CONSTRUCTION MATERIALS ENGINEERS, INC.

APPENDIX C

LOG OF TEST BORING NO. B-1

PROJECT VIDLER STEAD WATER LINE **RIG & BORING TYPE** CME 55

LOCATION SOUTHERN SHOULDER AREA - LEMMON DR.

PROJECT NO. 1157 **DATE** 12/3/09 **LOGGED BY:** RAR **SURFACE ELEVATION** 4924 (TOPO) ±

Depth in Feet	Unified Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Blow Counts (SPTs)	Consistency/ Density	Moisture	Visual Description	Dry Density (lbs. per cubic foot)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SC			S	1A	42	DENSE	MOIST	0-2': CLAYEY SAND WITH FINE GRAVEL FILL, mostly fine to coarse sand, low plasticity, brown.			
	CH			S	1B	26	VERY STIFF	VERY MOIST	NOTE>: Occasional lenses sand clay and asphalt fragments. 2-11 1/2': FAT CLAY, few very fine sands, brown.			
5				U	1C	32	TO		NOTE: Occasional lenses of silty sand from 10 1/2-11 1/2'.	78.1	38.8	
				S	1D	10	STIFF		NOTE: Pocket penetrameter (p.p.) reading - 4.0 tsF @ 3 feet 1.75 tsF @ 6 feet/			
10				S	1F	12			End of drilling at 10 feet. End of sample at 11 1/2 feet.			
15												
20												
25												
30												
35												

GROUNDWATER

	DEPTH	HOUR	DATE
▽		N.E.	12/3/09
▼			

SAMPLE TYPE

A - Drill Cuttings. B. Bag sample.
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
C - CME sample. R - Rotary Cuttings.

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture/Density

PLATE NO.: A-2a

CME CONSTRUCTION MATERIALS ENGINEERS, INC.

LOG OF BORING

PROJECT Lennon Valley #4 — BORING NO. 1

LOGGED BY G. Ramaosek — SIZE OF BORING 6 INCHES

DATE BEGUN 3-23-71 — GROUND ELEVATION

DATE FINISHED 3-23-71 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ___ AUGER ✓ WATER ___ — DATE GROUND WATER MEASURED

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
						Moist, slightly compact to dense, light brown, non-plastic sandy silt.
				2		
	1A		49			
				4		
				6		
				8		
				10		
	1B		15			
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

LOG OF BORING

PROJECT LEMMON VALLEY #4 — BORING NO. 2

LOGGED BY G RAMBOSEK — SIZE OF BORING 6 INCHES

DATE BEGUN 3-23-71 — GROUND ELEVATION

DATE FINISHED 3-23-71 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ___ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
						Moist, slightly compact, brown silty sand.
				2		
	2A		10			
				4		
						Moist, compact, light brown nonplastic to slightly plastic sandy silt
	2B			6		
				8		
				10		
			30			
	2C			12		
				14		
	2D		21			
				17		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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SOILS INVESTIGATION

#5227

PLATE 2.2

LOG OF BORING

PROJECT LEMMON VALLEY #4 — BORING NO. 3

LOGGED BY G. RAMBOSEK — SIZE OF BORING 6 INCHES

DATE BEGUN 3-23-71 — GROUND ELEVATION

DATE FINISHED 3-23-71 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ___ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
						Moist, dense, brown silty sand.
				2		
	3A		39			
				4		
	3B		—	6		Moist, compact, lightly brown slightly plastic sandy silt.
				8		
				10		
	3C		11			
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #2

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 9-30-69 — GROUND ELEVATION —

DATE FINISHED 9-30-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING X AUGER ___ WATER ___ — DATE GROUND WATER MEASURED —

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
				2		
	2-A		13			Loose, dry, brown, silty sand, with 20% nonplastic fines and 80% fine to medium-grained sand and occasional fine gravel.
				4		
	2-B		13	6		
				8		
				10	10'	
						Stiff, moist, brown, sandy clay with 60% medium plastic fines and 40% fine sand.
	2-C		21	12	12'	

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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SOILS INVESTIGATION

#4287

PLATE 2-B

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #3

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 9-30-60 — GROUND ELEVATION

DATE FINISHED 9-30-60 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
				2		
	3-A		20	4		Slightly compact, dry, brown, silty sand with 20% nonplastic fines and 30% mostly medium-grained sand and occasional gravel and layer of sc clayey sand.
	3-B		10	6		
				8		
				10		
	3-C		26	12		
				14		

12

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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SOILS INVESTIGATION

#4287

PLATE 2-C

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #4

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING X AUGER ___ WATER ___ — DATE GROUND WATER MEASURED ___

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
						Slightly compact, dry, brown, silty sand with up to 35% slightly plastic fines and 65% fine to medium-grained subangular sand.
	4-A		15	2		
				4		
	4-B		26	6		
				8		
				10		
				10.5'		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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SOILS INVESTIGATION

#4287

PLATE 2-D

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #5

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
						Compact, dry, brown, silty sand with 30% slightly plastic fines and 70% fine to medium-grained subangular sand and occasional gravel and some thin layers of sc clayey sand.
	5-A		28	2		
				4		
				6		
	5-B		15			
				8		Slightly stiff, moist, tan, sandy clay, with 70% medium plastic fines and 30% mostly fine-grained subangular sand.
				10	10.5'	
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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#4287

PLATE 2-E

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #6

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED ___

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
				2		Slightly compact, dry, brown, clayey sand with 30% low plastic fines and 70% fine to medium-grained sub-angular sand.
	6-A		20			
				4	4'	
				6		Loose, dry, brown, silty sand with 15% nonplastic fines and 85% mostly medium-grained subangular sand.
	6-B		13			
				8	8'	
				10	10.5'	Slightly stiff, moist, tan, sandy clay with 80% medium plastic fines and 20% fine sand.
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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#4287

