Geotechnical Investigation

Rancho Vistoso Valley Vista – Lot 19
[redacted] Residence

780 East Kalalau Drive
Oro Valley, Arizona
ProTeX Job No.: 12804

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Rancho Vistoso Valley Vista – Lot 19
780 East Kalalau Drive
Oro Valley, Arizona
ProTeX Job No.: 12804

November 3, 2022

Pulte Tucson Land
3011 West Ina Road
Tucson, Arizona 85741

Re: **Geotechnical Investigation - Forensics**

Project: **Rancho Vistoso Valley Vista- Lot 19**
780 East Kalalau Drive
Oro Valley, Arizona

ProTeX Job No.: 12804

Attention: Mr. Andy Martinez

At your request, ProTeX has completed a soil investigation for the subject project. The accompanying report includes field observations and laboratory testing with conclusions and recommended design parameters for analysis of the existing concrete slabs, privacy walls and the surrounding area subgrade improvements.

Prepared By,

Kimberly Nepsa
Staff Geologist

Respectfully submitted,
ProTeX - the PT Xperts, LLC

Registered Professional Engineer (Civil)
CERTIFICATE NO.
47662
JONES
TEMBO
Date Signed 11.3.2022
ARIZONA, U.S.A.
Expires 03/31/2023

Jones Tembo, P.E.

Registered Professional Engineer (Civil)
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36810
CLINT L.
MUELLER
Date Signed 11/3/22
ARIZONA, U.S.A.

Expires: 09/30/2025
Clint L. Mueller., P.E.

Rancho Vistoso Valley Vista – Lot 19
780 East Kalalau Drive
Oro Valley, Arizona
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APPENDICES

1.0 INTRODUCTION

1.1 Scope

ProTeX was retained by Pulte Group to analyze the surface and subsurface soil conditions associated with the existing house slab/foundations and privacy walls on the sides of the lot located at 780 East Kalalau Drive (Lot 19) in Oro Valley, Arizona. The common area with a Pump/Booster station owned and maintained by Pima County that is located between lots 19 and 20, was also evaluated. As a part of the investigation, the following were performed:

- Review of the earthwork/grading report associated with the Project
- Subsurface sampling of soils associated with the slab and privacy walls (backfill and foundation bearing) of the lot as well as common areas such as streets and detention basins.
- Visual observation of the privacy wall structures and slab foundation associated with the lot.

This report contains the findings from the field exploration and laboratory testing, conclusions and recommendations.

1.2 Terms and Conditions

This report was prepared for Pulte Group. The contents of this report may not be relied upon by any other party without the expressed written permission of ProTeX - the PT Xperts, LLC and the written permission of Pulte Group. The report presents site conditions at the time of the investigation and for the aforementioned proposed development. The report should be updated prior to construction if a maximum of one year has elapsed from the issued date.

2.0 FIELD AND LABORATORY TESTING

2.1 Geotechnical Site Reconnaissance

The site consists of one Booster station in the common area located just east of a single-family residential lot (Lot 19 – [redacted] Residence) within the Rancho Vistoso Valley Vista Master planned

community near Kalalau Drive and Romsdalen Road in Oro Valley, Arizona. Specific address information at the time of this report includes:

1) 780 East Kalalau Drive, Lot 19, [redacted] Residence
2) 12550 North Moore Loop, Booster Station within the common area.

The subject lot is located near the southeastern corner of the residential community, adjacent to and near the existing wash which is located directly a few feet east and south of Lot 19. At the time of the field visit and sampling on February 25, 2022, May 5, 2022, July 1, 2022 and September 1, 2022, the front yard for the residential lot as well as the common areas were completely landscaped. The backyard for Lot 19 did not have any landscaping at the time of our field investigations. The privacy walls associated with the lot were noted to be on the east and west sides of the lot, with the east privacy wall sharing a block wall with the booster station. View fencing was observed in the back portions of the residential lot. The booster station in the common area was surrounded by block walls with view/entry fence gates observed on the north side.

Preliminary field site visits, observations, drilling or reviews were conducted on February 8, 2022, February 25, 2022, May 5, 2022, July 1, 2022 and September 1, 2022. Manometer (floor elevation) surveys for Lot 19, including interior inspections, were performed on April 12, 2022. An additional manometer survey was performed for Lot 19 on May 12, 2022.

Document Review:

Geotechnical investigation: The original geotechnical investigation was performed by ProTeX - the PT Xperts, LLC under the title "Rancho Vistoso Neighborhood 5 Parcels X and W" (Job No. 7466 dated February 20, 2018). The foundation section of the report requires the pads to bear on 12 inches of compacted fill. The report recommends an allowable bearing capacity of 1250psf for a minimum of 1.5 feet embedment below lowest adjacent grade. Compaction specifications stated in the geotechnical report are 95% of the maximum dry density at ±2% of optimum moisture content based on ASTM D698 or AASHTO T-99 compaction method.

Grading Report: The "5X and 5W Mass Grading at Rancho Vistoso Valley Vista (Phase 1A)" testing and observation was conducted by ProTeX - the PT Xperts and the report was prepared on June 13, 2019. The report was reviewed and indicates that the grading specific to Lot 19 included fill depths as much as 8 feet across portions of the pad. Passing density and moisture tests were recorded in the report.

The project's grading sheets for the common area, between Lots 19 and 20 and adjacent to the Booster station, showed that the projected fills were as much as 10 feet. Projected fill depths around the street areas near Kalalau Drive and Romsdalen Road were as much as 4 to 5 feet.

2.2 Field Investigation

Field Soil Sampling: For the purpose of this forensic study and in evaluating the subsurface conditions, a total of nineteen (19) test holes were completed in the residential development. Ten (10) of the test holes were completed in the common area of the Booster station and the street corner, including one (1) test hole located in the street directly adjacent to Lot 20, and the detention basin on the northwest portion of the street corner. Overall, two (2) test holes were completed on Lot 19, near the front bedroom of the existing house and adjacent to the front sidewalk. One (1) test hole was completed on Lot 18, adjacent to the front sidewalk. Two (2) test holes were completed along Lauterbrunnen Lane, one (1) adjacent to the existing drainage channel immediately south and adjacent to Lot 31 and one (1) in the front yard of Lot 31. Four (4) test holes were completed in wash areas, located south and east of the southeastern corner of the residential community. More specifically, the wash areas behind Lots 15, 19, 20 and 22. The test holes were advanced to depths ranging from 25 to 71 feet below the existing site grade.

Blow Counts using a ring-lined barrel sampler and a bullnose tip as well as the field observations indicate that the subsurface soils are very loose/soft, experiencing varying levels of moisture content. See the table below and the attached boring logs in Appendix C.

Table 1 – Moisture Content Summary of Subsurface Soils

Test Hole Number	Degree of Saturation (Field observations) -Very damp to wet soils-	Depth of Saturation (Field observations)	Depth of Maximum Saturation (WET) (Field observations)	Moisture Content (%) (Lab Testing/Results)	Soil Type (USCS)
FB1A	N/A	N/A	N/A		
FB2A	N/A	N/A	N/A		
FB3/A	Slightly moist to very moist soils	0 – 26'	N/A	1' - 7.6 5' – 8.6 10' – 8.7 15' – 8.6 20' – 9.0 25' – 26.4	(SM) Silty Sand (SM) Silty Sand **(CL) Lean Clay**
FB4A	N/A	N/A	N/A		
FB5/A	Slightly moist to very moist soils	0 – 26'	N/A	1' – 8.3 5' – 9.7 15' – 22.8 20' – 5.7 25' – 13.2	**(SM) Silty Sand** **(SM) Silty Sand** **Silty Clayey Sand (SC-SM)** **(SM) Silty Sand**
FB6A	Blow counts indicate softer/possibly moist soils	2' – 3.5'	N/A		
FB7/A	Moist to wet soils	0 – 26'	0 - 10'	1' – 7.9 5' – 9.9 10' – 6.1 25' – 8.9	**(SM) Silty Sand** **Silty Clayey Sand (SC-SM)**
FB8	Moist to wet soils	0 – 61'	5' – 20' 25' – 30' 45' – 50' 60' – 61'	1.5' – 6.8 5' – 10.2 10' – 8.1 15' – 6.1 20' – 7.5 25' – 5.3 30' – 4.7 35' – 4.5 40' – 5.4 45' – 9.4 50' – 17.3 60' – 6.8	**(SM) Silty Sand** **(SM) Silty Sand** **Silty Clayey Sand (SC-SM)** **(CL) Sandy Clay**
FB11	Moist to wet soils	0 – 25'	10' – 20'	1.5' – 6.3 5' – 7.2 10' – 8.5	

				15' – 4.9 20' – 5.2 25' – 9.4 30' – 6.6 35' – 2.1 40' – 1.7 45' – 2.9	**Silty Clayey Sand (SC-SM)** **Silty Clayey Sand (SC-SM)**
FB12/A	Moist soils	5' – 10' and 40' – 45'	N/A	35' – 5.8	Silty Clayey Sand (SC-SM)
FB13	Moist to slightly wet	0 – 35'	15'	1.5' – 7.3 5' – 6.6 10' – 11.0 15' – 24.0 20' – 7.8 25' – 11.8 30' – 13.8 35' – 5.3 40' – 3.2 45' – 8.0 50' – 6.0	**Silty Clayey Sand (SC-SM)** **(CL) Sandy Clay** **(CL) Sandy Clay** **(CL) Sandy Clay**
FB14	Very damp	35'	N/A	10' – 4.0 15' – 5.2 20' – 6.3 25' – 21.3 30' – 15.9 35' – 6.8 50' – 9.1 55' – 3.7 60' – 6.1 65' – 6.2	**(SM) Silty Sand** **(SM) Silty Sand** **(SC) Clayey Sand**
FB15	Very damp	0' and 24.5'	N/A	25' – 20.6 30' – 4.9 50' – 6.2	**(SM) Silty Sand**
FB16	Very damp	5'-25'	N/A	20' – 6.4 40' – 4.6 50' – 8.1	(SM) Silty Sand and (SC) Clayey Sand
FB17	Very damp	5'	N/A	-	(SM) Silty Sand
FB18	N/A	N/A	N/A	2.5' – 10.2 5' – 3.7 10' – 20.6 15' – 17.0 20' – 5.9 25' – 7.0	**(SM) Silty Sand** **(CL) Lean Clay** **(CL) Lean Clay**

				30' – 6.6 35' – 13.0 40' – 5.6	**(CL) Lean Clay**
FB19	N/A	N/A	N/A	2.5' – 9.6 10' – 13.9 20' – 4.9	**(SM) Silty Sand** **(SM) Silty Sand**

At each test hole location, the soils encountered were visually observed, classified, logged and representative samples were obtained where applicable. Refer to the site plan in Appendix B for approximate test hole locations.

2.3 Historical Aerial Investigation

The following descriptions and Historical Aerial Photographs were obtained from Google Earth (https://earth.google.com/web/) which show historical site conditions prior to construction of the current residential community.

Aerial photographs show evidence of native desert conditions at the time of the earliest available aerial images in the region, in April of 1992. The photographs also show a natural, mid to large size, waterway from higher elevations to lower elevations, draining into Big Wash, through the southeast portion of the recently built residential community of Rancho Vistoso Valley Vista. The residential community appear in the aerial photographs from December 2020 to present-day. See figures below.

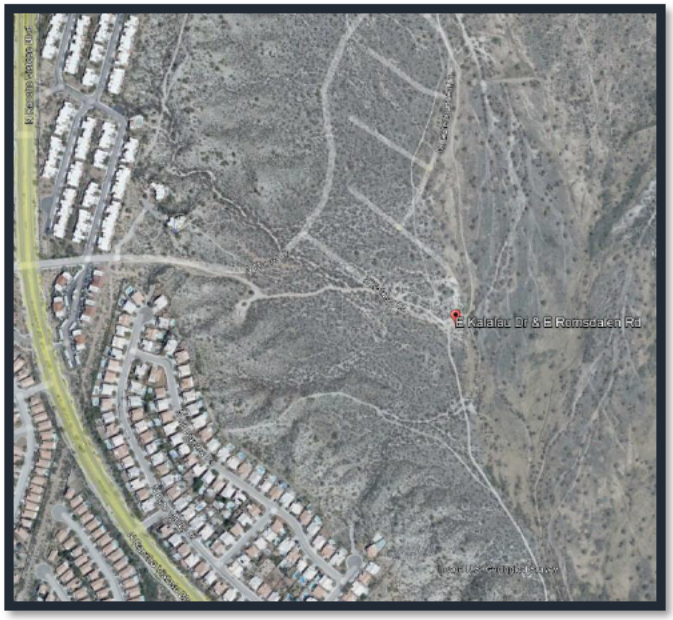

Figure 1: March, 2011, showing the historical pattern of the existing waterway into Big Wash

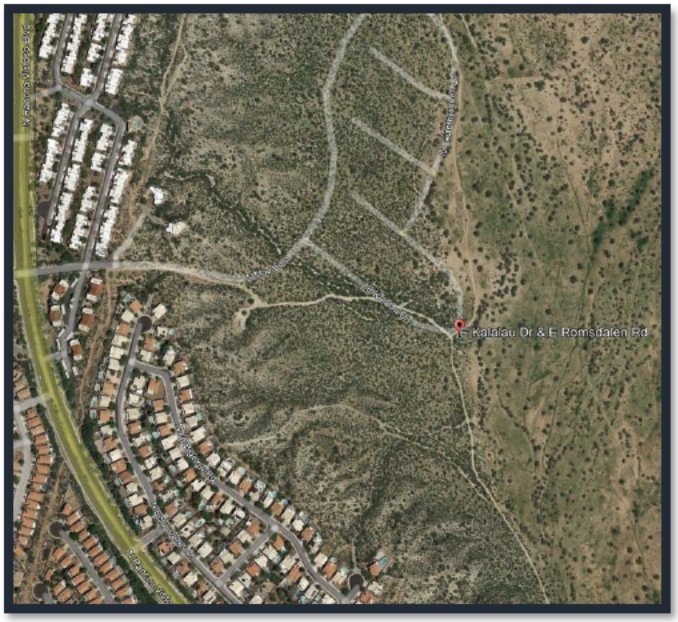

Figure 2: August, 2018, showing abundant vegetation along waterway, before the construction of the residential community

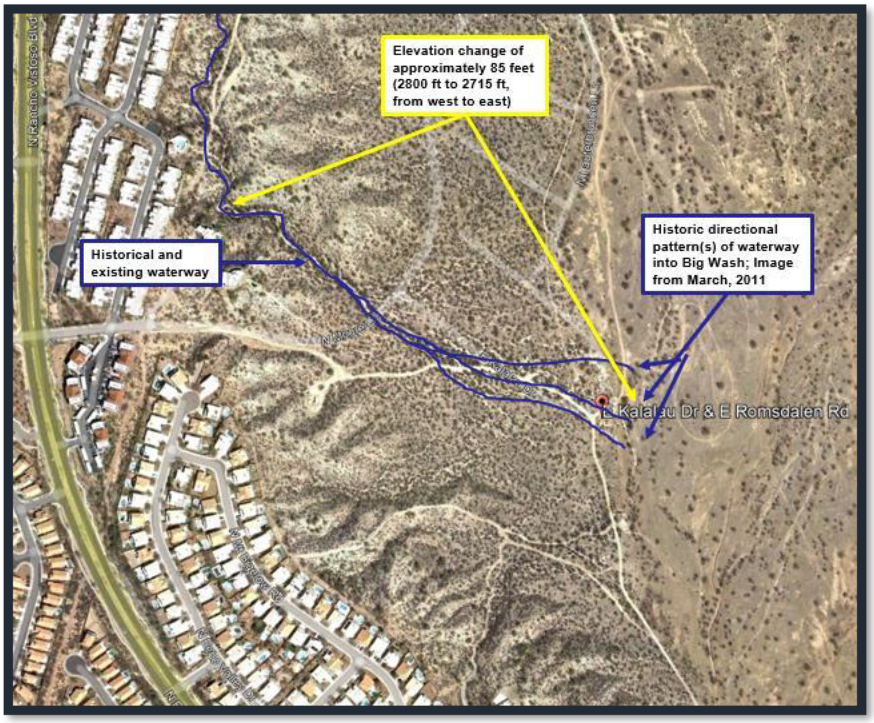

Figure 2: March, 2011, highlighting waterway patterns

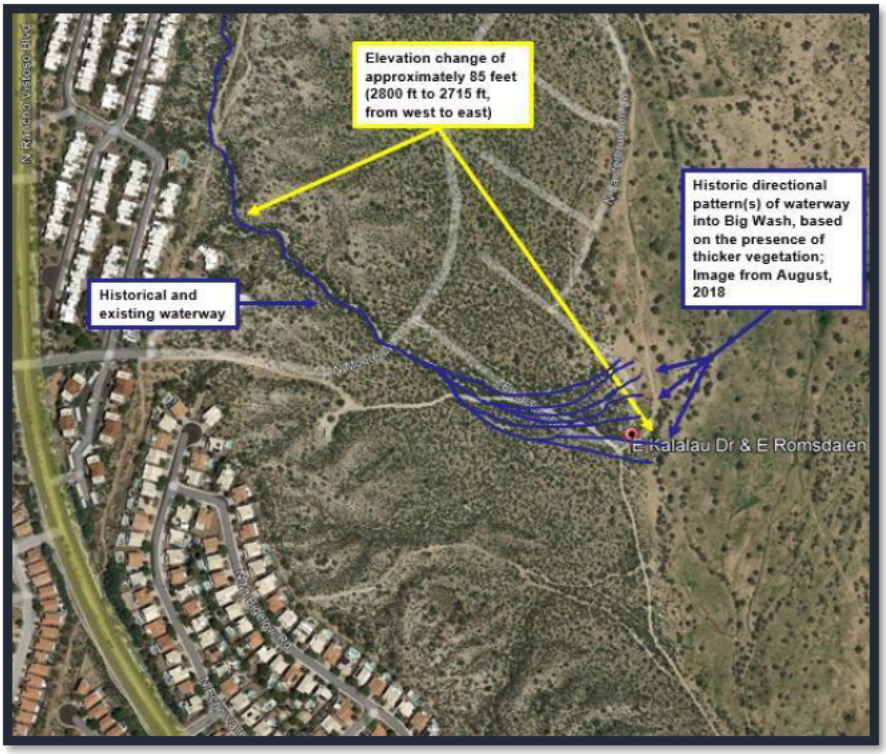

Figure 4: August, 2018, highlighting waterway patterns

3.0 GENERAL SITE CONDITIONS

3.1 Soil Stratigraphy

Based on the field exploration and laboratory testing, the subsurface profile primarily consists of interlayered beds of non-plastic silty sand, low plasticity silty clayey sand and poorly graded silty fine sands, low-medium plasticity clayey sand and lean to sandy clay of low-medium to high plasticity. Refer to the boring logs in Appendix C for a detailed description of the subsurface soil profile.

3.1 Flood Plains

ProTeX reviewed the Federal Emergency Management Agency (FEMA) Flood Maps and determined the subject site is <u>not</u> directly located within the 100-year flood zone. The site is located adjacent to Zone A, a Special Flood Hazard Area (without Base Flood Elevation (BFE)). A partial copy of the FEMA Flood Map with site location is shown below.

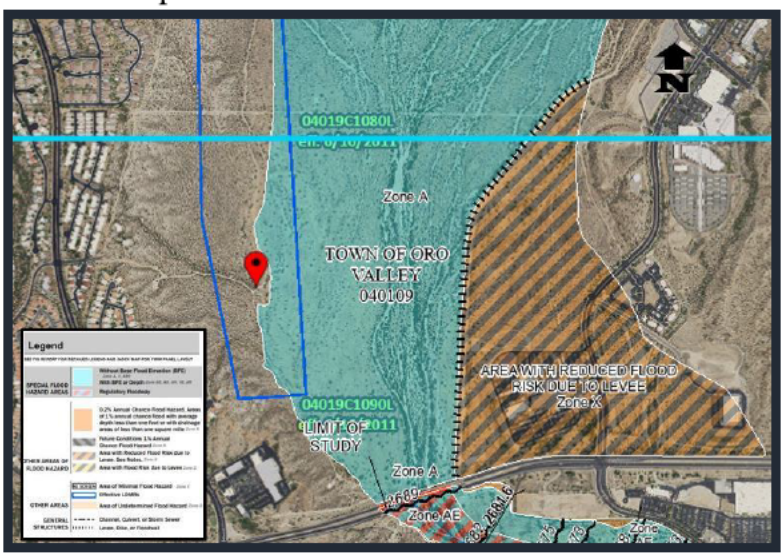

Figure 3: Flood map for areas adjacent to project site

The map indicates the subject site is located in an area generally unaffected by direct flooding. The FEMA map reviewed is Map Number 04019C080L and revision date of June 16, 2011. There was a Letter of Map Revision (LOMR), 20-09-1126P, on November 19, 2020 to include recent changes to the flood zone.

3.2 Groundwater

ProTeX reviewed the Arizona Department of Water Resources (ADWR), GIS Groundwater Data and referenced monitored wells within the vicinity of the subject site. Wells located within this radius indicated depths of water ranging from approximately 116 to 476 feet below ground surface. Wells were measured using different techniques such as ADWR calibrated electric sounder and steel tape.

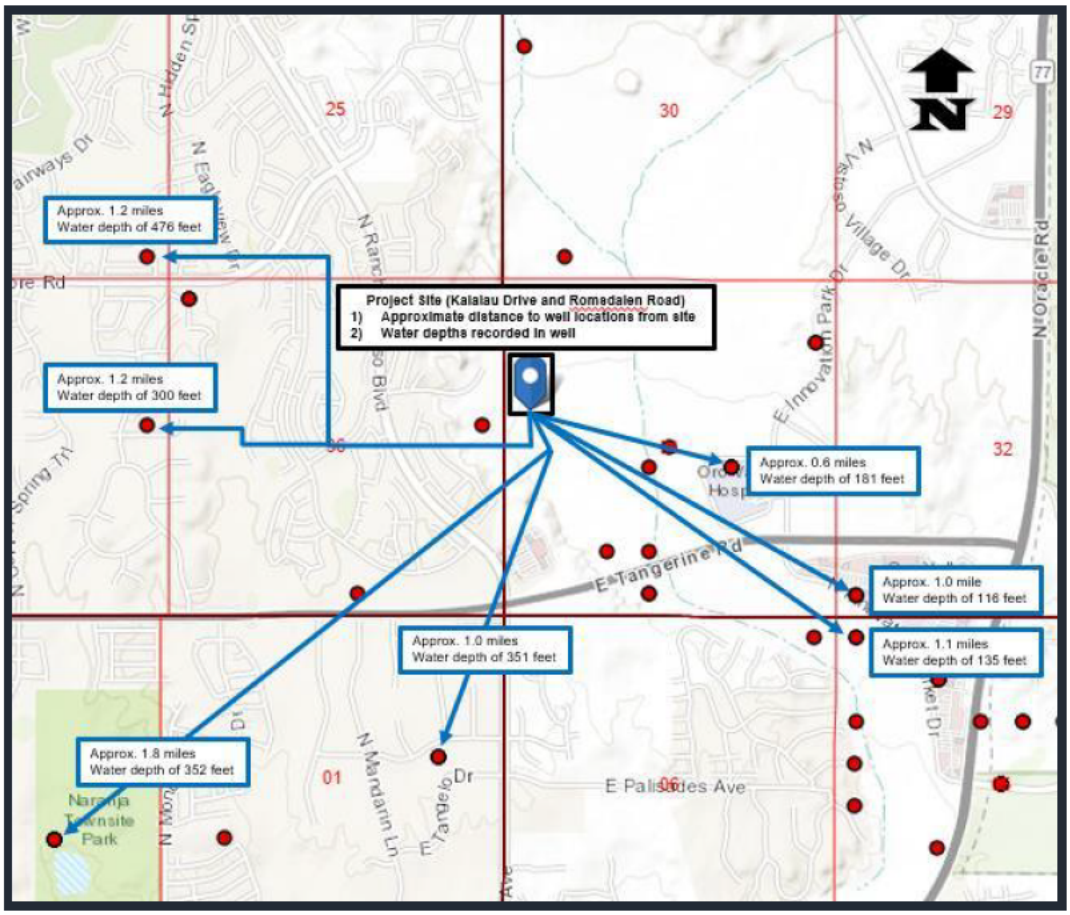

Figure 1: Well data in the vicinity of the project site

3.3 Potential for Soil Hydro-Collapse (Settlement Potential)

Laboratory testing generally indicate that the subsurface soils, in their current state, have variable potentials for settlement (negative vertical movement recorded from the response to wetting testing of in-situ soil samples) at the estimated overburden loads ranging between 500 and 8000 psf

depending on the depth below finished site grade. See the attached laboratory test results in Appendix A. Blow Counts using the ring-lined barrel sampler and a Bullnose tip at the test locations indicated soils have variable densities at various depths below existing site grade. In general, the tested subsurface in-situ densities around the Booster common area and surrounding Lot 19 ranged between 70% and 97% based on the relative compaction using ASTM D698-A maximum density parameters (see boring logs in Appendix C).

Field Observations:

Field investigations to evaluate damages to concrete slabs/foundation, landscaped areas and site walls on Lot 19 and the adjacent common areas, were performed on February 8, 2022, February 25, 2022, May 5, 2022, May 12, 2022, July 1, 2022, and August 9, 2022.

Concrete Slab Observations:

Field investigations to evaluate the concrete slab for the house located on Lot 19 and concrete slab for the driveway, were initially performed on February 8, 2022. Separation cracks reported by the homeowner and Pulte Homes were visually inspected inside Lot 19.

- Homeowners indicated that the reported cracks in the concrete slabs started off as hairline thicknesses and have progressively widened over time. Separation of concrete slab panels as well as cracks in the landscape soil were observed around the property. See pictures on the next page.

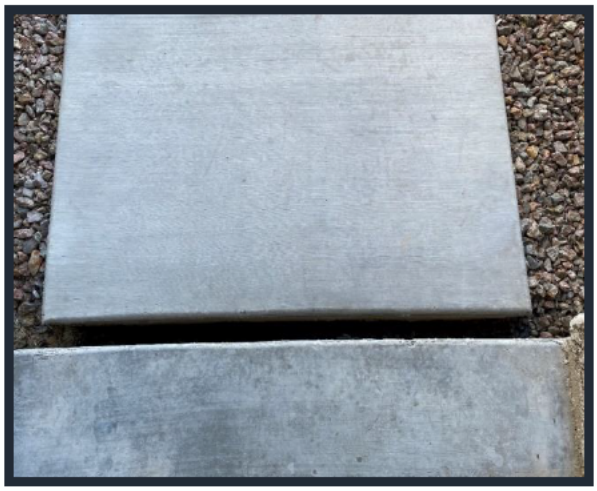

Figure 1: Lot 19, separation of concrete walkway at the front entrance of the existing house

Figure 2: Lot 19, crack in the concrete slab in the garage

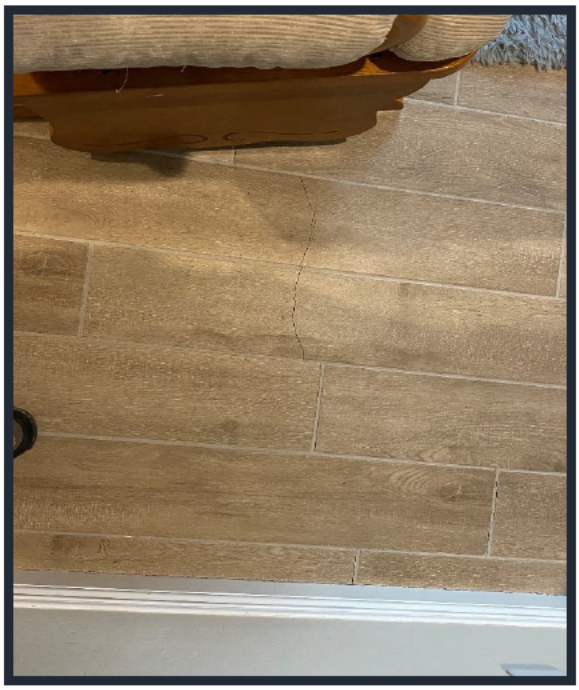

Figure 3: Lot 19, evidence of slab cracking reflecting on the tiles inside the existing home

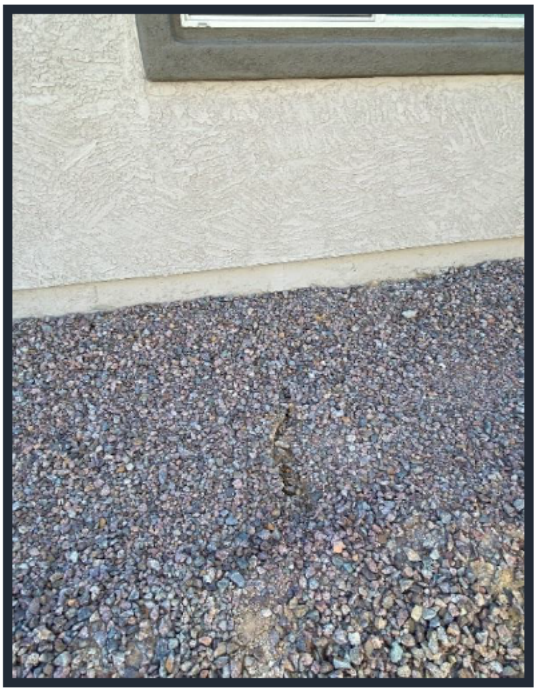

Figure 4: Lot 19, cracks observed in the soil on the west side of house

Manometer Survey and Interior Inspections: Floor elevation surveys were taken on the slabs that were placed monolithically with the foundations using a water level system. The elevations were measured to the nearest tenth of an inch. The points recorded in the house on Lot 19 were mapped to determine the current contour of the slabs. A manometer survey was initially performed in this residential structure on Lot 19 on April 12, 2022, and an additional manometer survey was performed on May 12, 2022.

The elevation difference between the highest and lowest surveyed points is 5.4". The lowest elevations were noted to be confined mostly towards the northwest portions of the house whereas the highest elevations were located near the southwest portions of the house.

Cracks were observed in the foundation and framing of the residential structure on Lot 19. The accompanying pictures show some of the cracks reported during the field site visit.

Figure 1: Lot 19 Cracks in the front bathroom, above the shower stall

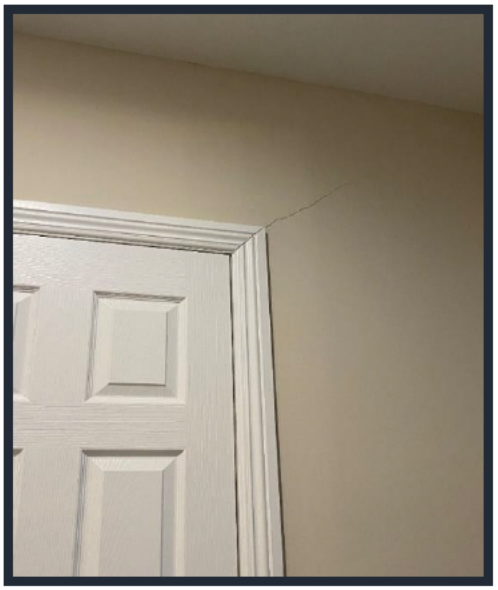

Figure 2: Lot 19 Crack at the top corner of half bath door, front entrance hallway

Figure 5: Lot 19, outside utility piping has separated from the base of electric box on the east side of house

Figure 3: Lot 19 Separation of baseboard from wall, near the sliding glass door, in the dining nook

Figure 4: Lot 19 Cracks and pop-outs observed in the front bedroom

Figure 5: Lot 19, cracks in the drywall in the garage

Figure 6: Lot 19 Cracks in the drywall at top edge of the window in Bedroom 2

Site Wall Evaluation: The site walls on the right and left sides of the lots were visually observed to document the reported signs of distress.

Lot 19 - East Block Wall:

The privacy wall system on the east side of the lot consists of a single wall that borders the Pump/Booster station, located immediately east of the residential lot. Vertical and stair-step separation cracks, measuring up to approximately ½ inch or more were observed in this wall. Wall separations at control joints measured between 1" to 1 3/8" from the bottom to the top of the wall. The accompanying pictures show some of the cracks noted in the privacy walls.

Figure 1: Lot 19 Stair-step separation of individual blocks in the wall

Figure 2: Lot 19 vertical separation of block wall panels

Figure 3: Lot 19 displacement and westward deflection observed in the east wall

Lot 19 - West Block Wall: The privacy wall system on the west side of the lot consists of a single wall system that borders a neighboring homeowner. Evaluation of the general condition of the privacy wall system was noted to have undergone minimal to mostly zero deflections. However, separation cracks, measuring up to approximately 1/8" were observed in this wall.

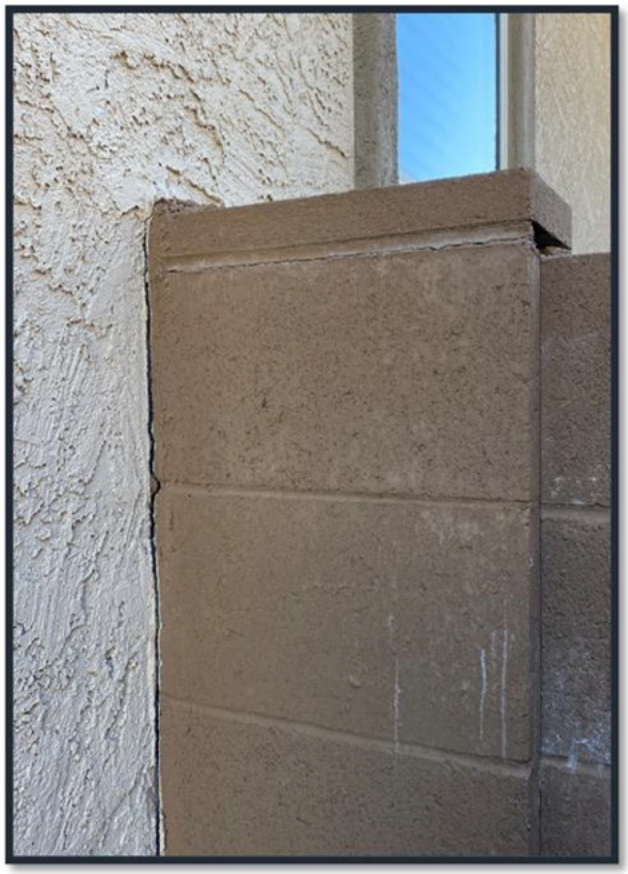

Figure 1: Separation of west block wall from residential structure

Figure 2: Close-up of separation crack on west side of house

Common Area Observations: The common areas within the project area exhibited some signs of distress. Numerous cracks in the asphalt were observed at various locations.

Corner of Residential Roadway: Kalalau Drive and Romsdalen Road

The local residential roadway where Kalalau Drive and Romsdalen Road connect, is currently paved with asphalt. The condition of the asphalt pavement was noted to have developed cracks at various locations. It also appears that this area has had the asphalt pavement replaced.

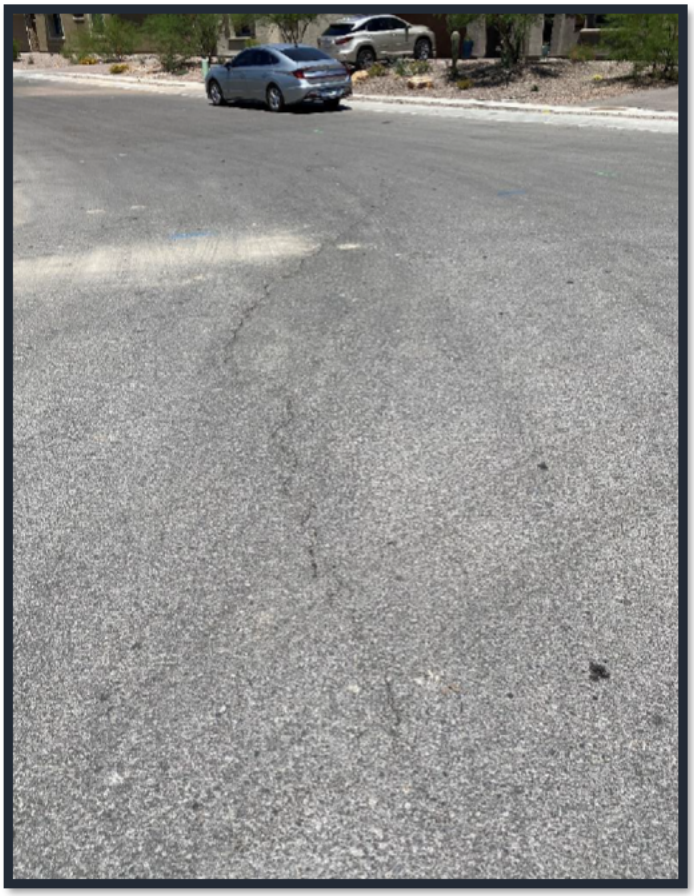

Figure 1: Cracks in the asphalt, looking northeast from middle of the road

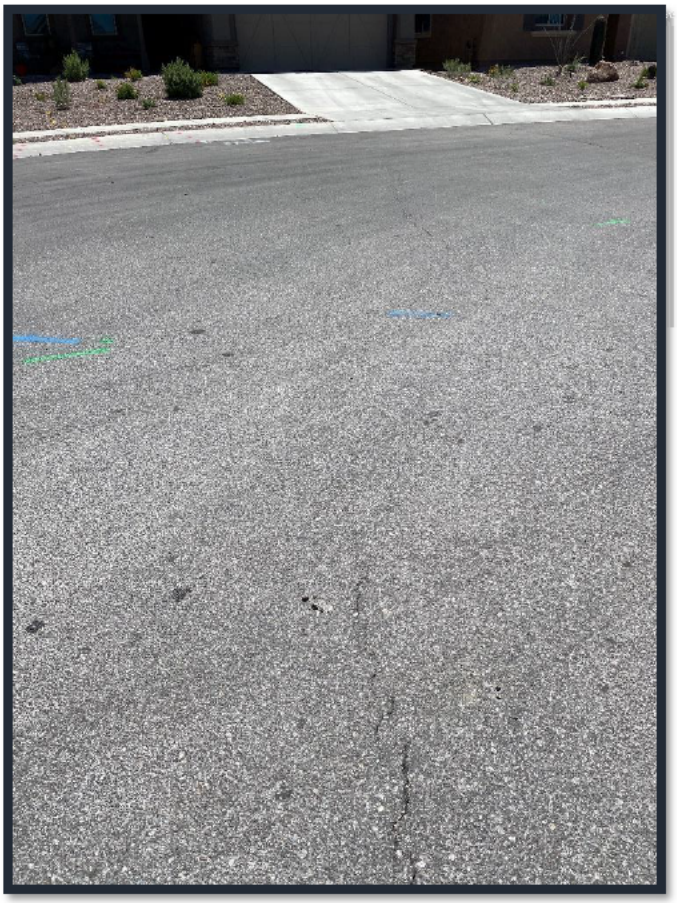

Figure 2: Cracks in the asphalt, looking southwest from middle of the road

Common Area adjacent to the Booster Station:

The area is currently paved with asphalt and includes small gravel areas with smaller utility housing. Cracks in the asphalt were observed, trending southwest to northeast. The patterns in both the block wall and the cracks in the asphalt pavement appear to follow similar trends.

Figure 1: Cracking in common area of booster station, in the asphalt pavement, and leading to Lot 20. Similar residual cracking patterns in both wall and asphalt pavement

3.4 Laboratory Testing

Subsequent to the field investigation, soil samples were submitted for laboratory testing. Tests were performed to determine the following:

- **Response to Wetting Testing**- Relatively undisturbed soil samples were subjected to surcharge pressures equivalent to the estimated in-situ overburden pressure representing estimated applied structural loads of about 1000 psf. The samples were allowed free access

to water and the vertical volume decrease (compression) recorded. Applied load pressures at saturation ranged between 500 psf and 8000 psf.

- **Sieve Analysis and Atterberg Limits**- Used for formal classification of soils in general accordance with the Unified Soil Classification System (USCS) per ASTM Test Method D2487. Sieve analysis is performed in general accordance with ASTM Test Methods D421, D422 and D1140. The Atterberg Limits were determined in general accordance with ASTM Test Method D4318.
- **Moisture Density (Proctor)**- To determine a relative density to compare in-situ density test results. ASTM D1557.

