



ENTECH
ENGINEERING, INC.

505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
PHONE (719) 531-5599

**GEOTECHNICAL REPORT
PEACEFUL RIDGE AT FOUNTAIN VALLEY
POND RETAINING WALLS
EL PASO COUNTY, COLORADO**

Prepared for:
**Fountain Valley Investment, LLC
3 Widefield Boulevard
Colorado Springs, CO 80911**

Attn: Ryan Watson

May 22, 2025

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Lucas J. Morrison
Geotechnical Engineering Staff

Reviewed by:



Joseph C. Goode III, P.E.
Sr. Engineer

LJM:JCG/ed

Entech Job No. 240480

Table of Contents

1 INTRODUCTION..... 1

2 PROJECT AND SITE DESCRIPTION..... 1

3 SUBSURFACE EXPLORATIONS AND LABORATORY TESTING..... 1

 3.1 Subgrade Exploration Program..... 1

 3.2 Laboratory Testing Program 2

4 SUBSURFACE CONDITIONS 2

 4.1 Soil and Bedrock..... 2

 4.1.1 Wall 1..... 3

 4.1.2 Wall 2..... 3

 4.2 Expansion Potential 3

 4.3 Groundwater..... 3

5 RETAINING WALL GEOTECHNICAL RECOMMENDATIONS 3

 5.1 Bearing Capacity 4

 5.2 Lateral Earth Pressure 4

 5.3 Global Stability..... 5

 5.4 Seismic Site Classification 6

 5.5 Surface and Subsurface Drainage 6

6 CONSTRUCTION RECOMMENDATIONS..... 6

 6.1 Earthwork Recommendations for Retaining Walls 6

 6.1.1 Subgrade Preparation 6

 6.1.2 Granular Fill 7

 6.1.3 Fill Placement and Compaction..... 7

 6.2 Excavation Potential 7

 6.3 Winter Construction 7

 6.4 Foundation Excavation and Construction Observation..... 8

7 CLOSURE..... 8

Figures

Figure 1: Vicinity Map

Figure 2: Site Map

List of Appendices

Appendix A: Test Boring Logs

Appendix B: Laboratory Test Results

1 INTRODUCTION

Entech Engineering Inc. (Entech) completed this geotechnical report for two retaining walls as part of the development of Peaceful Ridge at Fountain Valley, Phase 1 in El Paso County, Colorado. This report describes the subsurface investigation conducted for the planned retaining walls and provides geotechnical design recommendations for the retaining walls. Retaining wall design is not included in this scope of work and will be completed by others. Specific findings for the site are presented in this report. All drilling and subsurface investigation activities were performed by Entech. The contents of this report, including the geotechnical evaluation and recommendations, are subject to the limitations and assumptions presented in Section 7.

2 PROJECT AND SITE DESCRIPTION

The project will consist of the construction of two retaining walls adjacent to the Tract B detention pond within Peaceful Ridge at Fountain Valley, Phase 1. The project site is located west of Marksheffel Road and north of Bur Oak Lane and is shown on the Vicinity Map (Figure 1). At the time of drilling, the site was being developed with a new residential subdivision. Surrounding properties are comprised of vacant land, land being developed for future residential lots, and an existing subdivision. We understand that the proposed walls will be mechanically stabilized earth (MSE) walls as described below:

- Wall 1 – 567 feet long, 5-foot maximum height
- Wall 2 – 112 feet long, 8-foot maximum height

The location of the proposed walls are shown in Figure 2. Vegetation was absent due to recent site grading.

3 SUBSURFACE EXPLORATIONS AND LABORATORY TESTING

3.1 Subgrade Exploration Program

Subsurface conditions in the planned retaining wall footprints were explored by the test borings at the approximate locations shown in Figure 2, the Site and Exploration Plan. The drilling was performed using a truck-mounted drill rig utilizing continuous flight auger techniques, supplied and operated by Entech. Borings TB-1 and TB-2 were drilled along Wall 1 and borings TB-3 through TB-6 were drilled along Wall 2. Borings were completed to a depth of 20 feet below ground surface (bgs). Descriptive boring logs are presented in Appendix A, providing lithologies

of the subsurface conditions encountered during drilling. Groundwater levels were measured in each of the open boreholes at the conclusion of drilling and subsequent to drilling.

Soil and bedrock samples were obtained from the borings utilizing the Standard Penetration Test (ASTM D1586) using a split-barrel California sampler. Results of the Standard Penetration Test (SPT) are included on the boring logs in terms of N-values expressed in blows per foot (bpf). Soil and bedrock samples recovered from the borings were visually classified and recorded on the boring logs. The soil and bedrock classifications were later verified utilizing laboratory testing and grouped by soil type. The soil and bedrock type numbers are included on the boring logs. It should be understood that the soil and bedrock descriptions shown on the boring logs may vary between boring location and sample depths. It should also be noted that the lines of stratigraphic separation shown on the boring logs represent approximate boundaries between soil and bedrock types and the actual stratigraphic transitions may be more gradual or variable with location.

3.2 Laboratory Testing Program

Water content testing (ASTM D2216) was performed on the samples recovered from the borings and the results are shown on the boring logs. Grain-Size Analysis (ASTM D422) and Atterberg Limits testing (ASTM D4318) were performed on selected samples to assist in classifying the materials encountered in the borings. Volume change testing was performed on selected samples using the One-Dimensional Swell or Collapse Test (ASTM D4546) in order to evaluate potential expansion or collapse characteristics of the soil and bedrock. Soluble sulfate testing was performed on select soil samples to evaluate the potential for below-grade degradation of concrete due to sulfate attack. The laboratory testing results are presented in Appendix B and summarized in Table B-1.

4 SUBSURFACE CONDITIONS

4.1 Soil and Bedrock

Two primary soil types and one bedrock type were encountered in the test borings drilled for the subsurface investigation. Each soil and bedrock type were classified in accordance with the Unified Soil Classification System (USCS) using the laboratory testing results and the observations made during drilling. Subsurface conditions are presented for each wall location in the following sections.

4.1.1 Wall 1

Subsurface conditions observed in test borings drilled along Wall 1 (TB-1 and TB-2) were found to consist of 7 to 8 feet of very stiff slightly sandy clay (Soil Type 1) overlying claystone bedrock, or hard slightly sandy clay to clay with sand when classified as a soil, to the termination of the borings at 20 feet bgs.

4.1.2 Wall 2

Subsurface conditions observed in test borings drilled along Wall 2 (TB-3 through TB-6) were found to consist of 13 to 18 feet of medium stiff to very stiff slightly sandy clay (Soil Type 1) overlying claystone bedrock, or hard clay with sand when classified as a soil, to the termination of the borings at 20 feet bgs. Soil types observed in TB-3 and TB-5 consisted of 1 to 1.5 feet of slightly sandy clay fill. Claystone bedrock was not encountered in TB-5.

4.2 Expansion Potential

One-dimensional swell or collapse testing on the expansive cohesive soils and claystone bedrock was performed across the site in multiple locations resulting in a volume change of -0.9% to 0.2% indicating low to moderate expansion and collapse potential.

4.3 Groundwater

Groundwater was not encountered in the test borings. Groundwater fluctuations are possible and will depend on seasonal variations, local precipitation, runoff, and other factors; however, we do not anticipate groundwater to affect the proposed retaining wall construction.

