PROCEDURE FOR DETERMINING APPLICATION RATES, CALIBRATION AND INSPECTION FOR SOIL STABILIZATION PLANTS

GEOTECHNICAL CONTROL PROCEDURE
GCP-16
Revision #4

AUGUST 2015
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1. INTRODUCTION

This manual establishes a statewide procedure for the recommended application rate of additive(s), inspection and calibration of soil stabilization plants. Each stockpile of granular material used for a stabilized course must be evaluated by the Geotechnical Engineering Bureau for an application rate. A separate calibration must be done for each project, even though the same plant may have been calibrated previously for another project.

The Engineer-In-Charge (EIC) of the project is responsible for inspection and calibration of these plants. The EIC should document the initial inspection and calibration as well as subsequent inspections. Although this manual deals only with application rates, inspection and calibration of soil stabilization plants, the EIC should also be familiar with all the requirements of the Standard Specifications for the production of the item(s) in question.

2. BITUMINOUS STABILIZATION PLANTS

2.1 General Provisions

This section applies to the calibration and inspection of continuous twin shaft pugmill stabilization plants. For other stabilization plants, including traveling pugmills, refer to 4.1.2.B.

All granular materials used in calibration and mixing must be from stockpiles approved by the State. Only bituminous material for which a Certified Shipment Notice has been received by the EIC from the Contractor may be used in calibration and mixing.

2.2 Requirements for the Plant

The plant must meet all the equipment requirements of the Standard Specifications before calibration can begin. The following is a check list for the inspector:

a. The pugmill must have a positive displacement meter (totalization meter) for totaling the quantity of bituminous material introduced into the mixing chamber.

b. There must be a bypass valve between the totalization meter and the spray bar with the necessary attachments to check the accuracy of the totalization meter.

c. A clean 55 gal. (208 L) drum having one end completely open and a length of flexible hose to permit filling from the by pass valve on the bituminous line must be furnished by the Contractor.

d. The granular material bin hopper must have an adjustable gate or other acceptable means to control the flow of material to the pugmill.

e. The pugmill must have twin shafts with adjustable and reversible paddles. All paddles must be on the shaft and in satisfactory condition. Any missing or unsatisfactory paddles must be replaced before mixing.
f. The mixing chamber must be of such a length that the stabilized material is mixed for a distance of at least 4 ft. (1.2 m) beyond the point where the asphalt is applied to the granular material.

g. A discharge hopper with a capacity of at least 1 yd$^3$ (0.76 m$^3$) must be attached to the machine. The discharge hopper must have a mechanically or hydraulically operated gate to collect and discharge the mixed material.

h. The clearance between the ground and the gates on the bottom of the surge hopper must be sufficient during calibration to allow the passage of a ten wheel dump truck.

i. A ten wheel dump truck with a clean dump body and a struck capacity of at least 8 yd$^3$ (6 m$^3$) must be available for calibration.

3. APPLICATION RATES

3.1 Granular Material
All the requirements of the Standard Specifications shall apply. The granular material shall be stockpiled, sampled and tested for approval as stipulated in the appropriate departmental publication in effect at the date of advertisement. If the Contractor stockpiles the material by methods other than dump truck haul, he must have written approval from the Director of the Geotechnical Engineering Bureau. A minimum of one 45 lb. (20 kg) sample of the granular material from each stockpile must be submitted to the Geotechnical Engineering Bureau in order to determine an application rate. The sample(s) must be accompanied by the appropriate submission from stating Item No., type of bitumen to be used and for what purpose. The Geotechnical Engineering Bureau will require a minimum of fifteen (15) working days prior to the anticipated date of mixing to determine the application rate and respond to this request.

3.2 Bituminous Material
The Geotechnical Engineering Bureau will specify the initial application rate of Bituminous Material to be used. This application rate will be used to start the production of the Item.
4. CALIBRATION

4.1 Calibration of Plant

4.1.1 General
All calibrations will be performed by the Contractor under State supervision.

4.1.2 Calibration of Granular Material Feed
All calibration for determining granular material feed shall be done without use of bituminous material.

