

Administrative Design Review Application

**Yellowstone Pipe Line Company - Horizontal Directional Drill
Under the Spokane River at Pipeline Mile Marker 1.3
Spokane County, Washington**

**April 26, 2016
Terracon Project No. 26145031**



Prepared for:
Yellowstone Pipe Line Company
Billings, Montana

Prepared by:
Terracon Consultants, Inc.
Billings, Montana

Offices Nationwide
Employee-Owned

Established in 1965
terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

Enclosures

- 1.0 Administrative Design Review Application and Project Summary**
- 2.0 Appendix A – Site Maps, Project Plans, Historic Aerial Photos**
- 3.0 New Block Valve Details**
- 4.0 Vegetation Replacement Plan**

**NAME OF PROJECT:**

YPL - HDD under Spokane River at MP 1.3

ADDRESS:

Spokane River north of Felts Field, adjacent to N Waterworks St and N Upriver Dr

TYPE OF PROJECT:

- | | |
|--|--|
| <input type="checkbox"/> Public Project | <input type="checkbox"/> Required by CBD Zones and Downtown Plan |
| <input checked="" type="checkbox"/> Shoreline Conditional Use Permit | <input type="checkbox"/> Design Departure |
| <input type="checkbox"/> Skywalk Over Public ROW | |

FEES:

Administrative Review

- ☐ \$600

APPLICANT:

Name: Yellowstone Pipe Line Co. Attn: Mike Miller
Address: 2626 Lillian Avenue
Billings, MT 59101
Phone (home): 406-255-5727 Office
Email address: mike.s.miller@p66.com

PROPERTY OWNER:

Name: City of Spokane, Attn: Elizabeth Schoedel
Address: 808 West Spokane Falls Blvd
Spokane, WA 99201
Phone (home): 509-625-6225 office
Email address: eschoedel@spokanecity.org

AGENT:

Name: Terracon Consultants, Inc. Attn: Jean Ramer
Address: 2110 Overland Ave, Ste 124
Billings, MT 59102
Phone (home): 406-830-7621 Cell
Email address: jean.ramer@terracon.com

REPRESENTATIVE SIGNATURE:**DATE:****DEPARTMENT USE ONLY:**

Submittal Date:

Accepted as Complete:

Design Review Committee Meeting Date:



This checklist includes all of the required information for submitting an ADMINISTRATIVE review from the Design Review Board. Applications will be processed when all of the following information is submitted and determined "Counter Complete."

Materials Required: (1) Full sized scalable site plan and (3) 11x17 sets of all required submittal materials. Digital versions of materials are required and the preferred file types are .pdf and .jpg.

Written Project Summary (1-2 pages max. 12 pt. font)

- ❑ Statement of development objectives. For example include building square footage and approximate number of residential units (if applicable).
- ❑ Describe design goals, site opportunities and constraints, site character, architectural character, and how the project fits within the local context.
- ❑ Note how the proposal addresses issues in the Comprehensive Plan and any other applicable design plans or guidelines; i.e. The Downtown Plan and Design Guidelines.
- ❑ List any proposed departures from design standards.
- ❑ Description of Design Evolution. Describe what design alternatives have been explored, why choices have been made, and any limiting factors. This description can be written and/or graphic.

Site/Context Analysis

- ❑ Vicinity Map – Note public viewpoints and major traffic corridors from which the site is visible.
- ❑ Photos of site, adjacent properties and streetscape(s).
- ❑ Aerial photograph showing site and all surrounding properties within 200'.
On the graphics above identify topography, healthy trees, substantial vegetation, significant land forms or rock outcroppings, street names, any major building names, pedestrian, bike and auto circulation patterns, zoning, surrounding development (including streetscape improvements such as overhead weather protection, bus stops, bicycle racks, landscaping, specialty paving, etc.), or any other significant elements on or abutting the site.

Site Design

- ❑ Site Plan – bldg. footprints, hardscape, lighting, signage and streetscape elements. All required setbacks, and all elements required by zoning code such as street trees, sidewalks, required landscape areas, or parking requirements shall be shown on this plan.
- ❑ Conceptual Planting Plan.
- ❑ Conceptual Grading Plan.
- ❑ Axonometric 3-D drawing or Site Cross Sections to show massing and spatial relationships between major site elements and all surrounding properties within 200' (bldgs., trees, berms, light standards, streets, etc.). Cross sections are preferred for projects on steep slopes.

Building Design

- ❑ Building Elevations – entire building.
- ❑ Building Elevations - street level (first 3 to 4 floors) at ¼" = 1'-0" min.
- ❑ Schematic Floor Plans - when/if germane to achieving a design objective.

Design Details

- ❑ Signage.
- ❑ Lighting.
- ❑ Color, texture, pattern, materials, illustrations or submittals.

**Yellowstone Pipe Line Company
Horizontal Directional Drill Pipeline Installation
Under the Spokane River near Felts Field**

**Design Review Administrative Application Project Summary
April 21, 2016**

Objective:

Using a horizontal directional drill (HDD) a new section of 10-inch diameter refined petroleum products pipeline will be installed between 22 and 37 feet under the river. The new section will replace an existing section, which will be abandoned in place after the new section is tied in. The drill will enter on the south side outside the floodplain and will exit north of N Upriver Drive. New valves will be constructed on pipeline right of way 250 feet away from the south bank and 450 feet away from the north bank. Two existing valves will be removed 120 feet from the south bank and 195 feet from the north bank. Pipe will be laid out and welded on the north side of N Upriver Drive. The river bed will not be disturbed. Some clearing of small trees and shrubs is proposed 15 feet on each side of the new pipeline centerline to allow regular aerial monitoring in compliance with state and federal pipeline safety regulations.

Design Goals:

The goal of this proactive maintenance project is to increase the depth of cover over the pipeline. This project will not result in additional impacts beyond those currently in existence at this location, nor will a change in land use occur. There has been a functioning pipeline at this location since 1954. After the new pipeline is in place, the condition of a functioning pipeline will continue for the foreseeable future. Ongoing monitoring and maintenance of the pipeline system will ensure its integrity, thereby ensuring the wellbeing of the public and the environment.

Comprehensive Plan:

The land is designated Residential (north side of river) and Light Industrial (south side of river). See Map LU 1 in the Comprehensive Plan.

The proposed pipeline will be placed in generally the same corridor, but on a slightly different alignment under the river, with the intent of maintaining a deeper, safer pipeline. The Comprehensive Plan stated goals and policies include:

- ◆ Limiting commercial and higher density development outside centers and corridors to support growth and development of centers and corridors.

This project stays within an existing pipeline corridor and does not involve activities that would induce growth in the community. Moreover, development is not allowed on the pipeline right of way.

- ◆ Directing new higher density housing to centers and corridors and restricting this type of development in single-family areas.

This goal does not apply to this pipeline maintenance project.

◆ Using design guidelines to ensure that commercial buildings and higher density housing are compatible with existing neighborhood character in and around centers and corridors. The project does not involve commercial buildings or high density housing. The existing and proposed above ground structures consist of two block valves and enclosure fencing.

Generally, this project will maintain the status quo with a new pipe. The current situation is that a refined petroleum products pipeline is transporting product under the river and has been since 1954. Replacing the pipeline will not induce or contribute to additional development or community growth, as the intent is to maintain the pipeline system to ensure its safety and integrity for the foreseeable future.

Departures from Design Standards:

None proposed.

Design Evolution:

Horizontal Directional Drill methodology is the preferred method of pipe installation at this location. Other alternatives include open trench installation of a new section of pipeline adjacent to the existing pipeline. This was not the preferred alternative due to the extensive disturbance to the bed and banks of the river. Block valves are necessary, above-ground features that are integral to the operation of the pipeline. YPL's standard block valve design addresses the required components to shut down the pipeline, if necessary. The design is driven by the functionality of the valve. The valve enclosure is required for security purposes.

YPL proposes the new block valve enclosures be constructed of black 8 foot high chain link with three strand barbwire along the top of the fence, or of beige/tan 8 foot vinyl panels also with three-strand barbwire. The barbed wire is driven by YPL's Homeland Security approved system security plans. The enclosures will require a 3 foot man gate and a 12 foot wide swing gate for access and maintenance. The enclosure fence will also have two Phillips 66 signs on all four sides indicating No Smoking and the Yellowstone Pipe Line Company's phone number. Due to the large gates required for emergency access/egress, an enclosed building is impractical and would still require a 12 foot chain link section for access.

The suggestion by the City to enclose the block valves within a rock or brick structure does not conform to currently accepted safety design for refined petroleum products facilities. Ready access to an enclosed facility would not be available as confined space safety protocols would be required for maintenance personnel. Enclosed rock or brick structures are incompatible with current industry standards for block valve enclosures for petroleum pipelines by virtue of the nature of the materials being transported in the pipe.

A chain link enclosure can be fitted with vinyl slats to provide additional visual screening. Vegetation screening will be incorporated around the fence exterior using shrubs native to the region that would provide some habitat for birds and small mammals. Any vegetation and landscaping rocks would have to be positioned to allow for unimpeded gate movement and access for maintenance. Any vegetation that over time would create a canopy, would have to be positioned sufficiently far from the valve and pipeline so as not to obstruct visual surveillance from the air, and whose roots would not eventually damage the pipe.

APPENDIX A

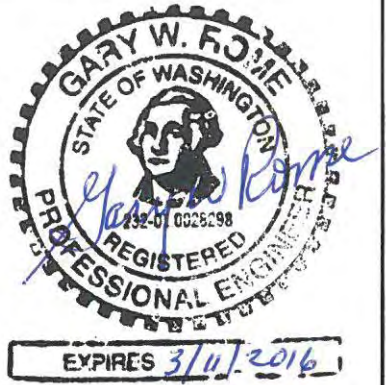
SITE MAPS

Spokane River HDD Plans – Figures 1-6

Spokane River Exhibit A-1 – Stormwater Flow

Spokane River Exhibit A-2 – Site BMP and Sample Locations

Section Line



SW 1/4 NE 1/4 Section 11, T.25N., R.43E.

