

SOA 2010-05
Priest Rapids Coordinating Committee Hatchery Subcommittee
Statement of Agreement on Water Rights

Submitted to PRCC Hatchery Subcommittee: 9/2/2010

Approved by PRCC Hatchery Subcommittee: 9/16/2010

Approved by PRCC: The PRCC was consulted and determined that they do not need to approve this SOA

Statement

The Priest Rapids Coordinating Committee Hatchery Subcommittee (PRCC HSC) agrees with and approves of the following statements:

1. The non-consumptive water withdrawal of 1 cfs from March through May at the White River Bridge Site for short-term acclimation activities is of beneficial use (supply water to acclimation tanks), provides an environmental benefit (acclimation of spring Chinook salmon), and will have no significant impacts to the aquatic environment (short bypass reach (less than 50 ft), withdrawal is less than 1 percent of any mean monthly flow for the White River). Additional detail is provided in Attachment A.
2. The non-consumptive water withdrawal of 2 cfs from March through May at the River Mile (RM) 11 Site along the White River for short-term acclimation activities is of beneficial use (supply water to side channel and to acclimation tanks), provides an environmental benefit (acclimation of spring Chinook salmon), and will have no significant impacts to the aquatic environment (short bypass reach for tanks (less than 50 ft), 1500 ft bypass reach for side channel, and withdrawal is less than 1 percent of any mean monthly flow for the White River). Additional detail is provided in Attachment A.
3. The non-consumptive water withdrawal of 7.5 cfs surface water and 120 gpm groundwater at the White River Bridge Site for long-term acclimation activities is of beneficial use (supply water to acclimation vessels and de-ice intake screens), provides an environmental benefit (acclimation of spring Chinook salmon), and will have no significant impacts to the aquatic environment (short bypass reach, less than 300 feet, and less than 3 percent of any mean monthly flow for the White River). Additional detail is provided in Attachment B.
4. The non-consumptive water withdrawal (11.5 cfs surface water, up to 600 gpm groundwater) at the Boyce/Youngsman Site along Nason Creek for long-term

hatchery supplementation activities is of beneficial use (water supply for hatchery facility), provides an environmental benefit (acclimation of spring Chinook salmon), and will have no significant impacts to the aquatic environment (short bypass reach, less than 300 feet, and less than 11 percent any mean monthly flow for Nason Creek). This water right will likely be amended to smaller amounts to support only acclimation activities if the Eastbank Hatchery provides juvenile rearing (per the PRCC Hatchery Subcommittee via vote to approve juvenile rearing of Grant PUD's Nason Creek spring Chinook program at Eastbank Hatchery at its July 26, 2010 meeting). Additional detail is provided in attachment C.

This SOA will be the basis of PRCC Hatchery Subcommittee¹ support of the use of these water rights for acclimation of Spring Chinook.

Background

In January of 2010 Grant PUD submitted its first water right application to the Washington State Department of Ecology (WDOE) for the long-term acclimation facility at the White River Bridge Site; Grant PUD followed with an additional application for the Nason Creek facility at the Boyce/Youngsman Site, and anticipates submitting two additional applications for the short-term acclimation activities at the White River Bridge and RM 11 sites. These water rights must be obtained before Grant PUD's supplementation programs can begin operation.

While the US Fish and Wildlife Service and NOAA Fisheries support this water right application, please note that listed bull trout, spring Chinook and steelhead have been documented in the area of these site locations. Accordingly, we suggest that Ecology consider the potential presence of these species in executing the subject water right applications. In addition, the effects of these proposed water right applications on bull trout, spring Chinook salmon and steelhead have not been analyzed within the scope of the Endangered Species Act.

¹ The HSC is comprised of representatives from NOAA Fisheries, US Fish and Wildlife Service, Yakama Nation, Confederated Colville Tribes, Washington Department of Fish and Wildlife, and Grant County PUD.

**SOA 2010-XX
ATTACHEMENT A
WHITE RIVER SHORT-TERM ACCLIAMTION**

Proposed Locations

There are two proposed short-term acclimation locations located along the White River. The first is the Bridge Site (formerly known as the McComas Site); it is located northwest of Lake Wenatchee at approximately river mile (RM) 2 of the White River (Figures 1 and 2). This is also the proposed location of a long-term over-winter acclimation facility (see water right applications G4-35266 and S4-35267). The site has been highly impacted by previous grazing activities, bank erosion and armoring, and stormwater channeling. The Bridge Site is approximately 18-acres and is known as Chelan County tax parcel 271610340030. The proposed point of diversion will be located on the outside bend of the White River and immediately downstream of the existing Little Wenatchee Road (USFS Road 6500) bridge abutment.

The second site is the River Mile (RM) 11 Site; it is located northwest of Lake Wenatchee at approximately RM 11 of the White River (Figure 3). The RM 11 Site is approximately 1.1 acres and is known as Chelan County tax parcels 281618300050 and 281618100000. There will be two points of diversion associated with the RM 11 Site; one will be used to augment flow from the White River into a side-channel approximately 730 ft long, while the other will be used to pump water into three acclimation tanks. Additional detail regarding these points of diversion is explained on Page 6.



Figure 1: Vicinity map of proposed location for White River spring Chinook acclimation activities at the Bridge Site.