A. Stationary Plants

1. The plant operator shall set the adjustable gate on the granular material to the setting he plans to use. The inspector should note this setting since it should not be changed for any given calibration.

2. Measure the struck volume of the dump body of the ten wheel truck and subtract intrusions such as that for the ram hoist. The net volume should be at least \(8 \text{ yd}^3\) (6 \(m^3\)).

3. With the gates of the discharge hopper open and a full granular material bin, have the operator of the pugmill run the feed until the same amount of material is being discharged as that which is coming out of the material bin. To obtain a uniform discharge, the granular material discharging from the material bin should always fill the gate of the material bin.

4. Time the filling of the truck body to its measured height. This should be done by filling the truck almost full while keeping the discharge gates of the hopper open, and striking the load. Make sure to start timing when the material starts to discharge from the hopper and to stop timing when the truck is filled. Measure the height difference between the surface of the granular material and the level to which the volume of the truck was measured in step 4.1.2A.2. Compute and subtract the unfilled volume from the volume of the truck to obtain the volume of granular material.

5. Calculate the volume of material discharging in one minute. This is done by the use of formula:
US Customary Units:

\[
\frac{\text{Volume of granular material (yd}^3\text{)}}{\text{Time (Minutes)}} = \frac{\text{yd}^3}{\text{Minute}}
\]

International System of Units:

\[
\frac{\text{Volume of granular material (m}^3\text{)}}{\text{Time (Minutes)}} = \frac{\text{m}^3}{\text{Minute}}
\]

Note: Remember to convert seconds to decimal parts of a minute before using this formula.

The calibration of the granular material feed must be done a minimum of two times. The material used in the calibration may be dumped back into the granular material stockpile.

B. Other Soil Stabilization Plants

1. Calibration is the same as that under 4.1.2A.

2. For traveling pugmills, the calibration differs slightly from that of 4.1.2A. It is necessary to fill trucks with a known amount of granular material and time it thru the pugmill. All other procedures under 4.1.2A apply.

4.1.3 Calibration of the Totalization Meter

The totalization meter can be calibrated by volume or by weight. It is the Contractor's option.

A. By Volume

1. Calibrate in the following manner utilizing a clean 55 gal. (208 L) drum (with one end removed) to measure the amount of bituminous material passing through the meter. It will be necessary to take three (3) readings (40, 45 and 50 gal. (151, 170, and 189 L) increments) to determine the average in./gal. (mm/L).
Place the drum on a firm and level base. Use a carpenter’s level to make sure that the drum is level. Fill the drum with water by means of a known volume container until it contains 40 gal. (151 L) of water. Measure down from the top of the drum to the water level and record the distance. Pour another 5 gal. (19 L) of water into the drum and repeat the measurement. Calculate the in./gal. (mm/L) for each of the final three (3) 5 gal. (19 L) increments. Use this formula:

**US Customary Units:**

\[
\frac{\text{dist. between successive measurements (in)}}{5 \text{ gal.}} = \frac{\text{in}}{\text{gal}}
\]

**International System of Units:**

\[
\frac{\text{dist. between successive measurements (mm)}}{19 \text{ L}} = \frac{\text{mm}}{\text{L}}
\]

Empty the drum.

2. Proper calibration of the totalization meter requires that the pumps and the meter be warm. This can be accomplished while mixing two (2) truckloads of material which can be used to form the base area of the stabilized material stockpile or wasted.

3. Place the drum on a firm and level base near the pugmill. Use a carpenter’s level to make sure the drum is level. Run a hose from the bypass valve into the drum.

4. Take an initial reading on the totalization meter and open the bypass valve to allow the bituminous material to flow into the drum.

