

## Appendix B

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### **BAER Treatments Sample Contract Specifications**

#### **Storm Inspection Response**

##### **Work Statement**

Storm inspection/response keeps culvert and drainage structures functional by cleaning sediment and debris from the inlet between or during storms. This work will be accomplished through equipment rental and general labor.

A Storm Patrol unit shall consist of at a minimum two persons in a 4 by 4 vehicle with shovels, chainsaws, winch, and other equipment necessary to clear culverts, restore drainage function, and provide needed access. Available to the storm patrol unit is mechanized equipment with operators that can open plugged culverts, move material from the road, and restore drainage function beyond what can be done with hand tools.

##### **SPS 151(01) Mobilization**

**Description** incorporate 151.01, add the following: Contractors shall be capable of responding with one Storm Patrol Unit within 12 hours of the initial request of the contracting officer.

**Measurement** incorporate 151.02

**Payment** incorporate 151.03, lump sum (ls).

##### **SPS 622(01) Rental Equipment Backhoe w/Operator, Extend-a-Hoe, 4x4**

##### **SPS 622(02) Rental Equipment Dump Truck**

##### **SPS 622(03) Rental Equipment Excavator**

##### **SPS 622(04) Rental Equipment D6 Dozer**

##### **SPS 622(05) Rental Equipment Lowboy**

##### **SPS 622(06) Rental Equipment Service Truck**

**Description** incorporate 622.01,

**Construction Requirements** incorporate 622.02 and add the following:

- a. Locations of drainage failures, possible failures, and washouts shall be reported to the contracting officer.
- b. Plugged drainage structures shall be cleared with hand equipment or mechanically, when it is possible to do so in a safe manner.
- c. Patrolling of roads and clearing drainage structures shall be accomplished in a manner that does not damage the surface of the roads being patrolled, or the drainage structures being maintained.
- d. Personnel assigned to storm patrol shall have contact with the contractor by mobile phone or mobile radio.
- e. The patrol unit shall identify to the contracting officer, problem areas that will require additional heavy equipment to restore proper drainage function.

**Measurement** incorporate 622.02

**Payment** incorporate 622.05 by the hour (hr.)

##### **623(01) General Labor-Laborer**

##### **623(02) General Labor-Laborer, chainsaw with operator**

**Description** reference 623.01

**Measurement** reference 623.02

**Payment** incorporate 623.05, by the hour (hr.)

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### **Culvert Modification**

#### **Work Statement**

Culvert modification replaces fire-damaged culverts or upgrades culvert flow for increased capacity or passage of debris expected as a result of the fire. Modifications include upgrading culvert size, attaching metal-end-sections, or placing risers on culvert inlets.

**203(01) Removal of Structures and Obstructions-Culvert upgrade/replacement remove CMP 18-36inch**

**203(02) Removal of Structures and Obstructions-Culvert upgrade/replacement remove CMP > 36 inch**

**Description** incorporate 203.01

**Material** incorporate 203.02

**Construction Requirements** incorporate 203.04 Remove Material, and 203.05 (a) disposing of material.

**Measurement** incorporate 203.07

**Payment** incorporate 203.08, each (ea).

**602(01) Culverts and Drains-Culvert upgrade/replacement Aluminum 36 in-48 in.**

**602(02) Culverts and Drains-Culvert upgrade/replacement Aluminum >48**

**Payment** incorporate 602.10, meter (m).

**602(03) Culverts and Drains-Culvert Modification Metal end section 18-36 inch**

**602(04) Culverts and Drains-Culvert Modification Metal end section >36 inch**

**Payment** incorporate 602.10, each (ea).

**SPS 602(05) Culverts and Drains-Riser/elbow, small 36 inch or less**

**SPS 602(06) Culverts and Drains-Riser/elbow, large 36 inch or greater**

**Description** This work shall consist of the construction and installation of corrugated metal pipe risers with steel grate covers on existing culverts.

**Materials** incorporate 602.02.

**Construction Requirements** Corrugated metal pipe risers shall be fabricated to the dimensions specified in writing and be of the same type of material and shall have the same coatings as the culvert on which they are to be placed. Corrugated metal pipe risers inlets are fabricated with a stab of the same diameter and material of the existing culvert welded onto the riser and connected to the existing pipe with a collar as shown on the drawings. This weld shall be cold galvanized to prevent corrosion. The stab is welded perpendicular to the riser unless otherwise specified by the engineer in writing. When joining pipes to inlet structures ensure existing pipe is free from damage (i.e. dents) before coupling to the riser. Damage to existing inlets at sites ordered for installing corrugated metal pipe risers will be repaired by the contractor and is an incidental cost to this section.

**Measurement** incorporate 602.09

**Payment** incorporate 602.10, each (ea).

**SPS 602(07) Culverts and Drains-Riser pipe extension, small 36 inch or less**

**SPS 602(08) Culverts and Drains-Riser pipe extension, large 36 inch or greater**

**Description** Riser pipe extensions are attached to the riser/elbow extending vertically to the designated height. Riser pipes function to sieve debris and allow passage of water. The steel grate cover is attached to the top of the riser pipe extension.

**Material** incorporate 602.02, and 725.12 Frames, Grates, Covers, and Ladder Rungs.

**Construction Requirements** Riser pipe extensions should be 1-foot lower than the fill height. Riser pipe extensions should be perforated with 6 holes per foot of riser height at 6-inch diameter each or as directed by the contracting officer. For riser extensions greater than 8 feet in height, backfill for riser stability as directed by the contracting officer

**Measurement** Incorporate 602.09.

**Payment** Incorporate 602.10, meter (m).

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### **Debris Rack / Debris Deflector**

#### **Work Statement**

A debris rack is a structure placed across the stream channel to collect the debris before it reaches the culvert entrance. Debris racks are constructed with driven piles of various materials including steel H-piles and steel pipe. The design and configuration of the driven piles and appurtenances shall be to the dimensions specified in writing or as shown in the drawings.

