

STABILIZED AGGREGATE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:

- 1. general specifications for producing and placing Crushed Stone Paving by mixing aggregate and aggregate binder at a central location, spreading, and compacting pavement mixture to specified lines and grades.

Crushed Stone Paving includes one or more of the following types:

- 1. Class A – Roadways, parking lots, and areas subject to vehicular traffic;
 - 2. Class B – Cart paths, walkways, and bike paths subject to light maintenance traffic;
 - 3. Class C – Walking and bicycle paths, subject to pedestrian traffic only.
 - 4. Class (X) – G5 patching: shall be of the same class as material being patched.

- B. Related Sections

- 1. Division 01 Section “Sustainable Design Requirements”
 - 2. Division 31 Section “Earthwork”
 - 3. Division 32 Section “Metal Edging”
 - 4. Division 32 Section “Turf and Grasses”
 - 5. Division 32 Section “Exterior Planting”

1.3 DEFINITIONS

- A. Coarse aggregate: Aggregate retained on the No. 8 sieve.
- B. Dry Seed: Fine aggregates spread over cured surface for loose texture
- C. Leveling Course: A course of pavement of variable thickness used to eliminate irregularities in the contour of an existing surface prior to placing the subsequent course.
- D. Mixer: A paddle or pug mill type machine approved by the aggregate binder manufacturer and capable of completely mixing aggregate binder and aggregate materials.
- E. Job Mix Formula: A project specific formula of aggregates or aggregate/soil mixture and aggregate binder developed by the aggregate binder manufacturer or approved laboratory.
- F. Fine aggregate: Aggregate passing the No. 8 sieve.

- G. Sieve: An apparatus for laboratory work in which the openings of the mesh are square for separating sizes of material
- H. Supplemental fine aggregate: Aggregate passing the no. 30 sieve.
- I. Wet Seed: Fine aggregates spread over recently placed materials and compacted into layer for the purpose of texturizing or modifying surface finish

1.4 GREEN BUILDING REQUIREMENTS

<DELETE IF NOT A LEED REGISTERED PROJECT>

- A. Materials/products shall contain the maximum amount of recycled content allowed that retains material integrity.
- B. Preference shall be given to materials that are manufactured, harvested, extracted, mined, quarried, etc. within a 500 mile radius of the project site.
- C. Include manufacturer's product data indicating separate percentages, by weight, of post-consumer and pre-consumer recycled content for projects having recycled content. Include statement indicating material costs for products.
- D. Indicate location of manufacturing facility including name, address and distance between manufacturing facility and the proposed site. Provide manufacturer's documentation indicating location where the base materials were extracted, mined, quarried, harvested, etc. and the distance between this location and the project site. Also include material costs, excluding cost of installation.

1.5 REFERENCE STANDARDS

- A. ASTM C-131 – Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
- B. ASTM C-136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- C. ASTM C140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units
- D. ASTM D979 - Standard Practice for Sampling Bituminous Paving Mixtures
- E. ASTM D1188 - Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
- F. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
- G. ASTM D2950 - Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
- H. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens
- I. ASTM D3665 - Standard Practice for Random Sampling of Construction Materials
- J. ASTM D3744 - Standard Test Method for Aggregate Durability Index

- K. ASTM D5444 - Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
- L. ASTM D6307 - Standard Test Method for Asphalt Content of Hot-Mix Asphalt by Ignition Method
- M. ASTM D6926 - Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
- N. ASTM D6931 - Standard Test Method for Indirect Tensile (IDT) Strength of Bituminous Mixtures

1.6 SUBMITTALS

- A. General: Make submittals in compliance with all provisions of Division 01 pertaining to submittals and quality assurance.
- B. Receive approval prior to delivery or installation.
- C. Product Data: For each type of product indicated. Submit product literature or tear sheets giving name of product, manufacturer's name and compliance with Specifications. Include technical data and tested physical and performance properties.
 - 1. Approval by the Landscape Architect of submitted product data or other submittals does not constitute final acceptance.
 - 2. For Base Course, submit Material Certification and Analysis Report. Refer to and comply with requirements specified in Division 31 Section – “Earth Moving” as applicable.
 - 3. For Stabilized Aggregate Paving, submit Material Certification and Sieve Analysis Report, indicating compliance with specifications.
 - 4. Material Safety Data Sheets (MSDS) for all applicable products, including binders.
- D. Sample Mockups
 - 1. At least 14 days before intended work submit at minimum the following:
 - 2. Product Data: For each type of product indicated, include technical data and tested physical and performance properties.
 - 3. Job-Mix Designs: For each job mix proposed for the Work.
 - 4. Material Test Reports: For each paving material.
 - 5. Material Certificates: For each paving material, signed by providers.
 - 6. Qualified Installers: Include a list of completed projects with project names and addresses, owners contact information, and description of placement of stabilized courses.
- E. Verification samples
 - 1. If required, provide the engineer with a minimum of 6”x 6” sample with the specified color, accepted aggregates, and finish of the course. The engineer will review the sample within 5 days of receipt. If the sample is not approved, submit additional samples until accepted.

