. As Wetland A impacts would be fully mitigated, the Proposed Action Alternative would meet requirements under the CWA associated with mitigation of impacts to wetlands.

3.5 Floodplains

Executive Order 11988, Floodplain Management requires federal agencies to consider how their actions may encourage future development in floodplains and to minimize such development. DOT Order 5650.2, Floodplain Management and Protection, prescribes policies and procedures for ensuring that federal agencies consider the avoidance and mitigation of adverse floodplain impacts in its actions.

DOT Order 5650.2 requires agencies to determine whether an encroachment into a floodplain is considered significant, which is defined as an encroachment resulting in one or more of the following construction or flood-related impacts:

1. A considerable probability of loss of human life.
2. Likely future damage associated with the encroachment that could be substantial in cost or extent, including interruption of service on or loss of a vital transportation facility.
3. A notable adverse impact on “natural and beneficial floodplain values,” which include the natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry.

3.5.1 Affected Environment

LPO and Sand Creek are both mapped as Zone AE on the Federal Emergency Management Agency’s (FEMA) effective Flood Insurance Rate Map for this area (Panel 16017C0718E), as shown in **Figure 8**. The effective 100-year Base Flood Elevation (BFE) is mapped at 2,074 feet (North American Vertical Datum 1988). Sand Creek has a mapped regulatory floodway in this area that extends up to the eastern edge of existing Bridge 3.1. USACE also has a flood flowage easement up to 2,067.5 feet in elevation to regulate emergency conditions at and downstream of the Albeni Falls Dam.

3.5.2 Environmental Consequences

No Action Alternative

Since it would constitute continued use and maintenance of existing structures, the No Action Alternative would not require additional fill or excavation on the Project site, nor would it encourage future development in floodplains.

Proposed Action Alternative

Table 5 shows the amount of temporary and permanent fill that would be placed within the floodplain of Sand Creek and LPO under this alternative. This encroachment is required to construct the new bridges and south switch area and provide support for the new rail grade. These fills constitute a small percentage of the total area of LPO and USACE flood flowage easement and are not expected to increase the danger of flooding in the study area.

The proposed temporary and permanent bridges require installation of 950 steel pipe piles in Sand Creek and LPO. However, as shown in the permit drawings in **Appendix A**, the low chord of the new permanent and temporary bridge decks would be constructed above the 100-year BFE, minimizing the risk associated with the encroachment.

Figure 8: Floodplains

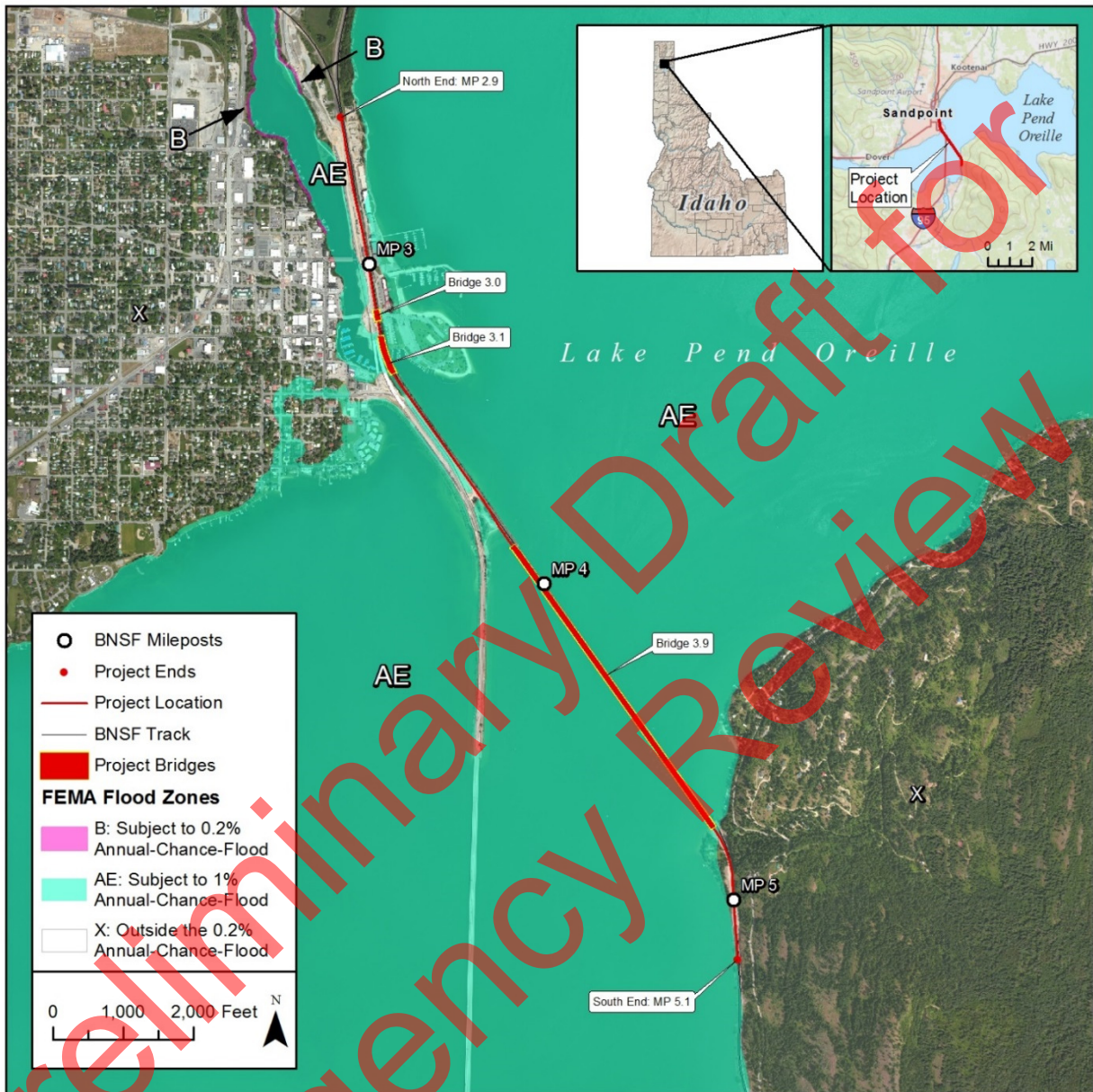


Table 5: Temporary and Permanent Floodplain Fill Volumes Associated with the Proposed Action Alternative

Location	Permanent Earth Fill (yd ³)	Temporary Earth Fill (yd ³)	Permanent Bridge Piles (yd ³)	Temporary Bridge Piles ((yd ³))	Total Temporary Fill (yd ³)	Total Permanent Fill (yd ³)
LPO	1,485	800	1,783	1,359	2,159	3,268
Sand Creek	15	0	13	56	56	28
Total	1,500	800	1,796	1,415	2,215	3,296

Notes:

LPO = Lake Pend Oreille

yd³ = cubic yards

Local floodplain development permits are required to comply with FEMA National Flood Insurance Program standards. Applications for these permits typically include statements and supporting technical analyses showing that the project meets the intent of a “no-rise” in 100-year BFEs. This technical analysis would take the form of a hydraulic analysis of the Project. BNSF is working with Bonner County and the City of Sandpoint to prepare the floodplain development applications and associated supporting technical documents. FEMA also regulates floodplain impacts as they relate to ecological habitat, recreational uses and navigational impacts, which are discussed in Sections 3.7 and 3.11.

The Proposed Action Alternative would not increase or change rail traffic volumes on BNSF’s northern tier and is not expected to facilitate future increases in floodplain development. The Project is not tied to public or private development and is not associated with land use, regional plans for growth or commercial and residential development. The Proposed Action Alternative is not anticipated to result in a significant encroachment into the floodplain or significantly impact the 100-year BFE.

3.6 Vegetation

Vegetation stabilizes soils, controls erosion, and reduces sedimentation. Vegetation also provides habitat and forage for wildlife.

3.6.1 Affected Environment

Disturbed upland grasses in the Project work corridor include species such as cheat grass (*Bromus tectorum*), common mullein (*Verbascum thapsus*), common timothy (*Phleum pratense*), orange hawkweed (*Hieracium aurantiacum*), panic grass (*Panicum sonorum*), perennial rye grass (*Lolium perenne*), rush skeleton weed (*Chondrilla juncea*), spotted knapweed (*Centaurea maculosa*), and western wheatgrass (*Pascopyrum smithii*).

The riparian vegetation of Sand Creek and LPO includes emergent species such as reed canarygrass (*Phalaris arundinaceae*), stinging nettle (*Urtica dioica*), and common sedges (*Carex sp.*) and scrub-shrub and forested species such as black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), blue elderberry (*Sambucus cerulean*), Rocky Mountain maple (*Acer glabrum*), Scouler’s willow (*Salix scouleriana*), red-osier dogwood (*Cornus sericea*), Nootka rose (*Rosa nutkana*), Pacific ninebark (*Physocarpus capitatus*), trailing blackberry (*Rubus ursinus*), and Douglas spirea (*Spiraea douglasii*).

Wetland vegetation in the one wetland identified in the Project work corridor includes species such as common cattail (*Typha latifolia*), common duck weed (*Lemna minor*), and panicled bulrush (*Scirpus microcarpus*), in addition to the riparian vegetation described above.

The upland forested vegetation in the study area includes species such as Douglas fir (*Pseudotsuga menziesii*), lodgepole pine (*Pinus contorta*), Ponderosa pine (*Pinus ponderosa*), western hemlock (*Tsuga heterophylla*), and Western red cedar (*Thuja plicata*), and is often mixed with an understory of American trailplant (*Adenocaulon bicolor*), common snowberry (*Symphoricarpos albus*), myrtle pachystima (*Pachystima myrsinites*), Nootka rose (*Rosa nutkana*), and various native and non-native grasses.

3.6.2 Environmental Consequences

No Action Alternative

Other than the removal of the cottonwood trees that presently threaten the integrity of the track structure along the west side of the main line, no other vegetation impacts are anticipated to occur under this alternative. Potential impacts to upland vegetation would not be extensive.

Proposed Action Alternative

The Proposed Action Alternative is within the BNSF ROW, and 90 percent of the work is within areas already filled or highly altered and compacted, requiring minimal vegetation impacts. The Sand Creek Bridge (3.1) and the LPO Bridge (3.9) would both result in losses of the cottonwood trees that are growing out of the existing rail grade base. These trees are already scheduled for removal because they pose an existing danger to trains if they fell on the tracks and to the stability of the rail grade if they were to blow over and pull out the structural support base with their root mass. Thus, this alternative does not in itself result in the loss of the majority of those trees.

There would be a loss of approximately 2 acres of upland trees, shrubs, and grasses between the south end of Bridge 3.9 and the nearshore fill at MP 5.1. At that nearshore fill, most of that area is currently riprap facing along the lake, although several riparian shrubs would be lost in that location. Invasive upland species are a common concern during construction activities due to the clearing and grading activities potentially leaving open soil susceptible to weed seeds pioneering the area.

BMPs, such as limiting clearing to those areas necessary for safe equipment operations and temporarily seeding or mulching areas during construction, would avoid and minimize available areas for weed seed infestation or spread. Additionally, prior to machinery arriving on site, inspecting and cleaning would be performed to minimize the potential for bringing new invasive seeds or vegetation pieces onto the sites.

Aquatic invasive species are a concern when working above, in, or near water. Invasive plants can be spread by equipment and result in indirect impacts. To help prevent the spread of invasive species, equipment would be cleaned to the greatest extent practical prior to arriving to and immediately after leaving the Project site. Cleaning could include scraping/sweeping off any debris or soil and pressure washing at an off-site location before transportation to the work site. To prevent the introduction or spread of invasive aquatic species for this proposal, Project-specific watercraft inspection criteria and operating protocol has been developed (see impact minimization measures in Section 4.1).

Boats, barges, and overwater machinery would be thoroughly inspected for invasive species and cleaned as needed prior to accessing LPO or Sand Creek (Idaho State Department of Agriculture [ISDA] 2014). This protocol would be in effect during the entire Project.

All of the wetland vegetation would be removed in the 0.28-acre wetland fill south of Bridge 3.1. Due to the limited disturbance area, implementation of BMPs, and lack of sensitive or endangered plant species identified within the impact areas, the Proposed Action Alternative would not have significant vegetation impacts.

3.7 Fish and Wildlife

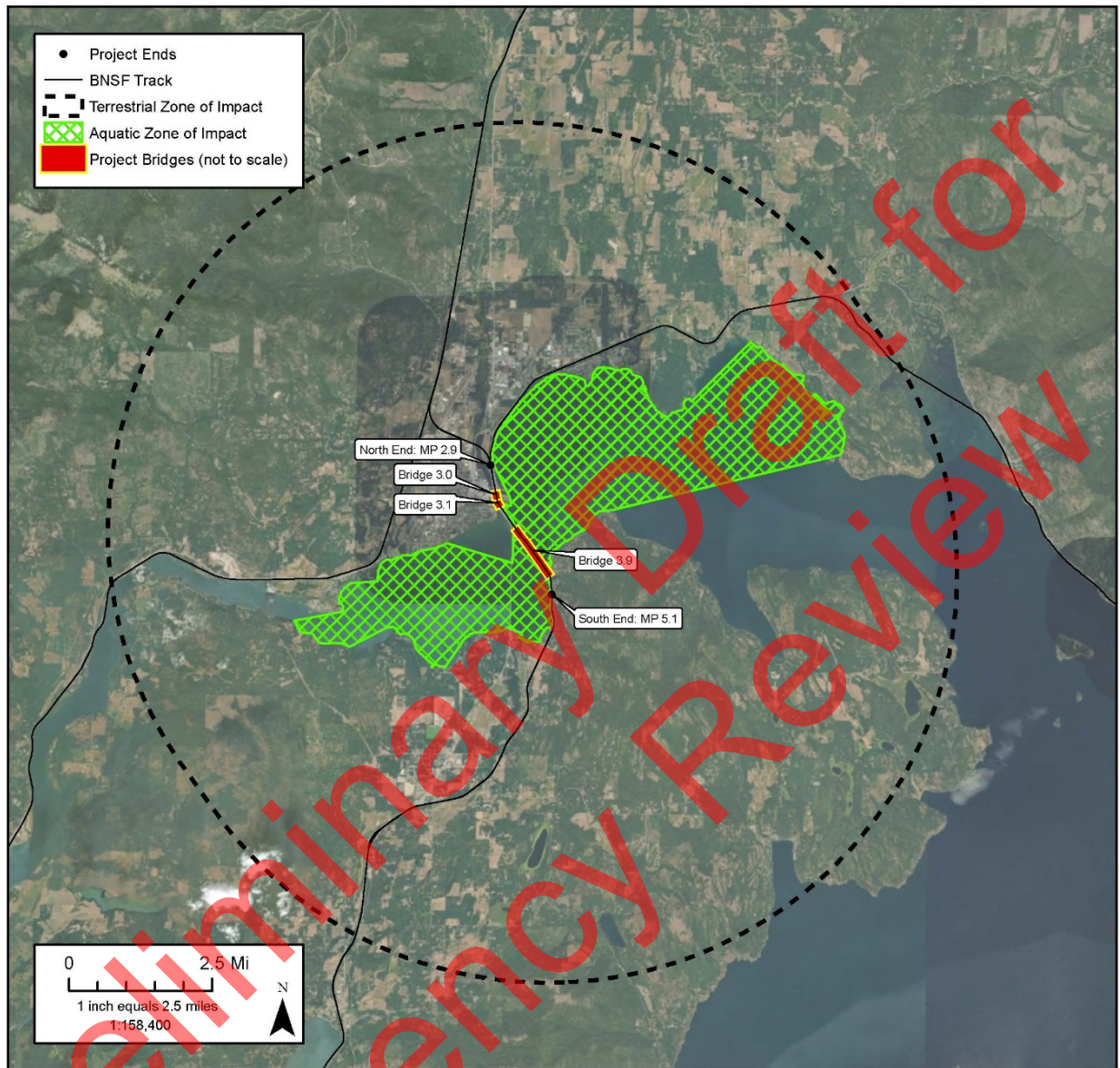
The Project action area, including terrestrial and aquatic zones of impact where threatened or endangered species may be directly or indirectly affected by the proposed Project, is generally identified in **Figure 9**. The aquatic zone of impact was determined through the noise analysis which is presented in the Project BA (**Appendix D**). See Section 3.7.2 for an analysis of potential impacts to terrestrial and aquatic species.

The Fish and Wildlife Coordination Act (1934) directs federal agencies to prevent the loss and damage to fish and wildlife resources. Consultation with the USFWS is required when activities result in the control of, diversion, or modification to any natural habitat or associated water body, altering habitat quality and/or quantity for fish and wildlife.

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. Provisions are in place for the protection of migratory bird, part, nest, egg, or product. Under the MBTA, "migratory birds" essentially include all bird species native to the United States; and the Act pertains to any time of the year, not just during migration.

The Bald and Golden Eagle Protection Act provides for the protection of bald and golden eagles by prohibiting the taking, possession, and commerce of such birds, except under certain specified conditions.

Figure 9: Sandpoint Junction Connector Action Area



3.7.1 Affected Environment

Birds

LPO and surrounding environments provide suitable foraging, nesting, and dispersal habitat for numerous species of avifauna. Numerous species utilize LPO, its tributaries and backwaters, and the surrounding uplands during various times of the year for various life stages. Many waterfowl species utilize the area for nesting and also for overwintering or as a stopover during periods of migration. **Table 6** lists observed birds in Bonner County as documented by the Idaho Department of Fish and Game (IDFG 2018).

Table 6: Birds of Bonner County

Species	Species	Species
American Coot (<i>Fulica americana</i>)	ring-necked duck (<i>Aythya collaris</i>)	lesser yellowlegs (<i>Tringa flavipes</i>)
American crow (<i>Corvus brachyrhynchos</i>)	hooded merganser (<i>Lophodytes cucullatus</i>)	Lewis's woodpecker (<i>Melanerpes lewis</i>)
American dipper (<i>Cinclus mexicanus</i>)	lesser scaup (<i>Aythya affinis</i>)	Lincoln's sparrow (<i>Melospiza lincolni</i>)
American goldfinch (<i>Spinus tristis</i>)	horned grebe (<i>Podiceps auritus</i>)	peregrine falcon (<i>Falco peregrinus</i>)
American kestrel (<i>Falco sparverius</i>)	least sandpiper (<i>Calidris minutilla</i>)	pie-billed grebe (<i>Podilymbus podiceps</i>)
American robin (<i>Turdus migratorius</i>)	house finch (<i>Haemorhous mexicanus</i>)	turkey vulture (<i>Cathartes aura</i>)
American wigeon (<i>Anas americana</i>)	house sparrow (<i>Passer domesticus</i>)	pileated woodpecker (<i>Dryocopus pileatus</i>)
Anna's hummingbird (<i>Calypte anna</i>)	house wren (<i>Troglodytes aedon</i>)	pine siskin (<i>Spinus pinus</i>)
bald eagle (<i>Haliaeetus leucocephalus</i>)	indigo bunting (<i>Passerina cyanea</i>)	pygmy nuthatch (<i>Sitta pygmaea</i>)
barn swallow (<i>Hirundo rustica</i>)	killdeer (<i>Charadrius vociferus</i>)	red-breasted nuthatch (<i>Sitta canadensis</i>)
Barrow's goldeneye (<i>Bucephala islandica</i>)	king eider (<i>Somateria spectabilis</i>)	red-breasted merganser (<i>Mergus serrator</i>)
belted kingfisher (<i>Megaceryle alcyon</i>)	lark sparrow (<i>Chondestes grammacus</i>)	red-breasted sapsucker (<i>Sphyrapicus ruber</i>)
black-capped chickadee (<i>Poecile atricapillus</i>)	red-tailed hawk (<i>Buteo jamaicensis</i>)	ruby-crowned kinglet (<i>Regulus calendula</i>)
black-headed grosbeak (<i>Pheucticus melanocephalus</i>)	red-winged blackbird (<i>Agelaius phoeniceus</i>)	savannah sparrow (<i>Passerculus sandwichensis</i>)
Bonaparte's gull (<i>Chroicocephalus philadelphia</i>)	ring-billed gull (<i>Larus delawarensis</i>)	Say's phoebe (<i>Sayornis saya</i>)
Brewer's blackbird (<i>Euphagus cyanocephalus</i>)	MacGillivray's warbler (<i>Geothlypis tolmiei</i>)	short-eared owl (<i>Asio flammeus</i>)
brown-headed cowbird (<i>Molothrus ater</i>)	mallard (<i>Anas platyrhynchos</i>)	hermit thrush (<i>Catharus guttatus</i>)
bufflehead (<i>Bucephala albeola</i>)	long-billed curlew (<i>Numenius americanus</i>)	song sparrow (<i>Melospiza melodia</i>)

Table 6: Birds of Bonner County (continued)

Species	Species	Species
Bullock's oriole (<i>Icterus bullockii</i>)	marsh wren (<i>Cistothorus palustris</i>)	Harris's sparrow (<i>Zonotrichia querula</i>)
northern flicker (<i>Colaptes auratus</i>)	merlin (<i>Falco columbarius</i>)	spotted towhee (<i>Pipilo maculatus</i>)
California gull (<i>Larus californicus</i>)	mew gull (<i>Larus canus</i>)	Stellar's jay (<i>Cyanocitta stelleri</i>)
California quail (<i>Callipepla californica</i>)	mountain bluebird (<i>Sialia currucoides</i>)	Swainson's thrush (<i>Catharus ustulatus</i>)
Canada goose (<i>Branta canadensis</i>)	mountain chickadee (<i>Poecile gambeli</i>)	tree swallow (<i>Tachycineta bicolor</i>)
canvasback (<i>Aythya valisineria</i>)	mourning dove (<i>Zenaida macroura</i>)	trumpeter swan (<i>Cygnus buccinator</i>)
Caspian tern (<i>Hydroprogne caspia</i>)	Nashville warbler (<i>Oreothlypis ruficapilla</i>)	tundra swan (<i>Cygnus columbianus</i>)
chestnut-backed chickadee (<i>Poecile rufescens</i>)	Western Grebe (<i>Aechmophorus occidentalis</i>)	yellow-breasted chat (<i>Icteria virens</i>)
common goldeneye (<i>Bucephala clangula</i>)	northern pintail (<i>Anas acuta</i>)	varied thrush (<i>Ixoreus naevius</i>)
common loon (<i>Gavia immer</i>)	northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	violet-green swallow (<i>Tachycineta thalassina</i>)
common merganser (<i>Mergus merganser</i>)	northern shoveler (<i>Anas clypeata</i>)	warbling vireo (<i>Vireo gilvus</i>)
northern harrier (<i>Circus cyaneus</i>)	northern shrike (<i>Lanius excubitor</i>)	western meadowlark (<i>Sturnella neglecta</i>)
common yellowthroat (<i>Geothlypis trichas</i>)	downy woodpecker (<i>Picoides pubescens</i>)	white-crowned sparrow (<i>Zonotrichia leucophrys</i>)
dark-eyed junco (<i>Junco hyemalis</i>)	western wood-pewee (<i>Contopus sordidulus</i>)	western tanager (<i>Piranga ludoviciana</i>)
double-crested cormorant (<i>Phalacrocorax auritus</i>)	yellow-rumped warbler (<i>Setophaga coronata</i>)	wild turkey (<i>Meleagris gallopavo</i>)
eared grebe (<i>Podiceps nigricollis</i>)	Emden-style goose (<i>Anser domesticus</i>)	willow flycatcher (<i>Empidonax traillii</i>)
fox sparrow (<i>Passerella iliaca</i>)	olive-sided flycatcher (<i>Contopus cooperi</i>)	Wilson's warbler (<i>Cardellina pusilla</i>)
golden-crowned sparrow (<i>Zonotrichia atricapilla</i>)	orange-crowned warbler (<i>Oreothlypis celata</i>)	wood duck (<i>Aix sponsa</i>)
great blue heron (<i>Ardea herodias</i>)	osprey (<i>Pandion haliaetus</i>)	yellow warbler (<i>Dendroica petechia</i>)
green heron (<i>Butorides virescens</i>)	Pacific loon (<i>Gavia pacifica</i>)	
harlequin duck (<i>Histrionicus</i>)	Pacific wren (<i>Troglodytes pacificus</i>)	

Numerous other species are likely to utilize the Project work corridor and the surrounding uplands during various times of the year for various purposes.

No bird nests were noted within the study area during site assessments. An uninhabited osprey pole installed as part of the Bridge 3.9 South Pier Replacement Project is located within BNSF ROW on the south side of existing Bridge 3.9. The Proposed Project Alternative The USFWS list of migratory birds that may be affected by the Project, prepared as part of the Project's IPaC report includes Bald Eagle, Cassin's Finch, Golden Eagle, Olive-sided Flycatcher and Rufous Hummingbird. The Rufous Hummingbird prefers mountain meadows during migration and nests approximately 30 feet high in coniferous or deciduous trees. The Olive-sided Flycatcher breeds and winters at forest edges where tall trees or snags are present. The Cassin Finch prefers coniferous forest.

Migrating and wintering waterfowl are supported within the greater LPO area, outside of the study area that was included in the Project's IPaC report. There are protected state and federal lands outside of the study area which provide habitat. Commonly seen species can include tundra swans, Canada geese, American widgeon, redheads, mallards, common mergansers, common goldeneye, bufflehead and ring-necked ducks. Preferred habitats for these species within LPO include the Denton Slough located approximately 12 miles east of the study area and the Clark Fork River Delta located 14 miles east of the Project site.

A database search and field review was conducted to determine whether bald and golden eagle nests and/or communal roosts occur in the Project study area. The review concluded that no nests and/or communal roosts are located in the Project study.

Terrestrial Mammals

Due to the relatively high level of human-related activity associated with the rail line and US 95, generally only disturbance-tolerant terrestrial mammals are expected to occur within or around the Project site. White-tailed deer (*Odocoileus virginianus*), coyotes (*Canis latrans*), skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), muskrat (*Ondatra zibethicus*), and various rodents have been known to occur in the Project vicinity. Typically, transportation corridors are purposely managed to be unattractive to larger terrestrial mammals to reduce both safety concerns associated with wildlife/vehicle collisions. The immediate Project footprint (BNSF ROW) is predominantly limited to disturbed open ground with sparse vegetation surrounded by marginal to medium value upland habitat for terrestrial mammals.

Fish

Bullheads, crappies, perch, largemouth bass, smallmouth bass, and various trout species are found in nearshore sloughs, backwaters, and deep-water bays of LPO. The lake and tributaries provide habitat for kokanee, Gerrard rainbows, bull trout, and lake trout. Fish species found in Sand Creek include brook trout, sculpin, and sunfish (TerraGraphics 2006), as well as various other warm water species.

The fish species outlined in **Table 7** are based on the current observed fish species by IDFG, 2017 data.

Table 7: Fishes of Lake Pend Oreille

Species	Species
bluegill/pumpkinseed/sunfish (<i>Lepomis spp</i>)	largemouth bass (<i>M. salmoides</i>)
brown trout (<i>Salmo trutta</i>)	northern pike (<i>Esox lucius</i>)
bull trout (<i>Salvelinus confluentus</i>)	walleye (<i>Sander vitreus</i>)
mountain whitefish (<i>Prosopium williamsoni</i>)	cutthroat trout (<i>Oncorhynchus clarki</i>)
bullhead catfish (<i>Ameiurus spp.</i>)	kokanee (<i>Onchorynchus nerka</i>)
cutthroat trout (<i>Oncorhynchus clarki</i>)	lake trout (<i>Salvelinus namaycushi</i>)
crappie (<i>Pomoxis spp.</i>)	smallmouth bass (<i>Micropterus dolomieu</i>)
rainbow trout (<i>Oncorhynchus mykiss</i>)	yellow perch (<i>Perca flavescens</i>)
westslope cutthroat trout (<i>Oncorhynchus clarki lewis</i>)	longnose sucker (<i>Catostomus catastomus</i>)
peamouth (<i>Mylocheilus caurinus</i>)	Gerrard-strain rainbow trout (<i>Kamloops</i>)
pygmy whitefish (<i>Prosopium coulterii</i>)	largescale sucker (<i>Castomus clupeaformis</i>)

Terrestrial Noise within the Study Area

Ambient noise levels at the Project site are influenced by the local population level, traffic volumes on US 95, rail traffic, and commercial enterprises. The local population center is the City of Sandpoint. US 95 is located generally adjacent to the north end of the Project and diverges from the rail line near the north end of BNSF Bridge 3.9 to about 2,500 feet west of the south end of Bridge 3.9. Ambient noise level projected at 55 A-weighted decibels (dBA) is expected based on the local population. Peak rail noise levels are the whistles at 140 decibels (dB).

3.7.2 Environmental Consequences

Numerous species of fish and wildlife use the study area as either foraging habitat, refuge, or for nesting or spawning. Some species that inhabit the area in the vicinity of the bridge are anticipated to be tolerant to moderate disturbances typical of railways. Other species may be less tolerant, depending on the level and duration of disturbance.

No Action Alternative

Although substantially lower than the other alternatives, impacts to wildlife and fish would continue to occur under the No Action Alternative due to the continued operation and need for repair and maintenance activities on the existing bridges.

Proposed Action Alternative

Pile driving has the highest potential to generate noise levels above the moderate level of disturbance. Aquatic species response would be, in part, dependent on proximity to the piles being installed, individual's size (juvenile, subadult, adult), presence of a swim bladder, and activity (foraging, migrating, overwintering, etc.). Section 3.8 lists impacts to federally listed aquatic species.

Large-scale construction activities associated with this alternative would be expected to result in avoidance of the general vicinity by terrestrial species, both birds and mammals, for the duration of the Project. However, the Project footprint is already fully within a high traffic transportation corridor, much of it disturbed and rock covered, and thus not expected to create a major impact or displacement of birds or mammals.

The pile driving proposed for the bridges has the potential for temporary impacts to all species, but in particular to fish species that may be present in the study area. The expected response for most fish species present in the work area would be avoidance of the general area. The availability of extensive alternate habitat in the Pend Oreille River and LPO would allow fish to widely disperse away from the aquatic impact zone. Injury or behavioral impacts, such as disruption of localized feeding opportunities or short-term migration, could occur to species that potentially remain in the impact zone.

Most species of fish are susceptible to pile-driving impacts associated with underwater sound pressure waves, depending on the level. Underwater sound pressure waves can injure or even kill fish if they are close to the source. Mitigation approaches such as initiating limited low impact strikes at the beginning of each work period to encourage fish dispersal, or the use of bubble curtains where appropriate to attenuate sound, are day-to-day common sense approaches that minimize the potential of fish injury and mortality. More detailed discussion related specifically to threatened bull trout is contained in Section 3.8 and in the Project BA (**Appendix D**).

As described in Section 4.0, coordination with the USFWS and IDFG is ongoing through meetings and other communications. These efforts are expected to result in the adoption of appropriate BMPs to avoid, minimize, and mitigate impacts to fish and wildlife during construction, such as the impact minimization measures described in Section 4.1, and the BMPs associated with the Project's WQMPP, SPCC, and SWPPP described in Section 3.3.2. Additionally, adherence to conditions imposed in IDEQ's Section 401 WQC (IDEQ 2018a) would further avoid and minimize impacts to the aquatic environment.

Upon completion of construction, a second track would occupy a relatively small operational footprint within the existing transportation corridor. Thus, the post-construction conditions would not be expected to result in a substantial change to the present transportation corridor condition.

Habitat conditions within and immediately adjacent to the BNSF ROW within the study area are degraded and are not considered high quality habitat, due to baseline levels of development and associated transportation use. While the Project would require the removal of some large trees, bird nests have not been documented within the study area, and no direct impacts to nests or nesting migratory birds are anticipated. The Proposed Action Alternative would have no impact on the osprey pole located within BNSF ROW on the south side of existing Bridge 3.9. To ensure direct impacts are avoided, a migratory bird nesting survey would be conducted at the beginning of the season, within the study area, prior to ground-disturbing activities. If a nest is identified, a plan for impact minimization would be established with the necessary agencies.

Construction and long-term operation of the Proposed Action Alternative could potentially displace birds by altering flight patterns, altering foraging and habitat use, or cause other minor and temporary behavioral changes during construction. However, it is not expected that construction or operational activities in the study area associated with the new bridge would rise to the level of prohibited conduct under the MBTA because no nests and/or communal roosts have been

documented in the Project study area, surveys would occur prior to construction to verify and mitigate any potential impacts, and unlawful actions as defined in MBTA would not occur. In addition, much higher quality habitat exists in the areas of LPO that are free from baseline disturbance.

Noise Impacts within the Study Area

Audible disturbances from construction activities are likely to exceed ambient noise. As shown in **Table 2**, a projected noise level of 110 dB is used for air noise levels. The distance in-air noise would extend from the study area before reaching background levels is identified in construction noise attenuation. Inputs included a projected intermittent 55 dBA for ambient noise.

Based on the data (WSDOT 2018), construction noise would reach ambient noise levels over open or hard terrain between 4.8 and 9.5 miles from the Project site. This is often referred to as the action area for in-air noise effects. The actual distance traveled by noise generated during construction before reaching ambient levels would be influenced by other variables not factored into the attenuation calculation, such as land forms, other roads, buildings, and weather (wind/rain).

Turbidity within the Study Area

Temporary increases in turbidity during Bridge 3.9 construction would be contained within a turbidity curtain. Since turbidity impacts are expected to be localized and contained to pile-driving activities, no ecological impacts are expected (Section 3.3.2).

Due to the limited duration and spatial extent of construction activities, the Proposed Action Alternative is not expected to significantly impact fish and wildlife not listed under the Endangered Species Act (ESA). ESA-listed species determinations are provided in Section 3.8 and the BA associated with the Project (**Appendix D**).

Invasive Species

Numerous invasive species exist in Bonner County. The Idaho Invasive Species Council is a multiagency organization that provides direction and planning for combatting invasive species' introduction and spread. The Director of the ISDA chairs the council (ID, Office of the Governor, Executive Order NO 2017-05). This order provides guidance on public, private, commercial, and agency protocol to follow to avoid the spread of aquatic invasive species.

While no specific permit is required by a project proponent or citizen related to actions undertaken in Idaho waterways, watercraft used during activities in Idaho waters must be licensed and permitted prior to launching (IDFG 2018; ISDA 2018). Only inflatable, non-motorized vessels less than 10-feet long are exempt. All other watercraft must obtain the annual Invasive Species Boat stickers, in addition to other annual required boat registration fees.

To prevent the introduction or spread of invasive aquatic species for this proposal, Project-specific watercraft inspection criteria and operating protocol has been developed (see impact minimization measures in Section 4.1). Boats, barges, and overwater machinery would be thoroughly inspected for invasive species and cleaned as required by the IDFG sticker program requirements needed prior to any launch or access into LPO or Sand Creek (ISDA 2014).

Aquatic invasive species are a concern when working above, in, or near water. Invasive invertebrates can be spread by equipment. To help prevent the spread of invasive species, equipment would be cleaned to the greatest extent practical prior to arriving to and immediately after leaving the Project site. Cleaning could include scraping/sweeping off any debris or soil and pressure washing at an off-site location before transportation to the work site. This protocol would be in effect during the entire Project. Through the use of BMPs, the Project is not anticipated to contribute invasive species to the ecosystem.

3.8 Endangered Species Act Listed Species and Critical Habitat

The primary federal law protecting threatened and endangered species is the ESA, 16 USC, Section 1531, *et seq.*, as well as 50 Code of Federal Regulations (CFR) Part 402. The ESA and its subsequent amendments provide for the conservation and recovery of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the ESA, federal agencies are required to consult with USFWS and/or National Marine Fisheries Service [NMFS] to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

Critical habitat is defined as geographic locations essential for the conservation of threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a no effect finding. Section 3 of the ESA defines “take” as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

3.8.1 Affected Environment

The Project alternatives reviewed are located across and along the northwestern edge of LPO and immediately east of, or presumably near, US 95 and Sandpoint. Uplands in the action area are fully developed and consist of railroad tracks, gravel and paved parking areas, urban and urban fringe development, and highway/roadways. Other than bull trout, the specific habitat conditions required for the federally listed ESA species noted in **Table 8** do not exist in the action area (Jacobs 2018e).

Table 8: USFWS Listed and Proposed Species and Critical Habitat in Bonner County

Common Name	Scientific Name	Federal (USFWS Status)	Critical Habitat Designated	Potential to Occur in Action Area
Canada lynx	<i>Lynx canadensis</i>	Threatened	No	No
grizzly bear	<i>Ursus arctos horribilis</i>	Threatened	N/A	No
North American wolverine	<i>Gulo gulo luteus</i>	Proposed Threatened	No	No
woodland caribou	<i>Rangifer tarandus caribou</i>	Endangered	No	No
bull trout	<i>Salvelinus confluentus</i>	Threatened	Yes	Yes

Note:

USFWS = U.S. Fish and Wildlife Service

Bull Trout

Information in this section is summarized from Jacobs' 2018 BA (**Appendix D**).

The coterminous United States population of bull trout (*Salvelinus confluentus*) was listed by the USFWS as threatened in November 1999 (64 Federal Register [FR] 58910). Bull trout presently occur in approximately 45 percent of their estimated historical range within the Columbia River Basin, and were listed due to declining trends in distribution and abundance caused by the combined effects of habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, angler harvest and poaching, entrainment into diversion channels and dams, and introduced non-native fish species.

Most bull trout are migratory and rear one to four years in natal tributaries before moving to larger rivers (fluvial) or lakes (adfluvial). Bull trout normally reach sexual maturity in 4 to 7 years and live as long as 12 years. They spawn more than once in a lifetime, with both repeat- and alternate-year spawning reported. Therefore, bull trout require two-way passage upstream and downstream for repeat spawning and also for foraging. In Idaho, bull trout generally spawn in September and October. Fry normally emerge from early April through May depending upon water temperatures and increasing stream flows. Most downstream migrations for all size-classes of bull trout throughout the year are almost exclusively at night, after sunset and before sunrise.

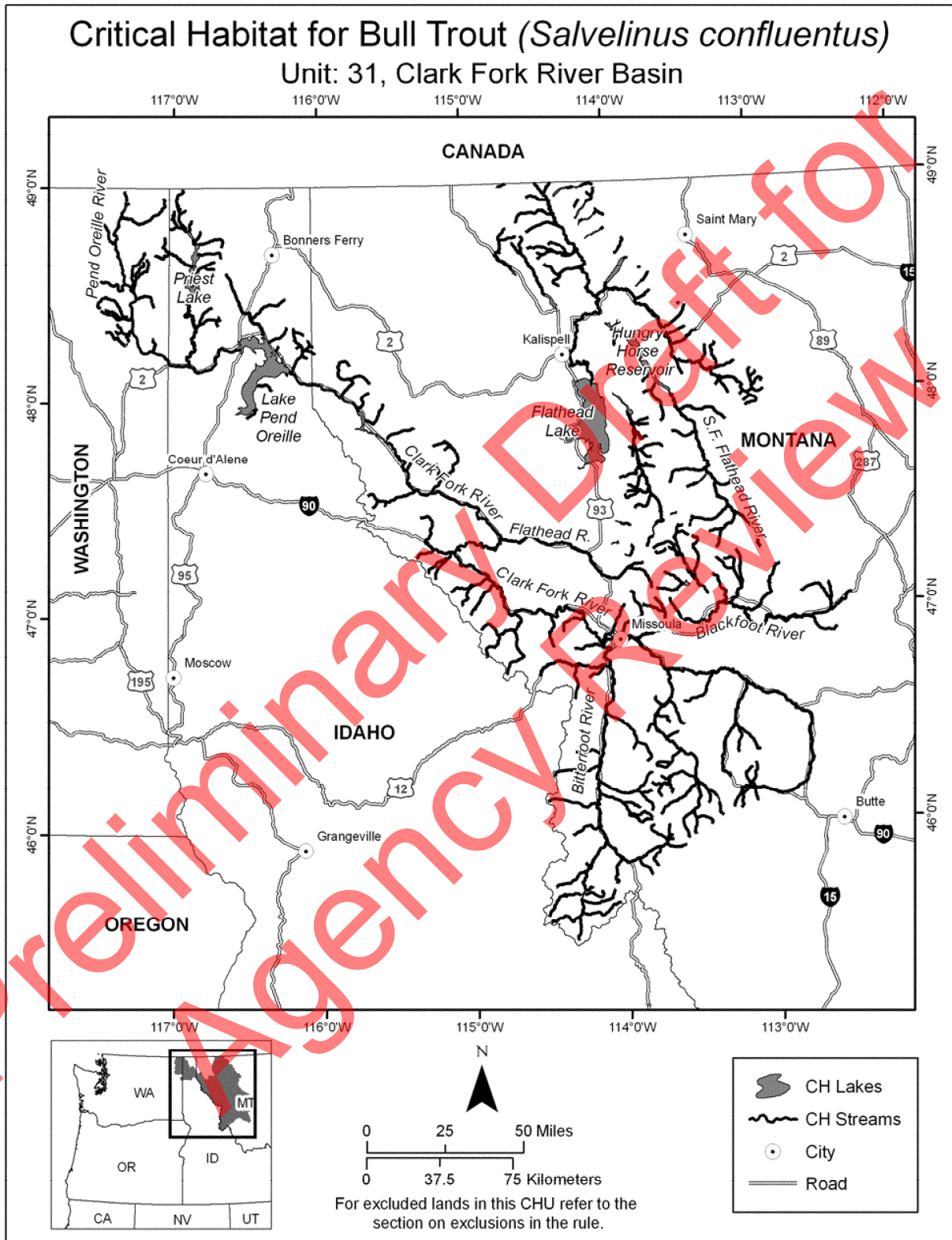
Adfluvial bull trout comprise the predominant life history form present in the LPO basin and are the predominant large-bodied native predator in the lake. Both the USFWS and the IDFG have confirmed that there is no documented presence of bull trout in Sand Creek, and data is minimal on bull trout use of LPO within the Project action area.

Bull trout most likely use the LPO action area in the course of migrating between spawning and rearing habitat and foraging, migration, and overwintering (FMO) habitat. Several radio-tagged bull trout have been documented at or in close proximity to Bridge 3.9 throughout the winter.

There are two migratory periods for adult bull trout -- migration out of LPO to upstream tributary spawning and rearing habitat in the spring, and return to downstream LPO FMO habitat late in the fall after spawning. There is also a unique fall upstream migration of bull trout into LPO from the East River basin (a tributary to Priest River, which is a tributary to Pend Oreille River), presumably to allow bull trout to avoid swimming upstream into the lake against the Pend Oreille River current during spring high flows. Subadult bull trout do not migrate out of LPO until they reach sexual maturity, and therefore reside in LPO year-round.

There are no in-water work windows designated by the USFWS for LPO. In September 2010, the USFWS designated critical habitat for bull trout throughout their range that contains features considered essential for conservation of the species. Thirty-two Critical Habitat Units were designated, including Habitat Unit 31-Clark Fork River Basin that includes the open water and shorelines of LPO (including the LPO inlet/lower Sand Creek) and the Pend Oreille River within the Project action area. The Unit 31 critical habitat map is provided as **Figure 10** (75 FR 64067 [October 18, 2010]).

Figure 10: Critical Habitat for Bull Trout



LPO is a complex core area within the Lower Clark Fork Geographic Region that is among the more secure and stable bull trout populations across the range of the species. It provides important bull trout FMO habitat for populations in local LPO, Pend Oreille River and Clark Fork River tributaries, as well as an essential migratory corridor for bull trout from LPO to access upstream productive tributary watersheds.

Because of its systematic and jurisdictional complexity, the LPO core area is further divided into three parts:

- (LPO-A) Clark Fork River mainstem upstream of Cabinet Gorge Dam on the Idaho/Montana border, almost entirely in Montana;
- (LPO-B) LPO basin proper and its tributaries, extending from Cabinet Gorge Dam on the Clark Fork River downstream to LPO to Albeni Falls Dam on the Pend Oreille River, entirely in Idaho; and
- (LPO-C) the lower basin (lower Pend Oreille River) downstream of Albeni Falls Dam through the Box Canyon Dam to the Boundary Dam one mile upstream of the Canadian border, including portions of Idaho, Washington, and the Kalispel Indian Reservation.

The BNSF Sandpoint Junction Connector Project lies wholly within LPO-B. LPO-B represents 15 percent of the LPO complex core area, covering 670,000 acres containing 1,250 miles of mapped streams.

ESA Consultation History

The USCG is the lead federal agency associated with this action and would complete formal consultation with the USFWS regarding potential Project-related effects to federally listed species and critical habitat. Jacobs has had informal, technical assistance discussions with USFWS to review impacts, methodology, and mitigation opportunities, including phone calls and email communications in August, September, October, and November 2017 and June 2018, and meetings in March, May, and July 2018; these efforts are ongoing.

3.8.2 Environmental Consequences

No Action Alternative

Implementation of maintenance actions on the existing Bridge 3.9 associated with the No Action Alternative could result in limited in-water work and therefore in a reduced level of potential impact to ESA-listed species (i.e. bull trout) compared to the Proposed Action Alternative. Ongoing maintenance actions, without construction of a new bridge, have the potential for additional USFWS consultations due to the age of the current bridge and potential repair needs.

Proposed Action Alternative

Information in this section is summarized from Jacobs' 2018 BA (**Appendix D**).

Bull trout would be the only ESA-listed species to be exposed to effects from the Proposed Action Alternative. Direct effects are those that occur at the time of the action, and would be primarily associated with in-water noise from pile installation and potential localized increases in turbidity during pile installation and/or removal. Indirect effects are those that occur later in time, and include changes to ecological systems resulting in long-term habitat alteration, changes in predator/prey relationships, or changes in land use.

Direct Effects

Piles for the new bridges would be vibrated to resistance and finished with an impact hammer. Pile driving would occur during daylight working hours for an estimated 12 months for Bridge 3.9 and for approximately one month for Bridge 3.1, dependent on weather-related or other interruptions.

Vibratory hammers vibrate the pile into the sediment by use of an oscillating hammer placed on top of the pile. Vibratory driving sound pressure levels are generally 10 to 20 dB lower than impact hammer driving, with a much slower rise time. Injury to fish has not been observed in association with vibratory hammers. This may be due to the slower rise time and the fact that the energy produced is spread out over the time it takes to drive the pile. As such, vibratory driving of piles is generally considered less harmful to aquatic organisms and is the preferred method if geologic conditions allow.

However, piles must be seated to load-bearing capacity with the use of an impact hammer. This is referred to as proofing. This may take just a few strikes or many strikes depending on site-specific characteristics. In areas where geologic conditions preclude the driving of piles primarily with a vibratory hammer, piles would be driven with an impact hammer. Risk of injury or mortality to aquatic species resulting from in-water impact pile driving is related to the effects of rapid pressure changes, especially on gas-filled spaces in the fish's body (such as swim bladder, lungs, sinus cavities, etc.).

Noise generated by impact pile driving is impulsive, consisting of a broad range of frequencies over a short duration. Based on bull trout hearing ranges, threshold distances and noise levels (decibels or dB) that could result in injury or behavioral effects have been established by the USFWS and are used to calculate the spatial extent of potential impacts and to determine effects. Noise levels are analyzed based on Peak dB, which describes the instantaneous peak sound pressure level and is used to evaluate potential injury to fish; root-mean-square, which describes the pressure level during the impulse and is used to describe disturbance-related effects (i.e., harassment and behavioral changes); and sound exposure level, which is used as an indication of the energy dose that can accumulate and result in injury.

The National Oceanic and Atmospheric Administration (NOAA) pile driving impact calculator was used to determine the distance that underwater sound would extend for the permanent bridges over LPO and Sand Creek, based on the type and largest size of piles to be driven with an impact hammer. The calculator utilizes the bull trout threshold distances and noise levels established by the USFWS.

In-water noise effects can be limited in spatial extent by sinuosity of the waterbody and once underwater sound reaches land. Effects can also be attenuated by using air bubble curtains during pile driving in water more than 3 feet deep. Because bubble curtains are not effective in shallow water, they would not be used at Sand Creek Bridge 3.1 since pile driving would occur in very shallow water during winter drawdown of LPO; however, they would be employed during impact pile driving for LPO Bridge 3.9.

Impact proofing steel piles in the construction of the new bridges would elevate sound pressure levels and potentially expose adult and subadult bull trout to harm, harassment, or behavioral changes. Based on the analysis presented in Jacobs' 2018 BA (**Appendix D**), the furthest extent of the potential injury zone is approximately 0.46-mile from construction activity. This zone in total represents less than 1 percent of the available area within LPO and lower Sand Creek.

Because the construction contractor would have the option of installing piles simultaneously at each end of the bridge, bull trout may be exposed to increased cumulative energy where the individual pile driving noise zones overlap. When impact driving would occur simultaneously at two locations on the bridge alignment, there would be a moderate increase in the cumulative sound exposure level to bull trout.

Pile driving in Sand Creek (Bridge 3.1) would occur in low-water conditions during LPO winter drawdown. Water depths would be approximately 0 to 3 feet during work, with most piles driven outside of the winter-wetted channel of the creek. Most sound energy is not propagated in water depths of 1.3 feet or less, and energy propagation is substantially reduced in shallow water. Additionally, subadult or adult bull trout do not inhabit Sand Creek/LPO inlet and would not be present in shallow water when pile driving would take place. However, the action area for work within Sand Creek does extend into LPO, and any bull trout present in the lake may be exposed to slightly elevated sound pressure levels during impact pile driving.

The Proposed Action Alternative may result in short-term, temporary adverse impacts to individual subadult and adult bull trout that are exposed to elevated sound pressure levels from impact pile driving. (This only applies to bull trout that weigh 2 grams or greater since smaller bull trout remain in spawning and rearing tributaries and do not occupy LPO.) Using a bubble curtain to attenuate sound during Bridge 3.9 pile driving substantially minimizes the potential for bull trout exposure during pile driving. Additionally, reduction in the extent of effects during Bridge 3.1 pile driving into shallow water would be expected. A full noise assessment is provided in Jacobs' 2018 BA (**Appendix D**).

Though individual sub-adult and adult bull trout may be impacted by elevated sound pressure levels during construction, the relatively small zone of injury (less than 1 percent of the LPO as a whole) when compared to available areas within the lake that are free of disturbance minimizes the potential for exposure. The bull trout population is relatively robust in the LPO area (approximately 12,000 fish) despite loss of connectivity to large areas of upstream and downstream spawning and rearing habitat.

A 2007–2008 study also noted that an estimated population of 12,513 bull trout in LPO was similar to that estimated one decade earlier in 1997-1998, indicating a stable population. Also, it is suggested that a minimum of 10 local populations are required for a bull trout core area (metapopulation) to function effectively, and core areas with more than 10 interconnected local populations are at diminished risk of extirpation; the LPO core area has at least 20 local populations. It is also estimated that approximately 1,000 spawning adults within any bull trout population are necessary to ensure persistence of the population by maintaining genetic variation, and IDFG has determined that approximately 4,000 adult spawning bull trout occupy LPO at any given time.

Sediment on the bottom of LPO may be mobilized during Bridge 3.9 pile installation and temporary bridge pile removal. The potential effects are an increase in turbidity or possible mobilization of contaminated sediments if present. Pile installation, both either vibratory or impact methods, is not expected to mobilize sediment beyond the localized area of the pile. However, removal of the temporary piles may increase this local distance based on lake bathymetry and currents. The area of effect would be localized, short-term, and relatively small compared to the area within LPO free of disturbance. Pile removal with a vibratory hammer and BMPs such as turbidity curtains would also be used where appropriate in conjunction with the driving of permanent piles and the removal of temporary piles to limit the extent of sedimentation.

Other direct effects, such as potential water contamination from construction equipment fluids, would be temporary in nature and would be insignificant relative to the overall area of bull trout dispersal in the lake and the extent of available habitat. The impacts would be minimized through the use of construction BMPs identified in the SPCC Plan and SWPPP (Section 4.0).

Indirect Effects

Permanent indirect effects may occur to subadult bull trout after Bridge 3.9 construction due to the potential for increased predation associated with shading and additional underwater structures (piers) that provide predator hiding habitat. However, the area that would be shaded by the proposed Bridge 3.9 over LPO is very small compared to the total surface area of the lake (approximately 2 acres out of a total of 94,720 acres of LPO surface area). Because bull trout do not occupy Sand Creek due to degraded habitat conditions, no permanent indirect effects from increased predation due to shading or underwater structures would be expected.

Similarly, the temporary construction bridge over LPO is also very small compared to the surface area of the lake (approximately 4 acres out of a total of 94,720 acres). Additionally, the new bridge would be elevated to match the height of the existing bridge, allowing sunlight to penetrate for most of the day under both the existing and proposed bridges over LPO, and bull trout would be expected to inhabit the coldest and deepest part of LPO when shading would occur, and would forage the shoreline and shallow depths at night. Therefore, significant alterations to predator/prey relationships associated with shading impacts are not anticipated, but alteration of these relationships may occur due to the increased number of underwater structures.

Other indirect effects, such as permanent alteration of nearshore habitat, are considered insignificant relative to the overall area of bull trout dispersal in the lake and the amount of available suitable habitat along the lake's 175 miles of shoreline. Nearshore fill would permanently alter 0.88 acres of habitat below the OHWM. However, due to the fluctuations in water levels, the nearshore impact area is low-quality habitat available for approximately 5 months. In addition, the new piles would permanently remove 2,036 square feet of lake bottom, and potentially displace benthic invertebrates as a prey item for bull trout. However, this area is insignificant when compared to the size of the lake as a whole.

The Project is not expected to contribute to or exacerbate the defined existing threats to the bull trout population in the LPO-B core area: (1) historic fragmentation due to dams on the lower Clark Fork River; (2) overfishing of bull trout and the presence of voracious non-native species, specifically lake trout; and (3) legacy impacts from upland/riparian land management practices.

Construction of the new bridges would require 288 permanent piles comprising 48 piers below the OHWM in LPO, and 22 permanent piles comprising 11 piers below the OHWM in Sand Creek. These piers would not significantly impact bull trout movements or migration in LPO, as piers would be approximately 65 to 93 feet apart, and the new bridge would be constructed immediately adjacent to the existing rail bridge. There would be fewer piers supporting the new Bridge 3.9 compared to the existing bridge, and the new bridge piers would align approximately with every other pier of the existing bridge.

Consultation with the USFWS regarding the Proposed Action Alternative, construction methods, Project timing, and impact minimization measures is ongoing, as noted in Section 3.8.1. Compensatory mitigation for the 0.88-acre of nearshore/bull trout critical habitat fill is currently being discussed and is under review with agencies and tribal natural resource departments. Impacts would likely be fully mitigated through BNSF's support of bull trout habitat and/or other projects in the LPO watershed as discussed in Section 4.0.

Based on bull trout utilization and suitable habitat within the action area, Project actions and timing, Project activities are likely to adversely affect individual adult and subadult bull trout in proximity to the Project during construction. In addition, the project may adversely affect some primary constituent elements of bull trout critical habitat. However, completion of the proposed action is unlikely to affect bull trout subpopulation indicators or critical habitat at the watershed or Columbia River Headwaters Recovery Unit scales, either temporarily or permanently. As part of the ESA Section 7 consultation that would be completed as part of the action, the USFWS would provide terms and conditions that are specific Project requirements to minimize effects to bull trout and bull trout critical habitat. These conditions would be implemented as part of construction.

3.9 Archaeological and Historic Resources

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (NRHP).

Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP. As part of the Section 106 process, federal agencies must consult with Idaho State Historic Preservation Office (SHPO) to assure that cultural resources are identified and to obtain the formal opinion of the SHPO on each site's significance and the impact of its action upon the site.

The Archaeological Resources Protection Act applies when a project may involve archaeological resources located on federal or tribal land. The Archaeological Resources Protection Act requires that a permit be obtained before excavation of an archaeological resource on such land can take place.

3.9.1 Affected Environment

The Project vicinity was utilized by local Native American populations for hunting, fishing, and plant gathering; but the Area of Potential Effects (APE) has been drastically altered by railroad and highway development. Previous development included placement of thick fill deposits to support the existing railroad and bridge abutments; therefore, the APE contains reworked beach sands and disturbed fill sediments. Due to previous ground disturbance and fill used to construct berms on either approach to the bridge, the potential for intact archaeological deposits to exist within the APE is considered remote.

An evaluation of the archaeological and cultural resources was completed in the Project vicinity. The evaluation identifies resources and provides management recommendations regarding NHPA compliance which are described in the Cultural Resources Technical Report (Jacobs 2018g). Current and previous field assessments indicate that the APE does not contain any intact archaeological deposits near surface sediments. Previous cultural resource studies conducted within the APE are summarized in the Cultural Resources Technical Report (Jacobs 2018g) and include two on the north end of Bridge 3.9 (one for a BNSF bridge pier replacement project and one for the US 95 Byway) and two on the south end of Bridge 3.9 (both for BNSF projects).

As a result of those efforts, two archaeological sites (10BR38 and 10BR1026) were reassessed, one new archaeological site (temporarily named Rock Wall 1) was recorded, four previously recorded historic built resources (Northern Pacific Depot, Northern Pacific Railroad, Bridge 3.0, and Bridge 3.9) were revisited, and one additional potential historic built resource (Bridge 3.1) was identified. None of the field assessments indicate that the APE contains any intact archaeological deposits near surface sediments.

Two previously recorded archaeological sites exist within the APE. Site 10BR38 is a prehistoric campsite and associated rail line. Site 10BR1026 is a prehistoric campsite and historic scatter. Both sites are identified as contributing properties to the Upper Pend Oreille River Archaeological District, which has been determined eligible for the NRHP. During the 2018 assessment, it was determined that none of the previously recorded historic resources within the APE have changed substantially since recordation, and all continue to be recommended eligible for listing in the NRHP. In addition, there are the two newly recorded historic resources within the APE, BNSF Bridge 3.1 and Rock Wall 1. Both have been recommended not eligible for listing in the NRHP.

All survey records are on file at Jacobs' office in Bellevue, Washington. Photographic prints and site forms will be submitted to the Idaho SHPO and will be on file at the Idaho State Historical Society, Boise (Jacobs 2018g).

3.9.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in no ground disturbance activities, but maintenance activities would continue. Maintenance would consist of periodic inspections and ROW maintenance, with possible replacement of individual bridge components when maintenance is necessary.

A minimal amount of excavation is anticipated with these future maintenance actions; therefore, cultural resources would not likely be altered. If necessary, an inadvertent discovery protocol would be followed during ground-disturbing activities associated with maintenance actions to minimize potential impacts to archaeological deposits encountered during construction.

Due to previous ground disturbance and fill used to construct berms on either approach to the bridge that was noted during the 2018 assessment, the potential for intact archaeological deposits to exist within the APE is considered remote; therefore, the No Action Alternative is unlikely to impact archeological resources. Maintenance actions are not anticipated to require substantial alteration of historic resources; therefore, the No Action Alternative is unlikely to impact historic resources.

Proposed Action Alternative

To create the new bridge span, the Proposed Action Alternative would add fill and drive permanent and temporary piles. The Proposed Action Alternative is a federal undertaking because the Project would require a USCG Bridge Permit and a USACE CWA Section 404 permit and is therefore subject to Section 106 of the NHPA presented in 36 CFR 800. Section 106 of the NHPA requires that, before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the ACHP an opportunity to comment on these actions.

The Section 106 process, for the Proposed Action Alternative, includes five steps:

1. Initiate process by coordinating with other environmental reviews, consulting with the SHPO, identifying and consulting with interested parties, and identifying points in the process to seek input from the public and to notify the public of proposed actions
2. Identify cultural resources and evaluate them for NRHP eligibility, resulting in the identification of historic properties
3. Assess effects of the project on historic properties
4. Consult with the SHPO and interested parties regarding adverse effects on historic properties, resulting in a Memorandum of Agreement
5. Proceed in accordance with the Memorandum of Agreement, if necessary

Steps 1 through 4 have been initiated, and coordination has started with various interested parties including Native American Tribes. A summary of consultation and coordination completed with SHPO and Tribes is provided in Section 5.1. SHPO concurrence with the findings and recommendations discussed in the Cultural Resources and Historic Built Resources sections below was provided on August 8, 2018.

Cultural Resources

It is highly unlikely that the Proposed Action Alternative would disturb intact archaeological resources that are listed or recommended to be eligible for NRHP due to a lack of intact archaeological resources near surface sediments within the APE. Intact deposits may be present outside the APE beyond the proposed impact of current construction plans.

In consideration of the Proposed Action Alternative, the Cultural Resources Technical Report provides a no effect recommendation for Site 10BR1026, where, aside from a single disturbed flake, historic artifacts were not identified within the APE. The report provides a no adverse effect recommendation for Site 10BR38, where materials are either buried under several feet of fill or no longer retain archaeological integrity. In addition, the portion of Site 10BR38 within the APE is not individually eligible for NRHP listing. Consequently, the Proposed Action Alternative will have no adverse effect to the Upper Pend Oreille River Archaeological District.

The identification of archaeological remains typically results in the halt of excavations. A Project-specific Inadvertent Discovery Plan (IDP) would be utilized in the unlikely event that archaeological materials are discovered. The IDP would be prepared prior to construction that identifies the appropriate parties to be contacted and protocols to follow in the event that cultural materials are exposed during construction.

The Cultural Resources Technical Report does not recommend additional archaeological evaluation or monitoring for the Proposed Action Alternative since no adverse effect and no effect determinations are recommended.

Historic Built Resources

In consideration of the Proposed Action Alternative, the Cultural Resources Technical Report provides a no adverse effect recommendation for the BNSF track, Bridge 3.0, and Bridge 3.9, as these structures would not be directly affected.

The report recommends ongoing monitoring and inspection of the BNSF-Amtrak (Northern Pacific) Depot building to ensure that the Project does not adversely affect the building. While changes to the surrounding visual environment may result in indirect impacts to the historic built environment, indirect effects on such resources during construction and operation would be negligible, and are not anticipated to alter or diminish any aspect of the resources' integrity of location, design, materials, workmanship, setting, feeling, or association.

3.10 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations to the greatest extent practicable and permitted by law. The order also directs each agency to develop a strategy for implementing environmental justice. The order is also intended to promote nondiscrimination in federal programs that affect human health and the environment, as well as provide minority and low-income communities access to public information and public participation.

3.10.1 Affected Environment

The Project site is located entirely within existing BNSF ROW within the incorporated limits of the City of Sandpoint and unincorporated Bonner County. The north end of the Project is located within City limits from BNSF MP 2.9 to 3.9, where the existing tracks are surrounded by a BNSF maintenance road, the Sandpoint Train Depot and US 95 to the west; and Sandpoint Avenue, Seasons of Sandpoint Condominiums, Best Western Edgewater Resort, Sandpoint Edgewater RV Park, and a portion of the Sandpoint City Beach Marina to the east. Within unincorporated Bonner County, BNSF Bridge 3.9 spans over the open water of LPO from MP 3.9 to 4.9. At the south end of the Project from BNSF MP 4.9 to 5.1, the site is designated as Rural (5) residential (Bonner County 2017).

The racial composition of the City of Sandpoint and Bonner County is primarily White, at 96 and 98 percent, respectively. The largest minority group in the area is Hispanic and Latino, constituting 5 percent of the City population and 3 percent of the County population. The City of Sandpoint contains a higher proportion of residents living in poverty (22 percent) compared to Bonner County and the State of Idaho (15 percent). Since the Project site is limited to existing rail ROW, no minority or low-income populations are present within the immediate study area.

3.10.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in no construction activity other than routine maintenance activities. Increased train delays waiting on regional sidings would have a minor impact on air quality, traffic noise, and traffic circulation. However, the impacts are expected to be the same across all population groups and would not result in disproportionately high and adverse impacts to low-income or minority populations.

Proposed Action Alternative

Construction activities under the Proposed Action Alternative would not result in the relocation of any businesses or residents. Some of the construction activities would be visible from Sandpoint. Construction noise, particularly pile driving at the Sand Creek Bridge (3.1) would be detectable along the eastern side of Sandpoint in the vicinity of US 95 but is anticipated to rapidly dissipate based on the presence of vegetation, structures, changes in topography, and increasing ambient noise levels associated with local businesses and US 95. No construction activity is currently proposed during nighttime hours. Construction would occur within the existing railroad ROW. Elimination of the constraint is expected to result in a minor long-term improvement in air quality, traffic noise, and local traffic circulation. This action would not result in disproportionately high and adverse impacts to minority or low-income populations.

3.11 Land Use/Navigation/Recreation

This section contains a combined analysis of the potential effects of the Project on land use, navigation, and recreation. These three resources are intertwined in the study area because nearly all of the temporary construction-related activities and all of the permanent Project structures and long-term operations would occur within BNSF ROW. While BNSF holds ownership over the entire ROW and maintains sole control over what is allowed within the ROW, other uses occur and have become customary among the members of the public at certain limited locations within the ROW. Those other uses are predominately recreational. With much of the Project consisting of bridges over the navigable waters of LPO, much of the study area is also used for recreational navigation. Most of the limited commercial vessel traffic on LPO operates in support of recreational fishing and sightseeing excursions.

3.11.1 Affected Environment

The study area for this analysis consists of the BNSF ROW, LPO, Sand Creek, and Sandpoint Beach Park as a major recreational resource within sight of the study area. All but about 250 feet of temporary work bridge and a few square feet of temporary nearshore fill would be within existing BNSF ROW. A swath of land 400 feet wide, 200 feet on either side of the railroad, was transferred to the Northern Pacific Railroad and its successors (BNSF) by an act of congress on July 2, 1864. The courts have held that the grant of land to a railroad is different than other land ownership transfers; the railroad performs a public service and is burdened with a public duty, which requires that the railroad have exclusive possession and dominion over its ROW (Lake CDA Investments LLC v. Idaho Department of Lands 2010).

The Farmland Protection Policy Act encourages federal agencies to minimize the impact of federal programs on the unnecessary and irreversible conversion of farmland (prime or unique) to nonagricultural uses. No farmland, or potential farmland exists in the Project vicinity; therefore, the Farmland Protection Policy Act is not discussed any further.

Under Idaho's Lake Protection Act, the IDL regulates anything permanently fixed to lake beds or work that is done over lakes (Idaho Code Title 58, Chapter 13). The BNSF ROW extends across LPO with the right to conduct work to support the operation of the railroad. However, BNSF has worked cooperatively with IDL on past projects to obtain encroachment permits where its ROW crosses lakes. IDL granted an encroachment permit to BNSF for the Project on June 21, 2018 (Permit No. L-96-S-0096E, **Appendix E**). There are two other uses that legally occur in the BNSF ROW. A portion of the multiuse Serenity Lee Trail and a portion of US 95 enter the ROW.

USCG has broad legal authority to provide for safe vessel navigation on waters of the US including law enforcement authority and administration of bridges. The USCG has reviewed existing navigation on LPO and reasonable navigational needs related to Bridge 3.1 and Bridge 3.9. Two technical reports (Jacobs 2018a and Jacobs 2018d) containing the detailed analyses summarized in this section are included in **Appendix F**. In addition, IDL considered potential effects to navigation on LPO before issuing the encroachment permit.

LPO is a natural lake. Seasonal impoundment elevations have been managed by the USACE at Albeni Falls Dam since the dam was constructed in 1955. It is the largest natural lake in Idaho, with a surface area of 94,720 acres, a mean depth of 538 feet, and a maximum depth of 1,152 feet at its southern end.

Existing BNSF Bridge 3.9 spans the northern end of the lake for almost a mile (4,769 feet) just south of Sandpoint. US 95 spans the lake as two bridges (one vehicular, one multi use and emergency access) for just over a mile (5600 feet) south of Sandpoint. The highway bridges are west of BNSF Bridge 3.9 by approximately 0.7 mile. Although BNSF Bridge 3.1 is referred to as spanning Sand Creek, the surface water elevations of Sand Creek for approximately two miles upstream from the bridge are also regulated by Albeni Falls Dam. Two US 95 bridges also span Sand Creek near Bridge 3.1.

The marked navigation span at Bridge 3.9 has a horizontal clearance of just under 77 feet and a vertical clearance of 14 feet but the two spans just outside the navigation span have horizontal clearances of almost 90 feet and vertical clearances of 16 to 16.5 feet. The two US 95 bridges have a combined horizontal clearance of 75 feet and vertical clearance of 15 feet. Bridge 3.1 has a horizontal clearance of 42 feet and a vertical clearance of just over 16 feet. The two US 95 bridges near Bridge 3.1 have approximately 200 feet of horizontal clearance and over 20 feet of vertical clearance.

Motor vessels, ranging in size from 12 to 60 or more feet in length, with a 5- to 15-foot beam (width), and a 5- to 10-foot height, travel through the area around Bridge 3.9 and the US 95 bridges year round. However, the highest use period is typically from mid-May through mid-September with an average of 150 to 250 boat passages per day, with peak periods of several hundred passages during holidays and weekends. Due to their size, most of these vessels are able to pass under most of the length of both of these bridges and are not restricted to the marked navigation spans.

The typical motor vessel transiting the area near Bridge 3.1 is 17 to 26 feet long, with a 6- to 7-foot beam, and a 5- to 6-foot height. Approximately 20 percent are larger craft ranging from 26 to up to 40 feet long, with about a 10-foot beam, and up to 10 feet tall. Between 250 and approximately 600 motor vessels and 40 to 50 human powered watercraft use the Sand Creek passages below Bridge 3.1, with higher numbers occurring on weekends and summer holidays.

Although BNSF Bridge 3.9 is generally identified as the limiting vertical structure on the lake, that only applies to its lighted navigation spans. The bridge's adjacent spans, with 16- to 16.5 foot vertical clearances, result in the highway bridges being the limiting vertical clearance span on the lake at 15 feet, when the lake is at full summer pool. Although there are 6 bridges that span Sand Creek, the U.S. Highway 2/State Highway 200 Bridge approximately 1.3 miles upstream of Bridge 3.1 is the limiting bridge to navigation with a horizontal clearance of 24 feet and a vertical clearance of 6 feet.

There are two vessels with defined limits for passage beneath the railroad and highway bridges. The Shawnodese is a privately owned, commercial tour boat based in Sandpoint that occasionally conducts down-river cruises. However, boating conditions must be calm with smooth water for the boat to safely pass under the 15 foot vertical limits of the US 95 bridges south of Sandpoint. The Ida Mae is a privately-owned houseboat, semipermanently moored at the Dover Bay Marina. Based on discussions with the owner, this craft has historically passed under both the US 95 and Bridge 3.9, but only when the lake level is lowered in the fall or spring. The Ida Mae cannot pass under these bridges at high water (summer pool). The Shawnodese does not appear to use Sand Creek upstream of Bridge 3.1, but Bridge 3.1 does not limit that navigational potential. The Ida Mae is limited to travelling upstream of Bridge 3.1 by the bridge's vertical clearance. In addition to recreational boating, recreational activity also occurs on the multiuse Serenity Lee Trail. As previously stated, a portion of which enters the BNSF ROW as allowed by easement. Activities that occur on the trail include walking, biking, and running.

Sandpoint Beach Park is a City of Sandpoint park immediately northeast of the study area. It is a waterfront park with 6 acres of grassy lawn and sandy beach, swimming areas, a boat launch ramp, and an adjacent marina. Sandpoint Beach Park offers expansive views of Bridge 3.9. With its immediate proximity to downtown Sandpoint, it is a recreational focal point of the city and is heavily used, particularly in the summer season.

Although not explicitly allowed, other uses within the BNSF ROW have become customary at some limited locations. For example, there is an approximately 0.5-acre shoreline area that has become known locally as "dog beach" that is within the ROW and sees frequent dog walking.

3.11.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, there would be no change in legal land use, navigation, or recreation. BNSF would continue to maintain and operate the existing railroad and exercise access control over the land granted for railroad ROW. There could, however, potentially be a change in unsanctioned customary uses currently occurring within the ROW. As BNSF becomes aware of these uses, BNSF may work with the users to either find alternatives to continued use of the ROW or cooperatively come to agreement on some form of allowed use of the ROW through easement or other mechanism. BNSF may also request that these unsanctioned uses cease.

Proposed Action Alternative

Under the Proposed Action Alternative, there would be no change in legal land use within the BNSF ROW. As under the No Action Alternative, BNSF would continue to maintain and operate the existing railroad and exercise access control over the land granted for railroad ROW. There could, however, potentially be a change in unsanctioned customary uses currently occurring within the ROW. As BNSF becomes aware of these uses, BNSF may work with the users to either find alternatives to continued use of the ROW or cooperatively come to agreement on some form of allowed use through easement or other mechanism. BNSF may also request that these unsanctioned uses cease. There would be temporary placement of approximately 250 feet of temporary work bridge and a few square feet of temporary nearshore fill outside the BNSF ROW

associated with construction as permitted by IDL. This change would be temporary with these items being removed and the site restored once construction is complete. No indirect changes to surrounding land use would likely occur as a result of the Proposed Action Alternative.

The two legally allowed uses within the BNSF ROW would continue to remain. US 95 would continue to operate in its current configuration. BNSF also intends to work with ITD to keep the multiuse Serenity Lee Trail open during the entire Project and develop modifications to improve safety. There may be minor temporary degradation to recreational experiences along the trail during construction as the result of changes in visual aesthetics and increased noise levels but no permanent effects are anticipated. User experiences may be similarly affected at Sandpoint Beach Park and the adjacent marina during construction where cranes and other construction equipment, particularly at Bridge 3.9, could be seen and construction noise would be noticeable.

Minor temporary changes to navigational conditions would result under the Proposed Action Alternative during construction. The vertical and horizontal clearances for approximately 60 percent of Bridge 3.9 construction bridge length would retain an equivalent vertical and horizontal clearance as existing Bridge 3.9 throughout construction. Although during construction there would be locations of limited navigation to keep both mariners and construction operators safe, there would be, on average, over 3,000 feet of minimally restrictive navigation throughout the bridge length.

At all times there would be vertical clearances of 15 feet at designated spans near the existing bridge designated navigation spans. Both the construction and the existing bridges would require signage and navigational lighting to direct boaters away from construction restriction spans and towards the non-restrictive passage spans. This would be achieved by the use of floating buoys, booms, signs, and lights at night per the U.S. Department of Homeland Security, USCG's Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118.

During the low-water period of the year (October 15 – April 15), the water depth upstream from Bridge 3.1 is either too shallow, or the entire channel is blocked by the marina docks such that motor vessels cannot navigate upstream and human powered craft can only move a few hundred feet before they need to remove their craft from the water and portage several hundred feet to reenter the creek. Additionally, during that low-water period, the vertical clearance of the temporary work bridge would be over 18-feet above the seasonal low water surface elevation.

Minor permanent changes to navigational conditions would result under the Proposed Action Alternative in the vicinity of Bridge 3.9. New Bridge 3.9 would retain an equivalent vertical and horizontal clearance as the existing bridge over approximately 90 percent of its length. Both the existing and new bridges would require signage and navigational lighting, per the U.S. Department of Homeland Security, USCG's Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118, to provide mariners information on horizontal and vertical clearances.

The existing designated and lighted navigation spans vertical clearance would remain at 14 feet. There would be a reduction of the vertical clearance from 16 feet to 14 feet on some spans outside the marked navigation spans as necessary to meet modern rail loading design requirements. Although the new Bridge 3.9 would result in a reduction in vertical clearance at some of the spans approaching the designated and lighted navigational spans, the proposed 15-foot vertical clearance matches the 15 foot of vertical clearance limits at the highway bridges. Thus, any vessels that can or intends to clear the highway bridges would also be able to clear the new Bridge 3.9.

Approximately 677 acres of open-water, out of the approximately 96,000 acres of navigable waters on LPO and the Pend Oreille River, are affected by this vertical clearance limit. Within the area from the Bottle Bay Road Bridge (which has 10 feet of vertical clearance) to Bridge 3.9 and highway bridges, no commercial or private vessels that exceed 15 feet in vertical clearance were identified, based on a survey of those areas over the past year. No proposed or potential vessels were identified as being constructed or launched within that 677-acre area, and it is unlikely anyone would choose to do so in the future given the published limitation of the US 95 bridge's vertical elevation at its navigational span.

No new limitations on navigation would occur in the Sand Creek vicinity. Horizontal and vertical clearances of the new Bridge 3.1 would be greater than the existing bridge span and the existing side channel between the existing bridge and the shoreline and abutments would remain usable by canoes and kayaks, and paddle boards.

3.12 Visual Quality

This section discusses the visual changes that may be perceived by people viewing Bridge 3.0, Bridge 3.1 and Bridge 3.9 both during construction and over the life of the new bridges. The visual quality analysis for this Project was conducted in accordance with the U.S. Department of Transportation's (USDOT's), *FHWA Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015). The full analysis and technical memorandum is included in **Appendix G**. While this Project is not subject to this policy, the guidelines provide a useful and widely accepted framework for analyzing visual impacts. Although visual quality is inherently subjective, the FHWA methodology provides definitions and a process for evaluating existing and proposed views. By following this process, the assessment is repeatable by other experts.

3.12.1 Affected Environment

The study area for the visual effects analysis is based on the area of potential visual effect, or viewshed and key views that represent the different types of people that may view the study area. The viewshed is defined as areas with a line of sight (exclusive of vegetation) looking toward and away from the Project. Viewers of the Project can be described as either static or dynamic. Dynamic viewers are those moving through the study area, such as boats on LPO and Sand Creek and motorists on Bridge Street. Motor vehicle operators can be further divided into local homeowners, recreationalists, freight movers, and commuters. Static viewers include people viewing the new rail bridges from homes or businesses.

Views from Bridge 3.0 and Bridge 3.1 would be of short duration, while trains are moving, and any changes in Bridge 3.1 itself would not be highly visible from the train. Views from the Bridge 3.9 would be of longer duration, and the new parallel bridge would be visible as the train crosses LPO. However, these views would be of short duration, and LPO would be visible beyond the parallel track. Many trains using this route carry freight, and the engineers operating the trains are there for business; while they may enjoy the view, they are working and likely less sensitive to changes in the view because they understand the need for additional structure.

Drivers on local roads are presumed to be less sensitive to the view of the bridges than recreational users who view the lake and rail bridges from the nearby roadside park, hotel, and marina. These viewers are presumed to be highly sensitive to changes in the view. To effectively analyze the visual impacts of the Project, key views were established to best represent the views of the above users. A map illustrating the location of the four key views and photographs of existing views from each are included in the visual analysis technical memorandum included in

Appendix G. In considering light and glare, navigational lighting on Bridge 3.1 and Bridge 3.9 is the only light source currently in place on the bridges.

3.12.2 Environmental Consequences

No Action Alternative

The no action alternative would not change the visual environment and, therefore, would result in no new visual impacts.

Proposed Action Alternative

During construction, there would be a temporary increase in signs in the work zone to alert people to submerged work-related items such as turbidity curtain cables, service boat anchor lines, and to show navigation channels during construction. For the duration of construction, this would be a very active work zone, which may provide visual interest as well as encroachment on views of Sand Creek and LPO. Temporary work bridges would have navigation and moorage lighting as required by the USCG. These temporary changes in visual quality would not result in significant adverse impacts.

Visual simulations of each key view after construction of the Proposed Action Alternative are included in **Appendix G** and **Figures 2** through **5** of this EA. Assessed from Key View 1, the new Bridge 3.0 would have a wider opening to accommodate both the road and sidewalks on either side (**Figure 5**). The red beam over the roadway would continue the color theme used on the bridge supporting US 95. Large shrubs and trees would be removed as part of the Project so the vegetation rating would decrease slightly, but the rating for man-made structures would increase slightly because of the more open structure and the color tie-in with the nearby US 95 bridge over Bridge Street, resulting in an equivalent total visual quality rating.

Assessed from Key View 2, removal of the trees between the existing rail bridge and US 95 would lower vividness ratings for vegetation (**Figure 3**). The new Bridge 3.1 would be constructed between the existing rail bridge and US 95. The new bridge would continue the visual theme of the red beam over the channel that is proposed over Bridge Street. It would screen the older bridge from this view point. While the bridge would still be an encroachment on a lake view, the more unified design theme would raise the ratings for man-made elements, which would offset the decrease in the rating for vegetation.

Assessed from Key View 3, the trees in the center of the view would be removed and the new bridge would screen the old bridge from this view (**Figure 4**). The more unified design theme would raise the ratings for man-made elements, which would offset the decrease in the rating for vegetation.

Assessed from Key View 4, the trees in the middle ground view would be removed and the shoreline would be restored using native shrubs at the toe of the slope (**Figure 2**). The expansive views of the water and the tree-covered hills beyond would remain with Bridge 3.9 providing the only break in the visual unity of the scene. The total visual quality rating from this view under the Proposed Action Alternative would be slightly lower because of the removal of the trees in the middle ground, but the total visual quality rating would remain high.

Fixed navigational lighting, as required by the USCG and the IDL, would be installed on Bridge 3.1 and Bridge 3.9. This lighting would be comparable to the existing navigational lighting.

3.13 Noise

The Noise Control Act of 1972 requires that activities of federal agencies, such as issuing permits, must be consistent with federal, state, interstate, and local requirements for the control and abatement of environmental noise. The primary responsibility of regulating noise is with state and local governments. In Idaho, noise abatement and control rests primarily with the local government. Bonner County has established regulations for control of noise in Title 9 “Special Environmental and Health” of its municipal code. Per code section 12, the County has adopted requirements that sources of industrial/commercial noise are designed and operated in a safe manner that minimize noise, smoke, dust, and other nuisance factors to nearby land uses. The City of Sandpoint’s Noise Ordinance (Title 5, Chapter 2, Section 6) identifies a construction activity limit of no work after 10:00 p.m. and before 6:30 a.m. of any day of the week.

The Noise Control Act states that for “major noise sources in commerce,” there must be “national uniformity of treatment.” See 42 USC Section 4901 (a)(2-3). The EPA and the Secretary of Transportation were tasked with determining allowable noise levels for railroads, which they did. The Federal Railroad Administration (FRA) has issued regulations regarding noise limits for railroad equipment; and, under the Act, no state or local ordinance can further limit noise from railroads. See 42 USC Section 4916.

3.13.1 Affected Environment

Existing noise levels in the Project vicinity include train traffic, nearby vehicular traffic on local roads and US 95, boat traffic, and commercial and recreational activity from the adjacent land uses. Sensitive noise receptors in the Project vicinity include workers and residences/businesses in Sandpoint (e.g., Best Western Edgewater Resort, Seasons of Sandpoint Condominiums) and recreational users of Sandpoint City Beach Park, Serenity Lee Trail, and LPO.

Based on population alone, Sandpoint has an ambient noise level of approximately 55 dBA (WSDOT 2018) as it has between 3,000 and 10,000 people per square mile. US 95, which travels parallel to the study area, experiences approximately 2,000 vehicles per hour during peak traffic (ITD 2005) and has varying traffic speeds of between 45 and 55 miles per hour (mph) through the study area. A speed of 50mph is used as an average. Per Table 7-3 of the WSDOT guidance (WSDOT 2018) the ambient traffic on US 95 produces noise levels of 72.8 dBA. The region also experiences traffic noise from U.S. Highway 2 and State Highway 200, which both run perpendicular to the study area.

3.13.2 Environmental Consequences

No Action Alternative

The No Action Alternative would result in no construction activity until maintenance is required to ensure that train traffic would be able to continually move through the site. However, increased train delays from trains waiting on regional sidings would continue to increase idling noise at locations where trains wait for clearance. Trains waiting for a crossing opportunity cause long vehicular wait time on local County and City streets at public at-grade rail crossings. As trains are continually delayed and commerce is interrupted, freight train use is expected to decline and truck traffic is expected to increase. The increased delay in train and vehicle traffic and overall increase in truck traffic would increase traffic noise levels in the Project vicinity.

Proposed Action Alternative

Elevated noise levels are anticipated during construction, especially during pile-driving activities. Potential impacts to fish and wildlife from construction noise is discussed in Section 3.7. During pile-driving activities, noise levels may reach up to 110 dBA; this noise level would be audible to nearby residents/businesses and recreational users. The predominance of construction activity related to elevated noise levels would occur during daylight hours, equipment would be muffled, and peak noise levels from impact driving would be limited to regular work hours from 7 a.m. to 7 p.m. In the long term, elimination of the rail constraint is expected to result in a reduction in traffic noise levels as delay times are reduced and overall traffic circulation improves.

The impact hammer produces noise levels at 110 dBA at 50 feet from the source. In the event that two simultaneous pile drivers are utilized, 3 dBA has been added to the 110 dBA value resulting in 113 dBA as the highest noise level proposed during Project construction. Ambient noise within the study area includes vehicle traffic from US 95 and train traffic with peak noise levels of 140 dB, which represents a locomotive horn/whistle. Therefore, construction noise would not surpass noise levels which are regularly experienced in the area. Since construction noise (use of the impact hammer) would result in a more frequent noise elevation than train whistles, a terrestrial noise assessment has been conducted.

Table 9 assesses how far the construction noise would travel before reaching ambient levels. Since the site is primarily surrounded by water which is considered a “hard site” in regards to noise analysis, a doubling distance of -6.0 dBA is used. Using an ambient noise level of 55, construction noise would attenuate between 25,600 and 51,200 linear feet from the site, or between 4.8 and 9.5 miles. This assessment does not consider topography or vegetated landforms. When considering topography, the furthest distance construction noise is anticipated to travel is approximately 6 miles which is the furthest open water distance between the study area and an elevated landform.

Table 9: Airborne Construction Noise Attenuation

Distance from Bridge (feet)	Construction Noise (Point source + hard site) (attenuation = -6 dBA)	US 95 Noise (Point source + hard site) (attenuation = -3 dBA)	Ambient Noise (dBA)
50	113 dBA	72.8 dBA	55
100	107 dBA	69.8 dBA	55
200	101 dBA	66.8 dBA	55
400	95 dBA	63.8 dBA	55
800	89 dBA	60.8 dBA	55
1,600	83 dBA	57.8 dBA	55
3,200	77 dBA	54.8 dBA	55
6,400	71 dBA	Below Ambient	55
12,800	65 dBA	-	55
25,600	59 dBM	-	55
51,200	53 dBM	-	55

Notes:
 dBA = A-weighted decibel
 dBM = decibels relative to one milliwatt

3.14 Hazardous Materials and Wastes

Regulatory Background

Several federal laws, regulations, and executive orders relate to the control and handling of hazardous substances, cleanup of hazardous wastes releases, and public protection from harm resulting from these materials. These include the Comprehensive Environmental Response, Compensation, and Liability Act; the Resource Conservation and Recovery Act; the Clean Water Act and Oil Pollution Act of 1990; the Emergency Planning and Community Right to Know Act; the Toxic Substances Control Act; Executive Order 12088 – Federal Compliance with Pollution Control Standards; and Executive Order 12856 – Federal Compliance with Right-To-Know Laws and Pollution Prevention Requirements. Federal agencies are required to coordinate with the EPA and applicable state, interstate, and local environmental agency protection programs to ensure consistency of major federal actions with all federal hazardous substances and waste laws, regulations, and executive orders.

Emergency Planning Documents

USDOT requirements for prevention, containment, and response planning for transportation of oil by rail car are identified in 49 CFR Part 130, Oil Spill Prevention and Response Plans. Part 130.31 specifies that transport of oil requires preparation of a “current basic written plan” that is consistent with the requirements of the National Contingency Plan (NCP) and Area Contingency Plans, identifies the personnel and equipment necessary to remove a worst-case discharge and mitigate or prevent a substantial threat of such a discharge, and describes the training, equipment testing, drills, and response actions of facility personnel.

The NCP provides the authority for federal entities to respond to environmental emergencies as required by the Comprehensive Environmental Response, Compensation, and Liability Act and the Oil Pollution Act. The NCP established the National Response Team and 13 Regional Response Teams (RRTs) who are responsible for national and regional planning and preparedness activities. RRT membership consists of designated representatives from key federal response and support agencies together with affected states. Per Executive Order 12777, EPA Region 10 is the regional federal planning lead for implementation of the NCP in the inland Pacific Northwest Region, including Idaho, and has response authority for incidents in all areas inland of the coastal zone (RRT/NWAC 2018).

As mandated by the NCP, the Region 10 RRT and the Northwest Area Committee (NWAC) is a consolidated body with jurisdiction over oil and hazardous materials response and planning efforts in Washington, Oregon, and Idaho. RRT and NWAC were created to protect public health and safety and the environment by providing requirements for coordinated, efficient, and effective support of the federal, state, tribal, local, and international responses to significant oil and hazardous substance incidents. RRT and NWAC meets and functions as a unified organization, henceforth referred to as NWAC. NWAC membership includes representatives from various federal, state, and local government agencies as well as Tribes, non-governmental organizations, industry, and response contractors. Key NWAC members include EPA Region 10, USCG District 13, IDEQ, Bonner County Office of Emergency Management (OEM), and local Idaho area Tribes. Participation in NWAC meetings includes tribal representatives, members of the public, and other members of the spill response community.

The Northwest Area Contingency Plan (NWACP) is a regional plan required by the federal NCP. The purpose of the plan is to provide a playbook for oil and hazardous material responses in Washington, Oregon, and Idaho that involve state and federal agencies. NWAC directs development and maintenance of the NWACP, which is reviewed and updated annually (RRT/NWAC 2018). The NWAC Steering Committee solicits recommendations for revisions to the NWACP from workgroups, exercises/drills, training, and interested parties.

The NWAC, under the leadership of EPA, is also responsible for developing Geographic Response Plans (GRPs) in Idaho and engaging industry and community partners to support them. GRPs are site-specific plans that guide early actions where an oil or other hazardous materials spill occurs. GRPs serve as standard operating procedures and protocol tools useful for strategic planning purposes and guidelines for emergency response. The plans are tailored to a specific shoreline or waterway and are developed to minimize impact on sensitive areas threatened by the spill. GRP priorities include identifying sensitive natural, cultural, or significant economic resources and developing strategies to protect them. GRPs include pre-identified emergency notification information, boom deployment, and source control strategies for specific geographic locations. GRPs are intended to be living documents, subject to change as their response strategies are tested and new information is received.

The NWAC originally published a GRP addressing LPO in 2005 (RRT/NWAC 2005). No updates were made to the LPO GRP for the following decade. Based on its commitment to safety and risk management, BNSF developed its own GRP for the LPO area. In 2014, BNSF met with multiple agencies in Sandpoint and volunteered to improve and upgrade the LPO GRP maintained by the NWAC. In 2015, BNSF completed field and resource-at-risk surveys and added updated, site-specific booming strategy lists. In 2016, BNSF shared the content with the NWAC members. The NWAC evaluated this information and used it as the foundation for preparation of an updated "Lake Pend Oreille and Pend Oreille River GRP" (**Appendix H**). NWAC's LPO GRP dated June 2017 covers the study area and outlines resource-at-risk summaries and protective booming strategies within LPO.

The LPO GRP supplements other local emergency planning documents, in addition to the NWACP:

- The Idaho Emergency Operations Plan is an all-discipline, all-hazard plan that delineates line of authority and responsibilities of emergency action agencies.
- The Idaho Hazardous Materials/Weapons of Mass Destruction Incident Command and Response Support Plan supports the Emergency Operations Plan and NWACP and is the primary mechanism for initial response to hazardous materials incidents in Idaho.
- The Bonner County Emergency Operations Plan identifies the roles, responsibilities, and direction for Bonner County agencies and some volunteer organizations in responding to emergencies or disasters.

Emergency Preparedness

BNSF partners with NWAC members to assist with successful implementation of the NCP and is considered an industry leader in hazardous materials safety training, inland-area emergency response, and Incident Command System management in the Pacific Northwest. BNSF's emergency preparedness program focuses on prevention, mitigation, and response, which addresses and upholds FEMA's National Preparedness Goal. This goal defines what it means to

be prepared for all types of disasters and emergencies: “A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk” (FEMA 2015). The goal is capabilities-based and is organized into five mission areas:

- **Prevention.** Avoid, prevent or stop an imminent, threatened or actual act of terrorism.
- **Protection.** Protect our citizens, residents, visitors, and assets against the greatest threats and hazards in a manner that allows our interests, aspirations and way of life to thrive.
- **Mitigation.** Reduce the loss of life and property by lessening the impact of future disasters.
- **Response.** Respond quickly to save lives, protect property and the environment, and meet basic human needs in the aftermath of an incident.
- **Recovery.** Assist communities affected by an incident to recover through a focus on the timely restoration, strengthening and revitalization of infrastructure, housing and the economy, as well as the health, social, cultural, historic and environmental fabric of communities affected by an incident.

A summary of BNSF’s efforts to implement each of the five mission areas is provided below. Specific efforts relevant to the study area are identified where applicable.

Prevention

As a leader in railroad safety, BNSF recognizes that a safe and secure railroad network is essential to the future of the nation. Railroads have some of the lowest injury and accident rates in the transportation industry and are continually improving. Since 1980, U.S. railroads have reduced rates for accidents, employee injuries, and crossing collisions by more than 80 percent.

BNSF’s safety vision is to operate injury- and accident-free. Each year, BNSF invests significantly in capital commitments that help ensure a safe and reliable network for its employees, customers, and the communities they serve. BNSF has invested more than \$60 billion since 2000 in infrastructure, equipment and technology, with an additional \$3.4 billion planned in 2018. BNSF works toward preventing accidents and injuries with attention to employee safety, railroad/operation safety, and community safety in the following ways:

- **Rail defect detection.** BNSF evaluates and maintains their systems under a regular, rigorous inspection program for bridges, track, and rail defects. These efforts include routine visual inspections by more than 650 trained and experienced track inspectors. Unmanned aerial vehicles and special rail cars are also used to test track and detect flaws. On key routes that carry a greater number of shipments and include hazardous materials, BNSF conducts inspections that exceed FRA requirements.
- **Freight car defect detection.** BNSF utilizes an extensive network of detectors to measure the conditions of each passing freight car to identify stresses on wheels and other equipment to prevent failures and protect structures and waterways.

- **Positive Train Control (PTC).** BNSF leads the industry in installing and testing PTC technology, which is a digital wireless system that uses global positioning data to monitor train movement, provide warnings to crews, enforce speed limits, and stop trains when certain unsafe conditions arise (such as a switch left in the wrong position). BNSF has completed installation of all federally mandated PTC infrastructure on its network.
- **Hazardous materials management.** Hazardous materials shipped on BNSF receive special identification and handling that include tracking all sensitive shipments, in-train placement checks, and emergency response information. BNSF also works closely with communities and response personnel to prepare for emergencies. In addition to employee and community training efforts summarized below, BNSF has a team of approximately 260 emergency responders from a variety of backgrounds, including environmental, safety and mechanical, as well as a network of contractors who are prepared to respond to an emergency.
- **Employee safety training.** BNSF invests in ongoing safety and technical training for its employees using a combination of field training, on-the-job training, long-distance learning, and technical training at a centralized training center. Employees are trained on exposure and risk identification as well as an array of technical rules and safety topics. Employees take courses and utilize simulation and lab tools that represent equipment, including locomotives, cranes and crossing gates. In 2017, BNSF trained more than 4,500 employees and close to 20,000 employees in the field, as well as more than 500 rail industry employees.
- **Community safety training.** In 2017, BNSF's environmental and hazardous materials teams trained more than 8,000 public emergency responders in communities across its network. BNSF sponsored and/or trained approximately 1,150 North Idaho first responders at the Security and Emergency Response Training Center in the past five years. BNSF, UPRR, and MRL participate and sponsor a regional oil spill technician fast water boom training in Alberton, Montana on the Upper Clark Fork River that is recognized across the U.S. as being best available training for inland oil spill responders. The railroads and other oil industry partners also regularly attend and sponsor oil spill training with US EPA and the USCG at the Northwest Oil Spill School held annually in Port Angeles, WA.

Protection

BNSF implements its safety vision through aggressive safety programs, training, and technology as described in the Prevention, Mitigation, and Response mission areas. Several planning documents provide operational instructions for purposes of protecting BNSF employees and assets and the welfare of the general public. Section 33 of BNSF's System Special Instructions (August 1, 2018) provides instructions on what actions to take under excessive wind conditions, cold weather, or in the event of a tornado, flash flood, or earthquake. The BNSF Northwest Division Wild Fire Preparedness Plan (April 26, 2018) establishes a territory-specific process for effectively managing both predicted and emergency fire danger conditions on the Northwest and Montana Operating Divisions. The plan identifies procedures, priorities, and responsibilities for minimizing the impact of severe fire danger conditions.

Mitigation

BNSF takes steps to reduce the severity and probability of an incident by developing and continually updating a variety of safe operating procedures, safety protocols, response plans and training programs, as discussed under the Prevention and Response mission areas. In addition to NWAC's LPO GRP and other area response plans, specific BNSF facilities and projects have industrial and specific project SWPPPs and SPCCs developed and implemented to mitigate potential risks associated with hazardous materials releases on BNSF property.

BNSF also mitigates potential risk by exceeding a number of federal safety requirements for railroad operation. USDOT rules require customers to phase out old tank car technology (DOT-111 and CPC-1232 tank cars) by 2025. BNSF provides incentives for its customers to use best available technology and phase out the old tank cars, and as a result BNSF's customers are nearly 100 percent complete with the transition. FRA Emergency Order No. 30, issued on April 17, 2015 and made effective immediately, instituted a speed restriction of 40 mph for crude oil trains through "High Threat Urban Areas" in an effort to improve public safety. As an extra precaution, BNSF voluntarily introduced self-imposed speed restriction of 35 mph for crude oil trains in areas with populations over 100,000. Finally, BNSF's ongoing contributions to NWAC's LPO GRP, as described below in the Response mission area, far exceed the federal requirements for oil spill prevention and response plans per 49 CFR Part 130.

Response

BNSF follows the accepted USCG and EPA NCP practice where emergency response services and resources (equipment and personnel) are staged in regional areas or population centers within a 6- and 12-hour response radii so they can be cascaded to incident locations by dedicated OSROs in the unlikely event that they occur.

BNSF works directly with the NWAC to develop, test, and continually improve emergency response plans and capabilities. BNSF continually looks for opportunities to improve response readiness and train with local and regional OSROs, fire departments, and response agencies to improve NWAC's LPO GRP implementation. BNSF, industry partners, OSROs, and key agencies regularly conduct oil spill training exercises and deploy and test LPO GRP booming strategies in LPO and the Clark Fork and Pend Oreille Rivers.

There is no federal or state regulatory requirement to conduct spill response exercises. However, since 2014, BNSF has sponsored and paid for multiple exercises to test the response strategies outlined in NWAC's LPO GRP. These exercises occurred in May 2015, August 2016, September 2016, January 2017, and September 2017, and were attended by regional agency and community partners, including the EPA, USCG, IDEQ, Bonner County OEM, Boundary County OEM, local fire and sheriff departments, Kootenai Tribe of Idaho, and OSROs. The September 2017 training exercise at LPO deployed 48 support personnel, 3,500 feet of boom, multiple drum skimmers, current buster, multiple watercraft, and drones overseen by a mobile command post. The exercise identified equipment and training vulnerabilities in the LPO GRP response strategies (**Appendix H**).

Coming out of the training exercise and recognizing the vulnerabilities identified in the LPO GRP, BNSF voluntarily completed the following:

- Inventoried available response equipment within the 2- and 6-hour response radii.
- Purchased and staged additional equipment in the response area including:
 - Over 8,000 feet of new boom and six trailers
 - Three additional skimmers and three storage tanks
 - Current Buster with 4,000 gallons of storage and hi-volume skimmer
 - An emergency response storage cache at Clark Fork on MRL property
 - A jet boat at the Clark Fork storage cache
- Sponsored trainings for local and regional OSROs and fire districts addressed in the GRP (largely staffed by volunteers and a smaller number of professionals) on a variety of emergency scenarios to improve their response capabilities.

BNSF is working with the NWAC to update the LPO GRP in response to the September 2017 training exercise. BNSF provided recommended revisions to the 2017 LPO GRP in late July 2018 for review and consideration by IDEQ and EPA, members of the NWAC. IDEQ and EPA will review the recommended 2017 LPO GRP revisions, and if appropriate update and disseminate to the NWAC.

As a result of immediate actions taken by BNSF in response to the 2017 exercise, approximately 28,000 feet of boom is available within a 2-hour travel time radius of Sandpoint. Boom, recovery, and storage equipment caches are located along the transportation corridors in four areas: Sandpoint Area Cache with approximately 10,800 feet of boom; Clark Fork Area Cache with approximately 5,100 feet of boom; the Bonners Ferry/Kootenai Area Cache with approximately 7,750 feet of boom; and the Regional Area Cache primarily from Spokane and Coeur d Alene with approximately 5,200 feet of boom. A total of approximately 41,000 feet of boom is available within a 6-hour travel time radius of Sandpoint.

Boat access to LPO can be acquired from at least 35 boat ramps along LPO, the Clark Fork River, and the Pend Oreille River. Most of these boat ramps are unusable below a lake elevation of 2,056 feet, a level that can occur between mid-October and mid-May. Two boat ramps located at Priest River and Hope Basin offer reliable year-round response deployment; however, response time from those sites to an accident location may be complicated by wind, weather, and ice. Additionally, the shoreline area within BNSF ROW at the north end of Bridge 3.9 (the area commonly known as "Dog Beach") could be used to launch small boats during emergency events. Low water and no water access during low pool elevations, including access during winter months with icy conditions, may require air boat usage. BNSF and Bonner County OEM are planning to purchase air boats in 2019 that will be staged within the LPO region. During low pool elevations, equipment could also be delivered using high-flotation, wheeled vehicles; these air boats; and/or helicopters.

Vacuum trucks and frac tanks are not staged within the LPO region but would be mobilized from outside the area with the initial OSRO mobilization. Railroads maintain a fleet of tank cars staged in the region that carry wildland firefighting water, which could be emptied and used for recovered oil storage. Additionally, emergency response equipment trailers can be moved with standard 1-ton, load-rated pickups to the appropriate staging area, as demonstrated during recent training events. An interagency tabletop exercise examining the LPO GRP is scheduled for September 19, 2018.

Recovery

BNSF has no record of hazardous material spills or incidents associated with bridges in the study area. In response to an emergency event, BNSF would implement the strategies contained in the LPO GRP to recover released material, minimizing potential damage. BNSF would then work with the appropriate regulatory agencies, property owners, and local community to restore residual damage that could not be avoided as the circumstances of the incident require.

3.14.1 Affected Environment

The Project site is an interstate main line rail corridor. Any railroad ROWs have the potential to contain contaminated materials from historic materials used, construction methods, and actions. The corridor where the Project is proposed does not have a recorded history of hazardous spills. Coal dust has not been observed or documented in substantial levels within the study area uplands and research shows BNSF drive-through trains are not associated with substantial levels of coal dust (Missoulain 2012; McCrone Associates, Inc. 2012; Washington Research Council 2014; WDOE and Cowlitz County 2017). Coal dust is not anticipated to be present in harmful levels within LPO sediments. Potential inadvertent and unrecorded releases could have occurred over the 120 or more years this corridor has had a railroad and associated support facilities on it, but typically contamination conditions in soils are shallow and localized. If contaminated soils are determined to be present, they are removed and disposed of in commercially approved remediation facilities.

Application of herbicides along the railroad ROW to keep vegetation from growing over the tracks can also affect the reuse of the soil. BNSF policy for contaminated conditions is to identify, remove, and safely dispose of them when they are found. Any soil removed from any part of the ROW must be tested prior to it leaving BNSF property.

Regulatory Database Review

The online EPA “Cleanups in My Community Map” and the IDEQ “Waste Remediation Facility Mapper” were reviewed for sites within 1.0 mile of the Project work corridor. Contaminated sites that were separated from the Project work corridor by a waterbody (LPO and/or Sand Creek), or were located down- or cross-gradient to the BNSF ROW, were eliminated because it is unlikely contamination from these sites has migrated to the BNSF ROW. Based on this regulatory database review, five listed sites have the potential to impact the Project work corridor:

- Amtrak Sandpoint Station (Underground Storage Tank [UST] database)
- Idaho Transportation Department Former Blacksmith Shop (General Remediation database)
- Idaho Transportation Department Lakeside Hotel (General Remediation database)
- Sandpoint Byway (General Remediation database)
- Pend Oreille Bay Trail Zone 1 (Brownfields database)

All five sites are located on the peninsula of land directly east of Sand Creek and the City of Sandpoint. The following discussion of the listed sites is based on information and reports provided by Mr. Steve Gill from IDEQ on May 2 and 3, 2018.

The Amtrak Sandpoint Station site was listed on the state UST database due to two USTs of unknown age that were closed in place in 1988. The tanks included one 500-gallon gasoline UST and one 200-gallon kerosene UST. The Amtrak Sandpoint Station site is not listed on the state Leaking UST database, and no documentation was found that indicates that a leak or spill occurred in association with this site.

The three general remediation database sites are associated with the Sandpoint Bypass west of the BNSF ROW. Arsenic, lead, and mercury contamination was found at a former blacksmith shop in 2006. Based on the No Further Action (NFA) letter from IDEQ, the majority of the contaminants have been removed from the site; and remaining concentrations are within normal background levels. A 2,300-gallon UST was discovered at the Lakeside Hotel site in 2007. The UST was a former boiler that had been used as a septic tank by the hotel.

Soils contaminated with polycyclic aromatic hydrocarbons (PAHs) and metals were excavated with the UST and removed from the site. Soil sampling conducted after the remediation activities indicated that only arsenic remained in soils above regulatory cleanup levels. However, IDEQ indicated that the arsenic concentrations were within normal background levels for the area, and issued an NFA letter for the site in 2008. Soil samples collected and analyzed in 2009 during the Sandpoint Byway construction (Sandpoint Byway site) had concentrations of VOCs, PAHs, and metals below the regulatory cleanup levels. The site was issued an NFA in 2011.

The Pend Oreille Bay Trail Zone 1 site is associated with the former Humbird lumber mill and consists of five properties: two private parcels, two City of Sandpoint parcels (WTPs), and the BNSF ROW. Phase I ESAs and Phase II ESAs were conducted for the private/City of Sandpoint properties. PAHs and metals were found in site soils exceeding regulatory cleanup levels. Petroleum VOCs were also found but at concentrations below cleanup levels.

Based on risk evaluations conducted for the four parcels, an acceptable risk is associated with the detected contaminant concentrations for nonresidential and construction worker receptors. Because these parcels are used for recreation (Pend Oreille Bay Trail) and as a WTP (both nonresidential uses), no further cleanup was conducted. No investigation has been conducted on the BNSF ROW parcel. Based on contaminants found on the other four parcels, PAHs, metals, and petroleum VOCs have the potential to be present at the BNSF site at concentrations above regulatory cleanup levels.

3.14.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no change would occur to the sites identified by IDEQ, with the exception of continued maintenance and repairs of the existing railroad tracks and bridges. These maintenance actions would require the use of construction equipment that contains petroleum products. LPO and Sand Creek are sensitive environmental receptors that could be impacted by spills associated with the use of petroleum products. As discussed in Section 3.3.2, BNSF would implement the LPO GRP to efficiently and safely respond, recovering the spill, and restoring damaged resources in the unforeseeable event of a spill.

BNSF would continue to follow bridge and track inspections and maintenance protocol. BNSF would continue to integrate the LPO GRP into staff and maintenance contractor hazardous material response training and planning. Accident risk is a function of ton-miles of freight moved and number of rail miles travelled.

The No Action Alternative would not increase the amount of freight moved or rail miles travelled and would, therefore, not increase the risk of accidents in the study area, although rail traffic in this corridor may be likely to increase as a result of population growth and the corresponding increase in the demand for freight and passenger transport. During a spill event within the existing corridor, BNSF would implement the LPO GRP, which provides a comprehensive approach to oil spill response for overwater structures in the region.

Proposed Action Alternative

The construction of the Proposed Action Alternative would require the use of construction equipment that contains petroleum products. BMPs for maintenance of construction equipment would be implemented to minimize the potential for the release of oil, fuel, or other contaminated materials into adjacent waters (Section 4.0).

The Proposed Action Alternative includes minimal clearing/grubbing activities and excavation to construct the new bridge abutments and the new grade for the second main line track (see Section 2.2). The potential for hazardous waste in the BNSF work corridor was identified as associated with the former Humbird lumber mill. Contamination from the lumber mill, if present, may be cleaned up faster to accommodate Project construction. The Project site is also a railroad corridor, with the potential to have shallow soil contamination associated with spills, leaks, creosote-treated railroad ties, and the use of herbicides. If contaminated soil is encountered during construction, the contaminated soil would be assessed, handled, stored, and disposed of in accordance with applicable state and federal regulations.

During the construction and maintenance of the Proposed Action Alternative, BNSF would continue to follow track and bridge inspections and maintenance protocol. BNSF would continue to implement the LPO GRP into staff and maintenance contractor hazardous material response training and planning. As indicated for the No Action Alternative, rail traffic in this corridor is likely to increase in response to market conditions and BNSF would use and follow the LPO GRP during a spill event.

The construction of the second main line track and associated bridges would not result in an increase in the amount of freight moved or the number of rail miles travelled but would result in more efficient and timely transport of freight and passenger rail traffic through this portion of the BNSF interstate main line, reducing the potential for conflicts associated with stopped or idling trains. In addition, some of the trains travelling through the study area would travel on new, modern, more reliable infrastructure requiring less maintenance. The Proposed Action Alternative would not increase the risk of spills within the study area.

3.15 Traffic

Local traffic includes surface vehicle traffic on state and local roadways and watercraft traffic that utilizes LPO and Sand Creek. The predominance of watercraft traffic is associated with recreation and people fishing, both primarily during the summer boating season from May 1 through October 15.

3.15.1 Affected Environment

The study area is generally isolated from surface vehicle traffic since it is located along the edge of the existing rail line. Local traffic is limited to BNSF maintenance workers and contractors. No local public access roads cross the tracks at grade within the Project limits. The existing tracks pass over Bridge Street in Sandpoint via BNSF Bridge 3.0. The regional rail network in the Project vicinity is further described in Sections 1.1 and 1.2.

3.15.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, future increases in rail traffic through Sandpoint are likely to occur. Although the existing corridor has physical capacity to move more trains, additional train volumes would increase congestion and delays throughout the corridor, including delays for at-grade crossings in the greater Sandpoint area. Delays in freight and Amtrak service could result in increases in truck and vehicle traffic on local, regional, and national roads and interstate highways. Deteriorating rail service may cause shippers with alternative options, such as consumer products containers, to convert to highway transportation by truck. One double-stack intermodal train carries the same cargo as 280 trucks that would be diverted to publicly funded highways, producing negative highway congestion, economic, and safety impacts.

Proposed Action Alternative

Detailed analysis in the Reasonable Needs of Navigation Analysis reports for both the LPO Bridge 3.9 and Sand Creek Bridge 3.1 (Jacobs 2018a and 2018d, **Appendix F**) specify design features incorporated to minimize impacts to vessel traffic under the Proposed Action Alternative. These features address navigation needs both during construction and after bridge completion. These measures are identified in Section 4.1.

It is anticipated that construction equipment and materials would be transported by truck, and potential impacts to local vehicle traffic could occur. The BNSF contractor would be required to develop a traffic control plan compliant with Idaho Transportation Department, Bonner County Road and Bridge, and Sandpoint Police Traffic Safety rules and requirements. The traffic control plan would propose transport of unique Project materials during non-peak use times (such as nighttime) on US 95 and other public roadways.

During construction of Bridge 3.0, temporary closures of Bridge Street may be required. If closures are required, the traffic control plan would include measures to minimize impacts to local homes and businesses that rely on Bridge Street as a primary access point. The traffic control plan would also identify emergency access routes, as needed. No permanent roadway closures are anticipated.

In the long term, train and truck circulation would benefit due to more rapid clearing of at-grade crossings and a more continuous flow of train traffic as a result of trains not having to wait at sidings for the single main line track constriction to clear. The Proposed Action Alternative would accommodate more freight traffic in this corridor without increased congestion and delays, which is expected to occur independent of this action as the population and use of freight rail increases.

3.16 Safety and Security

The Occupational Safety and Health Act (OSHA) was established to assure safe and healthful working conditions by providing workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. OSHA standards require that employers adopt certain practices, means, methods, or processes reasonably necessary and appropriate to protect covered workers on the job. In addition, even in situations where OSHA does not apply, the FRA has implemented safety regulations that apply to workers who work on railroad property (FRA 2010).

3.16.1 Affected Environment

BNSF is a leader in railroad safety and recognizes that a safe and secure railroad network is essential to our nation's future. U.S. railroads have some of the lowest injury and accident rates in the transportation industry. The accident rate is substantially lower than that for the trucking industry. BNSF's vision is to operate injury and accident-free; and every day BNSF works to make that vision a reality through safety programs, training, and technology.

BNSF has made a substantial investment in safety and technical training for employees. They utilize a combination of field training, on-the-job training, long-distance learning, and technical training at a centralized training center. Furthermore, contractors and consultants are required to undertake contractor safety orientation training and railroad safety training prior to being allowed on railroad property prior to completing any work.

Per BNSF requirements, workers that enter their ROW must implement applicable OSHA and/or FRA requirements and be certified as having undertaken railroad safety and security training per FRA safety and security requirements.

3.16.2 Environmental Consequences

No Action Alternative

As stated in Section 1.2, the current single main line track configuration of this section of the BNSF main line is causing freight and passenger rail traffic congestion throughout the region. Leaving the track configuration as it is, and conducting maintenance as needed, would not provide a reduction in rail traffic congestion or reduce hold times on regional sidings and wait times at grade crossings. Increased potential conflicts could arise with emergency services or first responders in the Project vicinity due to more frequently blocked public at-grade road crossings with the No Action Alternative. Contracted work activities associated with maintenance of the existing bridge would be covered under OSHA and/or FRA requirements.

Proposed Action Alternative

The Proposed Action Alternative would be designed to meet current design and rail traffic operations requirements and would increase safety and security of rail operations to help prevent possible future impacts to life or human health. Work activities associated with construction of the second main line track and new bridges would be covered under OSHA and/or FRA requirements. Implementation of the Proposed Action Alternative would result in multiple safety benefits for maintenance workers, train occupants, emergency response providers, and local drivers associated with reduced train and vehicle congestion and wait times at grade crossings.

3.17 Cumulative Impacts

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor actions that can collectively become a measurable impact when taking place over a period of time.

The area around LPO and Sandpoint began to experience development in the 1880s as the Northern Pacific Railroad began construction on a rail line connecting the settlement that would become Sandpoint to Montana (City of Sandpoint 2018). Northern Pacific built the original railroad bridge across LPO in 1882. Timber along with some mineral extraction was the main industry in the area until the 1920s. As timber was cut, farming developed on cleared forest land, mainly supplying hay for livestock feed (City of Sandpoint 2018). The Farragut Naval Training Station was established in the 1940s at the southern end of LPO in Bayview, ID, bringing 300,000 servicemen to the area (City of Sandpoint 2018).

Albeni Falls Dam, on the Pend Oreille River at the Idaho/Washington border, was completed by the USACE in 1955 to generate hydroelectricity and control flooding. It permanently altered the area by maintaining a constant lake level, which, in turn, increased recreational boating opportunities (USACE 2018). The Noxon Rapids and Cabinet Gorge hydroelectric dams, upstream of LPO on the Clark Fork River near the Idaho/Montana border, were completed by the Washington Water Power Company (now Avista Corporation) in 1959 and 1952, respectively. The Schweitzer Basin ski area opened in 1963 and brought more tourism to the area (City of Sandpoint 2018).

Today, several small towns surround LPO connected by a network of roads and bridges including BNSF Bridges 3.0, 3.1 and 3.9 and the US 95 “Long Bridge.” Residential development and waterfront lodging surrounds the northern shores of the lake with many marinas and boat launches supporting the primarily recreational boating activity. Although the US Navy still maintains an acoustical research detachment at Bayview, most of the Farragut Naval Training Station has been turned into a state park. U.S. Highway 2, State Highway 200, and US 95 are major highways in the area.

According to the U.S. Census Bureau (n.d.), Bonner County and the City of Sandpoint experienced a population growth of 6.6 percent and 12.5 percent, respectively, between April 2010 and July 2017. It is reasonable to assume the region will continue with a similar growth pattern over the next decade.

There are a few reasonably foreseeable future actions (RFFAs) that are anticipated to occur in the Sandpoint and LPO area. The Idaho Transportation Department and Bonner County do not have any permitted or funded projects beyond routine maintenance activities scheduled for the area. Relevant RFFAs are listed below.

- City of Sandpoint:
 - North Ella Avenue Improvements (summer 2018):
 - Work involves asphalt removal and replacement, improved stormwater management, ADA ramp installation at intersections, and tree and shrub trimming as needed to improve the line of sight along North Ella Avenue, from Chestnut Street south to Pine Street.

- Oak Street Bike Path, Sidewalk, and Utilities (summer 2018)
 - o Add new sidewalks along Oak Street between 5th Avenue and Boyer wherever existing sidewalks do not meet current standards.
 - o Add bike paths along both sides of Oak Street from Boyer to the Community Trail.
 - o Includes new curbs, driveways, and utilities, and refreshed striping and signage in conjunction with other work.
- Downtown Revitalization
 - o Replaces and adds new sidewalks, landscaping, irrigation, benches, stormwater features, bike racks, lighting, roadway, striping, signage, and other features along Cedar Street between 2nd Avenue and 5th Avenue (summer 2018).
 - o Similar improvements along 1st Avenue (2019)
- Sewer main and associated laterals replacement Along First Avenue, north of Church (Fall 2018)
- USACE Albeni Falls Dam Fish Passage Project (Pend Oreille River):
 - Would allow bull trout that currently migrate downstream of Albeni Falls Dam to get back upstream to access LPO FMO habitat
 - Would increase number of bull trout migrating from the Pend Oreille River to LPO and restore connectivity in the LPO bull trout core recovery area.
 - Earliest construction anticipated in 2022
- Pend Oreille County Public Utility District Box Canyon Fish Passage Project (Pend Oreille River):
 - Would facilitate upstream passage of fish greater than 4 inches (Albeni Falls is the next upstream dam).
 - Ongoing construction to be complete in July, 2018.
- Avista Cabinet Gorge Dam Fish Passage Facility (Clark Fork River):
 - Would construct a new facility to transport native migratory salmonids, with a focus on upstream transport of bull trout to tributaries in Montana to restore connectivity in the LPO bull trout core recovery area.
 - Construction to begin in fall 2018.
- IDFG/Avista ongoing LPO lake trout suppression efforts:
 - Uses gillnets to capture both adult and juvenile lake trout, a non-native competitor species to bull trout.

Although speculative actions are not considered under NEPA, in addition to the RFFAs listed above, it is logical to assume that rail traffic may increase at some point in the future as the population continues to grow and demand for the movement of goods on land, on water and by air continues to grow. However, there are no proposed freight origin or destination facilities related to the Project or anticipated to be initiated due to this Project.

3.17.1 Environmental Consequences

No Action Alternative

The No Action Alternative would have no measurable direct or indirect effects with respect to the following resources:

- Geology, Soils, and Topography
- Wetlands
- Floodplains
- Archaeological and Historic Resources

Ongoing maintenance and operation of the existing rail infrastructure, and continued locomotive emissions during long periods of idling and related powering up to resume travel, would contribute toward a cumulative decline in ambient air quality in the area. However, given the trend of air quality improvement following the implementation of IDEO's 2011 Limited Maintenance Plan, which addressed residential wood combustion, fugitive road dust, and industrial emissions, and the general improvements in efficiency of newer locomotive engines, these contributions to air quality would not be consequential.

No change in the frequency or intensity of railroad maintenance activities would be anticipated; Therefore, no change in contribution to cumulative impacts would be expected from the baseline condition and any impacts to the following resources would not be significant.

- Water Resources and Water Quality
- Vegetation
- Fish and Wildlife
- ESA-Listed Species and Critical Habitat
- Hazardous Materials and Wastes
- Land Use, Navigation, and Recreation

The existing bridge has physical capacity to move more trains, but with additional train volumes, congestion and delays would increase, thereby negatively impacting North Idaho communities and communities throughout the BNSF network. Deteriorating rail service may cause shippers to use alternative options, such as intermodal container transport of consumer products, to convert to highway transportation by truck.

One double-stack, intermodal train carries the same amount of freight as 280 semitrucks that would be diverted onto publicly funded highways, producing negative highway congestion, economic, and safety impacts. However, given the limited number and type of RFFAs identified, and the minor direct and indirect contributions of this no-action alternative, cumulative increases to noise, traffic, and safety and security would be minor.

Proposed Action Alternative

There would be no direct or indirect effects to land use; therefore, there would be no contribution to cumulative effects under the Proposed Action Alternative.

While the temporary negative effects of the Proposed Action Alternative with respect to air quality, noise, traffic, and safety and security may overlap and combine with effects to those resources from other RFFAs, potential contributions from the Proposed Action Alternative would be minor and the related RFFAs are relatively small actions. Cumulative negative effects to these resources would not be consequential and would be temporary during construction. However, the long-term effects of the Proposed Action Alternative to these resources would be beneficial as a result of reduced delays at regional and local, at-grade railroad crossings.

The direct and indirect effects of the Proposed Action Alternative to geology and soils, water resources and water quality, floodplains, vegetation, archaeological and historic resources, visual quality, and hazardous materials and wastes are minor and would be of a very limited geographic scale and magnitude. When considered with the other small and scattered RFFAs, and conditions imposed by the Section 401 WQC, they would not contribute to cumulative impacts.

The direct and indirect effects to wetlands would be relatively small at 0.28 acres. The disturbance to this wetland acreage would comply with the CWA through purchase of mitigation bank credits from the Valencia Wetland Mitigation Bank/Valencia Wetlands Trust. The direct and indirect effects to fish and wildlife and ESA-listed species and critical habitat would be largely short-term and the Project would adhere to USFWS stipulations and permit conditions resulting from Section 7 ESA formal consultation and Biological Opinion.

Residual impacts to bull trout as an ESA-listed species would be minor as part of a short-term adverse effect and would not contribute toward significant cumulative impacts when considered with the other RFFAs, particularly given that four RFFAs are projects specifically designed to benefit bull trout. The direct and indirect effects to navigation and recreation under the Proposed Action Alternative would be minor and the identified RFFAs are relatively small widely dispersed actions. Therefore, there would be no measurable contribution towards cumulative impacts to navigation or recreation under the Proposed Action Alternative.

3.18 Irreversible and Irrecoverable Commitment of Resources

Irrecoverable material resources used would include steel, concrete, gravel, and other construction materials. Such materials are not presently in short supply and would not be expected to limit other unrelated construction activities. Energy resources including natural gas, petroleum-based products (e.g., gasoline, diesel, lubricants), and electricity would be irretrievably lost. Gasoline, diesel, and lubricants would be used for the operation of construction vehicles. Consumption of these energy resources would not substantially increase demand on their availability in the region. The use of human resources for construction is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of temporary construction workers for the Proposed Action would represent employment opportunities, and is considered beneficial.

3.19 Comparative Analysis of the No Action Alternative and the Proposed Action Alternative

The following section compares the potential environmental effects of the No Action Alternative and the Proposed Action Alternative. The purpose of this section is to allow a quick comparison of the differences in potential effects of the two alternatives. **Table 10** summarizes the potential direct, indirect and cumulative environmental effects of each alternative as detailed in Section 3.0 by resource area.

Two resource areas analyzed in Section 3.0 are not included in the table: Environmental Justice and Prime and Unique Farmlands. There would be no difference in potential effects in these two resource areas between the two alternatives. Neither alternative would have any effect in either resource area so there is no distinction between the two alternatives with respect to these resource areas. Any potential effects in all other resource areas would not be significant and would be mitigated based on federal and applicable state and local standards. Neither alternative would contribute significantly to cumulative impacts.

Table 10: Comparison of Potential Environmental Effects of Alternatives

Resource Area	No Action Alternative	Proposed Action Alternative
Air Quality	<ul style="list-style-type: none"> • Temporary localized increases in some criteria pollutants would result from ongoing maintenance and operation of the existing infrastructure. • Continued locomotive emissions during long periods of idling and related powering up to resume travel. 	<ul style="list-style-type: none"> • Temporary localized increases in some criteria pollutants would result from construction, maintenance, and operation of the new and existing infrastructure. • Locomotive emissions associated with periods of idling and related powering up to resume travel would be reduced or eliminated resulting in improved air quality.
Geology, Soils, and Topography	<ul style="list-style-type: none"> • No effect. 	<ul style="list-style-type: none"> • Removal of portions of small bedrock outcrops. • Excavation of approximately 100 yd³ of upland soils. • Temporary displacement of approximately 2,000 ft² of submerged substrate for temporary piling.
Water Resources and Water Quality	<ul style="list-style-type: none"> • No change to current level of risk of spills related to maintenance and operation of existing infrastructure. 	<ul style="list-style-type: none"> • Temporary construction-related sedimentation and risk of petroleum and/or concrete spills. • Slightly increased long-term risk of construction-related spills from additional maintenance of new infrastructure.
Wetlands	<ul style="list-style-type: none"> • No effect. 	<ul style="list-style-type: none"> • 0.28 acre of wetland fill.
Floodplains	<ul style="list-style-type: none"> • No effect. 	<ul style="list-style-type: none"> • 1,500 yd³ of permanent fill in the 100-year floodplain. • 800 yd³ of temporary fill in the 100-year floodplain. • 920 steel piles permanently placed in Sand Creek and LPO.
Vegetation	<ul style="list-style-type: none"> • Minor maintenance removal of some trees as necessary to protect existing infrastructure. 	<ul style="list-style-type: none"> • Removal of approximately 2 acres of upland trees, shrubs, and grasses. • Minor risk of transport of upland and/or aquatic invasive species during construction.

Table 10: Comparison of Potential Environmental Effects of Alternatives (continued)

Resource Area	No Action Alternative	Proposed Action Alternative
Fish and Wildlife	<ul style="list-style-type: none"> • Minor effects associated with continued maintenance and operation of existing infrastructure. 	<ul style="list-style-type: none"> • Temporary avoidance of the study area by birds and mammals during construction. • Temporary avoidance of in-water pile driving activity by fish during construction. • Potential injury and/or mortality of some fish during pile driving even with the implementation of BMPs.
Endangered Species Act Listed Species and Critical Habitat	<ul style="list-style-type: none"> • Minor short-term effects related to maintenance activities. 	<ul style="list-style-type: none"> • Temporary effects to bull trout due to in-water pile driving noise during construction. • Long-term potential for increased predation of bull trout related to hiding habitat associated with new in-water structures. • Likely to adversely affect bull trout⁽¹⁾ • Not likely to adversely affect bull trout critical habitat⁽¹⁾.
Archaeological and Historic Resources	<ul style="list-style-type: none"> • No effect. 	<ul style="list-style-type: none"> • No effect on archaeological resources. • Temporary indirect visual effect on historic structures during construction.
Noise	<ul style="list-style-type: none"> • Minor increases in truck traffic noise due to anticipated reduction in rail transport resulting from continued and increased rail delays. 	<ul style="list-style-type: none"> • Temporary increases in daytime noise levels during construction. • Long-term reduction in rail and roadway traffic noise due to reduced delays at at-grade crossings.
Hazardous Materials and Wastes	<ul style="list-style-type: none"> • Minor risk of petroleum spills during routine maintenance of existing infrastructure. 	<ul style="list-style-type: none"> • Minor risk of petroleum and/or concrete spills during construction. • Possible expedited remediation of potential former Humbird Lumber Mill contamination or other contamination related to historic spills or leaks, creosote-treated railroad ties, or herbicide use within BNSF ROW.
Traffic	<ul style="list-style-type: none"> • Continued and increased delays for rail and roadway traffic. • Increased truck and passenger vehicle traffic on roadways resulting from anticipated decreases in freight and passenger rail demand due to continued and increased rail delays. 	<ul style="list-style-type: none"> • Temporary increased truck traffic during construction. • Potential temporary closures of Bridge Street during construction. • Reduced delays at at-grade crossings.

