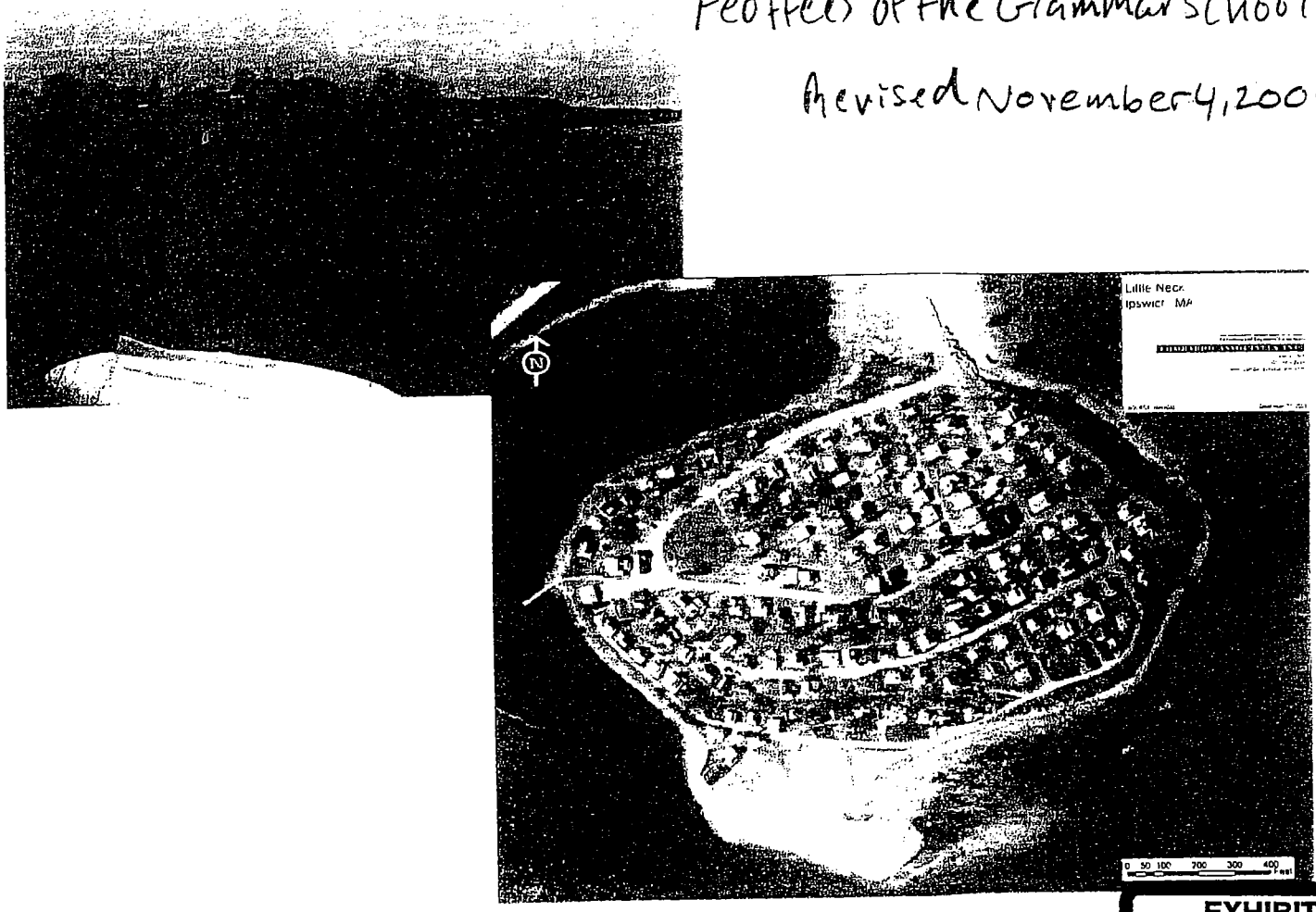
LITTLE NECK, IPSWICH, MA

Project Overview

for

Feoffees of the Grammar School

Revised November 4, 2004



EXHIBIT
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Submitted to:
Feoffees of the Grammar School
c/o Mr. Donald Whiston
2 Jeffrey's Neck Road
Ipswich, MA 01938

Submitted by:

Environmental Engineers/Consultants
LOMBARDO ASSOCIATES, INC.
49 Edge Hill Road
Newton, Massachusetts 02467

NOTICE TO CONTRACTORS: AMENDMENT #1 TO INVITATION TO BID

Little Neck Wastewater Collection System

Ipswich, MA

November 4, 2004

In reference to the Invitation to Bid for Construction of the Little Neck Wastewater Collection System, the

pre-bid conference has been postponed to November 23, 2004 at 10:00 am at The Little Neck Community Center.