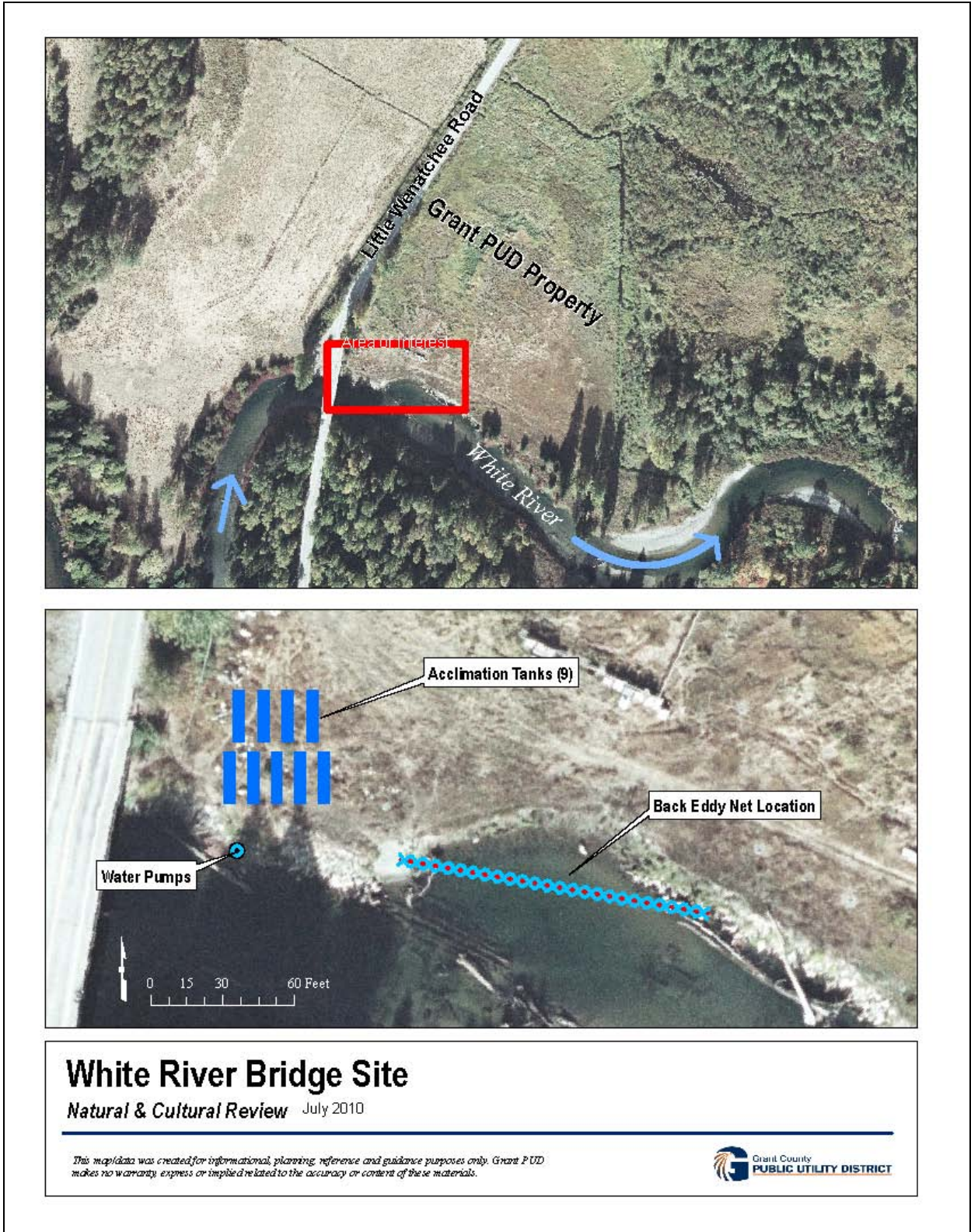


Figure 2: Aerial photograph of proposed location (Bridge Site) for acclimation activities along left bank of the White River, Chelan County, WA.

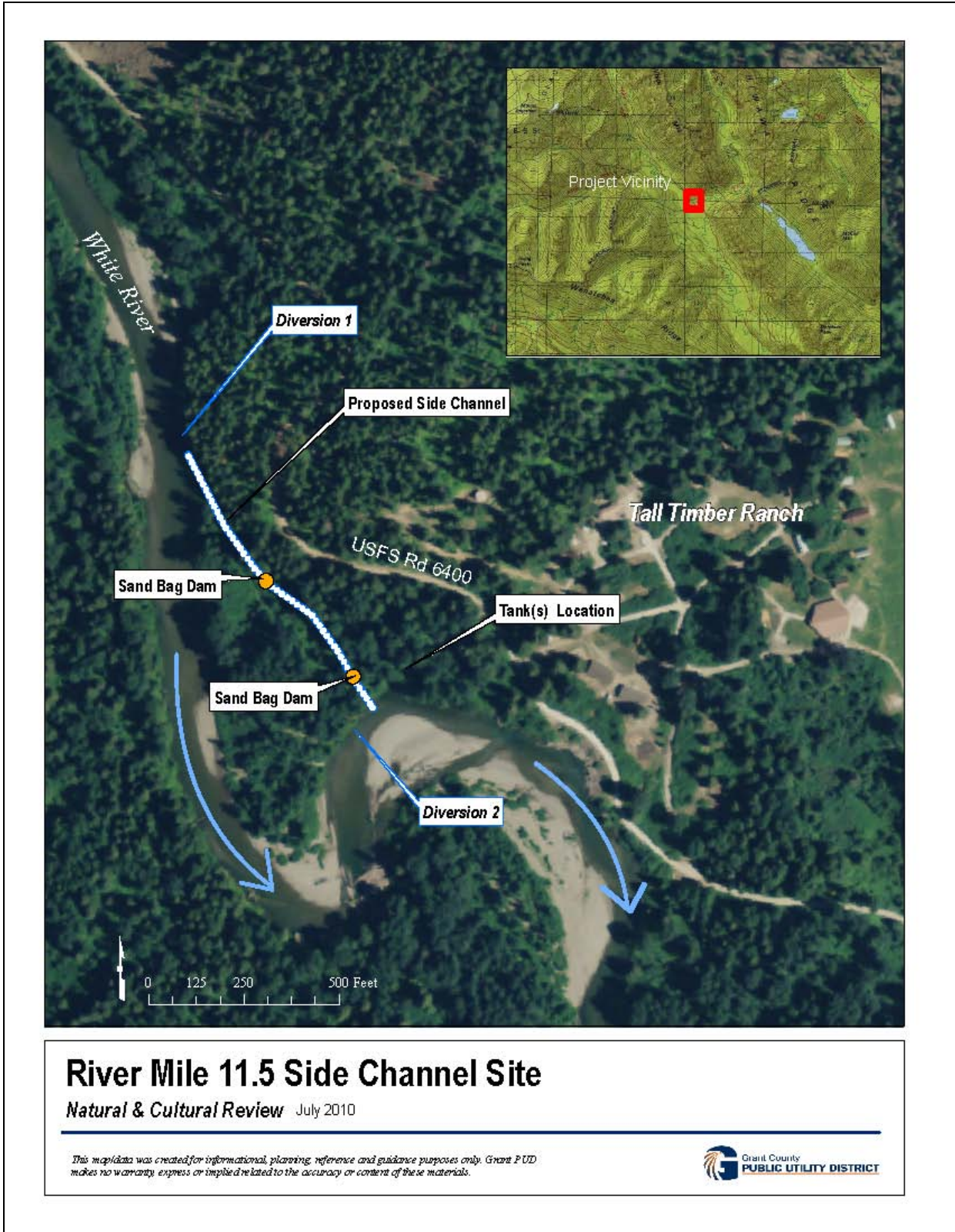


Figure 3: Aerial photograph of proposed location (RM 11 side-channel site) for acclimation activities adjacent to the left bank of the White River, Chelan County, WA.

Proposed Water Use

Bridge Site

The surface water right requested for the Bridge Site will be for non-consumptive use of 1.0 cfs for fish acclimation. Water will be diverted from the White River just east of the Little Wenatchee Road (USFS Road 6500) bridge crossing (see Figure 2). The water will be circulated through acclimation tanks and discharged immediately downstream (less than 50 ft) of the point of diversion. The surface water use will be non-consumptive and used for the acclimation of up to 30,000 spring Chinook smolts. The anticipated period of use will be from March – May each year. Once the long-term, over-winter acclimation facility is approved, designed, constructed, and becomes operational it is anticipated that the water use proposed for that facility (see S4-35267) will replace the need for this short-term acclimation measure.

