US Army Corps
of Engineers®
Walla Walla District

Gooding Flood Control Project
Little Wood River
Gooding, Idaho
Integrated Rehabilitation Letter Report and Environmental Assessment

DRAFT Report
Authority: Section 3057 of the Water Resources Development Act of 2007

September 2016

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Executive Summary

Background

The Little Wood River flows through the city of Gooding, Idaho in a constructed masonry channel known as the Gooding Canal. In the 1930s, the Works Progress Administration (later known as the Work Projects Administration, or WPA) realigned the river and constructed the rectangular channel made of grouted and un-grouted hand-placed lava rock over the native lava rock riverbed. The work was completed in 1941, and extends for just under a mile.

Since 1941, the channel has performed well but its walls have deteriorated significantly, and the rate of deterioration is increasing as the project ages. Diminished, but useful functionality of the Gooding Canal has been preserved by the city of Gooding through ongoing maintenance, targeted repairs, and replacement of channel wall sections. However, the channel, constructed with impermanent methods and dubious materials, is now seventy five years old, and approaching the end of its useful life. Rehabilitation or replacement of the facility is warranted.

Many sections of the wall have failed, leading to an increase in localized flood risk and threat to adjacent public infrastructure and private property. Slumped piles of masonry in the channel reduce its conveyance capacity. Poor access to the channel, as well as limited equipment and resources, have inhibited the removal of the masonry piles. The slumped piles of masonry allow ice jams to form and debris to accumulate during winter high flow events, which severely reduces channel conveyance, and results in localized overbank flooding.

Water flow in the Gooding Canal also causes localized erosion near the failed sections, leading to further bank failures and soil slumping behind the lava rock walls. Public roads and utilities, as well as private property, are located next to the channel throughout much of its alignment. On private property, these bank failures lead to the loss of land, and increased risks to nearby structures.

The project, as originally constructed, included five vehicular bridge crossings and three pedestrian footbridges. The bridges are in good condition and have been well maintained, but the designs of the vehicular bridge crossings reduce channel width by as much as four feet, creating pinch points during high flows that contribute to ice jamming and localized flooding.

The Gooding Canal is also extensively used during irrigation season, and water flows into and out of the river at many locations. The highest flows usually occur during the non-irrigation season, when natural flows are high and little water is diverted for irrigation. During low flow periods in the winter, the river may freeze solid. As part of routine channel maintenance, the city of Gooding uses mechanical equipment to break

up ice in the channel to reduce the risk of localized flooding. Winter high water events are primarily caused by rain on snow, or other melt events.

Sponsor

The city of Gooding is the non-Federal sponsor (NFS) for this project and is unable to perform substantial repair to the masonry channel due to limited funding and technical expertise. Investigations performed for the preparation of this Little Wood River Gooding, Idaho Rehabilitation Report (Report) verify that proper maintenance has been performed over time to maintain public safety and channel operability; however, due to the original construction methods, channel deterioration has continued to worsen, leading to higher emergency repair costs for the City. The extent of wall failure has exceeded the NFS's capability to effectively repair even the worst areas.

Study Authority

Section 3057 of the Water Resources Development Act (WRDA) of 2007 directs the Secretary to rehabilitate the Gooding Channel project (Project) for the purposes of flood risk reduction and ecosystem restoration; if rehabilitation is feasible, and not required due to improper operation and maintenance of the project by the non-Federal sponsor. The Secretary is directed to plan, design, and construct the project at a total Federal cost of $9,000,000. The escalated Sec. 902 limit in FY 2016 dollars is $14,349,000. Rehabilitation costs will be shared by the Secretary and the NFS in the same percentages as the original construction costs (100% percent Federal). Economic justification of the project is not required, per Section 3057 of WRDA 2007.

The authorizing language for the Project directs the U.S. Army Corps of Engineers (Corps) to investigate the feasibility of incorporating ecosystem restoration into the channel rehabilitation. Some potential ecosystem restoration measures were identified. However, because the sponsor is unable to provide the necessary Land, Easements, Rights-of-Way, Relocations and Disposal sites (LERRDs) for a large scale ecosystem restoration project, those opportunities are limited to small and ancillary features which were determined to have no major environmental quality benefits. Therefore, the ecosystem restoration part of this project was deemed infeasible.

Plan Formulation, National Environmental Policy Act, and Recommended Plan

The necessity of the rehabilitation of the Gooding Canal was determined *not* to be caused by negligence on the part of the NFS. A July 2000 Section 905(b) report, conducted under authority of Section 416 of the Water Resources Development Act of 1999, made a finding of Federal Interest in the restoration and repair of the flood channel in Gooding, and computed a benefit cost ratio of 1.8.

A National Economic Development (NED) plan for flood risk reduction was not developed for this effort because economic justification is not required. Instead, the Report recommends the least cost alternative that meets the Project's objectives. Following the Corps' six-step planning process produced only one action alternative (Alternative 1) and the No-Action alternative in the final array of alternatives evaluated. Of those, only the action alternative meets the planning criteria for completeness, effectiveness, efficiency, and acceptability; meets the directive in the project authorization language; is feasible; and satisfies the purpose of flood risk reduction.

Specific features of Alternative 1 include measures to remove the existing lava rock wall, replace the wall with an engineered channel, and replace five bridge crossings for flood risk reduction. The bridge and pedestrian crossings cannot be salvaged during canal rehabilitation and must be demolished and replaced. This alternative also includes mitigation measures to be finalized with the Idaho State Historic Preservation Office (SHPO).

Four different scales of Alternative 1 were analyzed to optimize the recommended plan. The team evaluated varied wall construction methods and their associated costs to identify the least-cost method for reconstruction of the canal walls. Changes to the channel footprint were not evaluated due to potential impacts to cultural resources, and the need to avoid significant real estate and other LERRD costs.

As part of the environmental effects analysis, sixteen environmental resources were identified as important to this project. However, only water quality, biological/ endangered species, and cultural resources were ultimately identified as needing further assessment, including consultation and/or coordination with other Federal, state, and tribal entities. The only unavoidable "Adverse Effect" for the recommended plan falls under Section 106 of the National Historic Preservation Act. The Corps and the SHPO continue to work to develop a Memorandum of Agreement (MOA) to address project impacts to historic properties. Any mitigation measures or requirements agreed to in the MOA will be incorporated into the project and completed during the design and implementation phase.

In accordance with the National Environmental Policy Act (NEPA), based upon the technical aspects of the project, best scientific information available, public comments, and the analysis contained in this integrated Letter Report and Environmental Assessment, the Walla Walla District Commander has determined that the proposed Gooding Flood Control Project does not significantly affect the quality of the human environment. An Environmental Impact Statement is not required.

The fully-funded project cost, including spent costs, is estimated to be $13,569,000, which includes a 31% cost contingency. Once funded, it is anticipated that the Gooding Flood Control Project could be designed and constructed within a 12-month period.

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Rehabilitation Letter Report with Integrated Environmental Assessment
Gooding Flood Control Project, Little Wood River, Gooding, Idaho

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H	Public Involvement/Scoping
I	Finding of No Significant Impact

LIST OF ACRONYMS

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
ASA (CW)	Assistant Secretary of the Army for Civil Works
BCR	Benefit-Cost Ratio
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practices
CAA	Clean Air Act
CAP	Continuing Authorities Program
CCC	Civilian Conservation Corps
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
City	City of Gooding, Idaho (non-Federal sponsor)
CMU	Concrete masonry unit
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
EA	Environmental Assessment
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
EO	Executive Order
ER	Engineer Regulation
ESA	Endangered Species Act
FCSA	Feasibility Cost Sharing Agreement
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
FRM	Flood Risk Management
FWCA	Fish and Wildlife Coordination Act
GHG	greenhouse gas
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IG	Implementation Guide
LERRDS	Land, Easements, Rights-of-Way, Relocation, and Disposal areas
MBTA	Migratory Bird Treaty Act
MCACES	Micro-Computer Aided Cost Estimating System
MOA	Memorandum of Agreement
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NED	National Economic Development

LIST OF ACRONYMS (continued)

NER	National Ecosystem Restoration
NFS	Non-Federal Sponsor
NHPA	National Historic Preservation Act
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NRHP	National Register of Historic Places
NWD	Northwestern Division, US Army Corps of Engineers
NWP	Nationwide Permit
NWW	U.S. Army Corps of Engineers, Walla Walla District
O&M	Operations and Maintenance
OMRR&R	Operation and Maintenance, Repair, Replacement, and Rehabilitation
P&G	Principles & Guidelines for Water and Related Land Resources Implementation Studies
PDT	project delivery team
PL	Public Law
PPA	Project Partnership Agreement
RIT	Regional Implementation Team
SHPO	State Historic Preservation Office
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WPA	Works Progress Administration
WRDA	Water Resources Development Act
WSEL	water surface elevation

CHAPTER 1 – INTRODUCTION

1.0 Study Background

1.1 Report

The purposes of this Little Wood River, Gooding, Idaho Rehabilitation Letter Report (Report), is to determine whether the rehabilitation of the Gooding Canal is required as a result of improper operation and maintenance of the project by the Non-Federal Sponsor (NFS); and, if not, to determine the feasibility of rehabilitation or redesign of the channel for flood risk reduction and ecosystem restoration. This report recommends the most cost-effective solution and includes required environmental compliance and documentation to meet requirements of the National Environmental Policy Act (NEPA) of 1969, as amended.

1.2 Study Authority

This Report was prepared in response to Section 3057, of the Water Resource Development Act of 2007 (WRDA 2007) – Little Wood River, Gooding, Idaho, which reads:

> SECTION 3057. LITTLE WOOD RIVER, GOODING, IDAHO.
>
> "(a) IN GENERAL.-The project for flood control, Gooding, Idaho, constructed under the emergency conservation work program established under the Act of March 31, 1933 (16 U.S.C. 585 et seq.), is modified-
> (1) to direct the Secretary to rehabilitate the Gooding Canal project for the purposes of flood control and ecosystem restoration if the Secretary determines that such rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest and that the rehabilitation and ecosystem restoration is feasible; and
> (2) to direct the Secretary to plan, design, and construct the project at a total cost of $9,000,000.
> (b) COST SHARING.-
> (1) IN GENERAL.-Costs for reconstruction of a project under this section shall be shared by the Secretary and the non-Federal interest in the same percentages as the costs of construction of the original project were shared.
> (2) OPERATION, MAINTENANCE, AND REPAIR COSTS.-The costs of operation, maintenance, repair, and rehabilitation of a project carried out under this section shall be a non-Federal responsibility.
> (c) ECONOMIC JUSTIFICATION.-Reconstruction efforts and activities carried out under this section shall not require economic justification."

Implementation Guidance (IG) for Section 3057 of WRDA 2007 directs the Corps, Walla Walla District (NWW) to prepare a decision document to determine whether the rehabilitation is required as a result of improper operation and maintenance (O&M) by the non-Federal sponsor (the city of Gooding, Idaho; hereinafter referred to as the NFS); and, if not, whether rehabilitation and ecosystem restoration is feasible. Economic justification of rehabilitation efforts completed under this provision is not required.

Pending Report approval and appropriation of funds, the design and construction of any recommended plan will be initiated and conducted under a Project Partnership Agreement (PPA). Project implementation costs will be 100% federally funded with the exception of the costs for lands, easements, rights-of-way, relocations, and disposal areas (LERRDs); and future operation, maintenance, repair, replacement and rehabilitation (OMRR&R). These costs are the responsibility of the NFS.

The IG also requires the reuse of as much existing information to the maximum extent possible during the preparation of this decision document (Report). The complete IG is contained in Appendix A. This report was funded under the Corps' construction account and was cost shared with the NFS.

1.3 Purpose and Need for the Project and Report

The **purpose** of the proposed Project (rehabilitation of the Gooding Canal channel through Gooding, Idaho) is to provide localized flood risk management and, if possible, ecosystem restoration through improvement of aquatic habitat and riparian vegetation. The Gooding Canal was constructed in 1941 and is comprised of a channel with vertical walls of grouted and un-grouted lava rock for the purposes of flood risk management and providing irrigation water for the City of Gooding, Idaho. Construction of the Gooding Canal altered the natural alignment of the Little Wood River and associated riparian vegetation.

The proposed Project is needed because the channel is failing in areas due to age, the original construction method, channel configuration, and natural forces (ice, freeze/thaw, and heaving) which exert pressure on the individual stones that form the channel walls. In order to continue to provide localized flood risk management, the walls must be rehabilitated or replaced, and obstructions that constrict channel capacity must be removed or redesigned. The existing channel puts public infrastructure, including a school, at risk of damage due to localized flooding. The creation of the Gooding Canal, including channel realignment, resulted in removal of riparian vegetation and has contributed to poor water quality and negatively impacted aquatic habitat.

The purpose of this Report, in accordance with Section 3057 of WRDA 2007, is to determine whether the rehabilitation of the channel is required as a result of improper operation and maintenance (O&M) by the non-Federal sponsor (the city of Gooding, Idaho; hereinafter referred to as the NFS), and if not, whether rehabilitation of the

Gooding Canal and (if possible) ecosystem restoration are feasible. This Report describes the flooding, ecosystem, and related water resource problems and opportunities associated with the Gooding Canal and expresses desired changes as planning objectives. Measures and alternatives for meeting the objectives are presented, including a plan of no action. The economic, social, and environmental effects of the alternative plans are described in qualitative detail and a feasible plan is recommended for implementation. Alternatives considered must (1) satisfy the purpose and need for the Project, (2) meet the Planning Objectives (Section 4.4), and (3) not violate the Planning Constraints (Section 4.5).

Figure 1. Typical section of the Gooding Canal with stones sloughing into channel and narrow bridges constricting flow.

1.4 Study Location

The study area is the Little Wood River in the city of Gooding, Idaho. Gooding, is located in south central Idaho, 98 miles east of Boise, and 33 miles north of Twin Falls. The city has a population of 3,567 people (2010 census), and is the county seat of Gooding County. The city is located near the confluence of the Big Wood River and Little Wood River, which merge a short distance downstream to form the Malad River, a tributary of the Snake River. (Figure 2)

The Little Wood River is the primary source of irrigation water in the area, and the river's water flow is regulated by reservoirs and affected by diversions of water into, and return flows from, irrigation canals.

1.5 Study Sponsor

The city of Gooding, Idaho is the NFS for this project and contributed 50% of the costs over $100,000 for this study and report. The project is funded by the Corps' Construction General Program.

Figure 2. Location Map, Gooding, Idaho

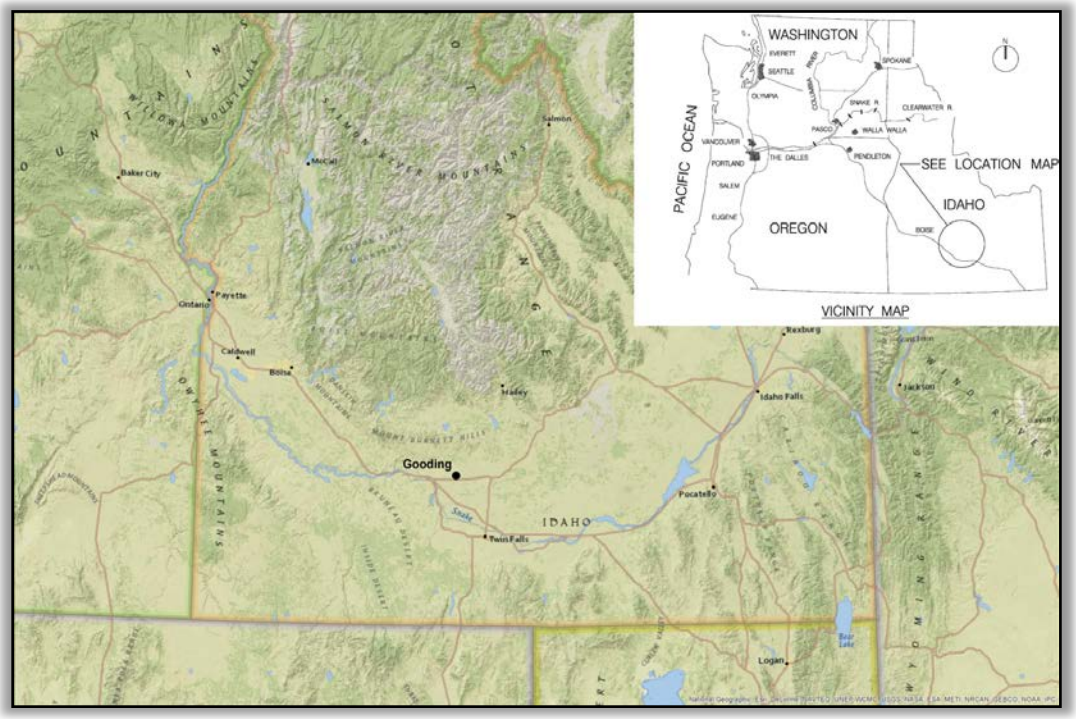


Figure 3. Current/Proposed Gooding Canal Project Alignment and Staging Area

1.6 History of the Gooding Canal Project

The Gooding Canal was originally funded under the emergency conservation work program, established under the Act of March 31, 1933 (Unemployment Relief Act) [Public Law 73-5, 48 STAT 22)], which provided the relief of unemployment through the performance of useful public work (United States Government, 1933). Construction began in 1937 and the canal was completed in 1941. The project included five vehicular bridge crossings and three pedestrian footbridges. The canal has a history of flooding caused by winter ice jams and spring high flow events (Figures 4 and 5). It has an accepted capacity of 580 cubic feet per second (cfs), accounting for 25% ice blockage and 1 foot of freeboard[1] under the bridges. During periods of ice jamming in 1962 and 1963, the channel capacity was decreased to a low of 200 cfs. The channel is generally straight, but several right-angle turns, and reduced channel capacity caused by the existing bridge design, frequently result in ice jams. Over the years, the channel wall has failed in multiple sections because the original construction methods cannot withstand freeze/thaw action and ice jamming.

Figure 4. High winter flows in the Gooding Canal, 1962.

[1] Freeboard is the distance between a free water surface and the top of a channel bank or the low chord of a bridge.

Figure 5. Ice jams within the Gooding Canal during the 1962 floods.

- **Facilities**
  - **The Gooding Canal**

    The Little Wood River flows through the existing Gooding Canal, which begins upstream at a diversion control structure and runs 0.89 miles, stretching from the east side of town at Kansas Street to the west end of town at Nevada Street

    The Gooding Canal flows into the North Side Canal, also locally called Clover Creek, 0.3 miles downstream of the project area. Clover Creek runs in a native material channel, is not protected by the lava rock wall, and is not included in the project area. The canal is operated and maintained for the purposes of flood risk reduction and water supply for irrigation.

  - **The Gooding Safetyway**

    The Gooding Safetyway is located north of the city, and is a canal primarily used for irrigation diversion. It can also be is used to divert water away from the town of Gooding in high water events. The Safetyway is operated at the discretion of the City Manager. There are no measuring devices on the system, and there is no identified flow diversion trigger or target.

- **Irrigation**

  The Gooding Canal provides irrigation water to 76 water rights users, including a canal company, and irrigates hundreds of acres of farmland in the region. The water is diverted above and below the channel through town by a series of concrete structures and hydraulic gates.

1.7 Existing Programs, Projects, and Studies

1.7.1 Previous Studies – Rehabilitation of the Gooding Canal

The city of Gooding has sought assistance for canal rehabilitation in the past. Several studies, as well as clearing and snagging projects, have been completed in the area by the Corps and other agencies. A brief history of Corps studies is summarized in the following paragraphs.

A Continuing Authorities Program (CAP) Section 14 study was initiated in March 1998. The scope of the CAP study was limited to a 120-foot section of wall adjacent to North Valley Academy, a charter school. A reinforced concrete wall with a textured surface was proposed for this project. The project was not approved at that time because of concerns from the Idaho State Historic Preservation Office (SHPO). The local sponsor and the SHPO met in January 1999 to negotiate an acceptable repair for the wall. They agreed on construction of a reinforced concrete wall, with the understanding that, at a later date, the city would install a rock façade to resemble the existing lava rock walls offsite.

Soon after, Section 416 of the Water Resources Development Act (WRDA) of 1999 authorized canal rehabilitation. This legislation authorized the Secretary to "... conduct a study to determine the feasibility of restoring and repairing the Lava Rock Little Wood River Containment System to prevent flooding in the city of Gooding, Idaho." Once the NFS was aware of this authorization, they concluded that the smaller streambank stabilization project may be incompatible with a comprehensive plan to restore/replace the entire structure and the Section 14 project that started in 1998 was terminated.

The Section 905(b) analysis, completed in July 2000, (Appendix B) found Federal Interest in the canal rehabilitation and included an estimated benefit-cost ratio (BCR) of 1.8 for flood risk benefits. A Feasibility Cost Sharing Agreement (FCSA) was signed, but later terminated because NFS could not meet its cost share requirements. Subsequently, the project was reauthorized under Section 3057, WRDA 2007, and directed the Secretary to rehabilitate the Gooding Canal as previously described in Section 1.2.

1.7.2 Previous Studies - Regional Flood Risk Studies

The city of Gooding has sought regional flood risk reduction assistance from the Corps in the past, dating back as far as 1949. Previous Corps flood risk reduction studies are summarized in the following paragraphs.

- A study was initiated under the authority of Section 205 of the Flood Control Act of 1948 [Public Law (PL) 80-858], as amended, for flood control improvements for flood reduction in the cities of Gooding and Shoshone (upstream). Studies were terminated because estimated costs for a recommended plan exceeded the limits of the authority.

- The "Small Flood Control Project, Big Wood and Little Wood Rivers, Richfield-Gooding, Idaho - Reconnaissance Report" (U.S. Army Corps of Engineers, 1965) was prepared under the authority cited in paragraph 8 of Engineer Regulation (ER) 1165-2-102 (Local Cooperation). The plan of improvement in this Report would have diverted water from the Dietrich Canal (east of Richfield) into the lava beds outside of town by improving the present canal for a short distance and building a diversion structure. The Leabo Diversion site would also divert a sizeable share of flood waters to the lava beds; construction would have consisted of a short length of channel excavation and construction of a minor diversion structure. The project was terminated because the scope and costs of the proposed actions exceeded available NFS resources.
- The "Big Wood River and Tributaries, Idaho - Feasibility Report for Flood Damage Reduction in the Vicinity of Gooding-Shoshone," (U.S. Army Corps of Engineers, 1976) (U.S. Army Corps of Engineers, 1976) recommended two flood control projects to divert flood waters from the Little Wood River into adjacent lava fields to the north (between the Big and Little Wood Rivers) via the existing Dietrich and Milner-Gooding irrigation canals. The Little Wood River Project was authorized for construction by Section 401(a) of WRDA 1986 (PL 99-662). However, it was later terminated because: 1) Despite high BCRs, the boundaries of the 100-year floodplains defined by the Federal Emergency Management Agency (FEMA) flood insurance maps could not be reduced; and 2) The local sponsor did not have the financial capability to cost share the project.

No other existing programs, projects, or studies affect this project or will be affected by the proposed action of this study.

1.8 Format of Report

This Report documents the Corps' six step planning process, as described in Chapter 4 (U.S. Army Corps of Engineers, 1996). This Report is an integrated document that describes both the Corps of Engineers' Six Step Planning Process and is also an Environmental Assessment (EA) that serves to satisfy documentation requirements of

the National Environmental Policy Act (NEPA) of 1969, as amended, and other applicable laws. Table 1 provides a crosswalk between the NEPA process and the Report's format. Chapter 2 specifically addresses the O&M concerns described in the project's authorizing language.

Table 1. Crosswalk between the Letter Report format and NEPA format.

Report Section	NEPA Format
Introduction (Chapter 1)	Introduction/Background
Purpose and Need for the Project and Report (Sec. 1.3), Objectives (Sec. 4.2), Problems and Opportunities (Sec. 4.3), Constraints (Sec. 4.6)	Purpose and Need Statement
Formulation and Description of Alternative Plans (Sec. 4.6-4.8)	Alternatives Description
Planning Objectives (Sec. 4.5), Planning Constraints (Sec. 4.6), and Planning Criteria (Sec. 4.8.2)	Screening Criteria
Inventory and Forecast of Resource Conditions (Chapter 3)	Affected Environment
Affected Environment and Environmental Consequences (Chapter 6)	Environmental Consequences (including Cumulative impacts)
Selected Plan (Sec. 4.11) and Recommended Plan (Chapter 5)	Preferred Alternative
Coordination, Consultation, Review and Public Involvement (Chapter 8)	Agencies/Public Coordination
Compliance with Applicable Laws, Policies and Plans (Chapter 7)	Compliance with Other Laws

CHAPTER 2 – CHANNEL OPERATION AND MAINTENANCE

2.1 General

The project rehabilitation authorization provided by Section 3057, of WRDA 2007, requires "…the Secretary [to] determine that such rehabilitation [of the Gooding Canal] is not required as a result of improper operation and maintenance of the project by the non-Federal interest." Chapter 2 specifically addresses this requirement.

2.1.1 Data Collection

Gooding, Idaho is a small community with limited resources to document and maintain records of all maintenance and repair activities associated with canal operation and maintenance over 70 years. The city has not been able to locate long-term historic documentation for the work it performed to maintain the canal. Because of the lack of available information, the Project Delivery Team (PDT) conducted field inspections and interviews with NFS staff to develop an understanding of past and current efforts to maintain and operate the Gooding canal as a flood control structure.

2.1.2 Original Channel Construction

The Gooding Canal was funded by the Works Progress Administration (WPA), and constructed by the Civilian Conservation Corps (CCC) during the 1930s. It was constructed by masons and laborers and was not designed by engineers. The canal is constructed with excavated, near vertical slopes covered with hand-placed lava rock positioned directly onto the naturally occurring basalt channel bottom of the canal. The majority of the hand-stacked stone construction is held together with a cement-sand grout, which is highly susceptible to physical and chemical weathering. Field investigations revealed multiple problems with grouting of the channel walls. Along a 0.22-mile stretch of the original channel wall on the right bank (looking downstream) and a 0.14-mile stretch on the left bank, the canal wall is constructed of stacked, un-grouted stones (Figure 7), and relies solely on the weight of the rocks to hold the wall intact. Other sections have very limited and/or shallow grout (Figure 8), which can be found in original sections of wall along the entire channel length. Both of these conditions result in a lack of cohesion which has accelerated the wall degradation and reduced its structural integrity by allowing water to infiltrate un-grouted wall voids, freeze and expand, and cause stones to break off into the canal. This makes the canal more susceptible to freeze/thaw and ice shelf related damages, including those resulting from ice jams, which are more likely to form along collapsed sections of the channel.

Figure 6 shows one of the more intact sections of the Gooding Canal as it looks today.

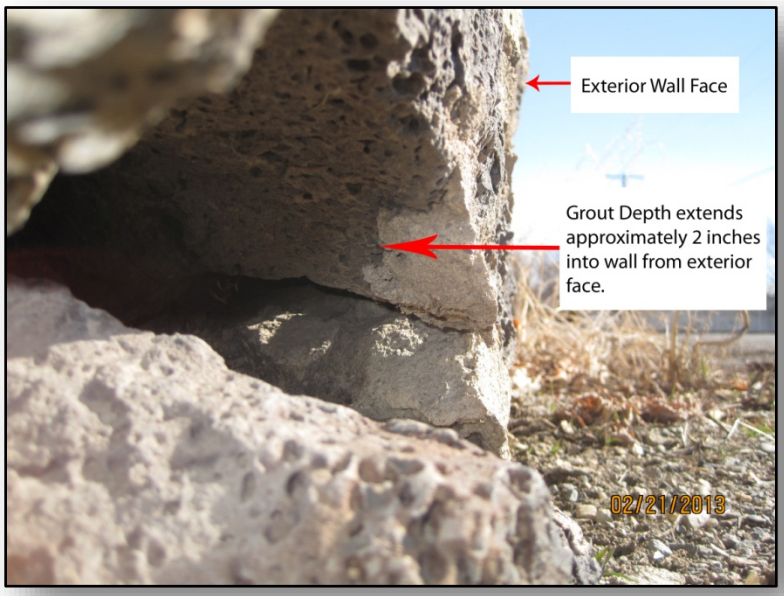
Field investigations revealed multiple problems with grouting of the channel walls. Along a 0.22-mile stretch of the original channel wall on the right bank (looking downstream) and a 0.14-mile stretch on the left bank, the canal wall is constructed of

stacked, un-grouted stones (Figure 7), and relies solely on the weight of the rocks to hold the wall intact. Other sections have very limited and/or shallow grout (Figure 8), which can be found in original sections of wall along the entire channel length. Both of these conditions result in a lack of cohesion which has accelerated the wall degradation and reduced its structural integrity by allowing water to infiltrate un-grouted wall voids, freeze and expand, and cause stones to break off into the canal. This makes the canal more susceptible to freeze/thaw and ice shelf related damages, including those resulting from ice jams, which are more likely to form along collapsed sections of the channel.

Figure 6. One of the more intact sections of the Gooding Canal as it looks today.

Figure 7. A section of the channel wall constructed of stacked, ungrouted rock.

Figure 8. A section of the channel wall depicting limited/shallow grout.



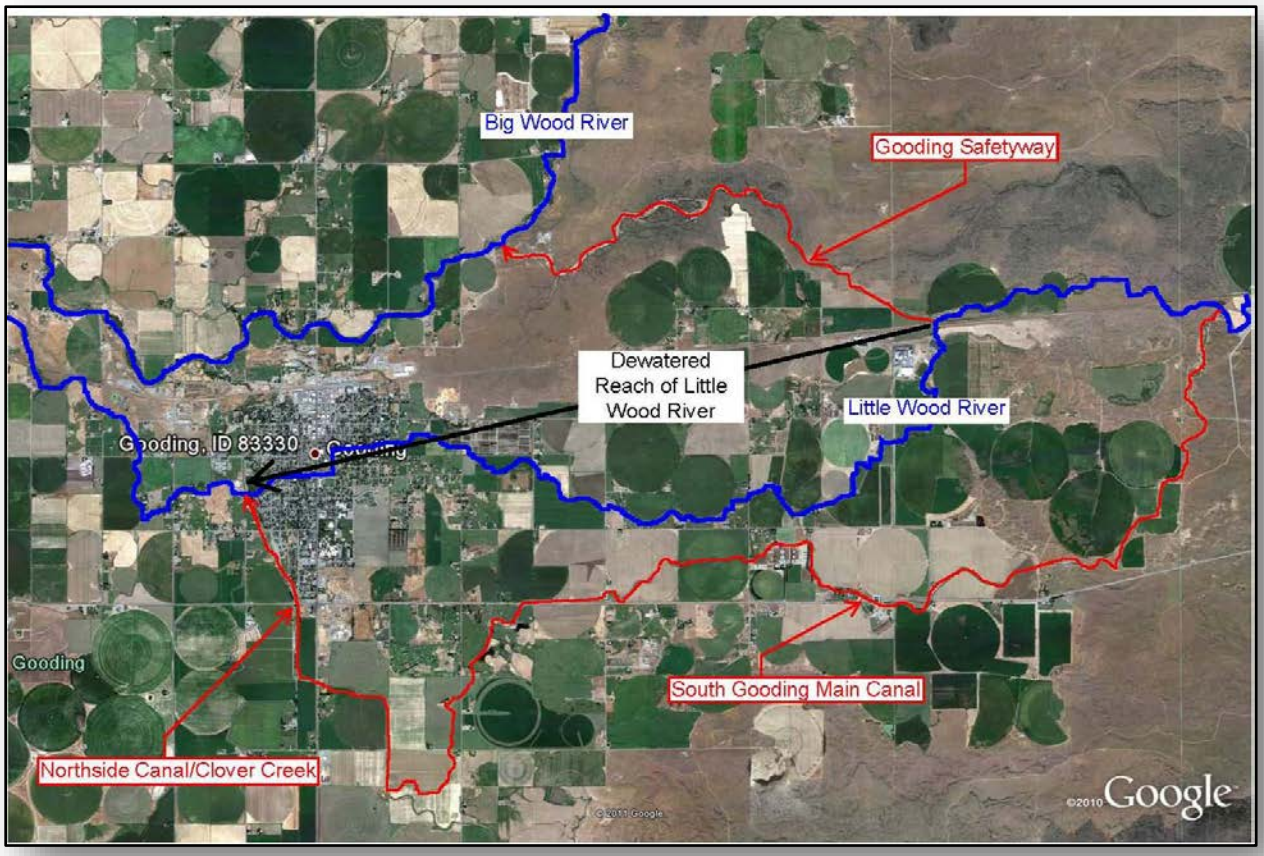
2.2 Operation and Maintenance (O&M)

An O&M manual was not provided by the CCC when construction was completed and the canal turned over to the NFS. Instead, the NFS has established its own policies and procedures for operations, maintenance, repair, rehabilitation, and replacement.

2.2.1 Channel Operation

The Little Wood River flows year-round through the Gooding Canal, providing conveyance for both summer irrigation flows and spring flood releases. Spring flows are carefully monitored to ensure water does not rise above canal walls and flow into nearby neighborhoods. When flows become too high, water from the canal is diverted into the Gooding Safetyway (Paragraph 1.5) and other canals at the Gooding Flood Canal diversion, which lies to the east of Gooding. **Figure 9** shows possible flood diversions from Gooding Canal. During high winter flows, the channel is closely monitored for ice jams. Ice jams constrain flows, cause flooding in the surrounding neighborhoods, and create significant maintenance issues for the NFS.

Figure 9. Proposed diversion channels (red lines) to dewater Gooding Canal



2.2.2 Channel Maintenance

Over the years, the NFS has replaced or repaired walls along many sections of the Gooding Canal in an effort to extend its effective life. Some repairs were obviously made early in the life of the canal, while others have been made more recently. Despite annual maintenance performed by the NFS, because of the construction materials and methods used, the channel is in poor condition and exhibits distress and damage along much of its overall length.

During interviews, maintenance staff reported problems that have resulted from the construction methods used for the canal. Sections of the wall with shallow grouting or no grouting show accelerated deterioration and lack of structural integrity. They also described the frequency and methods of maintenance from 1970 to the present, from annual manual labor to total wall replacement in some areas.

In a letter written by the Gooding Public Works Director to Senator Mike Crapo, the NFS estimated O&M expenditures of approximately $20,000 per year over the last 25 years for the Gooding Canal. This amount included…"labor, equipment, and supplies needed to keep the wall together, keep the channel clear of debris, flood prevention, repair of roads along the channel from settling, installation of safety fencing and constant

monitoring." Staff report public works expenditures for O&M of the canal prior to 1970, but the city has not maintained historic records of expenditures specific to the canal maintenance.

- **General Maintenance**

  Ice jams are an annual problem in the Gooding Canal. They constrict flow (particularly at bridge abutments and failed sections of the canal walls), force water out of the canal, and flood the land surrounding the canal.

  Figure 10. Ice jam forming in-between the Nevada and Idaho Street bridges.

  The ice also forms on intact sections of the canal wall due to the roughened wall surface, creating ice shelves. Once ice shelves are formed, they can become "perched" and cause outward force on the stones in the canal walls. This pressure can be strong enough to push stones from the wall into the canal (Figure 11).

Figure 11. Ice shelf on the channel wall.

Typically, if an ice jam is detected, the NFS has performed O&M efforts to minimize the risk of flooding. Prior to 1970, manual labor alone was used to minimize and eliminate ice jams within the canal each year. Between 1970 and the mid-1980s, the NFS hired a drag line and ice bucket ("snag and drag") to clear jams. During the mid-1980s, the NFS acquired its own ice removal equipment and continued "snag and drag" operations until the early 2000s, when they transitioned to a large backhoe that breaks up the ice mechanically. Without these proactive efforts, wall damage would be more severe and the local flood risk much higher.

- **Repair and Replacement**

  Numerous areas along the Gooding canal walls have been repaired or replaced by the NFS, but the frequency and extent of damage is accelerating. Visual inspection showed that many repairs have been completed to extend the life of the canal. Some of the earlier repairs on small sections of the walls were completed with stone and grout, or concrete. (Figures 12 and 13).

Figure 12. Repaired section utilizing stone and grout to rebuild parapet wall.

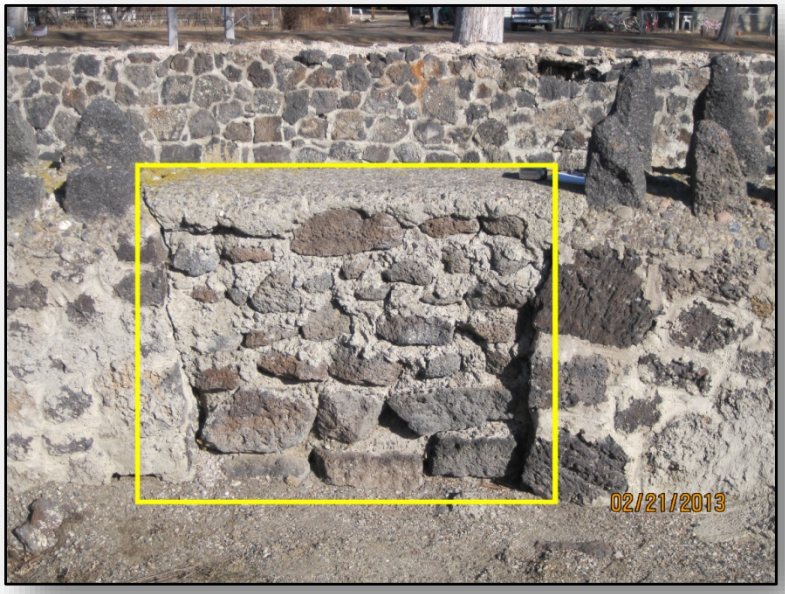


Figure 13. Concrete used to repair channel wall section.

In the late 1980s - early1990s the City replaced three sections of the canal wall, totaling 120', with concrete vertical walls (Figures 14 and 15). Despite the site-specific efforts, the overall state of the canal remains in poor condition, with distress and damage (as described above) visible along most of its length.

Figure 14. New concrete wall replacement (accomplished during the 1990s)

Figure 15. New concrete wall replacement (accomplished during the 1990s)

2.3 Determination on Operation and Maintenance

Based on the results of field inspections and investigations of the entire length of the Gooding Canal, and interviews with long-time residents and city officials, the accelerating deterioration rate of the canal is not the result of improper operation and maintenance of the project by the NFS and the canal is nearing the end of its useful life. Maintenance efforts and costs incurred for routine operations have increased over time and will continue to increase in the future. Maintenance needs will soon become so extensive that making isolated repairs to the canal walls will be impractical.

The fact that the Gooding Canal is still operating successfully after more than 70 years despite the many repairs, supports the conclusion that the NFS has maintained the canal with due diligence. The PDT has determined that the NFS has put forth a conscientious effort to operate and maintain the Gooding Canal. The extra effort and cost to replace portions of the wall that were beyond repair indicates the deliberate responsibility taken by the NFS to care for the canal, above and beyond what is expected through “normal” maintenance. Therefore, it is determined that the need to rehabilitate the Gooding Canal is not due to lack of maintenance or negligence on the part of the NFS.

This finding fulfills the requirement of the Secretary to determine that rehabilitation of the facility is not required as a result of improper operation or maintenance on the part of the non-Federal interest.

CHAPTER 3 – INVENTORY AND FORECAST OF CONDITIONS

3.1 Inventory and Forecast of Resource Conditions

This section presents an inventory of the resources within the project area under existing conditions and provides a forecast of future conditions during the 50-year period of analysis. The forecast is known as the future without-project condition and is the baseline against which all alternative plans are compared. This assessment assisted in identifying the water and related land resource problems and opportunities used during plan formulation.

3.2 Physical Environment

- **Topography/Geology/Soils**

  The Gooding Canal is located at 3,573 feet in elevation. Although the city of Gooding and immediate surroundings are relatively flat, the outlying area has elevations ranging from 3,200 feet on the plains to 5,000 feet in the foothills. The study area is located within the Snake River Plain, an area underlain by fractured basalt lava flows, rhyolite, and unconsolidated sediments. Deposits between the basalt layers are mainly sand, silt, and clay, with smaller amounts of volcanic ash.

  The headwaters of the Little Wood River originate in a mountainous area with multiple peaks above 10,000 feet. Soils in the area are wind laid silts over lake laid sediments or basalt bedrock. The soil tends to have clay accumulations in the subsoil layers. These characteristics are expected to remain unchanged during the period of analysis.

