

ATTACHMENT NO. 4: SPECIAL PROVISIONS

FOR

GARIS SHOP ROAD WATER TRAIL PARK

IN

WASHINGTON COUNTY, MARYLAND

THE PROJECT

The project involves the installation of a water trail park on Garis Shop Road.

Item No. 101 - CLEARING AND GRUBBING

.01 DESCRIPTION: This work shall consist of the removal and disposal of topsoil, organic matter, objectionable material, trees, fallen timber, rotten wood, brush, shrubs, vegetation, rubbish, fences, structures, and other obstructions interfering with the work within the limits of disturbance and not specified in the Contract Documents; removal/resetting of mailboxes, replacement of suitable material wasted during the clearing and grubbing process, and obtaining approved waste areas for disposed materials.

.02 MATERIALS: Not applicable.

.03 CONSTRUCTION:

- A. Complete clearing and grubbing before starting grading operations in an area. Stumps within excavation areas may be removed during grading.
- B. Do not damage trees or other vegetation beyond the grading limits. Trees designated to remain in-place shall be protected from construction activity.
- C. Within excavation areas, clear the ground of organic matter. Remove stumps and roots to a depth of at least two feet below subgrade or slope surfaces. All depressions shall be refilled with suitable material and compacted.
- D. Within embankment areas, remove trees, shrubs, organic matter and root mat to a depth of twelve inches below the existing ground.
- E. Dispose of trees. If burning is necessary, it shall comply with the requirements of the Maryland State Fire Marshall's Office and the

Washington County Health Department. The Engineer reserves the right to prohibit or regulate open burning.

- F. Trim tree branches that extend over the pavement and shoulders to attain a clear height of 20 feet. All trimming shall be under the supervision of a tree expert licensed by the State of Maryland.
- G. When an enclosure fence is partly or wholly within the right-of-way, notify the property owner sufficiently in advance of clearing and grubbing operations to permit the owner to make necessary arrangements to restore the enclosure. Upon failure of the property owner to proceed reasonably with work required to enclose the property, and after notification to the Engineer, carefully remove the fence within the right-of-way and neatly pile material on the owner's property adjacent to the right-of-way.
- H. Dispose of material off the right-of-way, unless otherwise specified, or burn, when permitted. Comply with the requirements of the Air Pollution Control Act, the Solid Waste Management Act and the permits specified, whichever are applicable.
- I. Except as otherwise specified, topsoil to be stockpiled and reused shall be separated from objectionable material, rubbish, etc.
- J. The Contractor shall remove and reset the mailboxes shown on the plans to locations as directed by the Engineer. The mailboxes shall be available for use at all times.

.04 MEASUREMENT AND PAYMENT: Clearing and Grubbing will not be measured for payment but will be paid for at the Contract lump sum price. The payment will be full compensation for the removal and disposal of topsoil, trees, shrubs, brush, mulch, organic matter, fences, and removal/resetting of mailboxes, selective tree trimming and scar repair when not covered as a specific pay item in the Contract documents, and for all material, labor, equipment, tools and incidentals necessary to complete the work.

Item No. 102 - MOBILIZATION

.01 DESCRIPTION: This work shall consist of the construction preparatory operations, including the movement of personnel and equipment to the project site and for the establishment of the contractor's field office, buildings, and other facilities including power hook up necessary to begin work.

.02 MATERIALS: Not applicable.

.03 CONSTRUCTION:

- A. All work performed in providing the facilities, equipment, and services shall be done in a safe and workmanlike manner.
- B. All equipment shall be of the type and size necessary to perform the required work.

.04 MEASUREMENT AND PAYMENT: Mobilization will not be measured for payment but will be paid for at the Contract lump sum price. The cost of all required insurance and bonds will be incidental to the Contract lump sum price for mobilization. Payment of 50 percent of the Contract lump sum will be made in the first monthly estimate after the Contractor has established the necessary facilities for starting construction activities at the site. The remaining 50 percent will be prorated and paid in equal amounts on each subsequent monthly estimate. The payment will be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work. Payment of the Contract lump sum price will not be made more than once, regardless of the fact that the Contractor may have, for any reason, shut the work down on the project, moved his equipment away from the project and then back again. If an item for mobilization is not provided, the cost of mobilization will be incidental to the other items specified in the Contract documents.

Item No. 103 - MAINTENANCE OF TRAFFIC

.01 DESCRIPTION: This work shall consist of maintaining traffic, both vehicular and pedestrian, on, along, or through the construction area or detour route as shown by the Traffic Control Plan (TCP) or noted on the plans. This section sets forth the traffic control requirements necessary for the safe and continuous maintenance of traffic throughout the area affected by the work.

.02 MATERIALS: All materials shall be in accordance with Section 104 of the MSHA Specification Booklet.

.03 CONSTRUCTION:

- A. All traffic control devices and methods used shall conform to the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.
- B. If applicable, Contractor to provide sufficient number of flagmen and take all necessary precautions for the protection of the work area and safety of the public. All personnel involved in flagging operations shall have approved flagger certification by the State Highway Administration.

- C. On projects where traffic is detoured around the work area, Contractor shall place signing as shown by the TCP.
- D. On projects where traffic is to be maintained through the work area, the Contractor shall maintain one (1) lane traffic during work hours and two (2) lane during non-work hours. There will be no lane closures allowed on the weekends.
- E. Traffic control devices shall be installed at the inception of construction and shall be properly maintained and/or operated for the length of the Contract.
- F. All salvaged material and devices, i.e. TCP signs, etc., shall become the property of the Contractor.
- G. Damaged signs shall be repaired or replaced as soon as possible so as to maintain the proper traffic flow.
- H. Weeds, shrubbery, construction equipment or material, spoil, etc., shall not be allowed to obscure any traffic control device.
- I. Upon removal of signs, Contractor is to restore all disturbed areas, sod or pavement, to its original condition.
- K. The Contractor shall furnish and apply water as directed to assist in the controlling of dust.

