- [x] City box number R-1
- [ ] Title/cover page w/the following info:
  - [ ] Company (author) name
  - [ ] Report Date
  - [ ] Project name
  - [ ] Company's job number
  - [ ] City DCLU project number (7-digit number)
  - [ ] City Permit number (6-digit number)
  - [ ] Kroll map index number (3-digit number, w?/E,W,N,S)
  - [x] Green label
  - [ ] Site address (may be on 1st or 2nd page of text)
- [ ] Executive Summary and associated figures
- [x] Table of Contents
- [x] Project Location Plan/Map or Vicinity Map
- [x] Site Plans, Boring Location Plans, or Exploration Plans
- [ ] Survey
- [ ] Geologic Maps
- [ ] Cross Sections/Subsurface Profiles
- [ ] Fill or Peat Thickness Maps and Contour Maps
- [x] Boring Logs
- [ ] Geology Text (if no logs)
- [x] Soil Classification Key/Boring Log Key
- [ ] Probe Logs
- [ ] Test Pit Logs
- [ ] Monitoring Well Logs
- [ ] Cone Penetrometer Logs
- [ ] Shear Wave Velocity Measurements
- [ ] Groundwater Maps
- [ ] GW Elevation Tables/Data
- [ ] Soils Lab Testing (Geotechnical) Summary Tables
  - [x] Grain Size Analyses/Hydrometer Analyses
  - [ ] Atterberg Limits
  - [ ] Strength tests: Triaxial, Unconfined, Direct Shear
  - [ ] Organic Content
  - [ ] ^{14}C or Radiocarbon Testing
  - [ ] Other_____
- [ ] Soil Chemical Analytical Testing Summary Tables
- [ ] Water/Groundwater Chemical Analytical Summary Tables
- [ ] Comments_____
- [ ] Date Copied 4/29 By LY

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GEOTECHNICAL REPORT

Olson's Northgate Market
Seattle, Washington

Project No. T-2158

Terra Associates, Inc.

Prepared for:

Supermarket Development Corporation
Seattle, Washington

004141000 SUPERMARKET DEV CORP 11100 ROOSEVELT WY NE
BUILDING ID'S 1 PROJECT NR: 9303484
D OF A SUPER MARKET AND FOUR ABANDONED SINGLE FAMILY JSC (LU) BEW (PS)
MU RESIDENCES. CN: 931027 LU: 931117
O PERMIT TO CONSTRUCT A MULTI-PURPOSE CONVIENENCE REV
OO STORE. REV
REV LO