- **Climate**

  The climate of the study area is generally semiarid in character with annual precipitation around 8 to 10 inches. The average temperatures during July are a low of 54 degrees Fahrenheit and a high of 90 degrees. For January the average low is 18 degrees Fahrenheit and a high of 36 degrees. At the headwaters of the Little Wood River, in the foothills and mountains above Carey, Idaho, precipitation can be as high as 45 inches per year, and temperatures in these higher elevations may be much lower than those typical in the Gooding area. The prevailing winds blow from the west to southwest at 8 to 12 mph. Winds in the area are common and exert a drying effect upon the landscape. These characteristics are expected to remain unchanged during the period of analysis.

- **Air Quality**

  The Clean Air Act of 1970, as amended, required the U.S. Environmental Protection Agency (EPA) to adopt national ambient air quality standards for priority pollutants. Those areas where pollutant levels do not exceed standards are considered to be in "attainment." Gooding is located in an attainment area.

  There is very little air quality monitoring in the study area. Odors from dairies and feedlots are noticeable at times depending on wind direction. Dust from agricultural operations is also present at specific times of the year. Similar characteristics can be expected over the entire the period of analysis.

- **Water Quality**

  The Clean Water Act, Section 303(d), provides a framework to identify streams that are water quality limited and, as a result, do not meet their designated beneficial uses. The Little Wood River, from Richfield to its confluence with the Big Wood, is listed by the Idaho Department of Environmental Quality (IDEQ) (Idaho Department of Environmental Quality, 2005) as impaired, or having poor water quality, primarily due to agricultural practices. Conditions that contribute to poor water quality in the Gooding Canal include high sediment, low nutrients, dissolved oxygen, channel alteration, and pathogens. During the period of analysis, it is not expected that existing water quality levels will change unless agricultural land use and grazing practices upstream of the canal are implemented.

- **Noise**

  The immediate project area is in an urbanized setting. The channel follows a road and crosses many other roads that run perpendicular to the river alignment, and vehicle noise is common. Because the city is a small rural community, the noise levels from vehicles are not excessive or constant, but are the prevalent noise in the area. These characteristics are expected to remain unchanged during the period of analysis.

- **Agriculture/Prime and Unique Farmlands/Land Use/Staging areas**

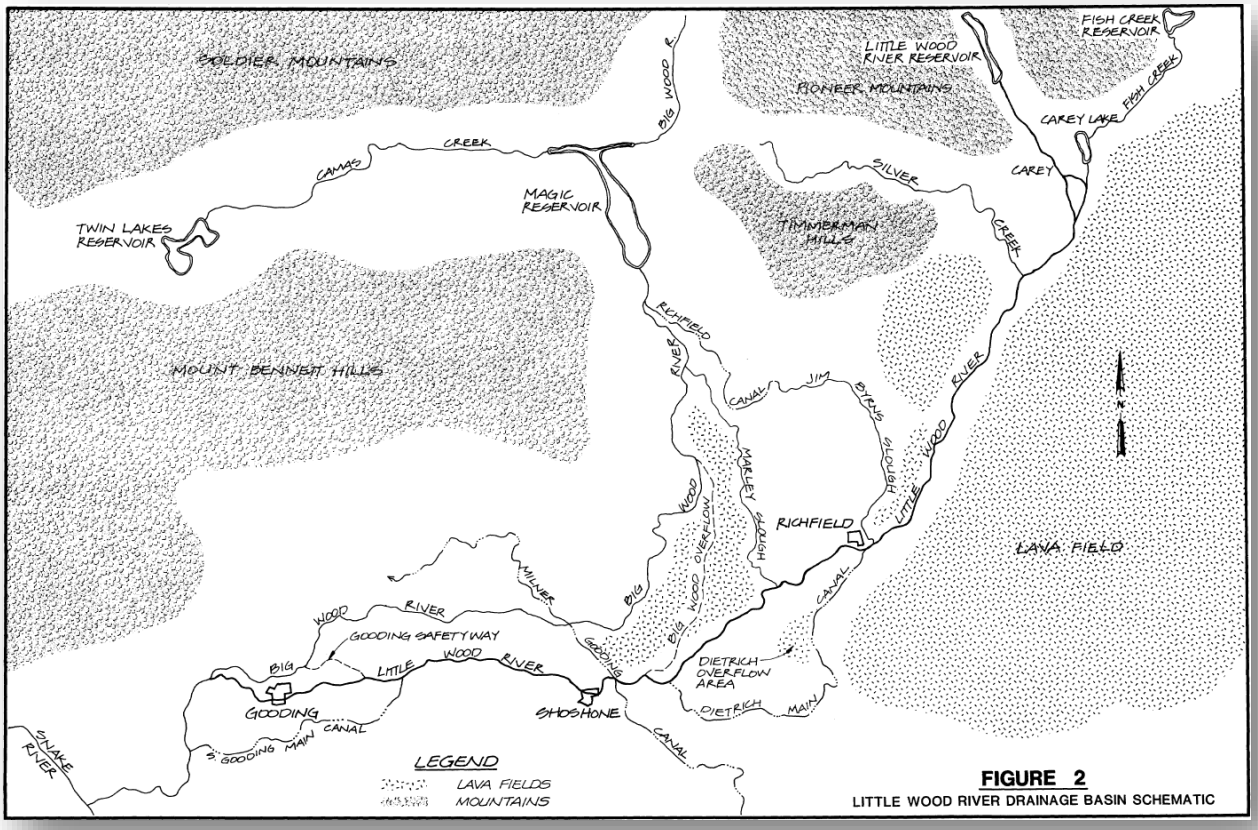
  The majority of land within the study area is privately owned. Most of the land immediately adjacent to the Gooding Canal is residential, with a few small areas of commercial use, agricultural use, and one public park. Adequate staging areas needed to perform work on the canal, without developing new areas or adversely impacting natural resources are present throughout the project area. The Bureau of Land Management (BLM) is a large land owner in the region, but does not own land within the project footprint. No prime and

unique farmlands are designated in the area. These characteristics are expected to remain unchanged during the period of analysis.

- **Hydrology**

  The Little Wood River originates in the Pioneer Mountains, an easterly extension of the Sawtooth Range. The river flows south out of the mountains through the Little Wood Reservoir, near Carey, then southwesterly toward Richfield. From there, it turns west and flows through Shoshone and Gooding. Downstream, the Malad River forms from the confluence of the Big and Little Wood Rivers, approximately 4 miles west of Gooding. The drainage area of the Little Wood River above Gooding is approximately 680 square miles (**Figure 16**).

Figure 16. Wood River Valley



Source: (Federal Emergency Management Agency, 1985)

The natural flows of the Little Wood River are regulated by the Little Wood Reservoir, a 30,000 acre-foot reservoir located approximately 11 miles northwest of Carey, Idaho, upstream of Gooding. The reservoir is operated to provide winter and spring flood control on the Little Wood River, as well as irrigation storage. The Fish Creek Reservoir on Fish Creek, a tributary to the Little Wood River, diverts water to irrigation projects, but also contributes to flows in the river.

The Little Wood River is interconnected with the Snake River and Big Wood River through irrigation canals that divert from, and release water into, the Snake River. There is no stream gage that records flows through the city of Gooding year-round. The nearest year-round gage on the Little Wood River (upstream of the Gooding Canal) was U.S. Geological Survey (USGS) Gage No. 13151500, Little Wood River at Shoshone, Idaho, which is operated from April 1922 until December 1959 (Table 2).

Table 2. Average Monthly Flows from USGS Gage No. 13151500, Little Wood River at Shoshone, Idaho, 1922 through 1959.

Month	Flow (cfs)
October	63.62
November	106.01
December	133.53
January	122.82
February	145.28
March	150.39
April	196.24
May	380.26
June	399.94
July	381.05
August	353.15
September	281.83

A stream gage is currently operated on the Gooding Canal during the irrigation season (from April through September) by Irrigation District 37M. The Corps was provided with annual data from 2000 through 2010 which the Water Master indicates is a typical set of data and representative of an average decade (Table 3). The information in these tables shows the difference from historic flows to the present, indicating significant irrigation withdrawals from the Little Wood River between Shoshone and the Gooding Canal, particularly in the summer months, as depicted by the low flow levels. Irrigation activities will continue in the region, removing water from the Gooding reach of the Little Wood River and redistributing it throughout the valley in accordance with state water law.

Table 3. Average Monthly Flows on the Gooding Canal from District 37M Gage, 2000 through 2010.

Month	Flow (cfs)
April	117.49
May	80.12
June	70.00
July	70.60
August	69.02
September	80.56

The FEMA Flood Insurance Study for the city of Gooding, Idaho (Community Number 160064), dated June 19, 1985, describes the flood risk for the city of Gooding as twofold. First, there is the risk of winter flooding due to ice jams, which has occurred ten times between 1898 and 1985. These floods are often caused by an existing snowpack and frozen ground with a warmer rain storm moving over the area, thereby creating a rain on snow event. High flows traveling down a river channel filled with ice can easily lead to ice jamming. These types of flood events tend to be more localized in nature. The second flood risk is from high spring runoff in the Little Wood Basin. There are several locations upstream of Gooding where water can be diverted during high flows or will percolate naturally into the ground, but spring high flow events pose a regional risk. Table 4 summarizes the flood event probabilities.

Table 4. Spring flood event probabilities for the Gooding Canal, Idaho (FEMA, 1985)

	Drainage Area	Peak Discharges (cfs) and percent chance exceedance			
Flooding Source and Location	(sq. mi.)	10%	2%	1%	0.5%
Little Wood River At Gooding	680	375	650	850	1,925

The distinction between regional and localized flood risk in Gooding is important. Regional risk comes from the overall Wood River Valley and is typically weather and snow melt dominated. The topography in the Gooding vicinity is fairly flat, so when the channel capacity of the Gooding Canal is exceeded, flooding may be quite extensive. The Flood Insurance Risk Maps

included in the FEMA study (Federal Emergency Management Agency, 1985) reflect this widespread flooding potential during a regional spring flood event. Addressing overall regional flood risks is beyond the scope of this Report.

Localized flood risk is related to channel conditions and the flow capacity of the Gooding Canal. Conditions exist in the channel through Gooding that increase the risk of localized flooding. While not extensive, and likely caused by smaller flow events than a regional flood, localized floods damage public and private infrastructure in the city. The rehabilitation of the Gooding Canal would reduce local flood risks.

The future without-project hydrologic conditions are expected to be very similar to the current conditions. Climate change represents an unknown factor with the potential of affecting the hydrologic regime of the basin that could result in changes to the timing or amount of annual precipitation. This may have an impact on regional flood risk, in terms of volumes or timing of high water. However, the localized flood risk will continue, and perhaps increase, based on the current and projected channel conditions.

- **River Hydraulics**

  The hydraulic capacity of the Gooding Canal is estimated at 580 cfs, which includes assumptions for reduced conveyance due to ice jams and good channel conditions. The actual capacity of the Gooding Canal is less than 580 cfs with ice jams considered, due to the current condition of the masonry walls.

  There are three primary factors that affect the capacity in the channel. First, there is the roughness of the overall channel, as described by the Manning's *n* coefficients (*www.fhwa.dot.gov/engineering/hydraulics/pubs/08090/appb.cfm*). In the current condition, between the general roughness of the masonry walls, and the relative roughness of the collapsed or failing sections, the factor is high. By replacing those walls with a smoother material, the roughness factor would drop considerably and the conveyance would improve. The Hydrology and Hydraulics Calculations (Appendix C) show that for a flow of 375 cfs (10% chance exceedance), the water surface elevation (WSEL) could drop as much as 2 feet from the roughness factor alone. This would improve the channel capacity and reduce localized flood risk.

  The second factor affecting the channel capacity is the configuration of the bridge crossings. Aside from being a potential location for ice jamming, the bridge abutments constrict available flow. If the bridges were redesigned to

not impede the flow, the constriction is removed, resulting in improved flow area. The calculations in Appendix C show that this consideration could lower the WSEL by as much as 0.75 feet, which also improves the channel capacity and reduces localized flood risk.

Lastly, the failed wall sections slump into the channel, creating localized flow constriction and loss of flow area, similar to the bridge abutments. These slumped areas also contribute to higher overall roughness in the channel. Replacing these sections with smooth pre-cast concrete panels and a uniform channel cross-section would have an effect on the WSEL similar to the other two factors. Appendix C shows that wall replacement could lower the WSEL by as much as 0.60 foot, improving channel capacity and reducing localized flood risk. Replacing the wall and removing the slumped areas also removes potential sites for ice jams to form.

There are several hundred residential and commercial structures within 1,000 feet of the Gooding Canal, including a school, a retirement center, churches, businesses, city and county buildings, and numerous private residences. Localized flooding has the potential to reach important community structures and infrastructure quickly and be disruptive and expensive for the NFS.

The three primary factors affecting channel capacity can all be addressed by a rehabilitation or redesign of the canal, which will improve channel capacity and reduce localized flood risk. The effects of all the factors may not be accumulative since other hydraulic factors will affect the river capacity (i.e., river bends, bed slope, irrigation structures downstream, etc.). During the period of analysis, it is expected that the hydraulic condition of the Gooding Canal will continue to decline. Without rehabilitation of the canal, the city will continue to be exposed to life-safety risks caused by channel failure and localized flooding. The risk of this failure continues to increase every year the channel remains in operation.

- **Vegetation**

The native vegetation community in the region is shrub-steppe. This includes Blue Bunch Wheatgrass (*Agropyron spicatum*), Nevada Bluegrass (*Poa nevadensis*), Great Basin Wild Rye(*Leymus cinereus*), sod forming wheat grasses, Needle and Thread grass (*Hesperostipia comate*), Balsamroot (*Balsamorhiza sagittata*), Little Sunflower (*Helianthis pumilus*), Great Basin

Sagebrush (*Artemesia tridentate*), and Low Sagebrush (*Artemesia arbuscule*) Livestock grazing, agricultural cultivation and other development have changed the native vegetative community and led to the establishment of cheat grass and other invasive species.

Riparian vegetation in the immediate study area was removed in conjunction with channel construction and residential development, though pockets of large trees can be found along the channel, either in the city park or in private yards. The channel bottom is mostly bedrock, which limits conditions that support the growth of vegetation, and the majority of the adjacent land is dominated by paved roads or manicured lawns. Upstream of the Gooding Canal, and in other areas where the riparian buffer is still intact, the riparian vegetation typically is composed of Willows (*Salix sp*.) and Black Cottonwoods (*Populus trichocarpa*).

Based on current information, it is likely that vegetation composition and density in the study area will remain relatively unchanged. The lack of riparian vegetation adjacent to the river (as it runs through the city of Gooding) will not change without alteration of land ownership or land use policies along the canal.

- **Wildlife**

The urbanized project area of Gooding and the canal provides very little wildlife habitat. Big game animals are found within Gooding County, but outside of the project area. Vegetation surrounding the river is limited to the one adjacent public park and the bordering vegetation found in the yards of private residences, neither of which provide quality habitat for wildlife. The vertical channel walls make access to the water impossible for most wildlife. Improvements for wildlife in the study area are not likely to take place in the future due to the established urban community that surrounds the channel. Table 5 identifies species documented in the area, but outside of the study area.

Table 5. Mammals documented in the region of Gooding, Idaho

Coyote	Canis latrans
Bobcat	Lynx rufus
Red Fox	Vulpes vulpes
Black Bear	Ursus americanus
Grey Wolf	Canis lupus
Cougar	Puma concolor
Mule Deer	Odocoileushemionus
Rocky Mountain Elk	Cervus canadensis
Pronghorn Antelope	Antelopcapra americana
Black-tailed Jack Rabbit	Lepus californicus
Pima (Pygmy?) Rabbit	Brachylagus idahoensis (Pygmy)
Mountain Cottontail Rabbit	Sylvilagus nuttallii
Yellow-bellied Marmot	Marmota flaviventris
American Badger	Taxidea taxus
Raccoon	Procyon lotor
Long-tailed Weasel	Mustela frenata
Mink	Neovison vison
Muskrat	Ondatra zibithicus

In addition to mammals, many species of birds are documented in the region, but not necessarily within the project area. Game and non-game birds within the county include the Ring-necked Pheasant, Chukar, Hungarian partridge, sage grouse, California or valley quail, and mourning dove. The birds of prey include hawks, falcons, golden eagles, occasionally bald eagles, great horned owls, burrowing owls, barn owls, kingfishers, pelicans, and possibly the osprey.

- **Fisheries and Aquatic Resources**

The Little Wood River through Gooding, Idaho has been dramatically altered from its natural alignment. Above Shoshone, upstream of Gooding, the Little Wood River is classified as a cold water fishery. Immediately upstream of the Gooding Canal, the Little Wood River supports a brown trout and wild rainbow trout fishery. Below Shoshone, it is a warm water fishery, and aquatic habitat is poor.

During the period of analysis these characteristics are likely to remain unchanged. Restoration of fish and wildlife habitat along the Gooding Canal would require substantial alteration of the existing channel alignment and configuration and adjacent land uses.

- **Threatened and Endangered Species**

The Corps reviewed the current list of threatened and endangered species identified for the project area which are under jurisdiction of the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). It also reviewed the list for species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) for Gooding County, Idaho. The compiled species list is shown in Table 6. Critical habitat is not designated for any of the species listed.

Table 6. Species Possibly Present in the Area of Potential Effect

Species	Scientific Name	Status
NOAA Fisheries		
Listed Species		
None		
USFWS		
Listed Species		
Banbury Springs limpet	*Lanx sp.*	Endangered
Bliss Rapids Snail	*Taloroncha serpenticola*	Threatened
Snake River physa snail	*Haitia natricinia*	Endangered

The Banbury Springs limpet is currently known to exist only in four cold water spring complexes along a 6-mile reach of the middle Snake River. These sites are located 14, 16, 18, and 19 miles, respectively, from Gooding. Bliss Rapids Snails are found along the Snake River corridor in Gooding, Jerome, Twin Falls, and Elmore Counties, Idaho. Recent surveys indicate the species is distributed discontinuously over 22 miles. The species is also known to occur in 14 springs or tributaries to the Snake River. The Snake River physa snail is believed to be confined to the Snake River, inhabiting areas of swift current on the undersides of large cobbles and boulder-sized rocks. No ESA listed species is known to occur in the Little Wood River.

Under Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Federal agencies are directed to consult with NOAA Fisheries on all actions, or proposed actions, that may adversely affect Essential Fish Habitat (EFH). The Little Wood River is upstream of impassable dams on the Snake River and is not identified as EFH. There will be no modification or adverse effects to EFH from the proposed action. A Biological Evaluation with a finding of "No Effect" to all listed species was completed by the Corps and coordinated with appropriate resource agencies. The full evaluation is available in Appendix G.

These conditions are expected to remain the same for the period of analysis. Environmental considerations, stipulations, recommendations, and determinations are contained in Section 6.2.2.

- **Aesthetics**

  The existing channel walls are located mainly below grade, except where parapet walls have been constructed along the channel. Because the river and channel are below street grade, they are not always obvious unless a person is standing or walking in close proximity to the river channel. The current channel walls are constructed of native basalt rock, and were carefully fitted together by hand. As such, the wall, where intact, has high aesthetic value to those who appreciate hand craft and natural materials. However, the walls of the Gooding Canal are deteriorating at an accelerated rate. Where the wall has failed, soil has been exposed and weeds grow in these voids and detract from the visual appeal of the wall. In some sections where the wall is failing, the NFS has patched it with concrete, and the use of non-native materials inconsistent with the original construction also detracts from the aesthetic quality of the wall.

  It is not practical for the NFS to patch or rebuild the wall by hand where it fails. Thus, it is likely that the structural and aesthetic integrity of the wall will continue to deteriorate, and the aesthetic qualities of the wall will continue to diminish over time.

- **Cultural Resources**

  The current basalt rock channel that runs through Gooding, Idaho was constructed between 1937 and 1941, and was funded by the WPA using workers employed by the CCC. It is probable that workers from nearby areas (Hagerman CCC camp No. 2528) were employed in building the rock wall channel. Stone for the armoring project was collected from various farms near the project location. In general, it appears that construction started around Main Street and then proceeded outward towards the east and west. Bridges were built first, followed by armor rip rap (a layer of well-graded angular rock locked together to protect a slope), with the channel wall added last. The river channel was straightened and realigned during construction. Based on its age and association with WPA and CCC related activities, the Gooding Canal has been determined eligible for listing on the National Register of Historic Places (NRHP).

  The general characteristics of the channel are not expected to change. However, degradation of the channel walls and the associated values are expected to continue.

- **Transportation**

  The city of Gooding is bisected by State Highway 46, which is also referred to as Main Street. The highway is the main commercial route between Interstate 84 and Highway 20 via Gooding. A bridge on Highway 46 spans

the Gooding canal. Flooding or failure at the Main Street Bridge would result in disruption of transportation of commercial goods, and require re-routing of traffic, including commercial truck traffic, through residential neighborhoods. Roads through the residential areas were not designed to support heavy truck load capacities that normally utilize Highway 46.

Most other streets in the city of Gooding could be classified as local streets, which provide access to residential properties. 9th Avenue, which is used by local traffic and school buses, runs parallel to the Gooding Canal in the area of the failing retaining wall. If 9th Avenue were unavailable due to flooding or failure traffic would be disrupted, creating an added burden on the surrounding residential roads in the area. Four local bridge crossings are located at Nevada, Idaho, Montana, and Wyoming streets. These bridge crossings have low cord heights and act as pinch points during high water. The low clearance of these bridges diminish the channel capacity and lead to ice jams that have caused localized flooding.

Based on population trends, changes to the transportation system are not expected. The city is built on a grid system that functions effectively, and the NFS has indicated they are unwilling to implement transportation or traffic flow changes that would affect access of emergency service vehicles.

- **Recreation**

Gooding is a small rural community with limited public recreation opportunities in the immediate vicinity. A city park is located adjacent to the canal between California and Nevada Streets, and covers one city block. This park has children's playground equipment and facilities for picnicking. Fishing along the canal is allowed from existing pedestrian crossings and the park, though the river conditions in the project area does not provide a robust fishery.

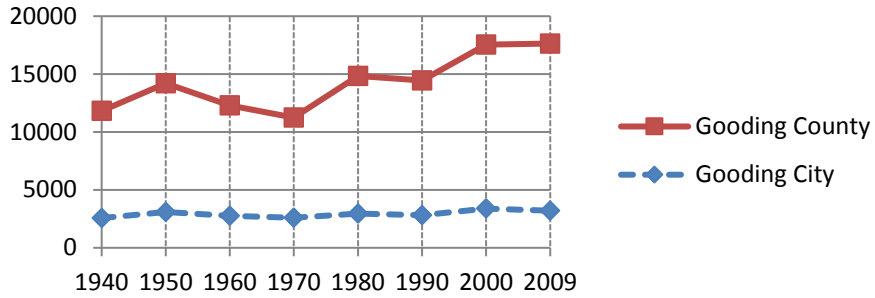
Most organized recreation activities in the city are directly related to the public school system. Other recreational opportunities, including snow skiing, ATV riding, and hiking, are available regionally. The city does not have a bike trail or walking path. Floating down the river through the channel is unsafe because there are very few access points to escape from the channel if an accident was to occur. The lack of access or evacuation points in the channel presents restrictions to many types of recreational activities normally associated with rivers due to safety risks.

Opportunities and activities for organized recreation in the city of Gooding are not likely to significantly change in the future because of the municipal investment required to acquire land, develop additional infrastructure, or oversee organized programs.

3.3 Socioeconomics

The 2012 estimated population of Gooding County is 15,291,[2] while the population of the city of Gooding was 3,567 in the 2010 census. Figure 17 depicts the population trends in Gooding County and the city of Gooding, from 1940 to 2009. As shown, the population of Gooding County changed only marginally over the course of 69 years. The median household income is approximately $29,404, with unemployment estimated to be 3 percent.[3] The major employment base consists of educational, health, and social services (23.6 percent); manufacturing (15.9 percent); and agriculture, forestry, fishing and hunting, and mining (12.9 percent). The remaining employment in the area includes construction, retail, public administration, and services.[4] The primary crops grown in the county are hay, improved pasture for grazing, grains and seed crops, corn, potatoes, beans, sweet corn, and sugar beets. Milk production is the fastest growing agricultural industry in the county, with the Nation's largest producer of American-style cheese and one of the largest whey ingredient producers located nearby.

Figure 17. Population Trends, Gooding County and City of Gooding, 1940 to 2009.



Source: http://en.wikipedia.org/wiki/Gooding,_Idaho

[2] Refer to http://quickfacts.census.gov/qfd/states/16/16047.html, accessed March 2013.
[3] Refer to http://censusviewer.com/city/ID/Gooding, accessed March 2013.
[4] Refer to http://www.city-data.com/city/Gooding-Idaho.html, accessed May 2013.

CHAPTER 4 – PLAN FORMULATION

4.1 General Project Planning

This Report presents the results of the Corps' six-step planning process as specified in Engineering Regulation (ER) 1105-2-100. It also presents an Environmental Assessment (EA) to satisfy requirements of the National Environmental Policy Act (NEPA) of 1969, as amended, and other applicable laws. The process identifies and responds to problems and opportunities associated with the Federal objective, as well as specified state and local concerns. It provides a flexible, systematic, and rational framework to make determinations and decisions at each step. This allows the interested public and decision-makers to be fully aware of the basic assumptions, the data and information analyzed, the areas of risk and uncertainty, and the significant effects of each alternative plan.

Three initial alternatives were developed. As part of the final array of alternatives, one alternative plan was fully developed and compared to the No-Action alternative, allowing for the ultimate identification of the recommended least-cost alternative plan. This alternative was then scaled to develop a plan that reasonably maximizes qualitative benefits compared to costs. In addition to considering project costs, the Corps also considers other factors, such as environmental significance and scarcity, socioeconomic impacts, and historic properties information during its analysis.

4.2 Plan Formulation Methodology

The plan formulation process includes the following steps:

- **Identify Problems and Opportunities.** The specific problems and opportunities are identified, and the causes of the problems are discussed and documented. Planning objectives and constraints are established and identified.
- **Inventory and Forecast Conditions (Water and Land Related Resources)**. This step characterizes and assesses existing conditions in the project area and forecasts the most probable "without-project" condition (or No-Action alternative) over the period of analysis. The without-project condition describes anticipated conditions and uses in the area over a 50-year period of analysis without any plan implemented as a result of this study.
- **Formulate Alternative Plans.** Potential features are proposed to meet the identified planning objectives. Specific design measures are developed for these features. These measures are combined into alternative plans in a systematic manner to ensure that reasonable alternatives are evaluated.
- **Evaluate Alternative Plans.** The evaluation of the initial array of alternatives consists of measuring or screening plans based upon criteria as described in Section 4.8.2. Criteria include costs, technical considerations, social and

economic effects of each plan, and the differences between conditions with and without the project.

- **Compare Alternative Plans.** Alternative plans are compared, focusing on the differences among the alternative plans, and on issues identified by agencies and the public.
- **Select Recommended Plan.** The Corps recommends the least-cost alternative plan based upon the specific authorization for this project. If a viable plan is not identified, the selected plan would be the No-Action alternative. In most cases, an alternative is selected based upon, completeness, effectiveness, efficiency, and acceptability

In addition to the planning process, the National Environmental Policy Act (NEPA) is the nation's primary charter for protection of the environment. This act establishes policy, sets goals, and contains procedural provisions to ensure that Federal agencies act according to the letter and spirit of the Act.

4.2.1 National Objectives

The national objective of water and related land resources planning is to contribute to national economic development (NED), consistent with protecting the nation's environment pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units, and the direct net benefits that accrue to the planning area and the rest of the nation.

In response to legislation and administration policy, the Corps has added a second national objective: contributions to national ecosystem restoration (NER) ((U.S. Army Corps of Engineers, 1999) (U.S. Army Corps of Engineers, 1999) (U.S. Army Corps of Engineers, 2000(a)) (U.S. Army Corps of Engineers, 2000(a)) (U.S. Army Corps of Engineers, 2000(a)) (U.S. Army Corps of Engineers, 2000(a))). This objective is to contribute to the nation's ecosystems through ecosystem restoration, with contributions measured by changes in habitat quantity and quality.

Neither objective was used as selection rationale for a recommended plan under the specifically authorized, Sec 3057 Little Wood River construction authority because the legislation specifically states that economic justification is not required. Thus, NED benefits were not calculated. Instead, the team selected the least-cost method to meet the project's objectives, which are derived from the identification of the study problems and opportunities, discussed in Section 4.3.

4.2.2 Environmental Operating Principles

The Corps adopted seven Environmental Operating Principles (EOP) which are to be considered in any undertaking. The intent of the EOP are to ensure that the Corps includes sustainable use, stewardship, and restoration of natural resources in our mission areas. The EOP relate to the human environment as well as the natural

environment, and are intended to lead to more efficient and effective solutions through stewardship and collaboration. They include:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all Corps activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

These principals were applied to influence decisions throughout the study process. Environmental consequences were balanced with project objectives; planning, legal and technical constraints; and cost and economic considerations based on broad-based and informed stakeholder input. That process is described in subsequent sections of this Report.

4.3 Public Objectives

A number of public comments were gathered during the initial scoping of this project. City residents provided comments and ideas in a public workshop conducted in September 2010 (Appendix H). Additional input was received during the course of this study through coordination with other agencies, non-governmental organizations, and public review of draft products. A discussion of public involvement and other coordination efforts is included in Chapter 8.0 of this Report.

The public concerns communicated during scoping are summarized in Appendix H, and are shown in Table 7. Scoping resulted in the identification of some issues which are outside of the study authorization and will not be addressed in this project. Public scoping and agency coordination did not identify areas of high risk or controversy for this project.

Table 7. Summary of Scoping and Public Input

Topic	Public Input
Flood Risk Reduction	Ensure the channel meets the 100-year (1 percent) flood protection. Widen bridges to allow unimpeded flow. Reduce ice jamming.
Recreation	Provide interpretive and educational amenities along the Gooding Canal. Provide walking/bike path with benches along the channel.

Table 7. Summary of Scoping and Public Input

Topic	Public Input
	Provide fishing access points/platforms. Provide access and exit points for floating the river. Provide additional pedestrian bridges for recreational purposes. Use historic rock in the design of recreation features for cultural preservation.
Costs	Reduce flood insurance costs. Reduce the costs associated with annual maintenance of the canal. Provide credit for work-in-kind to reduce the NFS's cost to complete the decision document.

The primary NFS's objectives for the project include the following:

- Lower the flood risk for the city and provide 100-year level protection.
- Improve water quality of the Little Wood River through Gooding.
- Improve public access and recreational amenities along the Gooding Canal

Measures to achieve these objectives are documented in Section 4.7.3 and could potentially be included as betterments to the proposed project during the design phase. However, these objectives, and the measures to meet the objectives, were not included as part of the plan formulation for this project.

4.4 Problems and Opportunities

The Corps and NFS have been working together since 1998 to identify problems and opportunities associated with the Gooding Canal. An evaluation of existing conditions, forecast of future without project conditions, and public scoping comments identified a number of problems and opportunities. Additional problems and opportunities from previous work and studies performed by the Corps were also reviewed and refined through analyses conducted during development of this decision document.

4.4.1 Problems

The existing Gooding Canal was constructed in the late 1930s and early 1940s. Construction altered the natural ecological conditions and realigned the river. Over the past 70 years, the lava rock walls have begun to fail, increasing the risk of damage from erosion and flooding. Problems include:

- Localized flooding resulting from channel wall failure
- Localized flooding caused by ice jams
- Localized damage due to erosion at channel wall failure points
- Disconnected floodplain caused by high canal walls and parapets
- Degraded aquatic and riparian habitat due to stream channelization

The following paragraphs provide an explanation of these problems:

- **Problem: Localized flooding resulting from channel wall failure**

  Wall failures can lead to localized flooding. As the lava rock walls deteriorate with age, they slump into the channel bed, creating obstructions in and reducing the cross-sectional area available to convey water. These piles of rock and debris increase the roughness of the channel and cause abrupt changes in the flow lines along the wall, further reducing conveyance capacity. The limited capacity of the channel where the walls have failed can result in localized flooding as water is forced up and out of the river channel during high flows (Figure 18)

Figure 18. Collapsed wall sections, despite attempts to stabilize with concrete capping.

- **Problem: Localized flooding caused by ice jams**

  Ice jams are a common annual occurrence in Gooding, and often result in localized flooding. When warmer weather passes through the area, melting snow and precipitation cause flows to run over and under ice in the river,

breaking the ice into chunks that float downstream. As the ice moves through the channel, it piles up at bridge abutments and forms ice dams.

Opportunities for formation of ice jams are created when ice flows downstream through the canal or begins to build up on slumped sections of the channel wall or bridge abutments. The Gooding Canal is a rectangular channel, lined on both sides with lava rock; every bridge crossing the canal is similar to a concrete box culvert. The edges of each bridge abutment protrude into the channel by approximately 2 feet, causing a reduction of up to 4 feet in the overall width of the channel in those locations. The abrupt edges of the bridge abutments provide a location for the ice to build up, potentially leading to ice jams. Typically, localized flood events occur each winter. However, given the relatively limited capacity of the Gooding Canal, extreme weather events (high flows caused by snowmelt or heavy rain) combined with ice jams can lead to more significant and widespread winter floods.

Ice jams caused significant winter flooding in the city of Gooding ten times between 1910 and 1983. In the winter of 2011-2012, multiple small ice jams formed, even though temperatures were relatively mild in the area and river flows were minimal. Examples of ice jams are depicted in Figures 19 and 20.

Figure 19. Ice jam upstream of Nevada Street Bridge. Removed ice is visible on the left.

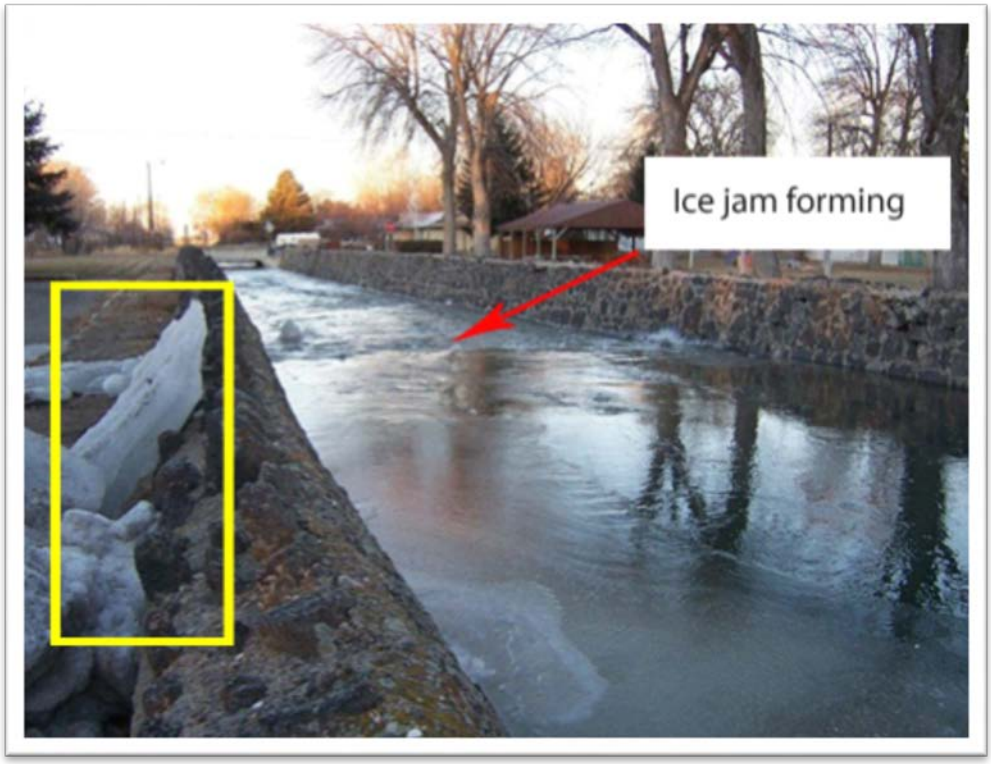


Figure 20. Ice jam upstream of Nevada Street Bridge. Water has escaped the channel and caused localized flooding in the city park.

- **Problem: Localized damage due to erosion at channel wall failure points**

  Wall failures caused by failed grout and erosion increase the potential for localized flooding and property damage along the Gooding Canal. As the walls fail, soils behind the wall are exposed to river flow and erode. As soils along the bottom of the walls fail and can no longer support the soil above (Figure 21), sections of wall collapse into the channel and cause damage to adjacent private property and city infrastructure (i.e., roads, pipes, fences, etc.).

Figure 21. Failing walls contribute to damage to adjacent infrastructure.

- **Problem: Disconnected floodplain caused by high canal walls**

  Many of the flood issues in Gooding are related to hydraulic conditions upstream of the city. The topography is flat and does not drain quickly. The parapet walls along portions of the Gooding Canal stand above the ground surface, effectively blocking floodwater from re-entering the channel. (Figure 22).

Figure 22. Parapet walls prevent reconnection to the local floodplain.

- **Problem: Degraded aquatic and riparian habitat due to stream channelization**

  The altered stream channel contains poor quality fish habitat. Few resting areas or refugia (places within streams where fish can rest or hide) are available during high flows. Straightening the channel altered the flow regime, stream geomorphology, and reduced stream length. Hardening the channel walls (armoring) stopped the natural successional (channel-building) processes within the stream. Channelizing the stream also reduced the water availability within the streambanks to support trees and other riparian habitat for shade, food, and stream nutrients.

4.4.2 Opportunities

Opportunities associated with the Gooding Canal include items for localized flood risk reduction, ecosystem restoration, increased public safety, recreation, and education. Specific opportunities addressed in this study include the following:

- Reduce localized flood risk
- Reduce localized damages caused by erosion

- Reduce channel maintenance
- Reconnect the floodplain in the study area
- Improve public safety
- Improve aquatic habitat where feasible
- Improve riparian habitat where feasible
- Preserve the cultural significance of the historic channel wall

The following paragraphs contain additional details regarding potential opportunities within the project footprint.

- **Opportunity: Reduce localized flood risk**

  The most opportunistic way to reduce localized risk in the city is to reconstruct canal walls and bridges. Rebuilding the canal walls would decrease the chance of failure and subsequent flooding, retain conveyance capacity, reduce constrictions, and decrease roughness. Since ice jams are most likely to form at bridge crossings where flow is constricted, the chances of localized flooding would be significantly reduced if bridges were redesigned and rebuilt with adequate clearance to minimize the obstruction of high flows.

- **Opportunity: Reduce localized damages caused by erosion**

  The potential for bank failures induced by soil erosion would be significantly diminished if the canal walls were rehabilitated. Wall failures create spaces behind the wall where soil can erode, damaging adjacent property and infrastructure.

- **Opportunity: Reduce channel maintenance**

  The Little Wood River in the Gooding Canal flows through a channel constructed of hand-placed grouted and ungrouted basalt rock. As the walls deteriorate with age, additional maintenance is necessary. Rehabilitating the wall using more durable materials and methods would significantly reduce maintenance requirements and increase the life of the canal.

- **Opportunity: Reconnect the floodplain in the study area**

  Many of the flood issues in Gooding are related to hydraulic conditions upstream of the city. The topography is flat and does not drain quickly. The walls along the Gooding Canal stand above the ground surface, effectively blocking floodwater from re-entering the channel. As the channel is rehabilitated, provisions (i.e., flap gates or weep holes) could be provided to facilitate reconnection of the floodplain with the main river channel, allowing faster recession of floodwaters.

- **Opportunity: Improve public safety**

  In some locations, parapet walls along the Gooding Canal extend above the ground level and have a steep vertical drop directly to the channel bottom. The walls are approximately 3' tall. They are low enough that a person could fall into the river, but tall enough to prevent a person trapped in the channel from being able to exit. As the river channel is rehabilitated, provisions can be included to improve the safety by reducing access to the river channel in areas with vertical walls, by providing exits, or by making the interface between the community and the river less hazardous.

- **Opportunity: Improve aquatic habitat where feasible**

  The existing channel provides limited and poor aquatic habitat. Rehabilitating the channel walls may provide opportunities to include aquatic habitat features while maintaining water surface elevations and flood risk protection.

