

Growden Dam, Sherman Creek Restoration Project, and Forest Plan Amendment #28

Record of Decision

USDA Forest Service
Pacific Northwest Region
Colville National Forest
Three Rivers Ranger District
Ferry County, Washington

February 2006

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Introduction

Since the early 1970's, the Colville National Forest and the Washington State Dam Safety Section has recognized the potential for Growden Dam to overtop and wash away, causing major downstream damage to private and public lands (USDA Forest Service, Dam Maintenance Inspection – Growden Dam, 1977). This was made more evident during the floods of 1998. The outlet structure of the dam clogged with branches and the water was 6 inches from going over the dam. A Colville National Forest road crew responded and removed the debris. Since the dam is made of dirt and gravel, water overtopping the dam can erode the dam which could cause it to wash away.

In 1995, the Forest Service and the Bureau of Land Management issued the Inland Native Fish Strategy (INFISH). The strategy amended the Forest Plan. This strategy listed several variables for riparian management objectives. Among the objectives are temperature and, indirectly, fish passage. In 1996, the Colville National Forest prepared the North Sherman and Fritz Timber Sales Environmental Impact Statement (October 1996). In this document the aquatics report recognized a need to reduce stream temperatures, since the stream was listed on the Washington State Department of Ecology 303d list. Further testing showed that the increased temperatures originated from the wetland behind Growden Dam and the lower portion of the South Fork of Sherman Creek. Genetics testing over the last 8 years have shown isolated populations of native species. Providing fish passage at the dam would connect these populations.

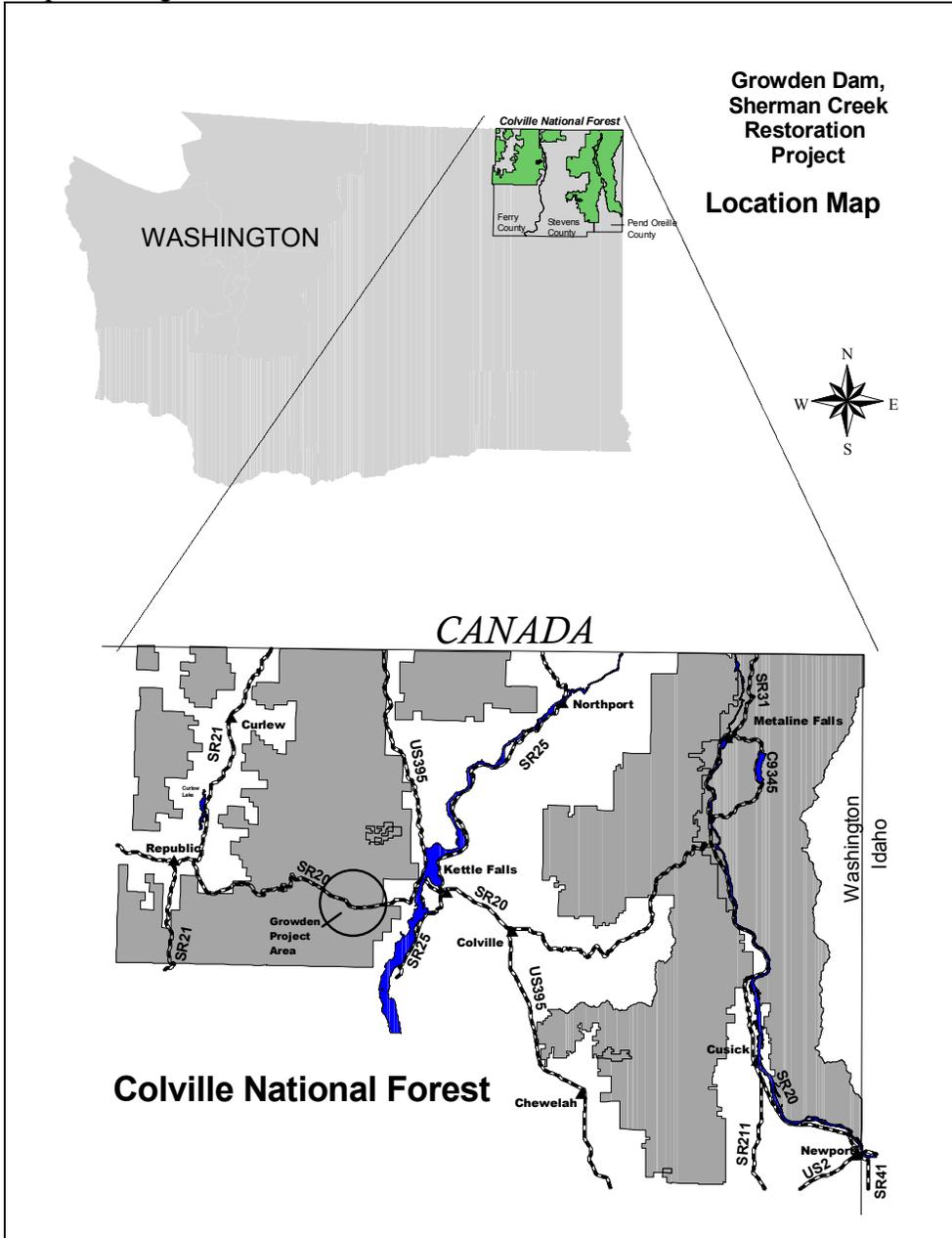
In response to the safety and INFISH issues and concerns, the Forest convened a workshop in 2002 to study the dam and provide ideas for mitigating the safety and INFISH concerns. The NEPA (National Environmental Policy Act) process for this project started with that workshop. Through interdisciplinary team and public input alternatives were developed. The main issues that drove the development of the alternatives are the loss of historical significance of Growden and the loss of the wetlands behind the dam.

The purpose and need for the project includes the following elements:

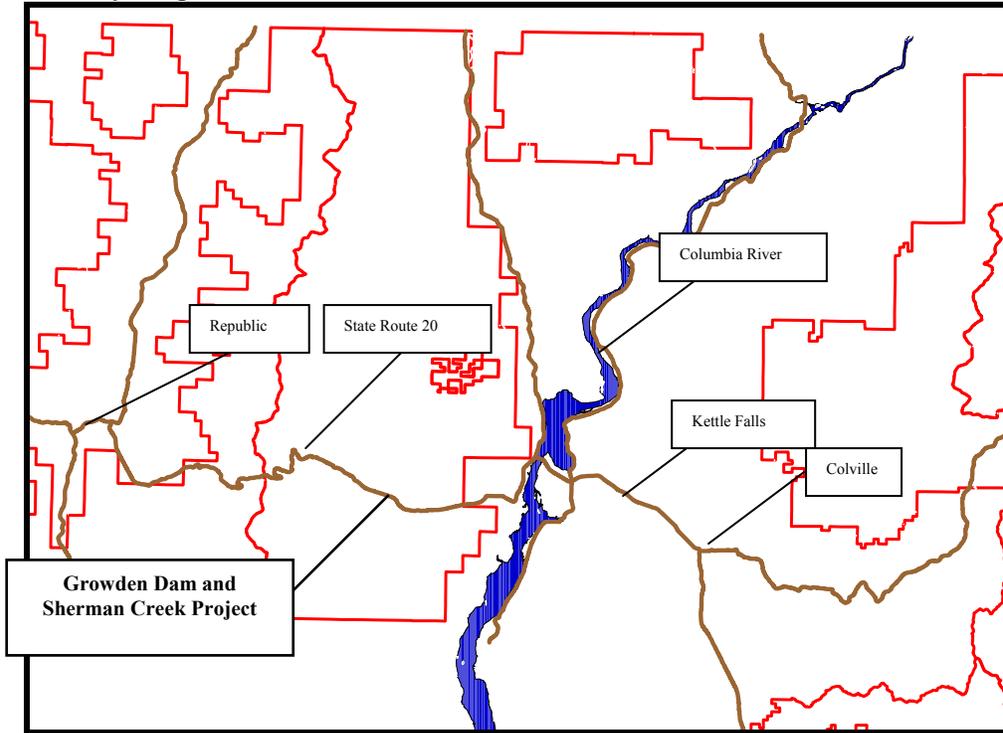
- To meet the purpose of the DSS Standards, the structure at the dam site needs to pass a 500-year flood event.
- To meet the purpose of fish reproduction and growth as stated in INFISH and the temperature needs of the Clean Water Act, the maximum stream temperature as it leaves the Growden site needs to be less than 16 degrees C on average in the summer time.
- To meet the purpose of the Forest Plan to maintain or restore stream channel integrity, channel processes, sediment regime, and favorable channel conditions, the Growden dam site needs to allow bedload movement through the reach and the reach between Log Flume and the Bangs Mountain Road needs the structure to store this bedload.
- To meet the purpose of the Forest Plan as amended by INFISH the structure at the dam site needs to provide fish passage.
- To meet the purpose of this project at the best cost to the government, alternatives need to be economically reasonable.

The project area is located west of Kettle Falls, Washington, and includes all National Forest System lands administered by the Three Rivers Ranger District in Township 36 North, Range 36 East, Sections 25-36. The project area is 7680 acres in size; however less than 74 acres will be directly impacted at the dam site and the habitat restoration reach. Approximately 1.1 stream miles and 38 acres of stand treatment will occur at the habitat restoration reach. Approximately 8 acres will be affected at Growden Dam. There will be 8 acres of pit expansion. 10 acres of Lane Creek Pit will be rehabilitated. There are approximately 10 acres that will be affected by travel, staging, and construction activities.

Map showing location of Colville National Forest



Vicinity Map



Decision

I have decided to select Alternative B as modified to decommission Growden Dam and the associated activities on the Three Rivers Ranger District. The alternative has been modified to incorporate 1 to 3 small ponds in the wetland behind the dam. Trails will be created to access the ponds and Sherman Creek above the dam.

The selected alternative includes the following projects:

- **Partially removing the Growden Dam structure.**
- **Restoring the channel and valley bottom behind the dam to pre-dam elevations and adding 1 – 3 backwater ponds in the new valley bottom behind the dam.**
- **Removing the sediment deposits from behind the dam and creating a terrace with part of the sediment and taking the rest to the Lane Creek pit.**
- **Restoring Lane Creek pit with sediment from behind the dam.**
- **Improving fish habitat and sediment storage on approximately 1.1 miles of stream below the dam.**
- **Thinning riparian vegetation to get the material needed for the stream restoration at Log Flume.**
- **Developing rock sources to use for material in stream restoration at the dam site.**
- **Providing interpretation of the Growden Dam removal as mitigation for dam removal.**
- **Amending the Forest Plan for the Visual Quality Objective from Retention to Restoration for the Project Area.**

A detailed description of Alternative B is included in this Record of Decision on pages 16-23.

Modifications to Alternative B from the Draft EIS

The Draft EIS (Environmental Impact Statement) was available for public comment from May 20, 2005 until July 5, 2005. In order to ensure full public participation and review, I noted that comments on the Draft EIS would be accepted (65 FR 75285). During that period five letters were received, of which there were four letters with substantive comments. I have reviewed the letters, considered the substantive comments, and included the letters with substantive comments and the response to the substantive comments in Appendix A to this Record of Decision.

Small ponds were added to the design of the area behind the dam in response to comments about wetlands and recreation.