Debris deflectors are V-shaped structures with the apex pointed upstream. Deflectors function by diverting medium and large floating debris and large rocks from the culvert inlet to accumulate in a storage area where debris is removed after the flood subsides. Deflectors are constructed with driven piles of various materials including steel H-pipes and steel pipe. The design and configuration of the driven piles and appurtenances shall be to the dimensions specified in writing or as shown in the drawings.

#### **551(01) Driven Piles, Steel H-Piles**

#### **551(02) Driven Piles, Steel Pipe**

**Description** Incorporate 551.01

**Material** Incorporate 551.02

**Construction Requirements** Incorporate 551.03

**Measurement** Incorporate 551.04

**Payment** Incorporate 551.05 meters (m).

#### **SPS 555(01) Steel Structures**

**Description** Incorporate 555.01. This work involves the assembly and welding of the debris structures.

**Material** Incorporate 555.02

**Construction Requirements** Incorporate 555.03 General, 555.14 Welded Connections, 555.18 Welding. Furnish, fabricate and erect the structure as shown in the drawings and at the locations staked on the ground.

**Measurement** Incorporate 555.21

**Payment** Incorporate 555.22 lump sum (ls).

### **Low-Water Stream Crossings**

#### **Work Statement**

Low-water stream crossings are used to replace culverts where the risk of damage to the culvert, road fill, or access is increased due to the effects of the fire. The low-water stream crossing (natural ford) conforms to the streambed or the designed crossing elevation above the streambed once the culvert is removed.

#### **203(04) Removal of Structures and Obstructions-Remove CMP< 36 inch**

#### **203(05) Removal of Structures and Obstructions-Remove CMP >36 inch**

**Description** incorporate 203.01

**Material** incorporate 203.02

**Construction Requirements** incorporate 203.04 Remove Material, and 203.05 (a) disposing of material.

**Measurement** incorporate 203.07

**Payment** incorporate 203.08, each (ea)

#### **SPS 204(01) Excavation and Embankment –Low-water stream crossing**

**Description** This work includes the excavation of existing fill material at the stream crossing, while providing a vertical alignment that accommodates the design vehicle for the road.

**Construction Requirements** Suitable excavated material shall be incorporated in the roadway on either side of the crossing. Excess excavated material shall be hauled to a designated disposal area under pay item 622(02).

**Measurement** Incorporate 204.16(a) roadway excavation

**Payment** incorporate 204.17 cubic meter (m<sup>3</sup>)

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### **SPS 209(01) Structure excavation and Backfill –Low-water stream crossing**

**Description** This work includes the excavation for the low-water crossing endwall within and adjacent to the stream channel, as staked on the ground by the engineer.

**Construction Requirements** incorporate 209.03 Preparation for structure excavation, 209.04 General, 209.05 Channel Preservation, 209.07 Dewatering, and 209.08 Foundation preparations.

**Payment** Measure for payment under 252 (01) Special Rock Embankment and Rock Buttress.

### **251(01) Riprap**

**Description** This work consists of furnishing and placing riprap in the construction of the low-water stream crossing. Incorporate 251.01.

**Material** Incorporate 251.02

**Construction Requirement** Incorporate 251.03 General, 251.04 Placed riprap, and 251.05 keyed riprap.

**Measurement** Incorporate 251.08

**Payment** Incorporate 251.09 cubic meters (m<sup>3</sup>)

### **SPS 252(01) Special Rock Embankment and Rock Buttress –Low-water stream crossing**

**Description** This work consists of furnishing and placing rock keyed into the channel bottom (for endwall) to provide support for the road and riprap above.

**Construction Requirements** Place rock in a stable orientation, ensure all rocks are braced against other rocks and set at the appropriate elevation.

**Measurement** Incorporate 252.05

**Payment** Incorporate 252.06 cubic meter (m<sup>3</sup>).

### **253(01) Gabion and Revetment**

**Description** Gabion structures are for endwall construction and erosion resistant splash pad.

**Materials** Incorporate 253.02

**Construction Requirements** Incorporate 253.03 General, 253.04 Basket Assembly, 253.05 Structure Erection, 253.06 Cell filling, and 253.07 Backfilling.

**Measurement** Incorporate 253.10

**Payment** Incorporate 253.11, cubic meter (m<sup>3</sup>)

### **622(01) Rental Equipment-Dump Truck with operator (min 10 yd capacity, and suitable for hauling boulders).**

**Description** This work includes the hauling of excess material from low water stream crossing site to designated disposal area.

**Payment** Incorporate 622.05, hourly (hr)

## **Surface Drainage Structures**

### **Work Statement**

Surface drainage treatments include outsloping of the road prism or placing rolling dips in the road prism. Both treatments are intended to disperse water and reduce erosion while directing runoff to stable areas. Untreated aggregate is placed on rolling dips to prevent rutting.

### **201(01) Clearing and Grubbing**

**Description** Incorporate 201.01

**Construction Requirements** 201.03 General, 201.04 Clearing, 201.05 Grubbing, and 201.06 Disposal

**Payment** Incorporate 201.09, square meters (m<sup>2</sup>)

### **SPS 204(02) Excavation and Embankment-Outsloping**

**Description** Perform excavation and embankment to change an insloped road to an outsloped road.

**Materials** Incorporate 204.03

**Construction Requirements** Re-shape the roadbed as SHOWN ON THE DRAWINGS. During excavation and embankment, reshape the roadway to 4-percent outslope unless otherwise designated in writing.

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Incorporate 204.04 Preparation for roadway excavation and embankment construction, 204.06(a) roadway excavation, 204.10(a) General embankment construction, 204.10(b) embankment within the roadway prism. For the purposes of compaction, operate hauling and spreading equipment uniformly over the full width of each layer. Ensure material is at a moisture content suitable to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment.

**Measurement** Incorporate 204.16(a) Roadway excavation

**Payment** Incorporate 204.17 cubic meter (m<sup>3</sup>)

### **SPS 204(03) Excavation and Embankment-Rolling Dip**

**Description** Perform excavation and embankment to change the vertical alignment of the road thru the dip to intercept and direct water off the road. Dips must be constructed to provide access for passenger vehicles.

