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Site Address 39th Ave SE near Maltby Rd.

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- ☑ **Title page with the following information:**
  - ☒ *Company (Author) name*
  - ☒ *Report date*
  - ☒ *Project Name*
  - ☒ *Company's job number*
  - ☒ *Site address*
- ☑ Executive Summary / Introduction of the report
- ☑ Table of contents
- ☑ Project Location Map / Vicinity Map
- ☑ **Site / Exploration Plans, Boring Location Plans**
- ☐ Cross-sections / Subsurface profiles
- ☑ **Exploration Logs**
- ☐ Monitoring Well Logs
- ☐ Cone Penetrometer Logs
- ☐ Groundwater Elevation Tables / Data

☐ Includes data from Previous Reports

☐ No new data / data review

☐ Missing Data / Illegible Data
Explanation _____

Comments: _____

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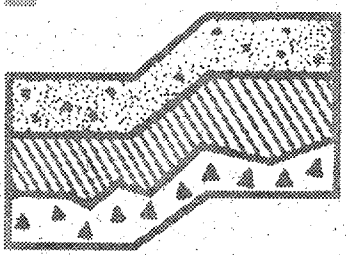
GEOTECHNICAL REPORT

Rocking Star Ranch
39th Avenue SE Near Maltby Road
Snohomish County, Washington

Project No. T-3339



Terra Associates, Inc.

Prepared for:

Pacific Properties, Inc.
Bellevue, Washington

Hearing Exhibit: 6
Project Number: 96 106581

October 11, 1996

96 106581

TERRA ASSOCIATES, Inc.

Consultants in Geotechnical Engineering, Geology
and
Environmental Earth Sciences

October 11, 1996
Project No. T-3339

Mr. Mike Miller
Pacific Properties, Inc.
14410 Bel-Red Road
Bellevue, Washington 98007

Subject: Geotechnical Report
Rocking Star Ranch
39th Avenue SE near Maltby Road
Snohomish County, Washington

Dear Mr. Miller:

As requested, we have conducted a geotechnical engineering study for the subject project. The attached report presents our findings and recommendations for the geotechnical aspects of the anticipated project design and construction.

Our field exploration indicates the site is generally underlain by glacially-derived till soils. These soils consist of a weathered horizon occurring to depths ranging from 2.5 to 3.5 feet below existing grades. The weathered horizon is underlain by very dense unweathered glacial till which we observed to the total depth of each of the 12 test pits excavated at the site. No groundwater seepage was noted during excavation of the test pits.

Excluding the thin layer of topsoil and forest duff, the soils at the site are well-suited for supporting the anticipated residential loads and pavements, provided that the recommendations presented in this report are incorporated into project design and construction. The competent nature of the native site soils will allow for foundation design using standard spread footing construction with slab-on-grade floors.

We trust the information presented in this report is sufficient for your current needs. If you have any questions or need additional information, please call.

Sincerely yours,

TERRA ASSOCIATES, INC.

Kevin P. Roberts, P.E.
Project Engineer

THEODORE J. SCHEPPER
STATE OF WASHINGTON
26742
REGISTERED
PROFESSIONAL ENGINEER

10-10-96

Theodore J. Schepper, P.E.
Principal Engineer

EXPIRES 6/18/97

cc: Mr. Steve Anderson, Group Four, Inc.

12525 Willows Road, Suite 101, Kirkland, Washington 98034 • **Phone (206) 821-7777**

TABLE OF CONTENTS

Geotechnical Report
Rocking Star Ranch
39th Avenue SE Near Maltby Road
Snohomish County, Washington

1.0 PROJECT DESCRIPTION

The project will consist of developing an approximately 14.5 acre site located on 39th Avenue SE, just south of its intersection with State Route 524 (Maltby Road) in Snohomish County, Washington. The location of the project site is shown on the Vicinity Map, Figure 1.

