

POROUS PAVEMENT

****From Randolph CMG PARK(21)S**

- xx. DESCRIPTION. This work shall consist of constructing one or more courses of bituminous mixture on a prepared foundation in accordance with these specifications and the specific requirements of the type of surface being placed, and in reasonable close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Sections 301, 401, 406, and 605 of the Standard Specifications.

- xx. MATERIALS.

- (a) Porous Bituminous Concrete Pavement. Materials shall meet the requirements of the following Subsections:

Bituminous Material.....	702.01
Performance Graded Binder.....	702.02
Emulsified Asphalt, RS-1.....	702.04
Anti-Strip Additives	
(Hydrated Lime - slurry applied).....	702.07
Silicone Additive.....	702.08
Coarse Aggregate.....	704.10(a)
Fine Aggregate.....	704.10(a)
Mineral Filler.....	704.10(a)

The grade of performance graded binder shall be PG 70-28 modified with SBS at the time of original manufacture, unless otherwise directed by the Engineer.

When crushed gravel is used as coarse aggregate for Porous Bituminous Concrete Pavement, at least 85 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least two fractured faces, and 99 percent shall have one or more fractured faces.

Coarse aggregate particles for Porous Bituminous Concrete Pavement shall have an acid insoluble content of not less than 80 percent when tested in accordance with the requirements of VAOT Test Procedure MRD-6.

A heat stable additive, e.g. fibers, shall be furnished to improve the anti-stripping properties of the asphalt cement. The amount of additive to be used will be determined by the Materials and Research Engineer based on the manufacturer's recommendations and the mix design test results. Anti-strip blending shall be completed in a mixing vessel whenever a liquid product is used.

Silicone shall be added to the asphalt cement in the rate of 1.5 mL/m³ (1 ounce to 5000 gallons).

All additives shall be added to the asphalt cement and thoroughly mixed while still in the asphalt storage tanks.

- (b) Porous Portland Cement Concrete Pavement. Materials shall meet the requirements of the following Subsections:

Portland Cement.....	701.02
Portland-Pozzolan Cement.....	701.05
Blended Silica Fume Cement.....	701.06
Portland Blast-Furnace Slag Cement.....	701.07
Coarse Aggregate for Concrete.....	704.02
Air-Entering Admixtures.....	725.02(b)
Retarding Admixtures.....	725.02(c)
Water-Reducing Admixtures.....	725.02(f)
Water-Reducing and Retarding Admixtures.....	725.02(g)
Water-Reducing, High Range Admixtures.....	725.02(h)
Water-Reducing, High Range, and Retarding Admixtures...	725.02(i)
Accelerating Admixtures.....	725.02(j)
Water-Reducing and Accelerating Admixtures.....	725.02(k)
Fly Ash, Class F.....	725.03(a)
Ground Granulated Blast-Furnace Slag (GGBFS).....	725.03(c)

Coarse aggregate shall meet the gradation requirements of TABLE 704.02A.

Retarding admixtures are permitted to be used when it is necessary to increase concrete placement time to 90 minutes and improve finishing operations.

Water shall meet the requirements of ASTM C 1602.

- (c) Choker Course, Porous Pavement. Material shall meet the requirements of Subsection 704.16. The material shall be a uniform consistency that complies with all requirements of the specification. Materials may be stockpiled for verification at the discretion of the Engineer.

- (d) Subbase, Porous Pavement. Material for subbase shall meet the requirements of AASHTO M43 for No. 2 or No. 24 stone.

Geotextile shall meet the requirements of Section 720 for Geotextile for Roadbed Separator.

- (e) Underdrain, Porous Pavement. Material for underdrain shall meet the requirements of Subsection 605.02.

Backfill for underdrain shall meet the requirements of Subbase, Porous Pavement.

xx. CONSTRUCTION REQUIREMENTS.

- (a) General. Performance of the work under these provisions requires careful planning and provision for work progression or suspension due to weather or accumulated moisture in the soils and aggregates to be worked.