.04 MEASUREMENT AND PAYMENT: Maintenance of Traffic will not be measured for payment but will be paid for at the Contract lump sum price. One hundred percent (100%) of the lump sum price will be prorated for monthly payments of equal amounts. Monthly payment will be made upon satisfactory completion of the previous month's work. Any discrepancies from the Contract plans and/or the MUTCD will be documented and provided to the Contractor for resolution. Any discrepancies not addressed by the Contractor may constitute a corresponding reduction of payment. The payment will be full compensation for all work necessary to maintain traffic including all work, sequence of operations, flagmen, water, and furnishing, placing, moving, repairing, replacing, removing, and restoration of all traffic control devices necessary for the fulfillment of the Contract requirements and implementation of the approved Traffic Control Plan shown on the plans.

Item No. 104 - CONSTRUCTION STAKEOUT

- .01 DESCRIPTION:** This work shall consist of providing all survey, and furnishing, placing and maintaining construction layout points (stakes,

hubs, nails, crosses, etc.) as necessary to construct the work as shown on the plans and/or as directed by the Engineer.

.02 MATERIALS: Not applicable.

.03 CONSTRUCTION:

- A. Prior to beginning work, the Owner will establish the roadway centerline or a baseline of construction for use by the Contractor. The stakeout and related information will be provided one time only.
- B. Centerline or baseline Station (stakes, hubs, nails, crosses, etc.) spacing shall not exceed 50 feet and shall extend a minimum of 100 feet beyond the limits of construction. Additional necessary points, such as points of curvature (PCs), points of tangency (PTs), break points, intersection points, equality stations, etc. shall also be staked by the Owner.
- C. The Owner will establish appropriately spaced vertical control points (benchmarks) and stake necessary offset or reference points, including all P.C.s and P.T.s, for the preservation and re-establishment of the centerline or baseline.
- D. It shall be the Contractor's responsibility to provide all survey (including establishing layout lines, elevations, grades, forms, templates, etc.) required to build the work as shown on plans and/or as directed by the Engineer.
- E. All work relating to this Section shall comply with the Minimum Standards of Practice for Land Surveying, published by the State of Maryland when applicable or as directed by the Engineer.
- F. The Contractor shall utilize competent personnel, acceptable to the Owner, for construction stakeout.
- G. The Contractor shall coordinate construction stakeout with the Owner during construction. The Engineer shall be provided copies of stakeout sheets, survey notes (written and/or electronic), cut sheets, etc. as requested.
- H. If requested by the Owner, the Contractor shall reset the centerline or baseline as originally staked. Copies of all survey notes shall be given to the Owner.

.04 MEASUREMENT AND PAYMENT: Construction Stakeout will not be measured for payment but will be paid for at the Contract lump sum price. The payment will be full compensation for all survey, material, labor, equipment, tools

and incidentals necessary to complete the work. Payment will be prorated and paid in equal amounts on each monthly estimate.

Item No. 201- UNCLASSIFIED EXCAVATION

.01 DESCRIPTION: This work shall consist of all excavation and grading to the lines and grades specified in the Contract documents. All excavation on this project shall be unclassified and shall include all material regardless of type.

All suitable material from excavation operations shall be used for construction of embankments and restoration of existing grades throughout the limits of the work. Such work shall be performed in accordance with Section 204 of the MSHA Specification Booklet. The Contractor shall be responsible for providing all required testing prior to placing material. All excavation on this project shall be unclassified and shall include all material regardless of type.

.02 MATERIALS: Not applicable.

.03 CONSTRUCTION:

- A. Sections 201.01.02 through 201.03.08 of the MSHA Specification Booklet shall apply for all project grading and excavation.
- B. Moisture and compaction requirements shall conform to Section 204.03.04.
- C. The limit of Unclassified Excavation shall be one (1) foot below existing ground in fill areas and at subgrade in cut areas or as shown on plans.

.04 MEASUREMENT AND PAYMENT: Unclassified Excavation shall be measured based on the actual volume in cubic yards of material removed as measured by the Engineer at the time of construction. The method of measurement and volume computation shall be the average end area method, based on actual cross sections measured, and paid for at the Contract unit price bid per cubic yard. No adjustments will be made for material swelling. The payment will be full compensation for all excavation and hauling, blasting, formation and compaction of embankments and backfills, disposing of excess and unsuitable materials, existing pavement, preparation and completion of subgrade and shoulders except as otherwise specified, serrated slopes, rounded and transition slopes and for all material, labor, equipment, tools and incidentals necessary to complete the work. Payment will not be made for excavation of any material that is used for purposes other than those designed.

Item No. 202 – CONTINGENT: COMMON BORROW, TYPE I

.01 DESCRIPTION: This work shall consist of furnishing, excavating, hauling, and depositing approved materials for embankments and backfill when sufficient quantities of suitable materials are not available on site. It shall include all work prescribed for backfill, embankments, subgrade, and earth shoulders, all necessary clearing and grubbing, the removal and disposal of overburden or other unsuitable spoil material and the trimming, shaping, dressing, draining, and reclamation of the pit or location from which borrow material is secured.

