Public Works and Government Services Canada
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Airport Engineering

ATR-034

Asphalt Concrete
Moisture Susceptibility Analysis
Taxi and Apron Rehabilitation
Penticton Airport

Project Manager
James R. Scarlett
Civil and Materials Engineer

Real Property Services Branch
Architectural and Engineering Services
Civil Engineering Directorate
Airport Engineering Division
National Capital Area

March 2000

Canada

EBA Engineering Consultants Ltd.

ASPHALT CONCRETE
MOISTURE SUSCEPTIBILITY ANALYSIS
TAXI AND APRON REHABILITATION
PENTICTON AIRPORT

Prepared by:

EBA ENGINEERING CONSULTANTS LTD.
EDMONTON, ALBERTA

Submitted to:

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA
REAL PROPERTY SERVICES BRANCH
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Project No. 0404-00-42495

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14535 -118 Avenue, Edmonton, Alberta T5L 2M7 - Tél: (403) 451-2121 - Fax: (403) 454-5688
Internet: edmonton@eba.ca - Web Site: http://www.eba.ca

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1.0 INTRODUCTION

This report serves to provide the results of a laboratory testing program undertaken by EBA Engineering Consultants Ltd. (EBA) on behalf of Public Works and Government Services Canada (PWGSC). The laboratory program comprised moisture susceptibility analysis of three asphalt concrete mixtures. The mixes included one with no anti-strip additive, and two with anti-strip additives (lime and liquid anti-strip).

The objective of the program, as identified by PWGSC, was to compare the results of four specific test methods for evaluating moisture susceptibility of asphalt concrete mixtures. The project scope did not include determination of an optimum dosage rate for a given anti-strip agent. Dosage rates were assigned based on previous experience with the aggregate source. Therefore, the results of the laboratory program should not be considered as a comparison of alternative anti-strip agents, but a comparison of moisture susceptibility test methods.

The mixture, which formed the basis for the analysis, was the Penticton Airport surface course job mix formula (JMF) developed from a trial mix design conducted by EBA on behalf of the paving contractor for the project, Peters Bros. Construction Ltd. The aggregate materials originated from the Westbench Pit in Penticton, B.C. The binder was 80/100-A CGSB grade asphalt cement supplied by Shell (Peace River, Alberta). The JMF gradation is presented in Figure 1. The design asphalt content indicated from the mix design, 6.4% (by mass of aggregate), was utilized for mix preparation. The three mixes tested included:

- Mix C - a “control” mixture with no anti-strip additive.
- Mix L - 1.0% (by mass of aggregate) hydrated lime added to the aggregate in a slurry form (3 parts lime to 7 parts water).
- Mix R - 0.9% (by mass of binder) Redicoat 95-S liquid anti-strip agent added to the binder prior to mixing with aggregates.

The following sections provide details of the test program, results, and observations.

2.0 LABORATORY PROGRAM

The laboratory program involved mixture analysis using four test procedures:

1. PWGSC ASG-06 – *"Marshall Immersion Test"*
2. Ontario Ministry of Transportation MTO LS-283 – *"Method of Test for Resistance to Stripping of Asphalt Cement in Bituminous Mixtures by Immersion Marshall"*
3. ASTM D 4867 – *"Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures"* (Tunnicliff – Root Test)
4. AASHTO T 283 – *"Standard Method of Test for Resistance of Compacted Bituminous Mixtures to Moisture Induced Damage"* (Modified Lottman Test)

To some extent the test methods are similar in that the strength (i.e. Marshall Stability or indirect tensile strength) of "conditioned" and "unconditioned" specimen subsets are compared. Agencies typically specify the minimum strength of conditioned specimens, based on a percentage of the unconditioned specimens strength. For each method, specimen subsets are selected to provide similar void properties for conditioned and unconditioned subsets. Marshall briquette specimens (101 mm diameter) were used for each test method.

The methods for specimen preparation, curing (before and after compaction), conditioning, and strength testing for the four test methods are summarized in Table 1.

The testing program also included visual examination (as per MTO LS-283) of failed specimens from all test methods. This procedure requires assigning a coarse aggregate coating rating of unconditioned specimens in terms of heavy, medium, light, heavy stain, medium stain or light stain. A stripping rating of conditioned specimens is assigned using the following formula.

$$\text{Rating (R)} = P_L + C + F$$

where: P_L = 3 when no stripping is evident, or
4 when stripping is evident
C = coarse aggregate factor (0 for less than 10%, 1 for 10% to 30%, 2 for 31 to 60%, 3 for greater than 60% stripping)
F = fine aggregate factor (0 for less than 10%, 1 for 10 to 30%, 2 for greater than 30% stripping)

Photographs of test equipment and selected test specimens are provided in Appendix A. The laboratory test data is provided in Appendix B.

3.0 TEST SECTION

The following tables provide the results of the testing.

Table 2
PWGSC – ASG – 06 Test Results

	Mix C (Control)		Mix L (Lime)		Mix R (Redicoat)	
	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset
Number of Specimens	4.0	4.0	4.0	4.0		4.0
Average Air Void Content (%)	3.4		3.2	3.2	3.7	3.7
Average Stability (kN)	11.8	10.3	11.6	11.7	10.4	9.9
Index of Retained Stability (%)	87.0		101.0		95.0	
Visual Examination - coarse aggregate coating - stripping rating (R)	Medium -	- 4	Medium -	- 4	Medium -	- 4

Note: Index of Retained Stability Requirement: 75% minimum

Table 3
MTO LS – 283 Test Results

	Mix C (Control)		Mix L (Lime)		Mix R (Redicoat)	
	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset
Number of Specimens	3.0	3.0	3.0	3.0	3.0	3.0
Average Air Void Content (%)	9.4	9.4	10.8	10.8	10.3	10.4
Average Stability (kN)	32.8	25.6	29.4	26.7	31.4	28.9
Index of Retained Stability (%)	78.0		91.0		92.0	
Visual Examination - coarse aggregate coating - stripping rating (R)	Medium -	- 7	Medium -	- 4	Medium -	- 4

Note: Retained Stability Requirement: 70% minimum
Stripping Rating Requirement: R ≤5

Table 4
ASTM D4867 Test Results

	Mix C (Control)		Mix L (Lime)		Mix R (Redicoat)	
	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset
Number of Specimens	3.0	3.0	3.0	3.0	3.0	3.0
Average Air Void Content (%)	7.0	6.9	7.3	7.3	7.1	7.1
Average Degree of Saturation (%)						
- after partial saturation	-	69	-	76	-	66
- after conditioning	-	87	-	91	-	79
Average Swell (%)						
- after partial saturation	-	+0.07	-	-0.19	-	-0.13
- after conditioning	-	+0.59	-	+0.35	-	+0.46
Average Tensile Strength (kPa)	1034.9	654.7	1054.1	975.7	1007.3	864.4
Tensile Strength Ratio (%)	63.0		93.0		86.0	
Visual Examination						
- coarse aggregate coating	Medium	-	Medium	-	Medium	-
- stripping rating (R)	-	8	-	4	-	4

Note: Typical Tensile Strength Ratio Requirement: 80% minimum
Some fractured coarse aggregate

Table 5
AASHTO T 283 Test Results

	Mix C (Control)		Mix L (Lime)		Mix R (Redicoat)	
	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset	Unconditioned Subset	Conditioned Subset
Number of Specimens	3.0	3.0	3.0	3.0	3.0	3.0
Average Air Void Content (%)	6.9	6.9	6.7	6.7	6.9	6.9
Average Degree of Saturation (%)						
- after partial saturation	-	71	-	65	-	64
- after conditioning	-	86	-	71	-	72
Average Swell (%)						
- after partial saturation	-	+0.14	-	-0.17	-	64
- after conditioning	-	+0.38	-	-0.04	-	72
Average Tensile Strength (kPa)	1194.9	664.7	1222.5	1193.3	1032.4	1011.1
Tensile Strength Ratio (%)	56.0		98.0		98.0	
Visual Examination						
- coarse aggregate coating	Medium	-	Medium	-	Medium	-
- stripping rating (R)	-	8	-	4	-	4

Note: Typical Tensile Strength Ratio Requirement: 80% minimum
Some fractured coarse aggregate

4.0 OBSERVATIONS

The following observations are provided with respect to the results of the laboratory program.

1. All four test methods indicted compliance with typical agency specification criteria, with both lime and Redicoat modified mixtures. In the case of the unmodified mixture (i.e. no anti-strip agent), the PWGSC method indicated compliance with the 75% retained stability requirement. The ASTM and AASHTO methods indicated non-compliance with typical agency criteria (i.e. TSR >80%), and the MTO method indicted non-compliance with the stripping rating criteria although the retained stability requirement of 70% (minimum) was met. A comparison of the results of the "strength" testing is illustrated in Figure 2.

2. The visual stripping ratings (MTO LS-283) for the three mixtures are presented in Figure 3. For the lime and Redicoat mixtures the rating was 4 for all test methods, reflecting some observation of stripping (but less than 10% in fine and coarse fractions) in conditioned specimens. The control mixture stripping rating was 4 for the PWGSC conditioned specimens, which would be compliant with the MTO criteria of less than 5. The stripping rating assigned to the conditioned test specimens from the MTO method, 7, and the ASTM and AASHTO methods, 8, would not satisfy the MTO criteria.

3. A review of the results indicates higher indirect tensile strengths and higher tensile strength ratios for the AASHTO method versus the ASTM method which are generally similar. Although the AASHTO method included a freeze cycle (which could be expected to reduce strength), the increased emphasis on mixture curing, both before and after specimen compaction, may result in a "stiffer" (and higher strength) mixture at the time of testing.

4. The PWGSC method which requires specimens to be compacted to the design standard (i.e. 50 blow Marshall) indicates that the lime-modified mixture may be prone to a

greater degree of "voids collapse" than the Redicoat mixture (i.e. lime modification resulted, in this particular case, in a specimen with higher density). This could necessitate a reduction in binder content to achieve the design air void content.

5. If it is assumed that this particular mixture requires the use of an anti-strip agent to resist moisture induced damage, the PWGSC method did not effectively identify such, whereas the other three methods did so. This is most likely due to the lower void content of specimens compacted to the design compactive effort and the resulting lack of permeability (and consequently less moisture damage). The premise for this observation is that this mixture would not provide satisfactory performance, with respect to moisture induced damage, if anti-strip was not used.

5.0 CLOSURE

EBA appreciates the opportunity to undertake this laboratory study. We trust this information meets your present requirements. Should you have any questions or comments, please contact our office.

Respectfully submitted,

EBA Engineering Consultants Ltd.