[illegible]

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Consulting Engineers and Scientists

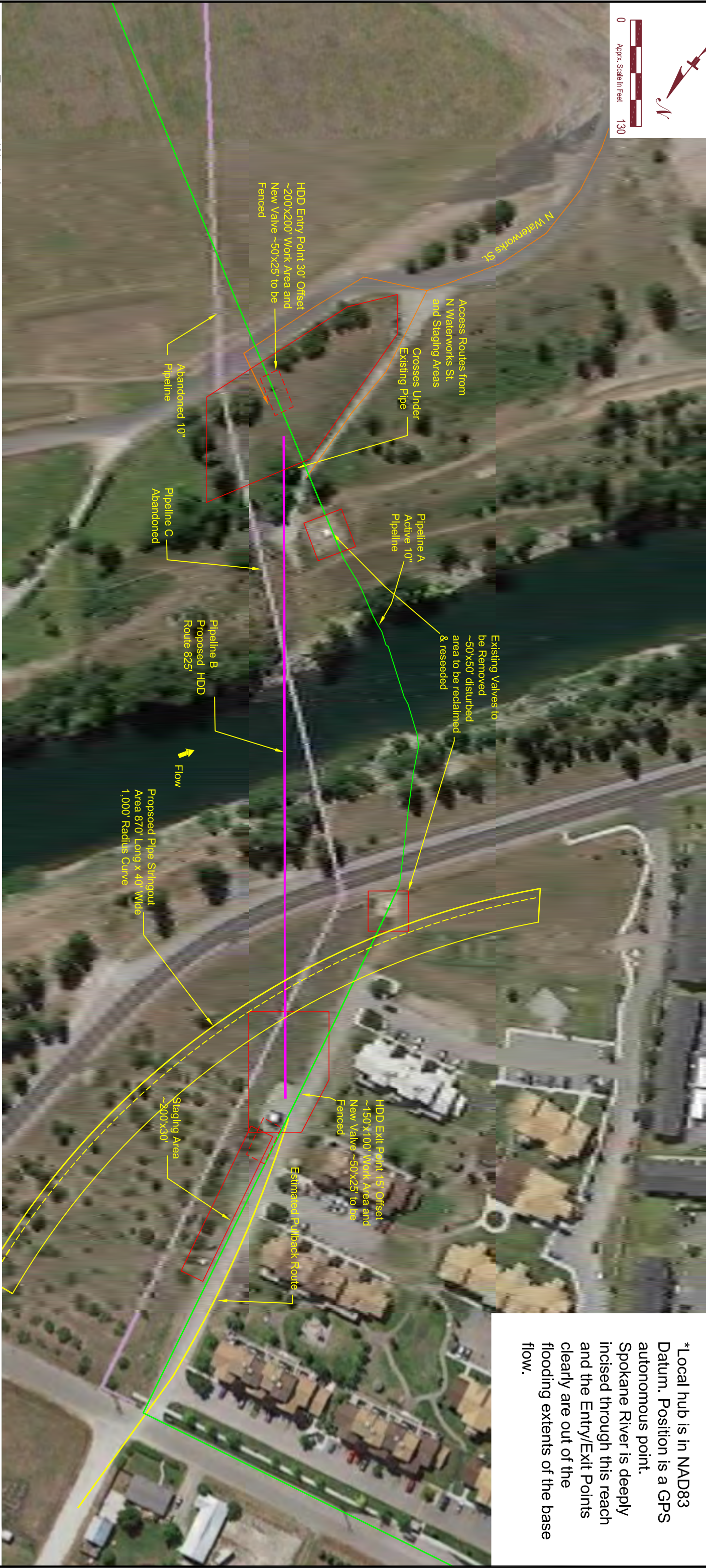
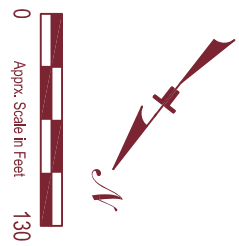
2110 Overland Avenue, Suite 124 Belings, MI 49102
PH (406) 556-3072 FAX (406) 656-3579

Spokane River
Spokane to Parkwater
Phillips 66 Pipeline LLC
Yellowstone 10" Pipeline

Spokane County

Washington

1	
DLS CALD BY	SGarand
DRAWN BY	SGarand
APPVD BY	UNebel
SCALE	1" = 1'
DATE	December 2014
JOB NO	26145031
FILE NAME	HDD Spokane YR03
SHEET NO	1 OF 6



*Local hub is in NAD83 Datum. Position is a GPS autonomous point. Spokane River is deeply incised through this reach and the Entry/Exit Points clearly are out of the flooding extents of the base flow.

Aerial Dated July 2, 2014; Excerpted From Google Earth

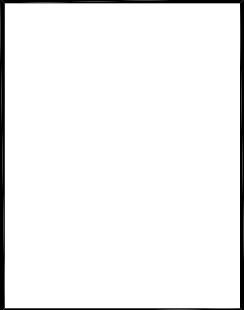
- Temporary Work Areas
- Temporary HDD Pipe Pullback Staging Areas
- HDD Entry Side Access Road
- Proposed HDD Route - Pipeline B
- Existing Abandoned Pipeline Route - Pipeline C
- Existing Active Pipeline Route - Pipeline A

REV.	DATE	BY	DESCRIPTION
1	11/2/15	AJT	Updates following recent revisions

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Billings, MT 59102
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Spokane River HDD Overview at MP 1.3

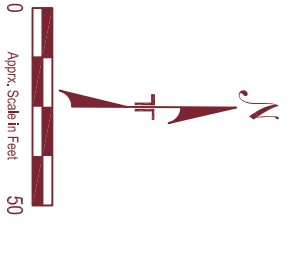
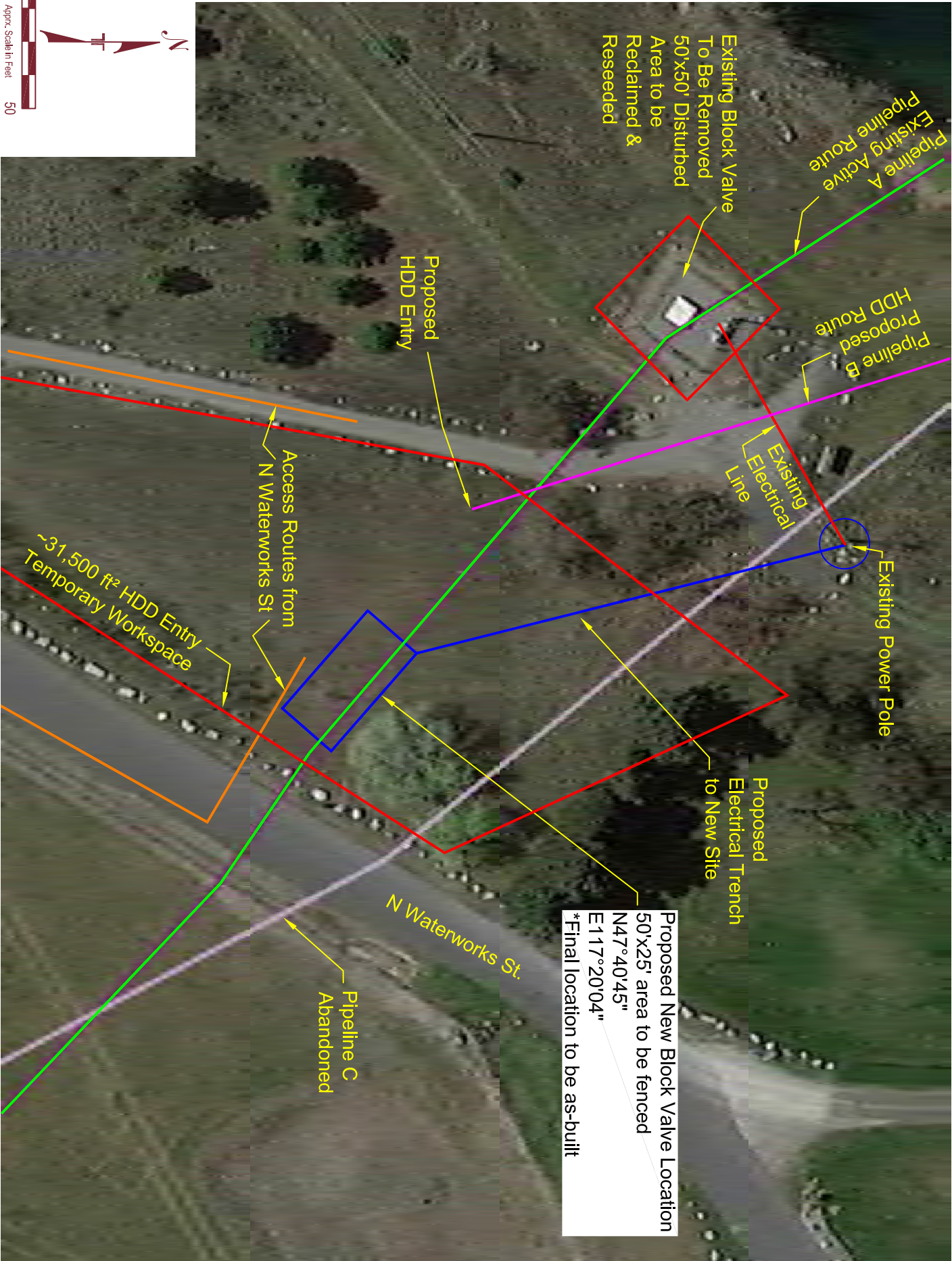
Spokane - Parkwater

Phillips 66 Pipeline LLC.

YP03 - 10" Pipeline

Spokane County

DESIGNED BY:	JRamer
DRAWN BY:	CWright
APP'D. BY:	DNeel
SCALE:	As Shown
DATE:	April 2015
JOB NO.	26145013
FILE NAME:	Sp66n PHW1.dwg
SHEET NO.:	2A OF 6



Aerial Dated July 2, 2014; Excerpted From Google Earth

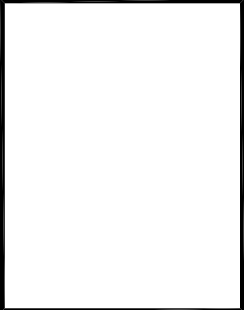
- Temporary Work Areas
- New Block Valve Area
- HDD Entry Side Access Road
- Existing Active Pipeline Route - Pipeline A
- Proposed Pipeline Route - Pipeline B
- Existing Abandoned Pipeline Route - Pipeline C

REV.	DATE	BY	DESCRIPTION
1	11/2/15	AJT	Updates following recent revisions

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Spokane River HDD Entry Work Area at MP 1.3

Spokane - Parkwater

Phillips 66 Pipeline LLC.

YP03 - 10" Pipeline

Spokane County

DESIGNED BY:	JRamer	2B
DRAWN BY:	CWright	
APP'D. BY:	DNeel	
SCALE:	As Shown	
DATE:	April 2015	
JOB NO.	26145013	
FILE NAME:	Spkn PwrC.dwg	
SHEET NO.:	2B	OF 6

