Yakama Nation

Upper Columbia Habitat Restoration Project

ANNUAL REPORT

JANUARY 1ST, 2014 THROUGH DECEMBER 31ST, 2015

BPA Project #2009-003-00-Master Agreement #56662

Releases 2, 3, 4, 27, 58, 65, & 88

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Introduction

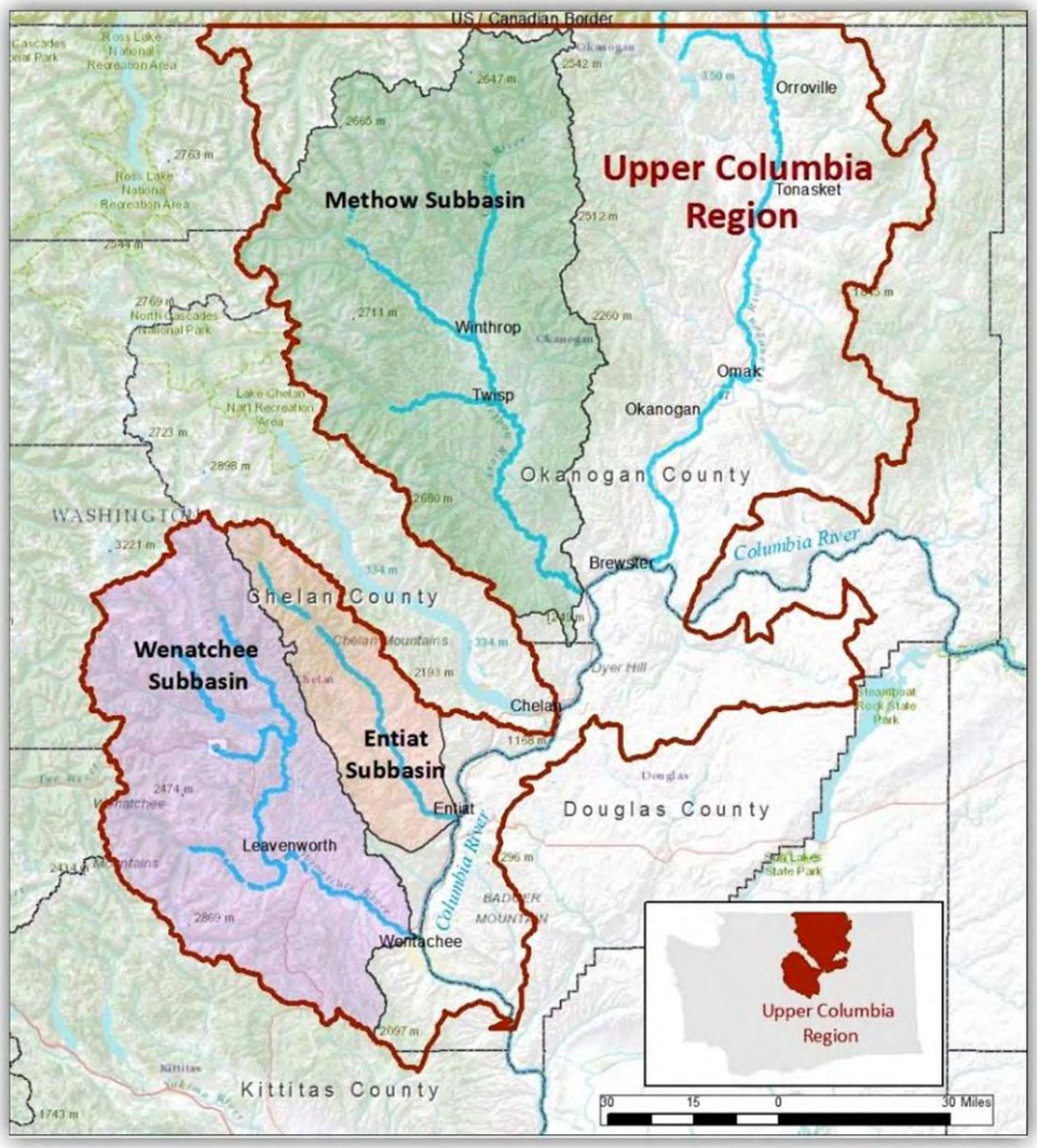
Project Overview

Using funding from the 2008 Columbia Basin Fish Accords, the Yakama Nation Fisheries' Upper Columbia Habitat Project (YN UCHRP) works to plan and implement habitat related salmon recovery actions in the Wenatchee, Entiat, and Methow Subbasins as guided by the Federal Columbia River Power System (FCRPS) biological opinion. This report summarizes the work performed by the YN UCHRP under BPA Project #2009-003-00-Master Agreement #56662 in calendar years 2014 and 2015. This two year time period spanned multiple Scopes of Work and Budget Releases under Master Agreement 56662, including portions of REL 2, REL 3, REL 4, REL 27, REL 58, REL 65 (all within the reporting period), and REL 88.

During this reporting period, the YN UCHRP built upon previous project development momentum in all three subbasins to simultaneously conduct multiple reach assessments in priority tributaries, acquire conservation and restoration properties, and complete multiple large scale habitat restoration projects which contribute directly to FCRPS biological opinion targets. Restoration actions completed during the reporting period include:

- **Fender Mill Side Channel (Methow Subbasin)**
- **Chewuch 11.75 – 13 (River Right) (Methow Subbasin)**
- **Chewuch 13 to 15.5 (Campground and RM 13-15.5) (Methow Subbasin)**
- **Twisp Poorman Creek Road Project (Methow Subbasin)**
- **Twisp RM 3 (Methow Subbasin)**
- **Methow River 1890s Side Channel (Methow Subbasin)**
- **M2 Two Channels LWD (Methow Subbasin)**
- **Nason UWP Groups 3 & 4 (Wenatchee Subbasin)**
- **Natapoc LWM Option (Wenatchee Subbasin)**

Upper Columbia Basin Map



Restoration Objectives/Strategies/Priorities

Salmon habitat restoration objectives, strategies, and priorities in the Upper Columbia Basin are guided by the 2007 Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (the Recovery Plan) and the frequently updated Regional Technical Team Biological Strategy (Appendix C of the Recovery Plan). The Recovery Plan and Biological Strategy identify specific priority areas and impaired ecological conditions by which targeted restoration actions should help increase population metrics for endangered fish stocks. Within priority areas identified by the Biological Strategy, the YN UCHRP performs habitat and geomorphic Reach Assessments to better understand existing conditions and ecological concerns for the development of restoration actions. From these Reach Assessments we identify specific project actions that could be implemented to reduce ecological impairments. The Reach Assessments are reviewed by the Regional Technical Team and the new data and information is used to update to Biological Strategy as necessary.

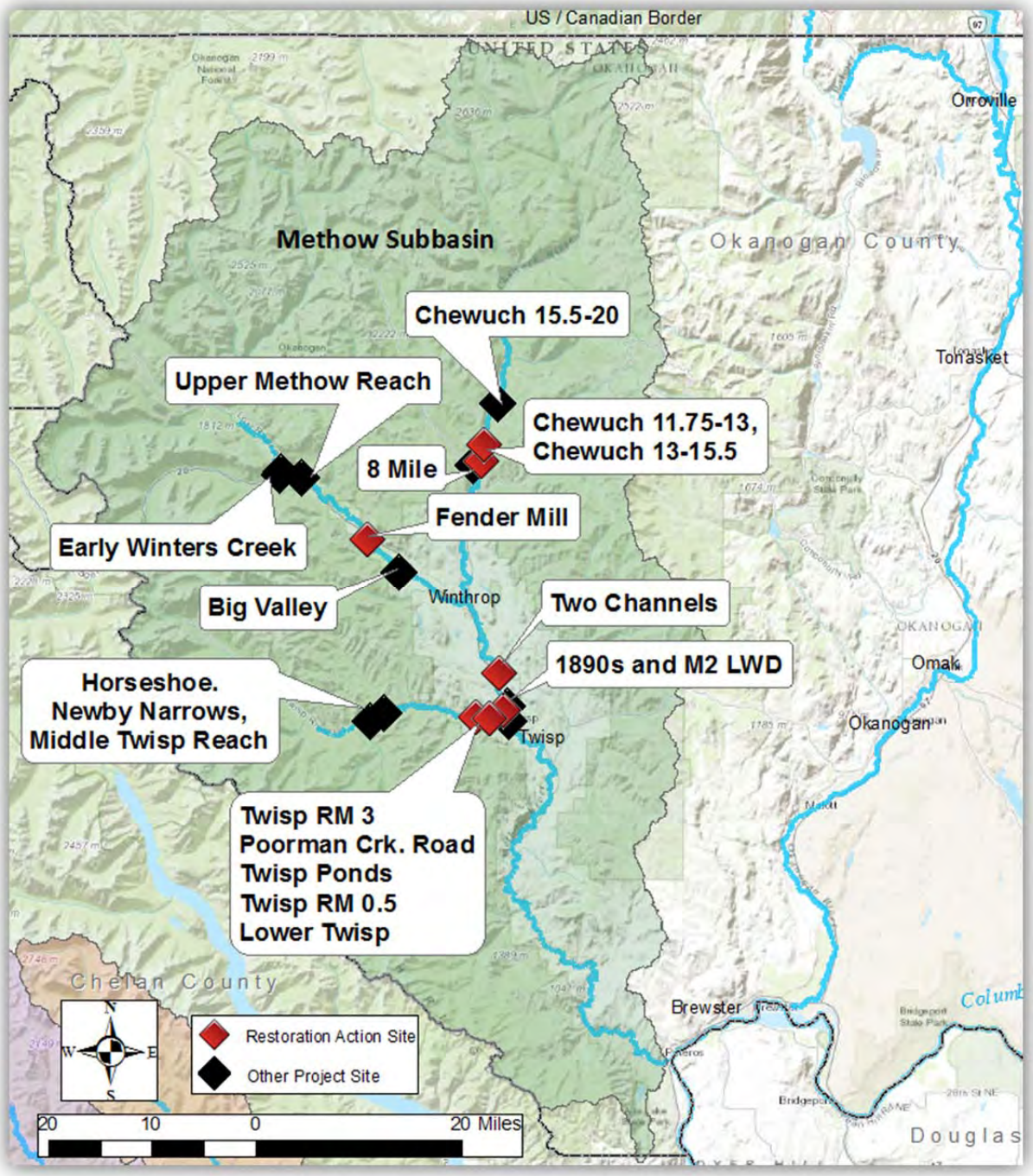
Priority restoration actions identified in the Reach Assessments are developed by YN UCHRP staff into on the ground restoration projects through coordination and partnerships with underlying landowners, permitting/regulatory/land management agencies, local governments, and other restoration project sponsors. Most project coordination is facilitated through the Watershed Actions Teams. The YN UCHRP uses engineering and design firm subcontractors to develop detailed habitat restoration plans. Prior to implementation, final project designs are agreed to by participating and/or effected landowners and are used to acquire necessary permits and federal consultation permissions.

As deemed necessary to ensure prioritized restoration work can proceed, the YN UCHRP acquires land or right of entry agreements using both 2008 Columbia Basin Fish Accord funds and other grant monies available for targeted acquisitions. YN UCHRP acquisition projects are prioritized based on the identified need and existing prioritization scheme used to determine the schedule of habitat restoration work.

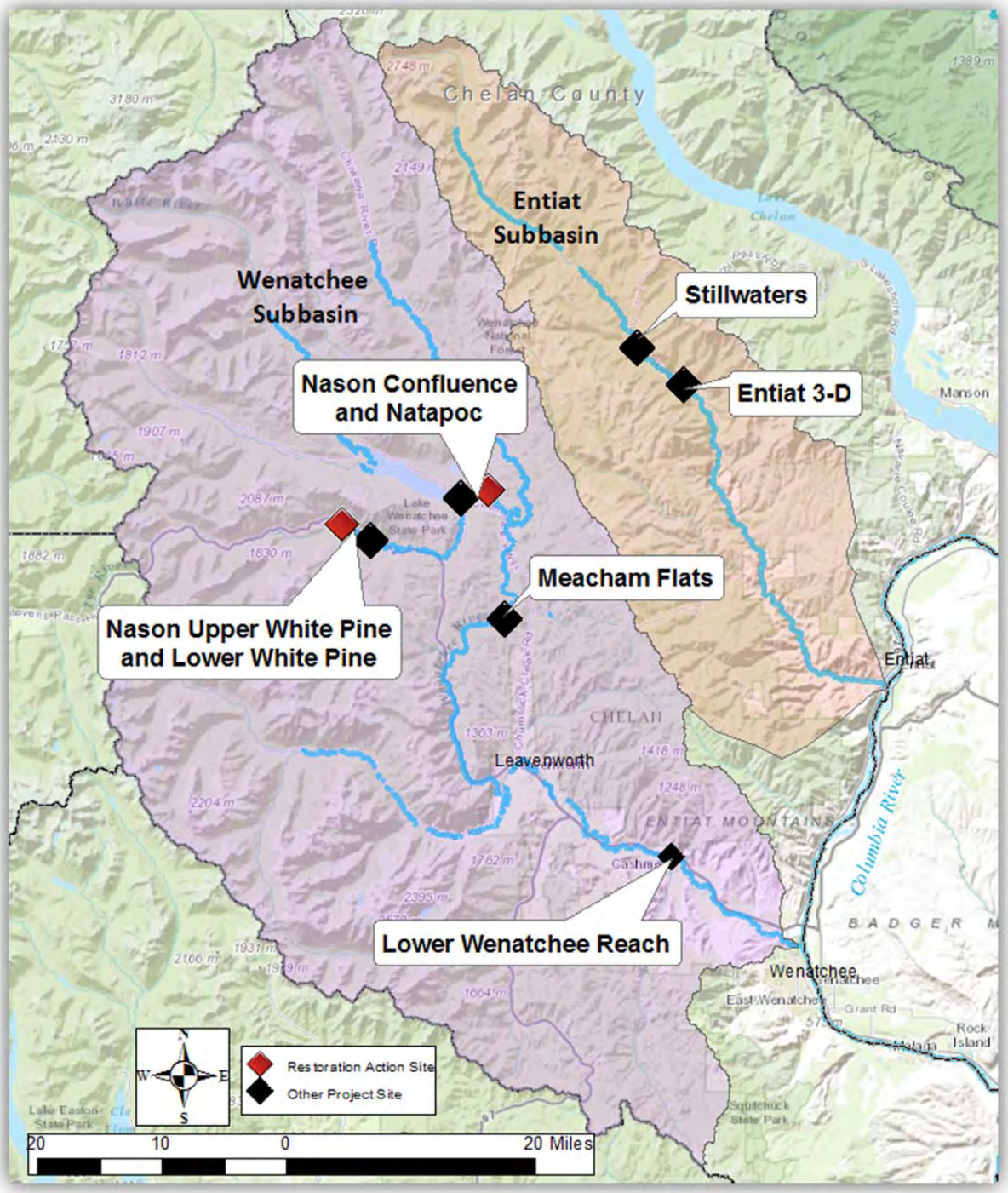
Project Details by Subbasin

(Maps and Tables)

Methow Subbasin Project Location Map



Entiat and Wenatchee Subbasins Project Location Map



Methow Subbasin Summary Table

Reach	Generic Project Name	Pisces WE Title	Contract	WE	WE Type	Status
Big Valley (Upper Middle Methow)	Big Valley Project	Big Valley South Fish Enhancement Project 2012-101	REL 27	K	Design/Engineering	Extended to CY15
		Big Valley South Design Phases 3&4 2012-101	REL 65	B	Design/Engineering	Completed - 2015
		Big Valley South Side Channel Reconnection and Habitat Complexity 2012-101	REL 65	D	Restoration/Construction	Delayed - 2015
		Big Valley South Structure Removal 2012-101	REL 65	C	Restoration/Construction	Delayed - 2015
	Fender Mill Project	Fender Mill Side Channel Project Re-Design 2010-33	REL 27	Z	Design/Engineering	Completed - 2014
		Fender Mill Side Channel Construction 2010-33	REL 65	F	Restoration/Construction	Completed - 2015
Early Winters	Early Winters Creek 20 Below Project	New CCR 31786 - Early Winters Creek - Twenty Below Restoration Design 2014-117	REL 27	AF	Design/Engineering	Extended to CY15
		Early Winters Creek - Twenty Below Restoration Design 2014-117	REL 65	H	Design/Engineering	Extended to CY16
Lower Chewuch	8 Mile Creek Barrier Project	8 Mile Creek Barrier Review and Reconnaissance 2014-120	REL 65	S	Assessment	Completed - 2015
		8-Mile Creek Fish Barrier Removal Design 2015-141	REL 88	K	Design/Engineering	On-going
	Chewuch RM 11.75 to 13 Project	Chewuch River Right Construction 2011-74	REL 65	N	Restoration/Construction	Completed - 2015
		Chewuch River Right Design 2011-74	REL 65	M	Design/Engineering	Completed - 2015
	Chewuch RM 13 to 15.5 Project	NEW CR28515 Chewuch River Mile 13-15.5 restoration design 2012-96	REL 4	W	Design/Engineering	Extended to CY15
		Chewuch Camp Ground Construction 2012-96B	REL 65	P	Restoration/Construction	Completed - 2015
		Chewuch Camp Ground Design 2012-96B	REL 65	O	Design/Engineering	Completed - 2015
		Chewuch River Mile 13-.15.5 Design 2012-96	REL 65	Q	Design/Engineering	Completed - 2015
		Chewuch River Mile 13-15.5 Construction 2012-96	REL 65	R	Restoration/Construction	Completed - 2015
	Chewuch RM 15.5 to 20 Project	Chewuch River Mile 15.5-17 Fish Enhancement Project 2012-97	REL 27	J	Design/Engineering	Extended to CY15
		Chewuch RM 15.5-17 Fish Enhancement Project Engineering 2012-97	REL 88	M	Design/Engineering	On-going
		Chewuch RM17-20 Fish Enhancement Project Survey 2015-140	REL 88	L	Design/Engineering	On-going

Reach	Generic Project Name	Pisces WE Title	Contract	WE	WE Type	Status
Lower Twisp	Twisp Poorman Creek Road Project	New CCR 31786 - Poorman Cr. Rd. Salmon Enhancement Project Construction 2012-100	REL 27	AE	Restoration/Construction	Completed - 2014
		Twisp 2nd Bridge Large Wood Design 2013-114	REL 27	X	Design/Engineering	Completed - 2014
	Twisp RM 0.5 Project	NEW CCR28679 Twisp River RM 0.5 Restoration Design 2011-72	REL 3	AA	Design/Engineering	Postponed Indefinitely - 2014
	Twisp RM 3 Project	Twisp River RM 3 Large Wood Enhancement 2011-64	REL 27	AB	Restoration/Construction	Completed - 2014
		Twisp River RM 3 Side Channel Construction 2011-64	REL 27	AA	Restoration/Construction	Postponed Indefinitely - 2014
	Twisp Ponds Left Bank	CCR-33830/Mod. 1 Twisp Ponds Left Bank Side Channel Design 2010-54	REL 65	AI	Design/Engineering	Extended to CY16
		Twisp Ponds Left Bank Side Channel Design 2010-54	REL 88	Z	Design/Engineering	On-going
	Lower Twisp Large Wood Enhancement	CCR-33830/Mod. 1 Lower Twisp River Large Wood Project Design 2015-127	REL 65	AK	Design/Engineering	Completed - 2015
Middle Methow	M2 1890s Project	M2 1890s Side Channel Restoration Construction - 2011-65	REL 27	D	Restoration/Construction	Completed - 2014
		M2 1890s Side Channel Restoration Field Repair - 2011-65	REL 65	G	Restoration/Construction	Completed - 2015
	M2 LRT	Lewisia Road to Twisp, Middle Methow Reach Engineering 2010-56	REL 4	M	Design/Engineering	Completed - 2014
	M2 LWD Project	M2 LRT Two Channels ELJ Construction 2011-86	REL 27	C	Restoration/Construction	Completed - 2014
	M2 Two Channel Project	M2 LRT Two Channels East Side Channel Restoration 2011-89	REL 27	B	Restoration/Construction	Postponed Indefinitely - 2014
Middle Twisp (Upper and Lower Twisp)	Newby Narrows Project	CCR-33830/Mod. 1 Newby Narrows Project Design 2015-126	REL 65	AJ	Design/Engineering	Extended to CY16
		CCR-36111/Mod. 1 Newby Narrows Design Phase 4 2015-153	REL 88	AS	Design/Engineering	On-going
	Twisp Horseshoe Side Channel Project	Twisp Horseshoe Side Channel Design (RM 11.5) 2010-39	REL 27	W	Design/Engineering	Extended to CY15
		CCR-33830/Mod. 1 Twisp Horseshoe Side Channel Design (RM 11.5) 2010-39	REL 65	AH	Design/Engineering	Extended to CY16
		Twisp Horseshoe Side Channel Design (RM 11.5) 2010-39	REL 88	AC	Design/Engineering	On-going
		CCR-36111/Mod. 1 Twisp River - Horseshoe PHASE 2 Restoration Engineering 2010-39	REL 88	BA	Design/Engineering	On-going
	YN Reach Assessment	Middle Twisp River Reach Assessment 2011-77	REL 27	E	Assessment	Completed - 2015
Upper Methow	YN Reach Assessment	New CCR 31786 - Upper Methow Reach Assessment 2014-116	REL 27	AD	Assessment	Extended to CY15
		Upper Methow Reach Assessment 2014-116	REL 65	E	Assessment	Completed - 2015

Entiat Subbasin Summary Table

Reach	Generic Project Name	Pisces WE Title	Contract	WE	WE Type	Status
Upper Middle Entiat	Entiat 3-D Project	Entiat 3-D LWM Revisited Design Engineering 2009-29	REL 88	AM	Design/Engineering	On-Going
	Entiat Stillwaters Project	Entiat Stillwaters Design Project # 2 2013-107	REL 27	P	Design/Engineering	Extended to CY15
		Entiat Stillwaters Design Project # 3 2013-108	REL 27	Q	Design/Engineering	Extended to CY15
		Entiat Stillwaters Design Project #1 2013-106	REL 27	O	Design/Engineering	Extended to CY15
		Upper Stillwaters Design #1 2013-106	REL 65	J	Design/Engineering	Extended to CY16
		Upper Stillwaters Design #2 2013-107	REL 65	K	Design/Engineering	Extended to CY16
		Upper Stillwaters Design #3 2013-108	REL 65	L	Design/Engineering	Extended to CY16
		Signal Peak Habitat Restoration Design Engineering 2013-108	REL 88	S	Design/Engineering	On-Going
		Upper Burns Habitat Restoration Design Engineering 2013-107	REL 88	W	Design/Engineering	On-Going

Wenatchee Subbasin Summary Table

Reach	Generic Project Name	Pisces WE Title	Contract	WE	WE Type	Status
Nason Creek	Nason Confluence Project	Nason Confluence Habitat Enhancement Project 2013-105	REL 27	I	Design/Engineering	Delayed - 2014
	Nason LWP Project	NEW CR28515 Group 2&3 LWP Habitat Restoration Design-2012-99	REL 4	Z	Design/Engineering	Extended to CY15
		CCR-33830/Mod. 1 Groups 2&3 LWP Habitat Restoration Design-2012-99	REL 65	AC	Design/Engineering	Completed - 2015
	Nason UWP Project	UWP Nason Creek Design 2011-70	REL 3	X	Design/Engineering	Completed - 2014
		UWP Reach 3 & 4 Construction 2011-70 (Side Channels)	REL 27	G	Restoration/Construction	Delayed - 2014
		UWP Reach 3 & 4 Construction 2011-70 (Complexity)	REL 27	H	Restoration/Construction	Delayed - 2014
		CCR-33830/Mod. 1 UWP Reach 3 & 4 Construction 2011-70	REL 65	AE	Restoration/Construction	Completed - 2015
Upper Wenatchee	Meacham Flats Project	CCR-33830/Mod. 1 Meacham Flats Habitat Restoration Design - 2012-102	REL 65	AD	Design/Engineering	Extended to CY16
		Meacham Flats Habitat Restoration Engineering - 2012-102	REL 88	N	Design/Engineering	On-Going
	Natapoc Project	NEW CCR28679 Natapoc Design 2010-53	REL 3	Z	Design/Engineering	Extended to CY15
		CCR-33830/Mod. 1 Natapoc Design Phases 4-6 LWM Option 2010-53	REL 65	AF	Design/Engineering	Completed - 2015
		CCR-33830/Mod. 1 Natapoc Construction LWM Option 2014-119	REL 65	AG	Restoration/Construction	Completed - 2015
		Natapoc Construction 2010-53 (Side Channel)	REL 27	F	Restoration/Construction	Delayed - 2014
		Natapoc Construction 2014-119 (Side Channel)	REL 65	I	Restoration/Construction	Postponed Indefinitely - 2015
Lower Wenatchee	YN Reach Assessment	CCR-33830/Mod. 1 Lower Wenatchee Reach Assessment - 2014-121	REL 65	Y	Assessment	Extended to CY16
		Lower Wenatchee Reach Assessment 2014-121	REL 88	J	Assessment	On-Going

Methow Subbasin Details

Upper Middle Methow Assessment Unit

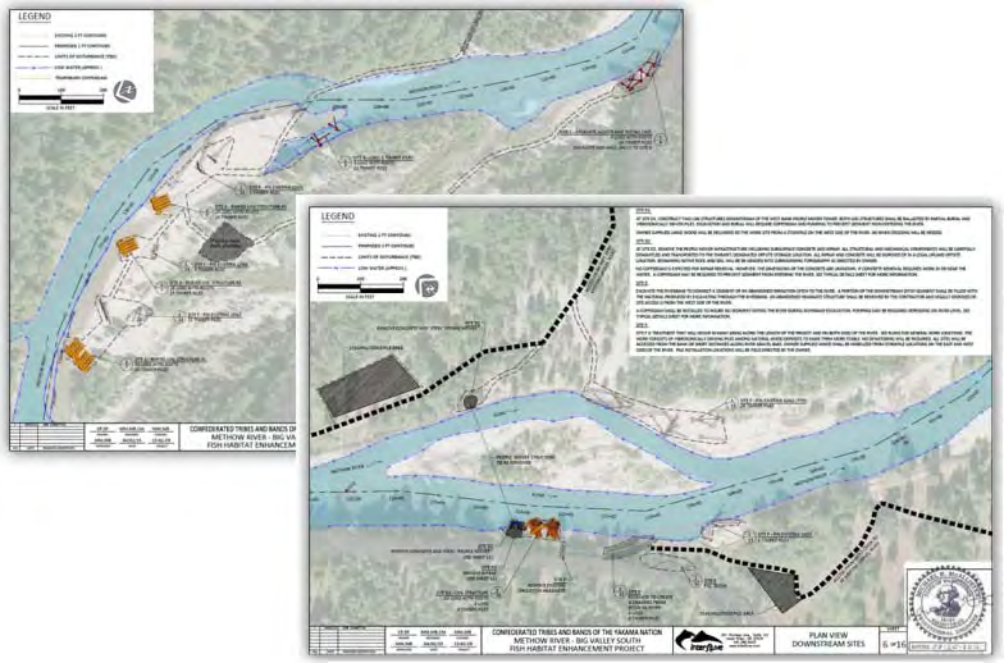
Big Valley Project (Engineering Only)

Land Ownership: WA Department of Natural Resources

Summary:

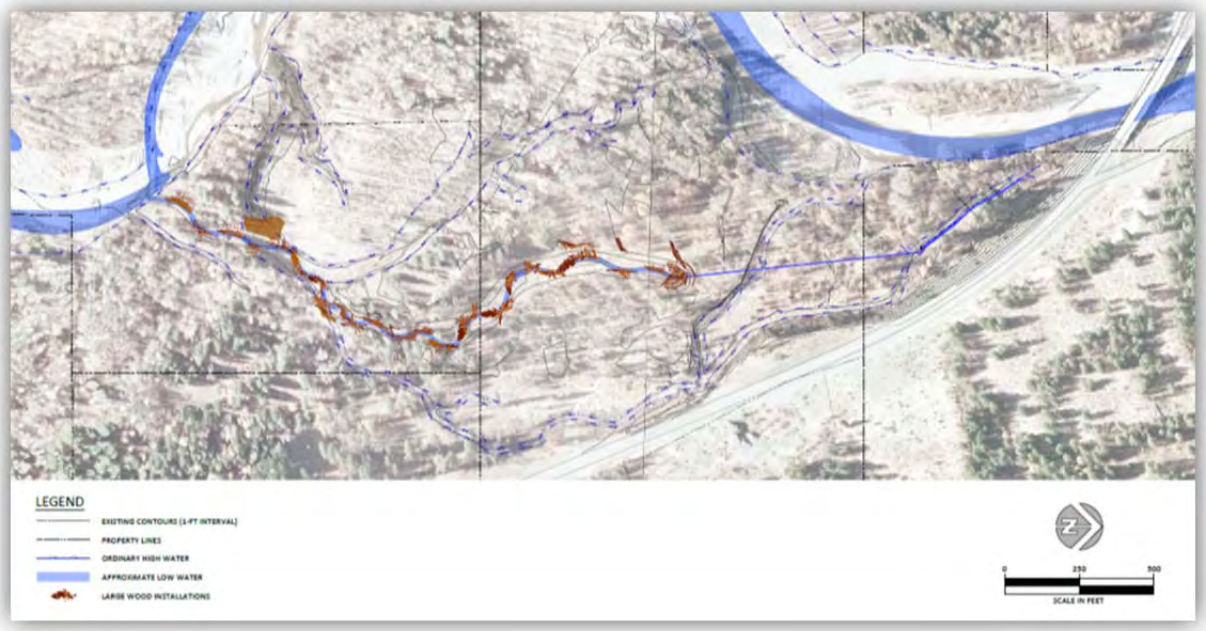
Engineering, design, and permitting phases of this project were completed in 2015, and the project was scheduled to be implemented in 2015 but was delayed due to a contracting issue with WA DNR. The project is expected to be implemented in 2017.

The project involves using log structures to promote lateral channel migration, sort bedload, create scour pools, and create cover habitat in the Methow River. The project also involves removing a non-functional mechanical cable car system that was originally intended to transport public trail users across the Methow River. Riprap and concrete footings associated with the non-functional cable car system will be removed from the river and floodplain. Extensive floodplain restoration including wetland creation and native plant restoration in denuded areas is included in the project.



Fender Mill Project (Completed Restoration Action)

Land Ownership: WDFW/USFS



Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

This project used a groundwater infiltration gallery to create 2,000 linear feet of new perennial flow alcove side channel connected to the Methow River. The project was first conceived of in 2009, but the project was postponed for implementation until 2015, following the Yakama Nation/WDFW MOU for habitat projects on WDFW lands. This project has already been used by juvenile spring Chinook salmon as winter and summer low flow rearing habitat. In the summer of 2016, a spring Chinook redd was marked within the side channel. Currently the infiltration gallery is producing about 4.2 cubic feet per second flow into the top end of the alcove side channel. Stream temperatures have maintained roughly seven degrees Celsius better than main channel conditions during low water times of year (summer and winter).

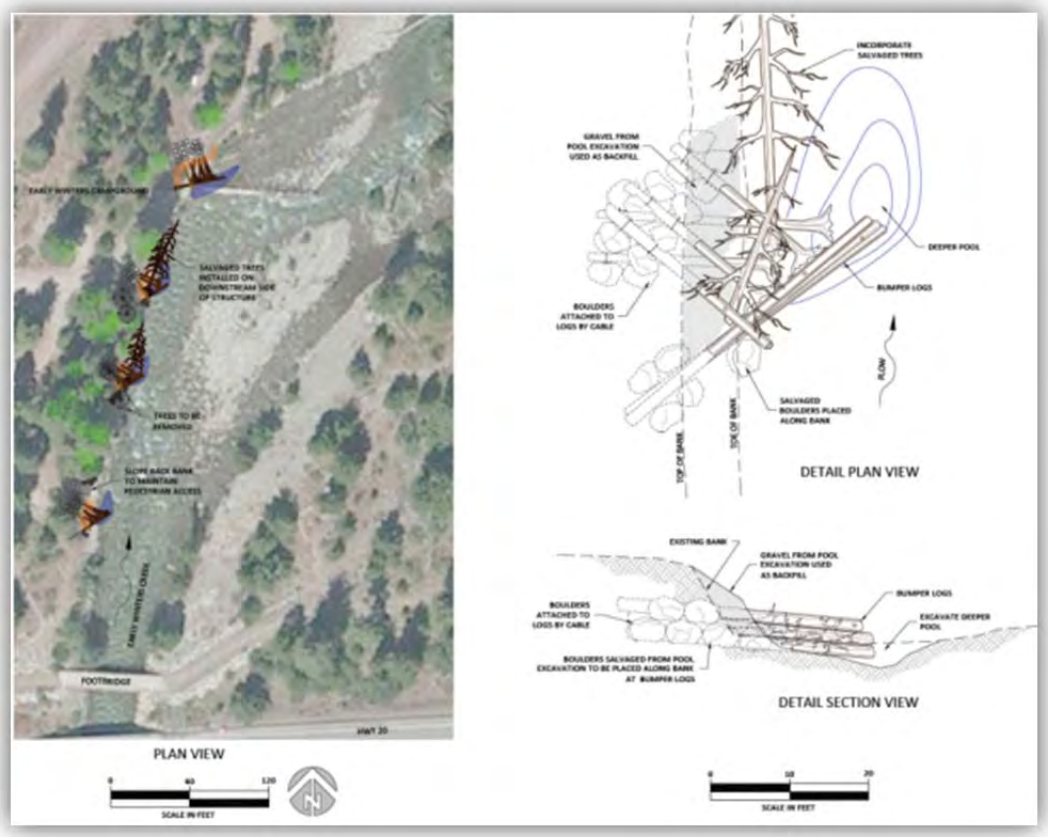
Restoration Metrics:

2,000 linear feet of perennial flow alcove side channel was created.
21 large wood structures with associated scour pools were installed within the side channel.

Early Winters Creek Assessment Unit

Early Winters Creek 20 Below Project (Engineering Only)

Land Ownership: USFS



Summary:

Engineering of this project took place in 2015 for implementation in 2016. The project involves creating four large wood structures and associated scour pools along the left bank of Early Winters Creek near the USFS Early Winters Creek Campground. The updated Highway 20 bridge and a pedestrian bridge upstream of the camping area has focused scouring flows towards the left bank of the creek and caused accelerated erosion which this project seeks to treat.

Lower Chewuch Assessment Unit

8 Mile Creek Barrier Project (Engineering Only)

Land Ownership: USFS

USFS NF-5130 road showing velocity barrier at the Bridge Site, 2015.

Summary:

Eightmile Creek is a third order tributary to the Chewuch River located north of Winthrop, Washington in the Methow River watershed. Eightmile Creek is accessed via NF-5130 road which departs to the west from NF-51 and parallels Eightmile Creek before ending in an unimproved parking area at the Billy Goat Trailhead. The construction of this road, along with a natural partial barrier, creates a velocity barrier to anadromous runs. Removing this man made barrier will open up twelve miles of pristine habitat for anadromous runs. Work performed thus far has been survey and design.

Eight Mile Creek partial velocity barrier, located downstream of the bridge site, 2015.

Chewuch River Mile 11.75 - 13 River Right Fish Enhancement (Completed Restoration Action)

Land Ownership: WDFW

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

The River Right project was originally developed for implementation in 2013 along with a host of large wood enhancement actions proposed to occur on USFS lands within the Chewuch River Mile 11.75 to 13 reach. However, the River Right project was postponed for implementation until 2015, following the Yakama Nation/WDFW MOU for habitat projects on WDFW lands (the USFS projects did occur on schedule in 2013).

The River Right project created a 2,600 foot long surface flow side channel through a forested floodplain and WDFW campground. The project included developing the side channel geometry while maintain adjacent forest cover through detailed excavation. 41 engineered log structures were installed within the side channel system consisting of over 1,000 logs utilized for habitat purposes within the project. The side channel system was connected in the fall of 2015, and has already been used by both adult and juvenile spring Chinook salmon, Upper Columbia steelhead, and bull trout.

Restoration Metrics:

2,600 linear feet of perennial flow surface connected side channel was created.
41 large wood structures with associated scour pools were installed within the side channel.
1.55 acres of floodplain wetlands were created in a decommissioned parking area.

Chewuch RM 13 to 15.5 Project (Completed Restoration Action)

Land Ownership: USFS

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

The Chewuch 13 to 15.5 project occurred on USFS lands upstream of the River Right project area in 2015. The project included major wood restoration actions in the main channel of the Chewuch River, as well as some side channel creation and enhancement. The 2.5 mile long project zone was accessed via existing road systems on both sides of the Chewuch River, and used existing camping areas and rock quarries as major equipment and material staging areas to minimize riparian forest disturbance. Some large trees near to the river were purposely felled with the root ball to create instream habitat.

Restoration Metrics:

Creation of one 450 foot backwater alcove channel.
Created 10 engineered log structures throughout the 2.5 mile reach, including scour pools.
Created 1 bar apex structure.

Chewuch RM 15.5 to 20 Project (Engineering Only)

Land Ownership: USFS

Summary:

The Chewuch 15.5 to 20 project is scheduled to be implemented in 2017 and 2018, but survey and project design elements got underway in the fall of 2015 to support the USFS NEPA process scheduled to take place in 2016/2017. The project seeks to increase habitat diversity in the 4.5 mile reach by restoring floodplain connectivity, adding instream logs and log structures for cover habitat and to promote habitat forming processes, and by restoring side channel habitats. This project will be the final main channel treatment proposed on USFS lands within the Chewuch Watershed within the 2010 Reach Assessment area.