**Construction Requirements** Dip shall be constructed with a skew angle as designated in writing and staked on the ground. Typical angle is 15 degrees. The typical dimensions for dip excavation are shown on the drawings. Outslope the dip at 4 percent unless otherwise designated in writing. Incorporate 204.10(a) General embankment construction, 204.10(b) embankment within the roadway prism

**Measurement** Incorporate 204.16(a) Roadway excavation

**Payment** Incorporate 204.17, each (ea).

### **301(01) Untreated Aggregate Courses**

**Description** Incorporate 301.01

**Materials** Incorporate 301.02

**Construction Requirements** Incorporate 301.03 General, 301.04 Mixing and Spreading, 301.05 Compacting.

**Measurement** Incorporate 301.09

**Payment** Incorporate 301.10, ton.

### **Grade Stabilizer**

#### **Work Statement**

Grade stabilizers are used to prevent channel incision and downcutting. Grade stabilizers provide grade control to stream channels that may become destabilized from increased storm runoff and velocities. Grade stabilizers require excavation across a stream channel to place rocks or other material (logs or wood) at grade.

### **SPS 209(02) Structure Excavation**

**Description** This work includes excavating a trench across the stream channel, in which rocks are placed so that the top of the rocks are at stream grade.

**Construction Requirements** Incorporate 209.03 Preparation for structure excavation, 209.04 General, 209.05 Channel Preservation, 209.07 Dewatering, 209.08 Foundation preparations.

**Payment** No separate payment will be made for this item. Measure for payment under 252(02) Special Rock Embankment and Rock Buttress.

**SPS 252(02) Special Rock Embankment and Rock Buttress** This work consists of furnishing and placing rock keyed into the channel bottom and adjacent area to stabilize stream channel.

**Construction Requirements** Place rock in a stable orientation, ensure all rocks are braced against other rocks and set at the appropriate elevation.

**Measurement** Incorporate 252.05

**Payment** Incorporate 252.06 cubic meter (m<sup>3</sup>).

### **Road Decommissioning**

#### **Work Statement**

Road decommissioning includes subsoiling (tilling), restoring original hillslope conditions with recontouring of the road fill, restoring drainage through the road prism and reducing hillslope erosion. Road decommissioning

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is performed on unclassified roads less than 20 feet in width. This work typically requires use of an excavator and or dozer with rippers to pull material into the road and break through compacted soil layers improving infiltration.

### **211(01) Roadway Obliteration**

**Description** Incorporate 211.01 Method 1.

**Construction Requirements** Incorporate 211.02(b) non-rigid material, 211.03 Waterbars and Barriers.

**Payment** Incorporate 211.06, meters (m).

### **Soil Scarification**

#### **Work Statement**

Soil scarification reduces overland flow and erosion by increasing infiltration and creating surface roughness. Water repellant layers are broken down with scarification using mechanized equipment on slopes up to 25 percent. Scarification depth varies with depth and extent of water repellant layers.

### **SPS 622(04) Rental Equipment -D6 Dozer w/Operator, with standard ripper**

**Description** This work involves scarification on the contour with 1-3 rippers depending on site conditions (i.e. brush, downed material, rock).

**Construction Requirements** The configuration of rippers and distances between passes on the contour will be determined by contracting officer.

**Payment** Incorporate 622.05 hourly (hr).

### **Protective Fencing and Barriers**

#### **Work Statement**

Protective fencing and barriers include a variety of methods; gates, fences, boulders, jersey barriers, and logs. The type of fence or barrier selected depends on the access permitted and the size of the area.

### **618(01) Concrete Barrier**

**Description** This work involves placement of precast concrete barriers (jersey barriers) at designated sites to prevent vehicle access and for structure protection.

**Construction Requirements** Incorporate 618.04(c) Precast

**Payment** Incorporate 618.10 each (ea).

### **619(01) Gate**

**Description** This work involves installing gates at designated sites to prevent vehicle access.

**Material** Incorporate 619.02

**Construction Requirements** Incorporate 619.03 Fences and Gates (a) General, 619.03 (c) Wire fences and Gates (5) Gate installation (b) metal gates.

**Payment** Incorporate 619.11 each (ea).

### **619(02) Barb Wire fence**

**Description** This work involves installing barb wire fences to protect recovery of vegetation.

**Material** Incorporate 619.02

**Construction Requirements** Incorporate 619.03 Fences and Gates (a) General, 619.03 (c) Wire fences and Gates (3) Barbed wire and woven wire, (4) Fastening barbed wire and woven wire.

**Payment** Incorporate 619.11 meter (m).

### **619(03) Temporary plastic fence**

**Description** This work involves installing temporary plastic fence at designated sites. **Material** Incorporate 619.02

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**Construction Requirements** Incorporate 619.03 Fences and Gates (a) General, 619.06 Temporary fences  
**Payment** Incorporate 619.11 meter (m).

### **SPS 622(05) Rental Equipment-Dump Truck w/Operator (Min 10-yard Capacity, and suitable for hauling boulders)**

**Description** This work involves the hauling of boulders to serve as barriers. Boulders will vary in size, typically no larger than 1.5 meters in the longest dimension.

**Payment** Incorporate 622.05, hourly (hr).

### **SPS 622(06) Rental Equipment-Backhoe w/Operator, Extend-A-Hoe, 4 by 4 (clamshell bucket for gathering and placement of boulders)**

**Description** This work entails the gathering and placement of boulders at designated sites and as shown on the drawings.

**Construction Requirements** Boulders should be placed 1-meter apart, unless otherwise specified in writing. Barriers shall span the entire travel way and beyond as designated in writing and staked on the ground. Boulders should be buried 0.25-0.50 meters in the ground or as designated in writing.

**Payment** Incorporate 622.05, hourly (hr).

## **Facility Safety Work**

### **Work Statement**

Facility safety work includes replacing traffic control signs, delineators, and other safety signs where hazards to the public may exist.

