SIMMONDS

OSWEGO

STATE UNIVERSITY OF NEW YORK

PARKING AREA STUDY

WEST CAMPUS
NORTH OF SENECA HALL/
SOUTH OF ONEIDA HALL

MAY 2003

Foit-Albert Associates, P.C.
435 New Karner Road
Albany, New York 12205
FA Project No. 03580.00

Contact:
Thomas Simmonds
Facilities Design and Construction
Oswego State University
165 Wilber Hall
Oswego, New York 13126
(315) 312-6600

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Appendices

Introduction

This study examines the feasibility of constructing a new parking facility (200± spaces) on the west side of the Oswego State University (OSU) campus (see Appendix A), on one of two (2) potential sites.

- Potential lot location #1 is located in the area north of Seneca Hall, bounded by Rudolph Road and the inlet/outlet for Glimmerglass Lagoon to Lake Ontario.
- Potential lot location #2 is located south of Oneida Hall, bounded by Iroquois Trail and Pathfinder Road

Two (2) alternatives are provided for Potential Lot Location #2 due to its original boundaries for that location does not allow for the required number of spaces. An expanded option is provided to obtain the required number of spaces.

This report defines the scope of the study, data collected, concepts of alternatives, pros and cons of each alternative, probable construction estimates and site recommendation.

Scope

- Obtain existing base plans from the campus or the Fund.
- Develop conceptual layouts of the new parking area and access road for two (2) potential sites.
- Obtain pertinent geotechnical information/recommendations about each potential site through four (4) total soil borings.
- Develop probable grade of parking area and access road for each alternative.
- Determine appropriate drainage system, lot foundations and pavement structure for each alternative.
- Develop probable construction estimate for each alternative.
- Present the pro and cons of each alternative.
- Make recommendation for preferred alternative based on engineering evaluation.

Data

Base plans used in this report were developed from campus topography quadrangles dated March 1969 and modified as per information obtained from OSU.

Pertinent physical site characteristics were observed and recorded during a site visit on 5/9/03. Photos were taken at both potential lot locations.

Soil borings, soil analysis and geotechnical recommendations were provided by Dente Engineering (see Appendix D for full report).

Alternatives

Looking South from Rudolph Rd.

Lot Location #1 (see Appendix B):

Location:	North of Seneca Hall
Lot Capacity:	212 Spaces total (6 handicap accessible)
Lot Dimensions:	Approx. 355ft.(L) by 192ft.(W) (69,800s.f.)
Vehicle Access:	Single access road (142ft.(L), 24ft.(W))
Pedestrian Access:	2 or 3 paved access points
Lot Foundation:	Select granular subgrade (where required, see geotechnical report - Appendix D)
Pavement Structure:	Access road - 16" Subbase course, 8½" Asphalt Parking lot – 8" Subbase course, 7½ Asphalt
Curbs:	5"x16" Granite, Type A
Drainage:	Curb breaks and stone swales along east side of lot, for surface runoff into Glimmerglass Lagoon (underdrains may be required)

Looking North from Basketball Court

Alternatives (Continued)

Looking West from Pathfinder Rd.

Lot Location #2 (see Appendix B):

Location:	South of Oneida Hall
Lot Capacity:	154 Spaces total (6 handicap accessible) **197 Spaces total (6 handicap accessible) – expanded option**
Lot Dimensions:	Approx. 357ft.(L) by 180ft.(W) (56,400s.f.) **+Approx. 189ft.(L) by 67ft.(W) (14,000s.f.) – expanded option (70,400s.f. total)**
Vehicle Access:	Single access point, off Pathfinder Road (24ft. wide) **Two access points (24ft. wide) – expanded option**
Pedestrian Access:	2 or 3 paved access points
Lot Foundation:	Select granular subgrade (where required, see geotechnical report - Appendix D)
Pavement Structure:	Access road - 16" Subbase course, 8½" Asphalt Parking lot – 8" Subbase course, 7½" Asphalt
Curbs:	5"x16" Granite, Type A
Drainage:	Closed system of pipes and catch basins (underdrains may be required)

Looking North (expanded area)

Looking South (int. of P.R. & I.T.)

Pros and Cons

Lot Location #1

Pros:

- Simple geometry allows easy snow clearing and has several areas for snow storage.
- Centralized location allows multi-purpose use (i.e. resident, commuter, theater events, special events, etc.).
- Does not require closed drainage system (little or no maintenance).
- Site lends itself to future expansion.

Cons:

- Sloped site requires a moderate amount of fill for construction.
- Several important utilities (i.e. water main, gas main, steam Tunnel, etc.) run through the site.
- Site is naturally wet.
- Utilizes site suitable for other uses (i.e. academic activities, construction staging, etc.).

Lot Location #2

Pros:

- Relatively flat terrain, no large cut/fill quantities are required.
- In close proximity to most of the residence halls being served.

Cons:

- Complex geometry does not promote easy snow removal and has no adjacent snow storage areas.
- Located farther from the academic center of campus, it will only serve as resident parking (single-use).
- Several important utilities (i.e. power main, communications, security, etc.) run through the site.
- Site is low lying and naturally wet.

Probable Construction Costs

Lot Location #1 = $499,000 (see Appendix C for detailed estimate)

Lot Location #2 = $373,000 (see Appendix C for detailed estimate)

Lot Location #2 *(Expanded Option)* = $478,000 (see Appendix C for detailed estimate)

Conclusion

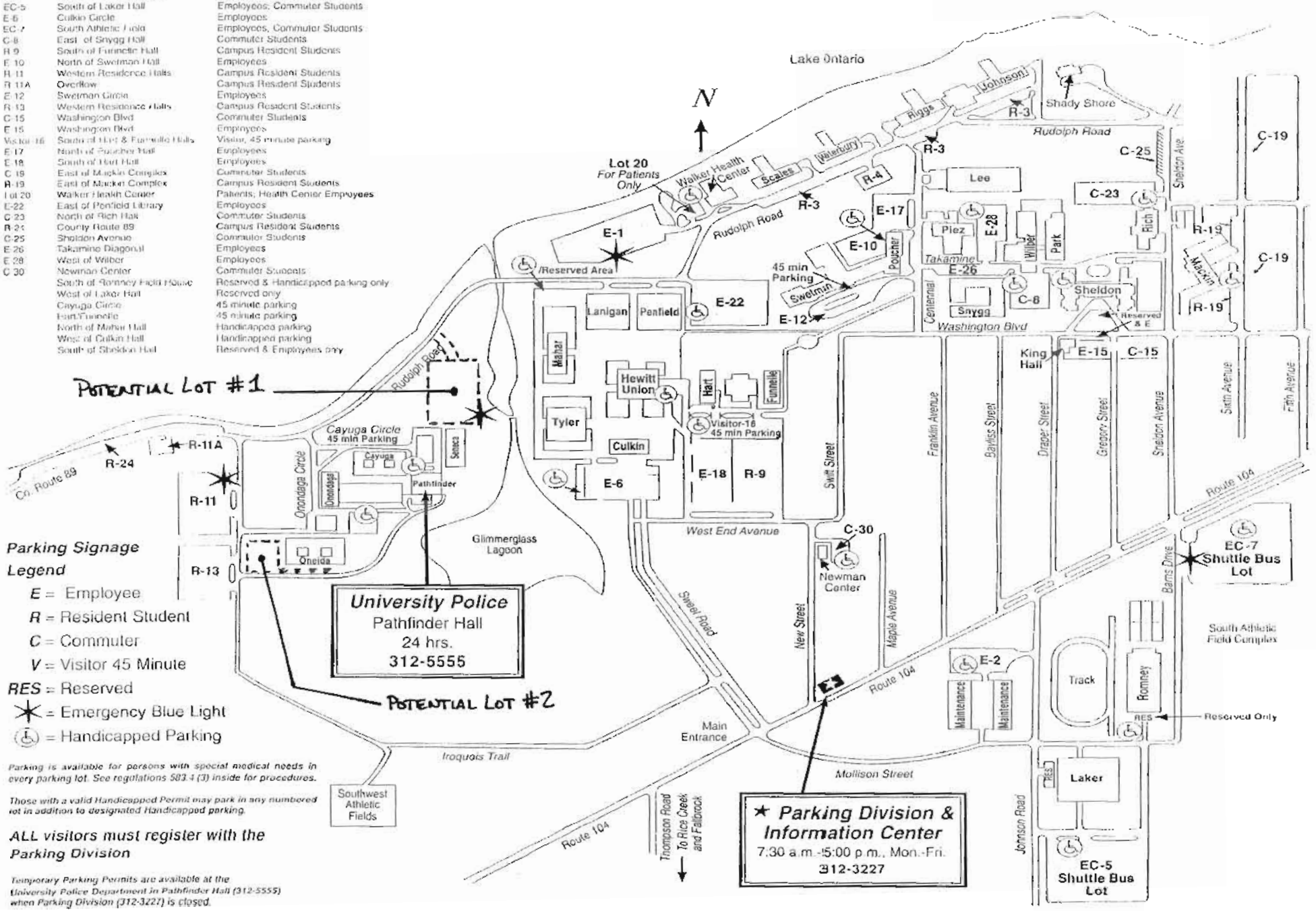
While both potential lot locations have the ability to meet the requirements established in this study, Foit-Albert (FA) recommends Potential Lot Location #1. The centralized location, the ability to provide parking for a variety of functions, and room for additional growth makes this location the ideal choice. We believe that, even though the site is naturally damp and has sloping terrain, it will accommodate a simple site layout, relatively moderate constructability and ease of maintenance.

