

Appendix A
PELLETIZED ASPHALT MIX DESIGNS

Report: 24-0530A

August 11, 2024

Customer: George Reed, Inc. – Phil Reader, Arthur Trillo

Samples submitted:

Three different aggregates identified as:

Bin 1 – GRI-MP
Bin 2 – GRI-MP
Bin 3 – GRI-MP

Fifteen gallons of asphalt binder identified as:

PG 64-10/16 – GRI-CLM

One ground tire rubber identified as:

SmartMix

Requested Testing:

Using the submitted samples, perform a Caltrans Superpave hot mix design.

Summary of Testing:

Testing was performed using appropriate protocols. Initial testing on the asphalt binder was performed to determine mixing and compaction temperatures. Each aggregate was subjected to gradation testing to determine a blend used in the final mix. Data for this preliminary testing are reported by Tables I-III.

Using the aggregate gradation data as well as an Asphalt Institute formulation, the Optimum Bitumen Content (OBC) was estimated to be approximately 5.50%. Based on this, mixes were made. Some of this mix was subjected to Maximum Theoretical Specific Gravity (MTSG) testing while some of the mix was used to compact cores. The compacted cores were subjected to Bulk Specific Gravity (BSG) testing to determine Air Voids and Volumetrics. Test data are reported by Tables IV-VII.

Additional cores were compacted at the OBC to determine Moisture Induced Damage (Tensile Strength) and Hamburg Wheel Track testing. Test data are reported by Table VIII.



Test data reported herein have been secured by reliable testing procedures. As we have no knowledge or control of the conditions that may affect the use of material from which samples were taken, we assume no responsibility in furnishing this data other than to warrant that they represent reliable measurements of the properties of the sample(s) received and tested. No warranties expressed or implied, including warranties of merchantability or fitness for a particular use, are made with respect to the products described herein. Nothing contained herein shall constitute a permission or recommendation to practice any invention covered by a patent without license from the owner of the patent.

George Reed, Inc.

Recommended Mix Design⁽¹⁾

Mixing Temperature, °F	310	
Compaction Temperature, °F	290	
Asphalt Content, w%	5.75	Specification
Absorbed, Pba, %	0.47	
Effective Pbe, %	5.3	
Va @ N _{des} , %		
VMA @ N _{des} , %	15.94	13.50-16.50
VFA @ N _{des} , %	74.90	70.00 Min.
MTSG (Gmm)	2.386	
Density, lb / ft ³	148.9	
Bulk Specific Gravity (Gmb)	2.290	
Density, lb / ft ³	142.9	
Gmm @ N _{ini} , %	88.60	
Air Voids, %	11.40	8.00 Min.
Gmm @ N _{des} , %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3
Moisture Susceptibility		
Dry Tensile Strength, psi	136.4	100 Min.
Conditioned Tensile Strength, psi	87.3	70 Min.
Tensile Strength Ratio, %	64.0	
Hamburg Wheel Tracking, mm	12.55 ⁽²⁾	12.50 Max.

(1) Because the Hamburg did not pass, a Recommended Mix Design cannot be given.

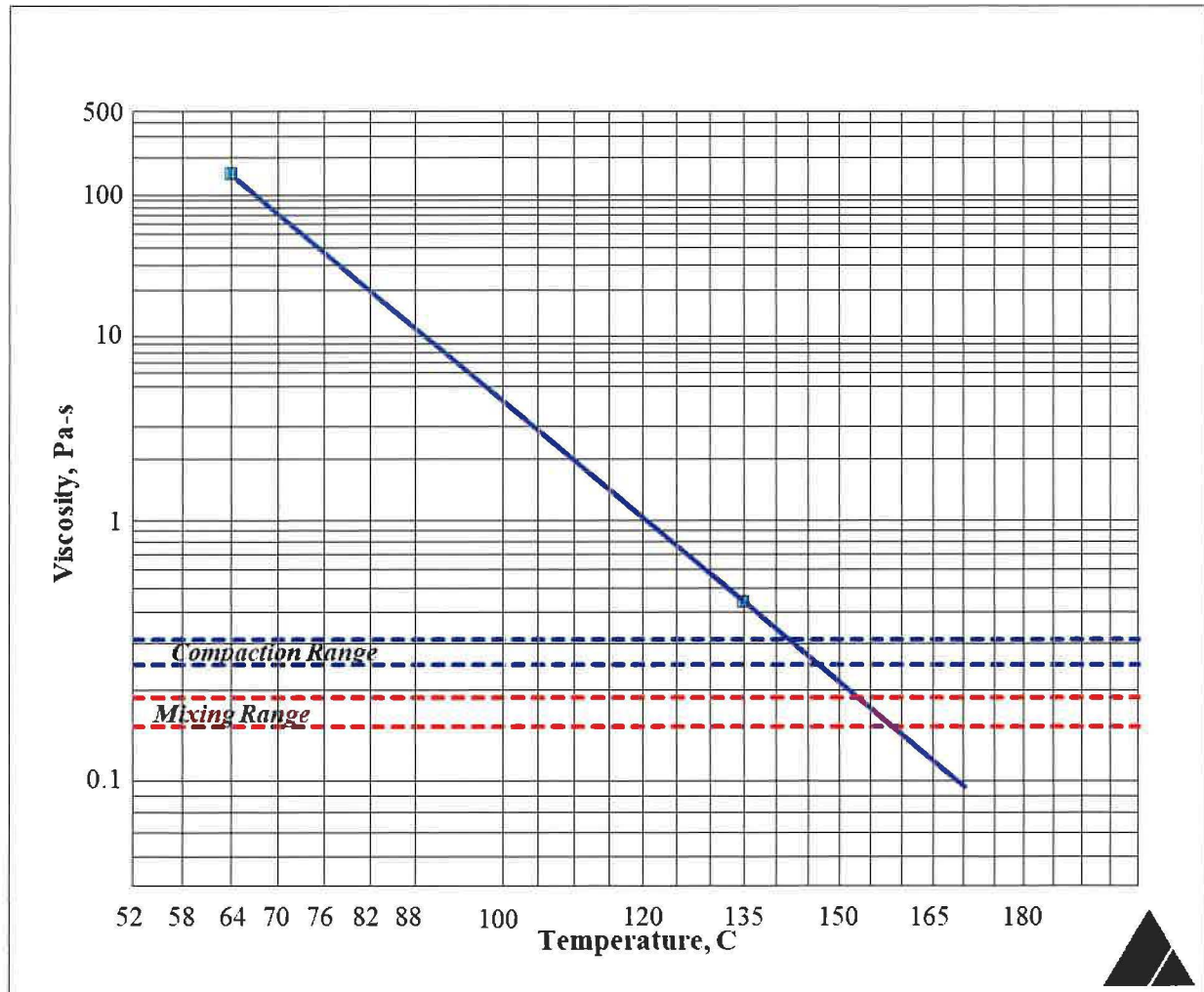
(2) Hamburg failed after 10687 passes; setpoint was 20000 passes.

Table I

George Reed, Inc.

PG 64-10/16

	AASHTO Test Method	Test Result	Specification
Specific Gravity, 15.6°C (60°F)	T228	1.024	Report
Rotational Viscosity, 135°C Pa*s	T316	0.439	3.0 Max.
Dynamic Shear Rheometer, 64°C	T315		
G*, kPa		1.456	
Phase Angle, δ , °		86.8	
G*/Sin δ , kPa		1.458	1.00-2.00



Mixing Temperature Range, °C (°F) = 153-158 (307-316)
Compaction Temperature Range, °C (°F) = 142-146 (288-295)

Table II**George Reed, Inc.****Aggregate**

	Test Method	Bin 1	Bin 2	Bin 3
Aggregate Gradation, % Passing	CT 202			
Sieve Size				
1-inch		100	100	100
3/4-inch		100	100	100
1/2-inch		100	100	81.9
3/8-inch		100	93.9	22.5
No. 4		99.1	18.7	1.8
No. 8		81.6	1.9	0.6
No. 16		56.2	1.3	0.4
No. 30		34.2	0.9	0.3
No. 50		17.6	0.6	0.3
No. 100		9.2	0.5	0.2
No. 200		5.1	0.3	0.2

Table III**George Reed, Inc.****Aggregate Blend**

Bin 1, w%		50.70	
Bin 2, w%		31.70	
Bin 3, w%		17.60	
	Test Method	Test Result	Specification
Aggregate Gradation, % Passing	CT 202		
Sieve Size			
1-inch		100	
3/4-inch		100	100
1/2-inch		96.81	91-100
3/8-inch		84.43	79-89
No. 4		56.49	54-64
No. 8		42.08	39-49
No. 16		28.98	
No. 30		17.68	17-25
No. 50		9.17	
No. 100		4.86	
No. 200		2.72	2.1-6.1

Gradation Curve

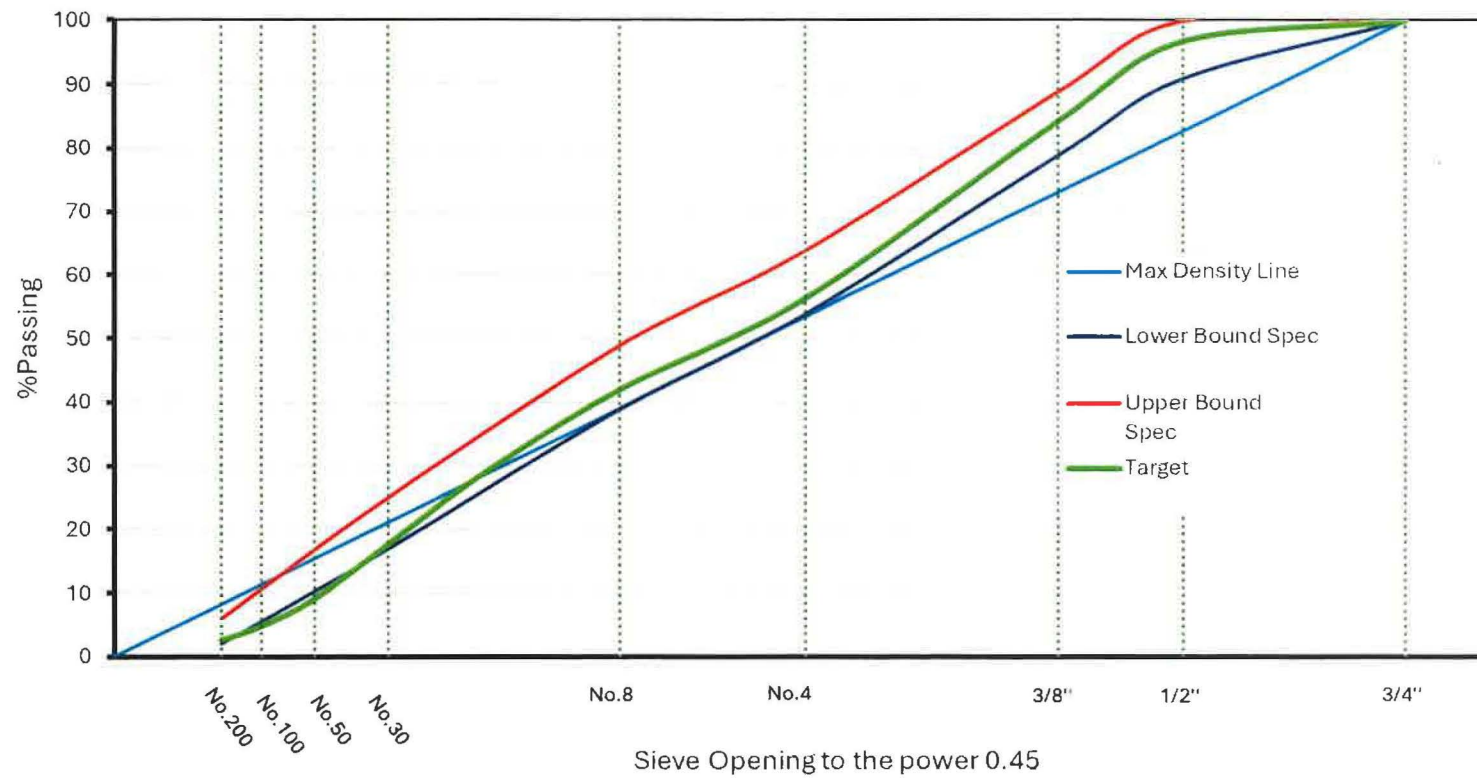


Table IV**George Reed, Inc.****SmartMix
Aggregate Blend Percentages**

Asphalt Content, w%	4.50	5.00	5.50	6.00
Bin 1, w%	50.40	50.30	50.30	50.30
Bin 2, w%	31.40	31.40	31.30	31.30
Bin 3, w%	17.30	17.30	17.30	17.20
SmartMix, w%	0.900	1.000	1.100	1.200

Table V**George Reed, Inc.****SmartMix**

Asphalt Content, w%	4.50	5.00	5.50	6.00
Absorbed, Pba, %	0.3	0.3	0.5	0.4
Effective Pbe, %	4.2	4.7	5.0	5.6
Va @ N_{des}, %	7.7	6.2	5.0	3.0
VMA @ N_{des}, %	16.9	16.5	16.3	15.6
VFA @ N_{des}, %	54.3	62.7	69.1	80.9
MTSG (Gmm)	2.429	2.408	2.397	2.375
Density, lb / ft³	151.6	150.3	149.5	148.2
Bulk Specific Gravity (Gmb)	2.242	2.260	2.276	2.304
Density, lb / ft³	139.9	141.0	142.0	143.8
Gmb @ N_{ini}	2.072	2.092	2.100	2.128
Gmb @ N_{des}	2.242	2.260	2.276	2.304
Gmm @ N_{ini}, %	85.29	86.88	87.64	89.59
Gmm @ N_{des}, %	92.29	93.83	94.97	97.02
Dust Proportion	0.7	0.6	0.6	0.5

Table VI**George Reed, Inc.**

SmartMix
Optimum Bitumen Content
Aggregate Blend Percentages

Asphalt Content, w%	5.75
Bin 1, w%	50.30
Bin 2, w%	31.30
Bin 3, w%	17.25
SmartMix, w%	1.150

Table VII**George Reed, Inc.**

Optimum Bitumen Content
SmartMix

Asphalt Content, w%	5.75	Specification
Absorbed, Pba, %	0.47	
Effective Pbe, %	5.3	
Va @ N_{des}, %		
VMA @ N_{des}, %	15.94	13.50-16.50
VFA @ N_{des}, %	74.90	70.00 Min.
MTSG (Gmm)	2.386	
Density, lb / ft³	148.9	
Bulk Specific Gravity (Gmb)	2.290	
Density, lb / ft³	142.9	
Gmm @ N_{ini}, %	88.60	
Air Voids, %	11.40	8.00 Min.
Gmm @ N_{des}, %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3

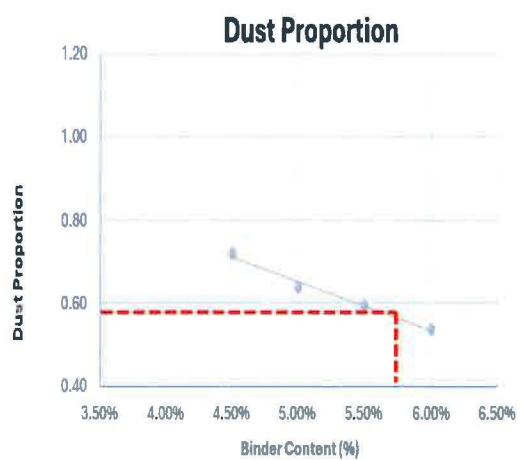
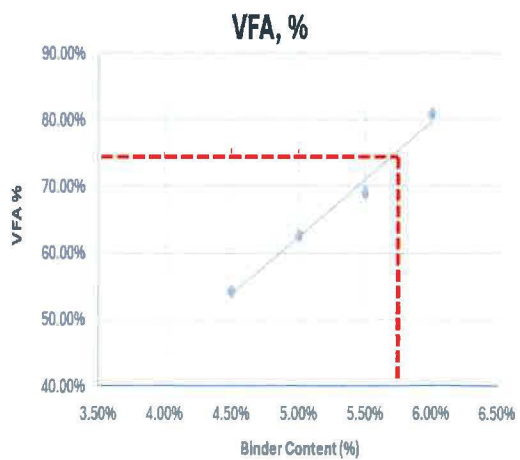
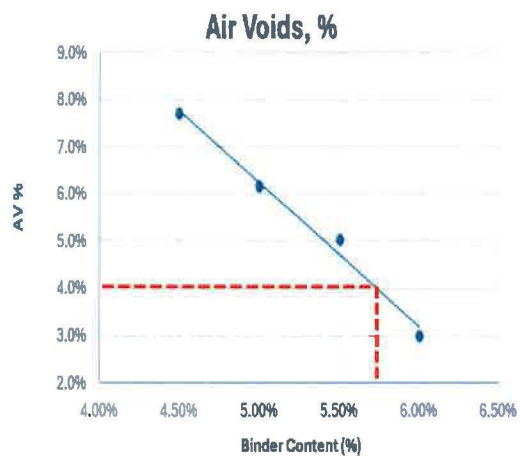
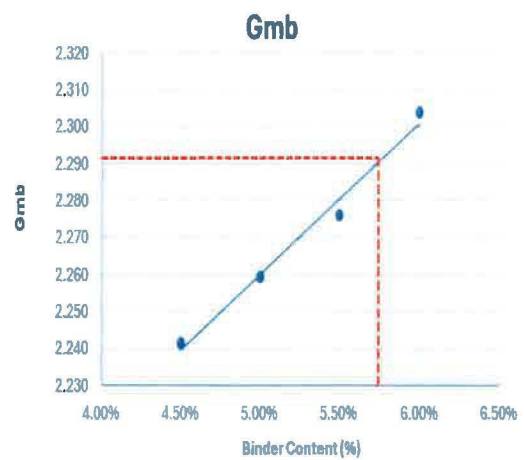
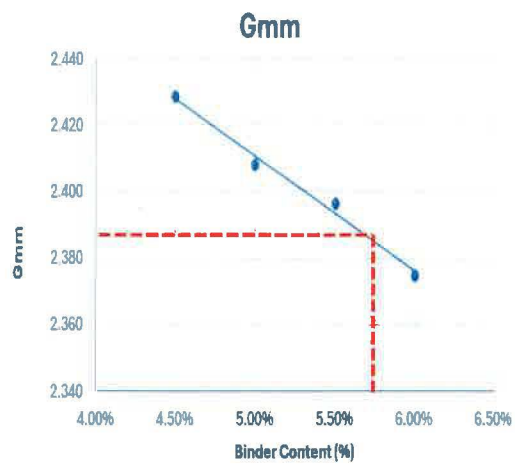