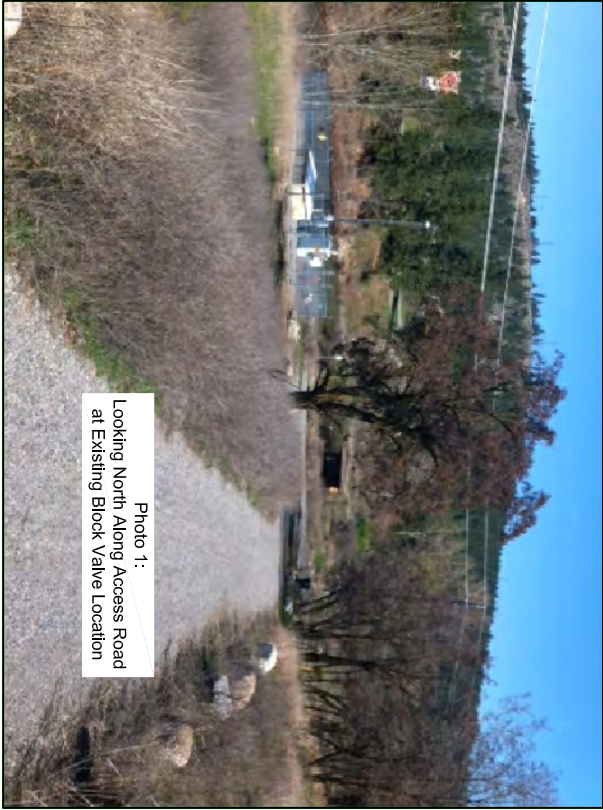


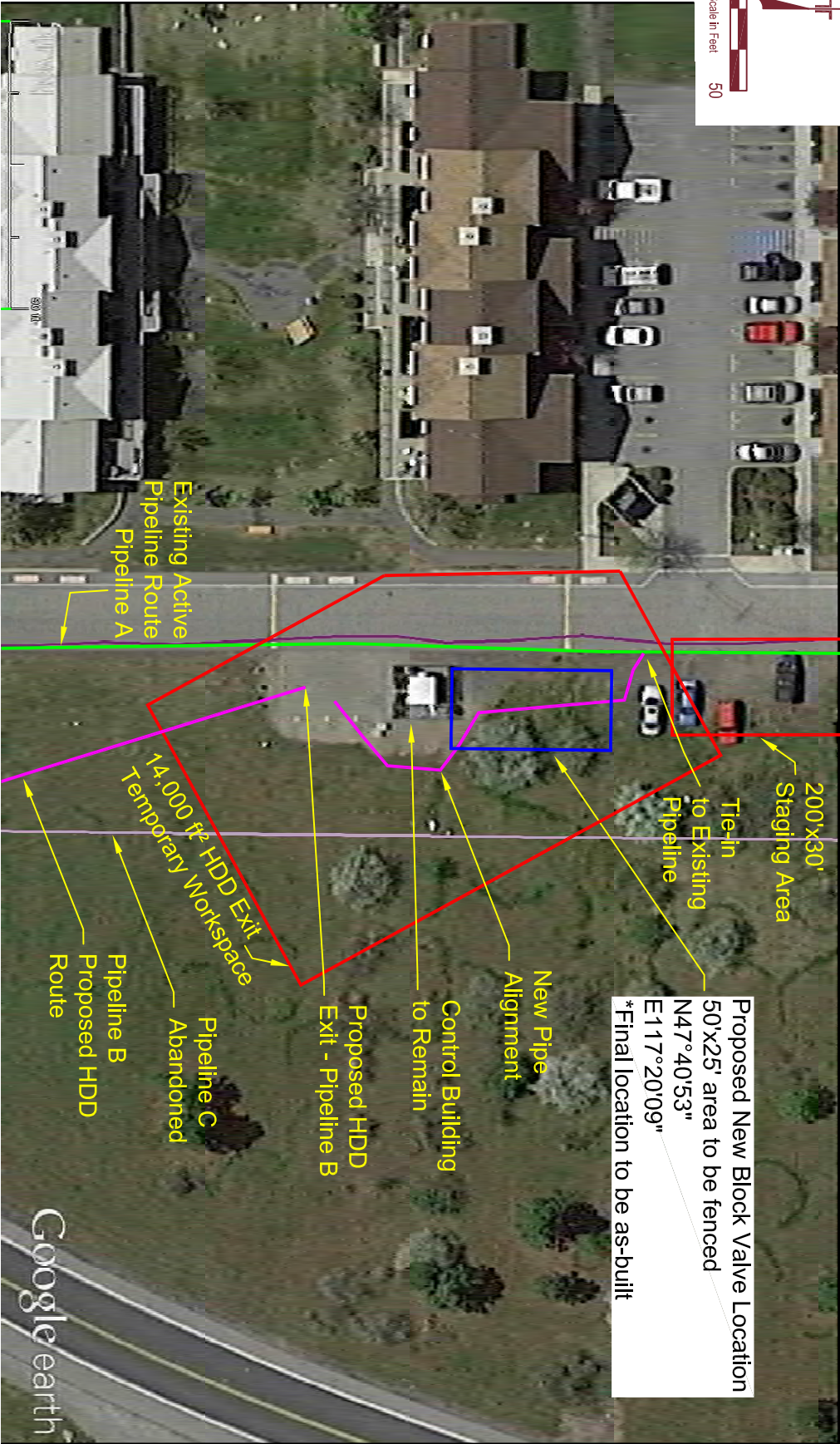
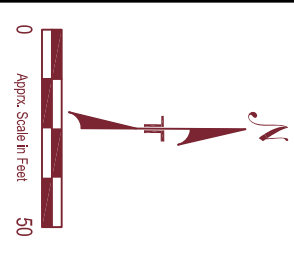
Photo 1:
Looking North Along Access Road at Existing Block Valve Location



Photo 2:
Looking Northeast Along Overhead Power Lines at Existing Block Valve Location (to be removed)



Photo 3:
Example of a Recent Block Valve Installation near Billings, MT



Aerial Dated July 2, 2014; Excerpted From Google Earth

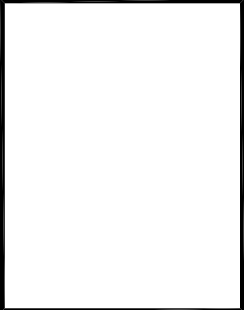
- Temporary Work Areas
- New Block Valve Area
- Proposed New Pipeline Alignment and HDD - Pipeline B
- Existing Active Pipeline Route - Pipeline A
- Existing Abandoned Pipeline Route - Pipeline C

REV.	DATE	BY	DESCRIPTION
1	11/2/15	AJT	Updates following recent revisions

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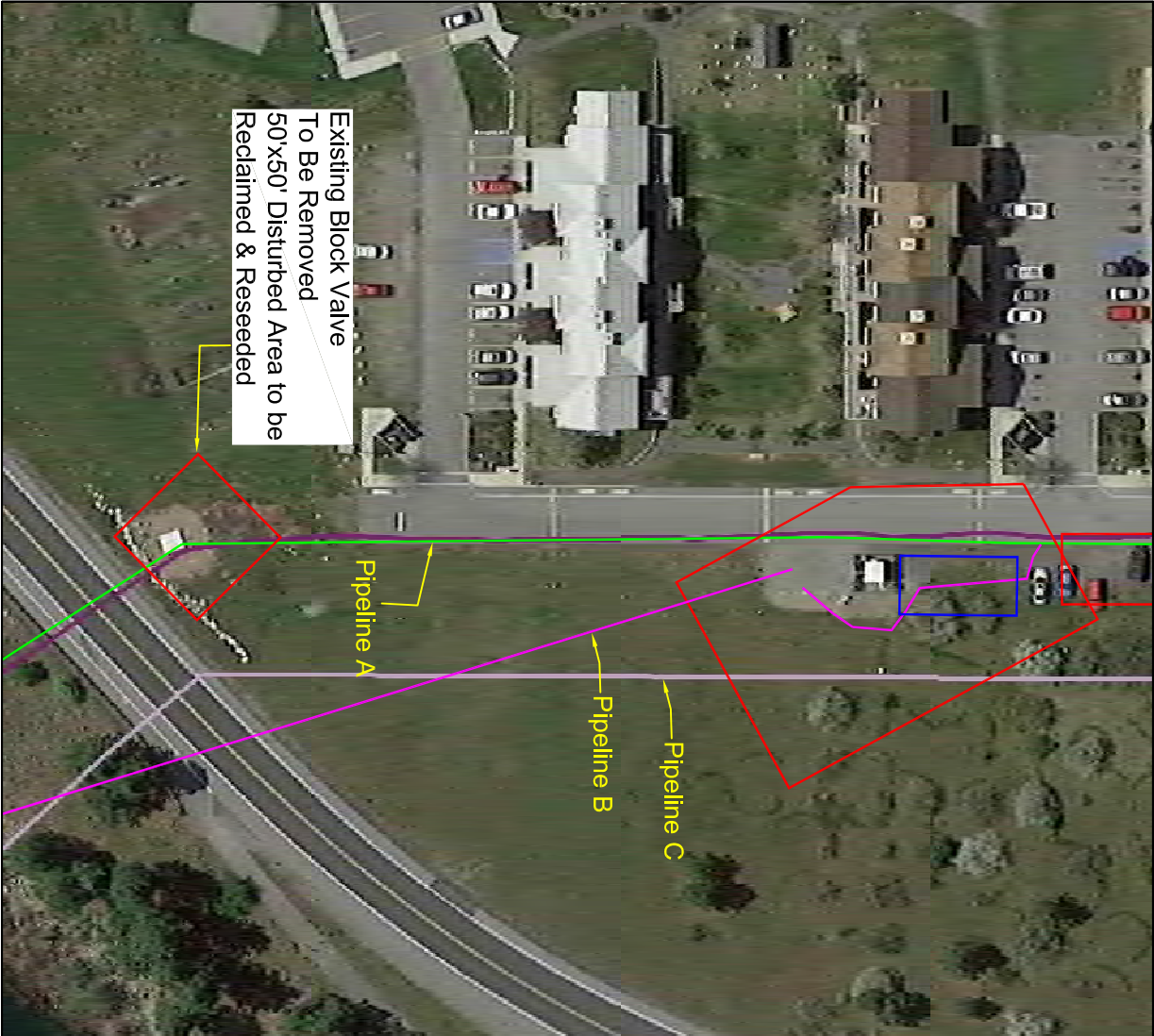


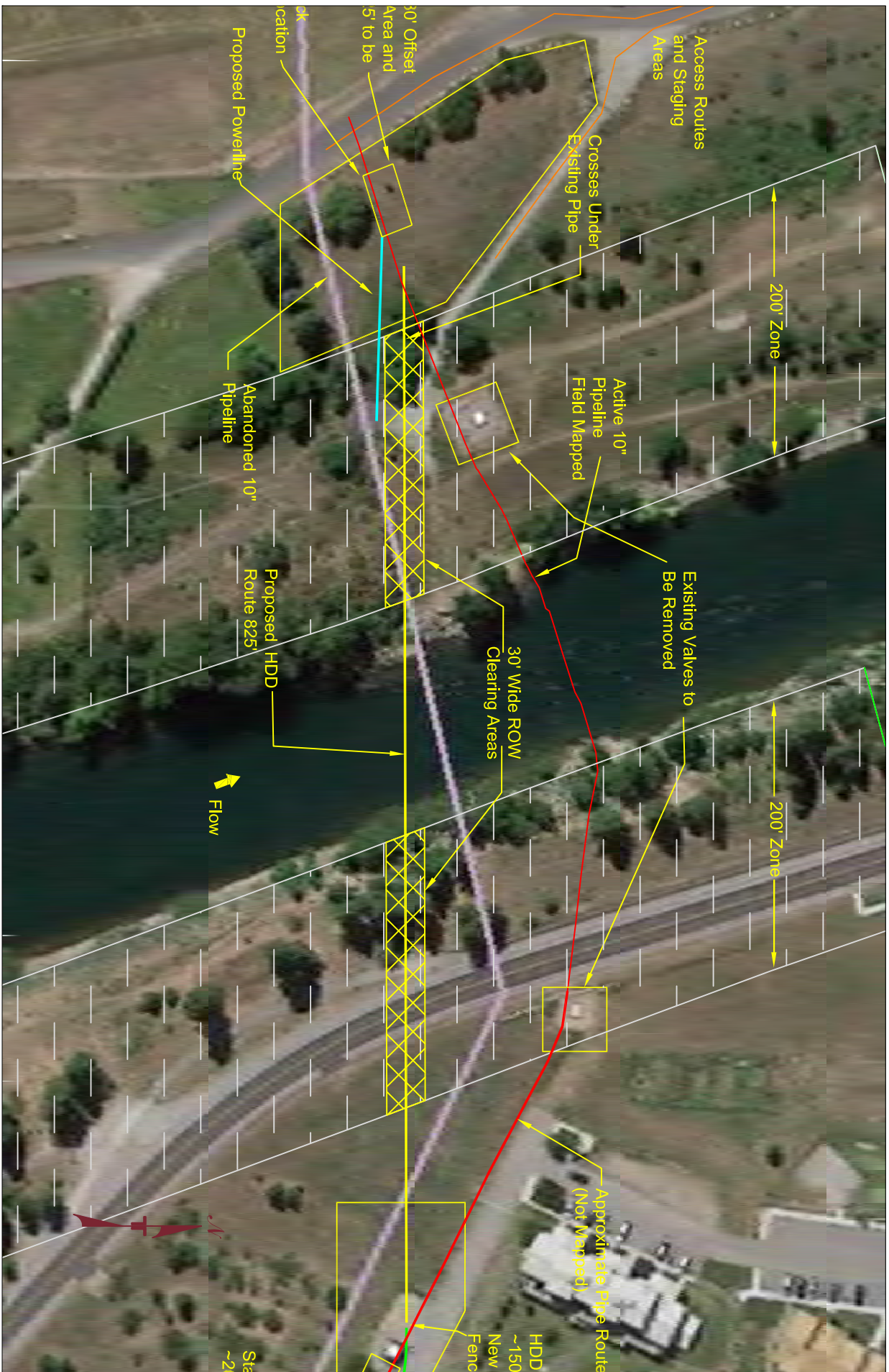
Spokane River HDD Exit Work Area at MP 1.3

