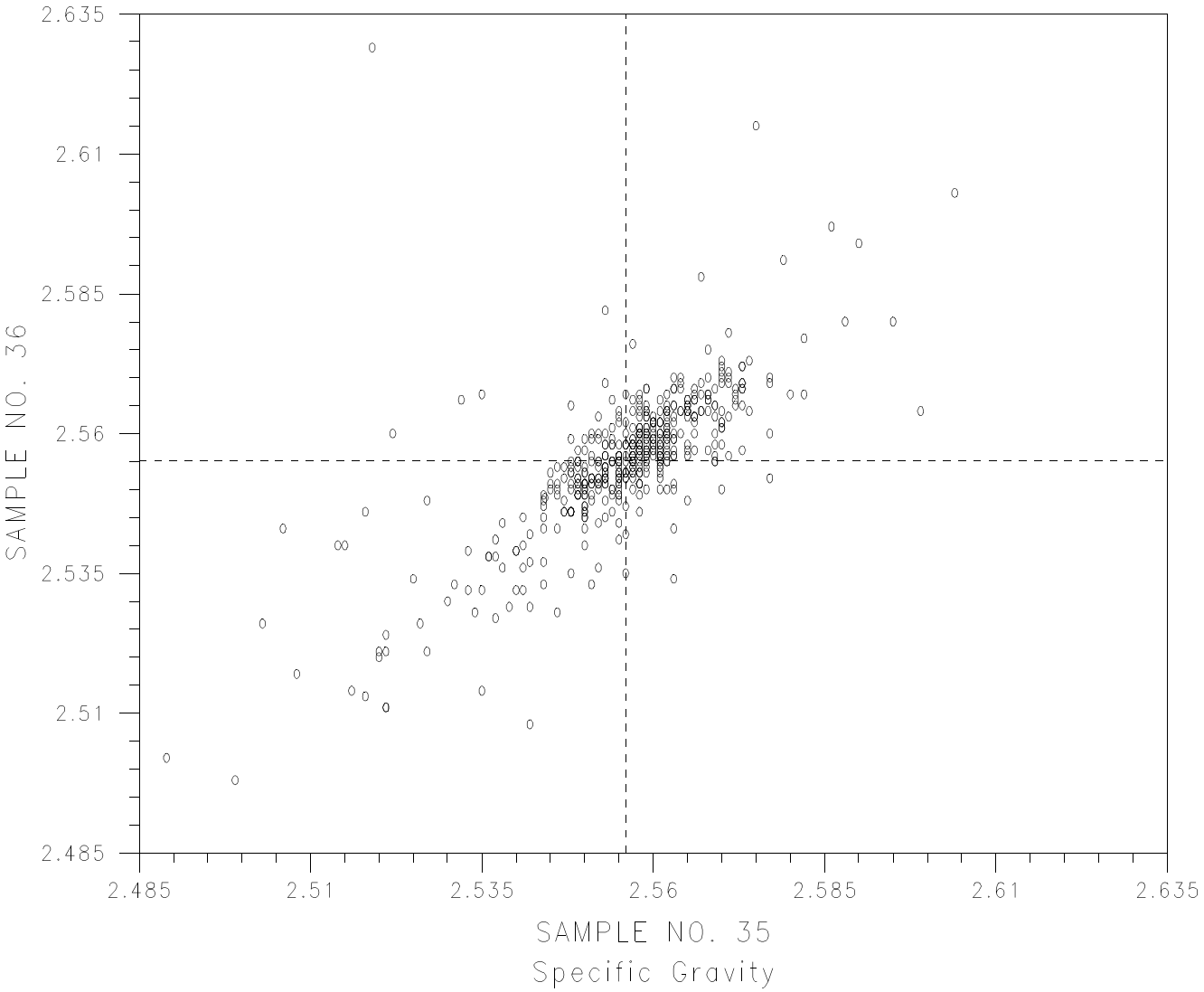
AMRL Bituminous Proficiency Sample Program
Final Report - September 2001

HOT MIX ASPHALT DESIGN PROFICIENCY SAMPLES		SAMPLE NUMBER 35			SAMPLE NUMBER 36		
TEST RESULT	NO. LABS	AVG.	STAND. DEV.	COEFF. VAR.	AVG.	STAND. DEV.	COEFF. VAR.
AASHTO T209/ASTM D2041: Specific Gravity	490	2.5552	0.018	0.701	2.5544	0.017	0.675
	479	2.5560	0.012	0.482	2.5552	0.012	0.462
MARSHALL TESTS							
AASHTO T166/ASTM D2726: Average Bulk Specific Gravity	452	2.4523	0.100	4.07	2.4500	0.028	1.16
	444	2.4482	0.024	0.977	2.4508	0.023	0.952
AASHTO T269/ASTM D3203: Percent Air Voids (%)	445	4.238	1.3	30.7	4.105	1.3	32.0
	437	4.146	1.0	24.7	4.015	1.0	25.5
AASHTO T245/ASTM D1559 (75 blows): Average Marshall Stability (lb.)	442	2834.7	552.4	19.5	2829.6	545.6	19.3
	436	2859.5	468.7	16.4	2856.1	459.7	16.1
Average Specimen Height (in.)	440	2.507	0.12	4.68	2.506	0.12	4.89
	437	2.501	0.046	1.84	2.500	0.045	1.79
Average Marshall Flow (in.)	441	0.123	0.031	25.5	0.125	0.033	26.2
	433	0.121	0.025	20.9	0.122	0.025	20.3
HVEEM TESTS							
AASHTO T166/ASTM D2726: Average Bulk Specific Gravity	52	2.4288	0.036	1.47	2.4295	0.032	1.32
AASHTO T269/ASTM D3203: Percent Air Voids (%)	52	4.920	1.6	31.6	4.810	1.4	28.1
AASHTO T246/ASTM D1560: Corrected Stabilometer Value	49	45.3	7.6	16.7	45.0	6.6	14.6
	47	44.3	5.9	13.2	44.5	5.9	13.3
Cohesiometer Value (U.S. unit)	**5**	**224.2**	**97.9**	**43.7**	**241.2**	**83.1**	**34.4**

