

State of Illinois
DEPARTMENT OF TRANSPORTATION
Bureau of Local Roads and Streets
SPECIAL PROVISION
FOR
SALT STABILIZED SURFACE COURSE

Effective February 20, 1963
Revised January 1, 2007

All references to Sections or Articles in this specification shall be construed to mean a specific Section or Article of the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation.

Description. This work shall consist of a salt stabilized surface course composed of gravel or crushed stone, salt, and water, uniformly mixed, compacted, treated and constructed in accordance with these specifications and the lines, grades, and cross section shown on the plans and as required by the Engineer. The salt stabilized surface course shall have a compacted thickness of not less than 75 mm (3 inches).

Materials. Materials shall meet the requirements of the following Articles of Section 1000 -
Materials:

Item	Article/Section
(a) Calcium Chloride - CaCl ₂	1013.01(b)
(b) Sodium Chloride - NaCl (Note 1).....	1013.02

Note 1. NaCl shall comply with the following gradation requirements:

Passing 9.5 mm (3/8 inch) sieve	100 %
Passing 4.75 mm (No. 4) sieve	0 - 82 %
Passing 2.38 mm (No. 8) sieve	0 - 50 %
Passing 600 μm (No. 30) sieve	0 - 7 %

Permissible Variations - A 5 % tolerance is allowed on each sieve, except the 6.00 μm (No. 30) sieve tolerance is 2%.

Equipment. All equipment and machinery used on the work shall be of sufficient size and in such mechanical condition as to meet the requirements of the work and produce a satisfactory quality of work. All equipment shall be ready for use when required by the Engineer. The Engineer may order the removal of any unsatisfactory equipment and require its replacement with equipment meeting his approval and he may require that additional equipment meeting his approval be placed on the work. The measure of the capacity and efficiency of equipment shall be its actual performance on the work. General requirements for some of the units of equipment which may be needed on the work are listed hereinafter, and shall conform to the specific references in Section 1100 - Equipment.

Item	Article/Section
(a) Pneumatic-tired Roller.....	1101.01 (a) or (c)
(b) Tamping Rollers	1101.01 (d)
(c) Vibratory Roller.....	1101.01 (g)
(d) Motor Grader.....	1101.05
(e) Rotary Speed Mixer.....	1101.06

(f) Traveling Plant	1102.02
(g) Water Supply Equipment (Note 1).....	1103.11

Note 1. The water-pressure distributor shall be self-powered, of 3800 liter (1000 gallon) or more capacity, and capable of delivering water at an average rate of not less than 380 liters (100 gallons) per minute.

If water is transported in tanks, the number and capacity of the tanks and pumping equipment shall be capable of meeting the water supply requirements.

Additional Equipment. Tractors, brooms, and other equipment, tools, and supplies necessary to complete the work according to these specifications shall meet the approval of the Engineer.

CONSTRUCTION REQUIREMENTS

Preparation of Existing Surface. The existing gravel or crushed stone surface shall be scarified to the full width and depth shown on the plans, or otherwise specified, and then reshaped to the final crown and grade. The scarifying operation may be omitted when all new aggregate is to be used and the material has not been compacted.

Application of Sodium Chloride. NaCl shall be applied uniformly over the entire width to be stabilized at the rate of 1.1 to 1.7 kg per square meter per 100 mm (0.50 to 0.75 pounds per square yard per inch) of compacted thickness, the exact rate to be determined by the Engineer. The salt shall be spread by a mechanical spreader.

After the salt has been spread, the aggregate shall be moistened to the extent that the resultant material will retain its compaction when squeezed in the hand. The spray bars of the water distributor shall be so adjusted that there shall be no over-lapping of the water nor any dry streaks.

Preparation of the Salt Mixture - Motor Grader Method. The salt, water and aggregate shall be thoroughly mixed with a motor grader, to the satisfaction of the Engineer. The material shall be completely turned at least four times.

The material shall next be bladed into windrows on each shoulder as nearly the same size as possible. The subgrade shall be shaped to the crown shown on the plans, or as specified, and then wetted thoroughly. Approximately 50 mm (2 inches) of the windrowed material shall be bladed uniformly to the width specified, alternating the blading from one edge to the other. The specified moisture content shall be maintained during the spreading operations. The spread material shall then be rolled with a pneumatic-tired roller, starting at the edges and progressing to the center. This procedure shall be followed until all of the remaining windrowed material has been placed and compacted. Rolling shall be continued until the material has become a dense compacted mat.

Preparation of the Salt Mixture - Rotary Speed Mixer or Traveling Plant Method. The salt, water and aggregate shall be mixed with a rotary speed mixer or traveling plant. Mixing shall continue until the salt is uniformly distributed throughout the full width and depth of the material to be stabilized. The specified moisture content shall be maintained during the mixing operation.

At the option of the contractor, the materials may be mixed in a stationary plant before depositing them on the subgrade.

Where the compacted thickness is 100 mm (4 inch) or more, the mixed material shall first be uniformly compacted with a tamping roller. Particular care shall be exercised to insure

satisfactory compaction for the full width and depth of the surface course. After compaction with the tamping roller has been completed, the surface course shall be reshaped, if necessary, to the required lines, grades and cross section.

Where the compacted thickness is less than 100 mm (4 inches), the mixed materials shall then be rolled once with a pneumatic-tired roller beginning at the edges and progressing toward the center, after which a light spray of water shall be applied to the rolled surface. Rolling shall continue in the same manner until the material has become a dense and well compacted mat.

Final Rolling. The surface of the compacted material shall next be wet until it is covered with free water, after which it shall be rolled with a pneumatic-tired roller until sufficient mortar is brought to the surface to thoroughly bind and seal it. More water shall be added as needed during the rolling operation.

Rolling shall be from the center out, allowing excess mortar to run over and bind the edge. Rolling shall be continued until all excess water has disappeared and the surface assumes a glazed appearance.

Calcium Chloride Application. After the road has been opened to traffic for a period of approximately 5 days, CaCl_2 shall be applied uniformly over the entire stabilized surface at the rate of 0.28 to 0.56 kg per square meter (0.50 to 1.00 pound per square yard), the exact rate to be determined by the Engineer. A spreader shall be used to spread the calcium chloride.

Method of Measurement. This work will be measured in square meters (square yards) of salt stabilized surface course completed and accepted; liters (gallons) of water used for wetting, mixing, compaction, and finishing; metric tons (tons) of salt and metric tons (tons) of calcium chloride used.

The quantity of calcium chloride for which payment will be made will be the total mass (weight) multiplied by the decimal equivalent of the percent chloride.

Basis of Payment. This work will be paid for at the contract unit price per square meter (square yard) for SALT STABILIZED SURFACE COURSE, per liter (gallon) for WATER, per metric ton (ton) for SALT and per metric ton (ton) for CALCIUM CHLORIDE.

The metric tons (tons) of salt incorporated in the surface course will be paid for on the basis of the sodium chloride content according to the following table:

96.0 - 100.0 % NaCl	Bid price per metric ton (ton)
95.0 - 95.9 % NaCl	Bid price less \$0.50 per metric ton (ton)
94.0 - 94.9 % NaCl	Bid price less \$2.00 per metric ton (ton)
90.0 - 93.9 % NaCl	Bid price less \$4.00 per metric ton (ton)