Laboratory Test Summary

Location	Depth (feet)	Plasticity Index (PI)	Percent Passing #200 Sieve	USCS Soil Classification
FB3	1-3	NP	22	SM
FB3	11-13	NP	26	SM
FB5	1-3	NP	22	SM
FB5	6-8	NP	24	SM
FB5	17-19	6	22	SC-SM
FB7	1-3	NP	17	GM
FB7	13-15	NP	23	SM
FB8	0-3	NP	16	SM
FB8	10-12	NP	24	SM
FB8	51-53	10	53	CL
FB12	0-3	6	27	SC-SM
FB12	12-14	7	36	SC-SM
FB12	17-19	NP	18	SM
FB14	0-3	NP	19	SM
FB14	6-8	NP	22	SM
FB14	11-13	3	25	SM
FB14	16-18	NP	23	SM
FB14	22-24	NP	22	SM
FB15	0-3	NP	19	SM
FB15	6-8	NP	22	SM
FB15	11-13	NP	23	SM
FB15	16-18	5	28	SC-SM
FB15	22-24	NP	21	SM
FB16	0-3	NP	14	SM
FB16	5-7	NP	14	SM
FB16	11-13	NP	23	SM
FB16	16-18	NP	21	SM
FB16	22-24	8	28	SC
FB17	0-3	NP	20	SM
FB17	6-8	NP	15	SM
FB17	11-13	NP	15	SM
FB17	16-18	NP	21	SM
FB17	22-24	NP	15	SM
FB18	0-3	NP	33	SM
FB18	6-8	NP	38	SM
FB18	11-13	11	78	CL
FB18	16-18	6	83	CL-ML
FB18	22-24	11	87	CL
FB19	0-3	NP	24	SM
FB19	5-7	NP	35	SM
FB19	12-14	5	77	CL-ML
FB19	17-19	6	71	CL-ML
FB19	23-25	10	75	CL

See Appendix A for a detailed compilation of the laboratory test results.

Rancho Vistoso Valley Vista – Lot 19
780 East Kalalau Drive
Oro Valley, Arizona
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Summary of Response to Wetting Testing and In-situ Soil Properties

Location	Depth (feet)	Surcharge (psf)	Compression at Surcharge (%)	Dry Density (PCF)	Moisture Content (%)	Maximum Density (lb/ft^3)	Relative Compaction (%)
FB3	1-2	600	0.29	115.3	7.6	128.2	90
FB3	5-6	750	0.99	113.2	8.6	128.8	88
FB3	10-11	1250	0.80	118.1	8.7	128.8	92
FB3	15-16	2000	1.30	116.1	8.6	131.3	88
FB3	20-21	2500	1.84	116.8	9.0	130.1	90
FB3	25-26	3000	6.31	90.7	26.4	130.1	70
FB5	1-2	600	1.10	117.8	8.3	128.2	92
FB5	5-6	750	0.71	119.6	9.7	128.8	93
FB5	15-16	2000	5.91	96.2	22.8	131.3	73
FB5	20-21	2500	2.28	116.3	5.7	130.1	89
FB5	25-26	3000	2.87	111.5	13.2	130.1	86
FB7	1-2	600	0.63	122.3	7.9	128.2	95
FB7	5-6	750	1.14	125.2	9.9	128.8	97
FB7	10-11	1250	1.23	121.3	6.1	128.0	95
FB7	25-26	3000	2.05	111.3	8.9	129.9	86
FB8	1.5-2.5	600	0.60	115.3	6.8	128.7	90
FB8	50-51	6000	1.93	105.9	17.3	129.9	82
FB8	60-61	7000	2.94	114.6	6.8	129.9	88
FB11	25-26	3000	3.09	110.1	9.4	128.0	86
FB11	40-41	4500	4.86	112.6	1.7	128.0	88
FB12	35-36	4000	6.33	112.1	5.8	130.7	86
FB13	30-31	3500	3.26	115.3	13.8	130.7	88
FB14	10-11	750	2.10	107.6	4.0	129.5	83
FB14	15-16	2000	2.46	110.1	5.2	129.5	85
FB14	20-21	2500	1.50	111.3	6.3	129.5	86
FB14	25-21	3000	4.51	99.0	21.3	128.0	77
FB14	30-31	3500	4.44	107.2	15.9	128.0	84
FB14	35-36	4000	3.89	114.8	6.8	128.0	90
FB14	50-51	6000	4.46	112.8	9.1	128.0	88
FB14	55-56	6000	5.04	112.7	3.7	128.0	88
FB14	60-61	7000	9.75	101.7	6.2	128.0	79
FB14	65-66	7500	7.42	107.0	6.1	128.0	84
FB15	25-26	3000	3.15	99.4	20.6	128.0	78
FB15	30-31	3500	3.71	111.9	4.9	128.0	87
FB15	50-51	6000	8.51	102.9	6.2	128.0	80
FB16	20-21	2500	2.90	110.6	6.4	129.5	85
FB16	40-41	4500	9.56	109.4	4.6	128.0	85
FB16	50-51	6000	7.20	92.7	8.1	128.0	72
FB18	2.5-3.5	600	1.91	120.4	10.2	128.7	94
FB18	5-6	1250	1.62	105.1	3.7	128.7	82
FB18	10-11	1250	5.20	85.1	20.6	129.5	66
FB18	15-16	2000	2.47	86.5	17.0	129.5	75

Location	Depth (feet)	Surcharge (psf)	Compression at Surcharge (%)	Dry Density (PCF)	Moisture Content (%)	Maximum Density (lb/ft^3)	Relative Compaction (%)
FB18	20-21	2500	6.48	97.7	5.9	129.5	75
FB18	25-26	3000	1.73	89.7	7.1	128.0	70
FB18	30-31	3500	2.29	94.2	6.6	128.0	74
FB18	35-36	4000	4.35	80.6	13.0	128.0	63
FB18	40-41	4000	13.10	90.8	5.6	128.0	71
FB19	2.5-3.5	600	0.88	119.9	9.6	128.7	93
FB19	10-11	1250	1.31	87.3	13.9	129.5	67
FB19	20-21	2500	6.72	97.5	4.9	129.5	75

See Appendix A for a detailed compilation of the laboratory test results.

4.0 CONCLUSIONS

Based on visual field observations and results of the field and laboratory testing, soils around and adjacent to the Booster station as well as around and adjacent to Lot 19 have experienced significant settlement and downwards movement which has affected the interior and exterior concrete slabs, the site wall foundations and backfill zones for underground utilities prior to this geotechnical evaluation. There is also highly elevated moisture content associated with the subgrade soil around the subject site(s). We have concluded that the subgrade soil has, at some point, experienced water inundation possibly during and/or after the construction phase. Elevated moisture content was recorded as deep as 50 feet below the existing site grade.

A historical analysis of the local geology, based on aerial photographs from Google Earth, site observations, research and local experience, indicates a historic directional pattern of the existing waterway running from higher elevations of approximately 2800 feet above sea level in the northwest, to lower elevations of approximately 2715 feet above sea level in the southeast and along the edge of the flood plains of the existing Big Wash.

Historically, the path of this waterway appears to run through the southeast portion of the current residential community, before being deposited into Big Wash. Historical patterns of both surface

and subsurface water pathways, over time, may contribute to the area's continuous movement and/or settlement of deeper subsurface soils.

The subsurface soils in the vicinity surrounding Lot 19 and the Booster station, primarily near depths of approximately 7 to 10 feet and at other places extending to depths of 25 to 60 feet below existing site grade, is relatively loose based on the field blow counts and lab consolidation data. The loose soil conditions as well as the elevated levels of moisture saturation permeating the subgrade soils likely may have caused the soil to be highly susceptible to progressive settlement and lateral displacement. The settlement has manifested itself through movements observed in the slabs, asphalt pavement and site walls. It is highly likely that there is significant loss of soil support under certain foundation elements for the houses and site walls as well as underground utilities.

This firm offers the following recommendations:

1. Stabilize the foundations on the sides and front portions of the house. Based on the relatively low in-situ densities recorded in the site soils at various depths, we recommend that the foundations be stabilized against the current and potential future movements using helical piers driven until stable or competent subgrade soil is encountered as determined by the foundation remediation contractor. We have determined that Lot 19 **will** require elevation adjustments following the pier installation.
2. Foundations for the site or privacy walls should be stabilized against further displacement. We recommend piers to be integrated into the foundation system of the site walls. A structural engineer should be retained alongside the foundation remediation contractor to provide an effective method of achieving the stabilization process.
3. Following removal and prior to replacement of any patio or other concrete slabs, recompact the subsurface soil to minimize future differential settlements.
4. The surrounding subsurface soil around the houses and booster station will require grouting compaction or other suitable methods to minimize future settlement. The required depth to advance the grouting compaction would be determined by the remediation contractor/structural engineer of record.

5. Perform a full drainage evaluation following subgrade re-compaction to provide the proper lot's positive drainage away from foundation elements.
6. Maintain 3 feet or more between the rear and side yard walls and any landscaping plants. Avoid excessive watering of plants to minimize further settlement and a build-up of soil surcharge pressures against the wall foundations.
7. Additional manometer or floor level surveys are recommended to evaluate the status of the floor slab after installation of helical piers to assess the relative elevations of the slab. We recommend annual manometer surveys for the period of at least two years (two full seasonal cycles).

It should be noted that once subgrade repairs are made to the structure, there will be a period of readjustment. We recommend allowing about 90 days before the interior repairs are undertaken. During the readjustment period, cracks could re-occur or new cracks develop. The complete adjustment period is typically a full cycle of seasons, which is about 1 year.

5.0 CLOSURE

5.1 Limitations

This report is issued with the understanding that it is the responsibility of the owner to see that its provisions are carried out or brought to the attention of those concerned.

The scope of services for this project does not include any structural adjustments and environmental assessment of the site or identification of contaminated or hazardous materials or conditions.

The findings of this report are considered valid as of the present date. However, changes in the conditions of the site can occur with the passage of time, whether due to natural events or to human activities on this or adjacent sites. In addition, changes in applicable or appropriate codes and

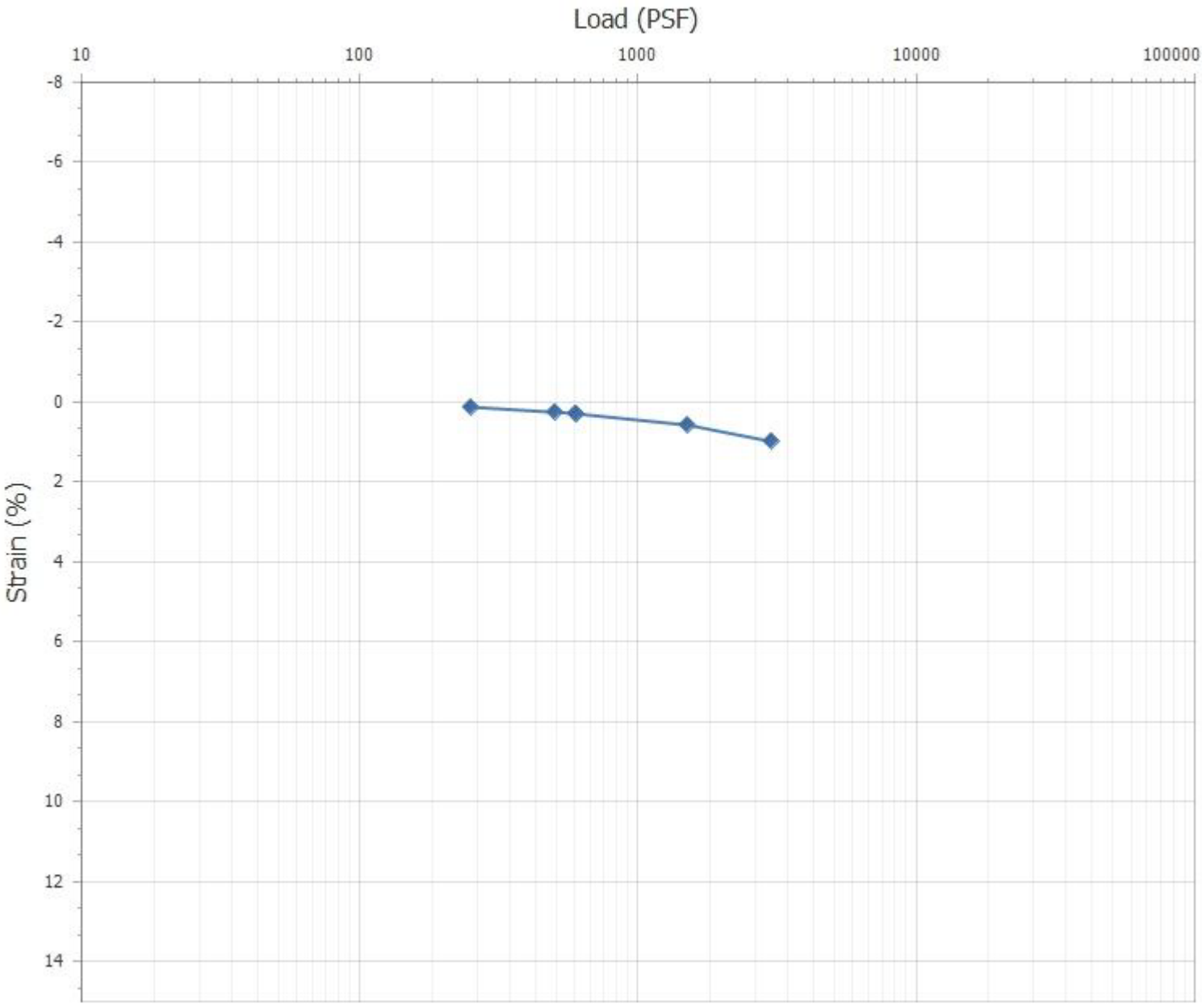
standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, this report may become invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

Appendix A

ProTeX the PT Xperts LLC
1102 W. Southern Ave., Ste. 4
Tempe, AZ 85282
Office: (602)-272-7891
Fax: (602) 272-7892

Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202215 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 1')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 1'

Moisture Content:	7.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	115.3 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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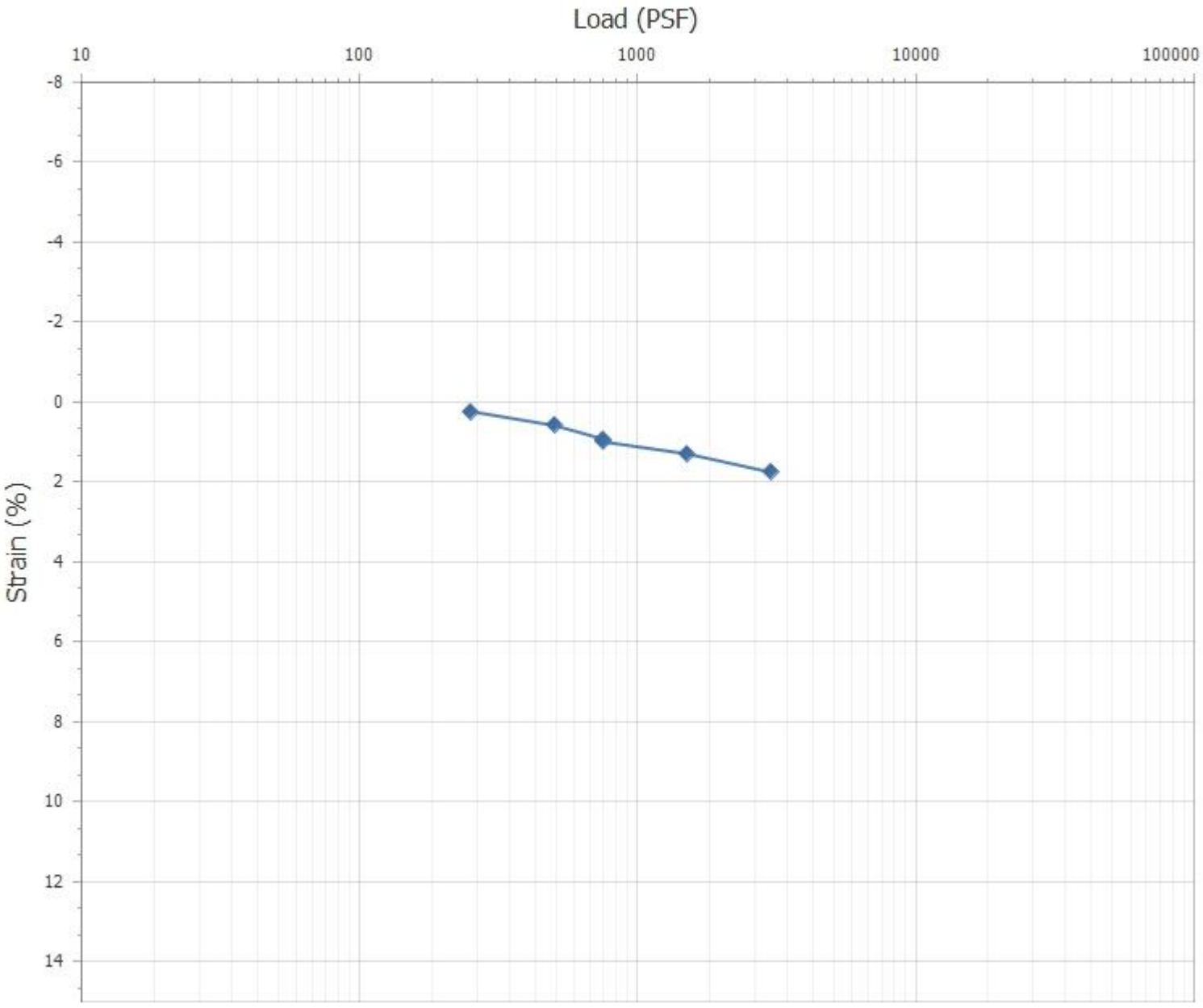
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202216 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 5')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 5'

Moisture Content:	8.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	113.2 lb/ft³	Load at Saturation:	750 PSF
Remarks:		Reviewed By:	jgrossarth

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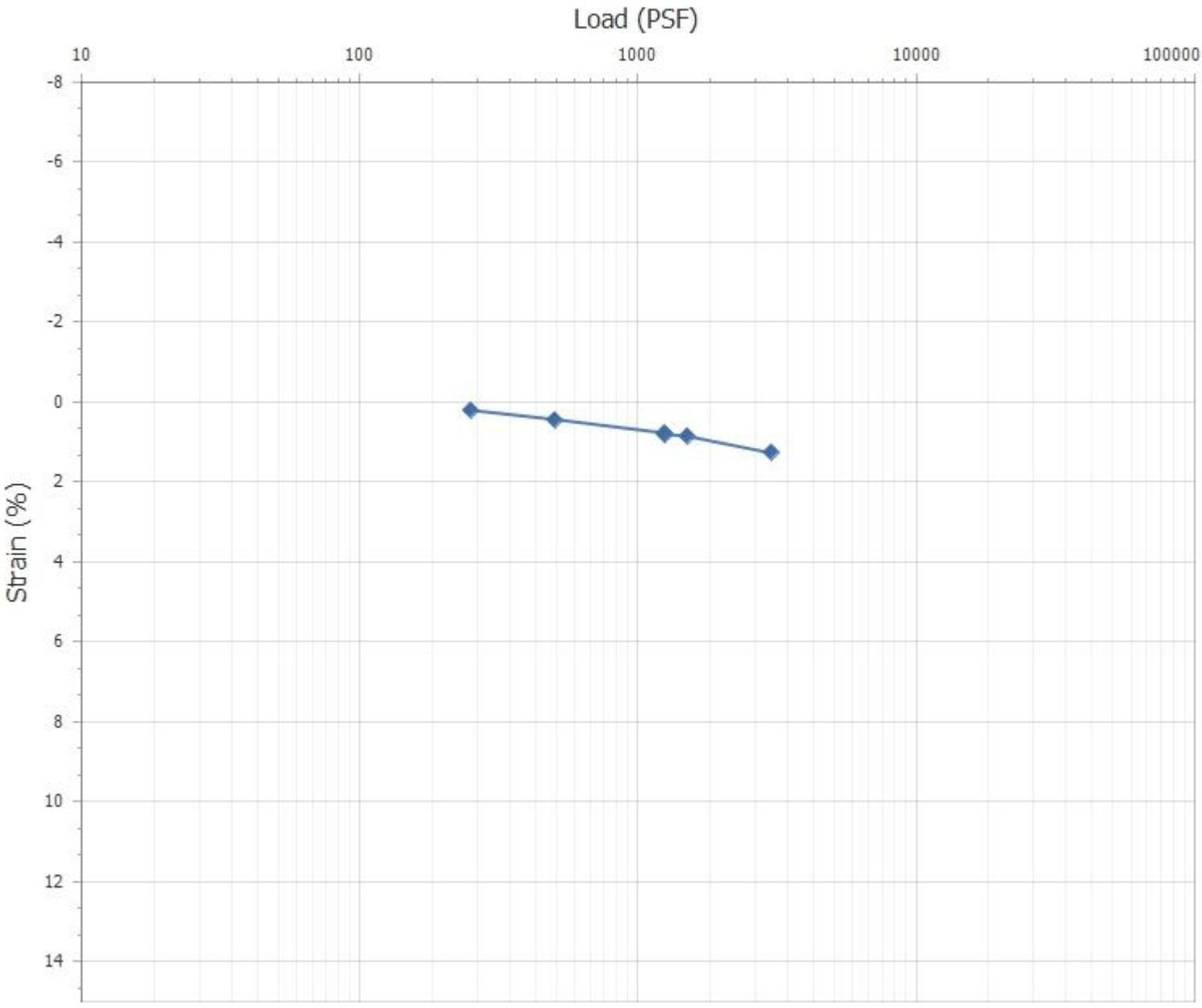
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202217 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 10')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 10'

Moisture Content:	8.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	118.1 lb/ft³	Load at Saturation:	1250 PSF
Remarks:		Reviewed By:	jgrossarth

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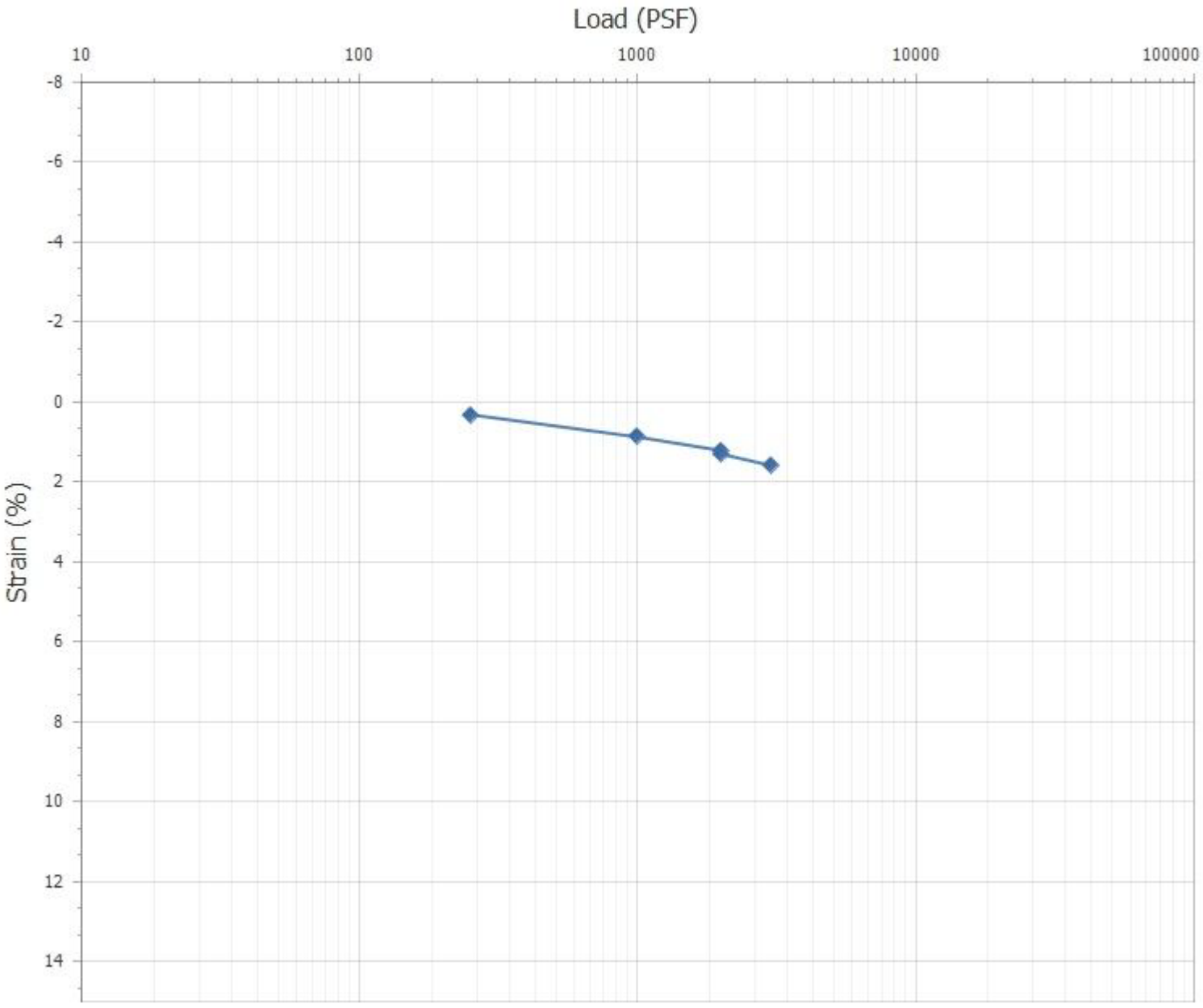
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202218 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 15')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 15'

Moisture Content:	8.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	116.1 lb/ft³	Load at Saturation:	2000 PSF
Remarks:		Reviewed By:	jgrossarth

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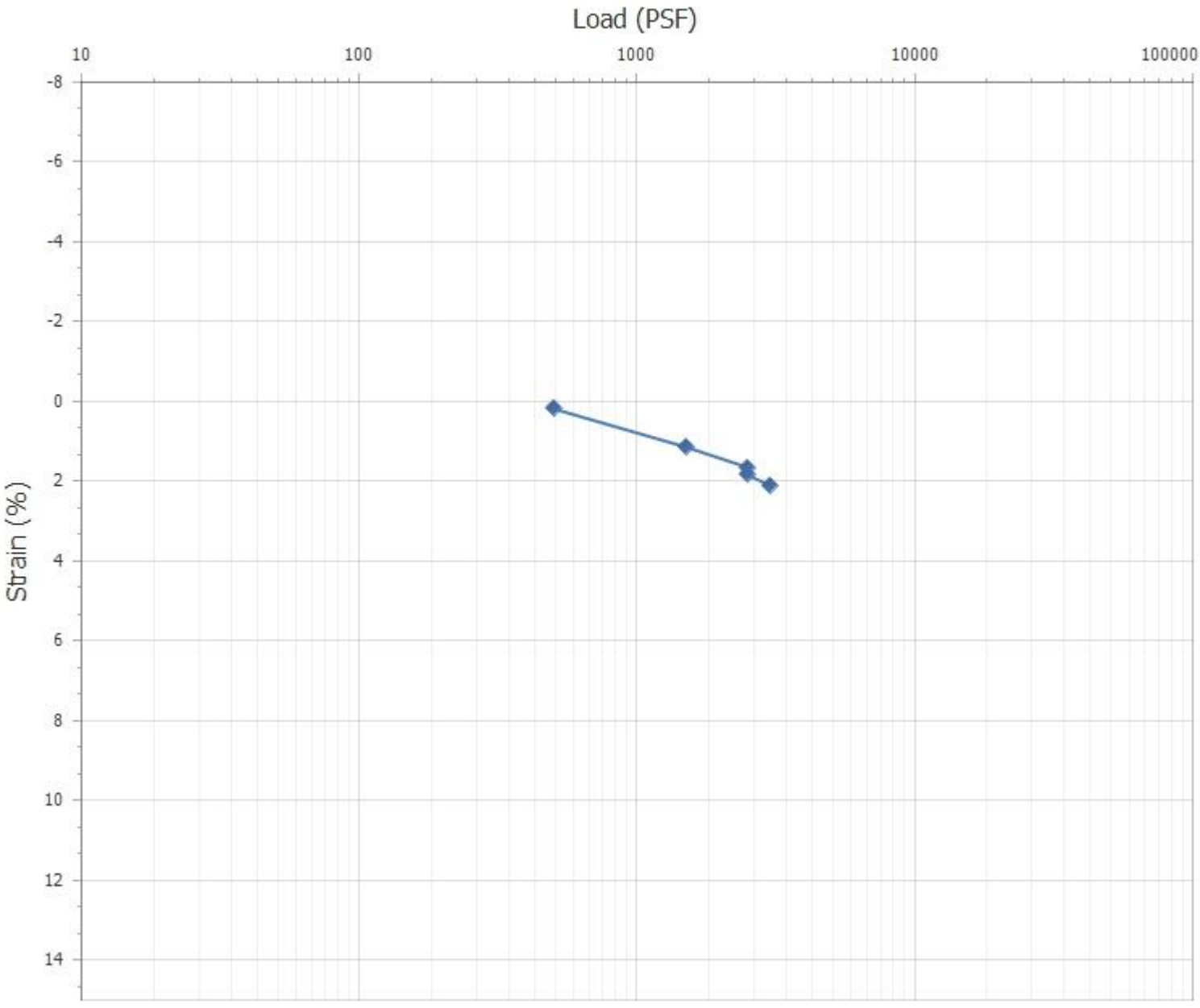
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202219 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 20')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 20'

Moisture Content:	9.0 %	Sample Type:	Undisturbed
Dry Unit Weight:	116.8 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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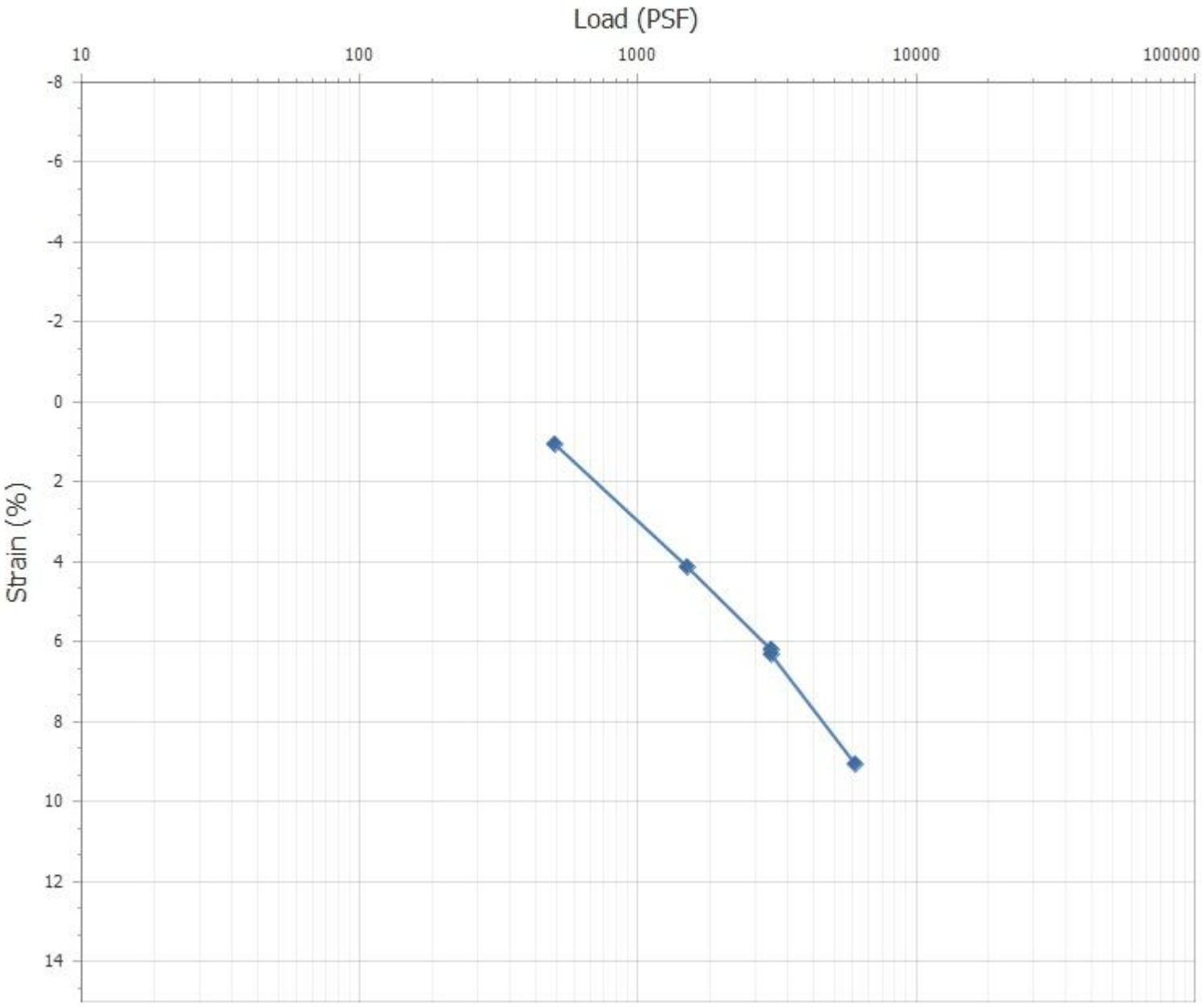
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202220 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB3 - Ring 25'

Moisture Content:	26.4 %	Sample Type:	Undisturbed
Dry Unit Weight:	90.7 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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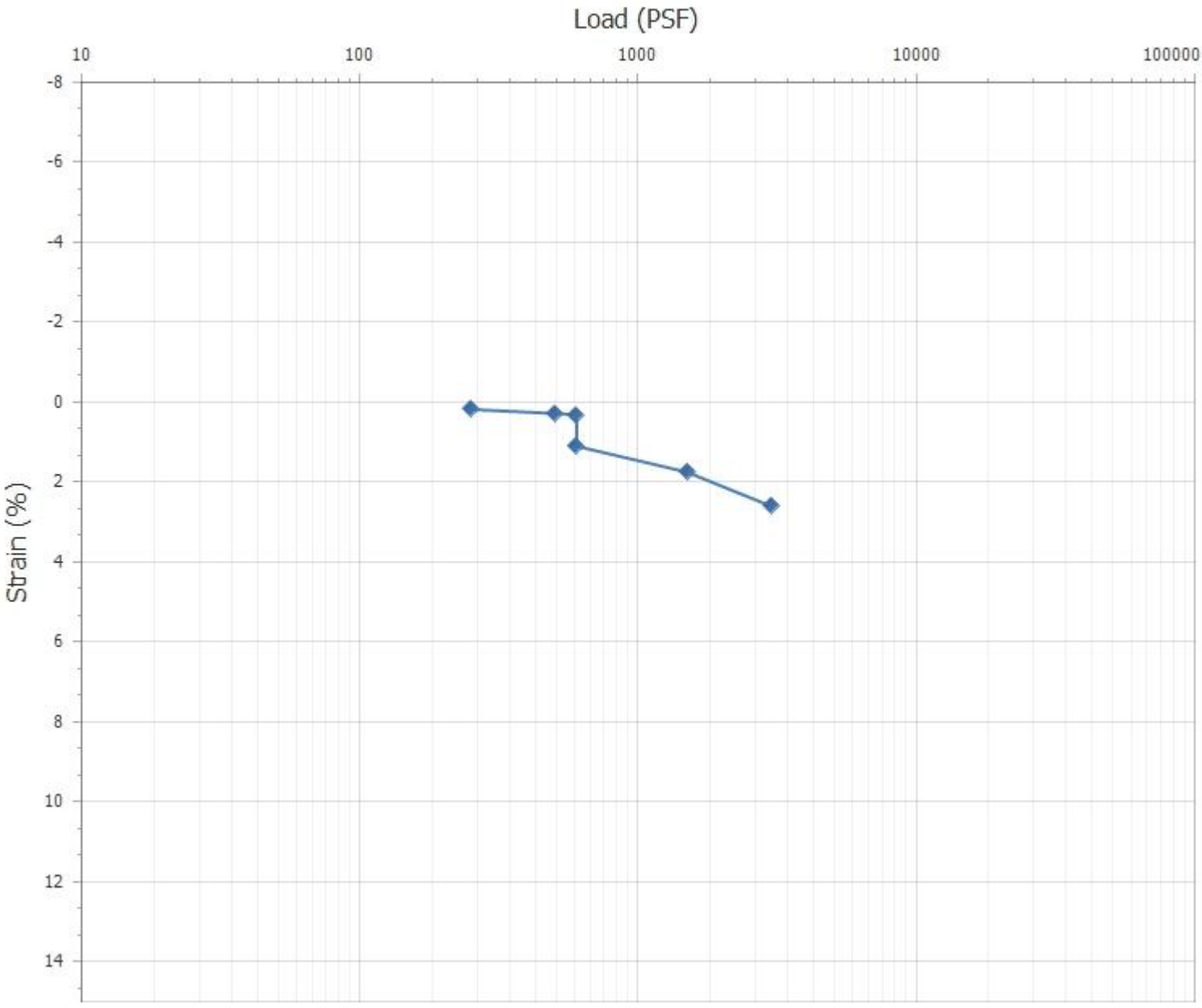
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202221 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (Ring 1')	Submitted By:	Kimberly Nepsa



Source: FB5 - Ring 1'

Moisture Content:	8.3 %	Sample Type:	Undisturbed
Dry Unit Weight:	117.8 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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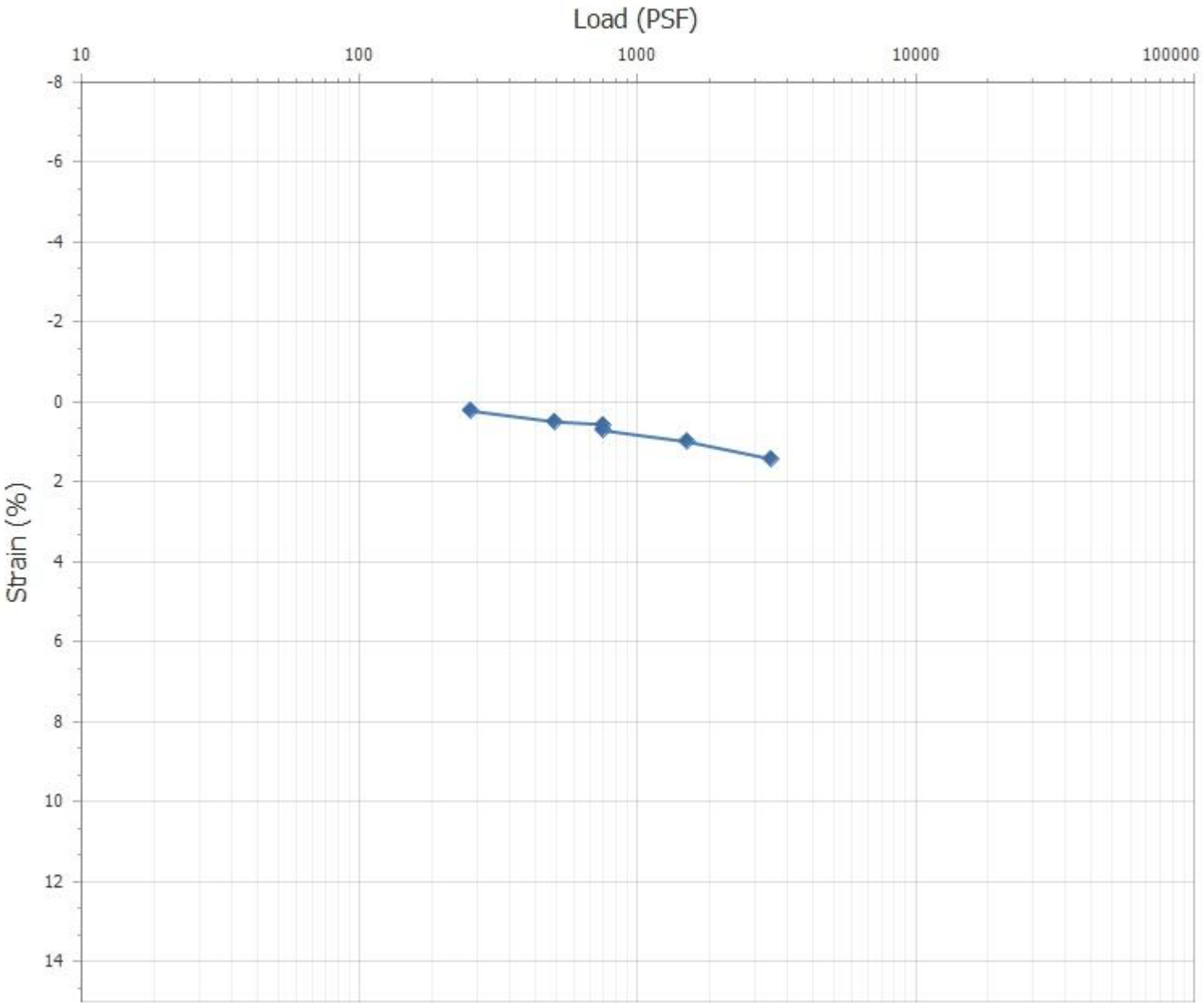
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202222 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (Ring 5')	Submitted By:	Kimberly Nepsa



