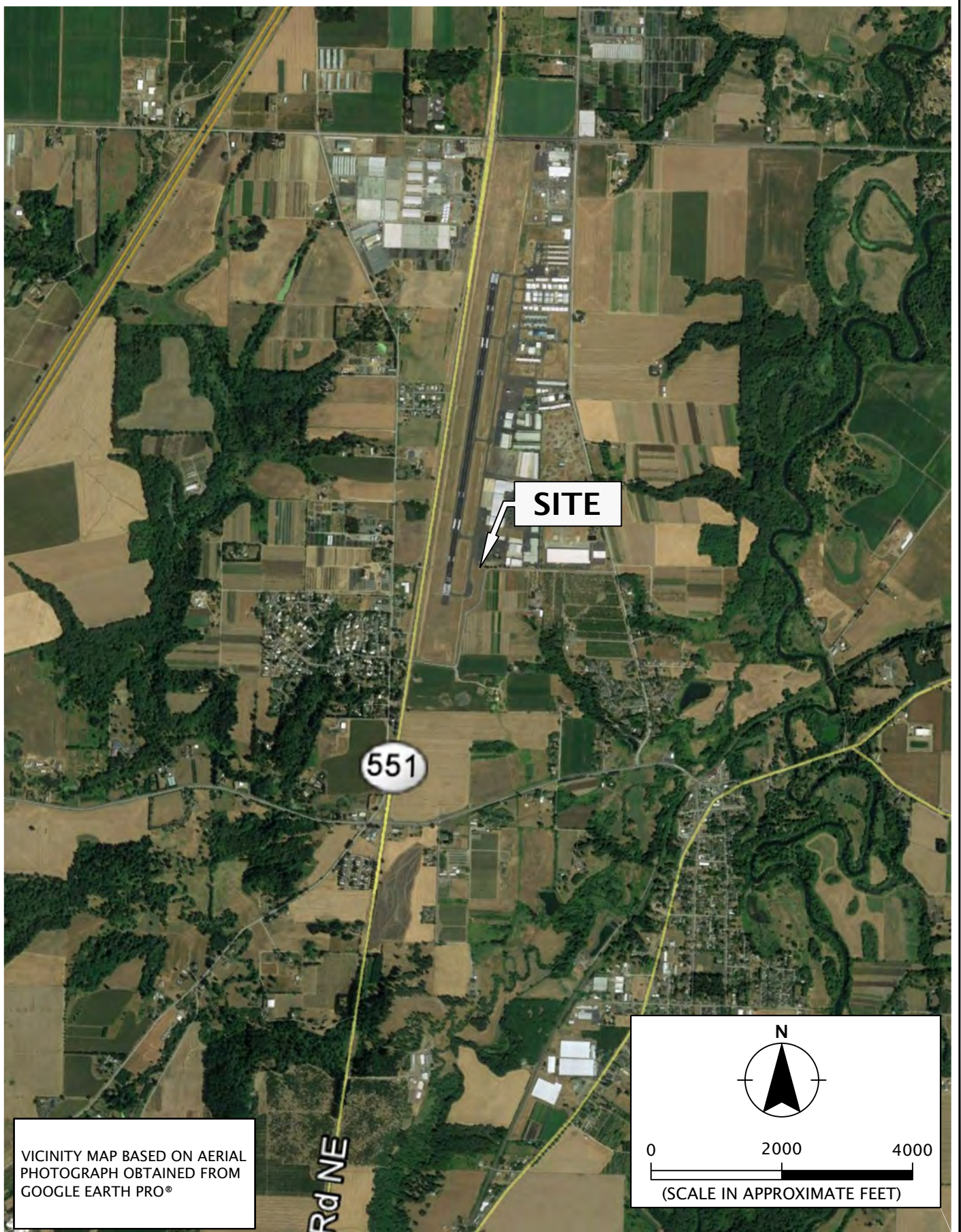
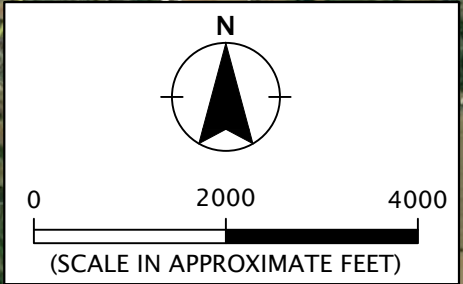


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File Name: J:\A-D\CentrexCon\CentrexCon-4\CentrexCon-4-01-VM01.dwg | Layout: FIGURE 1



VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®



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CENTEREXCON-4-01

VICINITY MAP

MARCH 2019

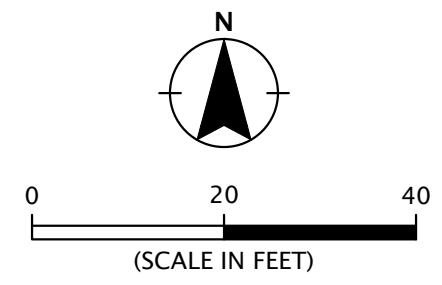
AURORA AIRPORT FUEL FARM
AURORA, OR

FIGURE 1

Printed By: mmiller | Print Date: 3/6/2019 4:52:25 PM
File Name: J:\A-D\CentrexCon\CentrexCon-4\CentrexCon-4-01-SP01.dwg | Layout: FIGURE 2



- LEGEND:**
- SITE BOUNDARY
 - B-1 BORING
 - CPT-1 CONE PENETRATION TEST



SITE PLAN BASED ON AERIAL PHOTOGRAPH
OBTAINED FROM GOOGLE EARTH PRO®,
MARCH 6, 2019

GEODESIGN 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	CENTERXCON-4-01	SITE PLAN
	MARCH 2019	AURORA AIRPORT FUEL FARM AURORA, OR

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

We explored subsurface conditions at the site by drilling one boring (B-1) to a depth of 26.5 feet BGS and completing one CPT probe (CPT-1) to a depth of approximately 58.7 feet BGS. The boring was drilled on February 22, 2019 using a trailer-mounted drill rig and solid-stem drilling techniques by Dan J. Fischer Excavating, Inc. of Forest Grove, Oregon. The exploration log is presented in this appendix. The CPT data are presented in Appendix B.

The approximate locations of the explorations are shown on Figure 2. Exploration locations were chosen based on preliminary site plan provided to our office by N.D. Eryou, PhD, P.E. The exploration locations were determined by pacing from existing site features and should be accurate implied by the methods used.

SOIL SAMPLING

Samples were collected from the boring using 1½-inch-inner diameter SPT split-barrel sampler in general accordance with ASTM D1586. The sampler was driven into the soil with a 140-pound hammer free-falling 30 inches. The sampler was driven a total distance of 18 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the exploration log, unless otherwise noted. Samples were generally collected at 2.5- to 5-foot intervals throughout the depth of the boring. In addition, relatively undisturbed samples were collected by pushing thin-walled standard Shelby tubes into the base of the exploration in general accordance with ASTM D1587. Sampling methods and intervals are shown on the exploration log.

We understand that calibration of the SPT hammer used by Dan J. Fischer Excavating, Inc. has not been completed. The SPT blows completed by Dan J. Fischer Excavating, Inc. were conducted using two wraps around a cathead.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the “Explorations Key” (Table A-1) and “Soil Classification System” (Table A-2), which are presented in this appendix. The exploration log indicates the depths at which the soils or their characteristics change, although the change actually could be gradual. If the change occurred between sample locations, the depth was interpreted. Classifications are shown on the exploration log.

LABORATORY TESTING

We visually examined soil samples collected from the exploration to confirm field classifications. We also performed the following laboratory testing.

MOISTURE CONTENT










We tested the natural moisture content of select soil samples in general accordance with ASTM D2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented in this appendix.

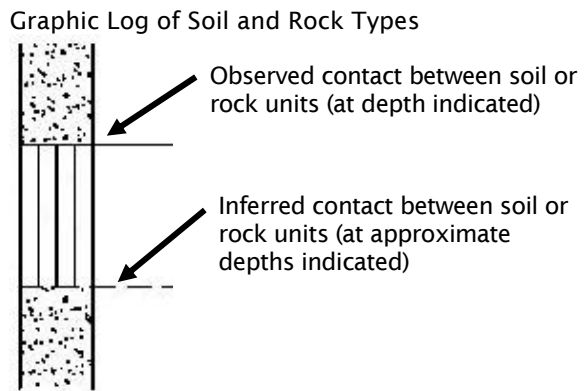
ATTERBERG LIMITS TESTING

Atterberg limits (plastic and liquid limits) testing was performed on a select soil sample in general accordance with ASTM D4318. The plastic limit is defined as the moisture content where the soil becomes brittle. The liquid limit is defined as the moisture content where the soil begins to act similar to a liquid. The plasticity index is the difference between the liquid and plastic limits. The test results are presented in this appendix.

PARTICLE-SIZE ANALYSES

Particle-size analysis was completed on select soil samples in general accordance with ASTM D1140. The test results are presented in this appendix.