Table VIII**George Reed, Inc.****SmartMix**

	Test Result					
Asphalt Content, w%	5.75					
Moisture Susceptibility	Dry Subset			Conditioned Subset		
Specimens	1	3	3	4	5	6
Air Voids, %	6.9	6.8	7.0	7.0	7.0	6.9
Tensile Strength, psi	139.1	135.8	134.2	84.1	87.3	90.6
Average Tensile Strength, psi	136.4			87.3		
Tensile Strength Ratio	64.0					
Hamburg Wheel Track Testing	#1	#2	#3	#4	Average	
Air Voids, %	7.0	7.1	7.0	7.0	7.025	
Specimen Height, inches	2.36	2.36	2.36	2.36	2.36	
Temperature, °C	50		50			
Passes at Set Point, No.	20000		20000			
Passes at Maximum Impression, No.	10687		9659		10173	
Maximum Impression, mm	12.57		12.53		12.55	

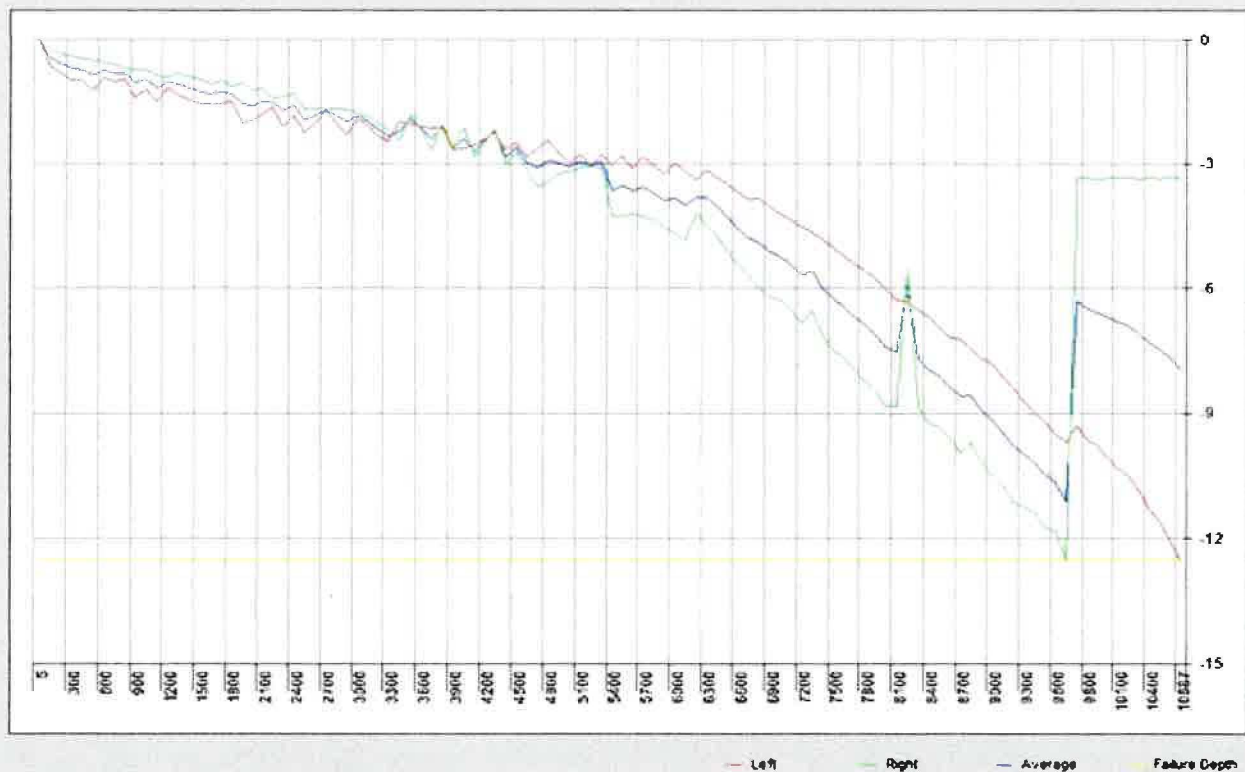
WheelTracker Report

Asphalt Pavement & Recycling Technologies, Inc.

Project Name:		Date:	07-18-24
Project Number:		Date Sampled:	
Job Number:		Lab Number:	
Project Engineer:		Mix Type:	SmartMix
Submitted By:	George Reed, Inc.	Asphalt Grade:	PG 64-10/16
Temperature:	50°C	Pit Source:	
Comments:			

	Left	Right	Average
Max Impression:	-12.57 mm	-12.53 mm	-12.55 mm
	Pass #: 10687 / Pt: 8	Pass #: 9659 / Pt: 6	
Fail Depth: 12.50mm	FAIL	FAIL	FAIL

PMW WheelTracking Test



CC:

Michael Staugaard

Report: 24-0530B

August 11, 2024

Customer: George Reed, Inc. – Phil Reader, Arthur Trillo

Samples submitted:

Three different aggregates identified as:

Bin 1 – GRI-MP
Bin 2 – GRI-MP
Bin 3 – GRI-MP

Fifteen gallons of asphalt binder identified as:

PG 64-10/16 – GRI-CLM

One ground tire rubber identified as:

PelletPAVE TR

Requested Testing:

Using the submitted samples, perform a Caltrans Superpave hot mix design.

Summary of Testing:

Testing was performed using appropriate protocols. Initial testing on the asphalt binder was performed to determine mixing and compaction temperatures. Each aggregate was subjected to gradation testing to determine a blend used in the final mix. Data for this preliminary testing are reported by Tables I-III.

Using the aggregate gradation data as well as an Asphalt Institute formulation, the Optimum Bitumen Content (OBC) was estimated to be approximately 5.50%. Based on this, mixes were made. Some of this mix was subjected to Maximum Theoretical Specific Gravity (MTSG) testing while some of the mix was used to compact cores. The compacted cores were subjected to Bulk Specific Gravity (BSG) testing to determine Air Voids and Volumetrics. Test data are reported by Table IV-VII.

Additional cores were compacted at the OBC to determine Moisture Induced Damage (Tensile Strength) and Hamburg Wheel Track testing. Test data are reported by Table VIII.

WCI EAI

Test data reported herein have been secured by reliable testing procedures. As we have no knowledge or control of the conditions that may affect the use of material from which samples were taken, we assume no responsibility in furnishing this data other than to warrant that they represent reliable measurements of the properties of the sample(s) received and tested. No warranties expressed or implied, including warranties of merchantability or fitness for a particular use, are made with respect to the products described herein. Nothing contained herein shall constitute a permission or recommendation to practice any invention covered by a patent without license from the owner of the patent.

George Reed, Inc.

Recommended Mix Design⁽¹⁾

Mixing Temperature, °F	310	
Compaction Temperature, °F	290	
Asphalt Content, w%	5.75	Specification
Absorbed, Pba, %	0.25	
Effective Pbe, %	5.5	
Va @ N _{des} , %		
VMA @ N _{des} , %	16.31	13.50-16.50
VFA @ N _{des} , %	75.47	70.00 Min.
MTSG (Gmm)	2.375	
Density, lb / ft ³	148.2	
Bulk Specific Gravity (Gmb)	2.280	
Density, lb / ft ³	142.3	
Gmm @ N _{ini} , %	87.66	
Air Voids, %	12.34	8.00 Min.
Gmm @ N _{des} , %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3
Moisture Susceptibility		
Dry Tensile Strength, psi	122.9	100 Min.
Conditioned Tensile Strength, psi	89.5	70 Min.
Tensile Strength Ratio, %	72.8	
Hamburg Wheel Tracking, mm	12.52 ⁽²⁾	12.50 Max.

(1) Because the Hamburg did not pass, a Recommended Mix Design cannot be given.

(2) Hamburg failed after 9308 passes; setpoint was 20000 passes.

Table I**George Reed, Inc.****PG 64-10/16**

	AASHTO Test Method	Test Result	Specification
Specific Gravity, 15.6°C (60°F)	T228	1.024	Report
Rotational Viscosity, 135°C Pa*s	T316	0.439	3.0 Max.
Dynamic Shear Rheometer, 64°C	T315		
G*, kPa		1.456	
Phase Angle, δ , °		86.8	
G*/Sin δ , kPa		1.458	1.00-2.00

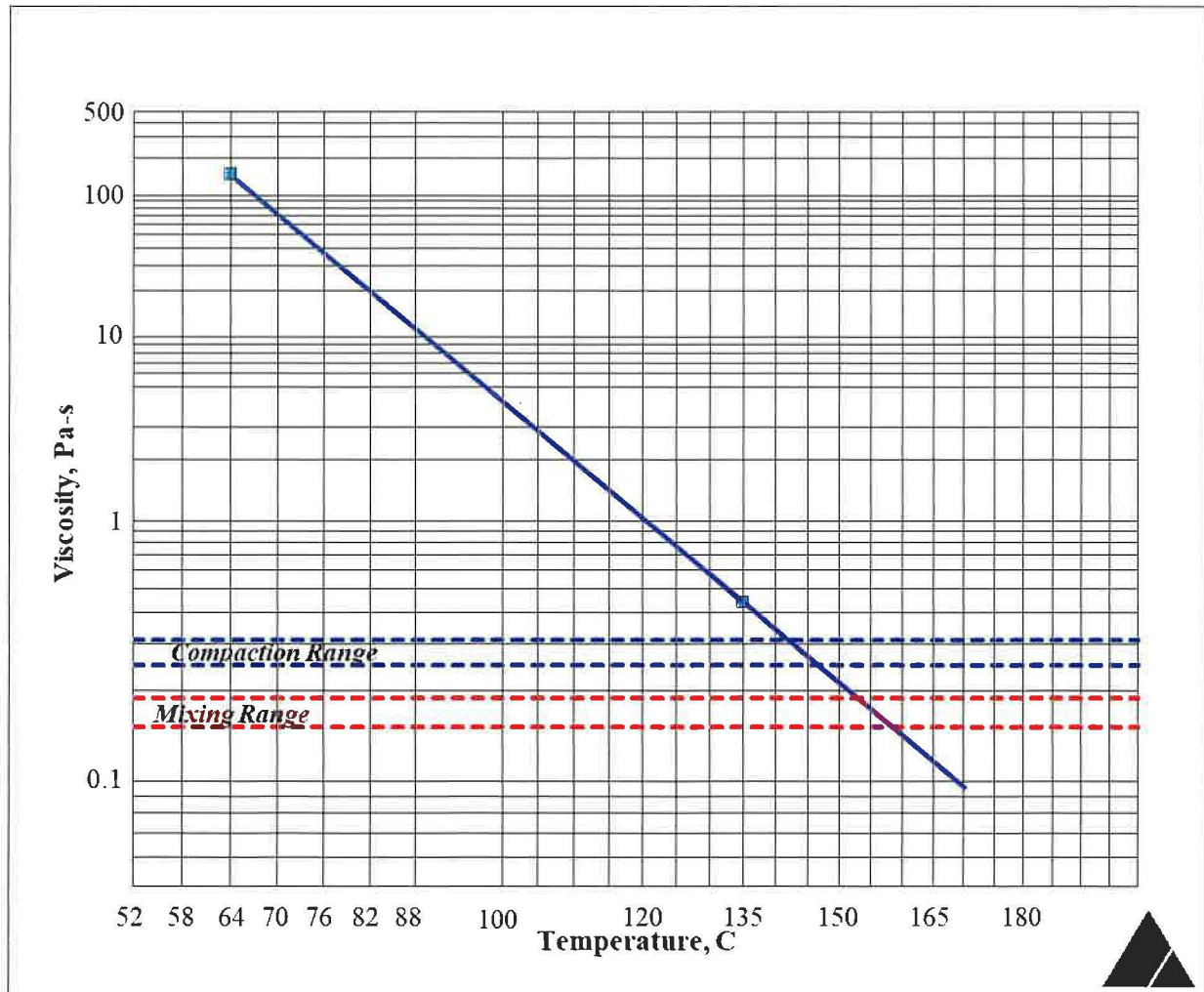
**Mixing Temperature Range, °C (°F) = 153-158 (307-316)****Compaction Temperature Range, °C (°F) = 142-146 (288-295)**

Table II**George Reed, Inc.****Aggregate**

	Test Method	Bin 1	Bin 2	Bin 3
Aggregate Gradation, % Passing	CT 202			
Sieve Size				
1-inch		100	100	100
3/4-inch		100	100	100
1/2-inch		100	100	81.9
3/8-inch		100	93.9	22.5
No. 4		99.1	18.7	1.8
No. 8		81.6	1.9	0.6
No. 16		56.2	1.3	0.4
No. 30		34.2	0.9	0.3
No. 50		17.6	0.6	0.3
No. 100		9.2	0.5	0.2
No. 200		5.1	0.3	0.2

Table III**George Reed, Inc.****Aggregate Blend**

Bin 1, w%		50.70	
Bin 2, w%		31.70	
Bin 3, w%		17.60	
	Test Method	Test Result	Specification
Aggregate Gradation, % Passing	CT 202		
Sieve Size			
1-inch		100	
3/4-inch		100	100
1/2-inch		96.81	91-100
3/8-inch		84.43	79-89
No. 4		56.49	54-64
No. 8		42.08	39-49
No. 16		28.98	
No. 30		17.68	17-25
No. 50		9.17	
No. 100		4.86	
No. 200		2.72	2.1-6.1

Gradation Curve

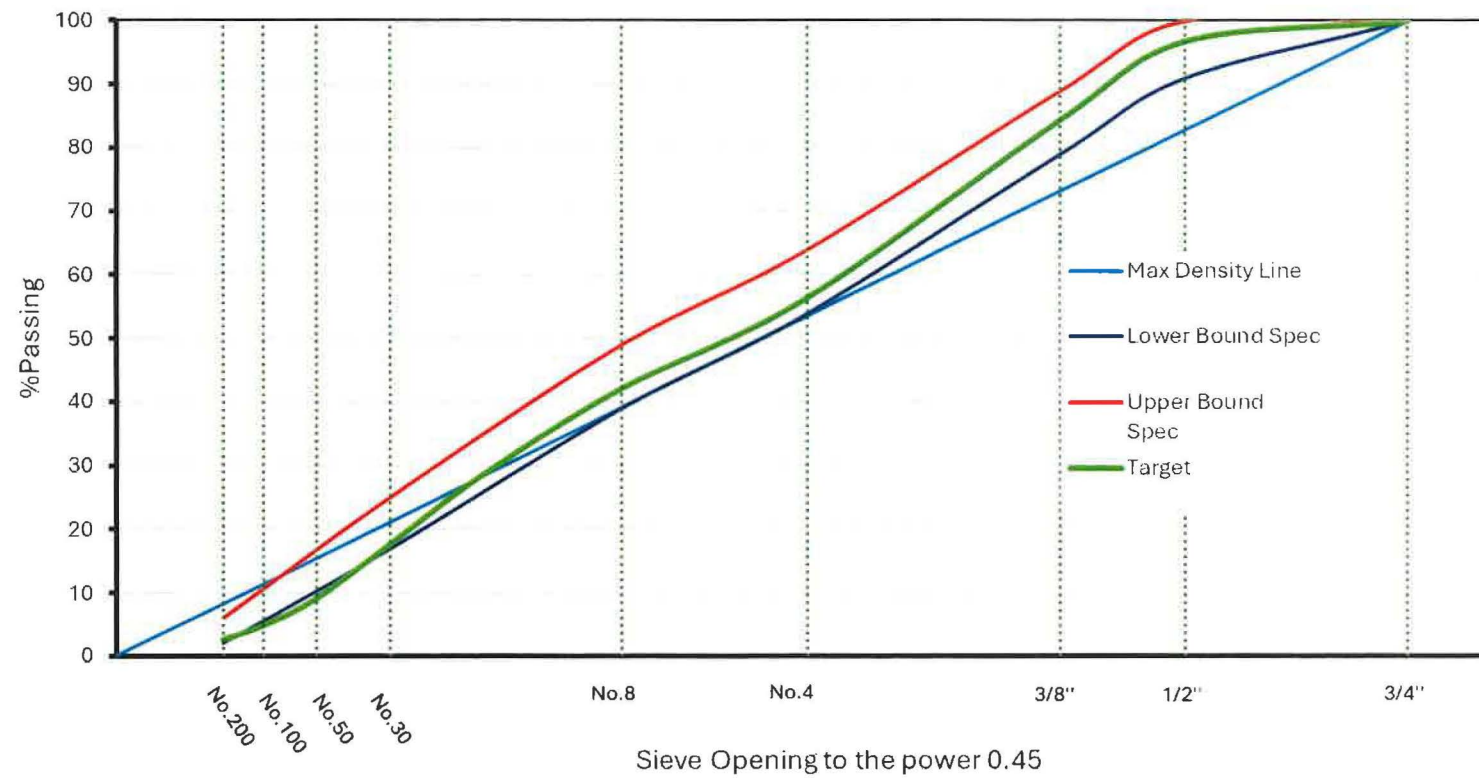


Table IV**George Reed, Inc.****PelletPAVE TR**
Aggregate Blend Percentages

Asphalt Content, w%	4.50	5.00	5.50	6.00
Bin 1, w%	50.40	50.30	50.30	50.30
Bin 2, w%	31.40	31.40	31.30	31.30
Bin 3, w%	17.30	17.30	17.30	17.20
PelletPAVE TR, w%	0.900	1.000	1.100	1.200

PelletPave TR 20% by weight of binder, or 1% BWA, so 22#/ton

Table V**George Reed, Inc.****PelletPAVE TR**

Asphalt Content, w%	4.50	5.00	5.50	6.00
Absorbed, Pba, %	0.3	0.3	0.2	0.3
Effective Pbe, %	4.3	4.7	5.3	5.7
Va @ N_{des}, %	8.8	6.9	5.0	3.0
VMA @ N_{des}, %	18.0	17.3	16.7	15.9
VFA @ N_{des}, %	51.1	60.3	69.9	81.3
MTSG (Gmm)	2.424	2.405	2.384	2.366
Density, lb / ft³	151.3	150.1	148.8	147.6
Bulk Specific Gravity (Gmb)	2.210	2.240	2.264	2.296
Density, lb / ft³	137.9	139.8	141.3	143.3
Gmb @ N_{ini}	2.039	2.052	2.069	2.095
Gmb @ N_{des}	2.210	2.240	2.264	2.296
Gmm @ N_{ini}, %	84.13	85.31	86.79	88.53
Gmm @ N_{des}, %	91.17	93.15	94.97	97.04
Dust Proportion	0.7	0.6	0.6	0.5

Table VI**George Reed, Inc.**

PelletPAVE TR
Optimum Bitumen Content
Aggregate Blend Percentages

Asphalt Content, w%	5.75
Bin 1, w%	50.30
Bin 2, w%	31.30
Bin 3, w%	17.25
PelletPAVE TR, w%	1.150

Table VII**George Reed, Inc.**

Optimum Bitumen Content
PelletPAVE TR

Asphalt Content, w%	5.75	Specification
Absorbed, Pba, %	0.25	
Effective Pbe, %	5.5	
Va @ N_{des}, %		
VMA @ N_{des}, %	16.31	13.50-16.50
VFA @ N_{des}, %	75.47	70.00 Min.
MTSG (Gmm)	2.375	
Density, lb / ft³	148.2	
Bulk Specific Gravity (Gmb)	2.280	
Density, lb / ft³	142.3	
Gmm @ N_{ini}, %	87.66	
Air Voids, %	12.34	8.00 Min.
Gmm @ N_{des}, %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3