5. When the drum is filled within the 40 to 50 gal. (151 to 189 L) range, close the bypass valve, empty the hose into the drum if you started with an empty hose and remove the hose from the drum. Measure the depth to the surface of the bituminous material in the drum.
6. Using the number of in./gal. (mm/L) from 4.1.3A.1, calculate to the nearest gallon (Liter) the number of gallons (Liters) of bituminous material in the drum. If the gallons (Liters) in the drum are below 40 or exceed 50 gal. (151 or exceed 189 L), omit the test, empty the drum and repeat steps 4.1.3A.3 thru 4.1.3A.6.

7. Subtract the starting meter reading from the final meter reading to get the number of gallons (Liters) measured by the totalization meter.

8. Compare the number of gallons (Liters) measured by the totalization meter to the calculated volume of bituminous material in the drum.

9. Repeat steps 4.1.3A.3 thru 4.1.3A.8 until at least two (2) consistent sets of results are obtained consecutively.

10. Effects of bituminous material temperature on volume determinations are negligible.

B. By Weight

1. If the Contractor elects to calibrate the totalization meter by weight, he shall furnish a platform scale with a capacity of 1000 lbs. (450 kg) and a beam graduated in 1 lb. (0.2 kg) increments. The scale shall have been certified by a County or by the State within a year prior to the date of calibration.

2. The pumps and the meter must be warm. See Section 4.1.3A.2.

3. Place the platform scale on a level and solid area.

4. Place an empty 55 gal. (208 L) drum on the platform scale and weigh it.

5. Run a hose from the bypass valve into the drum.

6. Take an initial reading on the totalization meter and open the bypass valve to allow the bituminous material to flow into the drum.

7. When the drum is almost full, close the bypass valve and read the totalization meter. Subtract the starting reading from the final reading to get the number of gallons (Liters) measured by the totalization meter. Remember to empty the hose into the drum if you started with an empty hose.
8. Remove the hose from the drum and weight the drum and bituminous material. Make sure that the levers under the platform of the scale are not in contact with the ground.

9. Calculate the number of gallons (Liters) of bituminous material in the drum using the following formula:

**US Customary Units:**

\[
\frac{W_F - W_E}{8.3 \times SG} \text{ lbs. gal.} = \text{No.of gallons}
\]

**International System of Units:**

\[
\frac{W_F - W_E}{1.0 \times SG} \text{ kg L} = \text{No.of Liters}
\]

\[
W_F = \text{weight of the drum and bituminous material in lbs. (kg).}
\]

\[
W_E = \text{weight of the empty drum in lbs. (kg).}
\]

\[
SG = \text{specific gravity of bituminous material (from Certified Shipment Notice).}
\]

10. Compare the number of gallons (Liters) measured by the totalization meter to the calculated volume of bituminous material in the drum.

11. Repeat steps 4.1.3B.5 through 4.1.3B.10 until at least two (2) consistent sets of results are obtained consecutively.

C. Action if Totalization Meter is in Error

If the calibration procedure shows that the totalization meter is less than four (4) percent in error, the operation can continue with no revisions. If the totalization meter is four (4) to seven (7) percent in error, the recommended amount of bituminous material per yd³ (m³) should be revised by 1 gal. (4 L) (see examples below). If the totalization meter is in error by more than seven (7) percent, the totalization meter must be repaired or replaced and recalibrated before mixing operations are allowed to commence.
### Example 1

<table>
<thead>
<tr>
<th>Geotechnical Engineering Bureau recommended application rate of bituminous material</th>
<th>US Customary Units</th>
<th>International System of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 gal/yd³</td>
<td>90 L/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by calibrated drum</th>
<th>49 gal.</th>
<th>186 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by totalization meter</th>
<th>48 gal.</th>
<th>182 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Difference</th>
<th>1 gal.</th>
<th>4 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Difference</th>
<th>1/49 x 100 = 2%</th>
<th>4/186 x 100 = 2.2%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Totalization meter (&lt; 4%, 4% ≤ %Diff ≥ 7, or &lt; 7)</th>
<th>2% off &lt; 4%</th>
<th>2.2% off &lt; 4%</th>
</tr>
</thead>
</table>

Therefore the application rate is not revised.

