SOIL & AGGREGATE COMPACTION INSPECTOR WORK-SHOP

PROBLEMS

WORKSHOP NUMBER ONE

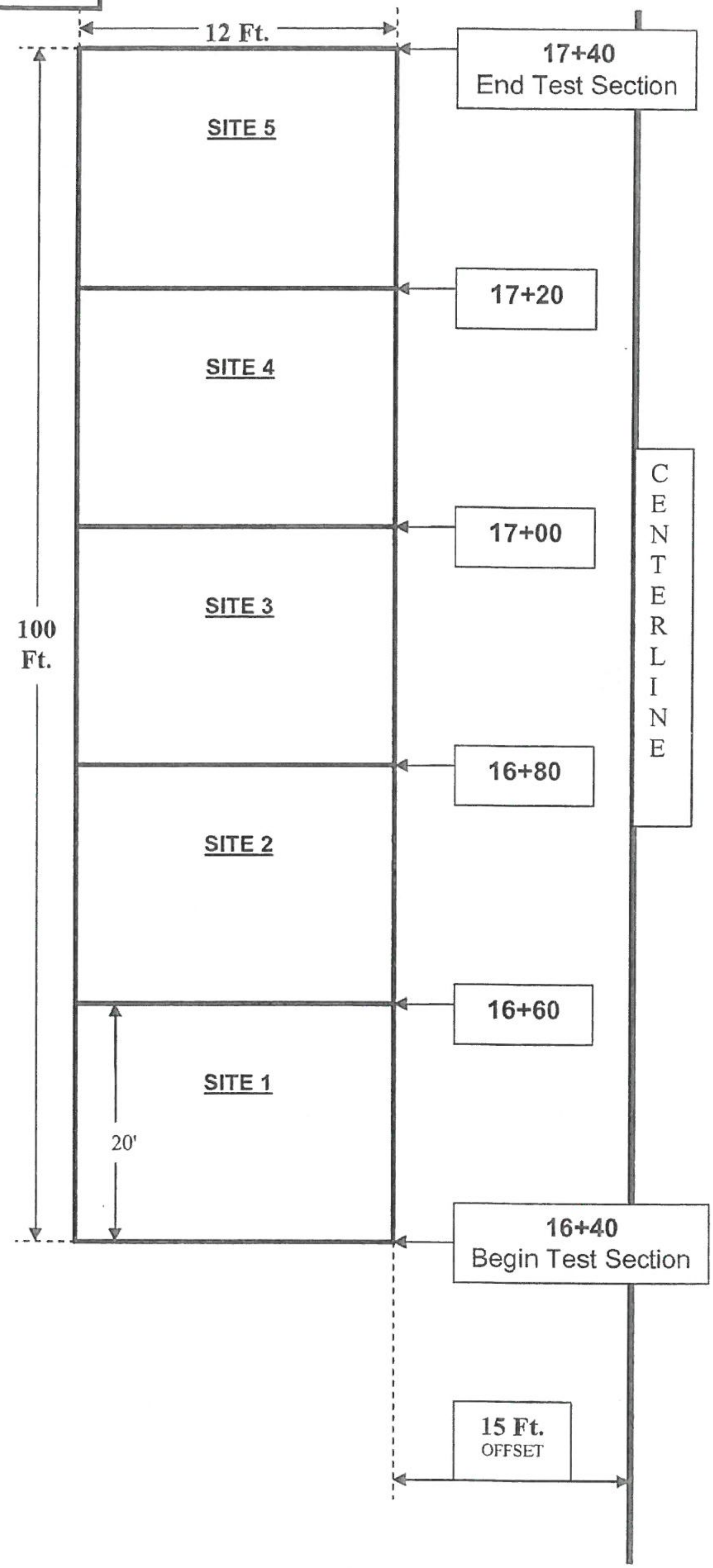
Random Numbers & Roller Pass Test Section

Roller Pass Test Section
Item 307-1

EXAMPLE # 1

RANDOM NUMBERS

1).	.065	.627
2).	.200	.055
3).	.217	.882
4).	.237	.146
5).	.815	.570



West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number	**8110912**
Auth. Number	**SM8888C**
Project Number	**S 310-8-19.22**
District Number	**9**
Item Number	**307-1**
Date	**Today's**

EXAMPLE #2
FORM T-313
MP 700.00.24
REV. 08-08

Source of Material: **Lewisburg**		Length of Test Section:	**100'**
Roller Type: **Vibratory**		Width of Test Section:	**12'**
Roller Weight	Static: **9.0 Ton** / Working: **15.0 Ton**	Gauge Number	**28225**
Lift Thickness Compacted: **6"**		Manufacturer's Standards	
Depth Below Grade: **0**		Density: **2865**	Moisture: **678**
Depth of Gauge Source: **6"**		Standard Counts	
Observed	Yes **X** / No	Density: **2857**	Moisture: **670**

Test Site Number	1	2	3	4	5
Station Number	**16+41**	**16+64**	**16+84**	**17+05**	**17+36**
Offset	**23' LT CL**	**16' LT CL**	**26' LT CL**	**17' LT CL**	**22' LT CL**

A	Number of Passes		**12**
	Test Site	DA	Dry Density
	1	**127**	
	2	**128**	
DB	Average		

B	Number of Passes		**14**
	Test Site	DA	Dry Density
	1	**133**	
	2	**135**	
DB	Average		

C	Number of Passes		**16**
	Test Site	DA	Dry Density
	1	**135**	
	2	**136**	
DB	Average		

D	Number of Passes		**18**
	Test Site	DA	Dry Density
	1	**136**	
	2	**137**	
DB	Average		

DB = $\sum DA / 2$

DC = $\sum DA / 5$

Maximum Denisty Determination		
Test Site	DA	Dry Density
1	**136**	
2	**137**	
3	**138**	
4	**137**	
5	**136**	
DC	**Max. Density**	

Inspector's Name: ____________________
Inspector's Signature: ____________________

Project's Evaluation

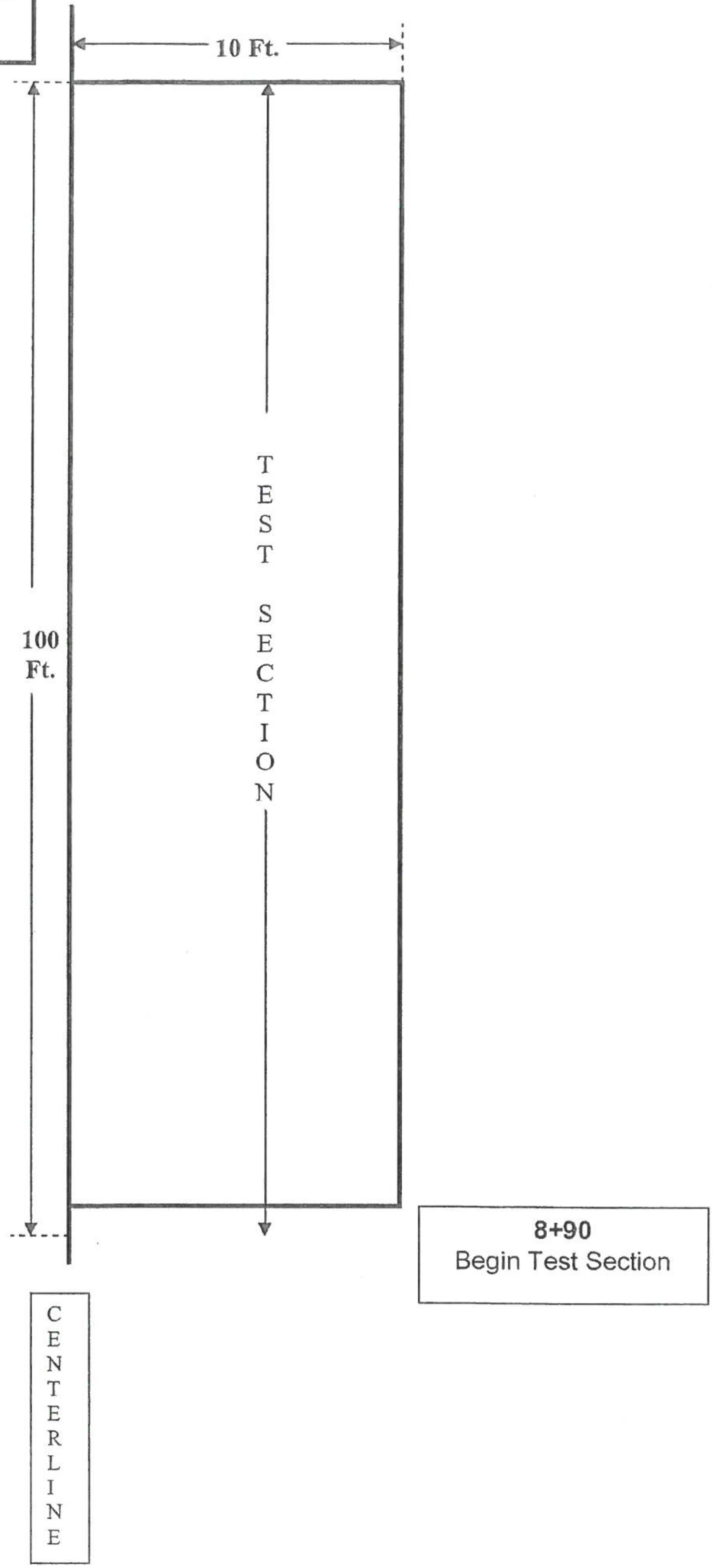
Checked By: ____________________
Date: ____________________

Roller Pass Test Section
Item 307-1

PROBLEM # 1

RANDOM NUMBERS

1).	.195	.887
2).	.902	.850
3).	.275	.023
4).	.794	.850
5).	.043	.293



PROBLEM # 2

MP 700.00.24

Item Number 307 - 1

Roller Pass Test Section T-313

Lab Number:	7112182			
Authorization Number:	FC2121C			
Project Number	RS-0162 (054)			
District Number:	4			
Item Number:	307-1			
Date	Today's			
Source of Material	Clarksburg			
Roller Type	Vibratory			
Roller Weight Static	10 Ton	Working	18.5 Ton	
Lifth Thickness Compacted:	6"			
Depth Below Grade	0			
Depth of Gauge Source	6"			
Length of Test Section	100'			
Width of Test Section	10'			
Gauge Number	11172			
Manufacturer's Standards	Density	2891	Moisture	627
Standards Counts	Density	2872	Moisture	624

Test Site Number	1	2	3	4	5
Station Number	8+94	9+28	9+36	9+66	9+71
Offset	9' RT CL	8' RT CL	CL	8' RT CL	3' RT CL

DRY DENSITY PCF

Number of Passes		12	14	16	18	
Test Site Number	1	133	136	137	138	
Test Site Number	2	134	136	138	138	
Test Site Number	3				137	
Test Site Number	4				139	
Test Site Number	5				138	

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number ____________
Auth. Number ____________
Project Number ____________
District Number ____________
Item Number ____________
Date ____________

PROBLEM #2
FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

B	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
Test Site		DA	Dry Density
1			
2			
3			
4			
5			
DC	**Max. Density**		

Inspector's Name: ____________
Inspector's Signature: ____________

Project's Evaluation

Checked By: ____________
Date: ____________

ANSWERS

Workshop
Number One

Roller Pass Test Section
Item 307-1

EXAMPLE # 1 ANSWERS

RANDOM NUMBERS

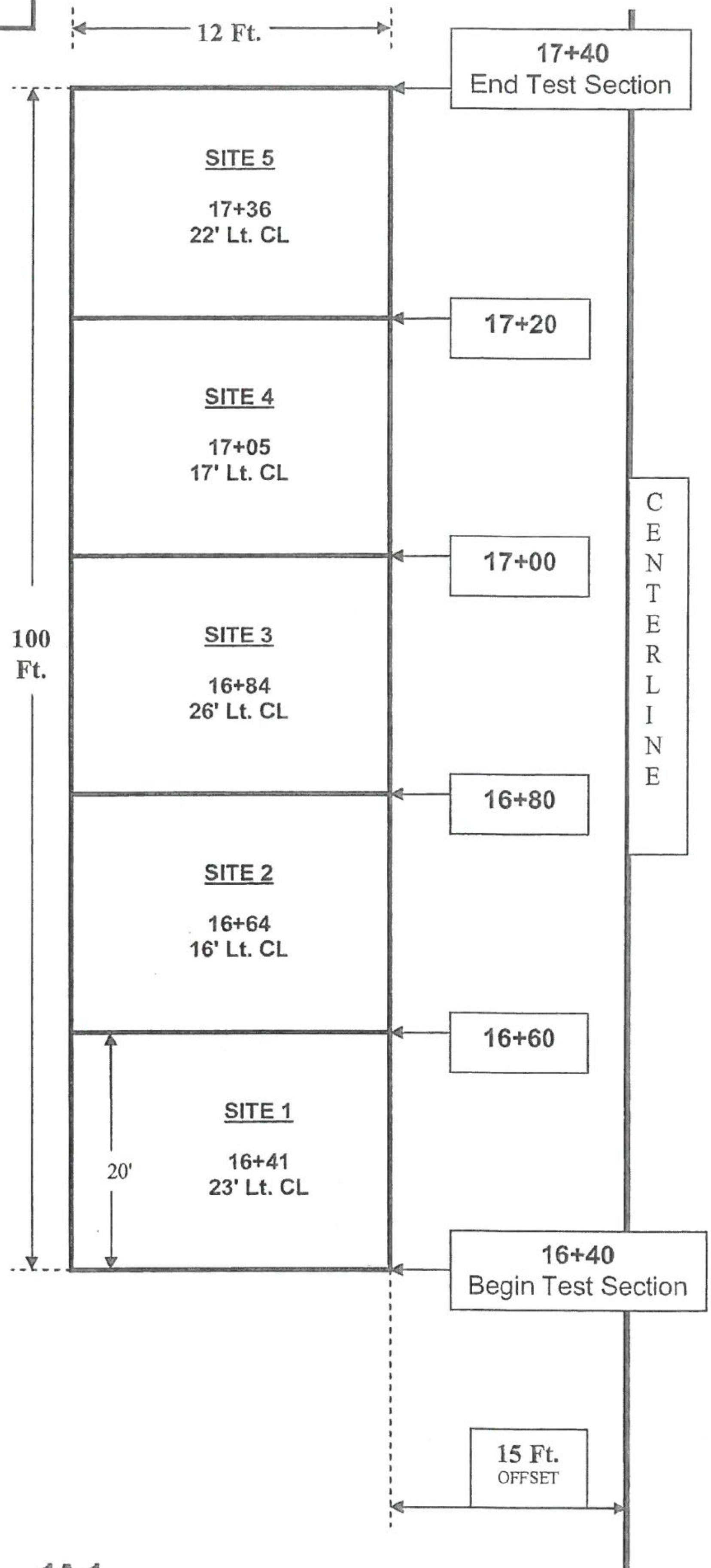
1).	.065	.627
2).	.200	.055
3).	.217	.882
4).	.237	.146
5).	.815	.570

Length

1. .065 X 20 = 1
   16+40 + 1 = **16+41**
2. .200 X 20 = 4
   16+60 + 4 = **16+64**
3. .217 X 20 = 4
   16+80 + 4 = **16+84**
4. .237 X 20 = 5
   17+00 + 5 = **17+05**
5. .815 X 20 = 16
   17+20 + 16 = **17+36**

Width

1. .627 X 12 = 8
   8 + 15 = **23' Lt. CL**
2. .055 X 12 = 1
   1 + 15 = **16' Lt. CL**
3. .882 X 12 = 11
   11 + 15 = **26' Lt. CL**
4. .146 X 12 = 2
   2 + 15 = **17' Lt. CL**
5. .570 X 12 = 7
   7 + 15 = **22' Lt. CL**



West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number	**8110912**
Auth. Number	**SM8888C**
Project Number	**S 310-8-19.22**
District Number	**9**
Item Number	**307-1**
Date	**Today's**

EXAMPLE #2 ANSWERS
FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:	**Lewisburg**		
Roller Type:	**Vibratory**		
Roller Weight	Static: **9.0 Ton**	Working: **15.0 Ton**	
Lift Thickness Compacted:	**6"**		
Depth Below Grade:	**0**		
Depth of Gauge Source:	**6"**		
Observed	Yes **X**	No	

Length of Test Section:	**100'**		
Width of Test Section:	**12'**		
Gauge Number	**28225**		
Manufacturer's Standards			
Density:	**2865**	Moisture:	**678**
Standard Counts			
Density:	**2857**	Moisture:	**670**

Test Site Number	1	2	3	4	5
Station Number	**16+41**	**16+64**	**16+84**	**17+05**	**17+36**
Offset	**23' LT CL**	**16' LT CL**	**26' LT CL**	**17' LT CL**	**22' LT CL**

A	Number of Passes	**12**
	Test Site	DA Dry Density
	1	**127**
	2	**128**
DB	Average	**128**

B	Number of Passes	**14**
	Test Site	DA Dry Density
	1	**133**
	2	**135**
DB	Average	**134**

C	Number of Passes	**16**
	Test Site	DA Dry Density
	1	**135**
	2	**136**
DB	Average	**136**

D	Number of Passes	**18**
	Test Site	DA Dry Density
	1	**136**
	2	**137**
DB	Average	**137**

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site		DA Dry Density
1		**136**
2		**137**
3		**138**
4		**137**
5		**136**
DC	**Max. Density**	**137**