NOTE: The rows in blue show results after removing outlying data. Ratings are based on the results shown in blue (Any outlying data have been removed).

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



Test No. 1 Specific Gravity 479 Points

Sample No. 35	Average	2.55604	Std. Dev.	0.012	C.V.	0.482
Sample No. 36	Average	2.55520	Std. Dev.	0.012	C.V.	0.462

Labs Eliminated: 595 1061 1140 1182 1222 1265 1493 3543 3652 3823 3876

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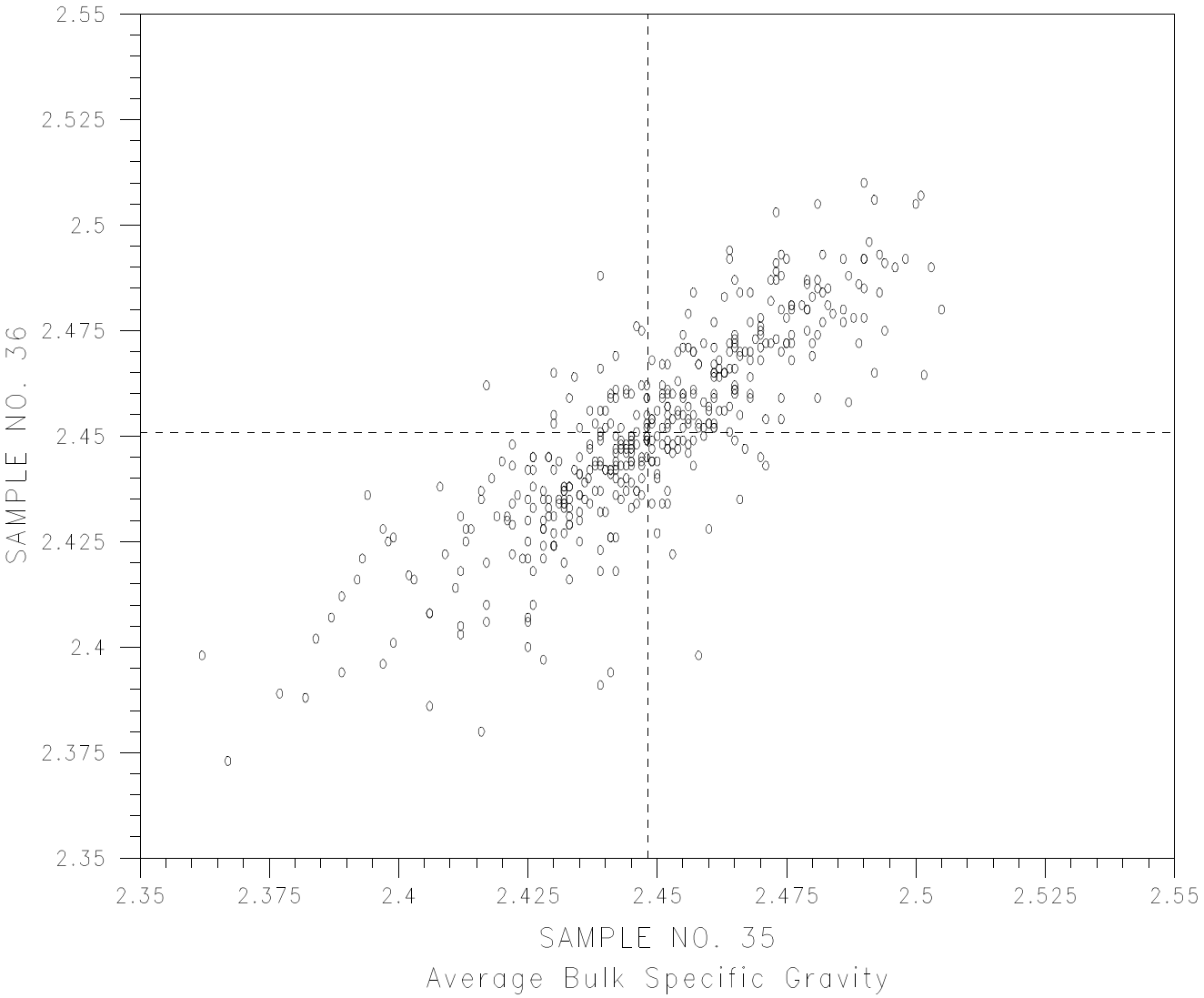
HOT MIX ASPHALT DESIGN