Prepared by:	Reviewed by:
A.G. (Art) Johnston, C.E.T.	C.T. (Chuck) McMillan, M.Sc.,P.Eng.
Senior Pavement Technologist	Senior Pavements Engineer

Table

TABLE 1 COMPARISON OF TEST METHODS

Test Method	PWGSC-ASG-06	MTO LS-283	ASTM D467	AASHTO T283
Specimen Preparation	- 8 specimens divided into 2 subsets of 4 - "design" compaction effort (in this case 50 blow Marshall)	- 6 specimens divided into 2 subsets of 3 - compacted to 8-12% air voids	- 6 specimens divided into 2 subsets of 3 - compacted to 7% ±1% air voids	- 6 specimens divided into 2 subsets of 3 - compacted to 7 ±1% air voids
Curing	- no requirements	- compacted specimens in 60°C air bath for 16-18 hours	- mixture cured for 1 to 2 hours at compaction temperature	- loose mixture cured for 2 hours at room temperature, followed by 16 hours at 60°C, followed by 2 hours at 135°C prior to compaction
Conditioning	- unconditioned; 30 to 40 minutes in 60°C water bath immediately prior to testing - conditioned; 24 hours in 60°C water bath immediately prior to testing	- unconditioned; 25°C water bath for 1 hour - conditioned; partial saturation at 25°C (30mm Hg for 1 hour), followed by 60°C water bath for 24 hours, followed by 25°C water bath for 1 hour	- unconditioned; store until testing at room temperature, 25°C water bath for 20 minutes prior to testing - conditioned; saturation to 55% to 80% under partial vacuum, test for saturation level, 60°C water bath for 24 hours, 25°C water bath for 1 hour prior to testing	- unconditioned; store until testing at room temperature, 25°C water bath for 2 hours prior to testing - conditioned; saturation to 55% to 80% under partial vacuum, soak in 25°C water bath for 30 minutes and test for saturation level, freeze at -18°C for 16 hours, soak in 60°C water bath for 24 hours, soak in 25°C water bath for 2 hours prior to testing
Testing	- Marshall stability	- Marshall Stability - rate coarse aggregate coating (unconditioned) - conduct stripping rating (conditioned)	- indirect tensile strength - average swell and appearance	- indirect tensile strength - average swell and appearance

Figures

FIGURE 1
JOB MIX FORMULA GRADATION

PROJECT: Penticton Airport Apron & Taxiway Rehab - 1999 **CLIENT:** PWGSC

PROJECT NUMBER: 0404-00-42495 **MIX TYPE:** Surface Course

PERCENT PASSING SIEVE SIZE

SIEVE SIZE (mm)		37.5	25	19	12.5	4.75	2.0	0.425	0.180	0.075
Job Mix Formula Gradation					100	64	47	19	9	4.0
Upper Specified Limit					100	75	55	30	15	8
Lower Specified Limit					100	55	35	15	5	3

