

TECHNICAL SPECIFICATION

CITY OF MERCER ISLAND INTRODUCTION TO THE TECHNICAL SPECIFICATIONS

The accompanying Contract Drawings and these Specifications and any Addenda thereto, show and describe the location and type of work to be performed for the Sub-Basin 4 6.3a Watercourse Stabilization Design project.

These Technical Specifications are intended to supplement Division 1, Section 1.10 and Division 2 through Division 10 of the 2024 Standard Specifications for Road, Bridge, and Municipal Construction, prepared by the Washington State Department of Transportation (WSDOT) and the American Public Works Associations, Washington State Chapter and any amendments thereto, herein referred to as Standard Specifications. In case of conflict, these Technical Specifications shall take precedence over the Standard Specifications.

HEADINGS

Headings to parts, sections, forms, articles, and sub-articles are inserted for convenience or reference only and shall not affect the interpretation of the contract documents.

TECHNICAL SPECIFICATIONS STRUCTURE

The specifications noted herein are in addition to, or as a replacement for, the Standard Specifications. Where sections are marked "Revised Section," the specifications herein are intended to be a revision or partial revision to the Specifications section noted. Where sections are marked as "New Section," the specifications herein will be an addition to the Standard Specifications section noted. Where sections are marked "Supplement," the specifications herein are to be a supplement to the Standard Specifications section noted. Sections of the Standard Specifications that are not modified or replaced as addressed in these Technical Specifications shall remain as described in the Standard Specifications.

Division 1

GENERAL REQUIREMENTS

DESCRIPTION OF WORK

Work to be performed under this contract includes furnishing all labor, equipment, and materials necessary for the construction of the Project as follows:

Stream channel stabilization. Work consists of stabilization of about 500 LF of stream channel with streambed materials, logs, and native vegetation.

1-10 Temporary Traffic Control

1-10.1 General

1-10.1(2) Description

Section 1-10.1(2) is supplemented with the following:

Temporary lane shifting or closure of SE 53rd Place may be required for access and material delivery during construction. However, full closure of SE 53rd Place is not allowed. Material delivery allowed along the length of right-of-way width adjacent to the staging areas, as shown on the Contract Drawings.

Minimize disruptions to SE 53rd Place vehicular traffic, bicyclists, and pedestrians.

1-10.2(2) Traffic Control Contract Drawings

Section 1-10.2(2) is supplemented with the following:

Traffic Control Contract Drawings are not included in the Contract Drawings. The Contractor is required to provide traffic control Contract Drawings for all items of work requiring traffic control. The traffic control plan shall conform to the current edition of the MUTCD Manual. City will approve, reject or modify said plan not later than five days prior to start of construction. City may direct that changes be made in the approved traffic control plan at any time during the course of construction. All costs associated or incurred in the preparation of Traffic Control Contract Drawings are considered incidental to the Contract and shall be included in the contract price for various other items of work in the bid proposal. All costs associated or incurred in the preparation of Traffic Control Contract Drawings are considered incidental to the Contract and shall be included in the contract price for various other items of work in the bid proposal.

Complaints received by the Owner or Engineer concerning public inconvenience or safety hazards will be referred to the Contractor for immediate corrective action. In addition to normal working hours, corrective actions shall be taken on Saturday, Sunday, holidays, and at other times outside normal work hours.

Emergency traffic such as police, fire and disaster units, shall be provided unrestricted access at all times. In addition, the Contractor shall coordinate Contractor activities with all disposal firms and transit bus service, which may be operating in the project area. Safe and convenient

access to bus zones shall be provided and maintained at all times by the Contractor. The Contractor shall be liable for any damages, which may result from failure to provide reasonable access or coordination.

1-10.4 Measurement

1-10.4(1) Lump Sum Bid for Project (No Unit Items)

Section 1-10.4(1) is supplemented with the following:

(August 2, 2004 WSDOT GSP, Option 1)

The proposal contains the item "Project Temporary Traffic Control", lump sum. The provisions of Section 1-10.4(1) shall apply.

END OF DIVISION 1

Division 2 Earthwork

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

Section 2-01, including title, is replaced with the following:

2-01 SITE PREPARATION, ACCESS, AND STAGING

2-01.1 Description

Section 2-01.1 is supplemented with the following:

The Contractor shall limit clearing and grubbing to the minimum area required for construction. The Contractor shall not clear and/or grub areas beyond the clearing limits as defined by the construction, access, and staging areas shown on the Contract Drawings unless approved by the Engineer.