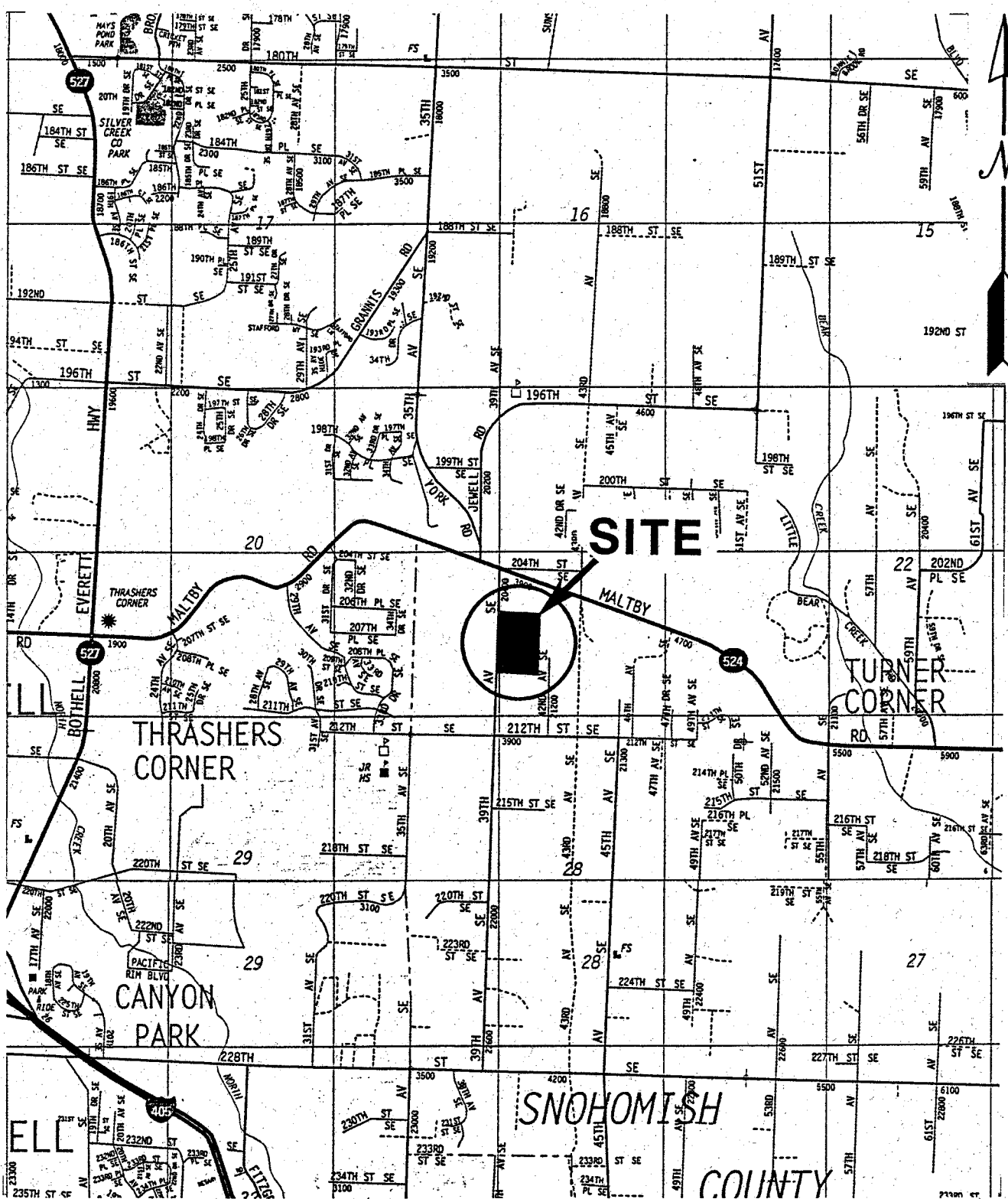
Based on review of the grading plan dated May 31, 1996, by Group Four, Inc., we understand the project site will be subdivided into 64 individual lots for construction of single-family residences. New roadways and cul-de-sacs will provide access to the lots from 39th Avenue SE. A stormwater detention pond will be constructed at the southeast corner of the site. The plan shows that grading will consist of minor cuts and fills across the site. The thickest fills will be placed along the site's southern margin, with up to seven feet of fill necessary to raise grades in the area of the existing pond excavation.