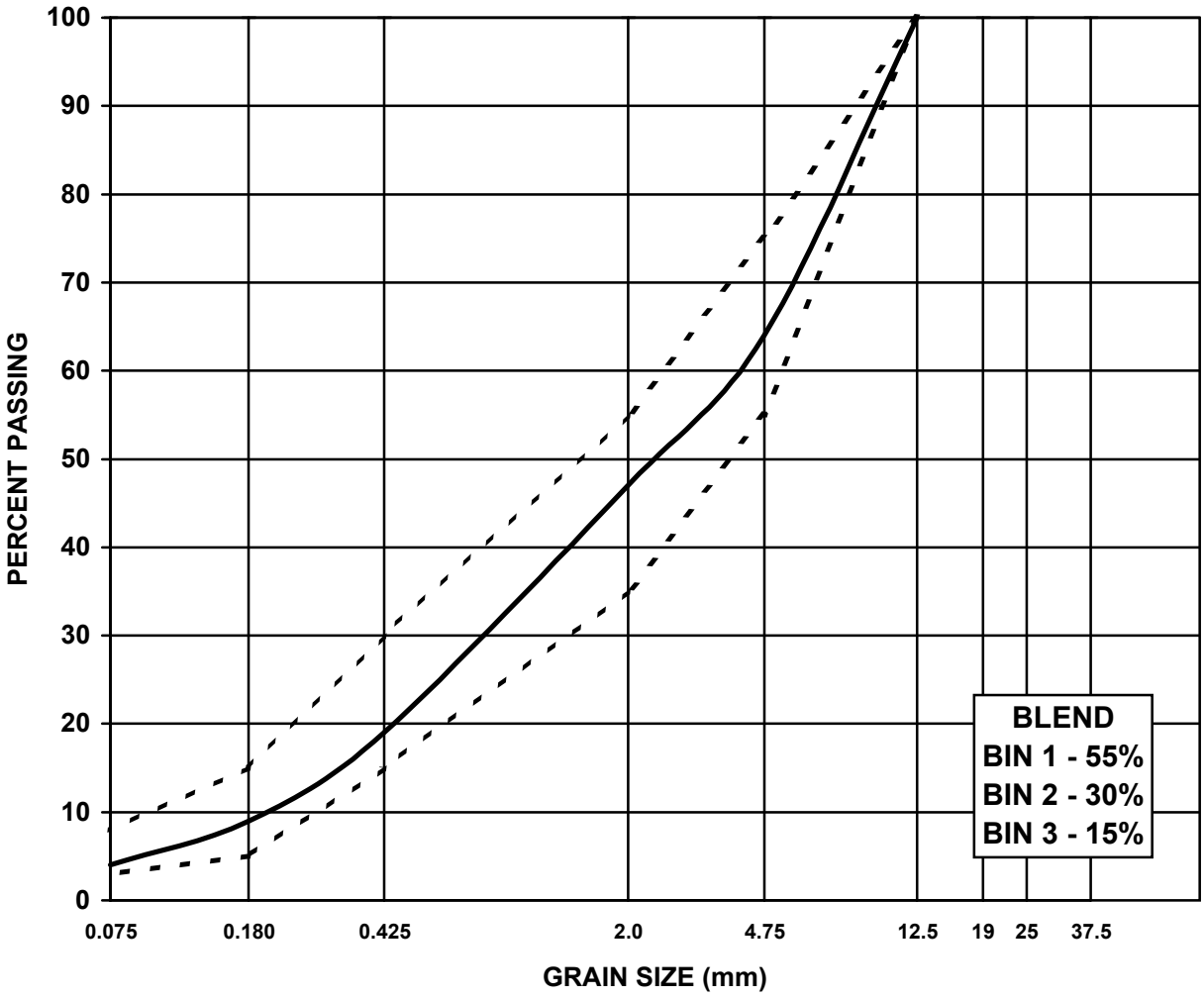


FIGURE 2
MOISTURE SUSCEPTIBILITY ANALYSIS
PENTICTON AIRPORT SURFACE COURSE MIX

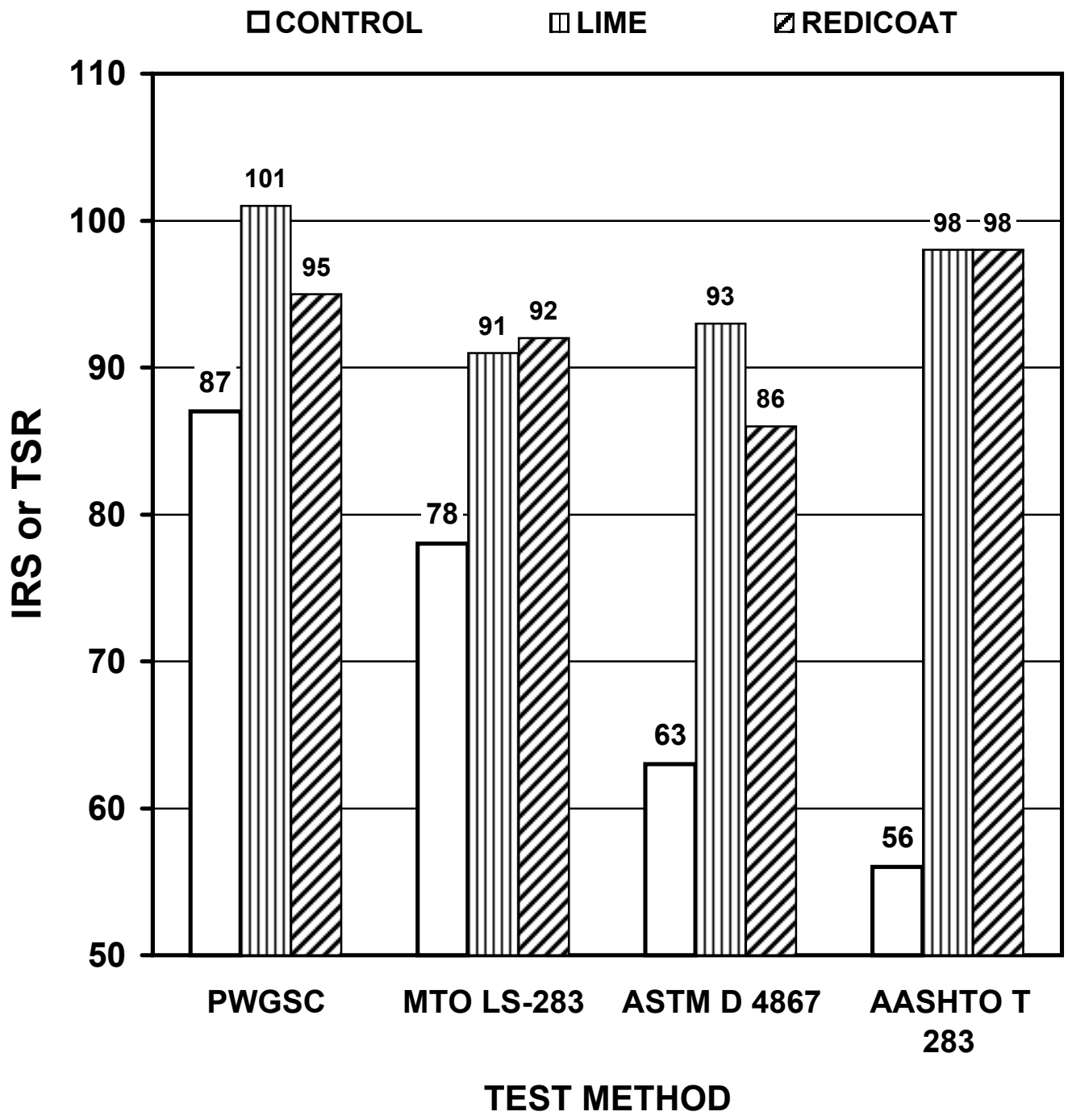
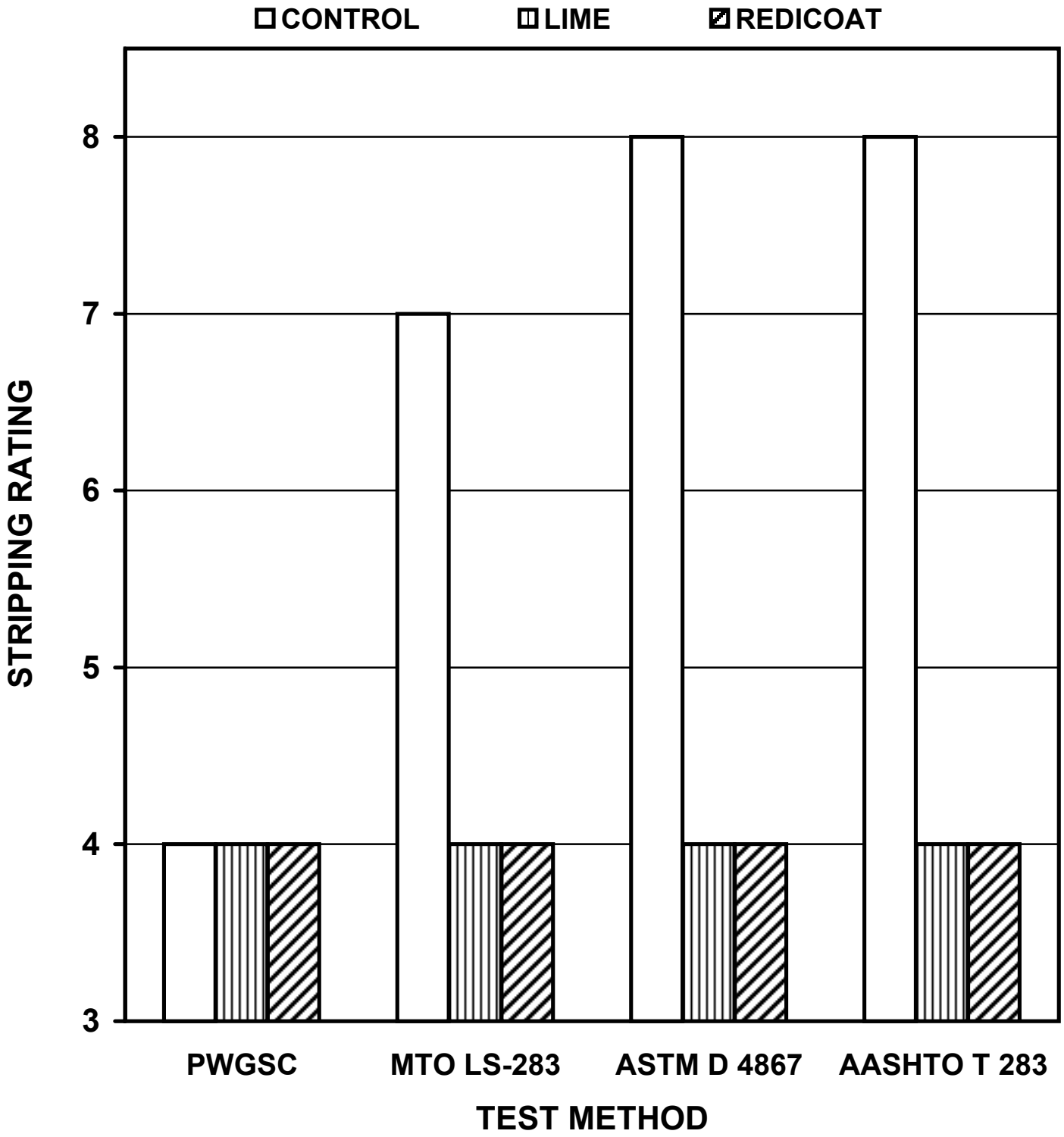
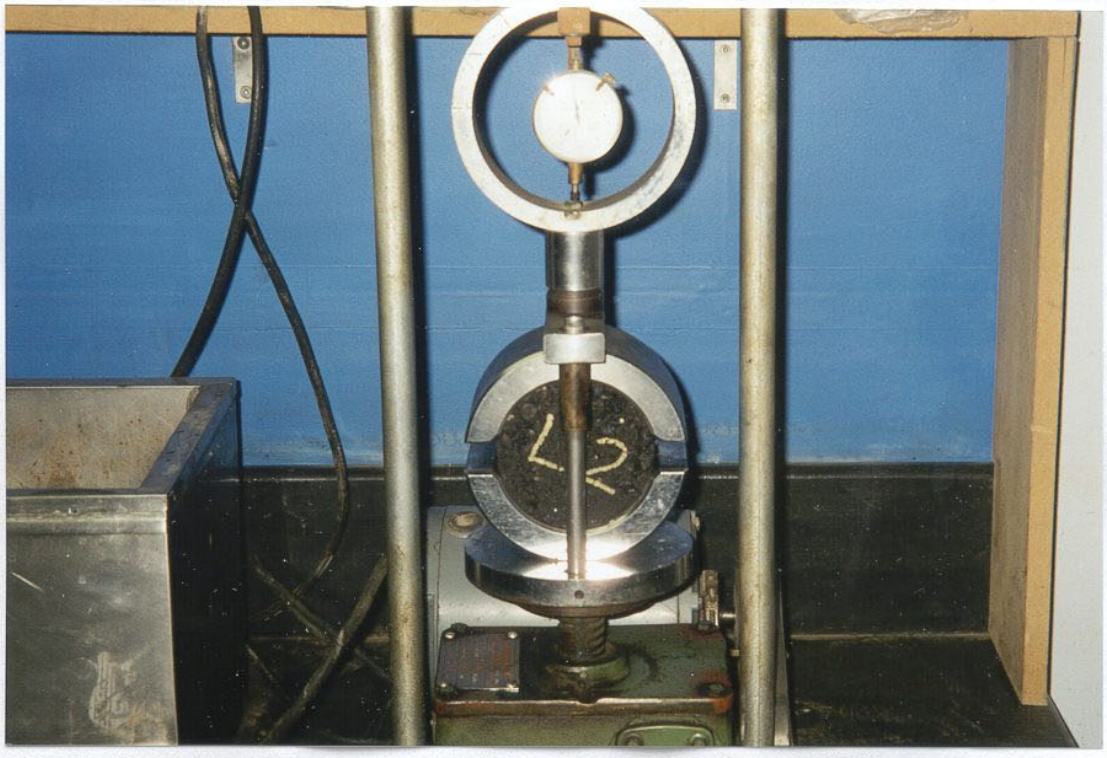


FIGURE 3
STRIPPING RATING (MTO LS-283)
PENTICTON AIRPORT SURFACE COURSE MIX



Appendix A
Photographes

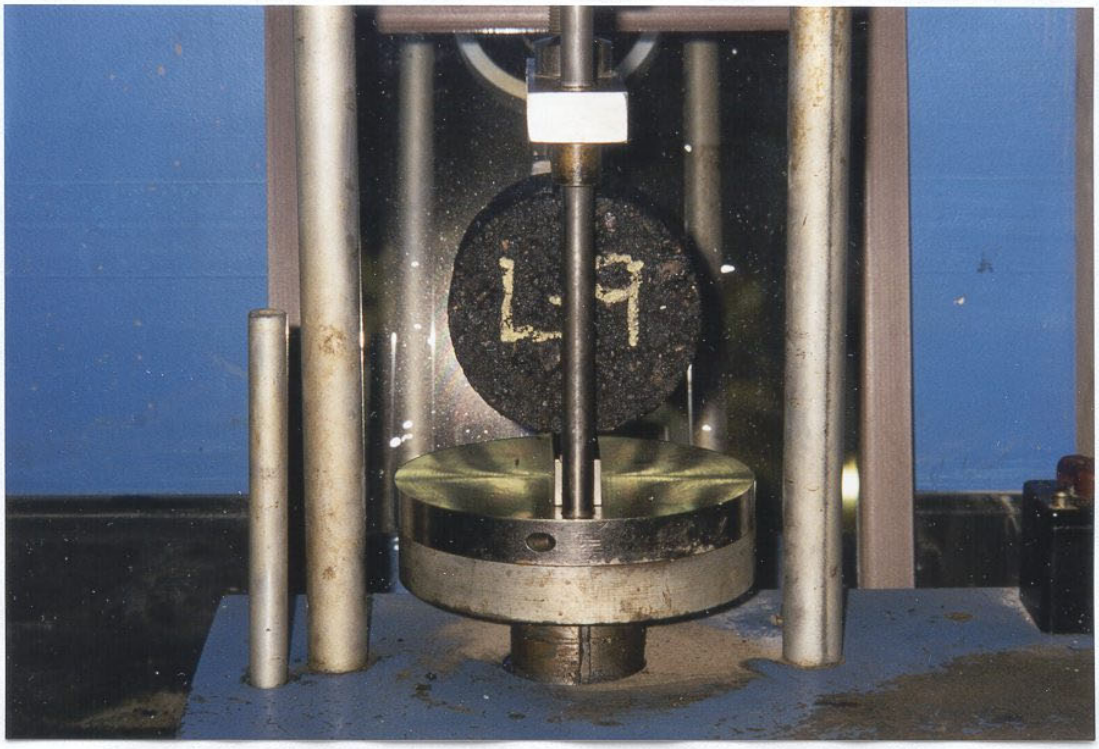
CONDITIONED SPECIMENS IN 60°C WATER BATH
(ALL METHODS)



