

# MOISTURE AND DENSITY DETERMINATION

## NUCLEAR METHOD

**DISTRIBUTION:** ORIGINAL – Construction Engineer, COPIES – Area Density Specialist, Density Technology Unit (Lansing).

\* SEE REVERSE SIDE

DATE	CONTROL SECTION ID	JOB NUMBER	ROUTE NO. or STREET	GAUGE NO.	
DENSITY INSPECTOR		CERTIFICATION NO.	DENSITY INSPECTOR PHONE NO.	CONSTRUCTION ENG. (MDOT)	ASST. CON.ENG. / CONSULTANT ENG.

TEST			DETERMINATION OF IN-PLACE DENSITY								LOCATION OF TEST				
ORIGINAL	RECHECK	TEST DEPTH inch	COUNTS (MC)	COUNTS (DC)	DRY DENSITY PCF	WET DENSITY PCF	MOIS- TURE PCF	MOIS- TURE %	MAX DENSITY PCF	PERCENT OF COM- PACTION	STATION	DISTANCE FROM CL ft		DEPTH BELOW PLAN GRADE ft	ITEM OF WORK *
												LEFT	RIGHT		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

TEST NO.	MOIS- TURE %	VOLUME OF MOLD CU. FT.	DETERMINATION OF MAXIMUM DENSITY (SOIL & HMA)							OPTIMUM MOISTURE %	NOTE: To convert (g) to (lbs): Wt. (g) ÷ 453.59 = Wt. (lbs)	
			WET SOIL + MOLD g	MOLD g	WET SOIL g	WET SOIL lbs	COMPACTED SOIL WET PCF	MAX DENSITY PCF				
A	B	C	D	E	F	G	H	I	J			

CHART STANDARDS	
DENSITY	MOISTURE
OPERATING STANDARDS	
DENSITY	MOISTURE

REMARKS

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20/10 Weights	1st	2nd	DENSITY INSPECTOR'S SIGNATURE	AGENCY / COMPANY
3rd	4th	5th		

# DENSITY REQUIREMENTS

	MINIMUM % OF COMPACTION	ITEM OF WORK	DEPTH
<b>Original Ground</b>			
Road Embankment Areas (if specified on the plans) .....	90.0	OG	9"
Bridges – as shown on the plans .....	95.0	OG	9"
<b>Cut Areas</b>			
Cuts requiring Sand Subbase .....	95.0	CS	9"
Cuts not requiring Sand Subbase .....	95.0	CN	12"
Subgrade for HMA Base, Aggregate Base and Concrete Widening .....	95.0	SG	9"
<b>Embankments</b>			
Regular .....	95.0	E	
Abutments with Piling .....	95.0	AP	
Abutments without Piling – within the limits for Structure Embankment as shown on the plans .....	100.0	AN	
<b>Backfill</b>			
Foundation Undercut Backfill for Retaining Walls, Grade Separation or Bridges .....	100.0	FB	
Backfill for Bridges, Culverts, Sewers, Water Main, Manholes, Catch Basins, Edge Drains and Subgrade Undercuts .....	95.0	B	
<b>Pavement Structure</b>			
Subbase .....	95.0	S	
Subbase for Slope Paving .....	90.0	SP	
Aggregate Base-used under Concrete Pavement .....	95.0	SS	
Aggregate Base-used under HMA Pavement .....	98.0	AB	
OGDC – used under Concrete and HMA Pavement .....	95.0	OGDC	
OGDC – used under Concrete and HMA Pavement (recycled material) .....	95.0	OGR	
HMA Aggregate Base (pulverized HMA used as Aggregate Base) .....	98.0	BAB	
Aggregate Base – used under Concrete Pavement (recycled material) .....	95.0	CAC	
Aggregate Base – used under HMA Pavement (recycled material) .....	98.0	CAB	
OGDC – Sleeper slab footprint and approach area .....	95.0	SLO	
OGDC – Sleeper slab footprint and approach area (recycled material) .....	95.0	SLOR	
Aggregate Base – Sleeper slab footprint and approach area .....	98.0	SLA	
Trenching – under concrete pavement .....	95.0	TC	
Trenching – under HMA pavement .....	98.0	TB	
Shoulders – Class I .....	98.0	SAA	
Shoulders – Class II and III .....	95.0	SA	
HMA Stabilization .....	98.0	BS	
HMA Paving – Base Course .....	92.0*	BB	
HMA Paving – Leveling Course .....	92.0*	BL	
HMA Paving – Top Course .....	92.0*	BT	

See JMF (form 1911) for  $G_{mm}$  value for target density value.  $TMD = G_{mm} \times 62.4$

\*Minimum % compaction of JMF TMD