.02 MATERIALS:

- A. Materials shall conform to Section 916 of the MSHA Specification Booklet.
- B. Dirty Crusher Run (DCR) may be acceptable for use as Borrow with prior approval by the Engineer.
- C. Refer to Section 204.03 and 210 of the MSHA Standard Specification Booklet.

.03 CONSTRUCTION:

- A. When project excavation is insufficient to complete the embankments or backfill, or does not meet the physical requirements, obtain material under this item to complete the work.
- B. Do not use material from borrow excavation until all suitable and available project excavation is used, unless otherwise directed in writing by the Engineer. If satisfactory material is available on the project, the Engineer may, upon request, authorize in writing widening areas adjacent to slopes to obtain a portion or all of the excavation in place of borrow.
- C. If the Contractor elects to use a borrow pit, he shall stakeout the area and provide the necessary soil analysis and test results from a maximum density test in accordance with AASHTO T180 by a Soils Laboratory approved by the Owner.
- D. The Contractor shall provide the County at least two (2) weeks notice of opening of any borrow pit so that measurements of the existing ground may be made.
- E. It will be the Contractor's responsibility to obtain all necessary approvals and permits as required.

.04 MEASUREMENT AND PAYMENT: Contingent Common Borrow will be measured on the basis of volume as measured in its original position by the method of cross-sections at the approved borrow pit and paid for at the Contract unit price bid per cubic yard. The payment will be full compensation for furnishing, excavating, hauling, placing, compacting, and all labor, materials, equipment, tools and incidentals necessary to complete the work. When requested by the Contractor in writing, the Engineer may approve an alternate method of measurement for the computation of borrow excavation quantities. This alternate method will not be considered for approval unless the Contractor can show that the cross section method computed by average end area is not a feasible method of measurement. When approved in writing by the Engineer, this alternate method shall consist of measuring the Borrow Excavation in approved hauling vehicles in the following manner:

- A. The Contractor shall submit prior to the start of hauling operations, a list of vehicles to be used (including rented). The identification number and hauling capacity for each vehicle shall be provided. The Engineer will determine the capacity of each vehicle designated by using the following method: while loaded and leveled (filling all voids), the inside bed of each hauling unit shall be measured for length, width, and depth. Depth shall be determined by marking the upper limits of the material on the bed of the truck (upper limit not to include any portion of the running boards). Once emptied, the depth shall be measured from the floor of the truck bed to the marked upper limit. As well, the hydraulic hoist cover shall be measured and deducted from the overall measured capacity. The measured capacity shall be multiplied by a factor of 0.85 to determine the pay volume.

- B. The Contractor shall furnish a delivery ticket to the Engineer for each load of borrow material delivered to the project. Any ticket not signed by the Engineer to acknowledge receipt will not be used in the computation of the borrow quantity.

The ticket shall include the following information:

- 1. The supplier's name.
- 2. The County's Contract number.
- 3. The date and ticket number.
- 4. Vehicle identification number.
- 5. Type of material delivered.
- 6. Pay volume computed as specified in (a).

The County reserves the right to verify the borrow quantities being hauled by dumping the material and measuring quantities on site, or by random visual inspection of the loaded hauling units.

Item No. 301 –STREAM DIVERSION

DESCRIPTION: This work will involve diverting stream flow for the purpose of isolating work areas when construction activities take place within the stream channel as specified in the Contract Documents. This shall consist of dimensioning, furnishing, installing, maintenance of operation, adjustment, restoration, and removal of the stream diversion as shown on the plans and/or as directed by the Engineer.

.02 MATERIALS:

- (a) Sandbags – Shall consist of materials that are resistant to ultraviolet radiation, tearing and puncture and shall be woven tightly enough to prevent leakage of the fill material (i.e. sand, fine gravel, etc.). Polypropylene, (size 3’W x 3’H).
- (b) Sand - natural or manufactured passing No. 4 sieve
- (c) Sheeting, as required, shall consist of polyethylene plastic, which is impervious and resistant to puncture and tearing.
- (d) The pumps, hoses, and connections shall be sized and furnished by the contractor to adequately dewater the work area for construction activities.

.03 CONSTRUCTION:

- A. The Contractor shall install all Erosion and Sediment Control devices as specified on the Plans, in the Contract Documents and as directed by the Engineer.
- B. The normal water surface elevation is provided for reference only. The Contractor shall be responsible for determining the dimensions and locations of the stream diversions. The Contractor shall be responsible for actual conditions and plan all construction accordingly. The contractor shall assume all responsibility for damage to his equipment, personnel, materials, work, operations, schedule, etc. caused by high water, stream force or overtopping of the diversions.
- C. The Contractor shall comply with all specific permit requirements including but not limited to the Maryland Department of the Environment (MDE) Water Management Administration (WMA) “Maryland’s Guidelines to Waterway Construction November 2000 Detail 1.5: Sandbag/Stone Channel Diversion,” and adhere to any additional direction from the Engineer, MDE, Army Corps of Engineers (ACOE), Natural Resource Conservation Service (NRCS), and any other applicable agencies.
- D. The stream diversion shown is that considered normal and customary for such projects. The contractor may submit alternative diversions to the

Engineer for consideration. However, such alternatives shall be subject to approval by all agencies having jurisdiction.