Test No. 2 Average Bulk Specific Gravity 443 Points

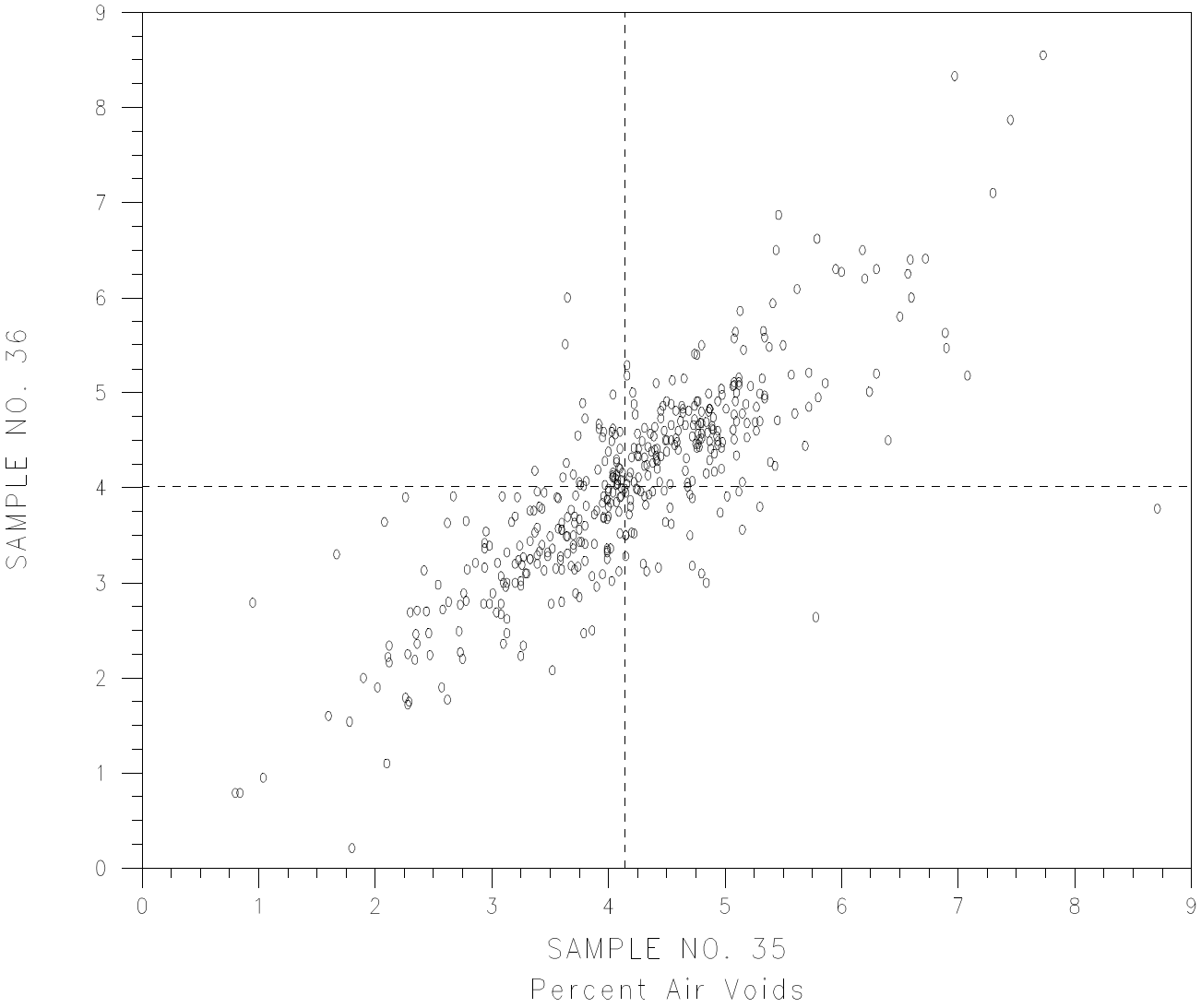
Sample No. 35	Average	2.4482	Std. Dev. 0.024	C.V. 0.977
Sample No. 36	Average	2.4508	Std. Dev. 0.023	C.V. 0.952

Labs Eliminated: 293 1030 1222 1471 3005 3329 3532 3772

Labs off the Diagram: 11

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



Test No. 3 Percent Air Voids 437 Points

Sample No. 35	Average	4.146	Std. Dev.	1.0	C.V.	24.7
Sample No. 36	Average	4.015	Std. Dev.	1.0	C.V.	25.5

