

## North Carolina Department of Transportation/Division of Highways-Materials and Tests Unit Field And A.A.S.H.T.O. Density Determinations

Date: \_\_\_\_\_  
 Project: \_\_\_\_\_ County: \_\_\_\_\_ Test #: \_\_\_\_\_

Test Location and Type:

(Sta; Lane;)	(Rdwy. or Shldr.)	(Embank., Subg., or Base)
(Dist. from C/L; Rt. or Lt.)	(Dist. Below Subg. Elev.)	

### ROAD DENSITY DETERMINATION

Volume of Hole:

2 <sup>nd</sup> Reading _____	Empty Mold & Collar _____
1 <sup>st</sup> Reading _____	Mold w/Soil _____
Difference _____ cm <sup>3</sup>	Compacted Vol. of Soil _____ cm <sup>3</sup>
Volume = _____ (cm <sup>3</sup> ) = _____ m <sup>3</sup>	

1,000,000

### VOLUMETRIC TEST

% Moisture:

Wt. Wet Soil (g) _____	{	$\frac{\text{Wt. Water (g)}}{\text{Wt. Dry Soil (g)}}$	}	100 _____ = _____ %
Wt. Dry Soil (g) _____				
Wt. Water (g) _____				

Wet Density:

Wet Wt. Soil (kg) _____	=	_____	=	_____ kg/m <sup>3</sup>
Volume (m <sup>3</sup> ) _____				

Dry Density:

{	$\frac{\text{Wet Density}}{100 + \% \text{ Moisture}}$	}	100 _____ = _____ kg/m <sup>3</sup>
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### A.A.S.H.T.O. DENSITY DETERMINATION

% Moisture:

Wt. Wet Soil (g) _____	{	$\frac{\text{Wt. Water (g)}}{\text{Wt. Dry Soil (g)}}$	}	100 _____ = _____ %
Wt. Dry Soil (g) _____				
Wt. Water (g) _____				

Wet Density:

Wet Wt. Soil (kg) _____	=	_____	=	_____ kg/m <sup>3</sup>
Volume (m <sup>3</sup> ) _____				

Dry Density:

{	$\frac{\text{Wet Density}}{100 + \% \text{ Moisture}}$	}	100 _____ = _____ kg/m <sup>3</sup>
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### PERCENT COMPACTION

{	$\frac{\text{Dry Road Density}}{\text{Dry A.A.S.H.T.O. Density (In-Place Vol.)}}$	}	100 _____ = _____ %
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Volume of 1/30 ft<sup>3</sup> mold = .000944 m<sup>3</sup>  
 Volume of 3/40 ft<sup>3</sup> mold = .002124 m<sup>3</sup>  
 Volume of 18" ring = depth (m) x .169474015 (m<sup>3</sup>/m)  
 cm<sup>3</sup> + 1,000,000 = m<sup>3</sup>

Signature: \_\_\_\_\_  
 Inspector: \_\_\_\_\_ Resident Engineer: \_\_\_\_\_