

J&K Geological Services  
18291 Smokey Pine Rd  
Peyton, Colorado 80831  
(719) 499-5431

October 10, 2022

Widefield Investment Group  
3 Widefield Boulevard  
Colorado Springs, CO 80911

**RE: The Glen at Widefield East, Filing 12  
(Response to comments)  
J&K JOB: 221018**

Gentlemen:

J&K Geological Services LLC were asked to provide a response letter to comments made by the Colorado Geological Survey (CGS) concerning Filing 12 of the Glen At Widefield East (dated 08/05/2022).

At the time of the initial subsurface investigation for the Glen at Widefield, the parcel currently identified as Filing 12 was a planned high school site for Widefield/Security School District 3. A preliminary subsurface investigation (4 test borings) was completed in the school site by Soil Testing and Engineering (STE) in 1998 (STE Job # 80415 Dated 05/04/98). Additional test borings were drilled on the school site in 1999. (STE Job# 90235 dated 05/05/99). The test boring logs and Test Boring Location Plan from these investigations have been attached to this letter. The geologic features and soil types encountered during the drilling program are also indicated on the Location Plan.

It must be understood, STE closed their doors in 2016. Permission was requested and obtained by both the former owner of STE and School District 3 to provide the attached information referenced above.

While the data included in the above referenced reports is dated, it is still viable. The three main hazards identified during the subsurface investigations were Hydro- Compactable soils (Soil Type 1), Highly expansive clay and claystone (Soil type 2), and ground water.

Soil type 1 was mitigated during the overlot cut/fill process, where encountered, the unsuitable soils were overexcavated to the underlying clay and claystone and then placed as structural overlot fill. Frequent density tests were performed by STE during the overlot process.

Soil Type 2, the highly expansive clays have been mitigated through out the subdivision with standard engineering practices such as overexcavation/replacement schemes, piers etc. which remain valid in Filing 12.

The shallow ground water encountered in test borings 1&2 (Job# 80415) and test borings 4&5 (Job # 902335) was addressed with a year long ground water elevation study by J&K Geological Services LLC

(dated 02/06/2019) submitted to and approved by the CGS during the platting process for The Glen At Widefield East Filing 11. We feel the deeper ground water encountered in Test Boring 3 (Job# 80415) is mitigated by the original depth of the water as well as the additional overlot fill that has been placed across the filing raising the elevation of the lots, thereby increasing the depth to and separation from the ground water for any proposed basements.

The borders of the various soil types should be considered approximate as no formal survey was made. As such, actual subsurface conditions encountered during the construction phase of this Filing may be found to be somewhat different than those indicated on the map.

Again, as in all other filings of The Glen at Widefield East, each individual lot is to be investigated by the lot owner's Geotechnical Engineer of Record for final foundation parameters and recommendation as required by the Pikes Peak Regional Building Department.

We trust this provides the information you requested. Should questions arise concerning this matter, do not hesitate to call.

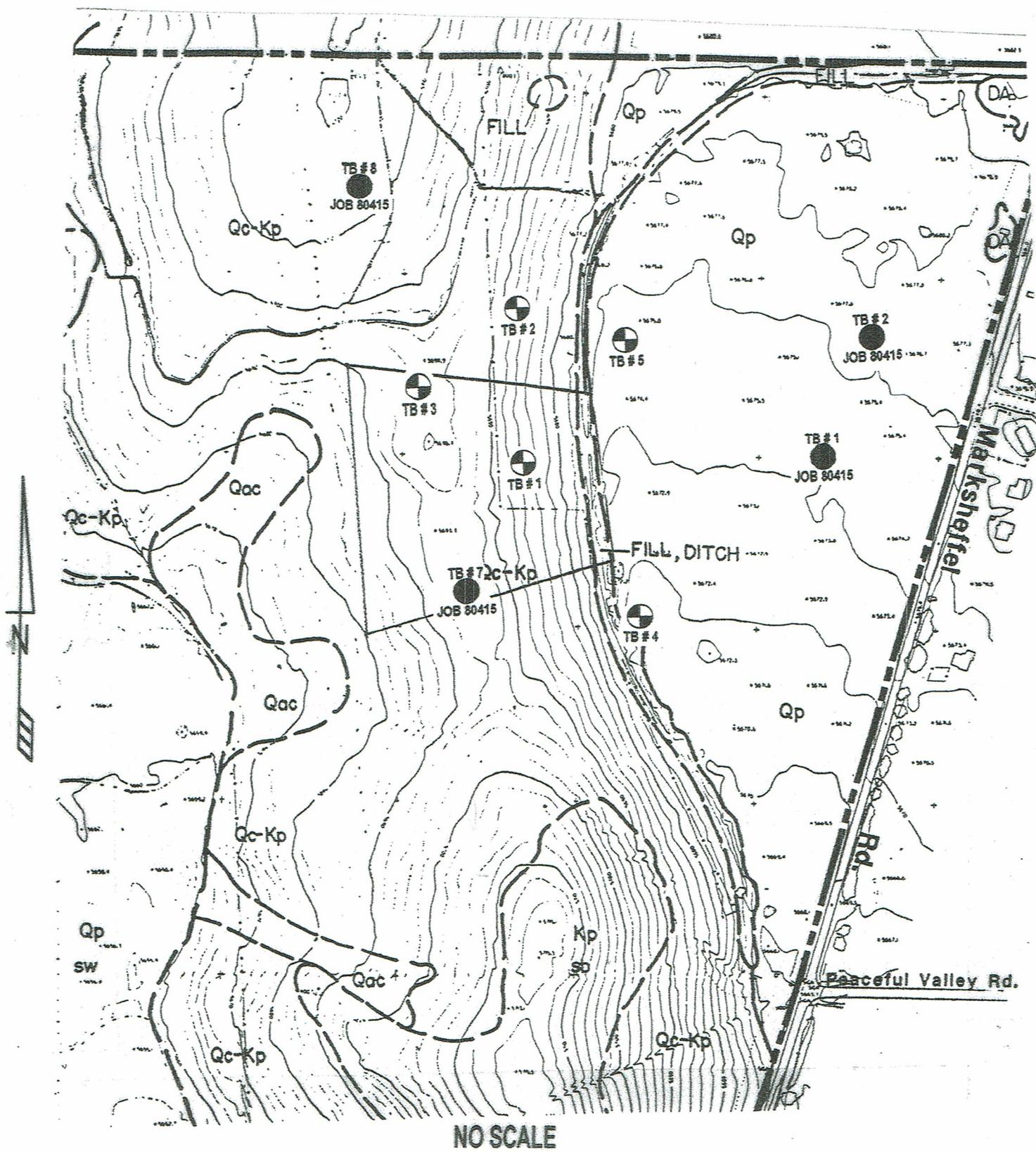
Respectively submitted,

**J&K GEOLOGICAL SERVICES, LLC.**



**James F. Frohbieter**  
**Professional Geologist/Owner**  
**J&K Geological Services LLC**

JF/ksf



# TEST BORING PLAN

# STE

JOB No.  
90235

SOIL TESTING & ENGINEERING INC.