APPENDIX A
Campus Map

State University of New York at Oswego

Keep this map as a reference to use with parking signage!

lo.	[illegible]	nated horiz	ng by
E-1	West of Walker Health Center	Employees	
E-2	Maintenance Complex	Employees	
R-3	Rudolph Road - Lakeside	Campus Resident Students	
R-4	Lakefront Tennis Courts	Campus Resident Students	
EC-5	South of Laker Hall	Employees; Commuter Students	
E-6	Culkin Circle	Employees	
EC-7	South Athletic Field	Employees, Commuter Students	
C-8	East of Snygg Hall	Commuter Students	
R-9	South of Funnelle Hall	Campus Resident Students	
E-10	North of Swetman Hall	Employees	
R-11	Western Residence Halls	Campus Resident Students	
R-11A	Overflow	Campus Resident Students	
E-12	Swetman Circle	Employees	
R-13	Western Residence Halls	Campus Resident Students	
C-15	Washington Blvd	Commuter Students	
E-15	Washington Blvd	Employees	
Visitor-16	South of Hart & Funnelle Halls	Visitor, 45 minute parking	
E-17	North of Poucher Hall	Employees	
E-18	South of Hart Hall	Employees	
C-19	East of Mackin Complex	Commuter Students	
R-19	East of Mackin Complex	Campus Resident Students	
Lot 20	Walker Health Center	Patients; Health Center Employees	
E-22	East of Penfield Library	Employees	
C-23	North of Rich Hall	Commuter Students	
R-24	County Route 89	Campus Resident Students	
C-25	Sheldon Avenue	Commuter Students	
E-26	Takamine Diagonal	Employees	
E-28	West of Wilber	Employees	
C-30	Newman Center	Commuter Students	
	South of Romney Field House	Reserved & Handicapped parking only	
	West of Laker Hall	Reserved only	
	Cayuga Circle	45 minute parking	
	Hart/Funnelle	45 minute parking	
	North of Mahar Hall	Handicapped parking	
	West of Culkin Hall	Handicapped parking	
	South of Sheldon Hall	Reserved & Employees only	



Parking Signage Legend

- *E* = Employee
- *R* = Resident Student
- *C* = Commuter
- *V* = Visitor 45 Minute
- *RES* = Reserved
- ✶ = Emergency Blue Light
- ♿ = Handicapped Parking

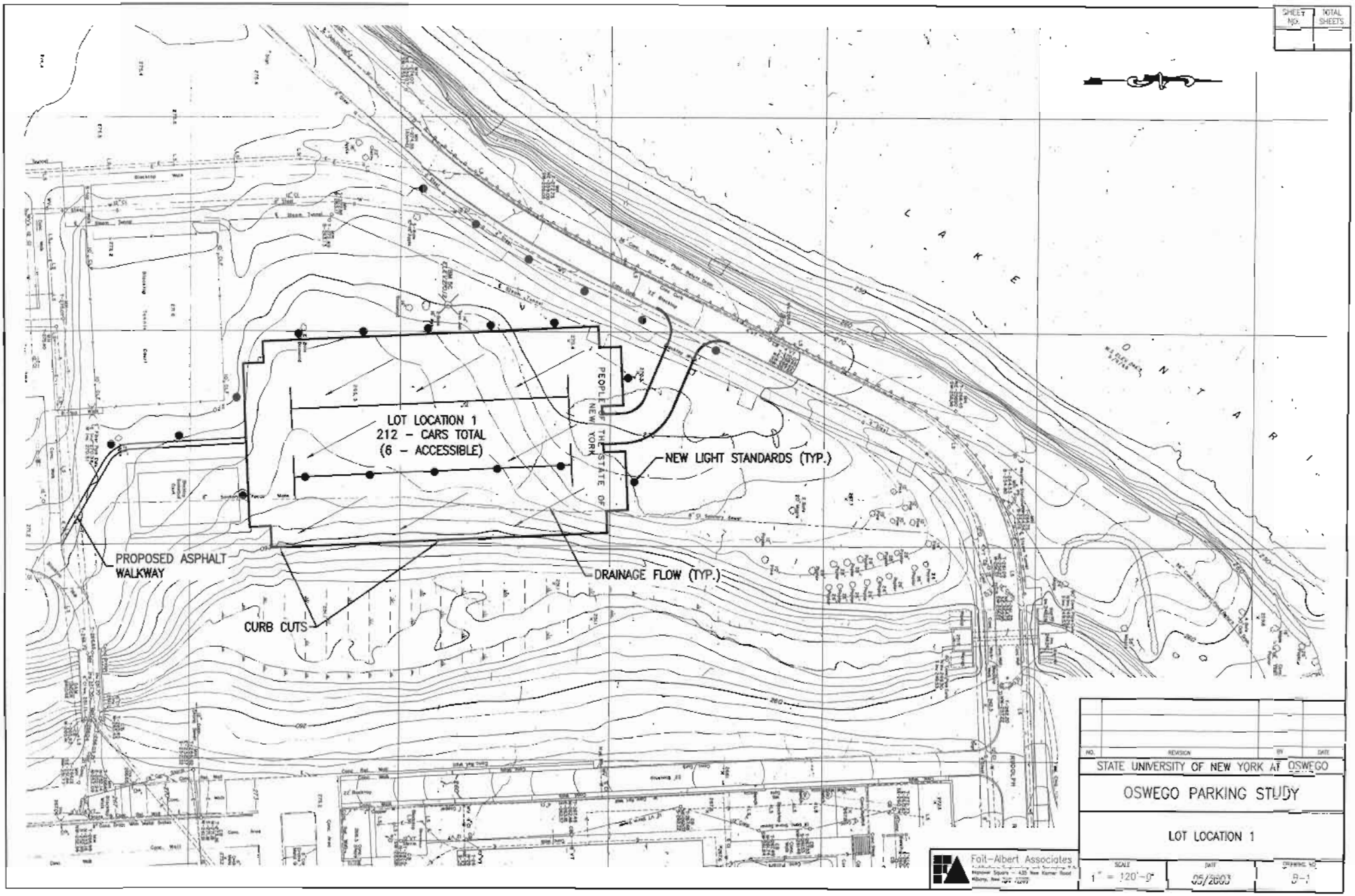
Parking is available for persons with special medical needs in every parking lot. See regulations 583.4 (3) inside for procedures.

