BIG SPRINGS ENHANCEMENT PROJECT

TECHNICAL SPECIFICATIONS

PREFINAL 80% Design Drawings

June 10, 2017

Owner: Leadore Land Partners Limited
Karl Tyler
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Missoula, MT

Sponsor: Lemhi Regional Land Trust (LRLT)
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Signature Sheet / Certification of Technical Specifications

Project Title: Big Springs Enhancement Project,
Location: Big Springs, Lemhi County, Idaho

The person signing the specifications package shall have been in responsible charge of the overall design including developing or assembling the specifications. In cases where the designs described by the specifications meet the criteria for preparation by a registered engineer or architect, this person shall be registered with the applicable professional designation after their signature, such as P.E. for professional engineer or R.A. for registered architect. By this signature, this person is certifying the written specifications convey the design intent as portrayed on the drawings included therein. For specifications package containing designs from multiple disciplines, it is the signing individual's responsibility to ensure (using procedures defined by his/her organization) that the technical information prepared by other professions and disciplines and depicted in the document is compatible with the overall design intent and that the documents used to depict that information (e.g., drawings) include signatures with appropriate professional registration designations.

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BID SCHEDULE – BIG SPRINGS ENHANCEMENT PROJECT

Item	Description	Unit Price	Unit	Quantity	Amount
1	Mobilization and Demobilization		LS	1	$
2	Environmental Controls (ESC, etc.)		LS	1	$
3	Temporary Access Roads		LS	1	$
4	Temporary Access Road Stabilization		SY	2659	$
5	Temporary Bridge Crossings		EA	2	$
6	Cofferdams, Flow Diversions and Dewatering		LS	1	$
7	Bypass Channel Gravel Lining		CY	157	$
8	Construction Staking		LS	1	$
9	Work Areas 1 - 7		LS	1	$
10	Work Areas 8 - 10		LS	1	$
11	Work Areas 11 - 14		LS	1	$
12	Work Areas 15 - 26		LS	1	$
13	Work Areas 27 - 36		LS	1	$
14	Work Areas 37 - 40		LS	1	$
15	Work Areas 41 - 47		LS	1	$
16	Work Areas 48 - 52		LS	1	$
17	Work Areas 53 - 58		LS	1	$
18	Work Areas 59 - 62		LS	1	$
19	Work Areas 63 - 68		LS	1	$
20	Work Areas 69 - 78		LS	1	$
21	Work Areas 79 - 88		LS	1	$
22	Work Areas 89 - 100		LS	1	$
23	Work Area 101		LS	1	$
24	Exclusion Fencing		LF	960	$
25	Track Hoe (200 Series)		HR	30	$
26	Off-Road Dump Truck		HR	10	$
				Total Cost	$

PART I – GENERAL REQUIREMENTS

SECTION 1 – SUMMARY OF WORK

1.1 - DESCRIPTION OF WORK

1. This project will improve bank, channel and riparian conditions to address shade and habitat in areas where existing channel geometry and riparian vegetation is impaired. It will maximize short-term and long-term riparian and shade conditions to address established shade targets, reduce the channel width to a more appropriate geometry, and improve thermal refuge by increasing the frequency and magnitude of self-maintaining pools.
2. The work shall include, but not be limited to, the following activities as shown on the plans: preparation of construction access routes; installation and removal of temporary cofferdams and channel diversion structures; dewatering; creation of constrictions to allow the channel to scour pools and to narrow and deepen the channel; earthwork within the existing active channel zone to force flow against adjacent mature riparian vegetation; relocation of three stream segments to increase sinuosity; installation of multiple woody debris structures to prevent erosion; installation of a variety of edge treatments using FESL where the channel is narrowed; transplanting wetland sod; re-vegetation and seeding; reclaiming and restoring all construction access areas; fencing; irrigation. All work shall be completed in accordance with the contract provisions, the technical specifications, and Drawings.

1.2 – PROJECT ROLES

1. The above work is to be performed for the Lemhi Regional Land Trust(LRLT), hereafter referred to as the "Sponsor". The Sponsor will appoint a project staff member, hereafter referred to as "Contracting Officer", who will have the responsibility to issue a contract to construct the above work and will administer the contract and funds for the project. Only the Sponsor may approve changes to the contract amount and the contract requirements.
2. Rio ASE, hereafter referred to as the "Engineer," is the Sponsor's representative who has designed the project. The Engineer provides clarification to the Contracting Officer regarding the intent of the Drawings and Specifications and whether all the proposed or completed work is in compliance with the construction specifications. The Engineer also reviews all proposed changes and makes recommendations to the Contracting Officer prior to the Contracting Officer's approval of the changes.
3. The owner of the property where construction will occur is the Leadore Land Partners Limited, managed by Karl Tyler herein referred to as the "Property Owner."

4. Construction observation will be provided by the Sponsor and the Engineer. Construction observers will not direct the Contractor in any way but will advise the Contracting Officer regarding the technical requirements of the Drawings and Specifications, and whether the ongoing work is in compliance or if there are discrepancies. The construction observers are not responsible for the construction means, methods, techniques, procedures and/or safety of the Contractor.

1.3 – GENERAL CONSTRUCTION SEQUENCE

1. Construction staking
2. Site preparation, install erosion & sediment control measures
3. Construct lower bypass channel
4. Dewater project area and divert flows through lower bypass channel
5. Fish salvage (led by the Contracting Officer and completed by project partners).
6. Earthwork and floodplain excavation and grading including placement of fill and excavation of new channel meanders, transplant wetland sod and stabilize and plant floodplain features within lower isolation area
7. Check grades, prewash channel, rewater channel, check flow patterns
8. If necessary, dewater channel, make adjustments, pre-wash channel and rewater channel
9. Reclaim bypass channel
10. Construct upper bypass channel
11. Repeat Steps 4 through 9 for the upper work area
12. Construct work area 101 in the wet.
13. Install wildlife exclusion fencing to protect riparian plantings and naturally regenerating areas
14. Reclaim construction access and staging areas to pre-existing conditions
15. Install/repair ranch fences
16. Dormant seed upland areas
17. Monitor, adaptive management and on-going weed control

1.4 – WORK SCHEDULE

1. The approved work window for this project is September 1, 2017 to January 31, 2018; all work shall be completed during this period.
2. Work requiring equipment to operate partly, or wholly, below the ordinary high water line shall be completed during the modified in-water work window as determined by the Contracting Agency.
3. Completion of all work below the ordinary high water mark, including revegetation, shall be accomplished by the end of the allowable in-water work period; all other work including dormant seeding shall be accomplished by January 31, 2018.

4. The Contractor may not leave the work site or suspend activity for more than five (5) consecutive days after mobilizing to the site and prior to reaching substantial completion unless otherwise approved by the Contracting Officer.

1.5 - LOCATION

1. All work is on Big Springs, its floodplain, and the property belonging to the Property Owner: Section 19, Township 16 North, Range 26 East, Lemhi County, Idaho.
2. Access to the project site is from Leadore, ID – travel northwest on Hwy 28 for 2.5 miles. At 2.5 miles, the dirt road on the north side of the highway is the start of the project. From this dirt road, the project continues 0.6 miles northwest along the north side of the highway. Site improvements may be required to create access points suitable for mobilization of construction equipment and delivery of project materials.

SECTION 2 – USE OF SITE

2.1 - CONTRACTORS USE OF PREMISES

1. Prior to performing work, the Contractor shall become thoroughly familiar with the Project Site, Project Site conditions, and all portions of the Work.
2. Contractor must coordinate all work and access to the site with the Contracting Officer. The Contracting Officer will be responsible for coordination with the Property Owner.
3. The Contractor is responsible for maintaining public safety in and around the Project Site, and will provide any safety precautions such as temporary fencing or other methods at the Contractor's discretion where deemed necessary. The Contractor shall be solely and completely responsible for compliance with all applicable OSHA and NRS Chapter 618 standards, in the construction practices for all employees directly engaged in the construction of this project.
4. The Contractor is responsible for the security of property at the Project Site and will provide reasonable protection to prevent damage or loss to equipment, materials, and supplies incorporated in the project and to the Property Owner.
5. The Contractor shall only access the Project Site as shown on the Drawings. Alternate gate access points shall not be used, unless authorized by the Contracting Officer.
6. Contractor shall only use designated access routes and stream crossing locations as indicated on the Drawings.
7. The Contractor shall cause notice to be given to the State of Idaho’s Utilities Underground Location Center (DIGLINE) at 800-342-1585 and to any underground utility facilities who are not members of the registered protection service. The Contractor must take all reasonable measures to protect existing utilities and all notices shall be given at least 72 hours prior to the start of construction. All work performed adjacent to utilities

shall be in accordance with procedures outlined by the utility company. The contractor shall immediately report any damage to utilities to the Sponsor and the utility company.

