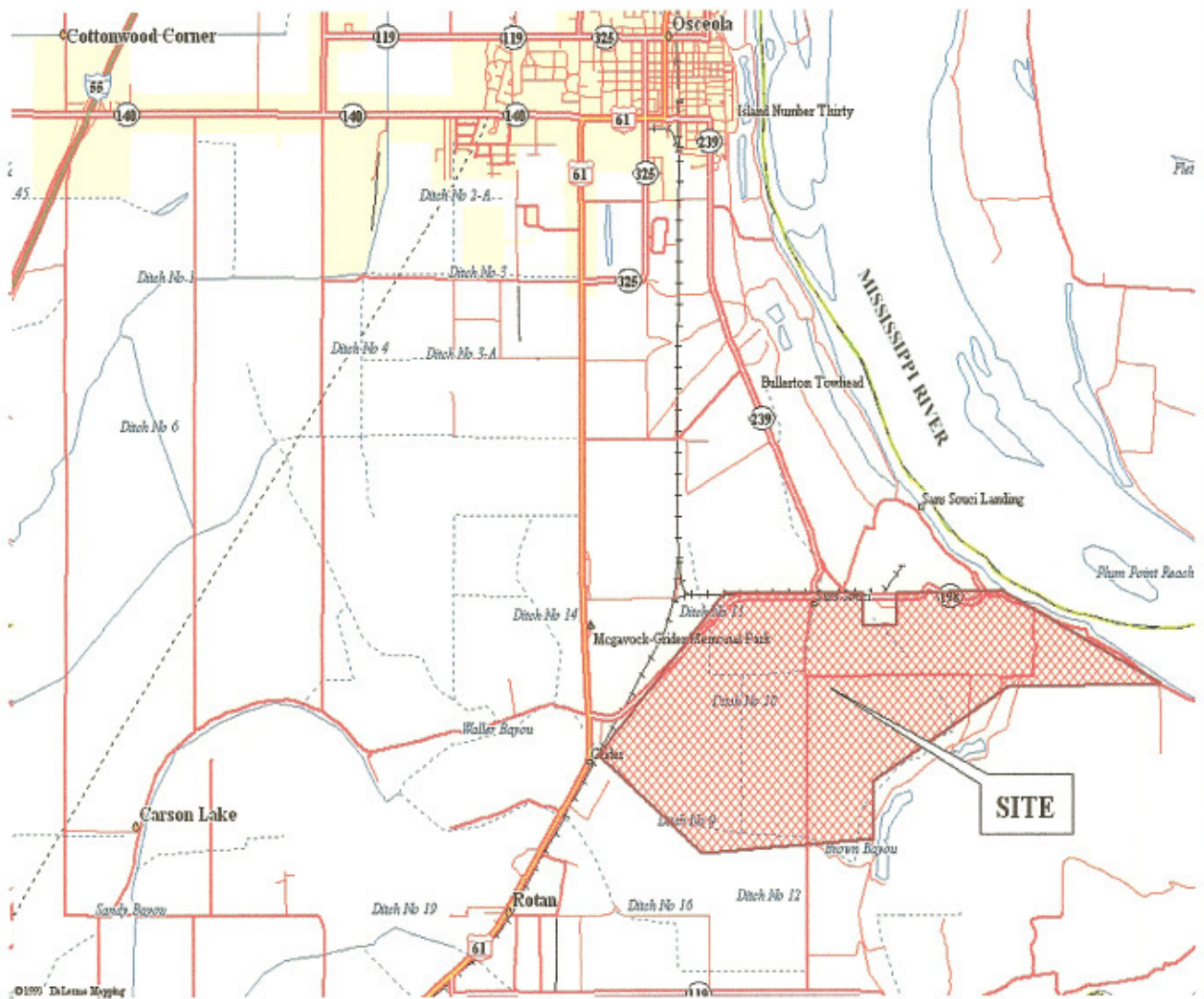
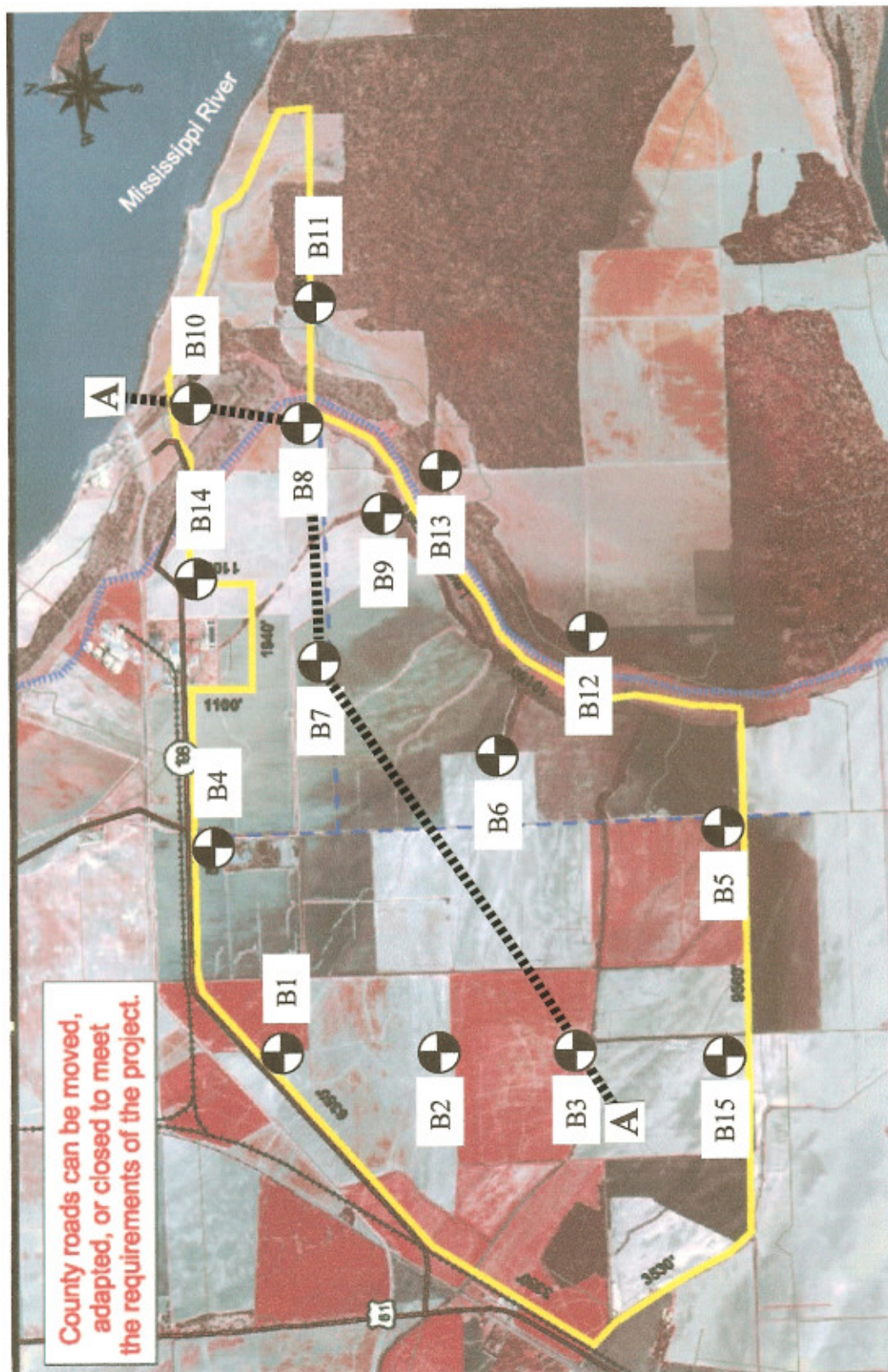


APPENDIX A
PLATES



VICINITY MAP OSCEOLA, ARKANSAS

NOT DRAWN TO SCALE.