The Contractor shall be responsible for the protection and preservation of all existing trees, shrubs, bushes, and other objects outside of the construction limits. Any existing tree, shrub, and bush located outside of the construction limits that is damaged or destroyed during construction shall be replaced by the Contractor in like type and size as indicated by the Engineer at no cost to the City.

The Contractor shall submit a staging and access plan to the Engineer for review and approval. Potential and optional access is shown on the Contract Drawings. The plan shall include but not be limited to the following: Temporary access route(s), Staging areas(s), Construction phasing plan, Traffic Control Plan.

2-01.2 Disposal of Usable Material and Debris

2-01.2(2) Disposal Method No. 2 – Waste Site

Section 2-01.2(2) is supplemented with the following:

No waste site has been provided for the disposal of excess material. Cleared material meeting the specifications for slash may be used as such at no charge to the Contracting Agency. All other material removed by clearing and grubbing operations and any unused portions of logs (log trimmings) or slash shall be disposed of by the Contractor at a legal disposal site, obtained by the Contractor. All fees shall be borne by the Contractor.

Section 2-01.2(3) is replaced with the following:

Wood chips generated from trees cleared from the site (including cherry laurel) and meeting the requirements of Section 9-14.4(3) may be used as wood chip mulch. All shrubs, vines (including but not limited to ivy and blackberry), and noxious weeds shall not be chipped.

Chipping shall be done by machines that can grind debris into wood chips. Wood chips to be sold may be of any size. Wood chips for use on the project shall meet the requirements of Section 9-14.4(3).

2-01.3 Construction Requirements

Section 2-01.3 is deleted and replaced with the following:

The site will be accessed by SE 53rd Place. The Contractor shall be responsible for maintaining vehicle and equipment access in a passable condition for the duration necessary to complete the work. During construction, the Contractor shall periodically inspect and maintain SE 53rd Place in sound condition, free of excavated or spilled material, mud, and construction materials. Breaks, potholes, rutting greater than 3 inches, low areas that collect standing water, migration of materials away from road, and other deficiencies caused by the Contractor's operations shall be repaired. The Contractor shall provide steel sheets where necessary to protect existing utilities.

Contractor shall minimize clearing to the minimum needed to access and stage for construction activities. The contractor shall use only the approved staging areas and temporary access corridor to access the project site as indicated in the Contract Drawings. The Contractor shall stake and flag all proposed areas of clearing within the construction limits, access areas, and staging areas at least 3 days prior to construction. Flagging shall be high-visibility orange survey tape installed on 3-foot-long wood lathe stakes at 20 foot maximum spacing. Contractor shall inform Engineer when the flagging is installed. Engineer will inspect and approve proposed clearing areas.

All construction activities shall avoid any damage to the trees outside of the clearing limits indicated on the Contract Drawings or as approved by the Engineer. Downed trees and debris within the work area, including within the in-water work area, shall be incorporate into the log structures. Contractor shall not clear vegetation greater than 6" in diameter unless identified for removal on Contract Drawings or prior engineer approval. Vegetation greater than 6" diameter shall be protected from damage. All costs for the work required to clear vegetation and incorporate them into the project as slash (Section 8-19) shall be considered incidental to the Bid Item Site Preparation, Access, and Staging. Contractor shall remove all stakes and flagging at the completion of the construction.

2-01.5 Payment

Section 2-01.5 is deleted and replaced with the following:

Payment will be made in accordance with Section 1-04.1, for the following bid item when it is included in the proposal.

"Site Preparation, Access, Staging", Lump sum.

The lump sum contract price for "Site Preparation, Access, Staging" shall include but not be limited to, full pay for completing all work including labor, material, tools and equipment to complete the work as shown on the Contract Drawings and these specifications.

There will be no separate measurement for minor grading.

The contract lump sum price shall also include all costs associated with additional staging if desired by the contractor and approved by the Engineer.

2-03.3(14)F Vacant

Section 2-03.3(14)F is deleted and replaced with the following:

2-03.3(20) Streambed Material (New Section)

This work shall consist of furnishing, stockpiling, handling, and placing of materials including streambed boulders and sediment for log weir stabilization construction, as specified on the Contract Drawings, or as directed by the Engineer.

Streambed Material shall be comprised of 70% 12-inch Streambed Boulders conforming to the requirements of Section 9-03.11(5) and 30% Streambed Sediment conforming to the requirements of Section 9-03.11(1). Place streambed boulders and sediment onto proposed stream bottom and banks to create final grade as shown on the plans. Final placement shall be verified and may be adjusted by the Engineer. Place material to thicknesses and dimensions shown on the plans. Materials shall come from offsite sources.