### **633(01) Permanent Traffic Control-Delineators**

**Description** Incorporates 633.01

**Materials** Incorporates 633.02

**Construction Requirements** incorporate 633.03 General, 633.06 Delineators and Object Markers.

**Measurement** Incorporate 633.09(a) for Delineators, each

**Payment** Incorporate 633.10 delineators, each (ea)

### **633(02) Permanent Traffic Control-Traffic Control Signs**

**Description** Incorporates 633.01

**Materials** Incorporates 633.02

**Construction Requirements** incorporate 633.03 General, 633.04 Supports, 633.05 Panels.

**Measurement** Incorporate 633.09(b) for Traffic Control signs and sign systems.

**Payment** Incorporate 633.10 traffic control signs, meters squared (m<sup>2</sup>).

### **635(01) Temporary Traffic Control-Barricades**

**Description** This work consists of furnishing, maintaining, relocating, and removing temporary traffic control devices (barricades) for the protection of the public.

**Materials** Incorporate 635.02.

**Construction Requirements** 635.03 General, 635.05 Barricades

**Measurement** Incorporate 635.26 meter of barricade width.

**Payment** Incorporate 635.27 meter of width (m).

## **Overflow Structures**

### **Work Statement**

Overflow structures are used on roads to control runoff across the road prism and to protect the road fill. Overflow structures include armored rolling dips, and imbricated (overlapped) rock-level spreader. Both treatments protect the road fill with an armored spillway.

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### **SPS 204(04) Excavation and Embankment-Armored Rolling Dip**

**Description** Perform excavation and embankment to change the vertical alignment of the road at the road stream crossing to direct water across the road. Dips must be constructed to provide access for passenger vehicles.

**Construction Requirements** Dip shall be constructed as designated in writing and staked on the ground. Dips should be constructed to carry the expected stream volume. The typical dimensions for dip excavation are shown on the drawings. Incorporate 204.10(a) General embankment construction, 204.10(b) embankment within the roadway prism

**Measurement** Incorporate 204.16(a) Roadway excavation

**Payment** Incorporate 204.17, each (ea).

### **301(02) Untreated Aggregate Courses-Armored Rolling Dip**

**Description** Incorporate 301.01

**Materials** Incorporate 301.02

**Construction Requirements** Incorporate 301.03 General, 301.04 Mixing and Spreading, 301.05 Compacting.

**Measurement** Incorporate 301.09

**Payment** Incorporate 301.10, ton.

### **251 (02) Riprap-Armored Rolling Dip**

**Description** This work consists of furnishing and placing riprap in the construction of the spillway for the armored rolling dip. Incorporate 251.01.

**Material** Incorporate 251.02

**Construction Requirement** Incorporate 251.03 General, 251.04 Placed riprap, and 251.05 keyed riprap.

**Measurement** Incorporate 251.08

**Payment** Incorporate 251.09 cubic meters (m<sup>3</sup>)

### **SPS 252(03) Special Rock Embankment and Rock Buttress –Imbricated rock level spreader**

**Description** The imbricated rock level spreader is an overflow device that is keyed into the toe of the fill and includes an overlapping stair stepped spillway up to the road.

**Construction Requirements** Place rock in a stable orientation, ensure all rocks are braced against other rocks and set at the appropriate elevation as shown on the drawings and staked on the ground.

**Measurement** Incorporate 252.05

**Payment** Incorporate 252.06 cubic meter (m<sup>3</sup>).

### **253 (02) Gabions and Revet Mattresses-Gabions**

**Description** Gabion structures can be used to construct overflow structure spillways when large boulders are not readily available.

**Materials** Incorporate 253.02

**Construction Requirements** Incorporate 253.03 General, 253.04 Basket Assembly, 253.05 Structure Erection, 253.06 Cell filling, and 253.07 Backfilling.

**Measurement** Incorporate 253.10

**Payment** Incorporate 253.11, cubic meter (m<sup>3</sup>)

### **Catchment Basin Cleanout**

#### **Work Statement**

Catchment-basin cleanout is used to remove organic debris and sediment immediately in front of culverts, bridges, and other road drainage structures. Material is removed and placed in the designated disposal area.

**622(07) Rental Equipment-Backhoe w/operator**

**622(08) Rental Equipment-Dump truck w/driver**

**622(09) Rental Equipment-Excavator w/operator**

**622(10) Rental Equipment-Dozer w/operator**

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### 622(11) Rental Equipment-Service Truck, 4by 4

### 623(03) General Labor-Laborer w/24in chainsaw

### 623(04) General Labor-Laborer

**Description** This work involves the use of any combination of the specified equipment to clean out the catchment basin.

**Construction Requirements** The contracting officer will describe in writing the limits of work areas, areas to be protected, and those areas will be staked on the ground.

**Measurement** incorporate 622.02

**Payment** incorporate 622.05 by the hour (hr.)

## Erosion Control

### Work Statement

Erosion control treatments vary depending on the site conditions. Treatments reduce overland flow, foster infiltration, and trap sediment (silt fence, fiber rolls).

### SPS 157(01) Soil Erosion Control – Hydromulch

**Description** This work consists of application of hydromulch as a BAER stabilization treatment. Hydromulch refers to fiber mulches; soil stabilizers that when mixed with water and applied to the soil surface form a matrix that helps reduce erosion.

**Materials** Incorporate 713.05 (g) Bonded fiber matrix hydromulch or (h) recycled pulp fiber.

**Construction Requirements** Incorporate 157.03 General, and 157.11 Temporary Turf Establishment. Provide temporary erosion control measures to minimize erosion and sedimentation according to the BAER implementation plan specifications for application rate. Section 107, and Section 157.03.

**Measurement** Incorporate 157.15. Measure hydromulch application by the square meter on the ground surface.

**Payment** Incorporate 157.16 square meter (m<sup>2</sup>).

### SPS 157(02) Soil Erosion Control –Mulch (Straw)

**Description** This work consists of application of mulch (straw) as a BAER stabilization treatment. Mulch straw may be from any cereal grain that is certified weed free. **Materials** Incorporate 713.05 (a) Straw.

**Construction Requirements** Incorporate 157.03 General. Apply straw mulch in areas designated in writing at an application rate of 2,700 kilograms per hectare (2,000 pounds per acre). Method of application may be hand spreading or placing with mulch blower equipment.