PLATE 2-E

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #7

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING X AUGER ___ WATER ___ — DATE GROUND WATER MEASURED ___

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
	7-A		29	2		Compact, dry, brown, silty sand with 20% slightly plastic fines and 80% fine to medium-grained subangular sand and occasional fine gravel.
				4		
				6		
	7-B		23			
				8	8'	Slightly stiff, moist, tan, sandy clay with 80% medium plastic fines and 20% fine sand.
				10	10.5'	
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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PLATE 2-G

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #8

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED —

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
	B-A		25	2		Slightly compact, dry, brown, silty sand with 25% plastic fines and 75% fine to medium grained subangular sand.
				4		
				6		
				6.5'		
				8		Slightly stiff, moist, tan, sandy clay with 80% medium plastic fines and 20% fine sand.
				10		
				10.5'		
				12		
				14		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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PLATE 2-H

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #9

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED —

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
				2		
	9-A		33			Compact, dry, brown, silty sand with plastic fines and 75% fine to medium-grained subangular sand.
				4		
				6	6'	
						Slightly stiff, moist, pale olive, fat clay with high plastic fines and 10% fine sand.
				8		
	9-B		17			
				10	10'	
				12		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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PLATE 2-1

LOG OF BORING

PROJECT LEMMON VALLEY ESTATES — BORING NO. #10

LOGGED BY L. JOHNSON — SIZE OF BORING 4" INCHES

DATE BEGUN 10-1-69 — GROUND ELEVATION

DATE FINISHED 10-1-69 — GROUND WATER ELEVATION Not Encountered

TYPE OF BORING ✓ AUGER ___ WATER ___ — DATE GROUND WATER MEASURED —

NOTES	SAMPLE NUMBER	MOISTURE PERCENT	NUMBER OF BLOWS	DEPTH	LOG	DESCRIPTION
	10-A		12	2		Slightly compact, dry, brown, silty sand with 20% nonplastic fines and 80% fine to medium-grained subangular sand.
				4		
				6		
	10-B		15	6.5		
				8		Slightly stiff, moist, tan, sandy clay with medium plastic fines and 20% fine sand.
				10		
				10.5'		
				12		
				14		

EXPLANATION

Number Of Blows: RECORD NUMBER OF BLOWS FOR ONE FOOT PENETRATION OF SAMPLER USING 140 POUND HAMMER FALLING 30 INCHES.

Description: DESCRIBE SOIL TYPE BY UNIFIED SOIL CLASSIFICATION SYSTEM WITH EMPHASIS ON IN-PLACE OR NATURAL CONDITION.

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SOILS INVESTIGATION

#4278

PLATE 2-1

LOG OF TEST PIT NO. TP1

PROJECT LEMMON AND MILITARY **BACKHOE/TRACKHOE TYPE** CASE 580 SUPER L
LOCATION EAST OF JUNCTION; SOUTH PIT
PROJECT NO. 180550782 **DATE** 2/25/05 **LOGGED BY:** DJ **SURFACE ELEVATION** ≅4993' (topo)

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penotrometer (tsf)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SM					V. Moist	0'-1': SILTY SAND WITH GRAVEL, mostly fine to medium sand, some gravel, soft consistency, dark brown.			
	SC			B	1A	Moist	1'-2': CLAYEY SAND WITH GRAVEL, mostly very fine to medium sand, some gravel, low plasticity, orange brown.		10.3	A,G
2							NOTE: Sand content increases with depth.			
	GM					Moist	2'-6': SANDY GRAVELS, mostly fine to coarse sand, subrounded gravels, some sand, brown.			
4										
6							Bottom of test pit at 6 feet.			
8										
10										
12										
14										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		2/25/05
▼			

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

PLATE NO.: A-2i

Stantec
STANTEC CONSULTING
6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST BORING NO. B-1

PROJECT LEMMON AND MILITARY
RIG & BORING TYPE CME-55
LOCATION 150 FEET NORTH OF MILITARY ROAD-WEST SIDE
PROJECT NO. 180550782 **DATE** 10/14/04 **LOGGED BY:** RAR **SURFACE ELEVATION** ≅ 4995' (topo)

Depth in Feet	Unified Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Blow Counts (SPTs)	Consistency/ Density	Moisture	Visual Description	Dry Density (lbs. per cubic foot)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SM			S	1A	30	Med. Dense	Sl. Moist	0'-1 1/2': SILTY SAND WITH GRAVEL, mostly fine to medium sand, nonplastic, brown. NOTE: Possible base material.			
2	SC			S	1B	22			1 1/2'-3': CLAYEY SAND WITH GRAVEL, mostly fine to medium sand, low plasticity, brown.			
4	GM			S	1C	30			3'-4 1/2': SILTY GRAVEL WITH SAND, mostly fine to medium gravel, some fine to medium sand, nonplastic, brown.			
									Bottom of boring at 4 1/2 feet.			
6												
8												
10												
12												
14												

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		10/14/04
▼			

SAMPLE TYPE

A - Drill Cuttings. B. Bag sample.
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
C - CME sample. R - Rotary Cuttings.