RM 11 Site

The surface water right requested for the RM 11 Site will be for non-consumptive use of 2.0 cfs for fish acclimation, using two points of diversion at 1.0 cfs each.

Diversion 1

Approximately 1.0 cfs of water will be diverted from the White River via two six-inch siphon pipes over an existing debris pile (Figure 4) and into the side channel, where it will flow into temporary pools, created by the temporary placement of heavy-duty plastic sand bags. The water will return to the White River approximately 1500 ft downstream of the point of diversion (see Figure 3). The surface water use will be non-consumptive and used for the acclimation of up to 12,000 spring Chinook smolts.



Figure 4: Debris pile at head of river mile 11 side channel on the White River, Chelan County, WA.

Diversion 2

Similar to the Bridge site, the RM 11 site will also use aluminum tanks to acclimate approximately 10,000 spring Chinook smolts. For this diversion, approximately 1.0 cfs of water will be pumped from the White River just upstream of the side-channel outlet, passed through the tanks, and returned immediately (less than 50 ft.) downstream of the point of withdrawal (see Figure 3). The tanks will be located on the unimproved roadway that accesses the side channel on Tall Timber Ranch property.

For both diversions at the RM 11 Site, the anticipated period of use will be from March – May each year. It is anticipated that the RM 11 Site will continue to be used after the long-term, over-winter acclimation facility is approved, designed, constructed, and becomes operational (see S4-35267), as the RM 11 Site provides a location further upstream for a portion of the fish to be released.

Four-Part Test

Grant PUD anticipates that these applications will meet the four-part test required by RCW 90.03.290, including:

1. Water is available for use:

Bridge Site:

The surface water point of diversion for the Bridge Site would be on the downstream side of the northern bridge abutment where the Little Wenatchee Road (USFS Road 6500) crosses the White River (see Figure 2). Good bank stability is afforded by the bridge abutment and good scouring velocities should make this a predictable and dependable point of diversion location. The adjacent bridge abutments concentrate the flow into a defined channel making for more reliable scouring of the channel.

RM 11 Site – Diversion 1:

This surface water point of diversion will be via two six-inch siphon pipes over an existing debris pile (Figure 4) and into the side channel, where it will flow into temporary pools, created by the temporary placement of heavy-duty plastic sand bags, and will return to the White River approximately 1500 ft downstream of the point of diversion (see Figure 3).

RM 11 Site – Diversion 2:

This surface water point of diversion would be just upstream of the side-channel outlet, west of the Tall Timber Ranch (Figure 3). The pump will be placed into the White River, and water will be pumped through a pipe to three acclimation tanks, and returned immediately (less than 50 ft.) downstream of the point of diversion.

For both sites, the surface water supply pumps/siphons will be screened in accordance with National Marine Fisheries Service (NMFS) criteria. The Washington State Department of Ecology operates a flow monitoring station on the White River at RM 6.4 (www.ecy.wa.gov - Station 45K090). This station went into operation shortly before the

start of the 2003 water-year. Since then the instantaneous yearly low water discharge readings have been 61.5 cfs (below rating, reliable extrapolation) in November 2002 and 98.0 cfs (estimated) in October 2003. However, available United States Geological Survey (USGS) data indicates that the lowest recorded mean daily flow between March and May is 75 cfs. This gage data was collected at USGS Gage Station 12454000, located approximately 4.5 miles upstream of the proposed Bridge Site. Based on the USGS data, Table 1 shows the lowest recorded daily mean river flows for the 1954 to 1983 time period compared with the monthly mean historical flows and the estimated peak acclimation facility water requirements. Based on this data, the proposed surface water use for these two acclimation sites are expected to be less than 0.5% of any mean monthly flow and less than 2% of the lowest mean daily flow on record.

Table 1: Estimated acclimation water quantity requirements and historical river flows from 1954 to 1983.

	March	April	May
Mean Monthly Flow (cfs)	356	710	1846
Low-Year Flow Min. (cfs)	75	360	1140
Lowest mean daily flow (cfs)	75	159	322
Max. water demand (cfs) ¹	1.0	1.0	1.0
Percent total mean monthly river flow used (%)	0.3	0.1	0.1
Percent total of lowest mean daily river flow used (%)	1.3	0.6	0.3

¹Each diversion will require 1 cfs.

Although Diversion 1 at the RM 11 site will have a 1500 ft bypass reach between point of diversion and point of return (see Figure 3), because the withdrawal will be less than 0.5% of any mean monthly flow and less than 2% of the lowest mean daily flow on record, there should be no impacts to aquatic biology within this bypass reach.

2. Water will be put to beneficial use:

The surface water will be put to the beneficial use of acclimating up to 60,000 spring Chinook salmon on an annual basis (40,000 at Bridge Site and 22,000 at RM 11 Site). These acclimation activities will help meet the requirements of 2008 Biological Opinion issued by NMFS and will help Grant PUD mitigate for its unavoidable impacts to upstream salmonid populations. Grant PUD can provide WDOE with additional detail of its mitigation requirements if requested. Support of this beneficial use from the fishery resource management agencies can also be provided if requested.

3. Water use will not impair existing rights:

The surface water use will be non-consumptive, as it will be returned to the White River less than 50 ft downstream from the points of diversion at the Bridge Site and Diversion 2 at the RM 11 site. Although the return point is 1500 ft downstream from Diversion 1 at

the RM 11 site, there are no water rights within this reach. See Figure and Figure 3, which show the approximate location of the points of diversion and return points.

4. Water use will not be detrimental to public interest:

The use of surface water will not be detrimental to public interest because it is non-consumptive and will be returned back to the White River. Water quality testing will occur above and below the outfall to verify that water quality standards are being met and that there are no detectable increases in phosphorus during the fish acclimation activities. The proposed acclimation activities that this water use will support will help Grant PUD meet its mitigation requirements of its Priest Rapids Hydroelectric Project, which includes specific requirements to develop a White River spring Chinook artificial propagation program.

References:

U.S. Geological Survey, National Water Information System, Gage “USGS 12454000 White River Near Plain, WA”, tab delineated file containing published daily mean streamflow data downloaded July 22, 2004.

U.S. Geological Survey, PeakFQ, Version 4.1, computer software for annual peak flow frequency analysis following Bulletin 17-B Guidelines.