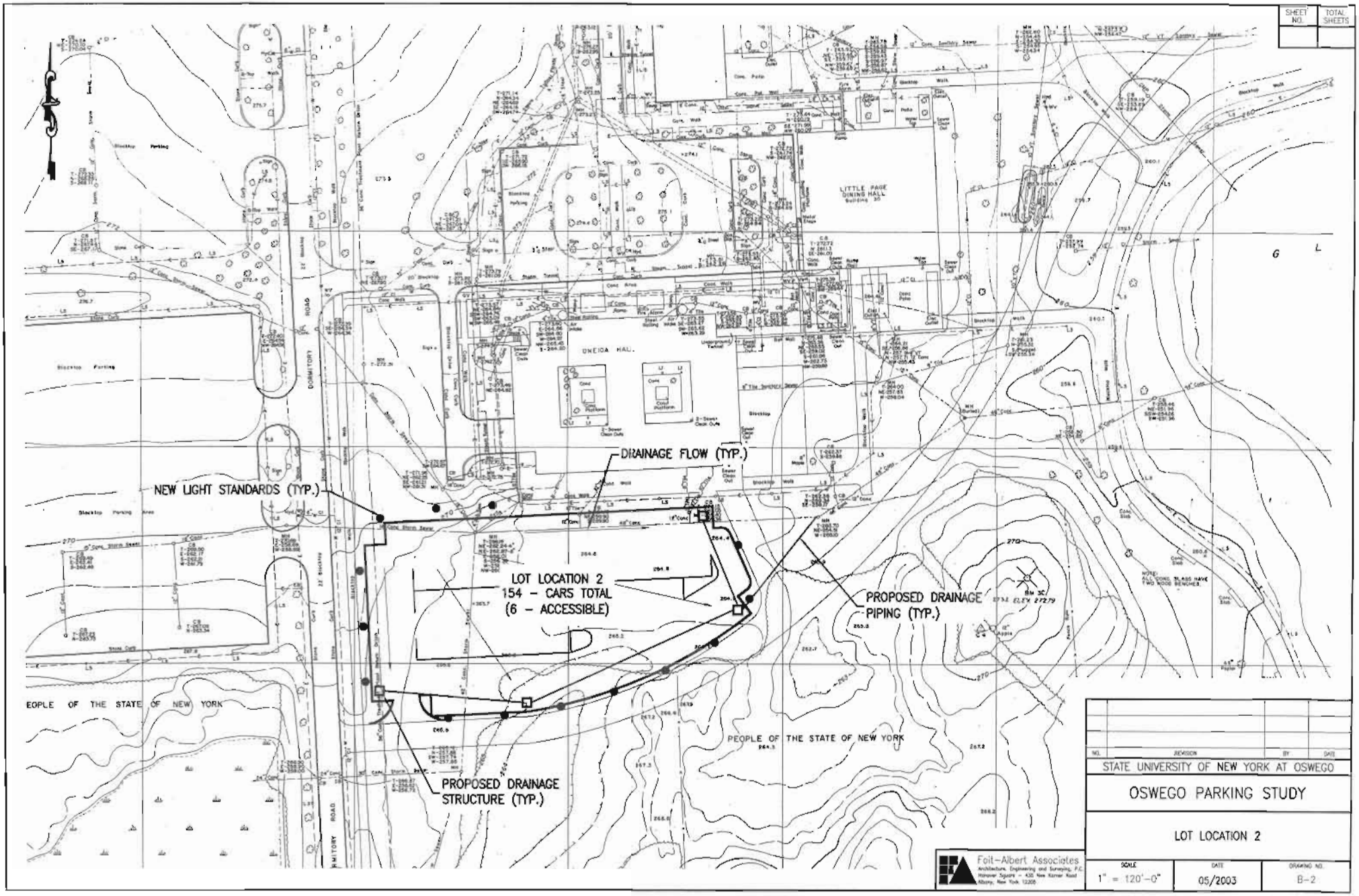
Those with a valid Handicapped Permit may park in any numbered lot in addition to designated Handicapped parking.

ALL visitors must register with the Parking Division

Temporary Parking Permits are available at the University Police Department in Pathfinder Hall (312-5555) when Parking Division (312-3227) is closed.

APPENDIX B
Site Plan Alternatives


LOT LOCATION 1
212 - CARS TOTAL
(6 - ACCESSIBLE)
PEOPLE OF THE STATE OF NEW YORK
NEW LIGHT STANDARDS (TYP.)
PROPOSED ASPHALT WALKWAY
DRAINAGE FLOW (TYP.)
CURB CUTS
LAKE ONTARIO
SHEET NO.
TOTAL SHEETS
NO. REVISION BY DATE
STATE UNIVERSITY OF NEW YORK AT OSWEGO
OSWEGO PARKING STUDY
LOT LOCATION 1
Fait-Albert Associates
SCALE
1" = 120'-0"
DATE
05/2003
DRAWING NO.
P-1