- E. The stream diversions as well as the areas encompassed by them shall be considered part of the project site. Thus the “Use of Premises and Removal of Debris” and “Public Convenience and Safety” paragraphs in the General conditions shall apply. Further, variations in stream flow will not constitute emergency conditions under the “Protection of Work and Property – Emergency” paragraph. Thus, removal, relocation, and/or replacement of property in said area shall be considered incidental to the pay item.
- F. The contractor shall pump water from the diverted area to a dewatering device prior to discharge in the creek. The contractor shall furnish all necessary equipment and material to adequately dewater the work area for construction activities. The contractor shall determine the specifications of the pump per the manufacturer’s recommendations.
- G. The stream diversion system as shown may not be capable of blocking the flow of water through the soil beneath the system. Design and provide an effective means of diverting the water away from the designated areas, even though a more elaborate system may be required. Ensure that all excavation performed within the diverted stream is performed in a dewatered condition, which may require additional pumps, sheeting, shoring, cofferdams, etc. If the proposed system does not perform satisfactorily or additional material and equipment are required to dewater the site and excavated areas, adjust the stream diversion system and obtain approvals at no additional cost of the County.
- H. Securely anchor the stream diversion system in place to prevent movement during high water events. Submit the proposed method of anchoring to the Engineer and the MDE field inspector for approval. Anchors shall not go beyond the limits of disturbance shown on the Plans or infringe on the channel area available for stream flow. Do not install the diversion system in the stream without the approval of both the Engineer and the MDE inspector. All costs associated with the anchoring of the stream diversion system are incidental to the Stream Diversion item.

.04 MEASUREMENT AND PAYMENT: Stream Diversion will not be measured; but will be paid for at the Contract lump sum price bid for furnishing, maintaining, installing, and removing the diversions. The payment will be full compensation for all materials, sand bags, sheeting, pumps, labor, equipment, and incidentals necessary to complete the work.

The actual water surface elevation experienced or anticipated during the course of construction will not be considered basis for additional payment. No additional

compensation shall be awarded to the Contractor for damage resulting from overtopping of the sandbag diversion, flooding and/or project wash-out due to unexpected high stream flows. No additional compensation shall be awarded for alternative diversions submitted by the contractor.

Item No. 302 - CLASS 0 RIPRAP

.01 DESCRIPTION: This work shall consist of protecting the embankment, stream and drainage channels with a covering of geotextile and stone to the locations shown on the plans and/or as directed by the Engineer.

.02 MATERIALS:

Class 0 Riprap	MSHA Section 901.02.01
Geotextile, Class PE Type II nonwoven or SE	MSHA Section 921.09

.03 CONSTRUCTION:

- A. Excavation for riprap shall conform to the lines and grades specified in the Contract Documents. The subgrade shall be smooth and firm, free from protruding objects that would damage the geotextile and constructed in a manner acceptable to the Engineer.
- B. The geotextile shall be placed on the prepared subgrade with the adjacent edges overlapping a minimum of 2 feet (0.6 m). Geotextile torn or damaged shall be replaced or repaired at the Contractor's expense in a manner acceptable to the Engineer.
- C. The placement of the riprap shall begin with the larger stones being placed along the outside edges of the limits of slope and channel protection. The riprap shall be placed with suitable equipment to produce a reasonably graded mass of stones. Placing the stones by methods that cause extensive segregation will not be permitted.
- D. Riprap shall not contain more than 10 percent by weight of the smallest size stone.

.04 MEASUREMENT AND PAYMENT: Class I Riprap will be measured and paid for at the Contract unit price bid per square yard. Area measurements will be actual surface measurements. The payment will be full compensation for all labor, materials, equipment, tools, excavation, furnishing and placement of geotextile and stone riprap, and incidentals necessary to complete the work.

Item No. 303 –FILTER LOG

.01 DESCRIPTION: This work shall consist of furnishing and placing Filter Log at the locations shown on the plans and/or as directed by the Engineer.

.02 MATERIALS:

High Density Polyethylene photodegradable with 3/8” mesh opening. Minimum tensile strength 26 psi.

Wood Stakes Hardwood

Filter Media Compost:

Table H.3: Compost

Parameters¹	Acceptable Range
pH	5.0 - 8.5
Moisture content	30% - 60%, wet weight basis
Organic matter content	25% - 65%, dry weight basis
Particle size	% passing a selected mesh size, dry weight basis 3 in (75 mm), 100% passing 1 in (25 mm), 90 – 100% passing 0.75 in (19 mm), 70 – 100% passing 0.25 in (6.4 mm), 30 – 60% passing 0.04 in (1 mm), 30% min. passing
Physical contaminants (manmade inerts)	<1% dry weight basis

Adapted from AASHTO Standards Specs for Compost Filter Socks and EPA Example Compost Filter Parameters.

¹ Recommended test methodologies are provided in Test Methods for the Examination of Composting and Compost (TMEC, The U.S Composting Council).

.03 CONSTRUCTION:

- A. Prior to installation, clear all obstructions including rocks, clods, and debris greater than one inch that may interfere with proper function of filter log.
- B. Fill log mesh uniformly with compost or other approved biodegradable material to desired length such that logs do not deform.
- C. Install filter logs perpendicular to the flow direction and parallel to the slope with the beginning and end of the installation pointing slightly up the slope creating a “J” shape at each end to prevent bypass.
- D. For untrenched installation blow or hand place mulch or compost on uphill side of the slope along log.
- E. Stake filter log every 4 feet or closer along entire length of log or trench log into ground a minimum of 4 inches and stake log every 8 feet or closer.
- F. Use stakes with a minimum nominal cross section of 2x2 inch and of sufficient length to attain a minimum of 12 inches into the ground and 3 inches protruding above log.
- G. When more than one log is needed, overlap ends 12 inches minimum and stake.
- H. Remove sediment when it has accumulated to a depth of ½ the exposed height of log and replace mulch. Replace filter log if torn. Reinstall filter log if undermining or dislodging occurs. Replace clogged filter logs. For permanent applications, establish and continuously meet requirements for adequate vegetative establishment.