5 RETAINING WALL GEOTECHNICAL RECOMMENDATIONS

The following discussion is based on the subsurface conditions encountered in the borings drilled for the proposed retaining wall construction. If subsurface conditions different from those described herein are encountered during construction, or if the project elements change from those described, Entech Engineering, Inc. should be notified so that the evaluation and recommendations presented can be reviewed and revised if necessary

As discussed in Section 2, we understand that the site will be developed with the construction of two retaining walls. Subsurface conditions are anticipated to consist of sandy clay to slightly sandy clay in the walls. Clays subgrades encountered along Walls 1 and 2 must be mitigated by moisture conditioning as discussed in Section 6.

5.1 Bearing Capacity

As described below, overexcavation will be required below the proposed retaining walls. With this method of swell mitigation, some differential movement may still occur along the proposed walls.

We recommend that the retaining wall subgrade be overexcavated to a depth of 2 feet below retaining wall footings/leveling pads and moisture conditioned. A bearing capacity for the granular soils is presented in Exhibit 1. Any loose or uncontrolled fill material encountered in the foundation subgrade should be

Exhibit 1: Design Parameter

Allowable Bearing Capacity ¹	Value
2 feet of Moisture Conditioned Clay	2,000 psf

pcf = pounds per cubic foot; psf = pounds per square foot

Note:

1. Assumes a minimum embedment of 12 inches.

5.2 Lateral Earth Pressure

Retaining walls should be designed to resist lateral pressures generated by retained soils. Soil parameters and equivalent hydrostatic fluid pressures are provided in Exhibit 2. It should be noted that these values apply to level backfill conditions. Pressures will increase substantially depending on the conditions adjacent to the wall. Surcharge loading should be considered in wall design.

Exhibit 2: Lateral Earth Pressure Design Recommendations

Design Parameters	Imported Granular Fill ¹	Retained Cohesive Soils
Equivalent Fluid Pressure (active case), pcf	40	50
Soil Density, pcf	125	120
Angle of Internal Friction, degrees	32°	20°
Coefficient of Sliding (Masonry Block - Clay)	0.30	NA

Note:

1. The design values are for low expansive, drained, granular backfill conditions with level back slope angles and no surcharge loads. Final design parameters should be based on the actual materials utilized. If the backfill slopes or the walls are surcharged, the design values must be adjusted to account for additional loading. Passive pressure should be neglected above the frost depth.

5.3 Global Stability

Reinforcement length required to satisfy a minimum global stability factor of 1.3 for each wall are presented in Exhibit 3. Reinforcement lengths may need to be increased to meet internal, external (sliding and overturning), or compound stability requirements. The final design reinforcement lengths should be determined by the MSE wall designer/vendor as these failure modes depend on the reinforcement type and spacing. Retaining wall design is not included in this scope of work and will be completed by others.

Exhibit 3: Retaining Wall Global Stability Requirements

Retaining Wall	Minimum Reinforcement Length ¹
Wall 1	0.8H
Wall 2	0.9H

H = Total Wall Height

Notes:

1. Final grid length must be determined by the design engineer of record for the retaining wall.
2. These recommendations are based on the plans for Peaceful Ridge at Fountain Valley, Pond Grading, dated 9/27/2023.

Exhibit 4: Retaining Wall Global Design Parameters

Soil Types		Effective Friction Angle (Φ)	Cohesion (C)	Total Unit Weight (γ)
Granular Fill		32°	0 psf	125 pcf
Retained Clay	Drained	24°	0 psf	120 pcf
	Undrained	0°	300 psf	120 pcf
Claystone	Drained	22°	0 psf	125 pcf
	Undrained	0°	4000 psf	125 pcf

We recommend that a minimum 4-foot-wide horizontal bench be provided in front of MSE walls bearing on slopes. The horizontal bench may be formed or the slope may be continued and infilled against the wall above the elevation of the bench.

5.4 Seismic Site Classification

Based on the subsurface conditions encountered at the site and in accordance with Section 1613 of the 2021 International Building Code (IBC), the site meets the conditions of a Site Class D.

5.5 Surface and Subsurface Drainage

For new construction, it is recommended that the ground surface be sloped away from the wall to provide positive drainage away from the wall backfill and wall foundation. It is recommended that an equivalent slope of 6 inches in the first 10 feet (5%) should surround the wall face and backfill, where possible, or as required to quickly remove surface water. Where a 5% slope cannot be achieved practically, we believe it is desirable to establish as much slope as possible and to avoid irrigation in the area. Drains should discharge beyond the limits of backfill. At a minimum, water should not be allowed to pond around the base of wall.

6 CONSTRUCTION RECOMMENDATIONS

6.1 Earthwork Recommendations for Retaining Walls

6.1.1 Subgrade Preparation

To reduce the potential for retaining wall subgrade movement, the retaining wall foundation subgrade should be overexcavated 2 feet below foundation components. The overexcavation should extend laterally a minimum of 2 feet from the front face and back face of the extents of the wall footing/leveling pad (overexcavations should be 4 feet wide plus the retaining wall foundation/leveling pad width). The overexcavated subgrade should then be scarified an additional 8 inches and moisture conditioned to 0% to +3% of the optimum moisture. The moisture conditioned subgrade should be compacted to a minimum of 95% of the Standard Proctor (ASTM D698) maximum dry density at 0 to +3% of optimum moisture content. All soil beneath the foundation should be free of organics, debris, and cobbles larger than 3 inches in diameter

Uncontrolled fill or loose soil will require removal to suitable, dense underlying soils and replacement with granular fill.

Groundwater was not encountered in the test borings. Fluctuation in groundwater levels can change due to seasonal variations and changes in land runoff characteristics. Groundwater, if encountered near foundation grade, will likely create unstable subgrade conditions and stabilization with shot rock and/or geogrid may be required.

6.1.2 Granular Fill

Granular fill placed beneath retaining walls shall consist of nonexpansive, granular soil, free of organic matter, unsuitable materials, debris, and cobbles greater than 3 inches in diameter. Entech should approve any imported granular fill to be used within the foundation area prior to delivery to the site. All granular fill shall be compacted in accordance with Section 6.1.3.

6.1.3 Fill Placement and Compaction

All granular fill placed within the foundation area should be compacted to a minimum of 95% of the Modified Proctor (ASTM D1557) maximum dry density within +/-2% of optimum moisture content. Fill material should be placed in horizontal lifts such that each finished lift has a compacted thickness of 6 inches or less. Mechanical methods can be used for placement and compaction of fill; however, heavy equipment should be kept at a distance from retaining walls to avoid overstressing. No water flooding techniques of any type should be used for compaction or placement of foundation fill material.

Fill placement and compaction beneath walls for wall backfill should be observed and tested by Entech during construction. Density tests should be performed frequently to verify compaction with the first density test performed at the overexcavated subgrade elevation and with additional testing once each 12 to 18 inches of granular fill has been placed.

6.2 Excavation Potential

Excavation of the upper granular soils should be feasible with rubber-tired equipment. The claystone may be difficult to excavate and may require track-mounted equipment with ripper attachments.

6.3 Winter Construction

In the event construction of the planned walls construction occurs during winter, foundations and subgrades should be protected from freezing conditions. Retaining wall subgrade should not be placed on frozen soil. Similarly, once exposed, the foundation subgrade should not be allowed to freeze. During site grading and subgrade preparation, care should be taken to eliminate the burial of snow, ice, or frozen material within the planned construction area.