SHEET NO.	TOTAL SHEETS

NO.	REVISION	BY	DATE

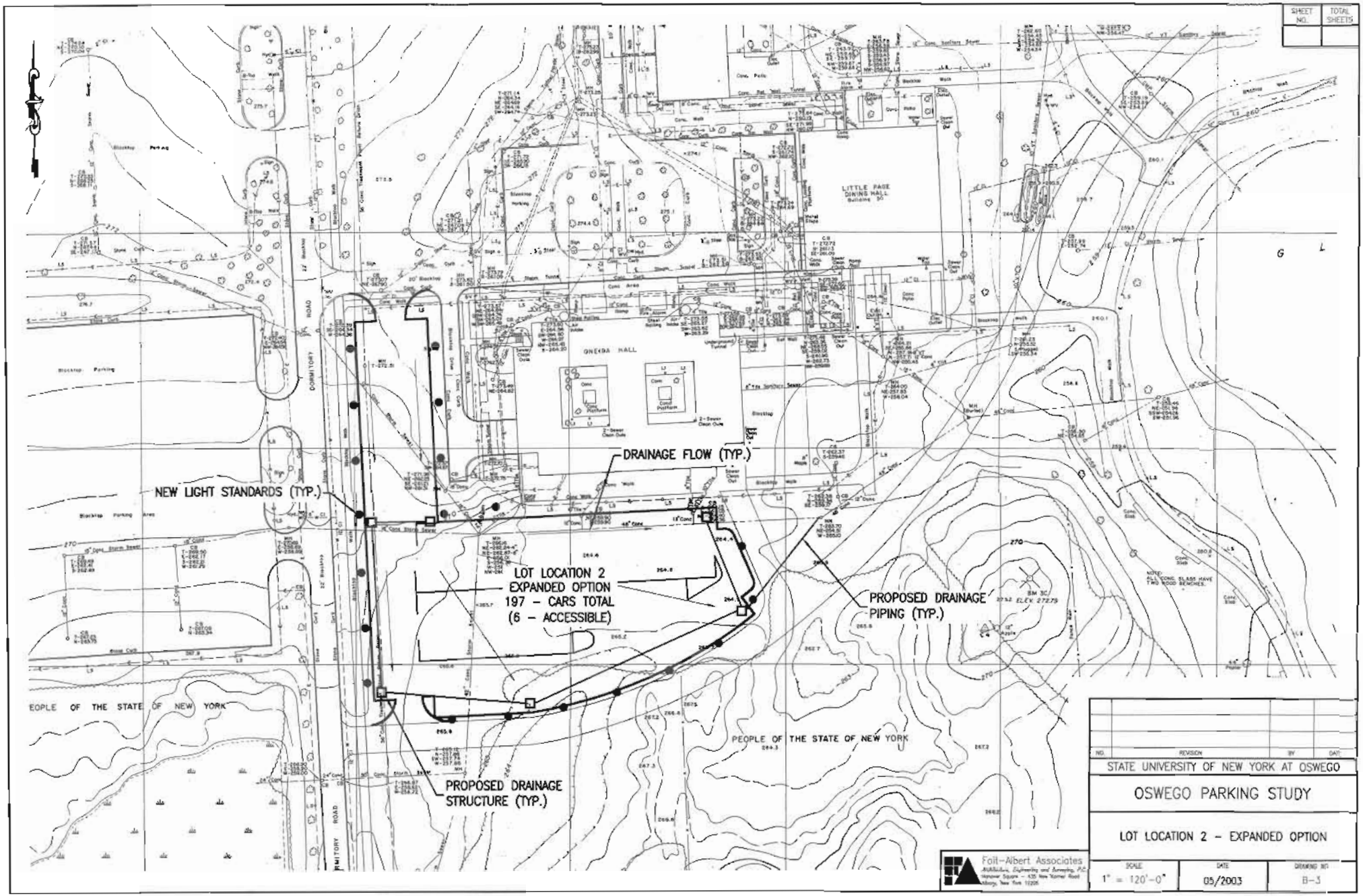
STATE UNIVERSITY OF NEW YORK AT OSWEGO

OSWEGO PARKING STUDY

LOT LOCATION 2

SCALE	DATE	DRAWING NO.
1" = 120'-0"	05/2003	B-2

Foit-Albert Associates
Architecture, Engineering and Surveying, P.C.
Hanover Square - 430 New Karner Road
Albany, New York 12205


DRAINAGE FLOW (TYP.)
NEW LIGHT STANDARDS (TYP.)
LOT LOCATION 2
EXPANDED OPTION
197 – CARS TOTAL
(6 – ACCESSIBLE)
PROPOSED DRAINAGE
PIPING (TYP.)
PROPOSED DRAINAGE
STRUCTURE (TYP.)
ONEIDA HALL
LITTLE PAGE
DINING HALL
DORMITORY ROAD
PEOPLE OF THE STATE OF NEW YORK
PEOPLE OF THE STATE OF NEW YORK
SHEET NO.
TOTAL SHEETS
NO.
REVISION
BY
DAT.
STATE UNIVERSITY OF NEW YORK AT OSWEGO
OSWEGO PARKING STUDY
LOT LOCATION 2 – EXPANDED OPTION
SCALE
1" = 120'-0"
DATE
05/2003
DRAWING NO.
B-3
Foit-Albert Associates

APPENDIX C
Estimates

QUANTITIES: LOT LOCATION #1

69800 SF	Asphalt Pavement (Avg. 8" Asphalt w/ 12" Subbase)
1400 LF	Granite Curbs
0 EACH	Catch Basins
0 LF	S.I.C.P. Pipe (18" Dia.)
25 EACH	Light Standards (w/ Conc. Bases)
3200 SF	Concrete Sidewalks (4" Conc. w/ 6" Subbase)
4800 CY	Select Granular Subgrade (Fill)
15%	Contingency

ESTIMATE:

A. Pavement	$312,933
B. Curbs & Sidewalks	$45,651
C. Drainage	$0
D. Lighting	$75,000
E. 15% Contingency	$65,038
TOTAL	**$499,000**

QUANTITIES: LOT LOCATION #2

56400 SF	Asphalt Pavement (Avg. 8" Asphalt w/ 12" Subbase)
1100 LF	Granite Curbs
4 EACH	Catch Basins
560 LF	S.I.C.P. Pipe (18" Dia.)
15 EACH	Light Standards (w/ Conc. Bases)
200 SF	Concrete Sidewalks (4" Conc. w/ 6" Subbase)
1700 CY	Select Granular Subgrade (Fill)
15%	Contingency

ESTIMATE:

A. Pavement	$226,715
B. Curbs & Sidewalks	$26,141
C. Drainage	$26,589
D. Lighting	$45,000
E. 15% Contingency	$48,667
TOTAL	**$373,000**

QUANTITIES:	LOT LOCATION #2 (Expanded Option)
70400 SF	Asphalt Pavement (Avg. 8" Asphalt w/ 12" Subbase)
1500 LF	Granite Curbs
6 EACH	Catch Basins
800 LF	S.I.C.P. Pipe (18" Dia.)
20 EACH	Light Standards (w/ Conc. Bases)
320 SF	Concrete Sidewalks (4" Conc. w/ 6" Subbase)
2000 CY	Select Granular Subgrade (Fill)
15%	Contingency

ESTIMATE:

A. Pavement	$281,528
B. Curbs & Sidewalks	$35,845
C. Drainage	$38,284
D. Lighting	$60,000
E. 15% Contingency	$62,349
TOTAL	**$478,000**

APPENDIX D
Geotechnical Report

DENTE
ENGINEERING

ALBANY AREA
594 Broadway
Watervliet, NY 12189
Voice 518-266-0310
Fax 518-266-9238

BUFFALO AREA
PO Box 482
Orchard Park, NY 14127
Voice 716-649-9474
Fax 716-648-3521

May 17, 2003

Via Fax @ 452-3639

Mr. Greg Kehn
Foit-Albert Associates, PC
435 New Karner Road
Albany, New York 12205

Re: Geotechnical Study Report
Parking Study Improvements
SUC @ Oswego
File No. FDE-03-71

Gentlemen:

Dente Engineering has completed a subsurface investigation and prepared this Geotechnical Report, which presents our recommendations concerning the pavement design and construction being evaluated by your firm for the referenced site.

It should be understood that this report was prepared on the basis of the information supplied to us and the results of a limited number of test borings performed for the field investigation. Test borings are advanced at specific locations and the overburden soils are sampled through limited and specific depths. Conditions are only known at the locations and through the depths investigated. Conditions at other locations and depths may be different and these differences may impact upon the conclusions reached and the recommendations offered. For this reason, we should be retained to provide construction period observation and testing services.

This report was prepared on the basis of generally accepted Geotechnical Engineering Practices. No other warranty or assertion, either expressed or implied, is made. A sheet entitled "Important Information about your Geotechnical Engineering Report" prepared by the Association of Engineering Firms Practicing in the Geosciences is attached. The sheet should never be separated from the report and be carefully reviewed as it sets the only context within which this report should be used.

SITE AND PROJECT DESCRIPTION

The sites planned for development of the new parking lots at the SUC Campus are depicted on the attached portion of the 7.5' Topographic Map of the Oswego West Quadrangle prepared by the U.S. Geological Survey. The general area consists of a plain with isolated oblong shaped hills.

The two areas under consideration are currently undeveloped and grass covered. Planning by others indicates that the development of Lot Location 1 will require the importing and placement of several feet of fill to level the sloping site. The development of Lot Location 2 will require only slight cutting and filling to level the site.

SUBSURFACE CONDITIONS

As a basis for this study, four conventional test borings were completed at the approximate locations depicted on the attached Subsurface Investigation Plans. The test borings were located in the field with your assistance.

The test borings were performed using a trailer mounted CME 45 Drill Rig and hollow stem auger casing. Overburden soils were sampled in general accord with ASTM D 1586 procedures. The attached Subsurface Logs were prepared by an Engineer, who classified the individual soil samples. It should be understood that conditions are only known where investigated and through the depths explored and that conditions at other locations and depths may be different. Conditions can, and often do, change with time. The attached Subsurface Logs should be reviewed for the specific information gathered at the locations investigated.

The test borings encountered similar conditions at each of the investigated locations. In general, beneath the surficial topsoil, some two feet of granular fill soils were found to mantle the site. These fill soils were moist, loose and composed of a mixture of brown sand, silt and gravel.

Beneath the fills were moist and loose, brown and tan fine sand and silt soils which extended to a soft brown mottled silt and clay at a depth of about six (6) feet at Lot Location 1 and weathered Sandstone bedrock at Lot Location 2. The indigenous granular soils were moist to wet and judged to be of a loose to firm relative density at Lot 1 or a loose to compact relative density at Lot 2. The indigenous cohesive soils at Lot 1 were wet and of a medium to soft consistency.