Inspector's Name: __________

Inspector's Signature: __________

Project's Evaluation

Checked By: __________

Date: __________

Roller Pass Test Section
Item 307-1

PROBLEM # 1 ANSWERS

RANDOM NUMBERS

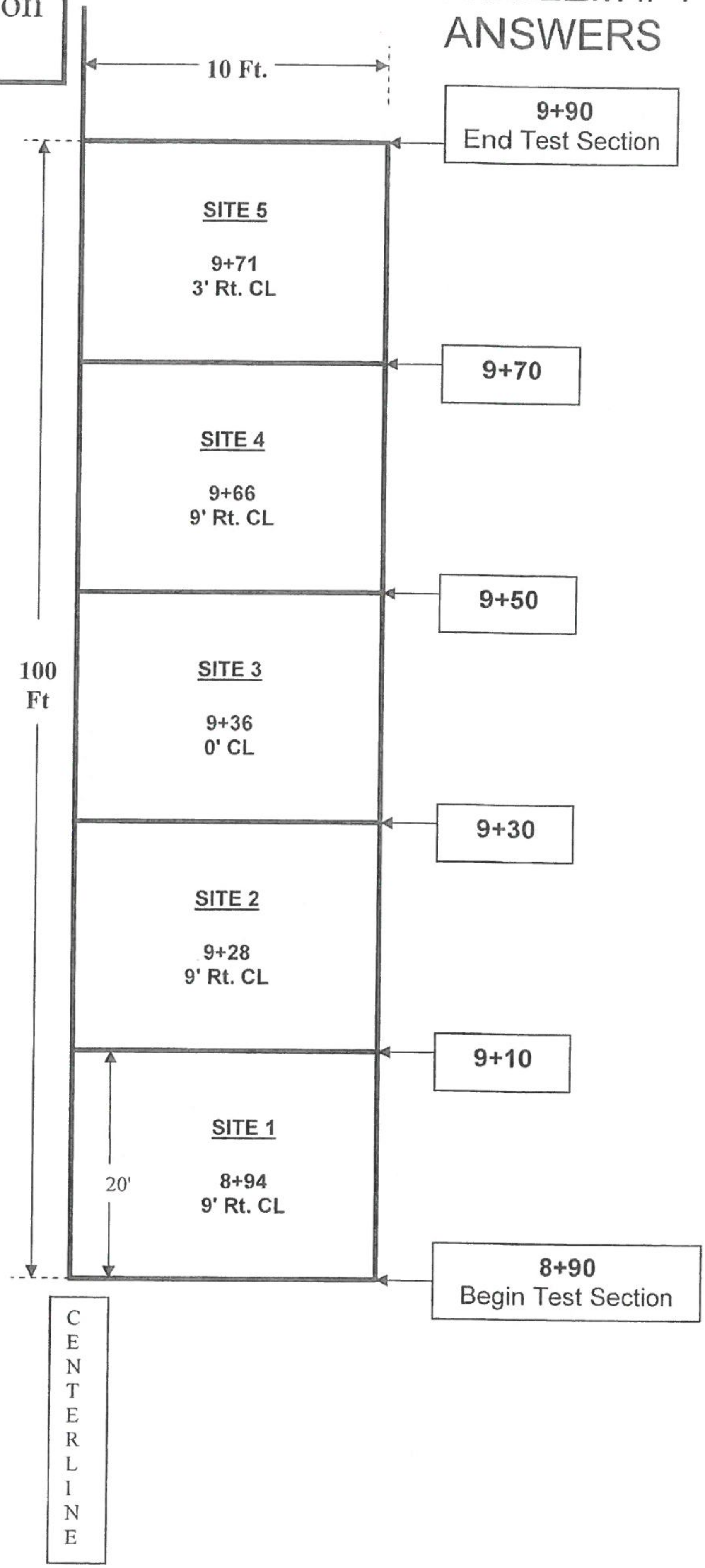
1).	.195	.887
2).	.902	.850
3).	.275	.023
4).	.794	.850
5).	.043	.293

Length

1	.195 X 20 = 4 8+90 + 4 = **8+94**
2	.902 X 20 = 18 9+10 + 18 = **9+28**
3	.275 X 20 = 6 9+30 + 6 = **9+36**
4	.794 X 20 = 16 9+50 + 16 = **9+66**
5	.043 X 20 = 1 9+70 + 1 = **9+71**

Width

1	.887 X 10 = **9' Rt. CL**
2	.850 X 10 = **9' Rt. CL**
3	.023 X 10 = **0' CL**
4	.850 X 10 = **9' Rt. CL**
5	.293 X 10 = **3' Rt. CL**



West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number	**7112182**
Auth. Number	**FC2121C**
Project Number	**RS-0162 (054)**
District Number	**4**
Item Number	**307-1**
Date	**Today's**

PROBLEM #2 ANSWERS
FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:	**Clarksburg**		
Roller Type:	**Vibratory**		
Roller Weight	Static: **10 Ton**	Working: **18.5 Ton**	
Lift Thickness Compacted:	**6"**		
Depth Below Grade:	**0**		
Depth of Gauge Source:	**6"**		
Observed	Yes	No	**X**

Length of Test Section:			**100'**
Width of Test Section:			**10'**
Gauge Number			**11172**
Manufacturer's Standards			
Density:	**2891**	Moisture:	**627**
Standard Counts			
Density:	**2872**	Moisture:	**624**

Test Site Number	1	2	3	4	5
Station Number	**8+94**	**9+28**	**9+36**	**9+66**	**9+71**
Offset	**9' RT CL**	**8' RT CL**	**CL**	**8' RT CL**	**3' RT CL**

A	Number of Passes		**12**
	Test Site	**DA**	Dry Density
	1		**133**
	2		**134**
DB	Average		**134**

B	Number of Passes		**14**
	Test Site	**DA**	Dry Density
	1		**136**
	2		**136**
DB	Average		**136**

C	Number of Passes		**16**
	Test Site	**DA**	Dry Density
	1		**137**
	2		**138**
DB	Average		**138**

D	Number of Passes		**18**
	Test Site	**DA**	Dry Density
	1		**138**
	2		**138**
DB	Average		**138**

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	**DA**	Dry Density
1		**138**
2		**138**
3		**137**
4		**139**
5		**138**
DC	**Max. Density**	**138**

Inspector's Name: ______________________

Inspector's Signature: ______________________

Project's Evaluation

Checked By: ______________________

Date: ______________________

WORKSHOP NUMBER TWO

Quality Assurance Of Aggregates

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	8110913
AUTH. NUMBER	SM8888C
PROJECT NUMBER	S 310-8-19.22
DISTRICT	9
ITEM NUMBER	307-1

EXAMPLE#1
FORM T-317
MP 700.00.24
REV. 08-08

GAUGE # 28225	DATE	Today's				
MANUFACTURER'S DENSITY STANDARD	LOT NUMBER	B-1				
	BEGINNING STATION	17+40				
2865	ENDING STATION	34+40				
MANUFACTURER'S MOISTURE STANDARD	OFFSET	10' LT CL				
	DEPTH BELOW GRADE	0				
678	DEPTH OF GAUGE SOURCE	6"				
	LIFT THICKNESS COMPACTED	6"				
DC FROM TEST SECTION	DENSITY STANDARD	2858				
	MOISTURE STANDARD	672				

$$DF = \frac{DE\,(100)}{DC}$$

$$\overline{X} = \frac{\Sigma\ DF}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

DC	MAXIMUM DENSITY	137				
	REFERENCE LAB NUMBER	8110912				

TEST NUMBER 1	DE	DRY DENSITY	135				
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	134				
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	132				
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	131				
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	136				
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**					
	T	TARGET					
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY					
	DI	PASS / FAIL					

INSPECTOR'S NAME: ____________________
INSPECTOR'S SIGNATURE: ____________________

PROJECT'S EVALUATION

CHECKED BY: ____________________ DATE: __________

PROBLEM # 1

MP 700.00.24

Item Number 307 - 1

Lot by Lot T-317

Lab Number:	7112183		
Authorization Number:	FC2121C		
Project Number	RS-0162(054)		
District Number:	4		
Item Number:	307-1		
Gauge Number	11172		
Manufacturer's Standards	Density 2891	Moisture 627	

Date	Today's				
Lot Number	B-1				
Beginning Station	1+85				
Ending Station	20+85				
Offset	LT CL				
Depth Below Grade	0				
Depth of Gauge Source	6"				
Lift Thickness	6"				
Density Standards	2884				
Moisture Standards	625				
Maximum Denisty	138				
Reference Lab Number	7112182				

DRY DENSITY PCF

Test Site Number	1	134				
Test Site Number	2	133				
Test Site Number	3	132				
Test Site Number	4	135				
Test Site Number	5	137				

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________________
AUTH. NUMBER ____________________
PROJECT NUMBER ____________________
DISTRICT ____________________
ITEM NUMBER ____________________

PROBLEM #1
FORM T-317
MP 700.00.24
REV. 08-08

GAUGE #	DATE					
MANUFACTURER'S DENSITY STANDARD	LOT NUMBER					
	BEGINNING STATION					
	ENDING STATION					
MANUFACTURER'S MOISTURE STANDARD	OFFSET					
	DEPTH BELOW GRADE					
	DEPTH OF GAUGE SOURCE					
	LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION	DENSITY STANDARD					
	MOISTURE STANDARD					

$$DF = \frac{DE\,(100)}{DC}$$

$$\overline{X} = \frac{\Sigma\ DF}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

DC	**MAXIMUM DENSITY**					
	REFERENCE LAB NUMBER					

TEST NUMBER 1	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**					
	T	TARGET					
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY					
	DI	PASS / FAIL					

INSPECTOR'S NAME: ____________________
INSPECTOR'S SIGNATURE: ____________________
PROJECT'S EVALUATION
CHECKED BY: ____________________ DATE: __________

ANSWERS

Workshop
Number Two

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	**8110913**
AUTH. NUMBER	**SM8888C**
PROJECT NUMBER	**S 310-8-19.22**
DISTRICT	**9**
ITEM NUMBER	**307-1**

EXAMPLE#1 ANSWERS
FORM T-317
MP 700.00.24
REV. 08-08

GAUGE #	**28225**
MANUFACTURER'S DENSITY STANDARD	**2865**
MANUFACTURER'S MOISTURE STANDARD	**678**

DATE	**Today's**				
LOT NUMBER	**B-1**				
BEGINNING STATION	**17+40**				
ENDING STATION	**34+40**				
OFFSET	**10' LT CL**				
DEPTH BELOW GRADE	**0**				
DEPTH OF GAUGE SOURCE	**6"**				
LIFT THICKNESS COMPACTED	**6"**				
DENSITY STANDARD	**2858**				
MOISTURE STANDARD	**672**				

DC FROM TEST SECTION

$$DF = \frac{DE\,(100)}{DC}$$

$$\overline{X} = \frac{\Sigma\ DF}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

DC	**MAXIMUM DENSITY**	**137**				
	REFERENCE LAB NUMBER	**8110912**				

TEST NUMBER 1	**DE**	DRY DENSITY	**135**				
	DF	% RELATIVE DENSITY	**99**				
TEST NUMBER 2	**DE**	DRY DENSITY	**134**				
	DF	% RELATIVE DENSITY	**98**				
TEST NUMBER 3	**DE**	DRY DENSITY	**132**				
	DF	% RELATIVE DENSITY	**96**				
TEST NUMBER 4	**DE**	DRY DENSITY	**131**				
	DF	% RELATIVE DENSITY	**96**				
TEST NUMBER 5	**DE**	DRY DENSITY	**136**				
	DF	% RELATIVE DENSITY	**99**				
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**	**97.6**				
	T	TARGET	**95**				
	QL	QUALITY INDEX	**0.87**				
	DG	% WITHIN TOLERANCE	**99**				
	DH	MIN. FOR 100% PAY	**80**				
	DI	PASS / FAIL	**Pass**				

INSPECTOR'S NAME: ______________________
INSPECTOR'S SIGNATURE: ______________________

PROJECT'S EVALUATION

CHECKED BY: ______________________ DATE: __________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	7112183
AUTH. NUMBER	FC2121C
PROJECT NUMBER	RS-0162-(054)
DISTRICT	4
ITEM NUMBER	307-1

PROBLEM#1 ANSWERS
FORM T-317
MP 700.00.24
REV. 08-08

GAUGE # **11172**	DATE		Today's				
MANUFACTURER'S DENSITY STANDARD	LOT NUMBER		B-1				
	BEGINNING STATION		1+85				
2891	ENDING STATION		20+85				
MANUFACTURER'S MOISTURE STANDARD	OFFSET		LT CL				
	DEPTH BELOW GRADE		0				
627	DEPTH OF GAUGE SOURCE		6"				
	LIFT THICKNESS COMPACTED		6"				
DC FROM TEST SECTION	DENSITY STANDARD		2884				
$DF = \frac{DE\,(100)}{DC}$	MOISTURE STANDARD		625				
$\overline{X} = \frac{\Sigma\, DF}{5}$	DC	MAXIMUM DENSITY	138				
$QL = \frac{\overline{X} - T}{R}$		REFERENCE LAB NUMBER	7112182				
TEST NUMBER 1	DE	DRY DENSITY	134				
	DF	% RELATIVE DENSITY	97				
TEST NUMBER 2	DE	DRY DENSITY	133				
	DF	% RELATIVE DENSITY	96				
TEST NUMBER 3	DE	DRY DENSITY	132				
	DF	% RELATIVE DENSITY	96				
TEST NUMBER 4	DE	DRY DENSITY	135				
	DF	% RELATIVE DENSITY	98				
TEST NUMBER 5	DE	DRY DENSITY	137				
	DF	% RELATIVE DENSITY	99				
LOT EVALUATION	$\overline{X}$	AVERAGE DF	97.2				
	T	TARGET	95				
	QL	QUALITY INDEX	0.73				
	DG	% WITHIN TOLERANCE	99				
	DH	MIN. FOR 100% PAY	80				
	DI	PASS / FAIL	Pass				

INSPECTOR'S NAME: ______________________
INSPECTOR'S SIGNATURE: ______________________

PROJECT'S EVALUATION

CHECKED BY: ______________________ DATE: __________

WORKSHOP NUMBER THREE

Quality Assurance
Of
Soils

ONE-POINT PROCTOR

MP 207.07.20

MP 207.07.20

T 316 FORM

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

MP 207.07.20
FORM T-316
ENGLISH

LAB NUMBER ____________
PROJECT NUMBER ____________
DISTRICT ____________
LOT NUMBER ____________
ITEM NUMBER ____________

GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³					
		MA	MOISTURE	lb/ft³					
		DB	DRY DENSITY -3/4	lb/ft³					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
CC = CA - CB		CB	PAN	grams					
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams					
		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft³					
		PE	DRY DENSITY	lb/ft³					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL.	DC	MAXIMUM DENSITY	lb/ft³					
		DE	RELATIVE DENSITY	%					
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S SIGNATURE			
		T	TARGET	%					
		QL	QUALITY INDEX			PROJECT'S EVALUATION			
		DF	WITHIN TOLERANCE	%		CHECKED BY:			
		DG	MIN. FOR 100% PAY	%		DATE:			
		DH	PASS / FAIL	YES	NO				

GAUGE NUMBER	36688	TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY	2935	STATION NUMBER	ft.					
MOISTURE	664	OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY	2902	LIFT THICKNESS	in.					
MOISTURE	658	DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
		MA	MOISTURE	lb/ft^3	12				
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
$CC = CA - CB$		CB	PAN	grams					
$CF = CD - CE$		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams					
$PD = PC (0.066)$		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY						

Formula	Section	Code	Item	Unit	1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams										
PE (RERUN) =		PB	MOLD	grams										
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

2

GAUGE NUMBER	36688			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE						
DENSITY	2935			STATION NUMBER	ft.					
MOISTURE	664			OFFSET	ft.					
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.					
DENSITY	2902			LIFT THICKNESS	in.					
MOISTURE	658			DEPTH OF SOURCE	in.					
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
			MA	MOISTURE	lb/ft^3	12				
			DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB			MB	MOISTURE	%					
		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CC = CA - CB			CB	PAN	grams	600				
CF = CD - CE			CC	EXCAVATED MAT.	grams	4310				
CG = CF (100) / CC			CD	PLUS 3/4 MAT. + PAN	grams					
			CE	PAN	grams					
PC = PA - PB			CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)			CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB			CH	SPECIFIC GRAVITY						
						RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =			PB	MOLD	grams					
PD (100) / 100 + SG			PC	WEIGHT OF SOIL	grams					
			PD	WET DENSITY	lb/ft^3					
			PE	DRY DENSITY	lb/ft^3					

GAUGE NUMBER	36688			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE						
DENSITY	2935			STATION NUMBER	ft.					
MOISTURE	664			OFFSET	ft.					
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.					
DENSITY	2902			LIFT THICKNESS	in.					
MOISTURE	658			DEPTH OF SOURCE	in.					
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
			MA	MOISTURE	lb/ft^3	12				
			DB	DRY DENSITY -3/4	lb/ft^3					
MB = $\frac{MA (100)}{DB}$			MB	MOISTURE	%					
CC = CA - CB		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CF = CD - CE			CB	PAN	grams	600				
CG = $\frac{CF (100)}{CC}$			CC	EXCAVATED MAT.	grams	4310				
PC = PA - PB			CD	PLUS 3/4 MAT. + PAN	grams	859				
PD = PC (0.066)			CE	PAN	grams	600				
PE = $\frac{PD (100)}{100 + MB}$			CF	PLUS 3/4 MAT.	grams	259				
			CG	PLUS 3/4 MAT.	%					
			CH	SPECIFIC GRAVITY						
						RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) = $\frac{PD (100)}{100 + SG}$			PB	MOLD	grams					
			PC	WEIGHT OF SOIL	grams					
			PD	WET DENSITY	lb/ft^3					
			PE	DRY DENSITY	lb/ft^3					

GAUGE NUMBER	**36688**
MANUFACTURER'S STANDARDS	
DENSITY	**2935**
MOISTURE	**664**
GAUGE STANDARD COUNTS	
DENSITY	**2902**
MOISTURE	**658**
DB FROM TABLES	
MB = $\frac{MA(100)}{DB}$	
CC = CA - CB	
CF = CD - CE	
CG = $\frac{CF(100)}{CC}$	
PC = PA - PB	
PD = PC (0.066)	
PE = $\frac{PD(100)}{100 + MB}$	
RERUN PROCTOR **PE (RERUN)** = $\frac{PD(100)}{100 + SG}$	

		TEST NUMBER		1	2	3	4	5
		DATE						
		STATION NUMBER	ft.					
		OFFSET	ft.					
		DEPTH BELOW GRADE	ft.					
		LIFT THICKNESS	in.					
		DEPTH OF SOURCE	in.					
Field Density Moisture	**DA**	TOTAL DRY DENSITY	lb/ft^3	127				
	MA	MOISTURE	lb/ft^3	12				
	DB	DRY DENSITY -3/4	lb/ft^3					
	MB	MOISTURE	%					
PLUS 3/4 MATERIAL DETERMINATION	**CA**	EXC. MATERIAL + PAN	grams	**4910**				
	CB	PAN	grams	**600**				
	CC	EXCAVATED MAT.	grams	**4310**				
	CD	PLUS 3/4 MAT. + PAN	grams	**859**				
	CE	PAN	grams	**600**				
	CF	PLUS 3/4 MAT.	grams	**259**				
	CG	PLUS 3/4 MAT.	%	**6**				
	CH	SPECIFIC GRAVITY						
				RERUN	**RERUN**	**RERUN**	**RERUN**	**RERUN**
ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams					
	PB	MOLD	grams					
	PC	WEIGHT OF SOIL	grams					
	PD	WET DENSITY	lb/ft^3					
	PE	DRY DENSITY	lb/ft^3					

