PRIEST LAKE WATER MANAGEMENT PROJECT
THOROFARE NAVIGATION IMPROVEMENTS

TECHNICAL SPECIFICATIONS

PROFESSIONAL ENGINEER
LICENSED
16841
STATE OF IDAHO
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Exp 10/31/2020

5/26/2020

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The work includes improvements at Priest Lake Thorofare as described below:

1. Removing and disposing of the existing timber breakwater structure;
2. Thorofare Channel Dredging;
3. Upland disposal of dredged sediment;
4. Supply & installation of new stone breakwater;
5. Beach Nourishment on south side of stone breakwater;
6. Navigation Aid; and
7. Installation of West End Stabilization to fortify sand spit.

1.02 ACRONYMS

A. CFS = Cubic feet per second

B. DEQ = Department of Environmental Quality

C. IDAPA = Idaho Administrative Procedures Act

D. ITD = Idaho Transportation Department

E. OHW = Ordinary High Water, as shown on the Contract Drawings

F. USACE = United States Army Corps of Engineers

G. USFS = United States Forest Service

H. USFWS = United States Fish and Wildlife Service

1.03 SITE CONDITIONS

A. SITE INVESTIGATION AND REPRESENTATION

1. The Contractor acknowledges that the Contractor is satisfied as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, river stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

2. The Contractor further acknowledges that the Contractor is satisfied as to the character, quality, and quantity of surface and subsurface materials to be encountered from their inspection of the site and from

reviewing any available records of exploratory work furnished by the Owner or included in these documents. Failure by the Contractor to acquaint themselves with the physical conditions of the site and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.

3. The Contractor represents that the Contractor has visited the site to become familiar with the quantity and character of all materials to be demolished. The Contractor agrees that the premises were made available prior to deadline for submission of bids for whatever inspection and tests the Contractor deemed appropriate. The Contractor assumes full responsibility for the proper disposal of all demolition materials identified within the Contract Documents and in accordance with all applicable regulatory permit requirements included within Appendix A – Permit Documents.

4. The Contractor warrants that as a result of their examination and investigation of all the aforesaid data that the Contractor can perform the work in a good and workmanlike manner and to the satisfaction of the Owner. The Owner assumes no responsibility for any representations made by and of its officers or agents during or prior to the execution of this Contract, unless (1) such representations are expressly stated in the Contract, and (2) the Contract expressly provides that the responsibility therefore is assumed by the Owner.

B. INFORMATION ON SITE CONDITIONS

1. Any information obtained by the Owner's Representative regarding site conditions, site access, subsurface information, groundwater and surface water elevations, existing construction of site facilities as applicable, and similar data will be available for inspection at the office of the Owner's Representative upon request. Such information is offered as supplementary information only. Neither the Owner's Representative nor the Owner assumes any responsibility for the completeness or interpretation of such supplementary information.

C. SUBSURFACE INVESTIGATION

1. Any information the Owner may have concerning subsurface conditions will be made available to the Contractors upon request.

2. The Contractor shall examine the site and may make arrangements with the Owner to conduct their own subsurface investigation.

D. UNDERGROUND UTILITIES

1. Known utilities and structures adjacent to or encountered in the work are shown on the Contract Drawings and referenced in the Appendices. The locations shown are taken from existing records

and the best information available from existing utility plans; however, it is expected that there may be some discrepancies and omissions in the locations and quantities of utilities and structures shown. Those shown are for the convenience of the Contractor only, and no responsibility is assumed by either the Owner or the Owner's Representative for their accuracy or completeness.

E. CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

1. Where the Contractor's operations could cause damage or inconvenience to railway, telegraph, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor.

2. Notify all utility offices which are affected by the construction operation at least 48 hours in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.

3. The Contractor shall be solely and directly responsible to the operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.

4. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.

5. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.

6. In the event the Contractor encounters water service lines that interfere with trenching, they may, by obtaining prior approval of the property owner, Utility Manager, or Fire Department as applicable, and the Owner's Representative, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense.

7. The Contractor shall replace, at their own expense, any and all other existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents or ordered by the Owner's Representative.

F. INTERFERING STRUCTURES

1. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Contract Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented simply as a guide to avoid known possible difficulties.

G. FIELD RELOCATION

1. During the progress of construction, it is expected that minor relocations of the work may be necessary. Such relocations shall be made only by direction of the Owner's Representative. If existing structures are encountered which prevent the construction, and which are not properly shown on the Contract Drawings, notify the Owner's Representative before continuing with the construction in order that the Owner's Representative may make such field revisions as necessary to avoid conflict with the existing structures. If the Contractor shall fail to so notify the Owner's Representative when an existing structure is encountered, and shall proceed with the construction despite this interference, they shall do so at their own risk.

H. EASEMENTS

1. Where portions of the work are located on public or private property, easements and permits will be obtained by the Owner. Easements will provide for the use of property for construction purposes to the extent indicated on the easements. Copies of these easements are attached in Appendix C Temporary Construction Access Agreements, Staging & Placement Areas. It shall be the Contractor's responsibility to determine the adequacy of the easement obtained in every case and to abide by all requirements and provisions of the easement. The Contractor shall confine their construction operations to within the easement limits or street right-of-way limits or make special arrangements with the property owners or appropriate public agency for the additional area required. Any damage to property, either inside or outside the limits of the easements provided by the Owner, shall be the responsibility of the Contractor as specified herein. The Contractor shall remove, protect, and replace all fences or other items encountered on public or private property. Before final payment will be authorized by the Owner and Owner's

Representative, the Contractor will be required to furnish the Owner, Owner's Representative, and Owner's Construction Manager with written releases from property owners or public agencies where side agreements or special easements have been made by the Contractor or where the Contractor's operations, for any reason, have not been kept within the construction right-of-way obtained by the Owner.

2. It is anticipated that the required easements and permits will be obtained before construction is started. However, should the procurement of any easement or permit be delayed, the Contractor shall schedule and perform the work around these areas until such a time as the easement or permit has been secured.

I. LAND MONUMENTS

1. The Contractor shall notify the Owner's Representative of any existing Federal, State, City, County, and private land monuments encountered. Private monuments that are within 5 feet of the trench centerline shall be preserved, or replaced by a licensed surveyor at the Owner's expense. When Government monuments are encountered, the Contractor shall notify the Owner's Representative at least 2 weeks in advance of the proposed construction in order that the Owner's Representative will have ample opportunity to notify the proper authority and reference these monuments for later replacement.

1.04 TIME FOR COMPLETION OF PROJECT

A. Substantially complete project in accordance with the Contract Drawings and Specifications within the timeframe outlined herein. Final Completion of the project, in accordance with Contract Documents, shall occur within 30 calendar days from substantial completion date.

B. All in-water work shall be completed by March 15th, 2021. All other work shall be completed before the date set forth in the Contract Documents. The project shall be substantially completed by April 1st, 2021.

C. No time extensions or extra compensation will be granted for delays due to inclement weather conditions or due to a delayed start.

1.05 PROJECT START DATE

A. The Project Start Date shall be identified in the Notice to Proceed. No work is allowed within the project site limits or Sandpiper Shores access area prior to Tuesday, September 15th, 2020. No work below OHW is allowed prior to November 1st, 2020. Hauling and stockpiling of stone at the designated site(s) outlined in Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas, may start before the Project Start Date.

1.06 HOURS OF WORK

A. Except in the case of an emergency or unless otherwise approved by the Owner, the work hours shall be between 7 a.m. through 6 p.m. Monday through Saturday, excluding national holidays.

B. If the Contractor desires to perform Work on holidays or outside the work hours stated above, the Contractor shall apply in writing to the Owner for permission to Work such days or times.

1.07 NON-MOTORIZED VESSEL ACCESS

A. The Contractor shall provide accommodation for non-powered vessel access between the Thorofare and Priest Lake and provide means for safe ingress and egress through and around the work area. No motorized vessel access will be permitted during construction.

1.08 PRE-CONSTRUCTION CONFERENCE

A. Following notification of award to Contractor, the date for an on-site pre-construction conference will be set at a minimum 45 days prior to project start date. Do not commence work prior to conference or until written clearance has been obtained from the Owner.

B. Furnish Owner Representative and Owner's Representative with the following:

1. Complete list of sub-contractors, including business address, telephone numbers, items of Work, and registration numbers. List is to be updated during contract life.

2. Name of Contractor's superintendent who will be on job at all times.

3. A progress schedule in accordance with these Technical Specifications.

4. A detailed cost breakdown for lump sum bid items including equipment, labor, materials, and fees. Furnish a fair evaluation of actual cost of each items of Work listed. This will be used in processing Contractor's requests for partial payment. Submittal of breakdown does not affect the Contract terms.

5. Construction Sequence Work Plan and other Work Plans as required by the Contract Specifications and Contract Drawings.

1.09 ENGINEERING REQUIREMENTS

A. The Contractor shall review the enclosed data (Appendix E – Water Level & Flow Data), publicly available USGS data, and site conditions to develop a work plan that will provide protection of the active work area from inundation of water for the range of flows anticipated during Construction.

B. Flow diversion will be required to complete the Work. The Contractor is responsible for selection of their preferred river flow and water level

conditions for the Flow Diversion design, in accordance with Section 02 20 00 Flow Diversion.

C. A temporary channel crossing may be needed to access the stone breakwater during construction. The Contractor is responsible for computing the appropriate water levels and flows for design of the temporary channel crossing.

1.10 CONSTRUCTION SEQUENCING

A. Phasing of timber wall demolition, dredging, flow diversion, and stone breakwater construction is critical to completing the project within the allotted work window. The Contractor shall submit a detailed Construction Sequence Work Plan as outlined in the Contract Drawings to the Owner's Representative and shall receive approval 45 days prior to start of demolition. The approved Construction Sequence Work Plan shall be updated weekly during construction and submitted to the Owner's Representative and Owner's Construction Manager for review. See Contract Drawings and Specifications for additional requirements.

1.11 PROGRESS CLEANING

A. Remove rubbish and debris from project site limits daily. Storage of materials is not allowed on site unless specified by the Owner's Representative.

B. Maintain work area in a neat and orderly condition at all times.

C. All cleanup operations are incidental to the Contract and no extra compensation will be made.

1.12 PUBLIC SAFETY AND CONVENIENCE

A. ACCESS BY FEDERAL, STATE, AND LOCAL GOVERNMENT OFFICIALS

1. Authorized representatives of the Idaho Department of Health and Welfare, and other government officials shall at all times have safe access to the work wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection.

B. PROTECTION OF PROPERTY

1. Protect stored materials, cultivated trees and crops, and other items located adjacent to the proposed work. Notify property owners affected by the construction at least 48 hours in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to their residence or place of business for a period exceeding

8 hours, unless the Contractor has made special arrangements with the affected persons.

2. Provide for access at all times for livestock through farm areas, and no portion of farmlands in which livestock are pastured shall be cut off from ready access by the farm animals.

C. FIRE PREVENTION AND PROTECTION

1. The Contractor shall perform all work in a fire-safe manner. The Contractor shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable Federal, local, and State fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations, (NFPA No. 241) shall be followed.

D. ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

1. Notify the Fire department and Police Department before closing any street or portion thereof. No closing shall be made without the Owner's Representative approval. Notify said departments when the streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the Fire Department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.

2. The Contractor shall leave their night emergency telephone number or numbers with the Police Department, so that contact may be made easily at all times in case of barricade and flare trouble or other emergencies.

3. Maintain postal service facilities in accordance with the requirements of the U. S. Post Office Department. Move mailboxes to temporary locations designated by the Post Office Department, and at the completion of the work in each area, replace them in their original location and in a condition satisfactory to the U. S. Post Office Department.

1.13 UNANTICIPATED DISCOVERY OF CULTURAL OR ARCHEOLOCIAL RESOURCES

A. No cultural or archaeological resource sites are known to exist within Work Limits. However, there always exist the potential for unanticipated discoveries during excavation work.

B. Owner, Owner's Representative, Owner's Construction Manager, Contractors, and workers must be aware of clues that signify a potential discovery and what actions must be taken to protect discovery.

C. Clues that may signal the presence of cultural or archaeological resources are:

1. Artifacts: Artifacts may be found exposed in open trenches or back dirt piles. These may range from finished tools such as stone pestles, arrowheads or polished bone tools to small pieces of exotic stone such as chert, jasper or obsidian. Historic artifacts include: bottles, cans, bricks, window glass, square nails or other objects in excess of 50 years age. Do not remove items.

2. Buried features/midden: During excavation, exposed trench walls may contain buried features such as campfire hearths or shell middens. In cross-section, hearths look like evidence shallow lenses (saucer shaped) of rock, charcoal and blackened sediment. Middens are buried prehistoric ground surfaces. These are usually thin lenses of dark greasy sediments running horizontally for many feet in different directions. Near shorelines, these middens are characterized by accumulations of broken and burned shellfish remains. Occasionally they may also contain artifacts and/or broken bone fragments.

D. If resources of potential cultural or archeological resources are discovered the Contractor shall follow these steps:

1. The Contractor will immediately stop work in the vicinity of the find and notify the Owner's Representative.

1.14 AS-BUILT DRAWINGS

A. Keep a clean set of full-sized design drawings at job site and kept updated to identify all changes.

1.15 PROJECT CONDITIONS SITE SAFETY

A. The Contractor shall be solely responsible for job-site safety. Contractor shall adhere to requirements for safety established in state and federal regulations.

B. Federal, state, and local laws, rules, and regulations related to construction, safety and health standards are essential and must be followed by the Contractor. The Contractor will conduct their work in a safe and prudent manner at all times. The Contractor is prohibited from allowing or requiring workers to work in conditions that are unsanitary, hazardous, or dangerous to their health or safety.

C. Provide reasonable restroom facilities for personnel and adequate work time to use those facilities, including provision of portable facilities for moving operations.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

A. The work included in this Contract is defined on the Contract Drawings, and within these specifications under the following Division Numbers:

1. DIVISION 1 – GENERAL REQUIREMENTS
2. DIVISION 2 – EXISTING CONDITIONS
3. DIVISION 5 - METALS
4. DIVISION 31 – EARTHWORK
5. DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION

B. The work under this contract is to provide, furnish and/or install all labor, materials and equipment, as may be required to complete the work, installed, tested, and ready for use, and as described in these documents.

C. The work includes improvements at Priest Lake Thorofare as described below:

1. Removing and disposing of the existing timber breakwater structure;
2. Thorofare Channel Dredging;
3. Upland disposal of dredged sediment;
4. Supply & installation of new stone breakwater;
5. Beach Nourishment on south side of stone breakwater; and
6. Navigation Aid; and
7. Installation of West End Stabilization to fortify USFS sand spit.

1.02 LOCATION

A. This project is located at the Priest Lake Thorofare entrance to Priest Lake, south of Sandpiper Shores Road in Idaho, 83821.

1.03 ACCESS TO SITE

A. Access to site will be primarily from the north lake shoreline, through the Sandpiper Shores community, and through the upland Construction Access Easements (see Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas). Absolutely no parking of private vehicles overnight on site is permitted unless otherwise allowed by the Owner's Representative.

1.04 COORDINATION

A. The Contractor shall coordinate its activity with the Owner's Representative, so interference with recreational activities will be minimized.

B. The Contractor shall also coordinate its work with adjacent properties throughout the life of this contract at no additional expense to the Owner.

1.05 MATERIALS TESTING

A. Necessary materials testing shall be performed by an independent testing laboratory and paid for in accordance with Section 01 40 00 - Quality Requirements. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PART 1 - GENERAL

1.01 MEASUREMENT METHOD – TRUCK MEASUREMENT

A. Measurement for payment will be at the unit price as stipulated in the bid form for the items listed below. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the work as specified.

B. Truck Measurement Method - Stone

1. Measurement for imported materials delivered by trucks shall be measured in accordance with these procedures and requirements. Imported materials include the following:
   a. Bedding Stone
   b. Armor Stone Type I
   c. Armor Stone Type II **(Base Bid Item No. 10 - Commercial Source)**
   d. Interstitial Stone
2. Scales: All material delivered by vehicle shall be weighed on public scales or scales provided by the Contractor and approved by the Owner's Representative. The scales shall be of sufficient capacity to permit weighing the transporting vehicle, both empty and full. Documentation of scale certification shall be provided to ensure accuracy of the scale being used.
3. Each truck shall be weighed and bear a unique identification number. Each vehicle operator shall obtain a weigh or load ticket from the scale operator. The tickets shall, at a minimum contain the following information:
   a. Date of haul;
   b. Contract number;
   c. Contract unit Bid item;
   d. Unit of measurement;
   e. Identification number of hauling vehicle; and
   f. Weight delivered:
      (1) Net weight in the case of batch and hopper scales
      (2) Gross weight, tare and net weight in the case of platform scales (tare may be omitted if a tare beam is used).
      (3) Approximate load out weight in the case of belt conveyor scales.
   g. The vehicle operator shall deliver the ticket in legible condition to the material receiver at the material delivery point. The material delivery point is defined as the location where the material is incorporated into the permanent Work.
   h. When requested by the Owner's Representative, the Contractor's representative shall collect the tickets throughout the day and provide them to the designated

receiver, not later than the end of shift, for reconciliation. Tickets for loads not verified as delivered will receive no pay.

i. Stone Products: Types of material shall not be mixed in any given load.

j. Over placement: In the event of over- or under-placement of material with respect to the lines and grades shown on the Contract Drawings, the following conversion for pay quantities shall be used:

(1) When the quantity of material is determined by weight and must be computed by the volume, the weight will be determined by calculating the in-place gross volume of material and multiplying that volume by the specific gravity of the material as measured in laboratory tests. The weight will then be reduced by 28 percent to account for voids in the gross volume for the Stone.

C. Truck Measurement Method – Dredged Material Upland Disposal

1. Measurement for exported dredged material (2,500 cy) transported offsite by trucks shall be conducted in accordance with these procedures and requirements. Exported materials include the following:

a. Dredged Sand for Upland Disposal (Bid Item No. ~~5~~ **6**).

b. Armor Stone Type II **(Alternate Bid Item No. 10.B. – Owner Provided Source)**

2. Each truck shall be measured and bear a unique identification number. Each vehicle operator shall obtain a load ticket in duplicate for the Owner's Representative and Contractor. Each type of hauling truck will be measured and volume documented by truck number. Hauling vehicles may be of any size or type the Owner's Representative approves, provided that the body is of such shape that the actual contents may be readily and accurately determined. If the Owner's Representative requires, the Contractor shall level loads at the project site to facilitate measurement prior to hauling offsite.

1.02 MEASUREMENT METHOD – VOLUME IN PLACE

A. Volume (of dredging, excavation and fill) – Measured by the average-end-area method or by the finite element analysis method utilizing digital terrain modeling techniques, based on pre- and post- construction surveys, pre-and post-dredging surveys, and intermediate/progress surveys (as outlined in Technical Specification 01 71 23 – Construction Surveying).

1.03 MEASUREMENT FOR PAYMENT

A. Measurement for payment will be at the unit price as stipulated in the bid form for the items listed below. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the work as specified.

B. The bid items are for work as shown in the Contract Drawings.

1. Mobilization/Demobilization:

a. Measurement: No measurement shall apply to the Lump Sum price.

b. Description: Work under this item shall include mobilization and demobilization of construction equipment and costs of preparatory work and operations performed by the Contractor that are not defined as a part of a payment item.

c. Payment:

1) 40% after completion of 5% of the total contract amount of other bid items have been earned.

2) 80% after completion of 20% of the total contract amount of other bid items have been earned.

3) 100% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Owner's Representative.

2. Environmental Protection, Site Prep, & Site Restoration:

a. Measurement: No measurement shall apply to the Lump Sum price.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for fabricating, constructing, installing, and maintaining and repairing environmental protection measures as needed for temporary erosion and sediment control (TESC), water quality protection and compliance with permit conditions, and spill prevention as described in Sections 01 57 13 – Temporary Erosion and Sediment Control and 01 35 43 – Environmental Controls of these Technical Specifications and as shown in the Contract Drawings. **Work under this item shall also include all materials, supplies, equipment, and labor required for fabricating, constructing, installing, maintaining, providing utilities protection and restoring the Access Road and private properties used to access the project site limits, as described in Section 01 50 00 - Temporary Facilities and Controls and in accordance with all**

temporary construction access agreements. Work elements for this item include, if required, but are not limited to:

1) **Access Road Maintenance, Existing Utilities Protection, and Restoration**

2) **Temporary Construction Access and Restoration at Lot #8 and Lot #10**

3) Water Quality Monitoring and Control Plan

4) Water Quality Control

5) Water Quality Monitoring

6) Spill Prevention, Control and Countermeasure Plan

7) TESC Plan and Compliance

8) BMPs (silt fencing, construction fencing, debris boom, silt curtain, etc.) as needed for compliance with permits

9) Noise and air pollution controls

c. Payment: Lump Sum.

3. Construction Surveying:

a. Measurement: No measurement shall apply to the Lump Sum price.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for terrestrial and hydrographic surveying work required to construct the project components as defined in Technical Specification Section 01 71 23 – Construction Surveying. The construction survey work includes establishing control and performing staking, electronic templates, pre-construction survey, pre-dredge survey, intermediate/progress surveys, post-dredge survey, and post-construction survey, as described in these Technical Specifications and as shown in the Contract Drawings.

c. Payment: Lump Sum.

4. Flow Diversion

a. Measurement: No measurement shall apply to the Lump Sum price.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for Flow Diversion as defined in Technical Specification Section 02 20 00 – Flow Diversion and as shown on the Contract Drawings. This item includes the following:

(1) Development of the Flow Diversion System;

(2) Development and refinement of a Flow Diversion Work Plan;

(3) Furnishing and installation of the Flow Diversion System (consisting of Super sacks, Concrete Ecology Blocks, or other, in accordance with Section 02 20 00 - Flow Diversion);

(4) Monitoring of Thorofare flow conditions and lake levels throughout the duration of the work;

(5) Managing Thorofare flow throughout the duration of the work;

(6) Any Temporary Access Road Bridge or Culvert (or other) used for Thorofare crossing; and

(7) Flow Diversion System removal and site restoration.

c. Payment: Lump Sum.

5. Demolition & Contractor Disposal:

a. Measurement: No measurement shall apply to the Lump Sum price.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for the removal and disposal of the existing timber breakwater and salvage of the navigation buoys in accordance with the Contract Documents and as specified in Technical Specification Section 02 41 00 – Demolition. Payment for the work includes all work incidental to demolishing and removing the existing non-salvageable components, transportation and disposal of materials and debris offsite, and cleanup, as described in these Technical Specifications and as shown in the Contract Drawings.

c. Payment: Lump Sum.

6. Dredging & Upland Disposal:

a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards removed within the dredge area above the specified side slopes and bottom of dredge cut elevation presented on the Contract Drawings using pre- and post- dredge surveys, in accordance with Section 01 71 23 – Construction Surveying. The quantity of material disposed of upland will be confirmed by truck measurement.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to complete dredging and upland disposal of dredged sediment from the Thorofare channel. This item includes removing 2,500 cy of material from the Thorofare channel and transporting the material to the Contractor-provided upland disposal site, in accordance with these Technical Specifications. Dredged material re-used on-site shall not be included in the "Dredging & Upland Disposal" work and shall be included in the "Dredging and Beneficial Reuse" Bid Item. The total dredging volume shall be determined by pre-dredge and post-dredge surveying of in-place dredge areas. Payment for the work includes all work incidental to dredging and upland disposal of dredged material as described in these Technical Specifications and as shown in the Contract Drawings**.** Work also includes development and refinement of a work plan to complete the dredging work. All dredging work conducted outside the lines and grades shown in the Contract Drawings will not be paid. Material removed from the designated overdredge allowance shown on the Contract Drawings will be included in the payment template.

c. Payment: Per cubic yard (CY).

7. Dredging & Beneficial Reuse:

a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards removed within the dredge area above the specified side slopes and bottom of dredge cut elevation presented on the Contract Drawings using pre- and post- dredge surveys, in accordance with Section 01 71 23 – Construction Surveying. The quantity of material under this bid item will be calculated as the surveyed difference between the total volume of material removed from the Thorofare Channel Dredging on an in-situ basis and confirmed by volume of truck-measured material hauled upland (Bid Item No. 6).

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required to complete dredging of sediment for beneficial reuse from the Thorofare channel. This item includes removing material from the Thorofare channel for use on site, in accordance with technical Specification Section 35 20 23 Dredging and as shown on the Contract Drawings. The volume of material will be the difference between the total dredged quantity and the volume of dredged material disposed of offsite at an upland location. Dredged material hauled off site shall not

be included in the "Dredging & Beneficial Reuse" work. The total dredging volume shall be determined by comparison of pre & post-dredge surveying of in-situ dredge areas. Payment for the work includes all work incidental to dredging and transport of material to the beneficial reuse placement areas as described in Technical Specifications and as shown in the Contract Drawings. Work also includes development and refinement of a work plan to complete the dredging work. All dredging work conducted outside the lines and grades shown in the Contract Drawings will not be paid. Material removed from the designated overdredge allowance shown on the Contract Drawings will be included in the payment template.

c. Payment: Per cubic yard (CY).

8. Excavation & Fill – Stone Breakwater:

a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards of excavation for stone breakwater construction within the specified slopes and grades shown on the Contract Drawings, using pre-construction and intermediate/progress surveys in accordance with Section 01 71 23 Construction Surveying.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for structure excavation and beneficial re-use on-site of sand material as required to construct the site improvements to the lines and grades indicated on the Contract Drawings and as specified in Section 31 00 00 – Excavation and Fill of these Technical Specifications. Work includes backfilling and grading the existing remnant channels (post timber breakwater demolition) to meet adjacent lakebed elevations (Zone 2 Fill Placement Area), placement of material for Beach Nourishment (Zone 3 Fill Placement Area) to meet the lines and grades after placement of dredged material, and excavation and back filling within the stone breakwater footprint to the finished surface grades (Zone 1 and Zone 4 Fill Placement Areas) as specified in the Contract Documents. Excavation and backfill work conducted for installation of West End Stabilization shall be included in Bid Item No. 17.

c. Payment: Per cubic yard (CY).

9. Geotextile Fabric – Stone Breakwater:

a. Measurement: Per square yard (SY). Measurement for payment for Geotextile Fabric shall include the neat lines

shown on the Contract Drawings without overlaps at seams and joints.

b. Description: Work under this item shall include the materials, supplies, equipment and labor required for the fabrication and installation of the geotextile fabric for the stone breakwater as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings. Measurement for payment of Geotextile Fabric will be conducted for the material placed within the lines and grades shown on the Contract Drawings.

c. Payment: Per square yard (SY).

10. Armor Stone Type II – Stone Breakwater **(Commercial Source)**:

a. Measurement: Per ton (2,000 lbs); measured based on Truck Measurement Method described in Paragraph 1.01 above.

b. Description: Work under this item shall include all testing, materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Armor Stone Type II for construction of the Stone Breakwater as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings.

c. Payment: Per ton.

11. Armor Stone Type I - Stone Breakwater:

a. Measurement: Per ton (2,000 lbs); measured based on Truck Measurement Method described in Paragraph 1.01 above.

b. Description: Work under this item shall include all testing, materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Armor Stone Type I as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings.

c. Payment: Per ton.

12. Bedding Stone – Stone Breakwater:

a. Measurement: Per ton (2,000 lbs); measured based on Truck Measurement Method described in Paragraph 1.01 above.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Bedding Stone as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings.

c. Payment: Per ton.

13. Interstitial Stone – Stone Breakwater:

a. Measurement: Per ton (2,000 lbs); measured based on Truck Measurement Method described in Paragraph 1.01 above.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Interstitial Stone as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings.

c. Payment: Per ton.

14. Dayboard – Furnish and Install:

a. Measurement: Per dayboard (each).

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for supplying and installing steel fabrications and dayboard(s) as described in Sections 35 10 00 – Navigation Aids and 05 50 00 – Miscellaneous Metals of these Technical Specifications and as indicated in the Contract Drawings.

c. Payment: Per dayboard (each).

15. Beach Nourishment:

a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards of fill material placed as Beach Nourishment (Zone 3 Fill) south of the stone breakwater within the specified side slopes and grades shown on the Contract Drawings, using pre-construction, intermediate/progress, and post-construction surveys in accordance with Technical Specification Section 01 71 23 – Construction Surveying.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for placement of dredged material (Dredging & Beneficial Reuse) as Zone 3 Fill south of the new stone breakwater to meet the lines and grades of the Beach Nourishment as described in Technical Specification Section 31 00 00 – Excavation and Fill and as indicated in the Contract Drawings. There will be no additional compensation for material placed outside the Beach Nourishment lines and grades as shown on the Contract Drawings. The placement of material in excess of that needed to fill the Beach Nourishment template shown on the Contract Drawings will not be provided additional compensation.

Excavation & Fill – Stone Breakwater shall be used to complete the Beach Nourishment to the grades and neat lines shown on the Contract Drawings.

c. Payment: Per cubic yard (CY).

16. Furnish and Install Super Sacks:

a. Measurement: Per Super Sack (each); measurement will be calculated on an in-place basis for the number of super sacks filled and installed as part of the West End Stabilization.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for furnishing, transporting, preparing, filling, and installing super sacks to be used for construction of West End Stabilization, as described in Technical Specification Section 31 00 00 – Excavation and Fill and as indicated in the Contract Drawings. Empty super sacks shall be filled with material from either Thorofare channel dredging or excavation work. Mining of material outside the designated structure excavation and dredging footprints shown in the Contract Drawings is prohibited.

c. Payment: Per super sack (each).

17. Excavation and Fill - West End Stabilization:

a. Measurement: Per cubic yard (CY); measurement will be calculated on an in-situ basis for cubic yards excavated for installation of West End Stabilization, as shown on the Contract Drawings, using pre- construction and intermediate/progress surveys, in accordance with Section 01 71 23 – Construction Surveying.

b. Description: Work under this item shall include all materials, supplies, equipment, and labor required for clearing and grubbing, excavation and backfilling (backfill in Zone 4) existing material to specified grades for the West End Stabilization work as shown on the Contract Drawings and outlined in Technical Specification Section 31 00 00 – Excavation and Fill. This item does not include work related to filling of the super sacks. Any excavated material not needed to build the lines and grades for the West End Stabilization shall be placed on the south side of the Breakwater as additional Beach Nourishment.

c. Payment: Per cubic yard (CY).

18. Geotextile Fabric – West End Stabilization:

a. Measurement: Per square yard (SY). Measurement for payment for Geotextile Fabric shall include the neat lines shown on the Contract Drawings without overlaps at seams and joints.

b. Description: Work under this item shall include the materials, supplies, equipment and labor required for the fabrication and installation of the geotextile fabric for construction of the West End Stabilization as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings. Measurement for payment of Geotextile Fabric will be conducted for the material placed within the lines and grades shown on the Contract Drawings.

c. Payment: Per square yard (SY).

19. Armor Stone Type I – West End Stabilization:

a. Measurement: Per ton (2,000 lbs); measured based on Truck Measurement Method described in Paragraph 1.01, above.

b. Description: Work under this item shall include all testing, materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Armor Stone Type I for construction of the West End Stabilization as described in Technical Specification Section 35 31 23 – Breakwaters and as indicated in the Contract Drawings.

c. Payment: Per ton.

20. Minor Changes:

a. Measurement: No unit of measurement shall apply to the lump sum price for “Minor Changes.”

b. Description: For the purpose of providing a common Proposal for all Bidders, an amount for “Minor Changes” has been entered as part of the total bid by the Contractor. This item includes payments, credits, or changes amounting to $10,000 or less for equitable adjustments for differing site conditions. At the discretion of the Owner, all or part of this estimated amount may be used in lieu of a formal change order. All work and payment under this bid item must be authorized by the Owner’s Representative.

c. Payment: Payment for “Minor Changes” will be only for the charges and amounts approved by the Owner. If no changes are authorized under this bid item, final payment for this bid item will be $0 (zero). If the parties are able to agree, the price will be determined using unit prices or other agreed upon prices. If the parties cannot agree, the price will be determined

by the Owner's Representative using unit prices; or other means to establish costs.

ALTERNATE BID ITEM:

10.B. **Armor Stone Type II – Stone Breakwater (Owner Provided Source):**

a. **Measurement: Per ton (ton; measured based on Truck Measurement Method described in Paragraph 1.01C above.**

b. **Description: Work under this item shall include all testing, materials, supplies, equipment, and labor required for supplying, transporting, stockpiling, and installing Armor Stone Type II from the Bear Creek Owner Provided Source for construction of the Stone Breakwater, as described in Technical Specification Section 35 31 23 – Breakwaters. Work under this alternate bid item must comply with all requirements set forth in IDL Mineral Lease No. E100114 (see Appendix C). Per IDL Mineral Lease E100114, the lessee shall pay the total monies accruing for the extraction from the Leased Premises of Boulders at a royalty rate of $15.00 per ton, Alternate Bid Item No. 1 is in lieu of the cost to perform Base Bid Item No. 10 Armor Stone Type II – Stone Breakwater (Commercial Source).**

c. **Payment: Per ton (ton).**

END OF SECTION

PART 1 - GENERAL

1.01 PRE-CONSTRUCTION MEETING

A. NOTIFICATION

1. Following the award, the Owner's Representative will confirm the location, date and time of a pre-construction meeting with the selected bidder.