8. The Contractor shall be responsible for any damage incurred to any utility lines at no cost or obligation to the Sponsor or the Property Owner.
9. Movement of construction equipment over pipes, bridges, utilities or infrastructure during construction shall be at the Contractor's risk. The Contractor shall be responsible for any damage incurred to infrastructure at no cost or obligation to the Sponsor or the Property Owner.
10. Contractor is expected to keep a neat and tidy construction site, free of accumulated waste materials and trash.
11. Contractor shall take all measures necessary to minimize damage to existing vegetation during construction activities.
12. The Contractor shall only remove trees and shrubs that are absolutely necessary for the execution of the work and shall make all efforts to minimize tree and shrub removal. In the event that a tree or shrub outside the immediate work areas must be removed or damaged, the Contractor shall obtain prior approval from the Contracting Officer. Any tree or shrub unnecessarily removed from the work site shall be replaced by a new tree or shrub of equal or greater value at the sole expense of the Contractor as approved by the Contracting Officer.
13. The Contractor shall remove all temporary equipment and facilities upon completion of work under this contract.

2.2 - EQUIPMENT

1. Contractor is required to pressure wash and remove all dirt, grease, oil, fuel, vegetation and weed seeds before bringing equipment on site to limit introduction of noxious weeds, aquatic invasives and pollutants to the site.
2. Complete vehicle and equipment staging, cleaning, maintenance, refueling, and fuel storage in the designated construction staging and material storage area 150' away from any natural water body.
3. Inspect all vehicles and equipment operated within 150 feet of Big Springs Creek daily for fluid leaks before leaving the construction staging and material storage area. Repair any leaks detected in the construction staging and material storage area before resuming operation. Document inspections in a record that is available for review on request by the Contracting Officer and regulatory agencies.
4. Use of equipment in flowing water is limited by applicable permits. Equipment must be thoroughly cleaned before entering the water. Contractor is responsible for compliance with applicable regulations for in-water equipment use.
5. Hydraulics Fluids - All equipment that are doing work in active stream channels, or permanent water bodies during project construction must use hydraulic oil that meets or

exceeds environmentally acceptable lubricants by the U.S. EPA (2011); e.g., mineral oil, polyglycol, vegetable oil, synthetic ester; Mobil® biodegradable hydraulic oils, Total® hydraulic fluid, Terresolve Technologies Ltd.® biobased biodegradable lubricants, Cougar Lubrication® 2XT Bio engine oil, Series 4300 Synthetic Bio-degradable Hydraulic Oil, 8060-2 Synthetic Bio-Degradable Grease No. 2, etc. or meet stringent acute aquatic toxicity (L-50), which is inherently biodegradable. This does not include trucks, dozers, front end loaders, etc., that are operated on the flood plain or involved in the construction of new channels prior to adding water flow or filling abandoned channels after de-watering. All products shall be API certified and the vendor shall furnish documentation of the certification upon request. Products must meet the performance and warranty requirements of the manufacturers listed in the specifications.

6. Absorbent pads to soak up leaks and a fuel spill response kit (including rag pads and booms) of appropriate size for the equipment used shall be on site at all times and readily available throughout the construction period.

2.3 - HOURS OF WORK

1. The normal work hours shall be 7:00 AM to 7:00 PM, Monday through Friday. No work shall be performed outside the normal work hours, or on Saturdays, Sundays, or holidays unless authorized by the Contracting Officer. The Contractor shall request work hour variations in writing via email and obtain written approval from the Contracting Officer prior to working outside normal work hours.

SECTION 3 – MEASURE AND PAYMENT

3.1 – MEASUREMENT

1. Lump Sum: There will be no measurement for lump sum bid items.
   a) **Bid Item Number 1** – Mobilization and Demobilization
   b) **Bid Item Number 2** – Environmental Controls (SWPPP, ESC, etc.)
   c) **Bid Item Number 3** – Temporary Access Roads
   d) **Bid Item Number 6** – Cofferdams, Flow Diversions and Dewatering
   e) **Bid Item Number 8** – Construction Staking
   f) **Bid Item Number 9** – Work Areas 1 – 7
   g) **Bid Item Number 10** – Work Areas 8 – 10
   h) **Bid Item Number 11** – Work Areas 11 – 14
   i) **Bid Item Number 12** – Work Areas 15 – 26
   j) **Bid Item Number 13** – Work Areas 27 – 36
   k) **Bid Item Number 14** – Work Areas 37 – 40
   l) **Bid Item Number 15** – Work Areas 41 – 47
   m) **Bid Item Number 16** – Work Areas 48 – 52

n) **Bid Item Number 17** – Work Areas 53 – 58
o) **Bid Item Number 18** – Work Areas 59 – 62
p) **Bid Item Number 19** – Work Areas 63 – 68
q) **Bid Item Number 20** – Work Areas 69 – 78
r) **Bid Item Number 21** – Work Areas 79 – 88
s) **Bid Item Number 22** – Work Areas 89 – 100
t) **Bid Item Number 23** – Work Area 101

2. Unit Price Work
   a) **Bid Item Number 4** – Temporary Access Road Stabilization: Measurement will be made by square yard of material for stabilization; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   b) **Bid Item Number 5** – Temporary Bridge Crossings: Measurement will be made by each bridge crossing shown on the plans; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   c) **Bid Item Number 7** – Bypass Channel Gravel Lining: Measurement will be made by cubic yard of gravel and cobble material to provide bypass channel stabilization where native cobbles are not encountered; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   d) Bid Item Number 24 – Exclusion Fencing: Measurement will be made by lineal feet of materials associated with installation of exclusion fence; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   e) **Bid Item Number 25** – Track Hoe (200 Series): Measurement will be by the hour of equipment use including operator and one laborer at locations as directed by the Contracting Officer.
   f) **Bid Item Number 26** – Off-Road Dump Truck: Measurement will be by the hour of equipment use including operator and one laborer at locations as directed by the Contracting Officer.

3.2 – PAYMENT

1. General
   a) Payment includes full compensation for all required labor, materials, products, tools, equipment, transportation, services and incidentals, erection, application or installation of an item of the work, overhead and profit.
   b) Include cost of all items in Section 1 in prices offered in the bid schedule for other items of work, e.g., submittals, temporary facilities and controls, environmental controls, water pollution control, tree and plant protection, protection of existing installations, cleaning, and as-built drawings.

2. Payment for Lump Sum Work covers all Work specified or shown on the Drawings, with the exception of Unit Price Work specifically identified in the Bid Schedule as Unit Price items. Further description of Lump Sum items is as follows:
    a) **Bid Item Number 1** – Mobilization and Demobilization: Payment for mobilization, preparatory work, and demobilization will be made as part of the lump sum price offered in the bid schedule. The amount of the bid for mobilization and demobilization shall not exceed 10% of the total project base bid amount.
    b) **Bid Item Number 2** – Environmental Controls (SWPPP, ESC, etc.): Payment will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor and materials necessary to develop and implement pollution prevention plans, erosion and sediment control, and other environmental controls related to construction activities. This includes complying with project-related permits not explicitly stated or identified in the specifications or Drawings.
    c) **Bid Item Number 3** – Temporary Access Roads: Payment will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor, equipment and any necessary material for establishing and maintaining access roads as shown on the Drawings, including removal and replacement of fences where necessary for project access, and establishment of one (1) new stabilized construction entrance at the location shown on the Drawings or at alternate locations approved by the Contracting Officer.
    d) **Bid Item Number 6** – Cofferdams, Flow Diversions and Dewatering: Payment will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor, equipment, and materials for separating the work site from the actively flowing channel, as required to construct as shown on the Drawings. This work includes bypass channels and reclamation of these channels as shown on the Drawings including sod salvage, excavation, maintenance, and acquisition and placement of hay bale check dams if required. Dewatering will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor, equipment, and materials for removing excess groundwater and surface water from the work area to the extent required to construct as shown on the Drawings.
    e) **Bid Item Number 9** – Construction Staking: Payment will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor, equipment, and materials for installation and maintenance of construction staking including hubs, temporary control, offset stakes, centerline stakes, etc. for the proposed work items as shown on the Drawings.
    f) **Bid Item Numbers 9-23** – Work Areas 1-101: Payment will be included as part of the lump sum price offered in the bid schedule; includes furnishing labor, equipment, and materials for installing and constructing work areas including channel excavation, bank fill, bank treatments, sod salvage, nursery grown sod, borrow excavation and reclamation

to complete the work for each work areas to the extent required to construct as shown on the Drawings.