PLAN OF BORINGS

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LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B1

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/03/06

JOB NO: 256006

BORING TYPE: WASH W/SPT

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	20		VERY STIFF MOIST BROWN SANDY CLAY (CL) PP = 2.00 TSF		
	P2	9		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.00 TSF		
5	P3	13		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.50 TSF		
	P4	11		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.25 TSF		
10	P5	11		MEDIUM DENSE MOIST BROWN SILTY SAND (SM)		
15	P6	15		MEDIUM DENSE MOIST BROWN SILTY SAND (SM)		
20	P7	17		MEDIUM DENSE MOIST BROWN SILTY SAND (SM)		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 9.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/04/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B2

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	17		VERY STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.75 TSF		
	P2	14		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.50 TSF		
5	P3	6		MEDIUM STIFF MOIST BROWN SANDY CLAY (CL) PP = 0.75 TSF		
	P4	3		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.50 TSF		
10	P5	2		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.25 TSF		
	P6	4		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.50 TSF		
20	P7	4		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.50 TSF		
				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 7.0 FEET AFTER COMPLETION OF DRILLING.		
25						
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE
OSCEOLA, ARKANSAS
FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/04/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B3

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	15		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.50 TSF		
	P2	7		MEDIUM STIFF MOIST BROWN SANDY CLAY (CL) PP = 0.75 TSF		
5	P3	9		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.00 TSF		
	P4	2		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.25 TSF		
10	P5	2		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.25 TSF		
15	P6	5		MEDIUM STIFF MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.50 TSF		
20	P7	3		SOFT MOIST BROWN SLIGHTLY SANDY SILT (ML) PP = 0.50 TSF		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 11.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE
OSCEOLA, ARKANSAS
FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

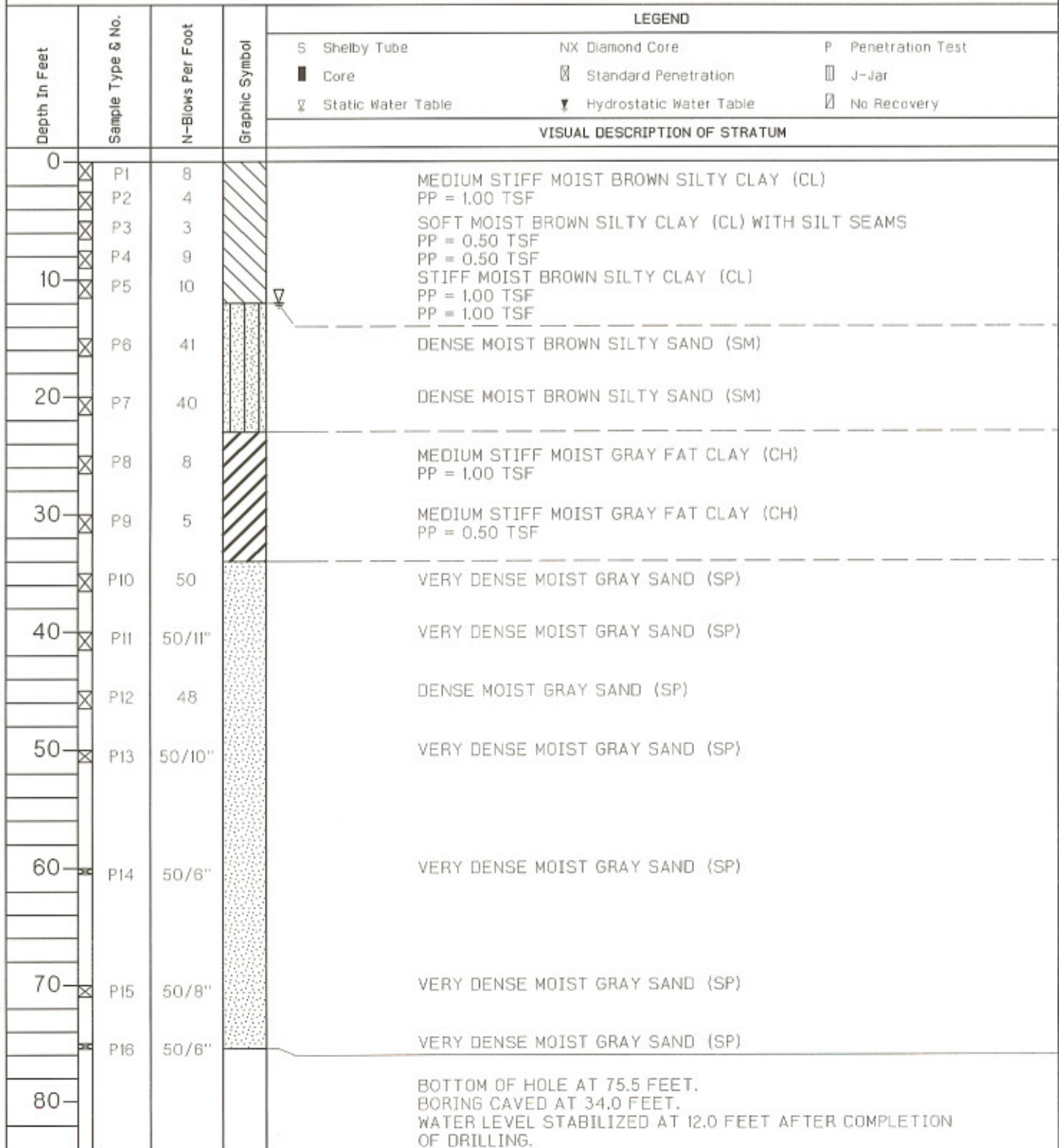
GEOTECHNICIAN: JOHNSON

BORING NO: B4

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED



LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B5

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/02/06

JOB NO: 256006

BORING TYPE: WASH W/SPT

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	10		STIFF MOIST BROWN SILTY CLAY (CL)		
	P2	5		PP = 1.00 TSF		
	P3	11		MEDIUM STIFF TO STIFF MOIST BROWN SILTY CLAY (CL)		
	P4	6		PP = 0.50 TSF		
10	P5	5		PP = 1.25 TSF		
	P6	4		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL)		
				PP = 0.75 TSF		
				PP = 0.50 TSF		
	P7	17		SOFT MOIST BROWN SANDY CLAY (CL)		
				PP = 0.50 TSF		
20	P8	21		MEDIUM DENSE MOIST GRAY SILTY SAND (SM)		
	P9	26		MEDIUM DENSE MOIST GRAY SILTY SAND (SM)		
30	P10	50		MEDIUM DENSE MOIST GRAY SILTY SAND (SM)		
	P11	50/9"		DENSE MOIST BROWNISH GRAY SAND (SP)		
40	P12	50/10"		VERY DENSE MOIST BROWNISH GRAY SAND (SP)		
	P13	50/8"		VERY DENSE MOIST BROWNISH GRAY SAND (SP)		
50	P14	50/6"		VERY DENSE MOIST BROWNISH GRAY SAND (SP)		
60	P15	50/6"		VERY DENSE MOIST BROWNISH GRAY SAND (SP)		
70	P16	50/7"		VERY DENSE MOIST GRAY SAND (SP)		
80				BOTTOM OF HOLE AT 76.0 FEET. BORING CAVED AT 33.0 FEET. WATER LEVEL STABILIZED AT 14.0 FEET AFTER COMPLETION OF DRILLING.		