B. LOCATION

1. The preconstruction meeting will be held at the project site.

C. ATTENDANCE

1. The following are requested to attend:

a. IWRB Representatives:

(1) Owner's Representative/Project Engineers – Mott MacDonald

(2) Contract Administrator

(3) Owner's Construction Manager

b. Contractor's Representatives:

(1) Project Manager (Superintendent)

(2) Contract Administrator

(3) Major Subcontractors

(4) Major Suppliers

c. Community Representative

D. Topics to be discussed to the pre-construction meeting may include:

1. Organization structure, including delegation of authority.
2. Correspondence and contract procedures
3. Payment procedures
4. Permit restrictions
5. Discussion of the Technical Specifications including:
   a. Layout of work
   b. Permits and key permit conditions affecting the work
   c. Dredging Work Plan (including re-handling, flow diversion, disposal, and loading operations)
   d. Quality Control Plan
   e. Traffic Control Plan
6. Staging, parking, and fueling locations and procedures.
7. Other items of mutual interest to the contracting parties.
8. The Contractor's Project Manager and other Key personnel shall attend this meeting.

1.02 PRE-DREDGE MEETING

A. Following the award, the Owner's Representative will confirm the location, date and time of a pre-dredge meeting with the selected bidder.

B. The pre-dredge meeting must take place at least 10 days prior to the start of dredging.

C. Topics to be discussed at the pre-dredge meeting may include:
   1. Review of the Quality Control Plan
   2. Dredging Work Plan
   3. Review of regulatory permits (See Appendix A – Permit Documents)
   4. Procedures for re-handling operations
   5. Water Quality Monitoring and Control Plan
   6. Review of water quality certification
   7. Erosion Control Measures
   8. Construction surveys and submittals

1.03 PROGRESS MEETINGS

A. The Owner's Representative will schedule and administer weekly progress meetings throughout progress of the work.

B. The Owner's Representative will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made. Progress meetings may take place in-person or via teleconference, at the Owner's Representative discretion.

C. The Contractor is responsible for providing a location with teleconference capabilities and telecommunications connectivity (land line or cellular connection) for weekly construction meetings, as described in Section 01 50 00 – Tempoary Facilities and Controls.

D. Attendance is required for the Contractor's job superintendent, and major subcontractors, Owner's Construction Manager, Owner, and Owner's Representative as appropriate to the agenda topics for each meeting.

E. Standard Agenda
   1. Safety moment
   2. Review minutes of previous meeting.
   3. Review of work progress.
   4. Field observations, problems, and decisions.
   5. Identification of problems that impede planned progress.
   6. Maintenance of progress schedule.

7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Coordination of projected progress.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Demonstration that the project record drawings are up-to-date.
13. Other business relating to the work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for submittals, including shop drawings, product data, samples, and other submittals.

B. Related Requirements:

1. All Sections of these Technical Specifications are related to this Section. Required submittals are identified in each of the individual Technical Specification sections.

1.02 RELATED SECTIONS

A. All Technical Specification sections relate to this section.

1.03 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Owner's Representative receipt of submittal. No extension of the Contract time will be authorized because of failure to transmit submittals enough in advance of the work to permit processing, including resubmittals.

B. Initial Review: Allow ten (10) working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Owner's Representative will advise the Contractor when a submittal being processed must be delayed for coordination. The Owner's Representative will determine if submittals are acceptable and inform the Contractor whether the submittal is accepted or if modifications and resubmittal are required.

C. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

D. Resubmittal Review: Allow five (5) working days for review of each resubmittal.

E. Submittals: Place a permanent label or title block on each submittal item for identification. The Owner's Representative will be tracking and logging the status of each submittal and resubmittal.

F. Indicate name of firm or entity that prepared each submittal on label or title block.

G. Include the following information for processing and recording action taken:

1. Project name.

2. Date.

3. Name of construction manager.

4. Name of Contractor.
5. Name of Subcontractor.
6. Name of supplier.
7. Name of manufacturer.
8. Submittal number or other unique identifier, including revision identifier.
9. Number and title of appropriate Technical Specification section.
10. Contract Drawing number and detail references, as appropriate.
11. Location(s) where product is to be installed, as appropriate.
12. Other necessary identification.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

I. Note date and content of previous submittal.

J. Note date and content of revision in label or title block and clearly indicate extent of revision.

K. Resubmit submittals until they are marked with approval notation from Owner's Representative.

L. Distribution: Furnish copies of final submittals to manufacturers, Subcontractors, suppliers, fabricators, installers, and others as necessary for performance of construction activities. Show distribution on transmittal forms. Contractor is responsible for furnishing copies to agencies from which Contractor has secured permits.

M. Use for Construction: Retain complete copies of submittals on project site. Use only final submittals that are marked with approval notation from Owner's Representative.

N. All text shall be legible with a font size 8 points or larger when printed on 8.5x11-inch paper.

PART 2 – PRODUCTS

2.01 SUBMITTAL PROCEDURES

A. General submittal procedure requirements: Prepare and submit submittals required by individual Technical Specifications to the Owner's Representative. Types of submittals are indicated in individual Technical Specification sections and may include, but not limited to the following:

B. Product data: Collect information into a single submittal for each element of construction and type of product or equipment.

C. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as shop drawings, not as product data.

D. Mark each copy of each submittal to show which products and options are applicable.

E. Include the following information, as applicable:

1. Manufacturer's catalog cuts.
2. Manufacturer's product specifications.
3. Standard color charts.
4. Statement of compliance with specified referenced standards.
5. Testing by recognized testing agency.
6. Application of testing agency labels and seals.
7. Notation of coordination requirements.
8. Availability and delivery time information.
9. Submit product data before or concurrent with samples.

F. Shop Drawings: Prepare project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the Contract Drawings or standard printed data.

G. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

1. Identification of products.
2. Schedules.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Relationship and attachment to adjoining construction clearly indicated.
7. Seal and signature of professional engineer if required.

H. Sheet Size (when hard copies required): Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8-1/2 by 11 inches, but no larger than 22 by 34 inches.

I. Samples: Submit samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

J. Transmit samples that contain multiple, related components such as accessories together in one submittal package.

K. Identification: Attach label on unexposed side of samples that includes the following:

1. Generic description of sample.
2. Product name and name of manufacturer.
3. Sample source.
4. Number and title of applicable Technical Specification section.
5. Technical Specification paragraph number and generic name of each item.

L. Disposition: Maintain sets of approved samples at project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

M. Samples that may be incorporated into the work are indicated in individual Technical Specification sections. Such samples must be in an undamaged condition at time of use.

N. Samples not incorporated into the work, or otherwise designated as Owner's property, are the property of Contractor.

O. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available. Submit material sample for items such as aggregates, soil, and mulch.

P. Contractor's Construction Schedule: Comply with requirements specified in the Specific Requirements and Technical Specification Section 01310 – Project Management and Coordination.

Q. Test and inspection reports and schedule of tests and inspections submittals.

R. Pre-work Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

S. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

T. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Include a detailed description of the differing conditions,

together with recommendations for correcting the differing conditions. All Change Order requests must be submitted in accordance with the Contract Documents.

U. Closeout Submittals: Project Record Drawings, and maintenance material submittals.

V. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

W. Manufacturer, product, and material certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer, its products, and/or its materials comply with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

X. Material test reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents. Material test reports should be submitted to the Owner's Representative for review and approval.

Y. Product test reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency. Product test reports should be submitted to the Owner's Representative for review and approval.

2.02 COMPLIANCE

A. In the absence of an approved submittal that meets the requirements of this section, the Contractor shall furnish the exact materials specified or materials selected by the Owner's Representative based on the Contract Drawings.

2.03 WORKING DRAWINGS

A. The Owner's Representative will not accept Working Drawings that prohibit the Owner's Representative from making sepias or copies for its own use.

B. Quality: Working Drawings shall be prepared accurately to scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the work.

C. All Drawings submitted to the Owner's Representative for this approval shall be drawn on sheets in 11-inch by 17-inch format or sheets that are

multiples of 8-1/2 inches by 11 inches. Upon the Owner's Representative's specific request, the Contractor shall furnish copies of any drawing on sheets having the dimensions 22 inches wide by 34 inches long in overall dimensions. All text shall be legible with a font size 8 points or larger when printed on 11x17-inch paper.

D. Type of Prints Required:

1. Whenever possible, the Contractor shall transit all submittals in Adobe portable document format (PDF).
2. If PDF format is not feasible, the Contractor shall submit six prints or copies of all Shop Drawings or supplemental Working Drawings in accordance with the General Conditions.

E. Distribution: The Owner's Representative and Owner's Construction Manager will review any Drawings provided by the Contractor, mark with appropriate notations, prepare the required number of prints for its use, and return marked copies to the Contractor. The Contractor may then order, at the Contractor's expense, as many additional copies as required for Contractor's work.

2.04 PRODUCT DATA

A. The Contractor shall submit product data in PDF format.

B. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. General catalogs or partial lists will not be accepted.

2.05 SAMPLES

A. The sample submitted shall be the exact or precise article proposed to be furnished.

B. Samples, color chips, finish styles, etc., shall be submitted in sufficient number as to provide the Owner's Representative with alternate choices.

2.06 SUBSTITUTIONS

A. The Contract is based on the materials, equipment, and methods described in the Contract Documents.

B. The Owner's Representative will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data and all other information required by the Owner's Representative to evaluate the proposed substitution.

C. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Owner's Representative.

D. Requests for substitutions may be made after award. Such requests shall be accompanied by all technical data and costs, and delivery information. When, in the opinion of the Owner's Representative, the product is equal, or better, in all respects to the product specified, it will be approved subject to Contract requirements and the Contractor's assumption of all responsibility therefore.

E. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Owner's Representative and Owner's Construction Manager.

F. Catalog and product data for equipment approved by the Owner's Representative does not in any case supersede the Contract Documents. The approval by the Owner's Representative shall not relieve the Contractor from responsibility for deviations from the Contract Drawings, unless Contractor has in writing called the Owner's Representative attention to such deviations at the time of the submission, nor shall it relieve Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the product data with the Contract Documents for deviations and errors.

G. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. Contractor shall make necessary field measurements to ascertain space requirements, including those for connections and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Contract Drawings and Specifications.

H. Where equipment requiring different arrangement of connections from those shown as approved is used, it shall be the responsibility of the Contractor to install the equipment to operate properly, and in harmony with the intent on the Contract Drawings, and to make all changes in the work required by the different arrangement of connections together with any cost of redesign necessitated thereby, all at Contractor's expense.

I. Where the phrase "or approved alternate" or "or equal" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved by the Owner's Representative unless the item has specifically been approved for this Work by the Owner's Representative.

PART 3 – EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Submittals: Review each submittal and check for coordination with other work of the Contract and for compliance with the Contract Documents.

Note corrections and field dimensions. Mark with submittal stamp before submitting to Owner's Representative and Owner's Construction Manager.

B. Submittal Stamp: Contractor shall stamp the cover page of each submittal with a uniform, approval stamp. Include project name and location, submittal number, Technical Specification section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

C. All working drawings, brochures, and product data shall be submitted in Adobe Portable Document Format (PDF) generated by a PDF writer or scanned to PDF format.

D. Samples shall be submitted using electronic means following a system selected by the Owner's Representative and Owner's Construction Manager and discussed at the pre-construction conference.

3.02 OWNER'S ACTION

A. The Owner's Representative will review each submittal, make marks to indicate corrections or revisions required, and return it. The Owner's Representative will forward each submittal to the Contractor.

B. Partial submittals prepared for a portion of the work will be reviewed when use of partial submittals has received prior approval from Owner's Representative.

C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

D. Submittals not required by the Contract Documents may be returned by the Owner's Representative without action.

E. Submittal Response: The Owner's Representative will note the submittal status when responding to a submittal as follows:

1. Under Review.

2. Approved: If the review indicates that the submittal appears to be in conformance with the Contract Documents, the submittal will be marked "APPROVED". The Contractor may begin implementing the work method or incorporating the material or equipment covered by the submittal.

3. Approved As Noted: If the review indicates that the submittal is insufficient or that limited corrections are required, the submittal will be marked "APPROVED AS NOTED". The Contractor may begin implementing the work method or incorporating the material or equipment covered by the submittal, in accordance with the noted corrections. Where submittal information will be incorporated in operation and maintenance plan, a corrected copy shall be

provided within 30 days, otherwise no further action will be required.

4. Resubmit: If the review reveals that the submittal is substantially insufficient or contains incorrect data to an extent that requires revision and re-review by the Owner's Representative prior to proceeding with the associated work, the submittal will be marked "RESUBMIT" and returned to the Contractor. This indicates that the Contractor should not proceed with the relevant portion of work, at-risk or otherwise, until a revised submittal has been submitted, reviewed, and accepted by the Owner's Representative as either "APPROVED", or "APPROVED AS NOTED."

5. Rejected. If the review reveals a proposed product which does not meet the specifications, the submittal will be marked "REJECTED" and returned to the Contractor. This indicates that the Contractor should not proceed with the relevant portion of work.

6. N/A: If the review reveals that the submittal is not required by the Contract Documents, at the Owner's Representative's discretion it may be returned by the Owner's Representative without action marked "N/A" This does not constitute review of the submittal, and is only communicating that Owner's Representative review of this submittal is not required by the Contract Documents. It is the Contractor's responsibility to follow up with the Owner's Representative if the Contractor needs approval of information in a submittal that was marked "N/A."

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. The work includes the requirements to maintain environmental controls by the Contractor in accordance with the specifications and the Owner provided permits. The work also includes compliance with all controls or ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security, or traffic.

1. IDWR Stream Channel Protection Specialist shall be contacted no less than 3 business days before construction begins by:

a. Email: northerninfo@idwr.idaho.gov, or

b. Phone: (208) 762-2800

Failure to do so may result in annulment of IDWR Permit No. S97-20058.

2. All work below OHW must occur from November 1st 2020 to March 15th 2021.

B. Lubricants or hydraulic fluids composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols are recommended for use in equipment operated in or near water.

C. This work item shall include the planning, installing, inspecting, maintaining, and removing Best Management Practices (BMPs) to prevent pollution of air, land, and water, and control, respond to, and dispose of existing structures during the contract.

D. The Contractor shall perform the following:

1. Install, maintain, and remove all BMPs during the life of the contract.

2. Perform other work shown on the Contract Drawings or as directed by Owner's Representative.

3. Educate all Contractor and all Subcontractor staff in environmental compliance issues at weekly meetings.

E. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

F. The Contractor is wholly responsible for meeting water quality standards during the duration of the work.

1.02 RELATED SECTIONS

A. Technical Specification Section 01 50 00 – Temporary Facilities and Controls

B. Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Control

C. Appendix A - Permit Documents

1.03 APPLICABLE PUBLICATIONS

A. The following permits, rules, requirements, and regulations specified may apply to this work:

1. USACE Permit No. NWW – 2018 - 00499
2. Concurrence Letter from U.S. Fish and Wildlife Service
3. DEQ Section 401 Water Quality Certification
4. IDL Encroachment Permit No. L97S0891C
5. IDL Final Order
6. Concurrence Letter from SHPO

1.04 SITE MAINTENANCE:

A. The Contractor shall keep the work site and Contractor's facilities clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance in conformance with the present condition of the site.

B. CLEAN-UP

1. Refer to specific site and permitting requirements in Appendix A – Permit Documents.

1.05 AIR POLLUTION CONTROL:

A. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. Internal combustion engines shall not be allowed to idle for prolonged periods of time. The Contractor shall maintain construction vehicles and equipment in good repair. Exhaust emissions that are determined to be excessive by the Owner’s Representative shall be repaired or replaced.

B. The Contractor shall minimize dust nuisance by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods. Equipment for this operation shall be on the job site or available at all times.

C. Visible dust generated from any Contractor activity shall not be allowed.

D. The Contractor shall sprinkle water as necessary to prevent visible dust at all times during earthwork operations.

1.06 NOISE CONTROL:

A. Refer to Specific Requirements in Appendix A - Environmental Permits.

B. Construction involving noisy operations, including starting and warming up of equipment shall be in compliance with local noise ordinances. Noisy operations shall be scheduled to minimize their duration. Construction involving noisy operations shall be limited to work hours stated in Technical Specification 01 10 00 – General Requirements.

C. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.

D. Each internal combustion engine, used for any purpose on the job or related to the job, shall be enclosed and be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler and enclosure.

E. Noise levels shall be in accordance with Idaho Code. Equipment that cannot meet these levels shall be quieted by use of improved exhaust mufflers, portable acoustical screens, or other means. Equipment not modified to meet these requirements shall be removed from the project.

1.07 WATER CONTROL:

A. The Contractor shall conform to the regulations and requirements of legally authorized surface water management agencies.

B. The Contractor shall be responsible for keeping upland (above OHW) excavations for the structures, trenches, and other areas free from surface waters as required to permit continuous progress of, or to prevent damage to, its own work or the work of others. The Contractor's operations shall be conducted in such a manner as to prevent sediment or other contaminants from reaching the existing sewers, storm drains, creeks, or streams. Temporary erosion control and settling ponds shall be provided in the work area as required to trap runoff until the turbidity has settled and the water can be diverted into drainage courses.

C. The Contractor shall cover exposed excavated areas and spoil piles when runoff from rain is or would be likely to cause turbid waters to enter local waterways. The Contractor shall suspend work in the rain if such work cannot be performed without causing turbid runoff. If turbid water is discovered entering storm drainage structures, the Owner's Representative may suspend the work immediately. All costs associated with suspension of the work shall be the responsibility of the Contractor. Work shall remain suspended until turbid runoff has been eliminated.

D. To avoid solids or turbid runoff from entering local waterways and storm drain systems, the Contractor shall cover, secure, and/or berm excavated areas and spoil piles and employ other methods as necessary such as hay bales around storm drains or around construction-sites, use of cut and cover construction method, or use of sedimentation basins.

1.08 WATER QUALITY MEASURES:

A. Erosion control measures including silt fences, filter fabric, debris booms, silt curtains, sedimentation ponds, placement of hay bales along the peripheries of construction-sites, temporary detention ponds, and terraced slopes shall be employed as appropriate and shall be in place prior to any clearing or grading activity.

B. All site runoff shall be diverted into temporary erosion control facilities until solids settle before routing to Priest Lake or Priest River.

C. The Contractor shall utilize industry standard erosion and sedimentation control Best Management Practices (BMPs) such as catch basin protective inserts, check dams, silt fences, sediment ponds, holding tanks, and drainage swales to prevent turbid runoff during the duration of the work.

D. No "track-out" of soils or other materials shall be allowed. The Contractor shall employ the use of built up construction entrances, wheel washes, and other means to prevent contamination of roads, streets, and other traveled surfaces in the vicinity of the project site. Should "track-out" occur, it shall be removed immediately.

E. A silt curtain, fence, or other appropriate BMP shall be installed during construction activities creating turbidity. It must remain in place and functional until the turbidity level inside the curtain, fence or BMP equals the turbidity outside the curtain, or until all disturbed sediment has been removed from the BMP and stabilized at an upland location.

1.09 WATER QUALITY CONTROL REQUIREMENTS:

A. All work shall be performed in a manner that does not adversely impact water quality or cause damage to critical habitat located outside the Project Site areas. Contractor is prohibited from allowing equipment, boats, barges, or associated machinery to create petroleum product sheen on the water or otherwise create a release of petroleum or petroleum products due to petroleum products handling, use or storage. The Contractor shall have absorbent boom on-site and ready for placement to contain sheens in the event a spill occurs. The Owner's Construction Manager and Owner's Representative must be immediately notified if a material spill occurs or oil sheen is observed during any part of construction.

1.10 WATER QUALITY MONITORING AND CONTROL PLAN

A. The Contractor shall prepare and submit a Water Quality Monitoring and Control Plan prior to the start of construction for all work located below the ordinary high water mark (OHW). The Water Quality Control Plan shall include methods and procedures of demolition, and excavation and fill placement, that will be protective of lake and river water quality, and a description of contingency measures that will be implemented in the event water quality compliance criteria is exceeded during the performance of such activities.

1.11 WATER QUALITY MONITORING AND REPORTING CONDITIONS:

A. During and immediately after project construction, the Contractor shall visually monitor for turbidity discharges at the point of compliance in accordance with DEQ's Section 401 Water Quality Certification in Appendix A – Permit Documents. The Contractor shall meet water quality criteria as defined in the Section 401 Water Quality Certification and applicable local, state, and federal standards. The Contractor shall have in place BMPs to prevent water quality exceedances and contingency measures to implement should water quality violations occur.

B. Turbidity monitoring work shall be conducted by a technician that is either an employee of Contractor or an independent company experienced in conducting water quality compliance monitoring work. The proposed technician shall have a minimum 5 years of documented experience with water quality and turbidity monitoring work. Technician shall have demonstrated proficiency in using the water quality monitoring equipment.

C. Monitoring Locations – The Contractor shall establish a background location and point of compliance in accordance with DEQ's Section 401 Water Quality Certification (provided in Appendix A – Permit Documents). The background location shall be located in an undisturbed location up-current from the Project Site Limits, and the point of compliance shall be located downcurrent of the Project Site Limits by a distance of 300 ft.

D. Turbidity Monitoring Compliance – Turbidity monitoring must be conducted in accordance with DEQ's Section 401 Water Quality Certification in Appendix A – Permit Documents.

1. A technician meeting the qualifications outlined in paragraph B above shall measure turbidity at the background location and point of compliance at the frequency indicated in the table below and record the date, time, location, and turbidity measurements in a daily log.

2. Turbidity measurements cannot be taken during a cessation of activity.

3. If the project causes turbidity levels to increase above 50 NTU over background, the permittee must implement additional controls and practices, resume work, and monitor both points again. A description of the additional controls and the date, time, and location where they are implemented must be recorded in the daily log.

Table 1. Compliance Monitoring with a Turbidimeter

Allowable Exceedance in Turbidity	Action Required at 1st Monitoring Interval	Action Required at 2nd Monitoring Interval
0 to 24 NTU above background	Continue to monitor every 2 hours	Continue to monitor every 2 hours
25 to 29 NTU above background	Continue to monitor every 2 hours	STOP work after 8 hours/24-hour period
25 NTU above background for 10 or more consecutive days	STOP work and follow instructions in D.3. above.	
50 NTU or more above background (first occurrence)	STOP work and follow instructions in D.3. above.	
50 NTU or more above background (second occurrence)	STOP work and follow instructions in D.3. above and notify DEQ Regional Office	

E. Reporting – Copies of daily logs for turbidity monitoring must be made available to DEQ and other local, state, and federal regulatory agencies upon request. The log must include:

a. Background NTUs, point of compliance NTUs, comparison of the points in NTUs, and location, time, and date for each reading.

b. A narrative discussing all exceedances, controls applied and their effectiveness, subsequent monitoring, work stoppage, and any other actions taken. Documentation of exceedances shall include:

1) A description of the nature and cause of the exceedance.

2) The period of non-compliance including exact dates, duration and times and/or the anticipated time when the Applicant will return to compliance.

3) The steps taken, or to be taken, to reduce eliminate, and prevent the recurrence of the non-compliance.

F. If water quality exceedances are observed outside of the point of compliance, work shall cease immediately and the Contractor shall assess the cause of the water quality problem and take appropriate measures to

correct the problem and/or prevent further water quality turbidity exceedances.

G. If the results of the monitoring show that the water quality standards or project performance standards are not being met, additional monitoring and mitigation may be required.

H. Any changes to the monitoring requirements must be approved in writing by DEQ.

1.12 OIL SPILL PREVENTION AND CONTROL

A. The Contractor shall prepare a project specific spill prevention, control and countermeasures (SPCC) plan to be used for the duration of the project. The plan shall be submitted to the Owner's Representative prior to the commencement of any on-site construction activities. The Contractor shall maintain a copy of the plan at the Work site, including any necessary updates as the Work progresses. Adequate materials and procedures to respond to unanticipated weather conditions or accidental releases of materials (sediment, petroleum, hydrocarbons, etc.) shall be available on-site. The SPCC Plan also will ensure the proper management of oil, gasoline and solvents used in the operation and maintenance of construction equipment, that machinery remains free of external petroleum-based prior to entering the work area and during the work, and necessary repairs occur prior to returning the equipment to operation in the work area.

B. An emergency spill containment kit shall be located on-site with a pollution prevention plan detailing fueling procedures, materials storage and equipment storage.

C. Fueling areas shall be distinctly identified and established upland of OHW.

D. If hazardous materials are encountered during construction, the Contractor shall do everything possible to control and contain the material until appropriate measures can be taken. Hazardous material, as referred to within this Specification, is defined in 40 CFR Part 261 Subpart A 261.3 "Definition of hazardous waste". Specific information required in the SPCC Plan is outlined in the Submittals section of the Technical Specification.

E. The Contractor shall be responsible for prevention, containment, and cleanup of spilling of oil, fuel and other petroleum products used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor and shall be conducted in accordance with IDAPA 58.01.02.800-58.01.02.852.

F. The Contractor is advised that discharge of oil from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.

G. The Contractor shall, at a minimum, take the following measures regarding oil spill prevention, containment, and cleanup:

1. To reduce the potential for spills and peaks, an adequate supply of materials (such as a vacuum pump, booms, diapers, and other absorbent material) shall be kept to control and contain regulated materials in the event of an accidental spill.

2. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums, and other equipment and facilities shall be inspected regularly for drips, leaks, or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.

3. All land-based oil and products storage tanks shall be diked or located so as to prevent spills from escaping to the water. Diking and subsoils shall be lined with impervious material to prevent oil from seeping through the ground and dikes.

4. The Contractor shall not store oil or fuel on the river bank or below OHW, or equipment that is not required for the daily construction activities. The Contractor shall specify where oil and fuels will be stored in the SPCC Plan. A metal pan or other impervious material with sides a minimum of four (4) inches high shall be placed under the equipment on the beach or adjacent area during refueling. The pan shall have a capacity equal to the capacity of the fuel cans used and catch any spills or leaks during the refueling activity. Fuel caught in the pan shall be contained and either transported off-site or used in the equipment. Under no condition shall the material be discharged on the Project Site. If the Contractor's fuel cells exceed the thresholds set forth in 40 CFR 112, the Contractor shall provide a spill plan and containment equipment accordingly.

5. Special measures shall be taken to prevent bilge pumpage or effluent, chemicals, fuels, oils, greases, bituminous materials, waste washing, herbicides and insecticides, and concrete drainage from entering the water.

6. All visible floating oils shall be immediately contained with booms, dikes, or other appropriate means and removed from the water prior to discharge into state waters. All visible oils on land shall be immediately contained using dikes, straw bales, or other appropriate means and removed using sand, ground clay, sawdust, or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leakproof containers after cleanup and during transport to disposal. Waste materials shall be disposed off property at an approved site.

7. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Owner's Representative and the following agencies at their listed 24-hour response numbers:

   a. DEQ, Coeur d'Alene Regional Office (normal working hours): (208) 769-1422

   b. Idaho State Communications Center (after hours): 1-360-407-6300

   c. EPA/NRC: 1-800-424-8802

H. Maintain on the job at each site the following materials (as a minimum):

1. Oil-Absorbent Booms: 8 each, 20 feet long.
2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area.
3. Hay bales: 10
4. Plastic sheeting
5. Oil drywall, gloves and plastic bags.

1.13 CONTAMINATED/HAZARDOUS SOILS AND GROUNDWATER

A. Contractor's Responsibility

1. The Contractor shall monitor soils, groundwater and waste materials by instructing workers in observing and reporting questionable materials and odors, such as refuse, oily sheen or color on soils or water, and oily or chemical odors. If hazardous or contaminated materials are encountered, the Contractor shall stop all work in that area and notify the Owner's Representative and Owner's Construction Manager immediately.
2. The Contractor shall be responsible for all matters related to work safety and for detection of contaminated soils and groundwater encountered during the construction as they relate to worker safety. The Contractor shall ensure the protection of the safety and health of construction workers and other authorized persons at the work site from exposure to potential toxic materials.

B. Notification and Suspension

1. In the event the Contractor detects the presence of suspicious materials, the Contractor shall immediately notify the Owner, Owner's Representative, and Owner's Construction Manager Following such notification by the Contractor, Owner shall in turn notify the various governmental and regulatory agencies concerned with the presence of potentially dangerous materials. Depending

upon the type of problem identified, Owner may suspend the work in the vicinity of the material discovery.

2. Following completion of any further testing necessary to determine the nature of the materials involved, the Owner, Owner's Representative, and Owner's Construction Manager will determine how the material shall be handled and disposed of.

1.14 ADMINISTRATIVE REQUIREMENTS

A. Failure to install, maintain, and/or remove BMPs shown on the Contract Drawings and specified herein, or by order of Owner's Representative; or failure to comply, implement and maintain any provisions and requirements of this Technical Specification; or failure to conduct project operations in accordance with these Technical Specifications and Contract Drawings will result in the suspension of the Contractor's operations by Owner's Representative in accordance with General Conditions.

B. Any damages, fines, levies, or judgments incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification will be charged to the Contractor.

C. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this Technical Specification. The project schedule will not be changed to accommodate the time lost.

1.15 APPLICABLE REGULATIONS

A. Comply with applicable federal, state and local laws and regulations concerning environmental pollution control and abatement, and specific requirements elsewhere in Specifications and Contract Drawings to prevent and provide for control of environmental pollution.

B. The Contractor is responsible for the appropriate preventative water quality protection systems to ensure compliance with Appendix A - Permit Documents and in accordance with ITD Standard Specification Section 212 – Erosion and Sediment Control. Water pollution control measures shall be utilized throughout the duration of the work in accordance with BMPs described in DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*. Other resources may also be used for selecting appropriate BMPs.

1.16 ON-SITEENVIRONMENTAL PROTECTIONS

A. Protection of Land Resources:

1. Give special attention to the effect of Contractor's operations upon surroundings. Take special care to maintain natural surroundings

undamaged and conduct Work in compliance with following requirements:

a. When work is completed, remove storage and all other Contractor buildings and facilities, and sites restored to a neat and presentable condition appropriate to surrounding landscape, unless otherwise specified. Remove debris resulting from Contractor's operation.

b. Store petroleum products, industrial chemicals and similar toxic or volatile materials in durable containers, approved by the authority having jurisdiction, located in areas where accidental spillage will not enter water. Store substantial quantities of materials in an area surrounded by containment dikes of sufficient capacity to contain an aggregate capacity of tanks.

B. Protection and Restoration of Property:

1. Preserve public property, prevention of damage to natural environment, etc., insofar as they may be endangered by Work.

2. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect or misconduct in execution of Work, or in consequence of non-execution of Work, the Contractor shall restore, or have restored at Contractor's expense, such property to a condition similar and equal to that existing before such damage or injury was done. The Contractor shall do so by repairing, rebuilding, or otherwise restoring any damaged public or private property to pre-project condition, or make good the damage or injury in some other manner acceptable to the Owner's Representative.

C. Protection of Water Resources:

1. Perform Work not to create conditions injurious to fish or to their habitat, or which would make water unsuitable for private, municipal, or industrial use.

2. Take special measures to prevent chemicals, fuels, oils, grease, bituminous materials, waste washings, herbicides, insecticides, lime, wet concrete, cement, silt or organic or other deleterious material from entering waterways.

3. Dispose at an offsite location, wastes, effluents, trash, garbage, oil, grease, chemicals, cement, bitumen, etc., petroleum, and chemical products or wastes containing such products, in a lawful manner conforming to applicable local, state and federal laws. Furnish the Owner, Owner's Representative, and Owner's Construction

Manager with documentation showing compliance with this requirement.

4. Conform to applicable local, state and federal laws for disposal of effluents. Dispose of waters used to wash down equipment in a manner to prevent their entry into a waterway. If waste material is dumped in unauthorized areas, remove material and restore area to condition of adjacent, undisturbed area. If necessary, excavate contaminated ground and disposed of as directed by Owner's Representative and replace with suitable compacted fill material with surface restored to original condition.

1.17 SUBMITTALS

A. The Contractor shall prepare and submit a Work Plan to the Owner, Owner's Representative, and Owner's Construction Manager for review and approval. For submission specifics including time frame requirements, see Section 01 33 00 – Submittals. The following items shall be submitted:

1. Water Quality Monitoring and Control Plan: The Contractor shall submit to the Owner, Owner's Representative, and Owner's Construction Manager a detailed Water Quality Monitoring and Control Plan for approval that is consistent with the project specification requirements presented herein and in paragraph WATER QUALITY MONITORING AND CONTROL PLAN of this Specification. At a minimum the plan shall include the following information:

a. Project Schedule: A schedule reflecting the expected timing and duration of the major activities associated with in-water construction. These shall include but are not limited to mobilization, demolition operations, anticipated schedule for performing in-water work, surveys, method of flow diversion and project access throughout construction period, dredging, new breakwater construction work, and demobilization.

b. Best Management Practices: The Contractor shall also include in the Water Quality Control Plan a description of Best Management Practices (BMPs) that will be implemented during in-water lake and shoreline construction activities to satisfy permit requirements and meet the Owner's project goals.

