SOIL AND MATERIAL CONSULTANTS, INC.

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November 26, 2008
File No. 19509

Mr. Scott Elman
Arlington Heights Park District
410 North Arlington Heights Road
Arlington Heights, Illinois 60004

Re: Pavement Investigation
Lake Arlington Parking Lot
Arlington Heights, Illinois

Dear Mr. Elman:

We are submitting our report for the pavement investigation completed on the Lake Arlington parking lot in the Village of Arlington Heights, Illinois.

The investigation was requested to determine existing pavement sections for use in determination of viable maintenance or reconstruction solutions.

SCOPE OF THE INVESTIGATION

The field investigation included visual examination of the pavement surface conditions. A total of 13 test locations were established as shown on the enclosed location sketch. The pavement section was cored to determine material types and thicknesses. Soil samples were obtained immediately beneath the pavement section using a split barrel sampler. The supporting soils were visually and texturally classified in the field to depths of 2.5 feet to 3.5 feet.

Pavement materials and soil samples obtained during the field investigation were returned to our laboratory for review and testing. Soil testing included determination of moisture content. Cohesive soils obtained by split barrel sampling were tested further to determine dry unit weight and unconfined compressive strength. The results of all field and laboratory testing are included in summary with this report.

EXISTING CONDITIONS

The visual examination of the pavement reveals areas of significant distress. These include cold joint cracking, meandering cracks, alligatoring, raveling, potholes and settlement. The poor surface conditions prevent effective water run-off in some areas. This allows water to be present in the base during periods of freeze-thaw.

The pavement cores found the existing pavement section includes 1.0 inch to 2.5 inches of bituminous concrete surface over 1.25 inches to 3.0 inches of bituminous concrete binder over 5.75 inches to 25.5 inches of a crushed limestone or crushed gravel base. The binder at location 4 was noted to have failed. A geotextile fabric was present underlying the granular base at locations 7 and 11.

Fill soils were found directly beneath the base materials at each location. The fill soils include moderately to well compacted clay/silt and sand/gravel mixtures. The apparent natural topsoil was found underlying the fill soils at locations 1 and 9. The topsoil is classified as black silt/clay mixtures. It should be noted that buried topsoil may be present at other locations below our end of boring elevations.

Cohesive natural soils were found underlying the fill soils at locations 3, 4, and 13. These are classified as very tough clay/silt mixtures with lesser portions of sand and gravel.

PAVEMENT REHABILITATION

Based on the results of this investigation and our experience we would recommend that consideration be given to a partial reconstruction of the parking lot. This would include the removal of all the existing bituminous materials. The original granular base would then be regraded, compacted and proof rolled. The areas found to be unstable would be removed and replaced with a minimum of 12.0 inches of crushed aggregate, CA06, over a woven geotextile fabric. This should be anticipated in the area of boring 10, where the existing granular base was found to be 5.75 inches in thickness. Any new aggregate base, if needed, would then be placed and compacted followed by the placement of the new bituminous concrete binder and bituminous concrete surface courses.

It should be noted that the presence of the marginal subsurface soil conditions for support of the pavement section could result in a reduced pavement life and increased maintenance.

This report has been prepared to assist in initial determination of existing pavement sections and supporting soil conditions. Locally varying conditions may be present between test locations.

