



## SECTION 32 15 40

### DECOMPOSED GRANITE SURFACING

**NOTE:** These specifications were current at the time of publication but are subject to change at any time without notice. Please confirm the accuracy of these specifications with the manufacturer and/or distributor prior to installation.

#### PART 1 – GENERAL

##### A. SUMMARY

**Specifier Note:** Retain or delete material(s) below to conform to project requirements.

##### B. Section Includes:

1. Naturally occurring decomposed granite and crushed stone surfacing as shown on Drawings and specified herein. Include sub-grade, edging and related accessories.

##### B. Related Sections:

1. Section 31 22 00 "Grading".

**Specifier Note:** Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Conditions of the Contract or Section 01 42 19 - Reference Standards may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

#### 1.02 REFERENCES

- A. ASTM C136 – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D448 – Standard Classification for Sizes of Aggregate for Road and Bridge Construction.

**Specifier Note:** Article/Paragraphs below includes submittal of relevant data to be furnished by Contractor, either before, during or after construction. Coordinate Article/Paragraphs with Architects and Contractors duties and responsibilities in Conditions of the Contract and Section.

#### 1.03 ACTION SUBMITTALS

- A. Comply with Section 01 33 00.

- B. Shop Drawings: Submit plan layout of all decomposed granite surfacing areas and detail drawings showing the various components of the surfacing system, including subbase and edging.
- C. Product Data: Manufacturer's literature completely describing all components of the decomposed granite surfacing system, including:
  - 1. Preparation instructions and recommendations.
  - 2. Installation methods and application procedures.
- D. Samples for Verification:
  - 1. Submit samples of each of the following:
    - a. Three pound sample of each type and color of decomposed granite surfacing material.

Specifier Note: Edging material is optional, delete if not required.

- b. Edging material, each type not less than 12 inches long.

E. Certification:

- 1. Manufacturer and Installer Qualifications.

#### 1.04 LEED REQUIREMENTS

Specifier Note: SUSTAINABILITY: LEED: Use the following paragraphs when LEED Submittals are required.

- A. LEED Submittals: In accordance with [LEED] [and] [Section 01 35 21 LEED Requirements] [\_\_\_\_\_].
  - 1. Submit required letters, calculations, spreadsheets and templates prepared by [Engineer] [Consultant] [Architect] [\_\_\_\_\_] for submitting to USGBC for Credit Interpretation Requests.
  - 2. Submit Project Materials and Cost Data: Provide statement for total cost for building materials used for Project.

Specifier Note: SUSTAINABILITY: LEED v.4

- 1. Materials and Resources Credit: MRc Building Product Disclosure and Optimization – Sourcing of Raw Materials: Submit product data and certification letter(s) of proposed materials with recycled content.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria, which establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 01 Quality Assurance Section.

#### 1.02 QUALITY ASSURANCE

- A. Comply with Section 01 40 00.
- B. Manufacturer: Company specializing in manufacturing Work of this Section with minimum 25 years documented experience.
- C. Single Source Responsibility: Obtain each type of decomposed granite surfacing from single manufacturer.

**Specifier Note: Include a mock-up, if the project size and/or complexity of the work require installation to be approved by Landscape Architect.**

- D. Mock Up: Provide a mock-up for evaluation of surface preparation, installation techniques and quality of application.
  - 1. Install a 4-feet x 4-feet minimum of decomposed granite surfacing, including subbase course and edging, at location approved by Landscape Architect.
  - 2. Do not proceed with remaining work until installation of decomposed granite surfacing is approved by Landscape Architect.
  - 3. Approved mock-up may remain as part of completed Work.

### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 60 00.

**Specifier Note: Retain or delete paragraph(s) below to conform to size and scale of project requirements.**

- B. Bagged Materials: Accept delivery of materials only in unopened and undamaged containers bearing the brand name and manufacturer's identification.
- C. Bulk Materials: Each load of decomposed granite surfacing material arriving at the job site in bulk shall be accompanied by a delivery ticket containing the following minimum information:
  - 1. Quarry of origin.
  - 2. Amount, weight and type of material.
  - 3. Brand name and manufacturer's identification.
- D. Protect decomposed granite surface surfacing materials from contamination until ready for installation. Store under cover.

### 1.04 PROJECT CONDITIONS

- A. Surfaces to receive decomposed granite surfacing shall be frost free and free of oil or any other foreign matter, which may impair the proper installation of the surfacing system.
- B. Do not install decomposed granite surfacing when subbase course is muddy or saturated with standing water.
- C. Perform work in dry weather when subgrade is sufficiently stable to be properly compacted.

## **PART 2 – PRODUCTS**

### 2.01 ACCEPTABLE MANUFACTURER

- A. Manufacturer: Provide "Standard Pathway Mix" decomposed granite surfacing system by the following:

Kafka Granite, LLC  
550 East Hwy 153

Mosinee, WI 54455  
 Tel: (800) 852-7415 (Toll Free)  
 Tel: (715) 687-2423 (Local)  
 Fax: (715) 687-2395  
 Email: [kafka@kafkagranite.com](mailto:kafka@kafkagranite.com)  
 Web: [www.kafkagranite.com](http://www.kafkagranite.com)

Specifier Note: Delete one of the following two paragraphs.

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

2.02 DECOMPOSED GRANITE SURFACING MATERIALS

Specifier Note: Retain Recycled Content paragraph below if required for LEED. Coordinate with manufacturer to obtain required amount prior to specifying.

- A. Recycled Content of Decomposed Granite or Crushed Stone Surfacing Materials:  
 [50%][75%][100%][\_\_%]
- B. Decomposed Granite and Crushed Stone Aggregate: Provide high quality materials consisting of sound, angular, durable stone particles, free from clay lumps, organic materials, frozen materials, or other deleterious substances.
- C. Gradation: Manufacturer’s standard mix of well-graded materials in accordance with ASTM C136. Blends of coarse sand and rock dust are not acceptable.

