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SOIL • ROCK • EXPLORATION • INSTRUMENTATION

GENESEE GATEWAY PARCEL #6

PRELIMINARY SUBSURFACE EVALUATION

For

The City of Rochester
Department of Environmental Services

By: John R. Harnly
John R. Harnly, P.E.

March, 1983
2-404

45 Steel Street ☐ Rochester, N. Y. 14606 ☐ 716 458-0824

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GENESEE GATEWAY PARCEL #6

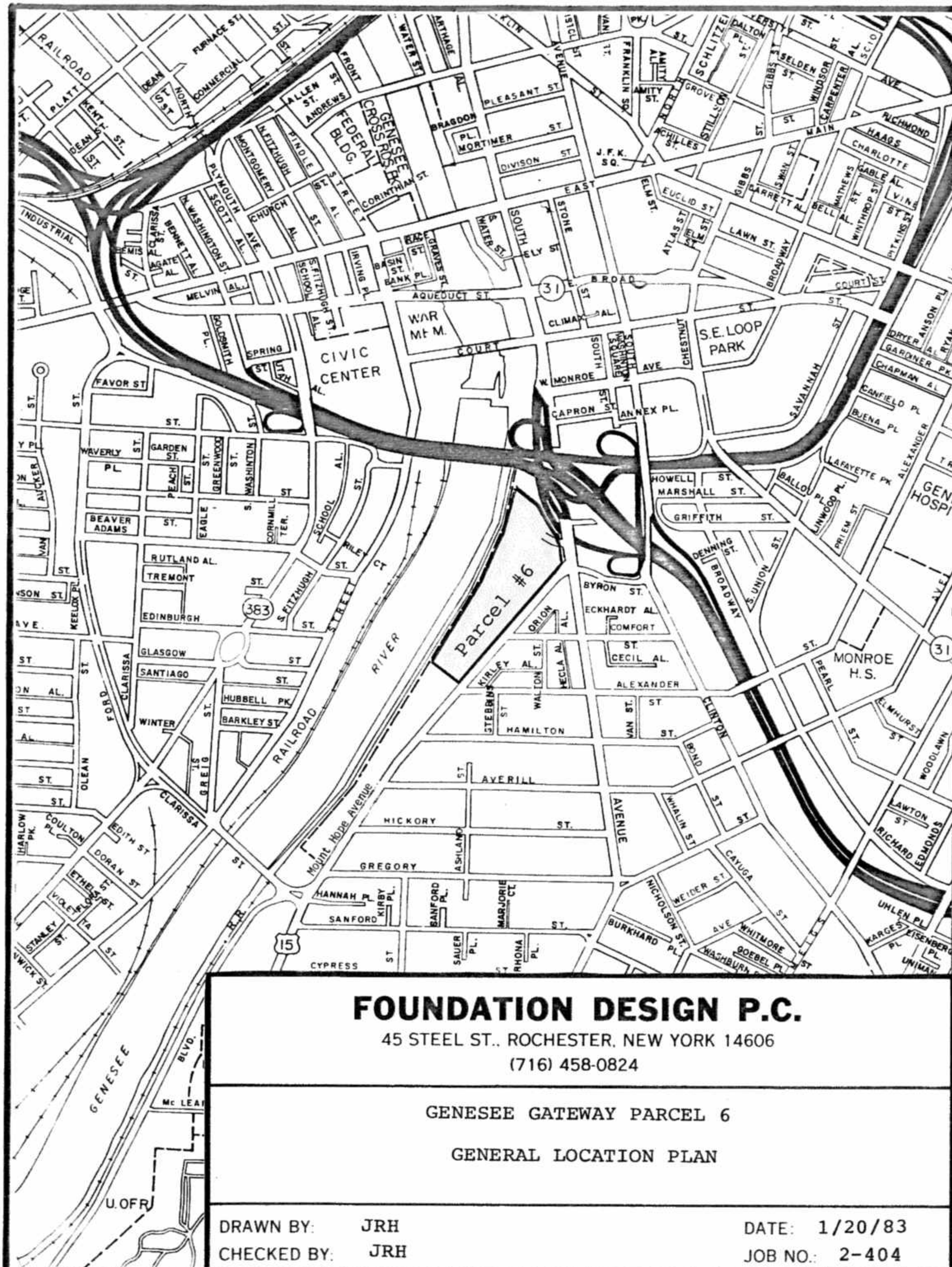
PRELIMINARY SUBSURFACE EVALUATION

I. INTRODUCTION

This report summarizes our preliminary geotechnical evaluation of conditions on the Genesee Gateway Parcel 6 in Rochester, New York. The site, near the downtown area, is scheduled for development in the near future. The prime site use would be for light industry: However, other uses such as office buildings, housing, and warehousing have not been eliminated. The site is known to have foundation deficiences. The purpose of this report was to collect available information, to assess the foundation conditions, and to roughly estimate the premium costs for foundation and other subsurface construction.

The Genesee Gateway Parcel is bounded on the west by the Genesee River, on the east by Mount Hope Avenue, on the south by the Genesee Gateway Housing Project, and on the north by Inter-State Highway I-490. The central business district is north across I-490. The South Wedge neighborhood borders the east side of the tract. A strip park 100 feet wide borders the river. The developable land is 300 to 500 feet wide and 1,600 feet long, totaling about 14.7 acres. A General Location Plan is attached on the following page.

This report is based on the review of data available from various sources. Data includes area topographic and geologic mapping, logs of borings on and near the site, and discussion of conditions with engineers and contractors familiar with the immediate area. It is intended as a preliminary soils and foundation evaluation of the site. It will not substitute for the exploration and analysis needed to develop



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GENESEE GATEWAY PARCEL 6

GENERAL LOCATION PLAN

DRAWN BY:	JRH	DATE:	1/20/83
CHECKED BY:	JRH	JOB NO.:	2-404

I. INTRODUCTION (Cont.)

plans and specifications for specific projects. The economic evaluation presented is based on very rough estimates. It is intended for use by the City in assessing the best land use and for valuing the property, and by developers to assist in their preliminary assessment of the site. Serious developers should consult their professional staffs or consultants for a more detailed analysis based on the proposed use and type of structures needed for that use.

II. SUMMARY OF FINDINGS AND CONCLUSIONS

The following is a brief summary of our findings:

A. The area was low river bottom land until construction of the Erie Canal in the 1820's. A feeder to the Erie Canal and at least two (and probably four) barge basins covered parts of the site until 1920. The area was filled and developed into a railroad yard that survived until the 1970's. Recent building rubble and soil fill appears to have been added since 1970.

B. The fill soils range from seven to seventeen feet thick. In several locations, they are underlain by very soft compressible muck that may be canal bottom or river bottom sediments. The bedrock is estimated at 25 feet below the surface. The bedrock is the Lockport Dolomite Formation. Groundwater may be as high as the river level controlled by the Court Street Dam at elevation 512.0, but is more likely three to eight feet lower due to local drainage.

C. The soft muck will consolidate under new loads. The related settlement will likely be tolerable for single story slab on grade structures where floor loads are

II. SUMMARY OF FINDINGS AND CONCLUSIONS (Cont.)

light. Heavy floor loads will require surcharging or possibly a structurally supported floor.

D. Two, three, or more story buildings must be supported by piles or caissons bearing on bedrock. Piles are likely to be the most economical foundation for a two-story structure. Although this preliminary analysis showed caissons slightly less costly for three story or taller structures, the difference is so small that either piles or caissons might be used.

F. The economic analysis summary following page 14 shows that the additional foundation costs for most structures will range from $1.00 to $3.50 per square foot. The least costly construction per square foot is for single story structures, followed closely by buildings of three or more stories. The most costly structures per square foot would be those with heavy ground floor loads.

III. DATA COLLECTION

The report is based on evaluation of available data. No new borings or surveys were done. Our sources of information were the City Engineering Department, Parks Department, City Historian and the Economic Development Administration, Monroe County Division of Pure Waters, New York State Department of Transportation, Canal Section, and local engineers and contractors. Topographic and geologic maps are from mapping maintained in our office. Outlined below is a list of the major pieces of information included in the Appendices.

A. Maps of the area include the following:

1873 partial map of the area showing canals and basins of the site.

III. DATA COLLECTION (Cont.)

1952 U.S.G.S. topographic map showing the extent of the rail yard.

1971 U.S.G.S. topographic map.

Geologic map of New York (1970) prepared by the New York State Museum and Science Service.

B. A 1982 drilling report (22 borings) prepared for Farash Construction Corporation by Rochester Drilling Company, Inc. These borings, although the most representative of the site conditions, are of limited value. Soil samples were taken at five foot intervals. At this spacing, critical soft materials in the fill may have been missed. In addition, they were terminated at a depth of 15 feet: None reached bedrock.

C. Three borings logs and a geologic description of the Lockport Formation. This data was excerpted from reports prepared for the Monroe County Divison of Pure Waters by H & A of New York (or Haley & Aldrich, Inc.). Although the borings cover only a small area on the northern part of the site, the information, particularly on the rock conditions, is very detailed.

D. Parts of the Rochester Building Code dealing with exploration and foundations. Rochester has adopted the State Code. Important aspects include:

1. No presumptive bearing is allowed on fill. Testing must be done for approval of any foundation system.

2. State Code allows only 15 tsf bearing on dolomite. However, a provision in the Code allows modification for local experience. For many years, the

III. DATA COLLECTION (Cont.)

Rochester Code permitted 25 tsf presumptive bearing on this rock with 50 tsf bearing allowed under certain conditions. It is our opinion that the 25 tsf bearing would be permitted on this site.

Several other sources of information were integrated into our conclusions, but are not attached in the Appendices. The more important ones are noted below:

A. A 100 foot wide strip park separates the parcel from the river. Plans showing storm drainage and grading for the park are on file. Elevations along the property line range from 515 to 519.

B. The Genesee Gateway Urban Renewal Project, Utility Contract U-1 drawings prepared by Teetor Dobbins, P.C., 1978 show a 78-inch diameter storm sewer installed parallel to Mount Hope Avenue. Specifications for backfill over the sewer were not available. The plans also show that many buildings occupied a now vacant strip 50 to 80 feet wide along Mount Hope Avenue. That strip seems to correspond to the land between Mount Hope Avenue and the Old Feeder Canal. A 54-inch sewer, apparently laid in the old canal bed, was abandoned upon installation of the new 78-inch sewer. Although current policy is to fill abandoned sewers, this may not have been the policy in 1973. The plans do not indicate if the 54-inch pipe was filled when it was abandoned.

C. Boring logs for the Genesee Gateway Housing Project, immediately south of the site, are available. However,

III. DATA COLLECTION (Cont.)

we were unable to locate a copy of the boring location plan. The soils appear to be slightly better than the soils on this parcel. Those buildings are supported on caissons. Bedrock was encountered between elevation 489 and 496 in most of those borings. Water levels in wells ranged from elevation 504 to 509.

D. The Court Street Dam controls the river elevation next to the site. The dam maintains the water level near elevation 512 most of the year.

IV. SITE CONDITIONS

Geological: The site is adjacent to the Genesee River. The river is now regulated and no longer floods this area, however, past flooding has left alluvial soil deposits. The alluvium is often underlain by glacial debris composed primarily of silts and sands, but including cobles and boulders. The bedrock, estimated at 25 ± 5 feet below the surface, is the Lockport Dolomite Formation. The Lockport is a hard gray rock usually slightly weathered near the surface. Mud filled joints are often found in the upper five feet of the rock. The rock is exposed in the river bed below the Court Street dam immediately north of the site.

Historical: The site was developed early in Rochester's history. The stone warehouse at the corner of Mount Hope Avenue and Bryon Street is believed to be the oldest commerical building in Rochester. The Old Erie Canal passed along the north-east boundry of the site north of the building. A north-south Feeder Canal parallel to Mount

IV. SITE CONDITIONS (Cont.)

Hope Avenue passed west of the warehouse and joined the Old Erie Canal. An 1873 survey shows two boat basins between the Feeder Canal and the river just north-west of the Mount Hope Avenue, Comfort Street intersection. 1895 mapping indicates the possibility of another large basin and a smaller canal between the northern basin and the north property line.

When the Erie Canal was re-routed south of Rochester in the 1920's, the Old Erie Canal, the Feeder, and the basins were abandoned. The narrow strip between Mount Hope Avenue and the Feeder was built up; the canal and basins were filled and the site was developed as a railroad yard by the Erie Lackawanna Railroad. In the early 1970's, the buildings were demolished and the rail yard was removed. The adjacent parcel to the south was developed in 1973-1974. Some fill from the demolition and site grading from that parcel were wasted on this site. In that period, a new 78-inch diameter storm sewer was placed parallel to Mount Hope Avenue. The sewer crosses behind the warehouse at the corner of Mount Hope Avenue and Byron Street. No specifications indicating the backfill quality or compaction standards for the 20 feet deep sewer have been located.