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture/Density

PLATE NO.: A-2a

Stantec
STANTEC CONSULTING
6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST PIT NO. TP2

PROJECT LEMMON DR./SKY VISTA PKWY./BUCK DR. PBS & J
BACKHOE/TRACKHOE TYPE
LOCATION ≅ 300' E. OF INTERSECTION ALONG N. SIDE OF BUCK DRIVE
PROJECT NO. 180550781 **DATE** 05-24-05 **LOGGED BY:** MLM **SURFACE ELEVATION**

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penotrometer (tsf)	Moisture Content Percent of Dry Weight	Laboratory Tests
0							0-3": ASPHALTIC CONCRETE			
	GP					Sl. Moist	3"-1 1/2': AGGREGATE BASE COURSE - POORLY GRADED GRAVEL WITH SAND, mostly fine to medium gravel, some fine to coarse sand, nonplastic, brown.			
	SC			B	TP2A	Sl. Moist	1 1/2'-6': CLAYEY SAND, mostly fine to coarse sand, 70% fine to coarse sand, 26% low plastic fines, 4% fine gravel, orangish brown. NOTE: R-value = 14.		3.0	A,G
6							Bottom of test pit at 6 feet.			
8										
10										
12										
14										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	N.E.		05-24-05
▼			

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

Stantec

PLATE NO.: A-2b

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6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST PIT NO. TP1

PROJECT LEMMON DRIVE EXTENSION
PBS & J

BACKHOE/TRACKHOE TYPE HITACHI 200

LOCATION NEAR INTERSECTION OF HEINDEL RD. AND LEMMON DR.

PROJECT NO. 180550783 **DATE** 6-30-04 **LOGGED BY:** MM **SURFACE ELEVATION** ≅5140' (topo)

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penotrometer (tsf) .	Moisture Content Percent of Dry Weight	Laboratory Tests
0						Sl. Moist	0'-1/2': MIXTURE OF ASPHALTIC CONCRETE AND AGGREGATE BASE COURSE			
2	SC			B	1A	Sl. Moist	1/2'-5': CLAYEY SAND WITH GRAVEL AND COBBLES with 40% fine to coarse sand, 44% fine to coarse subrounded gravel, 16% low plastic fines, occassional cobbles with an approximate maximum diameter of 5 inches, orangish brown. NOTE: R-Value = 11.		6.9	A,G
4										
6							Bottom of test pit at 5 feet.			
8										
10										
12										
14										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		6-30-04
▼			

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

PLATE NO.: A-2a

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Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST PIT NO. TP7

PROJECT LEMMON DRIVE EXTENSION
PBS & J
BACKHOE/TRACKHOE TYPE CAT 314C TRACK HOE
LOCATION EASTSIDE PROPOSED ROAD
PROJECT NO. 180550783 **DATE** 2/25/05 **LOGGED BY:** DJ **SURFACE ELEVATION** ≅ 5162' (Ttopo)

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penotrometer (tsf)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SC					V. Moist	0'-1/2': CLAYEY SAND WITH GRAVEL, soft, brown.			
	SC			B	7A	V. Moist	1/2'-2 1/2': CLAYEY SAND WITH GRAVEL, mostly very fine to medium sand, some gravel, low plasticity, stiff, orange brown. NOTE: Becomes more granular with depth.		12.0	A,G
2										
	GM					V. Moist	2 1/2'-5': SILTY GRAVEL WITH CLAY, mostly fine to coarse gravel, some sand, low plasticity, loosely consolidated, dark brown.			
4										
							Bottom of test pit at 5 feet.			
6										
8										
10										
12										
14										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		2/25/05
▼			

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

PLATE NO.: A-2g

Stantec
STANTEC CONSULTING
6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST PIT NO. TP8

PROJECT LEMMON DRIVE EXTENSION
PBS & J

BACKHOE/TRACKHOE TYPE CAT 580 SUPER L

LOCATION WESTSIDE PROPOSED ROAD

PROJECT NO. 180550783 **DATE** 2/25/05 **LOGGED BY:** DJ **SURFACE ELEVATION** ≅ 5187' (topo)

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penetrometer (tsf)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SC					Wet	0'-1': CLAYEY SAND, occassional gravel to 3/4", brown.			
	SC					V. Moist	1'-4': CLAYEY SAND WITH GRAVEL, mostly fine to medium sand, some gravel, low plasticity, stiff, dark brown.			
4	SM					Moist	4'-7': SILTY SAND WITH GRAVEL, mostly very fine to medium sand, some gravel, low plasticity.			
6				B	8A				11.4	A,G
	GM						7'-10 1/2': SILTY GRAVEL, mostly fine to coarse gravel, dense-well cemented, brown.			
8										
10							Bottom of test pit at 10 1/2 feet due to refusal.			
12										
14										

GROUNDWATER

DEPTH	HOUR	DATE
NE		2/25/05

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

PLATE NO.: A-2h

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6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST PIT NO. TP9

PROJECT LEMMON DRIVE EXTENSION
PBS & J

BACKHOE/TRACKHOE TYPE CASE 580 SUPER L

LOCATION WEST 1/2 PROPOSED ROAD

PROJECT NO. 180550783 **DATE** 2/25/05 **LOGGED BY:** DJ **SURFACE ELEVATION** ≅ 5206'

Depth in Feet	USCS Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Moisture	Visual Description	Pocket Penotrometer (tsf)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SC					Wet	0'-1/2': CLAYEY SAND WITH GRAVEL, brown.		17.4	A,G
	SC			B	9A	V. Moist	NOTE: Trace organics. 1/2'-2': CLAYEY SAND WITH GRAVEL, mostly fine to medium gravel sand, some gravel, medium plasticity, stiff, dark brown.			
2	GM					V. Moist	2'-5 1/2': SILTY GRAVEL, mostly fine to coarse gravel, some sand, low plasticity, firm-well consolidated, brown.			
4										
6							Bottom of test pit at 5 1/2 feet.			
8										
10										
12										
14										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		2/25/05
▼			

SAMPLE TYPE

B - Bulk Sample
T - 3" O.D. thin-walled Shelby tube.
N - 2.5" Brass Tube Drive Sample

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture Density

PLATE NO.: A-2i

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6980 Sierra Center Pkwy
Reno, Nevada 89511
Tel: 775.850.0777
Fax: 775.850.0787

LOG OF TEST BORING NO. B2

PROJECT LEMMON DRIVE EXTENSION
PBS & J

RIG & BORING TYPE CME 55 HSA
LOCATION ≅ 1,000' FROM INT. OF N. VIRGININA AND LEMMON DR.