- F. Field samples / Mockups
1. If required, provide a field sample mockup a minimum of 6' x 6' using the intended aggregates and construction methods for the remainder of the project. Construct the mockup only after the verification sample and job mix formula have been approved by the engineer. Perform slip testing (if required) on mockup in accordance with local standards.
 2. Provide a written report to the engineer outlining the mixing and construction methods used during construction of the mockup. As a minimum provide the following information:
 - a. Method of proportioning aggregate and binder material.
 - b. Equipment used for mixing.
 - c. Mixing time (after addition of all ingredients)
 - d. Time between mixing, placement, and initial and final compaction.
 - e. Determine the maximum amount of time between mixing and placement during the mockup.
 - f. Placement of seeding (if required). Provide names of individuals seeding and rate(s) used.
- G. Construct the mockup on the project in a location approved by the engineer. Allow the engineer 7 days to review and accept or reject the completed mockup. Do not begin work until the mockup has been accepted.
- H. Product Certificates: For each kind of accessory, from manufacturer.
1. Submit for each manufactured item or treatment of this Section or required to complete Stabilized Aggregate Paving work. Include descriptive information, test reports, and other data of manufacturer. (Submit product literature or tear sheets giving name of product, manufacturer's name and compliance with Specifications.)
 2. For Base Course, submit material Certification and Analysis Report. Refer to and comply with requirements specified in Section 0XXXX -Site Preparation as approved applicable.
- I. JOB MIX FORMULA
1. For each class designation specified in the bid schedule, provide combinations of granular or granular/soil mixtures as applicable. Perform all required source aggregate quality testing prior to submission of material for Job Mix Formula (JMF).
 2. Submit a 150 lb. sample of the proposed aggregates or aggregate/soil mixtures at least 2 weeks prior to mockup or construction whichever is applicable, to aggregate binder manufacturer or approved accredited materials laboratory.

3. Allow two weeks for suitability evaluation of proposed aggregate material. The resulting mixture(s) shall become the Job JMF(s) for the project and shall conform to the following table:

Mix designation	Class A	Class B	Class C
Material type and gradation(table 2)	A-C	A-D	A-D
Sand Equivalent (min.) ASTM D2419	45	35	30
Durability Index (min.) ASTM D3744	45	35	35
Los Angeles Abrasion (max.) ASTM C131	45	50	50
Dry Tensile Strength (PSI, min.) ASTM D6931	325	225	125
Compressive Strength (PSI, min) ASTM C140	2000	1500	1000
Moisture Density Relationship - ASTM D1557	Determine optimum moisture content of aggregate mixture*		

*The determination of optimum moisture content shall be only for identifying the maximum amount of moisture permissible during mixing and placement. Moisture in aggregate or aggregate/soil mixtures shall be limited to 10% of the optimum moisture at the time of mixing. Do not add water to dry material when less than 10% of optimum moisture is observed in aggregates.

4. If plans require the final surface to include seeding provide in the JMF a notation regarding seed material. The seed is not required to be included in samples for tensile or compressive strength.