GAUGE NUMBER	36688			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE						
DENSITY	2935			STATION NUMBER	ft.					
MOISTURE	664			OFFSET	ft.					
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.					
DENSITY	2902			LIFT THICKNESS	in.					
MOISTURE	658			DEPTH OF SOURCE	in.					
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
			MA	MOISTURE	lb/ft^3	12				
			DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB			MB	MOISTURE	%					
		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CC = CA - CB			CB	PAN	grams	600				
CF = CD - CE			CC	EXCAVATED MAT.	grams	4310				
CG = CF (100) / CC			CD	PLUS 3/4 MAT. + PAN	grams	859				
			CE	PAN	grams	600				
PC = PA - PB			CF	PLUS 3/4 MAT.	grams	259				
PD = PC (0.066)			CG	PLUS 3/4 MAT.	%	6				
PE = PD (100) / 100 + MB			CH	SPECIFIC GRAVITY		2.6				
						RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =			PB	MOLD	grams					
PD (100) / 100 + SG			PC	WEIGHT OF SOIL	grams					
			PD	WET DENSITY	lb/ft^3					
			PE	DRY DENSITY	lb/ft^3					

C H

WEST VIRGINIA DIVISION OF HIGHWAYS
CONTRACT ADMINISTRATION DIVISION
DENSITY OF MINUS ¾ INCH MATERIAL WITH SPECIFIC GRAVITY OF 2.6
PERCENT OF PLUS ¾ INCH MATERIAL

C G

D A

D D	1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %	10 %
121	121	121	120	120	120	120	119	119	119	119
122	122	122	121	121	121	121	120	120	120	120
123	123	123	122	122	122	122	122	121	121	121
124	124	124	123	123	123	123	123	122	122	122
125	125	125	124	124	124	124	124	123	123	123
126	126	126	125	125	125	125	125	125	124	124
127	127	127	127	126	126	126	126	126	125	125
128	128	128	128	127	127	127	127	127	127	126
129	129	129	129	128	128	128	128	128	128	127
130	130	130	130	129	129	129	129	129	129	129
131	131	131	131	131	130	130	130	130	130	130
132	132	132	132	132	131	131	131	131	131	131
133	133	133	133	133	132	132	132	132	132	132
134	134	134	134	134	134	133	133	133	133	133
135	135	135	135	135	135	135	134	134	134	134

GAUGE NUMBER	36688			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE						
DENSITY	2935			STATION NUMBER	ft.					
MOISTURE	664			OFFSET	ft.					
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.					
DENSITY	2902			LIFT THICKNESS	in.					
MOISTURE	658			DEPTH OF SOURCE	in.					
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
			MA	MOISTURE	lb/ft^3	12				
			DB	DRY DENSITY -3/4	lb/ft^3	126				
MB = $\frac{MA\ (100)}{DB}$			MB	MOISTURE	%	10				
CC = CA - CB		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CF = CD - CE			CB	PAN	grams	600				
CG = $\frac{CF\ (100)}{CC}$			CC	EXCAVATED MAT.	grams	4310				
PC = PA - PB			CD	PLUS 3/4 MAT. + PAN	grams	859				
PD = PC (0.066)			CE	PAN	grams	600				
PE = $\frac{PD\ (100)}{100 + MB}$			CF	PLUS 3/4 MAT.	grams	259				
			CG	PLUS 3/4 MAT.	%	6				
			CH	SPECIFIC GRAVITY		2.6				
						RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) = $\frac{PD\ (100)}{100 + SG}$			PB	MOLD	grams					
			PC	WEIGHT OF SOIL	grams					
			PD	WET DENSITY	lb/ft^3					
			PE	DRY DENSITY	lb/ft^3					

GAUGE NUMBER	36688
MANUFACTURER'S STANDARDS	
DENSITY	2935
MOISTURE	664
GAUGE STANDARD COUNTS	
DENSITY	2902
MOISTURE	658

		TEST NUMBER		1	2	3	4	5
		DATE						
		STATION NUMBER	ft.					
		OFFSET	ft.					
		DEPTH BELOW GRADE	ft.					
		LIFT THICKNESS	in.					
		DEPTH OF SOURCE	in.					
Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
	MA	MOISTURE	lb/ft^3	12				
	DB	DRY DENSITY -3/4	lb/ft^3	126				
	MB	MOISTURE	%	10				
PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
	CB	PAN	grams	600				
	CC	EXCAVATED MAT.	grams	4310				
	CD	PLUS 3/4 MAT. + PAN	grams	859				
	CE	PAN	grams	600				
	CF	PLUS 3/4 MAT.	grams	259				
	CG	PLUS 3/4 MAT.	%	6				
	CH	SPECIFIC GRAVITY		2.6				
				RERUN	RERUN	RERUN	RERUN	RERUN
ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180				
	PB	MOLD	grams	2023				
	PC	WEIGHT OF SOIL	grams	2157				
	PD	WET DENSITY	lb/ft^3					
	PE	DRY DENSITY	lb/ft^3					

DB FROM TABLES

$MB = \frac{MA(100)}{DB}$

$CC = CA - CB$

$CF = CD - CE$

$CG = \frac{CF(100)}{CC}$

$PC = PA - PB$

$PD = PC(0.066)$

$PE = \frac{PD(100)}{100 + MB}$

RERUN PROCTOR

PE (RERUN) = $\frac{PD(100)}{100 + SG}$

						1	2	3	4	5
GAUGE NUMBER	36688			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE						
DENSITY	2935			STATION NUMBER	ft.					
MOISTURE	664			OFFSET	ft.					
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.					
DENSITY	2902			LIFT THICKNESS	in.					
MOISTURE	658			DEPTH OF SOURCE	in.					
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
			MA	MOISTURE	lb/ft^3	12				
			DB	DRY DENSITY -3/4	lb/ft^3	126				
MB = MA (100) / DB			MB	MOISTURE	%	10				
		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CC = CA - CB			CB	PAN	grams	600				
CF = CD - CE			CC	EXCAVATED MAT.	grams	4310				
CG = CF (100) / CC			CD	PLUS 3/4 MAT. + PAN	grams	859				
			CE	PAN	grams	600				
PC = PA - PB			CF	PLUS 3/4 MAT.	grams	259				
PD = PC (0.066)			CG	PLUS 3/4 MAT.	%	6				
PE = PD (100) / 100 + MB			CH	SPECIFIC GRAVITY		2.6				
						RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180				
PE (RERUN) = PD (100) / 100 + SG			PB	MOLD	grams	2023				
			PC	WEIGHT OF SOIL	grams	2157				
			PD	WET DENSITY	lb/ft^3	142				
			PE	DRY DENSITY	lb/ft^3					

10

GAUGE NUMBER	36688	TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY	2935	STATION NUMBER	ft.					
MOISTURE	664	OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY	2902	LIFT THICKNESS	in.					
MOISTURE	658	DEPTH OF SOURCE	in.					

					1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
		MA	MOISTURE	lb/ft^3	12				
MB = $\frac{MA (100)}{DB}$		DB	DRY DENSITY -3/4	lb/ft^3	126				
		MB	MOISTURE	%	10				
CC = CA - CB	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CF = CD - CE		CB	PAN	grams	600				
CG = $\frac{CF (100)}{CC}$		CC	EXCAVATED MAT.	grams	4310				
PC = PA - PB		CD	PLUS 3/4 MAT. + PAN	grams	859				
PD = PC (0.066)		CE	PAN	grams	600				
PE = $\frac{PD (100)}{100 + MB}$		CF	PLUS 3/4 MAT.	grams	259				
		CG	PLUS 3/4 MAT.	%	6				
		CH	SPECIFIC GRAVITY		2.6				

					1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180									
PE (RERUN) =		PB	MOLD	grams	2023									
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams	2157									
		PD	WET DENSITY	lb/ft^3	142									
		PE	DRY DENSITY	lb/ft^3	129									

PE = 129

MB = 10

DOES NOT PLOT

TOO WET

PERCENT MOISTURE

MB or RERUN SG

DRY DENSITY OF ONE POINT PROCTOR

PE or RERUN PE

	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
130			131 9	130 9																
129		131 9	130 9	129 9																
128		130 9	13 9	128 10																
127	131 9	130 9	128 10	127 10	127 10															
126	131 9	130 9	128 10	127 10	126 10															
125	130 9	128 10	127 10	126 10	125 10															
124		128 10	126 10	125 11	125 11	124 11														
123		127 10	126 10	124 11	123 11	123 11														
122		126 10	125 11	124 11	123 11	122 12														
121		126 11	125 11	123 12	122 12	121 12	121 12													
120		125 11	124 11	122 12	121 12	120 12	120 12													
119			123 12	122 12	120 12	120 12	119 13													
118			122 12	120 12	120 12	119 13	118 13	118 13												
117				120 12	119 13	118 13	117 13	117 13												
116				119 13	118 13	117 13	117 13	116 14												
115				118 13	117 13	116 14	116 14	115 14	115 14											
114				117 13	116 14	116 14	115 14	114 14	114 14											
113					116 14	115 14	114 14	114 14	113 15											
112					115 14	115 14	113 15	113 15	112 15	112 15										
111					115 14	113 15	112 15	112 15	111 15	111 16										
110					113 15	112 15	112 15	111 15	111 16	110 16										
109						112 15	111 16	110 16	110 16	109 16	109 16									
108						111 16	110 16	110 16	109 16	109 17	108 17									
107							110 16	109 17	108 17	108 17	107 17	107 17								
106							109 17	108 17	107 17	107 17	106 18	106 18								
105							108 17	107 17	107 17	106 18	106 18	105 18	105 18							
104								107 17	106 18	105 18	105 18	104 19	104 19							
103								106 18	105 18	105 19	104 19	103 19	103 19	103 19						
102								105 18	105 19	104 19	103 19	103 20	102 20	102 20	102 20					
101									104 19	103 19	102 20	102 20	101 20	101 20	101 21					
100									103 19	102 20	101 20	101 21	100 21	100 21	100 21	100 21				
99									102 20	101 20	101 21	100 21	100 21	99 21	99 22	99 22				
98										100 21	100 21	99 21	99 22	98 22	98 22	98 22	98 22			
97										100 21	99 21	99 22	98 22	98 22	98 22	97 22	97 23			
96											99 22	98 22	98 22	98 22	97 23	97 23	96 23			
95											99 22	98 22	97 23	97 23	96 23	95 24	95 24	95 24		
94											98 22	97 23	96 23	95 24	95 24	95 24	94 24	94 24	94 24	
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

						1		2		3		4		5	
GAUGE NUMBER			TEST NUMBER			1		2		3		4		5	
MANUFACTURER'S STANDARDS				DATE											
DENSITY				STATION NUMBER	ft.										
MOISTURE				OFFSET	ft.										
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.										
DENSITY				LIFT THICKNESS	in.										
MOISTURE				DEPTH OF SOURCE	in.										
DB FROM TABLES		Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127									
			MA	MOISTURE	lb/ft^3	8									
			DB	DRY DENSITY -3/4	lb/ft^3	126									
MB = $\frac{MA(100)}{DB}$			MB	MOISTURE	%	6									
CC = CA - CB		PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910									
CF = CD - CE			CB	PAN	grams	600									
CG = $\frac{CF(100)}{CC}$			CC	EXCAVATED MAT.	grams	4310									
PC = PA - PB			CD	PLUS 3/4 MAT. + PAN	grams	859									
PD = PC (0.066)			CE	PAN	grams	600									
PE = $\frac{PD(100)}{100 + MB}$			CF	PLUS 3/4 MAT.	grams	259									
			CG	PLUS 3/4 MAT.	%	6									
			CH	SPECIFIC GRAVITY		2.6									
							RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR		ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180	4131								
PE (RERUN) = $\frac{PD(100)}{100 + SG}$			PB	MOLD	grams	2023	2023								
			PC	WEIGHT OF SOIL	grams	2157	2108								
			PD	WET DENSITY	lb/ft^3	142	139								
			PE	DRY DENSITY	lb/ft^3	129									

GAUGE NUMBER				TEST NUMBER		1		2		3		4		5	
MANUFACTURER'S STANDARDS				DATE											
DENSITY				STATION NUMBER	ft.										
MOISTURE				OFFSET	ft.										
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.										
DENSITY				LIFT THICKNESS	in.										
MOISTURE				DEPTH OF SOURCE	in.										
DB FROM TABLES		Field Density Moisture	**DA**	TOTAL DRY DENSITY	lb/ft^3	127									
			MA	MOISTURE	lb/ft^3	8									
			DB	DRY DENSITY -3/4	lb/ft^3	126									
MB = MA (100) / DB			**MB**	MOISTURE	%	6									
		PLUS 3/4 MATERIAL DETERMINATION	**CA**	EXC. MATERIAL + PAN	grams	4910									
CC = CA - CB			**CB**	PAN	grams	600									
CF = CD - CE			**CC**	EXCAVATED MAT.	grams	4310									
CG = CF (100) / CC			**CD**	PLUS 3/4 MAT. + PAN	grams	859									
			CE	PAN	grams	600									
PC = PA - PB			**CF**	PLUS 3/4 MAT.	grams	259									
PD = PC (0.066)			**CG**	PLUS 3/4 MAT.	%	6									
~~**PE** = PD (100) / 100 + MB~~			**CH**	SPECIFIC GRAVITY		2.6									
							RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR		ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams	4180	4131								
PE (RERUN) =			**PB**	MOLD	grams	2023	2023								
PD (100) / 100 + SG			**PC**	WEIGHT OF SOIL	grams	2157	2108								
			PD	WET DENSITY	lb/ft^3	142	139								
			PE	DRY DENSITY	lb/ft^3	129									

14

RERUN PROCTOR

$$PE\ (RERUN) = \frac{PD\ (100)}{100 + SG}$$

$SC = SA - SB$

$SE = SD - SB$

$SF = SC - SE$

$$SG = \frac{SF\ (100)}{SE}$$

$$DE = \frac{DB\ (100)}{DC}$$

$$\overline{X} = \frac{\Sigma\ DE}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

NEED SG

				RERUN		RERUN		RERUN		RERUN		RERUN	
ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180	4131								
	PB	MOLD	grams	2023	2023								
	PC	WEIGHT OF SOIL	grams	2157	2108								
	PD	WET DENSITY	lb/ft^3	142	139								
	PE	DRY DENSITY	lb/ft^3	129									
STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams										
	SB	PAN	grams										
	SC	WET WEIGHT	grams										
	SD	DRY WEIGHT + PAN	grams										
	SE	DRY WEIGHT	grams										
	SF	MOISTURE	grams										
	SG	MOISTURE	%										
MOIST. EVAL.	OA	OPTIMUM MOISTURE	%										
	OB	PLUS / MINUS TOLER.											
	OC	PASS / FAIL											
DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3										
	DE	RELATIVE DENSITY	%										

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S SIGNATURE	
	T	TARGET	%			
	QL	QUALITY INDEX			PROJECT'S EVALUATION	
	DF	WITHIN TOLERANCE	%		CHECKED BY:	
	DG	MIN. FOR 100% PAY	%		DATE:	
	DH	PASS / FAIL	YES	NO		

RERUN PROCTOR

PE (RERUN) = $\frac{PD(100)}{100 + SG}$

SC = SA - SB

SE = SD - SB

SF = SC - SE

SG = $\frac{SF(100)}{SE}$

DE = $\frac{DB(100)}{DC}$

$\overline{X} = \frac{\Sigma DE}{5}$

$QL = \frac{\overline{X} - T}{R}$

Section	Code	Item	Unit		RERUN		RERUN		RERUN		RERUN		RERUN
ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams	**4180**	**4131**								
	PB	MOLD	grams	**2023**	**2023**								
	PC	WEIGHT OF SOIL	grams	**2157**	**2108**								
	PD	WET DENSITY	lb/ft^3	**142**	**139**								
	PE	DRY DENSITY	lb/ft^3	**129**	**129**								
STOVE DRIED MOISTURE	**SA**	WET WEIGHT + PAN	grams	**2027**									
	SB	PAN	grams	**1811**									
	SC	WET WEIGHT	grams	**216**									
	SD	DRY WEIGHT + PAN	grams										
	SE	DRY WEIGHT	grams										
	SF	MOISTURE	grams										
	SG	MOISTURE	%										
MOIST. EVAL.	**OA**	OPTIMUM MOISTURE	%										
	OB	PLUS / MINUS TOLER.											
	OC	PASS / FAIL											
DEN EVAL	**DC**	MAXIMUM DENSITY	lb/ft^3										
	DE	RELATIVE DENSITY	%										
LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%										
	T	TARGET	%										
	QL	QUALITY INDEX											
	DF	WITHIN TOLERANCE	%										
	DG	MIN. FOR 100% PAY	%										
	DH	PASS / FAIL	YES	NO									

INSPECTOR'S SIGNATURE	
PROJECT'S EVALUATION	
CHECKED BY:	
DATE:	

16

Formula	Section	Code	Item	Unit		RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180	4131								
PE (RERUN) = $\frac{PD(100)}{100 + SG}$		PB	MOLD	grams	2023	2023								
		PC	WEIGHT OF SOIL	grams	2157	2108								
		PD	WET DENSITY	lb/ft^3	142	139								
		PE	DRY DENSITY	lb/ft^3	129									
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	2027									
SE = SD - SB		SB	PAN	grams	1811									
SF = SC - SE		SC	WET WEIGHT	grams	216									
SG = $\frac{SF(100)}{SE}$		SD	DRY WEIGHT + PAN	grams	2011									
		SE	DRY WEIGHT	grams	200									
DE = $\frac{DB(100)}{DC}$		SF	MOISTURE	grams										
		SG	MOISTURE	%										
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%										
		OB	PLUS / MINUS TOLER.											
		OC	PASS / FAIL											
QL= $\frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3										
		DE	RELATIVE DENSITY	%										
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S SIGNATURE								
		T	TARGET	%										
		QL	QUALITY INDEX			PROJECT'S EVALUATION								
		DF	WITHIN TOLERANCE	%		CHECKED BY:								
		DG	MIN. FOR 100% PAY	%		DATE:								
		DH	PASS / FAIL	YES	NO									

17

RERUN PROCTOR

$PE\ (RERUN) = \dfrac{PD\ (100)}{100 + SG}$

SC = SA - SB

SE = SD - SB

SF = SC - SE

$SG = \dfrac{SF\ (100)}{SE}$

$DE = \dfrac{DB\ (100)}{DC}$

$\overline{X} = \dfrac{\Sigma\ DE}{5}$

$QL = \dfrac{\overline{X} - T}{R}$

					RERUN		RERUN		RERUN		RERUN		RERUN
ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4180	4131								
	PB	MOLD	grams	2023	2023								
	PC	WEIGHT OF SOIL	grams	2157	2108								
	PD	WET DENSITY	lb/ft^3	142	139								
	PE	DRY DENSITY	lb/ft^3	129									
STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	2027									
	SB	PAN	grams	1811									
	SC	WET WEIGHT	grams	216									
	SD	DRY WEIGHT + PAN	grams	2011									
	SE	DRY WEIGHT	grams	200									
	SF	MOISTURE	grams	16									
	SG	MOISTURE	%										
MOIST. EVAL.	OA	OPTIMUM MOISTURE	%										
	OB	PLUS / MINUS TOLER.											
	OC	PASS / FAIL											
DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3										
	DE	RELATIVE DENSITY	%										