Source: FB5 - Ring 5'

Moisture Content:	9.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	119.6 lb/ft³	Load at Saturation:	750 PSF
Remarks:		Reviewed By:	jgrossarth

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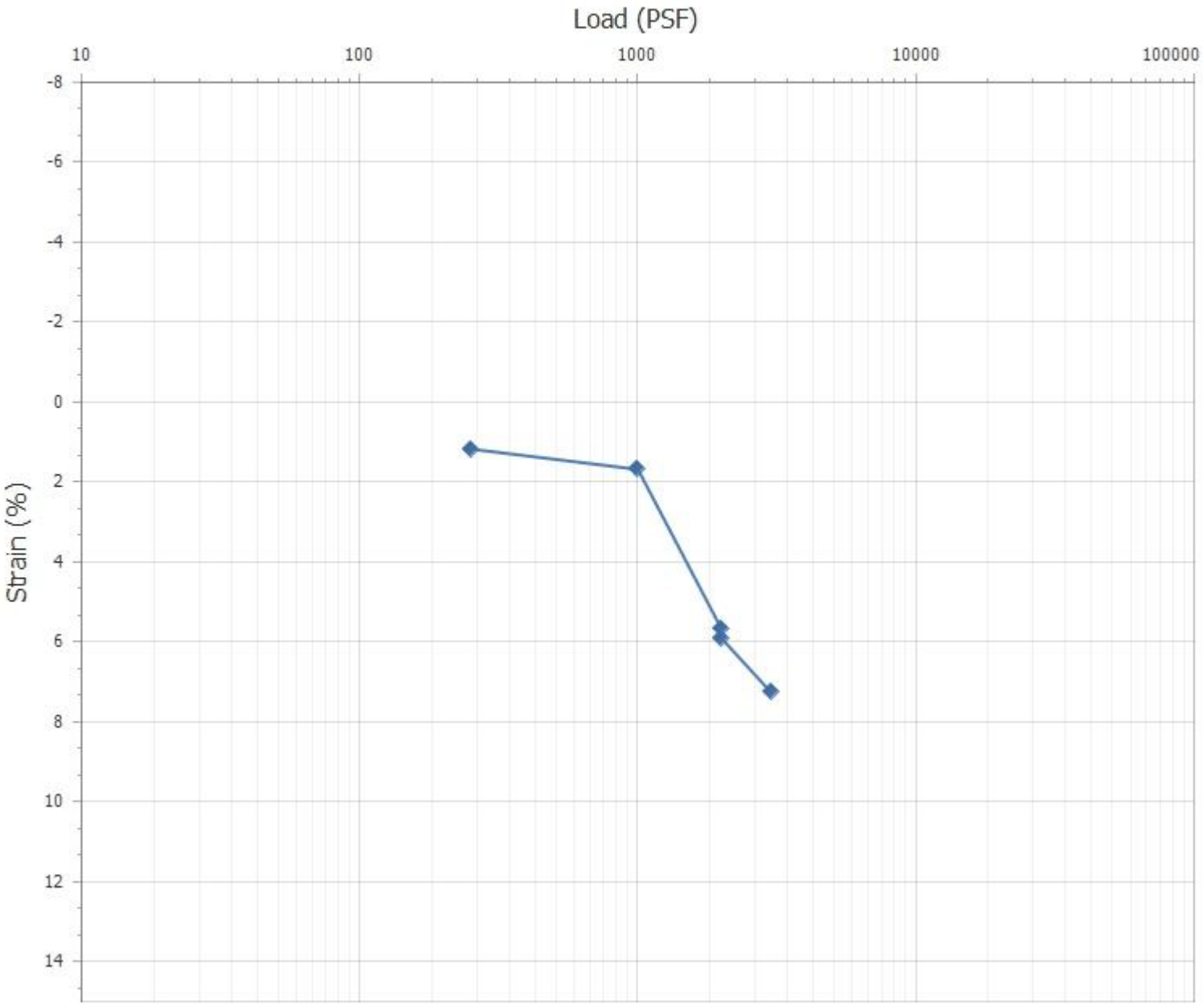
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202224 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (Ring 15')	Submitted By:	Kimberly Nepsa



Source: FB5 - Ring 15'

Moisture Content:	22.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	96.2 lb/ft³	Load at Saturation:	2000 PSF
Remarks:		Reviewed By:	jgrossarth

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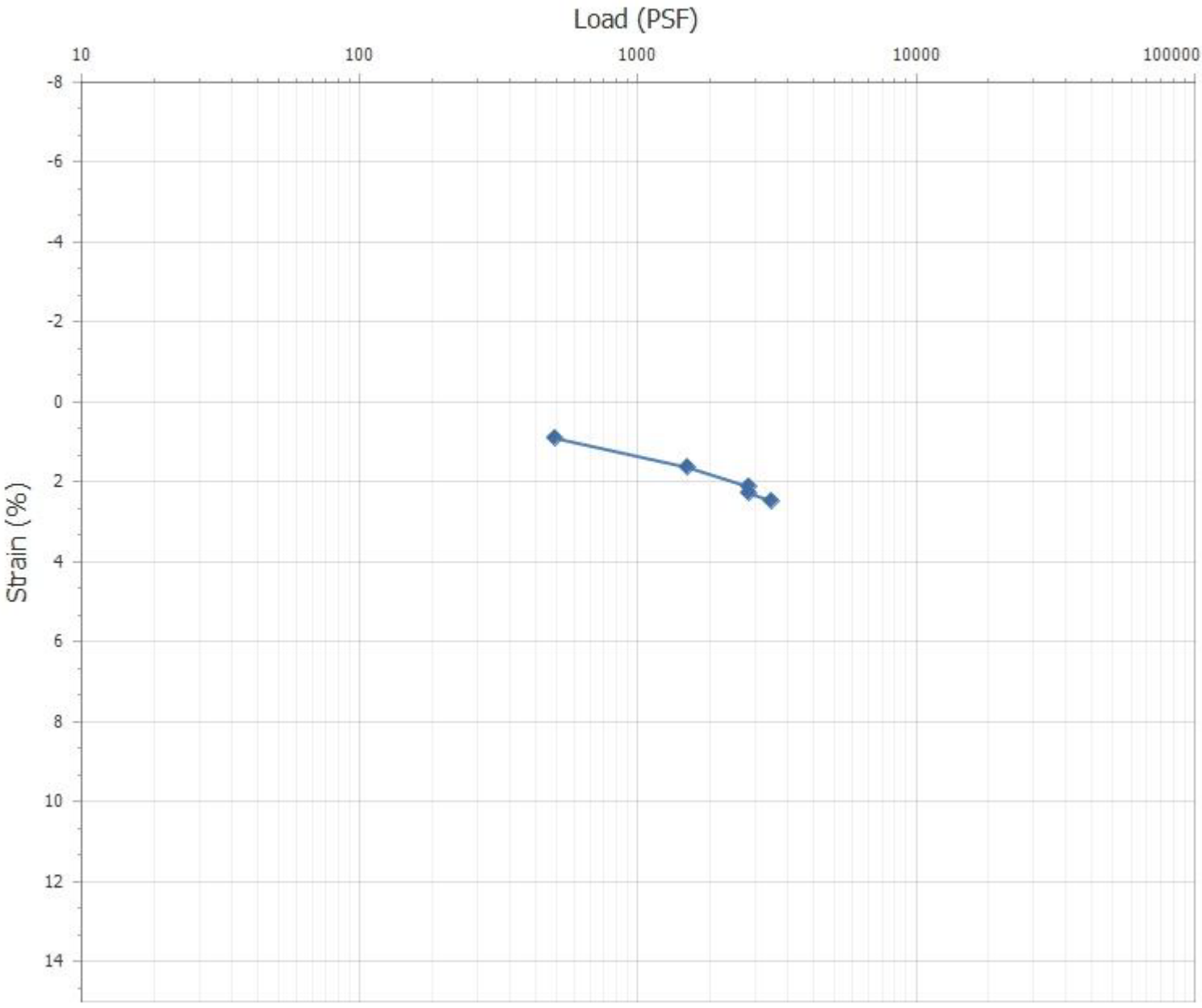
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202225 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (Ring 20')	Submitted By:	Kimberly Nepsa



Source: FB5 - Ring 20'

Moisture Content:	5.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	116.3 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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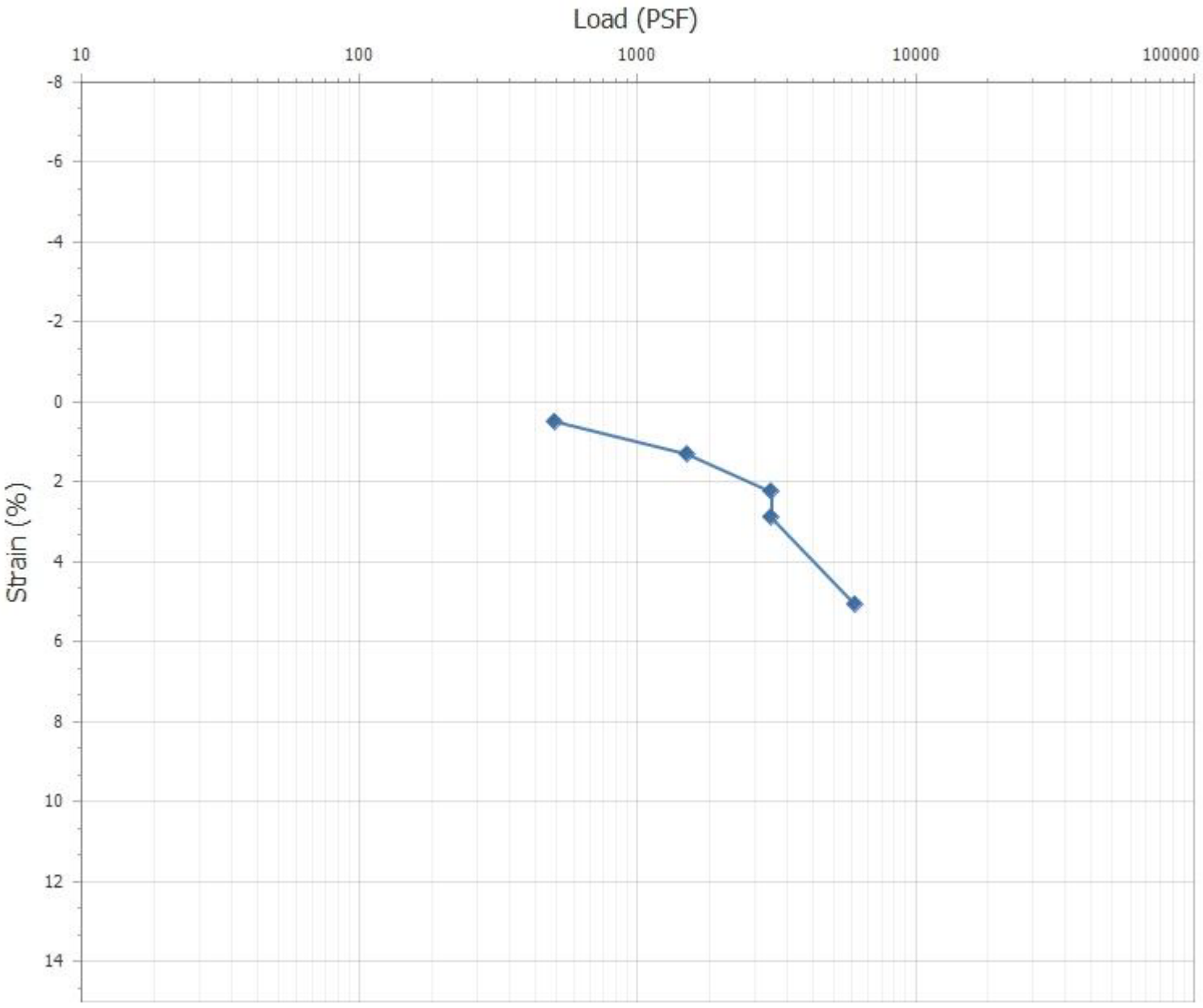
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202226 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB5 - Ring 25'

Moisture Content:	13.2 %	Sample Type:	Undisturbed
Dry Unit Weight:	111.5 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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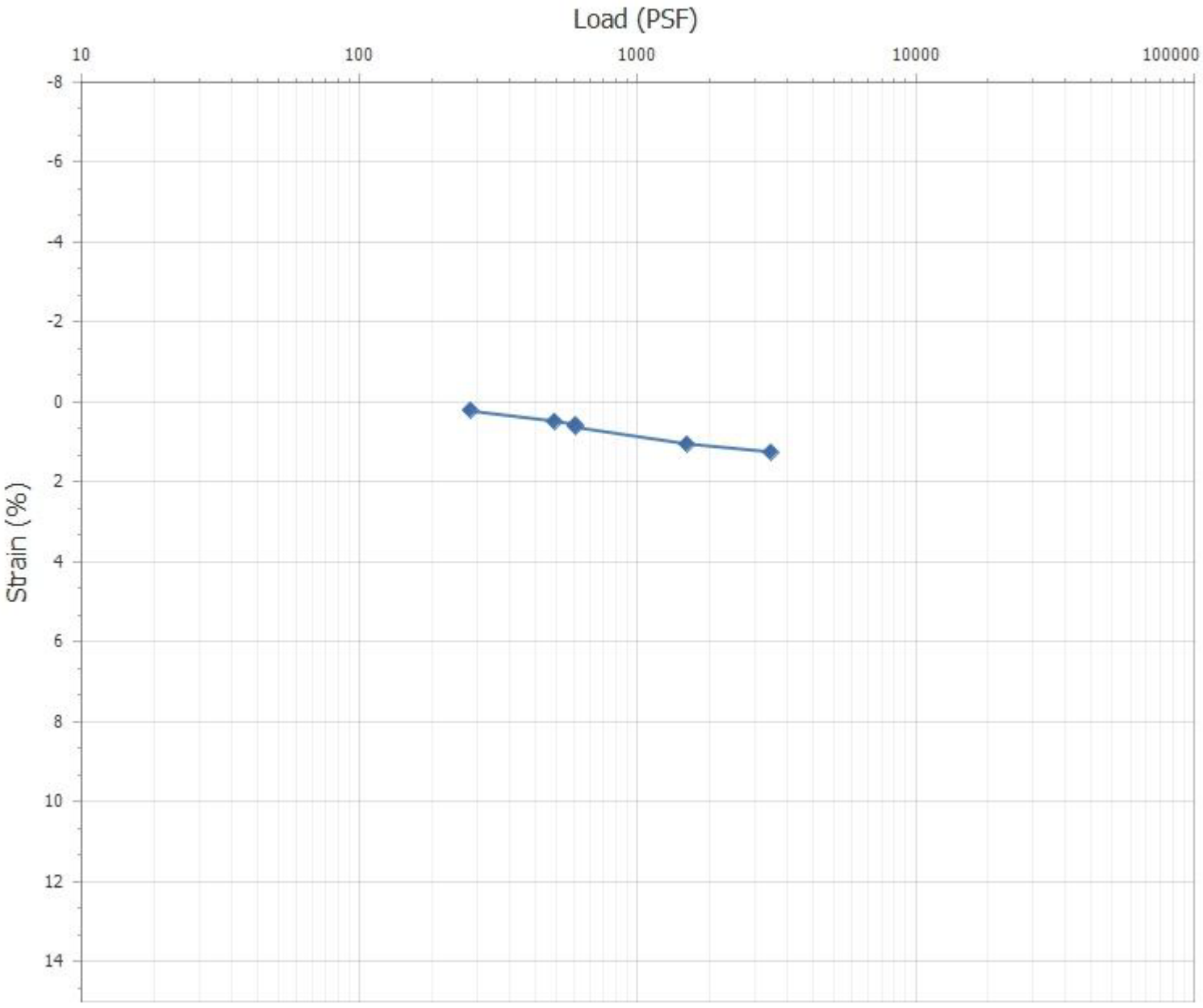
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202227 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (Ring 1')	Submitted By:	Kimberly Nepsa



Source: FB7 - Ring 1'

Moisture Content:	7.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	122.3 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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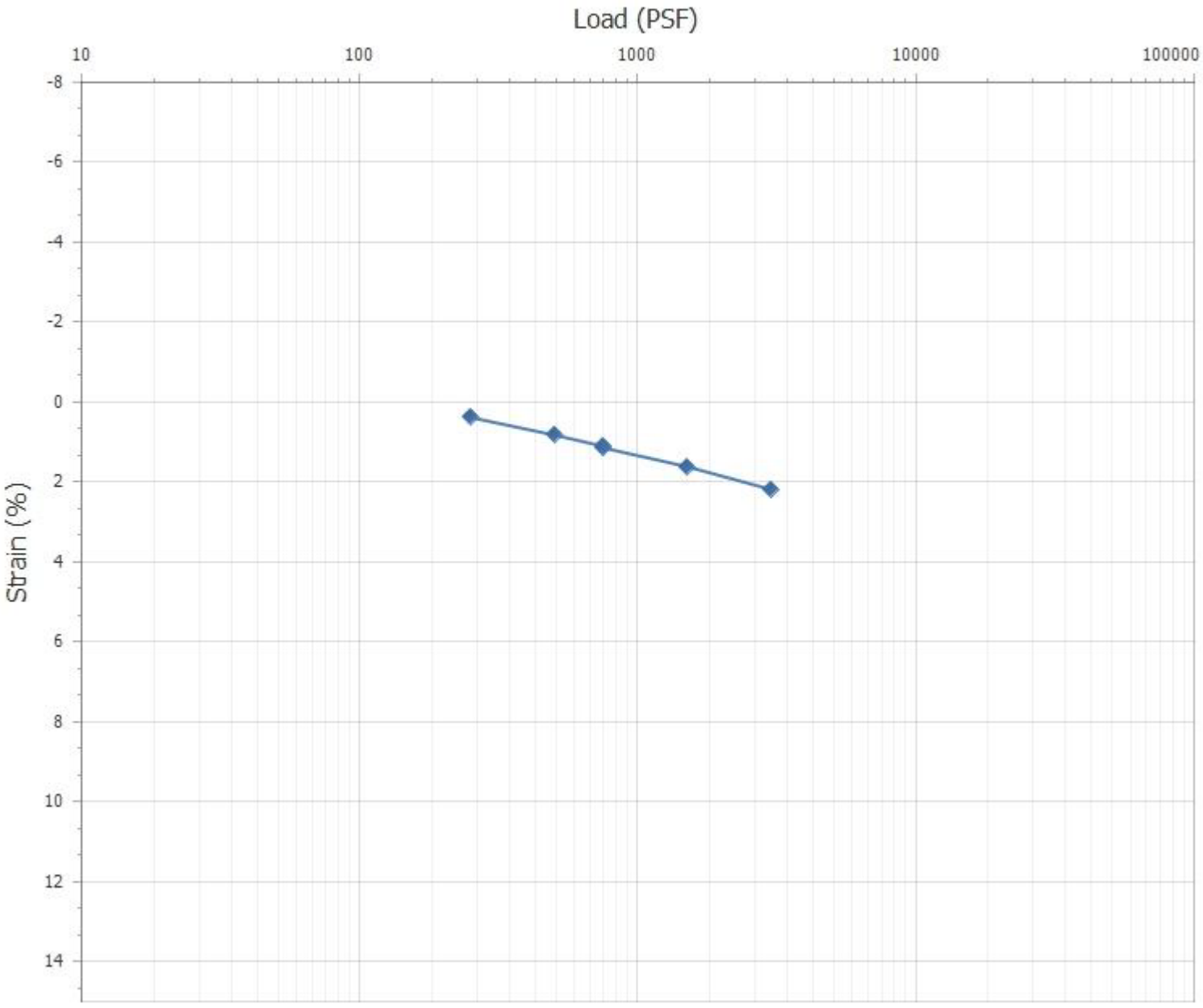
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202228 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (Ring 5')	Submitted By:	Kimberly Nepsa



Source: FB7 - Ring 5'

Moisture Content:	9.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	125.2 lb/ft³	Load at Saturation:	750 PSF
Remarks:		Reviewed By:	jgrossarth

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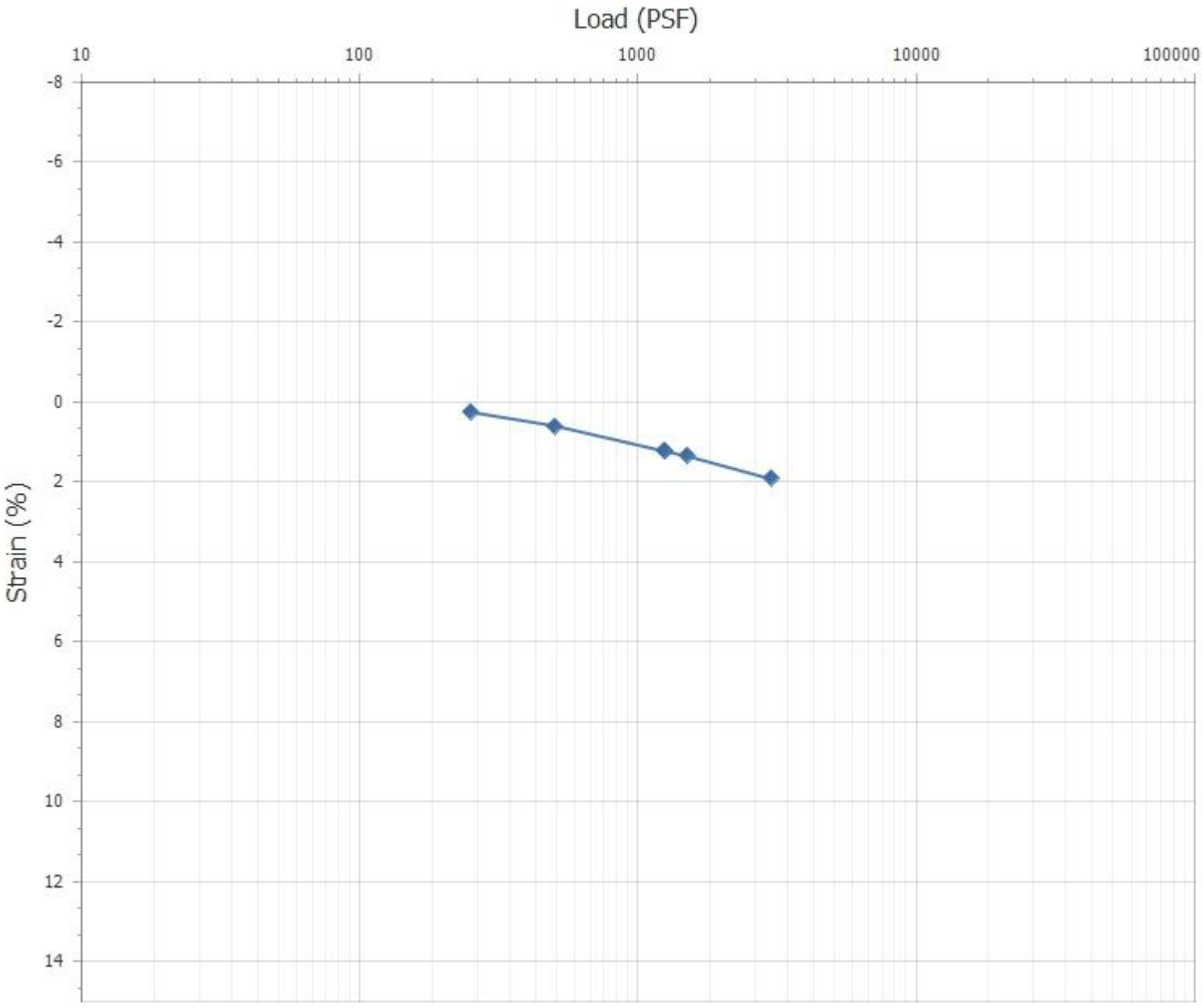
Fax: (602) 272-7892

Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202229 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (Ring 10')	Submitted By:	Kimberly Nepsa



Source: FB7 - Ring 10'

Moisture Content:	6.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	121.3 lb/ft³	Load at Saturation:	1250 PSF
Remarks:		Reviewed By:	jgrossarth

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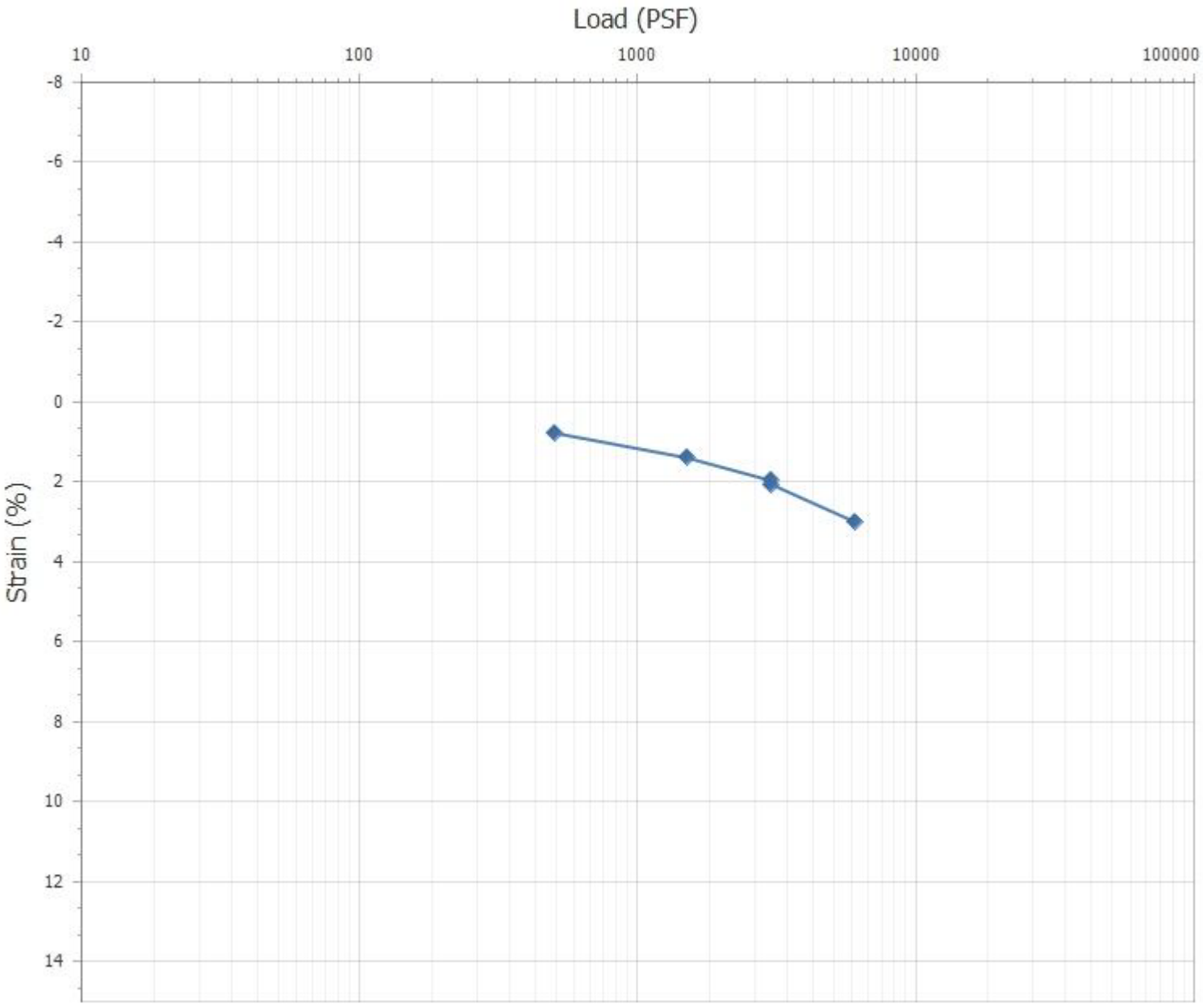
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202232 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB7 - Ring 25'

Moisture Content:	8.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	111.3 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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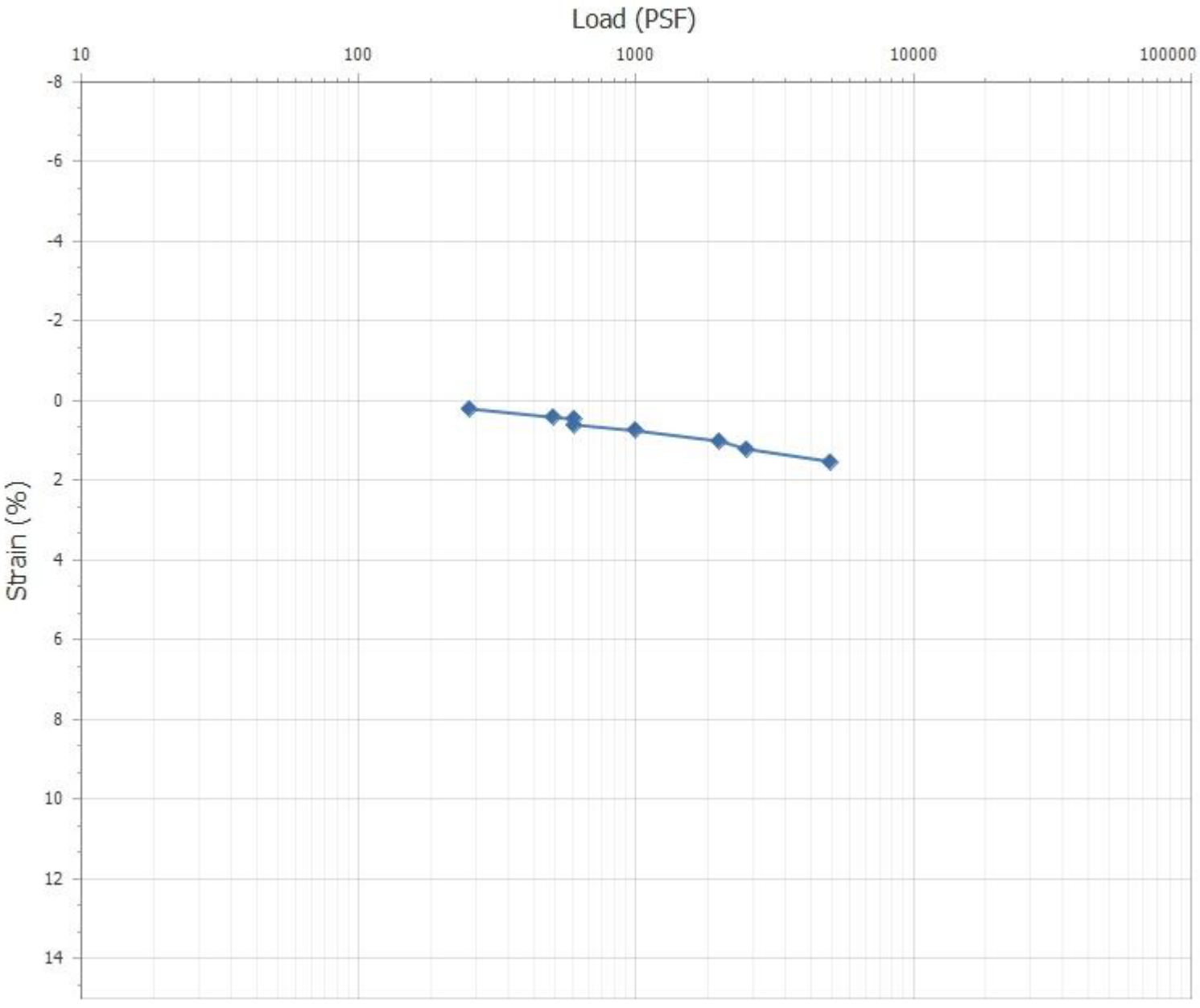
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205273 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (Ring 1.5')	Submitted By:	Kimberly Nepsa



Source: FB8 - Ring 1.5'

Moisture Content:	6.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	115.3 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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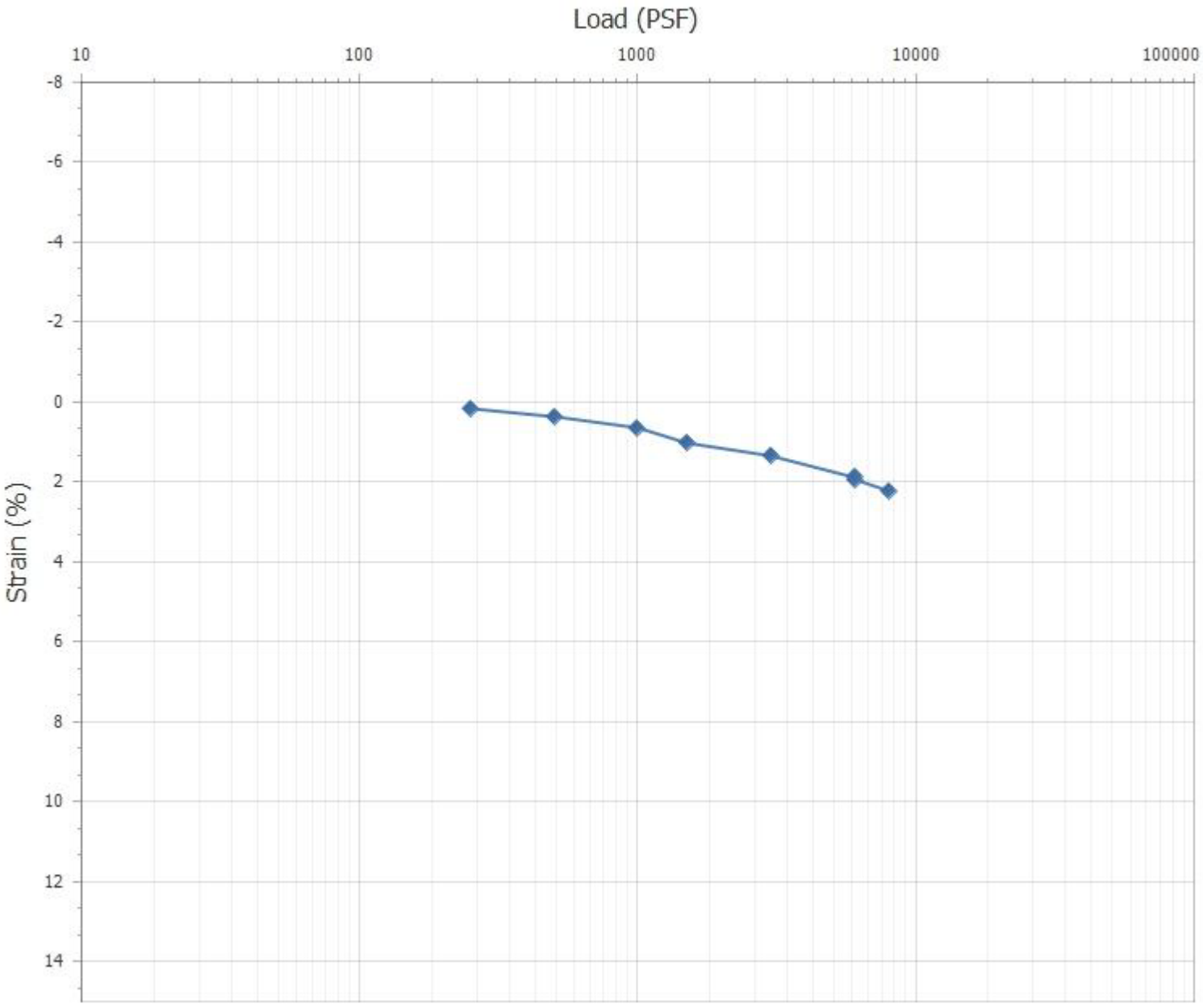
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205274 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (Ring 50')	Submitted By:	Kimberly Nepsa



Source: FB8 - Ring 50'

Moisture Content:	17.3 %	Sample Type:	Undisturbed
Dry Unit Weight:	105.9 lb/ft³	Load at Saturation:	6000 PSF
Remarks:		Reviewed By:	jgrossarth

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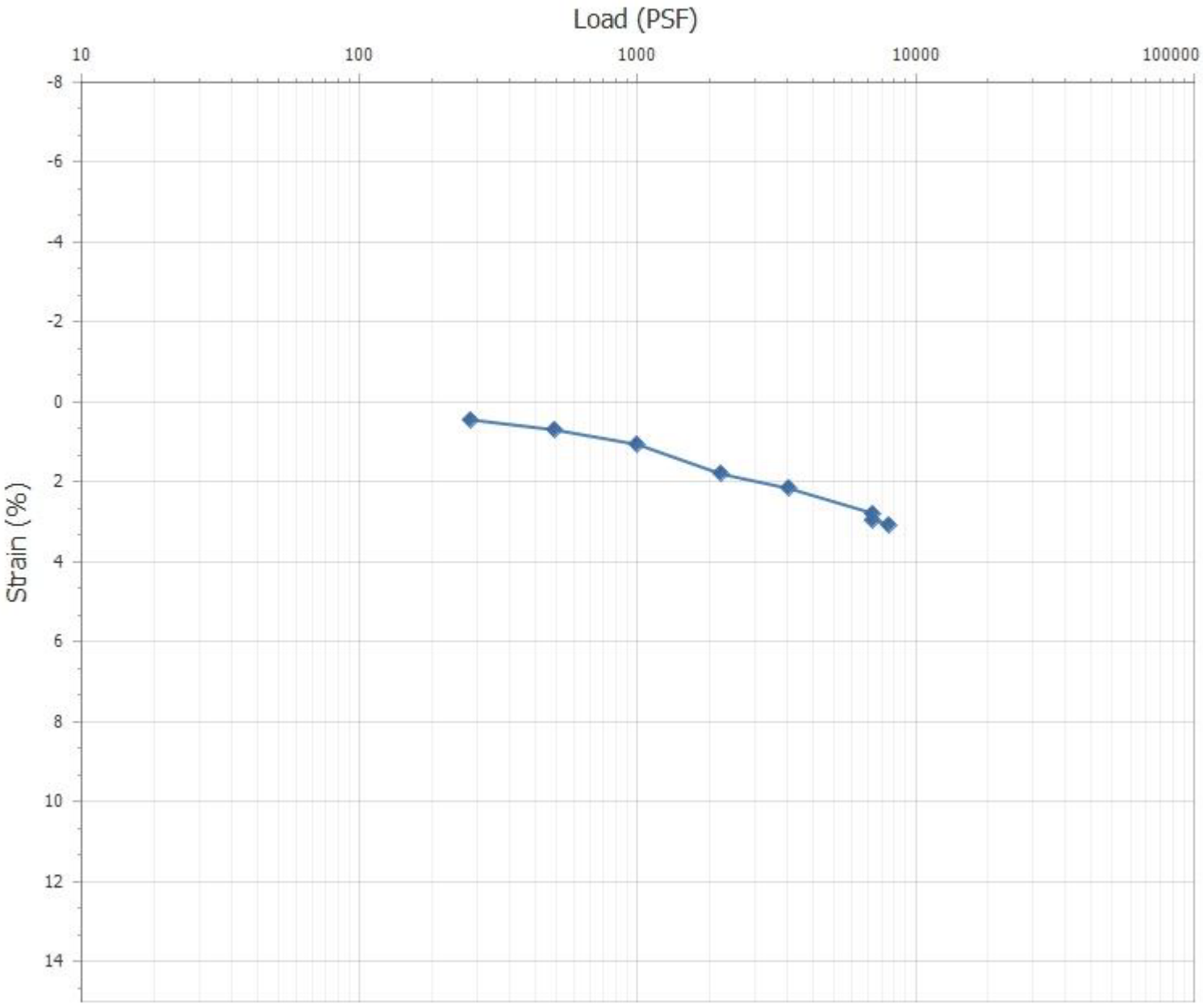
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205275 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (Ring 60')	Submitted By:	Kimberly Nepsa



Source: FB8 - Ring 60'

Moisture Content:	6.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	114.6 lb/ft³	Load at Saturation:	7000 PSF
Remarks:		Reviewed By:	jgrossarth