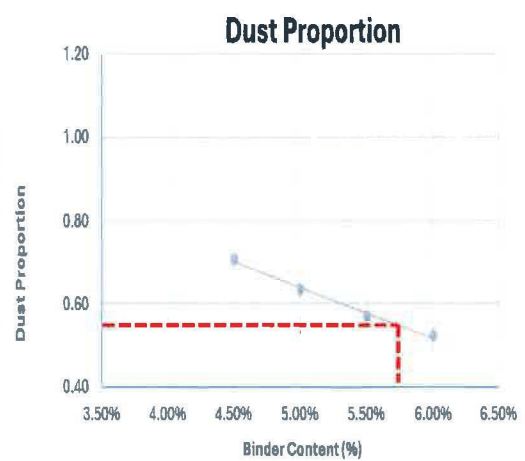
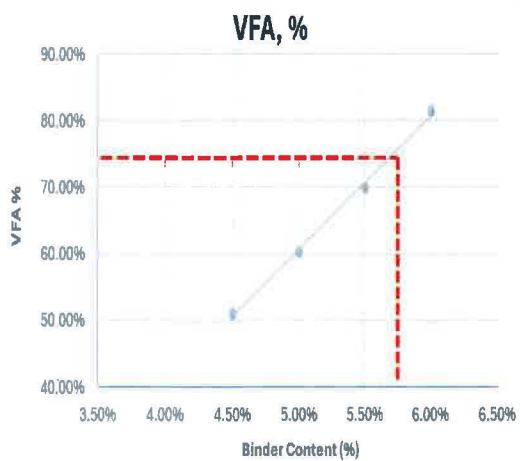
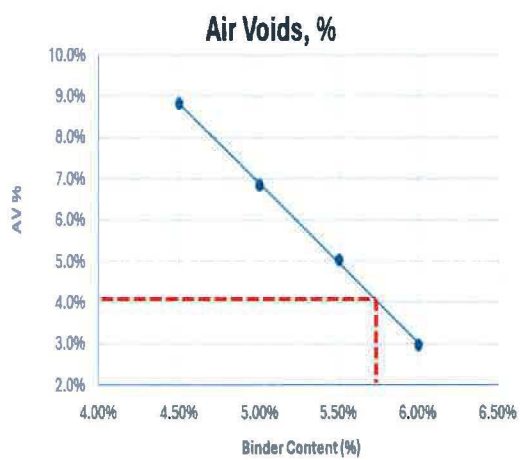
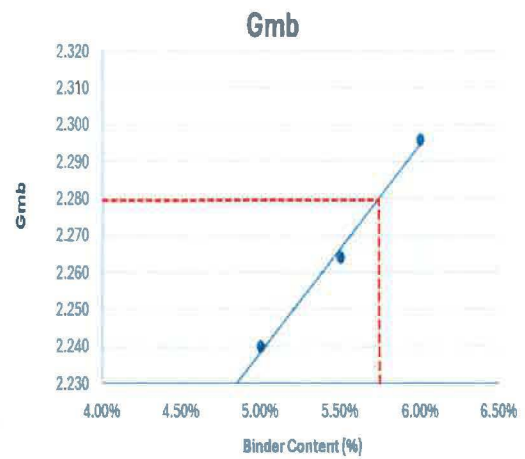
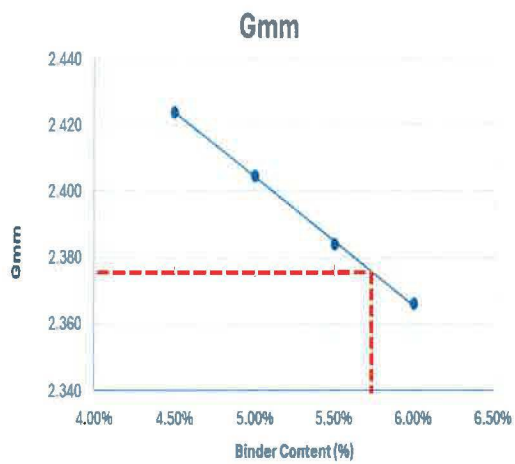


Table VIII**George Reed, Inc.****PelletPAVE TR**

	Test Result					
Asphalt Content, w%	5.75					
Moisture Susceptibility	Dry Subset			Conditioned Subset		
Specimens	1	3	3	4	5	6
Air Voids, %	6.8	6.8	6.9	6.9	7.0	6.9
Tensile Strength, psi	119.7	126.1	122.9	87.3	90.6	90.6
Average Tensile Strength, psi	122.9			89.5		
Tensile Strength Ratio	72.8					
Hamburg Wheel Track Testing	#1	#2	#3	#4	Average	
Air Voids, %	7.1	7.1	7.2	7.0	7.100	
Specimen Height, inches	2.36	2.36	2.36	2.36	2.36	
Temperature, °C	50		50			
Passes at Set Point, No.	20000		20000			
Passes at Maximum Impression, No.	9308		7644		8476	
Maximum Impression, mm	12.52		12.53		12.52	

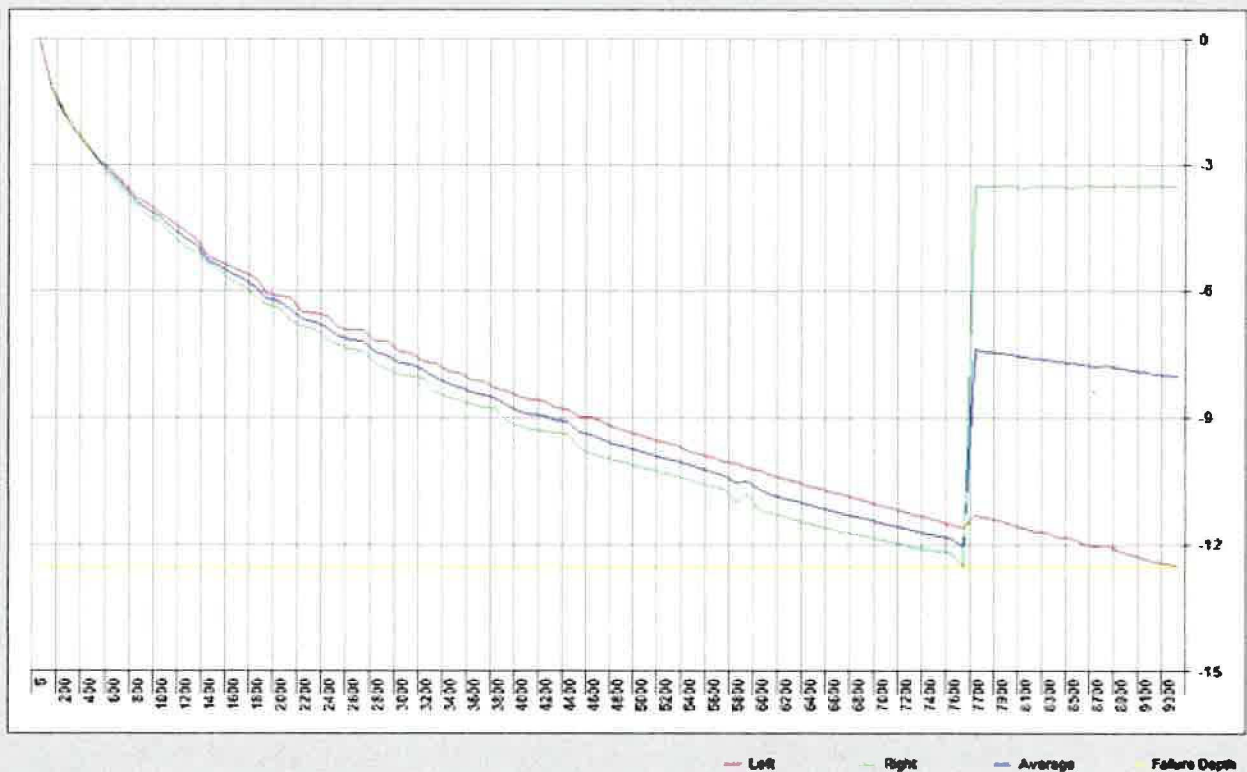
WheelTracker Report

Asphalt Pavement & Recycling Technologies, Inc.

Project Name:		Date:	07-19-24
Project Number:		Date Sampled:	
Job Number:		Lab Number:	
Project Engineer:		Mix Type:	PelletPAVE TR
Submitted By:	George Reed, Inc.	Asphalt Grade:	PG 64-10/16
Temperature:	50°C	Pit Source:	
Comments:			

	Left	Right	Average
Max Impression:	-12.52 mm	-12.53 mm	-12.52 mm
Pass #: 9308 / Pt: 4		Pass #: 7644 / Pt: 8	
Fail Depth: 12.50mm	FAIL	FAIL	FAIL

PMW WheelTracking Test



CC:

Michael Staugaard

Report: 24-0530

August 11, 2024

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mm1 GHI

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George Reed, Inc.

Recommended Mix Design

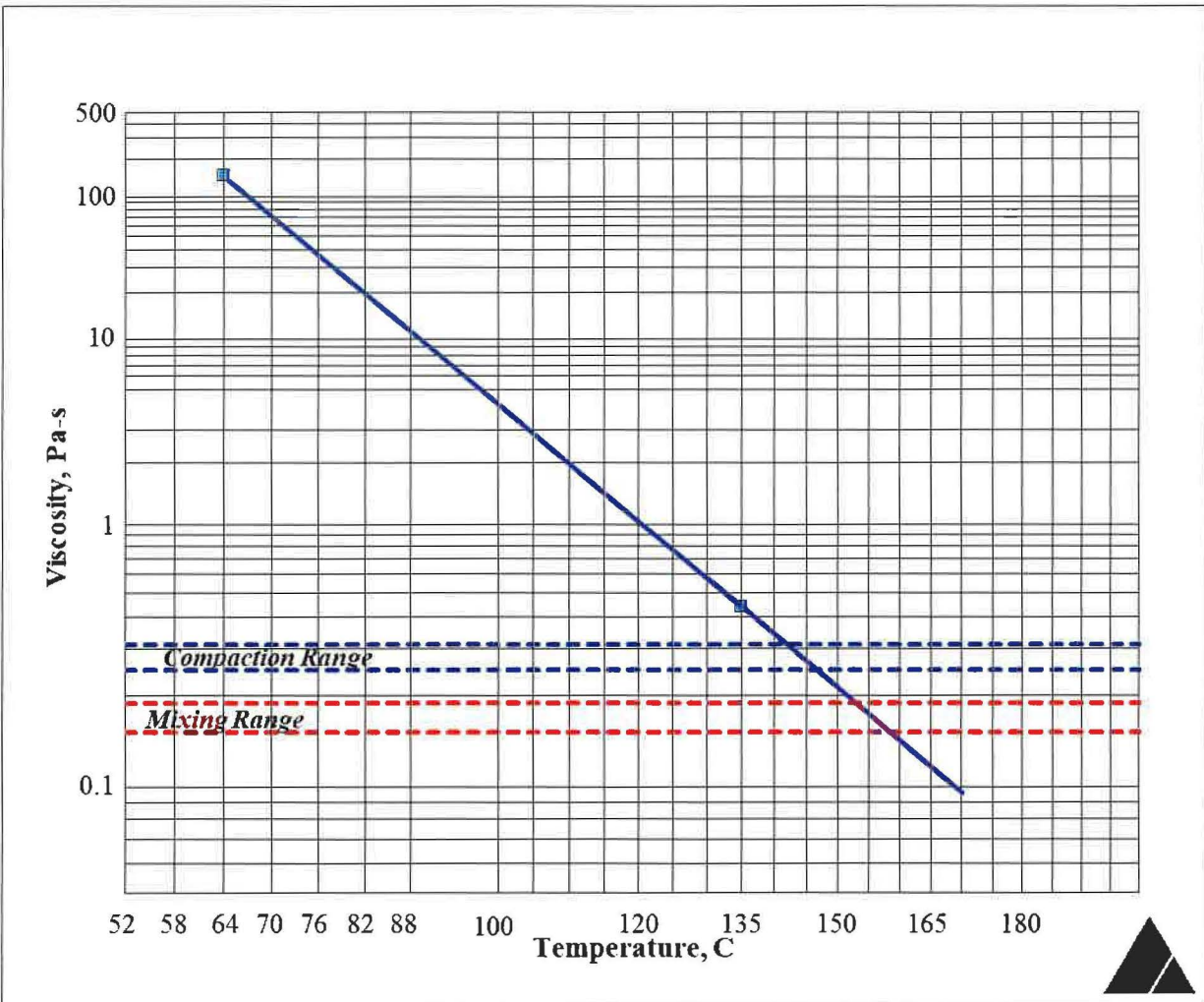
Mixing Temperature, °F	310	
Compaction Temperature, °F	290	
Asphalt Content, w%	5.55	Specification
Absorbed, Pba, %	0.26	
Effective Pbe, %	5.3	
Va @ N _{des} , %		
VMA @ N _{des} , %	16.09	13.50-16.50
VFA @ N _{des} , %	75.01	70.00 Min.
MTSG (Gmm)	2.412	
Density, lb / ft ³	150.5	
Bulk Specific Gravity (Gmb)	2.315	
Density, lb / ft ³	144.5	
Gmm @ N _{ini} , %	87.82	
Air Voids, %	12.18	8.00 Min.
Gmm @ N _{des} , %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3
Moisture Susceptibility		
Dry Tensile Strength, psi	176.8	100 Min.
Conditioned Tensile Strength, psi	114.3	70 Min.
Tensile Strength Ratio, %	64.6	
Hamburg Wheel Tracking, mm	6.89	12.50 Max.

Table I

George Reed, Inc.

PG 64-10/16

	AASHTO Test Method	Test Result	Specification
Specific Gravity, 15.6°C (60°F)	T228	1.024	Report
Rotational Viscosity, 135°C Pa*s	T316	0.439	3.0 Max.
Dynamic Shear Rheometer, 64°C	T315		
G*, kPa		1.456	
Phase Angle, δ , °		86.8	
G*/Sin δ , kPa		1.458	1.00-2.00



Mixing Temperature Range, °C (°F) = 153-158 (307-316)

Compaction Temperature Range, °C (°F) = 142-146 (288-295)

Table II
George Reed, Inc.
Aggregate

	Test Method	Bin 1	Bin 2	Bin 3
Aggregate Gradation, % Passing	CT 202			
Sieve Size				
1-inch		100	100	100
3/4-inch		100	100	100
1/2-inch		100	100	81.9
3/8-inch		100	93.9	22.5
No. 4		99.1	18.7	1.8
No. 8		81.6	1.9	0.6
No. 16		56.2	1.3	0.4
No. 30		34.2	0.9	0.3
No. 50		17.6	0.6	0.3
No. 100		9.2	0.5	0.2
No. 200		5.1	0.3	0.2

Table III
George Reed, Inc.
Aggregate Blend

Bin 1, w%		50.70	
Bin 2, w%		31.70	
Bin 3, w%		17.60	
	Test Method	Test Result	Specification
Aggregate Gradation, % Passing	CT 202		
Sieve Size			
1-inch		100	
3/4-inch		100	100
1/2-inch		96.81	91-100
3/8-inch		84.43	79-89
No. 4		56.49	54-64
No. 8		42.08	39-49
No. 16		28.98	
No. 30		17.68	17-25
No. 50		9.17	
No. 100		4.86	
No. 200		2.72	2.1-6.1

Gradation Curve

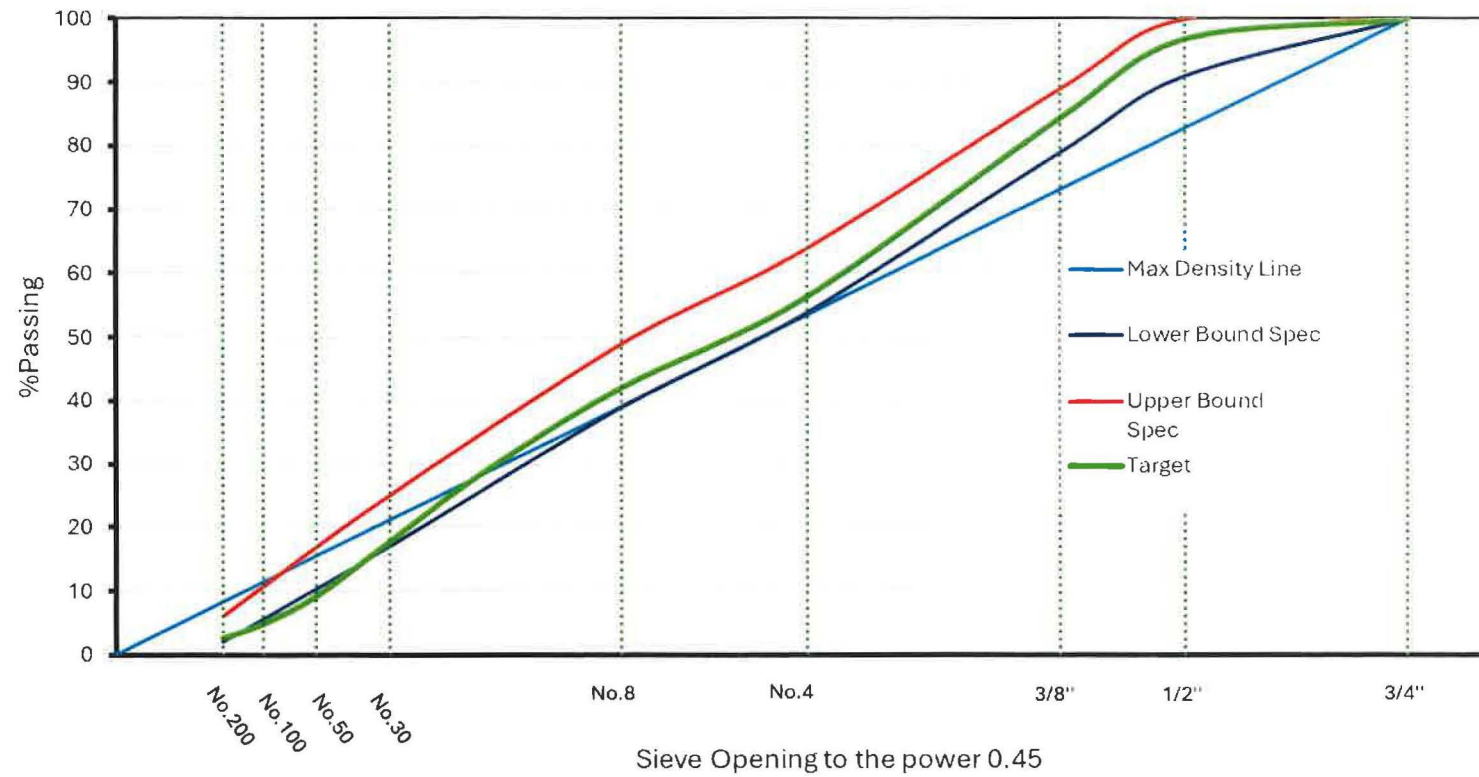


Table IV**George Reed, Inc.****Virgin Control
Aggregate Blend Percentages**

Asphalt Content, w%	5.00	5.50	6.00	6.50
Bin 1, w%	50.70	50.70	50.70	50.70
Bin 2, w%	31.70	31.70	31.70	31.70
Bin 3, w%	17.60	17.60	17.60	17.60