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S SIGNATURE	
	T	TARGET	%			
	QL	QUALITY INDEX			PROJECT'S EVALUATION	
	DF	WITHIN TOLERANCE	%		CHECKED BY:	
	DG	MIN. FOR 100% PAY	%		DATE:	
	DH	PASS / FAIL	YES	NO		

Formula	Section	Code	Item	Unit		RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR **PE (RERUN) =** $\frac{PD\ (100)}{100 + SG}$	ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams	**4180**	**4131**								
		PB	MOLD	grams	**2023**	**2023**								
		PC	WEIGHT OF SOIL	grams	**2157**	**2108**								
		PD	WET DENSITY	lb/ft^3	**142**	**139**								
		PE	DRY DENSITY	lb/ft^3	**129**									
SC = SA - SB	STOVE DRIED MOISTURE	**SA**	WET WEIGHT + PAN	grams	**2027**									
SE = SD - SB		**SB**	PAN	grams	**1811**									
SF = SC - SE		**SC**	WET WEIGHT	grams	**216**									
SG = $\frac{SF\ (100)}{SE}$		**SD**	DRY WEIGHT + PAN	grams	**2011**									
		SE	DRY WEIGHT	grams	**200**									
DE = $\frac{DB\ (100)}{DC}$		**SF**	MOISTURE	grams	**16**									
		SG	MOISTURE	%	**8**									
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	**OA**	OPTIMUM MOISTURE	%										
		OB	PLUS / MINUS TOLER.											
		OC	PASS / FAIL											
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	**DC**	MAXIMUM DENSITY	lb/ft^3										
		DE	RELATIVE DENSITY	%										
	LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S SIGNATURE								
		T	TARGET	%										
		QL	QUALITY INDEX			PROJECT'S EVALUATION								
		DF	WITHIN TOLERANCE	%		CHECKED BY:								
		DG	MIN. FOR 100% PAY	%		DATE:								
		DH	PASS / FAIL	YES	NO									

RERUN PROCTOR

PE (RERUN) = $\frac{PD(100)}{100 + SG}$

SC = SA - SB

SE = SD - SB

SF = SC - SE

SG = $\frac{SF(100)}{SE}$

DE = $\frac{DB(100)}{DC}$

$\overline{X} = \frac{\Sigma DE}{5}$

$QL = \frac{\overline{X} - T}{R}$

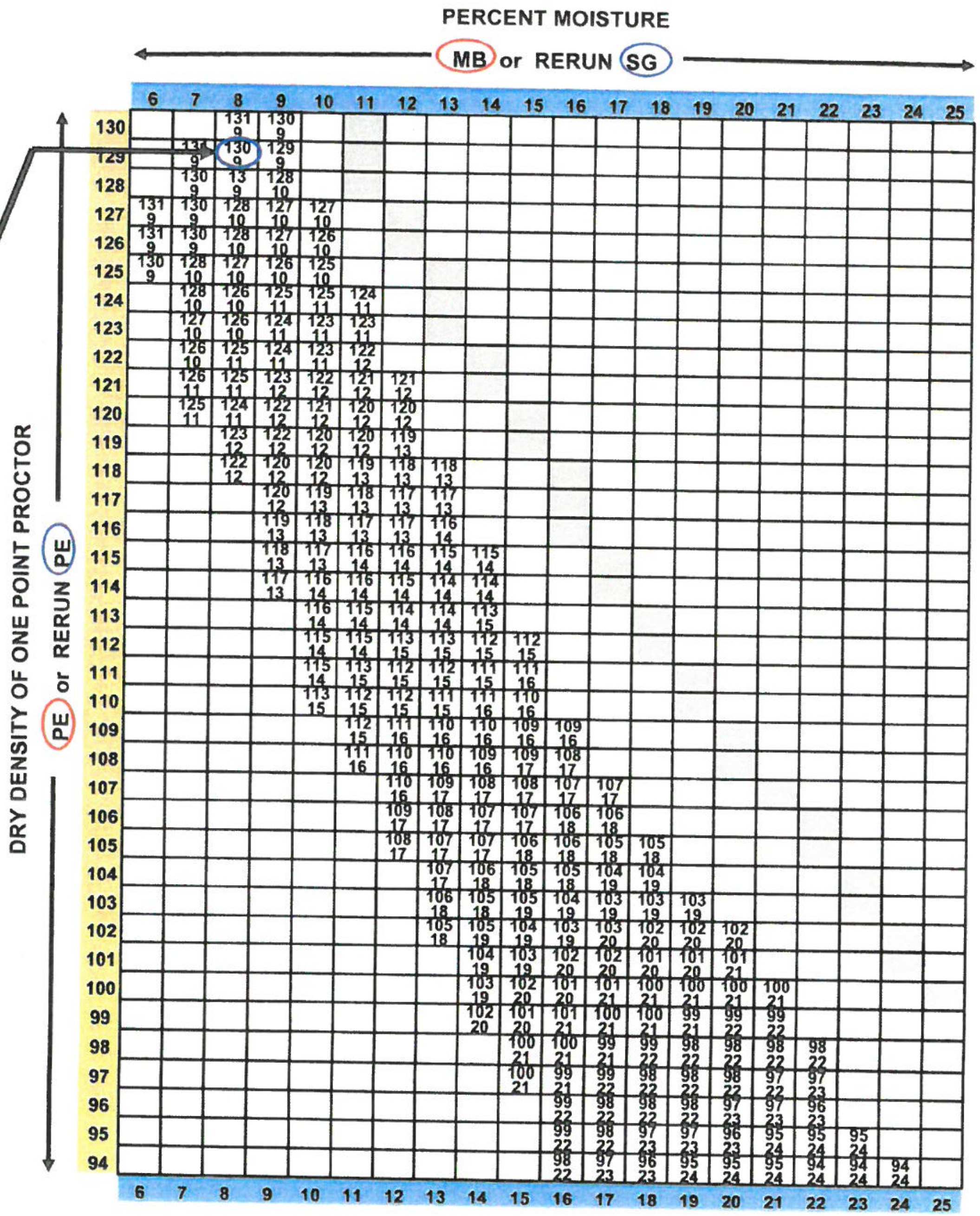
					RERUN	RERUN		RERUN		RERUN		RERUN
ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams	**4180**	**4131**							
	PB	MOLD	grams	**2023**	**2023**							
	PC	WEIGHT OF SOIL	grams	**2157**	**2108**							
	PD	WET DENSITY	lb/ft^3	**142**	**139**							
	PE	DRY DENSITY	lb/ft^3	**129**	**129**							
STOVE DRIED MOISTURE	**SA**	WET WEIGHT + PAN	grams	**2027**								
	SB	PAN	grams	**1811**								
	SC	WET WEIGHT	grams	**216**								
	SD	DRY WEIGHT + PAN	grams	**2011**								
	SE	DRY WEIGHT	grams	**200**								
	SF	MOISTURE	grams	**16**								
	SG	MOISTURE	%	**8**								
MOIST. EVAL.	**OA**	OPTIMUM MOISTURE	%									
	OB	PLUS / MINUS TOLER.										
	OC	PASS / FAIL										
DEN EVAL	**DC**	MAXIMUM DENSITY	lb/ft^3									
	DE	RELATIVE DENSITY	%									

LOT EVALUATION	$\overline{\mathbf{X}}$	AVERAGE **DE**	%		INSPECTOR'S SIGNATURE	
	T	TARGET	%			
	QL	QUALITY INDEX			PROJECT'S EVALUATION	
	DF	WITHIN TOLERANCE	%		CHECKED BY:	
	DG	MIN. FOR 100% PAY	%		DATE:	
	DH	PASS / FAIL	YES	NO		

RERUN

PE = 129

SG = 8



DOES PLOT

MAX. DENSITY

130

OPT. MOISTURE

9

Formula	Section	Code	Item	Unit	RERUN		RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR PE (RERUN) = $\frac{PD(100)}{100 + SG}$	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4080	4131				
		PB	MOLD	grams	2023	2023				
		PC	WEIGHT OF SOIL	grams	2057	2108				
		PD	WET DENSITY	lb/ft^3	136	139				
		PE	DRY DENSITY	lb/ft^3	128	129				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	2027					
SE = SD - SB		SB	PAN	grams	1811					
SF = SC - SE		SC	WET WEIGHT	grams	216					
SG = $\frac{SF(100)}{SE}$		SD	DRY WEIGHT + PAN	grams	2011					
		SE	DRY WEIGHT	grams	200					
DE = $\frac{DB(100)}{DC}$		SF	MOISTURE	grams	16					
		SG	MOISTURE	%	8					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	$\boxed{9}$					
		OB	PLUS / MINUS TOLER.		+3 / - 4					
		OC	PASS / FAIL							
QL= $\frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	$\boxed{130}$					
		DE	RELATIVE DENSITY	%						
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%			INSPECTOR'S SIGNATURE			
		T	TARGET	%						
		QL	QUALITY INDEX				PROJECT'S EVALUATION			
		DF	WITHIN TOLERANCE	%			CHECKED BY:			
		DG	MIN. FOR 100% PAY	%			DATE:			
		DH	PASS / FAIL	YES	NO					

Specification

% MOISTURE (MB)

Must be within +3 - 4 of OPTIMUM MOISTURE

OPTIMUM MOISTURE = 9%

9 + 3 = 12

9 – 4 = 5

Range = 12% to 5%

GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127				
		MA	MOISTURE	lb/ft^3	8				
		DB	DRY DENSITY -3/4	lb/ft^3	126				
MB = MA (100) / DB		MB	MOISTURE	%	10				
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4910				
CC = CA - CB		CB	PAN	grams	600				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4310				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	859				
		CE	PAN	grams	600				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	259				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	6				
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.6				
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4080				
PE (RERUN) =		PB	MOLD	grams	2023				
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	2057				
		PD	WET DENSITY	lb/ft^3	136				
		PE	DRY DENSITY	lb/ft^3	128				

% MOISTURE (MB)

+3 - 4 of Optimum 9

RANGE

12% to 5%

Formula	Section	Code	Description	Units		RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR PE (RERUN) = $\frac{PD(100)}{100 + SG}$	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4080	4131				
		PB	MOLD	grams	2023	2023				
		PC	WEIGHT OF SOIL	grams	2057	2108				
		PD	WET DENSITY	lb/ft^3	136	139				
		PE	DRY DENSITY	lb/ft^3	128	129				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	2027					
SE = SD - SB		SB	PAN	grams	1811					
SF = SC - SE		SC	WET WEIGHT	grams	216					
SG = $\frac{SF(100)}{SE}$		SD	DRY WEIGHT + PAN	grams	2011					
		SE	DRY WEIGHT	grams	200					
DE = $\frac{DB(100)}{DC}$		SF	MOISTURE	grams	16					
		SG	MOISTURE	%	8					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	9					
		OB	PLUS / MINUS TOLER.		+3 / -4					
		OC	PASS / FAIL		PASS					
QL= $\frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	130					
		DE	RELATIVE DENSITY	%	97					
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S SIGNATURE				
		T	TARGET	%						
		QL	QUALITY INDEX			PROJECT'S EVALUATION				
		DF	WITHIN TOLERANCE	%		CHECKED BY:				
		DG	MIN. FOR 100% PAY	%		DATE:				
		DH	PASS / FAIL	YES	NO					

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WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	9112762
AUTHORIZATION NUMBER	FC3838H
PROJECT NUMBER	S 317 - 2 - 41.55
DISTRICT	4
LOT NUMBER	F25
ITEM NUMBER	207 - 1

EXAMPLE
FORM T-316
MP 207.07.20
REV. 08-08

GAUGE NUMBER	26895	TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY	2912	STATION NUMBER	ft.	14+65	15+32	17+18	18+92	20+42
MOISTURE	662	OFFSET	ft.	8'LT CL	12'RT CL	38'RT CL	29'LT CL	10'LT CL
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.	18'	18'	18'	18'	18'
DENSITY	2901	LIFT THICKNESS	in.	6"	6"	6"	6"	6"
MOISTURE	655	DEPTH OF SOURCE	in.	6"	6"	6"	6"	6"

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	125	123	124	120	118
		MA	MOISTURE	lb/ft^3	10	11	12	16	16
		DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5035			4916	
CC = CA - CB		CB	PAN	grams	415			415	
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	829			1125	
		CE	PAN	grams	465			465	
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5			2.5	

Formula	Section	Code	Description	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3941						4014	4032		
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams	2009						2009	2009		
		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Description	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams				598	
SE = SD - SB		SB	PAN	grams				245	
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams				560	
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%		INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%		CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

PROBLEM # 1

MP 207.07.20

T - 316

Lab Number:	5111297
Authorization Number:	FC3636K
Project Number	S326-17 - 3.65
District Number:	4
Lot Number:	P - 218
Item Number:	604 (36)
Gauge Number	57420
Manufacturer's Standards	Density 3165 / Moisture 621

Test Number	1	2	3	4	5
Date	Today's	Today's	Today's	Today's	Today's
Station Number	206+18	206+18	206+18	206+18	206+18
Offset	37' RT CL	39' RT CL	31' RT CL	25' RT CL	42' RT CL
Density Standard	3152	3152	3152	3152	3152
Moisture Standard	620	620	620	620	620
Depth Below Grade	14'	13'	12'	10'	9'
Lift Thickness	4"	4"	4"	4"	4"
Depth of Gauge Source	4"	4"	4"	4"	4"
Total Dry Density *PCF*	114	111	112	115	116
Moisture *PCF*	15	18	18	14	16
Excavated Material + Pan	5057				
Pan	525				
+3/4" Material + Pan	829				
Pan	545				
Specific Gravity	2.5				
Wt. of Soil + Mold *(g)*	3945				
Wt. Mold *(g)*	2000				
Wt. of Soil + Mold *RERUN*					
Wt. Mold *RERUN*					
Wet Wt. + Pan					
Pan					
Dry Wt. + Pan					

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

LAB NUMBER ____________________

AUTHORIZATION NUMBER ____________________

PROJECT NUMBER ____________________

DISTRICT ____________________

LOT NUMBER ____________________

ITEM NUMBER ____________________

PROBLEM #1

FORM T-316

MP 207.07.20

REV. 08-08

GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

					1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA(100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
$CC = CA - CB$		CB	PAN	grams					
$CF = CD - CE$		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF(100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams					
$PD = PC(0.066)$		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD(100)}{100 + MB}$		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		PB	MOLD	grams					
$\frac{PD(100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
$SE = SD - SB$		SB	PAN	grams					
$SF = SC - SE$		SC	WET WEIGHT	grams					
$SG = \frac{SF(100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB(100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:
	T	TARGET	%		INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%		CHECKED BY:
	DH	PASS / FAIL	YES	NO	DATE:

PROBLEM # 2

MP 207.07.20

T - 316

Lab Number:	61181932		
Authorization Number:	FM2002C		
Project Number	S344-41-9.82		
District Number:	10		
Lot Number:	F - 32		
Item Number:	207 - 1		
Gauge Number	11162		
Manufacturer's Standards	Density 2914	Moisture	667

Test Number	1	2	3	4	5
Date	Today's	Today's	Today's	Today's	Today's
Station Number	87+14	88+21	89+33	90+62	92+03
Offset	18' RT CL	29' LT CL	4' LT CL	16' RT CL	23' RT CL
Density Standard	2896				
Moisture Standard	664				
Depth Below Grade	82'				
Lift Thickness	6"				
Depth of Gauge Source	6"				
Total Dry Density *PCF*	114	112	122	119	120
Moisture *PCF*	18	16	14	13	12
Excavated Material + Pan	4921		4936		
Pan	450		450		
+3/4" Material + Pan	896		1094		
Pan	421		421		
Specific Gravity	2.5		2.7		
Wt. of Soil + Mold *(g)*	3941		4059		
Wt. Mold *(g)*	2000		2000		
Wt. of Soil + Mold *RERUN*	3923				
Wt. Mold *RERUN*	2000				
Wet Wt. + Pan	2146				
Pan	1827				
Dry Wt. + Pan	2112				

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________

AUTHORIZATION NUMBER ____________

PROJECT NUMBER ____________

DISTRICT ____________

LOT NUMBER ____________

ITEM NUMBER ____________

PROBLEM #2

FORM T-316

MP 207.07.20

REV. 08-08

GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³					
		MA	MOISTURE	lb/ft³					
		DB	DRY DENSITY -3/4	lb/ft³					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
CC = CA - CB		CB	PAN	grams					
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		PB	MOLD	grams					
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft³					
		PE	DRY DENSITY	lb/ft³					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:	
	T	TARGET	%		INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%		CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

ANSWERS

Workshop
Number Three

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	9112762
AUTHORIZATION NUMBER	FC3838H
PROJECT NUMBER	S 317 - 2 - 41.55
DISTRICT	4
LOT NUMBER	F25
ITEM NUMBER	207 - 1

WVDOH

EXAMPLE

FORM T-316

MP 207.07.20

REV. 08-08

GAUGE NUMBER	26895	TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY	2912	STATION NUMBER	ft.	14+65	15+32	17+18	18+92	20+42
MOISTURE	662	OFFSET	ft.	8'LT CL	12'RT CL	38'RT CL	29'LT CL	10'LT CL
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.	18'	18'	18'	18'	18'
DENSITY	2901	LIFT THICKNESS	in.	6"	6"	6"	6"	6"
MOISTURE	655	DEPTH OF SOURCE	in.	6"	6"	6"	6"	6"

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	125	123	124	120	118
		MA	MOISTURE	lb/ft^3	10	11	12	16	16
		DB	DRY DENSITY -3/4	lb/ft^3	124	122	123	117	115
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%	8	9	10	14	14
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5035			4916	
CC = CA - CB		CB	PAN	grams	415			415	
CF = CD - CE		CC	EXCAVATED MAT.	grams	4620			4501	
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	829			1125	
		CE	PAN	grams	465			465	
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	364			660	
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	8			15	
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.5			2.5	

Formula	Section	Code	Item	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3941						4014	4032		
PE (RERUN) =		PB	MOLD	grams	2009						2009	2009		
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams	1932						2005	2023		
		PD	WET DENSITY	lb/ft^3	128						132	134		
		PE	DRY DENSITY	lb/ft^3	119						116	120		

Formula	Section	Code	Item	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams				598	
SE = SD - SB		SB	PAN	grams				245	
SF = SC - SE		SC	WET WEIGHT	grams				353	
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams				560	
		SE	DRY WEIGHT	grams				315	
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams				38	
		SG	MOISTURE	%				12	
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	12	12	12	12	12
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	123	123	123	120	120
		DE	RELATIVE DENSITY	%	101	99	100	98	96