1.7 QUALITY CONTROL AND ASSURANCE

- A. **Manufacturer Qualifications:** engage a firm experienced in manufacturing stabilized aggregate pavement aggregate binder similar to that indicated for this project and with a record of successful in-service performance.
- B. **Installer Qualifications:** engage an experienced installer who has successfully completed paving similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance. The installer must have completed training through TechniSoil and received a certificate of proficiency prior to production on site.
- C. **Technical Representative:** If requested, provide a technical representative from TechniSoil Industrial on site for the first day of placement. Provide the engineer with the contact information of the technical representative prior to beginning construction. Provide the technical representative on site within two days if directed by the engineer or owner's representative.
- D. **Pre-Installation Conference:** Before beginning paving work, schedule and conduct a meeting at the site to review the field constructed mockups, the Contract Documents, the approved submittals and other matters pertinent to the particular installation. Present will be the Landscape Architect, the Owner's Representative, the Contractor, the installer, the

installer's field foreman and manufacturer's representative. Inform the Landscape Architect ten (10) business days in advance of the scheduled meeting time.

- E. Testing Agency: **[Owner] [Contractor]** will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.
- F. Testing agency will conduct and interpret tests and state in each report whether tested work complies with or deviates from project requirements.
- G. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance with specified requirements.
- H. Notify the Engineer and testing and inspection agency not less than 48 hours in advance of all work requiring testing or inspection.
- I. Minimum testing to be performed shall be:
 - 1. Thickness: In-place compacted thickness of G5 paving courses will be determined according to ASTM D3459. One sample shall be taken for each 10,000 square feet of paving.
 - 2. Surface Smoothness: Finished surface of each G5 paving course will be tested for compliance with smoothness tolerances.
 - 3. Sampling: Testing agency will take samples of un-compacted paving mixtures and compacted pavement according to ASTM D979 and ASTM D5361, respectively.
 - 4. Maximum Density: For each JMF and each 5 days of paving equal or less than 2500 tons, Testing agency shall obtain a sample no less than 50 lbs. for determination of maximum density according to ASTM D6926. The sample shall be prepared for testing and three samples shall be compacted with 50 blows using a Marshall apparatus. The maximum density shall be based on compacted samples weighed in accordance with ASTM D1188.
 - 5. Field density of in-place compacted pavement may also be determined by nuclear method using test method ASTM D 2950. A minimum of three test sites for each 1000 square feet shall be taken at random locations determined in accordance with ASTM D3665.
 - 6. G5 Content and Gradation. Testing agency will take sample of un-compacted paving mixtures at a minimum frequency of every 1,000 tons or 1 per paving day, whichever is greater. Binder content shall be determined by ignition method following the procedures in ASTM D6307 (including aggregate correction factor). Gradation shall be determined in accordance with ASTM D5444.

7. Remove and replace or install additional G5 Mix where test results or measurements indicate that it does not comply with specified requirements of this section.

1.8 REGULATORY REQUIREMENTS

- A. Comply with all rules, regulations, laws and ordinances of local, state and federal authorities having jurisdiction. Provide labor, materials, equipment and services necessary to make Work comply with such requirements without additional cost to Owner.
- B. Investigate the conditions of public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to and ingress and egress at the site. Conform to all governmental regulations regarding the transportation of materials and secure in advance all necessary permits.

1.9 DELIVERY AND STORAGE

- A. Packaged Materials: Deliver packaged materials in clearly marked containers showing net weight, guaranteed analysis and name of manufacturer. Specified requirements for packaged materials apply to bulk shipments. Protect materials from deterioration by moisture and temperature during delivery and during storage at site. Protect liquid components from freezing.
- B. Protect all stored materials and items from weather, careless handling, and vandalism. Repair or replace damaged items, as determined by the Landscape Architect.
- C. Deliver, store, handle and protect aggregate and stabilizer material with provision for drainage and intrusion of dirt, debris, or other foreign matter.
- D. Store Stabilized Aggregate Paving material under cover to prevent accumulation of moisture until placed.

1.10 PROJECT CONDITIONS

- A. Existing Conditions
 1. Carefully examine the site before submitting a bid. Be informed as to the nature and location of the Work, general and local conditions including climate, adjacent properties and utilities, conformations of the ground, the nature of subsurface conditions, the character of equipment and facilities needed prior to and during execution of the Work.
 2. Be aware of and comply with restrictions regarding subsurface utilities and subterranean structures, including excavation and loading parameters.
 3. Should the Contractor, in the course of Work, find any discrepancies between Drawings and physical conditions or any omissions or errors in Drawings, or in layout as furnished by the Landscape Architect, it will be his duty to inform the Landscape

Architect immediately in writing for clarification. Work done after such discovery, unless authorized by the Landscape Architect, is at the Contractor's risk.