- **Opportunity: Improve riparian habitat where feasible**

  Most riparian habitat in the project area was removed when the Gooding Canal was constructed. Very little vegetation remains along the channel, and existing development limits the land available for restoration, but there may be opportunities to plant riparian vegetation in select locations.

- **Opportunity: Preserve the cultural significance of the historic channel wall**

  The existing walls have been determined eligible for listing on the National Register of Historic Places (NRHP) because of age, and association with the WPA and CCC. The lava rock walls no longer provide reliable flood protections, but the lava rock could potentially be reused to interpret the cultural and historic significance of the channel to the Gooding community and the region.

4.5 Planning Objectives

National objectives stated earlier (Section 4.2) are broad statements and not specific enough to the project area problems and opportunities to guide plan formulation. Water and related land resource problems and opportunities described in the preceding sections are identified as specific planning objectives that are used in the formulation of alternatives. These planning objectives are designed to achieve the desired positive changes in the future without-project conditions. The planning objectives for the Gooding Canal would be attained within the period of analysis for a 50-year timeframe beginning in 2016.

The planning objectives for this Report are:

- Reduce localized flood risk and damages resulting from channel wall failure along the Gooding Canal
- Reduce localized flood risk and damages caused by ice jams within the Gooding Canal
- Minimize damages caused by erosion at failure points along the Gooding Canal
- If feasible, improve aquatic and riparian habitat along the Gooding Canal

4.6 Planning Constraints

Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that include laws, policies, site characteristics, or public desires that cannot or should not be violated. All Corps projects must comply with applicable Federal, state, and local laws, regulations, and policies. Further, this project is specifically authorized under Section 3057 of WRDA 2007 and has stringent limitations (discussed in Section 1.1). These include:

- Rehabilitation for the purposes of flood control and ecosystem restoration, if feasible.
- Federal maximum project cost to plan, design, and construct the project for $9 million, which corresponds to a Section 902 limit of ~$14.3 million (computed July 2016).

Additional planning constraints identified in this study include:

- Avoid increasing the city's flood risk
  - Maintain existing level of flood protection
  - Do not increase risk of ice jamming
- Avoid impacts to existing water rights and water users (including points of diversion)
- In order to minimize impacts to emergency vehicles and footbridges used by students at the nearby school for the blind, avoid impacts or alterations to existing traffic flow in the city of Gooding.
- Avoid changes to the existing project footprint
  - Limited property exists for acquisition due to lack of community support
  - The NFS does not have the financial ability to acquire additional lands

4.7 Measures

Measures are features or activities that can be implemented at a specific location to address one or more planning objectives. Measures are the building blocks that, when grouped together, form alternative plans. An array of measures intended to address identified problems and opportunities was initially developed by the PDT, in conjunction with the NFS. These measures, categorized as flood risk management (structural and non-structural) and ecosystem restoration, are listed below, and described individually in the following sections.

- **Flood Risk Management Measures – Non-Structural**
  - Reroute river around town using an existing canal system
  - Mechanically break up ice jams
  - Floodproofing of structures
  - Flood warning and emergency evacuation systems
  - Relocation of existing structures

- **Flood Risk Management Measures – Structural Measures**
  - Repair existing channel walls
  - Remove parapet walls
  - Remove existing channel walls
  - Replace existing channel walls
  - Construct new “natural” channel
  - Reduce number of bridge crossings
  - Modify/replace existing road bridges
  - Modify 90-degree bends in the channel

- **Ecosystem Restoration Measures**
  - Modify operations to mimic natural flow
  - Riparian plantings
  - Upland plantings
  - In-stream habitat features – gravel beds
  - In-stream habitat features – Resting pools
  - In-stream habitat features – riffles
  - Off-channel wetlands/ponds/streams

The measures were next evaluated against the planning objectives and planning constraints for this project. If a measure did not meet any of the planning objectives or violated a planning constraint, it was eliminated. If a measure met the first three planning objectives, it was determined to be a stand-alone measure and was considered further. If a measure met some planning objectives, but not all, it was determined to be a dependent measure (e.g., could be combined with other measures to develop an alternative plan that meets the planning objectives), and was carried forward.

A further discussion of the initial screening of each measure is contained in the following paragraphs, and a summary is depicted in Table 8, at the end of this section.

4.7.1 Screening of Flood Risk Management Measures

The following measures would achieve flood risk management (FRM) objectives in the study area and may also contribute to ancillary ecosystem benefits. FRM measures may be structural or non-structural. Non-structural measures include changing floodplain use or accommodating existing uses to the flood hazard. Non-structural measures are those that reduce flood damages without significantly altering the nature or extent of flooding. In contrast, structural measures alter the nature or extent of flooding by modifying the magnitude, duration, extent, or timing of flooding.

The authorizing language for this project specifies the rehabilitation of the Gooding Canal in order to restore the original level of flood protection and provide ecosystem restoration, if feasible. Specific measures for flood risk management are described below. Measures were screened to identify those that met the objectives, did not violate constraints, and were determined to have acceptable costs, based on preliminary cost information.

- **Non-Structural Measures**

  - **Reroute River around town through existing canal system.** Using existing canals, water normally flowing through the Gooding Canal would be rerouted around the downtown Gooding area. Examples of potential re-routing options are shown in Figure 9.

    Rerouting the river around the town meets the FRM planning objectives to reduce flood risk from wall failure and ice jamming, but violates the constraint to avoid impacts to existing water rights. Diverting water upstream of the canal would impact downstream water users who have the right to divert water from this stretch of the Little Wood River. This measure was ***eliminated from further consideration***.

  - **Mechanically Break Up Ice Jams.** Mechanical equipment would be used to break up ice jams to allow the river to flow freely through the canal. The NFS currently uses a large backhoe for this purpose as part of their routine channel O&M.

    Breaking up ice jams by mechanical means meets the FRM planning objectives to reduce flood risk from ice jams and does not violate any planning constraints. This measure was ***retained for further consideration*.**

  - **Floodproofing of existing structures.** Floodproofing is defined by FEMA as “any combination of structural and non-structural additions,

changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents."[5] There are many floodproofing methods, and the methods differ depending on whether the structure is residential or commercial. Methods include moving or elevating the structure, applying a sealant to inside walls, or modifying the structure to allow flood waters to flow under the structure.

Floodproofing meets the FRM planning objectives to reduce flooding and damages from wall failure and from ice jams, and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Flood Warning and Emergency Evacuation Systems.** This measure would implement a local flood warning and emergency evacuation system of some sort to allow both residential and commercial structures to be evacuated quickly and in an orderly fashion, if required. Flood warning systems typically consist of a network of stream gauges that monitor the rising waters.

  Implementation of flood warning and emergency evacuation systems meets the FRM planning objectives to reduce flood risk and damages from wall failure and ice jamming, and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Relocation of existing structures.** This measure would relocate all structures directly in the canal flood zone to areas outside of the flood zone. Because of the topography of the city, relocation could be a considerable distance from the previous location.

  Relocation of existing structures meets all of the FRM planning objectives and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Structural Measures**

  - **Repair Existing Channel Walls.** Using basalt rock, the channel walls would be repaired by replacing broken or missing stones. The stones would likely be replaced by hand.

    Repairing existing channel walls meets the FRM planning objectives to reduce flooding and damages from channel wall failure and from ice

[5] *http://www.fema.gov/national-flood-insurance-program-2/floodproofing*, accessed July 2013.

jamming, and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Remove Parapet Walls.** The parapet walls running the entire length of the concrete channel would be removed. At present, these walls are not likely to withstand any type of flooding due to their deteriorated condition.

  Removing the parapet walls does not meet any of the planning objectives, and violates the constraint to avoid increasing flood risk. This measure was ***eliminated from further consideration***.

- **Remove Existing Channel Walls.** The existing channel walls have deteriorated due to the impermanence of the construction methods and no longer provide reliable flood protection. In some areas, the walls are slumping into the river channel as they fail. This measure proposes removal of the existing channel walls with no replacement with a hardened or engineered material. This measure increases flood risks resulting from additional erosion, and significant failure.

  Removing the existing walls (without replacement) meets the FRM planning objectives to reduce risk from channel wall failure, but violates the constraint to avoid increasing flood risk. This measure was ***eliminated from further consideration***.

- **Replace Existing Channel Walls.** This measure would construct a new channel in the same footprint as the existing channel. The old channel walls would be removed and replaced with a hardened material such as pre-cast concrete sections.

  Replacing existing channel walls meets all of the FRM planning objectives and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Construct New "Natural" Channel.** Using reference reaches as guidelines, a new and naturalized channel would be created to replace the Gooding Canal. Natural channels typically take on a trapezoidal shape compared to the existing rectangular channel. The naturalized channel would include typical instream structures, such as riffles and resting pools, as well as riparian plantings along the laid-back side slopes of the bank.

  Constructing a new "natural" channel meets the FRM planning objectives to reduce flooding and damages from channel wall failure and to minimize damages from erosion, and meets the ecosystem restoration objective. The measure violates the constraint to avoid changes to the existing project footprint. In order to accommodate the design flow through a naturalized channel the cross-sectional area of the channel must be

increased. Also, any instream features increase the likelihood of ice jamming. This measure was ***eliminated from further consideration***.

- **Reduce the number of Bridge Crossings.** The originally-constructed project included five vehicular bridge crossings and three pedestrian footbridges. The original bridge construction included abutments narrower than the rest of the Gooding Canal. The transitions are very abrupt, reduce overall channel capacity, and provide areas where ice and debris jams often form. These ice jams may cause localized flooding. Reducing the number of bridge crossings could decrease the opportunity for ice jams to form in the channel.

  A reduction in the number of bridge crossings meets the FRM planning objective to reduce flooding and damages from ice jamming, but violates the constraint to avoid impacts to traffic flow. This measure was ***eliminated from further consideration***.

- **Modify/Replace Existing Road Bridges.** This measure employs the same reasoning as the measure to reduce bridge crossings.

  Modifying or replacing existing bridges meets the FRM planning objectives to reduce flood risk and damages from ice jams and does not violate any planning constraints. This measure was ***retained for further consideration***.

- **Modify 90-Degree Bends in the Channel.** The Gooding Canal was straightened and realigned during construction of the current channel. The realignment includes two 90-degree bends which are locations for ice jamming. This measure would realign the canal to eliminate those bends, reducing the potential for ice jams and lowering the water surface elevation.

  Modifying 90-degree bends in the channel meets the FRM planning objective to reduce flooding and damages from ice jams, but violates the constraint to avoid changes to the existing project footprint. This measure was ***eliminated from further consideration***.

4.7.2 Screening of Ecosystem Restoration Measures

This section of the Little Wood River was originally channelized for irrigation and flood protection, and the river alignment was significantly altered. When the channel was realigned, riparian habitat and trees were lost, lowering the quality of aquatic habitat by increasing water temperatures and reduced biological inputs to the river. Since construction significant residential development in the floodplain and irrigation infrastructure have been added, which have contributed to poor water quality and habitat loss. Farming practices have also contributed to the poor habitat quality through

irrigation returns and erosion. Potential measures identified for riparian and aquatic habitat restoration are described in the following paragraphs.

- **Riparian Habitat**

  - **Modify Operations to Mimic Natural Flow Conditions.** This measure would modify upstream operations to represent more natural, varying hydrograph (flow) through the channel, and provide more opportunity for riparian and aquatic habitat to develop naturally.

    Modifying operations to mimic natural flow conditions meets the ecosystem restoration planning objective, but violates the planning constraint to avoid impacts to existing water rights. Any proposed operational changes within the canal would impact existing water users. This measure was ***eliminated from further consideration***.

  - **Riparian Plantings (in the channel).** This measure would involve planting riparian species at specific locations along the channel to increase the availability of shade. This could improve aquatic habitat by lowering water temperatures and increasing biological inputs, thus making the channel a more desirable habitat for aquatic species.

    Riparian planting meets the ecosystem restoration planning objective and the FRM objective to minimize damages from erosion, but violates the planning constraint to avoid changes to the existing project footprint. In-channel plantings would increase channel roughness and require a larger cross-sectional channel area to pass design discharges. This measure was ***eliminated from further consideration***.

  - **Upland Plantings (adjacent to, or along the channel).** Plantings would be made on the elevated banks of the channel to create a buffer between the channel and developed areas. Upland plantings provide aesthetic diversity, and filter sediments and pesticides.

    Upland planting meets the ecosystem restoration planning objective to improve aquatic and riparian habitat, but violates the planning constraint to avoid changes to the existing project footprint. Any plantings adjacent or along the channel would impact existing land use and traffic flow patterns because of the limited real estate available to the city for the project. The plantings would increase the area needed for the project and impact private landowners along the the channel. This measure was ***eliminated from further consideration***.

- **Aquatic Habitat**

  The following aquatic restoration measures were considered for the Gooding Canal.

  - **Create In-Stream Habitat Features.** This measure would provide in-stream features in the existing rectangular channel to improve the habitat for a variety of aquatic species. The channel would be altered to provide a more natural habitat by providing cover for hiding and resting, woody debris in the stream for substrate, and food for aquatic organisms. Many techniques exist for the restoration of in-stream habitat. The following options were considered most promising for the Gooding Canal:

    - **Gravel Beds.** The bottom of the Gooding Canal is bedrock. This measure would create gravel beds in the channel to provide spawning habitat and more natural riverine conditions. The Gooding Canal carries a modest sediment load, which has the potential to pick up and carry sediments downstream. Gravel introduced in this reach would likely be carried below the project area during high flows, and would require regular replenishment, making this measure unsustainable.

      This type of in-stream habitat feature meets the ecosystem restoration planning objective, but is unsustainable, and violates the planning constraint to avoid increasing flood risk due to changes in water surface elevations. This measure was ***eliminated from further consideration***.

    - **Resting Pools.** Pools would be created instream to provide areas for fish to rest and feed during migration. Resting pools are typically provided by large woody debris, which slows the motion of the water and retains the gravels necessary for spawning habitat. However, resting pools cannot be created without reducing channel conveyance capacity, thereby increasing flood risk for local residents.

      This type of in-stream habitat feature meets the ecosystem restoration objective, but violates the planning constraints to avoid increasing flood due to reduced channel capacity. This measure was ***eliminated from further consideration***.

    - **Riffles.** The dynamics of a natural stream create many riffle and pool sequences. Riffles are shallow areas with a variety of high water velocities that oxygenate the stream during low-flow periods. Riffles also help create the deeper pools necessary for spawning, resting, and feeding of aquatic species. There are many methods available to create both artificial and “natural” riffles, and the implementation of this measure would employ some of these methods to create a more

natural stream channel. However, riffles cannot be created in the Gooding Canal without a reduction in channel conveyance capacity, thereby increasing flood risk for local residents.

This type of in-stream habitat feature meets the ecosystem restoration planning objective, but violates the planning constraints to avoid increasing flood risk and changes to the existing project footprint. Structures would need to be placed in the channel to create the riffle, which would reduce channel capacity. Construction of riffles would require increasing the channel's cross-sectional area, resulting in a rise in water surface elevation and increasing the risk of flooding. This measure was ***eliminated from further consideration***.

- **Off-Channel Connected Wetlands/Ponds/Streams.** This measure would connect the Gooding Canal with existing wetlands, ponds, or other streams. This would require partial removal of the canal's lava rock walls, and excavation to widen the channel.

  Development or construction of off-channel connected wetlands/ponds meets the ecosystem restoration planning objective to improve aquatic habitat, but violates the planning constraint to avoid changes to the existing project footprint. This measure was ***eliminated from further consideration***.

4.7.3 Opportunities Outside of the National Objectives

The following opportunities are outside the scope of the Federal project, but could be included as betterments to the proposed project and implemented by the Corps (with NFS funding), or by the NFS. Some historical/cultural mitigation is anticipated for the proposed project. Most of these measures were identified by stakeholders in the public scoping process. ***None of these measures were carried forward*** by the plan formulation process because they do not meet the intent of the specific authorizing language for the project. Additional opportunities for implementation are available to the NFS, as described below.

- **Improve Public Safety Associated with the Gooding Canal**

  - **Laid-back channel slopes.** Laid-back channel slopes, while more natural in appearance and safer than a "u"-shaped channel, would require additional land adjacent to the channel. At this time the NFS does not have the capability to acquire additional real estate and only the public park, approximately one city block, is available for this purpose. Acquisition of additional lands to implement this measure would be the responsibility of the NFS.

- **Fence perimeter of channel.** Fencing the perimeter of the channel would increase public safety, although it is aesthetically unappealing. Fencing was not included in the original project, and costs for fencing would be the responsibility of the NFS due to the language in the authorizing legislation.

- **Security lighting along the channel boundary.** Adding lighting along the project route would increase public safety around the channel, but was not part of the original project. If fencing or other security measures were added to the project by the NFS, security lighting could be included as a betterment. All costs for security lighting would be the responsibility of the NFS, due to the language in the authorizing legislation.

- **Improve Public Access and Recreational Amenities Along the Gooding Canal**

  - **Walking/bike path along the channel.** Recreational opportunities could be created by including sidewalks and other access and pedestrian features along the channel. However, a lack of available real estate and potential impacts to the existing road system make this infeasible at this time. The NFS could create a biking/walking path designating a bike lane on existing streets using painted striping. This could encourage more bicycling and additional recreational use. Development of a bike lane would be considered a betterment, and the financial responsibility of the NFS.

  - **Fishing access points/platforms.** Fishing platforms were not part of the original project. Fishing platforms could be constructed with simple modifications to the wall and any associated fencing along the channel. Development of fishing access points would create additional recreational opportunities, but would be outside of the scope of this project, as it is authorized. Thus, fishing platforms would be considered a betterment, and the financial responsibility of the NFS.

  - **Access and exit points for floating the river.** Allowing designated access points into and out of the river could improve recreational opportunities for swimming, boating, and fishing in the river. Recreational access points were not constructed as part of the original project construction, and would be considered a betterment. The NFS would bear financial responsibility for construction costs of these facilities.

  - **Seating along the river.** Members of the public expressed interest in having seating installed along the channel. Seating was not part of the original construction, would be considered a betterment, and would be the financial responsibility of the NFS.

- **Additional pedestrian bridges for recreational purposes.** The appropriateness of this opportunity would be dependent on the alternative plan selected. Any plan that required the removal of pedestrian bridges in order to construct the selected project would require the reconstruction of pedestrian bridges in the same footprint. Additional pedestrian bridges beyond those already existing would be the financial responsibility of the NFS.

- **Restoration demonstration plots.** Demonstration plots would be appropriate for a project involving extensive ecosystem restoration. They are outside the scope of this project, however, and were not a feature of the original project. Demonstration plots would be the sole financial responsibility of the NFS.

- **Preserve the Cultural Significance of the Gooding Canal**

  - **Preserve existing channel wall by repairing damaged sections.** This opportunity is discussed earlier in the document, as one of the flood risk management measures (Section 4.7.1).

    - **Use channel rock in the design of new project features.** Historical rock could be reused in fencing design, historic signs, benches, or other features. Re-using the lava rock in this way could help mitigate for the removal of this historic rock wall channel, but would be the sole financial responsibility of the NFS.

    - **Historical marker, recordation, or plaques with photos and description of channel wall.** Educational materials and historical records of the Gooding Canal could be used to help mitigate for the removal of the historic rock walls, but would be the financial responsibility of the NFS unless negotiations with the Idaho SHPO determine this is appropriate mitigation for impacts to the historic wall.

  - **Provide interpretive and educational amenities along the Gooding Canal**

    - **Interpretive signs along channel.** No extensive ecosystem restoration or recreational features could be included in this rehabilitation project since they were either determined to be infeasible or beyond the project's authority. However, signage which interprets the natural and recreational features of the river could be constructed in areas adjacent to the channel, but would be the sole financial responsibility of the NFS. Signage related to the historical significance of the wall would be considered mitigation measures for impacts to the historic resource, and would be included as a project cost.

4.7.4 Measures Retained for Further Consideration

The following measures were retained for further evaluation:

- Mechanically break up ice jams
- Floodproofing of structures
- Flood warning and emergency evacuation systems
- Relocation of structures in the flood zone
- Repair existing channel walls
- Replace existing channel walls
- Modify/Replace Existing Bridges

A summary of the initial screening of measures is contained in Table 8, below.

Table 8. Summary of Measure Evaluation

Screening of Measures	Meets FRM Planning Objectives			Meets Ecosystem Planning Objectives	Violates Planning Constraints				Measures carried forward
	Reduce flood risk from channel wall failure	Reduce flood risk from ice jams	Minimize damages from erosion	Improve aquatic / riparian habitat (if feasible)	Avoid increasing flood risk	Avoid impacts to existing water rights	Avoid impacts to traffic flow	Avoid changes to existing project footprint	
Reroute river through existing canals	X	X				X			
Mechanically break up ice jams		X							X
Floodproofing of structures	X	X							X
Flood warning/evacuation systems	X	X							X
Structure relocation	X	X	X						X
Repair existing channel walls	X		X						X
Remove parapet walls					X				
Remove existing channel walls	X				X				
Replace existing channel walls	X	X	X						X
Construct new “natural” channel	X		X	X				X	
Reduce bridge crossings		X					X		
Modify/Replace existing bridges		X							X
Modify 90-degree channel bends		X						X	

Screening of Measures (continued)	Meets FRM Planning Objectives			Meets Ecosystem Planning Objectives	Violates Planning Constraints				Measures carried forward
	Reduce flood risk from channel wall failure	Reduce flood risk from ice jams	Minimize damages from erosion	Improve aquatic / riparian habitat (if feasible)	Avoid increasing flood risk	Avoid impacts to existing water rights	Avoid impacts to traffic flow	Avoid changes to existing project footprint	
Modify operations to natural flow				X		X			
Riparian Plantings			X	X				X	
Upland Plantings				X			X	X	
In-stream habitat – Gravel Beds				X	X				
In-stream habitat – Resting Pools				X	X			X	
In-stream habitat - Riffles				X	X			X	
Off-channel wetlands, ponds, streams				X			X	X	

4.8 Formulation of Alternatives

The next step in the plan formulation process combines the measures discussed above into Alternative Plans (Alternatives) that meet the study objectives. One measure (relocation of structures currently in the flood zone) meets the first three planning objectives for FRM and can stand alone as one alternative plan. Other alternatives were formed by combining measures, to meet the overall purpose and need of the project. The initial array of alternatives is listed below. Each alternative could include the non-structural measures of mechanically breaking up ice jams, floodproofing of structures, and use of flood warning and emergency evacuation systems. These measures are effective to some degree, and relatively inexpensive. However, they do not fully meet the intent of the Section 3057, WRDA 2007 authorization because they do not address the immediate threat from the deteriorating channel. Therefore, these measures were eliminated from further consideration.

All identified ecosystem restoration measures were eliminated from consideration because they violated planning constraints. Any potential ecosystem restoration opportunities are limited to small and ancillary features that have no major benefit outputs to improving environmental quality. Therefore, the ecosystem restoration part of this project has been determined to be infeasible.

4.8.1 Initial Array of Alternatives

The following is an initial array of action alternative plans that meet the planning objectives:

- Alternative 1 – Replace existing channel walls, modify/replace existing bridges.
- Alternative 2 – Repair existing channel walls, modify/replace existing bridges.
- Alternative 3 – Relocate existing structures in the flood zone

4.8.2 Plan Formulation Criteria

Projects must be formulated to reasonably maximize benefits to the national economy, to the environment or to the sum of both. Each alternative plan shall be formulated in consideration of four criteria described in the “Principle and Guidelines Report”, (U.S. Water Resources Council, 1983), completeness, effectiveness, efficiency, and acceptability.

- **Completeness.** Explain to what degree the recommended plan meets the planning objectives to improve flood risk for the city of Gooding.

- **Effectiveness.** Explain to what degree the plan resolves the specific problems and achieves the specified opportunities.

- **Efficiency.** Explain how the preferred plan is the most cost effective in alleviating the specified problems and opportunities.

- **Acceptability.** Explain how the preferred plan is acceptable to Federal, state, tribal and local entities and to the public.

Using this guidance, each alternative was evaluated to determine if it met the four criteria described above. The outcome of that evaluation is described below:

Alternative 1 – Replace Existing Channel Walls, Modify/Replace Existing Bridges meets the four planning criteria. ***Alternative 1 – Replace existing channel walls and modify/replace existing bridges was carried forward for further consideration.***

Alternative 2 – Repair Existing channel Walls, Modify/Replace Existing Bridges does not meet the effectiveness or efficiency criteria. Because the existing canal has exceeded its design life, anything short of large scale rehabilitation would induce risk and uncertainty of performance and does not alleviate the problems associated with increased flood risk or increased O&M requirements. This alternative will result in higher future O&M costs than other alternatives, and is not considered a cost effective solution. ***Alternative 2 – Repair existing channel walls and modify/replace existing bridges was eliminated from further consideration.***

Alternative 3 – Relocation of Existing Structures in the flood zone does not meet the efficiency or acceptability criteria. Due to the topography of the city, the majority of the city is in the flood zone. Relocating structures would require moving the majority of the city, creating social and physical upheaval at high cost. Furthermore, the legislation directs the Secretary rehabilitate the channel, presumably using the existing alignment. Moving the majority of the town does not meet efficiency or acceptability criteria. ***Alternative 3 – Relocation of properties was eliminated from further consideration.***

4.9 Description of Final Array of Alternative Plans

The following is a brief description of the final array of alternatives. Only two alternatives were recommended for final evaluation. These two are: No-Action Alternative and Alternative 1 - Replace existing channel walls, and modify/replace existing bridges.

- **No-Action Alternative.** The No-Action alternative assumes no project would be implemented by the Federal government or by local interests. It is the baseline against which all alternatives are compared.

- **Alternative 1- Replace existing channel walls and modify/replace existing bridges.** Alternative 1 would remove the existing channel walls, construct a new channel in the same footprint as the existing channel, and demolish and replace five vehicular bridges and three pedestrian footbridges.

4.10 Evaluation and Comparison of Alternative Plans

The No-Action alternative does not meet any of the planning objectives. Under the No-Action alternative the channel conditions would not improve. The channel wall will continue to deteriorate and the risk of erosion and localized damages from flooding will increase. The flow capacity and volume of the channel will be further reduced as additional materials fall into the channel. Decreased volume and flow conveyance will increase localized flood risk as well. In addition, the impingement points at bridge crossings will continue to cause risk of ice jams and localized flooding. As the wall continues to deteriorate, O&M costs and the level of effort will increase, which will continue to present fiscal challenges for the NFS.

Alternative 1 - Replace existing channel walls, and modify/replace existing bridges accomplishes the project objectives to reduce localized flood risk by removing and replacing existing walls and modifying existing bridges to increase channel capacity, improve conveyance, and reduce the risk of ice jams within the Gooding Canal.

4.11 Selected Plan

The authorizing language for this project states that economic justification is not required, so a National Economic Development (NED) plan for FRM benefits was not developed for this study. The recommended plan is assumed to be cost effective and provide benefits in excess of directed repair cost as determined during the Section 905(b) analysis completed in July 2000 (refer to Appendix B), which computed a benefit cost ratio of 1.8.

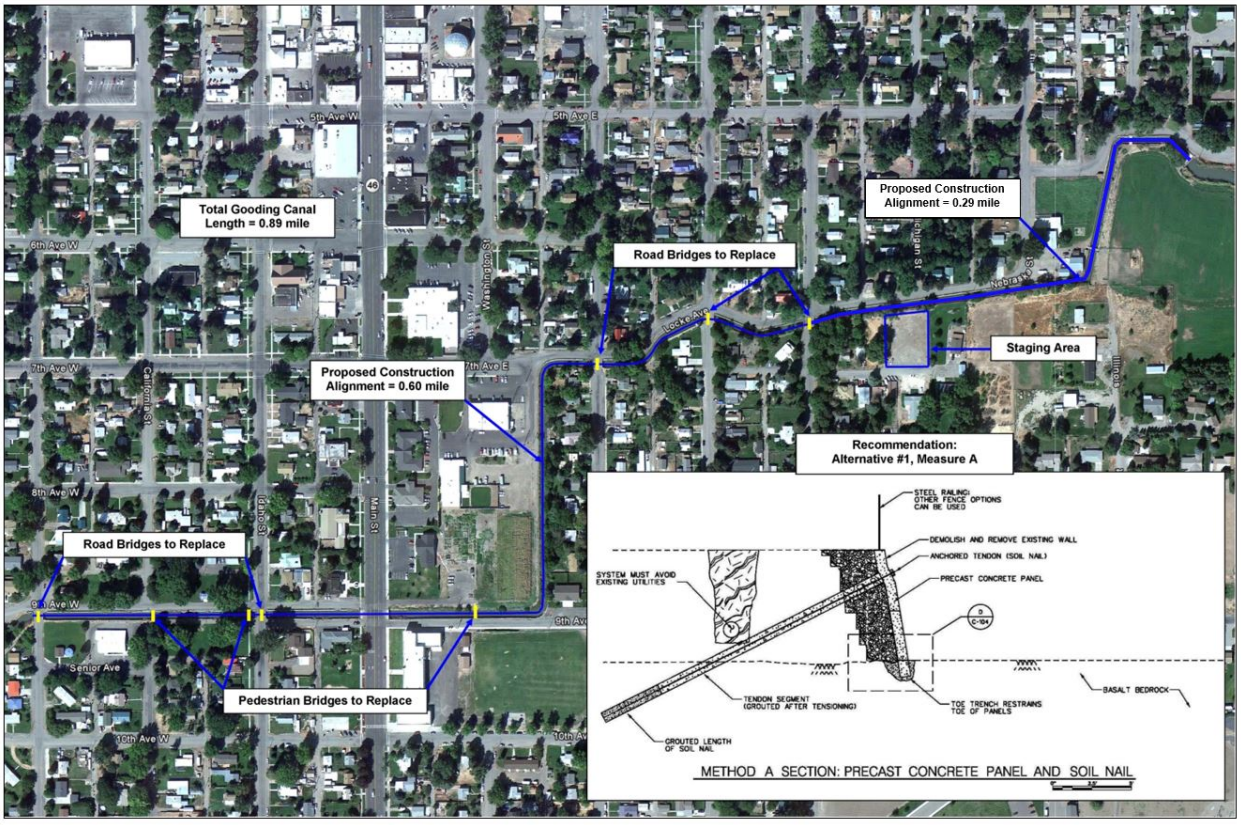
The only proposed alternative that meets the planning criteria for completeness, effectiveness, efficiency, and acceptability; meets the project authorization language; is feasible; and satisfies the NFS's main interest of flood risk reduction is Alternative 1 - Replace Existing Channel Walls, and Modify/Replace Existing Bridges. Therefore, Alternative 1 is the recommended plan. The next section of this Report will examine different scales and construction methods to optimize the recommended plan and describe its implementation.

CHAPTER 5 – RECOMMENDED PLAN

5.1 Optimizing the Recommended Plan

Specific features of Alternative 1 include removal of the existing lava rock wall, replacement of the wall with an engineered channel, and the replacement of five bridge crossings for flood risk reduction (Figure 23). Due to the original construction methods, the bridge and pedestrian crossings cannot be salvaged during canal rehabilitation and will need to be demolished and replaced.

Figure 23: Selected Plan Features



Different versions of Alternative 1 were developed based on construction methodology, and screened for the most acceptable methods to minimize impacts to cultural resources and minimize construction costs. Due to planning constraints to avoid changes to the project footprint and impacts to existing traffic flow, various channel shapes were not evaluated. Subsequently, four different scales/methods were developed. These methods are discussed in detail in Section 5.2.

5.2 Construction Methods

Four construction methods were developed and evaluated to determine the least-cost method for reconstruction of the channel walls. Drawings for each of the wall construction methods are located in Appendix D and include the following:

- **Method A – Tied-Back Precast Concrete Panel Walls**

  Method A consists of using new precast concrete panels to replace the old channel walls. The existing bedrock channel bottom would remain unchanged. The existing wall would be removed, and minimal excavation beyond the existing wall would be required. Anchored tendons would secure the concrete panel to the embankment. These anchored tendons would be driven in at an angle that would not interfere with nearby private properties. The bedrock at the toe of the panel would be removed to provide lateral restraint at the bottom of the panel. Existing utilities would be surveyed prior to construction to avoid any potential conflicts. A concrete masonry unit (CMU) wall, steel handrail, or concrete Jersey barrier could be constructed on top of the wall for safety, but would be the sole financial responsibility of the NFS.

- **Method B – Tied-Back Sheet Piles**

  Method B is similar to Method A, with the exception that metal sheet piles would be used instead of precast concrete panels. Sheet piles would form the new channel wall and anchored tendons would secure the sheet pile to the embankment. The anchored tendons would be place at an angle that would not interfere with nearby private property. The toe of the sheet pile would be secured with a rock bolt driven into the bedrock channel. Existing utilities would be surveyed prior to construction to avoid any potential conflicts. A concrete masonry unit (CMU) wall, steel handrail, or concrete Jersey barrier could be constructed on top of the wall for safety, but would be the sole financial responsibility of the NFS.

- **Method C – Trenched Tied-Back Sheet Piles**

  Method C is the same as Method B, except that a trench would be created in the bedrock at the sheet pile toe, the sheet pile would be placed in the trench, and then filled with concrete. Existing utilities would be surveyed prior to construction to avoid any potential conflicts. A concrete masonry unit (CMU) wall, steel handrail or concrete Jersey barrier could be constructed on top of the wall for safety, but would be the sole financial responsibility of the NFS.

- **Method D – Stacked Concrete Blocks**

  Method D consists of a new channel wall constructed with stacked concrete blocks, each measuring 46 inches wide, 41 inches long, and 18 inches high. Anchored tendons would secure the blocks to the embankment. A concrete masonry unit (CMU) wall, steel handrail or concrete Jersey barrier could be constructed on top of the wall for safety, but would be the sole financial responsibility of the NFS.

Wall construction methods were chosen to improve channel wall integrity, maintain or improve existing channel conveyance, and minimize excavation. Construction materials such as concrete have a smoother surface than the existing lava rock face, and will reduce friction and improve channel conveyance and flow velocity. The construction methods described above incorporate the least excavation possible in order to reduce impacts to private property. Cost estimates are based on a channel length of 0.89 mile, channel width of 24 feet, and channel depth of 8 feet.

All construction methods provide the same level of flood protection; therefore, the least-cost method was used to determine a method for wall construction. Costs were annualized at 3.5 percent over a project life of 50 years (50 years is considered the standard channel life). Table depicts costs at both the December 2011 price level and escalated to the May 2013 price level.

Table 9. Costs for Gooding Canal Rehabilitation

Method	Cost	50-Year Life
December 2013 Price Level		
Method A	$11,687,481	$544,055
Method B	$12,305,735	$572,834
Method C	$12,122,375	$564,299
Method D	$22,980,401	$1,069,742
July 2016 Price Level		
Method A	$13,249,000	$616,744
Method B	$13,949,857	$649,368
Method C	$13,741,999	$639,693
Method D	$26,050,723	$1,212,666

Includes all bridge crossings.
FY11 to FY13 escalation used Little Wood Channel Rehabilitation Project Implementation Report, prepared 14 July 2016. Methods were escalated using index factor developed from MCACES selected plan update, as applied to all methods.

Method A was selected as the least-cost construction method for the Gooding Canal rehabilitation. A further refined estimate of Method A is included in the Total Project Cost Summary in Section 5.7, which includes costs for planning, design, and construction (including construction management).

5.3 Design and Construction Considerations

Techniques related to demolition of existing walls and proposed wall construction will be similar for each method. Construction techniques are described from a feasibility-level perspective, and are subject to change during design and implementation. There are four areas consistent to all methods, as described below.

- **Staging**

  The staging area needed to store materials and equipment for construction of the channel will be confined to approximately 0.50 acre. The staging area will be cleared and graded with a 4-inch layer of crushed rock to provide a useable working surface. The Little Wood River will be rerouted from the project site using the existing South Gooding Main Canal (east of Gooding; as shown in Figure 23, so that the entire length of the canal within the project footprint is dewatered.

- **Work Window**

  Construction must occur during the non-irrigation season (circa October 1 through April 1) to avoid impacts to irrigators. The existing walls on both sides of the channel will be demolished then discarded at Gooding Industrial Park, about 0.75 mile from the project site. Refuse must be disposed of in a licensed landfill or other legal means. However, if the material is primarily rock from the canal walls it could be stockpiled for future reuse.

- **Excavation**

  Roughly 2 to 4 feet will be excavated behind the existing wall alignment along both sides of the entire project length to allow for the proposed wall construction. The type of material behind the existing rock wall is unknown at this time, but is likely to be primarily lava rock and old fill material, which will also be discarded at Gooding Industrial Park. After the proposed wall is installed, new fill material (most likely from a commercial source) will be placed and compacted behind the wall.

- **Access**

  There is existing access to the channel for small construction equipment. The channel bottom is relatively smooth, which will allow equipment to be driven within the channel and on the adjacent road north of the Gooding Canal.

5.4 Operation and Maintenance, Repair, Replacement, & Rehabilitation (OMRR&R)

As in the original project, all OMRR&R for projects constructed under Section 3057 of WRDA 2007 are a non-Federal responsibility. An O&M manual must be produced by the Corps prior to completion to ensure proper care of the facility by the NFS. The estimated annual OMRR&R cost is expected to be less than $2,000 to $5,000, in addition to any regular clean-out or minor cosmetic repair. This annual cost is expected to increase over time.

5.4 Real Estate

The availability of real estate was a planning concern because the NFS has limited ability (or desire) to acquire fee simple real estate, or to cause the relocation of residents. As with the original project, the costs of LERRDs are a non-Federal responsibility and are discussed in Appendix E, Real Estate Plan. The Real Estate plan estimates that the NFS will need to acquire approximately 10 acres for permanent channel easements from private property owners along the channel, and an additional 1.6 acres for Operation and Maintenance easement from the Idaho Department of Lands. The NFS has indicated that it will be able to obtain the necessary LERRDs that are reflected in the recommended plan, at reasonable costs.

5.5 Cost Sharing

The estimated total project cost for this plan is $13.088 million (FY13 price level). Upon approval of the Report and appropriation of funds, the design and construction phase will be conducted under the provisions of a Project Partnership Agreement (PPA). The project will be cost-shared in the same percentage as the construction of the original project, which is 100% Federal. Per WRDA 2007, Section 3057, this project does not have to be economically justified.

5.6 Risk and Uncertainty

Areas of risk and uncertainty are analyzed and documented in the Cost Engineering risk register (included in Appendix F) so that decisions can be made with knowledge of the degree of reliability of the estimated effectiveness of alternative plans. The PDT determined that in-depth quantitative analysis or modeling for this project would not change the outcome or the recommended plan. Areas of risk identified in the abbreviated risk analysis included bridge work, channel dewatering, and the uncertainty associated with the excavation of unknown and undocumented materials around the channel. To mitigate this risk the cost estimate includes a 32% contingency.

5.7 Total Project Cost Summary

A Cost Schedule Risk Analysis, which includes a risk register, was performed on the four different methods of construction, and the values are shown in Table 9. Updated

costs for the selected plan, Alternative 1 – Method A, Replace Existing Channel Walls with Tied-Back Precast Concrete Panel Walls and Replace Existing Bridges, are shown in Table 10. The Micro-Computer Aided Cost Estimating System (MCACES) estimate and Total Project Cost Summary sheet are included as Appendix F. All costs include a 32% contingency, which was developed from the risk register. A Section 902 limit was calculated and determined to be approximately $13,300,000.

Table 10. Costs for Alternative 1 – Method A, Replace Existing Channel Walls with Tied-Back Precast Concrete Panel Walls and Replace Existing Bridges

Alternative 1	Cost	50-Year Life
July 2016 Price Level, 3.125% Interest Rate		
First Cost	**$13,249,000**	**$527,217**
Fully-Funded Cost	$13,569,000	

5.8 Schedule

Once funded, it is anticipated the Gooding Flood Control Project could be designed and constructed within a twelve month period. A detailed construction schedule is included in the Total Project Cost Summary sheet located in Appendix F.

5.9 Plan Implementation

The Corps Implementation Guidance recommended that this project be implemented like a Section 205 Continuing Authorities Program (CAP) project. Upon project approval and funding, a deviated CAP Section 205 Project Partnership Agreement would be submitted to Corps Headquarters for approval so the project can immediately begin the Design and Implementation Phase.