Table V**George Reed, Inc.****Virgin Control**

Asphalt Content, w%	5.00	5.50	6.00	6.50
Absorbed, Pba, %	0.3	0.3	0.3	0.3
Effective Pbe, %	4.8	5.3	5.7	6.2
Va @ N_{des}, %	5.5	4.1	3.0	1.8
VMA @ N_{des}, %	16.2	16.1	16.1	16.1
VFA @ N_{des}, %	66.2	74.2	81.2	88.6
MTSG (Gmm)	2.431	2.414	2.398	2.381
Density, lb / ft³	151.7	150.6	149.7	148.6
Bulk Specific Gravity (Gmb)	2.298	2.314	2.326	2.337
Density, lb / ft³	143.4	1444.4	145.1	145.8
Gmb @ N_{ini}	2.128	2.129	2.133	2.147
Gmb @ N_{des}	2.298	2.314	2.326	2.337
Gmm @ N_{ini}, %	87.52	88.19	88.94	90.19
Gmm @ N_{des}, %	94.52	95.86	96.99	98.16
Dust Proportion	0.6	0.6	0.5	0.5

Table VI**George Reed, Inc.**

Virgin Control
Optimum Bitumen Content
Aggregate Blend Percentages

Asphalt Content, w%	5.55
Bin 1, w%	50.70
Bin 2, w%	31.70
Bin 3, w%	17.60

Table VII**George Reed, Inc.**

Optimum Bitumen Content
Virgin Control

Asphalt Content, w%	5.55	Specification
Absorbed, Pba, %	0.26	
Effective Pbe, %	5.3	
Va @ N_{des}, %		
VMA @ N_{des}, %	16.09	13.50-16.50
VFA @ N_{des}, %	75.01	70.00 Min.
MTSG (Gmm)	2.412	
Density, lb / ft³	150.5	
Bulk Specific Gravity (Gmb)	2.315	
Density, lb / ft³	144.5	
Gmm @ N_{ini}, %	87.82	
Air Voids, %	12.18	8.00 Min.
Gmm @ N_{des}, %	96.00	
Air Voids, %	4.00	4.00
Dust Proportion	0.6	0.6-1.3

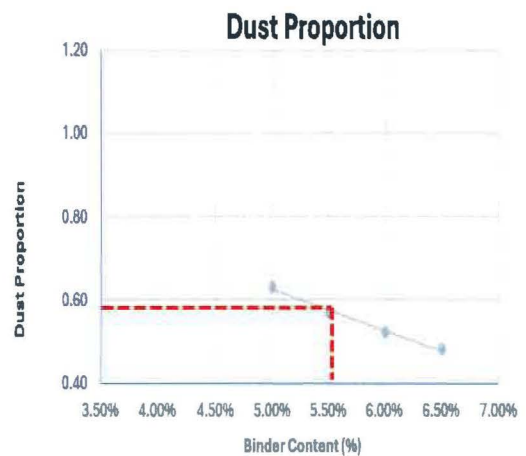
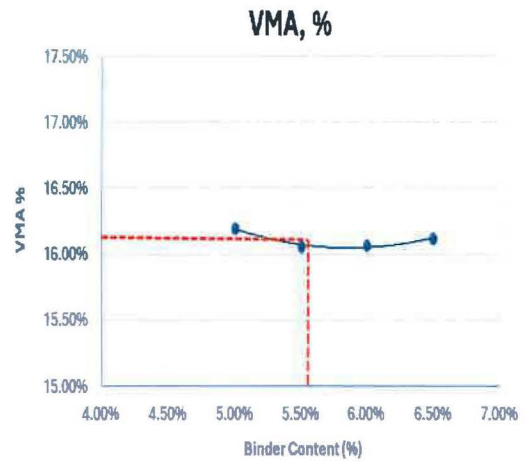
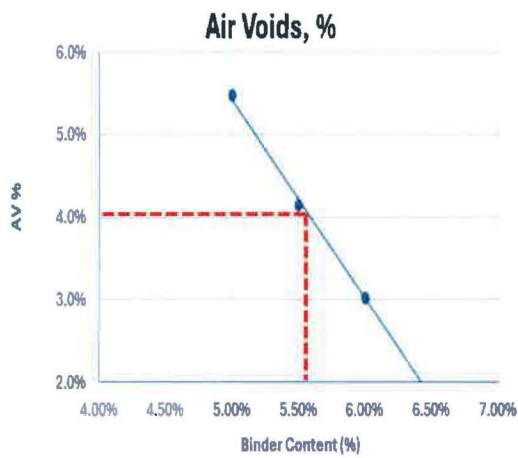
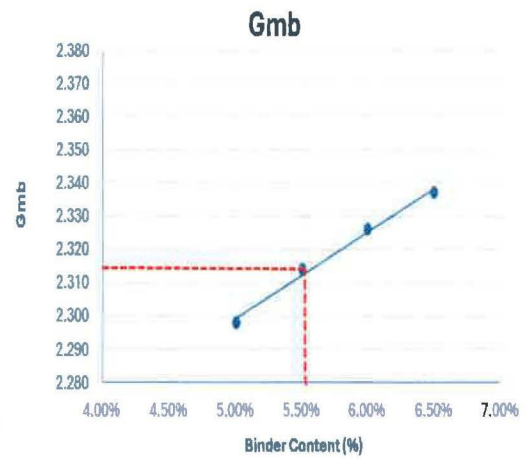
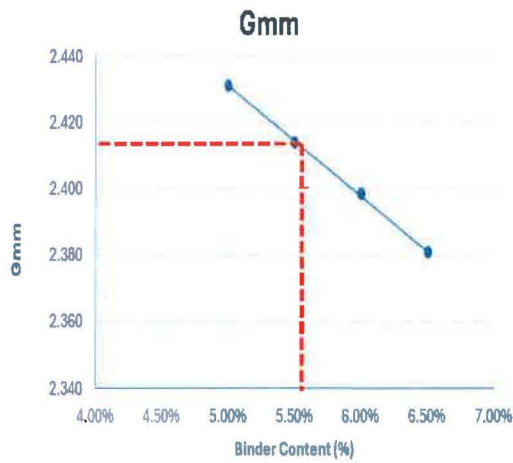


Table VIII**George Reed, Inc.****Virgin Control**

	Test Result					
Asphalt Content, w%	5.55					
Moisture Susceptibility	Dry Subset			Conditioned Subset		
Specimens	1	3	3	4	5	6
Air Voids, %	6.9	7.0	6.9	7.0	7.1	7.1
Tensile Strength, psi	181.1	174.6	174.6	116.4	116.4	110.0
Average Tensile Strength, psi	176.8			114.3		
Tensile Strength Ratio	64.6					
Hamburg Wheel Track Testing	#1	#2	#3	#4	Average	
Air Voids, %	7.0	7.1	7.1	7.1	7.075	
Specimen Height, inches	2.36	2.36	2.36	2.36	2.36	
Temperature, °C	50		50			
Passes at Set Point, No.	20000		20000			
Passes at Maximum Impression, No.	19600		20000		19950	
Maximum Impression, mm	7.49		6.28		6.89	

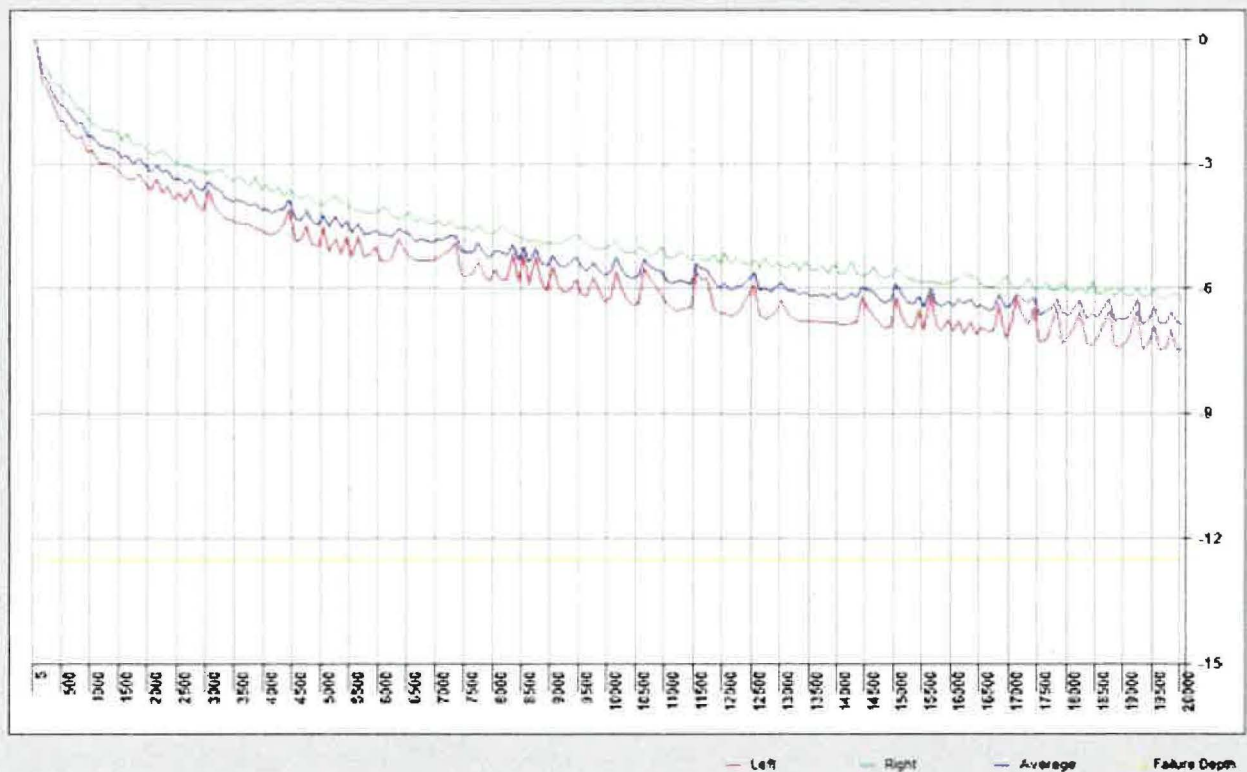
WheelTracker Report

Asphalt Pavement & Recycling Technologies, Inc.

Project Name:		Date:	07-15-24
Project Number:		Date Sampled:	
Job Number:		Lab Number:	
Project Engineer:		Mix Type:	Virgin Control
Submitted By:	Geogre Reed, Inc.	Asphalt Grade:	PG 64-10/16
Temperature:	50°C	Pit Source:	
Comments:			

	Left	Right	Average
Max Impression:	-7.49 mm	-6.28 mm	-6.89 mm
Pass #: 19600 / Pt: 8	PASS	PASS	PASS
Fail Depth: 12.50mm	PASS	PASS	PASS

PMW WheelTracking Test



CC:

Michael Staugaard

Report: 24-0807

August 11, 2024

Customer: George Reed, Inc. – Phil Reader, Arthur Trillo

Reference: APART Report No. 24-0530A

Requested Testing:

Increase the amount of fines (passing No. 200 sieve) in the mix that was tested and reported under APART Report No. 24-0530A. Then, determine the Hamburg Wheel Tracking of the mix.

Summary of Testing:

An additional 4.0% of fines was added to the portion from Bin 1. This 4.0% brought the fine content of the final mix up from 2.72% to approximately 4.75%. Cores were compacted by Gyratory Compactor as per AASHTO T312. Hamburg Wheel Track testing was determined as per AASHTO T324. Test data are as follows:

Asphalt Content, w%	5.75	5.75	5.75	5.75	
Hamburg Wheel Track Testing	#1	#2	#3	#4	Average
Air Voids, %	7.2	7.0	7.1	7.1	7.1
Specimen Height, inches	2.36	2.36	2.36	2.36	2.36
Temperature, °C	50		50		
Passes at Set Point, No.	20000		20000		
Maximum Impression, mm	21.96		21.44		21.70

mm/STI

Test data reported herein have been secured by reliable testing procedures. As we have no knowledge or control of the conditions that may affect the use of material from which samples were taken, we assume no responsibility in furnishing this data other than to warrant that they represent reliable measurements of the properties of the sample(s) received and tested. No warranties expressed or implied, including warranties of merchantability or fitness for a particular use, are made with respect to the products described herein. Nothing contained herein shall constitute a permission or recommendation to practice any invention covered by a patent without license from the owner of the patent.

Rut Data Report

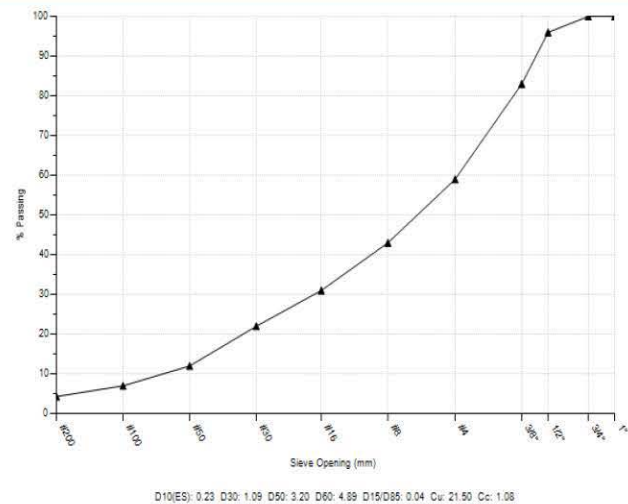
Performed: 8/10/2024	Test: George Reed SmartMix	Fail Depth: -35.0mm		
Pass #	Left	Right	Average	
1,000	-1.46	-1.84	-1.65	
2,000	-2.22	-2.49	-2.36	
3,000	-2.75	-2.83	-2.79	
4,000	-2.91	-2.98	-2.95	
5,000	-3.11	-3.16	-3.14	
6,000	-3.68	-3.58	-3.63	
7,000	-4.50	-4.39	-4.45	
8,000	-4.88	-4.86	-4.87	
9,000	-6.32	-5.89	-6.11	
10,000	-7.01	-6.64	-6.82	
11,000	-9.86	-9.36	-9.61	
12,000	-11.14	-10.99	-11.07	
13,000	-12.36	-12.00	-12.18	
14,000	-13.89	-13.46	-13.68	
15,000	-15.01	-14.77	-14.89	
16,000	-17.24	-16.88	-17.06	
17,000	-18.88	-18.02	-18.45	
18,000	-20.40	-19.65	-20.03	
19,000	-21.11	-20.67	-20.89	
20,000	-21.96	-21.44	-21.70	

Appendix B
CONSTRUCTION QUALITY ASSURANCE
TESTING RESULTS

Compliance Report

Sample Information

Sample No 39069117
Product Id SM
Product Name 1/2" Smart Mix
Specification
Date Sampled 10/29/2024 13:48
Sampled By Matthew Horn
Sample Type Production
Sample Method On Grade



Note: Dwell time for 5-10 minutes for all compacted samples.

Gradation Results

Date Tested 11/13/2024 13:48
Tested By Matthew Horn

Quality Results

Sieve	% Passing	Tolerances	Test	Result	Unit	Tolerances	Method
1" (25mm)	100.0		AC Content (Absorbed,Pba)	1.4	%		AASHTO T308
3/4" (19mm)	100.0		AC Content (Effective,Pbe)	4.9	%		AASHTO T308
1/2" (12.5mm)	96.0		AC Content (Pb)	6.2	%		AASHTO T308
3/8" (9.5mm)	83.0		DP	0.69			MS-2
#4 (4.75mm)	59.0		DPE	0.88			MS-2
#8 (2.36mm)	43.0		Specimen Mass	4577.7	g		
#16 (1.18mm)	31.0		Specimen Thickness	113.700	mm		
#30 (.6mm)	22.0		Air Voids (Va)	8.1	%		AASHTO T269/T275
#50 (.3mm)	12.0		Absorption	2.3	%		
#100 (.15mm)	7.0		Total Moisture	0.05	%		AASHTO T329
#200 (75µm)	4.3		SPGR (Compacted,Gmb)	2.215			AASHTO T312
			SPGR (Compacted,Roadway)	2.258			ASTM D2950
			SPGR (Effective,Gse)	2.637			
			SPGR (Max,Gmm)	2.408			AASHTO T209
			SPGR (Dry,Gsb)	2.546			
			SPGR (SSD)	2.605			
			SPGR (Apparent,Gsa)	2.705			
			Va@Ndes	8.01	%		MS-2
			VMA@Ndes	18.39	%		MS-2
			VMA@Ndes (Gse)	21.20	%		MS-2
			VFA@Ndes	56.41	%		MS-2
			VFA@Ndes (Gse)	62.19	%		MS-2
			VBA@Ndes	2.812	%		MS-2
			VBE@Ndes	10.371	%		MS-2

Compliance Report

VB@Ndes	13.184	%	MS-2
Relative Compaction (Roadway)	93.8	%	ASTM D2950
Unit Wt (Compacted)	2208.7090	kg/m3	AASHTO T 166
Unit Wt (Compacted,Roadway)	140.92	lb/ft3	ASTM D2950

Trinity Engineering Laboratories Inc.