B. Work Protection Requirements –

1. Provide weather protection during entire time of placement of paving system. Maintain protection over entire areas storage and work areas to maintain specified moisture levels, prevent wind or rain disturbance of setting materials, protect from run-off from adjacent areas, and generally maintain optimum installation conditions.
2. Contractor is responsible for means and methods for such protection, including physical cover, work sequencing and scheduling and other means of protections, as contractor deems appropriate.

C. Environmental Requirements

1. Prevent wind or rain disturbance of setting materials, protect from sheet flow from adjacent areas, and generally maintain optimum installation conditions.
2. Do not install Stabilized Aggregate Paving in conditions of standing water.
3. Cold Weather Protection:
 - a. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen sub-grade or setting beds.
 - b. Temperature: Do not place Stabilized Aggregate Paving when the ambient temperature is below 40 degrees F., or when there is frost in the base course, or any other time when weather conditions are unsuitable for the type of material being placed.
 - c. Remove and replace Stabilized Aggregate Paving work damaged by frost or freezing.

1.11 COORDINATION AND SCHEDULING

- A. Cooperate with other trades and arrange scheduling to avoid damage to other work, including grading, site utilities and piping, exterior concrete, landscaping and irrigation systems.
- B. Before commencing pavement operations, ascertain that utility lines, site lighting and wiring, piping, curb and gutter work, general grading and heavy trucking is complete so that such operations will not damage paving work
- C. Mask off and protect exposed building surfaces and abutting concrete from damage or staining by paving operations.

PART 2 - PRODUCTS

2.1 BASE COURSE MATERIALS

- A. Provide aggregate mixture for aggregate base. Aggregate materials shall meet the requirements in Section 703.05 (a) of the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-03. Alternate requirements for aggregate base found in local road construction standards may be used when requested and approved in writing to the engineer.

2.2 STABILIZED AGGREGATES

- A. Provide hard, durable particles of aggregates meeting the requirements for the specified class, color, and size. Use materials and gradations that have performed satisfactorily in previous installations meeting the requirements of these specifications, and in compliance with the size and sieve requirements of Table 2 Grading **XX (SPECIFY THE SIZE OF MATERIAL)**.
- B. Seeding Material – Provide seed material for the required finish as specified or directed by the engineer and as used in sample(s) prepared and mockup(s) completed.
- C. Aggregate Binder – Provide a liquid aggregate binder that when mixed with aggregates as specified, meets the requirements of the Job Mix Formula. The basis of the liquid binder shall be TechniSoil Industrial G5.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify the conditions, elevations, and measurements affecting the work of this Section prior to installation. Examine surfaces to receive stonework and do not proceed until any defects detrimental to the finished work are corrected. Notify the Landscape Architect in writing of conditions detrimental to proper completion of Work. Starting work means acceptance of existing conditions.
- B. Do not begin stabilized aggregate paving work until unsatisfactory conditions have been corrected and substrate is ready to receive paving.
- C. Proof roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction. Compact subgrade under paving systems to a minimum 95% modified Proctor density ASTM D1557.

- D. Examine the work site and locations of the work, general and local conditions including climate, adjacent properties and potential conflict utilities, subsurface conditions, and equipment and facilities needed prior to and during the execution of the work.

3.2 PREPARATION

- A. Ensure all testing density required by contract for the subgrade and/or subbase material has been performed and meets the contract specifications. Proof-roll sub base using heavy rollers or equipment to locate areas that are unstable or that require further compaction.
- B. Scarify, re-grade and re-compact surface of subgrade that is pumping or deforming as required to provide true levels, uniform slopes and proper total thickness of paving required.
- C. Remove and dispose of any unsuitable material encountered in areas to be paved.
- D. Remove loose material from compacted sub-grade surface and shape and trim compacted sub-grade for correct drainage slopes.
- E. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry, subgrade prior to application of aggregate base course.
- F. Install stabilized surface during dry conditions no earlier than 48 hours after rainfall and no sooner than 18 hours prior to rainfall. Temperature must be at least 40 degrees and rising.

3.3 INSTALLATION

A. Base Course

1. Construct crushed aggregate base course to compacted thickness as shown on the drawings at not less than 95% of maximum dry density as determined by ASTM D1557.
2. Field Quality Control: Owner shall engage and pay for the services of a qualified soils Testing Laboratory/Agency to perform testing and inspections of Base Course material and installations.