FIG No.  
2

DRAWN	DATE	CHECKED	DATE
MAH		LWC	



15 STANDARD PENETRATION TEST — ASTM C-1586. PRODUCED BY DRIVING A STANDARD 2 " O.D. SPLIT SPOON SAMPLER INTO THE SOIL BY DROPPING A 140lb HAMMER 30 " ONTO THE SPOON. THE NUMBER INDICATES THE NUMBER OF HAMMER DROPS REQUIRED TO DRIVE THE SPOON 12 " INTO THE SOIL PROFILE



15 STANDARD PENETRATION TEST — ASTM C-1586. PRODUCED BY DRIVING A CALIFORNIA 2 " O.D. SPLIT SPOON SAMPLER INTO THE SOIL BY DROPPING A 140lb HAMMER 30 " ONTO THE SPOON. THE NUMBER INDICATES THE NUMBER OF HAMMER DROPS REQUIRED TO DRIVE THE SPOON 12 " INTO THE SOIL PROFILE

1 SOIL TYPE NUMBER DESIGNATION IN REPORT

12.6 MOISTURE CONTENT OF SAMPLE



12/10/98

WATER LEVEL AND DATE

# SYMBOLS AND NOTES

DRAWN	DATE	CHECKED	DATE
MAH		LWC	

# STE

SOIL TESTING & ENGINEERING INC.

JOB No.  
90235

FIG No.  
3

TEST BORING NO. 1  
DATE DRILLED: 3/17/99

REMARKS: 3/31/99  
MEASURED FOR WATER:  
WATER AT 18 FEET

DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE

CLAY, SANDY, STIFF,  
LOW MOISTURE, BROWN  
  
WEATHERED TO FORMATIONAL  
CLAYSTONE WITH THIN  
SANDSTONE LENSES,  
HARD TO DENSE,  
LOW TO MODERATE MOISTURE,  
GREEN TO DARK GREEN TO RUST

3/31/99

DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
11			11	7.9	1
31			31	9.2	1
50/8"			50/8"	12.9	1
50/10"			50/10"	15.9	2
50			50	18.0	2
50/8"			50/8"	12.7	2
50/5"			50/5"	14.6	2

TEST BORING NO. 2  
DATE DRILLED: 3/17/99

REMARKS: 3/31/99  
MEASURED FOR WATER:  
20 FEET DRY

DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE

CLAY, SANDY,  
STIFF TO VERY STIFF,  
LOW MOISTURE,  
GREEN  
  
WEATHERED TO FORMATIONAL  
CLAYSTONE WITH  
SANDSTONE LENSES,  
HARD TO DENSE,  
LOW MOISTURE,  
GREEN

DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
11			11	8.8	1
16			16	9.0	1
22			22	7.8	1
47			47	12.4	2
50/9"			50/9"	15.6	2
50/5"			50/5"	12.2	2
50/7"			50/7"	16.6	2