PROJECT NO. 180550783 **DATE** 6-23-04 **LOGGED BY:** MM **SURFACE ELEVATION** ≅5188' (topo)

Depth in Feet	Unified Soil Classification	Graphical Log	Sample	Sample Type	Sample No.	Blow Counts (SPTs)	Consistency/ Density	Moisture	Visual Description	Dry Density (lbs. per cubic foot)	Moisture Content Percent of Dry Weight	Laboratory Tests
0	SC			S	2A	50/11"	V. Dense	Moist	0'-4': CLAYEY SAND, mostly fine to coarse sand, low plasticity, orangish brown.			
2				S	2B	50						
4	CL						Hard	Moist	4'-5': SANDY LEAN CLAY, little fine to medium sand, orangish brown with iron stainings.			
	SM			S	2C	57	V. Dense	Moist	5'-6': SILTY SAND, mostly fine to coarse sand, low plasticity, yellowish brown.			
6	SM						Very Dense to Med. Dense	Moist	6'-11 1/2': SILTY SAND, mostly fine to medium sand, nonplastic, yellowish brown.			
8				S	2D	71						
10				S	2E	29						
12									Bottom of boring at 10', end of sample at 11 1/2 feet.			
14												

GROUNDWATER

	DEPTH	HOUR	DATE
▽	NE		6-23-04
▼			

SAMPLE TYPE

A - Drill Cuttings. B. Bag sample.
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
C - CME sample. R - Rotary Cuttings.

LABORATORY TESTS

A - Atterberg Limits
G - Grain Size
C - Consolidation
MD - Moisture/Density

PLATE NO.: A-2k

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Reno, Nevada 89511
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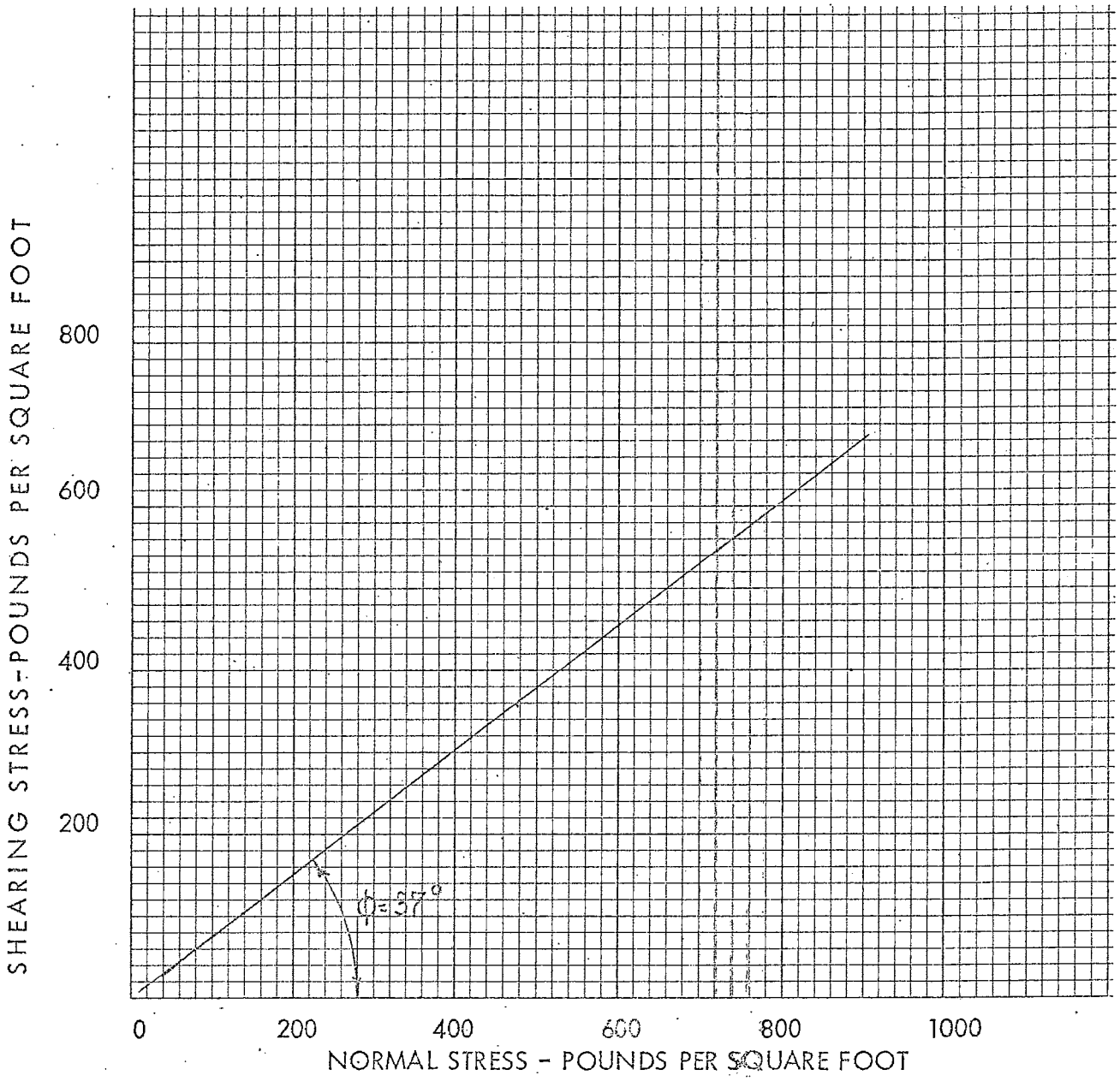
Fax: 775.850.0787