6.4 Foundation Excavation and Construction Observation

Subgrade preparation retaining walls should be observed by Entech prior to construction in order to verify that (1) no anomalies are present, (2) materials similar to those described in this report have been encountered or placed, and (3) no soft spots, expansive or organic soil, or debris are present in the foundation area prior to backfilling. Entech should make final recommendations for overexcavation, if required, and foundation drainage at the time of excavation observation, if necessary.

In addition, Entech should observe and document the placement and compaction of utility bedding and trench backfill.

7 CLOSURE

The subsurface investigation, geotechnical evaluation, and recommendations presented in this report are intended for use by Fountain Valley Investment, LLC with application to the retaining walls structures located at Peaceful Ridge at Fountain Valley, Phase 1 in El Paso County, Colorado. In conducting the subsurface investigation, laboratory testing, engineering evaluation and reporting, Entech Engineering, Inc. endeavored to work in accordance with generally accepted professional geotechnical and geologic practices and principles consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality and under similar conditions. No other warranty, expressed or implied, is made. During final design and/or construction, if conditions are encountered that appear different from those described in this report, Entech Engineering, Inc. requests to be notified so that the evaluation and recommendations presented herein can be reviewed and modified as appropriate.

If there are any questions regarding the information provided herein, or if Entech Engineering, Inc. can be of further assistance, please do not hesitate to contact us.



PROJECT
LOCATION

FONTAINE BLVD

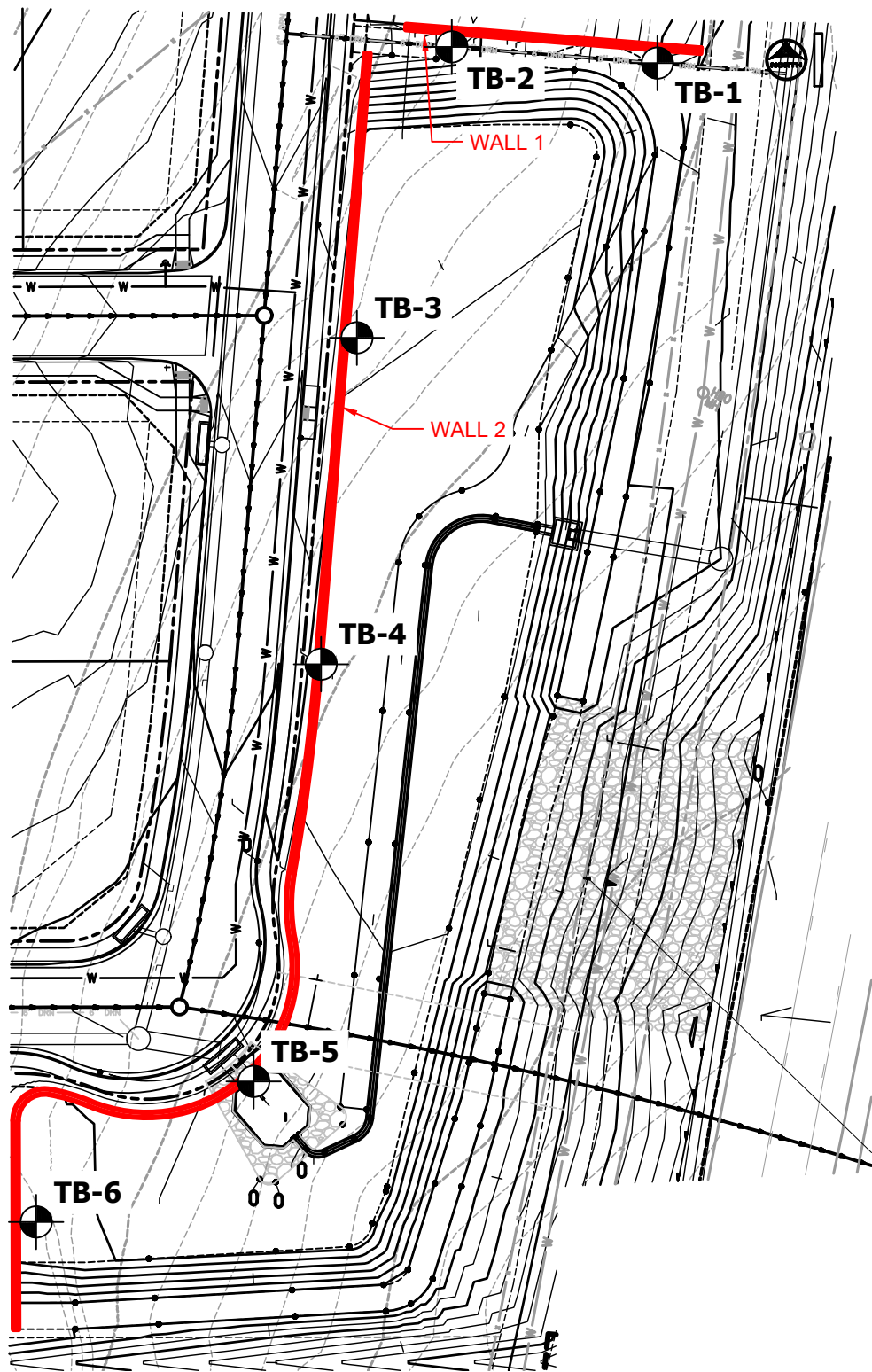
MARKSHEFFEL RD



VICINITY MAP
PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. 1



 **TB- APPROXIMATE TEST BORING LOCATION AND NUMBER**



SITE AND EXPLORATION MAP

PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. 2

TEST BORING 1
DATE DRILLED 4/25/2025

TEST BORING 2
DATE DRILLED 4/25/2025

REMARKS

REMARKS

DRY TO 20', 4/25/25

DRY TO 20', 4/25/25

CLAY, SLIGHTLY SANDY, BROWN,
VERY STIFF, MOIST

CLAY, SLIGHTLY SANDY, BROWN,
VERY STIFF, MOIST

CLAYSTONE, EXTREMELY WEAK,
BROWN, MODERATELY
WEATHERED (CLAY, WITH SAND,
HARD, MOIST)

CLAYSTONE, EXTREMELY WEAK to
VERY WEAK, BROWN,
MODERATELY WEATHERED
(CLAY, SLIGHTLY SANDY, HARD.