# TEST BORING LOGS

DRAWN MAH	DATE	CHECKED LWC	DATE
--------------	------	----------------	------

# STE

## SOIL TESTING & ENGINEERING INC.

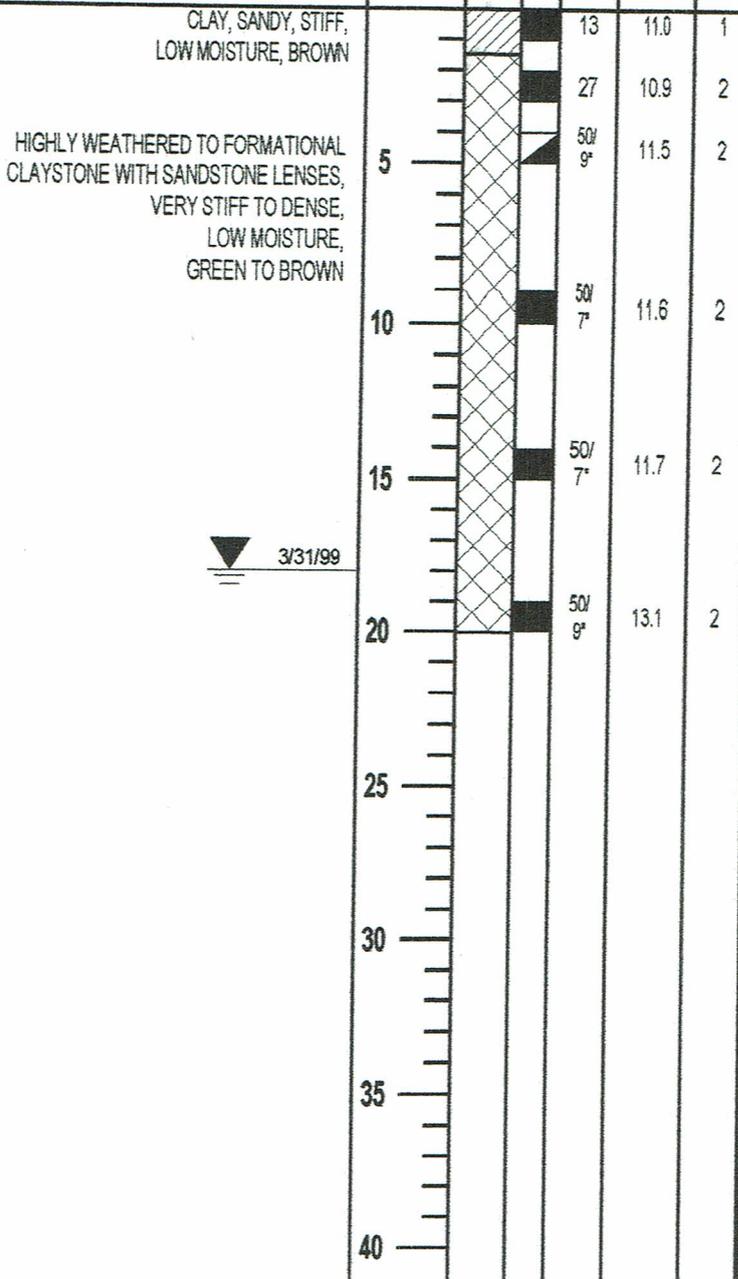
JOB No.  
**90235**

FIG No.  
**4**

TEST BORING NO. 3  
DATE DRILLED: 3/17/99

REMARKS: 3/31/99  
MEASURED FOR WATER:  
WATER AT 18 FEET

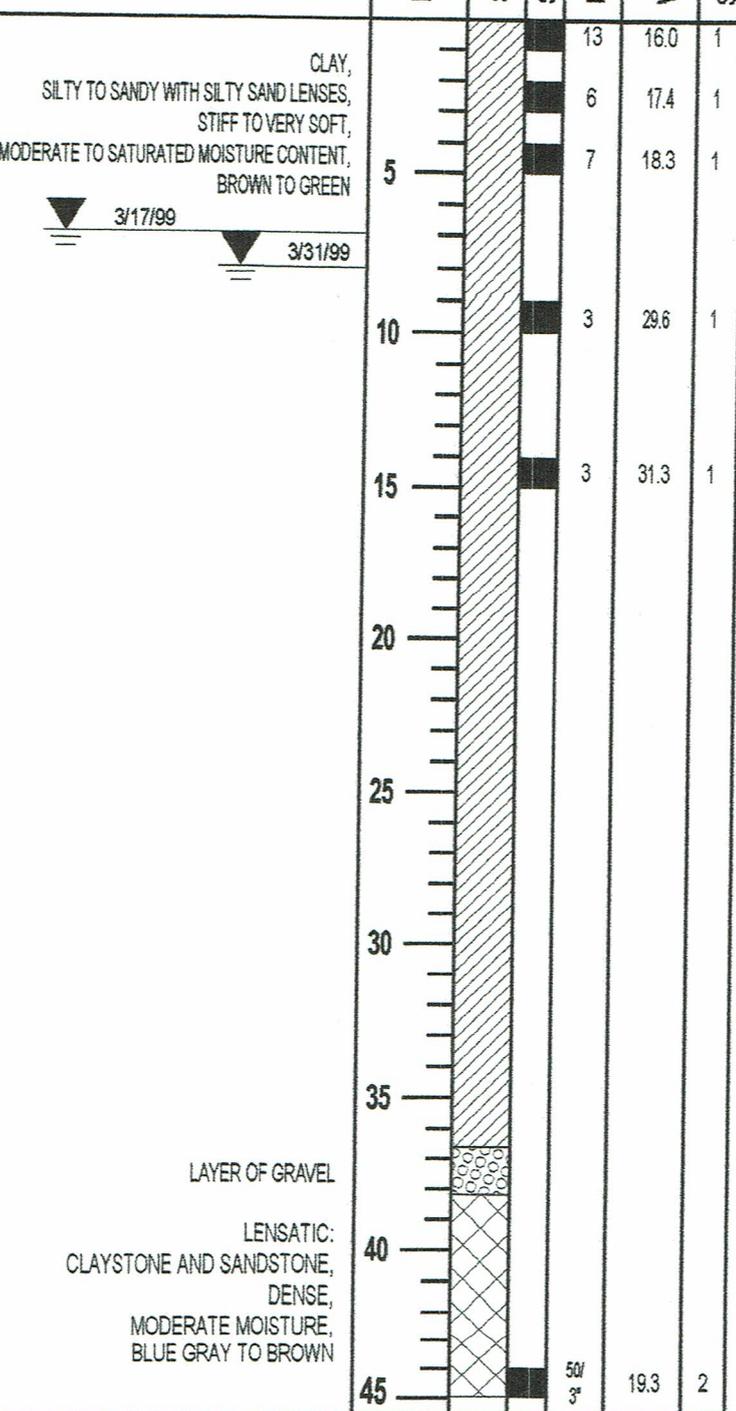
DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE



TEST BORING NO. 4  
DATE DRILLED: 3/17/99

REMARKS: 3/31/99  
MEASURED FOR WATER:  
WATER AT 8 FEET

DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE



# TEST BORING LOGS

DRAWN MAH	DATE	CHECKED LWC	DATE
--------------	------	----------------	------

# STE

## SOIL TESTING & ENGINEERING INC.

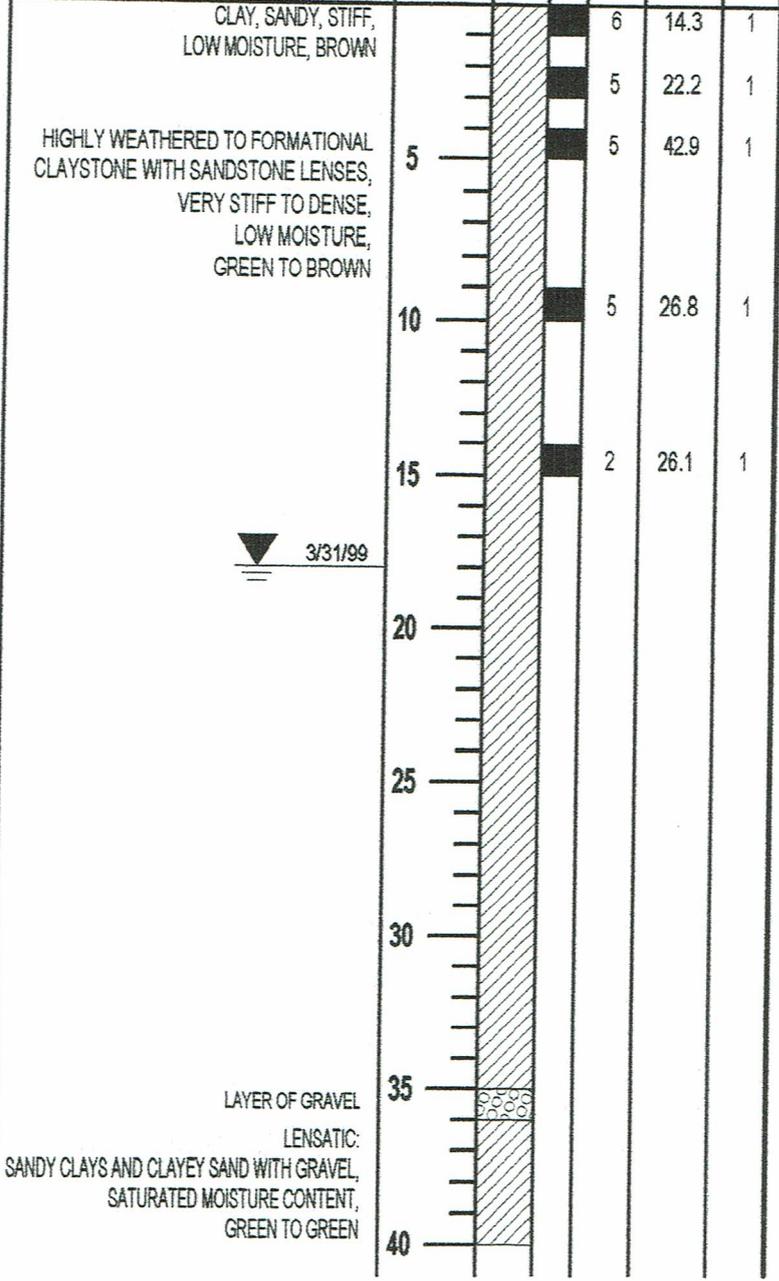
JOB No.  
**90235**

FIG No.  
**5**

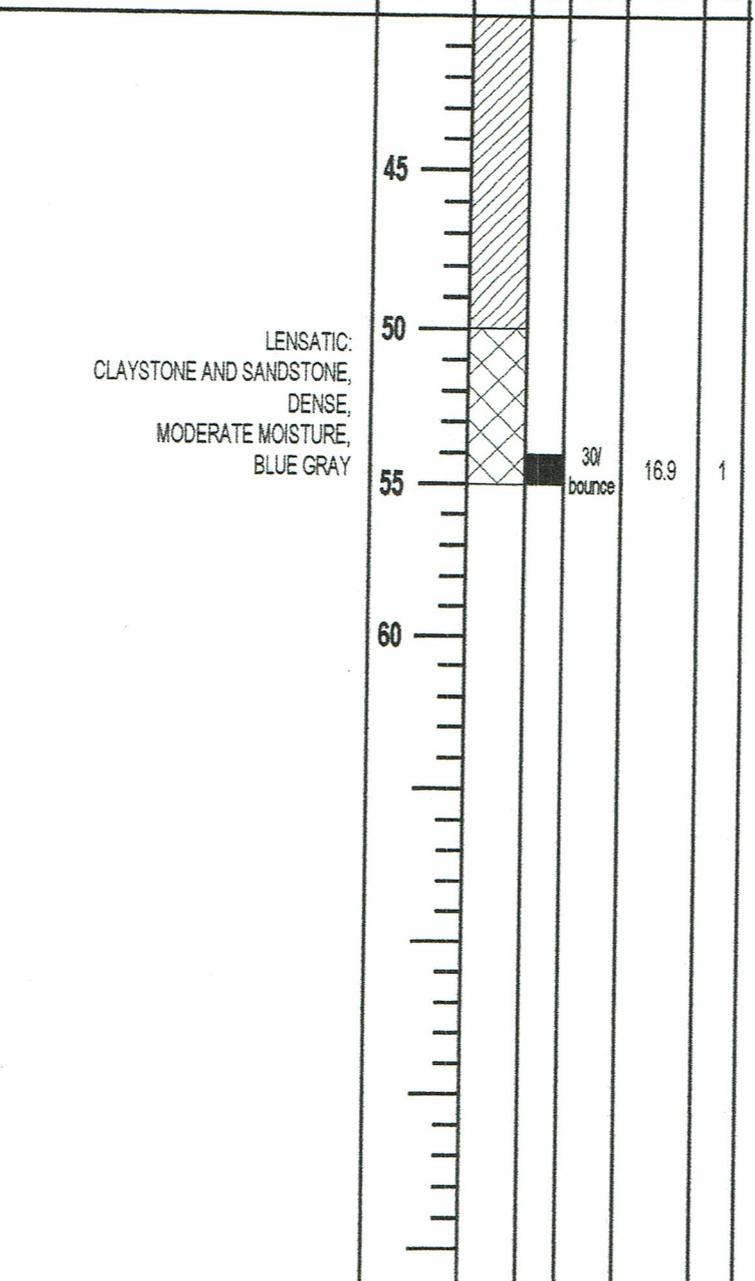
TEST BORING NO. 5  
DATE DRILLED: 3/17/99