**SOA 2010-XX
ATTACHEMENT B
WHITE RIVER LONG-TERM ACCLIAMTION**

Proposed Location

The proposed White River Acclimation Facility sits northwest of Lake Wenatchee at approximately river mile (RM) 2 of the White River (Figures 1 and 2). The site has been highly impacted by previous grazing activities, bank erosion and armoring, and stormwater channeling. Because of these existing site conditions, this site also presents an opportunity for habitat enhancement projects that are likely to be part of the acclimation program. The approximately 18-acre tax parcel 271610340030 property is considered as the proposed site because of its proximity to a potential river surface water intake location (see Figures 1 and 2 and Attachment A to the applications). The proposed river water intake is located on the outside bend of the White River and immediately downstream of the existing Little Wenatchee Road (USFS Road 6500) bridge abutment. The intake site is recommended because it has a confined channel to improve scouring and sweeping velocities. The site is also void of a mature riparian vegetation belt, the removal of which at another location could raise environmental and visual impact concerns.



Figure 1: Vicinity map of proposed location for White River spring Chinook acclimation facility.



Figure 2: Aerial photograph of proposed location of acclimation facility (shaded green) along left bank of the White River, Chelan County, WA. Flow direction is from left to right.

Proposed Water Use

The surface water right requested will be for non-consumptive use of 7.5 cfs for fish acclimation. Water will be diverted from the White River just east of the Little Wenatchee Road (USFS Road 6500) bridge crossing The water will be circulated through acclimation vessels and a settling pond and discharged immediately downstream (less than 300 ft) of the intake. The groundwater right permit requested will be for non-consumptive use of up to 150 gpm for fish acclimation during intermittent time periods between October and May each year. Water will be pumped from wells and sprayed on the intake screens as needed to keep frazil ice from forming during freezing conditions. Both the surface water and groundwater uses will be non-consumptive and used for the acclimation of up to 150,000 spring Chinook smolts (facility will be designed for an additional 10% capacity). Although the anticipated period of use for both the surface and groundwater rights will be from October – May each year, the applications are for a

continuous use to allow for initial operational start-up and testing. Once the acclimation facility is constructed and standard operational procedures are in place, Grant PUD understands that WDOE will reduce the period of use to those time periods when water is being put to beneficial use.

Additional information, such as more detailed groundwater evaluation results, documentation supporting the environmental benefits of the water use, and/or other information needed to process the application is included as attachments to the application and/or will be added to this application as it becomes available. Grant PUD anticipates that these applications will meet the four-part test required by RCW 90.03.290, including:

1. Water is available for use:

a. Surface water:

The surface water intake for the proposed acclimation facility would be on the downstream side of the northern bridge abutment where the Little Wenatchee Road (USFS Road 6500) crosses the White River (see Figure 3 and Attachment B to the applications). Good bank stability is afforded by the bridge abutment and good scouring velocities should make this a predictable and dependable intake location. The adjacent bridge abutments concentrate the flow into a defined channel making for more reliable scouring of the channel.



Figure 3 Photograph of proposed site for acclimation facility adjacent to White River.

Surface water supply to the acclimation site will be pumped from the proposed intake location. The intake will be screened in accordance with National Marine Fisheries Service (NMFS) criteria. The Washington State Department of Ecology operates a flow monitoring station on the White River at RM 6.4 (www.ecy.wa.gov - Station 45K090). This station went into operation shortly before the start of the 2003 water-year. Since then the instantaneous yearly low water discharge readings have been 61.5 cfs (below rating, reliable extrapolation) in November 2002 and 98.0 cfs (estimated) in October 2003. However, available United States Geological Survey (USGS) data indicates that the lowest recorded mean daily flow is 66 cfs. This gage data was collected at USGS Gage Station 12454000, located approximately 4.5 miles upstream of the proposed

acclimation site. Based on the USGS data, Table 1 shows the lowest recorded daily mean river flows for the 1954 to 1983 time period compared with the monthly mean historical flows and the estimated peak acclimation facility water requirements. Based on this data, peak surface water use for this acclimation facility is expected to be less than 5% of any mean monthly flow.

Table 1: Estimated acclimation water quantity requirements and historical river flows from 1954 to 1983. The low-year river flow values were taken from 1979, the year of lowest recorded flow.

	Jan.	Feb.	March	April	May	June
Mean monthly flow (cfs)	355	337	356	710	1846	2413
Low-year flow min. (cfs)	75	79	75	360	1140	920
Min. facility demand (cfs)	5.5	5.5	5.5	5.5	5.5	5.5 ¹
Max. facility demand (cfs)	7.5	7.5	7.5	7.5	7.5	7.5 ¹
Percent total mean monthly river flow used by facility (%)	2.1	2.2	2.1	1.1	0.4	0.3
¹ Facility demand flow during this month is likely to be less and may not be needed during the entire time period, depending on required standard operating procedures and any habitat enhancement/mitigation features of the completed facility.						

	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean monthly flow (cfs)	1572	627	345	346	443	483
Low-year flow min. (cfs)	452	291	160	90	66	80
Min. facility demand (cfs)	5.5 ¹	5.5 ¹	5.5 ¹	5.5	5.5	5.5
Max. facility demand (cfs)	7.5 ¹	7.5 ¹	7.5 ¹	7.5	7.5	7.5
Percent total mean monthly river flow used by facility (%)	0.5	1.2	2.2	2.2	1.7	1.6
¹ Facility demand flow during this month is likely to be less and may not be needed during the entire time period, depending on required standard operating procedures and any habitat enhancement/mitigation features of the completed facility.						

b. Groundwater:

Information on available groundwater will be provided through test well logs, analysis of aquifer properties, and pump test results. This information is intended to include enough data to conclude that water will be available for periodic use throughout October to May for potential de-icing purposes. To date two test wells have been drilled and a pump test was performed on the first well. The second well requires additional work on the screen and either a pump test will be conducted on that well, or a new well will be drilled and tested. See also Appendix B to the applications. This is currently scheduled to be completed by fall 2010.

2. Water will be put to beneficial use:

a. Surface water:

The surface water will be put to the beneficial use of acclimating up to 150,000 spring Chinook salmon on an annual basis. This acclimation facility will help meet the requirements of 2008 Biological Opinion issued by NMFS and will help Grant PUD mitigate for its unavoidable impacts to upstream salmonid populations. Grant PUD can provide WDOE with additional detail of its mitigation requirements if requested. Letters of support from the fishery resource management agencies will also discuss the beneficial use of the water for acclimation of spring Chinook salmon. The preliminary designs that are attached to the applications provide additional detail on the layout of the proposed facility.

b. Groundwater:

The groundwater will be put to the beneficial use of keeping the surface water intake screen free of ice during extreme cold conditions, thus allowing the surface water to reach the acclimation ponds.

3. Water use will not impair existing rights:

a. Surface water:

The surface water use will be non-consumptive, as it will be returned to the White River less than 300 ft downstream from the withdrawal point. The preliminary designs that are attached to the applications show the approximate location of the withdrawal and return points. The bypass reach will not impair existing aquatic habitat. Letters from fishery resource management agencies will be provided to WDOE that support that there would be negligible impacts to aquatic habitat within the bypass reach, and those negligible impacts would be significantly outweighed by the benefits associated with Grant PUD's White River spring Chinook artificial propagation program and this acclimation facility.

b. Groundwater:

As explained in item 1b above, groundwater evaluations are on-going and Grant PUD will provide WDOE with information related to aquifer properties, pumping rates, drawdown, and recovery. This data will include drawdown data from adjacent wells, which should show no negative impacts to those adjacent wells.