Rationale for my decision

Growden Dam is past the end of its useful life. Small dams of this type were built with an average life span of 50 years. The dam was built as a recreational pond. It filled in with sediment by 1954 after the construction of Highway 20. It has not served its designed purpose for over 50 years, yet the Forest Service has maintained the dam and assumed the safety risk. Returning the site to a pond through dredging was evaluated in 1993 and found to not be economically feasible nor desired by the public. The dam was recognized as a significant safety risk in the early part of the 1970's. This threat became real in 1998 when a 100 year flood almost overtopped the dam. This 68 year old dam has become a liability the Forest Service must deal with. As with all dams at the end of their design life, removal or major reconstruction are the options presented. I have chosen the removal option presented in Alternative B. In recognition of the historical value of the dam, mitigations are included with Alternative B which will document and interpret this site. One persistent comment was that the historical nature of the dam is a tourist draw and removal of the dam would cause economic impact to Ferry County. Our analysis has not proven this to be true. Most visitors use the site as a rest stop or to view the interpretive displays on the CCC camp. There is an interpretation plan in place that will draw more people to this site with or without the dam. This alternative supports and enhances that plan. In addition the stream and valley bottom will be restored to pre-dam elevations and the safety of the area enhanced. This alternative will improve the site's recreational draw.

This project has five purposes and needs for this project. The purpose is a statement of goals and objectives that Forest Service intends to fulfill by taking action. The need is a discussion of existing conditions that need to be changed, problems that need to be remedied, decisions that need to be made, and policies or mandates that need to be implemented. They are dam safety, temperature reduction, bedload movement, fish passage and cost. Alternative B best fits these purposes and needs.

The first step leading to my decision was the safety need at the dam for both downstream users and users at the dam. Alternative B would not leave a structure that impounds sediment or water. The risk of a mass failure would be gone. There would no longer be a dam that needs to be maintained. The drop inlet structure would be filled and no longer pose a safety risk to people falling in it.

This alternative meets the purpose of fish reproduction and growth as stated in INFISH and the temperature needs of the Clean Water Act. This alternative best moves the maximum stream temperature as it leaves the Growden site towards less than 16 degrees C on average in the summer time. As seen in the chart on page III-48 of the EIS, the wetland behind the dam has a significant impact on temperature.

This alternative meets the purpose of the Forest Plan to maintain or restore stream channel integrity, channel processes, sediment regime, and favorable channel conditions. This alternative allows the most bedload movement through the reach, since it restores the stream to its original grade and structure. The reach between Log Flume and the Bangs Mountain Road will get the structure needed to store the bedload that will now be able to pass through the Growden Reach. Since Alternative C only brings the dam down to less than half of its height, there is still a gradient drop which filters out bedload. Alternative D would maintain the sediment deposition above the dam. Bedload would not be able to move the reach. This is causing downcutting and bank erosion downstream.

This alternative provides fish passage as required by the Forest Plan as amended by INFISH.

This alternative is economically reasonable. The Cedar Creek Dam in the Pend Oreille Valley was just removed. It cost approximately \$1 million to remove which is the amount predicted for this alternative.

I could not select Alternative A No Action. Doing nothing at the dam site leaves a safety risk for the public. This alternative also does not provide for fish passage, temperature reduction, and bedload movement.

The alternatives that were considered in detail were designed to minimize resource impacts overall such as disturbance to heritage sites, disturbance to wetlands, and soil disturbance for new weed populations.

I did not choose Alternative C, the run of the river alternative. It was not selected because it did not meet the safety need to the degree that Alternative B does. Leaving a structure that impounds sediment at the dam site maintains a safety risk. The design of this alternative allows for a 3000 year flood. It meets the purpose of the Dam Safety Section Standards of needing to pass a 500-year flood event. Alternative C would not operate as a dam, but would have a greater risk for stream down cutting and bank erosion in extreme (greater than 100 year flood) flood events when compared with Alternative B. Extreme flood events would tend to erode the change in grade point constructed in the existing dam under Alternative C. If this “nick” point erodes, flood flows could begin down cutting into the existing sediment upstream of the existing dam. Consequently, there would be more risk to the environment in extreme flood events implementing Alternative C compared to Alternative B. Under alternative C, the dam will decay, the outlet may become clogged with debris, and a dam breach may occur.

Alternative C did not meet the purposes and needs for temperature, fish passage, and bedload movement as well as Alternative B. Alternative C maintained the wetland behind the dam and therefore did not meet the temperature purpose and need as well as Alternative B. While some bedload would pass over the dam, there is still a gradient drop which sorts out the larger bedload above the dam. Fish passage would have been created over the dam, but it was not as good as restoring natural passage.

I did not choose Alternative D, the emergency spillway alternative. It did not meet the safety need to the degree that Alternative B does. Alternative D would be operated as a dam and the Colville National Forest would continue to be responsible for operation and maintenance. As the operator of the dam, the Colville National Forest would assume the risk of dam failure. Alternative D does provide sufficient failure protection against over topping to meet current dam safety standards; however this alternative has a greater chance of damaging downstream resources and developments in the unlikely event that the dam is overtopped in an extreme flood event. This is due to the amount of material left in, and behind the dam, which is available to be washed down stream in the extreme flood event. The lifespan of repairs using concrete is typically 50 years. During this time, the dam face will deteriorate. Cracking and spalling (pieces falling off) could occur causing major repairs to be necessary. If repairs get overlooked, the dam could again become the safety problem it is today.

I also did not choose alternative D because it does not meet the purpose and need for fish passage, temperature, and bedload. Only the purpose and need for safety and cost was addressed under this alternative. Because the emergency spillway will only be used under extreme flood events, this alternative has the same effects for temperature, fish passage, and bedload as the “no action” alternative.

In summary, looking at all the impacts of choosing Alternative C or D, Alternative B is a more reasonable choice and has less safety impacts than either Alternative C or D. Alternative B also meets

the purpose and needs of the project the best. The historical nature of the dam will be captured through interpretation and documentation, and habitat improvements will mitigate wetland loss.

Scoping and Consultation History

The Draft EIS was released for public comment from May 19, 2005 to July 5, 2005. EPA published in the Federal Register on May 19, 2005, notice that no formal comment letter was being sent on the Draft EIS (66 FR 5513).

A total of 5 letters were received on the Growden Dam, Sherman Creek Restoration, and Forest Plan Amendment #28 DEIS. Only four letters had substantive comments, a copy of the letters is in Appendix A to this Record of Decision. Those comments were reviewed and analyzed and are responded to in this Record of Decision.

The Biological Evaluation for this project concluded with No Effect calls on all Threatened and Endangered Species for this project on May 24, 2005, (a copy is in the analysis file).

Consultation with Tribes

Meetings were held between the Forest staff and the Colville Tribe to discuss the proposed project, comments and any concerns from the Tribe. Documentation of those meetings is in the project files. Letters were sent to the Confederated Tribes of the Colville Reservation March 29, 2004 for input into the project and again on May 10, 2005 for input on the DEIS. Letter were sent to the Kalispel Tribe of Indians and the Spokane Tribe of Indians for scoping input on March 25, 2004 and again on May 10, 2005 for input on the DEIS.

The Colville Confederated Tribes, Environmental Trust Department made comments on project monitoring in April of 2004. None of the tribes sent a letter commenting on the Draft EIS. The Colville Confederated Tribes wanted a monitoring plan developed. This plan was developed and is included in the EIS.

This decision has met the intent of Executive Order 13175 (November 6, 2000), for Consultation and Coordination with Indian Tribal Governments.

Issues Used to Compare Alternatives

Based on input received from adjacent landowners and other interested members of the public, the following were identified as major project issues and were used to develop and compare the alternatives.

ISSUE 1 – Heritage Resources

The issue came up because of the removal of a 68 year old dam. The proposed action would remove a significant portion of the dam, causing an adverse effect on a historic structure.

Addressing this issue; the dam was evaluated as eligible to the National Register. The proposed alternative for complete dam removal was modified to a partial removal which left a portion of the dam and the inlet structure. There will also be interpretation signs. The interpretive signing will be designed to reflect the historic nature and values of the CCC (Civilian Conservation Corps) dam. A qualified

historian/archaeologist will complete a Historical American Engineering Record (HAER) for Growden Dam.

Our analysis focused on meeting the State Historic Preservation Office (SHPO) mitigations and providing the public with interpretation of the CCC camp and dam. We have received a concurrence letter on Alternative B from the SHPO. The interpretation is consistent with what has been proposed for the Sherman Highway Scenic Byway Plan.

Thus, our analysis included that we have met the SHPO mitigations and have satisfied the needs with this issue in the selected alternative.

ISSUE 2 – Wetlands

The issue is that there would be a reduction in wetland acres behind the dam. The proposed action would change the Growden reach from slow water stream with many slack water areas to a faster pool riffle stream. Executive Order No. 11990, Protection of Wetlands required the Forest Service to meet the President’s goal of no net loss of wetland functions and values.

Addressing this issue; the Colville National Forest added approximately 1.1 miles of stream restoration to the proposed action. We also added a small pond system in the reach behind the dam. The State Department of Ecology was consulted on this issue. They reviewed the proposal and gave the following statement:

“We have discussed this issue at our Wetlands Technical Advisory Group meetings, specifically the planned removal of the dam on the White Salmon River. Our collective wisdom is that as dams are such an unnatural perturbation to the watershed, that their removal is usually a good thing. We can accept the loss of the artificially maintained wetlands if the tradeoff results in restoration of landscape processes, e.g. sediment transport, temperature stabilization, fish migration, etc. As part of the mitigation, riparian restoration is central to the above elements, and also to simply stabilizing the reborn river banks. Because this is "Out-of-Kind" mitigation (trading off Palustrine wetland for riverine riparian, or actually natural process restoration), we do not have a crediting formula to crunch a number that is felt acceptable in making that trade off. My personal feeling, after seeing the dam and driving the length of Sherman Creek numerous times, is that restoring 1.1 miles of riparian and the processes mentioned is an acceptable trade for the loss of 8 acres of dam-induced wetland.” (Chris Merker, Wetland Biologist)

We will apply for the necessary 404 permits from the Corp of Engineers. If further mitigation is necessary, the Forest will comply.

Thus, our analysis concluded that with the additional riparian treatments, we have met the intent of the Executive Order No. 11990, Protection of Wetlands.

Issue 3 - Noxious Weeds

Seventy-four acres will be directly impacted at the dam site and the habitat restoration reach. Approximately 1.1 stream miles and 38 acres of stand treatment will occur at the habitat restoration reach. Approximately 8 acres will be affected at Growden Dam. There will be 8 acres of pit expansion. 10 acres of Lane Creek Pit will be rehabilitated. There are approximately 10 acres that will be affected by travel, staging, and construction activities. Currently all of these acres have noxious weeds on them. Because the weeds exist in the area soil disturbance may benefit those populations. The spread of these

populations will be restricted by following the mitigations and the revegetation plan. Establishment of noxious weeds is expected to be minimal where desirable vegetation becomes established on disturbed sites. Through active weed treatment including revegetation activities, there should be a reduction in the amount of acres with noxious weeds present.

