



File Code: 1950

Date: April 28, 2011

Dear Reader:

As part of a Federal permitting and National Environmental Policy Act (NEPA) process, you are invited to review and comment on the proposed Bend Surface Water Improvement Project. Your comments will be considered and used to identify potential project effects to be addressed in a Forest Service Environmental Assessment required under NEPA. For your comments to be most helpful, please respond by June 6, 2011.

The City of Bend receives about half of its current annual drinking water supply from Bridge Creek, located 11 miles west of the City at the end of Skyliners Road and USFS Road 4603. Water from Bridge Creek is delivered to the City through a gravity-fed system that includes a diversion structure, an intake facility, two ten-mile long water pipelines built in the 1920s and 1950s, and storage and disinfection facilities located on property known as the "Outback Site", part of which is owned by the City, and part is owned by the Forest Service and leased to the City (see Exhibit A and Exhibit B). As part of the City of Bend's Surface Water Improvement Project, the City is proposing to upgrade the intake facility and replace the aging water pipelines with a single water pipeline. These actions are subject to a Forest Service Special Use Permit and the National Environmental Policy Act (NEPA). Other project elements include a new membrane filtration Water Treatment Plant (WTP) and a possible hydropower facility, both of which will be located at the City-owned portion of the Outback Site.

Proposed Action

The City proposes to construct an approximately 10 mile-long replacement water pipeline between the existing intake facility and the Outback Site. The pipeline diameter will be designed to carry current flow rates now handled by two pipes, and accommodate future water system demands based on the City's projected growth and water rights. The pipeline will be designed to meet appropriate design velocities and to minimize friction losses to reduce wear on the pipe and to best utilize the potential energy from 1,000 feet of fall between the intake site and a possible hydroelectric power generator. If a hydropower facility is constructed, the City would be required to add fish screens and fish passage facilities to the existing Bridge Creek Intake Facility (or provide mitigation that would provide greater benefit than would be provided by fish passage). If the required intake modifications are substantial, the existing intake facility would be decommissioned, removed, and replaced with a new facility that meets current code requirements.

The existing water supply pipelines are located primarily on undeveloped forest lands except for a section of pipe near the Skyline Subdivision at the end of Skyliners Road. The proposed replacement pipeline would be located almost entirely within transportation rights of way including Forest Service Road 4603, Skyliners Road, and Forest Service Road 4606-100 (Outback Site access road). The City is working closely with the Federal Highway Administration/Western Federal Lands (FHWA) to coordinate pipe installation with their



planned Skyliners Road Improvement Project to reduce cost, streamline schedule, share planning and design resources, and reduce construction impacts.

Purpose of the Proposed Actions

The Bend Surface Water Improvement Project is needed to address failing water pipelines and to comply with new Federal water treatment regulations. The existing two parallel 12- to 14-inch diameter pipes that deliver surface water to the Outback Site were built in the 1920s and 1950s, are deteriorating, entangled with tree roots, encumbered by private property, and have the potential to fail. In addition, the existing pipelines lack flow controls that are needed to avoid unnecessary water diversion.

Project Description

The following actions are proposed on Forest Service land and are the subject of a Forest Service Special Use Permit and NEPA process. The City is still early in the design process. The following descriptions are based on preliminary designs and are subject to change.

Replace Existing Water Pipelines

The City of Bend proposes to replace the existing aging pipelines that carry water from the City's Bridge Creek Intake Facility to the City's surface water storage site referred to as the "Outback Site". The approximately 10-mile long replacement pipeline would be located primarily along existing Forest Service Road 4603, Skyliners Road and the Outback Site access road. The new pipeline will cross Tumalo Creek twice.

The single proposed new water pipeline would start at the Bridge Creek Intake structure; follow the route of an existing 14-inch water pipe through a forested area for approximately 500 feet, then cross the existing access road to approach Tumalo Creek on the downstream side of the existing vehicle bridge. The pipe crossing of Tumalo Creek at this location is proposed via a new pedestrian/bicycle compatible bridge with a single 100-foot span clearing the entire stream channel. Where the new pipe crosses the existing Tumalo Creek Trail, the trail would be reconstructed to maintain access from the creek to the Forest Service parking lot and trailhead.