### Example 2

<table>
<thead>
<tr>
<th>Geotechnical Engineering Bureau recommended application rate of bituminous material</th>
<th>US Customary Units</th>
<th>International System of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 gal/yd³</td>
<td>90 L/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by calibrated drum</th>
<th>44 gal.</th>
<th>167 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by totalization meter</th>
<th>47 gal.</th>
<th>178 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Difference</th>
<th>3 gal.</th>
<th>11 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Difference</th>
<th>3/44 x 100 = 6.8%</th>
<th>11/167 x 100 = 6.6%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Totalization meter (&lt; 4%, 4% ≤ %Diff ≥ 7, or &lt; 7)</th>
<th>4% ≤ 6.8% ≥ 7%</th>
<th>4% ≤ 6.6% ≥ 7%</th>
</tr>
</thead>
</table>

Totalization meter registers 6.8% (6.6%) more bituminous material than actually used. Therefore, use an application rate of 19 gal/yd³ (94 L/m³) as measured by the totalization meter.

### Example 3

<table>
<thead>
<tr>
<th>Geotechnical Engineering Bureau recommended application rate of bituminous material</th>
<th>US Customary Units</th>
<th>International System of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 gal/yd³</td>
<td>90 L/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by calibrated drum</th>
<th>50 gal.</th>
<th>175 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Volume of bituminous material by totalization meter</th>
<th>48 gal.</th>
<th>168 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Difference</th>
<th>2 gal.</th>
<th>7 L</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>% Difference</th>
<th>2/50 x 100 = 4.0%</th>
<th>7/175 x 100 = 4.0%</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Totalization meter (&lt; 4%, 4% ≤ %Diff ≥ 7, or &lt; 7)</th>
<th>4% ≤ 4.0% ≥ 7%</th>
<th>4% ≤ 4.0% ≥ 7%</th>
</tr>
</thead>
</table>

Totalization meter registers 4.0% (4.0%) less bituminous material than actually used. Therefore, use an application rate of 17 gal/yd³ (86 L/m³) as measured by the totalization meter.
### Example 4

<table>
<thead>
<tr>
<th>Description</th>
<th>US Customary Units</th>
<th>International System of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geotechnical Engineering Bureau recommended application rate of bituminous material</td>
<td>17 gal/yd³</td>
<td>84 L/m³</td>
</tr>
<tr>
<td>Volume of bituminous material by calibrated drum</td>
<td>50 gal.</td>
<td>189 L</td>
</tr>
<tr>
<td>Volume of bituminous material by totalization meter</td>
<td>46 gal.</td>
<td>174 L</td>
</tr>
<tr>
<td>Difference</td>
<td>4 gal.</td>
<td>15 L</td>
</tr>
<tr>
<td>% Difference</td>
<td>4/50 x 100 = 8.0%</td>
<td>15/189 x 100 = 7.9%</td>
</tr>
<tr>
<td>Totalization meter (≤ 4%, 4% ≤ %Diff ≥ 7, or &lt; 7)</td>
<td>8.0% off &gt; 7%</td>
<td>7.9% off &gt; 7%</td>
</tr>
</tbody>
</table>

Totalization meter is more than 7% in error. Therefore, it must be repaired or replaced.

Once the pugmill is calibrated, any changes affecting either the granular material feed or bituminous material totalizing meter will result in having to recalibrate the pugmill.
5. **INSPECTION**

5.1 **Checking the Mix**

A. Calculate the required amount of bituminous material per minute by multiplying the yd³/min. (m³/min) of granular material (from 4.1.2A.5 above) by the recommended application rate of bituminous material in gal/yd³ (L/m³) as determined by the Geotechnical Engineering Bureau. The recommended application rate in accordance with 4.1.3C if the totalization meter is four (4) to seven (7) percent off.

B. Have the operator open the bituminous material valve to the required amount of bituminous material per minute. Have the operator run the plant feed for at least four (4) minutes as it takes this long to stabilize the flow of bituminous material.

C. When the operator states that the flow has stabilized (after the plant has been running for at least four (4) minutes) without stopping the plant, read the totalization meter, and at the same time instant, start timing.