Current Conditions: The site is currently graded to drain from the river toward Mount Hope Avenue. Elevations range from 517 to 521 on the west side to 516 to 517 next to Mount Hope Avenue. Pieces of concrete and building masonry up to 18 inches in diameter are exposed on the surface. An earth stockpile is located near the north end of the site. The only structure on the site is the stone warehouse.

Underground conditions are more complex. We believe it likely that the old foundations from demolished buildings in the rail yard and along Mount Hope Avenue may have been left in place. The abandoned 54-inch storm sewer, 50 to 80 feet

IV. SITE CONDITIONS (Cont.)

west of Mount Hope Avenue, was also likely left in place and probably was not filled. Borings B-3, B-7, B-13, B-16, and B-17 contained decomposed chunks of wood 7 to 15 feet below the surface. Borings B-3 and B-7 do not mention wood, however, the samples retained are in large part decomposed wood. Wood of some form was encountered in a total of 11 of the 22 borings. This may indicate that docks and other structures on the canals and basins were buried in place.

V. SOIL, ROCK, AND GROUNDWATER CONDITIONS

The following summary is based on our evaluation of available boring information. Those borings were not done for our specific purposes. For instance, although 22 borings were done on the site recently, no sampling was done in the first five feet and sampling was then done at five foot intervals to 15 feet. In these fill soils, this leaves a high probability of missing critical conditions. In addition, the borings were terminated above bedrock so the depth to rock is our best judgement based on limited data. The soils were sampled at two of three borings done for the sewer tunnel. With these limitations in mind, the following is our interpretation of the data.

Soils: The site has been filled. The fill thickness ranges from 7 to 17 feet. Building rubble is expsoed on the surface. Most pieces are smaller than 18 by 24 inches. This rubble fill is believed to be less than ten years old and less than three feet deep. The fill from three to about eight feet is generally a firm to compact cinder and silty soil mixtures. Below eight feet, the fill is often loose to very loose (or soft). In six of the 22 Farash borings, the sample spoon penetrated some portion

V. SOIL, ROCK, AND GROUNDWATER CONDITIONS (Cont.)

of this zone with the weight of the hammer only, indicating very soft soils. In seven other borings, the N-Value was under ten blows per foot indicating soft or loose soils. Athough little data is available, it would not be unusual to encounter a layer of glacial till containing cobbles under the fill, nor would it be unexpected if river gravel with some cobble size stone was encountered. These conditions will have to be confirmed with additional preliminary exploration or during the exploration for specific projects.

Bedrock: The bedrock surface is between elevation 495 and 497 on the north end of the site. It likely dips slightly to the south, but is not likely to dip below elevation 490 nor a depth of more than 30 feet. The bedrock is the Lockport Dolomite Formation. Core recovery in the tunnel cores on the north side of the site averaged 92 percent in the top five feet and 97 percent in the next ten feet. Core recovery in borings for the Gateway Apartments, to the south, averaged 82 percent in the top five feet. None of these borings were cored more than five feet. The lower recovery in the Gateway borings may be attributed to the generally poorer recovery obtained with smaller diameter (BX size) core barrels.

Groundwater: The groundwater levels are estimated to range between elevation 504 and 509 based on observation wells in the Gateway Project and on the degree of saturation the drillers noted in the soil samples. The water level is likely below the river level due to drainage provided by sewer bedding. The water table will likely vary several feet across the site.

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VI. CONCLUSIONS AND RECOMMENDATIONS

Based on the above data, we have drawn the following conclusions:

A. The site has been filled. The fill quality varies in depth and quality. The softest soils will consolidate under new loads. That consolidation will result in some settlement even for light structures.

B. For estimating purposes, we suggest you assume single story slab on grade structures will perform satisfactorily, i.e., less than one inch of settlement. This would assume that no more than a foot of new fill is placed, bearing pressures are limited to about 1,500 pounds per square foot (psf) and floor loads are less than 100 psf. Some settlement will be likely even under these conditions.

C. Single story structures with heavy floor loads will likely settle more than normally tolerated. Surcharging or preloading the building area before construction may be the most cost effective remdedy. For instance, a building with new fill and floor loads estimated at 400 psf might be surcharged to 600 to 800 psf. A surcharge of say six feet of soils would provide that load. After the settlement is complete, in about two or four weeks, the surcharge would be removed and the building constructed.

D. Foundations for structures of two or more stories should be estimated assuming a deep foundation, such as piles or caissons. Because of the rubble in the fill and the possible cobbles over the bedrock, we recommend estimating foundation costs based on HP 10x57 H-piles with

VI. CONCLUSIONS AND RECOMMENDATIONS (Cont.)

driving shoes or on fully cased 42-inch diameter caissons. The heavier piles will likely be necessary due to the rubble and cobbles. The larger diameter caissons are necessary to allow workmen to enter and remove obstructions from the caissons.

E. Foundation costs for a two story building are likely to be higher per square foot than for three or more story structures. The pile and caisson sizes will be governed by the fill conditions: Their spacing will be limited to 20 to 25 feet by the efficient length of grade beams. The result is likely to be some unused pile capacity for a two story building, i.e., although a 60 ton pile is driven only 40 ton is needed for the load.

F. The water table appears to be well below existing grades. We do not anticipate special water proofing or dewatering will be necessary for slab on grade structures above elevation 513.0.

G. Pavements over rubble fill and general fill often settle erratically, resulting in some additional maintenance costs. We have made no attempt to evaluate those costs.

H. The 54-inch abandoned sewer should be located and checked. No new construction should be done over the pipe unless it is filled or completely collapsed.

I. A more detailed analysis could be done with as few as six additional borings. We recommend a series of three borings along the west property line and

VI. CONCLUSIONS AND RECOMMENDATIONS (Cont.)

three along the east property line. The soils should be sampled continuously from the surface to bedrock. This data would help define the fill conditions and help in assessing if boulders are nested over the bedrock. Five feet of rock core should be taken in each boring to ensure that refusal is on bedrock and not on boulders.

J. Monroe County Division of Pure Waters is planning a tunnel across the north end of the site with a tunnel shaft near the old stone warehouse. The City should investigate the possibility of using tunnel muck as a material for surcharging the site. This would eliminate the need to truck material to the site cutting surcharging costs nearly in half. This is only possible if the site is under development when the tunnel construction is in progress.

VII. ECONOMIC EVALUATION

The following economic evaluation is presented as a guide since it is not based on a specific design. It is intended to point out extra or unusual subsurface costs associated with this site. Developers should discuss these estimates with their own design and estimating teams before proceeding.

The soil conditions are generally poor. The consequences of this is that additional costs will be incurred both during design and construction. For comparison purposes, we have assumed a typical building will have a ground floor area of 20,000 square feet (100 feet by 200 feet). The comparison is made assuming that a clean site would require a minimum

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VII. ECONOMIC EVALUATION

of exploration and the building could be designed using a spread footing foundation bearing at 3,000 psf. No attempt has been made to estimate base costs for a building on a clean site. Outlined below is our estimate of the additional or premium costs associated with both the design and construction of the site.

A.	Design:	
	1. Additional exploration, testing, and Geotechnical Engineering	$ 7,000.00
	2. Architectural design and Structural Engineering	
	a. Single story on spread footings with special provisions for settlement	2,400.00
	b. Deep foundation with piles or caissons and grade beams	3,600.00
	3. Mechanical Engineering support and protection of utilities in fill	2,000.00
	4. Additional inspection during construction by both Geotechnical Engineer and Prime Designer	
	Spread footings	3,500.00
	Pile inspection	7,500.00
	Caisson inspection	5,500.00
B.	Construction:	
	1. Spread footings	
	Assume 1,500 psf bearing vs 3,000 psf as normal:	
	Additional concrete, 40 yds @ $70.00 Gravel backfill in place, 440 yds^3 @ $10.00	4,400.00

VII. ECONOMIC EVALUATION (Cont.)

2. Surcharge

Assume a surcharge of six feet of soil over the building area plus eight feet outside the building limits.	
5,600 yds^3 @ $9.00	$50,400.00

3. Piles

Pile caps and grade beams approximate the cost of normal footings. Assume piles at 20' on center around perimeter plus nine interior piles. Add 10 double piles for lateral support. Tie center pile caps into floor for lateral stability	
Mobilization	6,000.00
Pile load test	12,000.00
Drive 49 HP10x57 piles with driving shoes 49 x 22' x $24.00	25,900.00
	$43,900.00

4. Caissons

Mobilization	4,000.00
Assume 42" diameter caissons at 20' on center around perimeter plus nine interior caissons, 39 x 22' x $60.00	51,500.00
	$55,500.00
If 36" diameter caissons are used, deduct (do not use smaller than 36)	(13,200.00)

A chart summarizing these findings follow this page. The major points apparent from that chart are that:

A. The additional cost per square foot of new construction is lowest for single story structures on spread footings. Three or more story buildings on piles or caissons cost only slightly more per square foot.

B. The most costly use would be for structures with high first floor loading.

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VII. ECONOMIC EVALUATION (Cont.)

In final summary, we caution users of this report that the evaluations in many cases are based on incomplete data, and represent our best judgment of conditions. Detailed exploration will be necessary to confirm these judgments during the design phase of any proposed project.

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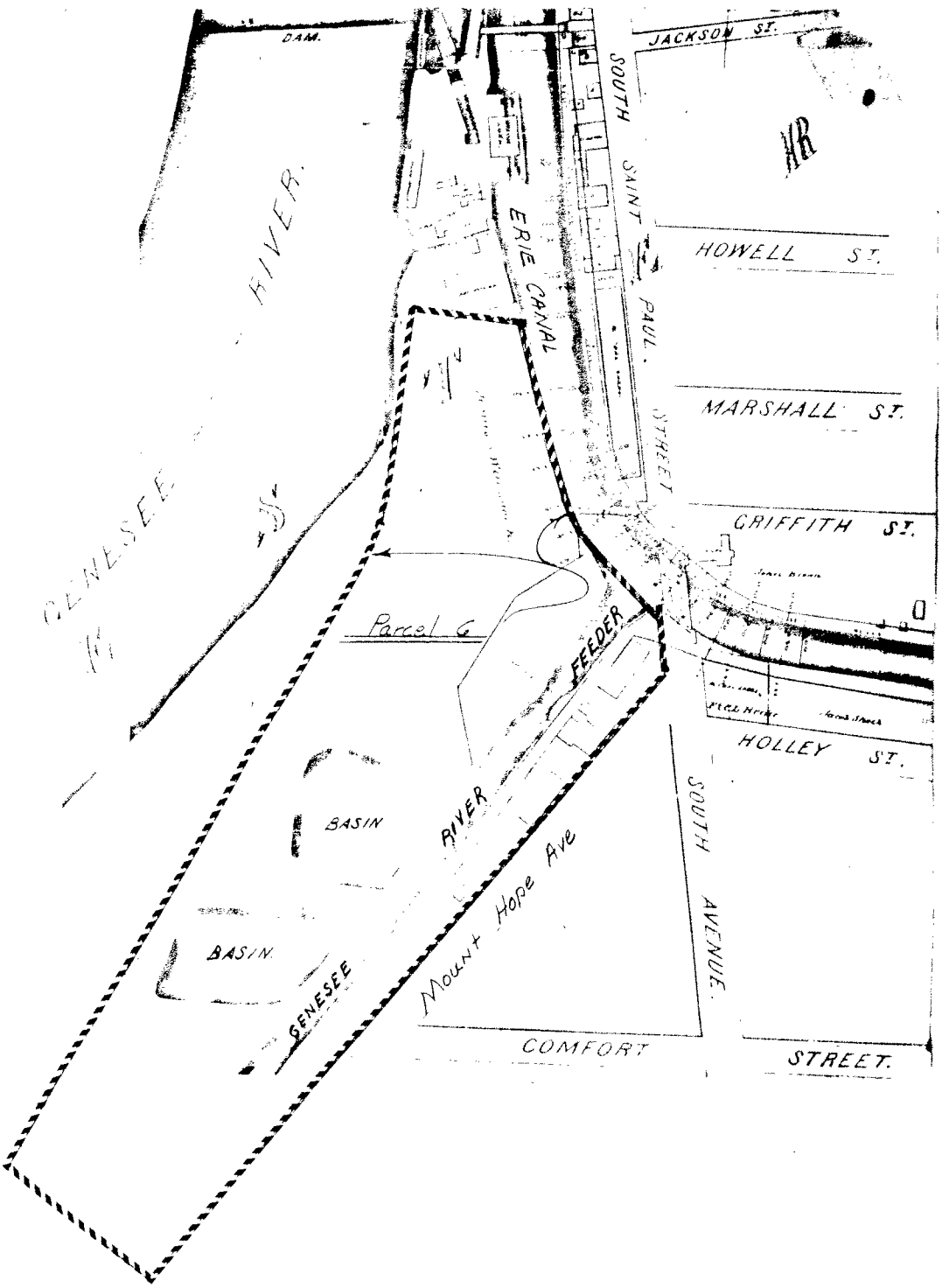
APPENDIX A

1873 Partial Map Showing Canals and Basins

1952 U.S.G.S. Topographic Map

1971 U.S.G.S. Topographic Map

Geologic Map of New York (1970)
by New York State Museum and Science Service



MAP

of

ERIE CANAL

through the

County of

MONROE

from surveys made in

1865 and 1873.