Lower Twisp Assessment Unit

Twisp Poorman Creek Road Project (Completed Restoration Action)

Land Ownership: Methow Salmon Recovery Foundation (property purchased with BPA Accord Funds in 2010)

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

This project installed two engineered log structures along the left bank of the Twisp River where Poorman Creek Road connects with Twisp River Road (RM 2). Deep pools were excavated at underneath each log structure in areas which will pool depth through scour induced by the log structure. These structures are bank buried and ballasted for predictable stability as there is a bridge and floodplain development just downstream and this section of the Twisp River gets a high volume of recreational use.

Restoration Metrics:

2 bank buried engineered log structures with associated scour pools along a 0.3 mile stretch of the Twisp River.

Twisp RM 3 Project (Completed Restoration Action)

Land Ownership: Private

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

At a bend in the Twisp River around rivermile 3 we constructed three engineered large wood structures with associated deep scour pools to improve cover, rearing, and holding habitat conditions for juvenile and adult spring Chinook salmon and steelhead. All three structures were installed on river right. Pools were mechanically excavated at each structure and their depths will be maintained by bed scour induced by the log structures during high flows. These structures are bank buried and ballasted for predictable stability as there is floodplain development just downstream and this section of the Twisp River gets a high volume of recreational use.

Restoration Metrics:

3 bank buried engineered log structures with associated scour pools along a 0.1 mile stretch of the Twisp River.

Twisp RM 0.5 Project (Engineering Only)

Land Ownership: Private/Town of Twisp

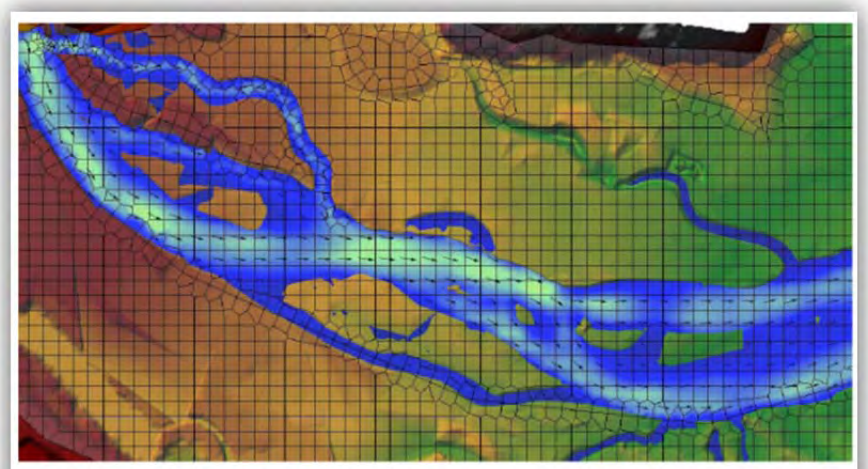
Summary:

Previous assessment work of the lowest section of the Twisp River which winds through the Town of Twisp identified possible side channel enhancements along the river's alluvial fan. Groundwater tests were conducted in 2014 to determine if reconnecting side channels would yield productive rearing habitat at low flows. Results indicated that the alluvial fan provides for a strongly losing reach where side channel reconnections would not be able to maintain surface water within the side channel systems during low flow periods, and such diversions of water from the main channel would decrease the amount of surface flows available to fish. Based on the groundwater test results, we decided to not proceed with additional project work in this section of river.

Placement of engineered log structures were also considered for this reach of river, but due to infrastructure constraints, high levels of recreation use, and riverfront landowner concerns, we have determined this area is currently too difficult to conduct large wood restoration actions.

Twisp Ponds Left Bank Project (Engineering Only)

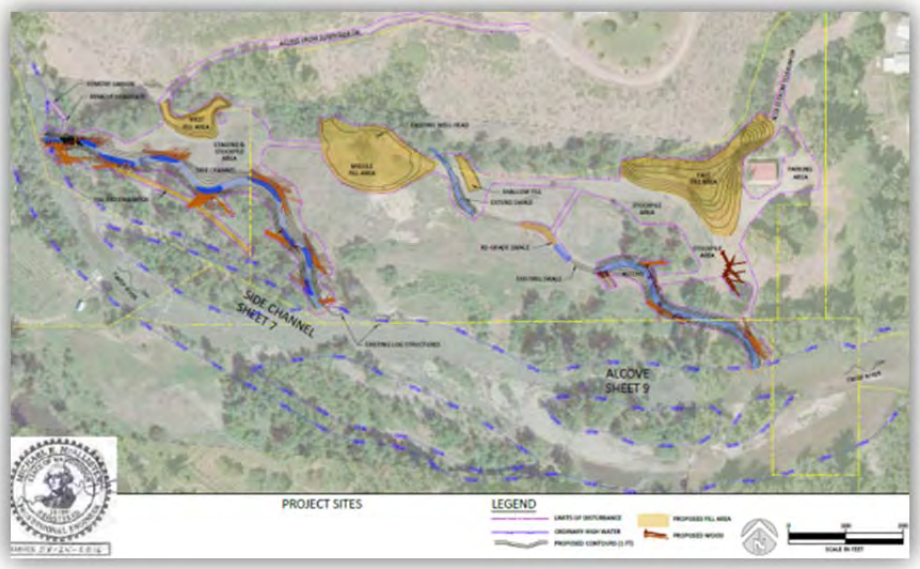
Land Ownership: MSRF and Private



HEC-RAS 5.0 (2D) was used to predict inundation patterns and hydraulic effects of the project.

Summary:

This project concept was developed in 2012, but due to landowner constraints the project was never developed. Due to a change in landownership in 2014 we were able to pursue development of a new flow through side channel and partial levee removal on private lands above the MSRF Twisp Ponds Left Bank Property. In 2015 we began development of the new permitting and construction designs for an extensive side channel and floodplain restoration project. The project is planned to be implemented in 2016.



Lower Twisp Large Wood Enhancement Project (Engineering Only)

Land Ownership: MSRF and Private

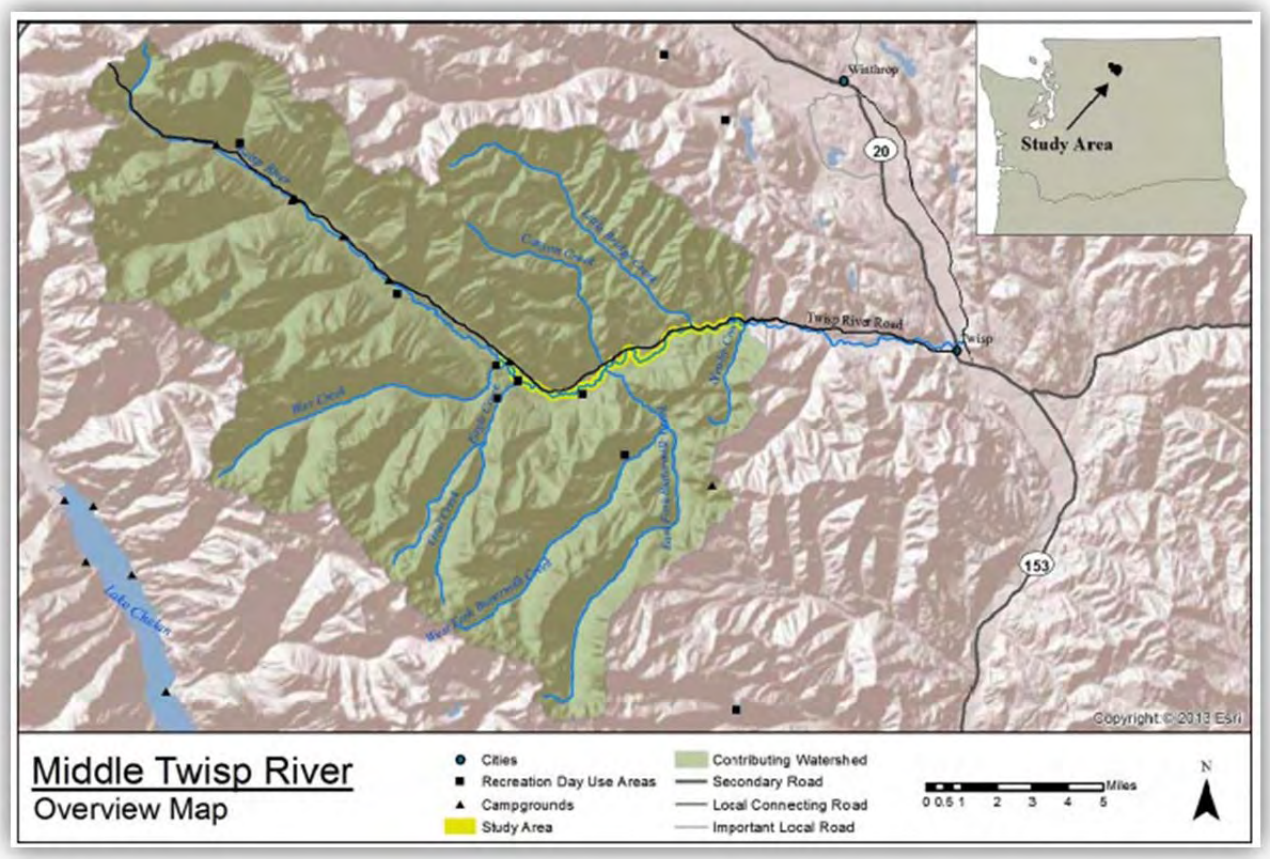
Summary:

Lack of bank margin complexity and scour pools related to large wood structures is an identified habitat impairment in the Lower Twisp River Assessment Unit. Much of the land in this reach is in small private holdings which make securing access to potential restoration sites difficult. Due to our extensive outreach and work in the Lower Twisp River area since 2010, we were able to develop landowner support for a restoration strategy of placing multiple small bank buried wood structures throughout the Lower Twisp area. This project was fully designed in 2015 for implementation in 2016.

Middle Twisp Reach – (Lower and Upper Twisp Assessment Units)

Middle Twisp River Reach Assessment

Land Ownership: Private and USFS

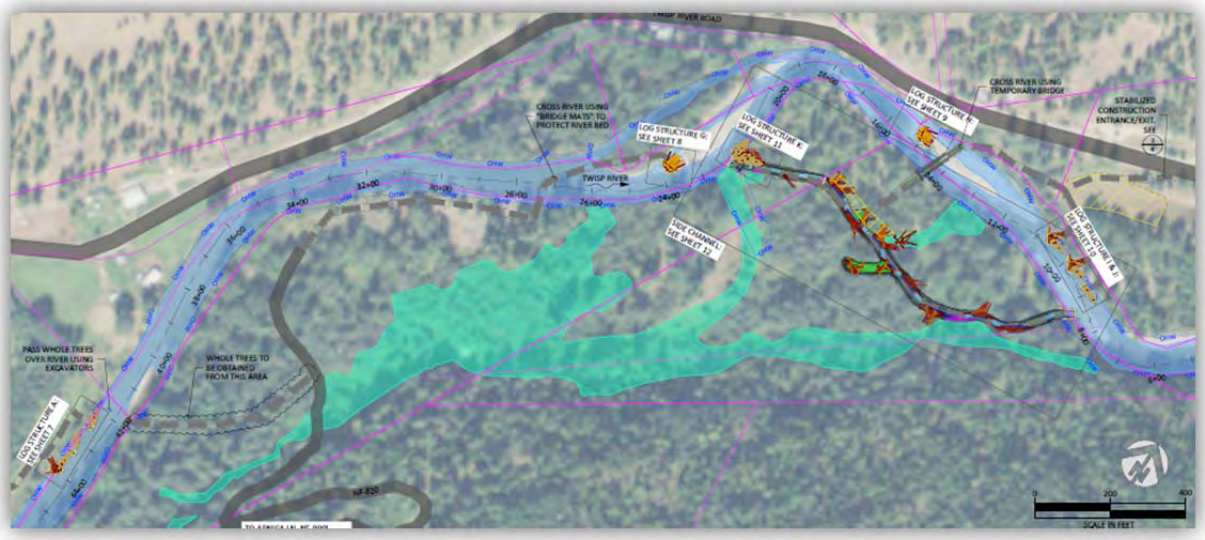


Summary:

In 2014 and 2015 we worked to produce a new reach assessment in a 10 mile stretch of river above the 2010 reach assessment area (which ran from River Mile 0 to River Mile 8). This assessment conducted habitat surveys, geomorphic surveys, hydraulic modeling, and project identification and prioritization to support expanding salmon recovery habitat projects in the Twisp River watershed. The reach assessment extended up to River Mile 18 (War Creek Bridge). The assessment was completed in 2015, including RTT review and approval.

Newby Narrows Project (Engineering Only)

Land Ownership: Yakama Nation and Private



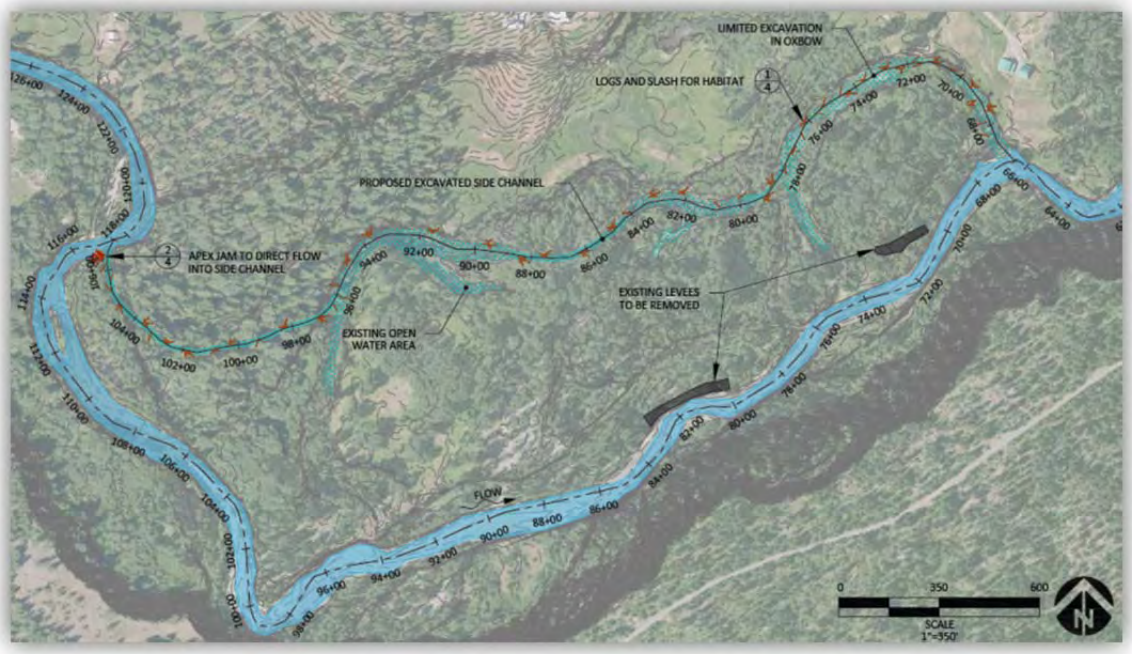
Summary:

In 2015 the Yakama Nation used outside funding to acquire the Newby Narrows properties (approximately 45 acres of riverfront and floodplain) upstream of the Little Bridge Creek confluence on the Twisp River. The 2015 Middle Twisp River Reach Assessment identified the Newby Narrows project site as a priority location to restore side channel habitats and increase main channel complexity.

In 2015 we began development permitting and construction designs for an extensive side channel and floodplain restoration project. The project is planned to be implemented in 2016.

Horseshoe Side Channel (Engineering Only)

Land Ownership: USFS, Private, and Methow Conservancy



Summary:

This project was identified in the 2015 Middle Twisp River Reach Assessment. Based on landowner requests, we had done some initial investigation of restoration opportunities in some of this project area in 2012 and 2013. Design work focusing on reconnecting side channel habitats and improving main channel complexity was re-started in 2015. The project is being developed in two distinct phases because some actions require coordination with the USFS and other actions can be implemented without USFS support.

Middle Methow Assessment Unit

M2 1890s Project (Completed Restoration Action)

Land Ownership: Private and Local Government

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

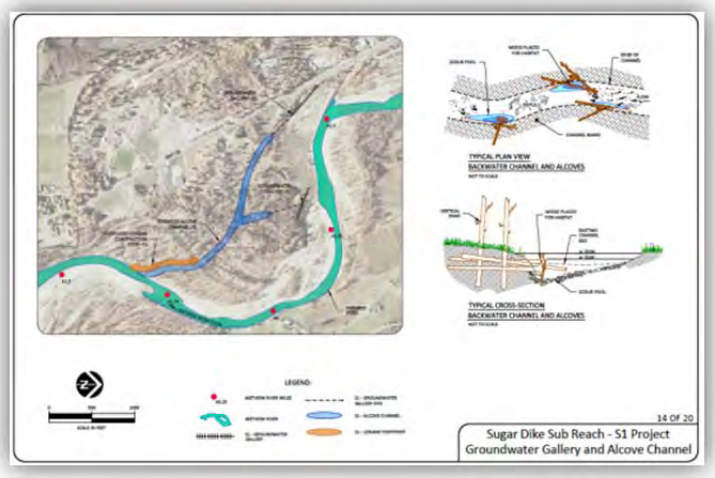
This project used a groundwater infiltration gallery to create 4,500 linear feet of new perennial flow alcove side channel connected to the Methow River. The project was implemented in 2014 and involved 12 private landowner and/or local government participants. The new perennial flow alcove side channel is already being used by thousands of juvenile salmonids as rearing habitat and temperature refuge. Steelhead routinely spawn in the channel in spring, and coho salmon spawn in the channel in the fall.

Restoration Metrics:

4,500 linear feet of perennial flow alcove side channel was created.
56 large wood structures with associated scour pools were installed within the side channel.

M2 Lewisia Road to Twisp Design Services (Engineering Only)

Land Ownership: Private

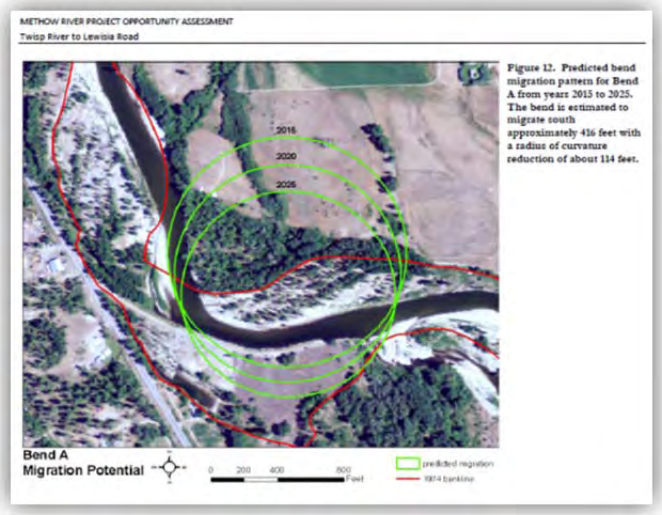


Summary:

Design work for the Yakama Nation's Middle Methow Projects (1890s, Two Channels, M2 LWD Projects) were covered under a single engineering and design work element from 2010 to 2014. This work element covered all engineering and design activities conducted in the Middle Methow Reach short of project implementation construction oversight and post-construction baseline reporting.

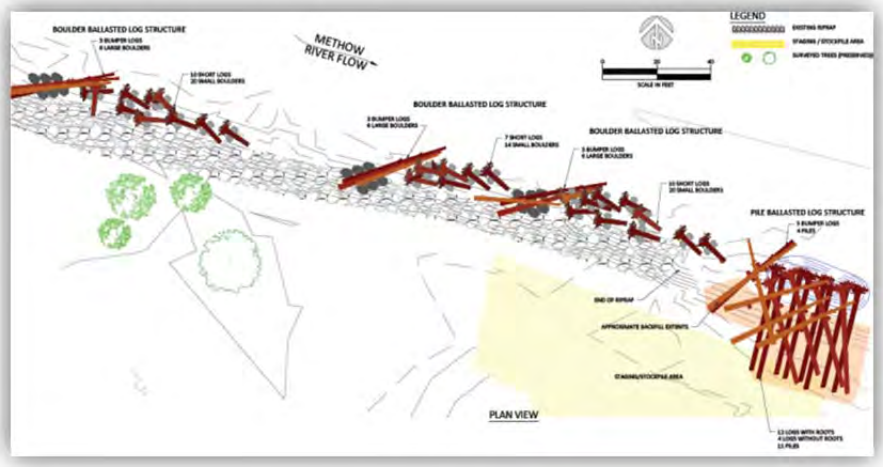
Restoration Metrics:

This project supported development of many Middle Methow Reach projects that were implemented in 2012 through 2014. The restoration metrics for the projects completed in 2014 are covered under the individual project description within this report.



M2 LWD Projects (Completed Restoration Action)

Land Ownership: WDFW



Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

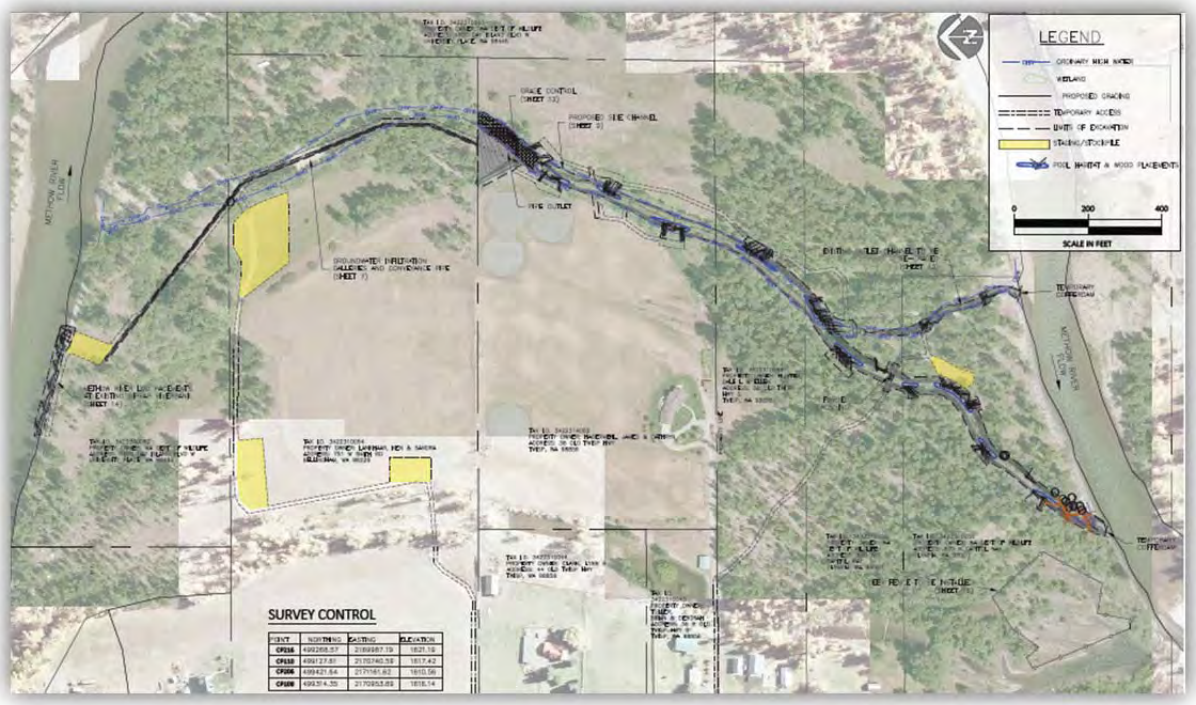
The 2014 Two Channels Large Wood Enhancement Project was the last of the Middle Methow Reach LWD projects implemented by Yakama Nation Fisheries under the Lewisia Road to Twisp (M2 Reach 2) Project. This project required coordination with WDFW through the Yakama Nation/WDFW MOU for habitat projects on WDFW lands. The intent of this project was to increase bank margin habitat complexity for juvenile salmonids using large wood with root wads. The project was successfully implemented in 2014.

Restoration Metrics:

300 feet of riprap bank enhanced with large rootwad cover habitat. One large engineered log structure and associated scour pool installed downstream of riprap bank.

M2 Two Channel Project (Engineering Only)

Land Ownership: WDFW and Private



Summary:

This project was developed through the Lewisia Road to Twisp (M2 Reach 2) Project and required coordination with WDFW through the Yakama Nation/WDFW MOU. The project was prioritized for implementation in 2013, however a transfer of land ownership in one of the private parcels prohibited the project from moving forward that year. Subsequently, the new landowner has required that WDFW engage in a land swap prior to this project being implemented, and this discussion was moved forward in 2014. At that time WDFW was not able to support new land transactions due to political constraints in Okanogan County , so the project was put on hold indefinitely until the political issues regarding the requested land swap can be resolved.

Upper Methow Assessment Unit

Upper Methow Reach Assessment

Land Ownership: Private, MSRF, WDFW, DNR, USFS

Summary:

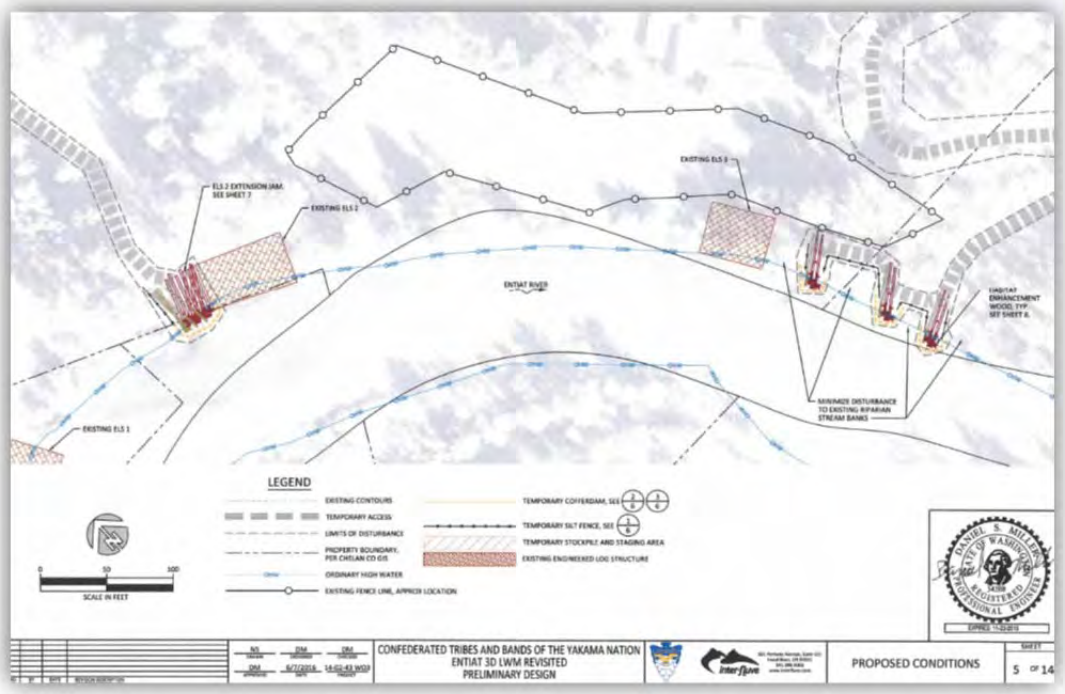
In 2014 and 2015 we worked to produce a new reach assessment in a 18 mile stretch of river above the 2008 Big Valley reach assessment area (which ran from Wolf Creek to Weeman Bridge). This assessment conducted habitat surveys, geomorphic surveys, hydraulic modeling, and project identification and prioritization to support expanding salmon recovery habitat projects in the Upper Methow Reach of the Methow River. The reach assessment extended up to River Mile 78 (Trout Creek). The assessment was completed in 2015, including RTT review and approval.

Entiat Subbasin Details

Upper Middle Entiat Assessment Unit

Entiat 3-D Project (Engineering Only)

Land Ownership: Private



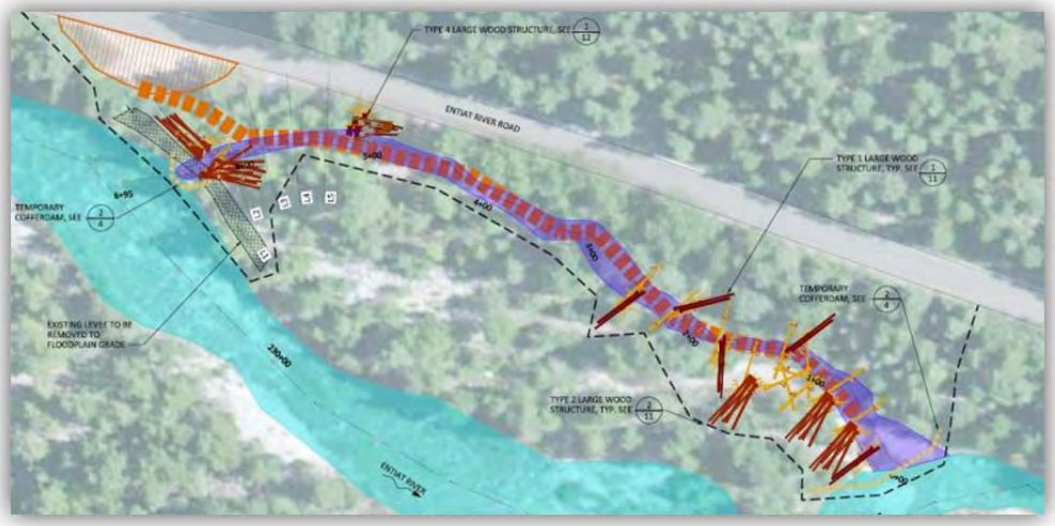
Summary:

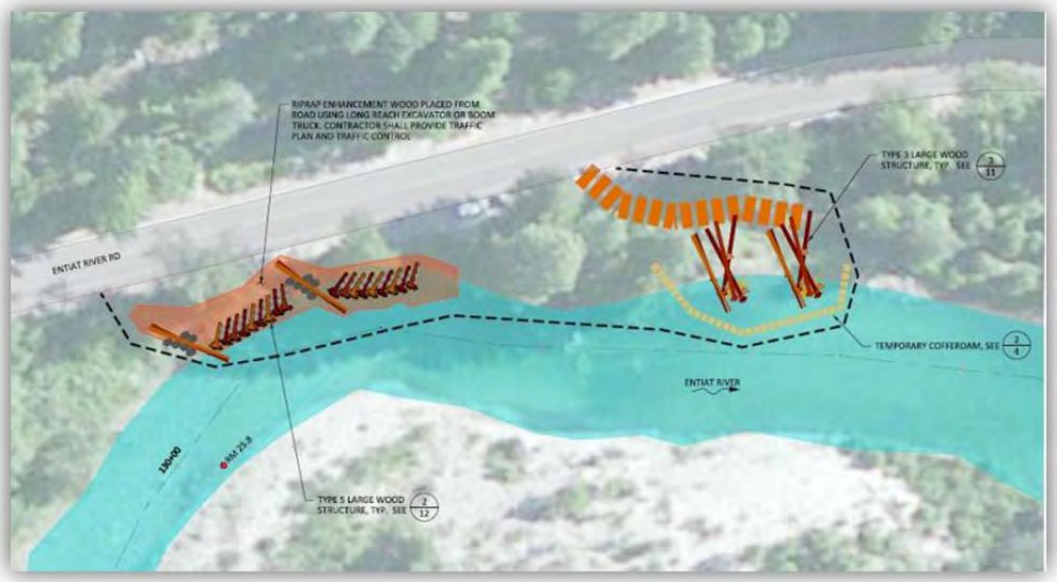
Engineering, design, and permitting phases of this project were completed in 2014 and 2015, and the project was scheduled to be implemented in 2015 but was delayed due to a contracting issue with WA DNR. The project is expected to be implemented in 2017.

The project is a continuation of a project that was completed during FY 2012. The 3-D LWM Revisited project entails adding logs to the upstream side of existing log structure #2 by approximately 20ft. Additionally three smaller structures will be installed in gaps in the riparian canopy just below existing structure #3.

Entiat Stillwaters Project (Engineering Only)

Land Ownership: USFS





Summary:

The Entiat Stillwaters Project consists of the Signal Peak and Upper Burns restoration sites on USFS lands. Design work for this project occurred during 2014 and 2015 for implementation scheduled in 2016.

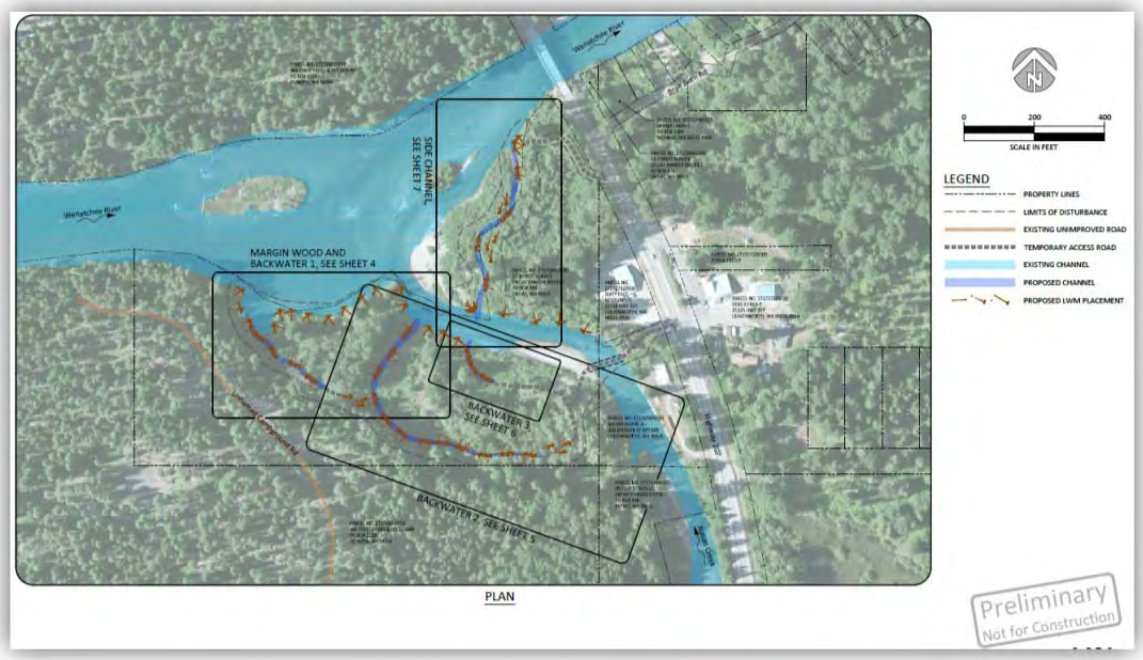
The project consists of side-channel restoration, large wood enhancements of a riprap bank, and creation bank buried log structures on the river margins.

Wenatchee Subbasin Details

Nason Creek Assessment Unit

Nason Confluence Project (Engineering Only)

Land Ownership: USFS



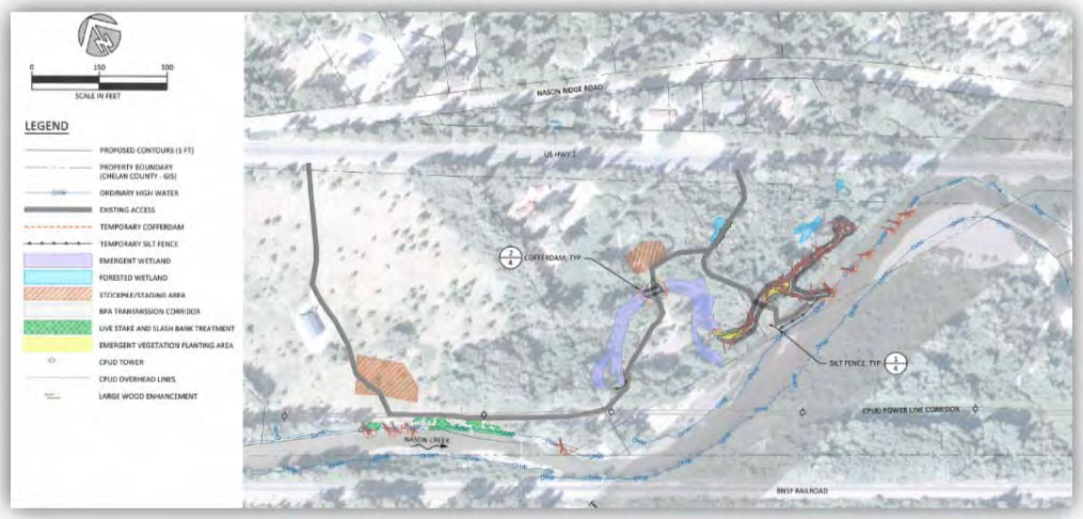
Summary:

Design work for this project took place in 2014, however the project was delayed from completing final designs and implementation due to USFS inability to provide USFS personnel for the NEPA process in 2014 and 2015. The project is currently scheduled to be implemented in 2018.

The project consists of large wood enhancements on Nason Creek and side channel restoration on the Nason Creek fan at the confluence with the Wenatchee River.