5.9.1 Report Completion and Approval

The Report will be submitted to Corps Headquarters through the Northwestern Division (NWD) Regional Integration Team (RIT) for review and approval in accordance with Appendix H of ER 1105-2-100. The NWD RIT will coordinate the necessary Headquarters - level review and submit the Report and subsequent PPA to the Assistant Secretary of the Army for Civil Works [ASA (CW)] for approval. Construction of this project was authorized in section 3057 of WRDA 2007.

CHAPTER 6 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

6.0 Summary of Affected Environment

This chapter assesses impacts to environmental resources identified in Chapter 3, and resulting from the rehabilitation of the Gooding Canal.

Under the NEPA, it is required that the "No Action" alternative be carried forward in the project analysis with regard to assessing environmental consequences/impacts. The "No Action" alternative, similar to the Future Without-Project Condition (refer to Chapter 3), is used as the baseline from which alternative plans are evaluated against to determine effects. This also includes the evaluation of cumulative effects that any recommended plan may have upon the environment. A summary of environmental effects of the recommended and No-Action plans proposed by this decision document is included in Table 11, at the end of this chapter, and in the following sections. Any potential environmental consequence from plan implementation is examined in more detail following the summary table.

6.1 Environmental Consequences

This section describes potential environmental consequences and provides implementation details to avoid, minimize, or mitigate any potential effects upon resources identified in the previous table. These resources include water quality, biological/endangered species, cultural resources, and the cumulative effects of the recommended plan.

6.1.1 Water Quality

Preferred Alternative: The proposed work would be limited to existing developed upland roads, bridges and staging areas and the existing project footprint of the constructed channel, thus minimizing adverse impacts to valuable habitat or riparian areas. Although the proposed project requires the Gooding Canal to be de-watered during construction, the work will be considered as occurring within the waters of the U.S. and subject to the Clean Water Act (CWA). Further, the specific nature of the work meets the definition of "fill material" and is subject to Sections 404 and 401 of the CWA. The Section 404 program covers the discharge of dredged and fill material in waters of the U.S., is administered by the Corps of Engineers. For each Section 404 action authorized, a Section 401 water quality certification must also be obtained. Water quality certification is issued by the state within which the proposed work occurs and is a verification by the state that the project will not violate water quality standards. Since the Gooding Canal is a Corps project, the Corps will not issue itself a Section 404 permit, but will need to abide by all appropriate Section 404 requirements and would need to obtain Section 401 water quality certification from the state of Idaho.

The Corps' Regulatory program issues Nationwide Permits (NWP) to authorize work which would cover the proposed work. Nationwide Permits are meant to authorize activities that are "similar in nature, cause only minimal adverse environmental effects when performed separately, and cause only minimal cumulative adverse effects on the aquatic environment." Applicants for a Corps NWP must meet all terms and conditions of that particular NWP. They must also meet the general conditions for that NWP which are imposed by the state within which the proposed work is going to be done (i.e., Section 401 water quality certification). If an applicant meets the Corps' terms and conditions as well as the general conditions imposed by the state, the applicant is not required to apply separately to the state for 401 water quality certification.

For the Gooding Canal Rehabilitation Project, Section 404 permit and Section 401 water quality certification requirements can be met through the use of NWP 3 for repair, rehabilitation or replacement of previously authorized structures. The work proposed for removal and replacement of the channel walls and bridge/pedestrian crossings meets the terms and conditions identified in NWP 3.

For Section 401 water quality certification, the Corps would document the following conditions prior to proceeding with implementation.

- Written notification would be provided to the appropriate regional Idaho Department of Environmental Quality office of all activities occurring on waters not meeting state water quality standards (i.e., "impaired waters"). This would include a project description, location, name of affected water body, start and completion dates, a description of planned best management practices (e.g., methods that would be used to control turbidity/water clarity), and permittee contact information. (NOTE: The section of the Little Wood River that will be impacted by the proposed project is currently on Idaho's list of impaired waters (303 (d) waters as described above).
- Implement activities on impaired waters with a total maximum daily load (TMDL) in a manner that is consistent with the TMDL. The permittee is advised to contact the appropriate regional office to determine if its project would be in compliance with the TMDL.
- Design, implement, and maintain best management practices (BMPs) to fully protect and maintain the beneficial uses of waters of the state. The permittee must also monitor and evaluate BMP effectiveness during project construction to determine if water quality standards are being met. If there are indications that water quality standards are not being met, then the BMPs must be modified as necessary to ensure compliance with water quality standards.

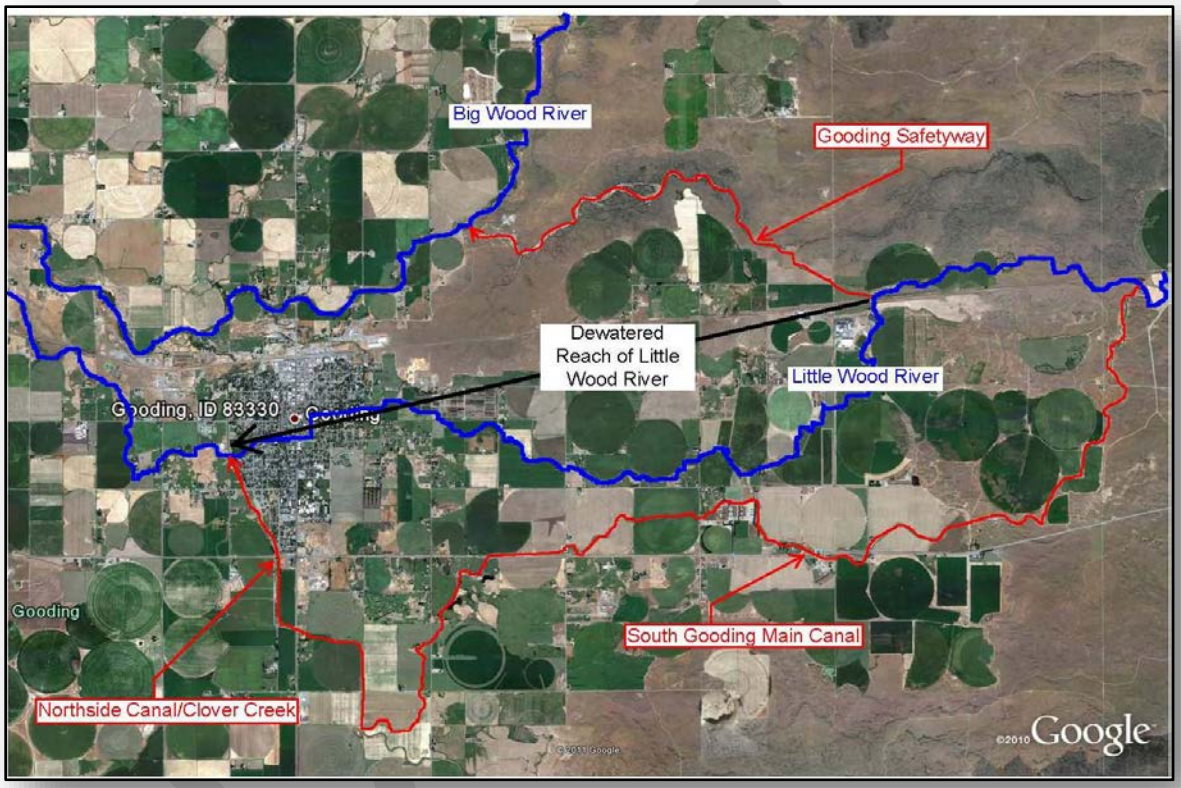
It is likely that existing water quality will remain at the current impaired level. Likewise, agricultural land use and practices in the vicinity of the project area are unlikely to change. No adverse long term impacts to water quality are anticipated. However, some temporary impacts, such as minor increases in turbidity and lost habitat from dewatering actions are anticipated. Best management practices and limits placed on

the timing and duration of dewatering activities would avoid unacceptable adverse impacts to water quality and related habitat as discussed, below,.

6.1.2 Biological / Endangered Species

Preferred Alternative: Under this alternative and prior to starting work on the walls, the Little Wood River will be diverted around Gooding at existing diversion points. These diversion points are approximately 4 and 6 miles upstream from Gooding (Figure 24).

Figure 24. Proposed diversions channel (red lines) to dewater Gooding Canal



The dewatering will be conducted slowly to encourage fish to leave with the receding water. Once the water is diverted, work can be done in the dry. The existing wall will be removed and a minimal amount of excavation will be required behind the proposed panel. Anchored tendons will be used to secure the concrete panels to the embankment. These anchored tendons will be driven at an angle that will not interfere with nearby private property. The bedrock at the toe of the panel will be removed to provide lateral restraint at the bottom of the panel. In addition to the channel walls, the preferred alternative also calls for the removal and replacement of five bridges and three pedestrian crossings.

Currently, the fish community within the Little Wood River is made up of cool and warm water species – e.g., rainbow trout, brown trout, smallmouth bass, and yellow perch. There are several "Species of Greatest Conservation Need" which inhabit the area, including bald eagles. Riparian land along this upstream stretch of the river provides breeding, nesting, denning, and roosting habitat for migratory songbirds, birds of prey, waterfowl, shorebirds, aquatic mammals, small mammals, reptiles and amphibians. Because of the location and timing of the proposed action (October through March), it is unlikely that major impacts or disturbances to area wildlife and migratory birds would occur from the proposed work activities.

As discussed in Chapter 3, the Corps reviewed the current list of threatened and endangered species identified for the project area which are under jurisdiction of NOAA Fisheries. The Corps also reviewed the list for species under the jurisdiction of the USFWS for Gooding County, Idaho. The compiled species list is shown in Chapter 3). Critical habitat is not designated for these species.

Under Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Federal agencies are directed to consult with NOAA Fisheries on all actions, or proposed actions, that may adversely affect Essential Fish Habitat (EFH). The Little Wood River is upstream of impassable dams on the Snake River and is not identified as EFH. There will be no modification or adverse effects to EFH from the proposed action.

Aquatic and riparian dependent wildlife species may be directly or indirectly impacted by dewatering of riverine habitat. Direct effects may include overall trophic disruption, increased predation, individual fish and wildlife mortalities, loss of forage, displacement, and reduced species diversity. Indirect effects may include severe habitat degradation, loss of primary productivity, riparian vegetation dehydration, and downstream habitat impacts. These impacts may range in severity and longevity. However, some level of protection is afforded if complete dewatering is avoided. Idaho's Department of Fish and Game (IDFG) has encouraged preservation of the riverine connectivity to the greatest extent feasible during construction to minimize impacts. They have also provided recommendations on how to minimize impacts to fish and wildlife from the proposed dewatering effort. A verbal concurrence in support of IDFG recommendations was received from the USFWS ((U.S. Fish and Wildlife Service, 2012) (U.S. Fish and Wildlife Service, 2012).

- **Environmental Considerations**

  The Corps will strictly adhere to the following environmental considerations as part of the proposed action in order to ensure that impacts and effects that may result from the action are minimized or eliminated. The following environmental considerations are an integral part of the proposed action. These requirements must be used in conjunction with the proposed action to ensure that the Corps can make a defensible determination that the proposed action will not affect species or habitats protected by the identified natural resources laws.

- **Stipulations**

  - Erosion control measures shall be properly installed and provide adequate coverage for disturbed areas or associated areas subject to runoff as a result of the proposed action.
  - Timing of project shall not be adjusted beyond the proposed dates more than two weeks without further review by Environmental Compliance.
  - Spreading of excess materials shall be conducted in a manner to eliminate the potential for any of the material to be become airborne and enter any fish-bearing water body, or enter any fish-bearing water body by any other means, to include, but not limited to, runoff.
  - Reseed or replant disturbed areas, if any, with native materials and seed to minimize the invasion of noxious weed species, and subsequent use of pesticides, as well as potential for runoff.

- **Recommendations**

  - Use best management practices to minimize potential impacts to wildlife not addressed in this document.
  - Use best management practices to minimize potential impacts to vegetation.
  - Minimize footprint of disturbance to smallest area possible.
  - No construction activities should occur in the river channel between March 15 and July 15 to protect spawning and rearing fish species.
  - River flows should be gradually reduced to allow fish and wildlife to migrate to suitable habitat.
  - Stranded fish should be salvaged and relocated into suitable habitat.
  - All soil disturbed sites should be restored using site-appropriate native woody plants, forbs, and grasses.
  - Post-construction monitoring should be required to assess short- and long-term effects of dewatering.
  - Options for habitat-based mitigation (e.g., wetland habitat restoration and protection) should be available based on the monitoring results.

- **Determinations**

  After a review of the species lists and critical habitat lists, a review of the biological requirements of the identified species, and a review of the project description, timing, and nature of the action, the Corps has determined that species and critical habitats will be spatially or temporally separated from this action. While the proposed action is likely to produce potential stressors, species and critical habitats are not likely to be exposed to those potential stressors because of the distance of the proposed action from the Snake River, the absence of species or specific life history stages of species from the vicinity of the proposed action, habitat conditions at the construction site, and the implementation of the environmental stipulations. The Corps has

determined that this action, as proposed, will have No Effect on all ESA listed species and their designated critical habitats. Table 11provides a summary of the Corps' ESA determinations. This information is discussed in more detail in Appendix G, *Federal Natural Resources Law Compliance and Biological Evaluation*.

Table 11. Determinations for the project area.

ESA		
Common Name	Species Determination	Critical Habitat Determination
USFWS		
Banbury Springs Limpet	No Effect	None Designated
Bliss Rapids Snail	No Effect	None Designated
Snake River Physa Snail	No Effect	None Designated
MSA		
No Adverse Effects		
FWCA		
Not Applicable		
MBTA		
No Take		
Bald and Golden Eagle Protection Act (BGEPA)		
Disturbance Unlikely to Occur		

6.1.3 Cultural Resources

Preferred Alternative: Under this alternative, 0.89 mile of the CCC constructed lava rock channel through Gooding would be completely removed and replaced by tied-back precast concrete panel walls.

"Section 106 of the National Historic Preservation Act (NHPA) requires Federal Agencies to coordinate with the Advisory Council on Historic Preservation (ACHP) before taking any actions which might affect historic properties. A property is one that is listed, or determined eligible for listing, on the National Register of Historic Places (NRHP). Cultural properties determined eligible for the NRHP are given the same consideration as properties actually listed on the NRHP.

Under the Section 106 process, and as identified in 36 CFR Part 800, the Corps is required to mitigate for any adverse effect to a NRHP listed or eligible property. Because the project preferred alternative calls for the complete removal of 0.89 miles of the existing NRHP eligible CCC Gooding Canal, it is assessed as an adverse effect on the historic property. The Corps has initiated consultation with the Idaho SHPO on development of a Memorandum of Agreement (MOA) to address project impacts. Any requirement or stipulation agreed to in the MOA will be incorporated into the project and completed during the design and implementation phase.

6.2 Cumulative Effects

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances, since cumulative impacts result in the compounding of the effects of all actions over time. Thus the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource. Effects should be considered for more than the footprint of the construction. Analysis may include regional changes.

The current Gooding Canal that runs through the city was constructed between 1937 and 1941. During construction, there was considerable realignment and straightening of the river channel. Since completion of the construction of the canal wall there has been very little activity in the channel, with the exception of routine maintenance and flood fighting activities. Some maintenance work to repair and patch sections of the wall has occurred over time, and approximately 120’ of the wall was replaced with concrete in the 1990s. The proposed work would be limited to the constructed channel and adjacent and nearby roads, bridges and existing staging areas. None of the listed environmental resources would be impacted at a significant level by the proposed project. No recently known past, current and/or foreseeable future actions beyond the present study were identified which would result in cumulative impacts at a significant level. Future operations and maintenance work within the channel would be consistent with historical work, though, at a much reduced level.

Table 12. Summary of environmental effects of the action and No-Action plans.

Resources	No Action	Recommended Plan
Topography / Geology / Soils	There would be no change to current conditions. Continued deterioration of the Gooding Canal would result in erosion occurring in areas where the rock wall has collapsed.	Proposed work would have minimal impact on existing conditions given the limited amount of earthwork to be done. Most work would be done in previously disturbed areas.
Climate / Climate Change	No change to current conditions.	Proposed work would have minimal impact on existing conditions. The Council on Environmental Quality (CEQ) in draft NEPA guidance for documenting the effects of climate change and Greenhouse Gas (GHG) emissions uses 25,000 metric tons of CO_2-equivalent GHG emissions produced annually by a proposed action as a baseline indicator for doing quantitative and qualitative assessments. It is not anticipated that the total GHG emissions produced by project equipment for the limited time of construction would approach the 25,000 metric ton GHG emission threshold.
Air Quality	No change to current conditions.	The amount of machinery to be used and limited duration of the proposed work, when added to existing conditions, would add only a negligible amount of additional pollutants to current conditions. The Gooding area would still be in “attainment.”
Water Quality	No change to current conditions.	See discussion below
Noise	No change to current conditions.	Work would result in temporary impacts to noise levels caused by construction activities. However, in most cases smaller sized equipment will be used and work would be conducted within the designated city ordinance allowed time of 7:30 AM and 7:00 PM. Project work activity would result in only a minimal addition to the overall noise level in the city.
Agriculture / Prime and Unique Farmlands / Land Use	No change to current conditions.	Work will be confined to the existing river channel and will not impact land use.

Resources	No Action	Recommended Plan
Hydrology	Hydrologic conditions are likely to be very similar to current conditions. Climate change represents an unknown potential factor in changing the hydrologic regime of the basin, perhaps changing the timing or amount of annual precipitation. This may have an impact on regional flood risk, in terms of volumes or timing of high water flows. However, the local flood risk will continue, and perhaps worsen, based on the hydraulic conditions of the channel itself. Irrigation activities will continue in the region, removing water from the Gooding reach of the Little Wood River and redistributing it throughout the valley.	Localized flood risk is related to channel conditions and the capacity of the Gooding Canal. Conditions exist in the channel through Gooding that increase the risk for localized flooding. While not extensive like regional flooding, and likely caused by smaller flow events than a regional flood, localized floods are damaging to the city. There are several hundred structures within 1,000 feet of Gooding Canal, including a school, a retirement center, churches, businesses, city and county buildings, and numerous private residences. Because of the topography, localized flooding may cause a significant impact to residences, businesses, and infrastructure, even if at a smaller scale than a regional flood. The rehabilitation of the Gooding Canal can help reduce the localized flood risk.
River Hydraulics	River hydraulic conditions are likely to worsen as the wall continues to deteriorate without a full scale rehabilitation of the Gooding Canal.	The three primary factors affecting the channel capacity will all be addressed, which will improve the channel capacity and reduce localized flood risk. The effects of all of the factors may not be directly additive in terms of the total improvement, as other hydraulic factors will affect the river capacity (i.e., river bends, bed slope, check/irrigation structures downstream of the repaired reach, etc.). However, the overall effect will be very favorable for the city.
Vegetation	The future condition of vegetation in the study area will remain basically unchanged. The lack of riparian vegetation adjacent to the river as it runs through the city of Gooding will not change unless major changes are made to the canal and surrounding land use. Exotic species may begin growing in areas where the wall is deteriorating and exposing bare soils. The growth of this type of vegetation will be limited and will further cause deterioration to the wall through pressure caused by plant roots.	Project work will be confined primarily to the river channel and will have minimal impact on vegetation.
Biological / Endangered Species	Under this alternative, there would be no construction within the Gooding Canal and the de-watering of a 4-6 mile stretch of the Little Wood River would be avoided, along with any possible accompanying impacts. Improvements for wildlife in the study area are not likely to take place in the future due to the established urban development immediately surrounding the channel.	See discussion below

Resources	No Action	Recommended Plan
Aesthetics	The future aesthetics of the structure would continue to deteriorate as the wall deteriorates. It is unlikely that the NFS would be able to restore the wall to its original appearance and the current practice of patching the wall in deteriorated sections further detracts from the aesthetic appearance of the wall. As the wall continues to fail, more invasive vegetation will also begin growing in the canal.	Under this alternative, approximately 0 .89 miles of the Gooding Canal would be rehabilitated. This would involve demolishing and removing the current rock wall and replacing it with a new channel lining consisting of tied-back precast concrete panel walls. The new wall would have a different appearance (concrete) and lack the appeal of hand craftsmanship of the original wall. However, the new walls would require less maintenance and not contribute to the formation of ice jams, which are two major issues associated with the hand stacked rock walls.
Cultural Resources	The wall would continue to deteriorate and it is unlikely the NFS would have the financial resources to make needed repairs and maintain the structure at a sufficient level to minimize flooding risks. It is anticipated deterioration would continue over time, resulting in the continued loss of the masonry wall's historical significance.	See discussion below
Transportation	The city's current transportation structure is built on a grid system that functions efficiently. Future growth that would impact transportation patterns is not expected in the Gooding area. No alteration of existing bridges or bridge crossings is anticipated, due to the high cost to the NFS.	Existing bridge crossings would be modified or replaced with structures that span the width of the channel and help reduce the formation of ice jams. The number of bridge crossings under construction at any one time would be limited to avoid traffic congestion, delays, and prevent heavy traffic through residential areas. Limiting construction on bridge crossings to only one or two at the same time would minimize impacts to traffic and transportation for the duration of the project.
Recreation	No change to current trends.	Except during construction, recreational opportunities would remain unchanged. During construction, some opportunities may be temporarily difficult to access or may not be available for short periods of time.
Socioeconomics	No change to current trends.	None of the trends discussed in Section 3.2.15 are expected to change as a result of implementing the recommended plan. The proposed action would not have negative impacts (e.g., economically) on any minority or economically disadvantaged group or social class. The improvements would be of benefit to all Gooding residents, particularly those living adjacent to the channel.
Cumulative Effects	Continued deterioration of the wall, declining aesthetics, and continued localized flood risk.	See discussion below

CHAPTER 7 – COMPLIANCE WITH APPLICABLE LAWS, POLICIES, AND PLANS

7.1 Federal Requirements

This chapter describes pertinent laws and requirements and their applicability to the project.

7.1.1 The National Environmental Policy Act (NEPA)

The NEPA (42 USC 4321, 40 CFR 1500.1) applies to any action that requires permits, entitlement, or funding from a Federal agency; is jointly undertaken with a Federal agency; or is proposed on Federal land. The NEPA requires every Federal agency to disclose the environmental effects of its actions for public review purposes and for assisting the Federal agency in assessing alternatives to, and the consequences of, the proposed action. The NEPA requires an environmental document be prepared that considers, discloses, and discusses all major points of view on the environmental impacts of the recommended plan and alternatives.

This Report/EA was prepared, and is being circulated to agencies and the public for review and comment, pursuant to requirements of the NEPA. Full compliance with NEPA would be achieved when the Finding of No Significant Impact (FONSI), if one is determined appropriate, is signed.

7.1.2 The Endangered Species Act of 1973, as Amended (ESA)

The ESA of 1973 requires any Federal agency to consult with the USFWS and NOAA Fisheries before taking any action that may affect a listed species. If possible, the Federal agency must avoid an action that could adversely affect listed species. If the Federal action cannot avoid an adverse effect on listed species then the Federal agency must enter into formal Section 7 consultation with USFWS and/or NOAA Fisheries to identify appropriate measures to avoid, minimize, and compensate for the effect (USFWS, 1996).

The proposed project would have no effect on any ESA-listed species or designated critical habitat. No consultation is required.

7.1.3 The Fish and Wildlife Coordination Act (FWCA)

The FWCA was authorized on March 19, 1934, to authorize State and Federal agencies to work together to protect, rear, stock, and increase the populations of game and fur-bearing species. The Coordination Act was amended in 1946, adding the requirement to consult with the US Fish and Wildlife Service (USFWS) and State fish and wildlife agencies when a Federal project would affect a body of water. The consultation was to prevent the loss or damage to wildlife habitat and resources. The 1958 amendments recognized the importance of wildlife resources to the United States, and required

coordination with other water resource agencies for the purpose of protecting wildlife resources. The amendments expanded the types of water projects requiring consultation with USFWS.

The Corps coordinated with the USFWS and Idaho Fish and Game (IDFG). A verbal concurrence in support of IDFG recommendations was received from the USFWS (U.S. Fish and Wildlife Service, 2012). Documentation of the conversation is contained in Appendix G.

7.1.4 The National Historic Preservation Act (NHPA)

Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to consider the effects of their undertakings on historical and archeological resources. Under these requirements, the area of potential effect (APE) of the selected project shall be inventoried and evaluated to identify historical or archeological properties that may be listed or eligible for listing on the NRHP. If the project is determined to have an effect on such properties, the agency must consult with the SHPO, the ACHP, appropriate Indian Tribes, and other interested parties. The implementing regulation for Section 106 is 36 CFR Part 800 (revised 2001), *Protection of Historic Properties*, which requires Federal agencies to initiate Section 106 consultations with the SHPO.

Because the preferred alternative for the Gooding Flood Control Project calls for the removal of a portion of the existing NRHP- eligible Gooding Canal, the Corps has determined the proposed undertaking would have an “Adverse Effect” on a historic property. The Corps has initiated consultation with the Idaho SHPO and will enter into a MOA to address project impacts. While consultation is underway, the exact stipulations included in the MOA have not been finalized. However, the general scope has been developed enough to estimate mitigation costs and consultation would be completed and the MOA signed prior to signing the project FONSI. As the project impacts are limited to the historic Gooding canal and existing developed areas, which are not on tribal lands, and no concerns related to Tribal interests were identified during scoping or data collection activities, it was determined that properties of cultural or religious significance to an Indian Tribe would not be affected. Therefore, consultation has focused on the SHPO.

7.1.5 The Clean Water Act (CWA)

Federal and State laws regulate the physical, chemical, and biological characteristics of the Nation’s water systems. The CWA is the Federal law that establishes the baseline all other State and local water quality laws must meet. The objectives of the CWA are to regulate water pollution and water quality so the Nation’s waterways can be restored and maintained. These requirements are enforced by the EPA. The first goal identified in the CWA is to eliminate all pollution discharge into the Nation’s waterways. The second goal is to make all of the Nation’s waterways safe for all animal and human use. The CWA regulates oceans, lakes, rivers, and any other water systems, water or chemical discharges, and the action of any Federal agency. The CWA establishes

standards; enforces procedures; and develops regulatory programs, permits, grants, and procedures on other water quality-related issues. All State and local laws must meet the standards and regulations established by the CWA.

Section 404 of the CWA regulates the discharge of dredged or fill material into wetlands and waters of the United States. The Corps and EPA both have responsibilities in administering this program, and typically issue permits for regulated activities after notices have been posted and an opportunity to hold public hearings has been made available. Individual and general permits are issued for activities that may affect wetlands and waters of the United States. The general permit program, which includes NWPs, is for activities similar in nature or likely to cause only minimal environmental effects. Although the Corps does not issue its own Civil Works projects permits, Corps regulations state that the Corps does have to comply with the intent of the Regulatory permitting process, and must apply the guidelines and substantive requirements of Section 404 to its activities.

For the Gooding Flood Control Project, Section 404 permit and Section 401 water quality certification requirements can be met through the use of Nationwide Permit (NWP) 3 (maintenance of existing structures). The work proposed for removal and replacement of the channel walls and bridge/pedestrian crossings meets the terms and conditions identified in NWP 3 and the project complies with the guidelines set forth in the CWA, Section 404(b)(1). For Section 401 water quality certification, the Corps would need to meet conditions identified for NWP 3 by the State of Idaho.

7.1.6 The Clean Air Act (CAA)

The Federal CAA was enacted in 1969 to protect public health by regulating the amount of airborne pollutants. The act established primary and secondary standards (NAAQS) which all states are required to regulate and maintain. The NAAQS include the amount of pollutants allowed in the air based on the sensitivity level of the public. Primary pollution levels are pollution levels safe for sensitive receptors (i.e., children, the elderly, and persons with respiratory conditions). Secondary pollution levels are levels of pollutants safe for the general public.

The Federal CAA also delegated primary enforcement responsibilities to the states. In Idaho, IDEQ is the agency responsible for air quality regulation. The State must declare rules and regulations promoting the goals of the Federal CAA, and assist in attaining those goals. The State's rules and regulations must be at least as stringent as the mandated Federal requirements. In states where one or more of the criteria pollutants exceed the NAAQS, the state is required to prepare a State Implementation Plan to demonstrate how the state intends to meet the standards in a timely manner, as detailed in the Federal CAA. In Idaho, IDEQ develops and implements the State Implementation Plan.

In 1990, the Federal CAA was amended. New criteria were established for non-attainment classifications, emission control requirements, and compliance dates for

geographic areas in non-attainment for one or more pollutants. In addition, the amended act requires any Federally-funded project to comply with air quality standards and regulations established by State Implementation Plans.

The EPA developed the General Conformity Rule, which became effective on January 31, 1994, to implement Section 176c of the Federal CAA. The underlying principle of the General Conformity Rule is that Federal actions must not cause or contribute to any violation of a NAAQS. A conformity determination is required for each pollutant when the total direct and indirect emissions caused by a Federal action in a non-attainment area exceeds *de minimis* threshold levels listed in the General Conformity Rule (40 CFR 93.153).

The project area is in attainment. Given the nature and location of the proposed work, the project would have only temporary and minor effects on air quality due to the temporary operation of motorized vehicles and other construction equipment.

7.1.7 The Wild and Scenic Rivers Act

The purpose of the Wild and Scenic Rivers Act is to preserve and protect wild and scenic rivers and their immediate environments for the benefit of present and future generations. The Act protects the environmental values of free-flowing streams from degradation by impacting activities, including water resources projects. The United States Congress must approve any action affecting a river designated under this Act.

The project does not impact a designated wild and scenic river.

7.1.8 The Migratory Bird Treaty Act of 1918 (MBTA)

The MBTA formed an agreement between the United States, Canada, Japan, Mexico, and Russia to protect migratory birds. The MBTA establishes treaties, policies, and management approaches to protect migratory birds that migrate between participating countries. It regulates the trapping, capturing, killing, trade, transportation, or sales of migratory birds, their eggs, parts, and nests; and is regulated and enforced by the U.S. Department of Interior. Section 704 of the MBTA gives the Secretary of the Interior authority to determine management measures required to ensure that any action taken is compatible with the protection of migratory bird species, according to distribution and population in the U.S.

Based on the location and the work proposed, the proposed project would not affect migratory birds or conflict with the purposes of the MBTA.

7.1.9 The Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The U.S. Congress passed the MSA in 1976, giving NOAA Fisheries the authority to regulate fisheries within the United States.

Given the location and time of year work would be completed, the proposed project should not conflict with the purposes of the MSA.

7.1.10 Executive Order (EO) 11988, Floodplain Management

To comply with this EO, the Corps formulates projects that, to the extent possible, avoid or minimize adverse effects associated with use of the without-project floodplain, and avoids inducing development in the existing floodplain unless there is no practicable alternative.

The proposed action would not conflict with the purpose and goal of the EO.

7.1.11 Executive Order 11990, Wetlands

This EO directs the Corps, when implementing Civil Works projects, to provide leadership and take action to minimize the destruction, loss, or degradation of wetlands; and preserve and enhance the natural and beneficial values of wetlands.

The proposed project would not occur within a known wetland.

7.1.12 Executive Order 12898, Environmental Justice

Environmental analyses of proposed Federal actions must, according to EO 12898, address any disproportionately high adverse human health or environmental effects on minority or low-income communities. Federal agencies' responsibility under this order shall also apply equally to Native American programs. In addition, each Federal agency must ensure that public documents, notices, and hearings are readily accessible to the public.

The proposed action would not have negative impacts (e.g., economically) on any minority/or low-income communities. The improvements would benefit all Gooding residents, particularly those living adjacent to the channel.

7.1.13 Executive Order 11514, Protection and Enhancement of Environmental Quality

The President of the United States signed EO 11514 on March 1, 1970, with the purpose of protecting environmental quality and quality of the human environment. This EO requires Federal agencies to develop policies, programs, or measures that meet national environmental goals established by NEPA and other environmental laws. Federal agencies shall monitor, evaluate, and control activities to protect and enhance the quality of the environment. Agencies must consult with the appropriate Federal, state, and local agencies to develop and modify activities or measures to protect and enhance environmental quality.

The EO also requires Federal agencies to provide the public with information regarding any activity potentially affecting environmental quality and the quality of human life, and obtain public opinion on these activities. The project, program, or activity information provided to the public shall include potential alternatives, and encourage State and local agencies to provide the public with information on any activity that could affect environmental quality.

Preparation of this Report/EA, assessment of compliance with individual environmental laws and EOs, along with provisions for public review and comment on the proposed project undertaking, meets the intent of EO 11514.

CHAPTER 8 – COORDINATION, CONSULTATION, REVIEW, AND PUBLIC INVOLVEMENT

8.1 Public Involvement

To announce the start of the feasibility phase, a public notice was issued to local residents; Federal, State, and local agencies; and other interested parties. Recipients were invited to provide input to this study, including the scoping of problems and opportunities, planning objectives and constraints, possible alternatives for reconstructing the river channel in Gooding, and any other issues that should be addressed in the decision document. A public workshop was hosted by the NFS on September 23, 2010. Meeting participants were encouraged to provide input at this workshop. Comments received are documented and attached as Appendix H. The following is a summary of issues and concerns discussed at the meeting:

- Ensuring the channel has capacity to contain a 1-percent exceedance flood
- Widening or lengthening the bridges for unrestricted flow
- Sloping channel walls and removing the flood wall
- Potential work-in-kind to reduce NFS costs
- Reducing maintenance costs to free up more of the city budget
- Ice jams
- Flood insurance costs
- Recreational opportunities

8.2 Institutional Involvement

8.2.1 Study Team

The Gooding Canal study team consisted of both local and Federal members, and included representatives from the city of Gooding; Gooding County, Idaho; the Region IV Development Association (a not-for-profit corporation whose mission is to encourage development and economic diversification in rural south-central Idaho); and the Corps. Meetings were hosted by the NFS to facilitate communications between various groups. This involvement led to support for implementation of the recommended plan.

8.2.2 Agency Coordination

This study was coordinated with the USFWS, in accordance with the Fish and Wildlife Coordination Act, as well as with IDFG. Although no formal Coordination Act Report documentation indicating USFWS views on the recommended plan has been provided, any USFWS recommendations received during the public comment period will be given full consideration. The concerns and views expressed by USFWS and IDFG, to date, are summarized in a single statement: The project should be dewatered to minimize any potential fish kill. Documentation of the conversation is contained in Appendix G.

8.2.3 Local and Regional Interest

Reconstructing the Little Wood River wall through Gooding is of high concern to the local population. Regionally, the major interest or concerns revolve around irrigation supply and flood risk. The Little Wood River is an important source of irrigation water for the agriculturally-based region. The proposed project should not impact the current irrigation system or water rights holders. Although flood risk has been the source of many studies in the region, regional flood risk is outside the scope of this project.

8.2.4 Additional Required Coordination

Consultation with the Idaho SHPO is ongoing and a draft MOA to address project impacts has been developed. As consultation is ongoing, specific stipulations to be included in the final MOA have not been identified. Consultation will be completed, MOA conditions finalized, and the MOA signed prior to signing the project FONSI.

8.3 Public Views and Responses

A complete list of public comments and responses from the September 2010 review is contained in Appendix H. The pending public review comments and responses will be contained in the final document. The project objectives of the NFS, presented at the September 2010 public meeting include the following:

- Lower flood risk for the city and provide 100-year level protection.
- Improve water quality of the Little Wood River through Gooding.
- Increase recreational opportunities in and along the Gooding Canal.

8.4 Information Availability

This Report and integrated EA will be made available for a 15-day public review and comment period. It will be made available on the Walla Walla District website, *www.nww.usace.army.mil*. Meeting notes, upcoming meetings, and any other information or announcements regarding this study will also be available on the website.

CHAPTER 9 – LIST OF PREPARERS

PROJECT DELIVERY TEAM

Name	Discipline
Mark Mendenhall[1]	Project Manager/Planner
Ben Tice	Biologist
Brandon Hobbs	Hydrology & Hydraulics
Craig Newcomb James Witherington	Economics
Jon Lomeland	Structural Design
Michael Schaffer	Geotechnical
Nathan Pierson	Civil Design
Scott Hall	Archaeology
John Leier	Environmental Coordinator
Kurt Friederich	Cost Estimating
Nick Emigh	Cost Estimating
Diane Jordan	Real Estate

[1]Primary contact for the Review Plan.

AGENCY TECHNICAL REVIEW (ATR) TEAM

Name	Discipline
Karen Miller	ATR Lead
Chip Hall	Environmental
Ken Lamkin	Hydrology and
Terry Shilley	Civil Design
Phillip Jones	Economics
Mary Ann Rowe	Cost
Lynn Hoerner	Real Estate

CHAPTER 10 – REFERENCES

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CHAPTER 11 – RECOMMENDATIONS

I have considered the environmental, social, and economic effects; the engineering feasibility; and the comments from other Federal and State resource agencies, Tribes, local governments, and the Public contained in this Gooding Flood Control Project, Little Wood River, Gooding, Idaho, and Rehabilitation Letter Report. I propose the recommended plan be implemented as a Federal project, under the authority of Section 3057 of the Water Resources Development Act of 2007. The recommended plan presented in this report is in the overall public interest, technically sound, environmentally acceptable, economically feasible, and cost effective.

I have reviewed the anticipated benefits from implementation of the least-cost alternative plan to rehabilitate the Gooding Canal for purposes of flood risk reduction; and have considered the operation and maintenance determination, plan formulation, impacts identified, and overall scope. In my judgment, this project, as proposed, justifies expenditure of Federal funds. The total estimated fully-funded cost of the recommended plan is $13,088,000. Of the total, the Federal portion remaining is $12,888,000 and the non-Federal portion has already been provided to develop this decision document. This estimated total project cost includes construction of the project features, planning and engineering design, and construction management. It is the responsibility of the non-Federal sponsor to provide all of the LERRDs necessary for construction, as well as OMRR&R upon completion and turnover of the project.

The recommendations contained herein reflect the information available at this time, as well as current Corps policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of the national Civil Works construction program nor the perspective of higher review levels within the Executive Branch.

DAMON DELAROSA
Lieutenant Colonel, EN
Commanding

Gooding Flood Control Project

Little Wood River, Gooding, Idaho

Appendix A, The WRDA 2007 Implementation Guidance

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET NW
WASHINGTON, D.C. 20314-1000

03 JUN 2010

CECW-NWD

MEMORANDUM FOR COMMANDER, Northwestern Division (CENWD-PDD)

SUBJECT: Implementation Guidance for Section 3057 of the Water Resources Development Act of 2007 (WRDA 2007) – Little Wood River, Gooding, Idaho

1. Section 3057 of WRDA 2007 directs the Secretary to rehabilitate the Gooding Channel project for the purposes of flood control and ecosystem restoration if the Secretary determines that such rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest and that the rehabilitation and ecosystem restoration is feasible. The Secretary is directed to plan, design, and construct the project at a total cost of $9,000,000. In addition, Section 3057 provides that the costs for reconstruction of the project under this authority shall be shared by the Secretary and the non-Federal interest in the same percentages as the costs of construction of the original project were shared and that economic justification is not required. A copy of Section 3057 is enclosed for your information.

2. Using funds appropriated in the Energy and Water Development and Related Agencies Appropriations Act, 2010 (Public Law 111-85), the Walla Walla District shall prepare a Project Management Plan (PMP) to define the scope of the evaluation needed to determine that the project is feasible, and to execute a Feasibility Cost-Sharing Agreement (FCSA) for preparation of a feasibility report to determine whether the rehabilitation is required as a result of improper operation and maintenance of the project by the non-Federal interest, and whether the rehabilitation and ecosystem restoration is feasible. Up to $100,000 may be expended at full Federal expense for development of the PMP and execution of the FCSA. No FCSA is required if the feasibility phase can be completed for $100,000 or less. Any feasibility costs in excess of $100,000 will be cost shared with the non-Federal sponsor at 50 percent Federal and 50 percent non-Federal expense. Existing information should be used to the maximum extent possible during the preparation of the feasibility study. If the rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest, and if the rehabilitation is feasible, the decision document will then identify Federal interest, investigate alternatives, recommend the most cost effective solution, and include the appropriate environmental compliance and NEPA documentation. Economic justification of reconstruction efforts carried out under this provision is not required.