Labs Eliminated: 11 1030 1471 1493 3532 3652 3787 3823

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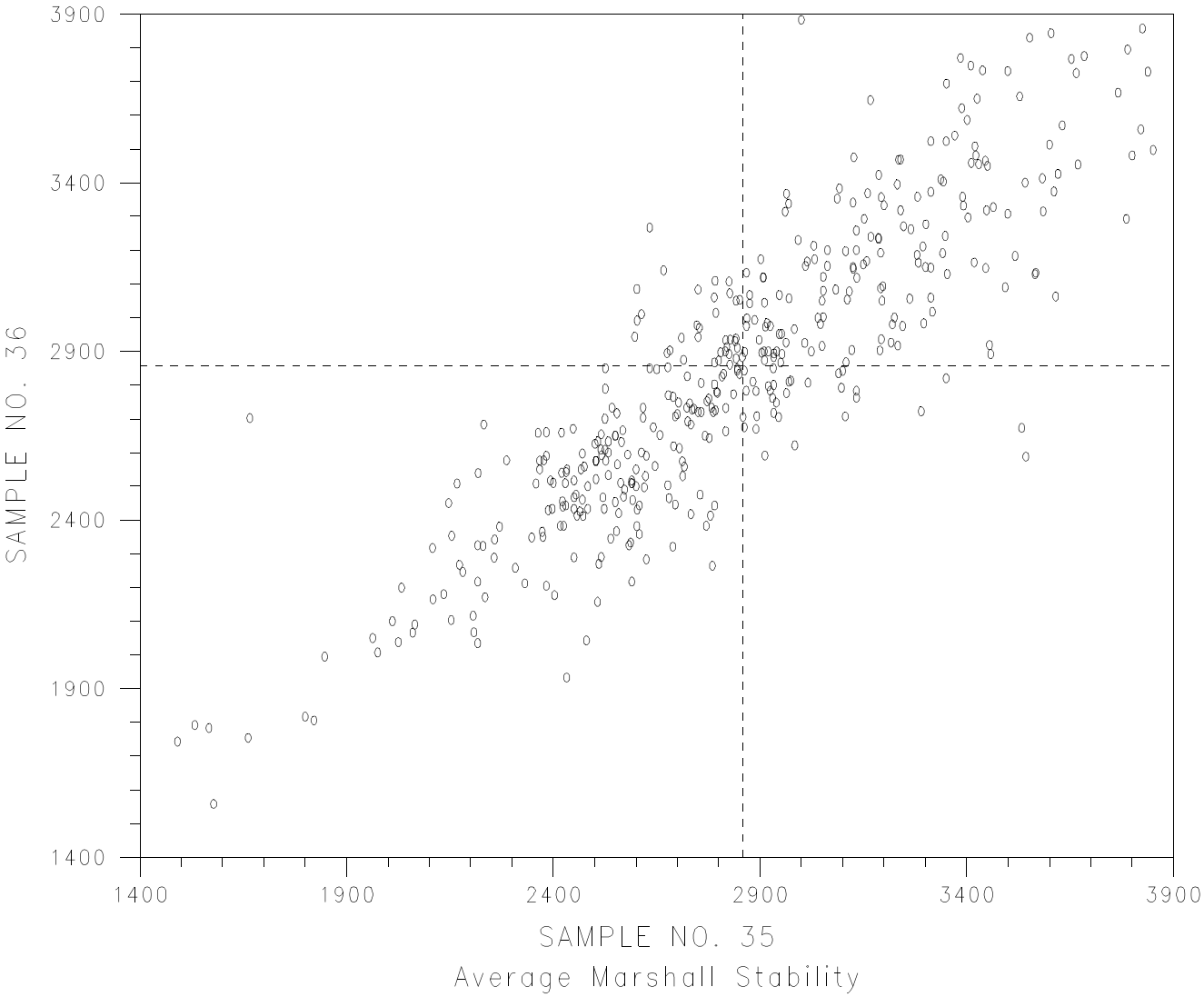
HOT MIX ASPHALT DESIGN