2-03.4 Measurement

Section 2-03.4 is supplemented with the following:

“Streambed Sediment” shall be measured by the Ton. Weight tickets shall be provided to the Engineer upon delivery to the site.

“One-man, two-man and three-man Streambed Boulders” shall be measured by the Ton. Weight tickets shall be provided to the Engineer upon delivery to the site.

2-03.5 Payment

Section 2-03.5 is supplemented with the following:

The contract price paid for the “Streambed sediment” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to install the Streambed Material including any backfill, and finished grading of materials.

The contract price paid for the “Streambed boulders” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work required to install the Streambed Material including any backfill, and finished grading of materials.

END OF DIVISION 2

Division 8 Miscellaneous Construction

8-01 Erosion Control and Water Pollution Prevention

8-01.1 Description

Section 8-01.1 is supplemented with the following:

This Work shall consist of furnishing and implementing a Stormwater Pollution Prevention Plan (SWPPP), and installing, maintaining, removing, and disposing of temporary fencing, temporary stream diversion, silt (filter) fence, silt curtain, Temporary Erosion and Sediment Control (TESC), Best Management Practices (BMPs) and Water Management in accordance with the Plans, these Special Provisions all federal, state, local and permit requirements and as directed by the Engineer. The Contractor shall be responsible for all temporary erosion control and water management measures during construction and until the Notice of Termination is issued to meet all federal, state, local and permit requirements. Furthermore, the Contractor shall be responsible for removal and disposal of all high visibility fence, silt fence, silt curtain, and TESC BMPs when work is complete. This work also includes revegetation of areas disturbed during construction activities areas impacted by construction with seed mix as indicated in the Plans and as specified in these Special Provisions.

8-01.3 Construction Requirements

8-01.3(1) General

Supplement Section 8-01.3(1) with the following:

The temporary erosion and sediment control measures (TESC measures) selected for use on this project were selected based on construction occurring during the “dry season” of July 1 to September 30. If the construction extends outside of the dry season, the Contractor shall prepare a wet season erosion and streambed sediment control plan to meet local, state, and federal requirements for construction in the “wet season”. The wet season erosion and streambed sediment control plan shall be submitted to the Engineer for review and approval prior to September 15. The wet season erosion and streambed sediment control plan shall be prepared at the Contractor’s sole expense.

8-01.3(1)A Submittals

Supplement Section 8-01.3(1) A with the following:

The TESC Plan will be sufficiently detailed and organized to meet the requirements identified by the WA Department of Ecology for a Stormwater Pollution Prevention Plan (SWPPP). Contractor shall provide this plan to the Project Engineer for approval no later than two weeks prior to Mobilization.

8-01.3(1)C Water Management

Replace Section 8-01.3(1) C in its entirety with the following:

Work under this Section shall consist of furnishing all labor, tools, equipment, and materials necessary to sufficiently divert creek flows and dewater the site for the installation of any improvements that require earthwork as shown on the project Plans. Water shall be managed as follows:

1. Groundwater – Groundwater can be expected/anticipated to be encountered within the project area, and may be large in quantity. When ground water is encountered in an excavation, it shall be treated and discharged as follows:
 - a. When the ground water conforms to Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A), it may bypass the work site and be routed directly to its normal discharge point at a rate and method that will not cause erosion.
 - b. When the turbidity is greater than the turbidity of the site runoff, the ground water shall be treated separately until the turbidity is similar to or better than the site runoff, and then may be combined and treated.
2. Stream Flow and Off-Site Water – The project site is located downstream of a storm drain system. The site is subject to periodic rain storm run-off and periodic flood events. Careful timing of work activities and/or diversion and dewatering of surface waters may be needed to perform work in and around the existing channel for the construction of project improvements. The Contractor shall intercept the stream flow and stormwater from off-site and pipe or otherwise divert it either through or around the project site. This water shall not be combined with on-site stormwater. It shall be discharged at its preconstruction outfall point in such a manner that there is no increase in erosion below the site. The method for performing this Work shall be submitted by the Contractor for the Engineer’s approval. All work for diversion and dewatering must be completed in accordance with federal, state, local, and permit requirements. In order to prevent damage to the work and to prevent the discharge of turbid waters to water bodies outside of the project area, the Contractor shall not allow surface waters to inundate areas of earthwork until final grade has been achieved and accepted by the Engineer.
3. All water generated on site from construction or washing activities that is more turbid than site runoff shall be treated separately until the turbidity is the same or less than the site runoff, and then may be combined and treated.
4. The Contractor shall be familiar with the hydrology, weather, soils and other natural conditions present at the project site. The Contractor shall be prepared to handle any conditions which may be encountered. Failure to perform any item of the Work required in the Contract due to an inability to sufficiently dewater the site or divert flows shall not constitute grounds for additional compensation.