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GENESEE GATEWAY PARCEL 6

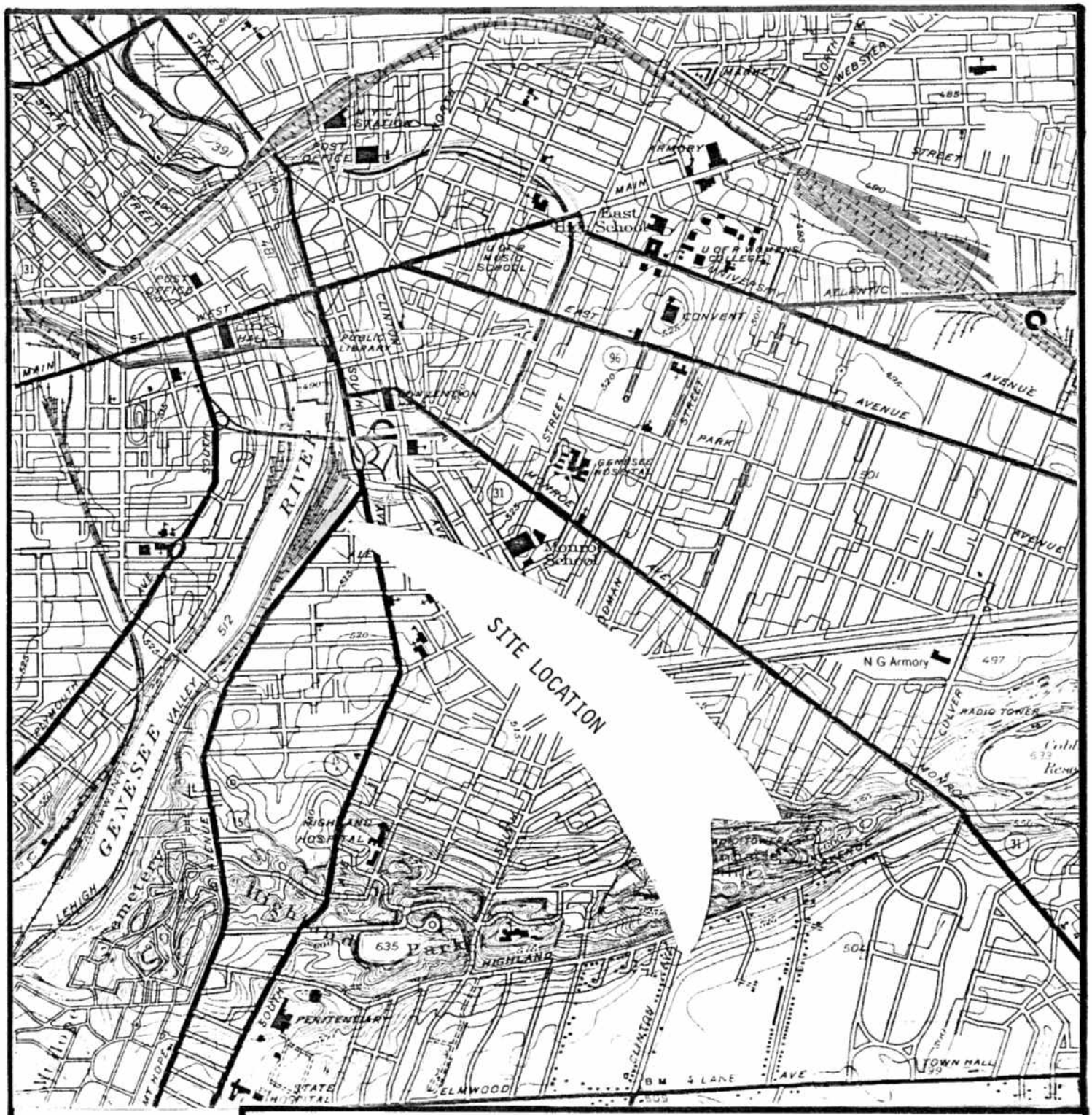
HISTORICAL MAP, 1873

DRAWN BY: JRH

CHECKED BY: JRH

DATE: 1/14/83

JOB NO.: 2-404



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GENESEE GATEWAY PARCEL 6

TOPOGRAPHIC MAP
U.S.G.S. "Rochester East" Quadrangle, 1952
(Photorevised 1969)

DRAWN BY: JRH
CHECKED BY:
Scale: 1"=2,000'
DATE: 1/14/82
JOB NO.: 2-404

Rochester Drilling CO. INC.

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-6

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/25/82 COMPLETED 5/25/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/25 TIME _____

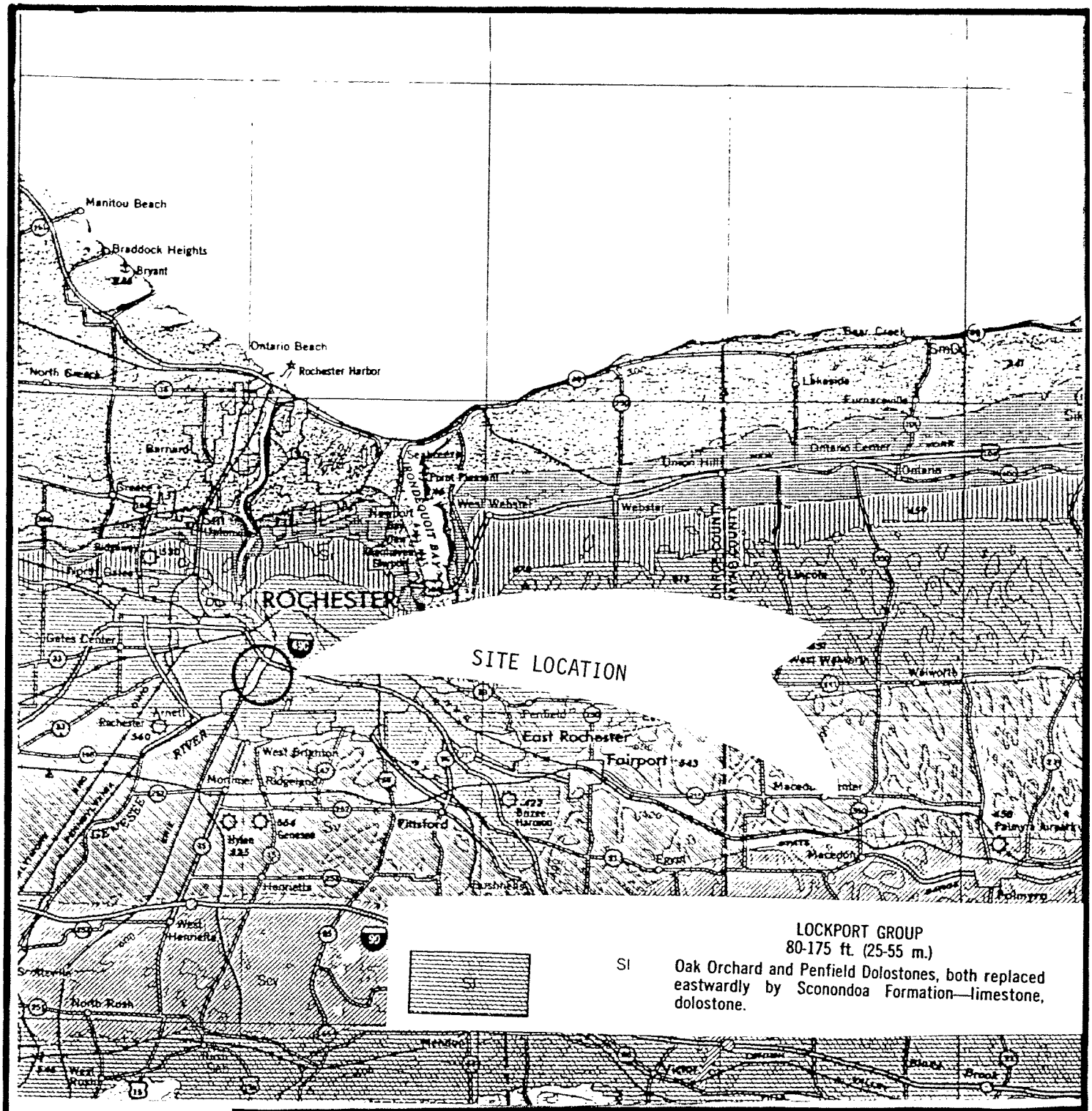
BELOW SURFACE – CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of asphalt, cinders, ashes, wood, glass, bricks, gravel, sand, etc.
5		23	12						
				11	13	23	1	5'0"-7'0"	
10		9	7						11'0"
				5	7	12	2	10'0"-12'0"	Medium stiff gray moist clayey silt, trace to little fine sand 12'6"
		7	5						Firm greenish gray moist fine sandy silt, trace of clay and fine gravel 15'0"
15				9	9	14	3	13'0"-15'0"	
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLC
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLC



SI — LOCKPORT GROUP
80-175 ft. (25-55 m.)
Oak Orchard and Penfield Dolostones, both replaced eastwardly by Sconondoa Formation—limestone, dolostone.

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GENESEE GATEWAY PARCEL 6

REGIONAL BEDROCK GEOLOGY
By New York State Museum and Science Service

DRAWN BY: JRH
CHECKED BY: JRH
DATE: 1/14/83
JOB NO.: 2-404

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APPENDIX B

1982 Drilling Report (22 Borings)
by Rochester Drilling Company, Inc.
for Farash Construction Corportion

Rochester Drilling CO. INC.

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May 27, 1982

Farash Construction Corp.
919 South Winton Road
Rochester, New York 14609

Attention: Messrs. Goodyear and VandeVate

Reference: Subsurface Investigation
Parcel #6, Mt. Hope Avenue
Rochester, New York

Gentlemen:

The field and laboratory examinations for the project referenced above have been completed. The test borings were begun on May 19, 1982 and were terminated on May 26, 1982. At this time a total of twenty-two (22) test holes were explored to specified depths, as indicated by Farash Construction.

Method

The method and procedure followed in making these test borings were in accordance with plans and specifications outlined by Farash Construction. The drilling machine used was a Mobil B-40H truck mounted drilling. Standard sampling was accomplished utilizing 2 1/2 inch hollow stem auger casing and a 2 inch extra heavy duty split spoon sampler. Standard penetration sampling was made using a 140 pound hammer dropping 30 inches each blow. It should be noted that no water was induced into the test hole for drilling purposes.

Material Encountered

The material encountered was generally a miscellaneous fill overlying a medium organic clayey silt. Refusal was encountered in three (3) test holes, numbers 1, 4, and 12.

Location

The location of all test holes was made in the field by Farash Construction Corp.

Water Levels

The water levels were observed at completion of each test hole with the casing in and out of the boring hole. It should be noted that seasonal and climatic changes may alter the observed water levels. The test holes caved in at completion, after the casing was pulled.

Classification

The classification of samples was first made in the field by the Foreman, Mr. Tom Sweeting. He then forwarded the samples and the field logs to our office to be visually checked.

Samples

The soil samples have been temporarily stored at our office at 45 Steel Street, Rochester, New York.