Test No. 4 Average Marshall Stability 433 Points

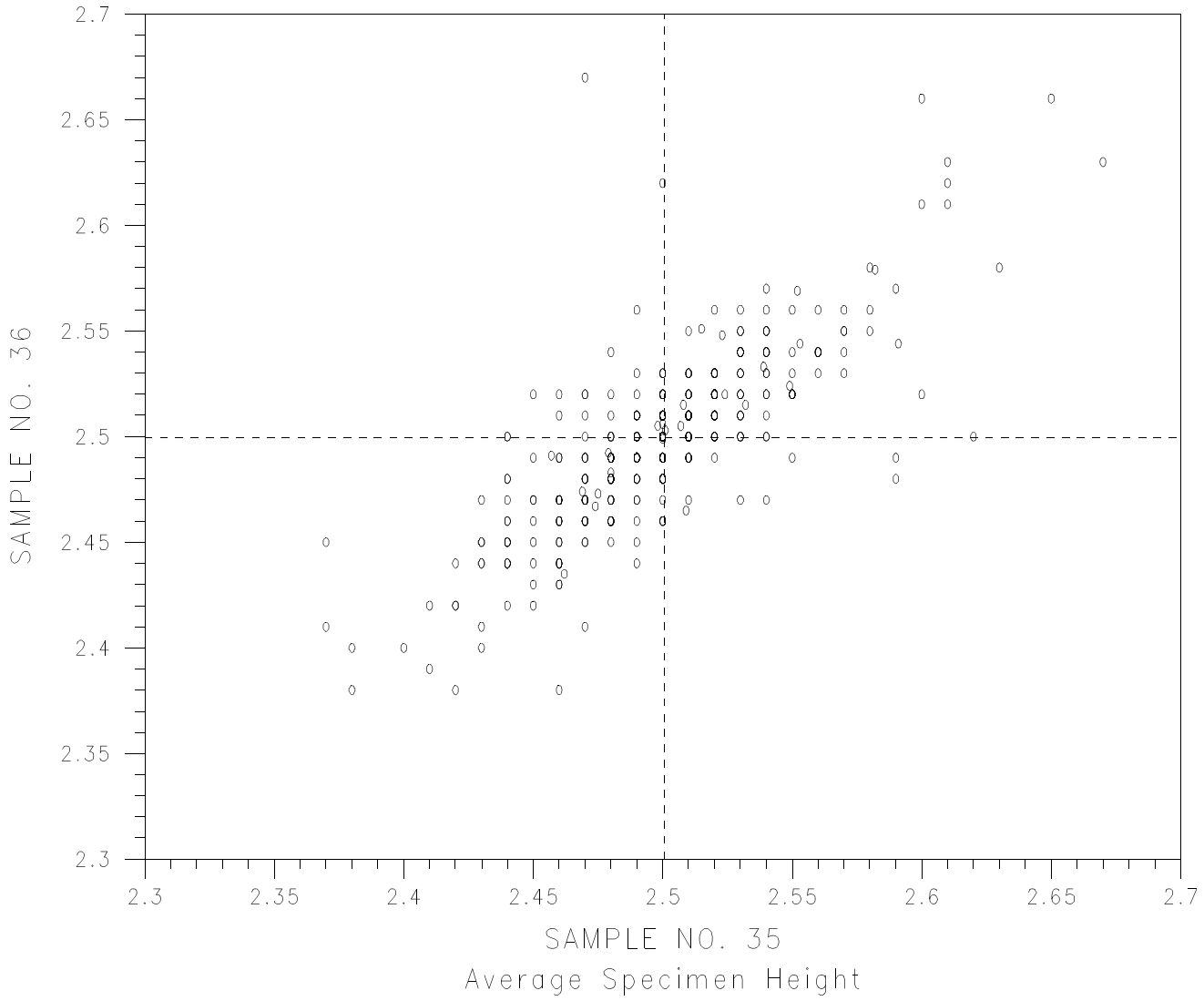
Sample No. 35	Average	2859.5	Std. Dev.	468.7	C.V.	16.4
Sample No. 36	Average	2856.1	Std. Dev.	459.7	C.V.	16.1