10/5/2011

The Engineer shall be notified a minimum of 24 hours prior to all porous media bed and porous pavement work. Provision to accommodate inspection of the prepared subgrade surface, geotextile placement, and first lift of subbase material is required.

If, in the opinion of the Engineer, based upon reports of the testing and inspection, the quality of the work performed under these provisions is below the specified standards, additional work and testing will be required until results meeting the satisfaction of the Engineer are obtained.

Due to the nature of construction sites, porous pavement and other infiltration measures should be installed toward the end of the construction period, if possible. Infiltration beds under porous pavement may be used as temporary sediment basins or traps provided they are excavated to within 150 to 300 mm (6 to 12 inches) of the designated bed bottom elevation. Once the side is stabilized and sediment storage is no longer required, the bed is excavated to its final grade and the porous pavement system is installed.

The existing subgrade under the bed areas shall not be compacted or subject to excessive construction equipment traffic prior to geotextile and stone bed placement.

Where erosion of subgrade has caused accumulation of fine materials and/or surface ponding, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 150 mm (6 inches) with a York rake (or equivalent) and light tractor. All fine grading shall be done by hand.

Bring subgrade for stone porous media bed to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction before the placing of stone. All bed bottoms are level grade.

Earthen berms (if used) between infiltration beds shall be left in place during excavation. These berms do not require compaction if proven stable during construction.

Geotextile and bed aggregate shall be placed immediately after approval of subgrade preparation. Geotextile is to be placed in accordance with the manufacturer's standards and recommendations. Adjacent strips of geotextile shall overlap a minimum of 400 mm (16 inches). It shall also be secured at least 1.2 m (4 feet) outside of bed in order to prevent any runoff or sediment from entering the storage bed. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. As the site is fully stabilized, excess geotextile along bed edges can be cut back to gravel edge.

Clean (washed) uniformly-graded aggregate is placed in the bed in maximum 200 mm (8 inch) lifts. Each layer shall be lightly compacted, with the construction equipment kept off the bed bottom as much as possible. Once bed aggregate is installed to the desired grade, a 50 mm (2 inch) layer of Special Provision (Choker Coarse, Porous Pavement) shall be installed uniformly over the surface in order to provide an even surface for paving.

The porous bituminous asphalt is installed just like standard bituminous asphalt. Porous pavement shall be laid in one lift directly over the storage bed and stone base course to a 100 mm (4 inch) thickness. It shall not be installed on wet surfaces or when the ambient temperature is 16°C (60°F) or lower. Compaction of the surface course shall take place when the surface is cool enough to resist a 9 metric ton (10 ton) roller. One or two passes is all that is required for proper compaction. More rolling could cause a reduction in the surface course porosity.

Prior to installation, the porous pavement mix shall not be stored in excess of 90 minutes. Transporting of the mix to the site shall be in vehicles with smooth, clean dump beds that have been sprayed with a non-petroleum release agent. The mix shall be covered during transport to control cooling.

After final rolling, no vehicular traffic of any kind shall be permitted on the surface until cooling and hardening has taken place, and in no case within the first 48 hours.

The full permeability of the pavement surface shall be tested by application of clean water at the rate of at least 19 l/minute (5 gal/minute) over the surface, using a hose or other distribution device. All applied water shall infiltrate directly without puddle formation or surface runoff.

- (b) Porous Bituminous Concrete Pavement. The mixing plant, hauling and placing equipment, and construction methods shall be in conformance with the applicable requirements of Section 406, except as modified by these provisions.

The use of surge bins shall not be permitted.

(1) Composition of Mixture.