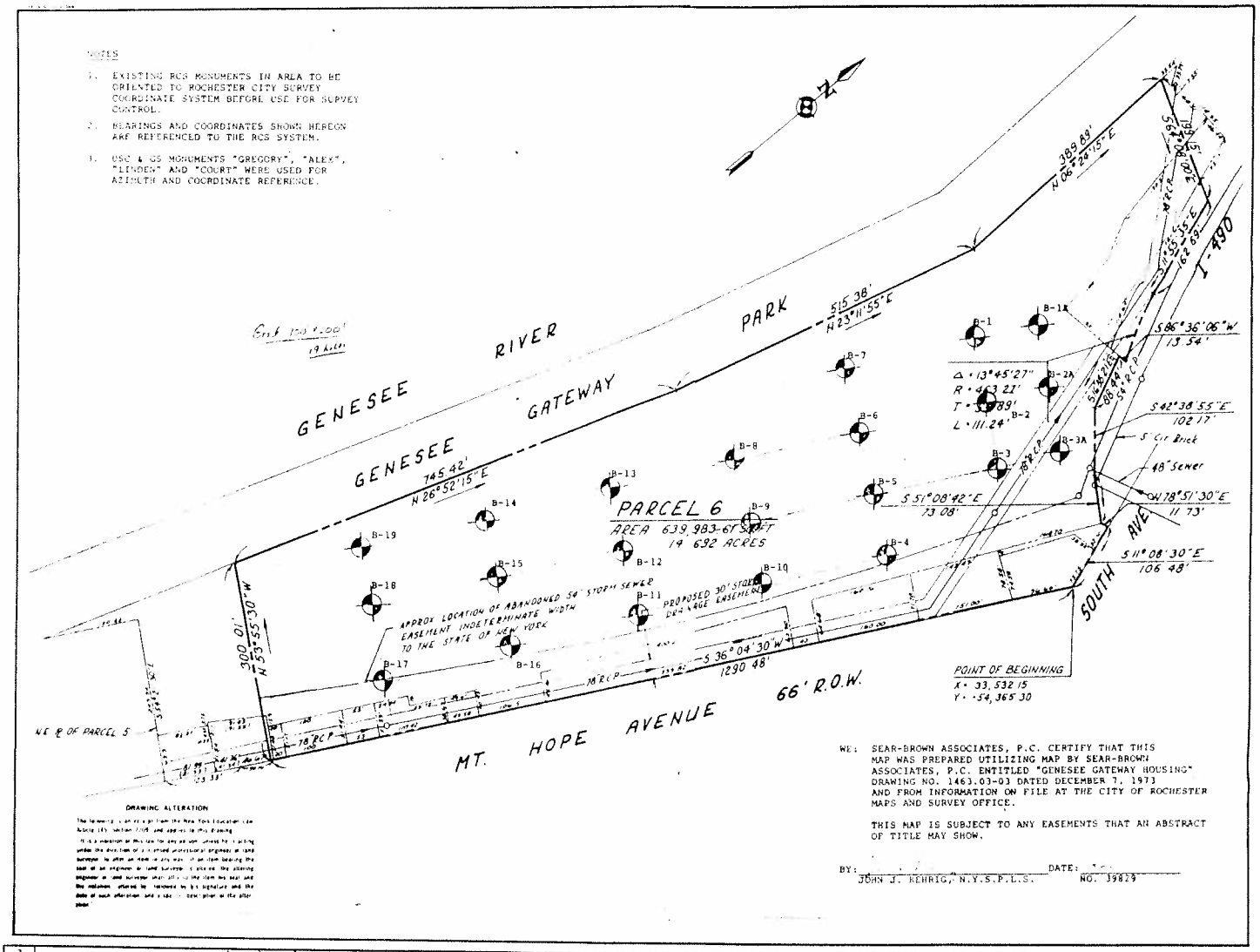
If you have any questions, please contact me at any time. Thank you.

Sincerely,

ROCHESTER DRILLING COMPANY, INC.

Carl J. Asprinio
President

CJA/jls



NO	REVISIONS	DATE	BY
7			
6			
5			
4			
3	Revised Easement	3-18-82	ICG
2	Revised 30' Storm Easement	3-11-82	RB
1	Revised for Survey Requirements	3-1-82	RBH

PROJECT ENGINEER: MCH
DRAWN BY: DB, IZG.
DATE: JANUARY 1982
SCALE: 1" = 100'
DATE ISSUED:

SEAR • BROWN ASSOCIATES, P.C.
engineers · surveyors · land planners
85 METRO PARK, ROCHESTER, NEW YORK 14623

TITLE OF PROJECT: GENESEE GATEWAY URBAN RENEWAL
TITLE OF DRAWING: DISPOSITION PARCEL No. 6
LOCATION OF PROJECT: CITY OF ROCHESTER, MONROE COUNTY, N.Y.
CLIENT: CITY OF ROCHESTER

DRAWING NO.: 24840-23

Rochester Drilling CO. INC.

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BORING TERMS AND SYMBOLS

N	The number of blows from a 140 pound hammer falling 30 inches needed to drive a split-spoon sampler the last 12 inch penetration of the sample.
C	The number of blows from a 300 pound hammer falling 24 inches needed to drive casing 12 inches.
100/1 inch	Number of blows needed to drive sampler or casing the distance shown. Used for indicating refusal.
WR	Sampler advanced by the weight of rods only, indicating very soft material.
WH	Sampler or casing advanced by weight of hammer only, indicating very soft material.
ST	Shelby Tube Sampler (piston sample or pressed tube sample).
CS	Continuous sampling
AX	1 1/8 inch rock core.
BX	1 5/8 inch rock core.
NX	2 1/8 inch rock core.
75%	Percentage of rock core recovered.
P.L.	Plastic limit.
L.L.	Liquid limit.
M.C.	Moisture content--Dry, Damp, Moist, Wet, Saturated.
H.C.	Boring caved after casing or augers were removed.
W.C.	Weight of casing only, indicating very soft material.

NOTE: WE CANNOT BE RESPONSIBLE FOR INTERPRETATIONS OR OPINIONS MADE BY OTHERS FROM THE ENCLOSED DATA.

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Refusal — Depth in boring where more than 150 blows per foot are needed to advance the sample spoon.

Cohesive Soil — Very fine grained soils with appreciable dry strength. Plastic--can be rolled into a thin thread when damp with no apparent water movement. Clays and silty to sandy clays show cohesion.

Description	Penetration Resistance Blows/Foot
Very Soft	0 - 2
Soft	3 - 5
Medium	6 - 15
Stiff	16 - 25
Hard	26 or more

Non-Cohesive Soil — Soils composed of silt, sand, and gravel, show no cohesion and only slight plasticity.

Description	Penetration Resistance Blows/Foot
Loose	0 - 10
Firm	11 - 25
Compact	26 - 40
Dense	41 - 50
Very Dense	51 or more

Composition	Estimated Percentage
And	50
Some	30 - 49
Little	11 - 29
Trace	0 - 10

NOTE: WE CANNOT BE RESPONSIBLE FOR INTERPRETATIONS OR OPINIONS MADE BY OTHERS FROM THE ENCLOSED DATA.

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-1

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/26/82 COMPLETED 5/26/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/26 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown, black, sand, silt, gravel, cinders, ashes, brick fragments, etc.
5		18	28						
				51	65	79	1	5'0"-7'0"	Miscellaneous fill - brown moist
									8'6
10									Boring terminated at 8'6" (Refusal) (Possible large fill)
									Notes: Advanced test hole with hollow stem auger casing. Not able to penetration past 8'6" due to large fill

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-1A

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/26/82 COMPLETED 5/26/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/26 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown wet silt, clay, sand, gravel, cinders, concrete and brick fragments
5		100/0					1	5'0"-5'0"	Miscellaneous fill - brown moist
10		5	3						
				7	5	10	2	10'0"-12'0"	Miscellaneous fill - brown moist
		WOH	WOH						13'
15				4	8	4	3	13'0"-15'0"	Loose greenish gray moist organic silty fine sand, trace of clay 15'
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing Sample refusal - pushing fill ahead of spoon sample #1 samples from augers

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-2

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/26/82 COMPLETED 5/26/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/26 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black moist cinders, coal, ashes, concrete and brick fragments
5		7	7						
				7	12	14	1	5'0"-7'0"	Miscellaneous fill - brown black
									9'0'
10		6	5						Firm brown moist fine sandy silt, trace of brick fragments and organic matter, fill
				10	6	15	2	10'0"-12'0"	12'6'
		4	6						Stiff greenish gray wet organic clayey silt, trace of fine sand
15				10	17	16	3	13'0"-15'0"	15'0'
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-2A

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/25/82 COMPLETED 5/25/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5 /25 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown damp silt, sand, gravel, trace of brick and concrete fragments, cinders and ashes, etc.
5		28	32						
				27	50	59	1	5'0"-7'0"	
									8'0"
10									Firm brown moist silty fine sand, trace of fine gravel, fill
		17	15						
				10	7	25	2	10'0"-12'0"	
									13'0"
		5	6						Stiff black greenish gray moist organic clayey silt, trace of wood and fine sand
15				10	14	16	3	13'0"-15'0"	
									15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-3

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/25/82 COMPLETED 5/25/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/25 TIME _____

BELOW SURFACE – CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown black moist coarse to fine greavel, sand, silt, brick and concrete fragments, trace of wood, etc.
5		6	7						
				8	10	15	1	5'0"-7'0"	
									7'6"
10									Miscellaneous fill consisting of brown damp sand, silt, and gravel, trace of brick fragments, coal and black organic matter, etc.
		WOH	2						
				4		2	2	10'0"-12'0"	
									13'6"
		6	10						Stiff greenish gray wet organic clayey silt, trace of fine sand
15				12	13	22	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-3A

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/26/82 COMPLETED 5/26/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/ 26 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
5		27	34						Miscellaneous fill consisting of brown moist gravel and concrete fragments, sand, silt, and brick fragments
				25	30	59	1	5'0"-7'0"	
									Miscellaneous fill - brown moist
									9'0"
10		15	12						Firm brown moist silty medium to fine sand, trace of fine gravel, possible fill
				10	7	22	2	10'0"-12'0"	
									13'6"
		5	4						
15				9	15	13	3	13'0"-15'0"	Medium greenish gray damp clayey silt, trace of fine to very fine sand 15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-4

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/25/82 COMPLETED 5/25/82 TECHNICIAN T. Sweeting

GROUND WATER BELOW SURFACE – CASING IN – 12'6" AT COMPLETION 5/ 25 TIME _____
– CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black brown moist sand, gravel, brick and concrete fragments, wood, asphalt, cinders, etc.
5		8	6						
				7	8	13	1	5'0"-7'0"	
10		WOH	4						Miscellaneous fill black brown moist
				3	3	7	2	10'0"-12'0"	13'0"
15		WOR	WOR						Loose gray wet organic silt, trace of fine sand, clay and gravel
				WOR	3	3	3	15'0"-17'0"	17'0"
		41	21						Very dense brown wet coarse to fine sand, some medium to fine gravel
20				85	109	106	4	17'0"-19'0"	19'0"
									Boring terminated at 19'0" (Refusal)
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-5

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/25/82 COMPLETED 5/25/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/25 TIME _____

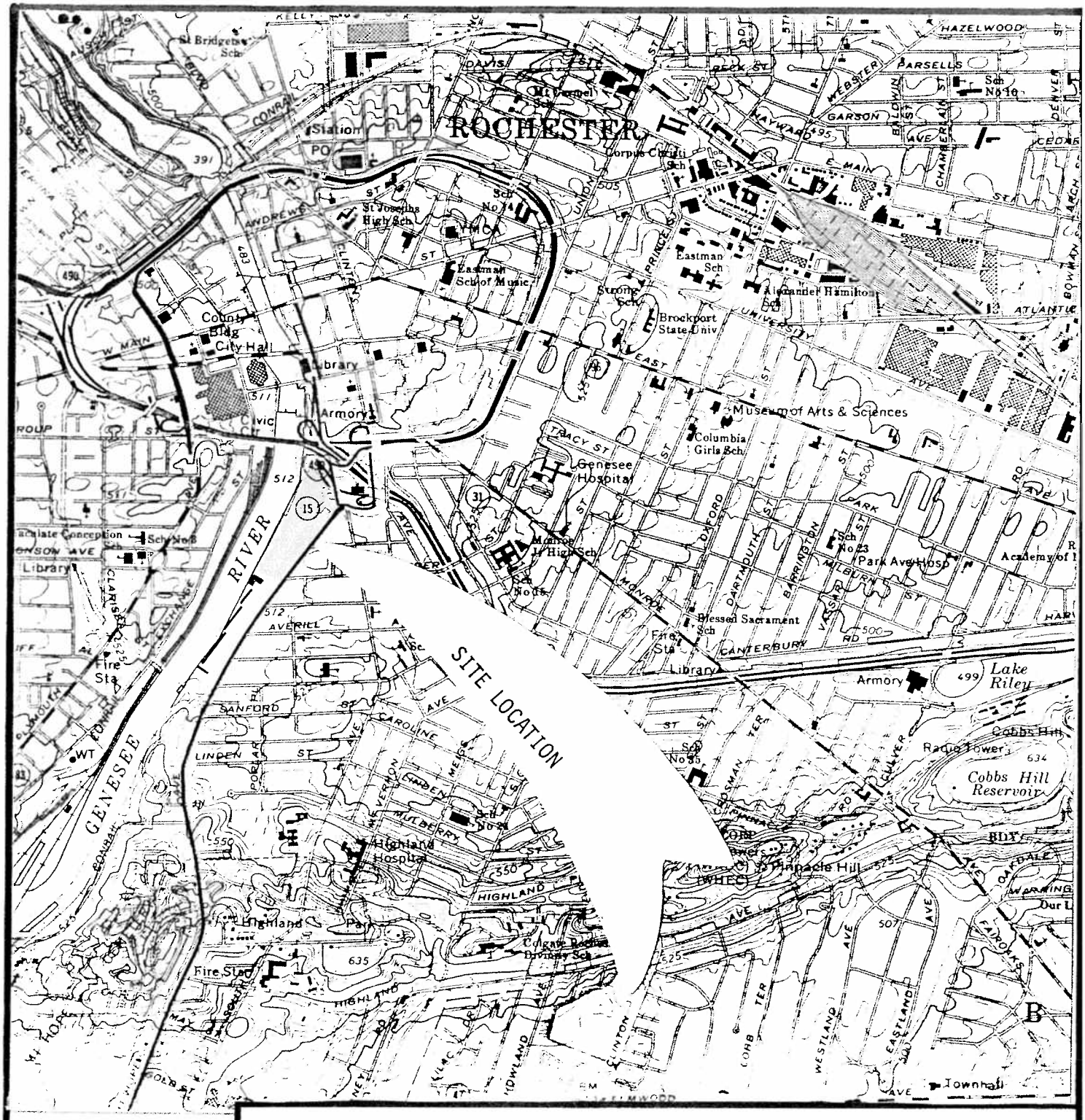
BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of large pieces of wood, sand, gravel, bricks, cinders, ashes, silt, clay, etc.
5		23	19						
				28	41	47	1	5'0"-7'0"	
									9'0"
10									
		5	5						Medium stiff greenish gray moist clayey silt, trace of fine sand
				9	11	14	2	10'0"-12'0"	
									14'0"
		8	5						Medium stiff gray moist clayey silt, little fine sand, trace of fine gravel 15'0"
15				5	5	10	3	13'0"-15'0"	
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW



FOUNDATION DESIGN P.C.