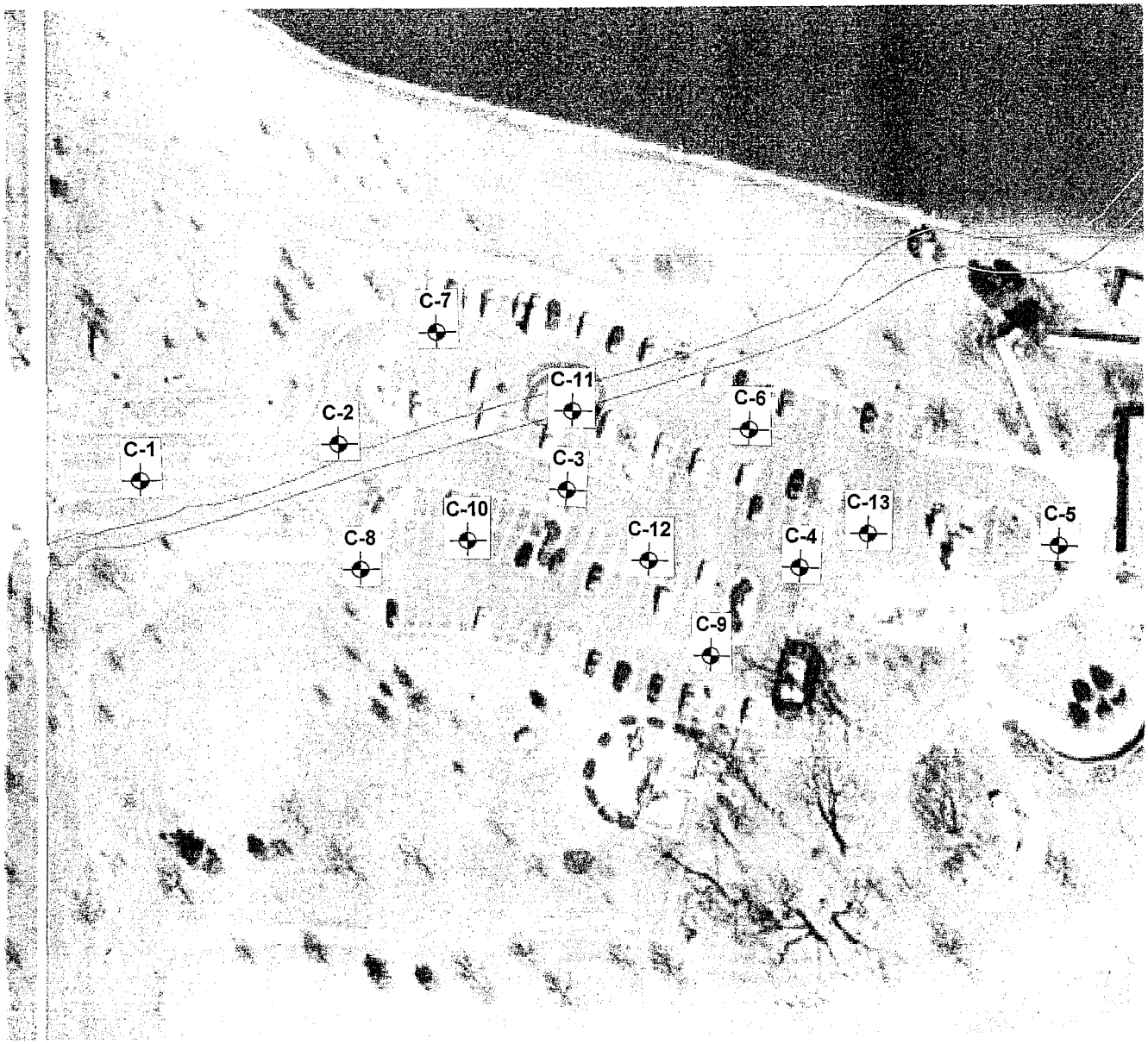
Any questions concerning the information presented in this report should be directed to our office.

Very truly yours,
SOIL AND MATERIAL CONSULTANTS, INC.

Gordon J. McKavanagh, P.E.
Director of Engineering

GJM:ek
Enc.

WINDSOR DRIVE



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SMC	SOIL AND MATERIAL CONSULTANTS, INC.	LOCATION SKETCH
Client:	ARLINGTON HEIGHTS PARK DISTRICT	
Project:	LAKE ARLINGTON PARKING LOT	
Location:	ARLINGTON HEIGHTS, ILLINOIS	
File No. 19509	Date: 10-27-08	Scale: NONE

SOIL AND MATERIAL CONSULTANTS, INC.

Arlington Heights Park District
Re: Lake Arlington Park Parking Lot
Arlington Heights, Illinois