CECW-NWD
SUBJECT: Implementation Guidance for Section 3057 of the Water Resources Development Act of 2007 (WRDA 2007) – Little Wood River, Gooding, Idaho

The feasibility report must be submitted to HQUSACE through the NWD RIT for review and approval in accordance with Appendix H of ER 1105-2-100.

3. At such time that the feasibility report is approved and funds are appropriated, the design and construction phase will be conducted under the provisions of a Project Partnership Agreement (PPA) and will be cost-shared in the same percentage as the construction of the original project. As in the original project, the costs of lands, easements, rights-of-way, relocations, and disposal areas, and operation, maintenance, repair, and rehabilitation of a project carried out under this section shall be a non-Federal responsibility. The NWD RIT will coordinate the necessary HQ level review and submit the PPA to the ASA(CW) for approval.

FOR THE COMMANDER:

Theodore A. Brown

Encl

THEODORE A. BROWN, P.E.
Chief, Planning and Policy Division
Directorate of Civil Works

SEC. 3057. LITTLE WOOD RIVER, GOODING, IDAHO.

(a) IN GENERAL.—The project for flood control, Gooding, Idaho, constructed under the emergency conservation work program established under the Act of March 31, 1933 (16 U.S.C. 585 et seq.), is modified—

(1) to direct the Secretary to rehabilitate the Gooding Channel project for the purposes of flood control and ecosystem restoration if the Secretary determines that such rehabilitation is not required as a result of improper operation and maintenance of the project by the non-Federal interest and that the rehabilitation and ecosystem restoration is feasible; and

(2) to direct the Secretary to plan, design, and construct the project at a total cost of $9,000,000.

(b) COST SHARING.—

(1) IN GENERAL.—Costs for reconstruction of a project under this section shall be shared by the Secretary and the non-Federal interest in the same percentages as the costs of construction of the original project were shared.

(2) OPERATION, MAINTENANCE, AND REPAIR COSTS.—The costs of operation, maintenance, repair, and rehabilitation of a project carried out under this section shall be a non-Federal responsibility.

(c) ECONOMIC JUSTIFICATION.—Reconstruction efforts and activities carried out under this section shall not require economic justification.

ENCL

Gooding Flood Control Project
Little Wood River, Gooding, Idaho

Appendix B, Section 905(b) Analysis

EXPEDITED RECONNAISSANCE STUDY

Section 905(b) (WRDA 86)

Little Wood River, Gooding, Idaho

CENWW-PM-PD (19 July 2000)

1. STUDY AUTHORITY.

   a. This study is authorized by Section 416, Water Resources Development Act of 1999 which reads.

      "The Secretary shall conduct a study to determine the feasibility of restoring and repairing the Lava Rock Little Wood River Containment System to prevent flooding in the city of Gooding, Idaho."

   b. The study received $100,000 in fiscal year 2000 to conduct the reconnaissance phase.

2. STUDY PURPOSE.

   The purpose of the Reconnaissance Study is to determine whether there is a Federal interest in restoring and replacing the Lava Rock Little Wood River Containment System. The reconnaissance phase also includes developing a Project Study Plan (PSP) and executing a Feasibility Cost Sharing Agreement (FCSA) that is supported by both the Federal and non-Federal interests. The primary areas of concern to be addressed in the study are coordination with the local sponsor and development of a scope of work and project funding.

3. LOCATION OF PROJECT/CONGRESSIONAL DISTRICT.

   a. The study area is located on the Little Wood River in the city of Gooding, Idaho. A project area map is included (see Figure 1 and Figure 4).

   b. The study area is located in Congressional District 2:

      Senator Craig
      Senator Crapo
      Congressman Simpson

4. DISCUSSION OF PRIOR STUDIES, REPORTS AND EXISTING WATER PROJECTS.

   A Planning, Design and Analysis (PDA) study was initiated in March 1998 to determine a feasible alternative to repair a section of channel lining to avoid damage to a school, bridge and street in the immediate vicinity during the next major flood event.

A Project Cooperation Agreement (PCA) was in the process of being signed so that construction could commence in October 1998. However, the Idaho State Historic Preservation Officer (SHPO) noted that the existing project had significant historic implications. Work to construct the lava rock wall was funded by the Works Project Administration (WPA) and constructed by the Civil Conservation Corps (CCC) between 1937 and 1941. The work stopped at the outbreak of World War II. SHPO required that the repair work be completed in a manner that would match the existing wall.

The project was redesigned in the spring of 1999 and the PCA was signed and construction was to commence in October 1999. However, contractors were too busy and unable to submit bids. Therefore, the contract was not awarded.

The city of Gooding was informed of the Water Resources Development Act of 1999, Section 416 and requested that the current PCA be postponed until further notice. The purpose of this postponement is to view the outcome of the Reconnaissance Study.

5. PLAN FORMULATION.

a. Identified Problems:

The existing lava rock wall has failed in several locations (see Figure 2) along its length of approximately 1 mile in the city of Gooding. The lava rock wall provides armoring to the streambank to prevent erosion. Roads, bridges, schools and buildings can be damaged by localized flooding and streambank erosion in the locations where the lava rock wall has failed.

Fish and wildlife habitat conditions through the proposed project site are severely degraded as a result of major modification of the stream. This has lead to severe degradation of riparian and instream biota. All alternatives will be designed to protect existing habitat or mitigate for its removal. Methods to enhance habitat will also be explored.

b. Alternative Plans:

1) Alternative 1 – Without Project.

2) Alternative 2 – Remove existing lava rock wall and replace with a concrete wall that has a textured surface that would resemble the existing lava rock wall.

3) Alternative 3 – Remove existing lava rock wall and replace with a concrete wall that has a lava rock façade.

4) Alternative 4 – Remove existing lava rock wall and replace with a new lava rock wall.

5) Alternative 5 - Restore the existing walls upstream of Oregon Street and remove then replace the existing walls downstream of Oregon Street with concrete walls.

c. Evaluation of Alternatives:

Of the many alternative combinations that could be developed in the feasibility study, the study team selected a primary alternative to serve as the basis for discussion of a reconnaissance plan and identify Federal interest in pursuing further studies. In coordination with non-Federal sponsors and for the purpose of this analysis, the primary alternative was identified as Alternative 5 (see Figure 3). Based on the limited evaluations to date, it appears that Alternative 5 would be technically feasible, compliant with environmental laws/regulations and could be justified for implementation.

6. FEDERAL INTEREST.

In accordance with Chapter 3 of ER 1105-2-100, the Federal interest as per Section 1 of the Flood Control Act of 1936 declared flood control to be a proper Federal activity since improvements for flood control purposes are in the interest of the general welfare of the public. The estimated average annual benefits which can be attained through cumulative time savings is $893,654. This was calculated based on information collected for assessed property values and infrastructure replacement in the study area. The estimated first cost is $7,063,000 with an average annual cost over a 50-year period of $493,000. This yields a benefit-to-cost ratio of 1.8.

In conclusion, it is considered highly likely that the identification of an economically feasible, environmentally acceptable project will result from feasibility investigations.

7. PRELIMINARY FINANCIAL ANALYSIS.

The City of Gooding has been identified as the local sponsor for the study. The sponsor is aware that it will be responsible for 50% of the costs for the feasibility phase studies. The sponsor is also aware that it will be responsible for 35% of the implementation costs for the flood control project. The sponsor has been provided information of proposed changes to Section 14 of WRDA 2000 that would increase responsibility to 50%. The sponsor is presently preparing its funding package for the feasibility study. A letter of intent from the City of Gooding is attached.

8. SUMMARY OF FEASIBILITY STUDY ASSUMPTIONS.

There is sufficient Federal interest to warrant a Project Study Plan (PSP). This plan would provide a wall that will prevent future flood related damage.

Alternatives will be designed to protect existing habitat or mitigate for its removal. Methods to enhance habitat will also be explored however few, if any, opportunities exist for wetlands restoration. Existing in-stream water uses and the level of water quality will be maintained as specified by established Idaho Water Quality Standards.

The lava rock wall was documented as a historically significant structure and that documentation is on file with Idaho SHPO.

9. FEASIBILITY PHASE MILESTONES.

The following table presents a preliminary schedule of major milestones that would be associated with the feasibility phase study.

Milestone Schedule

Milestone	Approximate Date
Execute Feasibility Cost Sharing Agreement	December 2000
Initiate Feasibility Phase Study	January 2001
Prepare A/E Scope of Work	January 2001
Negotiate with A/E	February 2001
Engineering Appendix	
Surveys and Mapping	March 2001
Hydrology and Hydraulic Studies/Report	May 2001
Geotechnical Studies Report	March 2001
Site Development Analysis/Report	April 2001
Structural Designs Studies Report	April 2001
Engineering and Design Analysis Report	June 2001
Socioeconomic Studies/Report	
Economic Analysis Report	April 2001
Social Studies Report	March 2001
Ability to Pay Report	April 2001
Financial Analysis Report	April 2001
Real Estate Analysis / Documents	July 2001
Environmental Studies / Report	
Environmental Assessment Package	July 2001
Mailing List	February 2001
Ensure Design and Construction Methods	March 2001
EA and FONSI	July 2001
Fish and Wildlife Coordination Act Report	June 2001
HTRW Studies / Report	March 2001
Cultural Resource Report	June 2001
Cost Estimates	July 2001
Public Involvement Documents	July 2001
Plan Formulation and Evaluation Report	March 2001
Draft Report Documentation	February 2002
Final Report Documentation	April 2002
Washington Level Report Approval	October 2002
Management Documents	September 2002
Project Management Plan	September 2002
Programs and Project Management Documents	September 2002

10. FEASIBILITY PHASE COST ESTIMATE.

A preliminary cost estimate to perform the feasibility phase study is $739,600 and the duration is expected to be approximately 20 months. These estimates will be refined in the PSP.

Milestone	Cost
50% FEDERAL SHARE	
Prepare A/E Scope of Work	$7,650
Negotiate with A/E	$2,250
Engineering Appendix	$88,100
Socioeconomic Studies/Report	$26,300
Real Estate Analysis / Documents	$15,000
Environmental Studies / Report	$35,800
Fish and Wildlife Coordination Act Report	$6,650
HTRW Studies / Report	$8,500
Cultural Resource Report	$2,500
Cost Estimates	$3,600
Public Involvement Documents	$2,850
Plan Formulation and Evaluation Report	$16,650
Draft Report Documentation	$34,200
Final Report Documentation	$1,650
Washington Level Report Approval	$16,000
Management Documents	$22,950
Project Management Plan	$1,650
Programs and Project Management Documents	$33,100
Quality Control Plan	$10,800
Contingency (10%)	$33,600
TOTAL FEDERAL SHARE	$369,800
50% SPONSOR SHARE	
IN-KIND SERVICES	$15,000
Prepare A/E Scope of Work	$7,650
Negotiate with A/E	$2,250
Engineering Appendix	$88,100
Socioeconomic Studies/Report	$21,300
Real Estate Analysis / Documents	$5,000
Environmental Studies / Report	$35,800
Fish and Wildlife Coordination Act Report	$6,650
HTRW Studies / Report	$8,500
Cultural Resource Report	$2,500
Cost Estimates	$3,600
Public Involvement Documents	$2,850
Plan Formulation and Evaluation Report	$16,650
Draft Report Documentation	$34,200
Final Report Documentation	$1,650
Washington Level Report Approval	$16,000
Management Documents	$22,950
Project Management Plan	$1,650

Programs and Project Management Documents	$33,100
Quality Control Plan	$10,800
Contingency (10%)	$33,600
SPONSOR CASH FUNDS	$354,800
TOTAL SPONSOR SHARE	$369,800
TOTAL FEASIBILITY PHASE STUDY COST	$739,600

11. RECOMMENDATIONS.

The recommendation resulting from the reconnaissance level investigations is that the Walla Walla District proceed with the PSP and proceed with a cost-shared feasibility study with the City of Gooding as the local cost-sharing sponsor. A preliminary cost estimate to perform the feasibility study of the Little Wood River in Gooding Idaho is $739,600 and the duration is expected to be approximately 20 months. These estimates will be refined in the PSP.

12. POTENTIAL ISSUES EFFECTING INITIATION OF FEASIBILITY PHASE.

There are no potential issues that would affect the initiation of the feasibility phase.

13. VIEWS OF OTHER RESOURCE AGENCIES.

Several resource agencies attended a meeting and walk through of the proposed project. Everyone agrees the lava rock walls need to be replaced and in some areas repaired to protect the infrastructure in the City of Gooding. Resource agencies agree that measures to eliminate further degradation of habitat features and water quality be incorporated into project design. Where degradation can not be avoided, actions must be taken to mitigate for the loss.

The lava rock wall built by the CCC is eligible for listing in the National Register of Historic Places. The wall has been documented, photographically, and is on file with Idaho SHPO.

14. PROJECT AREA MAP.

See Figure 1 and Figure 4.

/S/

RICHARD P. WAGENAAR
LTC, EN
Commanding

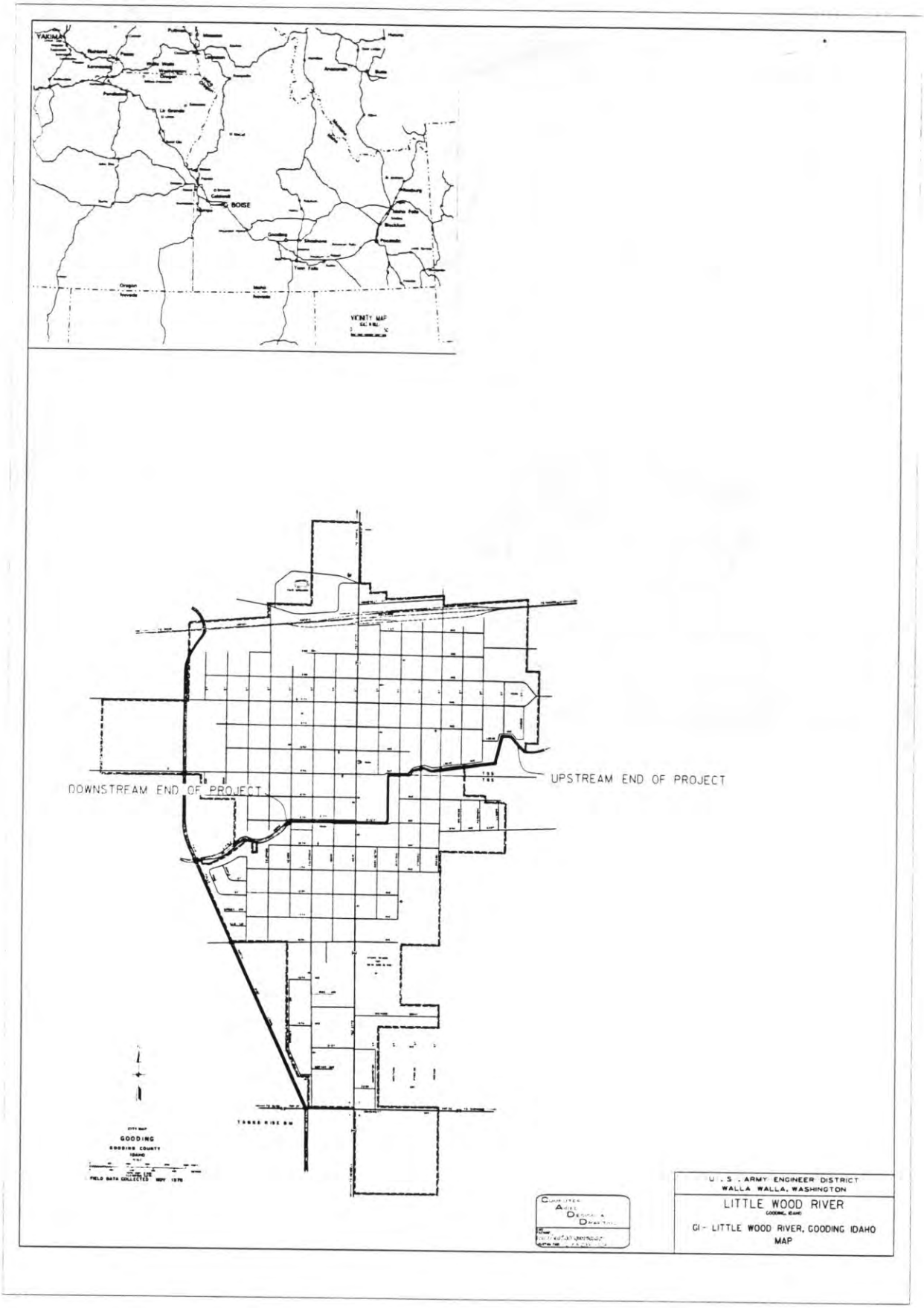


Figure 1 - Project Area Map

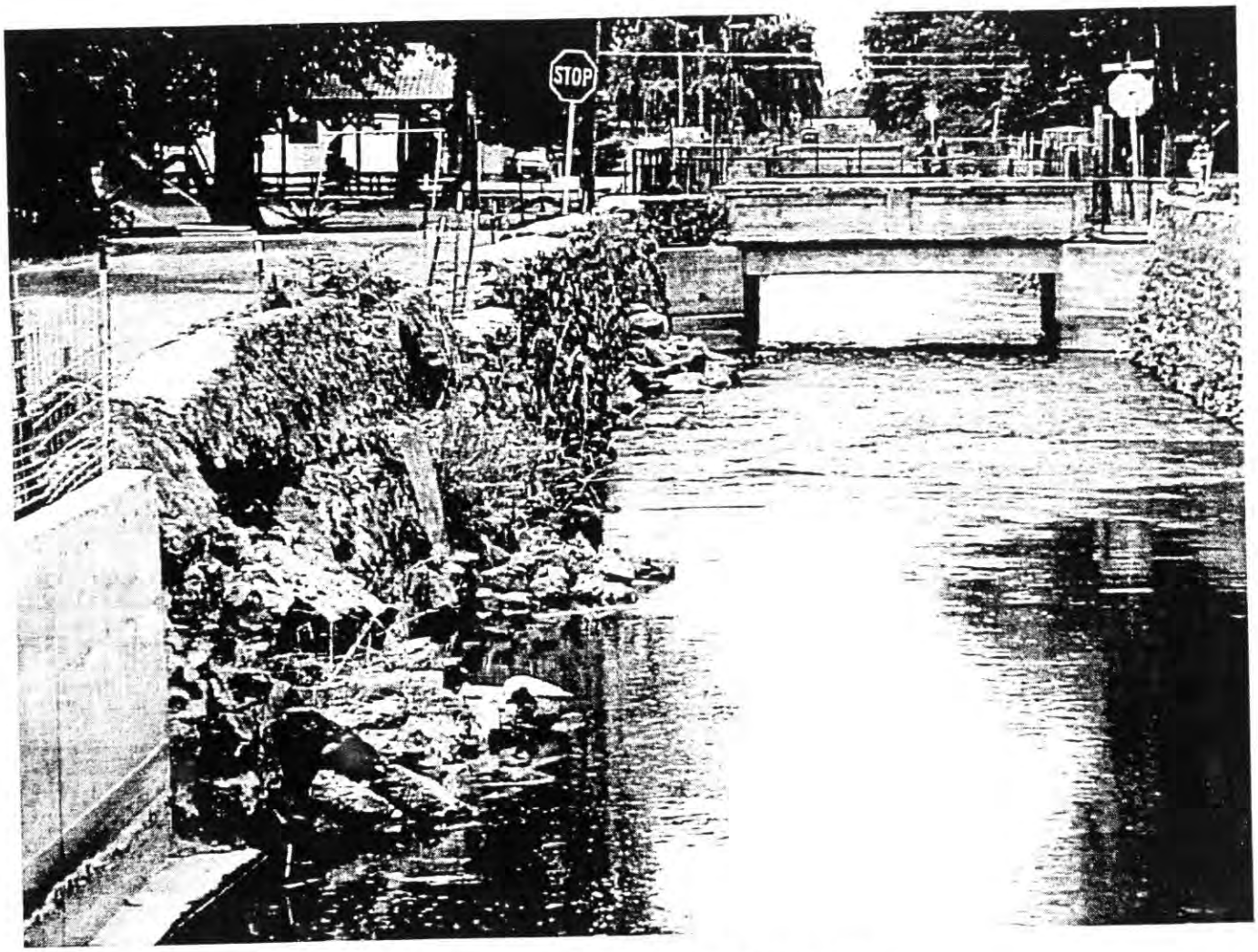


Figure 2 - Damaged section of wall between Main Street and Idaho Street.

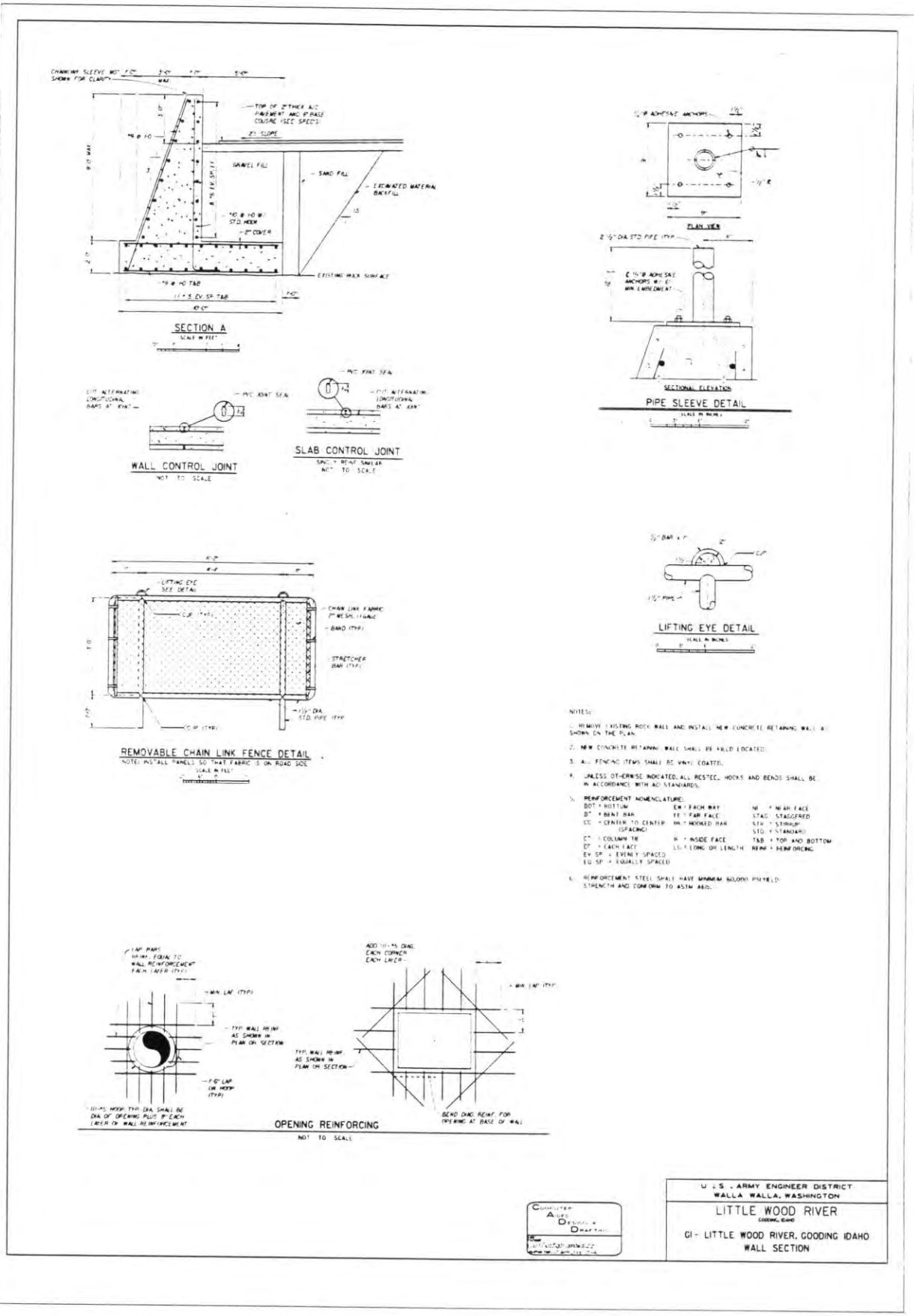


Figure 3 - Alternative 5 Wall Section

Figure 4 - Aerial Photo Showing Project Area

Gooding Flood Control Project

Little Wood River, Gooding, Idaho

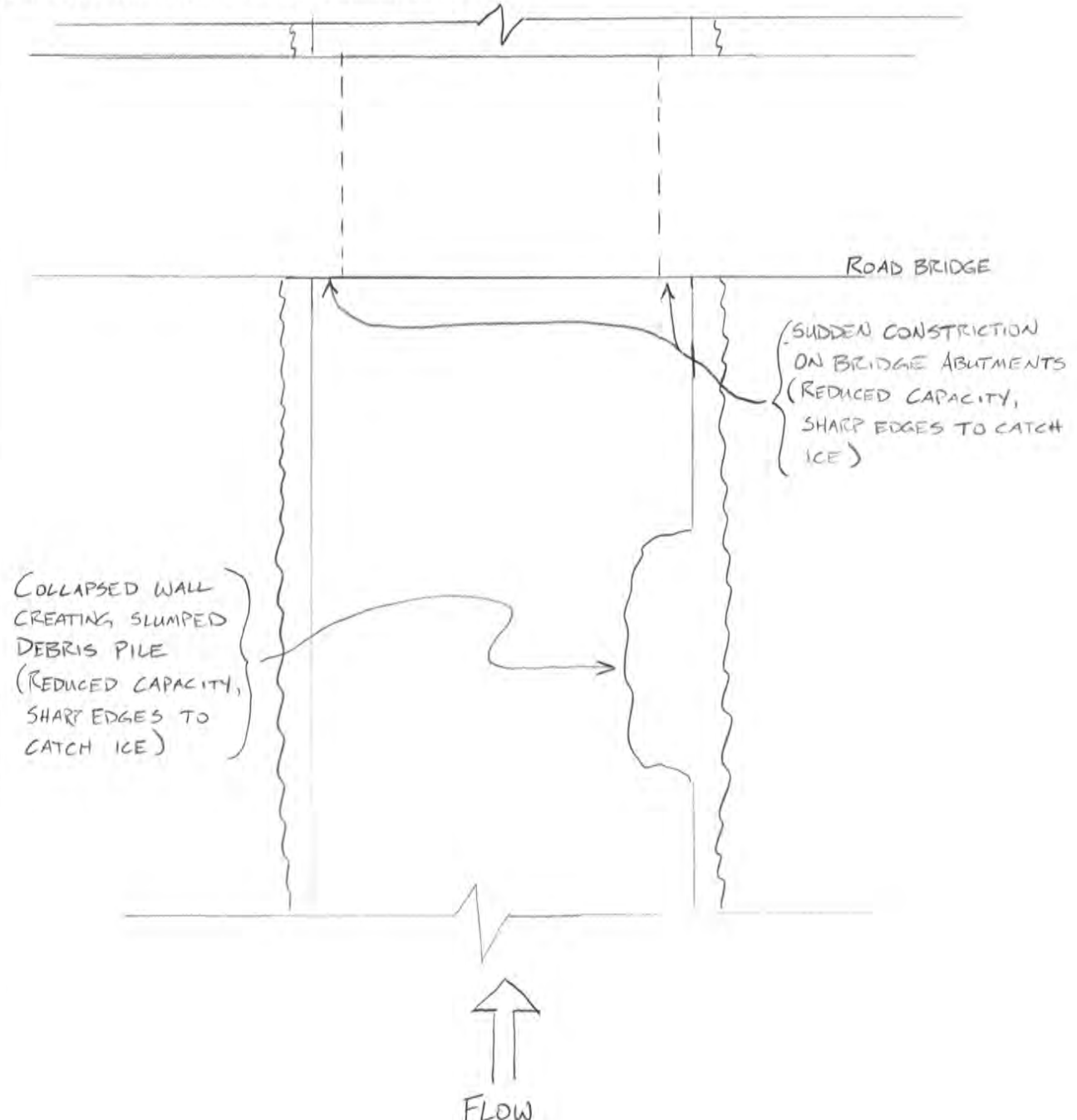
Appendix C, Hydrology and Hydraulics Calculations

BACKGROUND

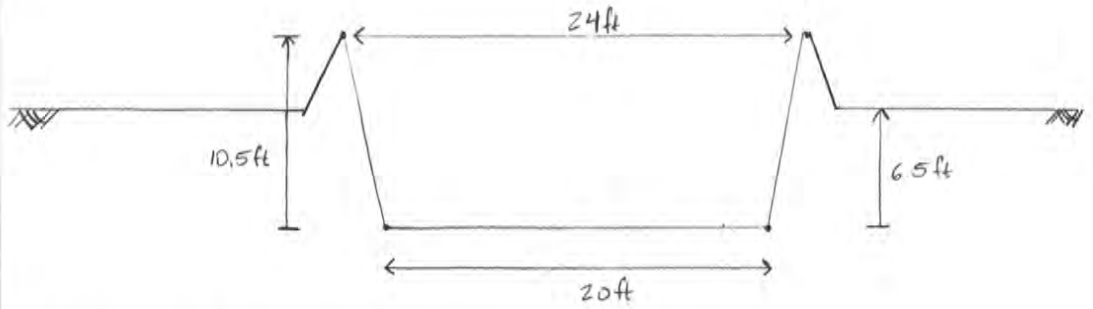
To support the feasibility study of the Little Wood River through Gooding, Idaho, some analysis of the current and future without project conditions will be required. Additionally, some examination of future with-project conditions is necessary. While this project may be able to provide the potential for large-scale flood risk reduction, most of the flood risk reduction provided will be very localized

Gooding has experienced localized flooding, especially in the winter due to ice jams. The deteriorating nature of the existing wall is causing it to fail in places, which places debris into the channel. This debris becomes a likely site for ice jams to form, and if big enough, may cause local flooding on its own during high flows. The current bridges cause constrictions, which also make them likely candidates for ice jams.

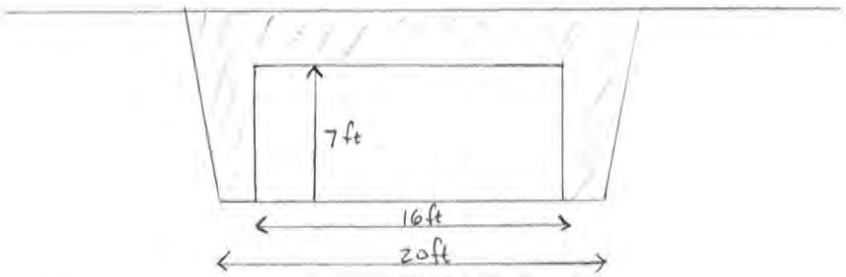
ICE JAM / LOCAL FLOODING POTENTIAL



TYPICAL CHANNEL CROSS SECTION



TYPICAL TWO-LANE BRIDGE CROSSING SECTION



MANNING'S EQUATION

$$Q = \frac{1.49}{n} A R^{2/3} S_o^{1/2}$$

Manning's Equation can be solved iteratively or through tables to determine the normal depth (y_n) expected from a particular flow, slope, and roughness. That will be the basis of this largely qualitative analysis.

ASSUMPTIONS

Some reasonable assumptions can be carried forward from the City of Gooding FIS (FEMA, 1985)

FIS states that the slope of the river in the study area is 6.7 ft of drop per mile:

$$S_o = \frac{6.7}{5280} = 0.0013$$

Inside the model, it seemed like the slope was more like 0.0025 in the built-up section through town

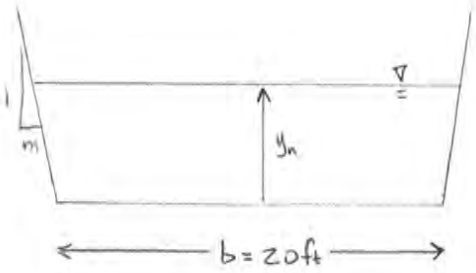
For flow, the 10 yr event will serve.

$$Q = 375 \text{ cfs}$$

Manning's n in the study was set at $n = 0.039$ in the channel. Chow(1959) gives us a range of $0.023 < n < 0.035$ for "dry rubble masonry" lining in a channel. For "gravel bottom with sides of dry rubble or riprap", Chow suggests $0.023 < n < 0.036$. The FIS value is above these ranges, perhaps better representing the actual degraded conditions.

CALCULATIONS

Comparison 1: Normal section without and with project conditions



WITHOUT PROJECT

$m = \frac{2}{10} = 0.2$

$n = 0.039$

Using Table B-1 from Lain (2001), Normal Depth in Trapezoidal Channels

$$\frac{nQ}{1.49(b^{8/3}S_o^{1/2})} = \frac{0.039(375)}{1.49(20)^{8/3}(0.0025)^{1/2}} = 0.0667$$

From Table ($m = 0.5$) $0.0667 \rightarrow y_n/b = 0.21$

$0.21(20) = y_n = 4.2\text{ft}$

With Project

$m = 0.2$

$n = 0.017$ (concrete)

$$\frac{nQ}{1.49(b^{8/3}S_o^{1/2})} = \frac{0.017(375)}{1.49(20)^{8/3}(0.0025)^{1/2}} = 0.0209$$

$0.0403 \rightarrow y_n/b = 0.10$

$0.10(20) = y_n = 2.0\text{ ft}$

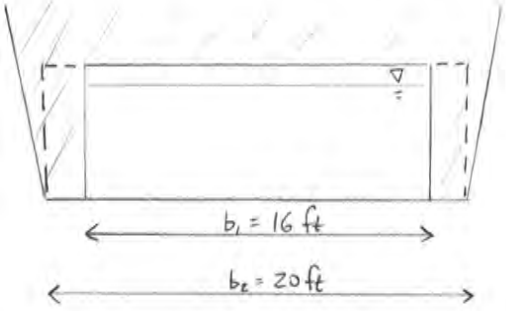
All other things being equal, a vast reduction of roughness in the channel will lower the normal depth of a given flow rate. This also means capacity should be increased. Working backwards through the table using the lower n value, what capacity would be available at $y_n = 4.2\text{ft}$?

$4.2\text{ft}/20\text{ft} = 0.21 \rightarrow 0.0667 = \frac{nQ}{1.49 b^{8/3} S_o^{1/2}}$

$$\frac{0.0667(1.49)(20)^{8/3}(0.0025)^{1/2}}{0.017} = Q = 860\text{ cfs}$$

Comparison 2: Bridge section without and with project conditions

There are some assumptions built into this comparisons. No attempt to examine backwater effects from current bridge crossings will be made. Only capacity at the bridge section will be examined.



Without Project

$m = 0$
$n = 0.020$ (older concrete)

Using Table B-1 from Jain (2001), Normal Depth in Trapezoidal Channels

$$\frac{nQ}{1.49\, b^{8/3} S_o^{1/2}} = \frac{0.020(375)}{1.49(16)^{8/3}(0.0025)^{1/2}} = 0.0619$$

$(m = 0)$ $\quad 0.0619 \rightarrow y_n/b_1 = 0.21$

$$0.21(16) = y_n = 3.36 \text{ ft}$$

With Project

$m = 0$
$n = 0.017$

$$\frac{nQ}{1.49\, b^{8/3} S_o^{1/2}} = \frac{(0.017)(375)}{1.49(20)^{8/3}(0.0025)^{1/2}} = 0.029$$

$(m = 0)$ $\quad 0.029 \rightarrow y_n/b_2 = 0.13$

$$0.13(20) = y_n = 2.6 \text{ ft}$$

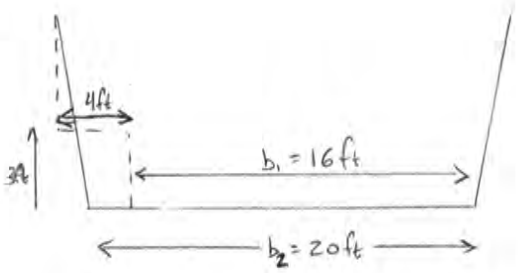
What capacity might a new bridge section have? $y_n = 3.36$ ft

$$y_n/b_2 = 3.36/20 = 0.168 \rightarrow 0.043 = \frac{nQ}{1.49\, b_2^{8/3} S_o^{1/2}}$$

$$\frac{0.043(1.49)(20)^{8/3}(0.0025)^{1/2}}{0.017} = Q = 555 \text{ cfs}$$

Comparison 3: Slumped/failed wall section without and with project

An assumption is made here about a general shape and size of a slumped/failed wall. No attempt to identify any 3D hydraulic effects of the failed wall is made. Only capacity of the section is examined.



Without Project

$n = 0.039$

Simplifying assumption: Assume both sides are vertical ($m = 0$). Up to $y = 4$ ft, $b = 16$ ft. Using Table B-1 from Jain (2001).

$$\frac{nQ}{1.49 b^{8/3} S_0^{1/2}} = \frac{0.039(375)}{1.49(16^{8/3})(0.0025)^{1/2}} = 0.121$$

($m = 0$) $\quad 0.121 \rightarrow y_n/b_1 = 0.30$

$$0.30(16) = y_n = 4.8 \text{ ft}$$

This is an over-simplification; the real expected y_n will be less than 4.8ft for a section like this. However, compare this result to those on page 3. The slumped wall raises the expected y_n from 4.2 ft. The rebuilt section would drop the expected y_n to around 2.0 ft.

These are all very rough estimates, looking at individual elements of sections without and with project conditions. This exercise illustrates that significant improvements in conveyance capacity will occur with this project. It very likely won't be enough to reduce overall flood risk for the City of Gooding, but it is a significant step in the right direction. More importantly, removing the sudden constrictions at bridges and the slumping failed walls will greatly reduce the potential for ice jams to form. When combined with the capacity improvement from this project, the localized flood risks from ice jams and other snags will be meaningfully reduced.

Sources

Chow, V.T., 1959. Open Channel Hydraulics. McGraw Hill.

FEMA, 1985. Flood Insurance Study, City of Gooding, Idaho.

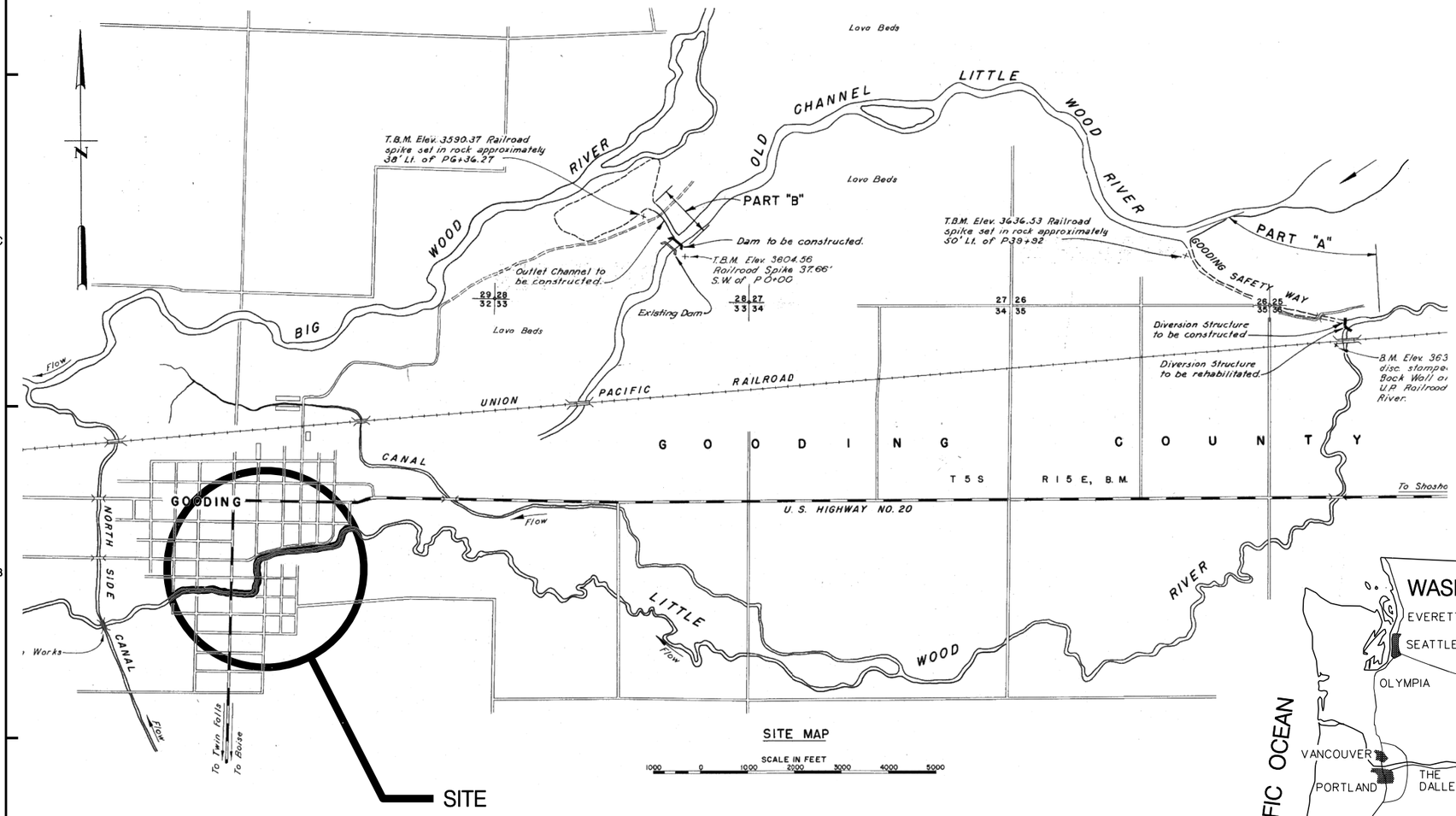
Jain, S.C., 2001. Open Channel Flow. John Wiley & Sons, Inc.