Spokane - Parkwater
Phillips 66 Pipeline LLC.
YP03 - 10" Pipeline

Spokane County

DESIGNED BY:	J.Ramer
DRAWN BY:	CWright
APP'D. BY:	DNeel
SCALE:	As Shown
DATE:	April 2015
JOB NO.	26145013
FILE NAME:	Spkn Pwrtr.dwg
SHEET NO.:	2C OF 6





Project Mng'r:	DNebel
Drawn By:	ATorres
Checked By:	JRanner
Approved By:	-

Project No.	26145031
Scale:	As Shown
File No.	Spokane.dwg
Date:	Jan. 2016

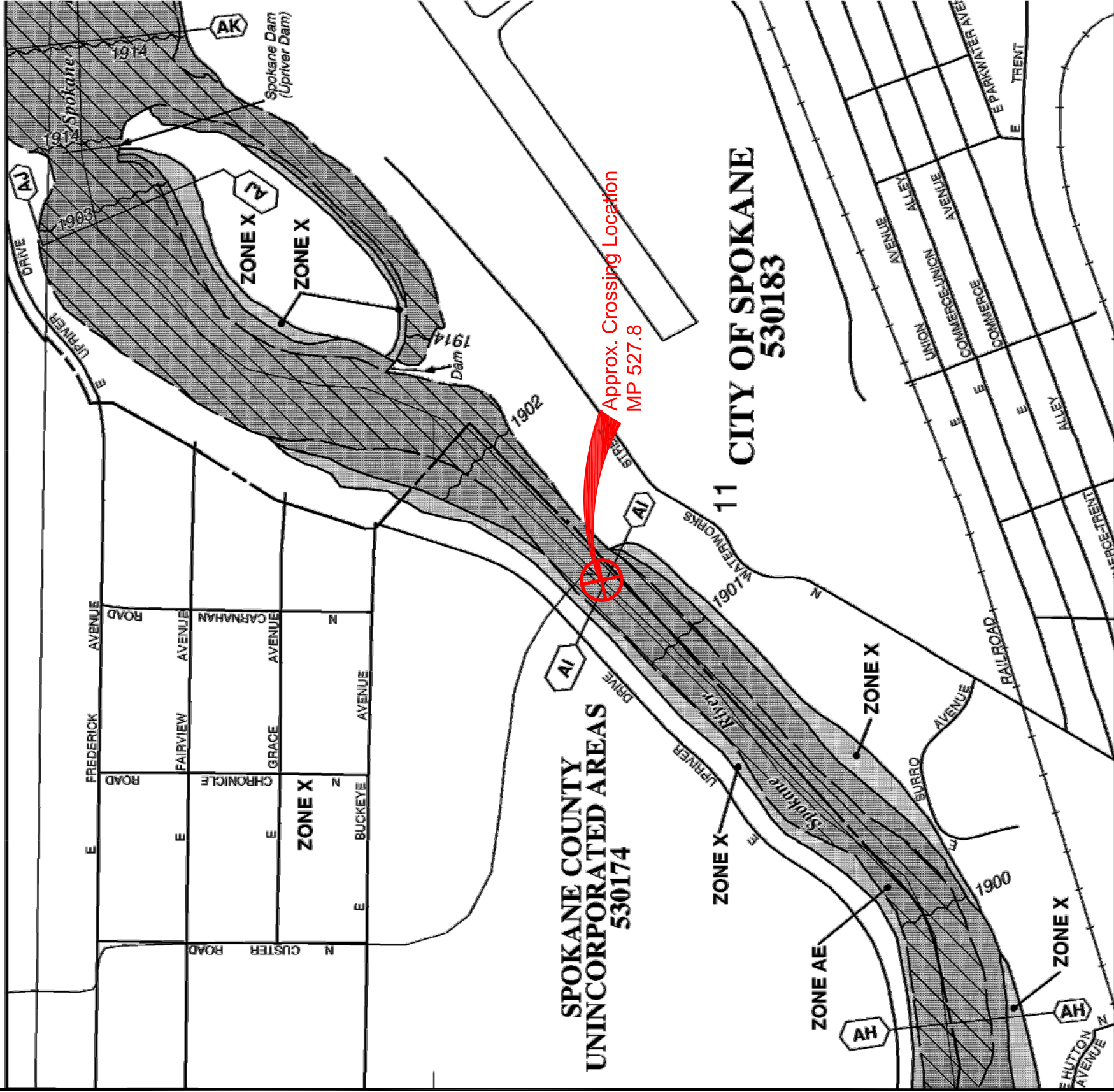
Terracon
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PH: (406) 656-3072 FAX: (406) 656-3576

Spokane River ROW Clearing Areas

Spokane - Parkwater
Phillips 66 Pipeline LLC
YP03 - 10" Pipeline

FIG No.

3

[illegible]

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Spokane to Parkwater
Phillips 66 Pipeline LLC.
YPO3 - 10" Pipeline

Spokane County

Washington

LEGEND

 **SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.


ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.


ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.


 **FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.


 **ZONE X**

OTHER FLOOD AREAS

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.


 **OTHER AREAS**


Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.


 **COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**


OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.


 Floodplain boundary


 Floodway boundary


 Zone D boundary


 CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

 Base Flood Elevation line and value; elevation in feet*

 Base Flood Elevation value where uniform within zone; elevation in feet*

 Cross section line

 Transect line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid ticks, zone 11

5000-foot grid ticks: Washington State Plane coordinate system, north zone (FIPSZONE 4601), Lambert Conformal Conic





Bench mark (see explanation in Notes to Users section of this FIRM panel)

River Mile

MAP REPOSITORIES

Refer to Map Repository for list on Map Index.

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

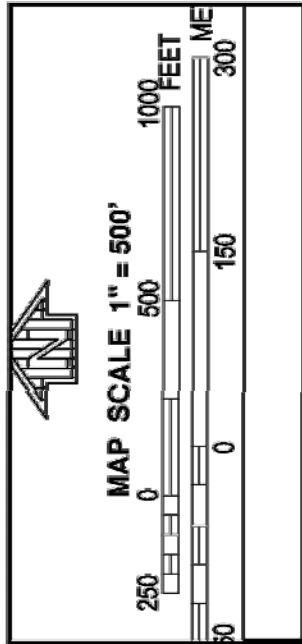
97° 07' 30" - 32° 23' 30"

42-75 000m N

6000000 M

DX5510 X

M1.5



N.F.I.P.

PANEL 0562D

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

**FLOOD INSURANCE RATE MAP
SPOKANE COUNTY,
WASHINGTON
AND INCORPORATED AREAS**

PANEL 562 OF 1150

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SPOKANE COUNTY	550174	0632	D
SPOKANE VALLEY, CITY OF	550248	0632	D
SPOKANE, CITY OF	550183	0632	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER
53063C0562D**

**EFFECTIVE DATE
JULY 6, 2010**

Federal Emergency Management Agency

4	
DESIGNED BY:	ATorres & S Garland
DRAWN BY:	ATorres
APP'D BY:	Dnebel
SCALE:	As Shown
DATE:	December, 2014
JOB NO.	26145031
FILE NAME:	Spkn privtr.dwg
SHEET NO.:	4 OF 6

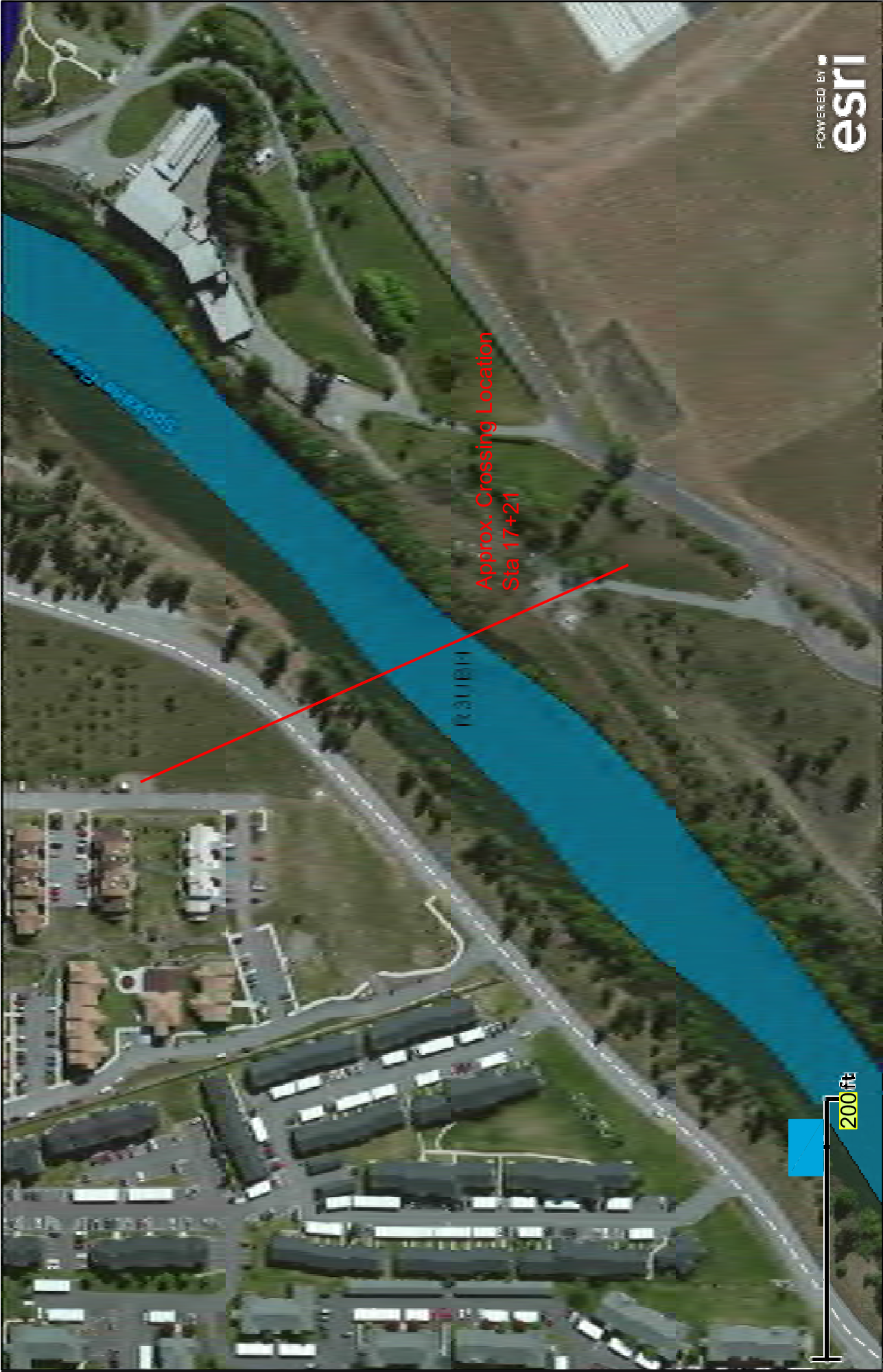


U.S. Fish and Wildlife Service

National Wetlands Inventory

Spokane River

Feb 17, 2015



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

REV.	DATE	BY	DESCRIPTION
1	12/22/14	SG	



Consulting Engineers and Scientists

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Billings, MT 59102
FAX: (406) 656-3578

Spokane River Potential HDD

Spokane to Parkwater
Phillips 66 Pipeline LLC.
YPO3 - 10" Pipeline

Spokane County

Washington

5
DESIGNED BY: S Garland
DRAWN BY: S Garland
APP'D BY: D Neel
SCALE: 1" = 200'
DATE: December 2014
JOB NO: 26145031
FILE NAME: Spkn prwtr.dwg
SHEET NO.: 5 OF 6