SUMMARY OF PAVEMENT RESULT

File No. 19509
Date: 10/27/08
Crew: DB,JL,AC,DA

Core & Boring No.	Asphalt (in.)	Base (in.)	Description	Moisture Content (%)	Dry Unit Weight (lbs./cu.ft.)	Unconfined Compressive Strength (tons/sq.ft.)
C/B-1						
	2-0		Bituminous concrete – surface			
	2-1/4		Bituminous concrete – binder			
		14-1/4	Crushed limestone			
			18-1/2" to 2-1/2' Dark brown-gray-black clay,some silt,trace sand & gravel,damp,very tough – Fill	18.3 at 2-1/2'	107.8	2.3
			2-1/2' to 3-0' Black silt,some clay,trace sand,damp, loose (topsoil) (S.S. 3-4-5 to 3-0')	26.8 at 3-0'		
			End of Boring			
C/B-2						
	1-3/4		Bituminous concrete – surface			
	2-0		Bituminous concrete – binder			
		20-1/4	Crushed limestone (some large)			
			24-0" to 3-1/2' Dark brown-gray-black clay,some silt, trace sand & gravel,damp,very tough – Fill (S.S. 3-4-4 to 3-1/2')	26.9 at 3-1/2'		P – 2.0
			End of Boring			
C/B-3						
	1-1/2		Bituminous concrete – surface			
	3-0		Bituminous concrete – binder			
		25-1/2	Crushed limestone			
			30-0" to 3-0' Dark brown-gray-black clay,some silt, trace sand & gravel,very damp,tough - Fill	16.6 at 3-0'		P-1.5
			3-0' to 3-1/2' Brown-gray clay,some silt,trace sand & gravel,damp,very tough (S.S. 8-5-5 to 3-1/2')	20.3 at 3-1/2'		P-2.5
			End of Boring			

P – Hand Penetrometer

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C/B-4						
	1-1/2		Bituminous concrete – surface			
	2-0		Bituminous concrete – binder (failed)			
		8-1/4	Crushed limestone			
			11-3/4" to 2-0' Gray-brown-black clay,some silt,trace sand & gravel,damp,hard - Fill	13.0 at 2-0'	123.9	5.8
			2-0' to 2-1/2' Brown-gray clay,some silt,trace sand & gravel,damp,very tough (S.S. 6-6-7 to 2-1/2')	24.9 at 2-1/2'		P – 3.5
			End of Boring			
C/B-5						
	2-1/2		Bituminous concrete – surface			
	3-1/4		Bituminous concrete – binder			
		7-3/4	Crushed limestone			
			13-1/2" to 2-1/2' Gray-brown-black clay,some silt, trace sand & gravel,damp,very tough–Fill (S.S. 5-6-7 to 2-1/2')	17.4 at 2-1/2'	114.7	3.3
			End of Boring			
C/B-6						
	1-1/2		Bituminous concrete – surface			
	2-1/4		Bituminous concrete – binder			
		20-1/4	Crushed limestone (some large stone)			
			24-0" to 3-1/2' Dark brown-gray-black clay & silt,trace sand & gravel,damp,tough – Fill (S.S. 3-5-5 to 3-1/2')	16.1 at 3-1/2'		P – 1.75
			End of Boring			

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C/B-7						
	1-1/2		Bituminous concrete – surface			
	2-0		Bituminous concrete – binder			
		12-0	Crushed gravel			
			GEOFABRIC			
			15-1/2" to 3-0' Brown-gray-black clay,some silt,trace sand & gravel,damp,very tough – Fill (S.S. 4-6-7 to 3-0')	21.1 at 3-0'	110.7	2.4
			End of Boring			
C/B-8						
	1-3/4		Bituminous concrete – surface			
	2-3/4		Bituminous concrete – binder			
		11-3/4	Crushed gravel			
			16-1/4" to 3-0' Brown-gray-black clay & silt,some sand & gravel,damp,medium dense - Fill (S.S. 5-8-10 to 3-0')	11.5 at 3-0'		
			End of Boring			
C/B-9						
	1-0		Bituminous concrete – surface			
	1-1/2		Bituminous concrete – binder			
		10-3/4	Crushed gravel			
			13-1/4" to 2-0' Brown-gray-black clay,some silt,trace sand & gravel,damp,very tough - Fill	18.1 at 2-0'	109.0	2.4
			2-0' to 2-1/2' Black silt,some clay,trace sand,damp medium dense (topsoil) (S.S. 4-5-7 to 2-1/2')	23.9 at 2-1/2'		
			End of Boring			