**Measurement** Measure straw mulch application by the square meter on the ground surface.

**Payment** Incorporate 157.16 square meter (m<sup>2</sup>).

### SPS 157(03) Soil Erosion Control – Silt Fence

**Description** This work consists of furnishing, constructing, and maintaining temporary silt fences as a BAER stabilization treatment.

**Material** Incorporate 157.02

**Construction Requirements** Incorporate 157.03 General, 157.05 Filter barriers. Provide temporary erosion control measures to minimize erosion and sedimentation according to the BAER implementation plan, Section 107, and Section 157.03.

**Measurement** Incorporate 157.15

**Payment** Incorporate 157.16, meters (m).

### SPS 157(04) Soil Erosion Control – Fiber Roll/wattles

**Description** This work consists of furnishing, constructing, and maintaining fiber rolls/straw wattles as a BAER stabilization treatment.

**Construction Requirements** Incorporate 157.03 General. Provide temporary erosion control measures to minimize erosion and sedimentation according to the BAER implementation plan, Section 107, and Section 157.03.

**Measurement** Incorporate 157.15

**Payment** Incorporate 157.16, meters (m).

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### **629(01) Rolled Erosion Control Products and Cellular Confinement Systems-Erosion mat**

**Description** This work consists of furnishing, constructing, and maintaining rolled erosion control products as a BAER stabilization treatment. Incorporate 629.01.

**Material** Incorporate 629.02

**Construction Requirements** Incorporate 629.03 General.

**Measurement** Incorporate 629.08

**Payment** Incorporate 629.09, square meter (m<sup>2</sup>)

### **Hazardous Material Removal**

#### **Work Statement**

Hazardous material removal is the removal of hazardous materials in accordance with federal, state and local regulations for disposal.

### **203(06) Removal of Structures and Obstructions- Hazardous Material**

**Description** This work consists of removing and disposing of hazardous materials.

**Construction Requirements** Incorporate 203.05 Disposing of Material, (d) Hazardous material.

**Payment** Incorporate 203.08, lump sum (ls).

### **Streambank Armoring**

#### **Work Statement**

Streambank armoring is the placement of rock along the streambank to reduce erosion. Armoring may include the placement of boulders, riprap, or gabion baskets.

### **SPS 204(05) Excavation and Embankment-Streambank Armoring**

**Description** Perform excavation and embankment to change the vertical alignment of the road at the road stream crossing to direct water across the road. Dips must be constructed to provide access for passenger vehicles.

**Construction Requirements** Dip shall be constructed as designated in writing and staked on the ground. Dips should be constructed to carry the expected stream volume. The typical dimensions for dip excavation are shown on the drawings. Incorporate 204.10(a) General embankment construction, 204.10(b) embankment within the roadway prism

**Measurement** Incorporate 204.16(a) Roadway excavation

**Payment** Incorporate 204.17, each (ea).

### **SPS 252(03) Special Rock Embankment and Rock Buttress-Streambank Armoring**

**Description** The streambank armor is keyed into the streambank and channel to reduce erosion.

**Construction Requirements** Place rock in a stable orientation, ensure all rocks are braced against other rocks and set at the appropriate elevation as shown on the drawings and staked on the ground.

**Measurement** Incorporate 252.05

**Payment** Incorporate 252.06 cubic meter (m<sup>3</sup>).

### **SPS 253(03) Gabions and Revet Mattresses-Gabions**

**Description** Gabion structures can be used to armor streambanks when large boulders are not readily available.

**Materials** Incorporate 253.02

**Construction Requirements** Incorporate 253.03 General, 253.04 Basket Assembly, 253.05 Structure Erection, 253.06 Cell filling, and 253.07 Backfilling.

**Measurement** Incorporate 253.10

**Payment** Incorporate 253.11, cubic meter (m<sup>3</sup>)

## Appendix B

### PART I – THE SCHEDULE

#### SECTION B – SERVICES AND PRICES

#### BAER

#### Emergency Stabilization Treatments

#### B-1 – SCHEDULE OF ITEMS

| Item No.                         | Description                                                                                          | Unit     | Estimated Quantity | Unit Price | Amount |
|----------------------------------|------------------------------------------------------------------------------------------------------|----------|--------------------|------------|--------|
| <b>Storm Inspection Response</b> |                                                                                                      |          |                    |            |        |
| SPS 151(01)                      | Mobilization per project area (per season)                                                           | Lump Sum |                    |            |        |
| SPS 622(01)                      | Rental equipment-backhoe w/operator, Extend-A-Hoe, 4 by 4                                            | hr       |                    |            |        |
| SPS 622(02)                      | Rental equipment-dump truck w/operator (Min 10-yard capacity, and suitable for hauling boulders)     | hr       |                    |            |        |
| SPS 622(03)                      | Rental equipment-excavator w/thumb and operator (Cat 325 or equiv.)                                  | hr       |                    |            |        |
| SPS 622(04)                      | Rental equipment-D6 dozer w/operator or equivalent                                                   | hr       |                    |            |        |
| SPS 622(05)                      | Rental equipment-truck tractor lowboy w/operator (capable of hauling largest equipment listed)       | hr       |                    |            |        |
| SPS 622(06)                      | Rental equipment -service truck, 4 by 4                                                              | hr       |                    |            |        |
| 623(01)                          | General labor-laborer(s) (Note: Laborer shall be paid at the rate defined in the wage determination) | hr       |                    |            |        |
| 623(02)                          | General labor-chainsaw w/operator                                                                    | hr       |                    |            |        |
| <b>Culvert Modification</b>      |                                                                                                      |          |                    |            |        |
| 203(01)                          | Removal of structures and obstructions-culvert upgrade/replacement remove CMP 18-36 inch             | ea       |                    |            |        |
| 203(02)                          | Removal of structures and obstructions-culvert upgrade/replacement remove CMP >36 inch               | ea       |                    |            |        |
| 602(01)                          | Culverts and drains-culvert upgrade/replacement aluminum 36-48 inch                                  | meter    |                    |            |        |
| 602(02)                          | Culverts and drains-culvert upgrade/replacement aluminum > 48 inch                                   | meter    |                    |            |        |
| 602(03)                          | Culverts and drains-culvert modification metal end section 18-36 inch                                | ea       |                    |            |        |
| 602(04)                          | Culverts and drains-culvert modification metal end section >36 inch                                  | ea       |                    |            |        |
| SPS 602(05)                      | Culverts and drains-riser/elbow, small 36 inch or less                                               | ea       |                    |            |        |
| SPS 602(06)                      | Culverts and drains-riser/elbow, large 36 inch or greater                                            | ea       |                    |            |        |
| SPS 602(07)                      | Culverts and drains-riser pipe extension, small 36 inch or less                                      | meter    |                    |            |        |
| SPS 602(08)                      | Culverts and drains-riser pipe extension, large 36 inch or greater                                   | meter    |                    |            |        |