Table 10: Comparison of Potential Environmental Effects of Alternatives (continued)

Resource Area	No Action Alternative	Proposed Action Alternative
Safety and Security	<ul style="list-style-type: none"> Continued and increased emergency service response times due to delays at at-grade rail crossings. 	<ul style="list-style-type: none"> Reduced emergency service response times associated with reduced delays at at-grade rail crossings.
Land Use, Navigation, and Recreation	<ul style="list-style-type: none"> No effect 	<ul style="list-style-type: none"> No change in land use Temporary placement of 250 feet of work bridge and a few square feet of temporary fill outside BNSF ROW Minor temporary and permanent changes to horizontal and vertical bridge clearances not introducing new navigational limitations Addition of new signage and navigational lighting at new and existing bridges. Minor temporary visual aesthetic and noise effects on recreational users of the multiuse Serenity Lee Trail and Sandpoint Beach Park and adjacent marina.

Notes:

- BMPs= best management practice
- BNSF = BNSF Railway Company
- cy³ = cubic yards
- ft² = square feet
- LPO = Lake Pend Oreille
- ROW = right-of-way

⁽¹⁾Proposed Endangered Species Act effect determinations; subject to U.S. Fish and Wildlife Service concurrence.

3.20 Statement of Environmental Significance of Proposed Action Alternative

As discussed in detail throughout Section 3.0 and summarized in Section 3.17, the potential environmental effects of implementing either the No Action or the Proposed Action Alternative would not result in any significant direct, indirect or cumulative environmental impacts. Therefore, preparation of an EIS is not warranted and preparation of a Finding of No Significant Impact would be appropriate.

4.0 MITIGATION

4.1 Avoidance and Minimization

Water Resources and Water Quality/Wetlands/Fish and Wildlife/Threatened and Endangered Species

As summarized in the Alternatives Analysis (Jacobs 2018d) completed for the Project to comply with Section 404 of the CWA, the design of the new bridges over LPO and Sand Creek were modified to reduce the area of temporary and permanent nearshore fill by over 2 acres.

The following minimization measures have also been established for this Project to further avoid or minimize potential impacts to water resources, water quality, and fish and wildlife, including threatened and endangered species:

- Protection of Existing Vegetation: Specific limits of activities and disturbance areas would be clearly marked with hi-visibility construction fence for reference by construction work crews and machinery operators.
- All in-water work would comply with the approved permit conditions for LPO and Sand Creek.
- Temporary in-water steel piles would be installed to refusal with a vibratory driver.
- Air bubble curtains would be used to attenuate sound, and turbidity curtains would be utilized to contain and settle sediments, when impact driving the 36-inch-diameter piles at Bridge 3.9.
- Dispersal strikes would be utilized when an impact hammer is used to install permanent in-water piles to minimize the potential for fish to be in the vicinity when production pile driving occurs.
- A Temporary Erosion and Sediment Control Plan and BMPs would be installed to reduce erosion from exposed soils and maintained throughout the Project construction to ensure effectiveness.
- The contractor would install and maintain BMPs to keep construction debris from entering waters of the United States.
- An SWPPP would be implemented as part of the NPDES Permit.
- A Water Quality Monitoring and Protection Plan (WQMPP) would be implemented as part of the 401 WQC.
- To help prevent the spread of invasive species, equipment would be cleaned to the greatest extent practical prior to arriving to and immediately after leaving the Project site. Cleaning includes scraping/sweeping off any debris or soil and pressure washing at an off-site location before transportation to the work site to minimize impacts to fish and wildlife. Work boats or barges would procure annual invasive species stickers that certify watercraft would comply with the IDFG/ISDA inspection policies for invasive species prior to deployment into LPO. Cleaning shall be adequate enough to remove all life stages of aquatic invasive species.

- A navigation plan addressing lighting and other required navigation markings or aids for both the Bridge 3.1 over Sand Creek and the Bridge 3.9 over LPO temporary work and new bridges would be developed and approved by IDL in accordance with Rule 015.13.g of Idaho Administrative Code 20.03.04 and as required by the USCG Title 33, Section 118 CFR and in accordance to the IDL-issued encroachment permit No. L-96-S-0096E (**Appendix E**).
- A migratory bird nesting survey would be conducted at the beginning of the season, within the study area, prior to ground-disturbing activities. If a nest is identified, a plan for impact minimization would be established with the necessary agencies.
- Turbidity curtains would be used to contain and settle sediments when removing the 24-inch piles at the Bridge 3.9 temporary work bridge.

Floodplains

Local floodplain development permits would be acquired to comply with FEMA National Flood Insurance Program standards. Applications for these permits would include statements and a supporting hydraulic analysis anticipated to show that the Project meets the intent of a “no-rise” in 100-year BFE. BNSF is working with FEMA and local agencies (City of Sandpoint and Bonner County) to document compliance with FEMA permitting requirements.

Archaeological and Historic Resources

A Project-specific IDP would be prepared prior to construction that identifies the appropriate parties to be contacted and protocols to follow in the event that cultural materials are exposed during construction.

Visual Quality

Avoidance and minimization measures related to visual quality include:

- Fugitive light from light sources used for construction would be minimized and directed toward the work zone. Where feasible, construction would be limited to daylight hours.
- Materials for permanent structures would be non-reflective and colored to blend with the surroundings where practicable.
- The color theme may be carried forward on horizontal rail bridge beams to match the color of the beam across Bridge Street that supports US 95.
- Where feasible, trees may be planted to offset the removal of trees within Project limits.

Noise

Construction activity would occur during daylight hours, equipment would be muffled, and impact driving would be limited to regular work hours from 7 a.m. to 7 p.m.

Hazardous Materials

Avoidance and minimization measures related to the management of hazardous materials include:

- A SPCC plan would be implemented to ensure that pollutants and products would be controlled and contained.
- All equipment would be cleaned of accumulated grease, oil, or mud and inspected daily to check for leaks or problems at an off-site location before transportation to the work site.
- Equipment and machinery used in or over water shall be pressure washed or steam cleaned of oils, and grease in an upland location or staging area with appropriate wastewater controls and treatment prior to entering on or over water of the state (LPO or Sand Creek). Any wastewater or wash water must not be allowed to enter a water of the state.
- Fully stocked petroleum containment spill kits would be at power equipment work sites and construction staging areas during construction.
- Containment would be under equipment that contains fuels or other hazardous materials on the temporary bridge work or within 100 feet of the creek/lake.
- Fuel containers would not be stored on the temporary work bridge. Fueling and maintenance work would occur with secondary containment when on the temporary work bridge. Fuel and hazardous material storage and staging would occur 50 feet away from waters of the US.
- Fully stocked spill kits would be kept on site during construction. Spill containment systems must be adequate to contain fuel leaks.
- Fuel containers or other hazardous materials would not be stored unsecured at the Project site during non-work hours.
- If contaminated soil is encountered during construction, the contaminated soil would be assessed, handled, stored, and disposed of in accordance with applicable state and federal regulations.

Traffic

The Project would be designed to incorporate the following features to minimize impacts to vessel traffic, as identified in the Reasonable Needs of Navigation Analysis for BNSF Bridge 3.1 and BNSF Bridge 3.9 (**Appendix F**):

- Construction timing of the new bridge over Sand Creek would be limited to periods of minimal to no navigation upstream of existing BNSF Bridge 3.1.
- Design of the new bridge over Sand Creek would have a higher vertical clearance and wider horizontal clearance than the existing bridge and upstream bridges.
- Proposed BNSF Bridge 3.9 would provide the same vertical clearance as the US 95 bridges to ensure that the rail bridge is not the controlling structure for navigation on LPO and the Pend Oreille River.

- Construction of new bridges and existing bridges would include signage and navigational lighting to provide boaters with clear information on navigational obstructions or limitations throughout construction and after the new rail bridges are in service.
- Notification to mariners would be provided through the USCG Notice to Mariners, signage at marinas and public boat launch facilities, state and local waterways agencies, local newspapers, and publications.

To minimize impacts to vehicular traffic, the BNSF construction contractor would develop a traffic control plan compliant with Idaho Transportation Department, Bonner County Road and Bridge, and Sandpoint Police Traffic Safety rules and requirements. Break-in access may require access permits from ITD and/or road use permits from Bonner County and the City of Sandpoint may be required and would be acquired prior to use.

4.2 Compensatory Mitigation

Water Resources and Water Quality/Wetlands

Mitigation for the wetland fill associated with the Proposed Action Alternative is intended to be satisfied via an agency-approved mitigation bank, the Valencia Wetland Mitigation Bank/Valencia Wetlands Trust (bank) located in Priest River, Idaho. The bank is governed by an inter-agency review team (IRT) consisting of the USACE, EPA, IDFG, and IDEQ. The EPA and USACE issued regulations in 2008 establishing a preference for the use of banks to offset wetland impacts when appropriate bank credits are available (EPA 2017).

As previously mentioned, the Project would result in a total of 0.28-acre of permanent wetland fill. The bank requires applicants to use the Montana Wetland Function Assessment Method (Burgland 2008) that evaluates 12 specific functions and values of the impacted wetland for water quality, hydrology, and habitat and determines functional units and a rating category. Once the functional units are calculated, the bank uses a 1:1 credit ratio for projects within their primary service area in Bonner County, whereby 1 functional unit is equivalent to 1 mitigation bank credit. The functional unit score for the 0.28-acre wetland impact is calculated to be 3.64 credits (Jacobs 2018b) that would be purchased 1:1 at the bank for compensatory wetland mitigation. The bank currently has approximately 1,000 credits available for purchase (Valencia Wetlands Trust 2017).

Proposed mitigation for 0.88-acre of nearshore fills would be satisfied via LPO and Sand Creek stakeholders through a consensus-based process, including but not limited to the USFWS, IDFG, and other participating NGOs. Ongoing stakeholder meetings and communications are focused on identifying current watershed projects that are underway and/or planned in the near future that are suitable and appropriate to mitigate impacts to affected nearshore areas and to threatened bull trout, and would provide the most benefit to the affected aquatic resources.

5.0 COORDINATION AND LIST OF PREPARERS

5.1 Agency and Tribal Consultation

USFWS

The USFWS is being formally consulted for potential impacts to listed species (bull trout) that are documented to occur in the action area under Section 7 of the ESA. A BA is being prepared and would be submitted to the USFWS by the USCG to initiate consultation. Consultation would be ongoing through the EA process. The USFWS must issue a Biological Opinion for the Project prior to completion of the NEPA process.

Idaho SHPO

The USCG initiated Section 106 consultation with the Idaho SHPO on January 25, 2018 via transmittal of the Cultural Resources Technical Report for the Proposed Action Alternative. SHPO requested additional information regarding impacts to the non-water crossing bridge (Bridge 3.0 over Bridge Street) on March 10, 2018. Additional information was returned to the SHPO via the USCG on June 18, 2018. SHPO provided concurrence with the findings of the Cultural Resources Technical Report on August 8, 2018 (**Appendix I**).

Native American Tribes

The USCG initiated government-to-government Section 106 consultation with Native American Tribes on January 25, 2018. The Cultural Resources Technical Report for the Proposed Action Alternative was transmitted to the Kootenai Tribe of Idaho, the Coeur d' Alene Tribe, the Kalispel Tribe of Indians, and the Spokane Tribe of Indians. Consultation with the Tribes would be ongoing through the EA process. The Kootenai Tribe provided a letter to the USCG on February 20, 2018 accepting the offer to initiate government-to-government consultation for the Proposed Action Alternative. Tribal consultation would be ongoing through the EA process.

5.2 Permits and Approvals

Federal

Due to the need to conduct in-water and overwater work across navigable waters, the Project requires Bridge Permits from the USCG under Section 9 of the Rivers and Harbors Act and an Individual Permit from the USACE under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act. Applications for federal permits were submitted to these agencies on December 27, 2017.

The Project requires federal permits and would therefore require WQC from IDEQ (as the federal representative of EPA) to ensure compliance with Section 401 of the CWA. Since Project construction would disturb more than one acre, an NPDES permit would also be required from IDEQ (as the federal representative of EPA) under Section 402 of the CWA. BNSF submitted application for the WQC to IDEQ on December 27, 2017. The NPDES permit would be obtained prior to construction.

State and Local

The Project requires an Encroachment Permit from the IDL under the Idaho Lake Protection Act. BNSF submitted application for the Encroachment Permit on February 22, 2018. IDL held two public hearings on May 23, 2018 as part of the Joint Application process with the USACE and IDEQ for administration of the IDL Encroachment Permit, USACE Section 404/Section 10 permit, and IDEQ Section 401 Water Quality Certification.

The purpose of the hearings was for the IDL Hearing Examiner to gather testimony regarding the proposed action for the record. BNSF conducted a presentation summarizing the proposed action and public testimony was taken, in addition to solicitation for written public comment. The Director of IDL issued a Final Order approving the application with no conditions on June 21, 2018 (**Appendix E**). In addition, the contractor would work with Idaho Department of Transportation, Bonner County and the City of Sandpoint, where necessary to obtain road and ROW use permits.

BNSF will obtain local floodplain development permits from the City of Sandpoint and Bonner County to comply with FEMA requirements, including preparation of a hydraulic analysis to document that the Project has no net rise in 100-year BFE.

Under the ICC Termination Act (ICCTA), 49 U.S.C. § 10501(b), the federal Surface Transportation Board has exclusive jurisdiction over railroad operations and facilities. Although state and local agencies do not have jurisdiction to compel railroads to submit to state or local permitting requirements as a condition of improving the railroads' interstate facilities, BNSF and other railroads can and often do voluntarily agree to comply with reasonable state and local environmental requirements in connection with railroad construction projects. This voluntary cooperation in no way is meant to confer jurisdiction on the state or local regulator but instead is a by-product of BNSF's commitment to partnership with the community.

Preliminary
Agency Review

5.3 Agency Coordination

A summary of agencies and persons contacted during preparation of the EA are identified in **Table 11**.

Table 11: Agencies and Persons Contacted

Agency	Individual	Date Contacted
USACE	Shane Slate, Regulatory Project Manager	February 2017 and ongoing
USCG	Steven Fisher, Bridge Program Chief, D-13	February 2017 and ongoing
USCG	John Greene, Environmental Policy Analyst	February 2017 to April 2018
USCG	Shelly Sugarman, Bridge Permit Headquarters, Bridge Permits and Policy Division Chief	April 2018 and ongoing
USCG	Brian Dunn, Chief, Office of Bridge Programs	May 2018 and ongoing
USCG	James Moore, Bridge Management Specialist	May 2018 and ongoing
USFWS	Marshall Williams, Biologist	August 2017 and ongoing
IDEQ	June Bergquist, 401 Water Quality Specialist	February 2017 and ongoing
IDL	Amidy Fuson, Resource Specialist Sr.	February 2017 and ongoing
IDL	Jim Brady, Resource Supervisor	February 2017 and ongoing
Idaho SHPO	Matthew Halitsky, Historic Preservation Review Officer	July 2018 and ongoing
Idaho Department of Water Resources	Maureen O'Shea, State National Flood Insurance Program Coordinator	July 2018 and ongoing
Bonner County	Jason Johnson, Planner	July 2018 and ongoing
City of Sandpoint	Don Carter, Inspector	July 2018 and ongoing
City of Sandpoint	Ryan Shea, Assistant Planner	July 2018 and ongoing

Notes:

IDEQ = Idaho Department of Environmental Quality
 IDL = Idaho Department of Lands
 SHPO = State Historic Preservation Office
 USACE = U.S. Army Corps of Engineers
 USCG = U.S. Coast Guard
 USFWS = U.S. Fish and Wildlife Service

5.4 List of Preparers

Individuals that contributed to preparation of the EA are identified in **Table 12**.

Table 12: List of Environmental Assessment Preparers

Firm	Individual	Contribution
Jacobs	Pierre Bordenave, Director – Environmental Rail	PM, EA Author
Jacobs	Jason Smith, NW Manager of Environmental Solutions	PIC, QA/QC
Jacobs	Diane Williams, Environmental Planner	QA/QC
Jacobs	Maggie Buckley, Senior Environmental Planner	EA Author
Jacobs	Railin Santiago, Environmental Planner	EA Author
Jacobs	Sue PaDelford, Senior Biologist	PM, EA Author
Jacobs	Craig Broadhead, Senior Biologist	EA Author
Jacobs	Bill Bumback, Senior Environmental Planner	EA Author
Jacobs	Sandra Salisbury, Senior Landscape Architect	EA Author
Jacobs	Jennifer Cyr, Technical Editor	QA/QC
Jacobs	Linda St. John, Technical Editor	QA/QC
Jacobs	Ian David Crickmore, GIS	GIS/Map Exhibits
BNSF	Matt Keim, Manager Engineering	Project Description
BNSF	Kris Swanson, Manager Construction Permitting	Project Description
BNSF	Courtney Wallace, Regional Director Public Affairs	Information/Statistics
BNSF	Dava Kaitala, JD, General Director, Construction Permitting	QA/QC
Hanson Professional Services, Inc.	Mat Fletcher, PE	Permit Drawings

Notes:
 BNSF = BSNF Railway Company
 EA = Environmental Assessment
 GIS = geographic information system
 Jacobs = Jacobs Engineering Group Inc.
 PIC = principal in charge
 PM = project manager
 QA/QC = quality assurance/quality control

6.0 REFERENCES

BNSF Railway Company (BNSF). 2011. "Rules and Other Governing Provisions, Item 100, Coal Dust Mitigation Requirements." September 19. BNSF 6041-B.

<http://www.swcleanair.org/docs/coaltrains/BNSF%20Coal%20Tariff%20-20%20Coal%20Dust%20Mitigation%20Requirements.pdf>.

Bonner County. Bonner County, Idaho land use map. n.d.

<https://www.bonnercountyid.gov/county-maps>. Accessed October 12, 2017.

Burglund, J., and R. McEldowney. 2008. *Montana Department of Transportation, Montana Wetland Assessment Method*. Prepared for the Montana Department of Transportation by Post, Buckley, Schuh & Jernigan. Helena, MT. March.

City of Sandpoint. Consumer Confidence Reports dated from 2005 to 2017.

<http://www.sandpointidaho.gov/your-government/departments/public-works-building/water/consumer-confidence>. Accessed June 22, 2018.

———. n.d. Image of 1908 smelter. <http://www.sandpointidaho.gov/your-government/history#ad-image-3>. Accessed June 26, 2018.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1 (on-line edition). U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. Final Report. January.

Federal Emergency Management Act (FEMA). 2015. National Preparedness Goal Information Sheet, Second Edition: Overview.

https://www.fema.gov/media-library-data/1443624338930-32e9ed3ac6cf8e95d7d463ed9b9685df/NationalPreparednessGoalInformationSheet_2015.pdf.

Federal Highway Administration (FHWA), U.S. Department of Transportation. 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Publication No. FHWA-HEP-15-029. January.

Federal Railroad Administration (FRA). 2010. *Roadway Worker Protection* (49 CFR Part 214, subparts A and C). www.railroaeducation.com. Accessed May 6, 2018.

Idaho Department of Environmental Quality (IDEQ). 2014.

<https://mapcase.deq.idaho.gov/wq2014/>. Accessed July 26, 2018.

———. 2017. *Idaho's 2014 Integrated Report*. Prepared by Cara Hastings and Jason Williams, IDEQ. February.

———. 2018a. *Draft Section 401 Water Quality Certification*. April 4.

———. 2018b. *Rathdrum Prairie Aquifer Boundary*. <http://www.deq.idaho.gov/regional-offices-issues/coeur-dalene/rathdrum-prairie-aquifer/boundary>. Accessed June 22, 2018.

- Idaho Department of Fish and Game (IDFG). 2017. Fish species data.
<https://idfg.idaho.gov/species/request-data>. Accessed August 23, 2017.
- . Bonner County Observation Lists. n.d. <https://idfg.idaho.gov/species/taxa/list/county/bonner?page=4>. Accessed May 6, 2018.
- Idaho Department of Lands (IDL). 2003. *Hellroaring Creek Cumulative Watershed Effects Assessment*.
- . 2017. Email communication regarding designation of Sand Creek vs. Lake Pend Oreille. From A. Fuson, Senior Resource Specialist-Navigable Waters, Pend Oreille Supervisory Office. To Diane Williams, Environmental Planner, Jacobs. October 24.
- Idaho Department of Water Resources (IDWR). 2018. Wellhead protection areas in the Project vicinity. <https://idwr.idaho.gov/Apps/appsWell/WCInfoSearchExternal/>.
- Idaho State Department of Agriculture (ISDA). 2014. *Idaho Invasive Species Watercraft Inspection Program 5 Year Review 2009-2013*. January 15.
<http://www.idaholandcan.org/article/Idaho-Invasive-Species-Watercraft-Inspection-Program-5-Year-Review-20092013/2041>. Accessed January 17, 2018.
- Idaho Transportation Department. 2005. Hourly Traffic Volume Report by Direction – Station # 308; Route: US-95. September.
http://apps.itd.idaho.gov/apps/roadwaydata/308SandpointNorthLeg/2005/05-09Sep/L308_SandpointNleg_Sep05_HourlyTrafficVolumeReportByDirection.pdf
- Jacobs Engineering Group Inc. (Jacobs). 2017. Telephone conversation regarding bull trout in the study area between Diane Williams, Environmental Planner, and K. Siitari, Environmental Staff Biologist, Idaho Department of Fish and Game. September 3.
- . 2018a. *Reasonable Needs of Navigation Analysis for Bridge 3.9, Sandpoint Junction Connector Project*. January.
- . 2018b. *Wetlands and Waters of the U.S. Delineation Report, BNSF Railway Sandpoint Junction Connector*. January 17.
- . 2018c. *Alternatives Analysis, Sandpoint Junction Connector Project*. Updated January 22.
- . 2018d. *Reasonable Needs of Navigation Analysis for Bridge 3.1, Sandpoint Junction Connector Project*. Updated January 23.
- . 2018e. *Biological Assessment (BA), BNSF Railway Sandpoint Junction Connector*. February 19.
- . 2018f. Personal communication regarding drinking water sources between Sue PaDelford, Senior Biologist, and Jeff Crowley, Water Treatment Plant Superintendent, City of Sandpoint Water Department. June 26.
- . 2018g. *Cultural Resources Inventory for the BNSF Sandpoint Junction Connector Project, Bonner County, Idaho*. Revised August.

Lake CDA Investments, LLC v. Idaho Department of Lands, 149 Idaho 274, 282, 233 P.3d 721, 279 (2010; quoting Coulsen V. Aberdeen-Springfield Canal Co., 47 Idaho 619, 626-27,277 P. 542, 544-45 [1929]).

MacInnis, J. D., Jr., Lackaff, B. B., Boese, R. M., Stevens, G., King, S., and Lindsay, R. C. (MacInnis et al.). 2009. *The Spokane Valley-Rathdrum Prairie Aquifer Atlas 2009 Update*. Spokane, Washington, City of Spokane.

McCrone Associates. Inc. 2012. Letter regarding the Analysis of Dust Samples, McCrone Associates Project MA53061. June 14.
<https://www.missoulacounty.us/home/showdocument?id=5673>.

Missoulain. 2012. "Study: Missoula coal dust not 'significant;' health director wants more specifics." Rob Chaney. June 16. http://missoulain.com/news/state-and-regional/study-missoula-coal-dust-not-significant-health-director-wants-more/article_d6e0fa26-b7fa-11e1-81c8-0019bb2963f4.html.

Regional Response Team 10 (RRT)/Northwest Area Committee (NWAC). 2005. Pend Oreille Geographic Response Plan. <http://www.rtt10nwac.com/Files/GRP/PendOreille.pdf>.

———. 2018. Northwest Area Contingency Plan. January 1.
<https://rtt10nwac.com/NWACP/Default.aspx>.

State of Idaho, Office of the Governor. 2017. "Executive Order No. 2017-05. Continuing the Idaho Invasive Species Council and Replacing Executive Order 2010-14."

TerraGraphics Environmental Engineering. 2006. *Sand Creek Stressor Identification*. Prepared for the U.S. Environmental Protection Agency (Seattle, WA) and the Idaho Department of Environmental Quality (Coeur d' Alene, Idaho). September 29.

U.S. Army Corps of Engineers (USACE). Albeni Falls Dam research. n.d.
<http://www.nws.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Albeni-Falls-Dam/>. Accessed June 26, 2018.

U.S. Census Bureau. n.d. Population census data for Bonner County, Idaho.
<https://www.census.gov/quickfacts/fact/table/bonnercountyidaho/PST045217>. Accessed July 12, 2018.

———. n.d. Population census data for the City of Sandpoint, Idaho.
<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>. Accessed July 12, 2018.

U.S. Coast Guard (USCG). 2000. *NEPA Implementing Procedures and Policy for considering Environmental Impacts*. <https://www.federalregister.gov/documents/2002/07/23/02-18475/national-environmental-policy-act-coast-guard-procedures-for-categorical-exclusions>. Accessed June 26, 2018.

U.S. Department of Agriculture (USDA). Natural Resources Conservation Service. 1982. *Soil Survey of Bonner County, Idaho*. <https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateID=ID>. Accessed 2017.

U.S. Department of Transportation (USDOT) Bureau of Transportation Statistics. Railroad Lines GIS Data. WGS84 Datum. Unprojected. http://osav-usdot.opendata.arcgis.com/datasets/2553aa5e457349efb600502050bf9c3c_0. Accessed August 6, 2018.

U.S. Environmental Protection Agency (EPA). 1998. *Locomotive Emission Standards, Regulatory Support Document*. Office of Mobile Sources, Office of Air and Radiation. April.

U.S. Fish and Wildlife Service (USFWS). 2009. *Bull Trout Proposed Critical Habitat Justification: Rationale for Why Habitat is Essential, and Documentation of Occupancy*. Boise, Idaho. November 10.

———. 2015. *Biological Opinion for the Regional General Permit 27 – Lake Pend Oreille and Pend Oreille River*. Project Number: 01EIFW00-2015-0125. Northern Idaho Field Office, Spokane Valley, WA. February.

———. 2017a. Telephone conversation regarding bull trout in the study area and impact assessment between M. Williams, Fish and Wildlife Biologist, Eastern Washington/Northern Idaho Field Office, and NAME, Diane Williams, Environmental Planner, Jacobs. October 2.

———. 2017b. Email communications regarding work windows with attachment regarding recent USFWS bull trout biological opinion in the study area between M. Williams, Fish and Wildlife Biologist, Eastern Washington/Northern Idaho Field Office, and Diane Williams, Environmental Planner, Jacobs. October 2 through 11 and November 1.

———. 2018a. Email communication noting that Bridge 3.1 is in bull trout critical habitat per federal designation of lower Sand Creek as an inlet of Lake Pend Oreille between M. Williams, Fish and Wildlife Biologist, Eastern Washington/Northern Idaho Field Office, and USCG, USACE, IDEQ, and Jacobs. June 7.

———. 2018b. National Wetland Inventory GIS Data. North American 1983 Datum. NAD 83 Albers Projection. <https://www.fws.gov/wetlands/data/State-Downloads.html>. Accessed August 6.

Valencia Wetlands Trust. 2017. Email communication regarding available wetland bank credits. From D. Collier, Managing Partner. To Diane Williams, Environmental Planner, Jacobs. October 19.

Washington Research Council. “NW Clean Air Agency finds no emissions problems from coal transport.” Richard S. Davis. March 25, 2014. <https://researchcouncil.org/nw-clean-air-agency-finds-no-emissions-problems-from-coal-transport/>.

Washington State Department of Ecology (WDOE) and Cowlitz County. *Millennium Bulk Terminals—Longview EIS Environmental Impact Statement, State Environmental Policy Act, Final Environmental Impact Statement, Volume I: Final Environmental Impact Statement*. April 28, 2017. <http://millenniumbulkeiswa.gov/sepa-eis.html>.

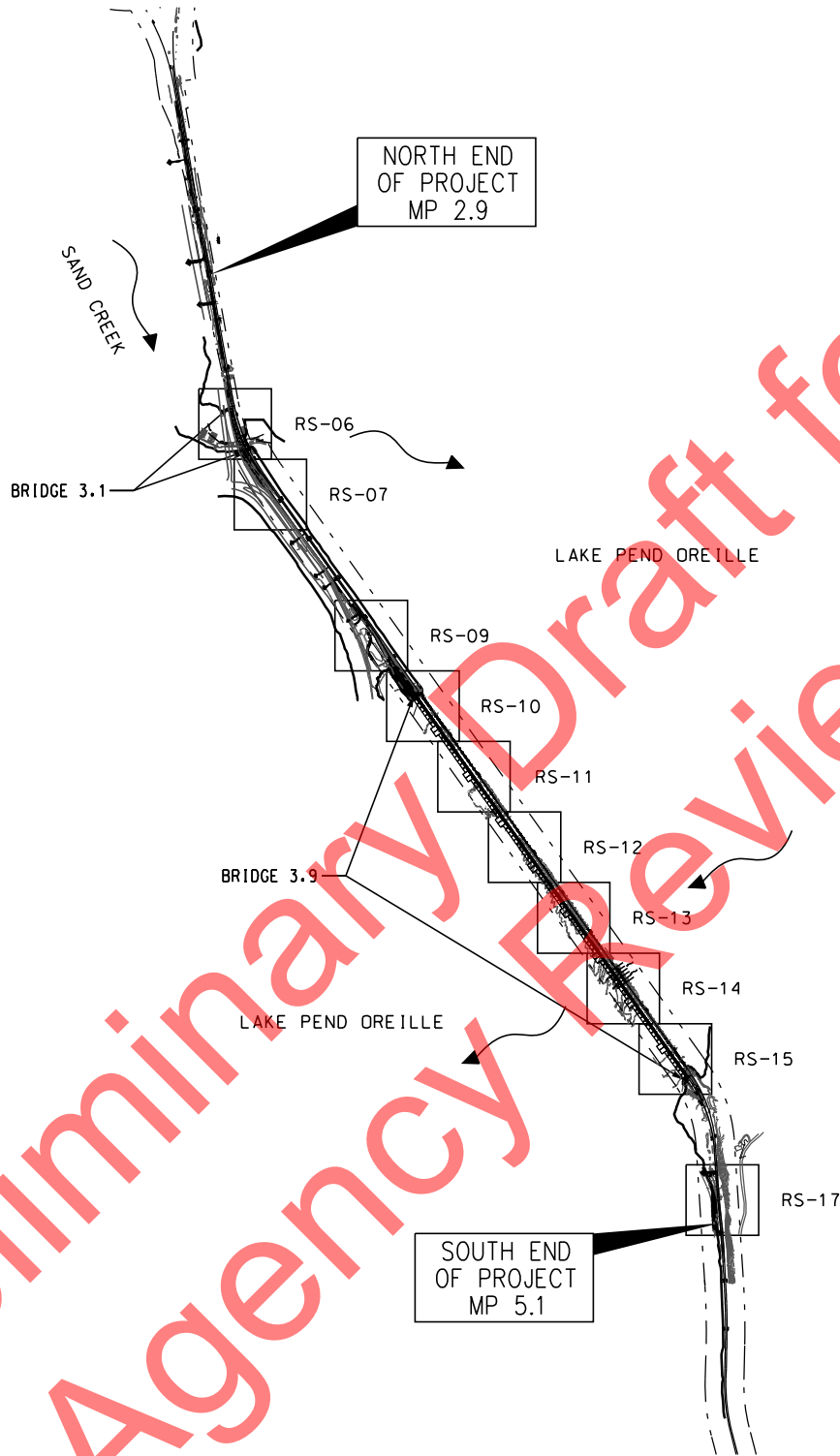
Washington State Department of Transportation (WSDOT). Pile Diameter & Noise Levels Sept 2016. n.d. <https://www.wsdot.wa.gov/sites/default/files/2017/12/12/ENV-FW-ImpactPileNoise.pdf>. Accessed November 24, 2017.

———. 2018. *Biological Assessment Preparation Advanced Training Manual Version 01-2018*.

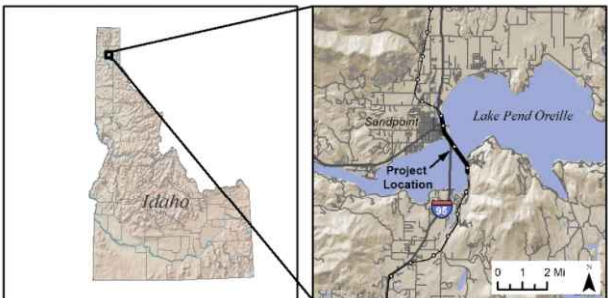
Preliminary Draft for
Agency Review

Appendix A
Bridge Permit Drawings

Preliminary Draft for
Agency Review



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



PROJECT PLAN OVERVIEW

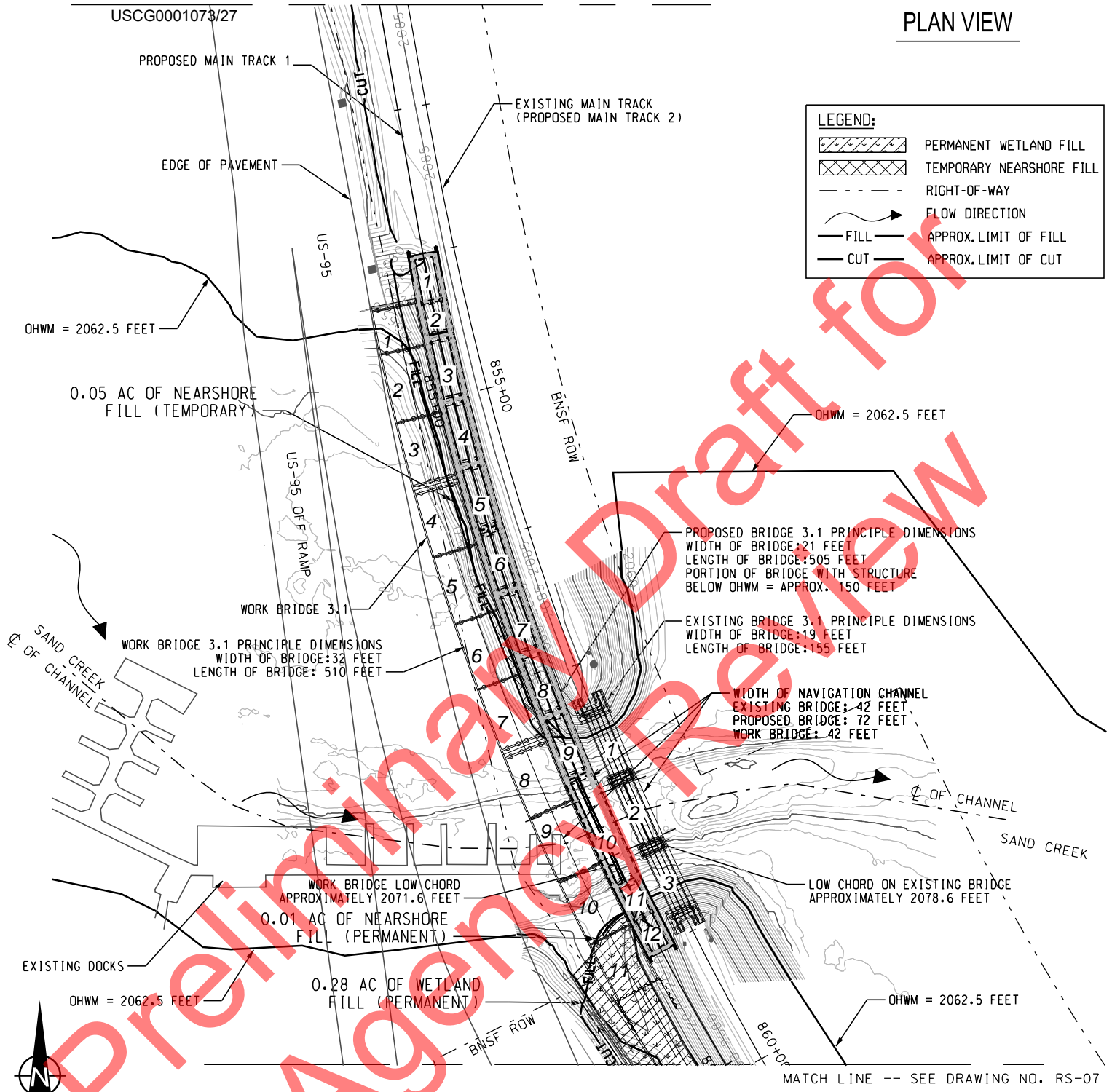
AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
LINE SEGMENT: 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADELFORD
 APPROVED BY: P. BORDENAVE

12/7/2017 12:22:57 PM USER: P:\WORK\6500\SCANDOT\DESIGN\ARPA\SP1\JMPA_Vicinity.dgn

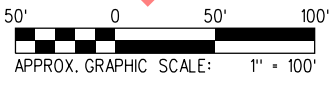
USCG0001073/27

PLAN VIEW

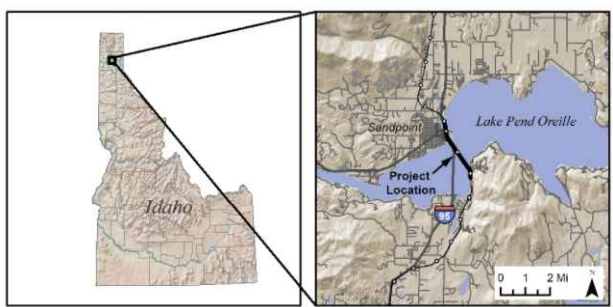


LEGEND:

- PERMANENT WETLAND FILL
- TEMPORARY NEARSHORE FILL
- RIGHT-OF-WAY
- FLOW DIRECTION
- FILL APPROX. LIMIT OF FILL
- CUT APPROX. LIMIT OF CUT



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

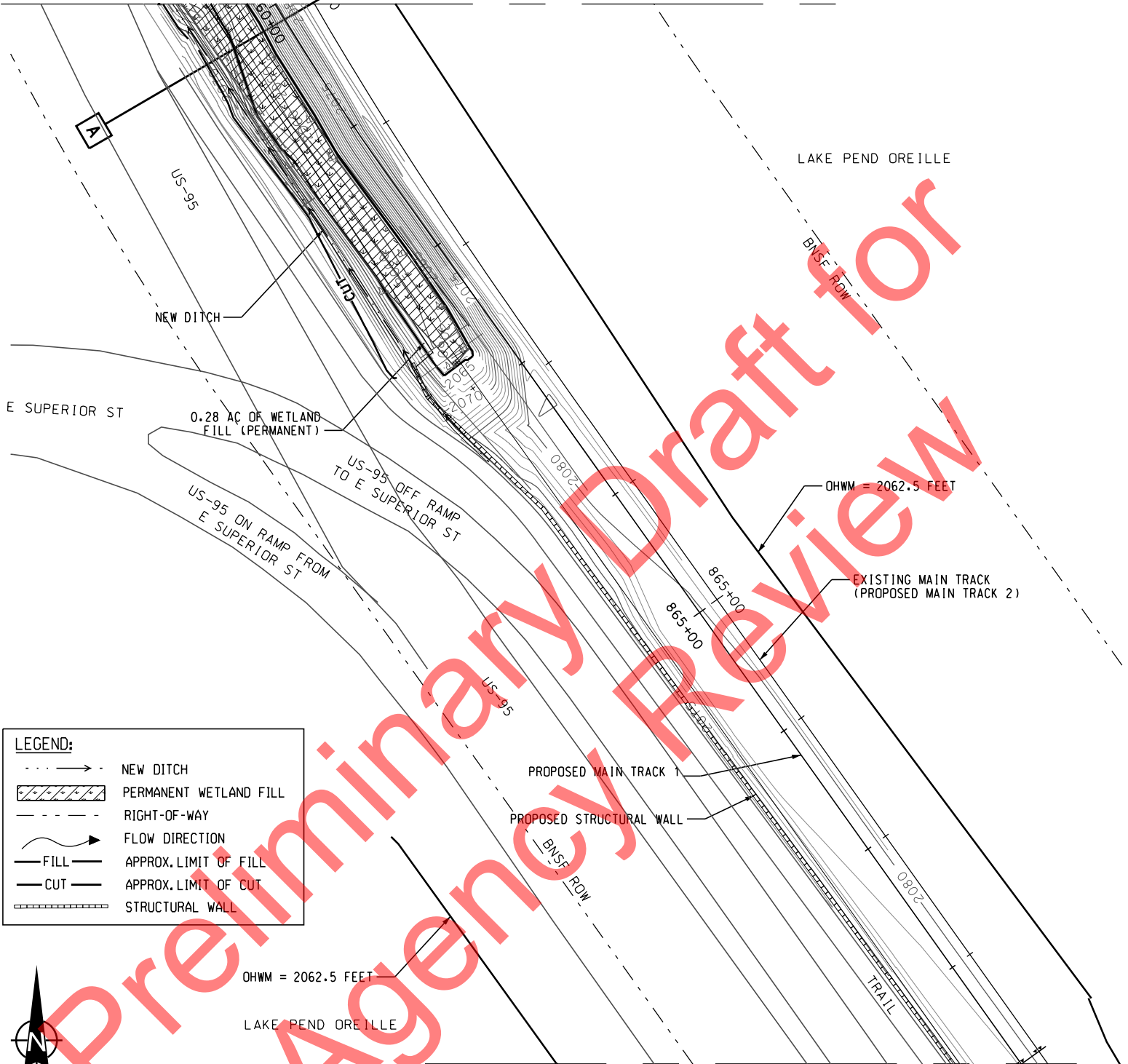


EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
CHECKED BY: S. PADEFORD
APPROVED BY: P. BORDENAVE

12/17/2017 12:32:53 PM P:\N878600\660056\563005\DESIGN\JERP\A_SPT_1\JERP_A_S_06.dgn



LEGEND:

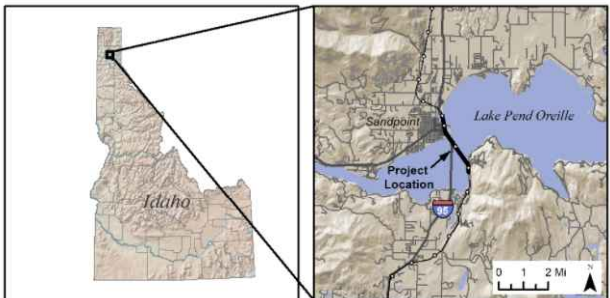
- NEW DITCH
- PERMANENT WETLAND FILL
- RIGHT-OF-WAY
- FLOW DIRECTION
- FILL APPROX. LIMIT OF FILL
- CUT APPROX. LIMIT OF CUT
- STRUCTURAL WALL

OHWM = 2062.5 FEET

LAKE PEND OREILLE

APPROX. GRAPHIC SCALE: 1" = 100'

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



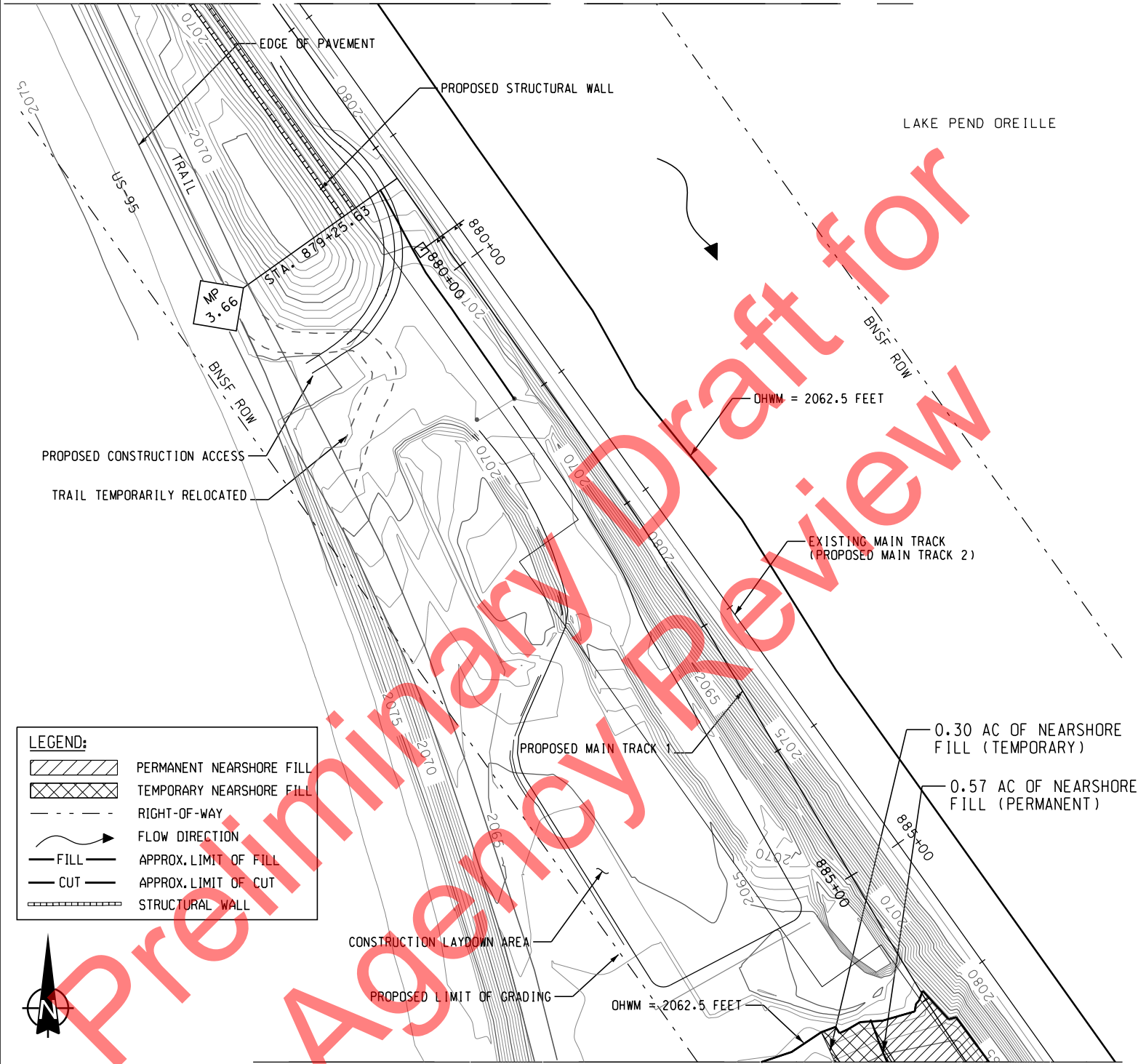
EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADEFORD
 APPROVED BY: P. BORDENAVE

12/7/2017 12:14:49 PM P:\N\876600\000\SC\DESIGN\ARPA\SP1_JMPA_RS_07.dgn

MATCH LINE -- DRAWING NO. RS-08

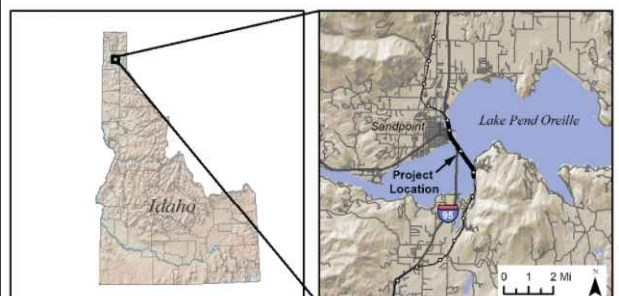


LEGEND:

- PERMANENT NEARSHORE FILL
- TEMPORARY NEARSHORE FILL
- RIGHT-OF-WAY
- FLOW DIRECTION
- FILL APPROX. LIMIT OF FILL
- CUT APPROX. LIMIT OF CUT
- STRUCTURAL WALL

APPROX. GRAPHIC SCALE: 1" = 100'

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



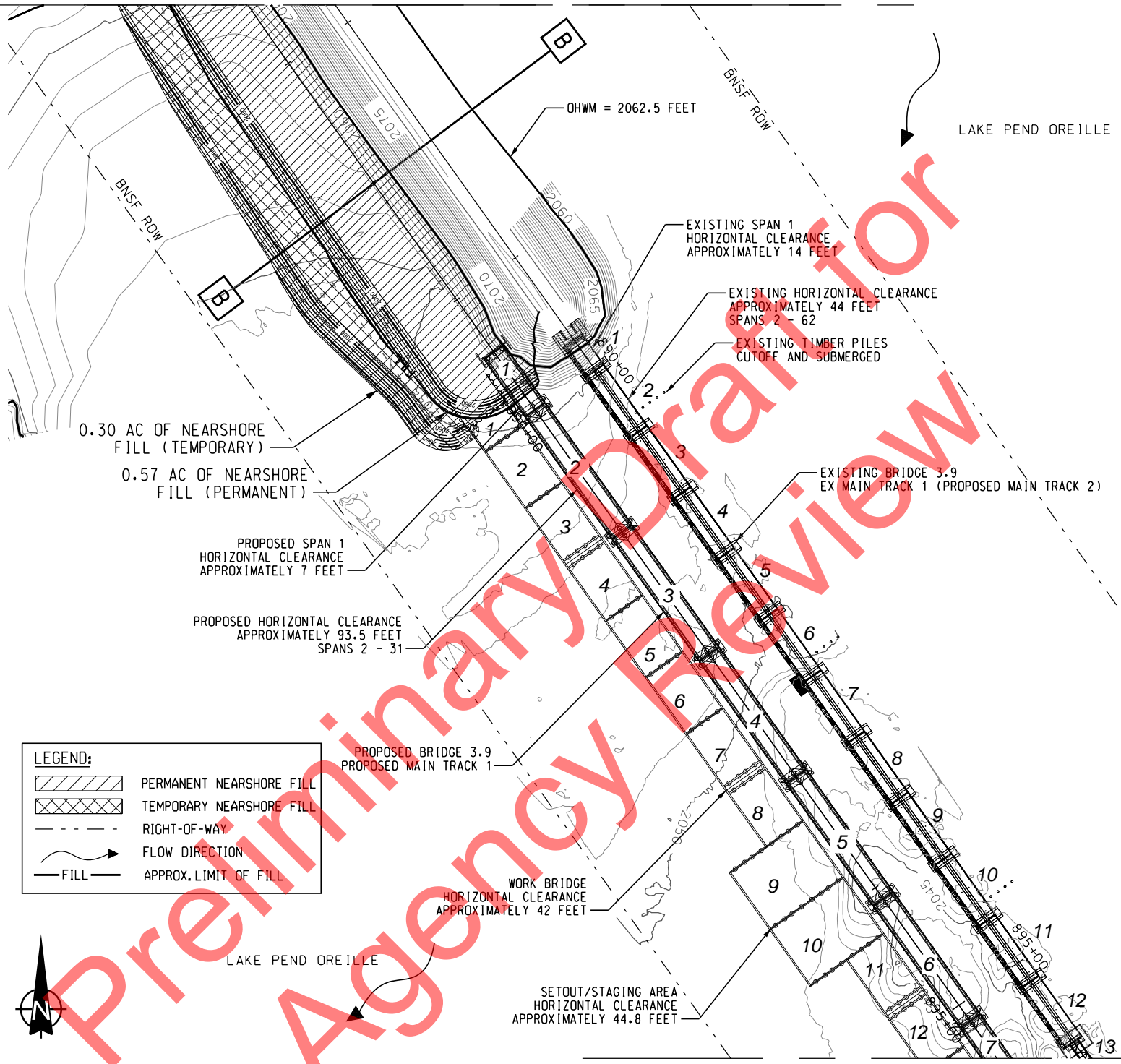
EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

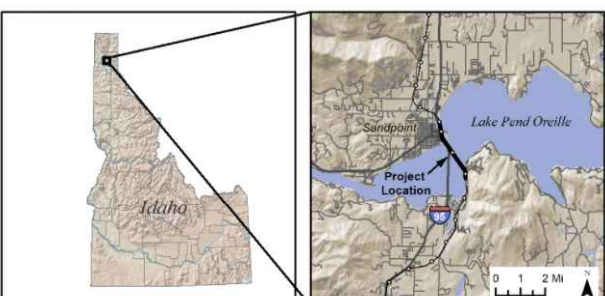
DRAWN BY: J. SIEMENS
CHECKED BY: S. PADELFORD
APPROVED BY: P. BORDENAVE

12/7/2017 10:44:49 AM
 P:\N\33716600\600055\2017\DESIGN\ARPA\SPJ_JARPA_RS-08.dgn

MATCH LINE -- SEE DRAWING NO. RS-09



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:

PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR

APPLICANT: BNSF RAILWAY COMPANY

CONSULTANT: JACOBS ENGINEERING GROUP

LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
LINE SEGMENT 45, MP 2.9 - MP 5.1

PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN

NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W

SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W

WATERWAY: LAKE PEND OREILLE, SAND CREEK

CITY: SANDPOINT COUNTY: BONNER STATE: IDAHO

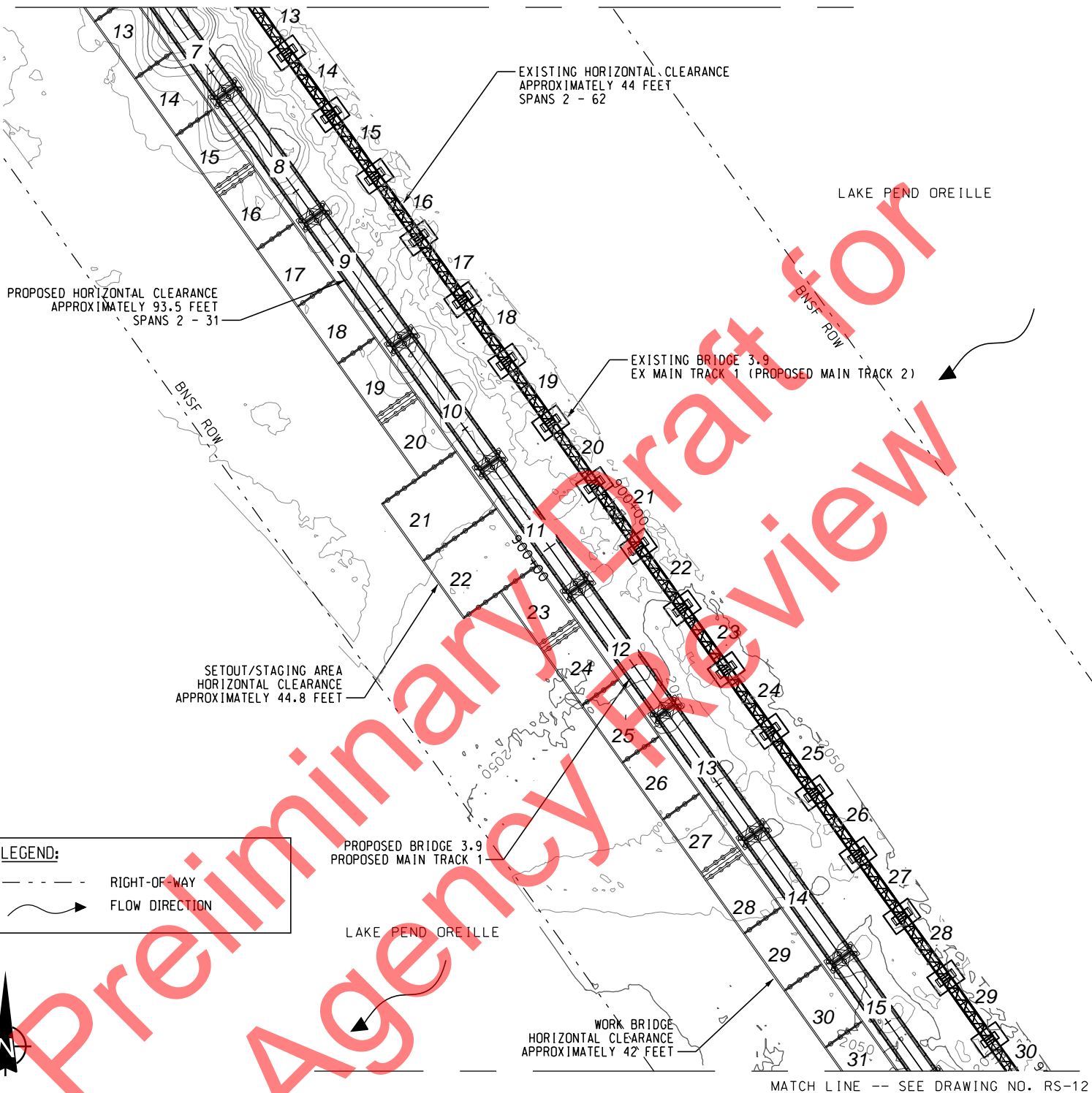
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS

CHECKED BY: S. PADEFORD

APPROVED BY: P. BORDENAVE

MATCH LINE -- SEE DRAWING NO. RS-10



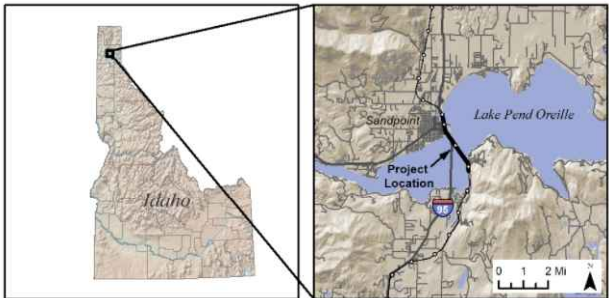
LEGEND:

- RIGHT-OF-WAY
- FLOW DIRECTION



MATCH LINE -- SEE DRAWING NO. RS-12

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

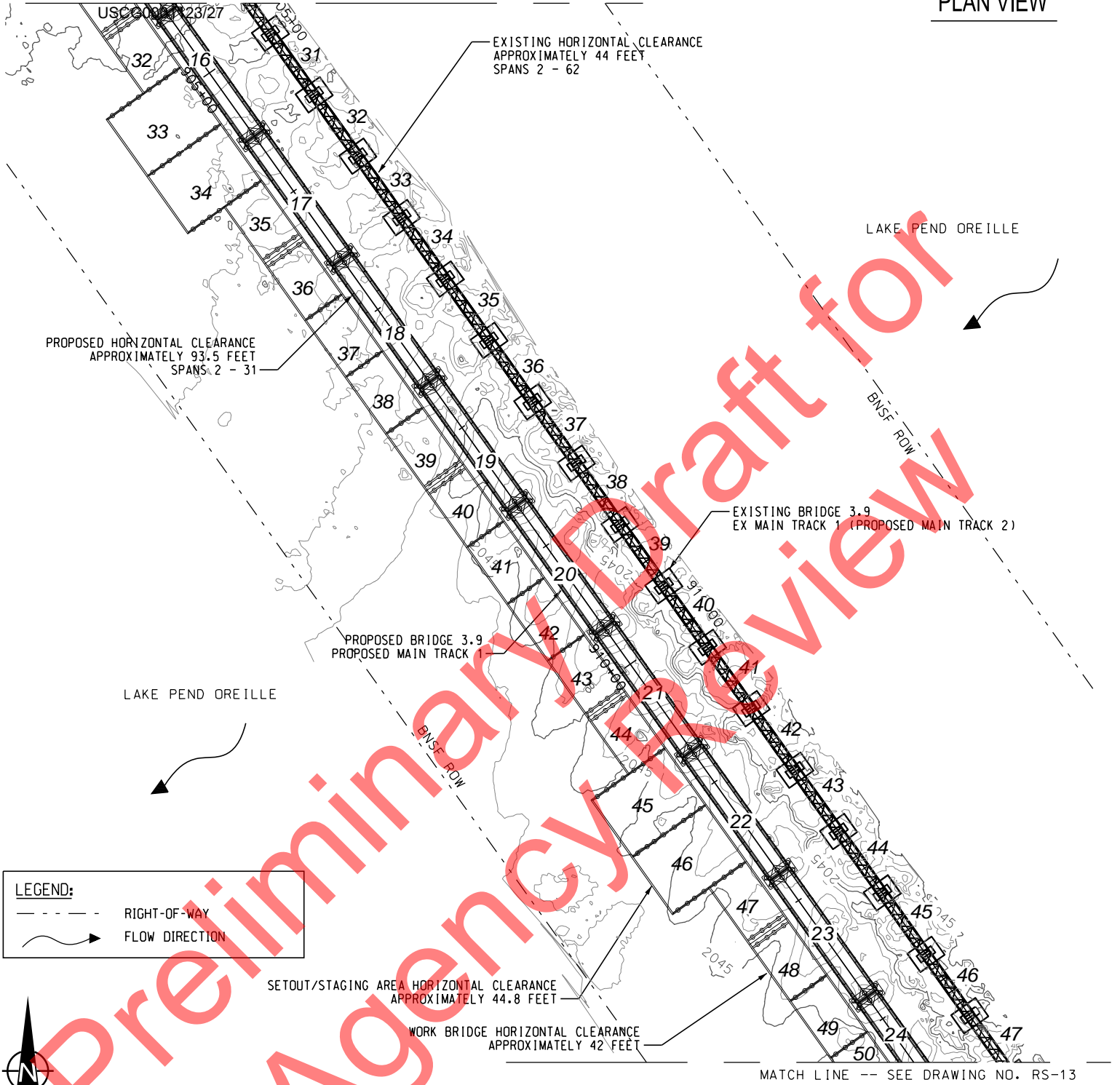


EXISTING CONDITIONS / PROPOSED WORK

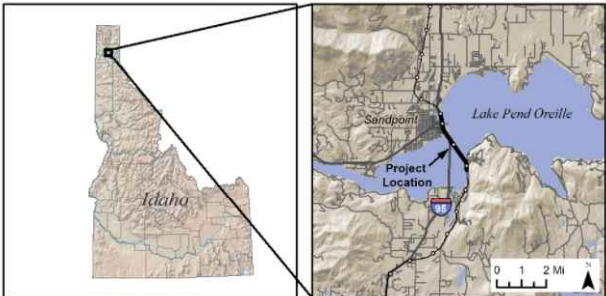
AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
CHECKED BY: S. PADELFORD
APPROVED BY: P. BORDENAVE

12/7/2017 10:51:42 AM USER: P:\N\373660\660050\50\2017\30\JACOBS\JAPPA\RS-11.dgn



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

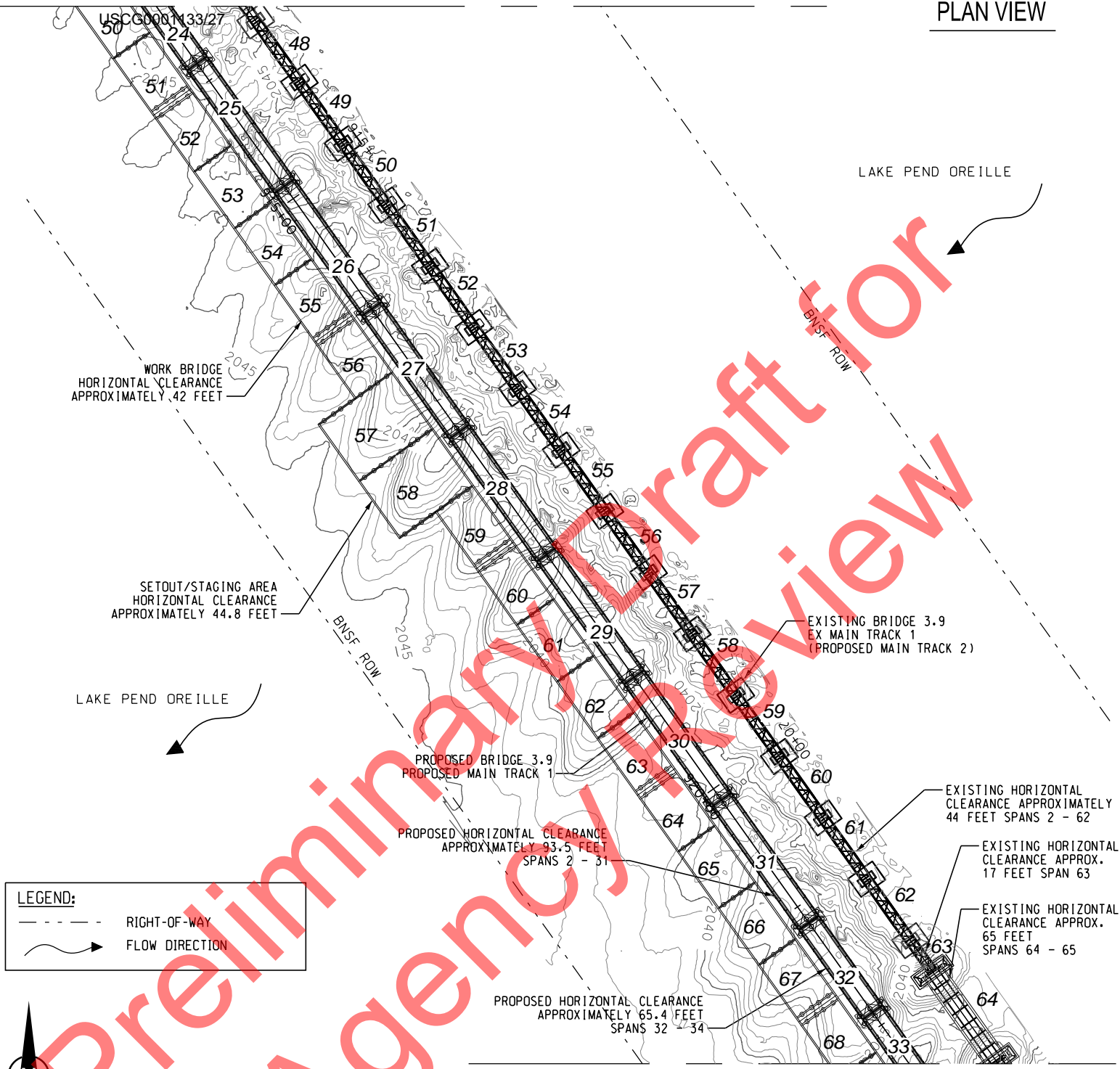


EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
 PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
 APPLICANT: BNSF RAILWAY COMPANY
 CONSULTANT: JACOBS ENGINEERING GROUP
 LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
 PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
 NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
 SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
 WATERWAY: LAKE PEND OREILLE, SAND CREEK
 CITY: SANDPOINT COUNTY: BONNER STATE: IDAHO
 DATE: DECEMBER 2017

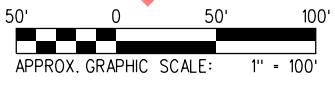
DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADEL FORD
 APPROVED BY: P. BORDENAVE

12/7/2017 10:45:48 AM RUSEPR 114548 AN PLAN 3256600.600056520DESIGN JARPA.SP...JARPAL RS-12.dgn

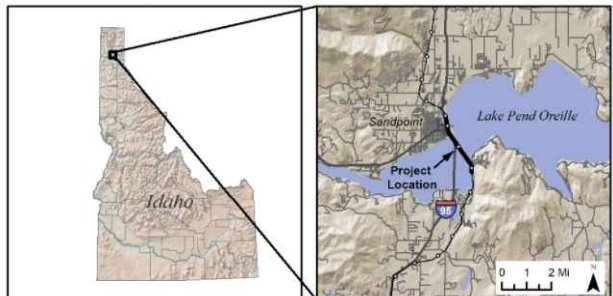


LEGEND:

- RIGHT-OF-WAY
- FLOW DIRECTION



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

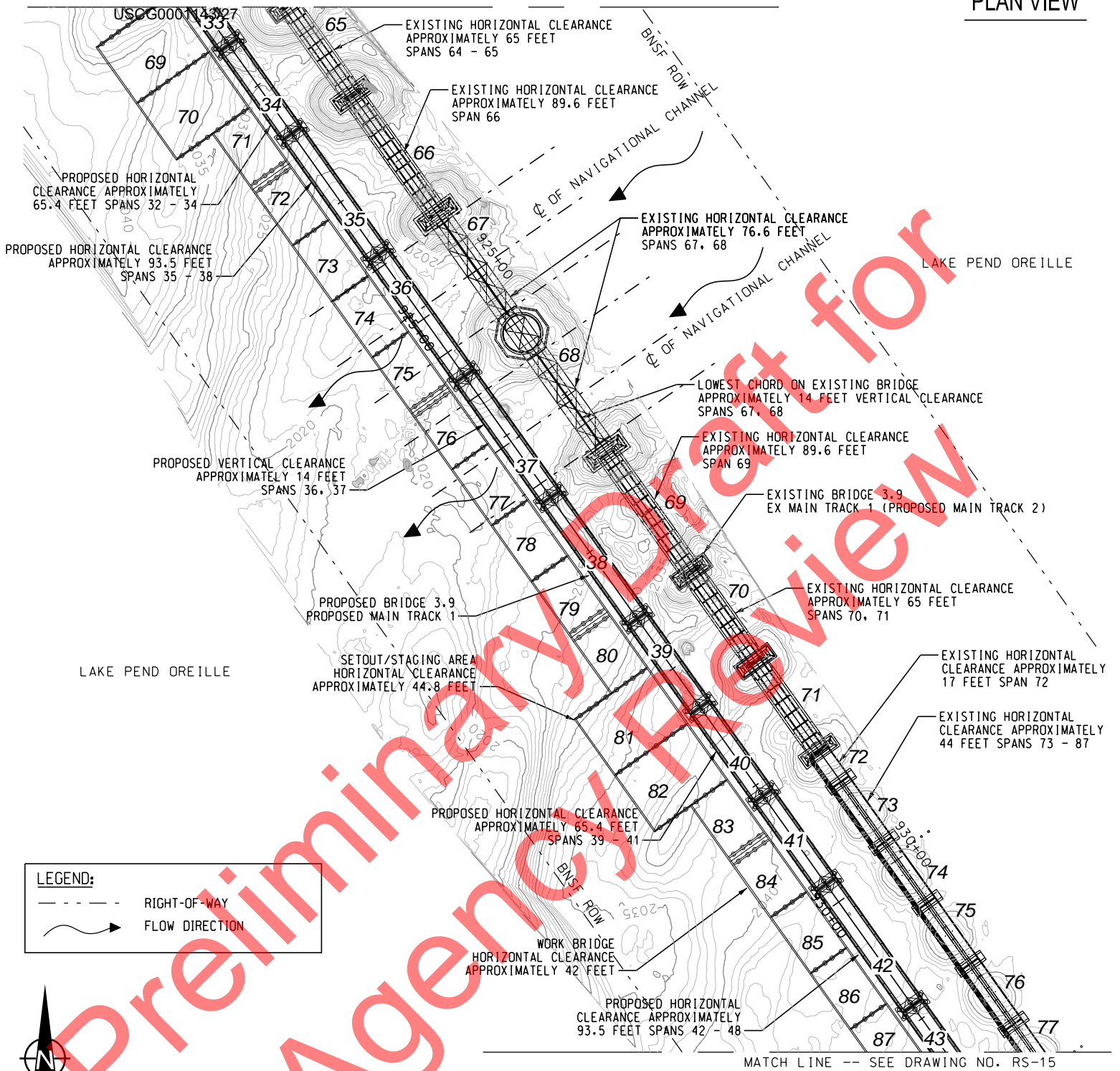


EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
 LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

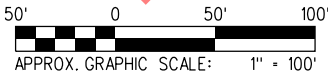
DRAWN BY: J. SIEMENS
CHECKED BY: S. PADELFORD
APPROVED BY: P. BORDENAVE

12/8/2017 4:23:37 PM P:\N\876600\80005\AS\DESIGN\JACPS\JMP\AL RS-13.dwg

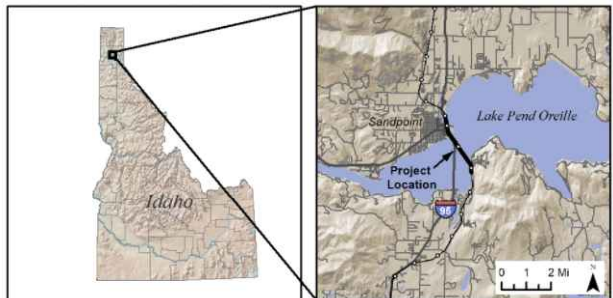


LEGEND:

- RIGHT-OF-WAY
- FLOW DIRECTION



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

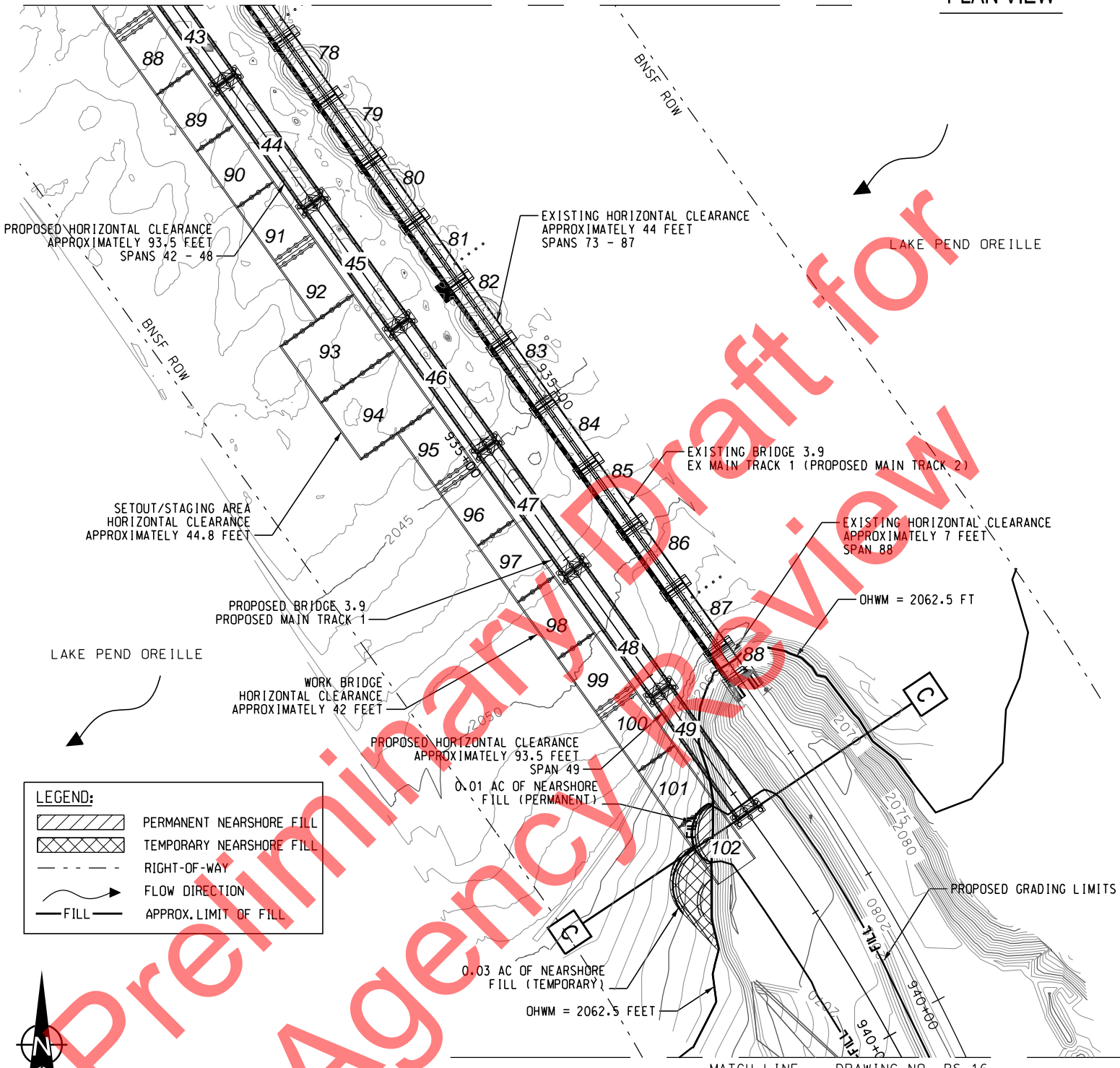


EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
 LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

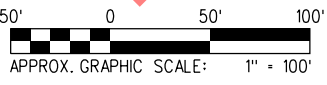
DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADELFORD
 APPROVED BY: P. BORDENAVE

12/8/2017 4:44:35 PM P:\N\276690\000\SCS\DESIGN\JARP\A_SPL_JARP_A_RS-14.dgn

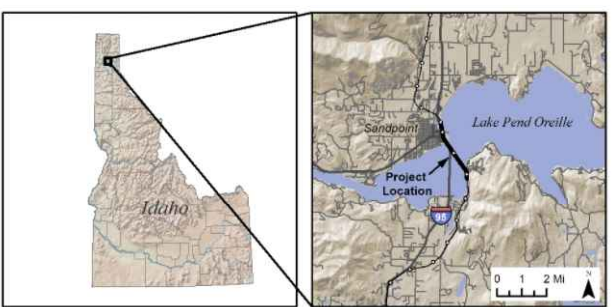


LEGEND:

- PERMANENT NEARSHORE FILL
- TEMPORARY NEARSHORE FILL
- RIGHT-OF-WAY
- FLOW DIRECTION
- APPROX. LIMIT OF FILL



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

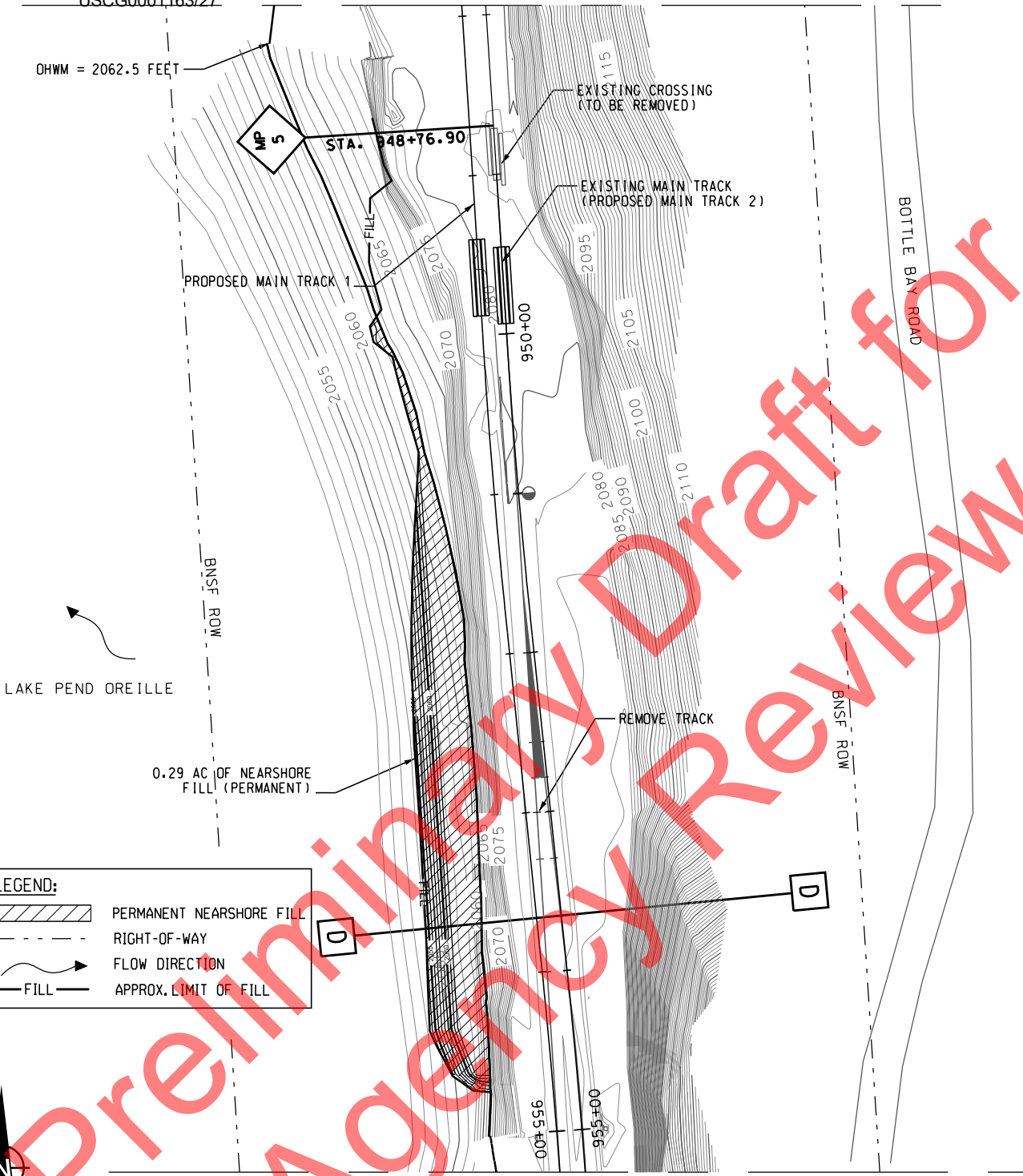


EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

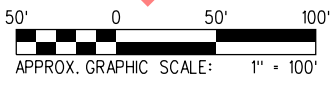
DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADELFORD
 APPROVED BY: P. BORDENAVE

12/8/2017 4:48:23 PM USER: P:\WORK\6600\6600\DESIGN\WAPPA\SPL_JMPR_PL_15.dgn

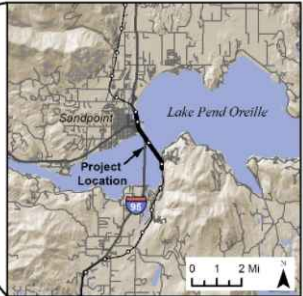
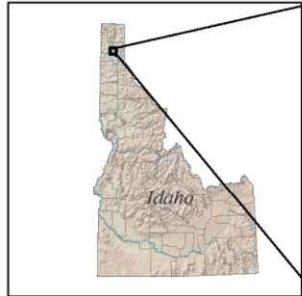


LEGEND:

- PERMANENT NEARSHORE FILL
- RIGHT-OF-WAY
- FLOW DIRECTION
- APPROX. LIMIT OF FILL



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



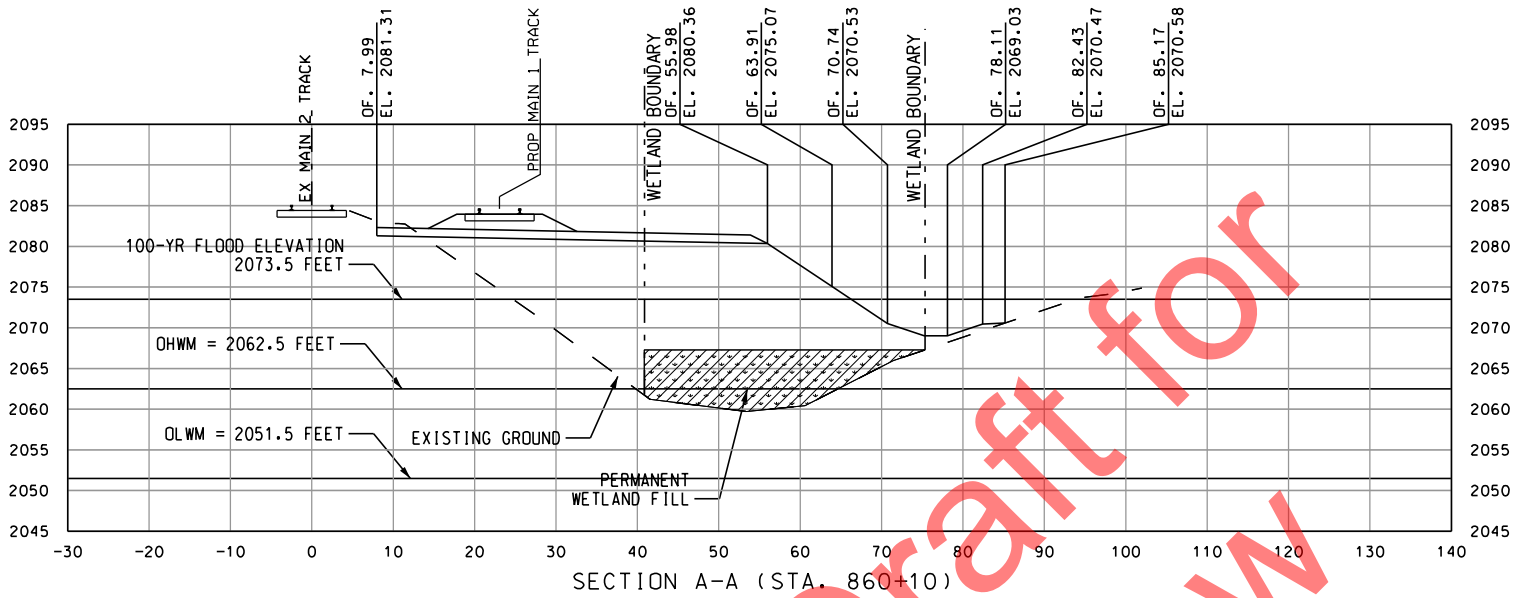
EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

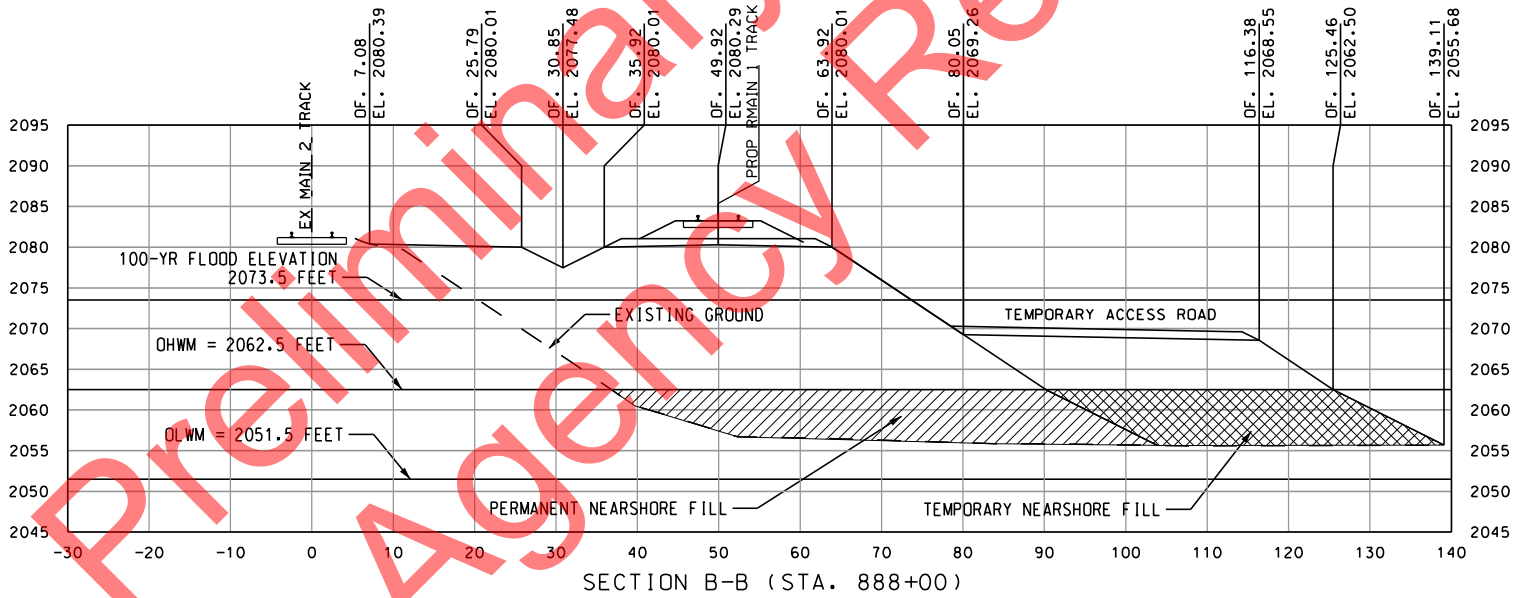
DRAWN BY: J. SIEMENS
CHECKED BY: S. PADEL FORD
APPROVED BY: P. BORDENAVE

12/17/2017 12:12:18 PM P:\N\276500\2000SC\AS\0001\USCGA_SPL_JMPA_RS-17.dgn

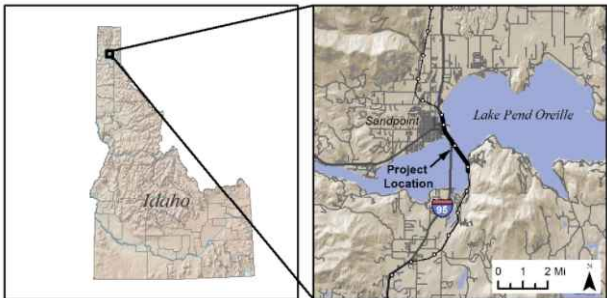
WETLAND FILL CROSS SECTION



NEARSHORE FILL CROSS SECTION



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

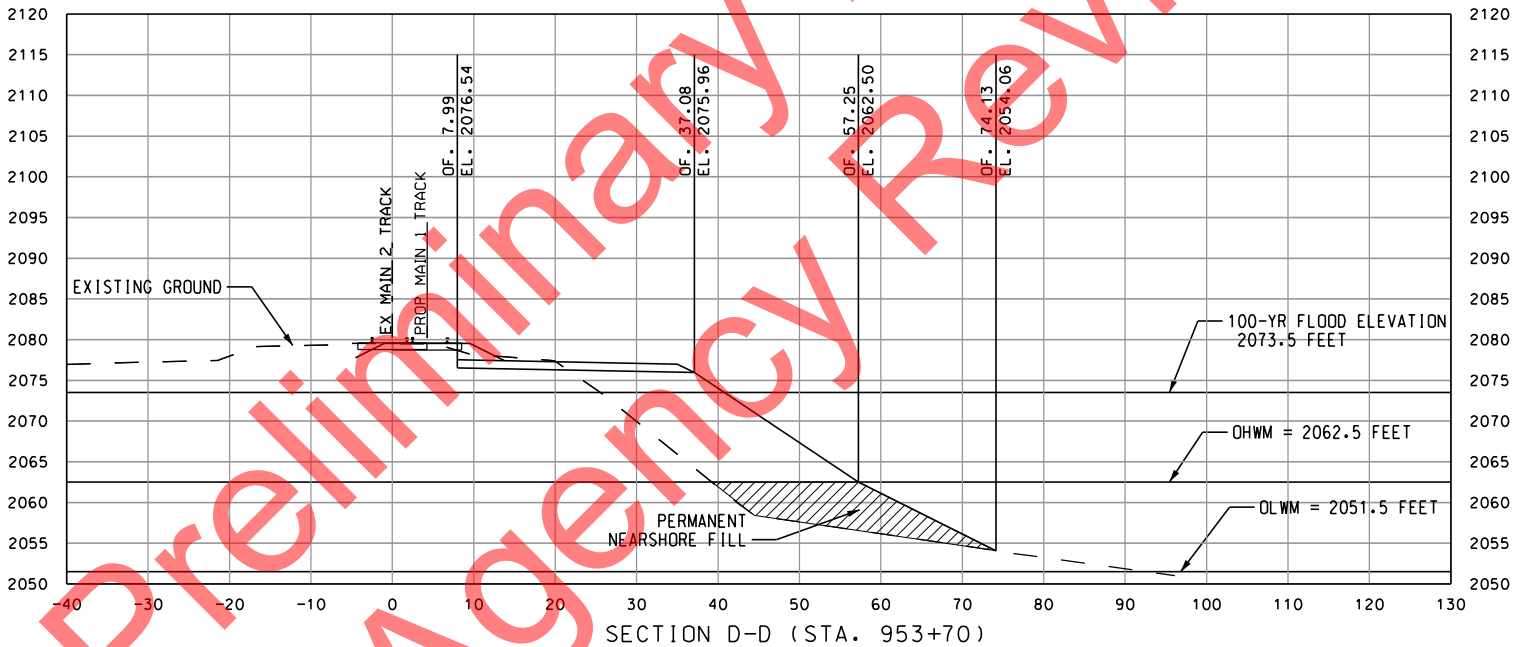
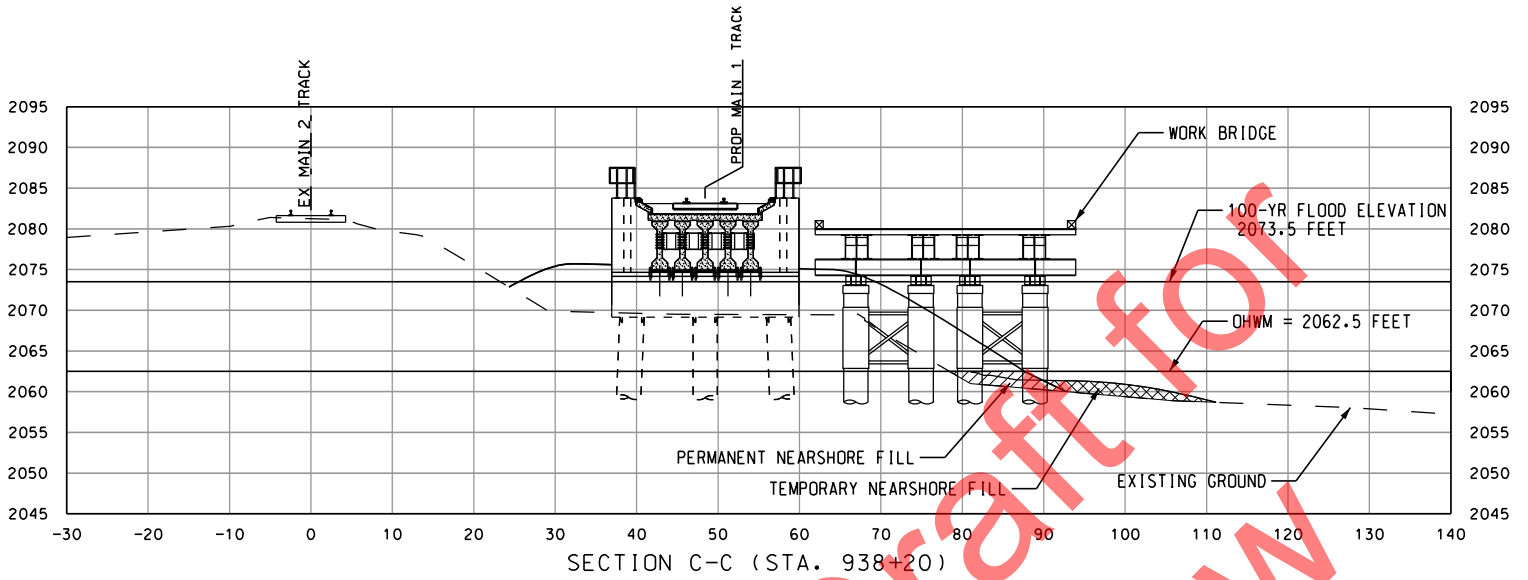


EXISTING CONDITIONS / PROPOSED WORK

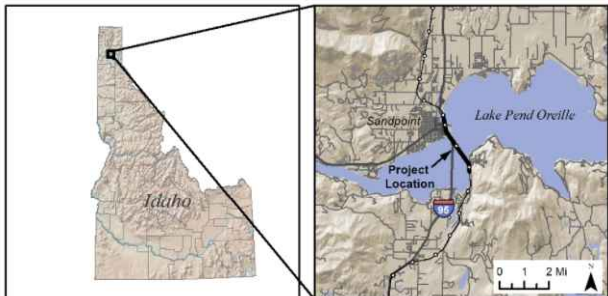
AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADELFORD
 APPROVED BY: P. BORDENAVE

NEARSHORE FILL CROSS SECTIONS



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.



EXISTING CONDITIONS / PROPOSED WORK

AGENCY REF. NO.:
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
 LINE SEGMENT 45, MP 2.9 - MP 5.1
PLSS: IN PARTS OF S15, 22, 23, 25, 26 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT **COUNTY:** BONNER **STATE:** IDAHO
DATE: DECEMBER 2017

DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADEFORD
 APPROVED BY: P. BORDENAVE

DRAWING NO. XS-2 PAGE NO. 13 OF 13 SCALE AS SHOWN

Appendix B
Site Photographs

Preliminary Draft for
Agency Review



Photo 1:
Bridge 3.9 – View of Bridge from West side looking Southeast



Photo 2:
Bridge 3.9 – Close-up view of South end of Bridge



Photo 3:
Bridge 3.9 – Close-up view of North end of Bridge



Photo 4:
Bridge 3.9 – View of Bridge from East side looking South



Photo 5:
Bridge 3.1 – View of Bridge from the West side looking East



Photo 6:
Bridge 3.1 – View of Bridge from East side looking West

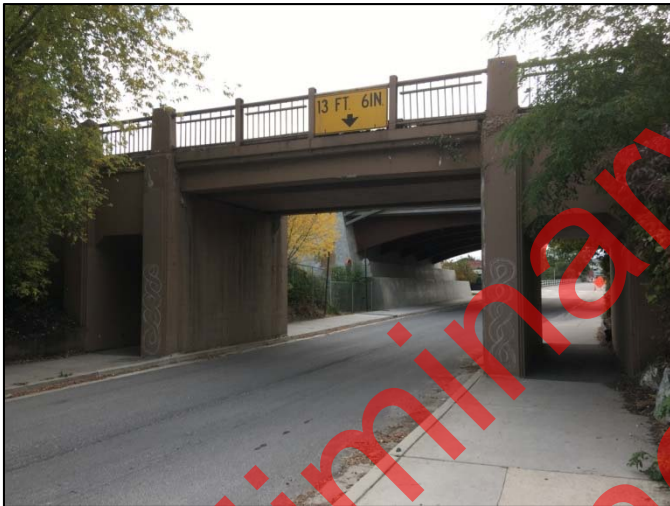


Photo 7:
Bridge 3.0 – View of Bridge from West side looking East



Photo 8:
Bridge 3.9 – Conceptual Rendering



Photo 9:
Bridge 3.1 – Conceptual Rendering



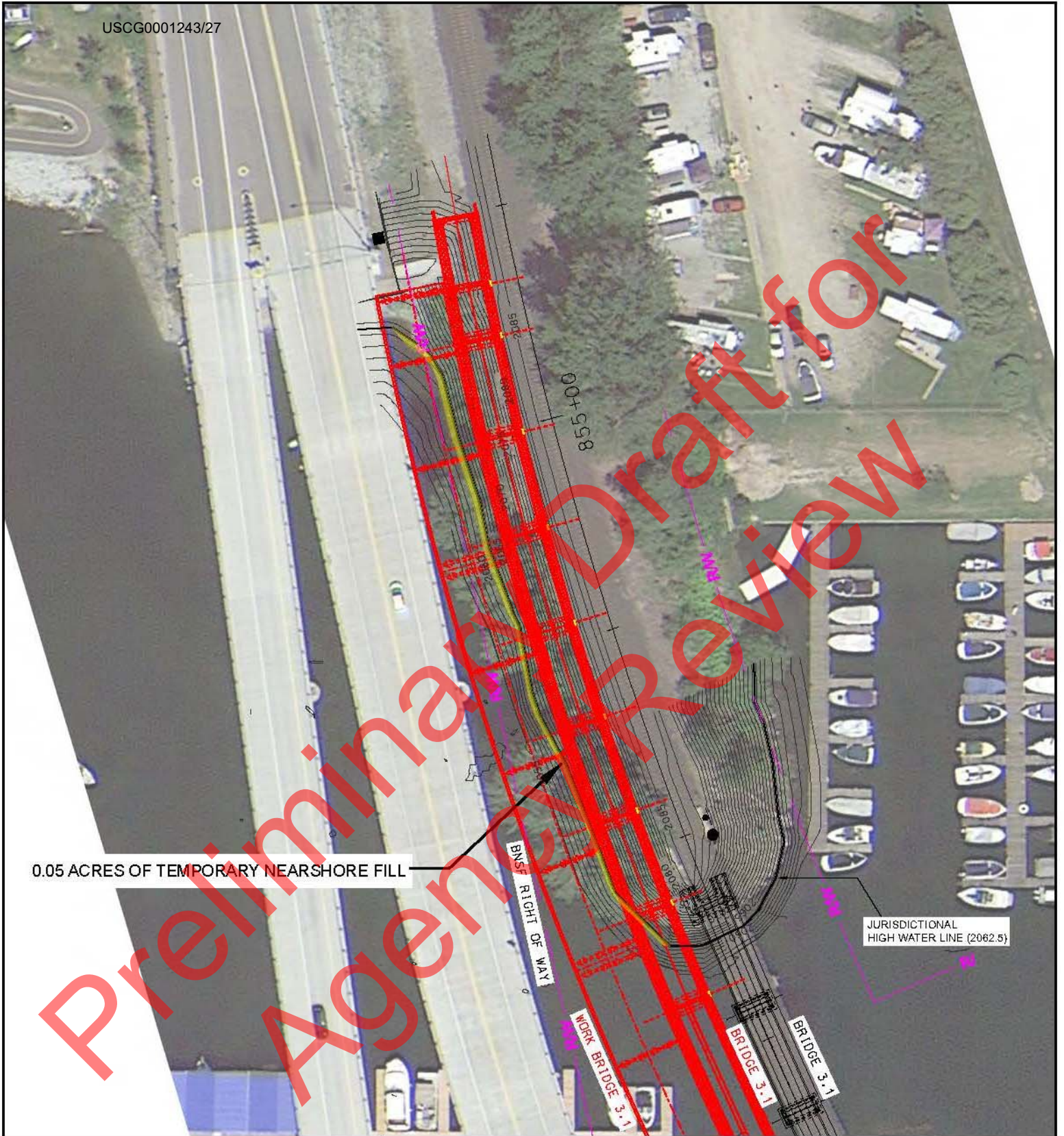
Photo 10:
Bridge 3.0 – Conceptual Rendering

Preliminary Draft
Agency Review

Appendix C

Waters of the United States Impact Maps

Preliminary Draft for
Agency Review

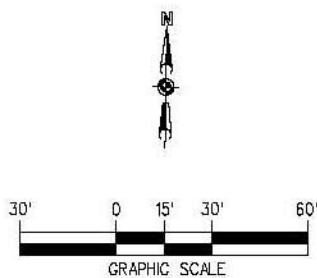


0.05 ACRES OF TEMPORARY NEARSHORE FILL

JURISDICTIONAL HIGH WATER LINE (2062.5)

LEGEND

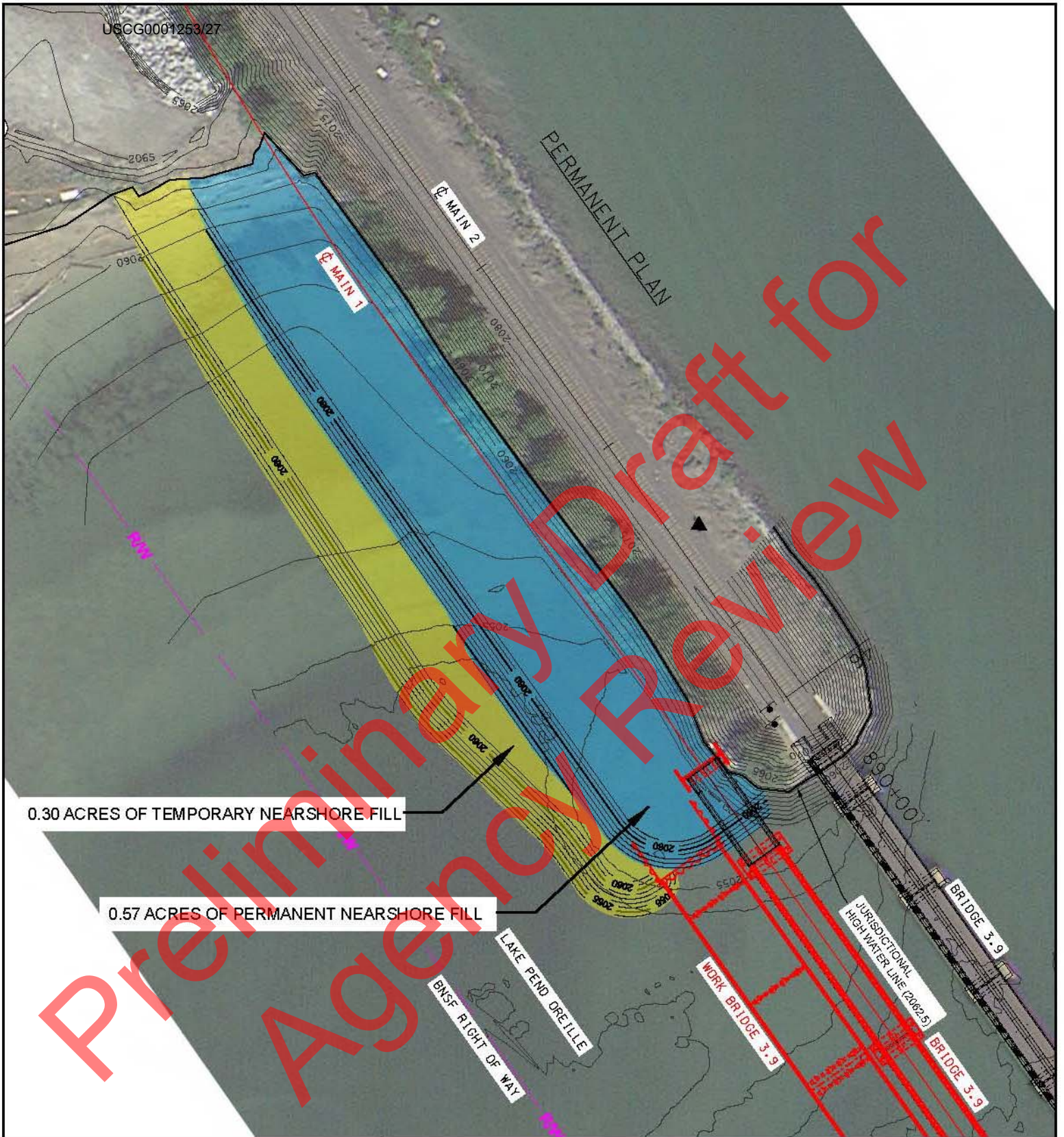
- = EXISTING (TYPICAL)
- = PROPOSED
- = NEARSHORE FILL AREA (TEMPORARY)



**JURISDICTIONAL IMPACTS
BNSF BRIDGE 3.1 NORTH END**

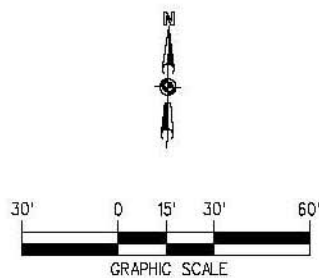
PROJECT: BNSF SANDPOINT JUNCTION CONNECTOR
BNSF LOCATION: MONTANA DIVISION, KOOTENAI SUBDIVISION, MP 2.9-5.1
CITY: SANDPOINT
COUNTY: BONNER
STATE: IDAHO
DATE: NOVEMBER 2017

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017)



LEGEND

- = EXISTING (TYPICAL)
- = PROPOSED
- = NEARSHORE FILL AREA (PERMANENT)
- = NEARSHORE FILL AREA (TEMPORARY)



**JURISDICTIONAL IMPACTS
BNSF BRIDGE 3.9 NORTH END**

PROJECT: BNSF SANDPOINT JUNCTION CONNECTOR
 BNSF LOCATION: MONTANA DIVISION,
 KOOTENAI SUBDIVISION, MP 2.9-5.1
 CITY: SANDPOINT
 COUNTY: BONNER
 STATE: IDAHO
 DATE: NOVEMBER 2017

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017)

WORK BRIDGE 3.1

BRIDGE 3.1

BRIDGE 3.1

JURISDICTIONAL HIGH WATER LINE (2062.5)

0.01 ACRES OF PERMANENT NEARSHORE FILL

RM

CS859+86.95
00+098

HIGHWAY 95

WETLAND

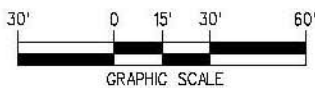
0.28 ACRES OF PERMANENT WETLAND FILL

EDGE OF PAVEMENT

Preliminary Agency Review

LEGEND

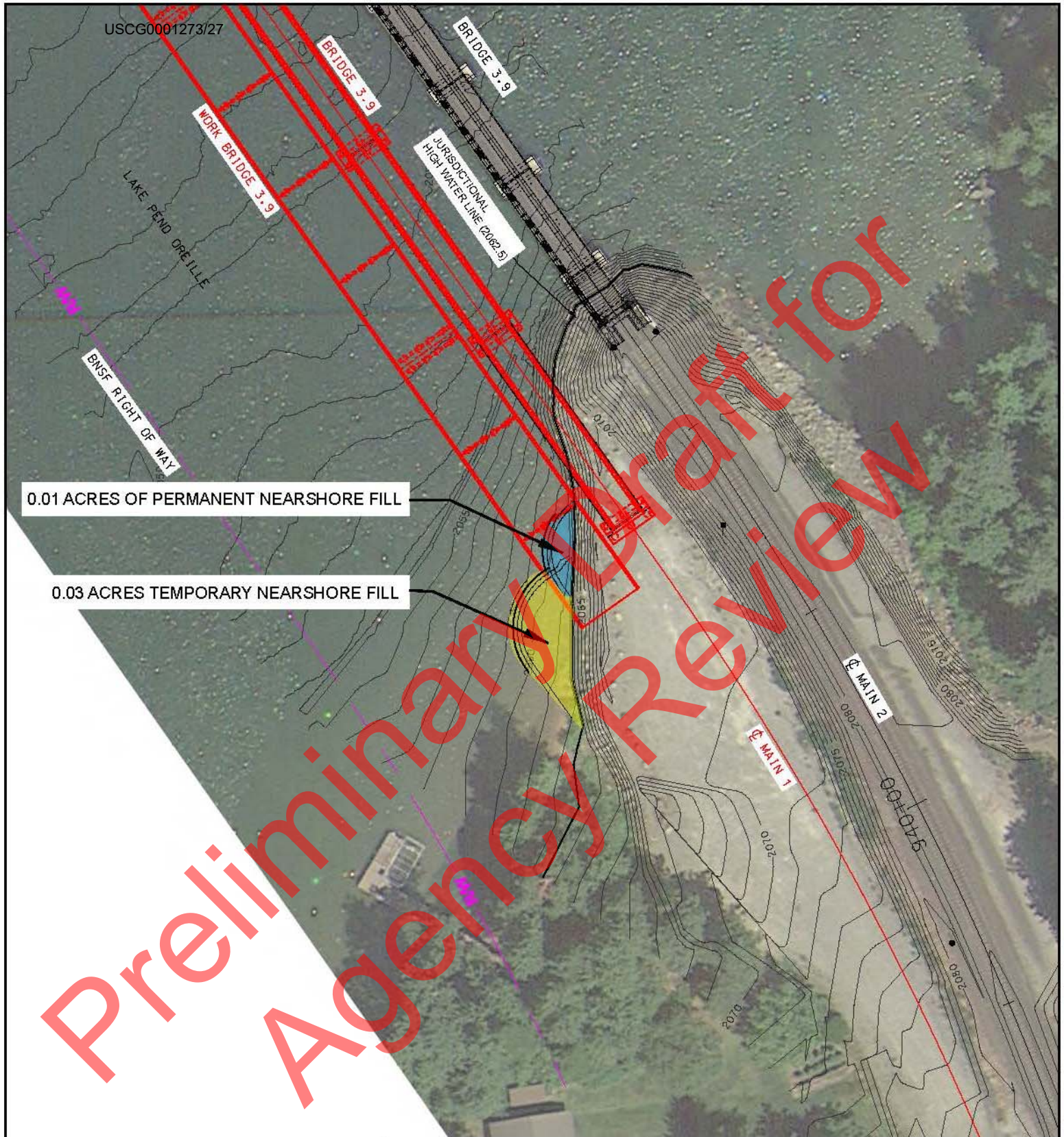
- = EXISTING (TYPICAL)
- = PROPOSED
- = NEARSHORE FILL AREA (PERMANENT)
- = WETLAND FILL AREA (PERMANENT)



**JURISDICTIONAL IMPACTS
BNSF BRIDGE 3.1 SOUTH END**

PROJECT: BNSF SANDPOINT JUNCTION CONNECTOR
BNSF LOCATION: MONTANA DIVISION, KOOTENAI SUBDIVISION, MP 2.9-5.1
CITY: SANDPOINT
COUNTY: BONNER
STATE: IDAHO
DATE: NOVEMBER 2017

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017)

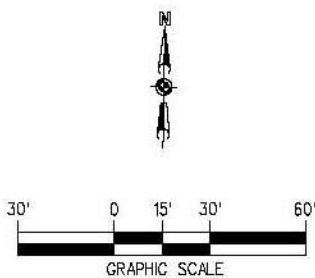


0.01 ACRES OF PERMANENT NEARSHORE FILL

0.03 ACRES TEMPORARY NEARSHORE FILL

LEGEND

- = EXISTING (TYPICAL)
- = PROPOSED
- = NEARSHORE FILL AREA (PERMANENT)
- = NEARSHORE FILL AREA (TEMPORARY)



**JURISDICTIONAL IMPACTS
BNSF BRIDGE 3.9 SOUTH END**

PROJECT: BNSF SANDPOINT JUNCTION CONNECTOR
BNSF LOCATION: MONTANA DIVISION, KOOTENAI SUBDIVISION, MP 2.9-5.1
CITY: SANDPOINT
COUNTY: BONNER
STATE: IDAHO
DATE: NOVEMBER 2017

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017)

Preliminary Agency Review

BNSF RIGHT OF WAY

0.29 ACRES OF PERMANENT NEARSHORE FILL





TURNOUT REMOVAL

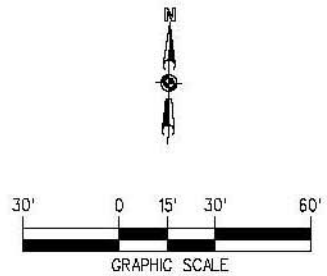
MAIN 1

MAIN 2

SIGNAL AND TELECOMM EQUIPMENT

BNSF ACCESS ROAD

- LEGEND**
-  = EXISTING (TYPICAL)
 -  = PROPOSED
 -  = REMOVALS
 -  = NEARSHORE FILL AREA (PERMANENT)



**JURISDICTIONAL IMPACTS
EAST ALGOMA TURNOUT**

PROJECT: BNSF SANDPOINT JUNCTION CONNECTOR
BNSF LOCATION: MONTANA DIVISION, KOOTENAI SUBDIVISION, MP 2.9-5.1
CITY: SANDPOINT
COUNTY: BONNER
STATE: IDAHO
DATE: NOVEMBER 2017

BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017)

Appendix D
Biological Assessment

Preliminary Draft for
Agency Review

Intentionally Left Blank –
To Be Included When Complete

Preliminary Draft for
Agency Review

Appendix E

Idaho Department of Lands Encroachment Permit

Preliminary Draft for
Agency Review

BEFORE THE STATE BOARD OF LAND COMMISSIONERS
STATE OF IDAHO

In the Matter of:)	Case No. PH-2018-PUB-20-001
)	
Encroachment Permit Application)	FINAL ORDER
No. L-96-S-0096E.)	
)	
BNSF Railway Co.,)	
Applicant.)	
_____)	

I. NATURE OF PROCEEDINGS/ISSUES

Encroachments, including bridges and fills, placed in, on or above the beds of navigable lake require a permit issued by the Idaho Department of Lands (“IDL”) pursuant to the requirements of the Lake Protection Act, Title 58, Chapter 13, Idaho Code, and the corresponding administrative rules promulgated by the State Board of Land Commissioners, IDAPA 20.03.04.000 *et seq.*, Rules for the Regulation of Beds, Waters and Airspace over Navigable Lakes in the State of Idaho.

BNSF Railway Co. (“Applicant”), applied for Encroachment Permit No. L-96-S-0096E on February 22, 2018 (“Application”). Applicant seeks an encroachment permit for bridges across Lake Pend Oreille and Sand Creek, with certain associated fill. On March 14, 2018, I issued a Notice of Appointment of Hearing Coordinator and Hearing, in which I appointed Chris Bromley as Hearing Coordinator. The document also provided notice of two public hearings to be held on May 23, 2018: One at 8 a.m. Pacific Time in Ponderay, Idaho, and one at 6 p.m. Pacific Time in Sandpoint, Idaho. In addition, IDL extended the public comment beyond the thirty days required by Idaho Code § 58-1306, and held the record open for written comment until the conclusion of the evening hearing held on May 23, 2018.

The Hearing Coordinator issued his Preliminary Order on June 14, 2018. My responsibility is to render a decision pursuant to Idaho Code § 58-1306(c) and IDAPA 20.03.04.030.07 on the behalf of the State Board of Land Commissioners based on the record and applicable law. In making this determination I have relied on the entire record for this matter. Specifically,

- I have read the transcript of the public hearings conducted in Ponderay and Sandpoint, Idaho, on May 23, 2018.
- I have reviewed the record, including the Application and all documents and exhibits thereto; all written comments received prior to the close of the May 23, 2018 evening hearing; and all documents and exhibits.
- I have examined the Hearing Coordinator's Preliminary Order in light of the entire record and the applicable law.

II. FINDINGS OF FACT

A. I adopt Paragraphs 1 – 31 of the Factual and Procedural Background of the Preliminary Order as my Findings of Fact. Certain pertinent additional facts are set forth in the Conclusions of Law, below.

III. CONCLUSIONS OF LAW

B. I adopt Paragraphs 1-8 of the Conclusions of Law of the Preliminary Order (“Conclusions of Law”).

C. I have chosen not to adopt Paragraphs 9 - 18 of the Conclusions of Law as written, and those paragraphs are stricken. I instead conclude as follows:

1. The record in this matter includes a copy of “[a]n Act granting Lands to aid in the Construction of a Railroad and Telegraph Line from Lake Superior to Puget’s

Sounds, on the Pacific Coast, by the Northern Route,” which was enacted by Congress on July 2, 1864. 13 U.S. Statutes at Large, p. 365. Section 2 of the Act, provides, in pertinent part:

And be it further enacted, That the right of way through the public lands be, and the same is hereby, granted to said “Northern Pacific Railroad Company,” its successors and assigns, for the construction of a railroad and telegraph as proposed; . . . Said way is granted to said railroad to the extent of two hundred feet in width on each side of said railroad where it may pass through the public domain, . . .

2. The Act “gave Northern Pacific title in the form of a ‘limited fee, made on an implied condition of reverter in the event that the company ceased to use or retain the land for the purpose for which it was granted.’” *Avista Corp., Inc. v. Wolfe*, 549 F.3d 1239, 1242-43 (9th Cir. 2008) (citing *Northern Pac. R.R. Co. v. Townsend*, 190 U.S. 267, 271, 23 S.Ct. 671 (1903)).

3. In addition:

A grant of land to a railroad for right of way purposes is substantially different from any like grant for other purposes. The character of the contemplated use makes it different. It is intended that the use by a railroad company will be perpetual and continuous. A railroad company performs a public service and is burdened with a public duty. In the performance of that duty it is held to the exercise of the highest degree of care, and the complete, convenient, and safe use of its right of way requires that its possession be exclusive—a possession not shared with another; that it have complete dominion over its right of way and that it enjoy all those rights which usually attend the fee.

Lake CDA Investments, LLC v. Idaho Dep’t. of Lands, 149 Idaho 274, 282, 233 P.3d 721, 279 (2010) (quoting *Coulsen v. Aberdeen-Springfield Canal Co.*, 47 Idaho 619, 626-27, 277 P. 542, 544-45 (1929)).

4. Whether a general grant of land such as that found in the 1864 Act is sufficient to convey ownership of submerged lands is uncertain, as recognized by the United States Supreme Court:

“[A]s was pointed out in *Shively v. Bowlby*, at pages 49, 57, 58 (14 S. Ct. 548), the United States early adopted and constantly has adhered to the policy of regarding lands under navigable waters in acquired territory, while under its sole dominion, as held for the ultimate benefit of future states, and so has refrained from making any disposal thereof, save in exceptional instances when impelled to particular disposals by some international duty or public exigency. It follows from this that disposals by the United States during the territorial period are not lightly to be inferred, and should not be regarded as intended unless the intention was definitely declared or otherwise made very plain.

United States v. Holt State Bank, 270 U.S. 49, 55 (1926).

5. The record includes a “Rand McNally & Co.” map, circa 1890, which shows the route of “the Northern Pacific Railroad Company Land Grant” in and around “Sand Point.” The map shows the route as being adjacent to and crossing Lake Pend Oreille. Current aerial images that were included with the Application and are therefore part of the record show that BNSF is utilizing the route, including areas directly adjacent to the Lake at points on its northern and southern shores.

6. The right of way granted by Congress in 1864 extends across Lake Pend Oreille.

7. Idaho became a state in 1890, and “was admitted to the Union . . . on equal footing with its sister states in every respect. Idaho Admission Bill § 1 (1890). The state obtained title to all land below the high water mark of navigable waters within the state at the time of its admission based on this equal footing doctrine.” *Idaho Forest Indus., Inc. v. Hayden Lake Watershed Imp. Dist.*, 112 Idaho 512, 516, 733 P.2d 733, 737 (1987).

8. In light of those principles, the grant of right-of-way did not necessarily alienate the submerged lands to BNSF.

9. For purposes of this Final Order, it is not necessary to decide whether BNSF or the State of Idaho owns the bed and banks of Lake Pend Oreille. All that is necessary is to recognize BNSF's right to utilize the right-of-way for construction of a railroad bridge and associated fill.

D. I hereby adopt Paragraphs 19 - 22 (including the footnote therein) of the Conclusions of Law, and conclude that the Application was timely published, comments were taken, and hearings were held.

E. I hereby adopt Paragraphs 23 – 25 of the Conclusions of Law, and conclude that the Idaho Department of Lands (“IDL”) has jurisdiction over Lake Pend Oreille and Sand Creek.

F. I hereby adopt Paragraphs 26 – 29 of the Conclusions of Law.

G. I decline to adopt Paragraph 30 – 32 of the Conclusions of Law, and instead conclude as follows:

The Application may only be approved if it can be “regulated in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment.” I.C. § 58-1301. As will be explained below, weighing those “lake values” against the benefit of the project, the preponderance of the evidence leads in favor of approving the Application.

H. I hereby adopt Paragraphs 33 – 45 of the Conclusions of Law, with the exception that the word “trans” in Paragraph 38, p. 27, line 11 is corrected to “trains.”


IV. FINAL ORDER

Based upon the entire record; the Lake Protection Act (Title 58, Chapter 13, Idaho Code); and the Rules for the Regulation of Beds, Waters and Airspace over Navigable Lakes in the State of Idaho, IDAPA 20.03.04.000 *et seq.*, and as reflected in the Findings of Fact and Conclusions of Law set forth above,

It is hereby ORDERED that the Application for Encroachment Permit No. L-96-S-0096E is APPROVED with a five year sunset period for construction.

This is a final order of the agency. Pursuant to Idaho Code § 58-1306(c) and IDAPA 20.30.04.030.09, the Applicant or any aggrieved party who appeared at the hearing shall have the right to have the proceedings and Final Order reviewed by the district court in the county in which the encroachment is proposed by filing a notice of appeal within thirty (30) days from the date of this Final Order. Because this Order is for approval of a permit, any party appealing this Final Order must file a bond with the district court in accordance with Idaho Code § 58-1306(c). The amount of the bond will be set by the district court, in an amount not less than \$500.

DATED this 21st day of June, 2018.



DAVID GROESCHL
Director, Department of Lands

CERTIFICATE OF MAILING

I hereby certify that on this 22nd day of June, 2018. I caused to be served a true and correct copy of the foregoing by the method indicated below, and addressed to the following:

Matthew Keim BNSF Railway Co. Northtown GOB 80 44th Avenue NE Minneapolis, MN 55421	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: Matthew.Keim@BNSF.com
Shane Slate United States Army Corps of Engineers	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: shane.p.slate@usace.army.mil
Jim Lewis	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: jlewis@mtrail.com
Glen Bailey	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: ltcbailey@gmail.com
Monika Wachowiak	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: monawasser@gmail.com
Helen Newton	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: snhnewton@frontier.com
Matt Nykiel	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: mnykiel@idahoconservation.org
Helen Yost Wild Idaho Rising Tide	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: wild.idaho.rising.tide@gmail.com

Bill Cronenberg	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: bcronenberg@msn.com
Laura Ackerman	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: lackerman@landscouncil.org
Gabe Hinkle	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: gabhinkle@hotmail.com
Tim Spangler 1135 Mullan Rd W. Superior, MT 59872	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input type="checkbox"/> Email:
Rebecca Holland 300 Amber Dr. Sandpoint, ID 83864	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input type="checkbox"/> Email:
David E. Hall	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: david_hall@hotmail.com
Dan McDonald	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: dan.mcdonald@bonnercountyid.gov
Douglas Jones Idaho Department of Water Resources	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: doug.jones@idwr.idaho.gov
Pat Keim 1350 Deer Meadow Dr. Helena, MT 59601	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input type="checkbox"/> Email:

Jane Fritz	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: jane Fritz@frontier.com
Ann Giantvalley	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: dgiantvalley@gmail.com
Timothy Krech	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: timothykrech@gmail.com
Andrea Marcoccio	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: marcoccio.andrea@gmail.com
Shelly Sugarman	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: shelly.h.sugarman@uscg.mil
Shelby Rognstad	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: mayor@sandpointidaho.gov
Dave Pietz	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: davepietz67@gmail.com
Steve Lockwood	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: yachthalo@yahoo.com
Judy Butler	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: bjudy90@yahoo.com

Kathleen Huntley	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: kathofhope@gmail.com
Emily Neff	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: anomaly412@yahoo.com
John Garton	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: johngarton@bellsouth.net
Rick Cramer	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: rjcramer7@gmail.com
Andrew Kennaly	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: akennaly@gmail.com
Steven Morgan	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: morgan@asglaw.com
Jim Lewis	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: jlewis@mtsoil.com
Courtney Wallace	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: Courtney.wallace@bnsf.com
Anne James PO Box 347 Newport, WA 99156	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input type="checkbox"/> Email:

Steve Geiger	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: mayor@ponderay.org
Kiira Siitari Idaho Department of Fish and Game 2885 West Kathleen Avenue Coeur d'Alene, ID 83815	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: kiira.siitari@idfg.idaho.gov
Pierre Bordenave Jacobs Engineering 101 North Fourth Avenue, Suite 203 Sandpoint, ID 83864	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: pierre.bordenave@jacobs.com
Don Hagen 169 Lakeshore Dr. Sagle, ID 83860	<input checked="" type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input type="checkbox"/> Email:
Diane French Idaho Department of Lands	<input type="checkbox"/> U.S. Mail, postage prepaid <input type="checkbox"/> Hand Delivery <input type="checkbox"/> Federal Express <input checked="" type="checkbox"/> Email: dfrench@idl.idaho.gov


 Renée Miller, Management Assistant

Preliminary Draft for
Agency Review

**BEFORE THE DEPARTMENT OF LANDS
OF THE STATE OF IDAHO**

In the Matter of:

Encroachment Permit Application
No. L-96-S-0096E

BNSF Railway Co.,
Applicant.