The recommendations contained in the following sections of this report are based on our understanding of the anticipated design features. We should review final design drawings and specifications to verify that our recommendations have been properly interpreted and incorporated into project design.

2.0 SCOPE OF WORK

On October 1, 1996, we excavated 12 test pits to depths ranging between 6 and 10.5 feet below existing surface grades. Using the information obtained from the subsurface exploration, we performed analyses to develop geotechnical recommendations for project design and construction. Specifically, this report addresses the following:

- Soil and groundwater conditions
- Site preparation and grading
- Suitability of native soils for use as fill
- Excavations
- Utilities
- Foundation support
- Slab-on-grade support
- Drainage
- Pavements

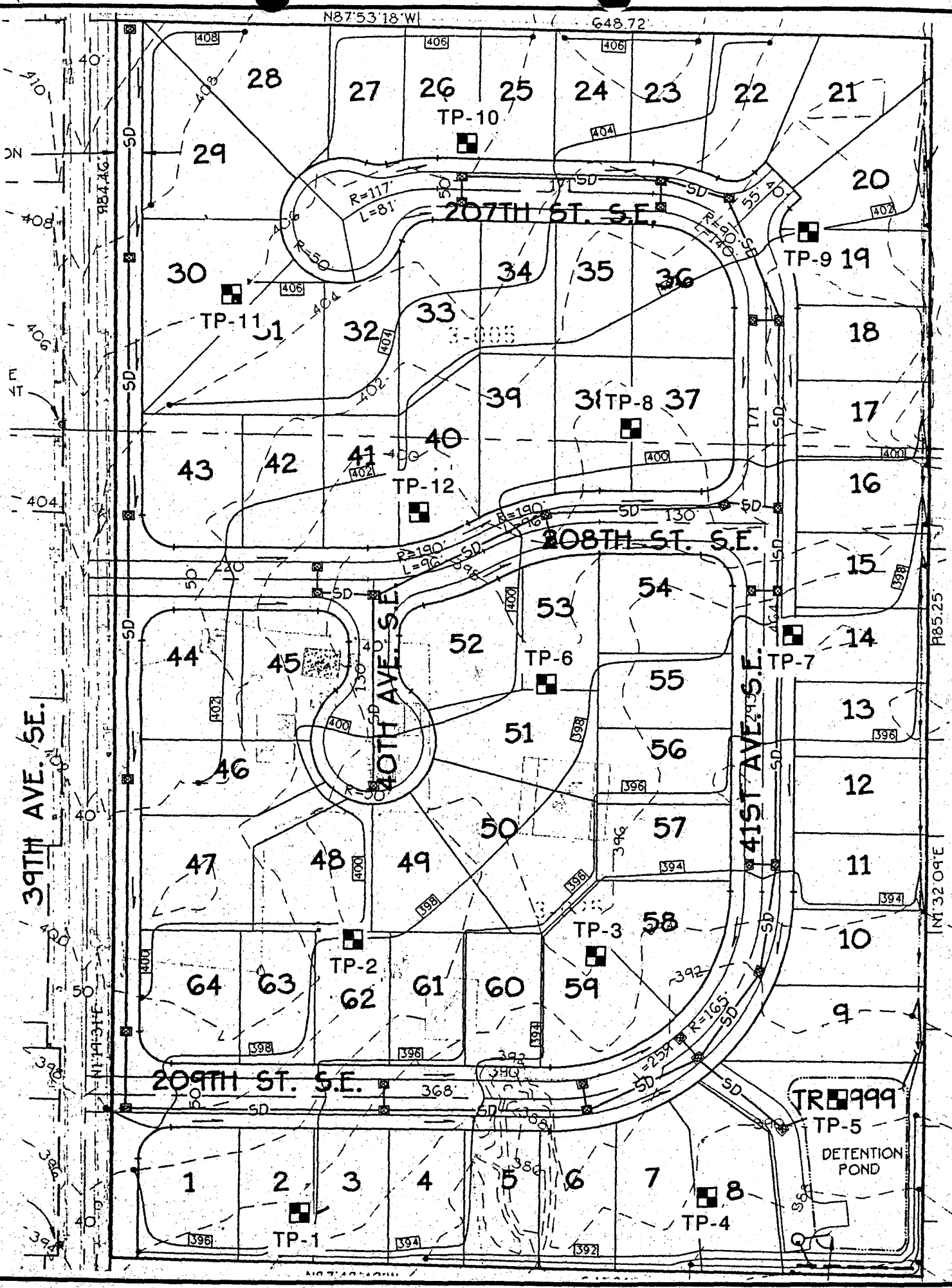


REFERENCE: THE THOMAS GUIDE, SNOHOMISH COUNTY, WASHINGTON, PAGES 456 AND 476, 1996 EDITION.

TERRA ASSOCIATES
Geotechnical Consultants

VICINITY MAP
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

Proj. No. 3339	Date 10/96	Figure 1



APPROXIMATE SCALE

100 0 100 200 feet

LEGEND:

APPROXIMATE TEST PIT LOCATION

REFERENCE:

CONCEPTUAL GRADING & DRAINAGE PLAN PREPARED BY GROUP FOUR, INC., JOB No. 96-8028, SHEET 1 OF 1, DATED 5/31/96 (UPDATED 10/8/96)

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Geotechnical Consultants

EXPLORATION LOCATION PLAN
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

Proj. No. 3339	Date 10/96	Figure 2

Test Pit No. TP-1

Logged by: KPR

Approximate Elev. 393 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 10 inches TOPSOIL) Light brown silty fine SAND with some gravel and occasional cobbles, medium dense, damp. (Weathered Till)	11.3
