

**North Carolina Department of Transportation
Division of Highways
Field and A.A.S.H.T.O. Density Determinations**

M&T Form 504 M
Rev. 10/2014

Contract: _____ County: _____ Date: _____ Test No: _____

Test Location & Type _____
 (Sta; Lane) (Rdwy. or Shldr.) (Embank., Subg., or Base)

 (Dist. from C/L; Rt or Lt) (Dist. below Subg. Elev.)

Random Test Site Location Calculations					
Begin Sta.:		Ending Sta.:		Length:	
Random No.		Random (Calculations)		Test Site Location	
Length	Width	Random No. x Length	Random no. x Width	Station	Offset

Road Density Determination

Volumetric Test (short test only)

Volume of Hole: 2nd Reading: _____ Empty Mold & Collar: _____
 1st Reading: _____ Mold w/Soil: _____
 (In-Place Vol.) Difference: _____ cm³ Compacted Vol. of Soil: _____ cm³
 Volume = _____ (cm³) = _____ m³
 Wet Density: $\frac{\text{Wet Wt. Soil (kg)}}{\text{Volume (m}^3\text{)}} = \text{_____ kg. /m}^3$

% Moisture: $\left[\frac{\text{Wt. Wet Soil (g)} - \text{Wt. Dry Soil (g)}}{\text{Wt. Dry Soil (g)}} \right] \times 100 = \text{_____} = \text{_____ \% (moisture)}$
 Wt. Water (g) _____
 Dry Density: $\left[\frac{\text{Wet Density}}{100 \times \% \text{ moisture}} \right] \times 100 = \text{_____ kg. /m}^3$ (Dry Road Density)

A.A.S.H.T.O. Density Determination

Wet Density: $\frac{\text{Wet Wt. Soil (kg)}}{\text{Mold Volume (m}^3\text{)}} = \text{_____ kg. /m}^3$
 % Moisture: $\left[\frac{\text{Wt. Wet Soil (g)} - \text{Wt. Dry Soil (g)}}{\text{Wt. Dry Soil (g)}} \right] \times 100 = \text{_____} = \text{_____ \% (moisture)}$
 Wt. Water (g) _____
 Dry Density: $\left[\frac{\text{Wet Density}}{100 \times \% \text{ moisture}} \right] \times 100 = \text{_____ kg. /m}^3$ (Dry AASHTO Density)

Percent Compaction

Volume Conversions: $\left[\frac{\text{(Compacted Vol. of Soil) Dry Road Density}}{\text{Dry A.A.S.H.T.O. Density (In-Place Vol.)}} \right] \times 100 = \text{_____ \%}$
 1/30 ft³ mold = 0.000944 m³
 3/40 ft³ mold = 0.002124 m³
 18" Ring = 0.169474015 m³ / m³ / 1,000,000 = m³

*Print Name Legibly w/HiCAMS No.: _____

Signatures { *Certified Technician: _____
 Resident Engineer: _____

*By providing this data under my signature and/or HiCAMS certification number, I attest to the accuracy and validity of the data contained on this form and certify that no deliberate misrepresentation of test results, in any manner, has occurred.