

SECTION 02516

STABILIZED CRUSHED STONE WALKS
5/01

PART 1 GENERAL

1.1 DESCRIPTION

The work of this section consist of constructing universally accessible crushed stone walks on a prepared subgrade.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-03 Product

Sample of Crushed Stone Aggregate Screenings; G, G

Sample shall be sufficiently large to illustrate clearly the functional characteristics and full range of color and texture of the material.

Sample of Finished Trail Section; G, G

Using specified materials and edging the sample shall be full width of trail and length equal to 2X the width. Sample trail section shall be approved in writing by the Contracting Officer prior to construction of the project stabilized crushed stone walk.

SD-09 Reports

Sieve Analysis; FIO, FIO

Submit sieve analysis to ensure material meets required grading requirements.

1.3 PROJECT CONDITIONS

Use lightweight hauling equipment. Exercise care in avoiding damage to adjacent plant and tree growth.

1.4 MEASUREMENT AND PAYMENT

1.4.1 Stabilized Crushed Stone Walks

Measurement will be the number of square feet of actual walk installed. Payment will include all labor and material to include geotextile fabric, aggregate base, aggregate screenings, edging and soil stabilizer used in the construction of walks.

PART 2 PRODUCTS

2.1 AGGREGATE BASE COURSE

See section 02722

2.2 CRUSHED AGGREGATE SCREENINGS

Screenings shall meet the following requirements:

- A. Clean, hard, durable particles or fragments of 1/4 " minus California Gold colored decomposed granite. Fines shall be evenly mixed throughout the aggregate. When produced from gravel, 50% by weight of the material retained on No. 4 sieve shall have one fractured face. Color to be approve by the Contracting Officer.
- B. The portion retained on the No. 4 sieve shall have a maximum percentage of wear of 50 at 500 revolutions as determined by AASHTO T96-77.
- C. The portion passing a No. 4 sieve shall have a maximum liquid limit of 25 and a maximum plasticity index of 7, as determined by AASHTO T89-81 and AASHTO T90.81, respectively.
- D. The crushed aggregate screenings shall be free from clay lumps, organic matter and deleterious material.

2.3 GRADING REQUIREMENTS

Grading requirements shall be as follows:

**Percent of Weight Passing.a Square Mesh Sieve
AASHTO T11-82 and T27-82**

<u>Sieve Designation</u>	<u>% Passing</u>
3/8"	100
No.4	95-100
No.8	75-80
No.16	55-65
No.30	40-50
No.50	25-35
No.100	20-25
No.200	5-15

2.4 SOIL STABILIZER

Soil stabilizer shall be non-toxic, colorless, odorless, non staining, concentrated organic powder that binds soil and crushed aggregate screenings together, creating a natural appearing, firm stable surface. Soil stabilizer shall be manufacture by Stabilizer Solutions or approved equal.

2.5 GEOTEXTILE FABRIC

Woven polypropylene capable of providing effective separation between compacted subgrade and aggregate base course and meeting the following requirements:

Grab Tensile Strength= 250lbs, Elongation=20%, Trapezoid Tear=100lbs, Puncture=115lbs, Mullen Burst=300psi, Ultra Violet Stability=90%, Permittivity=.14 sec, Apparent Opening Size=40.

2.6 FORMS

Steel landscape edging, is to serve as a permanent edging material, will be used in lieu of forms. Steel edging shall be reinforced as necessary to resist spring during deposition and compaction of material. Edging shall be realigned as needed in the event it is deformed during placement of compaction.

PART 3 EXECUTION

3.1 GROUND SURFACE PREPARATION

Strip the top 3" of topsoil within the designated trail corridor and campsite areas. Stockpile at onsite location designated by the Contracting Officer.

3.2 SUBGRADE PREPARATION

Prior to placing geotextile fabric, shape, fill, grade and compact the subgrade.

3.3 GEOTEXTILE FABRIC

Place geotextile fabric over all compacted subgrade areas prior to installation of aggregate base material. Fabric shall be used as a barrier between the subgrade and aggregate base material.

3.4 AGGREGATE BASE

Install aggregate base according to section 02722 and drawing details.

3.5 FORMS

Install landscaping edging in lieu of forms, the full depth of the trail, curving as required and securely stake in place to hold firmly to line and grade required. Top of edging shall not protrude above grade.