At approximately 800 feet from the intake (measured along the proposed pipeline), the pipe would enter USFS Road 4603. The next 2,000 feet (1/2 mile) of pipe would be located under the south side of the Forest Road 4603 to avoid existing communications lines and water transmission lines located along the north side of the road. After 2,000 feet, the pipe would be located on the north side of the road, closer to the hillside and continue for the next 10,500 feet (2-miles) until it crosses Tumalo Creek for the second time and enters USFS Road 4601 (Skyliners Road). The second Tumalo Creek crossing is also planned to be an aerial crossing attached to a new 150-foot span pedestrian/bicycle bridge and would be on the downstream side of the existing vehicle bridge.

The next 34,000 feet (6.5 miles) of pipe would be laid along the south side of Skyliners Road, under the proposed bike lane, until it turns northeast onto the Outback Site access road. After 3,100 feet, the water pipeline reaches the Outback Site.

Pipeline construction would include replacement of approximately 13 culverts, mostly concentrated on the west end of the project where springs, seeps, and drainages are more

prevalent. There would also be approximately 9 Blow-off /Drain Valve stations and approximately 13 Air Release/Vacuum Valve (ARV) Stations located along the pipeline alignment. The Blow-Off/Drain Valves are needed to allow the pipe to be drained and are vital to operation of the pipeline (e.g. shut-downs, inspection, repairs). Each blow-off station would include a small partly buried valve/utility vault and an energy dissipation vault, both of which may extend above the ground surface. The blow-off station will discharge water to existing drainage channels, which may need to be hardened with riprap or other permanent erosion control measures near the point of discharge. ARV stations are needed to release air during pipe filling and admit air when the pipe is being drained. Each ARV station would also require a small, partly buried/partly above-ground, secure utility vault so that the air valve itself can be protected from freezing and accessed for maintenance. Each ARV station will also have a vertical air inlet/outlet pipe, or a masonry chimney-like structure, that extends above the maximum snow depth elevation to ensure free flow air. A small roadside vehicle turnout would be developed at each blow-off and ARV station to allow maintenance vehicles to approach each vault and to allow snow removal from the area if winter access is required.

The City is currently assessing the load limits on the existing Forest Service Bridges at each creek crossing along Forest Service Road 4603 to determine if temporary construction bridges will be needed to accommodate loaded construction vehicles and equipment. If needed, temporary construction bridges might be placed over the existing vehicle bridges, or be constructed adjacent to and on the opposite side of the existing bridge relative to the proposed pipeline bridges.

Upgrades to Existing Intake Facility

If the required Intake Facility modifications are substantial, the new facility would be rebuilt on the existing foundation in a manner compliant with current building codes. It is expected that the footprint of the existing Intake Building itself would not be significantly altered.

Construction of a hydropower facility on the City's surface water system would trigger Oregon Department of Fish and Wildlife fish passage and screening requirements. The existing Intake Facility, as currently constructed, is a fish passage barrier. The City is designing Intake Facility improvements to include a fish ladder (passage) and fish screen. The City may also pursue a fish passage waiver from ODFW by presenting a proposal for mitigation in lieu of providing passage. In order to obtain the fish passage waiver, the City would be required to develop and implement mitigation that would provide a greater benefit to native fish than would be provided by building fish passage at the Intake Facility. The waiver approval is at ODFW's discretion.

If a fish ladder is installed, it would require an approximately 700 ft² to 800 ft² area adjacent to and north of Bridge Creek and immediately east of the existing Intake Building (see Exhibit C).