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
5			16	17.9	1	5			17	15.6	1
5			20	16.3	1	5			21	16.1	1
10			32	11.7	2	10			29	12.8	2
15			50 10"	11.2	2	15			50 8"	13.9	2
20			50 11"	13.6	2	20			50 10"	17.5	2



TEST BORING LOGS

PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. A-1

TEST BORING 3
DATE DRILLED 4/25/2025

TEST BORING 4
DATE DRILLED 4/26/2025

REMARKS

REMARKS

DRY TO 20', 4/25/25

DRY TO 20', 4/26/25

FILL 0-1.5', CLAY, SLIGHTLY SANDY, BROWN
CLAY, SLIGHTLY SANDY, BROWN, VERY STIFF to STIFF, MOIST

CLAY, SLIGHTLY SANDY, BROWN, STIFF, MOIST

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0-1.5					1A
5			15	18.5	1
5			17	16.7	1
10			12	21.4	1
15			11	21.8	1
20			40	11.5	2

CLAYSTONE, EXTREMELY WEAK, BROWN, MODERATELY WEATHERED (CLAY, WITH SAND, HARD. MOIST)

CLAYSTONE, EXTREMELY WEAK, BROWN, MODERATELY WEATHERED (CLAY, WITH SAND, HARD, MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0-1.5					
5			11	18.0	1
5			9	18.6	1
10			13	17.4	1
15			13	18.9	1
20			50 8"	13.8	2



TEST BORING LOGS

PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. A-2

TEST BORING 5
DATE DRILLED 4/26/2025

TEST BORING 6
DATE DRILLED 4/26/2025

REMARKS

REMARKS

DRY TO 20', 4/26/25

DRY TO 20', 4/26/25

FILL 0-1', CLAY, SLIGHTLY SANDY, BROWN
CLAY, WITH SAND, BROWN, STIFF to MEDIUM STIFF, MOIST

CLAY, SLIGHTLY SANDY, BROWN, VERY STIFF to STIFF, MOIST

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
0-1					1A
5			7	21.2	1
5			8	19.4	1
10			6	22.2	1
15			9	21.7	1
20			10	23.1	1

CLAYSTONE, VERY WEAK, BROWN, MODERATELY WEATHERED (CLAY, WITH SAND, HARD. MOIST)

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
5			14	20.3	1
5			13	14.9	1
10			23	16.8	1
15			50 7"	12.5	2
20			50 8"	13.5	2



TEST BORING LOGS

PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. A-3

TABLE A-1
DEPTH TO BEDROCK

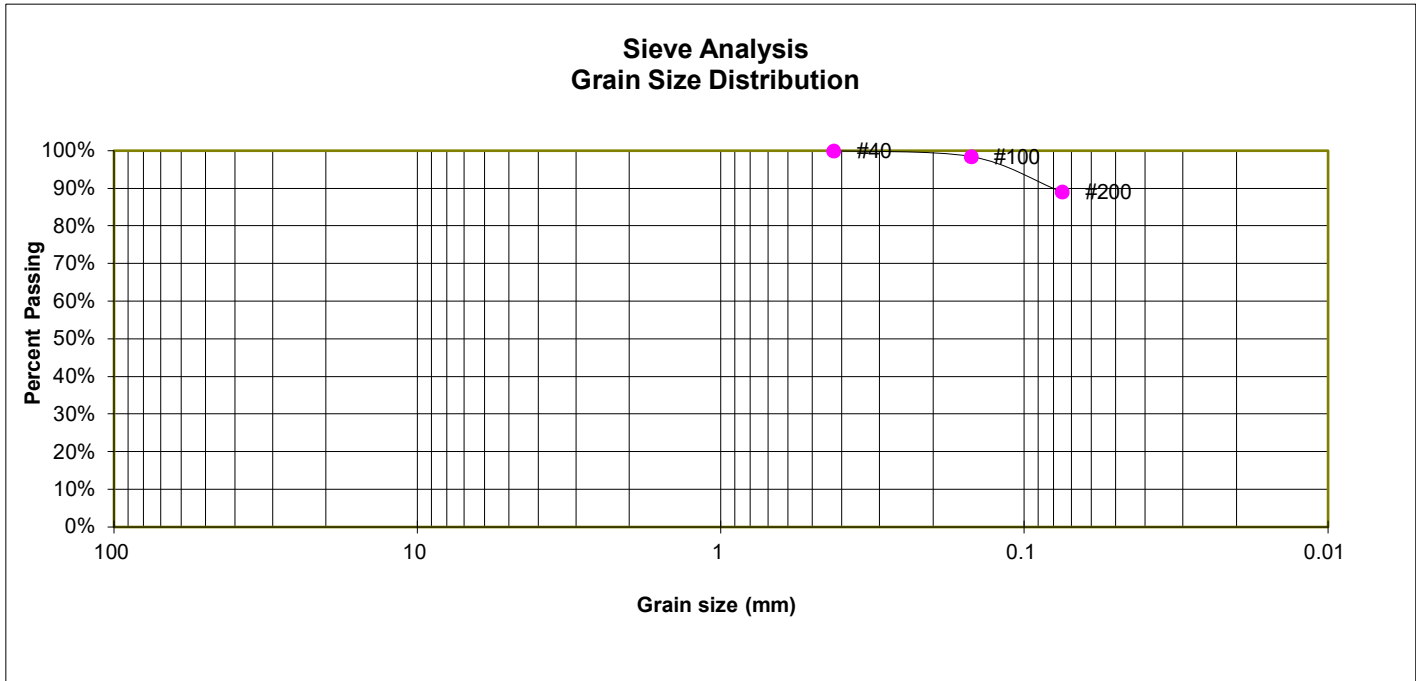
TEST BORING	DEPTH TO BEDROCK (ft.)
1	7
2	8
3	14
4	18
5	>20
6	13

**TABLE B-1
SUMMARY OF LABORATORY TEST RESULTS**

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/CONSOL (%)	USCS	SOIL DESCRIPTION
1	3	5	16.8	107.9	89.0	36	24	12	0.03		0.1	CL	CLAY, SLIGHTLY SANDY
1	4	10	20.9	101.2	86.5						-0.9	CL	CLAY, SLIGHTLY SANDY
1	5	2-3			79.0					360		CL	CLAY, WITH SAND
1	6	5			87.0							CL	CLAY, SLIGHTLY SANDY
2	1	10			84.5	40	22	18	0.12			CL	CLAYSTONE (CLAY, WITH SAND)
2	2	15	14.0	105.3	94.2	31	21	10	0.2		0.2	CL	CLAYSTONE (CLAY, SLIGHTLY SANDY)

TEST BORING 3
 DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY
 SOIL TYPE 1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	
40	100.0%
100	98.5%
200	89.0%