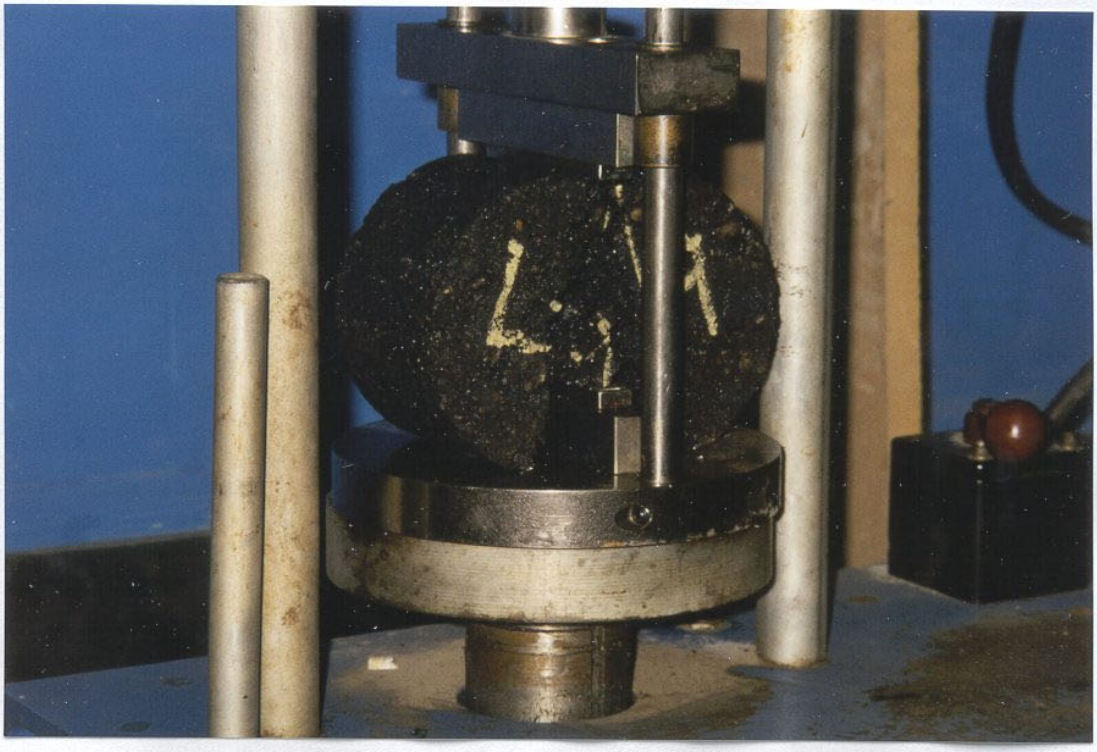
MARSHALL STABILITY TEST
(PWGSC AND MTQ METHODS)

CONDITIONED SPECIMENS PREPARED FOR PARTIAL SATURATION UNDER VACUUM (MTO, ASTM, AND AASHTO METHODS)

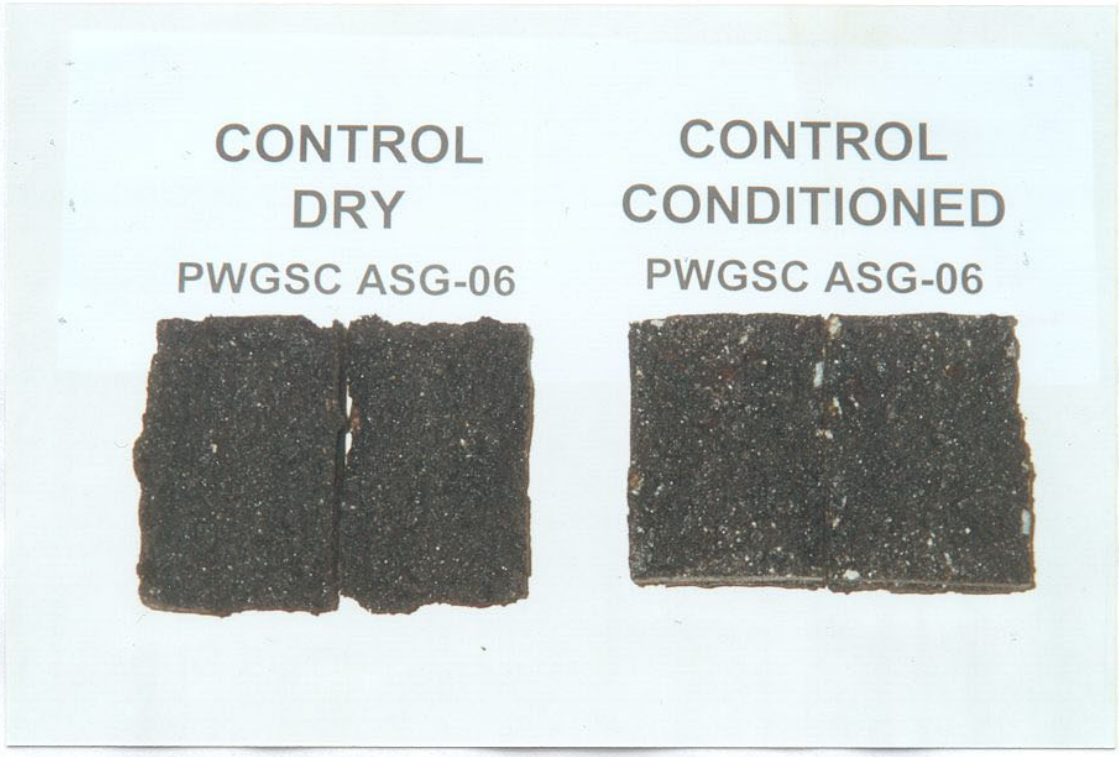
VACUUM SATURATION USING TYPE F PYCNOMETER IN PROGRESS



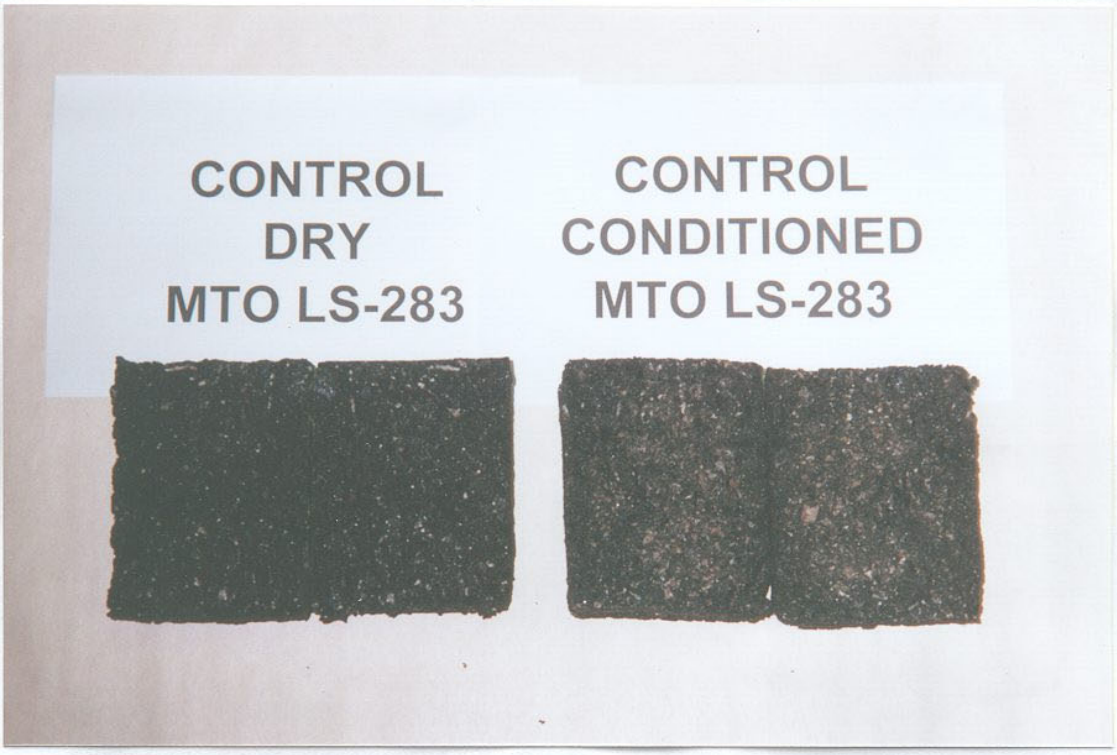
INDIRECT TENSILE STRENGTH TEST
(ASTM AND AASHTO METHODS)