November 24, 1992

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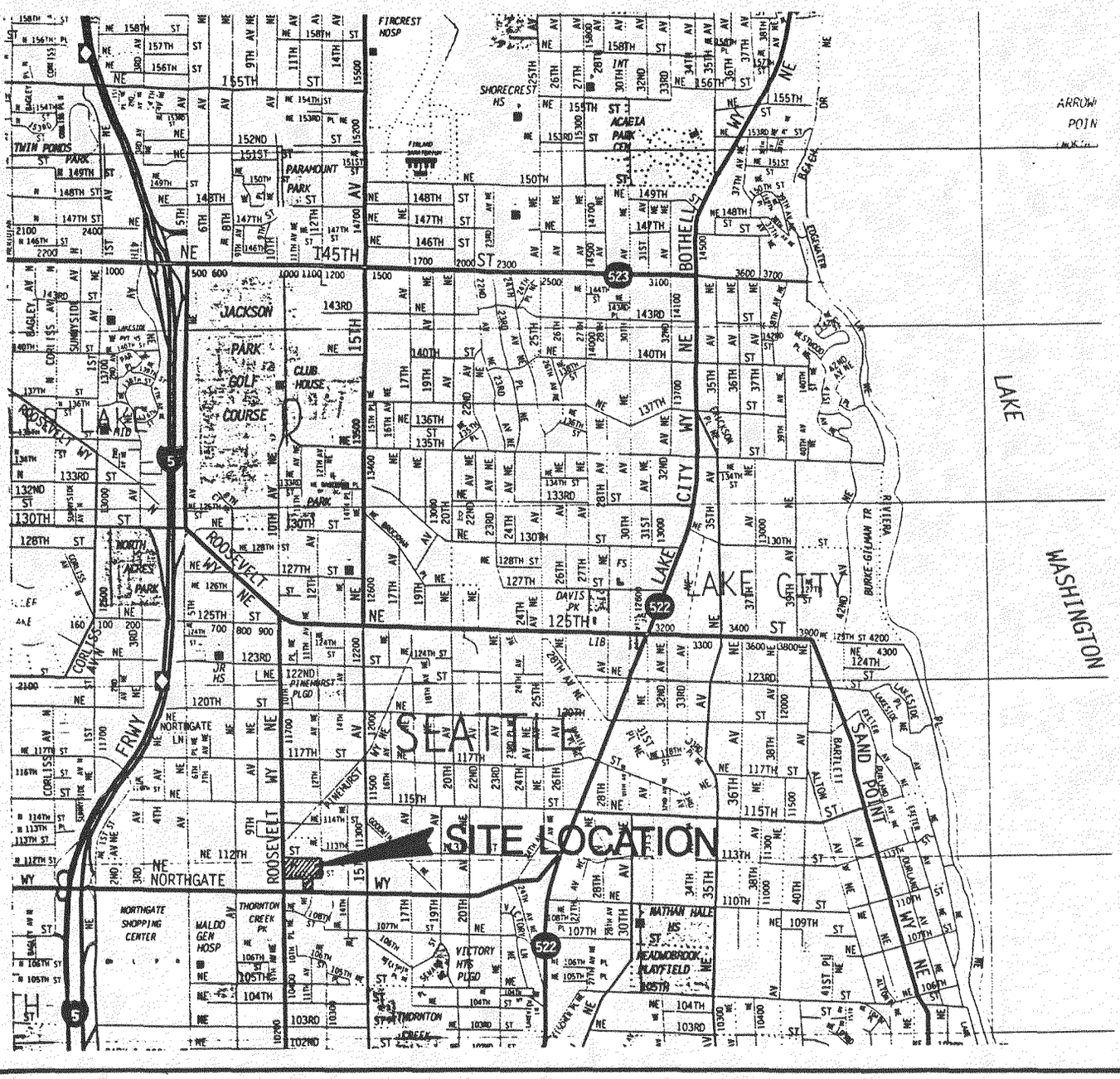

REF: Thomas Brothers' Maps, 1992.