4. Water use will not be detrimental to public interest:

a. Surface water:

The use of surface water will not be detrimental to public interest because it is non-consumptive and will be returned back to the White River less than 300 ft from the intake location. Water quality testing will occur above the intake and below the outfall to verify that water quality standards are being met and that there are no detectable increases in phosphorus. The proposed acclimation facility that this water use will support will help Grant PUD meet its mitigation requirements of its Priest Rapids Hydroelectric Project,

which includes specific requirements to develop a White River spring Chinook artificial propagation program.

b. Groundwater:

The use of groundwater will not be detrimental to public interest because it is non-consumptive and will be returned back to the White River less than 300 ft from the intake location (assuming continuity of groundwater aquifer and White River, to be determined pending completion of groundwater evaluations). Water quality testing will occur above the intake and below the outfall to verify that water quality standards are being met and that there are no detectable increases in phosphorus. The proposed acclimation facility that this water use will support will help Grant PUD meet its mitigation requirements of its Priest Rapids Hydroelectric Project, which includes specific requirements to develop a White River spring Chinook artificial propagation program.

References:

U.S. Geological Survey, National Water Information System, Gage “USGS 12454000 White River Near Plain, WA”, tab delineated file containing published daily mean streamflow data downloaded July 22, 2004.

U.S. Geological Survey, PeakFQ, Version 4.1, computer software for annual peak flow frequency analysis following Bulletin 17-B Guidelines.

**SOA 2010-XX
ATTACHEMENT C
NASON CREEK SUPPLEMENTATION PROGRAM**

Proposed Location

The proposed Nason Creek Hatchery Facility sits southwest of Leavenworth at approximately river mile (RM) nine of Nason Creek (Figures 1 and 2). The facility will use two parcels located along US Highway 2 approximately 17 miles west of Leavenworth, WA. The first parcel (Boyce) is approximately 3.75 acres, is listed as tax parcel 261611140020, and is adjacent to Nason Creek; the second parcel (Youngsman) is approximately 5 acres, is listed as tax parcel 261612230100, and is adjacent to and east of the Boyce parcel. Together these two parcels are referred to as the Boyce/Youngsman site (see Figures 1 and 2 and Attachment C to the applications). The proposed river water intake is located on the outside bend of Nason Creek.

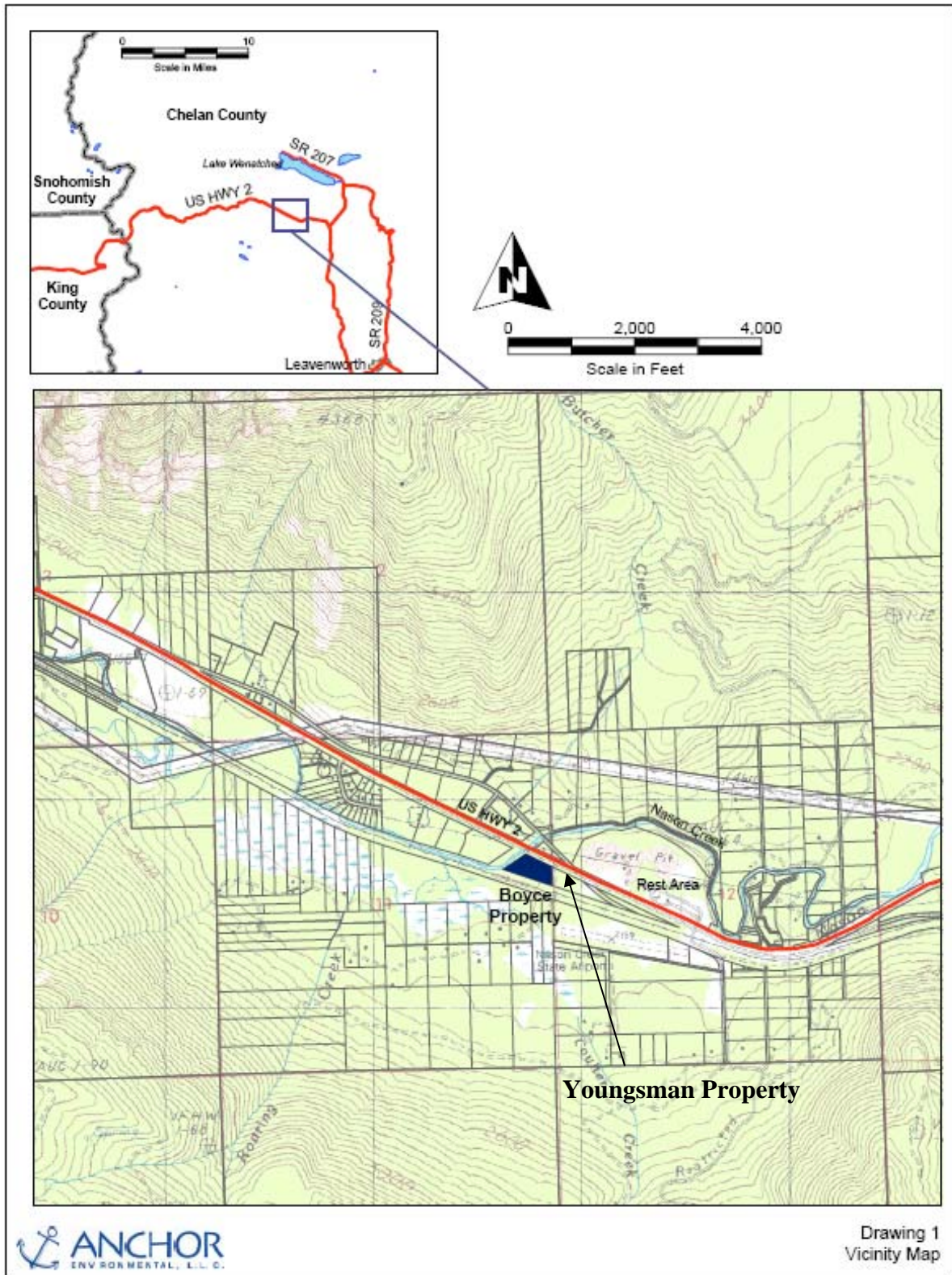


Figure 1: Vicinity map of proposed location for Nason Creek spring Chinook hatchery facility.