Nason Creek Lower White Pine Project (Engineering Only)

Land Ownership: Private



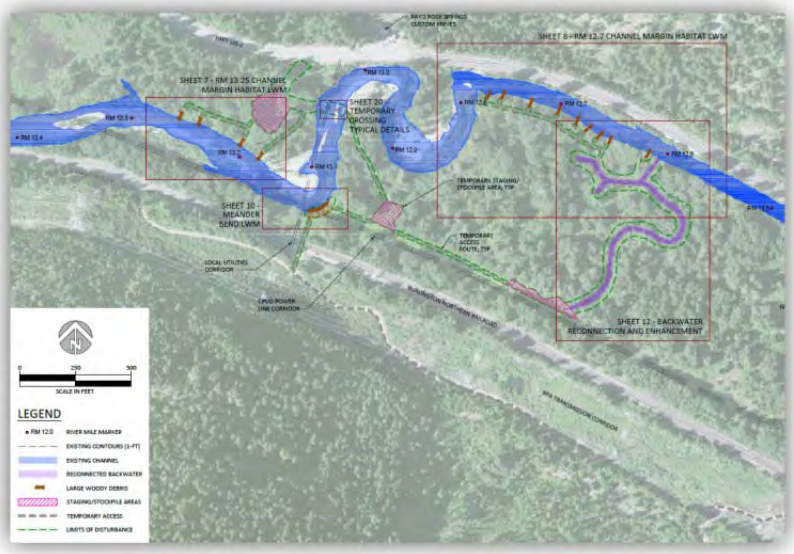
Summary:

This project was being designed in 2014 and 2015. The project is currently scheduled to be implemented in 2016.

The project consists of creation of a groundwater fed alcove side channel and the construction of multiple bank buried log structures along the left bank of Nason Creek.

Nason Upper White Pine Project (Completed Restoration Action)

Land Ownership: USFS



Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

This project reconnected the floodplain of Nason creek through the excavation of floodplain scars to create 2000 ft. of perennial off-channel habitat. In addition to the off-channel habitat 14 habitat log structures and a meander bend jam were installed in the main stem of Nason creek. The project was implemented in 2015 as part of a plan to restore the entire Upper White Pine reach of Nason creek.

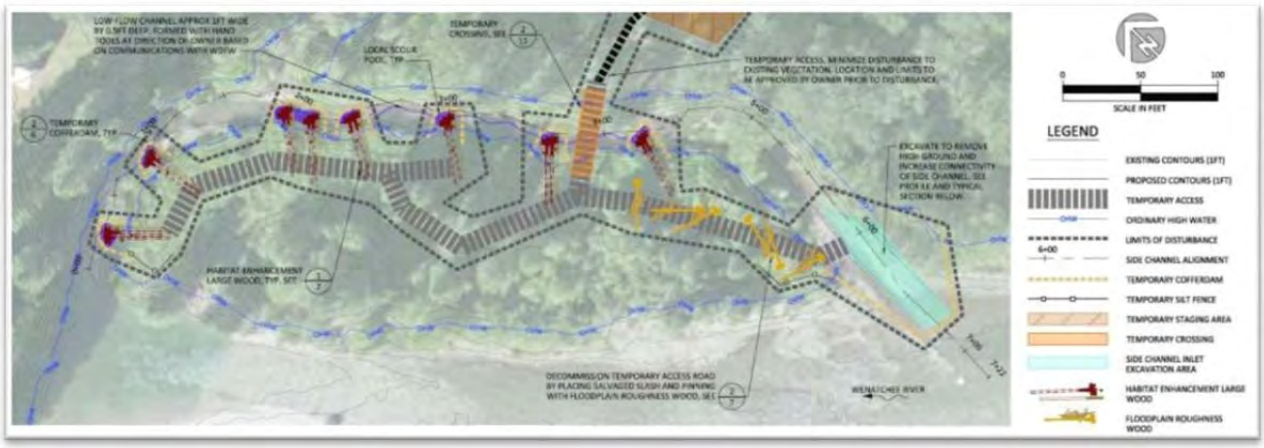
Restoration Metrics:

2000 ft. of perennial off-channel habitat with 400 wood pieces.
14 mainstem wood structures
1 meander bend wood structure

Upper Wenatchee Assessment Unit

Meacham Flats Project (Engineering Only)

Land Ownership: Private



Summary:

This project was designed in 2015 for implementation in 2016.

The project consists of improving the hydrology of an existing side channel on the left bank of the Wenatchee River through targeted excavation, and enhancing the side channel habitat with large wood structures.

Natapoc Project (Completed Restoration Action)

Land Ownership: Yakama Nation (property acquired with BPA Accord Funds)

Detailed Map of Project Site:

For details about the location of differing project elements on the site please refer to Attachment 1 – Constructed Projects As-Builts.

Summary:

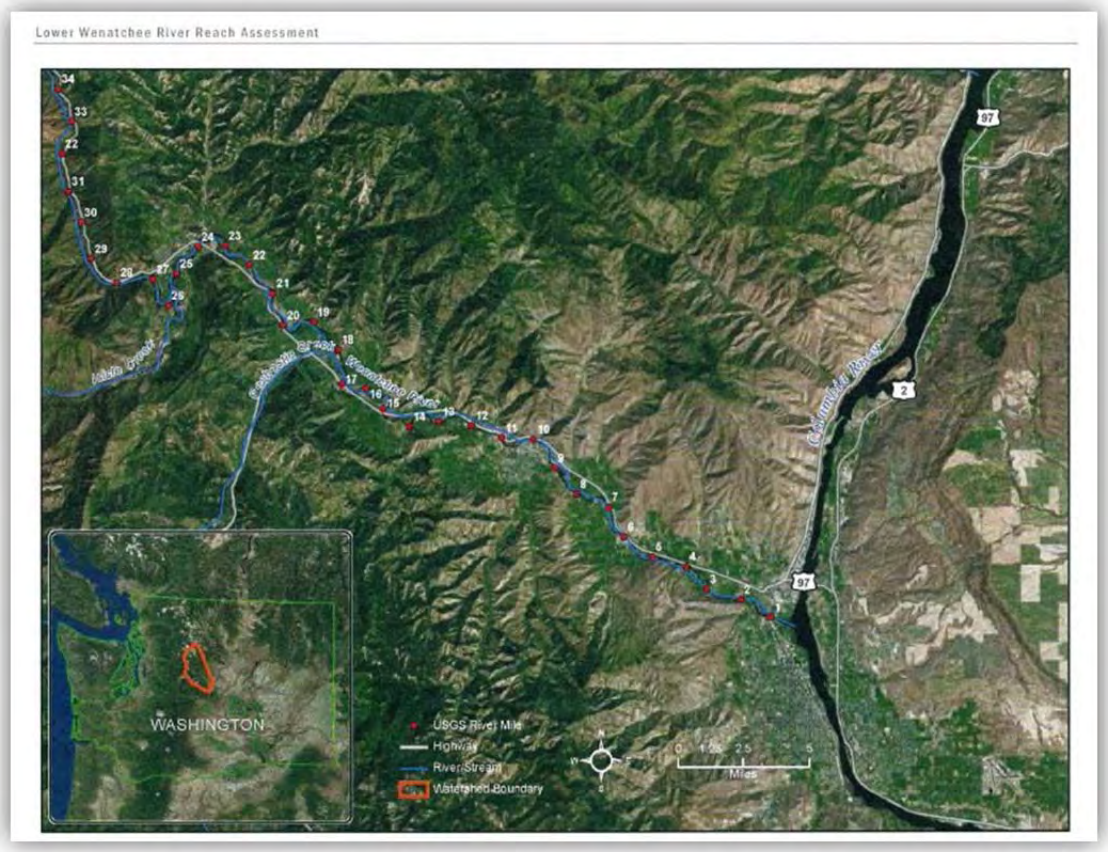
The Natapoc Large Wood Enhancement Project was implemented in 2015. The project is completely on Yakama Nation property and consists of 7 Large Woody Material structures. A total of six mainstem cover jams were installed along the riparian bank. Each structure consisted of three logs in addition to vertical piles. An additional complexity jam was also installed that consisted of twenty logs including piles, sticks and rootwads. All rootwads extending into the active thalweg were abutted by a bumper log given the high volume of recreational activity through this stretch of the U. Wenatchee River. All structures were backfilled ballasted with native gravels and cobbles as well as tiered fabric encapsulated soil lifts along the face of each structure. Native riparian plantings were installed during fall of 2015 in any disturbed areas.

Restoration Metrics:

A total of seven structures were installed each with an associated scour pool along a 300’ length of the Upper Wenatchee River.

Lower Wenatchee Assessment Unit

Lower Wenatchee Reach Assessment



Land Ownership: Private, Local Government, WSDOT, WDFW, WA DNR

Summary:

In 2015, we worked to produce a new reach assessment for a ~26.5mi section of the Wenatchee River (Lower Wenatchee from Tumwater Canyon down to mouth of Wenatchee River). This assessment conducted habitat surveys, green LIDAR collection, geomorphic surveys, hydraulic modeling, and project identification and prioritization to support salmon recovery habitat projects in the Lower Wenatchee Reach of the Wenatchee River. The summer of 2015 included all of the field data collection. The winter and spring of 2016 will be used to analyze the data and produce the report.

Post-Implementation Monitoring

Objective

All projects constructed by the YN UCHRP are monitored for multiple years to ensure engineering and stability objectives are achieved. Monitoring is performed by qualified professional engineers using a monitoring plan written by the design team at the completion of construction. The following generalized Scope of Work details the typical monitoring tasks and timelines associated with our monitoring work.

Generic Monitoring Scope of Work

Create and Provide a Design Report

The Design Report summarizes project goals, field data collection, and technical design of the project including site survey, hydrology, hydraulics, grading, anchoring, and quantities/totals.

Produce a Monitoring Plan

The Monitoring Plan documents the post-construction conditions of the site and will outline future monitoring activities that will be completed. Documentation of post-construction conditions include a description of the completed project, preparation of as-built drawings, and results of initial post-construction monitoring. This information serves as a baseline for comparison to future monitoring data. The plan will also identify specific future monitoring activities and schedule.

Monitoring activities to be described in the plan may include photos, notes/sketches, measurements, ocular sediment data, and other activities depending on the project type and objectives. The monitoring schedule will describe the plan for regular scheduled monitoring as well as for monitoring in response to high water events. There will also be a discussion of site conditions that would trigger action items or interventions/adaptive management.

Monitoring

Monitoring efforts at the site focus on qualitative post-construction performance and an evolution of constructed features and associated physical habitats. The monitoring activities and the data collected include: repeat photographs from mapped locations, simple hand measurements and sketches of zones of erosion, scour and sediment deposition. Revegetation will be monitored and documented via photographs and sketches of zones of plant species complexity and vigor. Documentation will be a narrative description with representative photos and sketched graphics as needed to illustrate change.

Monitoring Phase 1- Site Investigation

Task 1 - Hydrologic history

River flows are recorded at USGS gages within each water shed the work was performed. A summary of maximum flows between monitoring events should be summarized in each report. Flows at the time of the monitoring effort should be summarized with a comparison to mean

daily discharge. Effort will be made to conduct monitoring at similar flows to provide comparable observation efficiencies and photos.

Task 2 - Photo Points

Locations are identified that will visually document individual features, overall condition and the associated physical habitat. Photo point locations are identified in the as-built reports. Photos are taken at those approximate locations for each subsequent monitoring year.

Notes should be taken of project feature, photo orientation and unique conditions or features the photographs are documenting. Efforts will be made to produce high resolution photos of similar magnification and framing to provide easy visual comparison of project changes for reports and presentations.

Task 3 -Field Sketches and Narrative

At each constructed feature, a field sketch and narrative of any changes from prior monitoring conditions will be completed. Photographs from prior monitoring events will be compared to field conditions to estimate changes. Sketches will be as detailed as possible based on observations and simple measurements and should include a plan and elevation sketch at each location. The as-built reports provide construction plans for use as base graphics for sketches of locations and extents of erosion, scour and deposition areas, accumulation of debris, adjacent river bed and bank conditions and their approximate dimensions relative to the constructed feature. Substrate sizes in scour and deposition zones will be estimated on the percent composition using the Wentworth scale metrics and noted on the sketch. Total number of woody material will be summarized to identify projects are gaining / loosing material.

Task 4 - Action triggers

If monitoring activities detect undesirable performance or change to the habitat work, a range of actions or responses may be initiated based on professional opinion.

- No action needed.
- For minor change in function, a flag may be placed in the monitoring report to watch and respond at a later time if the condition worsens.
- Moderate changes may require a recommendation for intervention based on professional opinion and work by YN to remedy the issue.
- Serious changes that would influence human safety or infrastructure may require design and contractor with heavy equipment to remedy the issue.

The findings, recommendation, and decision will be documented in each report year as it becomes necessary.

Task 5 - Revegetation areas

Identify deficiencies in the revegetation efforts for each site, which may include:

- plant species complexity,
- plant vigor, and
- invasive species

The degree of deficiency would be based upon percent of total area, or area of specific problem item. Noted deficiencies in vegetation reestablishment may prompt action to improve site recovery, reduce sediment mobilization and invasive species propagation.

Monitoring Phase 2 – Reporting

Task 6 - Monitoring Report

Following completion of each round of in the field monitoring, a report will be developed to present the assimilated monitoring notes and photos. The report will include a description of methods including any variation to the monitoring plan and reasons for variation, site conditions at the time of monitoring, and a summary of preceding flow conditions characterized by the record from the USGS gage with a focus on peak events that may have occurred prior to monitoring. The report will include a brief section for each monitored feature including representative photographs from each photo point, narrative describing the conditions of the habitat feature. Making notes of any changes to the structures or physical habitats between monitoring years.

Monitoring Schedule

Monitoring should begin the subsequent year following construction to establish changed conditions. Monitoring will typically be conducted in years 1, 2, 3, and 5 following the construction year. The as-built reports will be used for comparison for all future monitoring efforts and will allow for determination of the type and magnitude of change to features over time.

Phase 1 – July through August
Phase 2 – September through December

Monitoring Actions Performed During the Reporting Period

Sub-basin	Project	Construction Year	Year 1 Monitoring	Year 2 Monitoring	Year 3 Monitoring	Year 5 Monitoring
Entiat	Entiat 3-D Project	2012	2013	2014	2015	2017
Methow	Old Schoolhouse - Beaver Creek Project	2013	2014	2015	2016	2018
	Cheweuch 8 Mile Ranch Project	2012	2013	2014	2015	2017
	Chewuch RM 10 Project	2012	2013	2014	2015	2017
	Chewuch RM 11.75 to 13 Project (River Right Side Channel)	2013	2014	2015	2016	2018
	Twisp Ponds Left Bank Project (ELJs)	2012	2013	2014	2015	2017
	Twisp Poorman Creek Road Project	2014	2015	2016	2017	2019
	Twisp RM 3 Project	2014	2015	2016	2017	2019
	M2 1890s Project	2014	2015	2016	2017	2019
	M2 LWD Project (Eagle Rocks)	2012	2013	2014	2015	2017
	M2 LWD Project (Sugar Dike)	2013	2014	2015	2016	2018
	M2 LWD Project (Two Channels)	2014	2015	2016	2017	2019
Wenatchee	YN Sunnyslope (ELJs)	2013	2014	2015	2016	2018
	Nason LWP Project (1st Bend)	2013	2014	2015	2016	2018
	Peshastin RM 0.8 Project	2013	2014	2015	2016	2018

Summary of Monitoring Findings During the Reporting Period

No Action Triggers were identified through post implementation monitoring during the reporting period. Project performance from a structural/stability standpoint met design objectives for each project monitored.

Lessons Learned

The YN UCHRP conducted multiple large scale salmon habitat restoration actions in the Upper Columbia Basin during the reporting period. Within these projects we continue to employ emerging and innovative restoration techniques focused on enhancing the effectiveness of the habitat improvements, decreasing disturbance impacts to adjacent non-target environments, and/or increasing the efficiency of the restoration work to decrease project costs or increase the speed at which projects can be completed. Here are some of the lessons we learned in the 2014 and 2015 reporting period based on our innovative approaches to restoration:

- We completed two groundwater infiltration gallery projects during the reporting period (Fender Mill and 1890s Side Channel). On both project sites, the resulting gallery discharge came in below the discharge rates predicted during the engineering phases. Discharge predictions were developed based on groundwater pump testing done in the proposed gallery installation areas in the years previous to restoration implementation. Based on these results, we are now recommending that pump tests for infiltration gallery projects be done in longer trenches than previously used to determine transmissivity, and that the tests be conducted over a longer period of time to better replicate the likely effects of drawdown to discharge rates.

- Excavator mounted vibratory pile drivers continue to be preferable tools for installing pilings and upright logs for stabilizing habitat structures. These units dramatically limit the amount of surface excavation needed to install a large wood structure, and when used properly the pile drivers can place pilings more accurately and at a much faster rate than excavation and backfill techniques. The benefits of excavator mounted vibratory pile drivers is optimized when a project requires extensive piling installations, especially in sensitive habitats, and when the substrate of the project site is conducive to the use of such devices for achieving adequate burial depths.

- Restoring vegetation after major construction activities continues to be challenging given the diverse types of soils, hydrology, precipitation regimes, and seasonal climate fluctuations we encounter both within individual project sites, and across the broader project region. There is no “one size fits all” vegetation plan that can be employed across all project sites. Working with qualified vegetation management specialists on each individual project, and especially using qualified vegetation maintenance specialists continues to be a necessary tactic to ensuring successful native vegetation establishment. Give the recent droughts experienced during the spring/summer growing seasons, special attention to selecting adequate watering techniques prior to project implementation should be considered.

Yakama Nation

Upper Columbia Habitat Restoration Project

ANNUAL REPORT

JANUARY 1ST, 2014 THROUGH DECEMBER 31ST, 2015

BPA Project #2009-003-00-Master Agreement #56662

Releases 2, 3, 4, 27, 58, 65, & 88

Attachment 1 – Completed Projects As-Builts

- **Fender Mill Project**
- **Chewuch RM 11.75-13 (River Right) Project**
- **Chewuch RM 13-15.5 (Campground) Project**
- **Twisp Poorman Creek Road Project**
- **Twisp RM 3 Project**
- **M2 1890s Project**
- **M2 LWD (Two Channels) Project**
- **Nason UWP Project**
- **Natapoc Project**

FENDER MILL SIDE CHANNEL AS-BUILT

SALMON HABITAT ENHANCEMENT PROJECT

VICINITY MAP
NOT TO SCALE

COORDINATES:
LATITUDE: 48°32'15" N
LONGITUDE: 120°19'15"W

OKANOGAN COUNTY
SECTION 15, TOWNSHIP 35N, RANGE 20E

WATERBODY: METHOW RIVER
TRIBUTARY OF: COLUMBIA RIVER

SITE MAP
NOT TO SCALE

CONFEDERATED TRIBES AND BANDS
YAKAMA NATION
TREATY OF 1855

YAKAMA NATION FISHERIES
2 JOHNSON LANE
WINTHROP WA, 98862

SHEET LIST

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	11/19/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
METHOW RIVER
FENDER MILL SIDE CHANNEL AS-BUILT

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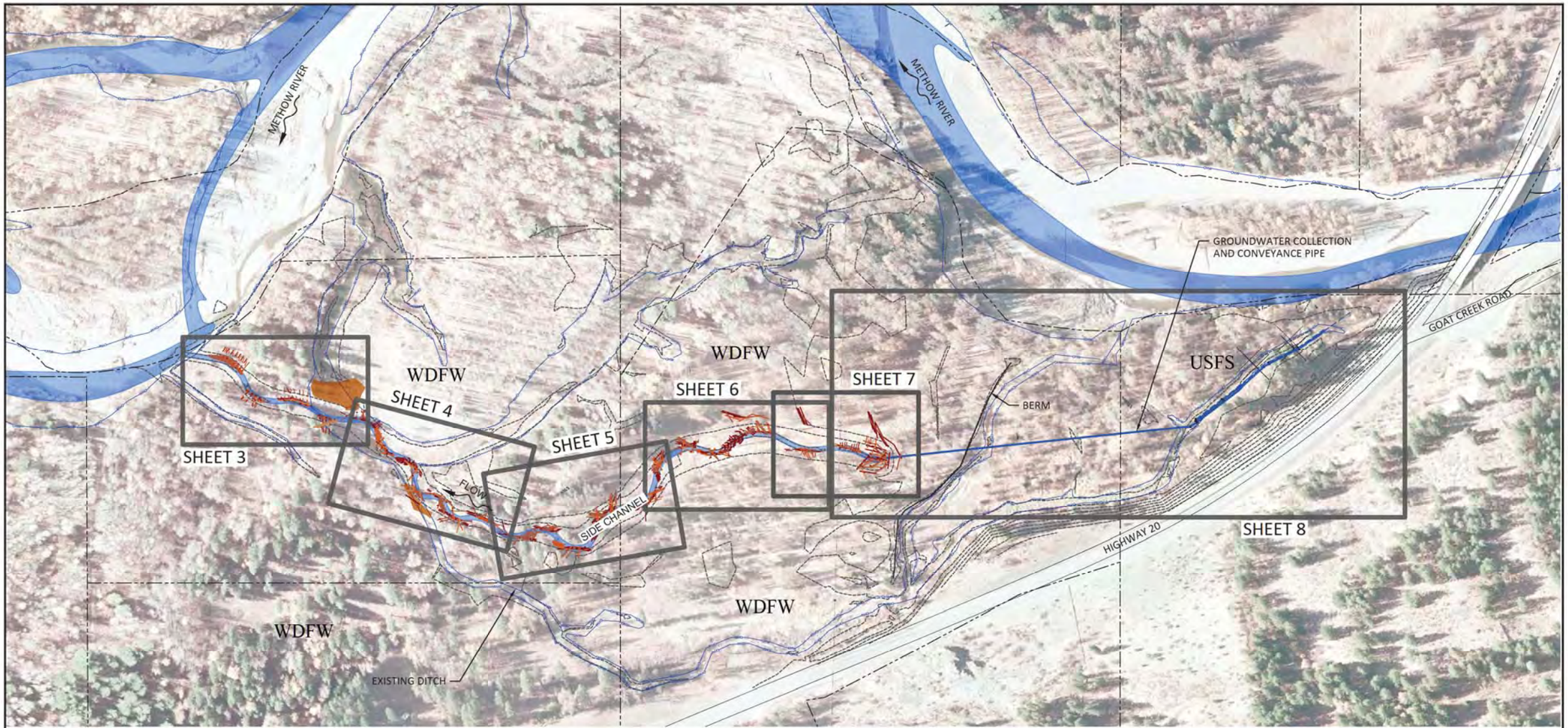
COVER, SHEET LIST, AND VICINITY MAPS

SHEET 1 OF 9



PLAN VIEW

LEGEND

- EXISTING CONTOURS (1-FT INTERVAL)
- PROPERTY LINES
- ORDINARY HIGH WATER
- APPROXIMATE LOW WATER
- LARGE WOOD INSTALLATIONS

0 250 500

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM,RP	MB,MM
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MB	11/19/15	
APPROVED	DATE	PROJECT

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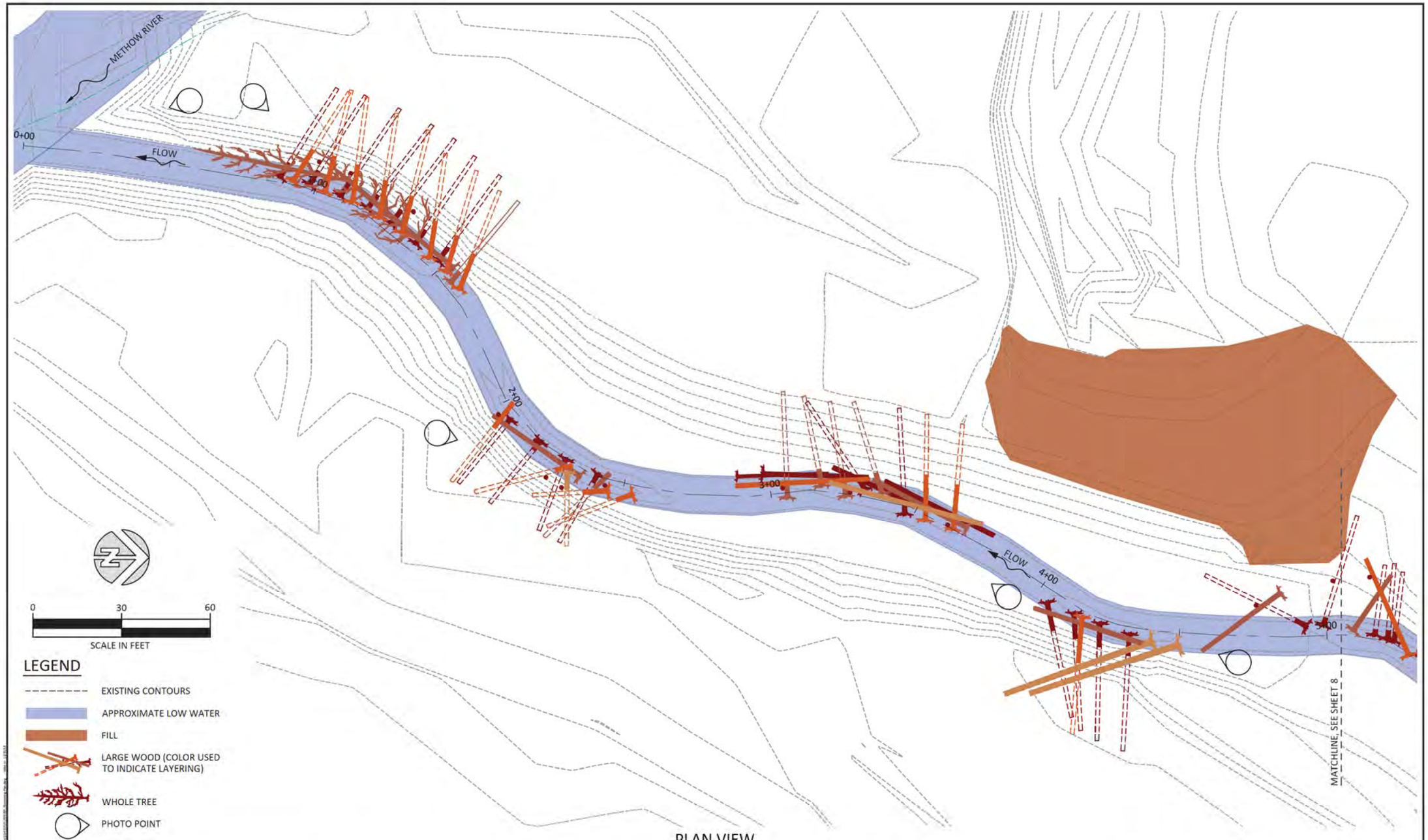
SITE LOCATIONS OVERVIEW

SHEET 2 OF 9



PLAN VIEW

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RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

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FENDER MILL SIDE CHANNEL

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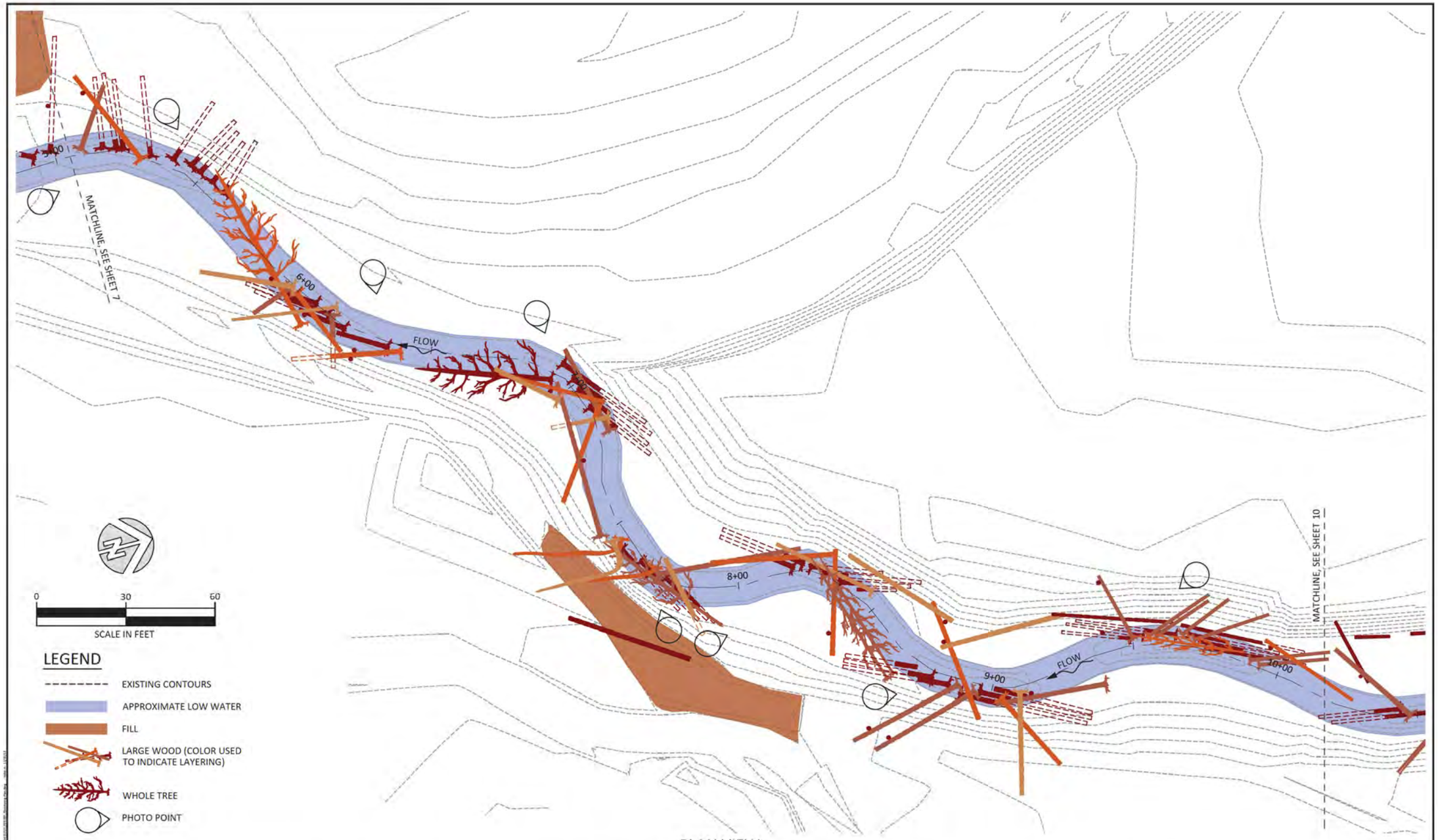
PLAN VIEW OF SIDE CHANNEL
STA 0+00 TO STA 5+05

SHEET
3 OF 9



PLAN VIEW

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DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
METHOW RIVER
FENDER MILL SIDE CHANNEL

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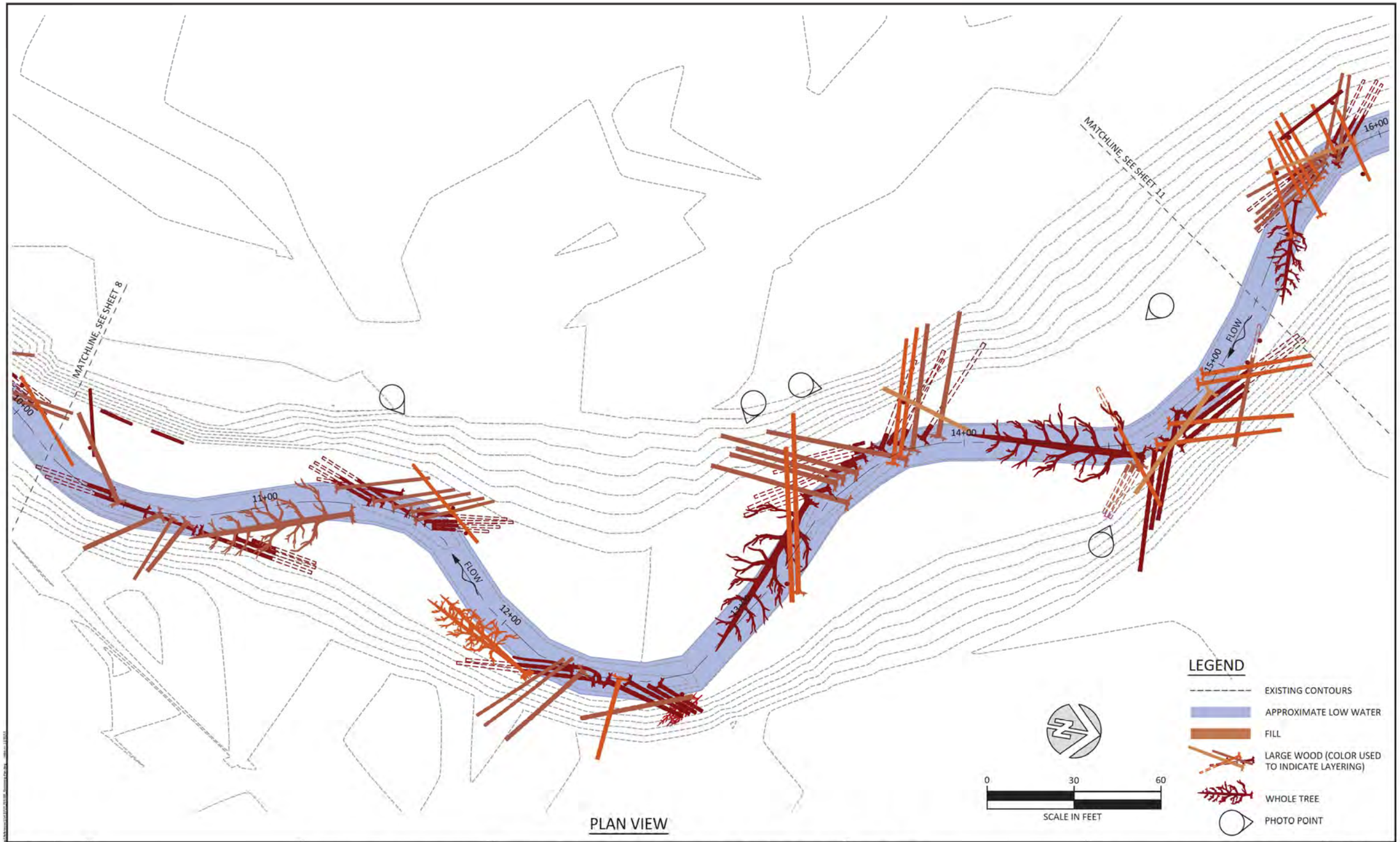
PLAN VIEW OF SIDE CHANNEL
STA 5+05 TO STA 10+18

SHEET
4 OF 9



PLAN VIEW

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DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
METHOW RIVER
FENDER MILL SIDE CHANNEL

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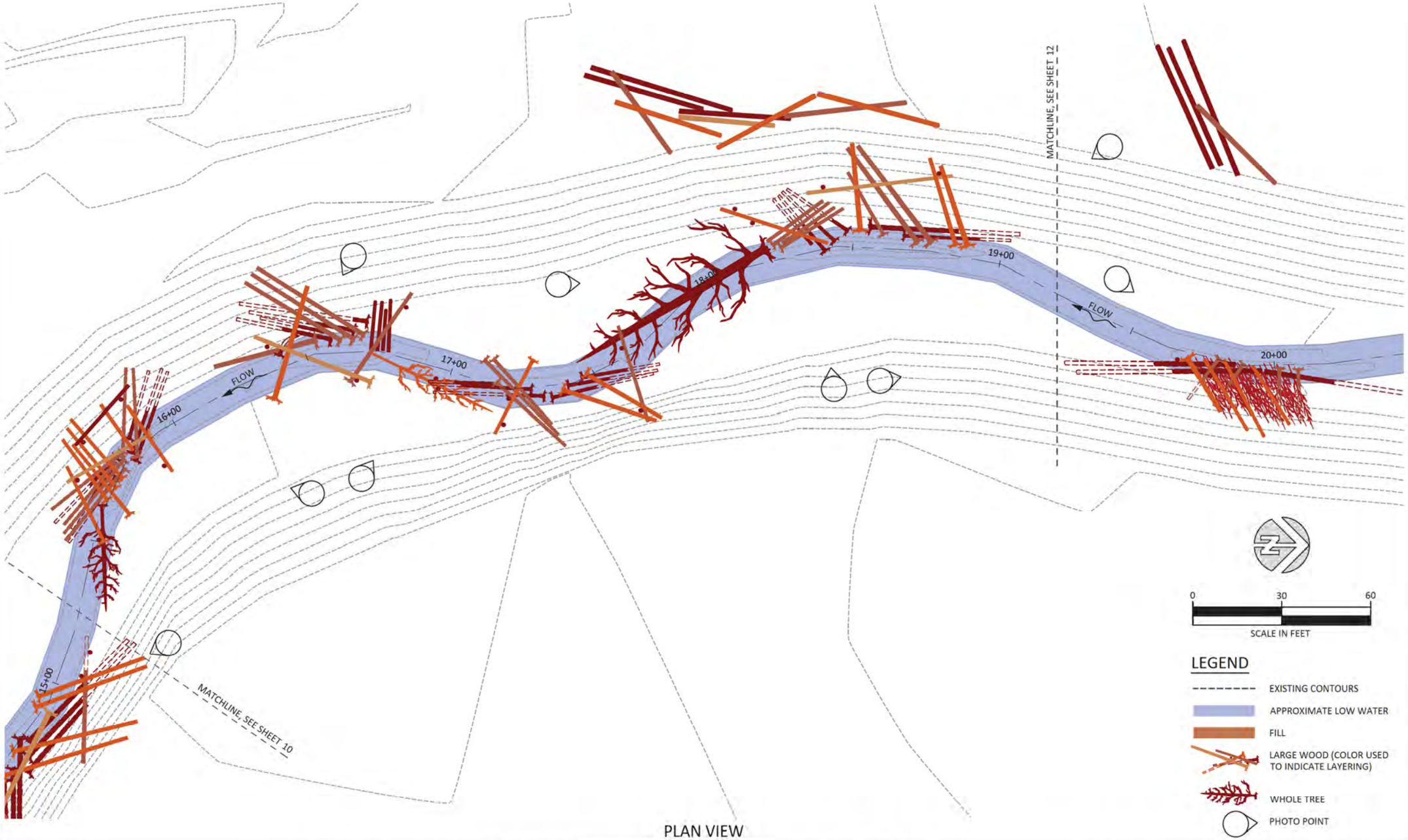
PLAN VIEW OF SIDE CHANNEL
STA 10+18 TO STA 15+25