Issue 4 - Recreation

Growden Heritage Site

This project will not change the main use of this site as a highway rest stop. Under This site will be improved to include the interpretation of the byway. This site will attract more people to stop to experience the overall interpretation theme. The safety of this site for visitors will be improved. Currently the drop inlet can be accessed. The trash rack was put on to stop people from getting into the drop inlet, however the bars are wide enough apart for a small child to fall through. The drop inlet will be effectively sealed.

Under alternatives B, the site will be closed for two summers during construction.

This project amends the VQO for the project area to Restoration until the time that vegetation recovery. The area behind the dam will be under construction and not appear natural. There will be 8 acres of unvegetated landscape next to highway 20 in the first year of construction. Within one season grass will be over most of the site and trees and shrubs will have been planted. Within five years, trees and shrubs will be established and the area will appear more natural.

The area around the dam under all three alternatives will be a construction zone visible from Highway 20. A change in the VQO to Restoration will be in effect under vegetation is reestablished.

The following activities will meet the Retention VQO (as seen from the critical viewing locations discussed in the existing condition section) in all action alternatives: restoration of the stream channel and single tree selection. These activities are intended to restore a natural appearance and function to the stream channel and improve the sustainability of the vegetation viewed by travelers of the Byway and users of recreation facilities within the planning area, thus allowing them to meet the VQO.

Sherman Creek Trail and Log Flume Heritage Site

This project will not change the main use of this site. Some of the interpretative features of the site have been in disrepair. These features will be updated and improved to include the interpretation of the byway. The riparian features of these sites will be enhanced for visitors. Fishing will be improved for visitors. This site will attract more people to stop to experience the overall interpretation theme. The site will be closed for two summers during construction. However the work will be done before the Growden construction begins.

Cumulative Effects

This project moves the Sherman Pass Scenic Byway Plan implementation along. It will improve 3 of the 5 sites on the East side of the byway. This will attract more visitors to stop and enjoy all of the sites along the byway.

Site closures would impact recreation in the Planning Area for most of one use season, but this is necessary due to safety concerns. Closure of these sites will place pressure on other sites along the byway.

Pit Development

There are three proposed pit developments for the planning area. The Lane Creek riprap source is the only one that would increase the visibility of the existing pit by creating a larger area of light colored rock that is in contrast to the surrounding landscape. Due to slope and aspect, there are no opportunities to screen the expansion from the Byway and the Growden Heritage Interpretive site. To account for this, this project amends the Forest Plan visual quality objective from Retention to Restoration.

Temporary Road Activities

For this Planning Area, the negative visual effects of temporary road use, including the un-natural linear feature or exposed soils that contrast in color with the natural landscape character can be mitigated by restoring the area to natural grades and slopes. The temporary road construction, as proposed, does not have the frequency of views or the topographic concerns that would negatively affect the natural appearance of the characteristic landscape.

Tree Removal Activities

Management activities related to tree removal vary in their intensity. The various types of logging systems create differing effects in the landscape. Ground based logging systems (proposed in this project), because of the flexibility of the operation, can produce openings of varying size and shape. The primary concern is soil disturbance and the potential for introducing line and color contrast into the area viewed from travel routes and user areas. As the ground gets steeper, or in some cases where the line of sight is from a higher vantage point, the potential for introducing visible contrast in color or line increases.

The proposed tree removal activities would remove enough of the forest canopy to create obvious openings and expose ground surface to viewers traveling the Byway and Sherman Creek Trail. Minimizing ground disturbance and slash accumulation will be critical to meeting the VQO.

Equipment crossing over the trail and placement of structures will negatively affect approximately 300 feet of trail at the Log Flume Heritage Site and Sherman Creek Trail. Mitigation measures will assure damage is kept at a minimum and the trail will be returned to its current state.

Activity Debris

The effectiveness of the technique used to reduce the visual impact of activity debris is a primary concern. For landscapes viewed mostly from vehicles, the size of the disturbed area visible in foreground, and how contiguous the treatment areas appear, is important to maintaining scenic integrity. The project as proposed would leave minimal debris in the visually sensitive areas.

Loss of aquatic habitat in the pool at the base of the dam will be mitigated by improved habitat in the downstream restoration reaches and within the newly created channel in the Growden reach.

Cumulative Effects

The proposed activities within the Planning Area, at a broad scale, would serve to perpetuate the desirable attributes of the existing landscape character. The expansion of Lane Creek riprap source, however, would introduce deviations in line and color that will not remain subordinate to the natural appearing landscape. This would irretrievably change that portion of the existing landscape and allow it to negatively impact the landscape character.

From a scenery standpoint, activities that treat vegetation to increase sustainability and restore natural processes, without the introduction of long-term negative visual elements, will meet the objectives of the Forest Plan. With mitigation, the necessary temporary roads, facility impacts, and tree removal debris would not take away from the valued landscape character of the National Forest Lands.

Issue 5 - Water Quality

The selected alternative will reconstruct the channel behind the dam to a more natural configuration and restore natural levels of sediment transport. Water temperatures through the dam reach will begin to recover (decrease), however it will take many years of riparian vegetative recovery before it meets state water quality criteria. Water temperatures may never meet water quality standards until issues in the South Fork are adequately addressed. Restoration in the South Fork is slated to begin in 2008. There will be an estimated direct loss of 5-6 acres of wetland function behind the dam. Some of this wetland function (1-2 acres best scenario) is expected to be offset by the stream restoration project below the dam. Stream turbidities will probably exceed state standards for short periods of time during the implementation phase, even with mitigation measures in-place. These exceedances are expected to recover quickly both in time and downstream distance. No direct changes to flow regimes are anticipated under this alternative.

This alternative that eliminates the sediment reservoir above the dam and reestablish the natural channel through this stream reach will allow the river to meander and create new gravel bars and side channels. This should increase hyporheic flows and has the potential to moderate stream temperatures through subsurface-surface water exchange. This alternative that results in downstream restoration of the lower reaches of Sherman Creek will allow the stream to flow more freely over adjacent areas that historically were subject to periodic flooding. As the stream regains some of its floodplain width and complexity, this natural function will also have a moderating effect on water temperature by increasing hyporheic flows. The current location of SR#20 will be unaffected by this project, but it will continue to cumulatively impact the hyporheic zone because it has straightened the channel and hardened the banks. This will continue to increase the energy of the stream during floods and create accelerated erosion at other downstream locations. This has simplified the stream and diminished the complexity and abundance of aquatic habitats and has reduced the ability of the stream to interact with the groundwater (hyporheic flow).

Alternatives Considered

Alternatives Considered but Eliminated from Detailed Analysis

Total Removal of the Dam

Total Removal of the Dam was considered, but it did not meet the Heritage Resource needs. The alternative was modified to become the proposed action.

Alternative E – Installation of a Culvert through the Dam

This alternative would excavate out the dam down to the original stream level. The drop inlet structure would be left in place and a large bottomless arch culvert (approximately 30 feet wide) would be constructed through the dam. The culvert would then be backfilled with material conserved from the excavation, back up to the original level and cross section of the existing dam. A 26 foot wide, Rosgen Type A channel would be constructed through the culvert at approximately a 3 to 5 percent grade. A

reference reach of similar slope would be established below the dam, and the stream morphology values would be measured for this reach from which the proposed channel through the culvert would be constructed.

The floodplain upstream from the existing dam would be excavated as described in Alternative B. An 80 wide floodplain would be constructed in the existing wetland upstream of the dam, and a channel would be constructed within this floodplain as described in Alternative B. Excess material from the excavation of the proposed floodplain and stream channel upstream of the dam would be utilized below the dam to raise the floodplain, or hauled to the Lane Creek Pit and disposed of as in Alternative B. Material sources for material to line the proposed stream channel through the culvert and upstream would come from the same material sources as described in Alternative B. The disposition of the existing drop inlet structure would be the same as in Alternative B.

The restoration of Sherman Creek above and below the dam would be the same as the proposed action.

This alternative costs \$243,000 more than the proposed action. It also leaves a structure that will need continual maintenance.

This alternative was proposed to mitigate the heritage impact of the dam removal. Part of the heritage issue is that the public will no longer be able to see the structure in place. With this alternative the general shape of the dam would remain. This alternative was dropped and the other alternatives incorporated heritage mitigations. However it was evaluated and determined that it would still have an adverse effect on the dam, so it does not address the heritage issue.

This alternative was dropped because it failed to resolve the heritage issue that it was designed to resolve, and it failed to meet the cost limitations described in the Purpose and Need.

Alternative F – Yearly maintenance and stream cleanout

This alternative was proposed by the public during scoping. It involves removing wood from upstream reaches to prevent damage to Growden Dam. This alternative does not address the 500-year flood flow as stated in the purpose and need. It also does not meet INFISH requirements which do not allow for removal of large wood from a stream, and the dam would continue to block fish passage.

Alternative G – Emergency Spillway with 6 acre lake

This alternative was proposed by the public during scoping. This alternative was also proposed by the Forest Service in 1993. The cost of this alternative was \$1,886,400 in 1993. Maintenance dredging was estimated to be needed every 10 years at a cost of \$100,000 each time.

In a survey done at the Growden site in 1991, there were 27 respondents. The survey was to get public comments with regard to a proposal at Growden Dam. The following table lists the reasons they stopped at the Growden site.

Table -1 - Reasons for stopping at Growden

Fishing / Hunting	Rest Stop	Camping	Historical Visit to CCC camp	Other
5	12	3	5	2

They were also asked “What do you consider to be the most important element of the project.” They were given the choices in the following table.

Table -2 - Important Elements at Growden from 1991 survey

CCC Camp History	Picnicking	Nature Trail	Cross-Country Skiing	Rest stop facilities	Camping	Lake Enlargement
14	6	3	2	8	6	3

Most of the respondents favored interpretation of the CCC camp history and rest stop facilities. The Forest Service implemented those parts of the project. The lake enlargement proposal was dropped due to cost.

This proposal was dropped from further considerations in this analysis, since it did not meet the purpose and need. The cost is well over the 10% allowed by the decision maker. It will not allow bedload movement through the dam site. It will not reduce stream temperatures. It does not provide fish passage. The 1991 public comments and the current public comments did not show a large support for retaining the dam or dredging behind the dam.

Alternatives Considered in Detail

Alternative A – No Action

The No Action Alternative is defined as not implementing actions proposed under this environmental analysis. Nothing would be done to the dam, stream restoration would not occur, vegetation management in the riparian areas would not occur. Noxious weed management would continue as prescribed under the current policy. The Forest Service road crew will still check on the dam during floods.

The picture below is used as the base picture under the conceptual pictures in the other alternatives.

Figure 3 - Existing Growden Dam Structure



Alternative B – The Proposed Action

The project is a proposal to partially remove the Growden Dam and restore approximately 1.1 miles of fish habitat downstream of the dam on National Forest ownership. These proposed actions include:

- **Partially removing of the Growden Dam structure.**
- **Restoring the channel and valley bottom behind the dam to pre-dam elevations and adding 1 – 3 backwater ponds in the new valley bottom behind the dam.**
- **Removing sediment deposits from behind the dam and creating a terrace with part of the sediment and taking the rest to the Lane Creek pit.**
- **Restoring Lane Creek pit with sediment from behind the dam.**
- **Improving fish habitat and sediment storage on approximately 1.1 miles of stream below the dam.**
- **Thinning riparian vegetation to get the material needed for the stream restoration at Log Flume.**
- **Developing rock sources to use for material in stream restoration at the dam site.**
- **Providing interpretation of the Growden Dam removal as mitigation for dam removal.**
- **Amending the Forest Plan for the Visual Quality Objective from Retention to Restoration for the Project Area.**

The proposed action was designed by the Interdisciplinary Team to meet the purpose and need, within the constraints of the Forest Plan.