ATTERBERG LIMITS

Plastic Limit	24
Liquid Limit	36
Plastic Index	12

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

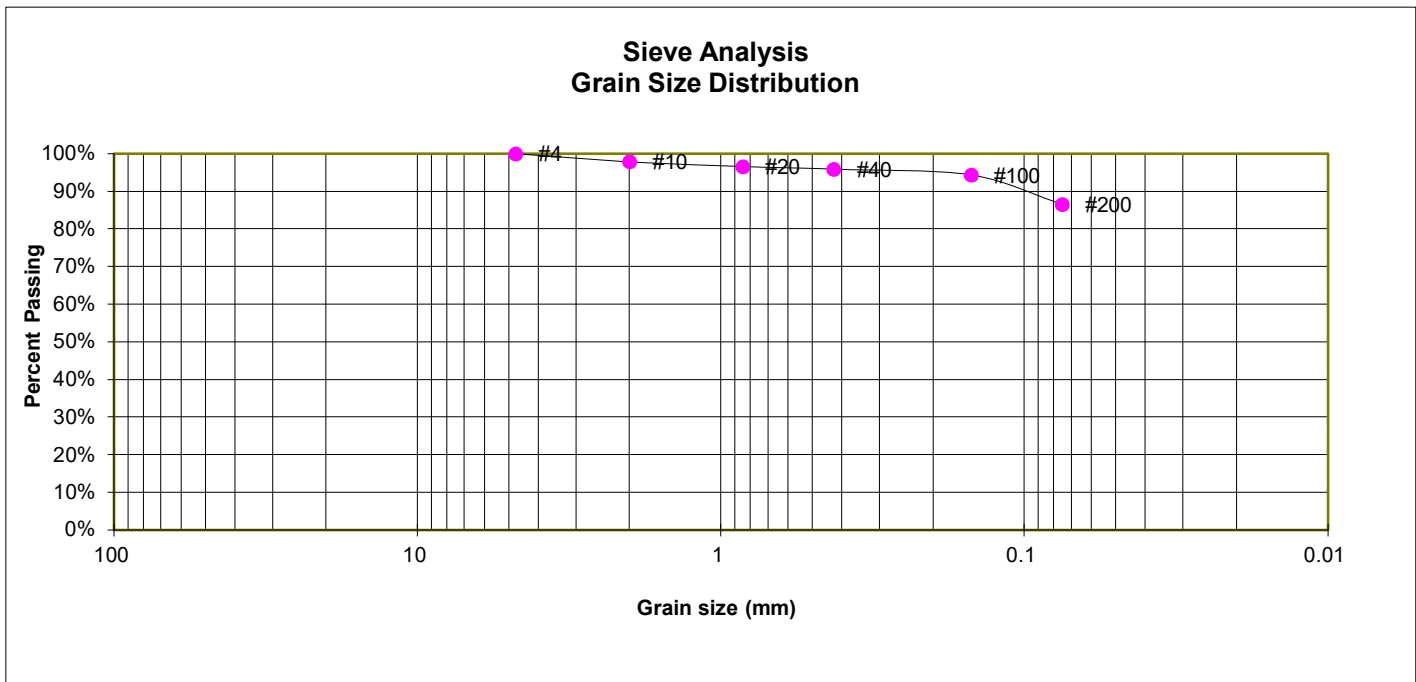
PEACEFUL RIDGE RETAINING WALL
 PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
 240480

FIG. B-1

TEST BORING 4
 DEPTH (FT) 10

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY
 SOIL TYPE 1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	97.9%
20	96.6%
40	95.9%
100	94.4%
200	86.5%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

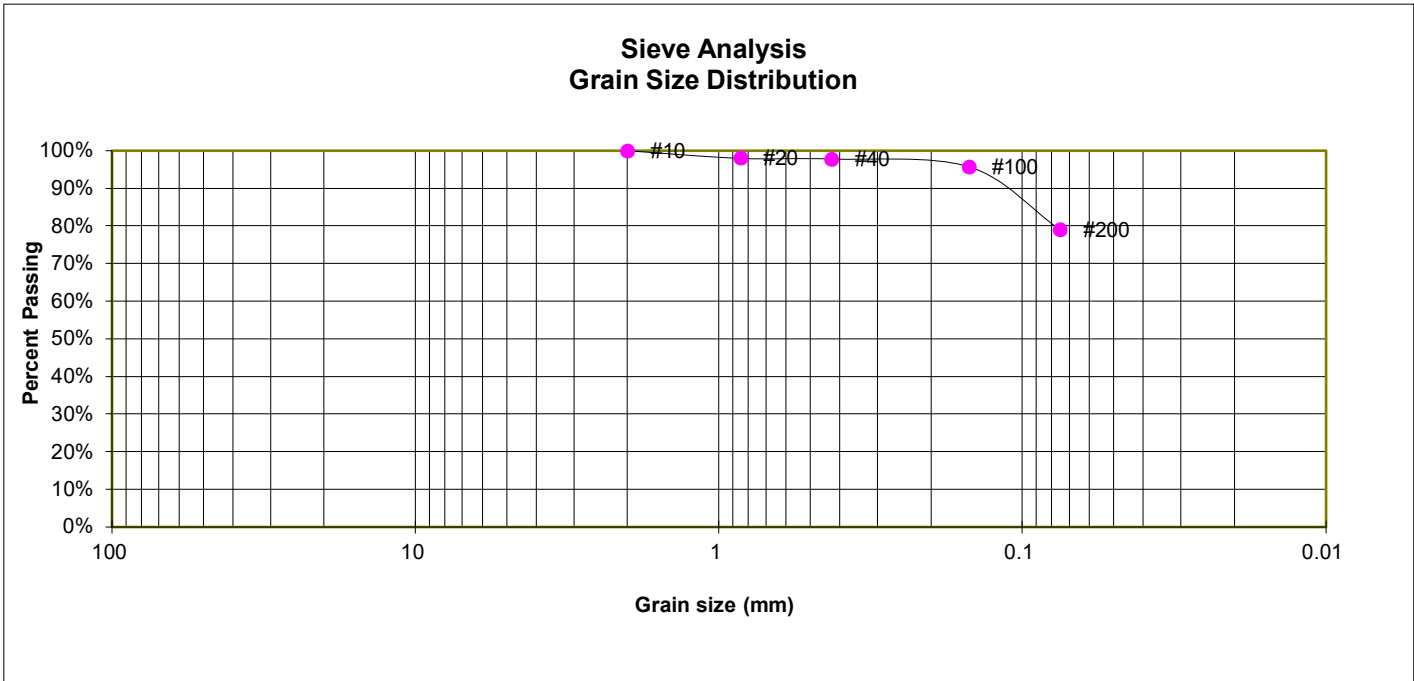
PEACEFUL RIDGE RETAINING WALL
 PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
 240480

FIG. B-2

TEST BORING 5
 DEPTH (FT) 2-3

SOIL DESCRIPTION CLAY, WITH SAND
 SOIL TYPE 1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	98.1%
40	97.8%
100	95.8%
200	79.0%

FHA SWELL

Moisture at start	6.2%
Moisture at finish	14.3%
Moisture increase	8.1%
Initial dry density (pcf)	106
Swell (psf)	360