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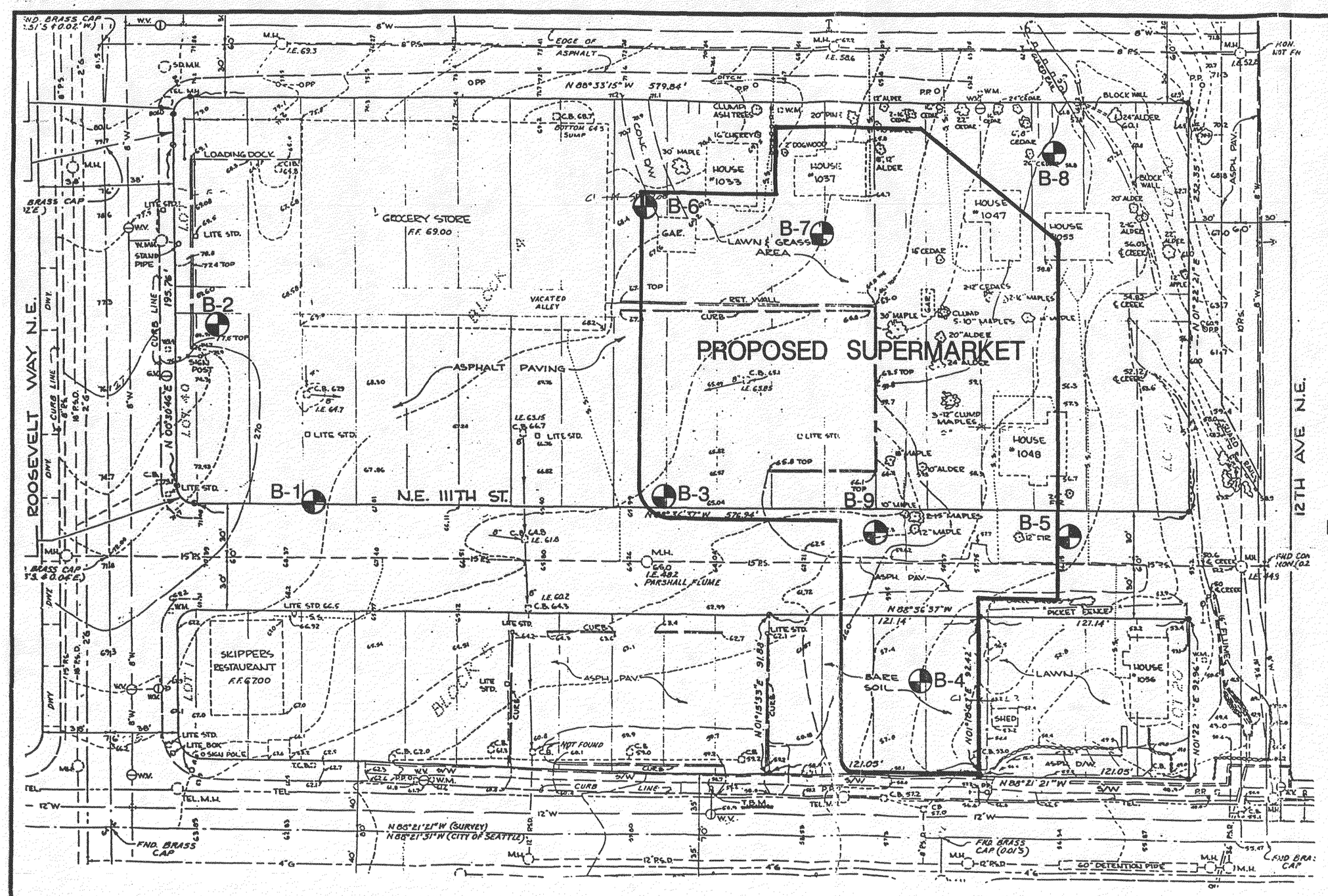
VICINITY MAP

Seattle, Washington

Proj. No. 2158	Date 10/92	Figure 1



LEGEND:

B-9 NUMBER AND APPROXIMATE LOCATION OF TEST BORING

SCALE:

0' 10' 25' 50' 100' 1"=60'

REFS: Topographic Survey by David Kehle, Architect, dated January 18, 1983, and Site Plans by The Dykeman Architects, dated August 14, 1992.

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EXPLORATION LOCATION PLAN

Seattle, Washington

Proj. No. 2158	Date 10/92	Figure 2

APPENDIX A
SUMMARY OF GEOTECHNICAL DESIGN INFORMATION

Depth of Existing Fill	2 to 6 feet
Depth of Suitable Bearing Soil	2 to 6 feet
Depth of Groundwater or Seepage Zone	Variable, see text and boring logs
Frost Depth	18 inches
Allowable Soil Bearing Capacity	4,000 psf
Estimated Settlement	
Total	1 inch
Differential	0.5 inches
Lateral Earth Pressures	
Restrained Wall	30 pcf Equivalent Fluid Pressure (EFP) + 100 psf uniform
Unrestrained Wall	30 pcf EFP
Lateral Loading Resistance	
Base Friction Coefficient	0.4
Passive Earth Pressure	350 pcf EFP
Pavement Section	
Light Traffic	2-inches AC over 4-inches CRB
Heavy Traffic	3-inches ATB over 6-inches CRB
SCS Grouping	
Classification	Alderwood
Hydrologic	C
Construction Dewatering Required	yes

REMARKS: **Please do not use the above summary without reviewing the report text. We advise you to read the entire report to obtain a full understanding of geotechnical design and construction recommendations.**