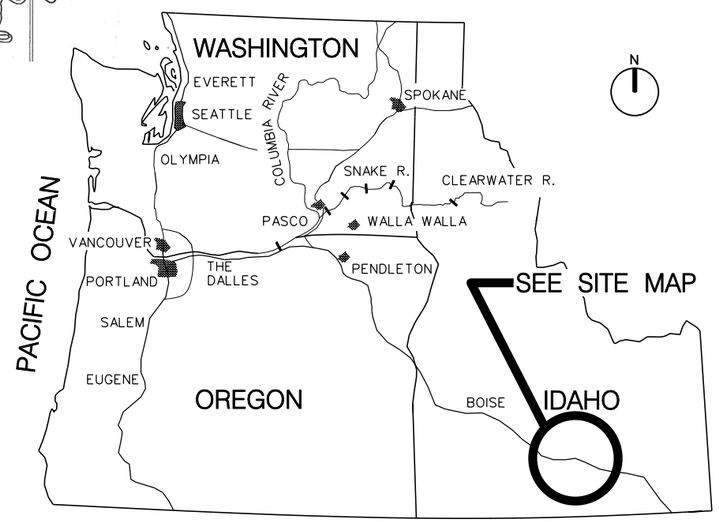
Gooding Flood Control Project
Little Wood River, Gooding, Idaho

Appendix D, Construction Drawings

GOODING FLOOD CONTROL RECONSTRUCTION PROJECT

US Army Corps
of Engineers ®
Walla Walla District





VICINITY MAP
NOT TO SCALE

Symbol	Description	Date	Appr.

This project was designed by the Walla Walla District of the U.S. Army Corps of Engineers. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment as required by ER 1110-1-8152.

Recommended by:
Chief, Design Branch _____ Date: _____
Approved by:
Chief, Eng. & Const. Div. _____ Date: _____

DESIGNED BY:		DATE:	
DWN BY:	CHKED BY:	SOLICITATION NO.	
SUBMITTED BY:		CONTRACT NO.	
FILE NO.:			

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
COVER SHEET AND LOCATION MAPS

Sheet number:
G–001

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INDEX TO DRAWINGS

SHEET NO.	FILE NUMBER	CADD FILE NAME	TITLE
GENERAL			
G-001	FN	GDR2G-001---.DGN	COVER SHEET AND LOCATION MAPS
G-002	FN	GDR2G-002---.DGN	INDEX TO DRAWINGS
C-101	FN	GDR2C-101---.DGN	CONCEPTUAL EXISTING CONDITIONS & METHOD A SECTION
C-102	FN	GDR2C-102---.DGN	METHOD B, C, D SECTION
C-103	FN	GDR2C-103---.DGN	DETAILS A, B, C
C-104	FN	GDR2C-104---.DGN	DETAILS D, E
C-305	FN	GDR2C-305---.DGN	CONCRETE BOX CULVERT STREET BRIDGE
C-306	FN	GDR2C-306---.DGN	PEDESTRIAN BRIDGE STEEL SUPERSTRUCTURE
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FOR INFORMATION ONLY

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US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr

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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT

INDEX TO DRAWINGS

Sheet number:
G–002

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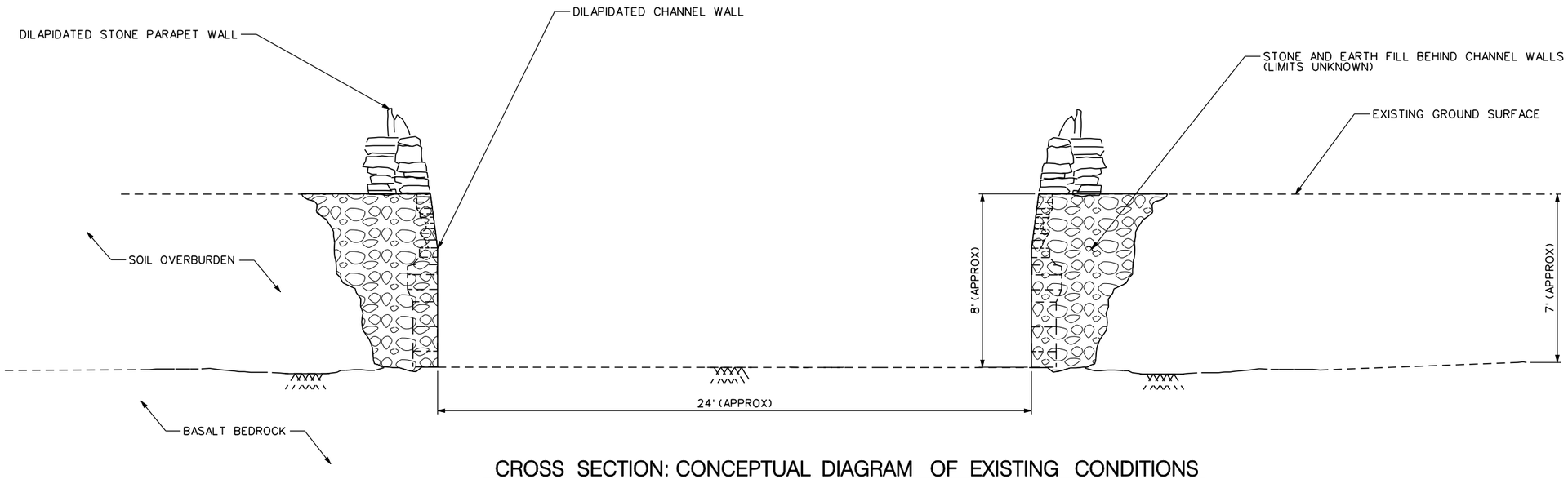

CROSS SECTION: CONCEPTUAL DIAGRAM OF EXISTING CONDITIONS

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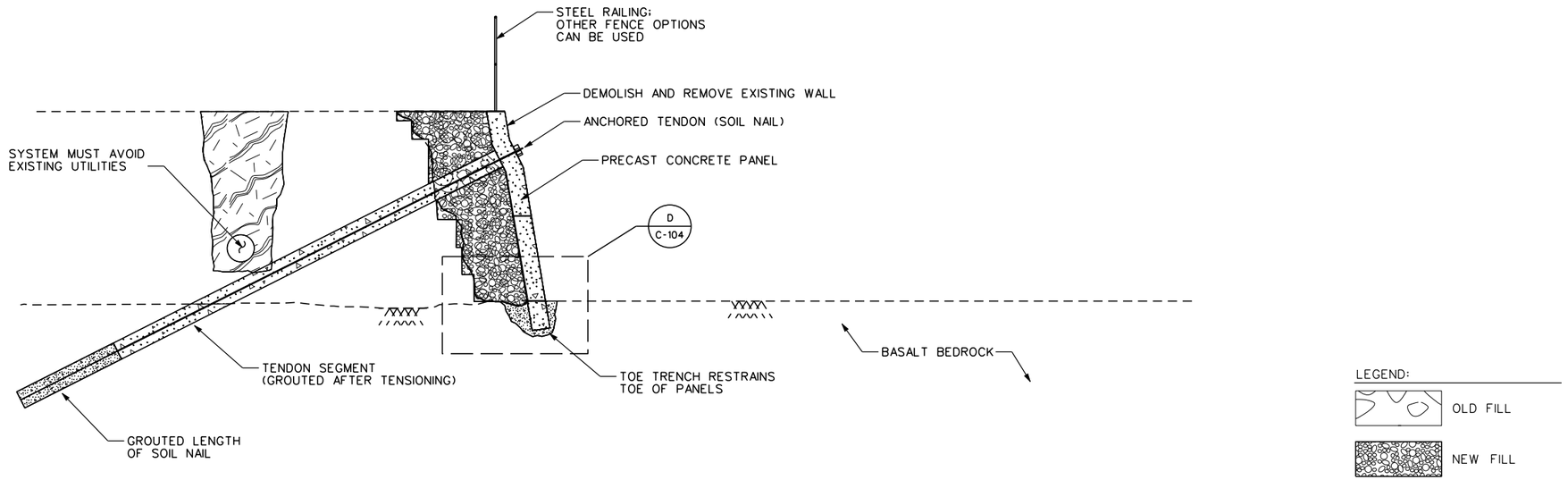

METHOD A SECTION: PRECAST CONCRETE PANEL AND SOIL NAIL

0" 2.5' 5'

LEGEND:

- OLD FILL
- NEW FILL
- CONCRETE

US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr.

Symbol	Description	Date	Appr.

DATE:
SOLICITATION NO.
CONTRACT NO.
DESIGNED BY: M.SCHAFFER
DRN. BY: J.BOND
CHKED BY:
SUBMITTED BY:
FILE NO.:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
CONCEPTUAL EXISTING CONDITIONS
AND METHOD A SECTION

Sheet number:
C–101

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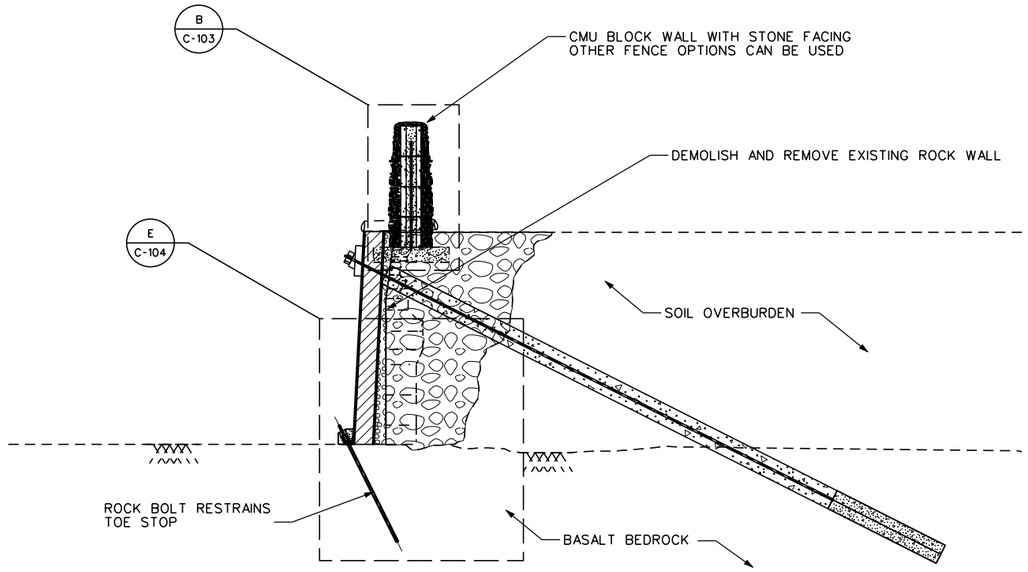

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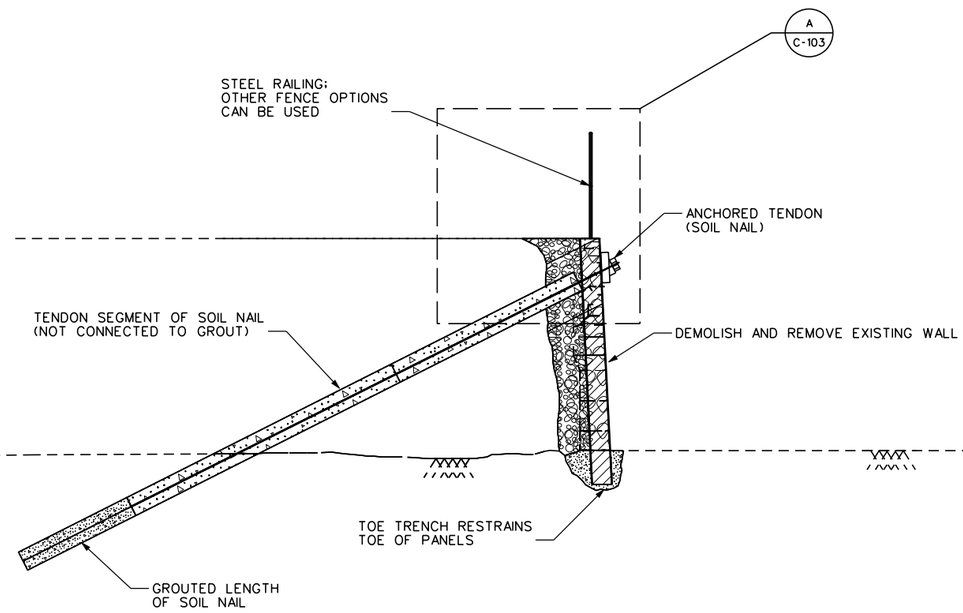

METHOD C SECTION: SHEETPILE WITH TOE EMBEDDED IN BEDROCK

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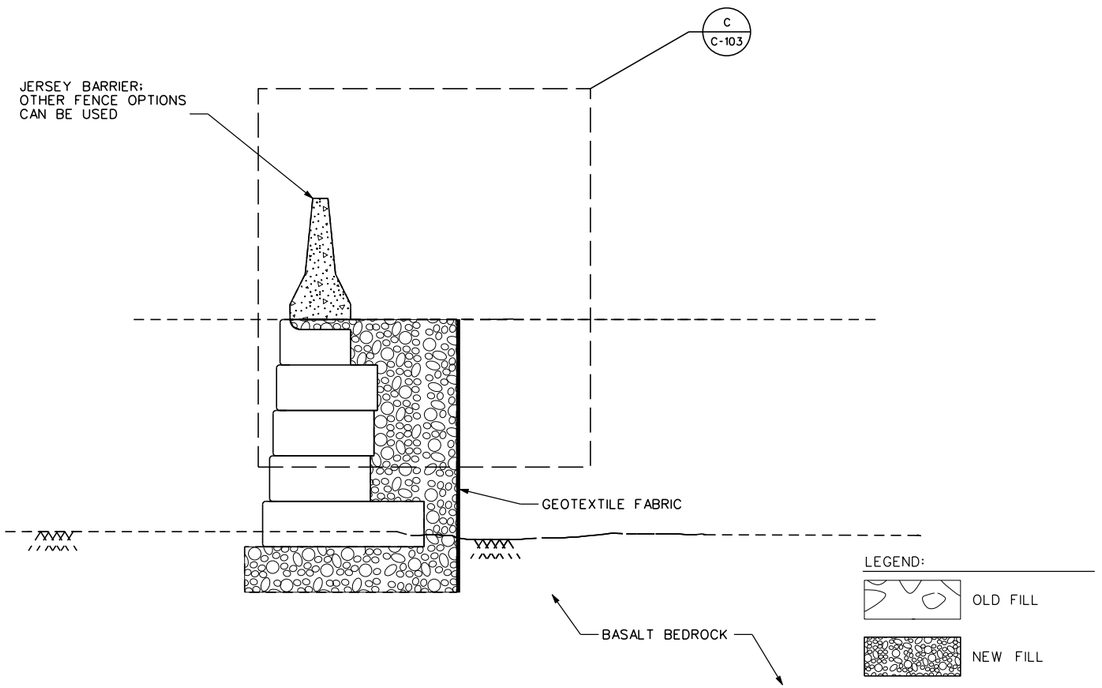

METHOD D SECTION: STACKED CONCRETE BLOCKS

0" 2.5' 5'

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Walla Walla District

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Symbol	Description	Date	Appr

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WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
METHOD B, C, D SECTION

Sheet number:
C–102

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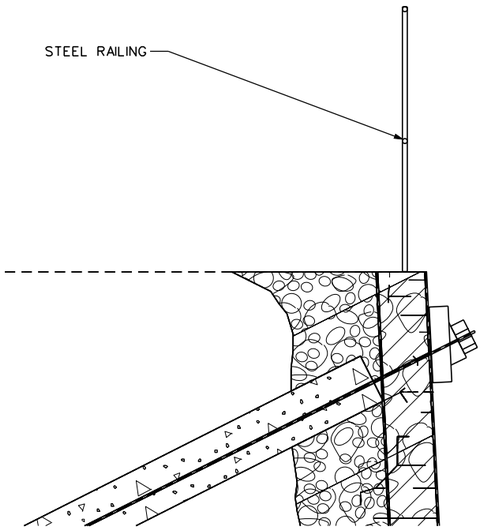

A C-102 DETAIL – STEEL RAILING
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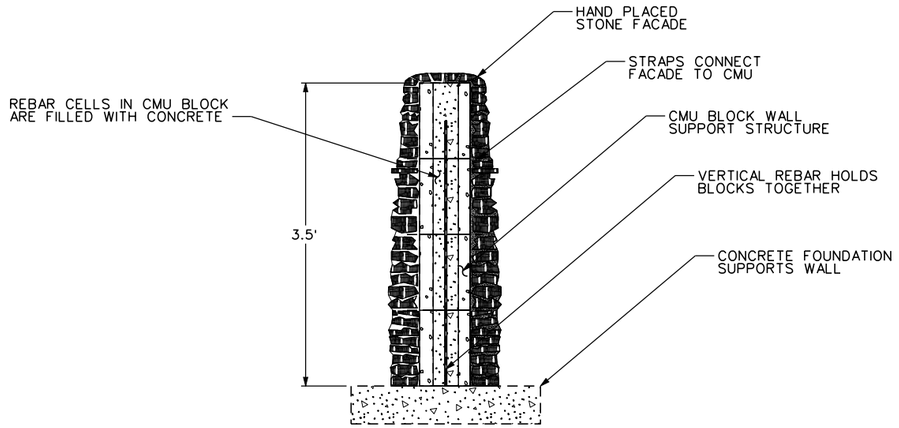

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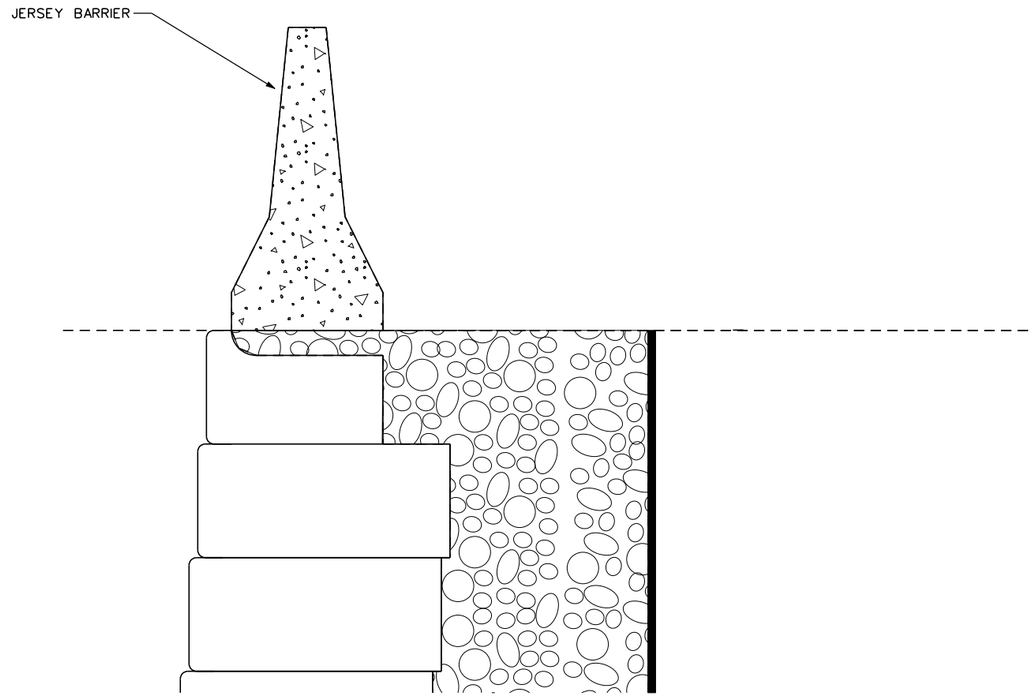

C C-102 DETAIL – JERSEY BARRIER
NOT TO SCALE

US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr

Symbol	Description	Date	Appr

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

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DATE:
SOLICITATION NO.
CONTRACT NO.
FILE NO.:

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
DETAILS A, B, C

Sheet number:
C–103

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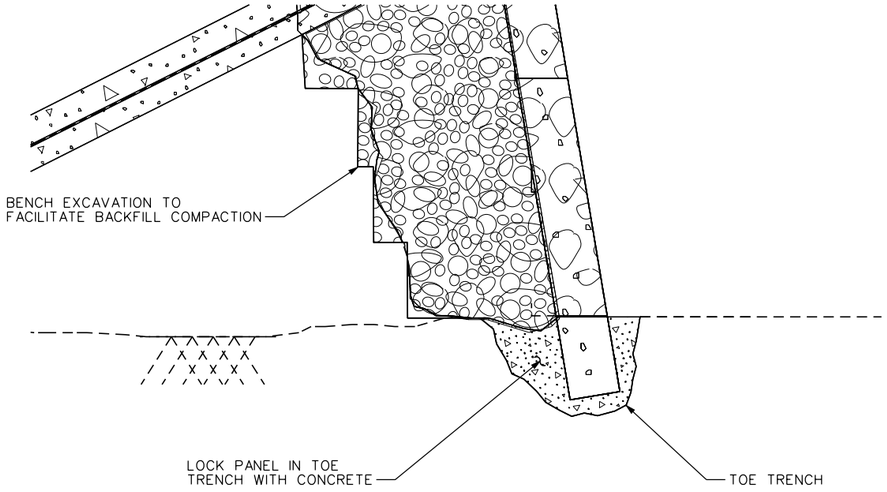
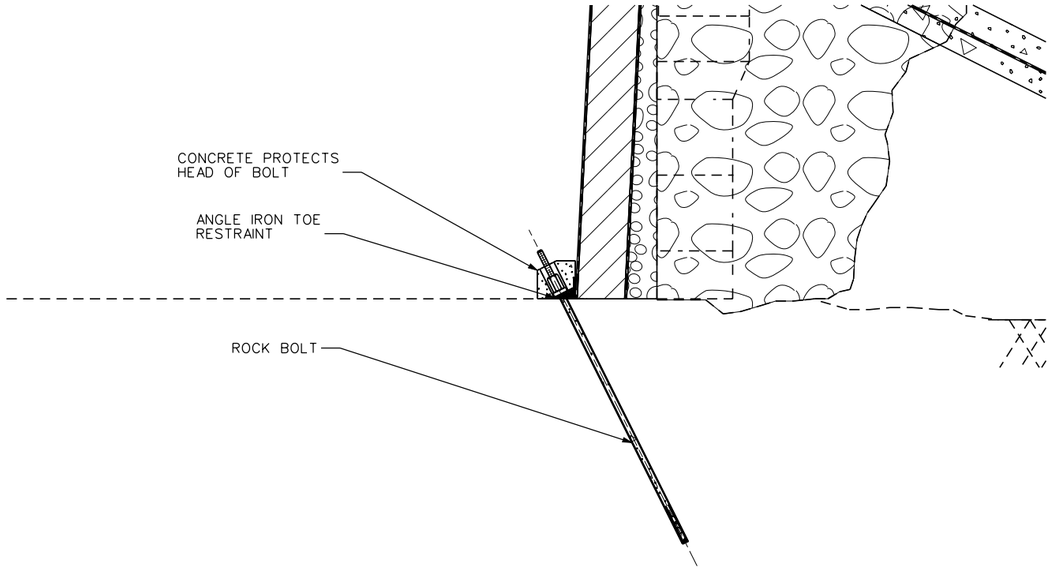


C-101 (D) DETAIL – TOE RESTRAINT FOR PANEL SYSTEM
CONCRETED TOE TRENCH NOT TO SCALE



C-102 (E) DETAIL – TOE RESTRAINT FOR PANEL SYSTEM
CONCRETE TOE STOP WITH ROCK BOLT NOT TO SCALE

US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr.

DESIGNED BY: M.SCHAFFER
DRAWN BY: J.BOND
CHKED BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.
CONTRACT NO.
FILE NO.:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
DETAILS D, E

Sheet number:
C–104

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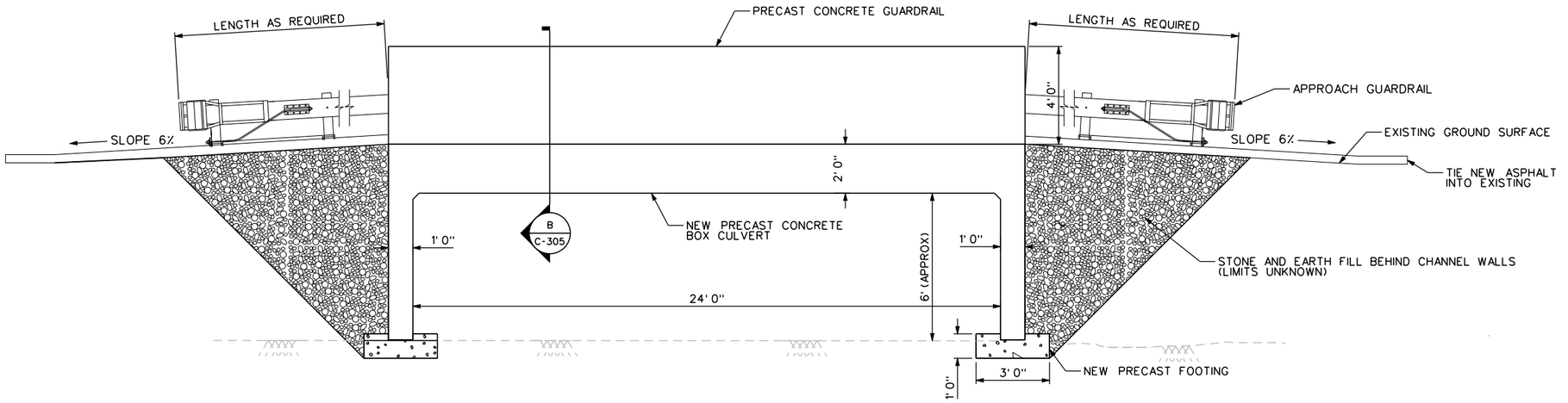
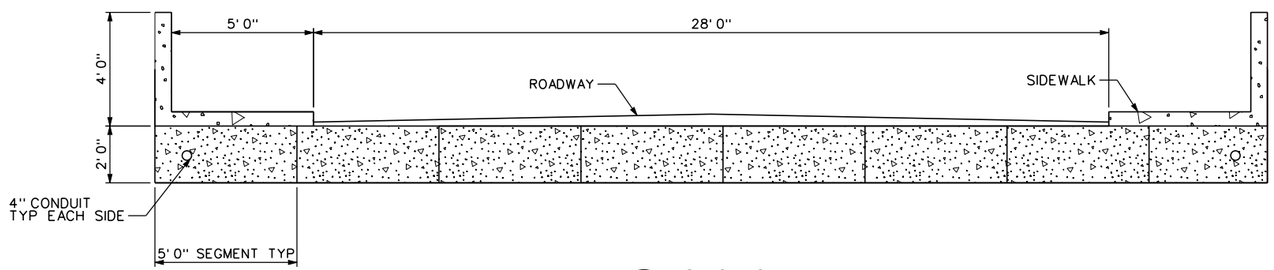


ELEVATION – CONCRETE BOX CULVERT STREET BRIDGE

0" 2" 4"



B SECTION

0" 2" 4"

LEGEND:

- NEW FILL
- PRECAST CONCRETE
- CIP CONCRETE

US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr.

DESIGNED BY: CHRISTENSEN
DRN BY: CHRISTENSEN
CHKED BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.
CONTRACT NO.
FILE NO.:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
CONCRETE BOX CULVERT
STREET BRIDGE

Sheet number:
C–305

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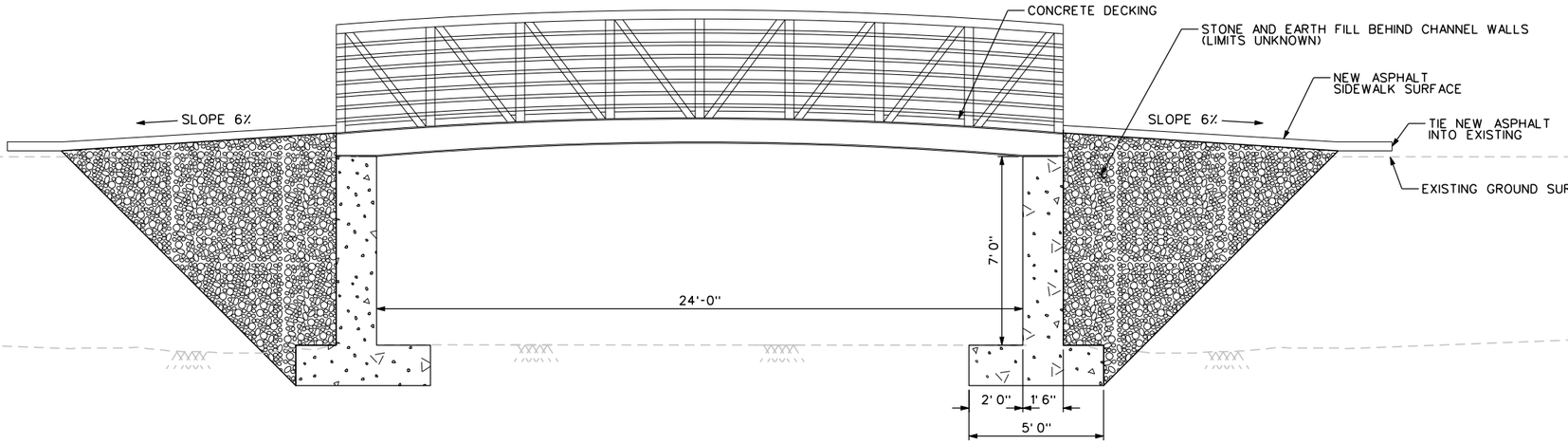

ELEVATION – DIAGRAM OF STEEL SUPERSTRUCTURE PEDESTRIAN BRIDGE

0' 2' 4'

LEGEND:

- NEW FILL
- PRECAST CONCRETE
- CIP CONCRETE

US Army Corps of Engineers
Walla Walla District

Symbol	Description	Date	Appr

Symbol	Description	Date	Appr

DESIGNED BY: CHRISTENSEN
DWN BY: CHRISTENSEN
CHKED BY:
SUBMITTED BY:
DATE:
SOLICITATION NO.
CONTRACT NO.
FILE NO.:

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
WALLA WALLA, WASHINGTON

GOODING FLOOD CONTROL
RECONSTRUCTION PROJECT
PEDESTRIAN BRIDGE
STEEL SUPERSTRUCTURE

Sheet number:
C–306

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Gooding Flood Control Project
Little Wood River, Gooding, Idaho

Appendix E, Real Estate Plan

US Army Corps of Engineers
Walla Walla District

REAL ESTATE PLAN
LITTLE WOOD RIVER GOODING CHANNEL REHABILITATION PROJECT

Gooding, Idaho

APPENDIX E

REAL ESTATE PLAN

Project Partners:
U.S. Army Corps of Engineers
City of Gooding, Idaho

May 17, 2012
October 18, 2012

Real Estate Division
Seattle District
U.S. Army Corps of Engineers

REAL ESTATE PLAN SECTION 3057 LITTLE WOOD RIVER
Gooding, Idaho

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- 1.3 Project Location

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- 2.2 Total LER required for each project purpose and feature
- 2.3 Estates to Be Acquired

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Attachments:

- Exhibit A: Project Real Estate Map
- Exhibit B: Assessment of NFS Real Estate Acquisition Capability (Waiting for NFS response)
- Exhibit C: Draft Certification of Lands and Authorization for Entry
- Exhibit D: Draft Attorney's Certificate
- Exhibit E: Risk Analysis for Outstanding Third Party Interests

REAL ESTATE PLAN SECTION 3057, WRDA 2007 LITTLE WOOD RIVER GOODING CHANNEL REHABILITATION PROJECT

Gooding, Idaho

1.0 Introduction

1.1 Real Estate Plan Purpose

This Real Estate Plan (REP) is presented in support of the Little Wood River Gooding Channel Rehabilitation Project. The project is authorized by Section 3057 of the Water Resources Development Act of 2007, which provides for flood control in Gooding, Idaho, constructed under the emergency conservation work program established under the Act of March 31, 1933 (16 U.S.C. 585 et seq.). The purpose of the REP is to identify the Lands, Easements, Rights-of-Way, Relocations and Disposal sites (LERRD) necessary to support construction, operation and maintenance of the proposed project and to assess the NFS capability for LERRD acquisition. The current authorization states that costs for reconstruction of the project shall be shared by the federal government and the Non-Federal Sponsor (NFS) in the same percentages as the costs of construction of the original project (channel). Feasibility planning is 100% federally funded for the first $100,000 and then will be cost-shared 50% Federal and 50% non-Federal from that point forward. Design and implementation for reconstruction of the project will be 100% federal funded. As in the original project, the costs of lands, easements, rights-of way, relocations, and disposal areas, and operation, maintenance, repair and rehabilitation are all the NFS' responsibility.

City of Gooding is the Non-Federal Sponsor (NFS).

There are no prior written real estate plans for this project.

1.2 General Project Background and Description

The underlying purpose of reconstruction along approximately 0.6 miles of the Little Wood River channel through Gooding, Idaho is to provide localized flood risk reduction. The initial floodwall, made of lava rock, was constructed between 1937 and 1941 to provide flood control and an irrigation source for the City of Gooding residents and was funded by the Works Projects Administration. Those lava rock walls are now in disrepair and in several sections have failed to a point that there is substantial erosion, flood, and public safety risk. Potential for erosion in areas where the wall has and is failing also puts public infrastructure including a school, at risk of damage. Lava rock that has fallen into the canal, undersized bridge culverts, and 90 degree right angles in the channel alignment are also factors that contribute to flood and safety risk in Gooding. The project also includes the replacement of five road bridges across the Little Wood River as well as three pedestrian bridges.

1.3 Project Location

Gooding is located in South Central Idaho, a few miles north of I-84. Boise is 98 miles to the west and Twin Falls is 33 miles to the east. Gooding is the county seat and largest city of Gooding County. Gooding is located near the confluence of the Big Wood River and Little Wood River, which merge to form the Malad River. The Little Wood River is a 90-mile long river that originates in the Pioneer Mountains of northern Blaine County, then flows south through Little Wood Reservoir near Carey. Below the reservoir the river flows south into Lincoln County, past Richfield, and then west, past Shoshone, after which it enters Gooding County. Just to the west of the city of Gooding, the Little Wood River joins the Big Wood River to form the Malad River, which is a tributary to the Snake River. The Little Wood River is the key source of irrigation water in the area. The river's water flow is regulated by reservoirs and affected by diversions of water into and return flows from irrigation canals.

The proposed project affects the Little Wood River as it flows through the center of Gooding, Idaho, beginning upstream at a diversion control structure and running 0.6 miles stretching from the east side of town at Oregon Street to the west end of town at Nevada Street.

2.0 Description of Lands, Easements, and Rights-of-Way (LER)

2.1 Description of Lands, Easements and Rights-of-Way (LER) required for the construction, operation and maintenance of the project

The proposed project footprint contains the channel and adjacent property. The Little Wood River will be rerouted away from the project site using existing irrigation canals south of Gooding. This will enable the entire project alignment to be dewatered at one time, allowing equipment access to the channel so that small construction equipment will drive and perform work in the channel. No LER will be necessary to divert or dewater the project area. The project calls for contractors to remove the existing lava rock walls, excavating behind these walls to a depth sufficient to place in new fill to ensure the proper anchoring of the pre-cast concrete segments. These segments will be secured by anchored tendons extending outwards from the channel into the properties of the surrounding landowners. These tendons will be placed approximately every 10’ for the length of the channel. The tendons may reach as many as 15 ft outwards from the edge of the river wall. The City of Gooding will need to acquire additional permanent property interests for this work to be accomplished. In addition, permanent access is required for the construction, operation and maintenance of the project. Temporary right-of-way will be necessary in those areas where bridge replacement must be performed, in addition to staging areas.

2.2 Total LER required for each project purpose and feature

A perpetual Channel Improvement Easement is necessary along the entire length of the channel to 15 feet outwards from the river wall, over its entire length on both sides of the channel for the wall repair and maintenance. Approximately 10 acres will be acquired as Channel Improvement Easement. In addition, this project will require a perpetual interest over approximately 1.6 acres within the river channel sufficient for operation and maintenance of the project features. The river channel below the ordinary high water mark is owned by the Idaho Department of Lands (IDL). It is approximately 3,200 ft long with an average width of

22 ft. The NFS has not yet contacted the IDL to discuss the process of acquiring suitable interest in the river channel to complete the project. A perpetual property interest sufficient for operation and maintenance of the project features will be required.

The bridge replacement portion of the project will require Temporary Work Area Easements on the affected parcels. The specifically affected parcels and exact square footage will be determined during the design phase. Temporary easements will also be required for staging. Staging will be located on NFS property adjacent to the channel at Gooding Lane between Michigan and Oregon Streets. Access to the channel is planned to be at NFS parcels at both ends of the project. The first is proposed to be at the NFS parcel on Gooding Lane, the second is an NFS parcel at Nevada and Senior Ave. Permanent road easement will be acquired on these two parcels, which consist of approximately 1.42 acres, because once construction is completed, permanent access to the channel is required to allow for ongoing maintenance. Disposal materials would be transported to the Gooding Industrial Park, which is about .75 miles from the project site. It is anticipated that no real estate interests will need to be acquired for disposal.