3.6 SOIL STABILIZER

Soil stabilizer shall be utilized according to the following requirements:

A. Thoroughly pre-blend stabilizer with 1/4" minus crushed aggregate screening, at the rate of 15lbs of stabilizer per ton of aggregate screenings prior to placing the stabilized mix. **It is essential that the stabilizer be mixed thoroughly and uniformly through the crushed aggregate screening to achieve a successful result.** The stabilizer locks fines together, trapping the larger crushed aggregate screenings; stabilizer does not act directly on large aggregate screenings. Blending is best accomplished with a truck mounted mixer; a portable mechanical mixer may be used. Blend for 15 minutes prior to placing on aggregate base.

B. Drop spreading of stabilizer of raked crushed screenings and mixing stabilizer by rototilling shall not be acceptable.

C. Stabilizer shall not be applied during, just prior to or immediately following rainfall.

D. Stabilizer powder shall not be left on asphalt surfaces as damage may result. remove powder by sweeping and washing with a strong stream of water.

3.7 PLACING CRUSHED AGGREGATE SCREENINGS

After pre-blending, place the stabilized crushed aggregate screenings (CAS) on prepared aggregate base and rake smooth using steel tine rack to desired grade and cross section. Place to avoid segregation, in one layer of 2" minimum thickness. Do not apply CAS deeper than 3" in one lift. (Example: for a 4" thickness, apply CAS in two 2" lifts.

3.8 WATERING

Water heavily to achieve full depth moisture penetration of the trail mix. Watering is best accomplished using a garden hose with spray nozzle set to a course spray; pressure will not disturb leveled trail surface. A one-hour application at a rate of +/- 20gpm per 1000 square feet of trail mix surface seems to achieve the desired full depth moisture penetration. Water activates stabilizer; consequently, it is essential that depth of stabilized trail material be saturated. Test for depth of water penetration by random inspection of trail cores. After inspection, fill core holes with material removed, smooth and hand tamp to match adjoining trail surface grade. Let watered trail mix stand 6-24 hours until surface water is no longer present; the trail mix should then be moist but not wet.

3.9 COMPACTION

While the trail mix is still thoroughly moist, roll with a heavy lawn roller (minimum 225lbs and maximum 30" wide) to achieve the finished grade and initial compaction. Hand edges around site amenities. Use a heavy (1 ton minimum) small rider, after having initially used the lawn roller, to obtain the desired final dense, smooth, uniform texture. Do not use whackers or vibratory rollers; the trail mix will not harden for weeks after vibration.

3.10 FINISHING

Landscape edging is to remain in place, securely staked to hold firmly to approved line and grade. After finished compacted trail surface has been achieved, finish adjacent shoulders by backfilling back edging with stockpiled topsoil, compacting to match existing undisturbed ground and slope to required grade and cross section.

3.11 INSPECTION

The Contracting Officer shall inspect stabilized crushed stone walks for conformance to the requirements stated below. It shall be the Contractors responsibility to correct deficiencies prior to installation acceptance by the Contracting Officer.

A. Finish surface of trail shall be smooth, uniform and solid, with no evidence of chipping or cracking. Dried, compacted trail material shall be firm all the way through with no spongy areas. Loose material shall not be present on the surface initially. After the first year of use, a minor amount of loose material is expected on the surface.

B. Loose gravel on the surface or unconsolidated crushed aggregate screenings below the surface, is evidence of improper bonding due to poor mixing or insufficient watering. test the loose material for adequate stabilizer by wetting, then tamping and allowing to dry. If the material is still unconsolidated, stabilizer did not get mixed adequately throughout the CAS. If the material becomes hard now, this indicates insufficient initial watering

C. Unconsolidated areas shall be dug out, and replaced with new CAS with a high proportion of fines meeting the grading requirements of section 2.3 above, pre-blended with stabilizer per the procedures listed under section 3.7 above. Patched areas shall then be wetted thoroughly and rolled smooth. patching shall be completed prior to any trail smoothing required.

D. Any significant irregularities shall be smoothed out prior to final acceptance of work. Smoothing shall be accomplished by rewetting/saturating rough areas thoroughly, and then rolling the trail again with a heavy roller (1000-1500 lbs power walk behind or small rider). Wackers are not recommended.

E. Final thickness of the completed trail shall not vary more than 1/2" from the dimensions indicated in plans and specifications. Measurements may be taken by means of test holes taken at random in finished trail surface. Correct any variations in thickness beyond the allowable 1/2" by repeating the procedures listed under 3.7-3.11 above.

F. Final width of completed trail shall not vary more than 1/2" from dimensions indicated on plans and specifications. Measurements may be taken at random cross sections in the finished trail surface.

-- End of Section --