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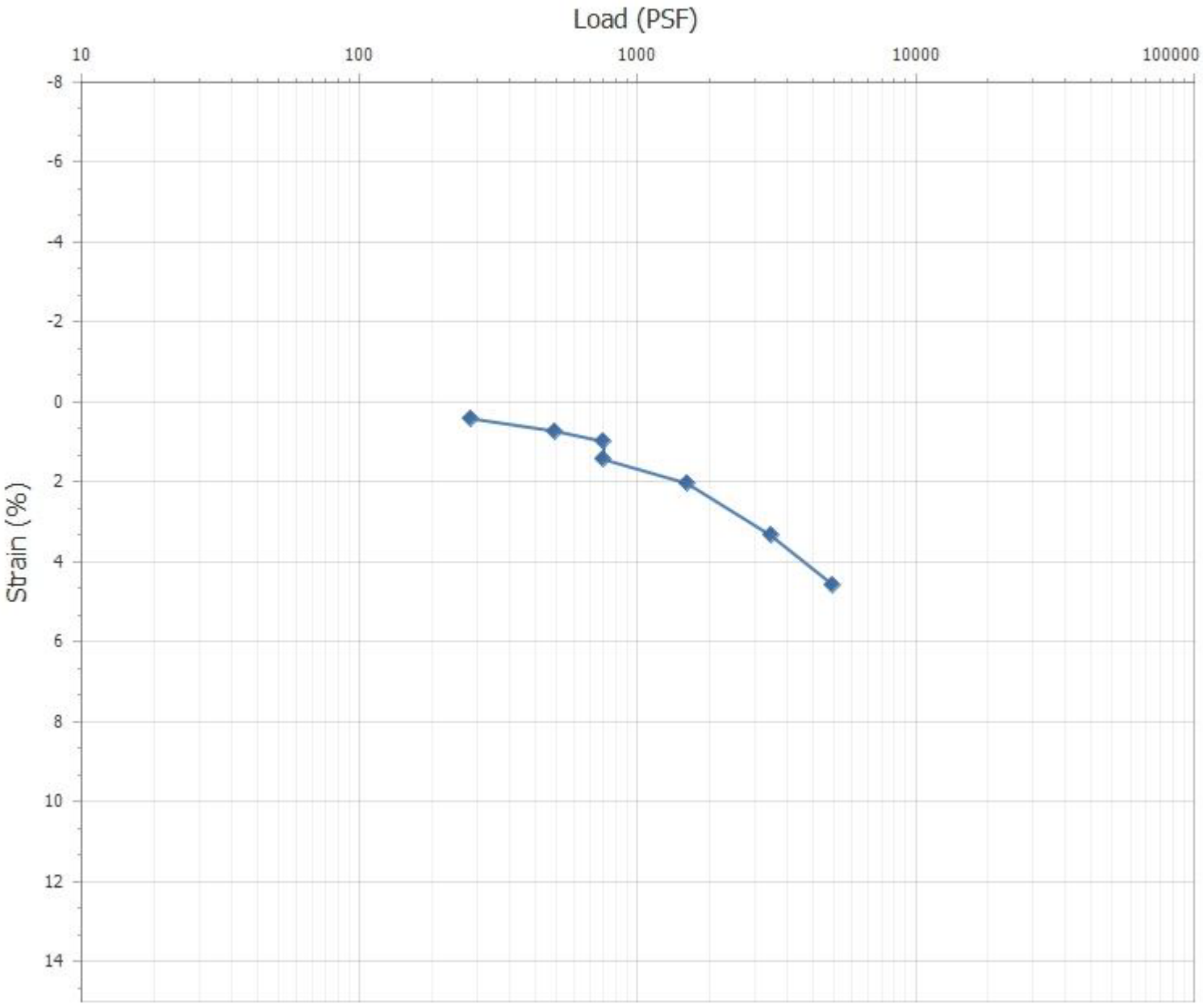
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205276 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB9 (Ring 5')	Submitted By:	Kimberly Nepsa



Source: FB9 - Ring 5'

Moisture Content:	4.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	112.7 lb/ft³	Load at Saturation:	750 PSF
Remarks:		Reviewed By:	jgrossarth

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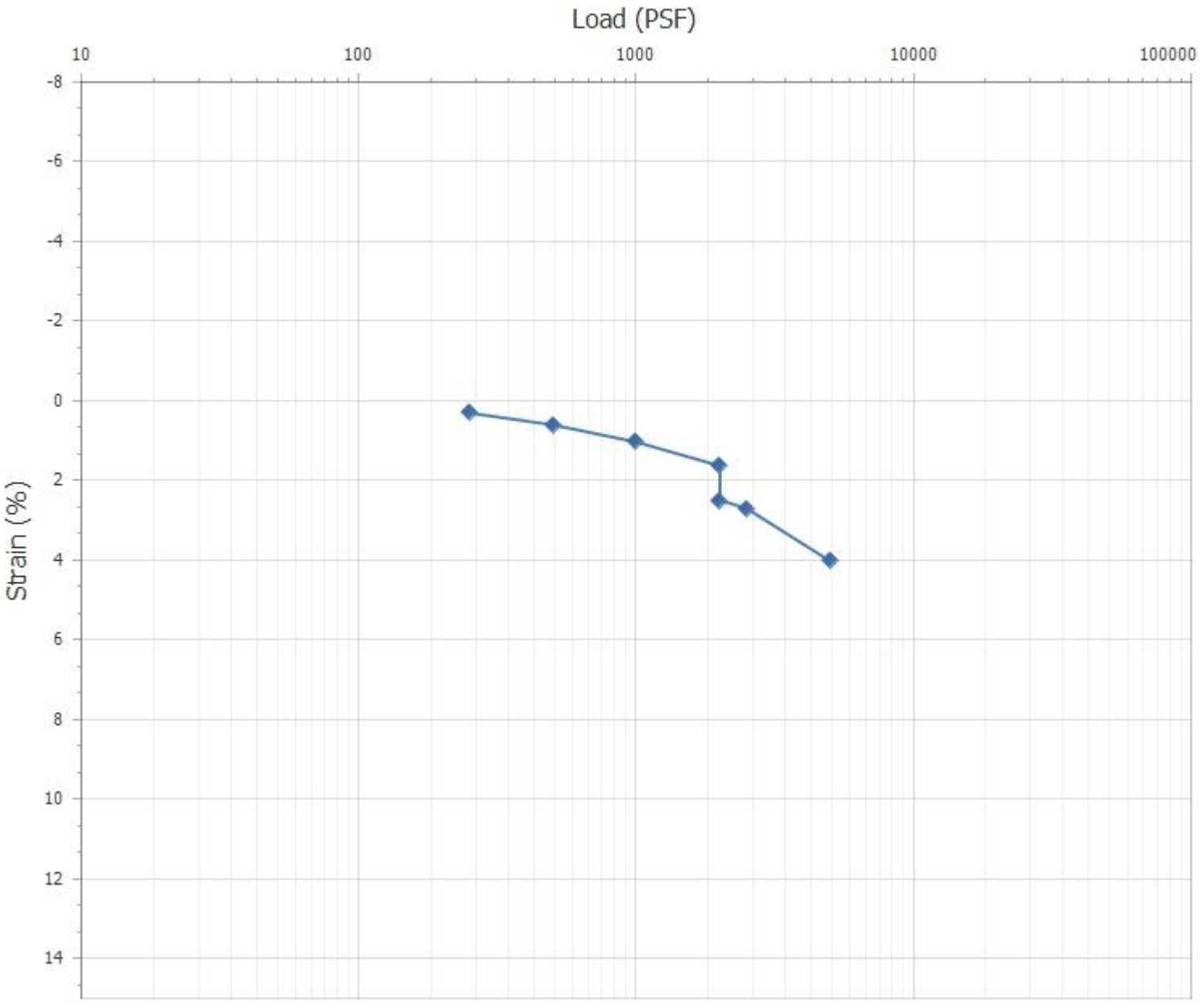
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205277 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB9 (Ring 15')	Submitted By:	Kimberly Nepsa



Source: FB9 - Ring 15'

Moisture Content:	4.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	110.8 lb/ft³	Load at Saturation:	2000 PSF
Remarks:		Reviewed By:	jgrossarth

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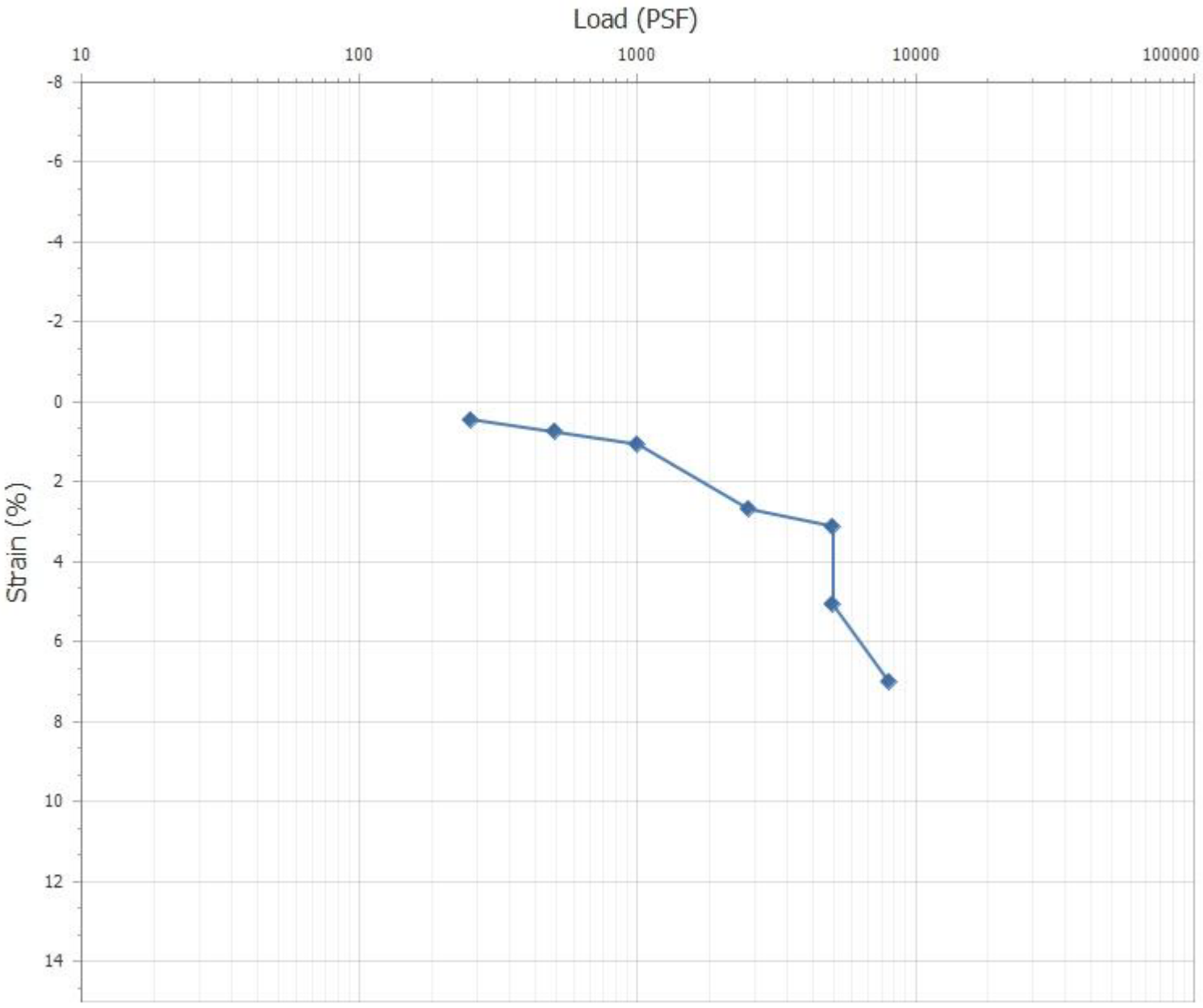
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205278 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB9 (Ring 45')	Submitted By:	Kimberly Nepsa



Source: FB9 - Ring 45'

Moisture Content:	6.5 %	Sample Type:	Undisturbed
Dry Unit Weight:	107.0 lb/ft³	Load at Saturation:	5000 PSF
Remarks:		Reviewed By:	jgrossarth

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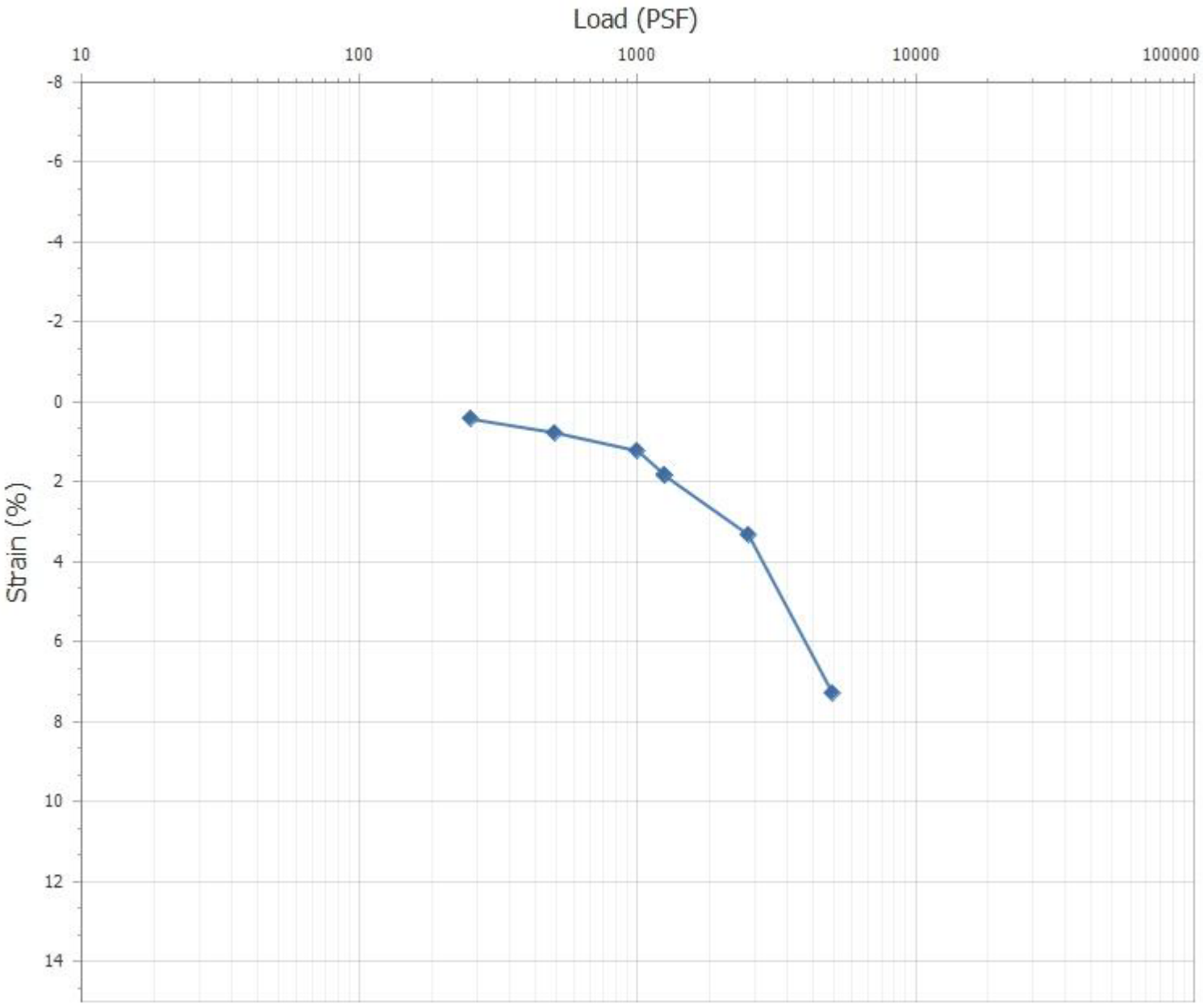
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205279 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB10 (Ring 10')	Submitted By:	Kimberly Nepsa



Source: FB10 - Ring 10'

Moisture Content:	15.3 %	Sample Type:	Undisturbed
Dry Unit Weight:	101.8 lb/ft³	Load at Saturation:	1250 PSF
Remarks:		Reviewed By:	jgrossarth

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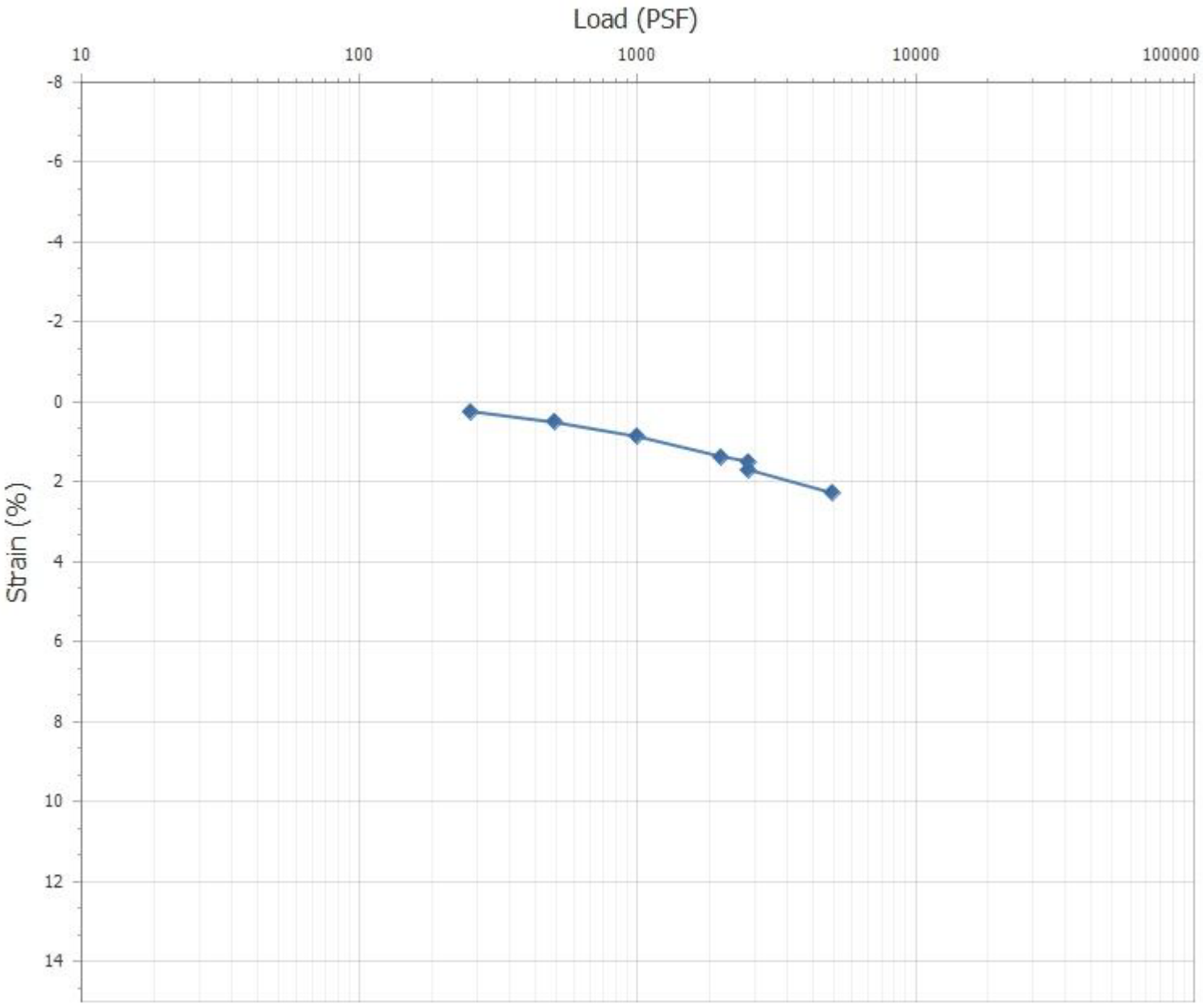
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205280 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB10 (Ring 20')	Submitted By:	Kimberly Nepsa



Source: FB10 - Ring 20'

Moisture Content:	4.4 %	Sample Type:	Undisturbed
Dry Unit Weight:	111.9 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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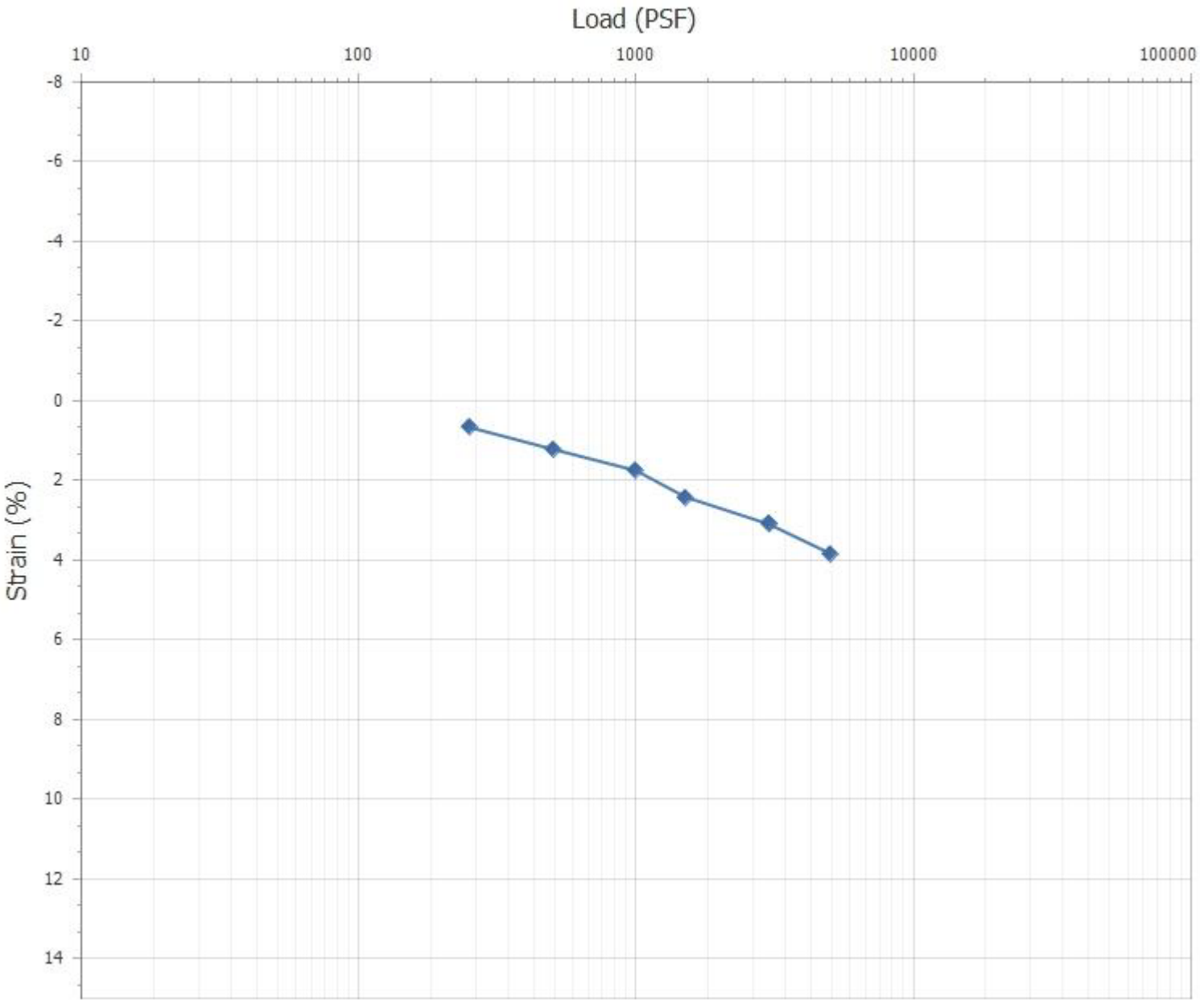
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205281 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB11 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB11 - Ring 25'

Moisture Content:	9.4 %	Sample Type:	Undisturbed
Dry Unit Weight:	110.1 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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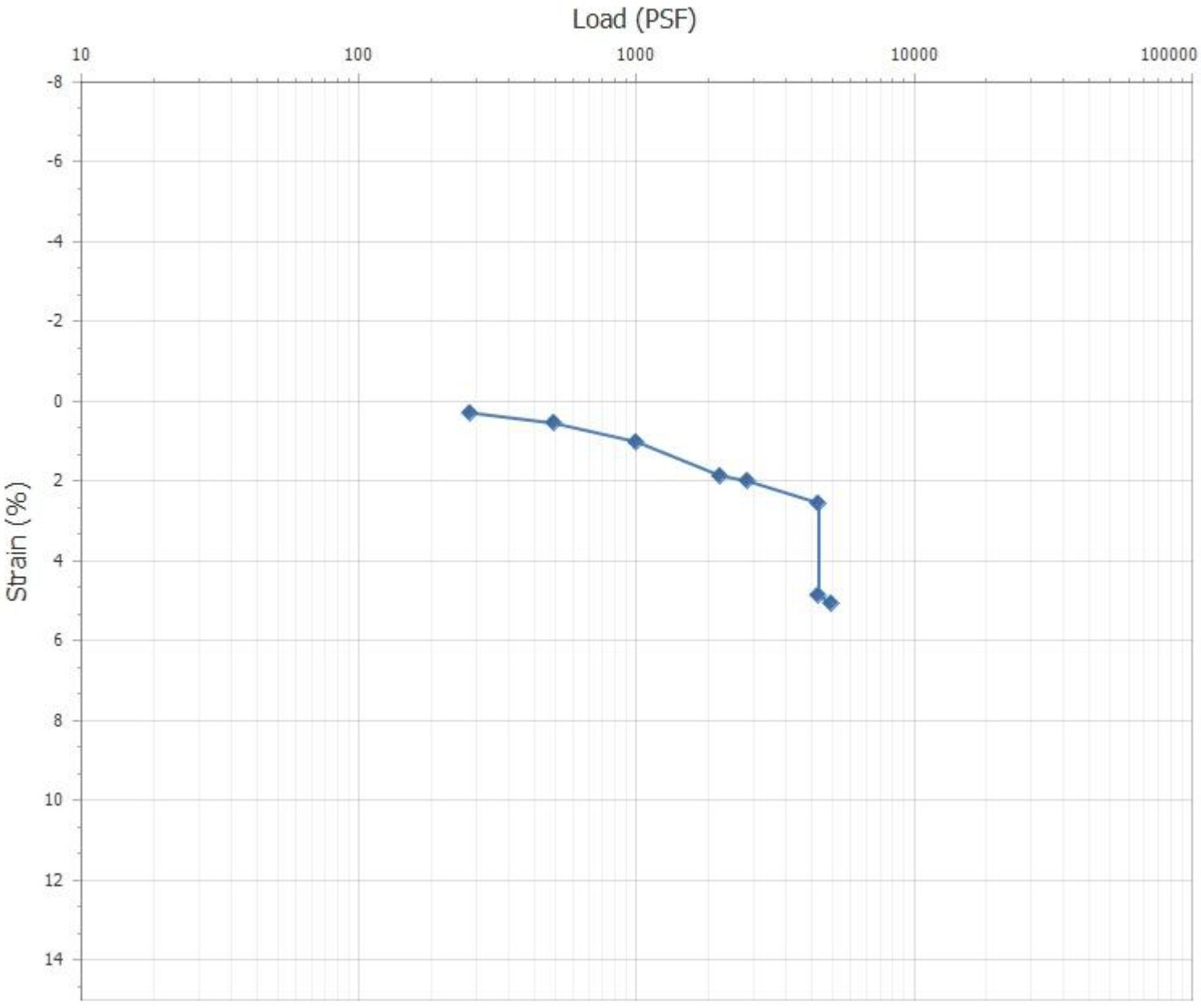
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205282 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB11 (Ring 40')	Submitted By:	Kimberly Nepsa



Source: FB11 - Ring 40'

Moisture Content:	1.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	112.6 lb/ft³	Load at Saturation:	4500 PSF
Remarks:		Reviewed By:	jgrossarth

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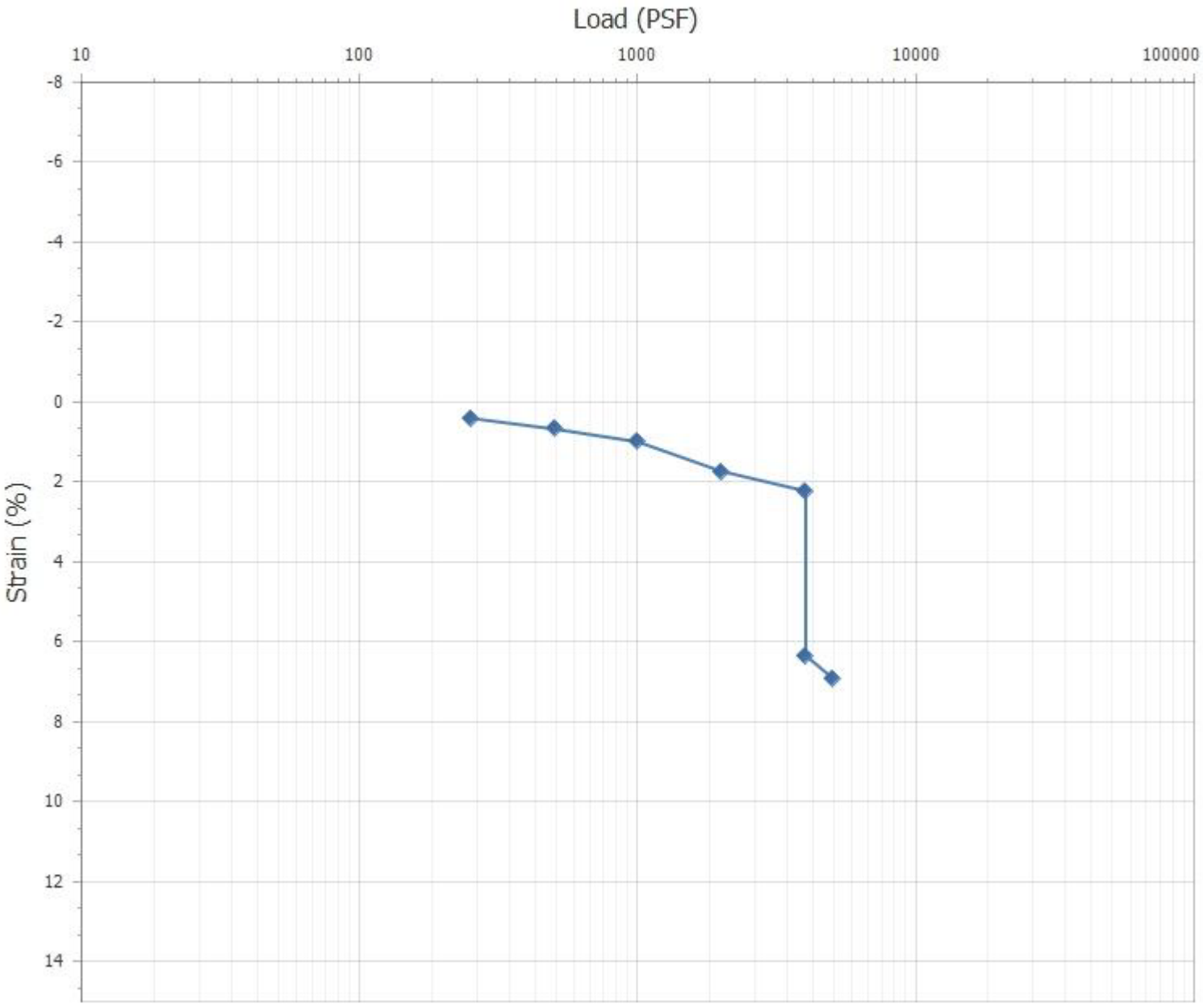
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205283 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (Ring 35')	Submitted By:	Kimberly Nepsa



Source: FB12 - Ring 35'

Moisture Content:	5.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	112.1 lb/ft³	Load at Saturation:	4000 PSF
Remarks:		Reviewed By:	jgrossarth

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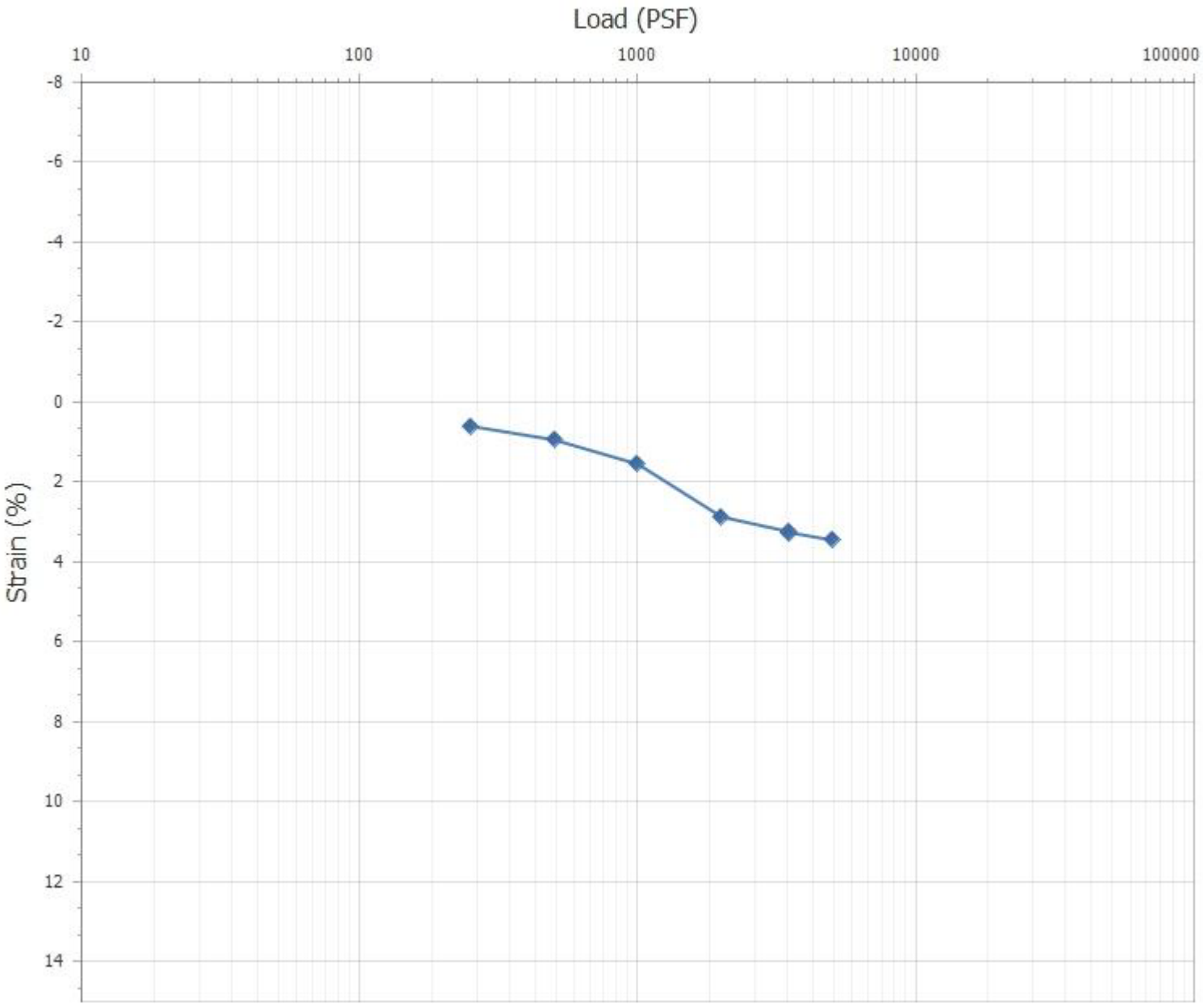
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205284 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB13 (Ring 30')	Submitted By:	Kimberly Nepsa



Source: FB13 - Ring 30'

Moisture Content:	13.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	115.3 lb/ft³	Load at Saturation:	3500 PSF
Remarks:		Reviewed By:	jgrossarth

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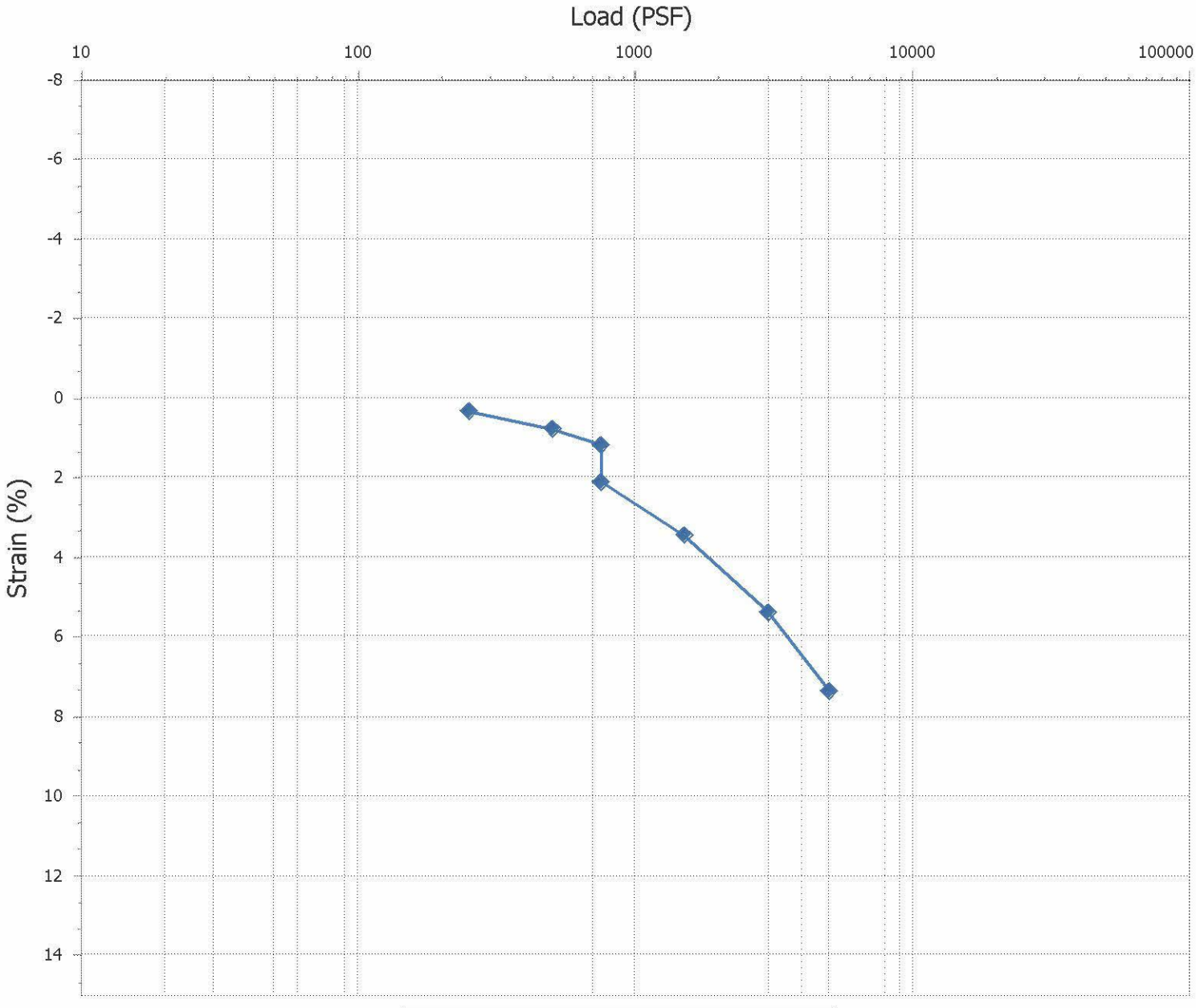
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208470 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 10')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 10'

Moisture Content:	4.0 %	Sample Type:	Undisturbed
Dry Unit Weight:	107.6 lb/ft³	Load at Saturation:	750 PSF
Remarks:		Reviewed By:	jgrossarth