REMARKS: 3/31/99  
MEASURED FOR WATER:  
WATER AT 18 FEET

DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE



DEPTH (ft)  
SYMBOL  
SAMPLES  
BLOWS per foot  
WATER CONTENT %  
SOIL TYPE



# TEST BORING LOGS

# STE

JOB No.  
**90235**

FIG No.  
**6**

DRAWN <b>MAH</b>	DATE	CHECKED <b>LWC</b>	DATE
---------------------	------	-----------------------	------

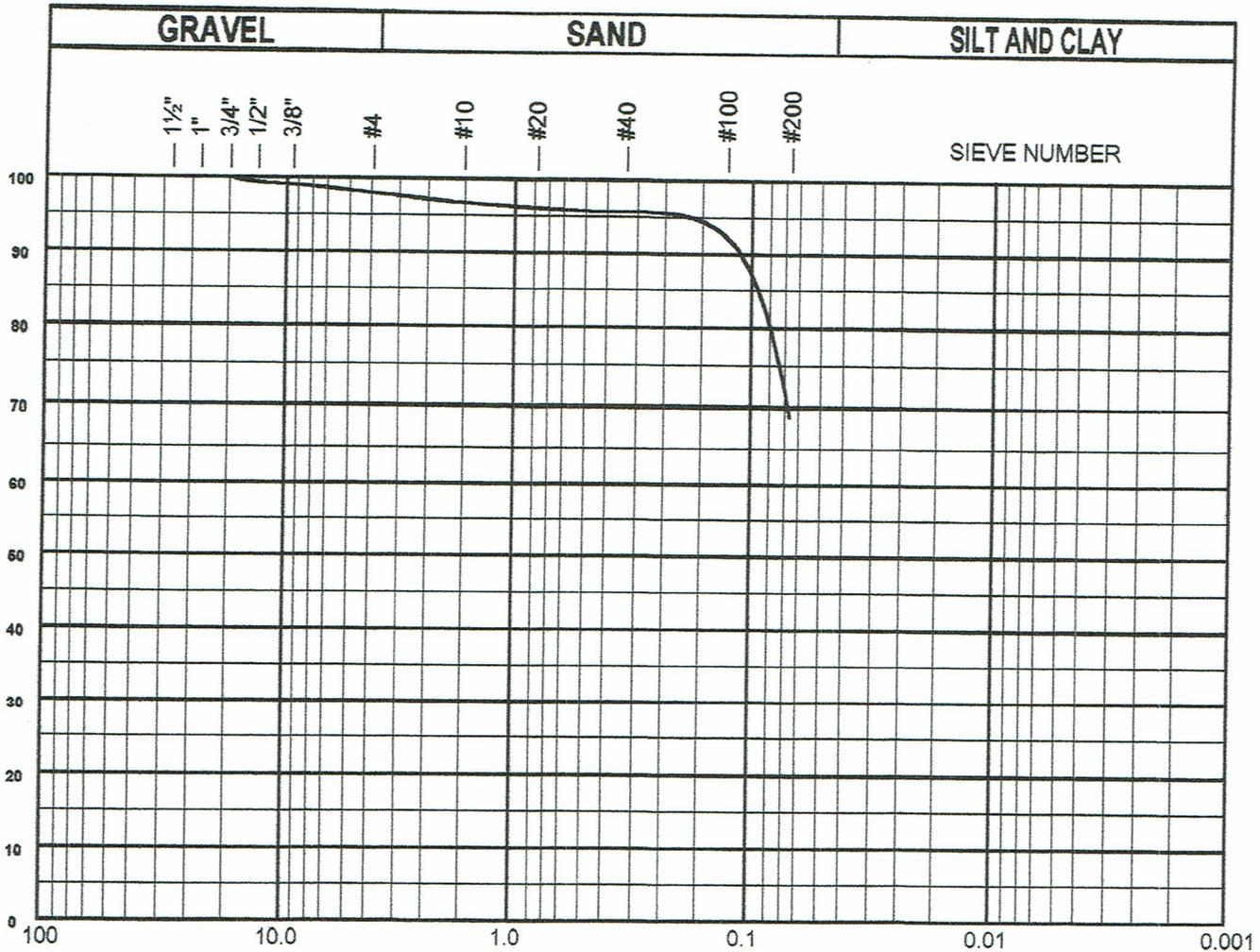
**SOIL TESTING & ENGINEERING INC.**

CLIENT WIDEFIELD SCHOOL DISTRICT 3

SOIL TYPE NO: 1

PROJECT NORTHEAST PARCELS/PROPOSED SCHOOL SITE

UNIFIED CLASSIFICATION: CL



SIEVE SIZE % PASSING

1 1/2"	
1"	
3/4"	
1/2"	98.9
3/8"	98.9
#4	98.1
#10	97.4
#20	96.8
#40	96.3
#100	94.4
#200	68.2

SWELL

14.6 % MOISTURE AT START
23.1 % MOISTURE AT FINISH
8.5 % MOISTURE INCREASE
8.9 % VOLUME CHANGE
101.6 pcf INITIAL DRY DENSITY
1985 psf SWELL

ATTERBERG LIMITS

LIQUID LIMIT: 33  
PLASTIC LIMIT: 15  
P. I.: 18

LABORATORY TEST RESULTS

DRAWN	DATE	CHECKED	DATE
MAH		LWC	

**STE**

SOIL TESTING & ENGINEERING INC.

JOB No.  
90235

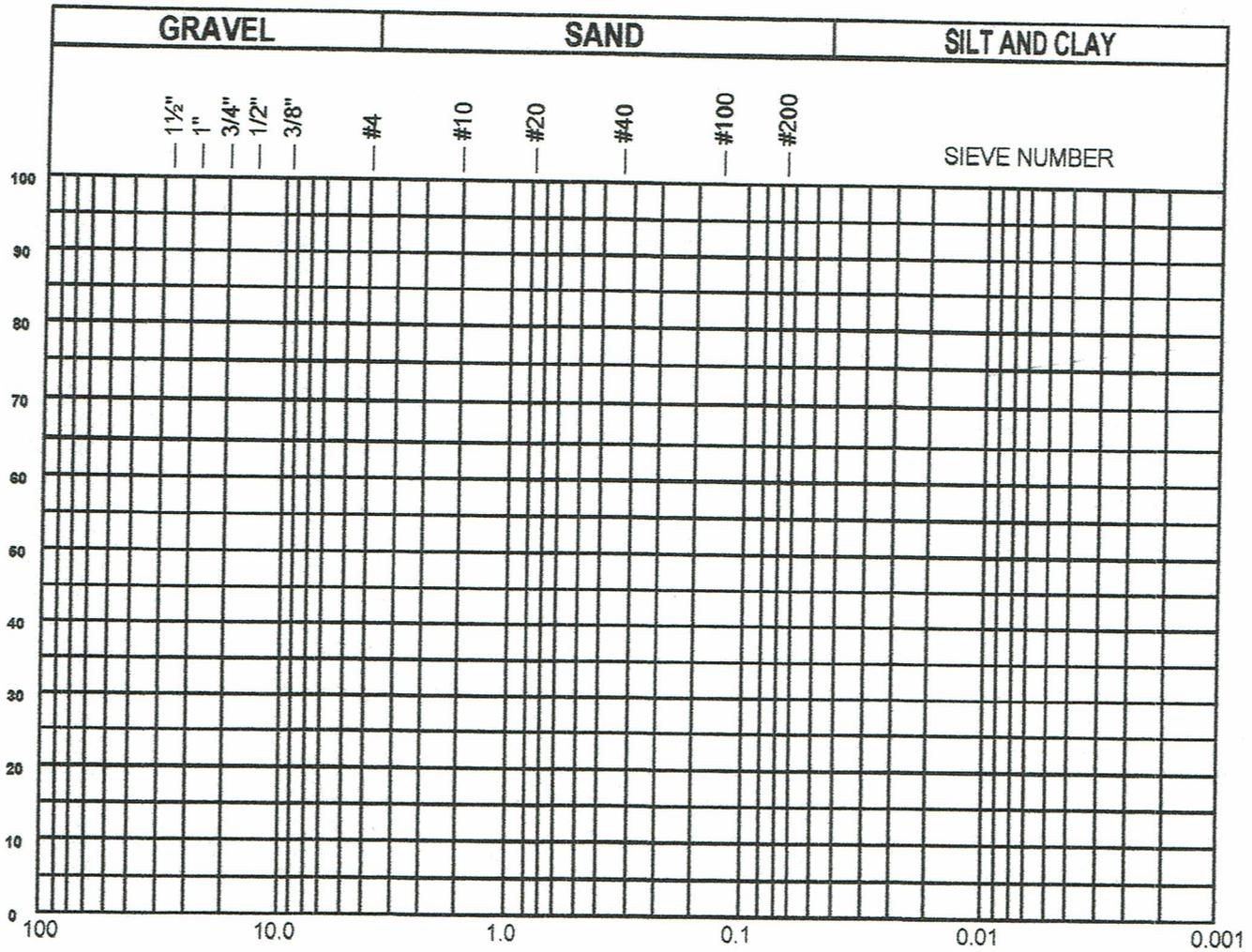
FIG No.  
7

CLIENT WIDEFIELD SCHOOL DISTRICT 3

SOIL TYPE NO: 2

PROJECT NORTHEAST PARCELS/PROPOSED SCHOOL SITE

UNIFIED CLASSIFICATION: CL



SIEVE SIZE % PASSING

- 1 1/2"
- 1"
- 3/4"
- 1/2"
- 3/8"
- # 4
- # 10
- # 20
- # 40
- # 100
- # 200

SWELL

- 8.4 % MOISTURE AT START
- 20.9 % MOISTURE AT FINISH
- 12.6 % MOISTURE INCREASE
- 11.0 % VOLUME CHANGE
- 108.0 pcf INITIAL DRY DENSITY
- 3124 pcf SWELL