SHEET 5 OF 9



PLAN VIEW

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DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

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METHOW RIVER
FENDER MILL SIDE CHANNEL

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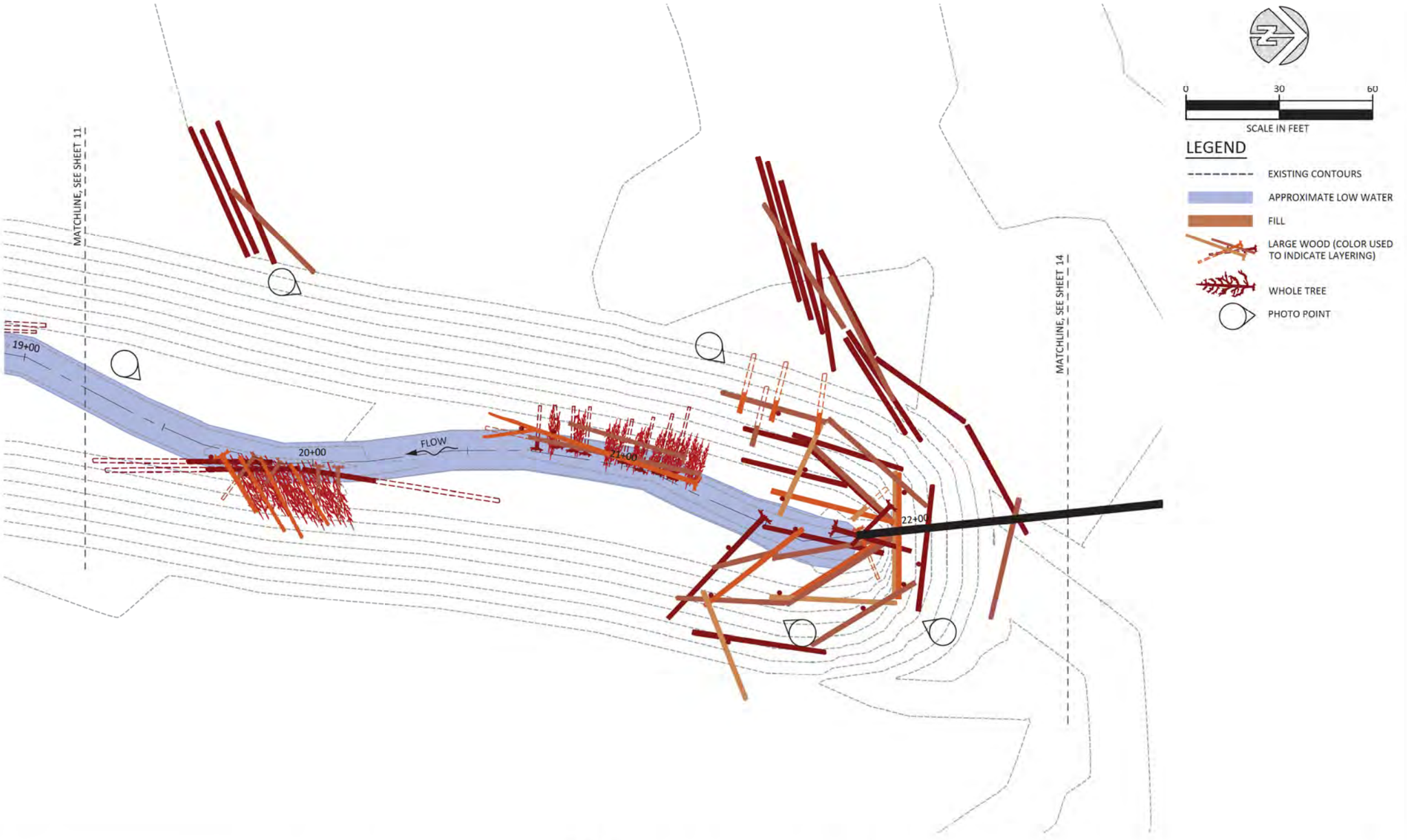
PLAN VIEW OF SIDE CHANNEL
STA 15+25 TO STA 19+22

SHEET
6 OF 9



PLAN VIEW

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MB	03/16/15	
APPROVED	DATE	PROJECT

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FENDER MILL SIDE CHANNEL

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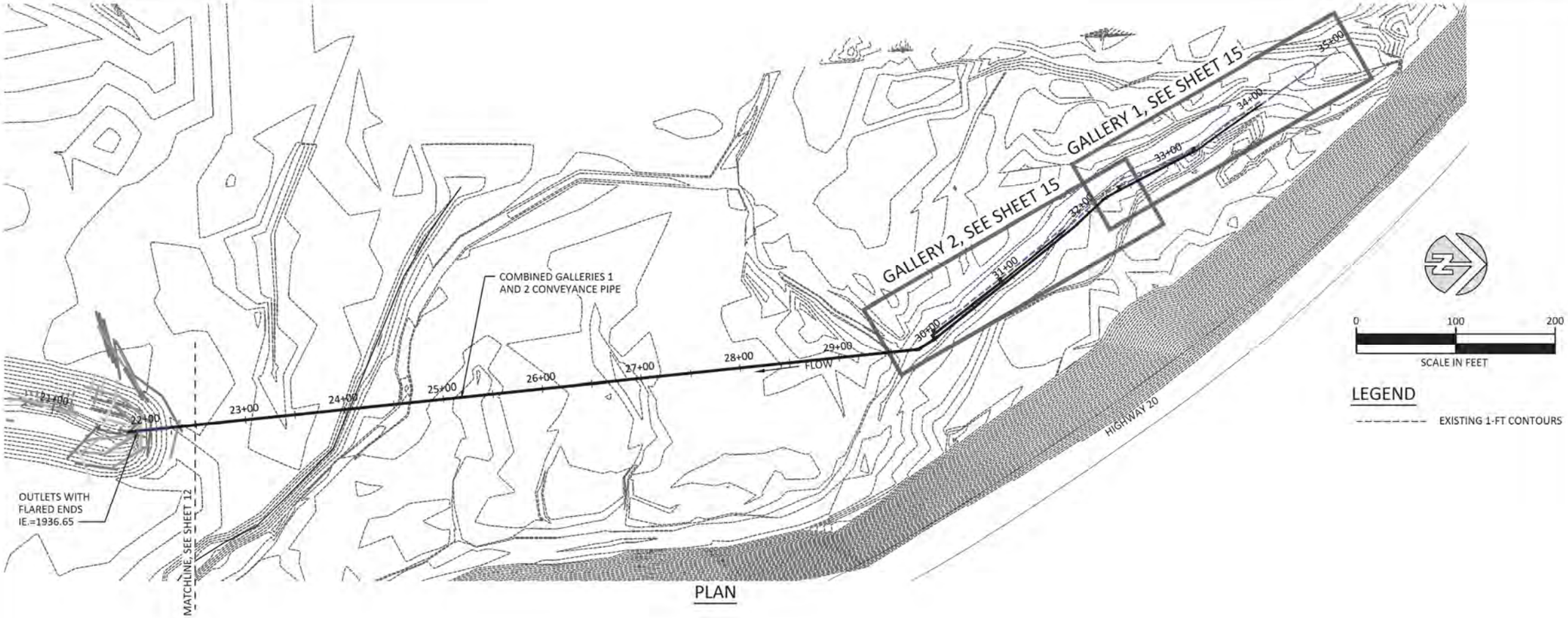
PLAN VIEW OF SIDE CHANNEL
STA 19+22 TO STA 22+30

SHEET
7 OF 9



PLAN

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
METHOW RIVER
FENDER MILL SIDE CHANNEL

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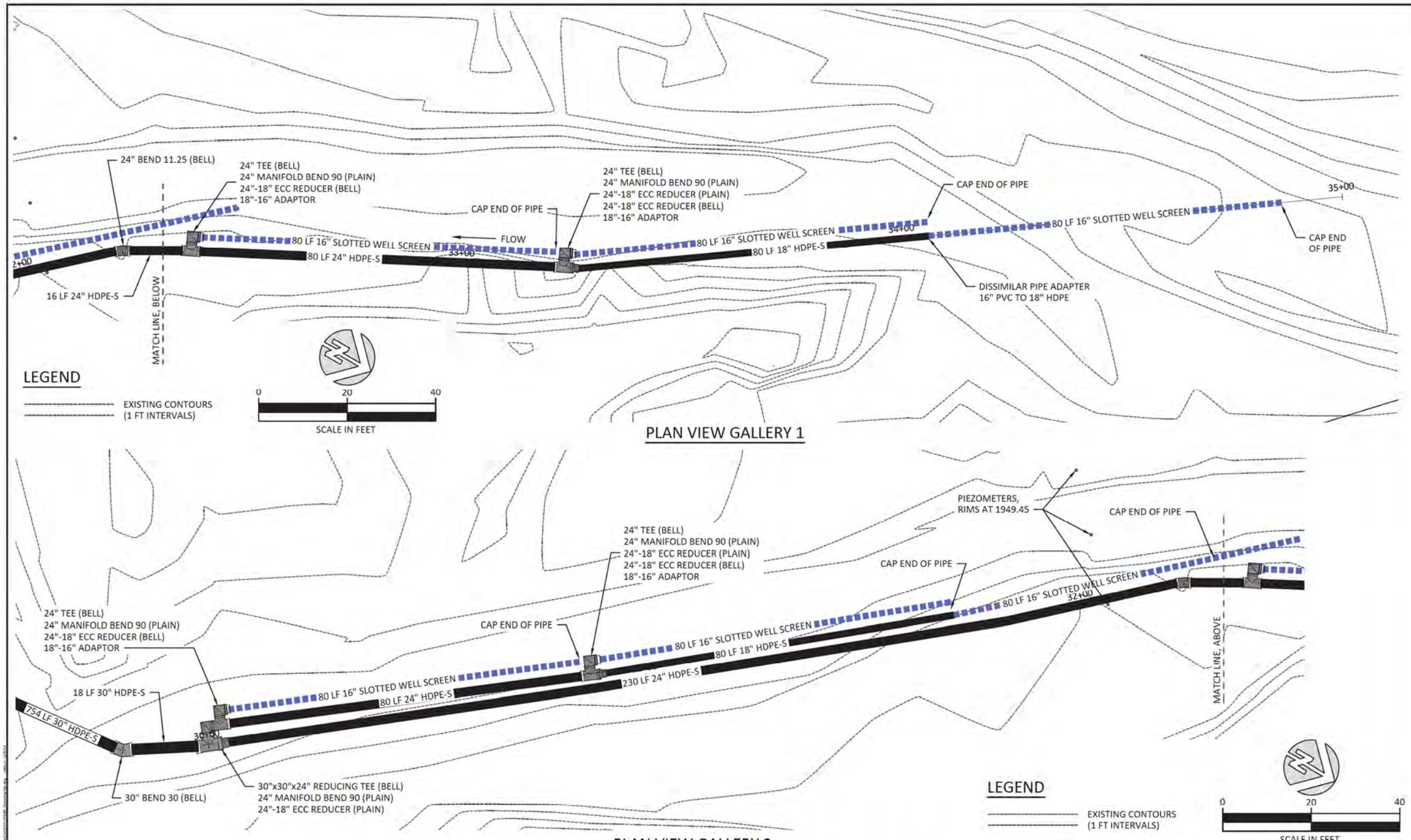
Hood River, OR 97031
541.386.9003
www.interfluve.com

PLAN VIEW OF PIPE

SHEET 8 OF 9



NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	03/16/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
METHOW RIVER
FENDER MILL SIDE CHANNEL

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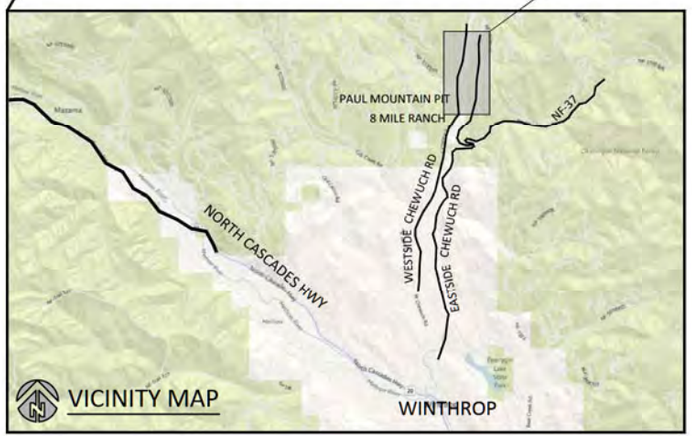
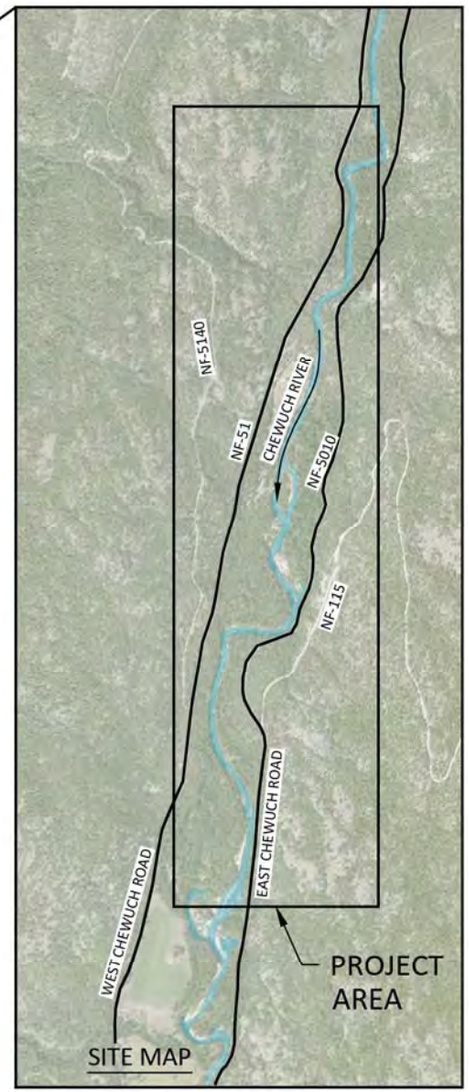
PLAN VIEW OF
GROUNDWATER GALLERIES

SHEET
9 OF 9

CHEWUCH RIVER RIGHT
MONITORING PLAN
DECEMBER 10, 2015





SHEET LIST

SITE LOCATION:

LATITUDE: 48°36'36.55" NORTH
LONGITUDE: 120°09'50.26" WEST
OKANOGAN COUNTY, WASHINGTON

WATERBODY: CHEWUCH RIVER
TRIBUTARY OF: METHOW RIVER

YAKAMA NATION FISHERIES
2 JOHNSON LANE
WINTHROP WA, 98862

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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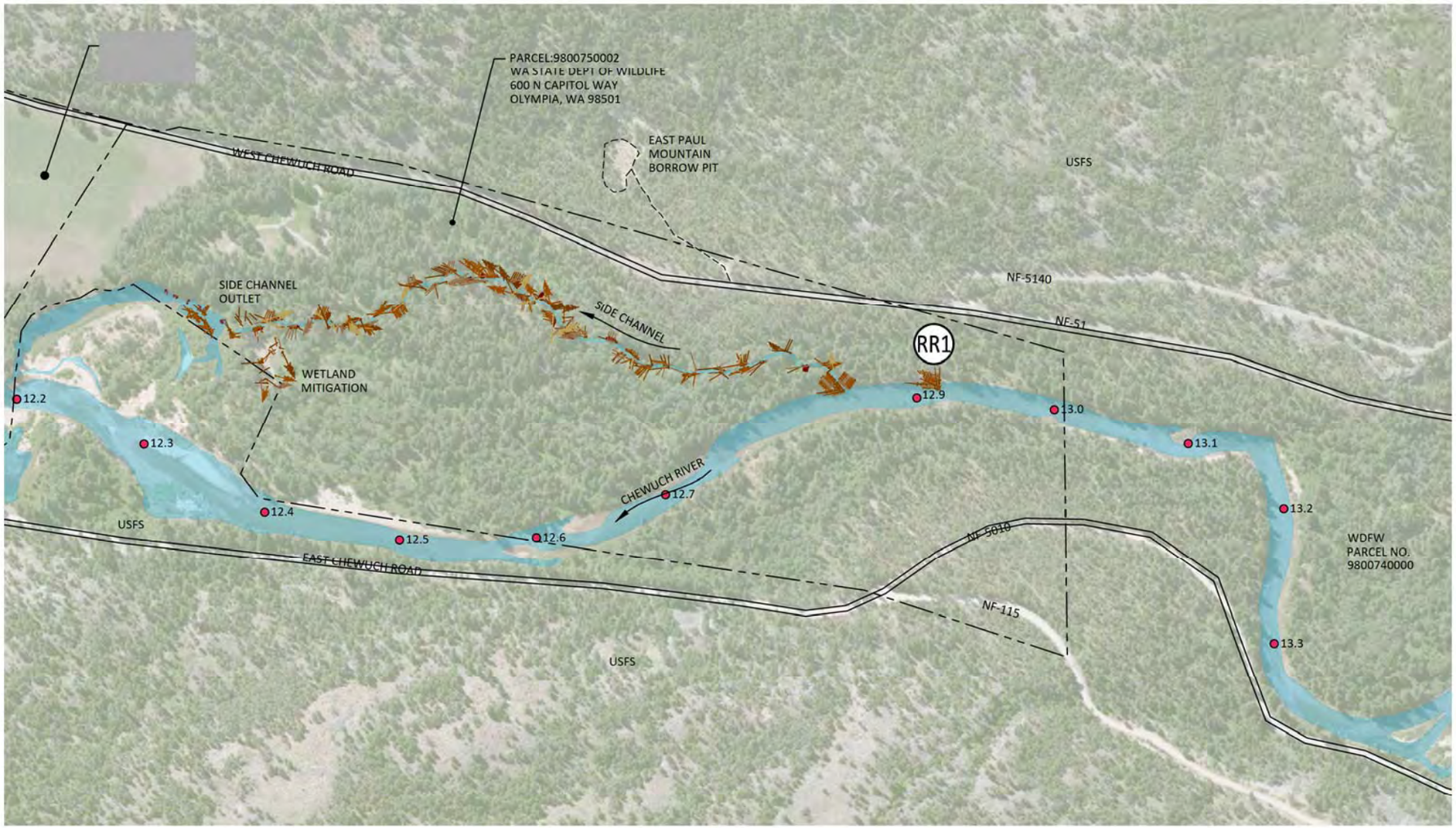
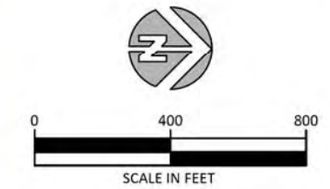
COVER, VICINITY MAP, AND SHEET LIST

SHEET 1 OF 9



PLAN



LEGEND

- PROPERTY LINE
- APPROXIMATE LOW WATER
- LOG PLACEMENTS

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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SITE LOCATIONS OVERVIEW

PLAN

0 30 60

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY PARTIAL BURIAL OR ATTACHMENT TO ADJACENT LOGS AND EXISTING TREES.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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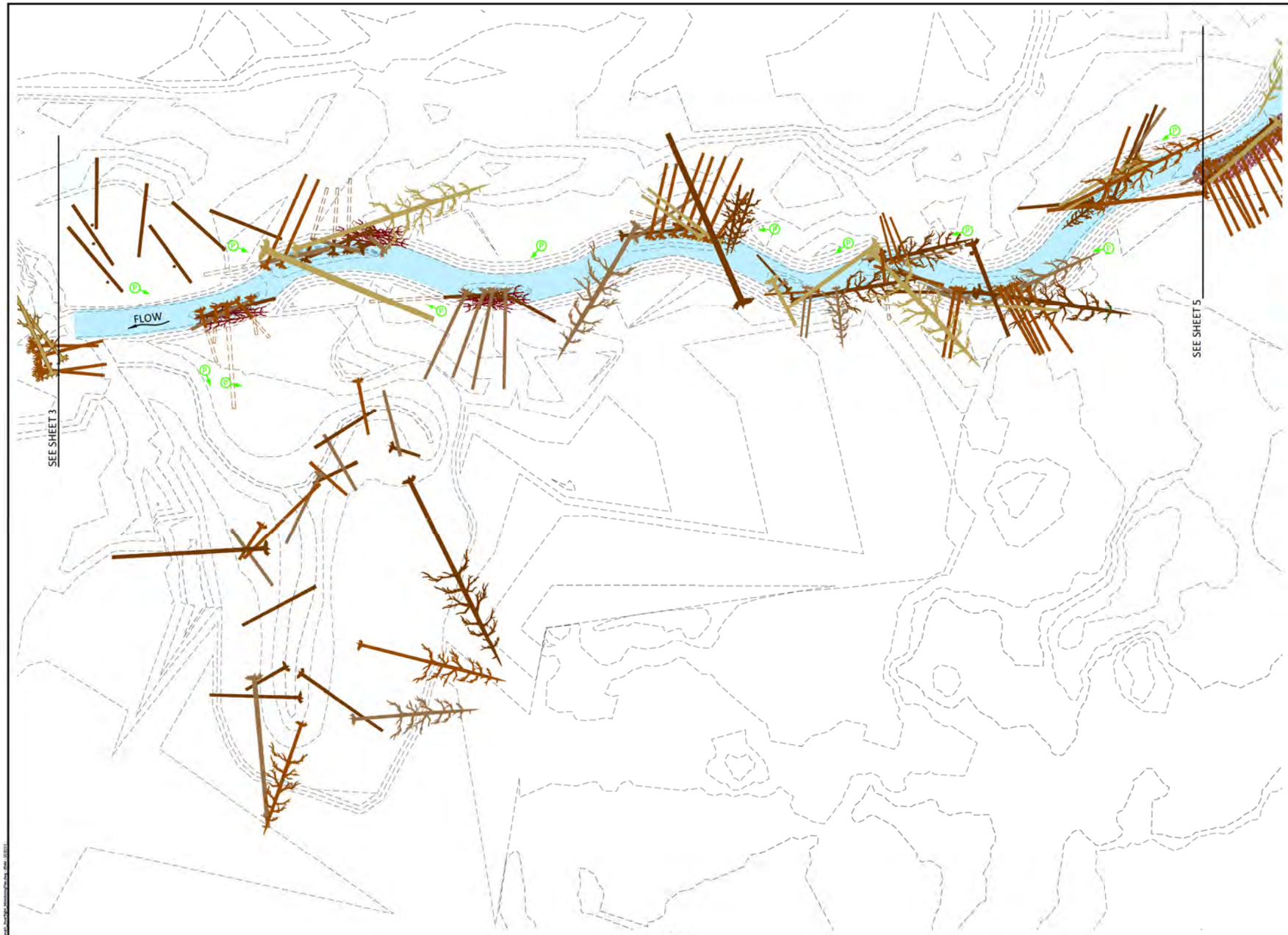
LOG INSTALLATIONS NEAR SIDE CHANNEL OUTLET

SHEET 3 OF 9



PLAN

0 50 100

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- HEAVY SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY PARTIAL BURIAL OR ATTACHMENT TO ADJACENT LOGS AND EXISTING TREES.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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SIDE CHANNEL STA 0+00 TO STA 6+50

SHEET 4 OF 9

PLAN

0 50 100

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- HEAVY SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY PARTIAL BURIAL OR ATTACHMENT TO ADJACENT LOGS AND EXISTING TREES.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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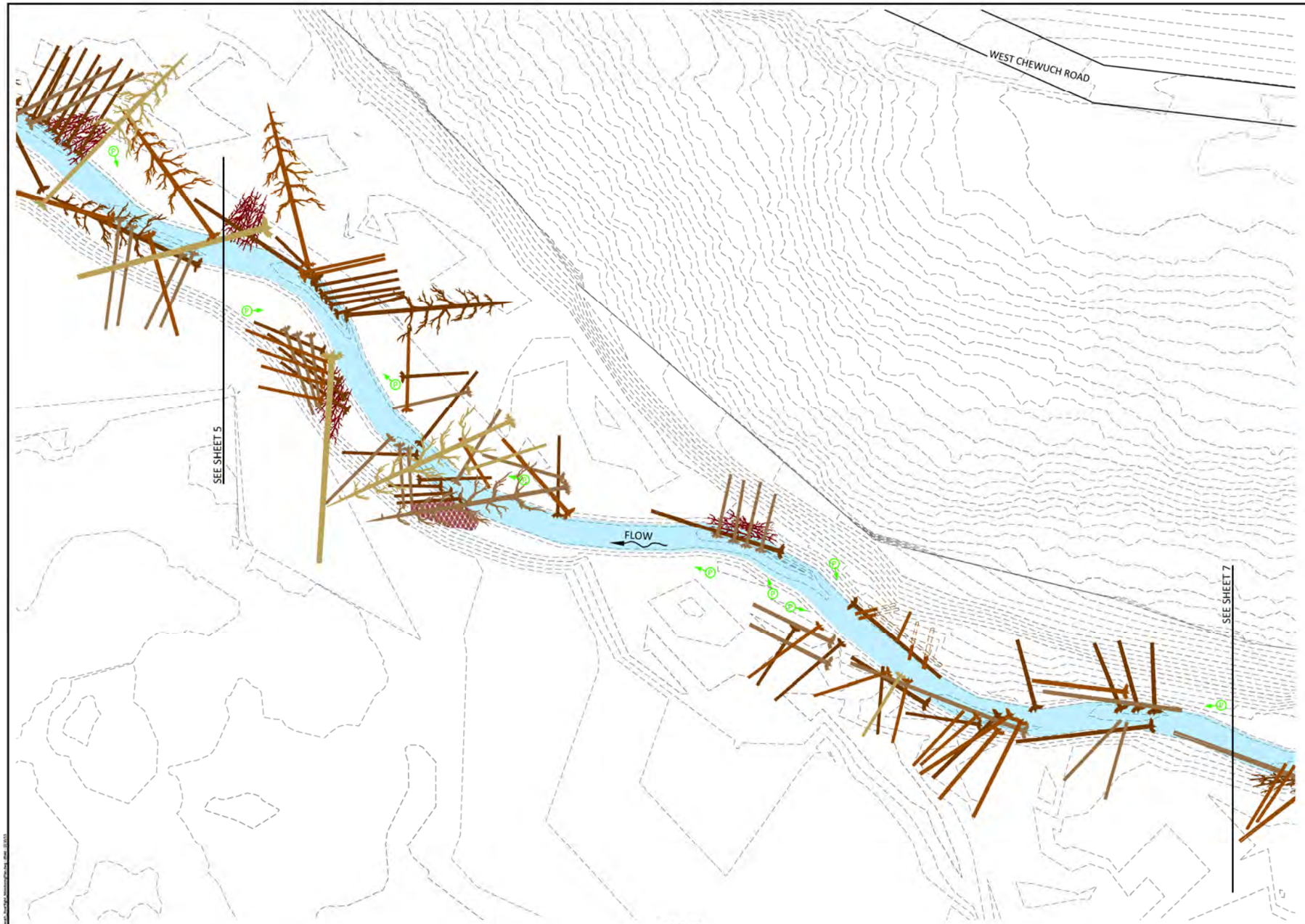
SIDE CHANNEL STA 6+50 TO STA 12+50

SHEET 5 OF 9



0 50 100

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- HEAVY SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY PARTIAL BURIAL OR ATTACHMENT TO ADJACENT LOGS AND EXISTING TREES.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

PLAN

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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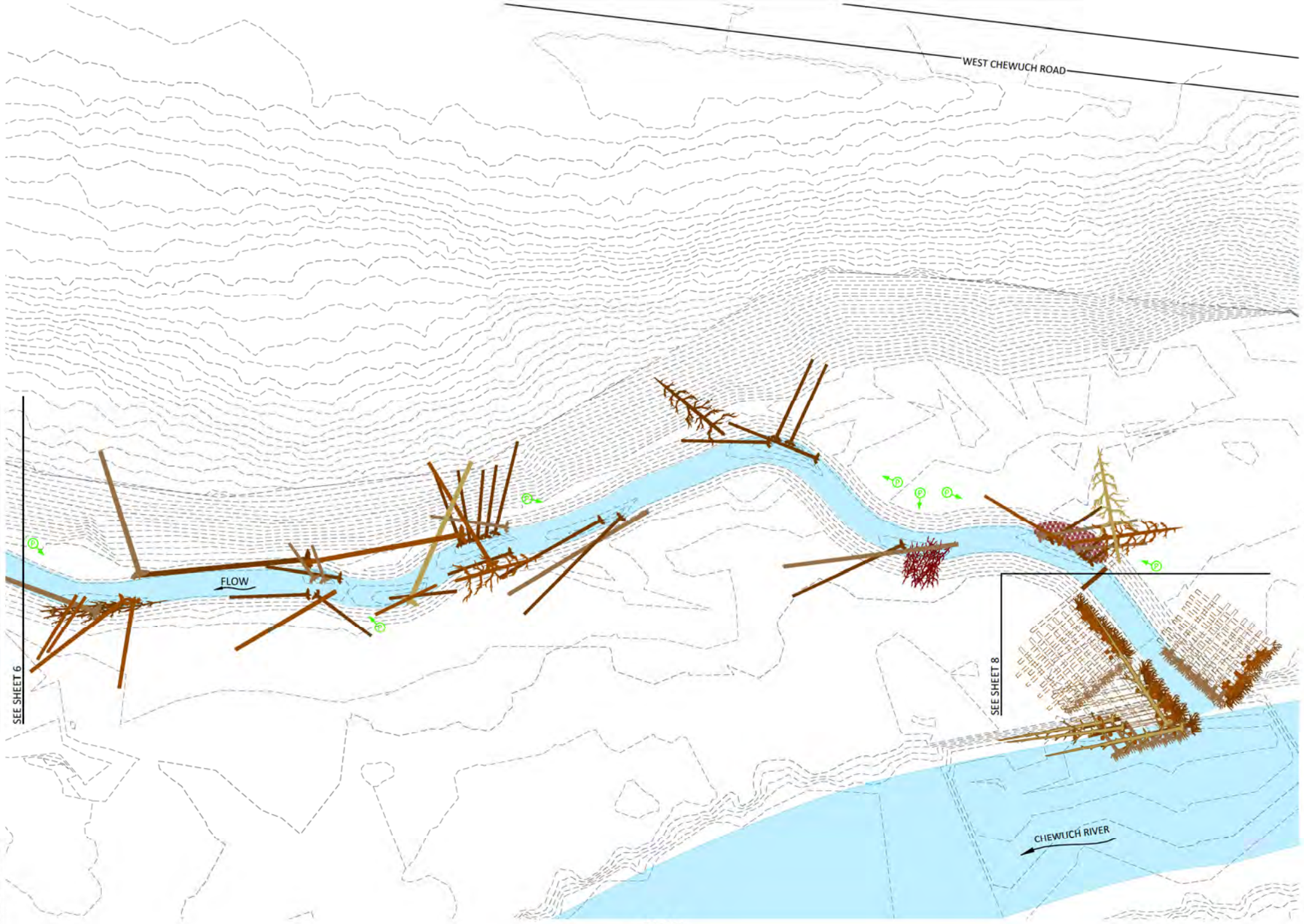
SIDE CHANNEL STA 12+50
TO STA 18+50

SHEET
6 OF 9



PLAN

0 50 100

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- HEAVY SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY PARTIAL BURIAL OR ATTACHMENT TO ADJACENT LOGS AND EXISTING TREES.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

DF	MB,MM,CM	MB
DRAWN	DESIGNED	CHECKED
MM	12/10/15	
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
CHEWUCH RIVER RIGHT
MONITORING PLAN

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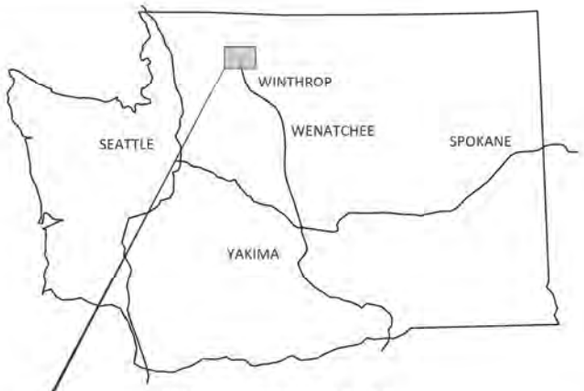
SIDE CHANNEL STA 18+50
TO STA 24+50

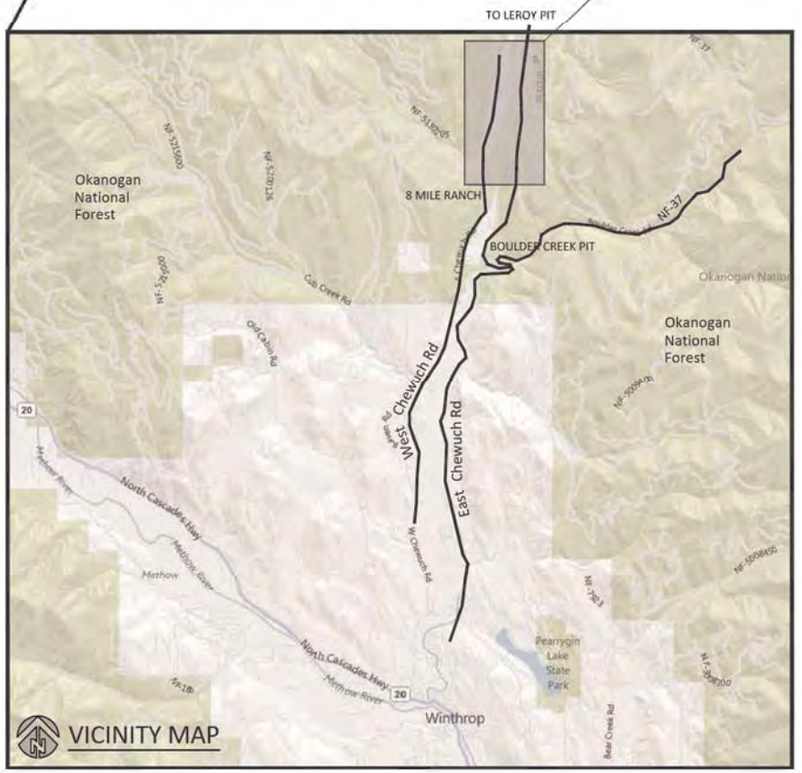
SHEET 7 OF 9

CHEWUCH RM 13-15.5

AS-BUILT DRAWINGS
NOVEMBER 9, 2015



WASHINGTON STATE



VICINITY MAP

UPSTREAM END OF PROJECT:
LATITUDE 48°38'48.5" N
LONGITUDE 120°09'06.5" W

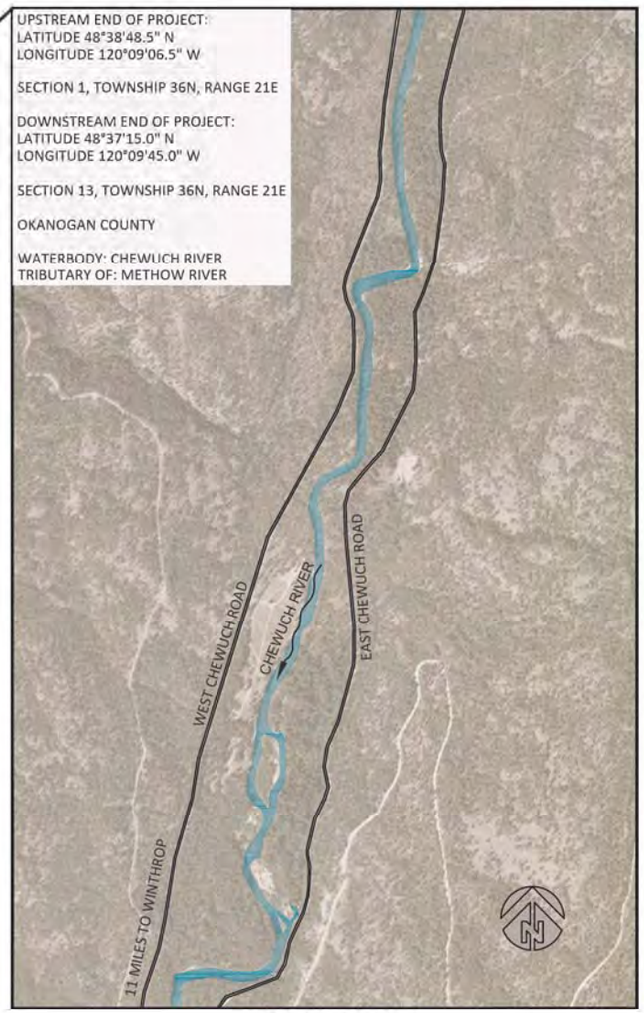
SECTION 1, TOWNSHIP 36N, RANGE 21E

DOWNSTREAM END OF PROJECT:
LATITUDE 48°37'15.0" N
LONGITUDE 120°09'45.0" W

SECTION 13, TOWNSHIP 36N, RANGE 21E

OKANOGAN COUNTY

WATERBODY: CHEWUCH RIVER
TRIBUTARY OF: METHOW RIVER



LOCATION MAP

SHEET LIST

CONFEDERATED TRIBES AND BANDS
YAKAMA NATION
TREATY OF 1855

YAKAMA NATION FISHERIES
2 JOHNSON LANE
WINTHROP WA 98862

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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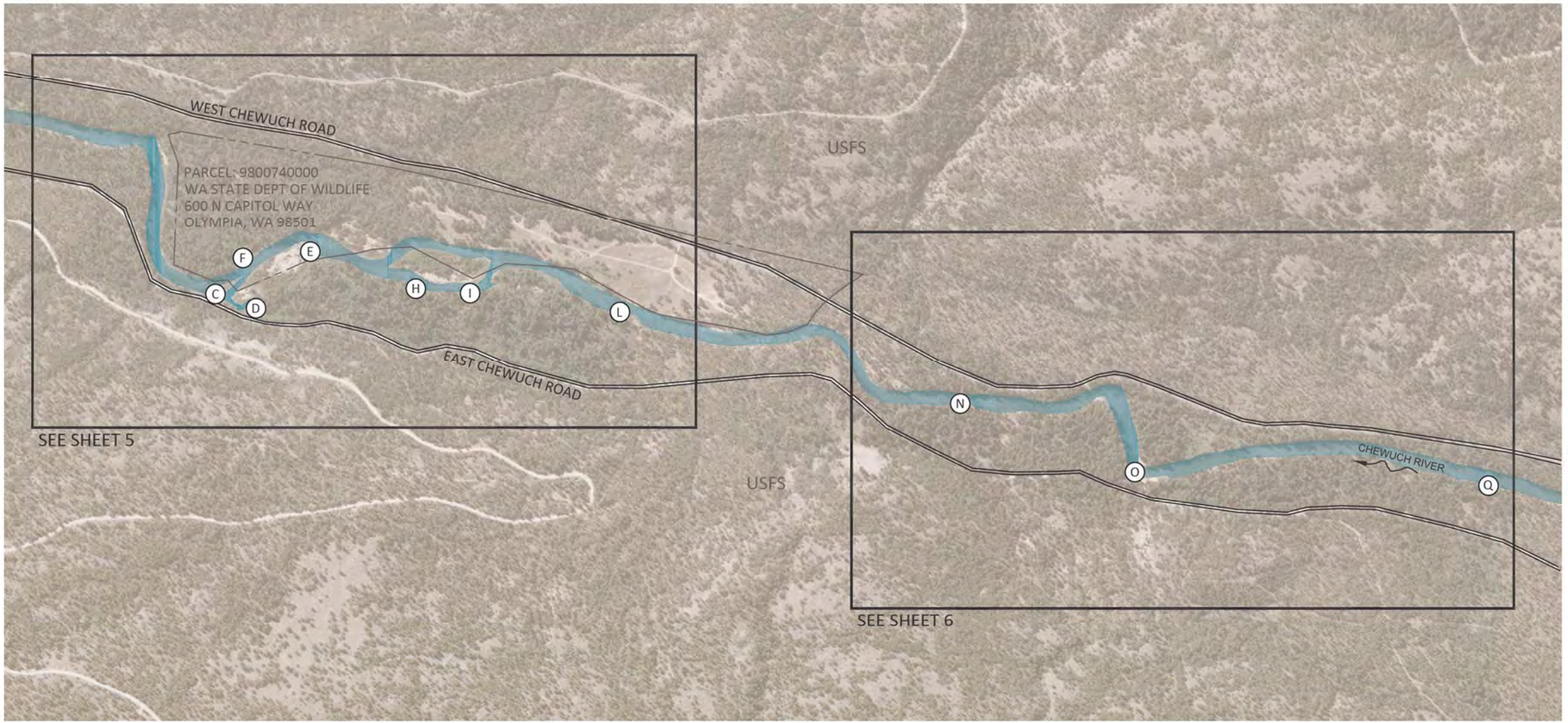
COVER, SHEET LIST AND VICINITY MAP