SPECIMEN FAILURE AFTER INDIRECT
TENSILE STRENGTH TEST



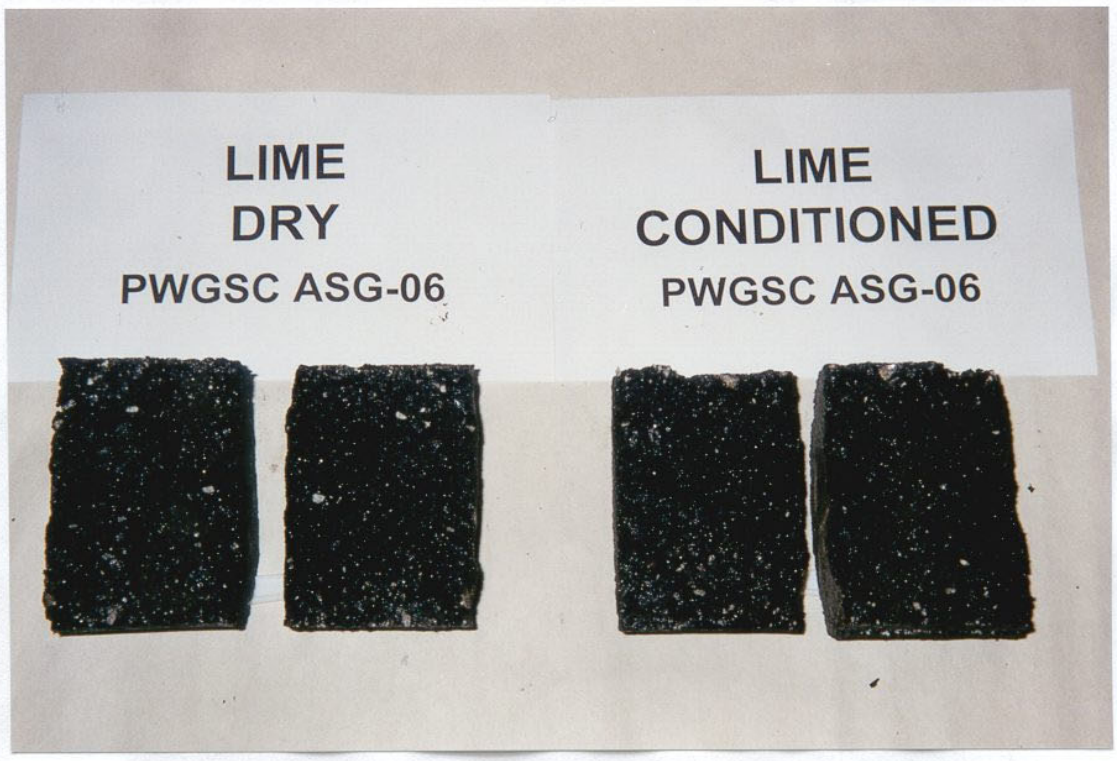
MIX C (CONTROL) – PWGSC METHOD



MIX C (CONTROL) – MTO METHOD

MIX C (CONTROL) – ASTM METHOD

MIX C (CONTROL) – AASHTO METHOD



MIX L (LIME) – PWGSC METHOD

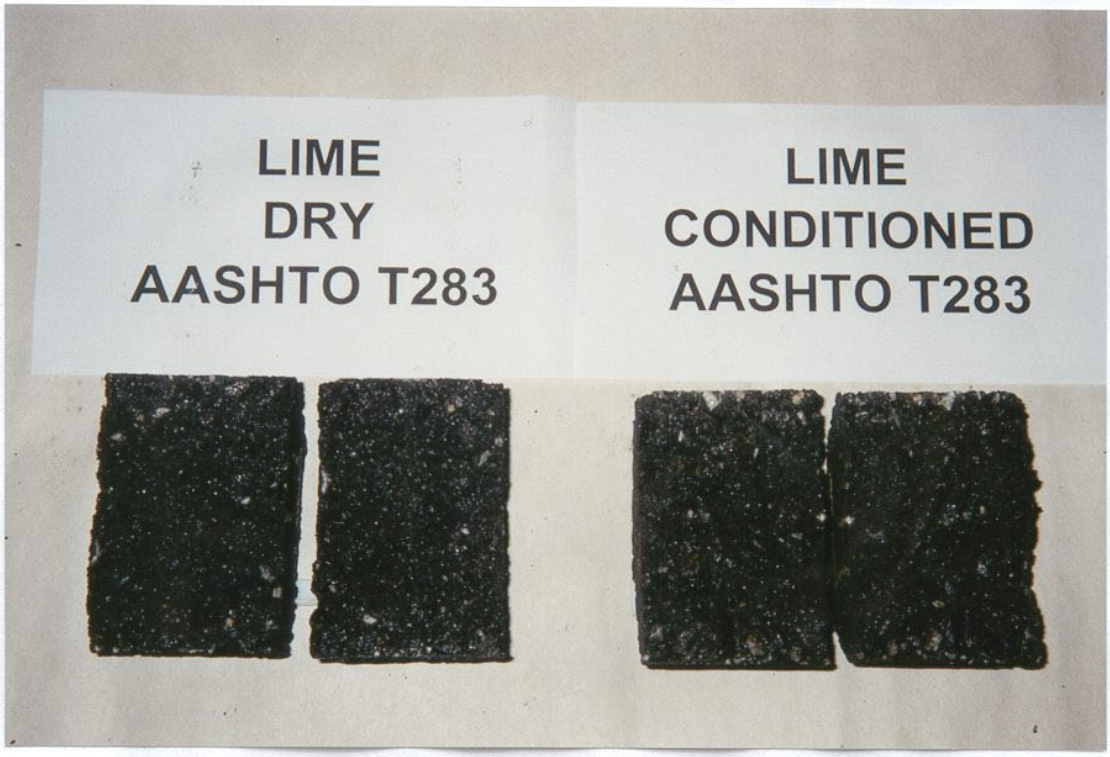
MIX R (REDICOAT) – PWGSC METHOD

MIX L (LIME) – MTO METHOD

MIX R (REDICOAT) – MTO METHOD

MIX L (LIME) – ASTM METHOD

MIX R (REDICOAT) – ASTM METHOD



MIX L (LIME) – AASHTO METHOD

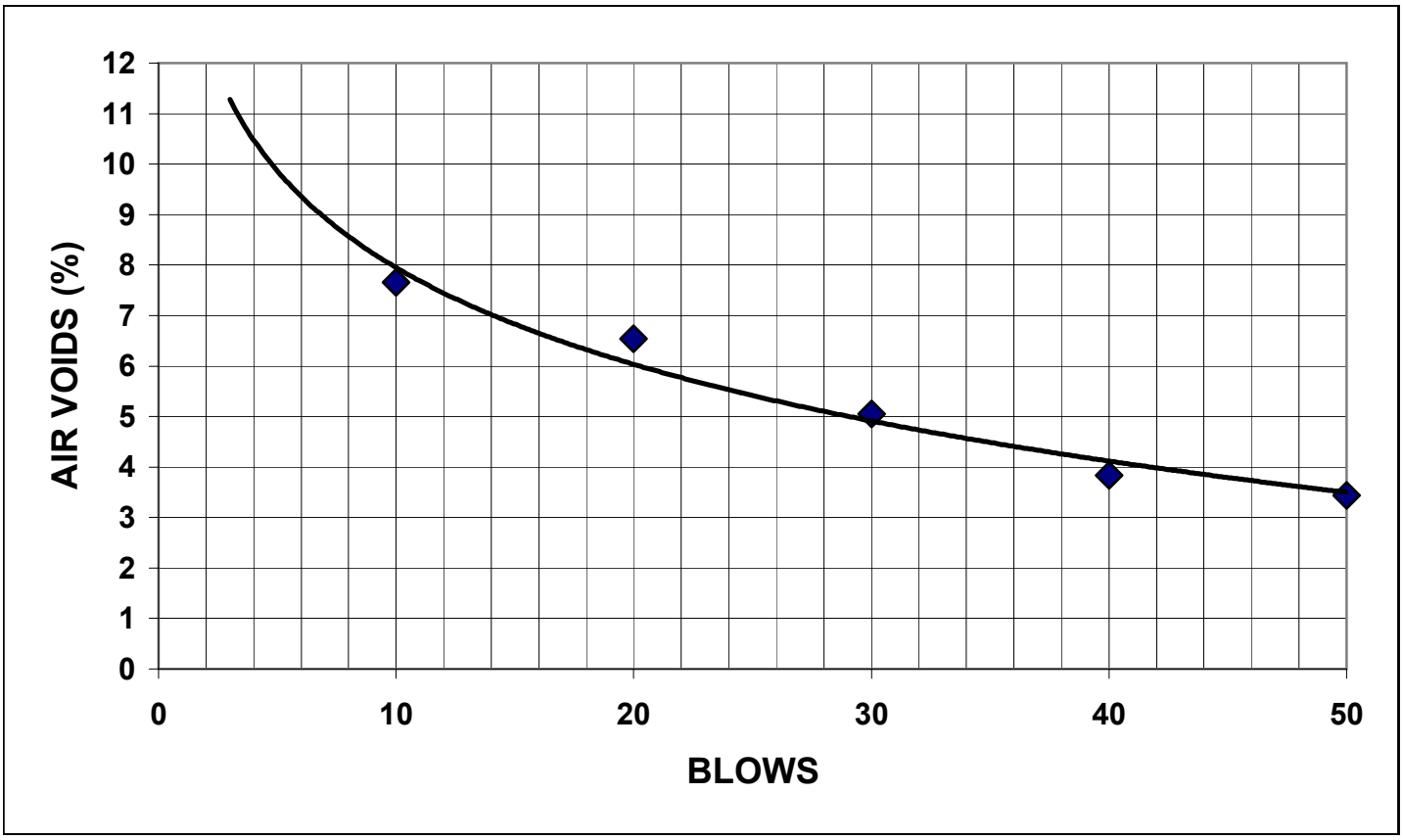
MIX R (REDICOAT) – AASHTO METHOD

Appendix B
Laboratory Test Data

MOISTURE SUSCEPTIBILITY ANALYSIS
COMPACTION TRIALS

PROJECT: 0404-42495 (PWGSC) **MIX TYPE:** C (CONTROL)

NUMBER OF BLOWS		**10**	**20**	**30**	**40**	**50**	
DRY MASS, g	A	**1204.7**	**1208.8**	**1204.4**	**1196.7**	**1199.5**	
SSD MASS, g	B	**1207.6**	**1210.4**	**1205.9**	**1198.1**	**1200.5**	
MASS IN WATER, g	C	**672.5**	**679.9**	**685.6**	**687.7**	**691.0**	
VOLUME, cc (B-C)	E	535.1	530.5	520.3	510.4	509.5	
BULK SG (A/E)	F	2.251	2.279	2.315	2.345	2.354	
MAX SG	G	**2.438**	2.438	2.438	2.438	2.438	
% AIR VOIDS (100(G-F)/G)	H	7.7	6.5	5.1	3.8	3.4	



REMARKS: Use 14 blows for 7% air voids

MOISTURE SUSCEPTIBILITY ANALYSIS
COMPACTION TRIALS

PROJECT: 0404-42495 (PWGSC) **MIX TYPE:** L (LIME)