B. Stabilized Aggregate Installation

1. General: Immediately before placing G5 materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
2. Aggregates:

- a. Aggregates used for construction shall be representative of material approved in the Job Mix Formula. Stockpiles shall be uniform in gradation throughout and be kept separate of other types of material.
 - b. Avoid cross contamination from other materials and sources.
 - c. The moisture content of the aggregates shall be uniform and not exceed 25% of the optimum moisture content as determined by ASTM D1557. In no case shall aggregates containing visible water be used for construction.
3. Mixing:
- a. Stabilized aggregate binder and aggregates shall be mechanically mixed in a pan, paddle, or pug-mill type mixer.
 - b. Aggregates and binder material shall be weighed and batched according to the mix design or manufactures instruction.
 - c. Mixing shall continue until mixture is homogeneous an all aggregate particles are uniformly coated. In no case shall mixing be less than 3 minutes after the final addition of all ingredients. The size of the mixer shall conform to Table 1.

Table 1			
Paved width	≤ 6'	6'-10'	> 10'
Minimum rated mixer capacity	700 lbs.	2200 lbs.	5500 .

- d. Binder and aggregates may be mixed on a continuous basis provided mixing complies with the following:
 - 1. Provide a continuous mixing chamber or pug-mill mixing machine as part of the continuous mixing process with a computerized flow control based on a belt scale or microprocessor.
 - 2. Equip the mixing chamber or pug mill with paddles or other suitable mixing device arranged to mix the aggregates and binder producing a homogeneous mixture.
 - 3. Aggregates are fed from the pickup equipment to the mixer at a uniform and controlled rate.
 - 4. Use a mass flow, Coriolis effect type meter or equivalent with a visible readout display.

- e. Mixing of binder and aggregate materials shall be sufficient as to promote the paving equipment or hand placement to operate in a continuous manner.
- f. Delay between discharge from the mixing unit to initial compaction shall be controlled and not exceed 40 minutes unless specifically instructed by the binder manufacturer based on testing of the proposed job mix formula.

4. Machine Placement

- a. Use a self-propelled paving unit capable of receiving material directly into a hopper, transferring material to a screed and striking off the material.
- b. Place mixture within the time limits established during the mockup.
- c. Machine place G5 mix on prepared surface, spread uniformly, and strike off. Place G5 mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix.
- d. Place each course to required grade, cross section, and thickness when compacted.
- e. Place G5 mixes surface course in single or multiple lifts. The maximum compacted lift thickness shall be 4.5 inches.
- f. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise directed by the engineer.
- g. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in G5-paving mat.
- h. Place paving in consecutive strips not less than 8 feet (2.4 m) wide unless infill edge strips of a lesser width are required.
- i. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
- j. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots.
- k. Fill depressions with G5 paving to prevent segregation of mix; use suitable hand tools to smooth surface.

- l. Do not broadcast materials across the placed course prior to compaction. Remove any loose coarse aggregate prior to compaction. This does not include seeding aggregate when intended for embedment into surface.
- m. If interruptions greater 15 minutes are expected when placing multiple panels, do not use 'hot lap' construction methods. Edges must be compacted during the placement of material.
- n. Do not allow material to accumulate in corners of the paving machine hopper, screed extensions, or main screed. Care must be taken to ensure material batches used in the order they are batched and received by paving machine.

5. Hand Placement

- a. Do not place layers of G5 paving in unrestrained areas wider than 5' unless approved by the engineer, owner's representative, or Technisoil Industrial.
- b. Place aggregate mixture inside edge restraints on a prepared sub-base. Level material to a height that when compacted to proper density the lift thickness and grade meet the plans and specifications for slope.
- c. Level material by either screed boards, asphalt rake, or other approved methods. Care shall be taken to minimize movement of material once initially placed.
- d. Do not step in or compact material prior to using compaction equipment.
- e. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots.
- f. Fill depressions with G5 paving to prevent segregation of mix; use suitable hand tools to smooth surface.
- g. Do not broadcast materials across the placed course prior to compaction. Any loose coarse aggregate shall be removed prior to compaction. This does not include seeding aggregate when intended for embedment into surface.

6. Compaction

- a. Compact surface immediately after placement and strike off. Complete compaction of mixture within 20 minutes of initial passes. If additional compaction is needed after 20 minutes, do not use vibratory equipment.
- b. Compact G5 paving with hand tampers or approved vibratory-plate compactors in areas inaccessible to rollers.

