

Alpine Road Trail Improvements Project, Engineer's Estimate - Continued

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description
43	72-1(S)	76	TON	Roughened Channel (Class No. 3 - Bedding)
43A	72-1(S)	200	TON	<u>Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material)</u>
44	72-2(S)	20	EA	Vegetated Log Bank Protection (Tier 1 Log)
45	72-2(S)	18	EA	Vegetated Log Bank Protection (Tier 2 Log)
46	72-2(S)	19	EA	Vegetated Log Bank Protection (Tier 3 Log)
47	72-2(S)	19	EA	Vegetated Log Bank Protection (Anchor Boulder - 2 Ton)
48	72-2(S)	38	EA	Vegetated Log Bank Protection (Anchor Boulder - 1 Ton)
49	72-2(S)	233	TON	Vegetated Log Bank Protection (Toe Protection - ¼ Ton)
50	72-2(S)	199	TON	Vegetated Log Bank Protection (Class No. 3 - Bedding)
51	72-2(S)	471	TON	Vegetated Log Bank Protection (Light Class - Rock/Soil Mix)
52	72-2(S)	80	EA	Vegetated Log Bank Protection (Live Poles)
53	72-2(S)	57	EA	Vegetated Log Bank Protection (Anchor Connection)
54	72-3(S)	1,575	LF	Vegetated Soil Lift
55	72-3(S)	152	LF	Coir Vegetated Soil Lift
56	72-4(S)	273	TON	Planted Rock Slope Protection (Light Class)
57	72-4(S)	67	TON	Planted Rock Slope Protection (1/4 Ton)
58	72-4(S)	16	TON	Planted Rock Slope Protection (Class No. 3 - Bedding)
59	72-4(S)	173	EA	Planted Rock Slope Protection (Live Poles)
60	72-4(S)	64	SY	Planted Rock Slope Protection (Filter Fabric)
61	72-5(S)	32	SY	Double-Layer Fabric with Live Poles
62	72-6(S)	30	SY	Brush Mat
63	80-1	124	LF	Chain Link Fence

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Materials Found on the Job Site” of the Standard Specifications. The Contractor may assume that sufficient volume of suitable Native Streambed Material can be derived from onsite channel and bank excavation. **If quantity of required on-site material is unavailable, the Contractor may import suitable Native Streambed Material (Imported Streambed Material)** to supplement onsite material. **For bidding purposes, Contractor shall assume 200 TONS of Class 1 Type B Permeable Material.** If import of material is required, the Contractor must obtain written approval from Restoration Engineer which will include any modification to the rock gradation for the **Imported Streambed Material or Engineered Streambed Material.**

Engineered Streambed Material (ESM): Engineered Streambed Material is a mixture of imported rock and Native Streambed Material. ESM Blend must meet the mixture requirements in the following table, or as directed by the Engineer:

Material	Mixture Percentage
Native Streambed Material	60%
Class No.3*	30%
Class No.2*	10%

*Non-crush, rounded rock is acceptable if it meets gradation criteria

Bedding: Bedding is a mixture of imported rock and Native Streambed Material. Bedding must meet the mixture requirements in the following table:

Material	Mixture Percentage
Native Streambed Material	50%
Class No.3	50%

CONSTRUCTION

Excavate the channel bed material to the neat line finished grade before commencing stone placement.

Construct Roughened Channel from downstream to upstream ensuring contiguous rock structure with the downstream rocks supporting the upstream rocks.

Incorporate and install Planted Rock, Vegetated Log Bank Protection, and other adjacent elements in conjunction with the construction of the Roughened Channel. Reference is made to section 72-2, “Vegetated Log Bank Protection,” and 72-4, “Planted Rock Slope Protection” of these Special Provisions.

Place ESM to the lines and grades shown. Place ESM Blend as specified in Section 26-1.05 “Compacting” and as modified as follows:

In Section 26-1.05 “Compacting,” replace “95 percent relative compaction” with “85 percent relative compaction.”

Engineered Streambed Material (ESM):

Mixing of ESM: Excavated native streambed material intended for integration into ESM must be segregated and stockpiled in a place and manner that allows for inspection, measurement and storage for future use and prevents contamination by unsuitable materials. Reference is made to Section 19-8, “Channel Excavation” of these Special Provisions.

Engineered streambed material that does not meet material specifications or is surplus shall be disposed of outside the highway right of way in conformance with Section 7-15, “Disposal of Material Outside the Highway Right of Way,” of these Special Provisions.

If channel substrate meets the requirements for Native Streambed Material, the Contractor has the option of mixing imported rock with Native Streambed Material in-situ as needed to meet requirements for ESM provided the materials are uniformly mixed to the depth and dimensions shown. If the Contractor elects to blend materials in-situ, the Contractor shall first excavate to the finished subgrade of the Roughened Channel and allow the Restoration Engineer to observe and/or sample the substrate. The Restoration Engineer reserves the right to modify the ESM blending response to the actual substrate encountered.