Potential water storage tank and pressure control station

Currently, the City is looking into the option of locating an additional water storage tank on Forest Lands just north of Skyliners Road and a little over a half mile west of the Outback Site Road entrance (see Exhibit D). This facility would allow elevation pressure head to drive the operation of the water treatment plant and eliminate the need for an additional

pumping station for the water treatment plant. This facility would only be used if the hydropower option was deferred.

The use of water storage at this elevation would provide elevation pressure head needed to eliminate a pumping station at the Outback Site, resulting in increased reliability, uninterrupted water service to the City in the event of a power outage, and reduced operation and maintenance costs over the life of the Outback Water Treatment Plant facility.

This tank would be approximately 60-feet in diameter and approximately 25 feet tall and would be connected to the main water pipe by two smaller buried pipelines (one for incoming and one for outgoing water). These connection pipelines would pass through a buried concrete vault housing valves, piping, and meters. This proposed new water storage tank could also be used to supply water trucks in the event of a fire. An emergency overflow pipe would be required at this facility.

Potential Fire Support

The City is working with the Forest Service on designing the proposed new water pipe to provide fire support within the forest by adding stand pipes (rigid vertical pipes to which a fire hose could be connected) along the main water pipeline. The stand pipes, which may be associated with an underground cistern or pressure reducing valve vault, could be used to fill water trucks in the event of a fire. There may be up to five standpipes located along the main water pipeline.

Pipeline Abandonment

The City is working with the Forest Service on an appropriate plan for abandoning the existing water pipelines that would no longer be in use at project completion. Although an abandonment plan has not yet been developed, it may include some combination of targeting pipe removal, filling some sections of pipe, and abandoning other sections in place unfilled. As the details of the pipeline abandonment plan are developed, the City and the Forest Service will be weighing risk, public safety, incidental damage to the surrounding environment, and cost.

Staging Areas

The City would locate staging areas for pipeline construction activities along Skyliners Road, Forest Road 4603, and the Outback Site access road. A total of up to 11 temporary staging areas may be established between the Bridge Creek Intake Facility and the Outback site. These staging areas would range in size between 0.2 acres along the road, and 14.1 acres at the Outback Site, and would be used for material and equipment storage, rock crushing, large vehicle turn-around, parking for workers, and other construction-related uses. All staging areas would be restored to pre-construction conditions after project completion.

The following proposed actions are not on Forest Service Lands but are an integral part of the City's proposed Surface Water Improvement Project.

Water Treatment Plant

The City is proposing to build a new membrane filtration water treatment plant at the City-owned portion of the Outback Site in order to comply with new federal drinking water regulations. The water treatment plant is being designed to treat up to 13.6 million gallons of water per day (approximately 21 cfs).

Hydropower facility

The City is designing the project to accommodate a hydropower facility at the City-owned portion of the Outback Site. The City has not yet decided if the hydropower plant would be built as part of the proposed Surface Water Improvement Project, or built later as a separate project. Regardless of when it is constructed, the hydropower facility would be the subject of a Federal Energy Regulatory Commission (FERC) Conduit Exemption process and an Oregon Water Resources Department (OWRD) water rights certification process. Both the state and federal process that would be required to operate a hydropower facility would allow the City to generate hydroelectric power using only water that is already being diverted for municipal use. Under the FERC conduit exemption, the City would not be allowed to divert water solely to generate power.

Forest Plan Allocations

The project will meet Forest-wide standards and guidelines and Management Area standards and guidelines as described in the Deschutes National Forest Land and Resource Management Plan (LRMP), as amended.

The western portion of the project lies within the range of the northern spotted owl, and is designated as either Matrix or Administratively Withdrawn. Portions of Tumalo Creek are designated as Riparian Reserves.

The project area lies entirely within LRMP Management Area 9, Scenic Views, Retention Foreground.

No activities are proposed within potential wilderness, inventoried roadless areas, or in Old Growth management Areas.