Asphalt Core Density

Plant	O-Misc	
Product	SM-1/2" Smart Mix	
		39069117

Test Information			
Test Number	54970059	Sample No	39069117
Date Started	10/29/2024 1:48:00 PM	Date Sampled	10/29/2024 13:48
Date Completed	10/29/2024 13:48		
Tested By	Matthew Horn		

Test Results						
Subsamples	3	Location	Roadway	Compaction Relative To	Gmm	
		Method	A With Paraffin	Water Density		lb/ft3
		Subsample 1	Subsample 2	Subsample 3		
Include		☒	☒	☒		
Core Number		1-1	1-2	1-3		
Core ID						
Position						
Thickness		2.4	2.47	2.73	in	
Water Temperature		25	25	25	F	
Mass Of Pan		0	0	0	g	
Mass Of Pan + Dry Sample		913.5	938	1042.6	g	
Mass Of Pan + Dry Sample + Paraffin		919.8	944	1050	g	
Mass Of Pan + SSD Sample					g	
Mass Of Sample In Water		507.3	519.9	582.8	g	
Mass of Volumeter + Water					g	
Mass of Volumeter + Sample + Water					g	
Specific Gravity of Paraffin		0.9	0.9	0.9		
SPGR (Max,Gmm)		2.408	2.408	2.408		
SPGR (Compacted,Roadway)		2.254	2.248	2.273		
Unit Wt (Compacted,Roadway)		140.65	140.29	141.82	lb/ft3	
Relative Compaction (Roadway)		93.6	93.4	94.4	%	
		Results		Targets	Specifications	
	SPGR (Compacted,Roadway)	2.258				
	Unit Wt (Compacted,Roadway) lb/ft3	140.92				
	Relative Compaction (Roadway) %	93.8				

RESISTANCE OF COMPACTED BITUMINOUS MIXTURE TO MOISTURE DAMAGE

Project Number: 24-329															
Plant: GR-MP SmartMix					Mix: 1/2" HMA-A PG64-16/10 SmartMix										
Date Sampled: 10/29/24					Dosage %: N/A										
Date Tested: 11/14/24					Tester: M.Hom										
Sample ID		A	B	C	D	E	F			G	H	I	J	K	L
Diameter, in	D	6.0	6.0	6.0						6.0	6.0	6.0			
Thickness, in	t	3.74	3.74	3.75						3.74	3.74	3.74			
Dry Mass in Air, g	A	3749.3	3719.7	3731						3729.1	3719.4	3726.9			
S.S.D. Mass, g	B	3775.8	3747.6	3755.8						3757.2	3749.4	3757.8			
Mass in Water, g	C	2101	2096.1	2096.6						2101.2	2096.6	2093.8			
Volume (B-C), cc	E	1674.8	1651.5	1659.2						1656	1652.8	1664			
Bulk Sp. Gr. (A/E)	F	2.239	2.252	2.249						2.252	2.250	2.240			
Max Sp. Gr.	G	2.408	2.408	2.408						2.408	2.408	2.408			
% Air Voids [100(G-F)/G]	H	7.0	6.5	6.6						6.5	6.5	7.0			
Volume Air Voids (H*E/100), cc	I	117.78	106.77	109.78						107.37	108.20	116.28			
Load (Dry), lbs	P	3525	3910	3819											
Saturation															
Absolute Pressure: Hg @ Manometer mm										241					
Absolute Pressure: Hg @ Pump										241					
Time, Minutes										9					
Moisture Conditioned, One Freeze Thaw Cycle															
S.S.D. Mass, g	B'									3814.2	3801.5	3816.3			
Mass in Water, g	C'									2156	21478.4	2150.2			
Volume (B'-C'), cc	E'									1624.6	1631.3	1630.9			
Volume Absorbed Water (B'-A), cc	J'									85.1	82.1	89.4			
% Saturation (100*J'/I)	S'									79.25832	75.878936	76.880705			
% Swell [100(E'-E)/E]	W'									-1.896135	-1.300823	-1.989183			
Thickness, inch	t'									3.74	3.74	3.74			
Load (Wet), lb	P'									3226	3397	2786			
Dry Strength (P/m*t*D/2), (psi)	S _{td}	100.00	110.9	108.1											
Wet Strength (P/m*t*D/2) (psi)	S _{tw}									91.5	96.4	79.0			
Visual Moisture Damage (Yes/No)		n	n	n						n	n	n			
Aggregate Break Damage (Number of particles)		1	0	1						2	1	1			
Soft Aggregate (Number of particles)		0	0	0						0	0	0			

Conversions:

PSI to kPa, Multiply psi by 6.895

lb_f to N, Multiply lb_f by 4.448

Tensile Strength Values					Dry Tensile Strength Average (S _{dry})= 106.3	
	Dry (S _{td}) ¹	Wet (S _{tw}) ¹	Dry (S _{td}) ¹	Wet (S _{tw}) ¹	Wet Tensile Strength Average (S _{wet})= 87.7	
1	100.0	91.5	100.0	91.5		
2	110.9	96.4	110.9	96.4		
3	108.1	79.0	108.1	79.0		
4						
5						
6						
Tensile Strength Ratio S₂/S₁*100=					83%	

OBSERVATIONS/ REMARKS



APA Jr Hamburg Test Report

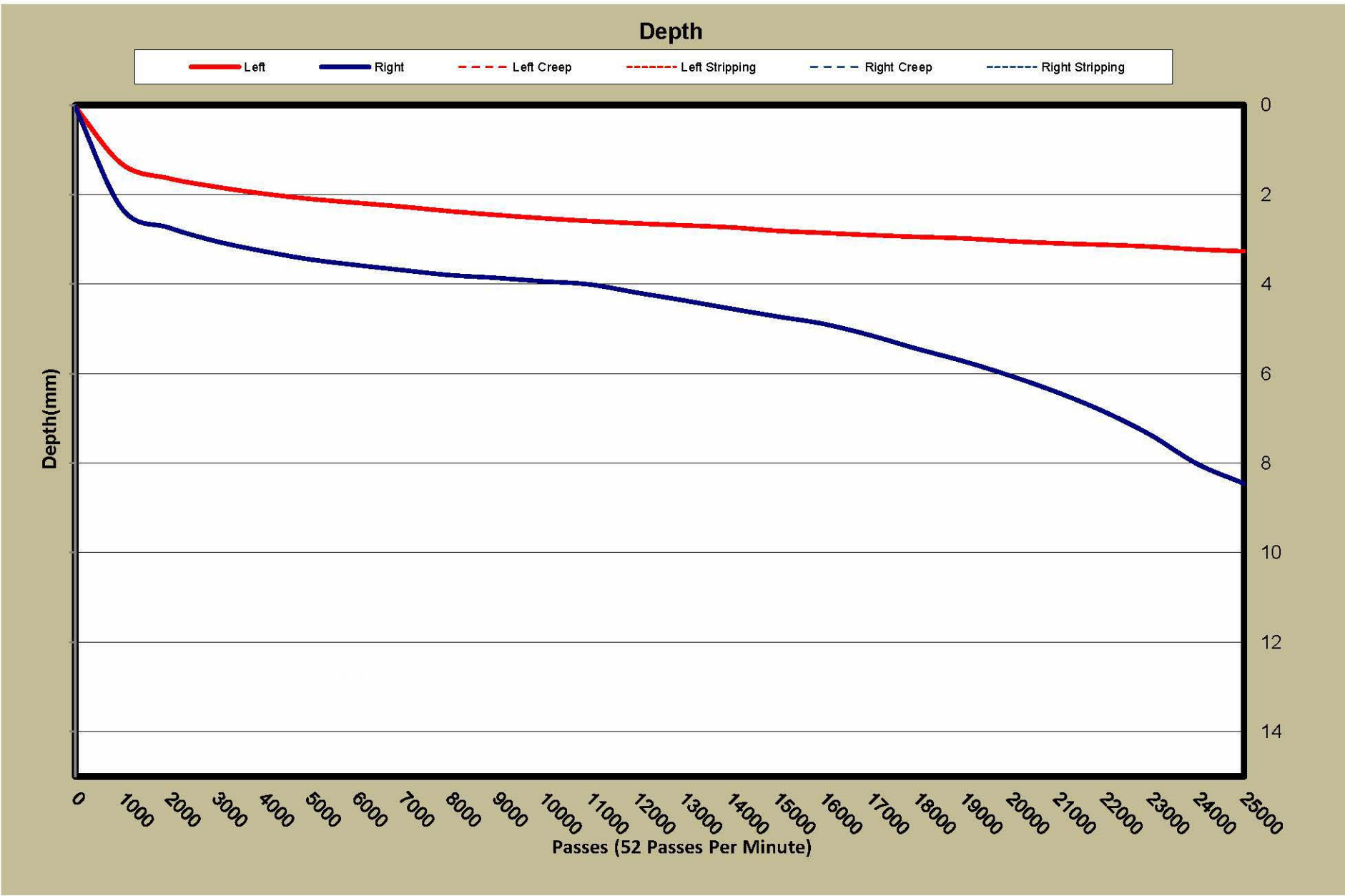
Gen 5 Rev 11 Pt

Project No.	24-329
Mix ID No.	
Mix Type	1/2" Smart Mix
Mold Type	6"

Test No.	1
Test Date	6-Nov
Data File	
Operator	MH

Temperature	50
Wheel Load	158
Passes S.I.P.	Over 25000
Lab ID	Fresno

					1	2370	6.6	57
					2	2365	7.3	39
					3	2366	6.8	50
					4	2368	6.5	63



2.085

Left Test
Average

3.738

Right Test Average

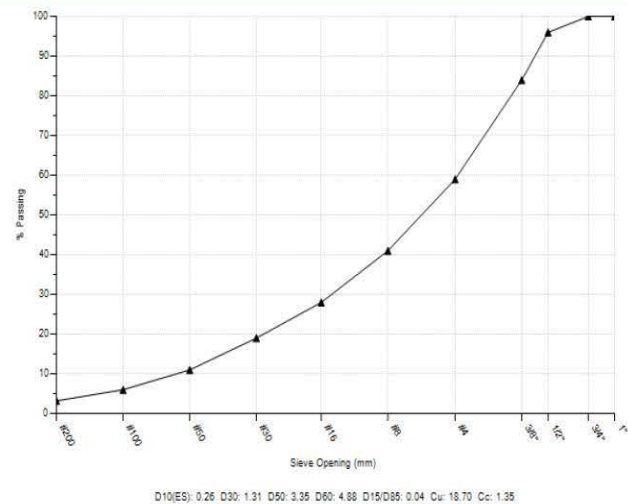
2.911

Total Test Average

Compliance Report

Sample Information

Sample No 39147802
Product Id PP
Product Name Pellet Pave
Specification
Date Sampled 10/30/2024 15:33
Sampled By Matthew Horn
Sample Type Production
Sample Method Stockpile



Gradation Results

Date Tested 11/13/2024 15:33

Tested By Matthew Horn

Quality Results

Sieve	% Passing	Tolerances	Test	Result	Unit	Tolerances	Method
1" (25mm)	100.0		AC Content (Absorbed,Pba)	1.3	%		AASHTO T308
3/4" (19mm)	100.0		AC Content (Effective,Pbe)	4.6	%		AASHTO T308
1/2" (12.5mm)	96.0		AC Content (Pb)	5.8	%		AASHTO T308
3/8" (9.5mm)	84.0		DP	0.55			MS-2
#4 (4.75mm)	59.0		DPE	0.70			MS-2
#8 (2.36mm)	41.0		Specimen Mass	4616.3	g		
#16 (1.18mm)	28.0		Specimen Thickness	112.667	mm		
#30 (.6mm)	19.0		Air Voids (Va)	2.9	%		AASHTO T269/T275
#50 (.3mm)	11.0		Absorption	2.3	%		
#100 (.15mm)	6.0		Total Moisture	0.03	%		AASHTO T329
#200 (75µm)	3.2		SPGR (Compacted,Gmb)	2.344			AASHTO T312
			SPGR (Compacted,Roadway)	2.259			ASTM D2950
			SPGR (Effective,Gse)	2.627			
			SPGR (Max,Gmm)	2.414			AASHTO T209
			SPGR (Dry,Gsb)	2.546			
			SPGR (SSD)	2.605			
			SPGR (Apparent,Gsa)	2.705			
			Va@Ndes	2.90	%		MS-2
			VMA@Ndes	13.26	%		MS-2
			VMA@Ndes (Gse)	15.95	%		MS-2
			VFA@Ndes	78.14	%		MS-2
			VFA@Ndes (Gse)	81.82	%		MS-2
			VBA@Ndes	2.685	%		MS-2
			VBE@Ndes	10.365	%		MS-2

Compliance Report

VB@Ndes	13.050	%	MS-2
Relative Compaction (Roadway)	93.6	%	ASTM D2950
Unit Wt (Compacted)	2337.7320	kg/m3	AASHTO T 166
Unit Wt (Compacted,Roadway)	140.95	lb/ft3	ASTM D2950

Trinity Engineering Laboratories Inc.

Specific Gravity (Compacted)

Plant O-Misc
Product PP-Pellet Pave



39147802

Test Information

Test Number 54938262 Sample No 39147802
Date Started 10/30/2024 3:33:00 PM Date Sampled 10/30/2024 15:33
Date Completed 10/30/2024 15:33
Tested By Matthew Horn

Test Results

Subsamples 3

Method A With Paraffin

Water Density

	Subsample 1	Subsample 2	Subsample 3	
Include	☒	☒	☒	
Water Temperature	25	25	25	C
Compaction Temperature				C
Thickness	112.6	112.9	112.5	mm
Mass Of Pan	0	0	0	g
Mass Of Pan + Dry Sample	4616.5	4615.8	4616.6	g
Mass Of Pan + Dry Sample + Paraffin	4651.5	4653.3	4654	g
Mass Of Pan + SSD Sample				g
Mass Of Sample In Water	2645.1	2635.8	2649	g
Mass of Volumeter + Water				g
Mass of Volumeter + Sample + Water				g
Specific Gravity of Paraffin	0.9	0.9	0.9	
Sample Volume	1967.5	1975.8	1963.4	cm3
Bulk Specific Gravity (Gmb)	2.346	2.336	2.351	
Unit Weight (Compacted)	2339.502	2329.295	2344.399	kg/m3
Absorption (Asphalt)				%

	Results	Targets	Specifications
SPGR (Compacted,Gmb)	2.344		
Unit Weight (Compacted) kg/m3	2337.732		
Absorption (Asphalt) %			
Compaction Temp (Asphalt) °C			
Specimen Mass g	4616.3		
Specimen Thickness mm	112.667		

Trinity Engineering Laboratories Inc.

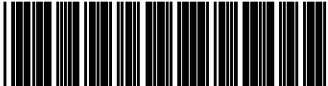
Asphalt Core Density

Plant

O-Misc

Product

PP-Pellet Pave



39147802

Test Information

Test Number

54936971

Date Started

10/30/2024 3:33:00 PM

Date Completed

10/30/2024 15:33

Tested By

Matthew Horn

Sample No

39147802

Date Sampled

10/30/2024 15:33

Test Results

Subsamples

3

Location

Roadway

Method

A With Paraffin

Compaction Relative To

Gmm

Water Density

lb/ft3

	Subsample 1	Subsample 2	Subsample 3	
Include	☒	☒	☒	
Core Number	1-4	1-5	1-7	
Core ID				
Position				
Thickness	2.08	2.57	2.23	in
Water Temperature	25	25	25	F
Mass Of Pan	0	0	0	g
Mass Of Pan + Dry Sample	787.3	1009.6	825.8	g
Mass Of Pan + Dry Sample + Paraffin	793.8	1017.3	832.8	g
Mass Of Pan + SSD Sample				g
Mass Of Sample In Water	433.8	573.3	453.5	g
Mass of Volumeter + Water				g
Mass of Volumeter + Sample + Water				g
Specific Gravity of Paraffin	0.9	0.9	0.9	
SPGR (Max,Gmm)	2.414	2.414	2.414	
SPGR (Compacted,Roadway)	2.233	2.32	2.224	
Unit Wt (Compacted,Roadway)	139.33	144.75	138.77	lb/ft3
Relative Compaction (Roadway)	92.5	96.1	92.1	%

Results

Targets

Specifications

SPGR (Compacted,Roadway)

2.259

Unit Wt (Compacted,Roadway) lb/ft3

140.95

Relative Compaction (Roadway) %

93.6

RESISTANCE OF COMPACTED BITUMINOUS MIXTURE TO MOISTURE DAMAGE

Project Number: 24-328															
Plant: GR-MP 1/2 HMA-A Pellet Pave					Mix: 1/2" HMA-A PG64-16/10 Pellet Pave										
Date Sampled: 10/29/24					Dosage %: N/A										
Date Tested: 11/6/24					Tester: M.Hom										
Sample ID		A	B	C	D	E	F			G	H	I	J	K	L
Diameter, in	D	6.0	6.0	6.0						6.0	6.0	6.0			
Thickness, in	t	3.74	3.74	3.75						3.74	3.74	3.74			
Dry Mass in Air, g	A	3717.2	3727	3730.7						3718.6	3724.2	3730.8			
S.S.D. Mass, g	B	3747.4	3748	3759.1						3749	3748.6	3753.6			
Mass in Water, g	C	2085.6	2095.6	2100.1						2092.8	2095.7	2100.1			
Volume (B-C), cc	E	1661.8	1652.4	1659						1656.2	1652.9	1653.5			
Bulk Sp. Gr. (A/E)	F	2.237	2.256	2.249						2.245	2.253	2.256			
Max Sp. Gr.	G	2.414	2.414	2.414						2.414	2.414	2.414			
% Air Voids [100(G-F)/G]	H	7.3	6.6	6.8						7.0	6.7	6.5			
Volume Air Voids (H*E/100), cc	I	121.95	108.49	113.56						115.77	110.15	108.02			
Load (Dry), lbs	P	4991	6041	5588											
Saturation															
Absolute Pressure: Hg @ Manometer mm										241					
Absolute Pressure: Hg @ Pump										241					
Time, Minutes										9					
Moisture Conditioned, One Freeze Thaw Cycle															
S.S.D. Mass, g	B'									3810.4	3802.2	3807.1			
Mass in Water, g	C'									2150.6	2147.6	2156			
Volume (B'-C'), cc	E'									1624.6	1631.3	1630.9			
Volume Absorbed Water (B'-A), cc	J'									91.8	78	76.3			
% Saturation (100*J'/I)	S'									79.295716	70.812928	70.638123			
% Swell [100(E'-E)/E]	W'									-1.907982	-1.306794	-1.366798			
Thickness, inch	t'									3.745	3.751	3.74			
Load (Wet), lb	P'									4462	4920	5481			
Dry Strength (P/m ² *D/2), (psi)	S _{td}	141.60	171.4	158.1											
Wet Strength (P/m ² *D/2) (psi)	S _w									126.6	139.6	155.5			
Visual Moisture Damage (Yes/No)		n	n	n						n	n	n			
Aggregate Break Damage (Number of particles)		2	3	1						4	2	3			
Soft Aggregate (Number of particles)		1	1	1						2	1	3			

Conversions:

PSI to kPa, Multiply psi by 6.895

lb_f to N, Multiply lb_f by 4.448

Tensile Strength Values					Dry Tensile Strength Average (S _{dry})=	
	Dry (S _{td}) ¹	Wet (S _w) ¹	Dry (S _{td}) ¹	Wet (S _w) ¹		Wet Tensile Strength Average (S _{wet})=
1	141.6	126.6	141.6	126.6		
2	171.4	139.6	171.4	139.6		
3	158.1	155.5	158.1	155.5		
4						
5						
6						
Tensile Strength Ratio S₂/S₁*100=					94%	