3. Payment for items of Unit Price Work listed in the bid schedule covers all Work necessary to furnish and install the following items:
   a) **Bid Item Number 4** – Temporary Access Road Stabilization: Measurement will be made by square yard of material for stabilization; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   b) **Bid Item Number 5** – Temporary Bridge Crossings: Measurement will be made by each bridge identified on the plans; includes furnishing labor, equipment and any necessary material for establishing, maintaining, and removing temporary bridge crossings as shown on the Drawings and as determined necessary by the Contractor to accommodate Contractor's equipment.
   c) **Bid Item Number 7** – Bypass Channel Gravel Lining: Measurement will be made by cubic yard of material for to provide bypass channel stabilization where native cobbles are not encountered; includes equipment and materials as determined necessary by the Contractor and Contracting Officer.
   d) **Bid Item Number 24** – Exclusion Fencing: Measurement will be made by lineal foot of finished in place exclusion fencing; includes equipment, labor, and materials as determined necessary by the Contractor and Contracting Officer.
   e) **Bid Item Number 25** – Track Hoe (200 Series): Measurement will be by the hour of equipment use including operator and one laborer at locations as directed by the Contracting Officer.
   f) **Bid Item Number 26** – Off-Road Dump Truck: Measurement will be by the hour of equipment use including operator and one laborer at locations as directed by the Contracting Officer.

SECTION 4 – SUBMITTALS

4.1 – LIST OF SUBMITTALS

1. Construction Schedule
2. Progress Schedule
3. Subcontractors List
4. Pay Requests
5. Emergency Telephone Number List
6. Emergency Action Plan in Case of Workplace Injury
7. Insurance Certificates
8. Bond
9. Safety Plan
10. Cofferdam, Flow Diversion and Dewatering Plan

11. Temporary Bridge Plans
12. Record Documents

4.2 – REVIEW OF SUBMITTALS

1. Time required to review submittals shall be seven (7) working days.
2. Time required for review of each submittal or resubmittal begins when the Contracting Officer receives a complete set of materials required for a particular submittal.
3. Send submittals required to Big Springs Project, C/O Breann Green, Lemhi Regional Land Trust, PO Box 871, Salmon, ID 83467, or hand deliver to Contracting Officer at the Project Site, or email breann@lemhilandtrust.org. Clearly label each submittal with the title.
4. The Contracting Officer will indicate the approval or disapproval of each submittal and the reasons for disapproval. When each submittal has been approved, one copy will be returned to the Contractor.
5. Obtain approvals on all submittals before beginning work on the items included in the submittal. Review each submittal and check for compliance with Contract Documents.
6. Maintain one approved set of submittals at the worksite and provide access to these submittals for the Contracting Officer, Engineer and interested Government agencies.

4.3 – CONSTRUCTION SCHEDULE

1 Submit a schedule of work representing the Contractor's planned approach for this work. The schedule shall include the following features:

   a. Milestones for the beginning of all work, entry to worksite, beginning and ending of in-stream work, substantial completion of work, and departure from worksite. All work will be accomplished within the timeframes allowed in this section of the specifications.
   b. The start date and finish date of all major work activities. Sequence of work shall reasonably account for interdependency of activities. Start dates and finish dates shall provide for a reasonable duration to accomplish work in consideration of the resources the Contractor intends to use for that activity and also for a reasonable allowance of additional time to account for normal work delays.
   c. The dates when each submittal table will be provided to the Contracting Officer.

4.4 – PROGRESS SCHEDULE

1. Progress Schedule to be submitted on a weekly basis throughout the duration of active construction. At the beginning of work the Contractor shall select a day of the week for submittal of the current Progress Schedule and shall submit an updated Progress Schedule on that day each week for the duration of construction activities. Show updated complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Show projected percentages of completion for each

item of Work as of time of each Progress Schedule. Progress schedules shall be emailed to the Contracting Officer (breann@lemhilandtrust.org).

4.5 – LIST OF SUBCONTRACTORS

1. Submit prior to the Preconstruction Conference. List to be included in final Notice to Proceed.

4.6 – EMERGENCY TELEPHONE NUMBER LIST

1. Develop a list of phone numbers to use in case of emergency.
    a. The list shall include phone numbers for all local utility owners (phone, power, water, sewer, etc.)
    b. The list shall include phone numbers for local emergency responders (police, fire department, search and rescue, etc.)
    c. The emergency telephone number list shall also include emergency contact information for all persons regularly participating or observing construction activities at the project site.

4.7 – EMERGENCY ACTION PLAN IN CASE OF WORKPLACE INJURY

1. The Contractor shall prepare an emergency action plan to instruct employees what to do in case of a workplace injury. The plan shall include the locations of the closest medical facilities, emergency phone numbers, and first aid supplies.

4.8 – SAFETY PLAN

1. Develop and maintain a safety program and submit a safety plan before work commences.

SECTION 5 – SPECIAL PROCEDURES

5.1 - IN-STREAM WORK

1. In-stream work is allowed in Big Springs Creek for this project based on the in-water work modification dates obtained from the Contracting Agency as specified in the permit documents.
2. Idaho Department of Environmental Quality and HIP III turbidity criteria shall be strictly adhered to while completing all instream work. (See Section 3.2 Turbidity Monitoring)
3. Cofferdams, flow diversion structures and bypass channels shall be installed at all locations indicated on the Drawings or at locations shown on the approved “Cofferdam and Flow Diversion Plan.” Some aspects of the project may not require the use of a cofferdam to complete the work.
4. Dewatering within cofferdams shall be performed to the extent necessary to construct the project as shown on these plans, as determined by the contractor. Dewatering shall be performed as necessary by the Contractor to maintain a work area at the location of

large wood structure construction activities such that water is no deeper than the diameter of the log(s) on the lowest layer of the structure, and at the location of channel construction activities such that water is shallow enough to allow the Contracting Officer to easily inspect finished elevations of the work. Discharge from dewatering within specific work areas shall be routed to floodplain areas so as to allow the removal of fine sediments or other contaminants prior to reentering the river. All pumps used by the contractor for dewatering shall have screened intakes that meet Idaho Fish and Game specifications and National Marine Fisheries Service Anadromous Salmonid Passage Facility Design Criteria (NMFS, 2011).

5.2 - TURBIDITY MONITORING

1. Turbidity monitoring is required as part of this project and shall be completed by the Contractor in accordance with Idaho DEQ and HIP III Conservation Measures. The Contractor shall comply with all requirements for turbidity as set forth in the permit documents and follow the protocols outlined below.

a) Take a background turbidity sample using a recently-calibrated turbidimeter in accordance with manufacturer's instructions, or measure turbidity with a visual turbidity observation (Figure 1). Turbidity should be measured every 2 hours while in-water work is being implemented or more often if sediment disturbance varies greatly. Turbidity does not need to be monitored when working in the dewatered sections unless a visible plume is evident. The background samples should be taken at a relatively undisturbed location approximately 100 feet upstream from the project area. Record the observation, location (latitude/longitude), and time before monitoring at the downstream point, known as the measurement compliance point.

b) Take a second sample, immediately after each upstream sample, at the measurement compliance point, approximately 100 feet downstream from the project area. Record the downstream observation, location, and time.

c) Compare the upstream and downstream samples. If observed or measured turbidity downstream is more than upstream observation or measurement (> 10%), the activity must be modified to reduce turbidity. If visual estimates are used, an obvious difference between upstream and downstream observations shall bear the assumption of a (> 10%) difference. Mark "Yes" or "No" on your datasheet. Continue to monitor every 2 hours as long as instream activity continues.

d) If exceedances occur for more than two consecutive monitoring intervals (after 4 hours), the activity must stop until the turbidity level returns to background, and the EC lead must be notified within 48 hours. The EC lead shall document the reasons for the exceedance and corrective measures taken then notify the local NMFS branch chief and/or USFWS field supervisor and seek recommendations.

e) If at any time, monitoring, inspections, or observations show that the turbidity controls are ineffective, immediately mobilize work crews to repair, replace, or reinforce controls as necessary.
f) Any exceedance of the turbidity standard must be reported to the Idaho Falls DEQ regional office within 24 hours. Copies of turbidity monitoring records or logs must be available to DEQ upon request. The log must include background measurements (in NTUs); down-current measurements, comparison of background and down-current monitoring as a numeric value (in NTUs), and latitude/longitude, time and date for each sampling event. Monitoring records or logs must describe all exceedances and subsequent actions taken to correct the violations, including monitoring and the effectiveness of the action(s) taken.

SECTION 6 – TEMPORARY UTILITIES

6.1 - TEMPORARY ELECTRIC

1. Electric power is not available at the site.
2. If temporary power is necessary to operate pumps, Contractor shall provide all generators, and other electrical equipment and facilities for obtaining and distributing power on the site.
3. All generators shall be placed outside of the ordinary high water line with appropriate spill prevention and containment measures.

6.2 - TEMPORARY WATER

1. Potable water is not available to the Contractor at the site. The Contractor shall be responsible for supplying potable water for all employees at the site.
2. The Contractor may use water from Big Springs for dust control, if a temporary water right has been obtained for dust abatement.

6.3 - TEMPORARY SANITATION FACILITIES

1. Contractor shall provide and maintain temporary sanitation facilities (e.g., “port-a-potties”) for use by the construction and observation crews for the duration of the construction and revegetation activities.