Table 1: Parcels affected by Channel Improvement Easement

PARCEL_ID	Address	OWNERNAME	PARCEL ACRES
South Side of Channel from West to East			
RPG1000113007A	302 Senior Ave	CITY OF GOODING	0.85
Road	California St	CITY OF GOODING	
RPG1000114009A	UNK	CITY OF GOODING	0.53
Road	Idaho St	CITY OF GOODING	
Road	9TH AVE W	CITY OF GOODING	
Road	Main St	CITY OF GOODING	
Road	9TH AVE W E	CITY OF GOODING	
Road	9TH AVE W NE	CITY OF GOODING	
RPG1000137023B	230 9TH AVE E	WOKERSIEN GREGORY T & DEBBY	0.1085
RPG1000137019A	819 MONTANA ST 821	MEYERS ROBERT J & KATHI L	0.155
RPG1000137016A	813 MONTANA ST	GARCIA JOSE R & OLIVIA M	0.186
RPG1000137013B	805 MONTANA ST	PICKENS WILLIAM BOYD JR & HEIDI	0.2632
RPG1000134022B	745 MONTANA ST	ADAMS HORACE LYLE & BETTY M	0.3099
RPG1000134019A	729 MONTANA ST	FARMER RICHARD E	0.186
RPG1000134017A	719 MONTANA ST	SHIRK SUSAN E	0.124
RPG1000134015A	713 MONTANA ST	SHIRK SUSAN E	0.124
RPG1000134013A	703 MONTANA	CLARK BRIAN	0.124

Road	Montana St	CITY OF GOODING	
RPG1000133011A	706 MONTANA ST	RODRIGUEZ ALBERTO & SILVIA	0.14
RPG100000B000C	701 WYOMING ST	HARKINS ROBERT W & DOROTHY F	0.2354
Road	Wyoming	CITY OF GOODING	
RPG100000B000B	642 WYOMING ST	RIDER JEFFREY A	0.2445
RPG100000B000A	625 OREGON ST	SHORT RICHARD E TRUST	0.2255
Road	Oregon	CITY OF GOODING	
North Side of Channel from West to East			
RPG1000111024A	9TH AVE W	CITY OF GOODING	0.03
Road	Main St	CITY OF GOODING	
RPG1000136T06A		FOOTHILL SHADOWS LLC	0.8742
RPG1000136T005		GORDO INVESTMENTS LP	2.0838
RPG1000134T03A		COUNTY OF GOODING	1.1763
RPG1000134T02A		COUNTY OF GOODING	1.6851
Road	7th Ave E	CITY OF GOODING	
Road	Locke 1	CITY OF GOODING	
Road	Locke 2	CITY OF GOODING	
Road	Locke 3	CITY OF GOODING	

Table 2: Temporary Work Areas, the Perpetual River Channel Interest, and the Perpetual Road Easements

PARCEL_ID	Address	OWNERNAME	PARCEL ACRES
Temporary Work Areas			
Nevada St Bridge			
RPG1000112013A	921 NEVADA ST	ENRIQUEZ EVON & FELIPE	0.24
RPG1000113007A	302 SENIOR AVE	CITY OF GOODING	0.85
RPG1000111024A	9TH AVE W	CITY OF GOODING	0.03
RPG1000111021B	406 9TH AVE W	PAVKOV JOHN SCOTT	0.18
RPG1000110001A	IDAHO ST	CITY OF GOODING	0.57

Idaho St Bridge			
RPG1000114009A	UNK	CITY OF GOODING	0.53
RPG1000115007A	906 IDAHO ST	HOCKLANDER NEAL	0.42
RPG1000109001A	IDAHO ST	CITY OF GOODING	0.57
RPG1000108001A	846 IDAHO ST	STEIN CHARLES M & SALLIE A	0.28
Montana St Bridge			
RPG1000134013A	703 MONTANA ST	CLARK BRIAN	0.12
RPG1000133011A	706 MONTANA ST	RODRIGUEZ ALBERTO & SILVIA	0.14
RPG1000003001A		CITY OF GOODING	0.05
RPG1000003021A	637 MONTANA ST	LODER JULIE ANN	0.22
RPG1000002001A	646 MONTANA ST	WARTLUFT BETTY L	0.14
Wyoming St Bridge			
RPG100000B000C	701 WYOMING ST	HARKINS ROBERT W & DOROTHY F	0.24
RPG100000B000B	642 WYOMING ST	RIDER JEFFREY A	0.24
RPG1000002018A	LOCKE AVE	CITY OF GOODING	0.02
RPG1000002017A	377 LOCKE AVE	SQUIRES GERALDINE R	0.20
RPG10000010070	622 WYOMING ST	CREWS MARGRET ROSE	0.17
Oregon St Bridge			
RPG100000B000A	625 OREGON ST	SHORT RICHARD E TRUST	0.23
RPG00000326974	642 OREGON ST	HARDMAN DON & RON/	0.63
RPG1000001017A	621 OREGON ST	CUSTOM CELLULAR INC	0.20
RPG1000085001A	570 OREGON ST	SILVEY SAMUEL A & EDITH E	0.26
Perpetual River Channel Interest		IDAHO DEPARTMENT OF LANDS	1.6
Channel Access and Staging			
RPG1000084001A	GOODING LN	CITY OF GOODING	0.57
RPG1000113007A	302 SENIOR AVE	CITY OF GOODING	0.85
Perpetual Road Easement			
RPG1000084001A	GOODING LN	CITY OF GOODING	0.57
RPG1000113007A	302 SENIOR AVE	CITY OF GOODING	0.85

Assumptions

The Channel Improvement Easement depth required from the edge of the river wall outwards will be 15 feet along the entire length of the project on both sides of the channel.

There are no existing Easements for river wall maintenance or access.

The construction footprint required for the bridge replacements has not been identified so all properties bordering the affected bridges were included

An attorney examination of title or preliminary compensability opinion was not performed during the feasibility phase. An examination of title and compensable interests will have to be conducted during the design and implementation phase to determine exact ownership and property boundaries and compensation for potential bridge replacements.

2.3 Estates To Be Acquired

The required estates for implementation of the proposed project alternative include the following:

Channel Improvement Easement

A perpetual and assignable right and easement to construct, operate, and maintain channel improvement works on, over and across the land described in Exhibit A for the purposes as authorized by Section 3057 of the Water Resources Development Act of 2007, including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush, buildings, improvements and/or other obstructions therefrom; to excavate: dredge, cut away, and remove any or all of said land and to place thereon dredge or spoil material; and for such other purposes as may be required in connection with said work of improvement; reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements far public roads and highways, public utilities, railroads and pipelines.

Temporary Work Area Easement

A temporary easement and right-of-way in, on, over and across the land depicted in Exhibit A for a period not to exceed one (1) year, beginning with date possession of the land is granted to the United States, for use by the United States, its representatives, agents, and contractors as a work area, including the right to deposit fill material thereon, move, store and remove equipment and supplies, and erect and remove temporary structures on the land, and to perform any other work necessary and incident to the construction of the Little Wood River Gooding Channel Rehabilitation Project, together with the right to trim, cut, fell and remove there-from all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Perpetual Road Easement

A perpetual exclusive easement and right-of-way in, on, over and across the land described in Exhibit A for the location, construction, operation, maintenance, alteration replacement of roads and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Exhibit A subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

3.0 LER Owned By The Non-Federal Sponsor

Sponsor-owned lands that lie within the project area generally associated with existing public works; i.e. roads, etc. and are delineated in Tables 1 and 2. Sponsored owned lands are planned on being used for the channel access sites and temporary staging areas at either end of the channel.

Necessary real estate interests will not be purchased with funds from another Federal program or project. It is unknown whether the existing right of way and bridges owned by the Non Federal Sponsor were acquired as a requirement of, or with the use of funds from another Federal program or project.

4.0 Non-Standard Estates

No non-standard estates are required for this project.

5.0 Existing Federal Projects Within the LERRD Required for the Project

There are no existing federal projects within the LERRD for the project.

6.0 Federally Owned Land Required For the Project

No federally owned land is required for the project.

7.0 Navigational Servitude

Per 33 CFR § 329.4, navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water-body, and is not extinguished by later actions or events which impede or destroy navigable capacity. None of the water-bodies involved in this Project fall within the definition of federal navigable waters cited above. However, the Little Wood River is navigable water as defined by the State of Idaho Department of Lands, and is subject to its jurisdiction below the ordinary high water mark.

8.0 Maps

Three project maps are included as Exhibit A. The first map depicts road and pedestrian bridges that will be impacted by the project. The second map illustrates where land parcels are located in relation to the project area. Finally, the third map outlines the project area.

9.0 Induced Flooding

There are no specific areas with this project subject to increased inundation.

10.0 Baseline Cost Estimate for Lands, Easements, Rights-of-Way and Relocations

The development of the Baseline Cost Estimate assumes that the NFS will acquire the full interests (i.e. Channel Improvement Easement, Temporary Work Area, and Perpetual Road Easement) required for the project.

USACE Seattle District Real Estate Division (RE), on October 5, 2012, prepared an estimate of LERRD value using quoted assessed values for the baseline cost estimate for LERRD necessary for the Little Wood River Section 3057 project. Due to a lack of funding neither a Gross Appraisal nor a Cost Estimate was completed. For valuation purposes, the analysis was based on an estimated assessed fee simple value which was then used to determine values for Channel Improvement Easements and Perpetual Road Easements.

A Gross Appraisal will be performed during the design and implementation phase to determine LERRD values. Values in the Baseline Cost Estimate are based solely on assessed land values and do not represent fair market value of required property interests.

Table 3: Baseline Cost Estimate for Lands, Easements, Rights-of-way, Relocations, and Disposal (LERRD)

Estate	Acres	Lands & Damages	NFS Admin	Fed Admin	Total LER
Channel Improvement Easements (Private)	0.78	122,995	110,000		
Channel Improvement Easements (City or County Owned)	1.44	281,726	20,000		
2 Perpetual Road Easements	0.17	49,148	10,000		
25 Temporary Work Area Easements for 12 month term	1.22	9,515	25,000		
Department of Lands	2.33	5,000	15,000		
NFS LER cost subtotal	5.94	468,384	180,000		648,384
10% contingency					64,838
NFS Lands & Damages Total					**$713,222**
Federal Review & Assistance cost				60,000	
15% contingency					9,000
Federal Review & Assistance Total					**69,000**
NFS and Federal LER Cost TOTAL					$782,222

11.0 Relocation Benefits Per P.L. 91-646

The Sponsor is knowledgeable about Public Law 91-646 and is aware of the obligation to ensure compliance. It is not anticipated that Relocation Assistance Benefits will be provided as a result of this project. Prior to beginning land acquisition, the Non-federal sponsor will hold a public meeting to inform landowners of their rights and benefits available under Public Law 91-646, as amended. Relocation benefits are not an issue for this project. There will be no persons, farms, or businesses relocated/displaced because of this project.

12.0 Mineral Activity

There are no known outstanding mineral interests or active mining operations in the project area that may affect implementation of the project.

13.0 Sponsorship Capability

The City has been advised of P.L. 91-646 requirements and they have been advised of their documentation requirements for LERRD crediting purposes. (See Exhibit B for a detailed assessment of the Non-Federal Sponsor's Real Estate Acquisition Capability).

The NFS will negotiate to secure real estate interest in private and local government owned lands for the project. (See Exhibit "A" -Real Estate Map for acreages). The outcome of those negotiations and possible project alterations will be addressed during the design and implementation phase of the project. The non-Federal Sponsor can condemn project lands from private parties, but does not have the legal authority to resolve the ownership issues against the State of Idaho through condemnation

14.0 Zoning

There are no known zoning ordinances currently proposed in lieu of acquisition, or to facilitate acquisition in connection with this project. Current zoning of affected lands is a mix of residential single family, commercial, and residential duplex maximum. There are no specific city restrictions on how close to the river properties may be built. NFS has stated that the river boundary would be treated the same as other boundaries with a setback of five feet.

15.0 Schedule

The project design phase will begin in FY12; Construction is scheduled for sometime during FY13

16.0 Facility and Utility Relocations

The City of Gooding has indicated utilities ***may*** be affected by the project, however, no utilities locations have been identified by the NFS. The Oregon St Bridge includes a water line owned and operated by the NFS. The Idaho St Bridge has telephone lines owned by Qwest lines enclosed in steel conduit attached to the west side of bridge at ground level. There is a gas line underneath Little Wood River in line with the alleyway halfway between Main and Idaho Streets. It was jack and bored underneath the river, so the river channel bottom was not affected during installation.
A thorough, on the ground, examination of utility relocation has not been completed, but from aerial photos numerous telephone/electrical poles can be seen within the project area. An analysis of in ground utilities in the parcels affected by the channel improvement easement has not been completed.

ANY CONCLUSION OR CATEGORIZATION CONTAINED IN THIS REAL ESTATE PLAN, OR ELSEWHERE IN THIS PROJECT REPORT, THAT AN ITEM IS A UTILITY OR FACILITY RELOCATION TO BE PERFORMED BY THE NON-FEDERAL SPONSOR AS PART OF ITS LERRD RESPONSIBILITIES IS PRELIMINARY ONLY. THE GOVERNMENT WILL MAKE A FINAL DETERMINATIONOF THE RELOCATIONS NECESSARY FOR THE CONSTRUCTION, OPERATION, OR MAINTENANCE OF THE PROJECT AFTER FURTHER ANALYSIS AND COMPLETION AND APPROVAL OF FINAL ATTORNEY'S OPINIONS OF COMPENSABILITY FOR EACH OF THE IMPACTED UTILITIES AND FACILITIES

17.0 HTRW

There are no HTRW sites of interest identified within the Little Wood River Gooding Channel Rehabilitation Project area. A Level 1 HTRW assessment of the Little Wood River Gooding Channel Rehabilitation Project may be conducted during the Design and Implementation phase of the project.

18.0 Landowner's Views and Public Opposition

The local community, neighborhood residents and other public stakeholders appear to be supportive of the proposed project. There have been no reports of public opposition to the project.

19.0 Risks Associated With Advanced Land Acquisition

The NFS was sent a standard advanced acquisition risk statement on May 17, 2012. This informed the potential affects advanced purchases of LERRDs could have on their total project costs. The NFS was notified in writing about the risks associated with acquiring land before the execution of the PPA. The Government's formal notice to proceed with acquisition will be generated for outstanding parcels once the PPA is fully executed.

20.0 Outstanding Third Party Interests

All property interests acquired in support of the proposed project must take priority over any competing third party interests that could defeat or impair the NFS' title to the property or interfere with construction, operation and maintenance of the project. Such third party interests should be cleared from title, or subordinated to the interests being made available to the project by the NFS. Any other outstanding third party interests that will not interfere with the Project and will not be cleared or subordinated must be satisfactorily addressed by the NFS attorney in the attached Risk Assessment document (See, Exhibit E).

21.0 Other Real Estate Issues Relevant to the Project

The project will adversely impact a National Register of Historic Places structure. Coordination with the Idaho State Historic Preservation Office (SHPO), Advisory Council on Historic Preservation and other interested parties is required. The Corps has started consultation with the Idaho SHPO and is looking to enter into a Memorandum of Agreement (MOA) to address project impacts. As consultation has just begun, it is unknown at this time what specific stipulations may be included in the MOA.

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Total Gooding Canal
Length = 0.89 mile
0.29 mile
Preserved for
Historical Value
Staging Area
0.50 Acre
Proposed Construction
Alignment = 0.60 mile
4th Ave W
4th Ave E
5th Ave W
5th Ave E
6th Ave W
7th Ave W
7th Ave E
8th Ave W
8th Ave E
9th Ave W
10th Ave W
Senior Ave
Washington St
Locke Ave
Nebraska St
Kansas St
Colorado St
Idaho St
Main St
Montana St
Wyoming St
N Oregon St
Michigan St
Illinois St
46
©2012 Google
©2010 Google

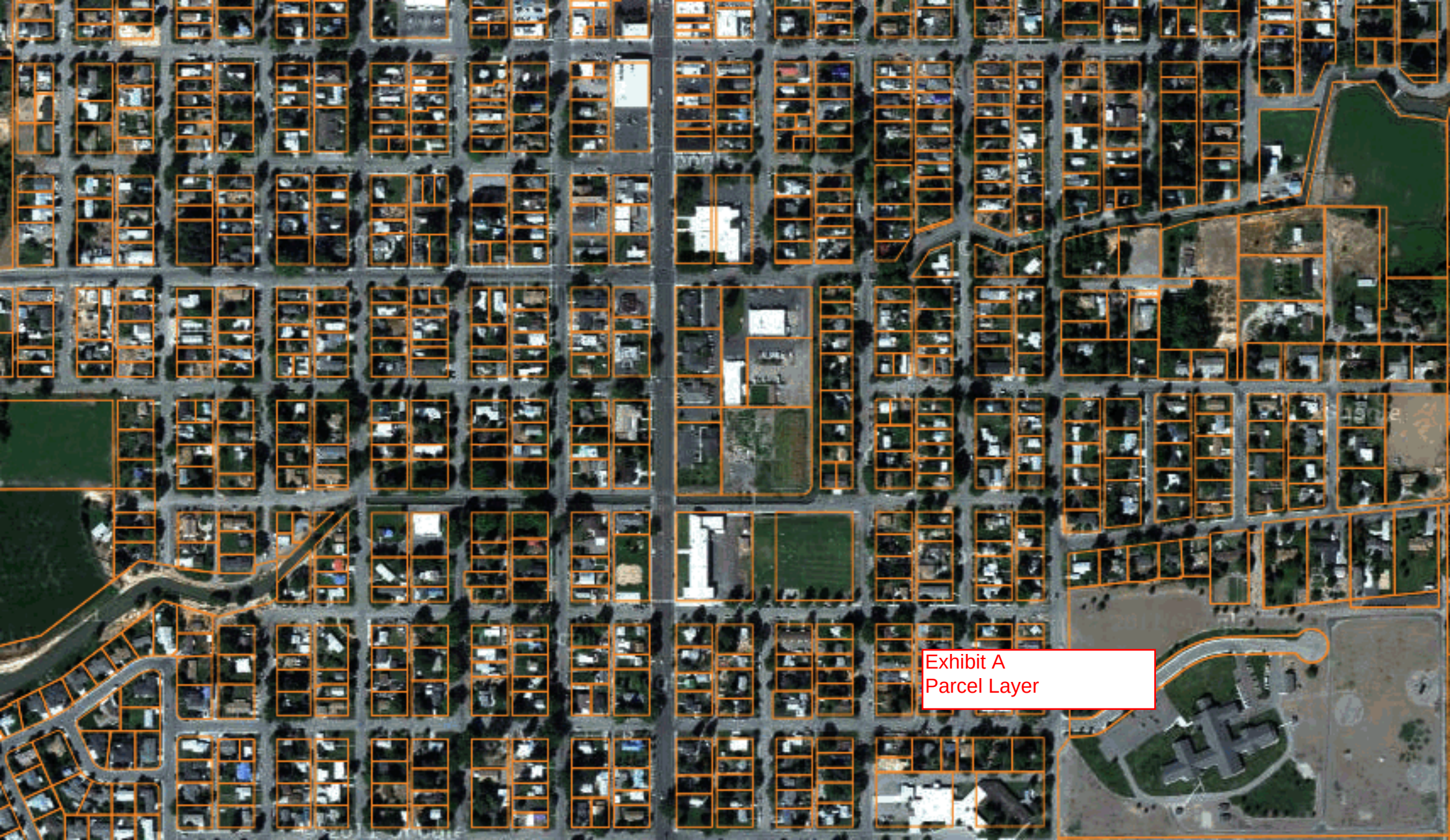
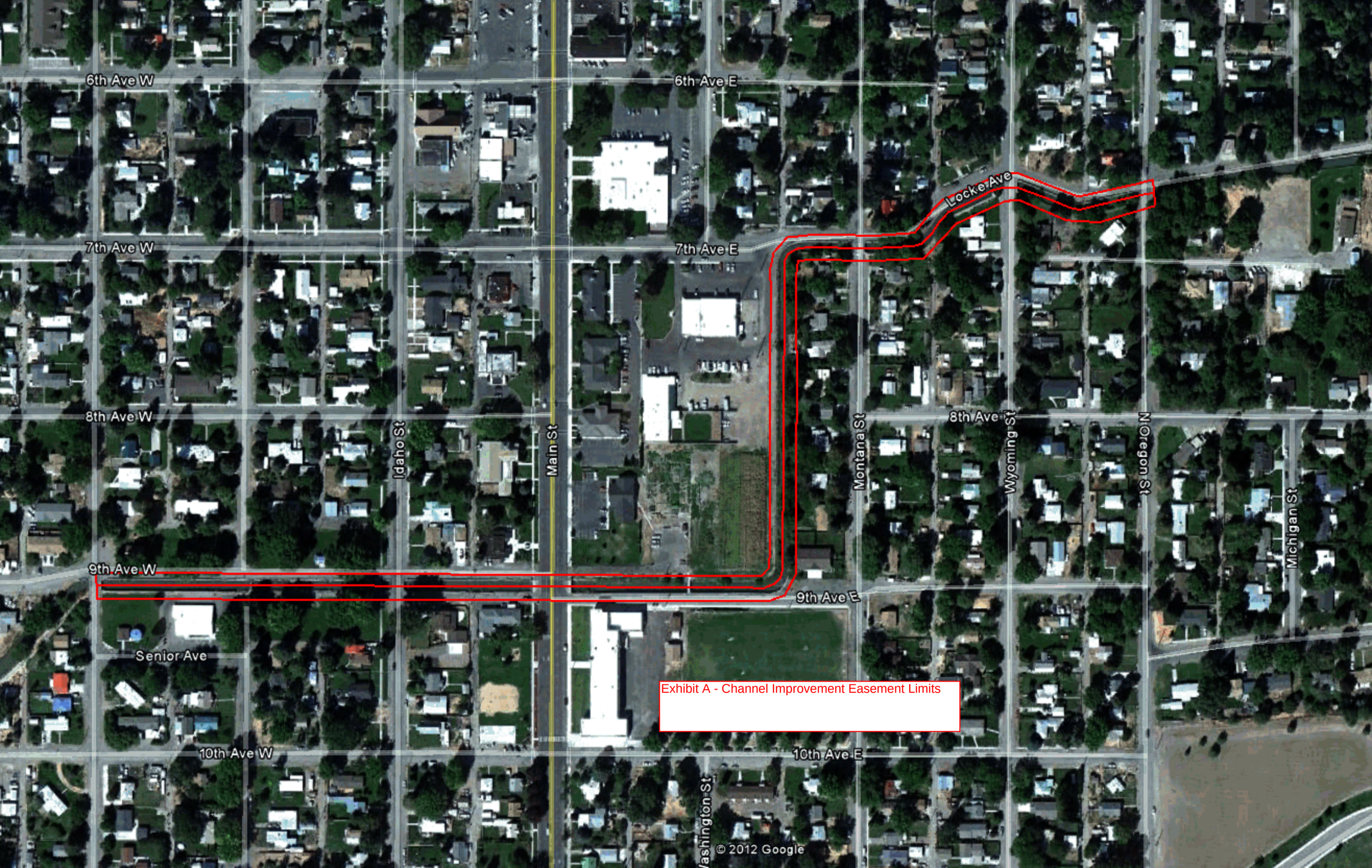


Exhibit A
Parcel Layer


6th Ave W
6th Ave E
7th Ave W
7th Ave E
Locke Ave
8th Ave W
8th Ave E
Idaho St
Main St
Montana St
Wyoming St
Oregon St
Michigan St
9th Ave W
9th Ave E
Senior Ave
10th Ave W
10th Ave E
Washington St
Exhibit A - Channel Improvement Easement Limits
© 2012 Google

. EXHIBIT B

LITTLE WOOD RIVER GOODING CHANNEL REHABILITATION PROJECT

ASSESSMENT OF NON-FEDERAL SPONSOR'S

REAL ESTATE ACQUISITION CAPABILITY

I. **Legal Authority:**

a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? (yes/no)

b. Does the sponsor have the power of eminent domain for this project? (yes/no)

c. Does the sponsor have "quick-take" authority for this project? (yes/no)

[Note: For most governmental agencies within a state such as WA the following applies. Before using these statements determine their application to the situation.

d. Are any of the lands /interests in land required for the project located outside the sponsor's political boundary? (yes/no)

e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn? (yes/no)

II. **Human Resource Requirements:**

a. Will the sponsor's in-house staff require training to become familiar with the real estate requirements of Federal projects including P.L. 91-646, as amended? (yes/no)

b. If the answer to II.a. is “yes," has a reasonable plan been developed to provide such training? (yes/no)

c. Does the sponsor’s in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? (yes/no)

d. Is the sponsor’s projected in-house staff level sufficient considering its other work load, if any, and the project schedule? (yes/no)

e. Can the sponsor obtain contractor support, if required, in a timely fashion? (yes/no)

f. Will the sponsor likely request USACE assistance in acquiring real estate? (yes/no) (If “yes," provide description).

III. **Other Project Variables:**

a. Will the sponsor's staff be located within reasonable proximity to the project site? (yes/no)

b. Has the sponsor approved the project/real estate schedule/milestones? (yes/no)

IV. **Overall Assessment:**
a. Has the sponsor performed satisfactorily on other USACE projects? (yes/no/not applicable)

b. With regard to this project, the sponsor is anticipated to be: ___ highly capable ___ fully capable ___ moderately capable ___ marginally capable ___ insufficiently capable. (If sponsor is believed to be "insufficiently capable:, provide explanation).

V. **Coordination:**
a. Has this assessment been coordinated with the sponsor? (yes/no)

b. Does the sponsor concur with this assessment? (yes/no) (If "no," provide explanation).

Prepared by:

[INSERT NAME] Realty Specialist

Reviewed and approved by:

Christopher D. Borton Chief, Real Estate Division

EXHIBIT C DRAFT

DATE

Department of the Army Seattle District, Corps of Engineers ATTN: Real Estate Division Post Office Box 3755 Seattle, Washington 98124-3755

RE: Certification of Lands and Authorization for Little Wood River Gooding Channel Rehabilitation Project

Dear Ladies and Gentlemen:

This is to certify that the City of Gooding, Idaho (hereinafter referred to as the "Public Sponsor") has sufficient title and interest in the lands hereinafter shown on Exhibit A, attached, to provide all lands necessary for the construction, operation, and maintenance of the Little Wood River Gooding Channel Rehabilitation Project.

Said lands and/or interest therein are owned or have been acquired by the Public Sponsor, and are to be used for the construction, operation and maintenance of the above referenced project and include but are not limited to the following specifically enumerated rights and uses, except as hereinafter noted:

Fee Simple
The fee simple title to the lands shown in the project footprint, as depicted in Exhibit A.

Channel Improvement Easement

A perpetual and assignable right and easement to construct, operate, and maintain channel improvement works on, over and across (the land described in Exhibit A) for the purposes as authorized by Section 3057 of the Water Resources Development Act of 2007 , including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush, buildings, improvements and/or other obstructions therefrom; to excavate: dredge, cut away, and remove any or all of said land and to place thereon dredge or spoil material; and for such other purposes as may be required in connection with said work of improvement; reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements far public roads and highways, public utilities, railroads and pipelines.

Temporary Work Area Easement
A temporary easement and right-of-way in, on, over and across the land depicted in Exhibit A for a period not to exceed one (1) year, beginning with date possession of the land is granted to the United States, for use by the United States, its representatives, agents, and contractors as a work area, including the right to deposit fill material thereon, move, store and remove equipment and supplies, and erect and remove temporary structures on the land, and to perform any other work necessary and incident to the construction of the Little Wood River Gooding Channel Rehabilitation Project, together with the right to trim, cut, fell and remove there-from all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired; subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Perpetual Road Easement
A perpetual exclusive easement and right-of-way in, on, over and across the land described in Exhibit A for the location, construction, operation, maintenance, alteration replacement of roads and appurtenances thereto; together with the right to trim, cut, fell and remove therefrom all trees, underbrush, obstructions and other vegetation, structures, or obstacles within the limits of the right-of-way; reserving, however, to the owners, their heirs and assigns, the right to cross over or under the right-of-way as access to their adjoining land at the locations indicated in Exhibit A subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

Non Standard Estates – As applicable.

The Public Sponsor does hereby grant to the United States of America, its representatives, agents and contractors, an irrevocable right, privilege and permission to enter upon the lands hereinbefore mentioned for the purpose of prosecuting the project.

The Public Sponsor certifies to the United States of America that any lands acquired subsequent to the execution of the Cooperation Agreement that are necessary for this project have been accomplished in compliance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (Public Law 91-646) as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR, Part 24.

CITY OF GOODING, ID

DATE: _____ BY: _____

EXHIBIT D

D R AF T

ATTORNEY'S CERTIFICATE

RE: Certification of Lands and Authorization for Little Wood River Gooding Channel Rehabilitation Project

I, _____, an attorney admitted to practice law in the State of _____ certify that:

I am the attorney for the City of Gooding, ID (hereinafter referred to as the "Public Sponsor").

I have examined the title to _____ [Parcel # (s)] of land identified by the U.S. Army Corps of Engineers as needed for the Little Wood River Gooding Channel Rehabilitation Project, which is included in the Certification of Lands and Authorization for Entry document to which this Certificate is appended.

The Public Sponsor is vested with sufficient title and interest in the described lands required by the United States of America to support the construction, operation, and maintenance of the Horseshoe Bend Levee Rehabilitation Project.

There [ ] are (see attached risk analysis) [ ] are no outstanding third party interests of record that could defeat or impair the title and interests of the Public Sponsor in and to the lands described, or interfere with construction, operation, and maintenance of the Project. Such interests include, but are not limited to, public roads and highways, public utilities, railroads, pipelines, other public and private rights of way, liens and judgments. To the extent such interests existed prior to acquisition of the described lands by the Public Sponsor such interests have either been cleared or subordinated to the title and interests so acquired except as provided in the attached risk analysis.

The Public Sponsor has authority to grant the Certification of Lands and Authorization for Entry to which this Certificate is appended; that said Certification of Lands and authorization for entry is executed by the proper duly authorized authority; and that the authorization for entry is in sufficient form to grant the authorization therein stated.

DATED AND SIGNED at _____, this ____ day of _____ 20__.

Attorney for the City of Gooding

EXHIBIT E

D R A F T

RISK ANALYSIS FOR OUTSTANDING THIRD PARTY INTERESTS

RE: Certification of Lands and Authorization for Little Wood River Gooding Channel Rehabilitation Project

There are outstanding third party interests of record in and to the lands required for the Project. An evaluation of those interests is as follows:

1. **IDENTIFICATION OF THIRD PARTY INTERESTS**:

2. **ASSESSMENT:** (Discuss whether the exercise of that interest is likely to physically impair the Project. Discuss the legal implications if the interest is not cleared or subordinated. Discuss the practical impediments to the exercise of the interest such as any required permits, land use restrictions, or compensation.)

3. **PLAN TO RESOLVE:** (Discuss recourse available to protect the Project in the event the outstanding interest is exercised).

Signed:

_____ DATE _____ Attorney for the City of Gooding, Idaho

Gooding Flood Control Project
Little Wood River, Gooding, Idaho

Appendix F, Cost Estimate

****** TOTAL PROJECT COST SUMMARY ******

PROJECT: Little Wood Channel Rehabilitation
PROJECT NO: 0
LOCATION: Gooding, Idaho

DISTRICT: NWW Walla Walla District **PREPARED: 7/14/2016**
POC: CHIEF, COST ENGINEERING, xxx

This Estimate reflects the scope and schedule in report; Little Wood Channel Rehabilitation Project Implementation Report

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)						TOTAL PROJECT COST (FULLY FUNDED)			
						Program Year (Budget EC): 2017 Effective Price Level Date: 1 OCT 16									
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	**TOTAL ($K)**	Spent Thru: **10/1/2013** ($K)	**TOTAL FIRST COST** ($K)	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*		*K*	*L*	*M*	*N*	*O*
09	CHANNELS & CANALS	$9,019	$2,796	31.0%	$11,815	1.4%	$9,141	$2,834	$11,975	$0	$11,975	2.4%	$9,363	$2,902	$12,265
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
			-		$0	-			$0	$0	$0	-			$0
	CONSTRUCTION ESTIMATE TOTALS:	$9,019	$2,796		$11,815	1.4%	$9,141	$2,834	$11,975	$0	$11,975	2.4%	$9,363	$2,902	$12,265
01	LANDS AND DAMAGES	$0	$0	-	$0	-	$0	$0	$0	$0	$0	-	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN	$567	$176	31.0%	$743	2.7%	$582	$181	$763	$196	$959	2.1%	$595	$184	$975
31	CONSTRUCTION MANAGEMENT	$234	$73	31.0%	$307	2.7%	$240	$74	$315	$0	$315	4.6%	$251	$78	$329
	PROJECT COST TOTALS:	$9,820	$3,044	31.0%	$12,864		$9,964	$3,089	**$13,053**	$196	**$13,249**	2.5%	$10,209	$3,165	$13,569

	CHIEF, COST ENGINEERING, xxx
	PROJECT MANAGER, xxx
	CHIEF, REAL ESTATE, xxx
	CHIEF, PLANNING,xxx
	CHIEF, ENGINEERING, xxx
	CHIEF, OPERATIONS, xxx
	CHIEF, CONSTRUCTION, xxx
	CHIEF, CONTRACTING,xxx
	CHIEF, PM-PB, xxxx
	CHIEF, DPM, xxx

ESTIMATED FEDERAL COST:	**100%**	**$13,569**
ESTIMATED NON-FEDERAL COST:	**0%**	**$0**
ESTIMATED TOTAL PROJECT COST:		**$13,569**

Filename: Little Wood Channel Rehabilitation TPCS 2016.xlsx
TPCS

**** CONTRACT COST SUMMARY ****

PROJECT: Little Wood Channel Rehabilitation
LOCATION: Gooding, Idaho
This Estimate reflects the scope and schedule in report; Little Wood Channel Rehabilitation Project Implementation Report

DISTRICT: NWW Walla Walla District
POC: CHIEF, COST ENGINEERING, xxx

PREPARED: 7/14/2016

Estimate Prepared: **14-Jul-16**
Effective Price Level: 1-Oct-15

Program Year (Budget EC): 2017
Effective Price Level Date: 1 OCT 16

Civil Works Work Breakdown Structure		**ESTIMATED COST**				**PROJECT FIRST COST (Constant Dollar Basis)**				**TOTAL PROJECT COST (FULLY FUNDED)**				
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	RISK BASED CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*P*	*L*	*M*	*N*	*O*
	PHASE 1 or CONTRACT 1													
09	CHANNELS & CANALS	$9,019	$2,796	31.0%	$11,815	1.4%	$9,141	$2,834	$11,975	2018Q2	2.4%	$9,363	$2,902	$12,265
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
			$0		$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
	CONSTRUCTION ESTIMATE TOTALS:	$9,019	$2,796	31.0%	**$11,815**		$9,141	$2,834	$11,975			$9,363	$2,902	$12,265
01	LANDS AND DAMAGES		$0	25.0%	$0	0.0%	$0	$0	$0	0	0.0%	$0	$0	$0
30	PLANNING, ENGINEERING & DESIGN													
0.5%	Project Management	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
0.5%	Planning & Environmental Compliance	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
2.3%	Engineering & Design	$207	$64	31.0%	$271	2.7%	$213	$66	$278	2017Q3	1.6%	$216	$67	$283
0.5%	Reviews, ATRs, IEPRs, VE	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
0.5%	Life Cycle Updates (cost, schedule, risks)	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
0.5%	Contracting & Reprographics	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
0.5%	Engineering During Construction	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2018Q2	4.6%	$48	$15	$63
0.5%	Planning During Construction	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2018Q2	4.6%	$48	$15	$63
0.5%	Project Operations	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2017Q3	1.6%	$47	$15	$62
31	CONSTRUCTION MANAGEMENT													
1.6%	Construction Management	$144	$45	31.0%	$189	2.7%	$148	$46	$194	2018Q2	4.6%	$155	$48	$203
0.5%	Project Operation:	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2018Q2	4.6%	$48	$15	$63
0.5%	Project Management	$45	$14	31.0%	$59	2.7%	$46	$14	$61	2018Q2	4.6%	$48	$15	$63
	CONTRACT COST TOTALS:	$9,820	$3,044		$12,864		$9,964	$3,089	$13,053			$10,209	$3,165	$13,373

Gooding Flood Control Project

Little Wood River, Gooding, Idaho

Appendix G, Federal Natural Resource Law and Biological Evaluation

LITTLE WOOD RIVER STREAMBANK STABILIZATION

GOODING, IDAHO

PM-EC-2010-0002

Federal Natural Resources Law Compliance
and
Biological Evaluation

Memorandum for Record

U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

3 May 2012

CENWW-PM-PD-ECS

MEMORANDUM FOR RECORD

To: John Leier, Environmental Resource Specialist
From: Ben Tice - Biologist
Subject: Little Wood River Streambank Stabilization, Gooding, Idaho
Date: 3 May 2012

Summary

The U.S. Army Corps of Engineers proposes to rehabilitate about one mile of stream banks of the Little Wood River in Gooding, Idaho. The existing channel is lined with grouted basalt rock which is now crumbling. This crumbling wall will be replaced by a concrete wall which will be anchored into the bank. Four bridges that currently restrict river flow will also be replaced with longer spanning bridges.

The following biological analysis report is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)), the Fish and Wildlife Coordination Act (16 U.S.C.661 et seq., as amended), Migratory Bird Treaty Act (16 U.S.C. §§ 703–712), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801), as well as various Executive Orders, and follows the guidance and standards established by the Army Corps of Engineers Environmental Compliance Regulations and Procedures (ER 200-2-3), Project Purposes Planning Guidance (ER 1105-2-20), Management of Natural Resources and Outdoor Recreation at Civil Works Water Resource Projects (ER 1130-2-400), and Environmental Policies (EP 1165-2-501) Objectives and Guidelines for the Civil Works Program of the Corps of Engineers).

Work will begin after the irrigation season, likely in October then finish by March 15. Work will occur 5 to 6 days per week, during daylight hours.

There will be no effect on Endangered Species Act listed species or designated critical habitat from the proposed project. The project will also not adversely modify Essential Fish Habitat protected under the Magnuson-Stevens Act. There will be no take under the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act.

See section 3 of the report for stipulations and recommendations for the project.

This project will require further review in order to re-analyze the potential adverse effects on federal resource species or habitats if any significant changes in the action are proposed or occur after the date of this document.

_____

Ben Tice
Biologist
U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

_____

Vicki Davis
Wildlife Biologist/Reviewer
U.S. Army Corps of Engineers
Walla Walla District
Environmental Compliance Section

1. Project Purpose and Need

The U.S. Army Corps of Engineers (Corps) proposes to rehabilitate about one mile of stream banks of the Little Wood River in Gooding, Idaho. The existing channel is lined with grouted basalt rock which is now crumbling (photo 1). This crumbling wall will be replaced by a concrete wall which will be anchored into the bank. The river alignment and work area is shown highlighted in yellow in Figure 1.

The project area is located on the Little Wood River in the city of Gooding, Idaho. Gooding is the county seat and largest city of Gooding County. Gooding is located in south central Idaho, a few miles from Interstate 84. Boise is 98 miles to the west and Twin Falls is 33 miles to the east. Gooding is located near the confluence of the Big Wood and Little Wood Rivers where they join and form the Malad River, a tributary of the Boise River.

This project is authorized by Section 3057 of the Water Resource Development Act of 2007 (Public Law 110-114 Section 3057). Section 3057 directs the Secretary [and in turn the Corps] to rehabilitate the Gooding channel project for the purposes of flood control and ecosystem restoration.

Photo 1. Example of failing walls on the Little Wood River at Gooding, Idaho.