45 STEEL ST., ROCHESTER, NEW YORK 14606
(716) 458-0824

GENESEE GATEWAY PARCEL 6

TOPOGRAPHIC MAP
U.S.G.S. "Rochester East" Quadrangle, 1971
(Photorevised 1978)

DRAWN BY: JRH		DATE: 1/14/82
CHECKED BY:	Scale: 1"=2,000'	JOB NO.: 2-404

FOUNDATION DESIGN, P.C.
SOIL • ROCK • EXPLORATION • INSTRUMENTATION

ECONOMIC EVALUATION SUMMARY

	PREMIUM COST			
	One Story Office/Light Mfg.	One Story Warehousing	Two Stories	Three Stories
DESIGN PHASE				
1. Additional exploration, testing, and Geotechnical Engineering.	$ 7,000	$ 7,000	$ 7,000	$ 7,000
2. Architectural design and Structural Engineering.				
a. Single story on spread footings with special provisions for settlement	2,400	2,400		
b. Deep foundation with piles or caissons and grade beams			3,600	3,600
3. Mechanical Engineering: support and protection of utilities in fill	2,000	2,000	2,000	2,000
4. Additional inspection during construction by both Geotechnical Engineer and Prime Designer				
a. Spread footings	3,500	5,500		
b. Pile inspection			7,500	
C. Caisson inspection				5,500
CONSTRUCTION				
1. Spread footings Assume 1,500 psf bearing vs 3,000 psf as normal				
Additional concrete 40 yds @ $70.00	2,800			
Gravel backfill in-place 440 yd^3 @ $10.00	4,400			
Waste soil removed from site, 500 yd @ $4.00	2,000			
2. Surcharge Assume a surcharge of six feet of soil over the building area plus eight feet outside building limits, 5,600 yd^3 @ $9.00		50,400		
3. Piles				
Pile caps and grade beams approximate the cost of normal footings. Assume piles at 20' on center around perimeter plus nine interior piles. Add 10 double piles for lateral support. Tie center pile caps into floor for lateral stability				
Mobilization			6,000	
Pile load test			12,000	
Drive 49-HP 10x57 piles with driving shoes 49 x 22' x $24.00			25,900	
4. Caissons				
Mobilization				4,000
Assume 42" diameter caissons at 20' on center around perimeter plus 9 interior caissons 39 x 22' x $60.00				51,500
TOTAL PREMIUM	$24,100	$67,300	$64,000	$73,600
Building Area	20,000 ft^2	20,000 ft^2	40,000 ft^2	60,000 ft^2
Premium Cost Per Square Foot	$ 1.20	$ 3.36	$ 1.60	$ 1.22

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-7

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/24/82 COMPLETED 5/24/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 12'6" AT COMPLETION 5 /24 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black cinders, ashes, asphalt, bricks
5		37	28						
				30	19	58	1	5'0"-7'0"	7'0"
		7	10						Miscellaneous fill consisting of brown black sand, silt, gravel, cinders, bricks, etc.
10				7	9	17	2	8'0"-10'0"	13'0"
		3	8						Firm greenish brown wet silty sand, trace clay and fine gravel
15				9	10	17	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLC
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLC

Rochester Drilling CO. INC.

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-8

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/24/82 COMPLETED 5/24/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 10'6" AT COMPLETION 5/24 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown black moist sand, silt, gravel, cinders, ashes, bricks, etc.
5		24	52						
				102	103	154	1	5'0"-7'0"	7'0'
									Miscellaneous fill consisting of black moist cinders, ashes, asphalt, sand, silt, gravel, etc.
10		4	6						11'0'
				8	6	14	2	9'0"-11'0"	
									Loose greenish gray wet fine sandy silt, trace of clay and fine gravel
		WOH	3						
15				4	4	7	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-9

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/24/82 COMPLETED 5/24/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5 /24 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black cinders, ashes, glass, brick fragments, wood, etc.
5		21	40						
				80	31	120	1	5'0"-7'0"	
									8'0
10		5	6						Miscellaneous fill consisting of brown damp coarse to fine sand, silt, brick and concrete fragments, cinders, etc.
				3	4	9	2	9'0"-11'0"	
									13'0
		8	12						Hard greenish gray moist clayey silt, trace of fine sand and gravel
15				18	19	30	3	13'0"-15'0"	15'0
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BL(

C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BL(

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-10

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/24/82 COMPLETED 5/24/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/24 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black brown moist cinders, coal, ashes, gravel, concrete fragments, glass, wood, etc.
5		5	8						
				6	4	14	1	5'0"-7'0"	
10		5	7						Miscellaneous fill black brown moist
				11	19	18	2	9'0"-11'0"	11'0"
									Stiff greenish gray moist organic clayey silt, little fine sand, trace of fine gravel
		4	3						13'0"
15				4	6	7	3	13'0"-15'0"	Medium gray brown moist organic clayey silt, trace of fine sand and decomposing wood
									15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLC
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLC

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-11

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/21/82 COMPLETED 5/21/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5 /21 TIME _____

BELOW SURFACE – CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of black damp cinders, ashes, bricks, glass, wood, concrete fragments, etc.
5		16	9						
				11	15	20	1	5'0"-7'0"	
		4	6						
10				8	12	14	2	8'0"-10'0"	9'6"
									Firm greenish gray moist fine sandy silt, trace of clay and fine gravel
		6	8						
15				6	7	14	3	13'0"-15'0"	Firm greenish gray moist 15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-12

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/21/82 COMPLETED 5/21/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 8'0" AT COMPLETION 5/ 21 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown black cinders, ashes, asphalt, coal, sand, gravel, silt, wood, organic matter, etc.
5		50	27						
				19	16	46	1	5'0"-7'0"	Miscellaneous fill black brown wet
		7	3						
10				2	3	5	2	8'0"-10'0"	Miscellaneous fill black brown moist
									12'0
									Firm greenish gray moist fine sandy silt, trace of clay and fine gravel
		WOH/6	7						
15				13	12	20	3	13'0"-15'0"	Firm greenish gray moist
									19'0'
20									Boring terminated at 19'0" (Refusal)
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BL(
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BL(

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-13

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/21/82 COMPLETED 5/21/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/ 21 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown black damp silt, sand, gravel, cinders, ashes, brick fragments, concrete
5									
		41	66						6'0
				37	15	103	1	5'0"-7'0"	Miscellaneous fill consisting of large piec of wood, cinders, ashes, etc. 8'0
10		WOH	7						Miscellaneous fill consisting of large pieces of wood
				54			2	9'0"-11'0"	
		50/1					3	11'0"-11'1"	
		150/2					4	11'1"-11'3"	Miscellaneous fill- wood
15									15'0
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30 EA. BL(
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BL(

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-14

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/20/82 COMPLETED 5/20/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5/ 20 TIME _____

BELOW SURFACE – CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown moist silt, sand, gravel, organic matter, cinders, ashes, etc.
5		17	20						
				16	9	36	1	5'0"-7'0"	Miscellaneous fill - brown damp
		5	6						
10				12	12	18	2	8'0"-10'0"	Miscellaneous fill - brown damp
									13'0"
			4						Firm greenish gray damp fine sandy silt, trace of clay
15				8	5	12	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLOW

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-15

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/20/82 COMPLETED 5/20/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 12'0" AT COMPLETION 5/ 20 TIME _____

BELOW SURFACE – CASING OUT – _____ –WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown damp silt, sand, gravel, trace of cinders, ashes, etc.
5		20	18						Miscellaneous fill - brown damp
				33	28	51	1	5'0"-7'0"	7'0"
		2	2						Medium greenish gray moist clayey silt, little fine sand
10				5	3	7	2	8'0"-10'0"	13'0"
		10	14						Hard brown moist fine sandy silt, trace of clay and fine gravel
15				11	6	25	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30 EA. BLOW
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. " EA. BLOW

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-16

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/19/82 COMPLETED 5/19/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – None AT COMPLETION 5 /19 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
							1	0'0"-2'0" Auger sample	Miscellaneous fill consisting of tan wet clay, silt, sand, gravel, etc. 2'0"
5		7	7						Miscellaneous fill consisting of brown gray clayey silt, trace of fine sand and gravel, trace of cinders, glass, etc.
				7	7	14	2	5'0"-7'0"	8'6"
10		2	6						Miscellaneous fill consisting of brown moist silt, sand, clay, gravel, wood pieces, bricks, concrete pieces, etc.
				7	7	13	3	9'6"-11'6"	13'0"
		4	5						Medium greenish gray moist fine sandy silt,
15				5	6	10	4	13'0"-15'0"	trace of clay and fine gravel 15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-17

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/19/82 COMPLETED 5/19/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 12'6" AT COMPLETION 5/ 19 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown black damp gravel, sand, silt, brick fragments, concrete, etc.
5									
		8	22						Miscellaneous fill - gray damp
				12	12	34	1	5'0"-7'0"	8'0"
		75/4					2	7'0'-7'4"	Medium gray wet organic clayey silt, trace of fine sand (decomposed wood)
		6	5						
10				6	6	11	3	8'0"-10'0"	
									12'0"
									Medium gray mosit organic clayey silt, little fine sand, trace of fine gravel
		8	7						
15				7	7	14	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-18

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION ____ INSPECTOR ____ WEATHER ____

DATE STARTED 5/20/82 COMPLETED 5/20/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 11'6" AT COMPLETION 5/ 20 TIME

BELOW SURFACE – CASING OUT – ____ -WELLPOINT AT ____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown damp sand, silt, gravel, organic matter, concrete fragments, etc.
5		11	7						Miscellaneous fill - brown damp
				5	5	12	1	5'0"-7'0"	7'0"
		3	4						Medium greenish gray moist organic clayey silt, trace of fine sand
10				6	9	10	2	8'0"-10'0"	10'0"
		4	5						Medium greenish gray wet fine sandy silt, trace of clay and organic matter
15				8	8	13	3	13'0"-15'0"	15'0"
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLOW
C = NO. OF BLOWS TO DRIVE ____ CASING ____ WITH ____ LB. WT. ____ EA. BLOW

Rochester Drilling CO. INC.

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PROJECT NO. 2461 PAGE 1 OF 1 BORING NO. B-19

PROJECT Subsurface Investigation, Parcel #6, Mt. Hope Avenue, Rochester, New York

CLIENT Farash Construction Corp., 919 South Winton Road, Rochester, New York

ELEVATION _____ INSPECTOR _____ WEATHER _____

DATE STARTED 5/20/82 COMPLETED 5/20/82 TECHNICIAN T. Sweeting

GROUND WATER – CASING IN – 11'0" AT COMPLETION 5/20 TIME _____

BELOW SURFACE – CASING OUT – _____ -WELLPOINT AT _____

Hole caved in after pulling tools

Seasonal and climatic changes may alter the observed water levels

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
									Miscellaneous fill consisting of brown damp silt, sand, and gravel, brick and concrete fragments, cinders, ashes, glass, etc.
5		22	25						
				17	12	42	1	5'0"-7'0"	Miscellaneous fill - brown damp
		4	4						
10				4	9	8	2	8'0"-10'0"	Miscellaneous fill - brown damp
									10'0
									Stiff greenish gray wet fine sandy silt, little clay, trace of organic matter
		8	11						
15				10	8	21	3	13'0"-15'0"	
									15'0
									Boring terminated at 15'0"
									Notes: Advanced test hole with hollow stem auger casing

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BLO
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BLO

FOUNDATION DESIGN, P.C.