Case No. PH-2018-PUB-20-001

PRELIMINARY ORDER

FACTUAL AND PROCEDURAL BACKGROUND

1. On February 22, 2018, the BNSF Railway Company (“BNSF”) filed a *Joint Application for Permits* (“Application” or “App.”) with the Idaho Department of Lands (“Department” or “IDL”), the Idaho Department of Water Resources, and the U.S. Army Corps of Engineers (“USACE”) for bridges across Bridge Street, Lake Pend Oreille (“Lake”), and Sand Creek. *App.* at 1. “The project purpose is to provide improvements for freight and passenger rail traffic to meet existing and ongoing capacity needs. Rail traffic volumes have significantly increased for the past 30-years to the point that section of the BNSF rail system has become a constraint for interstate commerce.” *App.* at 5. The “preferred” alternative is construction of “New Track and Bridges over Sand Creek and Lake Pend Oreille west of the existing track/bridges” *Id.* “The existing single mainline and portions of the over-water rail bridges date from the early 1900s. The proposed project will relieve system congestion, back-up of rail traffic, and reduce hold times on sidings and wait times at grade crossings both locally and regionally.” *Attachment to App., Alternative Analyses: Sandpoint Junction Connector Project* at 4.

A. The Bridges

2. The bridge over Sand Creek is referred to by BNSF as “Bridge 3.1.” *App.* at 2. The bridge over Lake Pend Oreille is referred to by BNSF as “Bridge 3.9.” *Id.* “The new bridges will be constructed from the temporary construction bridges.” *Id.* at 4. “Temporary, timber deck work bridges will be constructed immediately adjacent to (west side) of the proposed new bridges to support large cranes” *Id.* at 4. “All bridge pile driving, both temporary and permanent, will be initially vibratory, and then impact driven. The temporary construction bridges (24-inch-diameter steel piles) will be primarily vibrated, with typically one pile per bent impact proofed, to provide appropriate support for equipment. The permanent bridges will be mostly vibrated to resistance, and then impact driven to meet railroad loading requirements.” *Id.*

3. “Prior to construction, a navigational plan for both the Br. 3.1 and Br. 3.9 temporary and new bridges will be developed and approved by IDL in accordance with Rule 015.13.g of IDAPA 20.03.04 This plan will address bridge(s) lighting and other navigational markings or aids for the project.” *Id.* at 5. An *Addendum – 1* (“Addendum”) dated January 31, 2018, but updated on February 14, 2018, was submitted by BNSF to IDL regarding compliance with IDAPA 20.03.04.015.13.g. The Addendum addresses markings and lighting on the temporary and permanent bridge piers.

4. “The project design and proposal will not result in permanent changes to the hydrology of either Lake Pend Oreille or Sand Creek.” *App.* at 5.

i. Bridge 3.9 over Lake Pend Oreille

5. Regarding Bridge 3.9, “There is an existing interstate, mainline railroad bridge at the project site. The existing fixed bridge has both open-deck and ballast-deck spans, and is 4,769 feet long with 88 piers. Thirty-two of the original 100+ year-old single column concrete piers on wood pilings (16 on the north end and 16 on the south end of the bridge) were replaced in 2006-2009 with steel bents, each comprised of six closed-end steel pipe piles. The existing bridge also has a non-operable swing span over the two existing, published 76.6 foot-wide navigational channels.” *Attachment to App., Coast Guard Bridge Permit Application, Proposed BNSF Railway Company Lake Pend Oreille Bridge 3.9 at 2* (December 21, 2017) (“USCG 3.9 App.”).

6. The new, permanent bridge across the Lake “will be approximately 50 feet to the west of the existing bridge” consisting of “49 total spans,” “48 in-water pier bents (piers), each consisting of six, open-ended 36-inch diameter steel pipe pilings, for a total of 288 pilings below the jurisdictional OHWM (2062.5’) elevation of the lake. The new bridge piers will match the approximate alignment of every other pier for the majority of the existing Bridge 3.9.” *App. at 2*. There will be “10 spans at, and adjacent to the designated navigational spans on the existing bridge [which] will closely match those longer span horizontal clearances. The maximum vertical clearance (low chord) of the new bridge will be 15 feet above the regulated summer pool elevation of 2062.5 feet. These 15-foot clearances will consist of six 75’ 11” spans, four of which will align with the existing rail bridge’s 77-foot spans that are equal to or greater than 15-foot vertical clearance.” *Id.* The new bridge will be 4,874 feet long, “made of precast, pre-stressed concrete I-girders, a cast-in-place concrete deck, and pre-cast concrete caps” *USCG 3.9 App. at 2*.

7. The temporary, construction bridge across the Lake “will be constructed west of the new bridge location consisting of approximately 100, 48-foot long spans and one 24-foot long span at the north end. The construction bridge will have a total of 137 piers consisting of: 76 piers will four, 24-inch-diameter steel piles; 25 piers with eight, 24-inch-diameter steel piles; 32 piers with four, 24-inch-diameter steel piles to construct eight bridge staging setouts at approximately 500-foot intervals along the construction bridge.” *Id.* “In total there may be up to 700, 24-inch steel piles to accommodate minor adjustments in span support needs and site conditions. The construction bridge low chord elevation will gradually rise from the abutments at each end to a four-span section, corresponding to two spans on the existing bridge (Spans 64 and 65) with 15 feet of vertical clearance above the regulated summer pool elevation of 2062.5 feet. The construction bridge will grade at a 0.5% or less slope from the abutments to these 15-foot elevations. This will result in Spans 1 through 16 at the north end of the bridge having less than 10 feet of vertical clearance and the remaining 72 spans having 10 feet or greater vertical clearance.” *Id.* at 3.

8. “For Br. 3.9, some of the permanent bridge work will begin as the work bridge is under construction.” *Id.* at 4.

9. “Br. 3.9 will have 36-inch diameter steel pipes requiring an average of 1600 strikes each. The pilings driven for Br. 3.9 will have a bubble curtain from the pile driving for those locations that are at least 8-feet deep at the time of the pile driving. If less than 8-feet deep, just turbidity curtains will be used.” *Id.* at 4.

10. “The proposed project will take approximately 3-3.5 years (2018-2021). Proposed work is year-round.” *Id.* at 3.

11. The estimated cost of Bridge 3.9 is over \$100 million, and will be privately funded. *Id.*

ii. Bridge 3.1 over Sand Creek

12. Regarding Bridge 3.1, “There is an existing interstate, mainline railroad bridge at the project site. The existing fixed bridge is 155 feet long and 14 feet wide with four concrete piers, two of which are abutments. It was originally constructed in 1902, but was modified in 1990 with replacement of the superstructure, concrete pier caps, deck and walk. The existing bridge will remain unchanged.” *Attachment to App., Coast Guard Bridge Permit Application, Proposed BNSF Railway Company Sand Creek Bridge 3.1 at 2* (December 21, 2017) (“USCG 3.1 App.”).

13. The new, permanent bridge across Sand Creek “will be approximately 35 feet to the west of the existing Bridge 3.1 and consist of 12 total spans [consisting of] [o]ne approximate 80-foot span over the creek channel; [s]even approximate 45-foot spans, one of which will be over a portion of the creek during high water and the rest being fully upland of the OHWM (2062.5’); [t]hree approximate 25-foot spans, one of which will be over a portion of the creek during high water and the other two being fully upland of the OHWM (2062.5’); [a]nd one approximate 31-foot transition span, which will not be over water.” *App.* at 3. “There will be a total of 11 piers associated with the new bridge: [t]wo piers consisting of eight 24-inch diameter steel pilings, all of which will be within the navigational channel. Seven piers consisting of six 24-inch-diameter steel pilings, both which will be upland of the regulated OHWM (2062.5’). Two piers consisting of three 24-inch-diameter steel pilings, both of which will be upland of the regulated OHWM (2062.5’). The total number of pilings is projected to be 64, 22 of which will be below the regulated OHWM (2062.5’).” *Id.* “Only two of the piers will be fully within the

creek's navigational channel. The new bridge navigational horizontal clearance is 74 feet; the existing bridge has an approximate 45-foot horizontal clearance. Vertical clearance of the new bridge will match the vertical clearance of the existing bridge, which is 17 feet above the 2062.5-foot OHWM." *Id.*

14. The temporary, construction bridge over Sand Creek will "consist[] of 11 spans. There will be 10 piers fully or partially within the jurisdictional area below the OHWM (2062.5'). These will consist of: [t]wo piers with eight 24-inch-diameter steel pilings[;] [e]ight piers with four 24-inch-diameter steel pilings[.]” *Id.* “The total number of pilings below the OHWM (2062.5') may be up to 40 to accommodate minor adjustments in variable span support needs and site conditions. The temporary construction bridge span over Sand Creek marked and lighted navigational channel will be limited to the period when no navigational access up Sand Creek is available, from approximately October 15 to April 15, depending on Albeni Falls Dam fall drawdown and spring fill.” *Id.*

15. “Br. 3.1 will have 24-inch diameter steel pipe piles requiring an average of 1200 strikes each.” *Id.* at 4. “The pilings driven for Br. 3.1 will not be either bubble curtains or turbidity curtains due to the shallow nature of Sand Creek, and the current flow of the creek renders them both ineffective. The primary use of the turbidity curtain is to contain and settle the sediments that typically result from the use of bubble curtains. They also provide a small amount of sound attenuation during the pile driving activity.” *Id.*

16. “The Bridge 3.1 project will take approximately one year and will occur during the 2018-2021 construction timeframe for the entire BNSF Sandpoint Junction Connector project. However, construction of the spans within the navigational area of Sand Creek will be limited to the period when navigational access is highly restricted upstream on Sand Creek, from

approximately mid-October to mid-April during the regulated low water or winter pool period.”

USCG 3.1 App. at 4.

17. The estimated cost of Bridge 3.1 is over \$8 million, and will be privately funded.

Id. at 3.

B. Nearshore Edge Fill Below The Ordinary High Water Mark

18. There will be a “[t]otal of 0.88-acre of permanent fill and 0.38 acres of temporary fill: 0.29-acre permanent fill along the lakeshore edge at the south end of the project where the new track will connect to the existing BNSF Algoma Siding north switch[;] 0.01-acre permanent fill and 0.03-acre temporary fill at the south end of Bridge 3.9 to accommodate the transition from the bridges to the existing upland grade[;] 0.57-acre of permanent fill and 0.3-acre temporary fill at the north end of the Bridge 3.9 to accommodate the transition from bridges to the existing upland grade . . . [;] 0.01-acre at the south end of Bridge 3.1 to accommodate the transition from bridge to new rail grade[;] 0.05-acre temporary/incidental fill assumed from construction activities to install Bridge 3.1 upland pilings along the water line north of the navigational channel.” *App.* at 3.

19. “Fills in nearshore locations and wetlands will occur at the earliest stages of the project to take advantage of performing that work while lake levels are lower and wetland areas are relatively dry.” *Id.* at 4.

C. Notice Of The Application And Hearings

20. On February 26, 2018, the Department mailed a notice of the Application to the US Army Corps of Engineers-CDA, Idaho Department of Fish and Game, Idaho Department of Environmental Quality, Idaho Department of Water Resources, Idaho Department of Transportation, Bonner County Marine Division, Bonner County Public Works, Lakes

Commission, Idaho Conservation League, Lake Pend Oreille, Pend Oreille Lake*A*Syst Coordinator, and adjacent neighbors.

21. On February 26, 2018, IDL mailed courtesy notifications of the Application to the City of Sandpoint, Allen G. Family, LLC, Waterfront Property Management, LLC, Alan A. Berryman, DJ Land Corporation, and Condo Del Sol Association, Inc.

22. According to a March 7, 2018 *Affidavit of Publication*, signed by the legal clerk of the *Bonner County Daily Bee*, notice of the Application ran for a period of two consecutive weeks, commencing on February 28, 2018 and ending March 7, 2018. The *Notice of Application* published in the *Bonner County Daily Bee* stated, in pertinent part: “BNSF Railway Co. has made application to add a second train bridge adjacent to and west of the existing train bridge across Lake Pend Oreille.” The *Notice of Application* stated, “Written comments on this matter must be on file with the Idaho Department of Lands . . . within thirty (30) days after the first appearance of this notice.”¹

23. On March 14, 2018, David Groeschl, Deputy Director (“Director”), appointed Chris M. Bromley as “‘Hearing Coordinator’ to conduct a hearing in the above-captioned matter. The hearing will be conducted pursuant to Idaho Code § 58-1306(c). The Hearing Coordinator has the scope of authority delineated by IDAPA 20.01.01.413.01 and by IDAPA 20.03.04.05.” *Notice of Appointment of Hearing Coordinator and Hearing* at 1. The Deputy Director “delegate[d] initial decision-making authority to the Hearing Coordinator pursuant to Idaho Code § 67-5245.” *Id.* “Notice is hereby given that a public hearing in the above-captioned matter will be conducted in accordance with IDAPA 20.01.01.000 *et seq.* on Wednesday, May 23, 2018. The first session of the hearing will start at 8:00 a.m. Pacific Time at the Ponderay Events Center

¹ As will be stated later, all comments received prior to the close of the public hearing on the evening of May 23, 2018 are timely and were considered by the hearing coordinator.

located at 401 Bonner Mall Way, Suite E, Ponderay, Idaho. The second session of the hearing will start at 6:00 p.m. Pacific Time at the Sandpoint Middle School Gymnasium located at 301 South Division, Sandpoint, Idaho.” *Id.* at 2. “The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing.” *Id.* at 1. Thirty days after conclusion of the May 23, 2018 hearings is June 22, 2018.

D. Written Comments

24. Prior to the hearings, approximately 1,100 written comments were received by the Department in response to the Application. The overwhelming majority of written comments were in favor of the Application. Of the written comments in favor of the Application, nearly all were identical in their form and substance, stating the Application should be approved because the project will promote the economy, reduce waiting times at crossings, and increase safety. Comments in favor of the Application that were uniquely written made similar statements. Comments opposed to the Application were concerned with harm to the environment due to pollution (noise, water, air), and wanting to see completion of a full “Environmental Impact Statement” (“EIS”) as opposed to simply an “Environmental Assessment” (“EA”). Written comments came from all areas of the country, including Idaho.

E. The Public Hearings

25. The public hearings took place on May 23, 2018, at the times and locations described in the *Notice of Appointment of Hearing Coordinator and Hearing*.

26. At the morning hearing, verbal comments were given by the United States Coast Guard (“USCG”), USACE, BNSF, the Idaho Department of Fish & Game (“F&G”), IDL, and members of the public. With one exception, members of the public who provided verbal

comment at the morning hearing were opposed to the Application for reasons consistent with the written comments. The morning hearing concluded at approximately 9:30 a.m.

27. At the evening hearing, verbal comments were given by USCG, USACE, BNSF, IDL, the Mayor of the City of Sandpoint, two Bonner County Commissioners, the Idaho Conservation League, and members of the public. Most of the verbal comments taken during the evening hearing were opposed to the Application for reasons consistent with the written comments. The evening hearing concluded at approximately 8:15 p.m., at which point the record was closed.

28. All written comments received by the close of the evening hearing are timely and were considered by the hearing coordinator.

29. Of the verbal comments made in opposition to the Application at both the morning and evening hearings, a commonality was the request that a federal EIS be performed, as opposed to simply a federal EA. As previously stated, a similar theme of wanting to see an EIS over an EA is found in the written comments submitted in opposition to the Application.

30. At both the morning and evening hearings, Shelly Sugarman, chief of bridge permitting and policy for the USCG, addressed the issue of a federal EA or EIS. According to Ms. Sugarman, the USCG is the lead federal permitting agency for the BNSF project, and is in the process of reviewing the need for an EA or EIS:

As part of our permit process we evaluate the navigational and environmental impacts of each proposed project. The Coast Guard has jurisdiction over Lake Pend Oreille because it is a navigable waterway of the United States. We are presently reviewing the application from BNSF to add a second railroad bridge across Lake Pend Oreille and Sand Creek. In April we received a preliminary draft environmental assessment for review as part of BNSF's bridge permit application. The Coast Guard is the lead federal agency under the national environmental policy act and all other federal environmental control laws for this project.

The Corps of Engineers will be a cooperating agency for us. To better inform our decision as to whether the environmental document should be an environmental assessment or an environmental impact statement we have been reviewing the draft environmental assessment and all public comments submitted to the Corps of Engineers and the Idaho Department of Lands in response to their recent public notices. By early June we expect to decide whether the environmental document will be an environmental assessment or an environmental impact statement. Once drafted, the environmental document will be made available for public review and comment through the federal register at www.regulations.gov. Comments submitted through that website will be available for everyone to view.

The Coast Guard will also hold one or more public meetings here in Idaho during the comment period. We will also provide public notices via US mail to announce that environmental documents are available for review and to provide public meeting details. If you have any questions I will be available throughout the hearing.

Evening Transcript at 9-10 (emphasis added).

31. A number of written comments were received by the Department after the close of the evening hearing. Comments received after the close of the evening hearing were untimely and were not considered.

CONCLUSIONS OF LAW

1. The Hearing Coordinator was tasked by the Department to issue a preliminary order. Idaho Code § 67-5245 governs preliminary orders and states as follows:

(1) A preliminary order shall include:

(a) A statement that the order will become a final order without further notice; and

(b) The actions necessary to obtain administrative review of the preliminary order.

(2) The agency head, upon his own motion may, or, upon motion by any party shall, review a preliminary order, except to the extent that:

(a) Another statute precludes or limits agency review of the preliminary order; or

(b) The agency head has delegated his authority to review preliminary orders to one (1) or more persons.

(3) A petition for review of a preliminary order must be filed with the agency head, or with any person designated for this purpose by rule of the agency, within fourteen (14) days after the service date of the preliminary order unless a different time is required by other provision of law. If the agency head on his own motion decides

to review a preliminary order, the agency head shall give written notice within fourteen (14) days after the issuance of the preliminary order unless a different time is required by other provisions of law. The fourteen (14) day period for filing of notice is tolled by the filing of a petition for reconsideration under section 67-5243(3), Idaho Code.

(4) The basis for review must be stated on the petition. If the agency head on his own motion gives notice of his intent to review a preliminary order, the agency head shall identify the issues he intends to review.

(5) The agency head shall allow all parties to file exceptions to the preliminary order, to present briefs on the issues, and may allow all parties to participate in oral argument.

(6) The agency head shall:

(a) Issue a final order in writing, within fifty-six (56) days of the receipt of the final briefs or oral argument, whichever is later, unless the period is waived or extended with the written consent of all parties, or for good cause shown;

(b) Remand the matter for additional hearings; or

(c) Hold additional hearings.

(7) The head of the agency or his designee for the review of preliminary orders shall exercise all of the decision-making power that he would have had if the agency head had presided over the hearing.

Idaho Code § 67-5245.

2. According to the *Notice of Appointment of Hearing Coordinator and Hearing*:

The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty (30) days after the conclusion of the hearing. As provided in Idaho Code § 67-5240, the contested case provisions of the Administrative Procedures Act do not apply where the legislature has directed the use of alternative procedures. Because the legislature has enacted specific alternative procedures in Idaho Code § 58-1306 that require a final order to be issued within 30 days of the hearing, and leave insufficient time to consider petitions for review of the preliminary order, the procedures of Idaho Code § 67-5245 addressing petitions for review of preliminary orders are not applicable.

Notice of Appointment of Hearing Coordinator and Hearing at 1-2 (emphasis added).

All such hearings shall be public and held under rules promulgated by the board under the provisions of chapter 52, title 67 of the Idaho Code. The board shall render a decision within thirty (30) days following conclusion of the hearing and a copy of the board's decision shall be mailed to the applicant and to each person or agency appearing at the hearing and giving testimony in support of or in opposition to the proposed encroachment. Any applicant or other aggrieved party so appearing at a hearing shall have the right to have the proceedings and

decision of the board reviewed by the district court in the county where the encroachment is proposed by filing notice of appeal within thirty (30) days from the date of the board's decision.

Idaho Code § 58-1306(c).

3. All hearings in this matter concluded at approximately 8:15 p.m. on May 23, 2018, with the matter now before the hearing coordinator to issue a preliminary order.

4. The proposed activity over Bridge Street does not impact lands within the jurisdiction of the Department. The proposed activity over Lake Pend Oreille and Sand Creek involves temporary and permanent bridges, along with temporary and permanent fill, with areas coming within the Department's jurisdiction pursuant to Idaho's Lake Protection Act, Idaho Code § 58-1301 *et seq.*

A. Burden Of Proof

5. As the applicant, BNSF bears the burden of persuasion. "The customary common law rule that the moving party has the burden of proof—including not only the burden of going forward but also the burden of persuasion—is generally observed in administrative hearings." *Intermountain Health Care, Inc. v. Bd. of County Comm'rs of Blaine County*, 107 Idaho 248, 251, 688 P.2d 260, 263 (Ct. App. 1984) *rev'd on other grounds* 109 Idaho 299, 707 P.2d 410 (1985).

6. Under Idaho law, "preponderance of the evidence" is generally the applicable standard for administrative proceedings, unless the Idaho Supreme Court or legislature has said otherwise. *N. Frontiers, Inc. v. State ex rel. Cade*, 129 Idaho 437, 439, 926 P.2d 213, 215 (Ct. App. 1996). "Absent an allegation of fraud or a statute or court rule requiring a higher standard, administrative hearings are governed by a preponderance of the evidence standard." *Id. citing* 2 Am. Jur. 2d *Administrative Law* § 363 (1994). In civil cases, the well-settled principle is that the

burden of proof is preponderance of the evidence. *Nield v. Pocatello Health Services, Inc.*, 156 Idaho 802, 848, 332 P.3d 714, 760 (2014). “In most hearings the burden of persuasion is met by the usual civil case standard or preponderance of evidence.” *Intermountain* at 251, 688 P.2d at 263 “A preponderance of the evidence means that when weighing all of the evidence in the record, the evidence on which the finder of fact relies is more probably true than not.” *Oxley v. Medicine Rock Specialties, Inc.*, 139 Idaho 476, 481, 80 P.3d 1077, 1082 (2003).

B. The Application Meets The Procedural Requirements Of Idaho Code § 58-1306

7. Certain requirements, contained in Idaho Code § 58-1306, must be met for an application to be considered by the Department.

i. The Plans are Sufficient

8. First, “Applications . . . shall be submitted upon forms to be furnished by the board and accompanied by plans of the proposed encroachment containing information required by section 58-1302(k).” Idaho Code § 58-1306(a). Plans are defined as meaning, “maps, sketches, engineering drawings, aerial and other photographs, word descriptions, and specifications sufficient to describe the extent, nature and approximate location of the proposed encroachment and the proposed method of accomplishing the same.” Idaho Code § 58-1302(k). Here, the Application was submitted on the *Joint Application for Permits* form, approved for use by the Department. Through narrative, photographs, aerial images, engineering drawings, and schematics, BNSF describes the work that will occur. Therefore, the Application meets the requirements of Idaho Code § 58-1306(a) and Idaho Code § 58-1302(k).

ii. BNSF was Granted Title to the Right of Way in the Form of a Limited Fee with an Implied Condition of Reverter

9. Second, “Applications . . . must be submitted or approved by the riparian or littoral owner.” Idaho Code § 58-1306(a). A riparian or littoral owner is defined as, “The fee

owner of land immediately adjacent to a navigable lake, or his lessee, or the owner of riparian or littoral rights that have been segregated from the fee specifically by deed, lease, or other grant.” IDAPA 20.03.04.010.33 (emphasis added). As will be explained, below, BNSF was granted title to the right of way by the federal government in the form of a limited fee with an implied condition of reverter.

10. Here, BNSF states, “In 1864, the US Congress granted Northern Pacific Railway (now BNSF) the land upon which the current BNSF tracks exist, including where Br. 3.9 crosses Lake Pend Oreille. Subsequently, this property precedes Idaho statehood (1890) and is not formally considered a part of the IDL managed Public Trust Lands.” *Application* at 6.

11. In a comment submitted by ICL, it is requested: “IDL analyze and evaluate the ownership of the beds and banks of Lake Pend Oreille and Sand Creek in which BNSF intends to construct new rail infrastructure for the SJC proposal. BNSF has claimed that the bed and land on which it intends to install pilings and other rail infrastructure is not state trust land owned by the people of Idaho because this land was granted to BNSF before statehood.” *Comment of ICL* at 3 (May 23, 2018).

12. According to the Department: “During the initial review of the Joint Application, IDL requested from BNSF a copy of the BNSF right of way referenced in Block 23 of the Joint Application. A copy of the right of way document is attached to this testimony. This document states that in 1864, the United States granted a right of way to Northern Pacific Railroad Company, predecessors in interest to BNSF. The right of way was therefore granted prior to statehood in 1890 when the State of Idaho obtained title to the beds and banks of navigable lakes and rivers within Idaho. . . . The State of Idaho does not claim ownership of the lakebed within

the BNSF railroad right of way, as this is privately submerged lands.” *IDL Comment* at 2 (May 23, 2018).

13. The “grant” referenced by BNSF, ICL, and the Department derives from an 1864 Act of Congress, “grant[ing] to the Northern Pacific Railroad Company a right of way for a railroad, and lands in aid of the construction thereof, from Lake Superior to Puget Sound. . . . ‘Said way is granted to said railroad to the extent of two hundred feet in width on each side of said railroad where it may pass through public domain. “ *Crandall v. Goss*, 30 Idaho 661, 664, 167 P. 1025, 1025 (1917) citing Act of Congress, approved July 2, 1864 (13 Stats. At L. 365) (emphasis added). “Known as a land grant railroad statute, the 1864 Act gave Northern Pacific title in the form of a ‘limited fee, made on an implied condition of reverter in the event that the company ceased to use or retain the land for the purpose for which it was granted.” *Avista Corp. Inc. v. Sanders County*, 485 F. Supp. 2d 1176, 1181 (D. Mont. 2007) citing *Northern Pacific Railroad Company v. Townsend*, 190 U.S. 267, 271 (1903) (emphasis added). As further explained by the 9th Circuit:

The 1864 Act grew out of Congress’ efforts in the mid-19th Century, intensified by the Gold Rush and the Civil War, to settle the American West and provide a direct link to California. *Leo Sheep Co. v. United States*, 440 U.S. 668, 670-77, 99 S.Ct. 1403, 59 L.Ed.2d 677 (1979) (discussing in detail the history of this period of railroad development). Beginning in 1850, Congress passed a series of statutes granting public lands to private railroad companies to spur the construction of a cross-country railroad. *Great N. Ry. v. United States*, 315 U.S. 262, 273 & n. 6, 62 S.Ct. 529, 86 L.Ed. 836 (1942). During this period, Congress often granted the railroads alternate sections of land along the right of way-resulting in a “checkerboard” of public and private lots-to further subsidize construction. *Leo Sheep Co.*, 440 U.S. at 672, 99 S.Ct. 1403.

In subsequent years, the policy of granting “lavish” subsidies of public lands to railroads was met with increasing public disfavor. *Great N. Ry.*, 315 U.S. at 273-74, 62 S.Ct. 529. In the wake of the Credit Mobilier scandal in 1872, the House of Representatives adopted a resolution condemning the practice. Cong. Globe, 42d Cong., 2d Sess., 1585 (1872); see *Leo Sheep Co.*, 440 U.S. at 670-77, 99 S.Ct. 1403; *Great N. Ry.*, 315 U.S. at 273-74, 62 S.Ct. 529. Although this marked the end of

outright land grants, Congress continued to encourage development of the West through the General Railroad Right of Way Act of 1875, which provided easements to railroads across public lands. 43 U.S.C. § 934; *see also United States v. Union Pac. R. R.*, 353 U.S. 112, 119, 77 S.Ct. 685, 1 L.Ed.2d 693 (1957); *Great N. Ry.*, 315 U.S. at 273-76, 62 S.Ct. 529.

Northern Pacific, like other railroad companies granted land prior to 1875, held title in the right of way in the form of a “limited fee, made on an implied condition of reverter in the event that the company ceased to use or retain the land for the purpose for which it was granted.” *N. Pac. Ry. Co. v. Townsend*, 190 U.S. 267, 271, 23 S.Ct. 671, 47 L.Ed. 1044 (1903). Under *Townsend*, land granted to a railroad would revert to the United States in the event the railroad stopped using the right of way for railroad purposes. *Id.* at 271-72, 23 S.Ct. 671. Because of the United States’ potential interest, a railroad did not have the power to voluntarily transfer its interest in the right of way, nor could a private party acquire title to any portion of the right of way by adverse possession. *Id.*

Avista Corporation Inc. v. Wolfe, 549 F.3d 1239, 1242-1243 (9th Cir. 2008) (emphasis added).

14. “A grant of land to a railroad for right of way purposes is substantially different from any like grant for other purposes. The character of the contemplated use makes it different. It is intended that the use by a railroad company will be perpetual and continuous. A railroad company performs a public service and is burdened with a public duty. In performance of that duty it is held to the exercise of the highest degree of care, and the complete, convenient, and safe use of its right of way requires that its possession be exclusive – a possession not shared with another; that it have complete dominion over its right of way and that it enjoy all those rights which usually attend the fee.” *Lake CDA Investments, Inc. v. Idaho Dept. of Lands*, 149 Idaho 274, 282, 233 P.3d 721, 729 (2010) (emphasis added).

15. In an attachment to the IDL May 23, 2018 comments that are part of the record, a “Rand McNally & Co.” map, circa 1890, shows the route of “the Northern Pacific Railroad Company Land Grant” in and around “Sand Point.” Current aerial images in the record that

were included with the Application show BNSF is utilizing land in the State of Idaho for a railroad, and that the railroad crosses Lake Pend Oreille and the mouth of Sand Creek.²

16. Evidence in the record, supported by the 1864 Act of Congress together with case law, shows BNSF, as a successor in interest to the Northern Pacific Railroad Company, was “granted . . . a right of way,” *Goss* at 664, which is “title in . . . in the form of a ‘limited fee, made on an implied condition of reverter in the event that the company ceased to use or retain the land for the purpose for which it was granted.’” *Wolfe* at 1242 citing *Townsend* at 271.

17. There is no evidence in the record suggesting BNSF is operating outside of, or inconsistently with its title to the right of way. As of today, and consistent with the cases cited above, BNSF holds title to its right of way, which is 400 feet wide, in the form of a grant of a limited fee with an implied condition of reverter. It is outside the scope of this proceeding to conclude in whom title to the beds and banks of Lake Pend Oreille and the mouth Sand Creek within the BNSF right of way would rest if there were a reverter. *See Idaho v. United States*, 533 U.S. 262, 272-73 (2001) (discussing Idaho’s admittance into the Union, the equal footing doctrine, and presumptions of State ownership of the beds and banks of navigable waters).

18. As the owner of title to the right of way, which was granted to it by the federal government with an implied condition of reverter, BNSF meets the requirements of Idaho Code § 58-1306(a) and IDAPA 20.03.04.010.33. As will be discussed below, very little of the Application involves land outside the right of way.

iii. The Application was Timely Published

19. Third, “Within ten (10) days of receipt of an application . . . the board shall cause to be published . . . once a week for two (2) consecutive weeks, a notice advertising of the

² The mouth of Sand Creek, as will be explained below, falls within the purview of Idaho’s Lake Protection Act.

application and describing the proposed encroachment and general location thereof.” Idaho Code § 58-1306(b). Here, the Application was received on February 22, 2018. Notice of the Application was published in the *Bonner County Daily Bee* for a period of two consecutive weeks, commencing on February 28, 2018 and ending March 7, 2018. *Affidavit of Publication*. Therefore, the Application was timely published.

iv. Comments were Taken

20. Fourth, “Any resident of the state of Idaho, or a nonresident owner or lessee of real property adjacent to the lake, or any state or federal agency may, within thirty (30) days of the first date of publication, file with the board an objection to the proposed encroachment and a request for a hearing on the application.” Idaho Code § 58-1306(c). Here, the Department has been taking written comment for and against the Application since notice was published on February 28, 2018. Some of the comments were styled in the form of an objection requesting a hearing. Not all written comments stated they were filed by a “resident” or a “nonresident owner or lessee of real property adjacent to” Lake Pend Oreille. Indeed, many written comments were submitted by persons from areas outside Idaho, or anonymously. Nonetheless, all timely comments were considered by the hearing coordinator, as there was no way to discern if out-of-state comments were submitted by a nonresident owner or lessee of real property adjacent to the Lake.

21. While the notice stated that comments must have been received “within thirty (30) days after the first appearance of this notice,” the Department continued to take written comments up until the close of the evening hearing on May 23, 2018. Therefore, the Department provided more than the statutorily required period of thirty days for receiving comments. Comments received after the close of the evening hearing on May 23, 2018 are untimely and

were not considered. Comments concerning the preparation of an EA or EIS are questions of federal law that cannot be addressed by the Department, but will purportedly be addressed by the USCG and USACE.³

v. Hearings were Held

22. Fifth, a “hearing” may be held if an objection requesting a hearing is made, or upon the Department’s own volition. Idaho Code § 58-1306(c). Here, the Director – in an exercise of discretion, and while only one hearing is required – ordered two hearings be held. Therefore, by holding two hearings, the singular hearing requirement of Idaho Code § 58-1306(c) is satisfied.

C. The Department Has Jurisdiction Over Lake Pend Oreille And Sand Creek

23. The Department is vested with the authority, in the interest of “public health, interest, safety and welfare [to regulate] all encroachments upon, in or above the beds of waters of navigable lakes of the state . . . in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment.” Idaho Code § 58-1301.

24. BNSF proposes work in and above Lake Pend Oreille. *Application* at 2-3. Structures in the Lake include temporary and permanent piers and fill. *Id.* at 2. Structures above the Lake include the temporary construction bridge, and the permanent railroad bridge. *Id.* The

³ It is possible there was some confusion regarding the filing of comments due to the fact that multiple agencies are involved. Applications, such as the one at issue in this proceeding, are filed jointly with IDL, the Idaho Department of Water Resources, and the USACE. *Application* at 1. As stated by Ms. Sugarman in her comments, the USCG is the lead agency, with the USACE assisting in a “cooperating” role. It is possible the comments filed after the close of IDL’s hearings may have been directed toward USACE and USCG, which involves a separate, federal process. The conclusion made herein as to comments filed after the close of IDL’s hearing applies only to IDL’s record. No finding or conclusion is made as to the timeliness of any comments directed toward USACE or USCG. USACE and USCG may have different rules for consideration of comments than IDL.

bridge and associated fill over the Lake are visually depicted in the attachments following page 8 of the Application. The Lake is a navigable body of water that is regulated by the Department.

Gasman v. Wilcox, 54 Idaho 700, 702, 35 P.2d 265, ____ (1934). “In the early 1950s, the United States Army Corps of Engineers constructed the Albeni Falls dam on Lake Pend Oreille, thereby creating an artificial high water mark (‘AHWM’) approximately eleven and a half feet above the natural high water mark.” *Kaseburg v. State of Idaho*, 154 Idaho 570, 572, 300 P.3d 1058, 1060 (2013). That the Lake is regulated by Albeni Falls dam with differences between the AHWM and Ordinary High Water Mark, is immaterial as to IDL’s jurisdiction. *State of Idaho v. Hudson*, 162 Idaho 888, 893, 407 P.3d 202, 207 (2017).

25. BNSF also proposes work in and above Sand Creek. *Application* at 3. The bridge and associated fill over Sand Creek are visually depicted in the attachments following page 8 of the Application. A marina in the mouth of Sand Creek, which appears to be used to access the Lake, can be seen in the aerial images attached to the Application. The Lake Protection Act applies to “navigable lakes of the state” Idaho Code § 58-1301 (emphasis added). By its name, Sand Creek is not defined as a lake. However, according to Diane French, Land and Waterways Division Administrator for the Department, “The lake also extends up into the mouth of Sand Creek, which makes Bridge 3.1, the temporary bridge, and associated fills as shown in the application, subject to the Lake Protection Act. IDL has issued encroachment permits for docks and other structures placed in the Sand Creek slough. This includes the bridge and associated fills for the Highway 95 Sand Creek Byway.” *IDL Comment* at 3 (May 23, 2018) (emphasis added). From the aerial images attached to the Application, and consistent with the un rebutted statement of Ms. French, it is difficult to see where Sand Creek ends and where the Lake begins. As the administrator of the Lake Protection Act, the Department’s interpretation

that the mouth of Sand Creek falls within the scope of the Lake Protection Act is reasonable, the Lake Protection Act does not treat the precise issue of a creek whose mouth is effectively one-in-the-same with a lake, and the rationales of deference present. *Pearl v. Board of Professional Discipline of Idaho State Board of Medicine*, 137 Idaho 107, 113, 44 P.3d 1162, 1168 (2002). Therefore, IDL's interpretation that the Lake Protection Act applies to the mouth of Sand Creek is entitled to "considerable weight." *Id.* Accordingly, the hearing coordinator accepts IDL's interpretation of the Lake Protection Act as applying to the mouth of Sand Creek, meaning BNSF's proposal to place temporary and permanent material and structures in and above Sand Creek is within the Department's jurisdiction.

D. The Application May Be Approved Because It Satisfies The Encroachment Standards And Is Consistent With The Public Trust Doctrine

26. Consideration of an application for encroachment requires the balancing of private versus public interests:

The legislature of the state of Idaho hereby declares that the public health, interest, safety and welfare requires that all encroachments upon, in or above the beds or waters of navigable lakes of the state be regulated in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment. No encroachment on, in or above the beds or waters of any navigable lake in the state shall hereafter be made unless approval therefor has been given as provided in this act.

Idaho Code § 58-1301.

27. "Encroachments not in aid of navigation in navigable lakes will normally not be approved by the Department and will be considered only in cases involving major environmental, economic, or social benefits to the general public. Approval under these circumstances is authorized only when consistent with the public trust doctrine and when there is no other feasible alternative with less impact on public trust values." IDAPA 20.03.04.030.02.

28. The public trust doctrine is “a limitation on the power of the state to alienate or encumber title to the beds of navigable waters as defined in this chapter.” Idaho Code § 58-1203(1). As explained by the Idaho Supreme Court, the following factors should be considered in evaluating an application for encroachment:

[T]he degree of effect of the project on public trust uses, navigation, fishing, recreation and commerce; the impact of the individual project on the public trust resource; the impact of the individual project when examined cumulatively with existing impediments to full use of the public trust resource, i.e. in this instance the proportion of the lake taken up by docks, moorings or other impediments; the impact of the project on the public trust resource when that resource is examined in light of the primary purpose for which the resource is suited, i.e. commerce, navigation, fishing or recreation; and the degree to which broad public uses are set aside in favor of more limited or private ones.

Kootenai Env. Alliance, Inc. v. Panhandle Yacht Club, Inc., 105 Idaho 622, 629-30, 671 P.2d 1085, 1092-93 (1983) (hereinafter “KEA”).

29. In evaluating the factors set forth in Idaho Code § 58-1301, IDAPA 20.03.04.030.02, and *KEA*, and as will be explained below, the Application may be approved because it satisfies the encroachment standards and satisfies the public trust doctrine.

i. Fill and Structures within the BNSF Right of Way

30. It is important that, according to IDL’s review of the Application, “all permanent fill and structures would occur within the authorized BNSF right of way.” *IDL Comment* at 3 (emphasis added). As the owner of the right of way, albeit with an implied right of reverter, *Townsend, Wolfe, Goss*, BNSF is entitled to exclusive possession to “perform[] a public service and is burdened with a public duty . . . to exercise the highest degree of care, and the complete, convenient, and safe use of the right of way requires that its possession be exclusive” *Lake CDA Investments* at 282, 233 P.3d at 729. Due to the fact that the permanent fill and structures are within the right of way, which is presently within BNSF’s exclusive control, the Lake Protection Act arguably does not apply.

31. If the Lake Protection Act does apply, the Application may still be granted. The Department and BNSF have recognized, in the past, that work within BNSF's right of way requires permitting, as evidenced by prior IDL permit no. *ERL-96-S-96D* (June 1, 2009); *see also IDL Comment* at 2 (May 23, 2018) (discussing prior BNSF permits from IDL). Moreover, in reviewing the Application itself, it can be seen that BNSF does not argue the Lake Protection Act is inapplicable. Indeed, BNSF took all necessary steps to complete the Application, providing the necessary language and plans for review by IDL. Consistent with the testimony of Pierre Bordenave, BNSF reduced the impacted footprint of the project from approximately 5 acres to something closer to one-acre, possibly evidencing BNSF's belief it should take the necessary steps to comply with the Lake Protection Act. *Evening Hearing Transcript* at 28. BNSF could have advanced an argument in the Application, or at the hearings against needing IDL approval for its work; however, BNSF did not.

32. As stated previously, and if the Lake Protection Act does apply, the Application may only be approved if it can be "regulated in order that the protection of property, navigation, fish and wildlife habitat, aquatic life, recreation, aesthetic beauty and water quality be given due consideration and weighed against the navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment." Idaho Code § 58-1301. As will be explained, below, weighing the above-stated values against the benefit of the project, the preponderance of the evidence leans in favor of approving the Application.

33. As to protection of property, and as concluded by IDL in its May 23, 2018 comments, the permanent fill and structures will occur wholly within BNSF's right of way. *See Lake CDA Investments* at 282, 233 P.3d at 729 (discussing the exclusive right of way for railroads and its relation to public safety). By staying within the right of way, the project

protects others' property. Arguably, the addition of a second bridge will aid in protection of property by improving emergency response times for first responders, such as fire, medical, and police services. *See Comment from Bonner County Emergency Medical Services* (March 19, 2018).

34. As to protection of navigation and recreation, and as stated in the Application and shown in the PowerPoints, the new spans and piers will be greater than the existing spans and piers in width, and will be equal to or greater than existing vertical clearances. These construction standards should not hinder navigation or recreation, as the area is already occupied by bridges and piers. An addendum to the Application, submitted by BNSF pursuant to IDAPA 20.03.04.015.13.g, further addresses navigational concerns.

35. As to protection of fish and wildlife habitat and aquatic life, there were general comments regarding detriment to aquatic species. *See Morning Transcript* at 39, 48. Those concerns, while well taken, are addressed through comments from F&G. According to F&G, the noise associated with the project will “not produce underwater noise levels harmful to fish . . . vibratory hammers obviate the need for noise attenuation, thus we are no longer recommending bubble curtains.” *F&G Comment* at 2 (May 14, 2018). Furthermore, “Bubble curtains would likely create turbidity problems in Sand Creek Slough. As an alternative, work will be completed during low water, to reduce noise impacts when native salmonids are unlikely to be present.” *Id.*

36. As to protection of water quality, there were general comments made regarding impacts due to coal dust and possible spills. *See Comment from Wes Hanson* (March 23, 2018); *Morning Transcript* at 52; *Evening Transcript* at 49. Those concerns, while well taken, are addressed through comments from DEQ and F&G. Included in the record is a letter from the

Idaho Department of Environmental Quality (“IDEQ”), dated April 13, 2018, to BNSF regarding IDEQ’s draft § 401 Water Quality Certification. That letter indicates there is a separate proceeding, including a public comment period, as to water quality issues. Comments from F&G further address water quality concerns: “Potential containment resuspension associated with pile driving and removal is not expected to affect water quality, thus sediment core samples were not required under the draft 401 Water Quality Certification. We defer to the Idaho Department of Environmental Quality’s assessment of this risk and their condition of the final permit.” *F&G Comment* at 2 (May 14, 2018). “While adding a second bridge increases capacity and improves operational efficiency, BNSF representatives clarified that markets determine rail traffic regardless of whether or not the second bridge is constructed; thus there would be no increase to spill risk beyond the temporary risk associated with construction equipment working over the water. These temporary risks are addressed in the hazmat and water quality protection plans.” *Id.* (emphasis added).

37. As to aesthetic beauty, there were general comments in the record that approval of the Application would result in harm, *see Comment from Ron Giddings* (March 29, 2018); *Morning Transcript* at 43, or create better aesthetics in an area already known for rail traffic, *see Evening Transcript* at 51.

38. The factors discussed above must then be weighed against the “navigational or economic necessity or justification for, or benefit to be derived from the proposed encroachment.” Idaho Code § 58-1301. General comments in the record argue for and against the economic necessity for the project. *See Comment from Cynthia Zapotocky* (March 30, 2018); *Comment from Executive Director of the Lake Pend Oreille Waterkeeper* (May 22, 2018); *Comment from John M. Anderson* (May 23, 2018); *Evening Transcript* at 72. Specific evidence

in the record, as shown in the BNSF PowerPoints and testimony of Pierre Bordenave and Courtney Wallace, suggests otherwise. Approval of the Application will result in the investment of “upwards of a hundred million dollars in private investment for world class infrastructure . . . and help improve the flow of traffic both for Amtrak as well as freight. . . . This single track bridge over Lake Pend Oreille funnels rail traffic down to one lane shared by both directions. It slows trains as they come to Sandpoint By building a second main line bridge over the lake, trains will move across the lake in both directions at the same time reducing the time trains must wait for other trains to cross the bridge. Freight will be able to continue to move and get through the area much more efficiently” *Evening Transcript* at 20-21, 23 (Courtney Wallace). “I’m sure you’ve heard – many of you have heard or read the claims that by building this connector, it’s somehow going to double the number of trans. And of course, that – there’s no basis to that claim. I’ve already said before, yes, there’s – there has every decade been more trains, but it doesn’t double trains. There’s absolutely no basis to that assumption. That – that then becomes the foundation of speculation and conjecture and then leads to projections and conclusions. . . . This is not a case of Field of Dreams; if you build it, they will come. The project is not based on speculation. . . . This project does not create a demand. What it does is it addresses an existing defined need.” *Id.* at 26 (Pierre Bordenave).

39. Weighing the factors contained in Idaho Code § 58-1301 the preponderance of the evidence leans in favor of granting the Application.

40. Encroachments not in aid of navigation may be “authorized only when consistent with the public trust doctrine and when there is no other feasible alternative with less impact on public trust values.” IDAPA 20.03.04.030.02 (emphasis added).

41. Here, the Application stated it reviewed other alternatives for the project, but that what is proposed “is the least environmentally damaging practicable alternative that meets the project purpose while addressing geographic and BNSF design and safe rail operations constraints.” *Application* at 5. The fact that BNSF possesses a right of way for this project, that BNSF considered other alternatives, and the fact that the right of way is already occupied by railroad development – as will be discussed below – weighs in favor of determining the Application meets the requirements of IDAPA 20.03.04.030.02.

42. If compliance with the public trust doctrine is not met, an encroachment not in aid of navigation cannot be approved. As stated in *KEA*, the public trust doctrine examines “the individual project . . . cumulatively with existing impediments to full use of the public trust resource, i.e. in this instance the proportion of the lake taken up by docks, moorings or other impediments” *KEA* at 629-30, 671 at 1092-93 (emphasis added).

43. Here, the Application satisfies the public trust doctrine. As seen in the aerial images accompanying the Application and the PowerPoints that were presented at the morning and evening hearings, the areas within the BNSF right of way across Lake Pend Oreille and over the mouth of Sand Creek are occupied by railroad development, which are located by virtue of Congress’ 1864 grant of the right of way, and have been present since circa 1890. As also seen in those images, the areas near the railroad development are taken up by State Highway 95, docks, industrial areas, and a marina in the mouth of Sand Creek. When this Application is examined cumulatively with existing impediments in this particular area of the Lake and the mouth of Sand Creek, *KEA* at 629-30, 671 at 1092-93, the Application satisfies the public trust doctrine.

ii. **Temporary Fill and Structures Outside the BNSF Right of Way**

44. As for use of land outside the right of way, IDL's analysis of the Application states: "About 250 feet of the temporary bridge, and a few square feet of temporary fill on the north side of Sand Creek bridge area, would be outside the right of way. IDL considers this a temporary impact to the area between the Sand Creek shoreline and the existing Highway 95 Bridge, and is not expected to impact the adjacent property managed by the Idaho Transportation Department for Highway 95." *Id.*

45. The standards for approving encroachments under the Lake Protection Act and the requirement of examining the public trust doctrine have been stated previously and will not be repeated. Furthermore, the analysis for approving permanent and temporary structures within the BNSF right of way have been stated previously and will not be repeated. Both the legal and factual analyses stated above in regard to approval of permanent and temporary structures within the BNSF right of way apply to the approximately 250 feet of temporary bridge and a few square feet of temporary fill on the north side of Sand Creek outside the BNSF right of way. Accordingly, the approximately 250 feet of temporary bridge and a few square feet of temporary fill on the north side of Sand Creek that are outside the BNSF right of way may be approved, provided those lands are restored.

ORDER

Based on the foregoing findings of fact and conclusions of law, IT IS HEREBY ORDERED that Encroachment Permit Application No. L-96-S-0096E is APPROVED, subject to any conditions imposed by the Director of the Idaho Department of Lands, such as those for construction, bridge lighting, other navigational markings or aids for the project, and restoration

of lands used for the temporary bridge and few square feet of fill on the north side of Sand Creek.

IT IS FURTHER ORDERED that the order issued herein is a PRELIMINARY ORDER. Idaho Code § 58-1306(c); Idaho Code § 67-5240; Idaho Code § 67-5245; *Notice of Appointment of Hearing Coordinator and Hearing*. The hearing in this matter was completed on May 23, 2018. Consistent with the *Notice of Appointment of Hearing Coordinator and Hearing*, “The Hearing Coordinator shall submit a preliminary order to the Director of the Idaho Department of Lands, who shall issue a Final Order no more than thirty days after the conclusion of the hearing.” This Preliminary Order is submitted fewer than thirty days after conclusion of the hearing.

Dated this 14th day of June, 2018.


CHRIS M. BROMLEY
Hearing Coordinator

CERTIFICATE OF SERVICE

I certify that on this 14th day of June, 2018, I caused to be served a true and correct copy of the foregoing was served upon the following persons by the method(s) indicated:

Angela Schaer Kaufmann
P.O. Box 83720
Boise, ID 83720-0010

- Statehouse Mail
- Hand Delivery
- Federal Express
- Email: angela.kaufmann@ag.idaho.gov

David Groeschl
Acting Director
Idaho Dept. of Lands
P.O. Box 83720
Boise, ID 83720-0050

- U.S. Mail, postage prepaid
- Hand Delivery
- Facsimile:
- Email: dgroeschl@idl.idaho.gov


CHRIS M. BROMLEY

Preliminary Draft for Agency Review

Preliminary Draft for
Agency Review

Appendix F

**Reasonable Needs of Navigation Analyses for
Bridges 3.1 and 3.9**

Preliminary Draft for
Agency Review



REASONABLE NEEDS OF NAVIGATION ANALYSIS FOR
BRIDGE 3.1
SANDPOINT JUNCTION CONNECTOR PROJECT

BNSF Montana Division, Kootenai River Subdivision,
Line Segment 45, MP 2.9 +/- to 5.1 +/-
Bonner County, Idaho
November 2017

UPDATED 1/23/2018



Prepared By:

Pierre Bordenave, Project Manager

Jacobs Engineering Group, Inc.
Environmental Services
101 North Fourth Avenue, Suite 203
Sandpoint, ID 83864
T +1.208.263.9391
F +1.208.263.7013
www.jacobs.com

© Copyright 8 Jacobs Engineering Group Inc. The concepts and information contained in this document are the property of Jacobs.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client.

Contents

1.	Executive Summary	3
2.	Existing Conditions	5
3.	Proposed Action	15
4.	Navigation Evaluation	19
5.	Mitigation	21
6.	Conclusion	22
7.	References	23

FIGURES

1. SAND CREEK WATERSHED
2. ALBENI FALLS DAM LAKE ELEVATION MANAGEMENT SUMMARY
3. NAVIGATIONAL CHANNELS AT EXISTING BRIDGE 3.1
4. SUMMER ELEVATION OF EXISTING BRIDGE 3.1
5. WINTER ELEVATION OF EXISTING BRIDGE 3.1
6. AERIAL OVERVIEW OF EXISTING BRIDGE 3.1
7. VIEW OF EXISTING SANDPOINT MARINA DOCK, UPSTREAM OF EXISTING BRIDGE 3.1
8. AERIAL PHOTO COMPARISON OF SAND CREEK NAVIGATIONAL CHANNEL, SUMMER / WINTER
9. EXISTING BRIDGES ACROSS SAND CREEK
10. PLANS FOR PROPOSED BRIDGE 3.1 – TEMPORARY AND PERMANENT STRUCTURES
11. VIEW OF LOW-WATER NAVIGATIONAL CHANNEL OF SAND CREEK, BLOCKED BY DOCKS

1. Executive Summary

1.1 Project Description

BNSF Railway Co. (BNSF) proposes to construct a second mainline track connection between its Algoma Siding track and the Sandpoint Junction, where BNSF and the Montana Rail Link (MRL) mainlines join. This action will consist of:

1. A new mainline track to the west of the existing BNSF mainline track;
2. Track, switch and signal upgrades;
3. A new bridge over Lake Pend Oreille (Br 3.9) adjacent to (west of) the existing rail bridge;
4. A new bridge over Sand Creek (Br 3.1) adjacent to (west of) the existing rail bridge;
5. A new bridge over Bridge Street (Br 3.0) adjacent to (west of) the existing rail bridge;
6. 0.88-acre of permanent and 0.38-acre of temporary nearshore fill below the jurisdictional ordinary high water mark (OHWM) of 2062.5 feet, associated with bridge abutments and the south switch;
7. 0.28-acre of wetland fill in one location between the rail grade and the pedestrian path south of the Sand Creek Br 3.1.

This technical report addresses the navigational evaluation and reasonable needs of navigation related to one of two over-water rail bridge applications associated with the BNSF Sandpoint Junction Connector Project as required in accordance with 33 U.S.C. 401, 491, 525-533, 33 CFR 116.01, and the guidance in the USCG Bridge Program Reasonable Needs of Navigation White Paper (USCG 5 October 2012).

This report also addresses the requirement of the Idaho Department of Lands (IDL) for the IDL non-navigational encroachment permit to provide a navigational work plan and discussion of the project's impacts to existing navigational issues during construction and post-construction.

Bridge 3.1 will be 505 feet long, approximately 150 feet of which will be over / affecting navigable waters of Sand Creek, a tributary to Lake Pend Oreille. A temporary construction bridge is also part of this proposed action.

1.2 Project Purpose

The basic project purpose is to provide improvements for freight and passenger rail transportation to meet capacity needs.

The overall project purpose is to provide improved rail operations on the BNSF Kootenai River Subdivision Mainline by constructing a second mainline track connection between the BNSF Algoma Siding track south of Lake Pend Oreille, and the Sandpoint Junction, where BNSF and the Montana Rail Link (MRL) mainlines join just north of the Sandpoint Amtrak Station.

1.3 Project Need

The project need is based on continued growth of freight rail service demands in the northern tier, high-volume traffic corridor between the Midwest (Chicago Terminus) and the West Coast. The single mainline and portions of the over-water rail bridges date from the early 1900s. Rail traffic volumes have risen steadily for the past three decades to the point that this section of the Main Line has become a constraint to interstate commerce. This project will relieve system congestion, back-up of rail traffic, and reduce hold times on sidings and wait times at grade crossings both locally and regionally.

Preliminary Draft
Agency Review

2. Existing Conditions

2.1 Setting

The Sand Creek watershed covers 38 square miles or 24,209 acres, and includes Jack Creek, Little Sand Creek, Swede Creek, and Schweitzer Creek northeast of Sandpoint. Sand Creek generally flows from north to south for approximately 16 miles and discharges into Lake Pend Oreille (LPO) within the City of Sandpoint.

Landownership is mostly private, with the remainder of the watershed held by the US Forest Service, Idaho Department of Lands (IDL), US Department of the Interior, Bureau of Land Management (BLM), and the City of Sandpoint which owns / controls most of the Little Sand Creek sub-basin. Most of the drinking water for the City of Sandpoint is withdrawn from Little Sand Creek. The primary land use is forestry, agriculture, and rural residential.

The upper one-third of the Sand Creek watershed is generally forested and sparse residential development, except for the Schweitzer Mountain Ski Resort, a large residential and commercial development located in the upper reaches of Schweitzer Creek, a tributary to Sand Creek. The middle-third of the watershed is forest, agriculture, and rural residential. The lower-third of the watershed is generally rural residential and agriculture with the last 4 miles of Sand Creek surrounded by more urban residential densities and commercial development within the cities of Sandpoint and Ponderay.

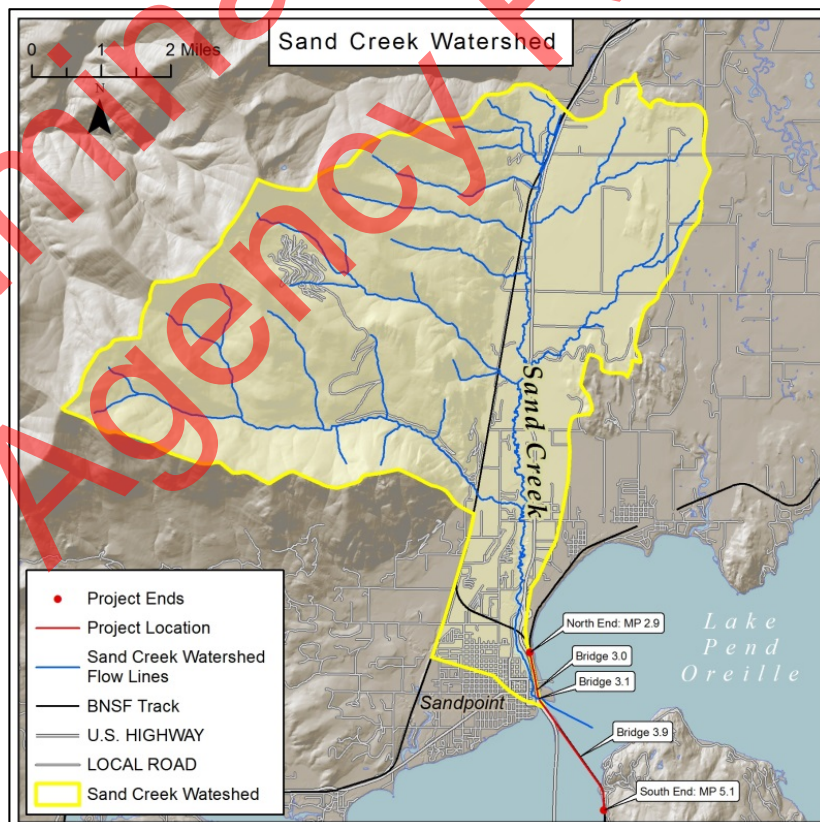


Figure 1. Sand Creek Watershed

2.1.1 General Project Vicinity

The surface water elevations of Sand Creek for approximately two miles upstream from the Br 3.1 are regulated by the US Corps of Engineers, Civil Division's management of the Albeni Falls Dam, constructed in 1955 near the Idaho/Washington border. The primary channel substrate is silt and sand and the average gradient of Sand Creek is 1%.

- The surface elevation of this portion of Sand Creek has a summer pool at 2062.5 feet from approximately mid-June through mid-September.
- From late September to early November the water elevation typically draws down from 2060 to 2051 feet.
- From November to early April the elevation is typically maintained at 2051 feet.
- From early April through June 16 the water elevation typically draws up at irregular intervals, depending on water storage and flood potential conditions, from 2051 feet to 2062.5 feet.

Pend Oreille Lake Levels Albeni Falls Dam Operations <i>(Excerpted from www.nws.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Albeni-Falls-Dam)</i>		
Summer Pool [normal full pool] (NFP)	2062 to 2062.5 feet	June 16 until third Sunday of September or September 18 (whichever is later)
September Drawdown	No lower than 2060 feet	September 30
October/November Drawdown	2060 to 2051 feet	October 1 through 1 st week of November
Winter Holding/ Minimum Elevation	2051 feet	November 16 – early April **
Spring Operations*	Refill to 2056 feet	By April 30
	Refill to 2060 feet	By May 31

* Targets may change due to precipitation conditions and downstream power needs. Spring refill based on flood control as a priority. Refill to 2062 feet mid-late June depending on flood risk, forecasts and snowpack conditions in Pend Oreille River basin.

** Lake elevation may rise due to winter flood conditions; Flood risk management requires water stored above 2056 feet must be evacuated by April 1.

Figure 2. Albeni Falls Dam Lake Elevation Management Summary

2.1.2 Immediate Project Area

There is an existing BNSF railroad bridge at the approximate mouth of Sand Creek in Sandpoint. The existing fixed bridge is 155 feet long with four concrete piers, two of which are abutments and two of which are fully within the navigable area of Sand Creek.

- The main navigable channel between the two piers has a clearance of 42 feet horizontal and 16.2 feet vertical during summer pool elevation of 2062.5. The water depth is 15.5 feet during summer pool elevation of 2062.5 and approximately 5 feet when the water is drawn down to 2051 in the winter.
- There are two small side channels between the bridge's in-water piers and the abutments, with approximate clearances of 20-30 feet horizontal and 16 feet vertical in the summer. Depths range from approximately 10 foot adjacent to the in-water pier, sloping up to 1 foot or less along the rip rap shoreline edge during summer pool. There is no water between the abutments and piers in the winter.

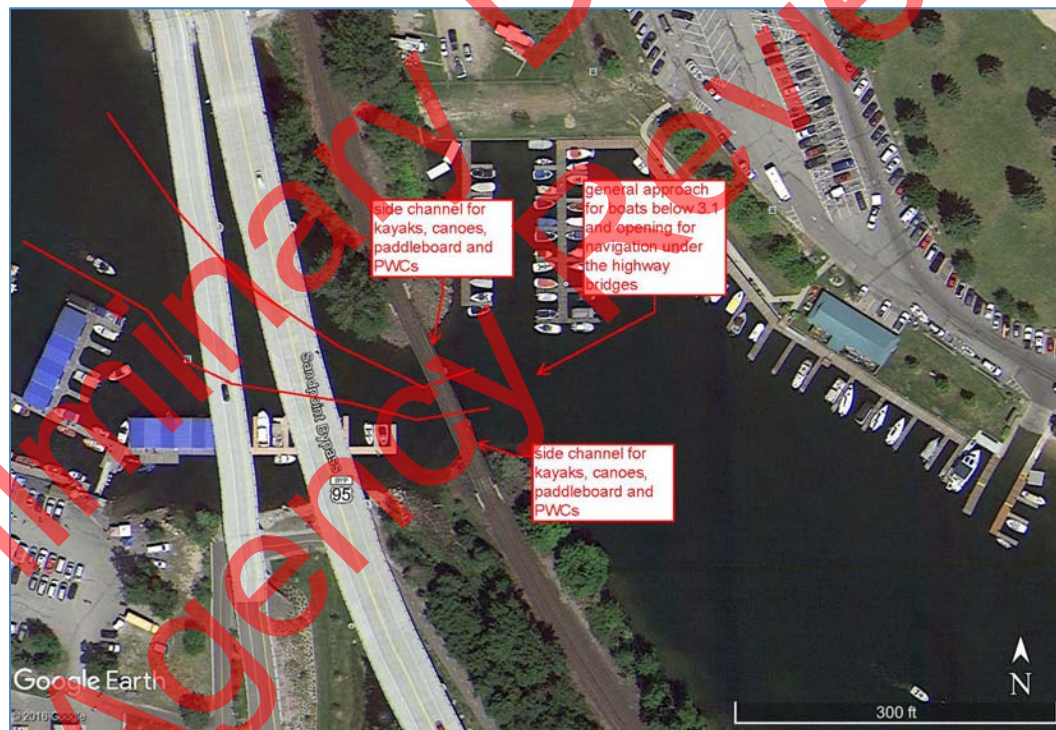


Figure 3. Navigational channels, existing Br 3.1



Figure 4. Summer elevation of existing Br 3.1, view upstream from Lake Pend Oreille



Figure 5. Winter elevation of existing Br 3.1, view downstream towards Lake Pend Oreille

2.2 Existing Navigational Use

There is significant motor craft usage and passage under the BNSF and adjacent highway bridges near the mouth of Sand Creek. There are public and private marinas, both upstream and downstream of Br 3.1, within the general area. Other than the marinas, there are no known commercial operations, such as fishing or tour boats, upstream of Br 3.1. As identified in Section 2.1.1, the surface water elevations of Sand Creek, like Lake Pend Oreille in general, are seasonally regulated by the management of the Albeni Falls Dam. Thus, navigation upstream from Br 3.1 is also generally seasonal, May 1 to October 1, with the highest use between Memorial Day and Labor Day.

2.2.1 General Project Vicinity

Within 1 mile of Br 3.1:

- The portion of Sand Creek downstream from Br 3.1 to the lake has a City owned marina, with both all-season and day rental boat slips, boat launch ramps, day-use beaches and a large waterfront park along the north – northeast side of the waterway. Along the south - southwest side of the waterway is the BNSF rail grade out to Br 3.9. No portion of the Br 3.1 impacts downstream uses.
- The area of Sand Creek between Br 3.1 and the Highway 2 / 200 bridge, approximately 1.25 miles upstream in the City of Sandpoint, is heavily used in the summer by motor boats, kayaks, and paddleboards. There is a pedestrian path along the east side of the creek, and a public boardwalk with boat mooring side ties along the west side of the creek, providing marine access to downtown, restaurants, and other day use activities. There is minimal use of this section of the creek for swimming because of the boat traffic and the less desirable swimming conditions than what can be found at the nearby City Beach Park.
- There are approximately 50^{+/-} public day use side ties on the city waterfront boardwalk (based on an average boat length of 20 feet).
- There are approximately 20⁺ private boats dock / slips on the creek (visually counted in the summer of 2017).
- There are approximately 170^{+/-} available rental covered boat slips and side ties at the Sandpoint Marina.

2.2.2 Immediate Project Area

Within 500 feet of Br 3.1:

- Immediately upstream (to the west) of Br 3.1, is the privately owned Sandpoint Marina, with both fueling and waste water pumping stations and approximately 170 boat rental spaces.
- Immediately downstream (to the east) of Br 3.1, is the City-owned marina, with a bilge pumping station and boat launching facilities. No passage under the Br 3.1 is required to access these facilities.

2.2.3 Navigation Passage Under Bridge 3.1

Size and Numbers:

- Based on random representative observations and photos taken through the summer of 2017, the typical motor craft is 17 to 26 feet long, 6-7 foot beam, and 5-6 foot from water surface to top. Approximately, 20% are larger craft ranging from 26 to up to 40 feet long, 10-foot beam, and up to 10 feet from water surface to top, including fixed antennae.
- A few boats exceed these dimensions, such as houseboats or larger cruisers in the 40-50 foot range. However, none appear to have difficulty with navigation below Br 3.1 and none exceed 12 feet in height.
- A larger commercial tour boat, "*The Shawnodese*," needs a 14-foot vertical clearance and has an approximate 16 foot beam. At one time it was moored on Sand Creek, but after the construction of the Idaho Transportation Department's Sand Creek Bypass, it now moors at the City marina east of Br 3.1. *The Shawnodese* does not appear to use Sand Creek upstream (west) of Br 3.1, but if the depth of water is adequate, it potentially could and the existing Br 3.1 does not limit that navigational potential.
- There appears to be a physical restriction for boats entering the Sand Creek channel area in the vicinity of the existing Br 3.1 due to an extension of the Sandpoint Marina easternmost dock section within the BNSF right-of-way (ROW). This dock section partially blocks the navigational route just to the west of Br 3.1.

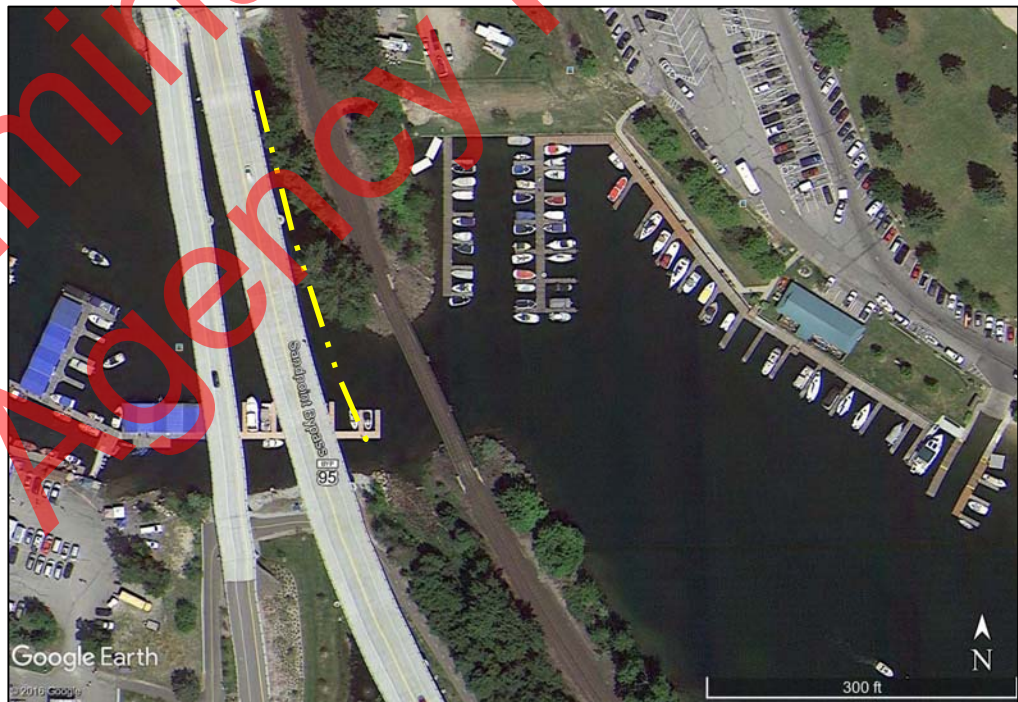


Figure 6. Aerial overview of existing Br 3.1 – yellow dashed line is BNSF ROW



Figure 7. The Sandpoint Marina dock within BNSF ROW, upstream of the existing Br 3.1

- Based on random representative counts through the summer of 2017, and depending on the day of the week, between 250 and 600^{+/-} motor craft and 40-50 human powered craft use the Sand Creek passages below Br 3.1, with higher numbers occurring on weekends and summer holidays.
- Usage drops off significantly to approximately 30% of summer usage from Labor Day to mid-October, and from mid-April to near Memorial Day.
- Other than an occasional non-motorized craft, there is essentially no motorized navigational use upstream from Br 3.1 between mid-October and mid-April due to the shallow water depths of Sand Creek and because the open water channel flows under the Sandpoint Marina docks, which block passage upstream.



Figure 8. Aerial photo comparison of the Sand Creek navigational channel, summer / winter

2.3 Limiting Structures

There are six overwater bridge structures, including BNSF's Br 3.1, from the defined mouth of Sand Creek and the Highway 2 / 200 Bridge, which is the most limiting navigational structure with less than 6-feet of vertical clearance.



Figure 9. Existing bridges across Sand Creek

2.3.1 BNSF Bridge 3.1

Br. 3.1 is near the mouth of Sand Creek's outlet to Lake Pend Oreille. The main channel navigational span has clearances of 42 feet horizontal, and 16.2 feet vertical. Essentially all motor craft, other than occasional small personal water craft with shallow draft, use this main channel. Because of the channel's variable sloping sides, not to mention existing large riprap rock embankment protection, the two side channels are typically only used by canoes, kayaks, paddle boards and only occasionally by personal water craft.

2.3.2 Highway 95 Bridges

The Highway 95 and off ramp bridges immediately to the east of Br 3.1 are essentially full span bridges with approximately 200-feet of horizontal clearance within the navigational channels of Sand Creek. There are two in-water concrete piers at the shallow north end of the Highway 95 Bridges across Sand Creek. Neither creates navigational limitations. Both bridges have over 20-feet of vertical clearance.

2.3.3 Bridge Street Bridge

Bridge Street Bridge is a 5-span bridge with 4-in water steel piling piers. Three of the spans are navigable with approximate clearances of 50-feet horizontal and a minimum of 15.5-feet vertical.

2.3.4 Cedar Street Market Bridge

The Cedar Street Market Bridge is a converted street bridge to an over-water commercial market. It consists of 13 piers and 12 navigable spans with clearances of approximately 12-foot (average) horizontal clearances, and several spans with 16.5-feet of vertical clearance. Some spans have slightly lower vertical clearance due to infrastructure below the bridge.

2.3.5 BNSF Bridge 1402.6

The BNSF Kootenai River Subdivision mainline Bridge 1402.6 over Sand Creek has 8 spans (5 over water) and 6 piers (4 in-water) with clearances of approximately 50-feet horizontal, and 21-feet vertical.

2.3.6 Highway 2 / 200 Bridge

The Highway 2 / 200 Bridge is a single span over the main channel of Sand Creek and has clearances of approximately 24-feet horizontal and 6-feet, or less, vertical. This bridge limits boat traffic, both motorized and human powered, upstream from this point.

3. Proposed Action

Actions associated with navigation are:

- A new bridge over Sand Creek (Br 3.1) approximately 35 feet west of the existing rail bridge.
- A temporary construction bridge adjacent to (west of) the proposed new railroad bridge.
- A small (0.05 acre) temporary near shore fill along the north approximately 350 feet of the structure to accommodate for safe access of workers and incidental fill during from the installation of the upland bridge pilings.
- A small (0.01 acre) permanent nearshore fill at the south bridge abutment.

Note: An action not directly associated with navigation, and thus addressed under a Corps of Engineers 404 permit, is a permanent fill of 0.28 acres of wetlands south of the bridge and the permanent nearshore fill.

3.1 Structures

3.1.1 Temporary (Refer to Figure 10)

A temporary construction bridge to construct the new Bridge 3.1 consisting of 11 spans and 11 piers.

- Spans 1-7 will be over shallow nearshore areas north of the existing bridge.
- Span 11 will have a small corner portion over the shallow non navigable nearshore area adjacent to the wetland fill.
- Spans 8, 9, and 10 will be over the Sand Creek navigable channel and will have a vertical clearance of 9 feet during Summer Pool (elevation 2062.5) high water (Approximately June 15 through September) and a horizontal clearance of 42 feet.
- If work on the new bridge is not completed during the low water period (October 15 to April 15) spans 8, 9 and 10, as well as piers 8, 9, and 10, will be removed until the next October 15th.

There will be 10 piers (#2-11) fully or partially within the jurisdictional 2062.5-foot OHWM.

These will consist of:

- Two piers with eight 24-inch-diameter steel pilings (Spans 4 and 8)
- Eight piers with four 24-inch-diameter steel pilings (Span 2,3,5,6,7,9,10,11)
- The navigation horizontal clearance between piers 8, 9, 10, and 11 (Spans 8, 9, and 10) will be 42 feet. However, as identified above, both spans and piers 8, 9, and 10 that are within or over the navigation area of Sand Creek would be removed between April 15 and October 15 to minimize navigation impacts.
- The total number of temporary pilings below the OHWM will be between 30 and 40 to accommodate minor adjustments in variable span support needs and site conditions.

3.1.2 Permanent (Refer to Figure 10)

A new bridge adjacent to the existing BNSF over Sand Creek (Br 3.1). This bridge will be approximately 35 feet to the west of, and parallel to, the existing bridge, and will be 505 feet long (approximately 150 feet over navigable areas of Sand Creek) and 21 feet wide.

There will be 12 spans:

- One approximate 80-foot span over the creek channel; This new bridge center navigational span (10) horizontal clearance will be 72 feet; as compared to the existing bridge center span (2) which has an approximate 42-foot horizontal clearance. Vertical clearance of the new bridge will be 17 feet, which is slightly higher than the vertical clearance of the existing bridge, which is 16.2 feet above the 2062.5-foot OHWM.
- Seven approximate 45-foot spans (Spans 3, 4, 5, 6, 7, 8, 9); one (#9) will be over a portion of the creek during high water, and the rest being fully upland of the OHWM;
- Three approximate 25-foot spans (#1, 2, 11); one of which (Span 11) will be over a portion of the creek during high water, and the other two (Spans 1, 2) being fully upland of the OHWM;
- One approximate 31-foot transition span (Span 12), which will not be over water.

There will be 11 piers associated with the new bridge:

- Two piers (Spans 9 and 10), each consisting of eight 24-inch diameter steel pilings, all of which will be within the navigable channel.
- Seven piers (Spans 2-8), each consisting of six 24-inch-diameter steel pilings. Of the seven, one pier (Span 8) will have all, or a portion, of the piles just within the regulated OHWM, and six piers (Spans 2-7) will be fully upland.
- Two piers (Spans 1 and 11) consisting of three 24-inch-diameter steel pilings, both which will be upland of the regulated OHWM.

The total number of pilings is projected to be 64; 22 of which will be below the regulated OHWM.

Both the temporary construction bridge and the permanent Br 3.1 will comply with the minimum lighting requirements for fixed bridges, in accordance to the Department of Homeland Security, US Coast Guard, Bridge Administration Division code. (33 CFR 118.65).

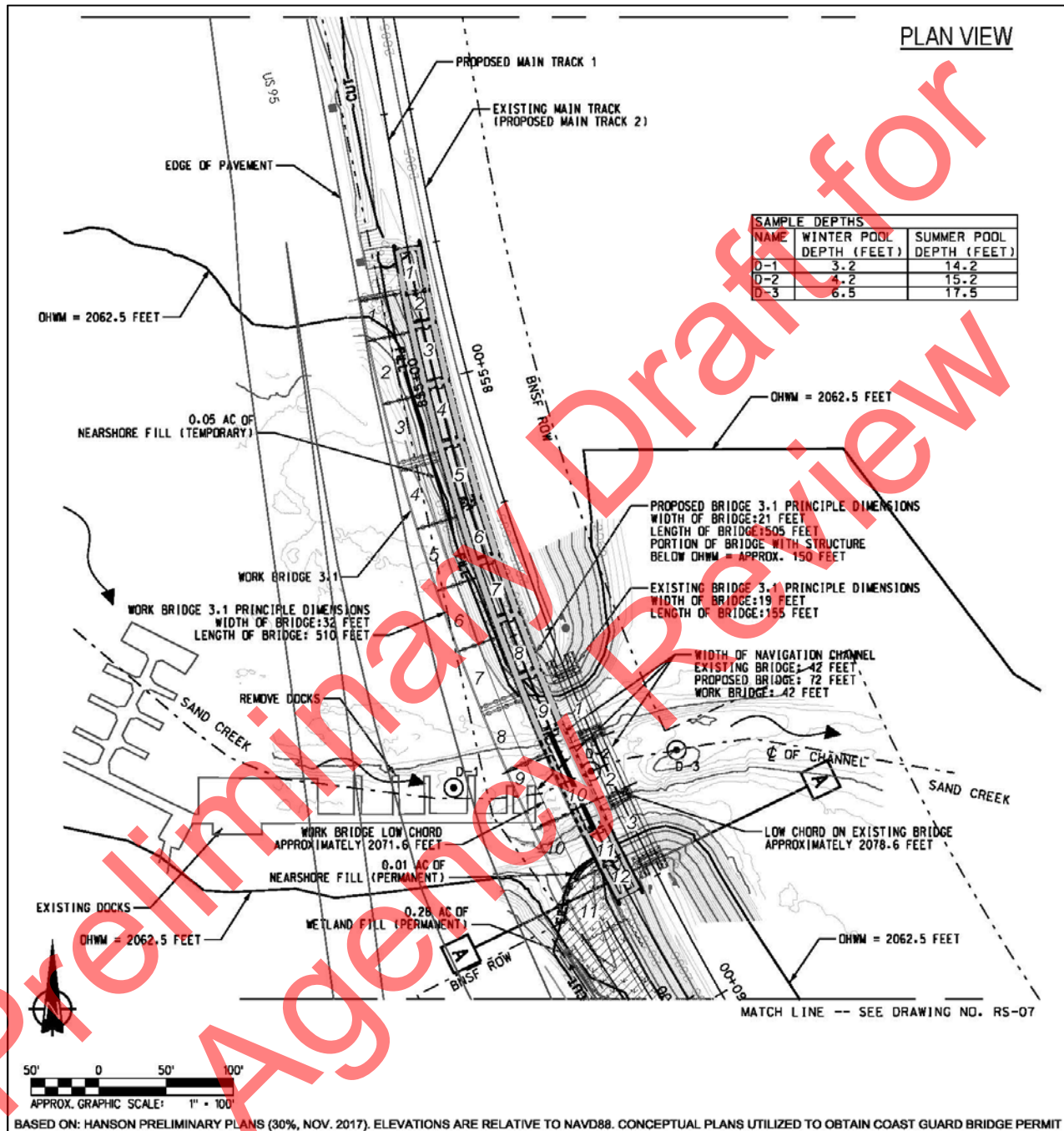


Figure 10. Plans for proposed Br 3.1 – temporary and permanent structures

3.2 Timing

3.2.1 Temporary

The temporary bridge will be constructed prior to starting the construction of the permanent bridge structure. The majority of the temporary bridge will be over very shallow (1 – 4 foot) nearshore areas north of the existing bridge. Spans 8, 9, and 10 will be over the main center navigable section of Sand Creek. Those three spans, and their associated piers that are within the navigable channel of Sand Creek (piers 8, 9 and 10), will be removed between April 15 and October 15 to minimize navigation impacts to watercraft moving between Sand Creek and Lake Pend Oreille. The remaining portion of the work bridge will be constructed and remain in place until the new permanent bridge is completed.

3.2.2 Permanent

Work on much of permanent bridge will occur at any time of the year due to the fact that the majority of the bridge piers and spans are upland of the regulated OHWM of Sand Creek or in near shore shallows with no navigational impact. Work on piers 9 and 10, and spans 9, 10, and 11 which are fully or partially within or over the navigational area of Sand Creek, will be limited to between October 15 and April 15, to minimize navigation impacts to watercraft moving between Sand Creek and Lake Pend Oreille.

4. Navigation Evaluation

4.1 Navigational Effect of Proposed Structures

4.1.1 Temporary

Based on the self-imposed limitation of work on within the 150-foot wide navigation area of Sand Creek below and near the railroad bridge, the impacts to navigation are expected to be minimal.

Due to the fact that the water elevation drops dramatically at the end of September and typically remains low until early April, motor craft leave the upstream area of Sand Creek to avoid being stranded on the shallow waters / mud flats.

Although small craft such as canoes and kayaks may still be able to continue a short distance upstream from the Br 3.1 at that low water period, they also will be unable to pass more than a few hundred feet upstream because the Sandpoint Marina docks are located over the main low water channel and block further upstream movement of all water craft.



Figure 11. Views of low-water navigational channel of Sand Creek, blocked by docks

4.1.2 Permanent

Similar to the temporary bridge work, based on the self-imposed limitation of work on within the 150 foot wide navigation area of Sand Creek below and near the Br 3.1, the impacts to navigation are expected to be minimal.

When the bridge is finished, both the horizontal and vertical clearances will be greater than the existing span, thus no impact to exiting navigation is anticipated.

BNSF has identified that an extension of the easternmost dock of the Sandpoint Marina is on BNSF ROW and creates both an existing and potential future navigational blockage of upstream access to Sand Creek. BNSF will work with the owner of Sandpoint Marina to resolve this navigational limitation.

4.2 Effect of Proposed Structures on Existing and Potential Foreseeable Navigation Needs

4.2.1 Temporary

During construction, there will be minor and temporary limits to both existing and foreseeable navigation during the low-water period of the year (October 15 – April 15). However, during that period, the water depth upstream from the Br 3.1 is either too shallow, or the entire channel is blocked by the marina docks, such that motor craft cannot navigate upstream, and human powered craft can only move a few hundred feet before they need to remove their craft from the water and portage several hundred feet to re-enter the creek. Additionally, during that low-water period, the low chord of the temporary bridge will be over 18-feet above the seasonal low water surface elevation. No foreseeable navigational impacts either short-term or long-term are anticipated from the temporary work.

4.2.2 Permanent

Upon the completion of the proposed new Br 3.1, both the horizontal and vertical clearances will be greater than the existing bridge span, thus there are no expected impacts to either existing or foreseeable future navigational uses of the passage under the bridge or the upstream area of Sand Creek. The existing side channel between the existing bridge and the shoreline / abutments will still be usable by canoes and kayaks, and paddle boards.

5. Mitigation

As described in previous sections, work within the navigable channel of Sand Creek under and near Br 3.1 will be conducted during the low-water period of October 15 to April 15. This work period is defined to mitigate potential impacts to upstream navigational uses and access. The permanent Br 3.1 is also designed to provide greater vertical and horizontal clearances than the existing bridge, thus mitigating both existing and foreseeable future navigational impacts.

As previously identified, there is an extension of the easternmost dock of the Sandpoint Marina on BNSF ROW and creates both an existing and potential future navigational blockage of upstream access to Sand Creek. BNSF will work with the owner of Sandpoint Marina to resolve this navigational limitation.

Preliminary Draft for
Agency Review

6. Conclusion

The Reasonable Needs of Navigation Criteria are met by the proposed new BNSF Bridge 3.1 over Sand Creek through:

- Construction timing of the bridge to periods of minimal to no navigation upstream of Bridge 3.1.
- Design of the bridge with a higher vertical clearance (low chord) and wider horizontal clearance than the existing bridge and upstream bridges, such that it does not become the limiting navigational structure on Sand Creek.
- No existing, or likely foreseeable, water craft would be restricted on Sand Creek from this structure since it is not the navigational limiting structure on Sand Creek.

Preliminary Draft for
Agency Review

7. References

Bonner County Sheriff Department, Marine Division, 2017. Pierre Bordenave personal communications regarding boat registrations on Lake Pend Oreille, Idaho.

Hanson Professional Service, Inc. "BNSF Sandpoint Junction Connector Project" 30% Design; November 2017.

Local Marinas, 2017. Pierre Bordenave, personal communications regarding owners of boats and boat slip use, seasonal and day-use.

US Army Corps of Engineers, Civil, Seattle Corps District; Albeni Falls Dam 148021 FAQ Sheet; <http://www.nws.usace.army.mil/Missions/CivilWorks/LocksandDams/AlbeniFallsDam.aspx>

US Coast Guard White Paper, BDTM.48 "Guidelines to Perform Navigational Studies." Version 1.1; October 5, 2012.

US Coast Guard, Office of Bridge Programs, "Bridge Permit Application Guide," COMPDTPUB P16591.3D, OMB Control Number: 1625-0015, 19 July 2016.

Fischer, Steven, 2017. US Coast Guard, Thirteenth District, Seattle, WA. Pierre Bordenave, personal communications/meetings regarding pre-application of Bridge Permit applications for BNSF Sandpoint Junction Connector new bridges (3.1 and 3.9)



ADDENDUM
REASONABLE NEEDS OF NAVIGATION ANALYSIS FOR
BRIDGE 3.1
SANDPOINT JUNCTION CONNECTOR PROJECT

BNSF Montana Division, Kootenai River Subdivision,
Line Segment 45, MP 2.9 +/- to 5.1 +/-
Bonner County, Idaho
January 31, 2018



Prepared By:

Pierre Bordenave, Project Manager

Jacobs Engineering Group, Inc.
Environmental Services
101 North Fourth Avenue, Suite 203
Sandpoint, ID 83864
T +1.208.263.9391
F +1.208.263.7013
www.jacobs.com

© Copyright 2018 Jacobs Engineering Group Inc. The concepts and information contained in this document are the property of Jacobs.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client.

Addendum Summary

This addendum addresses a request by the Idaho Department of Lands (IDL) for the IDL non-navigational encroachment permit to provide a navigational work plan and discussion of the project's impacts to existing navigational issues during construction and post-construction.

Navigational Effect of Proposed Structures

Temporary and Permanent

The temporary and permanent bridge structures' effects on Sand Creek's navigation are expected to be minimal.

Based on the self-imposed limitation of work within the 150-foot wide navigation channel, identified in the original Navigation Analysis (Section 3.2 – Timing), the construction bridge will be removed during summer pool or high water recreational navigation use times. The new bridge will have a increased horizontal clearance than the existing bridge and will match or have a slightly higher low chord vertical clearance.

Figure 1 shows a comparison of the existing low-chord of Br 3.1 and the proposed low chord elevations of both the temporary and permanent bridges.

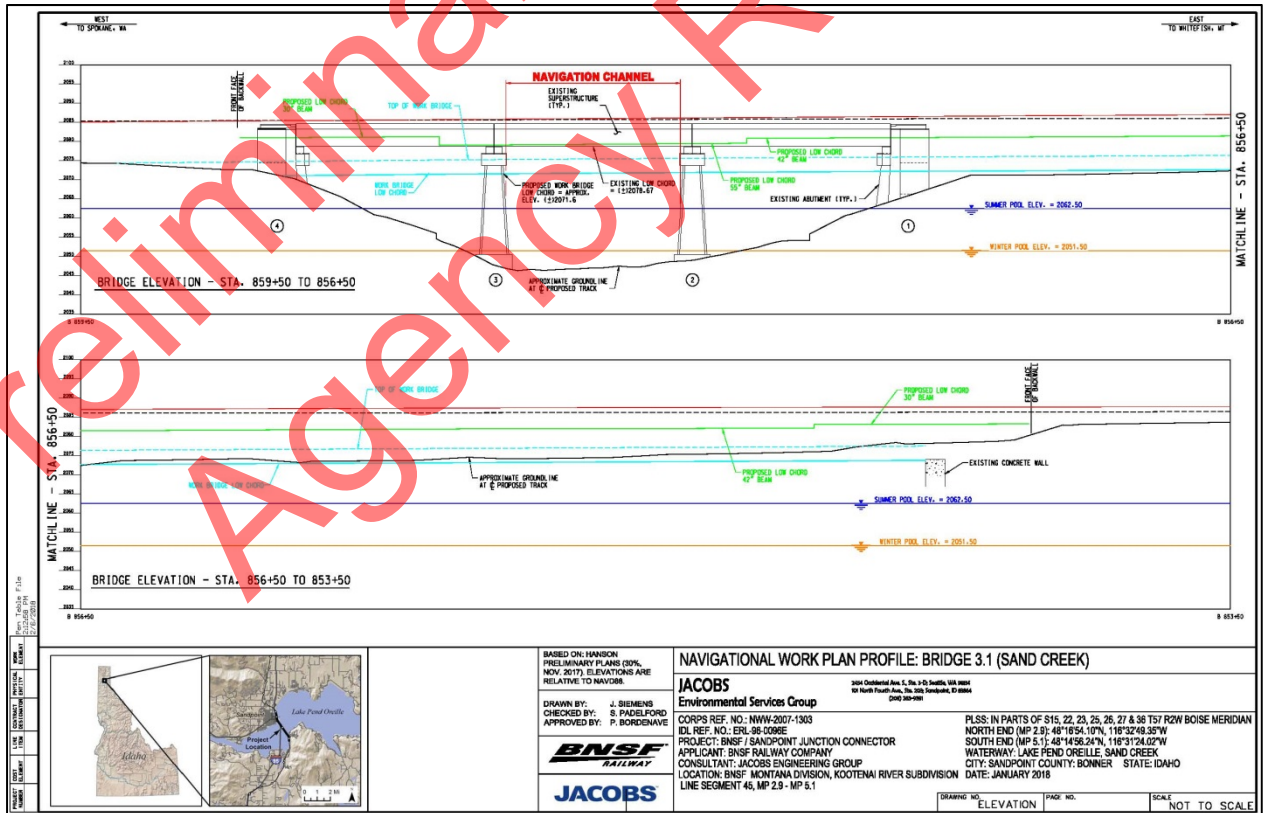


Figure 1. Bridge 3.1 Low Chord Profile Comparisons

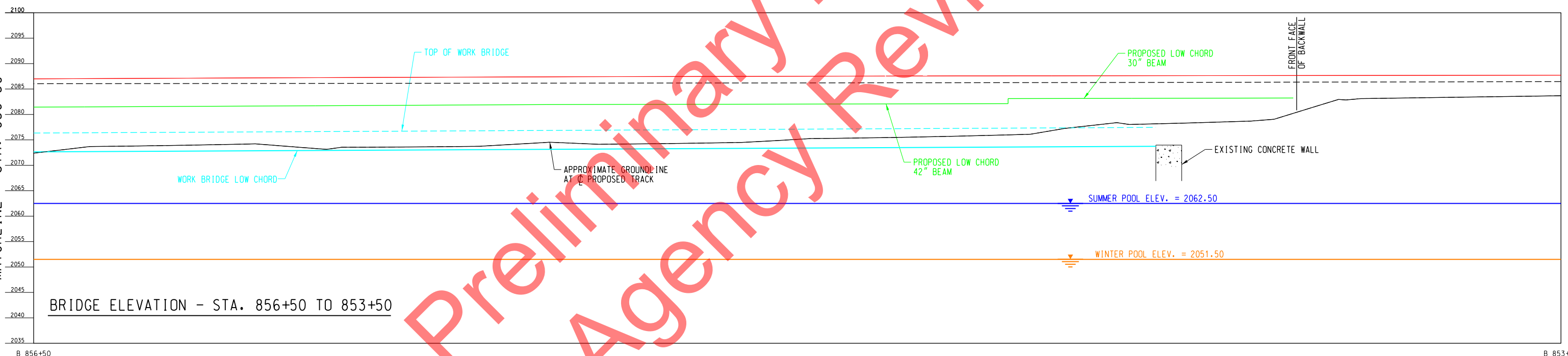
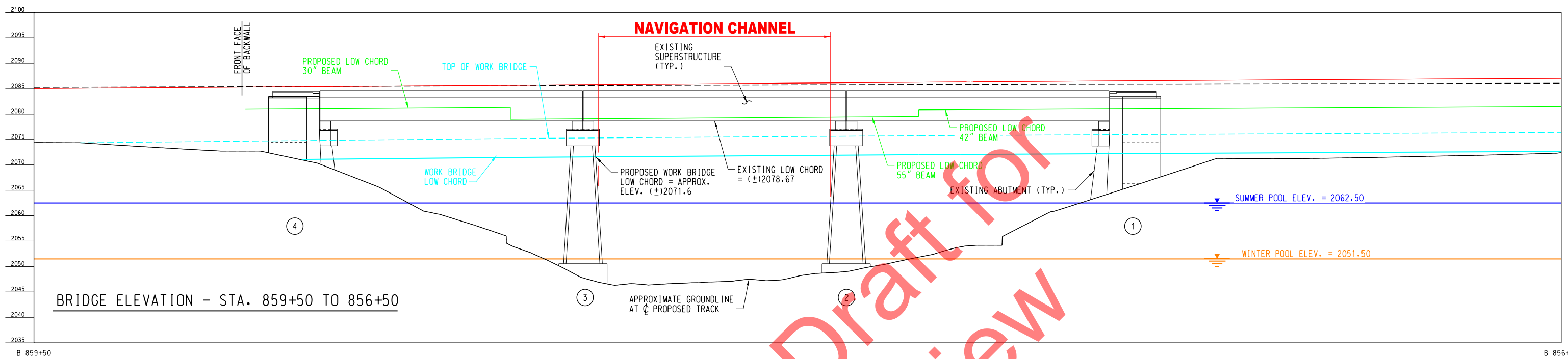
Both the construction and the existing bridges will require signage and navigational lighting to provide boaters with clear information of navigation obstructions or limitations throughout construction and after the new rail bridge is in service. This will be achieved by the use of floating buoys, booms, signs, and lights at night per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118.

References

U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118.

U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, "Lake Pend Oreille, NOAA Chart 18554 (Booklet Chart)"

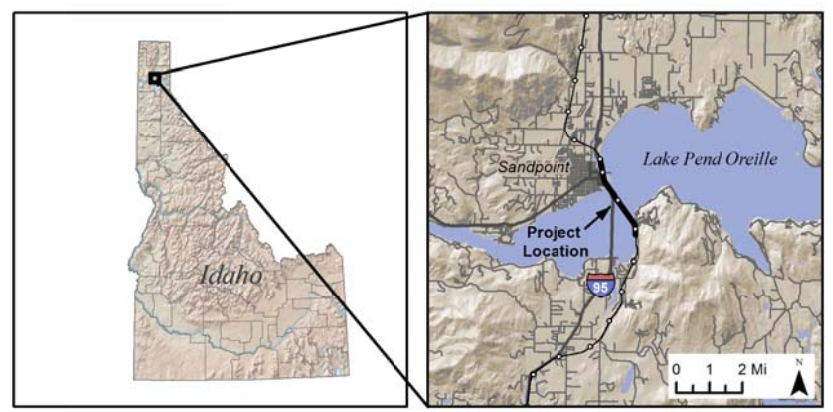
Preliminary Draft for Agency Review



Preliminary Draft for Agency Review

Pen Table File
2/12/18 2:58 PM
2/5/2018

PROJECT NUMBER	WORK ELEMENT
LINE ITEM	CONTRACT DESIGNATOR
PHYSICAL ENTITY	



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

DRAWN BY: J. SIEMENS
CHECKED BY: S. PADEL FORD
APPROVED BY: P. BORDENAVE



NAVIGATIONAL WORK PLAN PROFILE: BRIDGE 3.1 (SAND CREEK)

JACOBS
Environmental Services Group

2454 Occidental Ave. S, Ste. 3-D; Seattle, WA 98134
101 North Fourth Ave., Ste. 203; Sandpoint, ID 83864
(208) 263-9391

CORPS REF. NO.: NWW-2007-1303
IDL REF. NO.: ERL-96-0096E
PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
APPLICANT: BNSF RAILWAY COMPANY
CONSULTANT: JACOBS ENGINEERING GROUP
LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
LINE SEGMENT 45, MP 2.9 - MP 5.1

PLSS: IN PARTS OF S15, 22, 23, 25, 26, 27 & 36 T57 R2W BOISE MERIDIAN
NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
WATERWAY: LAKE PEND OREILLE, SAND CREEK
CITY: SANDPOINT COUNTY: BONNER STATE: IDAHO
DATE: JANUARY 2018



REASONABLE NEEDS OF NAVIGATION ANALYSIS FOR
BRIDGE 3.9
SANDPOINT JUNCTION CONNECTOR PROJECT

BNSF Montana Division, Kootenai River Subdivision,
Line Segment 45, MP 2.9 +/- to 5.1 +/-
Bonner County, Idaho
January 2018



Pierre Bordenave, Project Manager

Jacobs Engineering Group, Inc.
Environmental Services
101 North Fourth Avenue, Suite 203
Sandpoint, ID 83864
T +1.208.263.9391
F +1.208.263.7013
www.jacobs.com

Contents

1.	Executive Summary.....	3
2.	Existing Conditions	5
3.	Proposed Action	13
4.	Navigation Evaluation	17
5.	Mitigation	21
6.	Conclusion	22
7.	References.....	23

FIGURES

1. PROJECT OVERVIEW
2. BRIDGE 3.9 – EXISTING CONDITIONS (LAKE PEND OREILLE / PEND OREILLE RIVER)
3. ALBENI FALLS DAM LAKE ELEVATION MANAGEMENT SUMMARY
4. BRIDGE 3.9 TYPICAL NAVIGATIONAL CLEARANCES (BY SPAN TYPE / LOCATION)
5. HIGHWAY 95 BRIDGES NAVIGATIONAL SPANS VIEWED FROM THE WEST
6. PRIVATE VESSELS WITH HEIGHT RESTRICTIONS UNDER BNSF BRIDGE 3.9 AND HIGHWAY 95 BRIDGES
7. BRIDGE 3.9 WORK BRIDGE SPANS (TEMPORARY)
8. BRIDGE 3.9 WORK BRIDGE SPANS (PERMANENT)
9. BRIDGE 3.9 LOW CHORD PROFILE COMPARISONS
10. NAVIGABLE WATERS BETWEEN HIGHWAY AND RAILROAD BRIDGES

1. Executive Summary

1.1 Project Description

BNSF Railway Co. (BNSF) proposes to construct a second mainline track connection between its Algoma Siding track and the Sandpoint Junction, where BNSF and the Montana Rail Link (MRL) mainlines join. This action will consist of:

1. A new mainline track to the west of the existing BNSF mainline track;
2. Track, switch and signal upgrades;
3. A new bridge over Lake Pend Oreille (Bridge 3.9) adjacent to (west of) the existing rail bridge;
4. A new bridge over Sand Creek (Bridge 3.1) adjacent to (west of) the existing rail bridge;
5. A new bridge over Bridge Street (Bridge 3.0) adjacent to (west of) the existing rail bridge;
6. 0.88-acre of permanent and 0.38-acre of temporary nearshore fill, below the jurisdictional ordinary high water mark (OHWM) of 2062.5 feet, associated with bridge abutments and the south switch.
7. 0.28-acre of wetland fill in one location between the rail grade and the pedestrian path south of the Sand Creek Bridge 3.1.



Figure 1. Project Overview

This technical report addresses the navigational evaluation and reasonable needs of navigation related to one of two over-water rail bridge applications associated with the BNSF Sandpoint Junction Connector Project; as required in accordance with 33 U.S.C. 401, 491, 525-533, 33 CFR 116.01, and the guidance in the USCG Bridge Program Reasonable Needs of Navigation White Paper (USCG; 5 October 2012).

The **Proposed Bridge 3.9** will be approximately 50 feet west of, and parallel to, the existing BNSF Bridge 3.9 over Lake Pend Oreille. The new bridge is 4,874-feet long, with 49-spans, and 48 in-water

piers comprised of six 36-inch-diameter open-ended steel pipe piles. The superstructure is a cast-in-place concrete deck, over pre-cast and pre-stressed concrete I-girders, over pre-cast concrete pier caps.

1.2 Project Purpose

The basic project purpose is to provide improvements for freight and passenger rail transportation to meet capacity needs.

The overall project purpose is to provide improved rail operations on the BNSF Kootenai River Subdivision Mainline by constructing a second mainline track connection between the BNSF Algoma Siding track south of Lake Pend Oreille, and the Sandpoint Junction, where BNSF and the Montana Rail Link (MRL) mainlines join just north of the Sandpoint Amtrak Station.

1.3 Project Need

The project need is based on continued growth of freight rail service demands in the northern tier, high-volume traffic corridor between the Midwest (Chicago Terminus) and the West Coast. The single mainline and portions of the over-water rail bridges date from the early 1900s. Rail traffic volumes have risen steadily for the past three decades to the point that this section of the BNSF mainline has become a constraint to interstate commerce. This project will relieve system congestion and back-up of rail traffic, and reduce hold times on railroad sidings and wait times at public at-grade crossings, both locally and regionally.

2. Existing Conditions

2.1 Setting

Lake Pend Oreille (LPO) is a natural, temperate, oligotrophic lake with seasonal impoundment elevations managed by the US Army Corps of Engineers / Albeni Falls dam, constructed in 1955 near the Idaho / Washington border (Figure 2). The dam regulates the lake's surface elevation / pool at 2062.5 feet from approximately mid-June through September, and at 2051 feet to 2056 feet from mid-October to May. It is the largest natural lake in Idaho, with a surface area of 94,720 acres, a mean depth of 538 feet, and a maximum depth of 1,152 feet at its southern end. The lake is fed by over 20 streams originating in the Selkirk Mountains to the northwest, the Cabinet Mountains to the northeast, and the Coeur d'Alene Mountains to the east, which comprise most of the largely undeveloped, steep rocky terrain of the lake's shoreline and littoral zone. The remaining littoral zone at the lake's northern end and bays consists of gradual or moderately sloping bottom, surrounded by flat to gently sloping upland and floodplain with residential and commercial development within the cities of Sandpoint, Ponderay, and Kootenai; the towns of Hope and Clark Fork (farther east); and within the unincorporated areas of Sagle (south of Sandpoint). The Pend Oreille River is the lake's only surface water outlet and it is defined as beginning adjacent to the town of Dover, Idaho, 2.7 miles to the west of BNSF Bridge 3.9. The river flows eastward approximately 27 miles to the Albeni Falls Dam, then into eastern Washington, and north into Canada where it joins the Upper Columbia River system flowing back into the state of Washington.

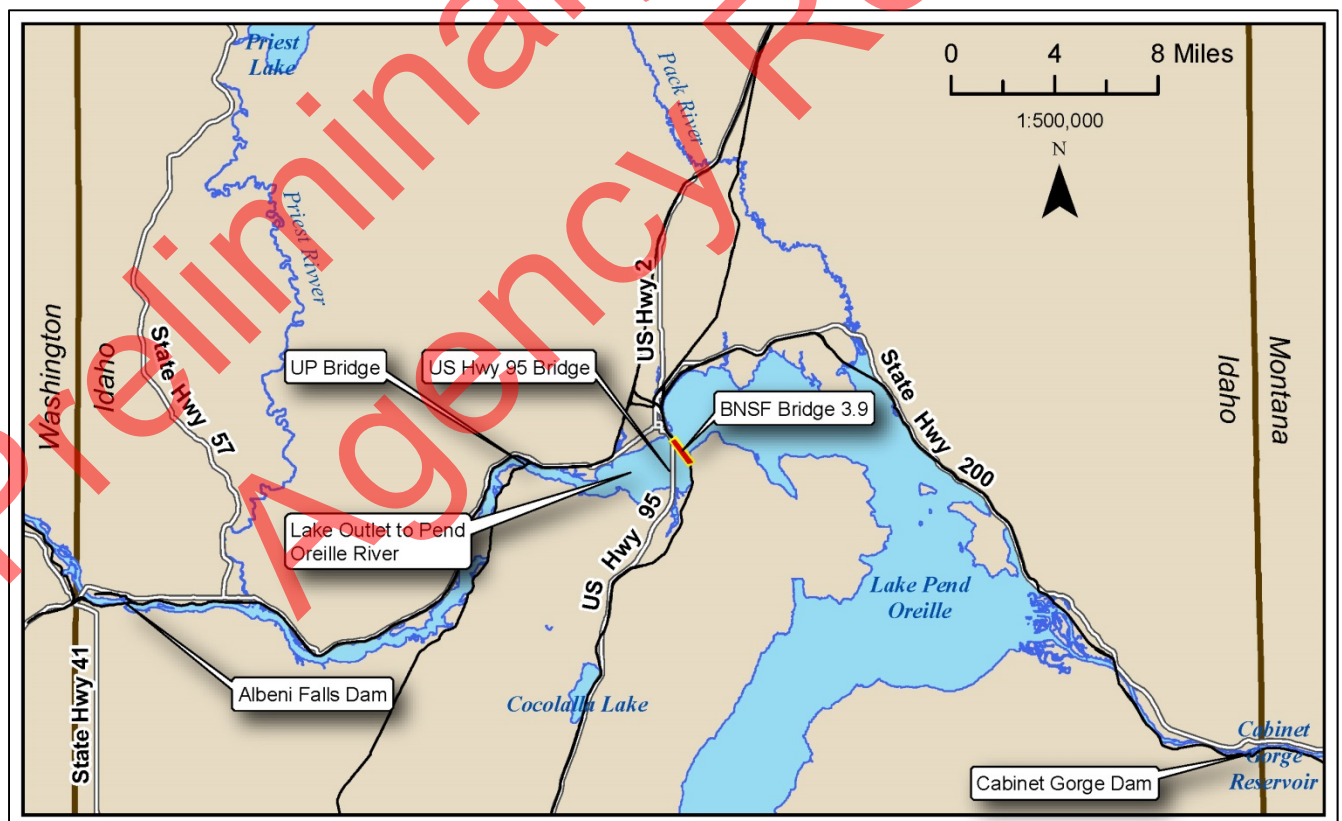


Figure 2. BNSF Bridge 3.9 Existing Conditions (Lake Pend Oreille / Pend Oreille River)

2.1.1 General Project Vicinity

The surface water elevations of the lake are regulated by the US Corps of Engineers, Civil Division's management of the Albeni Falls Dam:

- The surface elevation has a summer pool at 2062.5 feet from approximately mid-June through mid-September.
- From late September to early November the water elevation typically draws down from 2060 to 2051 feet.
- From November to early April the elevation is typically maintained at 2051 feet.
- From early April through June 16 the water elevation typically draws up at irregular intervals, depending on water storage and flood potential conditions, from 2051 feet to 2062.5 feet.

Pend Oreille Lake Levels Albeni Falls Dam Operations <i>(Excerpted from www.nws.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Albeni-Falls-Dam)</i>		
Summer Pool [normal full pool] (NFP)	2062 to 2062.5 feet	June 16 until third Sunday of September or September 18 (whichever is later)
September Drawdown	No lower than 2060 feet	September 30
October/November Drawdown	2060 to 2051 feet	October 1 through 1 st week of November
Winter Holding/ Minimum Elevation	2051 feet	November 16 – early April **
Spring Operations*	Refill to 2056 feet	By April 30
	Refill to 2060 feet	By May 31

* Targets may change due to precipitation conditions and downstream power needs. Spring refill based on flood control as a priority. Refill to 2062 feet mid-late June depending on flood risk, forecasts and snowpack conditions in Pend Oreille River basin.

** Lake elevation may rise due to winter flood conditions; Flood risk management requires water stored above 2056 feet must be evacuated by April 1.

Figure 3. Albeni Falls Dam Lake Elevation Management Summary

2.1.2 Immediate Project Area

The **Existing BNSF Bridge 3.9** spans Lake Pend Oreille for almost a mile (4,769 feet) just south of Sandpoint, Idaho, with the highest navigational spans at the south end of the bridge, generally defined as 2.7 miles upstream (east) from the lake outlet into the Pend Oreille River, near the town of Dover.

The existing BNSF Bridge 3.9 span clearances are as follows:

Vertical Clearance:

- 14 feet at each of the two published and lighted navigation spans (Spans 67 and 68)
- 16 to 16.5 feet at the six approach spans on either side of the lighted navigation spans (Spans 64-66 and 69-71)
- 12.5 feet at all remaining spans (Spans 1-63 and 72-88)

Horizontal Clearance:

- 76.6 feet at each of the two published and lighted navigational spans (Spans 67 and 68)
- 89.6 feet for the two approach spans on either side of published and lighted navigation spans (Spans 66 and 69)
- 65 feet for four spans on either side of the above approach spans (Spans 64, 65, 70, 71)
- 14 feet for Span 1 (north end)
- 44 feet for the seventy-four main bridge spans (Spans 2-62 and 73-87)
- 17 feet on the two connector (skip) spans (Spans 63 and 72)
- 7 feet for Span 88 (south end)

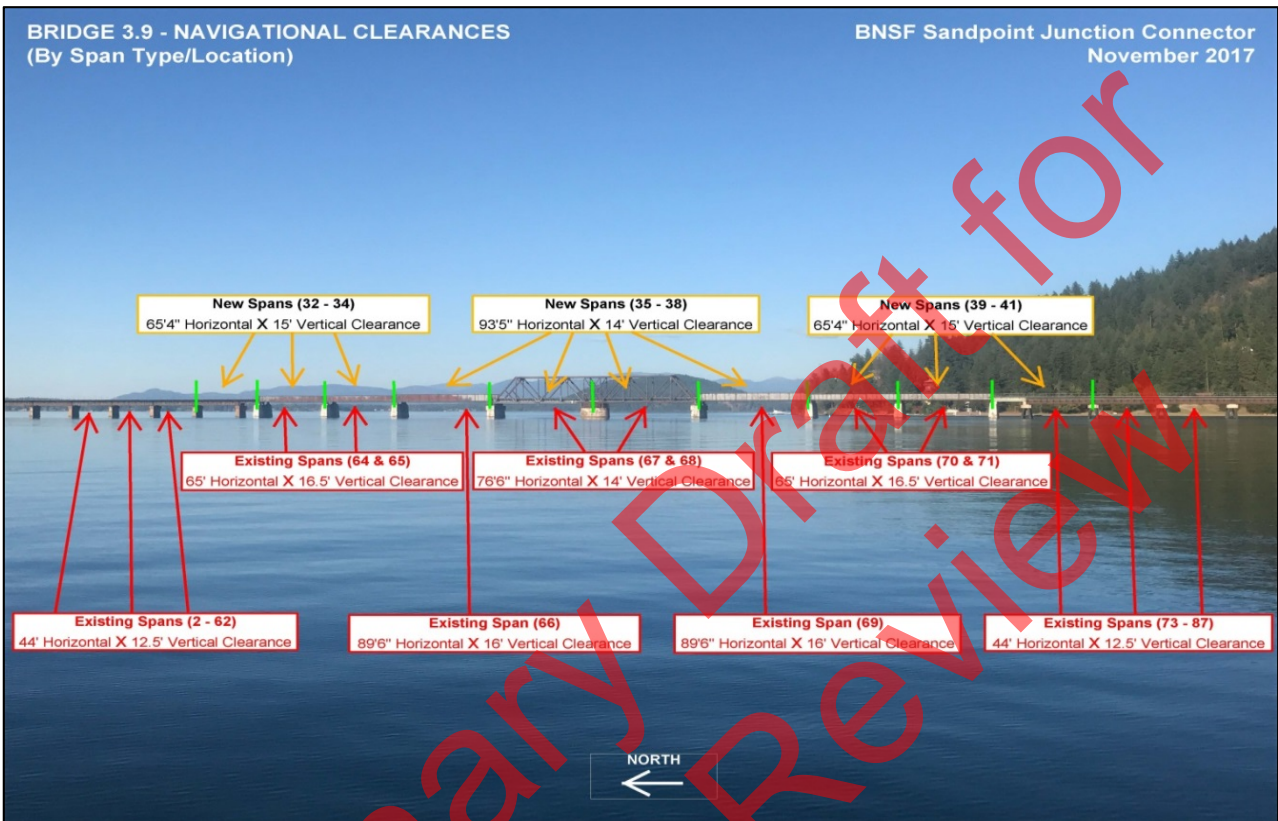


Figure 4. Bridge 3.9 Typical Navigational Clearances (By Span Type / Location)

US Highway 95 spans the lake for just over a mile (5600 feet) south of Sandpoint. The highway bridges (one vehicular, one multi use and emergency access) are west of BNSF Bridge 3.9, approximately 0.7 mile from the rail bridge lighted navigational spans to the highway lighted navigational span.

The highway bridges have 156 spans.

- Span 17 is the designated lighted navigation span with approximately 75 feet of horizontal clearance.
- 24 spans (approximately every 7th span) are cross braced and have no vessel clearance.
- The remaining 131 spans have approximately 37 feet of horizontal clearance.

The highest vertical span for the highway bridges is identified in most published data as 15 feet through the lighted navigational spans near the south end of the bridges (the 17th span from the south abutment). Because there are the two "Highway 95" bridges adjacent to each other ("new" vehicle and "old" multi-use and emergency access) with slightly differing vertical clearances, the following is clarification regarding the navigation span limiting vertical clearance.

- The easternmost “Old” Hwy 95 Bridge, permitted in 1954, has an identified vertical clearance of 15.5 feet. However, that vertical clearance height is relative to an identified “Lake Storage” elevation of 2062.0 in 1954. Since then, the regulated high water (summer pool) elevation has been set as 2062.5. Thus, the actual vertical clearance for this bridge when the lake is at the normal 2062.5 summer pool elevation is 15 feet. This is the published vertical clearance and is the general understanding of the boating community.
- The “New” Hwy 95 Bridge permitted in 1976 has a 15.9 foot vertical clearance, relative to the 2062.5 regulated high water (summer pool) elevation. Thus, the combined highway bridges’ vertical-limiting vertical clearance (low-chord) is 15 feet above 2062.5.
- The spans south of the lighted navigation span have a vertical clearance ranging from the 15 feet to 10.1 feet. The spans north of the lighted navigation span range from 10.1 to 9.4 feet vertical clearance (Jacobs communications with ITD staff October 3, 2017).

Lake Pend Oreille / River water currents in this location, under both the highway and railroad bridges, flow generally from east to west. Flow speed is approximately 1-3 knots depending on the time of year. The bottom substrate is generally silt and sand with a gradient of 1 % or less.



Figure 5. Highway 95 Bridges Navigation Spans Viewed from the West

2.2 Existing Navigational Use

There is significant boat usage and passage under the BNSF bridge and nearby highway bridges, but it is widely dispersed due to the length of the bridges and the ability for most motor and human powered craft to utilize the many navigable spans throughout both bridges. Motor craft, ranging from 12-60+ feet in length, with 5-15 foot beam, and 5-10 foot height, travel through this area year round. However, the highest use period is typically from mid-May through mid-September with an average of 150 to 250 boats passages per day, with peak periods of several hundred passages during holidays and weekends.

Due to the limiting vertical clearance Low chord elevation for both the BNSF and Highway 95 bridges, most sailboats are generally limited to the portion of the lake and river west of the highway bridges and east and north of the railroad bridge. Occasionally, small sail craft and sail boards are seen in the approximately 677 acres of open water between the bridges, but they are typically launched within that area from private property and remain in that area due to the difficulty of dropping the sail masts to pass under the bridges.

Public and private marinas near Sandpoint are approximately 1 mile to the north, and the Dover Bay Marina is approximately 3 miles to the west. Both locations are full service marinas with boat launching, boat rentals, fueling, and bilge pumping facilities, as well as both day-use mooring, public docks, and rented private dock slips.

A large proportion of the privately-held land along Lake Pend Oreille is centered around the greater Sandpoint area. There are several hundred private docks within a few miles of the BNSF Bridge 3.9 in all directions and along each shoreline. Other than some of the docks at the Dover Bay Marina, most docks are not accessible by boats due to the lake elevation draw down from October to May.

There are commercial tourist and fishing operations on Lake Pend Oreille and the Pend Oreille River. At this time, we know of no commercial activity that is unable to pass through either the railroad bridge or the highway bridges. Nor are we aware of any future proposed commercial operations that would require greater vertical or horizontal navigational clearances than what is currently available on both the railroad bridge and the highway bridges.

We were able to identify two vessels with defined limits for passage beneath the railroad and highway bridges. We discussed with their owners the specific limits. The *Shawnodese* is a privately-owned, commercial tour boat based in Sandpoint that occasionally conducts down-river cruises. However, boating conditions must be calm with smooth water for the boat to safely pass under the 15 foot vertical limits of the highway bridge. The *Ida Mae* is a privately-owned houseboat, semi-permanently moored at the Dover Bay Marina. Based on discussions with the owner, this craft has historically passed under both the highway and the railroad bridges, but only when the river / lake level is lowered in the fall or spring. The *Ida Mae* cannot pass under either the highway or rail bridges at high water (summer pool) due to a protective superstructure that has been added to the boat. Typically, neither the *Shawnodese* nor the *Ida Mae* utilize the railroad bridge lighted navigation spans (Spans 67 and 68), but can pass through the adjacent higher spans. They both use the Highway 15 foot clearance lighted navigation span.

*"Ida Mae"**"Shawnodese"*

Figure 6. Private Vessels Restricted by Size for Navigation Under BNSF Bridge 3.9 and Highway 95 Bridges

2.3 Limiting Structures

There are three bridges on Lake Pend Oreille and the Pend Oreille River that create restrictive navigation conditions for both commercial and private watercraft.

2.3.1 BNSF Bridge 3.9

BNSF Bridge 3.9 is identified in navigation charts as having a vertical clearance of 14 feet, which matches the vertical clearance at the two lighted navigational spans. However, it is general knowledge by local and regional marinas and boat owners that the spans adjacent to the lighted navigation spans (Spans 64-66 and Spans 69-71) have higher vertical clearance. Thus, it is also general knowledge that if they can pass under the highway bridges least limiting lighted navigation span (Span 17), they can clear the BNSF spans adjacent to its lighted navigation spans.

Although the BNSF Bridge 3.9 is generally identified as the limiting vertical structure on the lake, that only applies to its lighted navigation spans. The railroad bridges adjacent spans, with 16-16.5 foot vertical clearances, result in the highway bridges being the limiting vertical clearance span on the lake at 15 feet, when the lake is at full summer pool level of 2062.5.

2.3.2 Highway 95 Bridge and Adjacent Old Highway Bridge (multi-use pathway and emergency access bridge)

Based on the previous descriptions in 'Existing Conditions Section 2.1.2', the vertical and horizontal limiting navigational structure for both the river and the lake is the easternmost of the two highway bridges, which has a 15 foot vertical clearance and 75 foot horizontal clearance at the designated, navigation lighted span when the lake is at full summer pool level of 2062.5.

2.3.3 The Union Pacific Railroad Bridge downstream on the Pend Oreille River

The Spokane International Railroad Bridge (owned by Union Pacific Railroad - UPRR) west of Dover, Idaho, and identified as located at River Mile 111.3, has an 85-foot horizontal clearance

and 18-foot vertical clearance (relative to 2062.5) at its designated, navigational lighted span. It also has navigable adjacent spans that are slightly lower and narrower.

2.3.4 Other Bridges

None of the other bridges on the rivers (Priest River bridge on the Pend Oreille River, and Clark Fork Bridges on the Clark Fork River) have lower chord (vertical clearance) elevation or more restrictive horizontal clearances than the Highway 95 bridges, and also are at the outer perimeters of navigational use of the rivers and lake.

Preliminary Draft for
Agency Review

3. Proposed Action

Actions associated with navigation for the BNSF Bridge 3.9 portion of the BNSF Sandpoint Junction Connector project are:

- A new bridge over Lake Pend Oreille approximately 50 feet west of the existing BNSF Rail Bridge 3.9.
- Temporary nearshore fill at the north end (0.30 acre) and south end (0.03 acre) of the new bridge associated with construction access.
- Permanent nearshore fill at the north end (0.57 acre) and south end (0.01 acre) of the new bridge associated with matching the existing structural fill to meet both safety and security design criteria.

An action not directly associated with navigation, and thus addressed under a Corps of Engineers Section 10 Permit and 404 Permit, is a 0.28 acre near shore fill at the south end of the overall project to accommodate construction of the new track transition, and switch and signal changes. This near shore fill avoids extensive rock blasting and potential impacts to upslope roads and residents (See Alternatives Analysis).

3.1 Structures

3.1.1 Temporary

A temporary work bridge consisting of 102 spans is proposed to construct the new Bridge 3.9. This work bridge will be approximately 4,800 feet in length and 32 feet wide with eight staging and safety setouts of 63 feet width (Figure 7).

Vertical clearance:

- Less than 10 feet at north end temporary bridge Spans 1-16
- Gradually rising low-chord from 10 feet to 15 feet for temporary bridge Spans 17-67
- 15 feet at temporary bridge Spans 68-71
- Gradually lowering low chord from 15 feet to 10 feet at south end temporary bridge spans 72-101

Horizontal clearance:

- 42-44.8 feet at temporary bridge Spans 68-71
- 42 feet for most of the remaining temporary bridge spans, except for
- 7 feet at Span 1 and less than 2 feet at Span 102

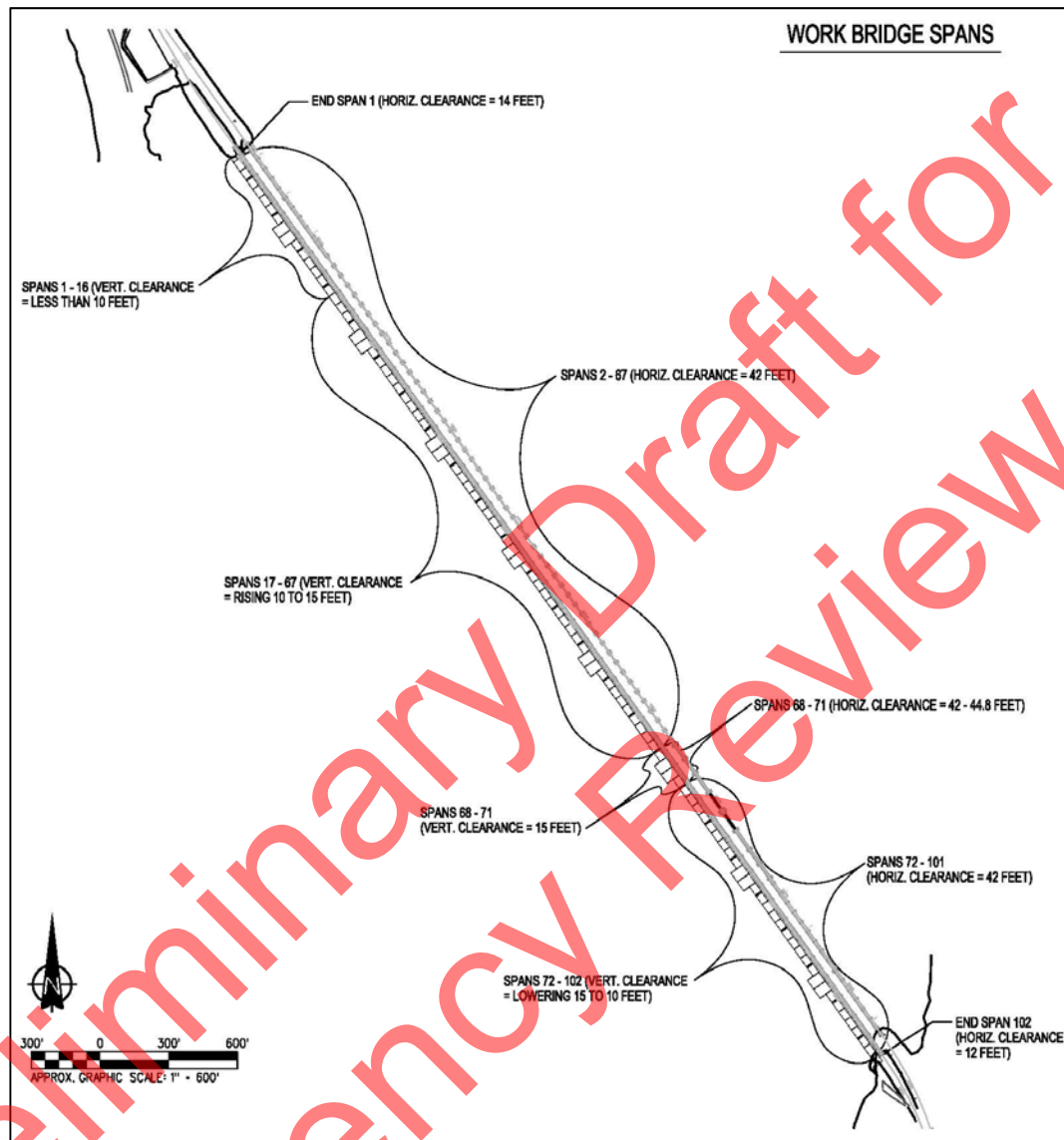


Figure 7. Bridge 3.9 Work Bridge Spans (Temporary)

3.1.2 Permanent

A new bridge adjacent to the existing BNSF over Lake Pend Oreille (Bridge 3.9).

This bridge will consist of 49 spans, approximately 50 feet to the west of, and parallel to, the existing bridge, and will be 4,874 feet long and approximately 18 feet wide (Figure 8).

Vertical clearance:

- 14 feet at the two published navigational spans (lighted) and at the two approach spans on either side of the navigation channel (Spans 35-38)
- 15 feet for 6 spans (Spans 32-34 and 39-41)
- 12.5 feet for 39 spans (Spans 1-31 and 42-49)

Horizontal clearance:

- 93.5 feet at the two published and lighted navigational spans and the two approach spans on either side of the navigation channel (Spans 35-38).
- 65.4 feet for 6 spans (Spans 32-34 and 39-41)
- 93.5 feet for spans 38 spans (Spans 2-31 and 42-49)
- 7 feet for span 1 at the north end of the bridge.