Section	Code	Item	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	98.8	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.76		
	DF	WITHIN TOLERANCE	%	99	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	5111297
AUTHORIZATION NUMBER	FC3636K
PROJECT NUMBER	S 326 - 17 - 3.65
DISTRICT	4
LOT NUMBER	P - 218
ITEM NUMBER	604 (36)

PROBLEM #1 ANSWERS

FORM T-316

MP 207.07.20

REV. 08-08

GAUGE NUMBER	57420		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE		Today's	Today's	Today's	Today's	Today's
DENSITY	3165		STATION NUMBER	ft.	206+18	206+18	206+18	206+18	206+18
MOISTURE	621		OFFSET	ft.	37'RT CL	39'RT CL	31'RT CL	25'RT CL	42'RT CL
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.	14	13	12	10	9
DENSITY	3152		LIFT THICKNESS	in.	4	4	4	4	4
MOISTURE	620		DEPTH OF SOURCE	in.	4	4	4	4	4
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	114	111	112	115	116
		MA	MOISTURE	lb/ft³	15	18	18	14	16
		DB	DRY DENSITY -3/4	lb/ft³	113	109	110	114	115
MB = MA (100) / DB		MB	MOISTURE	%	13	17	16	12	14
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5057				
CC = CA - CB		CB	PAN	grams	525				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4532				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	829				
		CE	PAN	grams	545				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	284				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	6				
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5				

					1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3945									
PE (RERUN) =		PB	MOLD	grams	2000									
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	1945									
		PD	WET DENSITY	lb/ft³	128									
		PE	DRY DENSITY	lb/ft³	113									

					1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	14	14	14	14	14
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		PASS	PASS	PASS	PASS	PASS
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	114	114	114	114	114
		DE	RELATIVE DENSITY	%	99	96	96	100	101

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	98.4	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.68		
	DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	61181932
AUTHORIZATION NUMBER	FM2002C
PROJECT NUMBER	S 344 - 41 - 9.82
DISTRICT	10
LOT NUMBER	F - 32
ITEM NUMBER	207 - 1

PROBLEM #2 ANSWERS

FORM T-316

MP 207.07.20

REV. 08-08

GAUGE NUMBER	11162		TEST NUMBER		1		2		3		4		5	
MANUFACTURER'S STANDARDS			DATE		Today's		Today's		Today's		Today's		Today's	
DENSITY	2914		STATION NUMBER	ft.	87+14		88+21		89+33		90+62		92+03	
MOISTURE	667		OFFSET	ft.	18'RT CL		21'LT CL		4'LT CL		16'RT CL		23'RT CL	
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.	82'		82'		82'		82'		82'	
DENSITY	2896		LIFT THICKNESS	in.	6"		6"		6"		6"		6"	
MOISTURE	664		DEPTH OF SOURCE	in.	6"		6"		6"		6"		6"	
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	114		112		122		119		120	
		MA	MOISTURE	lb/ft^3	18		16		14		13		12	
		DB	DRY DENSITY -3/4	lb/ft^3	111		109		117		114		115	
MB = MA (100) / DB		MB	MOISTURE	%	16		15		12		11		10	
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4921				4936					
CC = CA - CB		CB	PAN	grams	450				450					
CF = CD - CE		CC	EXCAVATED MAT.	grams	4471				4486					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	896				1094					
		CE	PAN	grams	421				421					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	475				673					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	11				15					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5				2.7					
						RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3941	3923			4059					
PE (RERUN) =		PB	MOLD	grams	2000	2000			2000					
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	1941	1923			2059					
		PD	WET DENSITY	lb/ft^3	128	127			136					
		PE	DRY DENSITY	lb/ft^3	110	113			121					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	2146									
SE = SD - SB		SB	PAN	grams	1827									
SF = SC - SE		SC	WET WEIGHT	grams	319									
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams	2112									
		SE	DRY WEIGHT	grams	285									
DE = DB (100) / DC		SF	MOISTURE	grams	34									
		SG	MOISTURE	%	12									
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	14		14		12		12		12	
		OB	PLUS / MINUS TOLER.		+3 / -4		+3 / -4		+3 / -4		+3 / -4		+3 / -4	
		OC	PASS / FAIL		PASS		PASS		PASS		PASS		PASS	
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	114		114		121		121		121	
		DE	RELATIVE DENSITY	%	97		96		97		94		95	
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	95.8		INSPECTOR'S NAME:							
		T	TARGET	%	95		INSPECTOR'S SIGNATURE:							
		QL	QUALITY INDEX		0.27									
		DF	WITHIN TOLERANCE	%	73		PROJECT'S EVALUATION							
		DG	MIN. FOR 100% PAY	%	80		CHECKED BY:							
		DH	PASS / FAIL	YES	NO		DATE:							

BLANK FORMS

T-313

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number ____________________
Auth. Number ____________________
Project Number ____________________
District Number ____________________
Item Number ____________________
Date ________________

FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

B	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
Test Site		DA	Dry Density
1			
2			
3			
4			
5			
DC	**Max. Density**		

Inspector's Name: ____________________
Inspector's Signature: ____________________

Project's Evaluation

Checked By: ____________________
Date: ____________________

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number ____________
Auth. Number ____________
Project Number ____________
District Number ____________
Item Number ____________
Date ____________

FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

B	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
Test Site		DA	Dry Density
1			
2			
3			
4			
5			
DC	**Max. Density**		

Inspector's Name: ____________
Inspector's Signature: ____________

Project's Evaluation

Checked By: ____________
Date: ____________

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number ______________
Auth. Number ______________
Project Number ______________
District Number ______________
Item Number ______________
Date ______________

FORM T-313
MP 700.00.24
REV. 08-08

Source of Material:		
Roller Type:		
Roller Weight	Static:	Working:
Lift Thickness Compacted:		
Depth Below Grade:		
Depth of Gauge Source:		
Observed	Yes	No

Length of Test Section:	
Width of Test Section:	
Gauge Number	
Manufacturer's Standards	
Density:	Moisture:
Standard Counts	
Density:	Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

B	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1		
2		
3		
4		
5		
DC **Max. Density**		

Inspector's Name: ______________
Inspector's Signature: ______________

Project's Evaluation

Checked By: ______________
Date: ______________

BLANK FORMS

T-317

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ______________
AUTH. NUMBER ______________
PROJECT NUMBER ______________
DISTRICT ______________
ITEM NUMBER ______________

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE #		DATE					
MANUFACTURER'S DENSITY STANDARD		LOT NUMBER					
		BEGINNING STATION					
		ENDING STATION					
MANUFACTURER'S MOISTURE STANDARD		OFFSET					
		DEPTH BELOW GRADE					
		DEPTH OF GAUGE SOURCE					
		LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION		DENSITY STANDARD					
		MOISTURE STANDARD					
	DC	**MAXIMUM DENSITY**					
		REFERENCE LAB NUMBER					

$$DF = \frac{DE\,(100)}{DC}$$

$$\overline{X} = \frac{\Sigma\, DF}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

TEST NUMBER 1	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**					
	T	TARGET					
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY					
	DI	PASS / FAIL					

INSPECTOR'S NAME: ______________
INSPECTOR'S SIGNATURE: ______________

PROJECT'S EVALUATION

CHECKED BY: ______________ DATE: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ______________________
AUTH. NUMBER ______________________
PROJECT NUMBER ______________________
DISTRICT ______________________
ITEM NUMBER ______________________

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE #	DATE						
MANUFACTURER'S DENSITY STANDARD	LOT NUMBER						
	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S MOISTURE STANDARD	OFFSET						
	DEPTH BELOW GRADE						
	DEPTH OF GAUGE SOURCE						
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						

$$DF = \frac{DE\,(100)}{DC}$$

$$\overline{X} = \frac{\Sigma\ DF}{5}$$

$$QL = \frac{\overline{X} - T}{R}$$

DC	**MAXIMUM DENSITY**						
	REFERENCE LAB NUMBER						

TEST NUMBER 1	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	**DE**	DRY DENSITY					
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**					
	T	TARGET					
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY					
	DI	PASS / FAIL					

INSPECTOR'S NAME: ______________________
INSPECTOR'S SIGNATURE: ______________________

PROJECT'S EVALUATION

CHECKED BY: ______________________ DATE: __________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________________
AUTH. NUMBER ____________________
PROJECT NUMBER ____________________
DISTRICT ____________________
ITEM NUMBER ____________________

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE #		DATE					
MANUFACTURER'S DENSITY STANDARD		LOT NUMBER					
		BEGINNING STATION					
		ENDING STATION					
MANUFACTURER'S MOISTURE STANDARD		OFFSET					
		DEPTH BELOW GRADE					
		DEPTH OF GAUGE SOURCE					
		LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION		DENSITY STANDARD					
		MOISTURE STANDARD					
$DF = \frac{DE\ (100)}{DC}$	DC	**MAXIMUM DENSITY**					
$\overline{X} = \frac{\Sigma\ DF}{5}$		**REFERENCE LAB NUMBER**					
$QL = \frac{\overline{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY					
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY					
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\overline{X}$	AVERAGE **DF**					
	T	TARGET					
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY					
	DI	PASS / FAIL					

INSPECTOR'S NAME: ____________________
INSPECTOR'S SIGNATURE: ____________________
PROJECT'S EVALUATION
CHECKED BY: ____________________ DATE: __________

BLANK FORMS

T-316

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH DIVISION OF HIGHWAYS

LAB NUMBER ______________________

AUTHORIZATION NUMBER ______________________

PROJECT NUMBER ______________________

DISTRICT ______________________

LOT NUMBER ______________________

ITEM NUMBER ______________________

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GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA(100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
CC = CA - CB		CB	PAN	grams					
CF = CD - CE		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF(100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD(100)}{100 + MB}$		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		PB	MOLD	grams					
$\frac{PD(100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
$SG = \frac{SF(100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB(100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:			
		T	TARGET	%		INSPECTOR'S SIGNATURE:			
		QL	QUALITY INDEX						
		DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION			
		DG	MIN. FOR 100% PAY	%		CHECKED BY:			
		DH	PASS / FAIL	YES	NO	DATE:			

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________________

AUTHORIZATION NUMBER ____________________

PROJECT NUMBER ____________________

DISTRICT ____________________

LOT NUMBER ____________________

ITEM NUMBER ____________________

FORM T-316
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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

					1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA\,(100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
CC = CA - CB		CB	PAN	grams					
CF = CD - CE		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF\,(100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD\,(100)}{100 + MB}$		CH	SPECIFIC GRAVITY						

					1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams										
PE (RERUN) =		PB	MOLD	grams										
$\frac{PD\,(100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

					1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
$SG = \frac{SF\,(100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB\,(100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:	
	T	TARGET	%		INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%		CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER
AUTHORIZATION NUMBER ______________________
PROJECT NUMBER ______________________
DISTRICT ______________________
LOT NUMBER ______________________
ITEM NUMBER ______________________

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			1	2	3	4	5
GAUGE NUMBER	TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS	DATE						
DENSITY	STATION NUMBER	ft.					
MOISTURE	OFFSET	ft.					
GAUGE STANDARD COUNTS	DEPTH BELOW GRADE	ft.					
DENSITY	LIFT THICKNESS	in.					
MOISTURE	DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
CC = CA - CB		CB	PAN	grams					
CF = CD - CE		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		PB	MOLD	grams					
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit			
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%		INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%		CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER

AUTHORIZATION NUMBER ______________________

PROJECT NUMBER ______________________

DISTRICT ______________________

LOT NUMBER ______________________

ITEM NUMBER ______________________

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GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA\,(100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams					
$CC = CA - CB$		CB	PAN	grams					
$CF = CD - CE$		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF\,(100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams					
$PD = PC\,(0.066)$		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD\,(100)}{100 + MB}$		CH	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		PB	MOLD	grams					
$\frac{PD\,(100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
$SE = SD - SB$		SB	PAN	grams					
$SF = SC - SE$		SC	WET WEIGHT	grams					
$SG = \frac{SF\,(100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB\,(100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
$\overline{X} = \frac{\Sigma\, DE}{5}$		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
$QL = \frac{\overline{X} - T}{R}$		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value	
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:
	T	TARGET	%		INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%		CHECKED BY:
	DH	PASS / FAIL	YES	NO	DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

FORM T-316
MP 207.07.20
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LAB NUMBER
AUTHORIZATION NUMBER ____________________
PROJECT NUMBER ____________________
DISTRICT ____________________
LOT NUMBER ____________________
ITEM NUMBER ____________________

GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

					1	2	3	4	5
DB FROM TABLES	Field Density Moisture	**DA**	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA (100)}{DB}$		**MB**	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	**CA**	EXC. MATERIAL + PAN	grams					
CC = CA - CB		**CB**	PAN	grams					
CF = CD - CE		**CC**	EXCAVATED MAT.	grams					
$CG = \frac{CF (100)}{CC}$		**CD**	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
PC = PA - PB		**CF**	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		**CG**	PLUS 3/4 MAT.	%					
$PE = \frac{PD (100)}{100 + MB}$		**CH**	SPECIFIC GRAVITY						

					1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams										
PE (RERUN) = $\frac{PD (100)}{100 + SG}$		**PB**	MOLD	grams										
		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

					1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	**SA**	WET WEIGHT + PAN	grams					
SE = SD - SB		**SB**	PAN	grams					
SF = SC - SE		**SC**	WET WEIGHT	grams					
$SG = \frac{SF (100)}{SE}$		**SD**	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB (100)}{DC}$		**SF**	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	**OA**	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	**DC**	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:	
	T	TARGET	%		INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%		CHECKED BY:	
	DH	PASS / FAIL	YES	NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________________

AUTHORIZATION NUMBER ____________________

PROJECT NUMBER ____________________

DISTRICT ____________________

LOT NUMBER ____________________

ITEM NUMBER ____________________

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					1	2	3	4	5
GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	**DA**	TOTAL DRY DENSITY	lb/ft^3					
		MA	MOISTURE	lb/ft^3					
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA(100)}{DB}$		**MB**	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	**CA**	EXC. MATERIAL + PAN	grams					
$CC = CA - CB$		**CB**	PAN	grams					
$CF = CD - CE$		**CC**	EXCAVATED MAT.	grams					
$CG = \frac{CF(100)}{CC}$		**CD**	PLUS 3/4 MAT. + PAN	grams					
		CE	PAN	grams					
$PC = PA - PB$		**CF**	PLUS 3/4 MAT.	grams					
$PD = PC(0.066)$		**CG**	PLUS 3/4 MAT.	%					
$PE = \frac{PD(100)}{100 + MB}$		**CH**	SPECIFIC GRAVITY						
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	**PA**	WEIGHT SOIL & MOLD	grams					
PE (RERUN) =		**PB**	MOLD	grams					
$\frac{PD(100)}{100 + SG}$		**PC**	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
$SC = SA - SB$	STOVE DRIED MOISTURE	**SA**	WET WEIGHT + PAN	grams					
$SE = SD - SB$		**SB**	PAN	grams					
$SF = SC - SE$		**SC**	WET WEIGHT	grams					
$SG = \frac{SF(100)}{SE}$		**SD**	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB(100)}{DC}$		**SF**	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	**OA**	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	**DC**	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:
	T	TARGET	%		INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%		CHECKED BY:
	DH	PASS / FAIL	YES	NO	DATE:

COMPACTION INSPECTOR PRACTICE PROBLEMS

WVDOH

DIVISION OF HIGHWAYS

*Data for all lines are given or corrospond to an equation on left side of page

LAB NUMBER	
AUTHORIZATION NUMBER	General
PROJECT NUMBER	Project
DISTRICT	Information
LOT NUMBER	
ITEM NUMBER	

Note:Data from CG, CH,OA, & DC always carry over from Left to Right until a new proctor is established

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*The Numbers in RED are the order of operations

							1	2	3	4	5
GAUGE NUMBER				TEST NUMBER			1	2	3	4	5
MANUFACTURER'S STANDARDS				DATE			General Test Location/Identification				
DENSITY	From Calibration			STATION NUMBER	ft.						
MOISTURE	Paperwork			OFFSET	ft.						
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.						
DENSITY	From daily			LIFT THICKNESS	in.						
MOISTURE	Gauge counts			DEPTH OF SOURCE	in.						
DB FROM TABLES	Field Density Moisture	DA		TOTAL DRY DENSITY	lb/ft^3	1	From Nuclear Gauge				
		MA		MOISTURE	lb/ft^3	1					
		DB		DRY DENSITY -3/4	lb/ft^3	3	From Tables using CG, CH, & DA				
$MB = \frac{MA\ (100)}{DB}$		MB		MOISTURE	%	4					
	PLUS 3/4 MATERIAL DETERMINATION	CA		EXC. MATERIAL + PAN	grams	2					
CC = CA - CB		CB		PAN	grams	2					
CF = CD - CE		CC		EXCAVATED MAT.	grams	2					
$CG = \frac{CF\ (100)}{CC}$		CD		PLUS 3/4 MAT. + PAN	grams	2					
		CE		PAN	grams	2					
PC = PA - PB		CF		PLUS 3/4 MAT.	grams	2					
PD = PC (0.066)		CG		PLUS 3/4 MAT.	%	2					
$PE = \frac{PD\ (100)}{100 + MB}$		CH		SPECIFIC GRAVITY			Dependant on the type of rock (Given for test)				
							RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA		WEIGHT SOIL & MOLD	grams	5					
PE (RERUN) =		PB		MOLD	grams	5					
$\frac{PD\ (100)}{100 + SG}$		PC		WEIGHT OF SOIL	grams	5					
		PD		WET DENSITY	lb/ft^3	5					
		PE		DRY DENSITY	lb/ft^3	5					
SC = SA - SB	STOVE DRIED MOISTURE	SA		WET WEIGHT + PAN	grams		This section is performed 6th, only used if a rerun proctor is performed (stove dried moisture is used to plot max. density/optimum moisture)				
SE = SD - SB		SB		PAN	grams						
SF = SC - SE		SC		WET WEIGHT	grams						
$SG = \frac{SF\ (100)}{SE}$		SD		DRY WEIGHT + PAN	grams						
		SE		DRY WEIGHT	grams						
$DE = \frac{DB\ (100)}{DC}$		SF		MOISTURE	grams						
		SG		MOISTURE	%						
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA		OPTIMUM MOISTURE	%		6 if no rerun needed \ 7 if first proctor doesn't plot				
		OB		PLUS / MINUS TOLER.			+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC		PASS / FAIL							
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC		MAXIMUM DENSITY	lb/ft^3		6 if no rerun needed \ 7 if first proctor doesn't plot				
		DE		RELATIVE DENSITY	%						
	LOT EVALUATION	$\overline{X}$		AVERAGE DE	%			INSPECTOR'S NAME:			
		T		TARGET	%		95	INSPECTOR'S SIGNATURE:			
		QL		QUALITY INDEX							
		DF		WITHIN TOLERANCE	%			PROJECT'S EVALUATION			
		DG		MIN. FOR 100% PAY	%		80	CHECKED BY:			
		DH		PASS / FAIL				DATE:			

