

**SECTION 02795**

**GRAVELPAVE2**

**PART 1 – GENERAL**

**1.01 General Provisions**

- A. The Conditions of the Contract and all Sections of Division 1 are hereby made a part of this Section.

**1.02 Description of Work**

- A. Work Included:
  - 1. Provide and install sandy gravel roadbase as per Geotechnical Engineer's recommendations and/or as shown on drawings, to provide adequate support for project designs loads. See 2.02 Materials.
  - 2. Provide Gravelpave2 Paving products including Gravelpave2 units, anchors and installation per the manufacturer's instructions furnished under this section.
  - 3. Provide and install fine decorative gravel to fill the Gravelpave2 units.
- B. Related Work:
  - 1. Subgrade preparation under Section 02300 - Earthwork.

**1.03 Quality Assurance**

- A. Installation: Performed only by skilled work people with satisfactory record of performance on landscaping or paving projects of comparable size and quality.

**1.04 Submittals**

- A. Submit manufacturer's product data and installation instructions.
- B. Submit a 10" x 10" section of Gravelpave2 product for review. Reviewed and accepted samples will be returned to the Contractor.
- C. Submit material certificates for base course and sand fill materials.

**1.05 Delivery, Storage, and Handling**

- A. Protect Gravelpave2 material units from damage during delivery and store under tarp when time from delivery to installation exceeds one week.

**1.06 Project Conditions**

- A. Review installation procedures and coordinate Gravelpave2 work with other work affected.
- B. All hard surface paving adjacent to Gravelpave2 areas, including concrete walks and asphalt paving, must be completed prior to installation of Gravelpave2.
- C. Cold weather:

1. Do not use frozen materials or materials mixed or coated with ice or frost.
  2. Do not build on frozen work or wet, saturated or muddy subgrade.
- D. Protect partially completed paving against damage from other construction traffic when work is in progress.
- E. Protect adjacent work from damage during Gravelpave2 installation.

## **PART 2 - PRODUCTS**

### **2.01 Availability**

- A. Manufacturer: Invisible Structures, Inc., 1600 Jackson Street., Suite 310, Golden, CO 80401. Call from USA and Canada 800-233-1510 toll free, (International 303-233-8383), Fax 800-233-1522 (International 303-233-8282).
- B. Distributor: To be determined by Contractor

### **2.02 Materials**

- A. Base Course: Sandy Gravel material from local sources commonly used for roadbase construction, passing the following sieve analysis.

<u>% Passing</u>	<u>Sieve Size</u>
100	3/4"
85	3/8"
60	#4
30	#40
<3	#200

1. Sources of the material can include either "pit run" or "crusher run". Crusher run material will generally require sharp sand to be added to mixture (25 to 35% by volume) to ensure long term porosity.
  2. Alternative materials such as crushed shell, limerock, and/or crushed lava may be considered for base course use, provided they are mixed with sharp sand (25 - 35%) to ensure long term porosity, and are brought to proper compaction.
- B. Gravelpave2 Paving Units: Lightweight injection molded plastic units 0.5x0.5x0.025 m (20"x20"x1" high, 2.7 ft<sup>2</sup> each) with hollow rings rising from a strong open grid with a geotextile fabric heat fused to the bottom of the grid. Units will be shipped in pre-assembled rolls of various dimensions. Loading capability is equal to 5700 psi when filled with sand, over appropriate depth of roadbase. Standard colors are black, cool gray, sandstone red and cashew brown, with custom colors available. Unit weight = 535 gr (19 oz.), volume = 8% solid.
- C. Gravel Fill: Obtain clean, washed, fine decorative gravel, must be sharp and angular (no-rounded) stone, granite hardness, to fill the 25 mm (1") high rings and spaces between the rings, with the following sieve analysis:

<u>% Passing</u>	<u>Sieve Size</u>
100	#4 Screen
80	#8 Screen
50	#16 Screen
30	#30 Screen
15	#50 Screen
5	#100 Screen

- D. Anchors: Typical anchors shall be 8" long nails with "fender" type washers 7 x 30 mm od (5/16" id x 1.25" ) od, all galvanized metal or similar corrosion resistant coating. Supplied anchors may vary in size and type based on source and availability.

### **PART 3 – EXECUTION**

#### **3.01 Inspection**

- A. Examine subgrade and base course installed conditions. Do not start Gravelpave2 installation until unsatisfactory conditions are corrected. Check for poor drainage, improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Engineer for resolution.

#### **3.02 Preparation**

- A. Place base course material over prepared subbase to grades shown on plans, in lifts not to exceed 150 mm (6"), compacting each lift separately to 95% Modified Proctor. Leave 25 mm (1.0") for Gravelpave2 unit and gravel fill to Final Grade.

#### **3.03 Installation of Gravelpave2 Units**

- A. Install the Gravelpave2 units by placing units with rings facing up, and using small male/female connectors provided along each edge to maintain proper spacing and interlock the units. Cutting can be performed with pruning shears and knife, or portable power saw. Units shall be anchored to the base course, using anchors described above, as required to secure units in place from movement by traffic, at an average rate of 6 pins per square meter (high speed, heavy vehicles, fast turning movement will require additional anchors). Tops of rings shall be flush with the surface of adjacent hard surfaced pavements.
- B. Install gravel into rings after the units are anchored by "backdumping" directly from a dump truck, or from buckets mounted on tractors, with a minimum depth of 6", then exit the site by driving forward over rings already filled. Sharp turning of vehicles on bare rings must be avoided. The gravel is then spread laterally from the pile using power brooms, blades, flat bottomed shovels and/or wide "asphalt rakes" to fill the rings. A stiff bristled broom should be used for final "finishing". The gravel should be "compacted", if necessary, by using a vibrating plate or small roller, with the finish grade no less than the top of rings and no more than 6 mm (0.25") above top of rings.
- C. If a binder for fill stone is desired (due to traffic speed, concentrated water flow, or other reason), use Portland cement, mixed dry at 10% by weight with fill stone,. Place into rings after thoroughly wetting the base, then lightly mist the surface after fill and compaction. Then, cover with a water resistant tarp, or plastic sheeting material for a minimum period of 3 days, or until the mixture has bonded.

#### **3.04 Protection**

- A. Contractor shall repair and maintain Gravelpave2 section for a minimum of 12 months from written acceptance by Owner. Repair shall include but not be limited to replacement of gravel and Gravelpave2 units. Maintenance shall include, but not be limited to cleaning, compaction and addition of the gravel. Repair, replacement, and maintenance shall be included in the bas bid for the project.

**3.05 Cleaning**

- A. Remove and replace segments of GravelPave2 units where three or more adjacent rings are broken or damaged, reinstalling as specified, with no evidence of replacement.
- B. Perform cleaning during the installation of work and upon completion of the work. remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

**END OF SECTION 02795**