Standard Pathway Optimal Gradation		
Sieve	Sieve Size (mm)	Percent Passing
3/8"	9.51	100%
#4	4.76	80-100%
#8	2.36	65-90%
#16	1.18	40-60%
#30	0.6	25-55%
#50	0.3	15-35%
#100	0.149	10-20%
#200	0.074	7-15%

2.03 SUBBASE COURSE MATERIALS

- A. Comply with MTO OPSS 1010 – “Material Specification for Aggregates – Granular A, B, M and Select Subgrade Material” specification for Granular A material.
  - 1. Road Base Material: Also known as road rock, road gravel, aggregate base, AB, asphalt base and 3/4" minus. In California the standard is set by Cal Trans and most common is 3/4" aggregate base Class 2.

## 2.04 ACCESSORIES

- A. Water: Clean and potable, free from contaminants that would be deleterious to the decomposed granite surfacing.

**Specifier Note: Edging is optional, but not required; select below paragraph if edging is desired.**

- B. Steel Edging: 3/16-inch thick x 4-inch deep with overlapping joints.
  - 1. Stakes: 3/16-inch x 16-inch long x 1 3/4-inch wide at top tapering to point at bottom; locate at 36-inch on center maximum.

- C. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Application of the herbicide shall pose no short or long term health threats to the installer or the general public.

## PART 3 – EXECUTION

**Specifier Note: Paragraph below is an addition to CSI SectionFormat. Retain or delete paragraph(s) below to conform to project requirements.**

### 3.01 EXAMINATION

- A. Examine areas and conditions under which Work of this Section will be performed. Notify Landscape Architect of unsatisfactory preparation before proceeding.
- B. Correct conditions detrimental to timely and proper completion of Work.
- C. Do not proceed until unsatisfactory conditions are corrected.
- D. Lay out work prior to the commencement of installation.

### 3.02 PREPARATION

- A. Excavation: Excavate to depth required so edges of decomposed granite surfacing will match adjacent grades and have a maximum cross-slope of 2 percent. Ensure edges and bottom of excavation are in a smooth and even line.
- B. Subgrade Preparation: Plow, harrow and mix the entire surface of the in-place subgrade to a depth of at least 6-inches. After the material has been thoroughly mixed, the subgrade shall be brought to line and grade and compacted to 95% of the maximum laboratory dry density as determined by the Standard Proctor test.
- C. Herbicide: Apply herbicide per manufacturer's written instructions. Limit the application to the area to receive decomposed granite surfacing.
- D. Subbase Course Preparation: Place the subbase coarse aggregate free from ridges, depressions or hollows. Rake and compact to 95% Standard Proctor Density.

### 3.03 INSTALLATION

- A. Steel Edging: Install edging flush with the top of the decomposed granite surfacing. Provide sufficient stakes to secure edging in place during and after decomposed granite surfacing material installation.
- B. Subgrade: Proof-roll the subgrade with heavy pneumatic-tired equipment to locate unstable areas and to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Landscape Architect, and replace with compacted backfill or fill as directed.
  2. The surface of the completed subgrade shall be bladed to a smooth and uniform texture.
  3. The finished subgrade shall be uniform and free from deleterious debris such as organic materials, nails, stones and loose soil.
- C. Subbase: Install aggregate subbase to a compacted depth of 4 to 6-inches minimum for pedestrian traffic, and 8 to 12-inches minimum for vehicular traffic in accordance with manufacturer's recommendations. Install the subbase in multiple 3 to 4-inch lifts, and compact to a minimum 95% density.
- D. Compaction: Compact each lift of the subgrade, subbase and final finish decomposed granite surfacing materials with a one to three-ton roller or compactor. In small areas that are difficult to access with compaction equipment, hand tamping may be performed with multiple passes to achieve the required density.
1. Lightly spray surface area following compaction. Do not disturb aggregate surface with spray action.

#### 3.04 INSTALLATION OF DECOMPOSED GRANITE SURFACING

- A. Spread decomposed granite surfacing material in 3 to 4-inch lifts. Spread the pathway mix evenly and smoothly before compacting. Allow for 20-25% compaction. Screed if possible.
- B. Wet the mix to ensure water has penetrated the full depth of the decomposed granite surfacing material, and roll each lift to form a uniform, smooth surface with a cross slope of 2% maximum. Compact each lift to a minimum 95% density.
- C. Grade and smooth to the required elevation; compact final lift with 1-3 ton drum roller or compactor.
- D. Minimum Compacted Thickness:
  1. Pedestrian Paths: 3-inches.
  2. Vehicular Drives and Roadways: 4-inches.
- E. Surface shall follow grades per plans. Remove crown, allow 1-2% cross pitch.
- F. Completed surface shall be of consistent quality and shall not have depressions or humps greater than 1/4-inch in 10-feet.

#### 3.05 INSTALLATION TOLERANCES

- A. Decomposed Granite Surfacing Thickness: Allow for 20-25% compaction.
  1. Subbase Course: Plus or minus 1/2-inch.
  2. Surface Course: Plus 1/4-inch, no minus.
- B. Decomposed Granite Surfacing Smoothness: Produce a surface smoothness within 1/4-inch tolerance when measured with a 10-foot straightedge.
  1. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowed variance from template is 1/4-inch.

3.06 CLEAN-UP AND PROTECTION

- A. Thoroughly clean all areas where work has occurred. Remove from site excess material, debris and rubbish.
- B. Take all precautions necessary to protect completed work until Substantial Completion of project.

**END OF SECTION**