*Reruns only performed if original proctor doesn't plot on table (Page 6-15)

R = Highest DE - Lowest DE

Attachment 2 of MP 207.07.20 (Page 6-14)

Attachment 3 of MP 207.07.20 (Page 6-15)

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER A

AUTHORIZATION NUMBER

PROJECT NUMBER

DISTRICT

LOT NUMBER

ITEM NUMBER

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	127	125	122	126	119
		MA	MOISTURE	lb/ft^3	14	15	17	14	17
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA\ (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4952				
CC = CA - CB		CB	PAN	grams	316				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF\ (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	759				
		CE	PAN	grams	316				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD\ (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.7	2.7	2.7	2.7	2.7
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4055				
PE (RERUN) =		PB	MOLD	grams	2009				
$\frac{PD\ (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
$SG = \frac{SF\ (100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB\ (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
$QL = \frac{\overline{X} - T}{R}$		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

DIVISION OF HIGHWAYS

LAB NUMBER B

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PROJECT NUMBER

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GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	111	109	108	110	109
		MA	MOISTURE	lb/ft^3	14	15	17	14	17
		DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5541				
CC = CA - CB		CB	PAN	grams	502				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	759				
		CE	PAN	grams	502				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5	2.5	2.5	2.5	2.5
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3822				
PE (RERUN) =		PB	MOLD	grams	1995				
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft^3					
		PE	DRY DENSITY	lb/ft^3					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
$QL = \frac{\overline{X} - T}{R}$		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:
	DH	PASS / FAIL			DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	C
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GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

Formula	Section	Code	Description	Unit	1	2	3	4	5
			TEST NUMBER		1	2	3	4	5
			DATE						
			STATION NUMBER	ft.					
			OFFSET	ft.					
			DEPTH BELOW GRADE	ft.					
			LIFT THICKNESS	in.					
			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	108	109	108	110	111
		MA	MOISTURE	lb/ft³	20	19	20	18	20
		DB	DRY DENSITY -3/4	lb/ft³					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4862				
CC = CA - CB		CB	PAN	grams	298				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	2045				
		CE	PAN	grams	298				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.4	2.4	2.4	2.4	2.4
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3799				
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams	2022				
		PC	WEIGHT OF SOIL	grams					
		PD	WET DENSITY	lb/ft³					
		PE	DRY DENSITY	lb/ft³					
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³					
$QL = \frac{\overline{X} - T}{R}$		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER D

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	**130**	**130**	**131**	**129**	**127**
		MA	MOISTURE	lb/ft^3	**11**	**9**	**8**	**10**	**11**
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA\ (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	**5005**				
CC = CA - CB		CB	PAN	grams	**259**				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF\ (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	**759**				
		CE	PAN	grams	**259**				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD\ (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		**2.7**	**2.7**	**2.7**	**2.7**	**2.7**

Formula	Section	Code	Description	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	**4100**									
PE (RERUN) = $\frac{PD\ (100)}{100 + SG}$		PB	MOLD	grams	**2001**									
		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Description	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
$SG = \frac{SF\ (100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
$DE = \frac{DB\ (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.		**+3 / -4**	**+3 / -4**	**+3 / -4**	**+3 / -4**	**+3 / -4**
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value	
LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:
	T	TARGET	%	**95**	INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%	**80**	CHECKED BY:
	DH	PASS / FAIL			DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH DIVISION OF HIGHWAYS

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	122	125	128	129	127
		MA	MOISTURE	lb/ft^3	11	9	10	9	11
		DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	6004				
CC = CA - CB		CB	PAN	grams	1009				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	1894				
		CE	PAN	grams	1009				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.6	2.7	2.7	2.7	2.7

Formula	Section	Code	Description	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3975									
PE (RERUN) =		PB	MOLD	grams	1954									
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Description	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

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GAUGE NUMBER				TEST NUMBER		1		2		3		4		5	
MANUFACTURER'S STANDARDS				DATE											
DENSITY				STATION NUMBER	ft.										
MOISTURE				OFFSET	ft.										
GAUGE STANDARD COUNTS				DEPTH BELOW GRADE	ft.										
DENSITY				LIFT THICKNESS	in.										
MOISTURE				DEPTH OF SOURCE	in.										
DB FROM TABLES	Field Density Moisture	DA		TOTAL DRY DENSITY	lb/ft^3	118		120		119		117		120	
		MA		MOISTURE	lb/ft^3	17		14		16		15		16	
		DB		DRY DENSITY -3/4	lb/ft^3										
MB = MA (100) / DB		MB		MOISTURE	%										
	PLUS 3/4 MATERIAL DETERMINATION	CA		EXC. MATERIAL + PAN	grams	4839									
CC = CA - CB		CB		PAN	grams	306									
CF = CD - CE		CC		EXCAVATED MAT.	grams										
CG = CF (100) / CC		CD		PLUS 3/4 MAT. + PAN	grams	1229									
		CE		PAN	grams	306									
PC = PA - PB		CF		PLUS 3/4 MAT.	grams										
PD = PC (0.066)		CG		PLUS 3/4 MAT.	%										
PE = PD (100) / 100 + MB		CH		SPECIFIC GRAVITY		2.4		2.4		2.4		2.4		2.4	
							RERUN		RERUN		RERUN		RERUN		RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA		WEIGHT SOIL & MOLD	grams	3975	3958								
PE (RERUN) =		PB		MOLD	grams	1954	1954								
PD (100) / 100 + SG		PC		WEIGHT OF SOIL	grams										
		PD		WET DENSITY	lb/ft^3										
		PE		DRY DENSITY	lb/ft^3										
SC = SA - SB	STOVE DRIED MOISTURE	SA		WET WEIGHT + PAN	grams	1876									
SE = SD - SB		SB		PAN	grams	1501									
SF = SC - SE		SC		WET WEIGHT	grams										
SG = SF (100) / SE		SD		DRY WEIGHT + PAN	grams	1839									
		SE		DRY WEIGHT	grams										
DE = DB (100) / DC		SF		MOISTURE	grams										
		SG		MOISTURE	%										
	MOIST. EVAL.	OA		OPTIMUM MOISTURE	%										
$\overline{X} = \frac{\Sigma DE}{5}$		OB		PLUS / MINUS TOLER.		+3 / -4		+3 / -4		+3 / -4		+3 / -4		+3 / -4	
		OC		PASS / FAIL											
	DEN EVAL	DC		MAXIMUM DENSITY	lb/ft^3										
$QL = \frac{\overline{X} - T}{R}$		DE		RELATIVE DENSITY	%										

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	108	110	110	111	109
		MA	MOISTURE	lb/ft^3	17	16	16	17	16
		DB	DRY DENSITY -3/4	lb/ft^3					
MB = $\frac{MA (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5245				
CC = CA - CB		CB	PAN	grams	555				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = $\frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	605				
		CE	PAN	grams	555				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = $\frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.4	2.4	2.4	2.4	2.4

Formula	Section	Code	Description	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3957	3944								
PE (RERUN) =		PB	MOLD	grams	2003	2003								
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Description	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1111				
SE = SD - SB		SB	PAN	grams	879				
SF = SC - SE		SC	WET WEIGHT	grams					
SG = $\frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams	1082				
		SE	DRY WEIGHT	grams					
DE = $\frac{DB (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
QL= $\frac{\overline{X} - T}{R}$		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

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GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	116	116	116	116	117
		MA	MOISTURE	lb/ft^3	17	15	15	14	13
		DB	DRY DENSITY -3/4	lb/ft^3					
MB = MA (100) / DB		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4839				
CC = CA - CB		CB	PAN	grams	339				
CF = CD - CE		CC	EXCAVATED MAT.	grams					
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	777				
		CE	PAN	grams	339				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams					
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%					
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5	2.5	2.5	2.5	2.5

					1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3999	3969								
PE (RERUN) =		PB	MOLD	grams	1999	1999								
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

					1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1542				
SE = SD - SB		SB	PAN	grams	1200				
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams	1511				
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:
	DH	PASS / FAIL			DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

LAB NUMBER |

AUTHORIZATION NUMBER

PROJECT NUMBER

DISTRICT

LOT NUMBER

ITEM NUMBER

FORM T-316
MP 207.07.20
REV. 08-08

GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	117	117	117	117	116
		MA	MOISTURE	lb/ft^3	17	15	15	14	13
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%					
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4839				
$CC = CA - CB$		CB	PAN	grams	339				
$CF = CD - CE$		CC	EXCAVATED MAT.	grams					
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	777				
		CE	PAN	grams	339				
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams					
$PD = PC (0.066)$		CG	PLUS 3/4 MAT.	%					
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.5				

Formula	Section	Code	Item	Unit	1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3999	3969								
PE (RERUN) =		PB	MOLD	grams	1999	1999								
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Item	Unit	1	2	3	4	5
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1542				
$SE = SD - SB$		SB	PAN	grams	1200				
$SF = SC - SE$		SC	WET WEIGHT	grams					
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams	1511				
		SE	DRY WEIGHT	grams					
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.						
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

Section	Code	Item	Unit	Value	
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:
	T	TARGET	%		INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX			
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%		CHECKED BY:
	DH	PASS / FAIL			DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

FORM T-316
MP 207.07.20
REV. 08-08

LAB NUMBER J
AUTHORIZATION NUMBER
PROJECT NUMBER
DISTRICT
LOT NUMBER
ITEM NUMBER

GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	105	117	116	124	111
		MA	MOISTURE	lb/ft^3	16	15	16	12	18
		DB	DRY DENSITY -3/4	lb/ft^3					
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%					
$CC = CA - CB$	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5003	5121		5346	5224
$CF = CD - CE$		CB	PAN	grams	500	500		500	500
$CG = \frac{CF (100)}{CC}$		CC	EXCAVATED MAT.	grams					
$PC = PA - PB$		CD	PLUS 3/4 MAT. + PAN	grams	654	1026		742	833
$PD = PC (0.066)$		CE	PAN	grams	500	500		500	500
$PE = \frac{PD (100)}{100 + MB}$		CF	PLUS 3/4 MAT.	grams					
		CG	PLUS 3/4 MAT.	%					
		CH	SPECIFIC GRAVITY		2.4	2.6	2.6	2.7	2.5

Formula	Section	Code	Description	Unit	1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3901		3985				4108		3954	3931
PE (RERUN) =		PB	MOLD	grams	2004		2004				2004		2004	2004
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams										
		PD	WET DENSITY	lb/ft^3										
		PE	DRY DENSITY	lb/ft^3										

Formula	Section	Code	Description	Unit	1	2	3	4	5
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					1564
$SE = SD - SB$		SB	PAN	grams					1209
$SF = SC - SE$		SC	WET WEIGHT	grams					
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams					1524
		SE	DRY WEIGHT	grams					
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%					
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3					
		DE	RELATIVE DENSITY	%					

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX				
	DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL			DATE:	

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number K
Auth. Number
Project Number
District Number
Item Number
Date

FORM T-313
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Source of Material:			
Roller Type:			
Roller Weight	Static:	Working:	
Lift Thickness Compacted:			
Depth Below Grade:			
Depth of Gauge Source:			
Observed	Yes	No	

Length of Test Section:	
Width of Test Section:	
Gauge Number	
Manufacturer's Standards	
Density:	Moisture:
Standard Counts	
Density:	Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		12
	Test Site	DA	Dry Density
	1	132	
	2	134	
DB	Average		

B	Number of Passes		14
	Test Site	DA	Dry Density
	1	133	
	2	135	
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1		
2		
3	136	
4	132	
5	135	
DC **Max. Density**		

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number L
Auth. Number
Project Number
District Number
Item Number
Date

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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		12
	Test Site	DA	Dry Density
	1	124	
	2	127	
DB	Average		

B	Number of Passes		14
	Test Site	DA	Dry Density
	1	127	
	2	129	
DB	Average		

C	Number of Passes		16
	Test Site	DA	Dry Density
	1	128	
	2	130	
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1		
2		
3	127	
4	126	
5	128	
DC **Max. Density**		

Inspector's Name:
Inspector's Signature:
Project's Evaluation
Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number M
Auth. Number
Project Number
District Number
Item Number
Date

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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		**12**
	Test Site	**DA**	Dry Density
	1		**140**
	2		**141**
DB	Average		

B	Number of Passes		**14**
	Test Site	**DA**	Dry Density
	1		**142**
	2		**143**
DB	Average		

C	Number of Passes		**16**
	Test Site	**DA**	Dry Density
	1		**145**
	2		**145**
DB	Average		

D	Number of Passes		**18**
	Test Site	**DA**	Dry Density
	1		**146**
	2		**144**
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	**DA**	Dry Density
1		
2		
3		**147**
4		**143**
5		**145**
DC	**Max. Density**	

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number N
Auth. Number
Project Number
District Number
Item Number
Date

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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		**12**
	Test Site	DA	Dry Density
	1	**105**	
	2	**101**	
DB	Average		

B	Number of Passes		**14**
	Test Site	DA	Dry Density
	1	**106**	
	2	**104**	
DB	Average		

C	Number of Passes		**16**
	Test Site	DA	Dry Density
	1	**108**	
	2	**107**	
DB	Average		

D	Number of Passes		**18**
	Test Site	DA	Dry Density
	1	**109**	
	2	**109**	
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1		
2		
3	**108**	
4	**105**	
5	**110**	
DC **Max. Density**		

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number O
Auth. Number
Project Number
District Number
Item Number
Date

FORM T-313
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Source of Material:		
Roller Type:		
Roller Weight	Static:	Working:
Lift Thickness Compacted:		
Depth Below Grade:		
Depth of Gauge Source:		
Observed	Yes	No

Length of Test Section:	
Width of Test Section:	
Gauge Number	
Manufacturer's Standards	
Density:	Moisture:
Standard Counts	
Density:	Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		
	Test Site	DA	Dry Density
	1	131	
	2	133	
DB	Average		

B	Number of Passes		
	Test Site	DA	Dry Density
	1	134	
	2	134	
DB	Average		

C	Number of Passes		
	Test Site	DA	Dry Density
	1	135	
	2	137	
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1	136	
	2	136	
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
	Test Site	DA	Dry Density
	1		
	2		
	3	138	
	4	139	
	5	132	
DC	**Max. Density**		

Inspector's Name:
Inspector's Signature:
Project's Evaluation
Checked By:
Date:

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: P
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

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REV. 08-08

			P-1	P-2	P-3	P-4	P-5
GAUGE NO.		DATE					
MANUFACTURER'S		LOT NUMBER					
DENSITY STD. COUNT		BEGINNING STATION					
		ENDING STATION					
MANUFACTURER'S		OFFSET					
MOISTURE STD. COUNT		DEPTH BELOW GRADE	6	4	8	6	4
		DEPTH OF GAUGE SOURCE	6	4	8	6	4
		LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION		DENSITY STANDARD					
		MOISTURE STANDARD					
$DF= \frac{DE(100)}{DC}$	DC	MAXIMUM DENSITY	134	128	145	108	136
$\ddot{X} = \frac{\sum DF}{5}$		REFERENCE LAB NUMBER	K	L	M	N	O
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	127	125	139	107	138
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	131	129	144	101	137
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	134	130	141	107	139
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	131	127	138	106	139
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	139	129	139	108	141
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95	95	95	95	95
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80	80	80	80	80
	DI	PASS/FAIL					

Inspector's Signature ____________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: Q
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
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GAUGE NO.	DATE					
MANUFACTURER'S	LOT NUMBER					
DENSITY STD. COUNT	BEGINNING STATION					
	ENDING STATION					
MANUFACTURER'S	OFFSET					
MOISTURE STD. COUNT	DEPTH BELOW GRADE					
	DEPTH OF GAUGE SOURCE					
	LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION	DENSITY STANDARD					
	MOISTURE STANDARD					

$$DF = \frac{DE(100)}{DC}$$

$$\ddot{X} = \frac{\sum DF}{5}$$

$$QL = \frac{\ddot{X} - T}{R}$$

DC	MAXIMUM DENSITY	137					
	REFERENCE LAB NUMBER	123456					

TEST NUMBER 1	DE	DRY DENSITY	127				
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	131				
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	134				
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	131				
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	139				
	DF	% RELATIVE DENSITY					

LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95				
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80				
	DI	PASS/FAIL					

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: R
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

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GAUGE NO.	DATE		B-15	B-16	B-17		
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6	6		
	DEPTH OF GAUGE SOURCE		6	6	6		
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
$DF = \frac{DE(100)}{DC}$	DC	MAXIMUM DENSITY	137	137	137		
$\ddot{X} = \frac{\sum DF}{5}$		REFERENCE LAB NUMBER	123456	123456	123456		
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	136	135	139		
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	136	137	144		
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	134	138	141		
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	135	141	138		
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	143	142	143		
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95	95	95		
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80	80	80		
	DI	PASS/FAIL					

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: S
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

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GAUGE NO.	DATE		B-18	B-19			
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6			
	DEPTH OF GAUGE SOURCE		6	6			
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
$DF = \frac{DE(100)}{DC}$	DC	MAXIMUM DENSITY	140	140			
$\ddot{X} = \frac{\sum DF}{5}$		REFERENCE LAB NUMBER	123457	123457			
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	138	144			
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	141	137			
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	143	137			
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	137	140			
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	143	142			
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95	95			
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80	80			
	DI	PASS/FAIL					

Inspector's Signature ____________________

Project's Evaluation

Checked By: ____________ Date: ____________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: T
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