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

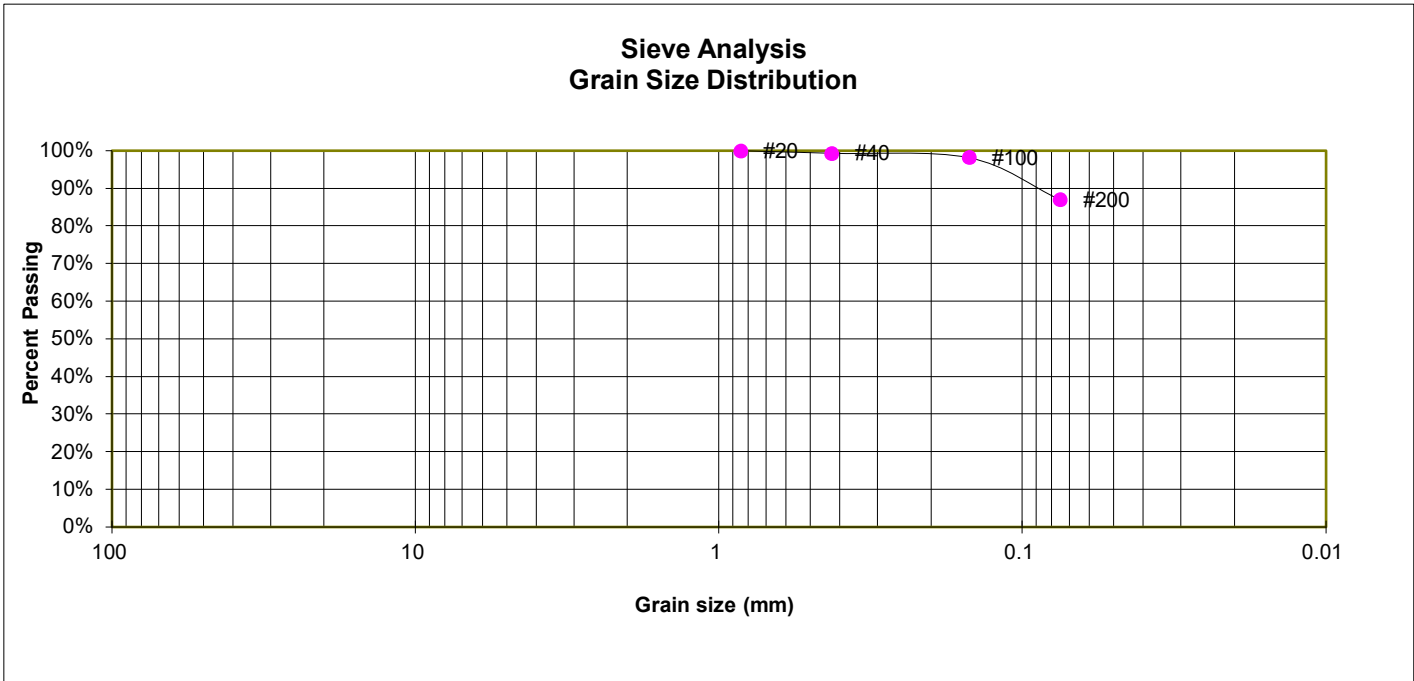
PEACEFUL RIDGE RETAINING WALL
 PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
 240480

FIG. B-3

TEST BORING 6
DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY
SOIL TYPE 1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	99.4%
100	98.2%
200	87.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

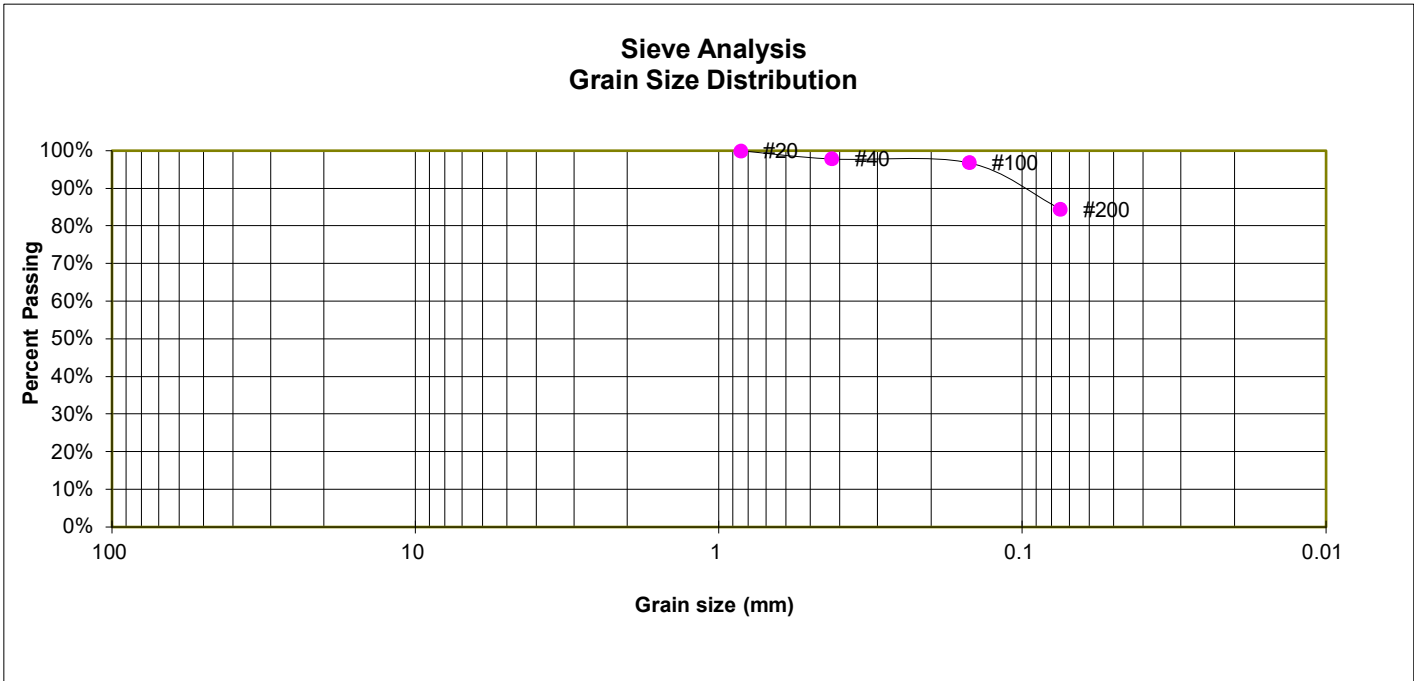
PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. B-4

TEST BORING 1
 DEPTH (FT) 10

SOIL DESCRIPTION CLAYSTONE (CLAY, WITH SAND)
 SOIL TYPE 2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	100.0%
40	97.9%
100	96.9%
200	84.5%