MAJOR DIVISIONS			LETTER SYMBOL	GRAPH SYMBOL	TYPICAL DESCRIPTION
COARSE GRAINED SOILS More than 50% material larger than No. 200 sieve size.	GRAVELS More than 50% of coarse fraction is larger than No. 4 sieve.	Clean Gravels (less than 5% fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines.
			GP		Poorly-graded gravels, gravel-sand mixtures, little or no fines.
		Gravels with fines	GM		Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC		Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS More than 50% of coarse fraction is smaller than No. 4 sieve.	Clean Sands (less than 5% fines)	SW		Well-graded sands, gravelly sands, little or no fines.
			SP		Poorly-graded sands or gravelly sands, little or no fines.
		Sands with fines	SM		Silty sands, sand-silt mixtures, non-plastic fines.
			SC		Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS More than 50% material smaller than No. 200 sieve size.	SILTS AND CLAYS Liquid limit is less than 50%		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL		Organic silts and organic clays of low plasticity.
	SILTS AND CLAYS Liquid limit is greater than 50%		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic.
			CH		Inorganic clays of high plasticity, fat clays.
			OH		Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			PT		Peat and other highly organic soils.

DEFINITION OF TERMS AND SYMBOLS

SAND or GRAVEL

Density	Standard Penetration Resistance in Blows/Foot
Very loose	0-4
Loose	4-10
Medium dense	10-30
Dense	30-50
Very dense	>50

SILT or CLAY

Density	Standard Penetration Resistance in Blows/Foot
Very soft	0-2
Soft	2-4
Medium stiff	4-8
Stiff	8-16
Very stiff	16-32
Hard	>32

I	2" OUTSIDE DIAMETER SPLIT SPOON SAMPLER
I	2.4" INSIDE DIAMETER RING SAMPLER OR SHELBY TUBE SAMPLER
P	SAMPLER PUSHED
*	SAMPLE NOT RECOVERED
▽	WATER LEVEL (DATE)
⊡	WATER OBSERVATION STANDPIPE
C	TORVANE READINGS, tsf
q_u	PENETROMETER READING, tsf
W	MOISTURE, percent of dry weight
pcf	DRY DENSITY, pounds per cubic foot
LL	LIQUID LIMIT, percent
PI	PLASTIC INDEX
N	STANDARD PENETRATION, blows per foot

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SOIL CLASSIFICATION SYSTEM
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B1

Boring No. B-1

Logged by: DHG

Date: 10-6-92

Approximate Elev.: 268

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	(2.5 inches of Asphalt Pavement) Brown, silty SAND with organics, wet. (Fill)	Loose				55		
SM	Tan to gray, silty SAND with trace gravel, wet to moist.	Medium dense			15	14		
		very dense	5		52/6"	8		

Boring completed at 5 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B2

Boring No. B-2

Logged by: DHG

Date: 10-6-92

Approximate Elev.: 269

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	(2.5 inches of Asphalt Pavement) Brown, silty SAND, with organics, wet. (Fill)	loose						
SM	Gray, silty SAND with gravel, moist.	very dense			56	9		
SP SM	Gray, SAND with silt, wet.	very dense	5		70	14		

Boring completed to 5.5 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B3

Boring No. B-3

Logged by: DHG

Date: 10-6-92

Approximate Elev.: 266

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	(2.5 inches of Asphalt pavement) Brown, silty SAND, wet. (Fill)	loose						
SM	Gray, silty SAND with trace gravel.	dense			32	10		
			5		86/10"	9		
		very dense			50/4"	8		
		very dense	10					
SP	Gray, clean SAND, wet.	very dense			83/11"	9		
			15					
SM	Gray, silty SAND with gravel, wet.	very dense			50/6"	11		

Boring terminated to 18.5 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B4

Boring No. B-4

Logged by: DHG

Date: 10-6-92

Approximate Elev.: 256

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)
SM	Brown, silty SAND with gravel, organics, asphalt and concrete debris, wet to moist. (Fill)	medium dense			27	10
			5			
SM	Tan to gray, mottled, silty SAND with trace gravel, damp to moist.	very dense			84	5
			10			
SM	Tan, silty SAND, wet.	very dense			51	12
			15			
SM	Gray, silty SAND with gravel, moist.	very dense			50/4"	9