SOIL • ROCK • EXPLORATION • INSTRUMENTATION

APPENDIX C

Three Boring Logs and Geologic Description
of Lockport Formation
Data Excerpted from Reports
by H & A of New York - Haley & Aldrich, Inc.
for Monroe County Division of Pure Waters

TABLE V-3

Sheet 2 of 11

ROCK FORMATION SUMMARY SHEETS

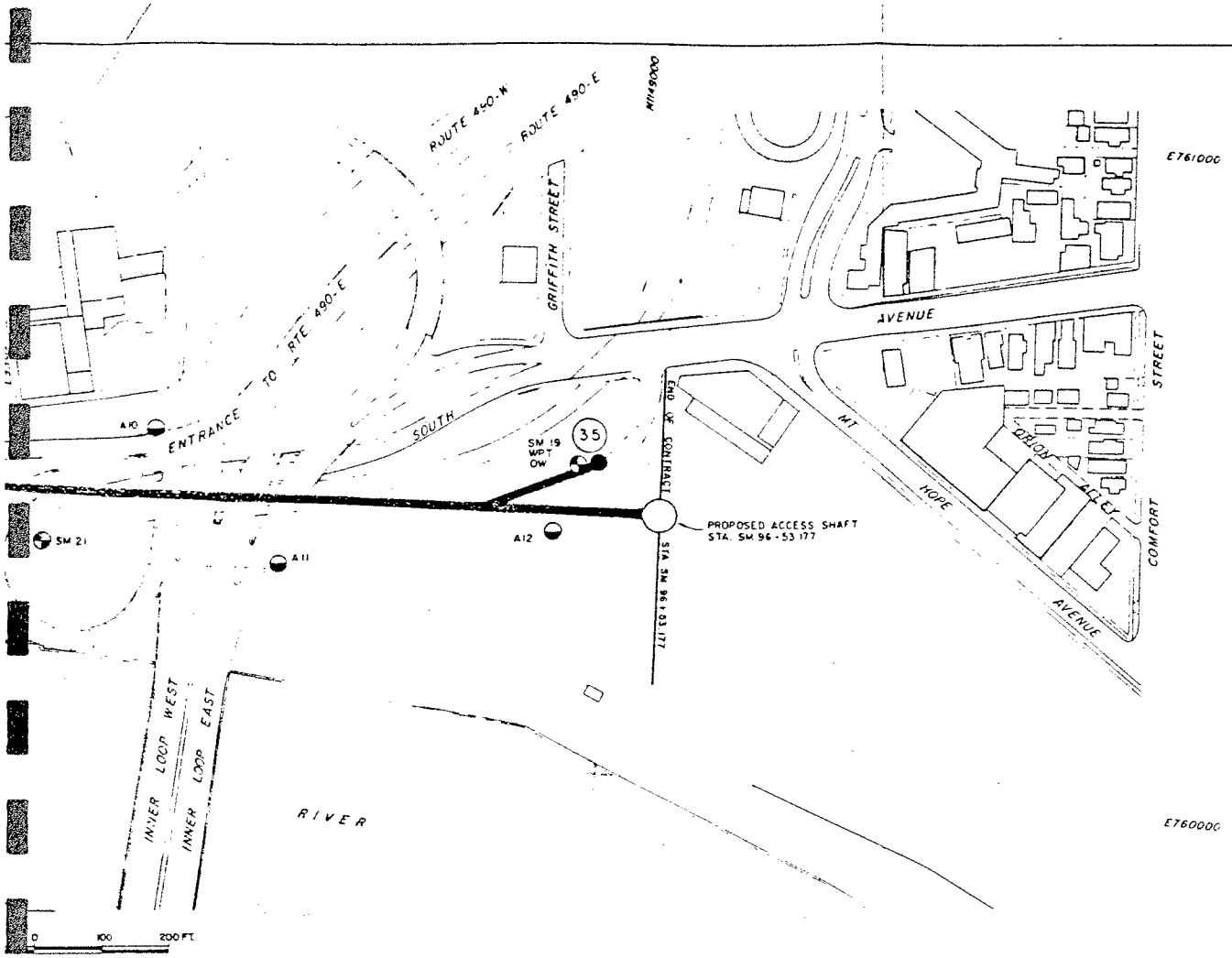
LOCKPORT DOLOMITE*

GEOLOGICAL DESCRIPTION - Gray, finely-crystalline, slightly fossiliferous Dolomite or arenaceaous Dolomite. Texture varies with the degree of argillaceous banding from massive to interbedded. Shale interbedding becomes more prominent near the Rochester Shale contact. Gypsum was present throughout the deposit in seams and as vug filling. Occasional zones of unfilled vugs and small cavities were also noted in the core.

INTACT ROCK PROPERTIES		Range	Average
Unit Weight (pcf)	-	161 to 173	166.5 (8)**
Shore Hardness (H_S)	-	43.1 to 58.9	49.9 (8)
Schmidt Hardness (H_R)	-	38.0 to 50.0	44.0 (8)
Taber Hardness (H_A)	-	0.74 to 3.24	2.44 (8)
Total Hardness (H_T)	-	39.1 to 85.5	67.1 (8)
Compressive Strength (q_u, psi)	-	21,698 to 39,812	31,900 (8)
Tangent Modulus (E_{t50}, x 10^6 psi)	-	6.2 to 6.5	6.4 (3)
Durability	-	Not Applicable	
IN SITU ROCK PROPERTIES			
Thickness (ft)	-	--	--
Rock Quality (RQD, %)	-	55 to 100	95
Permeability (K, x10^{-6} cm/sec)	-	90 to 900	380 (3)
Gas Content	-	Medium	

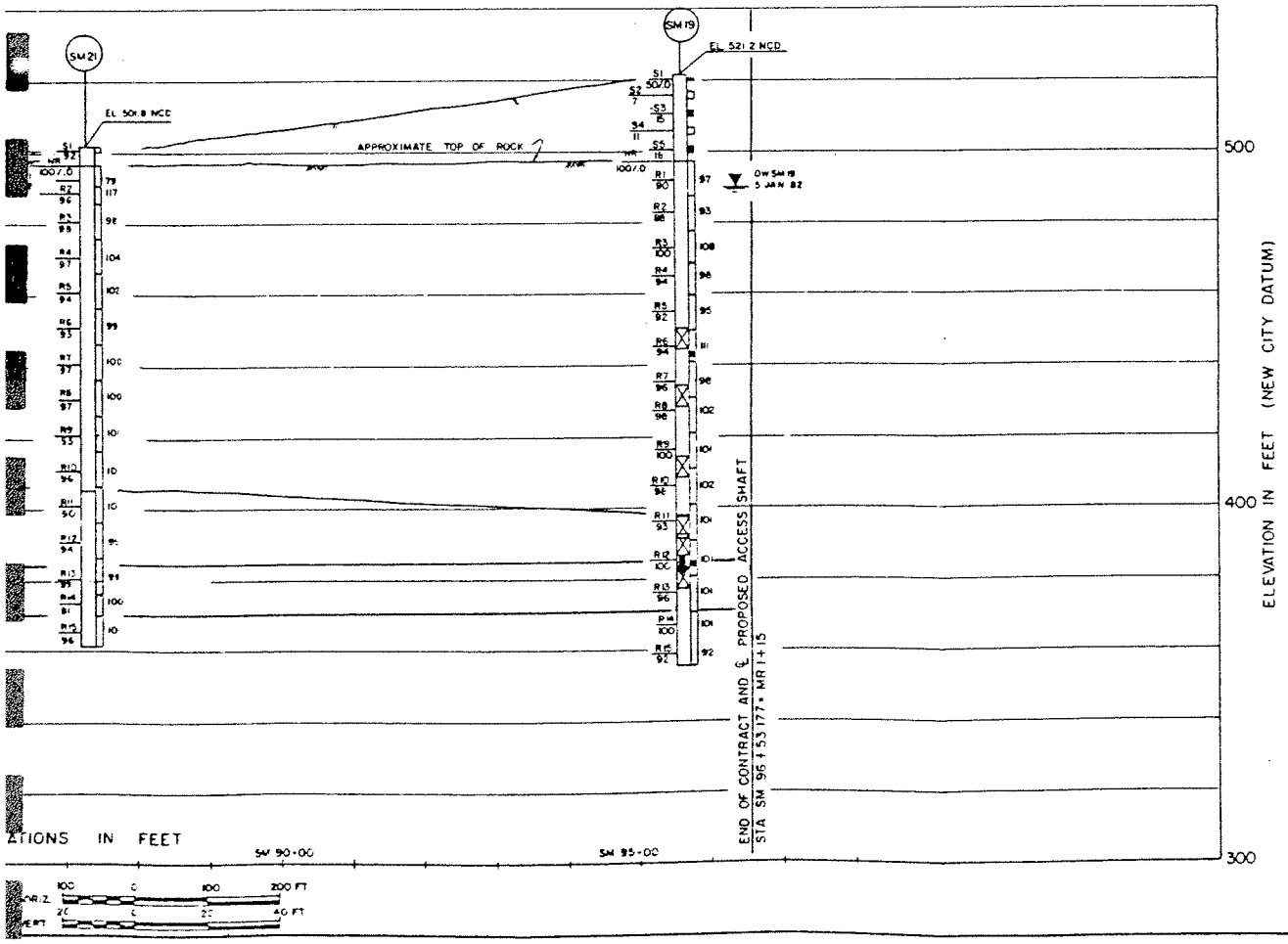
NOTES: * Test results from the proposed Culver-Goodman Tunnel Study.
** Numerals in parentheses indicate numbers of test results used to compute the range and average.

ENGINEERING DESCRIPTION AND CLASSIFICATION - Gray, moderately soft, high to very high strength Dolomite. Intact modulus ratio based on Deere and Miller (1966) is medium or low (200:1) with an average classification of AL or BL. A hypothetical, average in situ modulus of elasticity for this formation based on measured intact rock moduli and RQD's is approximately 5 x 10^6 psi. Average in situ permeability is estimated as equivalent to that of a fine sand and characterized as medium. Predominate geologic discontinuities are bedding planes, joints and shale seams with little shearing. Overall tunneling conditions for this deposit are characterized as good. Conditions appear to be suitable for tunnel boring machine operation.



NOTE

SEE NOTES AND LEGEI
FIGURE 2.



ATIONS IN FEET

PROPOSED STATE-
TUNNEL SYS

ROCHESTER, NEW

PLAN AND PI

SCALE AS SHOWN

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

TEST BORING REPORT

HOLE NO. SM 19

PROJECT: CSOAP, Phase II
CLIENT: L.S.T.
CONTRACTOR: Drill & Test

FILE NO. 374813
SHEET NO. 1 of 6
LOCATION: South Ave.& Mt. Hop
ELEVATION 521.2 ft. NCD
DATE START 17 Mar. 1981
DATE FINISH 9 Apr. 1981
DRILLER J. Genovese
INSPECTOR S. Putney

GROUNDWATER		DEPTH TO:		
DATE	TIME	WATER	BOTTOM OF CASING	BOTTOM OF HOLE

	CASING	SAMPLER	CORE BARREL
TYPE	—	SS	NQ
SIZE I.D. in	—	1-3/8	1-13/16
HAMMER WT. lb	—	140	—
HAMMER FALL in	—	30	—

SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			50/0	S-1		
5			3 4 3 4	S-2	4.5 6.5	Loose brown SAND, some silt, trace brick fragments, organics. - FILL -
10			8 7 8 6	S-3*	9.5 11.5	Medium compact, reddish-brown sandy CLAY, little silt, trace brick and cinders. - FILL -
15	15.5		4 7 4 8	S-4	14.5 16.5	Medium compact reddish brown sandy CLAY, little silt, trace brick.
20			9 9 9 12	S-5*	19.5 21.5	Medium compact gray silty CLAY, trace fine sand. Medium compact, gray silty CLAY, trace fine sand.
	24.2		100/0			TOP OF ROCK AT 24.2 FT.
25						* Laboratory Atterberg limit determination. NOTE: Drilled to top of rock on 17 March and moved off site. Completed boring 7 through 9 April.

