Georgia Department of Transportation
Office of Materials and Research

Standard Operating Procedure (SOP) 37F

Inspection of Thermoplastic Striping Operations

I. General

This Standard Operating Procedure presents an outline of the responsibilities of thermoplastic striping Contractors intending to perform work under the auspices of this Department and the duties of Department personnel assigned to perform the field inspection.

It is a function of the Testing Bureau of the Office of Materials and Research to randomly inspect and sample thermoplastic striping operations in order to determine if the Contractor is in conformance with governing Specifications. In order to facilitate the accomplishment of this task, routine field sampling and inspection on a random basis will be performed to insure the quality of the thermoplastic striping.

II. Contractor's Responsibilities—General

A. Material Control

Use thermoplastic listed on Qualified Products List (QPL) 46, and glass beads listed on Qualified Products List (QPL) 71.

Each bag of thermoplastic and each bag of glass beads shall be legibly stenciled with the batch number and date of manufacture. Do not use bags of thermoplastic without a Certified Thermoplastic Technician (CTT) stamp.

Each shipment of thermoplastic shall be free of damage. Care should be exercised to ensure that palletized thermoplastic does not collect moisture due to weather and humidity.

B. Submittals

Ensure that the producers of the thermoplastic compound and glass spheres furnish to the Department copies of certified test reports showing results of all tests specified in Section 653.

C. Quality Control

1. General

If thermoplastic traffic stripe fails to meet Plan details or Specifications or deviates from stated dimensions, correct it at no additional cost to the Department. If removal of pavement markings is necessary, perform it according to Section 656 and place it according to this Specification. No additional payment will be made for removal and replacement of unsatisfactory striping.

2. Initial Retroreflectivity

A. Longitudinal Lines

At the time of installation, ensure the in-place markings when tested according to ASTM E 1710 meet the minimum reflectance values stated in Subsection 653.3.06.B. Retest the in-place markings 30 days after installation to ensure these minimum retroreflectance values are maintained. For skip lines, measure retroreflectivity within 2 feet (600mm) of the beginning, in the middle, and within 2 feet (600mm) of the end of a single skip. Calculate the average of the 3 readings. Measure retroreflectivity

of center lines and edge lines directly across from the skip line 3 times each, moving the retroreflectometer a distance of approximately 2 feet between measurements. Calculate each average of 3 readings. Repeat for each mile (kilometer). For projects less than 2 miles (3km), take an average of 3 measurements on each line within 200 feet (60m) of the beginning, in the middle, and within 200 feet (60m) of the end of the project. Calculate each average of 3 readings.

In the event failures occur, ensure corrective work is completed at no additional cost to the Department. The Project Manager will determine the extent of corrective work necessary. Perform testing according to ASTM E 1710 at above described intervals. Any retest due to failures will be performed at no additional cost to the Department. Furnish all test reports to the Department. Use form OMR CVP-66 to record measurements.

B. Messages, Symbols, and Transverse Lines

At the time of installation, ensure the in-place markings when tested according to ASTM E 1710 meet the following minimum reflectance value of 275 mcd/lux/m^2.

Perform at a minimum, one retroreflectivity measurement at one message, one symbol and one transverse line per intersection. Take one measurement per mile for locations other than intersections (i.e. school messages, railroad messages, bike symbols etc.)

3. Six Month Retroreflectivity (Longitudinal Lines)

Maintain the minimum reflectance values for 180 days after installation as stated in Subsection 653.3.06.C.

Retest the in-place markings according to Subsection 653.3.06.B.1 after 155 days and before 185 days after installation to ensure these minimum retroreflectance values are maintained. Use form OMR CVP-66 to record measurements.

NOTE: The Contractor is responsible for retroreflectivity testing. Furnish initial test results to the Project Manager within 30 days of application. Furnish 6 month test results to the Project Manager within 180 days of application or prior to final acceptance, whichever comes first.

4. Film Thickness

Check the film thicknesses on all skip lines, edge lines, and center lines as follows:

Place durable tapes, films, or metal plates of known and uniform thickness within the first 200 feet (60m) to be striped. After the striper has passed over, remove the sample and measure the thickness with calipers or a micrometer.

If the thickness is deficient, make the necessary adjustments, and recheck within the next 200 feet (60m).

Perform additional thickness checks every 2 miles (3km). For projects less than 4 miles (6km), check the thickness on each line within 200 feet (60m) of the beginning, in the middle, and within 200 feet (60m) of the end of the project. Submit results and thickness samples to Department Project Manager. Use form OMR CVP-66 to record measurements.

5. Equipment

Test for retroreflectivity using a 30m geometry retroreflectometer as specified in ASTM E 1710. Check calibration before and after each day's use.

III. Office of Materials and Research Responsibilities

The Office of Materials and Research will randomly perform tests, visually inspect, and sample thermoplastic striping. Random inspections and sampling shall also be conducted on thermoplastic shipped to the Department or its registered contractor. The Office of Materials and Research will maintain copies of all test reports for any samples randomly selected. The Department will randomly verify the Quality Acceptance at a rate of one in every ten projects.

A. Film Thickness

The submitted thickness specimens will be measured with a micrometer or calipers by Chemical lab personnel randomly at a rate of one in every ten projects. If the submitted samples are found to be deficient, the Department will require prompt corrective action.

B. Retroreflectivity

Department personnel will randomly verify both initial and six month retroreflectivity at a rate of one in every ten projects. If the initial retroreflectivity does not meet the requirements of Subsection 653.3.06.B, the Contractor must make corrective action within 180 days. If the six month retroreflectivity does not meet Subsection 653.3.06.C, the Department will require prompt corrective action.

IV. Reporting

Submit independent lab test reports to the Office of Materials and Research at least one week before beginning striping operations. The Office of Materials and Research will review each lab test report and each completed OMR CVP-66 form. If the information furnished is complete and correct, the reports will be distributed as part of the documentation for material approval.

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Georgene M. Geary, P.E.
State Materials and Research Engineer

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Thomas Howell, P.E.
Director of Construction

GDOT THERMOPLASTIC FIELD INSPECTION **OMR-CVP-66**

COUNTY: _____ PROJECT NO. _____

LOCATION/ STATION	DATE APPLIED	THICK (mils)	30 DAY RETRO		180 DAY RETRO		REMARKS
			DATE	READINGS*	DATE	READINGS*	

*Readings in mcd/lx-m^2 in accordance with ASTM E 1710

Glass bead rate = 14lb/100ft^2

Submittals:

Mat'l Certs Thermoplastic ☐ Beads ☐

Start-up Samples Thermoplastic ☐ Beads ☐

Acceptance ☐

Verification ☐

Material check formula for 5" wide line:
Thickness = 0.236 X (lbs. used)/(linear ft.)

Contractor _____

GDOT Representative:_____

Forward a copy to OMR, ATTN: Physical and Chemical Branch Chief

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF MATERIALS AND RESEARCH

THERMOPLASTIC SHIPPING REPORT

Statewide Contract #_____ Contractor Lot #_____

Manufactured By: _____ Location _____

Contractor _____ Date Shipped _____

Type						
Color						
Batch Number						
Quantity						
Date Manufactured						
CTT #						

I certify the material covered by this report was manufactured to comply with the Department of Transportation, State of Georgia Standard Specifications Section 653. I further certify that the material herein has been subjected to the required testing and inspection as evidenced by the above noted Certified Thermoplastic Technician (CTT) number stamped on all thermoplastic shipped. A copy of actual certification test data is attached and remains on file in our office.

_____
Inspector Signature

Subscribed and sworn to before me, this _____

day of _____, 20_____

_____
Notary Public