- c. Static roll G5 pavement with walk behind roller or ride on-roller with two to three passes. Start one foot from outside edge working towards crown or from lower sloped edge General: Begin compaction as soon as placed G5 paving will bear roller weight without excessive displacement. Initial compaction shall be from lower to higher sloped edge.
- d. After initial compaction pass is completed, rollers with vibratory capabilities may be used to achieve required compaction.
- e. If a vibratory roller is used during finishing, turn vibratory off.
- f. DO NOT use water as a bond breaker for rolling drums or vibrator plate compactors. Either use intermittent coatings of a biodegradable oil, and or if required, only use fine materials (- #30 mesh or similar) from the same design or as approved for a bond breaker between compaction equipment and G5 pavement surface. DO NOT spread fines on un-compacted material. One pass must be made prior to spreading bond breaking fines.
- g. Paving course shall be compacted to a density of 95% of the maximum density, determined according to ASTM D6926. Field density determination will be in accordance with ASTM D2950 (with core correlation).
- h. Finish roll paved surfaces to remove roller marks and produce a smooth surface with uniform texture.
- i. Edge Shaping: If edging is not specified, while surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while G5 is un-compacted; compact thoroughly. If required, bevel edges between 30 and 45°.

3.4 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of G5 paving.
- B. For previous days joint where extending or adjoining the layer, provide one of the following:
 - 1. A vertical saw cut joint;
 - 2. During placement of fresh G5 materials, after compaction cut back or compacted edge by hand to a 1:1 slope ensuring continuity with the lane or transverse edge;
 - 3. A 1:1 slope saw cut
- C. Clean contact surfaces and apply liquid G5 binder as a tack coat between layers. Care shall be taken to not drop liquid G5 on previous day's layer. Immediately remove and clean any spills.
- D. Offset longitudinal joints, in successive courses, a minimum of 6 inches (150mm).
- E. Offset transverse joints, in successive courses, 6 to 12 inches (150-300 mm).

3.5 CURING

- A. Allow time for the placed material to cure before allowing traffic to use. At minimum do not allow pedestrian traffic for 24 hours. Traffic other than general pedestrian shall not be allowed on the G5 pavement until 72 hours after placement.
- B. During the first 24 hours protect G5 pavement from spills or irrigation overspray.
- C. Do not permit vehicular traffic on pavement until sufficient curing has occurred to prevent damage to layer.

3.6 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus $\frac{1}{4}$ inch (6 mm).
 - 2. Surface Course: Plus $\frac{1}{4}$ inch (6 mm), no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot (3-m) straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: $\frac{1}{4}$ -inch (6 mm).
 - 2. Surface Course: $\frac{3}{16}$ -inch (5 mm).
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown.
- C. Correct areas failing smoothness prior to final acceptance. Prior to correcting smoothness obtain approval from the engineer for planned corrective methods and disposal.

Table 2

Aggregate Gradation for Crushed Stone Mixes*

(A) 3/4" Minus Crushed Stone/Gravel Mix

Sieve Sizes	Percent Passing
1"	100
3/4"	90 - 100
1/2"	70 - 90
No. 4	45 - 55
No. 8	32 - 40
No. 30	12 - 21
No. 200	3.0-7.0

(B) 1/2" Minus Crushed Stone/Gravel Mix

Sieve Sizes	Percent Passing
3/4"	100
1/2"	95 - 99
3/8"	75 - 95
No. 4	55 - 66
No. 8	38 - 49
No. 30	15 - 27
No. 200	3.0-8.0

(C) 3/8" Minus Crushed Stone/Gravel Mix

Sieve Sizes	Percent Passing
1/2"	100
3/8"	95 - 100
No. 4	58 - 72
No. 8	34 - 48
No. 30	18 - 32
No. 200	3.0-9.0

(D) 1/4" Minus Crushed Stone, Gravel, Sand Mix

Sieve Sizes	Percent Passing
3/8"	100
No. 4	95 - 100
No. 8	72 - 77
No. 30	37 - 43
No. 200	3.0 - 9.0

*Alternative gradations may be used provided the results of the mixture are in compliance with the specification, and the sample/job mix formula is approved by TechniSoil prior to construction.