- a. Gradation. The materials shall be combined and graded to meet the following composition limits by mass (weight):

COMPOSITION OF MIXTURE

Sieve Designation		Percentage by Mass (Weight) Passing Square Mesh Sieves
Metric	English	
19.0 mm	3/4 inch	100
12.5 mm	1/2 inch	85-100
9.5 mm	3/8 inch	55 to 75
4.75 mm	No. 4	10 to 25
2.36 mm	No. 8	5 to 10
75 µm	No. 200	2 to 4
Total Aggregate		92 to 94.5
Bitumen (% of Total Mix)		5.5 to 8.0

- b. Mix Design. No work shall be started until the Contractor has submitted and the Engineer has approved a mix design including cold feed and hot bin gradings, mixing times, the percentage of each aggregate, and the job-mix formula from such a combination. The bitumen content and mixing temperature will be determined by the Agency's Materials and Research Section in accordance with the method described in the FHWA TA T-5040.31.

The job-mix formula shall establish a single percentage of aggregate passing each sieve and a single percentage of bituminous material to be added to the aggregate. No change in the job-mix formula may be made without written approval of the Engineer. The job-mix formula must fall within the master range specified in the COMPOSITION OF MIXTURE Table in subpart (b)(1)a.

At the time the mix design is submitted, the Contractor shall indicate and make available for sampling and testing stockpiles of all aggregates, additives, and asphalt cement proposed for use.

A minimum time of three weeks shall be allowed for testing and evaluation of the submitted mix design. Once a mix design is approved, the job-mix formula is valid until the producer makes a change in aggregate source or asphalt source.

- c. Tolerances. Samples of the actual mixture in use will be taken as many times daily as necessary in the opinion of the Engineer. The gradations of the aggregate and bitumen content shall not vary from the job-mix formula by more than the following tolerances:

Testing Tolerances	
Aggregate larger than 2.36 mm (No. 8) sieve	± 6.0%
Aggregate passing 2.36 mm (No. 8) sieve and larger than 75 µm (No. 200) sieve	± 4.0%
Temperature of Mixture	± 11°C (± 20°F)

- (2) Weather and Seasonal Limitations. Porous Bituminous Concrete Pavement shall not be placed between September 1st and May 1st. When it is in the public interest, the Construction Engineer may adjust the air temperature requirement or extend the dates of the paving season. The material shall not be placed when the ambient air temperature at the paving site in the shade away from artificial heat is below 16°C (60°F) or when the actual pavement temperature is below 10°C (50°F) for a 24 hour period.

The Contractor shall not pave on days when rain is forecast for the day and night, unless a change in the weather results in favorable paving conditions as determined by the Engineer.

- (3) Rollers. Rollers shall be in good mechanical condition, operated by competent personnel, capable of reversing without backlash, and operated at speeds slow enough to avoid displacement of the bituminous mixture. The mass (weight) of the rollers shall be sufficient to compact the mixture to the required density without crushing of the aggregate. Rollers shall be equipped with tanks and sprinkling bars for wetting the rolls.

Rollers shall be two-axle tandem rollers with a gross mass (weight) of not less than 7 metric tons (8 tons) and not more than 10 metric tons (12 tons) and shall be capable of providing a minimum compactive effort of 44 kN/m (250 pounds per inch) of width of the drive roll. All rolls shall be at least 1 m (42 inches) in diameter.

A rubber tired roller will not be required on the Porous Bituminous Concrete Pavement surface.

- (4) Conditioning of Existing Surface. The existing surface shall be cleaned and sprayed with Type RS-1 emulsified asphalt before placement of the bituminous mixture. The emulsion shall be applied under pressure at the rate of 0.05 to 0.14 L/m² (0.01 to 0.03 gallons per square yard). The application shall be made just prior to the placement of the bituminous concrete mixture and shall progress sufficiently ahead of the paving so that the surface to be paved is tacky.

Bridge floors shall be treated as shown on the Plans prior to paving.

All large (13 mm (1/2 inch) or greater) cracks in a bituminous surface shall be thoroughly cleaned and filled with a bituminous material or mixture approved by the Engineer.