Types of Impacts Anticipated

The proposed project will require substantial ground disturbing work at the intake facility, along the new proposed pipeline, at the site of the proposed new water tank, and at the City-owned Outback Site. An upcoming Environmental Assessment will describe specific potential impacts, and the public will have an opportunity to comment on that assessment. Some of the anticipated impacts are generally described below, and are based on preliminary design concepts.

- **Wetlands and Waters of the State:** Temporary impacts to wetlands and Riparian Reserves, primarily in areas where the pipeline crosses over Tumalo Creek. A restoration plan would be implemented to return impacted areas to pre-construction conditions. If permanent impacts (fills) to wetlands are ultimately proposed, then a wetland mitigation plan would be developed and implemented.
- **Tree Removal.** Although the proposed pipeline would be located primarily within road rights of ways, the approximately 500-foot section between the Intake Facility and Forest Road 4603 is in a forested area and would require substantial tree removal to facilitate pipe installation. The pipeline alignment through this section would need to be maintained as

cleared to avoid tree root impacts to the pipeline. In addition, the blow-off valve stations and air release vacuum stations along the pipeline would need to be kept free of large trees to maintain access to these stations.

- **Noise:** Construction-related noise impacts could result in short-term displacement of wildlife in some areas. Skyliners Subdivision residents and those recreating on Forest Lands near the project area will also experience increased noise during pipeline installation and construction of Intake Facility upgrades. Sources of noise would include heavy equipment operation, rock crushing activities, potential blasting activities, and construction-related heavy truck traffic along Skyliners Road.
- **Impacts to Tumalo Creek Flow:** The capacity of the existing surface water system is 18 cfs, which is diverted continually because the current system lacks flow control. The City's proposed improvements would increase the capacity of the surface water system to 21 cfs. Therefore, the City's proposed project will only allow the City to divert up to 21 cfs from Bridge Creek. If the city upgrades the system to increase capacity in the future, the practical ability to divert more water than is diverted today will remain limited during periods of highest environmental concern (late summer). This is due to low flows in Bridge and Tumalo Creeks resulting in limited available water and typical distributions regulated by the State Water Master in late summer.
- **Benefits to Tumalo Creek Flow:** The new proposed water pipeline will include flow control valves at the downstream end of the new pipeline, allowing the City to bypass water at the Intake Facility when it is not needed for municipal use. The proposed improvements will increase flow in the creek during certain periods by allowing the City to reduce or turn-off flow when the water isn't needed for municipal use. Today the pipelines run all the time.
- **Traffic and Access:** Construction-related short-term traffic and access impacts including lane and road closures, heavy truck traffic, delays on Skyliners Road, and access impacts along Skyliners Road and along Forest Road 4603 will occur during the project construction period. The City will be working closely with the Forest Service to minimize delays, avoid road closures, and maintain access to Tumalo Falls to the greatest extent possible when visitor numbers on Forest Lands are at their highest.

Invitation to Comment and Timeframe

We are telling you about this proposal so that you can provide comments to us. Your comments will be considered and used to identify potential issues and concerns associated with the proposal and will help inform the scope of the environmental assessment process. Please make comments as specific as possible and note that they will become a matter of public record. The environmental analysis process will include considering input we receive, and conducting any necessary surveys for cultural resources, fish and wildlife, sensitive plants, wetlands, and other resources. Our current expectation is that the analysis will be documented in an environmental assessment that should be completed in the spring of 2012. There will be another opportunity to comment on the proposed action and potential impacts at that time.

Comments may be submitted electronically to comments-pacificnorthwest-deschutes-bend-ftrock@fs.fed.us. They must be submitted as part of the actual e-mail message, or as an attachment in Microsoft Word, rich text format (rtf), or portable document format (pdf) only. E-mails submitted to e-mail addresses other than the one listed above, in other formats than those listed, or containing viruses will be rejected. Please put "Bend Surface Water Improvement Project" in the subject line of your email.