SYMBOL	SAMPLING DESCRIPTION
	Location of sample obtained in general accordance with ASTM D 1586 Standard Penetration Test with recovery
	Location of sample obtained using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D 1587 with recovery
	Location of sample obtained using Dames & Moore sampler and 300-pound hammer or pushed with recovery
	Location of sample obtained using Dames & Moore sampler and 140-pound hammer or pushed with recovery
	Location of sample obtained using 3-inch-O.D. California split-spoon sampler and 140-pound hammer
	Location of grab sample
	Rock coring interval
	Water level during drilling
	Water level taken on date shown




GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
NP	Nonplastic	kPa	Kilopascal
OC	Organic Content		

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOIL									
Relative Density		Standard Penetration Resistance		Dames & Moore Sampler (140-pound hammer)		Dames & Moore Sampler (300-pound hammer)			
Very Loose		0 - 4		0 - 11		0 - 4			
Loose		4 - 10		11 - 26		4 - 10			
Medium Dense		10 - 30		26 - 74		10 - 30			
Dense		30 - 50		74 - 120		30 - 47			
Very Dense		More than 50		More than 120		More than 47			
CONSISTENCY - FINE-GRAINED SOIL									
Consistency		Standard Penetration Resistance		Dames & Moore Sampler (140-pound hammer)		Dames & Moore Sampler (300-pound hammer)		Unconfined Compressive Strength (tsf)	
Very Soft		Less than 2		Less than 3		Less than 2		Less than 0.25	
Soft		2 - 4		3 - 6		2 - 5		0.25 - 0.50	
Medium Stiff		4 - 8		6 - 12		5 - 9		0.50 - 1.0	
Stiff		8 - 15		12 - 25		9 - 19		1.0 - 2.0	
Very Stiff		15 - 30		25 - 65		19 - 31		2.0 - 4.0	
Hard		More than 30		More than 65		More than 31		More than 4.0	
PRIMARY SOIL DIVISIONS					GROUP SYMBOL		GROUP NAME		
COARSE-GRAINED SOIL (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (< 5% fines)			GW or GP		GRAVEL		
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)			GW-GM or GP-GM		GRAVEL with silt		
					GW-GC or GP-GC		GRAVEL with clay		
		GRAVEL WITH FINES (> 12% fines)			GM		silty GRAVEL		
					GC		clayey GRAVEL		
					GC-GM		silty, clayey GRAVEL		
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SAND (<5% fines)			SW or SP		SAND		
		SAND WITH FINES (≥ 5% and ≤ 12% fines)			SW-SM or SP-SM		SAND with silt		
					SW-SC or SP-SC		SAND with clay		
		SAND WITH FINES (> 12% fines)			SM		silty SAND		
SC					clayey SAND				
SC-SM					silty, clayey SAND				
FINE-GRAINED SOIL (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50			ML		SILT		
					CL		CLAY		
					CL-ML		silty CLAY		
		Liquid limit 50 or greater			OL		ORGANIC SILT or ORGANIC CLAY		
					MH		SILT		
					CH		CLAY		
	OH			ORGANIC SILT or ORGANIC CLAY					
	HIGHLY ORGANIC SOIL					PT		PEAT	
MOISTURE CLASSIFICATION			ADDITIONAL CONSTITUENTS						
Term		Field Test		Secondary granular components or other materials such as organics, man-made debris, etc.					
dry	very low moisture, dry to touch	Percent	Silt and Clay In:		Percent	Sand and Gravel In:			
			Fine-Grained Soil	Coarse-Grained Soil		Fine-Grained Soil	Coarse-Grained Soil		
moist	damp, without visible moisture	< 5	trace	trace	< 5	trace	trace		
		5 - 12	minor	with	5 - 15	minor	minor		
wet	visible free water, usually saturated	> 12	some	silty/clayey	15 - 30	with	with		
		> 30			> 30	sandy/gravelly	Indicate %		
 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com			SOIL CLASSIFICATION SYSTEM				TABLE A-2		

BORING LOG CENTREXCON-4-01-B1.GPJ GEODESIGN.GDT PRINT DATE: 3/22/19:KM:KT

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	SAMPLE	▲ BLOW COUNT ● MOISTURE CONTENT % ▨ RQD% ▩ CORE REC%	INSTALLATION AND COMMENTS
0.0		Dense, gray-brown, silty GRAVEL with sand and cobbles (GM), trace organics (rootlets, woody debris); moist - FILL.				 	
2.5		Medium stiff, yellow-brown with brown mottled SILT (ML), minor clay, trace sand; moist, sand is fine.	3.0	PP		 	Perched water at 2.0 feet. PP = 1.25 tsf
5.0		with sand at 5.0 feet		P200 PP		 	P200 = 83% PP = 1.0 tsf
7.5		wet, interbeds of CLAY and silty SAND (1 to 3 inches thick) at 8.0 feet		P			
10.0				P200 PP		 	P200 = 76% PP = 1.0 tsf
15.0		very stiff; without interbeds, laminated (1 to 2 inches thick) at 15.0 feet		ATT PP		 	PP = 1.75 tsf LL = 28% PL = 24%
18.5		Medium dense, light gray-brown, silty SAND (SM); wet, sand is fine.	18.5				
21.0		Stiff, light brown SILT (ML), trace sand and clay; moist.	21.0	P200		 	P200 = 32%
23.0		Loose, light brown, silty SAND (SM); wet, sand is medium, micaceous.	23.0				Driller Comment: sand at 23.0 feet.
26.5		Exploration terminated at a depth of 26.5 feet due to heavy, wet sand. Hammer efficiency factor is unknown. SPT completed using two wraps with a cathead.	26.5	P200		 	P200 = 12% Surface elevation was not measured at the time of exploration.

8.0 feet during drilling

DRILLED BY: Dan J. Fischer Excavating, Inc.

LOGGED BY: J. Hook

COMPLETED: 02/22/19

BORING METHOD: solid-stem auger (see document text)

BORING BIT DIAMETER: 4 inches



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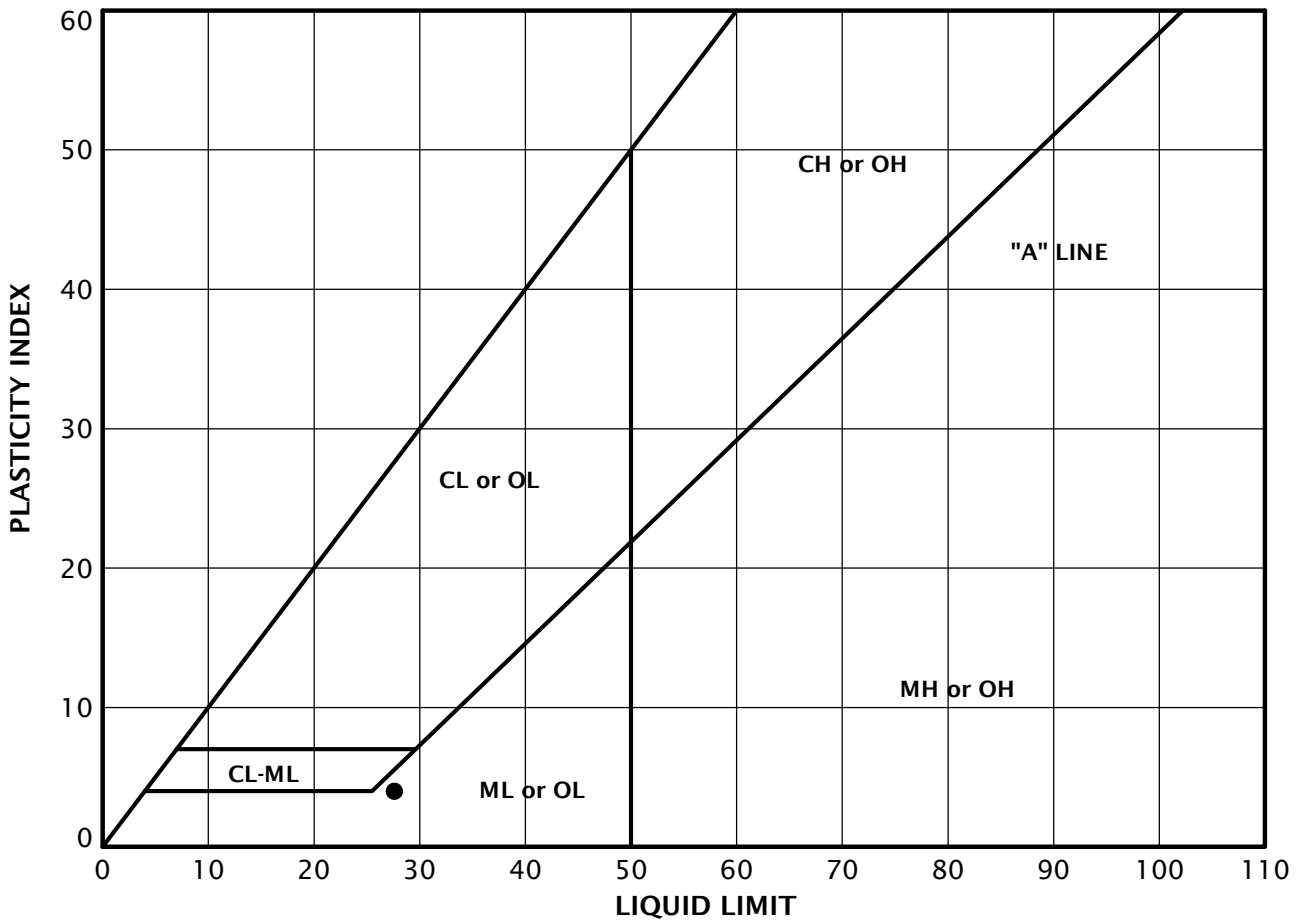
CENTREXCON-4-01

MARCH 2019

BORING B-1

AURORA AIRPORT FUEL FARM
AURORA, OR

FIGURE A-1



KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
●	B-1	15.0	30	28	24	4

ATTERBERG_LIMITS 7 CENTREXCON-4-01-B1.GPJ GEODESIGN.CDT PRINT DATE: 3/13/19:KM

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
B-1	0.0		5							
B-1	2.5		35							
B-1	5.0		38			83				
B-1	10.0		37			76				
B-1	15.0		30				28	24	4	
B-1	20.0		32			32				
B-1	20.1		32							
B-1	25.0		27			12				

LAB SUMMARY: CENTREXCON-4-01-B1.GPJ GEODESIGN.GDT PRINT DATE: 3/13/19:KM

 9450 SW Commerce Circle - Suite 300 Wilsonville OR 97070 503.968.8787 www.geodesigninc.com	CENTREXCON-4-01	SUMMARY OF LABORATORY DATA	
	MARCH 2019	AURORA AIRPORT FUEL FARM AURORA, OR	FIGURE A-3



Geotechnical Investigation

Aurora State Airport
Parallel Taxiway Relocation

Aurora, Oregon

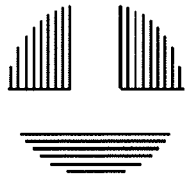
Prepared for:

W&H Pacific
Portland, Oregon

February 9, 2007

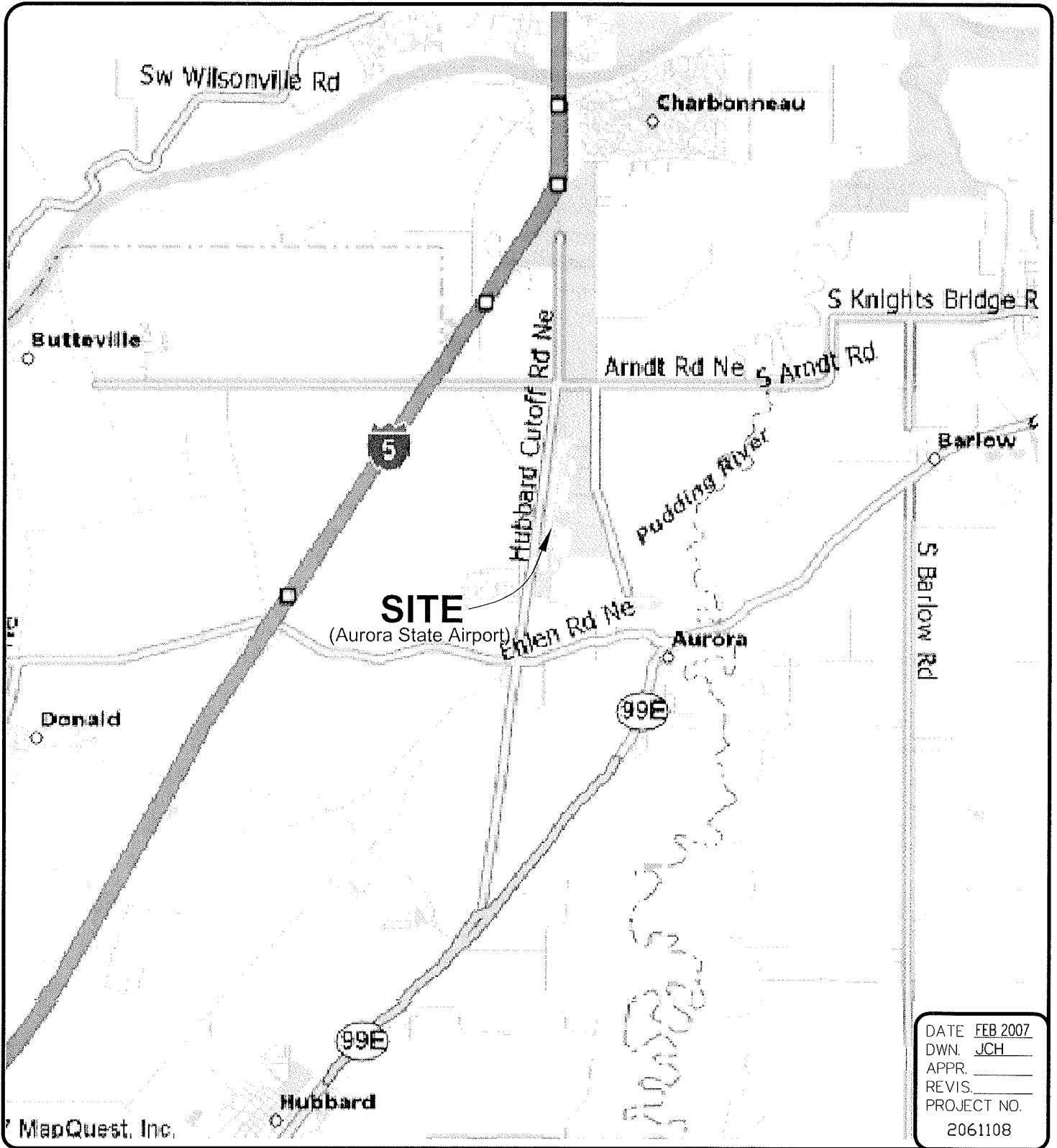
*Professional
Geotechnical
Services*


Foundation Engineering, Inc.



Appendix A

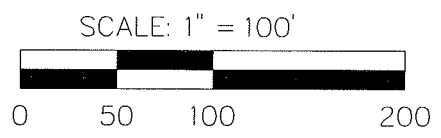
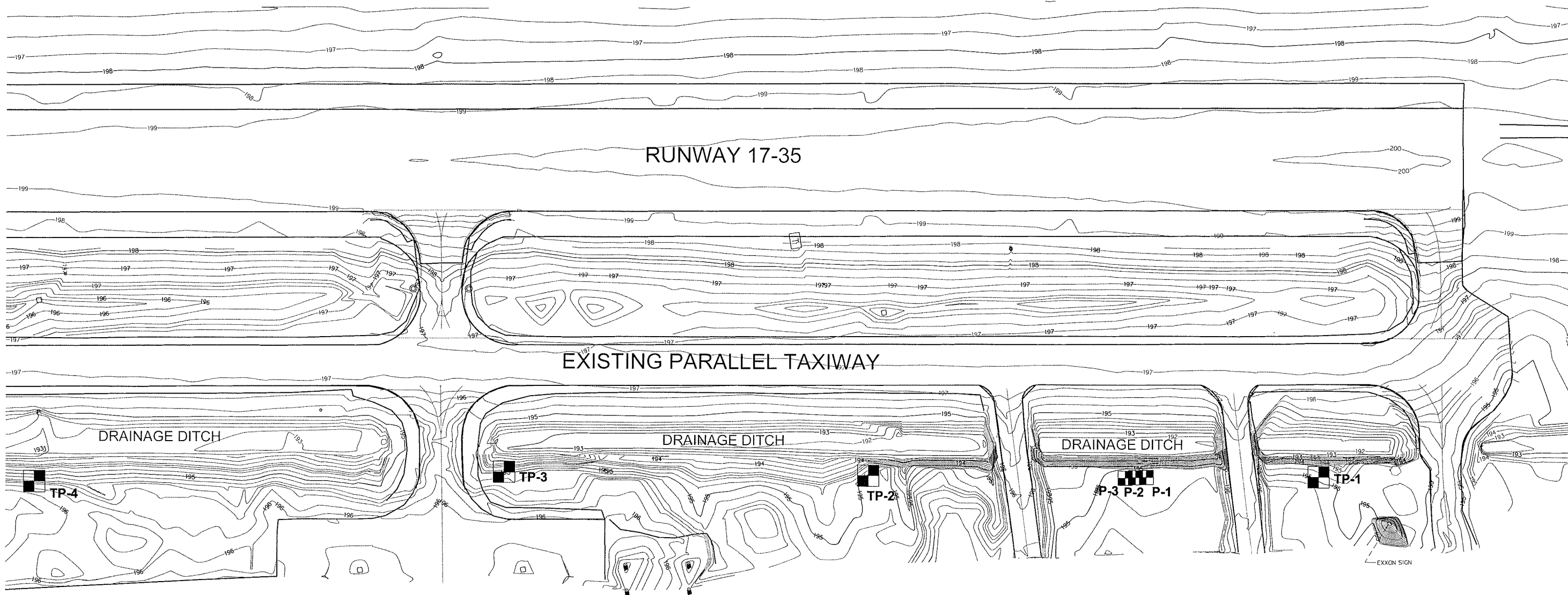
Figures




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VICINITY MAP
AURORA STATE AIRPORT
 PARALLEL TAXIWAY RELOCATION
 AURORA, OREGON

FIGURE NO.
1A



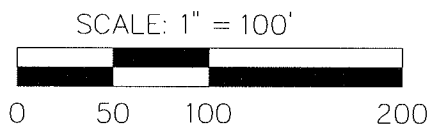
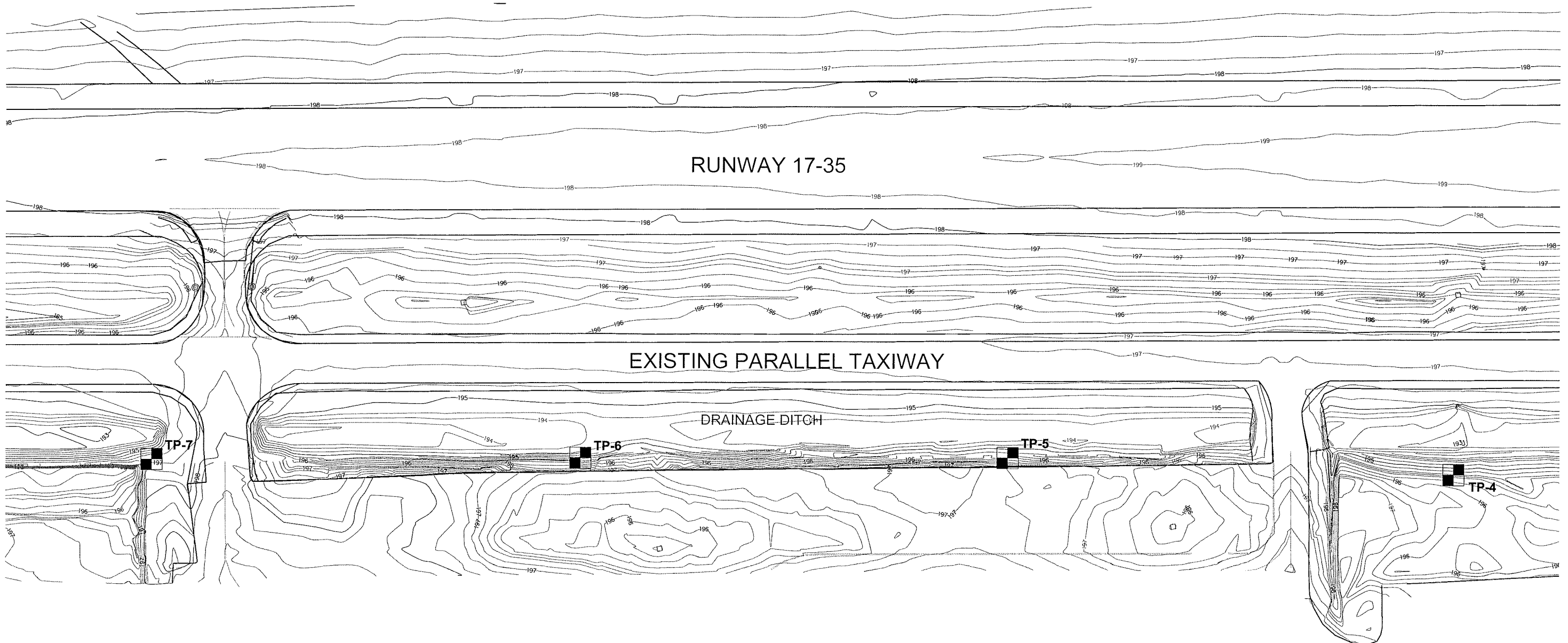
- NOTES:
1. TEST PIT, CORE HOLE AND PERMEABILITY TEST LOCATIONS WERE ESTABLISHED USING A MEASURING WHEEL AND ARE APPROXIMATE ONLY.
 2. SEE REPORT FOR A DISCUSSION OF SUBSURFACE CONDITIONS.
 3. BASE MAP WAS PROVIDED BY W&H PACIFIC.

