

**SPECIAL PROVISION  
901-S-632-1  
PROJECT NO. SAP-55(52)  
PEARL RIVER COUNTY**

**OFFICE OF STATE AID ROAD CONSTRUCTION  
MISSISSIPPI DEPARTMENT OF TRANSPORTATION**

DATE: October 6, 2004

**SUBJECT: ROADBED RECLAMATION**

Section S-632, Roadbed Reclamation, of the 2004 Edition of the MISSISSIPPI STANDARD SPECIFICATIONS FOR STATE AID ROAD AND BRIDGE CONSTRUCTION, is hereby amended as follows for ROADBED RECLAMATION ONLY.

901-S-632 – Material Requirements. Delete Section S-632 in toto and substitute the following:

**SECTION 901-S-632 - ROADBED RECLAMATION**

**901-S-632.01--Description.** Roadbed Reclamation shall consist of pulverizing and mixing the existing asphalt pavement together with base, sub base, and/or subgrade materials with Portland Cement and water to produce a uniform mixture meeting density requirements to serve as a base course for the pavement. Preliminary pulverization of the asphalt pavement and preliminary mixing of the existing asphalt pavement together with base, sub base, and/or subgrade materials are permitted.

The Contractor shall mix the cement-stabilized base only when the weather permits the course to be finished without interruption in the time specified.

The Contractor shall begin mixing only when the air temperature is above 40°F in the shade, and rising.

Seasonal limitations for Roadbed Reclamation shall coincide with seasonal limitations for cement stabilization.

**901-S-632.02--Materials.** Portland Cement used shall conform to the requirements of S-701.01.

**901-S-632.03--Construction Requirements.**

Prior to joining a previous day's work, or work more than two hours old, a vertical construction joint, normal to the center-line of the roadway shall be made in the old work. The joint shall be moistened if dry. Additional processing shall not be started until the construction joint has been approved by the Engineer.

It is preferred that no longitudinal joints be incorporated in to the work, and the full pavement width section be constructed monolithically. However, should vertical longitudinal joints be required, the joints shall be constructed parallel to the centerline by cutting into the existing edge for a sufficient distance to provide a vertical face for the depth of the course. The material cut away may be disposed of by spreading in a thin layer on the adjacent lane to be constructed, or otherwise disposed of in a satisfactory manner. If dry, cut joints shall be moistened immediately in advance of placing fresh mixture adjacent to them.

The first section of each cement treated course constructed will serve as a test section. The length of the test section (not less than three hundred fifty (350) linear feet, not more than five hundred (500) linear feet for the designated width) will be determined by the capability of the equipment provided to perform the work. The Engineer and the Contractor will evaluate results of the test section in relation to contract requirements.

In case the Engineer determines the work is not satisfactory, the Contractor shall revise his procedures and augment or replace equipment as necessary to assure work completion in accordance with the contract, and shall correct all deficient work at no additional cost to the County.

(a) Equipment.

The pulverizing and mixing shall be done with one or more machines that produce the required degree of pulverization and uniformity.

Other pieces of equipment that may be required are a motorized grader, cement spreading unit, water truck, and compaction equipment.

The Engineer will not approve specific equipment for this work prior to its use on the project but will require the Contractor to use equipment that will produce a base course mixture meeting the requirements of these specifications.

(b) Length of Roadbed Allowed to Be Processed.

Except by written permission of the Engineer, the length of roadbed pulverized at any time shall not exceed the length that can be completely pulverized, mixed, compacted, cured and protected against damage by normal anticipated traffic in the same working day.

(c) Spreading of Cement.

The surface of the existing asphalt pavement shall be scarified prior to placement of the cement.

The amount of cement required to be placed will be shown on the plans or as determined from laboratory tests utilizing materials from the roadway. Spreading of the cement shall be done with a spreader truck or other approved means to insure a uniform distribution. Pneumatic application through a slotted pipe will not be

permitted. The amount of cement placed shall not vary more than 5% of the total amount required.

Cement shall be applied in a limited area so that all the operations can be continuous and completed in daylight hours, within 3 hours of the application of the cement.

Only the equipment that is used in spreading and mixing will be allowed to pass over the spread cement before it is mixed into the existing materials. Cement that has been displaced shall be replaced before mixing is started. Care should be taken to prevent excessive dusting, displacement, or altering the uniform distribution of cement throughout the section from the time of cement placement until the cement is thoroughly mixed throughout the depth of stabilization.

(d) Pulverizing and Mixing.

The width and depth of the required pulverizing and mixing will be shown on plans. The depth of pulverizing shall be controlled to insure that the finished thickness will be within the required tolerance limits. Pulverizing and mixing may be accomplished in one or more passes subject to meeting the pulverization and uniformity requirements of these specifications. Spreading of cement will be allowed after scarification of the existing asphalt pavement and prior to the pulverization and mixing for the entire thickness of the stabilized course.

The pulverizing and mixing shall breakup the existing roadbed to the extent that 98% to 100% by weight, exclusive of gravel or stone particles, passes a 2 inch sieve and a minimum of 95% passes a 1.5 inch sieve. The moisture content shall be maintained at a point that allows compaction to the required density.

(e) Mixing Cement with Pulverized Materials.