## Appendix B

### PART I – THE SCHEDULE

#### SECTION B – SERVICES AND PRICES

#### BAER

#### Emergency Stabilization Treatments

#### B-1 – SCHEDULE OF ITEMS

| Item No.                            | Description                                                                                      | Unit           | Estimated Quantity | Unit Price | Amount |
|-------------------------------------|--------------------------------------------------------------------------------------------------|----------------|--------------------|------------|--------|
| <b>Debris Rack Debris Deflector</b> |                                                                                                  |                |                    |            |        |
| 551(01)                             | Driven piles, steel H-piles                                                                      | meter          |                    |            |        |
| 551(02)                             | Driven piles, steel pipe                                                                         | meter          |                    |            |        |
| SPS<br>555(01)                      | Steel structures                                                                                 | Lump sum       |                    |            |        |
| <b>Low Water Stream Crossings</b>   |                                                                                                  |                |                    |            |        |
| 203(04)                             | Removal of structures and obstructions-remove CMP<36 inch                                        | ea             |                    |            |        |
| 203(05)                             | Removal of structures and obstructions-remove CMP>36 inch                                        | ea             |                    |            |        |
| SPS<br>204(01)                      | Excavation and embankment –low water stream crossing(LWSC)                                       | m <sup>3</sup> |                    |            |        |
| SPS<br>209(01)                      | Structure excavation and backfill -LWSC                                                          | m <sup>3</sup> |                    |            |        |
| 251(01)                             | Rip rap -LWSC                                                                                    | m <sup>3</sup> |                    |            |        |
| SPS<br>252(01)                      | Special rock embankment and rock buttress - LWSC                                                 | m <sup>3</sup> |                    |            |        |
| 253(01)                             | Gabion and revetment (for endwall and erosion resistant splash pad)                              | m <sup>3</sup> |                    |            |        |
| 622(02)                             | Equipment rental-dump truck w/operator (Min 10-yard capacity, and suitable for hauling boulders) | hr             |                    |            |        |
| <b>Surface Drainage Structures</b>  |                                                                                                  |                |                    |            |        |
| 201(01)                             | Clearing and grubbing                                                                            | m <sup>2</sup> |                    |            |        |
| SPS<br>204(02)                      | Excavation and embankment-outsloping                                                             | m <sup>3</sup> |                    |            |        |
| SPS<br>204(03)                      | Excavation and embankment-rolling dip                                                            | ea             |                    |            |        |
| 301(01)                             | Untreated aggregate                                                                              | ton            |                    |            |        |
| <b>Grade Stabilizer</b>             |                                                                                                  |                |                    |            |        |
| SPS<br>209(02)                      | Structure excavation and backfill(excavation and dewatering)-grade stabilizer                    | m <sup>3</sup> |                    |            |        |
| 252(02)                             | Special rock embankment and rock buttress (placing boulders in channel)-grade stabilizer         | m <sup>3</sup> |                    |            |        |



## Appendix B

### PART I – THE SCHEDULE

#### SECTION B – SERVICES AND PRICES

#### **BAER** **Emergency Stabilization Treatments**

#### **B-1 – SCHEDULE OF ITEMS**

| Item No.                               | Description                                                                                         | Unit           | Estimated Quantity | Unit Price | Amount |
|----------------------------------------|-----------------------------------------------------------------------------------------------------|----------------|--------------------|------------|--------|
| <b>Road Decommissioning</b>            |                                                                                                     |                |                    |            |        |
| 211(01)                                | Roadway obliteration, method 1                                                                      | Meter          |                    |            |        |
| <b>Scarification</b>                   |                                                                                                     |                |                    |            |        |
| SPS 622(04)                            | Rental equipment-D6 dozer w/operator, with standard ripper                                          | hr             |                    |            |        |
| <b>Protective Fencing and Barriers</b> |                                                                                                     |                |                    |            |        |
| 618(01)                                | Concrete barrier and precast guardwalls-concrete barrier                                            | ea             |                    |            |        |
| 619(01)                                | Fences, gates, and cattleguards-gate,                                                               | ea             |                    |            |        |
| 619(02)                                | Fences, gates, and cattleguards-barb wire                                                           | meter          |                    |            |        |
| 619(03)                                | Fences, gates, and cattleguards-temporary plastic fence                                             | meter          |                    |            |        |
| SPS 622(05)                            | Rental equipment-dump truck w/operator (Min 10-yard capacity, and suitable for hauling boulders)    | hr             |                    |            |        |
| SPS 622(06)                            | Rental equipment-backhoe w/operator, Extend-A-Hoe, 4 by 4 (clamshell bucket for gathering boulders) | hr             |                    |            |        |
| <b>Facility Safety Work</b>            |                                                                                                     |                |                    |            |        |
| 633(01)                                | Permanent traffic control-delineators                                                               | ea             |                    |            |        |
| 633(02)                                | Permanent traffic control-traffic control signs                                                     | m <sup>2</sup> |                    |            |        |
| 635(01)                                | Temporary traffic control-barricades (meter of barricade width)                                     | m              |                    |            |        |
| <b>Overflow Structures</b>             |                                                                                                     |                |                    |            |        |
| 204(04)                                | Excavation and embankment-rolling dip                                                               | ea             |                    |            |        |
| 301(02)                                | Untreated aggregate courses                                                                         | ton            |                    |            |        |
| 251(02)                                | Rip rap                                                                                             | m <sup>3</sup> |                    |            |        |
| 252(03)                                | Special rock embankment and rock buttress-imbricated rock level spreader                            | m <sup>3</sup> |                    |            |        |
| 253(02)                                | Gabions and revet mattresses-gabions                                                                | m <sup>3</sup> |                    |            |        |