.04 MEASUREMENT AND PAYMENT: Filter Log will be measured and paid for at the Contract unit price bid per linear foot. The payment will be full compensation for all labor, material, equipment, tools, furnishing, placement, maintenance, replacement, restoration and incidentals necessary to complete the work.

Item No. 304 – FILTER BAG

.01 DESCRIPTION: This work shall consist of furnishing, installation, operation, adjustment, restoration and removal of equipment, labor and materials necessary to perform dewatering filtering activities.

.02 MATERIALS:

Filter Bag: As specified on the plans
Straw Bales: MSHA Sections 308.03.34, 921.08

.03 CONSTRUCTION:

- A. The Contractor shall install a filter bag to filter sediment laden water as shown on the construction plans.
- B. The Contractor shall determine the dimensions of the filter bag to provide adequate storage volume in accord with the appropriate pump.
- C. Contractor shall place straw bales as directed by the engineer to control soil erosion from discharged filtered water.

.04 MEASUREMENT AND PAYMENT: Filter bag will be measured and paid for at the Contract unit bid price per each. The payment will be full compensation for all labor, materials, installation, maintenance, removal, and incidentals necessary to complete the work.

Item No. 305 – RAIN GARDEN

.01 DESCRIPTION: This work shall consist of the excavation and removal of all existing material and the placement of material as shown on the plans and/or as directed by the Engineer to construct a rain garden.

.02 MATERIALS: Rain garden soil mix – BSM MSHA Section 920.01.05
Mulch MSHA Section 920.05.03 and 920.05.04

.03 CONSTRUCTION:

- A. Excavate and remove existing material to the lines and grades shown on the plans. All existing material shall be disposed of at an approved disposal area.
- B. Place rain garden soil mix in horizontal layers not exceeding 12 inches. After each lift, spread the BSM to provide a uniform surface and spray or sprinkle water to saturate the entire area of BSM.

.04 MEASUREMENT AND PAYMENT: Installation of the Rain Garden will not be measured for payment but will be paid for at the Contract lump sum bid. The payment will be full compensation for all labor, equipment, materials, tools, excavation, and incidentals necessary to complete the work.

Item No. 401 – CREEK ACCESS RAMP

.01 DESCRIPTION: This work shall consist of the construction of a Creek Access Ramp to the stream to the lines and grades shown on the Plans and/or as directed by the Engineer. This item shall include the furnishing and installing of materials, grading and excavation necessary to complete the construction.

.02 MATERIALS:

- A. Imbricated Stones: Imbricated riprap should be angular and blocky in shape such that they are stackable and should be sufficiently large to resist displacement by both the design storm event and the site-specific lateral earth stresses. Typical size is 24-36” high by 36” deep by 48” long.
- B. Geotextile, Class SE nonwoven MSHA Section 921.09
- C. Interlocking Concrete Grid Units: The concrete units shall have an interlocking design and minimum 25% open space, and minimum 4” thickness. The texture, shape, size, color and cap shall be submitted to the County for approval.
- D. Bedding Course: Crusher Run Aggregate MSHA Section 902
- E. Leveling Course: ASTM C-33 Sand MSHA Section 901

.03 CONSTRUCTION:

- A. Stream diversion and dewatering measures shall be installed and functioning.
- B. All excavation should be made in reasonably close conformity with the existing stream slope and bed. Loose material at the toe of the embankment should be excavated as specified to the elevation shown on the plans or as directed by the Engineer. The subgrade should be smooth, firm, and free from protruding objects or voids that would affect the proper positioning of the first layer of stones. A layer of aggregate may be placed to achieve a level bearing surface.
- C. The rock layers should be neatly stacked with staggered joints so that each stone rests firmly on two stones in the tier below. Imbricated Riprap shall be rotated into the bank during placement such that the upstream riprap block overlaps the downstream riprap block by a minimum of 3 inches. Additionally, smaller stones should be used to fill voids so that each rock

rests solidly on the previous rock layer with minimal opportunity for movement. The ramp should be installed with a gradually sloping profile.

- D. Place the subbase, bedding course and leveling course material. Install interlocking pavers per manufacturer recommendations. Infill interlocking pavers.

.04 MEASUREMENT AND PAYMENT: Creek Access Ramp will be measured and paid for at the Contract unit price bid per lump sum. Payment will be full compensation for a complete, in-place ramp, which includes: supply and installation, excavation, grading, imbricated stone, interlocking pavers, bedding and infill material and for all material, testing, inspection, labor, equipment, tools, and incidentals necessary to complete the work. All excavation necessary to facilitate the ramp construction shall be included in this item.

Item No. 501 - 6" GRADED AGGREGATE BASE COURSE

.01 DESCRIPTION: This item of work shall consist of furnishing and placing graded aggregate to the lines, grades, width and depth as shown on the plans, details and/or as directed by the Engineer.

.02 MATERIALS:

Graded Aggregate Base Course	MSHA Section 901, 915.04
Portland Cement	MSHA Section 902, Type I or IA
Emulsified Asphalt	MSHA Section 904.05
Water	MSHA Section 921.01
Moisture & Dust Control Agents	MSHA Section 921.02

.03 CONSTRUCTION:

- A. The Contractor shall protect the subgrade and base against damage from all causes. Any part of the subgrade or base that is damaged shall be repaired or replaced by and at the Contractor's expense, in a manner acceptable to the Engineer.
- B. All equipment, including the production plant and on-site equipment, shall be subject to approval by the Engineer. The plant shall be ready for inspection by the Engineer at least 48 hours prior to the start of construction operations.
- C. Mixed base materials shall be handled and transported in a manner that minimizes segregation and loss of moisture. All loads shall be covered in conformance with state laws.