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B6

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/02/06

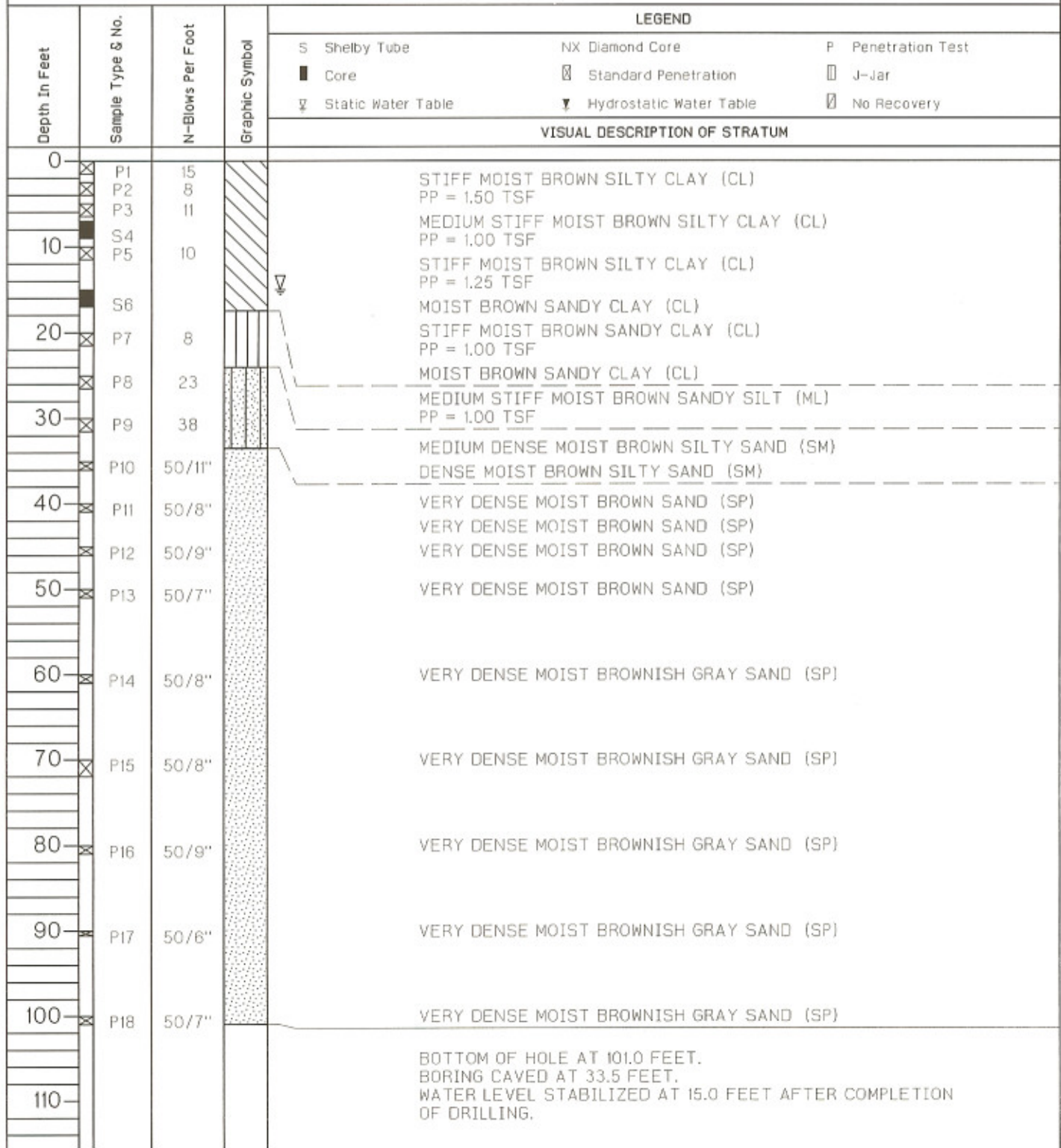
JOB NO: 256006

BORING TYPE: WASH W/SPT/SHELBY TUBE

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED



LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B7

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/03/06

JOB NO: 256006

BORING TYPE: WASH W/SPT

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	15		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.50 TSF		
	P2	10		STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.00 TSF		
5	P3	4		SOFT MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
	P4	3		SOFT MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
10	P5	4		SOFT MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
15	P6	7		MEDIUM STIFF MOIST BROWN SANDY SILT (ML) PP = 0.75 TSF		
20	P7	9		STIFF MOIST BROWN SANDY SILT (ML) PP = 1.00 TSF		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 7.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B8

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/04/06

JOB NO: 256006

BORING TYPE: WASH W/SPT

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	33		HARD MOIST BROWN SILTY CLAY (CL) PP = 3.50 TSF		
	P2	10		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
5	P3	8		MEDIUM STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.00 TSF		
	P4	8		MEDIUM STIFF MOIST BROWNISH GRAY SANDY CLAY (CL) PP = 1.00 TSF		
10	P5	9		STIFF MOIST BROWNISH GRAY SANDY CLAY (CL) PP = 1.00 TSF		
15	P6	7		MEDIUM STIFF MOIST GRAY SANDY CLAY (CL) PP = 0.75 TSF		
20	P7	7		MEDIUM STIFF MOIST GRAY SANDY CLAY (CL) PP = 0.75 TSF		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 14.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

BORING NO: B9

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

LOCATION: SEE PLAN OF BORINGS

DATE: 07/04/06

JOB NO: 256006

BORING TYPE: WASH W/SPT

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	18		VERY STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.75 TSF		
	P2	5		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL) PP = 0.50 TSF		
5	P3	2		SOFT MOIST BROWN SANDY SILT (ML) PP = 0.25 TSF		
	P4	2		SOFT MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.25 TSF		
10	P5	3		SOFT MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.50 TSF		
	P6	3		SOFT MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.50 TSF		
15						
20	P7	4		SOFT MOIST GRAY SANDY SILT (ML) PP = 0.50 TSF		
				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 10.0 FEET AFTER COMPLETION OF DRILLING.		
25						
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/04/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B10

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	18		VERY STIFF MOIST BROWN SILTY CLAY (CL) PP = 2.00 TSF		
	P2	8		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
5	P3	12		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.25 TSF		
	P4	12		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.25 TSF		
10	P5	11		STIFF MOIST BROWNISH GRAY SILTY CLAY (CL) PP = 1.25 TSF		
15	P6	6		MEDIUM STIFF MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.75 TSF		
20	P7	5		MEDIUM STIFF MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 10.5 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

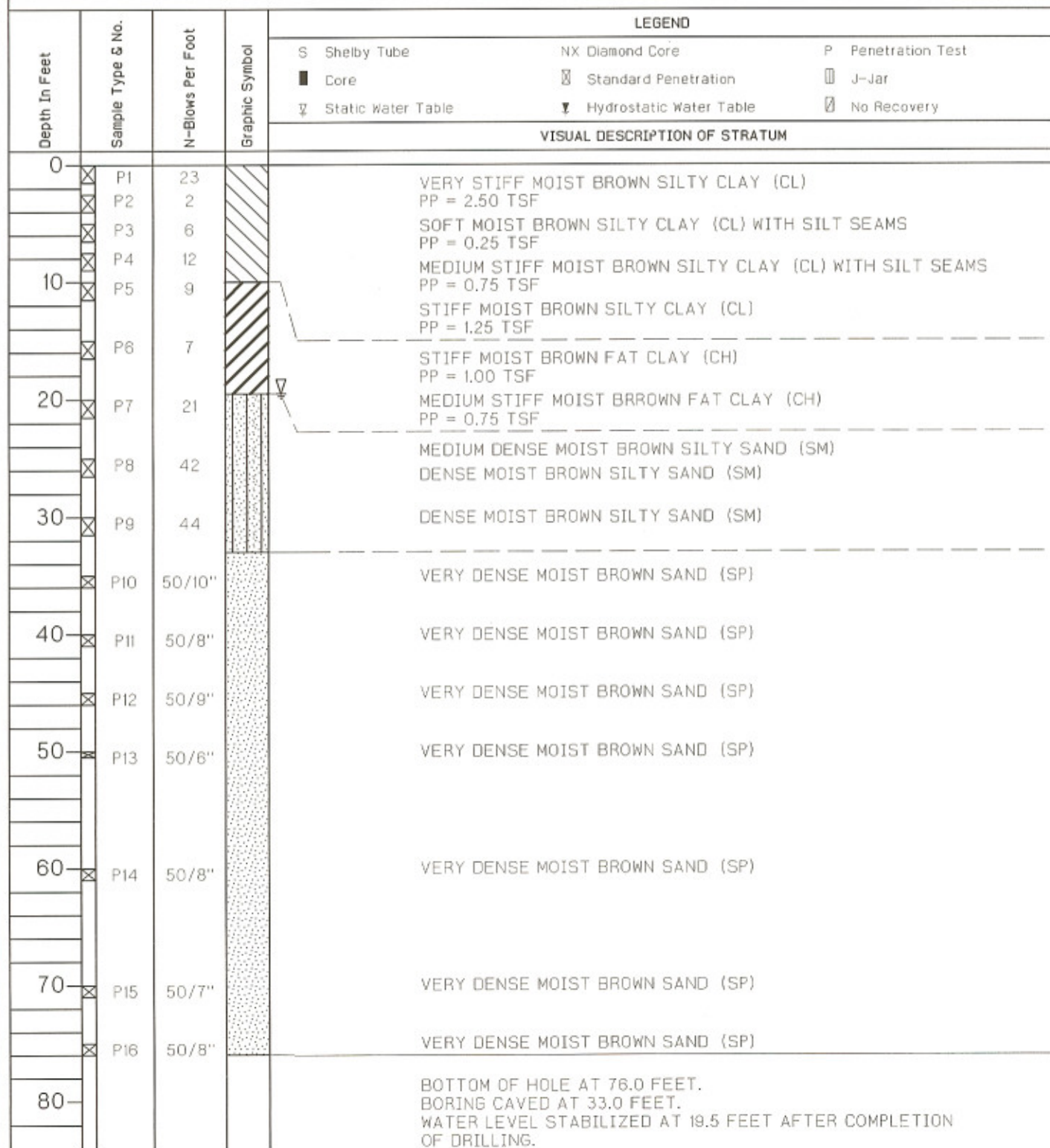
GEOTECHNICIAN: JOHNSON

BORING NO: B11

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED



LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B12

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	15		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.50 TSF		
	P2	10		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
5	P3	5		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL) PP = 0.50 TSF		
	P4	6		MEDIUM STIFF MOIST BROWN FAT CLAY (CH) PP = 0.75 TSF		
10	P5	7		MEDIUM STIFF MOIST GRAYISH BROWN FAT CLAY (CH) PP = 0.75 TSF		
	P6	5		MEDIUM STIFF MOIST GRAYISH BROWN FAT CLAY (CH) PP = 0.50 TSF		
20	P7	5		MEDIUM STIFF MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.50 TSF		
				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 12.0 FEET AFTER COMPLETION OF DRILLING.		
25						
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B13