Groundwater was not encountered within the depths explored at the site, however, perched waters should be expected to form within the overburden at this site, at least on a seasonal basis.

The following sections present our recommendations for the design and construction of the pavements in the investigated lot areas.

SITE DEVELOPMENT AND EARTHWORK

Site development should commence with stripping of vegetation and topsoil. The stripped subgrades should be shaped, crowned and sloped to promote their drainage and that of any granular structural fills which will overlie them. The prepared grades should be proof-compacted using a self propelled, smooth drum vibratory compactor with a minimum static weight of 10 tons. The proof-compacting should be performed by completing a minimum of five (5) passes with the roller operating in its vibratory mode.

All subgrade areas should be proof-compacted in order to detect any unstable areas and to enhance the uniformity and density of the existing fills. Areas of the subgrade that fail to stabilize or become unstable beneath the passing roller should be investigated to determine the cause and undercut as necessary to allow the placement of structural fill and establish stable grades.

All structural fill used at the site to backfill excavations or increase grades for support of pavements should be a well graded sand or sand and gravel mixture with no particles in excess of three (3) inches in size and with no more than ten (10) percent by weight finer than a U.S. Standard No. 200 Sieve. The fills should be placed in loose layers no more than one (1) foot thick with each compacted to not less than 95 percent of the soils maximum dry density determined through the Modified Proctor Compaction Test, ASTM D-1557. The structural fill should be either dried or wetted as necessary to achieve the recommended density.

Excavated indigenous soils are considered unsuitable for use as structural fill material. They should be reserved for reuse in landscape areas of the site or wasted. A synthetic fabric, such as Mirafi 500X, should be employed as necessary to reinforce unstable indigenous subgrades. The fabric should be lapped in accord with the manufacturer's recommendations.

All permanent excavated or filled earth slopes constructed at the site should be no steeper than one (1) vertical on two (2) horizontal. All temporary excavated slopes should be graded in accord with 29 CFR Part 1926 of the Occupational Safety and Health Standards-Excavations; Final Rule for Type B soils. All permanent slopes should be grassed or otherwise protected to inhibit their erosion.

Groundwater, existing as perched saturated zones, may be encountered where granular fill soils overlie cohesive soils or bedrock at this site, at least seasonally. All excavations should be promptly dewatered through common sump and pump techniques, as necessary to preserve subgrades. All subgrades should be sloped and/or crowned to promote drainage of precipitation and runoff to the periphery where sumps and pumps should be located as necessary. We caution that the existing fills and indigenous soils will be extremely sensitive to any construction activities, particularly if they become saturated. Should these soils be allowed to saturate, they should be removed and replaced with structural fill.

All utilities should be placed at depths to assure frost penetration protection. All utility backfill should be structural fill and be placed and compacted as previously recommended.

PAVEMENTS

Flexible asphaltic concrete pavements are considered suitable for use at the site, provided that the existing fill soils are proven stable through proof-compacting and the subgrades are drained.

We recommend pavement underdrains be installed, where necessary, to assure that the base course layers are drained.

Pavement subgrades may consist of proof-compacted and densified existing soils which have been stripped of topsoil and organics. Proof-compacting of pavement subgrades should be performed using a self propelled smooth drum vibratory compactor with a minimum static weight of 10 tons. The proof-compacting should be performed by completing a minimum of five (5) passes with the roller operating in its vibratory mode. Areas of the subgrade that fail to stabilize or which become unstable beneath the passing roller should be investigated to determine the cause and undercut as necessary to allow the placement of structural fill to establish stable grades.

All granular base course layers should be drained through sloping and crowning of subgrades to their periphery or to intermediate underdrains. Failure to provide a drained base course at this site will adversely affect pavement performance and may result in their failure. We are providing two (2) pavement sections for consideration at this site dependent upon anticipated traffic types as follows:

MATERIAL SECTION	COURSE THICKNESS		NYSDOT MATERIAL ITEM
	Drives & Access Roads	Parking Lots	
Wearing Course	1"	1"	403 Type 6 or 7
Binder Course	3½"	2½"	403 Type 3
Base Course	4"	4"	304 Type 2
Subbase Course	16"	8"	304 Type 4
Synthetic Fabric	Mirafi 500X	Mirafi 500X	

CONSTRUCTION OBSERVATION

The pavement design recommendations provided in this report are premised on the Geotechnical Engineer being retained to monitor earthwork and grade preparations. It should be understood that the actual subsurface conditions that exist across this site will only be known when the site is excavated. The presence of the Geotechnical Engineer

A Report's Recommendations Are Not Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject To Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations", many of these provisions indicate where geotechnical engineers responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE

8811 Colesville Road Suite G106 Silver Spring, MD 20910

Telephone: 301-565-2733 Facsimile: 301-589-2017

email: info@asfe.org www.asfe.org

UGER1000.10M

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you*—should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

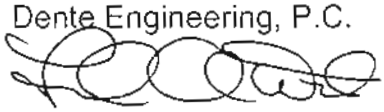
during the earthwork will allow validation of the subsurface conditions assumed to exist for this study and the design recommended in this report. We believe this construction sequence observation and testing should be provided by the Geotechnical Engineer of record as a consultant to the owner, architect or engineer. We do not believe these services should be provided through the general or earthwork contractor.

CLOSURE

This report was prepared for specific application to the project site and construction planned. It was prepared on the basis of the information supplied to us. We assume no responsibility for the accuracy or correctness of the information supplied. The Geotechnical Engineer should be retained to observe proof-compacting of the subgrade at the time of its performance. We should also be allowed the opportunity to review appropriate plans and specifications prior to their release for bidding.

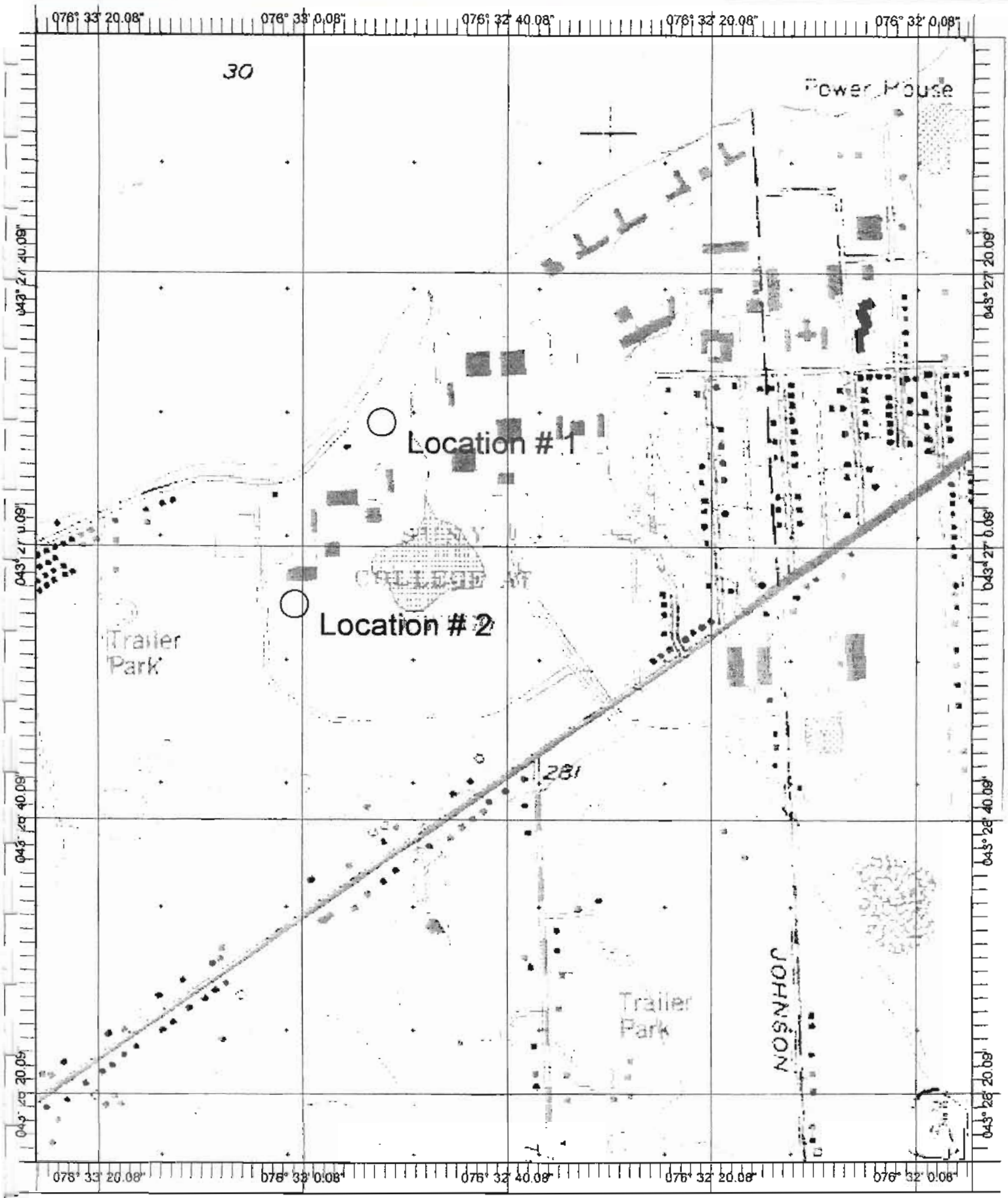
This report was prepared using methods and practices common to Geotechnical Engineering. No warranties expressed or implied are made. We appreciate the opportunity to be of service. Should questions arise or if we may be of any other service, please contact us at your convenience.

