

Western Geotechnical Consultants, Inc.

4183 Saltsprings Dr., Ferndale, WA 98248
Phone/FAX (360)380-2507

December 20, 2002

W. Neal Karman
1725 Vernon Road
Lake Stevens, WA 98258

**Re: Piezometer Installation Report
W. Neal Karman Property
Airport Hanger Site
51st Ave. NE
Arlington, WA**



Western Geotechnical Consultants, Inc. is pleased to present the results of our installation of 3 piezometers at the above referenced property. On December 5, 2002 a geotechnical engineer from our firm oversaw the installation of 3 piezometer in backhoe excavated test pits. The piezometers were installed at locations where stormwater infiltration facilities are proposed. The purpose of the piezometer installation is to obtain ground water level readings throughout the winter months to determine the seasonal high ground water levels. The piezometer locations are shown on the attached Site Plan, Figure 1. Subsurface soil and groundwater conditions were evaluated and logged at the same time.

The soils encountered were classified in accordance with the Unified Soil Classification System (USCS). Edited, tabulated test pit logs are included in the report together with a description of the USCS. Soil samples were obtained from the excavations and moisture content tests were performed on the samples. The results of the water content tests are included in the test pit logs. No ground water was encountered in the test pits and the moisture content test results indicate that the sandy and gravelly soils are relatively well drained.

A summary of the piezometer readings taken on December 5, 2002 follows.

<u>Piezometer No.</u>	<u>Depth to Water Table (feet)</u>	<u>Water Content at Bottom of Test Pit</u>	<u>Total Depth of Piezometer (feet)</u>
1	Dry	3.9%	7.3
2	Dry	4.0%	7.2
3	Dry	4.2%	7.3

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Utilities Div.

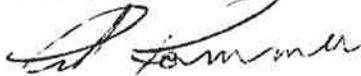
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The piezometers will be read on several occasions throughout the winter. A seasonal high groundwater report will be issued in the spring of 2003.

We appreciate the opportunity to be of assistance to you on this project. If you have any questions regarding the contents of this report, or if we can be of further assistance, please contact our office.

Sincerely,

Western Geotechnical Consultants, Inc.



Theodore A. Hammer, P.E.
Geotechnical Engineer



Attachment: Figure 1, Site Plan Sketch
USCS Classification Chart
Tabulated Test Pit Logs

cc: Perco Engineering

File:02 172 1

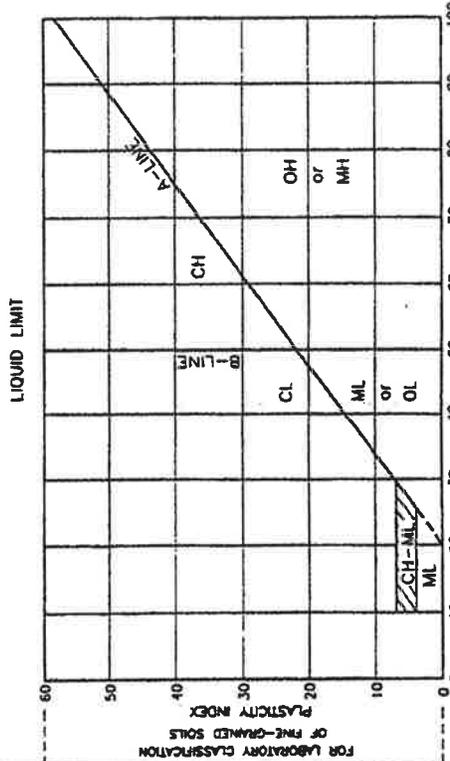
USCS Classification Chart & Key to Test Pit Descriptions

GRADATION CHART

MATERIAL SIZE	PARTICLE SIZE	
	LOWER LIMIT MILLIMETERS	UPPER LIMIT MILLIMETERS
SAND	#200 *	0.42
	#40 *	2.00
	#10 *	4.76
GRAVEL	#4 *	191
	3/4" *	762
COBBLES	3" *	304.8
	12" *	914.4