Placement of ESM: ESM may be placed by dumping and may be spread in layers by excavators or other suitable equipment. Crest Stones must not be disturbed in the placement of ESM. ESM must be placed within 0.3 feet of the lines, grades and elevations shown, measured at right angles to the finished grade.

The Contractor is advised that the following approximate quantities are to be placed for the Roughened Channel item of the project.

1 TON – Specimen Boulders	48 TON
1/4 TON- Crest and Torrent Sedge Cluster.....	168 TON
Light Class – Crest Cutoff	12 TON
Facing Class – Crest Cutoff.....	12 TON
Class No.2 – for Engineered Streambed Material (ESM).....	44 TON
Class No.3 – for ESM.....	131 TON
Class No. 3 – for Bedding	76 TON
<u>Permeable Material: Class 1 Type B - Imported Streambed Material –</u>	
<u>For Bidding Purposes.....</u>	200 TON

The Contractor is advised that the quantities listed above are for estimating purposes only, and the County makes no guarantee as to the actual quantity.

Quantities estimated above represent respective imported material, and do not include quantities of reused materials found on the site. If there is not sufficient Native Streambed

Material onsite to meet requirements, Contractor will have to import suitable material to be paid for as **“Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material).”** **“Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material),” shall conform to the provisions of Section 68-1.025 of the Standard Specifications.** Imported Streambed Material will only be paid for if approved in writing by the Restoration Engineer prior to delivery onsite.

The Contract unit price paid per ton for the items, “Roughened Channel (1 TON - Specimen Boulders),” and “Roughened Channel (1/4 TON - Crest and Torrent Sedge Cluster),” and “Roughened Channel (Light Class – Crest Cutoff),” and “Roughened Channel (Facing Class -Crest Cutoff),” and “Roughened Channel (Class No. 2 –Engineered Streambed Material),” and “Roughened Channel (Class No. 3 – Engineered Streambed Material),” and “Roughened Channel (Class No. 3 – Bedding),” and **“Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material).”** shall be as determined by weighing with a scale as supported by weight tags. These values shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary for doing all work involved in excavating, sorting, stockpiling, inspecting, dewatering and/or diverting creek flows, blending on site of ESM and Bedding, and reuse of Streambed Material and Native Material, hauling, placing, and completing work to the lines and grades shown on the Plans, complete in place, as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer, and no additional compensation shall be allowed therefor.

No adjustment of the Contract bid price will be made for any increase or decrease in quantities for the various items for these items, **“Roughened Channel (1 TON - Specimen Boulders),”** and **“Roughened Channel (1/4 TON - Crest and Torrent Sedge Cluster),”** and **“Roughened Channel (Light Class – Crest Cutoff),”** and **“Roughened Channel (Facing Class -Crest Cutoff),”** and **“Roughened Channel (Class No. 2 –Engineered Streambed Material),”** and **“Roughened Channel (Class No. 3 – Engineered Streambed Material),”** and **“Roughened Channel (Class No. 3 – Bedding),”** and **“Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material).”** The provisions of Section 4-1.03B, “Increased or Decreased Quantities,” of the Standard Specifications shall not apply to these items of work.

The County reserves the right to eliminate this item, “Roughened Channel (Class 1 Type B Permeable Material) (Imported Streambed Material),” from the project completely. The Contractor shall request and receive written confirmation from the County as to the status of this item of work prior to incurring any costs. The Contractor

shall not be entitled to any compensation under this item of work for any cost incurred should he proceed in advance of receiving written authorization from the County.

Payment for any reuse of excavated Native Streambed Material is not paid for directly. Contractor shall account for reuse of excavated Streambed Material in ESM and Bedding as part of related bid items. The Contractor's attention is also **directed** to Section 19-8, "Channel Excavation" of these Special Provisions.

72-2. Vegetated Log Bank Protection

GENERAL

This section applies to the Vegetated Log Bank Protection, including logs (Tiers 1, 2 and 3), anchor boulders, boulder toe protection and rock/soil backfill.

The Contractor must schedule a vegetated log bank protection pre-construction meeting at a mutually agreed upon time and place to meet with the Restoration Engineer and Engineer. The Contractor makes arrangements for the meeting facility. The purpose of the meeting is to discuss the methods of performing each item of the work. The Contractor shall not to start any work until the listed personnel have attended a pre-work meeting.

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Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price (In Figures)	Total (In Figures)
40	72-1(S)	12	TON	Roughened Channel (Facing Class – Crest Cutoff)	\$	\$
41	72-1(S)	44	TON	Roughened Channel (Class No. 2 – Engineered Streambed Materials)	\$	\$
42	72-1(S)	131	TON	Roughened Channel (Class No. 3 – Engineering Streambed Materials)	\$	\$
43	72-1(S)	76	TON	Roughened Channel (Class No. 3 - Bedding)	\$	\$
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52	72-2(S)	80	EA	Vegetated Log Bank Protection (Live Poles)	\$	\$

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