## Appendix B

### PART I – THE SCHEDULE

### SECTION B – SERVICES AND PRICES

### BAER

### Emergency Stabilization Treatments

#### B-1 – SCHEDULE OF ITEMS

| Item No.                          | Description                                                                               | Unit           | Estimated Quantity | Unit Price | Amount |
|-----------------------------------|-------------------------------------------------------------------------------------------|----------------|--------------------|------------|--------|
| <b>Catchment Basin Cleanout</b>   |                                                                                           |                |                    |            |        |
| 622(07)                           | Rental equipment-backhoe w/operator                                                       | hr             |                    |            |        |
| 622(08)                           | Rental equipment-dump truck w/driver                                                      | hr             |                    |            |        |
| 622(09)                           | Rental equipment-excavator w/operator                                                     | hr             |                    |            |        |
| 622(010)                          | Rental equipment-dozer w/operator                                                         | hr             |                    |            |        |
| 622(011)                          | Rental equipment-service truck, 4 by 4                                                    | hr             |                    |            |        |
| 623(03)                           | General labor-laborer w/24-inch chain saw                                                 | hr             |                    |            |        |
| 623(04)                           | General labor-laborer                                                                     | hr             |                    |            |        |
| <b>Erosion Control</b>            |                                                                                           |                |                    |            |        |
| SPS 157(01)                       | Soil erosion control-hydr mulch type ____                                                 | m <sup>2</sup> |                    |            |        |
| SPS 157(02)                       | Soil erosion control-straw                                                                | m <sup>2</sup> |                    |            |        |
| SPS 157(03)                       | Soil erosion control-silt fence                                                           | m              |                    |            |        |
| SPS 157(04)                       | Soil erosion control-fiber roll (wattles) type____, size ____                             | m              |                    |            |        |
| 629 (01)                          | Soil erosion control-erosion mat, type ____                                               | m <sup>2</sup> |                    |            |        |
| <b>Hazardous Material Removal</b> |                                                                                           |                |                    |            |        |
| 203(06)                           | Removal of structures and obstructions-hazardous material removal, (d) hazardous material | LS             |                    |            |        |
| <b>Streambank Armoring</b>        |                                                                                           |                |                    |            |        |
| SPS 204(05)                       | Excavation and embankment-streambank armoring                                             | m <sup>3</sup> |                    |            |        |
| SPS 252(03)                       | Special rock embankment and rock buttress-rock                                            | m <sup>3</sup> |                    |            |        |
| SPS 253(03)                       | Gabions and revet mattresses-gabions                                                      | m <sup>3</sup> |                    |            |        |

MINIMUM GUARANTEE: 10 percent of total award amount

Price Submitted by:

Name \_\_\_\_\_ Phone \_\_\_\_\_  
 Address \_\_\_\_\_ Fax \_\_\_\_\_  
 \_\_\_\_\_ e-mail \_\_\_\_\_



### PART I – THE SCHEDULE

## SECTION C – DESCRIPTION AND SPECIFICATIONS

### C- 1 – PROJECT DESCRIPTION AND LOCATION

#### (a) Description of Work

##### STORM INSPECTION AND RESPONSE

Storm inspection/response keeps culvert and drainage structures functional by cleaning sediment and debris from the inlet between or during storms. This work will be accomplished through equipment rental and general labor.

##### CULVERT MODIFICATIONS

Culvert modification replaces fire-damaged culverts or upgrades culvert flow for increased capacity or passage of debris expected as a result of the fire. Modifications include upgrading culvert size, attaching metal-end-sections, or placing risers on culvert inlets.

##### DEBRIS RACK/DEBRIS DEFLECTOR

A debris rack is a structure placed across the stream channel to collect the debris before it reaches the culvert entrance. Debris racks are constructed with driven piles of various materials including steel H-piles and steel pipe. The design and configuration of the driven piles and appurtenances shall be to the dimensions specified in writing or as shown in the drawings.

Debris deflectors are V-shaped structures with the apex pointed upstream. Deflectors function by diverting medium and large floating debris and large rocks from the culvert inlet to accumulate in a storage area where debris is removed after the flood subsides. Deflectors are constructed with driven piles of various materials including steel H-pipes and steel pipe. The design and configuration of the driven piles and appurtenances shall be to the dimensions specified in writing or as shown in the drawings.

##### LOW WATER STREAM CROSSINGS

Low water stream crossings are used to replace culverts where the risk of damage to the culvert, road fill, or access is increased due to the effects of the fire. The low water stream crossing (natural ford) conforms to the streambed or the designed crossing elevation above the streambed once the culvert is removed.

##### SURFACE DRAINAGE STRUCTURES

Surface drainage treatments include outslowing of the road prism or placing rolling dips in the road prism. Both treatments are intended to disperse water and reduce erosion while directing runoff to stable areas. Untreated aggregate is placed on rolling dips to prevent rutting.

##### GRADE STABILIZERS

Grade stabilizers are used to prevent channel incision and downcutting. Grade stabilizers provide grade control to stream channels that may become destabilized from increased storm runoff and velocities. Grade stabilizers require excavation across a stream channel to place rocks or other material (logs or wood) at grade.

##### ROAD DECOMMISSIONING

Road decommissioning includes subsoiling (tilling), restoring original hillslope conditions with recontouring of the road fill, restoring drainage through the road prism and reducing hillslope erosion. Road decommissioning is performed on unclassified roads less than 20 feet in width. This work typically requires use of an excavator and or dozer with rippers to pull material into the road and break through compacted soil layers improving infiltration.