1: City of Spokane
808 W. Spokane Falls Blvd.
Spokane, WA 99201
Parcel #
35111.9024
35111.9024
35111.0004
35111.9025
35115.0202
35111.0186
35115.0102
35115.0202

2: Riverwalk Point I LLC
3102 W. Fort George Wright Drive
Spokane, WA 99224
Parcel # 35112.9076

3: Spokane Neighborhood Act Pro
3102 W. Fort George Wright Drive
Spokane, WA 99224
Parcel # 35112.9078

4: Down By the Dam, LLC
2510 N. Pines Rd Ste 1
Spokane Valley, WA 99206
Parcel #
35111.0214 Thru 35111.0215
35111.0224 Thru 35111.0236

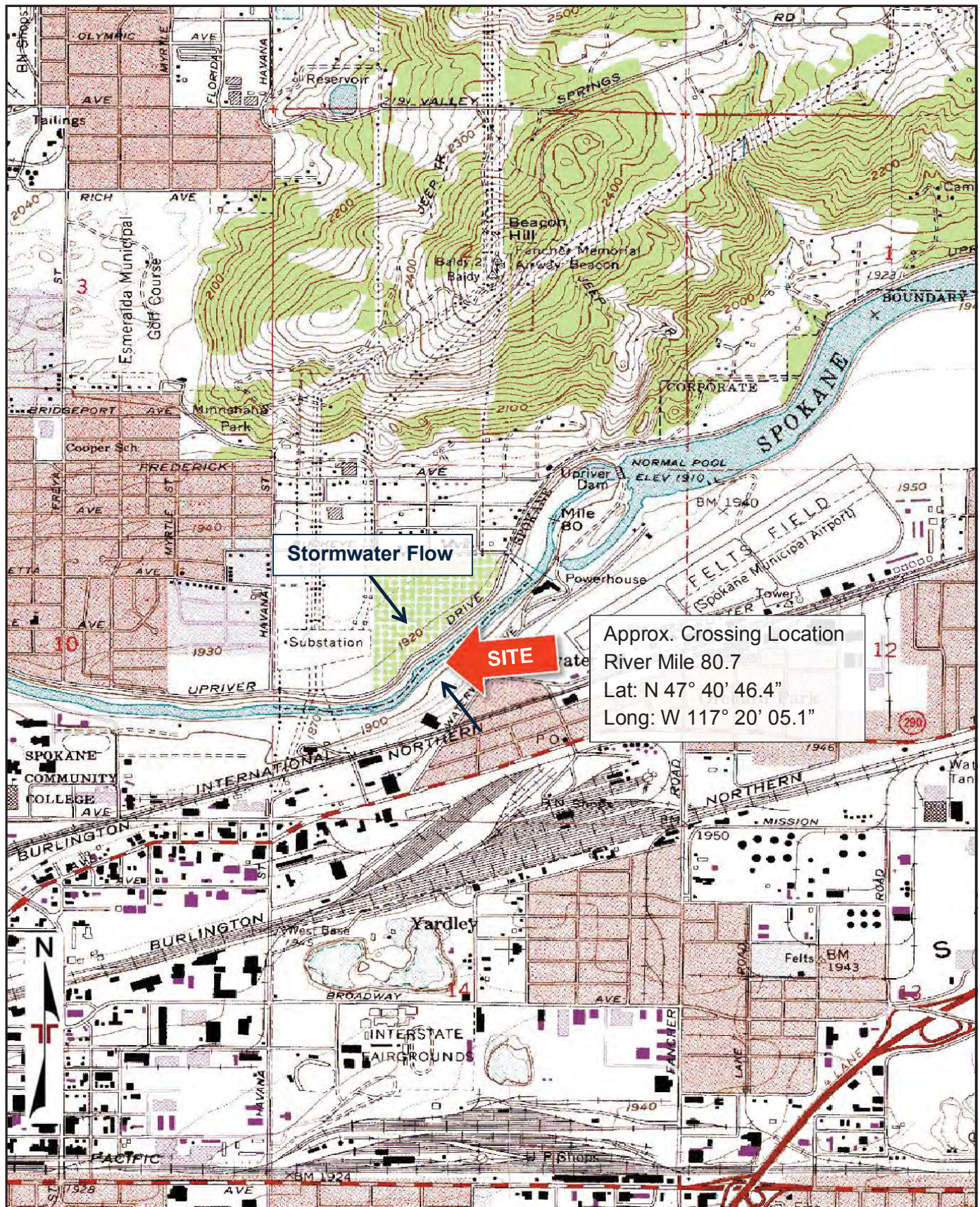


REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists

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Spokane River		6
Spokane to Parkwater		DESIGNED BY: SGarland
Phillips 66 Pipeline LLC		DRAWN BY: SGarland
Yellowstone 10" Pipeline		APPVD. BY: DNeibel
Spokane County		SCALE: NTS
Washington		DATE: December 2014
		JOB NO. 28145031
		FILE NAME: HDD Spokane YP03
		SHEET NO.: 6 OF 6

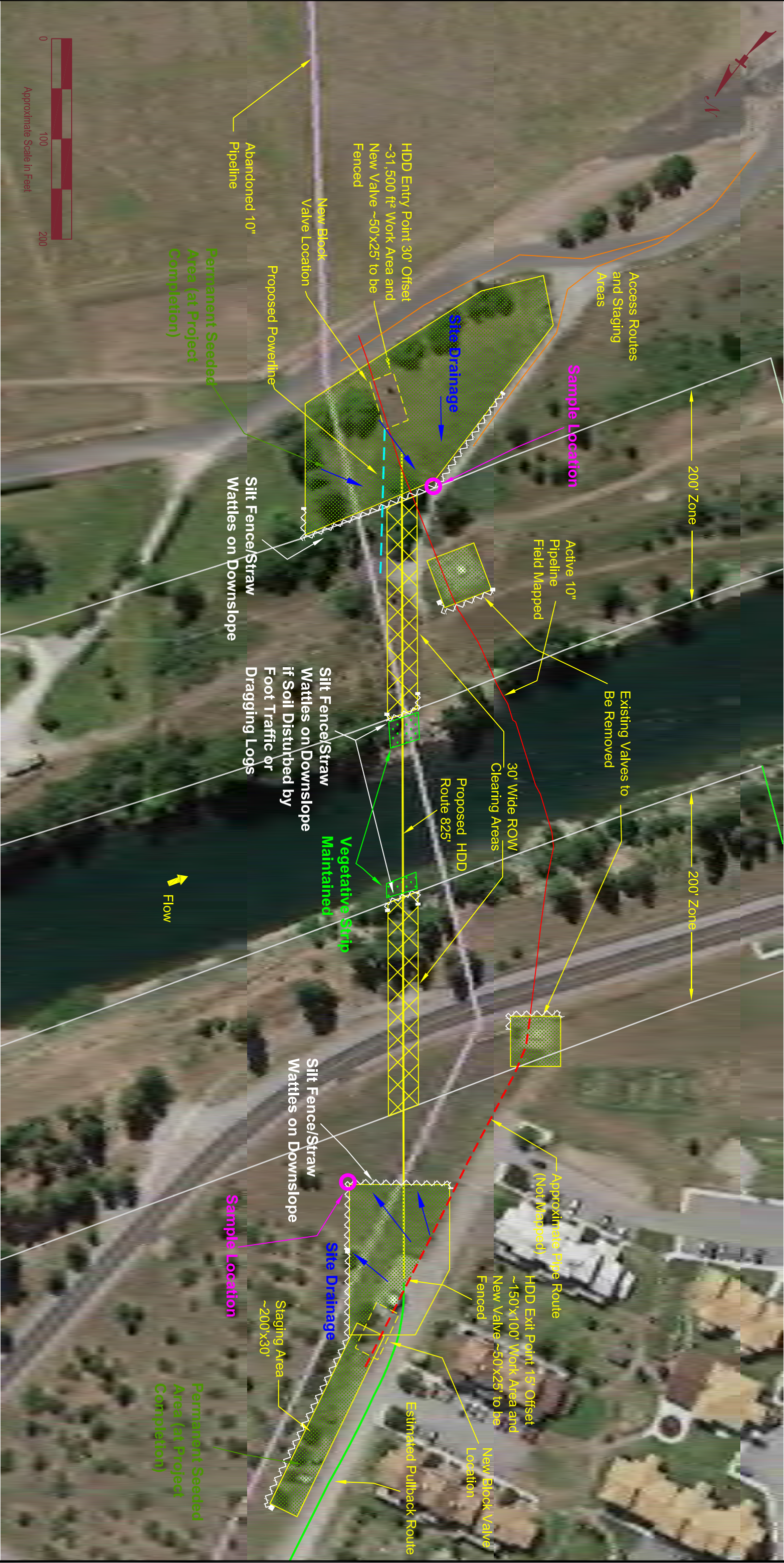


Project Manager: Jean Ramer	Project No. 26145031
Drawn by: Taylor Hoffman	Scale: 1"=24,000 SF
Checked by: Jean Ramer	File Name: Site Contours
Approved by: Jean Ramer	Date: 08/05/2015

Terracon
 2110 Overland Ave. Suite 124
 Billings, MT 59102

SITE LOCATION
YPL Spokane River HDD Spokane River Spokane, WA

Exhibit
A-1



Aerial Dated July 2, 2014; Excerpted From Google Earth

REV.	DATE	BY	DESCRIPTION
1	11/2/15	AJT	Updates following recent revisions



Consulting Engineers and Scientists

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Spokane River HDD - SITE BMPS AND SAMPLE LOCATIONS

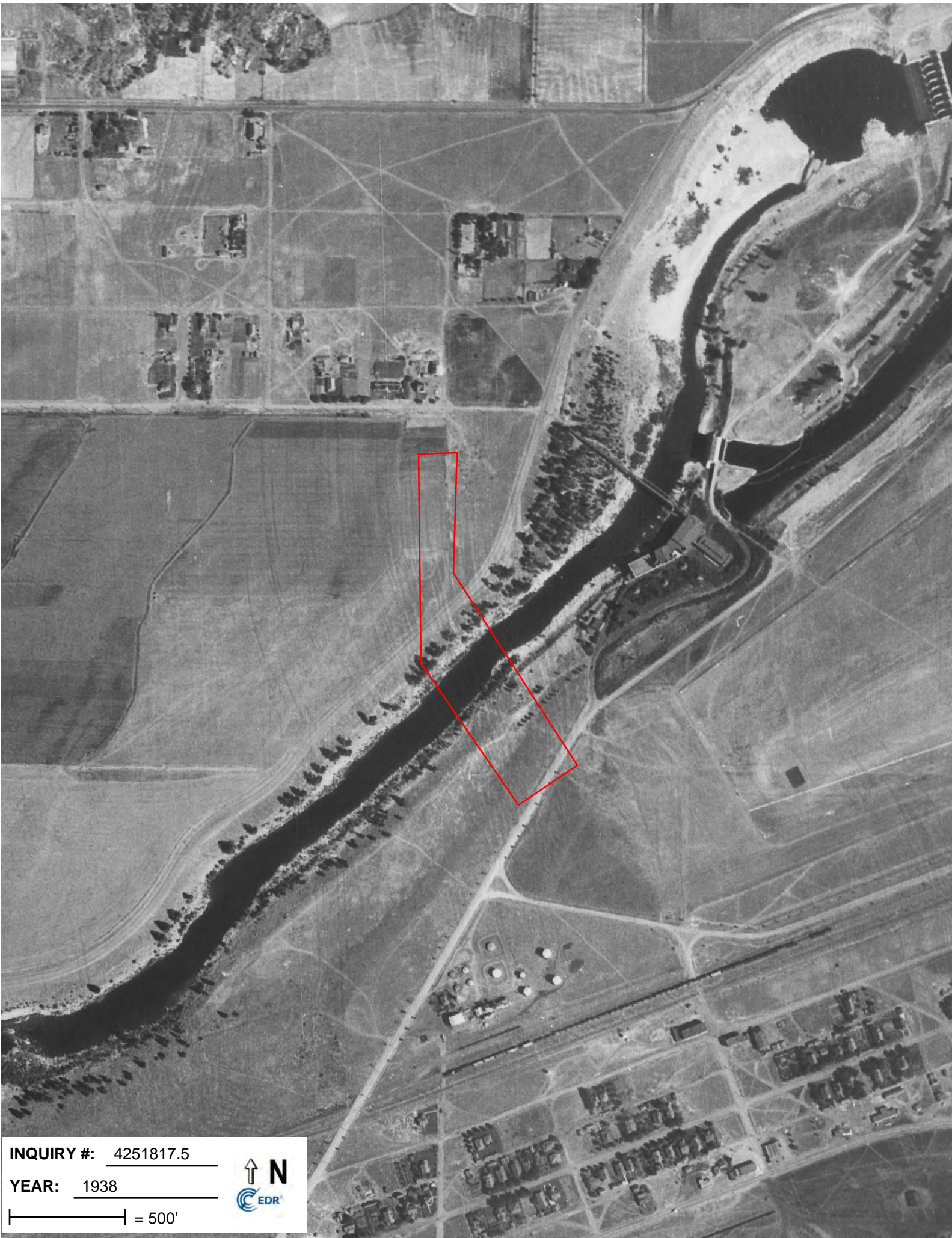
Spokane - Parkwater

Phillips 66 Pipeline LLC.

