

TO:

**SUPERSEDED BY EI 84-027
EFFECTIVE 5/9/84**

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUBJECT: POLICY FOR TRANSVERSE SAWCUT GROOVING OF STRUCTURAL DECK SLABS, STRUCTURAL APPROACH SLABS AND STRUCTURAL SLAB OVERLAYS. ITEM 16555.66
Subject Code: 7.27-1-555; 7.27-1-584; 7.35-6

Distribution:

31 Main Office 33 Regions 34 Special

Code: 84-15

Date: 3/22/84

Supersedes:

APPROVED:

E.V. Hourigan
E.V. HOURIGAN, Deputy Chief Engineer (Structures)

Attached to this Engineering Instruction are copies of:

1. Change to subsection 555-3.08D, Finishing Wearing Surfaces on Structural Slabs, and subsection 584-3.09G, Surface Texturing.
2. Item 16555.66 - Transverse Sawcut Grooving of Structural Slab Surface.

The change to subsections 555-3.08D, and 584-3.09G, eliminates tining for both full depth structural slabs and concrete overlays bonded to structural, or monolithic slabs. A method of rough, plastic micro-texturing using astro-turf drag has been substituted.

Item 16555.66 requires the sawcutting of transverse grooves into the concrete surface of the structural deck slab, structural approach slab or overlay. Research has shown that sawcut grooves are the only way to ensure the specified groove depth is achieved without causing surface damage, such as tearing. Sawcut grooves also drain better, will prevent hydroplaning, and due to their increased depth, have longer effective life than tined grooves.

Item 16555.66 shall be used for all full depth structural deck slab installations, structural approach slabs, and all structural slab overlays, effective immediately. Should project contract preparation be too far along to permit direct changes, an ammendment shall be issued.

If the project contract is advanced too far to permit change by ammendment, or if the project is under construction, the Construction Division will institute the change by order-on-contract. Regional Construction Supervisors have been notified of these changes and the necessity of issuing orders-on-contract.

PREL.	FINAL
DESIGN	LANDSCAPE
RECEIVED	
FACILITIES DESIGN DIVISION	
MAR 28 1984	
CIRC.	FILE

January 1984

Proposed Specification Change

Surface Texturing of Bridge Decks

Replace 555-3.08D par 15-19, 584-3,09G with the following.

Initial Surface Texturing

When a uniformly smooth, dense and even surface has been achieved, the surface shall be given a suitable texture with an artificial turf drag approved by the Engineer. The drag shall be made of molded polyethylene with synthetic turf blades approximately 0.50 in. long, and shall contain approximately 6000 blades per square foot. The artificial turf drag shall be of a type and brand which appears on the Department's Approved List. The drag shall be suitably attached to the finishing machine, so as to texture the surface immediately after passage of the finishing machine. The drag shall be operated in a longitudinal or transverse direction. The drag shall be a seamless strip of artificial turf when used as a longitudinal drag. The finishing movement and resulting progress of the drag shall be uniform to prevent ridges forming in the concrete surface. The drag shall be weighted and contact area changed as necessary to produce a texture acceptable to the Engineer. The drag shall be cleaned periodically as directed by the Engineer to remove any hardened concrete particles. The texture resulting from the drag shall stop within one foot of curbs.

Item 16555.66 TRANSVERSE SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE

Description. The work shall consist of sawcutting grooves into the surface of a portland cement concrete structural slab. The work will be performed at the locations indicated on the Contract plans, or where ordered by the Engineer.

The surface, for the purposes of this specification, is defined as the surface upon which vehicular traffic will travel.

The Contractor is hereby notified that concrete curing requirements, combined with structural slab loading restrictions may have a significant effect upon the specific time, relative to concrete placement, at which sawcut grooving may be performed. The Contractor shall familiarize himself with the limits imposed by these factors, and conduct his operations accordingly.

Materials. Only multi-bladed saw cutting equipment, using circular saw blades, will be permitted. The Engineer may allow the use of single blade, circular saw equipment, where he determines such equipment is necessary to complete the work as required. The equipment the Contractor proposes to use will be subject to the approval of the Engineer, prior to use.