1) BMP is to include a site-specific SPCC that provides a site plan and narrative describing demolition debris and spill containment plan; and measures to reduce/recycle hazardous and non-hazardous wastes.

2) The spill containment control plan, per Section 1.12A of this Specification.

3) Hazardous materials storage plan with narrative describing methods of storage, security, and containment methods.

4) BMPs that will be used to protect water quality must be approved by DEQ prior to commencement of the work.

2. Spill Prevention, Control and Countermeasures Plan: Develop a written description of their SPCC plan per section 1.12A of this Specification. The SPCC plan shall additionally include the following information:

a. Site Information: Identify general site information useful in construction planning, recognizing potential sources of spills, and identifying personnel responsible for managing and implementing the plan.

b. Project Site Description: Identify staging, storage, maintenance, and refueling areas and their relationship to drainage pathways, waterways, and other sensitive areas, specifically address:

1) The Contractor's equipment maintenance, refueling, and cleaning activities.

2) The Contractor's on-site storage areas for hazardous materials.

c. Spill Prevention and Containment: For each of the locations identified in B, above, specifically address:

1) Spill prevention and containment measures to be used at each location.

2) The method of collecting and treating or disposing of runoff from each location.

3) The method of diverting project runoff from each location.

d. Spill Response: Outline spill response procedures including assessment of the hazard, securing spill response and personal protective equipment, containing and eliminating the spill source, and mitigation, removal and disposal of the material.

e. Standby, On-Site, Material and Equipment: The plan shall identify the equipment and materials the Contractor will

maintain on-site to carry out the preventive and responsive measures for the items listed.

f. Reporting: The plan shall list all federal, state and local agency telephone numbers the Contractor must notify in the event of a spill.

g. Program Management: Identify site security measures, inspection procedures and personnel training procedures as they relate to spill prevention, containment, response, management and cleanup.

h. Preexisting Contamination: If preexisting contamination in the project area is described elsewhere in the Contract Drawings or Specifications, the SPCC plan shall indicate measures the Contractor will take to conduct Work without allowing release or further spreading of the materials.

i. Work Below the Ordinary High Water Line: Identify equipment that will be used below the ordinary high water line. Outline daily inspection and cleanup procedures that ensure equipment is free of all external petroleum-based products. Identify refueling procedures for equipment that cannot be moved from below the Ordinary High Water line.

j. Attachments: Site plan showing the locations identified in (1. B. and 1. C.) noted previously.

k. Spill and Incident Report Forms, if any, that the Contractor will be using.

PART 2 – MATERIALS

2.01 GENERAL

A. Contractor shall not perform any demolishing activities after Contract Award until all BMP's are installed to the satisfaction of the Owner's Representative.

PART 3 – EXECUTIONS

3.01 WATER QUALITY CONTROL

A. The Contractor is responsible for allowing Water Quality monitoring on their construction-site and for achieving Water Quality criteria throughout all in-water or near water construction activities as defined in the Section 401 Water Quality Permit, and applicable local, state and federal standards. The Contractor shall have in place a Water Quality Monitoring and Control Plan (see Part 1 of this specification) listing Best Management Practices (BMPs) that will be utilized during in-water lake and shoreline construction to prevent adverse effects to water quality. The Water Quality

Monitoring & Control Plan will include contingency measures that may be implemented should they become necessary.

B. Violations of any water quality requirement listed in Appendix A - Permit Documents may result in work stoppage by regulators. There shall be no additional compensation or time for shutdown, standby time, or delay associated with non-compliance.

C. The Contractor is responsible for taking the appropriate preventative erosion control measures and water quality protection systems to ensure compliance with the project regulatory permits and approvals and in accordance with ITD Standard Specification Section 212 Erosion and Sediment Control and Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Control.

D. All work shall be conducted in accordance with the Owner provided permit conditions in Appendix A – Permit Documents. The Contractor is responsible for complying with all permit conditions when performing the work.

E. Materials for containment and cleanup shall be available on-site during all phases of the project.

F. Temporary Erosion and Stormwater Control (TESC) measures shall be utilized throughout the duration of the work in accordance with BMPs described in DEQ's *Catalog of Stormwater Best Management Practices for Idaho Cities and Counties*. Other resources may also be used for selecting appropriate BMPs. Provide a TESC Plan in accordance with Technical Specification Section 01 57 13 – Temporary Erosion and Sediment Control.

G. A floating debris boom shall be deployed around the wetted perimeter of the work zone during any in-water construction earth work activities (including but not limited to demolition). All floating debris shall be removed and disposed of at an upland facility. Floating debris shall not be allowed to leave the project work area.

H. All construction debris shall be properly disposed of on land so that it cannot enter a waterway or cause water quality degradation to state waters.

I. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas shall be contained for proper disposal, and shall not be discharged into state waters.

J. No wood, metal, or concrete preservatives, paints, sealers, glues, epoxies, chemicals, or other substances harmful or toxic to fish shall be applied to the new construction once it has been placed within or over the OHW of Priest Lake.

K. Clean Fill Criteria: The Contractor shall ensure that fill placed for the proposed project does not contain toxic materials in amounts exceeding the applicable environmental requirements.

1. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to USFWS, USACE, and the following:

a. National Response Center: 800-424-8802

b. DEQ Coeur d'Alene Regional Office: 208-769-1422.

3.02 EQUIPMENT

A. Vehicle staging, cleaning, maintenance, refueling, and fuel storage shall be located in accordance with DEQ requirements.

B. When heavy equipment is used, the equipment selected shall have the least adverse effects on the ground, e.g., minimally sized, low ground pressure.

C. Equipment used shall be free of external petroleum-based products while working around the water. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and the undercarriage of equipment prior to its working below the ordinary high water line. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities near the water.

D. Equipment used for this project operating with hydraulic fluid shall use only those fluids certified as non-toxic to aquatic organisms. Vegetable-based hydraulic fluid should be used on equipment operating in or directly adjacent to the channel if this fluid is available.

E. All stationary power equipment such as generators, cranes, or stationary drilling equipment, operated within 150 feet of any waterbody shall be diapered to prevent leaks unless suitable containment is provided to prevent potential spills for entering the water.

3.03 TIMBER PILE REMOVAL

A. Timber piles within the demolition areas indicated in the Contract Drawings shall be removed in accordance with the requirements outlined in Section 02 41 00 – Demolition.

B. If creosote piling is encountered, containment booms and absorbent booms (or other oil absorbent fabric) must be placed around the perimeter of the work area when removing creosote piling to capture wood debris, oil, and other materials released into lake waters as a result of construction activities to remove creosote pilings. All debris on the bed and accumulated in containment structures must be collected and

disposed upland at an approved disposal site, in accordance with the Disposal paragraph of Section 02 41 00 – Demolition.

3.04 TIMBER BREAKWATER AND CONSTRUCTION DEBRIS STOCKPILES

A. Demolition material shall be deposited offsite, at the Owner-provided location indicated in Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas.

3.05 BMP – TEMPORARY CONSTRUCTION ENTRANCE

A. Temporary construction entrances shall be installed as shown on the Contract Drawings to provide access for machinery, equipment, and materials between the existing road and the project site limits below OHW.

3.06 BMP – SILT CURTAIN

A. During excavation/dredging, fill and breakwater construction activities the Contractor shall deploy a floating silt curtain to isolate suspended sediments and turbidity to the work area in order to meet the water quality protection permit requirements. The intent of the silt curtain is to reduce suspended sediments from dispersing out from the work area beyond the mixing zone boundary.

B. Contractor shall monitor the silt curtain during installation, operation, maintenance and removal to avoid injury or mortality to local fish life in accordance with Appendix A – Permit Documents.

3.07 BMP – SILT FENCE

A. Silt fencing shall be installed at the downslope of all construction access areas above OHW at locations shown on the Contract Drawings and at other locations as necessary to control sediment runoff based on the Contractor's work plan.

B. The silt fencing shall have no gaps along its length, be dug into the existing soil, and be inspected daily for integrity. The Contractor shall maintain the silt fence throughout the duration of all instruction activities.

3.08 BMP – DEBRIS BOOM

A. The Contractor shall install and maintain a floating impervious debris boom around the perimeter of the work area prior to any in-water demolition work. All floating debris captured by the debris boom shall be removed and disposed of by the Contractor.

B. The Contractor shall maintain the debris boom throughout the duration of all demolition activities.

C. The impervious debris boom shall fully enclose the wet perimeter of the Contractor work area on the lake side during any demolition work.

D. Any materials that fall into the water during demolition work shall be contained within the debris boom and immediately removed to a

containment basin or confined stockpile area. All accumulated debris shall be disposed of at an approved upland disposal site in accordance with Technical Specification Section 02 41 00 – Demolition.

E. Absorbent sausage booms (or other oil-absorbent fabric) shall be placed around the work area and used in conjunction with the debris boom, as needed.

3.09 BMP REMOVAL

A. All temporary BMPs and debris boom shall be removed upon completion of the work, or as directed by the Owner's Representative.

3.10 EMERGENCY SPILL RESPONSE NOTIFICATION

A. Under state law, DEQ must be notified when any amount of regulated waste or hazardous material that poses an imminent threat to life, health, or the environment is released to the air, land, or water, or whenever oil is spilled on land or to waters of the state. The spiller is always responsible for reporting a spill. Failure to report a spill in a timely manner may result in enforcement actions. The Contractor should consult with DEQ's response team before attempting any type of response or cleanup and also notify the Owner's Representative.

B. If oil or hazardous materials are spilled to state waters, the spiller must notify both federal and state spill response agencies. The federal agencies contact is the NRC at 1-800-424-8802. Call 911 if immediate assistance is required to control, contain, or clean up the spill. If no assistance is needed in cleaning up the spill, contact the appropriate DEQ regional office during normal working hours or Idaho State Communications Center after normal working hours (1-800-632-8000). The agency will then determine its response actions. Also notify Owner's Representative. Collect, remove, and dispose of the spilled material in a manner approved by DEQ.

1. DEQ Coeur d'Alene Regional Office: 208-769-1422

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality assurance and quality control requirements for individual construction activities are provided in the relevant specification sections. Requirements in those sections may also cover production of standard products.

2. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and control procedures that facilitate compliance with the Contract Document requirements.

3. Requirements for Contractor to provide quality assurance and control services required by the Owner or authorities having jurisdiction are not limited by provisions of this section.

4. Specific test and inspection requirements are not specified in this section.

1.02 RELATED SECTIONS

A. All Technical Specification sections related to this section.

1.03 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Owner’s Representative.

C. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

F. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five (5) previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.04 QUALITY CONTROL

A. Contractor Responsibilities: Tests and inspections are the Contractor's responsibility. Perform additional quality control activities required to verify that the work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality control services specified and those required by authorities having jurisdiction. Perform quality control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality control services.

a. Contractor shall not employ same entity engaged by the Owner, unless agreed to in writing by the Owner's Representative.

3. Notify testing agencies at least one business day (8AM to 5PM) or twenty-four (24) hours, whichever is greater in advance of time when work that requires testing or inspecting will be performed. Where quality control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, Contractor shall provide quality control services, including retesting and reinspecting, for construction that replaced work which failed to comply with the Contract Documents.

C. Testing Agency Responsibilities: Cooperate with Owner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Owner's Representative, Owner's Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.

2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality control service through Contractor.

5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the work.

6. Do not perform any duties of Contractor.

D. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

2. Notify Owner's Representative and Owner's Construction Manager at least one business day (8 a.m. to 5 p.m.) or twenty-four (24) hours, whichever is greater, in advance of time when work that requires Owner's Representative and Owner's Construction Manager's presence will be performed.

1.05 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Owner's Representative for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner's Representative for a decision before proceeding.

1.06 QUANTITY SHEETS/WEIGHT TICKETS

A. For bulk items, supply quantity sheets (load receipts) to account for each load delivered to the jobsite. Deliver quantity sheets to Inspector (hired by the Owner's Construction Manager) on job at delivery time. If Inspector is not on job, deliver quantity sheets on a daily basis to place designated by Owner's Representative.

B. No payment shall be made for materials delivered for which quantity tickets have not been turned into Inspector or delivered to designated place at end of working day. Backdated tickets are not acceptable as a basis for payment, except at Owner's Representative's discretion.

C. If bid item for material to be delivered to jobsite is stated in TONS, only weight slips from approved scale are acceptable for payment purposes, unless approved in advance by Owner's Representative.

D. No payment for materials will be made until proper accounting has been made. Final quantity records are approved by Owner's Representative, with payment at Owner's Representative's discretion.

1.07 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports to the Owner's Representative, as specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections and submit to the Owner's Representative. Include the following:

1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.

3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

4. Results of operational and other tests and a statement of whether observed performance complies with requirements.

5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.08 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of Authorities Having Jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: Testing agency shall be a Nationally Recognized Testing Laboratory (NRTL), an accredited laboratory through National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329 and with additional qualifications specified in individual sections; and, where required by authorities having jurisdiction, that is acceptable to authorities. NRTL and NVLAP are further defined below.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.09 SUBMITTALS

A. Contractors Quality Control Plan

1. Quality Control Plan, General: Submit quality control plan within twenty-one (21) working days of Contract Award. Submit in format acceptable to the Owner, Owner’s Representative, and Owner’s Construction Manager. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality assurance and quality control responsibilities. Shall be coordinated with Contractor's progress schedule.

2. Testing and Inspection: In quality control plan, include a comprehensive schedule of work requiring testing or inspection, schedule for conducting the testing or inspection, and similar quality control services. This including the following:

a. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.

3. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality control services required by the Contract Documents as a component of Contractor's quality control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the work progresses.

4. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work the Owner’s Representative has indicated as nonconforming or

defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of permits and building code requirements.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Owner's Representative and Owner's Construction Manager.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain Log at Project Site. Post changes and revisions as they occur. Provide access to test and inspection log for Owner's Construction Manager and Owner's Representative's reference during normal working hours.

3.02 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

B. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

C. Protect construction exposed by or for quality-control service activities.

D. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section relates to the applicable regulatory requirements.

1.02 PERMITS, CODES AND REGULATIONS

A. The following permits have been applied for (or are on file) and incorporated into the contract:

1. IDL Encroachment Permit No. L97S0891C
2. Concurrence Letter from U.S. Forest Service
3. DEQ Section 401 Water Quality Certification
4. Concurrence Letter from U.S. Fish and Wildlife Service
5. Concurrence Letter from Idaho State Historic Preservation Office
6. USACE Permit No. NWW – 2018 – 00499

B. Conform with the requirements of listed permits or other applicable permits, codes, and regulations as may govern Work.

C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws, ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.02A. above and Special Inspections called for by the International Building Code).

D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in the Contract Drawings or Specifications. Be familiar with applicable codes and standards prior to bidding.

E. Process through the Owner's Representative, requests to extend, modify, revise, or renew any of the permits (listed in 1.02A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Owner's Representative.

1.03 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

A. Nothing in the Contract Drawings and Specifications permits Work not conforming to codes, permits, or regulations. Promptly submit written notice to the Owner's Representative of observed variations or discrepancies between the Contract documents and governing codes and regulations.

B. Appropriate modifications to the Contract documents will be made by Change Order to incorporate changes to Work resulting from code and/or

regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.

C. Contractor is not relieved from complying with requirements of Contract documents which may exceed, but not conflict with requirements of governing codes.

1.04 COORDINATION WITH REGULATORY AGENCIES

A. Coordinate Work with appropriate governing or regulating authorities and agencies.

B. Provide advance notification to proper officials of Project schedule and schedule revisions throughout Project duration, in order to allow proper scheduling of inspection visits at proper stages of Work completion.

C. Regulation coordination is in addition to inspections conducted by the Owner's Representative. Notify the Owner's Representative and Owner's Construction Manager of scheduled inspections involving outside regulating officials, to allow Owner's Representative and Owner's Construction Manager to be present for inspections.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This Section covers the following:

1. Construction facilities;
2. Use of project site limits;
3. Owner access to project site limits;
4. Construction aids;
5. Snow Management;
6. Traffic and pedestrian control;
7. Temporary construction entrances;
8. Temporary Construction Access Agreements use & protection.
   a. Sandpiper Shores Road;
   b. Lot #8
   c. Lot #10

1.02 RELATED SECTIONS

A. Technical Specification Section 01 31 19 – Project Meetings

B. Technical Specification Section 01 35 43 – Environmental Controls

C. Appendix C – Temporary Construction Access Agreements, Staging, & Placement Areas

1.03 DEFINITIONS

A. Temporary Construction Entrances are locations along the lake shoreline in Lot #8 and/or Lot #10 that will be temporarily modified by the Contractor to support the ingress/egress of equipment, machinery, and materials between the lakebed (below OHW) and Sandpiper Shores Road. All temporary use and modifications of Temporary Construction Entrances must be in accordance with the Temporary Construction Access Agreements provided in Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas.

B. Temporary Construction Access Agreements are in place to outline the terms and conditions related to the temporary use of private property within the Sandpiper Shores Development, including Sandpiper Shores Road, Lot #8, and Lot #10.

C. Existing Utilities refers to utilities servicing the Sandpiper Shores Development, including but not limited to: sewer main line and laterals, water main line and laterals, and pump houses. The Existing Utilities must be protected during construction in accordance with the Temporary

Construction Access Agreements. The location of Existing Utilities are provided in Appendix D – Existing Utilities.

1.04 SUBMITTALS

A. The following Submittals shall be in accordance with Section 01 33 00 – Submittals:

1. Site Plan: Show any proposed temporary facilities, existing utilities, sanitary accommodations, and parking areas for construction personnel. Site Plan shall be submitted to the Owner's Representative after notice of Contract Award to obtain the Owner's Representative's review and acceptance prior to initiation of construction.

2. Vehicle Traffic Control Plan

3. Pedestrian Traffic Control Plan

4. Construction Access Easement Work Plan

a. Existing Utility Location Survey results

b. Easement use area work description

c. Pre-construction Condition Survey

d. Post-construction Condition Survey

e. Utility Protection Plan

PART 2 – PRODUCTS

2.01 UTILITIES

A. It shall be the Contractor's responsibility to provide adequate facilities for Contractor's operation, including:

1. Water: Drinking water for employees shall be provided in sanitary containers and maintained fresh each day.

2. Construction Electricity: The Contractor shall make all arrangements for the furnishing of electric power for construction purposes. The power meter shall be registered in the name of the Contractor and all charges for installation and electric energy shall be borne by the Contractor.

3. Toilet Room Facilities: The Contractor shall install and maintain necessary temporary sanitary toilet facilities during the term of this contract. Toilet facilities for employees shall be maintained in a sanitary condition. Toilets shall be of a chemical type; remove at completion of work and disinfect the premises.

4. Teleconference Capabilities: There is no/limited cell service at the project site. The Contractor is responsible for providing a location

with teleconference capabilities and connectivity to enable weekly progress meetings or other meetings conducted remotely.

2.02 USE AND OCCUPANCY

A. The Contractor will not be allowed space for the storage of materials under this Contract. Employee parking will be agreed upon with the Owner.

B. No camping or overnight stay at the project site is permitted.

2.03 SECURITY

A. The project site limits shall be closed to the public at all times with the exception of non-motorized vessel access (see Section 01 10 00 General Requirements Paragraph Non-Motorized Vessel Access).

B. The Contractor shall abide by special request of security personnel, and local police and fire departments.

2.04 FENCES & ENCLOSURES

A. Safety Fencing: Contractor shall furnish and install temporary safety fencing around the temporary construction entrances as indicated on the Contract Drawings.

B. Access Gate: Install a temporary chainlink fence and access gate to prevent public access at the temporary construction entrances during construction, as shown on the Contract Drawings.

C. Temporary fence installation shall be coordinated with the Owner's Representative and Owner's Construction Manager.

PART 3 – EXECUTION

3.01 GENERAL INSTALLATION

A. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required by progress of the work.

B. Temporary stockpiling and staging is permitted within the designated areas shown on the Contract Drawings. The Contractor may coordinate with the Owner's Representative for use of an offsite laydown area within the proximity of the project site limits.

C. Temporary use of permanent roads: Contractor shall construct and maintain temporary roads adequate for construction operations. Extend temporary roads within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads with permanent roads.

2. Recondition temporary construction entrance base after temporary use, including removing contaminated material, regrading, compacting, and testing.

D. Parking: Parking needed for construction personnel shall be approved by the Owner's Representative. In all cases, the Contractor shall confine parking to areas acceptable to the Owner's Representative.

3.02 USE OF PROJECT SITE

A. See section 1.05 Hours of Work in 01 10 00 - General Requirements for work hour, work stoppage and site restrictions.

B. Use of Sites: Limit use of project site to the limits of construction indicated on the Contract Drawings. Do not disturb portions of the site beyond areas in which the work is indicated. The Contractor shall keep access roads clear and available to the Owner and emergency vehicles at all times. Do not use access roads for parking or storage of materials. Schedule and coordinate deliveries to minimize space and time requirements for storage of materials and equipment within or adjacent to the project site limits.

C. General

1. Do not proceed with work on adjoining properties unless directed by the Owner or Owner's Representative.

2. Do not clear outside of the project site limits.

3. Do not close or obstruct roads or other facilities used by occupants of adjacent properties without written permission from the Owner's Representative and authorities having jurisdiction.

D. Contractor will not have exclusive or unrestricted use of the project site limits for its operations. Contractor shall recognize and take into account during its planning and execution of the work that the Owner's Representative, or Owner, may require access to and use of certain areas or spaces during certain periods.

E. The Contractor shall perform all work within the project site limits defined in the Contract Documents. If other areas are required for construction, the Contractor shall secure any necessary agreement or construction easement documentation with the private landowners at no additional expense to the Owner. The actual selected location shall be coordinated with and approved by the Owner.

F. The Owner assumes no responsibility for the condition or maintenance of any road or structure thereon that may be used by the Contractor in performing the work under the Contract Documents or in traveling to and from the project site. The Contractor is responsible for constructing, maintaining, and removing any temporary construction entrance and/or access that they deem necessary to access the project site limits. No payment will be made to the Contractor by the Owner for any work done in improving, repairing, or maintaining any road or structure thereon for use in the performance of the work under the Contract Documents.

G. The Contractor shall be responsible for restoring the Contractor use areas, temporary construction entrances, project site, and other impacted areas to their original condition.

3.03 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. The Contractor shall comply with applicable laws, ordinances, rules, regulations and orders pertaining to personnel, construction machinery and equipment, hoists, cranes, staging, materials handling facilities, tools, appliances and other construction aids. The Contractor shall provide first aid facilities where required.

B. Protection of Existing Facilities, Residential Properties, and Utilities: Protect existing facilities, properties, utilities, and vegetation, and other improvements within the project site limits and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

D. Tree and Plant Protection: Comply with any state, county, or Sandpiper Shores Homeowners Association (HOA) requirements.

E. Site Security Fencing and Gates: Contractor shall install temporary site security fencing and gates as indicated on the Contract Drawings, prior to beginning construction, to prevent people and animals from entering the construction zone. Locations shall include public rights-of-way, and Temporary Construction Access Agreements. Contractor shall provide construction safety signage on the fencing and/or gates. Contractor shall facilitate access to adjacent properties as shown on the Contract Drawings.

3.04 SNOW MANAGEMENT

A. Public snow removal on East Shore Road ends near the Lionhead Campground Unit of Priest Lake State Park, near mile marker 17. The Contractor is responsible for snow removal and maintenance of East Shore Road north of this point and Sandpiper Shores Road to provide access to the project site for the duration of the project, until the project is complete as defined in Section 01 70 00 – Project Closeout.

B. The Contractor shall conduct all snow management work in accordance requirements within Section 01 57 13 – Temporary Erosion and Sediment Control.

3.05 TRAFFIC CONTROL PLAN

A. Traffic Controls: The Contractor shall be responsible for preparation of Traffic Control Plan(s) to conduct the Work. All required and necessary

traffic control including signage, barriers, flagging, markings, and other devices shall be in accordance with ITD standard plans.

1. Protect existing site improvements to remain including curbs, gravel pavements, and existing utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.
3. Provide temporary, directional signs for construction personnel and visitors.
4. Traffic Control shall be provided during all work hours at the locations indicated on the Contract Drawings.
5. Additional flaggers/spotters may be needed at other times during various stages of construction and shall be specified in the Contractor's Traffic Control Plan and as required and approved by the Owner's Representative.

3.06 CONTRACTOR OBTAINED PERMITS

A. The Contractor shall be responsible for obtaining public ROW use permits and all other permits necessary for construction including hauling and transport of construction materials, equipment and waste material to and from the project site, and any other permits necessary to accomplish the work.

3.07 ACCESS TO PROJECT SITE AND WORK

A. The Owner has supplied Temporary Construction Access Agreements for Sandpiper Shores Road, Lot #8 and Lot #10 (see Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas).

B. In addition to those provided, if required, the Contractor is responsible for coordinating and obtaining all necessary agreements and easements for access to the project site limits at no additional expense to the Owner. Access for construction equipment and adjacent work areas are the responsibility of the Contractor.

1. The Contractor will assume all responsibility of restoration of the surface of all access roads (haul routes) used by the Contractor, if damaged.
2. In the event the Contractor does not have labor or material immediately available to make necessary repairs, the Contractor shall so inform the Owner. The Owner will make the necessary repairs and the cost of such repairs shall be paid by the Contractor.
3. The Contractor is responsible for identifying and documenting any damage that is pre-existing or caused by others. Restoration of gravel roads (haul routes) shall be done in accordance with the requirements herein.

3.08 CONSTRUCTION ACCESS EASEMENT

A. The Contractor shall protect from damage all existing structures, equipment, improvements, utilities, and vegetation within or near the project site limits, and on adjacent property of a third party, the locations of which are identified within the Contract Drawings. Contractor shall repair any damage, including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, the Owner may have the necessary work performed and charge the cost to the Contractor.

B. The Contractor is responsible for the protection measures shown on the Contract Drawings related to the use of Sandpiper Shores Road (Reaches 1, 2, **3** and ~~3~~**4**), Lot #8 and Lot #10.

C. Any use of the Construction Access Easement on Sandpiper Shores Road shall be coordinated with the Owner.

D. All Work shall be accomplished so as to cause the least amount of disturbance and damage to Temporary Construction Access Agreements, easements, private properties, and existing utilities.

E. The Contractor shall conduct a utility locate along Reaches 2, **3** and ~~3~~**4**, utilizing a combination of private (Sandpiper Shores HOA) and public utility locate services. Survey ~~in~~ the location and depth of utilities **in accordance with Section 01 71 23 – Construction Surveying** to assist with the **development of and** determination of a Utility Protection Plan.

F. Utility protection is required as outlined in the Contract Drawings. Protection systems shall include placement of gravel, steel plates and other necessary protective devices and systems.

G. The Contractor shall submit an easement use area work description in the Construction Access Easement Work Plan that describes all labor, materials, tools, equipment, supervision and protection necessary for use of the construction access easement.

H. All existing infrastructure and private property shall be protected during the duration of construction and shall be replaced if damaged at no additional cost to the Owner and to the satisfaction of the Owner. **See Section 01 71 23 – Construction Surveying for Contractor surveying requirements associated with utility locate surveys, pre-construction condition surveys, and post-construction condition surveys.**

~~1. Existing Utility Locate Survey: The Contractor shall submit electronic survey results from the existing utility locate.~~

~~2. Pre-construction Condition Survey: The Contractor shall submit photos and a video recording of an initial walkthrough of the~~

~~Temporary Construction Access Agreements prior to construction. See Section 01 71 23 – Construction Surveying.~~

~~3. Post Condition Survey: The Contractor shall walk the site with the Owner's Representative and Owner's Construction Manager and submit photos and video recordings of the Construction Access Easement after construction. See Section 01 71 23 – Construction Surveying.~~

I. The Contractor shall not proceed with any portion of the Work in areas where right-of-way, Temporary Construction Access Agreements, easements, or rights-of-entry have not been acquired until the Owner certifies to the Contractor that the right-of-way or easement is available or that the right-of-entry had been received.

J. Each property owner shall be given 48 hours notice prior to entry by the Contactor. This includes entry onto Temporary Construction Access Agreements, easements and private property.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section covers work necessary for stabilization of soil to prevent erosion during and after construction and land disturbing activities. The work shall include the furnishing of all labor, materials, tools, and equipment to perform the work and services necessary as herein specified and as indicated on the Contract Drawings. This shall include installation, maintenance, and final removal of all temporary soil erosion and sediment control measures.

B. The minimum areas requiring soil erosion and sediment control measures are indicated on the Contract Drawings. The Owner's Representative reserves the right to modify the use, location, and quantities of soil erosion and sediment control measures based on activities of the Contractor and as the Owner's Representative and Owner's Construction Manager considers to be to the best interest of the Owner.

C. The Temporary Erosion and Sediment Control (TESC) facilities described in this section and shown on Contract Drawings are the minimum requirements anticipated for site conditions expected during the construction period. As work progresses, it is the Contractor's responsibility to inspect the temporary erosion and sediment controls and make repairs and improvements as necessary.

D. In order to comply with the requirements of this Technical Specification, the Contractor shall develop and submit a Contractor's TESC Plan.

1.02 RELATED SECTIONS

A. Technical Specification Section 01 35 43 – Environmental Controls

B. Technical Specification Section 02 41 00 – Demolition

C. Technical Specification Section 31 00 00 – Excavation and Fill

D. Technical Specification Section 35 20 23 – Dredging

1.03 APPLICABLE PUBLICATIONS

A. The requirements outlined in Appendix A – Permit Documents include permits, rules, requirements, and regulations specified which will apply to this work.

B. Any conflicts between these Technical Specifications and the project permits will be brought to the attention of Owner's Representative. Nothing whatsoever shall be deemed to authorize violation of the project permits.

1.04 GENERAL

A. See conditions of the Contract and Division 1, General Requirements, which contain information and requirements that apply to the Work specified herein and are mandatory for this project.

B. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other Federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

C. Soil erosion stabilization and sedimentation control consist of the following elements:

1. Maintenance of existing permanent or temporary storm drainage piping and channel systems, as necessary.
2. Construction of new permanent and temporary storm drainage piping and channel systems, as necessary.
3. Install, maintain, and remove all erosion prevention, containment, and countermeasures BMPs during the life of the contract.

D. Failure to install, maintain, and/or remove BMPs shown on the Contract Drawings and specified herein, or by order of Owner's Representative or Owner's Construction Manager; or failure to comply, implement and maintain any provisions and requirements of this Technical Specification; or failure to conduct project operations in accordance with these Technical Specifications and Contract Drawings will result in the suspension of the Contractor's operations by Owner's Representative in accordance with General Conditions.

E. Any damages, fines, levies, or judgments incurred as a result of Contractor, Subcontractor, or supplier negligence in complying with the requirements of this Technical Specification will be charged to the Contractor.

F. The Contractor shall be solely responsible for any schedule impacts from damages, fines, levies, judgments, or stop work orders incurred as a result of Contractor, subcontractor, or supplier negligence in complying with the requirements of this Technical Specification. The project schedule will not be changed to accommodate the time lost.

G. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working and administrative areas for the Contractor's exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these Specifications and shall be done in a manner to control all sediment transport away from the area.

H. The Contractor is wholly responsible for meeting water quality standards during dredging and dredged material re-handling and disposal. No

discharge of water shall be allowed that increases the turbidity above permit levels, volume, velocity, or peak flow rate of the receiving water relative to ambient background conditions.

I. The Owner's Representative or Owner's Construction Manager may require additional temporary measures if it appears that pollution or erosion may result from weather, the nature of the materials, or progress of the work.

J. In the event that TESC measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled, or are ordered by Owner's Representative or Owner's Construction Manager, such work shall be performed by the Contractor at the Contractor's own expense.

K. The Contractor shall maintain all elements of the Soil Erosion Stabilization and Sedimentation Control systems and facilities to be constructed during this Project for the duration of the Contractor's activities on this Project. The site inspections shall be conducted at least once every calendar week and within 24 hours of any discharge from the site. The inspection frequency for temporarily stabilized, inactive site may be reduced to once a month every calendar year.

L. The inspector shall summarize the results of each inspection in an inspection report or checklist and be entered into, or attach to, the site logbook.

M. All sedimentation facilities shall be cleaned of collected sediment after every storm or as determined from the weekly inspections. Cleaning shall be done in a manner that will not direct the sediment into the storm drain piping system. Removed sediment shall be disposed of offsite.

N. Replacement or repair of failed or overloaded silt fences, check dams, or other temporary erosion control devices shall be accomplished by the Contractor within 2 days after receiving written notice from the Owner's Representative or Owner's Construction Manager.