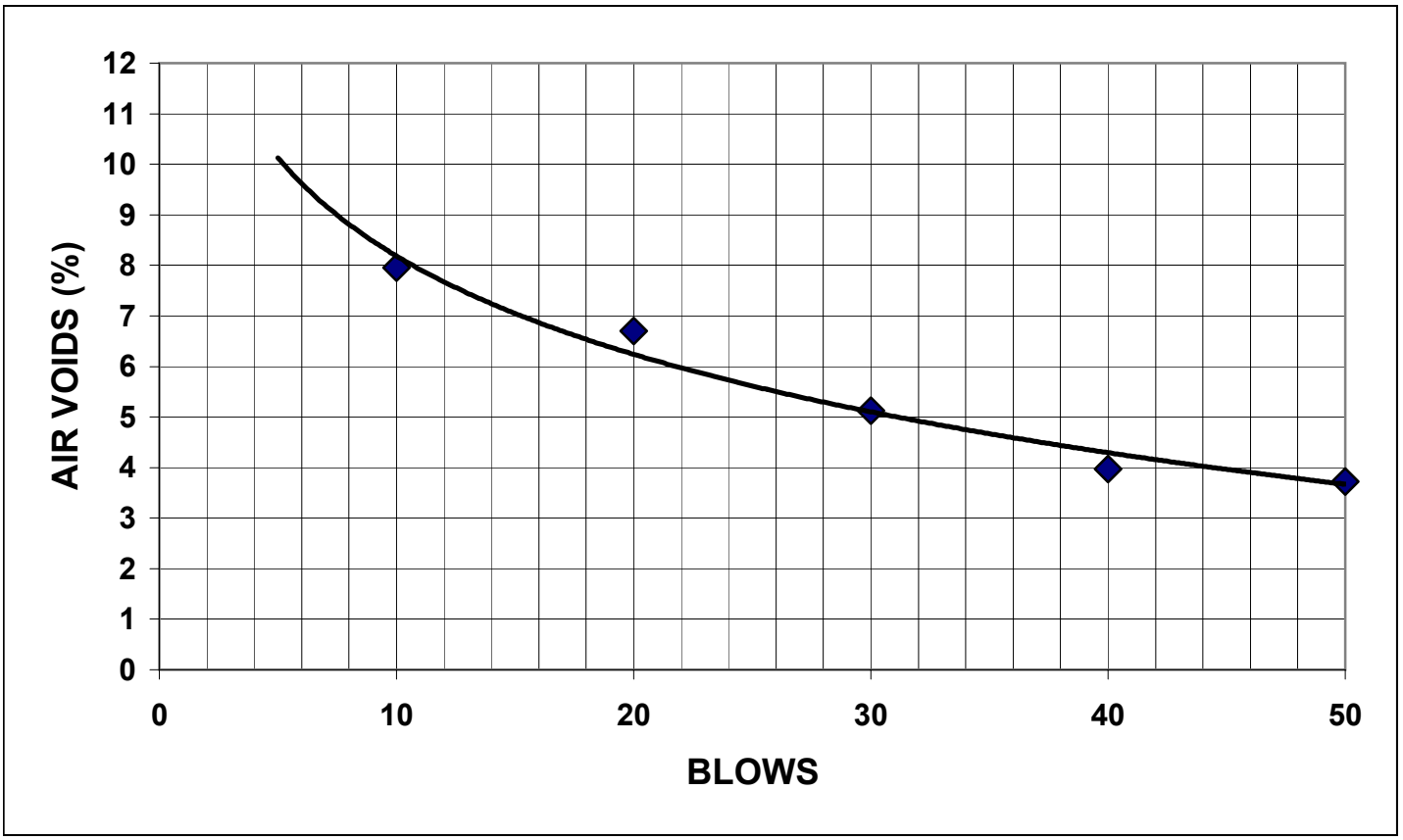
NUMBER OF BLOWS		10	20	30	40	50	
DRY MASS, g	A	**1199.0**	**1198.2**	**1206.9**	**1202.4**	**1205.5**	
SSD MASS, g	B	**1203.5**	**1200.6**	**1208.7**	**1198.1**	**1206.2**	
MASS IN WATER, g	C	**669.3**	**674.0**	**685.6**	**687.7**	**695.8**	
VOLUME, cc (B-C)	E	534.2	526.6	523.1	510.4	510.4	
BULK SG (A/E)	F	2.244	2.275	2.307	2.356	2.362	
MAX SG	G	**2.440**	2.440	2.440	2.440	2.440	
% AIR VOIDS (100(G-F)/G)	H	8.0	6.7	5.4	3.5	3.2	

REMARKS: Use 15 blows for 7% air voids

MOISTURE SUSCEPTIBILITY ANALYSIS
COMPACTION TRIALS

PROJECT: 0404-42495 (PWGSC) **MIX TYPE:** R (REDICOAT)

NUMBER OF BLOWS		**10**	**20**	**30**	**40**	**50**	
DRY MASS, g	A	**1203.3**	**1195.9**	**1200.8**	**1198.8**	**1200.5**	
SSD MASS, g	B	**1207.9**	**1198.5**	**1203.6**	**1201.0**	**1201.5**	
MASS IN WATER, g	C	**671.0**	**672.1**	**683.8**	**688.3**	**689.4**	
VOLUME, cc (B-C)	E	536.9	526.4	519.8	512.7	512.1	
BULK SG (A/E)	F	2.241	2.272	2.310	2.338	2.344	
MAX SG	G	**2.435**	2.435	2.435	2.435	2.435	
% AIR VOIDS (100(G-F)/G)	H	8.0	6.7	5.1	4.0	3.7	



REMARKS: Use 15 blows for 7% air voids

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: C (CONTROL)
TEST METHOD: PWGSC

		CONDITIONED				UNCONDITIONED			
SAMPLE		**2**	**4**	**5**	**8**	**1**	**3**	**6**	**7**
DRY MASS, g	A	**1201.5**	**1205.3**	**1202.0**	**1197.5**	**1196.0**	**1194.6**	**1195.7**	**1198.7**
SSD MASS, g	B	**1201.8**	**1206.5**	**1202.8**	**1196.2**	**1196.1**	**1194.7**	**1196.1**	**1199.5**
MASS IN WATER, g	C	**691.2**	**694.9**	**691.2**	**689.0**	**689.1**	**687.6**	**687.0**	**691.5**
VOLUME, cc (B-C)	E	510.6	511.6	511.6	507.2	507.0	507.1	509.1	508.0
BULK SG (A/E)	F	2.353	2.356	2.349	2.361	2.359	2.356	2.349	2.360
AVERAGE BULK SG		2.355				2.356			
MAX SG	G	**2.438**	2.438	2.438	2.438	2.438	2.438	2.438	2.438
% AIR VOIDS (100(G-F)/G)	H	3.48	3.37	3.63	3.16	3.24	3.37	3.66	3.21
AVERAGE AIR VOIDS		3.41				3.37			
STABILITY READING		**172**	**169**	**165**	**172**	**192**	**190**	**201**	**193**
STABILITY (kN)		**10.4**	**10.2**	**10.0**	**10.4**	**11.6**	**11.5**	**12.2**	**11.7**
AVERAGE STABILITY (kN)		10.3				11.8			
RETAINED STABILITY (%)		**87.2**							

REMARKS: Conditioned Subset 24 hours in 60 C water bath

Dry Subset 40 minutes in 60 C water bath

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: L (LIME)
TEST METHOD: PWGSC

		CONDITIONED				UNCONDITIONED			
SAMPLE		**3**	**4**	**5**	**7**	**1**	**2**	**6**	**8**
DRY MASS, g	A	**1208.6**	**1205.3**	**1202.0**	**1205.5**	**1198.0**	**1212.6**	**1208.7**	**1204.4**
SSD MASS, g	B	**1209.4**	**1206.5**	**1202.8**	**1206.2**	**1198.9**	**1213.5**	**1209.2**	**1205.8**
MASS IN WATER, g	C	**698.4**	**696.2**	**693.4**	**695.8**	**692.3**	**700.3**	**698.2**	**694.3**
VOLUME, cc (B-C)	E	511.0	510.3	509.4	510.4	506.6	513.2	511.0	511.5
BULK SG (A/E)	F	2.365	2.362	2.360	2.362	2.365	2.363	2.365	2.355
AVERAGE BULK SG		2.362				2.362			
MAX SG	G	**2.440**	2.440	2.440	2.440	2.440	2.440	2.440	2.440
% AIR VOIDS (100(G-F)/G)	H	3.07	3.20	3.29	3.20	3.08	3.16	3.06	3.50
AVERAGE AIR VOIDS		3.19				3.20			
STABILITY READING		**195**	**191**	**192**	**200**	**186**	**194**	**193**	**196**
STABILITY (kN)		**11.7**	**11.5**	**11.5**	**11.9**	**11.2**	**11.7**	**11.6**	**11.8**
AVERAGE STABILITY (kN)		11.7				11.6			
RETAINED STABILITY (%)		**100.6**							

REMARKS: Conditioned Subset 24 hours in 60 C water bath
Dry Subset 40 minutes in 60 C water bath

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: R (REDICOAT)
TEST METHOD: PWGSC

		CONDITIONED				UNCONDITIONED			
SAMPLE		**2**	**3**	**4**	**6**	**1**	**5**	**7**	**8**
DRY MASS, g	A	**1202.2**	**1207.0**	**1200.5**	**1208.3**	**1200.7**	**1210.5**	**1206.6**	**1208.0**
SSD MASS, g	B	**1203.0**	**1207.8**	**1201.5**	**1209.6**	**1201.5**	**1211.4**	**1207.5**	**1208.7**
MASS IN WATER, g	C	**689.6**	**692.0**	**689.4**	**695.8**	**687.9**	**696.5**	**692.2**	**694.5**
VOLUME, cc (B-C)	E	513.4	515.8	512.1	513.8	513.6	514.9	515.3	514.2
BULK SG (A/E)	F	2.342	2.340	2.344	2.352	2.338	2.351	2.342	2.349
AVERAGE BULK SG		2.344				2.345			
MAX SG	G	**2.435**	2.435	2.435	2.435	2.435	2.435	2.435	2.435
% AIR VOIDS (100(G-F)/G)	H	3.83	3.90	3.73	3.42	3.99	3.45	3.84	3.52
AVERAGE AIR VOIDS		3.72				3.70			
STABILITY READING		**158**	**154**	**164**	**183**	**156**	**186**	**165**	**186**
STABILITY (kN)		**9.5**	**9.3**	**9.9**	**11.0**	**9.4**	**11.2**	**9.9**	**11.2**
AVERAGE STABILITY (kN)		9.9				10.4			
RETAINED STABILITY (%)		**95.2**							

REMARKS: Conditioned Subset 24 hours in 60 C water bath
Conditioned Subset 40 minutes in 60 C water bath

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: C (CONTROL)
TEST METHOD: MTO LS-283

		CONDITIONED			UNCONDITIONED		
SAMPLE		**1**	**3**	**6**	**2**	**4**	**5**
DRY MASS, g	A	**1204.7**	**1197.1**	**1205.8**	**1206.6**	**1197.7**	**1192.4**
SSD MASS, g	B	**1211.4**	**1205.1**	**1212.0**	**1213.9**	**1203.9**	**1198.0**
MASS IN WATER, g	C	**668.6**	**662.4**	**665.2**	**667.6**	**661.5**	**658.0**
VOLUME, cc (B-C)	E	542.8	542.7	546.8	546.3	542.4	540.0
BULK SG (A/E)	F	2.219	2.206	2.205	2.209	2.208	2.208
AVERAGE BULK SG		2.210			2.208		
MAX SG	G	**2.438**	2.438	2.438	2.438	2.438	2.438
% AIR VOIDS (100(G-F)/G)	H	8.97	9.52	9.55	9.41	9.43	9.43
AVERAGE AIR VOIDS		9.35			9.42		
STABILITY READING		**442**	**425**	**410**	**555**	**527**	**556**
STABILITY (kN)		**26.5**	**25.5**	**24.6**	**33.3**	**31.6**	**33.4**
AVERAGE STABILITY (kN)		25.6			32.8		
RETAINED STABILITY (%)		**78.0**					

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: L (LIME)
TEST METHOD: MTO LS-283