If Porous Bituminous Concrete Pavement is used to resurface existing pavements, the Contractor shall correct all irregularities, depressions, or waves in the existing pavement. Extra bituminous material shall be used for leveling to bring the existing base to a uniform section and grade before placing of the required course of Porous Bituminous Concrete Pavement.

- (5) Mixing. The mixture shall be prepared in conformance with Subsection 406.08, except that the dried aggregates shall be combined in such a manner as to produce a mixture that when discharged from the pugmill is at a target temperature in the range that corresponds to an asphalt cement viscosity of 700 to 900 centistokes and within a tolerance of $\pm 11^{\circ}\text{C}$ ($\pm 20^{\circ}\text{F}$).

(c) Porous Portland Cement Concrete Pavement.

- (1) Composition of Mixture. The composition of the proposed concrete mixtures shall be submitted to the Structural Concrete Engineer for review and/or approval and shall comply with the following provisions unless an alternative composition is demonstrated to comply with the project requirements.
- a. Cementitious Content. For vehicle pavements, total cementitious content shall not be less than 375 kg/m^3 (630 lbs/cy). For pedestrian pavements, total cementitious content shall not be less than 360 kg/m^3 (600 lbs/cy).
 - b. Supplementary Cementitious Content. Fly ash: 25% maximum, Slag: 50% maximum.
 - c. Water/Cementitious Ratio. 0.34 maximum for vehicle pavements and 0.35 maximum for pedestrian pavements.
 - d. Admixtures. Admixtures shall be used in accordance with the manufacturer's instructions and recommendations.
 - e. Water. The quantity of mixing water shall be established to produce a pervious concrete mixture of the desirable workability to facilitate placing, compaction, and finishing to the desired surface characteristics.

- (2) Submittals. Prior to commencement of the work, the Contractor shall submit the following to the Engineer:
- a. Proposed concrete mixture proportions including all material weights, volumes, density (unit weight), water cement ratio, and void content. A trial batch is required. A minimum of 3 cubic yards shall be used to obtain test data from a trial batch.
 - b. Cement, fly ash, and admixture manufacturer certifications.
 - c. Qualifications as specified in subpart (c)(10).
 - d. Project details, including specific plans, schedule, construction procedures, and quality control plan.
 - e. A list of all materials suppliers and subcontractors to be used on the project.

- (3) Test Panels. Prior to construction, test panel(s) shall be placed and approved by the owner. The Engineer is permitted to waive this requirement based on Contractor qualifications.

Test panel(s) shall be constructed in accordance with the plans and specifications. A minimum 21 m² (225 ft²) panel size shall be placed, jointed, and cured using materials, equipment, and personnel proposed for the project.

Test panels shall have acceptable surface finish, joint details, thickness, porosity, and curing procedures and shall comply with the testing and acceptance standards specified in subpart (c)(10).

If test panels placed at the site are found to be deficient in thickness, density (unit weight), or percentage of voids, or are of an unacceptable appearance, they shall be removed at the Contractor's expense and taken to an approved landfill or recycling facility. If test panels are found to be satisfactory, they may be left in place and included in the completed work.

- (4) Equipment. Rolling compaction shall be achieved using a minimum 250 mm (10 inch) diameter steel pipe that spans the width of the section placed (and exerts a vertical pressure of at least 70 kPa (10 psi) on the concrete).

Plate compaction shall be achieved using a standard soil plate compactor that has a base area of at least

0.2 m² (2 ft²) and exerts a minimum of 70 kPa (10 psi) vertical pressure on the pavement surface.

When joints are placed in pervious pavements, they may be constructed by rolling. Rolled joints shall be formed using a "salt roller" to which a beveled fin with a minimum depth of 1/4 to 1/3 of the thickness of the slab has been welded around the circumference of a steel roller.