Boring completed to 18 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B5

Boring No. B-5

Logged by: DHG

Date: 10-7-92

Approximate Elev.: 256

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)
SM	Tan, silty SAND, wet.	Loose				
					24	12
		Medium dense				
			5			
SM	Gray, silty SAND with trace gravel.	Very dense				
					70	9
			10			
		Very dense				
					50/5"	11
			15			
		Very Dense			50/4"	10

Boring terminated at 18.5 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B6

Boring No. B-6

Logged by: DHG

Date: 10-7-92

Approximate Elev.: 269

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	Brown, silty SAND, with trace gravel and organics, moist to wet.	Medium dense			13	14		
	(Fill)	Loose	5		21	14		
SM	Brown to gray, silty SAND with gravel.	Medium dense						
		Dense			45	10		
			10					
		Very dense			50/3"	10		
			15					
		Very dense			50/4"	9		

Boring completed to 18 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158 | Date 10/92 | Figure B7

Boring No. B-7

Logged by: DHG

Date: 10-7-92

Approximate Elev.: 266

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)
—	Brown, organic, silty SAND, wet.	Medium dense.				
SM	Tan to gray, silty SAND with trace gravel, wet.	dense			47	12
			5			
		dense			31	12
			10			
SM/ML	Gray, SAND with silt, trace gravel, wet.	very dense			50/4"	12
			15			
SM	Gray, silty SAND with gravel, wet to moist.	very dense			88/11"	13
			20			
		very dense			50/3"	7
			25			
ML	Gray, SILT with sand, damp.	very dense			50/4"	14

Boring completed to 28 feet.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B8

Boring No. B-8

Logged by: DHG

Date: 10-7-92

Approximate Elev.: 259

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	Brown, silty SAND with organics, wet.	Very loose			3	19		
			5					
SM	Gray, silty SAND with gravel, wet.	Very dense			56	12		
			10					
		Very dense			50/5"	10		
			15					
		Very dense			92/9"	14		

Boring completed to 19 feet.
Standpipe installed.
Groundwater at depth of 2 feet on 11-10-92.

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Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B9

Boring No. B-9

Logged by: DHG

Date: 10-7-92

Approximate Elev.: 262

Graph/ USCS	Soil Description	Consistency	Depth (ft.)	Sample	(N) Blows (ft)	Water Content (%)		
SM	Light tan, silty SAND with trace gravel, dry to damp.	Dense			30	5		
			5					
	Becomes gray, wet.	Very dense			50/4"	8		
			10					
		Very dense			50/6"	13		
			15					
SP/SM	Gray, fine to medium, SAND with trace silt, wet.	Very dense			50/5"	13		
			20					
SM	Gray, silty SAND, wet.	Very dense			50/5"	10		

Boring completed to 23 feet.
Standpipe installed.
Groundwater at a depth of 6.5 feet on 11-10-92.