DIRECT SHEAR TEST



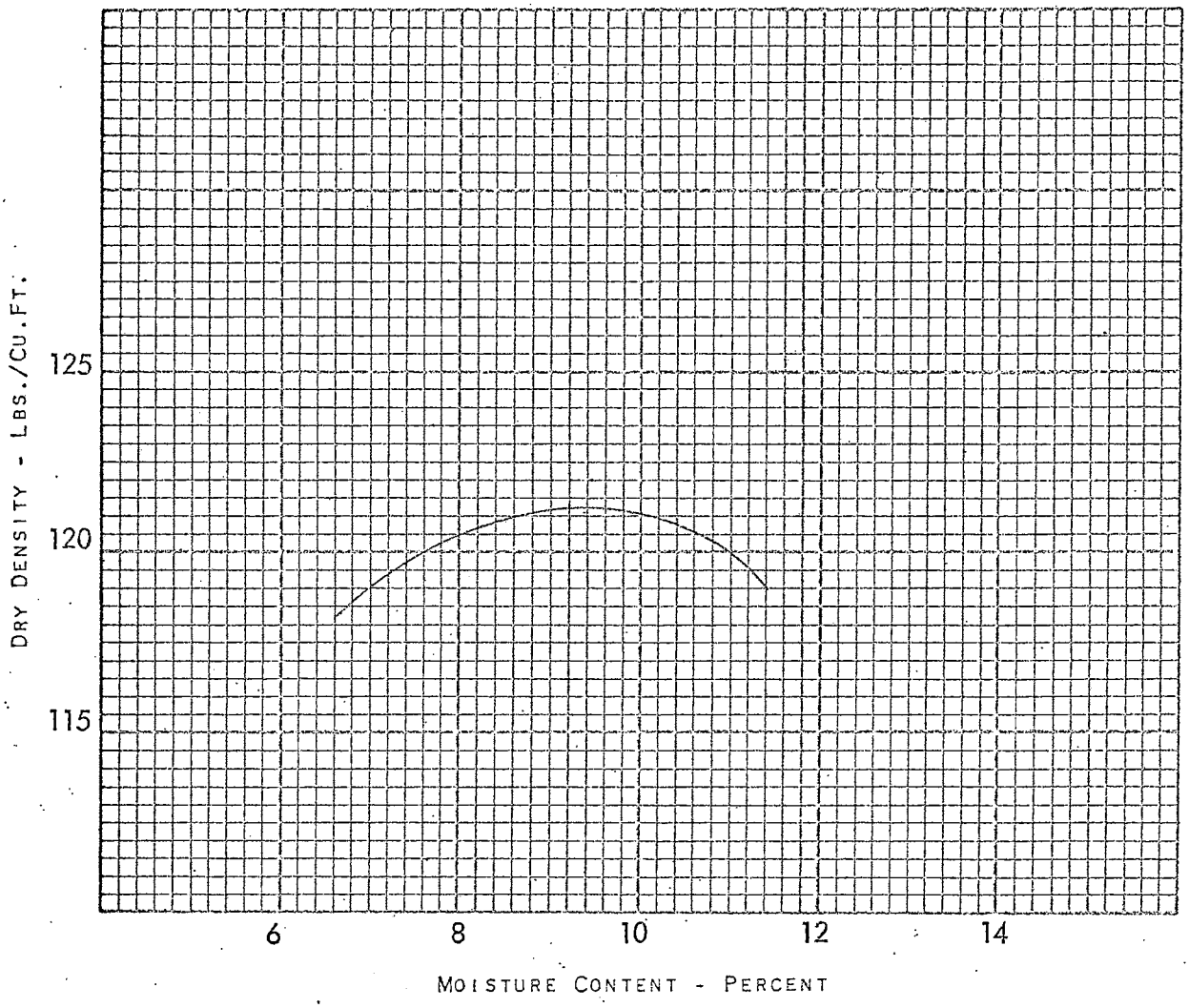
Sample 2B
Silty-Sand
Sample Remolded
Dry Density - 115.3 pounds per cubic foot