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	19		VERY STIFF MOIST BROWN SILTY CLAY (CL)		
	P2	3		PP = 2.00 TSF		
	P3	8		SOFT MOIST BROWN SILTY CLAY (CL) WITH SILT SEAMS		
	P4	10		PP = 0.50 TSF		
10	P5	8		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL) WITH SILT SEAMS		
				PP = 1.00 TSF		
	P6	9		STIFF MOIST BROWN SILTY CLAY (CL)		
				PP = 1.00 TSF		
	P7	18		MEDIUM STIFF MOIST BROWN SILTY CLAY (CL)		
				PP = 1.00 TSF		
20	P8	28		STIFF MOIST BROWN SILTY CLAY (CL)		
				PP = 1.00 TSF		
	P9	50		MEDIUM DENSE MOIST BROWN SILTY SAND (SM)		
				MEDIUM DENSE MOIST BROWN SILTY SAND (SM)		
30	P10	50/11"		DENSE MOIST BROWN SAND (SP)		
				VERY DENSE MOIST BROWN SAND (SP)		
40	P11	50/10"		VERY DENSE MOIST BROWN SAND (SP)		
	P12	50/6"		VERY DENSE MOIST BROWN SAND (SP)		
50	P13	50/6"		VERY DENSE MOIST BROWN SAND (SP)		
60	P14	50/7"		VERY DENSE MOIST BROWN SAND (SP)		
70	P15	50/7"		VERY DENSE MOIST BROWN SAND (SP)		
	P16	50/6"		VERY DENSE MOIST BROWN SAND (SP)		
80				BOTTOM OF HOLE AT 75.5 FEET.		
				BORING CAVED AT 30.0 FEET.		
				WATER LEVEL STABILIZED AT 13.0 FEET AFTER COMPLETION OF DRILLING.		

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B14

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	17		VERY STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.75 TSF		
	P2	6		MEDIUM STIFF MOIST BROWN SANDY CLAY (CL) PP = 0.75 TSF		
5	P3	8		MEDIUM STIFF MOIST BROWN SANDY CLAY (CL) PP = 1.00 TSF		
	P4	5		MEDIUM STIFF MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.50 TSF		
10	P5	5		MEDIUM STIFF MOIST BROWNISH GRAY SANDY SILT (ML) PP = 0.50 TSF		
15	P6	5		MEDIUM STIFF MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
20	P7	5		MEDIUM STIFF MOIST BROWN SANDY SILT (ML) PP = 0.50 TSF		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 8.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

LOG OF BORING

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

OSCEOLA, ARKANSAS

FOR: GREAT RIVER ECONOMIC FOUNDATION

DATE: 07/03/06

JOB NO: 256006

DRILLER: JOHNSON
ATV #1

GEOTECHNICIAN: JOHNSON

BORING NO: B15

LOCATION: SEE PLAN OF BORINGS

BORING TYPE: WASH W/SPT

GROUND ELEVATION: NOT FURNISHED

Depth In Feet	Sample Type & No.	N-Blows Per Foot	Graphic Symbol	LEGEND		
				S Shelby Tube	NX Diamond Core	P Penetration Test
				Core	Standard Penetration	J-Jar
				Static Water Table	Hydrostatic Water Table	No Recovery
VISUAL DESCRIPTION OF STRATUM						
0	P1	16		VERY STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.75 TSF		
	P2	9		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
5	P3	11		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.25 TSF		
	P4	9		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
10	P5	10		STIFF MOIST BROWN SILTY CLAY (CL) PP = 1.00 TSF		
15	P6	8		LOOSE MOIST GRAYISH BROWN SILTY SAND (SM)		
20	P7	8		LOOSE MOIST GRAY SILTY SAND (SM)		
25				BOTTOM OF HOLE AT 21.5 FEET. BORING REMAINED OPEN. WATER LEVEL STABILIZED AT 13.0 FEET AFTER COMPLETION OF DRILLING.		
30						
35						

FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON COHESIVE SOILS

(Silt, Sand, Gravel and Combinations)

Density

Very Loose	- 0 - 4 blows/ft.
Loose	- 4 to 10 blows/ft.
Medium Dense	- 10 to 30 blows/ft.
Dense	- 30 to 50 blows/ft.
Very Dense	- over 50

Relative Proportions

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

Particle Size Identification

Boulders	- 8-inch diameter or more
Cobbles	- 3 to 8-inch diameter
Gravel	- Coarse - 1 to 3-inch
	Medium - ½ to 1-inch
	Fine - ¼ to ½-inch
Sand	- Coarse - 0.6 mm to ¼-inch (dia. of pencil lead)
	Medium - 0.2 mm to 0.6 mm (dia. of broom straw)
	Fine - 0.05 mm to 0.2 mm (dia. of human hair)
Silt	- 0.06 mm to 0.002 mm (Cannot see particles)

COHESIVE SOILS

(Clay, Silt and Combinations)

Consistency

Very Soft	- <2 blows/ft.
Soft	- 2 to 4 blows/ft.
Medium Stiff	- 4 to 8 blows/ft.
Stiff	- 8 to 15 blows/ft.
Very Stiff	- 15 to 30 blows/ft.
Hard	- over 30

Plasticity

Degree of Plasticity	Plasticity Index
None to slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

NOTES

Classification on logs are made by visual inspection.

Standard Penetration Test - Driving a 2.0-inch O.D., 1½-inch I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140-pound hammer free falling a distance of 30.0 inches. It is customary for AEIC to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drill log (Example: 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e., 8 + 9 = 17 blows/ft.).

Strata Changes - In the column "Soil Descriptions" on the drill log the horizontal lines represent strata changes. A solid line (-----) represents an actually observed change, a dashed line (- - -) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

KEY TO SOIL CLASSIFICATIONS AND SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM(1)					TERMS CHARACTERIZING SOIL STRUCTURE(2)
Major Divisions	Letter	Symbol		Name	
		Hatching	Color		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW		Well-graded gravels or gravel-sand mixtures, little or no fines	SLICKENSIDED - having inclined planes of weakness that are slick and glossy in appearance. FISSURED - containing shrinkage cracks, frequently filled with fine sand or silt; usually more or less vertical. LAMINATED (VARVED) - composed of thin layers of varying color and texture, usually grading from sand or silt at the bottom to clay at the top. CRUMBLY - cohesive soils which break into small blocks or crumbs on drying. CALCAREOUS - containing appreciable quantities of calcium carbonate, generally nodular. WELL GRADED - having wide range in grain sizes and substantial amounts of all intermediate particle sizes. POORLY GRADED - predominantly of one grain size (uniformly graded) or having a range of sizes with some intermediate size missing (gap or skip graded).
		GP		Poorly-graded gravels or gravel-sand mixtures, little or no fines	
		GM		Silty gravels, gravel-sand-silt mixtures	
		GC		Clayey gravels, gravel-sand-clay mixtures	
	SAND AND SANDY SOILS	SW		Well-graded sands or gravelly sands, little or no fines	
		SP		Poorly-graded sands or gravelly sands, little or no fines	
		SM		Silty sands, sand-silt mixtures	
		SC		Clayey sands, sand-clay mixtures	
FINE GRAINED SOILS	SILTS AND CLAYS LL<50	ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	SYMBOLS FOR TEST DATA M/C = 15 - Natural moisture content in percent. γ = 95 - Dry unit weight in pounds/cubic foot. Qu = 1.23 - Unconfined compression strength in tons/square foot. Qc = 1.68 (21 psi) - Confined compression strength at indicated lateral pressure. 51-21-30 - Liquid limit, Plastic limit, and Plasticity Index. 30% FINER - Percent finer than No. 200 mesh sieve. 30 B/F - Blows per foot, Standard Penetration test. ▼ - Hydrostatic water table. ▽ - Static water table.
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	
		OL		Organic silts and organic silt-clays of low plasticity	
	SILTS AND CLAYS LL>50	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	
		CH		Inorganic clays of high plasticity, fat clays	
		OH		Organic clays of medium to high plasticity, organic silts	
HIGHLY ORGANIC SOILS	Pt		ORANGE	Peat and other highly organic soils	

TERMS DESCRIBING CONSISTENCY OF SOILS(2)