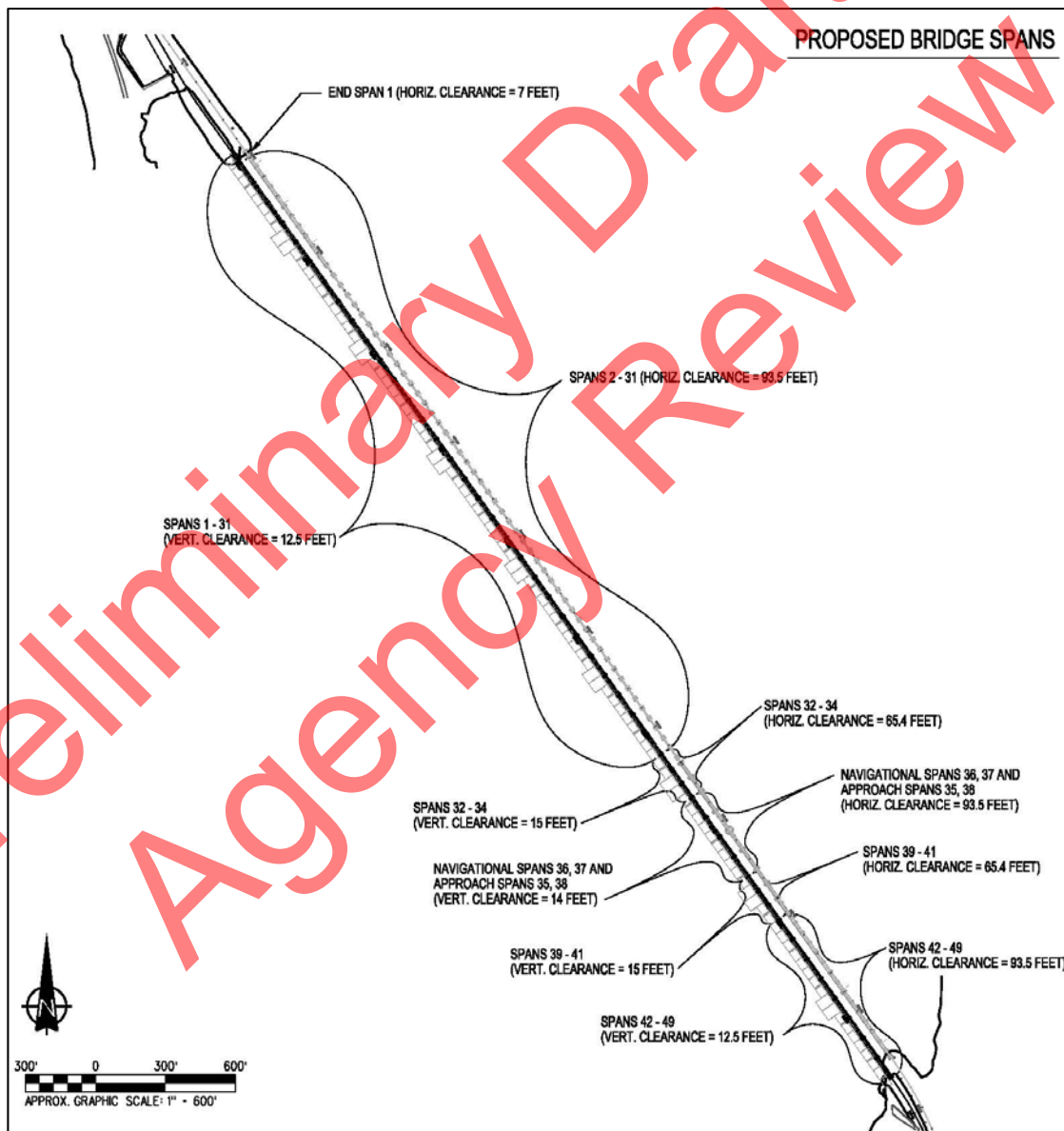


Figure 8. Bridge 3.9 New Bridge Spans (Permanent)

3.2 Timing

3.2.1 Temporary

The temporary construction bridge will be built immediately after the placement of the nearshore approach fills, and generally prior to construction of new bridge. The construction bridge will remain in place for the construction of the new bridge, up to 2.5-3 years.

3.2.2 Permanent

Work on the new permanent railroad bridge may start while the construction bridge is being completed, but generally is proposed to occur year-round once the construction bridge is completed. Construction is expected to take 2.5-3 years.

Preliminary Draft for
Agency Review

4. Navigation Evaluation

4.1 Navigational Effect of Proposed Structures

4.1.1 Temporary

The temporary construction bridge went through several design iterations to identify the least impacts to navigation while providing a safe working platform for the large heavy equipment necessary to construct a railroad bridge over a long waterway reach.

- There will be a restriction of navigation at the northernmost 16 spans (approximately 600 feet) where the construction bridge low-chord vertical clearance will restrict most vessel passage as the work bridge slowly rises to reach a 10 foot low-chord elevation at Span 17. However, these northernmost 36 spans are generally avoided by watercraft operators because of the shallow nature of that area, particularly in the winter months when shifting sand bars are exposed (Figure 9).
- At Span 17, the vertical clearance of the temporary bridge will be 10-feet, and from Spans 17-63 the low-chord vertical clearance rises from 10 to 15 feet.
- From Spans 68-71 the low-chord vertical clearance will be 15 feet.
- From Spans 72-102 at the south end of the bridge, the low-chord vertical clearance will reduce from 15 to 12.5 feet.

4.1.2 Permanent

The permanent railroad bridge also required several design iterations to minimize the navigational impacts of the new structure and ensure that it is not the limiting structure to vertical and horizontal clearance for navigation on the lake and river.

The new railroad bridge has twice the horizontal clearances for the majority of the new structure, other than the navigational spans, where it will generally match the existing spans horizontal clearance. The vertical clearances will also match the 12.5 foot vertical clearance for the majority of the existing bridge spans. For Spans 32 through 34 and Spans 39 through 41, the vertical clearance will be 15 feet. For Spans 35 through- 38 the vertical clearance will be 14 feet.

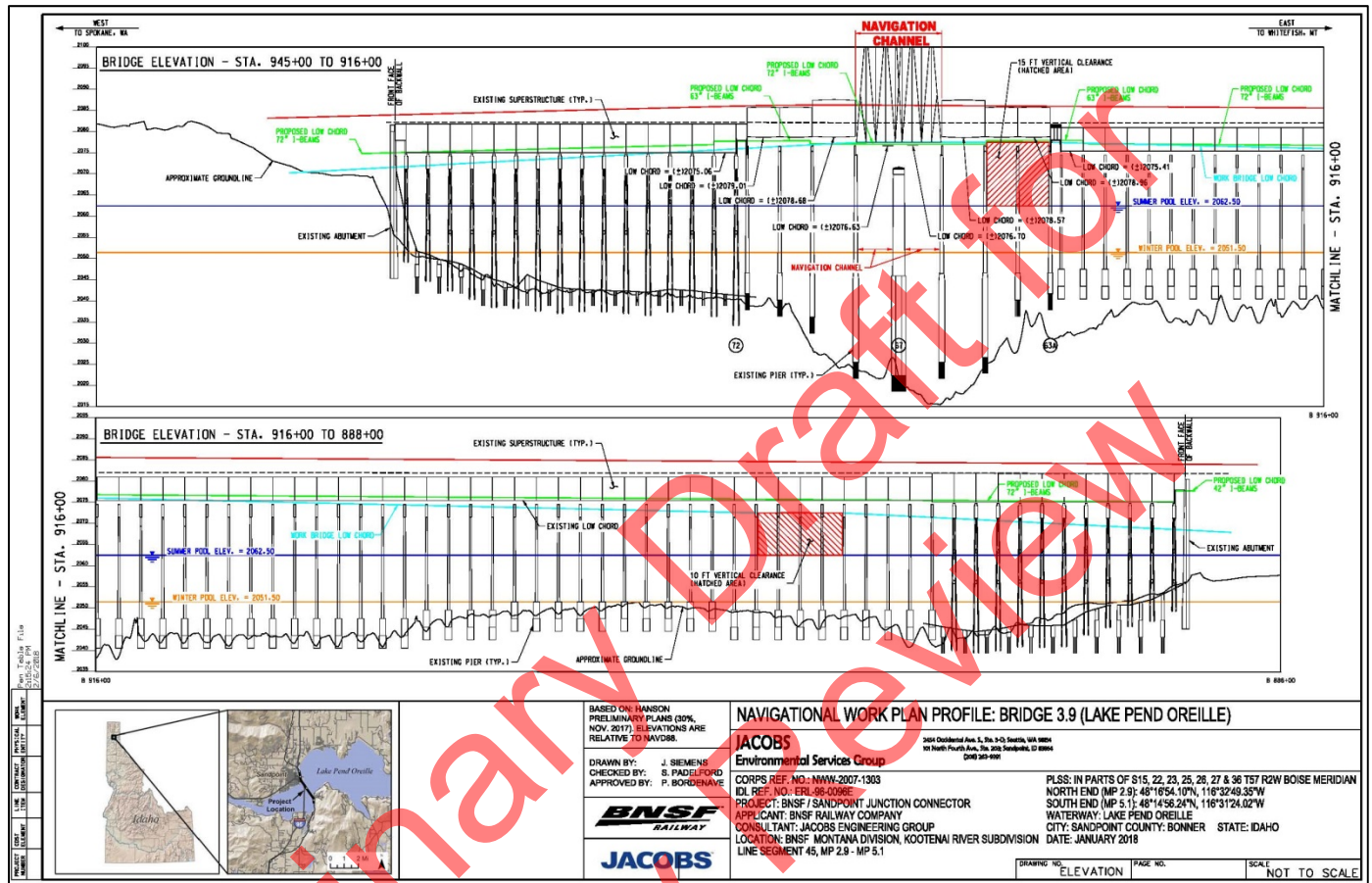


Figure 9. Bridge 3.9 Low Chord Profile Comparisons

4.2 Effect of Proposed Structures on Existing and Potential Foreseeable Navigation Needs

4.2.1 Temporary

Based on the vertical and horizontal clearances identified in Section 4.1.1, the majority of the construction bridge (approximately 60%) will retain an equivalent vertical and horizontal clearance as the existing railroad bridge throughout construction.

Although during construction there will be locations of limited navigation to keep both mariners and construction operators safe, there will be on average, over 3000 feet of minimally restrictive navigation throughout the bridge length. At all times there will be vertical clearances of 15 feet at designated spans near the existing bridge designated navigation spans

Both the construction and the existing bridges will require signage and navigational lighting to direct boaters away from construction restriction spans and towards the non-restrictive passage spans. This will be achieved by the use of floating buoys, booms, signs, and lights at night per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118.

4.2.2 Permanent

Based on the vertical and horizontal clearances identified in Section 4.1.2, the majority of the bridge (approximately 90%) will retain an equivalent vertical and horizontal clearance as the existing bridge. Both the existing and new bridges will require signage and navigational lighting, per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118, to provide mariners information on horizontal and vertical clearances.

The existing designated and lighted navigation spans vertical clearance will remain at 14 feet. The reduction of the two adjacent spans vertical clearance from 16 feet to 14 feet is necessary to meet modern rail loading design requirements for the new 93.4 foot bridge span lengths.

Six spans (Spans 32, 33, 34, 39, 40, and 41) will have a vertical clearance of 15 feet. The reduction from 16-16.5 feet at four of the existing spans is necessary to meet modern rail loading design requirements for the new 65.4 foot bridge span lengths.

Although the new railroad bridge results in a reduction in vertical clearance at some of the spans approaching the designated and lighted navigational spans, the proposed 15-foot vertical clearance matches the 15-foot of vertical clearance limits at the highway bridges. Thus any vessels that can or intend to clear the highway bridges will also be able to clear the new railroad bridge.

Approximately 677 acres of open-water, out of the approximately 96,000 acres of navigable waters on Pend Oreille Lake and River, are affected by this vertical clearance limit (Figure 10).

Within the area from the Bottle Bay Road Bridge (which has 10 feet of vertical clearance) to the railroad and highway bridges, we found no commercial or private vessels that exceed 15 feet in vertical clearance, based on personal survey of those areas over the past year. We are not aware of any proposed or potential vessels being constructed or launched within that 677 acre area, and it is unlikely anyone would choose to do so in the future given the published limitation of the highway bridges vertical elevation at its navigational span.



Figure 10. Navigable Waters Between the Highway and Railroad Bridges

5. Mitigation

5.1 Temporary Bridge

- Increased the low chord vertical clearance to a minimum of 10 feet for over 80% of the bridge from the original planned 25%.
- Maintained a 15 foot low chord vertical clearance for designated spans to ensure vessels capable of clearing the highway bridge are able to clear the railroad bridge throughout construction. The original plan was to meet the published low chord vertical clearance of the designated and lighted navigation span, which is 14 feet.
- Use of floating buoys, booms, signs, and lights at night, per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration “Bridge Lighting and Other Signals” Guidelines under 33 CFR 118, to direct boaters away from construction restriction spans and towards the non-restrictive passage spans.
- Provide notification and updates through Coast Guard Notice to Mariners, signage at Marinas and public boat launch facilities, state and local waterways agencies, local newspapers and publications throughout construction.

5.2 Permanent Bridge

- Retain equivalent vertical and horizontal clearances for 90% of the existing bridge.
- Maintain a 15 foot low chord vertical clearance for designated spans to ensure vessels capable of clearing the highway bridge can continue to clear the railroad bridge. The original plan was to meet the published low chord 14 foot vertical clearance of the designated and lighted navigation span.
- Provide required signage and navigational lighting, per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration “Bridge Lighting and Other Signals” Guidelines under 33 CFR 118, to provide mariners information on horizontal and vertical clearances on both the existing and new bridges.
- Provide notification through Coast Guard Notice to Mariners, signage at Marinas and public boat launch facilities, state and local waterways agencies, local newspapers and publications.
- Given that the published navigation information now identifies the existing BNSF Bridge 3.9 as having a 14 foot navigational clearance, updates to those publications should not need updating because the designated lighted navigational span vertical and horizontal clearances will remain the same. However, clearance signage will be placed on the bridge to ensure mariners are aware of the changes to the spans adjacent to the designated and lighted navigation spans.

6. Conclusion

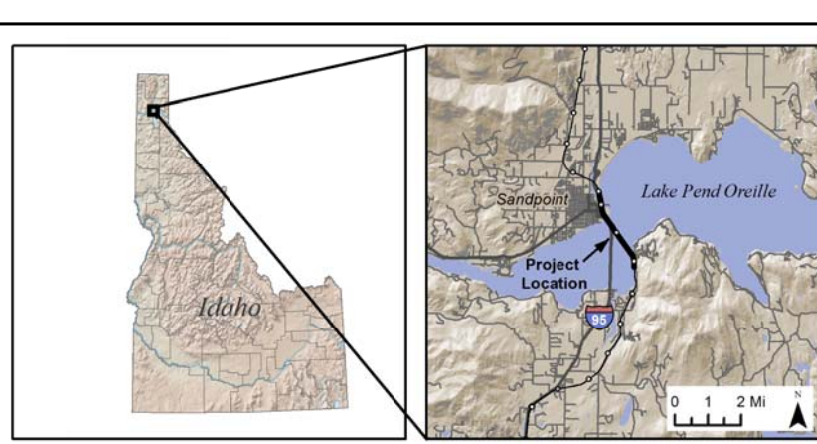
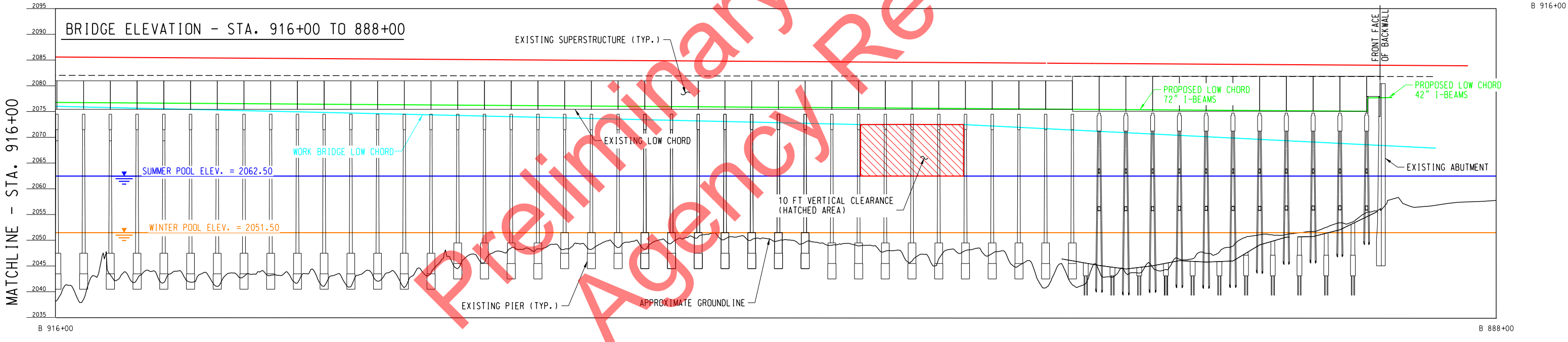
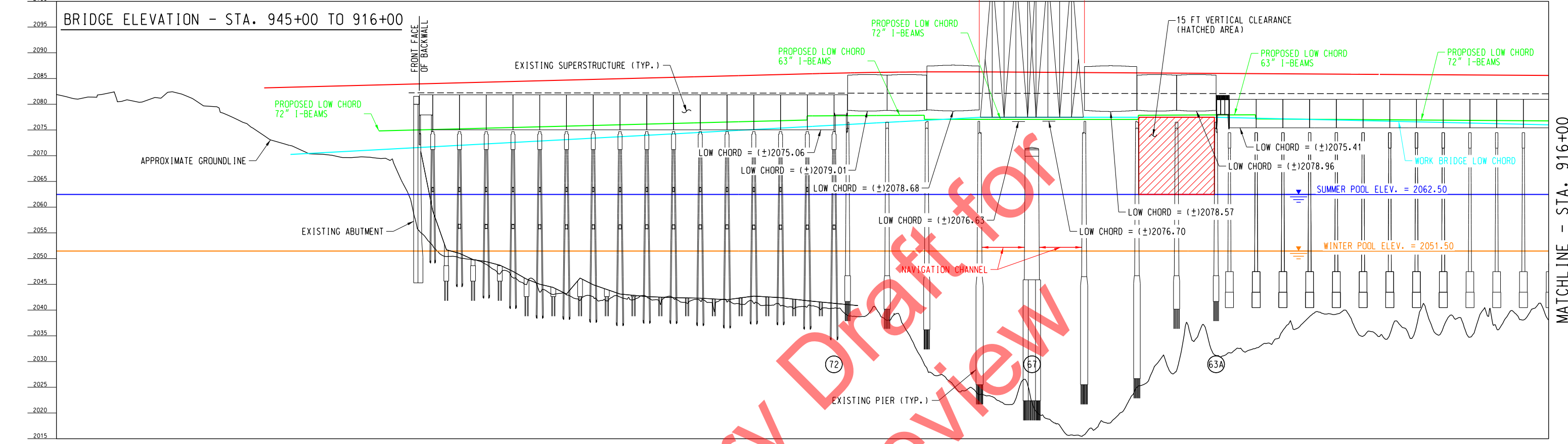
The Reasonable Needs of Navigation Criteria are met by the propose project though:

- Design adjustments that maximize the possible vertical clearance for navigation throughout the bridge.
- Meeting the same vertical clearance as the Highway 95 Bridge to the west on four combined rail spans to ensure the rail bridge is not the controlling structure for navigation on Pend Oreille Lake and River.
- Providing required signage and navigational lighting, per the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118, to provide mariners information on horizontal and vertical clearances on both the existing and new bridges.
- Provide notification through Coast Guard Notice to Mariners, signage at Marinas and public boat launch facilities, state and local waterways agencies, local newspapers and publications.

Preliminary Draft for Agency Review

7. References

- Bonner County Sheriff Department, Marine Division, 2017. Pierre Bordenave personal communications regarding boat registrations on Lake Pend Oreille, Idaho.
- Hanson Professional Service, Inc. "BNSF Sandpoint Junction Connector Project" 60% Design; 2017.
- Local Marinas, 2017. Pierre Bordenave, personal communications regarding owners of boats and boat slip use, seasonal and day-use.
- US Army Corps of Engineers, Civil, Seattle Corps District; Albeni Falls Dam 148021 FAQ Sheet; <http://www.nws.usace.army.mil/Missions/CivilWorks/LocksandDams/AlbeniFallsDam.aspx>
- US Coast Guard White Paper, BDTM.48 "Guidelines to Perform Navigational Studies." Version 1.1; October 5, 2012.
- US Coast Guard, Office of Bridge Programs, "Bridge Permit Application Guide," COMPDTPUB P16591.3D, OMB Control Number: 1625-0015, 19 July 2016.
- Fischer, Steven, 2017. US Coast Guard, Thirteenth District, Seattle, WA. Pierre Bordenave, personal communications/meetings regarding pre-application of Bridge Permit applications for BNSF Sandpoint Junction Connector new bridges (3.1 and 3.9)
- U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, "Lake Pend Oreille, NOAA Chart 18554 (Booklet Chart)"
- U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118.



BASED ON: HANSON PRELIMINARY PLANS (30%, NOV. 2017). ELEVATIONS ARE RELATIVE TO NAVD88.

DRAWN BY: J. SIEMENS
 CHECKED BY: S. PADEFORD
 APPROVED BY: P. BORDENAVE

BNSF RAILWAY

JACOBS

NAVIGATIONAL WORK PLAN PROFILE: BRIDGE 3.9 (LAKE PEND OREILLE)

JACOBS Environmental Services Group
 2454 Occidental Ave. S., Ste. 3-D; Seattle, WA 98134
 101 North Fourth Ave., Ste. 203; Sandpoint, ID 83864
 (208) 263-9391

CORPS REF. NO.: NWW-2007-1303
 IDL REF. NO.: ERL-96-0096E
 PROJECT: BNSF / SANDPOINT JUNCTION CONNECTOR
 APPLICANT: BNSF RAILWAY COMPANY
 CONSULTANT: JACOBS ENGINEERING GROUP
 LOCATION: BNSF MONTANA DIVISION, KOOTENAI RIVER SUBDIVISION
 LINE SEGMENT 45, MP 2.9 - MP 5.1

PLSS: IN PARTS OF S15, 22, 23, 25, 26, 27 & 36 T57 R2W BOISE MERIDIAN
 NORTH END (MP 2.9): 48°16'54.10"N, 116°32'49.35"W
 SOUTH END (MP 5.1): 48°14'56.24"N, 116°31'24.02"W
 WATERWAY: LAKE PEND OREILLE
 CITY: SANDPOINT COUNTY: BONNER STATE: IDAHO
 DATE: JANUARY 2018

DRAWING NO. ELEVATION PAGE NO. SCALE NOT TO SCALE

Pen Table File 2/15/24 PM 2/6/2018
 PROJECT COST ELEMENT
 LINE ITEM
 CONTRACT DESIGNATOR
 PHYSICAL ENTITY
 WORK ELEMENT



ADDENDUM - 1

REASONABLE NEEDS OF NAVIGATION ANALYSIS FOR LAKE PEND OREILLE BRIDGE 3.9 SANDPOINT JUNCTION CONNECTOR PROJECT

BNSF Montana Division, Kootenai River Subdivision,
Line Segment 45, MP 2.9 +/- to 5.1 +/-
Bonner County, Idaho
January 31, 2018

Updated 2/14/2018



Prepared By:

Pierre Bordenave, Project Manager

Jacobs Engineering Group, Inc.
Environmental Services
101 North Fourth Avenue, Suite 203
Sandpoint, ID 83864
T +1.208.263.9391
F +1.208.263.7013
www.jacobs.com

© Copyright 2018 Jacobs Engineering Group Inc. The concepts and information contained in this document are the property of Jacobs.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client.

Summary

This addendum addresses a request by the Idaho Department of Lands (IDL) for the IDL non-navigational encroachment permit to provide a navigational work plan and discussion of the project's impacts to existing navigational issues during construction and post-construction. (Rule 015.13.g. of IDAPA 20.03.04)

Navigational Effect of Proposed Structures

Temporary

The temporary construction bridge's effects on Lake Pend Oreille's navigation in the project vicinity have been reviewed to identify the least impacts to navigation while providing a safe working platform for the project.

Vertical clearances throughout the temporary bridge will not be significantly different than the existing Br 3.9 vertical clearance. The low-chord vertical clearance in the identified navigation channel (spans 68 - 71) will match the existing bridge vertical clearance of 15 feet.

Temporary bridge piers that are offset, or within the horizontal span layout, from the existing bridge piers will be identified in a navigation work plan. BNSF and the project Construction Team (TBD) will develop this plan prior to construction. The plan will specifically call-out the types and kinds of lighting or markers required on piers within the navigation channel spans and throughout the project.

Components of the temporary bridge lighting and marking could include, but are not limited to the following safety navigation protocol:

- Upstream and downstream sides of the Br 3.9 navigational channel piers (piers associated with spans 68 - 71) and piers that are offset of the existing bridge piers will be marked with red lights.
 - Each red light shall show through a horizontal arc of 180 degrees.
 - The lights will be securely mounted on the pier as low as practicable, but not lower than two feet above the navigable high water so it shows 90 degrees on either side of a line parallel to the axis of the navigational channel to be visible from an approaching vessel.
- Lighting used will be:
 - Designed and placed so the light distribution pattern will not permit high intensity light that blinds or interferes with navigation, such as Fresnel lens lights.
 - Temporary lighting will be regularly inspected and maintained.
 - Lighting will be displayed or turn on from sunset to sunrise each night.

- Lighting used will be of sufficient candlepower to be visible against the background lighting at a distance of at least 2,000 yards for 90% of the nights of the year.
- Upstream and downstream sides of piers not within the navigation channel and not offset of the existing bridge piers may be marked with red reflectors or red retroreflective material.
 - Reflective material will be affixed to the upstream and downstream channelward quadrant of the upstream and downstream sides of piers on either side of the navigational channel. This will ensure effective reflection of light from an approaching vessel.
 - Reflectors or retroreflective material should cover a minimum of 0.5 square feet in each location and be located at or above the high water line.
- BNSF and the project Construction Team will be responsible for maintaining proper temporary navigational lighting and other markings during construction.

Permanent

The new, permanent Br 3.9 will generally match the vertical clearance limits of the highway bridges. The navigation channel does not match the highway bridges clearance, 15 feet, so there are no long-term expected restrictions for vessel traffic under the new bridge.

The design and placement of piers for the new bridge are generally aligned with existing Br 3.9 piers. Piers that are, however, offset or within navigation channel will comply with the lighting requirements of the U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration "Bridge Lighting and Other Signals" Guidelines under 33 CFR 118 via a navigation lighting and signal plan.

BNSF and the project bridge design team will develop this plan prior to completion of the new Br 3.9 construction. The plan will be reviewed and approved by the USCG and the IDL. The plan will specifically call-out the types and kinds of lighting or markers required on piers within the navigation channel spans and at other locations throughout the project.

Components of the permanent bridge lighting and marking could include, but are not limited to the following safety navigation protocol identified in 33CFR 118:

- Upstream and downstream sides of the Br 3.9 navigational channel piers (piers associated with spans 68 - 71) and piers that are offset of the existing bridge piers will be marked with red lights.
 - Each red light shall show through a horizontal arc of 180 degrees.
 - The lights will be securely mounted on the pier as low as practicable, but not lower than two feet above the navigable high water so it shows 90 degrees on either side of a line parallel to the axis of the navigational channel to be visible from an approaching vessel.
- Lighting used will be:

- Designed and placed so the light distribution pattern will not permit high intensity light that blinds or interferes with navigation, such as Fresnel lens lights.
- Temporary lighting will be regularly inspected and maintained.
- Lighting will be displayed or turn on from sunset to sunrise each night.
- Lighting used will be of sufficient candlepower to be visible against the background lighting at a distance of at least 2,000 yards for 90% of the nights of the year.
- Upstream and downstream sides of piers not within the navigation channel and not offset of the existing bridge piers may be marked with red reflectors or red retroreflective material.
 - Reflective material will be affixed to the upstream and downstream channelward quadrant of the upstream and downstream sides of piers on either side of the navigational channel. This will ensure effective reflection of light from an approaching vessel.
 - Reflectors or retroreflective material should cover a minimum of 0.5 square feet in each location and be located at or above the high water line.
- BNSF will be responsible for maintenance of permanent lighting on Br 3.9 over Lake Pend Oreille.

References

U.S. Department of Homeland Security, U.S. Coast Guard Office of Bridge Administration “Bridge Lighting and Other Signals” Guidelines under 33 CFR 118.

U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, “Lake Pend Oreille, NOAA Chart 18554 (Booklet Chart)”

U.S. Coast Guard, Bridge Administrative Division. Presentation by Nick E. Moras, Assistant Chief at the 2nd Biennial Bridge Symposium, 11/1987, St. Petersburg, FL. “Recommendations for Temporary and Permanent Installations of Bridge Navigation Lights and Reflective Materials”

Appendix G
Visual Impact Analysis

Preliminary Draft for
Agency Review

VISUAL IMPACT ANALYSIS
BNSF Sandpoint Junction Connector Project

Bonner County, Idaho



U.S. Coast Guard
District Thirteen
Seattle, Washington

August 6, 2018

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	iii
1.0 INTRODUCTION	1
1.1 Purpose	2
1.2 Regulatory Context	2
2.0 VISUAL ASSESSMENT METHODOLOGY	3
2.1 Visual Character Assessment Methodology	3
2.2 What is the FHWA Assessment Method?	3
2.2.1 Visual Quality	3
3.0 AREA OF VISUAL EFFECT	4
3.1 Types of Viewers	4
4.0 AFFECTED ENVIRONMENT	6
4.1 Key View 1	6
4.2 Key View 2	8
4.3 Key View 3	10
4.4 Key View 4	12
5.0 IMPACT SUMMARY	14
5.1 New Sources of Shadow, Glare, or Light	14
5.2 Visual Impacts During Construction	14
5.3 Summary of Impacts	14
6.0 MINIMIZATION AND MITIGATION MEASURES	15
6.1 Construction-Related Mitigation	15
6.2 Design-Related Minimization	15
7.0 CUMULATIVE EFFECTS TO VISUAL QUALITY	16
8.0 REFERENCES	17
 FIGURES	
Figure 1: Key View Map	5
 TABLES	
Table 1: Key View 1 Visual Quality Rating	6
Table 2: Key View 2 Visual Quality Rating	8
Table 3: Key View 3 Visual Quality Rating	10
Table 4: Key View 4 Visual Quality Rating	12

ABBREVIATIONS AND ACRONYMS

BNSF	BNSF Railway Company
CFR	Code of Federal Regulations
FHWA	Federal Highway Administration
LPO	Lake Pend Oreille
MP	milepost
MRL	Montana Rail Link
NEPA	National Environmental Policy Act
Project	BNSF Sandpoint Junction Connector Project
US 95	U.S. Route 95
USC	United States Code

Preliminary Draft for
Agency Review

1.0 INTRODUCTION

The purpose of the BNSF Sandpoint Junction Connector Project (Project) is to reduce the delay of freight and passenger rail traffic by increasing the operational efficiency of the BNSF Railway Company (BNSF) freight rail system between its Algoma Siding track south of Sandpoint (BNSF milepost [MP] 5.1) and the Sandpoint Junction (MP 2.9), where BNSF and the Montana Rail Link (MRL) main line tracks join just north of the Sandpoint Amtrak Station.

The BNSF northern tier is a high-volume traffic corridor that connects both the Midwest Chicago Terminus and Canada to the West Coast. This rail corridor moves key commodities such as wheat, corn, and soybeans from the northern tier of Midwest states to West Coast ports of Seattle, Tacoma, and Vancouver, Washington, making it a critical transportation link in the international delivery of agricultural products. This corridor also serves as Amtrak's only route across the northern United States (the "Empire Builder"), connecting the Midwest (Chicago) with the West Coast, making it an important piece of the passenger rail system. Rail traffic volumes have risen steadily for the past three decades on this portion of the interstate main line, increasing the economic significance of the corridor. Currently, approximately 60 trains use this section of track per day, resulting in nearly 22,000 overwater crossings per year.

Two sections of Line Segment 45 have two parallel main line tracks ending at Algoma (BNSF MP 5.1) and Sandpoint Junction (BNSF MP 2.9). These sections of double track are separated by a 2.2-mile section with only one main line track over Sand Creek and Lake Pend Oreille (LPO), which dates from the early 1900s. Sandpoint Junction is located at the north end of the single-track section, just north of the Sandpoint Amtrak Station, where an MRL siding track meets two main line tracks (BNSF and MRL). At the south end of the single-track section, the main line intersects with the BNSF Algoma (East) Siding track.

The 2.2-mile segment of single main line track is a constraint to safe and efficient rail movement in the BNSF northern tier, resulting in local and regional impacts to shipping and interstate commerce. The existing single-track configuration causes trains to back up on existing sidings and rail yards for up to 30 minutes, waiting for an opening to cross the bottleneck.

Trains waiting for a crossing opportunity cause long vehicular wait times on local county and city streets at public at-grade rail crossings. The delay in train and truck traffic results in a delay of the local and regional transport of people, goods, and services.

Rail traffic in this corridor has increased as a result of population growth and the corresponding increase in the demand for freight, and will likely continue this trend. The existing bridges over Sand Creek and LPO have the physical capacity to move more trains, but additional train volumes would increase congestion and delays, negatively impacting North Idaho communities and communities throughout the BNSF network. If the constriction at this location is not addressed, the delay is expected to increase, resulting in a lower level of service for both rail and vehicle traffic and further constraining the movement of goods and services at a local, regional, national, and international level.

Deteriorating rail service may also cause shippers with alternative options, such as consumer product containers, to convert to highway transportation by truck. One double-stack intermodal train carries the same cargo as 280 trucks that would be diverted to publicly funded highways, producing negative highway congestion, economic impacts, and safety impacts.

The Proposed Action Alternative involves the construction of an approximately 2.2-mile-long second main line track west of the existing BNSF main line to connect the Algoma Siding track (MP 5.1) south of Sandpoint, to the Sandpoint Junction switch (MP 2.9), where the BNSF and the MRL main lines converge in Sandpoint. This alternative includes constructing three new bridges over Bridge Street (Bridge 3.0), Sand Creek (Bridge 3.1), and LPO (Bridge 3.9).

1.1 Purpose

The purpose of the Visual Impact Analysis is to document visual changes that may be perceived by people viewing the bridges both during construction and over the life of the new bridges. Because of the public nature and visual importance of these bridges to the surrounding area, both positive and negative visual impacts must be adequately assessed and disclosed. The visual analysis, along with minimization recommendations, is intended to provide decision makers with information and recommendations on minimizing negative impacts on visual quality and to provide opportunities to enhance existing visual quality and community aesthetics within the scope of the Project.

1.2 Regulatory Context

The National Environmental Policy Act (NEPA) requires that an environmental analysis be performed during project development to minimize harm to the human, physical, or biological environment.

Section 101(b)(2) of NEPA (§4321 of Title 42 of the United States Code [USC]; 42 USC 4321) states that it is the “continuous responsibility” of the federal government to “use all practicable means” to “assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.” Federal implementing regulations are Part 771 of Title 23 of the Code of Federal Regulations (CFR; 23 CFR 771; Federal Highway Administration [FHWA]) and 40 CFR 1500–1508.

According to the Council on Environmental Quality implementing regulations, environmental analysis is to consider impacts on “Urban quality, historic and cultural resources, and the design of the built environment . . .” (40 CFR 1502.16[g]). Agencies will “Identify methods and procedures . . . to insure that presently unquantified environmental amenities and values may be given appropriate consideration” (40 CFR 1507.2[b]).

The visual quality analysis for this Project was conducted in accordance with the U.S. Department of Transportation’s, *FHWA Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015). While this Project is not subject to this policy, the guidelines provide a useful and widely accepted framework for analyzing visual impacts.

2.0 VISUAL ASSESSMENT METHODOLOGY

2.1 Visual Character Assessment Methodology

The visual experience is an important component of a project and its impact on the environment. How a project functions as a facility is closely allied with how it looks and fits into the natural or built environment, and how well it is accepted by the population.

2.2 What is the FHWA Assessment Method?

Although visual quality is inherently subjective, the FHWA methodology provides definitions and a process for evaluating existing and proposed views. By following this process, the assessment is repeatable by other experts.

2.2.1 Visual Quality

Landform, water, vegetation, and man-made elements are all analyzed according to three criteria. The three criteria used to perform an evaluative appraisal of the landscape visual quality are vividness (or memorability), intactness, and unity.

Each of the three criteria is independent. Each is intended to evaluate one aspect of visual quality. The process in a visual impact analysis generally follows these steps:

1. Determine the project elements and their extent. This involves understanding all of the elements that may occur as a result of the project, such as conversion of farm fields to suburban uses or stormwater treatment areas.
2. Determine the visual extent of the project; this may extend far beyond the construction limits.
3. Determine who has views toward the project, and what the views will be from the facility.
4. Evaluate viewer "sensitivity." In general, a person living along or next to the project will be more "sensitive" to visual changes than a traveler passing through once, because the resident's duration or frequency of view will be greater. The number of viewers is also considered for selection of representative views.
5. Describe and evaluate representative views of the landscape before the project.
6. Describe and evaluate the same representative views from and toward the project after its construction. This is possible because of the understanding gained in Step 1 and continuing conversation with the design team. It may also consider computer design simulations or models.

The 1988 FHWA methodology used a numerical rating system for views. The current system was taken out of the 2015 methodology, but it is a useful tool to understand how and why the view ratings increase or decrease and is used for this report.

3.0 AREA OF VISUAL EFFECT

The area of visual effect, or viewshed, is defined as areas with a line of sight (exclusive of vegetation) looking toward and away from the Project. The viewshed is larger than the Project area because built and natural features determine what can and cannot be seen. This Project's viewshed was determined by reviewing photograph, plans, aerial mapping, and topographical information.

3.1 Types of Viewers

Viewers of the Project can be described as either static or dynamic. Dynamic viewers are those moving through the Project area, such as boats on LPO and Sand Creek and motorists on Bridge Street. Motor vehicle operators can be further divided into local homeowners, recreationalists, freight movers, and commuters. Static viewers include people viewing the new rail bridges from homes or businesses.

Views toward the bridges will be from local homes and businesses, drivers on Bridge Street and US 95, and from the water by boaters.

Views from the new Bridge 3.1 will be of short duration, while trains are moving, and any changes in the existing Bridge 3.1 itself will not be highly visible from the train. Views from the new Bridge 3.9 will be of longer duration, and the parallel existing Bridge 3.9 will be visible as the train crosses LPO. However, these views will be of short duration, and LPO will be visible beyond the parallel track. Many trains using this route carry freight, and the engineers operating the trains are there for business; while they may enjoy the view, they are working and likely less sensitive to changes in the view because they understand the need for additional structure.

Drivers on local roads are presumed to be less sensitive to the view of the bridges than recreational users who view the lake and rail bridges from the nearby roadside park, hotel, and marina. There are homes with views of the bridges. Some condos have nearby views, while homes on the hill above the south end of Bridge 3.9 have more distant views of frequent and long duration. All of these viewers are presumed to be highly sensitive to changes in the view.

To effectively analyze the visual impacts of the Project, Key Views were established to best represent the views of the above users. Figure 1 illustrates key view locations.

Figure 1: Key View Map



4.0 AFFECTED ENVIRONMENT

4.1 Key View 1

Key View 1a represents views of Bridge 3.0 from Bridge Street looking east. Bridge Street is in the foreground with Bridge 3.0 in the middle ground view. City Beach Park on Lake Pend Oreille is in the background view. The current bridge has two lanes with pedestrian tunnels on either side of the road. This view has an average total visual quality rating.

For context, the below photograph is a view of U.S. Route 95 (US 95) from Bridge Street looking east. Note the color on the bridge support beam.

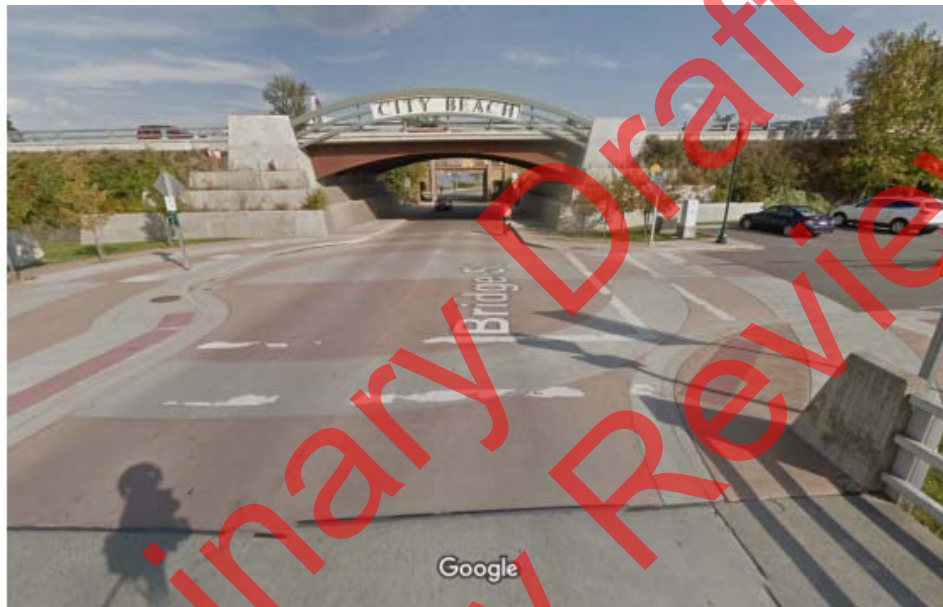


Image capture: Sep 2016 © 2018 Google

The new Bridge 3.0 (Key View 1b) will have a wider opening to accommodate both the road and sidewalks on either side. The red beam over the roadway continues the color theme used on the bridge supporting US 95. Large shrubs and trees will be removed as part of the Project so the vegetation rating will decrease slightly, but the rating for man-made structures will increase slightly because of the more open structure and the color tie-in with the nearby US 95 bridge over Bridge Street, resulting in an equivalent total visual quality rating.

Table 1: Key View 1 Visual Quality Rating

Key View 1	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	2.8	4	4	3.58
Proposed Project	2.8	4	4	3.58



Image capture: Sep 2016 © 2018 Google

Key View 1a: Bridge 3.0 viewing east from Bridge Street.



Key View 1b: Simulation of new Bridge 3.0 from Bridge Street.

4.2 Key View 2

Key View 2a represents views of Bridge 3.1 over Sand Creek, from the water. The marina at City Beach Park can be seen in the background. This is a view that recreational boaters would have. The foreground view is of Sand Creek. The middle ground view is of Bridge 3.1. Just outside the view on the left is US 95. The existing bridge is a visual encroachment in what would be an intact, unified scene. The existing total visual quality ratings are moderately high.

The Project will remove the trees between the existing rail bridge and US 95 (Key View 2b). This will lower vividness ratings for vegetation. The new Bridge 3.1 will be constructed between the existing rail bridge and US 95. The new bridge will continue the visual theme of the red beam over the channel that is proposed over Bridge Street. It will screen the older bridge from this view point. While the bridge will still be an encroachment on a lake view, the more unified design theme will raise the ratings for man-made elements, which offsets the decrease in the rating for vegetation.

Table 2: Key View 2 Visual Quality Rating

Key View 2	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	3.3	4	5	3.58
Proposed Project	3.3	4	5	3.58

Preliminary Draft
 Agency Review



Key View 2a: Bridge 3.1 over Sand Creek, viewing northwest from the water.



Key View 2b: Simulation of new Bridge 3.1 over Sand Creek.

4.3 Key View 3

Key View 3a is of Bridge 3.1 from US 95. The foreground view is of the highway. Bridge 3.1 and Sand Creek are in the middle ground view. The city of Sandpoint and the hills beyond make up the background view. This is an urban view of a developed area with average total visual quality ratings. The trees in the center of the view raise the rating for vegetation, but the existing Bridge 3.1 encroaches on the view from the roadway.

After Project completion, the trees in the center of the view will be gone and the new bridge will screen the old bridge from this viewpoint. As in Key View 3b, the more unified design theme will raise the ratings for man-made elements, which offsets the decrease in the rating for vegetation.

Table 3: Key View 3 Visual Quality Rating

Key View 3	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	3.0	4	4	3.67
Proposed Project	3.0	4	4	3.67

Preliminary Draft
Agency Review



Key View 3a: Bridge 3.1 from US 95 viewing northeast.



Key View 3b: Simulation of new Bridge 3.1 between US 95 and the existing Bridge 3.1.

4.4 Key View 4

Key View 4a shows Bridge 3.9 over LPO viewing from the northwest shoreline. The foreground view is of LPO. Bridge 3.9 and a cluster of deciduous trees are in the middle ground view. The hills beyond are in the background view. The rail line introduces a man-made element that breaks up the unity of a natural scene, but the expansive views of the water and the tree covered hills beyond make this a viewpoint with high visual quality.

After Project construction the trees in the middle ground view will be removed (Key View 4b). The shoreline will be restored using native shrubs at the toe of slope. The expansive views of the water and the tree-covered hills beyond will remain with Bridge 3.9, providing the only break in the visual unity of the scene. The total visual quality rating will be slightly lower because of the removal of the trees in the middle ground, but the total visual quality rating remains high.

Table 4: Key View 4 Visual Quality Rating

Key View 4	Vividness Rating	Intactness Rating	Unity Rating	Total Visual Quality Rating
Existing Condition	5.5	5	5	5.17
Proposed Project	5.3	5	5	5.08

Preliminary Draft
 Agency Review



Key View 4a: Existing Bridge 3.9 from the north shoreline of Pend Oreille River.



Key View 4b: Simulation of new Bridge 3.9 from the north shoreline of Pend Oreille River.

5.0 IMPACT SUMMARY

5.1 New Sources of Shadow, Glare, or Light

Navigational lighting is currently in place on the bridges. Fixed navigational lighting, as required by the U.S. Coast Guard and by the Idaho Department of Lands, will be implemented on the new bridges. Lighting will be comparable to the existing navigational lighting.

5.2 Visual Impacts During Construction

Construction is currently estimated to take three years and will be done in multiple stages. The new bridges will be constructed parallel to and at the same height as the existing bridges. Temporary work bridges will be built adjacent to the west and parallel to both bridges 3.1 and 3.9.

Temporary work bridges will have navigation and moorage lighting as required by the U.S. Coast Guard. There will be a temporary increase in signs in the work zone to alert people to submerged work-related items such as turbidity curtain cables, service boat anchor lines, and to show navigation channels during construction.

For the duration of construction, this will be a very active work zone, which may provide visual interest as well as encroachment on views of Sand Creek and Lake Pend Oreille.

5.3 Summary of Impacts

The addition of a second track will not create substantial adverse impacts on visual quality. Locating the new track alignment between and at the same elevation as the existing US 95 and rail line is the least visually intrusive placement possible. Minor adverse changes to views of the natural environment are anticipated with the removal of trees to accommodate the new track. The impacts do not rise to the level of a substantial impact (1.0 change in rating). This Project has the potential to improve the views toward City Beach Park from Bridge Street should the older span ever be replaced with a newer, wider span to match this proposed Sandpoint Junction Connector structure.

6.0 MINIMIZATION AND MITIGATION MEASURES

It is BNSF policy to avoid, minimize, and mitigate for negative project impacts, in that order. Preliminary engineering design avoids and minimizes impacts throughout the Project. This report makes recommendations to minimize negative visual impacts from new bridges.

6.1 Construction-Related Mitigation

Construction-related activities are temporary and require no mitigation. Fugitive light from light sources used for construction should be minimized and directed only on the work zone. Where feasible, limit construction to daylight hours.

6.2 Design-Related Minimization

The proposed Project will not create substantial adverse impacts on visual quality, there will be minor adverse changes to the natural environment by the removal of trees. The following minimization measures could improve the post-construction visual quality ratings if implemented:

- Ensure materials for permanent structures are non-reflective and colored to blend with the surroundings.
- Carry the color theme forward on horizontal rail bridge beams to match the color of the beam across Bridge Street that supports US 95.
- Where feasible, plant trees to mitigate for the removal of trees within Project limits.

Preliminary Draft for
Agency Review

7.0 CUMULATIVE EFFECTS TO VISUAL QUALITY

Under NEPA, cumulative effects result from the incremental effects of a project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions. Should the older span over Bridge Street ever be replaced, it has the potential to improve visual quality at that location by opening up the view as people are moving under the bridges.

Preliminary Draft for
Agency Review

8.0 REFERENCES

Federal Highway Administration (FHWA), U.S. Department of Transportation. 1988. *Visual Assessment for Highway Projects*. Publication No. FHWA-HI-88-054.

———. 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Publication No. FHWA-HEP-15-029. January.

Preliminary Draft for
Agency Review

Appendix H
Lake Pend Oreille Geographic Response Plan

Preliminary Draft for
Agency Review

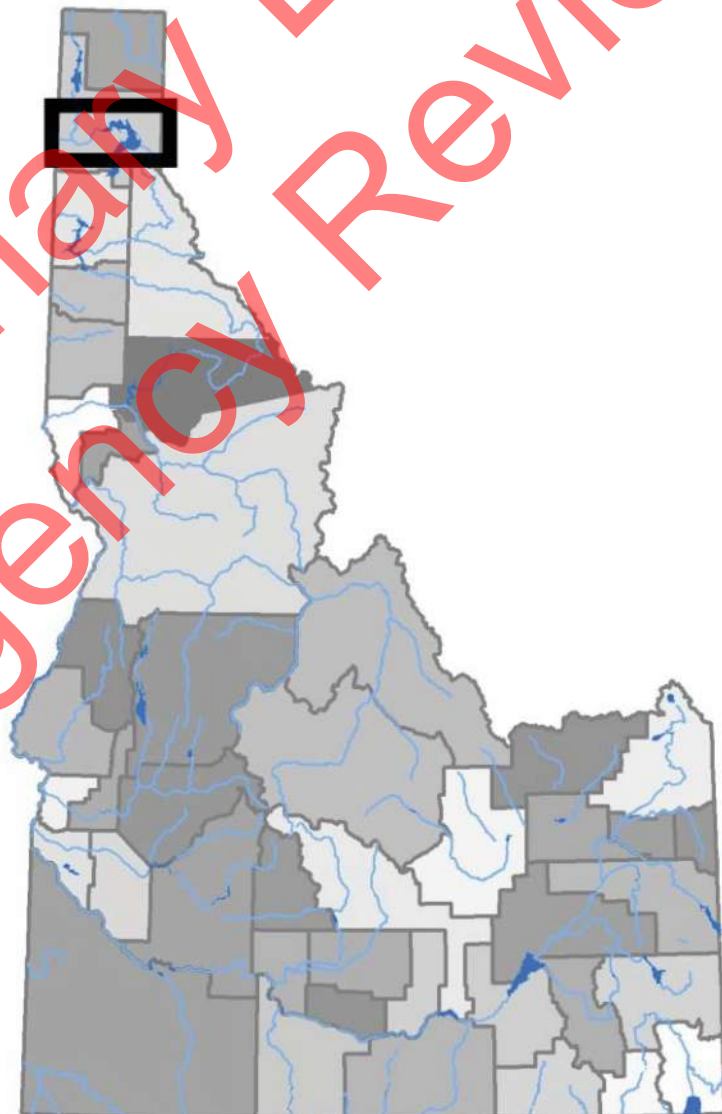
LAKE PEND OREILLE AND PEND OREILLE RIVER Geographic Response Plan



State of Oregon
Department of
Environmental
Quality



DEPARTMENT OF
ECOLOGY
State of Washington



This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

***LAKE PEND OREILLE AND
PEND OREILLE RIVER***

GEOGRAPHIC RESPONSE PLAN

June 2017

**Preliminary Draft for
Agency Review**

This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

Emergency Contact Sheet

Required Notifications			
Activation of StateComm through the 911 system will automatically include these notifications			
National Response Center	800-424-8802	Idaho Dept. of Environmental Quality, Coeur d'Alene Regional Office	208-769-1422
			208-660-9285
Idaho Department of Environmental Quality	855-647-3777	Idaho State Communications Center	800-632-8000

Railroad Contacts	
BNSF Resource Operations Center	800-832-5452
BNSF Mgr. Hazmat Planning	406-202-8051
BNSF Director Hazmat, Special Ops	817-821-1325
Union Pacific Railroad Response Management Communication Center	888-877-7267
Montana Rail Link Emergency Hotline	800-498-4838

Federal	
U.S. EPA Region 10 Spill Response Team	206-553-1263
Coast Guard Watchstander	503-240-9301
Coast Guard Pacific Strike Team	415-883-3311
Coast Guard Region 13 Officer of the Day	206-217-6004
U.S. Fish Wildlife Service—Spokane	509-891-6839
U.S. Forest Service—Sandpoint Ranger District	208-263-5111
U.S. Army Corp Of Engineers—District Office / Albeni Falls Dam	206-764-3690 208-437-3133
NOAA Weather Spokane	509-244-0537
NOAA Hazmat Response	206-526-4911
NOAA Scientific Support Coordinator	206-849-9926
U.S. Fish Wildlife Service—Boise, ID	208-378-5243

Water Supply Contacts	
Clark Fork Public Water Supply	208-266-1853 (after hours emergency)
Dover Public Works—Water & Sewer	208-265-4270
Laclede Public Water	208-265-4270
Oden Water Association	208-265-4270
Sandpoint Public Works (Distribution)	208-263-3428
Sourdough Point Water System	208-265-4270
Sunnyside Water	208-265-4270
Cabinet Gorge Dam – Operations Control Room	208-266-1531

State	
	208-884-7000 HQ in Boise 208-209-8730 dispatch
Idaho State Police	
Idaho DOT—Bonner County Area (District 1)	208-772-1200
Idaho Ops Office	208-378-5773
Idaho Department of Fish and Game	208-769-1414 208-799-5010
State Historic Preservation Office	208 334-3861 208-488-7468
Dig Line (ID)	800-342-1585 or 811
Panhandle Health District	208-415-5200
Idaho Department of Water Resources	208-769-1422

Tribal - Kootenai Tribe	
Kootenai Tribe of Idaho Ext 514 Cell	208-267-3519 208-597-2002
Kootenai Tribe of Idaho 2nd Contact	208-267-7451

Medical Services	
Bonner General Hospital	208-263-1441
Kootenai Health	208-625-5700

Pipeline Company	
Trans Canada Community Relations Specialist	509-533-2869

Local Government (County, City)	
Bonner County Department of Emergency Management	208-265-8867 208-255-6901
Bonner County Sheriff (including Marine Division)	9-1-1 or 208-263-8417
Bonner County—Commissioners	208-265-1438
Bonner County Public Works	208-255-5681 ext. 2
Bonner County Public Safety Technology Director	208-255-3630 x 1196
Bonner County Road & Bridge Dept.	208-255-5681
Clark Fork, ID, City Hall & Mayor	208-266-1315
Dover, ID	208-265-8339
East Hope, ID	208-264-5877
Kootenai, ID	208-265-2431
Ponderay, ID	208-265-5468
	208-946-9750
Priest River, ID, Public Works	208-290-4721
Sandpoint, ID	208-263-3158

Preface

Intended Audience

This geographic response plan (GRP) is intended to satisfy the needs of various users. Response strategies are provided for numerous unique sites that are located in the transportation corridors most likely to have a spill. First responders and emergency dispatch operators will find benefit in identifying the unique features of the spill location. Access descriptions, equipment proximity, and location-specific emergency contact information is provided for each response strategy.

Incident Command System (ICS) support personnel, fire departments, regional response teams, railroads, and state and federal spill response teams will find this GRP useful as a briefing tool to prepare for boom deployment and initial product recovery. Unique features such as booming anchor points, proximity of equipment caches, staging areas, and critical seasonal variations are provided. Local natural and cultural resources that may be affected are identified in this document so that the ICS team can direct protection efforts.

Emergency management personnel will find this document useful for strategic planning purposes. Recommended equipment needed for each location is provided; the equipment needs can be compared to known inventories to ensure readiness of equipment caches. This GRP identifies vulnerabilities in the emergency planning system so that resources can be identified to protect citizens and natural resources.

Content for this document was compiled using material previously published and adapted from the 2005 Lake Pend Oreille Geographic Response Plan (RRT/NWAC, 2005) as well as the BNSF Railroad Draft Pend Oreille Subbasin Geographical Response Plan (Kennedy/Jenks, 2015).

How to Use This Document

The bulk of this plan is contained in Section 4 and associated appendices (Response Strategies and Priorities), which provide information on response strategies and the order they should be implemented, based on potential spill origin points and their proximity to population centers and sensitive resources.

To aid the user in locating a particular strategy, the Lake Pend Oreille region was divided into seven sectors, with each sector having numerous response strategies. Electronic PDF versions of this document have hyperlinks to enable the user to bore down from a regional map, to a sector map, then to a particular response strategy.

Printed versions of this document are arranged by sector and then numerically by highway milepost number. Railroad and river milepost information is also provided in Section 4.

This document recommends strategies and priorities for the order in which strategies should be implemented until a unified command is established. However, these recommendations are not a substitute for proper judgement based on current local factors.

Protecting human life is always the highest priority—public evacuation should be considered immediately. Control and containment of a spill becomes the next priority, followed by the appropriate response strategy. The information contained in the response strategy descriptions (Appendix B) is recommended guidance, not prescriptive requirements.

Vulnerabilities

During development of this GRP, challenges beyond the scope of this plan were identified that need further attention. The purpose of this preface is to highlight those concerns and encourage dialogue followed by action to obtain appropriate funding and implementation of the needed changes. State and local civic leaders and managers of the various emergency response agencies are the parties who may be able to address these vulnerabilities. These challenges are current as of June 2017.

Equipment Vulnerabilities

A comparison of the inventory presented in Section 4.6 with the equipment needs stated in the prioritization tables provided in Section 4.4 reveals that, with the exception of the Clark Fork Delta area, the amount of boom and anchor posts available appears adequate for anticipated needs. A full response in the Clark Fork Delta could require as much as 8,300 feet which would consume the entire boom inventory in all five of the local equipment caches. Recovery devices such as skimmers and vacuum trucks are not staged within the Lake Pend Oreille region and would need to be obtained from outside the area. Additionally, conversations with the various fire departments in the Lake Pend Oreille region indicate the equipment trailers do not have an assigned or designated tow vehicle to move the trailer to the appropriate staging area.

Training Vulnerabilities

Like most emergency response tasks, deployment of a spill response boom is a specialized skill that requires training and field practice. Boom deployment in swift moving water or iced-over conditions adds complexity necessitating additional training. The seven fire districts addressed in this plan are largely staffed by volunteers and a smaller number of professionals; they are trained for a variety of emergency scenarios. However, most of the volunteers have not yet received boom deployment training, thus limiting the response to a hazardous material or oil spill into regional waterways.

Evacuation and Procedural Vulnerabilities

The propensity of oil train accidents to erupt into significant spills and fires, coupled with the proximity of rail lines to high population areas, indicate that the Bonner County communities must be prepared to invoke prompt evacuations or provide shelter-in-place assistance. Facilities that are required to have an evacuation plan, such as schools and nursing homes, should also periodically review their plan and conduct appropriate training.

Bonner County has an Evacuation and Reception Plan that was written prior to the large increase in unit oil train traffic (Bonner County, 2010a). Recent lessons learned from either the Cascadia Rising emergency action drill in 2015 or actual oil train accidents in other areas have not been incorporated. As discussed in Section 4.7, an oil train or hazardous material accident in the Sandpoint area would likely require evacuation of half the city's area. Existing preparations do not appear to adequately address the process for a hasty evacuation. Section 4.7 provided details regarding evacuation considerations.

Geographic Vulnerabilities

The Lake Pend Oreille region is vulnerable to spills of hazardous material from highway vehicles and rail cars primarily because the transportation corridors are in close proximity to the rivers and the lake. Additionally, the rail lines and highways pass through or near many high-value wetlands (see Section 6.1.4) and cross over numerous streams and rivers. Of the 37 accidents reported between 1995 and 2014, 21 were at or near a lake, stream, or wetland.

Most notably, the Clark Fork Delta is vulnerable to any spill downstream of the Cabinet Gorge Dam, which is located only 7.5 miles upstream. At a stream velocity of 4.5 miles per hour (mph), a spill could reach the delta in under 2 hours. The nearest equipment cache is located at the Cabinet Gorge Dam. Although response strategies are presented in this plan, their deployment is complex and resource intense. The response may be ineffective. Section 4.3.1 provides recommendations that may enhance response effectiveness.

Preliminary Draft for Agency Review

Table of Contents

Emergency Contact Sheet	i
Preface	iii
Intended Audience	iii
How to Use This Document.....	iii
Vulnerabilities	iv
Equipment Vulnerabilities	iv
Training Vulnerabilities	iv
Evacuation and Procedural Vulnerabilities	iv
Geographic Vulnerabilities	v
Table of Contents	vi
List of Figures	ix
List of Tables.....	ix
List of Appendices	x
List of Acronyms.....	x
1 Introduction	13
1.1 Standardized Response Language.....	13
1.2 Emergency Notification Protocols.....	13
1.2.1 When Must Notification Take Place?.....	13
1.2.2 Who Makes Notification?	13
1.2.3 Who Gets Notified?.....	13
1.2.4 Hierarchy of Emergency Planning Documents	14
1.3 Bonner County Technology Resources.....	14
1.3.1 Public Safety Technology	15
1.3.2 Geographic Information Systems (GIS).....	15
1.3.3 Information Technology (IT)	15
1.3.4 Communications Systems	15
1.3.5 Technology Resources for Incident Managers.....	15
1.4 Emergency Radio Communications.....	16
1.5 Cell Phone Communications.....	17
2 Site Description and GRP Coverage Area	17
2.1 General Description of the Natural Environment of the Intermountain Province (IMP).....	18

2.2	Environmental Conditions within the Pend Oreille Subbasin	18
2.3	Pend Oreille Subbasin Sub-Area Site Description and Physical Features.....	19
2.3.1	Upper Pend Oreille Sub-Area Description	21
2.3.2	Upper Pend Oreille Sub-Area Topography/Geomorphology.....	23
2.3.3	Upper Pend Oreille Sub-Area Vegetation	23
2.4	Hydrology.....	24
2.5	Climate.....	24
2.6	Risk Assessment.....	26
2.6.1	Oil and Hazardous Materials Transit in Bonner County.....	26
2.6.2	Roadway.....	28
2.6.3	Railroads.....	29
3	Response Options and Considerations.....	34
4	Response Strategies and Priorities	37
4.1	On-Site Considerations	37
4.1.1	Before Deploying a GRP Strategy (Questions to Ask).....	37
4.1.2	During Strategy Implementation (Things to Remember).....	38
4.1.3	After Strategy Implementation (Things to Understand).....	38
4.2	Hydrologic Considerations.....	38
4.2.1	Hydrographs for Rail-Adjacent GRP Waterbodies	38
4.2.2	Stream Velocity Ranges.....	40
4.2.3	River Hazards.....	41
4.2.4	Current Weather Conditions.....	41
4.3	Regional Area Maps.....	42
4.3.1	Clark Fork Delta.....	42
4.3.2	Denton Slough.....	44
4.4	Priority Tables.....	49
4.5	Water Users	62
4.6	Equipment Cache.....	63
4.7	Evacuation Considerations	64
4.8	Boat Ramps and Staging Areas.....	65
4.9	Natural Gas Pipelines.....	66

4.10	Other Geographic Response Plans–Rosetta Stone.....	67
5	Shoreline Countermeasures.....	67
5.1	Pend Oreille Shoreline Types.....	68
6	Resources at Risk.....	81
6.1	Natural Resources.....	81
6.1.1	Fish Habitat Descriptions.....	81
6.1.2	Fish.....	84
6.1.3	Avian and Terrestrial Species.....	86
6.1.4	Wildlife Management and Protected Habitat Areas.....	90
6.1.5	Wetlands.....	94
6.1.6	Rathdrum Prairie Aquifer.....	97
6.2	Cultural/Historical Resources.....	99
6.2.1	Procedures for the Finding of Human Skeletal Remains.....	100
6.2.2	Procedures for the Discovery of Cultural Resources.....	100
6.3	Economic Resources.....	101
6.3.1	Cabinet Gorge Dam and Reservoir.....	102
6.3.2	Cabinet Gorge Fish Hatchery/Avista Utilities Fish Rearing Facility.....	103
6.3.3	Lake Pend Oreille.....	103
6.3.4	Sandpoint Public Water System.....	103
6.3.5	Sandpoint City Beach.....	104
6.3.6	City of Dover Public Water System.....	104
6.3.7	City of Laclede Public Water System.....	104
6.3.8	Priest River Public Water Supply.....	104
6.3.9	Waterlife Discovery Center.....	105
6.3.10	Albeni Falls Dam.....	105
6.3.11	Seasonal/Private/Non-Municipal Water Systems.....	105
6.3.12	Marinas.....	105
7	References.....	106
8	Appendices.....	111

List of Figures

Figure 1-1: Bonner County Emergency Radio Repeaters Locations	17
Figure 2-1: Lake Pend Oreille Subbasin: Watershed-Based Sub-Areas	20
Figure 2-2: Lake Pend Oreille Geographical Response Plan Coverage Area.....	21
Figure 2-3: Sandpoint, Idaho, Wind Directions over the Entire Year	26
Figure 2-4: Hazardous Material by Rail in Bonner County.....	27
Figure 2-5: Highway Accident Safety Corridor Map for Bonner County.....	29
Figure 2-6: Bonner County Railroads	31
Figure 2-7: Bonner County Train Accidents (1995–2014).....	32
Figure 2-8: Sandpoint, Idaho, Train Accidents (1995–2014)	33
Figure 4-1: Lake Pend Oreille Elevation (Hope Gage)—Probability Chart.....	40
Figure 4-2: SR200 55.3 Mouth of Clark Fork Booming Options	46
Figure 4-3: SR200 55.3 Mouth of Clark Fork Booming Options: Drift Yard Area.....	47
Figure 4-4: SR200 50.4 Denton Slough Booming Options	48
Figure 4-5: Hazard Zone A.....	51
Figure 4-6: Hazard Zones B through G	52
Figure 4-7: Public Water Systems Drawing from Lake Pend Oreille and the Pend Oreille River	63
Figure 4-8: Pipeline Crossings with Highway or Railroad.....	67
Figure 6-1: Pend Oreille Sub-Area GRP Bull Trout Critical Habitat.....	83
Figure 6-2: Fish and Game Managed Lands, Bonner County.....	91
Figure 6-3: Clark Fork Delta Restoration Project Areas	94
Figure 6-4: Priority Wetland Areas in the Lake Pend Oreille Region.....	96
Figure 6-5: Rathdrum Prairie Aquifer.....	99

List of Tables

Table 1-1: Bonner County Radio Repeater Locations	16
Table 2-1: Oil and Hazardous Material Rail Shipments in Bonner County (More than 300,000 Total Loads Per Year).....	26
Table 2-2: Hazardous Materials by Highway in Bonner County	28
Table 2-3: Bonner County Rail Accidents, 1995–2014.....	30
Table 4-1: Water Speed Drift Measurement Data and Boom Angle Considerations	41
Table 4-2: Current Weather Condition Resources.....	42
Table 4-3: Denton Slough Supplemental Information	49
Table 4-4: Hazard Prioritization Tables	53
Table 4-5: Public Water Systems Drawing Surface Water from Lake Pend Oreille or Pend Oreille River	62
Table 4-6: Available Work Boats for Boom Deployment	64
Table 4-7: Natural Gas Pipeline Crossings with Transportation Routes	66
Table 5-1: Shoreline Types and Codes	69
Table 6-1: Federally Listed ESA Fish Species within the GRP Coverage Area	84

Table 6-2: Federally Listed ESA Avian and Terrestrial Species within the GRP Coverage Area.....	86
Table 6-3: Significant Wetlands in the Lake Pend Oreille Region	97

List of Appendices

Appendix A	Responding to Releases
Appendix B	Strategy Reports
Appendix C	Oil Spill Scenario Travel Time Analysis
Appendix D	Summary of Equipment Trailer Contents
Appendix E	High-Occupancy Facilities
Appendix F	Boat Ramps and Marinas
Appendix G	Other Geographic Response Plans–Rosetta Stone

List of Acronyms

BLM	Bureau of Land Management
BPA	Bonneville Power Administration
cfs	cubic foot per second
BNSF	Burlington Northern Santa Fe railroad
CERCLA	Comprehensive Emergency Response Compensation & Liability Act
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
ft	foot
GIS	geographic information system
GRP	geographic response plan

ICS	Incident Command System
IDFG	Idaho Fish and Game
IGBC	Interagency Grizzly Bear Committee
IMP	Intermountain Province
IOEM	Idaho Office of Emergency Management
IPUC	Idaho Public Utilities Commission
IT	information technology
ITD	Idaho Department of Transportation
kg	kilogram
LMZ	Lynx Management Zones
mph	mile per hour
msl	mean sea level
MRL	Montana Rail Link railroad
NOS	not otherwise specified (a proper shipping name designator)
NPCC	Northwest Power and Conservation Council
NRHP	National Register of Historic Places
NWACP	Northwest Area Contingency Plan
RPA	Rathdrum Prairie Aquifer
SCAT	Shoreline Cleanup Assessment Techniques
SCBA	self-contained breathing apparatus
SHPO	State Historic Preservation Office
SR	State Route
UP	Union Pacific Railroad

USACE	United States Army Corps of Engineers
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMA	Wildlife Management Area

Preliminary Draft for
Agency Review

1 Introduction

This geographic response plan (GRP) is an emergency planning document to guide individuals and organizations responding to hazardous material and oil spills during the initial phase of the incident. The plan suggests and prioritizes response strategies based upon the proximity of a spill to population centers and sensitive natural, cultural, and economic resources.

This GRP addresses the Lake Pend Oreille region in Bonner County, Idaho.

1.1 Standardized Response Language

To avoid confusion in response terminology, this plan uses standard National Interagency Incident Management System, Incident Command System (ICS) terminology. The glossary provided in [Section 1000 of the Northwest Area Contingency Plan \(NWACP\)](#) should be used when seeking the meaning of terms used in this plan.

1.2 Emergency Notification Protocols

1.2.1 When Must Notification Take Place?

In Idaho, reportable spills are generally defined as any of the following:

- Spills of hazardous materials or oil, that enter, or threaten to enter, surface water or groundwater waterbodies of the state
- Discharges exceeding Comprehensive Environmental Response, Compensation, and Liability Act reportable quantities

1.2.2 Who Makes Notification?

Anyone can make notification to activate an emergency response. Persons causing a hazardous material spill **must** notify emergency response (9-1-1) if they cannot immediately contain and control the spill. All hazardous materials incidents must be reported by the local incident commander to Idaho State Communications Center, commonly known as “StateComm,” even if the local jurisdiction requires no outside assistance. If spill exceeds reportable quantity, then report to the National Response Center (1-800-424-8802).

1.2.3 Who Gets Notified?

The initial notification of hazardous materials incidents should be made through the 9-1-1 emergency services system. All hazardous materials incidents will be managed using the ICS. Additional details on hazardous material spill reporting can be found in Appendix A.

The Idaho Hazardous Materials/Weapons of Mass Destruction Incident Command and Response Support Plan is the primary mechanism for initial response to hazmat incidents in Idaho and is part of the Idaho Emergency Operations Plan (IOEM, 2013).

All hazardous materials incidents should be reported by the local incident commander to StateComm even if the local jurisdiction requires no outside assistance. Doing so enables the Idaho Office of Emergency Management (IOEM), Idaho Department of Environmental Quality (DEQ), Idaho State Police, Idaho Public Utilities Commission, Idaho Transportation Department (ITD), U.S. Environmental Protection Agency (EPA), Federal Bureau of Investigation, and other state/federal agencies to perform their regulatory responsibilities concerning public health and responsible parties, including the owner, user, site operator, shipping agent, carrier, or others in whose custody the material has been placed. Reporting hazardous material incidents to StateComm also fulfills state reporting requirements as established by the Emergency Planning and Community Right-to-Know Act and the Idaho Hazardous Substance Emergency Response Act (IOEM, 2013).

A comprehensive list of agency and emergency contacts is provided at the beginning of this document.

1.2.4 Hierarchy of Emergency Planning Documents

This GRP supplements other emergency planning documents.

- The Idaho Emergency Operations Plan (IOEM, 2015) is an all-discipline, all-hazard plan that delineates lines of authority and responsibilities of emergency action agencies.
- The Northwest Area Contingency Plan (RRT/NWAC, 2017) is a regional plan that is required by the federal national contingency plan. The purpose of this plan is to provide a playbook for oil and hazmat responses that involve state and federal agencies. It covers Washington, Oregon, and Idaho.
- The Idaho Hazardous Materials/Weapons of Mass Destruction Incident Command and Response Support Plan (IOEM, 2013) supports the two plans above and is the primary mechanism for initial response to hazardous materials incidents in Idaho. This plan is also referred to as the “Yellow Book.”
- The Bonner County Emergency Operations Plan (Bonner County, 2009) identifies the roles, responsibilities, and direction for Bonner County agencies and some volunteer organizations in responding to emergencies or disasters.

This GRP is a guidance document that provides response tactics and local information to inform and speed the initial response to a spill. It is a technical supplement to the Northwest Area Contingency Plan. This GRP is intended to be an informational resource to first responders and support personnel arriving from outside the area. It can also be used as a training tool or a resource for civic leaders and local emergency management personnel to assess spill preparedness.

1.3 Bonner County Technology Resources

Bonner County has a variety of technology-based systems that can significantly enhance communications and strategy development during an emergency response. Requests for assistance from the Bonner County Technology Department should be made through the department director. Contact information is provided in the contact sheet at the front of this document. The Technology Department manages four primary areas:

- Public safety technology
- Geographic information systems
- Information technology
- Communication systems

1.3.1 Public Safety Technology

The Bonner County Technology Department manages the technical resources of the Sheriff's Office and the 9-1-1 Dispatch Center, including the software, hardware, network, and communications network assets.

1.3.2 Geographic Information Systems (GIS)

The GIS Team is located in the Bonner County Administrative Building on Highway 2. This team manages the geospatial data of the county and surrounding areas. The GIS Team integrates data with spatial information to enable the county's data to be visualized, analyzed, and printed spatially. The GIS Team provides support to all programs of the county that require spatial applications. The GIS Team also provides the public with geospatial data in an interactive mapping application located at <http://maps.bonnercounty.us/apps/public/>.

1.3.3 Information Technology (IT)

The IT Team manages the network and computer assets of the county. The IT Team supports all the county users of technology with technical support and administers and operates the technology help desk system. The IT Team is responsible for the back office assets of the county that include networks and internet access, servers, routers, switches, and network storage and manages the security, access, and credentials of authorized network users.

1.3.4 Communications Systems

The team manages the communication assets of the county including base/mobile/portable radio systems, repeater sites, microwave network, and telephones.

1.3.5 Technology Resources for Incident Managers

- The Bonner County Map Portal at <http://maps.bonnercounty.us> provides authoritative road, parcel, and address data for incident command. The map at <http://maps.bonnercounty.us/apps/public/> can show all the many GIS layers in the county and allows the user to annotate a map with text and geometric shapes.
- The Bonner County Mobile Map at <http://maps.bonnercounty.us/apps/mobile/> provides a basic mapping system for a smart phone or tablet that has the ability to route between two addresses, find an address, and show the location of the user on a map. It would be a key tool in an evacuation scenario because a user can see all the address points on the map relative to the user's location.
- **Reverse 9-1-1:** The 9-1-1 Dispatch Center has access to the Everbridge Emergency Notification System that can notify the public of an emergency within any polygon drawn on the map by the 9-1-1 dispatcher. Everbridge can send an emergency notification to any landline as well as cell

phones within a given area through a Federal Emergency Management Agency program called Integrated Public Alert and Warning System.

- The web site at <https://bonnercom.org/> describes the county's public safety communication systems. For registered users, there is a frequency list and frequency technical details for all agencies operating in Bonner County including all the Bonner County public safety frequencies for all the county's repeater sites. In an emergency, request a current list from technology@bonnercountyid.gov.
- The 9-1-1 Dispatch Center has a portable or towable 65 kilowatt Kohler 70REZGT propane three-phased generator and a portable public safety radio repeater system that can be deployed anywhere in the county in an emergency. A request for use of these assets should be made through the Sheriff's Department.

1.4 Emergency Radio Communications

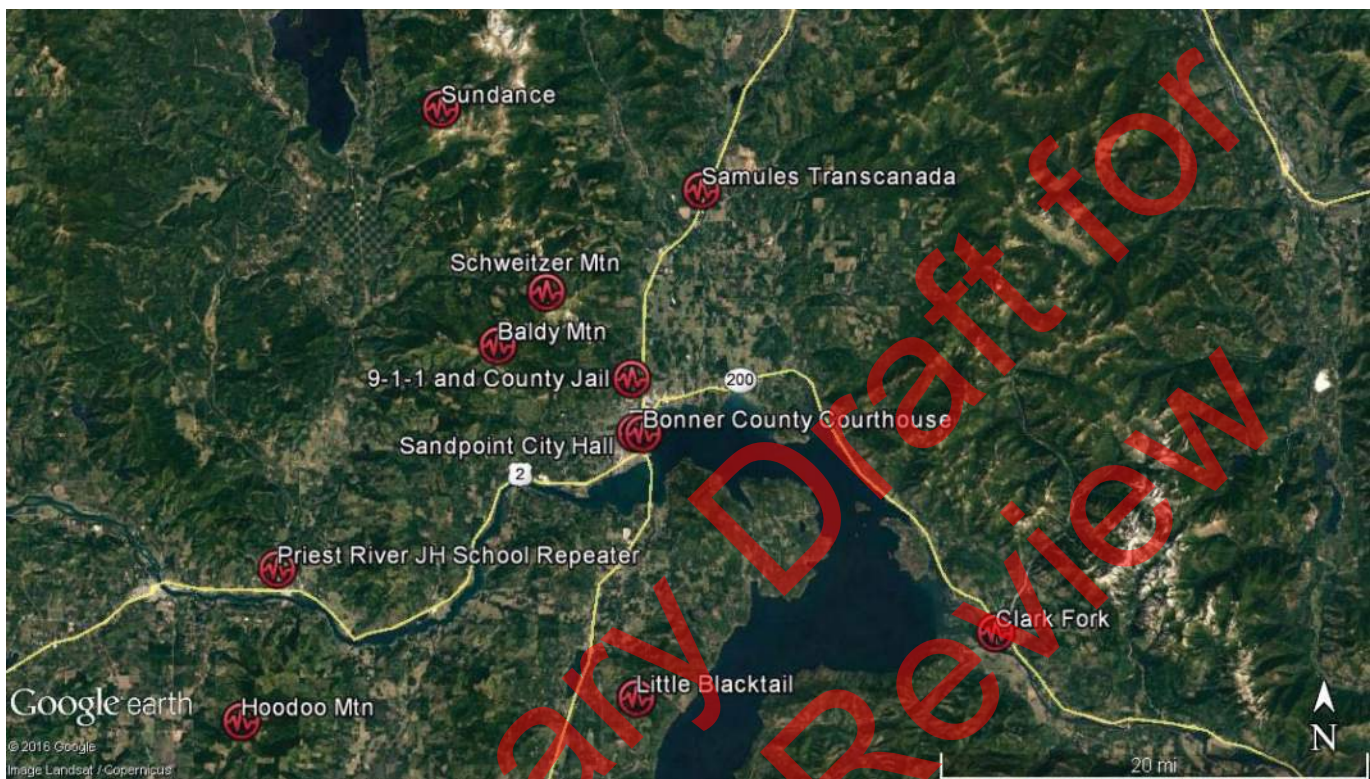
Radio communication for emergency responders is provided by Bonner County through a series of repeaters. The repeater locations are listed in Table 1-1 and shown in Figure 1-1 below. Frequencies and other technical details for those repeaters can be found at https://www.bonnercom.org/Current_Sites.

Emergency responders arriving from outside Bonner County who need access to this radio system should contact the Bonner County Public Safety Technology Director or the 9-1-1 Dispatch Center for specific instructions on how to link into this system.

Table 1-1: Bonner County Radio Repeater Locations

Site Name	Longitude	Latitude
Baldy Mountain	-116.6941	48.33158
Bonner County Courthouse	-116.5472	48.27220
Bonner County Jail	-116.5586	48.30890
Clark Fork	-116.1919	48.13714
Hoodoo Mountain	-116.9536	48.08053
Little Blacktail	-116.5544	48.09406
Priest River Junior High	-116.9175	48.18108
Samuels Transcanada	-116.4871	48.43547
Sandpoint City Hall	-116.5549	48.27186
Schweitzer Mountain	-116.6446	48.36731
Sundance	-116.7516	48.49075

Figure 1-1: Bonner County Emergency Radio Repeaters Locations



1.5 Cell Phone Communications

Cellular telephone coverage along the main transportation corridors in Bonner County is quite complete, with the exception of the area east of Clark Fork to the Cabinet Gorge Dam at the Montana state line and beyond. A current map of the cellular phone coverage is available from the Idaho Department of Commerce at <http://www.gemstateprospector.com/mapping.html>.

2 Site Description and GRP Coverage Area

This section contains topographic descriptions, physical river features, river hydrology, climate, and resources in the GRP coverage area. The intended users of this section are ICS support personnel who are arriving from outside of the North Idaho area and need to quickly learn the major features of the area. Due to the diversity of landforms, waterbodies, and ecosystems throughout the GRP coverage area—and the modification of each by climate, aspect, hydrology, geomorphology, etc.—this section should not be considered comprehensive or exhaustive. Section 2 is meant to give an overview of the GRP coverage area and readily identifiable sub-areas and provide adequate detail for response managers to make informed emergency response management decisions, in consultation with other stakeholders in the GRP coverage area.

Section 2 relies heavily on information from the Northwest Power and Conservation Council (NPCC) Intermountain Province Subbasin Plan and Pend Oreille Subbasin Plan (NPCC, 2005a-b).

2.1 General Description of the Natural Environment of the Intermountain Province (IMP)

The IMP, which contains the Pend Oreille Subbasin relevant to the GRP (and five others outside the GRP coverage area), is characterized by a diverse landscape ranging from 1,000 feet (ft) above mean sea level (msl) near the tailwaters of Chief Joseph Dam to 7,690 ft above msl at Illinois Peak in the headwaters of the St. Joe River. The northern and eastern boundaries lie within the Northern Rocky Mountains (NPCC, 2005a). These areas are generally characterized as alpine and subalpine forests with a decaying granitic geology (Alt and Hyndman, 1994). In the eastern portion of the province, in both the Coeur d'Alene and Pend Oreille Subbasins, the Precambrian Belt Supergroup is the predominant bedrock (NPCC, 2005a). Belt rocks are a thick layer of sedimentary sandstones and mudstones, approximately 1 billion years old (Alt, 2001). Much of the southwestern portion of the IMP is within an area known as the Palouse Hills. The Palouse Hills are a softly rounded landscape with rich, fertile, silty soils (NPCC, 2005a). Set within this farmland are areas known as scablands, with outcrops of black basalt, broad expanses of raw gravel, and dry stream channels (coulees) (Alt, 2001). This landscape was carved during the most recent ice age. About 15,000 years ago, the southern glacial fringe encroached upon the mountain valleys of northern Washington and Idaho. Glaciers dammed the Clark Fork River creating Glacial Lake Missoula. The dam broke and the lake drained catastrophically causing a torrential flood (NPCC, 2005a). This process happened several dozen times, resulting in the landscape seen today (Alt, 2001).

2.2 Environmental Conditions within the Pend Oreille Subbasin

Euro-American settlement of the Clark Fork River valley and Lake Pend Oreille was accompanied by forest clearing, agricultural development, logging, introduction of nonnative species, mining, railroad construction, hydroelectric projects, and general urbanization (Entz and Maroney, 2001). Natural and human-made fires, past timber harvest activities, and dams have also heavily influenced the landscape in the Pend Oreille Subbasin (NPCC, 2005b).

In the early and mid-1900s, hydroelectric facilities within the Pend Oreille Subbasin and upstream in the Clark Fork and Flathead drainages were present or under construction (NPCC, 2005b). Facilities in Idaho and Montana—such as the Albeni Falls Dam (inside the GRP coverage area) and Hungry Horse, Kerr, and Noxon Rapids Dams (outside the GRP coverage area)—were built for hydropower, flood protection, fisheries, and recreation (U.S. Senate, 1949).

Large-scale habitat degradation occurred due to operation of Cabinet Gorge, Noxon Rapids, and Albeni Falls Dams. Upstream dams impeded sediment transport to the Clark Fork River Delta, prohibiting development of delta landforms and the protective lakeside beach. Widely fluctuating flows associated with dam operations continued to erode delta shorelines that would naturally be protected by armored streambeds during low fall/winter flows. These and other impacts have resulted in the loss of roughly

50% of functional delta wildlife habitat and ongoing losses estimated at 7.9–11.9 acres per year (NPCC, 2005b).

2.3 Pend Oreille Subbasin Sub-Area Site Description and Physical Features

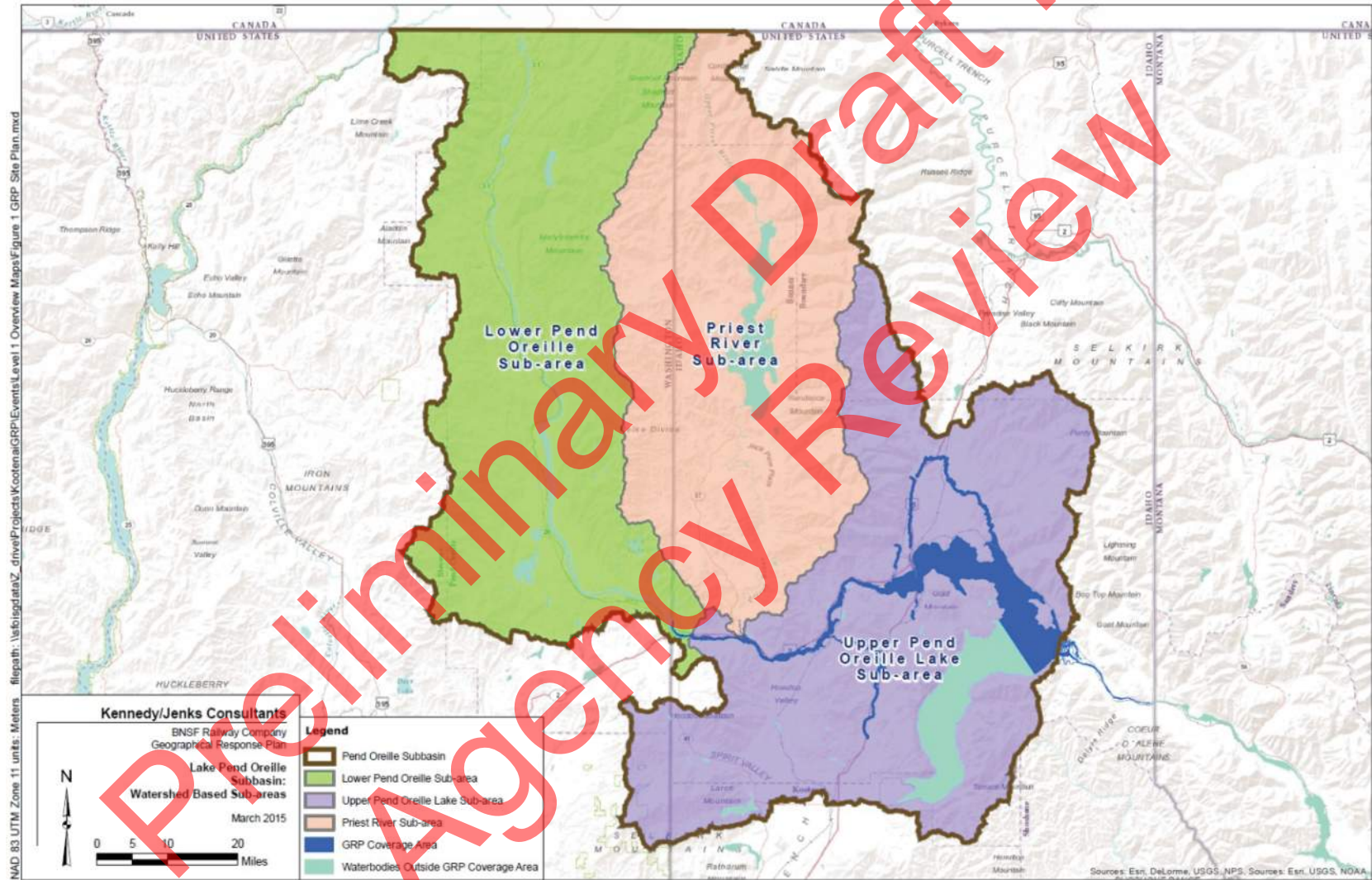
The Pend Oreille Subbasin is located in northern Idaho and northeastern Washington and represents the northeastern-most corner of the IMP. As shown in Figure 2-1, the Pend Oreille Subbasin is comprised of three sub-areas: the Lower Pend Oreille Sub-Area, the Priest Lake Sub-Area, and the Upper Lake Pend Oreille Sub-Area. This GRP addresses only the Upper Lake Pend Oreille Sub-Area, which is shown in greater detail in Figure 2-2. The Upper Pend Oreille Sub-Area encompasses the Cabinet Gorge Dam and all of Lake Pend Oreille and its tributaries located on the Clark Fork River down to Albeni Falls Dam, which is located on the Pend Oreille River.

The Pend Oreille River is the largest river in the subbasin and flows west out of Lake Pend Oreille and north across the Idaho panhandle and the northeastern corner of Washington before draining into the Columbia River in British Columbia, Canada.

Much of the northern and eastern parts of the Pend Oreille River watershed sub-area are public lands comprising mountainous or hilly terrain deeply cut by streams and mostly forested. The broad, fertile valleys and river bottoms, predominately in the western part of the watershed, are mostly in private ownership. Near the lake and on its shore, private lands account for more than half of the ownership. The remaining land is managed by the U.S. Forest Service (USFS) (25%), the state (7%), and the Bureau of Land Management (BLM) (1.6%). Major land uses in the sub-area include agricultural and timber production and recreational development. Only 12% of the drainage is open water.

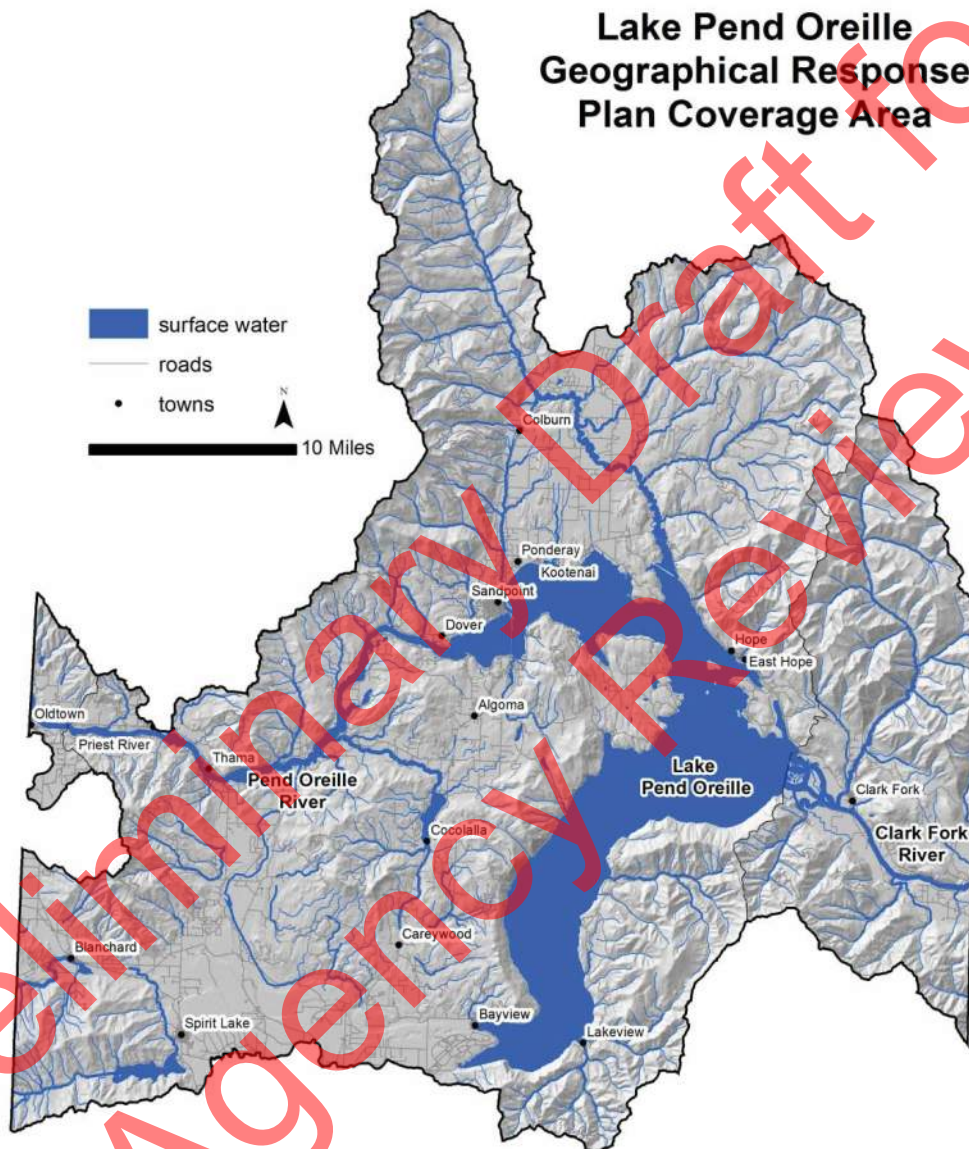
Lake Pend Oreille's elevation is regulated by Albeni Falls Dam, operated by the U.S. Army Corps of Engineers (USACE). Three major tributaries enter Lake Pend Oreille: the Clark Fork River enters the lake approximately 9.3 miles west of the Idaho-Montana border, the Pack River enters the northeastern portion of the lake, and the Priest River enters the Pend Oreille River about 5 miles upstream of Albeni Falls Dam (this portion of the river is backed up by the dam). Lake Pend Oreille is the fifth-largest natural freshwater lake in the United States.

Figure 2-1: Lake Pend Oreille Subbasin: Watershed-Based Sub-Areas¹



¹ Figure courtesy of BNSF railroad.

Figure 2-2: Lake Pend Oreille Geographical Response Plan Coverage Area



2.3.1 Upper Pend Oreille Sub-Area Description

The Upper Pend Oreille Sub-Area is sparsely settled; Bonner County has a population of about 42,500 people. Sandpoint, the county's largest city with about 7,800 residents, and the surrounding cities and rural areas along the northern shore of the lake comprise about half the county's population (U.S.

Census, 2017). In summer, an additional 5,000 people call the northern shore their home (RRT/NWAC, 2005).

The Upper Pend Oreille Sub-area drainage (approximately 1,972 square miles) encompasses all of Lake Pend Oreille and its tributaries, including 9.3 miles of the Clark Fork River upstream to Cabinet Gorge Dam, and the Pend Oreille River and its tributaries down to the lake's control point, Albeni Falls Dam. Lake Pend Oreille is located in the Panhandle region of northern Idaho and lies primarily within Bonner County. Lake elevation is regulated by Albeni Falls Dam. Congressional authorization of Albeni Falls Dam (by the 81st Congress, 1st Session, Senate Document No. 9, February 7, 1949) requires that the Albeni Falls Dam not contribute to downstream flooding. Inflow comes through Cabinet Gorge and Noxon Rapids Dams, which are "power peaking" facilities owned and operated by Avista Utilities. During low flow (non-runoff) season, Avista operates these dams for hourly peaking, but these projects do not affect lake levels (NPCC, 2005b). The USACE operates Albeni Falls Dam, which is located on the Pend Oreille River near the Washington border.

The Pend Oreille River, prior to the construction of Albeni Falls Dam in 1952, provided free-flowing riverine habitat that supported a cold water fishery. Prior to construction of Albeni Falls and Cabinet Gorge Dams, the lower Clark Fork River supported important fisheries for migrating kokanee salmon, mountain whitefish, and bull trout. Westslope cutthroat trout were also present in the river and provided a fishery for fluvial and adfluvial fish (NPCC, 2005b). Today, the upper Pend Oreille River supports a limited warm water fishery, and the presence of salmonids is very low (Bennett and DuPont, 1993). Bennett and DuPont (1993) conducted a 2-year survey (1991 to 1992) and found salmonids (native and nonnative species) accounted for only 1.9% of all species collected in 1991 and 0.6% in 1992. Management direction is to work with USACE on lake level management to improve conditions for fish species (NPCC, 2005b).

Fish habitat in tributary streams within the Upper Pend Oreille Sub-Area has been impaired through delivery of excess bedload sediment, fine sediment delivery, loss of large woody debris and riparian forest habitat, channelization, and isolation of streams from their floodplains (PBTTAT, 1998). Human-made fish migration barriers and water diversions are scattered around the subbasin, resulting in loss of access to spawning and rearing habitat and loss of flow and migrating fish to diversions. During the summer and fall months, the lower 3.4 miles of the Clark Fork River (the headwaters of Lake Pend Oreille) are flooded by backwater from Albeni Falls Dam, creating an unproductive environment for native and introduced salmonids (NPCC, 2005b). Riverine habitat has been further compromised by Cabinet Gorge Dam and its operations, resulting in blocked fish passage, rapidly fluctuating river flows, and during high water years (such as 1997), total dissolved gas levels exceeding 150% saturation (Weitkamp et al., 2003).

Cabinet Gorge Dam presents a complete migration block to fish migrating upstream from the Clark Fork River. Steps are underway to restore fish passage as part of the Federal Energy Regulatory Commission (FERC) re-licensing process (NPCC, 2005b).

2.3.2 Upper Pend Oreille Sub-Area Topography/Geomorphology

The Selkirk Mountains to the west, the Cabinet Mountains to the north, and the Bitterroot Mountains to the east shape the Upper Pend Oreille Sub-Area. During the ancient Precambrian period over 600 million years ago, shallow seas inundated northern Idaho. Sediments of clay, silt, and sand settled out of brackish waters as seas retreated, subsequently metamorphosed, and began to fold and fault. In the last few million years, the sub-area was substantially altered by major glacial events in the late Pleistocene period. Glacial advances resulted in highly dissected watersheds with high stream density, shallow soils, and subsoil compaction of glacial tills. Groundwater seeps and springs are prevalent in tributaries draining the Cabinet and Bitterroot Mountains to the north and east of Lake Pend Oreille, reflecting the more recent geology. The parent rocks of soils developed from the Precambrian Belt Supergroup weather to a preponderance of coarse fragments (60 to 70%), fine silts (20% plus), and a small amount of gravel and sand. When these soils are eroded by natural or human-caused agents into high gradient mountain streams (Rosgen B or steeper; Rosgen, 1994), the fine silts are transported rapidly downstream out of the system while the coarse fragments remain as bedload. This bedload is transported locally within the channel during channel-forming events (2-year discharge events). If erosion has been accelerated, the excess bedload fills pools and triggers additional bank cutting (NPCC, 2005b).

Generally, streams on the northern and eastern sides of Lake Pend Oreille tend to be more productive and have much less fine sediment than streams draining the granitic soils of the Selkirk Mountains. Streams flowing from the Cabinet and Bitterroot Mountains are more likely to have bedload as a limiting habitat factor, whereas streams flowing from the granitic watersheds of the Selkirk Mountains may have fine sediment limiting habitat condition. Migratory fish are precluded from several tributaries, or portions of tributaries, due to natural waterfalls found throughout the basin (NPCC, 2005b).

2.3.3 Upper Pend Oreille Sub-Area Vegetation

Historical vegetation patterns in the Upper Pend Oreille Sub-Area were largely influenced by wildfire. Uplands were more typically dominated by seral species in various stages of succession, with age and composition dependent largely on fire cycles, elevation, slope, and aspect (NPCC, 2005b). Low elevation riparian zones near tributary mouths include areas with and without tree canopy cover. Along stream corridors where tree overstory does not exist or is thin, vegetation includes shrubs and small trees such as thin-leaf alder, *Alnus sinuate*; willows, *Salix* spp.; snowberry, *Symphoricarpos albus*; mountain maple, *Acer glabrum*; red-osier dogwood, *Cornus stolonifera*; blue elderberry, *Sambucus cerulea*; and black hawthorn, *Crataegus douglasii*. Where tree canopy is present, tree species include black cottonwood, *Populus trichocarpa*; water birch, *Betula occidentalis*; quaking aspen, *Populus tremuloides*; and a mix of conifer species including western red cedar, *Thuja plicates*; western hemlock, *Tsuga heterophylla*; Douglas-fir, *Pseudotsuga menziesii*; grand fir, *Abies grandis*; and western white pine, *Pinus monticola* (NPCC, 2005b).

Conifer forests in the sub-area consist of mixed stands, typified by stands of western red cedar/western hemlock; stands of co-dominant Douglas-fir and ponderosa pine, *Pinus ponderosa*; and stands of Douglas-fir; western larch, *Larix occidentalis*; lodgepole pine, *Pinus contorta*; and western white pine (NPCC, 2005b). Dense stands of Douglas-fir, larch, and lodgepole are characteristic of slopes with

northern and eastern aspects. Relatively open stands of Douglas-fir and ponderosa pine are typical on the warmer, dryer southern and western aspects. Representative species of upland shrubs include western serviceberry, *Amelachier alnifolia*; mountain maple; snowberry; mountain balm, *Ceanothus velutinus*; mallow ninebark, *Physocarpus malvaceus*; huckleberry, *Vaccinium* spp.; and others (NPCC, 2005b).

2.4 Hydrology

Lake Pend Oreille is the largest and deepest natural lake in Idaho, covering approximately 83,264 acres prior to impoundment by Albeni Falls Dam in 1952. At full pool, the lake now covers 94,794 acres (USFWS, 1953; Hoelscher, 1993). The lake has more than 175 miles of shoreline and has a mean and maximum depth of 538 ft and 1,151 ft, respectively (Rieman and Falter, 1976). An estimated 95% of the lake's volume is held in the large, southern-most basin, a glacially influenced portion of the Purcell Trench (Savage, 1965) with a mean depth of 715 ft.

The USACE regulates the lake's elevation via operations at Albeni Falls Dam within about 11 ft, between a winter low of 2,051.5 ft above msl and a summer high of 2,062.5 ft above msl. Winter drawdown generally begins after Labor Day. Minimum pool is normally reached between November 15 and December 1, with a target date of November 15 to facilitate kokanee salmon spawning (Fredericks et al., 1995).

The Clark Fork River is the largest tributary to Lake Pend Oreille and drains a watershed of approximately 22,905 square miles (Lee and Lunetta, 1990). The river contributes approximately 92% of the annual inflow to the lake (Frenzel, 1991) and most of the annual suspended sediment load. Tributaries to the Clark Fork below Cabinet Gorge Dam include Lightning, Twin, Mosquito, and Johnson Creeks. Pack River is the second-largest tributary to the lake and is fed by a number of significant tributary watersheds, including Grouse Creek.

Melting snow produces peak flows in the Clark Fork River typically between 30 and 60 thousand cubic feet per second (cfs) in May or June. Mid-winter rain-on-snow events can result in rapid snowmelt, and in some years the peak flow from tributary watersheds occurs during these events in winter (i.e., the non-runoff season). Lightning Creek and other tributaries draining the Cabinet and Bitterroot Mountains are particularly susceptible to rain-on-snow events due to high precipitation, their location relative to the lake, prevailing winds, and the tendency for warm winter storms to pick up moisture from the lake. The Pend Oreille River is the only surface outflow from Lake Pend Oreille. The reservoir narrows to what was once the natural river channel but is now the forebay of Albeni Falls Dam. Velocities in the channel can be river-like during high flow conditions. The constricted sections of the lake flow for about 27 miles from the lake's northwest corner near Sandpoint into Washington.

2.5 Climate

Continental and marine weather patterns influence climatic conditions in the Upper Pend Oreille Sub-Area. Winter storms pass over the area from November through March causing a noticeably wet climate. Mid-winter storms periodically bring warm air masses resulting in rain-on-snow events at middle elevations ranging between 2,500 and 4,500 ft above msl. Summer storms generally pass farther

north, resulting in relatively dry seasonal conditions. Winds typically prevail from the southwest across Lake Pend Oreille.

Average monthly temperatures in the area range from 27 to 65°F. Precipitation varies widely throughout the year. November is the wettest month with a monthly average of 3.5 inches, while August is the driest with a monthly average of 0.7 inches (Weatherspark, 2017). Precipitation falls mainly as snow in the winter months, averaging 88 inches per year. The main body of Lake Pend Oreille seldom freezes in winter; however, shallow areas in the northern end of the lake form an ice cover some years.

The climate in Bonner County is generally sub-humid characterized by warm, dry summers and cold, wet winters. The mountains have cooler summers and colder winters than areas in the valley (Bonner County, 2010b).

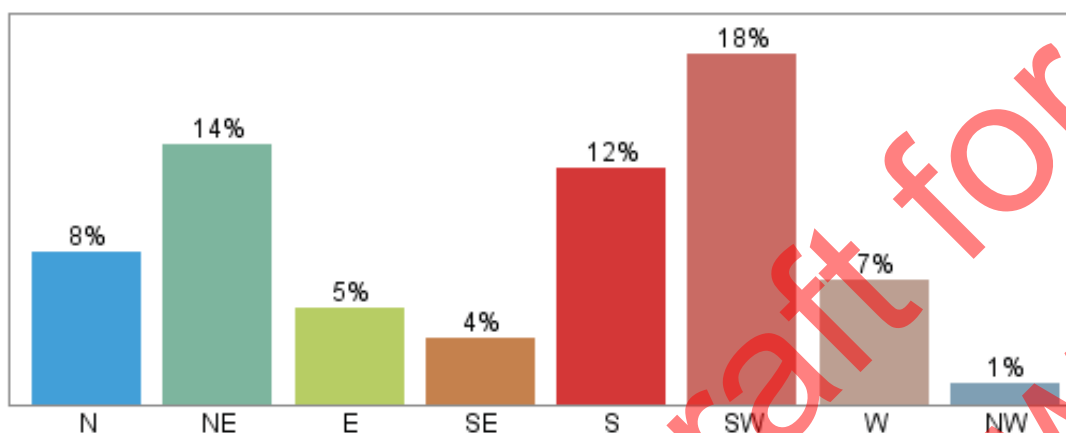
Annual precipitation in Bonner County ranges from 20 to 60 inches and the most precipitation is received in the mountains in the northwestern part of the county. The southern part of the county receives the least. The driest months for Bonner County are normally July, August, and September and correspond to the height of the wildland fire season for northern Idaho. Some rainfall normally occurs during these months, but extended dry periods can occur. Precipitation occurs year-round in the mountains, with deep snowpack accumulating during winter months (Bonner County, 2010b).

Chinook winds, which blow downslope and are warm and dry, often melt and evaporate snow. Summers in Bonner County are warm to hot in the valleys, with much cooler temperatures in the mountains. In the winter, the average temperature is 20 F and the average daily minimum temperature is 23 F. Average temperatures in the summer are 63 F and the average daily maximum temperature is 78 F (Bonner County, 2010b).

Over the course of the year, typical wind speeds vary from 0 to 13 miles per hour (mph) (calm to moderate breeze), rarely exceeding 17 mph (moderate breeze). The highest average wind speed of 5 mph (light breeze) occurs around mid-April, at which time the average daily maximum wind speed is 13 mph (moderate breeze). The lowest average wind speed of 3 mph (light breeze) occurs around mid-to late October, at which time the average daily maximum wind speed is 9 mph (gentle breeze) (Weatherspark, 2017).

The wind in Sandpoint is most often out of the southwest (18% of the time), northeast (14% of the time), and south (12% of the time) (Figure 2-3). The wind is least often out of the northwest (1% of the time) and southeast (4% of the time) (Weatherspark, 2017).

Figure 2-3: Sandpoint, Idaho, Wind Directions over the Entire Year



Note: Values do not sum to 100% because the wind direction is undefined when the wind speed is zero.

2.6 Risk Assessment

Numerous transportation and facility-based oil and chemical threats exist in proximity to Lake Pend Oreille. U.S. Highways 2 and 95, State Route 200, and the BNSF Railway/Montana Rail Link (MRL) paralleling Lake Pend Oreille and the Union Pacific (UP) rail line paralleling Pend Oreille River are the primary spill risks. The Cabinet Gorge Dam may also maintain an oil supply for normal operations. Facilities are located on the Clark Fork River approximately 8 miles upstream of Lake Pend Oreille.

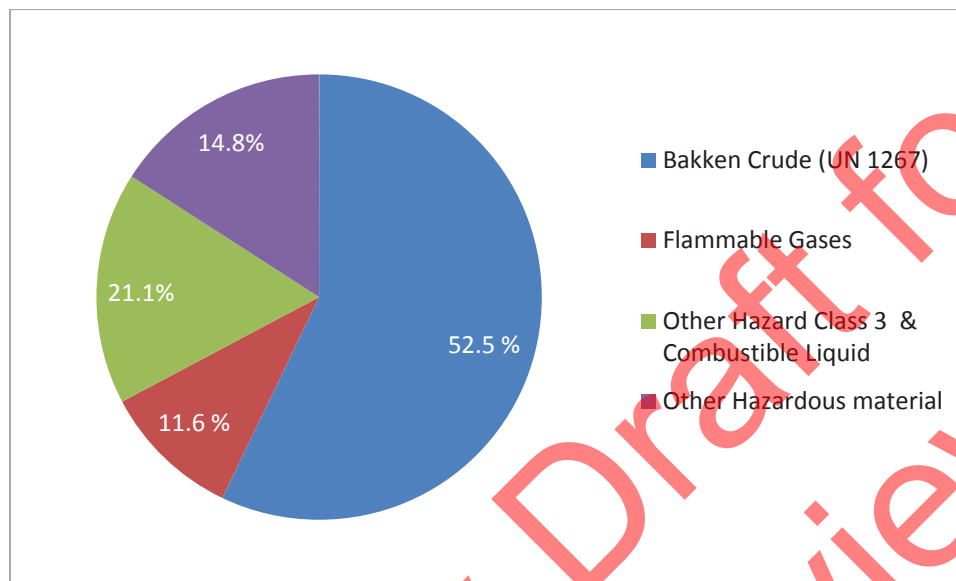
2.6.1 Oil and Hazardous Materials Transit in Bonner County

Numerous trains travel through the city of Sandpoint daily and many carry hazardous materials and crude oil. In 2016, three railroads provided commodity transportation information to DEQ. These three railroads combined moved significantly more than 300,000 rail cars or tank cars containing various forms of hazardous materials and crude oil. Currently, approximately 24 unit trains per week carrying crude oil from the Bakken oil fields in the Dakotas and Saskatchewan travel through Sandpoint. As such, the Bakken crude oil trains represent approximately 52.5% of the total number of hazardous material carloads traveling this area. Additionally, butane and alcohols represent about 11.6% of the total hazmat carloads. Table 2-1 and Figure 2-4 summarize the types and quantities of hazardous materials transported through Bonner County.

Table 2-1: Oil and Hazardous Material Rail Shipments in Bonner County (More than 300,000 Total Loads Per Year)

Hazardous Material Rail Shipments in Bonner County per Year (2016)	Hazard Class	% of total
Bakken Crude (UN 1267)	3	52.5%
Flammable Gases	2.1	11.6%
Other Hazard Class 3 & Combustible Liquid	3	21.1%
Hazard Class 9 and other hazardous material	9	14.8%

Figure 2-4: Hazardous Material by Rail in Bonner County



Further analysis of the rail commodities reveals that the 20 most frequently shipped commodities comprise 97% of the total number of packages shipped. A review of the most frequently shipped commodities against guidance from the North American Emergency Response Guidebook (US Department of Transportation, 2016) indicates the following:

- All of the top 20 hazardous materials require self-contained breathing apparatus (SCBA) as personal protective equipment, and 5 require SCBA personal protective equipment that is “specifically recommended by the manufacturer.”
- 13 of the top 20 are liquid.
- 4 of the top 20 are gaseous.
- 1 of the top 20 is a solid (ammonium nitrate).
- Sulfuric acid and hydrochloric acid represent 1.1% of the total number of hazmat rail shipments. These materials are reactive and may release corrosive, toxic, or combustible gases.
- Aside from the two acids mentioned, all of the top 20 hazmat rail shipments are combustible.
- Evacuation criteria for accidents involving rail cars transporting these hazardous materials range from 0.5 to 1 mile.
- Allyl bromide comprises 2.5% of the total hazmat rail shipments. It has a specific gravity greater than 1 and will sink if spilled into a waterway.
- Alcohol NOS, sulfuric acid, hydrochloric acid, and methanol comprise 12.9% of the total hazmat rail shipments. These items are soluble in water.
- Current response trailers are set up for crude oil releases (see Section 4.6). Collection of other materials may create hazardous and explosive environments.

A considerable amount of hazardous materials is also shipped on the highways of Bonner County. In 2010, a qualitative survey was conducted to assess the amount and type of hazardous materials flowing

through the county (Bonner County, 2010c). During two separate 2-hour periods at four different locations, a total of 310 commercial vehicles were observed passing through. Of those vehicles, 35 were observed to be placarded as containing hazardous materials. Table 2-2 lists the relative percentage of the types of materials observed. Not surprisingly, flammable liquid, such as gasoline and diesel fuel, were the largest contributors.

Table 2-2: Hazardous Materials by Highway in Bonner County

Hazard Class	Description	Number observed (for a 16 hour period)	Percentage
2.1	Flammable Gas	13	37.1
3	Flammable Liquid	16	45.7
5.1	Oxidizer	1	2.9
8	Corrosive	3	8.6
9	Class 9 (and Other)	2	5.7
	TOTAL	35	100

Since the 2010 survey was completed, mining operations in Canada have resulted in numerous truckloads of “ammonium nitrate liquid (hot concentrated solution)” (ID number 2426, Hazard Class 5.1) being transported through Bonner County. This material is very hazardous and may react explosively when heated (Cameo Chemicals, 2017).

The 2010 highway survey and recent observations result in a qualitative assessment because the survey was conducted for a short duration at one particular time of year. Seasonal variations in weather as well as commercial and recreational activities would alter the amount of fuel being delivered to or through the county. Nevertheless, the survey and observations indicate that a wide variety of hazardous materials are being transported by truck through Bonner County.

2.6.2 Roadway

U.S. Highways 2 and 95 and State Route 200 are the primary roadways passing through the GRP coverage area. ITD conducted a highway safety corridor analysis for Bonner County (Figure 2-5). Highway 200 along the north shore of Lake Pend Oreille represents a unique challenge in that accidents are more frequent and the highway runs very close to the lake shore.

Figure 2-5: Highway Accident Safety Corridor Map for Bonner County



2.6.3 Railroads

The topography of Bonner County has been very attractive to the railroad industry over the last one and a half centuries. Figure 2-6 shows the rail lines in Bonner County. The MRL follows the Clark Fork River and the northern shore of Lake Pend Oreille to Sandpoint. The UP railroad runs from Bonners Ferry southwards through Sandpoint and southwest toward Spokane. The UP railroad also shares trackage with the MRL. The BNSF Railway also runs south from Bonners Ferry through Sandpoint but crosses the Pend Oreille River at its junction with the lake; the BNSF line then continues south to the county line

where it runs adjacent to the UP railroad before turning west towards Spokane, Washington. The Pend Oreille Valley railroad is a short line railroad operating between Newport, Washington, and Sandpoint, Idaho, along the north side of the Pend Oreille River.

Railroad accidents in Bonner County are common. Between 1995 and 2014, the last date for which data were available, the Federal Railroad Administration reported 37 unique accidents, which includes all accidents from minor mishaps to significant derailments. In the spring of 2017, at least four significant derailments occurred in Bonner and Boundary Counties near waterways. Table 2-3 below summarizes those accidents by rail line. Figure 2-7 and Figure 2-8 show the location of those accidents; the north side of Sandpoint appears to be an area where accidents are more frequent.

Table 2-3: Bonner County Rail Accidents, 1995–2014

Railroad	Number of Accidents
BNSF	13
MRL	8
UP	15
Pend Oreille Valley	1
TOTAL	37

In fall 2016, at the request of DEQ, the four railroads provided copies of the public version of their bridge inspection reports. All bridge inspections were current in accordance with the Fixing America's Surface Transportation Act Public Law 114-94. The reports indicated that all bridges passed inspection and were "confirmed to have the capacity to safely carry traffic being operated over the bridge."

Figure 2-6: Bonner County Railroads

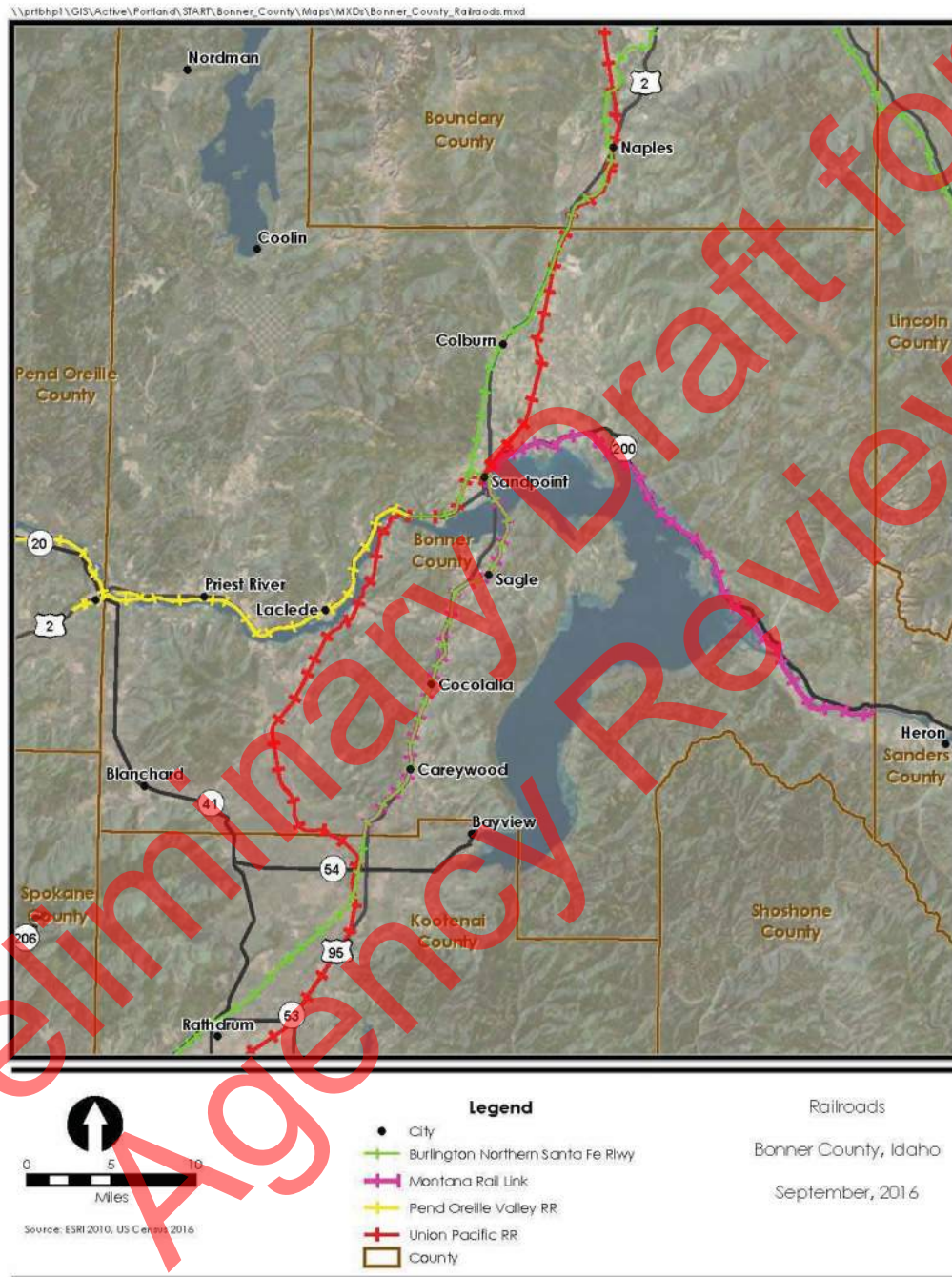


Figure 2-7: Bonner County Train Accidents (1995–2014)



Figure 2-8: Sandpoint, Idaho, Train Accidents (1995–2014)



3 Response Options and Considerations

The table provided in this section correlates the type of terrain or other environmental feature with the response sectors. The response sectors are further described in Section 4.3.

		Location							
		Sector 1A-1B West Pend Oreille	Sector 2 Westside Fire	Sector 3A-3D Sandpoint	Sector 4A Northside (Lakeshore)	Sector 4B Northside (Selle Valley)	Sector 5 Sam Owens	Sector 6 Clark Fork	Sector 7A-7B Sagle
Lake Pend Oreille GRP Spill Response Options and Considerations									
Waterbody	Rivers	•	•		•	•		•	
	Creeks	•	•	•	•	•	•	•	•
	Lakes			•	•		•		•
	Pool Area formed by Dam							•	
	Wetland Area(s)	•	•	•	•	•	•	•	•
	Intermittent Streams (Seasonal Flow)	•	•	•	•	•	•	•	•
Potential Response Options	Source Control and Containment Activities	•	•	•	•	•	•	•	•
	Aerial/Vessel Surveillance Activities	•	•	•	•	•	•	•	•
	Wildlife Rescue and Rehabilitation Activities	•	•	•	•	•	•	•	•
	Shoreside Collection and Oil Recovery (Note: 1)	•	•	•	•	•	•	•	•
	Vessel-Based Skimming Operations (Note: 2)	•	•	•	•		•	•	•
	Shore- or Vessel-Based Skimming Operations (Note: 3)	•	•	•	•	•	•	•	•
	Shoreline Protection Booming (Note: 4)	•	•	•	•	•	•	•	•

<p style="text-align: center;">Lake Pend Oreille GRP Spill Response Options and Considerations</p>		Location							
		Sector 1A-1B West Pend Oreille	Sector 2 Westside Fire	Sector 3A-3D Sandpoint	Sector 4A Northside (Lakeshore)	Sector 4B Northside (Selle Valley)	Sector 5 Sam Owens	Sector 6 Clark Fork	Sector 7A-7B Sagle
<p>Shoreline Cleanup Activities <i>(Note: 5)</i></p> <p>Containment in Ditches or Outfalls <i>(Note: 6)</i></p> <p>In-Situ Burning <u>Area is not pre-approved</u> <i>(Note: 7)</i></p>		•	•	•	•	•	•	•	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Considerations</p> <p>High Water vs. Low Water Boat Launches</p> <p>Current – Ability to Boom</p> <p>Weather Concerns – Freezing Waterway Potential and Safety of Roads</p> <p>Shoreside Access can be Limited by Private Property</p> <p>State or National Wildlife Refuge / Recreation Area</p> <p>Threatened/Endangered Species</p> <p>Public or Commercial Marina(s) in Area</p> <p>Recreational Boat Traffic</p> <p>Tribal Lands or Usual and Accustom Interests <i>(Note: 8)</i></p> <p>Historic / Cultural District(s) in Area</p> <p>Dam(s) in Area</p> <p>U.S. Highway Corridor</p> <p>Oil Movement by Rail in Area</p> <p>Oil Pipeline(s) in Area</p>		•	•	•	•	•	•	•	
		•					•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	
		•	•	•	•	•	•	•	

Note 1: Shoreside Collection and Oil Recovery response options should only happen in locations where skimmers or vacuum trucks can access the collected oil.

Note 2: Vessel-Based Skimming response options should include enhanced skimming using a U-boom, V-boom, or J-boom configuration in waters large enough for boats to maneuver (e.g., lake, large river).

Note 3: Shore-Based Skimming response options should include use of fixed skimmers: weir, belt, brush, drum, or other skimmer types.

Note 4: Shoreline Protection Booming should include deploying response strategies (booms) to divert and collect oil off of the water before shoreline areas are impacted, or deflect and exclude oil away from shoreline areas. These strategies include those published in this document (GRP response strategies), those provided in other plans (e.g., facility contingency plans), and “ad-hoc” strategies developed during the spill itself.

Note 5: Shoreline Cleanup options depend on safe and efficient access to spill locations and the type of river, creek, or stream bank present. Potential activities could include flooding, flushing, manual removal, vacuum, mechanical removal, sorbents, vegetation cutting, mechanical tilling/aeration, and/or sediment reworking/surf washing.

Note 6: A culvert block or underflow dam might be installed to aid in the recovery of spilled oil in small streams or those with intermittent flow. This strategy is used to protect downstream waterbodies such as Lake Pend Oreille and the rivers from upstream releases of oil.

Note 7: These areas are not pre-approved for the use of in-situ burning. Refer to the Northwest Area Contingency Plan for the in-situ burn policy. The use of in-situ burning would require incident approval from EPA, the Department of the Interior, and the National Oceanic and Atmospheric Administration.

Note 8: This sheet doesn’t represent all locations where Tribes and Tribal Nations have lands or areas of specific interest (including lands established by treaty or rights to Usual and Accustom areas). Early coordination with tribal governments is highly recommended during a response, regardless of the spill location or potential impact areas.

Preliminary Draft for Agency Review

4 Response Strategies and Priorities

This section provides information on GRP response strategies and the order (priority) they should be implemented, based on potential spill origin points and their proximity to sensitive resources. The primary intended audience of this section is responders who will deploy physical responses at the accident area. Area maps, sector maps, and information on staging areas and boat launch locations are also provided in this section. During a spill incident, GRP response strategies should be implemented as soon as possible.

Unless circumstances unique to a particular spill situation dictate otherwise, the priority tables in Section 4 should be used to decide the order that GRP strategies are deployed. The downstream movement of spills and the time it takes to mobilize response resources to deploy GRP strategies must always be considered when setting implementation priorities. Information on resources at risk and sensitive areas can be found in Section 6 of this plan. Information on shoreline countermeasures can be found in Section 5 of this document and in the Northwest Area Shoreline Countermeasures Manual (NWACP Section 9420, available at <http://www.rrt10nwac.com/NWACP/Default.aspx>).

The GRP strategies provided in this section have been created to reduce a spill's impact on sensitive resources. They do not include everything that should or could be done during a response to lessen the chance of injury to natural, cultural, and economic resources at risk from spills. Although designed to be implemented during the initial phase of a spill, GRP strategies may continue to be used throughout a response at the discretion of the incident commander or unified command.

4.1 On-Site Considerations

4.1.1 Before Deploying a GRP Strategy (Questions to Ask)

- Are conditions safe? Response managers and responders must first determine if efforts to implement a response strategy would pose an undue risk to worker safety or the public, based on conditions present during the time of the emergency. No strategy should be implemented if doing so would threaten public safety or present an unreasonable risk to the safety of responders.
- Has initial control and containment been sufficiently achieved? Source control and containment of the spill at or near the source of a spill are always higher priorities than the deployment of GRP response strategies, especially when concurrent response activities are not possible.
- How far downstream or out into the river environment is the spill likely to travel before response personnel will be ready and able to deploy GRP response strategies?
- Are permits required? Contact the DEQ regional administrator in Coeur d'Alene for guidance. Additional information can be found in the NWACP Permit Summary Table ([NWACP Section 9401](#))
- Will equipment or vehicles need to be staged on or near a roadway? If so, traffic control may be required.

4.1.2 During Strategy Implementation (Things to Remember)

- On-scene conditions (weather, currents, lake level, waves, river speed, and debris) may require that strategies be modified to be effective. Weather and conditions experienced at a particular strategy location during an actual spill event will likely be different from those when data were gathered during field visits. Response managers and responders must remain flexible and modify the strategies provided in this section as needed to meet the challenges experienced during an actual response.
- Certain strategies may call for access points or staging areas that are not easily reached at all times of the year or in all conditions. Lake water levels factor heavily into the ability to access anchor points for booming.
- Oil containment booms must be free of twists, gaps, and debris in order to remain effective.
- The GRP response strategies provided in this section were designed for use with persistent heavy oils that float on water and may not be suitable for other petroleum products or hazardous substances.