YP03 - 10" Pipeline

Spokane County

A-2	
DESIGNED BY:	JFamer
DRAWN BY:	SSS
APP'D BY:	DWeid
SCALE:	As Shown
DATE:	Jan 2016
JOB NO.	26145013
FILE NAME:	SWPPP - JAN 2016.dwg
SHEET NO.:	A-2 OF A-2



INQUIRY #: 4251817.5

YEAR: 1938

| = 500'





INQUIRY #: 4251817.5

YEAR: 1946

| = 500'





INQUIRY #: 4251817.5

YEAR: 1962

| = 750'





INQUIRY #: 4251817.5

YEAR: 1972

| = 500'





INQUIRY #: 4251817.5

YEAR: 1982

| = 500'





INQUIRY #: 4251817.5

YEAR: 1995

| = 500'





INQUIRY #: 4251817.5

YEAR: 2005

| = 500'





INQUIRY #: 4251817.5

YEAR: 2011

| = 500'



ENCLOSURE 3

PLAN FOR NEW BLOCK VALVES

Enclosure 3

Yellowstone Pipe Line Company

Horizontal Directional Drill Under The Spokane River at MP 1.3

Plan for New Block Valves

November 2, 2015

This information is being provided to the City of Spokane, to clarify the new block valve design and to address ways to mitigate the visual impacts of the block valves on City property. This issue was discussed at a recent meeting with Tami Palmquist and Elizabeth Schoedel with the City of Spokane on October 13, 2015, in relation to YPL's forthcoming application for a Conditional Use Permit.

The suggestion by the City to enclose the block valves within a rock or brick structure does not conform to currently accepted safety design for refined petroleum products facilities. Ready access to an enclosed facility would not be available as confined space safety protocols would be required for maintenance personnel. Enclosed rock or brick structures are incompatible with current industry standards for block valve enclosures for petroleum pipelines by virtue of the nature of the materials being transported in the pipe.

YPL proposes the new block valve enclosures be constructed of black 8 foot high chain link with three strand barbwire along the top of the fence, or of beige/tan 8 foot vinyl panels also with three-strand barbwire. The barbed wire is driven by YPL's Homeland Security approved system security plans. The enclosures will require a 3 foot man gate and a 12 foot wide swing gate for access and maintenance. The enclosure fence will also have two Phillips 66 signs on all four sides indicating No Smoking and the Yellowstone Pipe Line Company's phone number. Due to the large gates required for emergency access/egress, an enclosed building is impractical and would still require a 12 foot chain link section for access.

A chain link enclosure can be fitted with vinyl slats to provide additional visual screening. Vegetation screening will be incorporated around the fence exterior using shrubs native to the region that would provide some habitat for birds and small mammals. Any vegetation and landscaping rocks would have to be positioned to allow for unimpeded gate movement and access for maintenance. Any vegetation that over time would create a canopy, would have to be positioned sufficiently far from the valve and pipeline so as not to obstruct visual surveillance from the air, and whose roots would not eventually damage the pipe.

A combination of low (< 4 feet at maturity) and medium height (4 – 8 feet at maturity) shrubs that are drought tolerant and native to Washington that may be used, depending on availability at time if planting include:

- Western Serviceberry
- Juniper

- Fernbush
- Bush cinquefoil
- True Mountain Mahogany
- Birchleaf Spirea
- Yew
- Rabbitbrush

Source:

<http://public.wsu.edu/~lohr/wcl/shrubs/shrubs.html>

Shrubs can be planted irregularly, interspersed with boulders or in a row along the fence perimeter as shown in Photo 1. Consideration should be given to fence maintenance and grounds keeping. Landscaping elements must not interfere with the normal operation and maintenance of the pipeline. Every effort will be made to mitigate the visual impacts of the block valves with vegetation. However, if unforeseen conflicts between the landscaping and pipeline operation develop over time, YPL reserves the right to alter the vegetation on its right of way to ensure pipeline integrity.

Areas adjacent to the block valves that are not planted with shrubs, will be reseeded with a weed-free species of upland grass approved by the City of Spokane. Seeded areas will be mulched with weed-free straw and crimped. Weed treatment, should it become necessary, will be conducted, by a professional applicator, licensed in the State of Washington. The disturbed areas will be monitored as required in the Storm Water Pollution Prevention Plan, until final stabilization is achieved.



Photo 1. Photo courtesy Google Earth Street View. Existing communication and control building on the north side of N Upriver Dr adjacent to N Carnahan Rd looking southeast. The new block valve will be placed immediately to the north (photo left) of the existing building. The communication building will remain.

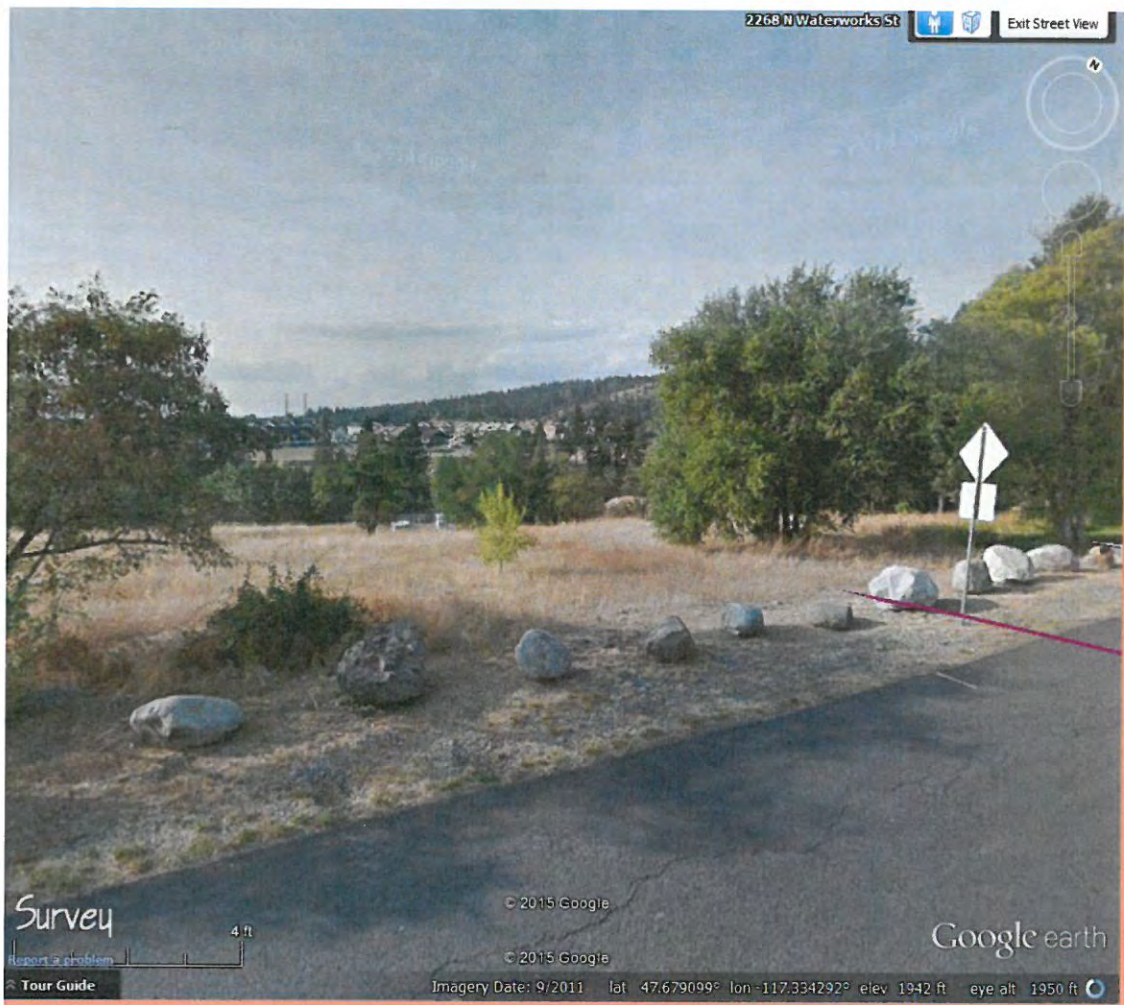


Photo 2. Google Earth Street View showing location of proposed new block valve on the south side of the river looking towards the north from N Waterworks St.



Photo 3. Example of proposed block valve and chain link enclosure with vegetation screening.



Photo 4. Example of low shrub incorporated with boulder cluster.