O. If the Contractor has not complied with any of the above maintenance efforts to the satisfaction of the Owner's Representative or Owner's Construction Manager within 2 working days after receiving written notification from the Owner's Representative or Owner's Construction Manager, the Owner shall have the prerogative of engaging others to perform any needed maintenance or cleanup, including removal of accumulated sediment at constructed erosion control facilities, and deduct from the Contractor's monthly partial payment the costs for such efforts.

1.05 CONTRACTOR EROSION AND SEDIMENT CONTROL PERSONNEL

A. The Contractor shall designate a sufficient number of qualified employees to be responsible representatives in charge of erosion and sedimentation

control so that one representative is onsite at all times when any work activity is taking place. These employees' responsibility will be the oversight of all water and air quality issues. The Contractor shall designate one employee as the Temporary Erosion and Sediment Control Lead (TESCL) who shall be responsible for ensuring compliance with all requirements of this Technical Specification. Prior to the construction.

B. The TESCL shall have authority to act on behalf of the Contractor. Duties and responsibilities of the TESCL shall include:

1. Preparing and submitting a TESC Plan for approval.
2. Maintaining a permit file on site at all times that includes the TESC Plan and any associated permits and drawings, as applicable.
3. Directing BMP installation, inspection, maintenance, modification, and removal.
4. Being available 24 hours per day, 7 days per week either in person or by telephone.
5. Updating all TESC drawings with changes made in the field
6. Keeping daily logs.
7. Identifying the points where stormwater runoff, if any, potentially leaves the site, is collected in a surface water conveyance system (i.e., road ditch or storm sewer), and enters receiving waters of the State.
8. If water sheet-flows from the site, identifying the point at which it becomes concentrated in a collection system.
9. Inspecting TESC Plan requirements including BMPs as required to ensure that they are adequate and functioning properly.
10. Facilitating, participating in, and taking corrective actions resulting from inspections performed by outside agencies and Owner's Representative.

1.06 SCHEDULE

A. The TESC Plan schedule shall include:

1. Schedules for accomplishment of temporary and permanent erosion and sediment control work, as applicable for offloading, dewatering, transloading, transporting, placement, and grading of dredged material
2. Proposed method of erosion and dust control on haul roads and a plan for disposal of waste materials.
3. Estimated removal date of all temporary BMPs.

4. Estimated date of final site stabilization.
5. Overall project schedule and weekly “look ahead” schedules.
6. Erosion control work activities consistent with the TESC Plan shall be included in the Contractor’s Construction Schedule.

1.07 SUBMITTALS

A. Submittals shall be made in accordance with Section 01 33 00 - Submittals.

B. Temporary Erosion and Sediment Control Plan: Within seven (7) calendar days after the Contract Award, the Contractor shall submit the Contractor TESC Plan. Failure to approve all or part of any such Plan shall not make the Owner liable to the Contractor for any work delays. The TESC Plan shall, at a minimum, include written descriptions addressing the following:

1. Site description
2. BMP installation & maintenance
3. Contractor erosion and sediment control personnel
4. Construction phasing & schedule
5. Site inspection & monitoring
6. Reporting & record keeping
7. BMP removal
8. Emergency response
9. Drainage systems
10. Haul routes
11. Construction dewatering

C. Shop Drawings

1. Location of the above items; additional dredging and excavation areas, natural and constructed drainage systems within the work area and staging areas
2. Locations of BMPs during each phase of construction and each location of work activities.

D. TESCL Qualifications

1. The TESC Plan shall include the resume, name, telephone number, fax number, email address, and street address of the designated TESCL.

E. In addition, the Contractor shall provide the following specific information:

1. Certificates of inspection of seed by state or federal authorities and copies of delivery invoices or other proof of quantities of fertilizer.
2. Manufacturer's certificate of compliance attesting that the geotextile meets the requirements of these Specifications.

PART 2 – PRODUCTS

2.01 GENERAL

A. Contractor shall not clear, grub, grade, or perform any earth disturbing activities, dredged material, or dispose dredged material after Contract Award until all BMP's outlined in the Owner's Representative and Owner's Construction Manager approved TESC Plan are installed to the satisfaction of the Owner's Representative and Owner's Construction Manager.

B. Contractor shall have materials on hand, in quantities sufficient to cover all bare soil exposed to rainfall and surface water runoff in accordance with, divert all flows, contain all sediments, and prevent turbid discharges from the site during all stages of construction. These materials include, but are not limited to, the following:

1. Reinforced plastic sheeting (minimum 6 mil thickness) so that all areas that are exposed at any given time to rainfall and site water runoff can be covered.
2. Straw
3. Drain pipe
4. Sand bags. Sufficient quantity shall be provided to hold all installed reinforced plastic in place and to prevent wind blowing under the plastic sheeting or water draining under the plastic sheeting.
5. Filter fabric
6. Hay bales
7. Floating debris boom
8. Silt/turbidity curtain
9. Silt fence

PART 3 – EXECUTION

3.01 GENERAL

A. The TESC Plan shall include installation instructions and details for each BMP used during the life of the project and shall include a description of the maintenance and inspection procedures to be used for the life of the project.

B. BMPs shall be maintained for the life of the project or until removed by order of Owner's Representative. BMPs shall be maintained during all suspensions of work and all non-work periods. BMPs shall be maintained and repaired as needed to assure continued performance of their intended function and in accordance with the approved TESC Plan. Sediments removed during BMP maintenance shall be placed away from natural and construction stormwater conveyances and permanently stabilized.

C. At a minimum, the Contractor shall perform the following for all TESC BMPs:

1. Inspect daily and immediately after any measurable rain event (0.5 inches or greater).
2. Deficiencies identified during the inspection shall be corrected within 24 hours or as directed by Owner's Representative and Owner's Construction Manager.
3. Inspect for runoff leaving the site during storms and checking for turbid water.
4. Inspect for dust during dry periods.
5. Note repairs or improvements needed, if any, and implement improvements.
6. Implement additional BMPs, if needed, to address site-specific erosion control.
7. Inspect streets and surrounding the site for dirt tracking.
8. Ensure no ponding of water due to formation of snow or ice dams during time periods of snowmelt or rain after snow events.
9. Report all discharges immediately to Owner's Representative and Owner's Construction Manager.

D. Reports summarizing the scope of inspections, the personnel conducting the inspections, the dates of the inspections, major observations relating to the implementation of the TESC Plan, and actions taken as a result of these inspections shall be prepared and retained as a part of the TESC Plan.

E. All inspection reports shall be kept on-site during the life of the project and be available for review upon request of Owner's Representative and Owner's Construction Manager.

3.02 TURBIDITY CURTAIN & DEBRIS BOOM

A. Refer to Section 01 35 43 - Environmental Controls for information on required turbidity curtains and debris booms.

3.03 CONSTRUCTION DEWATERING

A. Construction dewatering is not anticipated for completing the work. If the Contractor proposes dewatering as an element of their work plan, the corresponding TESC requirements shall be developed.

B. The TESC Plan shall address how the Contractor will manage clean and polluted water during the life of the project, including any water resulting from dewatering if conducted.

1. The Contractor shall dispose of offsite, haul, or pump and treat all water that does not meet 401 Water Quality Certification requirements. This includes water from any source that drains into project boundaries and becomes contaminated with sediment, chemicals, petroleum or other pollutants. Sources include but are not limited to: rainfall, surface water, roof drainage, groundwater, broken pipelines, irrigation and Contractor activities.

2. The Owner's Representative and Owner's Construction Manager shall be notified before any disposal, hauling, pumping, or treatment of water occurs. Notification shall include location of disposal and methods of treatment.

3. Groundwater shall be discharged as directed by the Owner's Representative.

4. Water shall not be pumped or allowed to drain into ditches, gutters, drainage conveyances, or catch basins.

5. Construction runoff may be pumped:

a. Into temporary holding tanks.

b. Into water trucks for disposal off-site at a Contractor's selected location.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Section includes administrative and procedural requirements for Project Closeout, including, but not limited to, the following:

1. Completion procedures.
2. Warranties.
3. Final cleaning.
4. Repair of the work.
5. Project Record Drawings.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and other sections of the General Requirements apply to this work as if specified in this section. Work related to this section is described throughout the specifications.

B. Prior to requesting final inspection, the Contractor shall assure itself that the project is complete in all aspects.

PART 2 – PRODUCTS

2.01 WARRANTY

A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.

B. The Contractor shall promptly repair or replace all defective or damaged items delivered under the contract. The Contractor may elect to have any replaced item returned to Contractor's plant at Contractor's expense.

C. In the event of equipment failure, during such time or in such a location those immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Owner will effect repairs. The Contractor shall then reimburse the Owner for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

PART 3 – EXECUTION

3.01 FINAL DOCUMENTS

A. As-Built Drawings: After the completion of the work and before requesting substantial completion, the record drawings shall be completed and given to the Owner and Owner's Representative.

3.02 CLEAN-UP

A. Final clean-up and clean-up during the course of the work is defined in the paragraphs below:

1. At all times, and as may specifically be requested by the Owner, Owner's Construction Manager, or Owner's Representative, the Contractor shall clean up and remove all refuse resulting from the Work in order that the Project site remains free from an accumulation of construction debris. Upon failure to do so within 24 hours after request by the Owner's Representative, the Owner may do such clean up, and the cost thereof shall be charged to the Contractor and deducted from the Contract Sum.

2. Upon completion of the Work and before final inspection, the Contractor shall clean the entire Work premises occupied or used in connection with the Work of all rubbish, surplus and discarded materials, false work, temporary structures, equipment, and debris. The entire Work premises shall be left in a clean, neat, and presentable condition. The Contractor shall not remove warning, regulatory, or guide signs prior to Final Completion except as requested by the Owner's Representative.

B. Those paragraphs are supplemented to provide the following:

1. General: Prior to completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste.

2. Site: Unless otherwise specifically directed by the Owner's Representative or Owner's Construction Manager, sweep all paved areas on the site and all public sidewalks directly adjacent to the site. Completely remove all resultant debris.

3. Timing: Schedule final cleaning as approved by the Owner's Representative and Owner's Construction Manager to enable the Owner to occupy a completely clean project.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section outlines construction surveying work required to construct the components of the project in accordance with the Contract Drawings and Technical Specifications subject to the terms and conditions of the Contract.

B. The Contractors work will include furnishing all materials, labor, and equipment necessary to perform construction staking and layout, establishing temporary benchmarks from primary control, pre-construction surveying, existing utility line locate surveying, intermediate/progress surveying for quality control, establishing on-site water level gages, construction staking and layout surveying for development of progress payments, and post-construction surveying.

C. Work covered by this Section includes, but is not limited, to the following elements of construction surveying work:

1. Dredging
2. West End Stabilization
3. Stone Breakwater
4. Beach Nourishment
5. Excavation & Fill

1.02 RELATED SECTIONS

A. Section 01 20 00 – Measurement and Payment

B. Section 01 33 00 - Submittals

C. Section 01 70 00 – Project Closeout

D. Section 02 41 00 – Demolition

E. Section 31 00 00 – Excavation and Fill

F. Section 35 20 23 – Dredging

G. Section 35 31 23 - Breakwaters

1.03 APPLICABLE PUBLICATIONS

A. USACE EM-1110-1-1005 – Topographic Surveying.

B. USACE EM-1110-2-1003 – Hydrographic Surveying.

1.04 DEFINITIONS

A. Terrestrial Surveys: Survey work conducted for any project work elements located above Ordinary High Water (OHW) and/or located below OHW where existing depths and environmental conditions (waves, currents, etc.)

allow for the safe use of standard topographic survey equipment equipped as specified herein.

B. Hydrographic Surveys: Survey work conducted via boat equipped with positioning equipment as specified herein and utilizing single-beam transducer sounding techniques for measuring elevations in areas where water depths do not allow for the use of standard topographic survey equipment.

C. Hybrid Surveys: Any non-standard topographic and/or hydrographic survey work utilizing Unmanned Surface Vessels (USVs), Unmanned Aerial Vehicles (UAVs), or other hybrid/alternative equipment. The use of hybrid or alternative survey equipment by the Contractor or Contractor's survey team must be approved in writing by the Owner's Representative prior to use. Accuracy of hybrid or alternative surveys shall meet or exceed the accuracy requirements listed herein for terrestrial and/or hydrographic surveys.

D. DGPS: Differential Global Positioning Systems (DGPS).

E. RTK-GPS: Real Time Kinematic Global Positioning Systems (RTK-GPS).

1.05 GENERAL CONSTRUCTION SURVEYING

A. Survey responsibility and sequence of survey work: The Contractor is responsible for all surveys necessary for controlling the work, including setting temporary benchmarks, staking and layout, intermediate/progress surveys, pre/post construction surveys. Construction survey assignments and activities are listed below. Survey tasks must be performed by an independent licensed surveyor, working as a sub-contractor for the Contractor, where indicated:

1. Establish primary survey control (Must be performed by a Contractor hired Independent Licensed Surveyor)
2. Existing utility locate survey (Contractor)
3. Establish water level gauge(s) (Contractor)
4. Pre-construction survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
5. Pre-Dredge survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
6. Intermediate/progress surveys for quality control (Contractor)
7. Post-Dredge Survey (Must be performed by a Contractor hired Independent Licensed Surveyor)
8. Final intermediate progress survey to confirm that design elevations have been achieved at all locations (Contractor hired Independent Licensed Surveyor)

9. Post-construction survey (Must be performed by a Contractor hired Independent Licensed Surveyor)

B. Construction surveying requirements

1. The surveys performed during construction including pre-construction survey, pre-dredge survey, intermediate/progress surveys, construction staking, electronic template development and post construction surveys shall be done at no additional expense to the Owner.

2. The Contractor shall layout, install, and maintain construction stakes and marks needed to establish the lines, grades, slopes and cross-sections as necessary for completion of the work. Construction staking using wood lathing in above water areas and plastic pipe or other similar durable material shall be used in inundated areas to ensure waves and currents do not dislodge the staking during the construction period. The Contractor shall establish quality control for all work performed and all products supplied to assure compliance with the Technical Specifications.

3. The Contractor shall use electronic work templates in combination with installed on-board construction electronics equipment. Electronic templates shall utilize TIN or equivalent 3-dimensional surface models developed from the Contract Drawings and updated with pre-construction, progress/intermediate, and post-construction survey data throughout the duration of construction.

4. All surveys conducted within the project site limits shall use equipment equipped with electronic DGPS/RTK positioning capabilities and shall achieve the survey accuracies stated herein.

5. The Contractor shall perform all survey work to layout and set any construction stakes and marks which are needed to establish the lines, grade, slopes, and cross-sections. A baseline offset from the work area shall be established, utilizing benchmarks and monuments provided on the Contract Drawings, at a location that shall not be disturbed by construction activities and located close to the work so that it provides alignment and location reference. In addition, the Contractor shall perform intermediate/progress surveys during construction to ensure that the Stone Breakwater and Dredging Area are being constructed to the lines and grades shown on the Contract Drawings within the tolerance specified. The Owner's Representative shall approve the field staking and electronic templates for all work areas prior to the start of excavation and/or dredging, and fill activities.

6. The electronic surveying method must be approved, in writing, by the Owner's Representative, prior to beginning placement of products on the Project.
7. Establish intermediate elevation benchmarks as needed to check work throughout the project.
8. The Owner's Representative may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.
9. Surveys shall be of sufficient frequency and accuracy during construction so that the Owner's Representative can determine that the construction is within the tolerances of the Technical Specifications and Contract Drawings.
10. The Contractor shall be responsible for processing all survey data and providing the Owner with electronic files containing topographic and/or bathymetry data (ASCII x-y-z format) for each survey.
11. The Contractor shall make consideration for providing sufficient notification time of any intermediate/progress survey work for the Owner's Representative to review, observe and check all progress survey results throughout the duration of the work. The Owner's Representative and Owner's Construction Manager shall be allowed the time and access to check and approve the work prior to Contractor backfilling or covering the survey work area.
12. The Contractor shall be responsible for setting, maintaining and resetting all alignment stakes, slope stakes, offsets to structures, and grades as necessary for the construction of all work shown in the Contract Drawings. Calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.
13. The location of each cross-section surveyed shall be referenced to the stationing shown on the Contract Drawings. The Contractor shall plot the cross-sections and profiles on a scale agreeable to the Owner's Representative and submit to the Owner's Representative for approval.
14. The Contractor will be required to monitor and maintain temporary water level gauges within the project site limits. Water levels shall be monitored relative to United States Geological Survey (USGS) Gage 12393000 located near the outlet dam at the south end of Priest Lake.

C. Datums and Units: All surveys performed for this work shall be referenced to the following survey datums.

1. Horizontal Datum: Idaho State Plane West Zone, North American Datum 1983(91), (NAD83(91)), U.S. Feet.
2. Vertical Datum: Lake Datum, referenced to USGS Gage 12393000. Datum of USGS Gage is 2,434.64 feet above NGVD29, U.S. Feet.
   a. Vertical datum conversion to be verified by the Contractor prior to construction.

D. Surveying tolerances

1. Terrestrial surveys shall be conducted utilizing surveying procedures, equipment, and methodology that meet or exceed accuracy tolerances of ±0.05 feet in vertical and ±0.1 feet in horizontal unless specified otherwise.

   Hydrographic survey work (if required) shall be conducted in accordance with USACE standards for Class 1 Hydrographic Survey for Navigation and Dredging support surveys in accordance with EM 1110-2-1003, Hydrographic Surveying. Vessels used for hydrographic surveying works shall be equipped with survey grade single-beam depth transponders. Accuracy for measured depths/elevations shall be +/- 0.3 feet, and accuracy of horizontal position shall be +/- 3 feet at the 95 percent confidence interval.

   Hybrid survey technologies shall meet or exceed the vertical and horizontal accuracy tolerances specified herein for terrestrial surveys.
2. Intermediate/Progress Surveying: Terrestrial and Hydrographic survey work for intermediate/progress surveys shall be conducted using electronic DGPS/RTK positioning equipment and survey grade single-beam depth sounders (Hydrographic Surveys) in accordance with the requirements herein. Other electronic survey equipment may be proposed for use by Contractor in lieu of that specified but shall be approved by Owner's Representative prior to start of construction. Accuracy for measured elevations and/or water depths for intermediate/progress surveys shall be in accordance with the Terrestrial and Hydrographic Survey requirements herein.

E. Survey equipment

1. General: The Contractor shall employ a suitable method to locate and control equipment, structure excavation and/or dredging work, and the placement of fill that may include: DGPS, RTK-GPS, and/or an Owner's Representative approved equivalent. Observation data will be recorded in standard surveying field book format or by other methods as approved by the Owner's Representative. Automated position determinations will be accomplished by standard trilateration procedures whereby lengths to two or more shore-based points are

electronically measured by either time delay or phase comparison techniques.

2. Hydrographic Survey: Hydrographic surveys shall be conducted by the Contractor using DGPS and/or RTK-GPS positioning equipment and shall use single-beam transducer sounding techniques for measuring depths. Hydrographic surveying shall be conducted with appropriate correction for water levels at the time of the survey. The proposed survey equipment shall be capable of providing the necessary measurement accuracy and provide exportable data in electronic format.

3. Survey Data Point Collection: Elevation and horizontal data points shall be taken at intervals as required herein, with additional points taken as necessary to adequately locate critical site features including edges, intersections, limits, and changes in slope of excavation and/or dredging, general fill, beneficial reuse, Super Sack placement, placement of stones, and other project components to be constructed as shown on the Contract Drawings.

1.06 CONSTRUCTION SURVEYING & STAKING

A. Survey for Layout of Work: An accurate method of horizontal control shall be established by the Contractor before construction begins. The Owner's Representative will review and approve the proposed method and maintenance of the horizontal control system. If, at any time, the method fails to provide accurate location for the construction, the Owner's Representative may require the Contractor to suspend its operations until the survey control is reestablished. The Contractor shall lay out its work from the site control monuments shown on the Contract Drawings and shall be responsible for all measurements taken from these points. The Contractor shall furnish at its own expense all stakes, electronic templates, platforms, equipment, buoys, range markers, transponder stations and labor as may be required to lay out the work from the work points shown on the Contract Drawings. If staked points are destroyed by the Contractor or disturbed through the Contactor's negligence prior to authorized removal, they shall be resurveyed and/or replaced by the Contractor at their own expense.

B. Contractor is responsible for conducting all construction staking and survey work required for construction.

C. To facilitate the establishment of lines and elevations, the Contractor hired Independent Licensed Surveyor will provide the Contractor with primary survey control information consisting of descriptions of two primary control points used for the horizontal and vertical control, and descriptions of two control points will be described by reference to the coordinate system and elevation datum utilized by the project.

D. The Contractor is responsible for verifying primary control information furnished by the Independent Licensed Surveyor prior to performing construction marking work. The Contractor shall notify the Owner's Representative promptly in writing of any discrepancies discovered.

E. When staking structure or other alignment and stationing, the Contractor shall perform independent checks from different secondary control to ensure that the points staked are within the specified survey accuracy tolerances.

F. The Contractor shall calculate coordinates for the alignment. The Contractor shall submit these coordinates to the Owner's Representative for review and approval in accordance with Technical Specification Section 01 33 00 – Submittals.

G. The use of Global Positioning System (GPS) positioning equipment on construction machinery is contingent upon the use of electronic construction templates, which shall be submitted by the Contractor and approved by the Owner's Representative prior to the start of Construction.

H. Use of electronic work templates for on-equipment positioning systems during construction to locate and delineate dredging, excavation and stone placement area limits and elevations for the work are allowable but require detailed description in the survey plan. Provide equipment positioning plan and electronic dredge templates from Hypak, Dredgepack, AutoCAD, or other comparable 3D software if onboard equipment positioning systems are utilized in lieu of field staking. Equipment positioning systems shall be field checked for accuracy utilizing survey grade instruments for horizontal and vertical. Intermediate surveys will also include equipment positioning system electronic bucket marks within the work area prisms as part of the interim survey submittals.

I. Contract work to be performed using contractor-provided stakes shall not begin until the stakes are approved by the Owner's Representative. Such approval shall not relieve the Contractor of responsibility for the accuracy of the stakes.

J. In addition to the development of electronic templates, the location of all work elements indicated on the Contract Drawings shall be field staked or marked and approved by the Owner's Representative prior to the start of construction.

K. Establish the centerlines of all alignments, by placing hubs, stakes, or marks on centerline or on offsets to centerline at all curve points (PCs, PTs, and PIs) and at points on the alignments spaced no further than 50 feet.

L. Establish clearing limits, placing stakes at all angle points and at intermediate points not more than 50 feet apart. The clearing and grubbing limits shall be 5 feet beyond the toe of a fill and 10 feet beyond the top of a cut unless otherwise shown in the Contract Drawings.

M. Establish grading limits, placing slope stakes at centerline increments not more than 25 feet apart. Establish offset reference to all slope stakes.

N. Establish the horizontal and vertical location of all drainage features, placing offset stakes to all drainage structures and to pipes at a horizontal interval not greater than 25 feet, as applicable.

O. For all other types of construction included in this project, provide staking and layout as necessary to adequately locate, construct, and check the specific construction activity.

1.07 PRE-CONSTRUCTION SURVEYING

A. A pre-construction survey shall be conducted at least 45 days prior to the start of construction. The Contractor shall provide the pre-construction survey to the Owner's Representative and the Owner's Construction Manager at least 30 days prior to the start of construction for review.

B. The pre-construction survey shall include the following:

1. Pre-construction surveys shall meet the requirements outlined in paragraph 1.05 - General Construction Surveying of this Section.

2. Terrestrial, hydrographic and/or hybrid/alternative survey data collection within the work areas indicated on the Contract Drawings and Specifications. Survey areas include areas within and outside of the project site limits.

3. Design Template Overlay: The Contractor shall develop drawings with overlays of design cross-section templates (from Contract Drawings) on cross-sections developed using pre-construction survey data.

1.08 INTERMEDIATE/PROGRESS SURVEYS

A. Intermediate/progress surveys shall be conducted in accordance with the requirements outlined in paragraph 1.05 - General Survey Requirements of this Section.

B. The purpose of intermediate/progress surveys is for quality assurance and quality control to assure products are installed as specified. Owner's Representative and Owner's Construction Manager may use the results of intermediate/progress surveys to direct the Contractor to adjust its methods to assure compliance with the Contract Drawings and permit requirements, at no additional expense to the Owner.

C. Intermediate/progress surveys of the work may be submitted for partial payment upon prior approval from the Owner's Representative.

D. The Contractor shall perform intermediate/progress surveys for all work items where progress payments are requested and as specified below. Intermediate/Progress terrestrial and hydrographic surveys (if required)

shall, to the practical extent possible, be performed in a similar manner (areas of coverage and point density) as the pre-construction survey works. The Owner's Representative will use the survey data to confirm design elevations, monitor construction progress, and confirm partial payments.

E. Intermediate/progress survey cross-sections shall be taken at the same cross-section locations as previously performed surveys for comparison of work element progress.

1.09 POST-CONSTRUCTION SURVEY

A. Upon completion of all work activities, the Contractor shall hire an Independent Licensed Surveyor to perform a post-construction survey within all work areas.

B. The purpose of the post-construction survey is to assure compliance with the Contract and to record the as-built condition of the work.

C. The post-construction survey shall include the following:

1. Post-construction surveys shall meet the requirements outlined in paragraph 1.05 - General Construction Surveying of this Section.

2. Terrestrial, hydrographic and/or hybrid/alternative survey data collection within the work areas indicated on the Contract Drawings and Specifications. Survey areas include areas within and outside of the project site limits.

D. The Contractor shall survey all existing utility lines and residential laterals located along Sand Piper Shores Road. Any damage to the existing utility lines located along the haul road that are identified following Owner's Representative and Owner's Construction Manager review of the post-construction utility survey data shall be the responsibility of the Contractor and repaired in accordance with Section 01 50 00 – Temporary Facilities and Controls.

E. All Post-construction survey data shall be reviewed and verified by the Owner's Representative prior to Demobilization from the site.

1.10 SUBMITTALS

A. Action Submittals

1. Qualifications: Contractor shall submit a description of construction survey personnel qualifications to the Owner's Representative for review prior to start of survey work. Surveys shall be submitted in accordance with 01 33 00 – Submittals. Survey qualifications are as follows:

a. Licensed Surveying: Licensed surveying shall be performed under the direct supervision of an independent licensed State of Idaho Professional Land Surveyor that is not an employee

of the Contractor. All primary control verification and secondary control establishment, pre-construction, pre-dredge, post-dredge, final intermediate/progress surveys, and post-construction survey work shall be conducted as a licensed survey. Licensed survey may require multiple survey methods and may be performed by different licensed surveyors, provided that they meet the following requirements:

(1) General: The surveyor shall be a licensed public land surveyor (PLS) in the State of Idaho and shall have a minimum 5 years of documented experience with construction field surveying for similar types of shoreline and nearshore upland improvement projects.

(2) Hydrographic Survey: The surveyor shall be a licensed public land surveyor (PLS) in the State of Idaho and shall have a minimum 5 years of documented experience with hydrographic surveying of dredging works using the equipment proposed for use on this project.

b. Non-Licensed Surveying: Intermediate/progress surveys shall be performed by either an employee of the Contractor or and independent licensed surveyor meeting the following requirements

(1) General: The surveyor shall have a minimum of five (5) years of documented experience performing topographic surveying utilizing electronic surveying instruments (total station, GPS, etc.) and qualified in the use of the survey equipment proposed by the Contractor.

(2) Hydrographic Survey: The surveyor shall have a minimum of five (5) years of documented experience performing hydrographic surveying of similar works using the equipment proposed for use on this project.

2. Survey Plans: Contractor shall submit survey plans for all work and all phases to the Owner's Representative's for review in accordance with Technical Specification Section 01 33 00 – Submittals. All survey plans must be reviewed and approved by the Owner's Representative and Owner's Construction Manager prior to the start of surveys and construction activity by the Contractor. The plans shall include a description of the methods, procedures, and proposed survey equipment and model number to be used for pre-construction, intermediate/progress, and post-construction survey

works. The following list includes, but is not limited to, the survey plans that shall be provided by the Contractor:

(1) Pre-construction Survey Plan

(2) Progress/Intermediate Survey Plan

(3) Post-Construction Survey Plan

3. Survey Data and Drawings

a. Primary and Secondary control established by the Contractor

(1) Provide descriptions of primary and secondary control to the Owner's Representative and Owner's Construction Manager. The description shall include coordinates and elevations of all primary and secondary control points.

b. Utility locate surveys, potholing, etc.

c. Temporary Construction Easement and Access Surveys

d. Intermediate/Progress surveys

(1) The Contractor shall furnish the original field notes and data of the surveys to the Owner's Representative and Owner's Construction Manager within 24 hours following completion of the survey. Survey data shall be in PC compatible, ASCII format, in delimited files of easting, northing, and elevation (xyz), and description.

(2) Survey data file shall list the project name, surveyor's name, area surveyed, date of survey, and the horizontal and vertical datum.

(3) Topographic and/or bathymetric survey data shall include measured Thorofare and Priest Lake water levels to the nearest 0.1 foot in the project datum for the period of the survey.

(4) Cross-sections and plan views shall be plotted in AutoCAD 2014 (or newer format) and submitted in hard copy and electronic format to the Owner's Representative. Cross-sections and plan views shall follow within 3 business days after completion of the survey, or as approved by the Owner's Representative. Plotted survey submittals shall be drawings of sections on 11x17 inch sheets at a suitable scale.

(5) Data shall be submitted to the Owner's Representative and Owner's Construction Manager in electronic ASCII and PDF formats.

e. Pre/post construction and pre/post dredge drawings

(1) The processed data pre-construction and pre-dredge (ASCII format), one (1) foot contour map of the work areas, and cross-section drawings (in AutoCAD format) with overlays of design templates shall be submitted to Owner's Representative at least 14 business days prior to the start of onsite construction activities.

(2) The Contractor shall furnish the original field notes of all construction surveys and data of the surveys to the Owner's Representative and Owner's Construction Manager within 24 hours following completion of the survey. Survey data shall be in PC compatible, ASCII format, in delimited files of easting, northing, and elevation (xyz), and description.

(3) Survey data file shall list the project name, surveyor's name, area surveyed, date of survey, and the horizontal and vertical datum.

(4) Topographic and/or bathymetric survey data shall include measured Thorofare and Priest Lake water levels to the nearest 0.1 foot in the project datum for the period of the survey.

(5) Cross-sections and plan views shall be plotted in AutoCAD 2014 (or newer format) and submitted in hard copy and electronic format. Cross-sections and plan views shall follow within 7 business days after completion of survey, or as approved by the Owner's Representative. Plotted survey submittals shall be drawings of sections on 11x17 inch sheets at a suitable scale.

(6) Data shall be submitted to the Owner's Representative and Owner's Construction Manager in electronic ASCII and PDF formats.

f. Project Record Drawings

(1) Refer to Specific Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 SURVEY EQUIPMENT

A. Surveying equipment and methods used for pre-construction, intermediate/progress surveying and post-construction surveys shall be conducted in accordance with paragraph "General Construction Surveying" of this Section.

3.02 EXISTING UTILITY LOCATE SURVEY

A. Contractor shall clearly mark and stake the location of existing utilities located within the access road corridor shown on the Contract Drawings.

3.03 PRE-CONSTRUCTION SURVEY

A. Pre-construction survey areas shall include surveying for all Work within and outside of the project site limits. Pre-construction survey works also include utility line locate surveys and pre-construction condition assessments along Sand Piper Shores Road. Pre-construction survey works also include all pre-construction condition assessment and surveying work associated with temporary construction easements and access areas.

B. Existing Utility Surveys

1. Pre-construction Utility Condition Survey: The Contractor shall submit photos and a video recording of an initial walkthrough of the Construction Access Easements prior to construction. Inspections of utility infrastructure, including CCTV, potholing, and other utility location works shall be documented and provided to the Owner's Representative and Owner's Construction Manager for review prior to initiating construction activities. The photos, video, and other documentation shall be used at the end of construction as a baseline for the Contractor to restore the site.

C. Dredging Surveys

1. Notification of Pre-Construction Dredging Area Survey: Pre-construction dredging area surveying will be coincident with pre-construction stone breakwater and west end stabilization surveying notification.
2. Survey Layout Requirements: Layout of survey line stations (transects or tracklines) and data density requirements shall be conducted in accordance with USACE EM 1110-2-1003 "Hydrographic Surveying" for Navigation and Dredging support surveys. Within the limits of the dredging area, tracklines shall be spaced at intervals not greater than 25 feet; and individual soundings on each trackline shall be spaced at intervals not greater than 5 feet and additional elevations taken as necessary to

describe all hydrographic/topographic features (including slope breaks, catch lines, changes in grade, and other topographic features). Crossing lines (tracklines perpendicular to the primary tracklines) shall be performed. Cross lines shall be not less than 25 feet on center and shall be not less than a total of 5 in the areas to be dredged. Survey data shall extend beyond the dredging area by at least 20 feet or 5 data points.