After exactly one (1) minute has passed, read the totalization meter again. The difference between the initial and the final readings is the amount of bituminous material applied in gal/min. (L/min). This amount must be within 1 gal. (4 L) of the required amount as computed in 5.1A. If not, the operator must adjust the asphalt valve accordingly.

D. The recommended application rate is only a starting point. It may be necessary to raise or lower this rate after visually inspecting the mix. Check the appearance of the mix. It should have "life", that is, you should see movement of the grains. The specifications require that the mixing in the pugmill "shall continue for a length of time necessary to uniformly coat the particles and to obtain a homogeneous mixture." However, it should be expected that the larger stone will not be fully coated. If balling of the fines is observed in the mixture, it means that the granular material is too dry at the time that the bituminous material is added. This condition can be remedied by the addition of water through the pugmill. It usually does not take much water to rectify this condition. In those cases where the granular material is too dry, the Contractor is required to provide a water pump with a meter and to add water (within the specification range) to the granular material before mixing it with the bituminous material. The Contractor is not required to have the pump and meter permanently attached to the machine.
5.2 **Plant Inspection During Production**

The following is a list of particulars to be checked routinely by the EIC during production:

a. Check the totalization meter in accordance with Section 5.1.C.

b. Check to see that the gate setting on the granular material bin has not changed.

c. Check that the discharge gate from the granular material bin is full. If the plant is permitted to run with the gate not full of granular material, the result will be an overly rich mixture that will have to be wasted.

The EIC should also sample the bituminous material in accordance with the appropriate Materials Method for Sampling Bituminous Materials.
APPENDIX
Figure 1  Schematic View of Bituminous Stabilization Plant

* The dimension, H, should be sufficient to permit spotting a ten wheel dump truck under the discharge hopper.
Figure 2   Typical Pugmill and Discharge Hopper
(Courtesy of Barber-Green Co.)
Figure 3  Top View of Typical Pugmill  
(Courtesy of Barber-Green Co.)
FROM: Robert A. Burnett, Director, Geotechnical Engineering Bureau, Mail Pod 31

TO:

This Bureau has tested and evaluated sample(s) of granular material which will be used for production of Item BITUMINOUS STABILIZED COURSE on the above project. The results of testing, as well as the recommended quantity and type of Bituminous Material, are listed herewith.

Region Sample Number:

Source of Sample:

U.S.G.S. Quad Location:

Region/G.E.B. Lab No.: Approved Stockpile No.:

Compacted Density – lbs./ft. 3:

Bituminous Material Designation: Grade:

Recommended Application (Loose Basis): gal./yd 3

REMARKS:
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
PROJECT INSPECTION REPORT
BITUMINOUS STABILIZED COURSE

Date of Project Visit ___________________

To: Director, Geotechnical Engineering Bureau

Attn: _________________________________________________

From: ________________________________________________

Name __________________________ Title____________________

Project _________________________________ Region ____________ County ___________

Contract No. _______________ P.I.N. _______________ Item _________________

Project Engineer________________________ Contractor _______________________

Gravel Source __________________ Stockpile No. ____________ Amount ___________yd³

Moisture Content at the Time of Mixing ____________________%

Asphalt Item Used in Mix __________________________

Recommended Application _____________________ gal./yd³ (Loose)

Amount of Asphalt Applied ________________________ gal./yd³ (Loose)

Temperature of Asphalt in Tanker EF ________________

Manufacturer of Pugmill:_______________________Model or Serial No. _______________

Continuous _________ or Batch Type ________________ Twin Shift: Yes _______No _______

Length of Mixing Area Beyond Point of Bituminous Application: ______________________ ft.

Surge Hopper Capacity____________________yd³ or Dimensions: L _______ W _______ H _______

Bituminous Material Totalizing Meter: Yes___________________No _____________________

Prime Distributor of Asphalt ________________________

City _______________________________ Lot No.________________________

Width of Shoulders ______________________ Layer Thickness _______________________in.