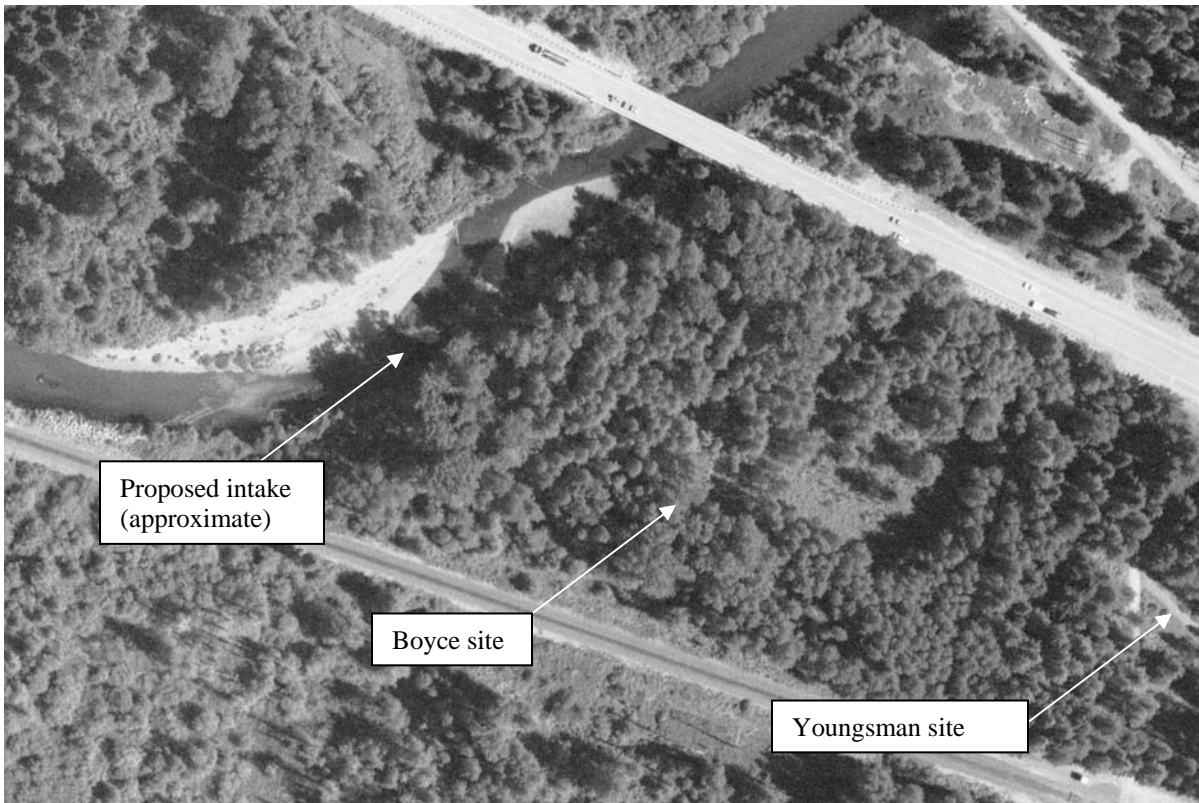


Figure 2: Aerial photograph of proposed location of surface water diversion for the Nason Creek hatchery facility along right bank of Nason Creek, Chelan County, WA. Flow direction is from left to right.

Proposed Water Use

The surface water right requested will be for non-consumptive use of up to 11.5 cfs for fish production. Depending on the time of year, surface water use will lower (down to 3 cfs). Table 1 presents the anticipated water supply needs for all stages of the hatchery program. Water will be diverted from Nason Creek just southwest of the US Highway 2 bridge crossing. The water will be circulated through the hatchery facility adult holding, rearing, and/or acclimation vessels, settling pond, and discharged immediately downstream (less than 300 ft) of the intake. The groundwater right permit requested will be for non-consumptive use of up to 800 gpm for fish production. Water will also be pumped from wells and sprayed on the surface water intake screens as needed to keep frazil ice from forming during freezing conditions. Both the surface water and groundwater uses will be non-consumptive and used for the production of up to 250,000 spring Chinook smolts (facility will be designed for an additional 10% capacity). Portions of Grant PUD's White River spring Chinook salmon supplementation program will also be produced here (e.g. adult holding and incubation) prior to transfer to separate, off-site facilities.

Table 1: Water Supply Requirements for Nason Creek spring Chinook hatchery facility

Source	Purpose	Amount (cfs)	Amount (gpm)	Time Period
Nason Creek	Fish Holding, Rearing, and Acclimation	11.5	5152	Nov-May (approximate)
Nason Creek	Fish Holding and Rearing	3	1344	June-July (approximate)
Nason Creek	Fish Holding and Rearing	6	2688	Aug-Oct (approximate)
Groundwater	Fish Holding, Egg Incubation, Rearing, and Acclimation	1.8	800	Continuous

Additional information, such as more detailed groundwater evaluation results, documentation supporting the environmental benefits of the water use, and/or other information needed to process the application is included as attachments to the application and/or will be added to this application as it becomes available. Grant PUD anticipates that these applications will meet the four-part test required by RCW 90.03.290, including:

1. Water is available for use:

a. Surface water:

The surface water intake for the proposed hatchery facility would be upstream and south of the US Highway 2 bridge crossing and adjacent to the Boyce site (see Figure 3 and Attachment B to the applications). The Washington State Department of Ecology (WDOE) operates a flow monitoring station on Nason Creek at RM 0.2 (www.ecy.wa.gov - Station 45J070). This station went into operation in May of 2002. Since then the instantaneous yearly low water discharge readings was 14.5 cfs in August of 2005. Table 1 provides summary information based on flow values provided by the WDOE flow monitoring station for the 2002-2009 time period compared with the estimated peak facility water requirements. Based on this data, peak surface water use for this facility is expected to be less than 11% of any mean monthly flow.