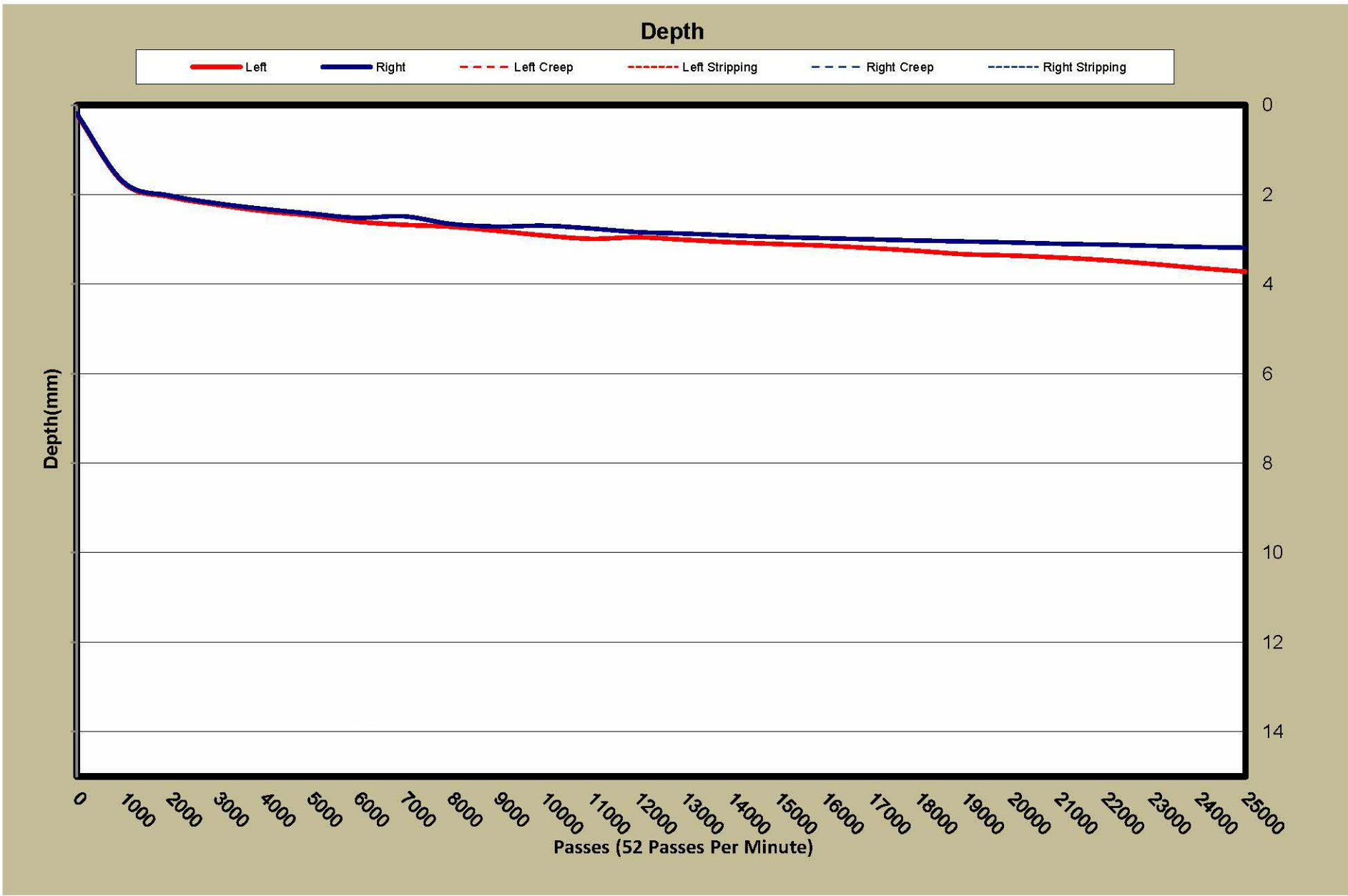
OBSERVATIONS/ REMARKS



Project No.	24-328
Mix ID No.	
Mix Type	1/2" SP
Mold Type	6"

Test No.	1
Test Date	6-Nov
Data File	
Operator	MH

Temperature	50
Wheel Load	158
Passes S.I.P.	Over 25000
Lab ID	Fresno

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2.496

**Left Test
Average**

2.418

Right Test Average

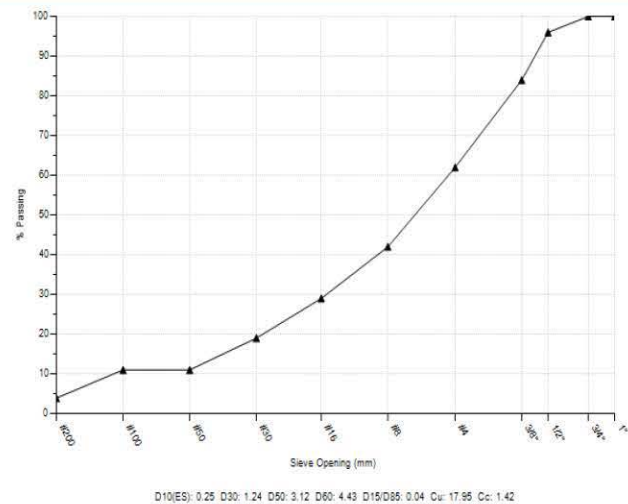
2.457

Total Test Average

Compliance Report

Sample Information

Sample No 54916744
Product Id PV
Product Name Pelletized Virgin
Specification
Date Sampled 10/30/2024 14:45
Sampled By Matthew Horn
Sample Type Production
Sample Method Stockpile



Gradation Results

Date Tested 11/13/2024 14:45

Tested By Matthew Horn

Quality Results

Sieve	% Passing	Tolerances	Test	Result	Unit	Tolerances	Method
1" (25mm)	100.0		AC Content (Absorbed,Pba)	0.4	%		AASHTO T308
3/4" (19mm)	100.0		AC Content (Effective,Pbe)	5.4	%		AASHTO T308
1/2" (12.5mm)	96.0		AC Content (Pb)	5.8	%		AASHTO T308
3/8" (9.5mm)	84.0		DP	0.67			MS-2
#4 (4.75mm)	62.0		DPE	0.72			MS-2
#8 (2.36mm)	42.0		Specimen Mass	4594.3	g		
#16 (1.18mm)	29.0		Specimen Thickness	110.600	mm		
#30 (.6mm)	19.0		Air Voids (Va)	1.7	%		AASHTO T269/T275
#50 (.3mm)	11.0		Absorption	2.3	%		
#100 (.15mm)	6.0		Total Moisture	0.09	%		AASHTO T329
#200 (75µm)	3.9		SPGR (Compacted,Gmb)	2.387			AASHTO T312
			SPGR (Effective,Gse)	2.647			
			SPGR (Max,Gmm)	2.429			AASHTO T209
			SPGR (Dry,Gsb)	2.618			
			SPGR (SSD)	2.677			
			SPGR (Apparent,Gsa)	2.783			
			Va@Ndes	1.73	%		
			VMA@Ndes	14.12	%		MS-2
			VMA@Ndes (Gse)	15.06	%		MS-2
			VFA@Ndes	87.76	%		MS-2
			VFA@Ndes (Gse)	88.52	%		MS-2
			VBA@Ndes	0.943	%		MS-2
			VBE@Ndes	12.392	%		MS-2
			VB@Ndes	13.335	%		MS-2

Compliance Report

Unit Wt (Compacted)	2380.2630	kg/m3	AASHTO T 166
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Trinity Engineering Laboratories Inc.

Asphalt Core Density

Plant O-Misc
Product PV-Pelletized Virgin



39122723

Test Information

Test Number 54968016 Sample No 39122723
Date Started 10/30/2024 3:56:00 PM Date Sampled 10/30/2024 15:56
Date Completed 10/30/2024 15:56
Tested By Matthew Horn

Test Results

Subsamples	7	Location	Roadway	Compaction Relative To	Gmm			
		Method	A With Paraffin		Water Density		kg/m3	
		Subsample 1	Subsample 2	Subsample 3	Subsample 4	Subsample 5	Subsample 6	Subsample 7
Include	☒	☒	☒	☒	☒	☒	☒	☒
Core Number	1-1	1-3	1-4	1-5	1-6	1-7	1-8	
Core ID								
Position								
Thickness	2.6	2.2	2.65	2.43	2.57	2.6	2.34	mm
Water Temperature	25	25	25	25	25	25	25	C
Mass Of Pan	0	0	0	0	0	0	0	g
Mass Of Pan + Dry Sample	1037.5	850	1055.3	935.2	1002.3	1004.5	918.2	g
Mass Of Pan + Dry Sample + Paraffin	1046.5	859.2	1065.2	946.4	1013	1014.7	929.2	g
Mass Of Pan + SSD Sample								g
Mass Of Sample In Water	595.8	478.9	604.4	528.5	564.2	569.6	521.7	g
Mass of Volumeter + Water								g
Mass of Volumeter + Sample + Water								g
Specific Gravity of Paraffin	0.9	0.9	0.9	0.9	0.9	0.9	0.9	
SPGR (Max,Gmm)	2.429	2.429	2.429	2.429	2.429	2.429	2.429	
SPGR (Compacted,Roadway)	2.354	2.297	2.346	2.307	2.294	2.316	2.323	
Unit Wt (Compacted,Roadway)	2347.32	2290.1	2339.29	2299.8	2287.35	2308.99	2316.13	kg/m3
Relative Compaction (Roadway)	96.9	94.6	96.6	95	94.4	95.3	95.6	%
		Results		Targets		Specifications		
SPGR (Compacted,Roadway)		2.32						
Unit Wt (Compacted,Roadway) kg/m3		2312.71						
Relative Compaction (Roadway) %		95.5						

RESISTANCE OF COMPACTED BITUMINOUS MIXTURE TO MOISTURE DAMAGE

Project Number: 24-330															
Plant: GR-MP					Mix: 1/2" HMA-A PG64-16/10										
Date Sampled: 10/30/24					Dosage %: N/A										
Date Tested: 11/13/24					Tester: M.Hom										
Sample ID		A	B	C	D	E	F			G	H	I	J	K	L
Diameter, in	D	6.0	6.0	6.0						6.0	6.0	6.0			
Thickness, in	t	3.74	3.74	3.75						3.74	3.74	3.74			
Dry Mass in Air, g	A	3718.7	3715.8	3708.1						3728	3713.8	3719.5			
S.S.D. Mass, g	B	3734.9	3732.4	3730						3740.9	3731	3736.1			
Mass in Water, g	C	2095	2096.8	2096.7						2100.2	2094.6	2098.6			
Volume (B-C), cc	E	1639.9	1635.6	1633.3						1640.7	1636.4	1637.5			
Bulk Sp. Gr. (A/E)	F	2.268	2.272	2.270						2.272	2.269	2.271			
Max Sp. Gr.	G	2.429	2.429	2.429						2.429	2.429	2.429			
% Air Voids [100(G-F)/G]	H	6.6	6.5	6.5						6.5	6.6	6.5			
Volume Air Voids (H*E/100), cc	I	108.94	105.83	106.70						105.91	107.46	106.21			
Load (Dry), lbs	P	5977	6055	6089											
Saturation															
Absolute Pressure: Hg @ Manometer mm										241					
Absolute Pressure: Hg @ Pump										241					
Time, Minutes										9					
Moisture Conditioned, One Freeze Thaw Cycle															
S.S.D. Mass, g	B'									3804.2	3792.1	3794.9			
Mass in Water, g	C'									2164.1	2155.7	2161.5			
Volume (B'-C'), cc	E'									1624.6	1631.3	1630.9			
Volume Absorbed Water (B'-A), cc	J'									76.2	78.3	75.4			
% Saturation (100*J'/I)	S'									71.946507	72.865645	70.990494			
% Swell [100(E'-E)/E]	W'									-0.981288	-0.31166	-0.403053			
Thickness, inch	t'									3.745	3.751	3.74			
Load (Wet), lb	P'									3997	4909	5621			
Dry Strength (P/m*t*D/2), (psi)	S _{td}	169.60	171.8	172.3											
Wet Strength (P/m*t*D/2) (psi)	S _w									113.4	139.3	159.5			
Visual Moisture Damage (Yes/No)		y	y	y						n	n	n			
Aggregate Break Damage (Number of particles)		2	0	1						2	2	2			
Soft Aggregate (Number of particles)		0	0	0						0	0	0			

Conversions:

PSI to kPa, Multiply psi by 6.895

lb_f to N, Multiply lb_f by 4.448

Tensile Strength Values						Dry Tensile Strength Average (S _{dry})=	
	Dry (S _{td}) ¹	Wet (S _w) ¹	Dry (S _{td}) ¹	Wet (S _w) ¹		Wet Tensile Strength Average (S _{wet})=	
1	169.6	113.4	169.6	113.4			
2	171.8	139.3	171.8	139.3			
3	172.3	159.5	172.3	159.5			
4							
5							
6							
Tensile Strength Ratio S_w/S_t*100=						87%	

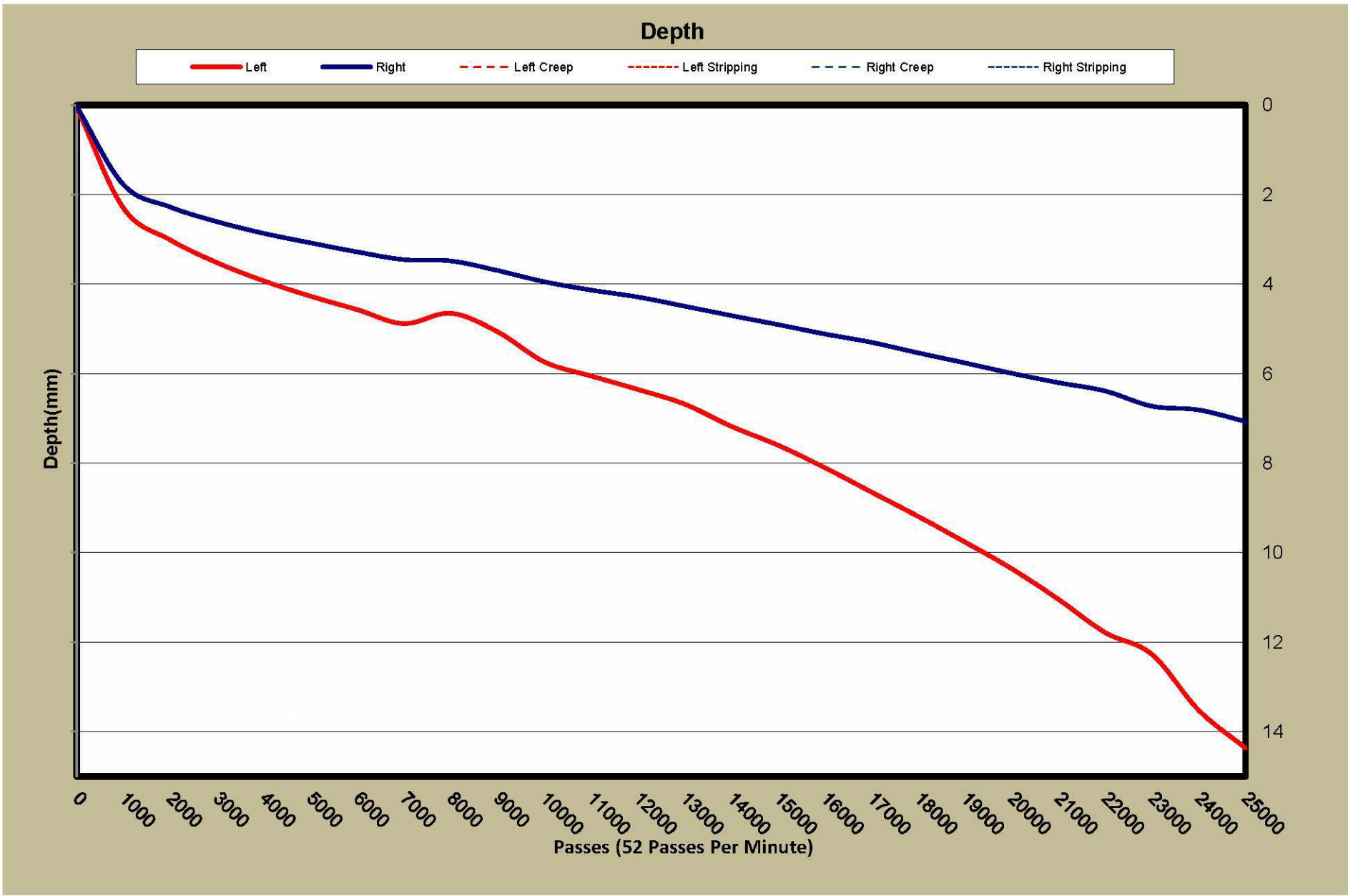
OBSERVATIONS/ REMARKS

**Gen 5 Rev 11 Pt**

Project No. 24-330
Mix ID No. _____
Mix Type 1/2" Pelletized Virgin
Mold Type 6"

Test No.	1
Test Date	12-Nov
Data File	
Operator	MH

Temperature	50
Wheel Load	158
Passes S.I.P.	Over 25000
Lab ID	Fresno

[illegible]

6.539

**Left Test
Average**

4.199

Right Test Average

5.369

Total Test Average



Client: NCE Report Date: 11/15/2024
 1003 W. Cutting Blvd., Suite 110 Sample Date: 10/30/2024
 Pt. Richmond, CA 94804 Test Date: Various
 Project Name: CalRecycle Stanislaus Pelletized Asphalt Pavement Construction
 Project No.: G53502.01
 Supplier: George Reed, Inc. Lab I.D.: 24-0656#1
 Mix I.D.: 1/2" HMA- A - SP - Virgin, PG 64-10/16 - GRI-CLM Sample #: 1

Aggregate Gradation, T 30

% Passing by dry weight of aggregates								
Sieve Size	Bin #1 GRI-MP	Bin #2 GRI-MP	Bin #3 GRI-MP	Combined Grading Bin #1, Bin #2 & Bin #3		Specifications	Meet Specification	
							Yes	No
1"	100	100	100	100				
3/4"	100	100	100	100		100	Yes	
1/2"	100	100	78	96		91-100	Yes	
3/8"	100	97	13	84		79-89	Yes	
#4	100	34	1	62		54-64	Yes	
#8	81	2	0.5	42		39-49	Yes	
#16	57	0.2	0.4	29				
#30	36	0.2	0.4	18		17-25	Yes	
#50	19	0.1	0.3	10				
#100	9	0.1	0.3	5				
#200	5.0	0.1	0.3	2.6		2.1-6.1	Yes	
% Used:	50.7	31.7	17.6	100				
Sand Equivalent, T 176:				80	80	77		
Average SE:				79		47 Min	Yes	
Percent Crushed Particles, T 335:								
Coarse Aggregate:								
One-fractured face:				100		95% Min.	Yes	
Two-fractured faces:				100		90% Min	Yes	
Fine Aggregate:								
Passing #4 sieve retained #8 sieve:				100		70% Min.	Yes	
Flat & elongated particles, ASTM D4791:								
% by weight at (5:1):				0		10 % Max.	Yes	
Los Angeles Rattler, T 96:								
Loss at 100 rev:				4.7		12% Max.	Yes	
Loss at 500 rev:				21.9		40% Max.	Yes	
Fine Aggregate Angularity, T 304 A:				45.3		Report	N/A	
Moisture Content of Aggregates, T 255:				0.30%		Report	Yes	

Remarks: The aggregates tested meet the above mentioned specification requirements.