D. Stone Breakwater and West End Stabilization Surveys

1. Pre-construction survey works for the west end stabilization and stone breakwater shall consist of survey transects taken perpendicular to specified structure centerlines, or along shoreline reference line and at no greater than 25 feet on center. Survey along the top and toe of bank slope at shoreline should occur more frequently and shall delineate any major changes in shoreline position. Survey points along each transect shall be taken at all major breaks in grades, slope, and alignment to accurately depict topographic conditions. Surveying along transects shall extend at least 25 feet beyond the edge of excavation and fill and structure limits (both landward and waterward directions). The project site limits should be surveyed for the pre-construction survey base map.

E. The Contractor shall complete locate surveys for all existing utility lines and residential laterals located along Sand Piper Shores Road. Existing utility information is indicated on the Drawings and in Appendix D – Existing Utilities.

F. All Pre-construction survey data shall be reviewed and verified by the Owner's Representative for approval prior to the start of construction.

3.04 INTERMEDIATE/PROGRESS SURVEYS

A. Intermediate/progress surveys for construction associated with excavation and fill, stone breakwater, west end stabilization, dredging and any other works located within the project site limits shall be performed using terrestrial and hydrographic (if required) survey equipment as specified below:

1. Progress surveys shall be conducted following the same procedures and locations as outlined in the Pre-construction survey section. Results of the progress surveys will be transmitted to the Owner's Representative and Owner's Construction Manager within 24 hours of completion of each survey and may be used to direct the Contractor to adjust its method of fill placement and/or temporary stockpiling to assure compliance with the Contract Drawings and permit requirements, at no additional expense to the Owner.

2. At a minimum, the Contractor shall conduct a survey at the conclusion of dredging, excavation of existing slopes, fill, placement

of beneficial reuse, prior to placing any imported materials (geotextile, bedding stone, armor stone, etc.), and following placement of each imported material type within applicable work areas. Cross-sections shall be surveyed at 25-foot spacing and extend at least 15 feet beyond all work areas (greater length if larger area of backfill and/or beach nourishment was constructed).

B. Intermediate/progress surveys shall be conducted at the following stages of construction to ensure the lines and grades shown on the Contract Drawings and specified herein are being achieved:

1. Every 25 feet, relative to the Dredging Area Centerline, West End Stabilization Centerline, and/or Stone Breakwater Centerline, following excavation and/or dredging work. Intermediate/progress surveys shall be conducted along the same transects surveyed during the pre-construction survey.

2. Every 25 feet, relative to the West End Stabilization Centerline and/or Stone Breakwater Centerline, following placement of geotextile, fill/beneficial reuse, Super Sacks, and stone materials. Intermediate/progress surveys shall be conducted along the same transects surveyed during the pre-construction survey.

C. Intermediate/Progress Survey Submission Requirements. The Contractor shall submit intermediate/progress survey data as specified herein for the Owner's Representative review and approval. The Owner's Representative reserves the right to increase or decrease the frequency of intermediate/progress surveys at no additional expense. The frequency of intermediate/progress surveys will depend on the Contractor's ability to progress the work and maintain quality assurance and quality control in accordance with the Contract Drawings and Specifications. The Owner's Representative and Owner's Construction Manager shall be present during the execution of the progress survey data collection effort, unless explicitly waived by the Owner's Representative.

D. Final payment for the dredging work will be based on volumes computed using the pre-construction survey and Progress Surveys of dredged areas completed to the lines and grades shown in the Contract Drawings. The comparison of the pre-construction and progress surveys will be used as the basis for determining final pay quantities and acceptance of the dredging work. Final pay quantities will be calculated by the Owner's Representative computing dredged volumes to the nearest cubic yard. Upon request, the Contractor will be provided with a copy of the quantity calculations.

3.05 POST-CONSTRUCTION SURVEYING

A. Post-construction survey areas shall include surveying for all Work within and outside of the project site limits. Post-construction survey works also include utility line surveys and post-construction condition assessments

along Sand Piper Shores Road. Post-construction survey works also include all pre-construction condition assessment and surveying work associated with temporary construction easements and access areas.

B. Stone Breakwater and West End Stabilization
   1. At the time of final completion, a post-construction survey of all components of the stone breakwater and west end stabilization will be performed for final acceptance of the work. The post-construction survey will be performed in a manner to represent the conditions at the time of final completion and not a compilation of progress surveys. The post-construction surveys shall be conducted along the exact same transects surveyed during the pre-construction and intermediate/progress surveys.
   2. The Owner's Representative and Owner's Construction Manager shall be present during the execution of the post- construction survey data collection effort, unless explicitly waived by the Owner's Representative and Owner's Construction Manager.

C. Dredging Surveys
   1. Notification of Post-Construction Dredge Area Survey: Upon completion of dredging, as demonstrated by daily Contractor progress surveys, the Contractor shall notify the Owner's Representative and Owner's Construction Manager of intent to conduct the post-dredge surveys at least 5 calendar days prior to conducting survey. An Owner's Representative and Owner's Construction Manager shall be present during the execution of the post-construction dredge area survey data collection effort.
   2. Schedule/Completion Time Requirements: The post-construction dredge area survey performed by the Contractor shall be conducted within five (5) calendar days after the time that the Contractor's progress surveys indicate the dredging work is completed. The Contractor will furnish the post-construction dredge area survey data within seven (7) calendar days of completion of field survey work. Post-construction dredge area survey work shall be completed and results submitted to the Owner's Representative and Owner's Construction Manager within 14 calendar days of completion of dredging. The post-dredge survey and the final review and acceptance by the Owner's Representative shall be completed prior to Contractor's request for final acceptance.
   3. Reporting Requirements: The Contractor shall provide pre- and post-dredge survey data drawings in format described in Part 1 of this Technical Specification. Cross-section grid spacing shall be 10 feet in the vertical and 100 feet in the horizontal. Cross-sections shall be taken at 25-foot intervals. Each drawn cross-section shall reference the Dredging Area Centerline.

D. Existing Utility Surveys

1. The Contractor shall survey all existing utility lines and residential laterals located along Sand Piper Shores Road. Any damage to the existing utility lines located along the haul road that are identified following Owner's Representative and Owner's Construction Manager review of the post-construction utility survey data shall be the responsibility of the Contractor and repaired in accordance with Section 01 50 00 – Temporary Facilities and Controls.

E. The Contractor shall walk the site with the Owner's Representative and Owner's Construction Manager and submit photos of the Construction Access Easement after construction. The Contractor shall submit to the Owner's Representative inspections of the utility's infrastructure following construction activities. Any damage incurred during construction shall be considered the responsibility of and repaired by the Contractor.

F. All Post-construction survey data shall be reviewed and verified by the Owner's Representative prior to Demobilization from the site.

3.06 PROJECT RECORD DRAWINGS

A. Contractor shall utilize final progress and post-construction survey data to assemble project record drawings for submission to the Owner at the conclusion of the project.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section outlines flow diversion work that will be required to complete the Thorofare Navigation Improvement work (Breakwater & Dredging). Flow diversion will include the following work elements:

1. Flow Diversion Work Plan
2. Flow Diversion System
3. Rewatering
4. Temporary Access Road Bridge or Culvert for Thorofare Crossing
5. Monitoring of Thorofare flow conditions and lake levels
6. Diversion system removal and site restoration

B. A cofferdam for the purpose of dewatering the breakwater work area is not anticipated for conducting the work.

1.02 RELATED SECTIONS

A. Section 01 20 00 – Measurement and Payment

B. Section 01 33 00 – Submittals

C. Section 01 35 43 – Environmental Controls

D. Section 01 41 00 – Regulatory Requirements

E. Section 01 50 00 – Temporary Facilities and Controls

F. Section 01 57 13 – Temporary Erosion and Sediment Controls

G. Section 31 00 00 – Excavation and Fill

H. Section 35 20 23 – Dredging

I. Section 35 31 23 – Breakwaters

J. Appendix A – Permit Documents

K. Appendix E – Water Level & Flow Data

1.02 DEFINITIONS

A. Flooding is defined as the uncontrolled process of returning flow to its naturally occurring state.

B. In-water work area is work occurring at or below Ordinary High Water (OHW).

C. In-water Construction Window is the time period from November 1st, 2020 through March 15th, 2021 during which the Contractor is permitted to conduct work below OHW. No work below OHW may be conducted outside the In-water Construction Window.

D. Rewatering is defined as the controlled process of returning flow to its naturally occurring state when the construction is completed and the diversion system is no longer required.

E. Flow Diversion defines the temporary re-routing of river flows to prevent inundation within active work areas.

F. Flow Diversion system defines the machinery, equipment, and appurtenances necessary for and related to the accomplishment of Flow Diversion.

1.03 RIVER FLOWS

A. The requirements and specifications for the Flow Diversion are set forth herein.

B. A map of available flow data for the Priest Lake/Priest River system is provided in Appendix E - Water Level & Flow Data. There are no USGS gages that directly measure discharge through the Thorofare, but there is a long data record of river flows through Priest River, downstream of Priest Lake, from USGS Gage #12394000. Many tributaries drain into Priest Lake and Priest River. The Thorofare drains from Upper Priest Lake and accounts for a fraction of the discharge that flows through Priest River and is measured by the USGS gages. For a summary of the relationship between discharge through the Thorofare and discharge through USGS Gage #12394000, see Appendix E – Water Level & Flow Data.

C. A summary of Priest River flow data from USGS Gage #12394000 and available Thorofare flow data is provided in Appendix E – Water Level & Flow Data for design of the Flow Diversion System. A summary of estimated peak flows at the Thorofare and daily statistics from USGS Gage #12394000 during the In-water Construction Window are provided.

D. The Contractor shall install a staff gage within or upstream of the project site limits to monitor water levels during Construction.

E. It is the Contractors responsibility to review the enclosed data, USGS data, and site conditions and develop a Flow Diversion System design and work plan that will provide protection of the active work area from inundation of water for the range of flows anticipated during construction.

1.04 DESIGN

A. The Contractor is responsible for the design and selection of phasing of the Flow Diversion system and the corresponding development of a Flow Diversion Work Plan. The Flow Diversion may need to be conducted in the following phases, as shown on the Contract Drawings:

1. Phase 1 Flow Diversion – consists of diverting Thorofare flow to facilitate land-based equipment access.

2. Phase 2 Flow Diversion – consists of diverting Thorofare flow through the dredged channel.

B. If the Contractor elects to conduct the Flow Diversion in the phases as shown on the Contract Drawings, the following requirement applies:

1. During transition from Phase 1 Flow Diversion to Phase 2 Flow Diversion, the Contractor shall take care to avoid causing siltation of the Thorofare channel due to Phase 2 Flow Diversion operations and subsequent Stone Breakwater construction.

C. The Flow Diversion system shall be designed using accepted professional methods of engineering design consistent with the best current practice and standard guidance.

D. The Contractor is responsible for the selection of their preferred river flow conditions for the Flow Diversion Design. The Flow Diversion system shall be designed to withstand the two-year peak river flow at a minimum, without overtopping. The estimated 2-year, 5-year, and 10-year peak river flow at the Thorofare is provided below for two time periods within the In-Water Construction Window:

Estimated Thorofare Peak Flow Rates

	2-YEAR	5-YEAR	10-YEAR
NOVEMBER 1 TO DECEMBER 14:	614 CFS	820 CFS	965 CFS
DECEMBER 15 TO MARCH 15:	432 CFS	557 CFS	886 CFS

E. The Contractor shall secure the services of a professional engineer licensed to practice in the State of Idaho to design and stamp calculations for the Flow Diversion System.

1. The stamped Flow Diversion System design and calculation shall be submitted to the Owner's Representative as described in Paragraph 1.07 of these Specifications.

1.05 MAINTENANCE AND SERVICES

A. The Contractor shall be responsible for the maintenance, servicing, and repairs of the entire Flow Diversion system and appurtenances during the life of the contract.

1.06 GENERAL CRITERIA

A. No permanent work under this contract, except as otherwise specified, shall be carried on in areas subject to free-flowing Thorofare flow.

B. The Flow Diversion Work Plan and Flow Diversion System developed by the Contractor must be in accordance with all environmental permits included in Appendix A – Permit Documents.

C. No fish stranding shall occur. Fish block nets, or other agency-approved methods shall be utilized to prevent fish from accessing the active work area. A qualified biologist shall assist with any fish relocation efforts, if encountered.

1.07 SUBMITTALS

A. Flow Diversion Work Plan - The Contractor shall submit an original and four copies of its complete Flow Diversion design with details of the proposed diversion plan to the Owner's Representative and Owner's Construction Manager for review for general conformance with permit requirements. These details must be presented in the form of a description of the proposed system including procedure, schedule, products, basis of design, calculations, and drawings, including details showing the type of diversion, planned layout and sizes, diversion phasing and transitions, plan of operation, and post-construction rewatering plans. This submittal shall be submitted no later than 15 days prior to installation of the Flow Diversion system.

PART 2 - PRODUCTS

2.01 MATERIALS

A. The Contractor shall furnish all materials, tools, and equipment for the Flow Diversion system. Materials for Flow Diversion shall be selected by the Contractor and shall be similar to the following systems:

1. Concrete Ecology Blocks with plastic sheeting
2. Supersacks
3. Aqua Dam ®
4. Or other Engineer-approved equivalent diversion system

PART 3 - EXECUTION

3.01 OPERATION

A. The Contractor shall perform Flow Diversion and protect specific work areas from Thorofare flow as long as is necessary for the work under this contract. In the event that flooding is deemed necessary by the Owner, the protected area shall be flooded in accordance with the sequence of flooding proposed by the Contractor and approved by the Owner's Representative and Owner's Construction Manager. However, the Contractor shall not flood the protected areas without the approval of the Owner. If flooding occurs because of the Contractor's fault, negligence, or convenience, all costs resulting from such flooding shall be borne by the Contractor.

3.02 QUALITY CONTROL

A. The Contractor shall establish and maintain quality control for all Flow Diversion operations to assure compliance with contract requirements and

maintain records of the Contractor's quality control for all construction operations, including but not limited to the following:

1. Design,
2. Fabrication and Workmanship,
3. Installation, Operation and Removal.

3.03 FLOW DIVERSION SYSTEM REQUIREMENTS

A. The following requirements shall apply to the Flow Diversion system(s) proposed by the Contractor:

a. The Contractor is responsible for protecting the Work, prior to final acceptance, for conditions up to a 10-year flow event (see paragraph DESIGN above).

b. The Flow Diversion system shall be high enough to allow for the conveyance of the 2-year peak flow with 1ft of freeboard (at a minimum) past the isolated work area without overtopping the Flow Diversion system.

c. The Flow Diversion system shall be constructed of non-erodible materials (super sacks, steel sheets, aqua barriers, geotextile bags, rip rap and geotextile liner, etc.). Sand berm diversion systems without some form of erosion protection are not permissible.

d. To the extent practicable, temporary access roads, as shown on the Contract Drawings, should be used to access the area to be diverted. Once the Flow Diversion system is in place and the active work area is protected, equipment may enter the protected work area to perform the required work.

1.03 REMOVAL

A. Rewatering of the area shall be accomplished by directing surface and ground water into the area. Protection of slopes and excavation surfaces shall be provided as necessary to prevent erosion during flooding operations.

B. The Flow Diversion system(s) required to maintain a protected area shall be maintained until completion of the work within the protected area, and then shall be completely removed. However, no Flow Diversion facilities of any kind shall be removed without prior approval of the Owner's Representative. Any approvals of the implementation and/or removal plans by the Owner's Representative do not shift the responsibility for the removal of the system from the Contractor to the Owner. Nor does it relieve the Contractor of the Contractor's responsibility to provide a removal plan, which comports with industry standards and prudent construction practices.

C. The Contractor shall restore all lakebed areas to pre-construction conditions and all imported materials removed within the areas of flow diversion work.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. The extent and location of the Demolition work is indicated on the Drawings. The work includes, but is not limited to, the requirements for the removal, wholly or in part, processing, and satisfactory disposal of the existing timber breakwater structure and offshore dayboard pile structure shown on the Drawings.

B. Structures shown on the Drawings to be demolished include, but are not limited to, the following components:

1. Untreated and non-creosoted timber piles;
2. Untreated and non-creosoted timber lagging and boards;
3. Miscellaneous metals (connection hardware), and
4. Existing navigation dayboards.

C. The demolition work included on the Drawings is for guidance only to indicate typical general construction features of the various types of structures and is not to be construed as definitive or adequate to supplant the actual on-site inspection by the Contractor.

D. No demolition of any structures shall be performed outside of the project site limits without prior approval from the Owner, Owner's Construction Manager or the Owner's Representative.

E. Timber piles and other debris encountered in the excavation will be disposed of with the excavated material in accordance with Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas.

F. Large woody debris (LWD) found along the existing timber breakwater shall be stockpiled on-site, Contractor will generally document the location of the LWD prior to removal. Following demolition works, Contractor shall return the LWD to its approximate original location.

G. The work includes demolition and removal of resulting rubbish and debris. Rubbish and debris shall be removed from the project site limits daily, unless otherwise directed, to avoid debris accumulation within the project site limits.

H. Drawing indications of existing conditions are cursory, and for Contractor's general reference only. The Contractor shall carefully examine existing conditions and accept existing construction and site improvements on an "as is" basis.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Special Conditions and General Requirements, and other Division I Specifications apply to this work.

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American National Standards Institute (ANSI)

ANSI A10.6 – "Safety Requirements for Demolition Operations"

1.04 SITE CONDITIONS

A. The Contractor represents that is has visited the site to become familiar with the quantity and character of all materials to be demolished. The Contractor agrees that the premises were made available prior to deadline for submission of bids for whatever inspection and tests the Contractor deemed appropriate. The Contractor assumes full responsibility for the proper disposal of all demolition materials identified within the Contract Documents and in accordance with all applicable regulatory permit requirements included within Appendix A – Permit Documents.

B. Demolition Notations on Drawings are schematic and general in nature and do not attempt to show the exact scope or detail of all required demolition.

C. If any demolition material is suspected to contain hazardous substances, the Contractor shall submit information to the Owner's Representative and Owner's Construction Manager for resolution prior to proceeding.

1.05 CONTRACTOR ACCESS

A. The Contractor shall include all anticipated access by truck and/or barge for equipment delivery and for disposal of debris and materials off site.

1.06 COORDINATION

A. The Contractor shall coordinate all demolition work with other work to be performed as indicated within the Drawings. Any discrepancies regarding the structures to be demolished shall be coordinated with the Owner's Representative and Owner's Construction Manager prior to proceeding with the demolition works.

1.07 PROTECTION

A. Protection of Personnel

1. During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the

demolition site. No area, section, or other structural elements will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

2. Provide protection of persons and property required by Section 01 40 00 – Quality Requirements.

B. Protection of Structures

1. Structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, shall remain standing without additional bracing, shoring, of lateral support until demolished, unless directed otherwise by the Owner's Representative. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, vibrations, removal, or demolition work performed under this contract.

1.08 SUBMITTALS

A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:

1. Demolition Work Plan:

a. A demolition work plan shall be submitted to the Owner's Representative. Construction Sequencing: See Contract Drawings for details and requirements on demolition and construction sequencing.

b. The Contractor shall submit the procedures proposed for the accomplishment of the demolition work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposal of materials, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with U.S. Army Corps of Engineers Engineering Manual EM 385-1-1. Within the Demolition Work Plan, The Contractor shall include best management practices to conduct the demolition in a manner to contain any floatable materials, spills, blowing debris, pollution and any other affect resulting from the Contractor's demolition activities.

PART 2 – PRODUCTS

2.01 GENERAL

A. Products that are required to accomplish, or to be incorporated into, the work of this section shall be as selected by the Contractor.

PART 3 – EXECUTION

3.01 CONSTRUCTION SEQUENCING

A. Construction Sequencing: See Contract Drawings for details and requirements on demolition and construction sequencing.

3.02 GENERAL DEMOLITION

A. The Contractor shall keep the Owner's Representative and Owner's Construction Manager aware of the timing and duration of project activities. Any changes or delays from the information provided to the Owner's Representative and Owner's Construction Manager shall be communicated as soon as it is known.

B. The Contractor shall take care and provide protection and barriers to prevent demolition debris from being tracked or otherwise impacting areas not within the immediate work area.

C. All metals salvaged from the site shall be placed in roll-off containers and recycled or disposed of by the Contractor at permitted facilities.

3.03 SALVAGE

A. Existing navigation buoys shall be retrieved and salvaged for delivery to Bonner County Road & Waterways Department.

3.04 SCHEDULE

A. The Contractor shall keep the Owner's Representative and Owner's Construction Manager aware of the timing and duration of the project activities. Any changes or delays from the information provided to the Owner's Representative and Owner's Construction Manager shall be communicated as soon as it is known.

3.05 TIMBER BREAKWATER

A. Contractor is responsible to familiarize themselves and comply with specific permit requirements and to implement BMPs as necessary to complete the works.

B. All existing timber piles located within the demolition areas indicated in the Contract Drawings shall be removed in accordance with the requirements herein.

C. Contractor shall either pull piles in their entirety or cut/break off piles 2-feet below adjacent existing grades.

D. Following pile removal, the Contractor shall backfill any holes or depressions with dredged sand to meet adjacent existing grades.

3.06 DISPOSAL

A. An upland disposal area for untreated and non-creosoted timber debris will be provided for use by the Contractor, see Appendix C – Temporary Construction Access Agreements, Staging & Placement Areas.

~~B. Treated Timber Materials: If encountered, treated timber should be handled and disposed of as follows:~~

~~1. Any materials containing substances classified as hazardous or potentially hazardous by regulating local, state or federal controlling agencies, shall upon their demolition or removal become the property of the Contractor. All such material, including those containing hazardous or potentially hazardous substances shall be removed and promptly disposed of in a legal manner, away from the site and on property not owned by the Owner.~~

~~2. All chemically treated or creosoted timber material including pile stubs and associated sediments shall be disposed of by the Contractor in a landfill which meets the liner and leachate standards required for disposal of these materials. The Contractor shall provide receipts from the disposal facility to the Owner's Representative and Owner's Construction Manager. In addition, the Contractor shall submit to the Owner's Representative and Owner's Construction Manager a written certification to confirm that all creosoted materials were disposed of at an authorized disposal site.~~

C. No material shall be disposed of within any adjoining waterbodies or waterways.

D. The Contractor shall deploy a debris boom around the active timber demolition work to capture wood debris and other materials released into lake waters as a result of demolition activities. All debris on the bed and accumulated in containment structures must be collected and disposed upland at an approved disposal site, in accordance with Paragraph A above.

E. Debris from demolition works and any floating debris removed from within debris booms shall be collected and properly disposed of at an upland facility.

F. Absorbent booms and other products used to contain oils shall be properly disposed of at an upland facility complying with federal and state regulations.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section covers the detailing, supply, fabrication, and installation of metal components including all miscellaneous metal fabrication and connection components required to complete the work as required by the plans and specifications. Components covered under this specification include:

1. Dayboard steel mounting fabrication
2. Dayboard hardware, including:
   a. Galvanized steel angle bracket support
   b. Bolts, nuts, and washers
   c. Dayboard backing
3. The work specified in this section is incidental work and the cost shall be included in other associated bid items in the contract.

B. Work Scope - Contractor

1. The Contractor is responsible for all miscellaneous metals work associated with the Navigation Aid installation work.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:

1. Section 01 40 00 – Quality Requirements
2. Section 31 10 00 – Navigation Aids

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. Latest editions apply.

American Welding Society (AWS)

D1.1 Structural Welding Code – Steel

American Society of Testing and Materials (ASTM)

A36 Structural Steel

A108 Steel Bar, Carbon and Alloy, Cold-Finished

A123 Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip

A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A307-90 Carbon Steel Externally Threaded Standard Fasteners

A325 Specification for Structural Bolts, Steel, Heat Treated

A563 Carbon and Alloy Steel Nuts

A780 Standard Practice for Repair of Damaged Hot-Dip Galvanized Coating

F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

F594 Standard Specification for Stainless Steel Nuts

1.04 GENERAL

A. Miscellaneous metals material specification requirements shall apply to all metal items unless otherwise identified or noted on the Contract Drawings.

1.05 QUALITY ASSURANCE

A. Fabricate and install structural steel in accordance with AISC Code of Standard Practice.

B. Fabricator Qualifications: The Contractor shall engage an experienced Fabricator who has completed metal fabrication work similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance. The Fabricator shall be and ICBO "Approved Fabricator" as defined in Section 1701.7 of the 1997 edition of the Uniform Building Code for an AISC Certified Fabricator.

C. Field Measurements: The Contractor is responsible for performing all necessary field measurements prior to ordering and fabrication of the miscellaneous metals.

D. Welding

1. Welding shall be done in accordance with AWS D1.1 and D1.2, including procedures for repair of defective welds.

2. All welds shall be visually inspected by a Contractor provided independent testing company.

E. Qualification of Welders and Welding Operators: Welders and welding operators shall be qualified for shop and field welding in accordance with AWS D1.1, Section 5, Parts C and D for steel welding.

F. Qualification of Fabricator: The steel fabricator shall have successful experience in similar installations, to Owner's Representative and Owner's Construction Manager's satisfaction, in the fabrication of structural steel.

1.06 MATERIAL TESTING

A. Miscellaneous metals and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical, and section property requirements prior to delivery to the site. Testing of miscellaneous metals for mechanical properties shall be performed after the completion of

all rolling and forming operations. Testing of miscellaneous metals shall meet the requirement of ASTM A6.

1.07 SUBMITTALS

A. The following items shall be submitted to the Owner's Representative for review and approval per technical specification Section 01 33 00 - Submittals:

1. Shop Drawings, including complete bills of material for metal fabrications, modified interlock details, attachments, and any other miscellaneous metal fabrications, including all fabricated assemblies.
2. Design drawings with supporting calculations, if requested, shall be developed for fabrication items designed by the fabricator or manufacturer, and such design documentation shall be submitted for review and approval by the Owner's Representative prior to fabrication.
3. Placement drawings, showing the location in the Project of all fabrications, cross-referenced to the shop drawings.
4. Work plan for fabrication and installation including proposed schedule and procedures shall be submitted to the Owner's Representative.
5. Manufacturer's literature and data for products used that demonstrates compliance with the applicable materials specifications.
6. Certificates: The Contractor is to provide a copy of the Materials Safety Data Sheets (MSDS) and Consumer Information Safety (CIS) sheets to the Owner's Representative.
7. Company Data: The Contractor shall submit the proposed metal fabricator and galvanizing sub-Contractors' name, address, contact name, phone number and company information, verifying that the company is in compliance with the specifications, to the Owner's Representative for review and approval.
8. Welder certificates: Provide for proposed welders showing that they have been qualified to AWS D1.1. Welding Procedures: Contractor to submit welding procedures for approval of Owner's Representative. Welding variables on submitted welding procedures shall conform to weld filler metal manufacturer's recommendations unless a procedure is qualified by testing, in which case procedure qualification records should be submitted with the corresponding procedure. Preheat and interpass temperature shall be in accordance with AWS D1.1 Annex I.
9. All independent inspection reports required in this Section.

PART 2 – PRODUCTS

2.01 METAL MATERIALS

A. The Contractor shall supply miscellaneous metal connectors, and other metal items required to fabricate the dayboard, and associated components. Miscellaneous structural steel materials shall be new, free from defects and imperfections, and shall unless otherwise indicated.

B. The Navigation Aid Dayboard shall conform to the following:

1. Bolts, Anchor Bolts, washers and Nuts (Aluminum Base Metal or Aluminum connecting to Steel): ASTM F594 and ASTM F593, Type 316 stainless steel.

2. Navigation Aid Dayboard: Marine Grade 5052 Aluminum.

C. The Navigation Aid Support Structure (Assembly, Support Base, mounting bracket) shall conform to the following:

1. Steel Shapes: ASTM A572 GR50.

2. Steel Plates: ASTM 572 GR50.

3. All carbon steel to be welded shall have a carbon equivalency (C.E.) less than 0.40 as calculated by the following equation, which is described in more detail in AWS D1.1 Annex I.

$$CE = C + (Mn + Si) / 6 + (Cr + Mo + V)/5 + (Ni + Cu) / 15$$

Where:
CE = Carbon Equivalency
C = Carbon
Mn = Magnesium
Si = Silicon
Cr = Chromium
Mo = Molybdenum
V = Vandium
Ni = Nickle
Cu = Copper

4. Bolts, Anchor Bolts, Washers and Nuts (Steel Base Metal): Regular hot-dip galvanized hexagon head type, ASTM A325. Hardened washers conforming to ASTM F436 shall be provided under all nuts and bolt heads. Nuts shall conform to ASTM A563 and shall be lubricated.

5. Threaded steel rod, couplers, washers, and nuts. Length dimensions of threaded steel rod shall be determined by the Contractor. Threaded steel rod and nuts conform to ASTM A722-07. Couplers shall conform

to ASTM A108. Nuts shall be tightened per manufacture recommendations. All of these items shall be galvanized in accordance with ASTM A153.

6. Qualification Proofs: Submit to Owner's Representative, Owner's Construction Manager and the Owner evidence satisfactory to these parties that the steel fabrication, erection, and welders are qualified for the work in accordance with requirements of this specification.

D. Welding materials shall conform to AWS D1.1 for steel.

E. Materials for proprietary system or contractor-supplied components shall meet manufacturer's recommendations/specifications, unless otherwise approved by the Owner's Representative.

F. Steel plate, bar and shapes shall be true to line and free from warp or twist. Steel with laminations discovered during welding or at any other time shall be rejected unless approval for repair is obtained from the Owner's Representative.

G. Substitution of the metal grades specified shall not be performed without written approval from the Owner's Representative.

2.02 REQUIREMENTS FOR FASTENERS, HARDWARE, AND WELDMENTS

A. Bolt, anchor bolt, washer, and nut requirements vary depending on the materials being fastened.

B. Steel to steel:

1. Standard Connection: Regular hot-dip galvanized hexagon head type bolts shall be used in accordance with ASTM A325, with threads excluded from the shear plane unless otherwise noted. Hardened washers conforming to ASTM F436 shall be used under all nuts and bolt heads unless otherwise noted. Nuts shall be heavy hex nuts conforming to ASTM A563 and shall be lubricated. Lock nuts conforming to ASTM A563 shall be used if shown on the Contract Drawings.

2. Slip Critical Connections: Regular hot-dip galvanized hexaon head type bolts shall be used in accordance with ASTM A325, with threads excluded from the shear plane unless otherwise noted. Hardened washers conforming to ASTM F436 shall be used under all nuts and bolt heads unless otherwise noted. Nuts shall be heavy hex nuts conforming to ASTM A563 and shall be lubricated. Standard direct tension indicating washers (DTIs) conforming to ASTM F959 shall be used in accordance with manufacturer's recommendations to facilitate proper bolt tensioning. Direct tension indicating washers shall be mechanically galvanized in accordance with ASTM B695.

C. Screws shall be type 316 stainless steel unless otherwise noted.

D. Nails shall be 3.5-inch 16d double hot-dip galvanized unless otherwise noted.

E. Beveled washer thickness is measured in the center of the washer.

F. Plate washers shall be ¼-inch-thick plate, with a diameter matching the equivalent malleable iron washer unless otherwise noted (such as neoprene plate washers for separation of dis-similar metals).

G. Epoxy anchoring: Epoxy anchoring shall be accomplished with HILTI Hit-RE 500-SD epoxy or approved equal, used in accordance with the manufacturer's recommendations.

H. Make exposed fastenings of compatible materials, generally matching in color and finish, to which fastenings are applied.

2.03 METALS FABRICATION

A. General

1. Steel: Fabrication of steel parts shall conform to the applicable provisions of the AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

2. Parts shall be match-marked to ensure accurate installation.

3. Items shall be shop fabricated to the extent practicable for transportation and handling. Splices shall be designed and detailed by the Contractor and submitted to the Owner's Representative for review and approval.

B. Tolerances. Items shall be fabricated to the tolerances indicated herein or on the Drawings, or if not specified, to accepted industry standards.

C. Work points on beams, braces, columns, gusset plates, etc. shall be concentric unless otherwise noted.

2.04 STEEL FABRICATION METAL GALVANIZING

A. All miscellaneous steel metal shall be galvanized and meet the requirements as defined herein, unless otherwise noted or specified in the drawings or related technical specifications. Galvanized steel fabrications shall be in accordance with requirements of Section 05 50 00 – Miscellaneous Metals.

B. Fabricated steel specified to be galvanized steel shall be galvanized in accordance with ASTM A123. Hot dip galvanization process shall be completed after fabrication.

C. Galvanizing for all steel bolts, washers, and nuts shall be performed in accordance with ASTM A385 and ASTM A153. Coating shall be a minimum of two ounces per square foot of surface.