Preliminary Curing Time____________________Roller Used __________________________

Location of Mixed Sample _______________________________________________________

Observations and Comments: _____________________________________________________

______________________________________________________________________________

______________________________________________________________________________
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
BITUMINOUS PUGMILL CALIBRATION FORM

Date ______________

To: Director, Geotechnical Engineering Bureau
Attn: ________________________________
From: ____________________________________
Project ______________________________ Region No._______ County ______________
P.I.N. ___________ Contract No. ____________ Project Engineer ______________
Serial No. of Meter/Pugmill ____________ Pugmill Owner ______________

VOLUME OF GRAVEL

<table>
<thead>
<tr>
<th>Truck No.</th>
<th>Volume of Truck (a)</th>
<th>(b)</th>
<th>(c)</th>
<th>yd³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Loading Time (a) Min. _____ Sec. _____ (b) Min. _____ Sec._____ (c) Min. _____ Sec. _____
Average No. of yd³/min. ____________

METER CALIBRATION BY VOLUME

Water: 40 gal._________ in.; 45 gal._________ in.; 50 gal._________ in.
in./gal. __________________________

<table>
<thead>
<tr>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Final Meter Reading
Beginning Meter Reading
Gallons Delivered by Meter
in. from Top of Drum to Asphalt Surf.
Gallons of Asphalt in Drum (actual)
Percent Error *

METER CALIBRATION BY WEIGHT

Specific Gravity of Asphalt ____________

<table>
<thead>
<tr>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Final Meter Reading
Beginning Meter Reading
Gallons Delivered by Meter
Weight of Drum and Asphalt
Tare Weight of Empty Drum
Weight of Asphalt
Gallons of Asphalt (actual) (wgt./sp.gr.)
Percent Error *

* Percent Error = Difference between delivered and actual gallons divided by actual gallons.

Remarks: _____________________________________________________________________
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
DOCUMENTATION FORM FOR BITUMINOUS STABILIZED COURSE
RECOMMENDED APPLICATION RATE

PROJECT LOCATION:
Project ____________________________________________________________
Region No.__________ County _______________ Regional Sample No. __________
P.I.N. _________________ Contract No. ________________ Item No. ____________

SAMPLE INFORMATION:
Stockpile No. ______________ Tested by: G.E.B.___________________ or Region ______
G.E.B. or Regional Designation Number ______________________________________
Stockpile Location _________________________________________________________
Source of Material _________________________________________________________
Address __________________________ Township_________________ County __________
U.S.G.S. Quad Location __________________________ Sampled By ________________
Date Sampled ______________

BITUMINOUS MATERIAL:
Item No. ______________ Grade __________ Material Designation ______________
Anticipated date that mixing will start _________________________________________

ADDITIONAL REMARKS:
________________________________________________________________________
________________________________________________________________________
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1 Copy in Sample Bag
Mail Copy to Director, G.E.B.
1 Copy to File
DATE:

PROJECT:

FROM: Robert A. Burnett, Director, Geotechnical Engineering Bureau, Mail Pod 31
By:

TO:

This Bureau has tested and evaluated sample(s) of granular material which will be used for production of Item BITUMINOUS STABILIZED COURSE on the above project. The results of testing, as well as the recommended quantity and type of Bituminous Material, are listed herewith.

Region Sample Number:

Source of Sample:

U.S.G.S. Quad Location:

Region/G.E.B. Lab No.: Approved Stockpile No.:

Compacted Density - kg/m³:

Bituminous Material Designation: Grade:

Recommended Application (Loose Basis): L/m³

REMARKS:
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
PROJECT INSPECTION REPORT
BITUMINOUS STABILIZED COURSE

Date of Project Visit ___________________

To: Director, Geotechnical Engineering Bureau

Attn: _________________________________________________

From: ________________________________________________

Name ______________________ Title ______________________

Project ______________________________ Region ____________ County ___________

Contract No. __________________ P.I.N. __________________ Item __________________

Project Engineer ______________________ Contractor ______________________

Gravel Source __________________ Stockpile No. ____________ Amount _____________ m^3