SHEET 1 OF 14



SITE PLAN

LEGEND

PROPERTY LINES

(A) PROJECT SITE

SCALE IN FEET

0 660 1320

0 1/8 1/4

SCALE IN MILES

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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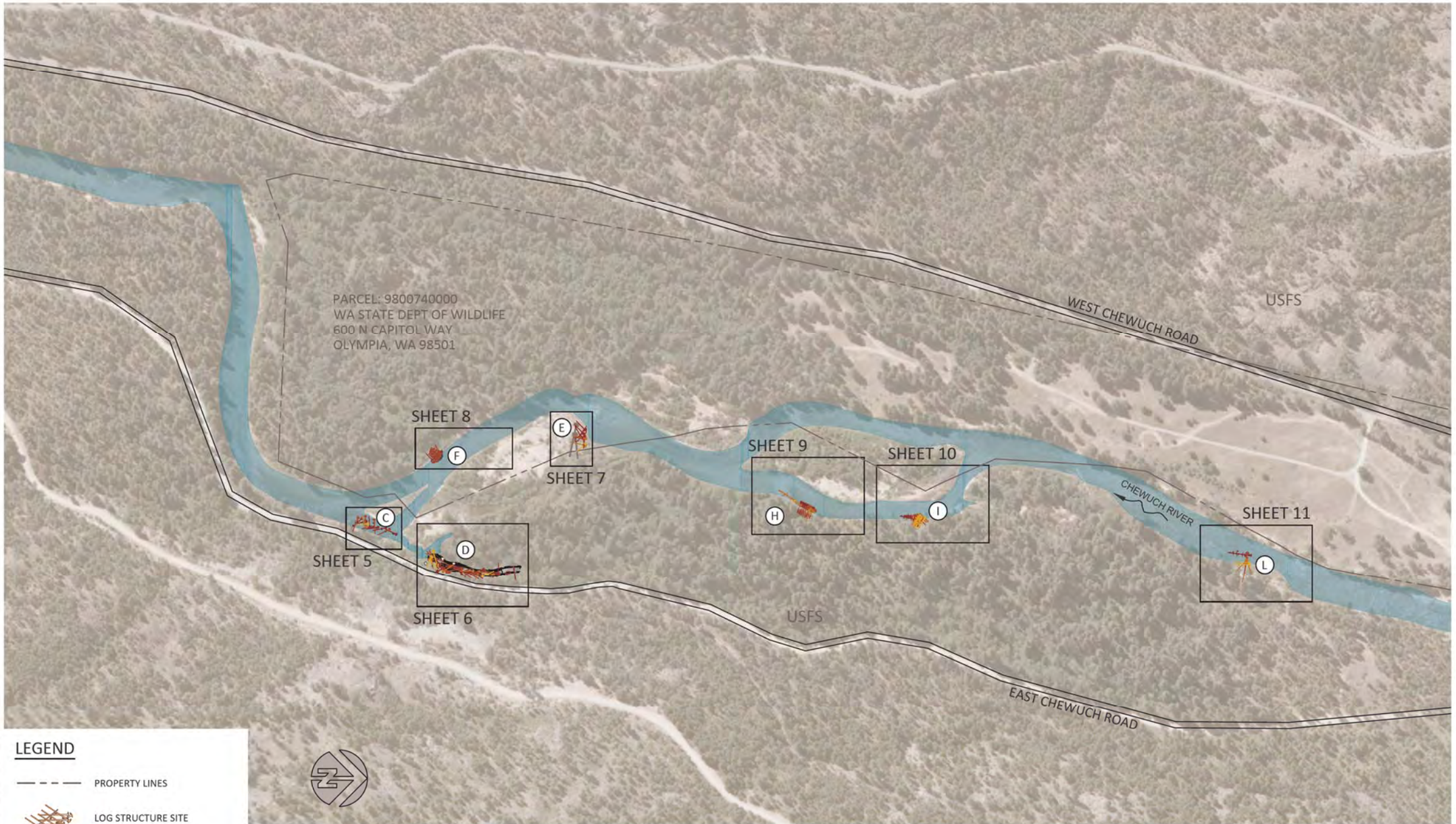
OVERVIEW - SITE LOCATIONS

SHEET 2 OF 14



LEGEND

- PROPERTY LINES
- LOG STRUCTURE SITE
- (A) SITE NAME

0 300 600

SCALE IN FEET

SITE PLAN

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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PROJECT SITES A-L

SHEET 3 OF 14

LEGEND

- PROPERTY LINES
- LOG STRUCTURE SITE
- (A) SITE NAME

SITE PLAN

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
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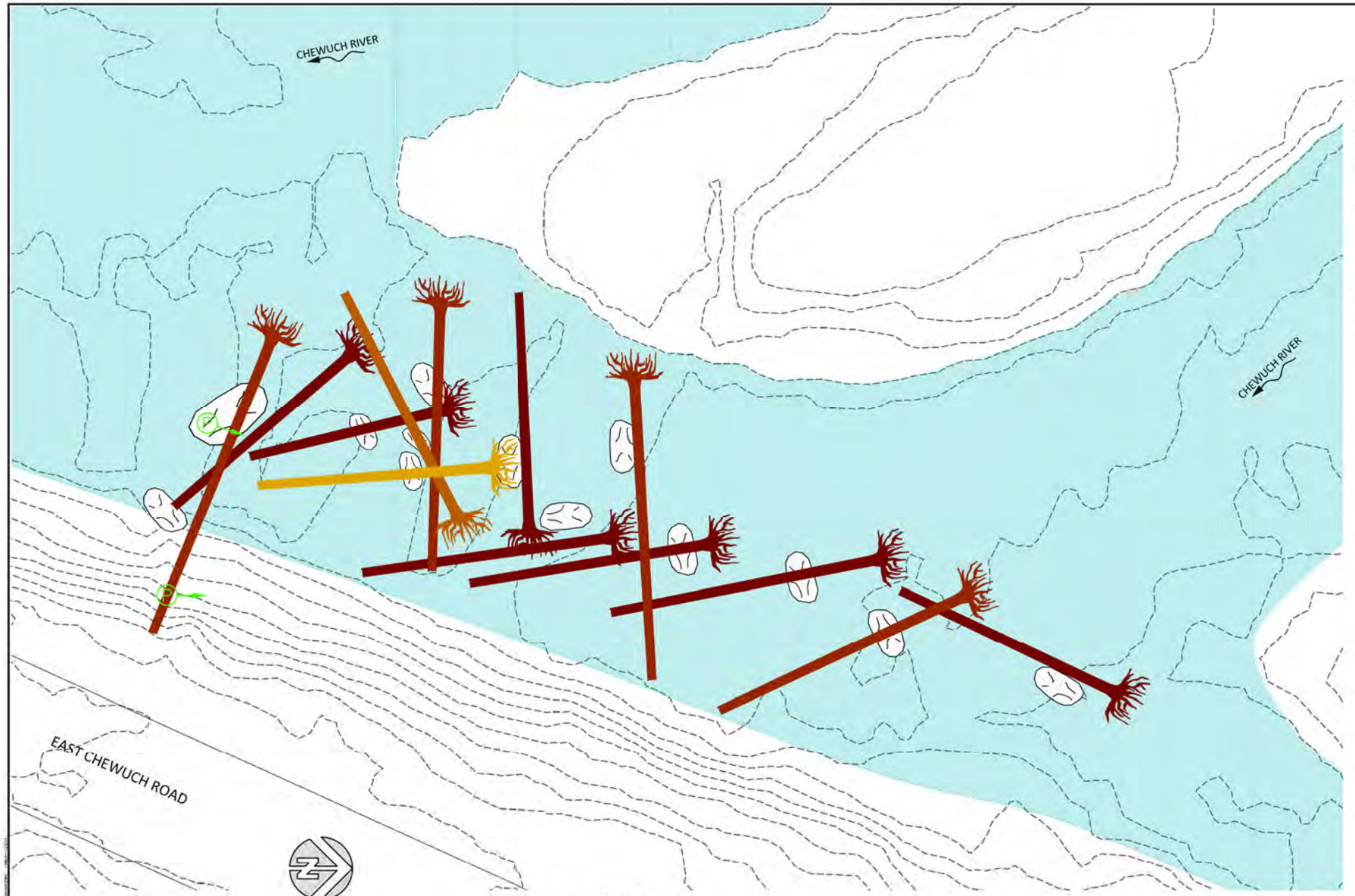
PROJECT SITES N-Q

SHEET 4 OF 14



LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- BALLAST BOULDER

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO BALLAST BOULDERS AND ADJACENT LOGS.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

SITE PLAN C

0 15 30

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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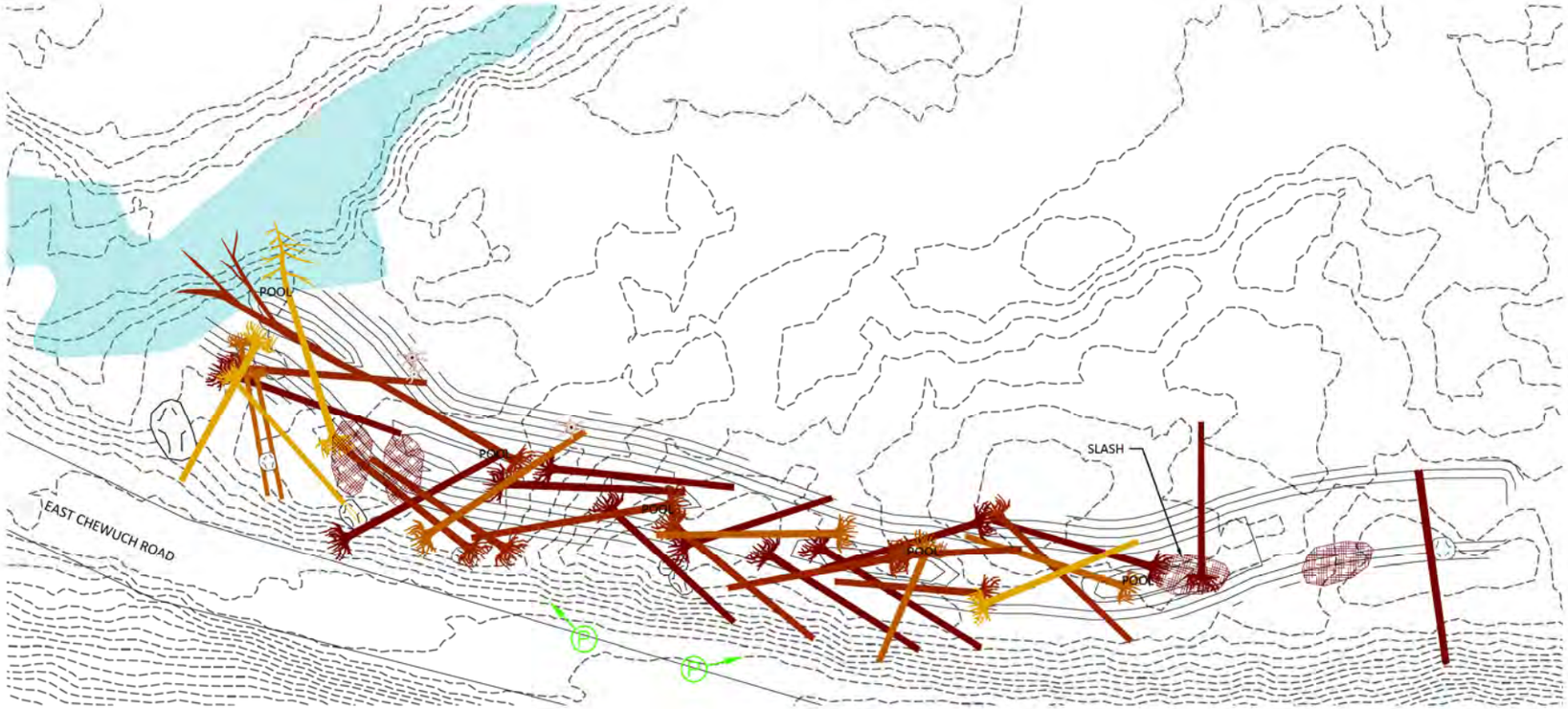
SITE C MONITORING

SHEET 5 OF 14



SITE PLAN D

0 30 60

SCALE IN FEET

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- NEW 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE
- BALLAST BOULDER

AS-BUILT NOTES:

1. MATERIAL EXCAVATED TO CREATE BACKWATER CHANNEL WAS HAULED OFFSITE TO BOULDER CREEK PIT.
2. EACH LOG WAS STABILIZED BY ATTACHMENT TO BALLAST BOULDERS AND TO OTHER LOGS, BRACING AGAINST EXISTING LIVE TREES, AND BY PARTIAL BURIAL IN THE RIVERBANK.
3. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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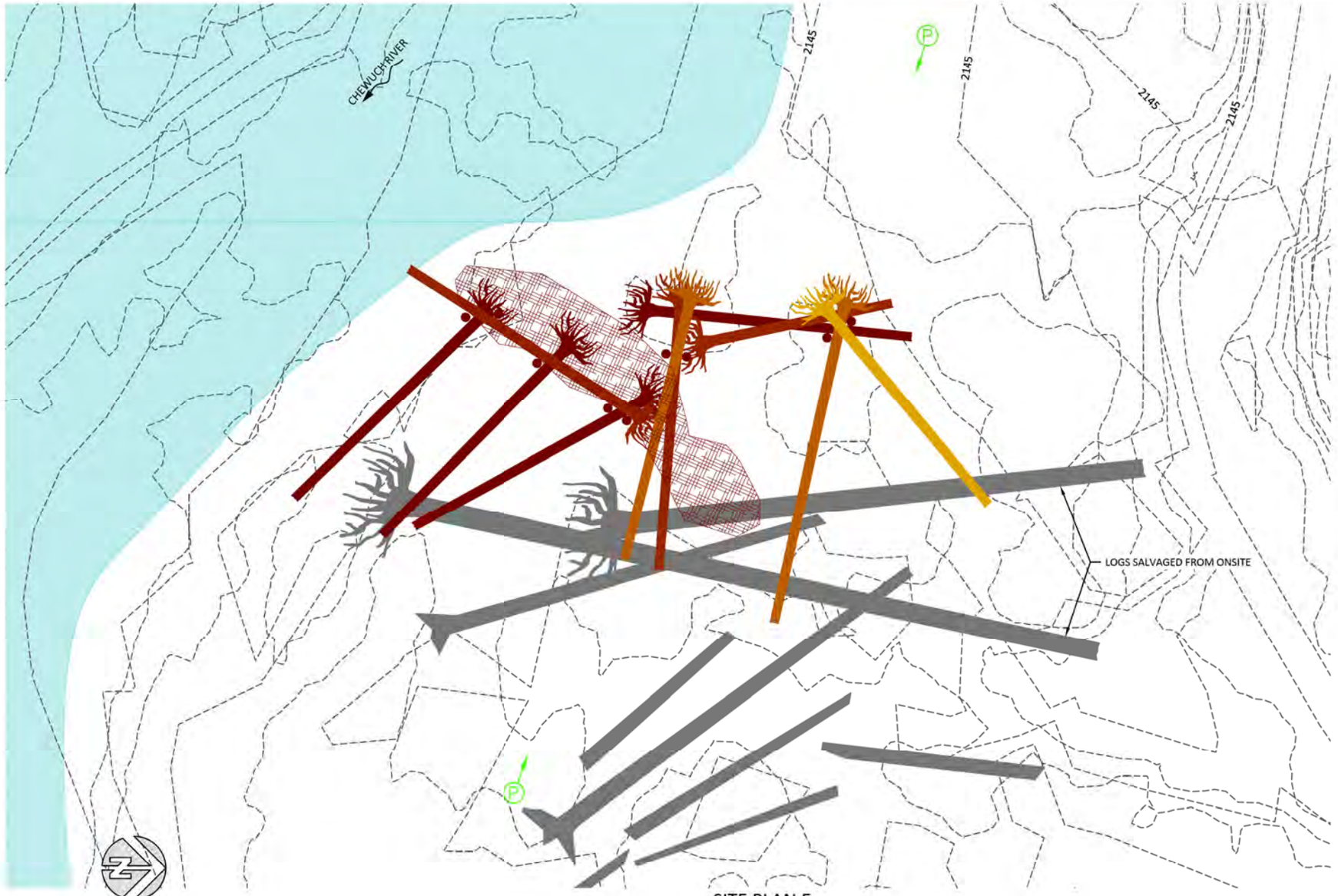
SITE D MONITORING



LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- EXISTING OR SALVAGED LARGE WOOD

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO VIBRATORY DRIVEN VERTICAL SNAG LOGS.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.
3. EXISTING LOGS WITH ROOTWADS WERE SALVAGED FROM ONSITE AND REUSED.

SITE PLAN E

0 15 30

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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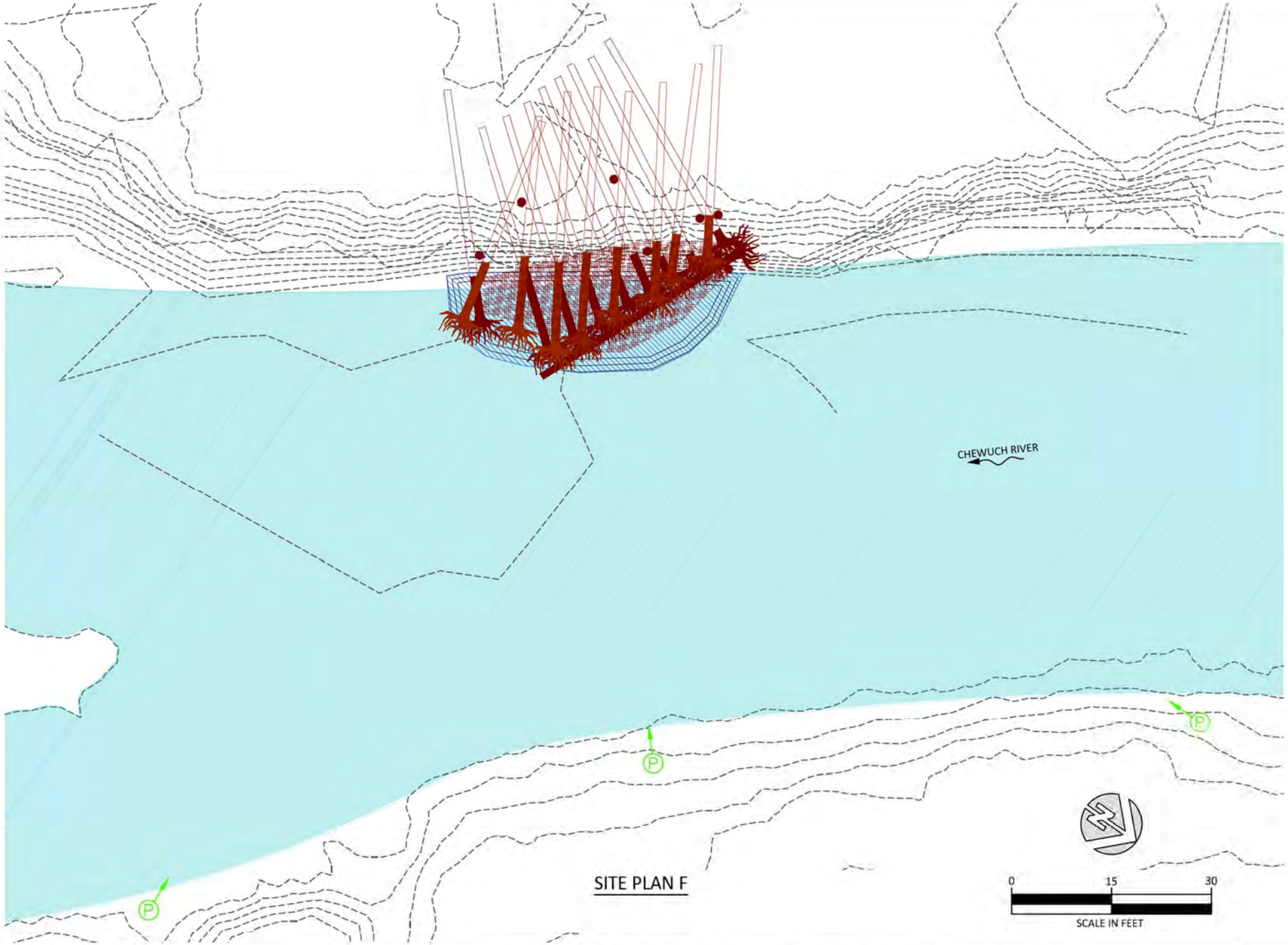
SITE E MONITORING

SHEET 7 OF 14



LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- NEW 1-FT CONTOURS
- APPROXIMATE LOW WATER
- EXCAVATED POOL
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO OTHER LOGS AND BY PARTIAL BURIAL IN THE RIVERBANK.
2. DURING CONSTRUCTION THE RIVER BOTTOM WAS EXCAVATED SO THAT LOGS COULD BE PLACED BELOW WATER DURING LOW FLOW. THIS AREA IS SHOWN AS A POOL ON THIS FIGURE.
3. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

SITE PLAN F

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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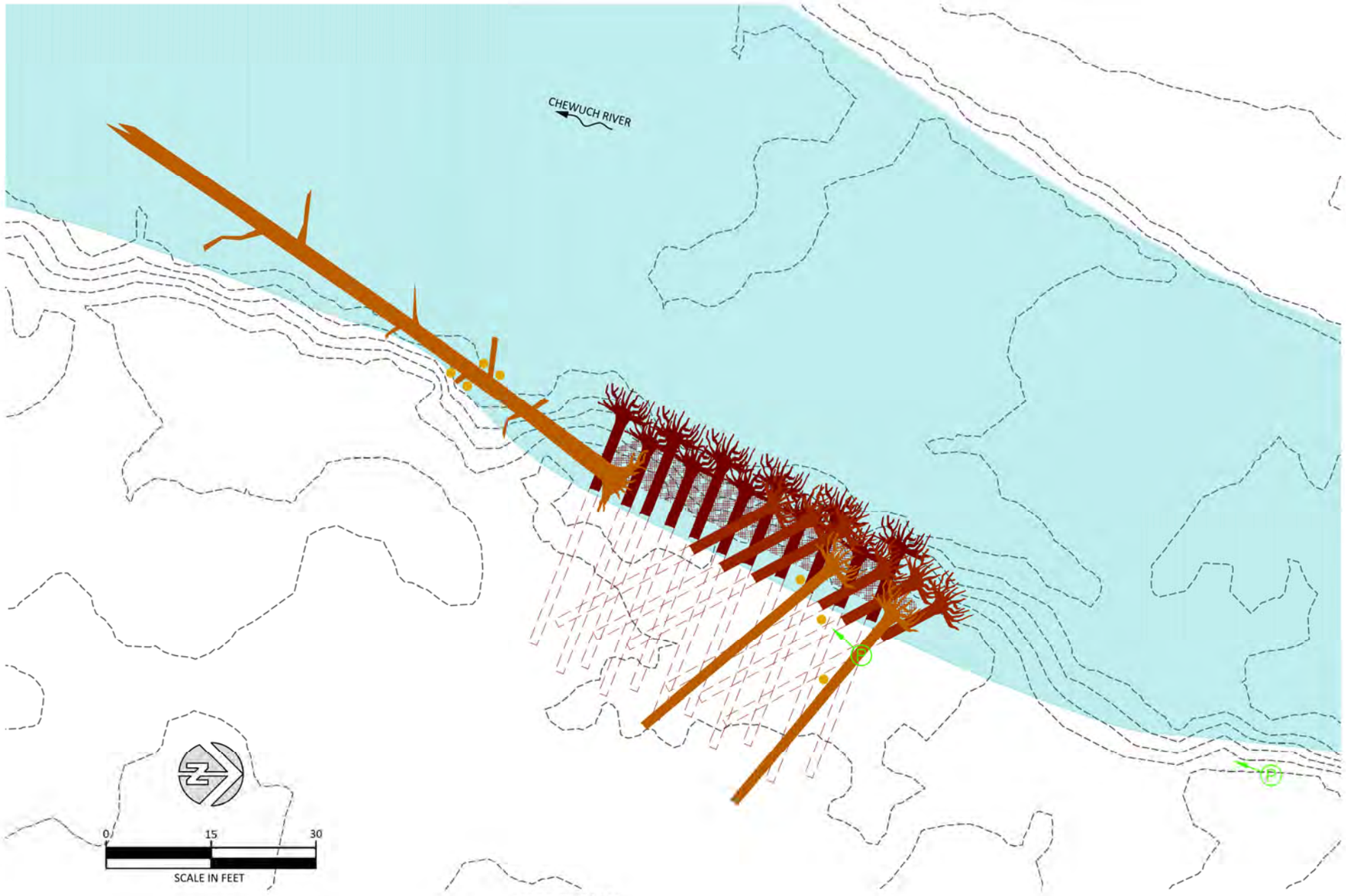
SITE F MONITORING

SHEET 8 OF 14



SITE PLAN H

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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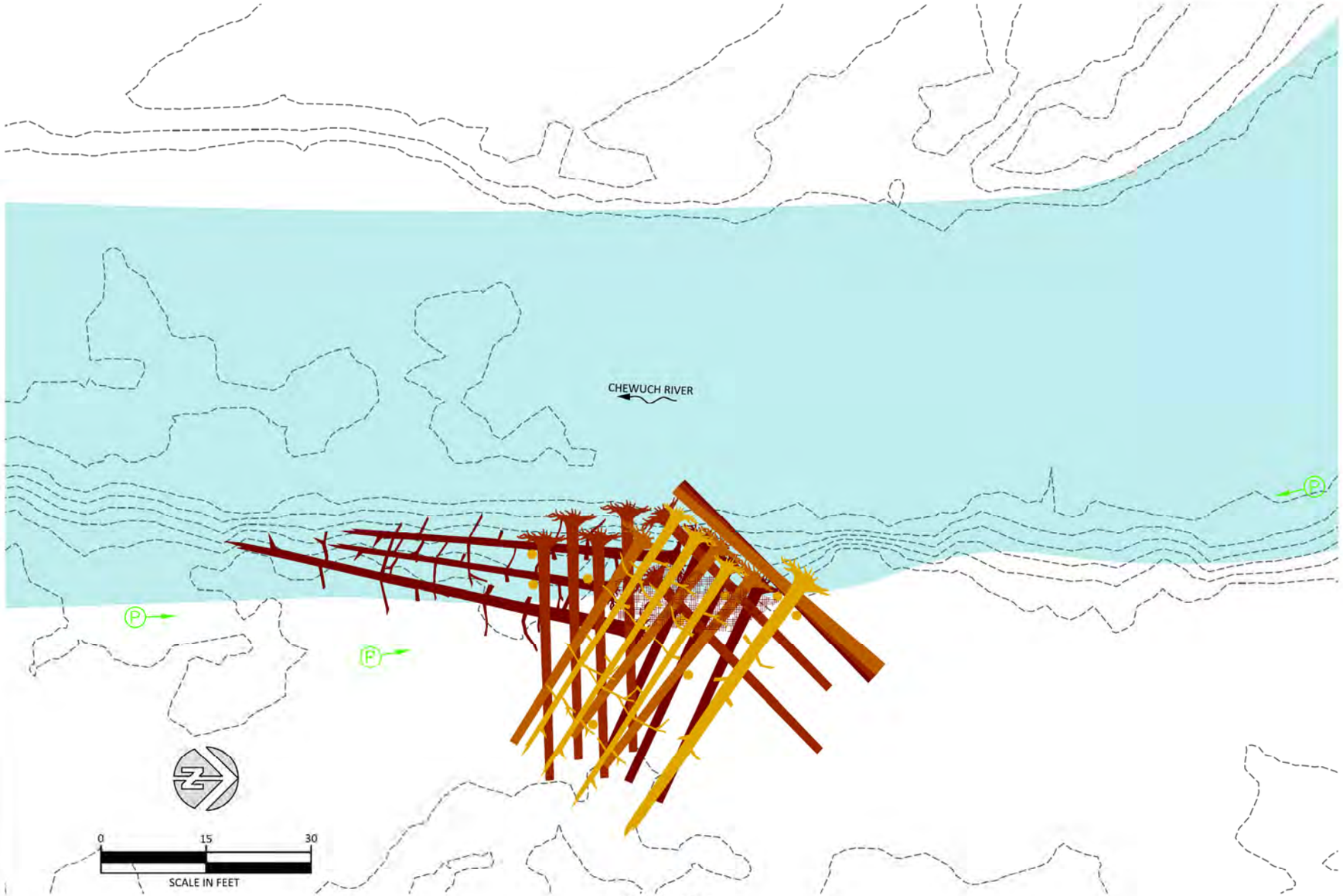
SITE H MONITORING



SITE PLAN I

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO VIBRATORY DRIVEN VERTICAL SNAG LOGS AND OTHER HORIZONTAL LOGS.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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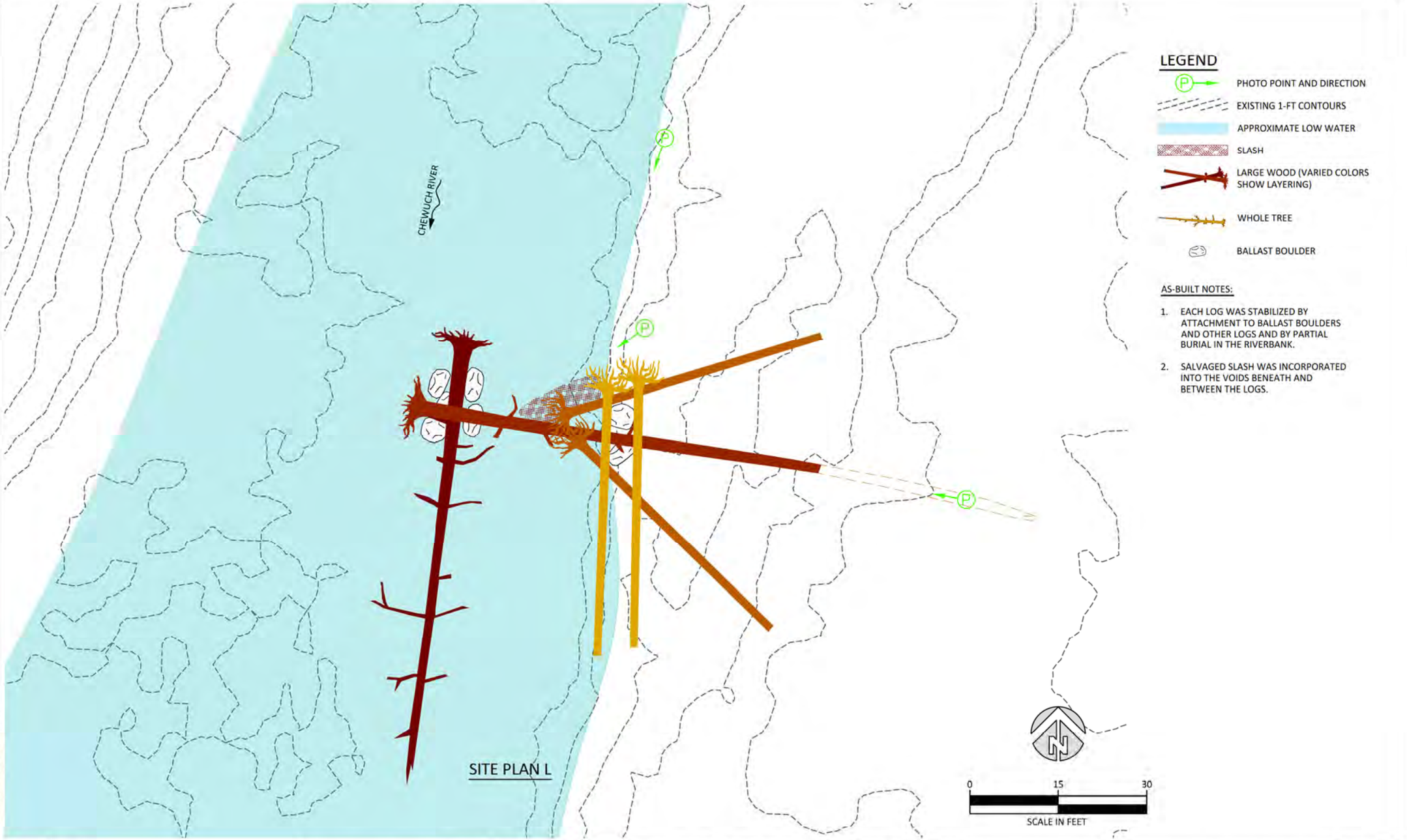
SITE I MONITORING