ATTERBERG LIMITS

Plastic Limit	22
Liquid Limit	40
Plastic Index	18

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



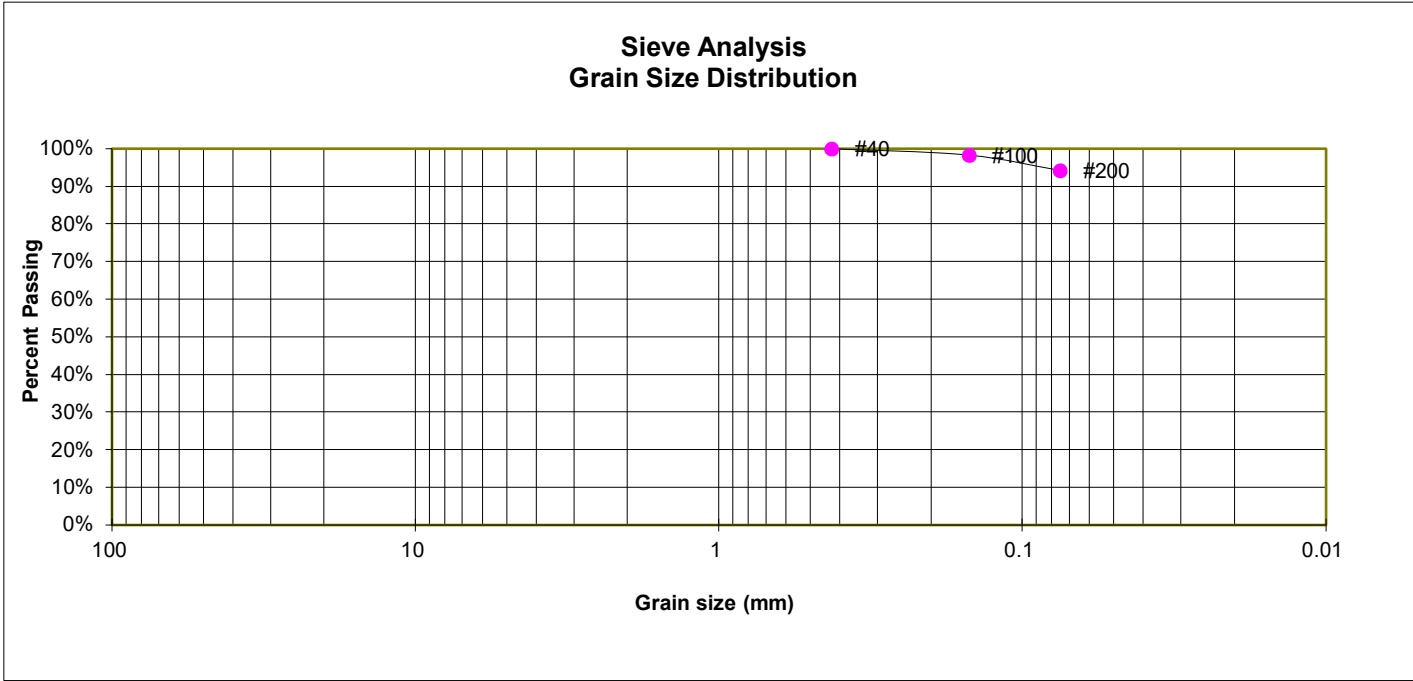
LABORATORY TEST RESULTS

PEACEFUL RIDGE RETAINING WALL
 PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
 240480

FIG. B-5

<u>TEST BORING</u>	2	<u>SOIL DESCRIPTION</u>	CLAYSTONE (CLAY, SLIGHTLY SANDY)
<u>DEPTH (FT)</u>	15	<u>SOIL TYPE</u>	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	
40	100.0%
100	98.3%
200	94.2%

ATTERBERG LIMITS

Plastic Limit	21
Liquid Limit	31
Plastic Index	10

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

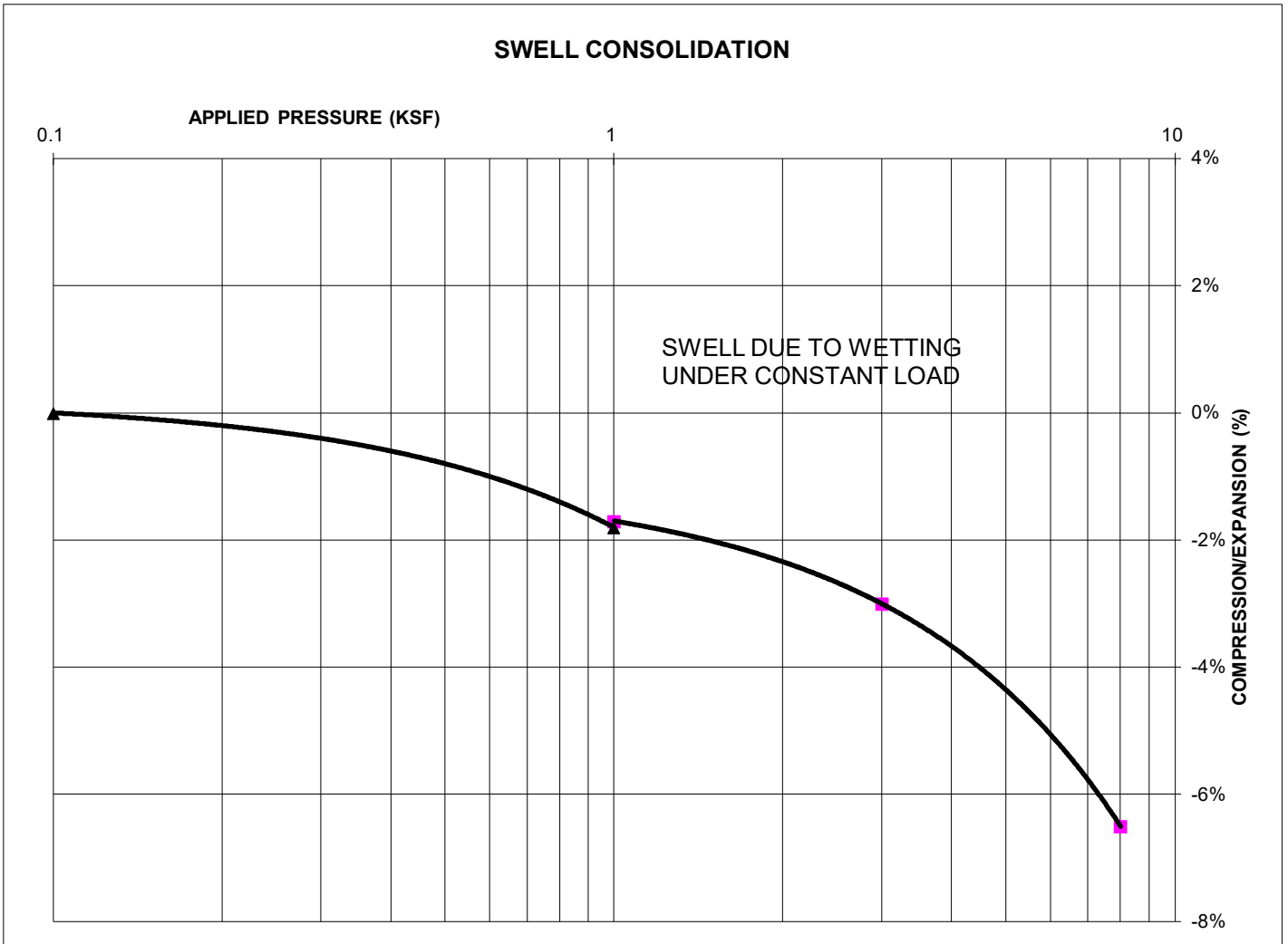
PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. B-6