Comments may also be submitted in writing by mail or in person. Written comments should be sent or delivered to: Bend Surface Water Improvement Project, Project Manager, Rod Bonacker, Post Office Box 249, Sisters, OR 97759; Telephone (541) 549-7729, FAX (541) 549-7746; email address: rbonacker@fs.fed.us. Those submitting hand-delivered comments may do so at the Bend Ft Rock Ranger District Office in Red Oaks Square in Bend, Oregon during the regular office hours of 8:00 to 4:30 Monday through Friday except legal holidays.

To help us reach as many interested parties as possible during this “scoping” period, please share this letter with others who may be interested. Please also let us know if there is someone who should be added to our mailing list, or if you have any address corrections. If you prefer not to receive future correspondence about this project, we request that you let us know and we will remove your name from the mailing list.

If you have any questions, additional information can be provided by Rod Bonacker, Project Manager at (541) 549-7729.

Visit the City’s website at ci.bend.or.us/depts/public_works/surface_water_improvement_project for information about the Surface Water Improvement Project.

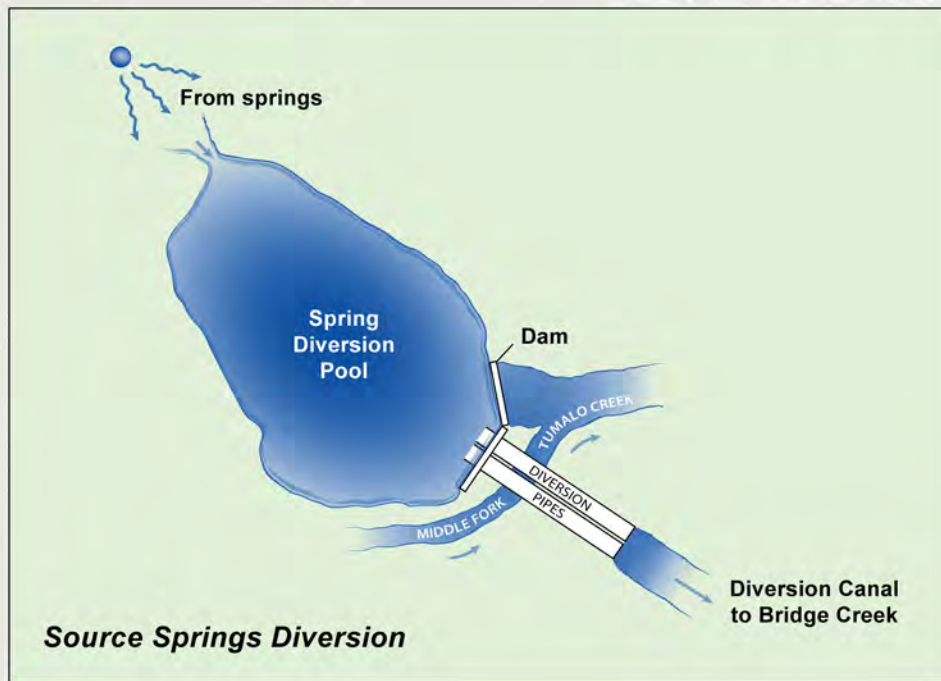
Sincerely,

/s/ A. Shane Jeffries
A. SHANE JEFFRIES
District Ranger

Surface Water Improvement Project Corridor



Bridge Creek Surface Water System



LEGEND

- Roadway
- - - Proposed Conduit
- Existing Conduit
- Existing Bend City Limits
- Non-USFS and Non-City Land
- Deschutes National Forest
- Reach A (Tumalo Creek)
- Reach B (Tumalo Creek)
- Reach C (Deschutes River)
- Rivers, Creeks, Streams