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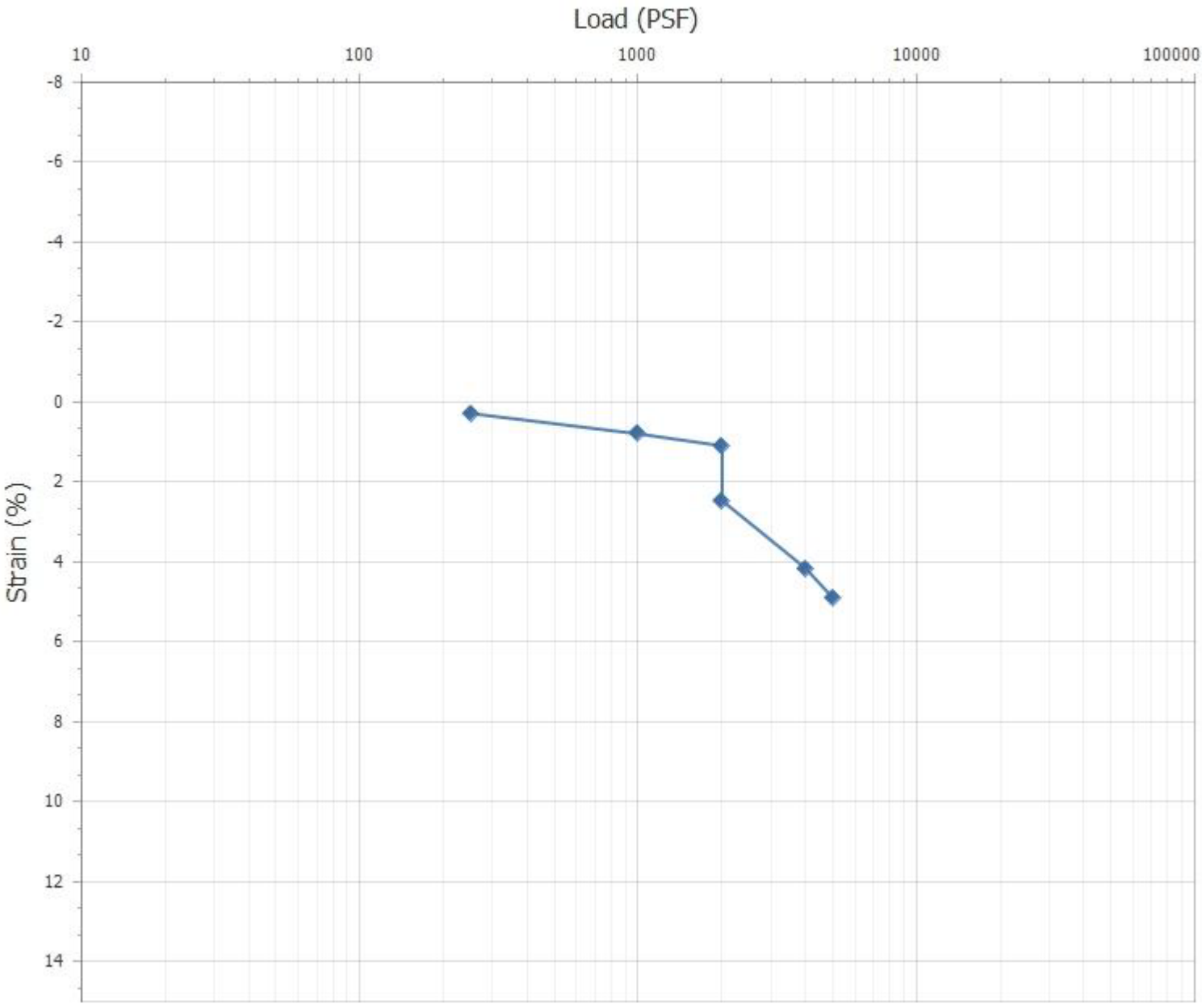
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208471 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 15')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 15'

Moisture Content:	5.2 %	Sample Type:	Undisturbed
Dry Unit Weight:	110.1 lb/ft³	Load at Saturation:	2000 PSF
Remarks:		Reviewed By:	jgrossarth

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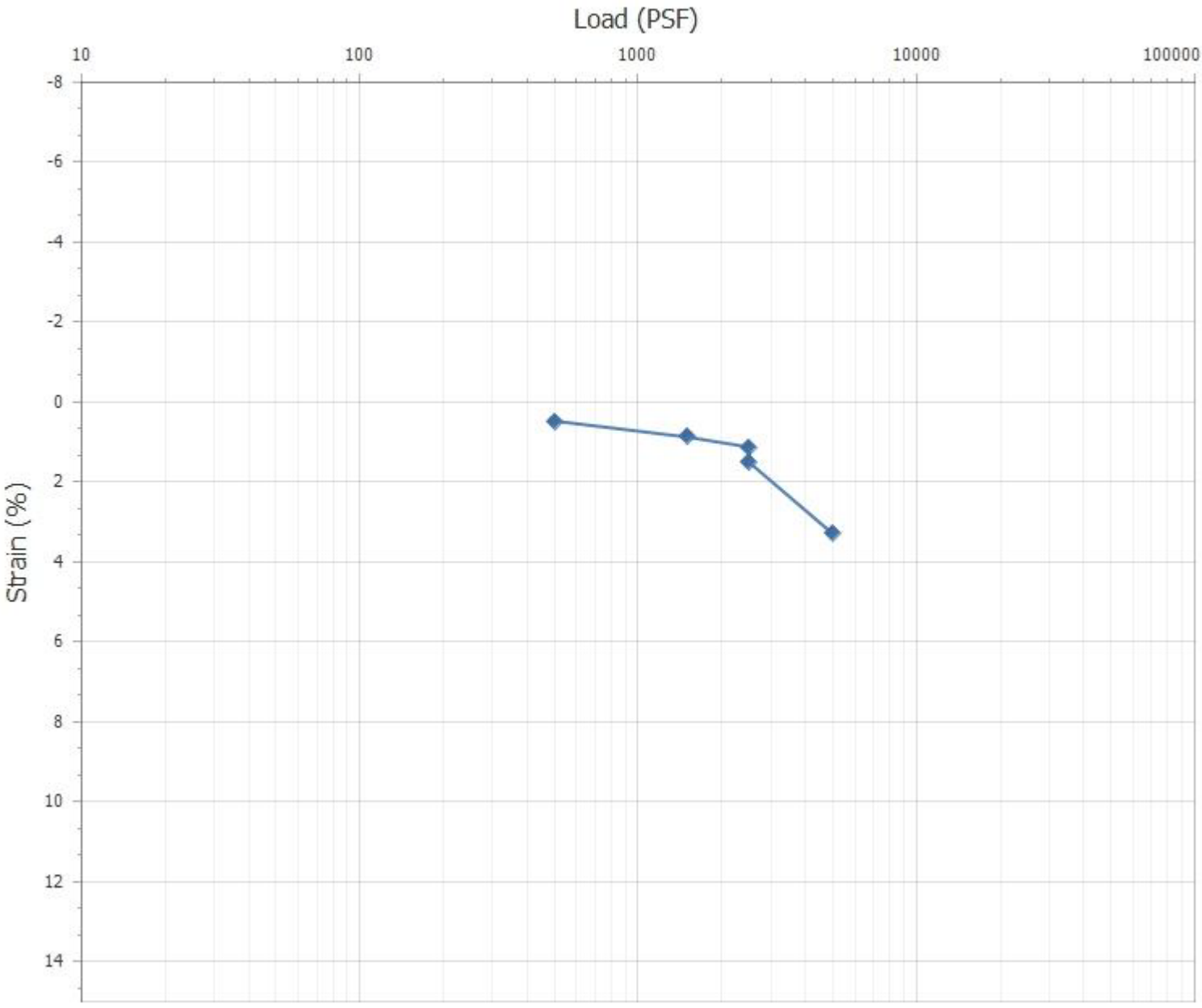
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208472 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 20')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 20'

Moisture Content:	6.3 %	Sample Type:	Undisturbed
Dry Unit Weight:	111.3 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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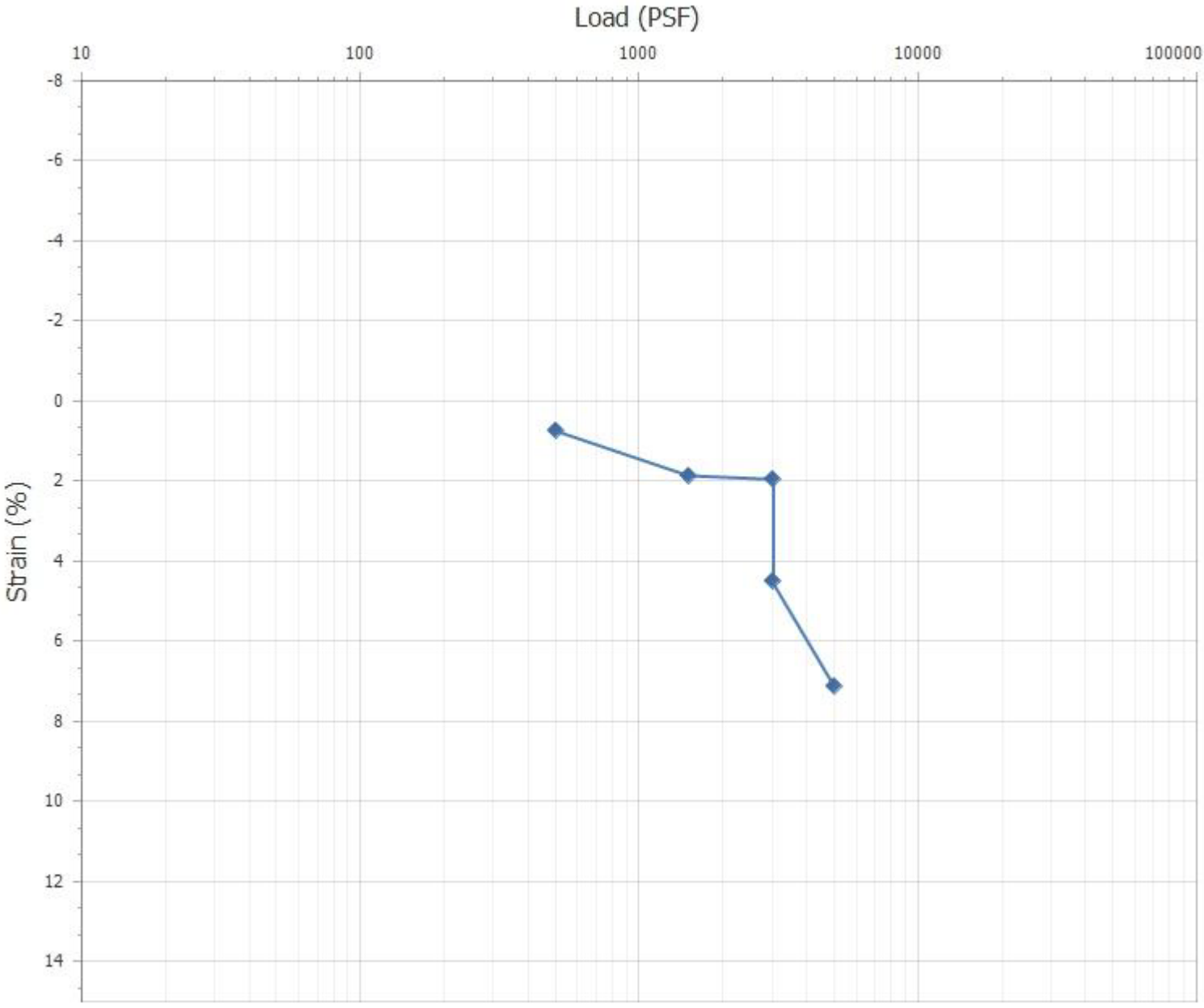
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208473 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 25'

Moisture Content:	21.3 %	Sample Type:	Undisturbed
Dry Unit Weight:	99.0 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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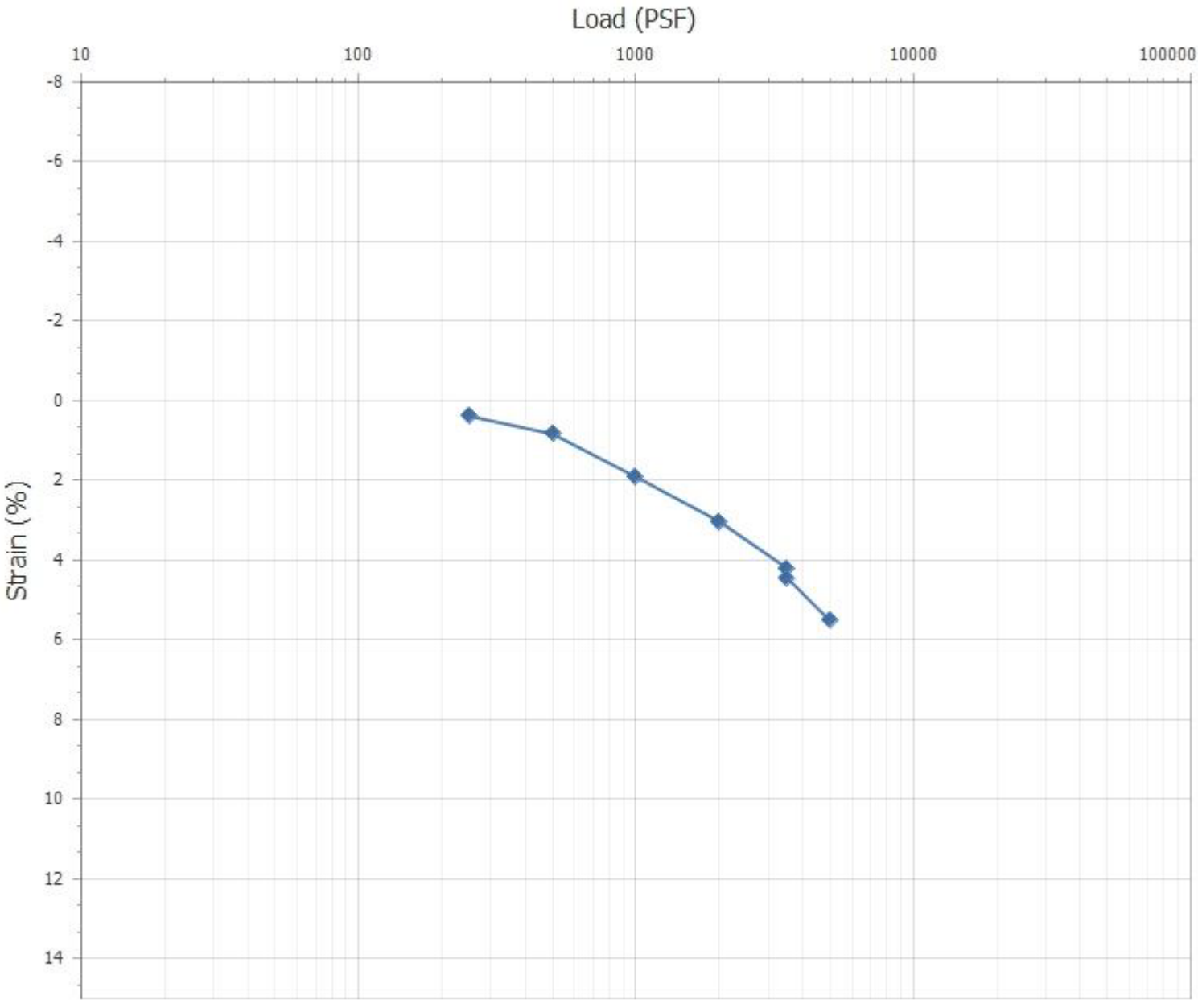
Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208474 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 30')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 30'

Moisture Content:	15.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	107.2 lb/ft³	Load at Saturation:	3500 PSF
Remarks:		Reviewed By:	jgrossarth

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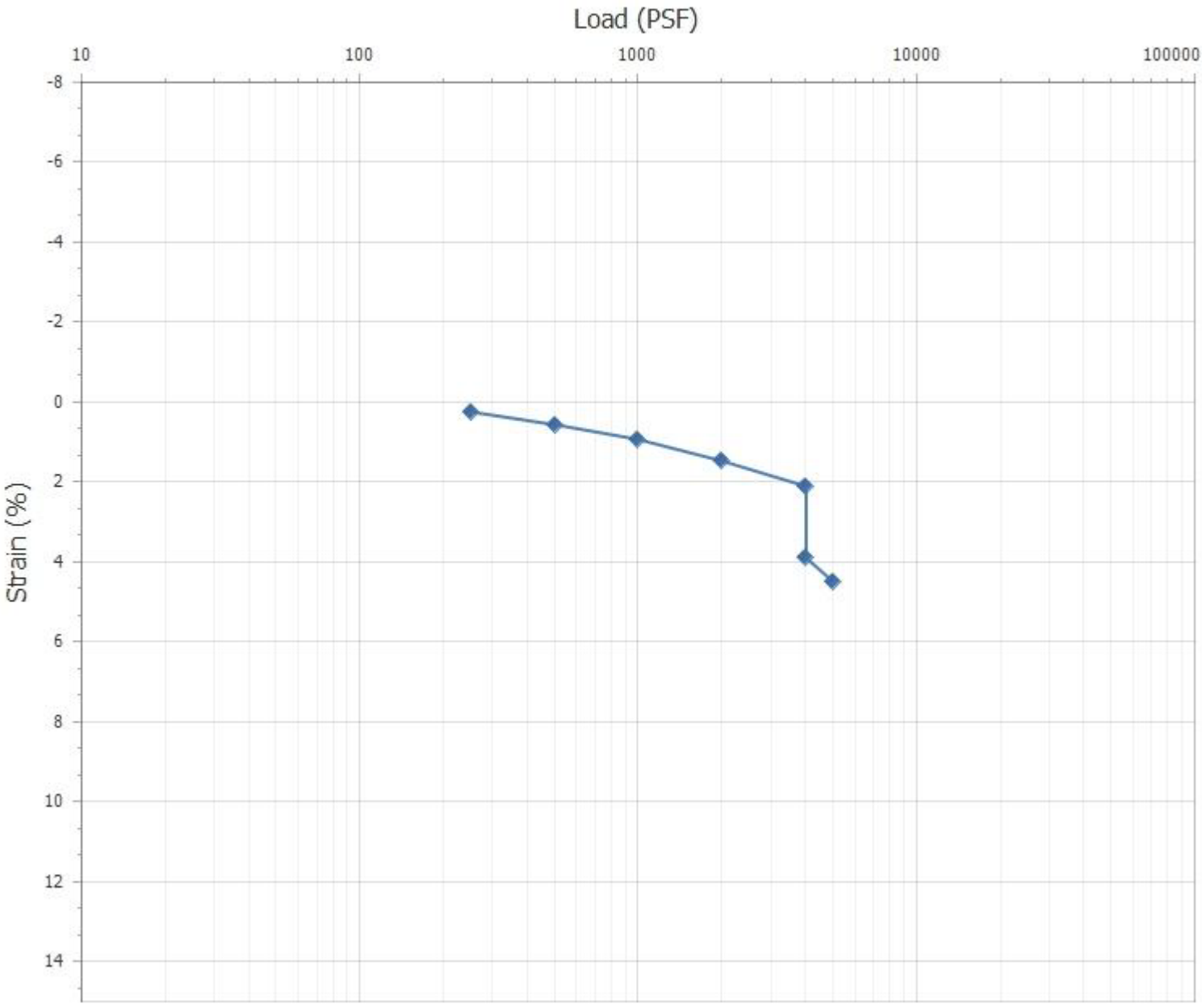
Fax: (602) 272-7892

Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208475 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 35')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 35'

Moisture Content:	6.8 %	Sample Type:	Undisturbed
Dry Unit Weight:	114.8 lb/ft³	Load at Saturation:	4000 PSF
Remarks:		Reviewed By:	jgrossarth

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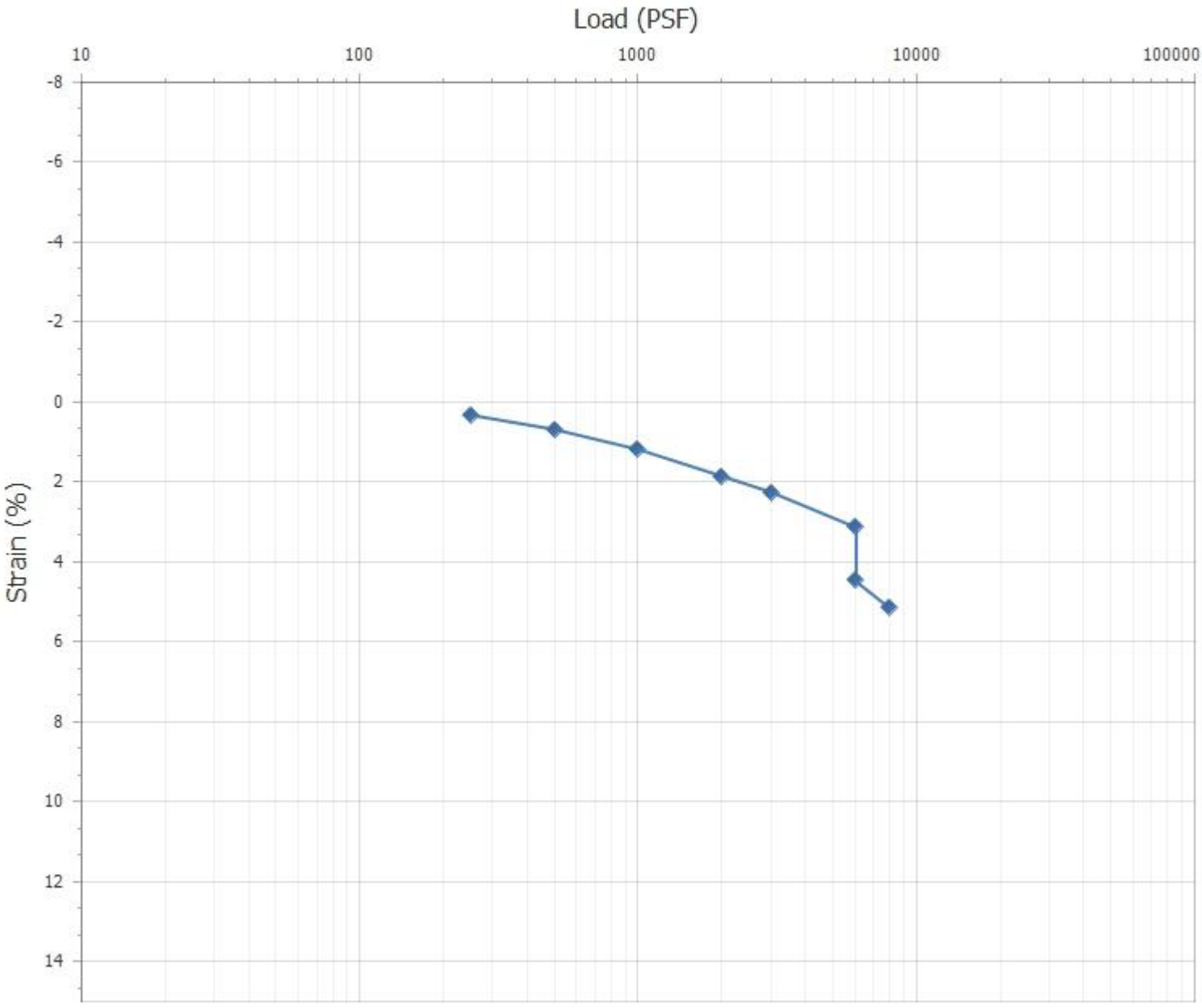
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208477 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 50')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 50'

Moisture Content:	9.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	112.8 lb/ft³	Load at Saturation:	6000 PSF
Remarks:		Reviewed By:	jgrossarth

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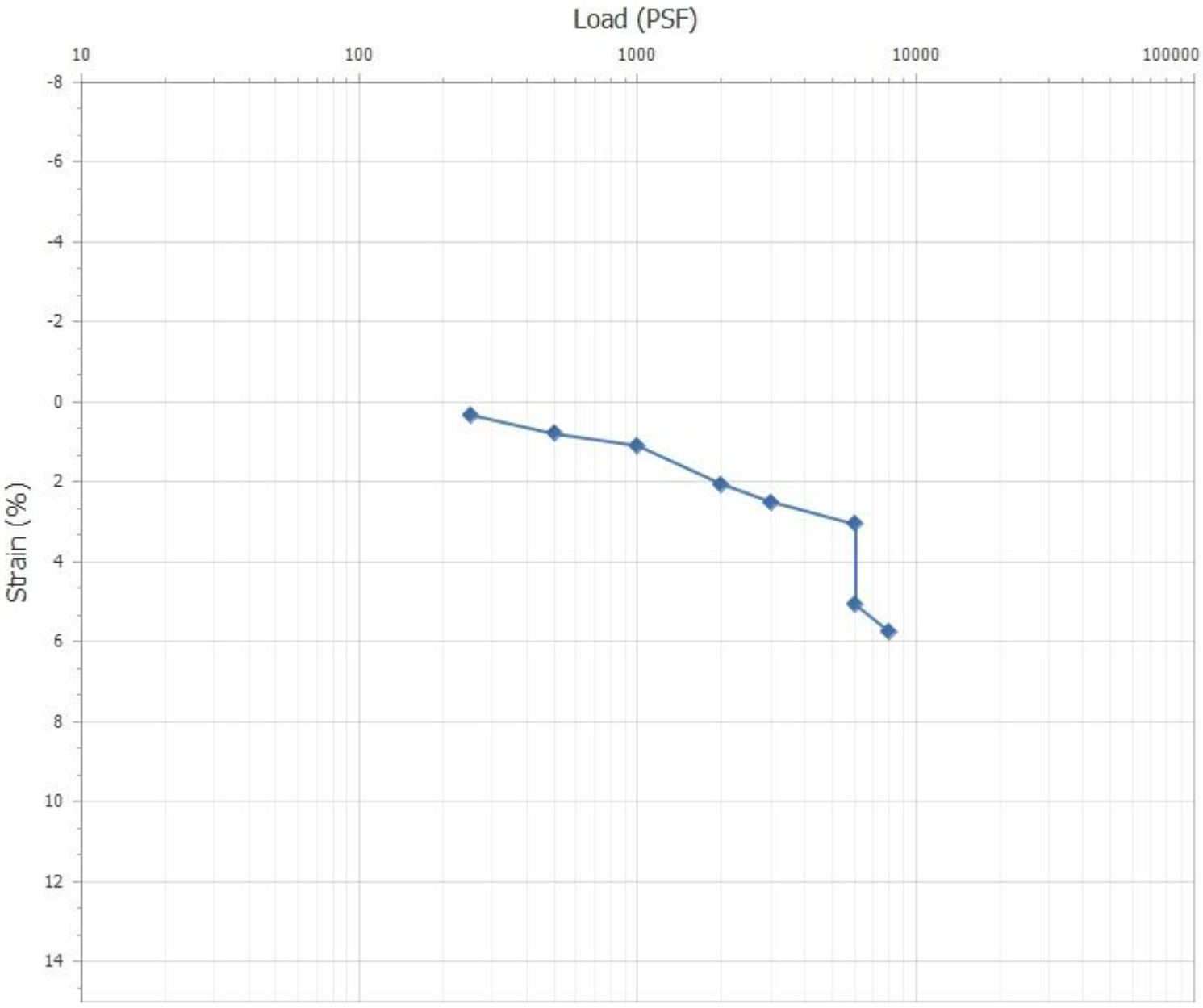
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208478 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 55')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 55'

Moisture Content:	3.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	112.7 lb/ft³	Load at Saturation:	6000 PSF
Remarks:		Reviewed By:	jgrossarth

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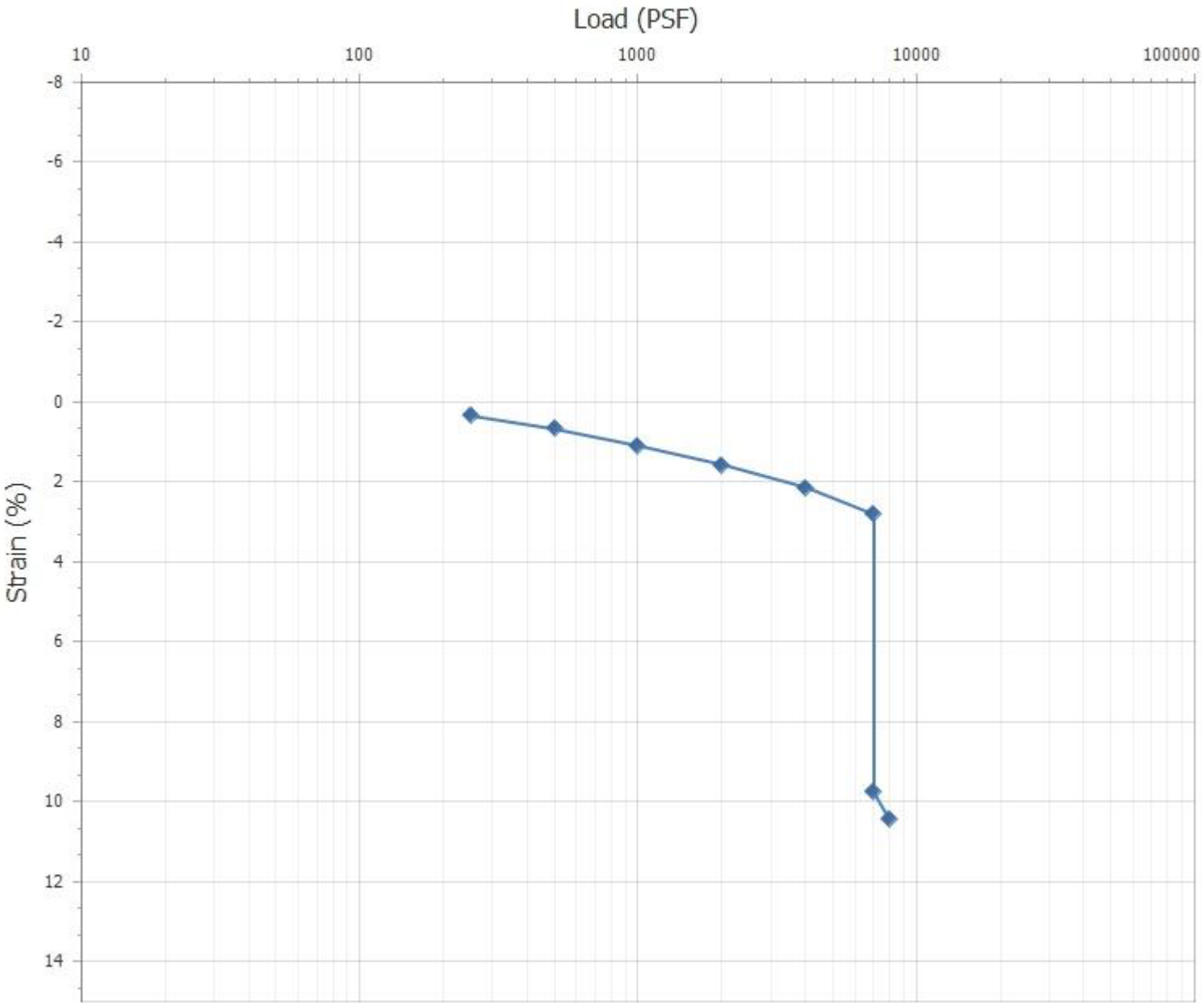
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208479 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 60')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 60'

Moisture Content:	6.2 %	Sample Type:	Undisturbed
Dry Unit Weight:	101.7 lb/ft³	Load at Saturation:	7000 PSF
Remarks:		Reviewed By:	jgrossarth

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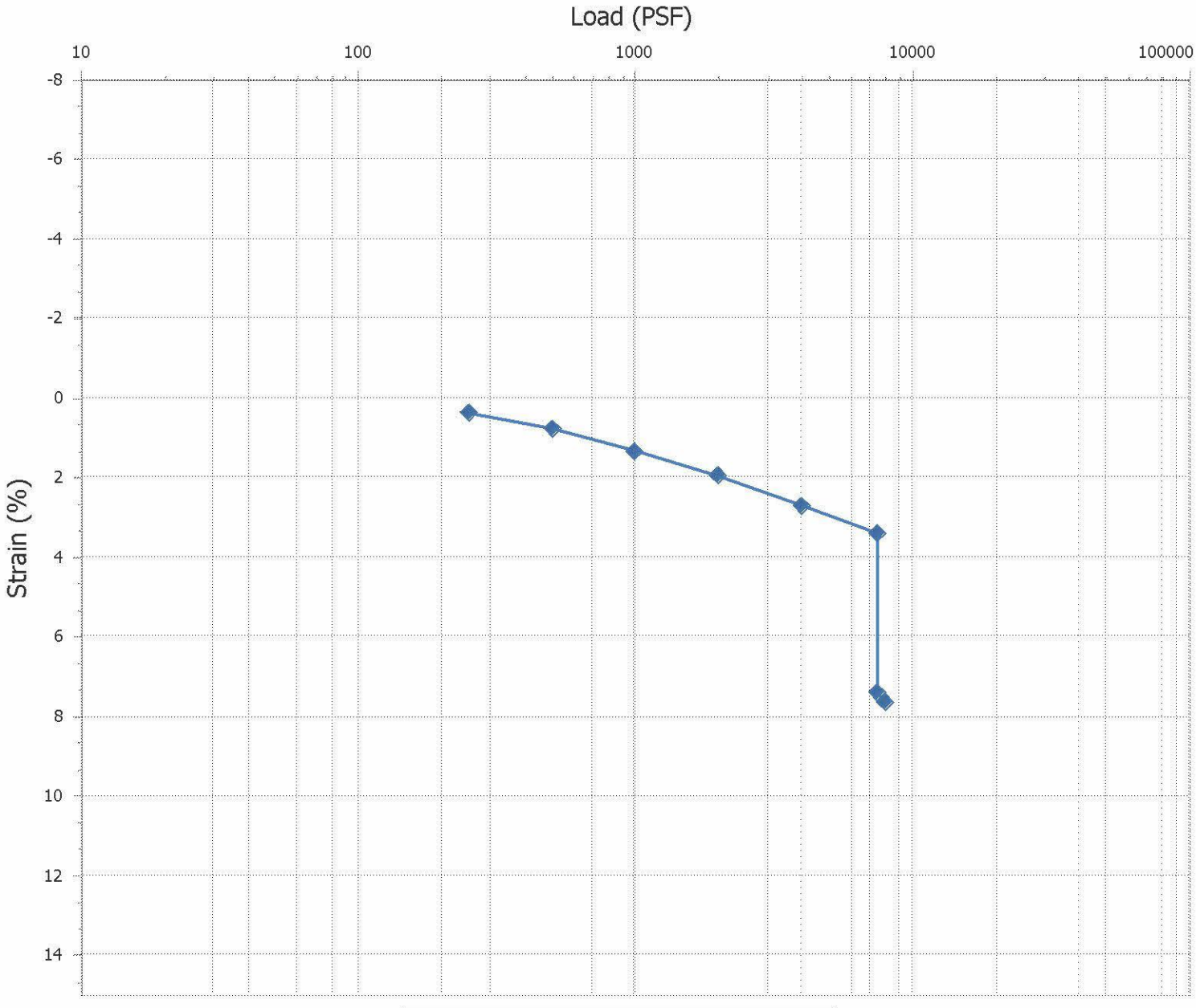
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208480 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (Ring 65')	Submitted By:	Kimberly Nepsa



Source: FB14 - Ring 65'

Moisture Content:	6.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	107.0 lb/ft³	Load at Saturation:	7500 PSF
Remarks:		Reviewed By:	jgrossarth

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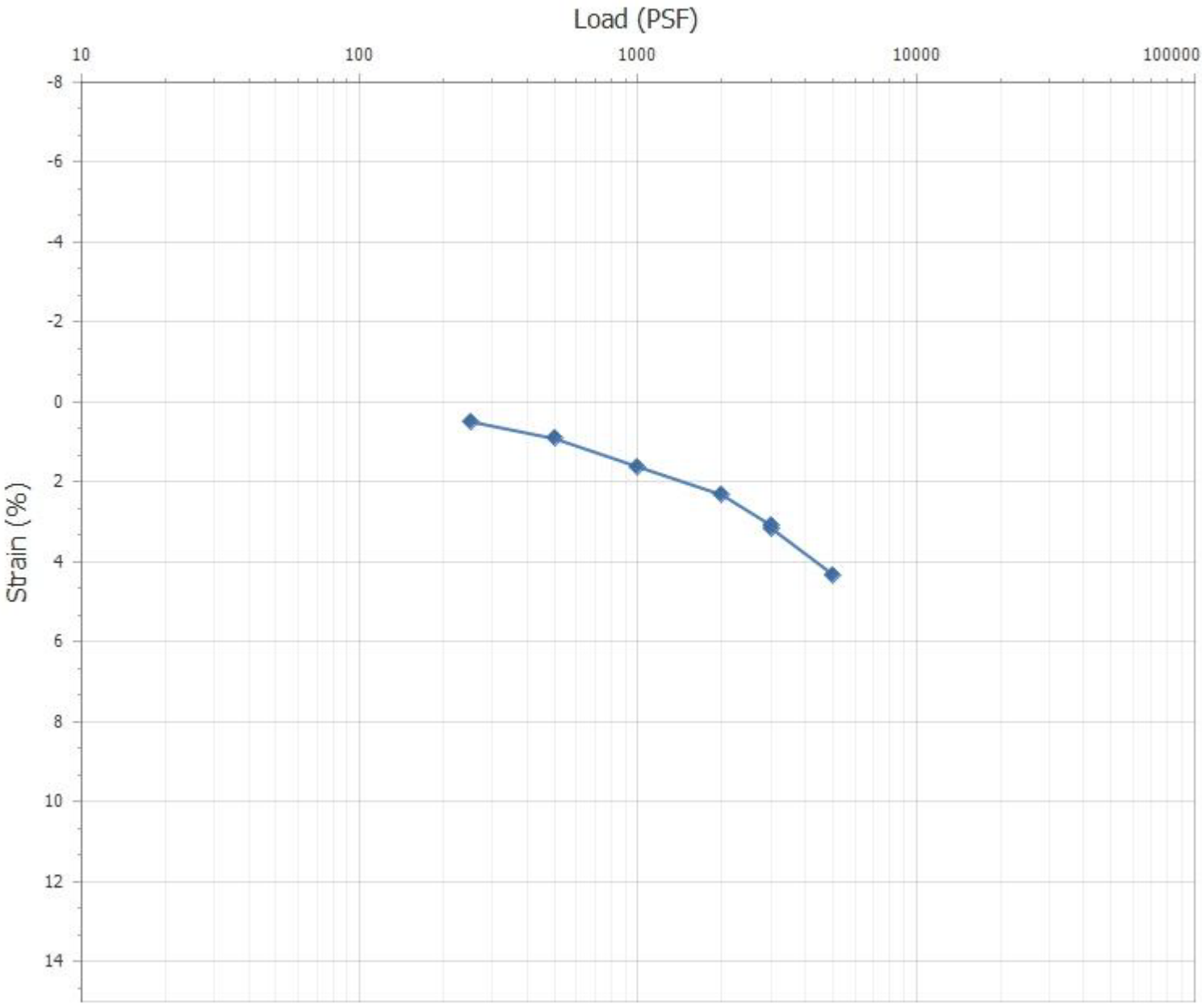
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208485 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (Ring 25')	Submitted By:	Kimberly Nepsa



Source: FB15 - Ring 25'