COARSE GRAINED SOILS			FINE GRAINED SOILS	
DESCRIPTIVE TERM	NO. BLOWS/FOOT STANDARD PEN. TEST	DESCRIPTIVE TERM	NO. BLOWS/FOOT STANDARD PEN. TEST	UNCONFINED COMPRESSION TONS PER SQ. FT.
Very Loose	0 - 4	Very Soft	<2	<0.25
Loose	4 - 10	Soft	2 - 4	0.25 - 0.50
Firm (medium dense)	10 - 30	Plastic (medium stiff)	4 - 8	0.50 - 1.00
Dense	30 - 50	Stiff	8 - 15	1.00 - 2.00
Very Dense	over 50	Very Stiff	15 - 30	2.00 - 4.00
		Hard	over 30	over 4.00

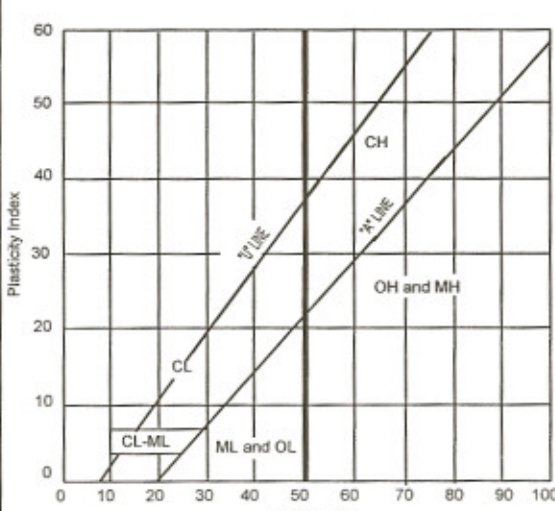
Field classification for "Consistency" is determined with a 0.25-inch diameter penetrometer.

(1) - From Waterways Experiment Station Technical Memorandum No. 3-357

(2) - From "Soil Mechanics in Engineering Practice" by Terzaghi and Peck

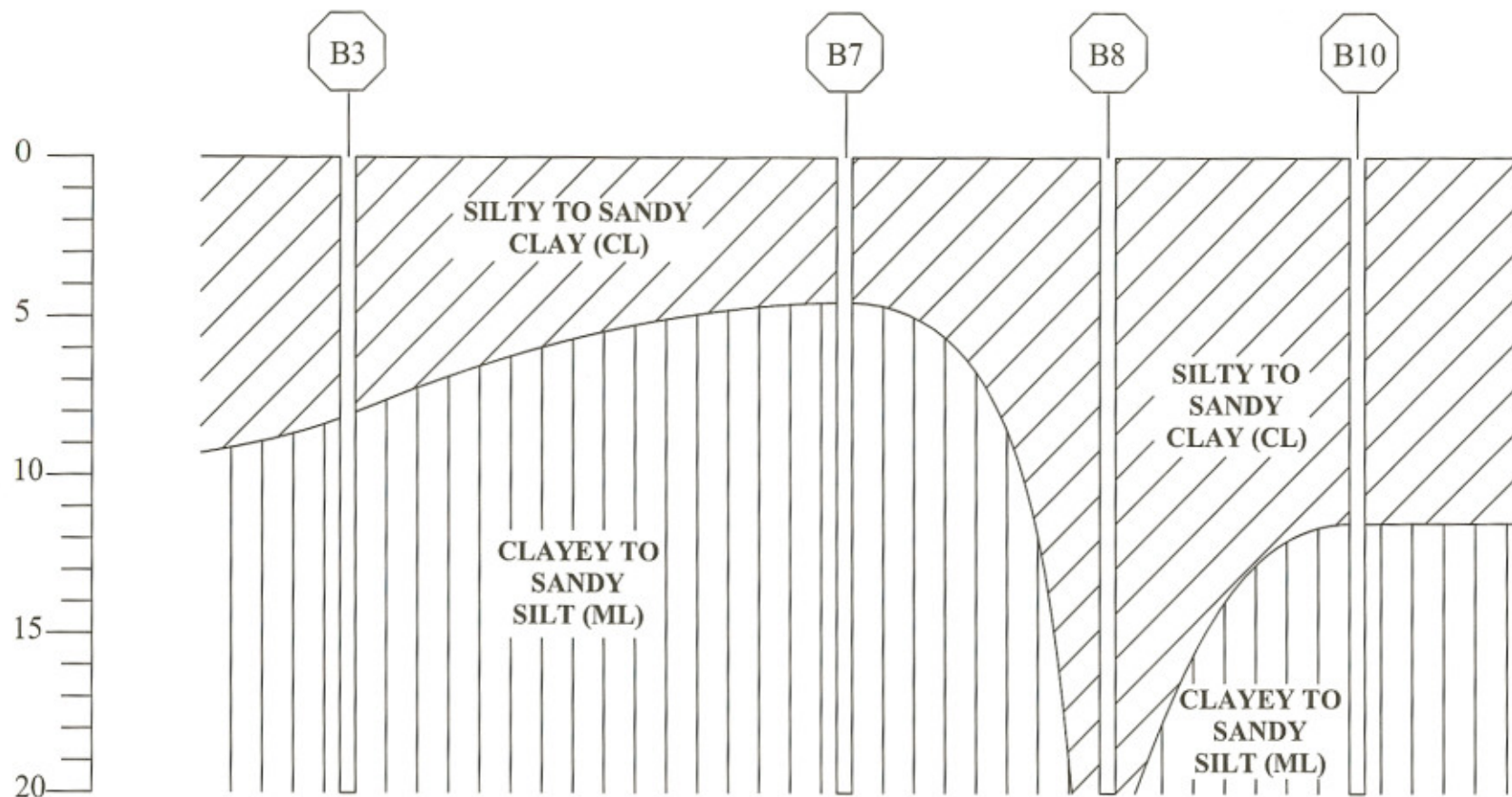
UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D 2487)

Major divisions			Group Symbols	Typical Names	Laboratory Classifications Criteria			
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (more than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent GW, GP, SW, SP More than 12 percent GM, GC, SM, SC 5 to 12 percent Borderline cases requiring dual symbols †	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3		
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW		
		Gravels with fines (Appreciable amount of fines)	GM*	d		Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. Between 4 and 7 are borderline cases requiring use of dual symbols
			u					
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7		
			SW	Well-graded sands, gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3		
		SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW				
		Sands with fines (Appreciable amount of fines)	SM*	d		Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in hatched zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
			u					
		SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line with P.I. greater than 7				
Fine-grained soils (More than half of material is smaller than No. 200 sieve)	Silt and clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		Plasticity Chart			
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					
		OL	Organic silts and organic silty clays of low plasticity					
	Silt and clays (Liquid limit greater than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts					
		CH	Inorganic clays of high plasticity, fat clays					
		OH	Organic clays of medium to high plasticity, organic silts					
	Highly Organic soils	Pt	Peat and other highly organic soils					

*Division of GM and SM groups into subdivisions of d and u are for roads and airfield only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 28 or less and the P.I. is 6 or less; u used when L.L. is greater than 24.

**Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example GW-GC, well-graded gravel-sand mixture with clay binder.



ASSUMED STRATIGRAPHY SECTION A-A

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NO HORIZONTAL SCALE.

LIQUEFACTION ANALYSIS SUMMARY

Version 2.3

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Data File Name: C:\Liquefy\256006.liq

Earthquake Magnitude= 6.0

Max. Acceleration= 0.23 g

Depth of Hole= 101.5 ft

Depth of Water Table= 7.0 ft

Settlement of Saturated Soils=0.00 in.

Settlement of Dry Soils=0.01 in.

Total Settlement of Saturated and Dry Soils=0.01 in.

Depth (ft)	CRR	CSRm	F.S.	S_sat.	S_dry	S_all
1.50	1.20	0.08	5.00	0.00	0.01	0.01
3.50	0.34	0.08	4.11	0.00	0.01	0.01
5.50	0.24	0.08	2.84	0.00	0.00	0.00
7.50	0.20	0.09	2.37	0.00	0.00	0.00
9.50	0.18	0.10	1.92	0.00	0.00	0.00
11.50	0.18	0.10	1.72	0.00	0.00	0.00
13.50	0.18	0.11	1.63	0.00	0.00	0.00
15.50	0.18	0.11	1.57	0.00	0.00	0.00
17.50	0.19	0.12	1.58	0.00	0.00	0.00
19.50	0.20	0.12	1.64	0.00	0.00	0.00
21.50	0.21	0.12	1.70	0.00	0.00	0.00
23.50	0.35	0.13	2.71	0.00	0.00	0.00
25.50	1.20	0.13	5.00	0.00	0.00	0.00
27.50	1.20	0.13	5.00	0.00	0.00	0.00
29.50	1.20	0.13	5.00	0.00	0.00	0.00
31.50	1.20	0.13	5.00	0.00	0.00	0.00
33.50	1.20	0.13	5.00	0.00	0.00	0.00
35.50	1.20	0.13	5.00	0.00	0.00	0.00
37.50	1.20	0.13	5.00	0.00	0.00	0.00
39.50	1.20	0.13	5.00	0.00	0.00	0.00
41.50	1.20	0.13	5.00	0.00	0.00	0.00
43.50	1.20	0.12	5.00	0.00	0.00	0.00
45.50	1.20	0.12	5.00	0.00	0.00	0.00
47.50	1.20	0.12	5.00	0.00	0.00	0.00
49.50	1.20	0.12	5.00	0.00	0.00	0.00
51.50	1.19	0.12	5.00	0.00	0.00	0.00
53.50	1.18	0.11	5.00	0.00	0.00	0.00
55.50	1.17	0.11	5.00	0.00	0.00	0.00
57.50	1.17	0.11	5.00	0.00	0.00	0.00
59.50	1.16	0.11	5.00	0.00	0.00	0.00
61.50	1.15	0.10	5.00	0.00	0.00	0.00