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SITE LAYOUT AND EXPLORATION LOCATIONS
AURORA STATE AIRPORT
 PARALLEL TAXIWAY RELOCATION PROJECT
 AURORA, OREGON

FIGURE NO.
2A



NOTES:

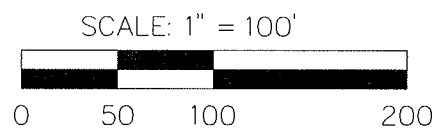
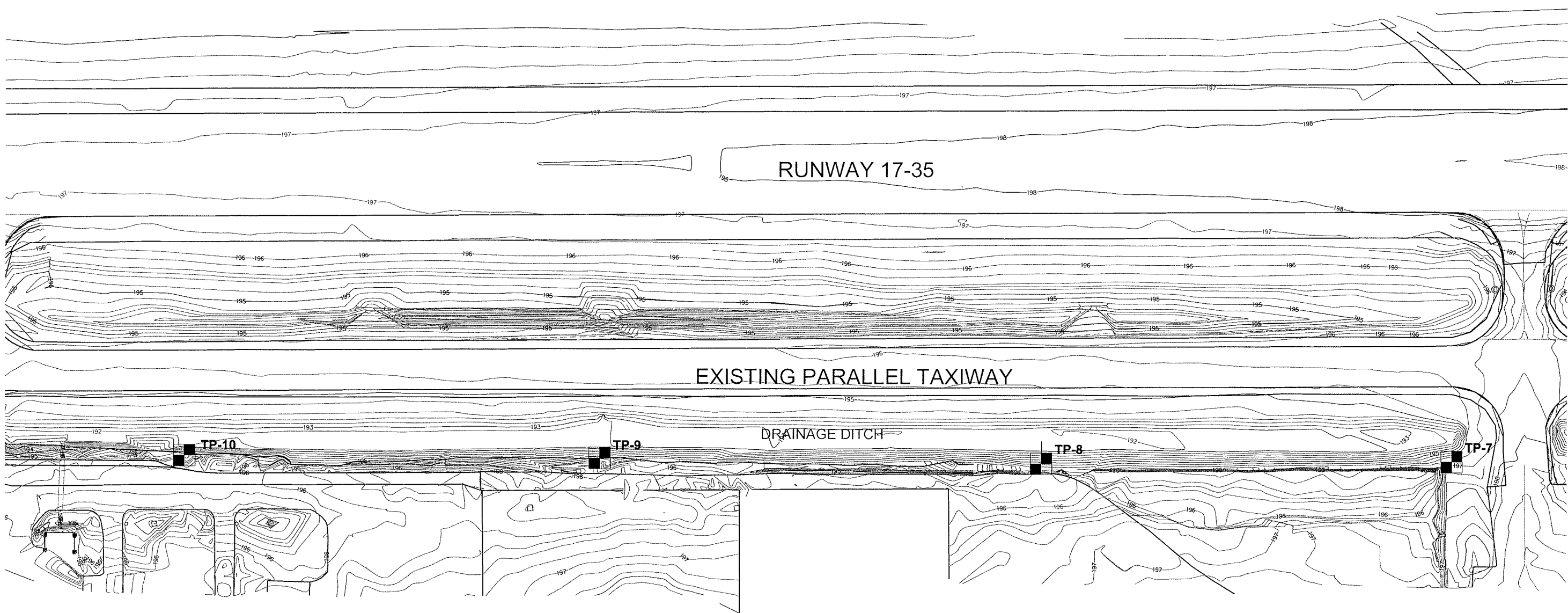
- 1. TEST PIT, CORE HOLE AND PERMEABILITY TEST LOCATIONS WERE ESTABLISHED USING A MEASURING WHEEL AND ARE APPROXIMATE ONLY.
- 2. SEE REPORT FOR A DISCUSSION OF SUBSURFACE CONDITIONS.
- 3. BASE MAP WAS PROVIDED BY W&H PACIFIC.

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SITE LAYOUT AND EXPLORATION LOCATIONS
AURORA STATE AIRPORT
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 AURORA, OREGON

FIGURE NO.
3A



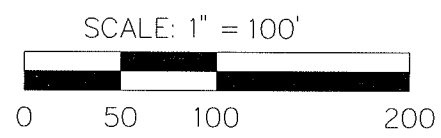
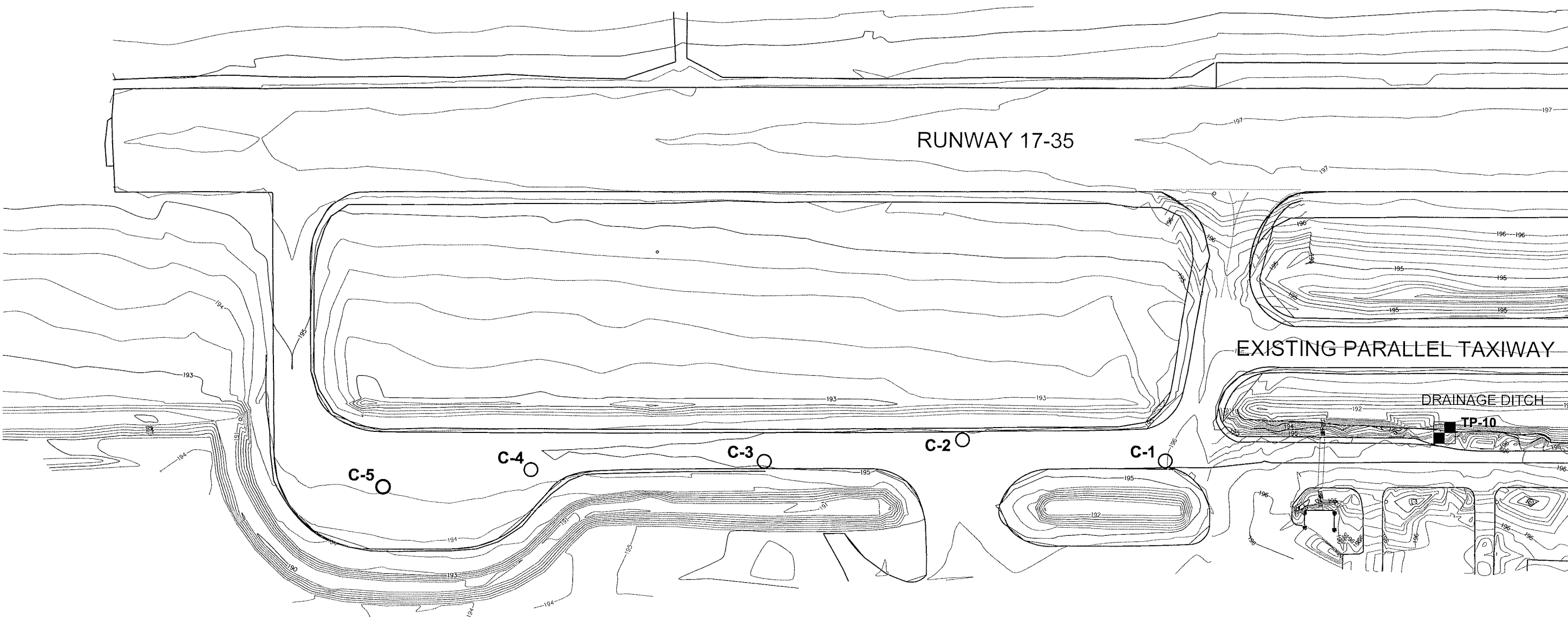
- NOTES:
1. TEST PIT, CORE HOLE AND PERMEABILITY TEST LOCATIONS WERE ESTABLISHED USING A MEASURING WHEEL AND ARE APPROXIMATE ONLY.
 2. SEE REPORT FOR A DISCUSSION OF SUBSURFACE CONDITIONS.
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SITE LAYOUT AND EXPLORATION LOCATIONS
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 AURORA, OREGON

FIGURE NO.
4A



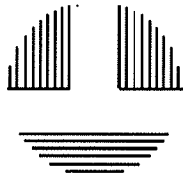
- NOTES:
1. TEST PIT, CORE HOLE AND PERMEABILITY TEST LOCATIONS WERE ESTABLISHED USING A MEASURING WHEEL AND ARE APPROXIMATE ONLY.
 2. SEE REPORT FOR A DISCUSSION OF SUBSURFACE CONDITIONS.
 3. BASE MAP WAS PROVIDED BY W&H PACIFIC.

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SITE LAYOUT AND EXPLORATION LOCATIONS
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 AURORA, OREGON

FIGURE NO.
5A



Appendix B

Test Pit and Core Hole Logs

DISTINCTION BETWEEN FIELD LOGS AND FINAL LOGS

A field log is prepared for each boring or test pit by our field representative. The log contains information concerning sampling depths and the presence of various materials such as gravel, cobbles, and fill, and observations of ground water. It also contains our interpretation of the soil conditions between samples. The final logs presented in this report represent our interpretation of the contents of the field logs and the results of the laboratory examinations and tests. Our recommendations are based on the contents of the final logs and the information contained therein and not on the field logs.

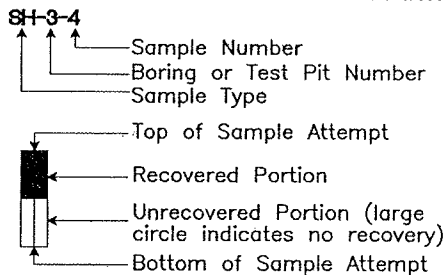
VARIATION IN SOILS BETWEEN TEST PITS AND BORINGS

The final log and related information depict subsurface conditions only at the specific location and on the date indicated. Those using the information contained herein should be aware that soil conditions at other locations or on other dates may differ. Actual foundation or subgrade conditions should be confirmed by us during construction.