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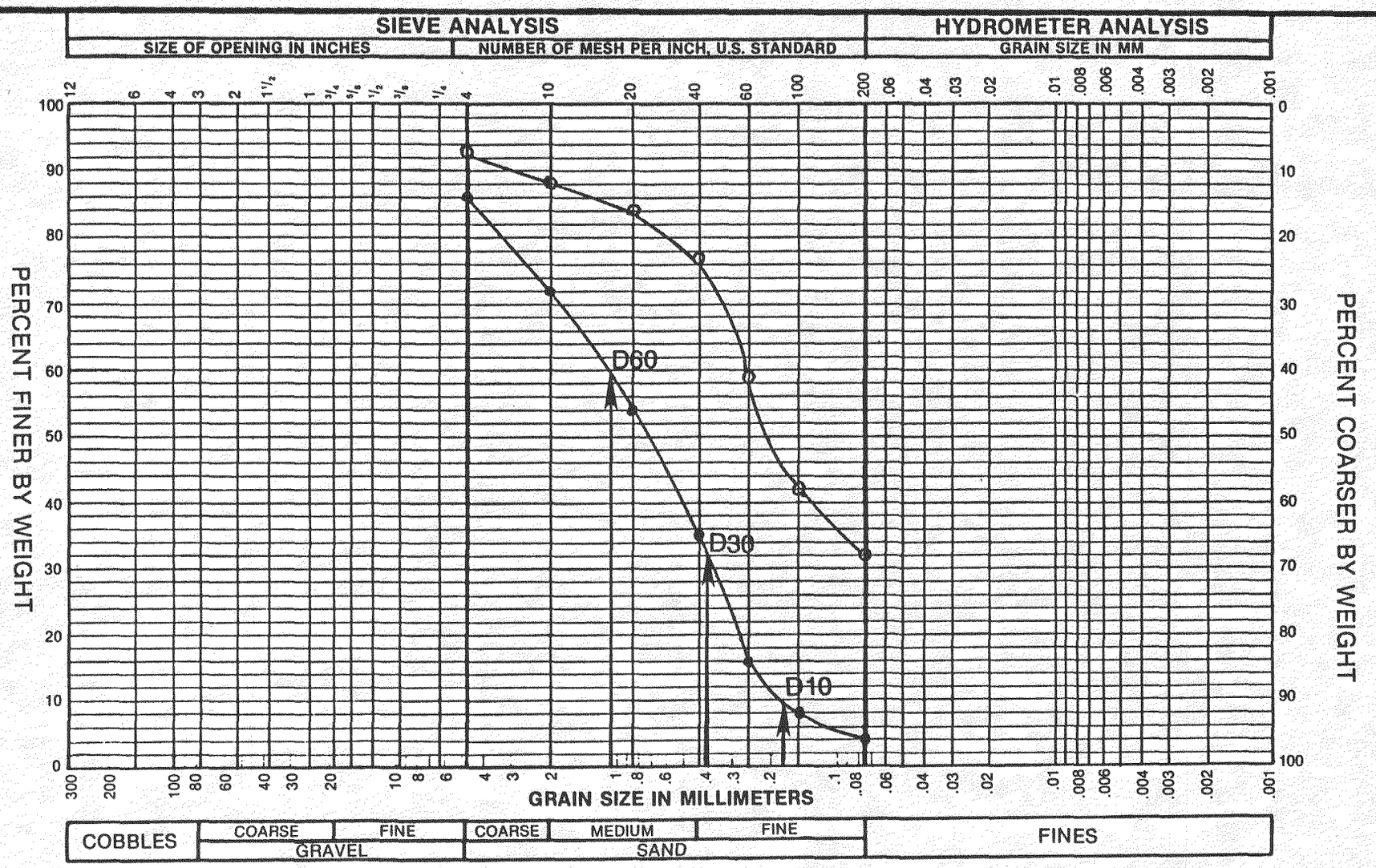
Boring Log
Olson's Northgate Market
Seattle, Washington

Proj. No. T-2158	Date 10/92	Figure B10



Key	Boring or Test Pit	Depth (ft.)	USCS	Description	Moisture Content (%)	LL	PL
—●—	B-3	12.5	SP	clean medium to fine SAND, some gravel	9		
—○—	B-4	12.5	SM	silty fine SAND, trace gravel	12		