LIQUEFACTION ANALYSIS SUMMARY

Version 2.3

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Depth (ft)	CRR	CSRm	F.S.	S_sat.	S_dry	S_all
63.50	1.14	0.10	5.00	0.00	0.00	0.00
65.50	1.14	0.10	5.00	0.00	0.00	0.00
67.50	1.13	0.10	5.00	0.00	0.00	0.00
69.50	1.12	0.10	5.00	0.00	0.00	0.00
71.50	1.12	0.09	5.00	0.00	0.00	0.00
73.50	1.11	0.09	5.00	0.00	0.00	0.00
75.50	1.10	0.09	5.00	0.00	0.00	0.00
77.50	1.10	0.09	5.00	0.00	0.00	0.00
79.50	1.09	0.09	5.00	0.00	0.00	0.00
81.50	1.09	0.09	5.00	0.00	0.00	0.00
83.50	1.08	0.09	5.00	0.00	0.00	0.00
85.50	1.07	0.09	5.00	0.00	0.00	0.00
87.50	0.37	0.08	4.41	0.00	0.00	0.00
89.50	0.35	0.08	4.16	0.00	0.00	0.00
91.50	0.33	0.08	4.01	0.00	0.00	0.00
93.50	0.32	0.08	3.89	0.00	0.00	0.00
95.50	0.31	0.08	3.80	0.00	0.00	0.00
97.50	0.30	0.08	3.73	0.00	0.00	0.00
99.50	0.29	0.08	3.67	0.00	0.00	0.00
101.50	0.29	0.08	3.58	0.00	0.00	0.00

* F.S.<1

Units: Depth=ft, Stress=tsf (atm), gamma=pcf, Sett.=in.

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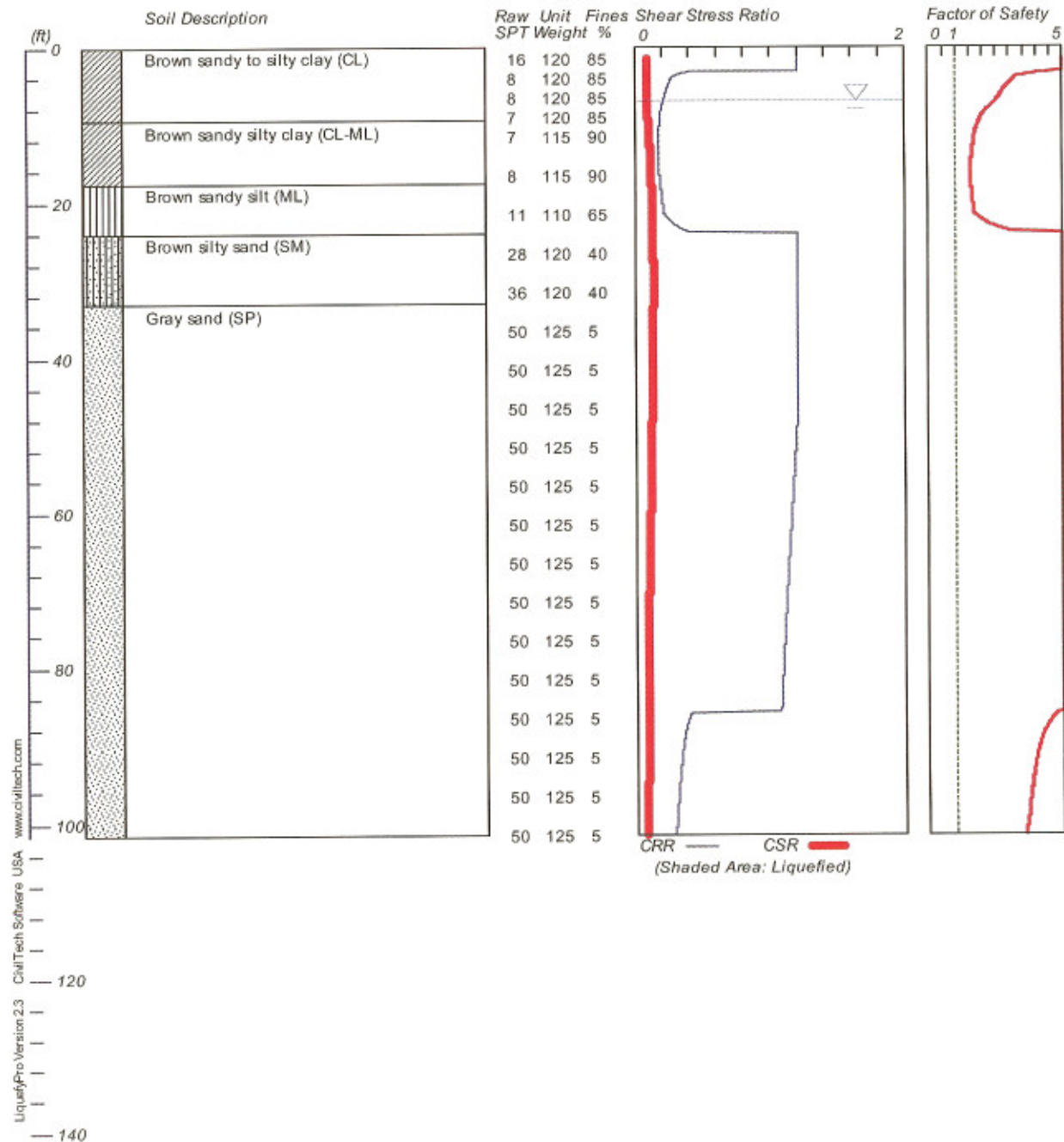
7/27/06 11:12:04 AM

LIQUEFACTION ANALYSIS

Proposed Compass Industrial Site

Hole No.=AVG Water Depth=7 ft Surface Elev.=N/A

Magnitude=6
Acceleration=0.23g



256006

Design Calculations for Conventional Footings

PROJECT: PROPOSED COMPASS INDUSTRIAL SITE

PROJECT NO.: 256006

DATE: 07/04/06

BORING NO.: SELECT

TESTED BY: AECI

SAFETY FACTOR: 2.00

Df ft	Depth from	ft. to	STRATA H - ft	N B/F	Qu KSF	Qu/2 KSF	1.25Qu KSF	.125Df KSF	Qa KSF
1.5	0.0	1.5	1.5	16	4.2	2.1	5.3	0.188	2.7
4.0	1.5	4.0	2.5	8	2.1	1.1	2.7	0.500	1.6
6.5	4.0	6.5	2.5	8	2.1	1.1	2.7	0.813	1.7
9.0	6.5	9.0	2.5	7	1.9	0.9	2.3	1.125	1.7
11.5	9.0	11.5	2.5	9	2.4	1.2	3.0	1.438	2.2
16.5	11.5	16.5	5.0	7	1.9	0.9	2.3	2.063	2.0
21.5	16.5	21.5	5.0	8	2.1	1.1	2.7	2.688	2.3
26.5	21.5	26.5	5.0	22	5.8	2.9	7.3	3.313	4.8
31.5	26.5	31.5	5.0	32	8.8	4.4	11.0	3.938	6.8

WATER TABLE LEVEL: 10.0 ft.