5	SM	Gray silty fine to medium SAND with gravel and occasional cobbles, very dense, moist. (Glacial Till)	8.0
10		Test pit terminated at 6.5 feet due to very difficult digging. No groundwater seepage or caving observed.	
15			

Test Pit No. TP-2

Logged by: KPR

Approximate Elev. 398 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 9 inches TOPSOIL) Light brown silty very fine to fine SAND with some gravel and rare cobbles, medium dense, moist. (Weathered Till)	15.8
5	SM	Gray silty fine to medium SAND with some gravel and occasional cobbles, very dense, moist. (Glacial Till)	8.3
10		Test pit terminated at 7.5 feet. No groundwater seepage or caving observed.	
15			

Test Pit No. TP-3

Logged by: KPR

Approximate Elev. 396 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 5 inches TOPSOIL) Light brown becoming tan (at 1.5 feet) silty fine to medium SAND with some gravel and occasional cobbles. (Weathered Till)	2.9
5	SM	Brown-gray silty fine to medium SAND with some gravel and occasional cobbles, very dense, moist. (Glacial Till)	6.5
10		Test pit terminated at 6.5 feet due to very difficult digging. No groundwater seepage or caving observed.	
15			

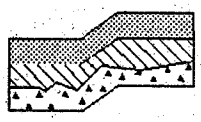
Test Pit No. TP-4

Logged by: KPR

Approximate Elev. 389 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 9 inches TOPSOIL) Light brown silty fine SAND with some gravel, roots to 1.5 feet, loose to 1.5 feet becoming medium dense, moist. (Weathered Till)	16.3
5	SM	Gray fine to medium SAND with some gravel and occasional cobbles, very dense, moist. (Glacial Till)	9.4
		Becomes moist to wet at 8 feet.	8.7
10		Test pit terminated at 9 feet due to backhoe refusal. No groundwater seepage or caving observed.	
15			



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TEST PIT LOGS
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