LEMMON VALLEY ESTATES NO. 4

Project No. 5287

CONSULTING ENGINEERS/PLANNERS

Plate No. 4



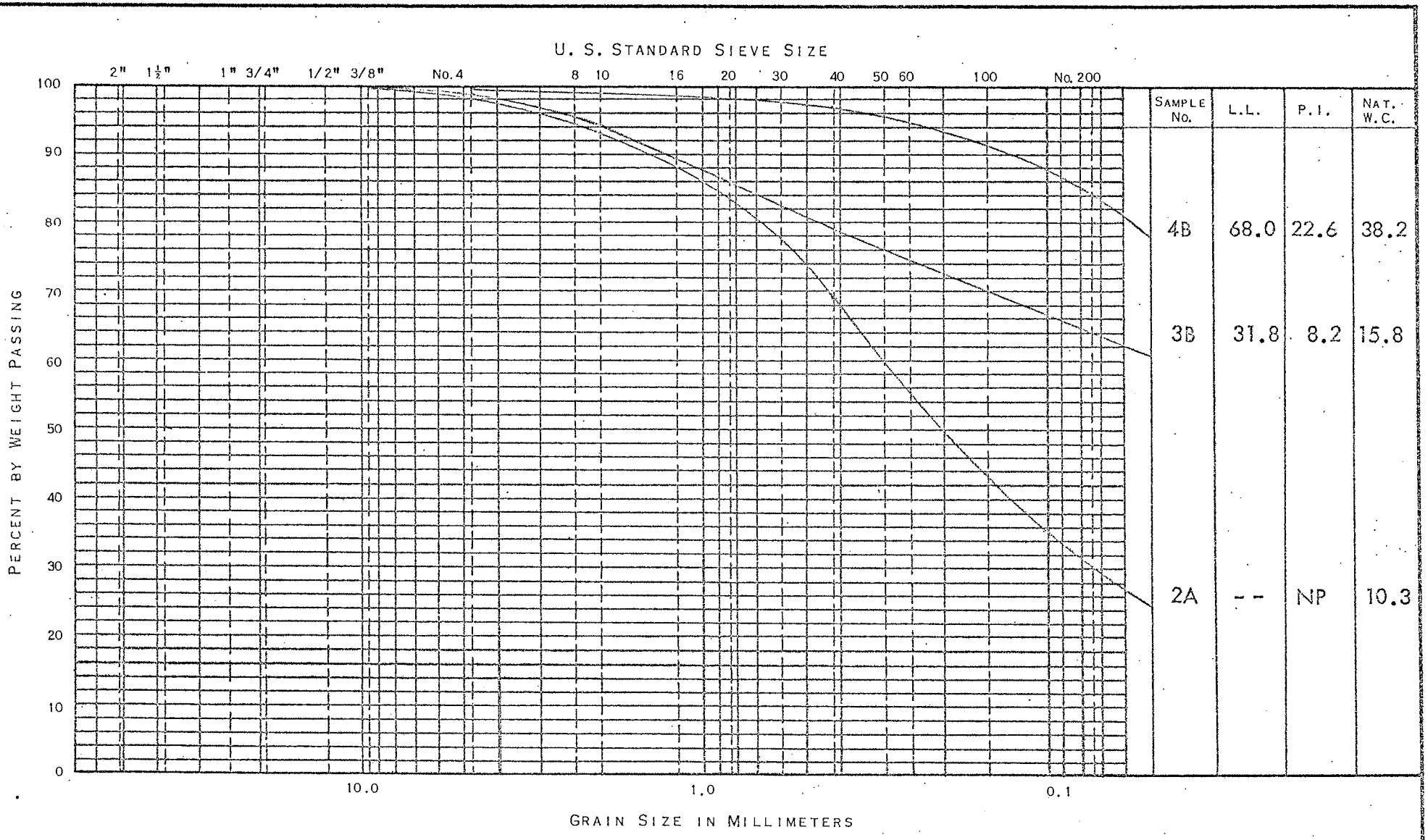
PROJECT Lemmon Valley Estates Unit No. 4 MAXIMUM DRY DENSITY 121.5 LBS./CU.FT.

MATERIAL Brown Silty-Sand OPTIMUM MOISTURE 9.4 PERCENT

METHOD OF TESTING: AASHO T180-57

MOISTURE-DENSITY CURVE

Project No. 5287
MATERIAL TESTING



GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

GRADATION CURVES

Lemmon Valley Estates Unit No. 4
Project No. 5287

MATERIAL TESTING

Plate No. 6

TEST RESULTS

UNCONFINED COMPRESSION TEST:

Sample No. 1B - Unconfined Compressive Strength - 2,877 Pounds Per Square Foot

SOIL CLASSIFICATION:

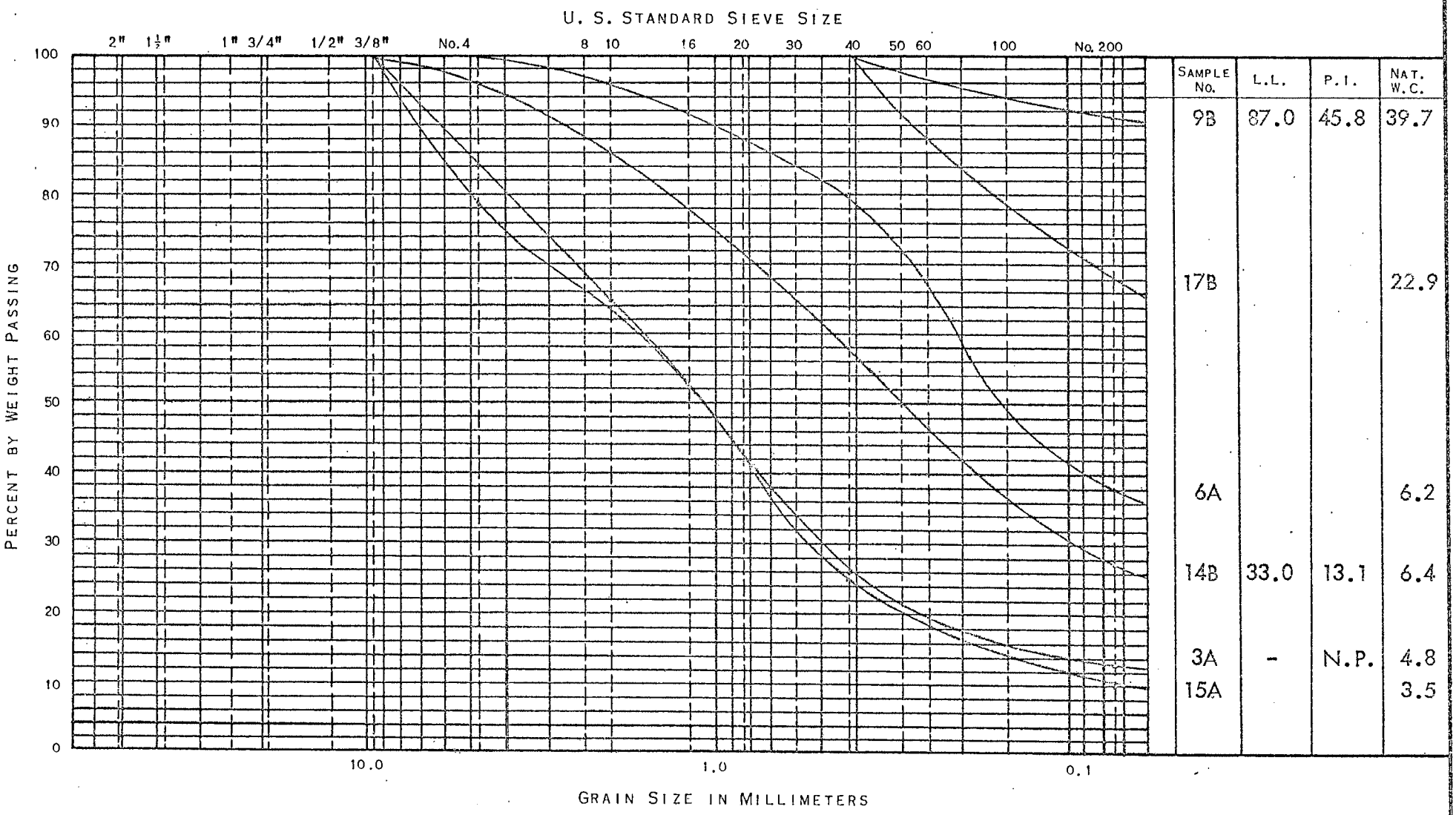
Sample No.	2A	3B	4B
U. S. Standard Sieve Size	Percent By Weight Passing		
3/8"	100	100	
No. 4	98	99	100
No. 10	93	94	99
No. 40	69	79	97
No. 200	30	64	84
Liquid Limit	---	31.8	68.0
Plastic Index	N.P.	8.2	22.6
Water Content	10.3	15.8	38.2