8-01.3(1) C5 Temporary Stream Diversion

Include the following new section:

Divert flow in stream around construction area as necessary to construct project. Diversion shall be in accordance with the Plans, these Specifications, and the requirements of the permits.

Develop a Stream Diversion Plan. Submit the Stream Diversion Plan to the Engineer for review and approval. All costs for temporary stream diversion will be included in the bid item "Water Management."

The temporary diversion system shall include, at a minimum, diversion dams, a pump (if used, a duplicate standby pump must be on-site), and the discharge from the diversion pipe and/or ditch back into the channel at the downstream end of the project as indicated on the Plans. The temporary diversion system shall be designed to prevent erosion of the channel at the downstream end of the temporary diversion. The Stream Diversion Plan shall detail the locations, sizes of, and materials for the facilities. The Contractor shall provide the stream diversion around the construction area for the duration of in-stream work. This activity shall conform to the requirements of the Hydraulic Project Approval (HPA) and Nationwide Permit 13 (NWP 13). The temporary stream diversion shall be appropriately sized to manage daily flows and rainfall events. The Contractor is responsible for properly sizing the pumps. The Contractor shall be prepared and have materials on site to secure the area from impacts of heavy rainfall with appropriate Best Management Practices (BMPs) such as plastic sheeting to prevent flows greater than the stream diversion from contacting disturbed soils within the construction area. The temporary diversion system shall be completely removed and properly disposed of at the contractor's expense when no longer required.

8-01.3(2)B Temporary Seeding

Supplement section 8-01.3(2) B with the following:

The Contractor shall keep the premises clean, free of excess soils, and other materials, including refuse and debris, resulting from work throughout the planting operation. At the end of each workday, it shall be neatly dressed and all surrounding paved areas shall be cleaned to the satisfaction of the Engineer. Track out on paved road will not be allowed. The Contractor shall remove surplus soils, materials, and debris from the construction site and shall leave the project in a clean condition at the conclusion of the work.

Temporary seed, if needed, shall be per the mix, rate and analysis as specified in Section 9-14.2 of these Special Provisions, applied as directed in the Field. Incorporate all materials by raking or harrowing to a depth of $\frac{1}{4}$ inch to $\frac{1}{2}$ inch. Seed shall not be left uncovered more than 24 hours unless otherwise approved by the Engineer. Seeding shall not occur under conditions that would allow the seed to become windborne (winds greater than 5 mph).

8-01.3(9) A2 Silt Fence

Supplement section 8-01.3(9) A2 with the following:

The contractor shall install temporary Silt Fences at the locations shown in the Plans and as directed by the Engineer. The Silt Fences shall be constructed in the areas of clearing and grading prior to starting those activities. The Silt Fence shall prevent soil carried by runoff from going beneath, through or over the top of the Silt Fence, but shall allow the water to pass through the fence. "Silt Fence" and "Filter Fence" are interchangeable on this project.

Filter Fabric shall be maintained at least two but no more than three feet high above ground at all times. Silt fencing is considered a temporary erosion control measure (Best Management Practices). Damaged or otherwise improperly functioning portions of silt fences shall be repaired or replaced by Contractor at no cost to the Contracting Agency, as determined by the

Engineer. Silt Fence shall be maintained until acceptance of permanent erosion controls by the Engineer, after which the silt fence shall be removed by the Contractor. Work under this item shall consist of furnishing, placing, maintaining, and removing silt fences when no longer needed.

8-01.3(15) Maintenance

Supplement section 8-01.3(15) with the following:

The Contractor is responsible for maintenance of all TESC BMPs throughout the duration of the project. The Engineer may periodically inspect installations and require repair or replacement of any BMP at no additional cost to the Contracting Agency.

8-01.3(16) Removal

Supplement section 8-01.3(16) with the following:

Temporary erosion control measures shall remain in place until permanent measures are established either under this Contract or by others. If it is requested by the Contracting Agency or the Engineer, the Contractor shall leave TESC BMPs in place for up to one (1) year post completion of construction and shall be responsible for removing and disposing of TESC BMPs within that year and upon request of the Contracting Agency or the Engineer with no additional compensation allowed therefor.