4.1.3 After Strategy Implementation (Things to Understand)

- Oil containment booms should be maintained and periodically monitored to ensure effectiveness. Changes in river or current speed will likely require modifications to boom deflection angles (see additional discussion in Section 4.2.2). Depending on conditions, some booming strategies may require around-the-clock tending.
- Although designed for implementation during the initial phase of an oil spill, GRP strategies may continue to be deployed and implemented throughout the entire lifespan of a response, as deemed appropriate and necessary by the incident commander or unified command.

4.2 Hydrologic Considerations

4.2.1 Hydrographs for Rail-Adjacent GRP Waterbodies

The water level on Lake Pend Oreille varies between its low pool level of 2,051.5 ft and the upper level of 2,062.5 ft. The level is actively managed by the USACE to control flood waters from spring runoff as well as for power generation and recreational needs. Figure 4-1 shows a probability chart of the water level as measured at the Hope Gage station on the north side of the lake (USACE, 2016).

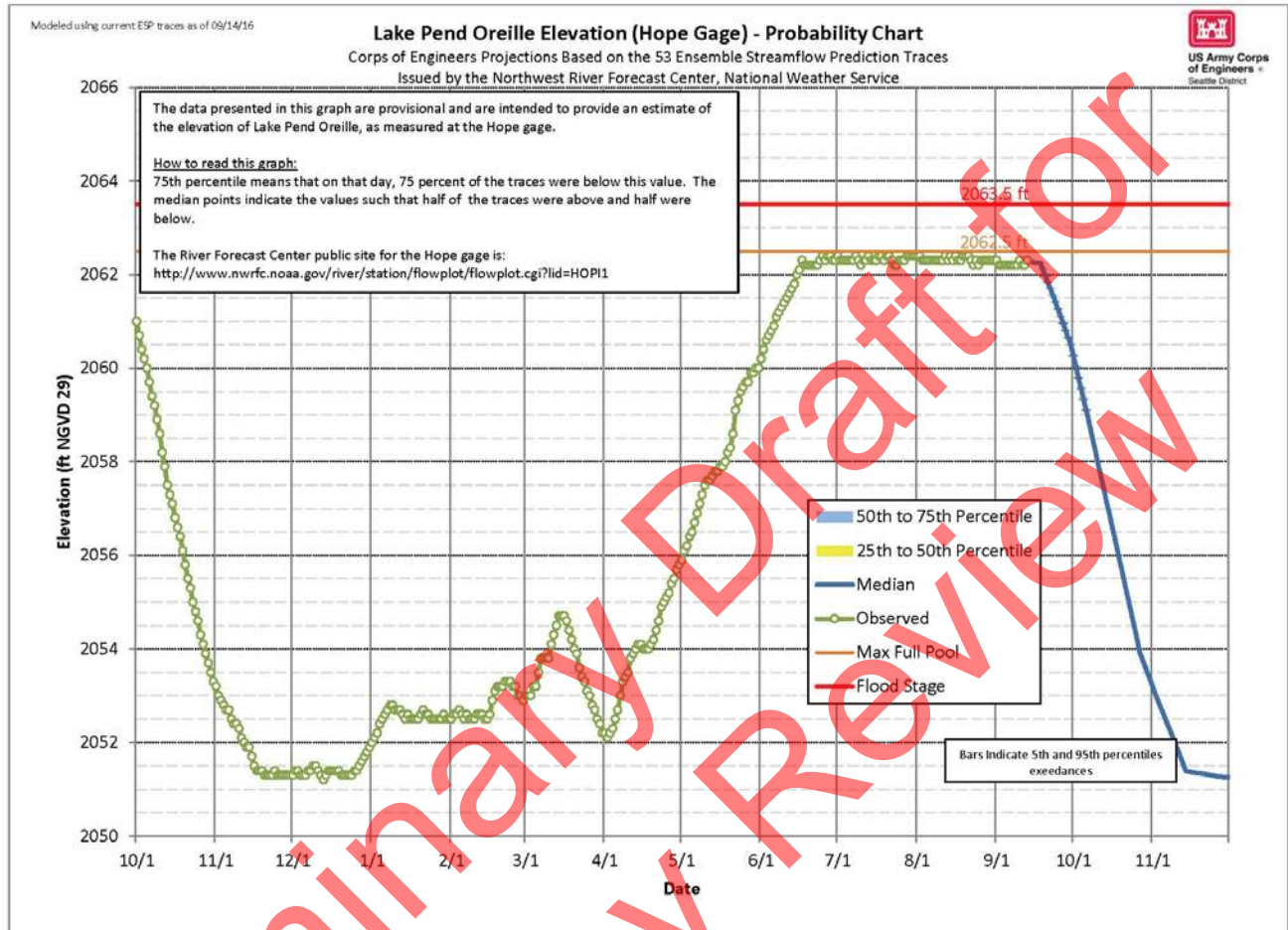
Inflows to Lake Pend Oreille from spring runoff are highest in May and June. The Clark Fork River dominates the spring flow and is managed at the Cabinet Gorge Dam. The Pack River, Lightning Creek, and Trestle Creek, all on the north side of the lake, are also significant contributors.

Current and historical stream flow information is available from the USACE Albeni Falls Dam website (<http://www.nwd-wc.usace.army.mil/nws/hh/www/index.html>). Current stream flow gaging stations are also reported by the U.S. Geological Survey (USGS). From upstream to

downstream, USGS gaging stations include the following (click the name to open the gage-specific web page):

- [USGS 12391950 CLARK FORK RIVER BELOW CABINET GORGE DAM](#)
Peak flows of about 55,000 cfs usually occur between May and June and drop throughout the summer. Flows are directly controlled by snowmelt and upstream dam operations. During low flow periods, discharges from the dam can be as low as 6,000 cfs but can vary widely; increases to over 32,000 cfs with subsequent reductions to 6,000 cfs are commonly observed within a single day. This will affect the wetted area of the river bank.
- [USGS 12392000 CLARK FORK AT WHITEHORSE RAPIDS NR CABINET](#)
Peak flows of about 55,000 cfs usually occur between May and June and drop throughout the summer. Flows are directly controlled by snowmelt and upstream dam operations.
- [USGS 12392155 LIGHTNING CREEK AT CLARK FORK](#)
Peak flows of about 1,200 cfs usually occur between May and June and drop throughout the summer. Flows are directly impacted by snowmelt. Lightning Creek is a tributary of the Clark Fork River and crosses under the MRL-operated track to the north.
- [USGS 12392300 PACK RIVER NR COLBURN ID](#)
Peak flows of about 1,200 cfs usually occur between May and June and drop throughout the summer. Flows are directly impacted by seasonal snowmelt.
- [USGS 12395500 PEND OREILLE RIVER AT NEWPORT WA](#)
Peak flows of about 60,000 cfs usually occur between May and June and drop throughout the summer. Flows are directly controlled by snowmelt and downstream dam operations.
- [USGS 12393000 PRIEST LAKE AT OUTLET NR COOLIN ID](#)
Peak flows (as measured by gage height, not cfs) typically occur from May to October. Priest Lake is regulated to hold lake at levels desirable for recreation interests during summer months, and storage is released for power use downstream during winter months.
- [USGS 12395000 PRIEST RIVER NR PRIEST RIVER ID](#)
Peak flows of about 6,000 cfs usually occur between May and June and drop throughout the summer. Flow is partly regulated by Priest Lake.

Figure 4-1: Lake Pend Oreille Elevation (Hope Gage)—Probability Chart



4.2.2 Stream Velocity Ranges

Stream velocity data are not available from any of the gages above. Water speed drift measurement data in Table 4-1 can be used to calculate river velocity/speed in ft per second or miles per hour. Velocities in miles per hour or nautical miles per hour (knots) need to be verified at several locations, as they are subject to change based on the configuration of the riverbed channel and variability in river discharge volumes.

Knot = 1.6 mile/hr or 6,080 ft/hr or 1.7 ft/sec

The table uses the time for floating debris to drift 100 ft, which is accurately determined by anchoring a line with two floating buoy markers attached at a spacing 100 ft apart. Floating debris is then thrown into the water approximately 20 ft upstream of the first buoy marker, and the time it takes the debris to transit the distance between the two marker buoys is recorded in seconds. This measurement assumes that the minimum escape velocity under a boom perpendicular (90 degrees) to the current is 1.2 ft per second. The table provides an estimate of the length of boom required for deflecting oil at a specified angle for a 110-foot profile

(perpendicular length) to the current. It also provides an estimate of the number of anchors or shoreline tiebacks required for that length of boom assuming anchor points are required every 50 ft.

Table 4-1: Water Speed Drift Measurement Data and Boom Angle Considerations

Time to Drift 100 ft (seconds)	Velocity (ft/sec)	Max. Boom Deflection Angle (degrees)	Boom for 100 Foot Profile to Current (ft)	Anchors if Placed Every 50 Feet (number)
6	16.7	4.0	1,429	30
8	12.5	5.4	1,071	22
10	10.0	6.7	857	18
12	8.3	8.0	714	15
14	7.1	9.4	612	13
17	5.9	11.4	504	11
20	5.0	13.5	429	10
24	4.2	16.3	357	8
30	3.3	20.5	286	7
40	2.5	27.8	214	5
60	1.7	44.4	143	4
>86	<1.2	90.0	100	3

4.2.3 River Hazards

Although the Clark Fork River between the Cabinet Gorge Dam and Lake Pend Oreille is not commonly known for whitewater rapids, some key hazards do need consideration. At and below the confluence of Lightning Creek and the Clark Fork, large boulders and rocky debris washed in from Lightning Creek can create unusual hydraulics that are dependent on lake elevation and river flows. Additionally, large standing waves originating from dam discharges may be present below the Cabinet Gorge Dam.

A debris collection weir extending across the Clark Fork River (latitude 48.145820, longitude -116.202927), southeast of the City of Clark Fork, is used to deflect large woody debris in the river to the Clark Fork drift yard. The primary purpose of this weir is to prevent logs from hampering navigation in Lake Pend Oreille.

Responders intending on boating the Clark Fork River should scout these areas and consult local resources regarding current river navigation conditions.

4.2.4 Current Weather Conditions

Weather conditions on Lake Pend Oreille can vary dramatically from one moment to the next. Local wind conditions on the lake may be considerably different than conditions reported at the airport or other nearby weather stations. The long 34-mile fetch between Bayview at the southern end of the lake and Hope on the north can cause the buildup of very large waves, which could make boom deployment particularly hazardous.

In the event of a significant spill, the incident commander may request specialized assistance from the National Weather Service (see contact sheet). Additionally, Table 4-2 lists several sources of local weather conditions. Boaters from outside the area are encouraged to seek additional local weather wisdom from the Bonner County Sheriff Marine Patrol or U.S. Coast Guard Auxiliary (see contact sheet).

Table 4-2: Current Weather Condition Resources

Resource Name	Location	Link
National Oceanic and Atmosphere Administration—National Weather Service	Spokane, WA	http://www.wrh.noaa.gov/otx/
Windbag Marina	Sandpoint, ID	http://www.nwd-wc.usace.army.mil/nws/hh/www/index.html# Then select “Albeni Falls Dam,” then “Windbag Mariana”
Hope Weather	Hope, ID	http://www.nwd-wc.usace.army.mil/nws/hh/www/index.html# Then select “Albeni Falls Dam,” then “Hope Weather”

4.3 Regional Area Maps

Appendix B provides maps depicting the Pend Oreille River and Lake Pend Oreille Regions. Each region is subdivided in geographic sectors. Hyperlinks are embedded in the sectors that lead to more detailed maps and tables and individual strategies. Listed below are the seven sectors, which largely correspond to the Bonner County fire districts. These items are hyperlinked to the corresponding start of the sector in Appendix B.

- Sector 1: West Pend Oreille Fire District
- Sector 2: Westside Fire District
- Sector 3: Sandpoint / Selkirk Fire District
- Sector 4: Northside Fire District
- Sector 5: Sam Owen Fire District
- Sector 6: Clark Fork Fire District
- Sector 7: Sagle Fire District

4.3.1 Clark Fork Delta

As described in Sections 2 and 6, the Clark Fork Delta is a unique ecosystem and has cultural significance for the Kalispel Tribe and Coeur d’Alene Tribe. Due to the complex labyrinth of the estuary and difficult access, spill response will be particularly challenging. Spills upstream of the Cabinet Gorge Dam would be addressed by strategy SR200 62.95 and largely caught in the dam area. Spills between the Cabinet Gorge Dam and the City of Clark Fork, which is about 7 miles downstream, may be addressed by the booming strategy for the Clark Fork Bridge (SR200 56.05). Spills downstream of this point may be addressed by applying booms to the

shear boom (i.e., debris diversion weir [Mouth of Clark Fork Strategy SR200 55.3] and Johnson Creek Trestle [Strategy SR200 54.83]).

The travel time for a plume in the Clark Fork River to reach the delta is dependent upon the location of the spill, the amount of spilled material, the type of material spilled, and water flow. Appendix C provides the results of an analysis that shows the travel time between the Cabinet Gorge Dam and the delta could range between 1 and 4 hours.

As shown in Figure 4-2, several booming options are suggested based upon water level. During periods of low river flow, typically between late June and early April, the Clark Fork Bridge (SR200 56.05) or Mouth of Clark Fork SR200 55.3—Booming Option A, may be feasible. About 1 mile separates the two strategies. Of these two strategies, the Clark Fork Bridge is preferable for the following reasons:

- Easier river access
- Ability to anchor boom to permanent structures in the stream bed
- Not adversely affected by potential runoff from Lightning Creek

High river flows may preclude safe installation of boom across the river at either SR200 55.3—Booming Option A, or the Clark Fork Bridge. In these cases, SR200 55.3—Booming Option B could be used to attach diversion boom to the permanently installed shear debris diversion in several locations. Booming Option B includes diversion booms further downstream near the drift yard, as shown in Figure 4-3.

The shear debris diversion extends approximately 16 in. below the water surface, and it may provide for sufficient contaminant diversion such that additional temporary boom is unnecessary. If used, temporary boom should be applied on the upstream side of the permanent boom. Lag bolts may be screwed into the permanent boom structure to secure temporary boom.

The effectiveness of the SR200 55.3—Booming Option B response will be hampered by:

- Extraordinary length of boom needed (up to 8,400 ft of boom would be needed for the full deployment of Option B)
- Large number of swift water technicians needed (two teams of three)
- Current lack of permanent anchor points away from the shear debris diversion
- Current deteriorated condition of the shear debris diversion
- Swift moving water during periods of high flow, such as spring runoff
- Poor boat access

Deployment of SR200 55.3—Booming Option B may make the Clark Fork drift yard boat ramp unusable because the spill may direct itself to the ramp.

The incident commander will need to evaluate these factors with consultation from the local response community, Idaho Fish and Game (IDFG), the Kalispel Tribe, Avista Dam Operations, and USACE to evaluate the safety and efficacy of this strategy deployment.

Recommendations

The strategy for the Clark Fork Delta (Strategy SR200 55.3) represents the last opportunity to protect the delta and Lake Pend Oreille from a spill in the Clark Fork River. Future spill response preparations should consider the following enhancements that would facilitate spill response safety and effectiveness.

- Installation of a cable from the Clark Fork auto bridge or railroad trestle that could be lowered to the water level for attachment of collection booms (see Strategy SR200 56.05 photos)
- Installation of permanent anchor points on the river banks near the Clark Fork auto bridge or railroad trestle
- Installation of permanent anchor points that would be integrated with the shear debris diversion
- Caching of additional boom in the City of Clark Fork
- Additional training of the Clark Fork and Sam Owen Fire Departments for swift water boom deployment
- Staging of an appropriately equipped jet boat at the drift yard boat ramp (SR200 51.69) (This boat could serve multiple purposes for a variety of agencies.)
- Construction of an additional boat ramp near the Clark Fork Bridge

Safety Note: As of June 2017, the shear debris diversion boom is in a state of disrepair. Emergency responders should use extreme caution to avoid getting sucked under the structure or pinched between a boat and the structure. The surface of the structure may be slippery, and due to the buildup of vegetation, weak points in the walking surface may not be visible; walking on the structure should be avoided.

Cultural Note: Certain areas in the Clark Fork Delta have special significance to the Kalispel Tribe. The incident commander should contact USACE, the State Historic Preservation Office (SHPO), and the Kalispel Tribe for guidance on the placement of boom anchors; see the notification information at the beginning of this document for contact information.

4.3.2 Denton Slough

Denton Slough is also a unique and valuable wetland that hosts significant cultural resources. Several booming strategies are depicted in Appendix B, Sector 5, SR200 50.4, and additional information is provided in Table 4-3. The booming strategy selected is a function of the water level and the location of the spilled material. If the spilled material originates from the slough itself, then the boom should be located as shown for Option A in Figure 4-4. This will mitigate the flow of contamination to Lake Pend Oreille.

If the contamination originates in Lake Pend Oreille, then a boom located as shown for Option B, will mitigate contaminant migration into the slough. This option requires an in-water anchor for the west side.

At low water, the slough is largely a mud flat and boat access is extremely difficult. The water channel is located on the west side of the slough, as depicted in Figure 4-4. During low water conditions, a short boom across the water channel may mitigate contaminant migration into or out of the slough. However, anchoring the boom could be problematic due to soft mud and shallow water access.

Due to the presence of cultural resources in this area, the incident commander should contact the USACE, SHPO, and the Kalispel Tribe for guidance on the placement of boom anchors (see contact sheet).

Safety Note: Emergency responders should use caution in this area to avoid getting themselves or their boat stuck in the mud.

Preliminary Draft for Agency Review

Figure 4-2: SR200 55.3 Mouth of Clark Fork Booming Options

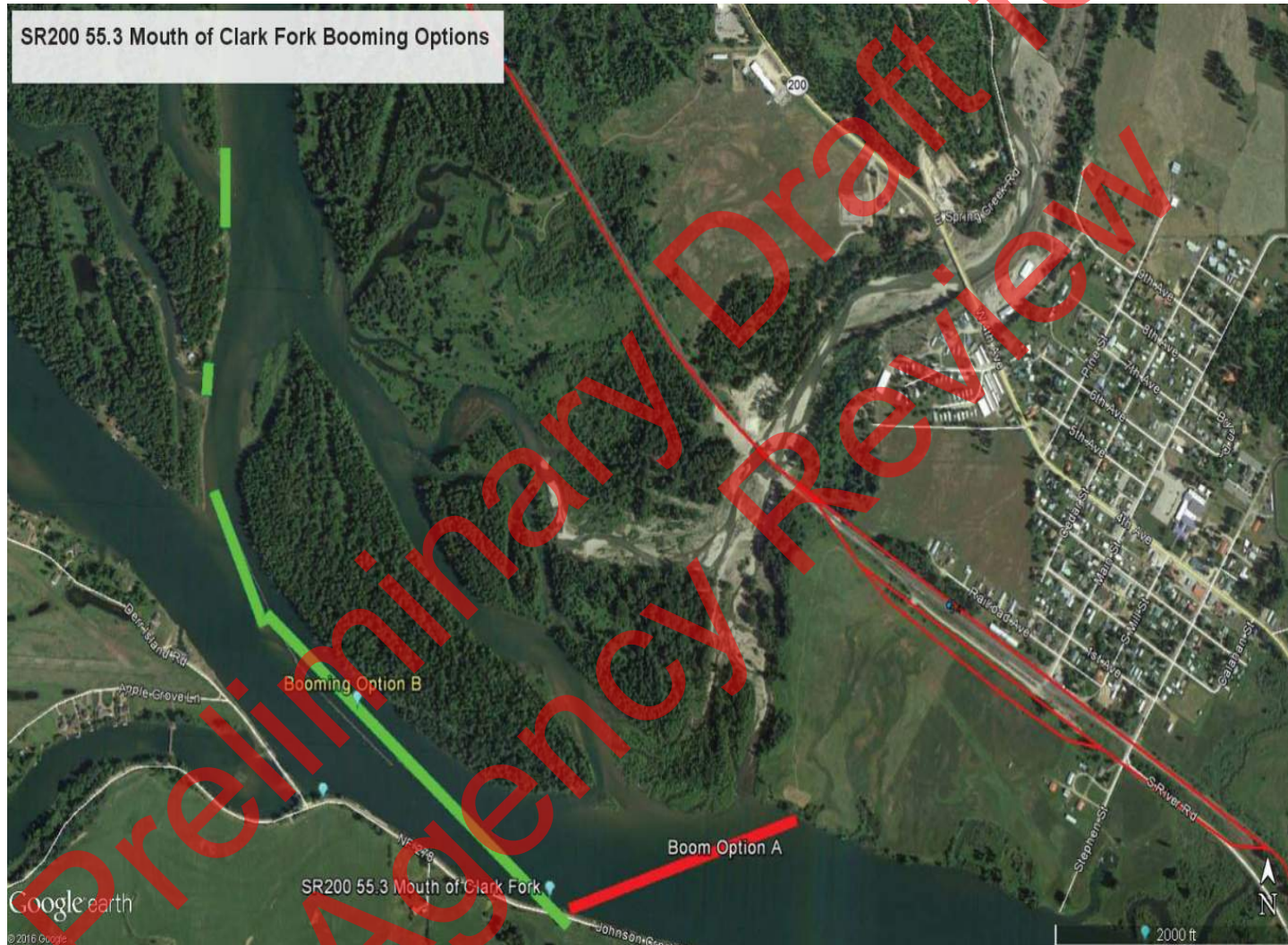


Figure 4-3: SR200 55.3 Mouth of Clark Fork Booming Options: Drift Yard Area



Figure 4-4: SR200 50.4 Denton Slough Booming Options



Table 4-3: Denton Slough Supplemental Information

Denton Slough	(MRL4 98.43) SR200 50.4
Implementation	<p>Three booming options are suggested depending upon source of contamination, wind direction, and water level.</p> <p>See Section 4.3.2 for further descriptions and a larger booming photo.</p> <ul style="list-style-type: none"> • Boom Option A—Secure boom to east and west shorelines to steel posts with one in-water anchor in the middle. • Boom Option B—Secure east side to steel post and west side to an in-water anchor, with another in-water anchor in the middle if needed. • Boom Option C for low water situations—Secure east and west sides to steel posts driven into channel bottom. Anticipate significant mud for Boom Option C. • Deploy deflection boom as shown in photo below for contamination moving from the lake northwards.
Field Notes	<ul style="list-style-type: none"> • No vehicle access on west side; Dormar Drive, also known as Hope School Road, is gated and does not reach the shore. • Vacuum truck access is good on east side • Use Clark Fork River boat ramp for access from water. No boat ramp at this location. • 4WD Access: No • Seasonal Access Only: No • Locked Gates: <ul style="list-style-type: none"> ○ West side: Yes ○ East side: No
Contact Notes	For all booming options, contact USACE, SHPO, and Kalispel Tribe for boom anchor location limitations.

4.4 Priority Tables

Certain locations along the principal transportation corridors in Bonner County are more susceptible to transportation accidents. Section 2.6 shows areas in which accidents have been more frequent. This information was used to qualitatively select several hazard zones to develop a list of additional response suggestions. Seven hazard zones were identified and are shown in Figure 4-5 and Figure 4-6.

For each of the seven hazard zones, Table 4-4 lists suggested nearby boat ramps, response strategies, and needed key equipment. The order in which the strategies are deployed is dependent entirely on the location of an accident in that hazard zone; the incident commander will need to make a field judgement on which strategy to deploy first.

The hazard zones depicted in Figure 4-5 and Figure 4-6 are based on risk of highway and rail accidents, whereas the sectors described in Section 4.3 are based on fire districts. Table 4-4 correlates the hazard zones to nearby sectors and response strategies.

The boat ramps listed are generally near the hazard zone. Most boat ramps may not be practicable in low water or adverse weather conditions. Local wisdom will be the key to proper boat ramp selection. Additional discussion on boat ramps is given in Section 4.6.

The list below provides some additional suggestions for prioritization of response activities:

1. Safety is always the number one priority. Do not attempt to implement a strategy or take action that will unduly jeopardize worker safety or the public.
2. Ensure public evacuation is considered immediately. Oil train accidents have often erupted into severe fires shortly after derailment. See the additional discussion in the Preface.
3. Ensure appropriate notifications have been made; see additional discussion in Section 1.2.
4. Control and contain the source of the spill; mobilize resources to the spill location. Source control and containment are always a higher priority than implementing GRP strategies.
5. Determining the priority or order that GRP strategies should be implemented is based on the location of the spill or affected area.
6. As response resources become available, implement the GRP strategies.

In summary:

Protecting human life is always the highest priority—public evacuation should be considered immediately. Control and containment of a spill becomes the next priority, followed by the appropriate response strategy. The information contained in the strategy descriptions (Appendix B) is recommended guidance, not prescriptive requirements.

Figure 4-5: Hazard Zone A

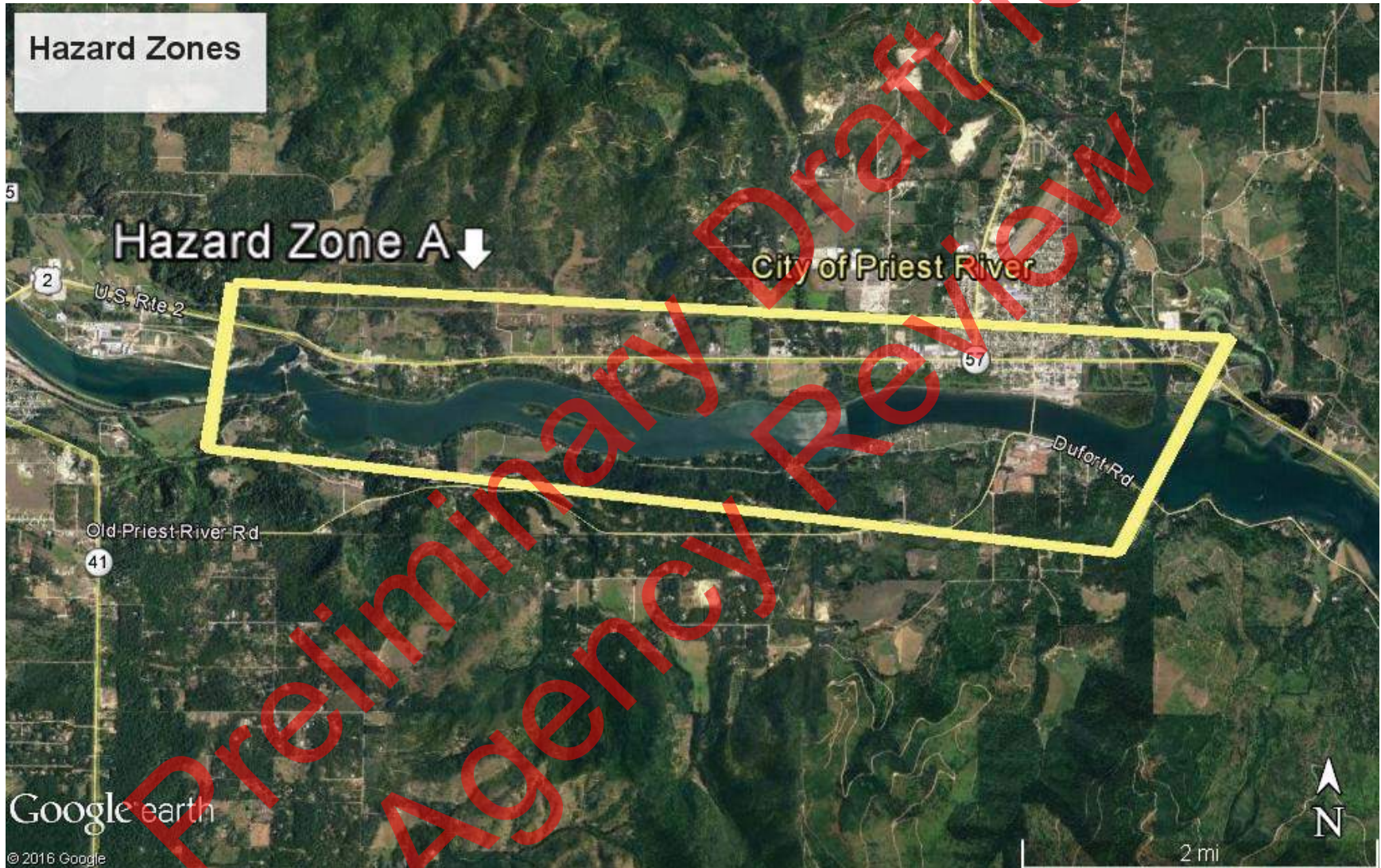


Figure 4-6: Hazard Zones B through G



Table 4-4: Hazard Prioritization Tables

Hazard Zone A		US 2 (Priest River)					
General Strategy Description	Open Water Collection and Diversion Strategies						
Staging Area Common Name	Staging Area						
Priest River City	US2 6.38						
Suggested Boat Launches	Site ID						
Priest River City	US2 6.38						
Albeni Cove	US2 2.21						
Suggested Strategies	Site ID	Equipment Needs					
		Curtain Boom(ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
10th Outfall	US2 5.73	150	Curtain boom	200	4	1	Yes
Priest River Intake	US2 6.38	550	Curtain boom	700	4	1	Yes
Albeni Falls Rec	US2 2.21	2,200	Vacuum Truck; Portable Skimmer	2,800	24	4	Yes
Albeni Falls	US2 2.19	1,200	Vacuum Truck; Portable Skimmer	1,500	12	3	Yes
		4,100		5,200	44	9	
Related Sectors							
Sector 1A							
Sector 1B							

Hazard Zone B		US95 Sagle & Cocolalla					
Sagle							
General Strategy Description	Open Water Collection and Diversion Strategies						
Staging Area Common Name	Staging Area						
Dover Bay Marina	US2 25.16						
Suggested Boat Launches	Site ID						
Bottle Bay Bridge	US95 471.08						
Sandpoint City Beach	US95 473.87						
Memorial Park Boat Ramp	US2 27.9						
Suggested Strategies	Site ID	Equipment Needs					
		Curtain Boom(ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Bottle Bay Bridge	US95 471.08	100	Curtain boom	150	6	0	No
Dover Intake	US2 25.63	800	Curtain boom	1,000	4	1	Yes
Dover Bay Marina	US2 25.16	1,000	Curtain boom	1,250	6	3	Yes
		1,900		500	16	1	
Related Sectors							
Sector 7B							

Hazard Zone B		US95 Sagle & Cocolalla					
Cocolalla							
General Strategy Description	Open Water Collection and Diversion Strategies						
Staging Area Common Name	Staging Area						
Lake Cocolalla	US 95 463.62						
Suggested Boat Launches	Site ID						
Lake Cocolalla	US95 463.62						
Round Lake	US95 465.12						
Morton Slough	US2 16.29						
Suggested Strategies	Site ID	Equipment Needs					
		Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Cocolalla Creek Outlet	US95 463.82	200	Curtain boom	250	6	0	Yes
Cocolalla Loop Rd Bridge	US95 463.95	50	Curtain boom	50	6	0	No
Round Lake	US95 465.11	200	Curtain boom	0	6	0	Yes
Cocolalla Creek Mouth	US2 16.06	1,000	Curtain boom	1,000	10	1	Yes
		1,450		1,300	28	1	
Related Sectors							
Sector 7A							
Sector 7B							
Sector 2A							

Hazard Zone C		Sandpoint & Convergence					
Sandpoint Area							
General Strategy Description		Open Water Collection and Diversion Strategies					
Staging Area Common Name		Staging Area					
Sandpoint City Beach		US95 473.87					
Suggested Boat Launches		Site ID					
Sandpoint City Beach		US95 473.87					
Suggested Strategies		Equipment Needs					
	Site ID	Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Lower Sand Creek	US95 474.31	700	Vacuum Truck; Portable Skimmer	500	5	0	Yes
Mouth of Sand Creek	US 95 473.91	360	Vacuum Truck; Curtain boom	450	0	0	Yes
Sandpoint Intake	US95 473.84	800	Curtain boom	1,000	0	6	Yes
Sandpoint City Beach	US95 473.9	2,000	Curtain boom	2,500	0	4	Yes
Long Bridge	US95 472.85	3,500	Curtain boom	4,375	8	0	Yes
		7,360		8,825	13	10	
Related Sectors							
Sector 3B							

Hazard Zone C		Sandpoint & Convergence					
Convergence							
General Strategy Description	Diversion Strategies						
Staging Area Common Name	Staging Area						
Sandpoint City Beach	US95 473.87						
Suggested Boat Launches	Site ID						
Sandpoint City Beach	US95 473.87						
Memorial Park Boat Ramp	US2 27.9						
Suggested Strategies	Site ID	Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Sand Creek Trestle	US95 475.3	750	Vacuum Truck; Portable Skimmer	1,000	5	0	Yes
Lower Sand Creek	US95 474.31	700	Vacuum Truck; Portable Skimmer	500	5	0	Yes
Mouth of Sand Creek	US95 473.91	360	Portable Skimmer; Vacuum Truck	450	0	0	Yes
Sandpoint Intake	US95 473.84	800	Curtain boom	1,000	0	6	Yes
Long Bridge	US95 472.85	3,500	Curtain boom	4,375	8	0	Yes
		6,110		2,950	10	6	
Related Sectors	Comments: The numerous storm water outfalls draining to Sand Creek need to be considered. A spill in the convergence area may be blocked within the surface water drain before it goes into the underground storm water drain. Once it enters Sand Creek, then the strategies should be considered.						
Sector 3B							
Sector 3C							
Sector 3D							

Hazard Zone D		SR 200 Kootenai					
General Strategy Description	Open Water Collection and Diversion Strategies						
Staging Area Common Name	Staging Area						
Sandpoint City Beach	US95 473.87						
Suggested Boat Launches	Site ID						
Sandpoint City Beach	US95 473.87						
Memorial Park Boat Ramp	US2						
Laclede	US2						
Suggested Strategies	Site ID	Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Boyer Slough	SR200 33.15	200	Portable Skimmer; Vacuum Truck	300	6	0	Yes
Sandpoint Intake	US95 473.84	800	Curtain boom	1,000	0	6	Yes
Long Bridge	US95 472.85	3,500	Portable Skimmer; Vacuum Truck; Absorbent Boom	4,375	8	0	Yes
Sandpoint City Beach	US95 473.90	2,000	Curtain boom	2,500	0	4	Yes
		6,500		8,175	14	10	
Related Sectors							
Sector 4A							

Hazard Zone E		SR 200 Trestle Creek to Pack River					
General Strategy Description:		Open Water Collection					
Staging Area Common Name		Staging Area					
Trestle Creek		SR200 42.59					
Suggested Boat Launches		Site ID					
Trestle Creek		SR200 42.59					
Hawkins Point		SR200 41.38					
Hope Boat Basin		SR200 44.98					
Suggested Strategies		Equipment Needs					
	Site ID	Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?
Pack River Bridge	SR200 38.69	700	Curtain booms	900	18	0	No
Pack River Trestle	SR200 40.78	300	Curtain boom	450	10	0	Yes
Sunnyside Intake	SR200 41.28	550	Curtain boom	650	0	1	Yes
Trestle Creek	SR200 42.09	950	Curtain boom	1,250	6	3	Yes
		2,500		3,250	34	4	
Related Sectors							
Sector 4A							
Sector 5							

Hazard Zone F SR 200 Clark Fork to Hope

General Strategy Description: Open Water Collection

Staging Area Common Name Denton Slough
Staging Area SR200 50.40

Suggested Boat Launches

Island View	SR200 51.63
	SR200 49.76
Beyond Hope	SR200 47.90

Suggested Strategies

Denton Slough	SR200 50.4
David Thompson	SR200 50.19
Kullyspell Intake	SR200 49.45
Islandview Intake	SR200 48.08
Red Fir Intake	SR200 46.4

Equipment Needs							
Site ID	Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?	
	1,900	Vacuum truck & skimmer	2,400	10	3	Yes	
	400	Curtain boom	525	6	1	Yes	
	1,500	Curtain boom	1,900	6	1	Yes	
	550	Curtain boom	750	0	3	Yes	
	900	Curtain boom	1,100	8	3	Yes	
	5,250		6,675	30	11		

Related Sectors

- Sector 5
- Sector 6

Hazard Zone G Clark Fork Delta

General Strategy Description: Diversion to collection area

Staging Area Common Name **Staging Area**
 Clark Fork Drift Yard Boat Ramp SR200 51.69

Suggested Boat Launches **Site ID**
 Clark Fork Drift Yard Boat Ramp SR200 51.69
 Derr Island Boat Ramp SR200 54.83
 Johnson Creek Boat Ramp SR200 54.28

Note: Not all of these strategies would be deployed simultaneously.

Suggested Strategies **Site ID**
 Mouth of Clark Fork SR200 55.3
 Clark Fork Dam SR200 62.95
 Clark Fork Bridge SR200 56.05
 Johnson Creek Trestle SR200 54.83

Equipment Needs						
Curtain Boom (ft)	Recovery Device	PP Line (ft)	Steel Post Anchors	In Water Anchors	Jet Boat Needed?	
8,400	Skimmer & vacuum truck	1,000	20	5	Yes	
1,300	Skimmer & vacuum truck	1,700	8	2	Yes	
1,100	Curtain boom vacuum truck	1,350	5	2	Yes	
300	Curtain boom	400	6	10	Yes	

Related Sectors
 Sector 6

4.5 Water Users

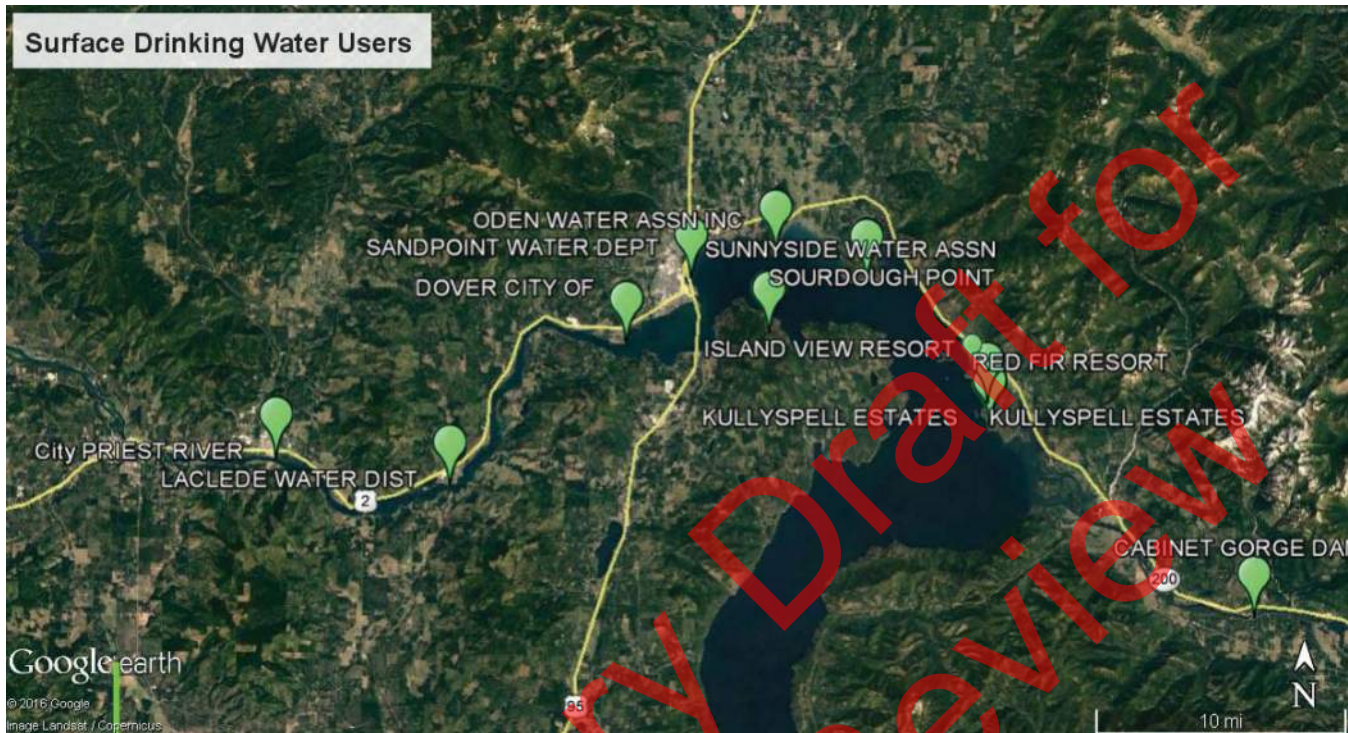
Bonner County has 19 registered public water systems that obtain surface water. Of these, eleven actively draw water from Lake Pend Oreille or the Pend Oreille River. Table 4-5 lists those water users and current contact information; Figure 4-7 shows their general location. These water systems are most likely to be adversely affected by a nearby hazardous material spill. The strategy reports in Appendix B provide guidance for notifying and protecting these water systems and their sources. The remaining public water systems draw surface water from tributary streams that are not adjacent to the transportation corridors.

Bonner County also has several hundred private and public water system wells, and the list of those wells is dynamic. In the event of a hazardous material spill, the Idaho Department of Water Resources should be contacted so that they can assist in notifying nearby water users. Contact the drinking water supervisor in the Coeur d'Alene regional office at 208-769-1422.

Table 4-5: Public Water Systems Drawing Surface Water from Lake Pend Oreille or Pend Oreille River

Sector	Strategy Sheet Identifier (See Appendix B)	Public Water System Number	Public Water System Name	Administrative Contact Phone	Source Name
1A	US2 6.38	ID1090107	City of Priest River	208-448-2123	Pend Oreille River
2	US2 14.37	ID1090073	Laclede Water Dist.	208-265-4270	Pend Oreille River
2	US2 25.63	ID1090193	City of Dover	208-755-1116	Pend Oreille River
3B	US95 473.84	ID1090121	Sandpoint Public Works Dept.	208-263-3407	Lake Pend Oreille
4A	SR200 33.15	ID1090092	Oden Water Assn. Inc.	208-255-4001	Lake Pend Oreille
4A	SR200 41.28	ID1090132	Sunnyside Water Assn.	208-265-4270	Lake Pend Oreille
5	SR200 46.4	ID1090113	Red Fir Resort	208-264-5287	Lake Pend Oreille
5	SR200 48.08	ID1090057	Island View Resort	208-264-5509	Lake Pend Oreille
5	SR200 49.45	ID1090053	Kullyspell Estates	208-290-4184	Pend Oreille River
6	SR200 62.95	ID1090012	Cabinet Gorge Dam	208-266-1531	Lake Pend Oreille
7B	US95 472.98	ID1090129	Sourdough Point	208-265-4270	Lake Pend Oreille

Figure 4-7: Public Water Systems Drawing from Lake Pend Oreille and the Pend Oreille River



4.6 Equipment Cache

Three oil-spill response equipment caches are located in the Lake Pend Oreille region in Sandpoint, Bonners Ferry, and Cabinet Gorge Dam. Appendix D illustrates the current inventory of key items and provides the locations of the caches. The strategy reports in Appendix B indicate the location of the nearest equipment cache (see second page, left side of each strategy report). Additional equipment is available from the Regional Response Team 1 in Coeur d'Alene; their boom inventory is included in Appendix D.

Note that the equipment trailers do not have an assigned or designated tow vehicle to move the trailer. The written inventory provided for the various caches did not clearly quantify the amount of rope and line available.

A comparison of the inventory presented in Appendix D with the equipment needs stated in the prioritization tables (Section 4.4) reveals that the amount of boom and anchor posts available appears adequate for most anticipated needs. A notable exception, however, is the amount of boom needed for the Mouth of the Clark Fork (SR200 55.3), which requires over 8,000 ft of boom. Additionally, recovery devices, such as skimmers and vacuum trucks, are not staged within the Lake Pend Oreille region and would need to be obtained from outside the area. Table 4-6 lists some of the work boats available in the Lake Pend Oreille area that could be used to implement a hazardous material spill response.

Table 4-6: Available Work Boats for Boom Deployment

Boat Type	Most Common Location	Owner / Contact	Additional Equipment
Uncertain	Hope Basin	Idaho Fish and Game	Uncertain
28 ft	Coolin, ID	Bonner County Sheriff	2 ea 225 hp engines
23 ft	Riley Creek		Single 225 hp
26 ft	Dover, ID		Single 225 hp
28 ft	Waterlife		2 ea 225 hp engines
30 ft	Hope Basin		2 ea 225 hp engines
30 ft	Garfield Bay (year round availability)		2 ea 225 hp engines
18 ft	Trailerable—location varies		40 hp. Low draft
24 ft	Trailerable—location varies		Single 225 hp
2 ea Jet skies	Trailerable—location varies		Uncertain
Various private vessels	Various	U.S. Coast Guard Auxiliary ¹	Uncertain
Various	Hope, ID	Kramer Marina	Uncertain
Type 4 Fire Boat	Priest Lake	West Priest Lake Fire	Uncertain
27 ft. Boston Whaler	Sandpoint	Selkirk Fire Department	750 gpm midship pump
27 ft. Jet Boat²	Albeni Cove	West Pend Oreille Fire	1750 gpm fire pump 26 in. draft fully loaded
Fire Boat	Coolin-Cavanaugh Bay Priest Lake		Fire boat 385 gpm pump and fire hose
Fire Boat	North of the Narrows Priest Lake		350 gpm pump 400 ft 2.5 in. hose 200 ft 1.5 in. hose 400 ft 1.4 in. wildland hose 400 ft 1 in. wildland hose
<p>1. The local Coast Guard Auxiliary has numerous privately owned vessels that could be deployed for marine traffic control and ancillary duties but are unavailable for boom deployment. Activation is through the ICS and U.S. Coast Guard.</p> <p>2. As of May, 2017, this boat is in disrepair.</p>			

Additionally, there are numerous recreational and sport fishing boats that could become available when requested.

4.7 Evacuation Considerations

Recent experience with crude oil train accidents indicates that the average time between derailment and the onset of fire is less than 20 minutes. On several occasions, the fire started immediately. Once an oil train fire starts, it is extremely difficult to extinguish and has the propensity to spread to other rail cars, the surrounding occupied facilities, and adjacent landscapes. The initial response is almost always defensive until the fire cools sufficiently to begin offensive tactics.

One of the first considerations in response to oil train fires is evacuating people from the blast zone. The North American Emergency Response Guidebook recommends “initial evacuation for 800 meters (1/2 mile) in all directions” (U.S. Department of Transportation, 2016). This recommendation poses a unique problem for the cities in Bonner County because each city was developed adjacent to the rail lines; following the guidebook’s recommendation, approximately half of each city would need evacuation, depending on the accident location. Additionally, the evacuation routes out of the city are all two-lane roadways, most notably the long bridge on Sandpoint’s south side, which is a traffic bottleneck during high traffic flows.

A further complicating consideration is the predominance of high-occupancy facilities adjacent to the railroad tracks. Appendix E provides a series of maps showing the location of high-occupancy facilities and the rail lines. The appendix also includes the name and contact information for those facilities.

In accordance with the Bonner County Evacuation and Reception Plan, the governor of Idaho is responsible for issuing *mandatory* evacuation orders. Voluntary evacuation recommendations are made by the Bonner County Sheriff (Bonner County, 2010a), in coordination with the Bonner County Commissioners and Emergency Management. In the event of an oil train derailment, the Bonner County 9-1-1 Dispatch Center should immediately notify both the sheriff and the county commissioners; evacuation of the neighboring area should begin without delay. If resources are limited, evacuation considerations should take precedence over strategy deployment or offensive firefighting.

Due to the physical limitations of their occupants, hospitals, nursing homes, and assisted living facilities face a unique challenge in their ability to evacuate. Such facilities may need to shelter in place rather than evacuate.

Additional evacuation considerations are found in the Bonner County Evacuation and Reception Plan (Bonner County, 2010a).

4.8 Boat Ramps and Staging Areas

The Lake Pend Oreille region has at least 35 boat ramps scattered along the Clark Fork River, Pend Oreille River, and the lake itself. The boat ramps vary in quality and size. In addition, their usability is highly dependent on the lake’s water level. The USACE controls flow at Albeni Falls Dam such that the pool level varies between 2,051.5 ft and 2,062.5 ft above msl. Figure 4-1 shows the pool level throughout the water year. Most boat ramps are unusable below a lake elevation of 2,056 ft; thus, water access to deploy a hazardous material spill response is severely restricted between mid-October and mid-May. The only two boat ramps that are reliably suitable for year-round response deployment are located at Priest River and Hope Basin. Response time from those sites to an accident location may be further complicated by wind, weather, and occasionally ice.

Appendix F provides a summary of the boat ramps and marinas, as well as their mapped locations. Each marina and boat ramp is further detailed in the appendix.

The current water level information is available from the National Weather Service Advance Hydrologic Prediction Service at <http://water.weather.gov/ahps2/hydrograph.php?gage=hopi1&wfo=otx>.

4.9 Natural Gas Pipelines

TransCanada Pipeline Company operates a natural gas transmission pipeline that runs north to south in Bonner County. The pipeline generally parallels US 95 except near Sandpoint where it is located west of the city and crosses the Pend Oreille River in Dover. Figure 4-8 shows the approximate locations where the pipeline crosses a major highway or railroad track. These locations are tabulated in Table 4-7.

Table 4-7: Natural Gas Pipeline Crossings with Transportation Routes

Map Designator	GPS Coordinates	Nearest Response Strategy Location	Highway or Rail Crossing
A	48.500889, -116.446502	No nearby strategies	Close proximity to US 95 and rail lines
B	48.470561, -116.465927	No nearby strategies	Close proximity to US 95 and two rail lines
C	48.4272, -116.4923	No nearby strategies	Crosses county road NF 280 Two rail lines nearby.
D	48.344051, -116.547256	US 95 480.44 approximately 4800 ft to the north	US 95
E	48.32875, -116.558449	US95 478.53	West Bronx Rd and rail line
F	48.320165, -116.562083	US 478.53 US95 479.99	Schweitzer Mountain Rd and rail line
G	48.252148, -116.622774	US2 24.33 US2 24.89	US Highway 2 and rail line.
H	48.190075, -116.587701	No nearby strategies	US 95 and rail lines
I	48.015311, -116.655924	No nearby strategies	US 95 and rail lines

In the event of a spill in any of these areas, the pipeline company should be notified that emergency action may be needed. See the contact sheet inside the front cover.

Figure 4-8: Pipeline Crossings with Highway or Railroad



4.10 Other Geographic Response Plans—Rosetta Stone

BNSF Railway and MRL have also drafted geographic response plans for the Lake Pend Oreille region. As of June 2017, those plans differ in their completeness, scope, and, in some cases, response strategy approach. Most notably, the site identification nomenclature differs between the various GRPs. This GRP uses highway milepost numbers as the key designator to help local emergency responders. In contrast, the railroad GRPs use rail milepost numbers as their designator, and each railroad has a different milepost system.

The multiple nomenclatures could lead to confusion between emergency response teams. Appendix G correlates all of the strategies in each of the three GRPs for the Lake Pend Oreille region.

5 Shoreline Countermeasures

Shoreline countermeasures following an oil spill are a critical element in determining the ultimate environmental impact and cost resulting from a spill. Local response organizations and agencies have developed mechanisms for identifying shorelines requiring treatment, establishing treatment priorities, monitoring the effectiveness and impacts of treatment, and resolving problems as the treatment progresses.

The intended audience of this section is responders responsible for assessing and/or removing oil from shorelines.

The Northwest Area Committee has developed a manual and a series of matrices as tools for shoreline countermeasure response. In addition to the following text, recent information on shoreline countermeasures can be found in the Northwest Area Shoreline Countermeasures Manual (NWACP Section 9420), available at <http://www.rtt10nwac.com/NWACP/Default.aspx>. Each section of the manual has been adapted to the specific environments, priorities, and treatment methods appropriate to the planning area. These elements provide the information needed to select cleanup methods for specific combinations of shoreline and oil types.

Additionally, the National Oceanic and Atmospheric Administration has developed and maintains a Shoreline Assessment Manual, which describes the Shoreline Cleanup Assessment Techniques (SCAT) process and composition, SCAT roles and responsibilities, the methods and process for conducting shoreline assessment, and how to use the results to make cleanup decisions at oil spills. More information on shoreline assessment and the manual can be obtained at <http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/resources/shoreline-assessment-manual.html>.

5.1 Pend Oreille Shoreline Types

As of 2017, shoreline-type mapping has not been completed on Lake Pend Oreille or the Pend Oreille River. Until such an effort is undertaken, a series of photographs taken in the Pend Oreille region showing example shoreline types is included. These shoreline types can be matched with the shoreline countermeasures matrix to determine appropriate cleanup response. A full list of shoreline types is provided in Table 5-1, and selected examples are provided in the photos that follow.

The following text and photos are in draft form and are intended to serve as a training tool for countermeasure contingency planning and implementation for shoreline areas in EPA Region 10. Shoreline countermeasure processes evolve to reflect increasingly efficient treatment techniques. Accordingly, the following information will be altered as new information is added.

Table 5-1: Shoreline Types and Codes

Code	Lacustrine (Related to Lakes)	Riverine (Related to Rivers, Particularly Large Rivers)
1	Exposed rocky shores	Exposed rocky banks
1B	Exposed, solid human-made structures	Exposed, solid human-made structures
1C	Exposed rocky cliffs with boulder talus base	Exposed rocky cliffs with boulder talus base
2A	Shelving bedrock shores	Rocky shoals, bedrock ledges
3B	Eroding scarps in unconsolidated sediment	Exposed, eroding banks in unconsolidated sediments
4	Sand beaches	Sandy bars and gently sloping banks
5	Mixed sand and gravel beaches	Mixed sand and gravel bars and gently sloping banks
6A	Gravel beaches	Gravel bars and gently sloping banks
6B	Riprap	Riprap
7	Exposed tidal flats	N/A
8A	Sheltered scarps in bedrock, mud, or clay	N/A
8B	Sheltered, solid human-made structures	Sheltered, solid human-made structures
8C	Sheltered riprap	Sheltered riprap
8F	N/A	Vegetated, steeply sloping bluffs
9A	Sheltered sand/mud flats	N/A
9B	Vegetated low banks	Vegetated low banks
10B	Freshwater marshes	Freshwater marshes
10C	Swamps	Swamps
10D	Scrub-shrub wetlands	Scrub-shrub wetlands

Photo	Description
	<p>Shoreline Type 1: Exposed rocky banks</p>
	<p>Shoreline Type 1: Exposed rocky shores</p>



Shoreline Type 1B:
Exposed, solid human-made structures





Shoreline Type 3B:
Exposed, eroding banks in unconsolidated sediments



Shoreline Type 5:
Mixed sand and gravel beaches



Shoreline Type 5:
Mixed sand and gravel beaches



Preliminary Draft for Agency Review



Shoreline Type 6A:
Gravel bars and gently sloping banks



Shoreline Type 6A:
Gravel bars and gently sloping banks



Shoreline Type 6A:
Gravel bars and gently sloping banks



Shoreline Type 6B:
Riprap



Shoreline Type 6B:

Riprap



Preliminary Draft for Agency Review



Shoreline Type 8C:
Sheltered riprap



Shoreline Type 8F:
Vegetated, steeply sloping bluff



Shoreline Type 9A:
Sheltered sand/mud flats



Shoreline Type 9B:
Vegetated low banks



Shoreline Type 9B:
Vegetated low banks



Preliminary Draft for Agency Review



Shoreline Type 10B:
Freshwater marshes

Preliminary Draft for
Agency Review

6 Resources at Risk

The information presented in this section provides a summary of natural, cultural/historical, and economic resources at risk in the GRP coverage area and is intended to give responders enough detail to make them familiar with key resources that may need protection in the event of a spilled material release. Section 6 should not be considered a comprehensive list of natural, cultural, and economic resources in the GRP coverage area. EPA, USACE, USFS, U.S. Fish and Wildlife Service (USFWS), BLM, U.S. Bureau of Reclamation, U.S. Coast Guard, DEQ, IOEM, IDFG, Idaho Department of Water Resources, Idaho Department of Lands, Idaho Department of Health and Welfare, Kalispel Tribe, and Bonner County Emergency Management resource specialists and dam managers can provide additional information when contacted by responders.

6.1 Natural Resources

The GRP coverage area contains diverse landforms, waterbodies, and ecosystems heavily studied by a consortium of federal, state, tribal, local, and non-governmental entities. Description and manifest of each natural resource present, or potentially present, is outside the scope of this document. Additionally, natural resources, such as bull trout, westslope cutthroat trout, and seasonally migratory species, may be present in the GRP coverage area for portions of the year and absent during others.

The most ecologically productive areas on Lake Pend Oreille and Pend Oreille River are vegetated, shoreline habitats with complex morphology such as islands, marshes, and stream mouths. Notably, the Clark Fork and Pack River Deltas are considered high priority, sensitive areas to both fish and wildlife because the complex habitat that supports high biodiversity, multiple life stages, and is the funnel point for aquatic species migrating to and from the large watersheds feeding the deltas. These deltas continue to be the focus of multimillion dollar restoration efforts and furthermore provide public access for hunting, fishing, and recreation.

In the event of a spilled material release, emergency response managers are encouraged to engage biologists, entomologists, fisheries managers, and resource and technical specialists from federal, state, tribal, and county agencies to aid in determining which natural resources may be present and where, as well as which response efforts may warrant modification to increase sensitivity to a specific resource.

6.1.1 Fish Habitat Descriptions

Lake Pend Oreille contains a multitude of fish habitats. The shallow, nearshore waters most likely to be impacted by a spill provide spawning, nursery, and foraging habitats. Fisheries popular in these areas include bullhead (*Ameiurus melas*), crappie (*Pomoxis nigromaculatus*), perch (*Perca flavescens*), pumpkinseed (*Lepomis gibbosus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), and cutthroat trout provide a popular fishery. Shoreline vegetation provides shade, water quality benefits, and insect prey. Submerged wood and rocks provide shelter from predators and additional benthic

invertebrates for food. Shoreline and tributary gravel beds provide spawning habitat for kokanee, an economically important sport fish and ecologically key prey base for larger species from bull trout to bald eagles.

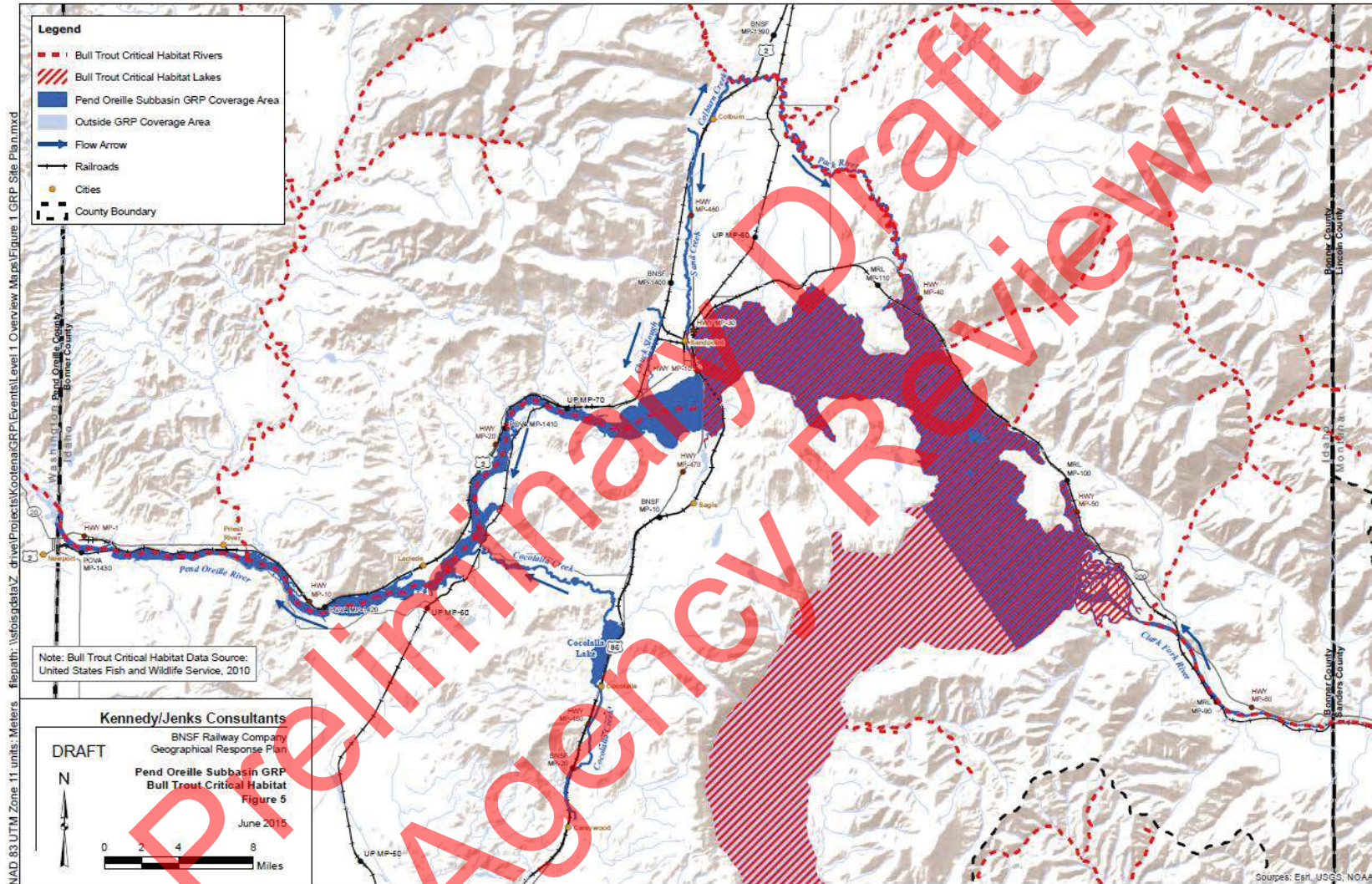
The 26-mile-long Pend Oreille River reach is a warm blackwater reservoir from June through September and cold, flowing river from October through May. Artificially high water from dam operations has eliminated the natural vegetative cover along the shoreline, causing severe erosion and losses to quality fish habitat. The lower portions of Sand and Schweitzer Creeks are similarly affected by dam operations, channelization, and shoreline armoring. River inundation has improved habitat conditions for warmwater gamefish such as bass and crappie. Rainbow, cutthroat, brown, and bull trout use these areas seasonally when the rivers are cold and flowing.

Pelagic (open-water) habitats contain deep, cold water refugia, a large prey base including mysid shrimp and zooplankton, and migratory corridors important for genetic dispersal.

Most Pend Oreille tributaries provide cold, well-oxygenated riverine habitat preferable to native species and introduced trout. Trestle Creek, Lightning Creek, and the Pack River and tributaries are currently considered the most productive tributaries for bull trout in the GRP coverage area. The Clark Fork River, Pend Oreille River, Lake Pend Oreille, and Priest River are also federally designated critical habitat for bull trout (Figure 6-1). Late summer through fall is a particularly vulnerable time for bull trout, when adults are staging at the mouths of Johnson Creek, Lightning Creek, Trestle Creek, Strong Creek, Priest River, and the Pack River.

Cocolalla Lake contains a mixed-bag fishery including trout, crappie, sunfish, bass, catfish, suckers, and bullhead. Cocolalla Creek is known to contain brown, rainbow, and cutthroat trout along with other nongame species.

Figure 6-1: Pend Oreille Sub-Area GRP Bull Trout Critical Habitat²



² Figure provided courtesy of BNSF Railway Company.

6.1.2 Fish

Anglers are estimated to spend over \$24,000,000 per year in Bonner County (IDFG, 2003). Fish in the GRP area are important ecological components of the region’s food web and are culturally important to local tribes and residents. Native salmonids are used as indicator species of clean, cold water.

This section addresses fish resources in the following areas: Lake Pend Oreille north of Granite Creek, Sand Creek from its confluence with Lake Pend Oreille upstream to its headwaters, Schweitzer Creek from its confluence with Sand Creek to North Boyer Road, and the Pend Oreille River from its confluence with Lake Pend Oreille downstream to the Albeni Falls Dam. Information included in this document is summarized from materials listed in the reference section.

No anadromous fish species are present in the Upper Pend Oreille Sub-Area due to hydroelectric facilities blocking fish passage. Native salmonids in the Pend Oreille watershed include bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*Oncorhynchus clarkii*), pygmy whitefish (*Prosopium coulterii*), and mountain whitefish (*Prosopium williamsoni*) (BPA et al., 2014). The remaining native species are several types of minnow, sculpin, and suckers. The recreational fishery includes many additional non-native species like basses, perch, and bullheads.

Four species in the Pend Oreille system are actively managed by IDFG. These fish species consist of westslope cutthroat trout, rainbow trout, kokanee, and bull trout. These species represent sensitive salmonid species with significant research and management focus and are discussed further below.

6.1.2.1 Endangered Species Act (ESA)-Listed Fish Species

The USFWS identifies federally threatened, endangered, and candidate species that are important for protection because of their greater possibility of extinction. Specific Endangered Species Act-listed fish species are identified in Table 6-1.

Table 6-1: Federally Listed ESA Fish Species within the GRP Coverage Area

Common Name	Scientific Name	ESA Status
Bull Trout	<i>Salvelinus confluentus</i>	Threatened

(USFWS, 2015a)

6.1.2.2 Westslope Cutthroat Trout

Westslope cutthroat trout (*Oncorhynchus clarki*) are abundant throughout the Upper Pend Oreille Sub-Area. The westslope cutthroat trout is a federal species of special concern. Cutthroat trout found in Lake Pend Oreille are adfluvial, which means they reside in the lake environment after maturity but migrate to tributary streams to spawn. The young remain in streams for 2 to 5 years then return to the lake. Spawning takes place in the spring from April to May in small tributary streams. Redds are developed in gravel and spawning occurs during the

day or night. Fry emerge from the gravel in June and July. Juvenile westslope cutthroat mature between 4 and 7 years of age. Juvenile cutthroat trout rear in their native stream. As the fish mature, some will migrate to the Lake Pend Oreille (adfluvial) or stay near their natal stream (resident). Cutthroat in Lake Pend Oreille are believed to use shoreline habitat rather than open, deep water habitat where large, predatory bull trout and lake trout occur. Cutthroat trout will be most sensitive to spill risk during the spring (April to early June) when upstream migration to headwater spawning streams may be blocked.

6.1.2.3 Rainbow Trout

Although rainbow trout (*Oncorhynchus mykiss*) are native to Idaho and common to many of the state's streams and lakes, they are not native to the Pend Oreille system (IDFG, 2013). Rainbow trout in the GRP coverage area are hatchery origin fish. Rainbow trout spawn in streams from mid-April to late June. They use areas of gravel or cobble, depending on the size of the fish. The eggs hatch in early to mid-summer. Young fish may live in the stream a few months, several years, or their entire life. When they mature and are ready to spawn, they migrate back to where they were born. Most rainbow trout require 3 to 5 years to mature. Rainbow trout eat insects and zooplankton in the water or on the surface. They will also feed on small fish and fish eggs.

6.1.2.4 Kokanee

Kokanee (*Onchorhynchus nerka*), the landlocked variant of sockeye salmon, are found in large, deep lakes and reservoirs across Idaho, including Lake Pend Oreille. Kokanee provide a major recreational fishery on Lake Pend Oreille and provide a food base for larger species from bull trout to bald eagle. Eggs are laid in gravel low in the tributaries or along the nearshore in gravel beds. Given these spawning habitat preferences, kokanee have a high risk of being affected by a spill during spawning and incubation periods, September through June. Kokanee spawn in tributary streams or along the shore of the lake. Migration to streams takes place from September through December, where kokanee dig redds similar to other salmonids and die after spawning. Kokanee that remain in the lake spawn on the rocky bottom of the lake. In early spring, fry emerge from the gravel, with those emerging in tributary streams moving downstream to Lake Pend Oreille at night. Juvenile kokanee prefer habitat in the middle of the lake rather than near shoreline habitat. Kokanee feed primarily on zooplankton and occasionally eat aquatic insects. During the summer, they prefer deep water habitat in the lake until dusk.

6.1.2.5 Bull Trout

Bull trout (*Salvelinus confluentus*) are currently listed as a federal threatened species under the ESA. Native to Idaho, bull trout occur in most of the mountain creeks, rivers, and lakes of the Upper Pend Oreille Sub-Area. Most of the waterbodies within the GRP coverage area are designated as critical habitat for bull trout under the ESA (Figure 6-1). Although they are widely distributed, bull trout are not abundant. The USFWS Bull Trout Recovery Plan (USFWS, 2015c) identifies Lake Pend Oreille as a primary core area for bull trout recovery. Adult upstream migration of bull trout takes place in the fall. Bull trout typically spawn between September and late December, with the peak spawning occurring in October in streams with cool water and

good gravel. After spawning, adults move into lakes or deeper pools to rest. The eggs hatch in the winter and the small fish live in the gravel until early spring. The juveniles may remain in the stream or migrate back to Lake Pend Oreille. Juvenile bull trout feed on aquatic insects.

Once in the lake, the fish sexually mature within 4 to 6 years. Adults are predatory, eating primarily the fish eggs of other fish. Adult bull trout may spawn several times during their lives, but may not spawn each year. Bull trout are primarily threatened by habitat degradation and fragmentation, blockage of migratory corridors, poor water quality, the effects of climate change, and past fisheries management practices, including the introduction of nonnative species, such as brown, lake, and brook trout (USFWS, 2014).

6.1.3 Avian and Terrestrial Species

Within the GRP coverage area, sightings or known distributions of ESA-listed species or Idaho's species of greatest conservation need consist of North American wolverine, Canada lynx, southern Selkirk Mountain woodland caribou, and grizzly bear. Of these listed species, none are associated with Lake Pend Oreille year round.

6.1.3.1 ESA-Listed Terrestrial Species

The USFWS identifies federally threatened, endangered, and candidate species that are important for protection because of their greater possibility of extinction. ESA-listed terrestrial species in the GRP coverage area are listed in Table 6-2.

Table 6-2: Federally Listed ESA Avian and Terrestrial Species within the GRP Coverage Area

Common Name	Scientific Name	ESA Status
Canada lynx	<i>Lynx canadensis</i>	Threatened
Grizzly bear	<i>Ursus arctos horribilis</i>	Threatened
Southern Selkirk Mountains woodland caribou	<i>Rangifer tarandus caribou</i>	Endangered
North American wolverine	<i>Gulo gulo luscus</i>	Proposed threatened

(USFWS, 2015a)

The lynx, grizzly bear, caribou, and wolf may be present in the northern reaches of Bonner County, but sightings adjacent to the transportation corridors of Lake Pend Oreille or the Pend Oreille River are highly unusual. Bald eagle sightings are common throughout the GRP coverage area.

6.1.3.2 Bald Eagle

Historically, bald eagles occurred throughout the United State in large numbers. Bald eagles were once listed as endangered. Species recovery has been tracked through breeding-pair surveys, nest monitoring, and winter roost surveys. In Idaho surveys, a recovery zone in the vicinity of the Pend Oreille River and Lake Pend Oreille has shown that populations of bald eagles have increased in recent years (IDFG, 2017).

The Lake Pend Oreille basin is part of Eagle Recovery Zone 7, which includes the panhandle of Idaho. In 1996, a statewide nesting survey found eight nesting territories in the vicinity of Lake Pend Oreille and the Pend Oreille River. Four nesting territories located around Lake Pend Oreille include Fisherman Island, Eaton Lake, Warren Island, and Oden Bay. Nesting territories identified along the Pend Oreille River include Cocolalla Slough, Morton Slough, Springy Point, and Shepherd Point. Seven of these nests were identified as occupied, and five were identified as successful in incubating eggs and fledging young.

Nests are located in the uppermost crotch of tall trees. Bald eagles incubate eggs for 45 days, and in about 8 weeks, young fledge from the nest. Eagles often migrate in the winter and roost and hunt in groups along waterways that have abundant food supplies, such as Lake Pend Oreille. Annually, large numbers of bald eagles migrate to Lake Pend Oreille to feed on spawned-out kokanee and waterfowl. The continued protection of bald eagle nesting areas and wintering habitat will allow for the continued recovery of bald eagle populations throughout Idaho, as well as the rest of the United States.

6.1.3.3 Canada Lynx

The Canada lynx is an ESA-listed threatened species and is on the Idaho list of species of greatest conservation need. Trapping and other data identify the lynx as occurring in Ferry, Pend Oreille, and Stevens Counties in Washington (Stinson, 2001). The lynx is also present in Idaho's Kootenai and Benewah Counties (IDFG, 2001) and is known to be present in the Selkirk and Cabinet mountain ranges and are known to migrate across the rail and highway corridors in Bonner County (personal communication from Kira Santari, IDFG).

The Canada lynx is closely associated with high-elevation forests, especially those dominated by lodge pole pine, subalpine fir, or Engelmann spruce (NPCC, 2005a). The lynx's key ecological function is consumer (predator) of herbivorous vertebrates, primarily snowshoe hare (NPCC, 2005a).

The Pend Oreille, San Poil, and Upper Columbia Subbasins overlap at least one of the six Lynx Management Zones (LMZs) or subsequent Lynx Analysis Units established by the Washington Department of Fish and Wildlife (Stinson, 2001). Even though LMZs do not encompass all areas potentially used by lynx, habitat management within these zones is expected to hold the greatest promise for supporting lynx populations (NPCC, 2005a).

Canada lynx habitat was not directly affected by construction of the Federal Columbia River Power System projects in the IMP. Indirect effects of the projects that have affected high-elevation forests include increased timber harvest, road development, and increased hunting and recreation pressure (NPCC, 2005a).

Lynx are affected by 1) prey availability—especially snowshoe hare—that is influenced by cyclic populations and habitat loss from timber harvest or insect infestation; 2) road development, which facilitates other carnivores and humans to reach formerly remote areas during winter; and 3) susceptibility to trapping, especially for kittens and yearlings (NPCC, 2005a).

6.1.3.4 Grizzly Bear

The grizzly bear is ESA-listed as threatened and is an Idaho species of greatest conservation need. Its historical range in North America extended from the mid-plains westward to the California coast and included the states of Idaho and Washington (NPCC, 2005a).

Currently, the grizzly is known to reside in the Selkirk and Cabinet-Yaak ecosystem (IGBC, 2017). Most of the Pend Oreille Subbasin is within the Selkirk Recovery Zone, and it also borders the Cabinet/Yaak Recovery Zone (NPCC, 2005a).

Federal recovery efforts in the Selkirk Recovery Zone include 1) population monitoring; 2) coordinated protection enforcement; 3) selective pest control; 4) reduction in human disturbance or habitat loss from timbering, livestock grazing, energy/mineral development, recreation, or land use zoning; and 5) public awareness. The primary limiting factors for grizzly bear recovery are accidental or purposeful human-caused mortality and loss of remaining habitat (NPCC, 2005a).

The grizzly provides at least six key ecological functions: 1) consumer or predator of herbivorous vertebrates, 2) consumer of carrion, 3) creator of large burrows used by other wildlife, 4) controller of terrestrial vertebrate populations via predation or displacement, 5) disperser of seeds/fruits via ingestion or caching, and 6) creator of feeding opportunities for other carnivores or scavengers. The bear has a strong and consistent relationship (direct consumer at specific stages in its life history or at specific seasons) with the spawning and carcass stages of salmonid life history (IBIS, 2003).

6.1.3.5 Woodland Caribou

The woodland caribou is listed as endangered by the federal government and is an Idaho species of greatest conservation need. Prior to 1900, this animal was distributed throughout much of Canada and the northern conterminous United States (NPCC, 2005a). The species occurred in Idaho as far south as the Salmon River (Evans, 1960). Presently, the last remaining woodland caribou population in the United States is restricted to the Selkirk Mountains of northeastern Washington, northern Idaho, and southeastern British Columbia (NPCC, 2005a). Though Southern Selkirk Mountains woodland caribou critical habitat does not include the GRP coverage area, U.S. counties in which the woodland caribou, Selkirk Mountain population, is known to or is believed to occur include Bonner County (USFWS, 2015b) but is not believed to occur near major transportation corridors.

The Southern Selkirk Mountains woodland caribou subpopulation was augmented between 1996 and 1998 with 43 caribou from British Columbia placed into Washington and immediately north of the border (Almack, 2001). Caribou recovery efforts are focused on maintaining two existing herds in the Selkirk ecosystem, establishing a third herd in Washington, and managing at least 443,000 acres of suitable and potential habitat (USFWS, 1993b). Managing human access, educating hunters, enforcing protective laws, and augmenting the population are also planned (NPCC, 2005a).

The caribou has a general association with wetland, riparian, and upland forest habitats, especially mature or old trees with abundant lichens, and provides at least four key ecological functions: 1) consumer of grasses, forbs, and woody leaves; 2) transporter of viable seeds, spores, plants, or animals; 3) disperser of lichens; and 4) creator of woody debris fragments (NPCC, 2005a).

Factors that limit caribou recovery are 1) excessive mortality—particularly for calves during their first few months—due to weather, predation, abandonment, poaching via road access, or accidents and 2) habitat fragmentation or loss, especially the continued availability of arboreal lichens (NPCC, 2005a).

6.1.3.6 Other Species of Interest

Though not ESA-listed within the GRP coverage area, the following terrestrial species may be of interest, either due to being ESA-listed in areas surrounding the GRP coverage area, recently de-listed, or having ecological, cultural, and/or recreational importance to the GRP coverage area itself.

Waterfowl are considered a flagship species in the GRP area. The waterfowl use of the GRP area typically peaks in November and December. Waterfowl numbers have been as high as 60,000 ducks, 15,000 Canada geese, and 2,000 tundra swans. Sites that typically support thousands of waterfowl during migration in the spring and fall include Morton Slough, Oden Bay, the Pack River Delta, Denton Slough, and the Clark Fork River Delta.

Waterfowl are important game and cultural species and are closely tied to emergent wetlands and open water habitats in Lake Pend Oreille and the Pend Oreille River. Approximately 40 species of waterfowl are associated with these waterbodies. Over 30 species of greatest conservation need have been identified in the Okanogan Highlands Ecological Section, which includes the GRP coverage area. Loons, grebes, cormorants, mergansers, ducks, geese, and tundra swans are among the many migratory waterfowl that are common within the Upper Pend Oreille Sub-Area.

The northern Idaho ground squirrel (*Spermophilus brunneus brunneus*) and the yellow-billed cuckoo (*Coccyzus americanus*) are federally listed as threatened in Idaho but are not known to occur within the GRP coverage area (USFWS, 2015b).

Other species of interest include the pygmy rabbit (*Brachylagus idahoensis*), American white pelican (*Pelecanus erythrorhynchos*), ferruginous hawk (*Buteo regalis*), fisher (*Martes pennanti*), northern leopard frog (*Rana pipiens*), peregrine falcon (*Falco peregrines*), sage grouse (*Centrocercus urophasianus*), sandhill crane (*Grus canadensis tabida*), Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*), and upland sandpiper (*Bartramia longicauda*) (Kennedy/Jenks, 2015).

Big game may be present in the GRP coverage area, particularly in the Wildlife Management Areas (WMAs) and agricultural fields. White-tailed deer, moose, elk, black bear, and mountain lion are highly valued by hunters and prioritized for management by IDFG biologists. Furbearers

including beaver, muskrat, river otter, bobcats, and raccoons are likely to utilize wetland habitats in the GRP coverage area.

6.1.3.7 Species most likely to be effected by a spill

The species of greatest conservation need most likely to be affected by a spill (based on habitat preferences) include the following aquatic, semi-aquatic, and riparian associated species: western toad, northern leopard frog, harlequin duck, common loon, western grebe, American bittern, black tern, olive-sided flycatcher, western pearlshell mussel, California floater, ridged mussel, and a mayfly (*Ephemera alleni*).

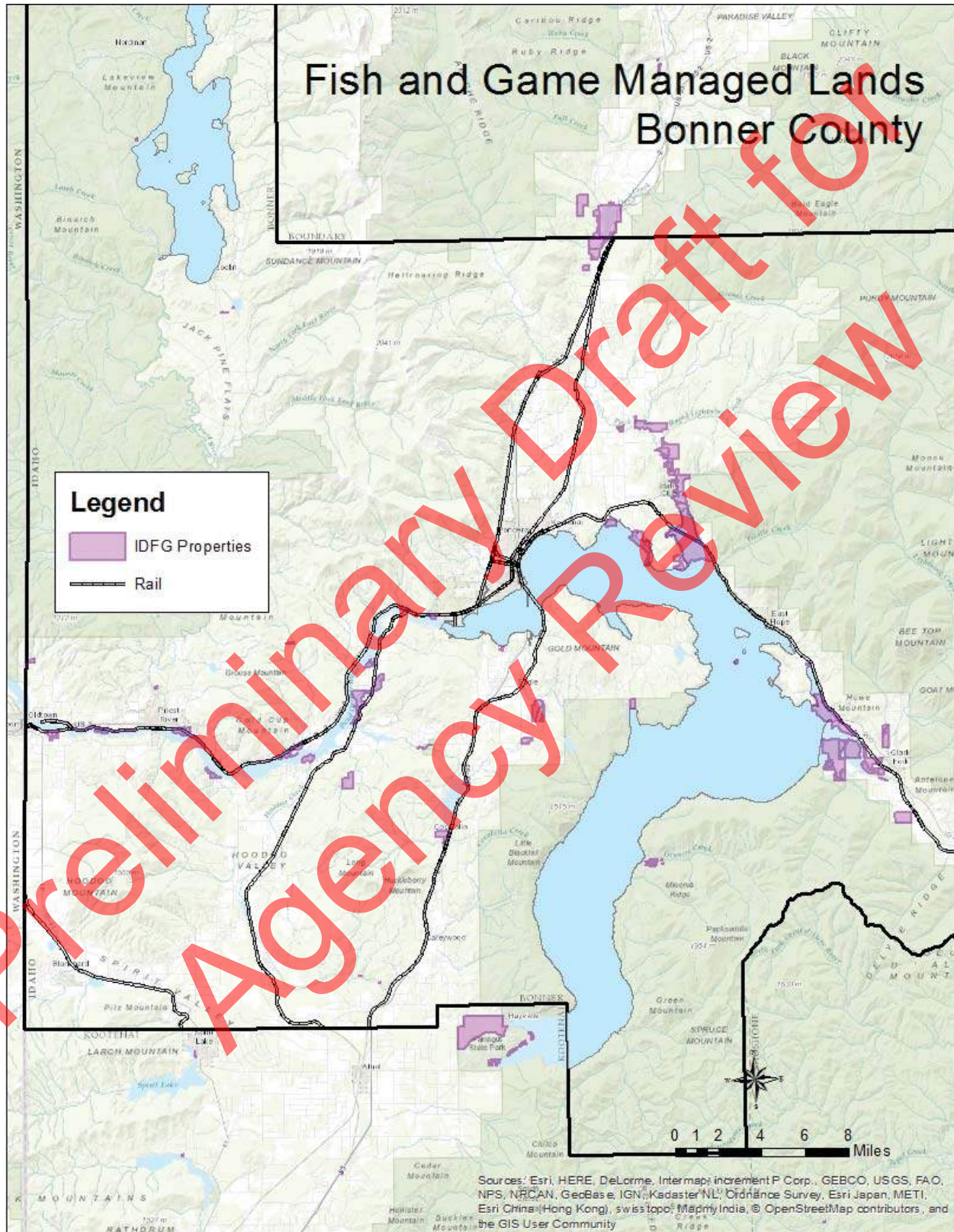
6.1.4 Wildlife Management and Protected Habitat Areas

6.1.4.1 Pend Oreille Wildlife Management Area

The Pend Oreille WMA is managed by IDFG and includes numerous sub-parcels scattered throughout the GRP coverage area. Figure 6-2 shows the approximate location of lands within the GRP coverage area that are managed by IDFG. IDFG manages approximately 6,000 acres along Lake Pend Oreille, the Pend Oreille River, the lower Pack River and the Clark Fork River. The majority of the sub-parcels have surface water connectivity to the GRP coverage area waterbodies.

The Pend Oreille WMA supports migrating and wintering waterfowl in large numbers. Tundra swans, Canada geese, American widgeon, redheads, mallards, common mergansers, common goldeneye, bufflehead, and ring-necked ducks are common. Areas of particular interest include Denton Slough for western grebe courtship displays and the Clark Fork River Delta for common loon watching (IDFG, 2015a).

Figure 6-2: Fish and Game Managed Lands, Bonner County



6.1.4.2 National Wildlife Refuges

No national wildlife refuges are present within the GRP coverage area.

6.1.4.3 Albeni Falls Wildlife Mitigation Project

The Albeni Falls Wildlife Mitigation Project was developed to protect, enhance, and maintain the long-term quality of wetland and riparian wildlife habitat in the Lake Pend Oreille vicinity as ongoing mitigation for construction of Albeni Falls Dam. The long-term conservation potential for the project is primarily protecting existing high-quality wetland habitat but also includes protecting habitat with high restoration potential (NPCC, 2005a).

Albeni Falls Interagency Work Group members include the IDFG, Coeur d'Alene Tribe, Kalispel Tribe of Indians, Kootenai Tribe of Idaho, USFWS, USACE, Natural Resources Conservation Services, and USFS. The work group established priority mitigation focus areas by considering in-place/in-kind opportunities, the threat to wetland plant communities in the primary areas of impact, juxtaposition to other management areas, and availability of protection opportunities. The work group implements the Albeni Falls Wildlife Mitigation Project by way of formal agreement and implements projects in the Upper Pend Oreille, Lower Pend Oreille, Priest River, Kootenai, and Coeur d'Alene subbasins (NPCC, 2005a).

Using Bonneville Power Administration (BPA) funds, the IDFG, in coordination with the work group, developed the Albeni Falls Wildlife Protection, Mitigation, and Enhancement Plan (Martin et al., 1988). The plan not only identifies the wildlife habitat benefits and impacts associated with the construction and operation of Albeni Falls Dam, but it also identifies potential areas to mitigate wildlife habitat losses. The BPA completed the Albeni Falls Wildlife Management Plan Environmental Assessment in 1996 (BPA, 1996). The plan is a programmatic guide to developing wildlife mitigation projects in the Upper Pend Oreille, Lower Pend Oreille, Priest River, Kootenai, and Coeur d'Alene subbasins (NPCC, 2005a).

6.1.4.4 Pack River Delta Restoration

The Pack River Delta is a unique wetland feature feeding into the north shore of Lake Pend Oreille. The Ducks Unlimited organization has been instrumental in coordinating its restoration. The following information was obtained from their website (Ducks Unlimited, 2017):

The Pack River is the second largest tributary to Lake Pend Oreille and drains more than 185,000 acres into what was once a large and diverse mosaic of forested islands, oxbow lakes, lush wetlands and braided river channels. The hope is that lessons learned from the Pack River project can be applied to restore the larger Clark Fork River delta. The Clark Fork River is the lake's largest tributary.

With the construction of Albeni Falls dam in 1955, much of the nearly 1,444-acre Pack River delta became submerged under several feet of water for much of the summer, dramatically changing the environment in the lower delta. In total, it is estimated that the construction of the dam resulted in the loss of 6,617 acres of wetland habitat and the inundation of 8,900 acres of deep-water marsh on the lake, impacting many resident and migrating birds, particularly waterfowl. One of the hardest hit was the wintering redhead duck population, which numbers in the tens of thousands.

The goal of the restoration project was to increase the height and stability of a portion of the summertime submerged islands to improve their ability to support high-value habitat for numerous species of

waterfowl and wildlife year-round. The first step was to reconstruct the islands and other physical features that once supported a system of intertwined wetlands and riparian habitats. This required moving large quantities of soil within the delta using excavators and dump trucks in sometimes challenging conditions.

Some of the native vegetation that once occupied these sites was then replanted in the form of seeds, plugs and cuttings. Emergent aquatic vegetation such as cattail and bulrush were planted along the island shorelines, while the islands were planted with thousands of willow, cottonwood, western red cedar and red-osier dogwood. To encourage settling of river sediments in the project area, some side channels were plugged with logs and stumps to replicate this important physical process. In time, this may cause the constructed islands to expand in size and additional islands to form naturally.

The project took place on lands owned by USACE and managed by IDFG. The project was completed in 2009. The lessons learned from the Pack River project were applied to restore the larger Clark Fork River Delta.

6.1.4.5 IDFG Clark Fork River Delta Restoration Project

The Clark Fork River is the principal tributary to Lake Pend Oreille, and the Clark Fork River Delta is the largest area of contiguous wetland complex in the Pend Oreille system. The delta forms where the Clark Fork River enters Lake Pend Oreille, about 3 miles west of Clark Fork, Idaho. The delta extends roughly 4 miles downriver from the town of Clark Fork and is approximately 3 miles wide where the delta meets the lake. About 80% of all water entering Lake Pend Oreille is from the Clark Fork River (Clark Fork Delta Restoration Project, 2016).

Shoreline erosion of the delta began with the operation of Albeni Falls Dam downstream and the two upstream dams at Cabinet Gorge and Noxon Rapids.

In conjunction with many partners and funding sources, IDFG began installing shoreline erosion control measures, installing structures to redirect local water flow, raising islands, deepening channels, establishing vegetation, and controlling weeds at the Clark Fork River Delta. The restoration is ongoing and is expected to reduce rates of erosion, reclaim wetland habitats, and improve habitat quality for fish, wildlife, and vegetation (BPA et al., 2014). Project work locations are indicated on Figure 6-3.

Additional discussion regarding the wetland qualities of the Clark Fork Delta are provided in Section 6.1.5.2 below.

Figure 6-3: Clark Fork Delta Restoration Project Areas



6.1.5 Wetlands

The Lake Pend Oreille region has numerous wetlands that provide critical habitat to many residential and migratory species. In addition, wetlands help maintain groundwater and stream flows, store flood runoff, and nurture and sustain critical ecosystems. Wetlands are highly prized by the citizens of Idaho for their inherent habitat value as well as their recreational opportunities.

In 2005, IDFG conducted a detailed assessment of the state's wetlands. The assessment evaluated the wetland type, function and value, and threat from various pollutants and human activities. The study produced a ranking of Idaho's wetlands. Ten of the over 200 wetlands evaluated are located in the Lake Pend Oreille region, and three of those were ranked in the state's top 10 wetlands (IDFG, 2005).

Figure 6-4 and Table 6-3 describe many of the wetlands in the Lake Pend Oreille region. The following paragraphs, extracted from the 2005 report, describe two of the key Lake Pend Oreille region's wetlands.

6.1.5.1 Hoodoo Lakes / Lambertson Lake / Kelso Lake

This wetland is located in the zone of glacial moraine deposits between the trench of Lake Pend Oreille and the outwash plains of the Rathdrum Prairie. This extensive chain of wetlands is situated in a landscape managed primarily for timber and hay production, along with extensive agricultural lands and roads. Wetlands are associated with glacial kettles, including at least six lakes, broad sedge and rush meadows (some of which are hayed), and streamside riparian

areas. Although the hydrology of the wetland is altered by drainage, forested swamps and extensive peatlands are still present. These wetlands support 14 rare species, including one of only a few bristly sedge occurrences in Idaho (at Hoodoo Lake), six rare communities, and seven ecological systems. Within the site, Lambertson Lake, a kettle lake, has the most extensive peatland and well-developed aquatic communities. Beaver, Round³, Granite, and Kelso Lakes are also included in the site because of their hydrologic connectivity and the presence of fen communities surrounding the lakes. The area has many recreational opportunities.

6.1.5.2 Clark Fork River Delta

The Clark Fork River forms a delta where it enters Lake Pend Oreille in a broad valley at the south end of the Cabinet Mountains and north end of the Coeur d'Alene Mountains. The numerous islands support mature western red cedar and grand fir forest, black cottonwood bottomland forest, willow and red-osier dogwood riparian shrub lands, and wet meadows. The wettest areas are dominated by marsh, while reed canarygrass (an invasive species) dominates many meadows, particularly when water levels have been manipulated. The wetlands support 15 rare species, 3 rare plant communities, and 6 ecological systems. Large numbers of migrating and wintering waterfowl (counts as high as 60,000 ducks [including 20,000 redheads], 15,000 Canada geese, and 2,000 tundra swans, as well as numerous grebe species and loons) utilize this area. Lake Pend Oreille is an important wintering area for bald eagles migrating south from Canada, with over 300 present in the delta by early December. Lake Pend Oreille is also an important nesting area for ospreys, with the greatest densities occurring in the Clark Fork River Delta. There is a high concentration of colonial nesting birds. Globally rare plant species are supported. The area has very high recreation opportunities. Agriculture as well as roads and water quality impairments are prevalent.

³ This Round lake is just east of Kelso Lake and should not be confused with Round Lake State Park which is located about 11 miles north-north east.

Figure 6-4: Priority Wetland Areas in the Lake Pend Oreille Region

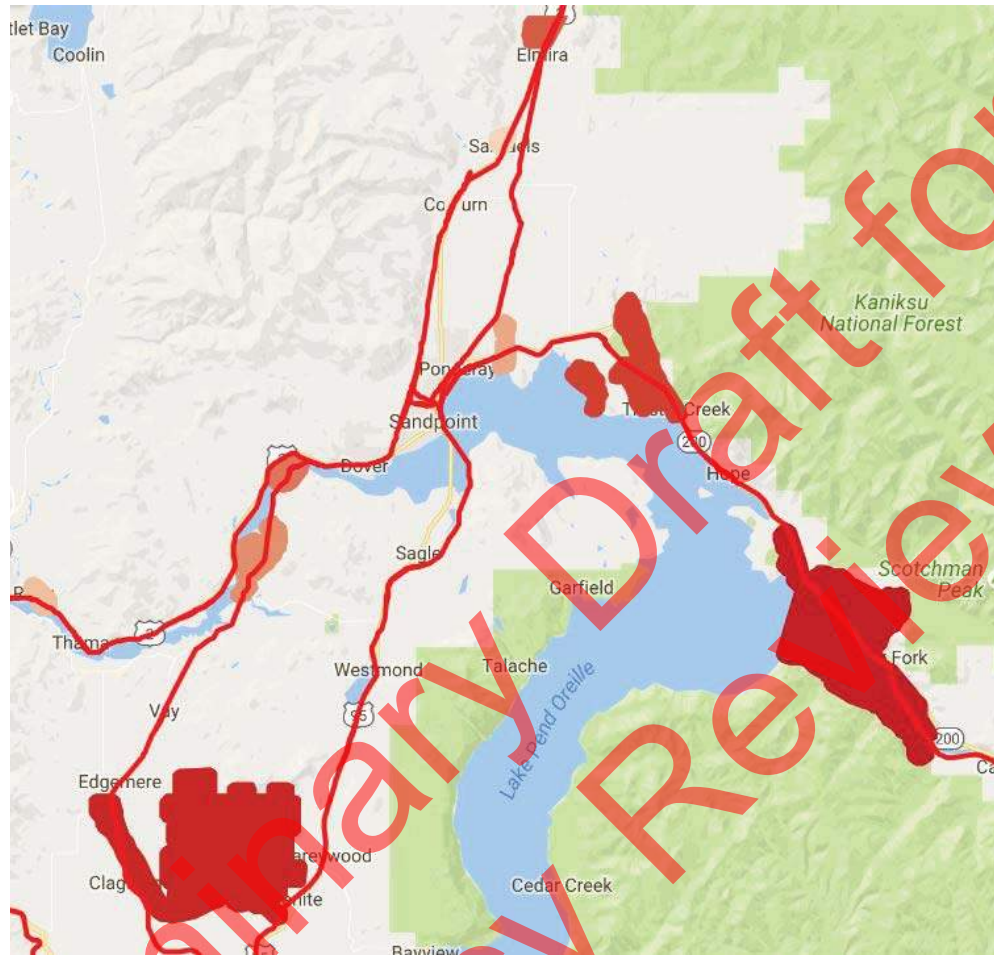


Table 6-3: Significant Wetlands in the Lake Pend Oreille Region

Wetland	General Location	Latitude	Longitude	Nearest Strategy Location
Clark Fork River Delta	Northwest of Clark Fork city	48.147750°	-116.189944°	See Section 4.3.1
Hoodoo Lake / Lambertson Lake / Kelso Lake Wetlands	North of SR 54, West of US 95	48.039325°	-116.749796°	None
Pack River	SR 200, 9 miles east of Sandpoint	48.301086°	-116.370692°	SR200 38.69 SR200 40.78
McArthur Lake	US 95, 13 miles north of Sandpoint	48.493628°	-116.463793°	None
Muskrat Lake	South side of Pend Oreille river, near UP Railroad bridge	48.247045°	-116.674878°	None
Morton Slough	South side of Pend Oreille River, northeast of Laclede	48.199635°	-116.698657°	US2 17.12
Boyer Slough	North shore of Lake Pend Oreille, 4 miles Northeast of Sandpoint	48.314240°	-116.491722°	SR200 33.15
Keyser's Slough	East of Priest River and Pend Oreille River confluence	48.177593°	-116.880588°	US2 7.59
Walsh Lake	West side of US 95, 9 miles north of Sandpoint	48.431866°	-116.496188°	None
Colburn Creek	West side of US 95, 8.2 miles north of Sandpoint	48.397705°	-116.536237°	US95 484.17
Cocolalla Lake	South end of Cocolalla Lake adjacent to BNSF line	48.1065°	-116.619°	US95 461.32

6.1.6 Rathdrum Prairie Aquifer

The Rathdrum Prairie Aquifer (RPA) is a deposit largely made up of sand, gravel, cobbles, and boulders. The RPA covers an area of approximately 211 square miles in Idaho and extends from the southern tip of Lake Pend Oreille south to Coeur d'Alene and Post Falls and then west to the Idaho-Washington border. The aquifer extends into Washington and becomes part of the larger

Spokane Valley-Rathdrum Prairie Aquifer. As shown in Figure 6-5, the northern area of the aquifer lies at the southern end of Bonner County.

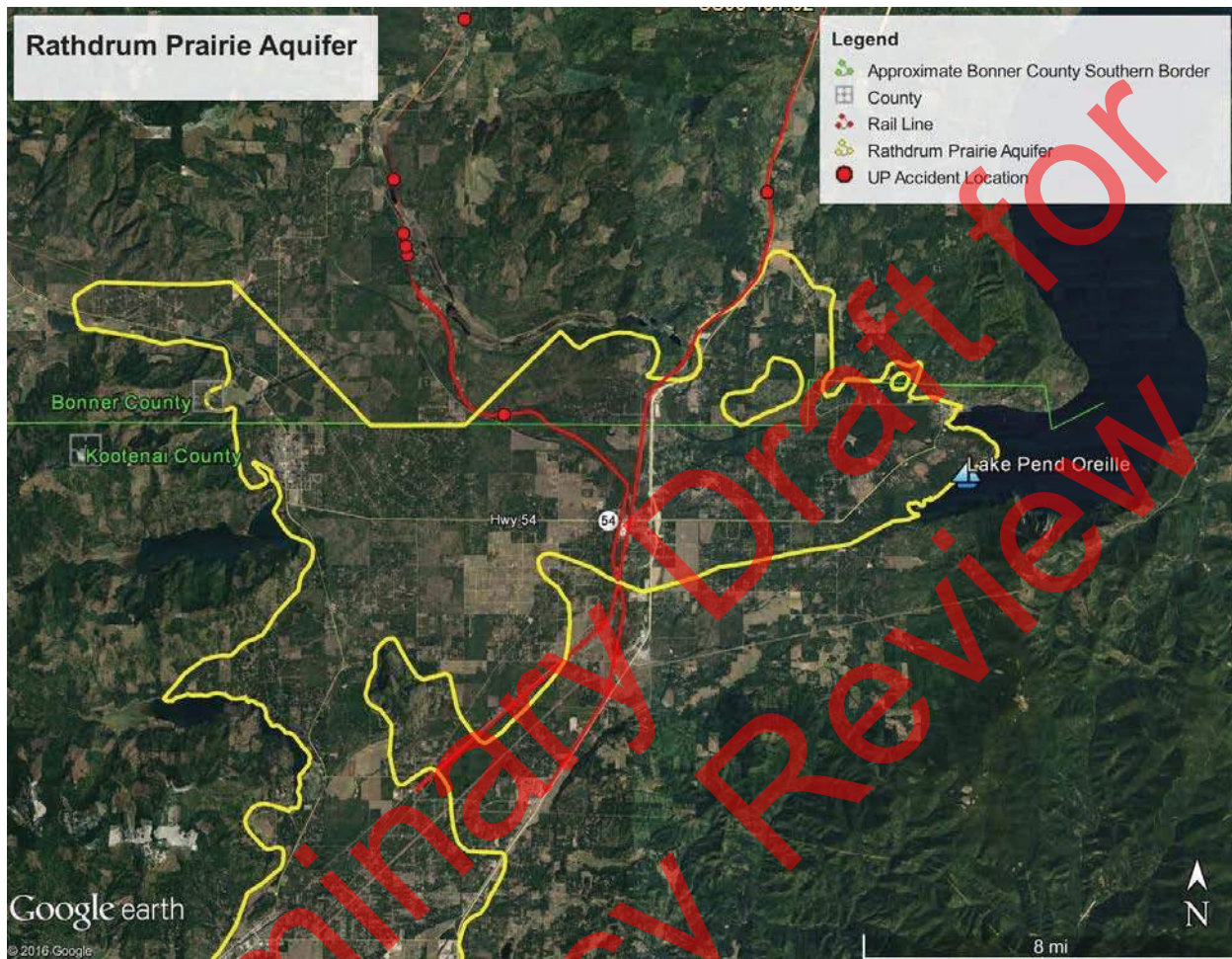
Water recharges the RPA through precipitation, runoff from the surrounding upland areas, and leakage from surrounding lakes, most notably, Lake Pend Oreille and Spirit Lake. The water table is at an elevation of about 2,060 ft above msl near Lake Pend Oreille and about 1,980 ft above msl at the Idaho-Washington state line.

The larger Spokane Valley-Rathdrum Prairie Aquifer supplies drinking water to approximately 100,000 people in Kootenai County, Idaho, and another 400,000 people in Spokane County, Washington.

DEQ has classified the RPA as a sensitive resource aquifer. Because of this classification, all activities that could impact the water quality of the RPA must be carried out so they maintain or improve existing quality of the groundwater. Additionally, EPA classifies the Spokane Valley-Rathdrum Prairie Aquifer as a “sole-source aquifer” (Stevens et al., 2015).

Although this GRP document focuses attention on response to hazardous material spills to surface waters, one must not forget the critical importance of protecting the Spokane Valley-Rathdrum Prairie aquifer. Remediating an oil spill to an underground resource can be significantly more complex than remediating above-ground contamination.

Figure 6-5: Rathdrum Prairie Aquifer



6.2 Cultural/Historical Resources

Research indicates humans have inhabited areas adjacent to the lower Clark Fork River for more than 7,000 years. Artifacts and evidence remaining on the shorelines provide a wealth of information about early inhabitants from Native American and prehistoric times to early-day fur trading and development of transportation (Avista Utilities, 2011).

Multiple federal, state, and tribal agencies, as well as non-governmental entities, support identification and protection of cultural resources within the GRP coverage area. Entities such as the National Register of Historic Places, SHPO, and USGS Geographic Names Information System have developed and/or provide resources such as cultural resources surveys, which can be used as an early indication of the presence or absence of listed cultural resources in or near a spill location. At this time, it is not known how many sites of historic or cultural importance exist in the Lake Pend Oreille and Pend Oreille River system (NWAC, 2005). This document does not locate sites specifically. However, due to fluctuating lake levels, there are known seasonal differences in sensitivity to cultural resources in the GRP coverage area.

To address the potential presence of cultural resources, it is recommended a representative of the Idaho SHPO be notified before spill cleanup commences. The SHPO may provide monitors to be present during cleanup operations (NWAC, 2005). Resource specialists—such as archeologists, anthropological historians, and object conservators—may be consulted, as appropriate, during spilled material releases to aid in determining which cultural resources may be present and in which areas, as well as which response efforts may warrant modification due to a specific cultural resource. Both the SHPO and the Kootenai Tribe should be contacted (see contact sheet).

6.2.1 Procedures for the Finding of Human Skeletal Remains

Any human remains, burial sites, or burial-related materials that are discovered during responses will be treated with respect at all times.

- If the SHPO monitor or any member of the response work force believes that he or she has encountered human skeletal remains, all work will be stopped immediately and the incident commander notified.
- The incident commander will be responsible for taking appropriate steps to protect the discovery. At a minimum, the immediate area of discovery will be flagged and vehicles and equipment will not be permitted to traverse the discovery site. In no case will further disturbance be performed prior to consultation, and no exposed human remains will be left unattended.
- The incident commander or representative will immediately contact SHPO and the Bonner County medical examiner. The medical examiner will determine whether the discovery is a crime scene or human burial.
- If the remains are determined to be Native American and not to be connected with criminal activity, the Idaho state archaeologist and incident command will confer on a treatment plan for the remains.
- If the remains are determined to be non-Native American or connected with criminal activity, the medical examiner will take charge.

6.2.2 Procedures for the Discovery of Cultural Resources

If the SHPO monitor or any member of the response work force believes that he or she has encountered cultural resources, all work will stop and the incident commander will be notified immediately. The area of work stoppage will be adequate to provide for the security, protection, and integrity of the materials. Prehistoric cultural resources may include the following:

- Lithic debitage (stone chips and other tool-making byproducts)
- Flaked or ground stone tools
- Exotic rocks and minerals
- Concentrations of organically stained sediments, charcoal, or ash
- Fire-modified rock
- Bone (burned, modified, or in association with other bone, artifacts, or features)

- Shell

Historic (i.e., over 50 years old) cultural material may include the following:

- Bottles or other glass
- Cans
- Ceramics
- Milled wood, brick, concrete, metal, or other building material

If the SHPO monitor believes that the discovery is a cultural resource, the incident commander will take appropriate steps to protect the discovery site. At a minimum, the immediate area of the discovery site will be flagged and vehicles and equipment will not be permitted to enter the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed.

- The incident commander or representative will contact the Idaho state archaeologist and arrange for the discovery to be evaluated by a professional archaeologist. The archaeologist will determine whether the discovery is potentially eligible for listing on the National Register of Historic Places (NRHP). Criteria and integrity requirements for listing on the NRHP (36 CFR 60.4) will provide the standards for identifying and evaluating the significance of cultural material.
- The archaeologist will consult with the Idaho state archaeologist regarding the NRHP eligibility of the discovery. If the SHPO determines that the discovery is eligible, they will consult with incident command to determine appropriate treatment of the discovery.

If adverse project impacts to an eligible site cannot be avoided, a treatment plan will be developed and implemented. The Secretary of the Interior's *Standards for Archaeological Documentation* will apply, including provisions for a research design, reporting, and curation of recovered material and samples (U.S. National Park Service, 2017).

The particular data recovery measures applied to any given historic property will depend on the development of research questions and design of excavation strategies to acquire the data needed to answer those questions. Field notes, maps, plans, profiles, and photographs will document the process. The final report will follow style guidelines of the professional archaeological journal *American Antiquity*; it will synthesize the data collected and address the research questions posed.

6.3 Economic Resources

For more than a century, Bonner County's economy depended almost entirely on logging and lumber mills. Over the past 20 years, the local economic base has shifted to a mixture of tourism, manufacturing, retail, and services.

Bonner County's recreational opportunities and quality of life have attracted thousands of new residents since the mid-1980s. Population growth spurred growth in the construction industry, retail stores, health care providers, public schools, service organizations, and government

agencies. The construction, finance, insurance, and real estate industries in Bonner County are nearly three times larger than they would be in most counties of its size due to the county's exceptionally strong population growth, the large number of vacation homes built, and the high level of commercial and industrial development over the last decade.

Tourism also grew rapidly in the late 1980s and early 1990s. Sandpoint's reputation as a haven for the arts also contributed to the growth of tourism, and the 1990 expansion of Schweitzer Mountain Resort boosted winter recreation.

More than a dozen manufacturers have relocated to the county since 2000. Between 2001 and 2004, Bonner County gained 500 jobs, experiencing growth of 36% in manufacturing jobs. The county's largest manufacturers that do not produce lumber or other wood products include Litehouse, Unicep Packaging, Encoder Products, Cygnus, Thorne Research Products, Diedrich Roasters, Quest Aircraft, Tamarack Aerospace Group, and Aerocet, Inc.

Over half (55 percent) of the Upper Pend Oreille Sub-Area is privately owned. The remaining land is managed by the USFS (25%), the state (7%), and BLM (1.6%). Major land uses in the sub-area include agricultural and timber production and recreational development. Only 12% of the drainage is open water (NPCC, 2005b). Near the lake and on its shore, private lands account for more than half of the ownership (NWAC, 2005). The east side of Lake Pend Oreille is predominantly USFS land.

Major economic resources in the Upper Pend Oreille Sub-Area that could be impacted by a spill are listed below. From upstream to downstream, the following major economic resources are present in the GRP coverage area.

6.3.1 Cabinet Gorge Dam and Reservoir

The Cabinet Gorge Dam and Reservoir is located on the Clark Fork River, 0.25 miles west of the Idaho-Montana state line and 20 miles downstream of the larger Noxon Rapids Dam. Operated by Avista Utilities for hydroelectric power generation (20,000 kilowatts), Cabinet Gorge lies 7.5 miles upstream of the town of Clark Fork and 11 miles upstream of Lake Pend Oreille. Cabinet Gorge impounds a 20-mile long reservoir containing approximately 105,000 acre-ft of storage at full pool elevation (2,175 ft) (Bonner County, 2010b).

The dam, a 395-foot concrete arch between two concrete abutments, is 208 ft tall at its highest point (Bonner County, 2010b). The dam/reservoir complex is designed to generate electricity and is not intended to provide significant floodwater storage or detainment (Avista Utilities, 2011). The spillway is controlled by eight vertical lift spill gates, each 40 ft wide by 35 ft high (Bonner County, 2010b). Dam outfalls cannot be turned completely off as a means to contain (soluble or entrained) spilled materials or slow their dispersal. In addition, operating requirements contained in the FERC licenses for these dams mandate minimum discharges (Avista Utilities, 2011). Since the dam outfalls are designed and operated in an underflow discharge configuration, with the exception of two small trash/debris gates, floating spilled materials could be captured, contained, and collected in the weir pool by temporarily closing the debris gates.

From a hydrologic perspective, this reservoir functions as a flowing section of river, with slow flow rates (less than 1 ft per second) in most places (Avista Utilities, 2011).

Response strategies MP 62.95 have been developed to address potential spilled material impacts to this resource.

6.3.2 Cabinet Gorge Fish Hatchery/Avista Utilities Fish Rearing Facility

Cabinet Gorge Fish Hatchery/Avista Utilities Fish Rearing Facility is located on the southern side of the Clark Fork River, approximately 8 miles southeast of Clark Fork. The hatchery was constructed in 1985 to mitigate for fish losses caused by the construction of hydroelectric dams on the Pend Oreille River system. The project was co-funded by Avista Utilities, BPA, and the IDFG. Water for fish rearing at the hatchery is supplied by six ground water well pumps. A total of 10,995 gallons per minute of water is supplied by these pumps and routed to 64 individual raceways. Each raceway can hold 250,000 two-inch kokanee salmon. The primary species of fish reared is kokanee salmon. The hatchery also houses the westslope cutthroat trout bloodstock for the state. Other species of fish raised are rainbow trout and fall Chinook salmon (IDFG, 2015b).

A notification and collection strategy at MP 61.63 has been developed as a means to notify the hatchery in the event of a spill and potentially collect spilled material.

6.3.3 Lake Pend Oreille

Lake Pend Oreille supports a significant sport fishery. In 1991, anglers expended an estimated 465,000 hours fishing the lake with approximately 65% of the effort targeting trout and 35% of the effort targeting kokanee (Paragamian and Ellis, 1994). The world record bull trout, 14.5 kilograms (kg) (32 pounds), and the world record rainbow trout, 16.8 kg (37 pounds), were taken from Lake Pend Oreille in 1949 and 1947, respectively. Current and planned fisheries management direction in Lake Pend Oreille emphasizes kokanee as a keystone species with bull trout and rainbow trout managed for a trophy fishery. Westslope cutthroat trout are managed primarily as a wild trout fishery with restrictive regulations (NPCC, 2005b).

6.3.4 Sandpoint Public Water System

The Sandpoint Public Water System is operated by the Sandpoint Public Works Department and supplies water to approximately 10,000 residents through approximately 4,500 service connections. From September through November each year, this system is supplied by water from Lake Pend Oreille through a submerged intake structure approximately 1,500 ft offshore near the Sandpoint City Beach. Normal water demand is met during the remainder of the year through their primary water supply intake on Little Sand Creek, which cannot be directly impacted by a rail-related spilled materials release due to its location at a higher elevation than the rail corridor. When Lake Pend Oreille is used as a water source, the system retains approximately 4 million gallons of water in reserve, which would last approximately 2 days if use restrictions are imposed (personal communication from Cody VanDyke, Public Works Director, Sandpoint).

Response strategy US95 473.84 has been developed to address potential spilled material impacts to this resource.

6.3.5 Sandpoint City Beach

Sandpoint City Beach, located at the eastern end of Bridge Street, is one of the oldest and best known parks in Sandpoint. The 18-acre park was donated to Sandpoint in 1922 by the Northern Pacific Railroad and is now one of the focal points of Sandpoint. It has been developed over the years by volunteer labor, donations, and city, county, state, and federal funds. The city beach is the busiest park in the city park system and is used for several community special events including a large arts and crafts fair hosted by Pend Oreille Arts Council and the Lion's Club 4th of July Fireworks.

Response strategy US95 473.9 has been developed to address potential spilled material impacts to this resource.

6.3.6 City of Dover Public Water System

The City of Dover Public Water System is operated by the City of Dover Water Department and supplies water to approximately 230 residents through 177 service connections. This system is supplied by water from the Pend Oreille River from a submerged intake structure located approximately 3,500 ft upstream of the Dover Bay Marina boat launch and approximately 250 ft offshore. The system retains approximately 400,000 gallons of water in reserve, which would last approximately 6 days during peak demand with no use restrictions imposed (personal communication from William C. Strand, PhD, System Manager, Dover).

Response strategy US2 25.63 has been developed to address potential spilled material impacts to this resource.

6.3.7 City of Laclede Public Water System

The City of Laclede Public Water System is operated by the Laclede Water District and supplies water to approximately 915 residents through approximately 340 service connections. This system is supplied by water from the Pend Oreille River from a submerged intake structure located approximately 160 ft offshore near the Laclede public boat launch (DEQ, 2001).

Response strategy US2 14.37 has been developed to address potential spilled material impacts to this resource.

6.3.8 Priest River Public Water Supply

Priest River Public Water Supply is operated by the Priest River Public Works Department and supplies water to approximately 2,150 residents through approximately 932 service connections. This system is supplied by water from the Pend Oreille River from a submerged intake structure located approximately 230 ft offshore near the Priest River public boat launch (DEQ, 2012).

Response strategy US2 6.38 has been developed to address potential spilled material impacts to this resource.

6.3.9 Waterlife Discovery Center

The Waterlife Discovery Center, previously known as the Sandpoint State Fish Hatchery, was built in 1909 by the IDFG, with partial funding from the local sportsmen's association.

The facility is located on a small bluff on the shores of the Pend Oreille River on Lakeshore Drive in Sandpoint. Spring water from a neighboring property is piped underground to supply water for the hatchery tanks and fish runway. However, because the water is too cold for successful aquaculture, the hatchery has been used primarily as a summer redistribution facility for rainbow trout (Sandpoint, 2015). The facility now houses a small museum and is used as an environmental educational facility for schools and conservation groups.

6.3.10 Albeni Falls Dam

Albeni Falls Dam is located on the Pend Oreille River approximately 6 miles west of Priest River. The 65-foot-high concrete dam was completed in 1952. It is owned by the USACE and operated for hydroelectric power (42,600 kilowatts). The dam also reduces the maximum lake level for flood control. The reservoir has a storage capacity of 1.56-million acre-ft of water and provides recreational areas for visitors (Bonner County, 2010b).

Since the dam outfalls are designed and operated in an underflow discharge configuration, with the exception of small trash/debris gates, low density spilled materials floating near the surface could be captured, contained, and collected in the weir pool by temporarily closing the debris gates.

Response strategies US2 2.21 and US2 2.19 have been developed to address potential spilled material impacts to this resource.

6.3.11 Seasonal/Private/Non-Municipal Water Systems

Seasonal/private/non-municipal water systems using Lake Pend Oreille as a water source include Island View Resort, Kullyspell Estates, Red Fir Resort, Sunnyside, Oden Bay, and Sourdough Point. Notification strategies have been developed to address these known seasonal/private/non-municipal water systems within the GRP coverage area. See additional discussion in Section 4.5.

6.3.12 Marinas

Lake Pend Oreille and the Pend Oreille River have six marinas that serve the boating needs of sport fisherman and recreational boaters. Four of those marinas can supply fuel. Appendix F highlights the marinas and indicates which ones provide services in addition to boat parking.

7 References

- Almack, J.A. 2001. Mountain caribou recovery in the southern Selkirk Mountains of Washington, Idaho, and British Columbia. Progress report Jan 1 through Dec 31, 2001. Washington Department of Fish and Wildlife, Olympia, Washington.
- Alt, D. 2001. Glacial Lake Missoula and Its Humongous Floods. Mountain Press Publishing Company: Missoula, Montana.
- Alt, D.D. and D.W. Hyndman. 1994. Roadside Geology of Washington. Mountain Press Publishing Company. Missoula, Montana.
- Avista Utilities. 2011. Geographic Response Plan – Lower Clark Fork River. Prepared for Sanders County Local Emergency Planning Committee. 140 pg.
- Bennett, D.H. and J.M. DuPont. 1993. Fish habitat associations of the Pend Oreille River, Idaho. University of Idaho, Project F-73-R-15, Prepared for: Idaho Department of Fish and Game, Boise.
- Bonner County. 2009. Bonner County Emergency Operations Plan. Retrieved from: <http://bonnercounty.us/wp-content/uploads/Emergency%20Managment/EOP%20Plan.pdf>
- Bonner County. 2010a. Bonner County Evacuation and Reception Plan. Bonner County, ID
- Bonner County. 2010b. All-Hazard Mitigation Plan; Bonner County and the Incorporated Cities of Clark Fork, Dover, East Hope, Hope, Kootenai, Old town, Ponderay, Priest River and Sandpoint. Retrieved from: <http://bonnercounty.us/wp-content/uploads/Emergency%20Managment/Final-Bonner-AHMP.pdf>
- Bonner County. 2010c. Internal Bonner County Hazardous Materials Flow Study Report Bonner County, ID September 8, 2010.
- BPA (Bonneville Power Administration). 1996. Albeni Falls Wildlife Management Plan - Preliminary Environmental Assessment (DOE/EA--1099).
- BPA (Bonneville Power Administration), U.S. Army Corps of Engineers, and U.S. Department of the Interior. 2014. Draft Environmental Assessment. NEPA Register Number: DOE/EA-1969
- Cameo Chemicals. 2017. Ammonium Nitrate, Liquid (Hot Concentrated Solution) Chemical Datasheet. Retrieved from <https://cameochemicals.noaa.gov/chemical/5397>.
- Clark Fork Delta Restoration Project. 2016. <http://clarkforkdelta.org>
- DEQ (Idaho Department of Environmental Quality). 2001. Source Water Assessment Summary Report for PWS# ID1090073, Retrieved from:

<http://www2.deq.idaho.gov/water/swaOnline/SurfaceWaterSummaryReport/ID1090073/E0005121>

DEQ (Idaho Department of Environmental Quality). 2012. Source Water Assessment Summary Report for PWS# ID1090107, Retrieved from:

<http://www2.deq.idaho.gov/water/swaOnline/SurfaceWaterSummaryReport/ID1090107/E0005120>

Ducks Unlimited. 2017. "Pilot Restoration Project Completed in Idaho Panhandle." Accessed from <http://www.ducks.org/idaho/idaho-conservation-projects/pilot-restoration-project-completed-in-idaho-panhandle> on May 30, 2017.

Entz, R. and J. Maroney. 2001. Draft Pend Oreille Subbasin Summary. Editor S. Stovall. Prepared for the Northwest Power Planning Council.

Evans, H.F. 1960. A preliminary investigation of caribou in the northwestern United States. M.S. Thesis, Montana State University, Missoula, MT. 145 pp.

Fredericks, J., M.A. Maiolie, and S. Elam. 1995. Kokanee impacts assessment and monitoring on Lake Pend Oreille, Idaho. Idaho Department of Fish and Game, Annual Progress Report to Bonneville Power Administration, Contract 94BI12917, Project 94-035, Portland, Oregon.

Frenzel, S.A. 1991. Hydrologic budgets, Pend Oreille Lake, Idaho, 1989-90. U.S. Geological Survey. Boise, Idaho.

Hoelscher, B. 1993. Pend Oreille Lake fishery assessment. Bonner and Kootenai Counties, Idaho. 1951-1989. Water Quality Status Report No. 102. Idaho Department of Health and Welfare Division of Environmental Quality. Boise, Idaho.

IBIS (Interactive Biodiversity Information System). 2003. Subbasin planning query for the Intermountain Province. Provided by Northwest Habitat Institute, Corvallis, Oregon. 25 May 2003.

IDFG (Idaho Department of Fish and Game). 2001. Distribution of special status animals by county. Retrieved from:

http://www2.state.id.us/fishgame/info/cdc/animals/animals_by_county.htm

IDFG (Idaho Department of Fish and Game). 2003. Economic Survey Report. Retrieved from:

<https://collaboration.idfg.idaho.gov/FisheriesTechnicalReports/Mgt08-129Grunder2003%20Economic%20Survey%20Report.pdf>

IDFG (Idaho Department of Fish and Game). 2005. Idaho Wetland Conservation Prioritization Plan. Retrieved from: https://fishandgame.idaho.gov/ifwis/idnhp/cdc_pdf/u05hah01idus.pdf

IDFG (Idaho Department of Fish and Game). 2015a. Wildlife Management Areas. Retrieved from: <http://fishandgame.idaho.gov/public/wildlife/wma/>

IDFG (Idaho Department of Fish and Game). 2015b. Cabinet Gorge Fish Hatchery. Retrieved from: <http://fishandgame.idaho.gov/public/fish/?getPage=89>

IDFG (Idaho Department of Fish and Game). 2017. Celebrating the Nation's Icon. Retrieved from: <https://fishandgame.idaho.gov/content/75th-celebration-story/celebrating-nations-icon>

IGBC (Interagency Grizzly Bear Committee). 2017 Retrieved from <http://igbconline.org/selkirkcabinet-yaak/>

IOEM (Idaho Office of Emergency Management). 2013. Idaho Hazardous Materials / Weapons of Mass Destruction Incident Command and Response Support Plan. Retrieved from: Reference: <https://ioem.idaho.gov/Pages/HazardousMaterials/Plan.aspx>

IOEM (Idaho Office of Emergency Management). 2015. Idaho Emergency Operations Plan. Retrieved from: <https://ioem.idaho.gov/Pages/Plans/Documents/2015%20IDEOP.pdf>

Lee, K.H. and R.S. Lunetta. 1990. Watershed characterization of using Landsat Thematic mapper satellite imagery, Lake Pend Oreille, Idaho. US EPA Environmental Systems Monitoring Lab. Las Vegas, Nevada.

Kennedy/Jenks. 2015. Draft Pend Oreille Subbasin Geographical Response Plan prepared by Kennedy/Jenks Consultants for BNSF Railway Company. Helena MT. June 2015.

Martin, R.C., H.J. Hansen, G.A. Meuleman. 1988. Albeni Falls Wildlife Protection, Mitigation, and Enhancement Plan. Prepared by Idaho Fish and Game, Boise, Idaho for Bonneville Power Administration. August 1988.

NPCC (Northwest Power and Conservation Council). 2005a. Intermountain Province Subbasin Plan. In Columbia River Basin Fish and Wildlife Program. Portland, Oregon, 2005. Retrieved from: <http://www.nwcouncil.org/fw/subbasinplanning/intermountain/plan/>

NPCC (Northwest Power and Conservation Council). 2005b. Pend Oreille Subbasin Plan. In Columbia River Basin Fish and Wildlife Program. Portland, Oregon, 2005. Retrieved from: <http://www.nwcouncil.org/fw/subbasinplanning/intermountain/plan/>

Paragamian, V.L. and V.L. Ellis. 1994. Kokanee stock status and contribution of Cabinet Gorge Hatchery, Lake Pend Oreille, Idaho. Idaho Department of Fish and Game, Annual Report to Bonneville Power Administration, Project 85-339, Portland, Oregon.

PBTTAT (Panhandle Bull Trout Technical Advisory Team). 1998. Lake Pend Oreille key watershed: bull trout problem assessment (June 1998 draft). Lake Pend Oreille Watershed Advisory Group and Idaho Division of Environmental Quality, Boise, Idaho.

Rieman, B.E. and C.M. Falter. 1976. Lake Pend Oreille limnological studies. Idaho Department of Fish and Game, Federal Aid to Fish and Wildlife Restoration, Project F-53-R-10. Job Performance Report. Boise, Idaho.

Rosgen, D.L. 1994. A classification of natural rivers. *Catena* 22:169-199.

RRT/NWAC (Regional Response Team (Region 10) and the Northwest Area Committee). 2005. Pend Oreille Geographic Response Plan. Retrieved from: <http://www.rrt10nwac.com/Files/GRP/PendOreille.pdf>

RRT/NWAC (Regional Response Team (Region 10) and the Northwest Area Committee). Northwest Area Contingency Plan. 2017. Retrieved from: <http://rrt10nwac.com/>

Sandpoint. 2015. Waterlife Discovery Center: History of the Sandpoint Hatchery. Retrieved from: <http://www.sandpoint.com/go/discoverycenter/>

Savage, C.N. 1965. Geologic history of Pend Oreille Lake region in north Idaho. Pamphlet 134, Idaho Bureau of Mines and Geology, Moscow, Idaho.

Stevens, Gary et al. 2015. The Spokane Valley – Rathdrum Prairie Aquifer Atlas. Retrieved from: <http://www.spokaneaquifer.org/2015-aquifer-atlas/2015AquiferAtlas.html>

Stinson, D.W. 2001. Washington state recovery plan for the lynx. Washington Department of Fish and Wildlife, Olympia, Wash. 78 pp. + 5 maps.

U.S. Census. 2017. 2010 Population Data. Retrieved from: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml?src=bkml.

U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. 2016. Emergency Response Guidebook. Retrieved from: <http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2016.pdf>

U.S. National Park Service. 2017. Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines. Retrieved from: https://www.nps.gov/history/local-law/arch_stnds_1.htm

U.S. Senate. Committee on Public Works. 1949. Improvement at Albeni Falls on Pend Oreille River, Idaho. (81st Congress, 1st Session, Doc. No. 9). Washington: Government Printing Office.

USACE (U.S. Army Corp of Engineers). 2016. Retrieved from: http://www.nwd-wc.usace.army.mil/nws/hh/www/ESPTTraces/Pend_Oreille_9-14-2016.pdf

USFWS (U.S. Fish and Wildlife Service). 1953. An interim report on the fish and wildlife resources affected by the Albeni Falls project, Pend Oreille River, Idaho.

U.S. Fish and Wildlife Service. 1993a. Grizzly bear recovery plan. U.S. Fish and Wildlife Service, Missoula, Montana. 181 pp.

USFWS (U.S. Fish and Wildlife Service). 1993b. Recovery plan for woodland caribou in the Selkirk Mountains. U.S. Fish and Wildlife Service, Portland, Oregon. 71 pp.