D. Repair of Zinc-Coated Surfaces. Repair all galvanized surfaces removed or damaged during welding, or shipping in accordance with ASTM A780. Repair

material shall be a zinc-based alloy solder (zinc rod). Application shall be in accordance with ASTM A780 and rod manufacturer's recommendations. Minimum applied thickness shall be 12-mils.

2.05 FABRICATION MARKING

A. Marking the Weight. Mark the weight on sub-assemblies and individual members weighing over 200 pounds.

B. Marking Piece Marks and Directional Arrows. Mark piece marks and directional arrows on all members and sub-assemblies to be assembled at the job site. Use the piece marks assigned on the shop detail drawings or erection drawings.

C. Method of Marking. Make all markings plainly visible with waterproof paint after shop painting.

D. Marking Materials to be Galvanized. Stamp piece marks or match marks in material to be galvanized with metal dies so that the marks are clearly legible after galvanizing.

E. Fabrications. All fabrications shall be marked to correspond to the fabricators placing drawings.

F. Miscellaneous Metals. Miscellaneous metals required for the fabrication and installation of the marine structures shall conform to this section including plates, bolts, and welding.

PART 3 – EXECUTION

3.01 GENERAL METAL FABRICATION

A. Materials Delivery and Storage.

1. Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. The manufacturer’s logo and mill identification mark shall be provided on the sheet piling as required by the referenced specifications. Steel fabrications shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage. Storage of metal materials and/or fabrications should also facilitate required inspection activities.

B. Field Measurements. The Contractor shall obtain all field measurements required for proper and adequate fabrication and installation of the work. Exact field measurements are the Contractor’s responsibility.

C. Quality Assurance

1. Fabricate and install steel components in accordance with AISC guidelines. Fabrication is to occur in accordance with the fabricator’s quality program. Upon request, the fabricator may be asked to submit

this quality program to the Owner's Representative, Owner's Construction Manager, and the Owner for review and approval.

D. Fabrication

1. Metal Preparation: All structural steel and miscellaneous metal fabrications shall be fabricated in strict accordance with the approved shop drawings and the reference standards. Materials must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of ¾ inch unless otherwise approved. Edges and corners shall be chamfered to a ¾ inch radius. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.

2. Bolt holes shall be provided where required or specified and at the proper location or position. Holes in metals members shall be shop punched and reamed or drilled. Flame cutting or drilling of holes shall not be allowed. Unless otherwise indicated or specified, all bolt holes through metal members shall be standard size; 1/16 inch larger in diameter than the diameter of the fastener being installed. For steel assemblies to be galvanized after assembly, all holes shall be oversize; 1/8 inch larger in diameter than the diameter of the fastener being installed.

3. Metal Fabrication: Metal may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts that are to be exposed or visible shall be chipped, ground or machined to sound metal.

4. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Do not

weld, cut or abrade the surfaces of exterior components which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

5. Shop Assembly: Structural unit furnished shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Owner. Before disassembly for shipment each piece of a structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop coat of paint has been applied or as otherwise directed.

6. Metal fabrications shall be placed accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.

7. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

8. For assemblies to be galvanized after welding, the fabricator shall detail the assembly in accordance with ASTM A384 recommendations.

E. General Welding Requirements

1. Welding shall be done in accordance with AWS procedures, including procedures for repair of defective welds.

2. All welds shall be visually inspected by a Contractor provided independent testing company. The components shall be inspected as statically loaded, non-tubular and tubular connections in accordance with AWS requirements.

3. All welds and edges that may be encountered by the public after construction shall be ground to remove all burrs and weld splatter to the satisfaction of the Owner's Representative.

4. The Owner's Representative, at their discretion, may non-destructively test welds in accordance with AWS criteria. Acceptance criteria shall be for non-cyclic loading. Welds failing shall be repaired at the

Contractor's expense, which will also include all costs for retesting to achieve a passing inspection test.

F. Steel Welding

1. Qualifications. Steel welding shall be performed by welders certified as being qualified in accordance with AWS D1.1, Section 5, Parts C and D or WABO for steel welding. Welders shall be qualified to perform full penetration groove welding in all positions of the relevant type (plate, tube, etc.), using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.1. All welds shall be visually inspected by a Contractor provided independent testing company.

2. Weld filler metal. Weld filler metal shall meet Charpy requirements of 20 foot-pounds at -20 degrees Fahrenheit and shall have chemistry similar to the base metal. Filler metals shall only be used in welding positions recommended by the filler metal manufacturer, and any welds not conforming to manufacturer's recommendations shall be removed and replaced by the Contractor at the Contractor's expense. Welding consumables shall be stored in accordance with the manufacturer's recommendations and in accordance with AWS requirements and recommendations. Overmatching weld filler metals shall be avoided.

3. Preheat. Preheat shall be based on material grade and thickness in accordance with AWS requirements.

4. Inspection timeline. Prior to galvanizing, all required weld inspections and required repairs shall be performed.

5. Welding galvanized/metalized components. All welding shall be done prior to galvanizing if possible, unless otherwise required for field-assembly. Galvanizing/metalizing within one inch of the finished weld location shall be removed prior to welding.

6. Fillet weld soundness Test. Fillet weld procedures shall be qualified by a fillet soundness test in accordance with AWS requirements.

3.02 MISCELLANEOUS METALS INSTALLATION

A. General: All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Enclosed chambers or passages shall be examined to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and property lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be

used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. When a half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts, rods, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved anti-galling compound. Driving and drifting bolts or keys will not be permitted.

B. Alignment and Settings: Each structural unit shall be accurately aligned by the use of steel shims or other approved methods so that no binding in any moving parts of distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required.

C. All galvanized steel hardware surfaces to be in contact with new treated lumber shall be covered with a layer of dielectric grease prior to installation. The Contractor shall take all required measures to ensure that dielectric grease is applied in a careful manner, and excess grease removed prior to hardware installation. Any grease that has been inadvertently applied to other components shall be immediately removed.

3.03 ANCHORAGE, FASTENINGS, AND CONNECTIONS

A. Provide anchorage where necessary for fastening miscellaneous metal items securely in place. Include for anchorage not otherwise specified or indicated machine and carriage bolts for steel; through bolts, and screws for wood. Provide non-ferrous attachments for non-ferrous metal. Make exposed fastenings of compatible materials, generally matching in color and finish, to which fastenings are applied. Conceal fastenings where practicable.

B. All bolts shall be installed at the proper location and set straight and square with connecting members. Bolt installation shall conform to the requirements of AISC specification for structural joints using ASTM A325 Bolts for steel and A276 for stainless steel.

C. Bolts, nuts, and screws shall be tight in accordance with industry standards. Carbon steel bolts shall be tightened with the turn-of-the-nut method unless otherwise noted. Bolts, nuts, and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. Care shall be exercised when tightening bolts passing through tubular members so as not to distort the member.

D. When a lock nut is used for a metal-to-metal connection, the lock nut shall be installed first at approximately half-tightness, followed by the full nut installed to full tightness. The lock nut shall be held in place while the full nut is tightened.

E. Driving or drifting bolts will not be permitted

F. Boltholes shall be provided where required or specified and at the proper location or position. Holes in metals members shall be shop punched or drilled. Field cutting or drilling of holes shall not be allowed. Unless otherwise indicated or specified, all holes for items that are to be inserted through metal members shall be standard size and not more than 1/16 inch larger than the diameter of the item being installed.

3.04 HANDLING AND LIFTING

A. Means and methods are the full responsibility of the Contractor. Handling and lifting shall be done in a way so as to prevent damage. Care shall be taken to avoid damaging coatings during handling. The Contractor shall develop and use lifting and handling plans if required for safety reasons (such as overhead lifting), or to ensure that components of the work are protected from damage.

B. Care shall be exercised during handling operations so as to not damage the steel frame, any damage incurred due to Contractor mishandling or accident shall be repaired by the Contractor at no additional cost to the Owner, and any steel frame section damage deemed by the Owner's Representative as beyond repair shall be removed from the site and replaced by the Contractor at no additional cost to the Owner.

C. All lifting equipment shall comply with industry standards, and be appropriately labeled if required.

D. Contractor shall provide adequate equipment for proper rigging and lifting of the steel frame.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section includes specifications for excavation and fill work within the project site limits. It is assumed that land-based excavation will be performed as proposed by the Contractor.

B. The work described herein includes excavation, material handling, temporary stockpiling or staging, backfilling, compaction and finish grading activities as indicated on the Contract Drawings and Specifications.

C. The Contractor shall ensure that the beneficial reuse of excavated materials be the primary source of fill for the following work elements shown on the Contract Drawings and described within the Specifications herein:

1. Flow Diversion Systems, see Section 02 20 00 – Flow Diversion and herein;
2. Backfill of Structure Excavations (Zone 4);
3. Backfill with Excavated Material within Zones 1, 2 and 3.

D. Earthwork within the project site limits is subject to fluctuating water levels as well as erosion due to wind, current, and ice action that may hinder earthwork activities. It is the Contractor's responsibility to select appropriate means and methods to achieve the work shown on the Contract Drawings while avoiding sedimentation of the work areas and erosion of subgrade soils that would preclude this work.

E. Excavation and Backfill Work Stoppage. All work below the ordinary high water line shall be conducted within the timeframe allowed by the regulatory permit conditions and the substantial completion date designated within the Contract Documents.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:

1. Section 01 35 43 – Environmental Controls
2. Section 01 40 00 – Quality Requirements
3. Section 01 41 00 – Regulatory Requirements
4. Section 01 50 00 – Temporary Facilities and Controls
5. Section 01 57 13 – Temporary Erosion and Sediment Control
6. Section 01 71 23 – Construction Surveying
7. Section 02 20 00 – Flow Diversion
8. Section 02 41 00 – Demolition

9. Section 35 20 23 - Dredging
10. Section 35 31 23 – Breakwaters
11. Appendix A – Permit Documents
12. Appendix B – Geotechnical Reports
13. Appendix C – Temporary Construction Access Agreements, Staging, and Placement Areas
14. Appendix E – Water Level & Flow Data

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

Occupational Safety and Health Administration (OSHA)

29 CFR 1910	Occupational Safety and Health Regulations.
29 CFR 1926	Safety and Health Regulations for Construction.

1.04 DEFINITIONS

A. Beneficial Reuse: The reuse of excavated and/or dredged materials from within the project site limits by the Contractor as backfill for the various work elements shown on the Contract Drawings and as described within the Specifications.

B. Flow Diversions Systems: Temporary systems that may be required to facilitate the execution of various works within the project site limits. Flow diversion may include, but is not limited to, the temporary installation of products such as Super Sacks, Geobags, impervious liners, general fill, or other products installed for the purpose of redirecting Thorofare flow from active work areas below the OHW line. The design of Flow Diversion Systems is the responsibility of the Contractor.

C. Super Sacks or approved equivalent: A general purpose Polypropylene UV coated bag used for the temporary and/or permanent placement of sand or aggregate materials.

D. Breakwater Base Fill: Backfill and compaction of excavated materials within Zone 1 (Breakwater footprint), as shown on the Contract Drawings and described herein.

E. Remnant Channel Fill: Backfill and compaction of excavated materials within Zone 2, as shown on the Contract Drawings and described herein.

F. Beach Nourishment: Backfill of excavated materials within Zone 3, as shown on the Contract Drawings and described herein.

G. Structure Excavation and Fill: Excavation and backfill of materials within Zone 4, as shown on the Contract Drawings and described herein.

1.05 JOB CONDITIONS

A. Review of Site Conditions

1. It is the Contractor's responsibility to visit the site and perform any inspection and testing the Contractor deems appropriate, and to examine the Contract Drawings and Specifications to become familiar with the quantity and character of all materials to be excavated within the project site limits.

B. Character of Materials

1. The material to be excavated is characterized as fine to medium sand.

2. Characterization sampling results of the material to be excavated is provided within Appendix B – Geotechnical Reports.

3. Material Interpretation

a. Based upon grain size analysis from the geotechnical investigation and sediment sampling and testing analysis, the material to be excavated is predominantly fine to medium sand. The Contractor shall make their own determinations and conclusions regarding the nature of the materials which would be currently present within the excavation areas, and the methods and procedures to be utilized in performing the work (including separation of suitable and unsuitable materials) to meet the lines and grades at the time of measurement for payment. The Owner will not make extra payment, nor shall the Contractor make any claim for extra payment for subsurface conditions that may be, in the opinion of the Contractor, different from the conditions indicated by the Contract Drawings, Specifications, or referenced sediment characterization information.

b. Hard material in its natural state is not expected to be encountered under this contract. Hard material in its natural state is defined as material requiring blasting, and includes boulders, or fragments too large to be removed in one piece by excavation equipment. If hard material is encountered, the Owner shall be promptly notified and a determination made to its disposition. If removal of hard material is required by the Owner, an equitable adjustment in contract time and price shall be made in accordance with the General Conditions.

C. Debris

1. In addition to sediment, it is anticipated that debris may be encountered during excavation works. Debris could include but is not limited to anchors, chains, concrete, stones, garbage, large woody debris, ropes, cables, derelict piles and other articles. The debris shall become the property of the Contractor who shall dispose of it offsite at an approved location. Any large debris shall be immediately removed from the work area in order to minimize release of any adhering sediment. Debris shall not be rinsed or washed below the OHW line.

1.06 SUBMITTALS

A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:

1. Work Plan. Prepare and submit for Owner's Representative approval an Excavation and Backfill Plan as a component Work Plan described in Section 01 33 00 – Submittals that includes details of Contractor's methods and equipment to accomplish the work herein, including equipment to be used, description of excavation and fill construction sequencing method, description of proposed work area isolation method, flow diversion product information, proposed equipment to facilitate the filling of Super Sack products, Flow diversion systems and temporary access (Super Sacks, Geobags, temporary bridges, etc.), Remnant Channel fill and grading, backfill zone work sequencing, sequencing of excavation/backfill activities, and schedule.

2. The Contractor shall make its own interpretations, deductions, and conclusions as to the nature of the materials to be excavated, the difficulties of making and maintaining the required excavations, and the difficulties of doing any other work affected by environmental, geotechnical subsurface, and groundwater conditions and shall accept full responsibility therefore.

3. Daily Activities Report: The Contractor shall provide a daily record of construction activities and shall include the following:

   a. Report shall document the percent of project completion, limits of excavation and/fill, and adverse weather conditions or other problems that cause problems for each day there are onsite work activities. The report shall be submitted to the Owner's Representative and Owner's Construction Manager at the end of each week.

4. Progress Survey Data: In accordance with Section 01 71 23 – Construction Surveying.

PART 2 – PRODUCTS

2.01 BEACH NOURISHMENT

A. The Contractor shall beneficially reuse dredged materials removed from the Dredging Area (in excess of the 2,500 cubic yards designated for upland disposal) for the following work elements:

1. Beach Nourishment as fill within Zone 3, to be placed along the south side of the West End Stabilization and Stone Breakwater to the template shown on the Contract Drawings, see Section 35 20 23 – Dredging.

B. If approved by the Owner's Representative, the Contractor may elect to utilize dredged material for use in Super Sack fill. An equal quantity of excavated material would need to be placed as beach nourishment within Zone 3.

2.02 STRUCTURE EXCAVATION

A. Contractor shall utilize structure excavation as backfill for the following areas:

1. Backfill within Zone 4 fill areas, as indicated on the Contract Drawings and described herein. Backfilled materials shall be placed to pre-project and/or adjacent lakebed elevations;
2. Zone 2, remnant channel fill;
3. Filling Super Sacks.

B. Structure excavation used as backfill shall be free debris. Debris includes all such materials indicated within Paragraph 1.05(C)(1) herein.

2.03 SUPER SACKS

A. Physical Requirements:

1. Super Sacks shall be manufactured from 6 to 10 mil heavy duty woven polypropylene fabric. The Contractor may propose an alternative Super Sack fabric contingent upon Owner's Representative written approval as to its acceptability.
2. At the time of delivery to the project site, the Contractor shall confirm that the Super Sack products conform to the physical requirements listed below:
   a. Shall be rated for a load of at least 3,500 lbs.
   b. Shall contain a secure top so that should the bag lay on its side, no material should spill out.
   c. Shall include an impenetrable "waterside".

d. Shall each contain a minimum of 1 cubic yard of sand material excavated and/or dredged from within the project site limits.

e. Shall be U.V rated at a minimum of 2200 hours.

PART 3 – EXECUTION

3.01 CLEARING AND GRUBBING

A. Remove shrubs, and other vegetation to permit the installation of new construction within the areas indicated on the Contract Drawings and as specified herein.

1. The clearing limits shown on the Contract Drawings represent the maximum area that may be cleared and grubbed. Within the clearing limits, remove existing vegetation only where necessary to complete new construction. Preserve all other existing native vegetation.

B. Material generated from clearing and grubbing shall be disposed of by the Contractor at an approved offsite disposal location.

C. Contractor shall not burn material generated from clearing and grubbing activities.

3.02 STRUCTURE EXCAVATION AND GRADING

A. Structure excavation includes the work required to construct the Stone Breakwater and West End Stabilization as shown on the Contract Drawings.

B. Excavating and grading that is part of this Contract, shall be completed within the tolerances established or within reasonably close conformity within the alignment grade and cross sections indicated on the Contract Drawings or as established within these Specifications. Specific requirements for surveying are described in Section 01 71 23 – Construction Surveying.

C. All excavation activities shall be performed in areas isolated and protected from active river/Thorofare flows. Work shall be 'in the dry' to the extent practicable or at least during low flows, low groundwater flows and/or low water levels, to minimize the amount of water in excavations. This will require special installation methods including controlling water, and/or timing activities to coincide with low flow conditions. See Section 02 20 00 – Flow Diversion and Appendix E – Water Level & Flow Data.

D. Excavation shall only include what is needed to complete the work elements shown on the Contract Drawings and Specifications. Any excess excavation not needed to construct the slopes shall be disposed of at a Contractor provided facility that meets the local, state and federal requirements. No payment will be made for excessive excavation.

E. Excavation material shall be moved with the use of mechanical equipment, such as shovels, loaders, bulldozers, hydraulic excavators, graders, rippers, etc., but shall not require drilling and blasting or drilling and line

breaking. Excavation by sluicing methods will not be permitted unless specifically approved by the Owner's representative. In general excavation shall be removed in horizontal layers.

F. Conduct all required activities associated with excavation, stockpiling, and disposal of sediment in accordance with the requirements of the Contract Documents, regulatory permits, and as directed by the Owner or Owner's Representative to complete the work under this Contract. Coordinate the work with the Owner or Owner's Representative to limit adverse effects of the work on the activities of other adjacent public and privately-owned areas and/or the public.

G. Implement environmental protection measures, temporary erosion and sediment control, BMPs, site access and traffic control, utility protection, spill prevention and pollution control, noise control, and all other controls needed to protect environmental quality during the work. Refer to Specification Section 01 57 13 – Temporary Erosion and Sediment Control.

H. The Contractor may construct temporary stockpile areas located within the project site limits, unless alternative locations are pre-approved by the Owner or Owner's Representative. The Contractor shall not stockpile any material in areas subject to flowing water. Stockpiling of excavated materials within standing water shall be minimized. Sediment placed in stockpiles shall be protected from the erosion induced by weather and environmental conditions (water level variation, waves, and currents). Contractor shall be responsible for proper handing and discharge of water collected within the stockpile areas as defined in Section 01 57 13 – Temporary Erosion and Sediment Control.

3.03 TEMPORARY SHORING FOR EXCAVATION AT WEST END STABLIZATION

A. The Contractor may elect to install temporary shoring system for shoring excavation sides within the project site limits, specifically within the West End Stabilization work area shown on the Contract Drawings and Specifications herein.

B. The Contractor shall secure the services of a professional engineer licensed to practice in the State of Idaho to design and stamp calculations for the shoring system if used. The shoring system shall be designed to allow a maximum excavation of 6 feet below existing ground surface.

1. The stamped shoring system design and calculation shall be submitted to the Owner or Owner's Representative as described in Paragraph 1.06 of these Specifications.

2. The Contractor and Contractor's shoring system design engineer shall determine the design differential water levels across the shoring system based on available water level information and anticipated excavation means and methods, providing water level limits as part of the design calculation submittal.

C. Shoring may be reused as excavation progresses along the West End Stabilization work area. Contractor is encouraged to phase excavation in such a manner as to re-use shoring to the extent practical along the length of the West End Stabilization.

D. Contractor shall anticipate debris when installing shoring, if used, along the West End Stabilization that may require pre-excavation to install geotextile, Super Sacks, and stone to the required elevation shown on the Contract Drawings.

E. The Contractor shall not disturb the existing timber pile breakwater located along the length of the West End Stabilization work area during excavation, installation of temporary shoring, and/or during placement of the materials as indicated on the Contract Drawings and the Specifications herein.

3.04 SURVEYING

A. The Contractor shall provide for all survey needs on this project as identified in these Specifications or as required to complete the work. See Section 01 71 23 – Construction Surveying for required control and as-built documentation.

3.05 STOCKPILING

A. The Contractor may elect to temporarily stockpile excavated material for dewatering/decant and/or temporary storage within the project site limits.

B. The Contractor shall not temporarily stockpile materials in areas subject to standing water, flowing water/currents, waves, or fluctuating water levels.

C. The Contractor shall locate stockpiles as necessary within the project site limits to compete the work. No stockpiles may be located in such a manner as to impair access to adjacent sites or facilities or be detrimental to work progress or the completed work in any way. Stockpile locations and configurations must be approved by the Owner's Representative or Owner's Construction Manager.

D. All stockpile areas shall be sized to accommodate anticipated volumes and rates of excavation and import.

E. The Contractor shall maintain a written log of stockpiles containing excavated materials from on-site.

F. The Contractor shall inspect all stockpile areas daily and after rain or high flow events and shall maintain a written inspection log. The inspection log shall be available at the request of the Owner's Representative or Owner's Construction Manager and also submitted with the Contractor's Weekly Report. Inspection logs shall contain date and time of inspection, name of individual conducting the inspection, observations, problems noted, and corrective actions taken. For each stockpile, the log shall note the material present; dates that the stockpile was established or modified; and daily

volumes based on visual or other estimates. The log shall establish a sequential number system of each stockpile.

3.06 BACKFILLING

A. No backfilling of new structures shall occur until finished structure lines, grades, and elevations have been confirmed, based on Contractor provided intermediate/progress survey(s), by the Owner's Representative. See Section 01 71 23 – Construction Surveying.

B. Contractor shall backfill excavations back to existing grade unless noted otherwise on the Contract Drawings or Specifications herein.

C. Contractor shall be responsible to maintain excavation subgrades to excavated elevations and lateral extent during backfilling operations. The Contractor shall be responsible to remove displaced soil (loose fill) greater than 1 foot above base of excavation or subgrade that occurs during backfilling.

D. Backfill work shall not occur within areas subject to active river flow conditions.

E. Backfill and grade areas with excavated materials following timber breakwater demolition to provide a uniform surface with no depressions. See Section 02 41 00 – Demolition for additional requirements.

3.07 GENERAL COMPACTION REQUIREMENTS

A. Compaction shall be performed for backfill of excavated materials placed more than 2 feet above water at the time of placement. Compaction equipment suitable for the soil and the area being compacted shall be used. Each lift of material placed shall be uniformly compacted as indicated for the specific materials identified within the subsequent sections herein. The compaction equipment may be of any type, provided it can compact each lift of the material as specified. The Owner or Owner's Representative may require that the use of particular compaction equipment be discontinued if it is not capable of compacting the material as indicated within a reasonable time, or if the equipment may damage underlying or adjacent soils and/or structures.

B. Contractor shall place fill in 1 to 2-foot maximum loose lift thickness, unless specified otherwise herein.

C. Adjustments to achieve compaction shall be at no additional cost to the Owner.

D. Lifts shall be uniform thickness, sloped to drain, and even across the entire width of the fill surface. Shape the surfaces to uniform cross sections and eliminate ruts and holes.

E. Specific compaction requirements for general fill material are described in the following Paragraphs herein.

3.08 WEST END STABILIZATION EXCAVATION, FILL, PLACEMENT AND COMPACTION

A. The Contractor shall clear and grub the West End Stabilization work area within the clearing limits shown on the Contract Drawings prior to conducting excavation activities, see Paragraph 3.01 – Clearing and Grubbing.

B. Structure excavation of the West End Stabilization work area shall be conducted as shown in the Contract Drawings and as described within the Specifications herein.

C. Placement of geotextile fabric, in accordance with the product and execution requirements for geotextile in Section 35 31 23 – Breakwaters, shall be completed prior to backfill of any fill materials and/or Super Sacks.

D. The Contractor may beneficially reuse excavated materials as fill for the Super Sacks shown on the Contract Drawings. Super Sacks shall be filled in accordance with the manufacture's recommendations. Filled Super Sacks shall be used within the West End Stabilization and placed in the configuration, limits, and to the elevations shown on the Contract Drawings.

E. Super Sacks shall be placed such that the impenetrable side is oriented approximately perpendicular to the Thorofare flow (facing North) and/or toward Priest Lake (facing South) as indicated on the Contract Drawings.

F. Stone placed on the north side of the West End Stabilization shall be of type Armor Stone Type I as shown in the Contract Drawings. See Section 35 31 23 – Breakwaters for product requirements for Armor Stone Type I.

G. Following structure excavation and placement of geotextile, Super Sacks, and Armor Stone Type I within the footprint of the West End Stabilization work area, the Contractor shall backfill materials following construction to preconstruction survey grades within Zone 4 as indicated on the Contract Drawings and as described within the Specifications. Intermediate/progress surveys shall be conducted to ensure that pre-construction grades are achieved.

H. Throughout the duration of West End Stabilization excavation, material placement, and backfill the Contractor shall ensure that the existing timber breakwater remain intact and undamaged. Excavation, material placement, and backfill works shall be conducted in a manner that precludes damage to the existing breakwater in this area of the project site.

I. Compaction of backfilled materials (Zone 4) shall be in accordance with Paragraph 3.07.

3.09 STONE BREAKWATER EXCAVATION, FILL (ZONE 1 AND 4), AND COMPACTION

A. Excavation within the footprint of the Stone Breakwater work area shall be conducted to the lines and grades shown on the Contract Drawings and as described within the Specifications.

B. The Contractor shall beneficially reuse excavated materials as backfill (Zone 1) within the footprint of the Stone Breakwater prior to placement of geotextile and aggregate materials as shown within the Contract Drawings and within Section 35 31 23 - Breakwaters.

C. Following structure excavation, the Contractor shall backfill excavated materials to preconstruction grades and/or adjacent grades within Zone 4 as shown on the Contract Drawings.

D. Excavated materials placed as backfill within the Zone 1 and/or Zone 4 located more than 2 feet (in elevation) above the water line at the time of placement shall be placed in loose lift thicknesses less than 2 feet and compacted by tamping/compressing with a track-hoe bucket and track walking with tracked equipment for up to 4 passes to achieve the lines and grades shown in the Contract Drawings.

3.10 REMNANT CHANNEL (ZONE 2) FILL AND COMPACTION

A. Prior to initiating any fill works within the remnant channels, the Contractor shall confirm with the Owner's Representative the locations and extents of the remnant channels to be filled with excavated material following completion of the pre-construction survey works, see Section 01 71 23 – Construction Surveying.

B. Beneficial reuse of excavated material as fill within the remnant channels (Zone 2) as shown on the Contract Drawings shall be placed prior to Stone Breakwater construction to provide a level, compacted base to the lines and grades shown for Stone Breakwater material placement including, but not limited to, geotextile fabric, bedding stone, and armor stone. See Section 35 31 23 – Breakwaters.

C. Excavated materials placed as backfill within the remnant channels (Zone 2) located more than 2 feet (in elevation) above the water line at the time of placement shall be placed in loose lift thicknesses less than 2 feet and compacted by tamping/compressing with a track-hoe bucket and track walking with tracked equipment for up to 4 passes to achieve the lines and grades shown in the Contract Drawings.

3.11 BEACH NOURISHMENT (ZONE 3) FILL

A. The beneficial reuse of dredged material as fill for beach nourishment (Zone 3) shall be placed following and/or in coordination with the West End Stabilization and Stone Breakwater construction to the lines and grades

shown for beach nourishment as shown on the Contract Drawings. See Section 35 20 23 – Dredging and the Contract Drawings.

B. The Stone Breakwater shall be completed and accepted by the Owner's Representative prior to backfilling beach nourishment fill against the breakwater slopes.

C. Compaction of beach nourishment fill is not required.

D. Stockpiling materials for beach nourishment offshore of the Stone Breakwater within the project site limits may be approved by the Owner's Representative so long as the stockpiled materials are not subject to wave action.

3.12 TOLERANCES

A. Vertical: Finished elevations shall be graded within a vertical tolerance of +/-0.25 feet relative to the pre-construction survey and/or lines and grades shown on the Contract Drawings and maintain positive site drainage unless noted otherwise.

3.13 SITE CLEANUP

A. Contractor shall return stockpile areas to original conditions on completion of use. Original conditions will be determined based upon review of the pre-construction survey data by the Owner's Representative.

B. Contractor shall clean up soil tracked from the site onto roadways on a daily basis or more frequently, as directed by the Owner's Construction Manager or Owner's Representative.

C. Periodically clean up wastes, debris, and leftover materials resulting from the earthwork activities. Clear the work areas of all debris and waste materials that may have accumulated during execution of the work, and dispose of such materials in accordance with all applicable regulations.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Navigation aid work described in this Technical Specification includes the furnishing and construction of navigation channel markers. Components included in this Technical Specification include, but are not limited to:

1. Navigation aid steel mounting fabrication
2. Navigation aid dayboards, warning signs
3. Lanterns
4. Temporary Navigation Aids

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittals

B. Section 01 40 00 – Quality Requirements

C. Section 01 71 23.16 – Construction Surveying

D. Section 05 50 00 – Miscellaneous Metals

1.03 COMPONENT COMPATABILITY

A. The Contractor is solely responsible for component compatibility and shall ensure that components for the Work are compatible prior to mobilization. Recommended manufacturers are intended for reference only to convey the design intent of the various components and is in no way intended to guarantee of compatibility.

1.04 SUBMITTALS

A. The following items shall be submitted for approval in accordance with Technical Specification Section 01 33 00 – Submittals:

1. Submit manufacturer's certificates of compliance for specified dayboards. Submit shop drawings for all fabricated items.

   a. For steel mounting fabrication.

2. Shop drawings for each completed system (dayboards, lanterns, solar panels, misc. fabricated items and hardware, etc.) shall be submitted by the Contractor as a complete set to the Owner's Representative for approval.

3. Shop drawings for all navigation aid components shall be submitted to Owner's Representative for review and approval.

4. Project Record Drawings. The Contractor shall submit Project Record Drawings showing the location and elevation of all navigation aid structures to the Owner's Representative. Any deviations from the Contract Drawings shall be clearly noted.

5. Manufacturer product specification sheets for Lanterns and Solar Panels.

PART 2 – PRODUCTS

2.01 DAYBOARD

A. Complete navigation aid assembly consisting of dayboard plate, reflector, paint, galvanized steel angle bracket support with U-bolts, bolts, nuts, dissimilar material isolation washers, washers.

B. Dayboard hardware shall be supplied in accordance with Section 05 50 00 – Miscellaneous Metals

C. The dayboard shall be supplied and fabricated in accordance with the standard U.S. Coast Guard marking system for navigation channels. Dayboard shall be in accordance with U.S. Coast Guard requirements for no lateral significance warning marks and as shown on the Contract Drawings.

D. Dayboard backing shall be constructed of commercial grade (5052), 3/16-inch-thick, aluminum sheeting. See Specification Section 05 50 00 – Miscellaneous Metals.

E. The surface of the dayboard shall be covered with a colored vinyl film and retro-reflective tape, and contain the letters shown on the Contract Drawings.

2.02 MISCELLANEOUS METALS

A. Miscellaneous metals required for the navigation aid structures shall be supplied as specified in Section 05 50 00 – Miscellaneous Metals.

2.03 PRODUCT CONTINGENCY

A. The Contractor is responsible to have enough contingency product on-hand prior to mobilization to complete the work as shown in the Contract Drawings. Contingency shall be allocated both for manufacturing defects and the potential for damage or loss to occur prior to completion of the work.

PART 3 – EXECUTION

3.01 NAVIGATION AIDS

A. GENERAL

1. Navigation aid structures shall be installed at the locations shown on the Contract Drawings.

2. The Contractor shall coordinate installation of navigation aids with the Owner's Representative and Bonner County Roads & Waterways Director prior to fabrication and installation.

B. DAYBOARDS

1. Dayboards shall be installed on all navigation aid steel pipe pile using prefabricated metal components (brackets and u-bolts) and fastening systems shown on the Contract Drawings.

2. Each dayboard shall be handled with care to prevent damage to specially coated surfaces. Fiber slings (rope or webbing) shall be used in lifting the dayboards, and care must be taken to prevent gouging or abrading the surface. Any damage caused by the Contractor shall be repaired at the Contractor's expense.

3. Bolt holes through dayboards shall be drilled in the nominal size of the bolt used. A snug fit is required oversize bolt holes are not permitted.