6.4 – TEMPORARY FIRST AID FACILITIES

1. Contractor shall provide first aid equipment and supplies onsite for employees.
2. Contractor shall have an emergency action plan and instruct employees what to do in case of a workplace injury.
3. Contractor shall review the plan with each employee and have the plan available onsite at all times.

6.5 - TEMPORARY FIRE PROTECTION

1. The Contractor shall conduct operations in a manner that is fire-safe for the work area and adjacent areas. Proper fire extinguishers shall be installed on all equipment and maintained by the Contractor. The premise shall be maintained clear of rubbish, debris, or other material constituting a potential fire hazard.
2. Where significant or continued noncompliance with fire safety is noted, the Contracting Officer reserves the right to stop the work at no extra cost due to extension of time pending remedial action. Furthermore, the Contractor shall be responsible for, and reimburse the Sponsor as appropriate, any fines or penalties levied by the Fire District.

6.6 - TEMPORARY FUEL STORAGE

1. All stationary temporary fuel storage shall be located in the Construction Staging Area.
2. Fuel storage vessels shall be inspected prior to site delivery for leaks or damage. Leaky storage tanks will not be permitted on site.
3. Secondary containment will be required for all on site fuel storage vessels. Secondary containment structures will provide storage capacity in the amount of 110% of the volume of the largest primary container stored within.
4. At the conclusion of project construction, any leaked fuel or contaminated rainwater within the secondary containment structure will be properly collected and legally disposed of at an offsite location.

SECTION 7 – ACCESS AND STAGING

7.1 - REGULATORY REQUIREMENTS

1. The Contractor must comply with applicable local regulations for haul routes over public highways, roads, or bridges. The Contractor must investigate the condition of available public and private roads for clearances, restrictions, bridge-load limits, bond requirements, and other limitations that affect or may affect access and transportation operations to and from the site.
2. Contractor must meet jurisdictional conditions for use of existing roadways and haul routes; including seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.

7.2 - SITE CONDITIONS

1. Access to the site is limited and the Contractor shall only use equipment access, haul routes, parking and staging areas shown on the Drawings.
2. There is an existing bridge crossing Big Springs Creek. The Contractor will be responsible for assessing the condition and load bearing capacity of the existing structure to determine if it is sufficient for site access. The Contractor is responsible for any structural

damages and/or upgrades or modifications to the existing crossing to safely access the site.

3. Unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of work.

7.3 - TEMPORARY ACCESS ROADS

1. Access Roads:
   a) All temporary access roads are depicted in the Drawings. Contractor may not deviate from these locations without prior approval from the Contracting Officer.
   b) Establish access road for access from public roads to the work area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.
   c) Wetlands shall be protected wherever access roads traverse wetland communities and shall be restored to their original grade and condition. Protect wetlands by stripping wetland sod and stock piling adjacent to the access road. If the Contractor determines that the access route will become too rutted out to restore original grades, lay down non-woven geo-textile road fabric and a minimum of 1' of wood chips (aka. Hog fuel). All materials used to protect wetlands shall be removed at project completion and wetland areas returned to pre-existing conditions. Wood chips may be distributed throughout upland disturbed areas and all fabric shall be disposed of by the Contractor.
   d) Minimize soil disturbance along all access routes.
2. Maintain roadways, temporary staging, storage areas and temporary access roads in a sound, reasonably serviceable condition until completion and acceptance of all work under this contract.
3. All access routes shall be restored to their original condition.
4. Temporary Bridge & Stream Crossing
   a) All work along Big Springs Creek shall be accessed via two temporary bridges crossing the excavated bypass channels as shown on the plans.
   b) Contractor shall submit a temporary bridge plan detailing means and methods for placement of two temporary bridges at the locations identified on the Drawings. The plan shall detail construction materials used for temporary abutments (such as ecology blocks), no piers will be allowed. No crossings of the active channel will be allowed for the installation and placement of the two proposed bridges.
   c) Contractor shall furnish a structurally sound bridge for the temporary crossing. The bridge shall have a minimum single span of 30 feet.
      (1) The Contractor is solely responsible for supplying a structurally sound bridge including temporary abutments, structural support members, and bridge deck capable of supporting all equipment, machinery, and material deliveries that will cross the actively flowing river.

(2) The Contractor shall inspect and maintain the bridge and all associated components daily from the time of installation to the time of removal. The Contractor shall remove and replace any bridge components that become unfit or unsafe for use at no additional cost to the Contracting Agency.

d) Bridge shall have a minimum clearance of 1 foot from the 1.25-year water surface elevation (the 1.25-year WSE at the specified locations are called out on the drawings) to the low chord.

e) Temporary ramps shall be constructed as deemed necessary by the Contractor to safely access and utilize the bridge deck.

f) The bridge shall be removed immediately following completion and final inspection.

7.4 – FENCES & GATES

1. The Contractor is responsible for protecting existing fences and gates in the project area.
2. Property Owner require that gates remain closed and fence lines secure and operational throughout the construction period.
3. The Contractor may only remove sections of fencing or gates necessary for completion of the project and that are approved by the Contracting Officer. All sections removed shall be repaired or replaced with equal or better material in their original locations or in a location as directed by the Contracting Officer at no extra cost to the Sponsor.

7.5 – CONSTRUCTION STAGING AREA

1. Contractor shall park all equipment, vehicles, materials, fuel, portable sanitation facilities, etc. on the sod in the construction staging area, do not strip.
2. All equipment and vehicles shall be stored in the staging area nightly.
3. To prep the staging area for seeding, Contractor shall disc the staging area to address compaction and prep the seed bed by removing all stones and dirt clods greater than 2”.

7.6 – BORROW SOURCES (BYPASS CHANNEL EXCAVATION LIMITS)

1. Contractor shall strip the sod and topsoil layer (5”-10”) within the borrow source areas and stock pile for reclamation. To reclaim, Contractor shall top dress the borrow areas with stockpiled topsoil and then sod. If deemed necessary, Contractor shall disc the Borrow Source to prep the seed bed and remove all stones and dirt clods greater than 2”.

SECTION 8 – TEMPORARY ENVIRONMENTAL CONTROLS

8.1 - REGULATORY REQUIREMENTS

1. Contractor shall be responsible for compliance with all Federal, State, and local laws and regulations and shall be expected to maintain copies of all required permits on site for inspection and review.

2. Contractor shall conform to most stringent requirement in cases of conflict between specifications and regulatory requirements.
3. Contracting Officer may stop any construction activity in violation of Federal, State, or local laws and additional expenses resulting from work stoppage will be responsibility of Contractor.
4. Contractor will be responsible for producing implementing, adhering to, and maintaining a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the regulations and guidelines set forth and subject to approval by the State of Idaho.

8.2 - DUST CONTROL

1. Contractor shall provide all labor, equipment, and materials to control dust on all access roads several times per day to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to crops, orchards, cultivated fields, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions.
2. Contractor shall be responsible for damages resulting from dust originating from Contractor operations.

8.3 - AIR POLLUTION CONTROL

1. Utilize reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.
2. Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.

8.4 – NOISE CONTROL

1. Do not exceed 80 decibels (daytime), as measured at noise-sensitive areas such as residences and schools during the hours of 7:00 a.m. to 7:00 p.m. Do not exceed noise levels of 65 decibels (nighttime) during the hours of 7:00 p.m. to 7:00 a.m.
2. Provide specialty mufflers for continuously running generators, pumps, and other stationary equipment to meet the decibel requirements above.
3. Compression brakes are not allowed.
4. Perform operations producing high-intensity impact noise only weekdays during the hours of 7:00 a.m. to 7:00 p.m.

8.5 - WATER POLLUTION CONTROL

1. Perform construction activities by methods that will prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. Such pollutants and wastes include, but are not restricted to refuse, garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil

and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.

SECTION 9 – SURVEYING

1. Initial construction staking will be provided by the Sponsor. The Contractor shall provide all additional surveying tasks necessary for construction. This includes, but is not limited to: locate survey control and reference points, establish horizontal and vertical control, place grading stakes, identify and stake the channel centerline, identify all major and minor work components, and periodically verify locations and elevations of all construction items. AutoCAD files for the design are available upon request.
2. Contractor shall be responsible for reporting any elevation or horizontal discrepancies to the Contracting Officer for clarification. Minor adjustments to suit field conditions are anticipated, and it shall be the responsibility of the Engineer to make decisions regarding these adjustments.
3. Topographic survey is provided by the Sponsor and shown on the Drawings. An electronic version of the topographic survey information, in AutoCAD format, is available to the Contractor upon request. The Drawings reflect LiDAR and survey data collected in October 2016 but do not include all utilities, surface features, structures, and other items that may be encountered at the Project Site. It is the Contractor's responsibility to check existing conditions prior to bidding or commencing work.
4. Control points identified on the Drawings shall be used for all ties to spatial and elevation data listed in the Drawings.
5. All dimensions on the drawings are in units of feet and decimals, unless otherwise specified.