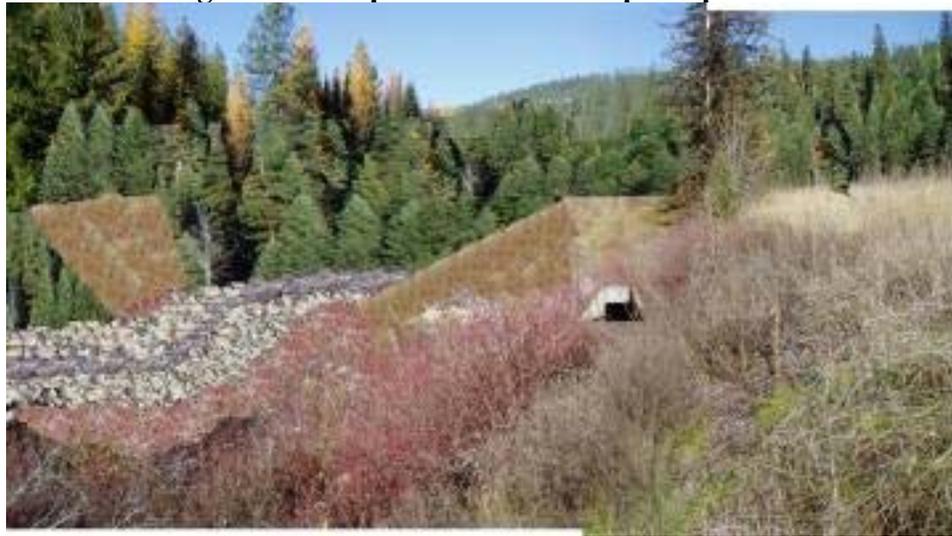
Partial Removal of Growden Dam

This alternative would partially remove the Growden Dam and would reconstruct a stable stream system from the upper end of the existing floodplain impounded above the existing dam, down through the

current dam location. The proposed reconstructed stream system would be restored to an elevation above the original floodplain prior to the construction of the Growden Dam. Segments of the existing dam on the North and South side of Sherman Creek would be conserved in an undisturbed state as culturally significant features to be interpreted as part of the adjacent Growden Dam Recreation Site.

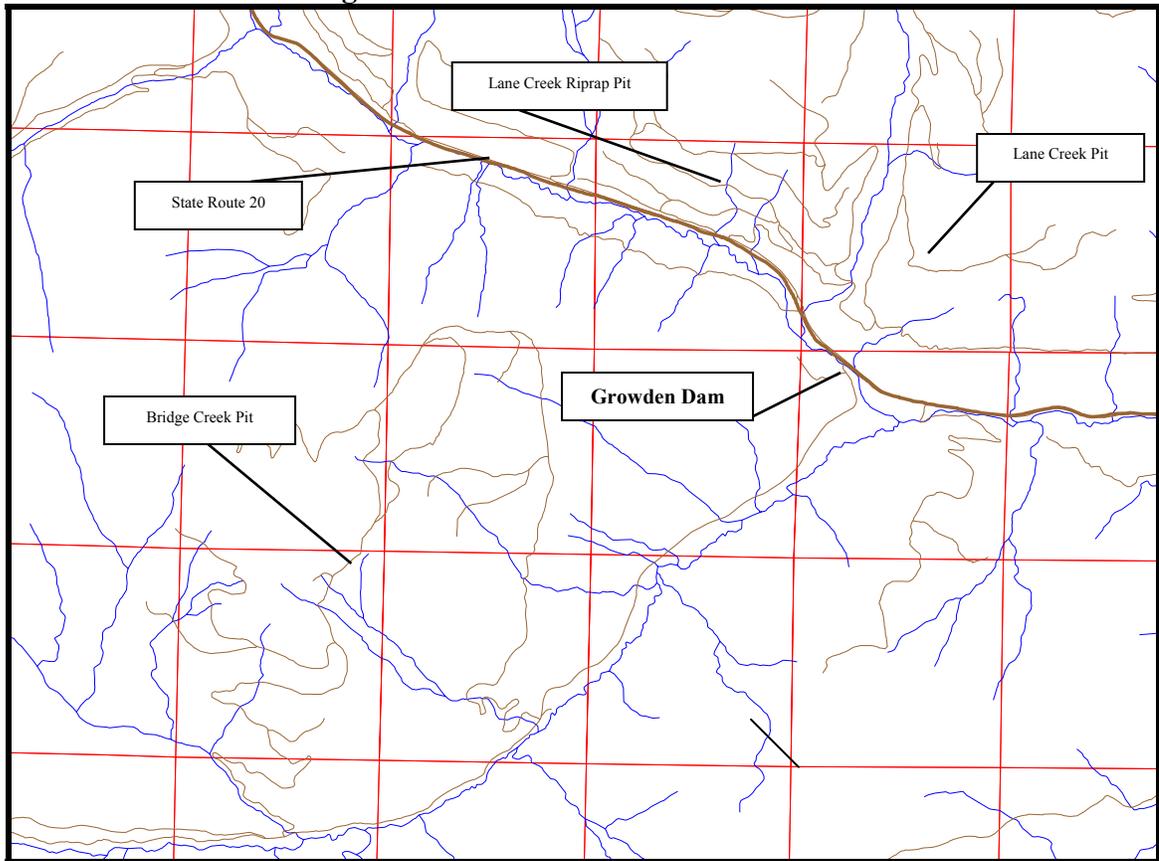
The area to be impacted would extend from approximately 300 feet below the downstream toe of the dam, upstream to a point approximately 1100 feet upstream from the top of the dam. The width of disturbed area for this alternative would generally be the width of the existing Sherman Creek flood plain plus 50' to each side. Small ponds will be placed in the floodplain. They will be designed to support trout.

Figure -4 - Proposed action conceptual picture



Rock sources needed for implementing this alternative would be the Bridge Creek Pit, in the South Fork Sherman Creek Drainage, the Lane Creek Riprap pit, in the Sherman Creek drainage, and the Lane Creek Pit, in the Lane Creek Drainage. The Bridge Creek Pit is a glacial till and hard rock pit located in Section 1, T35N, R35E along Forest Roads 2020120 and 2020135. The Bridge Creek Pit would supply finer streambed cobbles and gravels for reconstructing the proposed stream channel in Sherman Creek, once the Growden Dam is removed. The Bridge Creek Pit could also supply the large riprap material needed to hold finer cobbles and gravels in the proposed Sherman Creek stream channel reconstruction. The Lane Creek Riprap Pit is a solid granite quarry located adjacent to Forest Road 2000222, in Section 29, T36N, R35E. Material from the Lane Riprap Pit would be the source for the large riprap material needed to hold finer cobbles and gravels in the proposed Sherman Creek stream channel, once Growden Dam is removed. The Lane Creek Pit is a glacial till pit located in Section 28, T36N, R36E, adjacent to Forest Road 2000244. This pit would also be used as a source for cobbles and gravels for reconstructing the proposed Sherman Creek channel, once the Growden Dam is removed, and as a waste area for excess material removed from the dam, and the flood plain behind the dam.

Figure -5 - Growden Area Pit Locations



Additional area will be cleared and grubbed to access adequate stream channel material in each of these material sources. The Bridge Creek Pit would be expanded by approximately 3 acres, to the north and west. The Lane Riprap Pit would be expanded by approximately 5 acres along Forest Road 2000222, to the west. The Lane Pit would be expanded by approximately 2 acres to the south. The existing disturbed area at the north-west corner of the pit will be utilized for stockpiling waste material from excavations at the Growden Dam and the floodplain behind the dam. These pits will be used during reconstruction of interpretation sites along the byway.

This alternative will first dewater the flood plain surface behind the Growden Dam by diverting the overland flow into culverts at a point approximately 900 feet upstream from the dam. This water would be piped through the upper part of the dam, and back into Sherman Creek, downstream from the project construction limits. After the surface water is contained upstream of the project construction limits, the subsurface water in the floodplain would be drained by digging a series of sumps from which water draining from the surrounding soil can be pumped to a settling basin, and then drained over the dam.

Once the existing Sherman Creek floodplain behind the dam is drained of excess subsurface water, the floodplain would be lowered and the excavated material will be set aside to drain further. This excavated material would then be hauled to the waste area in the Lane Pit, or placed on the sides of the existing floodplain to form terraces along the proposed Sherman Creek stream channel upstream of the dam. The terrace walls would be armored with rock and native vegetation to prevent erosion of the terrace. The proposed flood plain would be constructed to an 80 foot width, which will accommodate constructing a stream channel with meander widths and lengths similar to the pre-dam channel in this length of Sherman Creek. The rock and logs would be placed where the stream bends come close to the

terrace. The rest of the terrace would be revegetated with shrubs. The conserved topsoil and vegetation would be placed over the floodplain and terrace. Native grasses would be seeded on all exposed soils.

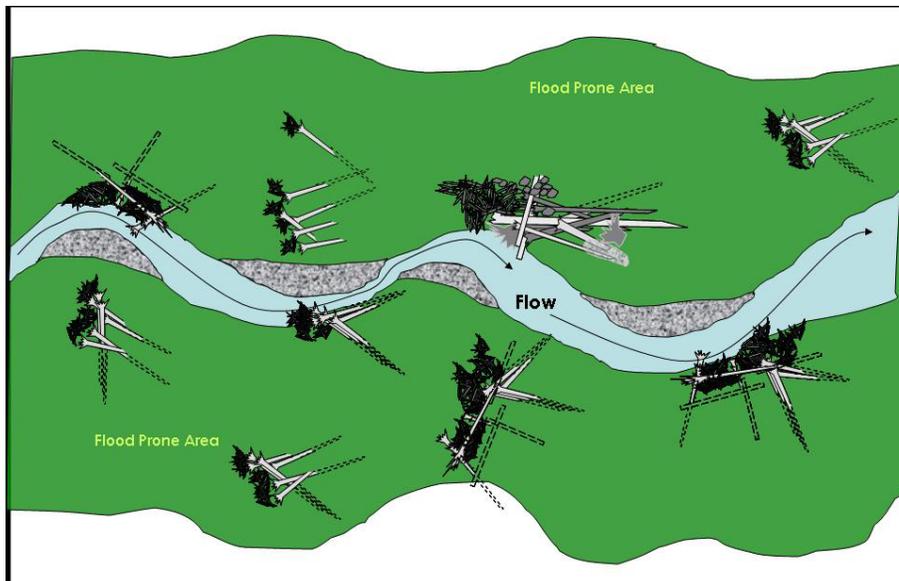
Once the existing floodplain is excavated down approximately to the pre-dam elevation, a new stream channel would be excavated within the 80 foot width of the proposed floodplain. The proposed stream channel would be constructed to widths and depths similar to the stream reaches just above the existing flood plain, and just down stream of the dam. Similar reference reaches would be measured to establish stream morphology values for stream bed width, depth, meander length, pool depth and length, etc. for use in construction of the proposed stream channel. Depending on the stream grade to be constructed, stream widths would vary between 16 and 30 feet, and stream depths between 1.5 and 3 feet deep. Revegetation behind the dam would include using topsoil and vegetation conserved during excavation of the existing wetland.