Moore Twining Associates, Inc.

Michael Shwiyhat
 Michael Shwiyhat, EIT
 Manager
 Materials Testing Division



Client: NCE Report Date: 11/15/2024
 1003 W. Cutting Blvd., Suite 110 Sample Date: 10/30/2024
 Pt. Richmond, CA 94804 Test Date: Various

Project Name: CalRecycle Stanislaus Pelletized Asphalt Pavement Construction
 Project No.: G53502.01
 Supplier: George Reed, Inc. Lab I.D.: 24-0656#2
 Mix I.D.: 1/2" HMA- A - SP - Virgin, PG 64-10/16 - GRI-CLM Sample #: 2

Aggregate Gradation, T 30

% Passing by dry weight of aggregates								
Sieve Size	Bin #1 GRI-MP	Bin #2 GRI-MP	Bin #3 GRI-MP	Combined Grading		Specifications	Meet Specification	
				Bin #1, Bin #2 & Bin #3			Yes	No
1"	100	100	100	100				
3/4"	100	100	100	100		100	Yes	
1/2"	100	100	78	96		91-100	Yes	
3/8"	100	97	13	84		79-89	Yes	
#4	100	34	1	62		54-64	Yes	
#8	82	2	0.5	42		39-49	Yes	
#16	57	0.2	0.4	29				
#30	38	0.2	0.4	19		17-25	Yes	
#50	21	0.1	0.3	11				
#100	12	0.1	0.3	6				
#200	7.6	0.1	0.3	3.9		2.1-6.1	Yes	
% Used:	50.7	31.7	17.6	100				
Sand Equivalent, T 176:				80	81	79		
Average SE:				80		47 Min	Yes	
Percent Crushed Particles, T 335:								
Coarse Aggregate:								
One-fractured face:				100		95% Min.	Yes	
Two-fractured faces:				100		90% Min	Yes	
Fine Aggregate:								
Passing #4 sieve retained #8 sieve:				100		70% Min.	Yes	
Flat & elongated particles, ASTM D4791:								
% by weight at (5:1):				0		10 % Max.	Yes	
Los Angeles Rattler, T 96:								
Loss at 100 rev:				5		12% Max.	Yes	
Loss at 500 rev:				21.9		40% Max.	Yes	
Fine Aggregate Angularity, T 304 A:				45.9		Report	N/A	
Moisture Content of Aggregates, T 255:				0.40%		Report	Yes	

Remarks: The aggregates tested meet the above mentioned specification requirements.

Moore Twining Associates, Inc.

Michael Shwiyhat

Michael Shwiyhat, EIT
 Manager
 Materials Testing Division



Client:	NCE	Report Date:	11/15/2024
	1003 W. Cutting Blvd., Suite 110	Sample Date:	10/29/2024
	Pt. Richmond, CA 94804	Test Date:	Various
Project Name:	CalRecycle Stanislaus Pelletized Asphalt Pavement Construction		
Project No.:	G53502.01	Lab I.D.:	24-0655#1
Supplier	George Reed, Inc.	Sample #:	1
Mix I.D.:	1/2" HMA- SP - PelletPave TR, PG 64-10/16 - GRI-CLM		

Aggregate Gradation, T 30

% Passing by dry weight of aggregates							
Sieve Size	Bin #1 GRI-MP	Bin #2 GRI-MP	Bin #3 GRI-MP	Bin #1, Bin #2 & Bin #3	Specifications	Meet Specification	
						Yes	No
1"	100	100	100	100			
3/4"	100	100	100	100	100	Yes	
1/2"	100	100	78	96	91-100	Yes	
3/8"	100	97	14	84	79-89	Yes	
#4	100	26	1	59	54-64	Yes	
#8	79	1	1	41	39-49	Yes	
#16	55	0.3	1	28			
#30	36	0.3	1	19	17-25	Yes	
#50	21	0.3	0.5	11			
#100	12	0.2	0.5	6			
#200	6.1	0.2	0.4	3.2	2.1-6.1	Yes	
% Used:	50.7	31.7	17.6	100			
Sand Equivalent, T 176:				77	78	79	
Average SE:				78	47 Min	Yes	
Percent Crushed Particles, T 335:							
Coarse Aggregate:							
One-fractured face:				100	95% Min.	Yes	
Two-fractured faces:				100	90% Min	Yes	
Fine Aggregate:							
Passing #4 sieve retained #8 sieve:				100	70% Min.	Yes	
Flat & elongated particles, ASTM D4791:							
% by weight at (5:1):				0	10 % Max.	Yes	
Los Angeles Rattler, T 96:							
Loss at 100 rev:				4.8	12% Max.	Yes	
Loss at 500 rev:				22.3	40% Max.	Yes	
Fine Aggregate Angularity, T 304 A:				45.3	Report	N/A	
Moisture Content of Aggregate, T 255:				0.30%	Report	Yes	

Remarks: The aggregates tested meet the above mentioned specification requirements.

Moore Twining Associates, Inc.

Michael Shwiyhat

Michael Shwiyhat, EIT
Manager
Materials Testing Division



Client:	NCE	Report Date:	11/15/2024
	1003 W. Cutting Blvd., Suite 110	Sample Date:	10/29/2024
	Pt. Richmond, CA 94804	Test Date:	Various
Project Name:	CalRecycle Stanislaus Pelletized Asphalt Pavement Construction		
Project No.:	G53502.01	Lab I.D.:	24-0655#2
Supplier	George Reed, Inc.	Sample #:	2
Mix I.D.:	1/2" HMA SP - SmartMix, PG 64-10/16 - GRI-CLM		

Aggregate Gradation, T 30

% Passing by dry weight of aggregates								
Sieve Size	Bin #1 GRI-MP	Bin #2 GRI-MP	Bin #3 GRI-MP	Combined Grading Bin #1, Bin #2 & Bin #3		Specifications	Meet Specification	
							Yes	No
1"	100	100	100	100				
3/4"	100	100	100	100		100	Yes	
1/2"	100	100	80	96		91-100	Yes	
3/8"	100	96	13	83		79-89	Yes	
#4	100	25	2	59		54-64	Yes	
#8	84	2	1.3	43		39-49	Yes	
#16	61	0.2	1.3	31				
#30	42	0.2	1.2	22		17-25	Yes	
#50	24	0.2	1.2	12				
#100	14	0.1	1.2	7				
#200	8.0	0.1	1.2	4.3		2.1-6.1	Yes	
% Used:	50.7	31.7	17.6	100				
Sand Equivalent, T 176:				81	80	80		
Average SE:				81		47 Min	Yes	
Percent Crushed Particles, T 335:								
Coarse Aggregate:								
One-fractured face:				100		95% Min.	Yes	
Two-fractured faces:				100		90% Min	Yes	
Fine Aggregate:								
Passing #4 sieve retained #8 sieve:				100		70% Min.	Yes	
Flat & elongated particles, ASTM D4791:								
% by weight at (5:1):				0		10 % Max.	Yes	
Los Angeles Rattler, T 96:								
Loss at 100 rev:				4.9		12% Max.	Yes	
Loss at 500 rev:				22.0		40% Max.	Yes	
Fine Aggregate Angularity, T 304 A:				45.8		Report	N/A	
Moisture Content of Aggregate, T 255:				0.30%		Report	Yes	

Remarks: The aggregates tested meet the above mentioned specification requirements.

Moore Twining Associates, Inc.

Michael Shwiyhat

Michael Shwiyhat, EIT
Manager
Materials Testing Division



Date: 10/30/24

FIELD DAILY INSPECTION REPORT

Page 1 of

Client Name: MTA Project No.: MTP 0644-24
Project Name: KEYES RD PAVING PROJECT Store No.:
Project Address: KEYES RD AND MOUNTAIN VALLEY, TURLOCK, CA
Permit No: Building Code:
Plan Date: Specification Date:
General Contractor: Subcontractor:
Inspector: TANNER PENDERGRAFT
Certification Number: Exp. Date:

- ☐ Building Pad ☐ Utilities ☐ Pavement Sub-grade ☐ Pavement Base ☒ Pavement AC ☐ PCC Pavements ☐ Off-Site Improvements
☐ Sidewalks ☐ Curb & Gutter ☐ Foundations ☐ Slab-On-Grade ☐ Columns ☐ Beams ☐ Walls ☐ Trusses ☐ Deck ☐ Elevated Floors
☐ Roof ☐ Rack and Shelving ☐ Light Gauge Walls/Framing ☐ Pre-Cast Concrete ☐ Other
☐ Sample Pickup ☐ Earthwork Observation & In-Place Density Testing ☐ Reinforcing Steel Inspection ☐ Concrete Sampling
☐ Concrete Placement Inspection ☐ Post Tension Concrete ☐ Moisture Vapor Emission Testing ☐ Rebar Location (Pachometer) Testing
☐ Floor Slab Relative Humidity Testing ☐ Slip-Resistance Testing ☐ Floor Flatness Testing ☐ Gloss Measurements ☐ Shotcrete
☐ Anchor Pull-Test / Load Testing ☐ Anchor Bolt / Epoxy Inspection ☐ Field Welding Inspection ☐ Shop Welding Inspection ☐ NDT
☐ HS Bolt Testing ☐ Spray Fire Proofing Inspection and Testing ☐ Masonry Inspection ☐ Non-Shrink Grout ☐ Roof Inspection
☒ Coring ☐ Nailing/Wood Framing Inspection ☐ Other

Inspection Date: 10/30/24 Samples Taken ☒ Yes ☐ No Time Samples Taken:
☒ Initial Inspection ☐ Re-Inspection ☐ Out-of-Scope Inspection or Testing ☐ Standby / Cancellation

Weather: CLEAR, OVERCAST 55°

PERFORMED CORING SAMPLES IN LOCATIONS SPECIFIED IN
LUIS RODRIGUEZ AND STEVE YOUNGRALL'S DFR OF MTP 0644-24

Report Continued ☐ Yes ☐ No

Work inspected as outlined in this report is, to the best of this inspector's knowledge, in conformance with the approved plans and specifications: ☒ Yes ☐ No ☐ N/A (If no, inspector shall complete and attach a Discrepancy Report).

MTA Corporate address: 2527 Fresno Street, Fresno, CA 93721 (800.268.7021). Website: www.mooretwinning.com

Inspector's Signature

Date: 10/30/24

Supervisor's Signature

Date:

12/04/24

We do not undertake the guarantee of construction nor do we relieve the contractor of his primary responsibility to complete the project in accordance with the plans and specifications. Our firm is not responsible for construction safety. Our services were performed in accordance with generally accepted standards and practices. This warranty is in lieu of all other warranties either expressed or implied.



MOORE TWINING

Date: 10-30-24

FIFTEEN DAY INSPECTION REPORT

Page 1 of 1

Client Name: _____ MTA Project No.: _____
 Project Name: STANISLAUS COUNTY AC TEST SECTION Store No.: _____
 Project Address: KEYES RD, KEYES CA
 Permit No.: _____ Building Code: _____
 Plan Date: _____ Specification Date: _____
 General Contractor: UNITED Subcontractor: _____
 Inspector: Steven Youngdahl Exp. Date: _____
 Certification Number: _____

- ☐ Building Pad ☐ Utilities ☐ Pavement Sub-grade ☐ Pavement Base ☒ Pavement AC ☐ PCC Pavements ☐ Off-Site Improvements
☐ Sidewalks ☐ Curb & Gutter ☐ Foundations ☐ Slab-On-Grade ☐ Columns ☐ Beams ☐ Walls ☐ Trusses ☐ Deck ☐ Elevated Floors
☐ Roof ☐ Rack and Shelving ☐ Light Gauge Walls/Framing ☐ Pre-Cast Concrete ☐ Other
☐ Sample Pickup ☒ Earthwork Observation & In-Place Density Testing ☐ Reinforcing Steel Inspection ☐ Concrete Sampling
☐ Concrete Placement Inspection ☐ Post Tension Concrete ☐ Moisture Vapor Emission Testing ☐ Rebar Location (Pachometer) Testing
☐ Floor Slab Relative Humidity Testing ☐ Slip-Resistance Testing ☐ Floor Flatness Testing ☐ Gloss Measurements ☐ Shotcrete
☐ Anchor Pull-Test / Load Testing ☐ Anchor Bolt / Epoxy Inspection ☐ Field Welding Inspection ☐ Shop Welding Inspection ☐ NDT
☐ HSB Bolt Testing ☐ Spray Fire Proofing Inspection and Testing ☐ Masonry Inspection ☐ Non Shrink Grout ☐ Roof Inspection
☐ Coring ☐ Nailing/Wood Framing Inspection ☒ Other AC

Inspection Date: 10-30-24 Samples Taken ☒ Yes ☐ No Time Samples Taken: 1

☒ Initial Inspection ☐ Re-Inspection ☐ Out-of-Scope Inspection or Testing ☐ Standby / Cancellation

Weather: clear 47°-80°

CONTRACTOR PLACING 1/2" HMA PG 64-10 MIX 21200
FROM APPROX STATION 111+50-135+00. 14' LANE WIDTH TO
INCLUDE SHOULDER. CB 13 BREAKDOWN, CB 10 INTERMEDIATE
& CB-24 FINISH ROLLERS WORKING WITH CAT APLOS PAVING W/BUSSY.
TEMPERATURES 275° - 295°. CORE LOCATIONS DETERMINED PER
RANDOM TABLES IN CT 375. NUC DENSITY TESTING PERFORMED
PER CT 375. 1330 TONS PLACED TODAY.
ALL HMA & AGG SAMPLINGS PERFORMED @ GEORGE REYES
PLANT ESCALON. WEST BOUND LANE PLACED W/PV MIX

Report Continued ☐ Yes ☒ No

Work inspected as outlined in this report is, to the best of this inspector's knowledge, in conformance with the approved plans and specifications: ☒ Yes ☐ No ☐ N/A (If no, inspector shall complete and attach a Discrepancy Report)

MTA Corporate address: 2527 Fresno Street, Fresno, CA 93721 (800.268.7021). Website: www.mooretwinning.com

Inspector's Signature [Signature]
 Supervisor's Signature [Signature]

Date: 10-30-24

Date: 12/24/2024

We do not undertake the guarantee of construction nor do we relieve the contractor of his primary responsibility to complete the project in accordance with the plans and specifications. Our firm is not responsible for construction safety. Our services were performed in accordance with generally accepted standards and practices. This warranty is in lieu of all other warranties either expressed or implied.

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Materials Engineering and Testing Services
Form TL-3112 (Rev. 02/04)

1 of 2

DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT CIRCLE K Stanislaus CA	Tested By	52	Lot Number	1	Date	10-30-24
	Aggregate Source	George Reed Inc. Exelon				
	AC Mix Number	21200				
	Lane Number	E. BOUND				
	Lift Number	WEAR COURSE				
	Lift Thickness, ft	0.2/100				
NUCLEAR GAGE Date of Last Calibration JUNE 2024 Model & I.D. TROXLER 3446 24682 (A) Standard Count 1679 Set/Entered Depth Used* 591 * Must match value used during correlation.			TEST AREA LIMITS (B) Start Station 111+50 (C) Finish Station 135+00 (D) Length (C - B), ft 23+50 (E) Lane Width, ft 14' (F) TMD (test area calc), g/cc			

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

COLUMN		RANDOM NUMBER										Table #	Block #
												1	3
(G) Left (Longitudinal Location)		.681	.285	.324	.476	.522	.569	.579	.751	.815	.879		
(H) Right (Transverse Location)		.137	.542	.538	.414	.275	.608	.987	.592	.787	.871		
TEST SITE LOCATIONS		1	2	3	4	5	6	7	8	9	10		
(I) Longitudinal Distance from Start D x G (round up to whole number)		191	670	762	1105	1227	1338	1361	1765	1916	2066		
(J) Station I + B		113+41	118+20	119+12	122+55	123+77	124+88	125+11	129+15	130+66	132+16		
(K) Transverse Distance from Edge E x H (round up to whole number)		2	8	8	6	4	9	14	9	11	13		
(L) Nuclear Reading	a												
(Field Count)	b												
(M) Count Ratio (L / A)	a												
	b												
(N) Density (g/cc)	a	2.26	2.27	2.28	2.30	2.34	2.27	2.30	2.30	2.31	2.33		
(round to nearest 0.01g/cc)	b	2.27	2.28	2.26	2.29	2.33	2.29	2.29	2.31	2.30	2.31		
Avg.		2.27	2.28	2.27	2.30	2.34	2.29	2.30	2.31	2.31	2.32		

(O) Average In-Place Density (all sites), g/cc 2.299
 After Exclusions (test strips only) _____
 (P) Conversion Factor (gate to cores) _____
 (Q) Corrected In-Place Density (O + P), g/cc _____
 (R) FTMD (CT 308 "A" or Corrected "C"), g/cc _____
 (S) Correlation Factor (Part 5, G) and Date _____
 (T) LTMD or Correlated FTMD (R x S), g/cc _____
 (U) Relative Compaction (Q / T), % _____

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DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT	Tested By <u>58</u>	Lot Number <u>1</u>	Date <u>10-30-24</u>
	Aggregate Source <u>GEORGE REED loc. ESCALON</u>		
	AC Mix Number <u>PV</u>		
	Lane Number <u>WEST BOUND</u>		
	Lift Number <u>WEAR COURSE</u>		
	Lift Thickness, ft <u>.20</u>		
NUCLEAR GAGE		TEST AREA LIMITS	
Date of Last Calibration <u>6/2024</u>		(B) Start Station <u>111+50</u>	
Model & I.D. <u>TROKER 3440-24682</u>		(C) Finish Station <u>135+00</u>	
(A) Standard Count <u>1679</u>		(D) Length (C - B), ft <u>2350</u>	
Set/Entered Depth Used* <u>591</u>		(E) Lane Width, ft <u>14</u>	
* Must match value used during correlation.		(F) TMD (test area calc), g/cc	

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

X = CORE LOCATION

COLUMN	RANDOM NUMBER Table # <u>1</u> Block # <u>0</u>									
(G) Left (Longitudinal Location)	.053	.081	.095	.576	.609	.669	.810	.892	.971	.982
(H) Right (Transverse Location)	.730	.948	.726	.482	.824	.899	.559	.277	.468	.801
TEST SITE LOCATIONS	1	2	3	4	5	6	7	8	9	10
(I) Longitudinal Distance from Start D x G (round up to whole number)	125	191	223	1354	1432	1572	1904	2097	2282	2308
(J) Station I + B	112+15	113+41	113+73	125+04	125+82	127+22	130+54	132+47	134+32	134+58
(K) Transverse Distance from Edge E x H (round up to whole number)	10	13	11	7	12	13	3	4	7	12
(L) Nuclear Reading	a									
(Field Count)	b									
(M) Count Ratio (L / A)	a									
	b									
(N) Density (g/cc)	a	2.26	2.29	2.32	2.30	2.31	2.24	2.28	2.27	2.32
(round to nearest 0.01g/cc)	b	2.28	2.32	2.32	2.30	2.29	2.25	2.27	2.29	2.33
Avg.		2.27	2.31	2.32	2.30	2.30	2.25	2.28	2.28	2.33