**ATTERBERG LIMITS**

LIQUID LIMIT: 38  
 PLASTIC LIMIT: 15  
 P. I.: 23

**LABORATORY TEST RESULTS**

DRAWN MAH	DATE	CHECKED LWC	DATE
--------------	------	----------------	------

**STE**

**SOIL TESTING & ENGINEERING INC.**

JOB No.  
**90235**

FIG No.  
**8**

CLIENT: WIDFIELD SCHOOL DISTRICT 3

JOB NO: 90235

PROJECT: NORTHEAST PARCELS/PROPOSED SCHOOL SITE

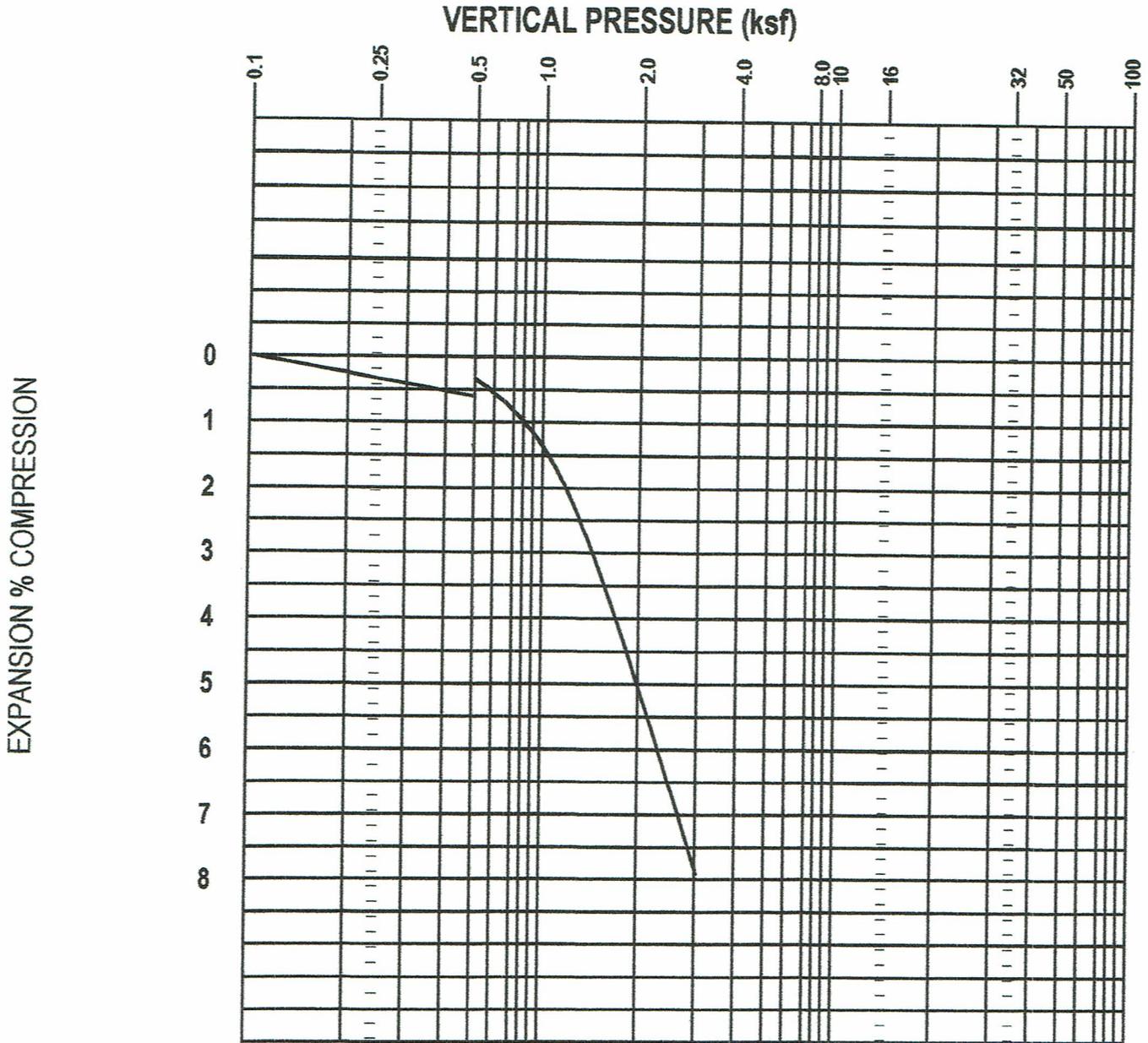
DATE: 3/31/99

BORING NO: 2

DEPTH: 2

SOIL TYPE: 1

TEST BY: JF



**SWELL-CONSOLIDATION TEST**

DRAWN	DATE	CHECKED	DATE

**STE**

SOIL TESTING & ENGINEERING INC.