- (5) Formwork. Form materials are permitted to be of wood or steel and shall be of width to the depth of the pavement. Forms shall be of sufficient strength and stability to support mechanical equipment without deformation of plan profiles following spreading, strike-off, and compaction operations. Forms may have a removable spacer of 13 to 19 mm (1/2 to 3/4 inch) thickness placed above the depth of pavement. The spacers shall be removed following placement and vibratory strike-off to allow roller compaction.
- (6) Mixing, Hauling, and Discharge. Pervious concrete shall be manufactured and delivered in accordance with ASTM C 94.

Mixtures shall be produced in central mixers or in truck mixers. When concrete is delivered in agitating or non-agitating units, the concrete shall be mixed in the central mixer for a minimum of 90 seconds or until a homogenous mix is achieved. Concrete mixed in truck mixers shall be mixed for 75 to 100 revolutions at the speed designated as mixing speed by the manufacturer.

The pervious concrete mixture may be transported or mixed on site. Discharge of individual loads shall be completed within one (1) hour of the introduction of mix water to the cement. Delivery times may be extended to 90 minutes when a retarding admixture is used.

Each truckload will be visually inspected for consistency of concrete mixture. Water addition is permitted at the point of discharge to obtain the required mix consistency provided a measurable quantity is used before more than 0.4 cubic meters (0.5 cubic yards) of concrete is discharged. A minimum of 30 revolutions at the manufacturer's designated mixing speed shall be required following the addition of any water to the mix. Discharge shall be a continuous operation and shall be completed as quickly as possible. Concrete shall be deposited as close to its final position as practical and such that discharged concrete is incorporated into previously placed plastic concrete.

- (7) Placing and Finishing. The Contractor shall provide either slip form or vibratory form riding equipment to place the concrete unless otherwise approved by the Engineer in writing. Internal vibration shall not be permitted. Unless otherwise permitted by the Engineer, placement procedures shall utilize a mechanical vibratory screed to strike off the concrete 13 to 19 mm (1/2 to 3/4 inch) above final height, utilizing the form spacers described in subpart (c)(5).

Placed concrete shall not be disturbed while in the plastic state. Low spots after the screeding operation shall be filled up and tamped with hand tampers.

Following strike-off, remove spacers and compact the concrete to the form level, utilizing a steel roller, a plate compactor, or other method approved by the Engineer. Care shall be taken during compaction that sufficient compactive force is achieved without excessively working the concrete surface that might result in sealing off the surface porosity.

Hand tampers shall be used to compact the concrete along the slab edges immediately adjacent to the forms. After compaction, inspection, and repair, no further finishing shall be performed on the concrete. Surface curing shall begin immediately.

The pervious concrete pavement shall be compacted to the required cross section and shall not deviate more than +/- 10 mm in 3 m (3/8 inch in 10 feet) from profile grade.

- (8) Jointing. Joints in pervious pavements can be precluded at the option of the Engineer.

Control (contraction) joints shall be installed at regular intervals not to exceed 9 m (30 feet), or two times the width of the placement. The control joints shall be installed at 1/4 to 1/3 of the depth of the thickness of the pavement.

Joints installed in the plastic concrete shall be constructed utilizing a small roller as specified in subpart (c)(4). When this option is used it shall be performed immediately after roller compaction and prior to curing.

Transverse construction joints shall be installed whenever placing is suspended for 30 minutes or whenever concrete is no longer workable.

Isolation joints shall be used when abutting fixed vertical structures such as light pole bases, building foundations, etc. Isolation material shall

be positioned before concrete is placed and shall be the depth of the pavement section.

- (9) Curing. Curing procedures shall begin no later than 20 minutes after final placement operations have been completed. The pavement surface shall be covered with a minimum of six (6) mil thick polyethylene sheet or other approved covering material. The cover shall overlap all exposed edges and shall be secured to prevent dislocation due to winds or adjacent traffic conditions. For additional guidance on hot weather concreting, see ACI 305.

Immediately after screeding, the surface shall be kept moist and evaporation prevented using a spray applied curing compound and/or evaporation retarder.

The curing cover shall remain securely in place for a minimum of 7 days. No vehicular traffic shall be permitted on the pavement until curing is complete.