4. Isolator of either high density polyethylene (HDPE), ultra-high molecular weight polyethylene (UHMW PE), or other durable, UV resistant plastic material) shall be provided at all locations where dissimilar metals will or might come into contact including at connection between dayboard and support frame. Isolators shall be of sufficient strength to keep metals separated after tightening of bolts and shall meet the minimum thickness requirements provided in the Contract Drawings.

5. In assembling and mounting of dayboards, no holes shall be made in retro-reflective borders or numerals. Furnish all bolts, straps and other fastenings required to mount the dayboards.

6. Odd numbers shall be used to identify solid colored green markers; Even numbers shall be used to identify solid colored red markers.

7. All numbers shall be as shown in the Contract Drawings. All navigation aids shall have channel markers (2 per pile), and in addition, if indicated in the Contract Drawings, warning signs installed below the channel marker dayboards as detailed in the Contract Drawings.

8. Channel marker dayboards and warning signs shall be provided in pairs, as shown on the Contract Drawings. Signs and boards will be oriented as shown in the Contract Drawings.

C. THREADED COMPONENT INSTALLATION

1. Threaded hardware installed shall be installed using Loctite® Threadlocker 243 (hand tool removable) in accordance with the manufacturer's recommendations unless otherwise noted. Surfaces shall be clean and dry prior to the application of Loctite® products.

D. MISCELLANEOUS METALS

1. Miscellaneous metals required for the Navigation Aid Structure shall be installed as specified in Section 05 50 00 – Miscellaneous Metals.

E. DAYBOARD HARDWARE

1. The Contractor shall furnish all fasteners required to mount the dayboards in accordance with the Contract Drawings.

3.02 NAVIGATION AID INSTALLATION

A. STEEL FABRICATION

1. Install steel fabrication onto prepared uniform base of first layer of Armor Stone Type II prior to placement of final top layer armor stone. Ensure base plate is level, well supported on all sides with stone fitted around extension pipe. Rotate to provide direction as shown on the Drawings.

2. Dayboard Brackets

a. Brackets are to be oriented prior to final bolt tightening.

3. Dayboards

a. Contractor shall field verify that the dayboards are adequately oriented and that the correct dayboard color and number is matched at the proper pile location prior to final installation.

4. Warning Signs

a. Contractor shall field verify that the warning signs are adequately oriented and that the correct sign is matched at the proper pile location prior to final installation.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section outlines Dredging and dredged material disposal and reuse work to improve the Navigation Channel at the Thorofare. The dredging work specified herein is for the purposes of facilitating flow and improving vessel navigation through the Thorofare into Priest Lake.

B. The Work covered by this Section consists of furnishing all transportation, labor, materials, tools, equipment, supervision, and other incidentals necessary to dredge within the Thorofare channel Dredging Area limits as indicated on the Contract Drawings, specified herein, and in strict compliance with the permits. The Contractor shall be responsible for all dredging and excavation, handling, temporary stockpiling, loading, environmental protection, surveying, and quality control.

C. Dredged material removed from the Dredging Area shown on the Drawings shall be used as beneficial reuse in accordance with the requirements specified herein and/or as fill in accordance with Section 31 00 00 – Excavation and Fill. 2,500 cubic yards of dredged material is required to be disposed of upland. The remaining material will be beneficially reused on the project site as beach nourishment.

D. Dredging work shall be conducted using mechanical dredging methods by floating and/or land-based equipment. Water quality, temporary erosion control, and best management practices will be required throughout the duration of the dredging work. Construction surveying will also be conducted throughout the duration of the work in accordance with the requirements

E. Dredging work occurs in an area with varying water depths from 0’ (dry condition) to up to 5’ (submerged, shallow water condition). Water levels conditions will vary depending on Thorofare discharge related to precipitation and hydrology upstream of the Thorofare channel. Contractor shall carefully monitor water levels throughout construction. Refer to Appendix E – Water Level & Flow Data for additional information.

F. Drawing indications of existing conditions are for reference only and represent the condition at the time of the survey. The site is subject to dynamic conditions resulting in changes in hydrographic and topographic conditions on a seasonal basis. Contractor shall carefully examine existing conditions and accept existing construction and site improvements on an "as is" basis. A pre-dredge survey will be conducted prior to the start of on-site construction to document the pre-construction conditions.

G. Dredging work is defined as removal of soil and sediment to the lines and grades shown on the Contract Drawings.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Special Conditions and General Requirements, and other Division I Specifications apply to this work as if specified in this section. Work related to this section is described in:

1. Section 01 33 00 – Submittals
2. Section 01 40 00 – Quality Requirements
3. Section 01 35 43 – Environmental Controls
4. Section 01 57 13 – Temporary Erosion and Sediment Control
5. Section 01 71 23 – Construction Surveying
6. Section 31 00 00 – Excavation and Fill
7. Section 35 31 24 - Breakwaters
8. Appendix A – Permit Documents
9. Appendix B – Geotechnical Reports
10. Appendix E – Water Level & Flow Data

1.03 DEFINITIONS

A. The following definitions apply to the dredging work specified herein and as shown on the Contract Drawings.

1. Beneficial Reuse: Beneficial Reuse includes transporting dredged material onsite for use as beach nourishment fill (Zone 3).
2. Debris: Debris is defined as any solid waste materials other than sediment excavated as part of the dredging operations, such as logs, wire, cable, steel bands, anchors, lumber, trash, concrete, riprap, etc. Any dredged materials larger than 2 feet square are considered debris.
3. Dredging: Dredging includes the mechanical excavation of in-situ sediment as specified herein and to the lines, grades, and elevations shown on the Contract Drawings.
4. Dredge Cut Elevation/Bottom of Dredged Channel: The minimum or bottom of dredge cut elevation that the Contractor is required to remove all material above is as shown on the Contract Drawings. The Contractor is responsible for achieving the required dredge elevations at completion of the project. Progress construction surveying shall be conducted by the Contractor in order to ensure the required elevations are achieved prior to final completion.

Compliance with required dredge elevation will be verified by the Contractor provided final intermediate/progress surveying.

5. Overdredging Allowance: The project permits allow an additional increment of 0.5 foot below the required bottom of dredge cut elevation (overdredging allowance) to account for equipment tolerance. Dredging beyond the allowable overdredging allowance is called excessive dredging. Excessive dredging is in violation of the project permits and will not be paid for.

6. Excessive Dredging: Dredging of material below the dredging tolerance limit, as shown on the Contract Drawings, is excessive dredging and a violation of the project permits. The Contractor shall be responsible for any fees and fines and other expenses incurred as a result of excessive dredging.

7. Side Slope Dredging: Side slope is the slope line between the dredge prism (toe of cut) and the intersection with original bottom. The side slope is the anticipated angle of repose resulting from the vertical cutting at the dredge area edge (toe) and subsequent dredging of the sloughed material.

8. Shoal Material: Sediment that migrates into the dredge area limits or channel during construction. The Contractor shall employ construction methodologies that limit the amount of Shoal Material entering the Dredging Area throughout the duration of construction. Payment for removal of shoaling material will not be paid.

9. Pay Volume: Pay volume is the quantity of dredged material calculated on an in-situ basis for cubic yards removed within the dredge area above the specified side slopes and bottom of dredge cut elevation presented on the Contract Drawings using pre- and post-construction (dredge) surveys.

10. Upland Disposal Site: The disposal site is defined as the contractor provided and approved upland site that is used to dispose of 2,500 cubic yards of material removed from the Dredging Area.

11. Re-handling area: Any re-handling areas shall be located offsite at a Contractor selected location.

B. The Contractor shall be responsible to adhere and conform to all applicable provisions, conditions, and requirements of the permits listed herein. The Contractor is responsible for notifying various regulatory agencies prior to commencing dredging, as required by the project permits. Any conflicts between these contract specifications and issued permits will be brought to the attention of the Owner's Representative and Owner's Construction Manager. Nothing whatsoever shall be deemed just cause to authorize violation of these permits. The Contractor's Work Plan submission and attendance at the pre-dredge

conference does not relieve them from responsibility of adhering to the permit requirements.

C. The Contractor shall perform the following in accordance with the Owner provided permits:

1. Notify regulatory agencies of notice of intent to dredge at least 30 days prior to the start of dredging work.
2. Attendance at a pre-dredge conference meeting with the Owner, Owner's Representative, Owner's Construction Manager and regulatory agencies to review the Contractor's Work Plan.

1.04 JOB CONDITIONS

A. Review of Site Conditions

1. It is the Contractor's responsibility to visit the site and perform any inspection and testing the Contractor deems appropriate, and to examine the Contract Drawings and Specifications to become familiar with the quantity and character of all materials to be dredged regardless of dredging method.

B. Character of Materials

1. The dredged material is characterized as fine to medium sand.
2. Characterization sampling results of the material to be dredged are presented in several reports as follows:
   a. Appendix B - Geotechnical Reports.
3. Material Interpretation
   a. Based upon grain size analysis from the geotechnical investigation and sediment sampling and testing analysis, the material to be dredged is predominantly fine to medium sand. The Contractor shall make their own determinations and conclusions regarding the nature of the materials which would be currently present within the dredging area, and the methods and procedures to be utilized in performing the work (including separation of suitable and unsuitable materials) to meet the lines and grades at the time of measurement for payment. The Owner will not make extra payment, nor shall the Contractor make any claim for extra payment for subsurface conditions that may be, in the opinion of the Contractor, different from the conditions indicated by the Contract Drawings, Specifications, or referenced sediment characterization information.
   b. Hard material in its natural state is not expected to be encountered under this contract. Hard material in its natural state is defined as material requiring blasting, and includes

boulders, or fragments too large to be removed in one piece by dredging equipment. If hard material is encountered, the Owner's Representative shall be promptly notified and a determination made to its disposition. If removal of hard material is required by the Owner, an equitable adjustment in contract time and price shall be made in accordance with the General Conditions.

C. Debris

1. In addition to sediment, it is anticipated that debris may be encountered during dredging. Debris could include but is not limited to anchors, chains, concrete, stones, garbage, large woody debris, ropes, cables, derelict piles and other articles. The debris shall become the property of the Contractor who shall dispose of it offsite at an approved location. Any large debris shall be immediately removed from the dredging area in order to minimize release of any adhering sediment. Debris shall not be rinsed or washed in or above the aquatic area in any way.

1.05 WATER LEVELS

A. Water levels within the project area limits vary based on the discharge in the Thorofare and water levels in the lake. Water levels can be highly variable during time periods of higher Thorofare discharge. Thorofare discharge varies depending on the Upper Priest Lake watershed hydrology and is subject to constant change based on precipitation and temperature. See Appendix E – Water Level & Flow Data for additional information.

1.06 MATERIAL QUANTITIES

A. Approximately 12,500 cubic yards of material shall be excavated and/or dredged from the Dredging Area to the lines and grades shown on the Contract Drawings.

B. The permits stipulate that 2,500 cubic yards of material removed from the Dredging Area shall be disposed of by the Contractor at an at an approved upland site located outside of the project site limits. The remaining dredge volume shall be reused within the project site limits as beach nourishment within the work areas shown on the Contract Drawings (Zone 3) and described within the Specifications. Refer to Section 31 00 00 – Excavation and Fill.

1.07 MISPLACED MATERIAL

A. <u>On Land:</u> Should the Contractor, during the progress of the work misplace any dredge material, plant, equipment, or other materials outside of what is authorized within the Project Site Limits without the approval of the Owner, Owner's Construction Manager or Owner's

Representative, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such misplaced materials to the Owner, Owner's Construction Manager or Owner's Representative . Misplaced Materials shall be removed at the Contractor's expense. This may require redeposit of misplaced dredge Materials as directed by the Owner, Owner's Construction Manager or Owner's Representative. Additionally, the Contractor will be responsible for restoring unauthorized disposal areas to pre-construction conditions at the Contractor's own expense.

B. In Water: The Contractor shall immediately recover and remove any material, dredge, machinery, or appliance, that the Contractor loses, dumps, throws overboard, sinks or misplaces during the execution of the work. The Contractor shall give immediate verbal notice, followed by written confirmation, of the description and location of such obstructions to the Owner, Owner's Construction Manager, or Owner's Representative. The Contractor shall mark and buoy such obstructions until they are removed. Should the Contractor refuse, neglect, or delay compliance with this requirement, costs for recovery and removal operations may be deducted from any money due to the Contractor, or may be recovered from the Contractor's bond. The liability of the Contractor for the removal of a vessel wrecked or sunk, without the Contractor's fault or negligence shall be limited to that provided in Section 15, 19, and 20 of the River and Harbor Act of 3 March 1899 (33 U.S.C. 410 et seq.).

1.08 COORDINATION

A. The Contractor shall fully coordinate ALL dredging work with the Owner, Owner's Construction Manager, and Owner's Representative and all applicable regulatory agencies.

B. All dredging work shall proceed in an orderly and careful manner with due consideration for any existing structures and private properties.

1.09 PROTECTION

A. Protection of Existing Property

1. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner; any damaged items shall be repaired or replaced to the satisfaction of the Owner's Representative and Owner's Construction Manager.

2. Avoid any encroachment on adjacent properties unless prior written permission is obtained from Property Owners. Repair and make good any damage to adjoining properties or improvements caused by operations under this Contract.

1.10 SUBMITTALS

A. The items in this section shall be submitted for approval in accordance with Technical Specification Section 01 33 00 – Submittals.

B. Work Plan: The Contractor shall prepare and submit a Work Plan to the Owner's Representative for review and approval at least 30 days prior to the start of on-site dredging work The development, timing, and submission of the Work Plan shall allow for review and approval by the Owner, Owner's Construction Manager and Owner's Representative. The Contractor shall develop and organize the Work Plan contents into sections, chapters, etc. and as necessary to adhere to submittal and timing requirements specified in the Contract specifications and conditions of the permits. The Work Plan shall include information regarding but not limited to the following:

1. Work Sequence: Order in which the work is to be performed indicating the work sequence, number, types and capacity of equipment to be used; hours of operation; methods of operation and the time required to complete each activity. See dredging sequencing requirements in these specifications and include in the plan. A list of key personnel and supervisory chain of command shall also be included.

2. Work Schedule: The Contractor shall prepare and submit a construction schedule to the Owner's Representative prior to or at the pre-construction meeting and submit a weekly updated schedule of dredging and disposal activities throughout the duration of the contract. The purpose of the weekly schedule is for updating the Owner, Owner's Representative, and Owner's Construction Manager to provide the location of work activities, temporary closures and vessel relocation requirements. The Work Schedule and Work Plan must take into account anticipated inherent slower dredging operations for impacted sediment areas, and communication requirements for coordinating with the Owner's Representative, Owner's Construction Manager and the Owner. The Work Schedule shall show sequentially the stages of the work and the planned schedule of dates and timelines for the major elements of work, including but not limited to the anticipated dates of the following:

   a. The anticipated Notice to Proceed, mobilization, and initiation of delivery of materials and equipment.

   b. The anticipated date(s) for site layout and surveying.

3. Method of Dredging Plan: Description of method of conducting dredging and disposal operations including type and size of equipment to be used, locations of equipment and storage area(s),

order of work/sequencing, hours and days of operation, communications with the Owner, Owner's Construction Manager, and Owner's Representative during construction, locations of re-handling areas and other use areas outside of dredging limits, and plans for re-handling materials, personnel, etc.

4. Methods, Procedures and Equipment for Dredging and Re-handling: Methods, procedures and equipment to be used for dredging and transport to the re-handling areas; equipment type and size; methods to minimize turbidity and accidental discharge: procedure to ensure that all suitable sediment is processed if reused on the project construction and that all debris is removed from material delivered to the disposal site. This plan will also include proposed Contractor dredged/excavated material dewatering methods, if applicable, and use of stockpiles and BMPs in order to comply with contract permits.

5. Contract Drawings: Contract Drawings will reference the Contract Plans and Work Schedule, and include enough documentation to explain the Contractor's proposed method for prosecution of the Work

6. Surveying Plan: Construction Survey Plan shall be submitted in accordance with Specification Section 01 71 23 – Construction Surveying.

7. Electronic Positioning Systems: In accordance with Section 01 71 23 – Construction Surveying, dredging equipment shall be equipped with onboard electronic DGPS/RTK-GPS survey equipment to monitor the position and elevation of the dredging works in accordance with the Contract Drawings. The Contractor shall provide electronic dredging templates to the Owner's Representative for review and approval prior to initiating dredging works.

8. Access & Use of Site Plan: No areas above Ordinary High Water (OHW) will be provided for re-handling or storage of dredge material. All re-handling and storage shall be done at Contractor selected facility and includes compliance with permits.

9. Water Quality Monitoring Plan: Water Quality Monitoring Plan shall be submitted in accordance with Specification Section 01 35 43 – Environmental Controls.

10. Miscellaneous Applicable Information: Other information as required by regulatory agencies for dredging and disposal operations.

11. Final Work Plan: Final Work Plan document shall incorporate Owner, Owner's Construction Manager, and Owner's Representative comments and be resubmitted to Owner, Owner's Construction Manager, and Owner's Representative with revisions for submission to regulatory agencies. Final Work Plan shall be submitted to the

Owner, Owner's Construction Manager, and Owner's Representative at least 30 days prior to the start of on-site dredging operations.

C. Dredging and Disposal Plan: The Work Plan will be the basis for the Contractor to prepare a Dredging and Disposal plan required to the permits and regulatory agencies. The development, timing, and submission of the Work Plan shall allow for review and approval by the Owner's Representative prior to submitting the Dredging and Disposal Plan to the appropriate agencies. The Dredging and Disposal Plan shall be submitted for review and approval to Idaho DEQ per the water quality certification requirements at least two (2) weeks prior to the pre-construction meeting. Dredging and disposal operations shall not begin until the Dredging and Disposal Plan has been reviewed and approved by the Owner's Representative and the appropriate agencies.).

D. Pre-Construction Meeting: Before construction operations commence, the Contractor, any Subcontractors, the Owner, Owner's Construction Manager, Owner's Representative and Inspector(s) shall have a mandatory pre-construction meeting, per Specification Section 01 31 19 – Project Meetings. This meeting shall be held at a mutually agreeable time and place to discuss pertinent details of the Work Plan and Work Schedule, etc. At the pre-construction meeting the Contractor shall provide to the Owner's Representative those items due as identified below in the Schedule of Submittals or Notifications which includes information regarding but not limited to the following:

1. Communication Plan specifying Contractor chain of command, the Owner, Owner's Construction Manager, and Owner's Representative, and Inspector(s) points of contact, corresponding contact information, and procedures for routine and emergency notifications.

2. Safety Plan and report format.

E. Notice of Intent to Dredge: At least fourteen (14) days prior to commencement of Work on this Contract, the Contractor shall notify the Corps of Engineers. Copies of the notification shall be provided to the Owner's Construction Manager and Owner's Representative.

F. Dredging Aides: For any in-water dredging work (if necessary), the Contractor shall obtain approval for all dredging aids, including but not limited to temporary navigation aids, warning signs, and buoys and lights that are required to conduct the Work specified in this Contract.

G. Notification of Discovery of Historical or Cultural Sites: If during construction activities the Contractor observes items that may have prehistoric, historical, archeological, or cultural value, the Contractor shall immediately cease all activities that may result in the destruction

of these resources and shall prevent construction employees from trespassing on, removing, or otherwise damaging such resources. Such observations shall be reported immediately to the Owner, Owner's Construction Manager and Owner's Representatives that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special dispositions of the finds should be made. The Contractor shall report any observed unauthorized removal or destruction of such resources by any person to the Owner, Owner's Construction Manager and Owner's Representatives so the the appropriate authorities can be notified. The Contractor shall not resume work at the site in question until State authorities have rendered judgment concerning the artifacts of interest.

H. Daily Reports: The Contractor shall prepare and submit daily reports as set forth in this Specification. Upon completion of the job, the Contractor shall submit a consolidated job report, combining all of the reports. The Contractor shall distribute one copy of each report to the Owner, Owner's Construction Manager, and Owner's Representative. Copies of all reports and the weekly updated schedule shall be submitted to the Owner, Owner's Construction Manager and Owner's Representative by email. Email addresses will be provided to the Contractor by the Owner's Representative upon Notice to Proceed. Daily reports shall be submitted prior to the end of the next business day. Reports shall include the following information:

1. Daily Reports

   a. The Contractor shall prepare and maintain daily reports of operations and furnish an electronic copy to the Owner's Representative and Owner's Construction Manager by 3:00 p.m. PST on the day after the date of the report. On a weekly basis, the Contractor shall submit hard copies of that week's daily reports signed by their onsite Project Manager.

   b. Information to be included as a minimum in the daily report will be the date, period covered by the report, equipment used, description of activity as identified by dredge area, dredge depths, quantity of sediments dredged that day and to date, downtime and delays to the operation, safety, and other relevant comments concerning the conduct of the operation. The report shall include the results of all inspections, surveys and monitoring activities. Within their Dredging Work Plan, the Contractor shall submit a copy of their intended daily report format for approval by the Owner's Representative.

   c. Identify anticipated delays in completing the work on schedule, recommend modifications to the work plan to mitigate delays.

2. Pre-/Post-Dredge Survey Submittals, see Technical Specification 01 71 23 – Construction Surveying.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 WORK SEQUENCE

A. See Contract Drawings for details on construction sequencing.

3.02 QUALITY CONTROL

A. Access to Work Area: Upon request by the Owner, Owner's Construction Manager, and/or Owner's Representative for the purpose of reasonable supervision and inspection of the Work, the Contractor shall provide the use of such boats, boatmen, vehicles, laborers, and material that are part of the ordinary and usual equipment and crew of the dredging Work in order to access the work area and dredging equipment. Such requests by the Owner, Owner's Construction Manager and/or Owner's Representative will be coordinated with the Contractor's work schedule, except in case of emergency.

B. Water Level Gauge: The Independent Surveyor shall install a water level gauge at the dredging location so that the dredge operator and hydrographic surveyors can observe the water level at all times. Multiple water level gauges may be required to be visible from different locations within the specified dredging area. Verify that all gauges, targets, ranges and other survey markers are in place and properly maintained.

C. Daily Reporting: Reporting requirements: Prepare and maintain a Daily Dredge Report of operations and furnish a copy to the Owner's Construction Manager and Owner's Representative daily, in accordance with Section 01 33 00 **Error! Reference source not found.**of this Specification.

D. Progress Surveys: Contractor shall conduct progress surveying in accordance with Technical Specification Section 01 71 23 throughout the duration of the work.

3.03 CONDUCT OF DREDGING

A. General: Dredging and re-handling operations shall be done in a manner that will avoid exceeding the indicated dredging tolerance and minimize turbidity of the Priest lake waters. The Contractor shall track, verify, and report on a daily basis the volume of materials dredged. The Contractor shall pay particular attention to the conditions of issued permits, regulations, and authorizations requiring minimizing turbidity and loss of resuspended sediments during dredging and transport operations and adherence to water quality requirements. If excess

turbidity occurs, the Contractor shall change the operating procedure to reduce the degree of turbidity. The Contractor shall use turbidity control structures and plan and conduct work activities to minimize effects of construction operations on water quality. The Contractor shall excavate the dredge prism to the lines, grades, slopes, and elevations shown on the Contract Drawings for the selected dredge areas. No dredging to depths greater than the bottom of dredge cut elevation (plus applicable elevation tolerances) shown on the Contract Drawings is permitted.

B. Dredging shall be completed within the limits indicated on the Contract Drawings. Side slopes shall be dredged as shown on the Contract Drawings.

C. Over-excavation shall be brought to grade with approved underwater fill material. Under no circumstances will backfilling with dredged material be allowed.

D. The post-dredge survey must demonstrate that all areas within the dredged basin limits identified in the Contract Drawings are at or below the dredge depth, and that side slopes are no steeper than indicated on the drawings. Material sloughed into the dredge cut area from the side slopes shall be removed by the Contractor. The post-dredge survey and final quantity calculations shall be submitted to the Owner Representative and Owner's Construction Manager.

E. The Contractor shall exercise care when dredging not to exceed the maximum dredged volume indicated on the permits, and to not damage existing upland structures (residential fixed and/or floating docks, piles, staircases, revetments and bulkheads).

F. Special Dredging Methods:

1. Dredging shall proceed downward from the top of the slope. Bucket overfilling and leveling of the completed dredging surface by dragging a beam is not permitted.

2. A properly anchored debris boom shall be deployed around the downstream perimeter of the dredge area during dredging and re-handling operations. Use of a silt curtain may be needed if the Contractor's dredging operations result in non-compliance with water quality certification requirements.

3. The Contractor shall pay particular attention to minimizing turbidity and siltation and adherence to water quality requirements. The Contractor shall conduct dredging activities to maintain the required water quality standards and shall minimize turbidity and dispersal of material in the water.

   a. Appropriate BMPs shall be employed by the Contractor to minimize sediment loss and turbidity generation during

dredging, loading, dewatering, transloading operations. It is the Contractor's responsibility to adjust means and methods to maintain compliance with water quality criteria.

b. Dredging operations shall utilize equipment appropriate to the site conditions to minimize turbidity and other possible adverse impacts, including clamshell buckets for removal of silts and sands if required to meet water quality requirements.

c. Contractor shall utilize a floating silt curtain within the active work area if other water quality protective measures are not sufficient to meet the water quality certification requirements during the execution of the work. Silt curtain deployment shall be in accordance with the requirements of Technical Specification Section 01 35 43 – Environmental Controls.

4. Adhere to Temporary Erosion and Sediment Control requirements as outlined in Technical Specification 01 57 13 – Temporary Erosion and Sediment Control and on the Contract Drawings. The Contractor shall monitor and take sufficient care during dredging and re-handling and temporary stockpiling of dredged material within the project site limits to prevent the loss of sediment. Contractor shall include in the Work Plan and Schedule the methods used to control the loss of sediments from any temporary stockpiling locations.

5. Special Dredging Requirements

a. The Contractor shall take special procedures when conducting work in dredging areas located adjacent to upland slopes and areas around the Stone Breakwater as shown on the Contract Drawings to prevent destabilization of the structure.

b. Work shall be coordinated and accordance with the special excavation requirements outlined in Technical Specification Section 31 00 00 – Excavation and Fill.

G. Dredge Area Cut Sequence: The Contractor shall submit a proposed Dredge Area Cut Sequence with the Work Plan and Schedule for approval by the Owner's Construction Manager, the Owner's Representative and the Owner prior to starting dredging operations. The Work Plan and Schedule shall include reference to the Flow Diversion System, layout of the work and horizontal positioning of the dredging equipment/operations. This dredging work plan will provide means and methods maintaining stable temporary slopes and will ensure dredging operations not result in any impacts to existing facilities and infrastructure. Sequencing of dredging work with Stone Breakwater construction will be needed to ensure loss of uplands does not occur due to groundwater, surface water, and waves. Sequencing

of Dredging work and Stone Breakwater construction will be conducted by the Contractor to minimize Shoal Material entering the Dredging Area.

H. Dredging Operation and Work Area Limits: Dredging shall occur within the horizontal, vertical, and slope limits defined in these Specifications and shown on the Contract Drawings, or as otherwise directed in writing by the Owner's Representative and Owner's Construction Manager. The Contractor shall make determinations of the character of the bottom materials to be dredged and shall plan and conduct operations to meet the required lines and grades at the time of measurement. Dredging operations shall be planned and conducted to protect existing structures and private property. In the event existing upland structures (residential fixed and/or floating docks, piles, staircases, revetments and bulkheads), the Contractor at no expense to the Owner shall replace, repair and restore the existing structure to an equal or superior condition than before dredging.

I. Dredged Material Re-handling: All dredged material transported offsite shall be disposed of within Contractor provided Upland Disposal Site. The Contractor is responsible for all re-handling, dewatering, offloading, and disposal operations. Dredged material designated for onsite beneficial reuse shall be transported, stockpiled, and placed in accordance with these Specifications. A description of the proposed methods of transporting, handling, and offloading of the dredged materials including water quality protection systems shall be submitted as a part of the Dredging Work Plan. Transport methods, equipment, and attendant plant shall be in satisfactory operating condition, capable of efficiently performing the Work as set forth in the Contract Drawings and specifications, and shall be subject to inspection by the Owner's Construction Manager or the Owner's Representative prior to beginning the Work, and at all times during dredging operations. The Contractor shall conduct soil stockpiling work in such a manner that minimizes fugitive dust emissions, odors, and contamination of stormwater. BMPs in accordance with the Technical Specification 01 57 13 Temporary Erosion and Sediment Control and Section 01 35 43 Environmental Controls are required during all dredging, re-handling, stockpiling, dewatering, and disposal operations.

3.04 DREDGING WORK EQUIPMENT

A. Dredge Equipment. Dredging equipment and methods shall be designed to minimize the dispersion of resuspended sediments during dredging. The Contractor shall include number, types, and capacity of equipment to be used as part of the Work Plan and Schedule. The Contractor shall change the location and depth of dredging within the Dredging Work Area limits when necessary to avoid excessive

dredging. The Contractor is responsible for developing the appropriate dredge work approach and equipment selection in order to meet the Water Quality requirements outlined in this specification and in the project permits.

B. Dredge Bucket. Dredging work shall be conducted utilizing mechanical dredging equipment such as clamshell or excavator type bucket.

3.05 DREDGING AND RE-HANDLING

A. The handling and stockpiling of sediments shall be conducted in accordance with the Contractor approved work plan.

B. Dry excavated material can be directly loaded into trucks or temporarily stockpiled for re-handling. Stockpiling or re-handling of dry excavated or dredged material will require implementing proper BMPs in accordance with these Specifications and applicable permits.

C. The Contractor shall not temporarily stockpile materials in areas subject to standing water, flowing water/currents, waves, or fluctuating water levels.

3.06 SPILL PREVENTION AND POLLUTION CONTROL

A. The Contractor shall prepare a project specific spill prevention, control and countermeasures (SPCC) plan to be used during the duration of the project. Refer to Technical Specification 01 35 43 - Environmental Controls for details and requirements.

3.07 MONITORING

A. Water Quality Monitoring: The Contractor is responsible for monitoring for water quality in accordance with the Contract Documents and the project permits to ensure the in-water work activities are in compliance with the Idaho State Water Quality Standards or other conditions as specified in the Idaho DEQ Water Quality Certification (WQC). Refer to Technical Specification 01 35 43 Environmental Controls for more information and requirements.

B. TESC MONITORING

1. The Contractor is responsible for monitoring of Temporary Erosion and Sediment Control measures which are implemented at the project site (as outlined in Technical Specification Section 01 57 13 Temporary Erosion and Sediment Control) for the duration of the contract work.

3.08 ON-SITE BENEFICIAL REUSE & PLACEMENT

A. The dredged material to be placed as beneficial reuse onsite for beach nourishment fill (Zone 3). Material shall be placed to the lines and grades as shown on the Contract Drawings and as indicated within the Specifications. See Section 31 00 00 – Excavation and Fill.

B. The beneficial reuse of dredged material shall be closely coordinated with the work indicated on the Contract Drawings and within the Specifications. Priority locations, listed from highest priority to lowest, for the backfill of dredged materials are listed below:

1. Beach nourishment fill (Zone 3);
2. Remnant channel fill (Zone 2), if approved by the Owner;
3. Breakwater base fill (Zone 1), if approved by the Owner.

C. All debris larger than 1-foot in any dimension shall be removed from the dredged sediment prior to being used as fill. Debris larger than one foot in any dimension shall be disposed of at an appropriate upland location and shall not be returned to the project site. Similar sized debris found floating in the dredging area shall also be removed.

3.09 DISPOSAL

A. As stipulated by the permit conditions, 2,500 cubic yards of dredged material shall be disposed of at an upland, approved site by the Contractor. All remaining dredged material shall be reused on-site as beneficial reuse and/or backfill.

3.10 OFF-SITE TRANSPORTATION AND DISPOSAL

A. The Contractor shall be responsible for coordinating truck scheduling and conformance with requirement of the access easements for operation of trucks on the Sandpiper Shores access road. The Contractor shall coordinate truck traffic and loading locations on site with stockpile and excavation locations, including providing suitable on-site truck routes.

3.11 CLEANUP

A. After removal of equipment and tools, clean and grade accesses, staging, and re-handling areas. There shall be no debris, rubble, or litter left at the site from any of the dredging operations, and the site shall be clean.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section covers stonework required to construct the stone breakwater as shown on the Contract Drawings. Stone shall be supplied to the site and installed as per the Contract Drawings and as specified herein. Geotextile fabric required for stonework is also included.

B. All arrangements must be made prior to construction for right-of-way, for adequate investigation and exploration, and for selection, development, and operation of the quarry to supply stones for this contract of the weights, sizes, and quality specified herein. Inspection for acceptance of individual stones will be at the construction site.

C. The excavation, fill, placement of new materials, and compaction work associated with the West End Stabilization is covered within Section 31 00 00 – Excavation and Fill.