Moisture Content at the Time of Mixing ______________ %

Asphalt Item Used in Mix __________________________

Recommended Application ________________________ L/m^3 (Loose)

Amount of Asphalt Applied ________________________ L/m^3 (Loose)

Temperature of Asphalt in Tanker EC ___________

Manufacturer of Pugmill:_______________________ Model or Serial No. _____________

Continuous _______ or Batch Type _____________ Twin Shift: Yes _______ No _______

Length of Mixing Area Beyond Point of Bituminous Application: ____________________ m

Surge Hopper Capacity _____________ m^3 or Dimensions: L _______ W _______ H _______

Bituminous Material Totalizing Meter: Yes___________________ No ___________________

Prime Distributor of Asphalt __________________________________________

City ______________________________ Lot No.________________________

Width of Shoulders ______________________ Layer Thickness ____________________ mm

Preliminary Curing Time__________________________ Roller Used ________________

Location of Mix __________________________________________________________________

Observations and Comments: _____________________________________________________

_____________________________________________________________________________
NEW YORK STATE DEPARTMENT OF TRANSPORTATION  
GEOTECHNICAL ENGINEERING BUREAU  
BITUMINOUS PUGMILL CALIBRATION FORM  

Date ______________

To: Director, Geotechnical Engineering Bureau  
Attn: ___________________________________

From: ___________________________________

Project ______________________________ Region No._______ County _________________

P.I.N. _______________ Contract No. _______________ Project Engineer ________________

Serial No. of Meter/Pugmill ______________ Pugmill Owner __________________

VOLUME OF GRAVEL

Truck No. _____________ Volume of Truck (a) _________ (b) _________ (c)________ m³

Loading Time (a) Min. _____ Sec. _____ (b) Min. _____ Sec.______ (c) Min._____ Sec. ______

Average No. of m³/min. __________

METER CALIBRATION BY VOLUME

Water: 151L _________ mm;  170 L _________ mm;  189 L _________ mm

mm/L _________________________

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<tr>
<th>Test</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Final Meter Reading</td>
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<tr>
<td>Beginning Meter Reading</td>
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<tr>
<td>Liters Delivered by Meter</td>
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<tr>
<td>mm from Top of Drum to Asphalt Surf.</td>
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<tr>
<td>Liters of Asphalt in Drum (actual)</td>
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<tr>
<td>Percent Error *</td>
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METER CALIBRATION BY WEIGHT

Specific Gravity of Asphalt ____________

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<tbody>
<tr>
<td>Final Meter Reading</td>
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<tr>
<td>Beginning Meter Reading</td>
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<tr>
<td>Liters Delivered by Meter</td>
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<td>Weight of Drum and Asphalt</td>
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<td>Tare Weight of Empty Drum</td>
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<tr>
<td>Weight of Asphalt</td>
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<tr>
<td>Liters of Asphalt (actual) (wgt./sp.gr.)</td>
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<tr>
<td>Percent Error *</td>
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* Percent Error = Difference between delivered and actual Liters divided by actual Liters.

Remarks: _____________________________________________________________________
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING BUREAU
DOCUMENTATION FORM FOR BITUMINOUS STABILIZED COURSE
RECOMMENDED APPLICATION RATE

PROJECT LOCATION:
Project________________________________________________________________________
Region No.__________ County ________________ Regional Sample No. ________________
P.I.N. _________________ Contract No. ________________ Item No. ________________

SAMPLE INFORMATION:
Stockpile No. _______________ Tested by: G.E.B.___________________or Region _________
G.E.B. or Regional Designation Number ____________________________________________
Stockpile Location ______________________________________________________________
Source of Material ______________________________________________________________
Address __________________________Township_________________ County ________________
U.S.G.S. Quad Location ___________________________ Sampled By ______________
Date Sampled ______________

BITUMINOUS MATERIAL:
Item No. _________________Grade __________ Material Designation _________________
Anticipated date that mixing will start ____________________________________________

ADDITIONAL REMARKS:
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

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