USFWS (U.S. Fish and Wildlife Service). 2014. Critical Habitat for Bull Trout: Unit 30, Kootenai River Basin; Subunit: Kootenai River. Retrieved from: <http://www.fws.gov/pacific/bulltrout/>

USFWS (U.S. Fish and Wildlife Service). 2015a. FWS Critical Habitat for Threatened and Endangered Species: Critical Habitat Portal. Retrieved from: <http://ecos.fws.gov/crithab/>

USFWS (U.S. Fish and Wildlife Service). 2015b. Environmental Conservation Online System: Species Profile for Woodland Caribou. Retrieved from: <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?sPCODE=A088>

USFWS (U.S. Fish and Wildlife Service). 2015c. Recovery Plan for the Coterminous United States Population of Bull Trout. Retrieved from: https://www.fws.gov/pacific/bulltrout/pdf/Final_Bull_Trout_Recovery_Plan_092915.pdf

Weatherspark. 2017. Average Weather Summary for Sandpoint, Idaho. Retrieved from: <https://weatherspark.com/averages/31719/Sandpoint-Idaho-United-States>

Weitkamp, D.E., R.D. Sullivan, T. Swant, and J. DosSantos. 2003. Gas bubble disease in resident fish of the Lower Clark Fork River. Transactions of the American Fisheries Society 132:865-876.

8 Appendices

Preliminary Draft for
Agency Review

This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

Appendix A Responding to Releases

Responding to Petroleum Releases

Short-Term Actions

- Identify and mitigate fire, explosion, and vapor hazards. Some situations may require you to immediately notify your local fire department.
- Take immediate action to prevent any further release of petroleum into the environment.
- Report the release to the Idaho Department of Environmental Quality (DEQ) within 24 hours.
- Handle contaminated materials, including soil and water, in a responsible manner. This may require safely storing contaminated materials until proper disposal or treatment can be accomplished. Always avoid contaminating previously uncontaminated areas.
- Additional guidance may be obtained from IDEQ regional offices.
- Begin removing free product floating on ground water or in excavations as soon as possible.

Reporting Requirements for Petroleum Releases

Owners and operators of petroleum storage tank (PST) systems must report to DEQ within 24 hours if any of the following conditions occur.

Underground Releases

- A discovery by owners and operators or others of a petroleum release at the PST site or surrounding area. Discovery can include the presence of free product or dissolved product in nearby surface water or ground water or vapors in soils, basements, and sewer or utility lines.
- Unusual operating conditions observed by owners and operators. These conditions include erratic behavior of product dispensing equipment, sudden loss of product from the PST system or an unexplained presence of water in the PST system. However, no reporting is required if the PST system equipment is found to be defective but not leaking and is immediately repaired or replaced.
- Monitoring results from a release detection method that indicate a release may have occurred. However, no reporting is required if the monitoring device is found to be defective and is immediately repaired, recalibrated or replaced, and additional monitoring does not confirm a release or, in the case of inventory control, a second consecutive month of data does not confirm a release.

Above-Ground Spills and Overfills

- An above-ground spill or overfill of petroleum that results in a release to the environment which exceeds 25 gallons or causes a sheen on nearby surface water must be reported to DEQ within 24 hours.

- An above-ground spill or overflow of petroleum which is less than 25 gallons and does not cause a sheen on nearby surface water need only be reported to DEQ if cleanup cannot be completed within 24 hours.
- For specific reporting and release requirements from dielectric oil (mineral insulating oil) releases from electric equipment, see the Idaho Water Quality Standards & Wastewater Treatment Requirements (IDAPA 58.01.02.849).

To report a petroleum release to DEQ during regular business hours, contact the appropriate regional office at the number provided at the end of this information sheet.

Federal Reporting Requirements

Any person or organization responsible for a release or spill is also required to notify the federal government when the amount reaches a federally determined limit. Please go to the following U.S. Environmental Protection Agency web link to determine if a release requires federal reporting:

<https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release>

Responding to Hazardous Material Spills

DEQ rules define hazardous material as a material or combination of materials that, when discharged in any quantity into state waters, presents a substantial present or potential hazard to human health, the public health, or the environment.

Short-Term Actions

In the case of an unauthorized release of hazardous materials to state waters or to land such that there is a likelihood that it will enter state waters, the responsible persons in charge must:

- Make every reasonable effort to abate and stop a continuing spill
- Make every reasonable effort to contain spilled material in such a manner that it will not reach surface or ground waters of the state
- Collect, remove, and dispose of the spilled material in a manner approved by DEQ

Reporting Requirements for Hazardous Materials Spills

All Hazardous Material Releases

In the case of an unauthorized release of hazardous materials to state waters or to land such that there is likelihood that it will enter state waters, the responsible persons in charge must immediately notify DEQ or designated agent of the spills. This requirement applies regardless of any additional reporting done under the below requirements (IDAPA 58.01.02.850).

Releases Exceeding Reportable Quantity (Within a 24-Hour Period)

In the case of a release from a facility into the environment of a hazardous substance in excess of its reportable quantity (within a 24-hour period), the facility must immediately notify the National Response Center (NRC) or State Communications Center (StateComm) within a 24-hour period. Reportable Quantities for chemicals and hazardous wastes are found in 40 CFR §302.4.

Releases from LOGs and TSDFs

In the case of a Large Quantity Generators (LQGs) and Treatment, Storage, and Disposal Facilities (TSDFs), if the emergency coordinator (or designee) determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment outside the facility, the coordinator must: 1) notify appropriate local authorities if evacuation of local areas may be necessary and 2) notify the NRC and StateComm of the incident.

In addition, within 15 days of the incident, the LQG or TSDF must submit a written follow-up report to DEQ which includes the name, address, and telephone number of the owner/operator and the facility; the date, time and type of incident; the name and quantity of material(s) involved; the extent of any injuries, if any; an assessment of actual or potential hazards to human health or the environment; and estimated quantity and disposition of recovered material that resulted from the incident.

Releases from Hazardous Waste Tank Systems

If a facility has a release of hazardous waste from a tank system to the environment, they are required to notify the Department within 24 hours. If the release has been reported pursuant to 40 CFR Part 302 as noted above, that report will satisfy this requirement. Releases that are less than 1 pound and immediately contained and cleaned up are exempt from this reporting requirement.

In addition, within 30 days of detection of a release of hazardous waste from a tank system, a written follow-up report must be submitted to DEQ describing the likely route of migration of the release; the characteristics of the surrounding soil; results of any monitoring or sampling conducted in connection to the release; proximity to down gradient drinking water, surface water, and population areas; and a description of the actions taken or planned.

To report a spill or release to DEQ during regular business hours, contact the appropriate regional office at the number provided at the end of this information sheet.

Federal Reporting Requirements

Any person or organization responsible for a release or spill is also required to notify the federal government when the amount reaches a federally-determined limit. Please go to the following EPA web link to determine if a release requires federal reporting:

<https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release>

Release Reporting Phone Numbers

Idaho State Communication Center:

(800) 632-8000 (Calls from outside Idaho)

(208) 846-7610 (Calls from within Idaho)

National Response Center:

(800) 424-8802

Idaho Department of Environmental Quality:**DEQ State Office**

1410 N. Hilton
Boise, ID 83706
ph: (208) 373-0502
toll-free: (866) 790-4337

DEQ Boise Regional Office

1445 N. Orchard St.
Boise, ID 83706
ph: (208) 373-0550
fx: (208) 373-0287
toll-free: (888) 800-3480

DEQ Coeur d'Alene Regional Office

2110 Ironwood Parkway
Coeur d'Alene, ID 83814
ph: (208) 769-1422
fx: (208) 769-1404
toll-free: (877) 370-0017

DEQ Idaho Falls Regional Office

900 N. Skyline Drive, Suite B
Idaho Falls, ID 83402
ph: (208) 528-2650
fx: (208) 528-2695
toll-free: (800) 232-4635

DEQ Lewiston Regional Office

1118 F St.
Lewiston, ID 83501
ph: (208) 799-4370
fx: (208) 799-3451
toll-free: (877) 541-3304

DEQ Pocatello Regional Office

444 Hospital Way, #300
Pocatello, ID 83201
ph: (208) 236-6160
fx: (208) 236-6168
toll-free: (888) 655-6160

DEQ Twin Falls Regional Office

650 Addison Ave. West, Suite 110
Twin Falls, ID 83301
ph: (208) 736-2190
fx: (208) 736-2194
toll-free: (800) 270-1663

NOTE: For non-emergency petroleum releases that are immediately contained and do not present an imminent threat to human health or the environment that are discovered on weekends, holidays or after normal business hours, notification may be postponed until the next business day. Otherwise, afterhours petroleum releases should be reported to StateComm.

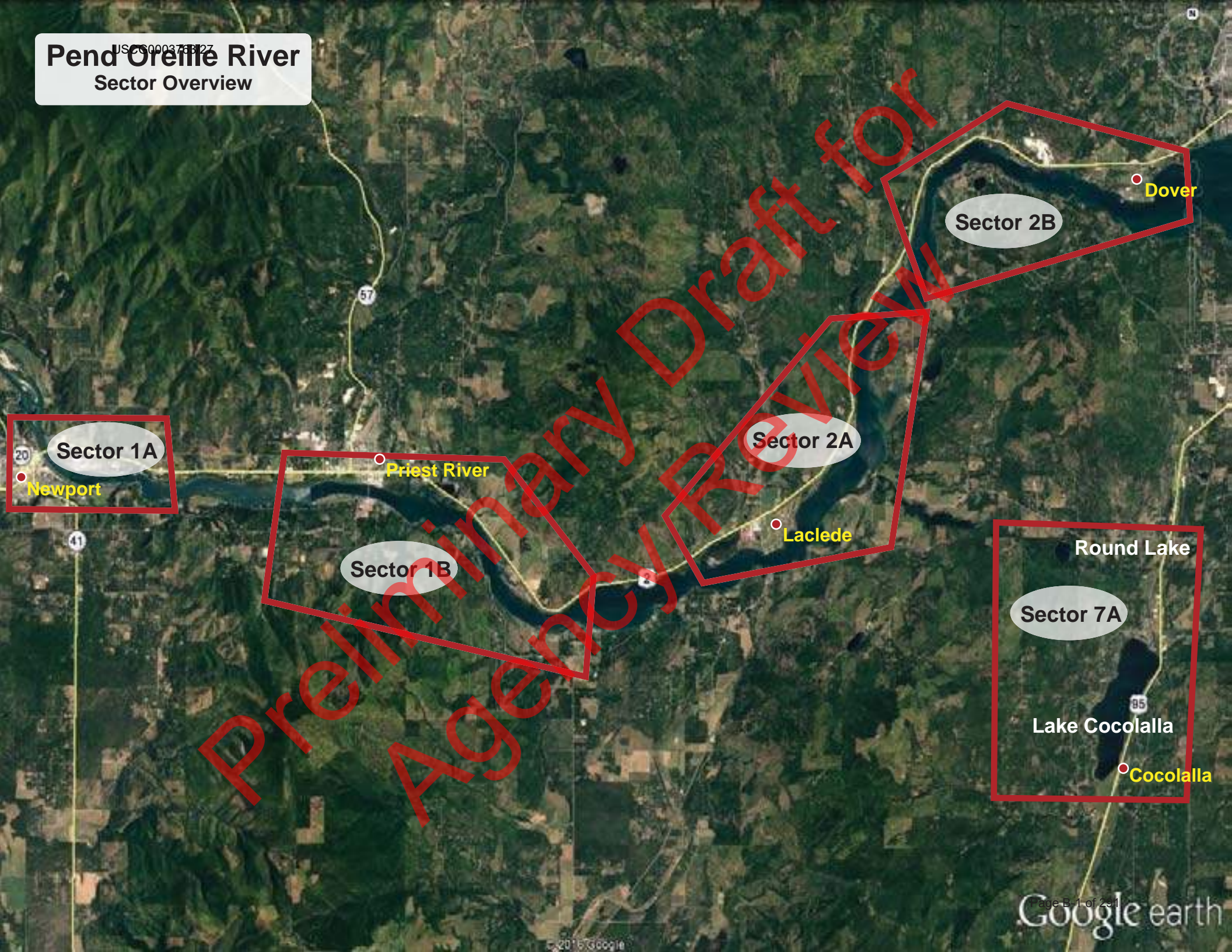
Appendix B Strategy Reports

Preliminary Draft for
Agency Review

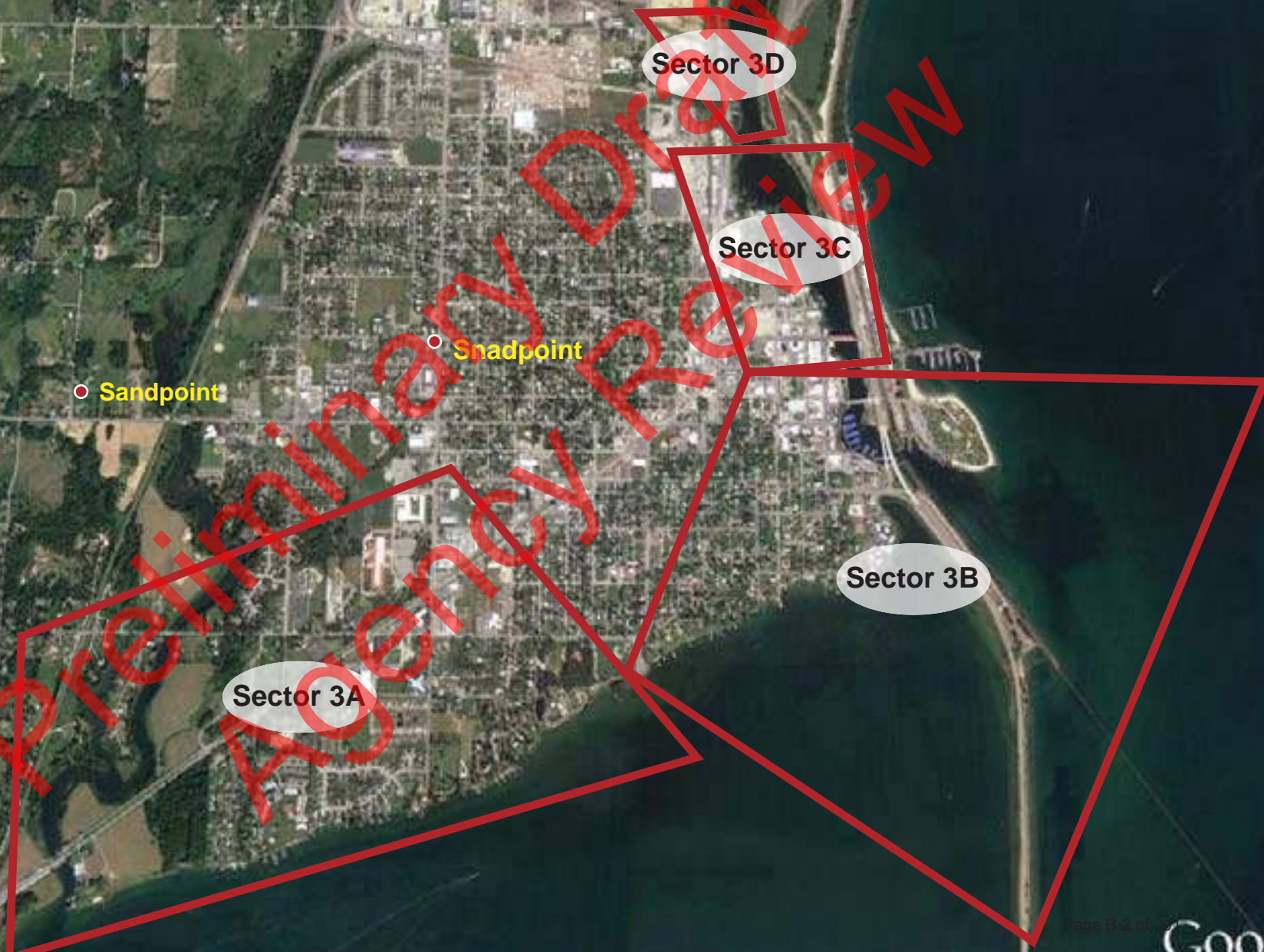
This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

USC 0000373127
Pend Oreille River
Sector Overview

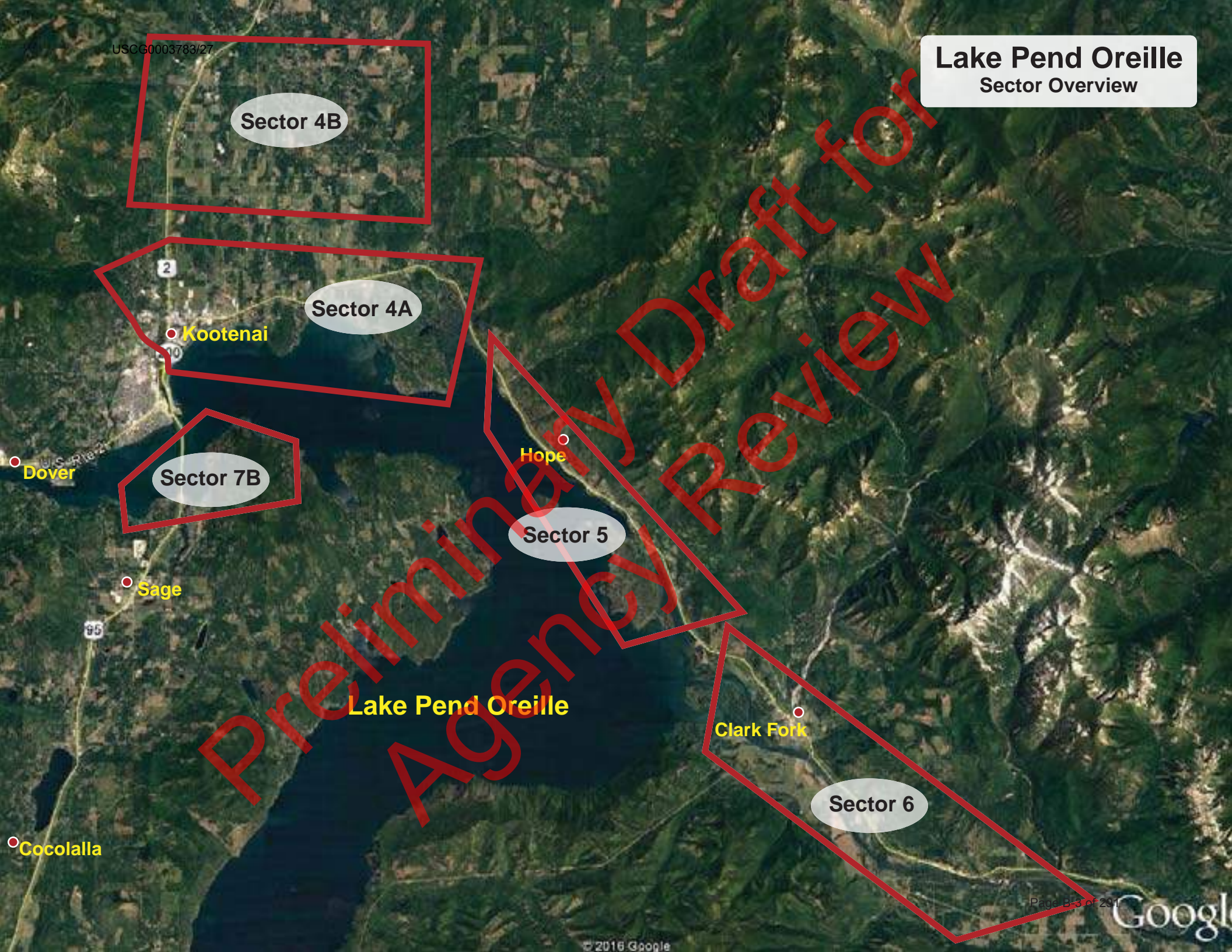


USCG 0003776/27
Lake Pend Oreille
Sector 3 Overview



Preliminary Agency Review

Lake Pend Oreille Sector Overview



USCG0003783/27

Sector 4B

2

Sector 4A

Kootenai

10

Dover

Sector 7B

Hope

Sector 5

Sage

85

Lake Pend Oreille

Clark Fork

Sector 6

Cocolalla

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 1A West Pend Oreille	US2 0.30	POVA 1430.86	Oldtown Boat Launch	Yes	US2 0.30
	US2 2.0	POVA 1428.7	Albeni Falls Dam	Uncertain	US2 2.0
	US2 2.21	POVA 1428.66	Albeni Cove Recreation Area	No	US2 2.21
Sector 1B West Pend Oreille Fire District	US2 5.73	POVA 1424.79	10th St Surface Water	Uncertain	US2 6.87
	US2 6.2	POVA 1424.31	Priest River- South	No	US2 6.38
	US2 6.38	POVA 1424.13	Priest River City Water Intake	Yes	US2 6.38
	US2 6.87	POVA 1423.64	Priest River Mouth	Yes	US2 6.87
	US2 7.59	POVA 1423.0	Priest River Mouth Slough	Unlikely	US2 6.87
	US2 10.19	POVA 1420.46	Carey Creek Game Management Area	Unlikely	US2 6.87
	US2 10.52	POVA 1420.12	Baylor Lane Slough	No	US2 13.49

Sector & Map	Site ID & Highway Milepost	Railroad Milepost		Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 2A Westside Fire District	US2 13.3	POVA 1417.28	Riley Creek Slough	No	US2 13.49
	US2 13.49	POVA 1417.06	Riley Creek Recreation Area	No	US2 13.49
	US2 14.37	POVA 1416.24	Laclede Public Water Supply	Yes	US2 14.37
	US2 16.06	UP Spokane RR 62.78	Cocolalla Creek Mouth	Unlikely	US2 14.37
	US2 16.29	UP Spokane RR 63.14	Morton Slough Boat Launch	No	US2 16.29
	US2 17.12	POVA 1413.35	Morton Slough Game Management Area	No	US2 14.37
Sector 2B Westside Fire District	US2 20.71	POVA 1409.86	Bay near Muskrat Lake	No	US95 470.21
	US2 24.89	BNSF Newport 71.01	Dover Bay Slough	No	US2 25.15
	US2 25.16	BNSF Newport 71.31	Dover Bay Marina	No	US2 25.15
	US2 25.63	BSF Newport 71.87	Dover Bay Water Intake	Yes	US2 25.15

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
<u>Sector 3A</u> <u>Sandpoint</u>	US2 26.68	BNSF Newport 72.79	Chuck Slough	No	US2 25.15
	US2 27.07	BNSF Newport 73.29	Ontario St West	No	US2 25.15
	US2 27.17	BNSF Newport 73.33	Ontario St East	No	US2 25.15
	US2 27.74	BNSF Spokane 3.32	S. Ella Ave Culvert	No	US95 473.87
<u>Sector 3B</u> <u>Sandpoint</u>	US2 28.02	BNSF Spokane 3.33	Memorial Park Culvert	No	US95 473.87
	US2 28.17	BNSF Spokane 3.35	S Euclid Ave Culvert	No	US95 473.87
	US2 28.31	BNSF Spokane 3.37	S 4th Ave Culvert	No	US95 473.87
	US2 28.36	BNSF Spokane 3.38	S 3rd Ave Culvert	No	US95 473.87
	US95 472.85	BNSF Spokane 4.28	Long Bridge	Yes	US95 471.08
	US95 473.84	BNSF Spokane 3.4	Sandpoint Public Works Water Intake	Yes	US95 473.87
	US95 473.9	BNSF Spokane 3.17	Sandpoint City Beach and Marina	Yes	US95 473.87
	US95 473.91	BNSF Spokane 3.29	Mouth of Sand Creek	Yes	US95 473.87
	US95 474.31	BNSF Spokane 3.13	Lower Sand Creek	No	US95 473.87

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 3C Sandpoint	US95 474.41	BNSF Spokane 3.02	E. Cedar St Culvert # 1	No	US95 473.87
	US95 474.45	BNSF Spokane 2.98	E. Cedar St Culvert # 2	No	US95 473.87
	US95 474.46	BNSF Spokane 2.97	E. Cedar St Culvert # 3	No	US95 473.87
	US95 474.78	BNSF Spokane 2.9	Alder St Culvert	No	US95 473.87
	US95 475.09	BNSF Kootenai 1402.96	N. 5th Ave Surface Water Outflow #1	No	US95 473.87
Sector 3D Sandpoint	US95 475.21	BNSF Kootenai 1402.75	N. 5th Ave Surface Water Outflow #2	No	US95 473.87
	US95 475.22	BNSF Kootenai 1402.74	N. 5th Ave Surface Water Outflow #3	No	US95 473.87
	US95 475.3	BNSF Kootenai 1402.66	Sand Creek Trestle	No	US95 473.87
	US95 475.32	BNSF Kootenai 1402.63	Visitor Center Culvert #1	No	US95 473.87
	US95 475.34	BNSF Kootenai 1402.6	Visitor Center Culvert #2	No	US95 473.87
	US95 475.4	BNSF Kootenai 1402.58	Visitor's Center Culvert # 3	No	US95 473.87
	US95 475.41	BNSF Kootenai 1402.55	Visitor's Center Culvert # 4	No	US95 473.87
	US95 475.42	BNSF Kootenai 1402.57	Baldy Mountain Rd Surface Water Outflow #2	No	US95 473.87
	US95 475.5	BNSF Kootenai 1402.53	Baldy Mountain Rd Surface Water Outflow #1	No	US95 473.87
	US95 475.53	BNSF Kootenai 1402.33	N. Boyer Ave and Baldy Mountain Rd.	No	US95 473.87

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 4A <u>Northside- (Lakeshore)</u>	US95 478.53	BNSF Kootenai 1399.09	Bronx Rd	No	US95 473.87
	US95 479.99	BNSF Kootenai 1399.67	Sand Creek Water Treatment Plant	No	Not applicable
	SR200 33.15	MRL4 114.92	Boyer Slough	No	none
	SR200 34.53	MRL4 113.5	Oden Water Assn Water Intake	Yes	SR200 42.59
	SR200 34.98	MRL4 113.0	Culver Slough	Unlikely	US95 473.87
	SR200 36.39	MRL4 109.77	Pend Orielle State Wildlife Management Area	Unlikely	uncertain
	SR200 38.69	MRL4 109.93	Pack River Bridge	No	SR200 42.59
	SR200 41.28	MRL4 107.49	Sunnyside Water Intake	Yes	SR200 41.38
Sector 4B <u>Northside- (Selle Valley)</u>	US95 480.44	BNSF Kootenai 1397.09	West Selle Rd	No	no boat access
	US95 484.17	BNSF Kootenai 1393.33	East Colburn	No	US95 473.87
	US95 485.77	BNSF Kootenai 1391.75	Lower Pack River	No	no boat access
	SR200 37.78	MRL4 111.05	Rapid Lightning Road Bridge	No	no boat access

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
<u>Sector 5</u> <u>Sam Owen</u>	SR200 40.78	MRL4 107.95	Pack River Trestle	Uncertain	SR200 42.59
	SR200 42.09	MRL4 106.71	Trestle Creek	Unlikely	SR200 42.59
	SR200 46.4	MRL4 102.4	Red Fir Resort Water Intake	Yes	SR200 47.9
	SR200 48.08	MRL4 100.86	Islandview Resort Water Intake	Yes	Sr200 47.9
	SR200 49.45	MRL4 99.36	Kullyspell Estates Water Intake	Yes	SR200 47.38 or SR200 49.46
	SR200 50.19	MRL4 98.52	David Thompson Wildlife Preserve	Unlikley	SR200 47.38
	SR200 50.4	MRL4 98.43	Denton Slough	Unlikely	SR200 51.69
<u>Sector 6</u> <u>Clark Fork</u>	SR200 54.83	MRL4 94.47	Johnson Creek Trestle	Unlikely	SR200 54.83
	SR200 56.05	MRL4 92.92	Clark Fork Bridge	Yes	SR200 57.07
	SR200 57.12	MRL4 91.79	Lower Fish Hatchery Slough	Uncertain	SR200 57.07
	SR200 58.62	MRL4 90.45	Upper Fish Hatchery Slough	Uncertain	uncertain
	SR200 60.79	MRL4 87.66	Clark for River Access	Yes	SR200 60.79
	SR200 61.63	MRL4 86.81	Cabinet Gorge Fish Hatchery	Yes	on site
	SR200 62.95	MRL4 85.35	Cabinet Gorge Dam	Yes	on site

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
<u>Sector 7A</u> <u>Sagle (South)</u>	US95 461.32	BNSF Spokane 16.94	Cocolalla Creek Trestle	No	US95 463.62
	US95 463.82	BNSF Spokane 14.22	Cocolalla Creek Outlet	No	US95 473.87
	US95 463.95	BNSF Spokane 14.07	Cocolalla Loop Rd Bridge	No	US95 473.87
	US95 465.11	BNSF Spokane 13.43	Round Lake	Yes	US95 465.12
<u>Sector 7B</u> <u>Sagle (North)</u>	US95 471.08	BNSF Spokane 6.7	Bottle Bay Bridge	No	on site
	US95 472.98	MRL4 4.89	Sourdough Point Water Intake	Yes	US95 472.98

Preliminary Draft for Agency Review

Preliminary Draft for
Agency Review

Cardboard
Sector 1

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
<u>Sector 1A</u> <u>West Pend Oreille</u>	US2 0.3 ⁰	POVA 1430.86	Oldtown Boat Launch	Yes	US2 0.37
	US2 2.0	POVA 1428.59	Albeni Falls Dam	Uncertain	US2 0.37
	US2 2.21	POVA 1428.66	Albeni Cove Recreation Area	No	US2 2.21
<u>Sector 1B</u> <u>West Pend Oreille Fire District</u>	US2 5.73	POVA 1424.79	10th St Surface Water	Uncertain	US2 6.87
	US2 6.2	POVA 1424.31	Priest River- South	No	US2 6.38
	US2 6.38	POVA 1424.13	Priest River City Water Intake	Yes	US2 6.38
	US2 6.87	POVA 1423.64	Priest River Mouth	Yes	US2 6.87
	US2 7.59	POVA 1423.0	Priest River Mouth Slough	Unlikely	US2 6.87
	US2 10.19	POVA 1420.46	Carey Creek Game Management Area	Unlikely	US2 6.38
	US2 10.52	POVA 1420.12	Baylor Lane Slough	No	US2 13.49

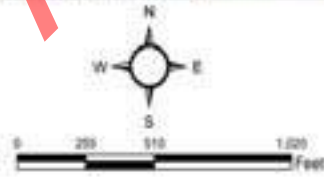




Site Lat Long:	48.185324 -117.031909 (http://www.google.com/maps/place/48.185324,-117.031909)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Pend Oreille River flow direction is to the northwest. Deploy collection boom and initiate contaminant recovery at Oldtown. Secure upstream end of boom River Left to tree. Secure downstream end of boom River Right to steel post. Vacuum truck access is good. Notify City of Oldtown.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking area for vehicles and equipment adjacent to boat ramp. Concrete boat launch. Oldtown boat launch is on site.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Bull Trout Critical Habitat, downstream municipal and irrigation water supplies, wildlife habitat, recreation.
Watercourse:	Lake Pend Oreille: gradient is low; substrate is sand; approx. width is 1000 ft.; approx. depth is 10 to 20 feet; channelized; slow moving.



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
● Anchor Point	— Major Road
● Highway Milepost	

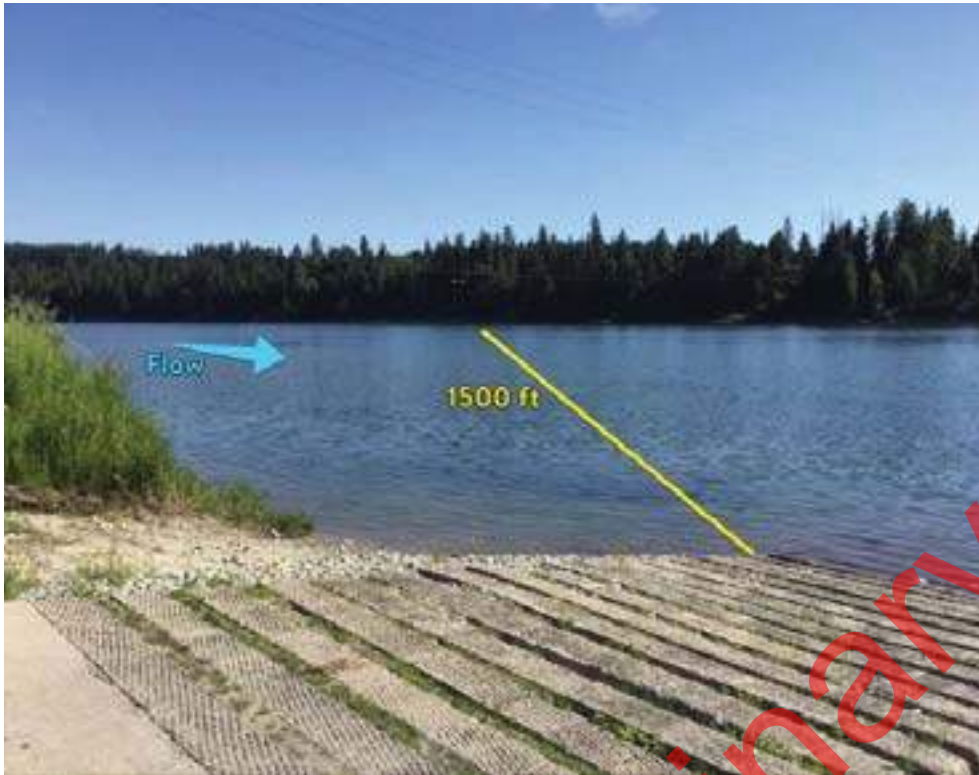


Suggested Equipment

Quantity	Description
1500 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck
2000 ft.	Polypropylene Line
9	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/>	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (27.8 miles)
Second Cache: Bonners (61.2 miles)

Nearest Address: 68 Rd Old Diamond Mill
Oldtown ID 83822

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St. - 0.2 mi
2. Turn right onto US 2 W/Pine St - 27.8 mi
3. Turn left at Selkirk Way - 151 ft
4. Turn right onto Old Diamond Mill Rd - 0.3 mi



View from boat ramp and collection point looking upstream toward River left anchor.



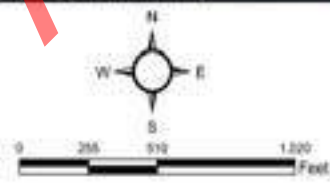
Boat ramp.

Preliminary Draft for Agency Review

Site Lat Long:	48.179406 -116.996052 (http://www.google.com/maps/place/48.179406,-116.996052)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Pend Oreille RIver flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Albeni Falls Dam. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Right to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking area near dam ranger station for vehicles and equipment. No boat ramp onsite. No boat launch facilities. Oldtown boat launch is 2.3 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use Albeni Cove Recreation Area Boat Ramp to implement strategy. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Albeni Falls Dam, Bull Trout Critical Habitat, downstream municipal and irrigation water supplies, wildlife habitat, recreation.
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. width is 1000 ft.; approx. depth is 10 to 20 feet; channelized; slow moving.

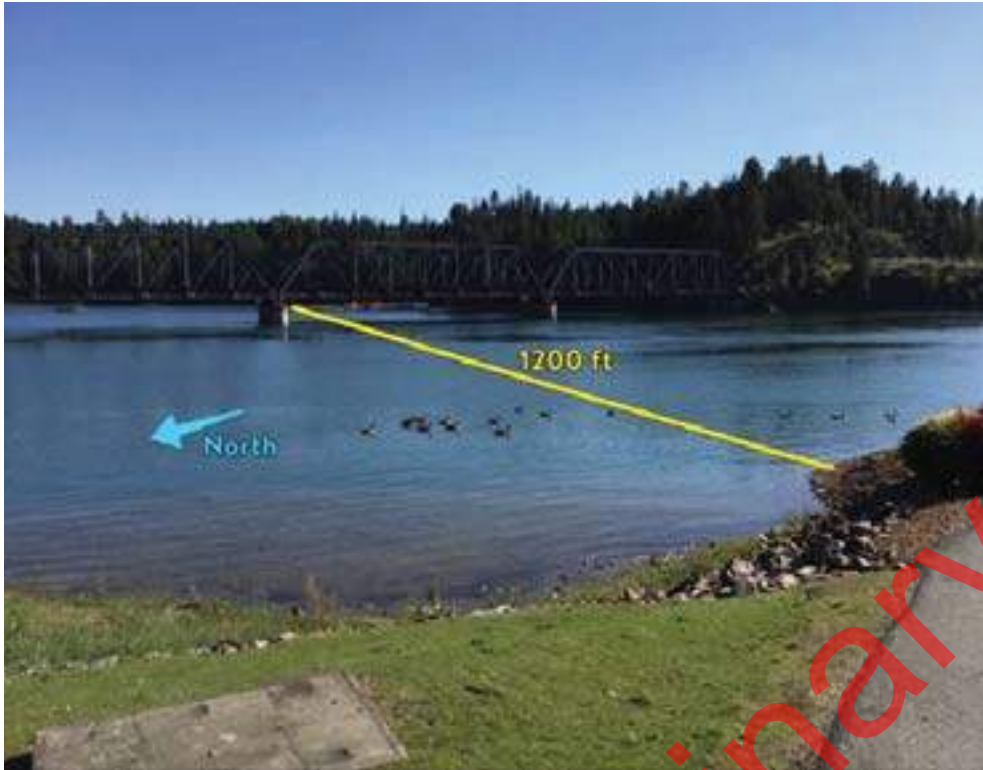


Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	
Collection Boom	
Deflection Boom	
Exclusion Boom	



Suggested Equipment	
Quantity	Description
1200 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck
1500 ft.	Polypropylene Line
12	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (26.0 miles)
Second Cache: Bonners (59.4 miles)

Nearest Address: 2289 Highway 2
Oldtown ID 83822

Site-Specific Points of Contact

Site Access

Sandpoint, ID

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 26.0 mi
3. Turn left 0.3 mi

Albeni Falls Dam, Idaho



Looking upstream towards River left anchors from collection point.

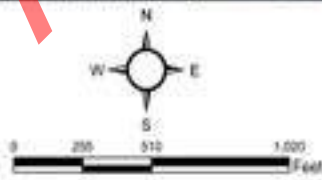


View of lower parking area with good vac truck access.

Site Lat Long:	48.176484 -116.997298 (http://www.google.com/maps/place/48.176484,-116.997298)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Albeni Cove Recreation Area. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large paved parking area for vehicles and equipment adjacent to boat ramp. Onsite boat ramp. Concrete boat launch. Albeni Cove boat launch is on site.
Field Notes:	<ul style="list-style-type: none"> Recreation area gate locked from 2200-0700. Sheriff Deputies and Campground Host have keys. Seasonal Boat Ramp 4WD Access: NO Seasonal Access Only: NO Locked Gate: YES
Resources Targeted:	Albeni Falls Dam, Bull Trout Critical Habitat, downstream municipal and irrigation water supplies, recreation, wildlife habitat.
Watercourse:	Lake Pend Oreille: gradient is low; substrate is sand; approx. width is 1000 ft.; approx. depth is 10 to 20 feet; channelized; slow moving.



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflector Boom
● Notification Only	— Exclusion Boom
◇ Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
2200 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck
2800 ft.	Polypropylene Line
24	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
4	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (28.7 miles)
 Second Cache: Bonners (62.1 miles)

Nearest Address: 741 Blackthorn Rd
 Oldtown ID 83822

Site-Specific Points of Contact

Need phone number for on-Site recreation manager.

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn right onto US-2 W/Pine St - 22.2 mi
 3. Turn left onto Wisconsin St - 0.4 mi
 4. Turn right onto Old Priest River Rd - 5.0 mi
 5. Turn right onto Blackthorne Rd - 0.8 mi
 6. Turn left to stay on Blackthorne Rd - 459 ft
 7. Continue straight onto Albeni Cove Rd - 0.3 mi
 8. Sharp left - 161 ft



Looking east toward upstream anchor from collection point near boat ramp.

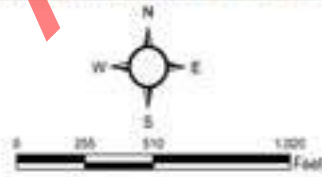


View of the boat ramp and parking area.

Site Lat Long:	48.177608 -116.918308 (http://www.google.com/maps/place/48.177608,-116.918308)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at 10th St Surface Water.
Implementation:	Prevent contaminant from impacting sensitive area at 10th St Surface Water. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Boat access only. No boat launch facilities. Priest River Mouth boat launch is 1.3 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Town drain pipe.
Watercourse:	Pend Oreille: gradient is low; substrate is sand; approx. width is 1125 ft.; approx. depth is 10 to 20 feet, channelized; slow moving.



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
150 ft.	Curtain Boom Tow Bridles
As Appropriate	
200 ft.	Polypropylene Line
24	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (22.5 miles)
Second Cache: Bonners (55.9 miles)

Nearest Address: 5678 US 2
Priest River ID 83856

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 22.2 mi
3. Turn left onto Wisconsin St - 0.2 mi
4. Turn left onto Railroad Ave - 394 ft

Railroad Avenue, Priest River, Idaho



Looking downriver at exclusion point, facing Northwest.



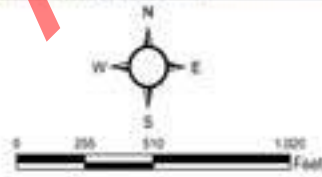
Looking at the exclusion point facing North.

Preliminary Draft for Agency Review

Site Lat Long:	48.174342 -116.908027 (http://www.google.com/maps/place/48.174342,-116.908027)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Priest River Alternate. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to rock. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Small pullout on north side of road on river left. Limited parking on narrow shoulder. No boat launch facilities. Priest River City boat launch is 0.5 miles away.
Field Notes:	<ul style="list-style-type: none"> Use Priest River Boat Ramp for strategy placement. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Bull Trout critical habitat, Albeni Falls Dam, wildlife habitat, municipal and irrigation water supplies, recreation.
Watercourse:	Lake Pend Oreille: gradient is low; substrate is sand; approx. width is 1125 ft.; approx. depth is 10 to 20 feet; channelized; slow moving.



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclosure Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	

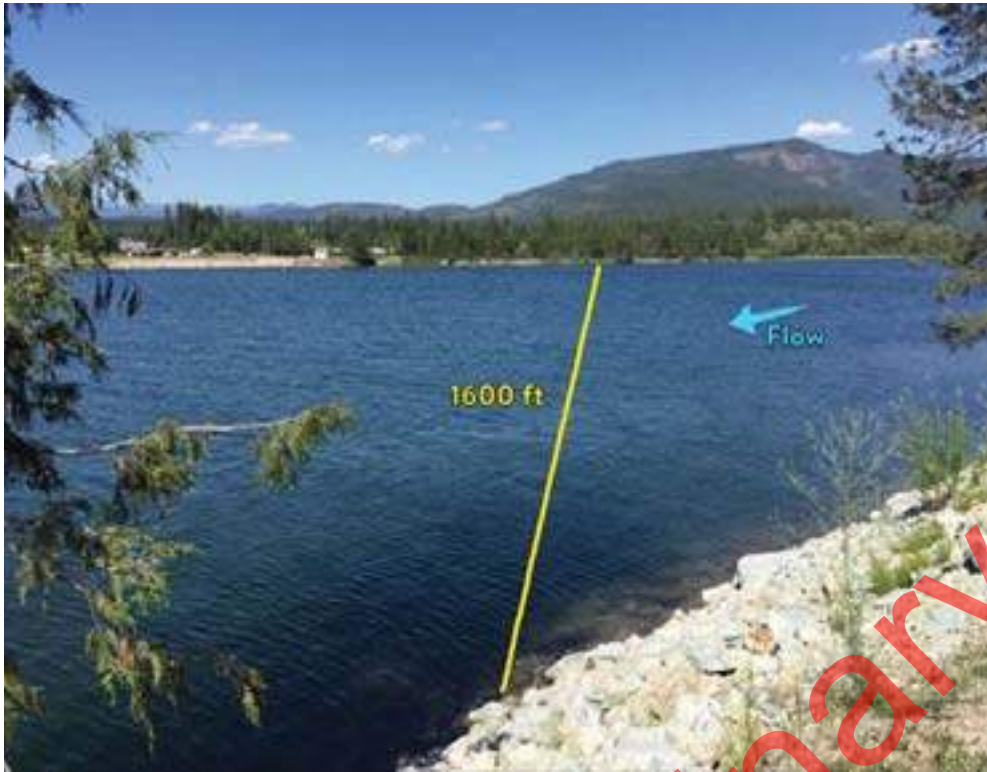


Suggested Equipment

Quantity	Description
1600 ft.	Curtain Boom Tow Bridles
As Appropriate	Vacuum Truck; Portable Skimmer
2000 ft.	Polypropylene Line
12	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (22.4 miles)
Second Cache: Bonners (55.9 miles)

Nearest Address: 17728 Dufort Road
Priest River ID 83856

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St- 22.2 mi
3. Turn left onto Wisconsin St- 0.4 mi
4. Turn right onto Dufort Rd- 276 ft

Priest River, Idaho

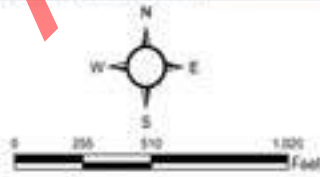


Looking upstream from River left collection point. Note the 20 foot rock bank down to water level.



Looking at the exclusion point facing North.

Site Lat Long:	48.176514 -116.904111 (http://www.google.com/maps/place/48.176514,-116.904111)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Priest River City Water Intake .
Implementation:	Pend Oreille river flow direction is to the west. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom Midstream to buoy. Vacuum truck access is good. Notify Priest River Intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large city park with large parking area and turnaround. Concrete boat launch. Priest River City boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> • Popular recreation site during summer months. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Public water supply
Watercourse:	Lake Pend Oreille: gradient is low; substrate is gravel; approx. depth is over 20 feet; slow moving



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	
700 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (22.4 miles)
Second Cache: Bonners (55.8 miles)

Nearest Address: Railroad Avenue
Priest River ID 83856

Site-Specific Points of Contact

Chris Carr (208) 448-2123

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 22.2 mi
3. Turn left onto Wisconsin St - 0.2 mi
4. Turn left onto Railroad Ave - 394 ft

Railroad Avenue, Priest River, Idaho



Looking North at boat ramp

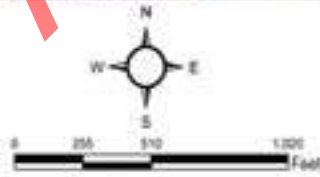


Looking south at staging area

Site Lat Long:	48.177538 -116.893301 (http://www.google.com/maps/place/48.177538,-116.893301)
Strategy Objective:	Notification and exclusion. Prevent contaminant from highway spill entering storm system and Pend Oreille River.
Implementation:	Priest River flow direction is to the south. Secure upstream end of boom River Left to bridge piling. Secure downstream end of boom River Right to bridge piling.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Concrete parking lot, boat ramp, and grass field. Priest River Mouth boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Recreation, Threatened and Endangered Species
Watercourse:	Priest River: gradient is low; substrate is sand; approx. width is 295 ft.; approx. depth is over 20 feet; slow moving

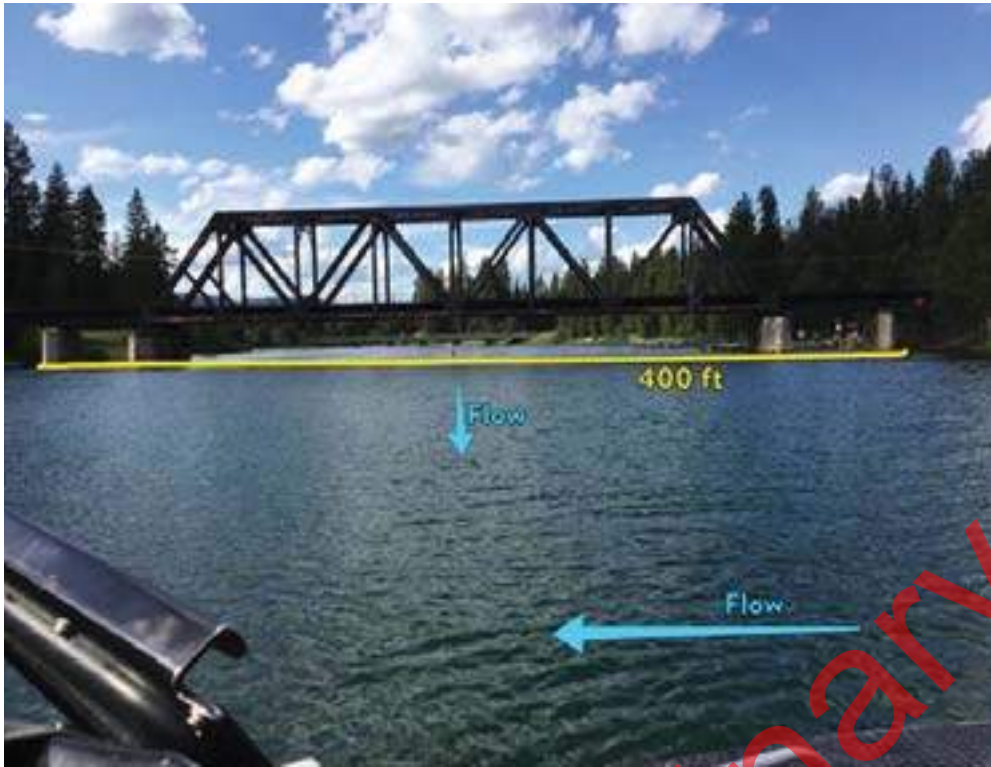


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
● Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
400 ft.	Curtain Boom Tow Bridles
As Appropriate	
500 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (21.3 miles)
Second Cache: Bonners (54.7 miles)

Nearest Address: 6552 Highway 2
Priest River ID 83856

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 21.4 mi
3. Destination will be on the left (look for signs for Priest River Park and Campground)

Priest River Park/Campground



Mouth of the Priest River from the Pend Oreille River looking north



Looking at the staging area from the east

Preliminary Draft for Agency Review

Site Lat Long:	48.174057 -116.882533 (http://www.google.com/maps/place/48.174057,-116.882533)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Priest River Mouth Slough.
Implementation:	Lake Pend Oreille flow direction is to the west. Use two segments of boom to protect sensitive area. Secure upstream end of boom East Shoreline to steel post. Secure downstream end of boom West Shoreline to steel post. Secure upstream end of second boom East Shoreline to steel post. Secure downstream end of second boom West Shoreline to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Priest River Mouth boat launch is 0.7 miles away.
Field Notes:	<ul style="list-style-type: none"> Site is only accessible from Priest River boat launch 4WD Access: NO Seasonal Access Only: Yes Locked Gate: NO
Resources Targeted:	Threatened and Endangered Species, Recreation
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is 10 to 20 feet; slow moving



Suggested Equipment

Quantity	Description
2800 ft.	Curtain Boom Tow Bridles
As Appropriate	
3500 ft.	Polypropylene Line
16	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
7 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (20.6 miles)
 Second Cache: Bonners (54.0 miles)

Nearest Address: 6552 Highway 2
 Priest River ID 83856

Site-Specific Points of Contact

Site Access - Boat access, Use Priest River Mouth boat launch, directions below

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 22.2 mi
3. In the town of Priest River, ID, Turn left onto Wisconsin St- 0.2 mi
4. Turn left onto Railroad Ave

Priest River Park

Preliminary Draft for Agency Review



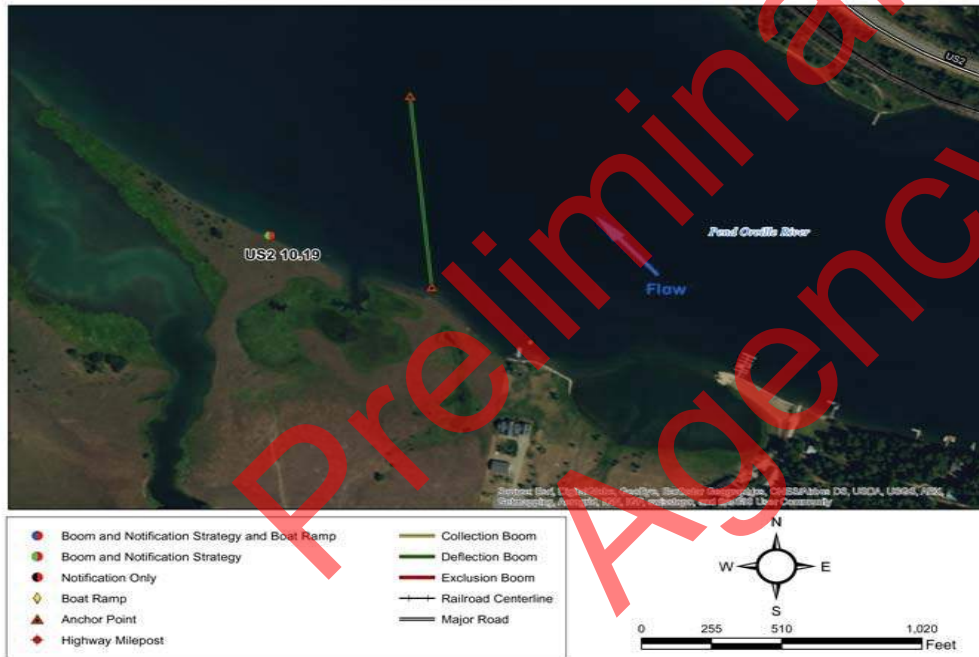
Looking upstream from island (anchor point 1A)toward anchor point 1B



Looking from the island (anchor point 2A) toward river right. (anchor point 2B)

Preliminary Draft for Agency Review

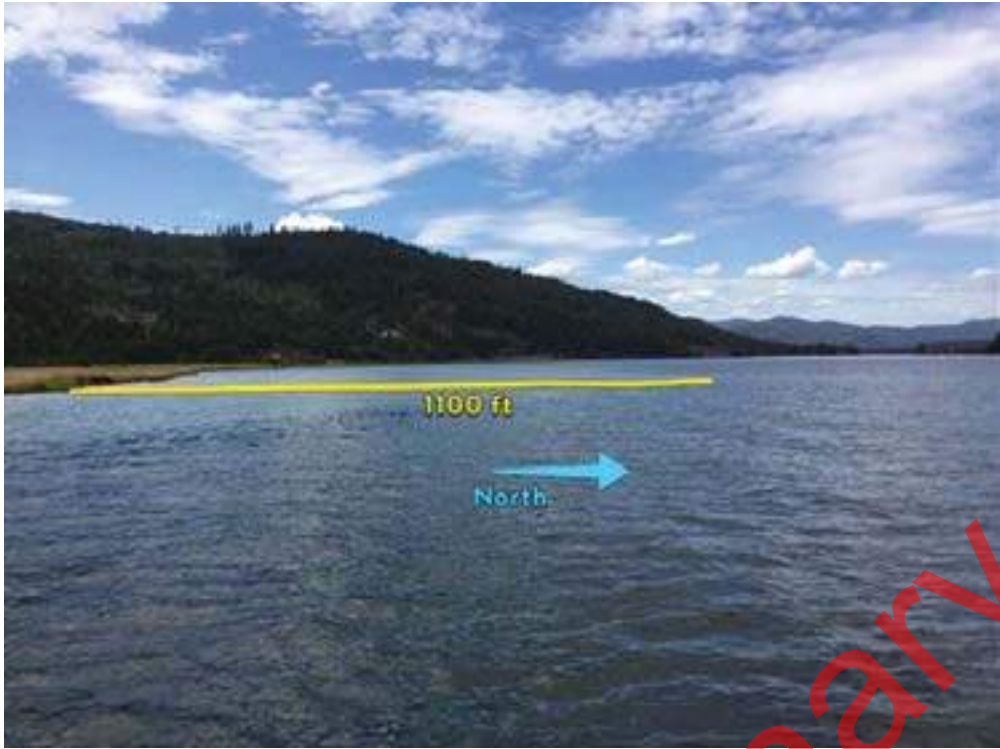
Site Lat Long:	48.145506 -116.849023 (http://www.google.com/maps/place/48.145506,-116.849023)
Strategy Objective:	Notification and deflection away from shoreline.
Implementation:	Lake Pend Oreille flow direction is to the west. Deflect contaminant moving downstream away from shoreline at Carey Creek Game Management Area. Secure upstream end of boom River Left to steel post. Secure downstream end of boom Midstream to buoy.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Priest River City boat launch is 4.4 miles away.
Field Notes:	<ul style="list-style-type: none"> • Only accessible by boat from Priest River boat launch • 4WD Access: None Seasonal Access Only: YES Locked Gate: None
Resources Targeted:	Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is 10 to 20 feet; slow moving



Suggested Equipment	
Quantity	Description
1100 ft.	Curtain Boom Tow Bridles
As Appropriate	
1500 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / None	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-07-03



Nearest Cache: Sandpoint (26.4 miles)
Second Cache: Bonners (59.8 miles)

Nearest Address: 13943 Dufort Rd
Priest River ID 83856

Site-Specific Points of Contact

Site Access - Boat access, Use Priest River Mouth boat launch, directions below

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 22.2 mi
3. In the town of Priest River, ID, Turn left onto Wisconsin St- 0.2 mi
4. Turn left onto Railroad Ave

Priest River Park



Looking southwest from the Pend Oreille River toward River left at the Carey Creek Wild life management Area



None

Site Lat Long:	48.143044 -116.833326 (http://www.google.com/maps/place/48.143044,-116.833326)
Strategy Objective:	Notification and exclusion. Option A: deflect contamination in PO river from reaching banks. Option B: prevent Dufort Rd contamination from reaching river.
Implementation:	Lake Pend Oreille flow direction is to the west. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Left to steel post. Notify private land owner.
Site Safety Note:	Complete Job Safety Analysis. Probably inaccessible in low water.
Staging Area:	On site staging is large. Grass and sand lot west of the slough. No boat launch facilities. Priest River City boat launch is 6.1 miles away.
Field Notes:	<ul style="list-style-type: none"> • Private staging area see additional contacts in in notification box. • 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Baylor Ln. Slough wetlands
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is 10 to 20 feet; slow moving

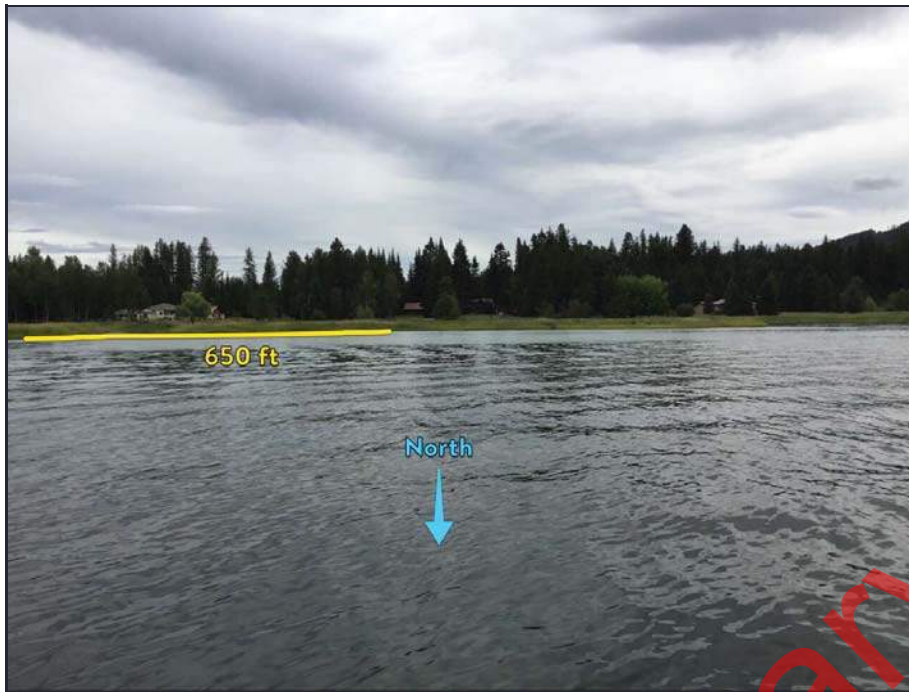


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
◆ Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
◆ Highway Milepost	

Suggested Equipment	
Quantity	Description
650 ft.	Curtain Boom Tow Bridles
As Appropriate	
800 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-07-02



Nearest Cache: Sandpoint (28.1 miles)
 Second Cache: Bonners (56.8 miles)

Nearest Address: 365 Baylor Ln
 Priest River ID 83856

Site-Specific Points of Contact

Glenna Merrill, Land owner 208 437 3873

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US-95 S - 8.0 mi
 6. Turn right onto Dufort Rd - 12.9 mi
 7. Turn right onto Baylor Ln - 0.2 mi
- Baylor Lane, Priest River, Idaho

Preliminary Agency Review



Baylor Ln Slough looking south from Pend Prielle River



Baylor Ln Slough staging area

Preliminary Draft for Agency Review

This page intentionally blank

Preliminary Draft for
Agency Review

Preliminary Draft for
Agency Review

Cardboard
Sector 2

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost		Accessible at Low Water?	Nearest Boat Ramp or Staging Area
Sector 2A Westside Fire District	US2 13.3	POVA 1417.28	Riley Creek Slough	No	US2 13.49
	US2 13.49	POVA 1417.06	Riley Creek Recreation Area	No	US2 13.49
	US2 14.37	POVA 1416.24	Laclede Public Water Supply	Yes	US2 14.37
	US2 16.06	UP Spokane RR 62.78	Cocolalla Creek Mouth	Unlikely	US2 14.37
	US2 16.29	UP Spokane RR 63.14	Morton Slough Boat Launch	No	US2 16.29
	US2 17.12	POVA 1413.35	Morton Slough Game Management Area	No	US2 14.37
Sector 2B Westside Fire District	US2 20.71	POVA 1409.86	Bay near Muskrat Lake	No	US95 470.21
	US2 24.89	BNSF Newport 71.01	Dover Bay Slough	No	US2 25.15
	US2 25.16	BNSF Newport 71.31	Dover Bay Marina	No	US2 25.15
	US2 25.63	BSF Newport 71.87	Dover Bay Water Intake	Yes	US2 25.15

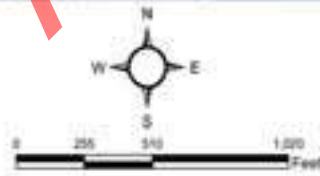




Site Lat Long:	48.160032 -116.778168 (http://www.google.com/maps/place/48.160032,-116.778168)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Riley Creek. Secure upstream end of boom to west shoreline. Secure downstream end of boom East Shoreline to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Riley Creek boat launch is 0.2 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: YES ● Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is over 20 feet; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
850 ft.	Curtain Boom Tow Bridles
As Appropriate	
1000 ft.	Polypropylene Line
No	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (15.1 miles)
Second Cache: Bonners (48.5 miles)

Nearest Address: 125 Willow Crk Rd
Priest River ID 83856

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St. - 0.2 mi
 2. Turn right onto US-2 W/Pine St - 13.8 mi
 3. Turn left onto Riley Creek Rd - 0.4 mi
 4. Turn right onto Riley Creek Park Rd - 0.8 mi
- Riley Creek Park Drive, Priest River, Idaho

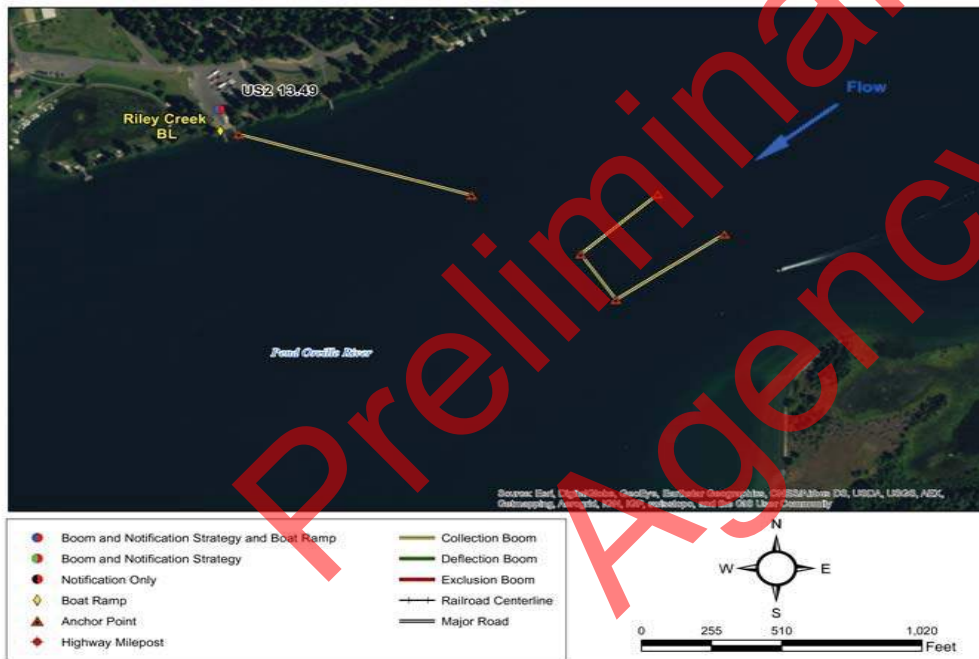


Looking West at slough



None

Site Lat Long:	48.159216 -116.772256 (http://www.google.com/maps/place/48.159216,-116.772256)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Riley Creek Recreation Area. Secure upstream end of boom Midstream to buoy. Secure downstream end of boom North Shoreline to steel post. Secure upstream end of second boom Midstream to boat. Secure downstream end of second boom Midstream to boat. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large asphalt parking lot with large staging area. Concrete boat launch. Riley Creek boat launch is at site.
Field Notes:	• 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Recreation, Reservoir, Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is over 20 feet; slow moving



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
2 / 2	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-06-30



Nearest Cache: Sandpoint (14.9 miles)
Second Cache: Bonners (48.3 miles)

Nearest Address: 1097 Riley Crk Pk Dr
Priest River ID 83856

Site-Specific Points of Contact

Site Access

Sandpoint, ID

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 13.8 mi
3. Turn left onto Riley Creek Rd - 0.4 mi
4. Turn right onto Riley Creek Park Rd - 1.0 mi

Riley Creek Recreation Area, Laclede, Idaho



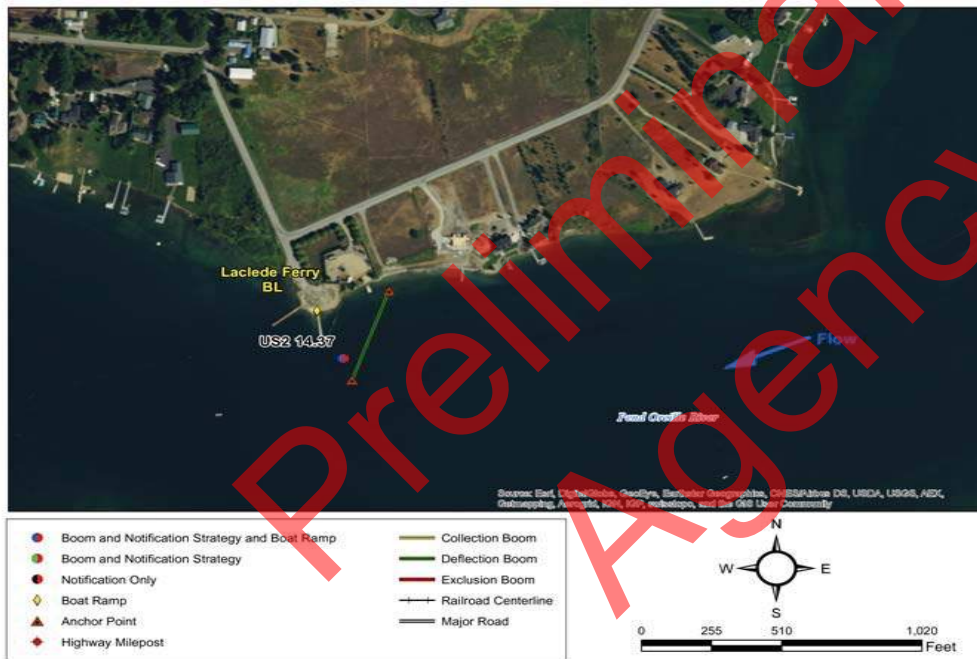
Riley Creek Recreation Area boat launch



Riley Creek Recreation Area staging area

Preliminary Draft for Agency Review

Site Lat Long:	48.160811 -116.753563 (http://www.google.com/maps/place/48.160811,-116.753563)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Laclede boat launch.
Implementation:	Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom Midstream to buoy. Vacuum truck access is good. Notify Laclede Water Intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large turn around with ample parking. Concrete boat launch. Laclede Ferry boat launch is at site.
Field Notes:	• 4WD Access: NO Seasonal Access Only: YES Locked Gate: NO
Resources Targeted:	Public water supply
Watercourse:	slow moving



Suggested Equipment	
Quantity	Description
400 ft.	Curtain Boom Tow Bridles
As Appropriate	
500 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-06-30



Nearest Cache: Sandpoint (14.2 miles)
Second Cache: Bonners (47.6 miles)

Nearest Address: 705 River Run Dr
Laclede ID 83841

Site-Specific Points of Contact

<u>Site Access</u>
Sandpoint, ID
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 13. 8 mi
3. Turn left onto Riley Creek Rd - 0.4 mi
4. Continue onto Laclede Ferry Rd - 0.2 mi
Laclede Ferry Road, Laclede, Idaho



From Laclede boat launch looking south



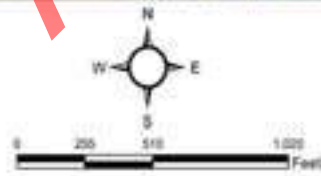
Laclede boat launch staging area

Preliminary Draft for Agency Review

Site Lat Long:	48.17539 -116.720867 (http://www.google.com/maps/place/48.17539,-116.720867)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at at Morton Slough or from reaching Pend Oreille river from slough.
Implementation:	Lake Pend Oreille flow direction is to the southwest. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Use boat ramp upstream at Morton Slough Boat Ramp for access and staging. No boat launch facilities. Morton Slough boat launch is 1.9 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Morton slough, wildlife habitat, recreation
Watercourse:	Lake Pend Oreille: gradient is low; substrate is sand; approx. width is 800 ft.; approx. depth is 10 to 20 feet; channelized; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	
1000 ft.	Polypropylene Line
10	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (16.8 miles)
Second Cache: Bonners (49.1 miles)

Nearest Address: 157 Wild Rose Ln
Sagle ID 83860

Site-Specific Points of Contact

Site Access

- Sandpoint, ID
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US-95 S - 8.0 mi
 6. Turn right onto Dufort Rd - 5.7 mi
 7. Turn right onto Lakeshore Dr - 52 ft
 8. Turn left onto Wild Rose Ln - 194 ft
- Wild Rose Lane, Sagle, Idaho



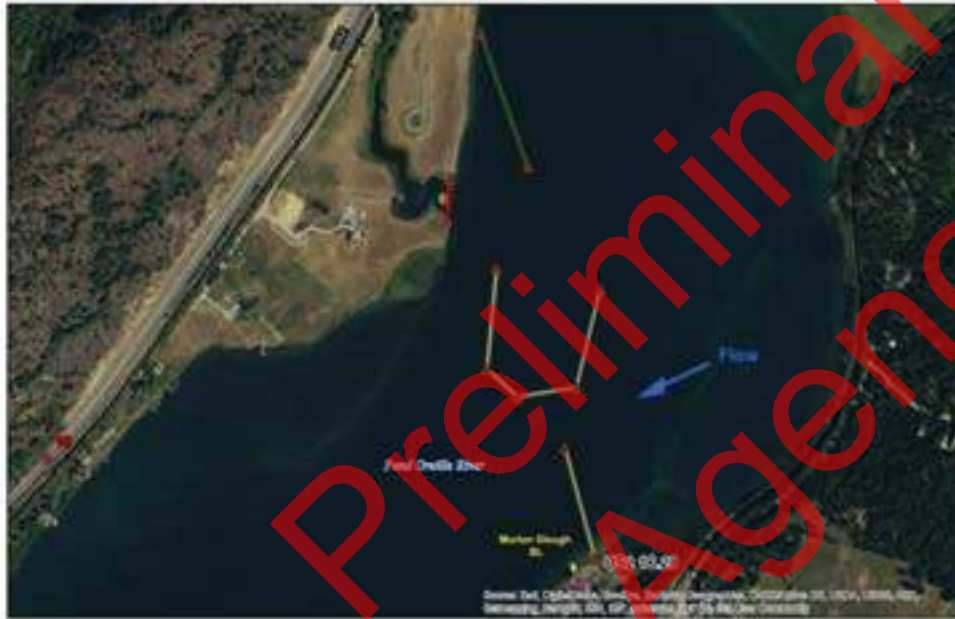
Looking north across the mouth of the slough.



Looking South towards Morton's slough, nearest upstream anchor site.

Preliminary Draft for Agency Review

Site Lat Long:	48.180406 -116.714421 (http://www.google.com/maps/place/48.180406,-116.714421)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the southwest. Deploy collection boom and initiate contaminant recovery at Morton Slough Boat Launch. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking area for vehicles and equipment adjacent to boat ramp. Concrete boat launch. Morton Slough boat launch is at the site.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Bull Trout critical habitat, downstream municipal and irrigation water supplies, recreation, wildlife habitat
Watercourse:	Lake Pend Oreille: gradient is low; approx. width is 3000 ft.; approx. depth is 10 to 20 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
3700 ft.	Curtain Boom Tow Bridles
As Appropriate	
4500 ft.	Polypropylene Line
10	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
7	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
2 / 2	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (15.0 miles)
Second Cache: Bonners (47.3 miles)

Nearest Address: 6898 Dufort Rd
Sagle ID 83860

Site-Specific Points of Contact

Site Access

- Sandpoint, ID
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US-95 S - 8.0 mi
 6. Turn right onto Dufort Rd - 5.7 mi
 7. Turn right onto Lakeshore Dr - 52 ft
 8. Turn left onto Wild Rose Ln - 194 ft
- Wild Rose Lane, Sagle, Idaho



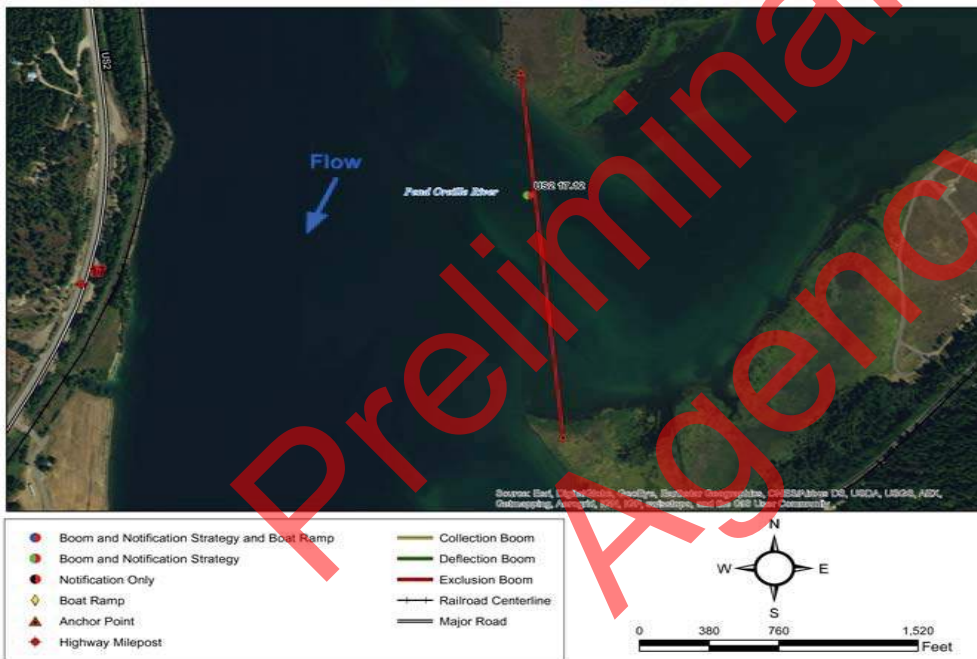
View from River left collection point upstream towards River right anchor.



View from boat ramp of parking area.

Preliminary Draft for Agency Review

Site Lat Long:	48.196842 -116.710277 (http://www.google.com/maps/place/48.196842,-116.710277)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Upper Morton Slough.
Implementation:	Lake Pend Oreille flow direction is to the south. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom South Shoreline to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Laclede Ferry boat launch is 3.2 miles away.
Field Notes:	<ul style="list-style-type: none"> • Only accessible by boat from Morton Slough boat launch • 4WD Access: None Seasonal Access Only: YES Locked Gate: None
Resources Targeted:	Recreation, Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is over 20 feet; slow moving



Suggested Equipment	
Quantity	Description
2500 ft.	Curtain Boom Tow Bridles
As Appropriate	
3000 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
7 / None	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-07-02



Nearest Cache: Sandpoint (11.0 miles)
Second Cache: Bonners (44.4 miles)

Nearest Address: 5761 Wild Rose Lane
Sagle ID 83860

Site-Specific Points of Contact

Site Access

Sandpoint, ID

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn left onto Pine St - 0.3 mi
3. Turn right onto S 1st Ave - 0.2 mi
4. Turn left onto E Superior St - 0.5 mi
5. Merge onto US-95 S - 8.0 mi
6. Turn right onto Dufort Rd - 5.7 mi
7. Turn right onto Lakeshore Dr - 52 ft
8. Turn left onto Wild Rose Ln - 194 ft

Wild Rose Lane, Sagle, Idaho



Mouth of Upper Morton Slough from the Pend Oreille River looking south from the northern point.



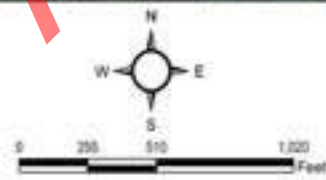
Looking from an upstream point down on the mouth of Upper Morton Slough, facing southeast.

Preliminary Draft for Agency Review

Site Lat Long:	48.242393 -116.686122 (http://www.google.com/maps/place/48.242393,-116.686122)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Bay near Muskrat Lake.
Implementation:	Use two boom segments to protect sensitive area. Secure upstream end of boom River Left to tree. Secure downstream end of boom River Left to steel post. Secure upstream end of second boom River Left to steel post. Secure downstream end of second boom River Left to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Springy Point boat launch is 6.6 miles away.
Field Notes:	<ul style="list-style-type: none"> Change in water levels looks like it can greatly effect the status of the island and points that define this bay. A possibility of using a post on the River left side of the main channel as a midpoint anchor (it is visible in some of the pictures). 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife, Recreation
Watercourse:	Lake Pend Oreille:



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
2200 ft.	Curtain Boom Tow Bridles
As Appropriate	
2750 ft.	Polypropylene Line
9	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
2	Booming Team Leader
1	Safety Representative
6 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (12.8 miles)
Second Cache: Bonners (45.1 miles)

Nearest Address: 5 Swan Shores Dr
Sagle ID 83860

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn left onto Pine St - 0.3 mi
3. Turn right onto S 1st Ave - 0.2 mi
4. Turn left onto E Superior St - 0.5 mi
5. Merge onto US-95 S - 1.9 mi
6. Turn right onto Lakeshore Dr - 3.1 mi
7. Turn right onto Springy Point - 292 ft

Springy Point, Sagle, Idaho



Looking at the upstream or northern entrance to the Bay near Muskrat lake, facing east.



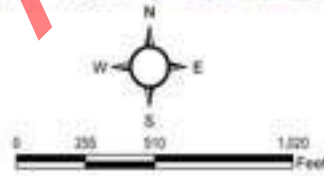
Looking towards the Bay near Muskrat Lake, so that both entrances to the Bay are visible, facing east.

Preliminary Draft for Agency Review

Site Lat Long:	48.246394 -116.620663 (http://www.google.com/maps/place/48.246394,-116.620663)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Dover Bay Slough.
Implementation:	Lake Pend Oreille flow direction is to the west. Secure upstream end of boom East Shoreline to tree. Secure downstream end of boom West Shoreline to steel post. Notify Dover and Dover Bay Marina.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Grass field on peninsula east of Dover Bay Slough. Dover Marina boat launch is 1 mile away.
Field Notes:	<ul style="list-style-type: none"> • Use bridge across slough to deploy the Boom • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Threatened and Endangered Species, Recreation
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is 5 to 10 feet



Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Corridor
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	
700 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (3.7 miles)
 Second Cache: Bonners (37.1 miles)

Nearest Address: 699 Lakeshore Ave
 Dover ID 83825

Site-Specific Points of Contact

Site Access - Boat access, use Dover Bay Marina, directions below

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 2.7
3. Turn left onto Old Hwy U.S. 2- 0.2 mi
4. Continue onto Dover Bay Blvd- 0.3 mi
5. Continue onto Dover Bay Pkwy- 0.2 mi
6. Turn right onto Lakeshore Avenue- 492 ft
7. Turn left to reach destination



Dover Bay Slough From Lake Pend Oreille looking North



Staging area from play ground looking west

Preliminary Draft for Agency Review

Site Lat Long:	48.244013 -116.61391 (http://www.google.com/maps/place/48.244013,-116.61391)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Lake Pend Oreille flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Dover Bay Marina. Secure upstream end of boom Midstream to buoy. Secure downstream end of boom North Shoreline to steel post. Secure upstream end of second boom Midstream to boat. Secure downstream end of second boom Midstream to boat. Vacuum truck access is good. Notify Dover Bay Marina.
Site Safety Note:	Complete Job Safety Analysis. Be cautious of public traffic.
Staging Area:	On site staging is large. Large parking lot on the north shore, between the condominiums and the club pool. Concrete boat launch. Dover Marina boat launch is 0.1 miles away.
Field Notes:	<ul style="list-style-type: none"> • Exclusion boom around the marina. Private property • 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Recreation, Reservoir, Marina, Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; slow moving



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck; Absorbent Boom
1250 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
2	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
2 / 2	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-06-30



Nearest Cache: Sandpoint (3.4 miles)
Second Cache: Bonners (36.8 miles)

Nearest Address: 675 Lakeshore Ave
Dover ID 83825

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn right onto US-2 W/Pine St- 2.7
 3. Turn left onto Old Hwy U.S. 2- 0.2 mi
 4. Continue onto Dover Bay Blvd- 0.3 mi
 5. Continue onto Dover Bay Pkwy- 0.2 mi
 6. Turn right onto Lakeshore Avenue- 492 ft
 7. Turn left to reach destination



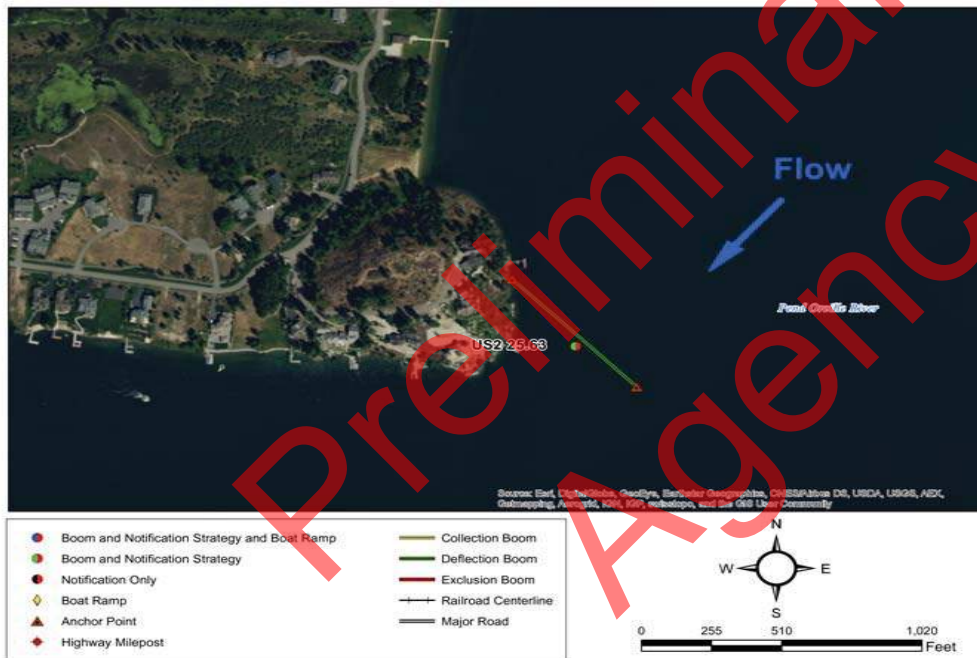
Dover Bay Marina staging area looking north



Lake Pend Oreille from the north shore looking south

Preliminary Draft for Agency Review

Site Lat Long:	48.244195 -116.601173 (http://www.google.com/maps/place/48.244195,-116.601173)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Dover Bay Water Intake.
Implementation:	Secure upstream end of boom West Shoreline to steel post. Secure downstream end of boom Midstream to buoy. Notify City of Dover.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Private boat launch at Dover Bay Marina. No boat launch facilities. Dover Marina boat launch is 0.7 miles away.
Field Notes:	<ul style="list-style-type: none"> • Surface water supply for Dover. Intake on bottom of lake. Notify City of Dover Water operator (208)-263-4633 to stop drawing water. • 4WD Access: NO Seasonal Access Only: YES Locked Gate: NO
Resources Targeted:	Public water supply
Watercourse:	Lake Pend Oreille:



Suggested Equipment	
Quantity	Description
800 ft.	Curtain Boom Tow Bridles
As Appropriate	
1000 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-07-02



Nearest Cache: Sandpoint (3.3 miles)
Second Cache: Bonners (36.7 miles)

Nearest Address: 105 Shannon Ln
Dover ID 83825

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn right onto US-2 W/Pine St - 2.7 mi
 3. Turn left onto Old Hwy U.S. 2 - 0.1 mi
 4. Turn left onto 3rd St - 0.2 mi
 5. Turn left onto Jackson Ave - 190 ft
 6. Turn right onto Lakeshore Avenue - 0.3 mi
 7. Turn left onto Shannon Ln - 0.1 mi
- Shannon Lane, Sagle, Idaho



Potential Dover Bay Water Intake from lake Pend Orellie looking north west



None

This page intentionally blank

Preliminary Draft for
Agency Review

Preliminary Draft for
Agency Review

Cardboard Sector 3A and 3B

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 3A Sandpoint	US2 26.68	BNSF Newport 72.79	Chuck Slough	No	US2 25.15
	US2 27.07	BNSF Newport 73.29	Ontario St West	No	US2 25.15
	US2 27.17	BNSF Newport 73.33	Ontario St East	No	US2 25.15
	US2 27.74	BNSF Spokane 3.32	S. Ella Ave Culvert	No	US95 473.87
Sector 3B Sandpoint	US2 28.02	BNSF Spokane 3.33	Memorial Park Culvert	No	US95 473.87
	US2 28.17	BNSF Spokane 3.35	S Euclid Ave Culvert	No	US95 473.87
	US2 28.31	BNSF Spokane 3.37	S 4th Ave Culvert	No	US95 473.87
	US2 28.36	BNSF Spokane 3.38	S 3rd Ave Culvert	No	US95 473.87
	US95 472.85	BNSF Spokane 4.28	Long Bridge	Yes	US95 471.08
	US95 473.84	BNSF Spokane 3.4	Sandpoint Public Works Water Intake	Yes	US95 473.87
	US95 473.9	BNSF Spokane 3.17	Sandpoint City Beach and Marina	Yes	US95 473.87
	US95 473.91	BNSF Spokane 3.29	Mouth of Sand Creek	Yes	US95 473.87
	US95 474.31	BNSF Spokane 3.13	Lower Sand Creek	No	US95 473.87

Sector 3A Sandpoint

USCG0004613/27

[Go Back to Regional Map](#)

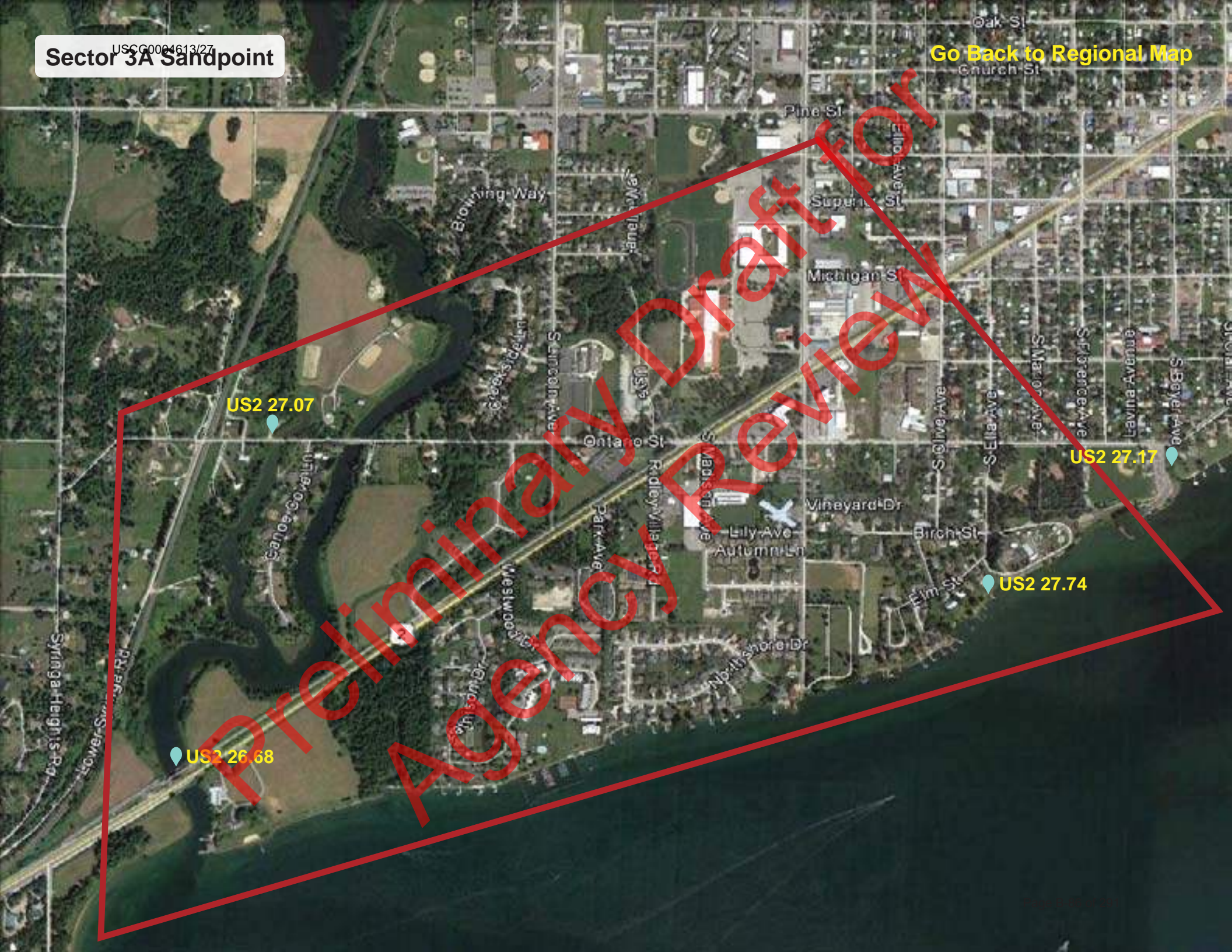
US2 27.07

US2 27.17

US2 27.74

US2 26.68

Preliminary Draft for Agency Review



USCE0004623/27
Sector 3B Sandpoint

[Go Back to Regional Map](#)

Preliminary Draft for Agency Review

US2 28.02

US2 28.17

US2 28.31

US2 28.36

US95 473.91

US95 473.9

US95 474.31

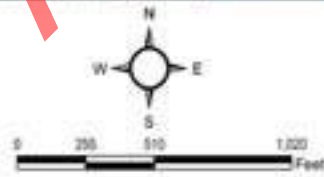
US95 473.84

US95 472.85

Site Lat Long:	48.258596 -116.586053 (http://www.google.com/maps/place/48.258596,-116.586053)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Chuck Slough flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Chuck Slough. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Right to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis. Traffic control on highway is necessary.
Staging Area:	No staging area. Use small pullout on west side of bridge for parking. Access river by steep, rocky trails. Dover Marina boat launch is 1.8 miles away.
Field Notes:	<ul style="list-style-type: none"> Site is a natural exclusion area at full pool with culvert submerged. At lower flows booming is necessary to prevent oil from entering culvert and reservoir. Site could be used for spill to chuck slough but will naturally collect oil at summer lake levels.
Resources Targeted:	Reservoir
Watercourse:	Chuck Slough: gradient is low; substrate is gravel; approx. width is 84 ft.; approx. depth is 5 to 10 feet; slow moving

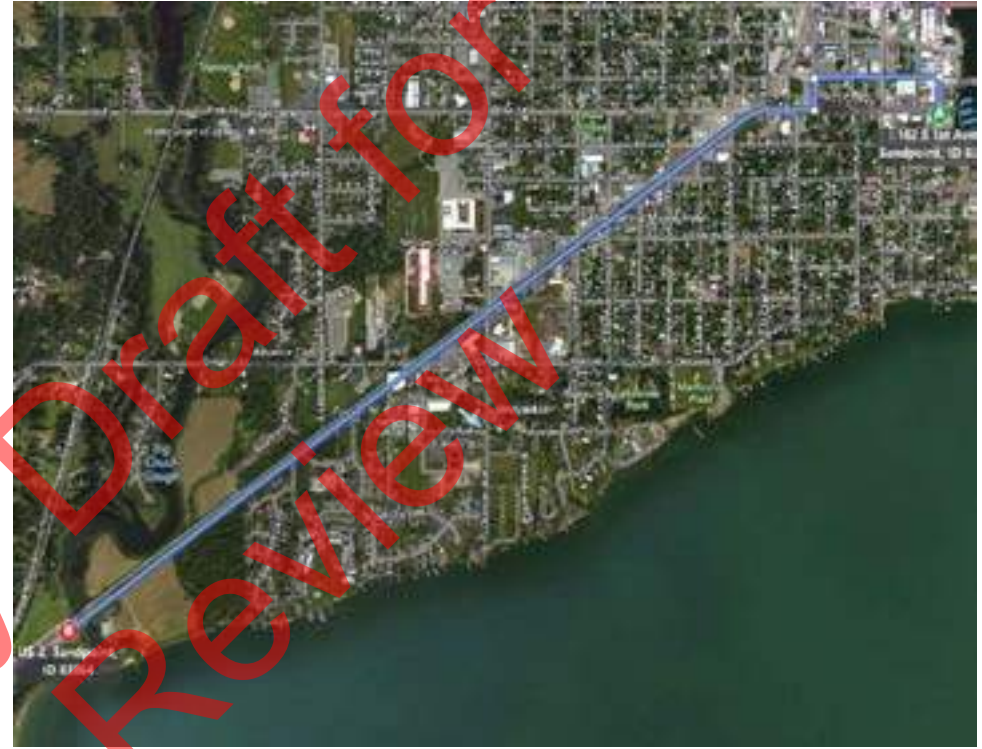


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
70 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.6 miles)
 Second Cache: Bonners (35.0 miles)

Nearest Address: 26808 Highway 2
 Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, ID
1. Head south on N Fifth Ave toward Cedar St- 0.2 mi
 2. Turn right onto US-2 W/Pine St- 1.8 mi



Looking south from walking bridge



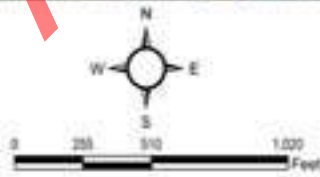
Small pullout on west side of bridge.

Preliminary Draft for Agency Review

Site Lat Long:	48.265836 -116.583495 (http://www.google.com/maps/place/48.265836,-116.583495)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Chuck Slough flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Ontario St West. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis. Poor river access due to dense vegetation and steep slope.
Staging Area:	No staging area. Vacuum truck access from narrow road. No other staging options. Dover Marina boat launch is 2.3 miles away.
Field Notes:	<ul style="list-style-type: none"> • Access to upstream anchor is difficult due to private land and dense vegetation. Small inflatable boat would be advised. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Recreation, Reservoir, Threatened and Endangered Species
Watercourse:	Chuck Slough: gradient is low; substrate is mud; approx. width is 150 ft., approx. depth is 5 to 10 feet; slow moving

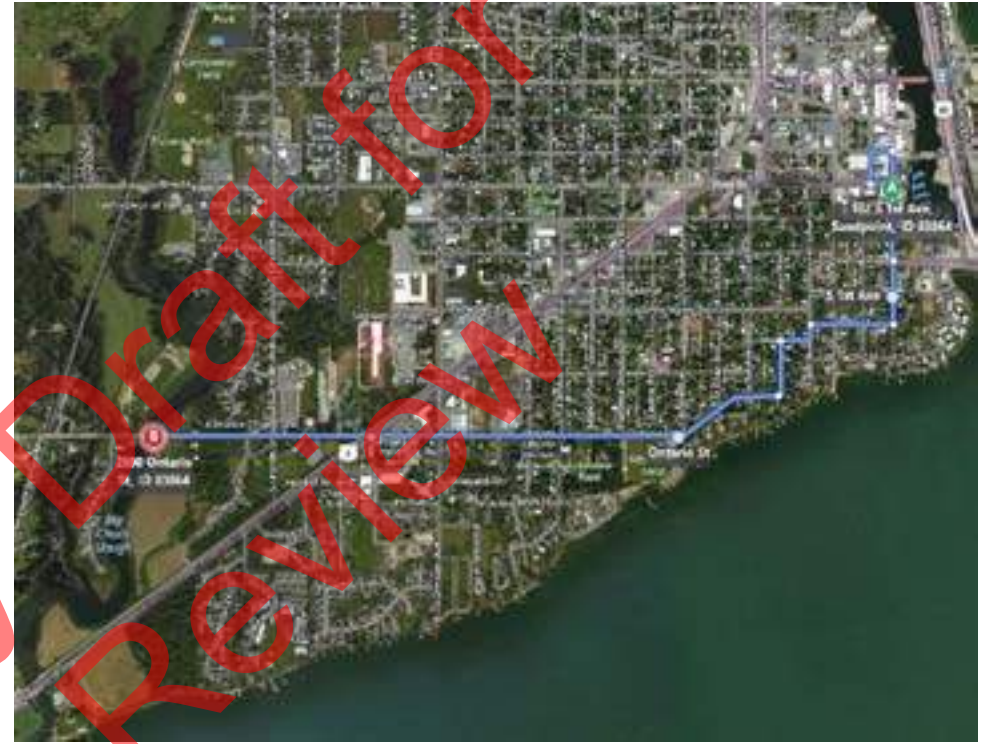


<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflection Boom — Exclusion Boom — Railroad Centerline — Major Road
--	---



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
As Appropriate	
125 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 2	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.3 miles)
Second Cache: Bonners (34.8 miles)

Nearest Address: 2690 Ontario St
Dover ID 83825

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 1.0 mi
3. Turn right onto Ontario St - 0.5 mi
2690 West Ontario Street, Sandpoint, Idaho



Looking east at Ontario st.



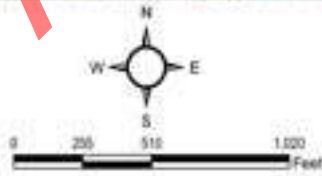
Looking north at Chuck Slough

Preliminary Draft for Agency Review

Site Lat Long:	48.265752 -116.580771 (http://www.google.com/maps/place/48.265752,-116.580771)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Chuck Slough flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Ontario St East. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Narrow two lane road with culvert underpass for slough. Dover Marina boat launch is 3.1 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Recreation, Threatened and Endangered Species
Watercourse:	Chuck Slough: gradient is low; substrate is mud; approx. width is 150 ft., approx. depth is 5 to 10 feet; slow moving

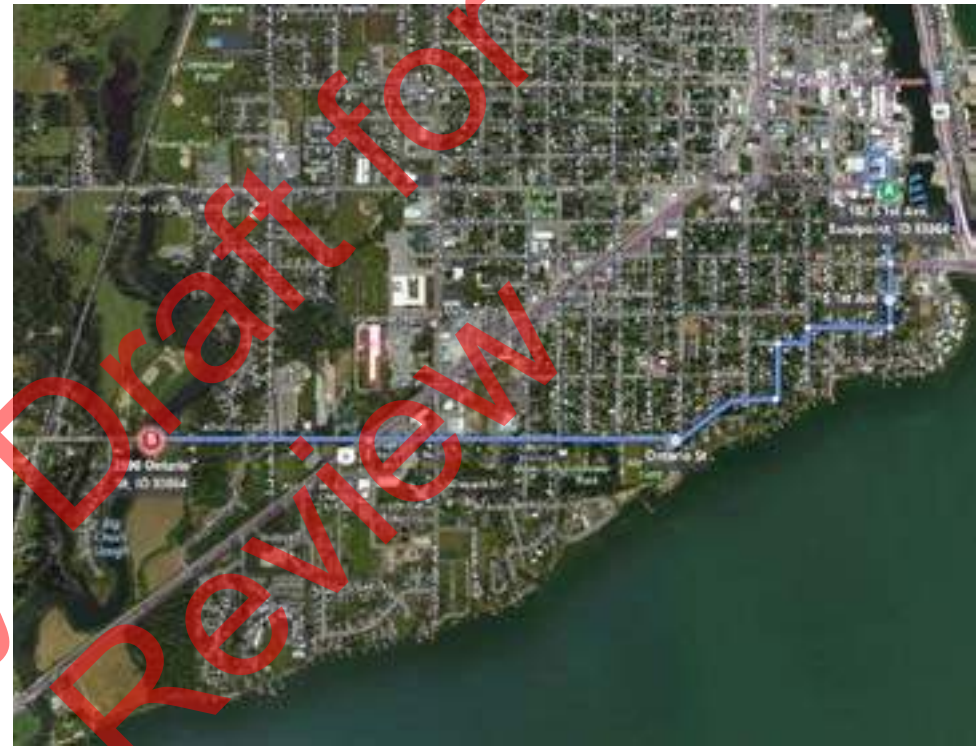


Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centreline
Anchor Post	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
150 ft.	Curtain Boom Tow Bridles
As Appropriate	
200 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.2 miles)
 Second Cache: Bonners (34.6 miles)

Nearest Address: 2355 Ontario St
 Dover ID 83825

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho
 1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn right onto US-2 W/Pine St - 1.0 mi
 3. Turn right onto Ontario St - 0.3 mi
 2355 Ontario St, Sandpoint, Idaho

Preliminary Agency Review



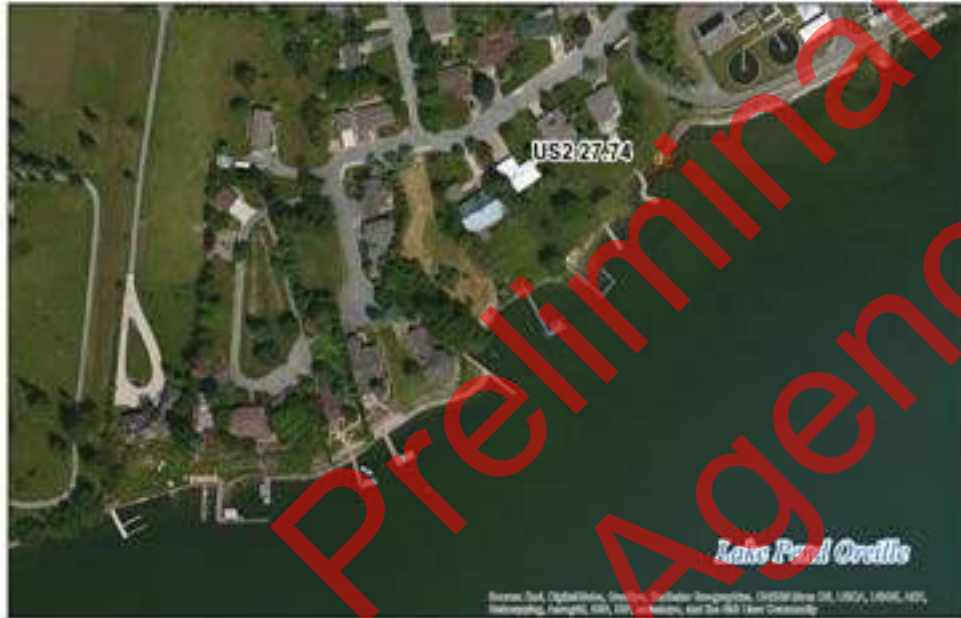
Looking east at Ontario st.



Looking north at Chuck Slough

Preliminary Draft for Agency Review

Site Lat Long:	48.262676 -116.562306 (http://www.google.com/maps/place/48.262676,-116.562306)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at S. Ella Ave Culvert. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom North Shoreline to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Private Property.No boat launch facilities. Sandpoint City Beach boat launch is 1.6 miles away.
Field Notes:	<ul style="list-style-type: none"> • Private Property • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille:



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.8 miles)
Second Cache: Bonners (34.2 miles)

Nearest Address: 1101 Elm St
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 0.5 mi
3. Turn left onto S Ella Ave - 0.4 mi
4. Continue onto Elm St - 3 ft

1101 Elm St, Sandpoint, Idaho



Picture taken facing water treatment plant.

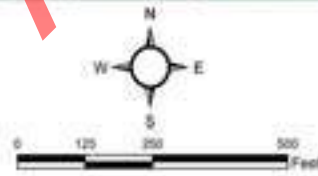


None

Site Lat Long:	48.265041 -116.556933 (http://www.google.com/maps/place/48.265041,-116.556933)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at Memorial Park Outflow. Secure upstream end of boom North Shoreline to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Adjacent parking lot should be utilized. No boat launch facilities. Sandpoint City Beach boat launch is 1.4 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.7 miles)
Second Cache: Bonners (33.9 miles)

Nearest Address: 631 Lakeview Blvd
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto Pine St - 220 ft
3. Turn left onto Euclid Ave - 0.4 mi
4. Turn right onto Lakeview Blvd - 0.1 mi

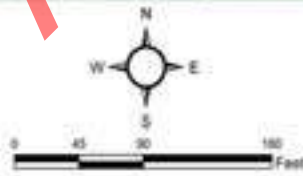


View of culvert. Currently underwater, but fluctuates with lake level from dam use.



View of culvert.

Site Lat Long:	48.265975 -116.553976 (http://www.google.com/maps/place/48.265975,-116.553976)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at S Euclid Ave Outflow. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom North Shoreline to fixed anchor. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Private Property.No boat launch facilities. Sandpoint City Beach boat launch is 1.1 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
65 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.7 miles)
Second Cache: Bonners (33.9 miles)

Nearest Address: 601 Euclid Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn right onto Pine St - 220 ft
 3. Turn left onto Euclid Ave - 0.4 mi

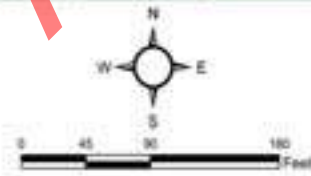


Preliminary Draft for Agency Review

Site Lat Long:	48.266921 -116.551305 (http://www.google.com/maps/place/48.266921,-116.551305)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at S 4th Ave Outflow. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom North Shoreline to fixed anchor. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. No boat launch facilities. Sandpoint City Beach boat launch is 1.0 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	



<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflector Boom — Exclusion Boom — Railroad Centerline — Major Road
--	--



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
65 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.8 miles)
Second Cache: Bonners (34.0 miles)

Nearest Address: 527 S 4th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn left onto Pine St - 495 ft
3. Turn right onto S 4th Ave - 0.4 mi



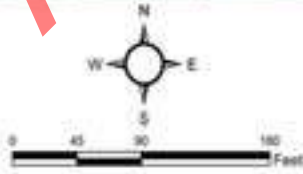
Image of concrete submerged culvert.



Proposed boom area facing south.

Preliminary Draft for Agency Review

Site Lat Long:	48.267283 -116.550304 (http://www.google.com/maps/place/48.267283,-116.550304)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at S 3rd Ave Outflow. Secure upstream end of boom North Shoreline to fixed anchor. Secure downstream end of boom North Shoreline to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. No boat launch facilities. Sandpoint City Beach boat launch is 0.9 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
65 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.9 miles)
Second Cache: Bonners (34.0 miles)

Nearest Address: 600-616 South 3rd Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn left onto Pine St - 495 ft
3. Turn right onto S 4th Ave - 0.4 mi
4. Turn left onto Pacific St - 236 ft
5. Turn right at the 1st cross street onto S 3rd Ave - 197 ft



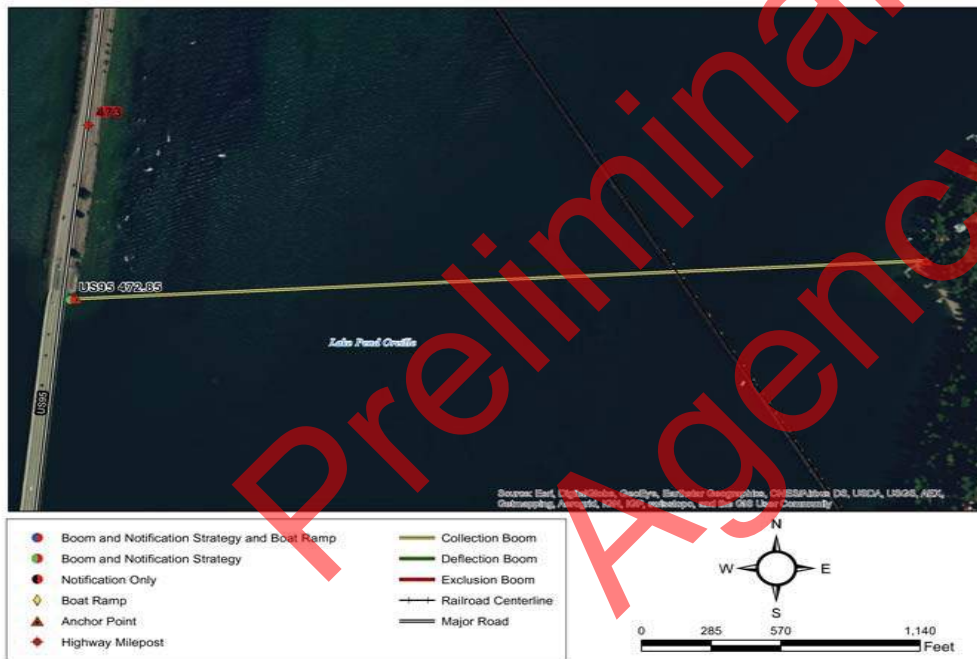
View looking south from north of culvert.



View of area to be boomed between a fixed dock anchor and tree.

Preliminary Draft for Agency Review

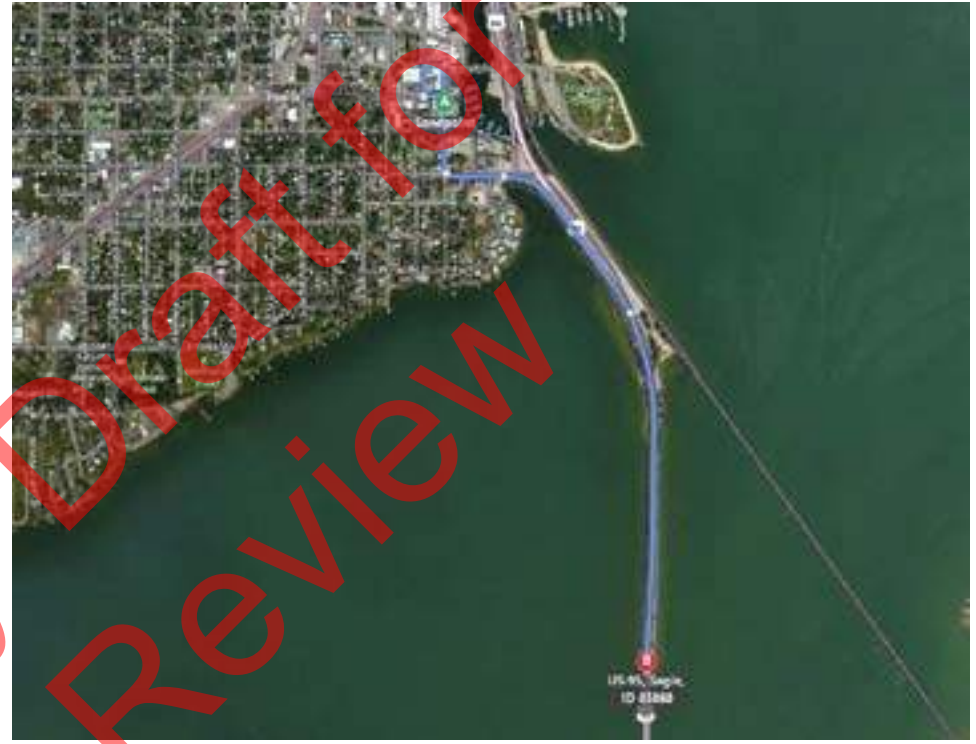
Site Lat Long:	48.256623 -116.53849 (http://www.google.com/maps/place/48.256623,-116.53849)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at Long Bridge. Secure upstream end of boom East Shoreline to steel post. Secure downstream end of boom West Shoreline to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Use US 95 bridge as staging and recovery area. Equipment and vehicle parking area adjacent to lake at the collection point. No boat launch facilities. Bottle Bay Bridge boat launch is 2.0 miles away.
Field Notes:	<ul style="list-style-type: none"> • Last collection point on Lake Pend Oreille before Pend Oreille River. Wind conditions may make this site unsuitable for collection. • 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Public water supply, Recreation, Reservoir, Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: substrate is gravel



Suggested Equipment	
Quantity	Description
3500 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck; Absorbent Boom
4375 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
4 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-07-16



Nearest Cache: Sandpoint (2.0 miles)
 Second Cache: Bonners (34.3 miles)

Nearest Address: 175 Glen Eden Rd
 Sagle ID 83860

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 361 ft
 3. Take the ramp onto US-95N - .7 mi
- 472001 U.S. 95, Sandpoint, Idaho



Looking South

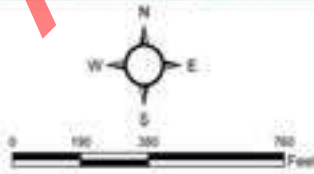


Looking South from bike path

Site Lat Long:	48.274217 -116.534885 (http://www.google.com/maps/place/48.274217,-116.534885)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Sandpoint Public Works surface water intake.
Implementation:	Use boom to exclude Public Water Supply. Notify City of Sandpoint Water Treatment Plant.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Only accessible by boat, but very close to Sandpoint City Park boat launch. No boat launch facilities. Sandpoint City Beach boat launch is 0.5 miles away.
Field Notes:	<ul style="list-style-type: none"> • Contact David Pafundi, with City of Sandpoint Water Treatment Plant, at 208-263-3440 to shut off intake. • Boat Ramp may be unusable in winter • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Municipal Water Intake
Watercourse:	Lake Pend Oreille; substrate is mud; approx. depth is greater than 20 feet; slow moving; shoals



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
800 ft.	Curtain Boom Tow Bridles
As Appropriate	
1000 ft.	Polypropylene Line
0	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
6	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.3 miles)
 Second Cache: Bonners (34.1 miles)

Nearest Address: 54 Bridge St
 Sandpoint ID 83864

Site-Specific Points of Contact

David Pafundi 208 263 3440
 Ryan Luttmann 208 263 3407

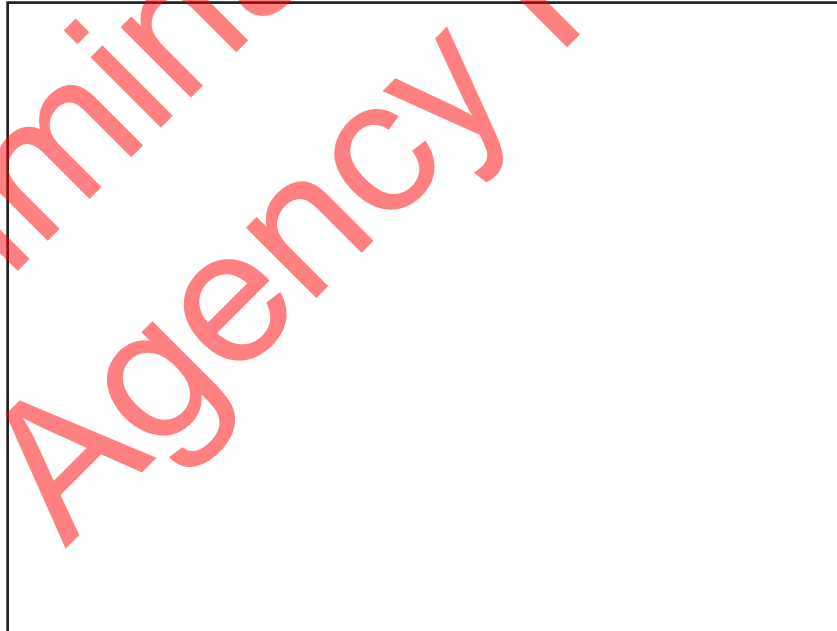
Site Access - Use Sandpoint City Beach boat launch, directions below

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 171 ft
 2. Turn left onto Pine St 0.3 mi
 3. Pine St turns left and becomes N First Ave 246 ft
 4. Turn right onto Bridge St 0.2 mi
 5. Turn right

Preliminary Draft for Agency Review



Photo taken from estimated point of where water intake should be, looking back at the city beach.

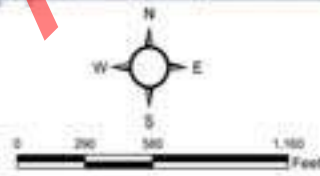


None

Site Lat Long:	48.273909 -116.541436 (http://www.google.com/maps/place/48.273909,-116.541436)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at S 4th Ave Outflow. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom North Shoreline to fixed anchor. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking area at city beach with boat ramp. Concrete boat launch. Sandpoint City Beach boat launch is 0.3 miles away.
Field Notes:	<ul style="list-style-type: none"> Boat Ramp may be unusable in winter 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Sandpoint City Beach and Marina, recreation
Watercourse:	Lake Pend Oreille; substrate is sand; approx. depth is over 20 feet



Boom and Notification Strategy and Boat Ramp	Collector Boom
Boom and Notification Strategy	Deflector Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
2000 ft.	Curtain Boom Tow Bridles
As Appropriate	
2500 ft.	Polypropylene Line
0	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
4	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.1 miles)
Second Cache: Bonners (33.9 miles)

Nearest Address: 54 Bridge St
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 171 ft
2. Turn left onto Pine St 0.3 mi
3. Pine St turns left and becomes N First Ave 246 ft
4. Turn right onto Bridge St 0.2 mi
5. Turn right



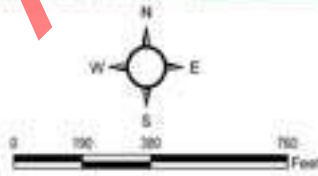
City beach



Large staging area

Preliminary Draft for Agency Review

Site Lat Long:	48.272248 -116.542879 (http://www.google.com/maps/place/48.272248,-116.542879)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Mouth of Sand Creek. Secure upstream end of boom River Right to rock. Secure downstream end of boom River Left to fixed anchor. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking area for vehicles and equipment at Sandpoint City Beach parking area. Boat ramp on site. Concrete boat launch. Sandpoint City Beach boat launch is 0.1 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Lake Pend Orielle, Sandpoint City Beach, Marina, fish habitat, recreation
Watercourse:	Sand Creek: gradient is low; substrate is mud; approx. width is 360 ft.; approx. depth is 5 to 10 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
360 ft.	Curtain Boom Tow Bridles
As Appropriate	
450 ft.	Polypropylene Line
0	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
0	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.2 miles)
Second Cache: Bonners (34.0 miles)

Nearest Address: 120 E Lake St
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 171 ft
 2. Turn left onto Pine St 0.3 mi
 3. Pine St turns left and becomes N First Ave 246 ft
 4. Turn right onto Bridge St 0.2 mi
 5. Turn right



view of Sandpoint City Beach boat launch from the Lake, facing east.



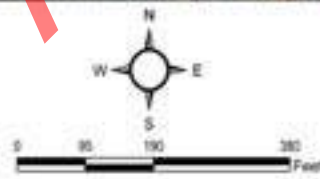
Parking area.

Preliminary Draft for Agency Review

Site Lat Long:	48.274021 -116.545732 (http://www.google.com/maps/place/48.274021,-116.545732)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Lower Sand Creek. Secure upstream end of boom River Right to fixed anchor. Secure downstream end of boom River Left to steel post. Secure upstream end of second boom River Right to fixed anchor. Secure downstream end of second boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Parking available for vehicles and equipment on bike path along River left. Many public parking areas also in the area, but with limited space. No boat launch facilities. Sandpoint City Beach boat launch is 0.3 miles away.
Field Notes:	<ul style="list-style-type: none"> Contact City of Sandpoint for access to bike path. First boom location is upstream of city beach access road bridge. Second boom location is downstream of the bridge. Both locations need equal amounts of boom (350 ft). 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Sand Creek, Sandpoint City Beach and Marina, fish habitat, recreation area
Watercourse:	Sand Creek: gradient is low; substrate is mud; approx. width is 290 ft.; approx. depth is 5 to 10 feet; channelized; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
700 ft.	Curtain Boom Tow Bridles
As Appropriate	
500 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.9 miles)
Second Cache: Bonners (33.7 miles)

Nearest Address: 106 Bridge St
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 171 ft
 2. Turn left onto Pine St 0.3 mi
 3. Pine St turns left and becomes N First Ave 246 ft
 4. Turn right onto Bridge St 0.1 mi
 5. Take immediate right after crossing over the bridge



Looking from river left collection point towards upstream anchor.



View of the bike path. Note the locked pillar in the center of path.

Preliminary Draft for Agency Review

**Cardboard Insert for
Sector 3C and 3D**

Preliminary Draft for
Agency Review

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 3C Sandpoint	US95 474.41	BNSF Spokane 3.02	E. Cedar St Culvert # 1	No	US95 473.87
	US95 474.45	BNSF Spokane 2.98	E. Cedar St Culvert # 2	No	US95 473.87
	US95 474.46	BNSF Spokane 2.97	E. Cedar St Culvert # 3	No	US95 473.87
	US95 474.78	BNSF Spokane 2.9	Alder St Culvert	No	US95 473.87
	US95 475.09	BNSF Kootenai 1402.96	N. 5th Ave Surface Water Outflow #1	No	US95 473.87
Sector 3D Sandpoint	US95 475.21	BNSF Kootenai 1402.75	N. 5th Ave Surface Water Outflow #2	No	US95 473.87
	US95 475.22	BNSF Kootenai 1402.74	N. 5th Ave Surface Water Outflow #3	No	US95 473.87
	US95 475.3	BNSF Kootenai 1402.66	Sand Creek Trestle	No	US95 473.87
	US95 475.32	BNSF Kootenai 1402.63	Visitor Center Culvert #1	No	US95 473.87
	US95 475.34	BNSF Kootenai 1402.6	Visitor Center Culvert #2	No	US95 473.87
	US95 475.4	BNSF Kootenai 1402.58	Visitor's Center Culvert # 3	No	US95 473.87
	US95 475.41	BNSF Kootenai 1402.55	Visitor's Center Culvert # 4	No	US95 473.87
	US95 475.42	BNSF Kootenai 1402.57	Baldy Mountain Rd Surface Water Outflow #2	No	US95 473.87
	US95 475.5	BNSF Kootenai 1402.53	Baldy Mountain Rd Surface Water Outflow #1	No	US95 473.87
	US95 475.53	BNSF Kootenai 1402.33	N. Boyer Ave and Baldy Mountain Rd.	No	US95 473.87

Sector 3C Sandpoint

USCP0005053/27

[Go Back to Regional Map](#)

US95 475.09

US95 474.78

US2 474.46

US2 474.45

US2 474.41

Preliminary Draft for Agency Review

US95 475.53

US95 475.5

US95 475.41

US95 475.42

US95 475.4

US95 475.3

US95 475.34

US95 475.32

US95 475.21

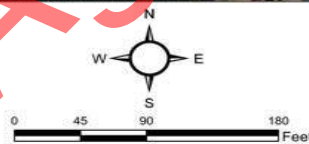
US95 475.22

Preliminary Draft for Agency Review

Site Lat Long:	48.275492 -116.546815 (http://www.google.com/maps/place/48.275492,-116.546815)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at E. Cedar St Culvert # 1. Secure upstream end of boom West Shoreline to tree. Secure downstream end of boom West Shoreline to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Sandpoint City Beach boat launch is 0.4 miles away.
Field Notes:	• 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille:



- Boom and Notification Strategy and Boat Ramp
- Boom and Notification Strategy
- Notification Only
- ◆ Boat Ramp
- ▲ Anchor Point
- ◆ Highway Milepost
- Collection Boom
- Deflection Boom
- Exclusion Boom
- Railroad Centerline
- Major Road



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	Absorbent Boom
65 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / None	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-08-01



Nearest Cache: Sandpoint (1.1 miles)
Second Cache: Bonners (33.6 miles)

Nearest Address: 334 N. Fifth Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

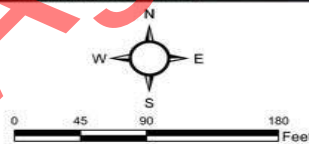
Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 171 ft
2. Turn left onto Cedar St - 0.3 mi
3. Turn right onto N First Ave - 322 ft

Site Lat Long:	48.27606 -116.547529 (http://www.google.com/maps/place/48.27606,-116.547529)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at E. Cedar St Culvert # 2. Secure upstream end of boom West Shoreline to fixed anchor. Secure downstream end of boom West Shoreline to fixed anchor. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Sandpoint City Beach boat launch is 0.7 miles away.
Field Notes:	• 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille:



- Boom and Notification Strategy and Boat Ramp
- Boom and Notification Strategy
- Notification Only
- ◆ Boat Ramp
- ▲ Anchor Point
- ◆ Highway Milepost
- Collection Boom
- Deflection Boom
- Exclusion Boom
- Railroad Centerline
- Major Road



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	Absorbent Boom
65 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / None	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-08-01



Nearest Cache: Sandpoint (0.9 miles)
Second Cache: Bonners (33.5 miles)

Rest Address: 334 N 1st Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Turn left onto Pine St 0.3 mi
 2. Turn left onto Pine St 0.3 mi
 3. Pine St turns left and becomes N First Ave
 4. Destination will be on the right just before Cedar St



View of the southern culvert under bridge/restaurant.

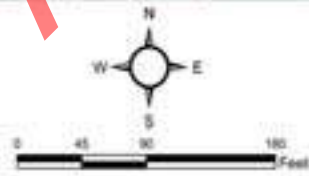


View from south of both culverts facing north.

Site Lat Long:	48.276208 -116.547452 (http://www.google.com/maps/place/48.276208,-116.547452)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at E. Cedar St Culvert # 3. Secure upstream end of boom West Shoreline to bridge piling. Secure downstream end of boom West Shoreline to bridge piling. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Sandpoint City Beach boat launch is 0.7 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille:



<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collector Boom — Deflector Boom — Exclusion Boom — Railroad Centerline — Major Road
--	---



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (0.9 miles)
Second Cache: Bonners (33.5 miles)

Nearest Address: 334 N 1St Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Turn left onto Pine St 0.3 mi
3. Pine St turns left and becomes N First Ave
4. Destinat



Image of concrete submerged culvert.