Water... ..712-91

Membrane Curing
Compound... ..711-05

Construction details. No grooving shall be done to any concrete surface until either one of the following time durations has elapsed:

Option 1. Twenty-eight (28) curing days after concrete placement.*

OR

Option 2. The curing period specified for the concrete in question.

*A curing day is defined by subsection 555-3.09A

If the Contractor chooses to perform grooving operations under Option 2, and a full depth structural slab has been placed, the total weight of equipment is limited to 2000 pounds for the first fourteen curing days after concrete placement has been fully completed on any one span. If the grooving operations are performed after fourteen curing days have elapsed, but prior to twenty-eight curing days having elapsed, the limitations of subsection 555-3.10 shall apply.

If the Contractor chooses to perform grooving operations under Option 2 and that particular concrete placement requires the application of white-pigmented curing compound, a second application of curing compound will be required. It shall be done after grooving operations are completed. The second application, of curing compound shall be done only where indicated on the Contract plans. The application shall be done under requirements identical to those of the original application, and it shall be done during the same working day that the grooving operations are done. The cost of applying this additional coat of compound shall be included in the unit price bid for this item.

Transverse grooves shall be cut perpendicular, or radial, to the centerline of roadway. Radial grooving shall be done in stages. Each stage shall be limited to 12'-0" in width, or one lane width, whichever is less.

Grooves shall be rectangular in shape. They shall conform to the following dimensions:

Width...	...one tenth inch (.1") $\pm .02$ "
Depth...	...1/4" $\pm 1/16$ "

Grooves shall be spaced at 3/4" - center to center of groove $\pm 1/16$ ". The cutting of grooves over an area which has been grooved will not be permitted. No cutting blade shall be introduced into an already established groove.

During the grooving operations, the Engineer will verify, at random, that the minimum groove depth is being achieved. Should the Engineer determine that minimum groove depth is not being achieved, the Contractor shall stop grooving operations and make all adjustments necessary to achieve the minimum depth.

The Contractor shall supply the Engineer with two (2) accurate, easily readable, gauges with which to verify groove depth. The gauges shall be delivered no later than one week prior to the anticipated beginning of grooving operations. Gauges shall be accompanied by manufacturer's instructions for their use, if such instruction are necessary for proper understanding of the gauge's functions.

Grooves shall terminate within the following limits unless otherwise indicated on the Contract Plans:

<u>Location</u>	<u>Closest Allowable Distance</u>	<u>Farthest Allowable Distance</u>
Drainage structure	1'-0"	1'-3"
Vertical face (curb or parapet), or face of railing (no curb)	1'-0"	1'-3"
Joint System	6"(a)	6"(a)

Note a. Dimension measured parallel to the groove.

Grooving operations, which are performed after the installation of the joint system, or which are performed adjacent to an existing joint system, shall be done in such a manner that the joint system is not damaged to any degree.

All damage to the joint system shall be repaired in a manner satisfactory to the Engineer. If the Engineer determines that the joint system cannot be repaired in a manner which will allow proper function of the system, the Contractor shall replace the system. The replacement shall be a new system equal in all respects to the system being replaced.

Damage to any other portion of the structural slab, or anything attached to it, or embedded in it, attributable to the Contractor's operations shall be repaired in a manner satisfactory to the Engineer.

All repair, or replacement, costs shall be borne by the Contractor.

Slurry, or debris, from the grooving operation shall not be permitted to accumulate. Residue shall be continuously removed. The slurry shall not be permitted to harden. Slurry, or debris, shall not be disposed of in the structure, or highway, drainage system, nor on the roadway slopes. It shall be disposed of in a manner satisfactory to the Engineer.

If the grooving operations have been done under Option 2 and a second application of curing compound is required, the grooves shall be air-blown clean prior to the application of white-pigmented curing compound.

Method of Measurement. The work will be measured as the number of square feet of surface grooved as stated in the Estimate of Quantities, shown on the contract plans. No field measurements will be taken.

Basis of Payment. The unit price bid per square foot shall include the cost of all labor, materials and equipment necessary to complete the work.

The cost of furnishing and applying an additional coat of white-pigmented curing compound if required shall be included in the unit price bid for this work.

No compensation will be made for any repair, or replacement, work necessitated by the Contractor's operations.