8-01.3(18) Construction Area Erosion & Streambed Sediment Control

Include the following new section:

Erosion and streambed sediment control measures shall be used within the construction area, which includes staging areas, access paths and the channel. The Contractor shall prepare a TESC Plan which includes all project areas. A sample TESC Plan is provided in the plans. The TESC Plan shall indicate the proposed access route(s) and staging areas, indicating the amount and type of different materials staged on-site during the project. The method of maintaining dry working conditions throughout the project shall be fully described, as well as approach to protecting the site and water quality in the case of a rainstorm. The TESC Plan shall be submitted to the Engineer for review and approval. No materials shall be brought into the staging area(s) or construction area until the TESC Plan has been approved by Engineer. Saturated site conditions and groundwater may be present at the project site and must be managed as part of TESC Plan activities. Work area isolation from flowing water shall be maintained on a 24/7 basis during construction.

Material stockpiles shall have perimeter streambed sediment control Best Management Practices (BMPs) installed, such as silt fences or certified weed-free straw wattles along any downhill perimeter of the construction staging area where water carrying streambed sediment might leave the construction staging area. Temporary cover shall be installed on all soil material stockpile areas. Temporary cover for soil stockpiles shall consist of temporary mulch or plastic covering. If rain is forecast, temporary erosion control measures shall be installed to prevent discharge of streambed sediment from the construction area.

These measures may include temporary mulching, certified weed-free straw wattles, plastic, sandbags or other materials deemed necessary by the Engineer. The intent is to prevent discharge of turbid water from the site. Work stoppage may be required to fulfill this intent.

A sample TESC plan is provided as part of the plans but is not final. The Contractor shall submit, as part of the TESC Plan, a work site isolation and dewatering plan. The plan shall conform to the Washington Department of Ecology water quality standards, Washington Department of Fish and Wildlife Hydraulic Project Approval (HPA).

8-01.4 MEASUREMENT

Supplement section 8-01.4 with the following:

No unit of measurement shall apply to the lump sum price for "Erosion Control and Water Pollution Prevention".

No unit of measurement shall apply to the lump sum price for "Water Management".

8-01.5 PAYMENT

Supplement section 8-01.5 with the following:

Payment will be made in accordance with Section 1-04.1 for each of the following bid items that are included in the Proposal:

"Erosion Control and Water Pollution Prevention" per lump sum.

The unit contract price per lump sum for "TESC" shall constitute full payment for all costs incurred to furnish, install, maintain and remove the erosion control measures for the duration of the project as well as rehabilitation of soil disturbed by these activities. It also includes the cost to prepare, submit and revise as necessary the TESC Plan.

"Water Management" per lump sum.

Payment for "Water Management" Bid Item shall be made at the lump sum price bid, with no additional compensation therefor. It shall also constitute full payment for installation, maintenance, labor, equipment and materials as well as diversion, SWPPP, and groundwater dewatering methods employed to maintain dry working conditions within the project site.

8-02 ROADSIDE RESTORATION

Section 8-02 title is replaced with the following:

8-02 SITE RESTORATION

8-02.1 DESCRIPTION

Section 8-02.1 is replaced with the following:

This work consists of scarifying, revegetation seeding, furnishing and installation of mulch, container plants and live stakes in accordance with these Special Provisions and as shown on the Plans or as designated by the Engineer or Owner.

8-02.3 CONSTRUCTION REQUIREMENTS

8-02.3(4)A Topsoil

Supplement section 8-02.3(4)A with the following:

Topsoil Type A shall be used throughout project when topsoil is necessary.

8-02.3(5) Roadside Seeding, Lawn and Planting Area Preparation

Supplement Section 8-02.3(5) with the following:

Complete all final grading and prepare areas designated for revegetation using methods indicated on the Plans. Revegetate with species, spacing and size as indicated on the Plans or as directed by the Engineer or Owner. Planting is to be carried out per the onsite direction of the Owner.