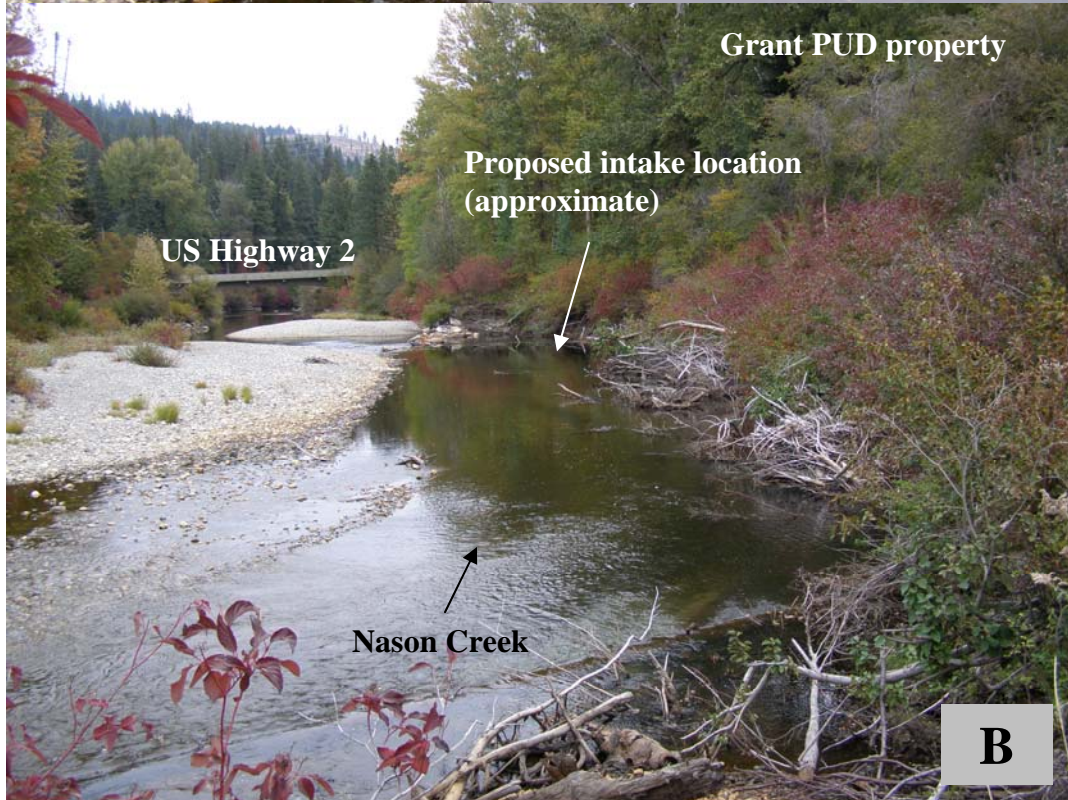
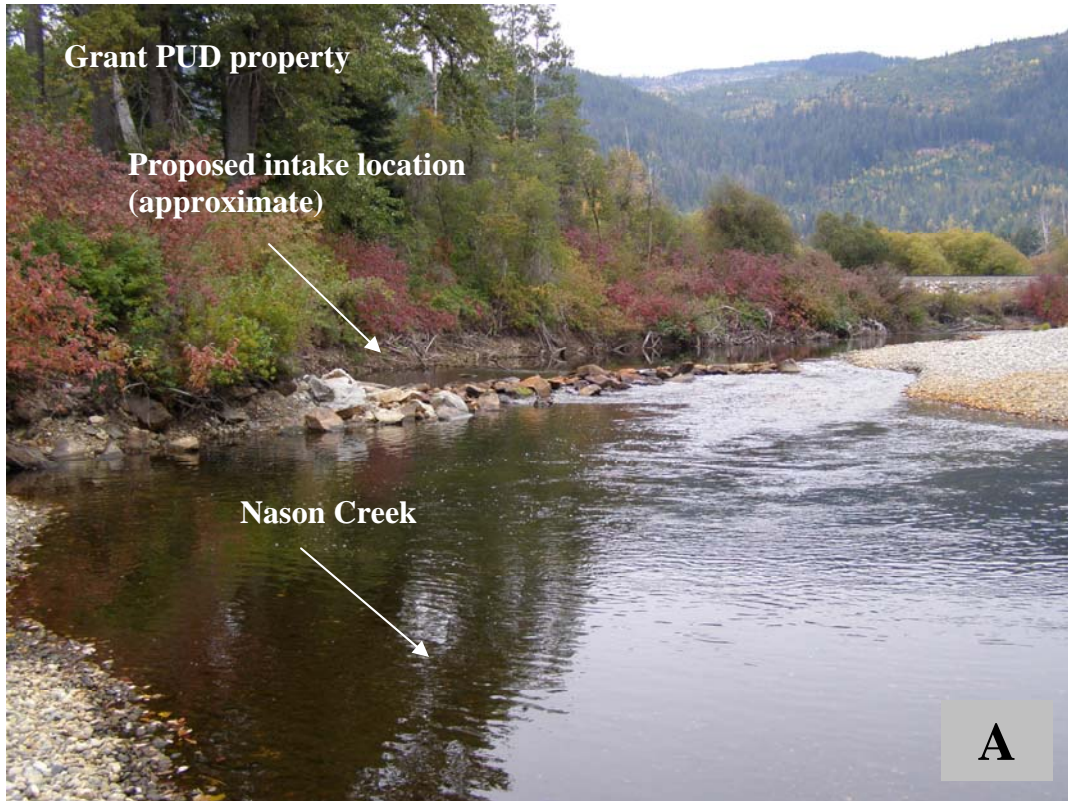


Figure 3: Photograph of proposed site for surface water intake for hatchery facility adjacent to Nason Creek, looking upstream (A) and downstream (B).

Table 1: Estimated water quantity requirements and historical river flows from 2002-2009.

	Oct	Nov	Dec	Jan	Feb	Mar
2008 Mean Daily	90.10	120.00	266.00	184.00	236.00	138.00
Max. Daily	1500.00	2510	2400	4230	1260	2180
Min. Daily	22.10	35.4	57.8	52.5	81.9	97.7
Instantaneous (Inst.) Min.	21.30	33.3	56.9	41.7	77.2	84.1
Mean	92	270	262	346	209	293
Groundwater Req. (cfs)	0.11	0.11	0.50	0.51	0.47	0.47
Surface Water Req. (cfs)	5.98	8.51	9.29	9.55	9.46	9.39
Total Hatchery Req. (cfs)	6.09	8.62	9.80	10.07	9.93	9.86
SW Req. % of Mean	6.5%	3.1%	3.5%	2.8%	4.5%	3.2%
SW Req. % of Min.	27.1%	24.0%	16.1%	18.2%	11.6%	9.6%
SW Req. % of Inst. Min	28.6%	25.9%	17.2%	24.1%	12.9%	11.7%
	Apr	May	Jun	Jul	Aug	Sep
2008 Mean Daily	198.00	729.00	1120.00	457.00	89.30	49.90
Max. Daily	1550	5820	3550	2070	168	325
Min. Daily	110	252	97.5	43.9	16.5	16.5
Instantaneous (Inst.) Min.	109	241	94.8	42.4	14.7	15.7
Mean	428	1048	972	232	60	48
Groundwater Req. (cfs)	0.60	1.01	0.00	1.11	1.11	1.11
Surface Water Req. (cfs)	10.20	11.52	2.86	1.75	4.25	5.12
Total Hatchery Req. (cfs)	10.80	12.53	2.86	2.87	5.36	6.23
SW Req. % of Mean	2.4%	1.1%	0.3%	0.8%	7.1%	10.6%
SW Req. % of Min.	9.3%	4.6%	2.9%	4.0%	25.8%	31.0%
SW Req. % of Inst. Min	9.9%	5.2%	3.0%	6.8%	36.5%	39.7%