As the excavation of the existing floodplain proceeds, the existing drop inlet structure just upstream from the dam would be retained. The drop inlet would be preserved in its current outward configuration but would be uncovered from its existing condition as the excavation of the flood plain proceeds. Under this alternative, the drop inlet would not be needed for proper operation of the stream system. The drop inlet would be plugged with concrete and sand to limit access into its interior as a safety measure.

Restoration of Stream Habitat

Approximately twenty-five sites have been selected for improvement between the east end of the Log Flume Interpretive Site upstream to the Bangs Mountain Bridge on Forest Road #136. This is to mitigate both the loss of the wetland behind the dam and to increase the amount of sediment and bedload storage in Sherman Creek. The goal of these structures is to provide for sediment storage, reduce stream temperatures, provide high quality fisheries habitat, and allow for the stream to interact with its floodplain. The structures to be used include log jams, bar buddies, and rock structures.

Figure -6 - Example of conceptual plan view layout for structure and debris placement.



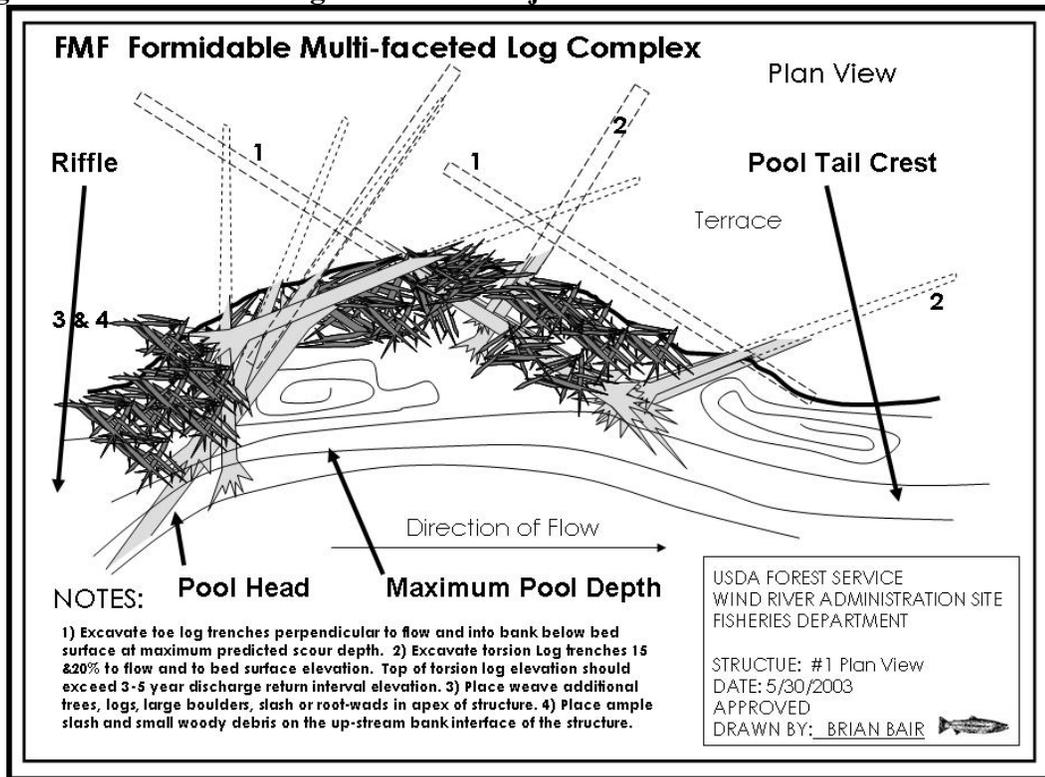
Log Jams

The log jams would be placed at bends in the river and provide pool habitat. The deeper pools would reduce the amount of surface area for the sun to heat. It also provides refuge for trout during the hot summer months and cold winter months when the creek freezes over. The jam also would provide sediment storage across and upstream of the structure.

Figure -7 - Log Jam within the Log Flume Reach. Structures are designed to mimic this jam.



Figure -8 - Plan view design of the debris jam or formidable multifaceted structure.



Bar Buddies

The bar buddies would be placed on existing rock bars to provide an area for sediment to settle out during high flows. This would also provide a place for vegetation, which would in turn shade the creek.

Figure -9 - Bar Buddies within the Log Flume Reach. These structures were placed in 1999. The structures proposed would look similar to these.



Rock Structures

The rock structures would create pools and narrow the channel, reducing solar heating on the water surface. The structures would create deposition areas above them. In figure 10, it shows how the stream would look before and after the structures.

Figure -10 - A representation of before and after at the Log Flume site.



Riparian Vegetation Treatment

The material source for logs will be the timber stand bounded by Log Flume interpretive site, Highway 20, and Bangs Mountain Road. Trees would be removed on these 38 acres for use in the stream

structures. Trees used for this project will be less than 20 inches diameter at breast height (dbh). Most of the trees will be between 6 and 12 inches dbh. Live trees will be taken to thin a stand. Most of these will be lodgepole pine. A large portion of the trees that will be used are dead and dying from a beetle infestation. The trees would be felled and moved by an excavator and forwarder. Some trees will be cut and others will be pushed over by an excavator so that their roots may be used in the stream structures. The forwarder would place the logs at the work sites. Designated routes to the stream channel are over existing skid trails or roads from past work. The creek will be used to by the forwarder to move the logs up and down the channel. All machines working in the stream channel will be checked each time they enter the stream channel for oil leaks. No machine will be allowed in the channel with oil leaks.

A 0.7 acre landing from a previous timber operation would be used for staging. This landing area would be decompacted and seeded after the thinning is finished.

Figure -11 - This is the stand of trees from which trees would be used for the structures.



As seen in the figure 11, there are numerous dead or dying trees in the stand adjacent to the restoration area. When these trees fall and litter the forest floor, they pose a high fire risk. By using the trees in the structures, the fire risk would be reduced. The stand would be managed for large tree recruitment. This is to benefit the Riparian Habitat Conservation Area.

Temporary Road Access

Approximately ½ mile of existing access roads would be used temporarily for the Log Flume Project Site. Two roads depart from the Log Flume trailhead. One was used as a salvage logging road and the other to put in the bank stabilization at the log flume interpretive site in 1999. A third road off of Bangs Mountain road was used to place a footbridge in the upper portion of the reach. All temporary roads would be decompacted and seeded with native grasses and shrubs when the structures are finished.

Mitigation Measures and Best Management Practices (BMPs) for selected Alternative B

Mitigation measures are defined as actions taken to avoid, minimize, reduce, eliminate, or rectify the impacts of management activities (40 CFR 1508.22). Best Management Practices are the primary mitigation measures used to reduce or eliminate potential effects to soil, water, and fisheries resources. BMPs are incorporated by reference, and the text of applicable BMPs is included in the Project Analysis File (copy is available from Three Rivers Ranger District on request). Additional or supplemental project-specific mitigation measures were developed to work in concert with BMPs. Following is a summary of the mitigation measures and monitoring from Chapter 2 of the EIS, pages 50-72.

Botany (EIS pages II-26)

If any sensitive plant species is found, a botanist will be consulted as to measures required to protect the species and its essential habitat.

Fisheries Mitigation Measures (EIS pages II

1. Work areas will be isolated from fish and fish will be removed from the project area.
2. Timing of instream activities will be during June 1 – August 30th or otherwise must be approved by the fisheries biologist.
3. A Spill Prevention Control and Containment Plan is required.
4. All equipment shall be cleaned prior to entering the stream.
5. Fueling should be at least 150 feet from Sherman Creek.
6. Oil absorbing booms shall be placed whenever surface water is present.
7. Minimize sedimentation during dewatering. Specific measures are listed in the FEIS.
8. Slowly rewater the construction sites.
9. Prepare a revegetation plan.
10. All project related wastes will be removed.
11. Access roads, stream channels, staging areas, and stockpile sites will be decompacted.

Heritage Resources Mitigation Measures (EIS pages III-29-30)

1. Interpretive signing will be placed at the Growden Dam site.
2. A Historical American Engineering Record (HAER) for the Growden Dam will be completed.
3. Stream work will be completed by moving up and down the stream channel. No new temporary roads (other than those already planned) will be built along the stream channel to move materials to the sites.
4. Falling of trees will be away from historic properties. Root balls will be inspected by heritage resources personnel.
5. Heavy machinery will use developed pathways to the creek.

6. Heritage surveys have been completed (page III-58 of the EIS). Heritage sites will be shown on contracts/easements as sites to be protected during project activities.
7. Contract/easement clauses will protect currently unknown heritage resources if discovered during operations.

Recreation Mitigation Measures (EIS page II-30-31)

1. Mimic natural openings,
2. Maintain and replant hardwoods,
3. Revegetate disturbed areas,
4. Revise existing stream restoration work to restore a natural appearing landscape,
5. Reduce visibility of work through screening, removing flagging, dispersing slash, and treatment of stumps to reduce visibility,
6. Create interpretative trails at the Sherman Creek trailhead and Growden,
7. Create designated access points to Sherman Creek,
8. Remove 4 trees at the Growden Dam site that block the view of traffic for visitors exiting the parking area.

Soil and Water Mitigation Measures (EIS pages II-31-34)

1. Avoid compaction by using existing skid trails and landings or seasonal restrictions.
2. Maintain soil productivity through topsoil retention.
3. Reduce surface erosion through road obliteration of temporary roads and reseeded with native species.
4. Reduce sedimentation through timing of activities, silt fences, settling ponds, experienced personnel, and timely revegetation.
5. Reduce the effects of sedimentation by implementing the restoration at Log Flume before Growden Dam is removed.
6. Protect existing functioning stream structures such as beaver dams and past structures, and vegetation from mechanical damage in the log flume reach.
7. To prevent discharges of pollutants, equipment will be kept clean and inspected, no refueling will be allowed in riparian areas, operate in dry channels.
8. Assure success of the structures by using sound material and monitor sites during high flows.
9. Monitor stream turbidities and riparian planting.
10. Coordinate with federal agencies to obtain proper permits.
11. To reduce water temperature, plant native tree species as soon as possible.

Competing and Unwanted Vegetation, Noxious Weeds Mitigation Measures (EIS pages II-34-35)

Mitigation measures were developed in compliance with the EIS for Managing Competing and Unwanted Vegetation and the Mediated Agreement. They incorporate recommendations made in the Colville National Forest Weed Prevention Guidelines (USDA Forest Service 1999). A copy of the Weed Prevention Guidelines is included in the Analysis File for this project.

Mitigation measures for noxious weeds include:

1. develop revegetation plans for disturbed sites,
2. revegetate bare soil as soon as possible, using native plants
3. clean equipment prior to moving on site,

4. use weed-free mulch,
5. pre-treat noxious weeds along existing roads, landings, and skid trails,

Wildlife (EIS pages 53-59 and Appendix B)

1. Preserve or create at least 4 large snags and 4 green snag replacement trees per acre in the stand used for material for Log Flume.