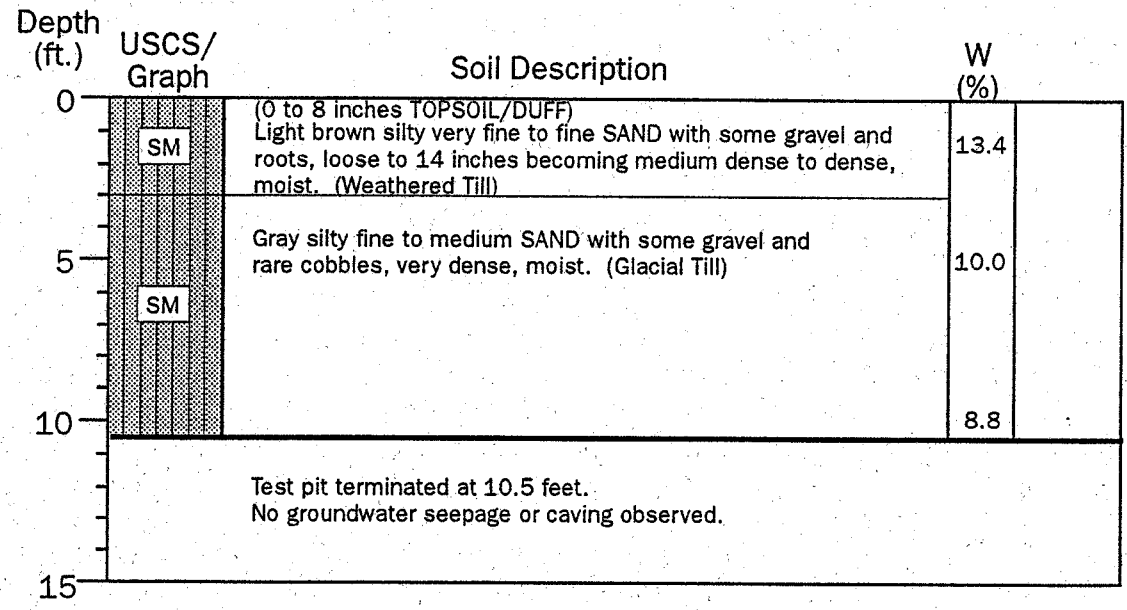
Proj. No. T-3339	Date 10/96	Figure A-3

Test Pit No. TP-5

Logged by: KPR

Approximate Elev. 390 feet

Date: 10/01/96

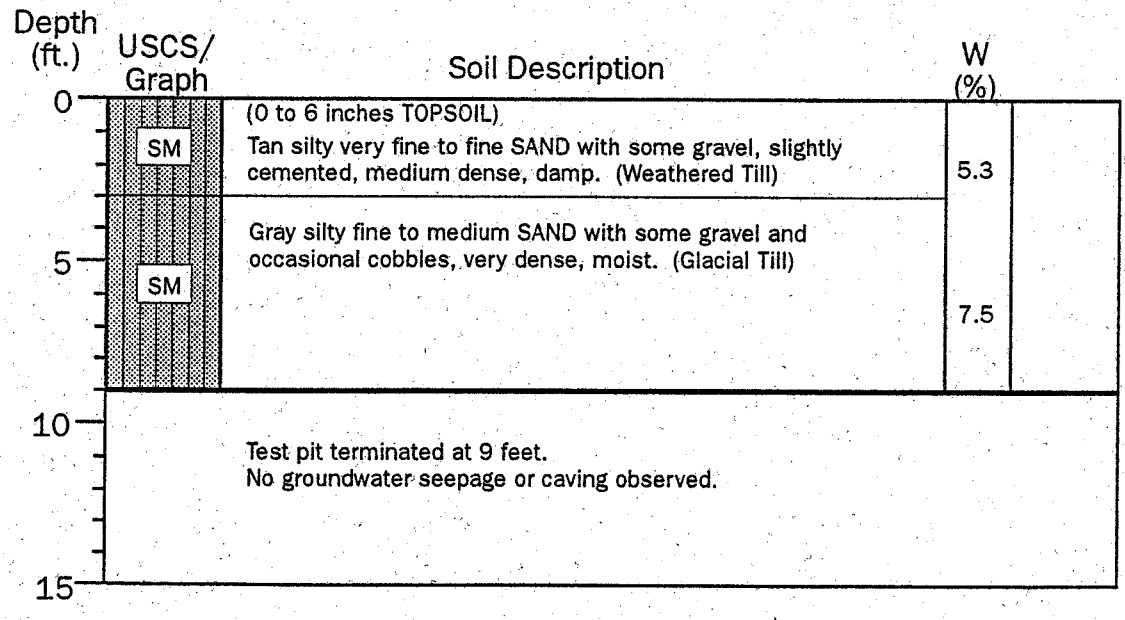


Test Pit No. TP-6

Logged by: KPR

Approximate Elev. 398 feet

Date: 10/01/96



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TEST PIT LOGS
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