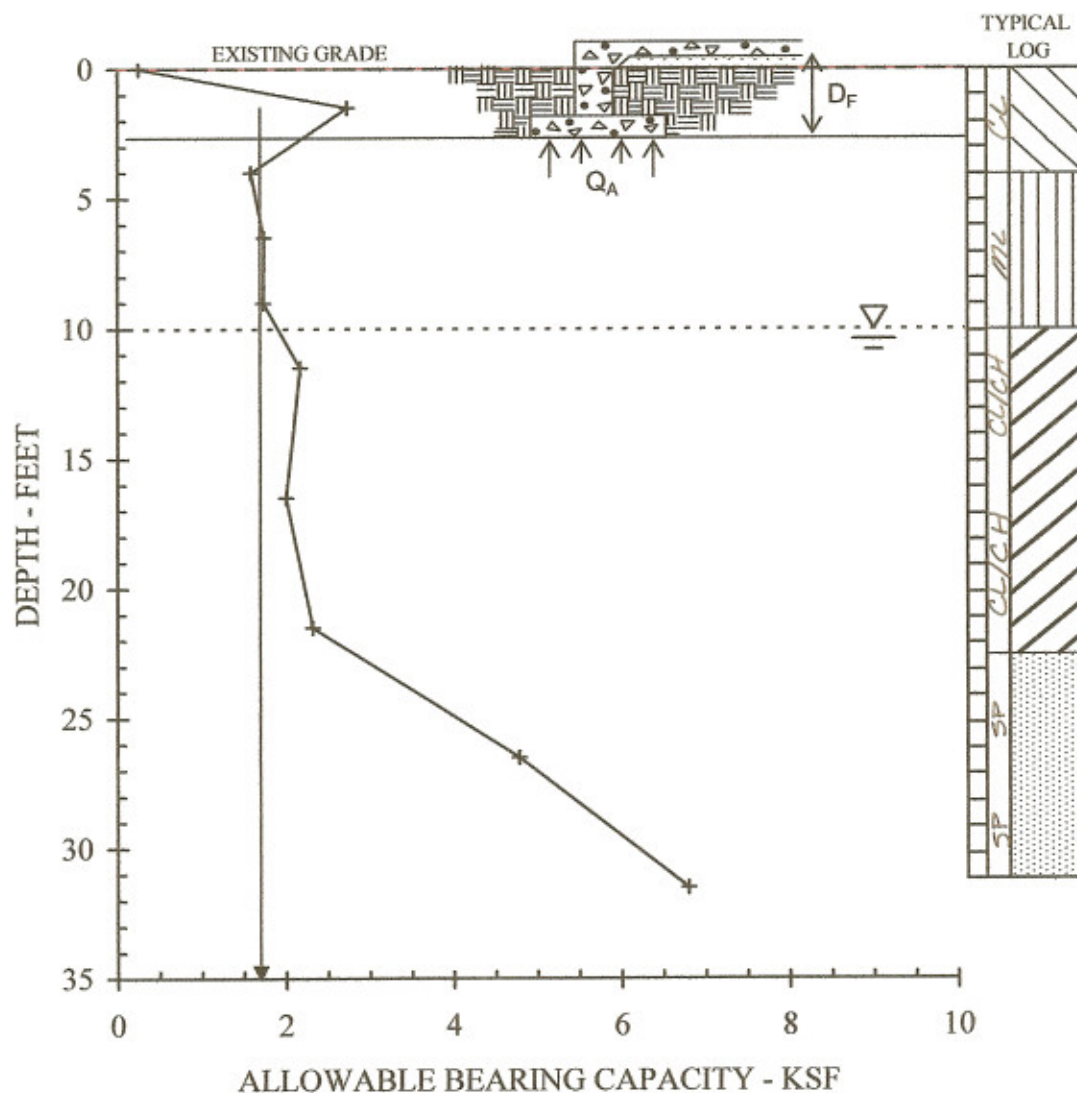
CONVENTIONAL FOOTINGS

PROJECT: **PROPOSED COMPASS INDUSTRIAL SITE**
OSCEOLA, ARKANSAS

BORING NO.: **SELECT**

PROJECT NO.: **256006** WATER TABLE: **10.0 ft.**

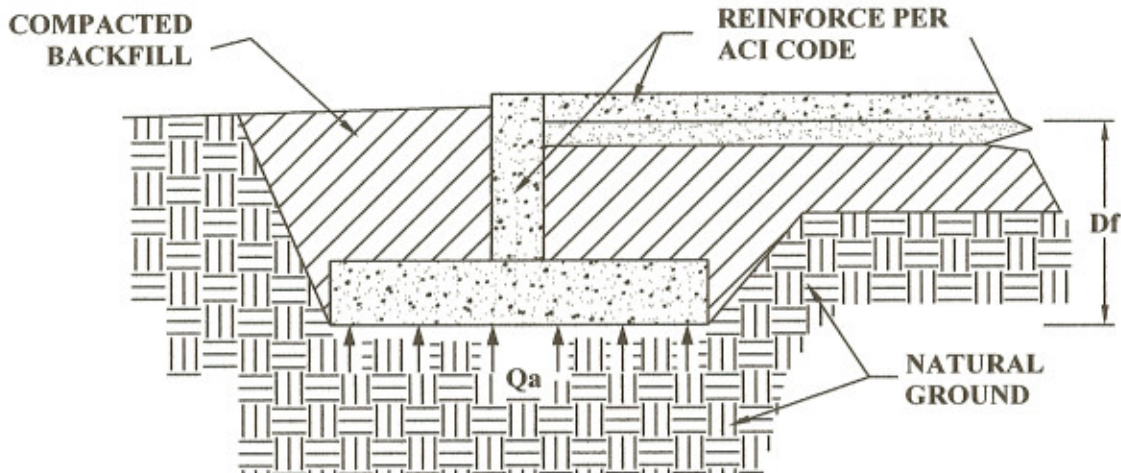
SAFETY FACTOR: **2.00**



DEPTH - BEARING CAPACITY CURVE

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CONVENTIONAL FOOTINGS



Explanation of Calculations Shown in Tables

D_f = Depth from ground surface to bottom of footing (feet)

Depth = Depth from top to bottom of soil strata (feet)

Strata H = Thickness of soil strata (feet)

N = Standard penetration N-value (blows per foot)

Q_u = Ultimate soil strength (ksf)

$1.25 Q_u$ = Soil Strength parameter (ksf)

$0.125 D_f$ = Depth factor (ksf)

Q_a = Allowable bearing capacity = $(1.25 Q_u + 0.125 D_f) \div \text{Safety Factor}$ (ksf)

EXPLANATION OF BEARING CAPACITY CALCULATIONS

Pile Design Calculations

PROJECT: Proposed Compass Industrial Site
PROJECT NO.: 256006 DATE: 07/21/06
BORING NO.: SELECT SAFETY FACTORS: QC: 2.00 QT: 2.00
PILE TYPE: 16.0 in. Auger Cast Pile

Df ft	Depth from	ft. to	STRATA H - ft	Phi	N B/F	Shear Res KSF	Skin Friction K/F	Sum	Bearing Cap KSF
1.5	0.0	1.5	1.5	12	16	0.64	0.96	0.96	5.94
4.0	1.5	4.0	2.5	12	8	0.32	0.80	1.76	2.76
6.5	4.0	6.5	2.5	22	8	0.42	1.04	2.80	2.63
9.0	6.5	9.0	2.5	22	7	0.36	0.91	3.71	2.31
11.5	9.0	11.5	2.5	10	7	0.28	0.70	4.41	2.40
16.5	11.5	16.5	5.0	10	8	0.32	1.60	6.01	2.76
21.5	16.5	21.5	5.0	10	11	0.44	2.20	8.21	3.91
26.5	21.5	26.5	5.0	32	24	1.92	9.60	17.81	14.28
31.5	26.5	31.5	5.0	32	28	2.24	11.20	29.01	17.20
36.5	31.5	36.5	5.0	32	42	3.36	16.80	45.81	28.63
41.5	36.5	41.5	5.0	32	50	4.00	20.00	65.81	36.00
46.5	41.5	46.5	5.0	32	50	4.00	20.00	85.81	36.00
51.5	46.5	51.5	5.0	32	50	4.00	20.00	105.81	36.00
56.5	51.5	56.5	5.0	32	50	4.00	20.00	125.81	36.00
56.5	56.5	56.5	0.0	32	50	4.00	0.00	125.81	36.00
61.5	56.5	61.5	5.0	32	50	4.00	20.00	145.81	36.00
66.5	61.5	66.5	5.0	32	50	4.00	20.00	165.81	36.00
71.5	66.5	71.5	5.0	32	50	4.00	20.00	185.81	36.00
76.5	71.5	76.5	5.0	32	50	4.00	20.00	205.81	36.00
81.5	76.5	81.5	5.0	32	50	4.00	20.00	225.81	36.00
86.5	81.5	86.5	5.0	32	50	4.00	20.00	245.81	36.00
91.5	86.5	91.5	5.0	32	50	4.00	20.00	265.81	36.00
96.5	91.5	96.5	5.0	32	50	4.00	20.00	285.81	36.00

