

**TECHNICAL SPECIFICATION 230
PAVEMENT RECLAMATION**

230.1 SCOPE OF WORK

This technical specification covers the furnishing of all labor, materials, testing, submittals, tools, and equipment necessary to reclaim bituminous roadways, as specified below, to form an asphaltic stabilized base.

Work under this item shall consist of pulverizing the in-place asphalt pavement and underlying material, spraying liquid calcium chloride on the pulverized mass, mixing and/or blending the material, spreading it, adding water as necessary, shaping and compacting the resultant mixture to lines and grades shown on the plans, ready to accept the bituminous concrete pavement. This work does not include the reclamation of bituminous curbing. If the curbing is to be replaced as part of the project, the removal and disposal shall be accomplished prior to the reclamation of the pavement and shall be a separate pay item.

230.2 MATERIALS

A. Reclaimed Base

All pulverized material shall pass the 3-inch sieve and shall meet the following gradation:

Required Reclaimed Base Gradation*

SIEVE SIZE	% PASSING
3"	100
1-1/2"	70-100
3/4"	55-90
#4	40-75
#40	10-30
#200	3-10
Residual A.C.	2-4

*Gradation may vary due to local aggregate conditions

B. Liquid Calcium Chloride

The calcium chloride solution shall be provided by the manufacturer as a true solution and shall not be reconstituted from flake calcium chloride. The calcium shall meet the following material specifications (see ASTM Designation D98: AASHTO-M144).

Calcium Chloride	35 % ± 1 %
Alkali Chloride as NaCl	2 %
Magnesium as MgCl	0.1 %
Typical : (in lbs. per gallon)	
Calcium Chloride	5.05
Sodium Chloride	0.2
Magnesium Chloride	0.004
Calcium Sulfate	0.004
Water	<u>6.002</u>
	11.26

C. Processed Aggregate

All processed aggregate which is added to the pulverized roadway material shall conform to Technical Specification 210 – “Processed Aggregate Base” (coarse gradation) as directed by the Engineer.

230.3 SUBMITTALS

The following submittals shall be submitted to the Engineer for review and approval prior to installation:

- Gradation test results for reclaimed base material
- Material certification for calcium chloride
- Gradation test results for processed aggregate

230.4 CONSTRUCTION METHODS

The existing road pavement shall be pulverized and mixed with the base course material existing in the roadway to a depth of 12 inches, or as directed by the Engineer. The pulverization shall blend the asphalt and base material into a homogeneous mass, utilizing the asphalt acquired from the existing pavement as a stabilizer which shall bond the material together when compacted. After the first pulverization, two applications of calcium chloride totaling .75 gallons per square yard shall be applied. The aggregate mass shall then be pulverized again to ensure proper asphalt, gravel and calcium chloride blending to a depth of 12 inches, or as directed by the Engineer. Initial rolling shall be done immediately following the second reclaimed pass. If additional fines are required the Contractor may be directed to add processed aggregate base. Water shall be applied during the entire operation to ensure optimum moisture at the time of compaction. After the material has been thoroughly worked as described above it shall be shaped and graded to the lines and elevations as indicated on the

plans or as directed by the Engineer. A final application of calcium chloride of .25 gallons per square yard shall be applied after the reclaimed base material is fine graded, and prior to the paving.

During construction the Contractor shall sample materials from the project area and test for material gradation. The Contractor shall continue the reclamation until the sampled materials pass the gradation requirements of Section 230.2, or acceptable to the Engineer.

The Contractor shall be responsible for coordinating work with utility companies to locate, identify and mark all utility structures as necessary. The Contractor must not damage any existing manholes, catch basins, valve boxes or other castings which may be located in the surface of the road. Any damage to these structures shall be repaired by the Contractor at the Contractor's expense.

The work shall be constructed on no more than 1/2 the roadway width at any time to allow for the passage of through traffic. Access to properties within the project limits is to be provided as necessary. Maintenance and protection of traffic, dust control and daily clean-up throughout the project area shall be the responsibility of the Contractor.

If paving is not to be done immediately following the reclamation, then the pulverized mass, after the second reclaiming pass, shall be rolled, shaped and rough graded to allow passage of emergency vehicles and the traveling public, as approved by the Engineer.

It is the Contractor's responsibility to coordinate the fine grading and final application of calcium chloride with the paving contractor.

Equipment Requirements:

Reclamation will be by means of a traveling rotary reclaimer or equivalent machine capable of cutting through the existing asphalt at depths up to 12 inches with one pass. The machine shall be self-propelled and equipped with an adjustable grading blade thus leaving its path generally smooth for traffic. Equipment such as road planers or cold milling machines, which are designed to mill or shred the existing bituminous concrete rather than to crush or fracture it, are not considered capable of achieving specification gradation. The required and necessary action of the reclaimer will increase the percentages of fine aggregate. This machine is not intended for use on subbases with large boulders or ledge. Existing bituminous concrete and gravel/aggregate base must be pulverized and mixed so as to form a homogeneous mass of uniformly processed base material, which will bond together when compacted.

The distributor for calcium chloride shall be capable of applying liquid calcium chloride in accurately measured quantities at any rate between 0.1 to 2.0 gallons per square yard of roadway surface at any length of spray bar up to 20 feet. The distributor shall be capable of maintaining a uniform rate of distribution of material regardless of change in grade, width or

direction of the road. The distributor shall be equipped with a Digital Volumetric Accumulator capable of measuring gallons applied and distance traveled. The volume and measuring device shall be equipped with a power unit for the pump so that application is by pressure, not gravity. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of material throughout the entire length of the spray bar at all times while operating, and shall be adjustable laterally and vertically. The spray shall completely cover the roadway surface receiving the treatment. Any puddling of the calcium chloride shall be removed prior to paving.

At least one vibratory roller shall be used on each reclaimed surface, and shall have a compacting width of not less than 5 feet. Each roller shall have a gross weight of not less than 15 tons.

230.5 MEASUREMENT

Measurement for this item will be based on the number of square yards reclaimed, placed, graded, compacted, tested and accepted to the limits shown on the plans and accepted by the Engineer.

230.6 PAYMENT

Payment for this item will be based on the contract unit price per Square Yard, completed and accepted in place, including all labor, materials, testing, submittals, tools, and equipment necessary to complete the work as specified.

PAY ITEM	PAY UNIT
Pavement Reclamation	S.Y.