SECTION 10 – RECORD DRAWINGS AND FINAL SITE REVIEW

10.1 - GENERAL

1. Throughout the progress of the Work, maintain an accurate record of changes in the Contract Documents.
2. Prior to commencing demobilization, the Contractor shall review all construction elements with the Contracting Officer, who will give approval or provide a written list of final items to be corrected.
3. Final site review approval is contingent on the successful completion of: construction of design elements, cleaning of the site, removal of all construction access roads, ruts and staging areas, restoration of areas disturbed by construction activities, and other tasks as outlined in these specifications and on the Drawings.

10.2 – RECORD DOCUMENTS

1. Contractor's set: Secure from the Contracting Agency one complete set of Contract Documents for use as the Contractor's Set of Record Documents. Label immediately as "RECORD DOCUMENTS-CONTRACTOR'S SET." Use this set to record all changes in the Work as they occur on a daily basis.
2. Maintain the Contractor's set of Record Documents protected from deterioration and from loss and damage until completion of the Work. In the event of loss or damage use whatever means necessary to again secure and record the data.
3. At project completion verify the accuracy and completeness of the Contractor's set and submit Record Documents to the Contracting Officer.

10.3 - FINAL CLEANUP

1. Complete the following cleanup tasks before requesting inspection for completion for the entire Project or a portion of the Project.
   a) Clean the Project Site and grounds in areas disturbed by construction activities of rubbish, waste materials, litter, and foreign substances. Remove all waste from the property, do not burn, bury, or otherwise dispose of trash on the project site.
   b) Remove construction equipment, tools, machinery, and surplus material from the site. Where extra materials of value remain after completion, coordinate with the Contracting Officer on where to leave them on the project site.
   c) Prepare all areas disturbed by construction activities that are above ordinary high water for seeding specifications outlined in this document.
   d) Leftover woody material, wood and other native organics may be broken and broadcast over the restored area as approved by the Contracting Officer.
   e) Contracting Officer shall provide final approval of site cleanup prior to demobilization.

PART II – EARTHWORK AND HABITAT STRUCTURES

SECTION 1 –COFFERDAMS, DEWATERING AND WATER MANAGEMENT

1.1 - WORK INCLUDED

Work includes but is not limited to:

1. Excavation of bypass channels
2. Placement of cofferdams
3. Diversion of the Big Springs into the newly constructed bypass channel
4. Pump of surface water and/or groundwater from within excavations of new channel, temporary cofferdams, and portions of the river channel that have been temporarily bypassed
5. Handling discharge of pumped surface water
6. Complete instream work
7. Removal of cofferdams and rewater per HIP III Conservation Measures

1.2 - GENERAL

1. Contractor shall supply all necessary materials to excavate the bypass channels and construct and maintain cofferdams. These materials shall match materials and equipment identified in the submitted Dewatering Plan by the Contractor.
2. No groundwater information is available at the site. The Contractor shall make his/her own investigations and shall determine the extent and difficulty of removal of water from excavations. Significant amounts of groundwater should be anticipated at channel excavation sites and bank fill sites.
3. A minimum of two (2) separate locations require installation and removal of temporary diversion dams (cofferdams) and downstream backwater dams (cofferdams). Other locations may require installation and removal of cofferdams dependent on water levels, the flow rate in Big Springs at the time of construction, and the Contractors preferred method of accomplishing the work.
   a) Cofferdams: This work consists of constructing, maintaining, and removal of diversion dams that span Big Springs and divert all flow into temporary bypass channels, portions of the main creek channel, the newly constructed channel, and back into the existing channel at the downstream end. This work consists of constructing, maintaining, and removal of cofferdams at other bank fill locations and toe wood habitat structure installations, and areas of minor channel grading to isolate the work area from surface waters directly connected to Big Springs or groundwater contributing to the excavated site.
   b) Dewatering: This work consists of installing and maintaining a temporary dewatering system to remove water from within cofferdams and diverted portions of Big Springs,

and areas not connected to the flowing river channel but where excavation extends below the groundwater elevation.

4. The Contractor shall place temporary cofferdams between the actively flowing spring surface water and all active work areas. The Contractor may place temporary cofferdams at additional locations to achieve required water quality standards, or simplify construction as determined by the Contractor.
5. Dewatering within cofferdams and areas of Big Springs where flow has been diverted shall be performed to the extent necessary, as determined by the Contractor and Sponsor, to successfully perform fish salvage efforts of the site prior to construction of project features.
6. Dewatering within construction areas of channel grading shall be performed such that the Contracting Officer can easily measure the finished elevation of the channel bed.
7. Cofferdams and diversion dams must be built in a manner to meet turbidity limits as defined within these specifications. Use of gravel and soil to build a pushup type cofferdam or flow diversion dam are acceptable at locations not connected to surface water flow in Big Springs Creek, but will not be allowed in the actively flowing channel.
8. If bulk bags or smaller gravel bags are used to construct cofferdams or flow diversion dams, material used to fill the bags shall not contain fines and shall be of similar gradation to the existing channel substrate. Material must be approved by the Contracting Officer and clearly defined in the Cofferdam and Flow Diversion Plan submittal.
9. Discharge from dewatering within a work area shall be routed to settling and dissipation areas on the floodplain to allow for the removal of fine sediments and other contaminants as the discharge sheet flows across the floodplain prior to re-entering Big Springs Creek or the Lemhi River.
10. Under no circumstances is there to be any turbid, sediment-laden water greater than 10% over the background levels be allowed to enter the Big Springs Creek, the Lemhi River or other surface waters or wetlands, nor is there to be any entrapment and/or harm to any fish life as a result of the construction activities associated with this project.
11. All pumps used by the Contractor for dewatering areas connected to surface flow of Big Springs shall have screened intakes that meet Idaho Department of Fish and Game specifications and NMFS juvenile fish screening criteria.
12. Pumps are to be sized to maintain water levels suitable for construction. If pumps are under sized and cannot maintain required water levels within the work area the Contractor will not be compensated for additional pumps needed.
13. Fish Removal: All work related to removing fish shall be performed by the Sponsor at no cost to the Contractor. The Contractor shall coordinate with the Contracting Officer for

fish removal and shall notify the Contracting Officer a minimum of 10 working days prior to requiring fish removal services. Fish removal within the existing channel will be a multi-phased effort consisting of metered flow reduction in the channels being isolated to allow natural fish migration out of the isolated areas, seining of the channel and ultimately electro-shocking. Contractor shall coordinate with the Contracting Officer to develop and agree upon flow reduction timings and rates during the switch of water into and out of bypass channels.

14. If the Contractor attempts to construct a portion of the project without fully dewatering the site, and is unable to construct the item as shown on the Drawings to the satisfaction of the Contracting Officer, the Contractor shall receive no additional compensation for removing the unacceptable work and replacing it with a correctly constructed work, and shall receive no additional compensation for dewatering performed at that location during subsequent attempts to perform the work in question.

1.3 – SUBMITTALS

1. Submit a Cofferdam, Flow Diversion and Dewatering Plan in accordance with the Submittal specification. The Cofferdam, Flow Diversion and Dewatering Plan shall be submitted by the Contractor within ten (10) days of receiving notice to proceed. The Contractor shall work closely with the Contracting Officer to determine feasibility given staff availability for fish salvage. The Cofferdam, Flow Diversion and Dewatering Plan shall meet HIP III Conservation Measures and be in accordance with the Drawings and Specifications.
2. Cofferdam and Flow Diversion Plan
    a) Show details of proposed methods for providing temporary isolation of surface water during construction activities at each location requiring isolation with a cofferdam. Detailed and specific drawings shall be provided for each separate work area requiring cofferdam installation. Include proposed material used to construct cofferdam. If bulk bags or other gravel filled bags are proposed, material to be used to fill bags shall be identified. Bags filled with granular soils material shall use material that is naturally rounded rock with a similar gradation as the existing creek bed material, with no fines.
    b) Show details of proposed methods to temporarily block all flow in the spring and divert flow at each location requiring flow diversion dams to divert flow and allow work in the existing spring channel. Detailed and specific drawings shall be provided for each flow diversion dam. Include proposed methods and materials used to construct flow diversion dam. If bulk bags or other gravel filled bags are proposed, material to be used to fill bags shall be identified. Bags filled with granular soils material shall use material that is naturally rounded rock with a similar gradation as the existing creek bed material, with no fines.

c) Contractor shall include anticipated timing for construction of all cofferdams and flow diversion dams to be used for isolating all work areas in the Cofferdam and Flow Diversion Plan.

3. Dewatering Plan
   a) Show proposed method for removal of water from within work zones to meet minimum requirements for construction. Include details related to pump intake location, pump capacity, and pump discharge location.
   b) Review and approval of the Dewatering Plan by the Contracting Officer shall not relieve the Contractor from full responsibility for the adequacy of dewatering work if the proposed plan is not successful at dewatering the site.