D. Stone sources for large Armor Stone Type II shall be obtained from a Contractor provided commercial quarry for the base bid and from the Owner supplied Bear Creek facility for the alternate bid schedule work.

1.02 RELATED SECTIONS

A. The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Related Sections include the following:

1. Section 01 33 00 - Submittals
2. Section 01 35 43 – Environmental Controls
3. Section 01 40 00 – Quality Requirements
4. Section 01 71 23 – Construction Surveying
5. Section 02 41 00 – Demolition
6. Section 31 00 00 – Excavation and Fill
7. Section 35 20 23 – Dredging
8. Appendix A – Permit Documents
9. Appendix B – Geotechnical Reports
10. Appendix E – Water Level & Flow Data

1.03 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American Society for Testing and Materials (ASTM)

C88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
C127	Specific Gravity and Absorption of Coarse Aggregates.
C131	Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
C535	Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
D2938	Unconfined Compressive Strength of Intact Rock Core Specimens.
D4992	Evaluation of Rock to be used for Erosion Control.

U.S. Army Corps of Engineers (USACE)

CRD-C 148-69	Method of Testing Stone for Expansive Breakdown on Soaking in Ethylene Glycol.
CRD-C 144-92.	Resistance of Rock to Freezing and Thawing.

1.04 DEFINITIONS

A. Armor Stone Type I: Layer of stones used as a core material for the stone breakwater and/or as launch material on the Thorofare side of the stone breakwater as shown on the Drawings.

B. Armor Stone Type II: Layer of stone used as exterior armor layer for slopes at the stone breakwater as shown on the Drawings.

C. Bedding Stone: Layer of small stones used for bedding/filter layer between the Armor Stone Type I and/or Type II layers and the geotextile fabric as shown on the Drawings.

D. Interstitial Stone: Stone material placed within the voids of the Armor Stone Type II layer on the south side of the new breakwater as shown on the Drawings and as specified herein.

E. Stoneworks: Installation of any stone materials including, Armor Stone Type I, Armor Stone Type II, Interstitial Stone, and/or Bedding Stone, in accordance with the Drawings and requirements specified herein.

F. Excavation: Earthwork required to install geotextile and install all stone in accordance with the Drawings and requirements specified herein.

G. Backfill: Includes the work required to replace excavation for installation of geotextile and stonework in accordance with the Drawings and requirements specified herein.

H. West End Stabilization: Breakwater stabilization west of Station 2+75, See Section 31 00 00 – Excavation and Fill.

1.05 JOB CONDITIONS

A. Review of Site Conditions

1. It is the Contractor's responsibility to visit the site and perform any inspection and testing the Contractor deems appropriate, and to examine the Drawings and Specifications to become familiar with the material within the Stone Breakwater template and the project site conditions impacting the area.

B. Debris

1. In addition to sediment, it is anticipated that debris may be encountered during construction of the Stone Breakwater. Debris could include but is not limited to anchors, chains, concrete, stones, garbage, large woody debris, ropes, cables, derelict piles and other articles. The debris shall become the property of the Contractor who shall dispose of it offsite at an approved location. Any large debris shall be immediately removed from the dredging area in order to minimize release of any adhering sediment. Debris shall not be rinsed or washed in or above the aquatic area in any way.

1.06 SUBMITTALS

A. The following items shall be submitted to the Owner's Representative for review and approval in accordance with Section 01 33 00 – Submittals:

1. Product specifications for geotextile, and other materials specified herein.

2. All pertinent source and test records (stone quality, testing results, gradation, chemical analyses results, and a description of previous use on coastal and/or fluvial structures) from the stone source shall be submitted to the Owner's Representative for review and approval. Documentation shall include the following:

a. Name and location of material source, and name and telephone number of supplier.

b. Laboratory test results completed within the last 12 months for test procedures listed Part 2 of this Technical Specification.

c. Such test records will be evaluated to help determine if stones from that source can meet quality standards as hereinafter specified.

3. Stone Breakwater Work Plan consisting of the following subsections:

   a. <u>Description of stone transportation, delivery and re-handling work plan. Include description of any temporary stockpile and re-handling facilities.</u>

   b. Description of stone construction sequencing method.

   c. Description of proposed work area isolation method.

   d. Intermediate/Progress Survey sequencing and review plan for the stone breakwater in accordance with Section 01 71 23 – Construction Surveying.

4. Service Records: Provide at least 2 example projects that the stone source has been used for erosion protection with similar or larger size stone gradation for Armor Stone II product. Service record will be used to help determine acceptability of stone source for use on the project.

5. Weigh Scale Certification: Prior to the use of any scale under this contract, the contractor shall submit details on the location and construction of the scale and a copy of the certification of the scale's accuracy from the local weights and measures regulating agency.

6. Daily Activities Report: The Contractor shall provide a daily record of construction activities and shall include the following:

   a. Report shall document the percent of project completion, limits of breakwater construction, and adverse weather conditions or other problems that cause problems for each day there are onsite work activities. The report shall be submitted to the Owner's Representative at the end of each week.

7. Daily Shipment Log Sheets: On the workday following stone shipment, the Contractor shall submit a copy of the log of all shipments from the stone source(s). The log sheets shall include information regarding placement or stockpiling of the shipments, and what shipments were sampled. The Daily Log sheet and its format shall be approved by the Owner's Representative prior to the shipment of any stone materials.

8. Weigh Bills: Certified weigh bills shall be provided to the Owner's Representative at the time the weighted material is delivered. Certified weigh bills for each load of stone materials delivered to the project site shall include certification of weight, the time of weighing,

time of delivery, and serial number and description of delivery truck or barge.

9. **Bear Creek Mining Plan (Alternate Bid Schedule Item No. 10.B ONLY): The Contractor shall provide a Mining Plan submittal for the Owner provided stone source at Bear Creek consisting of the following subsections:**

   a. **Description of Bear Creek Commissioning. Including, but not limited to, a description of general commissioning activities and reporting, in-situ material testing, planning and correspondence, commissioning activities, roles and responsibilities, and supporting commissioning documentation in compliance with all relevant lease agreements.**

   b. **Operations Plan. Including, descriptions of the equipment, labor, and materials that may be required while operating at the Bear Creek Site.**

   c. **Production Plan. Including stone production volumes, topography plans and scaled sections prepared by a qualified profession engineer, mining phasing maps prepared by a qualified professional engineer, and slope stability calculations prepared by a qualified professional engineer.**

   d. **Access Plan. Including, a description of access to and maintenance thereof of the road to and from the Bear Creek Site throughout the duration of operations.**

   e. **Safety and Environmental Management Plan.**

   f. **Site Reclamation and Decommissioning Plan.**

PART 2 – PRODUCTS

2.01 GEOTEXTILE FABRIC

A. Physical Properties: The geotextile shall be pervious, non-woven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. The material shall be a geotextile consisting only of long chain synthetic polymeric fibers or yarns formed into a stable network such that the fibers or yarns retain their position relative to each other during handling, placement, and design service life. At least 95 percent by weight of the material shall be polyolefins or polyesters and shall meet or exceed the requirements of AASHTO M288-92. The material shall be free from defects or tears. Geotextile material shall be inert to chemicals commonly found in natural water, the

soils conditions encountered at the site, and UV stabilized. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile. The geotextile fiber shall contain stabilizers or inhibitors added to the base material if necessary to make filaments resistant to deterioration due to ultraviolet and heat exposure. The geotextile shall also be free of any treatment or coating which might adversely alter its hydraulic or physical properties after installation. Geotextile shall be sampled and tested in accordance with ASTM D4354. The geotextile fabric shall meet the following physical property requirements:

Table 1 – Physical Requirements for Geotextile

Fabric Property	Property Value
Trapezoidal Tear Strength (ASTM D-4533)	≥ 140 lbs/in, in machine direction ≥ 140 lbs/in, in cross machine direction
Weight (ASTM D5261)	14.5 oz/yd
Thickness (ASTM D5199)	161 mils
Puncture Strength (ASTM D-4833)	≥ 430 lbs
Apparent Opening size AOS (ASTM D-4751)	< 0.150 mm (#100 sieve)
Permittivity (ASTM D-4491)	0.70 sec^{-1}
Grab Tensile Strength (ASTM D-4632)	≥ 380 lbs, in machine direction ≥ 380 lbs, in cross machine direction

2.02 STONE SOURCES

A. **Commercial Source (Base Bid Schedule Item No. 10):** The Contractor is responsible for obtaining a source for the materials in accordance with these Specifications **for the Base Bid**. The name and location of the material source the Contractor proposes for supply of the **products shall be submitted with the Contractor's Bid for the work.** The Owner's Representative will evaluate these sources as potential suppliers and determine if they are qualified for consideration under these Specifications. Evaluation will be conducted based on a review of test results, prior service record on similar projects, and review of source material at the proposed source location. If the primary source is determined to be unqualified, subsequent sources shall also be evaluated at the Contractor's expense. The Contractor shall select stone materials from an existing commercial source for which all operating permits have been obtained prior to bid opening. Contractor shall assure themselves of availability of an adequate and acceptable material source based on quantity, quality, production rate, and gradation standpoints prior to submitting the bid.

B. Owner Provided Source – Bear Creek (Alternate Bid Schedule Item No. 10.B): The Owner has obtained a lease agreement with the Idaho

Department of Lands (IDL) for the mining of stone materials from the Bear Creek site (see Appendix C The Owner provided source is located on IDL lands and consists of an unsorted talus slope of broken large granite. Use of this site will require the Contractor to develop a mining work plan and stability assessment for the removal plan and post removal slope stabilization The Contractor shall develop and submit to the Owner's Representative a Mining Plan (see Paragraph 1.06 (A,9) herein for submittal requirements, and include an independent review and laboratory testing results of the source materials and proposed extraction methods at the Bear Creek location shall be conducted by a licensed Geologist and Geotechnical Engineer registered in the State of Idaho. If the Bear Creek source is determined to be unqualified, refer to paragraph 2.02 (A) above. Contractor shall assure themselves of availability of an adequate and acceptable material source based on quantity, quality, production rate, and gradation standpoints prior to submitting the bid.

2.03 SAMPLING, STONE QUALITY TESTING, AND ACCEPTANCE OF STONES

A. General

1. The acceptability of stone materials from the proposed source will be determined by sampling and laboratory testing results, geologic examination, quarry field investigation by the Owner's Representative, and drop tests at the quarry. The Contractor shall submit existing quarry test results from a laboratory that has been validated by the Owner's Representative, in accordance with the tests specified herein and which are representative of the stone to be used on the project. The Contractor shall submit existing laboratory test documentation to the Owner's Representative within five (5) business days of receipt of Notice to Proceed. Existing test records shall have been completed during the previous 12 months from bid opening. When satisfactory test records are not available, the proposed stone shall be subjected to all such tests as are necessary to determine that the stones are durable and suitable for use in the work at the Contractors expense. Tests to which the stones may be subjected include unit weight or specific gravity, absorption, abrasion, accelerated expansion, and such other supplemental tests as may be necessary.

2.04 SAMPLING

A. Should the Contractor's documentation not include previous satisfactory laboratory test results for tests completed within the last 12 months or should the Contractor's documentation fail to satisfy the Owner's Representative, samples of all types of stone proposed for use in construction shall be selected in the presence of the Owner's Representative and delivered to the testing lab for testing at the Contractor's

expense. These samples shall be delivered to the testing lab within five (5) business days after receipt of notification of insufficient or unsatisfactory lab tests. Samples of stone shall consist of 5 to 10 pieces with a total weight of not less than 200 pounds with an average weight of 25 pounds per piece for each stone type proposed for use as armor and bedding stone. No single piece shall weigh more than 100 pounds. The presence of the Owner's Representative during selection of samples of stones will not relieve the Contractor of the responsibility to secure representative samples from the quarry for testing.

2.05 STONE QUALITY

A. All stone **(Commercial Source and/or Owner Provided Source)** used for any Product described hereinafter shall meet the following requirements:

1. Stone materials shall be clean, dense, hard, sound, rough, angular, close grained durable, naturally occurring stone, free from overburden material, and shall not slake or deteriorate on exposure to the action of water or atmosphere. The faces of individual stone shall be roughly angular, not rounded in shape.

2. Stone shall be free of cracks, joints, honeycomb, faults, flaws, seams or mineral in-fillings, or other defects that would tend to increase its deterioration from the weathering process or result in breakage during re-handling at offsite stockpile locations, normal handling, placing, or service on the breakwater.

3. Each stone shall have sufficiently uniform physical properties throughout so that all portions of the stone will meet the specified test requirements. All quarried Products shall be cured in the quarry and stockpiled for a minimum of 48 hours after blasting during which time the atmospheric temperature does not drop below 40º F prior to shipment to the site of the breakwater construction.

4. Stone materials shall be produced only from quarries in areas free of marine basalt flows, reefs, shale, or chert.

5. Each stone shall not have a longest dimension greater than three times its shortest dimension.

6. Any stone containing an inferior stone material portion that does not meet the specified test requirements will be rejected as unsatisfactory and shall be removed from the project area at the Contractor's expense.

7. Weak or inferior appearing portions of any non-uniform type stone such as igneous flow breccias, volcanic breccias, scoria, cataclastic metamorphics, or irregularly cemented sedimentaries shall be subjected to all testing to determine that the stone will not be susceptible to splitting or differential weathering.

8. Armor Stone Type II: Stone supplied **from a Commercial source** for the larger size product shall be sourced from a quarry with demonstrated experience supplying erosion protection stone of similar or larger size. Jointing of stone source(s) shall be large enough (greater than the size of the stone) to produce durable and long-lasting stone of the specified size range.

2.06 STONE QUALITY TESTING **– COMMERCIAL SOURCE**

A. Separate tests shall be made for each different stone type. All costs of tests shall be borne by the Contractor and shall be incidental to placing materials. All tests shall be conducted by an independent laboratory acceptable to the Owner's Representative. In the event any stone type in the sample fails to pass the required tests, subsequent tests for that stone type shall also be conducted at the Contractor's expense. The Owner's Representative will be notified of the results of laboratory tests. Satisfactory Contractor documentation of laboratory test results on stone sample will not constitute approval of all stone in the quarry and will not in any way change the Contractor's responsibility for obtaining, developing, and maintaining a satisfactory source of stones. Throughout the duration of this contract, the Owner's Representative may sample and test stones delivered to the construction site and proposed for use in the construction. No contract extension will be granted for specified submittal and testing time or because materials fail to meet the specification requirements.

B. The test results reported by the laboratory will be considered as exact results for unit weight, absorption, abrasion, accelerated expansion, or other necessary supplemental tests, regardless of any permissible variance that may be established by test procedures in determining the acceptability of stone furnished under this contract. Test procedures to be utilized and required values are as follows:

Armor Stone Type I, Armor Stone Type II, and Bedding Stone Testing Requirements

Test	Required Value	Test Method
Specific Gravity	~~>2.65~~ **>2.60**	ASTM C127
Water Absorption	<2.7%	ASTM C127
Sodium Sulfate Soundness	<10% loss (after 5 cycles)	ASTM C88
L.A. Abrasion	~~<20%~~ **<25%** loss** (after 500 revolutions)	ASTM C535
Unconfined Compressive Strength	~~>12,000~~ **>10,000**psi	ASTM D2938
Expansive Breakdown in Ethylene Glycol	<5% loss in 15 days	CRD C148*

* The proposed stone should be free of the presence of clay minerals in the stone fabric. If during the Owner's Representative's field review of the proposed stone source, clay is observed in the stone and laboratory tests (from past 12 months) are not available to validate conformance with the specification, the Contractor

will be required to conduct a new test and ensure compliance with the specified value.

**** Up to 50% loss allowed for Owner provided source only.**

C. In the event any stone in the sample fails to pass the required tests, subsequent tests for that stone type shall also be conducted at the Contractor's expense. Samples shall be delivered to the testing lab within five (5) business days after receipt of notification of insufficient or unsatisfactory lab tests. No contract extension will be granted for specified submittal and testing time or because materials fail to meet the specification requirements.

D. Failure of Stones: Stones failing to meet the specified requirements or as determined by the Owner's Representative to be in non-conformance shall be removed from the project site. No materials or stones shall be placed until those materials or stones have been approved for use by the Owner's Representative. Individual stones failing to meet specified requirements, or loads containing more than 10 percent by weight of stones failing to meet specified requirements, will be rejected prior to placement, or shall be removed from the site if placed on the prepared site.

E. The Contractor shall perform a drop test on armor stone products for each load delivered or as determined necessary by the Owner's Representative. The drop test shall be performed by dropping a stone specimen, selected by the Owner's Representative, from a height of half the average diameter of the stone onto a rigid surface or second stone. Stone fracturing as a result of the drop test constitutes test failure. Individual fractured stones will be rejected for use as armor stone. If a stone fractures as a result of the drop test, the Owner's Representative may elect to test other stones from the same load. If multiple stones from a single load fail the drop test, the Owner's Representative may elect to reject the entire load for use as armor stone.

2.07 STONE QUALITY TESTING – OWNER PROVIDED SOURCE

A. All costs of tests shall be borne by the Contractor and shall be incidental to placing materials. All tests shall be conducted by an independent laboratory acceptable to the Owner's Representative. Tests shall be conducted in accordance with specification section 2.06B for conformance with the requirements of the design.

B. The test results reported by the laboratory will be considered as exact results for unit weight, absorption, abrasion, accelerated expansion, or other necessary supplemental tests, regardless of any permissible variance that may be established by test procedures in determining the acceptability of stone furnished under this contract.

C. The Contractor shall perform a drop test on armor stone products for each load delivered or as determined necessary by the Owner's

Representative. The drop test shall be performed by dropping a stone specimen, selected by the Owner's Representative, from a height of half the average diameter of the stone onto a rigid surface or second stone. Stone fracturing as a result of the drop test constitutes test failure. Individual fractured stones will be rejected for use as armor stone. If a stone fractures as a result of the drop test, the Owner's Representative may elect to test other stones from the same load. If multiple stones from a single load fail the drop test, the Owner's Representative may elect to reject the entire load for use as armor stone.

2.08 GRADATION

A. Gradation requirements of this section apply to both Commercial and Owner provided stone sources.

B. The stone shall conform to the following size gradation for the in-place condition on the stone breakwater structure. The percent smaller value shall not be less than that listed for each weight or size category for the materials described below.

1. Armor Stone Type I

Approximate Size (in)	Percent Passing (Smaller)
22	100
18	80-95
14	50-80
8	15-35
4	15 max

2. Armor Stone Type II

Approximate Size (in)	Percent Passing (Smaller)
44	100
40	80-95
34	50-80
24	15-35
18	15 max

3. Bedding Stone

Stone Size (inches.)	Percent Passing
8	100
3	40 max.
¾	10 max.

4. Interstitial Stone

Stone Size (inches.)	Percent Passing
2.5	100
2	100 max.
1.5	87 max.
¾	5 max.

C. Gradation tests of the stone shall be accomplished at the quarry. Tests by weight shall be made by the Contractor in the presence of the Owner's Representative. The Contractor shall notify the Owner's Representative not less than three (3) working days in advance of each test. A minimum of one gradation test shall be performed for each 2,500 tons of stone.

D. Specified gradation is for the installed (in-place) condition. The Contractor shall consider breakage during material handling, delivery and installation in order to provide the specified in-place stone gradations.

2.09 OWNER PROVIDED SOURCE

A. The Owner Provided source shall be provided as an Alternate Bid Schedule Item No. 10.B for Armor Stone Type II (Owner-Provided Source) only. Execution work outlined in Part 3 would apply to both Commercial and Owner provided stone.

PART 3 – EXECUTION

3.01 WORK SEQUENCING

A. It is the Contractor's responsibility to develop a work method to ensure all excavations are protected from waves, river currents, and sedimentation while the foundation and stone for the stone breakwater is being constructed. The Contractor shall take permit requirements into consideration in developing their work approach and sequencing plan. See Contract Drawings for details and requirements on construction sequencing.

3.02 QUALITY CONTROL

A. Access to Work Area: Upon request by the Owner and/or Owner's Representative for the purpose of reasonable supervision and inspection of the Work, the Contractor shall provide the use of such, vehicles, construction equipment, laborers, and material that are part of the ordinary and usual equipment and crew of the Stone Breakwater Work in order to access the work area. Such requests by the Owner and/or Owner's Representative will be coordinated with the Contractor's work schedule, except in case of emergency.

B. Daily Reporting: Reporting requirements: Prepare and maintain a Daily Report of operations and furnish a copy to the Owner daily, in accordance with Section 1.05 of this Specification.

3.03 SITE PREPARATION

A. Preparatory works prior to geotextile fabric and stone placement include demolition, general excavation, fill (Zones 1, 2 and 4) and compaction. Excavation and fill works shall be executed in accordance with the Drawings and as specified within Section 31 00 00 – Excavation and Fill, as specified herein, and in accordance with any applicable requirements of related sections. Excavation shall only include what is needed to place geotextile and construct the bedding stone and armor stone (Type I and II) slopes of the stone breakwater as shown on the Drawings.

B. Timber Breakwater Demolition. The existing timber breakwater, including all piles, lagging, and miscellaneous metals shall be demolished as shown on the plans and described in Technical Specification Section 02 41 00 – Demolition. All deteriorated structures, debris, and remnant piling that lie within the template of the stone breakwater or interfere with construction shall be removed and disposed of in accordance with specification Section 02 41 00 – Demolition. Immediately prior to placing stone, the area to receive the stone will be inspected by the Owner's Representative, and no material shall be placed thereon until that area has been approved.

3.04 GEOTEXTILE INSTALLATION

A. The geotextile shall be installed under the breakwater structure on the prepared foundation and within the limits shown on the Drawings.

B. Geotextile shall be kept dry and wrapped such that it is protected from the elements during shipping and storage. At no time shall the geotextile be exposed to ultraviolet (sun) light for a period exceeding seven days. The geotextile shall be labeled as per ASTM D-4873.

C. The area to receive the geotextile shall be cleared of any debris or obstructions which may damage the geotextile. The geotextile must be placed to cover the footprint shown on the Drawings prior to placement of stone material.

D. The installed geotextile shall have no tears or punctures.

E. Should the geotextile be torn or punctured, the damaged area shall be repaired by the Contractor. The repair shall consist of a patch of the same type of geotextile which replaced the ruptured area. All geotextile within 2 feet of the ruptured area shall be removed from the geotextile by cutting the geotextile using a method which produces a smooth geotextile edge and does not cause geotextile ripping or tearing. The patch shall be sewn onto the geotextile using a double sewn "Flat" seam, one inch from the edge, Type Ssn-2, may be used for the repair. The stitch density shall be six

stitches per inch. High strength polypropylene, polyester, or Kevlar thread shall be used.

F. All non-sewn geotextile fabric panel seams shall be overlapped at a minimum distance of 3 feet.

G. The geotextile fabric shall be unrolled and laid smooth without excessive wrinkles. The Contractor may elect to sew fabric seams. A double sewn "J" seam, Type Ssn-2, with parallel stitching spaced approximately 0.5 inches apart, shall be used for both factory and field sewn seams. The seams shall be sewn in such a manner that the Owner's Representative can inspect the seam readily. High strength polypropylene, polyester, of Kevlar thread shall be used. If a patch of fabric is to be placed on damaged fabric for the purpose of repairing the fabric, then a double sewn "flat" or "prayer" seam, 1 inch from the edge of the fabric, Type Ssa-2, may be used for this repair. Stitch density shall be 6 stitches per inch.

H. Geotextile shall be placed with the machine direction parallel to breakwater slope. Geotextile shall not be rolled out along the length of the structure.

I. The geotextile shall be placed in the manner and at the locations shown on the Drawings. The Contractor shall prepare the surface to receive the geotextile to ensure that the surface is relatively smooth and free of obstructions, depressions, debris, or stone that could damage the geotextile during placement. Geotextile placement areas shall be protected from inundation of currents and waves until the geotextile, bedding stone and armor stone are installed to a level above the native ground elevation.

J. Geotextile shall be temporarily anchored into its final position, using sandbags and other methods that will not rupture the geotextile, prior to the placement of bedding stone and/or armor stone on the geotextile.

K. At the time of installation, the geotextile shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage. The geotextile shall be protected at all times during construction to ensure that the original chemical and physical properties of the geotextile are not changed.

L. The work shall be scheduled so that all of the geotextile that is placed is covered with a layer of the specified material by the end of each workday. Failure to comply shall require replacement of geotextile.

M. All wrinkles and sags shall be stretched out immediately before stone is placed on the geotextile. The geotextile shall be protected from damage during placement of stone. This shall be accomplished by limiting the height of drop to less than 1 foot. In the event that this damages the geotextile, the stone shall be placed directly on the geotextile with zero height of drop. Any geotextile that is rejected or damaged shall be replaced by the Contractor at no additional cost to the Owner.

3.05 BREAKWATER STONE PLACEMENT

A. Stone shall be delivered to the project site for installation on the stone breakwater structure by methods that will minimize multiple re-handling of the materials to minimize breakage. Acceptance of stone gradations will be provided by the Owner's Representative based on in-place materials. If excessive breakage occurs so that in-place required gradations are not being provided, the installed stone may be rejected by the Owner's Representative which require the Contractor to remove and replace the installed materials.

B. The stone breakwater components shall be constructed as specified herein and at the locations and geometrical configuration as shown on the Drawings.

C. Armor and bedding stone shall be mechanically placed on secured geotextile fabric layer in such manner that will produce a well-keyed mass of stone (with maximum level of stone interlocking) to the lines, grades and thickness shown on the Drawings. Stone shall be placed to its full course thickness in one operation and in such a manner as to avoid displacing the underlying material. Placing stone through chutes, dropping more than 2 feet (above or below water surface), and other methods which may segregate the various sizes or damage the armor stone or underlying material will not be permitted. The large stones shall be well distributed in the mass of stones.

D. Rearranging of individual armor stones will be required to the extent necessary to achieve the results specified herein. Any stonework which contains objectionable segregation of stone sizes shall be excavated, removed from the site of the work, and replaced with material conforming with these Specifications.

E. Placement of bedding stone, interstitial, and armor stone shall be suspended when adverse wave, weather, and flow conditions do not allow for proper placement.

F. Breakwater construction shall not occur when flowing Thorofare flows are moving through the breakwater footprint. Contractor is responsible for implementing a proper flow diversion scheme and monitoring it throughout the duration of construction to ensure to flowing water impacts breakwater footprint during breakwater construction.

G. Stone shall be placed within the limits shown on the Drawings. All stone shall be placed by excavation bucket with thumb, clamshell bucket, stone grab, or by some other method approved by the Owner's Representative that will not drop or cast the stone, but will release the stone in such a manner that they will be properly interlocked with the underlying or adjacent stones to resist displacement by wave action and provide a uniform and compact section. Stones shall be firmly set and well supported by

underlying or adjacent stones to resist displacement by wave action and provide a uniform and compact section.

H. The Contractor shall place the stone using methods, techniques, and equipment that will produce a tight-fitting mass of stone.

I. Armor Stone Type II shall be installed using the "Selected Placement" method. This method requires the careful selection and mechanical placement of individual armor stones to achieve a high degree of interlocking and stability between adjacent stones. Individual stones shall be selected for placement on the structure and repositioned as necessary to produce a tight fitting and interlocked structure.

J. Stone shall be constructed, within the specified tolerance, to the lines and grades shown on the Drawings. The Contractor will not be paid for stone placed outside the allowable tolerance. The Contractor shall relocate the unsatisfactorily placed stone within the specified limits for payment or the weight of the stone so misplaced will be estimated by the Owner's Representative and the payment deductions shall be determined from this estimate and the bid unit price of the stone.

K. The largest armor stones shall be well distributed and the entire mass of armor stones in their final position shall be graded to conform to the gradation specified in Part 2 above. The finished armor stone slopes shall be free from objectionable pockets of small stones and clusters of larger stones.

L. Placing stone by dumping it at the top of the slope and pushing it down the slope will not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled dumping of successive loads during final placing, or by other methods of placement that will produce the specified results.

M. Rearranging of individual armor stones by mechanical equipment will be required to the extent necessary to obtain a reasonably well-graded distribution of armor stone sizes as specified above.

N. The armor stone layers of the breakwater shall be constructed to thickness at a minimum equal to 2 diameters of the median size of the respective stone type. Stones shall be placed in such a manner as to provide the 2-stone thickness at a minimum or as indicated on the Drawings.

O. The bedding stone layer of the breakwater shall be constructed to the thickness indicated on the Drawings.

P. Installation of toe stones shall be conducted in such a manner as to ensure the 2-stone thickness minimum requirement is maintained or as indicated on the Drawings. Special care shall be taken during installation to ensure

that maximum contact between adjacent stones is maintained along the edge of the breakwater toe.

Q. Special selection and fitting of stone sizes and shapes will be required for placement of stone at the structure toe and structure slope to produce a tight fitting and interlocked structure. No overhanging or perched stones will be allowed.

R. Armor Stone Type I and Armor Stone Type II placement will begin at the base of the structure and proceed toward the crest by placing stone to the full layer thickness before advancing upward.

S. Placement of stone shall start at the toe of the structure and progress up the slope, diagonally across the face of the structure. Placing of stone by methods that will likely cause segregation of various sizes will not be permitted.

T. The Contractor shall maintain the stone until accepted and any material displaced prior to acceptance and due to the Contractor's negligence shall be replaced at the Contractor's own expense and to the lines and grades shown on the Drawings.

U. Smaller armor stone shall be utilized to "chink" the voids of the breakwater structure.

V. Placing of armor stone shall insure that the stones are firmly set and supported by underlying materials and adjacent stones. Stones shall be placed such that at least three sides of the placed stone are in contact with the adjacent in-place stones. Loose and unstable stones shall be reset by picking the stone up off the slope and twisting and rolling it back into its required position or be replaced with a different stone to ensure sufficient stability.

W. Interstitial Stone shall be placed uniformly over the completed Armor Stone Type II layer to fill the voids in the areas indicated on the Contract Drawings. The quantity placed shall be equivalent to the layer thickness shown on the plans over the placement area. No Interstitial Stone shall be placed until the full Armor Stone Type II layer is placed to the lines and grades shown in the Contract Drawings. The Contractor shall place the Interstitial Stone using methods, techniques, and equipment that will fill the voids with the Armor Stone Type II layer prior to any beach nourishment (Zone 3) placement.

3.06 TOLERANCES

A. Vertical

1. A tolerance of plus 6 inches or minus 6 inches from the surface plane of the Armor Stone Type II layers shown will be allowed for Armor Stone Type II placement. A tolerance of plus 3 inches or minus 3 inches from the surface plane of the Bedding Stone layer shown will

be allowed for bedding stone installation. A tolerance of plus 3 inches or minus 3 inches from the surface plane of the Armor Stone Type I layer shown will be allowed for Armor Stone Type I installation. Either extreme of such tolerance shall not be continuous over an area greater than 200 square feet. The tolerance limit will be determined on the basis of the average surface elevation within 10 square feet. The armor stone surfaces shall be shaped with plating equipment or bucketing in order to achieve a uniform surface with no stones protruding more than 6-inches from the average surface area.

B. Horizontal

1. The horizontal location tolerance of the structure, as measured along the centerline, will be 1 foot laterally in a 300-foot-long section of the stone breakwater as indicated on the Drawings.

3.07 PROTECTION OF EXCAVATION AND SHORELINE

A. Alteration or disturbance of existing shorelines shall be limited to that necessary to construct the project to the lines and grades shown on the Drawings. Excavated slopes shall be protected from erosion during construction. The stone protection shall be maintained until accepted, and any material displaced shall be replaced to the lines and grades shown.

B. Excavated slopes, geotextile, bedding stone, and armor stone shall be protected from erosion and sand infilling by concurrently constructing geotextile, bedding stone and armor stone layers.

3.08 PROTECTION OF DISTURBED SURFACES

A. All upland disturbed areas shall be stabilized with environmental protection requirements in accordance with Technical Specification 01 57 13 – Temporary Erosion and Sediment Control.

3.09 INSPECTION

A. Slope lines, grades, and placement of stone shall be inspected and/or tested for gradation. The Owner's Representative may perform inspection of the stone prior to placement on the breakwater. However, this inspection does not relieve the Contractor from performing the in-place inspection. The Owner's Representative will review the results of the Contractor's intermediate progress surveys specified in Section 01 71 23 – Construction Surveying. The Contractor shall provide sufficient notification and time for the Owner's Representative to check and inspect installed materials prior to placement of overlying material layers.

3.10 WORK AREA ISOLATION

A. So that construction operations progress successfully, the breakwater excavation areas shall be isolated and protected from adverse environmental conditions as to prevent sloughing of excavation slopes and

deposition of suspended sediments. The Contractor shall use an isolation system capable of withstanding the hydrodynamic conditions at the project site during the construction of the breakwater structure to protect the excavation and installed materials. A description of the proposed work isolation method shall be submitted to the Owner's Representative.

3.11 TRUCK MEASUREMENT METHOD

A. Any trucks used to transport new material shall be measured in accordance with Section 01 20 00 – Measurement and Payment.

END OF SECTION