- D. The base material shall be uniformly spread without segregating the coarse and fine particles, in layers of approximately equal thickness, to provide the specified depth.
- E. The surface of the base material shall be shaped to the required lines, grades and cross-section shown on the plans.
- F. Refer to Section 501.03 of the MSHA Specification Booklet for additional conditions.
- G. The Contractor shall provide the Owner all laboratory tests for aggregates (fine & coarse) for quality control purposes prior to its placement. The tests shall include, but not be limited to, sieve analysis, moisture-density relationship, and specific gravity tests (if required by the Engineer). All tests shall be performed from a finished product at the quarry in accordance with AASHTO/ASTM Standards. The Contractor shall be responsible for in-place density testing by a nuclear gauge (test at every 500 LF per each lift as directed by the Engineer). Results to be submitted to the Engineer for review. Testing shall be incidental to the other item(s) being tested.

.04 MEASUREMENT AND PAYMENT: Graded Aggregate Base Course will be measured and paid for at the Contract unit price bid per square yard. The payment will be full compensation for all aggregate, furnishing, hauling, placing, grading, materials, labor, equipment, tools and incidentals necessary to complete the work.

Item No. 502 - HOT MIX ASPHALT SUPERPAVE 9.5mm (PG 64-22)

Item No. 503 - HOT MIX ASPHALT SUPERPAVE 19.0mm (PG 64-22)

.01 DESCRIPTION: This work shall consist of furnishing and installing Hot Mix Asphalt (HMA) Superpave courses as shown herein and/or as directed by the Engineer. HMA Superpave courses shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate, slag or stone screening or a combination thereof combined with asphalt cement. The Engineer will permit the use of Superpave courses containing RAP material in the specified mixes. This material must meet state requirements. Contractor shall provide maintenance of traffic if required.

.02 MATERIALS:

- A. Hot Mix Asphalt Superpave Mixes shall meet the requirements of Standard Specification for SUPERPAVE Volumetric Mix Design, AASHTO Designations MP2-99, and be subject to approval by the engineer.

- B. The Contractor shall submit a certificate of analysis showing conformance with Performance Graded Asphalt Binder Specification, MP1 for the following mixes:

Mix	Binder
HMA Superpave 9.5 mm	PG 64-22
HMA Superpave 12.5 mm	PG 70-22
HMA Superpave 19.0 mm	PG 64-22
HMA Superpave 25.0 mm	PG 64-22

(Job mix formulas will be required for the above mixes prior to placing)

- C. Mixes shall be designed for an Equivalent Single Axle Load (ESAL) range of 0.3 million to < 3.0 million ESAL's (compaction level 2) and a seven (7) Day Average Design Air Temperature < 39⁰C.
- D. The allowable percentage of recycled asphalt pavement (RAP) and its suitability for use shall be in conformance with MSMT 412. The allowable amount of RAP in the specified mixes shall not exceed 15%. When using 15% or less of RAP, binder viscosity adjustments are not required. Documentation of RAP stockpile quality and traceability shall be submitted to the Engineer for an approval prior to use.
- E. Crushed glass and roofing shingles shall not be used in the Superpave mixes.

.03 CONSTRUCTION:

- A. Prior to placing Superpave, the Contractor, Engineer, Inspector, and Paving Foreman shall hold a weekly meeting for the purpose of the Contractor outlining his schedule of paving.
- B. The Contractor shall construct the final riding surface to tie into the existing surface by an approved method, which shall include the cutting or grinding of a notch into the pavement. In addition to notching, the Contractor shall achieve a smooth transition from the new asphalt concrete overlay to the existing pavement as a standard industry practice, and with the approval of the Engineer. The material shall be of a type to insure that raveling will not occur. All costs for constructing tie-ins in the asphalt concrete overlay shall be considered incidental and included in the price bid per ton for Superpave courses.
- C. The Contractor shall provide a certification from SHA for "Standard Practice for Certifying Supplier for Performance Graded Asphalt Binder (AASHTO PP-26)" to the Washington County Engineer.

- D. Contractor shall provide details of asphalt plant, list of equipment, trained technicians, and SHA Certified Laboratory details, which will be engaged on this project. This certification shall be submitted along with the bid proposal for evaluation/approval. The Contractor shall also submit the approved SHA mix design to the Engineer prior to the commencement of paving operations.
- E. All construction shall be done in accordance with MSHA, Section 504.03. However, for testing purposes, the nuclear/core method shall be utilized with a minimum of four nuclear density tests required. The Contractor shall comply with these testing standards established for the quality control, and must submit the test results to the Owner for review within 24 hours after they are received. The Owner reserves the right to stop the paving operation and ask for corrections if the test results do not meet the Specification Standards. The Engineer may change the testing frequency as he deems necessary.

The Contractor shall also be responsible for all material testing (laboratory and field) on Superpave, as required by the applicable documents from SHA, AASHTO, and/or as directed by the Engineer. All documentation, including the Compaction Test Reports, shall be given to the Owner's Representative at the end of each working day. Reports shall specify road names and termini. Three core drill samples shall be taken by the Contractor for each lot, and will be required on the Superpave as directed by the Engineer, for quality control purposes. Contractor shall be responsible for any delay caused by the laboratory, which may affect his work performance on the project. If all or any part of "in-place" material does not meet specification/ mix design, the Contractor shall repair or replace at his own expense.