North Side Block Valve Plan View

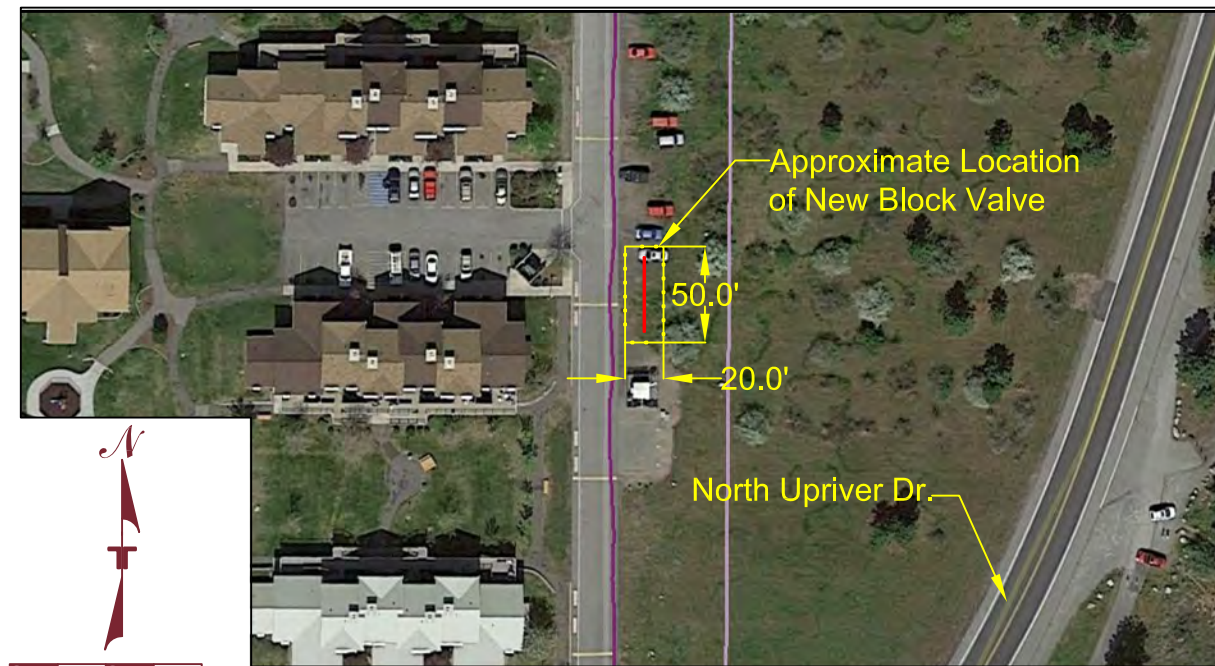


Image Excerpted From Google Earth Dated April 2015

South Side Block Valve Plan View

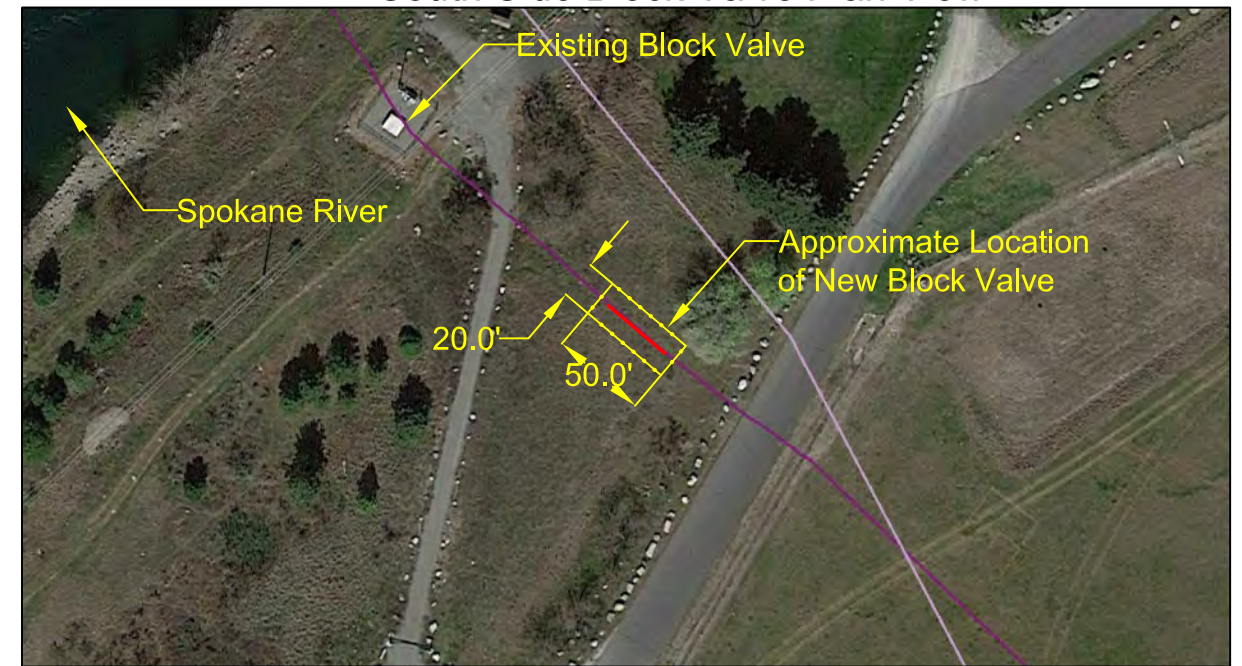
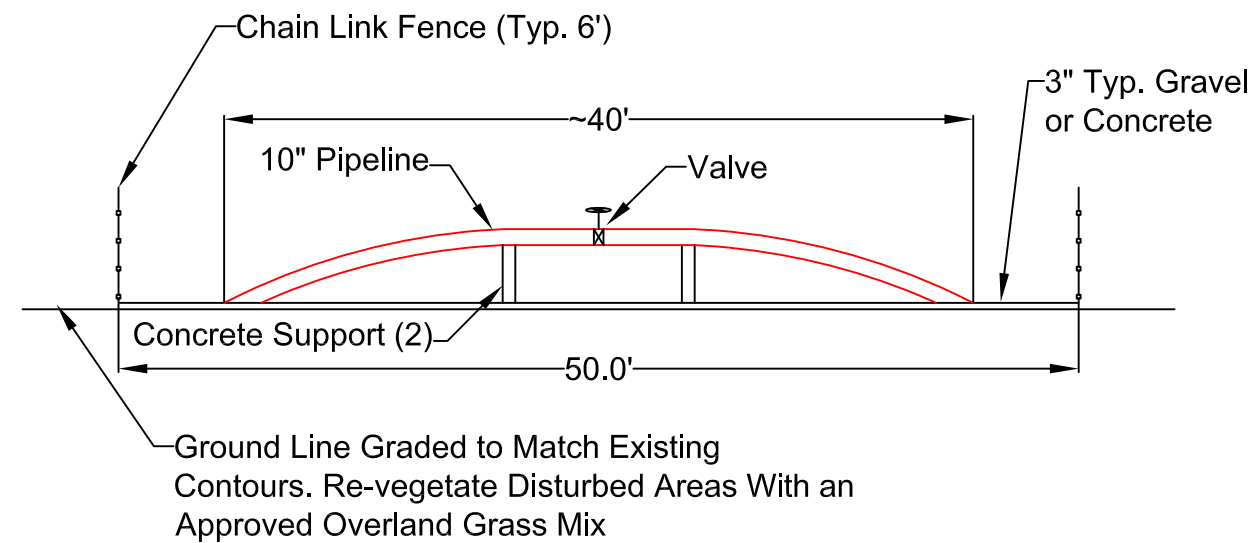
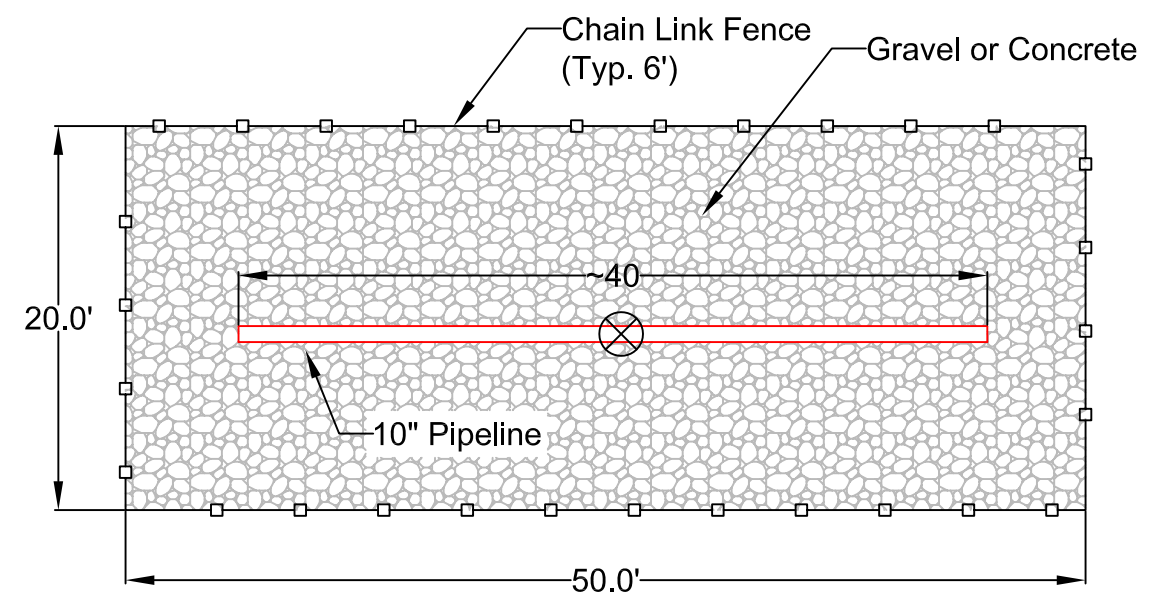


Image Excerpted From Google Earth Dated April 2015

Elevation View of Proposed Block Valve



Plan View of Proposed Block Valve



Smooth Contours to Match Surrounding Area

REV.	DATE	BY	DESCRIPTION

Terracon
Consulting Engineers and Scientists

2110 Overland Avenue, Suite 124
PH. (406) 656-3072

Billings, MT 59102
FAX. (406) 656-3578

Block Valve Grading Plan

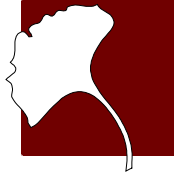
Spokane River / MP 1.3
Phillips 66 Pipeline LLC
YP03 - 10" Pipeline

Spokane County

Washington

1

DESIGNED BY:	GRome
DRAWN BY:	ATorres
APPVD. BY:	JRamer
SCALE:	As Shown
DATE:	March 2016
JOB NO.	26145031
FILE NAME:	Spokane BV.dwg
SHEET NO.:	1 OF 1



MEMO

To: Terracon

Attention: Jean Ramer

From: Mike Terrell, ASLA

Date: 4/4/2016

Project: Yellowstone Pipeline

Project No: 16-012

Re: Revegetation Requirements

CC: File

Jean,

I reviewed the city of Spokane comments and requirements for replacement of vegetation as a result of clearing and construction activities for the installation of the proposed pipeline. The following is the response to the City of Spokane letter of 2/12/16 from Tami Palmquist (Subject: #X16-048 SCUP Corrections Required).

"Planning:

- 1. A Vegetation Replacement Plan will need to be submitted for review and approval as part of the application. Please review the Spokane Municipal Code Section 17E.060.230 Vegetation Conservation, Section 17E.060.260 Vegetation Replacement Plan, additional guidance can also be found in Section 17E.020.090."*

Response: Applicant has reviewed the applicable sections of the Spokane Municipal Code as noted in the staff comments and has prepared a Vegetation Replacement Plan for the areas impacted by the project.

Section 17E.060.230 Vegetation Conservation Requirements:

B. There shall be no net loss of vegetative cover within the shoreline jurisdiction.

Applicant has prepared a Vegetation Replacement Plan (L-1) to mitigate removal of existing native and non-native trees and shrubs required by construction of the project. Applicant has identified three areas where native and non-native trees and shrubs will be selectively removed and those are listed in Table 1, below.

Area A: Area along the existing asphalt driveway (Carnahan RD) serving the apartment complex and south of Buckeye Avenue. Proposed replacement areas are identified on the **plan as 'A-R'.**

Area B: Northwest side of the Spokane River where the proposed project will cross under the river. Native trees and shrubs will be selectively removed in

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a 30' strip to allow inspection of the surface over the proposed pipeline. Proposed replacement areas are identified on the plan as 'B-R'.

Area C: Southeast side of the Spokane River where the proposed project will cross under the river. Non-native trees will be selectively removed in a 30' strip to allow inspection of the surface over the proposed pipeline. Proposed replacement areas are identified on the plan as 'C-R'.

C. Removal of or alteration to any vegetation within the shoreline jurisdiction shall not be allowed unless such activity is approved by the director as part of a vegetation replacement plan.

Applicant requests director's approval for the selective removal of native and non-native trees and shrubs identified on L-1 in order to comply with requirements for aerial inspection of the surface above the pipeline.

D. Proposed removal of vegetation for a permitted use shall be reviewed pursuant to the mitigation sequencing specified in SMC 17E.060.230. Avoidance of any impact to shoreline vegetative cover is the preferred method of mitigation.

Applicant proposes to selectively remove identified native and non-native trees and shrubs in order to minimize impact to shoreline vegetative cover. Vegetative cover located directly adjacent to the Spokane River is identified on L-1 as callout #5. This shoreline vegetation is to remain.