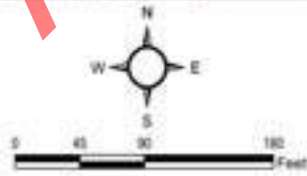
None

Preliminary Draft for Agency Review

Site Lat Long:	48.277149 -116.547759 (http://www.google.com/maps/place/48.277149,-116.547759)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at Alder St Culvert. Secure upstream end of boom to West Shoreline to steel post. Secure downstream end of boom to West Shoreline to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Sandpoint City Beach boat launch is 0.8 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille:



<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflection Boom — Exclusion Boom — Railroad Centerline — Major Road
--	---



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
65 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.0 miles)
Second Cache: Bonners (33.4 miles)

Nearest Address: 502 North 2nd Avenue
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head east on Pine St toward S 1st Ave- 141 ft
2. Pine St turns left and becomes N First Ave- 0.2 mi
3. N First Ave turns left and becomes Cedar St- 220 ft
4. Turn right onto N 2nd Ave- 253 ft
5. Turn right- 184 ft
6. Turn left to reach destination



View from south facing north.



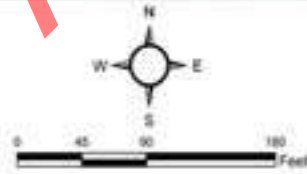
View from north of culverts facing south.

Preliminary Draft for Agency Review

Site Lat Long:	48.281625 -116.552419 (http://www.google.com/maps/place/48.281625-116.552419)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the southeast. Deploy collection boom and initiate contaminant recovery at Culvert just North of Gas n Go, North of Larch St. on Hwy 2/200. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis. Steep embankment with loose screen.
Staging Area:	On site staging is large. Large parking lot of Gas n Go. No boat launch facilities. Sandpoint City Beach boat launch is 1.3 miles away.
Field Notes:	In 2015, this area was investigated by ID DEQ for petroleum products seeping into Sandcreek from an adjacent gasoline station. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Sand Creek and wetlands
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 840 ft.; approx. depth is 5 to 10 feet; slow moving; channelized



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	
100 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.1 miles)
Second Cache: Bonners (32.8 miles)

Nearest Address: 830 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho
1. Head north on N Fifth Ave toward Alder St - 0.3 mi
830 North Fifth Avenue, Sandpoint, Idaho

Preliminary Agency Review



Looking Southwest towards outflow area of culvert, closer view.



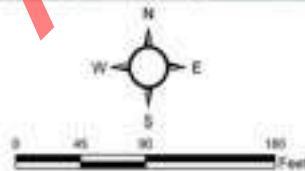
Looking Southwest towards outflow area of culvert.

Preliminary Draft for Agency Review

Site Lat Long:	48.283483 -116.552268 (http://www.google.com/maps/place/48.283483,-116.552268)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Sandpoint Visitor Center. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Visitor Center Parking Area. No boat launch facilities. Sandpoint City Beach boat launch is 1.4 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO Work this strategy in conjunction with the adjacent US95 475.22
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 450 ft.; approx. depth is 5 to 10 feet

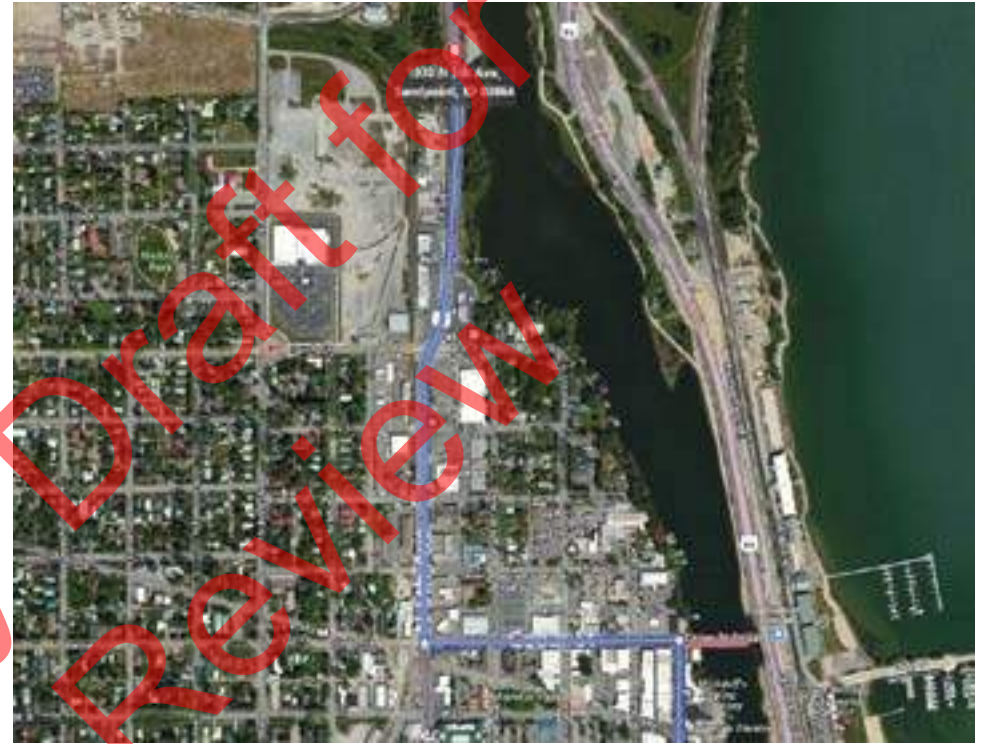


● Boom and Notification Strategy and Boat Ramp	— Collector Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centertine
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.2 miles)
Second Cache: Bonners (32.7 miles)

Nearest Address: 915 5Th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.4 mi
2. Turn left to stay on N Fifth Ave - 16 ft

1005 North Fifth Avenue, Sandpoint, Idaho



Metal pipe culvert 10+ ft from shore up embankment. Pipe diameter 8 inches.

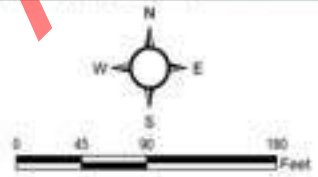


Concrete culvert on shoreline of river, but still difficult to access from water. Closest to Visitor Center.

Site Lat Long:	48.28353 -116.552259 (http://www.google.com/maps/place/48.28353,-116.552259)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Surface Water Outflow. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Steep embankment next to highway. Staging area minimum to none. Gravel boat launch. Sandpoint City Beach boat launch is 1.4 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO Work this strategy in conjunction with the adjacent US95 475.21
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 450 ft.; approx. depth is 5 to 10 feet; slow moving

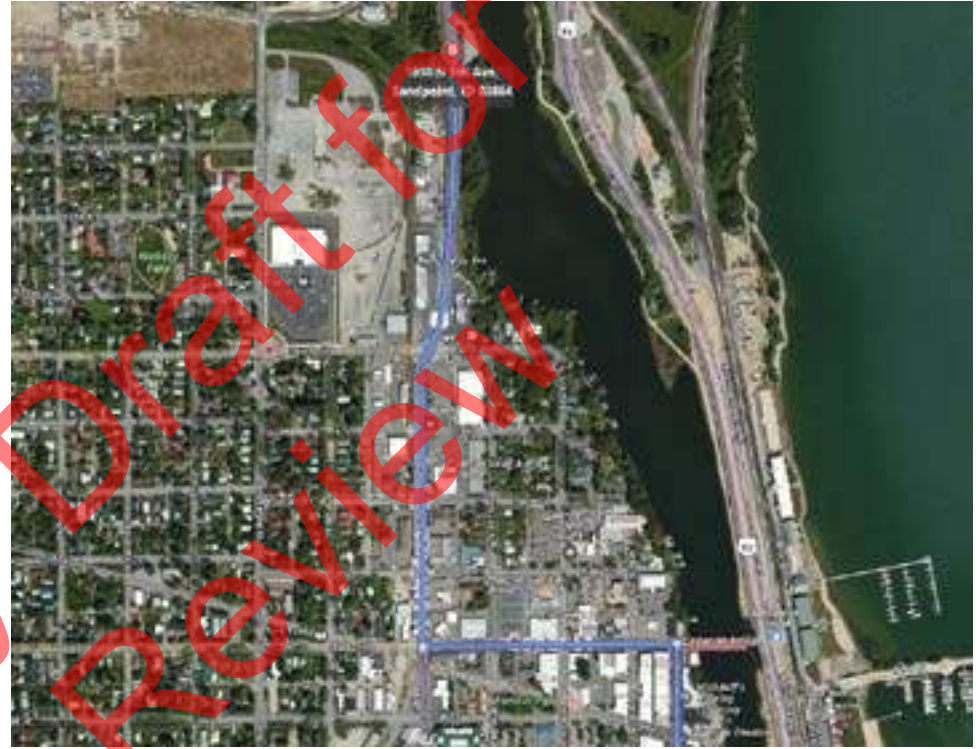


Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
As Appropriate	
125 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y <input type="checkbox"/>	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.2 miles)
Second Cache: Bonners (32.7 miles)

Nearest Address: 915 5Th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.4 mi
2. Turn left to stay on N Fifth Ave - 16 ft

1005 North Fifth Avenue, Sandpoint, Idaho

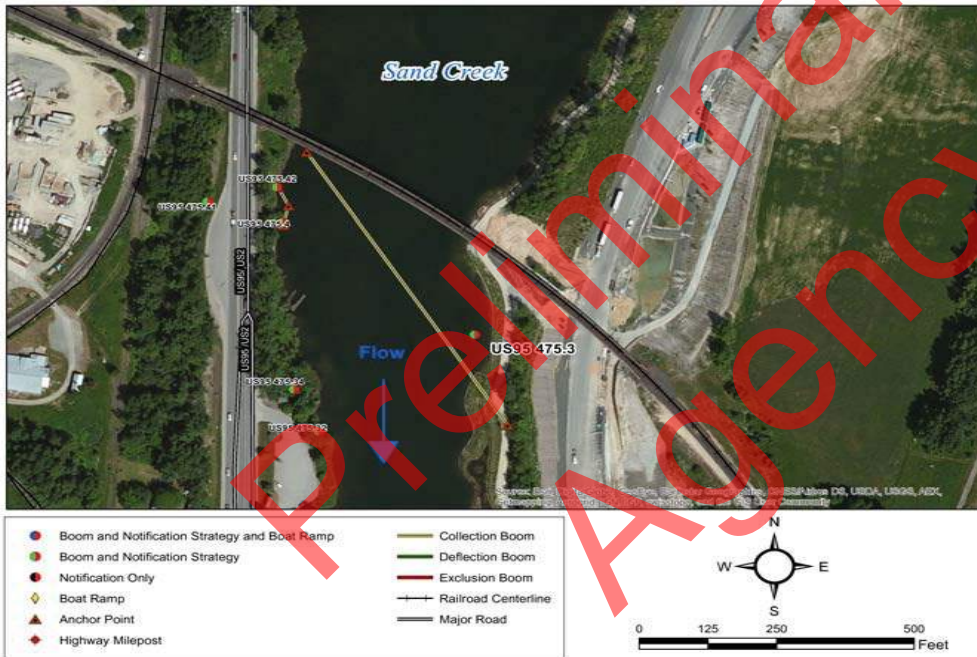


Smaller metal pipe culvert, closer to parking lot.



Picture oriented viewing east/south east.

Site Lat Long:	48.285618 -116.551169 (http://www.google.com/maps/place/48.285618,-116.551169)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Sand Creek Trestle. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Parking for vehicles and equipment along walking path on River left below the trestle. Additional parking on River right at the Sandpoint Visitors Center. No boat launch facilities. Sandpoint City Beach boat launch is 1.5 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use Sandpoint City Beach boat ramp for access or Sand Creek Bike trail at intersection with US95 • 4WD Access: NO Seasonal Access Only: NO Locked Gate: YES
Resources Targeted:	Sand Creek, Sandpoint City Beach and Marina, fish habitat, recreation
Watercourse:	Sand Creek: gradient is low; substrate is mud; approx. width is 250 ft.; approx. depth is 5 to 10 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
750 ft.	Curtain Boom Tow Bridles
As Appropriate	Vacuum Truck; Portable Skimmer
1000 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-06-30



Nearest Cache: Sandpoint (1.3 miles)
Second Cache: Bonners (32.6 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St
2. Continue to follow US-2 E- 1.0 mi
3. Turn right onto the US-95 S ramp- 0.3 mi
4. Merge onto US-95/Sandpoint



Looking north from River right towards the trestle.



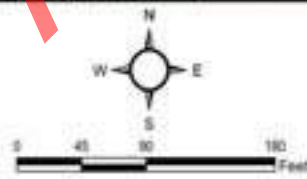
Looking at River left and city bike path.

Preliminary Draft for Agency Review

Site Lat Long:	48.284992 -116.552249 (http://www.google.com/maps/place/48.284992,-116.552249)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Visitor Center Culvert. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Visitor's Center Parking Area. No boat launch facilities. Sandpoint City Beach boat launch is 1.5 miles away.
Field Notes:	<ul style="list-style-type: none"> Below informational signs at Visitor's Center. Marshy shoreline; densely vegetated. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 270 ft.; approx. depth is 5 to 10 feet; slow moving

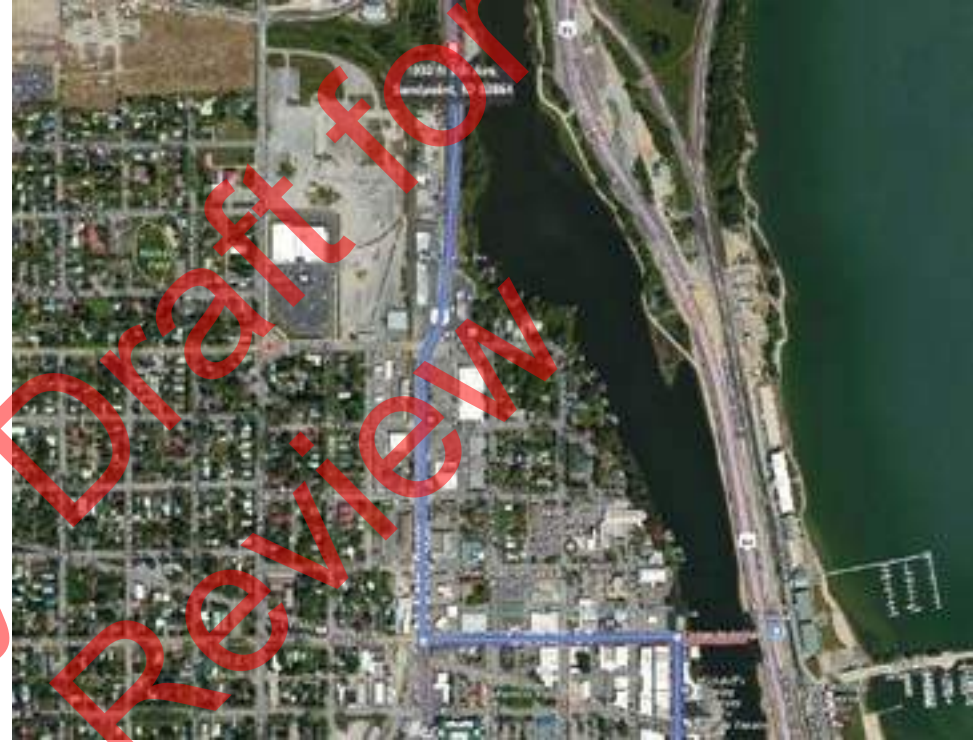


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.3 miles)
Second Cache: Bonners (32.6 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho
1. Head orth on N fifth Ave toward Alder St - 0.4 mi
2. Turn left to stay on N Fifth Ave - 358 ft
1125 North Fifth Avenue, Sanpoint, Idaho



14 inch diameter metal pipe culvert, roughly 10+ ft from shoreline.

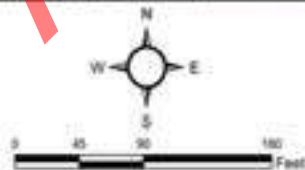


View from directly in front of culvert on shoreline overlooking potential boom containment site.

Site Lat Long:	48.285224 -116.552465 (http://www.google.com/maps/place/48.285224,-116.552465)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Visitor Center Culvert 24 inch pipe and seep. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Visitor's Center Parking area, steep embankments and marshy shoreline. No boat launch facilities. Sandpoint City Beach boat launch is 1.5 miles away.
Field Notes:	<ul style="list-style-type: none"> Seep located 20 guard rail posts until inline with wooden weirs and 15+ from shoreline. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 270 ft.; approx. depth is 5 to 10 feet; slow moving

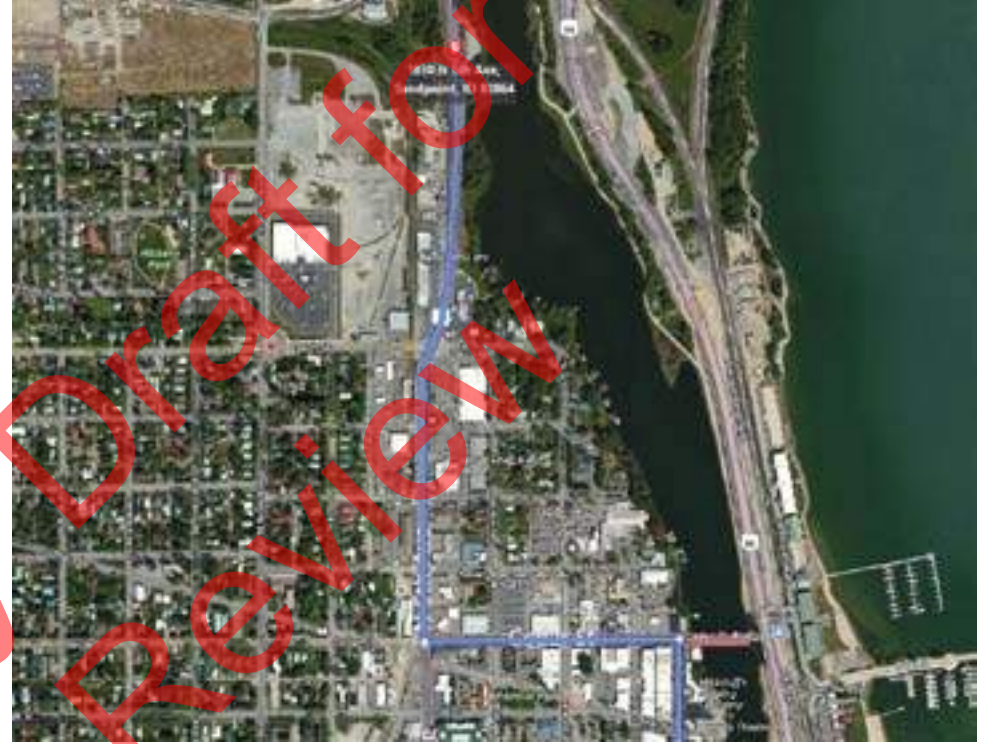


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
1 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.3 miles)
Second Cache: Bonners (32.6 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head orth on N fifth Ave toward Alder St - 0.4 mi
2. Turn left to stay on N Fifth Ave - 358 ft

1125 North Fifth Avenue, Sandpoint, Idaho



24 inch metal pipe culvert below gazebo, 15+ ft from shore.

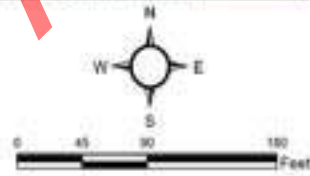


Photo taken from embankment overlooking step. Montana rail link bridge in background for orientation.

Site Lat Long:	48.28618 -116.552678 (http://www.google.com/maps/place/48.28618,-116.552678)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Cluster South of Visitor's Center. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Sandpoint City Beach boat launch is 1.6 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 275 ft.; approx. depth is 5 to 10 feet; slow moving

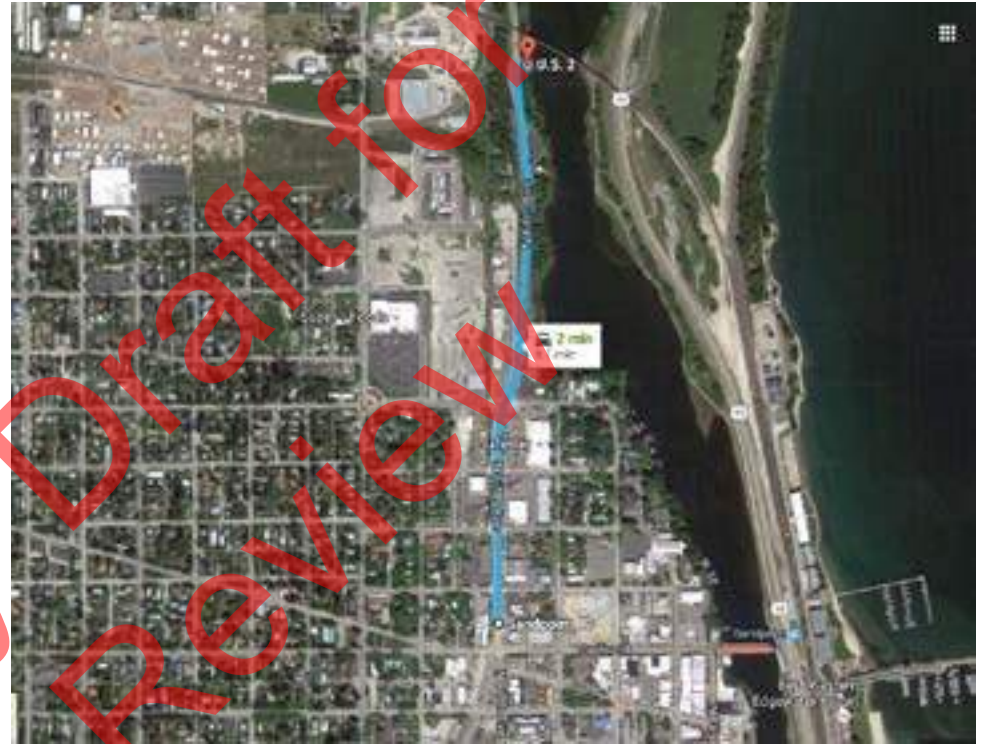


Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.4 miles)
Second Cache: Bonners (32.5 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho
1. Head north on N Fifth Ave toward Alder St - 0.7 mi

Preliminary Draft for Agency Review



14 inch culvert South of railroad trestle.



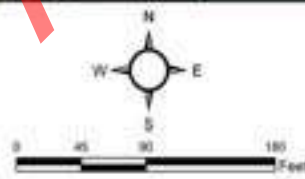
24 culvert South of railroad trestle, just below and downstream of 14 inch culvert.

Preliminary Draft for Agency Review

Site Lat Long:	48.286264 -116.553254 (http://www.google.com/maps/place/48.286264,-116.553254)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at Visitor's Center Culvert # 4. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. No boat launch facilities. Sandpoint City Beach boat launch is 1.6 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	

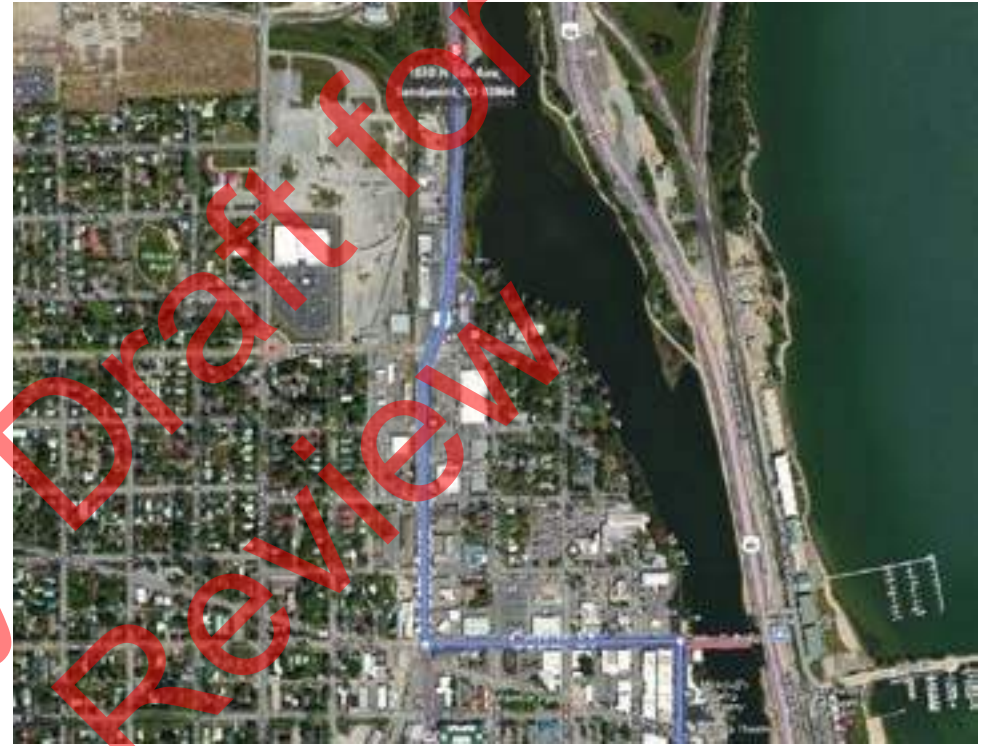


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.4 miles)
Second Cache: Bonners (32.5 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.5 mi



From turn off facing north with sign for orientation, culvert is central in frame.

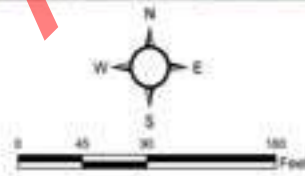


Facing east directly in front of culvert.

Site Lat Long:	48.286379 -116.552747 (http://www.google.com/maps/place/48.286379,-116.552747)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Surface Water Outflow. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Turn off across highway could be used as a good small to medium staging area. No boat launch facilities. Sandpoint City Beach boat launch is 1.6 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. depth is 5 to 10 feet; slow moving

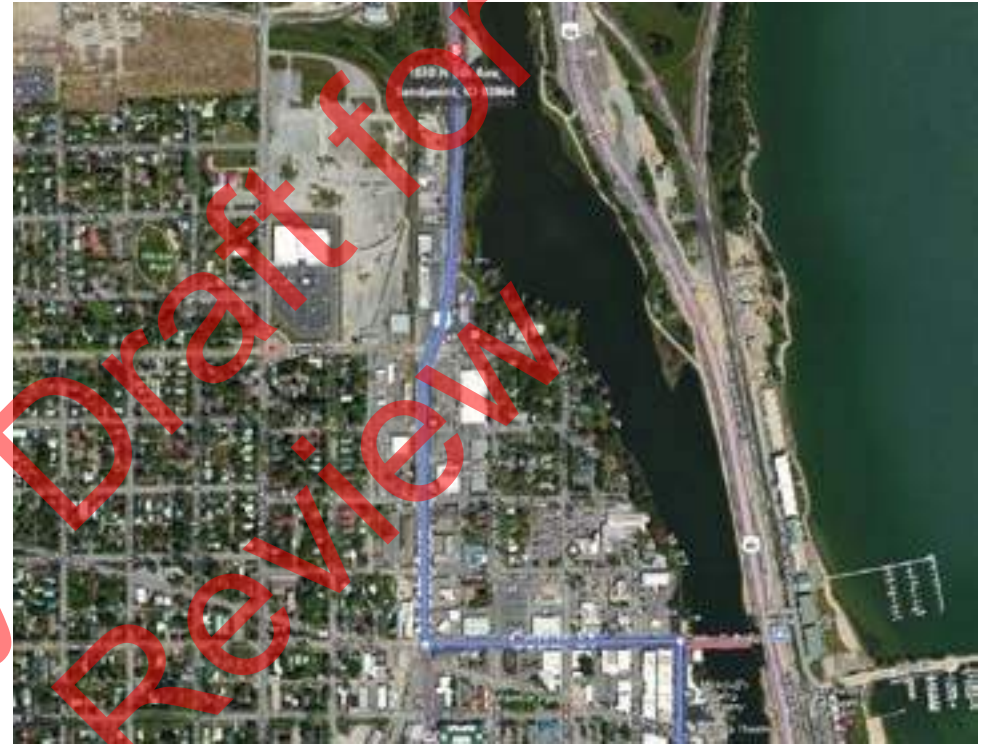


Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.4 miles)
Second Cache: Bonners (32.5 miles)

Nearest Address: 1125 5th Ave
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

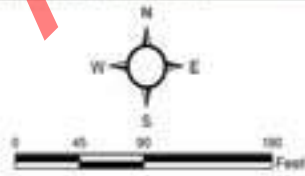
Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.5 mi
1307 North Fifth Avenue, Sandpoint, Idaho

Site Lat Long:	48.287579 -116.552849 (http://www.google.com/maps/place/48.287579,-116.552849)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Surface Water Outflow. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Right to tree. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Shoulder of highway on inside turn. No boat launch facilities. Sandpoint City boat launch is 1.7 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Sand Creek: gradient is low; substrate is gravel; approx. width is 615 ft.; approx. depth is 5 to 10 feet; slow moving

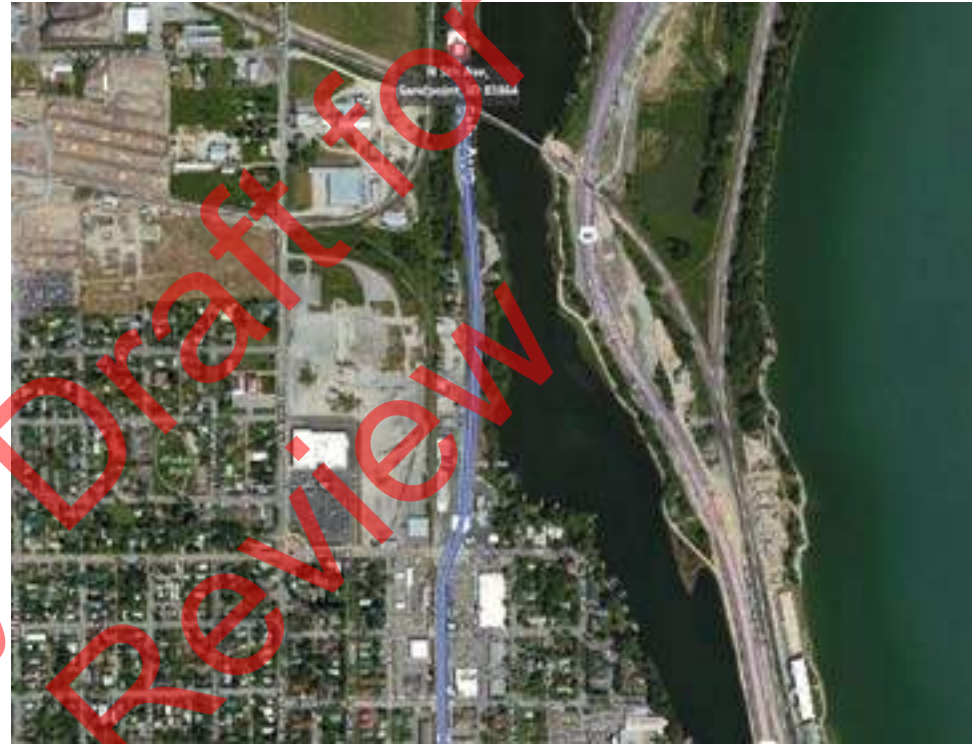


<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ● Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflection Boom — Exclusion Boom — Railroad Centerline — Major Road
--	---



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
75 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.5 miles)
Second Cache: Bonners (32.4 miles)

Nearest Address: 1500 N. Fifth Ave
Ponderay ID 83852

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.5 mi



Picture taken from culvert facing upstream, rail link bridge in background for orientation.

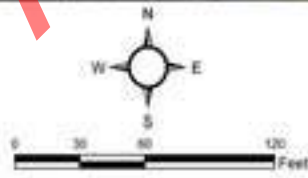


Picture of culvert facing downriver.

Site Lat Long:	48.28779 -116.557571 (http://www.google.com/maps/place/48.28779,-116.557571)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Deploy collection boom and initiate contaminant recovery at West Boyer Rd crossing, corner of N Boyer Ave and Baldy Mt Rd. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Medium sized parking area adjacent to West Boyer railroad crossing. No boat launch facilities. Sandpoint City Beach boat launch is 1.9 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
12	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (1.4 miles)
Second Cache: Bonners (32.4 miles)

Nearest Address: 600-902 Baldy Mountain RD
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St- 0.3 mi
2. Turn left onto Larch St- 0.2 mi
3. At the traffic circle, take the 1st exit onto N Boyer Ave- 0.5 mi
4. Turn left onto Baldy Mountain Rd, destination will be on the right- 128 ft

This page intentionally blank

Preliminary Draft for
Agency Review

Preliminary Draft for
Agency Review

Cardboard
Sector 4

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
Sector 4A <u>Northside- (Lakeshore)</u>	US95 478.53	BNSF Kootenai 1399.09	Bronx Rd	No	US95 473.87
	US95 479.99	BNSF Kootenai 1399.67	Sand Creek Water Treatment Plant	No	none
	SR200 33.15	MRL4 114.92	Boyer Slough	No	none
	SR200 34.53	MRL4 113.5	Oden Water Assn Water Intake	Yes	SR200 42.59
	SR200 34.98	MRL4 113.0	Culver Slough	Unlikely	US95 473.87
	SR200 36.39	MRL4 109.77	Pend Orielle State Wildlife Management Area	Unlikely	US95 473.87
	SR200 38.69	MRL4 109.93	Pack River Bridge	No	SR200 42.59
	SR200 41.28	MRL4 107.49	Sunnyside Water Intake	Yes	SR200 41.38
Sector 4B <u>Northside- (Selle Valley)</u>	US95 480.44	BNSF Kootenai 1397.09	West Selle Rd	No	uncertain
	US95 484.17	BNSF Kootenai 1393.33	East Colburn	No	US95 473.87
	US95 485.77	BNSF Kootenai 1391.75	Lower Pack River	No	none
	SR200 37.78	MRL4 111.05	Rapid Lightning Road Bridge	No	none



US95 478.53

US95 479.99

SR200 33.15

SR200 34.53

SR200 34.98

SR200 36.39

SR200 38.69

SR200 41.28

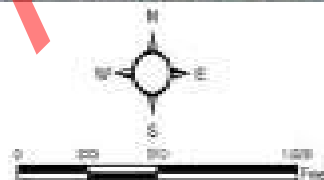
Preliminary Draft for Agency Review



Site Lat Long:	48.09251 -116.096934 (http://www.google.com/maps/place/48.328199,-116.552754)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Sand Creek flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Bronx Rd recovery location on Sand Creek. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis. Dense Vegetation River right and narrow county road.
Staging Area:	No staging area. Small to no staging area. Very narrow bridge. Sandpoint City Beach boat launch is 5.0 miles away. Sandpoint Ciboat launch Beach BL is 5.0 miles away.
Field Notes:	<ul style="list-style-type: none"> • Private property • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Recreation, Reservoir, Threatened and Endangered Species.
Watercourse:	Sand Creek: gradient is low; substrate is sand; approx. width is 24 ft.; approx. depth is 1 to 5 feet; fast moving.



■ Boom and Notification Strategy and Boat Ramp	— Collection Boom
■ Boom and Notification Strategy	— Isolation Boom
■ Notification Only	— Exclosure Boom
↓ Boat Ramp	— Release Containing
▲ Anchor Point	— Water Road
⊕ Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck; Absorbent Boom
75 ft.	Polypropylene Line
3	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 2	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
/	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (4.6 miles)
 Second Cache: Bonners (29.5 mile)

Nearest Address: 334 W Bronx Rd.
 Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 361 ft
 3. Take the ramp onto US-95 N 2.9 mi
 4. Turn left onto W Bronx Rd - 0.2 mi

Preliminary Draft for Agency Review



Bridge looking east.



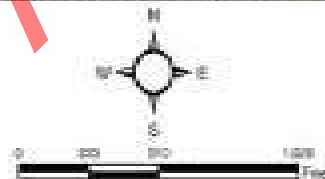
Sand creek looking north.

Preliminary Draft for Agency Review

Site Lat Long:	48.321576 -116.571611 (http://www.google.com/maps/place/48.321576,-116.571611)
Strategy Objective:	Notification Only.
Implementation:	Notify Sand Creek Water Treatment Plant - contact David Pafundi at 208-263-3440 to shut off water intake on Sand Creek.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Bottle Bay Bridge boat launch is 7.8 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake.
Watercourse:	



■ Boom and Notification Storage and Boat Ramp	— Collection Boom
■ Boom and Notification Storage	— In-Acceptor Boom
■ Notification Only	— Exclosure Boom
↓ Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Water Road
⊕ Highway Milepost	



Suggested Equipment	
Quantity	Description
None	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
	Booming Team Leader
	Safety Supervisor
/ None	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
/	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (4.1 miles)
Second Cache: Bonners (31.1 mile)

Nearest Address: 785 Rd Schweitzer Mtn.
Sandpoint ID 83864

Site-Specific Points of Contact

David Pafundi - (208) 263-3440
Ryan Luttmann - (208) 263-3407

Site Access

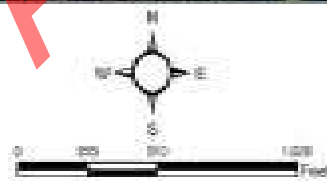
Sandpoint, Idaho

1. Head north on N Fifth Ave toward Alder St - 0.3 mi
2. Turn left onto Larch St - 0.2 mi
3. At the traffic circle, take the 1st exit onto N Boyer Ave - 2.1 mi
4. Turn left onto Schweitzer Mountain Rd - 1.2 mi
5. Turn right onto Boyer Rd. - 0.8 mi
6. Turn left onto Schweitzer Mountain Rd - 1.2 mi

Site Lat Long:	48.309266 -11.491667 (http://www.google.com/maps/place/48.309266,-116.491667)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	River flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Boyer Slough. Secure upstream end of boom River Right to fixed anchor. Secure downstream end of boom River Left to fixed anchor. Vacuum truck access is good. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Parking for vehicles and equipment on Whiskey Jack Rd near bridge over the slough. No boat ramp. Narrow shoulder. No boat launch facilities. Bottle Bay Bridge boat launch is 7.9 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use wooden pillars in slough to anchor boom at bridge. Second boom at mouth of slough anchored with steel posts to create containment or exclusion. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Boyer slough, fish habitat, wetlands habitat, and community recreational use
Watercourse:	Gradient is low; substrate is mud; approx. width is 40 ft.; approx. depth is 5 to 10 feet; braided channels; shoals; slow moving.



■ Boom and Notification Strategy and Boat Ramp	— Collection Boom
■ Boom and Notification Strategy	— In/Anchor Boom
■ Notification Only	— Exclusion Boom
↓ Boat Ramp	— Railroad Crossing
▲ Anchor Post	— Water Road
⊕ Highway Milepost	



Suggested Equipment	
Quantity	Description
200 ft.	Curtain Boom Tow Bridles
As Appropriate	Portable Skimmer; Vacuum Truck
300 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 2	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
/	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (5.2 miles)
Second Cache: Cabinet Gorge Dam (31.5 miles)

Nearest Address: 467-735 Whiskey Jack Rd
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 2.7 mi
3. Turn right onto Kootenai Bay Rd - 387 ft
4. Turn left onto Whiskey Jack Rd - 0.8 mi



Downstream view of slough from the east side of bridge.



East view of bridge and small parking area.

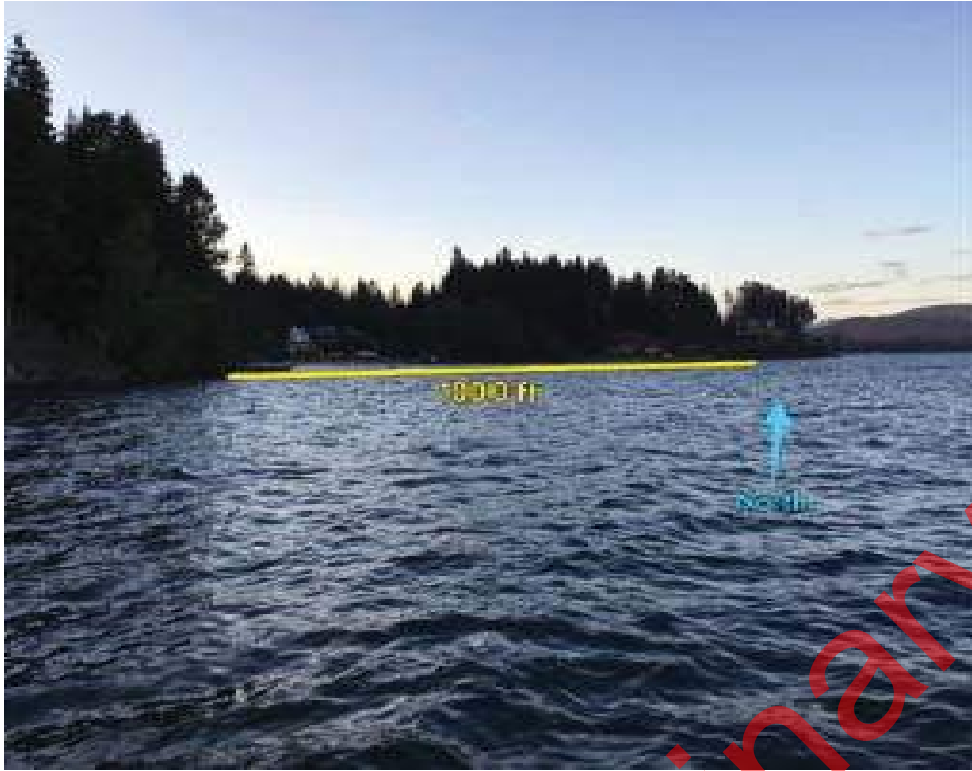
Preliminary Draft for Agency Review

Site Lat Long:	48.298221 -116.85555 (http://www.google.com/maps/place/48.298221,-116.472555)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Oden Water Assn Water Intake.
Implementation:	Secure upstream end of boom to North Shoreline to steel post. Secure downstream end of boom to South Shoreline to steel post. Vacuum truck access is poor. Notify Oden Water Association.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is none. Private community. Access from boat only. Trestle Creek boat launch is 9.4 miles away.
Field Notes:	<ul style="list-style-type: none"> No road access 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Community water intake
Watercourse:	Lake Pend Oreille; approx. depth is 10 to 20 feet



Suggested Equipment	
Quantity	Description
1000 ft.	Curtain Boom Tow Bridles
As Appropriate	
1250 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Sandpoint (7.1 miles)
Second Cache: Cabinet Gorge Dam (28.2 miles)

Nearest Address: 55 Ideal Dr.
Sandpoint ID 83864

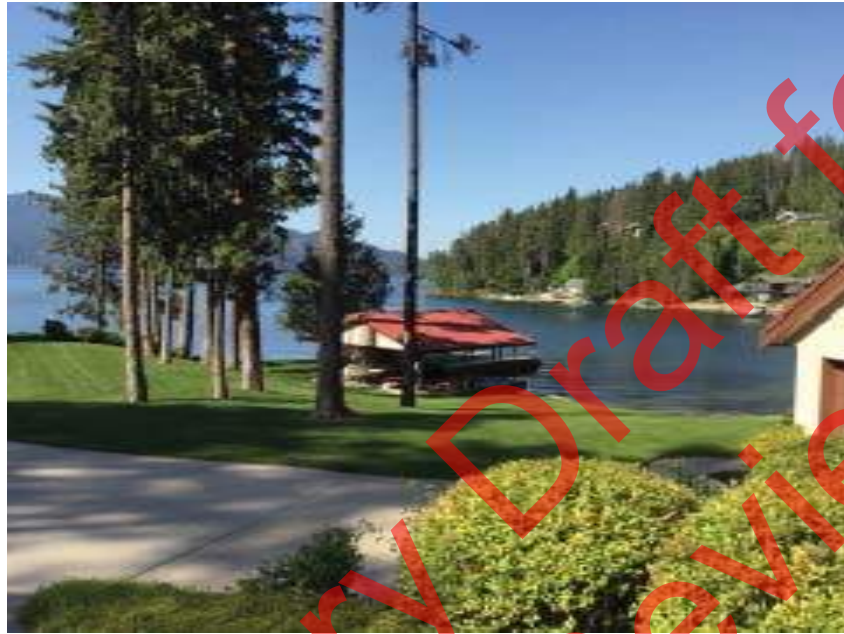
Site-Specific Points of Contact

Carla Poelstra, Intake Manager (208) 255-4001

Site Access - use Sandpoint City Beach boat launch, directions below

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 171 ft
2. Turn left onto Pine St 0.3 mi
3. Pine St turns left and becomes N First Ave 246 ft
4. Turn right onto Bridge St 0.2 mi
5. Turn right



View of water intake area from private residence east of the bay.



View of the Oden water intake cover, looking northwest.

Preliminary Draft for Agency Review

Site Lat Long:	48.316028 -116.455518 (http://www.google.com/maps/place/48.316028,-116.455518)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Culver Slough.
Implementation:	Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Use Sandpoint City Beach boat launch. Trestle Creek boat launch is 7.6 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Culver Slough, fish habitat, wetlands, recreation.
Watercourse:	Lake Pend Oreille; substrate is mud; approx. depth is 5 to 10 feet; slow moving; shoals.



■ Boom and Notification Strategy and Boat Pump	— Collection Boom
■ Boom and Notification Strategy	— In-Anchor Boom
■ Notification Only	— Exclusion Boom
● Boat Pump	— Railroad Centerline
▲ Anchor Post	— Bayou Road
⊕ Highway Milepost	



Suggested Equipment	
Quantity	Description
450 ft.	Curtain Boom Tow Bridles
As Appropriate	
525 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (7.1 miles)
Second Cache: Cabinet Gorge Dam (28.2 miles)

Nearest Address: 224 Sunnyside Rd.
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access - use Sandpoint City Beach boat launch, directions below

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 171 ft
2. Turn left onto Pine St 0.3 mi
3. Pine St turns left and becomes N First Ave 246 ft
4. Turn right onto Bridge St 0.2 mi
5. Turn right



Culver slough seen from the Kaniksu Estates road.



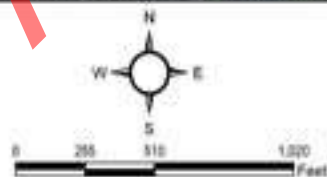
Culver Slough from lake Pend Orellie looking northwest.

Preliminary Draft for Agency Review

Site Lat Long:	48.29857 -116.423699 (http://www.google.com/maps/place/48.29857,-116.423699)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Pend Orielle state wildlife management area upper.
Implementation:	Lake Pend Oreille flow direction is to the west. Secure upstream end of boom East Shoreline to tree. Secure downstream end of boom West Shoreline to tree.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Hawkin's Point boat launch is 3.6 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Wildlife management area
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is over 20 feet.



● Boom and Notification Strategy and Boat Ramp	— Collector Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
0 ft.	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
4 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (10.4 miles)
Second Cache: Cabinet Gorge Dam (29.2 mile)

Nearest Address: 2766-3426 Sunnyside Rd
Kootenai ID 83840

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 6.4 mi
3. Turn right onto Sunnyside Cut Off Rd - 1.2 mi
4. Turn left onto Sunnyside Rd for 2.1 mi
5. Slight right to stay on Sunnyside Rd

Destination will be on the right



Looking north towards upper management area.



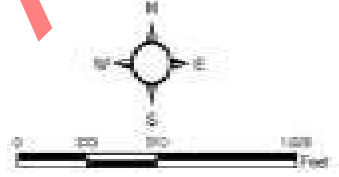
None

Preliminary Draft for Agency Review

Site Lat Long:	48.323983 -116.385015 (http://www.google.com/maps/place/48.323983,-116.385015)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Pack River Bridge.
Implementation:	Pack River flow direction is to the south. Deploy boom across three separate channels under the highway. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Limited parking along SR200. No boat launch facilities. Trestle Creek boat launch is 3.9 miles away. Trestle Creek BL is 3.9 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Pack River delta, fish habitat, wetlands, recreation
Watercourse:	Pack River: gradient is low; substrate is mud; approx. width is 100 ft.; approx. depth is 5 to 10 feet; braided channels; slow moving.



■ Boom and Notification Storage and Boat Ramp	— Collection Boom
■ Boom and Notification Storage	— De-Anchor Boom
■ Notification Only	— Exclusion/Boat
● Boat Ramp	— Railroad Centerline
▲ Anchor Post	— Water Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
700 ft.	Curtain Boom Tow Bridles
As Appropriate	
900 ft.	Polypropylene Line
18	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
/	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (10.6 miles)
Second Cache: Cabinet Gorge Dam (24.5 mile)

Nearest Address: 3800 Highway 200
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 8.0 mi



Pack River bridge from SR200 east bound.



Pack River bridge from SR200 west bound.

Preliminary Draft for Agency Review

Site Lat Long:	48.279969 -116.39325 (http://www.google.com/maps/place/48.279969,-116.39325)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Sunnyside water intake.
Implementation:	Lake Pend Oreille flow direction is to the west. Secure upstream end of boom East Shoreline to tree. Secure downstream end of boom West Shoreline to tree. Vacuum truck access is good. Notify Sunnyside Water Intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Private road with room for parking and equipment staging. No boat launch facilities. Hawkin's Point boat launch is 0.8 miles away.
Field Notes:	<ul style="list-style-type: none"> • Buoy anchor for mid point boom set • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Water intake
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is over 20 feet.

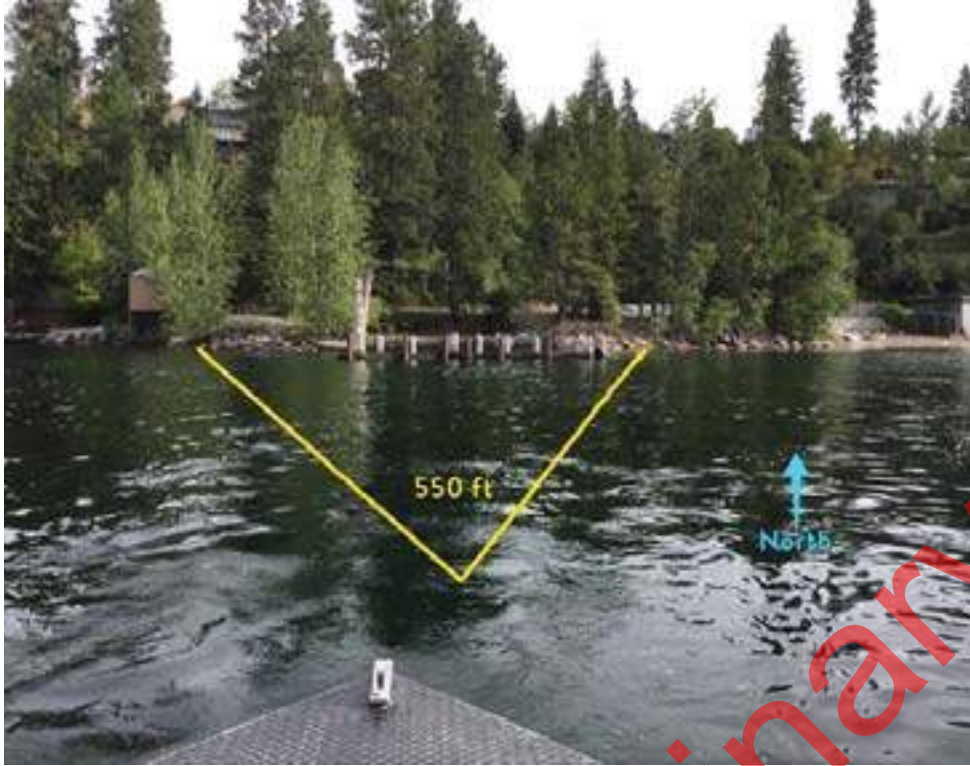


■ Boom and Notification Strategy and Boat Ramp	— Collection Boom
■ Boom and Notification Strategy	— In-Anchor Boom
■ Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Water Road
● Highway Mileage	



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	
650 ft.	Polypropylene Line
0	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (12.8 miles)
Second Cache: Cabinet Gorge Dam (31.6 miles)

Nearest Address: 210 Steamwhistle Way
Sandpoint ID 83864

Site-Specific Points of Contact

Bob Hansen, Intake Manger (208) 265-4270

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 6.4 mi
 3. Turn right onto Sunnyside Cut Off Rd - 1.2 mi
 4. Turn left onto Sunnyside Rd - 2.1 mi
 5. Slight right to stay on Sunnyside Rd - 1.3 mi
- 4787 Sunnyside Road, Sandpoint, Idaho



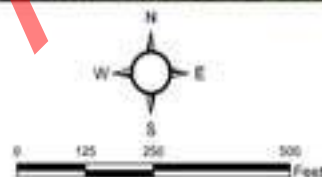
Looking north at water intake and anchor locations.



Staging area looking west.

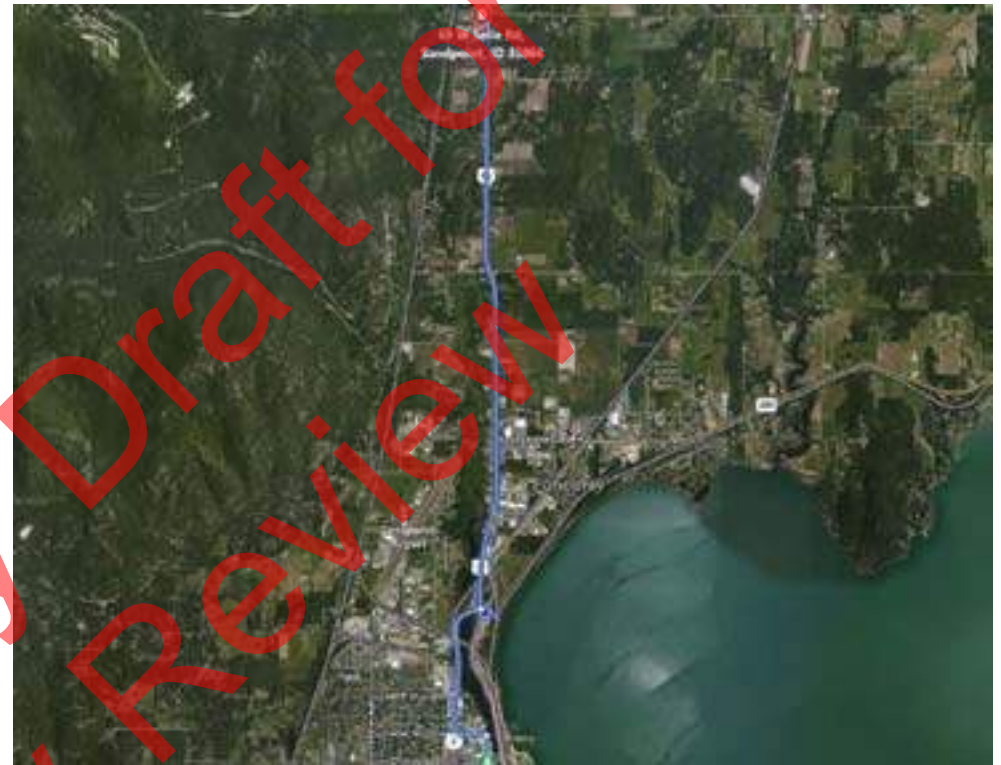
Preliminary Draft for Agency Review

Site Lat Long:	448.357166 -116.549228 (http://www.google.com/maps/place/48.357166,-116.549228)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	River flow direction is to the north. Deploy collection boom and initiate contaminant recovery at W Selle Rd. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Limited parking available on roadside. No boat launch facilities. Sandpoint City Beach boat launch is 7.1 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Colburn creek, wildlife habitat
Watercourse:	Gradient is low; substrate is gravel; approx. width is 10 ft.; approx. depth is 1 to 5 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
50 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (6.5 miles)
Second Cache: Bonners (27.3 miles)

Nearest Address: 37 W Selle Rd
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head south on N Fifth Ave toward Cedar St - 171 ft
2. Turn right onto Cedar St - 0.2 mi
3. Turn right onto N Boyer Ave - 0.3 mi
4. At the traffic circle, take the 2nd exit and stay on N Boyer Ave - 2.1 mi
5. Turn right onto Schweitzer Cutoff Rd - 0.2 mi
6. Turn left at the 1st cross street onto US2 E/US-95 N - 3.3 mi
7. Turn left onto W Selle Rd - 187 ft



Looking west at the upstream end of culvert and strategy area.



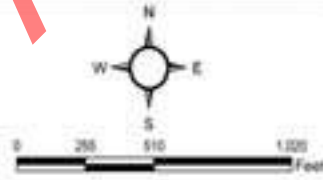
Looking east across bridge.

Preliminary Draft for Agency Review

Site Lat Long:	48.408283 -116.527569 (http://www.google.com/maps/place/48.408283,-116.527569)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	River flow direction is to the north. Deploy collection boom and initiate contaminant recovery at East Colburn. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Small parking area available along road shoulder adjacent to Colburn creek culvert. No boat launch facilities. Sandpoint City Beach boat launch is 10.6 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Sand creek, Sandpoint municipal water supply, wildlife habitat
Watercourse:	Gradient is low; substrate is gravel; approx. width is 15 ft.; approx. depth is 1 to 5 feet; channelized; slow moving

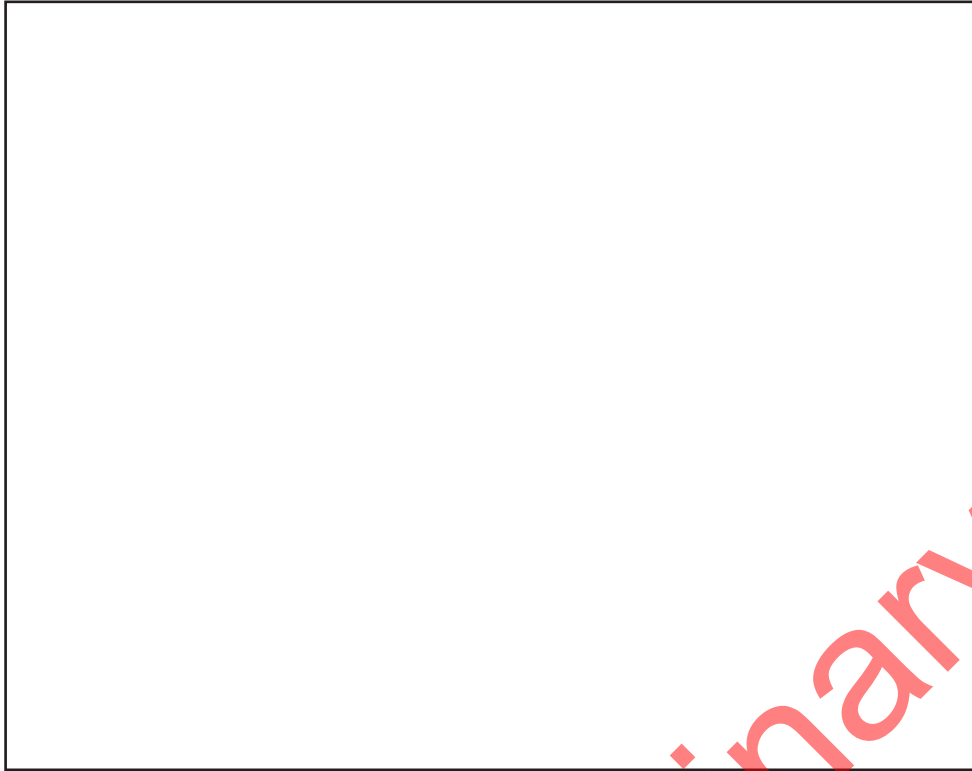


<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflector Boom — Exclusion Boom — Railroad Centerline — Major Road
--	--



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
50 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (10.3 miles)
Second Cache: Bonners (23.5 miles)

Nearest Address: 1-499 Browns Rd
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 361 ft
3. Take the ramp onto US-95N - 8.7 mi
4. Turn left onto Browns Rd - 203 ft
5. Turn left to stay on Browns Rd - 246 ft



Looking south at upstream end of culvert and collection point.



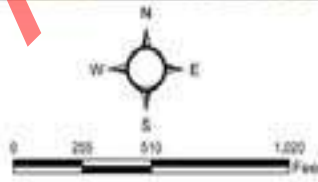
None

Preliminary Draft for Agency Review

Site Lat Long:	48.407838 -116.478474 (http://www.google.com/maps/place/48.407838,-116.478474)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Pack River flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Lower Pack River Collection Point. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Right to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Small grass parking area on west side of bridge, north of bridge. No boat launch facilities. Trestle Creek boat launch is 14.5 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Pack River, wildlife habitat, recreation
Watercourse:	Pack River: gradient is low; substrate is sand; approx. width is 90 ft.; approx. depth is 1 to 5 feet; channelized; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
◇ Boat Ramp	— Railroad Centreline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
150 ft.	Curtain Boom Tow Bridles
As Appropriate	
225 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="text" value="N"/>	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Sandpoint (12.4 miles)
Second Cache: Bonners (26.9 miles)

Nearest Address: 2771 Rd Colburn Culver
Sandpoint ID 83864

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 361 ft
 3. Take the ramp onto US-95N - 8.1 mi
 4. Turn right onto Colburn Culver Rd - 2.9 mi



Looking north from collection point on River right to upstream anchor on River left.

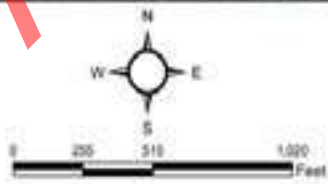


Looking west from river bank to staging area.

Site Lat Long:	48.364336 -116.408388 (http://www.google.com/maps/place/48.364336,-116.408388)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Pack River flow direction is to the south. Deploy collection boom and initiate contaminant recovery at Rapid Lightning Rd Bridge. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good. Notify Northside Fire District.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Small sandy parking area south of bridge near collection point. No boat launch facilities. Trestle Creek boat launch is 8.2 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Pack River, reservoir, wildlife habitat, recreation
Watercourse:	Pack River: gradient is low; substrate is sand; approx. width is 70 ft.; approx. depth is 5 to 10 feet; channelized; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
150 ft.	Curtain Boom Tow Bridles
As Appropriate	
200 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (12.3 miles)
 Second Cache: Cabinet Gorge Dam (28.8 miles)

Nearest Address: 1572 Rd Rapid Lightning
 Sandpoint ID 86864

Site-Specific Points of Contact

Brad Midden, Fire Chief (208) 255-6868

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 6.2 mi
 3. Turn left onto Colburn Culver Rd - 2.8 mi
 4. Turn right onto Rapid Lightning Rd/Rapid Lightning Creek Rd
 1572 Rapid Lightning Creek Road

Preliminary Draft for Agency Review



Looking north from collection point on River right to upstream anchor on River left.



Looking east from shore into staging area.

Preliminary Draft for Agency Review

Preliminary Draft for
Agency Review

Cardboard
Sector 5

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
	SR200 40.78	MRL4 107.95	Pack River Trestle	Uncertain	SR200 42.59
	SR200 42.09	MRL4 106.71	Trestle Creek	Unlikely	SR200 42.59
	SR200 46.4	MRL4 102.4	Red Fir Resort Water Intake	Yes	SR200 47.9
	SR200 48.08	MRL4 100.86	Islandview Resort Water Intake	Yes	SR200 47.38
	SR200 49.45	MRL4 99.36	Kullyspell Estates Water Intake	Yes	SR200 47.38 or SR200 49.46
	SR200 50.19	MRL4 98.52	David Thompson Wildlife Preserve	Unlikely	SR200 47.38
	SR200 50.4	MRL4 98.43	Denton Slough	Unlikely	SR200 51.69

Sector 5
Sam Owen

SR200 40.78

SR200 42.09

SR200 46.4

SR200 48.08

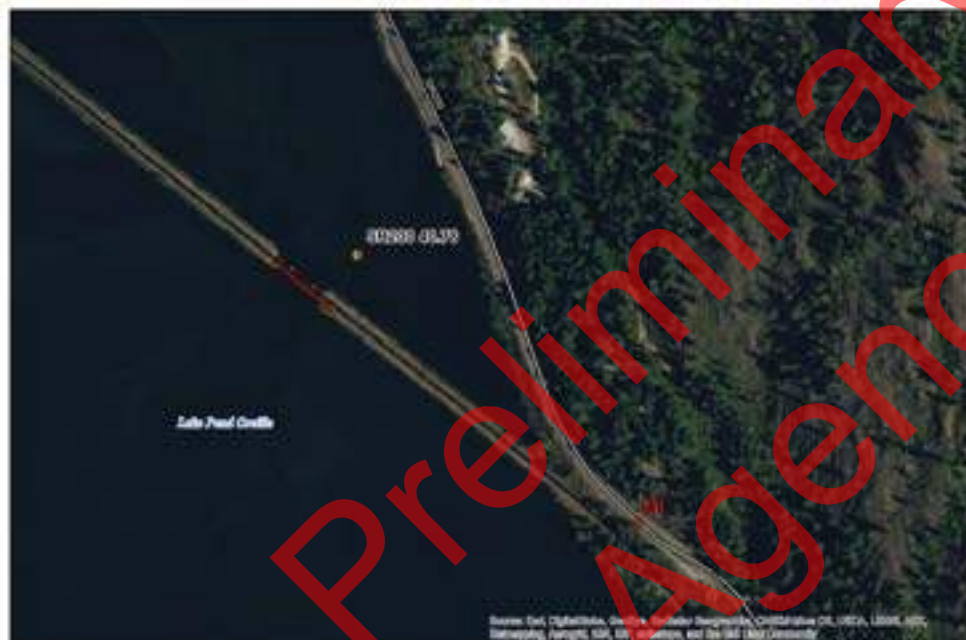
SR200 49.45

SR200 50.19

SR200 50.4

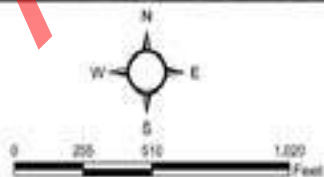
Preliminary Draft for Agency Review

Site Lat Long:	48.29822 -116.36682 (http://www.google.com/maps/place/48.29822,-116.36682)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Pack River Trestle.
Implementation:	Pack River flow direction is to the south. Secure upstream end of boom to East Shoreline to steel post. Secure downstream end of boom to West Shoreline to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Use Trestle Creek boat ramp to deploy boom at Pack River Trestle. Small parking area adjacent to trestle for vehicle parking if needed. No boat launch facilities. Trestle Creek boat launch is 1.8 miles away.
Field Notes:	<ul style="list-style-type: none"> Exclusion boom on either side of trestle depending on which side of track spill occurs. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Pack River: gradient is low; substrate is sand; approx. width is 900 ft.; approx. depth is over 20 feet; slow moving; channelized



Legend:

- Boom and Notification Strategy and Boat Ramp
- Boom and Notification Strategy
- Notification Only
- Boat Ramp
- Anchor Point
- Highway Milepost
- Collection Boom
- Deflection Boom
- Exclusion Boom
- Railroad Centerline
- Major Road



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	
450 ft.	Polypropylene Line
10	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Sandpoint (12.7 miles)
Second Cache: Cabinet Gorge Dam (22.3 miles)

Nearest Address: 41159 Highway

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 17.5 mi
Trestle Creek Boat Launch



Looking south from SR200 toward Pack River Trestle.

None

Site Lat Long:	48.28316 -116.35418 (http://www.google.com/maps/place/48.28316,-116.35418)
Strategy Objective:	Prevent contaminant from impacting sensitive area at Trestle Creek.
Implementation:	Lake Pend Oreille flow direction is to the west. Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom South Shoreline to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Trestle Creek boat launch is 0.5 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use buoys as midpoint anchors for boom set • Only accessible by boat from Trestle Creek boat launch • 4WD Access: NO • Seasonal Access Only: YES • Locked Gate: NO
Resources Targeted:	Threatened and Endangered Species
Watercourse:	Lake Pend Oreille: gradient is low; substrate is mud; approx. depth is 1 to 5 feet



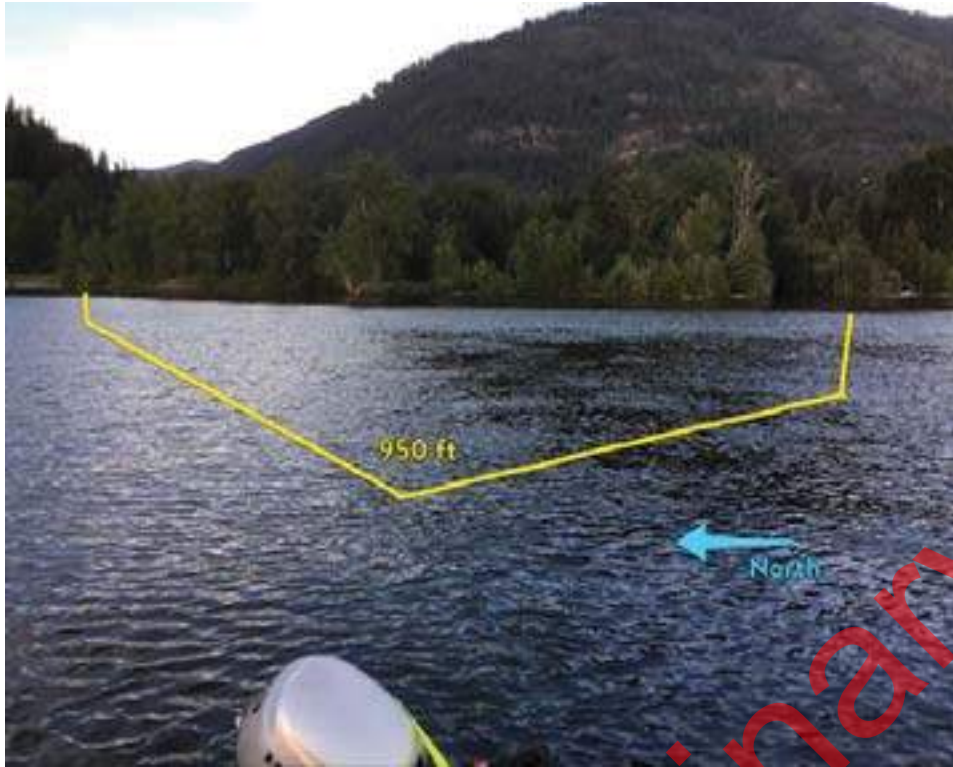
● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
◇ Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	

Suggested Equipment

Quantity	Description
950 ft.	Curtain Boom Tow Bridles
As Appropriate	
1250 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



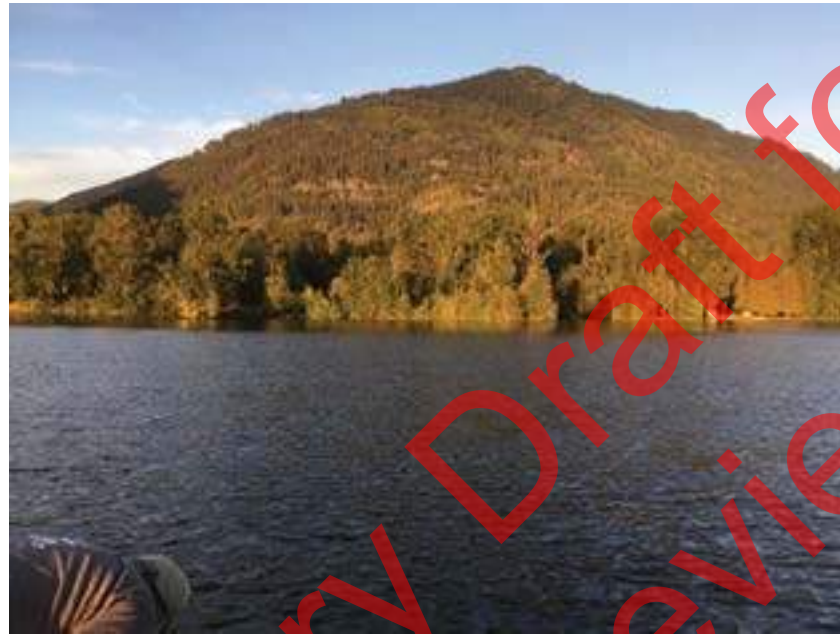
Nearest Cache: Sandpoint (14.1 miles)
Second Cache: Cabinet Gorge Dam (21.1 miles)

Nearest Address: 88 N Park Rd
Hope ID 83836

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 17.5 mi
- Trestle Creek Boat Launch



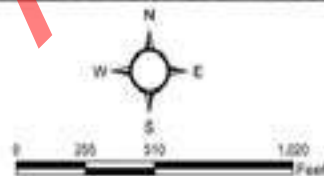
Trestle Creek looking north from Lake Pend Oreille

None

Site Lat Long:	48.228764 -116.301167 (http://www.google.com/maps/place/48.228764,-116.301167)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Red Fir Resort water intake.
Implementation:	Secure upstream end of boom East Shoreline to steel post. Secure downstream end of boom West Shoreline to steel post. Vacuum truck access is poor. Notify Red Fir Water Intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Limited staging area and parking available at resort. No boat launch facilities. Beyond Hope Resort boat launch is 1.8 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Municipal water intake
Watercourse:	Lake Pend Oreille: approx. depth is 10 to 20 feet



<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Strategy ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflection Boom — Exclusion Boom — Railroad Centerline — Major Road
--	---



Suggested Equipment	
Quantity	Description
900 ft.	Curtain Boom Tow Bridles
As Appropriate	
1100 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (17.0 miles)
Second Cache: Sandpoint (21.9 miles)

Nearest Address: 1147 Red Fir Rd
Hope ID 83836

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 18.3 mi
 3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd
 4. Continue onto Red Fir Rd - 1.3 mi
- 1147 Red Fir Road, Hope, Idaho



Water intake

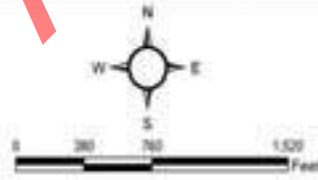
Preliminary Draft for Agency Review

None

Site Lat Long:	48.209413 -116.288354 (http://www.google.com/maps/place/48.209413,-116.288354)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Island View Resort water intake.
Implementation:	Secure upstream end of boom to North Shoreline to steel post. Secure downstream end of boom to South Shoreline to steel post. Notify Island View Resort.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Use East Hope Boat Ramp for staging and boat launch. No boat launch facilities. Beyond Hope Resort boat launch is 0.5 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: YES ● Locked Gate: NO
Resources Targeted:	Municipal water intake
Watercourse:	Lake Pend Oreille: substrate is gravel; approx. depth is 10 to 20 feet



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	
750 ft.	Polypropylene Line
None	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (16.8 miles)
Second Cache: Sandpoint (21.8 miles)

Nearest Address: 1767 Peninsula Rd
Hope ID 83836

Site-Specific Points of Contact

Misha Van Booven (208) 264-5509

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 18.3 mi
 3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd - 0.8 mi
 4. Turn left onto Hope Peninsula Rd/Peninsula Rd - 1.0 mi
- 1767 Peninsula Road, Hope, Idaho



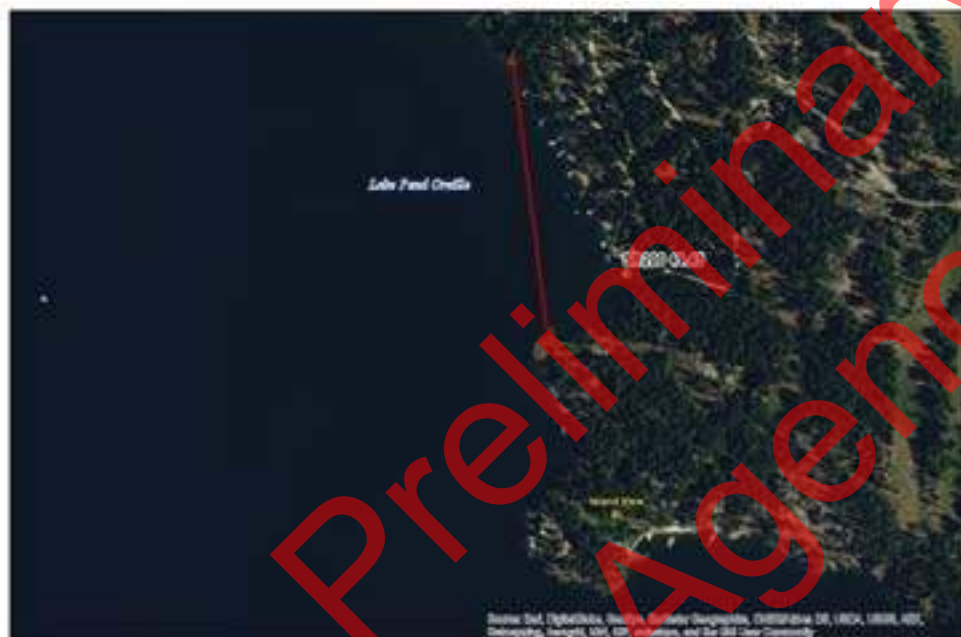
Surface water intake.



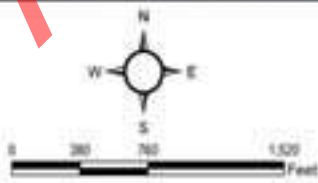
Looking towards the intake from the lake, facing north.

Preliminary Draft for Agency Review

Site Lat Long:	48.197571 -116.28636 (http://www.google.com/maps/place/48.197571,-116.28636)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Kullyspell Estates water intake.
Implementation:	Secure upstream end of boom to North Shoreline to steel post. Secure downstream end of boom to South Shoreline to steel post. Notify Kullyspell Water Intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Use East Hope Boat Launch for access and staging. No boat launch facilities. Island View boat launch is 0.3 miles away. Island View BL is 0.3 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use Island View Boat Launch for access. Access from boat only. • 4WD Access: NO • Seasonal Access Only: YES • Locked Gate: NO
Resources Targeted:	Municipal water intake
Watercourse:	Lake Pend Oreille: substrate is gravel; approx. depth is 10 to 20 feet



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
1500 ft.	Curtain Boom Tow Bridles
As Appropriate	
1900 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (17.8 miles)
Second Cache: Sandpoint (22.8 miles)

Nearest Address: 575 Osprey Cr
Hope ID 83836

Site-Specific Points of Contact

Jim Erdman, Intake Manager (208) 290-4184

Site Access - Boat access only, use Island view boat launch, directions below

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 18.3 mi
3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd - 0.8 mi
4. Turn left onto Hope Peninsula Rd/Peninsula Rd - 1.3 mi
5. Turn left onto E David Thompson Rd - 0.1 mi
6. Turn right onto Osprey Cir - 0.5 mi
7. Slight left onto Kienholz Dr - 266 ft

Kienholz Drive, Hope, Idaho



Water intake for Kullyspell Estates located offshore in this area.

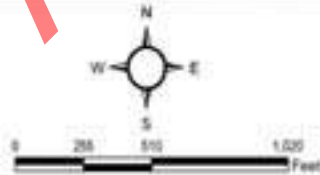


Looking at the estates from the lake, facing north.

Site Lat Long:	48.191753 -116.261614 (http://www.google.com/maps/place/48.191753,-116.261614)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at David Thompson Wildlife Preserve.
Implementation:	Secure upstream end of boom North Shoreline to steel post. Secure downstream end of boom North Shoreline to steel post. Vacuum truck access is poor. Not accessible by boat in low water.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Hope Marina boat launch is 2.6 miles away.
Field Notes:	<ul style="list-style-type: none"> Private road extends along wildlife preserve, through this road one could access the preserve via land. A private driveway or yard could potentially be used as a staging area, but no boat ramp is present. Closest boat ramp is Hope Marina. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife
Watercourse:	Lake Pend Oreille:



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	

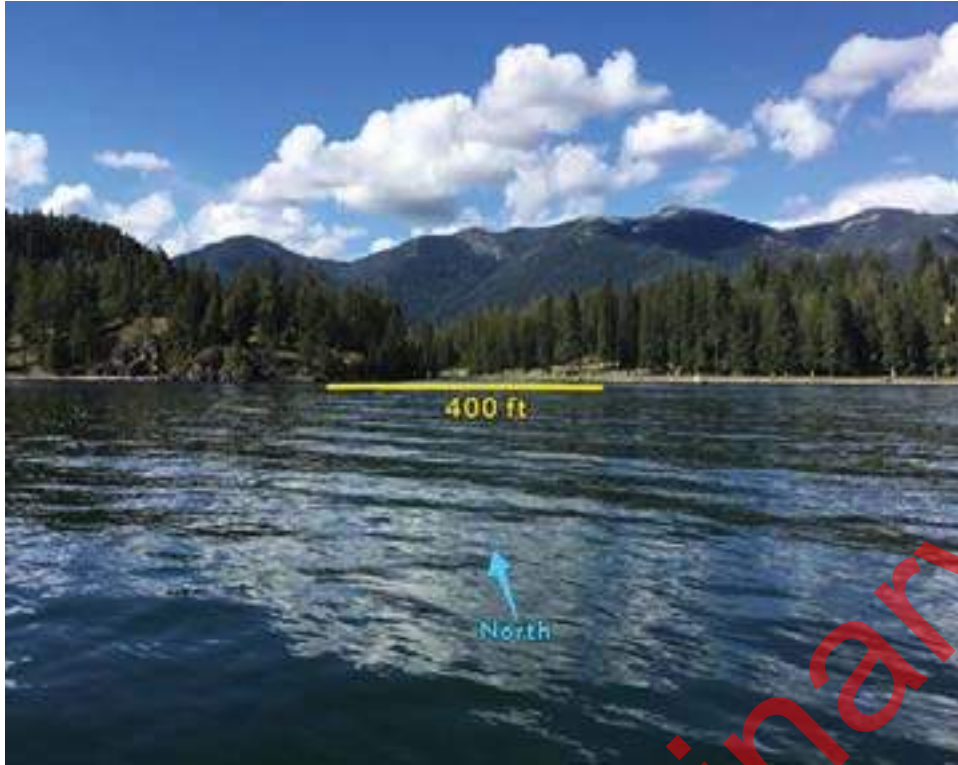


Suggested Equipment

Quantity	Description
400 ft.	Curtain Boom Tow Bridles
As Appropriate	
525 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (16.9 miles)
Second Cache: Sandpoint (21.9 miles)

Nearest Address: 296 Hope School Rd
Hope ID 83836

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 18.3 mi
3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd - 92 ft
4. Turn left onto Hope School Rd - 0.3 mi
5. Turn left - 141 ft
6. Slight right - 92 ft

255 Hope School Road, Hope, Idaho



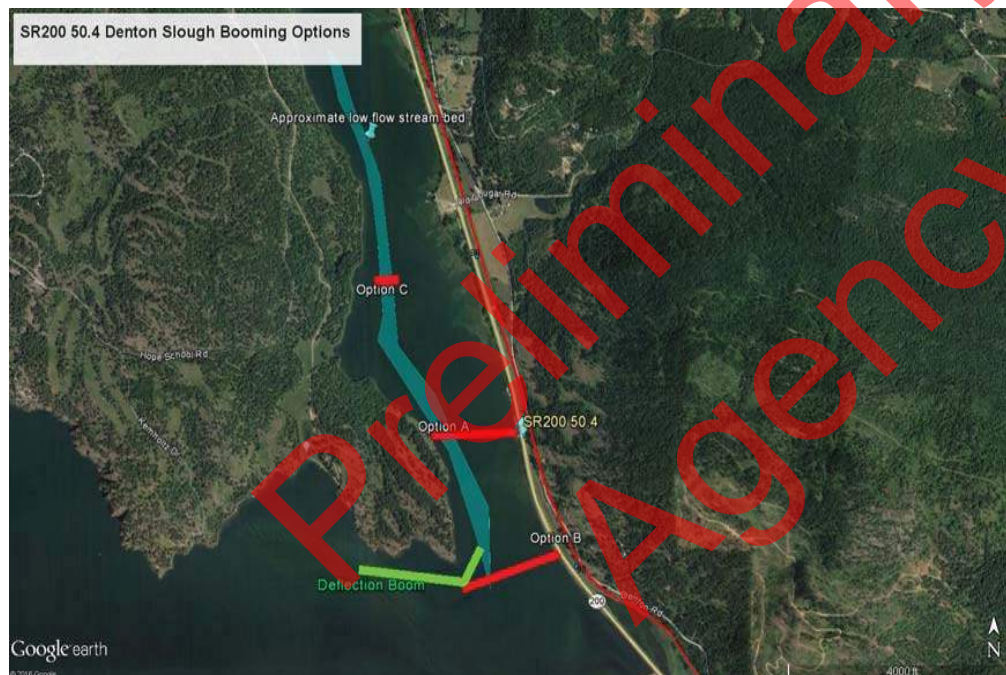
Close-up view of wildlife preserve, facing northwest.



Private residences, that may be used as a possible staging ground, they lie just east of wildlife preserve.

Preliminary Draft for Agency Review

Site Lat Long:	48.192413 -116.246086 (http://www.google.com/maps/place/48.192413,-116.246086)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Denton Slough.
Implementation:	Three booming options are suggested depending upon source of contamination, wind direction and water level. See Section 4.3.2 and the end of this strategy data sheet for further descriptions for 3 booming options.
Site Safety Note:	Complete Job Safety Analysis. Low water lake levels will result in very muddy and shallow channels
Staging Area:	On site staging is large. Large parking area for vehicles and equipment on north side of slough, south side of the highway. No boat launch facilities. Clark Fork River Driftyard boat launch is 1.5 miles away.
Field Notes:	<ul style="list-style-type: none"> • Use Clark Fork River boat ramp for access from water. No boat ramp at this location. Boom to be placed across inlet of slough or around point at south side of slough inlet depending on wind or spill location. • See supplemental information at the end of this strategy data sheet for further information.
Resources Targeted:	Recreation, Reservoir, Threatened and Endangered Species, cultural resources
Watercourse:	Lake Pend Oreille; substrate is gravel; approx. width is 1500 ft.; approx. depth is over 20 feet; slow moving; channelized



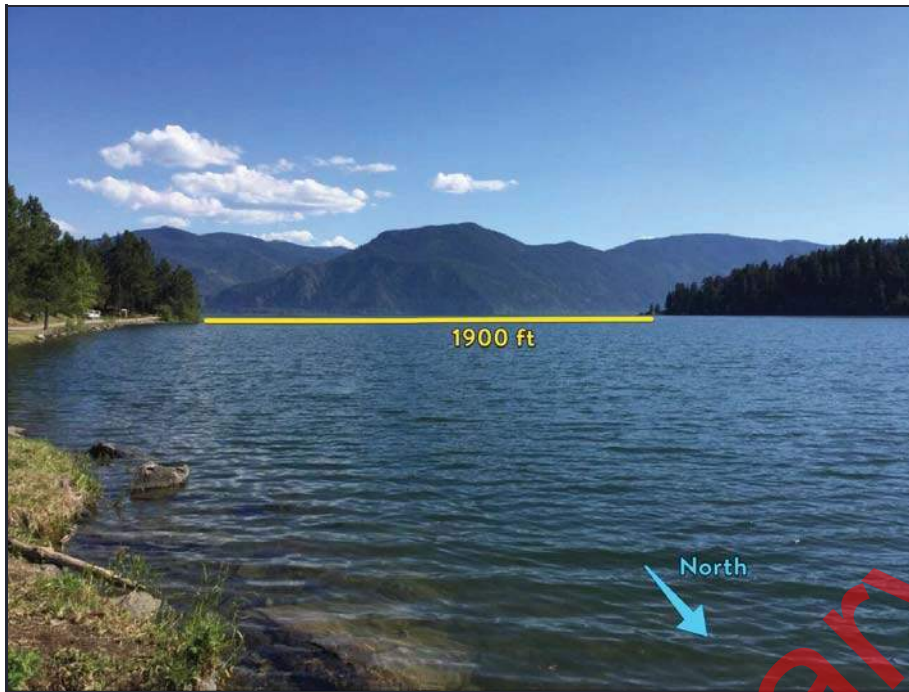
Suggested Equipment

Quantity	Description
1900 ft.	Curtain Boom Tow Bridles
As Appropriate	skimmer and vacuum truck
2400 ft.	Polypropylene Line
10	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
3	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input checked="" type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)

Visited on 2016-06-29



Nearest Cache: Cabinet Gorge Dam (12.8 miles)
 Second Cache: Sandpoint (22.2 miles)

Nearest Address: 4523 Denton Rd
 Hope ID 83836

Site-Specific Points of Contact:

US Army Corps of Engineers

State Historical Preservation Office

Kalispell Tribe

Site Access- directions to Clark Fork River Driftyard boat launch

Sandpoint, Idaho

1. Head north on on US-2 E/N Fifth Ave
2. Continue onto ID-200
3. Continue for 21.6 miles
(If you cross over the RR track bridge, you went too far)
4. Turn right onto Driftyard Road; continue for about 1 mile.



Denton slough staging area.



View from west end of staging area looking at the mouth of Denton slough.

Preliminary Draft for Agency Review

Denton Slough	(MRL4 98.43)	SR200 50.4
Supplemental Information		
Implementation	<p>Three booming options are suggested depending upon source of contamination, wind direction and water level.</p> <p>See Section 4.3.2 for further descriptions and a larger booming photo.</p> <ul style="list-style-type: none"> • Boom Option A—secure boom to east and west shorelines to steel posts with one in-water anchor in the middle. • Boom Option B—Secure east side to steel post and west side to an in-water anchor, with another in-water anchor in the middle if needed. • Boom Option C for low water situations – secure east and west sides to steel posts driven into channel bottom. • Anticipate significant mud for Boom Option C. • Deploy deflection boom as shown in photo below for contamination moving from the lake northwards. 	
Field Notes	<ul style="list-style-type: none"> • No vehicle access on west side; Dormar Drive, also known as Hope School Road, is gated and does not reach the shore. • Vacuum truck access is good on east side • Use Clark Fork River boat ramp for access from water. No boat ramp at this location • 4WD Access: NO • Seasonal Access Only: No • Locked Gates: <ul style="list-style-type: none"> ○ West side -- Yes ○ East side -- NO 	
Contact Notes	<p>For all booming options, contact US Army Corps of Engineers, State Historical Preservation Office, and Kalispell Tribe for boom anchor location limitations.</p>	



4000 ft

Figure 4-3 SR200 50.4 Denton Slough Booming Options

Approximate low flow stream bed

Option C

SR200 50.4

Option A

Option B

Deflection Boom

200

Preliminary Draft for Agency Review

This page intentionally blank

Preliminary Draft for
Agency Review

Preliminary Draft for
Agency Review

Cardboard
Sector 6

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
--------------	----------------------------	-------------------	-----------	----------------------------------	-----------------------------------

Sector 6
Clark Fork

	SR200 54.83	MRL4 94.47	Johnson Creek Trestle	Unlikely	SR200 54.83
	SR200 56.05	MRL4 92.92	Clark Fork Bridge	Yes	SR200 57.07
	SR200 57.12	MRL4 91.79	Lower Fish Hatchery Slough	Uncertain	SR200 57.07
	SR200 58.62	MRL4 90.45	Upper Fish Hatchery Slough	Uncertain	SR200 58.77
	SR200 60.79	MRL4 87.66	Clark Fork River Access	Yes	SR200 60.79
	SR200 61.63	MRL4 86.81	Cabinet Gorge Fish Hatchery	Yes	on site
	SR200 62.95	MRL4 85.35	Cabinet Gorge Dam	Yes	on site

Preliminary Draft for
Agency Review

SR200 54.83

SR200 56.05

SR200 57.12

SR200 58.62

SR200 60.79

SR200 61.63

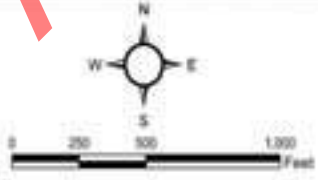
SR200 62.95

Preliminary Draft for Agency Review

Site Lat Long:	48.141411 -116.205066 (http://www.google.com/maps/place/48.141411,-116.205066)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Johnson Creek Trestle.
Implementation:	Clark Fork flow direction is to the west. Secure upstream end of boom River Left to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. The staging area consists of a small gravel boat ramp, off of a county road. There is very limited parking and working area. Gravel boat launch. Derr Island boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> The Johnson Creek road trestle is privately owned by Delta Shore estates. With access to this road one could do exclusion boom without a boat, but a boat would greatly assist the operation. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife, Recreation
Watercourse:	Clark Fork: gradient is low; substrate is gravel; approx. width is 900 ft.; approx. depth is 10 to 20 feet; braided channels; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
300 ft.	Curtain Boom Tow Bridles
As Appropriate	
400 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
10	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
1 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (10.5 miles)
Second Cache: Sandpoint (29.6 miles)

Nearest Address: 1348 Johnson Crk Rd
Clark Fork ID 83811

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 25.4 mi
 3. Turn right onto Stephen St - 0.3 mi
 4. Turn left onto S River Rd - 0.7 mi
 5. Continue onto Johnson Creek Rd - 295 ft
 6. Turn right to stay on Johnson Creek Rd - 1.6 mi
- Destination will be on the right



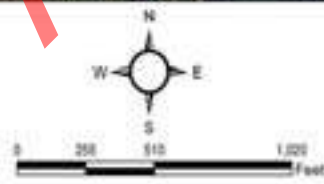
Looking South, towards Johnson Creek road bridge over Clark Fork South braid.



Looking South, towards Johnson Creek road bridge over Clark Fork South braid.

Preliminary Draft for Agency Review

Site Lat Long:	448.135 -116.174465 (http://www.google.com/maps/place/48.135,-116.174465)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Clark Fork flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Clark Fork Bridge. Secure upstream end of boom River Right to bridge piling. Secure downstream end of boom River Left to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Small vehicle and equipment parking area at sportsman access on west side of south river road bridge. No boat launch facilities. Pint Lane boat launch is 1.4 miles away.
Field Notes:	<ul style="list-style-type: none"> ● 4WD Access: NO ● Seasonal Access Only: NO ● Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use
Watercourse:	Clark Fork; gradient is low; substrate is gravel; approx. width is 840 ft.; approx. depth is 10 to 20 feet; channelized; slow moving



Suggested Equipment	
Quantity	Description
1100 ft.	Curtain Boom Tow Bridles
As Appropriate	
1350 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (9.0 miles)
 Second Cache: Sandpoint (28.1 miles)

Nearest Address: 70 Johnson Crk Rd
 Clark Fork ID 83811

Site-Specific Points of Contact

Site Access - By boat, directions to Johnson Creek Boat launch

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 25.4 mi
 3. Turn right onto Stephen St - 0.3 mi
 4. Turn left onto S River Rd - 0.7 mi
 5. Continue onto Johnson Creek Rd - 295 ft
 6. Turn right to stay on Johnson Creek Rd - 9.5 mi
 7. Turn right onto Johnson Creek Rd/NF-278 - 5.0 mi
 8. Turn left to stay on Johnson Creek Rd/NF-278 - 3.4 mi
- Johnson Creek Boat Launch



View looking upstream from collection point to River right bridge piling anchor.



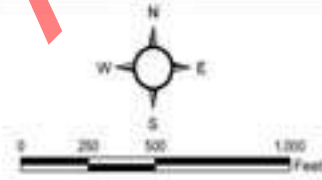
Looking east at the staging area from South Side River Road.

Preliminary Draft for Agency Review

Site Lat Long:	48.123607 -116.155906 (http://www.google.com/maps/place/48.123607,-116.155906)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Lower fish hatchery slough.
Implementation:	Clark Fork flow direction is to the west. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. Gravel boat launch. Pint Lane boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> • Nearby private boat launch. • Only accessible by boat • 4WD Access: NO • Seasonal Access Only: YES • Locked Gate: NO
Resources Targeted:	Threatened and Endangered Species, Reservoir, Wetland
Watercourse:	Clark Fork; gradient is low; substrate is gravel; approx. width is 858 ft.; approx. depth is 10 to 20 feet



<ul style="list-style-type: none"> ● Boom and Notification Strategy and Boat Ramp ● Boom and Notification Storage ● Notification Only ● Boat Ramp ▲ Anchor Point ● Highway Milepost 	<ul style="list-style-type: none"> — Collection Boom — Deflection Boom — Exclusion Boom — Railroad Centerline — Major Road
---	---



Suggested Equipment	
Quantity	Description
250 ft.	Curtain Boom Tow Bridles
As Appropriate	
300 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Cabinet Gorge Dam (6.2 miles)
Second Cache: Sandpoint (28.9 miles)

Nearest Address: 57140 Highway 200
Clark Fork ID 83811

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 25.5 mi
- 57140 Idaho-200, Clark Fork, Idaho



Lower fish hatchery slough from down River looking east

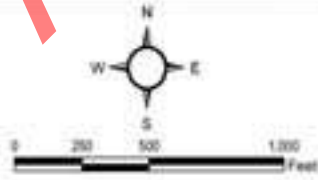


None

Site Lat Long:	48.105616 -116.143659 (http://www.google.com/maps/place/48.105616,-116.143659)
Strategy Objective:	Notification and deflection away from shoreline.
Implementation:	Clark Fork flow direction is to the west. Deflect contaminant moving downstream away from shoreline at Upper fish hatchery slough diversion. Secure upstream end of boom River Right to steel post. Secure downstream end of boom Midstream to buoy. Notify private land owner.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Private boat launch is 0.2 miles away.
Field Notes:	<ul style="list-style-type: none"> • Contact Royce Anderson 2082661177 • 4WD Access: NO • Seasonal Access Only: YES • Locked Gate: NO
Resources Targeted:	Threatened and Endangered Species, Reservoir, Wetland
Watercourse:	Clark Fork: gradient is low; substrate is gravel; approx. width is 750 ft.; approx. depth is over 20 feet



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Post	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
800 ft.	Curtain Boom Tow Bridles
As Appropriate	
1000 ft.	Polypropylene Line
4	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y <input type="checkbox"/>	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (11.4 miles)
Second Cache: Sandpoint (30.5 miles)

Nearest Address: 58344 Highway 200
Clark Fork ID 83811

Site-Specific Points of Contact

Royce Anderson, land owner (208) 266-1177

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 28.7 mi
 3. Turn right when possible for river access, access is by un-named two track to river
Upper fish hatchery slough diversion



Looking down river at deflection site



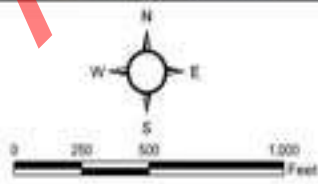
None

Preliminary Draft for Agency Review

Site Lat Long:	48.09251 -116.096934 (http://www.google.com/maps/place/48.09251,-116.096934)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Clark Fork flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Clark Fork River Access. Secure upstream end of boom River Left to steel post. Secure downstream end of boom Midstream to buoy. Secure upstream end of second boom Midstream to buoy. Secure downstream end of second boom River Left to steel post. Vacuum truck access is good. Notify Avista Utilities.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Gravel parking lot on right with a concrete boat launch. Clark Fork River Access boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> Boat launch is locked. Contact Avista for access 406-847-1280. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Recreation, Reservoir, Threatened and Endangered Species
Watercourse:	Clark Fork: gradient is low; substrate is gravel; approx. width is 492 ft.; approx. depth is over 20 feet; fast moving

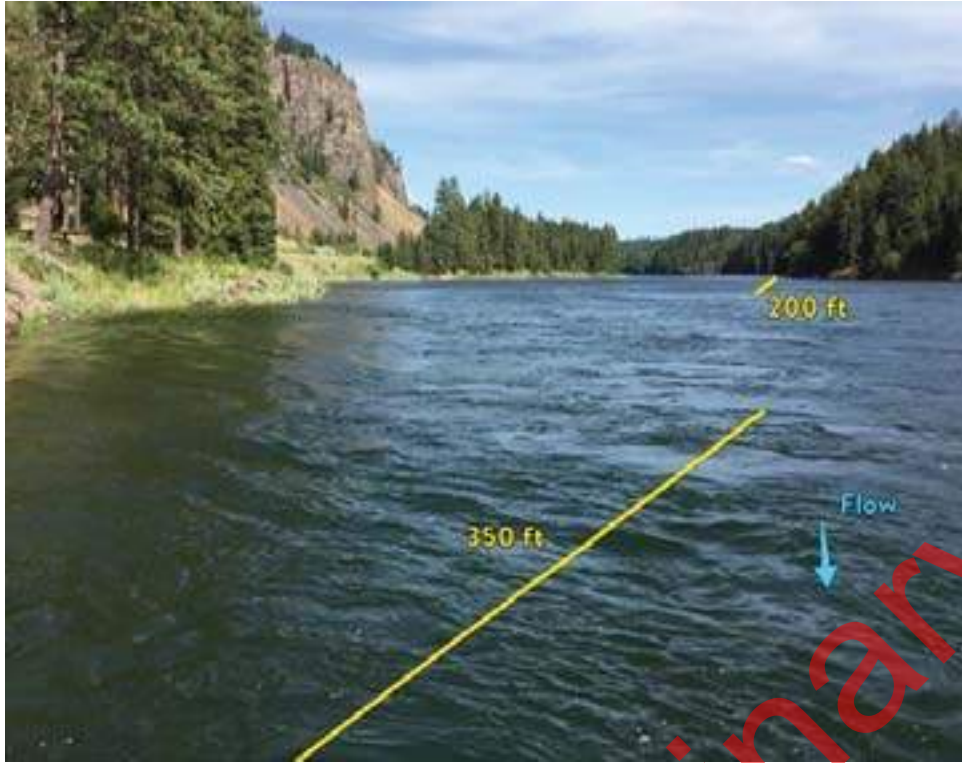


● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
550 ft.	Curtain Boom Tow Bridles
As Appropriate	
700 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (2.5 miles)
Second Cache: Sandpoint (32.5 miles)

Nearest Address: 60238 Idaho 200
Clark Fork, Idaho

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 27.8 mi
- 60238 Idaho 200, Clark Fork, Idaho



Looking upstream from collection site



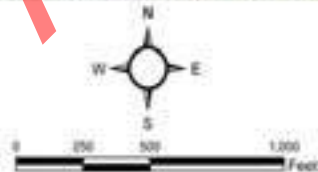
Staging area looking west

Preliminary Draft for Agency Review

Site Lat Long:	48.086624 -116.07978 (http://www.google.com/maps/place/48.086624,-116.07978)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Clark Fork flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Cabinet Gorge Fish Hatchery. Secure upstream end of boom River Right to tree. Secure downstream end of boom Midstream to buoy. Secure upstream end of second boom Midstream to buoy. Secure downstream end of second boom River Left to steel post. Vacuum truck access is good. Notify Avista fish hatchery.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large parking and staging area on fish hatchery road adjacent to boat ramp. Gravel boat launch.
Field Notes:	<ul style="list-style-type: none"> Monitoring equipment in the water at collection point. May need to be moved during spill containment efforts. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Critical bull trout habitat, fish hatchery release area, Clark Fork River delta, downstream municipal and irrigation water supplies, recreational use, wildlife habitat
Watercourse:	Clark Fork: gradient is low; substrate is gravel; approx. width is 450 ft.; approx. depth is 10 to 20 feet; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
● Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
900 ft.	Curtain Boom Tow Bridles
As Appropriate	
1150 ft.	Polypropylene Line
5	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
4	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Cabinet Gorge Dam (10.9 miles)
Second Cache: Sandpoint (35.4 miles)

Nearest Address: 220 Hatchery Rd
Clark Fork ID 83811

Site-Specific Points of Contact

Tim Swant, Hatchery Manager (406) 847-1282

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St -
 2. Continue onto ID-200 - 25.4 mi
 3. Turn right onto Stephen St - 0.3 mi
 4. Turn left onto S River Rd - 0.7 mi
 5. Continue onto Johnson Creek Rd - 295 ft
 6. Continue straight onto River Rd - 6.5 mi
 7. Turn left onto Cabinet Gorge Rd - 0.6 mi
 8. Turn right to stay on Cabinet Gorge Rd - 0.4 mi
- Cabinet Gorge Hatchery



View of boat ramp and collection point looking upstream.



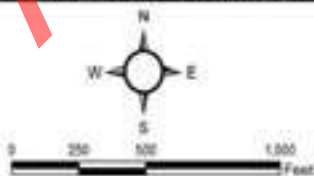
View looking upstream from boat ramp and collection point towards river right anchor.

Preliminary Draft for Agency Review

Site Lat Long:	48.087117 -116.05216 (http://www.google.com/maps/place/48.087117,-116.05216)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	Clark Fork flow direction is to the west. Deploy collection boom and initiate recovery at Cabinet Gorge Dam. Secure upstream end of boom River Right to tree. Secure downstream end of boom River Left to steel post. Vacuum truck access is good. Notify Avista Cabinet Gorge Dam.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Equipment and vehicle parking area adjacent to rail crossing. Gravel boat launch. Cabinet Gorge Dam Upstream boat launch is at site.
Field Notes:	<ul style="list-style-type: none"> • Locked gate on road controlled by Avista 406-847-1280. • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: YES
Resources Targeted:	Cabinet gorge dam, critical bull trout habitat, Clark Fork River delta, downstream municipal and irrigation water supplies, recreational use, wildlife habitat
Watercourse:	Clark Fork: gradient is low; substrate is gravel; approx. width is 400 ft.; approx. depth is over 20 feet; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collector Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	

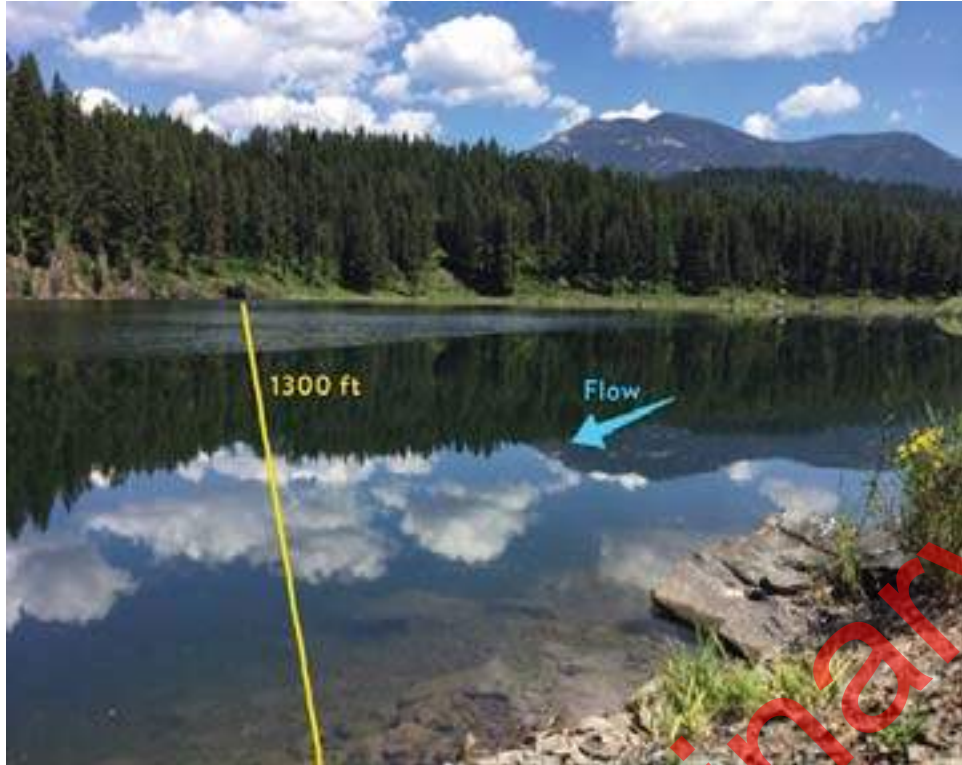


Suggested Equipment

Quantity	Description
1300 ft.	Curtain Boom Tow Bridles
As Appropriate	
1700 ft.	Polypropylene Line
8	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
2	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Cabinet Gorge Dam (9.5 miles)
Second Cache: Sandpoint (36.7 miles)

Nearest Address: 2305 Cabinet Gorge Rd
Clark Fork ID 83811

Site-Specific Points of Contact

Avista Utilities Cabinet Gorge Dam (Control Room) (208) 266-1531

Site Access -

- Sandpoint, Idaho
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 25.4 mi
 3. Turn right onto Stephen St - 0.3 mi
 4. Turn left onto S River Rd - 0.7 mi
 5. Continue onto Johnson Creek Rd - 295 ft
 6. Continue straight onto River Rd - 6.5 mi
 7. Turn left onto Cabinet Gorge Rd - 0.6 mi
 8. Turn right to stay on Cabinet Gorge Rd - 0.7 mi
- Destination will be on the left



View looking upstream from collection point to river right anchor.



View looking downstream at collection point and river left anchor on observation deck.

This page intentionally blank

Preliminary Draft for
Agency Review

Preliminary Draft for
Agency Review

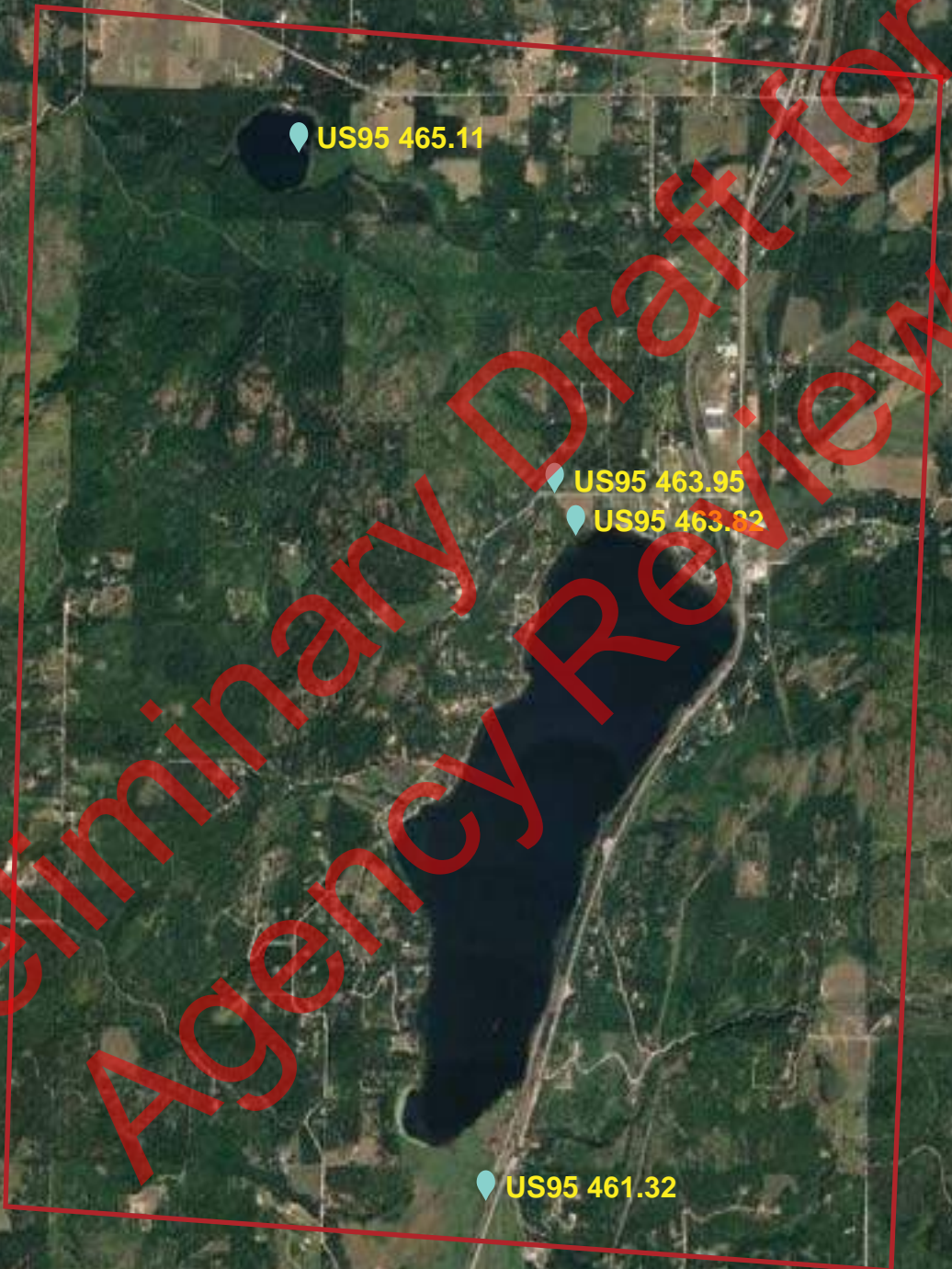
Cardboard
Sector 7

This page intentionally blank

Preliminary Draft for
Agency Review

Sector & Map	Site ID & Highway Milepost	Railroad Milepost	Site Name	Accessible by boat at Low Water?	Nearest Boat Ramp or Staging Area
<u>Sector 7A</u> <u>Sagle (South)</u>	US95 461.32	BNSF Spokane 16.94	Cocolalla Creek Trestle	No	US95 463.62
	US95 463.82	BNSF Spokane 14.22	Cocolalla Creek Outlet	No	US95 473.87
	US95 463.95	BNSF Spokane 14.07	Cocolalla Loop Rd Bridge	No	US95 473.87
	US95 465.11	BNSF Spokane 13.43	Round Lake	Yes	US95 465.12
<u>Sector 7B</u> <u>Sagle (North)</u>	US95 471.08	BNSF Spokane 6.7	Bottle Bay Bridge	No	US95 473.87
	US95 472.98	MRL4 4.89	Sourdough Point Water Intake	Yes	US95 472.98

Preliminary Draft for Agency Review



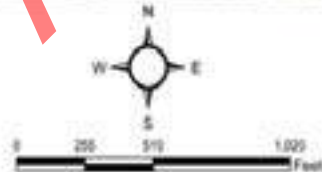


Preliminary Draft for Agency Review

Site Lat Long:	48.106531 -116.618517 (http://www.google.com/maps/place/48.106531,-116.618517)
Strategy Objective:	Notification and contaminant collection and recovery of contaminated material prior to its entrance into Lake Cocolalla
Implementation:	River flow direction is to the west. Deploy collection boom and initiate contaminant recovery at Cocolalla Creek railroad bridge. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Small parking area adjacent to railroad on west side of track for vehicles. No boat launch facilities. Lake Cocolalla boat launch is 2.9 miles away.
Field Notes:	<ul style="list-style-type: none"> Stream may be intermittent and frozen during winter. 4WD Access: NO Seasonal Access Only: NO Locked Gate: NO
Resources Targeted:	Lake Cocolalla, fish habitat, recreation
Watercourse:	Gradient is low; substrate is gravel; approx. width is 33 ft.; approx. depth is 1 to 5 feet; channelized; slow moving



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (13.5 miles)
Second Cache: Bonners (45.8 miles)



Nearest Address: 11 Rd Southside School
Cocolalla ID 83813

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US - 95 S - 15.4 mi



View of the train bridge and parking area.



None

Preliminary Draft for Agency Review

Site Lat Long:	48.141084 -116.613382 (http://www.google.com/maps/place/48.141084,-116.613382)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Cocolalla Creek outlet.
Implementation:	River flow direction is to the north. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is poor.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	No staging area. No boat launch facilities. Sandy Beach boat launch is 1.7 miles away.
Field Notes:	<ul style="list-style-type: none"> Access by boat for photos and precise measurements. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Cocolalla Creek, Round Lake State Park downstream, fish habitat, wetlands, municipal and irrigation water supply, recreation
Watercourse:	Gradient is low; substrate is sand; approx. width is 150 ft.; approx. depth is 5 to 10 feet; braided channels; shoals



Suggested Equipment	
Quantity	Description
200 ft.	Curtain Boom Tow Bridles
As Appropriate	
250 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (11.4 miles)
Second Cache: Bonners (43.7 miles)

Nearest Address: 398 Sportsmans Access

Site-Specific Points of Contact

Site Access -

Sandpoint, Idaho

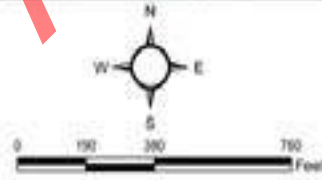
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
2. Turn left onto Pine St - 0.3 mi
3. Turn right onto S 1st Ave - 0.2 mi
4. Turn left onto E Superior St - 0.5 mi
5. Merge onto US - 95 S - 9.5 mi
6. Turn right onto Cocolalla Loop Rd - 0.5 mi
7. Turn left onto road directly after N Beach Rd for best access.

Cocolalla Creek Outlet, Cocolalla, Idaho

Site Lat Long:	48.143234 -116.614958 (http://www.google.com/maps/place/48.143234,-116.614958)
Strategy Objective:	Notification and contaminant collection and recovery.
Implementation:	River flow direction is to the north. Deploy collection boom and initiate contaminant recovery at Cocolalla Loop Rd Bridge. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Right to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Limited parking along narrow road shoulder adjacent to bridge. No boat launch facilities. Sandy Beach boat launch is 1.4 miles away.
Field Notes:	<ul style="list-style-type: none"> • 4WD Access: NO • Seasonal Access Only: YES • Locked Gate: NO
Resources Targeted:	Cocolalla Creek, fish habitat, wetlands, Round Lake State Park downstream, municipal and irrigation water supplies, recreation
Watercourse:	Gradient is low; substrate is sand; approx. width is 30 ft.; approx. depth is 1 to 5 feet; braided channels; shoals; slow moving



Boom and Notification Strategy and Boat Ramp	Collection Boom
Boom and Notification Strategy	Deflection Boom
Notification Only	Exclusion Boom
Boat Ramp	Railroad Centerline
Anchor Point	Major Road
Highway Milepost	



Suggested Equipment	
Quantity	Description
50 ft.	Curtain Boom Tow Bridles
As Appropriate	
50 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (11.4 miles)
Second Cache: Bonners (43.7 miles)

Nearest Address: 524-698 Cocolalla Lp
Cocolalla ID 83813

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US - 95 S - 9.5 mi
 6. Turn right onto Cocolalla Loop Rd - 0.7 mi



Upstream side of bridge showing creek and culvert.



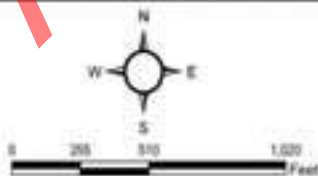
Looking east across bridge at parking area.

Preliminary Draft for Agency Review

Site Lat Long:	48.162092 -116.637139 (http://www.google.com/maps/place/48.162092,-116.637139)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Round Lake.
Implementation:	Secure upstream end of boom East Shoreline to steel post. Secure downstream end of boom East Shoreline to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is medium. Medium sized parking area adjacent to boat ramp with additional parking for vehicles uphill from the ramp. Gravel boat launch. Round Lake boat launch is at the site.
Field Notes:	<ul style="list-style-type: none"> Exclusion boom across outlet of Cocolalla Creek where it enters lake. No gas powered motors allowed on around lake without permit. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Municipal water intake
Watercourse:	Round Lake State Park, fish habitat, recreation



● Boom and Notification Strategy and Boat Ramp	— Collection Boom
● Boom and Notification Strategy	— Deflection Boom
● Notification Only	— Exclusion Boom
● Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
200 ft.	Curtain Boom Tow Bridles
As Appropriate	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swift water)



Nearest Cache: Sandpoint (11.3 miles)
Second Cache: Bonners (43.6 miles)

Nearest Address: 1440 Dufort Rd
Sagle ID 83860

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US - 95 S - 8.0 mi
 6. Turn right onto Dufort Rd - 1.9 mi
 7. Turn left toward Mirror Lake Rd - 0.1 mi
 8. Continue onto Mirror Lake Rd - 213 ft
- Mirror Lake Rd, Westmond, Idaho



Looking southeast toward inlet.



View of parking area from boat ramp.

Preliminary Draft for Agency Review

Site Lat Long:	48.230107 -116.536618 (http://www.google.com/maps/place/48.230107,-116.536618)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Bottle Bay Bridge.
Implementation:	River flow direction is to the north. Secure upstream end of boom River Right to steel post. Secure downstream end of boom River Left to steel post. Vacuum truck access is good.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is small. Limited parking along road on narrow shoulder with adjacent gravel boat ramp. Boat ramp best suited for smaller sized boats and trailers. Gravel boat launch. Bottle Bay Bridge boat launch is 0.1 miles away.
Field Notes:	<ul style="list-style-type: none"> Boat ramp may require 4WD during periods of snow or rain. 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Lake Pend Orielle, municipal water resources, fish habitat, wetlands, recreation
Watercourse:	Gradient is low; substrate is mud; approx. width is 75 ft.; approx. depth is 5 to 10 feet; channelized; slow moving

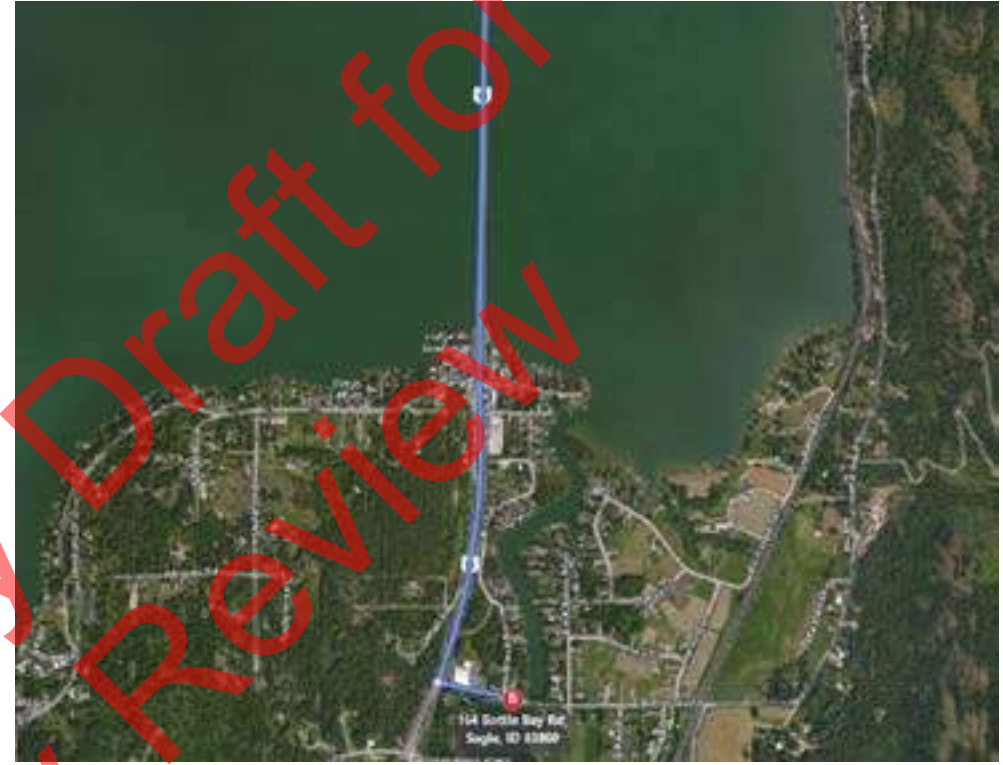


● Boom and Notification Strategy and Boat Ramp	— Collector Boom
● Boom and Notification Strategy	— Deflector Boom
● Notification Only	— Exclusion Boom
◆ Boat Ramp	— Railroad Centerline
▲ Anchor Point	— Major Road
● Highway Milepost	



Suggested Equipment	
Quantity	Description
100 ft.	Curtain Boom Tow Bridles
As Appropriate	
150 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
None	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> N	

Suggested Personnel	
Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
2 / 1	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
0 / 0	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



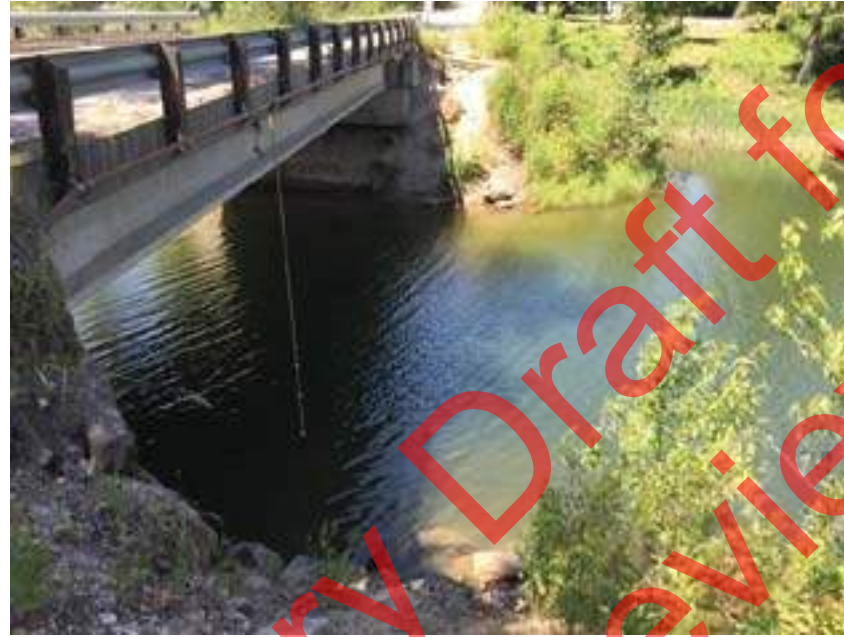
Nearest Cache: Sandpoint (4.0 miles)
Second Cache: Bonners (36.3 miles)

Nearest Address: 200 Bottle Bay Rd
Sagle ID 83860

Site-Specific Points of Contact

Site Access -

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US-95 S - 2.5 mi
 6. Turn left onto Bottle Bay Rd - 0.1 mi

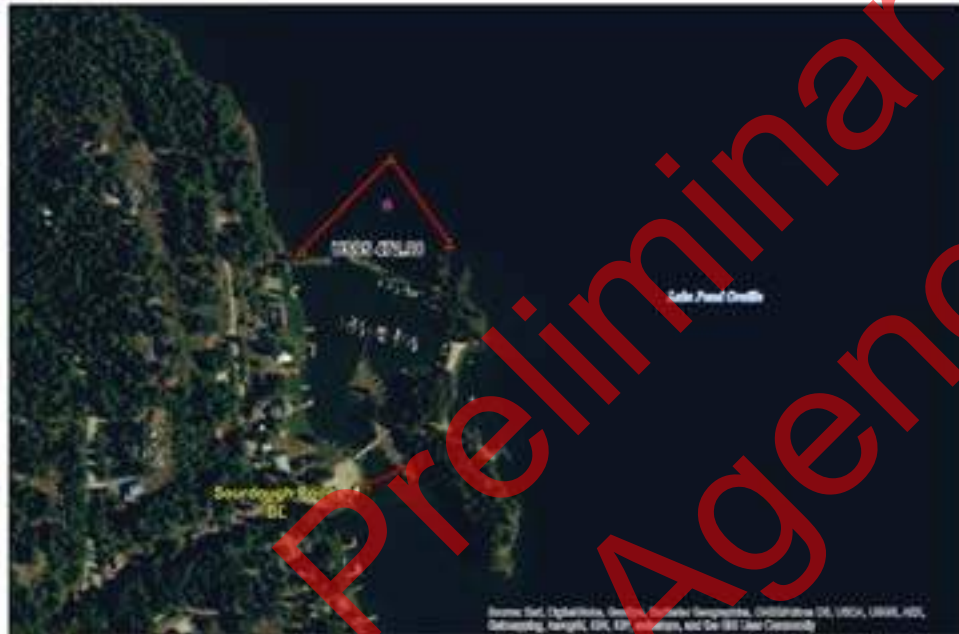


Collection site on north side of bridge.

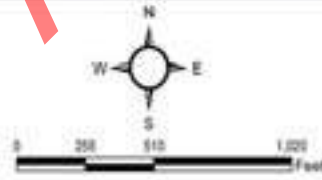


Bridge and narrow shoulders for parking.