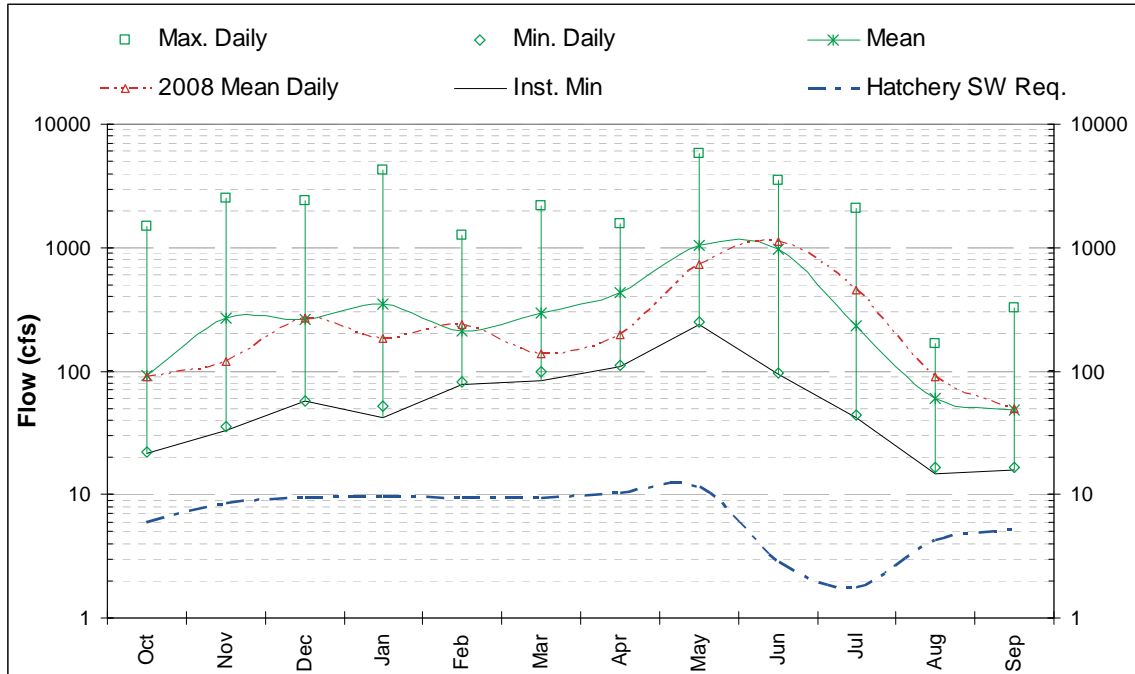


Figure 4: Summary of historical (2002-2009) flows compared to proposed hatchery surface water flow requirements; data from WDOE flow monitoring station 45J070.

b. Groundwater:

Information on available groundwater will be provided through test well logs, analysis of aquifer properties, and pump test and groundwater modeling results. This information is intended to include enough data to conclude that water will be available for continuous use for up to 1.8 cfs. To date two test wells have been drilled (one on each site) and a pump test was performed on the second well (on the Youngsman site). The first well (on the Boyce site) did not produce adequate water bearing formations. The second well was produced 206 gallons per minute (gpm) and based on results of the pump test and subsequent modeling by Anchor QEA, it is estimated the Youngsman site could produce safe water yield of 600 gpm. See Appendix B to the groundwater applications for the draft groundwater report. A third well is currently scheduled to be drilled in the summer of 2010 to verify the results of the second well pump test and subsequent groundwater modeling results. Although the preliminary estimates indicate a 600 gpm pumping rate, the groundwater application requests 800 gpm in the event that groundwater estimates increase based on results of the third test well; if the estimate remains at 600 gpm, Grant PUD will reduce the amount requested to 600 gpm.

2. Water will be put to beneficial use:

a. Surface water:

The surface water will be put to the beneficial use of producing up to 250,000 spring Chinook salmon on an annual basis. This hatchery facility will help meet the requirements of 2008 Biological Opinion issued by NMFS and will help Grant PUD mitigate for its unavoidable impacts to upstream salmonid populations. Grant PUD can provide WDOE with additional detail of its mitigation requirements if requested. Letters

of support from the fishery resource management agencies will also discuss the beneficial use of the water for supplementing of spring Chinook salmon. The preliminary designs that are attached to the applications provide additional detail on the layout of the proposed facility.

b. Groundwater:

In support of the surface water supply use explained above, the groundwater will be put to the beneficial use helping to produce up to 250,000 spring Chinook salmon on an annual basis. The groundwater will also be put to the beneficial use of keeping the surface water intake screen free of ice during extreme cold conditions, thus allowing the surface water to reach the hatchery facility. The preliminary designs that are attached to the applications provide additional detail on the layout of the proposed facility.

3. Water use will not impair existing rights:

a. Surface water:

The surface water use will be non-consumptive, as it will be returned to Nason Creek less than 300 ft downstream from the withdrawal point. The preliminary designs that are attached to the applications show the approximate location of the withdrawal and return points. The bypass reach will not impair existing aquatic habitat. Letters from fishery resource management agencies will be provided to WDOE that support that there would be negligible impacts to aquatic habitat within the bypass reach, and those negligible impacts would be significantly outweighed by the benefits associated with Grant PUD's Nason Creek spring Chinook artificial propagation program and this hatchery facility.

b. Groundwater:

As explained in item 1b above, groundwater evaluations and modeling are nearly complete, with only one additional test well needed to verify the initial pump test and aquifer modeling work completed to date. Initial modeling results indicate no negative impact to existing groundwater wells or Nason Creek streamflows (see Appendix B to the groundwater application). Grant PUD will provide WDOE with additional information related to aquifer properties, pumping rates, drawdown, and recovery from the third test well and updated model to be completed in 2010.

4. Water use will not be detrimental to public interest:

a. Surface water:

The use of surface water will not be detrimental to public interest because it is non-consumptive and will be returned back to Nason Creek less than 300 ft from the intake location. Water quality testing will occur above the intake and below the outfall to verify that water quality standards are being met and that there are no detectable increases in phosphorus. The proposed hatchery facility that this water use will support will help Grant PUD meet its mitigation requirements of its Priest Rapids Hydroelectric Project, which includes specific requirements to develop a Nason Creek spring Chinook artificial propagation program.

b. Groundwater:

The use of groundwater will not be detrimental to public interest because it is non-consumptive and will be returned back to Nason Creek less than 300 ft from the intake location. Results from the groundwater testing and modeling done in 2008 indicate no negative impacts to adjacent groundwater wells or Nason Creek streamflows based on proposed pumping rates (see Appendix B to groundwater application). An additional test well and pump test will be completed in 2010 to verify these results and conclusions. Water quality testing will occur above the intake and below the outfall to verify that water quality standards are being met and that there are no detectable increases in phosphorus. The proposed hatchery facility that this water use will support will help Grant PUD meet its mitigation requirements of its Priest Rapids Hydroelectric Project, which includes specific requirements to develop a Nason Creek spring Chinook artificial propagation program.