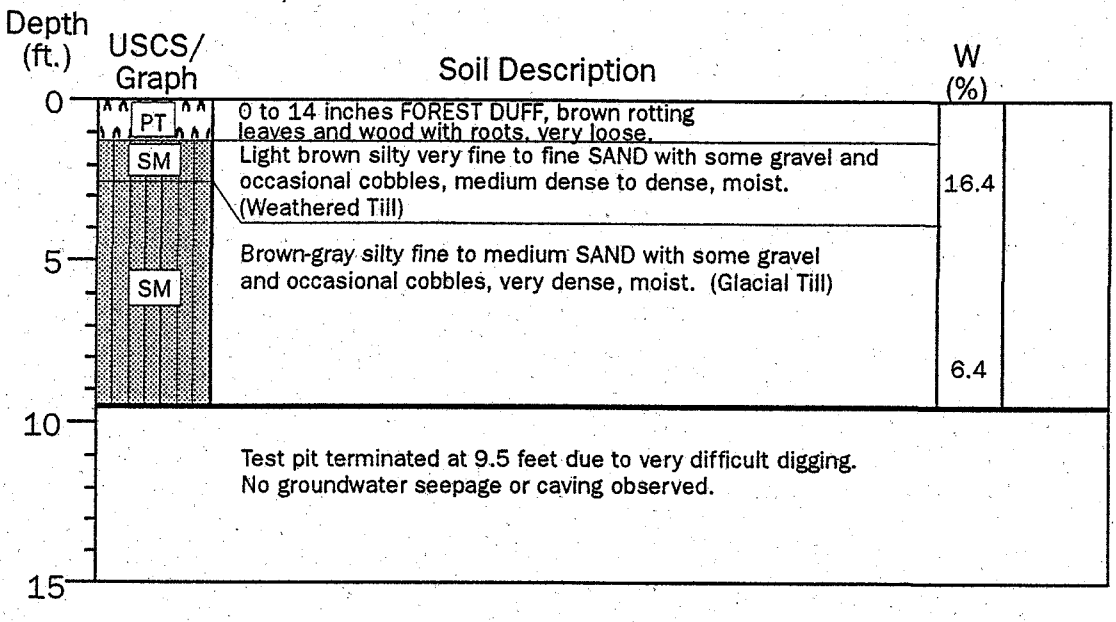
Proj. No. T-3339	Date 10/96	Figure A-4

Test Pit No. TP-7

Logged by: KPR

Approximate Elev. 395 feet

Date: 10/01/96

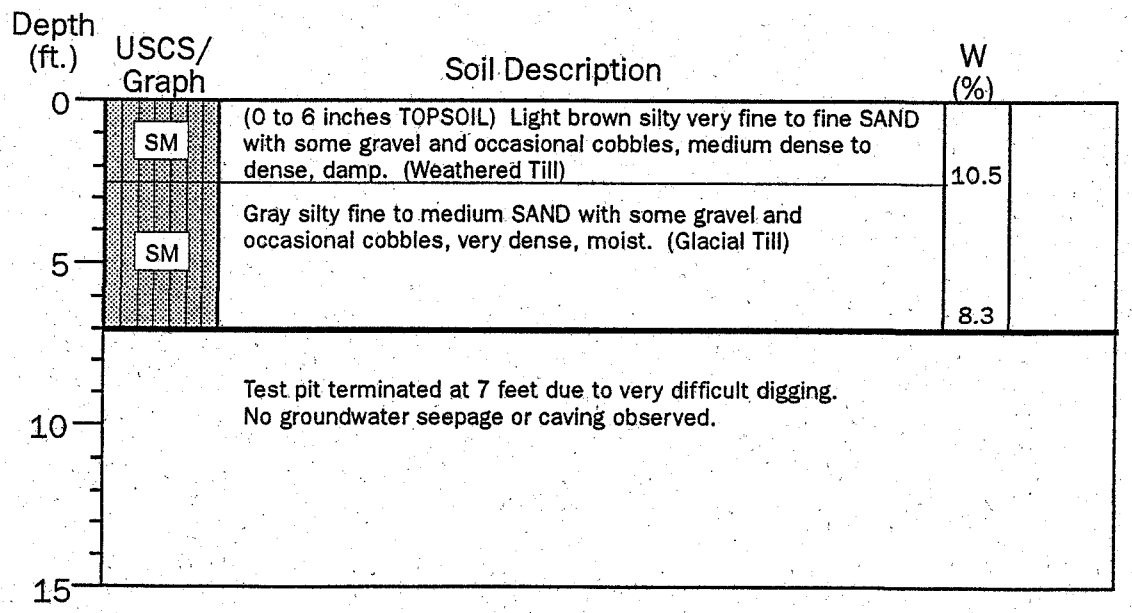


Test Pit No. TP-8

Logged by: KPR

Approximate Elev. 400 feet

Date: 10/01/96



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TEST PIT LOGS
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