Required Monitoring and Coordination (EIS pages 66-72.)

1. Revegetation Effectiveness: Monitor planting growth and survival through a photo point monitoring and walk through survey. This will be done every year for 5 years after project completion.
2. Stream Structures Effectiveness: Monitor stream structures through photo points every 3 years and after bankfull events for 12 years.
3. Temperature Reduction: Monitor every year for 5 years after project completion by placing a thermograph downstream and upstream of the dam site and the restoration reach.
4. Dam outlet condition: Monitor every year for 5 years after project completion and after bankfull events the stability of the outlet area of the Growden Reach.
5. Fish Passage Effectiveness: The first year after construction and then every 3 years, monitor the fish passage through the Growden Reach outlet area for 12 years.
6. Snags: After project completion monitor the Log Flume Restoration Reach to assure appropriate snags are left.
7. Sedimentation: Every June for 5 years after project completion, monitor changes in bedload at the dam site and the restoration reach using a wolman pebble count.
8. After the ROD (Record of Decision) is signed, a Corp of Engineers Section 404 Permit will be applied for. This permit covers discharge or excavation of dredged or fill material waterward of the ordinary high water mark, and mechanized land clearing in waters of the United States, including wetlands (33 USC § 1344).
9. After the ROD is signed, apply for a Hydraulic approval permit from the Washington Department of Fish and Wildlife for construction that will use, divert, obstruct, or change the natural flow or bed of any fresh water of the state. This includes all construction or other work waterward and over the ordinary high water line, including dry channels, and may include projects landward of the ordinary high water line.
10. Apply for a Section 401 Water Quality Certification from the Department of Ecology under 33 USC § 1341.
11. Apply for an Approval to Allow Temporary Exceedance of Water Quality Standards from the Department of Ecology, under 90.48 RCW, for a temporary exceedance of water quality criteria established by WAC 173-201A for in-water work

Monitoring on NFS (National Forest System) Lands

The District Ranger would be responsible for the overall accomplishment of the plan on NFS Lands. Management practices, standards and guidelines, best management practices, and mitigation measures would be monitored during project implementation and during the post project period (1-5 years) and documented on established forms or other means.

Alternative C – The Run of the River Alternative

This alternative would address wetland retention issues by changing the site to a Run-of-the-River condition. The wetland behind the dam would remain intact. This alternative would excavate out a portion of the top of the dam approximately 8 feet deep, down to the elevation of the existing streambed at the existing drop inlet. The floodplain downstream from the dam would be raised and a new stream channel constructed from the existing drop inlet structure, through the dam and down to the existing stream channel at a point around the mouth of Lane Creek. Segments of the existing dam on the North and South side of Sherman Creek would be conserved in an undisturbed state as culturally significant features to be interpreted as part of the adjacent Growden Dam Recreation Site. The existing drop inlet would be left in place and would be plugged with concrete and sand to limit access into its interior as a safety measure.

Figure -12 - Run of the River conceptual picture



No stream bed or sediment removal would be done above the dam except to tie the proposed stream channel into the existing stream channel at the existing drop inlet structure. The proposed stream channel would be constructed to widths and depths similar to the stream reaches just downstream of the dam. Similar reference reaches would be measured to establish stream morphology values for stream bed width, depth, meander length, pool depth and length, etc. for use in construction of the proposed stream channel. The proposed stream channel would be constructed to a 16 to 20 foot width and a depth of 1.5 to 3 feet. The floodplain would be constructed through the dam at approximately a 40' width, and would grade down to the existing Sherman Creek stream channel at the mouth of Lane Creek on a slope of approximately 3 to 5 percent. The dam would be sloped back from the sides of the proposed flood plain at a slope of 2 feet horizontal to 1 foot vertical (2:1).

The stream channel downstream from the dam would be dewatered during construction of the proposed floodplain in that area. The construction area would be dewatered by piping from the existing stream channel just upstream of the existing drop inlet, through the dam and downstream to a point just past the confluence with Lane Creek. The pipe would be installed along the south side of Sherman Creek. Once the proposed Sherman Creek stream channel is reconstructed from the existing drop inlet down to the mouth of Lane Creek, the dewatering pipe would be removed except for sections of pipe that are buried more than 5 feet below the proposed ground surface.

The material sources described in Alternative B would also be used in this alternative. Material from the Lane Creek Pit would be used to raise the elevation of the floodplain below the dam. The Lane Riprap Pit would be the source for the large riprap material needed to hold finer cobbles and gravels in the proposed Sherman Creek stream channel, and the Lane Creek Pit and Bridge Creek Pit would also be used as a source for cobbles and gravels for reconstructing the proposed Sherman Creek channel.

The wetland behind the dam would remain intact; however the water table will be lower. The current stream channel would be maintained behind the dam. Stream restoration would occur below the dam since it will be needed to mitigate wetland loss and meet the sediment transport objective. Lane Creek Pit would not be restored. Access to the 2000-214 road would be blocked.

Alternative D – The Emergency Spillway Alternative

Alternative D addresses the Heritage Resource and Wetland retention issues. This alternative would maintain the dam as is and create a 15-foot-wide and 6-foot-deep concrete emergency spillway on top of the dam. The spillway would channel water into a 30-foot-long by 15-foot-wide chute on the face of the dam which would direct the water into the pool below the dam. This spillway is designed to pass a 500 year flood flow, so it meets the DSS regulations safety issue. This alternative would not affect the wetland or wetland water table. The drop inlet would remain as the main outlet for the dam. It would still require maintenance.

Stream Reconstruction – Under this alternative the stream would not be reconstructed behind the dam, since the current stream channel would be maintained.

Stream Restoration – The stream below the dam would not receive treatment since it would not be needed to mitigate the loss of the wetland.

Riparian Thinning – The riparian thinning was part of the stream restoration project and will not be implemented under this alternative.

Fish Passage - There will be no fish passage structure built.

Figure -13 - Emergency Spillway conceptual picture

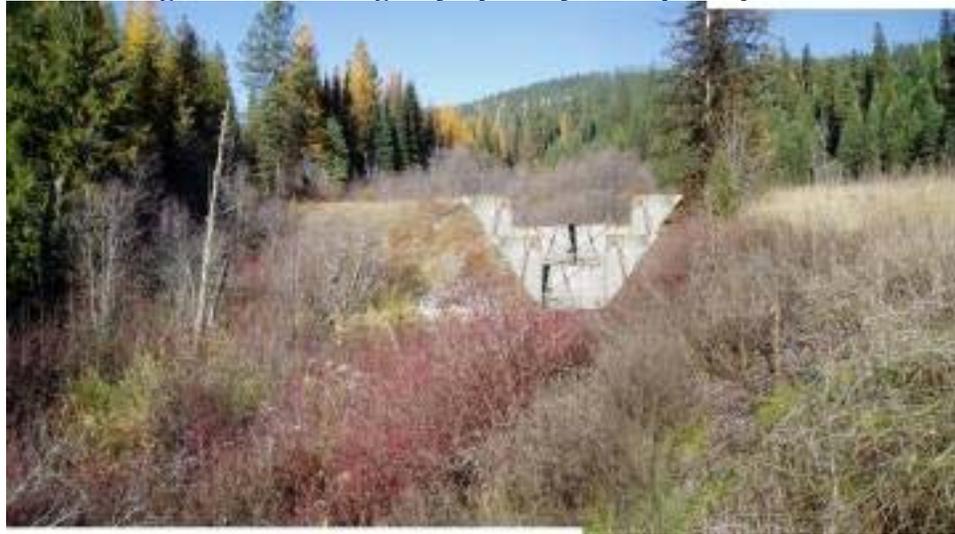


Table -14 - Alternative Comparison Table of the Purpose and Need and the Alternative Driving Issues

	Ability to safely pass a 500-year flood event.	Reduction in stream temperature expected.	Amount of the vertical height of the dam removed.	Increase in area available for bedload storage	Whether or not fish passage is provided.	Cost of the Alternative	Adverse or Not Adverse Call / If yes does mitigation satisfy the State Historic Preservation Office (SHPO	Reduction in wetland habitat behind the dam
A – No Action	No	No	0%	No	No	Annual Maintenance	No	None
B – Dam Removal	Yes	Yes	100%	Yes	Yes	\$1,000,000	Yes / Yes	5-6 acres
C – Run of the River	Yes	No	40%	Yes	Yes	\$534,000	Yes / Yes	1-2 acres
D – Emergency Spillway	Yes	No	0%	No	No	\$232,000	No	None

Table -15 - Alternative Comparison Table of the Significant Issues

	Noxious Weeds - Acres of soil disturbance to the project area	Recreation- Amount of disturbance to Log Flume site	Recreation- Amount of disturbance to Growden site	Recreation- Sherman Byway Plan Consistency	Recreation- Visual effects as viewed from the Sherman Byway	Water Quality - Amount of stream channel disturbed.	Water Quality - Amount of dam removed is indicative of the amount of disturbance
A – No Action	0	0	0	N/A	N/A	0	0
B – Dam Removal	74	Site closed for 1 Summer	Site closed for 1 summer	Yes	Amend Forest Plan	1.3 miles	60%
C – Run of the River	66	Site closed for 1 Summer	Site closed for 1 summer	Yes	Amend Forest Plan	1.1 miles	10%
D – Emergency Spillway	10	0	Site closed for 1 summer	Yes	Consistent with Forest Plan	0	2%

Environmentally Preferable Alternative

The environmentally preferable alternative is a required disclosure (40 CFR 1505.2(b)). The environmentally preferable alternative is ordinarily the alternative that causes the least damage to the biological and physical environment, and best protects, preserves, and enhances historic, cultural, and natural resources. In some situations, there may be more than one environmentally preferable alternative. (reference Environmental Policy and procedures Handbook, FSH 1909.15 section 05(11)).

Alternative B has the combination of preventing a catastrophic loss and maintaining a cultural site. Alternative B is also an environmentally preferred alternative.

Required Policies, Laws and Regulations Considered

The purpose of the Environmental Impact Statement was to document an environmental analysis and disclose the effects of the Growden Dam Decommissioning, Sherman Creek Restoration and associated projects, develop mitigation measures, and consider a reasonable range of alternatives that addressed the safety and restoration needs.

Executive Order No. 11990, Protection of Wetlands

Executive Order No. 11990, Protection of Wetlands requires the Forest Service to meet the President's goal of no net loss of wetland functions and values. This is addressed above in the Issue 2 - Wetlands.

Endangered Species Act (ESA)

There is no habitat for terrestrial Threatened or Endangered Species or recorded sightings and populations in the project area. The adjacency of Highway 20 precludes most of the species which prefer seclusion habitat.

Bull trout habitat occurs in the analysis area. Even though one individual has been found at the mouth of Sherman Creek below a waterfall barrier, they are thought to have been extirpated from the watershed from habitat loss and competition from brook trout. While future surveys and trapping may locate other bull trout, numbers are not expected to increase more than slightly. Presently no known reproduction of bull trout is occurring within lower Lake Roosevelt or its tributaries, including Sherman Creek. Lake Roosevelt and the Sherman Creek Watershed are not listed as critical habitat for Bull Trout. Since Bull trout are not within the affected stream reaches and the project is not within critical habitat for Bull Trout there is "No Effect" to this species. However the habitat would be improved for restocking efforts, should such efforts occur in the future.