SHEET
10 OF 14



NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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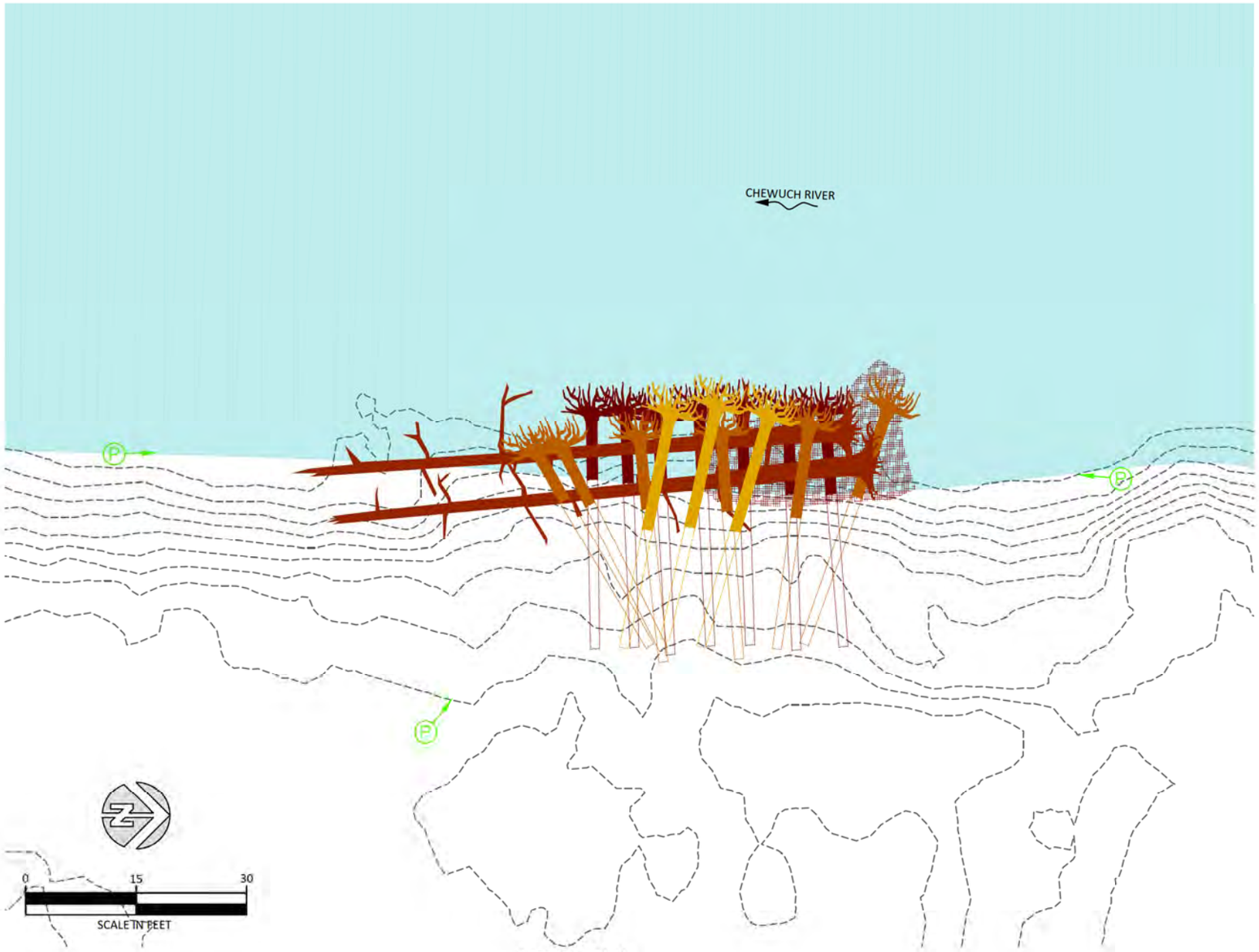
SITE L MONITORING

SHEET
11 OF 14



SITE PLAN N

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- WHOLE TREE

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO OTHER LOGS AND BY PARTIAL BURIAL IN THE RIVERBANK.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

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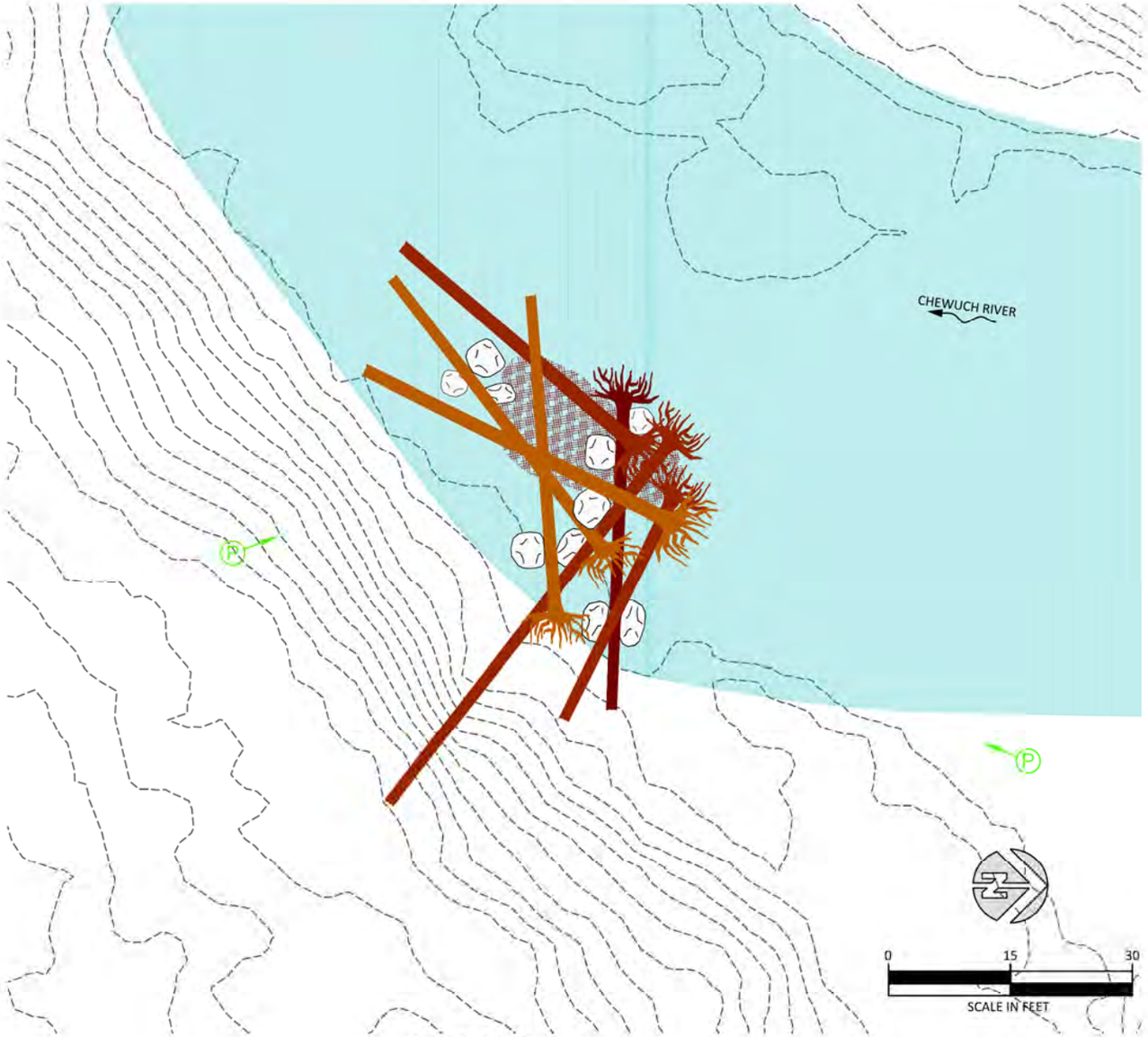
SITE N MONITORING



SITE PLAN O

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)
- BALLAST BOULDER

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO BALLAST BOULDERS AND OTHER LOGS.
2. BEFORE PLACEMENT OF LOGS AND BALLAST BOULDERS, EXISTING SMALL BOULDERS WERE REMOVED FROM RIVERBED TO DEEPEN EXISTING POOL AND HAULED TO THE LEROY PIT.
3. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

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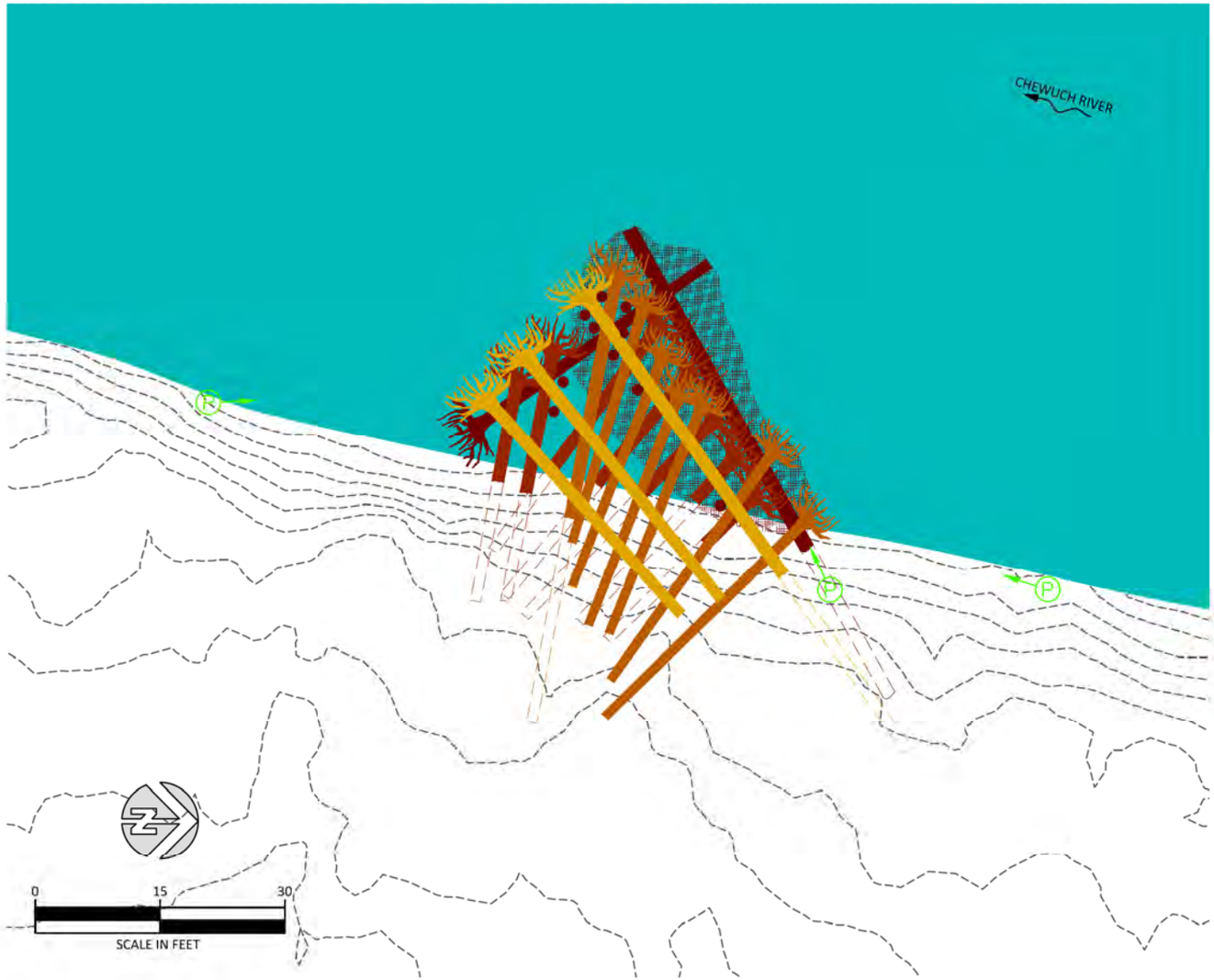
SITE O MONITORING



SITE PLAN Q

LEGEND

- PHOTO POINT AND DIRECTION
- EXISTING 1-FT CONTOURS
- APPROXIMATE LOW WATER
- SLASH
- LARGE WOOD (VARIED COLORS SHOW LAYERING)

AS-BUILT NOTES:

1. EACH LOG WAS STABILIZED BY ATTACHMENT TO VIBRATORY DRIVEN VERTICAL SNAG LOGS AND OTHER HORIZONTAL LOGS, AND BY PARTIAL BURIAL IN THE RIVERBANK.
2. SALVAGED SLASH WAS INCORPORATED INTO THE VOIDS BENEATH AND BETWEEN THE LOGS.

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM	MB,MM
DRAWN	DESIGNED	CHECKED
MM	11/9/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Chewuch RM 13-15.5
As-Built Drawings

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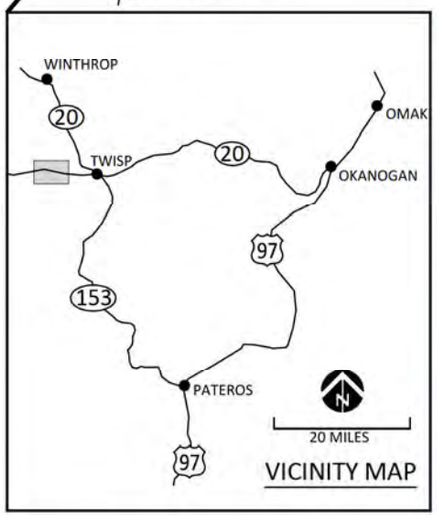
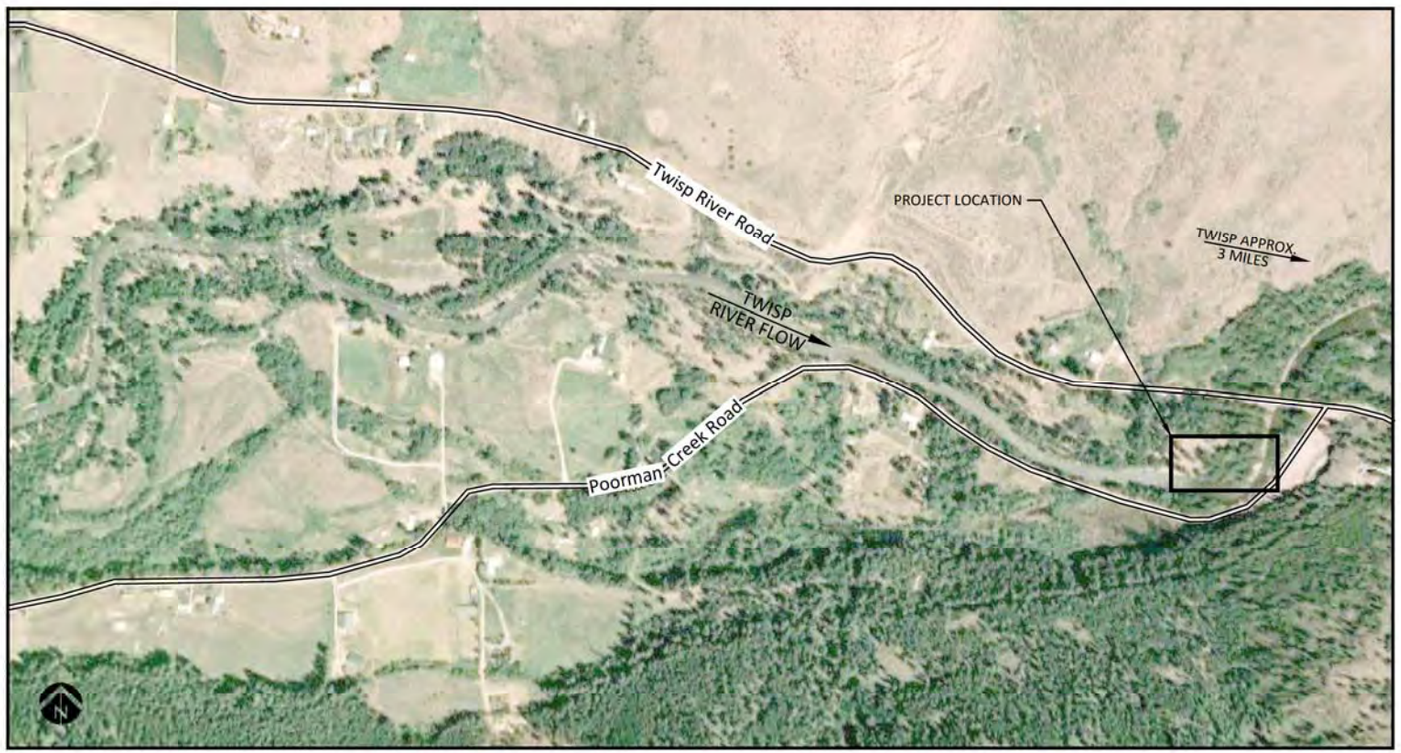
SITE Q MONITORING

SHEET
14 OF 14

POORMAN CREEK ROAD
TWISP RIVER SALMON ENHANCEMENT PROJECT

OKANOGAN COUNTY, WASHINGTON
DECEMBER 31, 2014





SITE MAP

SITE LOCATION:

UPSTREAM SITE
LATITUDE: 48°22'09" NORTH
LONGITUDE: 120°08'57" WEST
DOWNSTREAM SITE
LATITUDE: 48°22'08" NORTH
LONGITUDE: 120°09'01" WEST

WATERBODY: TWISP RIVER
TRIBUTARY OF: COLUMBIA RIVER

NEAR THE CITY OF TWISP,
OKANOGAN COUNTY, WA

SHEET INDEX

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED
APPROVED | DATE | PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKIMA NATION
POORMAN CREEK ROAD
SALMON HABITAT PROJECT

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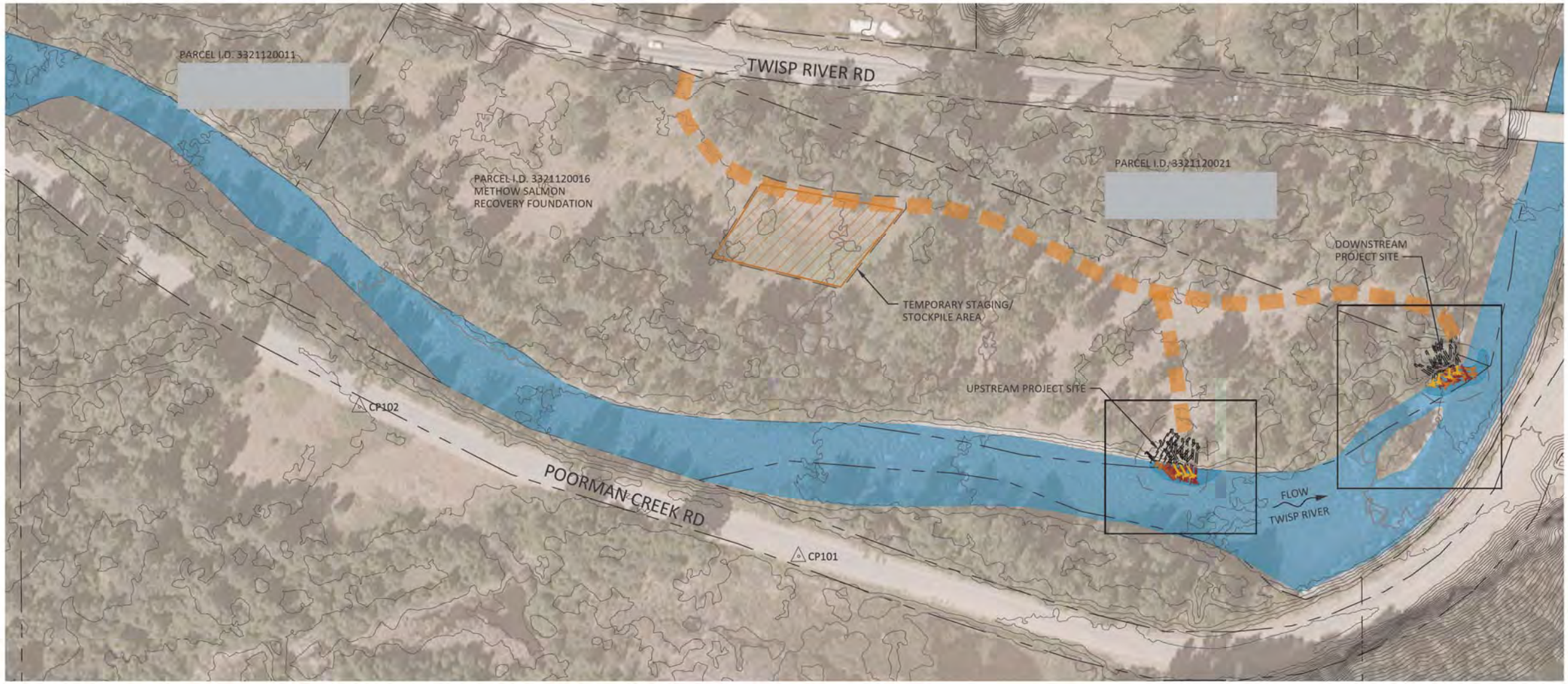
MONITORING
LOCATION MAP

SHEET
1 OF 4



SITE MAP

LEGEND

- BM/CP100 — PROJECT REACH TOPOGRAPHIC SURVEY CONTROL
- COUNTY GIS BASED PROPERTY LINES
- TEMPORARY ACCESS
- LIMITS OF DISTURBANCE
- STAGING / STOCKPILE AREA

N

0 100 200

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED

APPROVED | DATE | PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKIMA NATION
POORMAN CREEK ROAD
SALMON HABITAT PROJECT

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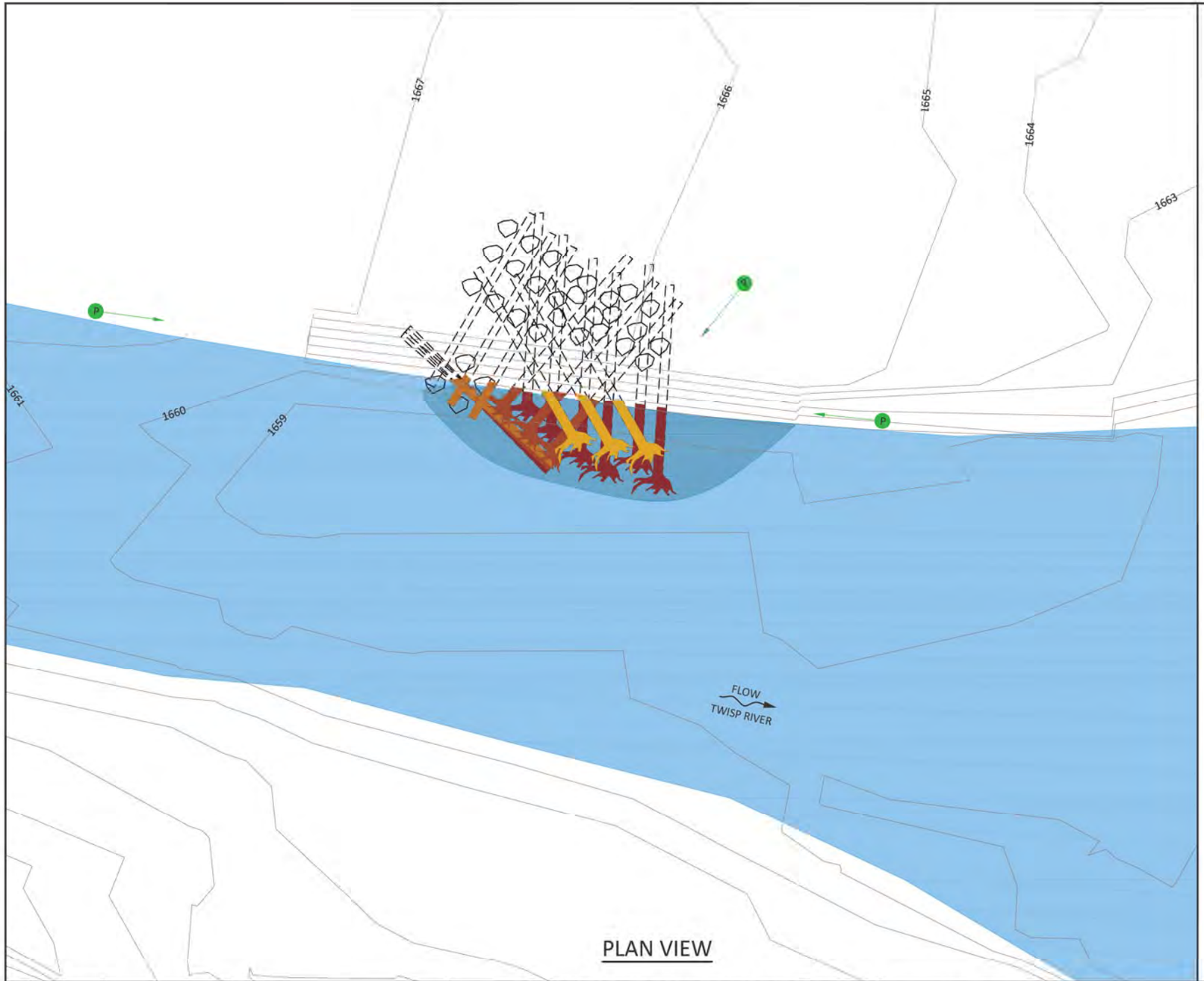
SITE PLAN SHOWING ACCESS &
PROJECT SITES

SHEET 2 OF 4

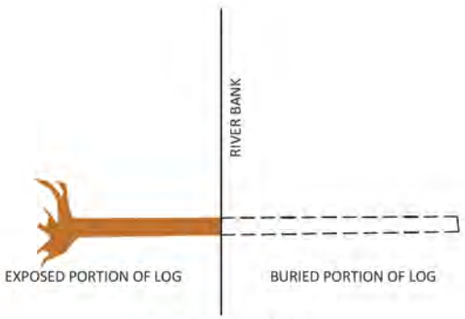


PLAN VIEW

LEGEND

CONTOURS (1FT INTERVAL)

PHOTO POINT AND DIRECTION



TYPICAL LOG

UPSTREAM LOG STRUCTURE

15 LOGS WITH ROOT WADS
3 LOGS

DOES NOT SHOW SLASH COVERING FOR CLARITY

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED
APPROVED | DATE | PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKIMA NATION
POORMAN CREEK ROAD
SALMON HABITAT PROJECT

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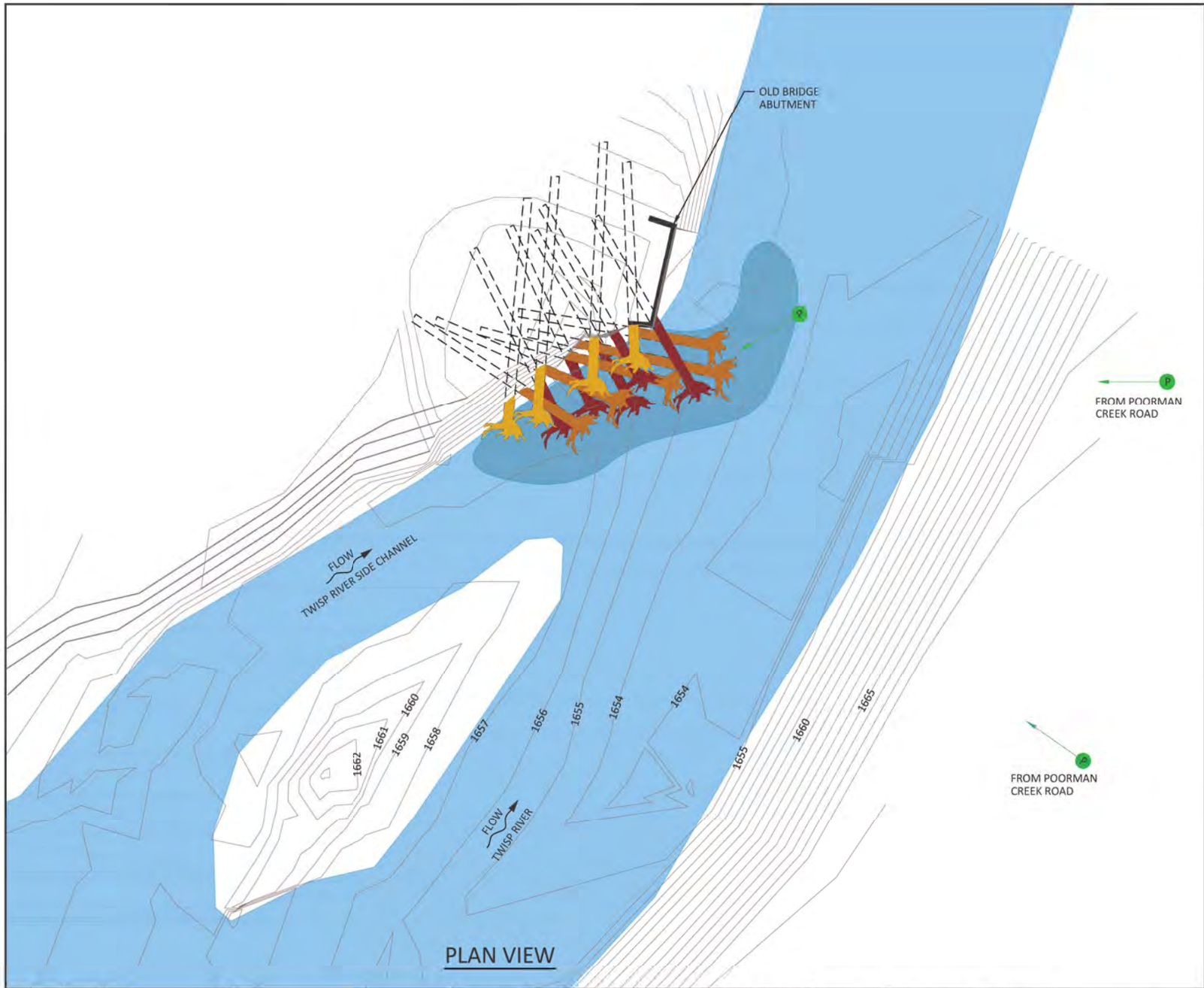
SITE MONITORING
UPSTREAM PROJECT SITE

SHEET
3 OF 4

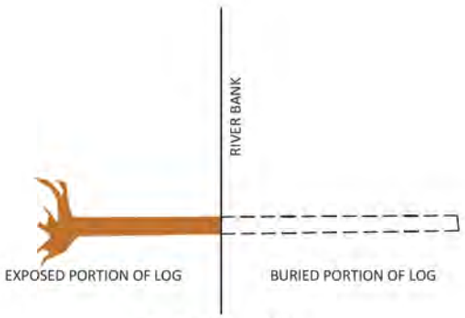


PLAN VIEW

LEGEND

CONTOURS (1FT INTERVAL)

PHOTO POINT AND DIRECTION



TYPICAL LOG

DOWNSTREAM LOG STRUCTURE

14 LOGS WITH ROOT WADS

DOES NOT SHOW SLASH COVERING FOR CLARITY

N

0 20 40

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED

APPROVED | DATE | PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKIMA NATION
POORMAN CREEK ROAD
SALMON HABITAT PROJECT

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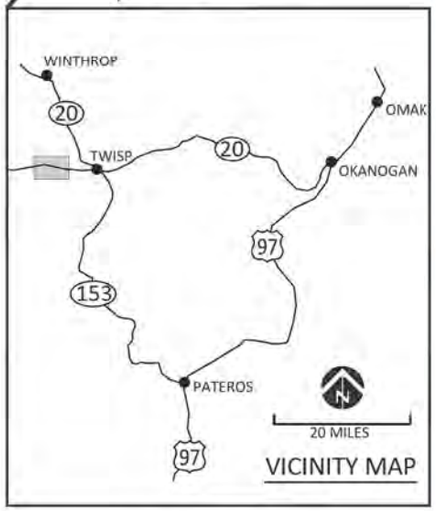
SITE MONITORING
DOWNSTREAM PROJECT SITE

SHEET 4 OF 4

TWISP RIVER MILE 3
FISH ENHANCEMENT PROJECT

OKANOGAN COUNTY, WASHINGTON
DECEMBER 31, 2014



SITE MAP

SITE LOCATION:

LATITUDE: 48°22'13" NORTH
LONGITUDE: 120°10'12" WEST
NEAR THE CITY OF TWISP,
OKANOGAN COUNTY, WA

WATERBODY: TWISP RIVER
TRIBUTARY OF: COLUMBIA RIVER

SHEET INDEX

C:\Users\cphillips\Drawings\Twisp RM3\IFL_TWISP_RM3_MONITORING.dwg

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED
APPROVED | DATE | PROJECT

Confederated Tribes and Bands of Yakima Nation
Twisp River Mile 3
Fish Enhancement Project

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Hood River, OR 97031
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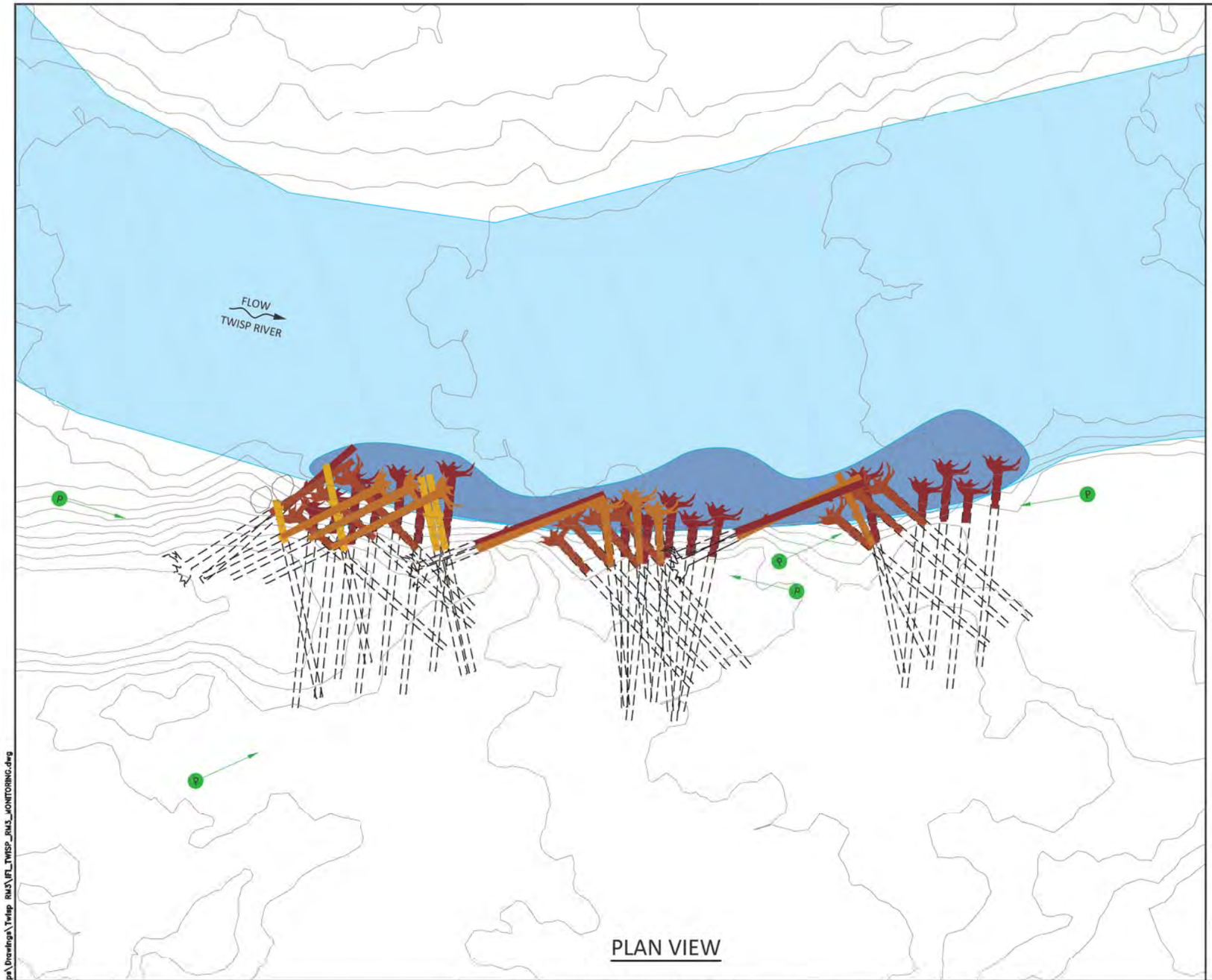
MONITORING
LOCATION MAP

SHEET 1 OF 2

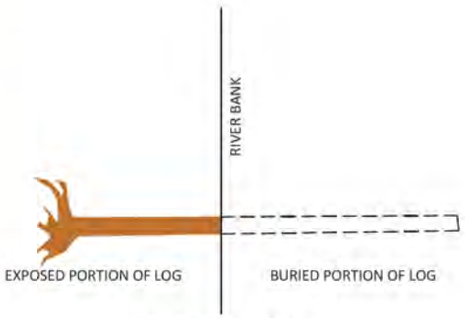


PLAN VIEW

LEGEND

CONTOURS (1FT INTERVAL)

PHOTO POINT AND DIRECTION



TYPICAL LOG

LOG STRUCTURES

34 LOGS WITH ROOT WADS
10 LOGS

DOES NOT SHOW SLASH COVERING FOR CLARITY

0 20 40

SCALE IN FEET

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NO.	BY	DATE	REVISION DESCRIPTION

DRAWN | DESIGNED 12/31/14 | CHECKED
APPROVED | DATE | PROJECT

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Twisp River Mile 3
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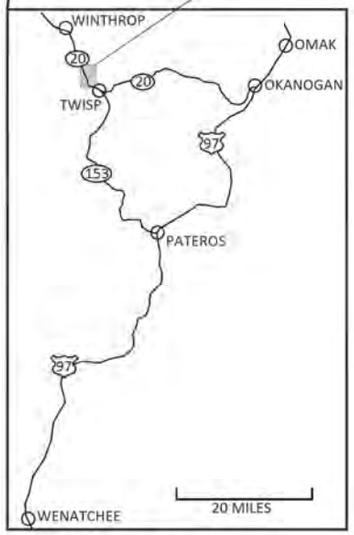
TWISP RIVER MILE 3
SITE MONITORING

SHEET
2 OF 2

M2 - 1890's Side Channel As-Built Survey

Okanogan County, Washington
January 14, 2015



VICINITY MAP

LOCATION MAP

CONFEDERATED TRIBES AND BANDS
YAKAMA NATION
TREATY OF 1855

SHEET INDEX

SITE LOCATION:

LATITUDE: 48°22'25" NORTH
LONGITUDE: 120°07'15" WEST
OKANOGAN COUNTY, WASHINGTON

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
MM,SJ,RP,NB	MB,MM	MB
APPROVED	DATE	PROJECT
	8/19/15	

Confederated Tribes and Bands of the Yakama Nation
M2 1890's Side Channel As-Built Survey