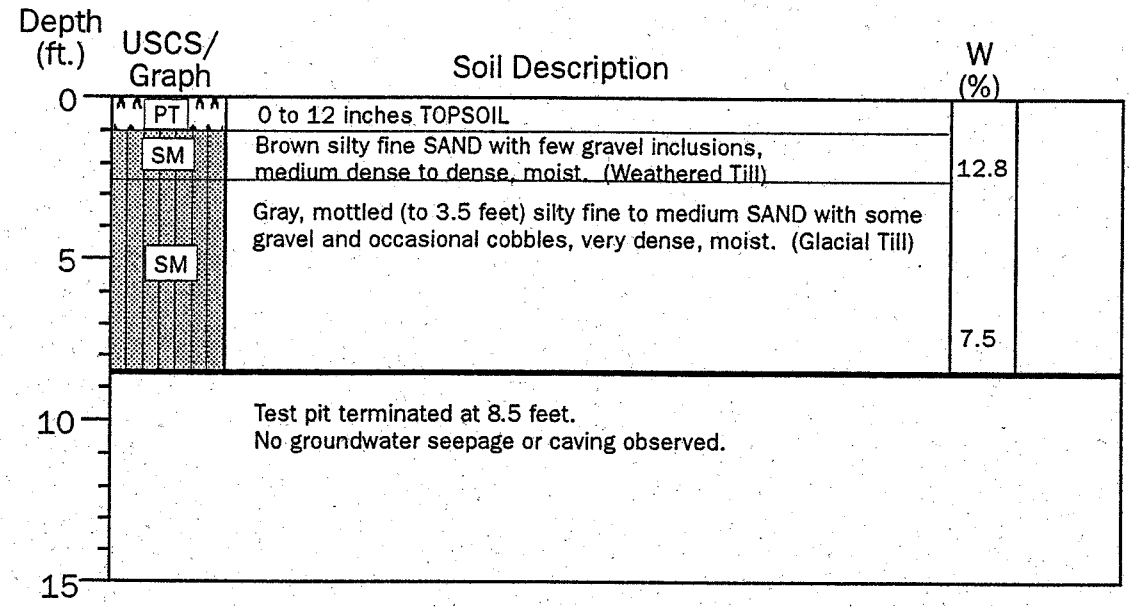
Proj. No. T-3339	Date 10/96	Figure A-5

Test Pit No. TP-9

Logged by: KPR

Approximate Elev. 400 feet

Date: 10/01/96

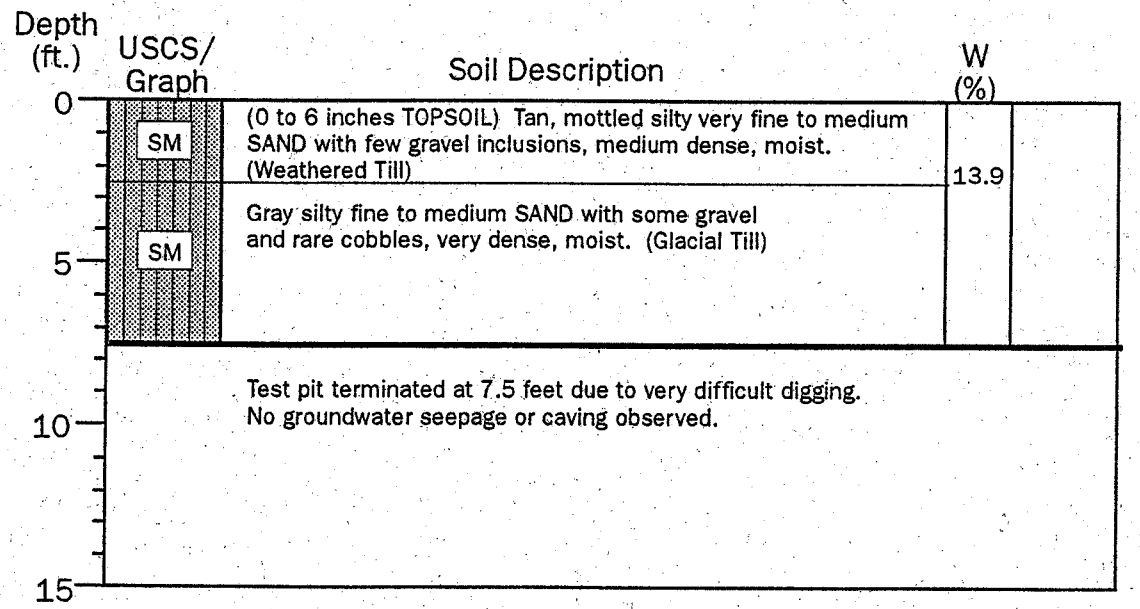


Test Pit No. TP-10

Logged by: KPR

Approximate Elev. 406 feet

Date: 10/01/96



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TEST PIT LOGS
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

Proj. No. T-3339	Date 10/96	Figure A-6

Test Pit No. TP-11

Logged by: KPR

Approximate Elev. 406 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 11 inches TOPSOIL) Reddish-tan, mottled silty very fine to fine SAND with gravel, medium dense, damp. (Weathered Till)	7.8
5	SM	Brown-gray, mottled (to 5 feet) silty fine to medium SAND with some gravel and occasional cobbles, very dense, moist. (Glacial Till)	7.8
			8.0
10		Test pit terminated at 10 feet. No groundwater seepage or caving observed.	
15			

Test Pit No. TP-12

Logged by: KPR

Approximate Elev. 399 feet

Date: 10/01/96

Depth (ft.)	USCS/ Graph	Soil Description	W (%)
0	SM	(0 to 7 inches TOPSOIL) Brown silty very fine to fine SAND with few gravel inclusions, medium dense, moist. (Weathered Till)	17.8
5	SM	Gray silty fine to medium SAND with some gravel and occasional cobbles, very dense, moist. (Glacial Till)	9.1
10		Test pit terminated at 8 feet due to very difficult digging. No groundwater seepage or caving observed.	
15			

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TEST PIT LOGS
ROCKING STAR RANCH
SNOHOMISH COUNTY, WASHINGTON

Proj. No. T-3339	Date 10/96	Figure A-7