		CONDITIONED			UNCONDITIONED		
SAMPLE		**4**	**1**	**3**	**2**	**5**	**6**
DRY MASS, g	A	**1211.0**	**1196.3**	**1203.1**	**1199.4**	**1212.3**	**1195.3**
SSD MASS, g	B	**1223.7**	**1208.2**	**1212.6**	**1209.2**	**1225.3**	**1206.6**
MASS IN WATER, g	C	**666.9**	**657.3**	**661.8**	**660.0**	**666.9**	**657.8**
VOLUME, cc (B-C)	E	556.8	550.9	550.8	549.2	558.4	548.8
BULK SG (A/E)	F	2.175	2.172	2.184	2.184	2.171	2.178
AVERAGE BULK SG		2.177			2.178		
MAX SG	G	**2.440**	2.440	2.440	2.440	2.440	2.440
% AIR VOIDS (100(G-F)/G)	H	10.86	11.00	10.48	10.50	11.02	10.74
AVERAGE AIR VOIDS		10.78			10.75		
STABILITY READING		**432**	**467**	**437**	**532**	**455**	**480**
STABILITY (kN)		**25.9**	**28.0**	**26.2**	**31.9**	**27.3**	**28.8**
AVERAGE STABILITY (kN)		26.7			29.4		
RETAINED STABILITY (%)		**91.1**					

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
RETAINED STABILITY

MIX TYPE: R (REDICOAT)
TEST METHOD: MTO LS-283

		CONDITIONED			UNCONDITIONED		
SAMPLE		**1**	**2**	**6**	**4**	**5**	**3**
DRY MASS, g	A	**1190.2**	**1186.9**	**1194.2**	**1193.4**	**1201.0**	**1177.7**
SSD MASS, g	B	**1197.8**	**1194.4**	**1201.7**	**1201.4**	**1206.9**	**1184.8**
MASS IN WATER, g	C	**650.9**	**654.4**	**653.9**	**654.8**	**656.5**	**644.9**
VOLUME, cc (B-C)	E	546.9	540.0	547.8	546.6	550.4	539.9
BULK SG (A/E)	F	2.176	2.198	2.180	2.183	2.182	2.181
AVERAGE BULK SG		2.185			2.182		
MAX SG	G	**2.435**	2.435	2.435	2.435	2.435	2.435
% AIR VOIDS (100(G-F)/G)	H	10.63	9.73	10.47	10.34	10.39	10.42
AVERAGE AIR VOIDS		10.28			10.38		
STABILITY READING		**480**	**465**	**500**	**537**	**495**	**539**
STABILITY (kN)		**28.8**	**27.9**	**30.0**	**32.2**	**29.7**	**32.4**
AVERAGE STABILITY (kN)		28.9			31.4		
RETAINED STABILITY (%)		**92.0**					

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: C (CONTROL)

TEST METHOD: ASTM D4867

SAMPLE		2	3	6	1	5	7
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**68**	**67**	**67**	**68**	**68**	**67**
DRY MASS, g	A	**1206.6**	**1210.4**	**1210.7**	**1210.9**	**1208.3**	**1219.6**
SSD MASS, g	B	**1211.3**	**1213.1**	**1213.9**	**1214.3**	**1211.7**	**1221.6**
MASS IN WATER, g	C	**674.1**	**681.9**	**684.0**	**677.8**	**677.0**	**688.5**
VOLUME, cc (B-C)	E	537.2	531.2	529.9	536.5	534.7	533.1
BULK SG (A/E)	F	2.246	2.279	2.285	2.257	2.260	2.288
MAX SG	G	**2.438**	2.438	2.438	2.438	2.438	2.438
% AIR VOIDS (100(G-F)/G)	H	7.87	6.54	6.29	7.42	7.31	6.16
VOL AIR VOIDS (HE/100)	I	42.29	34.73	33.30	39.82	39.09	32.85
AVERAGE AIR VOIDS			6.90			6.97	
SATURATED							
SSD MASS, g	B'	**1237.2**	**1233.3**	**1233.9**			
MASS IN WATER, g	C'	**699.1**	**702.1**	**703.8**			
VOLUME, cc (B'-C')	E'	538.1	531.2	530.1			
VOL ABS WATER, cc (B'-A)	J'	30.6	22.9	23.2			
% SATURATION (100J'/I)		72.36	65.94	69.66			
% SWELL (100(E'-E)/E)		0.17	0.00	0.04			
AVERAGE SATURATION			69.3				
AVERAGE SWELL			0.07				
CONDITIONED							
THICKNESS, mm	t"	**68**	**67**	**67**			
SSD MASS, g	B"	**1242.6**	**1240.1**	**1240.3**			
MASS IN WATER, g	C"	**701.7**	**706.0**	**707.6**			
VOLUME, cc (B"-C")	E"	540.9	534.1	532.7			
VOL ABS WATER, cc (B"-A)	J"	36.0	29.7	29.6			
% SATURATION (100J"/I)		85.13	85.52	88.88			
% SWELL (100(E"-E)/E)		0.69	0.55	0.53			
AVERAGE SATURATION			86.5				
AVERAGE SWELL			0.59				
TENSILE STRENGTH							
LOAD, N	P	**6755**	**7242**	**6970**	**10840**	**10889**	**11575**
DRY STR. (2000P/(t*D*3.14)	Std				1005.3	1009.9	1089.5
WET STR. (2000P/(t"*D*3.14)	Stm	626.5	681.7	656.1			

AVG DRY STR (kPa): 1034.9 **AVG WET STR (kPa):** 654.7 **TSR, %:** 63.3

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: L (LIME)

TEST METHOD: ASTM D4867

SAMPLE		1	2	5	3	4	7
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**66**	**67**	**67**	**67**	**67**	**66**
DRY MASS, g	A	**1188.1**	**1212.9**	**1208.8**	**1230.1**	**1207.4**	**1215.5**
SSD MASS, g	B	**1193.6**	**1216.7**	**1212.0**	**1234.3**	**1211.8**	**1219.8**
MASS IN WATER, g	C	**667.1**	**680.2**	**678.7**	**691.9**	**676.7**	**682.4**
VOLUME, cc (B-C)	E	526.5	536.5	533.3	542.4	535.1	537.4
BULK SG (A/E)	F	2.257	2.261	2.267	2.268	2.256	2.262
MAX SG	G	**2.440**	2.440	2.440	2.440	2.440	2.440
% AIR VOIDS (100(G-F)/G)	H	7.52	7.35	7.10	7.05	7.52	7.30
VOL AIR VOIDS (HE/100)	I	39.57	39.41	37.89	38.26	40.26	39.24
AVERAGE AIR VOIDS			7.32			7.29	
SATURATED							
SSD MASS, g	B'	**1217.8**	**1243.8**	**1237.5**			
MASS IN WATER, g	C'	**692.0**	**708.6**	**705.2**			
VOLUME, cc (B'-C')	E'	525.8	535.2	532.3			
VOL ABS WATER, cc (B'-A)	J'	29.7	30.9	28.7			
% SATURATION (100J'/I)		75.05	78.41	75.75			
% SWELL (100(E'-E)/E)		-0.13	-0.24	-0.19			
AVERAGE SATURATION			76.4				
AVERAGE SWELL			-0.19				
CONDITIONED							
THICKNESS, mm	t"	**66**	**67**	**67**			
SSD MASS, g	B"	**1223.3**	**1249.6**	**1243.6**			
MASS IN WATER, g	C"	**695.5**	**711.0**	**708.1**			
VOLUME, cc (B"-C")	E"	527.8	538.6	535.5			
VOL ABS WATER, cc (B"-A)	J"	35.2	36.7	34.8			
% SATURATION (100J"/I)		88.95	93.12	91.84			
% SWELL (100(E"-E)/E)		0.25	0.39	0.41			
AVERAGE SATURATION			91.3				
AVERAGE SWELL			0.35				
TENSILE STRENGTH							
LOAD, N	P	**10383**	**10192**	**10366**	**11584**	**10456**	**11384**
DRY STR. (2000P/(t*D*3.14)	Std				1090.3	984.2	1087.8
WET STR. (2000P/(t"*D*3.14)	Stm	992.1	959.3	975.7			

AVG DRY STR (kPa): 1054.1 **AVG WET STR (kPa):** 975.7 **TSR, %:** 92.6

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: R (REDICOAT)

TEST METHOD: ASTM D4867

SAMPLE		15	5	6	1	4	8
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**66**	**66**	**66**	**66**	**66**	**66**
DRY MASS, g	A	**1209.3**	**1191.1**	**1186.1**	**1190.0**	**1181.4**	**1192.2**
SSD MASS, g	B	**1212.1**	**1193.1**	**1188.2**	**1191.2**	**1183.5**	**1194.6**
MASS IN WATER, g	C	**679.2**	**666.7**	**662.9**	**665.9**	**661.0**	**667.4**
VOLUME, cc (B-C)	E	532.9	526.4	525.3	525.3	522.5	527.2
BULK SG (A/E)	F	2.269	2.263	2.258	2.265	2.261	2.261
MAX SG	G	**2.435**	2.435	2.435	2.435	2.435	2.435
% AIR VOIDS (100(G-F)/G)	H	6.81	7.07	7.27	6.97	7.14	7.13
VOL AIR VOIDS (HE/100)	I	36.27	37.24	38.20	36.59	37.33	37.59
AVERAGE AIR VOIDS			7.05			7.08	
SATURATED							
SSD MASS, g	B'	**1232.0**	**1217.1**	**1210.9**			
MASS IN WATER, g	C'	**699.8**	**690.9**	**686.7**			
VOLUME, cc (B'-C')	E'	532.2	526.2	524.2			
VOL ABS WATER, cc (B'-A)	J'	22.7	26.0	24.8			
% SATURATION (100J'/I)		62.59	69.81	64.93			
% SWELL (100(E'-E)/E)		-0.13	-0.04	-0.21			
AVERAGE SATURATION			65.8				
AVERAGE SWELL			-0.13				
CONDITIONED							
THICKNESS, mm	t"	**66**	**66**	**65**			
SSD MASS, g	B"	**1236.7**	**1221.6**	**1216.4**			
MASS IN WATER, g	C"	**701.0**	**692.8**	**689.0**			
VOLUME, cc (B"-C")	E"	535.7	528.8	527.4			
VOL ABS WATER, cc (B"-A)	J"	27.4	30.5	30.3			
% SATURATION (100J"/I)		75.55	81.90	79.33			
% SWELL (100(E"-E)/E)		0.53	0.46	0.40			
AVERAGE SATURATION			78.9				
AVERAGE SWELL			0.46				
TENSILE STRENGTH							
LOAD, N	P	**10257**	**8675**	**8084**	**11113**	**9828**	**10685**
DRY STR. (2000P/(t*D*3.14)	Std				1061.9	939.1	1021.0
WET STR. (2000P/(t"*D*3.14)	Stm	980.1	828.9	784.3			

AVG DRY STR (kPa): 1007.3 **AVG WET STR (kPa):** 864.4 **TSR, %:** 85.8

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: C (CONTROL)
TEST METHOD: AASHTO T 283