- F. The Contractor shall protect the pavement against damage from all causes associated with his construction operations. Any part of the pavement that is damaged shall be repaired or replaced by and at the expense of the Contractor.
- G. Where Superpave courses are placed at a depth of 1 in. (25 mm) or less, the material shall be tested by nuclear density gauge when tested as specified in AASHTO T-238.
- H. The Contractor, at the Engineer's request, shall permit the County's representative to obtain Superpave samples as material passes from the paver during application. Samples will be obtained by the shovel method.
- J. The Owner may request that the Contractor provide additional random samples for testing during Superpave placement for each project band. If

additional testing is required, the Contractor shall perform such tests as deemed necessary at no cost to the Owner.

- K. Certified test results of density achieved shall be submitted by the paving contractor or his representative to the Washington County Engineer within forty-eight (48) hours after placement of asphalt.
- L. At anytime during the period of the contract, the Engineer may increase, delete, or substitute Superpave tonnage listed herein at his discretion.

.04 MEASUREMENT AND PAYMENT:

- A. Delete Section 504.04 of the MSHA Specifications in its entirety and insert the following.
- B. Superpave Hot Mix Asphalt pavements will be measured and paid for at the Contract unit price bid per ton for the respective types of Superpave. The payment will be full compensation for furnishing, hauling, placing, field and laboratory testing, tack coat, labor, temporary traffic control, equipment, tools and incidentals necessary to complete the work.
- C. There will be no adjustments made the Contract unit price per ton, due to fluctuation in purchase price of asphalt cement or for any other reason for this item.
- D. Superpave shall be compacted to an in-place density of 92.0 to 97.0 percent of the maximum density. If the Contractor obtains 92.0 to 97.0 percent densities, payment will be made at 100% of the Contract unit price bid per ton for the material at that density. Likewise, densities from 91.9 to 90.0 percent will be paid for at 93% of the Contract unit price bid per ton for the material at that density. In accordance with GP-5.02, all densities falling below 89.9 percent shall either be milled out and replaced, or left in place at the Engineer's discretion. Replacement material successfully placed will be paid for at original depth and/or tonnage of initial placement. Newly placed material requiring replacement and the grinding out thereof shall be at the Contractor's expense.

Item No. 504 – INTERLOCKING PAVEMENT PATHWAY

- .01 DESCRIPTION:** This item of work shall consist of furnishing and installing a wide interlocking pavement pathway to the lines, grades, width and depth as shown on the plans, details and/or as directed by the Engineer.

.02 MATERIALS:

Precast interlocking paver. The concrete units shall have an interlocking design and minimum 25% open space, and minimum 4” thickness. The texture, shape, size, color and cap shall be submitted to the County for approval. MSHA Section 903

Bedding Course: Crusher Run Aggregate MSHA Section 902

Leveling Course: ASTM C-33 Sand MSHA Section 901

AAHTO #8 Stone MSHA Section 902

Edge restraint – manufacturer recommendation

.03 CONSTRUCTION:

- A. The Contractor shall excavate to the necessary subbase grade. Subgrade shall be firm, smooth and free from organic matter.
- B. Install compacted gravel base.
- C. Install a manufacture recommended edge restraint to contain the pathway.
- D. Place leveling course and scree to desired grade.
- E. Install the interlocking pavers. Fill large open voids with AASHTO #8 stone. Spread masonry sand over remaining voids. Tamp the pavers and weep sand into open joints. Repeat as needed.

.04 MEASUREMENT AND PAYMENT: Interlocking Pavement Pathway will be measured and paid for at the Contract unit price bid per square foot. The payment will be full compensation for all pavers, aggregate, sand, furnishing, hauling, placing, grading, materials, labor, equipment, tools and incidentals necessary to complete the work.

Item No. 601 – ADD ALTERNATE #1 - COMPOSITE RANCH RAIL FENCE

.01 DESCRIPTION: This work shall consist of installing a composite fence, with posts at the locations as shown on the plans and/or as directed by the Engineer.

.02 MATERIALS:

Ranch Rail Fence Fiberon™ or approved equal. Three rail, 6 ft minimum section composite fence. Minimum 4 ft. height. Color – coastal cedar.

.03 CONSTRUCTION:

Type.

A. Install the height and type of fence specified and per manufacturer's recommendations.

Fence lines specified in the Contract Documents are only a guide. The exact location of the fence will be determined in the field by the Engineer.

Install all posts plumb. Maintain, as uniform as practicable, the spacing specified
Install post caps on all posts.

Anchorage for Line Posts and Terminal Posts

Where rock is encountered at a depth less than that specified for the footing, drill a hole 1 in. larger than the greatest dimension of the post to a depth of 12 in. or the planned footing depth, whichever is less. After the post has been set, fill the remainder of the drilled hole with grout composed of one part portland cement and two parts mortar sand by dry loose volume. Fill the space above the rock with concrete. Do not use the drive anchor method in rock areas.

Select the type of anchorage system from the following, except use the concrete method in rock areas.

Concrete Method

Place posts in the center of concrete footings. Thoroughly compact the concrete around the post by rodding or vibrating. Trowel the top surface to a smooth finish slightly above the groundline and uniformly sloped to drain away from the post. Do not disturb the post within the 72 hours after the individual post footing is completed.

Do not use hand mixed concrete unless approved. When permitted, limit the size of the hand mixed batch to 1/2 yd³.

Drive Anchor Blade Method.