TRANSITION BETWEEN SOIL OR ROCK TYPES

The lines designating the interface between soil, fill or rock on the final logs and on subsurface profiles presented in the report are determined by interpolation and are therefore approximate. The transition between the materials may be abrupt or gradual. Only at boring or test pit locations should profiles be considered as reasonably accurate and then only to the degree implied by the notes thereon.

SAMPLE OR TEST SYMBOLS



- S - Grab Samples
- SS - Standard Penetration Test Sample (split-spoon)
- SH - Thin-walled Shelby Tube Sample
- C - Core Sample
- CS - Continuous Sample

- ▲ Standard Penetration Test Resistance equals the number of blows a 140 lb. weight falling 30 in. is required to drive a standard split-spoon sampler 1 ft. Practical refusal is equal to 50 or more blows per 6 in. of sampler penetration.
- Water Content (%).

UNIFIED SOIL CLASSIFICATION SYMBOLS

- | | |
|------------|---------------------|
| G - Gravel | W - Well Graded |
| S - Sand | P - Poorly Graded |
| M - Silt | L - Low Plasticity |
| C - Clay | H - High Plasticity |
| Pt - Peat | O - Organic |

FIELD SHEAR STRENGTH TEST

Shear strength measurements on test pit side walls, blocks of soil or Shelby tube samples are typically made with Torvane or pocket penetrometer devices.

TYPICAL SOIL/ROCK SYMBOLS

- | | | | |
|--|--------|--|-----------|
| | Sand | | Silt |
| | Clay | | Gravel |
| | Basalt | | Siltstone |

WATER TABLE

- Water Table Location
- (1/31/00) Date of Measurement
- Piezometer Tip Location (if used)



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SYMBOL KEY BORING AND TEST PIT LOGS

Explanation of Common Terms Used in Soil Descriptions

Field Identification	Cohesive Soils			Granular Soils	
	SPT	S_u^* (tsf)	Term	SPT	Term
Easily penetrated several inches by fist.	0 - 1	< 0.125	Very Soft	0 - 4	Very Loose
Easily penetrated several inches by thumb.	2 - 4	0.125-0.25	Soft	5 - 10	Loose
Can be penetrated several inches by thumb with moderate effort.	5 - 8	0.25 - 0.50	Medium Stiff (Firm)	11 - 30	Medium Dense
Readily indented by thumb but penetrated only with great effort.	9 - 15	0.50 - 1.0	Stiff	31 - 50	Dense
Readily indented by thumbnail.	16 - 30	1.0 - 2.0	Very Stiff	> 50	Very Dense
Indented with difficulty by thumbnail.	31 - 60	> 2.0	Hard		

* Undrained shear strength

Term	Soil Moisture Field Description
Dry	Absence of moisture. Dusty. Dry to the touch.
Damp	Soil has moisture. Cohesive soils are below plastic limit and usually moldable.
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive silt/clay can be readily remolded. Soil leaves wetness on the hand when squeezed. "Wet" indicates that the soil is wetter than the optimum moisture content and above the plastic limit.

Term	PI	Plasticity Field Test
Nonplastic	0 - 3	Cannot be rolled into a thread.
Low Plasticity	3 - 15	Can be rolled into a thread with some difficulty.
Medium Plasticity	15 - 30	Easily rolled into thread.
High Plasticity	> 30	Easily rolled and rerolled into thread.

Term	Soil Structure Criteria
Stratified	Alternating layers at least 1 inch thick - describe variation.
Laminated	Alternating layers at less than 1 inch thick - describe variation.
Fissured	Contains shears and partings along planes of weakness.
Slickensides	Partings appear glossy or striated.
Blocky	Breaks into lumps - crumbly.
Lensed	Contains pockets of different soils - describe variation.

Term	Soil Cementation Criteria
Weak	Breaks under light finger pressure.
Moderate	Breaks under hard finger pressure.
Strong	Will not break with finger pressure.



FOUNDATION ENGINEERING INC.
PROFESSIONAL GEOTECHNICAL SERVICES

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
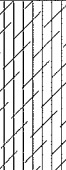


**COMMON TERMS
SOIL DESCRIPTIONS**

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: short grass. Fine roots extend to ±12 inches. Moderate seepage noted at ±3 feet.	1-	S-1-1				0.20		Medium stiff, clayey SILT, (ML); brown, moist, low plasticity, blocky structure, (topsoil).
	2-							Soft to medium stiff, clayey SILT, (ML); brown-grey, trace iron-staining, moist to wet, low plasticity, micaceous, (alluvium).
	3-							
	4-							Medium stiff SILT, some sand, (ML); brown-grey, wet, non-plastic to low plasticity, fine sand, (alluvium).
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							



Project No.: 2061108	Test Pit Log: TP- 1
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description	
Fine roots extend to ±18 inches. Slow seepage noted at ±4 feet.	1-	S-2-1						Soft to medium stiff, clayey SILT, trace to some organics, (ML); dark brown, moist, low to medium plasticity, blocky structure, (topsoil).	
	2-	S-2-2						Medium stiff to stiff, SILT, some clay, trace sand, (CL-ML); brown-grey, trace iron-staining, moist, medium plasticity, semi-blocky structure, micaceous, (alluvium).	
	3-								
	4-	S-2-3							Stiff SILT, some clay, trace sand, (CL-ML); brown-grey, moist to wet, low to medium plasticity, fine sand, micaceous, (alluvium).
	5-								
	6-								
	7-								
	8-								
	9-								
	10-								
	11-								BOTTOM OF TEST PIT



Project No.: 2061108	Test Pit Log: TP- 2
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: short grass.	1-	S-3-1						Soft to stiff, SILT, some clay, trace sand, (ML); brown-grey, trace iron-staining, moist, low to medium plasticity, fine sand, micaceous, (alluvium).
	2-							
	3-							
Slow seepage noted at ±3.5 feet.	4-	S-3-2						Stiff, clayey SILT, trace sand, (CL-ML); brown-grey, moist to wet, low to medium plasticity, fine sand, micaceous, (alluvium).
	5-							
	6-							
Rapid seepage noted at ±6.5 feet.	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2061108	Test Pit Log: TP- 3
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: short grass.	1-	S-4-1						Stiff, SILT, some clay, trace sand, (ML); brown-grey, trace iron-staining, moist to wet, low plasticity, micaceous, (alluvium).
	2-							
Fine roots extend to ±2 feet.	3-							
Moderate seepage noted at ±3 feet.	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							

Project No.: 2061108	Test Pit Log: TP- 4
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description	
Surface: short grass and trace gravel fill. Fine roots extend to ±2 feet. Slow to moderate seepage noted at ±3 feet.	1-	S-5-1	█			0.30		Medium stiff, gravelly SILT, some clay, (CL-ML); dark brown, moist to wet, medium plasticity, fine to coarse, subrounded to rounded gravel, blocky structure, (fill).	
	2-							Medium stiff to stiff, clayey SILT, (CL-ML); brown-grey, trace iron-staining, moist to wet, medium plasticity, micaceous, (alluvium).	
	3-								Stiff SILT, trace clay and sand (ML); brown-grey, moist to wet, low plasticity, fine sand, micaceous, (alluvium).
	4-								
	5-								
	6-								
	7-							BOTTOM OF TEST PIT	
	8-								
	9-								
	10-								
	11-								

Project No.: 2061108




Test Pit Log: TP- 5

Surface Elevation: N/A

Aurora State Airport Parallel Taxiway Relocation

Date of Test Pit: January 9, 2007

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: short grass and trace gravel. Fine roots extend to ±2 feet. Slow to moderate seepage noted at ±3 feet.	1-	S-6-1	█					Medium stiff, clayey SILT, trace gravel, (CL-ML); dark brown, moist, medium plasticity, blocky structure, (topsoil/fill).
	2-	S-6-2	█					Medium stiff, clayey SILT, (CL-ML); brown-grey, trace iron-staining, moist to wet, low to medium plasticity, blocky structure, micaceous, (alluvium).
	3-			Stiff SILT, some clay, trace sand, (ML); brown-grey, moist to wet, low plasticity, fine sand, micaceous, (alluvium).				
	4-							
	5-							
	6-							
	7-	BOTTOM OF TEST PIT						
	8-							
	9-							
	10-							
	11-							

Project No.: 2061108


Test Pit Log: TP- 6

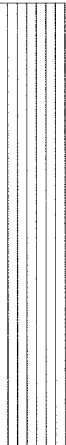
Surface Elevation: N/A

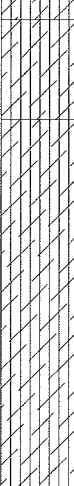
Aurora State Airport Parallel Taxiway Relocation

Date of Test Pit: January 9, 2007

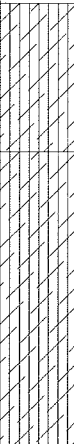
Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
<p>Fine roots extend to ±2 feet.</p> <p>Slow seepage noted at ±4 feet.</p> <p>Rapid seepage noted at ±5.5 feet.</p>	1-	S-7-1	█					Medium stiff, gravelly SILT, some clay, (ML); brown, moist, medium plasticity, fine to coarse, subrounded gravel, (fill).
	2-							Stiff, clayey SILT, (ML); brown-grey, trace iron-staining, moist to wet, low plasticity, micaceous, (alluvium).
	3-							
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							
<p>Project No.: 2061108</p> <p>Surface Elevation: N/A</p> <p>Date of Test Pit: January 9, 2007</p>								<p>Test Pit Log: TP- 7</p> <p>Aurora State Airport Parallel Taxiway Relocation</p> <p>Aurora, Oregon</p>




Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
<p>Surface: tall grass.</p> <p>Fine roots extend to ±12 inches.</p> <p>Slow seepage noted at ±3 feet.</p> <p>Rapid seepage noted at ±8.5 feet.</p>	1-	S-8-1	█					Medium stiff to stiff SILT, trace clay and sand, (ML); brown-grey, moist to wet, low plasticity, fine sand, micaceous, (alluvium).
	2-							
	3-							
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							
<p>Project No.: 2061108</p> <p>Surface Elevation: N/A</p> <p>Date of Test Pit: January 9, 2007</p>								<p>Test Pit Log: TP- 8</p> <p>Aurora State Airport Parallel Taxiway Relocation</p> <p>Aurora, Oregon</p>