TEST BORING 3
DEPTH (FT) 5

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY
SOIL TYPE 1



SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 108
NATURAL MOISTURE CONTENT: 16.8%
SWELL/COLLAPSE (%): 0.1%



SWELL TEST RESULTS

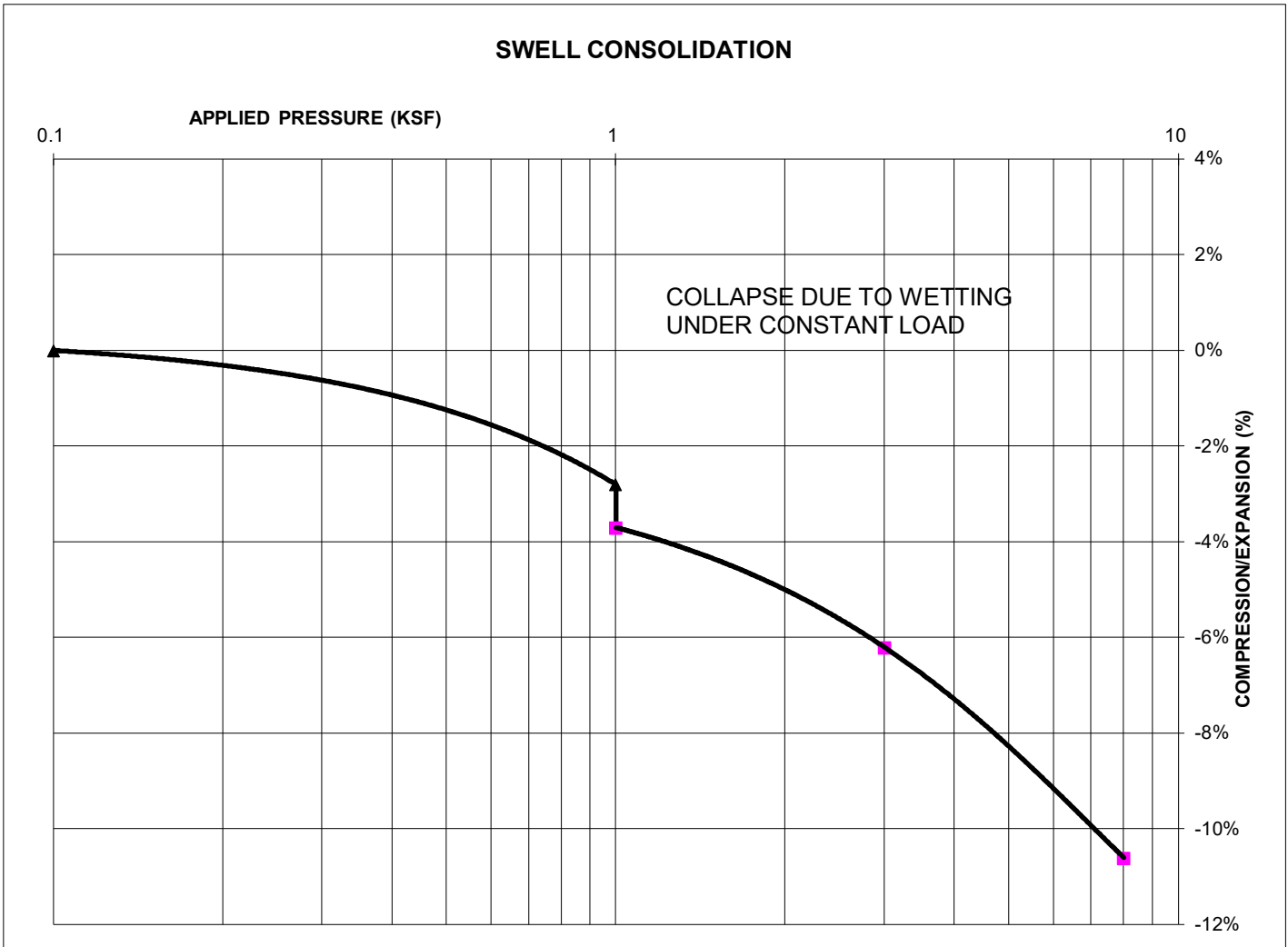
PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. B-7

TEST BORING 4
DEPTH (FT) 10

SOIL DESCRIPTION CLAY, SLIGHTLY SANDY
SOIL TYPE 1



SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 101
NATURAL MOISTURE CONTENT: 20.9%
SWELL/COLLAPSE (%): -0.9%



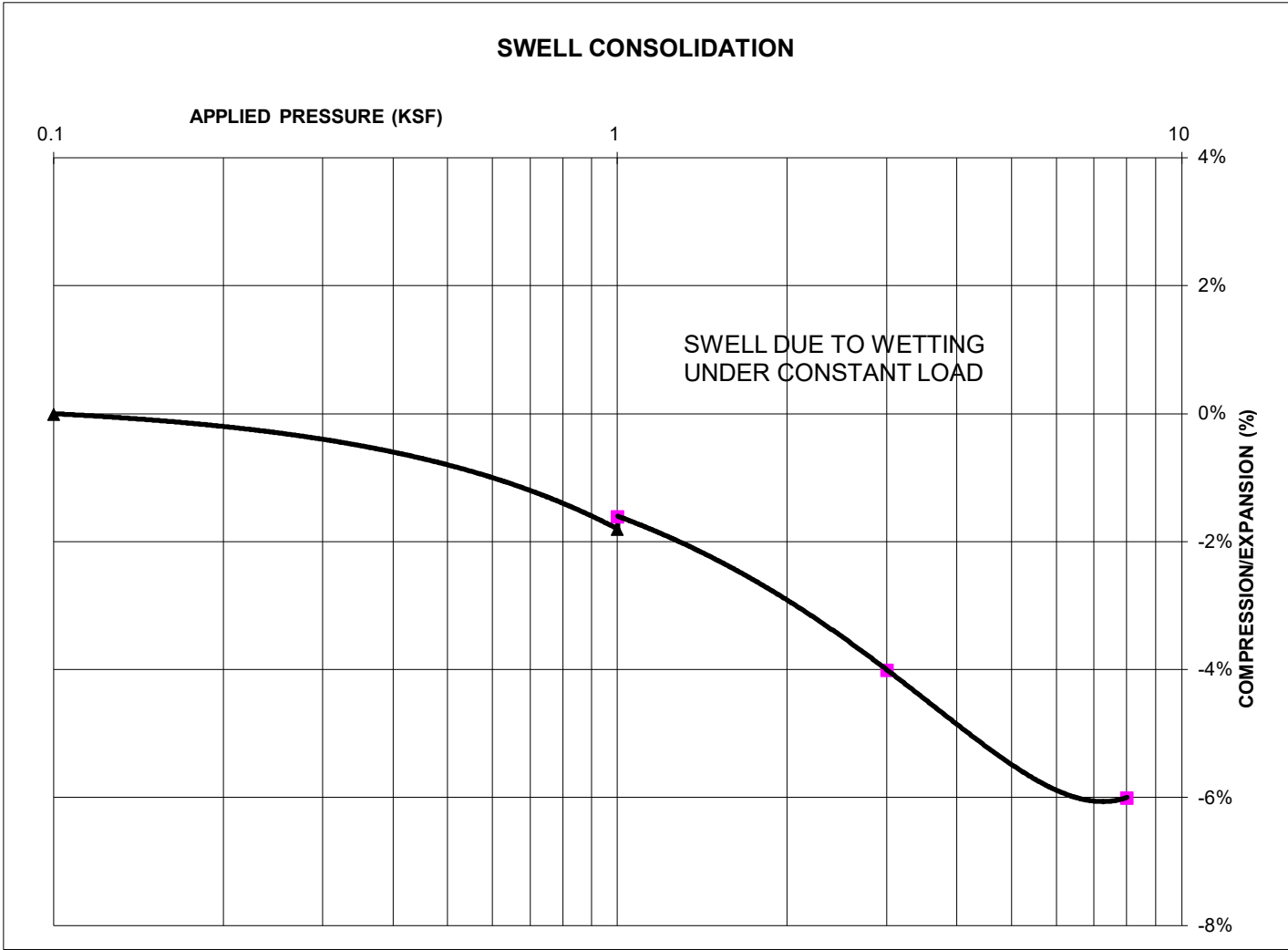
SWELL TEST RESULTS

PEACEFUL RIDGE RETAINING WALL
PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
240480

FIG. B-8

TEST BORING	2	SOIL DESCRIPTION	CLAYSTONE (CLAY, SLIGHTLY SANDY)
DEPTH (FT)	15	SOIL TYPE	2



SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 105
 NATURAL MOISTURE CONTENT: 14.0%
 SWELL/COLLAPSE (%): 0.2%



SWELL TEST RESULTS

PEACEFUL RIDGE RETAINING WALL
 PEACEFUL RIDGE DEVELOPMENT, LLC

JOB NO.
 240480

FIG. B-9