Yours truly,
Dente Engineering, P.C.



Fred A. Dente, P.E.
President

Attachments;



Name: OSWEGO WEST
Date: 5/17/103
Scale: 1 inch equals 909 feet

Location: 043° 26' 56.1" N 076° 32' 40.4" W
Caption: Parking Study Improvements
SUNY @ Oswego

INTERPRETATION OF SUBSURFACE LOGS

The Subsurface Logs present observations and the results of tests performed in the field by the Driller, Technicians, Geologists and Geotechnical Engineers as noted. Soil/Rock Classifications are made visually, unless otherwise noted, on a portion of the materials recovered through the sampling process and may not necessarily be representative of the materials between sampling intervals or locations.

The following defines some of the terms utilized in the preparation of the Subsurface Logs

SOIL CLASSIFICATIONS

Soil Classifications are visual descriptions on the basis of the Unified Soil Classification ASTM D-2487 and USBR, 1973 with additional comments by weight of constituents by BUHRMASTER. The soil density or consistency is based on the penetration resistance determined by ASTM METHOD D1586. Soil Moisture of the recovered materials is described as DRY, MOIST, WET or SATURATED

SIZE DESCRIPTION		RELATIVE DENSITY/CONSISTENCY (basis ASTM D1586)			
SOIL TYPE	PARTICLE SIZE	GRANULAR SOIL		COHESIVE SOIL	
BOULDER	> 12	DENSITY	BLOWS/FT.	CONSISTENCY	BLOWS/FT.
COBBLE	3" - 12"	LOOSE	< 10	VERY SOFT	< 3
GRAVEL-COARSE	3" - 3/4"	FIRM	11 - 30	SOFT	4 - 5
GRAVEL - FINE	3/4" - #4	COMPACT	31 - 50	MEDIUM	6 - 15
SAND - COARSE	#4 - #10	VERY COMPACT	50 +	STIFF	16 - 25
SAND - MEDIUM	#10 - #40			HARD	25 +
SAND - FINE	#40 - #200				
SILT/NONPLASTIC	< #200				
CLAY/PLASTIC	< #200				

SOIL STRUCTURE		RELATIVE PROPORTION OF SOIL TYPES	
STRUCTURE	DESCRIPTION	DESCRIPTION	% OF SAMPLE BY WEIGHT
LAYER	6" THICK OR GREATER	AND	35 - 50
SEAM	6" THICK OR LESS	SOME	20 - 35
PARTING	LESS THAN 1/4" THICK	LITTLE	10 - 20
VARVED	UNIFORM HORIZONTAL PARTINGS OR SEAMS	TRACE	LESS THAN 10

Note that the classification of soils or soil like materials is subject to the limitations imposed by the size of the sampler, the size of the sample and its degree of disturbance and moisture.

ROCK CLASSIFICATIONS

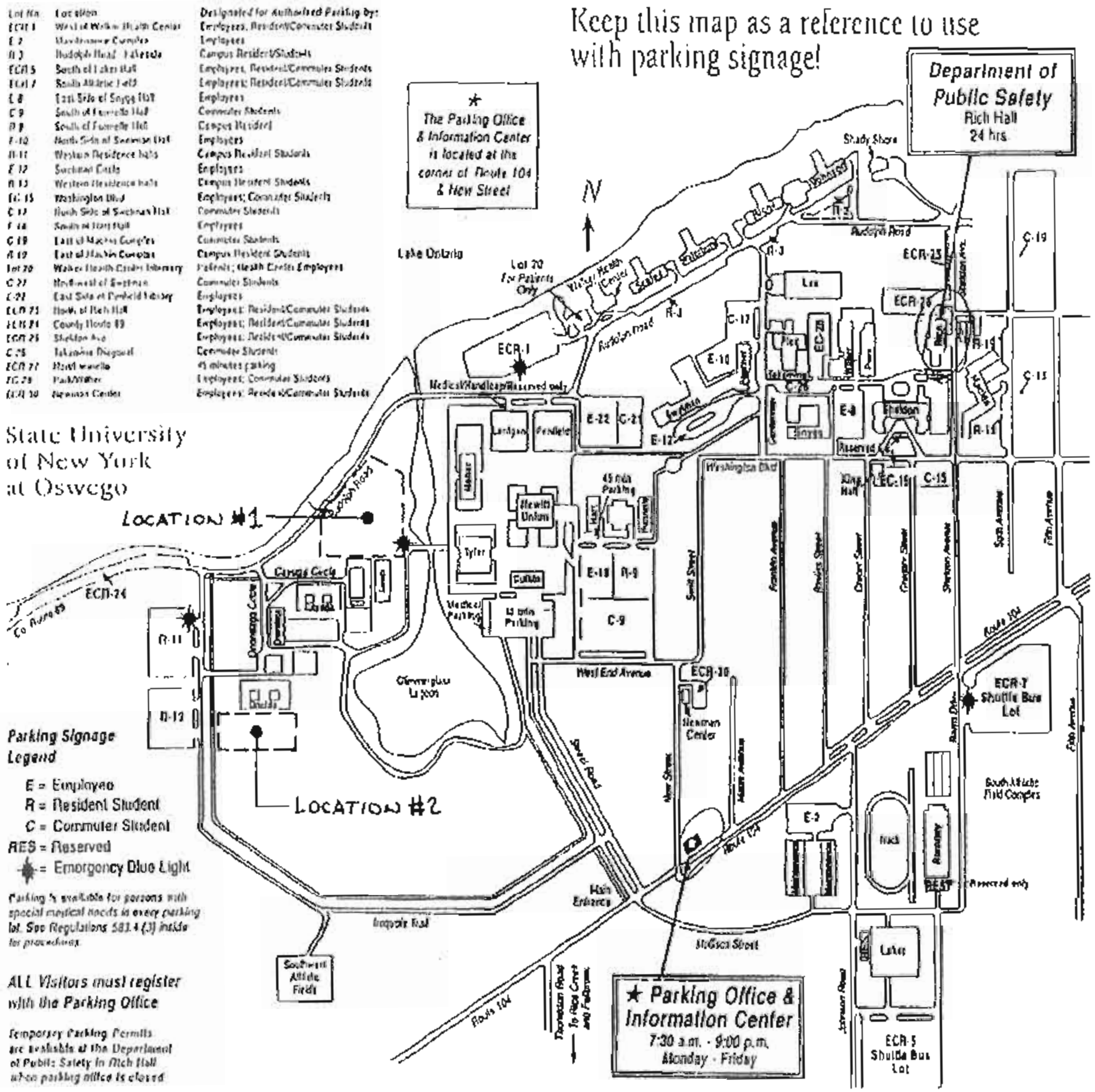
Rock Classifications are visual descriptions on the basis of the Driller's, Technician's, Geologist's or Geotechnical Engineer's observations of the coring activity and the recovered samples applying the following classifications