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Surface: tall grass. Slow seepage noted at ±2.5 feet.	1-	S-9-1	█					Soft to medium stiff, clayey SILT, (ML); dark brown, moist, low to medium plasticity, (topsoil).
	2-	S-9-2	█					Medium stiff, clayey SILT, (CL-ML); grey-brown, trace iron-staining, moist to wet, medium plasticity, blocky structure, micaceous, (alluvium).
	3-							Stiff SILT, some clay, (ML); brown-grey, moist to wet, low to medium plasticity, micaceous, (alluvium).
	4-							
	5-							
	6-							
	7-							
	8-							
	9-							
	10-							
	11-							BOTTOM OF TEST PIT

Project No.: 2061108	Test Pit Log: TP- 9
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description	
Surface: short grass. No ground water encountered to the limit of excavation.	1-	S-10-1	█			0.45		Medium stiff to stiff, clayey SILT, (ML); dark brown, moist, low plasticity, (possible topsoil).	
	2-								
	3-	S-10-2	█						Stiff, SILT, some clay, trace sand, (CL-ML); brown-grey, moist, medium plasticity, fine sand, micaceous, (alluvium).
	4-								
	5-								
	6-								
	7-								
	8-								
	9-								
	10-								
	11-							BOTTOM OF TEST PIT	

Project No.: 2061108	Test Pit Log: TP-10
Surface Elevation: N/A	Aurora State Airport Parallel Taxiway Relocation
Date of Test Pit: January 9, 2007	Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No ground water encountered to the limit of excavation.	1-	C-1-1	█					ASPHALTIC CONCRETE (±4 inches).
								Dense CRUSHED ROCK (±14 inches), (GW); grey, moist, ±2-inch minus, (base rock). ±3½-inch, rounded cobble encountered at ±18 inches.
	2-	SHC-1-2	█					Stiff, clayey SILT, (CL-ML); grey, moist, medium plasticity, (alluvium).
	3-							BOTTOM OF CORE HOLE
	4-							
	5-							

Project No.: 2061108




Surface Elevation: N/A

Date of Test Pit: January 10, 2007

Core Hole Log: C-1

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No ground water encountered to the limit of excavation.	1-	C-2-1	█					ASPHALTIC CONCRETE (±4¾ inches).
								Dense CRUSHED ROCK (±14¼ inches), (GW); grey to brown, damp, 1-inch minus, (base rock).
	2-	SHC-2-2	█					Stiff, clayey SILT, (CL-ML); brown-grey, moist, medium plasticity, (alluvium).
	3-							BOTTOM OF CORE HOLE
	4-							
	5-							

Project No.: 2061108


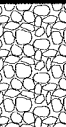

Surface Elevation: N/A

Date of Test Pit: January 10, 2007

Core Hole Log: C-2

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No ground water encountered to the limit of excavation.	1-	C-3-1	█					ASPHALTIC CONCRETE (±4 inches).
								Dense CRUSHED ROCK (±13 inches), (GW); grey, moist, 2-inch minus, (base rock).
	2-	C-3-2	█					Stiff, clayey SILT, (CL-ML); grey-brown, trace iron-staining, moist, medium plasticity, micaceous, (alluvium).
	3-							BOTTOM OF CORE HOLE
	4-							
	5-							

Project No.: 2061108


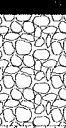
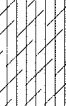
Surface Elevation: N/A

Date of Test Pit: January 10, 2007

Core Hole Log: C-3

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Slow seepage noted at ±1.5 feet.	1-	C-4-1	█					ASPHALTIC CONCRETE (±5½ inches).
								Dense CRUSHED ROCK (±13½ inches), (GW); grey, moist ±2-inch minus, (base rock).
	2-	SHC-4-2	█					Stiff, clayey SILT, (CL-ML); grey, moist, medium plasticity, (alluvium).
	3-							BOTTOM OF CORE HOLE
	4-							
	5-							

Project No.: 2061108



Surface Elevation: N/A

Date of Test Pit: January 10, 2007

Core Hole Log: C-4

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No ground water encountered to the limit of excavation.								ASPHALTIC CONCRETE (±5 inches).
	1-	C-5-1						Dense CRUSHED ROCK (±27 inches), (GW); grey, moist, ±2-inch minus, (base rock).
	2-							
	3-							BOTTOM OF CORE HOLE
	4-							
5-								

Project No.: 2061108



Surface Elevation: N/A

Date of Test Pit: January 10, 2007

Core Hole Log: C-5

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Moderate seepage noted at ±1.5 feet.	1-							Medium stiff, clayey SILT, (ML); dark brown, moist, low to medium plasticity, blocky structure, (topsoil).
	2-							Soft to medium stiff, clayey SILT, (CL-ML); light brown-grey, trace iron-staining, wet, medium plasticity, blocky structure, (alluvium).
	3-							BOTTOM OF PERMEABILITY TEST
	4-							
	5-							
	6-							
	7-							
	8-							

Project No.: 2061108

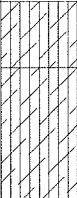

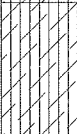


Surface Elevation: N/A

Date of Test Pit: January 9, 2007

Test Pit Log: P-1

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Moderate seepage noted at ±1.5 feet.	1-							Medium stiff, clayey SILT, (ML); dark brown, moist, low to medium plasticity, blocky structure, (topsoil).
	2-							Soft to medium stiff, clayey SILT, (CL-ML); brown-grey, trace iron-staining, wet, medium plasticity, blocky structure, (alluvium).
	3-	P-2-1						Stiff, clayey SILT, trace sand, (CL-ML); brown-grey, wet, medium plasticity, (alluvium).
	4-	P-2-2						BOTTOM OF PERMEABILITY TEST
	5-							
	6-							
	7-							
	8-							

Project No.: 2061108

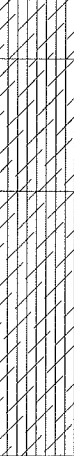
Surface Elevation: N/A

Date of Test Pit: January 9, 2007

Test Pit Log: P-2

Aurora State Airport Parallel Taxiway Relocation

Aurora, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Moderate seepage noted at ±1.5 feet.	1-							Medium stiff, clayey SILT, (ML); dark brown, moist, low to medium plasticity, blocky structure, (topsoil).
	2-							Soft to medium stiff, clayey SILT, (CL-ML); brown-grey, trace iron-staining, wet, medium plasticity, blocky structure, (alluvium).
	3-							Stiff, clayey SILT, trace sand, (CL-ML); wet, brown-grey, medium plasticity, (alluvium).
	4-							
	5-							
	6-							
	7-							
	8-							BOTTOM OF PERMEABILITY TEST

Project No.: 2061108

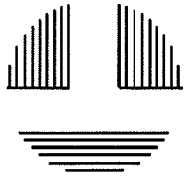
Test Pit Log: P-3

Surface Elevation: N/A

Aurora State Airport Parallel Taxiway Relocation

Date of Test Pit: January 9, 2007

Aurora, Oregon



Appendix C

Field and Laboratory Test Results

Table 1C. Summary of Field Permeability Testing

Test Location	Test Depth (feet)	Soil Description at Test Depth	Average k Value (cm/sec)
P-1	2.9	Medium stiff, brown-grey, medium plasticity, Clayey SILT (CL-ML)	$\pm 3 \times 10^{-7}$
P-2	5	Stiff, brown-grey, medium plasticity, Clayey SILT; trace sand (CL-ML)	$\pm 3 \times 10^{-7}$
P-3	7	Stiff, brown-grey, medium plasticity, Clayey SILT; trace sand (CL-ML)	$\pm 5 \times 10^{-7}$

Note: Tests were conducted on January 10 and 12, 2007.

Table 2C. Natural Water Content and Atterberg Limits

Sample Number	Sample Depth (feet)	Natural Water Content (percent)	LL	PL	PI	FAA/USCS Classification
S-1-1	2.0 – 3.0	33.0				
S-2-1	1.0 – 1.5	33.7				
S-2-2	2.0 – 3.0	30.3	44	26	17	CL-ML
S-2-3	3.5 – 4.0	47.8				
S-3-1	1.0 – 1.5	38.6				
S-3-2	3.5 – 4.0	38.8				
S-4-1	2.0 – 3.0	37.6				
S-5-1	2.0 – 2.5	42.7				
S-6-1	1.0 – 1.5	42.4				
S-6-2	2.0 – 4.0	33.8	42	29	13	ML
S-7-1	2.0 – 2.5	30.5				
S-8-1	2.0 – 3.0	38.1				
S-9-1	1.0 – 1.5	34.1				
S-9-2	2.5 – 3.5	36.4				
S-10-1	1.0 – 1.5	31.0				
S-10-2	3.0 – 3.5	39.7				
SHC-1-2	1.8 – 2.1	25.4				
SHC-2-2	1.7 – 2.2	27.7				
SHC-4-2	1.9 – 2.7	25.2	42	24	18	CL
C-3-2	1.5 – 1.8	29.6				

Table 3C. Summary of Previous and Recent Moisture-Density and CBR Test Results

Test Date	Location	Soil Description	FAA/JSCS Classification	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	CBR at 95% Relative Compaction
1999	Apron	Brown, silty CLAY	CL	100.0	21.0	5.8
2005	Runway	Grey, Clayey SILT; trace sand	ML-OL	100.5	20.0	6.1
2005	Runway	Brown-Grey SILT; some clay, trace sand	ML	103.5	19.0	5.5
2005	Runway	Brown-Grey SILT; some clay, trace sand	ML	98.0	23.0	5.5
2007	Taxiway	Brown-Grey SILT; some clay, trace sand	CL-ML	97.4	19.9	5.7
2007	Taxiway	Brown-Grey SILT; some clay, trace sand	ML	95.9	20.5	7.2
Average =				99.2	20.6	6.0