8-02.3(8)B Plant Installation

Supplement 8-02.3(8)B with the following:

1. Installation of Container Plants

Planting Pits: Dig pits so that they have vertical sides and flat bottoms. When pits are dug with an auger and the sides of the pits become glazed, scarify the glazed surface. Size the plant pits as shown on Plans, otherwise, the minimum allowable dimensions of plant pits shall be as follows:

- a. Pit Depth: Equal to or slightly shallower than the depth of container or root ball.
- b. Pit Diameter: Based on container or root ball diameter with minimum sizes listed below. Increase pit width on steeper hillsides as directed by the Project Representative.
 - i. Ball/container diameter less than 2 feet: Twice the ball/container size.
 - ii. Ball/container diameter between 2 to 4 feet: Two feet greater than the ball/container size.
 - iii. Ball/container diameter greater than 4 feet: 1-1/2 times the ball/container.
 - iv. Cut off any circling or girdling roots.
- c. Setting Plants: Set plants in relation to surrounding grade so that they are even with the depth at which they were grown in the nursery, collecting field, or container. Adjust pit depth as necessary. Set plants plumb and hold in position until sufficient soil has been firmly placed around the roots or ball.
 - i. Backfill: Backfill plants with native soil or planting soil mixture as specified to approximately half the depth of the root ball, then tamp and water. Tamp and water remainder of backfill.
 - ii. Saucers: Form earth saucers with topsoil 2–4 inches high around isolated shrubs and 3–6 inches high around trees per Plans.
 - iii. Watering basins: Install 4-inch depth of medium-fine bark mulch around installed plantings, measuring a minimum diameter of 3-feet around plantings. Ensure mulch is pulled back from trunks of trees and shrubs as shown on the Plans.

2. Setting Live Stakes

Install live stakes per the Plans. Live stakes shall be in growth position. If bottom end of stake has dried out, cut fresh end prior to installing.

- a. For very soft soils, live stakes may be pounded directly into the ground.
- b. For compact or gravelly soils, or installation through coir logs, form a pilot hole in the subgrade and/or through the coir logs with a steel bar or piece of rebar sized to accommodate the diameter of the live stakes (3/4 to 1½" diameter).
- c. Install live stakes in pilot hole. Do not break leaf nodes. Install stakes with a minimum of 3 nodes below grade and 4 nodes above grade.
- d. Backfill hole and tamp soil below coir log and around stake to fill air pockets.

8-02.3(9) Seeding, Fertilizing, Mulching

Supplement 8-02.3(9) with the following:

Areas disturbed by construction for temporary staging/stockpiling, access corridors, and installation of proposed improvements shall be reseeded per the Owner's direction. All seed shall be applied above the Watercourse 46a.3 ordinary high water line. Seed for revegetation of disturbed areas is specified in Section 9-14.2 of these Special Provisions.

8-02.3(11) Mulch

Supplement 8-02.3(11) with the following:

Bark of woodchip mulch rings as specified in Section 9-14.2 shall be applied to all shrub and tree plantings per the Plans. Bark or wood chip mulch shall be placed to a uniform non-compacted depth of 4 inches to a radius of 2 feet.

8-02.3(13) Plant Establishment

City, confirm you want contractor performing plant establishment. Any change from WSDOT Standard Spec language or special requests?

8-02.4 Measurement

Supplement Section 8-02.4 with the following:

Revise the measurement description as follows:

"Topsoil" shall be measured per cubic yard and shall include furnishing, spreading, and cultivating including placement and incorporation of native soil for planting pits.

"Bark of woodchip mulch" shall be measured per cubic yard and include furnishing and spreading for planting pits.

"Live Stake" shall be measured per each and include furnishing and installation.

"PSIPE 1 gallon" shall be measured per each and the unit price of per each shall include the tree, shrub, or herb, excavation, placement, topsoil, watering basin construction, establishment and all other work necessary for planting each plant as shown on the Plans.

"PSIPE 2 gallon (with Wildlife Protection)" shall be measured per each and the unit price of per each shall include tree, excavation, placement, topsoil, watering basin construction, wildlife protection fencing, establishment and all other work necessary for planting of trees as shown on the Plans.

"Temporary Seeding," if authorized by the Owner, will be measured by Force Account.

"Seeding" shall be measured per square yard.

8-02.5 Payment

Supplement Section 8-02.5 with the following:

Payment will be made in accordance with Section 1-04.1 for each of the following bid items that are included in the Proposal:

The per lump sum price for 'Site Restoration, Incl. Planting' includes all costs to perform the Work described within Section 8-02.3.

8-03 Irrigation Systems

8-19 Vacant

Section 8-19, including title, is replaced with the following:

8-19 Wood Structures

8-19.1 Description

This work shall consist of furnishing materials including logs, slash, stakes, coir fabric, coir logs, and connecting hardware; and assembling, hauling, and installing wood structures (Engineered Log Jam [ELJ]), as specified on the Contract Drawings, or as directed by the Engineer.

8-19.2 Materials

The Contractor shall submit the source of materials to the Engineer for approval at least 7 working days prior to use.