* U.S. STANDARD * CLEAR SQUARE OPENINGS
 5 - 12% FINES (SILT & CLAY) DUAL CLASS

PLASTICITY CHART



UNIFIED SOIL CLASSIFICATION CHART (USCS)

MAJOR DIMENSIONS	GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES) <5%	GW	WELL-SORTED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES) <12%	GP	POORLY-SORTED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES) <5%	SW	WELL-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES) <12%	SP	POORLY-SORTED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	ML, CL, OL	MORGANIC SILTS AND VERY FINE SANDS, SILTY SANDS, SANDY SILTS WITH SLIGHT PLASTICITY
	LIQUID LIMIT GREATER THAN 50	MH, CH, OH	MORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, SILTY CLAYS, LEAN CLAYS OF LOW PLASTICITY
FINE GRAINED SOILS	LIQUID LIMIT LESS THAN 50	ML, CL, OL	MORGANIC SILTS AND VERY FINE SANDS, SILTY SANDS, SANDY SILTS WITH SLIGHT PLASTICITY
	LIQUID LIMIT GREATER THAN 50	MH, CH, OH	MORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, SILTY CLAYS, LEAN CLAYS OF LOW PLASTICITY
HIGHLY ORGANIC SOILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

Key to Test Pit Logs Using the Unified Soil Classification System

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		Log of Test Pits			File# 02-172-1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-1	0.0-1.0	SM/OL	Dark brown sandy organic SILT to silty SAND with some roots (wet, soft) (sandy topsoil)			
	1.0-2.3	SP/SM	Orange brown slightly silty fine to medium SAND with some rounded gravel (moist, relatively compact) (grades with decreasing silt content)	1-1/2.0	9.2%	
	2.3-7.3	SP with GW layers & lenses	Brown gray gravelly fine to course SAND with sandy GRAVEL layers and lenses (slightly moist, relatively compact) (gravel is rounded 3"-)	1-2/6.5	4.1%	

Notes:

- Test Pit terminated on 12/5/01 at 7.3 feet
- Test Pit backfilled upon completion
- No groundwater encountered
- Piezometer installed

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		Log of Test Pits			File# 02-172-1	
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-2	0.0-1.0	SM/OL	Dark brown sandy organic SILT to silty SAND with some roots (wet, soft) (sandy topsoil)	2-1/0.5	19.6%	
	1.0-2.2	SP/SM	Orange brown slightly silty fine to medium SAND with some rounded gravel (moist, relatively compact) (grades with decreasing silt content)	2-2/1.5	9.7%	
	2.2-7.2	SP with GW layers & lenses	Brown gray gravelly fine to coarse SAND with sandy GRAVEL layers and lenses (slightly moist, relatively compact) (gravel is rounded 3"-)	2-3/7.2	4.0%	

Notes:

- Test Pit terminated on 12/5/01 at 7.2 feet
- Test Pit backfilled upon completion
- No groundwater encountered
- Piezometer installed

Log of Test Pits						
Test Pit No.	Depth Interval (feet)	USCS Class.	Soil Description	Sample No./ Depth (feet)	Water Content (%)	Pocket Pen. (Kg/sq. cm)
TP-3	0.0-0.9	SM/OL	Dark brown sandy organic SILT to silty SAND with some roots (wet, soft) (sandy topsoil)			
	0.9-2.8	SP/SM	Orange brown slightly silty fine to medium SAND with some rounded gravel (moist, relatively compact) (grades with decreasing silt content)			
	2.8-7.3	SP with GW layers & lenses	Brown gray gravelly fine to course SAND with sandy GRAVEL layers and lenses (slightly moist, relatively compact) (gravel is rounded 3"-) (very coarse gravelly zones below 4')	3-1/7.3	4.2%	

Notes:

- Test Pit terminated on 12/5/01 at 7.3 feet
- Test Pit backfilled upon completion
- No groundwater encountered
- Piezometer installed