Df ft	Qf KIPS	sum Qf KIPS	Qt KIPS	Qw KIPS	QT KIPS	QC KIPS
1.5	4.0	4.0	8.3	0.3	1.3	6.2
4.0	3.4	7.4	3.9	0.8	2.5	5.6
6.5	4.4	11.7	3.7	1.4	3.9	7.7
9.0	3.8	15.5	3.2	1.9	5.2	9.4
11.5	2.9	18.5	3.3	2.3	6.2	10.9
16.5	6.7	25.2	3.9	2.9	8.4	14.5
21.5	9.2	34.4	5.5	3.5	11.4	19.9
26.5	40.2	74.6	19.9	4.1	23.6	47.3
31.5	46.9	121.5	24.0	4.7	37.9	72.8
36.5	70.4	191.9	40.0	5.3	59.2	115.9

Pile Design Calculations

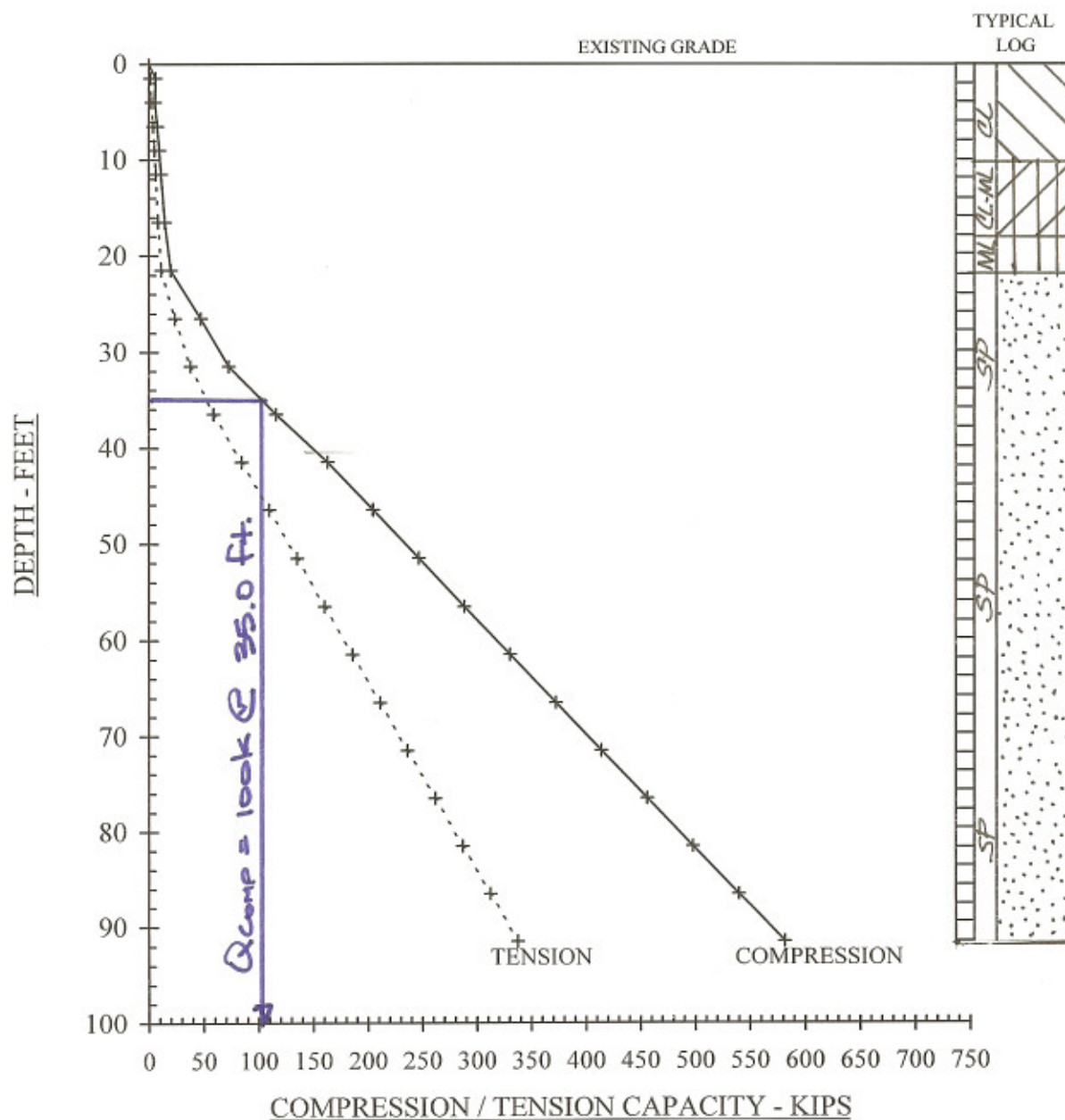
PROJECT: Proposed Compass Industrial Site
PROJECT NO.: 256006
BORING NO.: SELECT SAFETY FACTORS: QC: 2.00 QT: 2.00
PILE TYPE: 16.0 in. Auger Cast Pile

Df ft	Depth - from to	ft.	STRATA H - ft	Phi	N B/F	Shear Res KSF	Skin Friction K/F	Bearing Cap KSF
41.5	83.8		275.7	50.2		5.9	84.5	163.0
46.5	83.8		359.4	50.2		6.6	109.8	204.8
51.5	83.8		443.2	50.2		7.2	135.1	246.7
56.5	83.8		527.0	50.2		7.8	160.4	288.6
56.5	0.0		527.0	50.2		7.8	160.4	288.6
61.5	83.8		610.8	50.2		8.4	185.7	330.5
66.5	83.8		694.5	50.2		9.0	211.1	372.4
71.5	83.8		778.3	50.2		9.6	236.4	414.3
76.5	83.8		862.1	50.2		10.2	261.7	456.2
81.5	83.8		945.9	50.2		10.8	287.0	498.1
86.5	83.8		1029.6	50.2		11.4	312.3	539.9
91.5	83.8		1113.4	50.2		12.0	337.6	581.8
96.5	83.8		1197.2	50.2		12.7	363.0	623.7

Water Table Level 10.0 ft.

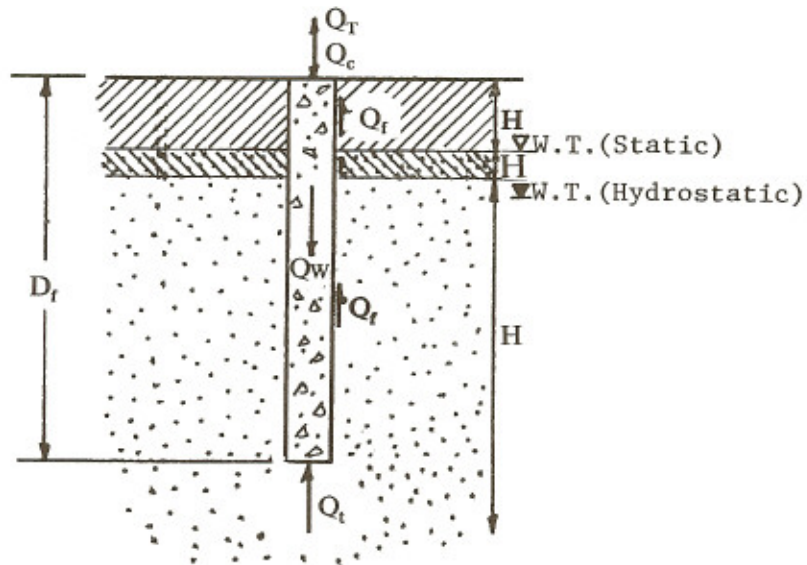
PILE CAPACITY CURVES

PROJECT:	Proposed Compass Industrial Site	PROJECT NO.:	256006
LOCATION:	Osceola, Arkansas	DATE:	07/21/06
WATER TABLE:	10.0 ft.	SAFETY FACTOR:	2.00
PILE DESIGN:	16.0 in. Auger Cast Pile	BORING NO.:	SELECT



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DRIVEN OR AUGER CAST PILES



EXPLANATION OF CALCULATIONS SHOWN IN TABLES

- D_t = depth from ground surface to tip of pile, ft.
- Depth = depth from top to bottom of soil strata, ft.
- Strata H = thickness of soil strata, ft.
- Phi = angle of internal friction of soil, degrees
- N = standard penetration N-value, blows/ft.
- Shear Resistance = ultimate shearing resistance of the soil, ksf
- Skin Friction = ultimate friction capacity of pile, kip/ft.
- Bearing Capacity, Q_m = ultimate strength of soil, kips
- Q_f = ultimate skin friction capacity of pile in each soil strata, kips
- Q_t = ultimate end bearing capacity of pile, kips
- Q_w = weight of pile corrected for water table, kips
- Q_T = allowable tension capacity = $(Q_f + Q_w) \div \text{S.F.}$, kips
- Q_c = allowable compression capacity = $(Q_f + Q_t) \div \text{S.F.}$, kips

EXPLANATION OF BEARING CAPACITY CALCULATIONS