Labs Eliminated: 51 1061 3142 3273 3398 3904

Labs off the Diagram: 194 1068 3658

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



Test No. 5 Average Specimen Height 433 Points

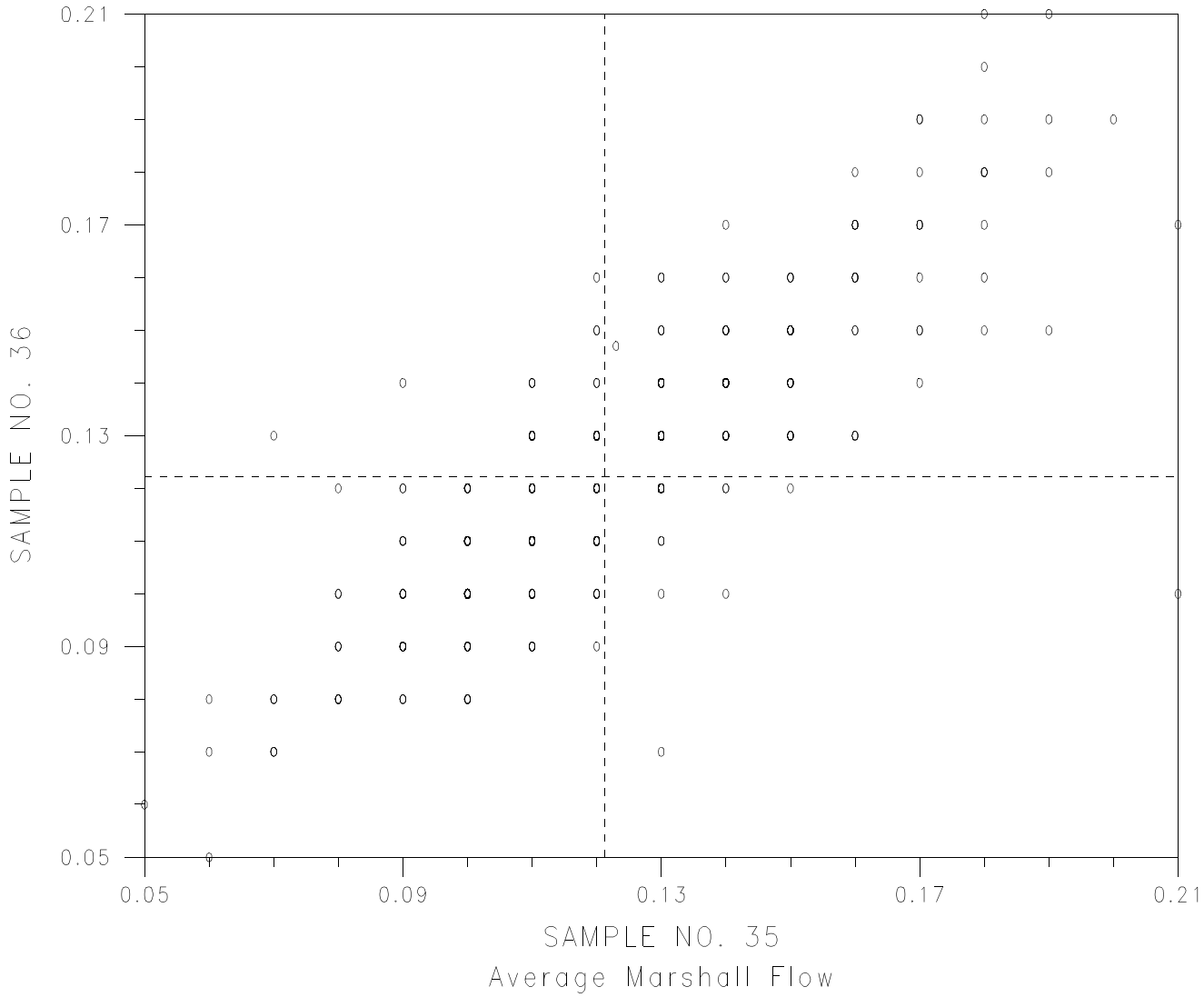
Sample No.	35	Average	2.5005	Std. Dev.	0.046	C.V.	1.84
Sample No.	36	Average	2.4995	Std. Dev.	0.045	C.V.	1.79

Labs Eliminated: 964 1023 3823

Labs off the Diagram: 2033 3273 3547 3787

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



Test No. 6 Average Marshall Flow 432 Points

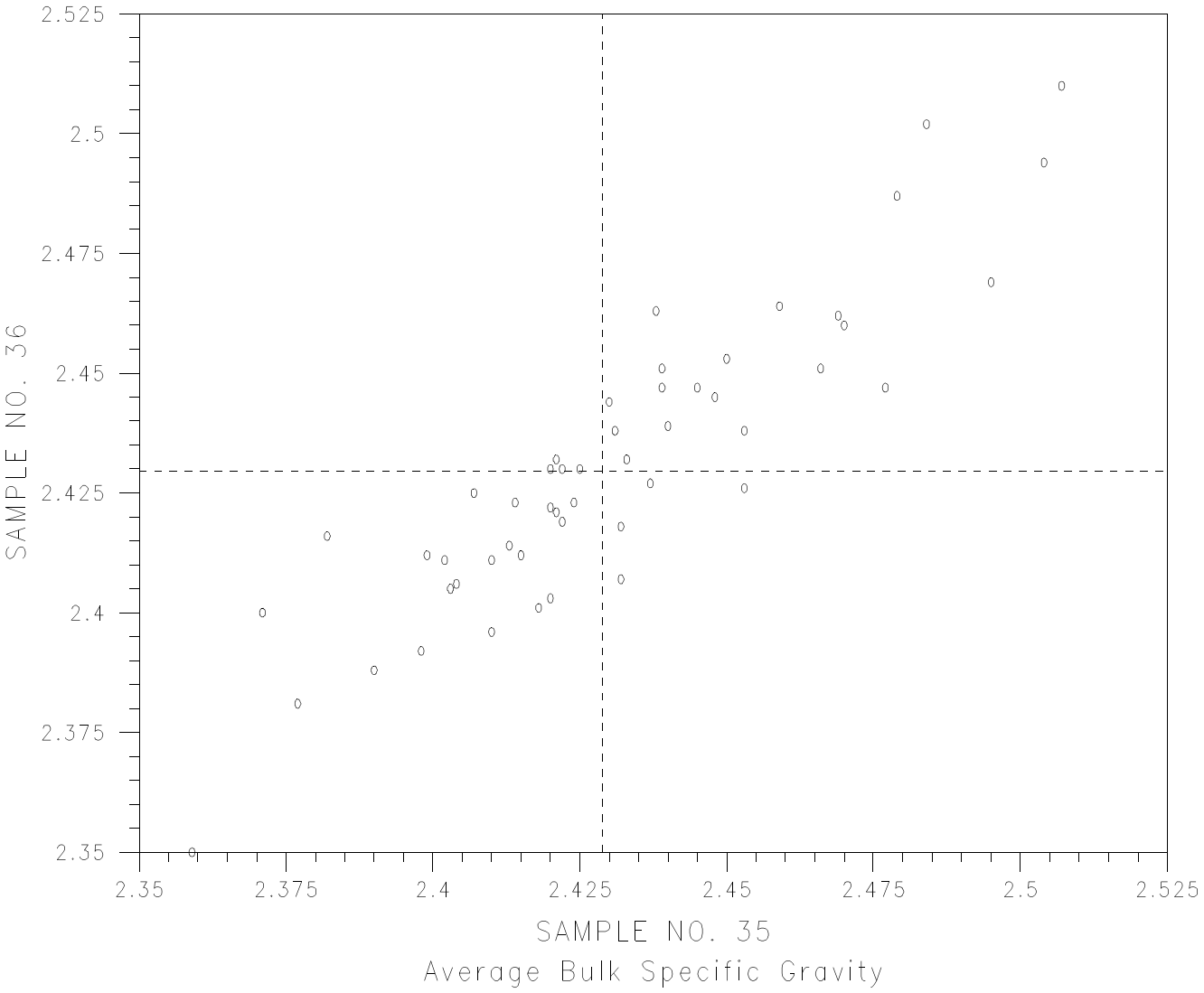
Sample No.	35	Average	0.1213	Std. Dev.	0.025	C.V.	20.9
Sample No.	36	Average	0.1222	Std. Dev	0.025	C.V.	20.3