Documents reviewed

The document that is the basis of my decision is the EIS for the Growden Dam, Sherman Creek Restoration Project, and Forest Plan Amendment #28 as well as other relevant documents in the administrative record. Among other documents, I have reviewed public comments made to the Draft EIS. I have reviewed the project Biological Assessment.

Forest Plan Resources

Selected Alternative B is consistent with the Colville National Forest Plan (1988) as amended for the Regional Forester’s Amendments 1 and 2, (“Screens or Eastside Screens”) and the Inland Native Fish Strategy, (INFISH).

The Inland Native Fish Strategy is designed to protect native fish populations by providing management guidelines and monitoring requirements along streams in watersheds for all Forest Service authorized activities.

Besides previously listed resources, other resources evaluated in the Colville Land and Resource Management Plan are maintained by this project. The Salmo-Priest Wilderness is outside of this project area. Salmo River is eligible for wild classification but is outside of the project area. Effects to National Forest resources are covered in the following pages of the FEIS.

Resource	Page Number
Fire and fuels	37
Geology and soils	37
Water	45
Economics and Engineering	54
Heritage resources	58
Fisheries	64
Noxious weeds	72
Sensitive plants	72
Silviculture	73
Wildlife	77
Air quality and clean air act	87
American Indian Rights	87
Conflicts with Objectives of Other land management plans, policies, and controls	87
Consumers, Civil Rights, Minority groups, and women	87
Economic and social effects	87
Irreversible and irretrievable Commitments of Resources	87
Prime Farmlands, rangelands, and forestlands	87
Short-term use and long-term productivity	87
Unavoidable effects	88
Unroaded and Roadless Areas	88
Wetlands and Floodplains	88
Wilderness, Wild and Scenic Rivers, and Research Natural Areas	89

Forest Plan Consistency and Other Required Findings

To be consistent with Forest Plan Direction for the affected Management Area (MA3a), this project amends the visual quality objective from Retention to Restoration. (see EIS page III-61-63).

For the Preservation of American Antiquities Act, June 1906, the National Historic Preservation Act, and the American Indian Religious Freedom Act; the existing cultural resources and known tribal

interests will be protected in this project (see EIS pages III-59, III-87). Coordination with the Colville tribe has been described earlier in this Record of Decision.

For the Endangered Species Act of 1973, (ESA), a finding of “no effect” for all Threatened and Endangered species was given to this alternative. Consultation was not required with the United States Fish and Wildlife Service because of the “no effect” call. The “no effect” call was made because there are no Threatened and Endangered species found within the analysis area. Critical habitat is not designated in the analysis area for any of the Threatened and Endangered species. The adjacency of Highway 20 precludes most of the species which prefer seclusion habitat.

For the Regional Forester Sensitive Species list, there are no impacts to plant species. Surveys found no sensitive or listed plant species (See EIS pages III 73-74). For terrestrial sensitive and MIS (Management Indicator Species) wildlife species, there will be “no impact”. (See EIS pages III-80-81)

For the sensitive fish species, westslope cutthroat, and redband trout, the analysis finds that there would be a “beneficial impact” to redband trout and “no impact” to Westslope Cutthroat Trout. See EIS pages III-65-71. There would be a “beneficial impact” to the MIS trout.

For the Clean Air Act Amendments, 1977; this project is consistent with the Clean Air Act and State smoke management requirements. Refer to EIS pages III-87.

For the Clean Water Act, 1982; this project is consistent with the Clean Water Act and state monitoring requirements. Refer to EIS pages III-46-54, Appendix B on Best Management Practices.

For the required finding of timberland suitability under the National Forest Management Act, a site specific determination of suitability has been made. The silviculturist has determined there would be no effect on timber suitability.

Regarding the Executive Order 13112 (Noxious weeds, February 3, 1999): Using prescribed guidelines under the Region 6 FEIS for Managing Competing and Unwanted Vegetation, 1988, and Mediated Agreement, 1989, I have determined that the benefits of this decision clearly outweigh the potential harm caused by invasive species (noxious weeds); and that all feasible and prudent measures to minimize risk of harm are being taken in conjunction with the project actions. This project will likely result in a reduction of noxious weeds. Refer to pages III-34 and 35 which are mitigation measures, and for discussion pages 72-73 in the EIS.

The Region 6 Final EIS for Managing Competing and Unwanted Vegetation (1988) as supplemented by the Mediated Agreement (Northwest Coalition for Alternatives to Pesticides, et al. V. Clayton Yeutter, 1989), directed the forests in Region 6 to utilize an Integrated Weed Management approach to vegetation management, and emphasize reducing reliance on herbicides and prescribed burning to control unwanted vegetation. The analysis record for this EIS includes a prevention strategy for noxious weeds.

There will be no effect of the selected alternative on the rights of Native Americans (American Indian Religious Freedom Act--AIRFA), women, or other minorities; or on the civil rights of any United States citizen. Consultation with the Confederated Tribes of the Colville Reservation has been documented in the analysis files and concerns addressed in the Response to Comments Appendix. There are no environmental justice issues or disproportional environmental impacts on low-income and/or minority

communities. Nearby communities and their economies are not expected to be impacted by any of the alternatives except that project activities will provide employment for construction crews and equipment operators.

.Forest Plan Amendment

This project amends the Visual Quality Objective (VQO) for the project area from Retention to Restoration until the time that vegetation recovers. Under Alternative B, the area behind the dam will be under construction and not appear natural. There will be 8 acres of unvegetated landscape next to highway 20 in the first year of construction. Within one season grass will be over most of the site and trees and shrubs will have been planted. Within five years, trees and shrubs will be established and the area will appear more natural.

Implementation Date and Appeal Rights

This project may not be implemented for at least 50 days from the date of legal notice of the decision appearing in the Colville Statesman Examiner newspaper. I expect the District Ranger to implement this project starting in the Spring of 2006 with the stream restoration project. The dam removal will begin when the financial resources are obtained which will be no earlier than 2007.

This decision is subject to appeal under 36 CFR 215.11. Only those people who have provided substantive comments on the DEIS can appeal (36 CFR 215.13). Appeals must be postmarked and submitted with the Appeal Deciding Officer, Regional Forester, ATTN: 1570 APPEALS, 333 S. W. First Ave., P. O. Box 3623, Portland, OR, 97208, within 45 days of the date legal notice of this decision appears in the Colville Statesman-Examiner newspaper. Any written notice of appeal of this decision must be fully consistent with 36 CFR 215.14 "Appeal Content", including the reasons for the appeal and how the decision fails to consider comments previously provided.

Appeals can also be filed electronically at: appeals-pacificnorthwest-regional-office@fs.fed.us. Electronic appeals must be submitted as part of the actual e-mail message, or as an attachment in Microsoft Word (.doc), rich text format (.rtf), or portable document format (.pdf) only. E-mails submitted to email addresses other than the one listed above, or in formats other than those listed, or containing viruses, will be rejected. It is the responsibility of the appellant to confirm receipt of appeals submitted by electronic mail.

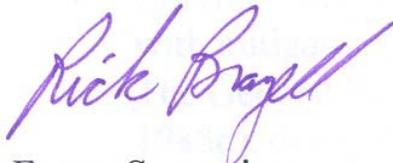
It is the responsibility of those who appeal a decision to provide the Regional Forester sufficient written evidence and rationale to show why my decision should be changed or reversed.

The written notice of appeal must include:

- (1) Appellant's name and address (Sec. 215.2), with a telephone number, if available;
- (2) Signature or other verification of authorship upon request (a scanned signature for electronic mail may be filed with the appeal);
- (3) When multiple names are listed on an appeal, identification of the lead appellant (Sec. 215.2) and verification of the identity of the lead appellant upon request;
- (4) The name of the project or activity for which the decision was made, the name and title of the Responsible Official, and the date of the decision;

- (5) The regulation under which the appeal is being filed, when there is an option to appeal under either this part or part 251, subpart C (Sec. 215.11(d));
- (6) Any specific change(s) in the decision that the appellant seeks and rationale for those changes;
- (7) Any portion(s) of the decision with which the appellant disagrees, and explanation for the disagreement;
- (8) Why the appellant believes the Responsible Official's decision failed to consider the substantive comments; and
- (9) How the appellant believes the decision specifically violates law, regulation, or policy.

For further information on this project and implementation, contact Project Interdisciplinary Team Leader Karen Honeycutt at (509) 684-7224, or write to Three Rivers Ranger District, 255 West 11th, Kettle Falls, WA 99141.



Forest Supervisor
Responsible Official

DATE

2-28-06

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The Record

The following is a list of the major components of the record for this project. Appendices to the EIS include Habitats of Threatened, Endangered, and Sensitive Species, the Response to Comments and letters from agencies and the public received during the DEIS comment period.

Analysis File resource reports include several reports. The reports were summarized in the FEIS.

Other direction pertinent to the analysis that was reviewed, included:

- The Colville National Forest Land and Resource Management Plan, 1988. This included such direction as the Management Indicator Species
- Inland Native Fish Strategy, INFISH (USDA Forest Service 1995) amended the Forest Plan and contains additional standards for protection of native fish, aquatic habitat, and terrestrial habitat that either indirectly or directly affects native fish populations.
- Colville National Forest Integrated Noxious Weed Treatment EA (USDA Forest Service 1998).
- Colville National Forest Weed Prevention Guidelines (R. Vaught memo, November 18, 1999), with mitigation measures to be incorporated into projects.
- The General Water Quality Best Management Practices document (USDA Forest Service 1988d), describes the process for use of the BMPs and spells out language to use for every activity affecting water on the National Forest.
- The water quality criteria for surface waters of the State of Washington (Chapter 173-201A WAC), Class AA apply.
- U.S. Forest Service (USFS) R-6 Regional Forester's Sensitive Species List, July 21, 2004.
- Wetlands Executive Order
- Letter From State Historic Preservation Office

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Appendix A to Record of Decision- Substantive Comments on Draft EIS and Responses

EPA (United States Environmental Protection Agency) Comments

Comment: EPA recommends that the final EIS discuss the likely sources of the materials contained within the dam.

The final EIS should describe what type of mining or milling operations were the source of the material and the results of any testing that was performed to identify the material.

Response: This was added to the FEIS on page III-41.

Comment: EPA recommends that the final EIS include an evaluation of the complete removal of the dam or contain the rationale for not considering this management action as an alternative

Response: Complete removal of the dam was considered as the original proposed action but was modified to meet heritage needs (page II-27 of the FEIS).

Comment: We suggest that the final EIS discuss any impacts (to hyporheic zone functions) that would potentially occur with implementation of the alternatives.

Response: This was added to the FEIS on page III-56.

Comment: We recommend that the final EIS include a section that describes the restoration that would occur at the Lane Creek Pit

Response: This was added to the FEIS on page II-20.

Comment: To meet federal requirements for wetland protection, we recommend including additional wetland mitigation as part of Alternative B and C to fully mitigate the loss of wetland functions and values. We recommend that the final EIS contain additional detail regarding the function and values that that will be replaced by the stream restoration activities, and if necessary, consideration of additional mitigation for the loss of the wetland functions.