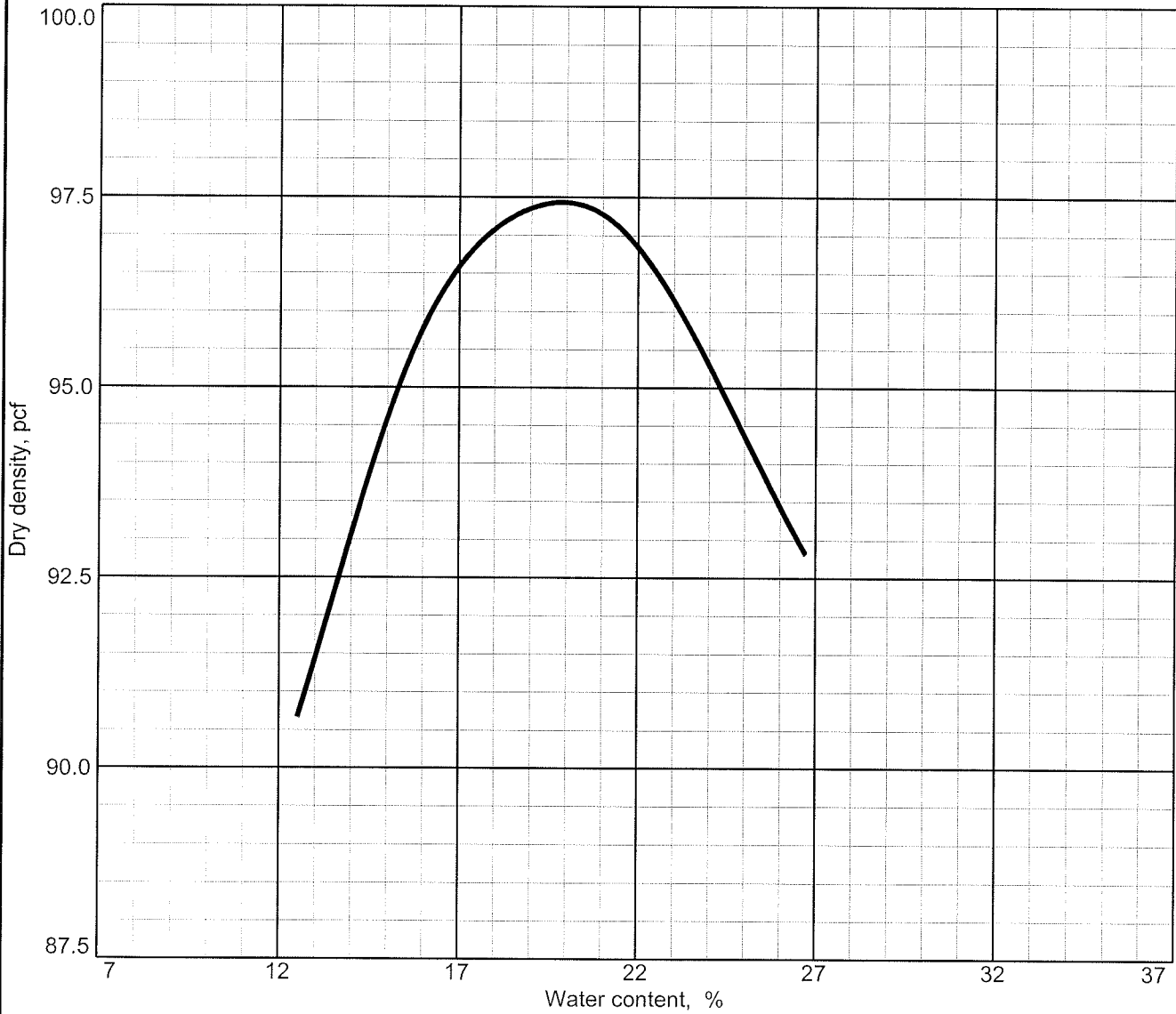
Note: Maximum dry densities and Optimum moisture contents are based on ASTM D698 moisture-density test results.

Table 4C. Bulk Densities

Sample Number	Sample Depth (feet)	Soil Description	Water Content (%)	Moist Bulk Density (pcf)	Dry Density (pcf)	Relative Compaction (%)
SHC-1-2	1.8 - 2.1	Grey, clayey SILT	25.4	124.8	99.4	100
SHC-2-2	1.7 - 2.2	Light brown, clayey SILT	27.7	117.0	91.6	94
SHC-4-2	1.9 - 2.7	Grey, clayey SILT	25.2	121.4	97.0	98

Note: Relative compaction is based on a maximum dry density of 99.2 pcf, which is based on the average results of six moisture-density tests (ASTM D698) on subgrade from Aurora Airport.

MOISTURE - DENSITY RELATIONSHIP TEST



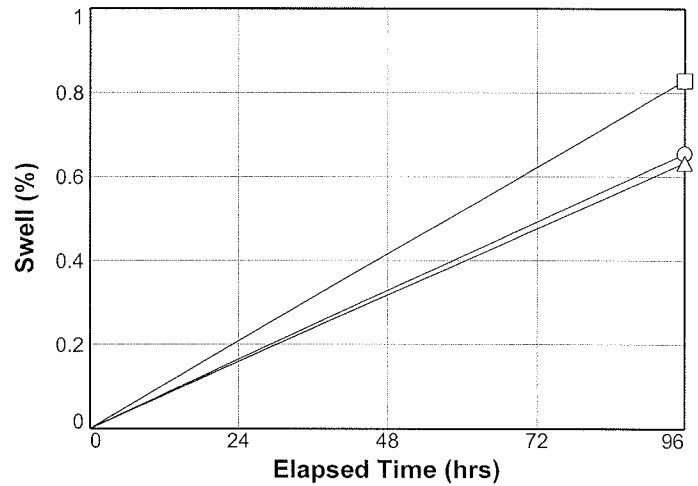
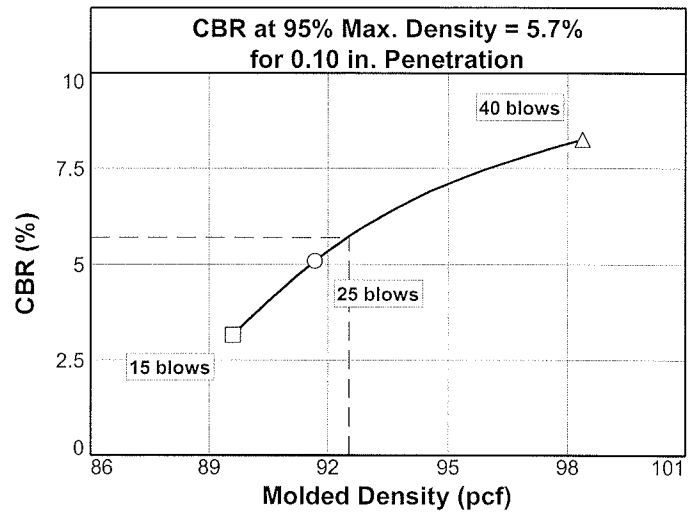
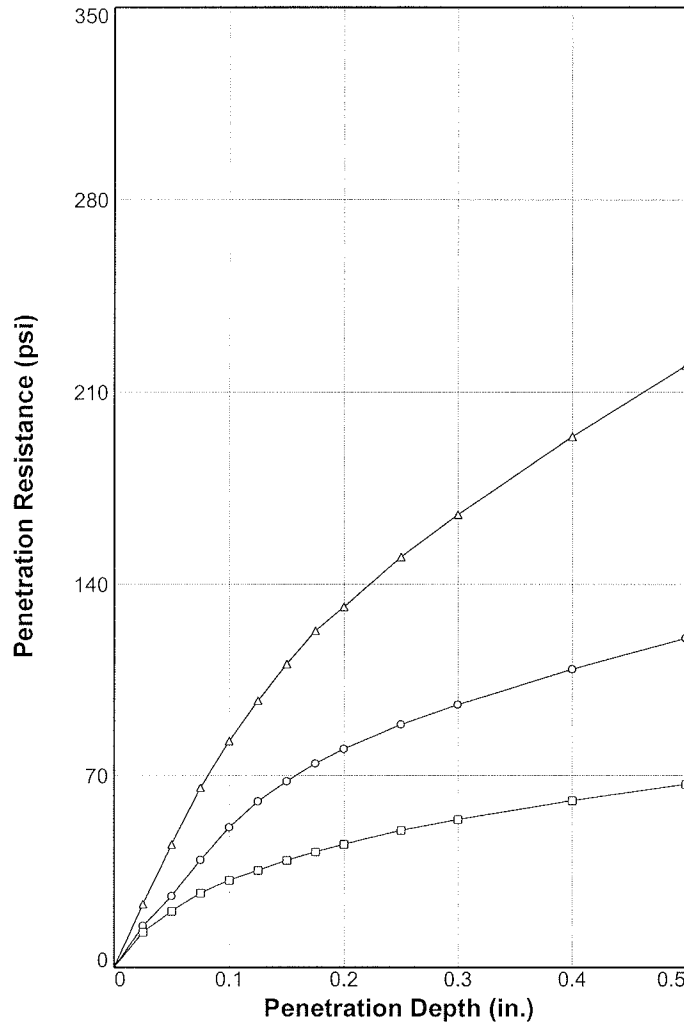
Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
2.0-3.0	CL-ML		30.3		44	18	0.0	24.2

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 97.4 pcf Optimum moisture = 19.9 %	Brown-grey SILT; some clay, trace sand
Project No. 2061108 Client: Foundation Engineering, Inc. Project: Aurora State Airport Taxiway; Aurora, Oregon ● Source: 3425 Sample No.: S-1-1/S-2-2 Elev./Depth: 2.0-3.0	Remarks: Date: 1-18-07
MOISTURE - DENSITY RELATIONSHIP TEST FEI Testing & Inspection, Inc. Corvallis, OR	

BEARING RATIO TEST REPORT

ASTM D 1883-99



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	91.7	94.1	19.6	91.1	93.5	30.2	5.1	5.3	0.000	32	0.7
2 △	98.4	101	18.7	97.8	100.4	28.2	8.3	8.8	0.000	32	0.6
3 □	89.6	92	19.0	88.9	91.2	30.8	3.2	3.0	0.000	32	0.8

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown-grey SILT; some clay, trace sand	CL-ML	97.4	19.9	44	18