Site Lat Long:	48.258104 -116.468924 (http://www.google.com/maps/place/48.258104,-116.468924)
Strategy Objective:	Notification and exclusion. Prevent contaminant from impacting sensitive area at Sourdough Point water intake.
Implementation:	Secure upstream end of boom South Shoreline to steel post. Extend boom to the north and into the lake. Secure to a buoy and secure downstream end of boom to South Shoreline to steel post. Notify Sourdough Point water intake.
Site Safety Note:	Complete Job Safety Analysis.
Staging Area:	On site staging is large. Large private boat launch with big parking lot. Concrete boat launch. Sourdough Point boat launch is 0.3 miles away.
Field Notes:	<ul style="list-style-type: none"> • Contact Water Treatment Operator: Robert Hanson 208-265-4270 • 4WD Access: NO • Seasonal Access Only: NO • Locked Gate: NO
Resources Targeted:	Wildlife Habitat, Threatened and Endangered Species, Recreational Use, Reservoir or Lake
Watercourse:	Lake Pend Oreille; substrate is mud; approx. depth is greater than 20 feet; slow moving; shoals



● Boom and Notification Strategy and Boat Ramp
● Boom and Notification Strategy
● Notification Only
▲ Boat Ramp
▲ Anchor Post
● Highway Milepost
— Collection Boom
— Deflection Boom
— Exclusion Boom
— Railroad Centerline
— Major Road

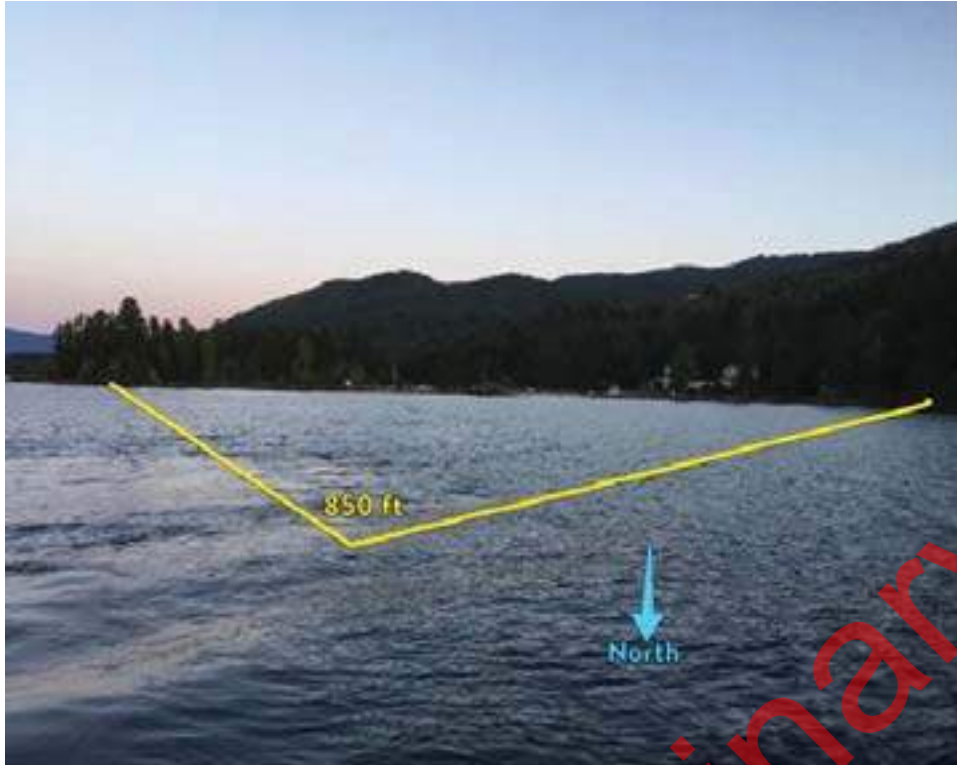


Suggested Equipment

Quantity	Description
1200 ft.	Curtain Boom Tow Bridles
As Appropriate	
1500 ft.	Polypropylene Line
6	Steel Post Anchors
As Appropriate	Post pounder, shovels, knife, wood saw
1	In Water Anchors
As Appropriate	PFD work vests/rubber boots
As Appropriate	Throw bags, first aid kit
Jet boat/raft needed for strategy implementation? <input type="checkbox"/> Y	

Suggested Personnel

Quantity	Title (Function)
1	Booming Team Leader
1	Safety Representative
3 / 0	Haz-Mat Tech (Field Worker) / 1st Responder (Traffic Flagger)
1 / 1	Haz-Mat Tech (Boat Operator) / Haz-Mat Tech (Swiftwater)



Nearest Cache: Sandpoint (10.3 miles)
 Second Cache: Bonners (42.7 miles)

Nearest Address: 81 W Shoreline Ln
 Sagle ID 83860

Site-Specific Points of Contact

Sourdough Point Water Intake (208) 265-4270

Site Access -

- Sandpoint, Idaho
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
 2. Turn left onto Pine St - 0.3 mi
 3. Turn right onto S 1st Ave - 0.2 mi
 4. Turn left onto E Superior St - 0.5 mi
 5. Merge onto US - 95 S - 2.5 mi
 6. Turn left onto Bottle Bay Rd - 6.2 mi
 7. Turn left onto Sourdough Ln - 0.2 mi
- Destination will be on the right



Close-up on the Sourdough Point water intake, facing south.



Looking at the Sourdough Point water intake, facing southeast.

Preliminary Draft for Agency Review

Appendix C Oil Spill Scenario Travel Time Analysis

Preliminary Draft for
Agency Review

Appendix C

Oil Spill Scenario Time of Travel Analysis - Clark Fork River at Cabinet Gorge Dam

This analysis employs the Incident Command Tool for Protecting Drinking Water (ICWater) to examine river travel time in the event of an oil spill on the Clark Fork River. Several scenarios were modeled to assess time of travel at different river discharge rates and oil spill volumes. All scenarios listed in Tables C-1 and C-2 begin with a spill located at 48.086 N and 116.058 W, just below Cabinet Gorge Dam (Figure C-1). A separate scenario involving a spill location further downstream is illustrated in Figure C-2 and discussed below.

Crude oil is a complex mixture of numerous petrochemical compounds, the proportions of which can vary widely. ICWater requires input of a specific chemical agent to model the transport of a pollutant spilled in a river. Since benzene is the primary compound of concern in Bakken crude, it was used as a proxy for bulk crude oil in these scenarios. The composition of Bakken crude narrowly ranges, so two different benzene contents were examined: 0.2 wt% (Table C-1) and 0.5 wt% (Table C-2). However, both of these are likely conservative values as the U.S. Environmental Protection Agency (EPA) recently reported benzene content of 0.14 wt% for a sample collected and analyzed in 2014. All scenarios assume a reported density of 6.79 pounds per gallon (42.5° API) for Bakken crude (EPA, 2014).

Reported travel times indicate the amount of time it takes following the spill for benzene concentrations over the level of concern (0.005 milligrams per liter) to reach the distributary channels of the Clark Fork River Delta, near the currently installed debris booms (Figure C-1). In other words, travel times show how long before the dilute but harmful leading edge of the spill will reach the delta.

Figure C-1: Example Model Output

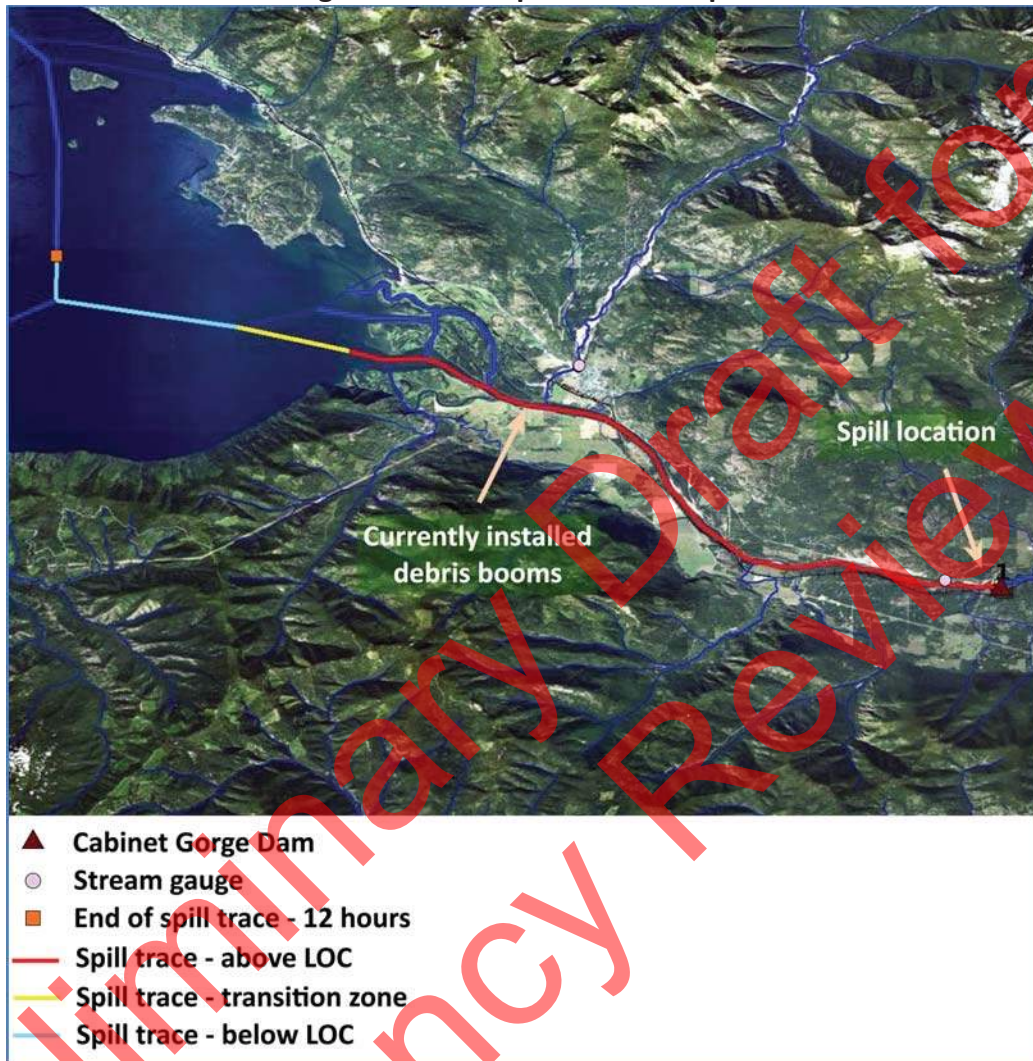


Figure C-1 provides an example model output showing 12 hours of travel time following a 45,000-gallon spill of 0.2 wt% crude at 25,000 cfs. This scenario illustrates a spill that is similar in size to one that occurred near Mosier, Oregon, on June 3, 2016, at a discharge exemplary of moderate to high flow rates for the Clark Fork River.

Table C-1: Travel times for Bakken crude oil spill with 0.2 wt% benzene

		Size of Spill (gallons)			
		30,000	45,000	100,000	300,000
Discharge (cfs)	100,000	1 hr 51 min	1 hr 26 min	1 hr 6 min	<1 hr
	75,000	1 hr 56 min	1 hr 33 min	1 hr 16 min	1 hr 4 min
	50,000	2 hr 16 min	1 hr 58 min	1 hr 41 min	1 hr 26 min
	25,000	2 hr 41 min	2 hr 31 min	2 hr 16 min	2 hr 3 min
	10,000	3 hr 41 min	3 hr 33 min	3 hr 22 min	3 hr 8 min
	5,000	4 hr 44 min	4 hr 38 min	4 hr 27 min	4 hr 14 min

Table C-2: Travel times for Bakken crude oil spill with 0.5 wt% benzene

		Size of Spill (gallons)			
		30,000	45,000	100,000	300,000
Discharge (cfs)	100,000	1 hr 7 min	< 1 hr	< 1 hr	< 1 hr
	75,000	1 hr 21 min	1 hr 14 min	< 1 hr	< 1 hr
	50,000	1 hr 47 min	1 hr 39 min	1 hr 29 min	1 hr 18 min
	25,000	2 hr 21 min	2 hr 14 min	2 hr 0 min	1 hr 54 min
	10,000	3 hr 26 min	3 hr 19 min	3 hr 11 min	3 hr 0 min
	5,000	4 hr 30 min	4 hr 26 min	4 hr 16 min	4 hr 5 min

At several points along the Clark Fork River below Cabinet Gorge Dam, railroad tracks run within 90 ft or less of the river bank. One of these points is approximately 1.4 miles below the dam and 6 miles above the delta. In the event of a derailment and crude oil spill at this location, comparable in volume to the June 2016 spill in Mosier, Oregon, during moderately high flow of 25,000 cfs (~3.2 ft/sec), it would take approximately 2 hours for the leading edge of the spill to reach the delta. At a lower flow of 10,000 cfs (~2.5 ft/sec), leading edge travel time would be approximately 2 hours and 57 minutes (Figure C-2).

To compare flows used in ICWater model scenarios with real historical flow values, Figure C-3 displays daily discharge for the last 10 years at the USGS/Avista Utilities stream gauge station downstream of the Cabinet Gorge Dam (location shown on Figure C-1), and Table C-3 displays monthly mean discharge for water years 1996–2016.

Figure C-3 Clark Fork River daily discharge recorded at the USGS/Avista Utilities stream gauge station located downstream from the Cabinet Gorge Dam. Location of the stream gauge relative to the dam is illustrated in Figure C-1.

Figure C-2: Location of Possible Oil Spill for Modeling

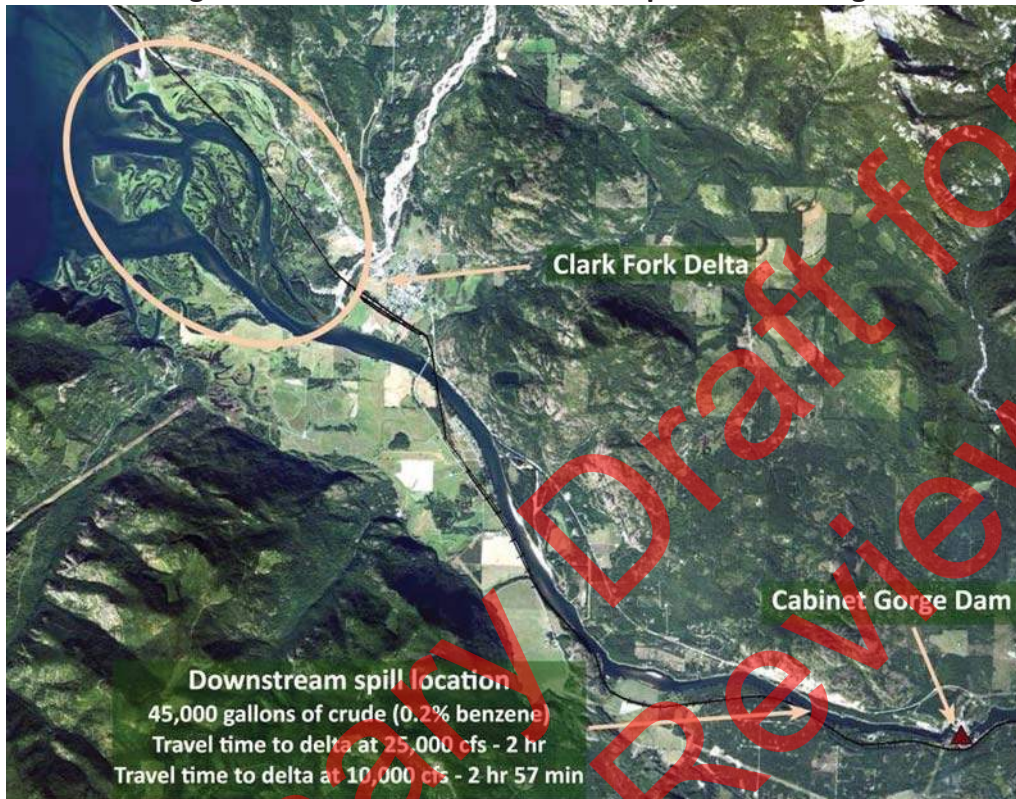


Figure C-3: Clark Fork River Daily Discharge

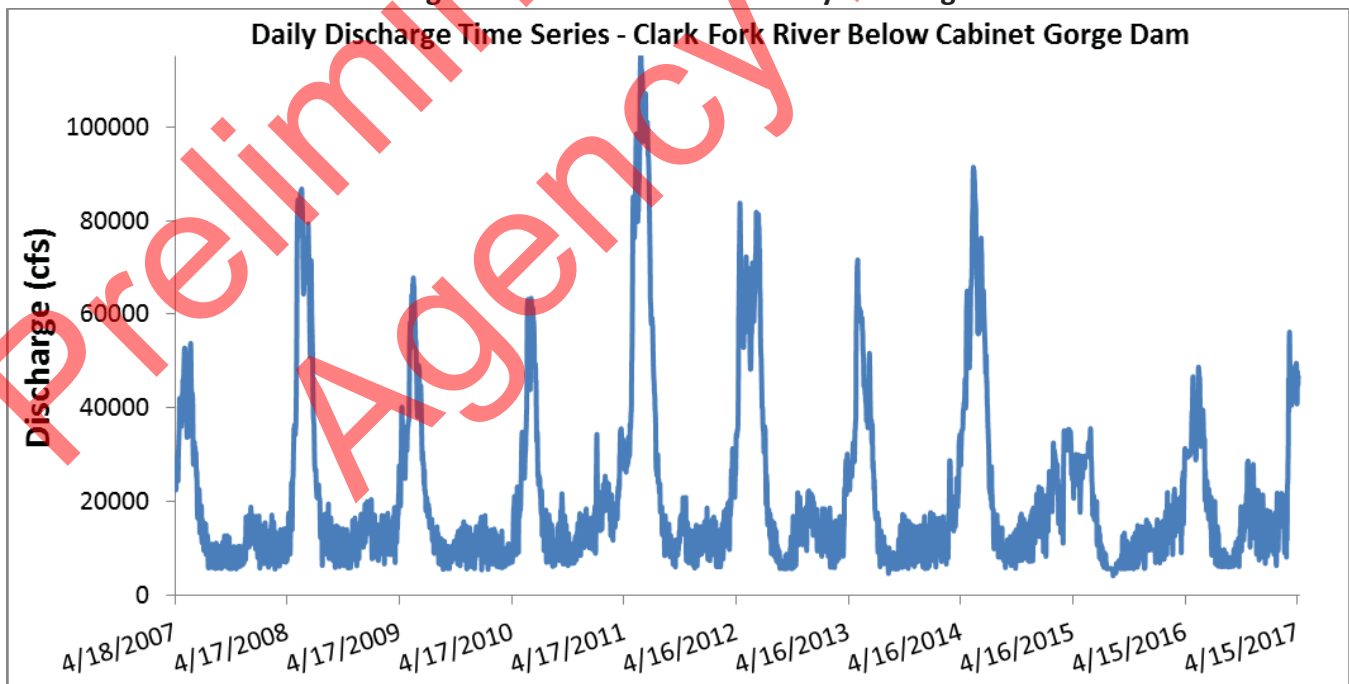


Table C-3: Clark Fork River Monthly Mean Discharge Values

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	12,290	21,370	34,250
1996	23,140	37,550	35,880	49,130	59,580	73,030	30,170	17,490	11,610	11,020	15,590	15,890
1997	19,530	19,170	24,080	37,410	93,000	96,050	34,910	19,080	13,440	13,200	18,670	17,480
1998	14,050	9,450	11,460	17,770	35,850	46,170	30,300	14,410	10,980	9,773	15,120	12,500
1999	13,060	11,370	16,550	22,660	38,320	60,140	30,450	14,330	9,828	9,194	17,250	19,740
2000	15,130	12,230	14,070	28,910	38,710	36,310	18,860	9,738	7,853	9,927	11,800	12,320
2001	10,990	6,156	6,916	8,844	26,990	23,630	11,890	7,046	5,818	6,334	7,065	8,779
2002	12,450	13,030	13,200	24,630	40,200	79,180	34,360	13,720	9,692	7,002	10,320	13,070
2003	7,309	11,810	13,080	26,770	38,440	44,670	16,160	8,585	6,101	6,254	12,200	12,530
2004	9,234	10,520	13,600	17,460	33,840	35,010	20,180	11,960	14,110	12,100	11,050	15,940
2005	13,280	12,320	8,114	15,840	38,970	45,880	19,550	10,680	6,443	11,140	12,710	12,200
2006	13,910	16,580	13,920	31,520	60,000	52,310	18,800	7,513	7,331	8,529	17,560	14,020
2007	13,740	12,790	21,650	27,480	42,310	35,850	15,100	8,334	8,397	8,498	7,973	14,340
2008	11,590	11,200	10,970	11,810	52,830	72,700	35,720	14,300	12,310	11,300	11,090	14,050
2009	14,720	12,790	12,960	22,390	43,990	48,170	20,150	11,250	8,402	10,010	11,420	10,250
2010	11,380	11,280	8,310	11,450	23,020	54,400	27,040	12,380	13,140	10,580	11,760	14,100
2011	17,330	20,680	18,360	30,270	63,820	101,100	63,090	19,030	10,820	13,460	12,420	11,850
2012	13,040	10,820	15,950	39,880	61,190	68,530	35,380	11,700	6,919	10,380	15,680	17,930
2013	13,870	13,430	12,520	25,010	52,340	42,930	18,580	8,633	7,052	11,300	10,830	10,510
2014	12,330	12,260	17,480	31,520	65,510	66,930	34,050	12,010	8,922	11,440	12,350	16,720
2015	18,070	25,770	26,700	30,080	27,570	25,380	10,220	5,550	7,125	7,706	10,900	11,900
2016	11,520	14,130	17,620	26,190	38,580	29,550	14,130	7,035	7,661	n.d.	n.d.	n.d.

Appendix D Summary of Equipment Trailer Contents

Equipment	AVT	BNF1	BNF2	BNF SNP	RRT 1
Containment Boom (total length shown in ft)	1,716	3,800	1,000	1,000	1,000
Boom Vane	0	1	0	1	0
Boom Deflectors	2	6	0	6	0
Absorbents					
Absorbent Track Pad Roll	0	1	0	1	1,000 pads
Oil Absorbent Boom Bale	0	5	0	5	
Oil Absorbent Pad Bale	8	4	0	4	
Sweep Boom; 5"	8	6	0	6	0
Skimmer, Hydraulic Powered	0	1	0	1	0
Skimmer, Shovel Head	0	1	0	1	0
Diesel Power Pack for Skimmer	0	1	0	1	0
2000-Watt Generator	1	1	0	1	0
Oil Compatible Collapsible Tank	0	1	0	1	0
Helicopter Cargo Net	0	2	0	2	0
Oil Spill PPE	no	yes	no	yes	no
River Safety PPE	no	yes	no	yes	no

Notes:

AVT: Avista 14-Foot Enclosed Bumper Pull (Cabinet Gorge Dam)

BNF1: BNSF M2 24-Foot Enclosed Double Axel Bumper Pull (Bonners Ferry)

BNF2: (supplements BNF1): BNSF M3 Enclosed Double Axel Gooseneck (Bonners Ferry)

BNF SNP: BNSF M2 24-Foot Enclosed Double Axel Bumper Pull (Sandpoint)

RRT1: Idaho Office of Emergency Management Regional Response Team 1 (Coeur d'Alene)

This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

Appendix E High-Occupancy Facilities

The Lake Pend Oreille region has numerous high-occupancy facilities that are located very close to the rail lines and major highways. These facilities include schools, one hospital, several nursing homes, and several large employers. The table below lists the facilities with their primary contact phone number. The figures following show their location.

A nearby hazardous material spill may require prompt shelter-in-place warning or evacuation of these facilities.

The facilities on this list were included based on a subjective estimate of the number of people present. The list generally includes the following types of facilities:

- Public and private schools
- Apartments
- Dense mobile home and recreational vehicle parks with limited access
- Hospitals
- Nursing homes
- Large hotels
- Assisted-living facilities
- Facilities that employ many people
- Campgrounds close to railroad tracks
- Parks that host large gatherings (e.g., Sandpoint Music Festival at War Memorial Field)

Churches and small parks were excluded from the list.

The following figures include several 0.5-mile radius circles depicting approximate areas that may need evacuation in the event of a hazardous material train accident. The circles are centered on active rail lines. While the location of any accident cannot be predicted, these circles provide a general indication of the size of area needing evacuation.

The table below organizes the facilities geographically. Figures are provided following the table for areas with numerous high-occupancy facilities.

For more information, see the Bonner County Evacuation and Reception Plan, June 1, 2010, Bonner County Board of Commissioners, Bonner County Idaho.

Northwest Area Committee | 2017

Name	Address	Facility Type	Phone (Area Code 208)	Map Figure
Community : Clark Fork				
Clark Fork High School	121 E 4th Ave, Clark Fork	School / High School	255-7177	—
Lightning Creek Apartments	120 W 10th Ave, Clark Fork	Living / Apartment	—	—
Trunnell Enterprises RV Park	Hwy 200 From Sandpoint	Recreation / Campground	—	—
Community : East Hope				
Hope Elementary School	255 Hope School Rd, Hope	School / Elementary	264-5681	—
Community : Trestle Creek				
Idaho Country Resort	Along Hwy 200	Recreation / Campground	—	—
Jeb & Margaret's Trailer Haven	12 Mi. E. Of Sandpoint	Recreation / Campground	—	—
Trestle Creek RV Park	42303 Highway 200, Hope	Living / Rv Park	264-5894	—
Community : Kootenai				
Northside School	7881 Colburn-Culver Rd, Sandpoint	School / Elementary	263-2734	—
Community : Ponderay				
Evacuation Circle D				
Beehive Hearthstone Village	402 W 3rd Ave, Kootenai	Living / Assisted Living	—	D
Hotel Ruby	47725 Highway 95 North, Ponderay, Id	Hotel	263-5383	D
Kootenai Elementary School	301 Sprague St, Kootenai	School / Elementary	255-4076	D
Lake Pend Oreille School Dist	901 Triangle Dr, Ponderay	School /	263-2184	D
Mountain View Village	550 Larkspur St, Ponderay	Living / Assisted Living	—	D
Mt Baldy Apartments	835 Kootenai Cutoff Rd, Ponderay	Living / Apartment	—	D
Trinity Assisted Living	100 Humbird St, Kootenai	Living / Assisted Living	—	D
Valentine Apartments	31138 Highway 200, Ponderay	Living / Apartment	—	D
Woodland Crossing Apartments	839 Kootenai Cutoff Rd, Ponderay	Living / Apartment	—	D
Hotel Ruby	477255 Highway 95 N. Ponderay	Hotel	263-5383	—
Community: Sandpoint				

Northwest Area Committee | 2017

Name	Address	Facility Type	Phone (Area Code 208)	Map Figure
Evacuation Circle A				A
Alpine Vista Senior Apartments	1705 Pine Street, Sandpoint	Living / Senior	265-4446	A
Bristlecone Apartments	1510 Pine St, Sandpoint	Living / Apartment	—	A
Forrest Bird Charter School	614 Madison Ave, Sandpoint	School / Charter	—	A
Northwood Terrace Apartments	307 Halley St, Sandpoint	Living / Apartment	—	A
Oak St Apartments	1509 Oak St, Sandpoint	Living / Apartment	—	A
Pend Oreille Manor	1411 W Lake St, Sandpoint	Living / Apartment	—	A
Pine Meadow Apartments	205 Halley St, Sandpoint	Living / Apartment	—	A
Ridley Village 1	950 Ridley Village Rd, Sandpoint	Living / Apartment	—	A
Ridley Village 2	1000 Ridley Village Rd, Sandpoint	Living / Apartment	—	A
Sandpoint High School	410 S Division Ave, Sandpoint	School / High School	—	A
Sandpoint Junior Academy	2255 Pine St, Sandpoint	School / Private	263-3584	A
Sandpoint Middle School	310 S Division Ave, Sandpoint	School / Junior High	265-4169	A
Sandpoint Villas Apartments	1602 Pine St, Sandpoint	Living / Apartment	—	A
Selkirk Ridge Apartments	117 S Lincoln Ave, Sandpoint	Living / Apartment	—	A
Travers Great Northern Park	2016 Pine St, Sandpoint	Recreation / Park	—	A
Valley Vista Care Center	220 S Division Ave, Sandpoint	Living / Assisted Living	265-4514	A
Waldorf School	2007 Sandpoint West Dr, Sandpoint	School / Private	265-2683	A
Evacuation Circle B				B
Bridge Assisted Living	1123 N Division Ave, Sandpoint	Living / Assisted Living	263-1524	B
Farmin Stidwell Elementary School	1626 Spruce St, Sandpoint	School / Elementary	—	B
Huckleberry Apartments	1314 Huckleberry Ave, Sandpoint	Living / Apartment	255-5999	B
Lake Pend Oreille High School	1005 N Boyer Ave, Sandpoint	School / High School	263-6121	B and C
Litehouse Foods	1109 N. Ella, Sandpoint	Manufacturing - Food	265-3700	B
Pend Oreille Village	910 N Division Ave, Sandpoint	Living / Apartment	—	B
Quest Aircraft Co	1200 Turbine Dr., Sandpoint	Manufacturing - Airplanes	263-1111	B

Northwest Area Committee | 2017

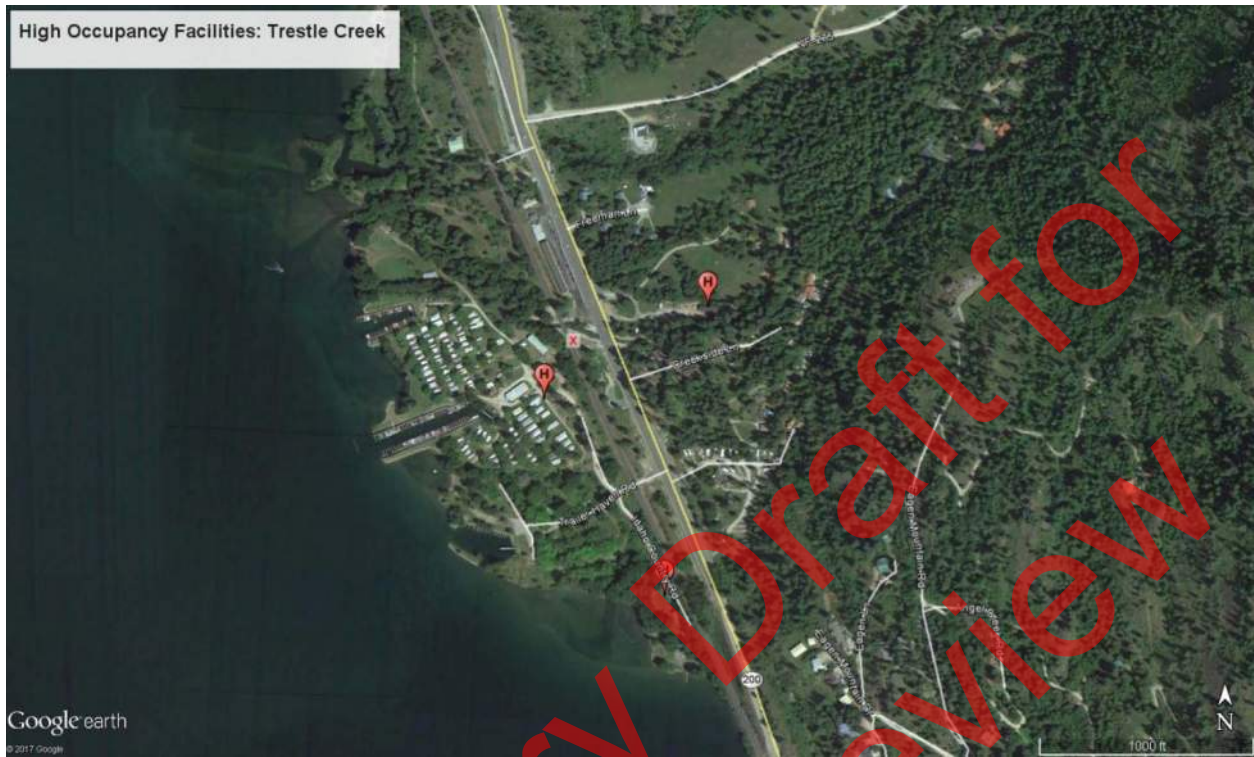
Name	Address	Facility Type	Phone (Area Code 208)	Map Figure
Skyline Apartments	1315 Hickory St, Sandpoint	Living / Apartment	—	B
Syringa Estates	1101 N Division Ave, Sandpoint	Living / Apartment	—	B
Evacuation Circle C				C
Best Western Edgewater	Follow Signs To Beach	Recreation / Campground	263-2111	C
Bonner General Hospital	520 N 3rd Ave, Sandpoint	Public Services / Hospital	263-1441	C
Courser Apartments	219 Church St, Sandpoint	Living / Apartment	—	C
Driftwood Apartments	720 N 3rd Ave, Sandpoint	Living / Apartment	—	C
Farmin Park	312 Oak St, Sandpoint	Recreation / Park	—	C
Florence St Apartments	324 S Florence Ave, Sandpoint	Living / Apartment	—	C
Florence Street Apartments	324 S Florence Ave, Sandpoint	Living / Apartment	—	C
Lake Pend Oreille High School	1005 N Boyer Ave, Sandpoint	School / High School	263-6121	B and C
La Quinta	415 Cedar St, Sandpoint	Hotel	263-9581	C
Mountain Shadow Suites	320 N Boyer Ave, Sandpoint	Living / Condos	—	C
North Idaho College	12 S. Euclid, Sandpoint	School / Post-Secondary	263-4594	C
Pedersen Apartments	302 Poplar St, Sandpoint	Living / Apartment	—	C
Sandpoint City Beach		Recreation / Park	—	C
Seasons Apartments	424 Sandpoint Ave Sandpoint	Living / Vacation Rental	255-1054	C
Superior St Apt	302 S 2nd Ave, Sandpoint	Living / Apartment	—	C
Villa Apartments	620 Main St, Sandpoint	Living / Apartment	—	C
Washington Elementary	430 S Boyer Ave, Sandpoint	School / Elementary	263-4759	C
Sandpoint: Other High Occupancy Facilities				
Cambridge Square Apartments	1205 Cedar St, Sandpoint	Living / Apartment	—	—
Holiday Inn Express	477326 Highway 95, Ponderay	Business / Motel	255-4500	—
Lakeview Park	607 S Ella Ave, Sandpoint	Recreation / Park	—	—
Luther Park	510 Olive Ave, Sandpoint	Living / Assisted Living	265-3557	—

Northwest Area Committee | 2017

Name	Address	Facility Type	Phone (Area Code 208)	Map Figure
Ponderosa Apartments	4107 Samuelson Ave, Sandpoint	Living / Apartment	—	—
Sandpoint Christian School	477954 Highway 95, Ponderay	School / Private	265-8624	—
Sandpoint Evergreen Assisted Living	624 S Division Ave, Sandpoint	Living / Assisted Living	265-2354	—
Schweitzer Ranch Senior	4107 Samuelson Ave, Sandpoint	Living / Senior	—	—
War Memorial Field	Sandpoint	Recreation / Community Park	—	—
Community : Dover				
No High Occupancy Facilities			—	—
Community : Sagle				
Country Inn	1 Mi. South Of Sandpoint	Recreation / Campground	—	—
Sagle Elementary	550 Sagle Rd, Sagle	School / Elementary	263-2757	—
Travel America Rv Park	468800 Highway 95 Unit 1, Sagle	Living / Rv Park	—	—
Community : Cocolalla				
Southside Elementary	375 Southside School Rd, Cocolalla	School / Elementary	—	—
Community : Laclede				
Riley Creek Campground	Laclede	Recreation / Campground	—	—
Community : Priest River				
Beardmore East Apartments	382 Harriet St, Priest River	Living / Apartment	—	—
Gregory St Apartments	384 Gregory St Unit 202, Priest River	Living / Apartment	—	—
Lowes Apartments	218 Highway 57, Priest River	Living / Apartment	—	—
Murray Apartments	238 Sherman St, Priest River	Living / Apartment	—	—
Priest River Elementary	231 Harriet St, Priest River	School / Elementary	448-1181	—
Priest River High School	598 Id-57, Priest River ID	SCHOOL / HIGH SCHOOL	448-1211	—
Priest River Jr High School	5709 Highway 2, Priest River	School / Junior High	448-1118	—
Whitaker Apartments	328 Summit Blvd, Priest River	Living / Apartment	—	—
Community : Old Town				

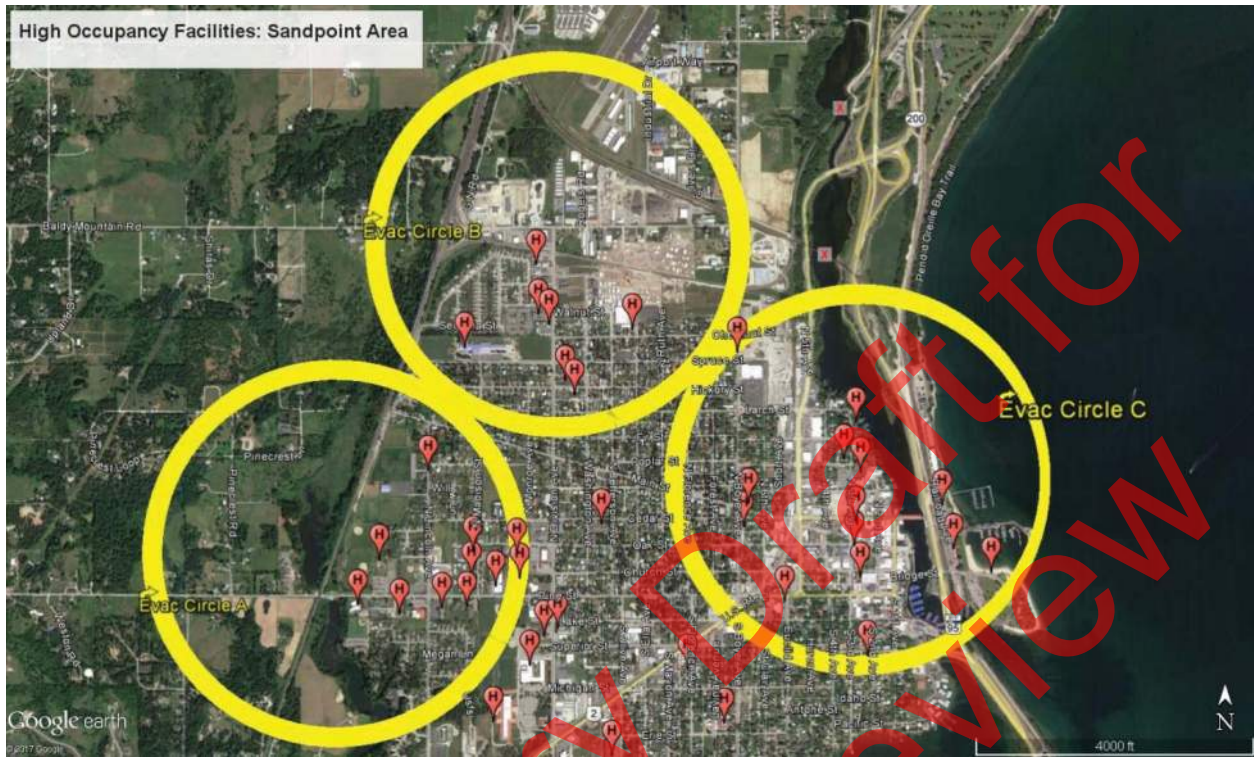
Name	Address	Facility Type	Phone (Area Code 208)	Map Figure
Albeni Cove Campground	Albeni Falls	Recreation / Campground	—	—
Idaho Hill Elementary School	402 E 3rd St S, Oldtown	School / Elementary	437-4227	—
Pend Oreille Valley School	33820 Highway 41, Oldtown	School / Private	—	—
House of the Lord	754 Silver Birch Lane, Oldtown	School / Private	437-2184	—

Preliminary Draft for
Agency Review



Preliminary Draft for Agency Review





Preliminary
Agency Review



This page intentionally left blank for correct double-sided printing.

Preliminary Draft for
Agency Review

Appendix F Boat Ramps and Marinas

Preliminary Draft for
Agency Review

Sector	Site ID	Site Name (See Note 1)	Usable at Low Pool Water Level?	Latitude and Longitude	General Suitability at Full Pool (See Note 2)	Gravel or Concrete Boat Ramp?	Field notes
1A	US2 0.37	Oldtown Boat Ramp	Yes	48.185348 -117.032438	1	Concrete	Good floating dock.
1A	none	Albeni Falls Dam	Uncertain	48.179392 -116.996120	1	Concrete	No dock. Use dependent on river flows.
1A	US2 2.21	Albeni Cove Boat Ramp	No	48.176539 -116.997049	1	Concrete	Generally usable from mid-June to the end of September. Availability dependent on river flows as well as lake elevation. Access gate closed at night during open period. Closed to vehicle access during off-season. Contact U.S. Army Corps of Engineers Albeni Falls Dam (see contact sheet at beginning of this document).
1B	US2 6.38	Priest River City Boat Ramp	Yes	48.176933 -116.904242	1	Concrete	Usability confirmed at lake elevation 2,054 ft. Massive concrete and rock ballasts protect boat ramp from stream flows. High quality floating docks. Auto access is confusing—must parallel railroad tracks on Railroad Avenue which is a poorly maintained road.
1B	US2 6.87	Priest River Mouth Boat Ramp also known as "The Mud Hole"	No	48.177921 -116.89271	2	Concrete	Ramp usable mid-June to end of September. Launchable elevation is 2,058 ft. Swift current on Priest River during high water flows may pose a hazard. Site may be gated at night.
2A	US2 13.38	Willow Bay Resort Boat Ramp (Marina)	No	48.152507 -116.76856	2	Concrete	Fuel available. Phone 208-265-8854

Sector	Site ID	Site Name (See Note 1)	Usable at Low Pool Water Level?	Latitude and Longitude	General Suitability at Full Pool (See Note 2)	Gravel or Concrete Boat Ramp?	Field notes
2A	US2 13.49	Riley Creek Boat Ramp	No	48.158966 -116.772205	2	Concrete	Usable mid-June to end of September. USACE reports launchable at lake elevation 2,058 ft. Gate closed at night during open season; closed to vehicle access during off-season.
2A	US2 14.37	Laclede Ferry Boat Ramp	Yes	48.161332 -116.754025	1	Concrete	Ramps usable mid-June to end of September. Ramp observed usable at lake elevation 2,054 ft, but docks were unusable at this elevation.
2A	US2 16.29	Morton Slough Boat Ramp	No	48.180695 -116.714602	1	Concrete	Usable mid-June to end of September. USACE reports launchable elevation is 2,059 ft. Gate closed at night during open season; closed to vehicle access during off-season.
2B	US2 25.15	Dover Marina Boat Ramp	No	48.244936 -116.614668	1	Concrete	Usable mid-June to end of September. Contact Dover Bay at 208-263-3083. Fuel available.
2B	US95 470.21	Springy Point Boat Ramp	No	48.236959 -116.586229	2	Concrete	Usable mid-June to end of September. USACE reports launchable elevation is 2,059 ft. Gate closed at night during open season; closed to vehicle access during off-season.
3	US95 473.87	Sandpoint City Beach Boat Ramp (Sandpoint Marina Windbag Marina)	No	48.271857 -116.541449	1	Concrete	West boat ramp was observed to be usable at 2,054 ft, but east ramp was unusable. Shallow water just offshore may require jet boats or mud buddy props rather than prop-driven boats. Marinas have no fuel for servicing facilities—only boat parking.
4A / 5	SR200 41.38	Hawkin's Point Boat Ramp	No	48.282777 -116.378872	2	Gravel	Usable in mid-June to end of September. Launchable at lake elevation 2,056 ft.

Sector	Site ID	Site Name (See Note 1)	Usable at Low Pool Water Level?	Latitude and Longitude	General Suitability at Full Pool (See Note 2)	Gravel or Concrete Boat Ramp?	Field notes
5	SR200 42.59	Trestle Creek Boat Ramp	No	48.276717 -116.347099	2	Concrete	Usable in mid-June to end of September. Launchable at lake elevation 2,054 ft, but the dock is unusable. Caution: sharp rock ballast on each side of ramp. Wind from the south often makes this launch site very hazardous.
5	SR200 44.98	Hope Boat Basin Boat Ramp	Yes	48.250419 -116.315243	1	Concrete	Good access even in low water. Managed by Bonner County. This ramp is suitable for very large vessels even in low water.
5	SR200 46.25	Pringle Park Boat Ramp	No	48.239177 -116.29388<	2	Concrete and gravel	Usable to lake elevation 2054 but unusable at low pool elevation. More protection offered here than at Trestle Creek but wind can make this launch site hazardous.
5	SR200 47.38	Hope Marina Boat Ramp	No	48.229128 -116.276511	1	Concrete	Unusable below lake elevation 2,058 ft. Marina. Fuel available.
5	SR200 47.9	Beyond Hope Resort Boat Ramp	No	48.215623 -116.285212	2	Concrete	
5	SR200 49.76	Island View Boat Ramp	unlikely	48.193974 -116.285392	2	Concrete	Private ramp. Small breakwater area to shelter boat parking.
6	SR200 51.69	Clark Fork River Drift Yard Boat Ramp	Yes	48.173532 -116.231974	1	Concrete	Ramp observed usable at lake elevation 2,054 ft; however, dock is unusable. Channel flowing by the launch site may be very shallow at this elevation requiring jet boats or mud buddies. Closed from March 1 through June 15 for waterfowl nesting.

Sector	Site ID	Site Name (See Note 1)	Usable at Low Pool Water Level?	Latitude and Longitude	General Suitability at Full Pool (See Note 2)	Gravel or Concrete Boat Ramp?	Field notes
6	SR200 54.28	Johnson Creek Boat Ramp	No	48.138974 -116.228631	2	Concrete	Usable at lake elevation 2,054 ft, but the creek channel away from the launch may be impassable at this lake elevation. Very narrow boat ramps. No cell phone service in this area.
6	SR200 54.83	Derr Island Boat Ramp	No	48.141516 -116.206072	3	Gravel	Very rudimentary at intersection of Derr Island Road and Johnson Creek Road. Not usable at low water. Appears to be public land.
6	SR200 57.07	Pint Lane Boat Ramp	No	48.124568 -116.156401	3	Concrete ramp with thick dirt and gravel on it.	Private land.
6	SR200 58.77	Private Boat Ramp	No	48.103583 -116.140426	2	Concrete and gravel	No dock. Use dependent on river flows. Private land.
6	SR200 60.79	Clark Fork River Access Boat Ramp	No	48.092555 -116.097287	3	Concrete	No dock. Use dependent on river flows. Private land.
6	SR200 61.63	Cabinet Gorge Fish Hatchery Boat Ramp	No	48.086706 -116.08024<	3	Gravel	No dock. Use dependent on river flows.
6	SR200 62.95	Cabinet Gorge Dam Upstream Boat Ramp	Yes	48.087107 -116.052317	3	Gravel	Access controlled by Avista 406-847-1280. Usability dependent upon reservoir level.
7A	US 95 462.56	Sandy Beach Boat Ramp (Lake Cocolalla)	NA	48.126724 -116.624359	3	gravel	Not maintained in winter. Very rough access.
7A	US95 463.62	Lake Cocolalla Boat Ramp	NA	48.138325 -116.60323	1	Concrete	Very good dock and ramp.

Sector	Site ID	Site Name (See Note 1)	Usable at Low Pool Water Level?	Latitude and Longitude	General Suitability at Full Pool (See Note 2)	Gravel or Concrete Boat Ramp?	Field notes
7A	US95 465.12	Round Lake Boat Ramp	NA	48.164107 -116.637451	3	Gravel	No gas-powered motors allowed on boats. Electric or self-propelled boats only. Round Lake is separate from Lake Pend Oreille and unaffected by fluctuating Lake Pend Oreille levels.
7B	US95 471.08	Bottle Bay Bridge Boat Ramp	No	48.230089 -116.537762	3	Gravel	Boat ramp may require 4WD during periods of snow or rain.
7B	US95 471.65	Bottle Bay Marina Boat Ramp	No	48.238042 -116.445367	2	Concrete	Access to boat ramp is down steep narrow road with little turn around room. Fuel available.
7B	US95 472.98	Sourdough Point Boat Ramp	No	48.255446 -116.469042	2	Concrete	Contact Water Treatment Operator: Robert Hanson 208-265-4270. This ramp goes dry early in fall. Small shallow marina has no fuel or service facilities; only boat parking. Private land.
Other	SR54 14.65	Eagle Boat Ramp, Farragut State Park	Yes	47.965026 -116.545805	1	Concrete	This is one of the best boat ramps on the lake, but it is at the southern end of the lake and a long distance from areas likely to be impacted by hazmat spills.
Other	SR54 15.57	Bayview Boat Ramp (Marina)	Yes	47.980766 -116.558464	1	Concrete	The boat launch itself doesn't have much of a staging area, but there are plenty of adjacent lots and parking areas. Fuel available at boat ramp and at the nearby MacDonald's Hudson Bay Resort.
		War Memorial	No	48.264248, -116.558066	1	Concrete	Good staging area. Photo not included in subsequent pages.

General Notes:

1. Highlighted rows indicate the marinas which have fuel service available.
2. Suitability:
Condition 1 = Suitable for large boats such as Sheriff's department or rescue boats

Condition 2 = Suitable for smaller boats such as water ski boats.

Condition 3 = Suitable only for small fishing skiffs, canoe launches, or row boats.

3. All ramps have slip, trip, fall hazards, traffic/roadway hazards, congestion, water hazards, and hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Most boat ramps are unusable from mid-October through mid-May due to low water levels.

Preliminary Draft for
Agency Review

Lake Pend Oreille Boat Ramps & Marinas

Legend



-  Boat Ramp
-  MARINA

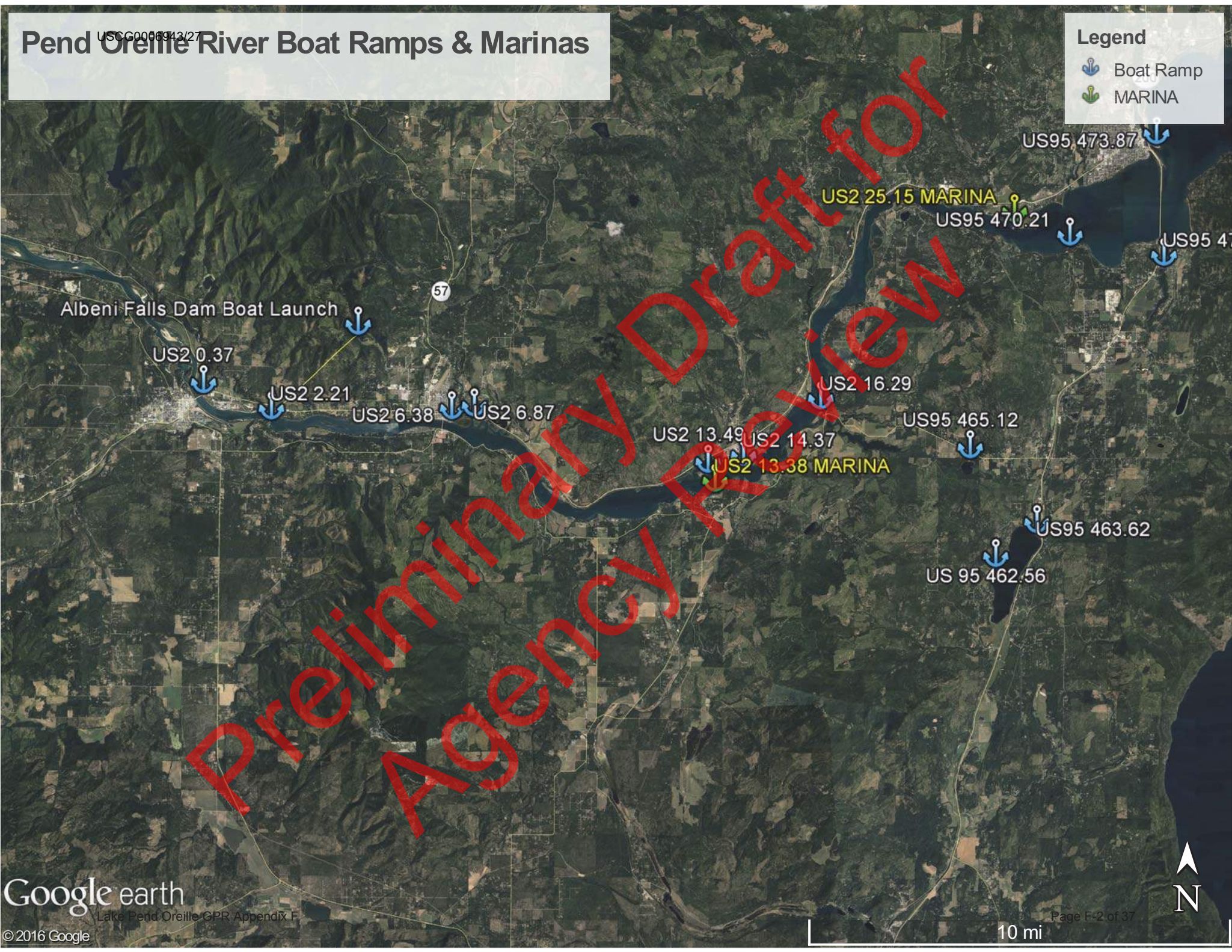


Pend Oreille River Boat Ramps & Marinas

USCG 0006943/27

Legend

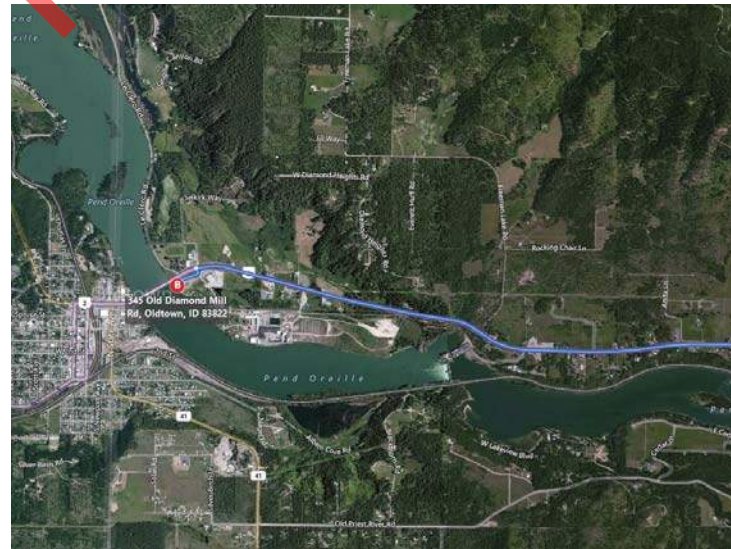
-  Boat Ramp
-  MARINA



Site Lat Long:	48.185348 -117.032438 (http://www.google.com/maps/place/48.185348,-117.032438)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large parking area for vehicles and equipment adjacent to boat ramp. Concrete boat ramp.
Field Notes:	Large staging area. Ramp may not be usable in winter

Directions to Site

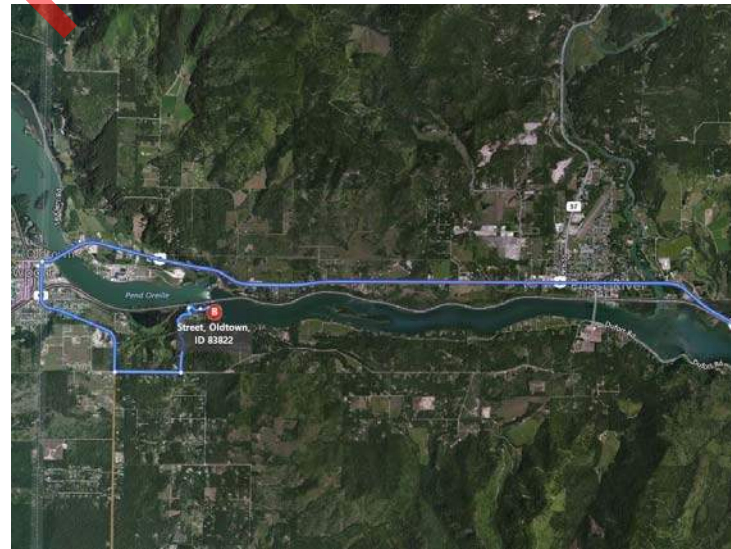
1. Head south on N Fifth Ave toward Cedar St. - 0.2 mi
2. Turn right onto US 2 W/Pine St - 27.8 mi
3. Turn left at Selkirk Way - 151 ft
4. Turn right onto Old Diamond Mill Rd - 0.3 mi



Site Lat Long:	48.176539 -116.997049 (http://www.google.com/maps/place/48.176539,-116.997049)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large paved parking area for vehicles and equipment adjacent to boat ramp. Onsite boat ramp. Concrete boat ramp.
Field Notes:	Restricted access. Recreation area gate locked from 2200-0700. Sheriff Deputies and Campground Host have keys. Ramp may not be usable in winter. Ramp is generally usable from mid-June to the end of September. Launchable water elevation is 2055 ft. Availability dependant on river flows as well as elevation. Kept closed if flows at dam are greater than 40 cfs. Access gate closed at night during

Directions to Site

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn right onto US-2 W/Pine St - 22.2 mi 3. Turn left onto Wisconsin St - 0.4 mi 4. Turn right onto Old Priest River Rd - 5.0 mi 5. Turn right onto Blackthorne Rd - 0.8 mi 6. Turn left to stay on Blackthorne Rd - 459 ft 7. Continue straight onto Albeni Cove Rd - 0.3 mi 8. Sharp left - 161 ft 9. Albeni Cove Recreation Area



Site Lat Long:	48.176933 -116.904242 (http://www.google.com/maps/place/48.176933,-116.904242)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large city park with large parking area and turnaround. Concrete boat ramp.
Field Notes:	Large staging area. Ramp may not be usable in winter

Directions to Site

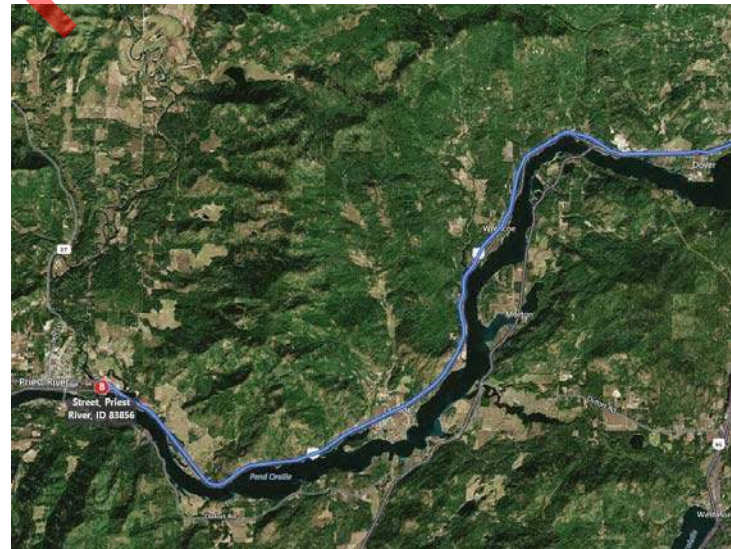
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn right onto US-2 W/Pine St - 22.2 mi 3. Turn left onto Wisconsin St - 0.2 mi 4. Turn left onto Railroad Ave - 394 ft 5. Railroad Avenue, Priest River, Idaho



Site Lat Long:	48.177921, -116.89271 (http://www.google.com/maps/place/48.177921,-116.89271)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete parking lot, boat ramp, and grass field Concrete boat ramp.
Field Notes:	Large staging area. Ramp may not be usable in winter. Ramp usable mid June to End of September. Launchable elevation is 2058 ft. Need to verify if this area is gated at night.

Directions to Site

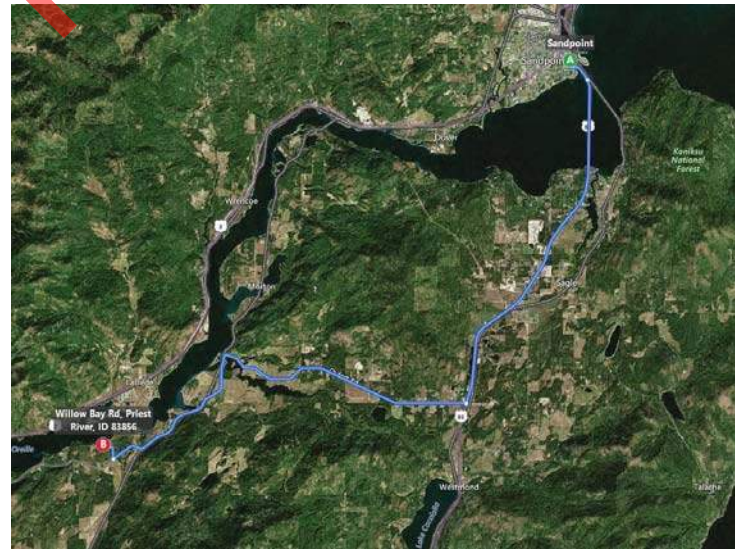
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn right onto US-2 W/Pine St - 22.2 mi 3. In the town of Priest River, ID, Turn left onto Wisconsin St- 0.2 mi 4. Turn left onto Railroad Ave 5. Priest River Park



Site Lat Long:	48.152507 -116.76856 (http://www.google.com/maps/place/48.152507,-116.76856)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete Boat Ramp. \$10 launch fee. Contact Resort office at 208-265-8854 Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

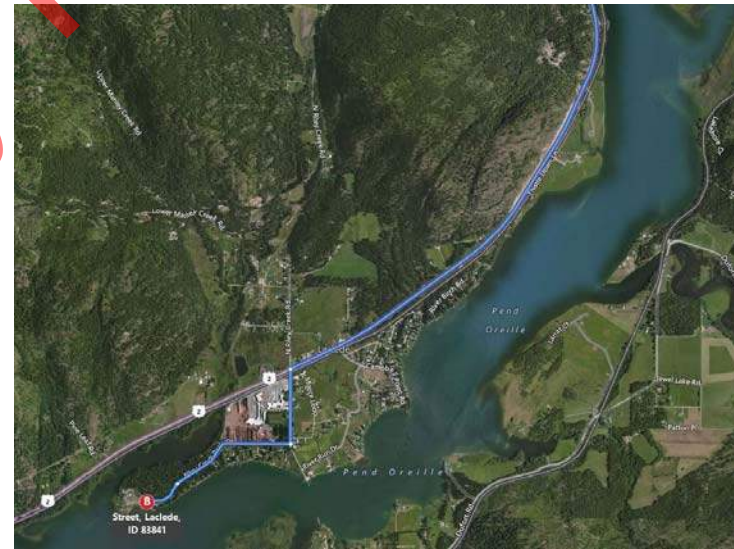
1. Take US-95 S for 8.0 mi
2. Turn right onto Dufort Rd- 9.5 mi
3. Turn right onto Willow Bay Rd and continue to destination



Site Lat Long:	48.158966 -116.772205 (http://www.google.com/maps/place/48.158966,-116.772205)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large asphalt parking lot with large staging area. Concrete boat ramp.
Field Notes:	Usable mid-June to End of Sept. Launchable elevation is 2058. Gate closed at night during open season; closed to vehicle access during off-season.

Directions to Site

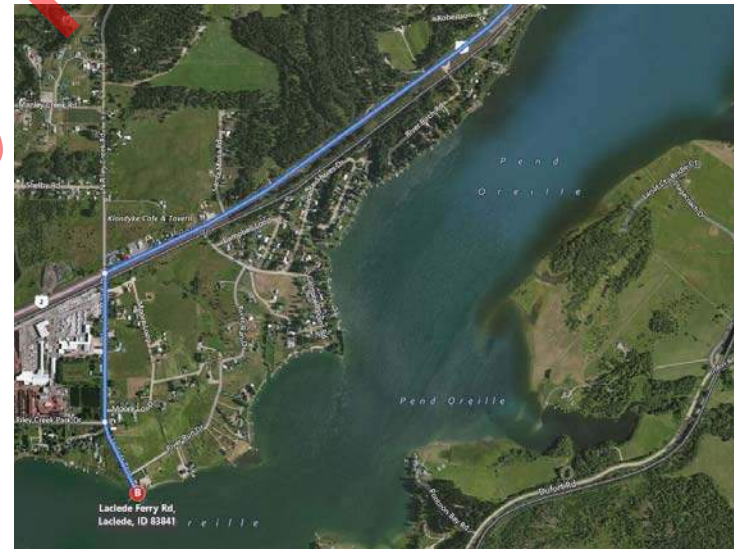
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 13.8 mi
3. Turn left onto Riley Creek Rd - 0.4 mi
4. Turn right onto Riley Creek Park Rd - 1.0 mi
5. Riley Creek Recreation Area, Laclede, Idaho



Site Lat Long:	48.161332 -116.754025 (http://www.google.com/maps/place/48.161332,-116.754025)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete with a gravel parking lot Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

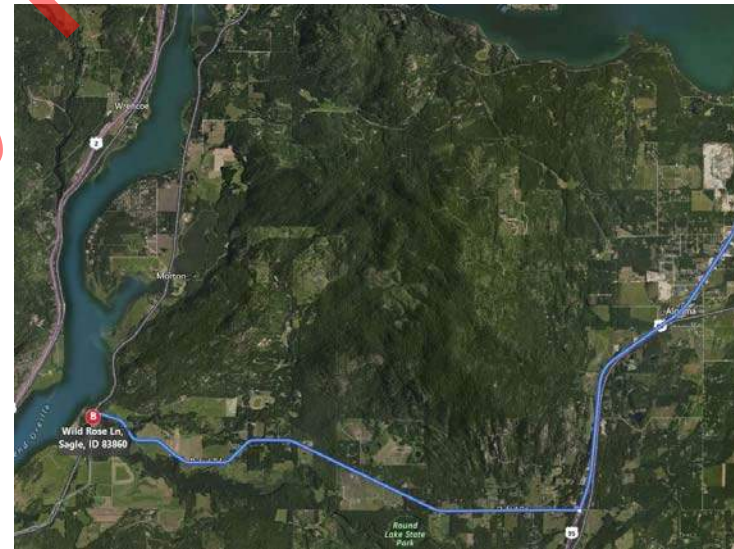
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi
2. Turn right onto US-2 W/Pine St - 13.8 mi
3. Turn left onto Riley Creek Rd - 0.4 mi
4. Continue onto Laclede Ferry Rd - 0.2 mi
5. Laclede Ferry Road, Laclede, Idaho



Site Lat Long:	48.180695 -116.714602 (http://www.google.com/maps/place/48.180695,-116.714602)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large parking area for vehicles and equipment adjacent to boat ramp. Concrete boat ramp.
Field Notes:	Usable mid-June to End of Sept. Launchable elevation is 2059. Gate closed at night during open season; closed to vehicle access during off-season.

Directions to Site

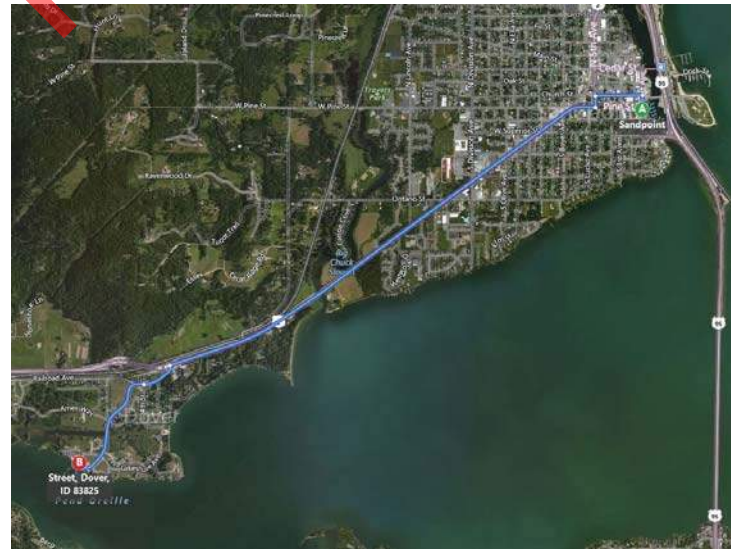
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US-95 S - 8.0 mi 6. Turn right onto Dufort Rd - 5.7 mi 7. Turn right onto Lakeshore Dr - 52 ft 8. Turn left onto Wild Rose Ln - 194 ft 9. Wild Rose Lane, Sagle, Idaho



Site Lat Long:	48.244936 -116.614668 (http://www.google.com/maps/place/48.244936,-116.614668)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete boat ramp.
Field Notes:	Contact Jenny Hickson with Dover bay at 208-263-3083. Ramp may not be usable in winter

Directions to Site

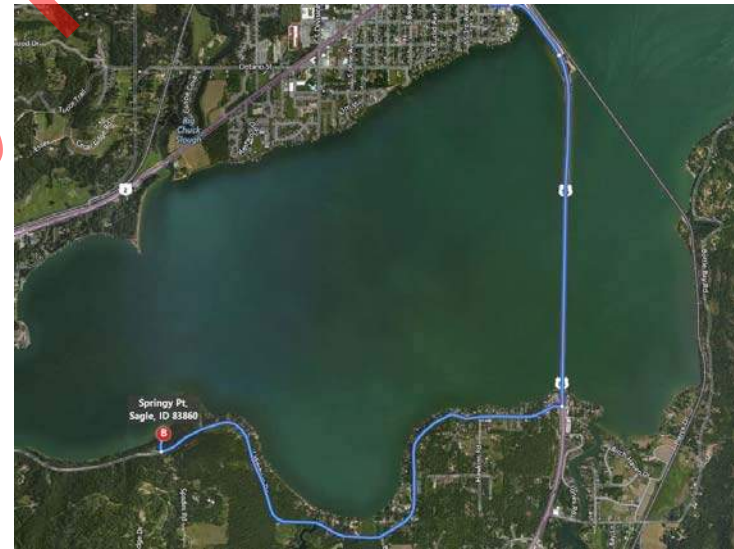
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi 2. Turn right onto US-2 W/Pine St - 2.7 mi 3. Turn left onto Old Hwy U.S. 2 - 0.2 mi 4. Continue onto Dover Bay Blvd - 0.3 mi 5. Continue onto Dover Bay Pkwy - 0.2 mi 6. Turn right onto Lakeshore Avenue - 495 ft 6. 639 Lakeshore Avenue, Dover, Idaho



Site Lat Long:	48.236959 -116.586229 (http://www.google.com/maps/place/48.236959,-116.586229)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	A large boat ramp and dock with plenty of turn around room. A large day use parking lot is a little ways down from the boat launch. Concrete boat ramp.
Field Notes:	Usable mid-June to End of Sept. Launchable elevation is 2059. Gate closed at night during open season; closed to vehicle access during off-season.

Directions to Site

1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US-95 S - 1.9 mi 6. Turn right onto Lakeshore Dr - 3.1 mi 7. Turn right onto Springy Point 8. 292 ft Springy Point, Sagle, Idaho



Site Lat Long:	48.271857 -116.541449 (http://www.google.com/maps/place/48.271857,-116.541449)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	2 concrete boat ramps adjacent to large parking and staging area. Concrete boat ramp.
Field Notes:	Sanpoint City beach BL. Ramp may not be usable in winter

Directions to Site

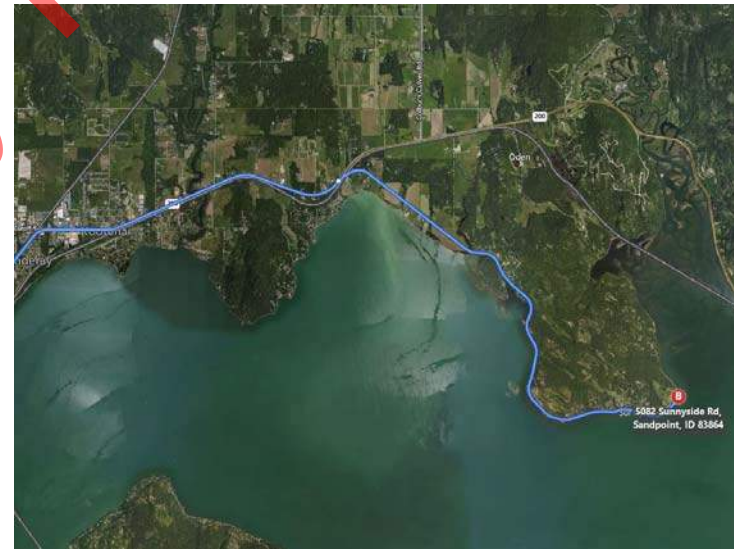
1. Head south on N Fifth Ave toward Cedar St - 171 ft 2. Turn left onto Pine St 0.3 mi 3. Pine St turns left and becomes N First Ave 246 ft 4. Turn right onto Bridge St 0.2 mi 5. Turn right



Site Lat Long:	48.282777 -116.378872 (http://www.google.com/maps/place/48.282777,-116.378872)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Gravel ramp with adequate parking. Idaho Fish & Game site. Concrete dock with no cleats or other tie-off points. Gravel boat ramp.
Field Notes:	Medium sized staging area. Usable in mid-June to end of sept. Launchable elevation is 2056 ft.

Directions to Site

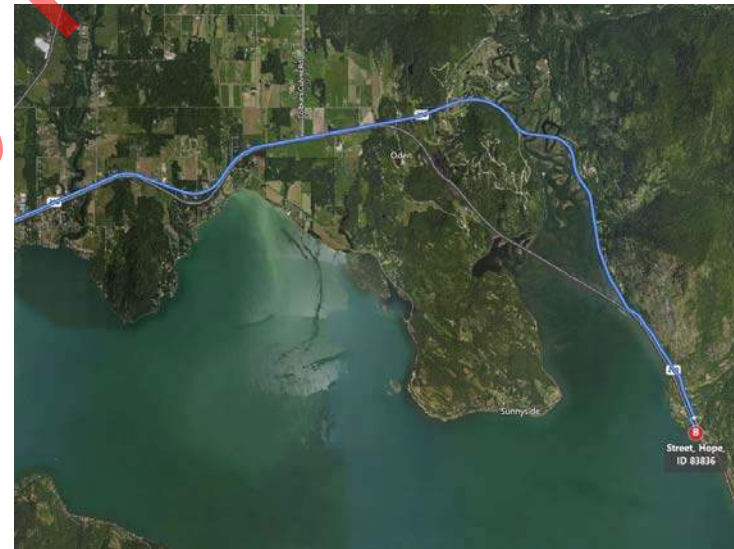
1. Continue onto ID-200 for 6.4 mi 2. Turn right onto Sunnyside Cut Off Rd for 1.2 mi 3. Turn left onto Sunnyside Rd for 2.1 mi 4. Slight right to stay on Sunnyside Rd 5. Destinations will be on the right



Site Lat Long:	48.276717 -116.347099 (http://www.google.com/maps/place/48.276717,-116.347099)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete ramp with large parking area. Likely unusable during winter months when lake is low. Concrete boat ramp.
Field Notes:	Usable in mid-June to end of sept. Launchable elevation is 2054 ft

Directions to Site

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 17.5 mi
3. Trestle Creek Boat Launch



Site Lat Long:	48.250419 -116.315243 (http://www.google.com/maps/place/48.250419,-116.315243)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete ramp. Concrete boat ramp.
Field Notes:	Good access even in low water. Managed by Bonner County. Ramp may not be usable in winter

Directions to Site

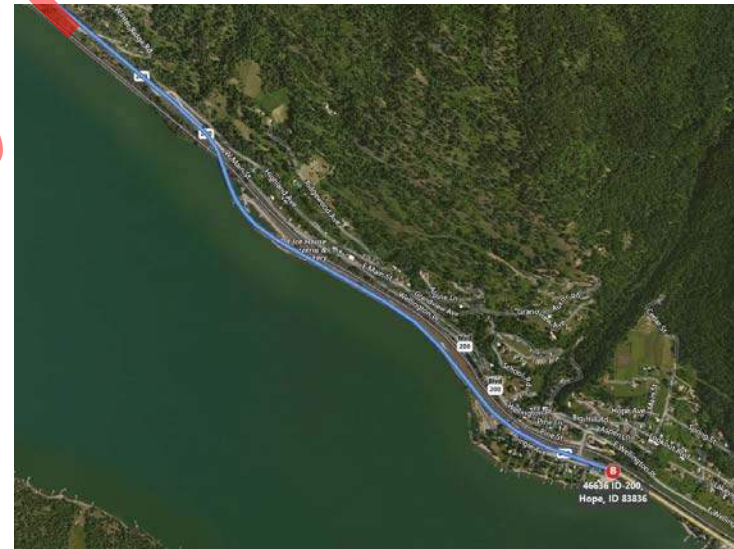
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi 2. Continue onto ID-200 - 14.8 mi 3. Turn left onto W Main St - 0.8 mi 4. Continue onto Lake - 249 ft 5. Turn left onto E Main St - 7 ft 6. 199 East Main Street, Hope, Idaho



Site Lat Long:	48.239177 -116.29388 (http://www.google.com/maps/place/48.239177,-116.29388)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete and gravel boat ramps. Concrete boat ramp.
Field Notes:	Site likely not usable during winter when lake is low. Managed by ID Fish and Game. Ramp may not be usable in winter.

Directions to Site

1. Take ID-200 for 16.4 mi 2. Destination will be on the right as one passes through East Hope



Site Lat Long:	48.229128 -116.276511 (http://www.google.com/maps/place/48.229128,-116.276511)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete ramp near Floating Restaurant. Contact 208-264-5106. Likely not usable during winter when lake is low. Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

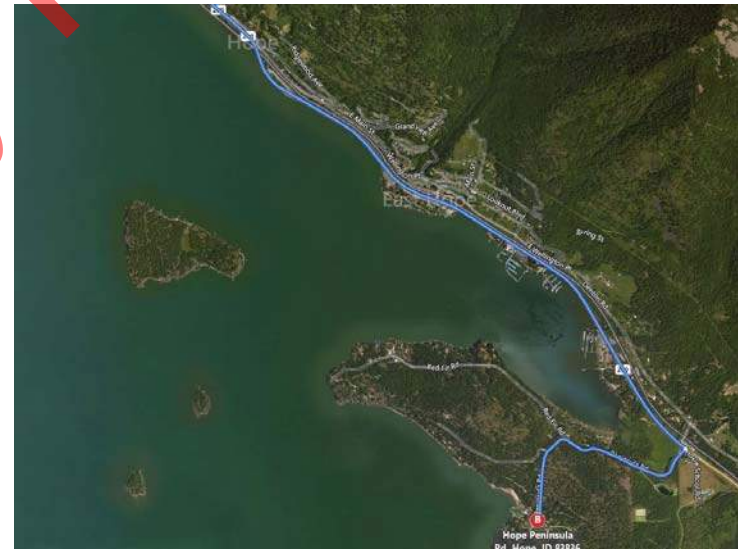
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 17.5 mi
3. Hope Marina BL, Hope, Idaho



Site Lat Long:	48.215623 -116.285212 (http://www.google.com/maps/place/48.215623,-116.285212)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete. Concrete boat ramp.
Field Notes:	Possibility that the ramp could be too shallow during winter months. Mooring fee charged for marina use. Contact 208-264-5251 for resort marina staff. Likely not usable during winter when lake is low. Ramp may not be usable in winter

Directions to Site

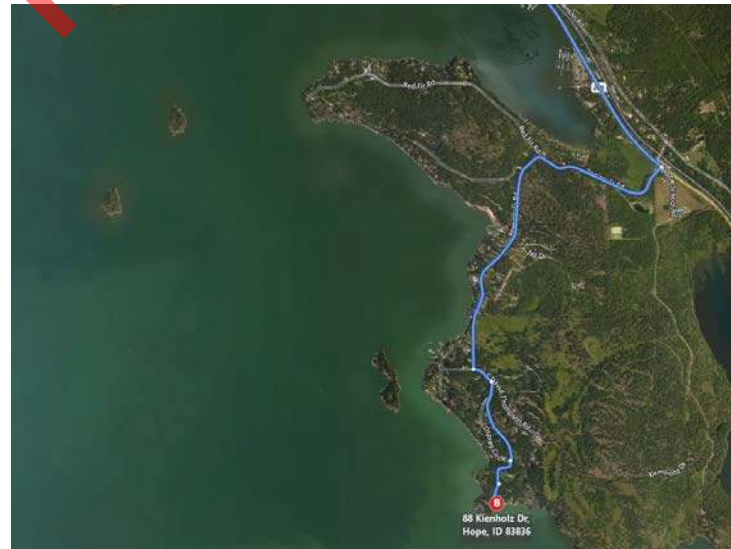
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
 2. Continue onto ID-200 - 18.3 mi
 3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd - 0.8 mi
 4. Turn left onto Hope Peninsula Rd/Peninsula Rd - 0.6 mi
- 1243 Peninsula Road, Hope, Idaho



Site Lat Long:	48.193974 -116.285392 (http://www.google.com/maps/place/48.193974,-116.285392)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	A large paved boat launch, though no visible parking. Looked like it was an extension to a private drive way. Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

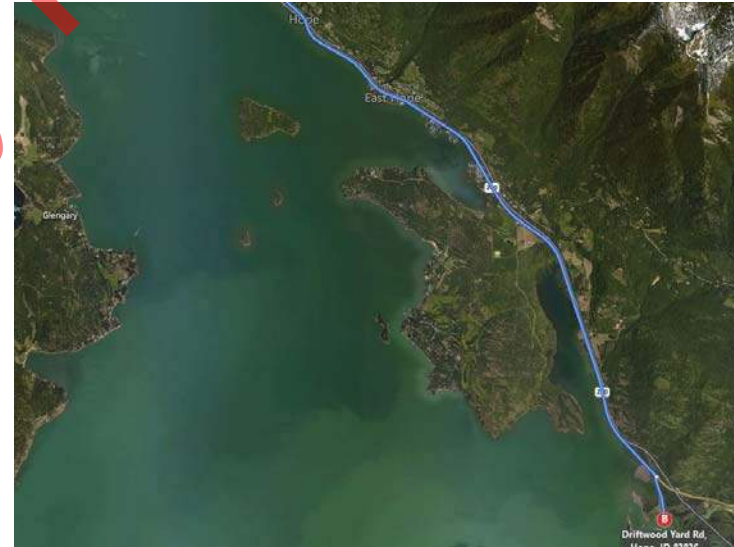
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 18.3 mi
3. Turn right onto Hope Peninsula Rd/NF-1002/Peninsula Rd - 0.8 mi
4. Turn left onto Hope Peninsula Rd/Peninsula Rd - 1.3 mi
5. Turn left onto E David Thompson Rd - 0.1 mi
6. Turn right onto Osprey Cir - 0.5 mi
7. Slight left onto Kienholz Dr - 266 ft
8. Kienholz Drive, Hope, Idaho



Site Lat Long:	48.173532 -116.231974 (http://www.google.com/maps/place/48.173532,-116.231974)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Year-round concrete ramp. Large parking area for vehicles and equipment adjacent to ramp. Concrete boat ramp.
Field Notes:	Concrete ramp. Large parking area for vehicles and equipment adjacent to ramp. Ramp usable at 2058 ft. Access closed during goose nesting season.

Directions to Site

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi 2. Continue onto ID-200 - 2.7 mi 3. Turn right onto Kootenai Bay Rd - 387 ft 4. Turn left onto Whiskey Jack Rd - 0.8 mi



Site Lat Long:	48.138974 -116.228631 (http://www.google.com/maps/place/48.138974,-116.228631)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Twin boat launches parallel each other, both launches are rather narrow, so larger boats and trailers may be a tight squeeze. Boat launch is accompanied by a large parking and staging area. Concrete boat ramp.
Field Notes:	Twin boat launches parallel each other, both launches are rather narrow, so larger boats and trailers may be a tight squeeze. Boat launch is accompanied by a large parking and staging area. Concrete boat ramp. Launchable elevation is 2054 ft.

Directions to Site

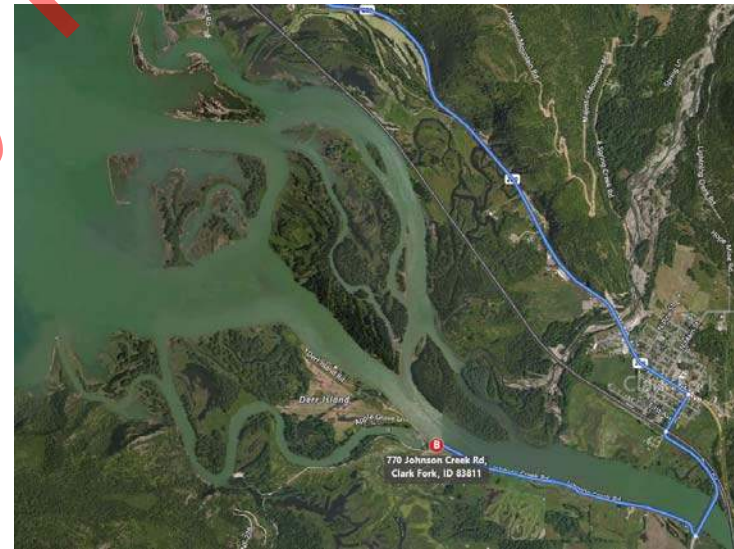
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi 2. Continue onto ID-200 - 25.4 mi 3. Turn right onto Stephen St - 0.3 mi 4. Turn left onto S River Rd - 0.7 mi 5. Continue onto Johnson Creek Rd - 295 ft 6. Turn right to stay on Johnson Creek Rd - 9.5 mi 7. Turn right onto Johnson Creek Rd/NF-278 - 5.0 mi 8. Turn left to stay on Johnson Creek Rd/NF-278 - 3.4 mi 9. Johnson Creek Boat Launch



Site Lat Long:	48.141516 -116.206072 (http://www.google.com/maps/place/48.141516,-116.206072)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	A gravel boat launch off of a county road. There is extremely limited parking. Gravel boat ramp.
Field Notes:	This looks to be a public boat launch, and differs from the Derr Island Private BL. If it is private it is owned by the Delta Shore Estates. Ramp may not be usable in winter

Directions to Site

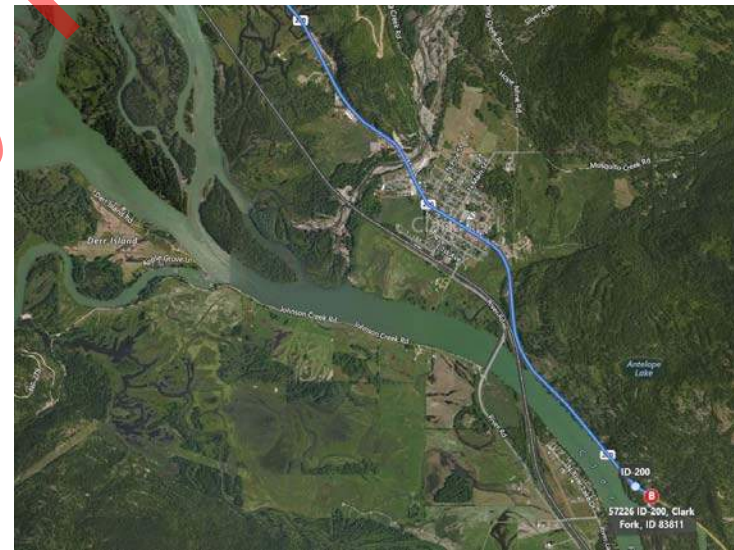
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 25.4 mi
3. Turn right onto Stephen St - 0.3 mi
4. Turn left onto S River Rd - 0.7 mi
5. Continue onto Johnson Creek Rd - 295 ft
6. Turn right to stay on Johnson Creek Rd - 1.6 mi
7. Turn right onto Apple Grove Ln - 0.2 mi
8. Continue straight onto Derr Island Rd - 0.3 mi



Site Lat Long:	48.124568 -116.156401 (http://www.google.com/maps/place/48.124568,-116.156401)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete with thick dirt on it. Concrete boat ramp.
Field Notes:	Locked Gate. Ramp may not be usable in winter

Directions to Site

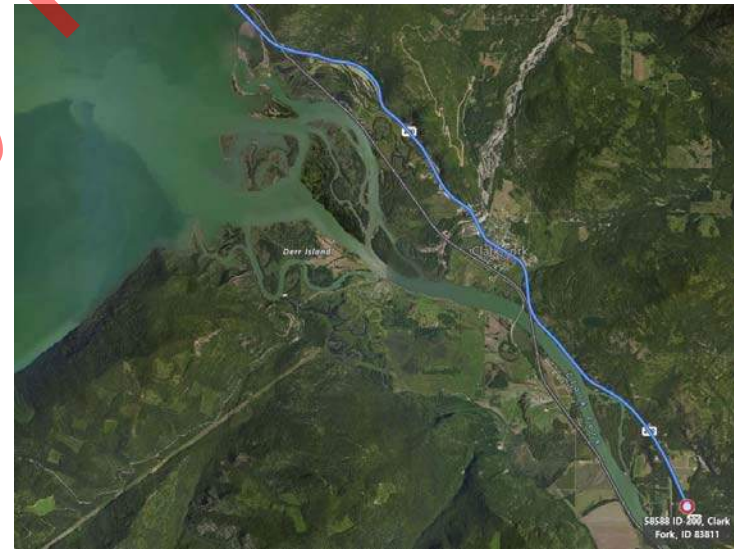
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 25.5 mi
3. 57209 Idaho 200



Site Lat Long:	48.103583 -116.140426 (http://www.google.com/maps/place/48.103583,-116.140426)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Gravel/concrete Concrete boat ramp.
Field Notes:	Private contact Royce Anderson (208) 266-1177. Ramp may not be usable in winter

Directions to Site

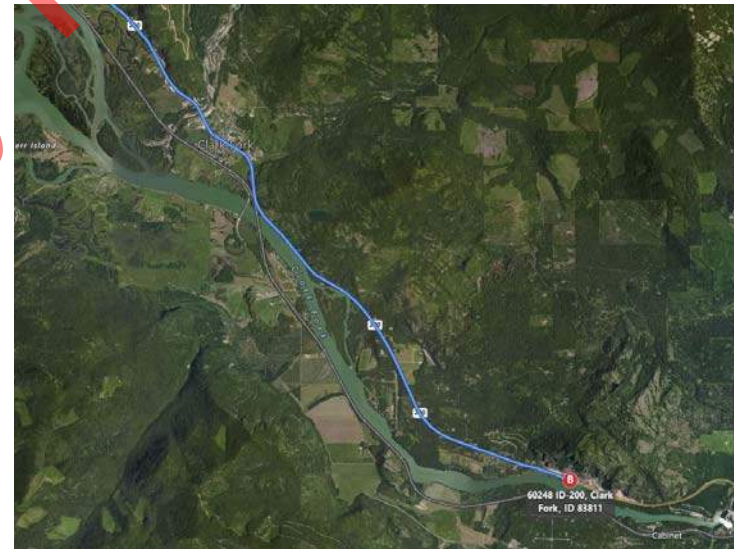
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 28.7 mi
3. Turn right when possible for river access
4. Private Boat Launch



Site Lat Long:	48.092555 -116.097287 (http://www.google.com/maps/place/48.092555,-116.097287)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Gravel parking lot on lookers right Concrete boat ramp.
Field Notes:	Boat launch is locked. Contact Avista for access 406-847-1280. Ramp may not be usable in winter

Directions to Site

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi 2. Continue onto ID-200 - 27.8 mi 3. 60238 Idaho 200, Clark Fork, Idaho



Site Lat Long:	48.086706 -116.08024 (http://www.google.com/maps/place/48.086706,-116.08024)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large parking and staging area on fish hatchery road adjacent to boat ramp. Gravel boat rapm.
Field Notes:	Contact fish hatchery for ramp access, 406-847-1282. Ramp may not be usable in winter

Directions to Site

1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi 2. Continue onto ID-200 - 25.4 mi 3. Turn right onto Stephen St - 0.3 mi 4. Turn left onto S River Rd - 0.7 mi 5. Continue onto Johnson Creek Rd - 295 ft 6. Continue straight onto River Rd - 6.5 mi 7. Turn left onto Cabinet Gorge Rd - 0.6 mi 8. Turn right to stay on Cabinet Gorge Rd - 0.4 mi 9. Cabinet Gorge Hatchery



Site Lat Long:	48.087107 -116.052317 (http://www.google.com/maps/place/48.087107,-116.052317)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Equipment and vehicle parking area adjacent to rail crossing. Large staging area onsite. Gravel boat ramp.
Field Notes:	Locked gate on road controlled by Avista 406-847-1280. Ramp may not be usable in winter

Directions to Site

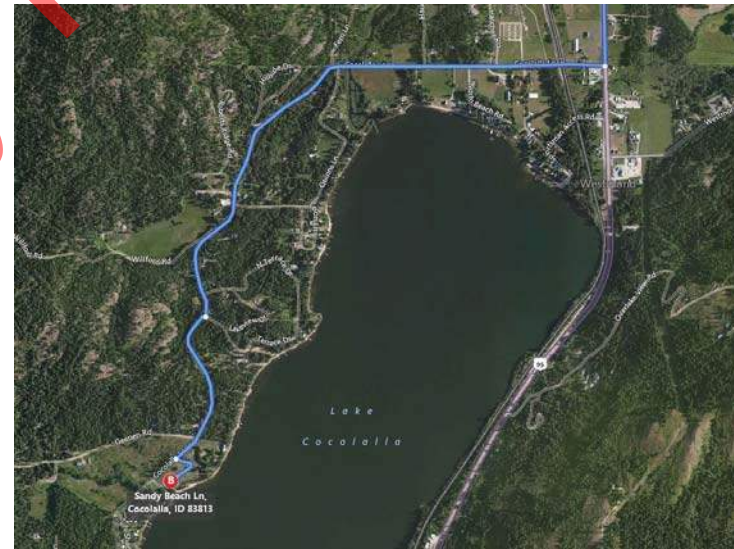
1. Head north on US-2 E/N Fifth Ave toward Alder St - 1.0 mi
2. Continue onto ID-200 - 25.4 mi
3. Turn right onto Stephen St - 0.3 mi
4. Turn left onto S River Rd - 0.7 mi
5. Continue onto Johnson Creek Rd - 295 ft
6. Continue straight onto River Rd - 6.5 mi
7. Turn left onto Cabinet Gorge Rd - 0.6 mi
8. Turn right to stay on Cabinet Gorge Rd - 0.7 mi
9. Cabinet Gorge Dam



Site Lat Long:	48.126724 -116.624359 (http://www.google.com/maps/place/48.126724,-116.624359)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Posted no trespassing. No contact information on sign. Ramp size and quality not verified or documented. Unknown ramp type.
Field Notes:	Ramp may not be usable in winter

Directions to Site

1. Take US-95 S for 9.5 mi
2. Turn right onto Cocolalla Loop Rd 2.0 mi
3. Turn left at boat launch

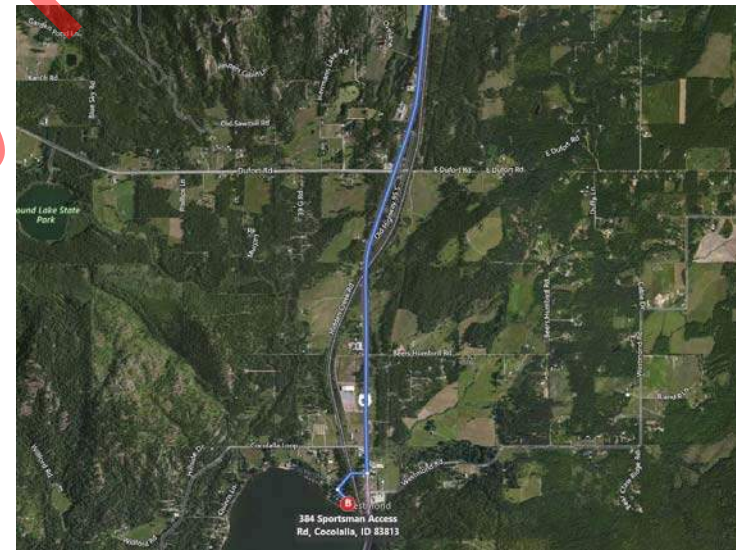


Preliminary Draft for Agency Review

Site Lat Long:	48.138325 -116.60323 (http://www.google.com/maps/place/48.138325,-116.60323)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Concrete ramp with large parking area for vehicles and equipment. Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

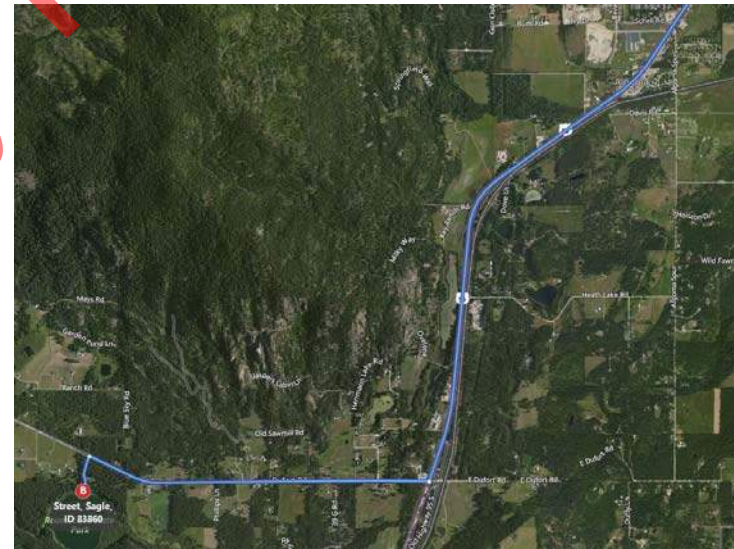
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US - 95 S - 9.6 mi 6. Turn right onto Sportsman Access Rd - 0.2 mi 7. Turn left to stay on Sportsman Access Rd - 203 ft 8. 287 Sportsman Access Rd, Cocolalla, Idaho



Site Lat Long:	48.164107 -116.637451 (http://www.google.com/maps/place/48.164107,-116.637451)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large gravel ramp with adjacent parking area. Gravel boat ramp.
Field Notes:	No gas powered motors allowed on boats. Electric or self propelled boats only. Ramp may not be usable in winter

Directions to Site

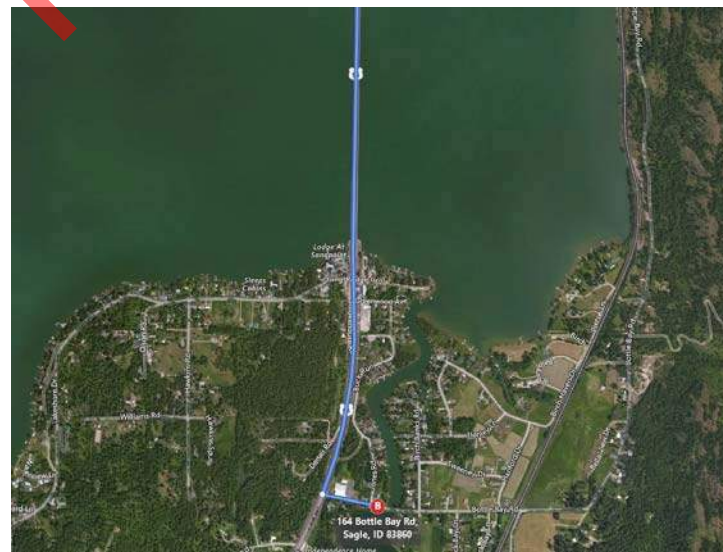
1. Head south on N Fifth Ave Toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US - 95 S - 8.0 mi 6. Turn right onto Dufort Rd - 1.9 mi 7. Turn left toward Mirror Lake Rd - 0.1 mi 8. Continue onto Mirror Lake Rd - 213 ft 9. Mirror Lake Rd, Westmond, Idaho



Site Lat Long:	48.230089 -116.537762 (http://www.google.com/maps/place/48.230089,-116.537762)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Limited parking along road on narrow shoulder with adjacent gravel boat ramp. Boat ramp best suited for smaller sized boats and trailers. Gravel boat ramp.
Field Notes:	Boat ramp may require 4WD during periods of snow or rain. Ramp may not be usable in winter.

Directions to Site

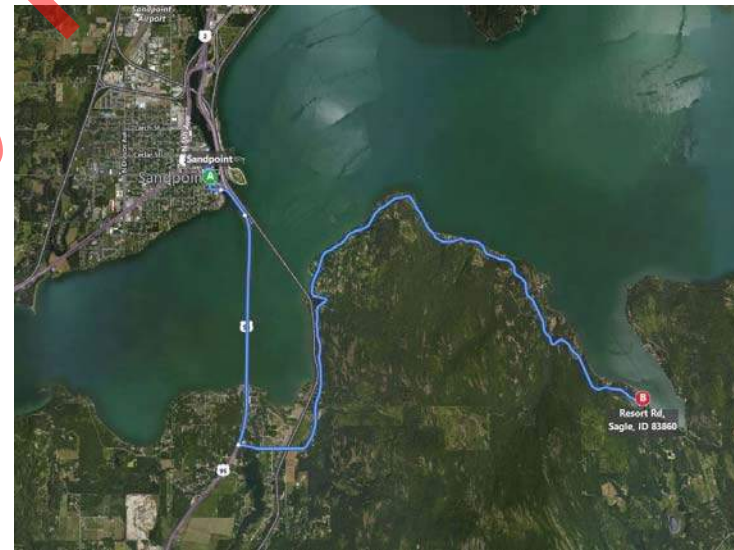
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US-95 S - 2.5 mi 6. Turn left onto Bottle Bay Rd - 0.1 mi 7. 140 Bottle Bay Road, Sagle, Idaho



Site Lat Long:	48.238042 -116.445367 (http://www.google.com/maps/place/48.238042,-116.445367)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large, well taken care of, boat ramp, though it has no parking area. Concrete boat ramp.
Field Notes:	Ramp may not be usable in winter

Directions to Site

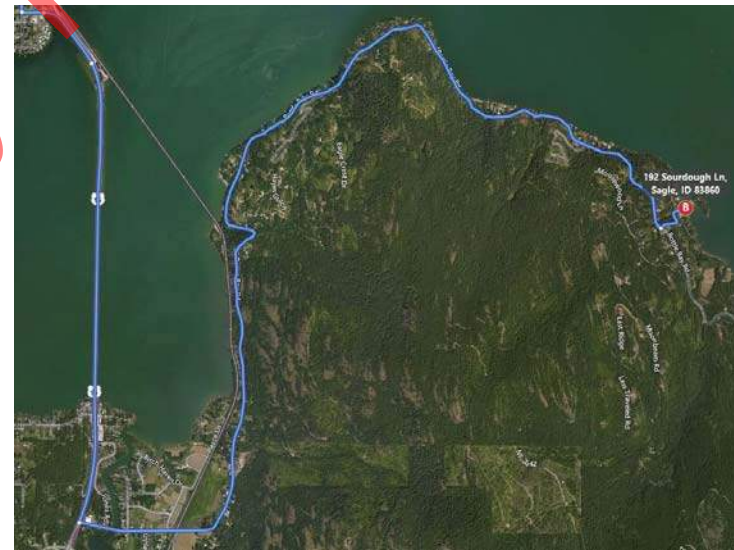
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US - 95 S - 2.5 mi 6. Turn left onto Bottle Bay Rd - 8.1 mi 7. Turn left onto Resort Rd - 0.1 mi 8. 125 Resort Road, Sagle, Idaho



Site Lat Long:	48.255446 -116.469042 (http://www.google.com/maps/place/48.255446,-116.469042)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large staging and parking area Concrete boat ramp.
Field Notes:	Contact Water Treatment Operator: Robert Hanson 208-265-4270. Ramp may not be usable in winter

Directions to Site

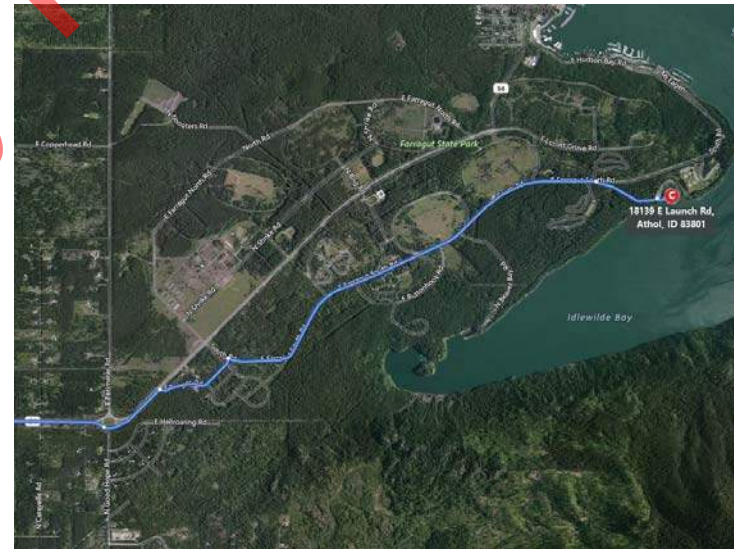
1. Head south on N Fifth Ave toward Cedar St - 0.2 mi 2. Turn left onto Pine St - 0.3 mi 3. Turn right onto S 1st Ave - 0.2 mi 4. Turn left onto E Superior St - 0.5 mi 5. Merge onto US - 95 S - 2.5 mi 6. Turn left onto Bottle Bay Rd - 6.2 mi 7. Turn left onto Sourdough Ln - 0.1 mi 8. Turn right at the 1st cross street onto E Shoreline Ln - 69 ft 9. 22 East Shoreline Lane, Sagle, Idaho



Site Lat Long:	47.965026 -116.545805 (http://www.google.com/maps/place/47.965026,-116.545805)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large boat ramp and staging area, plenty of room for parking. Concrete boat ramp.
Field Notes:	Located on Farragut State Park, \$10 per vehicle out-of-state fee (\$5 if you're an Idaho resident). Ramp may not be usable in winter

Directions to Site

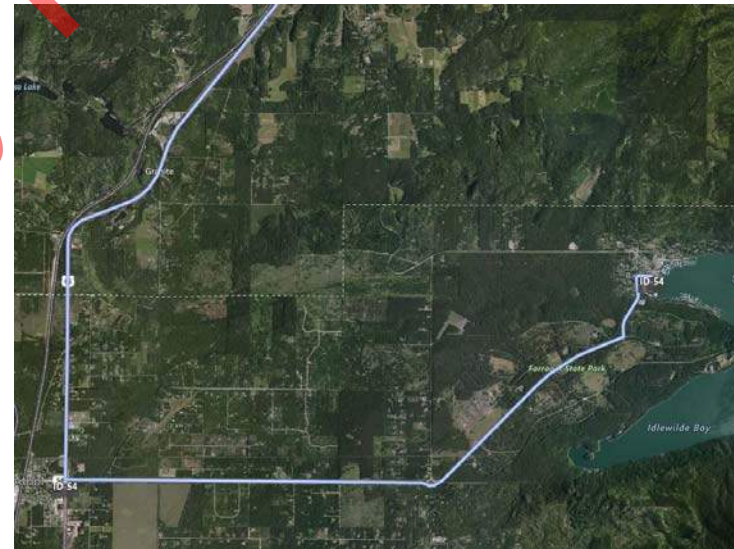
1. Take US-95 S for 18 mi 2. Turn left onto Bayview Rd- 3.7 mi 3. Continue onto E Careywood Rd- 0.7 mi 4. Turn right onto N Good Hope Rd/E Perimeter Rd- 2.4 mi 5. At the traffic circle, take the 3rd exit onto ID-54 E- 2.8 mi 6. Slight right onto Blackwell Cir Dr/Locust Grove Rd-Park Entrance, continue to follow Blackwell Cir Dr- 0.6 mi 7. Turn right toward Launch Rd- 0.2 mi 8. Slight left onto Launch Rd



Site Lat Long:	47.980766 -116.558464 (http://www.google.com/maps/place/47.980766,-116.558464)
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	Large boat launch and staging area in the town of Bayview. Concrete boat ramp.
Field Notes:	The boat launch it self doesn't have much of a staging area, but there are plenty of adjacent lots/parking area that would work just fine. Due to Farragut State park there is a \$10 out-of-state fee to launch a boat from here (\$5 if you're an Idaho resident). Ramp may not be usable in winter

Directions to Site

1. Take US-95 S for 18 mi
2. Turn left onto Bayview Rd- 3.7 mi
3. Continue onto E Careywood Rd- 0.7 mi
4. Continue onto E Perimeter Rd- 2.4 mi
5. Slight right onto N Main Ave- 0.2 mi
6. Turn left onto Lakeside Ave- 230 ft
7. Turn right onto E Boileaus G Dock



Site Lat Long:	48.264697 -116.558078
Strategy Objective:	Boat Launch. Access only.
Site Safety Note:	Slip, trip, fall hazards; traffic/roadway hazards, congestion, water hazards, hazards from spilled material. Expect extreme winter conditions from middle of November to middle of March. Complete a task specific Job Safety Analysis
Staging Area:	<div>Large parking area for vehicles and equipment adjacent to boat ramp. Concrete boat ramp.</div>
Field Notes:	Ramp is unusable at low pool level. Photo unavailable.

Directions to Site: 1. Head north on S 1st Ave toward Lake St. 2. Turn left onto Lake St. 3. Turn left onto Euclid Ave. 4. Turn right onto Lakeview Blvd. 5. Turn left into parking lot.

Preliminary Draft for Agency Review

Appendix G **Other Geographic Response Plans**—Rosetta
Stone

Preliminary Draft for
Agency Review

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
Sector 1A West Pend Oreille								
US2 0.30	POVA 1430.86	Oldtown Boat Launch	Contaminant Collection	POVA 1430.8 / 0.3	Collection and Recovery	–	–	–
US2 2.0	POVA 1428.59	Albeni Falls Dam	Contaminant Collection	POVA 1428.7 / 2.0	Notification Only	LPO1_29.23	Albeni Falls Dam	Collection and Recovery
US2 2.21	POVA 1428.66	Albeni Cove Recreation Area	Contaminant Collection	POVA 1428.6 / 2.2	Collection and Recovery	–	–	–
Sector 1B West Pend Oreille Fire District								
US2 5.73	POVA 1424.79	10th St Surface Water	Exclusion	–	–	–	–	–
US2 6.2	POVA 1424.31	Priest River-South	Contaminant Collection	POVA 1421.6 / 6.3	Collection and Recovery	LPO1_20.2	Priest River Slough #1	Exclusion
US2 6.38	POVA 1424.13	Priest River City Water Intake	Exclusion	POVA 1424.1 / 6.5	Deflection	LPO1_24.86	Priest River Boat Ramp	Collection and Recovery; Does Not Address City Water Intake
US2 6.87	POVA 1423.64	Priest River Mouth	Exclusion	–	–	LPO1_24.52	Priest River Trestle	Exclusion
US2 7.59	POVA 1423.0	Priest River Mouth Slough	Exclusion; Very Long Booms	–	–	LPO1_23.55	Priest River Slough #3	Exclusion
US2 10.19	POVA 1420.46	Carey Creek Game Management Area	Deflection	–	–	LPO1_21.68	Priest River Slough #2 (This is incorrectly named)	Exclusion

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
US2 10.52	POVA 1420.12	Baylor Lane Slough	Exclusion	–	–	LPO1_20.7	Priest River Slough #1 (This is incorrectly named)	Exclusion
Sector 2 Westside Fire								
US2 13.3	POVA 1417.28	Riley Creek Slough	Contaminant Collection	POVA 1417.1 / 13.4	Collection and Recovery	LPO1_18	Riley Creek	Exclusion
US2 13.49	POVA 1417.06	Riley Creek Recreation Area	Contaminant Collection	–	–	–	–	–
US2 14.37	POVA 1416.24	Laclede Public Water Supply	Exclusion	POVA 1416.4 / 14.3	Deflection	–	–	–
US2 16.06	UP Spokane Railroad 62.78	Cocolalla Creek Mouth	Exclusion	UP MP 63.1 HMP 16.1 Dufort Road Bridge	Collection/Recovery Location Is Further Inland than DEQ GRP or MRL GRP	LPO1_14.82	Morton Slough - error; this is misnamed in the MRL GRP Correct geographical name is Cocolalla Creek Mouth	Deflection
US2 16.29	UP Spokane Railroad 63.14	Morton Slough Boat Launch	Contaminant Collection	POVA 63.2 / 16.2	Collection and Recovery	–	–	–
–	–	–	–	–	–	LPO1_14.13	Laclede Slough	Exclusion
US2 17.12	POVA 1413.35	Morton Slough Game Management Area	Exclusion	–	–	LPO1_13.48	Upper Morton Slough	Exclusion

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
-	-	-	-	-	-	LPO1_12.46	Johnson Creek Slough	Exclusion
-	-	-	-	-	-	LPO1_11.06	Gypsy Bay	Exclusion
US2 20.71	POVA 1409.86	Bay near Muskrat lake	Exclusion	-	-	LPO1_9.66	Bay Near Muskrat Lake	Exclusion
-	-	-	-	-	-	LPO1_9.28	Smith Creek Slough	Exclusion
-	-	-	-	-	-	LPO1_8.01	Pend Oreille Union Pacific Railroad Trestle	Collection and Recovery
-	-	-	-	-	-	LPO1_8.02	Snug Harbor Slough	Exclusion
-	-	-	-	-	-	LPO1_6.73	Hornby Creek Mouth	Deflection
US2 24.89	BNSF Newport 71.01	Dover Bay Slough	Exclusion	-	-	LPO1_6.12	Dover Slough	Exclusion
-	-	-	-	-	-	LPO1_5.65	Springy Point Slough	Exclusion
US2 25.16	BNSF Newport 71.31	Dover Bay Marina	Contaminant Collection	BNSF 71.4 / 25.2	Collection and Recovery	-	-	-
US2 25.63	BNSF Newport 71.87	Dover Bay Water Intake	Exclusion	BNSF 71.7 / 25.5	Deflection	LPO1_5.3	Dover water intake	Deflection
Sector 3A Sandpoint								
US2 26.68	BNSF Newport 72.79	Chuck Slough	Collection and Recovery	-	-	LPO1_4.22	Chuck Slough	Exclusion

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
US2 27.07	BNSF Newport 73.29	Ontario St West	Collection and Recovery	BNSF 73.3 / 27.1	Collection and Recovery	-	-	-
US2 27.17	BNSF Newport 73.33	Ontario St East	Contaminant Collection	BNSF 73.3 / 27.1	Collection and Recovery	-	-	-
US2 27.74	BNSF Spokane 3.32	S. Ella Ave Culvert	Collection and Recovery	-	-	-	-	-
Sector 3B Sandpoint								
US2 28.02	BNSF Spokane 3.33	Memorial Park Culvert	Collection and Recovery	-	-	-	-	-
US2 28.17	BNSF Spokane 3.35	S Euclid Ave Culvert	Collection and Recovery	-	-	-	-	-
US2 28.31	BNSF Spokane 3.37	S 4th Ave Culvert	Collection and Recovery	-	-	-	-	-
US2 28.36	BNSF Spokane 3.38	S 3rd Ave Culvert	Collection and Recovery	-	-	-	-	-
US95 472.85	BNSF Spokane 4.28	Long Bridge	Collection and Recovery	BNSF 4.3 / 472.8	Collection and Recovery	LPO1_1.37	Sandpoint	Collection and Recovery Between RR and Highway Longbridges; Very Confusing Strategy That Won't Work

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
US95 473.84	BNSF Spokane 3.4	Sandpoint Public Works Water Intake	Exclusion	BNSF 3.2 / 474.3	Exclusion	–	–	–
US95 473.9	BNSF Spokane 3.17	Sandpoint City Beach and Marina	Collection and Recovery	BNSF 3.1 / 474.4	collection and recovery	LPO1_0.14	Sandpoint City Beach	Deflection
US95 473.91	BNSF Spokane 3.29	Mouth of Sand Creek	Collection and Recovery	–	–	–	–	–
US95 474.31	BNSF Spokane 3.13	Lower Sand Creek	Collection and Recovery	–	–	LPO1_0.2	Sand Creek	Collection and Recovery
Sector 3C Sandpoint								
US95 474.41	BNSF Spokane 3.02	E. Cedar St Culvert # 1	Collection and Recovery	–	–	–	–	–
US95 474.45	BNSF Spokane 2.98	E. Cedar St Culvert # 2	Collection and Recovery	–	–	–	–	–
US95 474.46	BNSF Spokane 2.97	E. Cedar St Culvert # 3	Collection and Recovery	–	–	–	–	–
US95 474.78	BNSF Spokane 2.9	Alder St Culvert	Collection and Recovery	–	–	–	–	–
US95 475.09	BNSF Kootenai 1402.96	N. 5th Ave Surface Water Outflow #1	Collection and Recovery	–	–	–	–	–
Sector 3D Sandpoint								
US95 475.21	BNSF Kootenai	N. 5th Ave Surface Water	Collection and Recovery	–	–	–	–	–

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
	1402.75	Outflow #2						
US95 475.22	BNSF Kootenai 1402.74	N. 5th Ave Surface Water Outflow #3	Collection and Recovery	-	-	-	-	-
US95 475.3	BNSF Kootenai 1402.66	Sand Creek Trestle	Collection and Recovery	-	-	MRL4z_118.27	Sand Creek Trestle	Collection and Recovery
US95 475.32	BNSF Kootenai 1402.63	Visitor Center Culvert #1	Collection and Recovery	-	-	-	-	-
US95 475.34	BNSF Kootenai 1402.6	Visitor Center Culvert #2	Collection and Recovery	-	-	-	-	-
US95 475.4	BNSF Kootenai 1402.58	Visitor Center Culvert # 3	Collection and Recovery	-	-	-	-	-
US95 475.41	BNSF Kootenai 1402.55	Visitor Center Culvert # 4	Collection and Recovery	-	-	-	-	-
US95 475.42	BNSF Kootenai 1402.57	Baldy Mountain Rd Surface Water Outflow #2	Collection and Recovery	-	-	-	-	-
US95 475.5	BNSF Kootenai 1402.53	Baldy Mountain Rd Surface Water Outflow #1	Collection and Recovery	-	-	-	-	-
US95 475.53	BNSF Kootenai 1402.33	N Boyer Ave and Baldy Mountain Rd.	Collection and Recovery	-	-	-	-	-
Sector 4A Northside (Lakeshore)								

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
–	–	Sandcreek Bike Path	–	MP 402.5 [HMP 475.6]	Collection and Recovery	–	–	–
–	–	Baldy Mountain Road Culvert	–	MP 75.0 [HMP 475.6]	Collection and Recovery	–	–	–
US95 478.53	BNSF Kootenai 1399.09	Bronx Rd	Collection and Recovery	BNSF 1399.1 / 478.5	Collection and Recovery	–	–	–
US95 479.99	BNSF Kootenai 1399.67	Sand Creek Water Treatment Plant	Notification Only	–	–	–	–	–
SR200 33.15	MRL4 114.92	Boyer Slough	Collection and Recovery	–	–	MRL4z_114.94	Boyer Slough	Collection and Recovery
SR200 34.53	MRL 113.5	Oden Water Assn Water Intake	Exclusion	MRL 13.6 / 34.4	Notification Only	MRL4z_113.49	Kootenai Bay	Notification and Exclusion But Does Not Address Water Intake
SR200 34.98	MRL4 113.0	Culver Slough	Exclusion	–	–	MRL4z_113.09	Culver Slough	Exclusion
SR200 36.39	MRL4 109.77	Pend Oreille State Wildlife Management Area	Exclusion	–	–	MRL4z_110.29	Pend Oreille State Wildlife Mgmt Area	Exclusion Actual Location Is Different than for DEQ Approach
SR200 38.69	MRL 109.93	Pack River Bridge	Exclusion	MRL 109.6 / 38.6	Collection and Recovery	–	–	–
SR200 41.28	MRL4 107.49	Sunnyside Water Intake	Exclusion	MRL 108.2 / 40.6	Notification Only	MRL4z_107.39	Sunnyside (does not address water)	Exclusion

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
							intake)	
Sector 4B Northside (Selle Valley)								
US95 480.44	BNSF Kootenai 1397.09	West Selle Rd	Collection and Recovery	BNSF 1397.1 / 480.5	Collection and Recovery	-	-	-
US95 484.17	BNSF Kootenai 1393.33	East Colburn	Collection and Recovery	-	-	-	-	-
US95 485.77	BNSF Kootenai 1391.75	Lower Pack River	Collection and Recovery	BNSF 85.0 / 485.7	Collection and Recovery	-	-	-
SR200 37.78	MRL 111.05 UP 81.9	Rapid Lightning Road Bridge	Collection and Recovery	UP 82.3 / 37.7	Collection and Recovery	-	-	-
Sector 5 Sam Owen Fire								
SR200 40.78	MRL4 107.95	Pack River Trestle	Exclusion	MRL 107.9 / 40.8	Exclusion	MRL4z_108.35	Pack River Trestle	Exclusion
SR200 42.09	MRL4 106.71	Trestle Creek	Exclusion	-	-	-	-	-
-	-	-	-	-	-	MRL4z_106.21	Trestle Creek Boat Ramp	Exclusion; Address Boat Ramp, Not Trestle Creek Stream
SR200 46.4	MRL4 102.4	Red Fir Resort Water Intake	Exclusion	MRL 102.6 / 46.2	Notification Only	MRL4z_102.47	East Hope Peninsula	Exclusion

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
–	–	–	–	–	–	MRL4z_100.85	Sam Owen Campground	Exclusion
SR200 48.08	MRL4 100.86	Islandview Resort Water Intake	Exclusion	MRL 100.6 / 48.2	Notification Only	–	–	–
SR200 49.45	MRL4 99.36	Kullyspell Estates Water Intake	Exclusion	MRL 99.4 / 49.5	Notification Only	MRL4z_99.44	Sam Owen South Bay	Exclusion
SR200 50.19	MRL4 98.52	David Thompson Wildlife Preserve	Exclusion	MRL 98.5 / 50.3	Notification Only	–	–	–
SR200 50.4	MRL4 98.43	Denton Slough	Exclusion	MRL 98.4 / 50.4	Notification Only	MRL4z_98.46	Denton Slough	Collection and Recovery
Sector 6 Clark Fork								
SR200 54.83	MRL4 94.47	Johnson Creek Trestle	exclusion	–	–	MRL4z_94.52	Johnson Creek Trestle	Exclusion. Identical to the brainstorming we did with F&G on 4/12/16. See page 271. Only called for 650 ft of curtain boom.
–	–	–	–	–	–	–	–	–
SR200 54.50	MRL 94.26	Mouth of the Clark Fork	Diversion with Collection Downstream	–	–	MRL4z_97.35	Mouth of the Clark Fork	Collection and Recovery

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
SR200 56.05	MRL4 92.92	Clark Fork Bridge	Collection and Recovery	MRL 93.0 / 56.0	Collection and Recovery	MRL4z_93.62	Clark Fork, ID Trestle	Collection and Recovery
SR200 57.12	MRL4 91.79	Lower Fish Hatchery Slough	Exclusion	–	–	MRL4z_91.83	Lower Fish Hatchery Slough	Exclusion
SR200 58.62	MRL4 90.45	Upper Fish Hatchery Slough	Deflection	–	–	MRL4z_90.56	Upper Fish Hatchery Slough	Exclusion
–	–	–	–	–	–	MRL4z_89.31	Twin Creek	Exclusion
SR200 60.79	MRL4 87.66	Clark Fork River Access	Contaminant Collection	MRL 87.7 / 61.3	Collection and Recovery	–	–	–
SR200 61.63	MRL4 86.81	Cabinet Gorge Fish Hatchery	Collection and Recovery	MRL 86.8 / 61.7	Notification Only	MRL4z_86.79	Cabinet Gorge Fish Hatchery	Collection and Recovery
SR200 62.95	MRL4 85.35	Cabinet Gorge Dam	Contaminant Collection	MRL 85.4 / 63.0 (action) MRL 85.7 / 62.7 (notification only)	Notification & Contaminant Collection Upstream of Dam, and Notification Only at the Dam	MRL4z_85.35	Cabinet Gorge Dam	Collection and Recovery
Sector 7A Sagle (South)								
–	–	Lake Pend Oreille - Open Water Recovery	–	MP 96.9 [HMP 51.7]	Collection and Recovery	–	–	–
US95 461.32	BNSF Spokane 16.94	Cocolalla Creek Trestle	Collection and Recovery	MP 16.9 [HMP461.3]	Collection and Recovery	–	–	–

Site ID & Highway Milepost	Railroad Milepost	Site Name	DEQ Approach	Corresponding BNSF Strategy	BNSF Approach	MRL Site Designator	MRL Site Name	MRL Strategy
-	-	-	HWY 95 [Cocolalla Creek South Of BNSF 16.9]	BNSF 20.6 [HMP 458.2]	Collection and Recovery	-	-	-
US95 463.82	BNSF Spokane 14.22	Cocolalla Creek Outlet	Exclusion	-	-	-	-	-
US95 463.95	BNSF Spokane 14.07	Cocolalla Loop Rd Bridge	Contaminant Collection	BNSF 14.2 / 463.9	Collection and Recovery	-	-	-
Sector 7B Sagle (North)								
US95 471.08	BNSF Spokane 6.7	Bottle Bay Bridge	Exclusion	BNSF 6.6 / 471.0	Collection and Recovery	-	-	-
-	-	Waterlife Discovery Center Sandpoint Fish Hatchery	-	BNSF 7.4 / 470.5	Notification Only	LPO1_3.42	Sandpoint Fish Hatchery	Exclusion
US95 472.98	BNSF 4.4	Sourdough Point Water Intake	Exclusion	BNSF 4.4 / 473.1	Notification Only	-	-	-

Appendix I

State Historic Preservation Office Concurrence

Preliminary Draft for
Agency Review



C.L. "Butch" Otter
Governor of Idaho

Janet Gallimore
Executive Director
State Historic
Preservation Officer

Administration:
2205 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2682
Fax: 208.334.2774

Idaho State Museum:
610 Julia Davis Dr.
Boise, Idaho 83702
208.334.2120

**Idaho State Archives
and State Records
Center:**
2205 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2620

**State Historic
Preservation Office:**
210 Main St.
Boise, Idaho 83702
208.334.3861

**Old Idaho Penitentiary
and Historic Sites:**
2445 Old Penitentiary Rd.
Boise, Idaho 83712
208.334.2844

HISTORY.IDAHO.GOV

8 August 2018

Steven Fischer
US Coast Guard
US Department of Homeland Security
915 Second Ave, Room 3510
Seattle, Washington 98174-1067

**Re: BNSF Sandpoint Junction Connector, Bonner County, Idaho
SHPO# 2018-365**

Dear Mr. Fischer:

Thank you for continuing consultation with our office on the above referenced project. We are in receipt of the revised cultural resources report dated August 2018 for the BNSF Sandpoint Junction Connector Project, located in Sandpoint, Bonner County, Idaho.

After reviewing the revised report, SHPO concurs with all recommended determinations of eligibility for historic properties within the APE (001, Rock Wall 1, 10BR38 and 10BR1026). Pursuant to 36 CFR 800, we have applied the criteria of effect to the proposed undertaking. Based on the updated information received 6 August 2018, we concur the proposed project actions will have **no adverse effect** to historic properties.

In the event that cultural material is inadvertently encountered during implementation of this project, work shall be halted in the vicinity of the finds until they can be inspected and assessed by the appropriate consulting parties.

If you have any questions or the scope of work changes, please contact me via phone or email at 208.488.7468 or matt.halitsky@ishs.idaho.gov.

Sincerely,

Matthew Halitsky, AICP
Historic Preservation Review Officer
Idaho State Historic Preservation Office