Moisture Content:	20.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	99.4 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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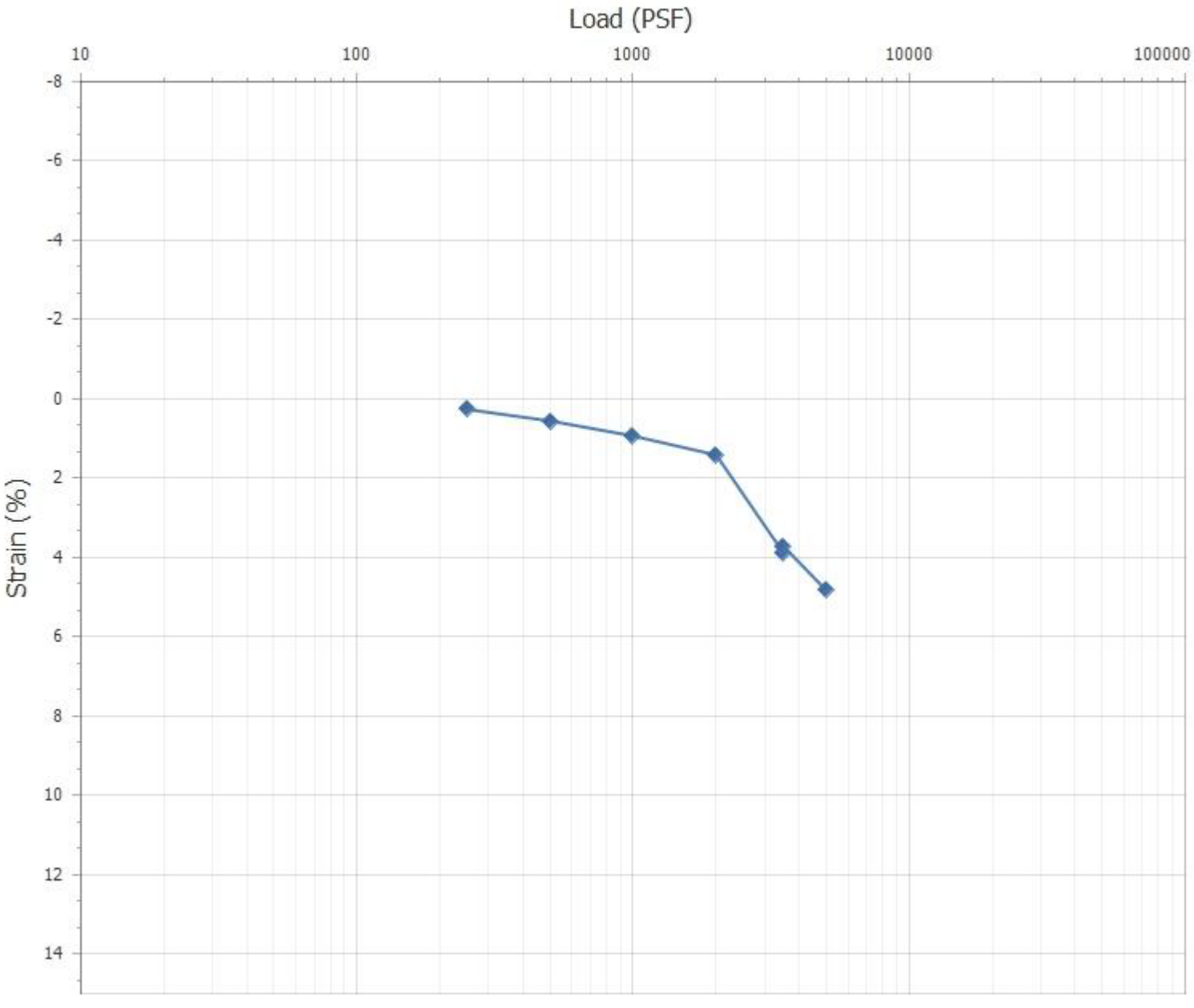
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208486 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (Ring 30')	Submitted By:	Kimberly Nepsa



Source: FB15 - Ring 30'

Moisture Content:	4.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	111.9 lb/ft³	Load at Saturation:	3500 PSF
Remarks:		Reviewed By:	jgrossarth

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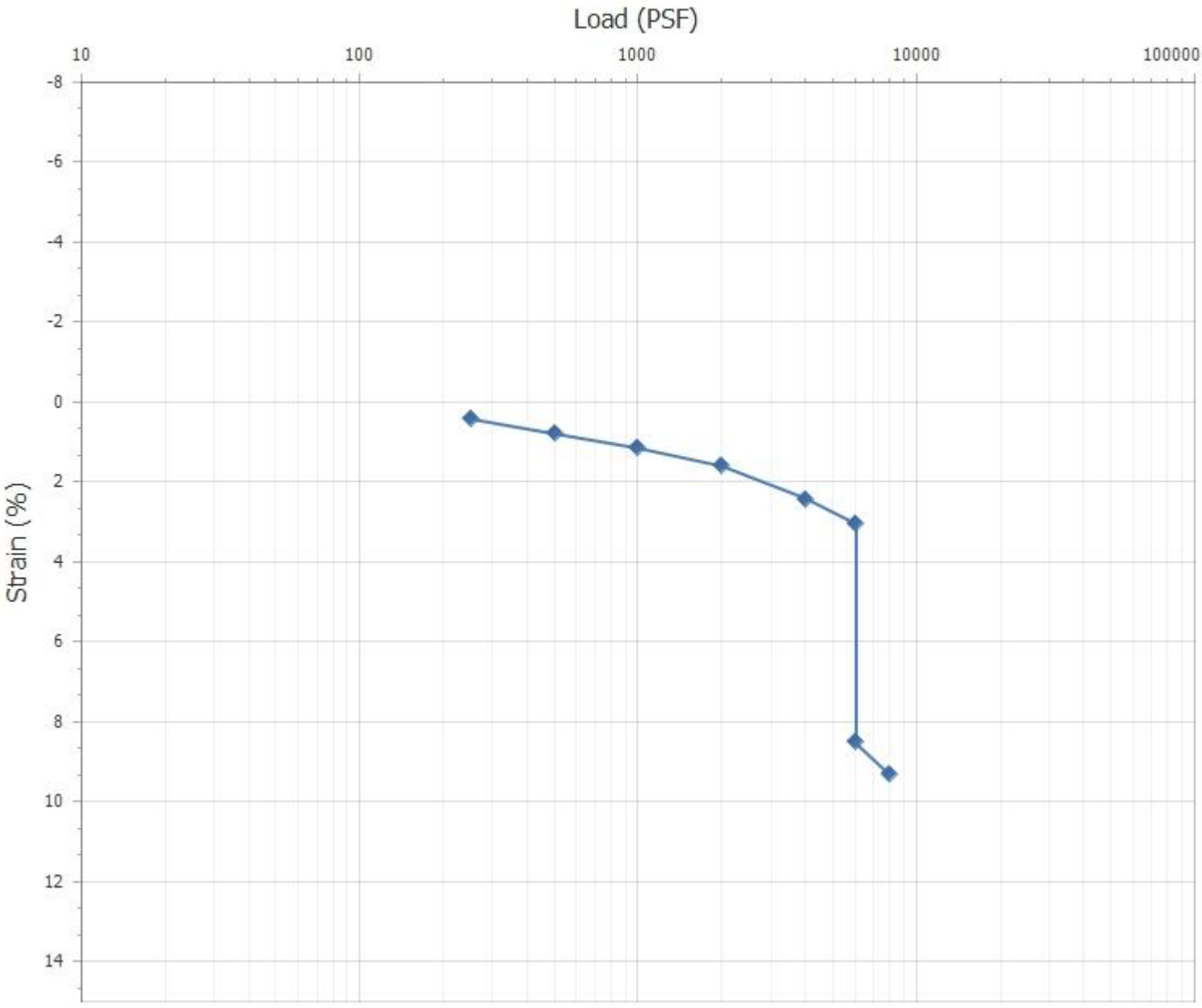
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208489 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (Ring 50')	Submitted By:	Kimberly Nepsa



Source: FB15 - Ring 50'

Moisture Content:	6.2 %	Sample Type:	Undisturbed
Dry Unit Weight:	102.9 lb/ft³	Load at Saturation:	6000 PSF
Remarks:		Reviewed By:	jgrossarth

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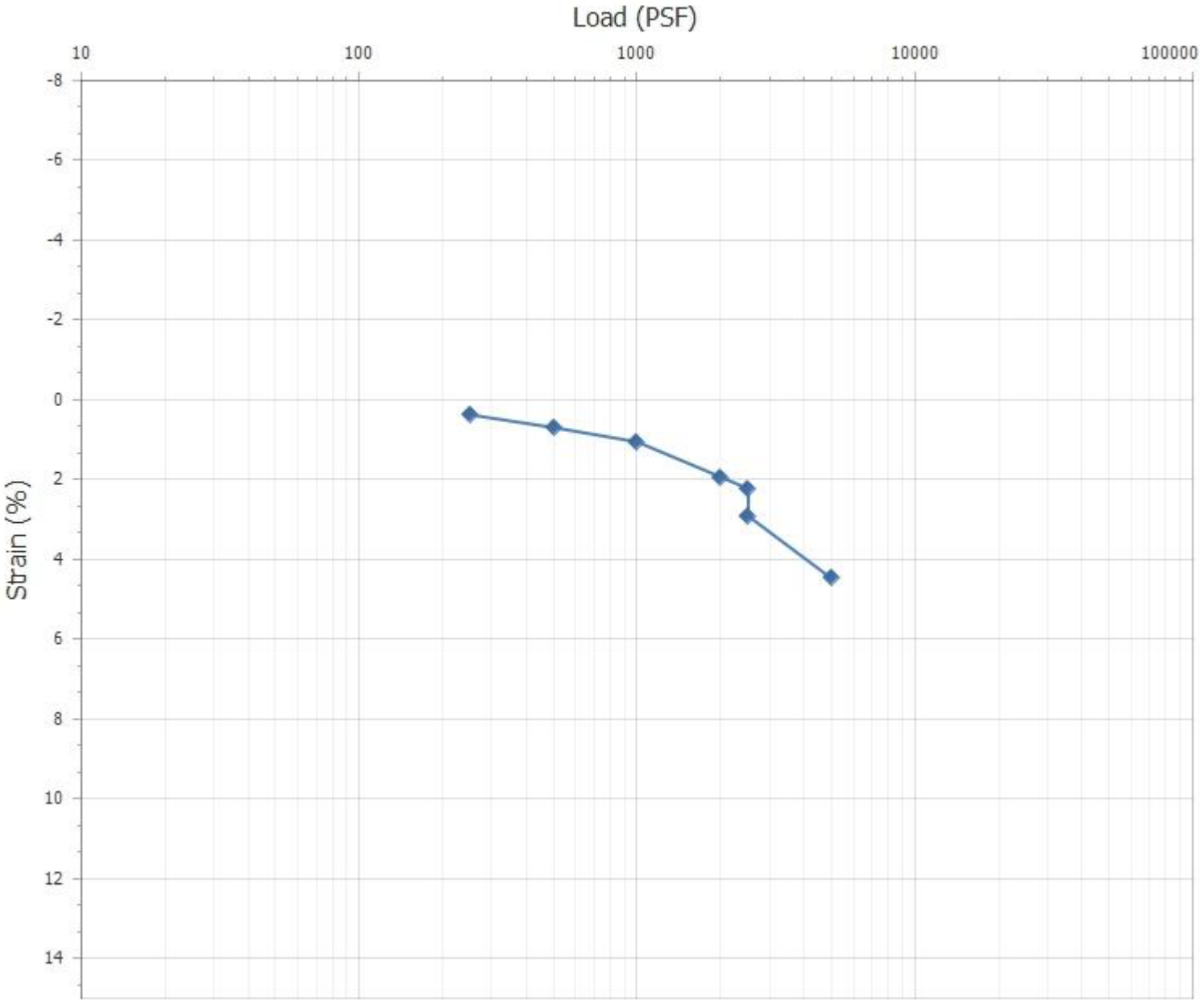
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208504 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (Ring 20')	Submitted By:	Amos McCurdy



Source: FB16 - Ring 20'

Moisture Content:	6.4 %	Sample Type:	Undisturbed
Dry Unit Weight:	110.6 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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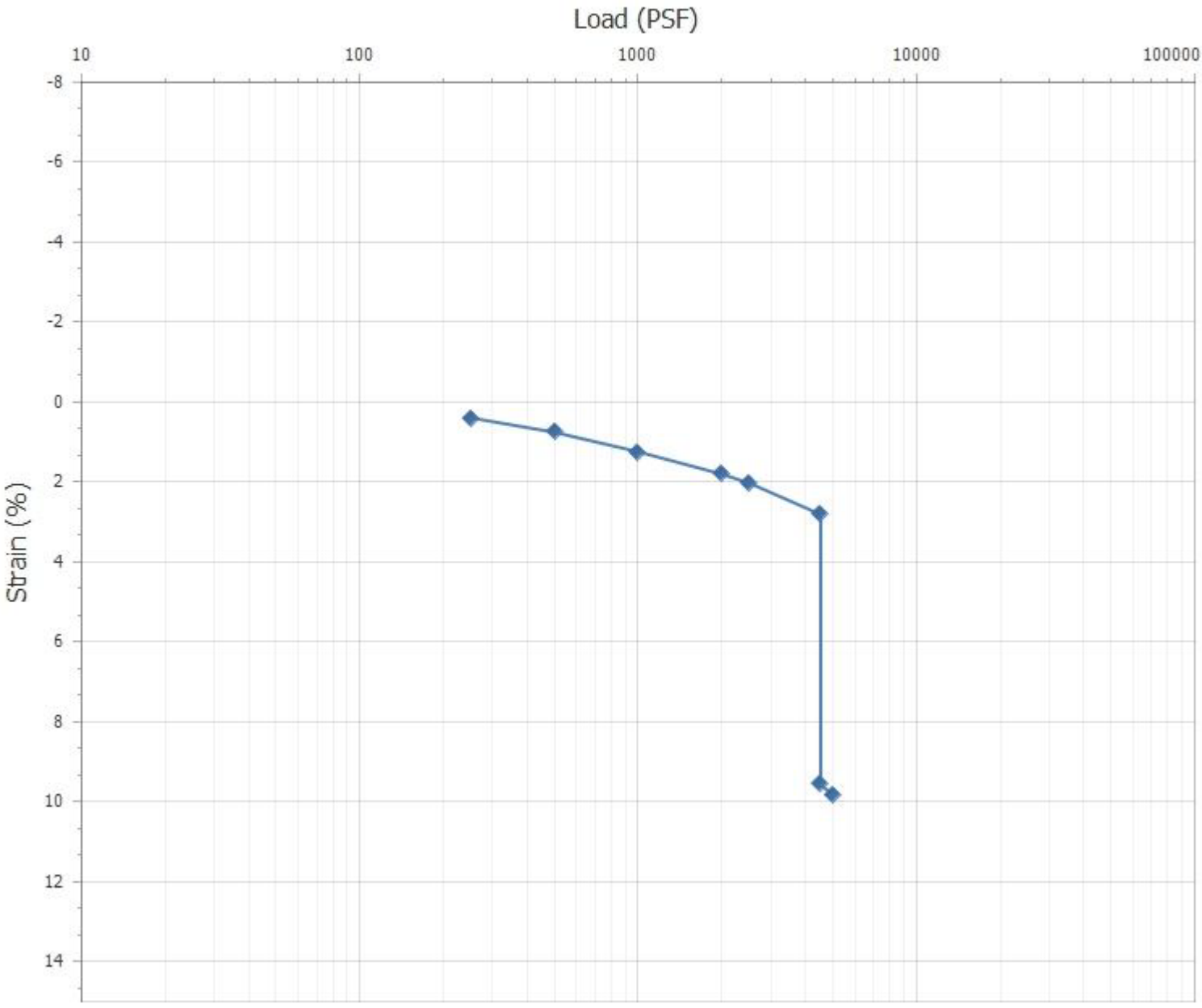
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208508 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (Ring 40')	Submitted By:	Amos McCurdy



Source: FB16 - Ring 40'

Moisture Content:	4.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	109.4 lb/ft³	Load at Saturation:	4500 PSF
Remarks:		Reviewed By:	jgrossarth

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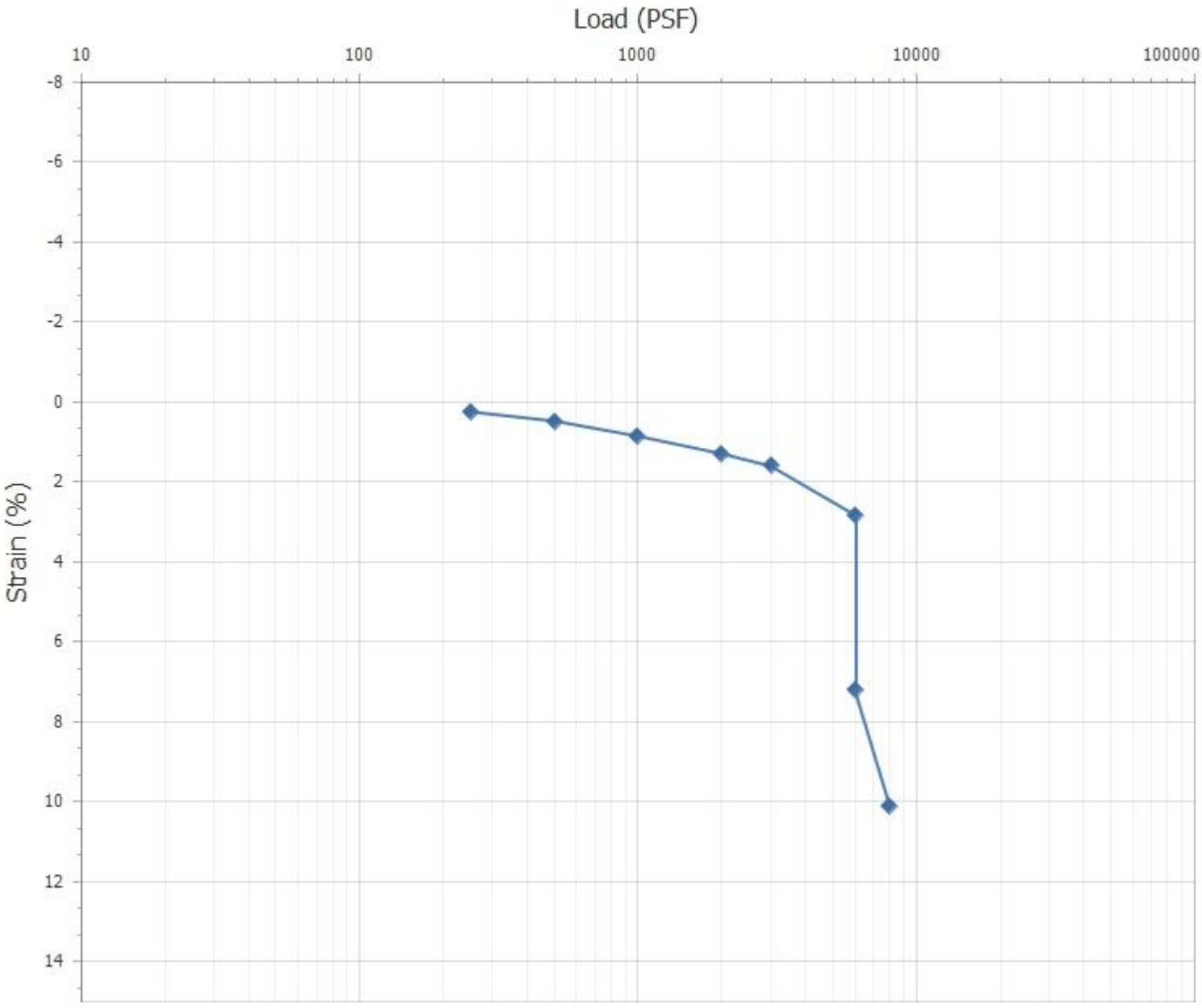
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208510 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (Ring 50')	Submitted By:	Amos McCurdy



Source: FB16 - Ring 50'

Moisture Content:	8.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	92.7 lb/ft³	Load at Saturation:	6000 PSF
Remarks:		Reviewed By:	jgrossarth

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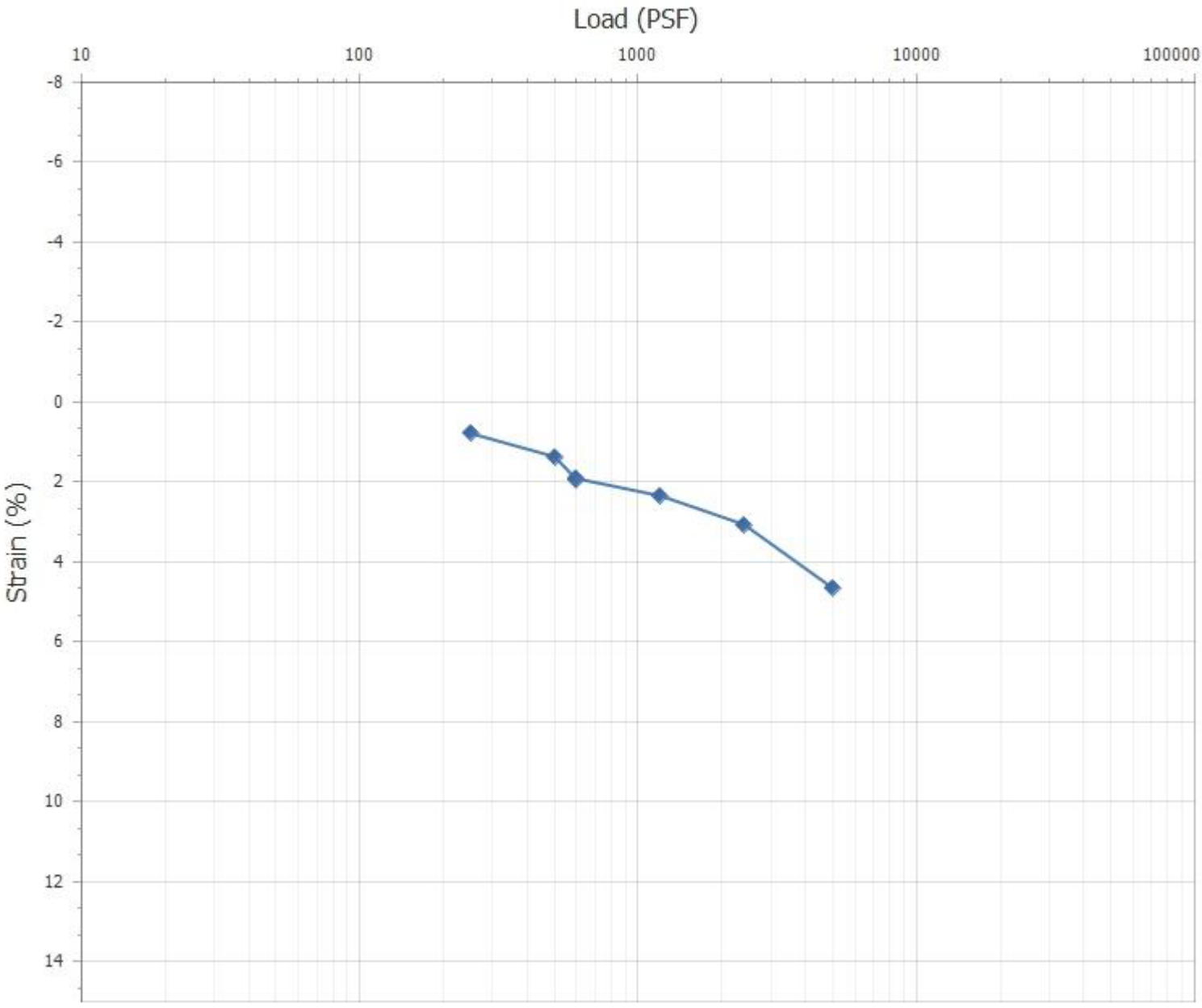
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208528 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 2.5')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 2.5'

Moisture Content:	10.2 %	Sample Type:	Undisturbed
Dry Unit Weight:	120.4 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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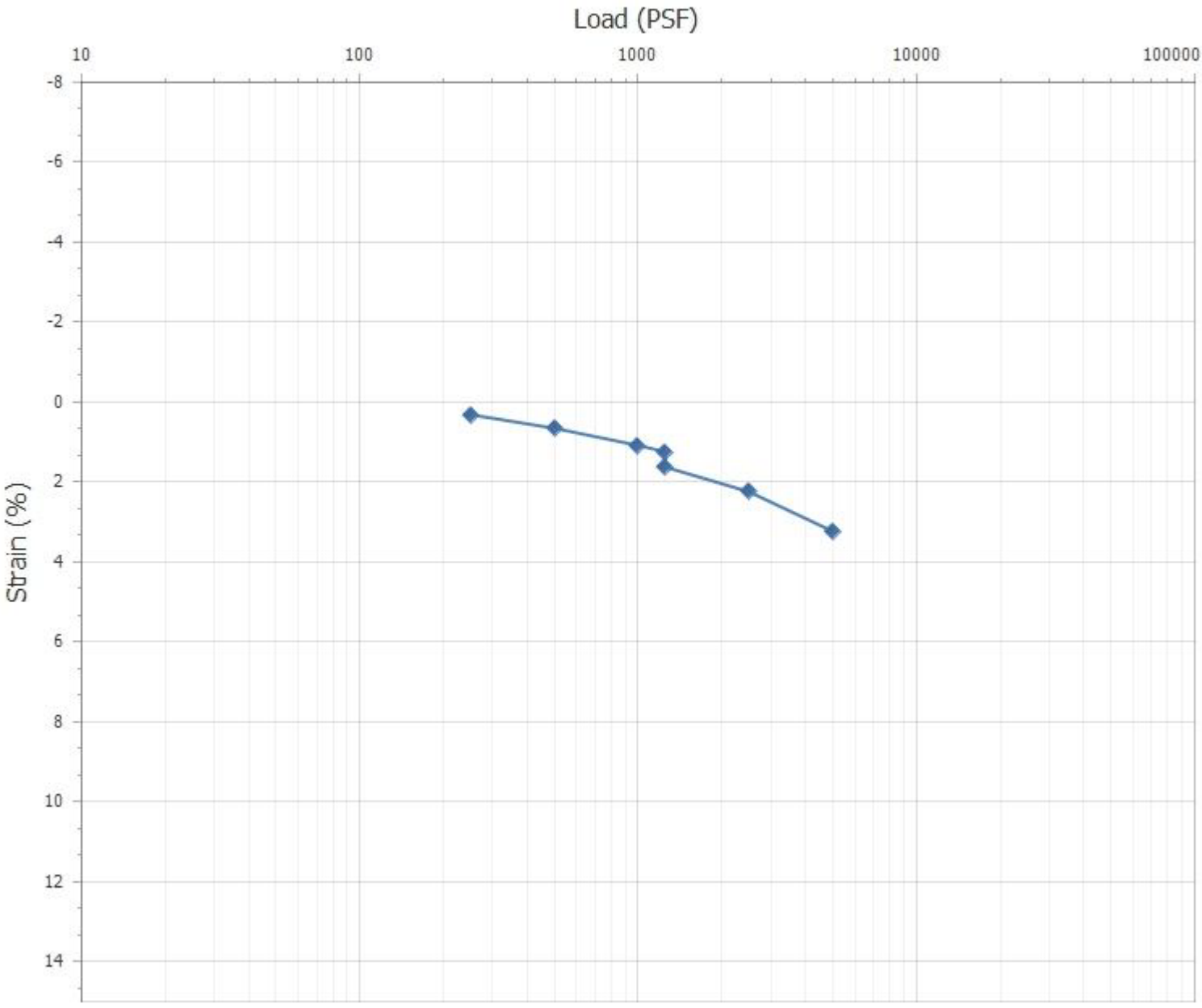
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208529 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 5')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 5'

Moisture Content:	3.7 %	Sample Type:	Undisturbed
Dry Unit Weight:	105.1 lb/ft³	Load at Saturation:	1250 PSF
Remarks:		Reviewed By:	jgrossarth

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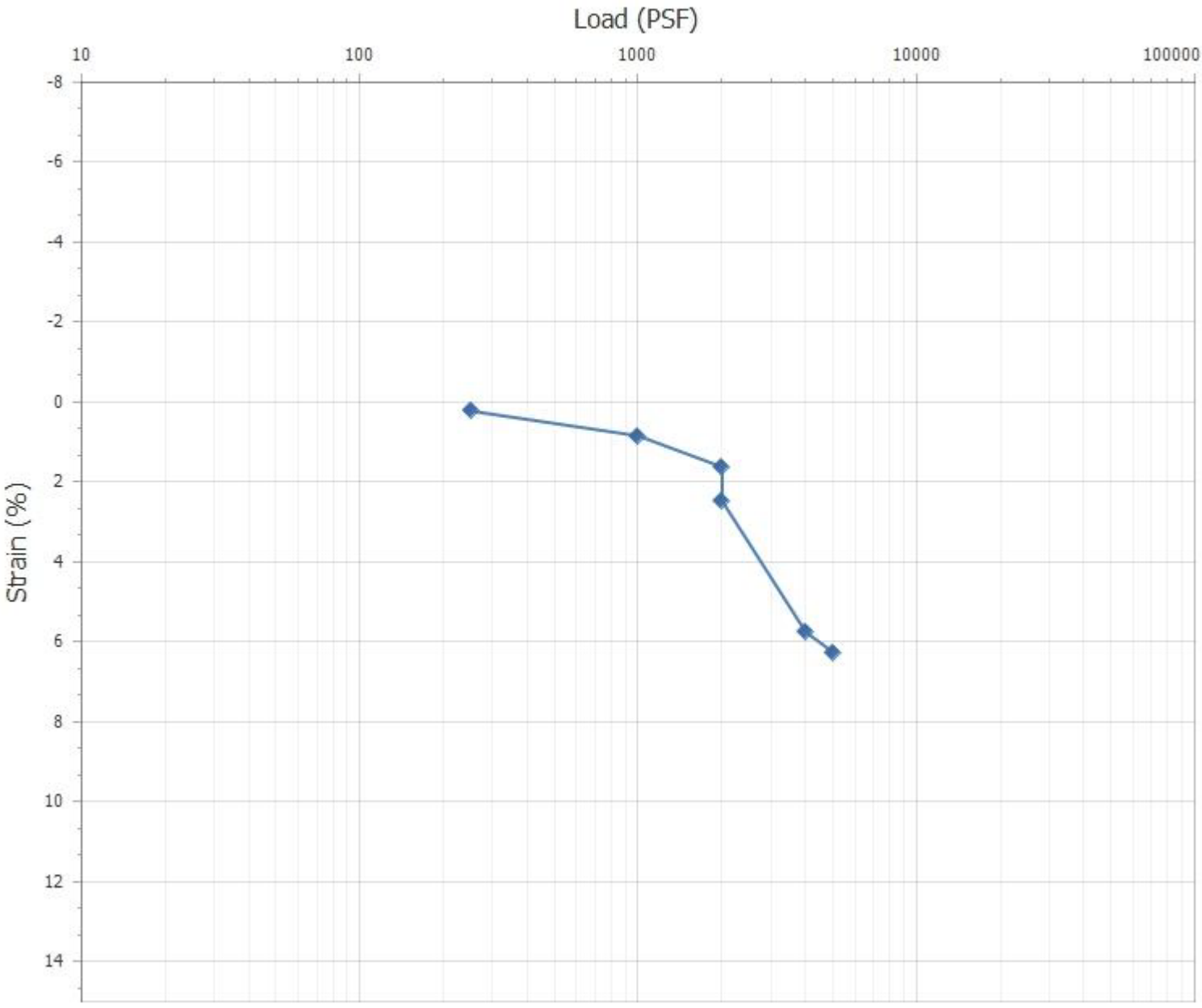
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208531 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 15')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 15'

Moisture Content:	17.0 %	Sample Type:	Undisturbed
Dry Unit Weight:	86.5 lb/ft³	Load at Saturation:	2000 PSF
Remarks:		Reviewed By:	jgrossarth

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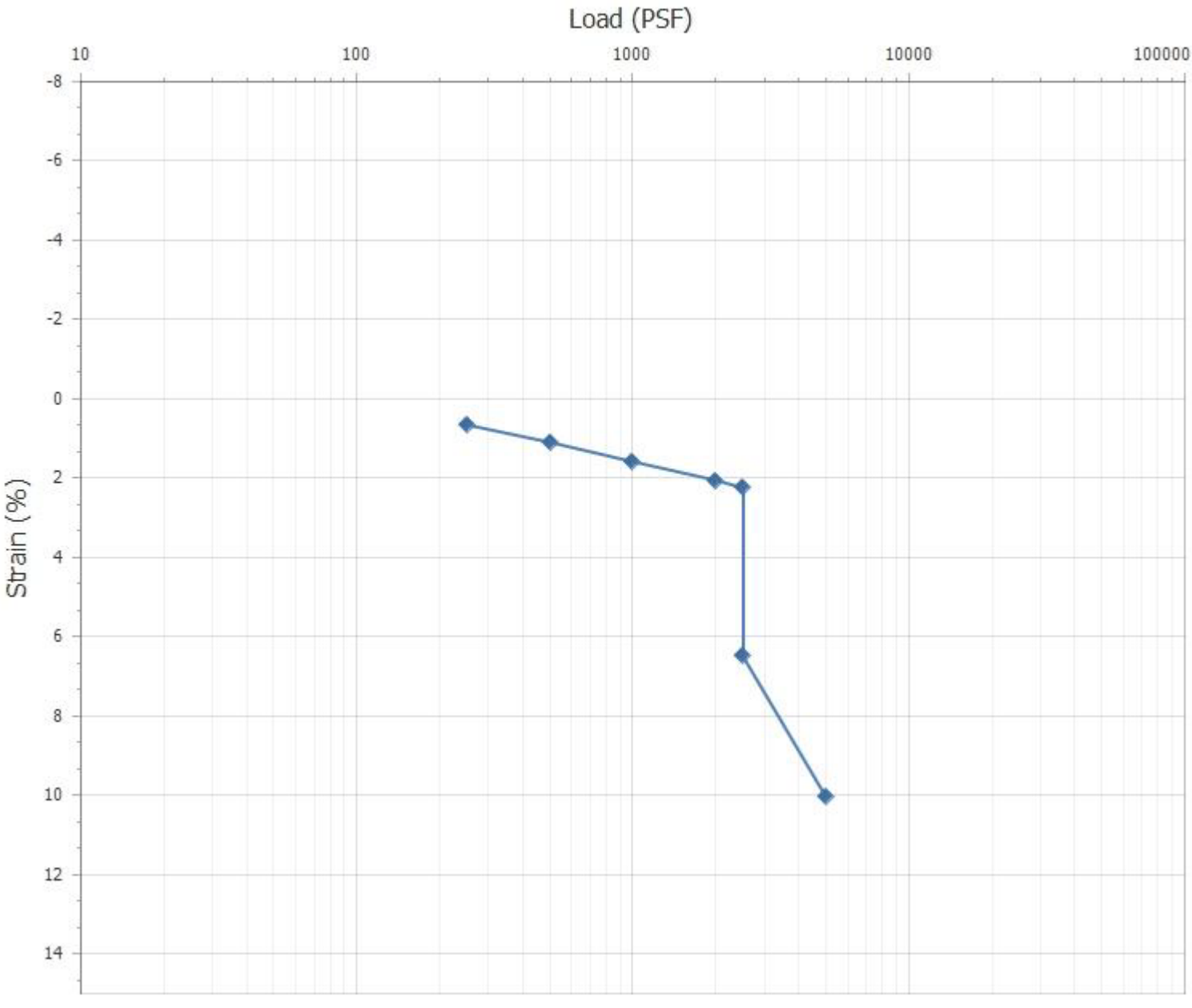
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208532 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 20')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 20'

Moisture Content:	5.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	97.7 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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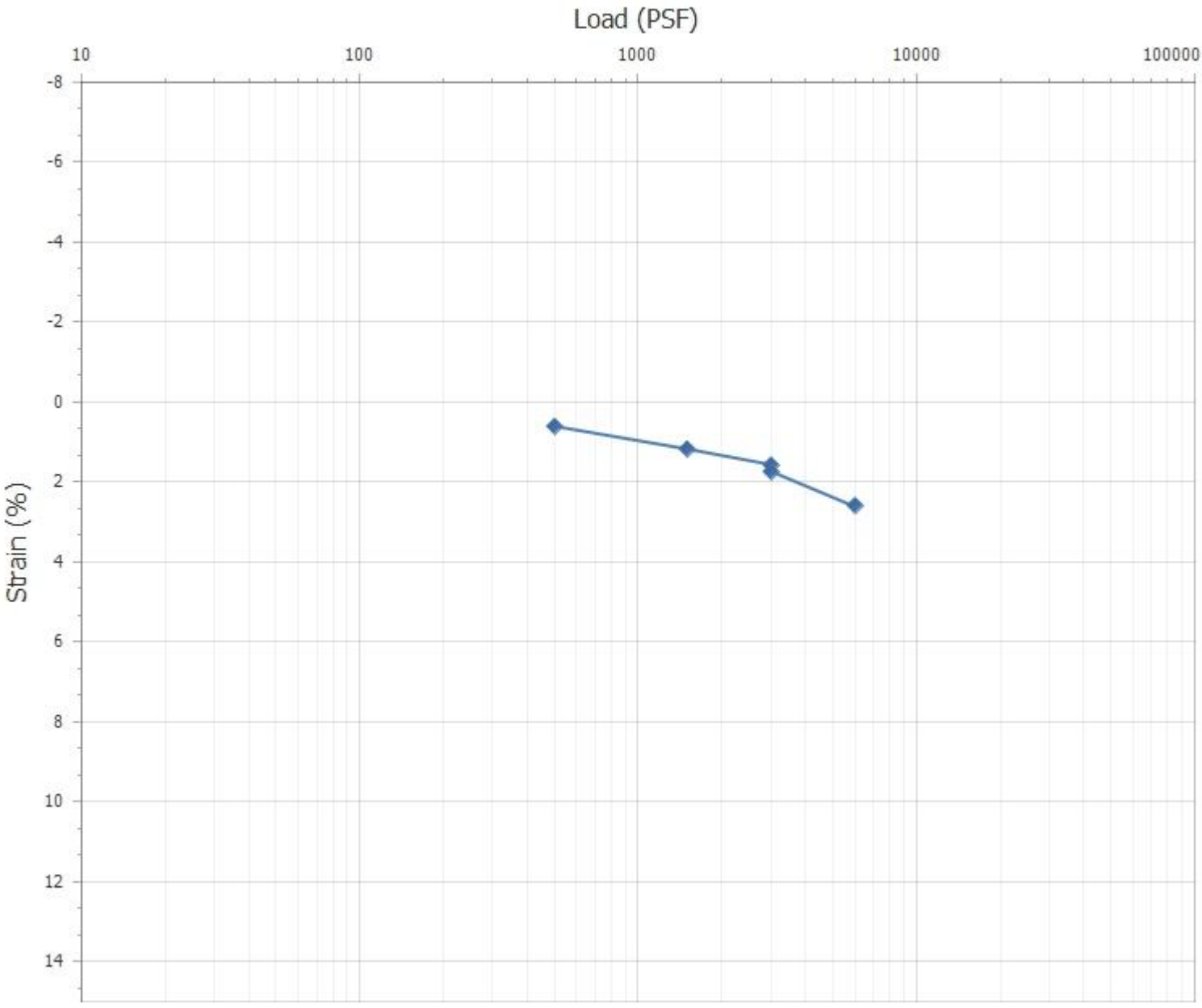
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208533 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 25')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 25'

Moisture Content:	7.1 %	Sample Type:	Undisturbed
Dry Unit Weight:	89.7 lb/ft³	Load at Saturation:	3000 PSF
Remarks:		Reviewed By:	jgrossarth

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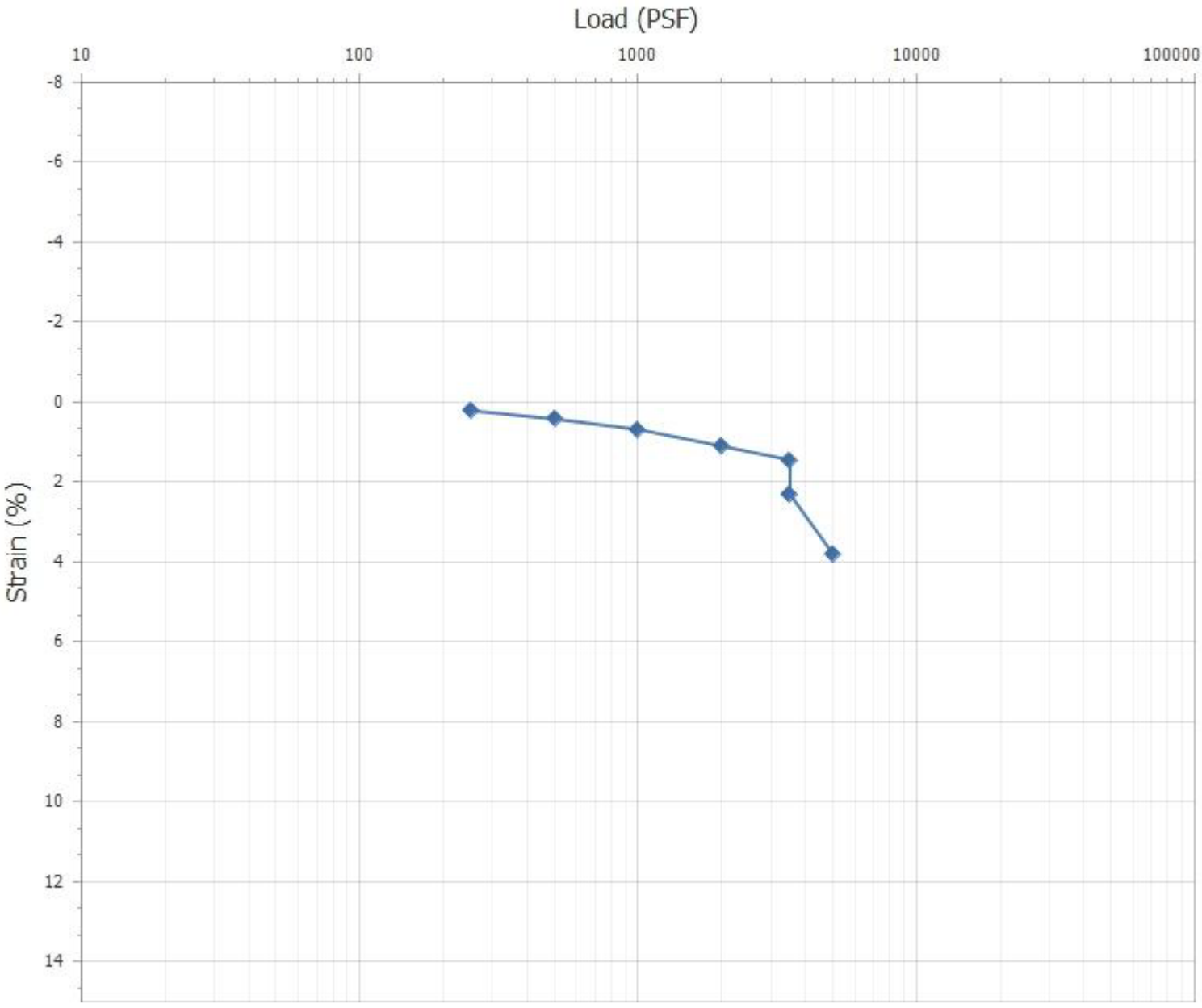
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208534 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 30')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 30'