- (10) Quality Assurance and Quality Control. The Contractor and the concrete producer's QC personnel shall have attended and completed a Pervious Concrete Seminar hosted by an industry trade organization or other organization delivering pervious concrete technology components. Certification of attendance and completion by each party shall be provided to the Engineer. The Northern New England Concrete Promotion Association is an example of an acceptable trade organization.

Traditional portland cement pavement testing procedures based on strength and slump control are not applicable to this type of pavement material.

Concrete tests shall be performed for each 115 cubic meters (150 cubic yards) or fraction thereof, with a minimum of one test for each day's placement.

Plastic concrete shall be sampled in accordance with ASTM C 172 and density (unit weight) measured in accordance with ASTM C 138. The density (unit weight) of the delivered concrete shall be +/- 80 kg/m³ (5 lb/ft³) of the design density (unit weight).

Plastic void content shall be calculated in accordance with ASTM C 138 and compared to the void percentage required by the hydraulic design. Unless otherwise specified, void content shall be between 15% and 25%.

Hardened concrete shall be tested at a rate of one set of three cores per 115 cubic meters (150 cubic yards) of concrete placed on one day or fraction thereof. The cores shall be drilled in accordance with ASTM C 42. When measured for length, the cores

shall not be more than 13 mm (1/2 inch) less than the specified design thickness.

The cores shall be tested for density (unit weight) and void content using ASTM 140. Density (unit weight) shall be +/- 80 kg/m³ (5 lb/ft³) of the design unit weight. Void content shall be not be greater than 2% below the specified design void content. Void content shall be calculated as follows:

$$\% \text{ Voids} = I - (Dd/Di) * 100$$

where: Dd = oven dried density of core
Di = immersed density of core

- (d) Choker Course, Porous Pavement. The material shall be placed and distributed evenly over the subbase to achieve the proposed thickness and grades without significant alteration of the gradation supplied. Care shall be taken to limit the disturbance of the unbound subbase materials.

The materials shall be compacted with the use of a steel drum roller with a nominal weight of 9 metric tons (10 tons). A minimum of three passes is required. The surface shall be suitable for the placement of a finish course of pavement without tearing, gross settlement of the choker course, or crushing under the weight of the paving equipment. Compaction shall be performed to the satisfaction of the Engineer.

- (d) Subbase for Porous Pavement. Upon completion of subgrade work, the Engineer shall be notified and shall inspect at his/her discretion before proceeding with porous media bed installation.

Geotextile and porous media bed aggregate shall be placed immediately after approval of subgrade preparation. Any accumulation of debris or sediment which has taken place after approval of subgrade shall be removed prior to installation of geotextile at no extra cost to the State.

Place geotextile in accordance with the manufacturer's standards and recommendations. Adjacent strips of geotextile shall overlap a minimum of 400 mm (16 inches). Secure geotextile a minimum of 1.2 m (4 feet) outside of the bed and take any steps necessary to prevent any runoff or sediment from entering the storage bed.

Place coarse aggregate in 200 mm (8 inch) maximum lift thickness. The aggregate material shall be distributed evenly over the subgrade in lifts of specified depth to achieve the proposed grades without significant alteration of the gradation supplied. Care shall be taken to limit the disturbance of the subgrade materials.

Lightly compact the first lift, keeping equipment movement over subgrade to a minimum. After placement of the second

lift, compact it and successive lifts with the use of a steel drum roller with a nominal weight of 9 metric tons (10 tons). A minimum of three passes is required.

Following placement of bed aggregate, the geotextile shall be folded back along all bed edges to protect from sediment washout along bed edges. A minimum 1.2 m (4 foot) edge strip shall be used to protect beds from adjacent bare soil. This edge strip shall remain in place until all bare soils contiguous to beds are stabilized and vegetated. In addition, take any other necessary steps to prevent sediment from washing into beds during site development. When the site is fully stabilized, temporary sediment control devices shall be removed.