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			S-1	S-2	S-3	S-4	
GAUGE NO.	DATE						
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6	6	6	
	DEPTH OF GAUGE SOURCE		6	6	6	6	
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
	DC	MAXIMUM DENSITY	132	132	132	132	
	REFERENCE LAB NUMBER		123455	123455	123455	123455	
TEST NUMBER 1	DE	DRY DENSITY	128	125	139	127	
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	131	129	134	126	
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	134	130	131	127	
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	126	127	127	128	
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	133	129	130	126	
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95	95	95	95	
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80	80	80	80	
	DI	PASS/FAIL					

$$DF = \frac{DE(100)}{DC}$$

$$\ddot{X} = \frac{\sum DF}{5}$$

$$QL = \frac{\ddot{X} - T}{R}$$

Inspector's Signature ____________________

Project's Evaluation

Checked By: ____________ Date: ____________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: U
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE NO.		DATE	P-96	P-97			
MANUFACTURER'S		LOT NUMBER					
DENSITY STD. COUNT		BEGINNING STATION					
		ENDING STATION					
MANUFACTURER'S		OFFSET					
MOISTURE STD. COUNT		DEPTH BELOW GRADE	4	4			
		DEPTH OF GAUGE SOURCE	4	4			
		LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION		DENSITY STANDARD					
		MOISTURE STANDARD					
$DF = \frac{DE(100)}{DC}$	DC	MAXIMUM DENSITY	112	118			
$\ddot{X} = \frac{\sum DF}{5}$		REFERENCE LAB NUMBER	123465	123466			
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	110	115			
	DF	% RELATIVE DENSITY					
TEST NUMBER 2	DE	DRY DENSITY	108	116			
	DF	% RELATIVE DENSITY					
TEST NUMBER 3	DE	DRY DENSITY	111	113			
	DF	% RELATIVE DENSITY					
TEST NUMBER 4	DE	DRY DENSITY	109	117			
	DF	% RELATIVE DENSITY					
TEST NUMBER 5	DE	DRY DENSITY	108	113			
	DF	% RELATIVE DENSITY					
LOT EVALUATION	$\ddot{X}$	AVERAGE DF					
	T	TARGET	95	95			
	QL	QUALITY INDEX					
	DG	% WITHIN TOLERANCE					
	DH	MIN. FOR 100% PAY	80	80			
	DI	PASS/FAIL					

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

COMPACTION INSPECTOR PRACTICE

ANSWERS

*Data for all lines are given or corrospond to an equation on left side of page

LAB NUMBER	
AUTHORIZATION NUMBER	General
PROJECT NUMBER	Project
DISTRICT	Information
LOT NUMBER	
ITEM NUMBER	

Note: Data from CG, CH, OA, & DC always carry over from Left to Right until a new proctor is established

WVDOH

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***The Numbers in RED are the order of operations**

					1	2	3	4	5
GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY	From Calibration		STATION NUMBER	ft.	General Test Location/Identification				
MOISTURE	Paperwork		OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY	From daily		LIFT THICKNESS	in					
MOISTURE	Gauge counts		DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	1 From Nuclear Gauge				
		MA	MOISTURE	lb/ft³	1				
		DB	DRY DENSITY -3/4	lb/ft³	3 From Tables using CG, CH, & DA				
MB = MA (100) / DB		MB	MOISTURE	%	4				
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	2				
CC = CA - CB		CB	PAN	grams	2				
CF = CD - CE		CC	EXCAVATED MAT.	grams	2				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	2				
		CE	PAN	grams	2				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	2				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	2				
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		Dependant on the type of rock (Given for test)				
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	5				
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams	5				
		PC	WEIGHT OF SOIL	grams	5				
		PD	WET DENSITY	lb/ft³	5				
		PE	DRY DENSITY	lb/ft³	5				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	This section is performed 6th, only used if a rerun proctor is performed (stove dried moisture is used to plot max. density/optimum moisture)				
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	6 if no rerun needed \ 7 if first proctor doesn't plot				
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL						
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	6 if no rerun needed \ 7 if first proctor doesn't plot				
		DE	RELATIVE DENSITY	%					
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%		INSPECTOR'S NAME:			
		T	TARGET	%	95	INSPECTOR'S SIGNATURE:			
		QL	QUALITY INDEX						
		DF	WITHIN TOLERANCE	%		PROJECT'S EVALUATION			
		DG	MIN. FOR 100% PAY	%	80	CHECKED BY:			
		DH	PASS / FAIL			DATE:			

*Reruns only performed if original proctor doesn't plot on table (Page 6-15)

R = Highest DE - Lowest DE

Attachment 2 of MP 207.07.20 (Page 6-14)

Attachment 3 of MP 207.07.20 (Page 6-15)

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

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LAB NUMBER	A
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

					1	2	3	4	5
GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	127	125	122	126	119
		MA	MOISTURE	lb/ft³	14	15	17	14	17
		DB	DRY DENSITY -3/4	lb/ft³	125	122	119	124	116
MB = MA (100) / DB		MB	MOISTURE	%	11	12	14	11	15
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4952				
CC = CA - CB		CB	PAN	grams	316				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4636				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	759				
		CE	PAN	grams	316				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	443				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	10	10	10	10	10
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.7	2.7	2.7	2.7	2.7
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4055				
PE (RERUN) =		PB	MOLD	grams	2009				
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	2046				
		PD	WET DENSITY	lb/ft³	135				
		PE	DRY DENSITY	lb/ft³	122				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	12	12	12	12	12
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	122	122	122	122	122
		DE	RELATIVE DENSITY	%	102	100	98	102	95
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	99.4	INSPECTOR'S NAME:			
		T	TARGET	%	95	INSPECTOR'S SIGNATURE:			
		QL	QUALITY INDEX		0.63				
		DF	WITHIN TOLERANCE	%	97	PROJECT'S EVALUATION			
		DG	MIN. FOR 100% PAY	%	80	CHECKED BY:			
		DH	PASS / FAIL		YES	DATE:			

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	B
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

FORM T-316
MP 207.07.20
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GAUGE NUMBER			TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS			DATE						
DENSITY			STATION NUMBER	ft.					
MOISTURE			OFFSET	ft.					
GAUGE STANDARD COUNTS			DEPTH BELOW GRADE	ft.					
DENSITY			LIFT THICKNESS	in.					
MOISTURE			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	111	109	108	110	109
		MA	MOISTURE	lb/ft^3	14	15	17	14	17
		DB	DRY DENSITY -3/4	lb/ft^3	110	108	106	109	108
MB = MA (100) / DB		MB	MOISTURE	%	13	14	16	13	16
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5541				
CC = CA - CB		CB	PAN	grams	502				
CF = CD - CE		CC	EXCAVATED MAT.	grams	5039				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	759				
		CE	PAN	grams	502				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	257				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	5	5	5	5	5
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5	2.5	2.5	2.5	2.5
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3822				
PE (RERUN) =		PB	MOLD	grams	1995				
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	1827				
		PD	WET DENSITY	lb/ft^3	121				
		PE	DRY DENSITY	lb/ft^3	107				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	17	17	17	17	17
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	109	109	109	109	109
		DE	RELATIVE DENSITY	%	101	99	97	100	99
	LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	99.2	INSPECTOR'S NAME:			
		T	TARGET	%	95	INSPECTOR'S SIGNATURE:			
		QL	QUALITY INDEX		1.05				
		DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION			
		DG	MIN. FOR 100% PAY	%	80	CHECKED BY:			
		DH	PASS / FAIL		YES	DATE:			

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER C
AUTHORIZATION NUMBER
PROJECT NUMBER
DISTRICT
LOT NUMBER
ITEM NUMBER

WVDOH

FORM T-316
MP 207.07.20
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GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

Formula	Section	Code	Item	Unit	1	2	3	4	5
			TEST NUMBER		1	2	3	4	5
			DATE						
			STATION NUMBER	ft.					
			OFFSET	ft.					
			DEPTH BELOW GRADE	ft.					
			LIFT THICKNESS	in.					
			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	108	109	108	110	111
		MA	MOISTURE	lb/ft³	20	19	20	18	20
		DB	DRY DENSITY -3/4	lb/ft³	93	95	93	97	98
MB = MA (100) / DB		MB	MOISTURE	%	22	20	22	19	20
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4862				
CC = CA - CB		CB	PAN	grams	298				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4564				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	2045				
		CE	PAN	grams	298				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	1747				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	38	38	38	38	38
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.4	2.4	2.4	2.4	2.4
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3799				
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams	2022				
		PC	WEIGHT OF SOIL	grams	1777				
		PD	WET DENSITY	lb/ft³	117				
		PE	DRY DENSITY	lb/ft³	96				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	23	23	23	23	23
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	96	96	96	96	96
		DE	RELATIVE DENSITY	%	97	99	97	101	102

Section	Code	Item	Unit	Value	
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	99.2	INSPECTOR'S NAME:
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:
	QL	QUALITY INDEX		0.84	
	DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:
	DH	PASS / FAIL		YES	DATE:

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

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LAB NUMBER	D
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

TEST NUMBER			1	2	3	4	5
DATE							
STATION NUMBER		ft.					
OFFSET		ft.					
DEPTH BELOW GRADE		ft.					
LIFT THICKNESS		in.					
DEPTH OF SOURCE		in.					

Formula	Section	Code	Description	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	130	130	131	129	127
		MA	MOISTURE	lb/ft^3	11	9	8	10	11
		DB	DRY DENSITY -3/4	lb/ft^3	128	128	129	127	124
MB = $\frac{MA (100)}{DB}$		MB	MOISTURE	%	9	7	6	8	9
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5005				
CC = CA - CB		CB	PAN	grams	259				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4746				
CG = $\frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	759				
PC = PA - PB		CE	PAN	grams	259				
PD = PC (0.066)		CF	PLUS 3/4 MAT.	grams	500				
PE = $\frac{PD (100)}{100 + MB}$		CG	PLUS 3/4 MAT.	%	11	11	11	11	11
		CH	SPECIFIC GRAVITY		2.7	2.7	2.7	2.7	2.7
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	4100				
PE (RERUN) =		PB	MOLD	grams	2001				
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams	2099				
		PD	WET DENSITY	lb/ft^3	139				
		PE	DRY DENSITY	lb/ft^3	128				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = $\frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = $\frac{DB (100)}{DC}$		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	10	10	10	10	10
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
QL= $\frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	128	128	128	128	128
		DE	RELATIVE DENSITY	%	100	100	101	99	97

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%	99.4	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		1.10		
	DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH

FORM T-316

MP 207.07.20

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LAB NUMBER	E
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	122	125	128	129	127
		MA	MOISTURE	lb/ft^3	11	9	10	9	11
		DB	DRY DENSITY -3/4	lb/ft^3	117	120	124	125	122
MB = MA (100) / DB		MB	MOISTURE	%	9	8	8	7	9
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	6004				
CC = CA - CB		CB	PAN	grams	1009				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4995				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	1894				
		CE	PAN	grams	1009				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	885				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	18	18	18	18	18
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.6	2.7	2.7	2.7	2.7
					RERUN	RERUN	RERUN	RERUN	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3975				
PE (RERUN) = PD (100) / 100 + SG		PB	MOLD	grams	1954				
		PC	WEIGHT OF SOIL	grams	2021				
		PD	WET DENSITY	lb/ft^3	133				
		PE	DRY DENSITY	lb/ft^3	122				
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					
SE = SD - SB		SB	PAN	grams					
SF = SC - SE		SC	WET WEIGHT	grams					
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					
		SE	DRY WEIGHT	grams					
DE = DB (100) / DC		SF	MOISTURE	grams					
		SG	MOISTURE	%					
$\overline{X} = \frac{\Sigma\ DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	11	11	11	11	11
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	124	124	124	124	124
		DE	RELATIVE DENSITY	%	94	97	100	101	98

Section	Code	Item	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	98	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.43		
	DF	WITHIN TOLERANCE	%	86	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	F
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

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GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

TEST NUMBER		1	2	3	4	5
DATE						
STATION NUMBER	ft.					
OFFSET	ft.					
DEPTH BELOW GRADE	ft.					
LIFT THICKNESS	in.					
DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Units	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	118	120	119	117	120
		MA	MOISTURE	lb/ft³	17	14	16	15	16
		DB	DRY DENSITY -3/4	lb/ft³	115	117	116	113	117
MB = MA (100) / DB		MB	MOISTURE	%	15	12	14	13	14
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4839				
CC = CA - CB		CB	PAN	grams	306				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4533				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	1229				
		CE	PAN	grams	306				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	923				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	20	20	20	20	20
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.4	2.4	2.4	2.4	2.4

Formula	Section	Code	Item	Units	1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3975	3958								
PE (RERUN) =		PB	MOLD	grams	1954	1954								
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	2021	2004								
		PD	WET DENSITY	lb/ft³	133	132								
		PE	DRY DENSITY	lb/ft³	116	119								

Formula	Section	Code	Item	Units	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1876				
SE = SD - SB		SB	PAN	grams	1501				
SF = SC - SE		SC	WET WEIGHT	grams	375				
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams	1839				
		SE	DRY WEIGHT	grams	338				
DE = DB (100) / DC		SF	MOISTURE	grams	37				
		SG	MOISTURE	%	11				
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	12	12	12	12	12
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	120	120	120	120	120
		DE	RELATIVE DENSITY	%	96	98	97	94	98

Section	Code	Item	Units	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	96.6	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.40		
	DF	WITHIN TOLERANCE	%	83	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH DIVISION OF HIGHWAYS

LAB NUMBER	G
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DISTRICT	
LOT NUMBER	
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GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

TEST NUMBER		1	2	3	4	5
DATE						
STATION NUMBER	ft.					
OFFSET	ft.					
DEPTH BELOW GRADE	ft.					
LIFT THICKNESS	in.					
DEPTH OF SOURCE	in.					

					1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	108	110	110	111	109
		MA	MOISTURE	lb/ft^3	17	16	16	17	16
		DB	DRY DENSITY -3/4	lb/ft^3	108	110	110	111	109
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%	16	15	15	15	15
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5245				
$CC = CA - CB$		CB	PAN	grams	555				
$CF = CD - CE$		CC	EXCAVATED MAT.	grams	4690				
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	605				
		CE	PAN	grams	555				
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams	50				
$PD = PC (0.066)$		CG	PLUS 3/4 MAT.	%	1	1	1	1	1
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.4	2.4	2.4	2.4	2.4

					1	RERUN	2	RERUN	3	RERUN	4	RERUN	5	RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3957	3944								
PE (RERUN) =		PB	MOLD	grams	2003	2003								
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams	1954	1941								
		PD	WET DENSITY	lb/ft^3	129	128								
		PE	DRY DENSITY	lb/ft^3	111	112								

					1	2	3	4	5
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1111				
$SE = SD - SB$		SB	PAN	grams	879				
$SF = SC - SE$		SC	WET WEIGHT	grams	232				
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams	1082				
		SE	DRY WEIGHT	grams	203				
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams	29				
		SG	MOISTURE	%	14				
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	15	15	15	15	15
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	112	112	112	112	112
		DE	RELATIVE DENSITY	%	96	98	98	99	97

LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%	97.6	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.87		
	DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER	H
AUTHORIZATION NUMBER	
PROJECT NUMBER	
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WVDOH DIVISION OF HIGHWAYS

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft³	116	116	116	116	117
		MA	MOISTURE	lb/ft³	17	15	15	14	13
		DB	DRY DENSITY -3/4	lb/ft³	114	114	114	114	115
MB = MA (100) / DB		MB	MOISTURE	%	15	13	13	12	11
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4839				
CC = CA - CB		CB	PAN	grams	339				
CF = CD - CE		CC	EXCAVATED MAT.	grams	4500				
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	777				
		CE	PAN	grams	339				
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	438				
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	10	10	10	10	10
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.5	2.5	2.5	2.5	2.5

Formula	Section	Code	Item	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3999	3969								
PE (RERUN) =		PB	MOLD	grams	1999	1999								
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	2000	1970								
		PD	WET DENSITY	lb/ft³	132	130								
		PE	DRY DENSITY	lb/ft³	115	118								

Formula	Section	Code	Item	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1542				
SE = SD - SB		SB	PAN	grams	1200				
SF = SC - SE		SC	WET WEIGHT	grams	342				
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams	1511				
		SE	DRY WEIGHT	grams	311				
DE = DB (100) / DC		SF	MOISTURE	grams	31				
		SG	MOISTURE	%	10				
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	12	12	12	12	12
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft³	120	120	120	120	120
		DE	RELATIVE DENSITY	%	95	95	95	95	96

Section	Code	Item	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	95.2	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.20		
	DF	WITHIN TOLERANCE	%	68	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		NO	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB NUMBER ____________

AUTHORIZATION NUMBER ____________

PROJECT NUMBER ____________

DISTRICT ____________

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GAUGE NUMBER		TEST NUMBER		1	2	3	4	5
MANUFACTURER'S STANDARDS		DATE						
DENSITY		STATION NUMBER	ft.					
MOISTURE		OFFSET	ft.					
GAUGE STANDARD COUNTS		DEPTH BELOW GRADE	ft.					
DENSITY		LIFT THICKNESS	in.					
MOISTURE		DEPTH OF SOURCE	in.					