Moisture Content:	6.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	94.2 lb/ft³	Load at Saturation:	3500 PSF
Remarks:		Reviewed By:	jgrossarth

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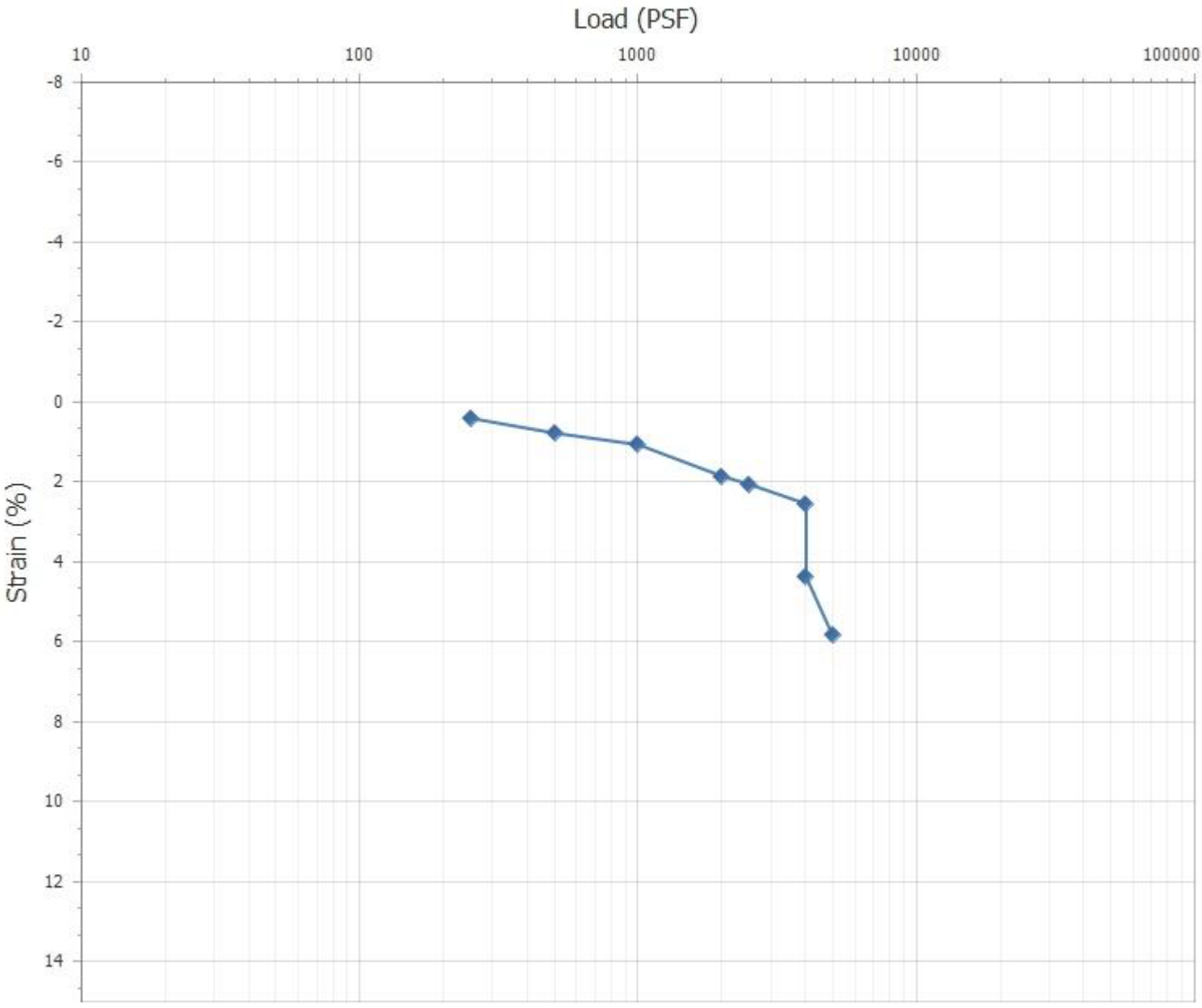
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208535 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 35')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 35'

Moisture Content:	13.0 %	Sample Type:	Undisturbed
Dry Unit Weight:	80.6 lb/ft³	Load at Saturation:	4000 PSF
Remarks:		Reviewed By:	jgrossarth

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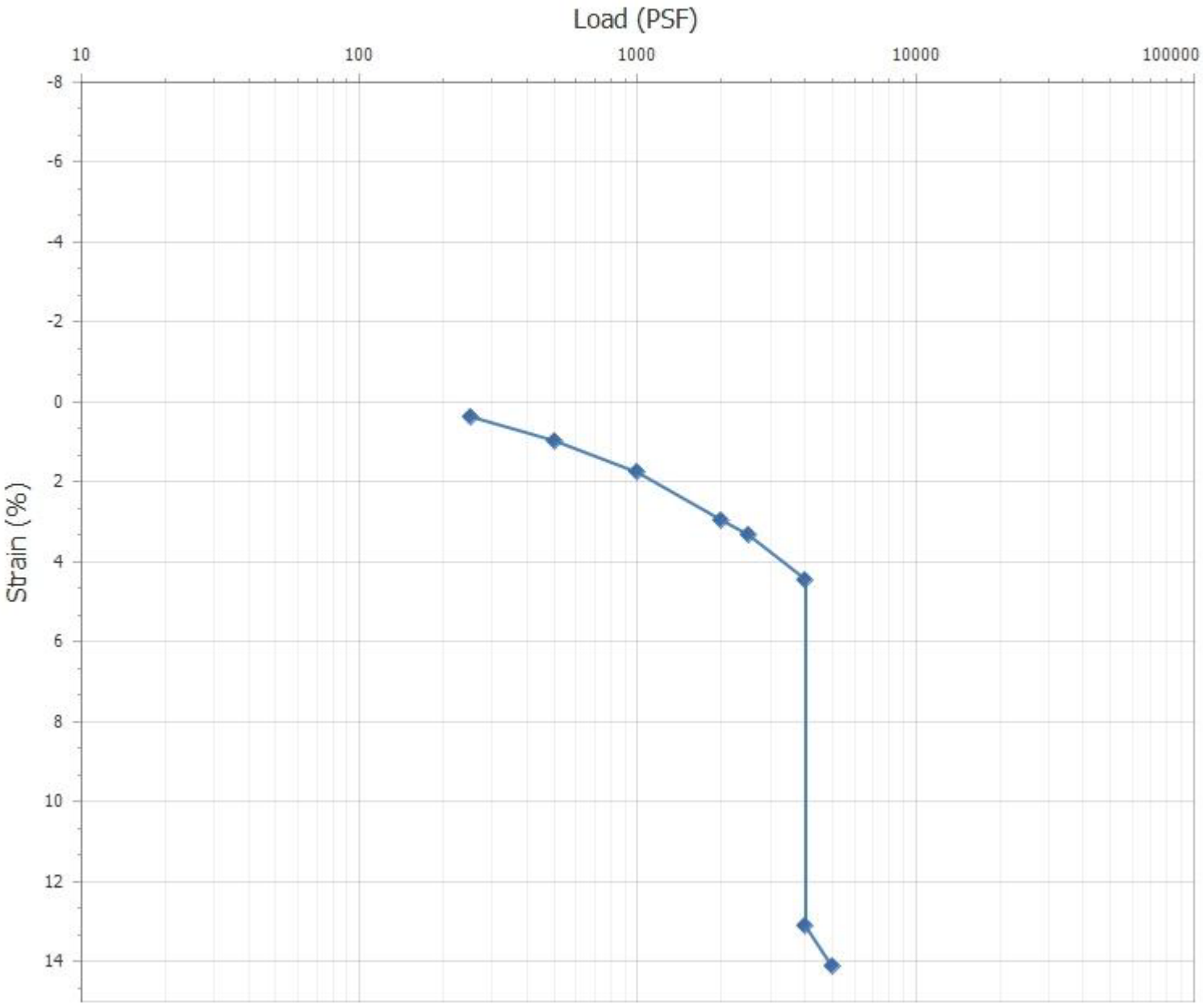
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208536 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (Ring 40')	Submitted By:	Amos McCurdy



Source: FB18 - Ring 40'

Moisture Content:	5.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	90.8 lb/ft³	Load at Saturation:	4000 PSF
Remarks:		Reviewed By:	jgrossarth

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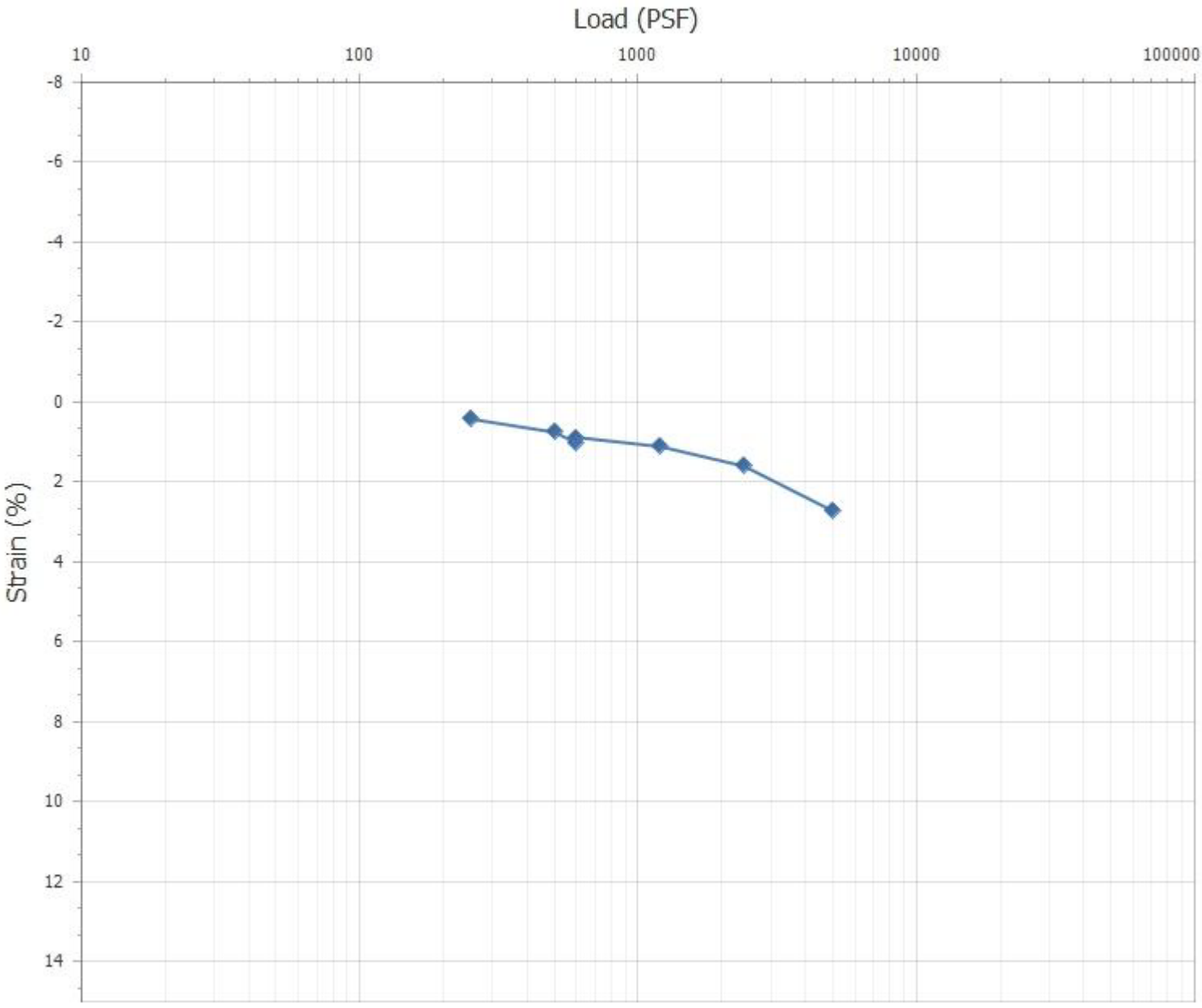
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208539 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (Ring 2.5')	Submitted By:	Amos McCurdy



Source: FB19 - Ring 2.5'

Moisture Content:	9.6 %	Sample Type:	Undisturbed
Dry Unit Weight:	119.9 lb/ft³	Load at Saturation:	600 PSF
Remarks:		Reviewed By:	jgrossarth

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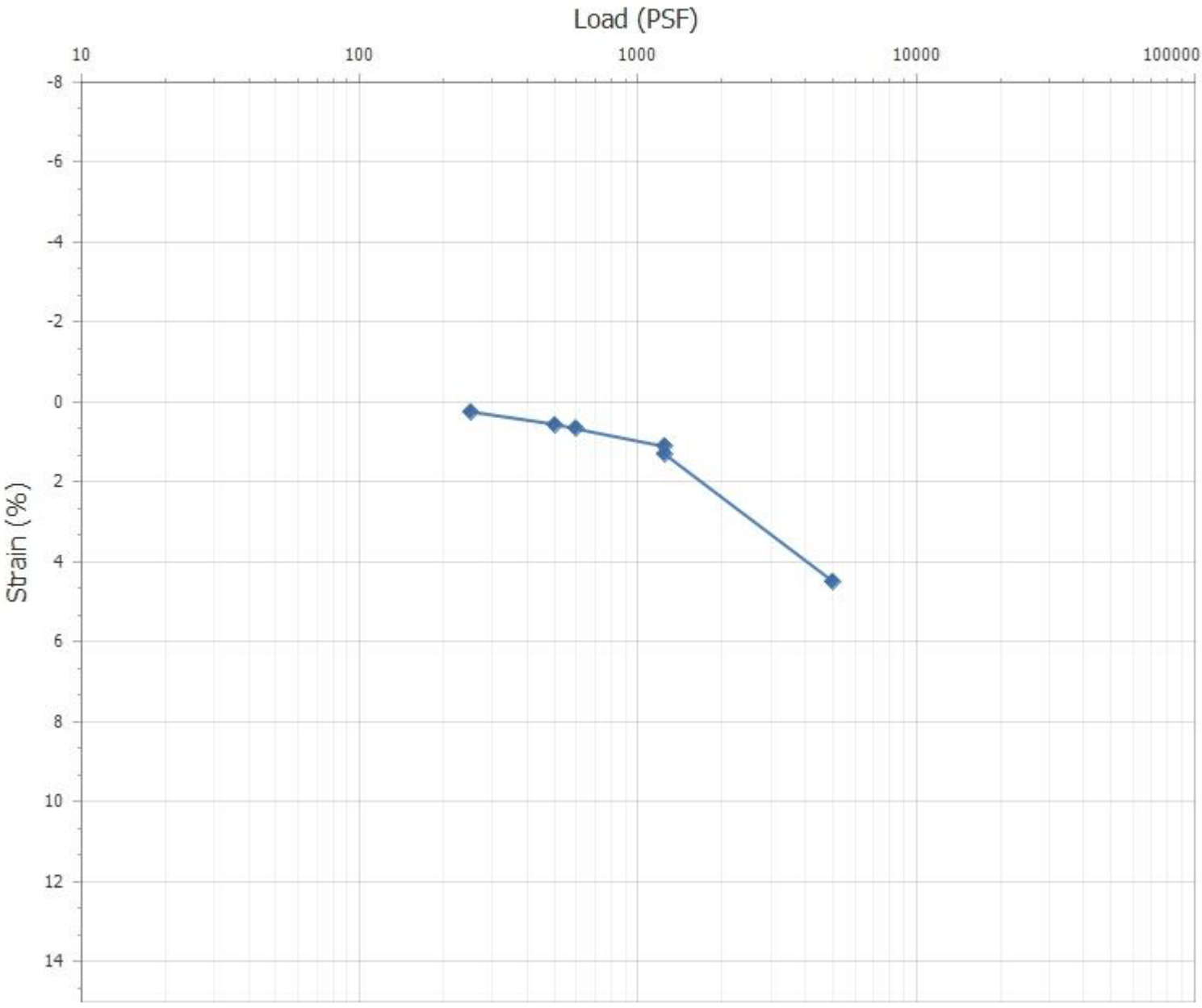
Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208541 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (Ring 10')	Submitted By:	Amos McCurdy



Source: FB19 - Ring 10'

Moisture Content:	13.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	87.3 lb/ft³	Load at Saturation:	1250 PSF
Remarks:		Reviewed By:	jgrossarth

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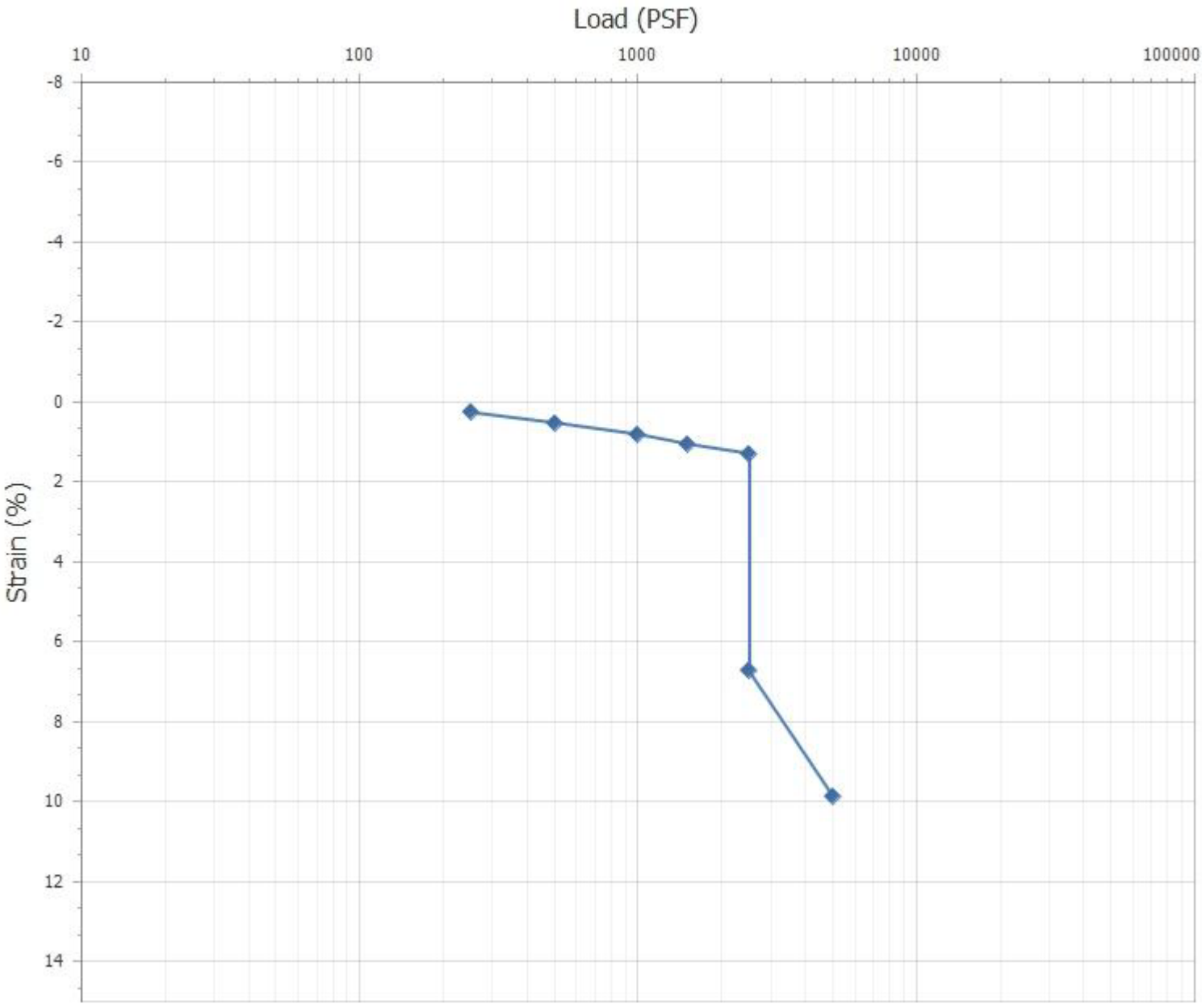
Fax: (602) 272-7892

Consolidation

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208543 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (Ring 20')	Submitted By:	Amos McCurdy



Source: FB19 - Ring 20'

Moisture Content:	4.9 %	Sample Type:	Undisturbed
Dry Unit Weight:	97.5 lb/ft³	Load at Saturation:	2500 PSF
Remarks:		Reviewed By:	jgrossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202205 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

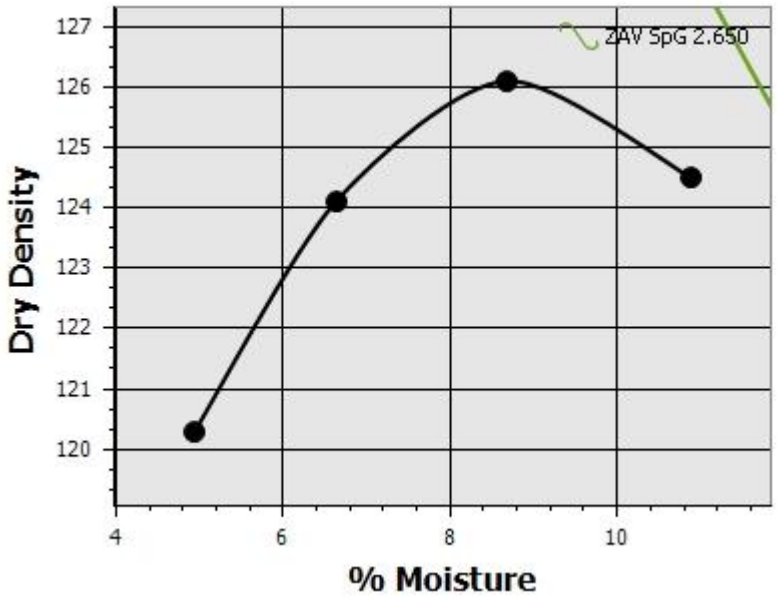
Max. Dry Density	**126.1**
Opt. Moisture %	**8.7**
Corr. Max. Dry Density	**128.5**
Corr. Opt. Moisture %	**8.1**
% Rock	**8**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	92		
#10	78		
#40	42		
#100	28		
#200	22		

Moisture Vs. Density



Remarks:

Reviewed By:

Jerald W Grossarth

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Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202206 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

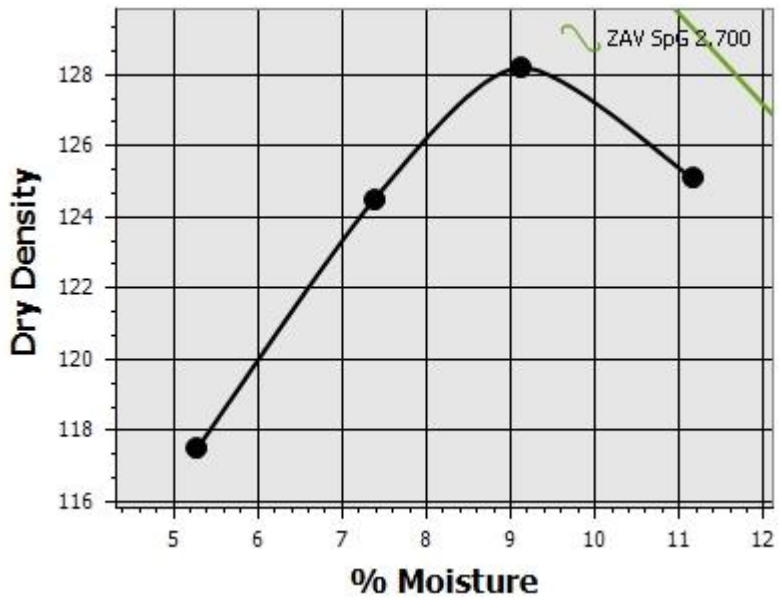
Max. Dry Density	**128.2**
Opt. Moisture %	**9.2**
Corr. Max. Dry Density	**129.7**
Corr. Opt. Moisture %	**8.7**
% Rock	**5**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	95		
#10	80		
#40	46		
#100	32		
#200	26		

Moisture Vs. Density



Remarks:

Reviewed By:

Jerald W Grossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202207 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB3 (21-23')	Submitted By:	Kimberly Nepsa

Plasticity Index

Liquid Limit	NA
Plastic Limit	NA
Plasticity Index	NA

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = NA

Percent Swell of Soil

% Swell	NV

Notes:

pH and Resistivity

pH Reading:	NA
Resistivity (ohms-cm)	NA

Class:

Symbol:

ASTM D698-A

Moisture Density (Proctor)

Max. Dry Density	128.4
Opt. Moisture %	8.3
Corr. Max. Dry Density	132.2
Corr. Opt. Moisture %	7.5
% Rock	13

* = out of specification

Moisture Vs. Density

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202208 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

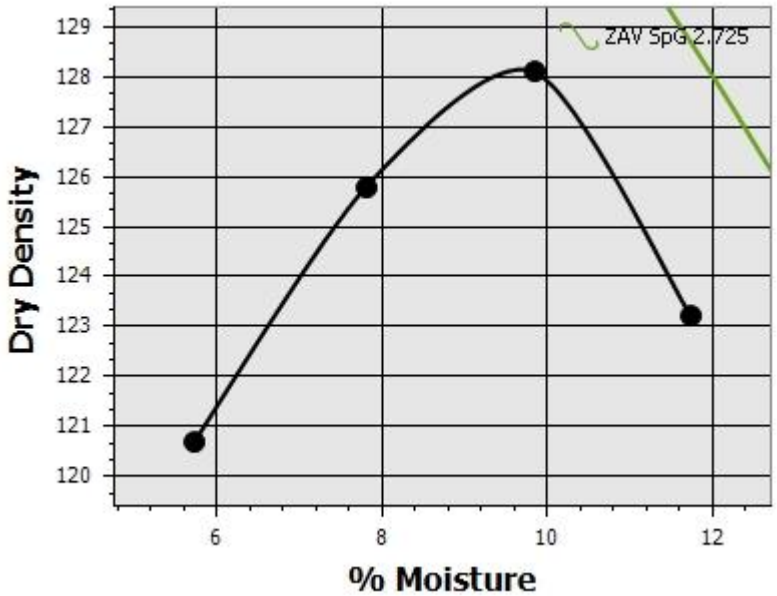
Max. Dry Density	**128.2**
Opt. Moisture %	**9.6**
Corr. Max. Dry Density	**130.1**
Corr. Opt. Moisture %	**9.0**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	93		
#10	80		
#40	42		
#100	28		
#200	22		

Moisture Vs. Density



Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202209 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

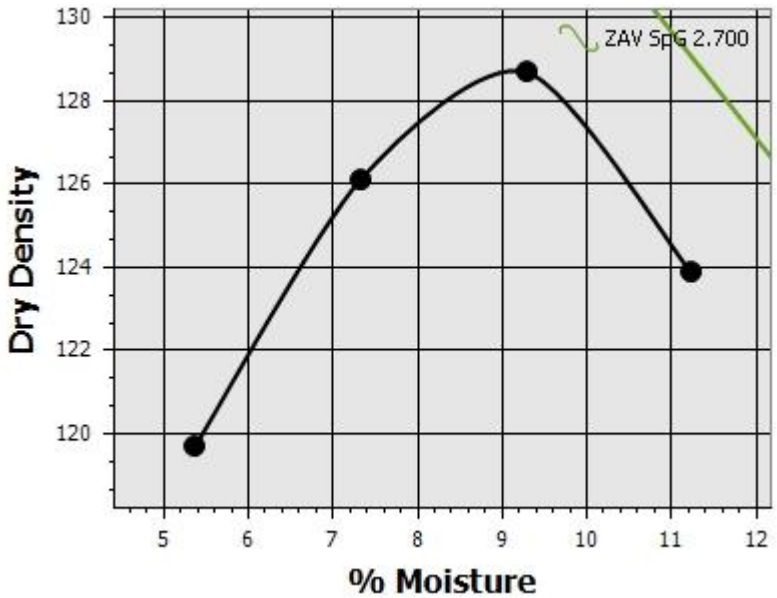
Max. Dry Density	**128.8**
Opt. Moisture %	**9.1**
Corr. Max. Dry Density	**130.3**
Corr. Opt. Moisture %	**8.6**
% Rock	**6**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	94		
#10	81		
#40	46		
#100	31		
#200	24		

Moisture Vs. Density



Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202210 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (17-19')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**23**
Plastic Limit	**17**
Plasticity Index	**6**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty, clayey sand

Symbol: SC-SM

ASTM D698-A

Moisture Density (Proctor)

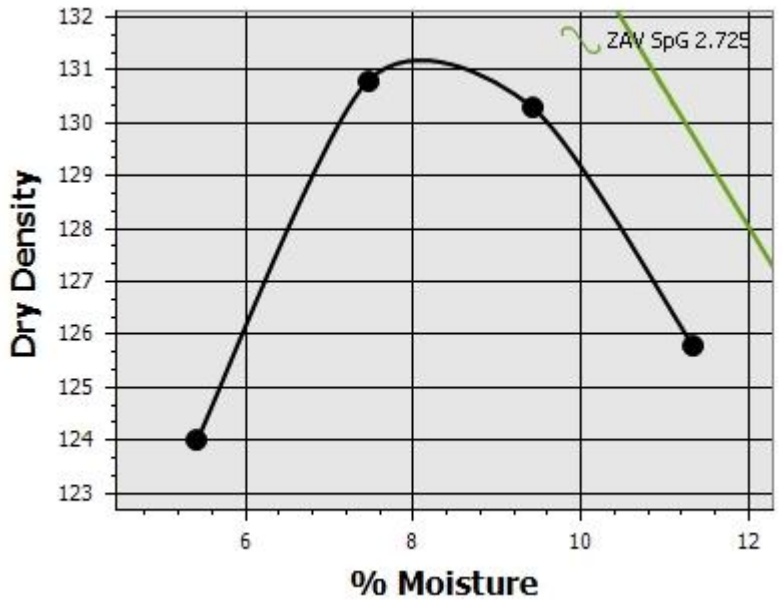
Max. Dry Density	**131.3**
Opt. Moisture %	**8.2**
Corr. Max. Dry Density	**133.0**
Corr. Opt. Moisture %	**7.7**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	93		
#10	46		
#40	32		
#100	26		
#200	22		

Moisture Vs. Density



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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202211 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB5 (23-25')	Submitted By:	Kimberly Nepsa

Plasticity Index

Liquid Limit	NA
Plastic Limit	NA
Plasticity Index	NA

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = NA

Percent Swell of Soil

% Swell	NV

Notes:

pH and Resistivity

pH Reading:	NA
Resistivity (ohms-cm)	NA

Class:

Symbol:

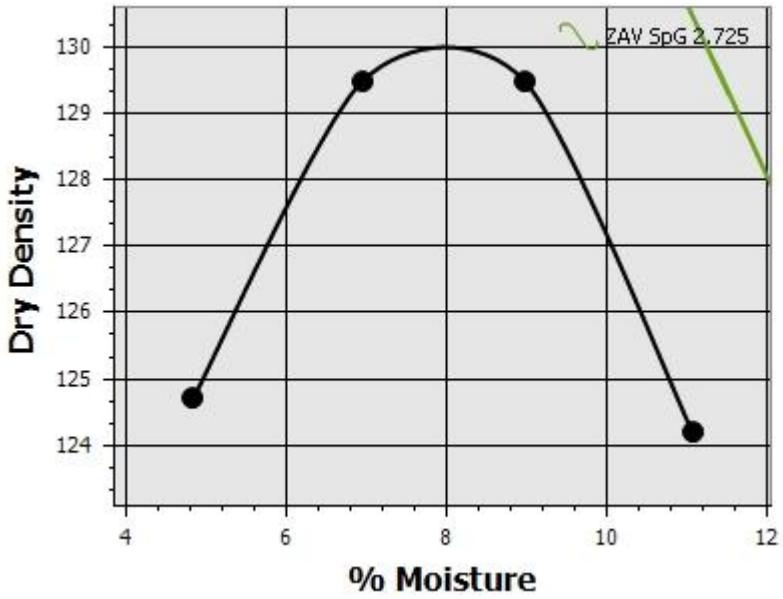
ASTM D698-A

Moisture Density (Proctor)

Max. Dry Density	130.1
Opt. Moisture %	8.0
Corr. Max. Dry Density	131.8
Corr. Opt. Moisture %	7.6
% Rock	6

* = out of specification

Moisture Vs. Density



Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202212 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (1-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**3**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	97		
#10	85		
#40	40		
#100	23		
#200	17		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202213 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (13-15')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

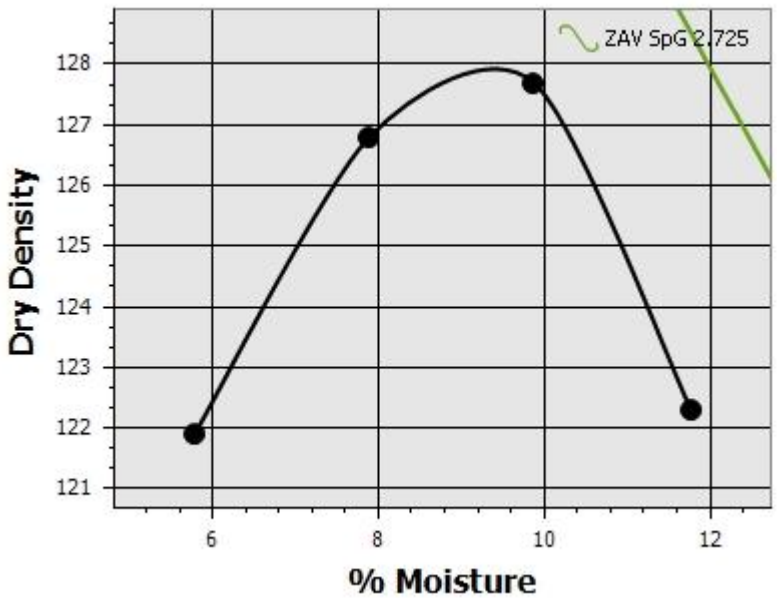
Max. Dry Density	**128.0**
Opt. Moisture %	**9.3**
Corr. Max. Dry Density	**130.7**
Corr. Opt. Moisture %	**8.5**
% Rock	**9**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	91		
#10	74		
#40	40		
#100	29		
#200	23		

Moisture Vs. Density



Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2202214 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	3/8/2022
Material:	Geo (Onsite)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	2/25/2022
Sample Location:	FB7 (22-24')	Submitted By:	Kimberly Nepsa

Plasticity Index

Liquid Limit	**NA**
Plastic Limit	**NA**
Plasticity Index	**NA**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class:

Symbol:

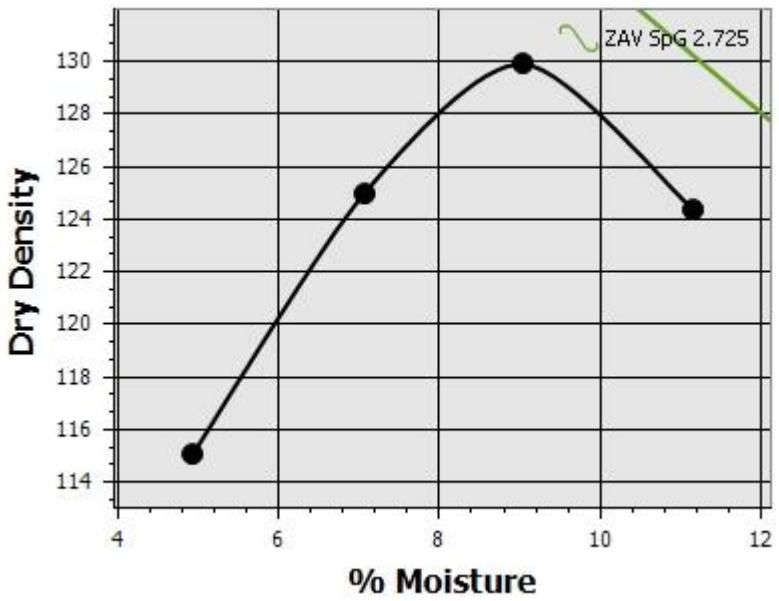
ASTM D698-A

Moisture Density (Proctor)

Max. Dry Density	**129.9**
Opt. Moisture %	**9.0**
Corr. Max. Dry Density	**132.2**
Corr. Opt. Moisture %	**8.4**
% Rock	**8**

* = out of specification

Moisture Vs. Density



Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205266 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

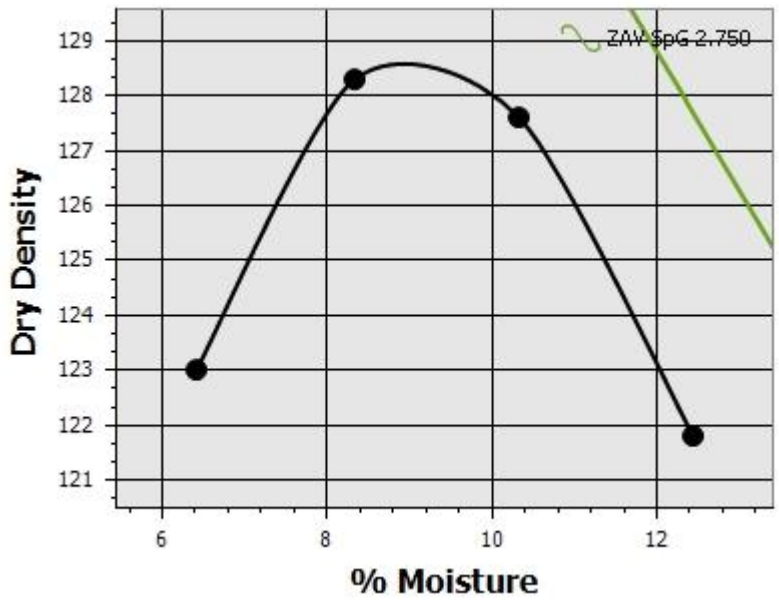
Max. Dry Density	**128.7**
Opt. Moisture %	**9.1**
Corr. Max. Dry Density	**131.0**
Corr. Opt. Moisture %	**8.3**
% Rock	**9**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	96		
#4	91		
#10	77		
#40	37		
#100	22		
#200	16		

Moisture Vs. Density



Remarks: Combine w/ FB8 @ 5-7'

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205267 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (10-12')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand with gravel