1.4 – COFFERDAM AND DIVERSION PLAN

<u>Bypass Channel A Dewatering & Work Sequencing Plan</u> - Contractor may adjust this plan as needed to facilitate construction, as long as all turbidity, fish salvage and HIP III conservation measures are met. Any deviations from this plan shall be preapproved by the Engineer and Sponsor.

1. Excavate Bypass Channel A from where it connects with the existing spring channel near Sta. 20+81 upstream to where it connects with the main channel of Big Springs Creek at Sta. 26+55. Strip wetland sod and stockpile for bank fill areas. Strip and sort topsoil and gravels for channel fill areas. Place riffles, any necessary gravel streambed material and boulder clusters to provide channel roughness and allow juvenile fish passage upstream.
2. Install Temporary Bridge Crossing near upstream end of bypass channel.
3. Place cofferdam at upstream end of bypass channel to enable construction of those connections. Fish salvage this isolation.
4. Pre-wash entire bypass channel channel and spring channel per HIP III Conservation Measures.
   a) This includes pumping of pre-wash water out to an approved disposal area.
5. Partially remove upstream connection cofferdam and begin cofferdam construction at inlet in the main channel. Divert flows down bypass channel per HIP III Conservation Measures and coordinate fish salvage in dewatered channel with the Sponsor.
6. Install backwater cofferdam at downstream end.
7. Strip borrow source and stockpile sod and topsoil for reclamation
8. Place bank fill, install edge treatments, willow clumps, excavate pools/thalweg, plant willows, place wetland sod, seed bare soil in the isolated work area
9. Remove cofferdams and re-water the new river channel per HIP III Conservation Measures

10. Isolate the portion of Work Area #1 that could not be constructed with the bypass active.
11. Salvage fish from this isolation.
12. Place bank fill, install edge treatments, willow-clumps, excavate pools/thalweg, plant willows, place wetland sod, seed bare soil in the isolated work area.
13. Reclaim Bypass Channel A
    a) Install upstream bank treatment as specified in the Drawings
    b) Backfill by placing native fill in 12" lifts and compact to 85% relative compaction.
    c) Back fill to 1' below final grade, replace topsoil and wetland sod to match existing conditions (material from this bypass may act as borrow source material and finished grade can be up to 1 foot lower than adjacent grade. Topography should vary from matching existing grade to lower than existing grade to create multiple depressions rather than one continuous low spot.)

<u>Bypass Channel B Dewatering & Work Sequencing Plan</u> - Contractor may adjust this plan as needed to facilitate construction, as long as all turbidity, fish salvage and HIP III conservation measures are met. Any deviations from this plan shall be preapproved by the Engineer and Sponsor.

1. Maintain upper 100 feet of Bypass A including temporary bridge.
2. Excavate Bypass Channel B from where it connects with the upstream extents of Bypass Channel A near Sta. 1+00 upstream to where it connects with the main channel of Big Springs Creek at Sta. 18+49. Strip wetland sod and stockpile for bank fill areas. Strip and sort topsoil and gravels for channel fill areas. Place riffles, any necessary gravel streambed material and boulder clusters to provide channel roughness and allow juvenile fish passage upstream.
3. Install Temporary Bridge Crossing near upstream end of bypass channel.
4. Place cofferdam at upstream end of bypass channel to enable construction of those connections. Fish salvage this isolation.
5. Pre-wash entire bypass channel per HIP III Conservation Measures.
    a) This includes pumping of pre-wash water out to an approved disposal area.
6. Partially remove upstream connection cofferdam and begin cofferdam construction at inlet in the main channel. Upstream cofferdam shall be located upstream and at an angle enough to include Work Areas 99 and 100 within the isolate area. Divert flows down bypass channel per HIP III Conservation Measures and coordinate fish salvage in dewatered channel with the Sponsor.
7. Install backwater cofferdam at downstream end.
8. Strip borrow source and stockpile sod and topsoil for reclamation
9. Place bank fill, install edge treatments, willow clumps, excavate pools/thalweg, plant willows, place wetland sod, seed bare soil in the isolated work area

10. Remove cofferdams and re-water the new river channel per HIP III Conservation Measures
11. Isolate the inlet and outlet of Bypass B and reclaim with Bank Type C treatment as shown on the plans.
12. Salvage fish from this isolation.
13. Reclaim Bypass Channel A
    d) Install upstream bank treatment as specified in the Drawings
    e) Backfill by placing native fill in 12" lifts and compact to 85% relative compaction.
    f) Back fill to 1' below final grade, replace topsoil and wetland sod to match existing conditions (material from this bypass may act as borrow source material and finished grade can be up to 1 foot lower than adjacent grade. Topography should vary from matching existing grade to lower than existing grade to create multiple depressions rather than one continuous low spot.)

1.5 - DEWATERING PLAN

1. Provide, maintain, and operate necessary pumps and other equipment for removal of water from excavations for LWM structure placement such that water remaining in the work area while construction activities are performed shall be no deeper than the diameter of the log(s) in the lowest layer of the structure.
1. Provide, maintain, and operate necessary pumps and other equipment for removal of water from channel excavations such that the Contracting Officer can easily measure the finished elevation of the channel bed.
2. Discharge locations from dewatering pumps shall be identified in coordination with the Contracting Officer. Discharge locations and methods shall be selected such that water quality standards are maintained, no erosion of topsoil takes place, land owner activities are not adversely affected, and no regulatory agency permit conditions are violated.

SECTION 2 – EARTHWORK

2.1 - WORK INCLUDED

1. Excavation, rough grading, and final grading of new channels and pools.
2. Re-shaping of existing channel (bank fill areas).
3. Excavation for and backfill of wood habitat structures.
4. Excavation of material source areas for bank fill.

2.2 - MATERIALS

1. Native Material – Material meeting the following criteria:
    a) Located within the excavation and grading limits
    b) Free of rocks larger than 4 inches

c) Relatively free of roots and other organic matter, ashes, cinders, concrete, trash, debris, and other deleterious materials
d) Acceptable to the Contracting Officer for use during backfill, excavation and embankment work activities

2. Coarse Gravel – Material meeting the following criteria:
   a) Sourced onsite from within the excavation and grading limits or imported
   b) Well graded from gravel to cobble sized material ranging from ½ inch to 6-inch particle sizes and no more than 20 percent by weight passing the No. 200 sieve size and maximum particle size of 12 inches
3. Topsoil – Material meeting the following criteria:
   a) Sourced onsite from within the excavation and grading limits
   b) Consists of clay, silt, sand and gravel material (2-inch maximum dimension)
   c) Generally free of larger gravel, cobbles, and boulders
   d) Free from foreign matter, hazardous or toxic substances, and deleterious material that may be harmful to plant growth or may hinder grading, planting or maintenance
4. Boulders – Material meeting the following criteria:
   a) Sourced onsite from within the excavation and grading limits or imported
   b) Rounded or semi-rounded boulders 12 to 24-inches in diameter
   c) The smallest axis shall not measure 1/3 or less of the largest axis measurement

2.3 - SITE CLEARING

1. Prepare site only after adequate erosion and sediment controls are in place.
2. Identify/mark the limits of clearing and obtain Contracting Officer approval prior to clearing any vegetation.
3. After clearing limits have been approved by the Contracting Officer, remove vegetation and other debris within the clearing limits.
4. Remove rubbish, trash, car bodies, and junk from within clearing limits from the Project Site and dispose of at an approved disposal site.
5. Burning of debris onsite will not be allowed.

2.4 – GENERAL EXCAVATION AND FILL

1. No soil subsurface data is available for this project. The Contractor shall be responsible for any necessary subsurface investigations as they relate to this project.
2. Excavate according to the lines and grades shown on the Drawings, or by field clarification by the Contracting Officer or Engineer. No excavation or fill shall be performed outside designated areas on the Drawings.
3. Perform operations so that the excavations will yield as much suitable material for construction as practicable including separation and segregation of suitable materials

from waste materials. Reuse excavated material where it meets the specified requirements for fill at a given location.

4. Fill and backfill to contours, elevations and dimensions indicated. Do not place fill over frozen or excessively wet areas.
    a. Material excavated when frozen or when air temperature is less than 32^{o}F shall not be used as fill or backfill until material completely thaws.
    b. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.
5. Place fill in horizontal lifts extending the full width and length of the areas shown. Lift thickness shall not exceed 12". Distribute fill material in a manner that will prevent the development of voids, pockets and/or poorly mixed material.
6. The combined excavation and placing operations should be such that the fill materials will be mixed and blended sufficiently to provide the most homogeneous section and best practical degree of compaction and stability.
7. A smooth transition shall be graded around all structures and between proposed and existing grades.
8. Contractor may obtain extra material, or replace unsuitable stream material, from the borrow areas as shown on the Drawings, at the Contractor's discretion to achieve the project objectives in the timeliest manner. Fill areas depicted on the plans can be constructed with native material from the channel excavations or the borrow source, if it meets the grading specifications outlined on the Drawings. Material may be stockpiled, sorted, and stored in the staging and stockpile areas shown on the Drawings.
9. The project was designed to balance cut and fill quantities. The contractor is responsible for balancing quantities within the site such that the fill grades are met, Bypass channel A and B are restored to existing grades and all ruts are reclaimed.
10. Backfill material shall be placed in 12-inch lifts, and compacted thoroughly. No testing of compacted density will be performed; acceptance will be by the Contracting Officer observing fill placement and compaction effort. The intent of compaction shall be to achieve approximately 85% relative density.