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### SOIL SCARIFICATION

Soil scarification reduces overland flow and erosion by increasing infiltration and creating surface roughness. Water repellant layers are broken down with scarification using mechanized equipment on slopes up to 25 percent. Scarification depth varies with depth and extent of water repellant layers.

### PROTECTIVE FENCING AND BARRIERS

Protective fencing and barriers include a variety of methods; gates, fences, boulders, jersey barriers, and logs. The type of fence or barrier selected depends on the access permitted and the size of the area.

### FACILITY SAFETY WORK

Facility safety work includes replacing traffic control signs, delineators, and other safety signs where hazards to the public may exist.

### OVERFLOW STRUCTURES

Overflow structures are used on roads to control runoff across the road prism and to protect the road fill. Overflow structures include armored rolling dips, and imbricated (overlapped) rock-level spreader. Both treatments protect the road fill with an armored spillway.

### CATCHMENT BASIN CLEANOUT

Catchment-basin cleanout is used to remove organic debris and sediment immediately in front of culverts, bridges, and other road drainage structures. Material is removed and placed in the designated disposal area.

### EROSION CONTROL

Erosion control treatments vary depending on the site conditions. Treatments reduce overland flow, foster infiltration, and trap sediment (silt fence, fiber rolls).

### HAZARDOUS MATERIAL REMOVAL

Hazardous material removal is the removal of hazardous materials in accordance with federal, state and local regulations for disposal.

### STREAMBANK ARMORING

Streambank armoring is the placement of rock along the streambank to reduce erosion. Armoring may include the placement of boulders, riprap, or gabion baskets.

(b) Project location. This work will apply to all the project areas identified on the location maps provided in this solicitation. The work will consist of the following items:

(c) Price Range. Between \$xxx and xxx

(d) Site Visit. A site visit to one of the project areas is planned for \_\_\_\_\_

(e) Start Work. The start work date will be determined by the Government. This work will be performed prior to the start of seasonal precipitation.

(f) Period of Performance. (See section F, FAR Clause 52.211-10.)

### C- 2 – GOVERNMENT FURNISHED PROPERTY

Not applicable.

### THE FOLLOWING NOTES WILL APPLY TO ALL WORK AREAS:

1. Work shall only be performed when the probability for rain or runoff is low.

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2. Bidders should note that performance and compliance is measured according to metric measures while all payments are measured in Imperial Units.

### C- 3 – STANDARD SPECIFICATIONS

The following standard specifications are incorporated by reference into this solicitation, and any resulting contract. Standard Specifications for construction of roads and bridges on Federal highway projects (FP-03)

| <b><u>SECTION</u></b> | <b><u>TITLE</u></b>                              |
|-----------------------|--------------------------------------------------|
| 101                   | Terms, Format, and Definitions                   |
| 102                   | Bid, Award, Execution of Contract                |
| 103                   | Scope of Work                                    |
| 104                   | Control of Work                                  |
| 105                   | Control of Material                              |
| 106                   | Acceptance of Work                               |
| 107                   | Legal Relations and Responsibility to the Public |
| 108                   | Prosecution and Progress                         |
| 109                   | Measurement and Payment                          |
| 151                   | Mobilization                                     |
| 153                   | Contractor Quality Control                       |
| 155                   | Schedules for Construction Contracts             |
| 156                   | Public Traffic                                   |
| 157                   | Soil Erosion Control                             |
| 201                   | Clearing and Grubbing                            |
| 203                   | Removal of Structures and Obstructions           |
| 204                   | Excavation and Embankment                        |
| 209                   | Structure Excavation and Backfill                |
| 211                   | Roadway Obliteration                             |
| 251                   | Riprap                                           |
| 252                   | Special Rock Embankment and Rock Buttress        |
| 253                   | Gabions and Revet Mattresses                     |
| 301                   | Untreated Aggregate Courses                      |
| 551                   | Driven Piles                                     |
| 555                   | Steel Structures                                 |
| 602                   | Culverts and Drains                              |
| 619                   | Fences, Gates, and Cattleguards                  |
| 622                   | Rental Equipment                                 |
| 623                   | General Labor                                    |

Copies of the STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-03, Metric Units. These specifications can be ordered from FHWA. For information on how to order books, go to the FHWA's website, <http://www.wfl/fha.dot.gov/design/specs/fp03.htm>

### C- 4 – SPECIAL PROJECT SPECIFICATIONS

The following Special Project Specifications are applicable to this contract and are physically included in this section: These Special Project Specifications replace any and all standard specifications not specifically mentioned in Section C-3, above.

| <b><u>SECTION</u></b>       | <b><u>TITLE</u></b>       |
|-----------------------------|---------------------------|
| SPS 151(01)                 | Mobilization              |
| SPS 157 (01) (02) (03) (04) | Erosion Control           |
| SPS 203(04) (05)            | Remove CMP                |
| SPS 204(01) (02) (03) (05)  | Excavation and Embankment |

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|                   |                              |
|-------------------|------------------------------|
| SPS 209 (01) (02) | Structure Excavation         |
| SPS 252 (01) (03) | Special Rock Embankment      |
| SPS 253 (03)      | Gabions and Revet Mattresses |
| SPS 555(01)       | Steel Structures             |
| SPS 602 (01) (02) | Culvert Upgrade              |
| SPS 602(03) (04)  | Metal-end-section            |
| SPS 602 (05) (06) | Riser/Elbow                  |
| SPS 602 (07) (08) | Riser Extension              |
| SPS 622(01)       | Backhoe                      |
| SPS 622(02)       | Dumptruck                    |
| SPS 622(03)       | Excavator                    |
| SPS 622(04)       | Dozer                        |
| SPS 622(05)       | Lowboy                       |
| SPS 622(06)       | Service Truck                |

### C- 5 – DRAWINGS

The following drawings are a part of this solicitation and any resulting contract:

#### Sheet(s)

Title Sheet and Vicinity Map (Cover Sheet)

1 of 1

Area Map(s)

Outslope Road Prism

Install Metal End Section

Low water stream crossing

Riser Pipe

Debris Rack/Debris Deflectors

Calculate Fill Volume

Road Decommissioning

Gates

Install Barriers

Mulching

Dips