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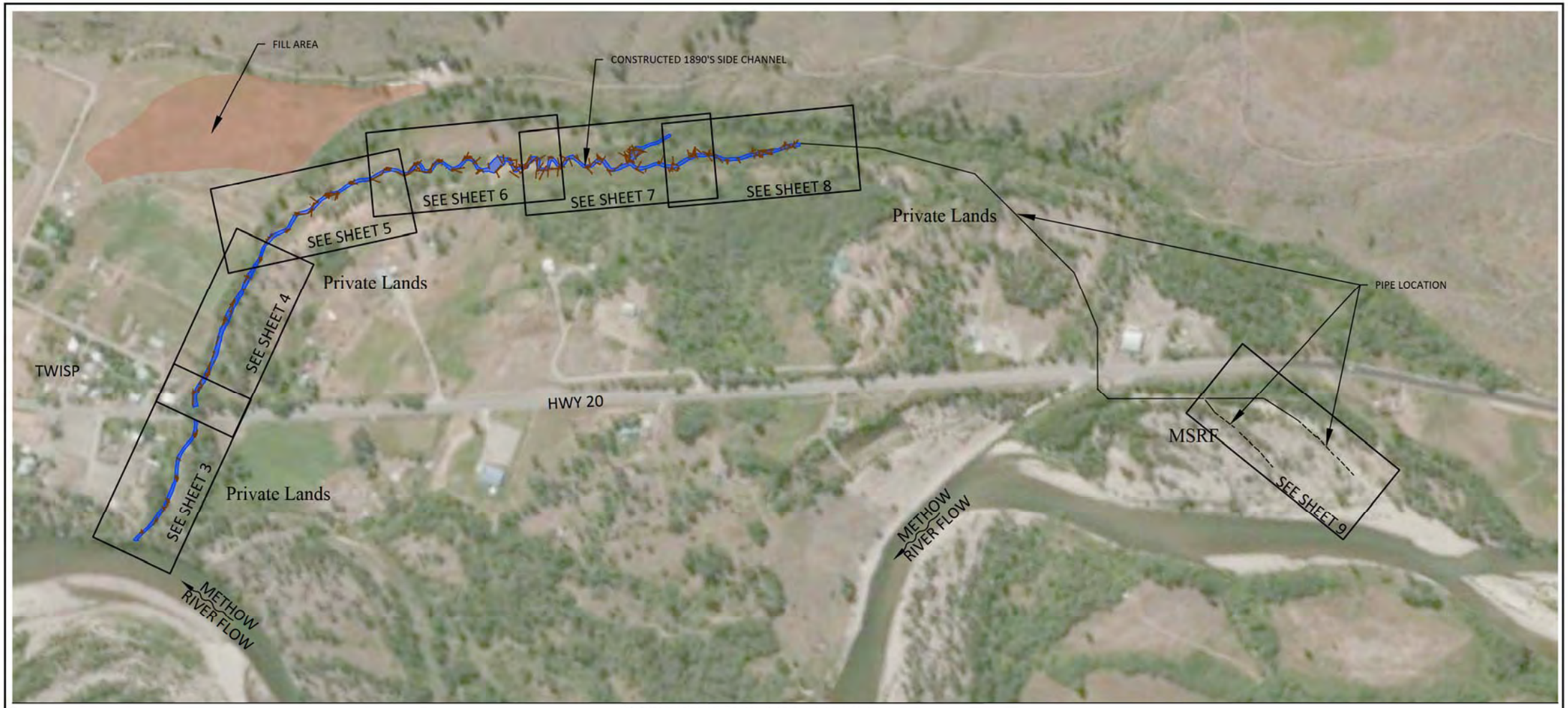
Cover and Sheet Index

SHEET 1 OF 9



SITE MAP - 1890'S AS-BUILT

LEGEND

- CONSTRUCTED SIDE CHANNEL
- LARGE WOOD PLACEMENT
- LARGE WOOD PLACEMENT - PILE
- PIPE
- GALLERY PIPE

0 400 800

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

MM,SJ,RP,NB	MB,MM	MB
DRAWN	DESIGNED	CHECKED
	8/19/15	
APPROVED	DATE	PROJECT

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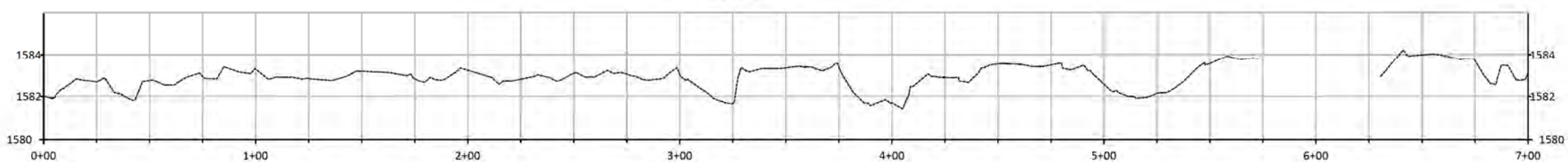
Site Map
1890's As-Built

SHEET 2 OF 9

PLAN VIEW - 1890'S AS-BUILT

PROFILE



NO.	BY	DATE	REVISION DESCRIPTION

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	8/19/15	
APPROVED	DATE	PROJECT

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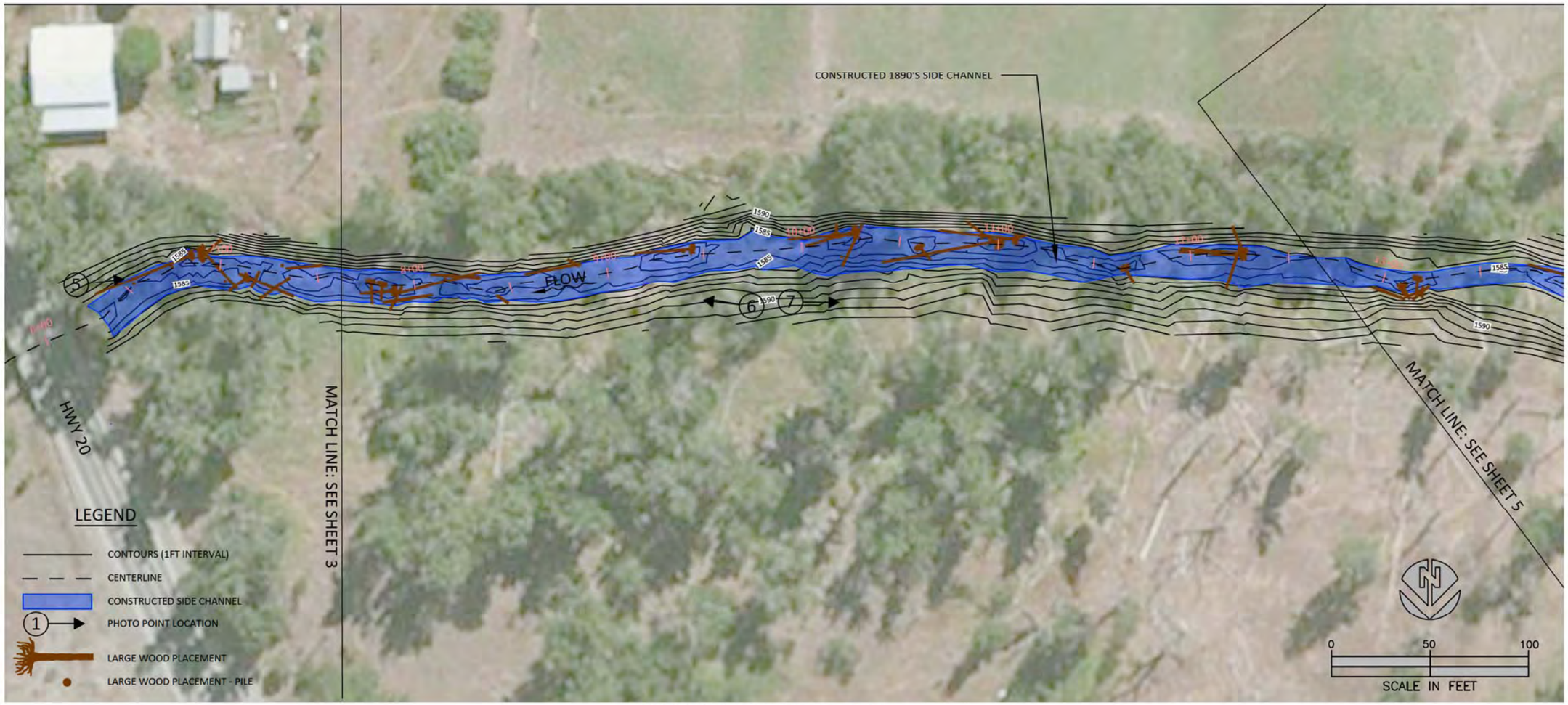
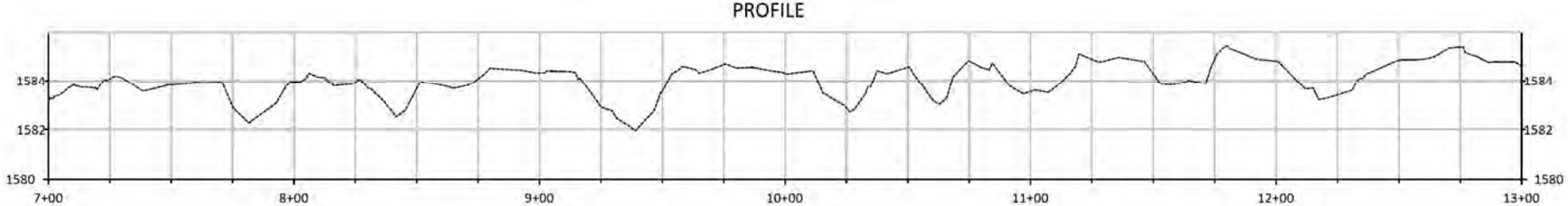
Plan View
1890's As-Built

SHEET 3 OF 9



PLAN VIEW - 1890'S AS-BUILT

PROFILE



NO.	BY	DATE	REVISION DESCRIPTION

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	8/19/15	
APPROVED	DATE	PROJECT

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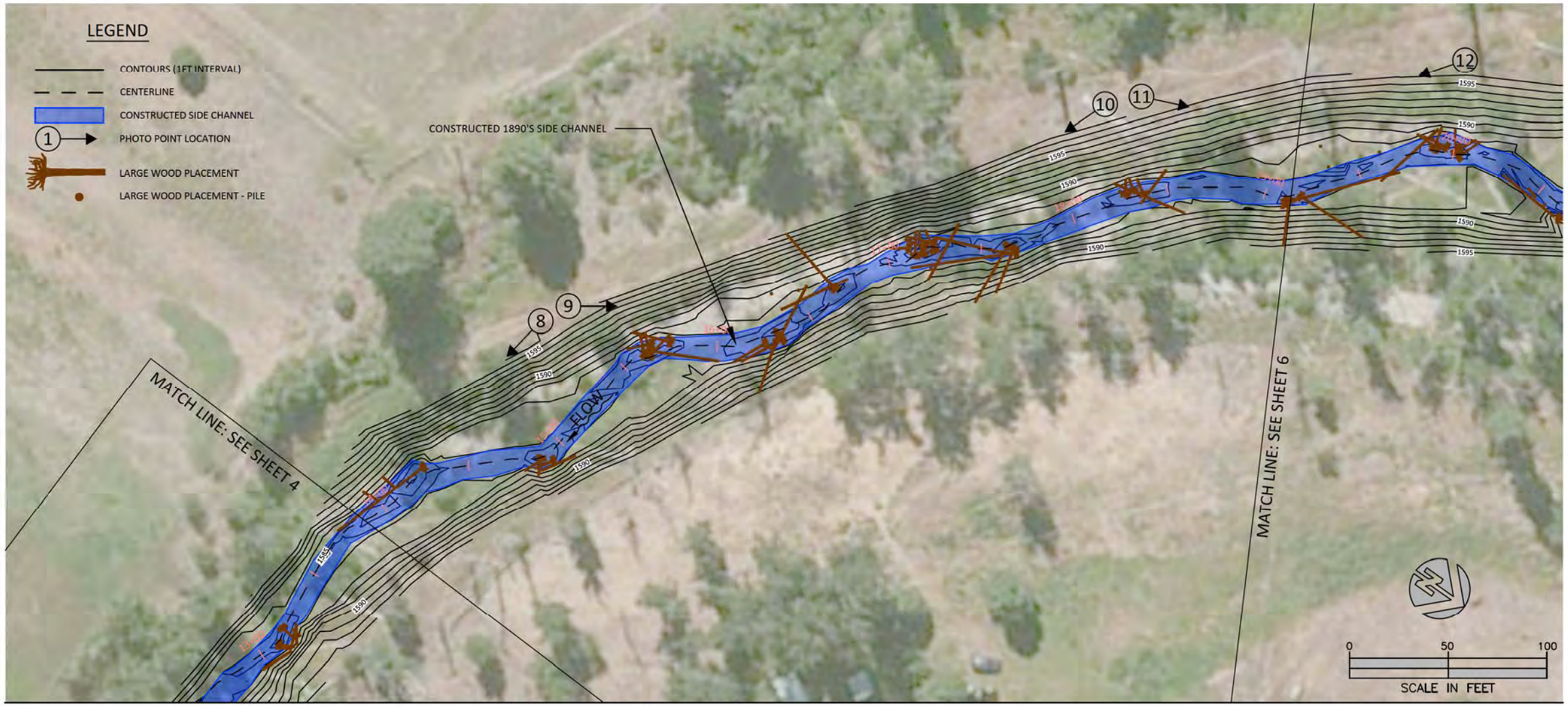
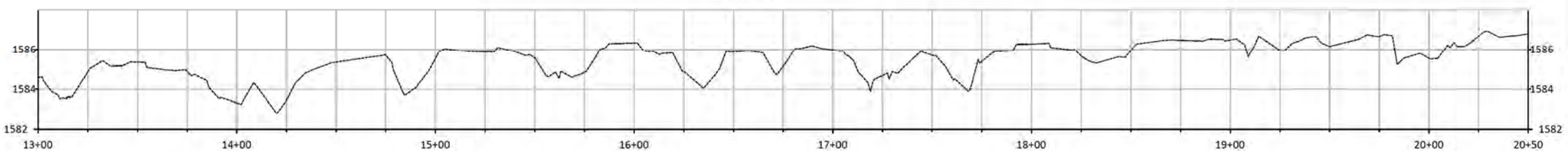
Plan View
1890's As-Built

SHEET
4 OF 9



PLAN VIEW - 1890'S AS-BUILT

PROFILE



NO.	BY	DATE	REVISION DESCRIPTION

MM,SJ,RP,NB	MB,MM	MB
DRAWN	DESIGNED	CHECKED
	8/19/15	
APPROVED	DATE	PROJECT

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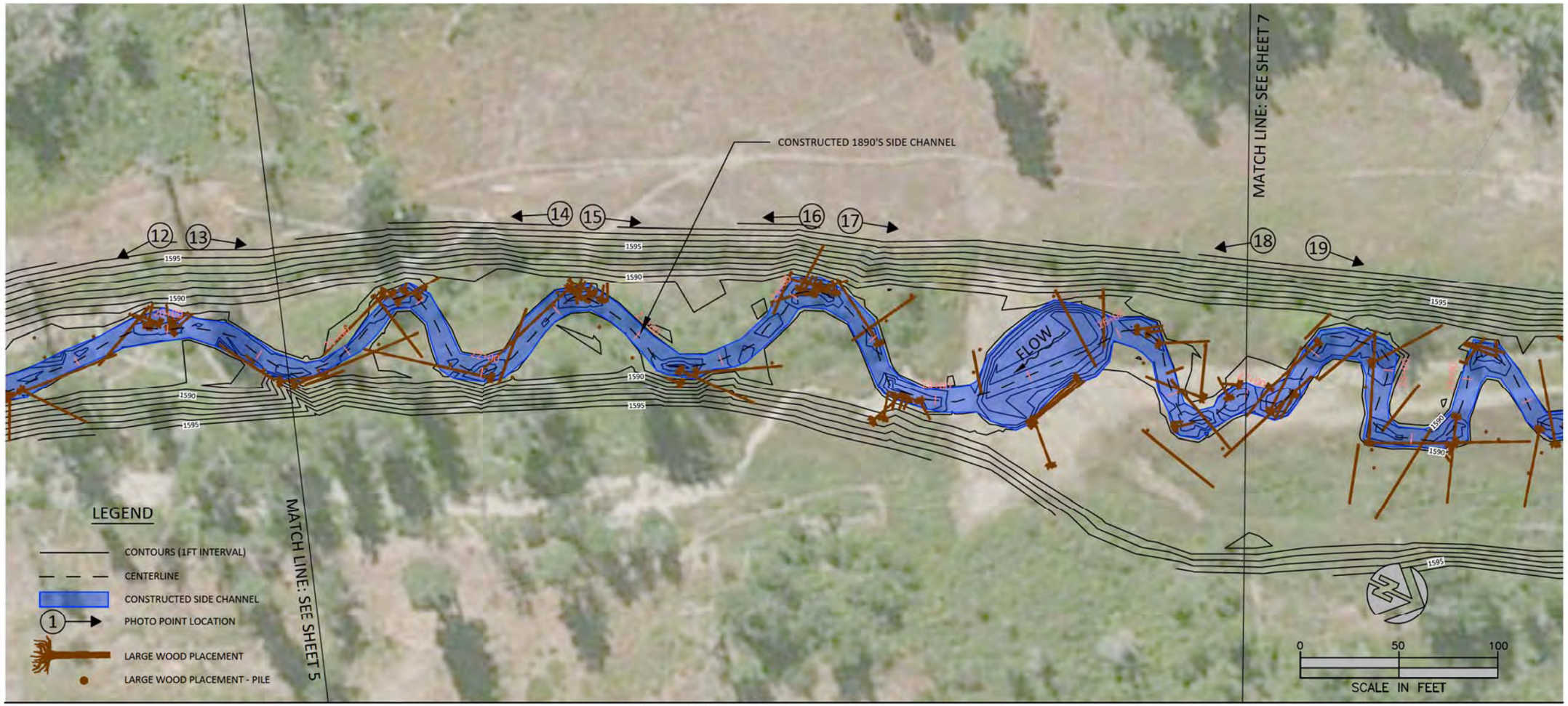
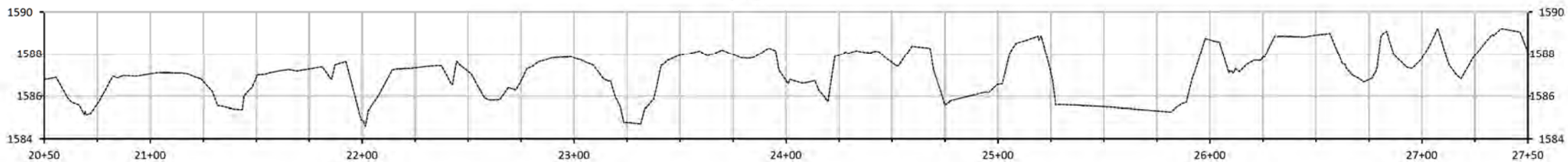
Plan View
1890's As-Built

SHEET
5 OF 9



PLAN VIEW - 1890'S AS-BUILT

PROFILE



NO.	BY	DATE	REVISION DESCRIPTION

MM,SJ,RP,NB	MB,MM	MB
DRAWN	DESIGNED	CHECKED
	8/19/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
M2 1890's Side Channel As-Built Survey

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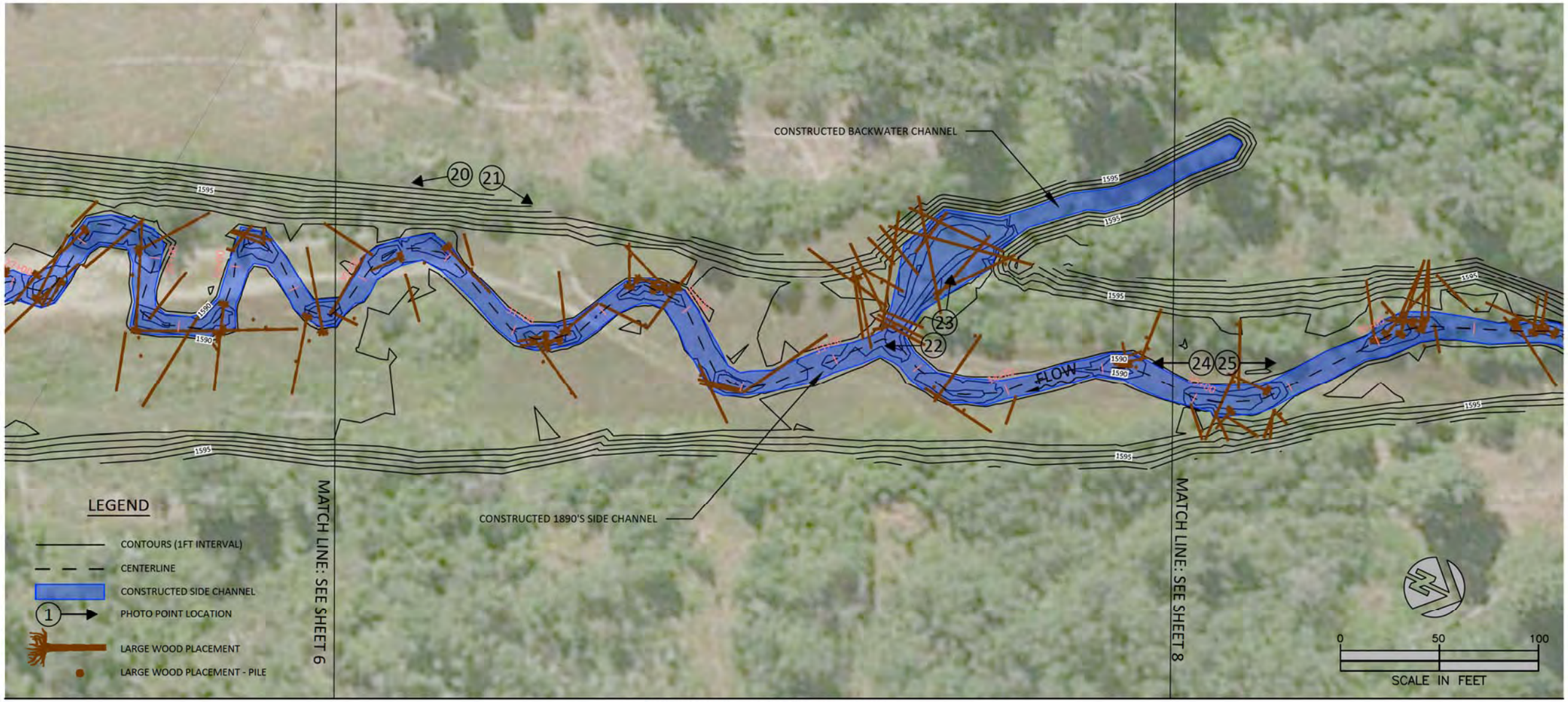
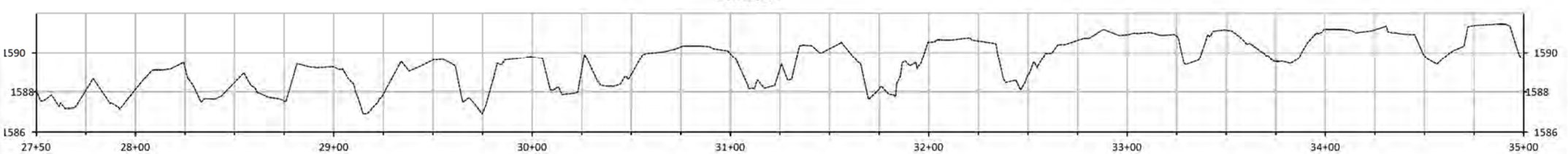
Plan View
1890's As-Built

SHEET
6 OF 9



PLAN VIEW - 1890'S AS-BUILT

PROFILE



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DRAWN	DESIGNED	CHECKED
	8/19/15	
APPROVED	DATE	PROJECT

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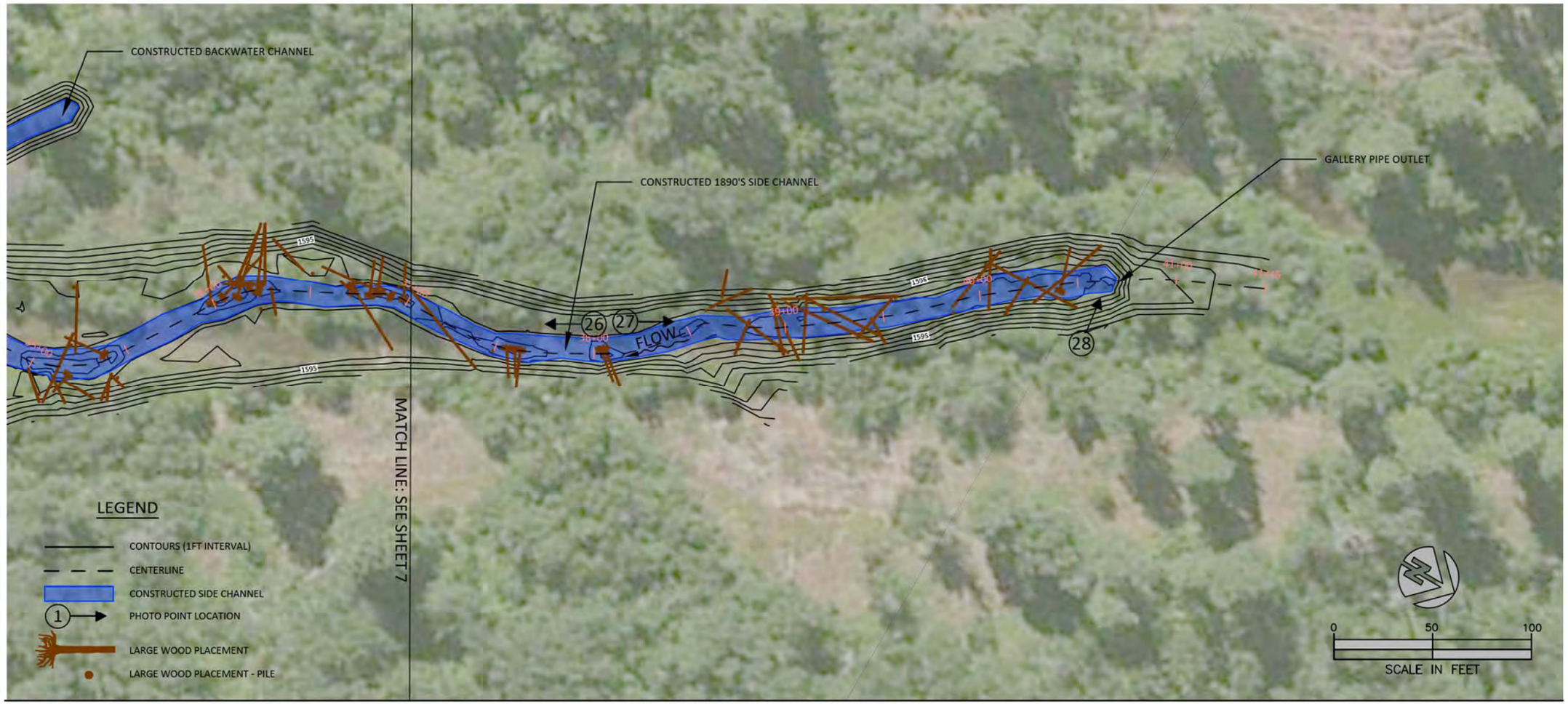
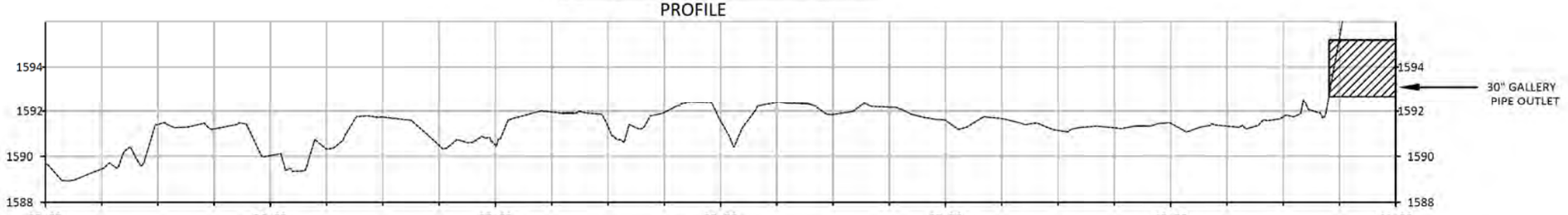
Plan View
1890's As-Built

SHEET
7 OF 9



PLAN VIEW - 1890'S AS-BUILT

PROFILE



NO.	BY	DATE	REVISION DESCRIPTION

MM,SJ,RP,NB (DRAWN)	MB,MM (DESIGNED)	MB (CHECKED)
(APPROVED)	8/19/15 (DATE)	(PROJECT)

Confederated Tribes and Bands of the Yakama Nation
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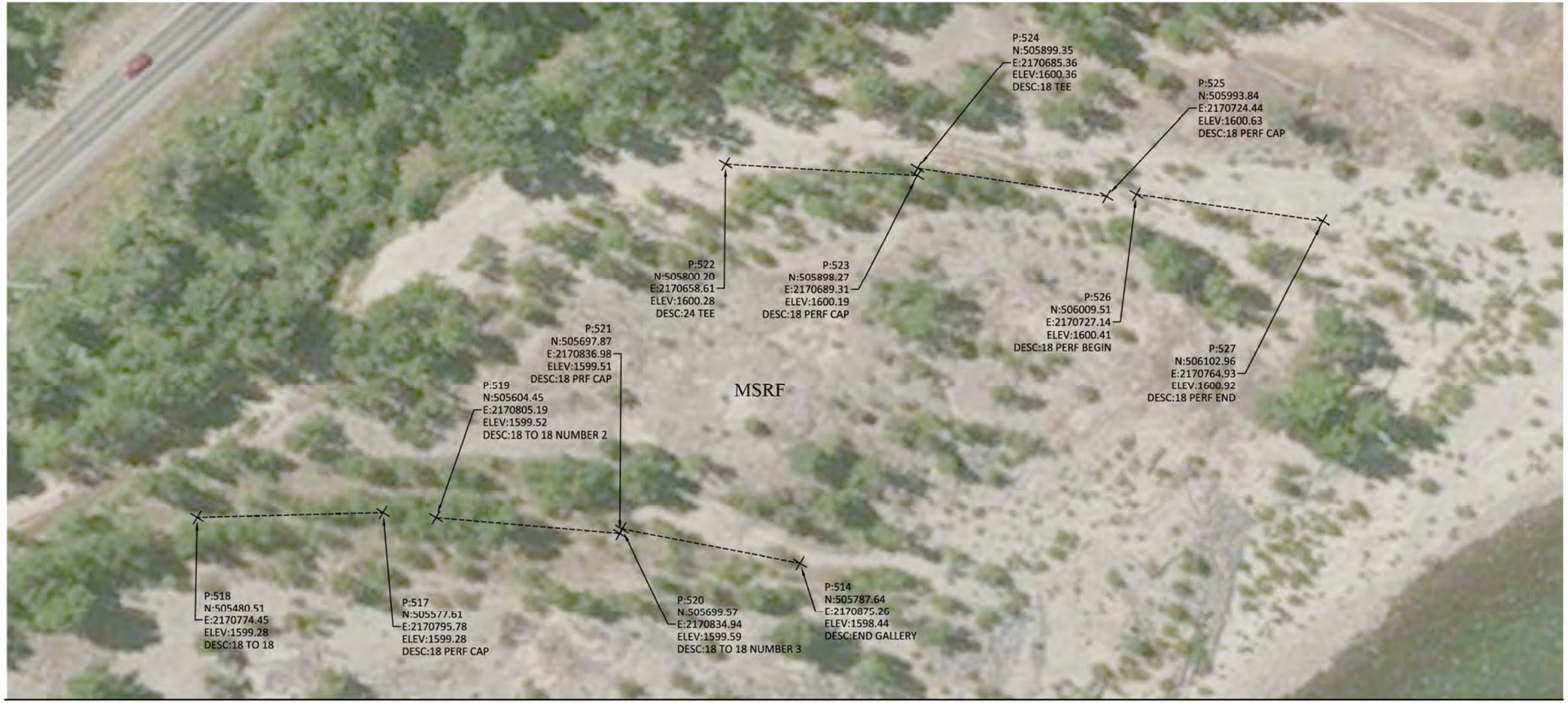
Plan View
1890's As-Built



PLAN VIEW - 1890'S AS-BUILT

LEGEND

GALLERY PIPE

0 50 100

SCALE IN FEET

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
MM,SJ,RP,NB	MB,MM	MB
APPROVED	DATE	PROJECT
	8/19/15	

Confederated Tribes and Bands of the Yakama Nation
M2 1890's Side Channel As-Built Survey

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Plan View
1890's As-Built

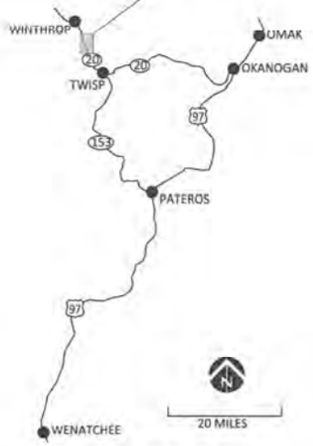
SHEET
9 OF 9

Methow River Habitat Enhancement
Two Channels Project - Riprap Enhancement

Okanogan County, Washington

December 3, 2013

STATE OF WASHINGTON



VICINITY MAP

SITE LOCATION:

LATITUDE: 48°24'40" NORTH
LONGITUDE: 120°08'09" WEST
NEAR THE CITY OF TWISP,
OKANOGAN COUNTY, WA

WATERBODY: METHOW RIVER
TRIBUTARY OF: COLUMBIA RIVER

SITE MAP

NOT TO SCALE

SHEET INDEX

Preliminary Not For Construction

MICHAEL R. McALLISTER
STATE OF WASHINGTON
36180
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 09-25-2014

NO.	BY	DATE	REVISION DESCRIPTION

RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	12/04/2013	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Methow River Habitat Enhancement
Two Channels Riprap Enhancement

inter-fluve

COVER, SHEET INDEX, AND LOCATION MAPS

SHEET 1 OF 6

G:\M-P\M2 Methow River – Lewisia Road to Twisp (LRT)_100223\Drawings\RIPRAP-ENHANCE-HAB.dwg

NO.	BY	DATE	REVISION DESCRIPTION

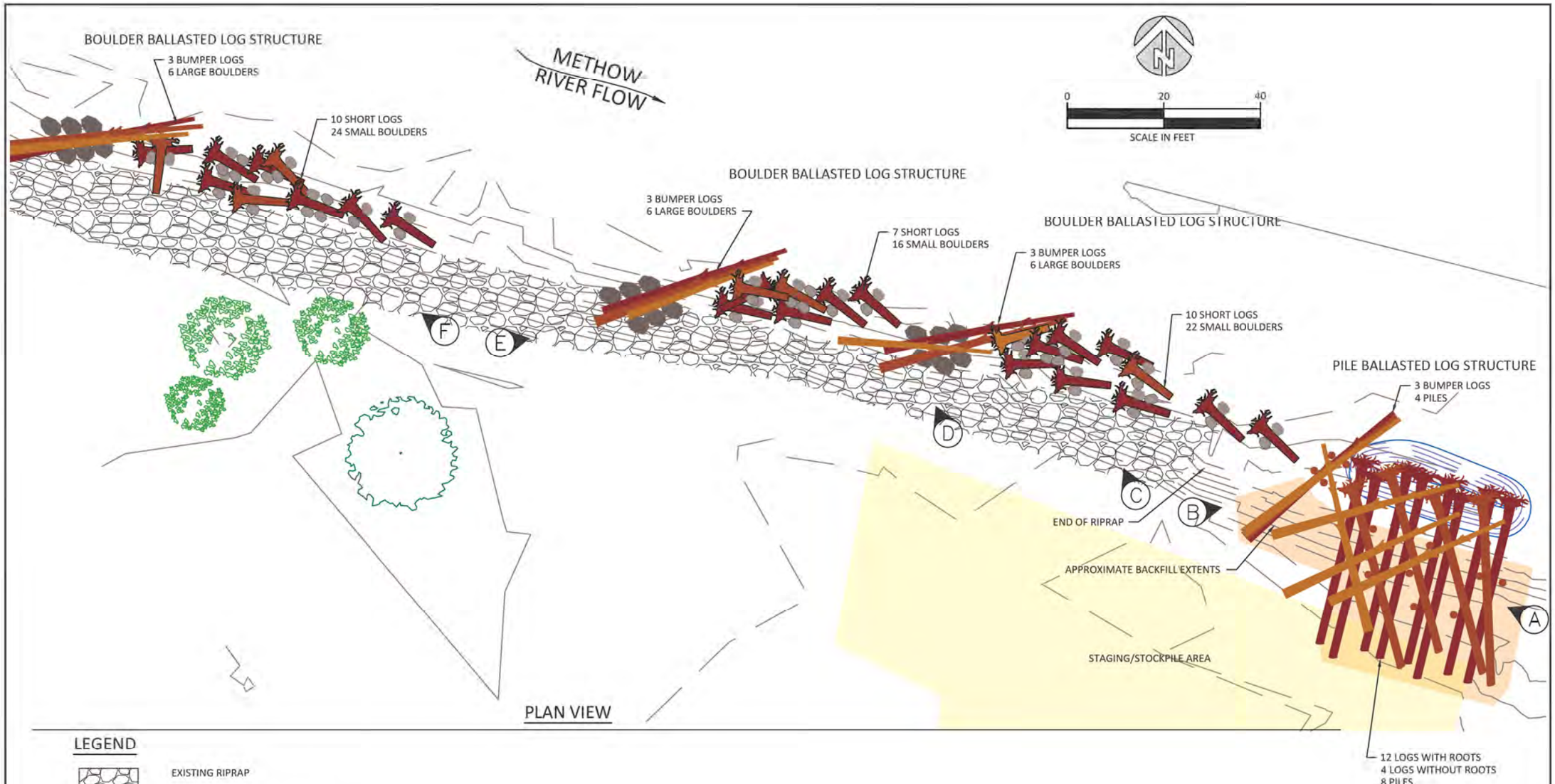
RP,DF	MB,MM,RP	MB,MM
DRAWN	DESIGNED	CHECKED
MB	08/25/15	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Methow River Habitat Enhancement
Two Channels Riprap Enhancement

inter·fluve
501 Portway Ave, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