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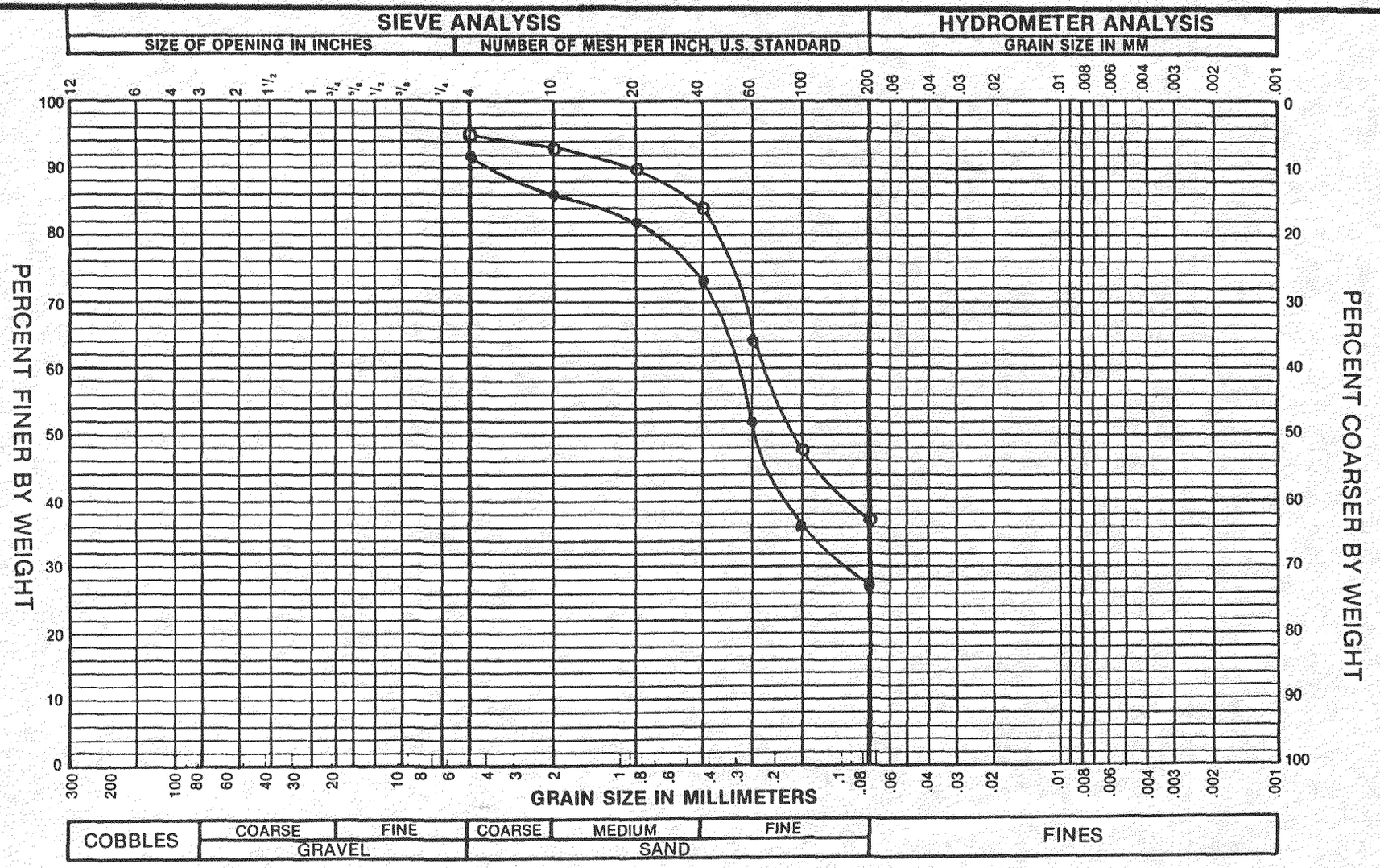
GRAIN SIZE ANALYSIS
Olson's Northgate Market
Seattle, WA

Proj. No. T 2158 | Date 11/92 | Figure B11



Key	Boring or Test Pit	Depth (ft.)	USCS	Description	Moisture Content (%)	LL	PL
—●—	B-5	12.5	SM	silty fine SAND, trace of gravel	11		
—○—	B-7	7.5	SM	silty fine SAND, trace of gravel	12		