SAMPLE		4	6	7	1	2	5
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**67**	**66**	**68**	**67**	**68**	**67**
DRY MASS, g	A	**1204.6**	**1196.9**	**1219.7**	**1217.7**	**1222.3**	**1215.2**
SSD MASS, g	B	**1207.7**	**1200.1**	**1223.1**	**1220.3**	**1225.1**	**1217.4**
MASS IN WATER, g	C	**677.1**	**672.2**	**686.6**	**684.4**	**685.4**	**683.3**
VOLUME, cc (B-C)	E	530.6	527.9	536.5	535.9	539.7	534.1
BULK SG (A/E)	F	2.270	2.267	2.273	2.272	2.265	2.275
MAX SG	G	**2.438**	2.438	2.438	2.438	2.438	2.438
% AIR VOIDS (100(G-F)/G)	H	6.88	7.00	6.75	6.80	7.11	6.68
VOL AIR VOIDS (HE/100)	I	36.51	36.96	36.21	36.43	38.35	35.66
AVERAGE AIR VOIDS			6.88			6.86	
SATURATED							
SSD MASS, g	B'	**1230.8**	**1222.2**	**1246.2**			
MASS IN WATER, g	C'	**699.6**	**693.8**	**708.6**			
VOLUME, cc (B'-C')	E'	531.2	528.4	537.6			
VOL ABS WATER, cc (B'-A)	J'	26.2	25.3	26.5			
% SATURATION (100J'/I)		71.77	68.44	73.18			
% SWELL (100(E'-E)/E)		0.11	0.09	0.21			
AVERAGE SATURATION			71.1				
AVERAGE SWELL			0.14				
CONDITIONED							
THICKNESS, mm	t"	**67**	**67**	**68**			
SSD MASS, g	B"	**1236.0**	**1227.5**	**1251.7**			
MASS IN WATER, g	C"	**702.8**	**698.4**	**712.9**			
VOLUME, cc (B"-C")	E"	533.2	529.1	538.8			
VOL ABS WATER, cc (B"-A)	J"	31.4	30.6	32.0			
% SATURATION (100J"/I)		86.01	82.78	88.37			
% SWELL (100(E"-E)/E)		0.49	0.23	0.43			
AVERAGE SATURATION			85.7				
AVERAGE SWELL			0.38				
TENSILE STRENGTH							
LOAD, N	P	**6902**	**7415**	**6970**	**12703**	**12589**	**12978**
DRY STR. (2000P/(t*D*3.14)	Std				1195.7	1167.5	1221.6
WET STR. (2000P/(t"*D*3.14)	Stm	649.6	697.9	646.4			

AVG DRY STR (kPa): 1194.9 **AVG WET STR (kPa):** 664.7 **TSR, %:** 55.6

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: L (LIME)

TEST METHOD: AASHTO T 283

SAMPLE		9	10	14	11	12	13
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**66**	**66**	**66**	**66**	**66**	**66**
DRY MASS, g	A	**1199.4**	**1192.8**	**1198.5**	**1206.7**	**1196.3**	**1197.4**
SSD MASS, g	B	**1201.0**	**1193.9**	**1199.6**	**1207.9**	**1197.5**	**1198.8**
MASS IN WATER, g	C	**674.5**	**670.0**	**672.7**	**677.2**	**673.6**	**672.3**
VOLUME, cc (B-C)	E	526.5	523.9	526.9	530.7	523.9	526.5
BULK SG (A/E)	F	2.278	2.277	2.275	2.274	2.283	2.274
MAX SG	G	**2.440**	2.440	2.440	2.440	2.440	2.440
% AIR VOIDS (100(G-F)/G)	H	6.64	6.69	6.78	6.81	6.42	6.79
VOL AIR VOIDS (HE/100)	I	34.94	35.05	35.71	36.15	33.61	35.76
AVERAGE AIR VOIDS			6.70			6.67	
SATURATED							
SSD MASS, g	B'	**1222.3**	**1215.6**	**1221.2**			
MASS IN WATER, g	C'	**696.9**	**692.4**	**695.2**			
VOLUME, cc (B'-C')	E'	525.4	523.2	526.0			
VOL ABS WATER, cc (B'-A)	J'	22.9	22.8	22.7			
% SATURATION (100J'/I)		65.54	65.05	63.57			
% SWELL (100(E'-E)/E)		-0.21	-0.13	-0.17			
AVERAGE SATURATION			64.7				
AVERAGE SWELL			-0.17				
CONDITIONED							
THICKNESS, mm	t"	**66**	**66**	**66**			
SSD MASS, g	B"	**1224.9**	**1217.3**	**1223.5**			
MASS IN WATER, g	C"	**698.1**	**693.9**	**697.1**			
VOLUME, cc (B"-C")	E"	526.8	523.4	526.4			
VOL ABS WATER, cc (B"-A)	J"	25.5	24.5	25.0			
% SATURATION (100J"/I)		72.98	69.91	70.01			
% SWELL (100(E"-E)/E)		0.06	-0.10	-0.09			
AVERAGE SATURATION			71.0				
AVERAGE SWELL			-0.04				
TENSILE STRENGTH							
LOAD, N	P	**12244**	**12749**	**12473**	**12749**	**13024**	**12611**
DRY STR. (2000P/(t*D*3.14)	Std				1218.2	1244.5	1205.0
WET STR. (2000P/(t"*D*3.14)	Stm	1169.9	1218.2	1191.8			

AVG DRY STR (kPa): 1222.5 **AVG WET STR (kPa):** 1193.3 **TSR, %:** 97.6

REMARKS: _____

MOISTURE SUSCEPTIBILITY ANALYSIS
TENSILE STRENGTH RATIO

MIX TYPE: R (REDICOAT)

TEST METHOD: AASHTO T 283

SAMPLE		10	11	12	9	13	15
DIAMETER, mm	D	**101**	**101**	**101**	**101**	**101**	**101**
THICKNESS, mm	t	**66**	**66**	**66**	**66**	**66**	**66**
DRY MASS, g	A	**1206.6**	**1196.8**	**1203.6**	**1202.7**	**1205.2**	**1201.9**
SSD MASS, g	B	**1208.6**	**1199.1**	**1205.3**	**1204.8**	**1207.1**	**1203.7**
MASS IN WATER, g	C	**675.8**	**670.4**	**676.0**	**674.7**	**675.7**	**672.9**
VOLUME, cc (B-C)	E	532.8	528.7	529.3	530.1	531.4	530.8
BULK SG (A/E)	F	2.265	2.264	2.274	2.269	2.268	2.264
MAX SG	G	**2.435**	2.435	2.435	2.435	2.435	2.435
% AIR VOIDS (100(G-F)/G)	H	7.00	7.04	6.61	6.82	6.86	7.01
VOL AIR VOIDS (HE/100)	I	37.28	37.20	35.01	36.18	36.45	37.21
AVERAGE AIR VOIDS			6.88			6.90	
SATURATED							
SSD MASS, g	B'	**1229.8**	**1221.0**	**1225.9**			
MASS IN WATER, g	C'	**697.5**	**693.4**	**697.0**			
VOLUME, cc (B'-C')	E'	532.3	527.6	528.9			
VOL ABS WATER, cc (B'-A)	J'	23.2	24.2	22.3			
% SATURATION (100J'/I)		62.24	65.05	63.70			
% SWELL (100(E'-E)/E)		-0.09	-0.21	-0.08			
AVERAGE SATURATION			63.7				
AVERAGE SWELL			-0.13				
CONDITIONED							
THICKNESS, mm	t"	**67**	**67**	**67**			
SSD MASS, g	B"	**1231.7**	**1225.9**	**1228.4**			
MASS IN WATER, g	C"	**699.6**	**695.5**	**699.2**			
VOLUME, cc (B"-C")	E"	532.1	530.4	529.2			
VOL ABS WATER, cc (B"-A)	J"	25.1	29.1	24.8			
% SATURATION (100J"/I)		67.33	78.22	70.84			
% SWELL (100(E"-E)/E)		-0.13	0.32	-0.02			
AVERAGE SATURATION			72.1				
AVERAGE SWELL			0.06				
TENSILE STRENGTH							
LOAD, N	P	**10101**	**10927**	**11199**	**10927**	**11425**	**10063**
DRY STR. (2000P/(t*D*3.14)	Std				1044.1	1091.7	961.5
WET STR. (2000P/(t"*D*3.14)	Stm	950.8	1028.5	1054.1			

AVG DRY STR (kPa): 1032.4 **AVG WET STR (kPa):** 1011.1 **TSR, %:** 97.9

REMARKS: _____

MTO VISUAL EXAMINATION FOR STRIPPING

TEST METHOD: PWGSC	MIX TYPE: C (CONTROL)			
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS:				

TEST METHOD: MTO LS-283	MIX TYPE: C (CONTROL)			
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	2	1	7
REMARKS:				

TEST METHOD: ASTM D4867	MIX TYPE: C (CONTROL)			
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	3	1	8
REMARKS: Some fractured coarse aggregate				

TEST METHOD: AASHTO T 283	MIX TYPE: C (CONTROL)			
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	3	1	8
REMARKS: Some fractured aggregate (primarily around specimen perimeter)				

MTO VISUAL EXAMINATION FOR STRIPPING

TEST METHOD: PWGSC MIX TYPE: L (LIME)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS:				

TEST METHOD: MTO LS-283 MIX TYPE: L (LIME)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS:				

TEST METHOD: ASTM D4867 MIX TYPE: L (LIME)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS: Some fractured coarse aggregate				

TEST METHOD: AASHTO T 283 MIX TYPE: L (LIME)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS: Some fractured coarse aggregate				

MTO VISUAL EXAMINATION FOR STRIPPING

TEST METHOD: PWGSC MIX TYPE: R (REDICOAT)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS:				

TEST METHOD: MTO LS-283 MIX TYPE: R (REDICOAT)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS:				

TEST METHOD: ASTM D4867 MIX TYPE: R (REDICOAT)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS: Some fractured coarse aggregate				

TEST METHOD: AASHTO T 283 MIX TYPE: R (REDICOAT)				
DRY SUBSET	**CONDITIONED SUBSET**			
VISUAL COATING	**PL**	**C**	**F**	**RATING**
Heavy, Medium, Light, Heavy Stain, Medium Stain, Light Stain	3 - no stripping evident, 4 - stripping evident	Coarse Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - 31% to 60%, 3 - > 60%	Fine Aggregate Factor 0 - < 10%, 1 - 10% to 30% 2 - > 30%	$P_L + C + F$
MEDIUM	4	0	0	4
REMARKS: Some fractured coarse aggregate				