2.5 – FINISH GRADING

1. Finish grading shall be within ±0.50 feet Horizontal and ±0.10 feet Vertical of the locations and elevations shown on the Drawings and construction stakes.
2. Finished grades shall be flush with adjacent surfaces unless otherwise indicated.
3. Compaction of finished surface is not required where the finished channel surface is achieved through excavation only. Compaction using equipment tracks and/or the excavator bucket is required where the finished floodplain or channel surface is achieved by the placement of fill. Fill and backfill areas shall be compacted to a minimum 85% relative density of material.

4. Finish grading shall be inspected and approved by the Engineer prior to rewatering. The Engineer will flag areas that should be adjusted and review with the contractor. The contractor is responsible for making all adjustments prior to rewatering per HIP III conservation measures.

2.6 – BORROW SOURCE RECLAMATION

1. At completion of channel construction/excavation, Contractor shall slope borrow source edges to 5:1 and prep for seeding.
2. If fill material is placed in the borrow pit to achieve the desired slope, place in (1) foot maximum lifts and compact using mechanical compaction equipment or multiple passes with tracked equipment.
3. All fill material shall have had suitable time to drain and dry out prior to placement in the borrow areas.

2.7 – CONSTRUCTION OF BANK AND CHANNEL FILL

1. At locations where the channel requires fill to create the shape and topography shown on the Drawings, the Contractor shall place excavated or borrow source material in one (1) foot maximum lifts and compact using mechanical methods, not limited to, but including the excavator bucket or by walking over area with tracked equipment.
2. Fill to create the shape and topography shown in the Drawings can come from channel excavations, or the borrow area depicted in the drawings, whichever is more suitable. Fill for the bank fill areas shall be well graded and native material. To meet the grading tolerances, all fill placed in the upper 0.25 feet shall contain predominantly material $\leq$ 2". Fill in this upper zone should not be constructed from large cobbles (>4" material). The larger material (> 4") shall be reserved for the subgrade fill in areas up to 0.25 feet from the finish grades.

2.8 – CHANNEL EXCVATION, POOLS & ALCOVES

1. At locations where the channel requires excavation to create the channel, pools or alcoves, Contractor shall excavate to the dimensions and side slopes specified on the Drawings.
2. A smooth transition shall be graded between all riffles, pools, alcoves, and glides. Tailout slopes shall be as shown in the Drawings.
3. Pool and alcove side slopes shall be 1.5 Horizontal:1 Vertical or the angle of repose.
4. The native material underlying the channel at all excavations shall be left in place. Imported fill is not necessary in these locations.

2.9 - BANK TREATMENT A - INSIDE

1. Place GEOCOIR 700 erosion control fabric at existing grade 2' from the desired fill edge, place C125BN erosion control fabric directly on top of the GEOCOIR 700 to retain fines,

place fill in 1’ maximum lifts and compact using the excavator bucket until the desired elevation is achieved. Broadcast riparian seed mix onto the fill and wrap the C125BN and GEOCOIR 700 to cover the exposed edge, trench approximately 1’ of the fabric into the compacted fill. Stake with 18” wooden stakes, 2.5’ apart on a diamond pattern.

2. Finish backfilling channel fill area with compacted fill in 1’ maximum lifts. Prep the top 0.25’ to meet the seed bed specification by removing all stones and dirt clods greater than 2" and raking a smooth seed bed consisting of loose soil, sand and small gravel.
3. If available, place salvaged wetland sod according to the Drawings with the excavator and press down with the excavator bucket. If salvaged wetland sod is not available, these areas will be planted in the spring by the Sponsor with nursery grown wetland sod and/or bareroot wetland plant material.
4. Broadcast seed bare soil according to the seeding specifications.

2.10 - BANK TREATMENT B - OUTSIDE

1. Place GEOCOIR 700 erosion control fabric at specified elevation (approximately 1’ below the top of the specified point bar elevation) 2’ from the desired fill edge, place C125BN erosion control fabric directly on top of the GEOCOIR 700 to retain fines, place fill in 1’ maximum lifts and compact using the excavator bucket until the desired is achieved. Broadcast riparian seed mix onto the edge and wrap the C125BN and GEOCOIR 700 to cover the exposed edge, trench approximately 1’ of the fabric into the compacted fill. Stake with 18” wooden stakes, 2.5’ apart on a diamond pattern.
2. Plant 5-gallon native willows on 5’ spacing directly behind the trenched erosion control fabric at an angle to encourage overhanging branches. Potted willows will be supplied by the Sponsor.
3. Finish backfilling bank treatment with compacted fill in 1’ maximum lifts at a 10:1 slope until tied into the existing bank. Prep the top 0.25’ to meet the seed bed specification by removing all stones and dirt clods greater than 2" and raking a smooth seed bed consisting of loose soil.
4. If available, place salvaged wetland sod according to the Drawings with the excavator and press down with the excavator bucket. If salvaged wetland sod is not available, these areas shall be planted by the Sponsor in the spring with nursery grown wetland sod and/or bareroot wetland plant material.
5. Plant native 5-gallon willows adjacent to the existing bank at a 5’ staggered spacing and 8’ – 10’ offset from the first row of willows.
6. Broadcast seed bare soil according to the seeding specifications.

2.11 - BANK TREATMENT C – WILLOW CLUMPS

1. Place GEOCOIR 700 erosion control fabric at specified elevation (approximately 1’ below the top of the specified point bar elevation) 2’ from the desired fill edge, place C125BN

erosion control fabric directly on top of the GEOCOIR 700 to retain fines, place fill in 1' maximum lifts and compact using the excavator bucket until the desired is achieved. Broadcast riparian seed mix onto the edge and wrap the C125BN and GEOCOIR 700 to cover the exposed edge, trench approximately 1' of the fabric into the compacted fill. Stake with 18" wooden stakes, 2.5' apart on a diamond pattern.

2. Plant 5-gallon native willows on 5' spacing directly behind the trenched erosion control fabric at an angle to encourage overhanging branches. Potted willows will be supplied by the Sponsor.
3. Finish backfilling bank treatment with compacted fill in 1' maximum lifts at a 10:1 slope until tied into the existing bank. Prep the top 0.25' to meet the seed bed specification by removing all stones and dirt clods greater than 2" and raking a smooth seed bed consisting of loose soil.
4. Install willow clumps at approximately 10 feet on center along the length of the bank (See Section 3.1 for Willow Clumps installation).
5. If available, place salvaged wetland sod according to the Drawings with the excavator and press down with the excavator bucket. If salvaged wetland sod is not available, these areas shall be planted by the Sponsor in the spring with nursery grown wetland sod and/or bareroot wetland plant material.
6. Plant native 5-gallon willows adjacent to the existing bank at a 5' staggered spacing and 8' – 10' offset from the first row of willows.
7. Broadcast seed bare soil according to the seeding specifications.

SECTION 3 –HABITAT STRUCTURES

3.1 – WILLOW CLUMPS

1. The purpose of the willow clumps are to encourage the entrapment of fine sediment and the formation of a natural bars and/or islands OR as additional bank armoring in areas where scour is anticipated.
2. Willow clumps shall consist of a native willow and its rootball harvested from the project area a minimum of 30' from the existing and proposed water's edge. Willow clumps encountered when preforming new channel excavations may also be used.
3. Posts shall be 3" diameter, 7' length untreated fence posts. Pre-drill holes in each post 6" from the top of a diameter sufficient to thread ¼" manila rope.
4. Place willow clumps with the rootball facing upstream and secure with two posts as depicted on the Drawings. If clump appears to be buoyant, secure in place with ¼" manila rope.
5. Reclaim willow clump holes with borrow source material to existing grade and broadcast seed with riparian seed mix according to the seeding specifications.

3.4 – OVERHANGING WILLOW TRANSPLANTS

1. The purpose of the overhanging willow transplants is to provide cover for juvenile Chinook and Steelhead fry in zones where optimal velocities are anticipated. These structures should be installed in the dry below the anticipated low flow July water line.
2. Given the timing of transplanting, these willows are not expected to regenerate.
3. Willow transplants shall consist of a native willow and its rootball harvested from the project area a minimum of 30' from the existing water's edge. Willow transplants encountered when preforming new channel excavations may also be used.
4. Excavate approximately 1' below the anticipated July water line and stock pile native topsoil and sod. Place willow transplant with the rootball in the bank and the branches overhanging the anticipated water's edge. Place a minimum of 1' of alluvium on top of the transplant to secure and replace native top soil and sod.
5. Reclaim willow transplant holes with borrow source material to existing grade and broadcast seed with riparian seed mix according to the seeding specifications.