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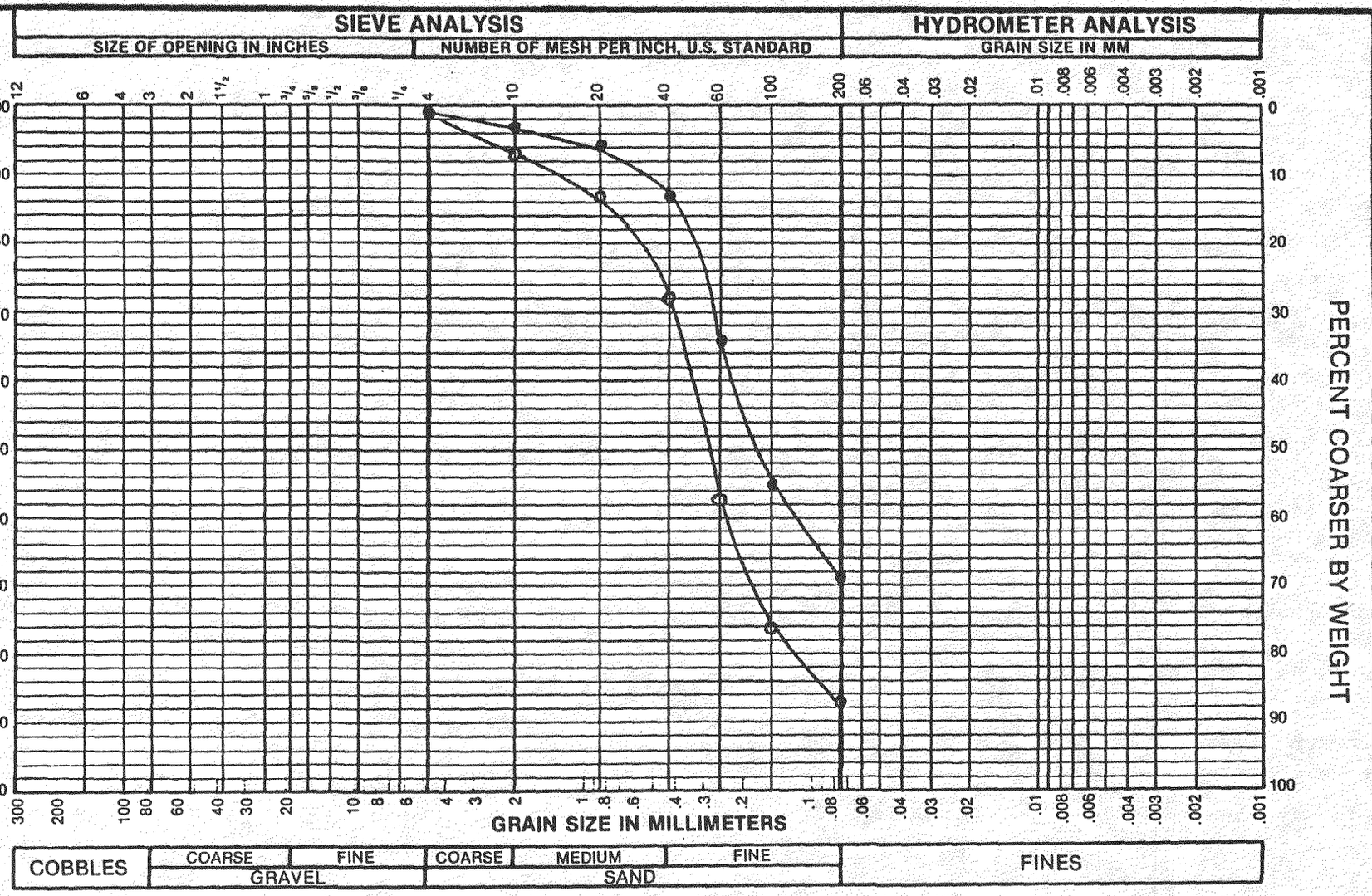
GRAIN SIZE ANALYSIS
Olson's Northgate Market
Seattle, WA

Proj. No. T 2158 | Date 11/92 | Figure B12



Key	Boring or Test Pit	Depth (ft.)	USCS	Description	Moisture Content (%)	LL	PL
—●—	B-9	12.5	SM	silty fine SAND	13		
—○—	B-9	17.5	SM	silty fine to medium SAND	13		

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GRAIN SIZE ANALYSIS
Olson's Northgate Market
Seattle, WA

Proj. No. T 2158 | Date 11/92 | Figure B13