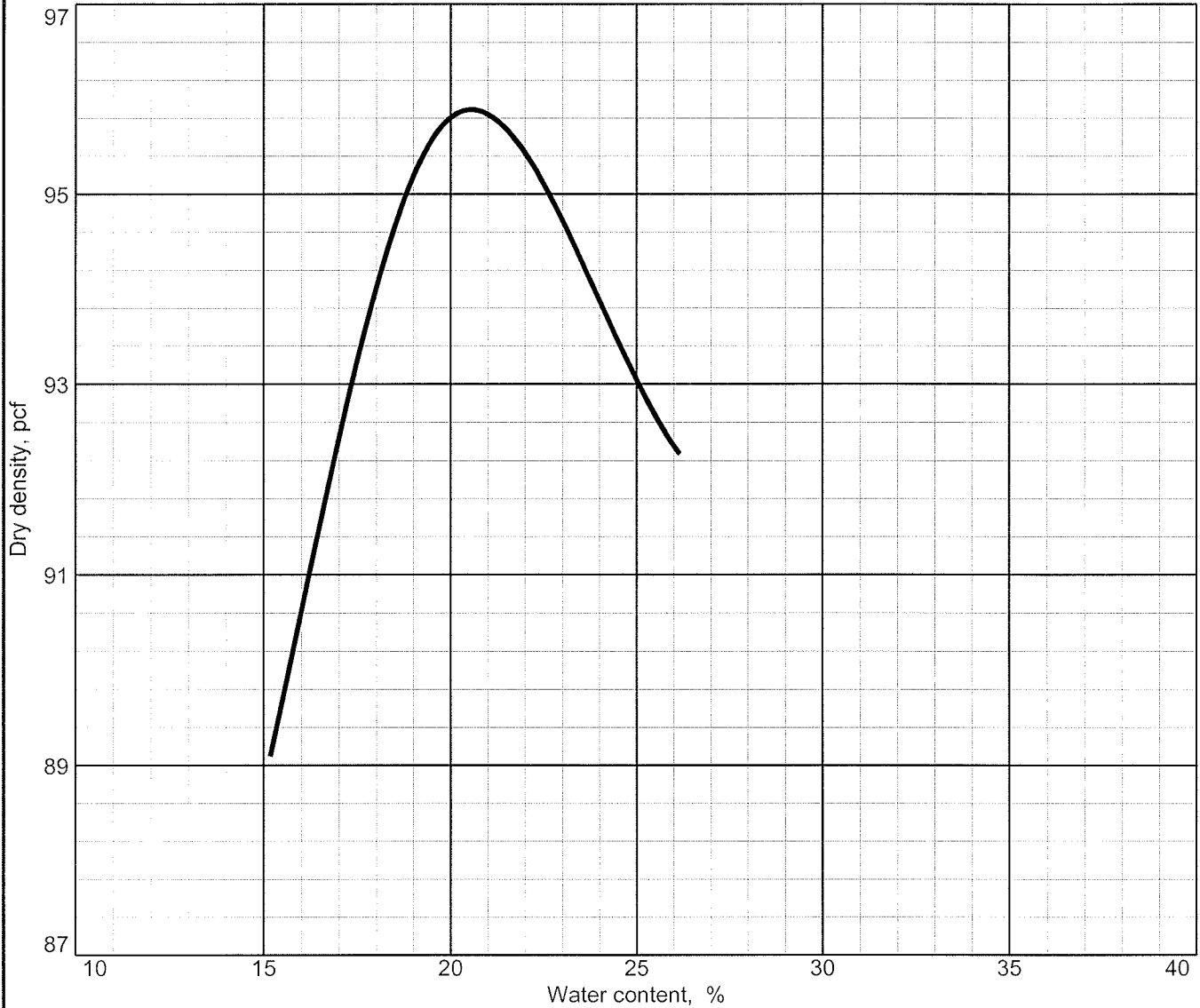
Project No: 2061108
Project: Aurora State Airport Taxiway; Aurora, Oregon
Source of Sample: 3425 **Depth:** 2.0-3.0
Sample Number: S-1-1/S-2-2
Date: 1-29-07

Test Description/Remarks:

BEARING RATIO TEST REPORT
 FEI Testing & Inspection, Inc.
 Corvallis, OR

Fig. No: 3C

MOISTURE - DENSITY RELATIONSHIP TEST



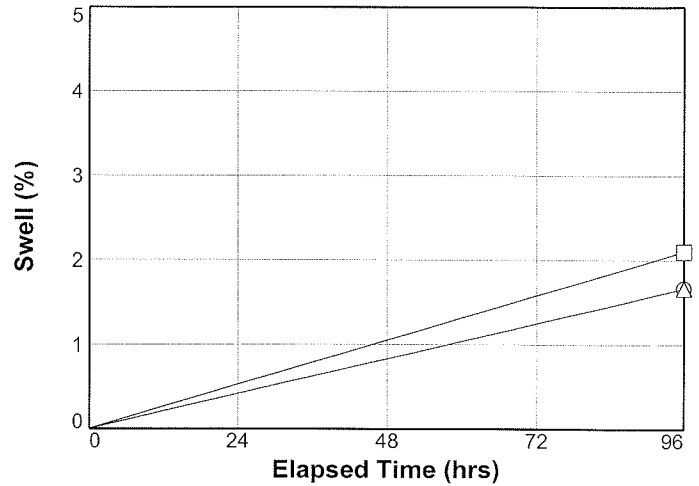
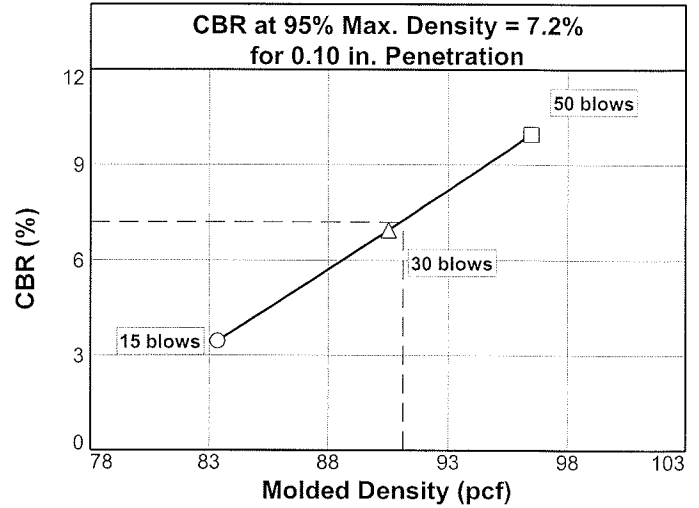
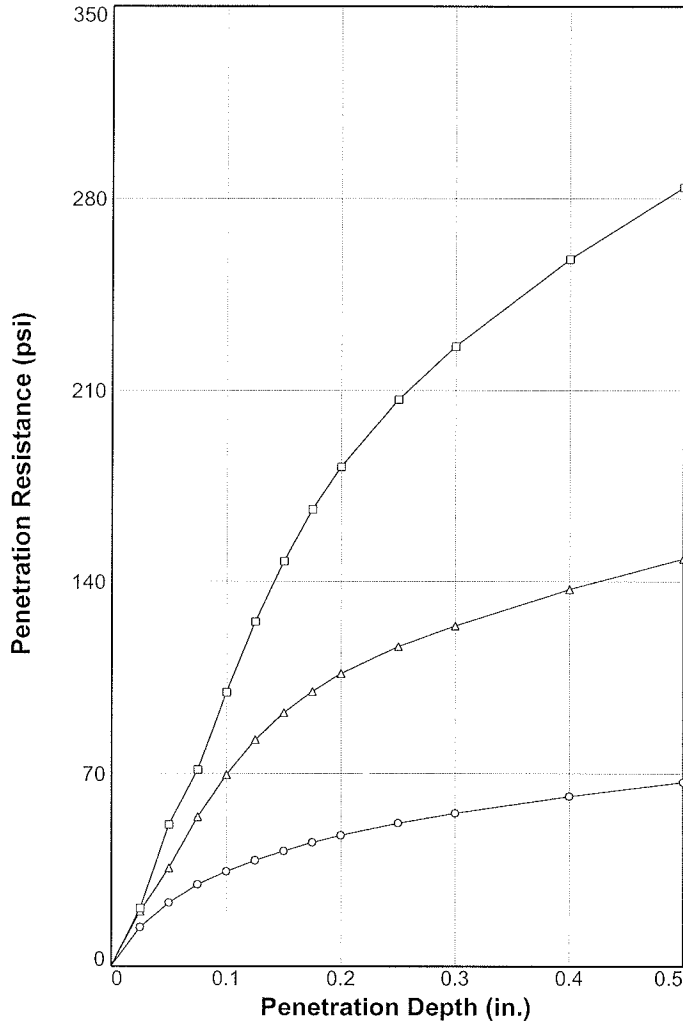
Test specification: ASTM D 698-00a Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
2.0-4.0	ML		33.8		42	13		

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 95.9 pcf Optimum moisture = 20.5 %	Brown-grey SILT; some clay, trace sand
Project No. 2061108 Client: Foundation Engineering, Inc. Project: Aurora State Airport Taxiway; Aurora, Oregon ● Source: 3425 Sample No.: S-6-2 Elev./Depth: 2.0-4.0	Remarks:
MOISTURE - DENSITY RELATIONSHIP TEST FEI Testing & Inspection, Inc. Corvallis, OR	

BEARING RATIO TEST REPORT

ASTM D 1883-99



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	83.4	87	20.2	82.0	85.5	35.0	3.4	3.2	0.000	32	1.7
2 △	90.5	94.4	19.1	89.0	92.8	32.2	6.9	7.1	0.000	32	1.7
3 □	96.5	100.6	19.4	94.5	98.5	29.7	10.0	12.1	0.000	32	2.1

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown-grey SILT; some clay, trace sand	ML	95.9	20.5	42	13

Project No: 2061108
Project: Aurora State Airport Taxiway; Aurora, Oregon
Source of Sample: 3425 **Depth:** 2.0-4.0
Sample Number: S-6-2
Date: 1-29-07

BEARING RATIO TEST REPORT
 FEI Testing & Inspection, Inc.
 Corvallis, OR

Test Description/Remarks:

Fig. No: 5C