TEST RESULTS

LEMMON VALLEY ESTATES NO. 2 & 3

SOLUBLE SULFATES:

Sample Number	Parts Per Million
2B	720
6B	645
9B	780
17B	689



SAMPLE No.	L.L.	P.I.	NAT. W.C.
9B	87.0	45.8	39.7
17B			22.9
6A			6.2
14B	33.0	13.1	6.4
3A	-	N.P.	4.8
15A			3.5

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	

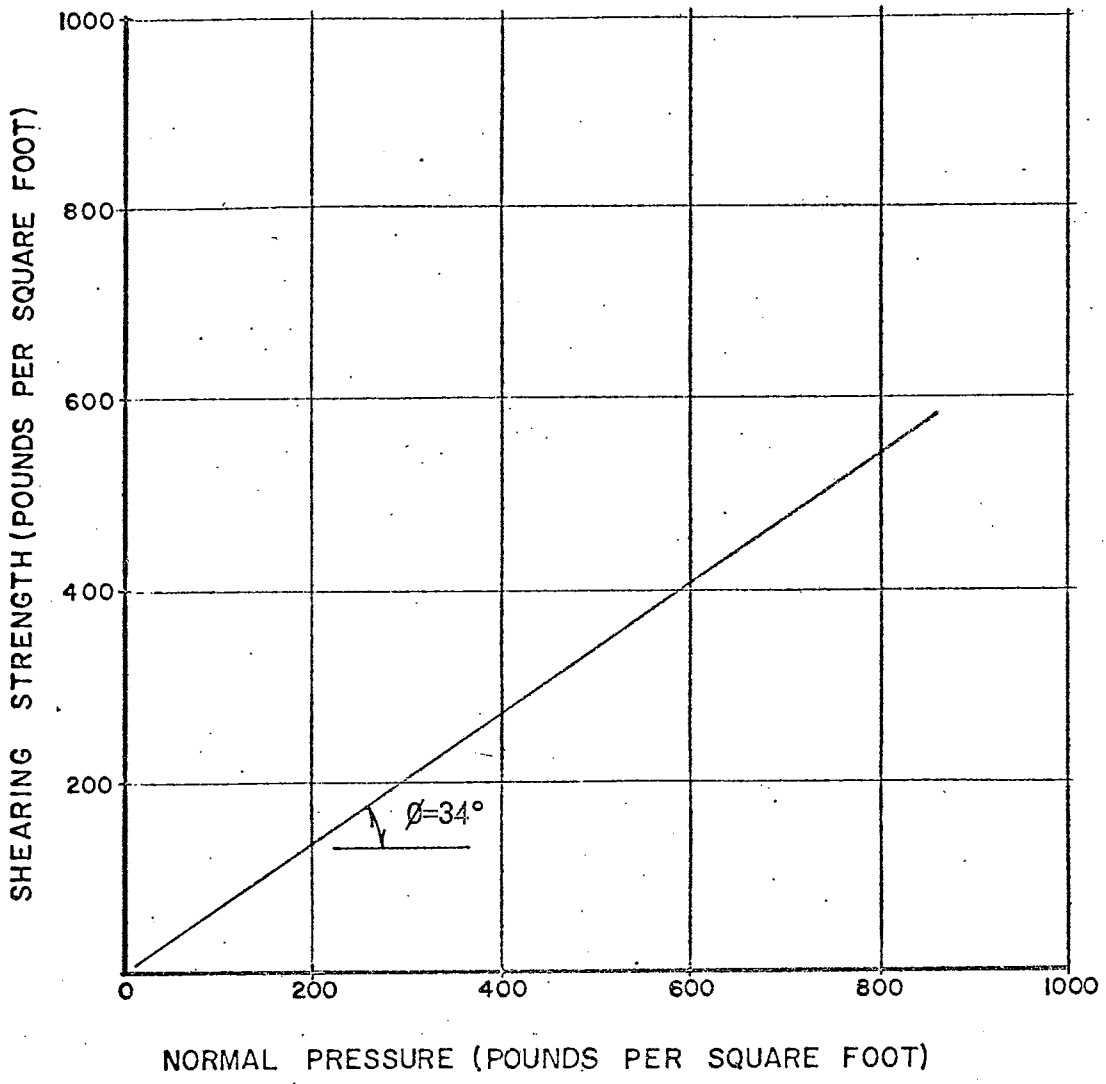
Plate 4.