The contractor may perform initial dry mixing of the cement with the existing roadbed materials or may inject moisture into the mixing chamber of the mixing/pulverizing equipment during the first mixing. Water shall not be added by a spray bar from a water truck directly onto the unmixed cement spread. The cement shall be thoroughly mixed with the pulverized roadbed materials to provide a uniform distribution of the cement throughout the mixture.

(f) Mixing Water with Cement and Pulverized Materials.

If the contractor does not inject moisture into the mixing chamber of the pulverizer/mixer during the first mixing, the pulverizer/mixer shall then be used to mix water into the mixture of cement and pulverized roadbed materials. The mixing shall be completed in one or more continuous pass(es) of the mixing unit. The mixture of the water, cement and pulverized roadbed materials shall be within the tolerance limits of optimum moisture content and shall be in a condition suitable for immediate compaction without further mixing or grading.

For mixing units that inject moisture into the mixing chamber, a gage or gages shall be provided to allow the continuous monitoring of the amount of water that is applied. When the mixer will handle only a part of the roadbed width, the successive increments shall be of such length that the full width of treated material may be promptly mixed, compacted and finished, with not more than 30 minutes between mixing adjacent lanes. The asphalt and cement mix shall not remain undisturbed after mixing and before compaction for more than 30 minutes.

When the uncompacted mixture is made too wet by the addition of too much water, or by rain, and the moisture content exceeds the specified tolerance for compaction, the entire affected section may be remixed at the Contractor's expense in an effort to dry the mixture through aeration.

(g) Compaction and Finishing.

The pulverizing, mixing and compaction shall be a continuous operation. The compaction of the mixture of water, cement and roadbed materials shall begin within 30 minutes after the final mixing. The mixture shall be compacted to a minimum of 95% of the field laboratory maximum density. Compaction and finishing shall be completed within a period of one hour after the final mixing.

Sheep foot rollers, pad foot rollers, or similar equipment, shall be used for the compaction.

After the mixture has been compacted, the surface shall be shaped to the required lines, grades, and cross sections to within the required tolerances. During the shaping, light scarifying may be necessary to prevent the formation of compaction planes. Broom dragging or clipping of the surface may be required as a part of the process of shaping the surface during compaction. The surface material shall be maintained at the specified moisture content during finishing operations. The final compaction and finishing operations may be varied, if necessary, to produce a smooth, dense surface free of surface compaction planes, cracks, ridges or loose material.

(h) Testing, Tolerance, and Deficiency Correction.

The thickness of the base will be checked by the Engineer at intervals not to exceed 500 feet, or more often if necessary. A tolerance of +/- 1/2 inch from the plan designated thickness at any point will be permitted.

The finished surface of a treated course shall conform to the requirements shown on the plans, within the tolerances allowable in S-304.08.1.

The finished surface shall not vary more than 1/2 inch from the design grade. The Contractor shall provide a straight edge and template and employees to use them to

check the surface as directed by the Engineer.

High spots in the finished surface may be corrected by motor grader or planer without additional compensation, provided the resulting thickness is within the tolerances listed above. Other areas outside allowable tolerance or deficient in density will be rejected and shall be reconstructed by the Contractor at his own expense, including necessary cement. The amount of cement to be used in reconstruction will be determined by the Engineer.

Measurements will be made promptly upon completion of compaction and finishing in order that correction may be made before the mixture has hardened.

(i) Surface Moisture.

The finished surface shall be kept moist until the curing seal, surface treatment or next pavement course is applied.

(j) Curing.

An asphalt emulsion, with a consistency as specified in S-702 without further dilution with water, curing seal shall be applied over the entire surface of the Roadbed Reclamation. The curing seal shall be continuously maintained intact and reapplied as often as necessary for at least seven days. Where a bituminous base or pavement course is to be placed directly on the cement treated course, the curing seal shall be continuously maintained and reapplied as often as necessary until covered by the bituminous base or pavement. The surface shall be protected from drying prior to application of the curing seal. The rate of application shall be from 0.10 to 0.25 gallons per square yard. The completed Roadbed Reclamation shall be cured for a minimum of one week after final compaction has been completed unless the next pavement course is applied prior to that time.

(k) Opening to Traffic.

Traffic shall be placed on the roadway as directed by the Engineer.

**901-S-632.04--Method of Measurement**. Roadbed Reclamation will be measured in units of square yards. The length will be measured along the surface of the pavement. The width shall be the width specified on the plans or in writing by the Engineer. Portland cement incorporated into the accepted work will be measured by the ton, as designated, in accordance with the provisions of Section S-109.

Water and bituminous materials for the curing seal will not be measured for separate payment.

Unauthorized wastage or usage of any materials, unused materials remaining in stockpiles, and additional materials required for reconstruction of unacceptable work will be deducted from measured quantities. Determination of quantities to be deducted will be made by the method the

Engineer considers to be most practicable and equitable, and the Engineer's decision as to the method used shall be final.

**901-S-632.05--Basis of Payment.** Portland cement will be paid for at the contract unit price per ton. Roadbed Reclamation will be paid for at the contract unit price per square yard. The prices thus paid shall be full compensation for furnishing all materials (cement, water), curing seal, equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

<b><u>901-S-632-A:</u></b> Portland Cement -	-per ton.
<b><u>901-S-632-B:</u></b> Roadbed Reclamation	- per square yard.