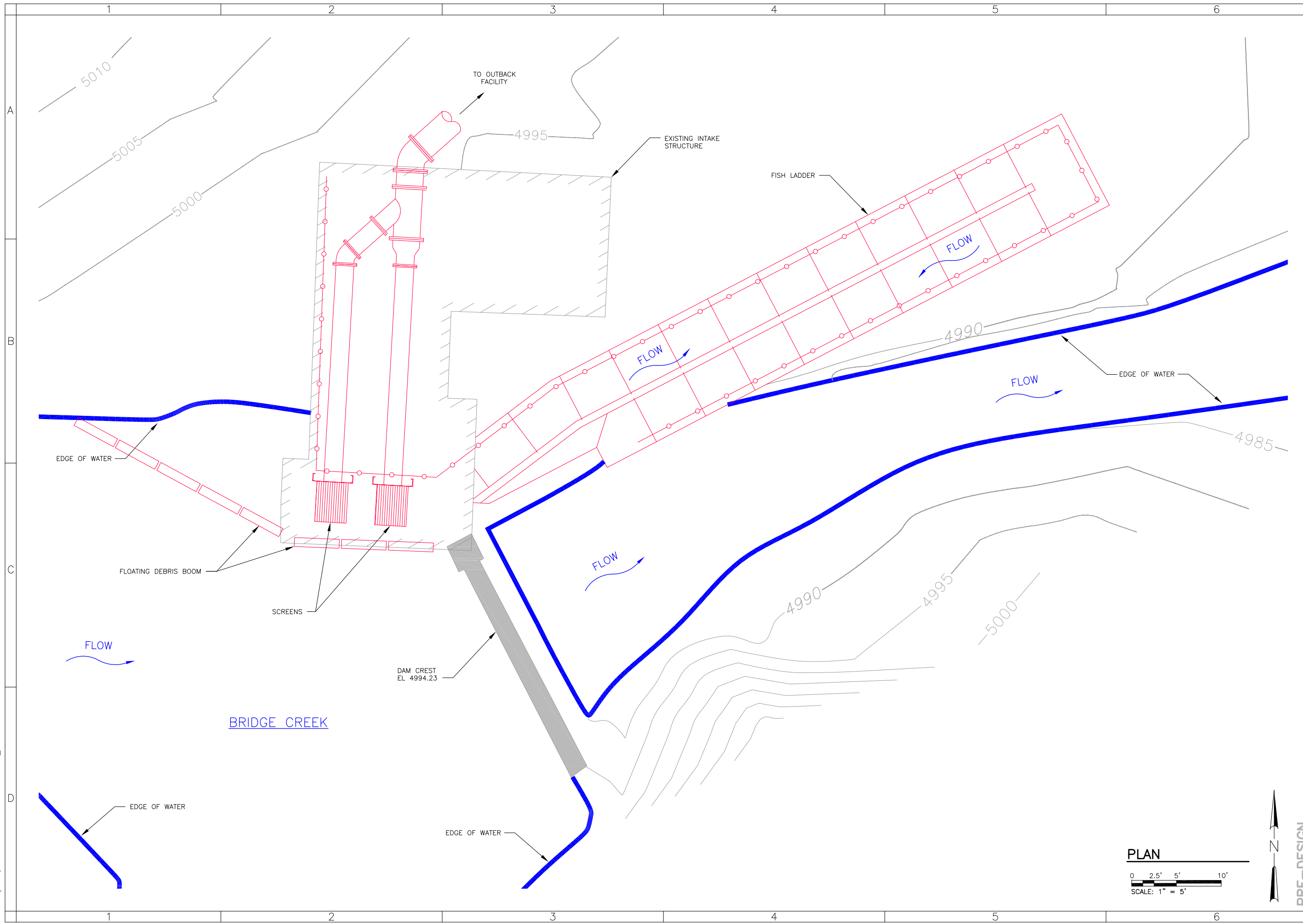
0 0.75 1.5 2.25 3 Miles

October 4, 2010

Data Sources: Deschutes County, City of Bend, TID

Exhibit B

DWG: C:\pwworking\sea\d0579510\Intake Plan.dwg
DATE: Apr 13, 2011 11:05am
USER: skuhns
XREFS: X_Border



**NOT FOR
CONSTRUCTION
OR
RECORDING**

SURFACE WATER IMPROVEMENT PROJECT
INTAKE FACILITY
INTAKE PLAN AND PROFILE
DESCHUTES COUNTY, OREGON



REVISIONS:

1.	ISSUE FOR PROPOSAL
2.	
3.	

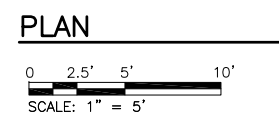
HDR
HDR Engineering, Inc.
1001 SW 5th Avenue
Suite 1800
Portland, Or 97204

DESIGNED BY:	
DRAWN BY:	
SCALE:	
FILE:	
DATE:	MARCH 2011

VERIFY SCALES
0 1" BAR EQUALS ONE INCH ON ORIGINAL DRAWING

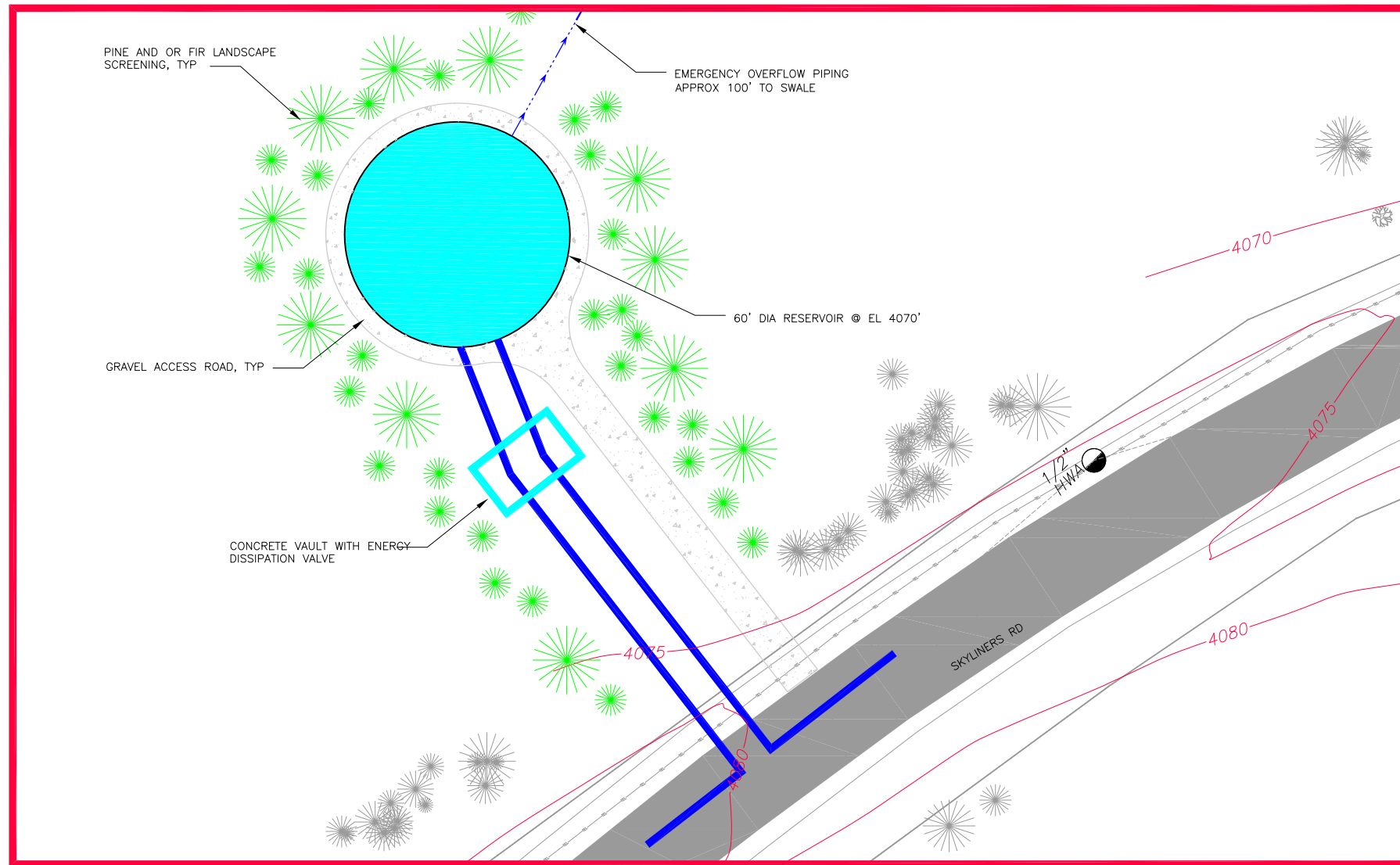
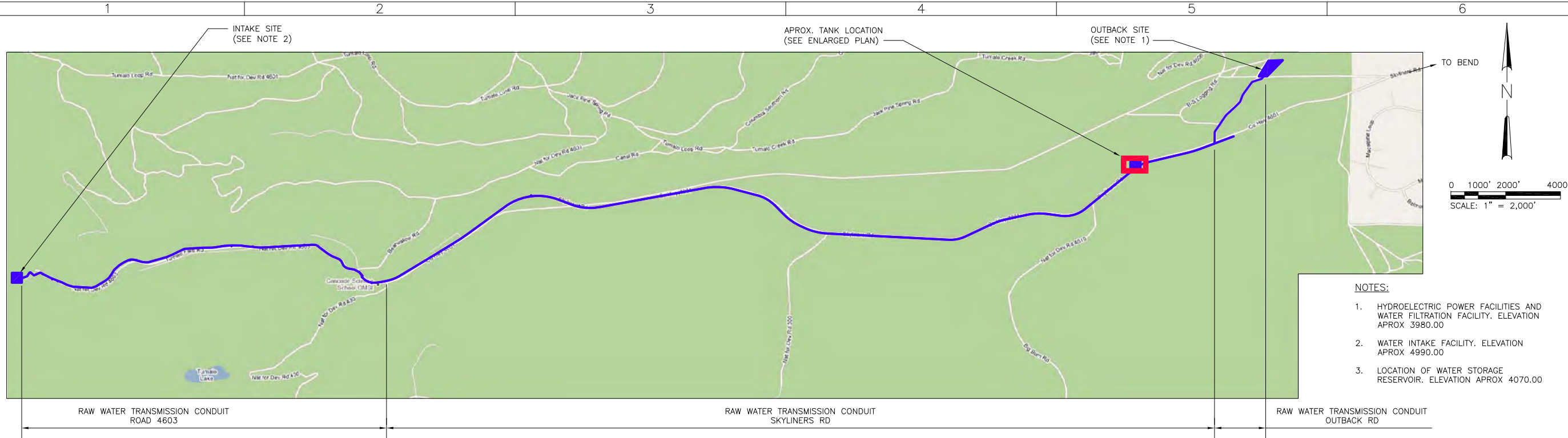
SHEET:
Exhibit C

COB #:
WA0902



PRE-DESIGN

DWG: C:\pwworking\sea\d0579510\Site Plan.dwg USER: skuhns
 DATE: Mar 07, 2011 11:11:00am XREFS: HWA_Base-Map



DRAFT
 (Not For Construction)

SURFACE WATER IMPROVEMENT PROJECT

POTENTIAL WATER STORAGE
 RESERVOIR SITE PLAN

DESCHUTES COUNTY, OREGON

REVISIONS:

1.	
2.	
3.	

HDR

HDR Engineering, Inc.
 1001 SW 5th Avenue
 Suite 1800
 Portland, Or 97204

DESIGNED BY: S. KUHN
 DRAWN BY: S. KUHN
 SCALE: 1" = 40'
 FILE:
 DATE: JANUARY 2011

VERIFY SCALES

0 1" BAR EQUALS ONE INCH ON ORIGINAL DRAWING

SHEET: **Exhibit D**

COB #: WA0902

PRE-DESIGN