CLASSIFICATION TERM	DESCRIPTION
VERY HARD	NOT SCRATCHED BY KNIFE
HARD	SCRATCHED WITH DIFFICULTY
MEDIUM HARD	SCRATCHED EASILY
SOFT	SCRATCHED WITH FINGERNAIL
VERY WEATHERED	DISINTEGRATED WITH NUMEROUS SOIL SEAM
WEATHERED	SLIGHT DISINTEGRATION, STAINING, NO SEAMS
SOUND	NO EVIDENCE OF ABOVE
MASSIVE	ROCK LAYER GREATER THAN 36" THICK
THICK BEDDED	ROCK LAYER 12" - 36"
BEDDED	ROCK LAYER 4" - 12"
THIN BEDDED	ROCK LAYER 1" - 4"
LAMINATED	ROCK LAYER LESS THAN 1"
FRACTURES	NATURAL BREAKS AT SOME ANGLE TO BEDS

Core sample recovery is expressed as percent recovered of total sampled. The ROCK QUALITY DESIGNATION (RQD) is the total length of core sample pieces exceeding 4" length divided by the total core sample length for N size cored.

GENERAL

- Soil and Rock classifications are made visually on samples recovered. The presence of Gravel, Cobbles and Boulders will influence sample recovery classification density/consistency determination.
- Groundwater, if encountered, was measured and its depth recorded at the time and under the conditions as noted.
- Topsoil or pavements, if present, were measured and recorded at the time and under the conditions as noted.
- Stratification Lines are approximate boundaries between soil types. These transitions may be gradual or distinct and are approximated.



Vehicle Registration

& Traffic Parking

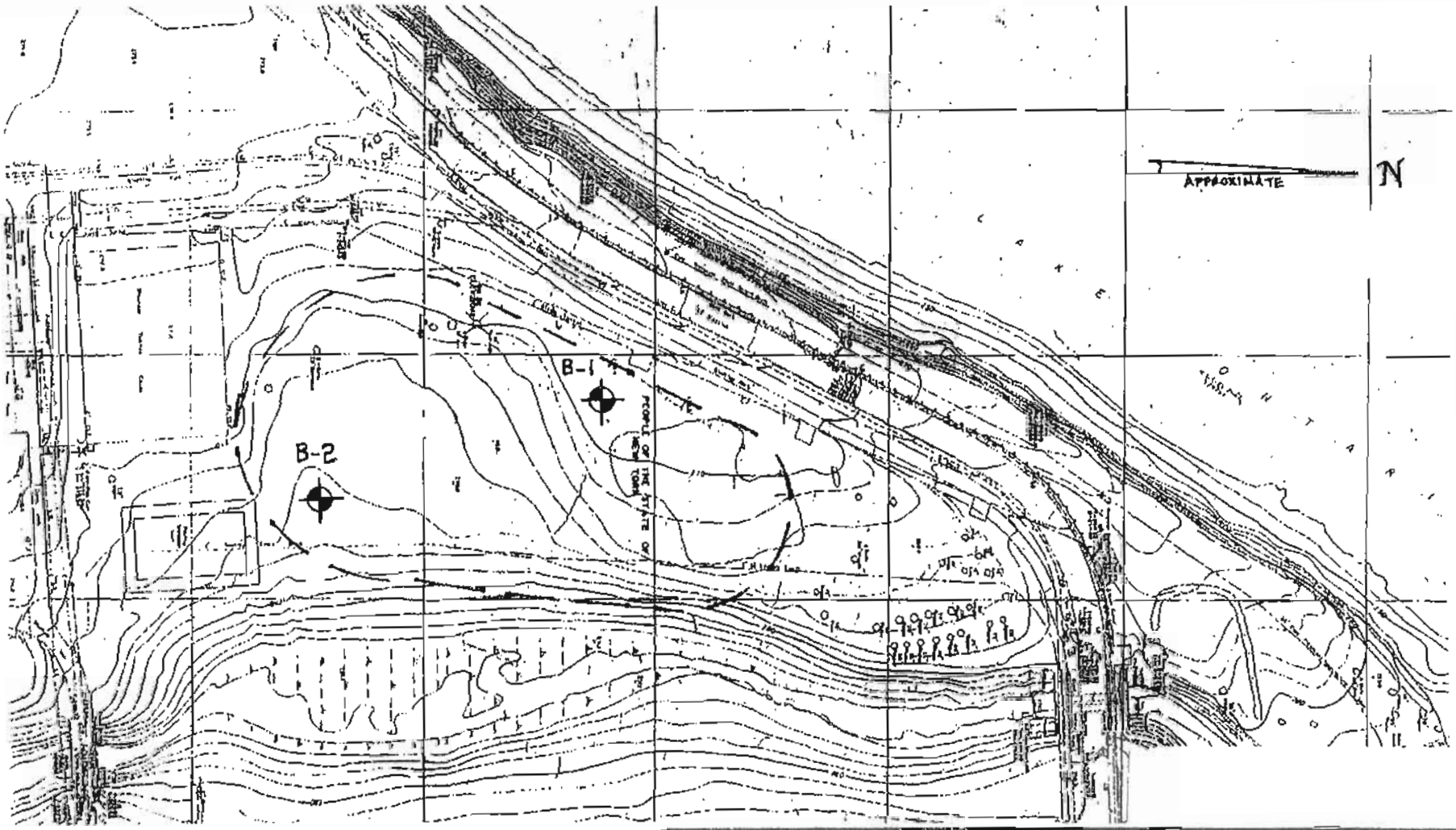
Regulations, Map, & Procedures

OSWEGO

STATE UNIVERSITY OF NEW YORK

APPROXIMATE POTENTIAL SITE LOCATIONS
SCALE: N.T.S.