Labs Eliminated: 1224 1435 3028 3398 3409 3823 3904 3994

Labs off the Diagram: 3273

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



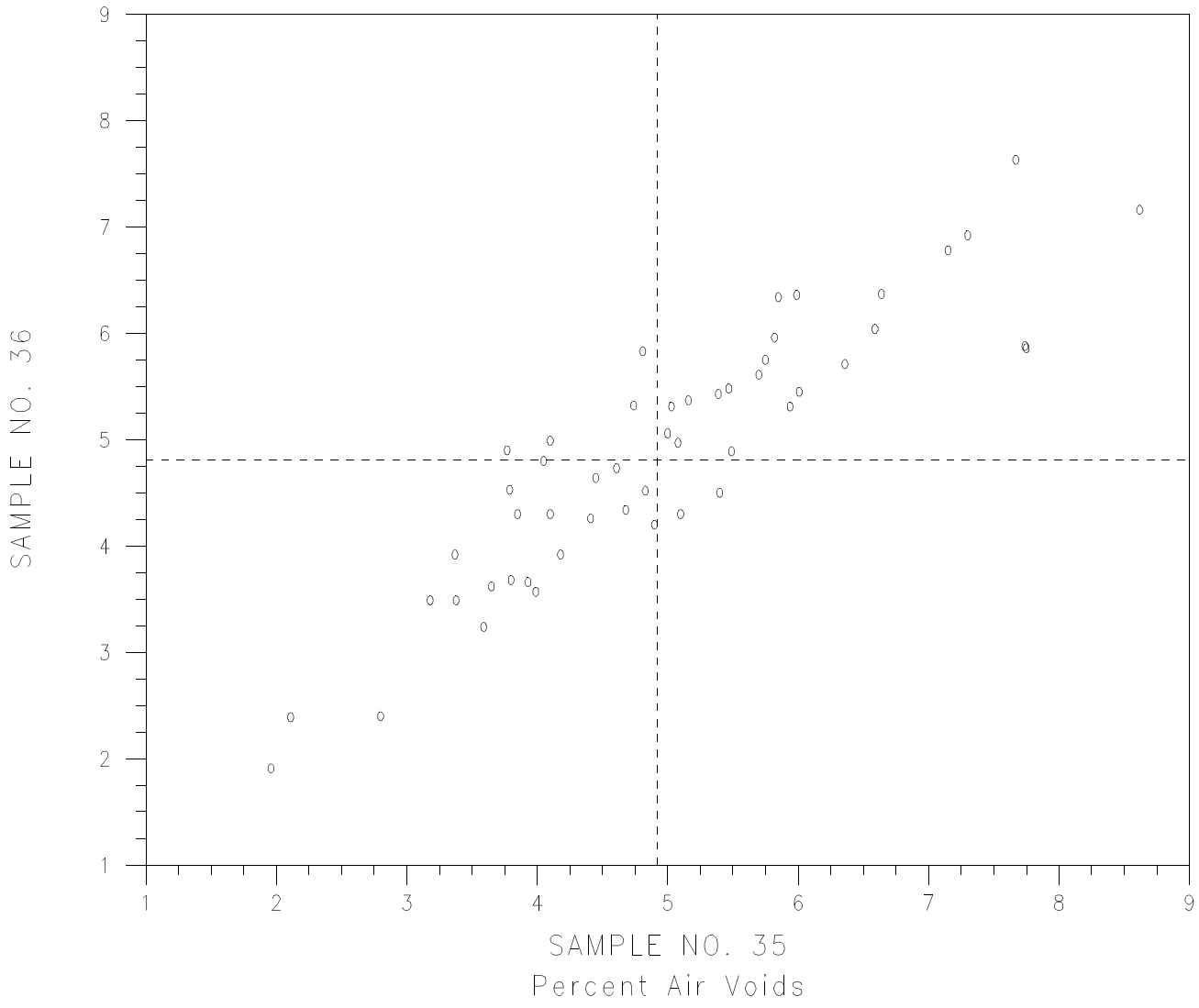
Test No. 7 Average Bulk Specific Gravity 51 Points