The final surface shall be suitable for the placement of a choker course of aggregate.

(f) Underdrain, Porous Pavement. The geotextile fabric shall not be closed over the backfill material.

32. METHOD OF MEASUREMENT. The quantities of Special Provision (Choker Course, Porous Pavement) and Special Provision (Subbase, Porous Pavement) to be measured for payment will be the number of cubic meters (cubic yards) of material used in the complete and accepted work. The measurement for Special Provision (Subbase, Porous Pavement) shall include material placed as backfill for underdrain.

The quantity of Special Provision (Underdrain **Pipe**, Porous Pavement) **of the diameter specified** to be measured for payment will be the number of meters (linear feet) installed in the complete and accepted work. When it is necessary to cut underdrain in the field, the quantity of underdrain to be measured for payment will be the length necessary, rounded to the next whole meter (2 foot) increment.

The quantity of Special Provision (Porous Portland Cement Concrete Pavement) to be measured for payment will be the number of square meters (square yards) of material placed in the complete and accepted work.

The quantity of Special Provision (Porous Bituminous Concrete Pavement) to be measured for payment will be the number of metric tons (tons) of material complete in place in the accepted work as determined from the load tickets.

33. BASIS OF PAYMENT. The accepted quantities of Special Provision (Choker Course, Porous Pavement) and Special Provision (Subbase, Porous Pavement) will be paid for at the Contract unit price per cubic yard (cubic meter). Payment will be full compensation for furnishing, transporting, testing, placing, grading, and compacting the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The accepted quantity of Special Provision (Underdrain **Pipe**, Porous Pavement) **of the diameter specified** will be paid for at

10/5/2011

the Contract unit price per meter (linear foot). Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing the material specified, including coupling bands and fitting, and for furnishing all labor, tools, equipment, and incidental to complete the work.

Excavation for Underdrain Pipe, Porous Pavement will be paid for as Trench Excavation.

Backfill for Underdrain Pipe, Porous Pavement will be paid for as Special Provision (Subbase, Porous Pavement).

The accepted quantity of Special Provision (Porous Portland Cement Concrete Pavement) will be paid for at the Contract unit price per square meter (square yard). Payment will be full compensation for furnishing, transporting, testing, and placing the materials specified, including test panels, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Payment shall be reduced for the following deficiencies:

Deficiency	Measurement	Payment Reduction
Thickness	- 1/2" to - 1"	Up to 25%
Thickness	Greater than - 1"	Regrade and remove as necessary
Void Content	Greater than 3% below specified void content	25%

The accepted quantity of Special Provision (Porous Bituminous Concrete Pavement) will be paid for at the Contract unit price per metric ton (ton). Payment shall be full compensation for furnishing, mixing, hauling, and placing the material specified and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

The cost of furnishing testing facilities and supplies at the plant will be considered included in the Contract unit price of Special Provision (Porous Bituminous Concrete Pavement).

When not specified as Contract items in the Contract, the cost of cleaning and filling of joints and cracks, sweeping and cleaning of existing paved surfaces, the emulsified asphalt applied to tack these surfaces, and tacking of manholes, curbing, gutters, and other contact surfaces will not be paid for directly, but will be considered incidental to Special Provision (Porous Bituminous Concrete Pavement).

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.608 Special Provision (Choker Course, Porous Pavement)	Cubic Meter (Cubic Yard)
900.608 Special Provision	Cubic Meter

10/5/2011

	(Subbase, Porous Pavement)	(Cubic Yard)
900.640	Special Provision	Linear Foot
	(6 Inch Underdrain Pipe, Porous Pavement)	(Meter)
900.640	Special Provision	Linear Foot
	(12 Inch Underdrain Pipe, Porous Pavement)	(Meter)
900.675	Special Provision	Square Meter
	(Porous Portland Cement Concrete Pavement)	(Square Yard)
900.680	Special Provision	Metric Ton
	(Porous Bituminous Concrete Pavement)	(Ton)