PROJECT SITE, ACCESS, STAGING AREAS

SHEET 1 OF 2



PLAN VIEW

LEGEND

EXISTING RIPRAP

SURVEYED TREES (PRESERVED)

PHOTO POINT & DIRECTION

NO.	BY	DATE	REVISION DESCRIPTION

MM	MB,MM	MM
DRAWN	DESIGNED	CHECKED
MB	08/25/2014	
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Methow River Habitat Enhancement
Two Channels Riprap Enhancement

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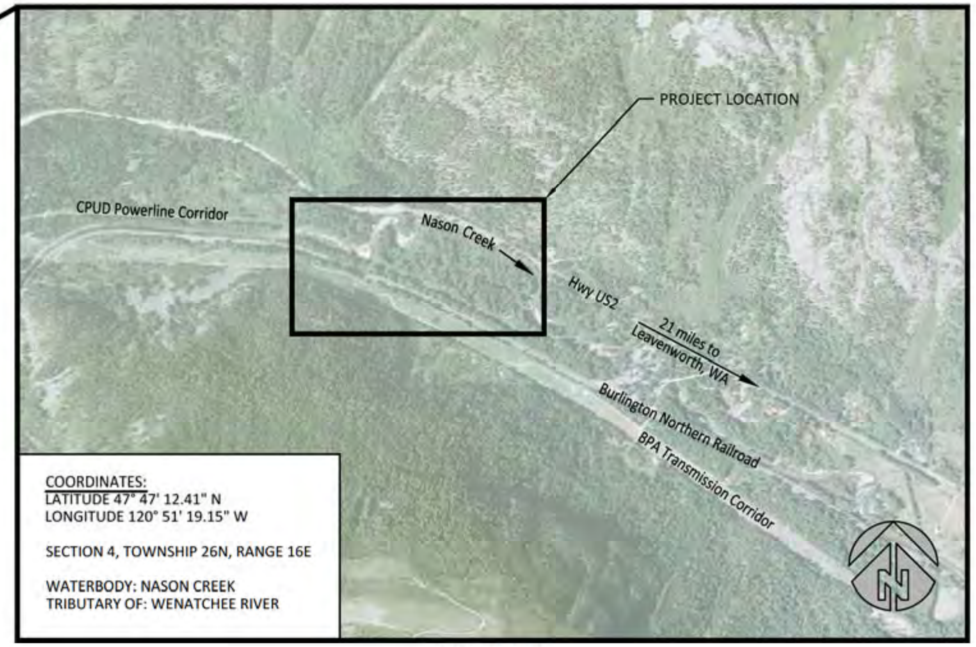
PLAN VIEW: AS-BUILT & MONITORING PHOTO POINTS

SHEET
2 OF 2

NASON CREEK UWP FISH HABITAT RESTORATION
CHELAN COUNTY, WASHINGTON
AS-BUILT DRAWINGS

LOCATION MAP
STATE OF WASHINGTON



SITE MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

SHEET LIST

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
DF	GJ,MC,RP,DM	DM,MM
APPROVED	**DATE**	**PROJECT**
DM	12/21/15	12-02-34

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
Fish Enhancement Project

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Hood River, OR 97031
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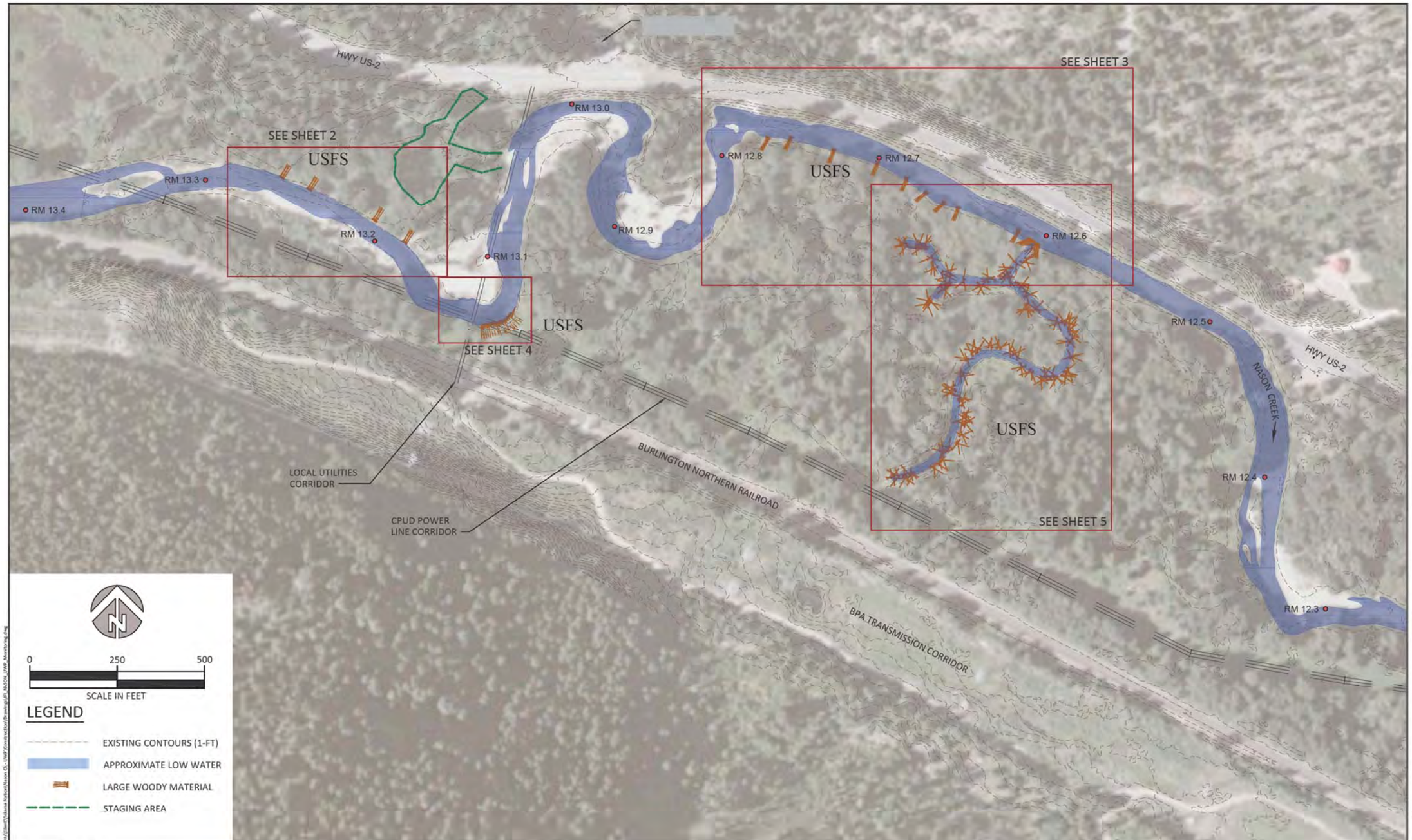
COVER, SHEET LIST, AND VICINITY MAP



NO.	BY	DATE	REVISION DESCRIPTION

DF	DM,JP	DM,JP
DRAWN	DESIGNED	CHECKED
DM	11/24/15	12-02-34
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
Fish Enhancement Project

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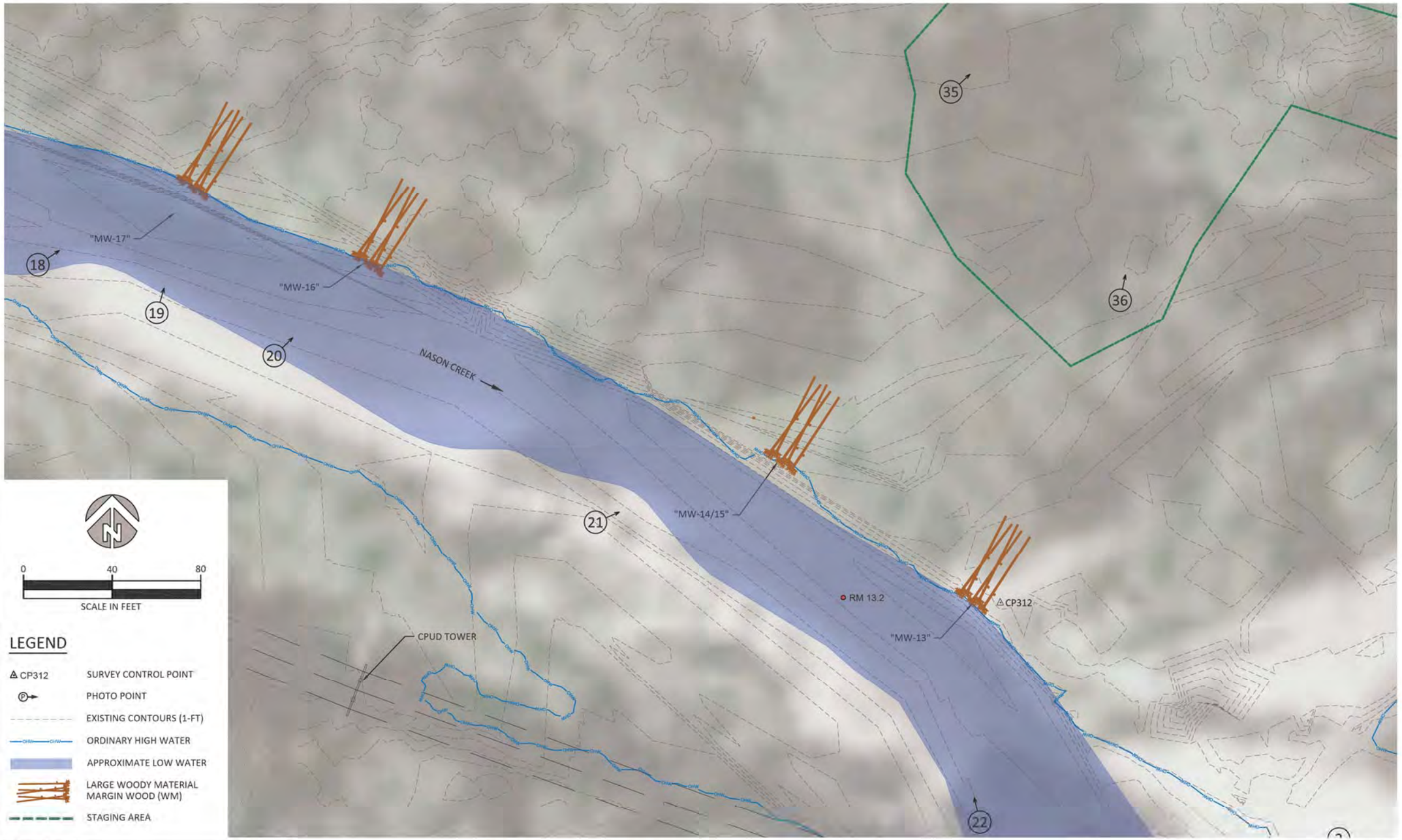
MONITORING MAPS, PHOTO POINTS AND SHEET INDEX

SHEET 1 OF 5



NO.	BY	DATE	REVISION DESCRIPTION

DF	DM,JP	DM,JP
DRAWN	DESIGNED	CHECKED
DM	11/24/15	12-02-34
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
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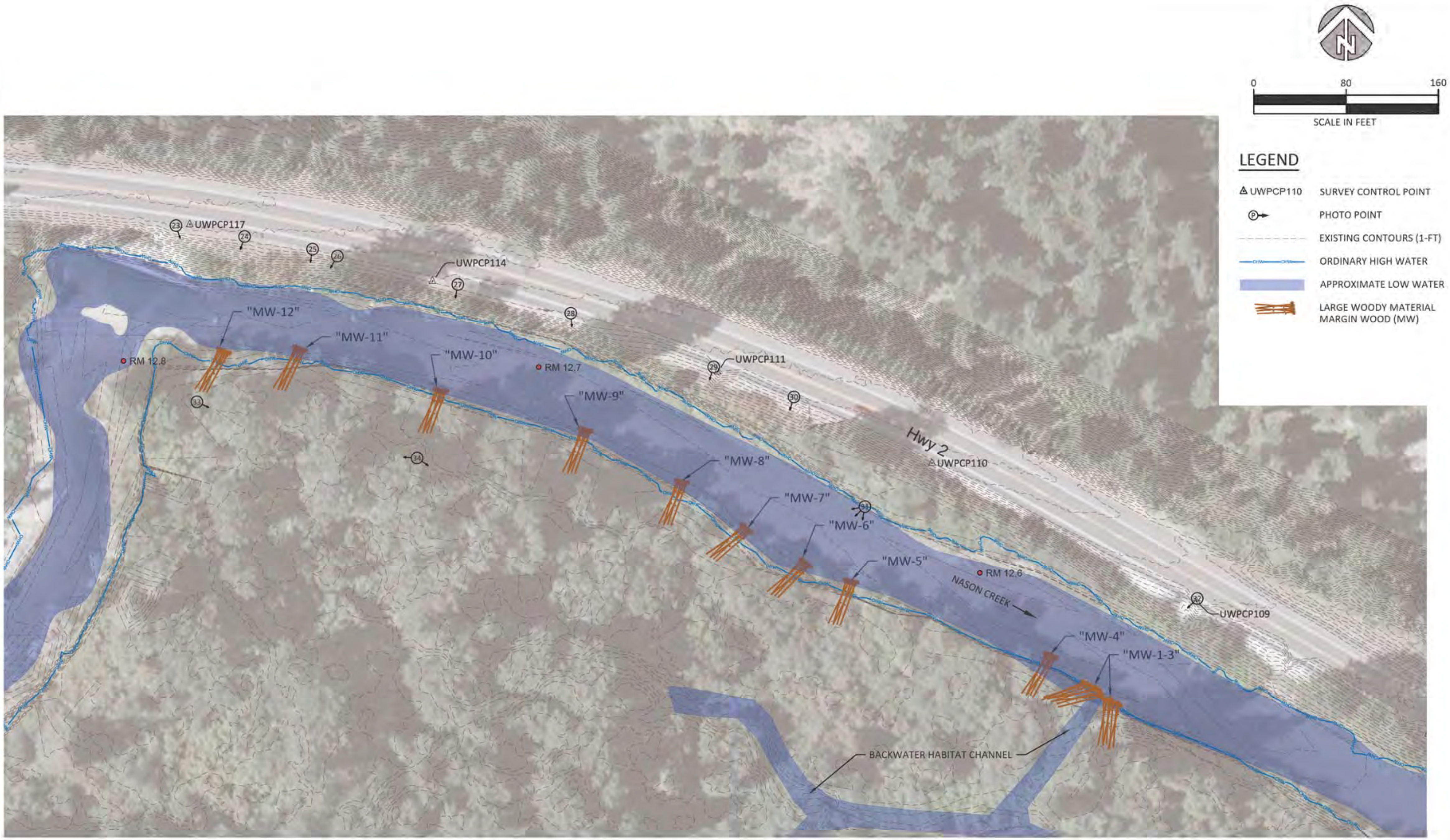
RM 13.25 CHANNEL MARGIN HABITAT LARGE WOODY MATERIAL

SHEET 2 OF 5



NO.	BY	DATE	REVISION DESCRIPTION

DF	DM,JP	DM,JP
DRAWN	DESIGNED	CHECKED
DM	11/24/15	12-02-34
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
Fish Enhancement Project

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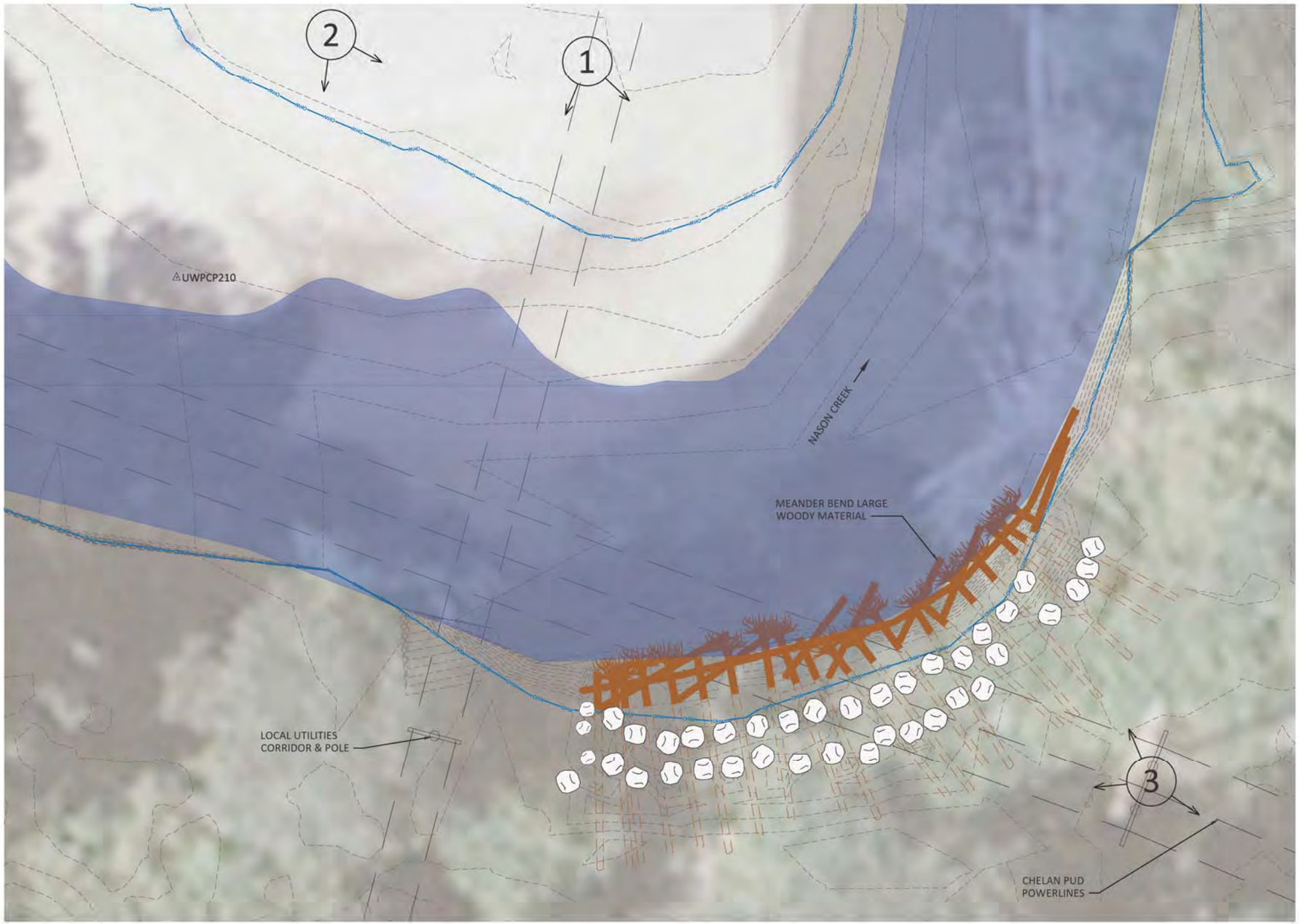
RM 12.7 CHANNEL MARGIN HABITAT LARGE WOODY MATERIAL

SHEET 3 OF 5



0 30 60

SCALE IN FEET

LEGEND

- UWPCP210 — SURVEY CONTROL POINT
- PHOTO POINT
- EXISTING CONTOURS (1-FT)
- ORDINARY HIGH WATER
- APPROXIMATE LOW WATER
- LARGE WOODY MATERIAL WITH BALLAST BOULDERS

NO.	BY	DATE	REVISION DESCRIPTION

DF	DM,JP	DM,JP
DRAWN	DESIGNED	CHECKED
DM	11/24/15	12-02-34
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
Fish Enhancement Project

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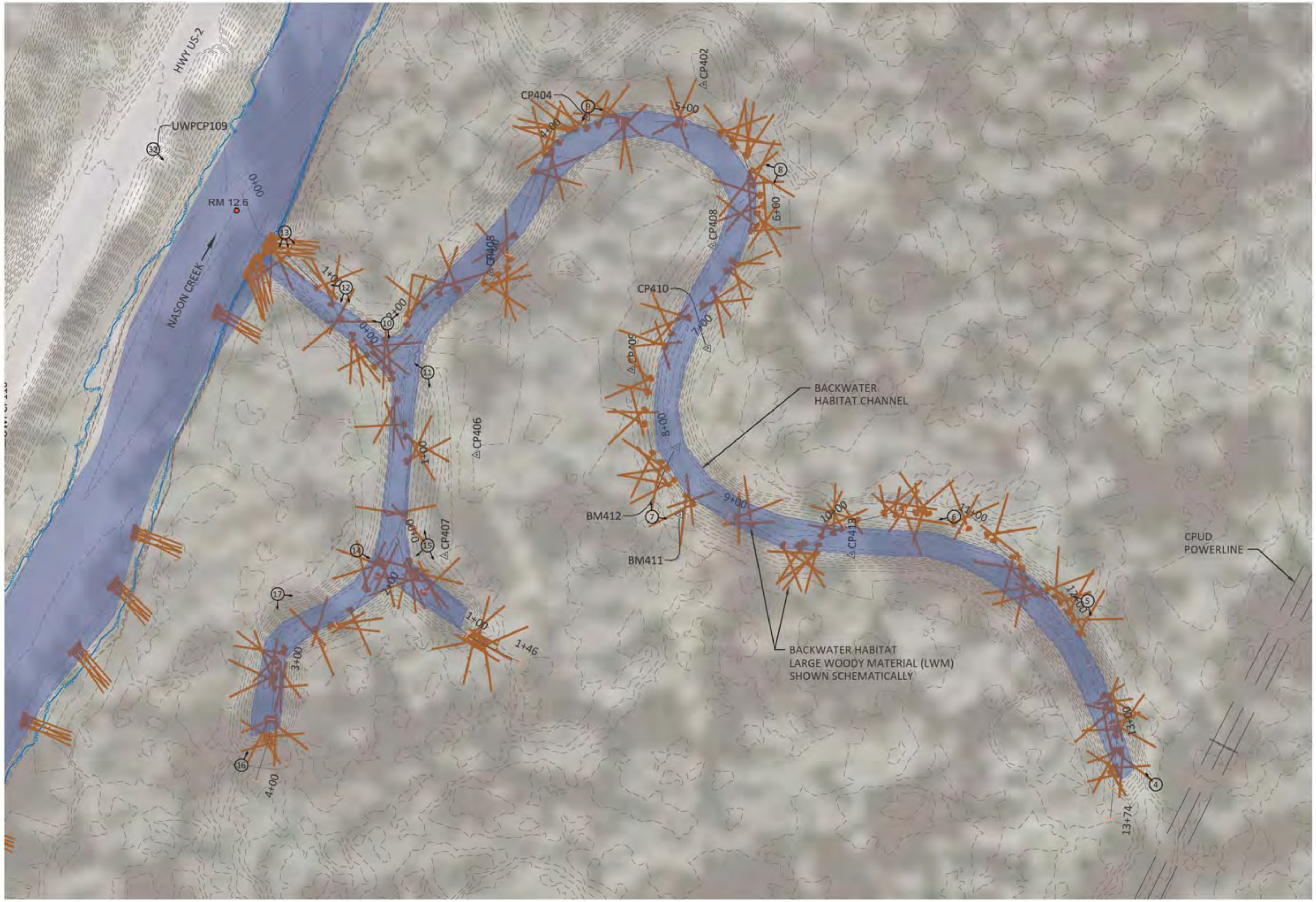
MEANDER BEND LARGE WOODY MATERIAL

SHEET 4 OF 5



0 80 160
SCALE IN FEET

LEGEND

RM 12.6	RIVER MILE MARKER
UWPCP109	SURVEY CONTROL POINT
	PHOTO POINT
	EXISTING CONTOURS (1-FT)
	ORDINARY HIGH WATER
	APPROXIMATE LOW WATER
	LWM, APPROX. SIZE AND POSITION

NO.	BY	DATE	REVISION DESCRIPTION

DF	DM,JP	DM,JP
DRAWN	DESIGNED	CHECKED
DM	11/24/15	12-02-34
APPROVED	DATE	PROJECT

Confederated Tribes and Bands of the Yakama Nation
Nason Creek - UWP Sub-Reaches 3-4
Fish Enhancement Project

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BACKWATER CHANNEL

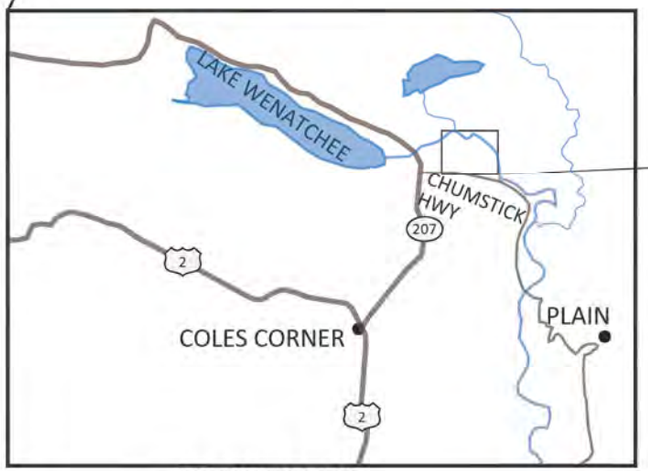
SHEET
5 OF 5

UPPER WENATCHEE RIVER, NATAPOC HABITAT ENHANCEMENTS

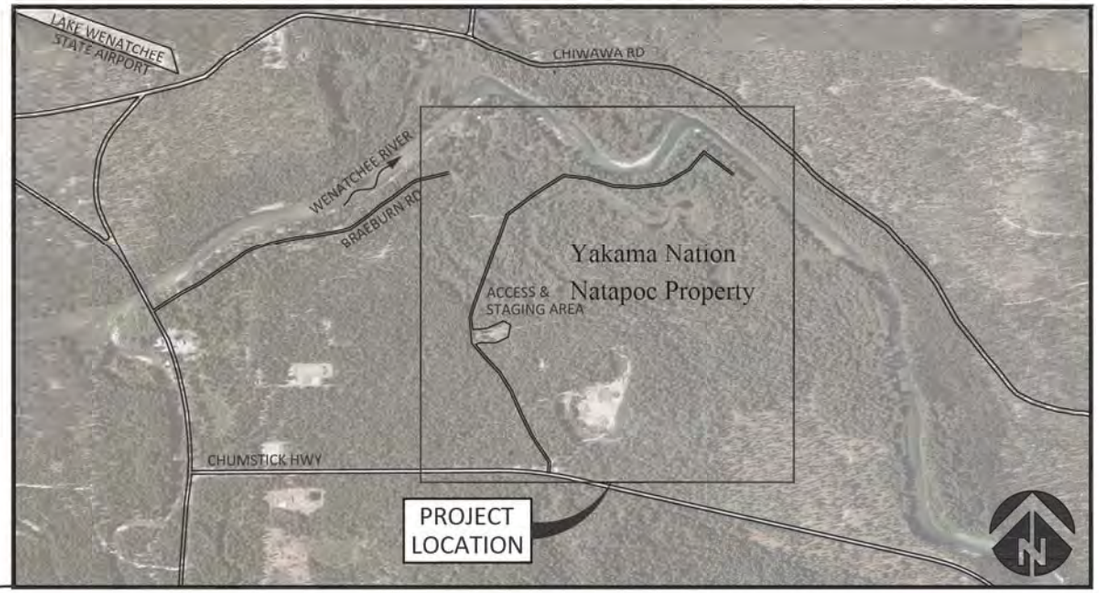
Chelan County, Washington

As Built Drawings. August, 2015.

LOCATION MAP
STATE OF WASHINGTON
NOT TO SCALE



VICINITY MAP



SITE MAP

SHEET INDEX

SITE LOCATION:

SECTION 26 TOWNSHIP 27 NORTH RANGE 17 EAST

LATITUDE: 47°48'52.9" NORTH
LONGITUDE: 120°41'08.5" WEST
CHELAN COUNTY, WASHINGTON

WATERBODY: WENATCHEE RIVER
TRIBUTARY TO: COLUMBIA RIVER

NO.	BY	DATE	REVISION DESCRIPTION

LK, DF, DM	EA, DM	DM, EA, MC
DRAWN	DESIGNED	CHECKED
DM	9/10/15	130212
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKAMA NATION
UPPER WENATCHEE RIVER NATAPOC HABITAT ENHANCEMENT PROJECT ASBUILT DRAWINGS

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Hood River, OR 97031
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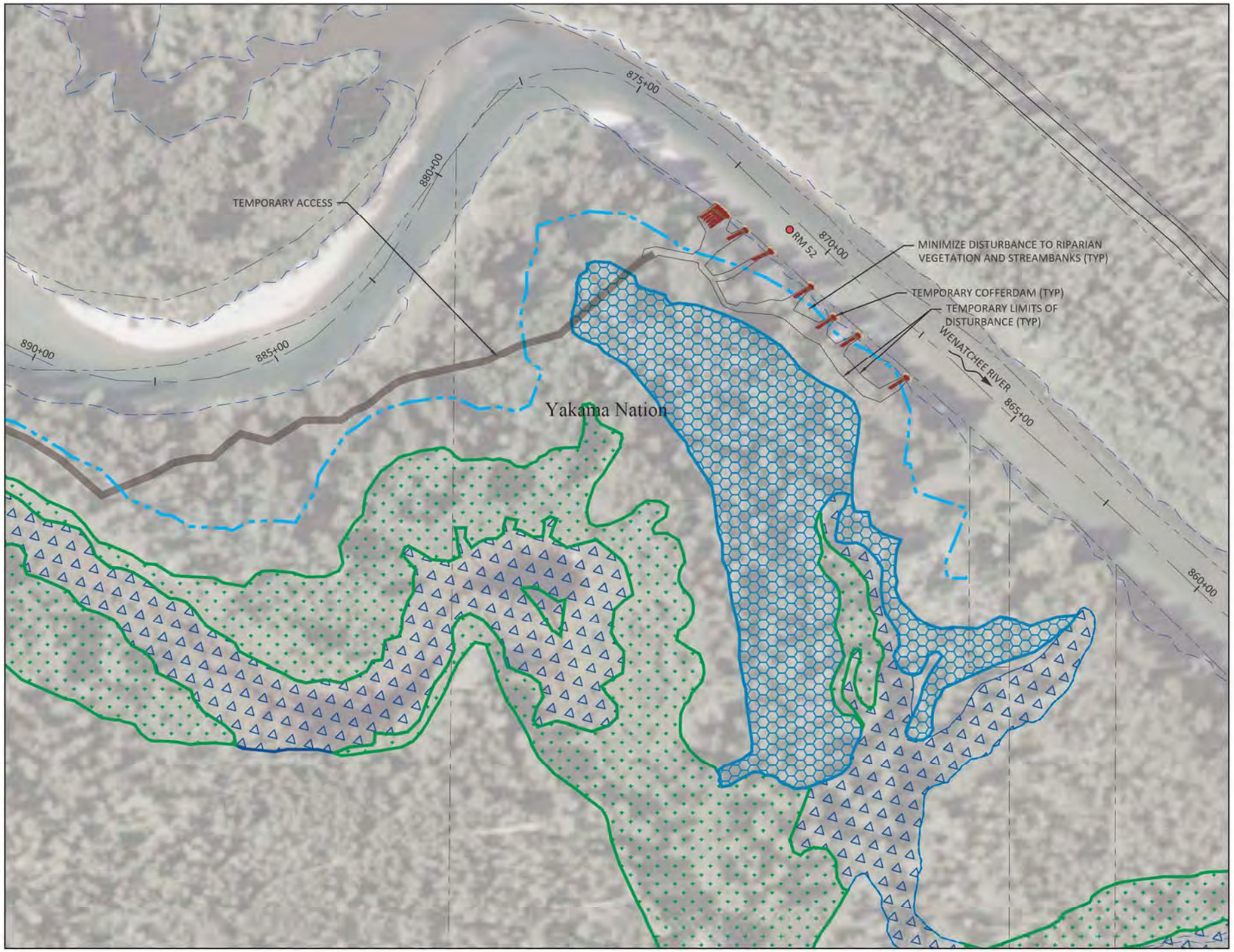
COVER, SHEET INDEX AND SITE MAP

SHEET 1 OF 15



N

0 200 400

SCALE IN FEET

LEGEND

- PROPERTY LINES (CHELAN CO GIS)
- TEMPORARY CONSTRUCTION ACCESS (EXISTING ROAD NETWORK)
- TEMPORARY CONSTRUCTION ACCESS (NO EXISTING ROAD NETWORK)
- 100' WETLAND BUFFER BOUNDARY
- ORDINARY HIGH WATER
- TEMPORARY COFFERDAM, SEE 2/6
- RM 51 RIVER MILE MARKER
- WETLAND EMERGENT
- WETLAND MOSAIC
- WETLAND SCRUB-SHRUB

NO.	BY	DATE	REVISION DESCRIPTION

LK, DF, DM	EA, DM	DM, EA, MC
DRAWN	DESIGNED	CHECKED
DM	9/10/15	130212
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF YAKAMA NATION
UPPER WENATCHEE RIVER NATAPOC HABITAT ENHANCEMENT PROJECT ASBUILT DRAWINGS

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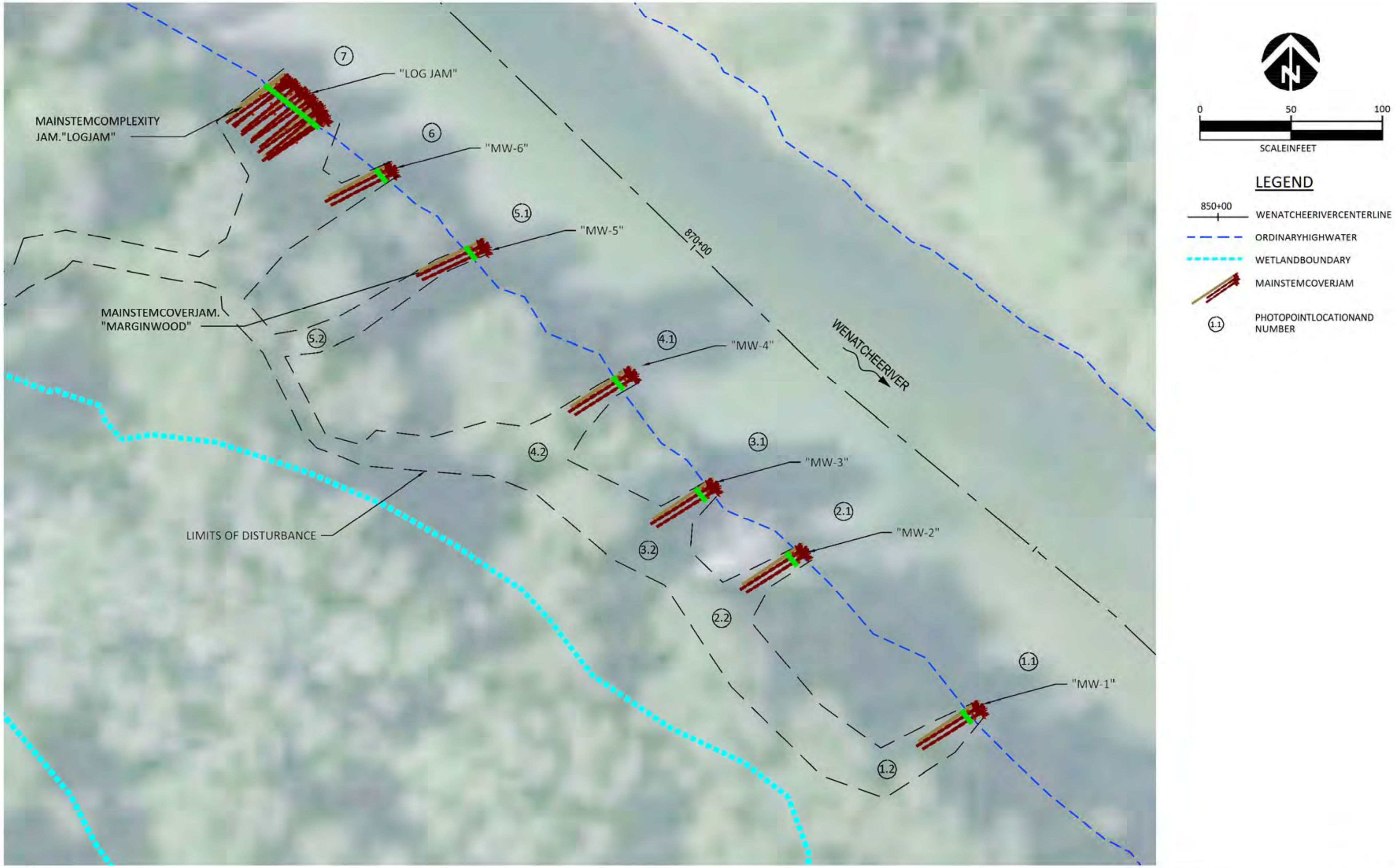
WETLAND BOUNDARIES AND EROSION CONTROL PLAN

SHEET 5 OF 15



DRAWN	DESIGNED	CHECKED
DM	DM	JP
DM	112015	130212

CONFEDERATED TRIBES AND BANDS OF YAKAMA NATION

UPPERWENATCHEERIVERNATAPOCHABITAT ENHANCEMENTPROJECT

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HoodRiver,OR97031
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MONITORINGPLAN

SHEET 1 OF 1