A drive anchor blade unit consists of two steel blades driven diagonally through galvanized steel fittings attached to opposite sides of the post. The drive anchor unit shall hold the post rigidly upright. Ensure that the spread of the blades at their full depth is approximately 39 in. Install the device so that its top is at least 3 in. below the finished grade. The anchor unit device and procedure shall be as approved. Anchor each line post using one of these units. Anchor each terminal post using two units spaced approximately 6 in. apart. At terminal posts, drive each anchor blade unit in the direction that offsets the stresses caused by the tension of the fence.

.04 MEASUREMENT AND PAYMENT: Composite Ranch Rail Fence will be measured and paid for at the Contract unit price bid per linear foot. The payment will be

full compensation for all fencing, posts, hardware, concrete, material, labor, equipment, tools, installation, maintenance, stabilization of disturbed area, and incidentals necessary to complete the work. This is an add alternate item that may or may not be awarded.

Item No. 702 – ADD ALTERNATE #2 - TURFGRASS ESTABLISHMENT

Item No. 703 – ADD ALTERNATE #2 - MEADOW ESTABLISHMENT

.01 DESCRIPTION: This work shall consist of soil preparation, scarification, seeding, fertilizing, liming, and mulching on all disturbed areas and in areas as directed by the Engineer.

.02 MATERIALS:

Agricultural Limestone	MSHA Section 920.02
Fertilizer	MSHA Section 920.03.01
Mulch Binder	MSHA Section 920.05.04
Seed	MSHA Section 920.04.01 and 920.04.02
Lowland Meadow Seed	MSHA Section 707.03.08, 920.06 and 920.06.06(e)
Mulch	MSHA Section 920.05.03 and 920.05.04
Miscellaneous	MSHA Section 920.08

.03 CONSTRUCTION:

- A. The Contractor will be required to establish an acceptable stand of vegetation by means of an adequate mix and application rate.
- B. The method of seed/mulch application shall be by hydroseeding unless otherwise directed by the Engineer.
- C. Contractor shall prepare surface of topsoil to be free of rocks, stones, or dirt clods larger than ¾ in. Surface shall also be free of root and organic matter and any other deleterious material.
- D. Refer to the plans and Section 705 of the MSHA Specification Booklet for additional applicable conditions.

.04 MEASUREMENT AND PAYMENT: Turfgrass and Meadow Establishment will be measured and paid for at the Contract unit price bid per square yard and shall include all seed, fertilizer, mulch, labor, equipment, tools and incidentals necessary to establish an acceptable stand of vegetation. No additional payments will be made to the Contractor for the reseeding and mulching of areas that must be reseeded in order to establish an acceptable stand of vegetation, or 95% of the initial disturbed area. This is an add alternate item that may or may not be awarded.

- Item No. 703 – ADD ALTERNATE #2 - PLANT AMERICAN SYCAMORE (PLATANUS OCCIDENTALIS)
- Item No. 704 – ADD ALTERNATE #2 - PLANT BLACK GUM (NYSSA SYLVATICA)
- Item No. 705 – ADD ALTERNATE #2 - PLANT EASTERN REDBUD (CERCIS CANADENSIS)
- Item No. 706 – ADD ALTERNATE #2 - PLANT RED OSIER DOGWOOD (CORNUS SERICEA STOLONIFERA)
- Item No. 707 – ADD ALTERNATE #2 - PLANT SMOOTH ALDER (ALNUS CERRULATA)
- Item No. 708 – ADD ALTERNATE #2 - PLANT BALD CYPRESS (TAXODIUM DISTICHUM)

DESCRIPTION: This work shall consist of soil preparation, fertilizing, liming as required, furnishing, installation, maintenance of shrubs and trees as shown on the plans or directed by the Engineer.

.02 MATERIALS:

American Sycamore, Black Gum, Bald Cypress – 1.5” Caliper
 Eastern Redbud, Red Osier Dogwood, Smooth Alder – 3 ft min height

All trees Section 920.07

Planting Soil	Two parts topsoil, one-part cow or horse manure, add 3 lbs. of standard fertilizer per cubic yard of planting soil mix
Fertilizer	MSHA Section 920.03.01

.03 CONSTRUCTION:

- A. Plant material, unless otherwise specified, shall be nursery grown, uniformly branched and have a vigorous root system. Plant material shall be healthy, vigorous plants free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers, infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected.
- B. Plants shall be freshly dug; no heeled-in plants or plants from cold storage will be accepted.
- C. Unless otherwise specified, plant material shall conform to “American Standard for Nursery Stock” ANSI Z60.1-1990, published by the American Association of Nurserymen, including addenda.

- D. Planting soil should be tested for deficiencies to determine if additional soil amendments are necessary for proper plant growth.
- E. The location and orientation of the plant material shall be approved in the field by the Engineer prior to planting. Contractor shall be responsible for moving plant material installed without approval.
- F. The Contractor shall warrant all plants installed under this contract for a period of not less than one calendar year from the date of acceptance by the Engineer. The Contractor shall continue to water plants as appropriate throughout the construction project duration, and may continue watering, at the Contractor's expense, throughout the warranty period.
- G. Plants shall be flooded twice within 24 hours of planting.
- I. Refer to Section 710 of the MSHA Specification book for additional requirements.

.04 MEASUREMENT AND PAYMENT: Trees will be measured and paid for at the Contract unit price bid per plant installed and accepted by the Engineer. Payment will be full compensation for all material, labor, equipment, tools, planting soil and incidentals (including watering during the construction period) necessary to complete the work. If within one calendar year of acceptance by the Engineer, the plants become unacceptable, they shall be replaced at the Contractor's expense. Planting soil will not be measured but considered incidental to planting the trees and shrubs. This is an add alternate item that may or may not be awarded.