GRADATION CURVES

SPROUT ENGINEERS, INC.

MATERIAL TESTING

SHEAR STRENGTH DIAGRAM
DIRECT SHEAR TEST



Sample 10-A
Depth 2.0 - 3.5
In-Place Moisture Content 5.0 Percent
Sample Remolded and Saturated.

SAMPLE NUMBER	3B	5B	8B	TP-1			
SIEVE SIZE							
3 Inch							
2 Inch			100	85			
1 Inch	100	100	97	85			
3/4 Inch	98	98	97	82			
1/2 Inch	97	98	97	72			
3/8 Inch	95	93	95	75			
No. 4	91	88	90	68			
No. 10	74	78	81	55			
No. 40	38	57	63	46			
No. 100	21	39	50	36			
No. 200	13.4	28.7	40.8	28.3			
Liquid Limit	NV	21	22	23			
Plastic Index	NP	4	8	9			
Moisture Content (%)	3.9	8.5	7.9	10.8			
Soil Class (USCS)	SP-SM	SC-SM	SC-SM	SC			
R-Value	36	13	9				

SAMPLE NUMBER							
	PERCENT PASSING BY WEIGHT						
SIEVE SIZE							
3 Inch							
2 Inch							
1 Inch							
3/4 Inch							
1/2 Inch							
3/8 Inch							
No. 4							
No. 10							
No. 40							
No. 100							
No. 200							
Liquid Limit							
Plastic Index							
Moisture Content (%)							
Soil Class (USCS)							

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INDEX TEST RESULTS
MECHANICAL ANALYSIS

PBSJ

LEMMON DRIVE & MILITARY ROAD

PROJECT NO. 180550782

PLATE NO. B-1

SAMPLE NUMBER	TP1	TP2	TP3 & TP4 (combined)	B1	B11	B-9 BASE	B11 BASE
			PERCENT BY WEIGHT PASSING				
SIEVE SIZE							
3 Inch			100				
2 Inch			99		100		
1 Inch	100		96		98	100	100
3/4 Inch	99		92	100	95	96	96
1/2 Inch	98	100	90	87	76	69	78
3/8 Inch	97	99	87	83	68	57	68
No. 4	93	96	78	71	55	43	45
No. 10	81	83	69	58	43	32	28
No. 40	48	50	54	37	24	15	12
No. 100	31	34	46	23	12	7	6
No. 200	22.9	26	39.4	16.3	8.4	4	4.1
Liquid Limit	21	26	37	19	NV	NV	NV
Plastic Index	6	12	20	3	NP	NP	NP
Moisture Content (%)	2.6	3.0	8.0	5.5		10.2	9.0
Soil Class (USCS)	SC-SM	SC	SC	SM	SP-SM	GP	GP
R-Value		14	4	54	48		

SAMPLE NUMBER	TP5
	PERCENT BY WEIGHT PASSING
SIEVE SIZE	
3 Inch	
2 Inch	
1 Inch	
3/4 Inch	
1/2 Inch	
3/8 Inch	
No. 4	
No. 10	
No. 40	
No. 100	
No. 200	
Liquid Limit	
Plastic Index	
Moisture Content (%)	
Soil Class (USCS)	
R- Value	35

NV = No Value
NP = Nonplastic

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INDEX TEST RESULTS
MECHANICAL ANALYSIS

PBS & J

LEMMON DRIVE - SKY VISTA/BUCK DRIVE
INTERSECTION WIDENING

PROJECT NO: 180550781

PLATE NO. B-1

SAMPLE NUMBER	TP1A & TP2A (combined)	TP3B	TP5A	TP5B	TP6A	B1C (10-11 1/2')
	PERCENT PASSING BY WEIGHT					
SIEVE SIZE						
3 Inch	100			100		
2 Inch	98			94		
1 Inch	93		100	92	100	
3/4 Inch	88	100	97	89	94	
1/2 Inch	78	99	96	84	75	
3/8 Inch	72	97	95	79	64	100
No. 4	56	91	93	68	47	99
No. 10	48	77	87	48	39	95
No. 40	30	52	73	21	32	71
No. 100	20	33	59	13	20	57
No. 200	16.0	24.1	50.3	10.3	18.0	43.5
Liquid Limit	24	29	39	31	27	35
Plastic Index	10	11	24	16	9	12
Moisture Content (%)	6.9	9.2	11.5	6.8	9.8	10.8
Soil Class (USCS)	GC	SC	CL	SP-SC	GC	SC
R-Value	11	10		15	15	

SAMPLE NUMBER	TP-7A	TP-8A	TP-9A			
	PERCENT PASSING BY WEIGHT					
SIEVE SIZE						
3 Inch						
2 Inch	76	85	100			
1 Inch	73	76	97			
3/4 Inch	73	76	91			
1/2 Inch	70	74	85			
3/8 Inch	68	73	82			
No. 4	62	72	75			
No. 10	54	69	68			
No. 40	49	65	58			
No. 100	29	60	48			
No. 200	25.7	49.9	41.0			
Liquid Limit	28	37	36			
Plastic Index	15	9	21			
Moisture Content (%)	12.0	11.4	17.4			
Soil Class (USCS)	SC	SM	SC			
R-Value	18	13				

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INDEX TEST RESULTS
MECHANICAL ANALYSIS

PBS & J

Lemmon Drive Extension

PROJECT NO. 180550783

PLATE NO. B-1