Formula	Section	Code	Item	Unit	1	2	3	4	5
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	117	117	117	117	116
		MA	MOISTURE	lb/ft^3	17	15	15	14	13
		DB	DRY DENSITY -3/4	lb/ft^3	115	115	115	115	114
$MB = \frac{MA (100)}{DB}$		MB	MOISTURE	%	15	13	13	12	11
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	4839				
$CC = CA - CB$		CB	PAN	grams	339				
$CF = CD - CE$		CC	EXCAVATED MAT.	grams	4500				
$CG = \frac{CF (100)}{CC}$		CD	PLUS 3/4 MAT. + PAN	grams	777				
		CE	PAN	grams	339				
$PC = PA - PB$		CF	PLUS 3/4 MAT.	grams	438				
$PD = PC (0.066)$		CG	PLUS 3/4 MAT.	%	10	10	10	10	10
$PE = \frac{PD (100)}{100 + MB}$		CH	SPECIFIC GRAVITY		2.5	2.5	2.5	2.5	2.5

Formula	Section	Code	Item	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3999	3969								
PE (RERUN) =		PB	MOLD	grams	1999	1999								
$\frac{PD (100)}{100 + SG}$		PC	WEIGHT OF SOIL	grams	2000	1970								
		PD	WET DENSITY	lb/ft^3	132	130								
		PE	DRY DENSITY	lb/ft^3	115	118								

Formula	Section	Code	Item	Unit	1	2	3	4	5
$SC = SA - SB$	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams	1542				
$SE = SD - SB$		SB	PAN	grams	1200				
$SF = SC - SE$		SC	WET WEIGHT	grams	342				
$SG = \frac{SF (100)}{SE}$		SD	DRY WEIGHT + PAN	grams	1511				
		SE	DRY WEIGHT	grams	311				
$DE = \frac{DB (100)}{DC}$		SF	MOISTURE	grams	31				
		SG	MOISTURE	%	10				
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	12	12	12	12	12
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	120	120	120	120	120
		DE	RELATIVE DENSITY	%	96	96	96	96	95

Section	Code	Item	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE DE	%	95.8	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.80		
	DF	WITHIN TOLERANCE	%	100	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

WEST VIRGINIA DIVISION OF HIGHWAYS

MATERIALS CONTROL, SOILS & TESTING DIVISION

WVDOH DIVISION OF HIGHWAYS

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LAB NUMBER	J
AUTHORIZATION NUMBER	
PROJECT NUMBER	
DISTRICT	
LOT NUMBER	
ITEM NUMBER	

GAUGE NUMBER	
MANUFACTURER'S STANDARDS	
DENSITY	
MOISTURE	
GAUGE STANDARD COUNTS	
DENSITY	
MOISTURE	

Formula	Section	Code	TEST NUMBER	Unit	1	2	3	4	5
			DATE						
			STATION NUMBER	ft.					
			OFFSET	ft.					
			DEPTH BELOW GRADE	ft.					
			LIFT THICKNESS	in.					
			DEPTH OF SOURCE	in.					
DB FROM TABLES	Field Density Moisture	DA	TOTAL DRY DENSITY	lb/ft^3	105	117	116	124	111
		MA	MOISTURE	lb/ft^3	16	15	16	12	18
		DB	DRY DENSITY -3/4	lb/ft^3	104	114	113	123	109
MB = MA (100) / DB		MB	MOISTURE	%	15	13	14	10	17
	PLUS 3/4 MATERIAL DETERMINATION	CA	EXC. MATERIAL + PAN	grams	5003	5121		5346	5224
CC = CA - CB		CB	PAN	grams	500	500		500	500
CF = CD - CE		CC	EXCAVATED MAT.	grams	4503	4621		4846	4724
CG = CF (100) / CC		CD	PLUS 3/4 MAT. + PAN	grams	654	1026		742	833
		CE	PAN	grams	500	500		500	500
PC = PA - PB		CF	PLUS 3/4 MAT.	grams	154	526		242	333
PD = PC (0.066)		CG	PLUS 3/4 MAT.	%	3	11	11	5	7
PE = PD (100) / 100 + MB		CH	SPECIFIC GRAVITY		2.4	2.6	2.6	2.7	2.5

Formula	Section	Code	Description	Unit	1	1 RERUN	2	2 RERUN	3	3 RERUN	4	4 RERUN	5	5 RERUN
RERUN PROCTOR	ONE POINT PROCTOR	PA	WEIGHT SOIL & MOLD	grams	3901		3985				4108		3954	3931
PE (RERUN) =		PB	MOLD	grams	2004		2004				2004		2004	2004
PD (100) / 100 + SG		PC	WEIGHT OF SOIL	grams	1897		1981				2104		1950	1927
		PD	WET DENSITY	lb/ft^3	125		131				139		129	127
		PE	DRY DENSITY	lb/ft^3	109		116				126		110	112

Formula	Section	Code	Description	Unit	1	2	3	4	5
SC = SA - SB	STOVE DRIED MOISTURE	SA	WET WEIGHT + PAN	grams					1564
SE = SD - SB		SB	PAN	grams					1209
SF = SC - SE		SC	WET WEIGHT	grams					355
SG = SF (100) / SE		SD	DRY WEIGHT + PAN	grams					1524
		SE	DRY WEIGHT	grams					315
DE = DB (100) / DC		SF	MOISTURE	grams					40
		SG	MOISTURE	%					13
$\overline{X} = \frac{\Sigma DE}{5}$	MOIST. EVAL.	OA	OPTIMUM MOISTURE	%	16	14	14	10	15
		OB	PLUS / MINUS TOLER.		+3 / -4	+3 / -4	+3 / -4	+3 / -4	+3 / -4
		OC	PASS / FAIL		Pass	Pass	Pass	Pass	Pass
$QL = \frac{\overline{X} - T}{R}$	DEN EVAL	DC	MAXIMUM DENSITY	lb/ft^3	109	116	116	126	113
		DE	RELATIVE DENSITY	%	95	98	97	98	96

Section	Code	Description	Unit	Value		
LOT EVALUATION	$\overline{X}$	AVERAGE **DE**	%	96.8	INSPECTOR'S NAME:	
	T	TARGET	%	95	INSPECTOR'S SIGNATURE:	
	QL	QUALITY INDEX		0.60		
	DF	WITHIN TOLERANCE	%	96	PROJECT'S EVALUATION	
	DG	MIN. FOR 100% PAY	%	80	CHECKED BY:	
	DH	PASS / FAIL		YES	DATE:	

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number K
Auth. Number
Project Number
District Number
Item Number
Date

FORM T-313
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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		12
	Test Site	DA	Dry Density
	1		132
	2		134
DB	Average		133

B	Number of Passes		14
	Test Site	DA	Dry Density
	1		133
	2		135
DB	Average		134

C	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
	Test Site	DA	Dry Density
	1		133
	2		135
	3		136
	4		132
	5		135
DC	Max. Density		134

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number L
Auth. Number
Project Number
District Number
Item Number
Date

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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		12
	Test Site	DA	Dry Density
	1		124
	2		127
DB	Average		126

B	Number of Passes		14
	Test Site	DA	Dry Density
	1		127
	2		129
DB	Average		128

C	Number of Passes		16
	Test Site	DA	Dry Density
	1		128
	2		130
DB	Average		129

D	Number of Passes		
	Test Site	DA	Dry Density
	1		
	2		
DB	Average		

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1		128
2		130
3		127
4		126
5		128
DC	**Max. Density**	128

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number M
Auth. Number
Project Number
District Number
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Source of Material:		
Roller Type:		
Roller Weight	Static:	Working:
Lift Thickness Compacted:		
Depth Below Grade:		
Depth of Gauge Source:		
Observed	Yes	No

Length of Test Section:	
Width of Test Section:	
Gauge Number	
Manufacturer's Standards	
Density:	Moisture:
Standard Counts	
Density:	Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		**12**
	Test Site	DA	Dry Density
	1		**140**
	2		**141**
DB	Average		**141**

B	Number of Passes		**14**
	Test Site	DA	Dry Density
	1		**142**
	2		**143**
DB	Average		**143**

C	Number of Passes		**16**
	Test Site	DA	Dry Density
	1		**145**
	2		**145**
DB	Average		**145**

D	Number of Passes		**18**
	Test Site	DA	Dry Density
	1		**146**
	2		**144**
DB	Average		**145**

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
Test Site		DA	Dry Density
1			**146**
2			**144**
3			**147**
4			**143**
5			**145**
DC	**Max. Density**		**145**

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

Lab Number N
Auth. Number
Project Number
District Number
Item Number
Date

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Source of Material:		
Roller Type:		
Roller Weight	Static:	Working:
Lift Thickness Compacted:		
Depth Below Grade:		
Depth of Gauge Source:		
Observed	Yes	No

Length of Test Section:	
Width of Test Section:	
Gauge Number	
Manufacturer's Standards	
Density:	Moisture:
Standard Counts	
Density:	Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		**12**
	Test Site	DA	Dry Density
	1		**105**
	2		**101**
DB	Average		**103**

B	Number of Passes		**14**
	Test Site	DA	Dry Density
	1		**106**
	2		**104**
DB	Average		**105**

C	Number of Passes		**16**
	Test Site	DA	Dry Density
	1		**108**
	2		**107**
DB	Average		**108**

D	Number of Passes		**18**
	Test Site	DA	Dry Density
	1		**109**
	2		**109**
DB	Average		**109**

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination			
	Test Site	DA	Dry Density
	1		**109**
	2		**109**
	3		**108**
	4		**105**
	5		**110**
DC	**Max. Density**		**108**

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

West Virginia Division of Highways
Materials Control Soil and Testing Division

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Project Number
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Source of Material:			Length of Test Section:
Roller Type:			Width of Test Section:
Roller Weight	Static:	Working:	Gauge Number
Lift Thickness Compacted:			Manufacturer's Standards
Depth Below Grade:			Density: / Moisture:
Depth of Gauge Source:			Standard Counts
Observed	Yes	No	Density: / Moisture:

Test Site Number	1	2	3	4	5
Station Number					
Offset					

A	Number of Passes		**12**
	Test Site	DA	Dry Density
	1	**131**	
	2	**133**	
DB	Average	**132**	

B	Number of Passes		**14**
	Test Site	DA	Dry Density
	1	**134**	
	2	**134**	
DB	Average	**134**	

C	Number of Passes		**16**
	Test Site	DA	Dry Density
	1	**135**	
	2	**137**	
DB	Average	**136**	

D	Number of Passes		**18**
	Test Site	DA	Dry Density
	1	**136**	
	2	**136**	
DB	Average	**136**	

DB = $\sum$ DA / 2

DC = $\sum$ DA / 5

Maximum Denisty Determination		
Test Site	DA	Dry Density
1	**136**	
2	**136**	
3	**138**	
4	**139**	
5	**132**	
DC **Max. Density**	**136**	

Inspector's Name:
Inspector's Signature:

Project's Evaluation

Checked By:
Date:

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: P
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
MP 700.00.24
REV. 08-08

			P-1	P-2	P-3	P-4	P-5
GAUGE NO.	DATE						
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	4	8	6	4
	DEPTH OF GAUGE SOURCE		6	4	8	6	4
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
	DC	MAXIMUM DENSITY	134	128	145	108	136
		REFERENCE LAB NUMBER	K	L	M	N	O
TEST NUMBER 1	DE	DRY DENSITY	127	125	139	107	138
	DF	% RELATIVE DENSITY	95	98	96	99	101
TEST NUMBER 2	DE	DRY DENSITY	131	129	144	101	137
	DF	% RELATIVE DENSITY	98	101	99	94	101
TEST NUMBER 3	DE	DRY DENSITY	134	130	141	107	139
	DF	% RELATIVE DENSITY	100	102	97	99	102
TEST NUMBER 4	DE	DRY DENSITY	131	127	138	106	139
	DF	% RELATIVE DENSITY	98	99	95	98	102
TEST NUMBER 5	DE	DRY DENSITY	139	129	139	108	141
	DF	% RELATIVE DENSITY	104	101	96	100	104
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	99.0	100.2	96.6	98.0	102.0
	T	TARGET	95	95	95	95	95
	QL	QUALITY INDEX	0.44	1.30	0.40	0.50	2.33
	DG	% WITHIN TOLERANCE	86	100	83	90	100
	DH	MIN. FOR 100% PAY	80	80	80	80	80
	DI	PASS/FAIL	PASS	PASS	PASS	PASS	PASS

$$DF = \frac{DE(100)}{DC}$$

$$\ddot{X} = \frac{\sum DF}{5}$$

$$QL = \frac{\ddot{X} - T}{R}$$

Inspector's Signature ____________________

Project's Evaluation

Checked By: ____________ Date: ____________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: Q
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE NO.	DATE	B-14				
MANUFACTURER'S	LOT NUMBER					
DENSITY STD. COUNT	BEGINNING STATION					
	ENDING STATION					
MANUFACTURER'S	OFFSET					
MOISTURE STD. COUNT	DEPTH BELOW GRADE					
	DEPTH OF GAUGE SOURCE					
	LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION	DENSITY STANDARD					
	MOISTURE STANDARD					
$DF = \frac{DE(100)}{DC}$						
$\ddot{X} = \frac{\sum DF}{5}$	DC MAXIMUM DENSITY	137				
	REFERENCE LAB NUMBER	123456				
$QL = \frac{\ddot{X} - T}{R}$						

TEST NUMBER 1	DE	DRY DENSITY	127				
	DF	% RELATIVE DENSITY	93				
TEST NUMBER 2	DE	DRY DENSITY	131				
	DF	% RELATIVE DENSITY	96				
TEST NUMBER 3	DE	DRY DENSITY	134				
	DF	% RELATIVE DENSITY	98				
TEST NUMBER 4	DE	DRY DENSITY	131				
	DF	% RELATIVE DENSITY	96				
TEST NUMBER 5	DE	DRY DENSITY	139				
	DF	% RELATIVE DENSITY	101				
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	96.8				
	T	TARGET	95				
	QL	QUALITY INDEX	0.23				
	DG	% WITHIN TOLERANCE	70				
	DH	MIN. FOR 100% PAY	80				
	DI	PASS/FAIL	FAIL				

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: R
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
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REV. 08-08

GAUGE NO.	DATE		B-15	B-16	B-17		
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6	6		
	DEPTH OF GAUGE SOURCE		6	6	6		
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
DF= DE(100) / DC; $\ddot{X} = \sum DF / 5$; $QL = \ddot{X} - T / R$	DC	MAXIMUM DENSITY	137	137	137		
		REFERENCE LAB NUMBER	123456	123456	123456		
TEST NUMBER 1	DE	DRY DENSITY	136	135	139		
	DF	% RELATIVE DENSITY	99	99	101		
TEST NUMBER 2	DE	DRY DENSITY	136	137	144		
	DF	% RELATIVE DENSITY	99	100	105		
TEST NUMBER 3	DE	DRY DENSITY	134	138	141		
	DF	% RELATIVE DENSITY	98	101	103		
TEST NUMBER 4	DE	DRY DENSITY	135	141	138		
	DF	% RELATIVE DENSITY	99	103	101		
TEST NUMBER 5	DE	DRY DENSITY	143	142	143		
	DF	% RELATIVE DENSITY	104	104	104		
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	99.8	101.4	102.8		
	T	TARGET	95	95	95		
	QL	QUALITY INDEX	0.80	1.28	1.95		
	DG	% WITHIN TOLERANCE	100	100	100		
	DH	MIN. FOR 100% PAY	80	80	80		
	DI	PASS/FAIL	PASS	PASS	PASS		

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: S
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
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GAUGE NO.	DATE		B-18	B-19			
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6			
	DEPTH OF GAUGE SOURCE		6	6			
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
$DF = \frac{DE(100)}{DC}$							
$\ddot{X} = \frac{\sum DF}{5}$	DC	MAXIMUM DENSITY	140	140			
		REFERENCE LAB NUMBER	123457	123457			
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	138	144			
	DF	% RELATIVE DENSITY	99	103			
TEST NUMBER 2	DE	DRY DENSITY	141	137			
	DF	% RELATIVE DENSITY	101	98			
TEST NUMBER 3	DE	DRY DENSITY	143	137			
	DF	% RELATIVE DENSITY	102	98			
TEST NUMBER 4	DE	DRY DENSITY	137	140			
	DF	% RELATIVE DENSITY	98	100			
TEST NUMBER 5	DE	DRY DENSITY	143	142			
	DF	% RELATIVE DENSITY	102	101			
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	100.4	100.0			
	T	TARGET	95	95			
	QL	QUALITY INDEX	1.35	1.00			
	DG	% WITHIN TOLERANCE	100	100			
	DH	MIN. FOR 100% PAY	80	80			
	DI	PASS/FAIL	PASS	PASS			

Inspector's Signature ______________________

Project's Evaluation

Checked By: ______________ Date: ______________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: T
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
MP 700.00.24
REV. 08-08

			S-1	S-2	S-3	S-4	
GAUGE NO.	DATE						
MANUFACTURER'S	LOT NUMBER						
DENSITY STD. COUNT	BEGINNING STATION						
	ENDING STATION						
MANUFACTURER'S	OFFSET						
MOISTURE STD. COUNT	DEPTH BELOW GRADE		6	6	6	6	
	DEPTH OF GAUGE SOURCE		6	6	6	6	
	LIFT THICKNESS COMPACTED						
DC FROM TEST SECTION	DENSITY STANDARD						
	MOISTURE STANDARD						
	DC	MAXIMUM DENSITY	132	132	132	132	
	REFERENCE LAB NUMBER		123455	123455	123455	123455	
TEST NUMBER 1	DE	DRY DENSITY	128	125	139	127	
	DF	% RELATIVE DENSITY	97	95	105	96	
TEST NUMBER 2	DE	DRY DENSITY	131	129	134	126	
	DF	% RELATIVE DENSITY	99	98	102	95	
TEST NUMBER 3	DE	DRY DENSITY	134	130	131	127	
	DF	% RELATIVE DENSITY	102	98	99	96	
TEST NUMBER 4	DE	DRY DENSITY	126	127	127	128	
	DF	% RELATIVE DENSITY	95	96	96	97	
TEST NUMBER 5	DE	DRY DENSITY	133	129	130	126	
	DF	% RELATIVE DENSITY	101	98	98	95	
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	98.8	97.0	100.0	95.8	
	T	TARGET	95	95	95	95	
	QL	QUALITY INDEX	0.54	0.67	0.56	0.40	
	DG	% WITHIN TOLERANCE	93	100	94	83	
	DH	MIN. FOR 100% PAY	80	80	80	80	
	DI	PASS/FAIL	PASS	PASS	PASS	PASS	

$$DF = \frac{DE(100)}{DC}$$

$$\ddot{X} = \frac{\sum DF}{5}$$

$$QL = \frac{\ddot{X} - T}{R}$$

Inspector's Signature ____________________

Project's Evaluation

Checked By: ____________ Date: ____________

WEST VIRGINIA DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

LAB. NUMBER: U
AUTH. NUMBER:
PROJECT NUMB
DISTRICT:
ITEM NUMBER:

FORM T-317
MP 700.00.24
REV. 08-08

GAUGE NO.		DATE	P-96	P-97			
MANUFACTURER'S		LOT NUMBER					
DENSITY STD. COUNT		BEGINNING STATION					
		ENDING STATION					
MANUFACTURER'S		OFFSET					
MOISTURE STD. COUNT		DEPTH BELOW GRADE	4	4			
		DEPTH OF GAUGE SOURCE	4	4			
		LIFT THICKNESS COMPACTED					
DC FROM TEST SECTION		DENSITY STANDARD					
		MOISTURE STANDARD					
$DF = \frac{DE(100)}{DC}$	DC	MAXIMUM DENSITY	112	118			
$\ddot{X} = \frac{\sum DF}{5}$		REFERENCE LAB NUMBER	123465	123466			
$QL = \frac{\ddot{X} - T}{R}$							
TEST NUMBER 1	DE	DRY DENSITY	110	115			
	DF	% RELATIVE DENSITY	98	97			
TEST NUMBER 2	DE	DRY DENSITY	108	116			
	DF	% RELATIVE DENSITY	96	98			
TEST NUMBER 3	DE	DRY DENSITY	111	113			
	DF	% RELATIVE DENSITY	99	96			
TEST NUMBER 4	DE	DRY DENSITY	109	117			
	DF	% RELATIVE DENSITY	97	99			
TEST NUMBER 5	DE	DRY DENSITY	108	113			
	DF	% RELATIVE DENSITY	96	96			
LOT EVALUATION	$\ddot{X}$	AVERAGE DF	97.2	97.2			
	T	TARGET	95	95			
	QL	QUALITY INDEX	0.73	0.73			
	DG	% WITHIN TOLERANCE	100	100			
	DH	MIN. FOR 100% PAY	80	80			
	DI	PASS/FAIL	PASS	PASS			

Inspector's Signature ____________________

Project's Evaluation

Checked By: ____________ Date: ____________

West Virginia Department of Transportation

Report Fraud, Waste and Abuse

Call the WVDOT

Office of Investigations

HOTLINE

1-866-206-2728

Mail:

WVDOT Office of Investigations
1900 Kanawha Boulevard East
Building #5 Room 503
Charleston, WV 25305

Email:

DOT.Fraud@wv.gov

Designed by the WVDOT Office of Communications