E. Vegetation conservation provisions also apply to those shoreline uses, modifications, and developments that are exempt from the requirement to obtain a shoreline substantial development permit.

Applicant notes the requirements.

F. A tree or shrub may be removed if deemed hazardous by a certified arborist.

No trees or shrubs have been identified as hazardous by a certified arborist.

G. Normal maintenance or repair of existing utilities and facilities within an existing degraded shoreline area shall be allowed if the activity does not further alter or degrade shoreline ecological functions or vegetative cover, and there is no increased risk to life or property as a result of the proposed operation, maintenance or repair.

Applicant proposes management of the 30' clear area over the pipeline to maintain visual access to the surface for security reasons.

H. Vegetation management shall be in accordance with best management practices that are part of ongoing maintenance of structures, infrastructure, or utilities, provided that such management actions are part of a regular ongoing

maintenance. These ongoing activities shall not be subject to new or additional mitigation when they do not expand further into the critical area, are not the result of an expansion of the structure or utility, or do not directly impact endangered species or result in no net loss of shoreline ecological functions. Whenever possible, maintenance activities shall be confined to late summer and fall.

Applicant proposes a Vegetation Replacement Plan with replacement of selectively removed native and non-native trees and shrubs that will result in no net loss of shoreline ecological functions. Applicant proposes to conduct removal and replacement operations in late summer and fall.

I. When an applicant is required to submit a habitat management plan pursuant to SMC 17E.020.090, the requirements in SMC 17E.060.240 through SMC 17E.060.280 may be waived by the director or submitted as a component of the habitat management plan.

Due to the limited area of disturbance, Applicant requests a waiver of the habitat management plan and proposes the Vegetation Replacement Plan. No surface structures or disturbances are planned within the shoreline area, only selective removal of existing native and non-native trees and shrubs.

"Design Review:

- 1. Please submit an application for an Administrative Design Review at your earliest convenience.*
- 2. In order to help expedite this process you may want to have your landscape architect prepare a planting plan showing proposed native trees and vegetation in the full area of disturbance; the plans should include native plants arranged to mimic the natural vegetation patterns of the immediate surround area. Also please include information on irrigation, plant establishment and maintenance. Please show screening and fencing materials and avoid linear plantings around the perimeter of the protective fencing."*

"Washington Department of Fish and Wildlife:

- 1. WDFW has reviewed the Yellowstone Pipeline proposal. Given that the pipeline project will result in permanent impacts to shoreline vegetation, WDFW recommends that the City request a shoreline restoration plan with native plants in order to mitigate these impacts. The restoration work can take place just outside of the area that must be visible for aerial inspections."*

TABLE 1: VEGETATION REPLACEMENT			
<p>Methodology for replacement quantities. It is not practical to replace the existing native trees and shrubs with material that is of equal size. Applicant is proposing to install replacement material utilizing a ratio that results in approximately an equal caliper size achieved with multiple plants.</p>			Comments
	TREE / SHRUB REMOVAL	TREE / SHRUB REPLACEMENT	As per Revegetation Requirements in SMC Section 17E.060.260 Vegetation Replacement Plan
AREA 'A' - 'A-R'	AREA 'A'	AREA 'A-R'	
SERVICEBERRY	1 X 10' TALL (APPROX)	AA: 2 X 5 GAL / 4' TALL	Replace one existing mature native shrub with two 5 gal / 4' tall plants.
AREA 'B' - 'B-R' (SHORELINE)	AREA 'B'	AREA 'B-R'	
PONDEROSA PINE	1 X 24" CAL (APPROX)	PP: 16 X 1.5" CAL / 4' TALL	Replace one existing mature native 24" cal tree with 16, 1.5" (16x1.5=24) caliper / 4' tall plants.
PONDEROSA PINE	1 X 16" CAL (APPROX)	PP: 11 X 1.5" CAL / 4' TALL	Replace one existing mature native 16" cal tree with 11, 1.5" (11x1.5=16.5) caliper / 4' tall plants.
PONDEROSA PINE	2 X 14" CAL (APPROX)	PP: 18 X 1.5" CAL / 4' TALL	Replace two existing mature native 14" cal tree with 18, 1.5" (18x1.5=27) caliper / 4' tall plants.
SERVICEBERRY	1 X 12' TALL (APPROX)	AA: 2 X 5 GAL / 4' TALL	Replace one existing mature native shrub with two 5 gal / 4' tall plants.

AREA 'C' - 'C-R' (SHORELINE)	AREA 'C'	AREA 'C-R'	
BLACK LOCUST UNDER 6" CAL.	11 X 6" CAL (APPROX)	AA: 5 X 5 GAL / 4' TALL SS: 6 X 5 GAL / 4' TALL	1:1 replacement ratio to enhance shoreline function with the replacement of non-native trees with native shrub with habitat value.
BLACK LOCUST OVER 6" CAL. IN CLEARANCE AREA	1 X 12" CAL (APPROX) 5 X 8" CAL (APPROX) 6 X 8" CAL (APPROX)= 12 trees total	PP: 8 X 1.5" / 4' T AA: 15 X 5 GAL / 4' T SS: 16 X 5 GAL / 4' T 39 Replacement Trees and Shrubs	2:1 replacement 3:1 replacement 3:1 replacement Ratio to enhance shoreline function with the replacement of non-native trees with native trees and shrubs with habitat value.

TABLE 2: SHORELINE REPLACEMENT RATIO (SMC 17E.060

TABLE 17E.060-1 SHORELINE VEGETATION REPLACEMENT RATIO*	
Vegetation Removed	Replacement Ratios
Native Deciduous Trees Less Than 6" Caliper	1:1 replacement ratio; Replacement tree(s) must be a minimum 2.5" caliper
Native Deciduous Trees Over 6" Caliper	2:1 replacement ratio; Replacement tree(s) must be a minimum 2.5" caliper
Native Evergreen Trees Less Than 6" Caliper	1:1 replacement ratio; Replacement trees(s) must be a minimum 4" caliper
Native Evergreen Trees Over 6" Caliper	2:1 replacement ratio; Replacement trees must be a minimum 4" caliper
Native Shrubs	1:1 replacement ratio; Replacement shrub(s) must be at a minimum 12" - 18" in diameter (at head)
Native Groundcover	1:1 replacement ratio: Replacement groundcover(s) must be at a minimum 4" in diameter (at pot)
<p>* For example, when a ten-inch caliper native deciduous tree is removed, the applicant may propose to replace with two five-inch caliper native deciduous trees or four two and one-half inch caliper native deciduous trees. A qualified professional will determine the appropriate vegetation replacement size(s) for the project site</p>	

CALLOUTS

- 1

PROPOSED PIPELINE ROUTE
- 2

EXISTING PIPELINE ROUTE
- 3

ABANDONED PIPELINE
- 4

30' RIGHT-OF-WAY VEGETATION CLEARANCE AREA
- 5

VEGETATION TO REMAIN, PRESERVE AND PROTECT
- 6

TREES TO REMAIN, PRESERVE AND PROTECT
- 7

DISTURBED AREA SEEDING
- 8

PROPOSED PIPE STRINGOUT AREA, 870' LONG X 40 FEET WIDE, SEE CIVIL DRAWINGS FOR FULL EXTENT

LEGEND

- 200' SHORELINE BUFFER
- SILT FENCE/STRAW WATTLES, SEE CIVIL DRAWINGS.
- TREE SHRUB REMOVAL AREA.
- PLANTING AREA.
- AREA OF DISTURBANCE BOUNDARY, SEE CIVIL DRAWINGS.
- PIPE STRING, SEE CIVIL DRAWINGS FOR FULL EXTENT.

RESTORATION CALLOUTS

- A

PLANTING AREA 'A': SHRUB TO BE REMOVED AND REPLACED, SEE VEGETATION RESTORATION TABLE
- A-R

RESTORATION AREA 'A-R': LOCATION OF RESTORATION PLANTINGS TO REPLACE TREES AND SHRUBS REMOVED FROM AREA 'A'. SEE VEGETATION RESTORATION TABLE.
- B

PLANTING AREA 'B': TREES AND SHRUBS TO BE REMOVED AND REPLACED, SEE VEGETATION RESTORATION TABLE
- B-R

RESTORATION AREA 'B-R': LOCATION OF RESTORATION PLANTINGS TO REPLACE TREES AND SHRUBS REMOVED FROM AREA 'A'. SEE VEGETATION RESTORATION TABLE.
- C

PLANTING AREA 'C': TREES AND SHRUBS TO BE REMOVED AND REPLACED, SEE VEGETATION RESTORATION TABLE
- C-R

RESTORATION AREA 'C-R': LOCATION OF RESTORATION PLANTINGS TO REPLACE TREES AND SHRUBS REMOVED FROM AREA 'A'. SEE VEGETATION RESTORATION TABLE.

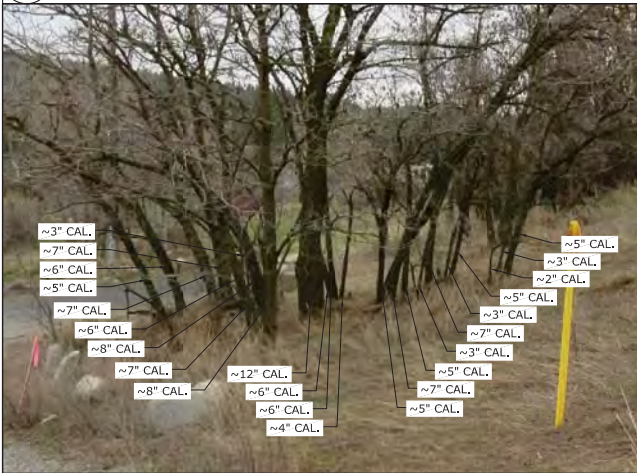
PLANT SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	SIZE
PP	<i>Pinus ponderosa</i> / Ponderosa Pine	1.5" Cal./4' TALL
SHRUBS	BOTANICAL NAME / COMMON NAME	SIZE
AA	<i>Amelanchier alnifolia</i> / Serviceberry	5 Gal. / 4' TALL
SS	<i>Salix scouleriana</i> / Scouler's Willow	5 Gal. / 4' TALL

VEGETATION RESTORATION TABLE		
TREE / SHRUB REMOVAL		TREE/SHRUB REPLACEMENT
AREA 'A' - 'A-R'	AREA 'A'	AREA 'A-R'
SERVICEBERRY	1 X 10" TALL (APPROX)	AA: 2 X 5 GAL / 4' TALL
AREA 'B' - 'B-R' (SHORELINE)	AREA 'B'	AREA 'B-R'
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PONDEROSA PINE	1 X 16" CAL (APPROX)	PP: 11 X 1.5" CAL / 4' TALL
PONDEROSA PINE	2 X 14" CAL (APPROX)	PP: 18 X 1.5" CAL / 4' TALL
SERVICEBERRY	1 X 12" TALL (APPROX)	AA: 2 X 5 GAL / 4' TALL
AREA 'C' - 'C-R' (SHORELINE)	AREA 'C'	AREA 'C-R'
BLACK LOCUST UNDER 6" CAL.	11 X 6" CAL (APPROX)	AA: 5 X 5 GAL / 4' TALL SS: 6 X 5 GAL / 4' TALL
BLACK LOCUST OVER 6" CAL. IN CLEARANCE AREA	1 X 12" CAL (APPROX) 5 X 8" CAL (APPROX) 6 X 8" CAL (APPROX)	PP: 8 X 1.5" / 4' TALL AA: 15 X 5 GAL / 4' TALL SS: 16 X 5 GAL / 4' TALL



B TREE REMOVAL: AREA 'B' SCALE: NTS



C TREE REMOVAL: AREA 'C' SCALE: NTS