Sample No.	35	Average	2.4288	Std. Dev.	0.036	C.V.	1.47
Sample No.	36	Average	2.4295	Std. Dev.	0.032	C.V.	1.32

Labs off the Diagram: 3299

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



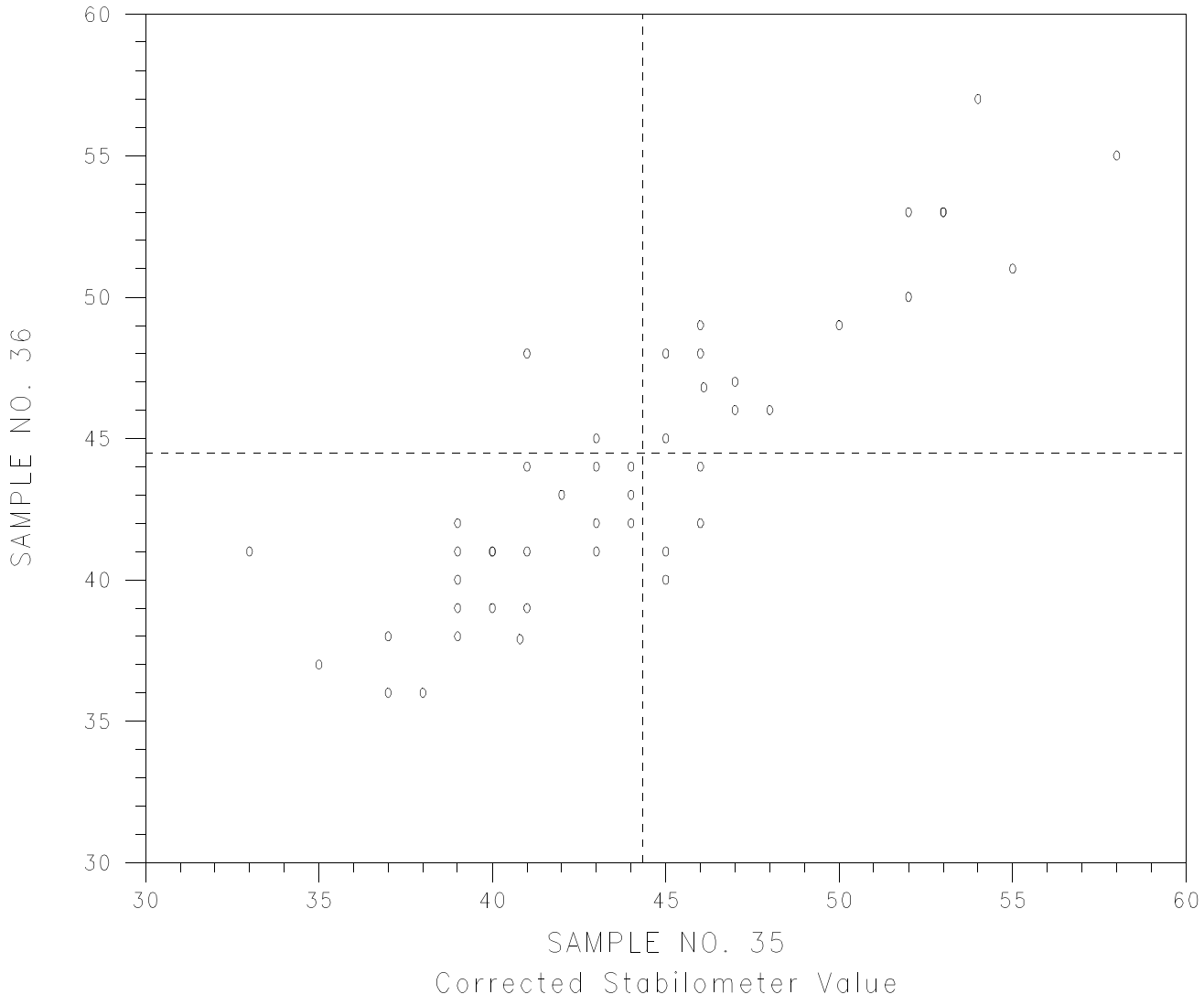
Test No. 8 Percent Air Voids 51 Points

Sample No. 35	Average	4.92	Std. Dev.	1.6	C.V.	31.6
Sample No. 36	Average	4.81	Std. Dev.	1.4	C.V.	28.1

Labs off the Diagram: 786

AMRL PROFICIENCY SAMPLE PROGRAM

HOT MIX ASPHALT DESIGN



Test No. 9 Corrected Stabilometer Value 46 Points

Sample No.	35	Average	44.34	Std. Dev.	5.9	C.V.	13.2
Sample No.	36	Average	44.48	Std. Dev.	5.9	C.V.	13.3

Labs Eliminated: 184 3537

Labs off the Diagram: 3215