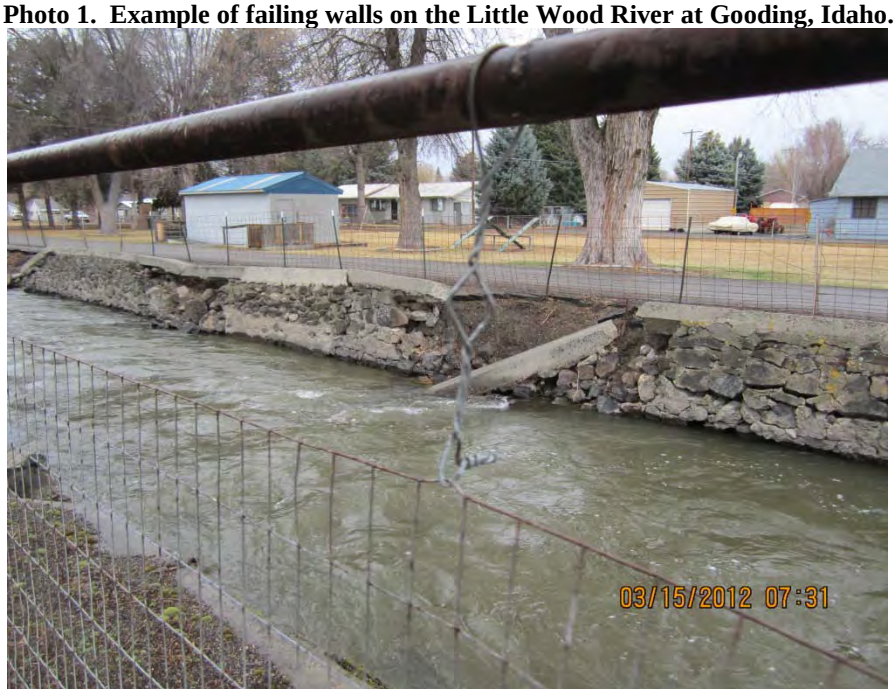
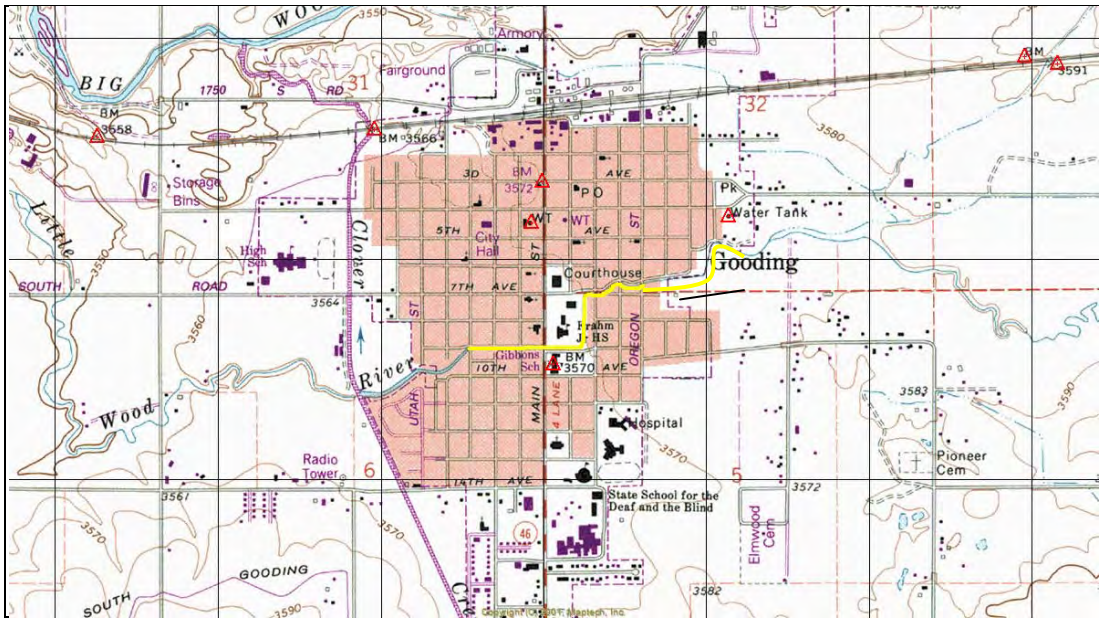


Figure 1. General location of the Little Wood River through Gooding, Idaho (Project area is yellow line).



2. Project Description

2.1. Project Background

The Little Wood River was channelized for irrigation and flood protection purposes more than 100 years ago. The section of river through the town of Gooding was lined with grouted basalt by 1941. Studies have been conducted in the past on methods to reduce the flood risk within Gooding; however, funding limitations have prohibited implementation of any projects.

2.2. Baseline Conditions

The Little Wood River Subbasin Assessment (IDEQ 2005) provides much information about the Little Wood watershed. Baseline condition information was obtained from this report.

The Gooding section of the river is on the State's 303(d) list for bacteria, dissolved oxygen, nutrients, sediment, flow alteration, and temperature. The lower reach of the river is managed by the Idaho Department of Fish and Game (IDFG) as a warm-water fishery (IDEQ 2005). The habitat quality of the lower river is poor. The river is sometimes dewatered for irrigation and power production purposes.

The river through Gooding has a channel capacity of 900 cubic feet per second (cfs). However, that volume can be drastically lower during heavy icing conditions.

The fish community is largely made up of cool and warm water fish species. Fish species found in the Little Wood River include rainbow trout, brown trout, smallmouth bass, yellow perch, bridgelip sucker, largescale sucker, sculpin species (probably mottled, but possibly Wood River), redside shiner, speckled dace, longnose dace, and others. Anglers seasonally fish this reach but angler effort and harvest data are not available. Several Species of Greatest Conservation Need, including wintering bald eagles, inhabit the site on a seasonal basis. Riparian habitats associated with this reach provide breeding, nesting, denning, and roosting habitat for migratory songbirds, birds of prey, waterfowl, shorebirds, aquatic mammals, small mammals, reptiles, and amphibians.

The project is proposed for the fall and winter months. This is outside the nesting season for most birds. The construction work is within an urbanized area and will not remove trees. Riparian trees along the river should also not be impacted by the dried out channel due to their dormant state. There would be no adverse effects to migratory birds from the proposed project.

Because of the location and timing of the proposed action (October – March), disturbance of nesting bald eagles is unlikely to occur. Eagles nest as early as late January, but because of the urban setting and the work activity, it is highly unlikely for an eagle to nest near the project.

Throughout most of the western United States golden eagles are mostly year-long residents, breeding from late January through August with peak activity in March through July (Polite and Pratt 1999). They may also move down-slope for winter or upslope after the breeding season (Polite and Pratt 1999, Technology Associates 2009).

2.3. Project Location

The Hydrological Unit Code (HUC) is 17040221-01 Little Wood River. It is located in Section 32 of Township 5 South, Range 15 East, and Sections 5 and 6 of Township 6 South, Range 15 East, Boise Meridian at Latitude 42^{o}56’11.24” North, and Longitude 114^{o}42’41.90” West.

2.4. Work Schedule

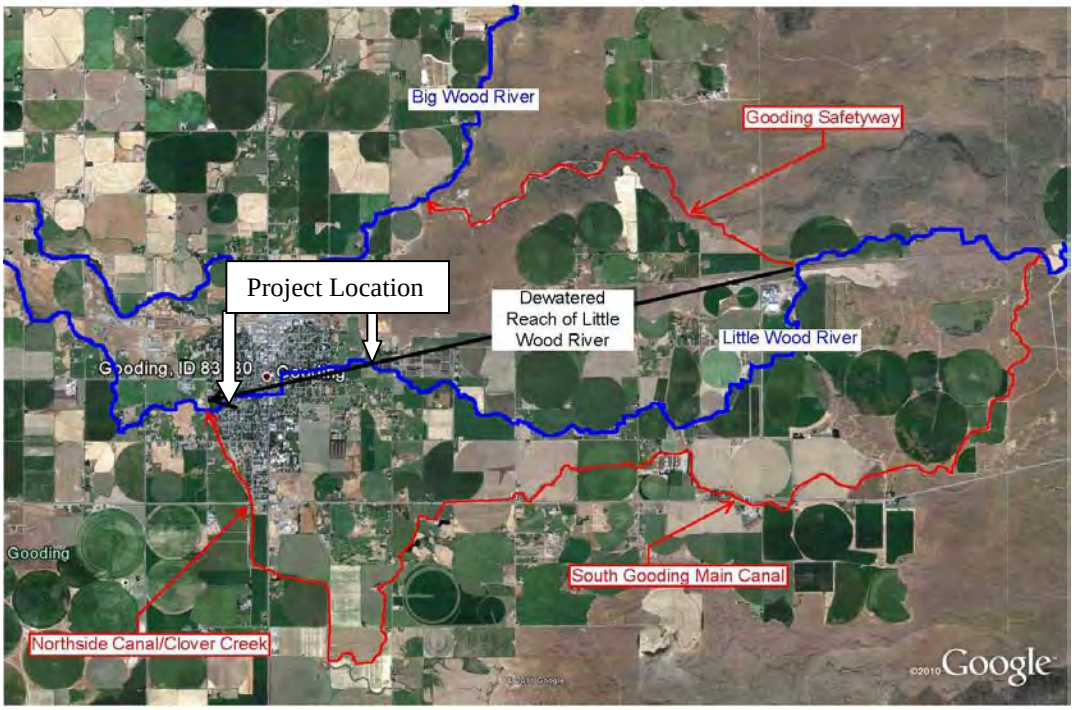
Work will begin after the irrigation season, likely in October then finish by March 15. Work will occur 5 to 6 days per week, during daylight hours.

2.5. Project Details

Prior to starting work on the walls, the river would be diverted around Gooding at existing diversion points. These diversion points are approximately 4 and 6 miles upstream from Gooding (Figure 3). The dewatering will be conducted slowly to encourage fish to leave with the receding water. No fish salvage is planned. Pre-existing irrigation diversions will be used to divert the river. Fish screens to keep fish out of the diversion channels will not be used. The diverted water from the upstream diversion channel returns to the Big Wood River about 9 miles before it becomes the Malad River.

The other diversion canal empties back into the Little Wood River about 5 miles before it joins the Big Wood River and becomes the Malad River (Figure 2). Both diversions will be used to carry all of the river flow around the work area.

Figure 2. Proposed diversion channels (red lines) to dewater the project area in Gooding, Idaho



Once the water is diverted, work in the channel will be done in the dry. Approximately 0.9 miles of channel will be modified with new walls. The existing basalt rock walls will be removed with an excavator and loaded into trucks using existing roads and the channel for access as necessary. The waste rock will be hauled to the Gooding Industrial Park, which is about 3/4 mile from the project site.

Next the soil along the banks will be shaped as needed to facilitate placement of pre-cast concrete walls. Approximately 2 to 4 feet of excavation will be required behind the existing wall footprint to allow for the proposed wall construction. This excavation will run the entire project length on both sides of the channel wherever there are existing basalt rock walls. The type of existing material behind the rock wall is unknown, but is expected to be primarily lava rock and random fill material. This excavated material will be taken to the Gooding Industrial Park as well.

Prior to setting the new walls, a toe trench will be excavated/jack-hammered into the bedrock river bottom. The pre-cast concrete walls will be set into the toe trench and anchored into the bank with soil nails which will be grouted into place. After the proposed wall has been installed, new fill material will be placed and compacted behind the wall. This fill material will come from a commercial source. There is equipment access to the channel and the channel bottom is relatively smooth, so small construction equipment will drive in the channel to perform work.

There are four existing bridges within the work area. The abutments of these bridges project into the channel, creating impingement points where ice jamming can occur. These bridges and abutments will be removed and replaced with bank to bank spanning bridges. This work will also occur when the channel is dewatered. The existing bridge decking and support structure will be removed and become the property of the contractor or disposed off-site, in compliance with State and Federal requirements.

A comprehensive storm water pollution prevention plan (SWPPP) in compliance with applicable environmental laws will be implemented prior to construction to prevent debris from leaving the project site and entering the Little Wood River. Construction debris and rubble will be mechanically removed from the channel as needed to maintain a usable work environment during construction. Filter material (gravel bags, fiber rolls) will be placed as needed in the river channel to capture finer debris material during rain events. The project site will be thoroughly re-inspected at the end of construction to remove any remaining debris before channel rewatering. After all the channel work and cleanup is complete the river will slowly be released back into the repaired river channel.

The construction staging area will be approximately 1/2 acre and will be used to store equipment and material. It will be located in a vacant, city-owned lot near the upper end of the project (Figure 3). After the staging area has been cleared and graded, a 4-inch layer of crushed aggregate will be placed to provide a usable working surface. No trees will be removed from the site.

Figure 3. Equipment staging area for the project. Project reach is the red line.

2.6. Endangered Species

On 24 February 2012, the Corps reviewed the current list of threatened and endangered species that pertain to the area affected by this action under jurisdiction of the National Marine Fisheries Service (NMFS)[1], as well as the list for species under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS)[2] for Gooding County, Idaho. The compiled species list is shown in Table 1. Critical habitat is not designated for these species. Therefore, critical habitat analysis will not be further addressed in this report.

Table 1. ESA-listed species that may occur in Gooding County, Idaho.

Species	Scientific Name	Status
NMFS		
None		
USFWS		
Banbury Springs limpet	*Lanx sp.*	Endangered
Bliss Rapids snail	*Talorconcha serpenticola*	Threatened
Snake River physa snail	*Haitia natricinia*	Endangered

2.6.1. Banbury Springs Limpet

The Banbury Springs limpet (*Lanx sp*.) was listed on December 14, 1992 as an endangered species. It was first discovered in 1988. Its conical, pyramid-shaped shell is red-cinnamon in color, ranges from .09 to .28 inch long, and is only .03 to .17 inch tall. The species lacks specialized respiratory organs and is particularly sensitive to dissolved oxygen fluctuations. It requires cold, clear and well-oxygenated water with swift currents. This species is found on smooth basalt, boulders, or cobble-sized substrate ranging from 2 to 20 inches deep, but they avoid areas with green algae.

The Banbury Springs limpet is currently known to only exist in four coldwater spring complexes along approximately 6 river miles of the middle Snake River: Thousand Springs, Box Canyon Springs, Banbury Springs, and Briggs Springs. Each of the four known colonies remains isolated from each other as they did at the time of listing in 1992.

Thousand Springs is 14 miles; Box Canyon Springs is 16 miles; Banbury Springs is 18 miles and Briggs Springs is 19 miles, respectively from Gooding. The Banbury Springs limpet is not known to occur in the Little Wood River. There will be no effect on this species.

2.6.2. Bliss Rapids Snail

The Bliss Rapids snail (*Taylorconcha serpenticola*) was listed on December 14, 1992 as a threatened species. On September 16, 2009, the Service published a 12-month petition

[1] http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Index.cfm

[2] http://www.fws.gov/idaho/species/IdahoSpeciesList.pdf

finding to remove the Bliss Rapids snail from the Endangered Species List. The Service reviewed the species' known geographic distribution, habitat requirements and current threats, and found the listing was still warranted. The final rule determining threatened status for the Bliss Rapids snail indicated that the free-flowing, cool water environments required by the species were impacted by, and is vulnerable to, continued adverse habitat modifications and deteriorating water quality. The deterioration of the species' water quality is from one or more of the following: hydroelectric development, peak-loading effects from existing hydroelectric project operations, water pollution, inadequate regulatory mechanisms, and invasion of the non-native New Zealand mudsnail. A recovery plan for this and other Snake River snail species was completed on November 26, 1995.

Bliss Rapids Snails are found along the Snake River corridor in Gooding, Jerome, Twin Falls, and Elmore Counties in Idaho. At the time of listing in 1992, the distribution of the Bliss Rapids snail was thought to be discontinuous over 204 miles of the Snake River in Idaho, between King Hill (river mile (RM) 546) and Lower Salmon Falls Dam (RM 573) with a disjunct occurrence at RM 749. Recent surveys indicate the species is distributed discontinuously over 22 miles, from River Mile (RM) 547-560, RM 566-572, and at RM 580 on the Snake River. The species does not occur in reservoirs.

Bliss Rapids snails are also known to occur in 14 springs or Snake River tributary streams (from RM 552.8 to RM 604.5) derived from cold water springs including: Bancroft Springs; Thousand Springs and Minnie Miller Springs (Thousand Springs Preserve); Banbury Springs; Niagara Springs; Crystal Springs; Briggs Springs; Blue Heart Springs; Box Canyon Creek; Riley Creek; Sand Springs Creek; Elison Springs; the Malad River; Cove Creek (a tributary to the Malad River); and the headwater springs to Billingsley Creek.

Bliss Rapids snails are not known to occur in the Little Wood River because of poor water quality conditions. The closest known occurrence was found in the Malad River more than 5 miles downstream of the project area. There will be no effect on this species.

2.6.3. Snake River Physa Snail

Snake River physa snail (*Haitia natricinia*) was listed as an endangered species on 14 December 1992. The Snake River physa snail is believed to be confined to the Snake River, inhabiting areas of swift current on the undersides of large cobbles and boulder-sized rocks. In 1995, the U.S. Fish and Wildlife Service reported the known modern range of the species to be from Grandview, Idaho (ca. RM 487) to the Hagerman Reach of the Snake River (ca. RM 573). More recent investigations have shown this species to occur outside of this historic range to as far downstream as Ontario, Oregon (RM 368), with another population known to occur downstream of Minidoka Dam (RM 675).

Snake River physa snails are not known to occur in the Little Wood River due mostly to poor water quality conditions. There will be no effect on this species.

2.7. Magnuson-Stevens Fishery Conservation and Management Act of 1976, as Amended

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

The Pacific Fishery Management Council (PFMC) designated EFH for ground fish, coastal pelagic species, and Chinook salmon, Coho salmon, and Puget Sound pink salmon (PFMC 1999).

The Little Wood River (HUC 17040221-01) is upstream from impassible dams on the Snake River and is not identified as Essential Fish Habitat (EFH) therefore there will be no modification or adverse effects to EFH from the proposed action.

3. Environmental Considerations

The Corps or its representative will strictly adhere to the following environmental considerations as part of the action, as proposed and described above, in order to ensure impacts and effects that may result from the action are minimized or eliminated. The environmental considerations, identified below, are an integral part of the proposed action, and will not stand alone. These requirements must be used in conjunction with the proposed action to ensure that the Corps can defensibly make a determination that the proposed action will not affect species or habitats protected by the natural resources laws addressed in this document.

This action will divert the entire Little Wood River into existing irrigation ditches located 4 and 6 miles upstream from Gooding. The Little Wood River channel will be completely dewatered for 4 miles and partially dewatered for an additional 2 miles from October through March.

Aquatic and riparian dependent wildlife species may be directly or indirectly impacted by dewatering of riverine habitat. Direct effects may include overall trophic disruption, increased predation, individual fish and wildlife mortalities, loss of forage, displacement, and reduced species diversity. Indirect effects may include severe habitat degradation, loss of primary productivity, riparian vegetation desiccation, and downstream habitat impacts. These impacts may range in severity and longevity; however, some level of protection is afforded if complete dewatering is avoided. The Idaho Department of Fish and Game (IDFG) encourage preservation of the riverine connectivity as much as feasible

during construction to minimize impacts, and offered recommendations that will assist in minimizing impacts to fish and wildlife from the proposed dewatering effort. Those comments are included in the appendix of this document, and are incorporated by reference as required recommendations in this report. A verbal concurrence in support of with IDFG recommendations was received from the USFWS (personal communication R. Kibler, February 2012).

3.1. Stipulations

1. Erosion control measures shall be properly installed and provide adequate coverage for disturbed areas or associated areas subject to run-off as result of the proposed action.
2. Timing of project shall not be adjusted beyond the proposed dates more that 2 weeks without further review by Environmental Compliance.
3. Spreading of excess materials shall be conducted in a manner to eliminate the potential for any of the material to be become airborne and enter any fish-bearing water body, or enter any fish-bearing water body by any other means, to include, but not limited to, run off.
4. Reseed or replant disturbed areas with native materials and seed to minimize the invasion of noxious weed species, and subsequent use of pesticides, as well as potential for runoff.

3.2. Recommendations

1. Use best management practices to minimize potential impacts to wildlife and surrounding vegetation.
2. Minimize footprint of disturbance to smallest area possible.
3. No construction activities should occur in the river channel between March 15 and July 15 to protect spawning and rearing fish species.
4. River flows should be gradually reduced to allow fish and wildlife to migrate to suitable habitat.
5. Stranded fish should be salvaged and relocated into suitable habitat.
6. All soil disturbed sites should be restored using site-appropriate native woody plants, forbs, and grasses.
7. Post-construction monitoring should be required to assess short- and long-term effects of dewatering.
8. Options for habitat-based mitigation (e.g., wetland habitat restoration and protection) should be available based on the monitoring results.

4. Determinations

4.1. Approach to Determinations

The approach to the effects analysis used the following questions (adapted from Johnson 2009) to determine the extent of potential effects, if any, and justify the effects determination for each species and critical habitat listed under the ESA. Potential effects

of the action are considered along with the environmental baseline and the project description to determine the potential effects to the species and critical habitat. This approach will also be used as a basis for determinations under the MSA, FWCA, MBTA, and BGEPA, although the term "no effect" may be substituted for the appropriate term for each Act.

1. Is the proposed action likely to produce potential stressors or subsidies that would reasonably be expected to act directly on individual organisms or to have direct or indirect consequences (positive or negative) on the environment?

    a. An answer of "no" to #1 would result in a "no effect" determination by the Corps.
    b. An answer of "yes" to #1 would result in moving to #2.

2. If the proposed action is likely to produce those potential stressors, are endangered or threatened individuals likely to be exposed to one or more of those potential stressors or subsidies or one or more of the proposed action's direct or indirect consequences on the environment?

    a. An answer of "no" to #2 would result in a "no effect" determination by the Corps.
    b. An answer of "yes" to #2 would result a "may affect" determination by the Corps, and moving to #3.

3. If listed individuals are likely to be exposed, are those listed individuals likely to respond, positively or negatively, to that exposure?

    a. An answer of "no" to #3 would result in a "not likely to adversely affect" determination by the Corps.
    b. An answer of "yes" to #3 would result in moving to #4.

4. If listed individuals are likely to respond, are those responses likely to be sufficient to reduce their individual performance?

    a. An answer of "no" to #4 would result in a "not likely to adversely affect" determination by the Corps.
    b. An answer of "yes" to #4 would result in a "likely to adversely affect" determination by the Corps. This determination, for any potential effect, and for any given species, would result in a "may affect, likely to adversely affect" determination for that species.

4.2. Determination Summary

Table 2. Determinations for the area potentially affected by this action.

ESA		
Common Name	**Species Determination**	**Critical Habitat Determination**
USFWS		
Banbury Springs Limpet	No Effect	None Designated
Bliss Rapids Snail	No Effect	None Designated
Snake River Physa Snail	No Effect	None Designated
MSA		
No Adverse Effects		
MBTA		
No Adverse Effects		
BGEPA		
Disturbance Unlikely to Occur		

The Corps has determined that this action, as proposed, will have NO EFFECT on all ESA listed species in Gooding County.

After a review of the species list and critical habitat list, a review of the biological requirements of the identified species, and a review of the project description, timing, and nature of the action, the Corps has determined that species and critical habitats will be spatially or temporally separated from this action, and although the proposed action is likely to produce potential stressors, species and critical habitats are not likely to be exposed to those potential stressors or subsidies because of the distance of the proposed action to the Snake River and adjacent springs, the absence of species or specific life history stages of species from the vicinity of the proposed action, habitat conditions at each construction site, and the implementation of the environmental stipulations. As a result, 2.a. in section 7.1 (above) is true, and a no effect determination is justified.

This project will require further review in order to re-analyze the potential adverse effects on federal resource species or habitats if any significant changes in the action are proposed or occur after the date of this document.

5. References

IDEQ (Idaho Department of Environmental Qulaity). 2005. Little Wood River Subbasin Assessment and Total Maximum Daily Load. IDEQ. Twin Falls, Idaho.

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From: Tice, Benjamin J NWW
To: Tice, Benjamin J NWW
Subject: FW: Corps project on the Little Wood River in Gooding (UNCLASSIFIED)
Date: Monday, May 07, 2012 8:00:33 AM

Classification: UNCLASSIFIED
Caveats: NONE

From: Megargle,Doug [mailto:doug.megargle@idfg.idaho.gov]
Sent: Monday, January 30, 2012 1:05 PM
To: Tice, Benjamin J NWW; 'Bob_Kibler@fws.gov'
Cc: McDonald,Mike
Subject: RE: Corps project on the Little Wood River in Gooding (UNCLASSIFIED)

Dear Ben,

Idaho Department of Fish and Game (Department) has reviewed information related to a proposal from the City of Gooding to address the failure of existing shoreline protection structures (approximately 1-mile of shoreline) on the Little Wood River within the City limits. We understand the USACE desires to complete the work in the dry which would be achieved by diverting all Little Wood River flows into canals located approximately 4-6 miles upstream from the project area. We offer the following thoughts regarding the proposal to dewater the Little Wood River to construct the project.

The Department recognizes that construction within a stream channel is complicated by the presence of running water. Many project managers prefer to dewater the construction area to simplify construction methods, reduce costs, and meet mandated water quality standards and guidelines. The Department acknowledges the legitimacy of these advantages but is compelled to fully disclose the impacts of such actions to fish, wildlife, and their associated habitat.

Aquatic and riparian dependent wildlife species may be directly and/or indirectly impacted by intermittent and seasonal dewatering of riverine habitat. Direct effects may include overall trophic disruption, increased predation, individual fish and wildlife mortalities, loss of forage, displacement, and reduced species diversity. Indirect effects may include severe habitat degradation, loss of primary productivity, riparian vegetation desiccation, and downstream habitat impacts beyond the scope of the project. These impacts may range in severity and longevity; however, some level of protection is afforded if complete dewatering is avoided.

The Department encourages project planners to preserve riverine connectivity as much as feasible during construction to minimize impacts. In many cases, keeping as little as 10% of normal flows through the construction area can reduce the severity of immediate impacts and decrease post-construction recovery time.

The Little Wood River in this reach is heavily influenced by upstream water management activities. Currently, the Little Wood River is listed (IDEQ 303d) as impaired with respect to sediment, temperature, nutrient loads and does not meet the "coldwater aquatic biota" beneficial use standards. This reach of the river is subject to periodic low flow conditions and reportedly is dewatered on occasion.

The fish community is largely made up of cool and warm water fish species. Fish species found in the Little Wood River include rainbow trout, brown trout, smallmouth bass, yellow perch, bridgelip sucker, largescale sucker, sculpin species (probably mottled, but possibly Wood River), redside shiner, speckled dace, longnose dace, and others. Anglers seasonally fish this reach but angler effort and harvest data are not available. Several Species of Greatest Conservation Need, including wintering bald eagles, inhabit the site on a seasonal basis. Riparian habitats associated with this reach provide breeding, nesting, denning, and roosting habitat for migratory songbirds, birds of prey, waterfowl, shorebirds, aquatic mammals, small mammals, reptiles, and amphibians.

We encourage the USACE to preserve riverine connectivity during construction by diverting

approximately 90% of normal flows OR sufficient flows to maintain a consistent bare minimum flow. In the event a complete dewatering event is implemented, care should be taken to reduce impacts. We recommend implementing the following actions to avoid, minimize, and mitigate the effects of dewatering the river:

1. No construction activities should occur between March 15 and July 15 to protect spawning and rearing fish species.
2. River flows should be gradually reduced to allow fish and wildlife to migrate to suitable habitat.
3. Stranded fish should be salvaged and relocated into suitable habitat.
4. All soil disturbed sites should be restored using site-appropriate native woody plants, forbs, and grasses.
5. Post-construction monitoring should be required to assess short- and long-term effects of dewatering.
6. Options for habitat-based mitigation (e.g., wetland habitat restoration and protection) should be available based on the monitoring results.

Thank you for the opportunity to comment on the pending construction project. Please Mike McDonald, Staff Biologist, or me if you have any questions.

****
Douglas Megargle - Regional Fishery Manager
IDFG - Magic Valley Region
****

-----Original Message-----
From: Tice, Benjamin J NWW [mailto:Ben.J.Tice@usace.army.mil]
Sent: Thursday, January 26, 2012 10:09 AM
To: Megargle,Doug
Cc: Bob_Kibler@fws.gov
Subject: RE: Corps project on the Little Wood River in Gooding (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sorry Doug, I should have thought of this sooner. Could you please also send your response to Bob Kibler of the USFWS? I'd like him to know your position on this too.

Thanks,
Ben

Classification: UNCLASSIFIED
Caveats: NONE

Gooding Flood Control Project

Little Wood River, Gooding, Idaho

Appendix H, Public Involvement/Scoping

Little Wood River Channel Rehabilitation
Public Meeting Summary
9/24/2010

A public meeting was held on 9/23/10 in Gooding, Idaho. Mark Mendenhall, the Project Manager, and Nolan Harper, plan formulator, represented the Corps. Mark gave the presentation and led the public participation. Mayor Morton led the meeting and also presented some information to the public on where the city is at in the process of partnering with the Corps on this project.

Mark's presentation covered a brief history of the "river wall" in Gooding and the Corps involvement with studying the wall within the last 20 years. Mark also presented the Corps current authority relating to this project and laid out the study process including cost sharing, Corps planning process, and schedule. The public participated in an open discussion on the problems, opportunities, constraints, and possible alternatives for the river wall in Gooding.

25 people attended the public meeting, not counting Mayor Morton, Carleen Herring from Region 4 Economic Development, and those representing the Corps. Carleen also assisted the Corps with the public meeting by recording the responses given by the public during the open discussion.

The following is a list of questions and comments that were given during the first Q&A session;

1) Will any of this work be contracted?
2) What can the City do to reduce the dollar cost of the project, sweat equity?
3) The floodplain needs to go away, concerns with the cost of flood insurance.
4) The floodwall should go away and the channel should be sloped with walkways along the river.
5) Rehabilitation of the wall will not last and will begin falling apart again.
6) Use the Little Wood River to create an area for aquifer recharge.
7) Will the road crossings be widened to allow for unconstructed flows?
8) Where does the project start and stop? (project boundaries)
9) Is there room in the channel to slope the sides back?
10) Will the channel be designed to handle a 100 year flood?
11) It doesn't make sense to rebuild the wall if it doesn't handle the 100 year flood.
12) Is the planning phase wasted if we don't receive money from congress to construct the project?

13) A channel is designed for a 100 year flood it may increase the cost, instead build a bypass canal that handles flood waters and can be used for aquifer recharge.

The following is a list of problems and opportunities that were identified by the public during the open discussion;

PROBLEMS

- Collapsing wall,
- Safety of children around the wall, however this doesn't go away with just rehabilitation of the wall as it exist presently,
- Property boundaries and right of ways,
- Width of canal and available land,
- Concrete floor provides no habitat,
- Not knowing what the river looked like before the river wall was constructed,
- Bridge crossings, both the amount of and the narrow width that constricts flow,
- Ice jams,
- Coordination with city planning and zoning,
- Decisions may be made now that would affect/limit the opportunities for the river in the future,
- No detrimental impacts to people and properties downstream or upstream of the project,
- Property lines and homes,
- River eats up the city's budget,
- Cost and burden of flood insurance,
- Existing real estate deeds make reference to the River Wall,
- Existing water quality, largely determined by what people do upstream (no reason to do ecosystem restoration if what is happing upstream prevents this area from being effective habitat.

OPPORTUNITIES

- Fix or rehab the wall,
- Escape routes along canal for someone to use if they did fall in,
- Fishing in the river,
- Floating the river in tubes,
- Fishing ponds,
- Making a trail along the river that is handicap accessible,
- Trails,

- Parks,
- Educational area for the Deaf and Blind students,
- The road that runs next to the canal,
- Coordination with planning and zoning,
- Empty lot behind the USDA building,
- Outdoor classrooms,
- Potable water supply,
- Addressing the floodplain issue,
- Economic growth benefits of getting rid of flood plain,
- Economic growth benefits of the amenities provided along the river,
- Using the updated hydrology and rehabilitated canal to lobby FEMA for changing the floodplain maps.

PLANNING OBJECTIVES

The following were presented to and accepted by the public as the major objectives of this project. The first three were ones that we had previously identified and based on public comment and desire the 4th objective was added. Also the importance of looking at providing channel capacity for the 1 percent flood event was mentioned numeriously by the public.

1) Determine that the wall is falling apart not due to lack of O&M by the city (by law)
2) Flood Risk Reduction/Wall Rehab (1 percent chance flood event)
3) Ecosystem Restoration
4) Recreation

OTHER COMMENTS

Oregon St. should become a major N/S street, and may be the most important one to keep the bridge crossing

Idaho St. is a very busy street, but in a bad way, people use it to go fast and a lot of the drunks use it at night

The area south of the canal between Michigan and Nebraska is owned by a gentleman who is very willing to give his land to the city if it can help the cause

The open lot south of the canal at Michigan is owned by the city

The house directly south of the 90 degree bend between Nebraska and Illinois is owned by an environmental activist, and the gentleman who is willing to donate his land said she may also be willing

Gooding Flood Control Project
Little Wood River, Gooding, Idaho

Appendix I, Finding of No Significant Impact

FINDING OF NO SIGNIFICANT IMPACT
GOODING FLOOD CONTROL PROJECT REHABILITATION
GOODING, IDAHO

SEPTEMBER 2016

1. INTRODUCTION/PROPOSED ACTION

The U.S. Army Corps of Engineers, Walla Walla District (Corps), proposes to remove the existing channel walls from the Gooding Canal, construct a new channel in the same footprint as the existing channel, and demolish and replace five vehicular bridges and three pedestrian footbridges in the City of Gooding. Idaho (City) on the Little Wood River.

The Little Wood River flows through the City in a constructed masonry channel known as the Gooding Canal. In the 1930s, the Works Progress Administration realigned the river and constructed the rectangular channel made of grouted and un-grouted hand-placed lava rock over the native lava rock riverbed. The work was completed in 1941.

Since its completion, the channel has performed well but its walls have deteriorated significantly, and the rate of deterioration is increasing as the project ages. Diminished, but useful functionality of the Gooding Canal has been preserved by the City through ongoing maintenance, targeted repairs, and replacement of channel wall sections. However, the channel, constructed with impermanent methods and dubious materials, is now seventy five years old, and approaching the end of its useful life.

2. PURPOSE AND NEED

The purpose of the proposed Project (rehabilitation of the Gooding Canal channel through the City) is to provide localized flood risk management and (if possible) ecosystem restoration through improvement of aquatic habitat and riparian vegetation. The Gooding Canal is comprised of a channel with vertical walls of grouted and un-grouted lava rock for the purposes of flood risk management and irrigation water for the City. Construction of the Gooding Canal altered the natural alignment of the Little Wood River and associated riparian vegetation.

The proposed Project is needed because the channel is failing in areas due to age, original construction methods, channel configuration, and natural forces (ice, freeze/thaw, and heaving) which exert pressure on the individual stones that form the channel walls. In order to continue to provide localized flood risk management, the walls must be rehabilitated or replaced, and obstructions that constrict channel capacity must be removed or redesigned. The existing channel puts public infrastructure, including a school, at risk of damage due to localized flooding. The creation of the

Gooding Canal, including channel realignment, resulted in removal of riparian vegetation and has contributed to poor water quality and negatively impacted aquatic habitat.

The Report/EA, in accordance with Section 3057 of the Water Resources Development Act of 2007, also determines whether the rehabilitation of the channel is required as a result of improper operation and maintenance by the non-Federal sponsor (the City), and if not, whether rehabilitation of the Gooding Canal and (if possible) ecosystem restoration are feasible. The Report/EA describes measures and alternatives for meeting the Project objectives.

3. ALTERNATIVES CONSIDERED

The Corps considered four alternatives for addressing the flood management related needs for the City. Each alternative addresses all of the identified needs, but with a different amount of emphasis on the two main themes of providing public access and protecting natural resources. The four alternatives are:

- Alternative 1 [Replace Existing Channel Walls, Modify/Replace Existing Bridges (proposed alternative)]: Alternative 1 meets the four planning criteria and was carried forward for further consideration.
- Alternative 2 (Repair Existing channel Walls, Modify/Replace Existing Bridges): Alternative 2 does not meet the effectiveness or efficiency criteria. Because the existing canal has exceeded its design life, anything short of large scale rehabilitation would induce risk and uncertainty of performance and does not alleviate the problems associated with increased flood risk or increased O&M requirements. This alternative will result in higher future O&M costs than other alternatives, and is not considered a cost effective solution. Alternative 2 – Repair existing channel walls and modify/replace existing bridges was eliminated from further consideration.
- Alternative 3 (Relocation of Existing Structures). Alternative 3 does not meet the efficiency or acceptability criteria. Due to the topography, the majority of the city is in the flood zone. Relocating structures would require moving the majority of the city, creating social and physical upheaval at high cost. Furthermore, the legislation directs the Secretary to redesign the existing wall, presumably using the existing river alignment. Moving the majority of the town does not meet efficiency or acceptability criteria. Alternative 3 was eliminated from further consideration.
- Alternative 4 [No action (no change in current structures or management)]: This represents a continuation of the City's existing management process and level of effort. This alternative focuses on maintenance of existing facilities without addressing the identified risk factors.

Alternative 1 was identified as the preferred alternative. Alternative 4, the No Action Alternative prescribed by the Council of Environmental Quality to serve as the baseline against which all other alternatives are analyzed, was carried forward for detailed

analysis. Alternatives 2 and 3 were rejected from detailed analysis as they fail to meet the purpose and need.

4. ENVIRONMENTAL EFFECTS

The Proposed Alternative and the No Action Alternative were analyzed for potential effects to the following resources: Topography/Geology/Soils, Climate, Air Quality, Water Quality, Noise, Agriculture/Prime and Unique Farmlands/Land Use, Hydrology, Vegetation, Wildlife, Fisheries and Aquatic Resources, Threatened and Endangered Species, Aesthetics, Cultural Resources, Transportations, Recreation, and Socioeconomics.

The Corps also considered the cumulative effects of the proposed action along with other past, present, and reasonably foreseeable future actions in the Gooding Flood Control Rehabilitation Project area. The Corps found that none of the listed environmental components would be impacted at a significant level by the proposed project (with the inclusion of appropriate stipulations (see part 5, below). No recently known past, current and/or foreseeable future actions beyond the present study were identified which would result in cumulative impacts at a significant level.

For the proposed Project Clean Water Act compliance Section 404 permit and Section 401 water quality certification, requirements could be met through the use of Nationwide Permit 3 for repair, rehabilitation or replacement of previously authorized structures. For Section 401 water quality certification, the Corps would document the following conditions prior to proceeding with implementation.

- Written notification would be provided to the Southern Region of the Idaho Department of Environmental Quality.
- Implement activities on impaired waters with a total maximum daily load (TMDL) in a manner that is consistent with the TMDL.
- Design, implement, and maintain best management practices (BMPs) to fully protect and maintain the beneficial uses of Idaho water. Any necessary BMPs would be added to the environmental stipulations (part 5, below).

The only unavoidable “adverse effect” for the Proposed Alternative falls under Section 106 of the National Historic Preservation Act. The Corps and the Idaho State Historic Preservation Office continue to work to develop a Memorandum of Agreement to address project impacts to historic properties. Any mitigation measures or requirements agreed to in the MOA will be incorporated into the project environmental stipulations and completed during the design and implementation phase.

5. ENVIRONMENTAL STIPULATIONS

The Corps would adhere to the following environmental stipulations (mitigation) as part of the proposed action in order to ensure that impacts and effects that may result from the action are minimized or eliminated.

- Erosion control measures shall be properly installed and provide adequate coverage for disturbed areas or associated areas subject to runoff as a result of the proposed action.
- Timing of project shall not be adjusted beyond the proposed dates more than two weeks without further environmental compliance review.
- Spreading of excess materials shall be conducted in a manner to eliminate the potential for any of the material to be become airborne and enter any fish-bearing water body, or enter any fish-bearing water body by any other means, to include, but not limited to, runoff.
- Reseed or replant disturbed areas, if any, with native materials and seed to minimize the invasion of noxious weed species, and subsequent use of pesticides, as well as potential for runoff.

6. PUBLIC COMMENT/INVOLVEMENT

To announce the start of the feasibility phase and scoping, a public notice was issued to local residents; Federal, State, and local agencies; and other interested parties. A public meeting/workshop was hosted by the City on September 23, 2010. Meeting participants were encouraged to provide input at this workshop. Comments received are documented and attached as Appendix H to the Report/EA.

The Gooding Canal study team consisted of both local and Federal members, and included representatives from the City, Gooding County, Idaho, the Region IV Development Association, and the Corps. Meetings were hosted by the City to facilitate communications between various groups. This involvement led to general support for implementation of the proposed Project.

This study was coordinated with the U.S. Fish and Wildlife Service (USFWS), in accordance with the Fish and Wildlife Coordination Act, as well as with Idaho Department of Fish and Game (IDFG). The concerns and views expressed by USFWS and IDFG, encourage the Corps to ensure that the project should be dewatered with appropriate fish salvage to minimize any potential fish kill. Documentation of the coordination is contained in Appendix G of the Report/EA. The draft FONSI and Report/EA were made available to individuals, businesses, organizations and agencies for a 15-day review and comment period from September 7, 2016 to September 21, 2016.

7. COMPLIANCE WITH OTHER LAWS AND REGULATIONS

Section 7.0 of the Report/EA provides a detailed discussion of compliance with other laws and regulations. The proposed action complies with other applicable Federal laws and regulations.

8. CONCLUSION/FINDING

Having reviewed the Report/EA, I find the document provides sufficient discussions on the purpose and need for the proposed action, alternatives, the environmental effects of the proposed action and alternatives, and a listing of agencies and persons consulted. I have taken into consideration the technical aspects of the project, best scientific information available and public comments received. These documents provide sufficient evidence and analysis to meet the District's requirements pursuant to the National Environmental Policy Act.

Based on this information, I find that implementation of the proposed action would not result in significant impacts on the quality of the human environment and that an environmental impact statement is not required. The District will implement Alternative 1, Replace Existing Channel Walls, Modify/Replace Existing Bridges, at the earliest opportunity, subject to availability of funding.

_____ _____

Damon A. Delarosa Date
Lieutenant Colonel, Corps of Engineers
District Commander