BLOWS FT.	DENSITY
0-4	VERY LOOSE
4-10	LOOSE
10-30	MEDIUM COMPACT
30-50	COMPACT
50+	VERY COMPACT

BLOWS FT.	CONSISTENCY
0-2	VERY SOFT
2-4	SOFT
4-8	MEDIUM STIFF
8-15	STIFF
15-30	VERY STIFF

SAMPLE IDENTIFICATION	
S	SPLIT SPOON
T	THIN WALL TUBE
U	UNDISTURBED PISTON
O	OPEN END ROD
W	WASH SAMPLE

SUMMARY	
OVERBURDEN	24.2 ft.
ROCK	—
SAMPLES	4
HOLE NO.	SM 19

FORM 1846 REV. 4

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

CORE BORING REPORT

HOLE NO. SM 19 | PAGE 2 OF 6

GEOLOGIST Fred Amos

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS
20							Begin coring at 24.2 ft.
25	2	24.2					Light gray, fine to medium-grained, thin to medium-bedded siliceous Dolomite. Trace pits, vugs and stylolites. Very closely to moderately closely spaced argillaceous partings.
	3						
	2						
	3						
	2	R-1	111/103	97/90	SL-SEV		LOCKPORT DOLOMITE
30	3						Partings severely weathered from 24.8 to 33.0 ft. Short vertical joint at 25.9 ft. Rough, moderately weathered vertical joint from 29.3 to 30.1 ft. High angle crack from 30.3 to 30.7 ft. Heavily pitted zones from 31.6 to 32 ft., 32.3 to 32.8 ft,, and 36.0 to 36.4 ft. Four severely weathered partings or low angle joints from 35.7 to 36.0 ft. Numerous, discontinuous, wavy argillaceous streaks from 39.0 to 62.6 ft.
	2						
	2						
	2						
	2	33.7					
35	2						
	2						
	1						
	2						
	2	R-2	112/106	93/88	SL		LOCKPORT DOLOMITE
	2						
40	2						Severely weathered shaly parting at 39.5 ft.
	2						
	2						
	2						
	2	43.7			SEV		Severely weathered low angle joint and broken dolomite from 42.6 to 43.1 ft.
45	2						
	2						
	2						
	2						LOCKPORT DOLOMITE
	2	R-3	117/117	108/100*	SL		Severely weathered parting or low angle joint at 47.9 ft.
50	3						
	2						Severely weathered shaly partings at 54.0, 54.5 and 54.7 ft.
	2						
	2	52.7					*RQD based on core recovered.
	2						(NOTE: No water return from 31.0 ft. to bottom of boring.)
55	2						

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			RQD	
V. Hard	— Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	< 2"	> 90%	Excellent
Hard	— scratches diff.	V. slight	Severe	Thin	Close	2" - 12"	90-75	Good
Med. Hard	— scratches easily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	75-50	Fair
Soft	— grooves	Moderate	Complete	Thick	Wide	36" - 120"	50-25	Poor
V. Soft	— carves			V. thick	V. wide	> 120"	< 25	V. Poor

HBA FORM 48 - MAR 77

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

CORE BORING REPORT

HOLE NO. SM 19 | PAGE 3 OF 6

GEOLOGIST Fred Amos

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS
55	2	R-4	106/102	98/94	SL		Light gray, fine-grained, thin to medium-bedded siliceous Dolomite. Trace stylolites. Very closely to moderately closely spaced argillaceous partings. Numerous, discontinuous wavy, argillaceous streaks, to 62.6 ft.
	2						
	2						
	2						
60	3						LOCKPORT DOLOMITE
	2						Severely weathered shaly partings at 62.0 and 62.7 ft.
	2	61.7					
	2	R-5	114/110	95/92	SL		Moderately weathered shaly parting at 65.3 ft.
	2						
	3						
65	2						
	2						LOCKPORT DOLOMITE
	2						Very thin, closely to moderately closely spaced, wavy argillaceous bands from 67.0 to 99.2 ft., some of which are partings.
	2						
	2						
70	2						
	2	71.7					
	2	R-6	120/113	111/94*	SL	71.2	Smooth, low angle, non-parallel joints at 69.8, 69.9 and 70.4 ft.
	2					PT6	
	2						Moderately weathered intersecting vertical and low angle joints from 70.5 to 70.7 ft.
	2						
75	2						
	2					77.0	LOCKPORT DOLOMITE
	2					77.9	
	2						Severely weathered parting or low angle joint at 72.1 ft.
	2					79.1	
80	2						Severely weathered shaly partings at 73.6, 74.8, 74.9 and 77.1 ft.
	2	80.7					
	2						* RQD based on core recovered.
	2						
	3						Secondary gypsum seam in parting at 84.0 ft.
85	2	R-7	118/115	98/96	SL		LOCKPORT DOLOMITE
	2						
	3						
	2						
	2					87.2	
90	3					PT5	

H&A FORM 4B - MAR 77

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			RQD	
V. Hard	— Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	< 2"	> 90%	Excellent
Hard	— scratches diff.	V. slight	Severe	Thin	Close	2" - 12"	90-75	Good
Med. Hard	— scratches easily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	75-50	Fair
Soft	— grooves	Moderate	Complete	Thick	Wide	36" - 120"	50-25	Poor
V. Soft	— carves			V. thick	V. wide	> 120"	< 25	V. Poor

H & A of New York
Rochester, New York

CORE BORING REPORT

HOLE NO. A 11

PROJECT: CSOAP, Phase II

CLIENT: L-S-T

CONTRACTOR:

DRILLING SUBCONTRACTOR: Rochester Drilling Co.

FILE NO. 374813

SHEET NO. 1 of 5

ELEVATION: 505.3 ft. NCD

DATE START: 16 January 1975

DATE FINISH: 22 January 1975

DRILLER: J. Hammond

FIELD REP. Dunn Geoscience Cor

CORE BARREL	
TYPE	NX
MFR.	
O.D.	3 in.
I.D.	2-1/8 in.

LOCATION: (USC&GS Coordinates)
N 1149495 E 760271
STA: OFFSET:
OTHER

ORIENTATION:
☐ VERTICAL ☒ INCLINED BEARING S80°E
☐ HORIZONTAL ANGLE FROM VERTICAL 45°

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS

NOTE:

The information presented on this Core Boring Report was developed by relogging rock core which was drilled in connection with the Genesee River Interceptor - Southeast Project II. Relogging was performed by H & A of New York in January 1982 using the same procedures described in the Geotechnical Data Report for design phase borings. Original core logging was performed by Dunn Geoscience Corporation in January 1975 and was presented in a report entitled "Geologic Investigation for Design, Genesee River Interceptor, Southeast Project II," dated March 12, 1975. The rock core was made available to H & A of New York by the Monroe County Pure Waters District.

The purpose of relogging was to facilitate use of the previous boring data by making the rock descriptions directly comparable to those from the more recent CSOAP borings. The condition of the rock was judged to be generally good, with little significant deterioration since drilling. RQD values on this log were computed during relogging and are in general agreement with the Dunn Geoscience Logs. Refer to the Dunn Geoscience Report for additional information.

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			ROCK CONTINUITY	
V. Hard	— Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	< 2"	Ext. Fractured	— Core < 1"
Hard	— Scratches difficulty	V. slight	Severe	Thin	Close	2" - 12"	Mod. Fractured	— Core 1" - 4"
Mod. Hard	— Scratches readily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	Sl. Fractured	— Core 4" - 8"
Medium	— Grooves/gouges diff.	Moderate	Complete	Thick	Wide	36" - 120"	Sound	— Core > 8"
Soft	— Grooves/gouges read.			V. thick	V. wide	> 120"		
V. Soft	— Carves							

H&A FORM 4C FEB 79

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

CORE BORING REPORT

HOLE NO. A 11 | PAGE 2 OF 5

GEOLOGIST Fred Amos

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS
10							(NOTE: This is an ANGLED BOREHOLE drilled at 45° to horizontal and oriented S80°E.)
		12.0					TOP OF ROCK at 12.0 FT.
		R-1 12.5	5/5	83/83	SL-MOD		
	3						Light gray, fine to medium-grained Dolomite with very thin, shaly and stylolitic partings to a depth of 62.0 ft. Thin to medium-bedded.
15	3						
	3						
	3						
	3	R-2	108/84	90/70	SL		
	3						
	3						
20	3						LOCKPORT DOLOMITE
	3						Trace pits from depth of 17.0 to 24.0 ft.
	2	22.5					
	2						
	2						
25	2						
	2						LOCKPORT DOLOMITE
	2	R-3	115/113	96/94	SL		
	2						
	2						
30	2						Vertical joint, open, with secondary gypsum seam at depth of 29.0 ft.
	2						
	2	32.5					
	2						
	2						
35	2						
	2						LOCKPORT DOLOMITE
	2	R-4	118/116	104/98*	SL		
	2						Secondary gypsum seams in some partings.
	2						
40	2						(NOTE: 0.7 ft. of core missing at depth of 40.6 ft.)
	2						
	2	42.0					
	2						* RQD based on core recovered.
	2	R-5					
45	2						

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			RQD	
V. Hard	— Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	<2"	>90%	Excellent
Hard	— scratches diff.	V. slight	Severe	Thin	Close	2" - 12"	90-75	Good
Med. Hard	— scratches easily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	75-50	Fair
Soft	— grooves	Moderate	Complete	Thick	Wide	36" - 120"	50-25	Poor
V. Soft	— carves			V. thick	V. wide	>120"	<25	V. Poor

H&A FORM 4B - MAR 77

H & A of New York
Rochester, New York

CORE BORING REPORT

HOLE NO. A 12

PROJECT: CSOAP, Phase II

FILE NO. 374813

SHEET NO. 1 of 5

ELEVATION: 517.8 ft. NCD

CLIENT: L-S-T

DATE START: 8 January 1975

DATE FINISH: ? January 1975

CONTRACTOR:

DRILLER: D. Sweeting

DRILLING SUBCONTRACTOR: Rochester Drilling Co.

FIELD REP. Dunn Geoscience Corp

CORE BARREL	
TYPE	NX
MFR.	
O.D.	3 in.
I.D.	2-1/8 in.

LOCATION: (USC&GS Coordinates)
N 1149091 E 760353
STA: OFFSET:
OTHER

ORIENTATION:
☒ VERTICAL ☐ INCLINED
BEARING
☐ HORIZONTAL ANGLE FROM VERTICAL

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS

NOTE:

The information presented on this Core Boring Report was developed by relogging rock core which was drilled in connection with the Genesee River Interceptor - Southeast Project II. Relogging was performed by H & A of New York in January 1982 using the same procedures described in the Geotechnical Data Report for design phase borings. Original core logging was performed by Dunn Geoscience Corporation in January 1975 and was presented in a report entitled "Geologic Investigation for Design, Genesee River Interceptor, Southeast Project II," dated March 12, 1975. The rock core was made available to H & A of New York by the Monroe County Pure Waters District.

The purpose of relogging was to facilitate use of the previous boring data by making the rock descriptions directly comparable to those from the more recent CSOAP borings. The condition of the rock was judged to be generally good, with little significant deterioration since drilling. RQD values on this log were computed during relogging and are in general agreement with the Dunn Geoscience Logs. Refer to the Dunn Geoscience Report for additional information.

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			ROCK CONTINUITY	
V. Hard	– Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	< 2"	Ext. Fractured	– Core < 1"
Hard	– Scratches difficulty	V. slight	Severe	Thin	Close	2" - 12"	Mod. Fractured	– Core 1" - 4"
Mod. Hard	– Scratches readily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	Sl. Fractured	– Core 4" - 8"
Medium	– Grooves/gouges diff.	Moderate	Complete	Thick	Wide	36" - 120"	Sound	– Core > 8"
Soft	– Grooves/gouges read.			V. thick	V. wide	> 120"		
V. Soft	– Carves							

H&A FORM 4C FEB 79

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS

CORE BORING REPORT

HOLE NO. A 12 | PAGE 2 OF 5

GEOLOGIST Fred Amos

Scale in Feet	Drill Rate Min. per Foot	Core No. / Depth Range	RECOVERY RQD in.	RECOVERY RQD %	Graphic Log / Weath.	Strata Change / Tests	FIELD CLASSIFICATION AND REMARKS
20							
	3	22.5					TOP OF ROCK AT 22.5 FT.
		R-1	32/28	89/78	SL-MOD		Light gray, fine to medium-grained Dolomite with stylolitic partings. Thin to medium-bedded. (NOTE: Lost water return at depth of 23.0 ft.)
25	2	25.5					
		R-2	62/40	103/65*	SL		LOCKPORT DOLOMITE
30		30.5					Pits and small vugs from 28.0 to 29.5 ft. Secondary gypsum seams in some partings.
		R-3	59/54	98/90	SL		LOCKPORT DOLOMITE
35	2	35.5					
		R-4	56/49	93/82	SL		LOCKPORT DOLOMITE
40	3	40.5					
		R-5	123/122	103/99*	SL		Stylolites, very closely spaced, from depth of 43.0 to 57.5 ft. LOCKPORT DOLOMITE Two gypsum vug fillings, 0.2 ft. wide, at depth of 47.2 and 48.2 ft., along partings.
45							
50		50.5					
		R-6	123/111	103/90*	SL		* RQD based on core recovered. LOCKPORT DOLOMITE
55							

FIELD HARDNESS		WEATHERING		BEDDING/JOINT SPACING			RQD	
V. Hard	— Knife can't scratch	Fresh	Mod. Severe	V. thin	V. Close	< 2"	> 90%	Excellent
Hard	— scratches diff.	V. slight	Severe	Thin	Close	2" - 12"	90-75	Good
Med. Hard	— scratches easily	Slight	V. Severe	Medium	Mod. Close	12" - 36"	75-50	Fair
Soft	— grooves	Moderate	Complete	Thick	Wide	36" - 120"	50-25	Poor
V Soft	— carves			V. thick	V. wide	> 120"	< 25	V. Poor

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Note: Haley and Aldrich did not include the soil overburden log as part of their relogging. The log below, obtained from Rochester Drilling Company, Inc. is believed to represent the soil conditions at that location.

John R. Harnly, P.E.
Foundation Design, P.C.