EPA recommends that the final EIS contain a separate section on wetlands. The final EIS should clearly identify the wetlands that meet the Clean Water Act definition as waters of the U.S. This would require that all wetlands within the impact area of the project be delineated using the 1987 Federal Wetland Delineation Manual. Once this delineation is complete each alternative should evaluate the potential direct and indirect impacts it would have on these aquatic resources. This is required to meet the President's goal of no net loss of wetland functions and values, and the overall federal goal, of which the U.S. Forest Service is a partner, of a net gain of wetlands nationally of 100,000 wetland areas per year. The use of NWI mapping is not adequate in identifying these wetlands.

The DEIS has not clearly stated how it will reach the requirements and goals required under Executive Order No. 11990, Protection of Wetlands. This should be addressed in the final EIS and we have included a copy of Executive Order No. 11990 with our comments.

Response: This was added to the FEIS on page III-56.

Comment: This section should discuss the past management activities and their effect on sediment yield to the stream and what the cumulative effects would be to sediment yield with the implementation of this project. It should also attempt to quantify short term (sediment) impacts and discuss how they would be offset by long term benefits of dam removal and stream restoration.

Response: Due to the nature of this project, sediment is discussed in various areas. The history section on FEIS page I-5 details how the dam filled with sediment. FEIS page I-11 details how the channel has reacted to the sediment in the system by the blockage of the dam and the erosional processes. FEIS Pages III-39-40 lists past actions. FEIS Page III-51 lists current sediment contributions. The Hydrology Section addresses cumulative effects of sediment on pages III-55-57 of the FEIS. The fisheries section, FEIS pages III-72-74, addresses the effects of the cumulative impact from sediment and the projected effects on fisheries.

Comment: We recommend that the final EIS provide an estimation of the length of time that the soil disturbance would continue and the effects that it would have on aquatic habitat in Sherman Creek.

Response: The effect soil disturbance would have on aquatic habitat is provided on pages III-72-74 of the FEIS. Soil disturbance will only occur during construction. Construction of the stream habitat at log flume would occur in one summer. The dam work would be done the following summer. All areas will be seeded right after implementation (fish mitigation measure 17). All areas will have sediment controls in place to limit sediment movement (fish mitigation measures 16, 17, 21 and Water 7, 13). Sediment is expected to be fully contained when the bypass is removed (mitigation measure 16). There is expected to be a beneficial effect on aquatic habitat (FEIS page III-73-74).

Comment: Harvest entries are unlikely to exceed soil guideline if standard contract mitigation measures are applied. This section should indicate the likelihood of those measures being applied to this project. ... This section states that "mitigation measures will probably reduce these new impacts by half to insure the proposed action continues to meet soil standards". EPA recommends that the final EIS describe the basis for the estimated amount of reduced impacts. We recommend inclusion of an analysis that will support this assumption.

Response: Soil compaction is the detrimental soil condition that lasts the longest and is therefore the most likely to cumulatively affect soil productivity. "The persistence of recognizable and detrimental compaction has been documented to last up to 40 years in the Region" (Guidelines for Soil Resource Protection and Restoration for Timber Harvest and Post-harvest Activities, Don Boyer, 1979, USDA Forest Service, Pacific Northwest Region). Monitoring of old harvest units on this forest has indicated that soil compaction may last longer than 40 years depending on site and climatic conditions.

Comment: This section states that many of the effects to soil disturbance can be mitigated. We recommend that the final EIS indicate the likelihood that mitigation would occur with this project

Response: An estimate of the effectiveness of mitigation measures is contained in the Best Management Practices (BMP's) for the Growden Project. The mitigation measures described are standard contract provisions in most timber sale contracts on this forest and have proven effective during implementation.

Comment: EPA's primary concern is with the method used to assess the wetlands behind the dam and whether the project is in compliance with Executive Order No.11990, Protection of Wetlands. Wetlands within the project need to be delineated using the 1987 Federal Wetland Delineation Manual.

Response: The Forest Service used the National Wetlands Inventory for maps of wetlands in the area. Further wetlands delineation will be done using the 1987 Federal Wetland Delineation Manual during final design.

Comment: We also recommend the evaluation of additional wetland mitigation to offset the potential wetland loss associated with Alternatives B and C.

Response: Given our discussions with the Washington Department of Ecology and the Army Corps of Engineers (added to the FEIS on page III-56), we believe the proposed wetland mitigation is adequate. We will be glad to discuss this issue further, especially if the EPA has site-specific recommendations.

Comment: EPA recommends the inclusion of additional maps in the final EIS that more clearly depict the wetland area above the dam.

Response: These will be created during final design.

Comment: The final EIS should discuss the contribution of the wetland to groundwater recharge and include an evaluation of the effect of potential wetland loss on existing groundwater levels.

Response: Streamflow regime and the impacts to the wetlands are contained on pages III-56-57 in the FEIS.

Comment: We support the Forest Service's efforts to improve water quality, habitat and fish passage conditions on Sherman Creek. Based on the information presented in the draft EIS, the dam removal alternatives (Alternative B and C) would best meet the primary project purpose of passing a 500 year flood event, reducing in stream temperatures and providing fish passage in Sherman Creek. Dam removal would provide the best opportunities for upstream and downstream passage of Redband and Cutthroat trout and other aquatic species. Except for complete dam removal, EPA agrees with the conclusion in the draft EIS that Alternative B would best address the issues of degraded water quality. It would also be more effective at providing additional long term habitat benefits by allowing sediment and large woody debris to be transported to downstream reaches of Sherman Creek.

Response: Comments are noted and will be taken into consideration.

James Schumacher Comments

Comment: I want to go on record opposing any alternative whose actions would include the breaching or partial breaching of Growden Dam

Response: Comments are noted and will be taken into consideration.

Comment: If forced to choose between the four alternatives covered in depth, I would have to choose Alternative D. In actuality, I would rather see Alternative G implemented.

Response: Comments are noted and will be taken into consideration.

Comment: I propose to have this alternative implemented in several phases which would eventually include the reconstruction of several of the original buildings one of which will house a museum.

Response: Restoration of the CCC camp is out of the scope of this project. This project does not preclude the restoration of the CCC camp. The original grounds of the CCC camp will not be changed.

Comment: I would hate to see such an historical treasure destroyed by the breaching of Growden Dam.

Response: I agree, but safety and aquatic resource needs are also very important. The historical aspects of the site will be retained by preserving part of the dam, and with signs that recall and explain the history of the site.

Comment: With natural fish migration barriers both upstream and downstream of the dam in the form of waterfalls, fish passage is already restricted.

Response: This was addressed in the FEIS on page I-11.

Comment: I disagree with the statement that deepening the lake will not reduce stream temperatures.

Response: This was addressed in the FEIS on page II-26-27.

Department of Ecology – Dam Safety Section Comments

Comment: Because of the downstream hazard, the DSS would likely require a design storm much greater than a 500 year flood." Based upon Dam Safety's evaluation that the project Downstream Hazard Classification was found to be Significant, Hazard Class 2, it is likely that the design flood event could be approaching a 3000 year event.

Response:

Page III-57-58 of the FEIS discusses the flood event design criteria used in the analysis. A 3000 year flood event was used to design the alternatives.

Comment: Since Dam Safety was not involved in any of the engineering work sizing spillways or embankment modifications, we cannot determine how this changes either the project cost estimates or feasibility.

Response:

The Forest Service will confer with the Department of Ecology – Dam Safety Section on final design.

Comment: If Dam Safety were prescribing abandonment of the drop inlet structure, we would require plugging the inlet structure AND the conduit through the dam.

Response:

Filling the drop inlet is part of Alternative B. The costs associated with filling the drop inlet were figured into the overall cost. (FEIS pages III-58 - 60)

Ferry County Board of Commissioners Comments

Comment: The Ferry County Commissioner support Alternative G-Emergency Spillway with 6 acre lake. Alternative G meets the needs of Ferry County's emphasis on recreation enhancement. The impact of Alternative G protects the historical integrity of the site while addressing the immediate threat of high water breaching of the dam's structure.

Response: Comments are noted and will be taken into consideration. Alternative G considered but was dropped from detailed study because of high cost and its failure to meet most of the project purposes and needs (Alternative G would not allow bedload movement through the dam site, would not reduce stream temperatures, and would not restore fish passage).

Comment: The issue of fish passage for genetic purposes can be achieved through alternatives other than dam removal. A system of capture of downstream fish and release upstream and upstream capture and release down stream would achieve the same results.

Response: Fish passage is not the only need. The project also needs to address safety (as required by the Washington State Department of Ecology Dam Safety Section), stream temperature reduction (as required by the Clean Water Act), restoration of aquatic function (per the Colville National Forest Land and Resource Management Plan, as amended by the Inland Native Fish Strategy); and costs must be kept within reason.

Comment: The historic value of the Growden Dam site is a major part of the Sherman Scenic By-way. The restoration of the lake would not only add to the authenticity of the site, Alternative G would maintain a portion of wetlands associated with the water table created by the dam's height. Whereas wetlands and lakes have been identified by the State of Washington's Department of Ecology as critical to the future of this state, we should take every opportunity to maintain and restore those we have.

Response: Comments are noted and will be taken into consideration. Alternative G was dropped from consideration for reasons listed on page II-26 of the FEIS. Page III-56 of the FEIS lists the State of Washington's Department of Ecology's view on this wetland. In summary, they would rather see the natural processes restored than for the dam to remain intact.

Comment: The Alternative # D meets the need of the Board of County Commissioner's goal of historic preservation and achieves the need of structure safety in a major flood event. This alternative would allow for future partnerships in the improvement of the Growden Dam site.

Response: Comments are noted and will be taken into consideration.

Comment: The Ferry County Commissioners would support Alternative # D as their second choice on the Growden Dam project as it impacts the site's potential for future development less than Alternatives # B and C. The Board of County Commissioners understands the need to address fish genetics and the water temperature issues. The commissioners believe there may be opportunity to address these issues as time and funds become available.

Response: Comments are noted and will be taken into consideration.

Comment: Alternative # C, The Run of the River Alternative does not meet the need of the County's future recreational direction. This alternative alters the dam and the spillway and will distract from the visual effect of the dam. It will severely affect any future for lake restoration.

Response: Comments are noted and will be taken into consideration.

Comment: Alternative # B is the least acceptable alternative for the county.

Response: Comments are noted and will be taken into consideration.

Comment: The Ferry County Board of Commissioners requests the reconsideration and selection of Alternative G. That decision along with the formation of a local coalition to develop a plan to restore and enhance the historical Growden CC camp site would meet the requirements of the Forest Service. It would allow the County, State of Washington, Forest Service and the recreation community to work for the good of the Sherman Creek Scenic By-way. The result would preserve a historic site, add to the county's economics and provide for a safer dam and improved fish habitat.

Response: Alternative G was dropped from consideration for reasons listed on page II-26 of the FEIS. The selected alternative complies with the Sherman Scenic By-way plan. The selected alternative was developed by a local coalition including Washington State Fish and Wildlife, Washington State Department of Ecology, Ferry Conservation District, and the Forest Service. A lake was not among the most important reasons why local recreationists stopped at the site. (page II-26 of the FEIS).