8-19.2(1) Logs

Wood species shall consist of Douglas Fir or Western Red Cedar trunks and shall be harvested no more than 6 months prior to use unless otherwise specified on the Contract Drawings, or as directed by the Engineer. Logs shall contain no unsound knots. Sound knots will be permitted, provided the diameter of the knot does not exceed 4 inches. The Contractor, at their option, may supply longer logs meeting the diameter requirements, at no additional cost to the Contracting Agency, to allow for cut-back.

Log diameters, as measured with the bark on, and lengths for each log type are provided in the schedule of materials on the Contract Drawings. Log types include A, B, C, and D. Logs shall be No.4 sawmill grade or better in accordance with the Official Rules of the Pacific Rim Log Scaling and Grading Bureau, Inc., Lacey, WA. Certification of log grades will not be required

for material approval but may be required following inspection and if requested by the Engineer. Logs shall be cleaned of loose soil prior to installation.

8-19.2(2) Slash

Slash is composed of trees, limbs, roots, brush and tops imported or generated during site clearing activities. It shall be free from silty or clayey material that would cause turbidity when placed in the water. It shall be composed of various sizes less than 4 inches in diameter with no more than 20 percent smaller than 3/4 inch. Slash shall be free of noxious weeds per the Washington State Noxious Weed Lists and Monitor List (<http://www.nwcb.wa.gov>).

8-19.2(4) Connections

All-Thread and Connecting Hardware

All-thread shall be 1 1/4-inch diameter for log-to-log connections. Material shall be ASTM A193 Grade B7 All-Thread Rod meeting ASME B18.31.2, plain finish. Nuts shall be ASTM A194 Grade 2H Heavy Hex, plain finish. Manila rope 1 1/2-inch diameter for log connections.

8-19.2(5) Lumber

Lumber for stakes shall be untreated 2 by 4 nominal Douglas Fir-Larch, Grade No. 2 or better, or Hem-Fir Grade No. 1.

8-19.3 Construction Requirements

All work shall be accomplished in accordance with the requirements of the Washington State Department of Fish and Wildlife HPA and other permits listed in Section 1-07.6 and provided in Appendix E. Logs, boulders and hardware shall be approved on site by the Engineer prior to installation.

Engineered Log Jams (ELJs) shall be assembled as shown in the Contract Drawings or as directed by the Engineer. ELJ assembly, including a recommended construction and installation sequence, is described in the Contract Drawings.

The Contractor shall assemble one of each ELJ type (two total) for evaluation and/or testing prior to constructing the total contracted number of ELJs. The Contractor shall incorporate any design modifications provided by the Engineer and shall not construct any additional ELJs, other than those requested by the Engineer, without written permission from the Engineer. Any costs incurred from constructing unauthorized ELJs, or from failure to incorporate requested modifications, shall be at the Contractor's expense. Contractor may submit design modifications for review and approval by the Engineer and any modifications will be subject to testing at the Contractor's expense and Engineer approval.

Posts shall be installed by auguring methods to the embedment depths shown on the Contract Drawings. Augur diameter shall not exceed the bole diameter.

Logs and slash are non-uniform materials. Prior to cutting any structure log, the Contractor shall test fit the log with all adjacent logs to ensure fit as intended. Logs may be trimmed, notched, and otherwise adjusted with approval of the Engineer. Any logs cut prior to test fit, and found to not fit in the intended location or orientation, shall be replaced by the Contractor at no cost to the Contracting Agency. Place slash in lifts within ELJs, as shown in the Contract Drawings. Compact each layer until there is no evidence of further consolidation by visual

inspection. Obtain compaction through use of ram type tampers, or similar alternatives approved by the Engineer.

Install coir logs overlapping slash and existing bank soil so that at least 50% of coir log is in contact with existing soil. Install live dogwood and willow stakes into coir log as shown in the Contract Drawings.

ELJs will be subject to different configurations as shown in the Contract Drawings. During installation, any damage to the ELJs, including but not limited to failed connections or broken Logs, shall be repaired or replaced at the direction of the Engineer at the Contractor's expense.

8-19.4 Measurement

Type __ ELJ, Installed shall be measured by each ELJ installed and accepted.

Furnishing, handling, and installing logs, slash, chain, manila rope, coir fabric, coir logs, all thread, washers, nuts, shackles, staples, railroad stakes, wooden stakes, Dogwood and Willow stakes, and any other materials used in the installation shall not be measured but shall be considered incidental to and included in the associated Bid Items.

8-19.5 Payment

Payment will be made for each of the following Bid items that are included in the Proposal. It shall be full payment for labor, tools, materials, and equipment necessary to complete construction as described and as shown in the Construction Drawings, including but not limited to, final field adjustment as directed by the Engineer; and all incidentals necessary to satisfactorily complete the work.