(O) Average In-Place Density (all sites), g/cc 2.291

After Exclusions (test strips only)

(P) Conversion Factor (gate to cores)

(Q) Corrected In-Place Density (O + P), g/cc

(R) FTMD (CT 308 "A" or Corrected "C"), g/cc

(S) Correlation Factor (Part 5, G) and Date

(T) LTMD or Correlated FTMD (R x S), g/cc

(U) Relative Compaction (Q / T), %



FIELD DAILY INSPECTION REPORT (Page 1 of 1)

Client Name: MTA Project No: Pending

Project Name: Keyes Road Paving Project

Project Address: Keyes Road and Mountain Valley Road, Turlock, Ca

Permit: Building Code: CBC 2022

Plan Date: Specification Date:

General Contractor: United Pavement Maintenance Subcontractor:

Inspector (Print): Hugo Rodriguez

Certification Number: 8249136

☐ Building Pad ☐ Utilities ☐ Pavement Sub-grade ☐ Pavement Base ☒ Pavement AC ☐ PCC Pavements ☐
Off-Site Improvements ☐ Sidewalks ☐ Curb & Gutter ☐ Foundations ☐ Slab-On-Grade ☐ Columns ☐ Beams ☐
Walls ☐ Trusses ☐ Deck ☐ Suspended Floors ☐ Roof ☐ Rack and Shelving ☐ Light Gauge Interior Walls/Framing
☐ Pre-Cast Concrete ☐ Other:

☒ Earthwork Observation & In-Place Density Testing ☐ Reinforcing Steel Inspection ☐ Concrete Sampling ☐
Concrete Placement Inspection (including saw-cut depth, CO monitoring, curing, etc.) ☐ Batch Plant Inspection ☐
Moisture Vapor Emission Testing ☐ Floor Slab Relative Humidity Testing ☐ Slip-Resistance Testing ☐
Floor Flatness Testing ☐ Gloss Measurements ☐ Joint Sealer Inspection ☐ Anchor Bolt Inspection and Testing ☐
Field Welding Inspection ☐ Shop Welding Inspection ☐ NDT ☐ HS Bolt Testing ☐ Masonry Inspection ☐
Spray Fire Proofing Inspection and Testing ☐ Paint Thickness Testing ☐ Roof Inspection ☐ Sample Pickup ☐
Coring ☐ Other: Pavement Compaction

Inspection Date: 10/29/24 Samples Taken ☒ Yes ☐ No Time Samples Taken:

☒ Initial Inspection ☐ Re-Inspection ☐ Out-of-Scope Inspection or Testing

Weather: Clear

Observations: Arrived at Keyes Road project to test compaction of HMA Pavement. Area being paved was the East and west bound lanes of Keyes Road. Section placed was the cap lift approximately 2.5" thick. HMA was compacted using a break down roller followed by a smooth drum roller then a finish roller. Tested compaction on HMA per Cal-trans 375 method using the plant provided theoretical maximum density. All test performed today met the required compaction of 91%. See attached sheets for compaction information.

Report Continued ☒ Yes ☐ No

Work inspected as outlined in this report is, to the best of this inspector's knowledge, in conformance with the approved plans and specifications: ☒ Yes ☐ No (If NO, see attached Discrepancy Report). MTA Corporate address: 2527 Fresno Street, Fresno, CA 93721 (800.268.7021). Website: www.mooretwinning.com QA Review - Initials

Inspector's Signature

Area Supervisor's Signature

Engineer's Signature

Date: 10/29/24

Date: 12/17/2024

Date:

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DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT Keyes Road Paving Project. Keyes, Ca	Tested By	HR	Lot Number	1	Date	10-29-24
	Aggregate Source	George Reed inc. Escalon				
	AC Mix Number	HMA 1/2" Smartmix PG 64				
	Lane Number	East Bound Lane of Keyes				
	Lift Number	Top Lift				
	Lift Thickness, ft	2.5"				
NUCLEAR GAGE Date of Last Calibration 10/22/24 Model & I.D. MC3 - 30392 (A) Standard Count 3406 Set/Entered Depth Used* BS			TEST AREA LIMITS (B) Start Station 86+50 (C) Finish Station 94+72 (D) Length (C - B), ft 822 LF (E) Lane Width, ft 13.5'			
* Must match value used during correlation.						

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

Core Location - C-1 @ test site 2 and C-2 @test site 4

COLUMN	RANDOM NUMBER					Table # 2		Block # 1		
(G) Left (Longitudinal Location)	.430	.858	.902	.554	.225					
(H) Right (Transverse Location)	.75	.125	.47	.627	.16					
TEST SITE LOCATIONS	1	2	3	4	5	6	7	8	9	10
(I) Longitudinal Distance from Start D x G (round up to whole number)	353'	705'	741'	455	185					
(J) Station I + B										
(K) Transverse Distance from Edge E x H (round up to whole number)	10'	2'	6'	8"	3'					
(L) Nuclear Reading	a									
(Field Count)	b									
(M) Count Ratio (L / A)	a									
	b									
(N) Density (g/cc)	a	2.257	2.207	2.257	2.218	2.253				
(round to nearest 0.01g/cc)	b	2.261	2.212	2.299	2.232	2.218				
Avg.		2.259	2.209	2.278	2.225	2.235				

(O) Average In-Place Density (all sites), g/cc	2.241	(R) FTMD (CT 308 "A" or Corrected "C"), g/cc	92.6
After Exclusions (test strips only)		(S) Correlation Factor (Part 5, G) and Date	
(P) Conversion Factor (gate to cores)		(T) LTMD or Correlated FTMD (R x S), g/cc	2.42
(Q) Corrected In-Place Density (O + P), g/cc		(U) Relative Compaction (Q / T), %	93

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DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT Keyes Road Paving Project. Keyes, Ca	Tested By	HR	Lot Number	2	Date	10-29-24
	Aggregate Source	George Reed inc. Escalon				
	AC Mix Number	HMA 1/2" Smartmix PG 64				
	Lane Number	West Bound Lane of Keyes				
	Lift Number	Top Lift				
	Lift Thickness, ft	2.5"				
NUCLEAR GAGE Date of Last Calibration 10/22/24 Model & I.D. MC3 - 30392 (A) Standard Count 3406 Set/Entered Depth Used* BS			TEST AREA LIMITS (B) Start Station (C) Finish Station (D) Length (C - B), ft 1203 LF (E) Lane Width, ft 14'			
* Must match value used during correlation.						

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

Core Locations: C-3 @ Test 1 and C-4 @ Test 4

COLUMN	RANDOM NUMBER					Table # 2	Block # 1			
(G) Left (Longitudinal Location)	.430	.858	.902	.554	.225					
(H) Right (Transverse Location)	.75	.125	.47	.627	.16					
TEST SITE LOCATIONS	1	2	3	4	5	6	7	8	9	10
(I) Longitudinal Distance from Start D x G (round up to whole number)	517'	1,03	1,09	666	271					
(J) Station I + B										
(K) Transverse Distance from Edge E x H (round up to whole number)	11'	2'	7'	9'	2'					
(L) Nuclear Reading	a									
(Field Count)	b									
(M) Count Ratio (L / A)	a									
	b									
(N) Density (g/cc)	a	2.237	2.226	2.224	2.232	2.223				
(round to nearest 0.01g/cc)	b	2.235	2.230	2.222	2.206	2.226				
Avg.		2.236	2.228	2.223	2.219	2.225				

(O) Average In-Place Density (all sites), g/cc 2.226

After Exclusions (test strips only)

(P) Conversion Factor (gate to cores)

(Q) Corrected In-Place Density (O + P), g/cc

(R) FTMD (CT 308 "A" or Corrected "C"), g/cc 91.9

(S) Correlation Factor (Part 5, G) and Date

(T) LTMD or Correlated FTMD (R x S), g/cc 2.42

(U) Relative Compaction (Q / T), % 92

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DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT Keyes Road Paving Project. Keyes, Ca	Tested By	HR	Lot Number	3	Date	10-29-24
	Aggregate Source	George Reed inc. Escalon				
	AC Mix Number	HMA 1/2" Pelletpave PG 6				
	Lane Number	West Bound Lane of Keyes				
	Lift Number	Top Lift				
	Lift Thickness, ft	2.5"				
NUCLEAR GAGE Date of Last Calibration 10/22/24 Model & I.D. MC3 - 30392 (A) Standard Count 3406 Set/Entered Depth Used* BS			TEST AREA LIMITS (B) Start Station (C) Finish Station (D) Length (C - B), ft 1670 LF (E) Lane Width, ft 14'			
* Must match value used during correlation.						

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

Core Locations: C-5 @ Test 5 and C-6 @ Test 4

COLUMN	RANDOM NUMBER					Table # 2	Block # 1			
(G) Left (Longitudinal Location)	.430	.858	.902	.554	.225					
(H) Right (Transverse Location)	.75	.125	.47	.627	.16					
TEST SITE LOCATIONS	1	2	3	4	5	6	7	8	9	10
(I) Longitudinal Distance from Start D x G (round up to whole number)	718	1,43	1,50	925	376					
(J) Station I + B										
(K) Transverse Distance from Edge E x H (round up to whole number)	11'	2'	7'	9'	2'					
(L) Nuclear Reading	a									
(Field Count)	b									
(M) Count Ratio (L / A)	a									
	b									
(N) Density (g/cc)	a	2.286	2.245	2.268	2.238	2.304				
(round to nearest 0.01g/cc)	b	2.308	2.267	2.239	2.237	2.265				
Avg.		2.297	2.256	2.254	2.238	2.285				

(O) Average In-Place Density (all sites), g/cc	2.266	(R) FTMD (CT 308 "A" or Corrected "C"), g/cc	93.6
After Exclusions (test strips only)		(S) Correlation Factor (Part 5, G) and Date	
(P) Conversion Factor (gate to cores)		(T) LTMD or Correlated FTMD (R x S), g/cc	2.42
(Q) Corrected In-Place Density (O + P), g/cc		(U) Relative Compaction (Q / T), %	94

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Materials Engineering and Testing Services
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DENSITY AND RELATIVE COMPACTION OF IN-SITU ASPHALT CONCRETE

PROJECT Keyes Road Paving Project. Keyes, Ca	Tested By	HR	Lot Number	4	Date	10-29-24
	Aggregate Source	George Reed inc. Escalon				
	AC Mix Number	HMA 1/2" Pelletpave PG 6'				
	Lane Number	East Bound Lane of Keyes				
	Lift Number	Top Lift				
	Lift Thickness, ft	2.5"				
NUCLEAR GAGE Date of Last Calibration 10/22/24 Model & I.D. MC3 - 30392 (A) Standard Count 3406 Set/Entered Depth Used* BS			TEST AREA LIMITS (B) Start Station (C) Finish Station (D) Length (C - B), ft 1670 LF (E) Lane Width, ft 14'			
* Must match value used during correlation.						

FIELD NOTES AND CALCULATIONS

(Use back if more room is needed)

Core Locations: C-7 @ Test 5 and C-8 @ Test 4

COLUMN	RANDOM NUMBER					Table # 2		Block # 1		
(G) Left (Longitudinal Location)	.430	.858	.902	.554	.225					
(H) Right (Transverse Location)	.75	.125	.47	.627	.16					
TEST SITE LOCATIONS	1	2	3	4	5	6	7	8	9	10
(I) Longitudinal Distance from Start D x G (round up to whole number)	718	1,43	1,50	925	376					
(J) Station I + B										
(K) Transverse Distance from Edge E x H (round up to whole number)	11'	2'	7'	9'	2'					
(L) Nuclear Reading	a									
(Field Count)	b									
(M) Count Ratio (L / A)	a									
	b									
(N) Density (g/cc)	a	2.211	2.231	2.211	2.207	2.204				
(round to nearest 0.01g/cc)	b	2.205	2.206	2.210	2.238	2.199				
Avg.		2.208	2.219	2.211	2.223	2.202				

(O) Average In-Place Density (all sites), g/cc	2.213	(R) FTMD (CT 308 "A" or Corrected "C"), g/cc	91.4
After Exclusions (test strips only)		(S) Correlation Factor (Part 5, G) and Date	
(P) Conversion Factor (gate to cores)		(T) LTMD or Correlated FTMD (R x S), g/cc	2.42
(Q) Corrected In-Place Density (O + P), g/cc		(U) Relative Compaction (Q / T), %	91



Date: 10/29/24

FIELD DAILY INSPECTION REPORT

Page 1 of

Client Name:

MTA Project No.: G53502.01

Project Name: KEYES ROAD PAVING PROJECT

Store No.:

Project Address: KEYES RD AND MOUNTAIN VALLEY RD, TURLOCK, CA

Permit No:

Building Code: CBL 2022

Plan Date:

Specification Date:

General Contractor: UNITED PAVEMENT MAINTENANCE

Subcontractor:

Inspector: TANNER PENDEGRIFT

Certification Number:

Exp. Date:

- ☐ Building Pad ☐ Utilities ☐ Pavement Sub-grade ☐ Pavement Base ☒ Pavement AC ☐ PCC Pavements ☐ Off-Site Improvements
☐ Sidewalks ☐ Curb & Gutter ☐ Foundations ☐ Slab-On-Grade ☐ Columns ☐ Beams ☐ Walls ☐ Trusses ☐ Deck ☐ Elevated Floors
☐ Roof ☐ Rack and Shelving ☐ Light Gauge Walls/Framing ☐ Pre-Cast Concrete ☐ Other
☐ Sample Pickup ☐ Earthwork Observation & In-Place Density Testing ☐ Reinforcing Steel Inspection ☐ Concrete Sampling
☐ Concrete Placement Inspection ☐ Post Tension Concrete ☐ Moisture Vapor Emission Testing ☐ Rebar Location (Pachometer) Testing
☐ Floor Slab Relative Humidity Testing ☐ Slip-Resistance Testing ☐ Floor Flatness Testing ☐ Gloss Measurements ☐ Shotcrete
☐ Anchor Pull-Test / Load Testing ☐ Anchor Bolt / Epoxy Inspection ☐ Field Welding Inspection ☐ Shop Welding Inspection ☐ NDT
☐ HS Bolt Testing ☐ Spray Fire Proofing Inspection and Testing ☐ Masonry Inspection ☐ Non-Shrink Grout ☐ Roof Inspection
☒ Coring ☐ Nailing/Wood Framing Inspection ☐ Other

Inspection Date: 10/29/24

Samples Taken ☒ Yes ☐ No Time Samples Taken: 10:00 AM

☐ Initial Inspection ☐ Re-Inspection ☐ Out-of-Scope Inspection or Testing ☐ Standby / Cancellation

Weather: CLEAR, SUNNY 55°

PERFORMED CORING IN LOCATIONS SPECIFIED IN HUGO RODRIGUEZ
OFR dated 10/29/24

Report Continued ☐ Yes ☐ No

Work inspected as outlined in this report is, to the best of this inspector's knowledge, in conformance with the approved plans and specifications: ☒ Yes ☐ No ☐ N/A (If no, inspector shall complete and attach a Discrepancy Report).

MTA Corporate address: 2527 Fresno Street, Fresno, CA 93721 (800.268.7021). Website: www.mooretwinning.com

Inspector's Signature

Date: 10/29/24

Supervisor's Signature

Date: 12/04/24

We do not undertake the guarantee of construction nor do we relieve the contractor of his primary responsibility to complete the project in accordance with the plans and specifications. Our firm is not responsible for construction safety. Our services were performed in accordance with generally accepted standards and practices. This warranty is in lieu of all other warranties either expressed or implied.



Date: 10/31/24

FIELD DAILY INSPECTION REPORT

Page 1 of

Client Name:

MTA Project No.: MTP 0644-24

Project Name: KEYES PARKING PROJECT

Store No.:

Project Address: KEYES RD AND MOUNTAIN VALLEY RD, WILSON, CA

Permit No:

Building Code:

Plan Date:

Specification Date:

General Contractor:

Subcontractor:

Inspector: TANNER KENDERGRAFT

Certification Number:

Exp. Date:

- ☐ Building Pad ☐ Utilities ☐ Pavement Sub-grade ☐ Pavement Base ☒ Pavement AC ☐ PCC Pavements ☐ Off-Site Improvements
☐ Sidewalks ☐ Curb & Gutter ☐ Foundations ☐ Slab-On-Grade ☐ Columns ☐ Beams ☐ Walls ☐ Trusses ☐ Deck ☐ Elevated Floors
☐ Roof ☐ Rack and Shelving ☐ Light Gauge Walls/Framing ☐ Pre-Cast Concrete ☐ Other
☐ Sample Pickup ☐ Earthwork Observation & In-Place Density Testing ☐ Reinforcing Steel Inspection ☐ Concrete Sampling
☐ Concrete Placement Inspection ☐ Post Tension Concrete ☐ Moisture Vapor Emission Testing ☐ Rebar Location (Pachometer) Testing
☐ Floor Slab Relative Humidity Testing ☐ Slip-Resistance Testing ☐ Floor Flatness Testing ☐ Gloss Measurements ☐ Shotcrete
☐ Anchor Pull-Test / Load Testing ☐ Anchor Bolt / Epoxy Inspection ☐ Field Welding Inspection ☐ Shop Welding Inspection ☐ NDT
☐ HS Bolt Testing ☐ Spray Fire Proofing Inspection and Testing ☐ Masonry Inspection ☐ Non-Shrink Grout ☐ Roof Inspection
☒ Coring ☐ Nailing/Wood Framing Inspection ☐ Other

Inspection Date:

Samples Taken ☐ Yes ☐ No Time Samples Taken:

☐ Initial Inspection ☐ Re-Inspection ☐ Out-of-Scope Inspection or Testing ☐ Standby / Cancellation

Weather: OVERCAST 52°

COMPLETED CORING IN LOCATIONS THAT ARE SPECIFIED
IN STEVE YOUNGDAHL'S OPR FOR MTP 0644-24

Report Continued ☐ Yes ☐ No

Work inspected as outlined in this report is, to the best of this inspector's knowledge, in conformance with the approved plans and specifications: ☒ Yes ☐ No ☐ N/A (If no, inspector shall complete and attach a Discrepancy Report).

MTA Corporate address: 2527 Fresno Street, Fresno, CA 93721 (800.268.7021). Website: www.mooretwinning.com

Inspector's Signature

Date: 10/31/24

Supervisor's Signature

Date: 12/08/24

We do not undertake the guarantee of construction nor do we relieve the contractor of his primary responsibility to complete the project in accordance with the plans and specifications. Our firm is not responsible for construction safety. Our services were performed in accordance with generally accepted standards and practices. This warranty is in lieu of all other warranties either expressed or implied.