JOB No.  
90235

FIG No.  
9

TEST BORING NO. 1  
DATE DRILLED: 5/4/98

REMARKS: 5/8/98  
MEASURED FOR WATER:  
WATER AT 7 FEET

▼ 5/4/98  
= 5/8/98

DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
0 - 1	[Diagonal Hatching]	1	9	30.1	1
1 - 2	[Diagonal Hatching]	2	7	17.8	2
2 - 3	[Diagonal Hatching]	1	7	35.8	1
3 - 4	[Diagonal Hatching]	1	5	12.9	1
4 - 5	[Diagonal Hatching]	1	5	12.9	1
5 - 10	[Diagonal Hatching]	5	5	40.5	1
10 - 15	[Stippled]	5	5	24.4	2
15 - 20	[Stippled]	5	5	24.4	2
20 - 21	[Diagonal Hatching]	1	9	34.0	1
21 - 25	[Stippled]	4	9	34.0	1
25 - 30	[Stippled]	5	9	34.0	2
30 - 35	[Stippled]	5	9	34.0	2
35 - 40	[Stippled]	5	16	13.8	4

CLAY, SANDY, FIRM,  
HIGH MOISTURE, BROWN

SAND, SILTY, VERY LOOSE,  
HIGH MOISTURE, BROWN

CLAY,  
SANDY,  
FIRM,

HIGH TO SATURATED  
MOISTURE CONTENT,  
BROWN

SAND,  
SILTY WITH SANDY CLAY LENSES,  
FINE TO MEDIUM GRAINED,  
LOOSE,  
SATURATED MOISTURE CONTENT,  
BROWN

CLAY, SANDY, FIRM  
HIGH MOISTURE, BROWN

SAND,  
CLEAN TO CLAYEY  
WITH SANDY CLAY LENSES,  
FINE TO MEDIUM GRAINED,  
VERY LOOSE,  
SATURATED MOISTURE CONTENT,  
BROWN

SAND,  
CLEAN TO CLAYEY WITH  
SANDY CLAY LENSES,  
MEDIUM DENSE,  
SATURATED MOISTURE CONTENT,  
BROWN

GRAVEL, SATURATED MOISTURE  
CONTENT, BROWN

CLAYSTONE, DENSE, MODERATE  
MOISTURE CONTENT, BLUE GRAY

DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
0 - 4	[Stippled]	4			4
4 - 55	[Stippled]				
55 - 56	[Cross-hatched]				5
56 - 80	[Stippled]				

# TEST BORING LOGS

DRAWN MAH	DATE	CHECKED LWC	DATE
--------------	------	----------------	------



SOIL TESTING & ENGINEERING INC.

JOB No.  
80415

FIG No.  
4

TEST BORING NO. 2  
DATE DRILLED: 5/6/98

REMARKS: 5/8/98  
MEASURED FOR WATER:  
WATER AT 7 FEET

DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE	DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
5	[Diagonal Hatching]	6	26.5	1	CLAY, SANDY WITH CLAYEY SAND LENSES, FIRM TO VERY SOFT, HIGH TO SATURATED MOISTURE CONTENT, BROWN	45	[Dotted]				GRAVELS AND COBBLES, SATURATED, BROWN
7	[Diagonal Hatching]	7	33.9	1		50	[Dotted]				
5	[Diagonal Hatching]	5	39.6	1		55	[Cross-hatching]				CLAYSTONE, DENSE, LOW MOISTURE CONTENT, BLUE GRAY
10	[Diagonal Hatching]	2	33.5	1		60	[Cross-hatching]	50/ 5'	16.5	5	
15	[Dotted]	7	24.6	4		65	[Dotted]				
20	[Dotted]	6	17.6	4		70	[Dotted]				
25	[Dotted]					75	[Dotted]				
30	[Dotted]				80	[Dotted]					
35	[Dotted]										
40	[Dotted]										

# TEST BORING LOGS

# STE

SOIL TESTING & ENGINEERING INC.

JOB No.  
80415

FIG No.  
5

DRAWN MAH	DATE	CHECKED LWC	DATE
--------------	------	----------------	------

TEST BORING NO. 7 DATE DRILLED: 5/8/98						TEST BORING NO. 8 DATE DRILLED: 5/8/98					
REMARKS: 5/27/98 MEASURED FOR WATER: 19 FEET DRY						REMARKS: 5/27/98 MEASURED FOR WATER: 24 FEET DRY					
DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE	DEPTH (ft)	SYMBOL	SAMPLES	BLOWS per foot	WATER CONTENT %	SOIL TYPE
5			4	17.4	1	5			3	9.7	1
			9	8.0	1				10	10.2	1
			16	6.6	1				8	8.5	1
10			50/ 5"	6.3	5	10			29	7.5	1
			50/ 9"	9.8	5	15			31	7.1	1
20			50/ 5"	9.1	5	20			50/ 9"	11.5	5
						25			50/ 8"	12.6	5
30						30					
35						35					
40						40					

<b>TEST BORING LOGS</b>			
DRAWN MAH	DATE	CHECKED LWC	DATE

**STE**

**SOIL TESTING & ENGINEERING INC.**

JOB No.  
**80415**

FIG No.  
**8**

CLIENT: NEW GENERATION HOMES

JOB NO: 80415

PROJECT: SUNRISE RIDGE, PHASE II

DATE:

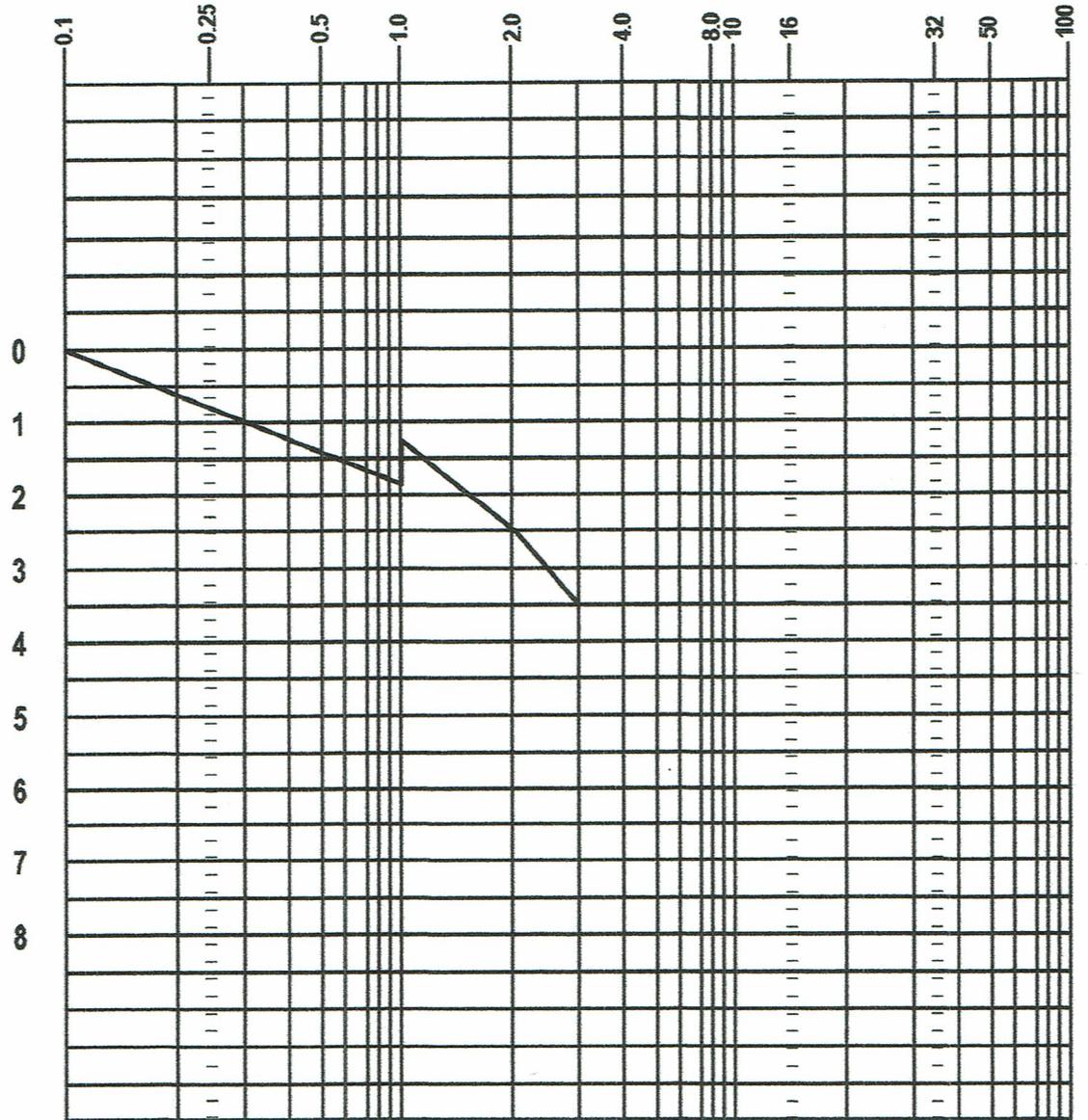
BORING NO: 7

DEPTH: 4 FEET SOIL TYPE: 1

TEST BY: JF

EXPANSION % COMPRESSION

VERTICAL PRESSURE (ksf)



**SWELL-CONSOLIDATION TEST**

DRAWN

DATE

CHECKED

DATE

**STE**

SOIL TESTING & ENGINEERING INC.

JOB No.  
80415

FIG No.  
26

CLIENT: NEW GENERATION HOMES

JOB NO: 80415

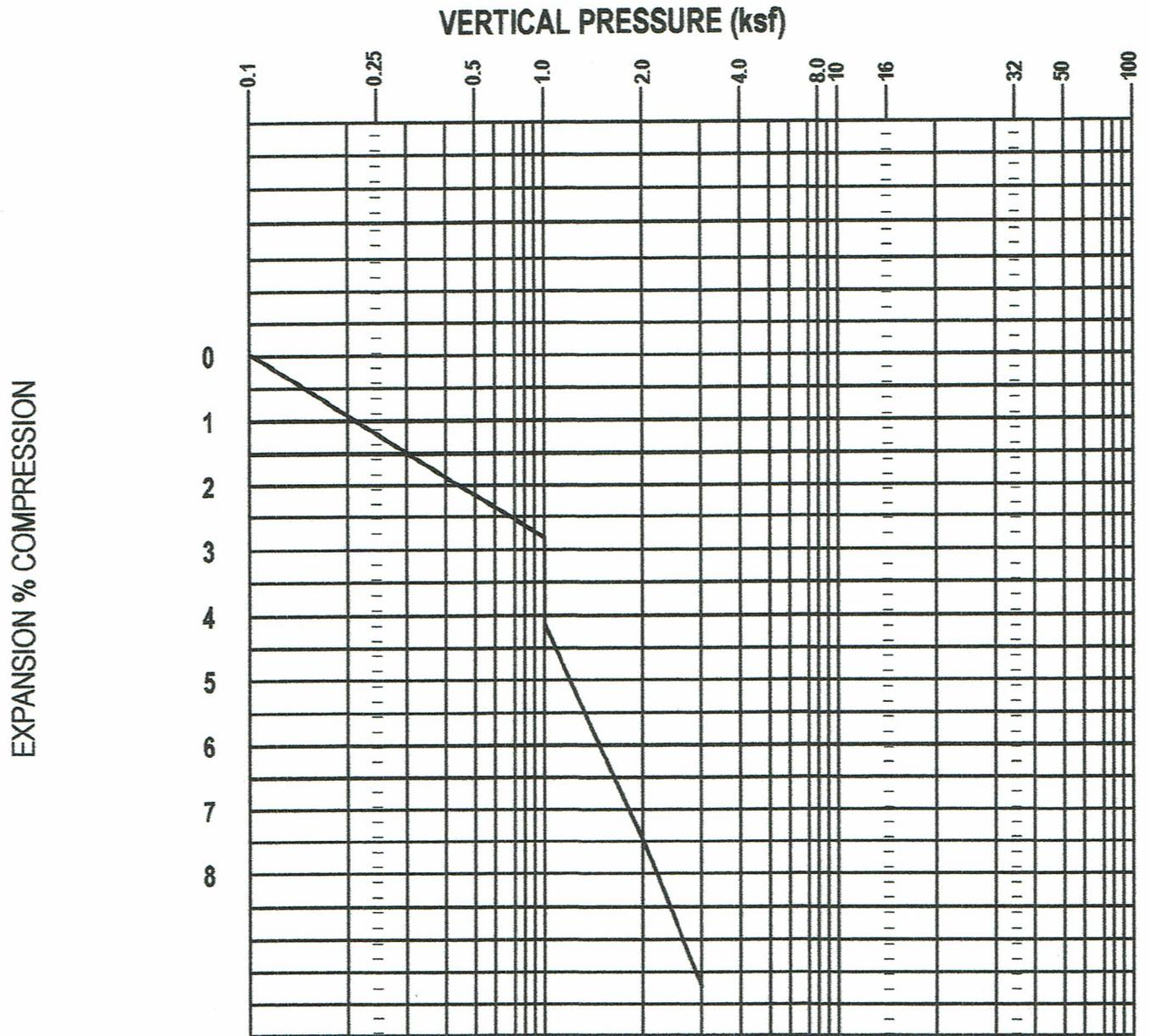
PROJECT: SUNRISE RIDGE, PHASE II

DATE:

BORING NO: 8

DEPTH: 2 FEET SOIL TYPE: 1

TEST BY: JF



**SWELL-CONSOLIDATION TEST**

DRAWN	DATE	CHECKED	DATE

**STE**

SOIL TESTING & ENGINEERING INC.

JOB No.  
80415

FIG No.  
27