"Type __ ELJ" per each

The unit Contract price per each for "Type __ ELJ" shall be full compensation for all labor, materials, and equipment required to install ELJs. Payment will include any minor excavations necessary for installation of the ELJs as shown on the Plans or as directed by the Engineer. Payment will be made per installed ELJ that is accepted by the Engineer. No payment will be made for slash produced from on-site materials.

END OF DIVISION 8

Division 9 Materials

9-14 Erosion Control and Roadside Planting

9-14.2 Topsoil

Supplement section 9-14.2 with the following:

Topsoil shall be all purpose topsoil mix consisting of roughly 60% sandy loam soil and/or loam soil/mulch mixture and 40% sand. Soil shall pass through ½” screen, be free of large rocks, sticks, clay, etc. The supplier shall ensure topsoil is free of heavy metals and pathogens and rated grade “AA” safe for establishing seed, planting shrubs and trees, and growing sod.

Contractor shall submit supplier cut sheet for approval by the City ahead of planting activities.

9-14.3 Seed

Supplement section 9-14.3 with the following:

Seed for temporary seeding, if directed by the Owner for temporary site stabilization, shall be composed of drought-tolerant 3-way turf-type fescue blend, similar to the below mix.

Temporary Seed Mixture Proportions			
Name	By Weight	% Purity	% Germination
Hard Fescue	34%	90%	85%
Creeping Red Fescue	33%	90%	85%
Chewings Fescue	33%	90%	85%

Inert/Other Crop: 2.5% Max, Weed Seed: 0.5% max

Mix shall be applied per manufacturer/supplier recommendations and method of seeding (i.e., hydroseed, hand-seeding, etc.) with minimum of 3 lbs per 1,000 SF.

Seed mix shown above is reflective of JB Lawn Kevlar Tall Fescue Sod Blend or Direct Seed Sales Drought-Tolerant and Drought Resistant seed mixes. Contractor shall utilize this mix or equivalent and submit supplier cut sheet for City approval prior to use.

Seed for permanent revegetation of disturbed areas in the 53rd Place Open Space Corridor shall be a native riparian seed mix, similar to the below mix.

Native Seed Mixture Proportions			
Name	By Weight	% Purity	% Germination
Blue Wildrye	40%	100%	85%
Native Red Fescue	35%	100%	85%
Tufted Hairgrass	10%	100%	85%
NW Mannagrass	10%	100%	75%
American Sloughgrass	5%	100%	75%

Prohibited Weed 0.0% max. Noxious Weed 0.0% max. Inert/Other Crop: 0.4% Max, Other Weed: 0.2% max

Mix shall be applied per manufacturer/supplier recommendations and method of seeding (i.e., hydroseed, hand-seeding, etc.) with minimum of 3 lbs per 1,000 SF.

Contractor shall utilize this mix or equivalent and submit supplier cut sheet for Owner approval prior to use.

Seed shall meet or exceed Washington State Dept. of Agriculture Certified Seed Standards and be from within the Puget Lowland Ecoregions as defined by the US EPA.

9-14.5(3) Bark or Wood Chip Mulch

Supplement section 9-14.5(3) with the following:

Mulch shall be Arborist Wood Chip Mulch (AWCM) shall be coarse ground wood chips (approximately ½ inch to 6 inches along the longest dimension) derived from the mechanical grinding or shredding of the above-ground portions of trees. It may contain wood, wood fiber, bark, branches, and leaves; but may not contain visible amounts of soil. It shall be free of weeds and weed seeds, including but not limited to, plants on the King County Noxious Weed list available at: <http://www.kingcounty.gov/weeds>, and shall be free of invasive plant portions capable of resprouting, including but not limited to, horsetail, ivy, clematis, knotweed, Himalayan Blackberry, Reed canary Grass, etc. It may not contain more than 0.5% by weight of manufactured inert material (plastic, concrete, ceramics, metal, etc.).

Arborist Wood Chip Mulch, when tested, shall meet the following loose volume gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	95	100
1"	70	100
5/8"	30	50
1/4"	0	40

Submittals: At the Owner's or Engineer's request, prior to delivery, the Contractor shall provide the following for the Arborist Wood Chip Mulch:

- a. The source of the product and species of trees included in it;
- b. A sieve analysis verifying the product meets the above size gradation requirement;
- c. A 1-gallon sample of the product for the Engineer's approval.

END OF DIVISION 9