FA PROJECT # 03580.00E



LEGEND

⊕ : Soil Boring Location

DENTE ENGINEERING

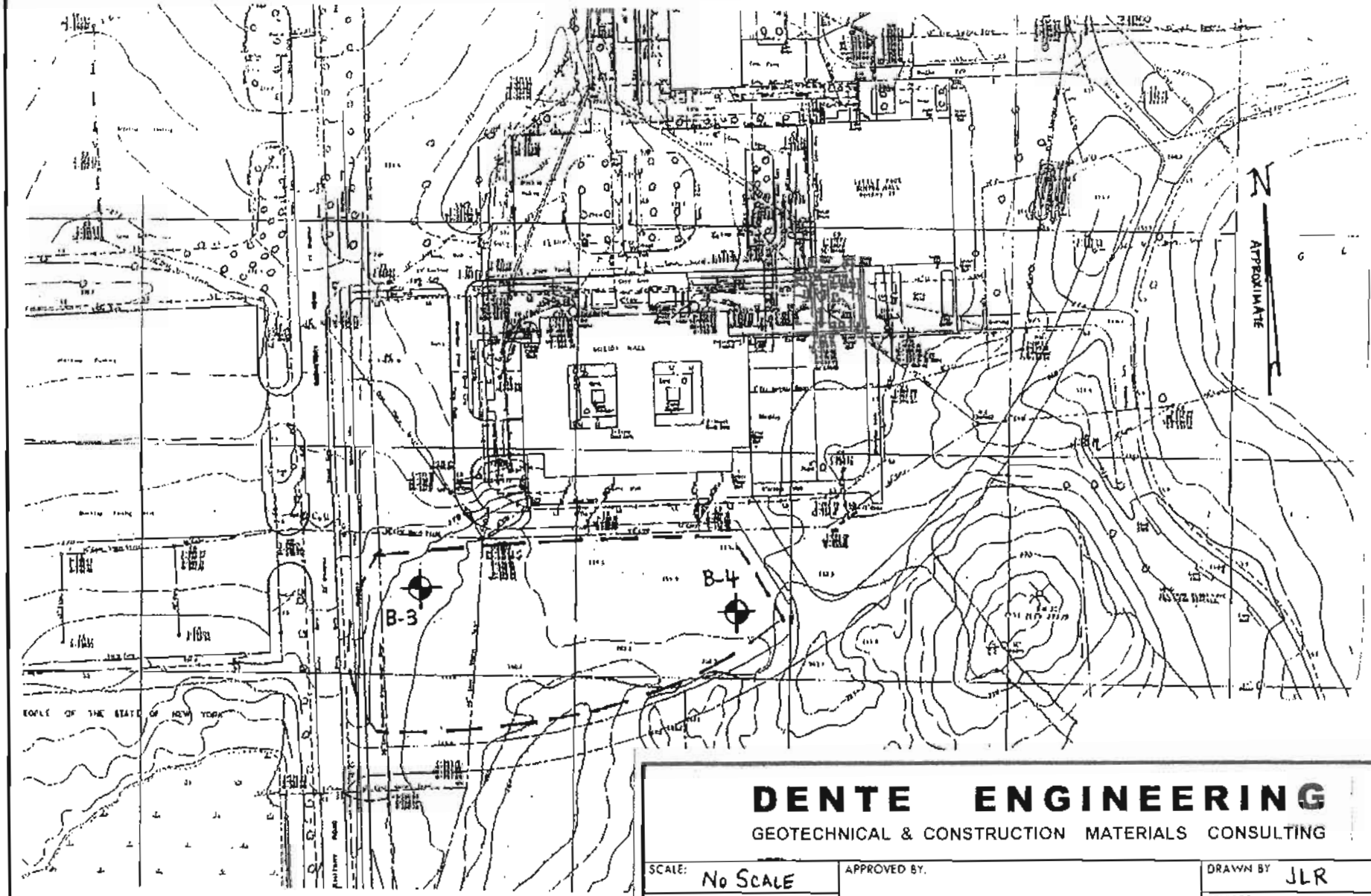
GEOTECHNICAL & CONSTRUCTION MATERIALS CONSULTING

SCALE: No Scale	APPROVED BY:	DRAWN BY: JLR
DATE: 5-12-03		REVISED

Parking Study Improvements - SUNY at Oswego

Subsurface Investigation Plan

DRAWING NUMBER: Sheet 1 of 2



LEGEND

: Soil Boring Location

DENTE ENGINEERING

GEOTECHNICAL & CONSTRUCTION MATERIALS CONSULTING

SCALE: No Scale	APPROVED BY:	DRAWN BY JLR
DATE: 5-12-03		REVISED

Parking Study Improvements - SUNY at Oswego

Subsurface Investigation Plan

DRAWING NUMBER: Sheet 2 of 2

DENTE ENGINEERING, P.C.	SUBSURFACE LOG B-1

PROJECT: Parking Study Improvement	**DATE**	START: 5-9-03	FINISH: 5-9-03
LOCATION: Oswego, New York	**METHODS:** 3 1/4" HSAC with		
CLIENT: Foit Albert Associates	ASTM D 1586		
JOB NUMBER: FDE-03-71	**SURFACE ELEVATION:**		
DRILL TYPE: CME 45 C	**CLASSIFICATION:** J. Robichaud		

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	TOPSOIL ± 12"
	1	3	3				**FILL:** Light Brown Fine SAND, Some Silt and
				3	3	6	Clay, trace gravel **(MOIST, LOOSE)**
	2	4	4				Light Brown Mottled SILT & Fine SAND, Some
				5	10	9	Clay **(WET, MEDIUM)**
5'	3	3	4				Tan Fine SAND, Little Silt, trace clay
				5	4	9	Grades no clay **(SATURATED, LOOSE)**
							End of boring at 6.0' depth
							No measurable groundwater observed inside
							augers upon completion.
10'							
15'							
20'							
25'							
30'							

DENTE ENGINEERING, P.C.	SUBSURFACE LOG B-2

PROJECT: Parking Study Improvement	**DATE**	START: 5-9-03	FINISH: 5-9-03
LOCATION: Oswego, New York	**METHODS:** 3 1/4" HSAC with		
CLIENT: Foit Albert Associates	ASTM D 1586		
JOB NUMBER: FDE-03-71	**SURFACE ELEVATION:**		
DRILL TYPE: CME 45 C	**CLASSIFICATION:** J. Robichaud		

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	TOPSOIL ± 12"
	1	4	8				FILL: Brown / Dark Brown F-M SAND & SILT,
				3	3	11	Some Gravel, trace roots & organics
	2	3	4				**(DRY, FIRM)**
				8	9	12	Tan Fine SAND, Some Silt
5'	3	2	2				Grades Tan Fine SAND & SILT, trace clay
				2	2	4	**(WET, FIRM TO SOFT)**
							Brown Mottled SILT & CLAY, trace fine sand
							(WET, SOFT)
							End of boring at 6.0' depth.
10'							No measurable groundwater observed inside augers upon completion.
							NOTE: Encountered geotextile in S1
15'							
20'							
25'							
30'							

DENTE ENGINEERING, P.C.	SUBSURFACE LOG B-3

PROJECT: Parking Study Improvement	**DATE**	START: 5-9-03	FINISH: 5-9-03
LOCATION: Oswego, New York	**METHODS:** 3 1/4" HSAC with		
CLIENT: Foit Albert Associates	ASTM D 1586		
JOB NUMBER: FDE-03-71	**SURFACE ELEVATION:**		
DRILL TYPE: CME 45 C	**CLASSIFICATION:** J. Robichaud		

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	
	1	1	3				TOPSOIL ± 12"
				5	3	8	FILL: Red F-C SAND & GRAVEL, trace silt and roots **(MOIST, LOOSE)**
	2	4	4				
				5	7	9	Tan Mottled Fine SAND, Some Silt, trace organics **(WET, LOOSE)**
5'	3	4	10				
				15	25	25	Tan / Orange Mottled Fine SAND & SILT, trace medium sand & gravel **(WET, FIRM)**
							End of boring at 6.0' depth
10'							No measurable groundwater observed inside augers upon completion.
15'							
20'							
25'							
30'							

DENTE ENGINEERING, P.C.	SUBSURFACE LOG B-4

PROJECT: Parking Study Improvement	**DATE**	START: 5-9-03	FINISH: 5-9-03
LOCATION: Oswego, New York	**METHODS:** 3 1/4" HSAC with		
CLIENT: Foit Albert Associates	ASTM D 1586		
JOB NUMBER: FDE-03-71	**SURFACE ELEVATION:**		
DRILL TYPE: CME 45 C	**CLASSIFICATION:** J. Robichaud		

SAMPLE		BLOWS ON SAMPLER					CLASSIFICATION / OBSERVATIONS
DEPTH	#	6"	12"	18"	24"	N	TOPSOIL ± 12"
	1	2	2				Light Brown / Orange / Gray Fine SAND,
				4	7	6	Some Silt & Clay **(MOIST, LOOSE)**
	2	19	16				Brown / Gray / Orange Fine SAND, Little
				22	30	38	Silt & Gravel
5'	3	10	31				**(MOIST, COMPACT)**
				50/.3	—	REF	Possible Weathered SANDSTONE
							(MOIST, V. COMPACT)
							End of boring at 5.3' with split spoon refusal.
							No measurable groundwater observed inside
10'							augers upon completion.
15'							
20'							
25'							
30'							