PROJECT NO. 1457 PAGE 1 OF 5 BORING NO. A-12

PROJECT Genesee River Interceptor-SE Project II, Section A

CLIENT Chas. H. Sells, Inc., Civil Engineers & Surveyors, Pleasantville, New York

ELEVATION _____ INSPECTOR Dunn Geoscience WEATHER _____

DATE STARTED 1/8/75 COMPLETED 1/14/75 TECHNICIAN D. Sweeting

GROUND WATER BELOW SURFACE 28'0" AT COMPLETION 1/14 TIME _____
47'0" 1/9 -WELLPOINT AT 22'0"
130'0"

DEPTH BELOW SURFACE	C	BLOWS ON SAMPLER 0"/6"	6"/12"	12"/18"	18"/24"	N	SAMPLE NO.	DEPTH OF SAMPLE	SOIL AND ROCK CLASSIFICATION REMARKS
		5	33	64		97	1	0'0"-1'6"	Very dense mottled brownish-gray damp to moist fine sand, some silt and coarse to fine rounded to angular gravel, trace of cinders, ashes, brick, organic matter (fill) SM 3'(
5'									
		6	7	7		14	2	5'0"-6'6"	Firm mottled brown to gray moist silt, some fine sand, little coarse to fine rounded to angular gravel, trace of brick, ashes, cinders, organic matter, etc. (fill) SM
10'									
		5	8	9		17	3	10'0"-11'6"	Firm dark brown moist fine sand, some silt, little slag, trace of gravel, bricks, ashes, cinders, organic matter, wood fibers (fill) SM 13'(
15'									
		1	3	4		7	4	15'0"-16'6"	Loose mottled greenish-gray to brown moist silt, little clay and fine sand, trace of brick, organic matter, cinders, ashes; thin fine sand lenses noted (fill) ML 20'6
20'									
		1	40	40		80	5	20'0"-21'6"	Very dense mottled brownish-gray moist to wet silt, some coarse to fine rounded to angular gravel and rock fragments, interbedded with fine sand, some silt, trace of slag, brick, cinders, ashes, organic matter (fill) ML 22'6
								Run #1 22'6"-25'6"	Recovery: 32"; Drill time: 10 min.
25'									25'6
								Run #2 25'6"-30'6"	Recovery: 61½"; Drill time: 10 min.
30'									

NOTES: N = NO. OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" EA. BL
C = NO. OF BLOWS TO DRIVE _____ CASING _____ WITH _____ LB. WT. _____ EA. BL

FOUNDATION DESIGN, P.C.

SOIL • ROCK • EXPLORATION • INSTRUMENTATION

APPENDIX D

Portions of Rochester Building Code and New York State Code dealing with Exploration and Foundations

Soil Bearing Value, Determination

The requirements for the determination of soil bearing values are to be in accordance with the following data or with the ANSI, *Building Code Requirements for Excavations and Foundations.* Where the bearing value of soil is determined by field loading tests, and where other bearing values are established by local practice and experience or because of special conditions, soil bearing values are not to exceed the following, on undisturbed soil:

PRESUMPTIVE UNIT SOIL BEARING VALUES

Class	Material	Allowable bearing value, tons per square foot [1]
1	Massive crystalline bed rocks, such as granite, gneiss, trap rock, etc.; in sound condition	100
2	Foliated rocks, such as schist and slate, in sound condition	40
3	Sedimentary rocks, such as hard shales, siltstones, or sandstones, in sound condition	15
4	Exceptionally compacted gravels or sands	10
5	Gravel; sand-gravel mixtures; compact	6
6	Gravel, loose; coarse sand, compact	4
7	Coarse sand, loose; sand-gravel mixtures, loose; fine sand, compact; coarse sand, wet (confined)	3
8	Fine sand, loose; fine sand, wet (confined)	2
9	Stiff clay	4
10	Medium stiff clay	2
11	Soft clay	1
12	Fill, organic material, or silt	([2])

[1] Presumptive bearing values apply to loading at the surface or where permanent lateral support for the bearing soil is not provided.

[2] Except where, in the opinion of the enforcement officer, the bearing value is adequate for light frame structures, fill material, organic material, and silt shall be deemed to be without presumptive bearing value. The bearing value of such material may be fixed on the basis of tests or other satisfactory evidence.

Foundations on Laterally Supported Soil—The presumptive unit bearing values given below may be increased for load on soil where, because of depth below ground level and permanent lateral support of the bearing soil, greater bearing values are justified. Such greater bearing values may be used only with the approval of the enforcement officer.

Modification of Bearing Value

Variation in Underlying Soils—Where the bearing materials directly under a foundation overlie strata having smaller allowable bearing value, such smaller value may not be exceeded at the top level of such strata. Computation of the vertical pressure in the bearing materials at any depth below a foundation is to be made on the assumption that the load is spread uniformly at an angle of 1 horizontal to 2 vertical.

Loosened Bearing Materials—Wherever bearing material is loosened or disturbed by a flow of water, the bearing value is to be reduced to the allowable bearing value of the loosened material, unless the loosened material is removed. Where the flow of water is controlled by well points, or by other method, so that the bearing material is not disturbed or loosened, the full bearing value of the unloosened material may be assumed.

Soil Bearing Load Test

Procedure—Tests are to be made and interpreted so as to take into account all significant factors, such as the presence of soft underlying strata, variations in size of footings, and the compressibility of the soils encountered. When there is substantial variation in size of proposed footings, loading tests are to be made on several different-sized areas as a guide in determining the allowable bearing values for the various footing sizes.

Tests are to be made where surface water conditions and ground water conditions are representative of the bearing soil, and when the soil tested is free from frost.

The test is to be made on leveled but otherwise undisturbed portions of foundation bearing material. Where tests are made materially below the

a——For buildings in which the sum of the snow load and those live loads of all the floors which are transferred by columns or walls to the soil, divided by grade-floor area, is 200 psf or less, the allowable bearing value of the soil upon which the building rests shall be the presumptive bearing value, or shall be determined by field loading tests made in conformity with generally accepted standards.

b——For buildings in which the sum of the snow load and those live loads of all the floors which are transferred by columns or walls to the soil, divided by grade-floor area, exceeds 200 psf, there shall be a minimum of one test pit or boring for every 2500 square feet or part thereof of grade-floor building area, carried sufficiently into acceptable bearing material to establish its character and thickness. At least one boring for every 10,000 square feet or part thereof of building area shall be carried to a minimum depth below grade equal to the height of building but need not be carried more than 100 feet below grade, or to that minimum depth which shows 25 continuous feet of fine sand or better bearing material than fine sand, or 5 feet of bed rock, below the deepest proposed footing. A record of all borings made by core drill or spoon showing the foot-by-foot character of the soil, the ground water level, and the number of blows required for each foot of penetration of the spoon, shall be kept and certified by the architect or engineer in charge. The subsurface exploration apparatus including the size of spoon, weight and the drop shall be in conformity with generally accepted standards. Wash borings shall be deemed unacceptable. Borings samples taken at each significant change of soil strata and at 5-foot intervals thereafter shall be retained and made available to the enforcement officer. When in his opinion additional sub-surface information is required because of the variable geology of the site, additional test pits or borings shall be made.

c——For buildings referred to in section C 302-2b, when the building load is transferred to the soil by spread footings, the allowable bearing values of the successive layers of soil determined by test pits or borings shall be the presumptive bearing values and, if required by the enforcement officer, shall be substantiated by field loading soil tests made on undisturbed, natural soil at the level of the proposed foundation with fill, if any, removed.

d——For buildings referred to in section C 302-2b, when the building load is transferred to the soil through the medium of friction or bearing piles, the capacity of a pile group shall be the number of piles multiplied by the capacity of one pile and by a reduction factor for friction piles. The capacity of a pile shall be determined by either of the following methods or by an approved combination of them with a limit determined by the strength of the pile as a structural member:

A field loading pile test, one such pile test for each 15,000 square feet or part thereof of grade-floor building area, with a minimum of two test piles, or

A generally accepted pile-driving formula.

§ 78-8. Soil, bearing capacity. 1. Presumptive capacities. a. In the absence of satisfactory tests, the sustaining power per square foot of different soils shall be deemed to be as follows:

Soft clay	1 ton
Wet sand	2 tons
Firm clay	2 tons
Sand and clay, mixed or in layers	2 tons
Fine, dry sand	3 tons
Coarse sand	4 tons
Gravel	6 tons
Soft rock	8 tons
Hard pan	10 tons
Medium rock	15 tons
Hard rock	25 tons

b. In case a building* or structure* rests partly on rock or hard pan and partly on some other soil, the bearing capacity of the latter shall be taken at not more than one-half of the capacity otherwise assumed.

c. Before the construction of the footings or foundations of a building* or structure* hereafter* erected to exceed fifty feet in height*, is commenced, the owner* or holder of the permit shall cause an examination of the underlying soil to be made by a competent engineer and shall file with the superintendent of buildings a certification by such engineer of the nature of the soil and its safe bearing capacity.

2. Soil tests. When a doubt arises as to the safe sustaining power of the soil upon which a building* or structure* is to be erected, or it is desired to exceed the presumptive capacity, the superintendent of buildings may direct that borings or tests be made by and at the expense of the owner* of the proposed building* or structure* to determine the sustaining power of the soil. Whenever such a test is made the superintendent of buildings shall be notified so that he may be present in person or by a representative. A complete record of the test shall be filed with the superintendent of buildings.

3. Filled ground. No foundation of a building* or structure* shall be placed on filled ground until the superintendent of buildings has fixed, by inspection or test at his discretion, the safe sustaining power that shall be assumed.

BUILDING CODE

RULES

ADOPTED BY THE BUILDING BOARD

Rule No. 1

Bearing Values For Rock

When, pursuant to paragraph 2 of section 78-8 of the building code, it is desired to exceed the presumptive sustaining power of the following classifications of rock, as fixed by paragraphs 1 and 2 of section 78-8 of the building code, the general practice for the determination of the safe bearing values of the said classifications of rock shall be as follows:

CLASSIFICATIONS OF ROCK AND SHALE:

SOFT ROCK shall include Clinton and Queenston Shale.

MEDIUM ROCK shall include Rochester Shale.

HARD ROCK shall include Lockport Dolomite and Medina Sandstone.

When a hole five feet below the bearing surface of the rock or shale shall have been drilled at the location of each individual footing and such hole discloses at least five feet of thickness of a particular rock heretofore mentioned, the foregoing test shall in general determine the safe bearing values of the following rocks to be as follows:

Queenston and Clinton Shale	15 tons.
Rochester Shale	25 tons.
Lockport Dolomite and Medina Sandstone	50 tons.

In the making of the foregoing tests the superintendent of buildings may authorize the omission of these test holes up to eighty per cent of the maximum number required, if, in his opinion, the nature and condition of the rock justify the said omission.

Nothing in this rule shall abrogate any of the provisions of paragraph 2 of section 78-8 of the building code and nothing herein shall deprive the superintendent of buildings of the right to require any additional borings or tests as provided in said paragraph 2.

Adopted October 13, 1933.

RULE NO. 53

MUD SEAMS IN ROCK UNDERLYING FOUNDATIONS

When it is determined by borings or other tests or available data, that within five (5) feet below the bearing surface of the rock, there occurs one or more open seams containing a material or materials foreign to the rock and which have little or no bearing value, the following will govern the significance to be given such seams:—

(a) Seams less than ¼" thick may be ignored.

(b) Seams from ¼" thick, up to but not including ½" thick, and located more than three (3) feet below the proposed bearing surface, may be ignored.

(c) Seams ½" or greater in thickness and located more than five (5) feet below the proposed bearing surface, may be ignored at the discretion of the superintendent of buildings.

(d) Seams ½" or more thick within the first five (5) feet and seams from ¼" thick up to but not including ½" thick, within the first three (3) feet below the proposed bearing surface, are to be considered as unsatisfactory for transmitting heavy loads. In such instances, the bearing surface is to be lowered to the bottom of the lowest known seam of a thickness as herein described. A new boring or borings will then be required of sufficient number as set forth in Section 78-8 of the Building Code and in Rule No. 1 adopted by the Rochester Building Board for new borings. Any seam occurring in the new borings will be subject to the above regulations.

(e) Notwithstanding the above stipulations, the superintendent of buildings may, at his discretion, order any or all seams to be pressure-grouted with approved* mortar and installed in a manner satisfactory to him. The superintendent of buildings shall approve of the extent of grouting to be done, the locations where it is to be done, and the amount of additional bearing value obtained as a result of pressure-grouting. He may require that tests be performed at the owner's expense, to determine the efficiency of the grout and its installation.

This rule is applicable when it is desired to use the provisions of Rule No. 1 adopted by the Rochester Building Board or in such other instances, as provided for in section 78-8 of the Building Code, as the superintendent of buildings may direct.

Nothing in this rule shall abrogate any of the provisions of paragraph 2 of section 78-8 of the building code or of Rule No. 1, adopted by the Rochester Building Board, and nothing herein shall deprive the superintendent of buildings of the right to require any additional borings or tests as provided in said paragraph 2 of section 78-8 of the Building Code.

Adopted November 29, 1960