



Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

January 5, 2015

Khoa Nguyen
Director, Office of Technical Services
Federal Highway Administration
545 John Knox Road, Suite 200
Tallahassee, Florida 32303

Re: State Specifications and Estimates Office
Section **701**
Proposed Specification: **7010000 Audible and Vibratory Pavement Markings.**

Dear Mr. Nguyen:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

This change was proposed by Chester Henson of the State Roadway Design Office to update the language for current Department practice. Department is beginning the use of rumble striping for audible and vibratory effect on asphalt. The current description of "Audible & Vibratory" for existing profiled thermoplastic markings creates some confusion now with there being two types of audible & vibratory markings. Section 701 markings will now be called "Profiled Thermoplastic Pavement Markings" and will be limited for use on concrete pavement. Please review and transmit your comments, if any, within two weeks. Comments should be sent via email to SP965DS or daniel.scheer@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at 414-4130.

Sincerely,

Signature on file

Daniel Scheer, P.E.
State Specifications Engineer

DS/dt

Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

~~AUDIBLE AND VIBRATORY~~**PROFILED THERMOPLASTIC PAVEMENT MARKINGS.**
(REV ~~11-12-14~~**1-5-15**)

SECTION 701. The title is deleted and the following substituted:

SECTION 701

~~AUDIBLE AND VIBRATORY~~**PROFILED THERMOPLASTIC PAVEMENT MARKINGS**

ARTICLE 701-1 is deleted and the following substituted:

701-1 Description.

Profiled thermoplastic pavement markings consist of thermoplastic material with raised thermoplastic bumps creating a raised profile marking. Apply ~~audible and vibratory~~*profiled thermoplastic* pavement markings *only to concrete pavement* in accordance with the Contract Documents.

ARTICLE 701-3 is deleted and the following substituted:

701-3 Equipment.

Use equipment capable of providing continuous, uniform heating of the striping material to temperatures exceeding 390°F, mixing and agitating the material in the reservoir to provide a homogenous mixture without segregation. Use equipment that will maintain the striping material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which is capable of producing a consistent pattern of ~~transverse~~*bumps positioned at regular and predetermined with a longitudinal distance between bumps of approximately 30 inches center-to-center* intervals. Use equipment which meets the following requirements:

(a)1. capable of traveling at a uniform rate of speed, both uphill and downhill, to produce a uniform application of striping material and capable of following straight lines and making normal curves in a true arc.

(b)2. capable of applying reflective elements to the surface of the completed stripe by automatic dispensers attached to the striping machine such that the reflective elements are dispensed closely behind the installed line. Use reflective element dispensers equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the reflective elements uniformly on the entire traffic stripe surface with 50 to 60% embedment.

(c)3. equipped with a special kettle for uniformly heating and melting the striping material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.

(d)4. meets the requirements of the National Fire Protection Association (NFPA), State and Local authorities.

SUBARTICLES 701-4.2 through 701-4.4 are deleted and the following substituted:

701-4.2 Thickness: Apply flat base lines having a thickness of 0.100 to 0.150 inches, exclusive of the ~~audible~~ bumps, when measured above the pavement surface.

Measure, record and certify on a Department approved form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5-541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

701-4.3 Dimensions of ~~Audible~~ Raised Bumps: Apply the raised bumps with a profile such that the leading and trailing edges are sloped at a sufficient angle to create an audible and vibratory warning.

Bumps on shoulder and centerline markings shall be at least 0.45 inches at the highest point of the bump, above the pavement surface, including the base line. The height shall be measured after application of drop-on reflective elements. Bumps shall have a minimum baseline coverage dimension of 2.5 inches in both transverse and longitudinal directions. The bumps may have a drainage channel, the width of each drainage channel will not exceed 1/4 inch at the bottom of the channel. The longitudinal distance between bumps shall be approximately 30 inches.

701-4.4 Retroreflectivity: Apply white and yellow ~~audible and vibratory~~ *profiled thermoplastic* markings that will attain an initial retroreflectance of not less than 300 mcd/lx·m² and not less than 250 mcd/lx·m², respectively. Measure, record and certify on a Department approved form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5-541.

ARTICLE 701-5 is deleted and the following substituted:

701-5 Contractor's Responsibility for Notification.

Notify the Engineer prior to the placement of ~~audible and vibratory~~ *profiled thermoplastic* markings. Furnish the Engineer with the manufacturer's name and batch numbers of the thermoplastic materials and reflective elements to be used. Ensure that the batch numbers appear on the thermoplastic materials and reflective elements packages.

ARTICLE 701-6 is deleted and the following substituted:

701-6 Protection of Newly Applied ~~Audible and Vibratory~~ *Profiled Thermoplastic* Markings.

Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause.

SUBARTICLE 701-9.2 is deleted and the following substituted:

701-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O'clock noon Monday after the estimate cut-off

date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

(a)1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

(b)2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

ARTICLE 701-10 is deleted and the following substituted:

701-10 Method of Measurement.

The quantities to be paid for under this Section will be as follows:

(a)1. The length, in net miles, of 6 inches solid traffic stripe, authorized and acceptably applied.

(b)2. The total traversed distance in gross miles of 10-30 skip line. The actual applied line is 25% of the traverse distance for a 1:3 ratio. This equates to 1,320 feet of marking per mile of single line.

ARTICLE 701-11 is deleted and the following substituted:

701-11 Basis of Payment.

Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

Item No. 701- 1 ~~Audible and Vibratory~~ *Profiled Thermoplastic* Pavement Markings.

PROFILED THERMOPLASTIC PAVMENT MARKINGS.
(REV 1-5-15)

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Item No. 701- 1 Profiled Thermoplastic Pavement Markings.