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

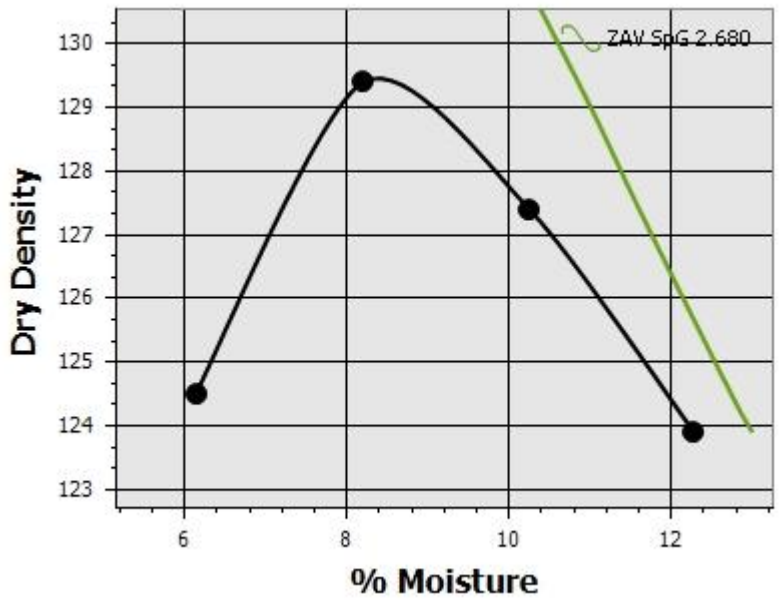
Max. Dry Density	**129.5**
Opt. Moisture %	**8.5**
Corr. Max. Dry Density	**133.8**
Corr. Opt. Moisture %	**7.2**
% Rock	**16**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	90		
1/2"	89		
#4	84		
#10	69		
#40	39		
#100	29		
#200	24		

Moisture Vs. Density



Remarks: Combine w/ FB8 @ 16-18' & 21-23'

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205268 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB8 (51-53')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**26**
Plastic Limit	**16**
Plasticity Index	**10**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Sandy lean clay

Symbol: CL

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**1**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	99		
#10	96		
#40	76		
#100	62		
#200	53		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205269 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB10 (17-19')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**23**
Plastic Limit	**15**
Plasticity Index	**8**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Clayey sand

Symbol: SC

ASTM D698-A

Moisture Density (Proctor)

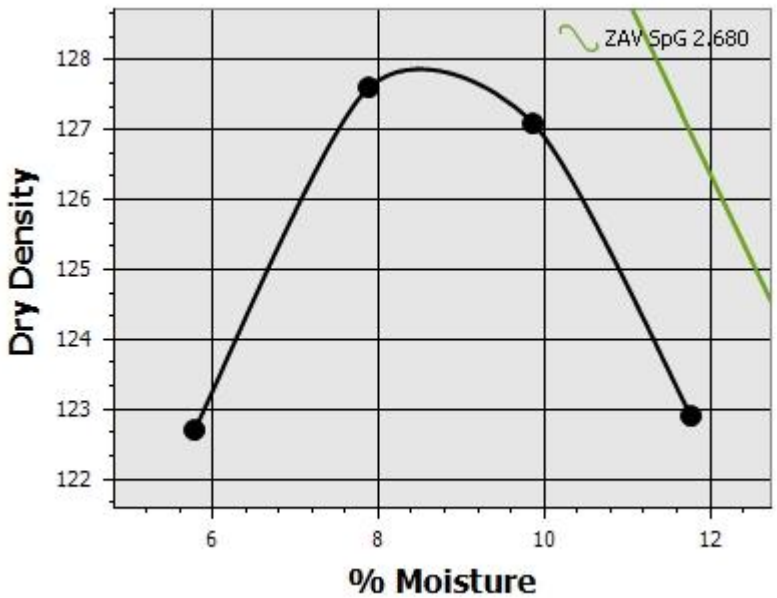
Max. Dry Density	**128.0**
Opt. Moisture %	**8.6**
Corr. Max. Dry Density	**129.8**
Corr. Opt. Moisture %	**8.1**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	93		
#10	71		
#40	43		
#100	35		
#200	30		

Moisture Vs. Density



Remarks: Combine w/ FB10 @ 23-25'

Reviewed By:

Jerald W Grossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205270 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**22**
Plastic Limit	**16**
Plasticity Index	**6**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty, clayey sand

Symbol: SC-SM

ASTM D698-A

Moisture Density (Proctor)

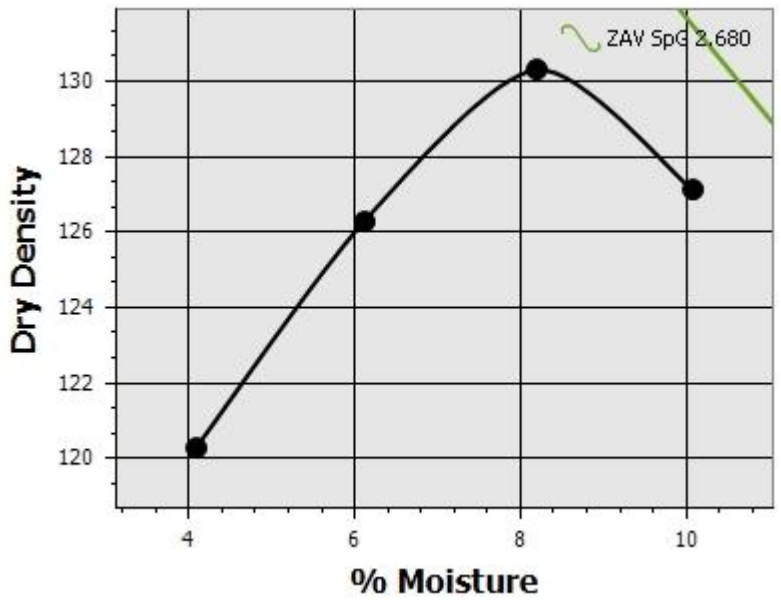
Max. Dry Density	**130.3**
Opt. Moisture %	**8.3**
Corr. Max. Dry Density	**131.6**
Corr. Opt. Moisture %	**7.9**
% Rock	**5**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	95		
#10	78		
#40	44		
#100	33		
#200	27		

Moisture Vs. Density



Remarks: Cimbine w/ FB12 @ 6-8'

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205271 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (12-14')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**23**
Plastic Limit	**16**
Plasticity Index	**7**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty, clayey sand

Symbol: SC-SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**6**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	94		
#10	77		
#40	49		
#100	41		
#200	36		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2205272 - Phoenix
Job Name:	Lots 19 and 20 Forensic Study	Date Received:	6/2/2022
Material:	Geo - Forensic Study (On-site)	Sampled By:	Kimberly Nepsa
Material Supplier:		Date Sampled:	5/5/2022
Sample Location:	FB12 (17-19')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

ASTM D698-A

Moisture Density (Proctor)

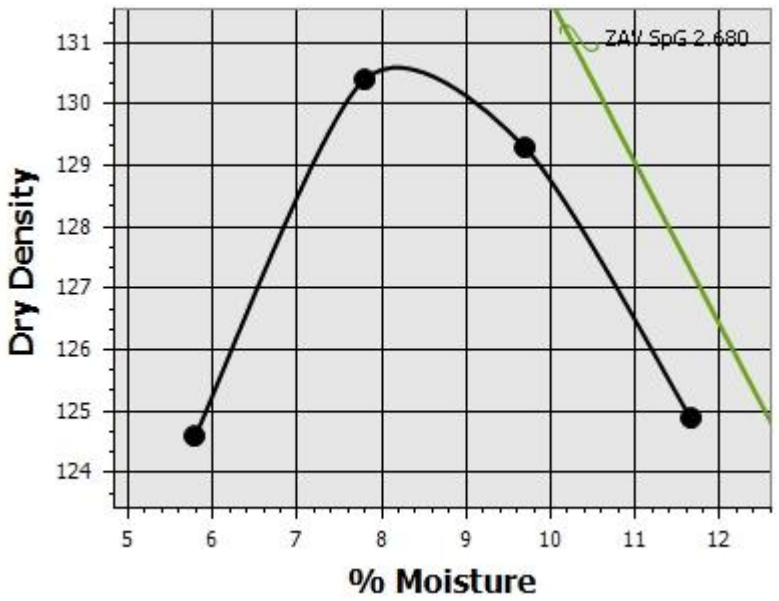
Max. Dry Density	**130.7**
Opt. Moisture %	**8.3**
Corr. Max. Dry Density	**133.1**
Corr. Opt. Moisture %	**7.6**
% Rock	**10**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	90		
#10	70		
#40	32		
#100	23		
#200	18		

Moisture Vs. Density



Remarks: Combine w/ FB12 @ 21-23'

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208459 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**12**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	88		
#10	74		
#40	37		
#100	24		
#200	19		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208460 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**9**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	91		
#10	74		
#40	38		
#100	27		
#200	22		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208461 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**20**
Plastic Limit	**17**
Plasticity Index	**3**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	93		
#10	72		
#40	38		
#100	29		
#200	24		

Remarks:

Reviewed By:

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Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208462 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (16-18')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**12**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	95		
#4	88		
#10	67		
#40	37		
#100	28		
#200	23		

Remarks:

Reviewed By:

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Tempe, AZ 85282
Office: (602)-272-7891
Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208463 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB14 (22-24')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**11**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	89		
#10	64		
#40	34		
#100	26		
#200	22		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208464 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (0-3')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**10**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	97		
#4	90		
#10	76		
#40	38		
#100	24		
#200	19		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208465 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (6-8')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**9**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	96		
#4	91		
#10	74		
#40	40		
#100	27		
#200	22		

Remarks:

Reviewed By:

Jerald W Grossarth

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Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208466 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (11-13')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**8**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	92		
#10	69		
#40	37		
#100	27		
#200	23		

Remarks:

Reviewed By:

Jerald W Grossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208467 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (16-18')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**22**
Plastic Limit	**17**
Plasticity Index	**5**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty, clayey sand

Symbol: SC-SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**9**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	91		
#10	69		
#40	41		
#100	33		
#200	27		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208468 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	8/30/2022
Sample Location:	FB15 (22-24')	Submitted By:	Kimberly Nepsa

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**8**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	92		
#10	59		
#40	31		
#100	25		
#200	21		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208490 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**13**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	87		
#10	74		
#40	35		
#100	20		
#200	14		

Remarks:

Reviewed By:

Jerald W Grossarth

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Fax: (602) 272-7892

Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208491 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (5-7')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**5**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	95		
#10	82		
#40	37		
#100	19		
#200	14		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208492 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**17**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	92		
#4	83		
#10	69		
#40	39		
#100	29		
#200	23		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208493 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand with gravel

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**21**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	93		
#4	79		
#10	57		
#40	29		
#100	24		
#200	21		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208494 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB16 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**24**
Plastic Limit	**16**
Plasticity Index	**8**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Clayey sand

Symbol: SC

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	93		
#10	70		
#40	39		
#100	33		
#200	28		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208495 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**3**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	97		
#10	84		
#40	40		
#100	25		
#200	20		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208496 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (6-8')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**7**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	93		
#10	78		
#40	33		
#100	20		
#200	15		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208497 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**8**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	92		
#10	75		
#40	30		
#100	19		
#200	15		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208498 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**6**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	94		
#10	74		
#40	35		
#100	26		
#200	21		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208499 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (On-Site)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/1/2022
Sample Location:	FB17 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**5**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	95		
#10	82		
#40	37		
#100	20		
#200	15		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208518 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**6**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	98		
#4	94		
#10	85		
#40	56		
#100	41		
#200	33		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208519 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (6-8')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**6**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	99		
#4	94		
#10	83		
#40	58		
#100	44		
#200	38		

Remarks:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208520 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (11-13')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**31**
Plastic Limit	**20**
Plasticity Index	**11**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Lean clay with sand

Symbol: CL

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**1**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	99		
#10	98		
#40	90		
#100	84		
#200	78		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208521 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (16-18')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**27**
Plastic Limit	**21**
Plasticity Index	**6**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty clay with sand

Symbol: CL-ML

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**0**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	100		
#10	99		
#40	98		
#100	93		
#200	83		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208522 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB18 (22-24')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**31**
Plastic Limit	**20**
Plasticity Index	**11**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Lean clay

Symbol: CL

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**NV**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	100		
#10	100		
#40	99		
#100	95		
#200	87		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208523 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (0-3')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**4**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	96		
#10	84		
#40	51		
#100	33		
#200	24		

Remarks:

Reviewed By:

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208524 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (5-7')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**NV**
Plastic Limit	**NP**
Plasticity Index	**NP**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty sand

Symbol: SM

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**10**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	94		
#4	90		
#10	81		
#40	58		
#100	44		
#200	35		

Remarks:

Reviewed By:

Jerald W Grossarth

ProTeX the PT Xperts LLC
1102 W. Southern Ave., Ste. 4
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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208525 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (12-14')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**26**
Plastic Limit	**21**
Plasticity Index	**5**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty clay with sand

Symbol: CL-ML

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**1**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	99		
#10	99		
#40	96		
#100	87		
#200	77		

Remarks:

Reviewed By:

Jerald W Grossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208526 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (17-19')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**25**
Plastic Limit	**19**
Plasticity Index	**6**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Silty clay with sand

Symbol: CL-ML

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**NV**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	100		
#10	100		
#40	97		
#100	86		
#200	71		

Remarks:

Reviewed By:

Jerald W Grossarth

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Soils Summary

Client:	Pulte Tucson Land	ProTeX Job No:	12804
Project Name:	Rancho Vistoso Valley Vista	ProTeX Lab No:	2208527 - Phoenix
Job Name:	Forensic Study - Various Lots	Date Received:	9/7/2022
Material:	Geo (Native)	Sampled By:	Amos McCurdy
Material Supplier:	-	Date Sampled:	9/2/2022
Sample Location:	FB19 (23-25')	Submitted By:	Amos McCurdy

ASTM D4318

Plasticity Index

Liquid Limit	**29**
Plastic Limit	**19**
Plasticity Index	**10**

Expansion Index, (EI)	Potential Expansion
0 - 20	Very Low
21 - 51	Low
52 - 90	Medium
91 - 130	High
> 130	Very High

Expansion Index

EI = **NA**

Percent Swell of Soil

% Swell	**NV**

Notes:

pH and Resistivity

pH Reading:	**NA**
Resistivity (ohms-cm)	**NA**

Class: Lean clay with sand

Symbol: CL

Moisture Density (Proctor)

Max. Dry Density	**NV**
Opt. Moisture %	**NV**
Corr. Max. Dry Density	**NV**
Corr. Opt. Moisture %	**NV**
% Rock	**NV**

* = out of specification

ASTM D1140 / D422

Sieve	% Pass	Specs	*
1"	100		
1/2"	100		
#4	100		
#10	99		
#40	95		
#100	86		
#200	75		

Remarks:

Reviewed By:

Jerald W Grossarth

Appendix B

Legend:

Approximate Proposed Boring Location

N

Site Plan

Scale: N.T.S.	Drawn by: KJN	Date: 06/08/2022

Rancho Vistoso Valley Vista – Lots 18, 19 and 20

Kalalau Drive and Romsdalen Road

Oro Valley, Arizona

ProTeX Job No.: 12804

Legend:

Approximate Proposed Boring Location

N

Site Plan

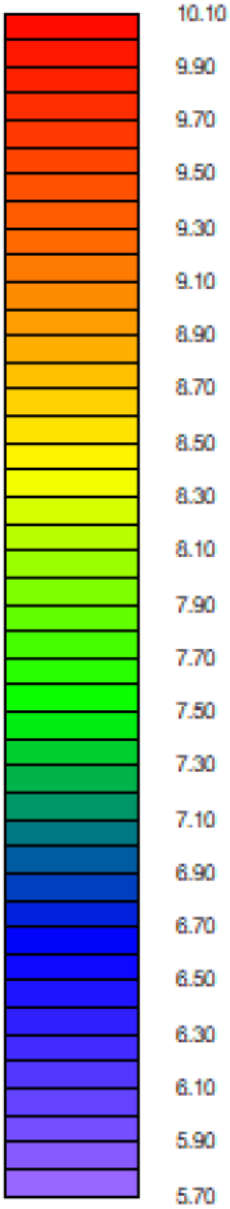
Scale: N.T.S.	Drawn by: KJN	Date: 09/27/2022

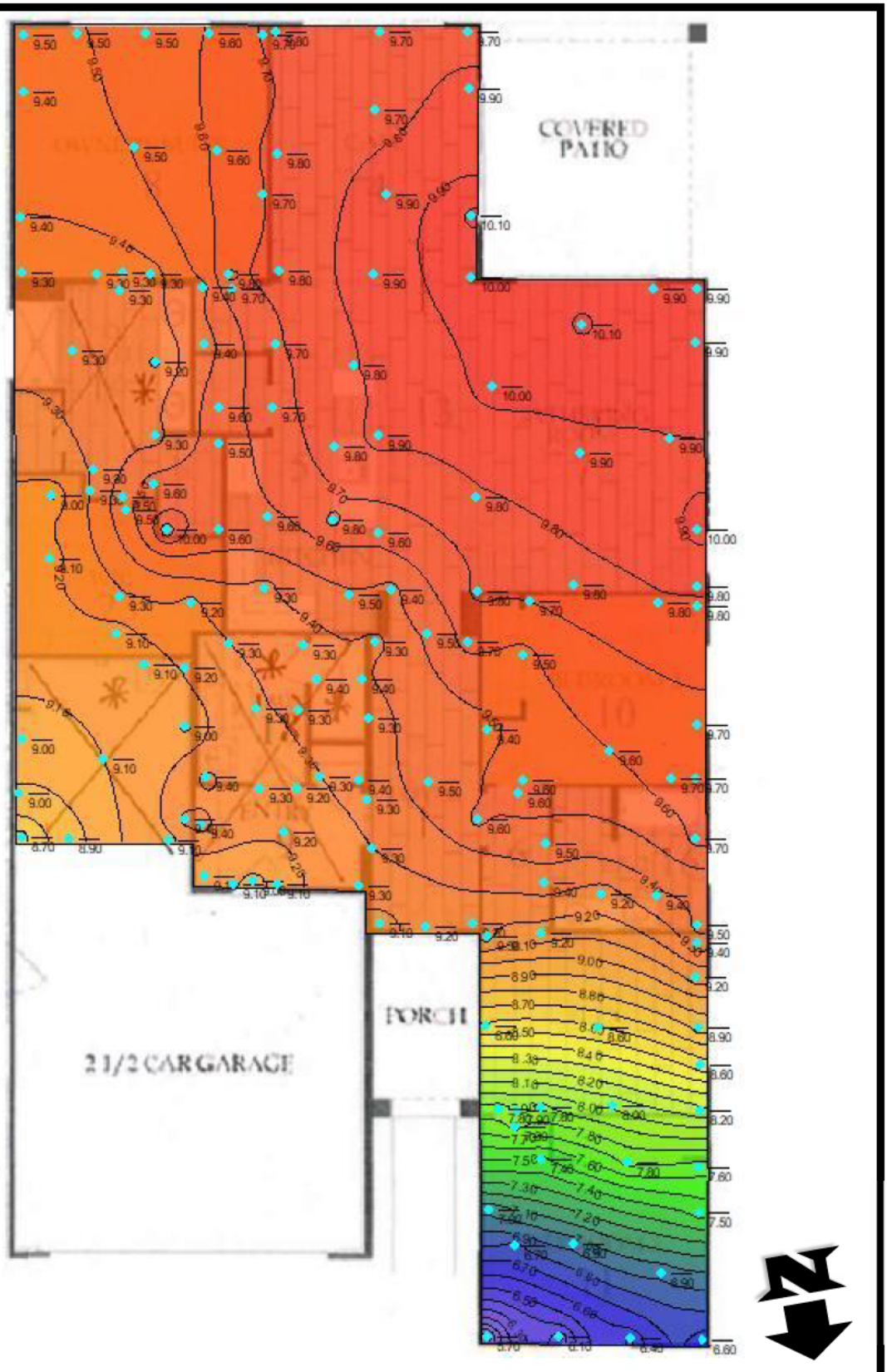
Rancho Vistoso Valley Vista – Lot 19

780 East Kalalau Drive

Oro Valley, Arizona

ProTeX Job No.: 12804





Manometer Survey 4/12/22

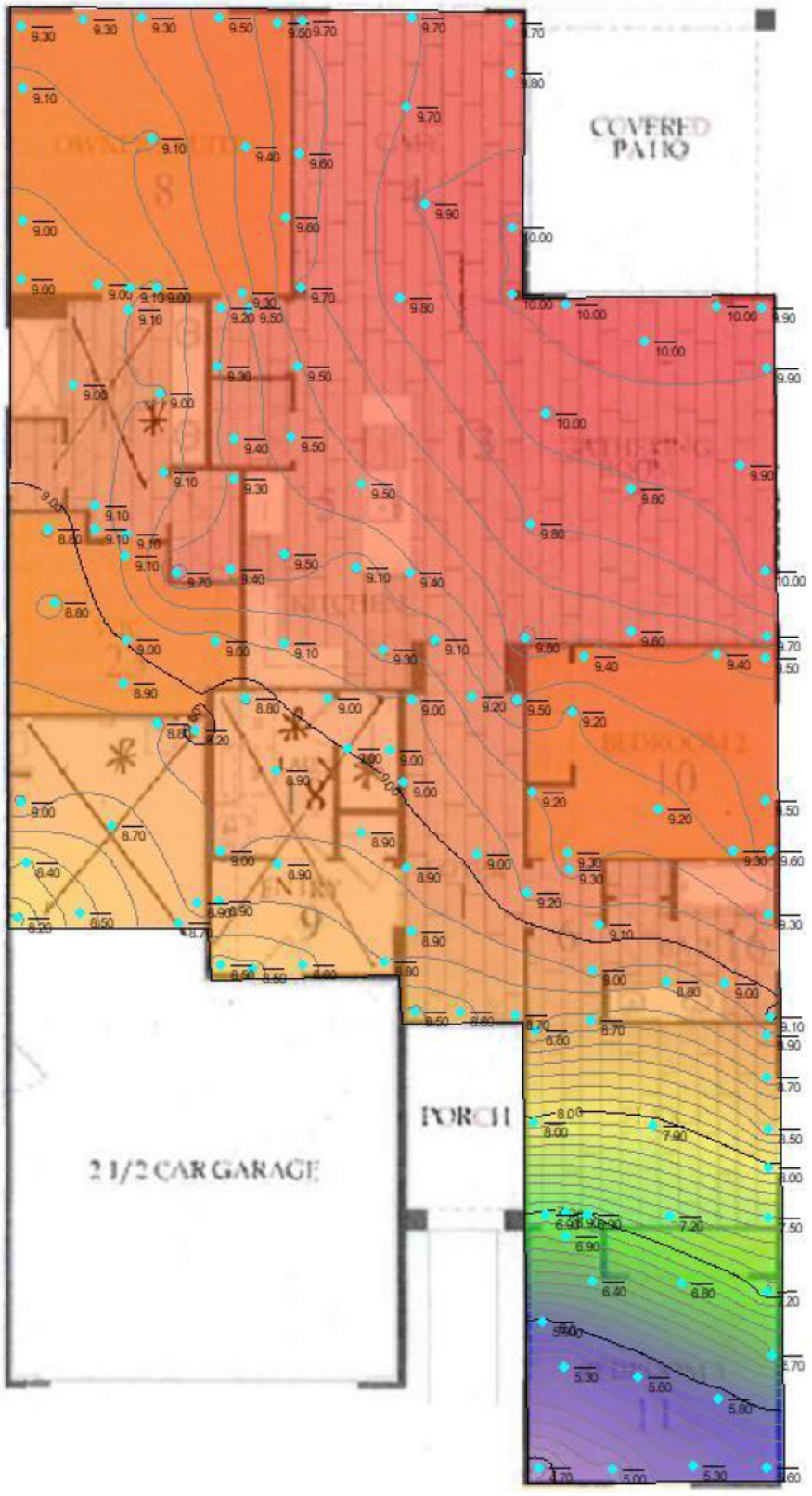
Scale: N.T.S.	Drawn by: BBR	Date: 10/28/2022

Rancho Vistoso Valley Vista – Lot 19

780 East Kalalau Drive

Oro Valley, Arizona

ProTeX Job No.: 12804



Manometer Survey 5/12/22

Scale: N.T.S.	Drawn by: BBR	Date: 05/12/2022

Rancho Vistoso Valley Vista – Lot 19

780 East Kalalau Drive

Oro Valley, Arizona

ProTeX Job No.: 12804

Appendix C

LOG OF BORING No. FB1A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0				14 17 14		
				14 18 17		
4				20 21 17		
				21 26 24		
				29 25 28		
8				20 26 26		
				17 13 13		
				12 12 10		
12				12 10 12		
				11 12 10		
				14 12 15		
16				14 14 15		
				16 15 13		
				15 14 19		
20				17 17 16		
				16 18 15		
24				17 14		
	Boring terminated at 25 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB2A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0				9 10 13		
				11 12 14		
				17 15 18		
4				18 23 24		
				20 23 22		
				22 22 22		
8				16 13 13		
				18 19 18		
				17 16 20		
12				24 27 21		
				14 13 14		
				14 15 14		
16				16 17 13		
				15 16 14		
				15 14 16		
20				15 16 14		
				11 16 15		
24	Boring terminated at 26 ft.			16		
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB3

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
	(SM) Silty Sand, trace Gravel, non-plastic, brown, slightly moist		2202205	R 6 5	22	
4	Moist			R 2 2		
8	Very moist			R 1 4		
			2202206		26	
12						
16				R 3 3		
20				R 4 5		
24						
	25			R 4 9		
	(CL) Lean Clay, high plasticity, brown, moist					
	Boring terminated at 26 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB3A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS
0				8 8 4 3 3 2 1 2 1 1 1 2 2 1 2 2 1 1 1 2 2 1 2 2 2 1 1 2 2 2 2 3 3 4 3 4 3 3 2 3 5 4 3 3 4 3 4 4 3 3 2 2 2 3 2 4 2 3 2 3 3 6 4 7 4 5 6 6 6 6 5 7 6		Plastic Limit ├──┤ Liquid Limit Water Content - ● Penetration - ▨ 10 20 30 40 50
5						
10						
15						
20						
25						
30						
35						
	Boring terminated at 36 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB4A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0				12 13 14		
				14 19 17		
4				14 21 32		
				39 45 32		
				24 24 22		
8				16 14 13		
				15 16 16		
				18 16 18		
12				17 14 13		
				16 14 17		
16				15 16 18		
				18 16 16		
				14 15 12		
20				11 11 13		
				13 10 11		
				11 10 11		
24				11 12 12		
	Boring terminated at 25.5 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB5

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS
0						Plastic Limit ⊢⊣ Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50
	(SM) Silty Sand, trace Gravel, non-plastic, brown, moist		202208	R 7 8	22	
4	Very moist		202209	R 4 5	24	
8				R 4 7		
12				R 9 11		
16						
	17-19 (SC-SM) Silty Clayey Sand, trace Gravel, low plasticity, brown, moist		202210		22	
20				R 4 5		
24						
	25 (SM) Silty Sand, non-plastic, brown, slightly moist			R 5 7		
	Boring terminated at 26 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB5A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0				4 3 4		
				3 1 1		
				1 1 0		
4				0 3 2		
				2 2 2		
				1 1 0		
8				1 2 2		
				1 1 1		
				1 1 1		
12				4 4 4		
				3 3 3		
				2 3 2		
16				3 4 4		
				3 2 3		
				4 3 4		
20				3 2 3		
				2 3 3		
				3 4 4		
24				3 5 5		
28						
	Boring terminated at 28.5 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB6A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0				16 11 6	
				4 2 3	
4				1 5 10	
				14 18 23	
				18 15 17	
8				15 12 10	
				12 11 10	
				10 11 12	
12				12 12 10	
				10 12 11	
				10 11 10	
16				12 12 12	
				10 12 10	
				12 11 12	
20				10 10 9	
				9 10 11	
24				15 17	
	Boring terminated at 25 ft.				
28					

TEST RESULTS
Plastic Limit ├──┤ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB7

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS
						Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50
	(SM) Silty Sand, non-plastic, brown, wet		2	R 5 9	17	
4			2	R 13 21		
8	Moist		2	R 11 8		
12	Trace Gravel		2	R 3 3	23	
16				R 2 3		
20						
	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist	20		R 6 8		
24	Weak cementation			R 4 7		
	Boring terminated at 26 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB7A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: Bullnose **DATE:** 2/25/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0				5		
				10		
				14		
				13		
				14		
				17		
4				21		
				22		
				19		
				24		
				22		
				19		
				22		
				29		
				32		
8				42		
				36		
				30		
				28		
				19		
				15		
				15		
				14		
12				15		
				13		
				13		
				13		
				12		
				12		
				13		
				11		
16				12		
				12		
				13		
				14		
				13		
				13		
				12		
				13		
20				13		
				12		
				12		
				12		
				13		
				12		
24				12		
				12		
				12		
				11		
				13		
				12		
	Boring terminated at 25.5 ft.					
28						

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB8

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 5/5/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SM) Silty Sand, trace Gravel, non-plastic, brown, moist		2205266	R 2 3	17
	Wet			R 10 18	
9	With Gravel		2205267	R 2 3	24
	15 (SP-SC) Clayey Sand, low plasticity, brown, wet			R 3 4	
18	Moist			R 3 4	
	25 (CL) Sandy Clay, medium plasticity, brown, wet			R 6 6	
27	30 (SP) Poorly graded Sand, non-plastic, brown, very moist			R 3 5	
36	35 (SP-SM) Poorly graded Sand with Silt, non-plastic, brown, moist			R 6 7	
				R 5 6	
45	45 (SC-SM) Silty Clayey Sand, low-medium plasticity, brown, wet			R 5 5	
	51-53 (CL) Sandy Clay, low-medium plasticity, brown, very moist		2205268	R 4 4	53
54				R 5 7	
	Wet			R 7 7	
63	Boring terminated at 61 ft.				

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB9

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 5/5/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SM) Silty Sand, non-plastic, brown, moist			R 3 8	
5	(SC-SM) Silty Clayey Sand, low plasticity, brown, very moist			R 6 7	
10	(SM) Silty Sand, non-plastic, brown, moist			R 2 3	
15	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist			R 3 3	
20	(SM) Silty Sand, non-plastic, brown, moist			R 4 4	
				R 5 6	
30	(SP) Poorly graded Sand, non-plastic, brown, moist			R 5 7	
	Slightly moist			R 5 8	
40	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist			R 5 7	
45	(SM) Silty Sand, non-plastic, brown, damp			R 5 6	
	Slightly damp			R 12 15	
	Boring terminated at 51 ft.				

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB10

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 5/5/22
DEPTH TO - WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SM) Silty Sand, non-plastic, brown, moist			R 3 4	
5	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist			R 4 3	
7					
10	(SC) Clayey Sand, low plasticity, brown, moist			R 3 3	
14					
15	(SP) Poorly graded Sand, and Gravel, brown, moist			R 2 2	
17-19	(SC) Clayey Sand, trace Gravel, low plasticity, brown, moist		205269		30
21				R 3 4	
25	(SC-SM) Silty Clayey Sand, low plasticity, brown, wet			R 3 4	
28	Moist			R 5 8	
35	(SM) Silty Sand, non-plastic, brown, very damp			R 5 6	
42	Slightly damp			R 10 12	
45	(SM-ML) Poorly graded Silty Sand, non-plastic, brown, slightly damp			R 9 13	
49				R 14 25	
	Boring terminated at 51 ft.				

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB11

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** KN
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 5/5/22
DEPTH TO - WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SM) Silty Sand, non-plastic, brown, moist			R 5 3	
5					
6.5	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist			R 2 5	
	Wet			R 8 4	
13	And Gravel			R 3 5	
19.5	Very moist to wet			R 3 4	
26	Moist			R 3 5	
32.5	Very damp			R 3 5	
35	(SM) Silty Sand, non-plastic, brown, slightly damp			R 6 8	
39	Trace Gravel, dry			R 8 9	
45					
45.5	(SM-ML) Poorly graded Silty Sand, non-plastic, light brown, slightly damp, weak cementation			R 11 16	
	Boring terminated at 46 ft.				

TEST RESULTS
Plastic Limit ⊢ Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB12

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: Southlands Engineering **LOGGED BY:** KN
DRILLING METHOD: 7" Hollow Stem Auger **DATE:** 5/6/22
DEPTH TO - WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SC-SM) Silty Clayey Sand, trace Gravel, low plasticity, brown, damp		2205270	R 25	27
	Moist			R 22	
7.5					
	10 (CL) Sandy Clay, medium plasticity, brown, moist			R 45	
	12-14 (SC-SM) Silty Clayey Sand, trace Gravel, low plasticity, brown, damp		2205271		36
15				R 56	
	17-19 (SM) Silty Sand, trace Gravel, non-plastic, brown, damp		2205272		18
				R 59	
22.5	(SM) Silty Sand, non-plastic, brown, damp			R 711	
30				R 68	
	35 (SC-SM) Silty Clayey Sand, low plasticity, brown, damp			R 58	
37.5	Moist			R 89	
45					
	45 (CL) Sandy Clay, medium-high plasticity, brown, moist			R 34	
	50.5 (SM) Silty Sand, non-plastic, brown, very damp			R 916	
52.5	Boring terminated at 51 ft.				

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB12A

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: Southlands Engineering **LOGGED BY:** KN
DRILLING METHOD: 7" Hollow Stem Auger **DATE:** 5/6/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS
0				3 7 5 4 2 3 3 3 3 2 3 1 2 1 1 1 1 2 3 3 2 3 2 3 3 3 3 2 3 4 3 3 3 3 3 4 4 3 4 4 4 5 4 5 5 5 5 7 6 5 4 6 7 7 9 10 8 8 9 7 8 8 10 7 7 8 8 7 9 8		Plastic Limit ├──┤ Liquid Limit Water Content - ● Penetration - ▨ 10 20 30 40 50
5						
10						
15						
20						
25						
30						
35	Boring terminated at 35 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

Figure

LOG OF BORING No. FB13

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: Southlands Engineering **LOGGED BY:** KN
DRILLING METHOD: 7" Hollow Stem Auger **DATE:** 5/6/22
DEPTH TO - WATER> INITIAL: ▽ **AFTER 24 HOURS:** ▽ **CAVING>** ℄

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - •; Penetration - ▨ (10 20 30 40 50)
0						
	(SC-SM) Silty Clayey Sand, low plasticity, brown, moist			R 11 19		
7				R 22 23		
				R 2 3		
11	(CL) Sandy Clay, medium-high plasticity, brown, very moist					
14	Very moist to slightly wet			R 2 3		
21	Moist			R 5 8		
	Low-medium plasticity			R 2 4		
28				R 4 7		
35				R 6 16		
40	(SM) Silty Sand, non-plastic, light brown, dry, weak to moderate cementation			R 10 23		
42						
				R 11 25		
49						
				R 14 23		
	Boring terminated at 51 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB14

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 8/30/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS
0						Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50
	(SM) Silty Sand, some Gravel, non-plastic, brown, damp		220845	9 R 4 6	19	
	Trace Gravel, slightly damp		220846	R 24 27	22	
10	Low plasticity		220846	R 4 4	25	
	Non-plastic, some Gravel		220846	R 4 4	23	
20	Damp		220846	R 3 3	22	
	(CL) Sandy Clay, trace Gravel, medium plasticity, brown, damp			R 3 3		
30				R 3 3		
	(SM) Silty Sand, non-plastic, brown, slightly damp			R 6 6		
	(CL) Sandy Clay, medium plasticity, brown, very damp					
40	(SM) Silty Sand, low plasticity, brown, damp			R 4 4		
				R 7 7		
50	(SC) Clayey Sand, low-medium plasticity, brown, slightly damp			R 9 10		
	(CL) Sandy Clay, medium plasticity, brown, damp			R 9 10		
	(SM) Silty Sand, low plasticity, brown, slightly damp					
60	(CL) Sandy Clay, medium plasticity, brown, slightly damp			R 11 16		
	(SC) Clayey Sand, low-medium plasticity, brown, slightly damp			R 12 18		
70						
	Boring terminated at 71 ft.			R 17 22		

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB15

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 8/30/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50)
0						
	(SM) Silty Sand, some Gravel, non-plastic, brown, very damp		2208464	R 7 8	19	
	Trace Gravel		2208465	R 2 2	22	
7.5			2208466	R 2 2	23	
15				R 2 3	28	
	(SC-SM) Silty Clayey Sand, trace Gravel, low plasticity, brown, damp		2208467	R 4 4		
16-18						
22.5			2208468		21	
22-24	(SM) Silty Sand, trace Gravel, non-plastic, brown, damp					
24.5	(CL) Sandy Clay, medium plasticity, brown, very damp			R 3 4		
30				R 4 4		
34.5	(SM) Silty Sand, non-plastic, light brown, slightly damp			R 9 10		
37.5						
40	(SC) Clayey Sand, low-medium plasticity, light brown, slightly damp			R 11 15		
45				R 11 14		
				R 17 22		
52.5	Boring terminated at 51 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB16

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 9/1/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS (Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨; 10 20 30 40 50)
0						
	(SM) Silty Sand, some Gravel, non-plastic, brown, damp		2208490	R 6 8	14	
	Trace Gravel, very damp		2208491	R 7 11	14	
9						
	With Gravel		2208492	R 22 14	23	
			2208493	R 3 3	21	
18						
				R 4 4		
	22-24		2208494		28	
	(SC) Clayey Sand, trace Gravel, low-medium plasticity, brown, very damp			R 8 8		
27	Light brown, slightly damp					
	29					
	(SM) Silty Sand, low plasticity, light brown, slightly damp			R 7 8		
36				R 12 16		
	40					
	(SC) Clayey Sand, trace Gravel, low-medium plasticity, light brown, slightly damp			R 12 15		
45				R 12 16		
				R 11 19		
54						
				R 16 18		
				R 16 20		
63	Boring terminated at 61 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB17

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 9/1/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0	(SM) Silty Sand, non-plastic, brown, damp		220849	R 8 8	20	
7.5	Trace Gravel, very damp		2208496	R 5 5	15	
			2208497	R 5 6	15	
15			2208498	R 5 7	21	
22.5	Some Gravel, light brown, slightly damp		2208499	R 7 11	15	
				R 12 12		
30				R 8 10		
				R 9 14		
37.5				R 11 11		
45				R 10 12		
				R 15 21		
52.5	Boring terminated at 51 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB18

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 9/1/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>**

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit — Liquid Limit; Water Content - ●; Penetration - ▨ (10 20 30 40 50)
0						
	(SM) Silty Sand, trace Gravel, non-plastic, brown, damp		2208518	R 5 6	33	
7.5			2208519	R 4 6	38	
	11-13		2208520	R 4 4	78	
	(CL) Lean Clay, low-medium plasticity, brown, damp					
15				R 3 3		
	16-18		2208521		83	
	(CL-ML) Sandy Silty Clay, low plasticity, brown, damp			R 10 12		
22.5	22-24		2208522		87	
	(CL) Lean Clay, low-medium plasticity, brown, damp					
	Light brown, slightly damp			R 7 9		
30				R 7 8		
				R 7 10		
37.5				R 7 9		
45	45			R 11 15		
	(SM) Silty Sand, non-plastic, light brown, slightly damp					
				R 14 18		
52.5	Boring terminated at 51 ft.					

This information pertains only to this boring and should not be interpreted as being indicitive of the site.

LOG OF BORING No. FB19

PROJECT: Rancho Vistoso Valley Vista - Forensic **PROJECT NO.:** 12804
CLIENT: Pulte Tucson Land
PROJECT LOCATION: Rancho Vistoso Boulevard and Tangerine Road
LOCATION: See Site Plan **ELEVATION:**
DRILLER: RCS **LOGGED BY:** AM
DRILLING METHOD: 8" Hollow Stem Auger **DATE:** 9/1/22
DEPTH TO - WATER> INITIAL: **AFTER 24 HOURS:** **CAVING>** C

Depth (feet)	Description	Graphic	Sample No.	Blow Counts	% < #200
0	(SM) Silty Sand, non-plastic, brown, damp		2208523	R 6 10	24
7.5	Some Gravel		2208524	R 5 6	35
12-14				R 2 2	
15	(CL-ML) Sandy Silty Clay, low plasticity, brown, damp		2208525	R 7 11	77
22.5	Slightly damp		2208526	R 7 8	71
23-25	(CL) Lean Clay, low-medium plasticity, brown, slightly damp		2208527	R 6 7	75
30				R 9 10	
37.5				R 19 23	
44.5	Light brown			R 29 35	64
45	(SM) Silty Sand, some Gravel, non-plastic, light brown, slightly damp			R 18 25	
52.5	Boring terminated at 51.5 ft.			9 10 12	

TEST RESULTS
Plastic Limit — Liquid Limit
Water Content - ●
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicitive of the site.