PART III – PLANTING & RECLAMATION

SECTION 1 – GENERAL REQUIREMENTS

1.1 - WORK INCLUDED

Work includes but is not limited to:

1. Storage and care of nursery-grown plants
2. Planting containerized plants
3. Removal of all plastic plant labels
4. Seeding to all riparian areas depicted in the drawings
5. Dormant seeding all access routes, staging areas, and other disturbed areas
6. Assisting the Sponsor with the installation of a temporary irrigation system to irrigate all new plant materials in the riparian areas as directed by the Contracting Officer (materials will be provided).

1.2 – PLANT SELECTION & CARE

1. The contractor shall furnish a written list of the proposed sources of all nursery stock at least 30 days prior to the material delivery to the Contracting Officer for approval.
2. Substitutions of plant materials will not be permitted unless authorized in writing by the Contracting Officer. Upon submission of proof that the specified plant is not reasonably obtainable, a change order may be procured, providing for use of the nearest equivalent size or variety of plant having the same essential characteristics.
3. All plant materials, shipments and deliveries shall comply with state and federal laws and regulations governing inspection, shipping, selling and handling of plant stock. For any shipments out of state, a certificate of inspection for injurious insects, plant diseases, and other plant pests will accompany each shipment or delivery of plant and seed material.
4. All plants shall be mature, healthy, vigorous, well branched, densely foliated and free of disease and insects. All plants shall have healthy, well-developed root systems and shall be free from physical damage or other conditions that would prevent thriving growth.
5. Immediately upon delivery and until installation, plant material shall be shaded, watered and protected from browse to ensure that the plants remain alive and healthy.
6. All plants shall be labeled by plant name. Labels shall be attached securely to all plants and/or containers when delivered and removed when planted.

SECTION 2 – TRANSPLANTED/SALVAGED WETLAND SOD

2.1 – GENERAL INFORMATION

1. Salvaged Wetland Sod shall consist of primarily sedges and rushes and harvested from Bypass Channel I and new channel excavations.

2. Salvaged Wetland Sod shall be stockpiled within the borrow sources, the dewatered zones or the stockpile area designated on the plans.
3. When placing Salvaged Wetland sod on the fill areas, first line the edge treatments with approximately 3' width, then place pockets of Salvaged Wetland Sod throughout the fill area to encourage establishment.
4. Wherever feasible, Contractor shall take care to minimize the number of times the sod is handled and make very attempt to plant it with the root side down.

SECTION 3 – NURSERY WETLAND SOD

3.1 – GENERAL INFORMATION

1. Nursery grown Wetland Sod shall be prevegetated mats with dimensions of 1-m x 5-m.
2. Wetland Sod mat delivery shall be scheduled to coincide with immediate job site installation. If mats cannot be immediately installed, they shall be stored in a shady location for no more than **three** days and must be kept thoroughly saturated and covered (tarped) during that time. In hot, dry weather mats shall be stored under the same conditions for no more than **two** days.
3. Mats are delivered rolled and are most easily moved by two people with hay hooks.
4. Each Wetland Sod mat is approximately 16.2 feet in length and 3.2 feet wide. Per mat weights vary seasonally between 120 - 170 pounds.
5. Each mat is banded with a species classification tag for identification. For example, a mix with **C**arex **n**ebrascensis, **C**arex **a**quatilis and **J**uncus **a**rcticus will read **CnCaJa**.

3.1 – INSTALLATION

1. Move Wetland Sod mats to the installation site, unroll and stake down. Ensure that the plant roots and the bottom of the mat are in direct contact with the soil.
2. Stake Wetland Sod according to the following specification.
3. Use eight to twelve, 16" wooden stakes per mat for installations involving moving water (i.e. stream channels, windward lake shores, storm water retention areas).
4. Drive stakes through the mat at a slight angle and leave about 4" of the stake protruding above the mat.
5. Use six to eight, 16" wooden stakes per mat for site conditions without erosive characteristics (i.e. pond and lake shorelines, wetland areas).
6. **Space between the mat bottom and ground caused by folds, wrinkles or upturned mat edges will create a void that will allow the root system to dry out. Installing mats over large rocks, tree branches, very rough ground or anything that prevents root-to-soil contact should be avoided or remedied prior to installation.**
7. Mats shall not be installed on slopes steeper than 2.5:1. Some die-back can be expected when slopes exceed 3:1 steepness.

8. Remove all plastic plant labels after installation.
9. Wetland Sod mats shall be placed in the channel margins in 2-4” water depth.

SECTION 4 – CONTAINER PLANTS

4.1 – NURSERY GROWN WILLOWS

10. All nursery grown willows will be obtained and supplied by the Sponsor.
11. Plant according to locations and spacing specified in the Drawings for the individual edge/fill treatments.
12. Containers shall be separated from the plant immediately before planting to prevent desiccation of the roots.
13. To plant, dig a vertical hole (by hand, excavator or auger) twice as deep and wide as the container, plant vertically and backfill with floodplain soils first and topsoil second. All backfill shall be, at a minimum, 30% loam and free of particles greater than 2". Backfill uniformly around each plant to maximize root to soil contact and eliminate all air pockets.
14. Care shall be taken to avoid “J-Rooting,” do not force plant roots into too small/shallow of a hole and cause the roots to curve back around towards the surface.
15. Two types of soil amendments, each from Reforestation Technologies International (rti) are required for all container plantings. The use of any other amendment shall only be allowed after prior approval by the Contracting Officer. One application of rti - bio pak and one application of rti - endo ecto shall be used in each plant hole.
16. Remove all plastic plant labels after installation.
17. Water in with buckets immediately after installation and maintain bucket watering until irrigation system is up and running.
18. Irrigate all potted plants immediately after planting and continue through September.

SECTION 5 – SEEDING

5.1 – GENERAL INFORMATION

1. The anticipated areas requiring seeding are 0.1 acres of upland seeding and 4.6 acres of riparian seeding.
2. The Contractor is required to provide enough seed to broadcast 120% of the anticipated areas. All leftover seed will become property of the Sponsor.

3. Seed all bank and channel fill areas during construction. All additional construction access and borrow source areas shall be dormant seeded in the fall dormant period, approximately Nov 1 -15. Any blank areas within the bank and channel fill zones that did not germinate should be reseeded during the fall dormant period.
4. The sage upland mix shall be used to reclaim all construction access and staging areas outside of the riparian area, seed all other disturbed areas outside of the main channel with the riparian mix.
5. All disturbed areas shall be prepped and seeded to the following specification. The seed bed shall be prepped by removing all stones and dirt clods greater than 2" and raking a smooth seed bed consisting of loose soil no less than 2" deep.
6. All areas shall be hand seeded or ATV seeded using the following steps:
    a. Rake/harrow to prep seed bed
    b. Broadcast seed evenly across the area to be seeded at twice the rate of drilling
    c. Rake/harrow seed into the seed bed
    d. Roll seeded areas with a hand roller or cultipacker

5.2 – SEED MIXES

Big Springs Riparian Seed Mix

Common Name	**Scientific Name**	**PLS lbs/ac**
Blue Wildrye	*Elymus glaucus*	4.46
Bluejoint Reedgrass	*Calamagrostis canadensis*	1
Tufted Hairgrass	*Deschampsia caespitosa*	1
Fowl mannagrass	*Glyceria elata*	1.2
American mannagrass	*Glyceria grandis*	1.5
Arctic Rush	*Juncus arcticus*	0.5
Nebraska Sedge	*Carex nebrascensis*	2
Woods Rose	*Rosa woodsii*	1
TOTAL	**Broadcasted on Prepped Seed Bed w/ no clumps>2", Raked, Rolled**	**12.66**

SECTION 6 – PLANT PROTECTION

6.1 - FENCING

1. Construct fencing around naturally regenerating willow areas to protect new shoots from ungulate browse.
2. Construct fence with 10-foot metal T-posts on 10 foot centers. Brace corners. Attach 7.5-foot-tall heavy duty plastic deer mesh to the T-posts according to the deer mesh manufacturer's specifications OR 7-foot welded wire.
3. Ensure that there is no gap between the fencing and ground surface.
4. Contractor shall work with the Contracting Officer to identify sections of fencing that may need to be removed during high flows. Work with the Contracting Officer to identify these zones and solutions for highwater.
5. This is a temporary exclusion fence; the Sponsor will remove this fence in 3-5 years depending on plant maturity. All fencing materials will become property of the Sponsor.

6.2 – PLANT SKYDD

1. Apply Plant Skydd rodent and deer repellent to all potted willows according to the manufacturers recommendation.
2. Apply twice per season for a minimum of three years – at the beginning of the season and just before winter.