5/23/2016

Quadrant: U
Section: 44
Sublot: 1

Laboratory Diary

General Desccription of Mix and Materials

Design Method:	Super
Compactive Effort:	75 gyrations
Binder Performance Grade:	67-22
Modifier Type:	Neat
Aggregate Type:	Lms/Sand/F-RAP/RAS
Design Gradation Type:	DGA

Avg. Lab Properties of Plant Produced Mix

Sieve Size	Target	QC
25 mm (1"):	100	100
19 mm (3/4"):	100	100
12.5 mm (1/2"):	100	100
9.5 mm (3/8"):	100	100
4.75 mm (#4):	99	97
2.36 mm (#8):	76	79
1.18 mm (#16):	53	59
0.60 mm (#30):	36	38
0.30 mm (#50):	23	21
0.15 mm (#100):	15	13
0.075 mm (#200):	11.5	9.5
Binder Content (Pb):	6.1	6.0
Eff. Binder Content (Pbe):	5.6	5.6
Dust-to-Eff. Binder Ratio:	2.0	1.7
RAP Binder Replacement (%):	11.4	11.5
RAS Binder Replacement (%):	8.6	8.7
Total Binder Replacement (%):	20.0	20.2
Rice Gravity (Gmm):	2.441	2.454
Bulk Gravity (Gmb):	2.343	2.320
Air Voids (Va):	4.0	5.5
Agg. Bulk Gravity (Gsb):	2.647	2.66
VMA:	16.9	18
VFA:	76	70

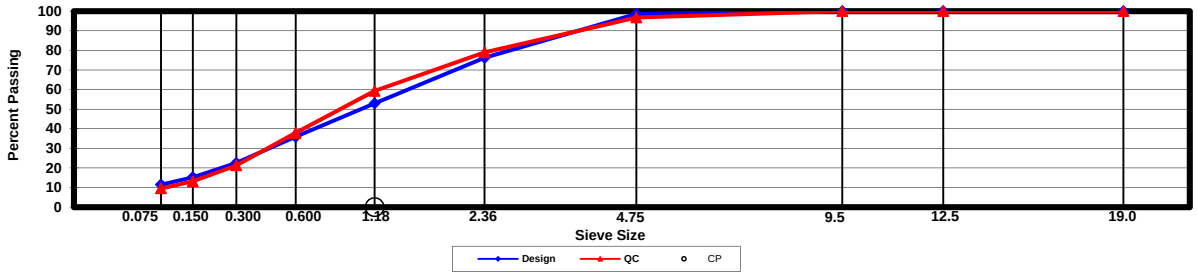
Construction Diary

Relevant Conditions for Construction

Completion Date:	September 14, 2015
24 Hour High Temperature (F):	82
24 Hour Low Temperature (F):	53
24 Hour Rainfall (in):	0.00
Planned Subot Lift Thickness (in):	1.0
Paving Machine:	Roadtec

Plant Configuration and Placement Details

Component	% Setting
Binder Content (Plant Setting)	6.2
Calera Limestone Screenings	43.0
Coarse Sand	43.0
EAP Fine RAP	11.0
EAP Post Consumer RAS	3.0
Evotherm P15	0.5
Hydrated Lime	1.0
As-Built Sublot Lift Thickness (in):	1.0
Total Thickness of All New Sublots (in):	5.0
Approx. Underlying HMA Thickness (in):	Pending
Type of Tack Coat Utilized:	NTSS-1HM
Undilluted Target Tack Rate (gal/sy):	0.05
Approx. Avg. Temperature at Plant (F):	340
Avg. Measured Mat Compaction:	89.9%



General Notes:
- References are by quadrant (E=East, N=North, W=West, S=South, L=Lee Rd 159, U=US-280), section #, and sublot (top=1).
- DGA, SMA, & OGFC refer to dense graded asphalt, stone matrix asphalt, & open-graded friction course, respectively.
- Production Gsb estimated using the actual production Gse and the difference between Gse and Gsb in the mix design.

Section and/or Sublot Specific Notes:
NA

1/7/2016 Draft

			CCPR		CIR	
		"U" Section:	40	41	44	43
Stage	**Parameter**	**Binder:**	**Foam**	**Emulsion**	**Foam**	**Emulsion**
Source RAP	**Moisture Content (%)**		3.4		0.5	
	Residual Binder (%)		4.6		5.6	
	Coated Gradation (% Passing):	**1"**	100		98	
		3/4"	98		89	
		1/2"	88		63	
		3/8"	76		47	
		#4	49		22	
		#8	27		11	
		#16	14		5	
		#30	6		3	
		#50	2		2	
		#100	0		1	
		#200	0.1		0.3	
	Burned Gradation (% Passing):	**1"**	100		100	
		3/4"	99		100	
		1/2"	94		98	
		3/8"	87		93	
		#4	64		77	
		#8	47		59	
		#16	36		47	
		#30	29		35	
		#50	22		23	
		#100	16		16	
		#200	10.8		10.2	
Loose Mix	**Total Moisture Content (%)**		7.2	7.0	2.9	4.4
	Water Added for Mixing/Compacting (%)		3.8	3.6	2.4	3.9
	Total Binder Content (%)		7.1	6.6	7.4	7.0
	Added Residual Virgin Binder (%)		2.5	2.0	1.8	1.4
	Burned Gradation (% Passing):	**1"**	100	100	100	100
		3/4"	100	99	100	100
		1/2"	96	96	97	97
		3/8"	91	90	93	93
		#4	71	68	75	76
		#8	52	49	60	60
		#16	40	39	49	49
		#30	32	31	39	38
		#50	24	23	28	27
		#100	18	17	20	19
		#200	12.4	12.2	13.7	12.9
Compacted Mix	**Number of Gyrations for QC Pills**		35	30	35	30
	Compacted Pill Mass (g)		4378.1	4417.2	4486.9	4445.1
	Average Pill Height (mm)		110.6	110.4	113.0	111.8
	Estimated "Wet" Pill Density (pcf)		139.3	140.8	139.8	139.9
	Water Pressed Out During Compaction (%)		2.8	1.9	0.3	1.2
	Water Lost in Compaction + Curing (%)		6.5	5.5	2.4	3.7
	Water Lost in Curing (%)		3.7	3.6	2.1	2.5
	Water Content After Curing (%)		0.7	1.5	0.5	0.7
	Measured Density of Cured Pills (pcf)		135.3	137.1	137.3	138.0
	Cured Pill Density + Lost Curing Water (pcf)		140.4	142.0	140.2	141.4
Compacted Mat	**"Wet" Mat Density (pcf)**		132.0	133.7	128.6	129.9
	Average Compaction (%)		94.0%	94.1%	91.8%	91.9%
	StDev Compaction (%)		1.3%	1.6%	1.0%	1.3%
	Cured/Dried Mat Core Density (pcf)		130.0	131.6	131.4	131.7
	Average Compaction (%)		96.1%	96.0%	95.7%	95.5%