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C/B-10						
	2-1/2		Bituminous concrete – surface			
	1-1/4		Bituminous concrete – binder			
		5-3/4	Crushed gravel			
			9-1/2" to 2-1/2' Dark brown-gray-black clay,some silt trace sand & gravel,damp,hard-Fill (S.S. 6-5-5 to 2-1/2')	18.3 at 2-1/2'	114.7	4.0
			End of Boring			
C/B-11						
	1-3/4		Bituminous concrete – surface			
	2-3/4		Bituminous concrete – binder			
		15-3/4	Crushed gravel			
			GEOFABRIC			
			20-1/4" to 3-0' Dark gray-black clay,some silt,trace sand & gravel,damp,hard - Fill (S.S. 3-3-5 to 3-0')	14.4 at 3-0'	121.6	4.4
			End of Boring			
C/B-12						
	1-1/4		Bituminous concrete – surface			
	2-0		Bituminous concrete – binder			
		9-3/4	Crushed limestone			
			13-0" to 2-1/2' Brown-gray black clay,some silt,trace sand & gravel,damp,hard - Fill (S.S. 5-6-8 to 2-1/2')	13.5 at 2-1/2'	125.0	6.5
			End of Boring			

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C/B-13						
	1-0		Bituminous concrete – surface			
	2-3/4		Bituminous concrete – binder			
		8-1/2	Crushed limestone			
			12-1/4" to 2-0' Dark brown-gray fine-medium sand & gravel,some coarse sand,trace silt & clay,damp,medium dense – Fill	11.4 at 2-0'		
			2-0' to 2-1/2' Brown-gray-black clay,some silt,trace sand & gravel,damp,very tough (S.S. 11-8-5 to 2-1/2')	23.8 at 2-1/2'		P – 2.75
			End of Boring			

Hand Penetrometer

SOIL AND MATERIAL CONSULTANTS, INC.

General Notes

SAMPLE CLASSIFICATION

Soil sample classification is based on the Unified Soil Classification System, the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), ASTM D-2488, the Standard Test Method for Classification of Soils for Engineering Purposes, ASTM D-2487(when applicable), and the modifiers noted below.

CONSISTENCY OF COHESIVE SOILS

Term	Qu -tons/sq. ft.	N (unreliable)
Very Soft	0.00 - 0.25	0 - 2
Soft	0.26 - 0.49	3 - 4
Stiff	0.50 - 0.99	5 - 8
Tough	1.00 - 1.99	9 - 15
Very Tough	2.00 - 3.99	16 - 30
Hard	4.00 - 7.99	30 +
Very Hard	8.00 +	

RELATIVE DENSITY OF GRANULAR SOILS

Term	N - blows/foot
Very Loose	0 - 4
Loose	5 - 9
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50 +

IDENTIFICATION AND TERMINOLOGY

Term		Size Range
Boulder		over 8 in.
Cobble		3 in. to 8 in.
Gravel	-coarse	1 in. to 3 in.
	-medium	3/8 in. to 1 in.
	-fine	#4 sieve to 3/8 in.
Sand	-coarse	#10 sieve to #4 sieve
	-medium	#40 sieve to #10 sieve
	-fine	#200 sieve to #40 sieve
Silt		0.002 mm to #200 sieve
Clay		smaller than 0.002 mm

Modifying Term	Percent by Weight
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

Moisture Condition

Dry
Damp
Very Damp
Saturated

DRILLING, SAMPLING & SOIL PROPERTY SYMBOLS

CF - Continuous Flight Auger
HS - Hollow Stem Auger
HA - Hand Auger
RD - Rotary Drilling
AX - Rock Core, 1-3/16 in. diameter
BX - Rock Core, 1-5/8 in. diameter
NX - Rock Core, 2-1/8 in. diameter
S - Sample Number
T - Type of Sample
J - Jar
AS - Auger Sample
SS - Split-spoon (2 in. O.D. with 1-3/8 in. I.D.)
ST - Shelby Tube (2 in. O.D. with 1-7/8 in. I.D.)
R - Recovery Length, in.
B - Blows/ 6 in. interval, Standard Penetration Test (SPT)
N - Blows/ foot to drive 2 in. O.D. split-spoon sampler with 140 lb. hammer falling 30 in., (STP)
Pen. - Pocket Penetrometer reading, tons/ sq. ft.
W - Water Content, % of dry weight
Uw - Dry Unit Weight of soil, lbs./ cu. ft.
Qu - Unconfined Compressive Strength, tons/ sq. ft.
Str - % Strain at Qu.
WL - Water Level
WD - While Drilling
AD - After Drilling
DCI - Dry Cave-in
WCI - Wet Cave-in
LL - Liquid Limit, %
PL - Plastic limit, %
PI - Plasticity Index (LL-PL)
LI - Liquidity Index [(W-PL)/PI]