Prospective Bidders are invited to present their questions relative to their Bid at this meeting. Attendance at this meeting is not a requirement for submitting a Bid for the Work.

Contract Documents will be issued on November 15, 2004.

A Project Overview package will be sent to all contractors who request the Contract Documents prior to November 15, 2004 or sent with the Contract Documents for those requested after November 15, 2004.

Sealed Bids will be received by The Feoffees of the Grammar School (hereinafter referred to as the Owner), at the Offices of Attorney Donald Greenough, 2 Depot Square, Ipswich, MA 01938

until 2:00 p.m., local time, on December 21, 2004

for Construction of the Little Neck Wastewater Collection System.

For further information, contact Pio Lombardo, P.E. or Gary Rubenstein, Lombardo Associates, Inc. at 617-964-2924 or email, Pio@LombardoAssociates.com

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1. LITTLE NECK PROJECT OVERVIEW PACKAGE FOR PHASE I - CONSTRUCTION OF THE LITTLE NECK WASTEWATER COLLECTION SYSTEM

As described in the Invitation to Bid, attached as Appendix A, enclosed is a project overview to assist interested contractors to understand the scope and schedule of this project.

Due to MADEP imposed deadlines, the project will be fast-tracked as follows:

1. Plans and Specifications of the proposed design as of November 1, 2004 will be available after November 2, 2004 from the Engineer of Record, Lombardo Associates, Inc. (LAI)
2. Addenda to those plans may be issued and received by prospective bidder by December 1, 2004 from LAI
3. Bids to the November 1, 2004 plans and addenda will be the basis for Contractor Selection by the Feofees of the Grammar School (Owner)
4. Construction is expected to start on or about January 3, 2005

The following are enclosed herein for the Construction of the Little Neck Wastewater Collection System:

- Scope Description
- Proposed Layout
- Draft bid form
- Boring logs

1.1 SCOPE DESCRIPTION

This project (Little Neck Wastewater Collection System) is Phase I of a two-phase construction project that will ultimately include:

- Phase I - Sewer Collection System
- Phase II - Holding Tank/Transfer Facilities/Building

The Scope of Phase I of the Little Neck wastewater project consists of construction of gravity sewers house laterals, proper abandonment of existing cesspools-septic tanks, a pump station, and force main to serve the 167 houses.

As currently envisioned, the collection system is comprised of gravity piping and manholes that convey flows to the holding tank or pump station. The pumping system is comprised of one pump station at a low point on the south side of the island and one on the northeast side that will discharge via a force main to gravity sewers that flow to the future holding tank located near the playground (See Figure 1-1), along with grinder pumps as needed.

A general description of the work to be performed under this contract shall include but will not be limited to the following construction operations:

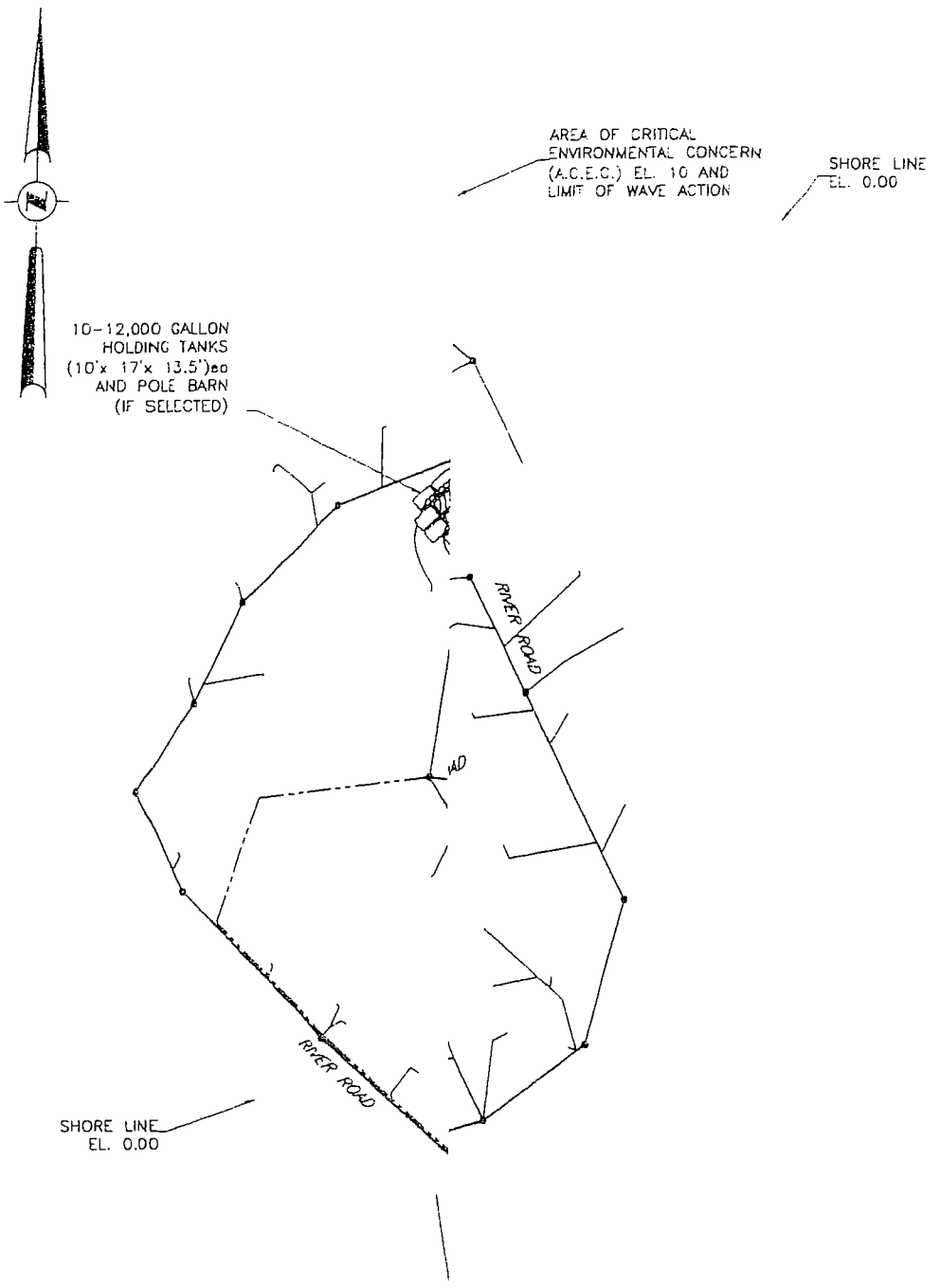
- Excavating, filling, backfilling, grading and compacting for pipe laying, wet well and for resurfacing.
- Furnish and install all sewer pipes and manholes with necessary appurtenances and fittings

- Furnish and install wet wells complete with necessary appurtenances and service fittings.
- Furnish and install pump stations including drywell, motors, duplex pumps, and controls.
- Replace and restore disturbed pavement surfaces, curbing, utilities, grass, posts, signs, etc. along the line of work. Replace any disturbed bounds utilizing the services of a registered land surveyor.
- Do all testing of sewers and force main and start up of pump station and correct all failure and/or breaks.
- Dispose of excess material from excavation not required for fill or backfill at the expense of the Contractor, and to the satisfaction of the Owner.
- Installation of house laterals
- Proper abandonment of existing cesspools or septic tanks
- Replumbing of properties to redirect house wastewater discharge

The Phase II Contract will be awarded early in 2005 and will consist of the Holding Tank/Transfer Facilities/Building.

1.2 Existing Boring Logs

Borings will be performed along the route of the proposed sewers, force main and at the pump stations. The data is anticipated to be provided as an addenda by December 1, 2004. Figure 1-2 illustrates the locations of boring and Appendix B presents the logs of the previous investigations performed at Little Neck.



PROGRESS PRINT
DRAFT 11-04-2004

REVISIONS

1	11/04/04	SCENARIO II – REVISION NO 1

SEWER SYSTEM LAYOUT
SCENARIO II

PREPARED FOR FEOFFEES OF THE GRAMMAR SCHOOL
IPSWICH, MA

Table 1-1: Draft Bid Form

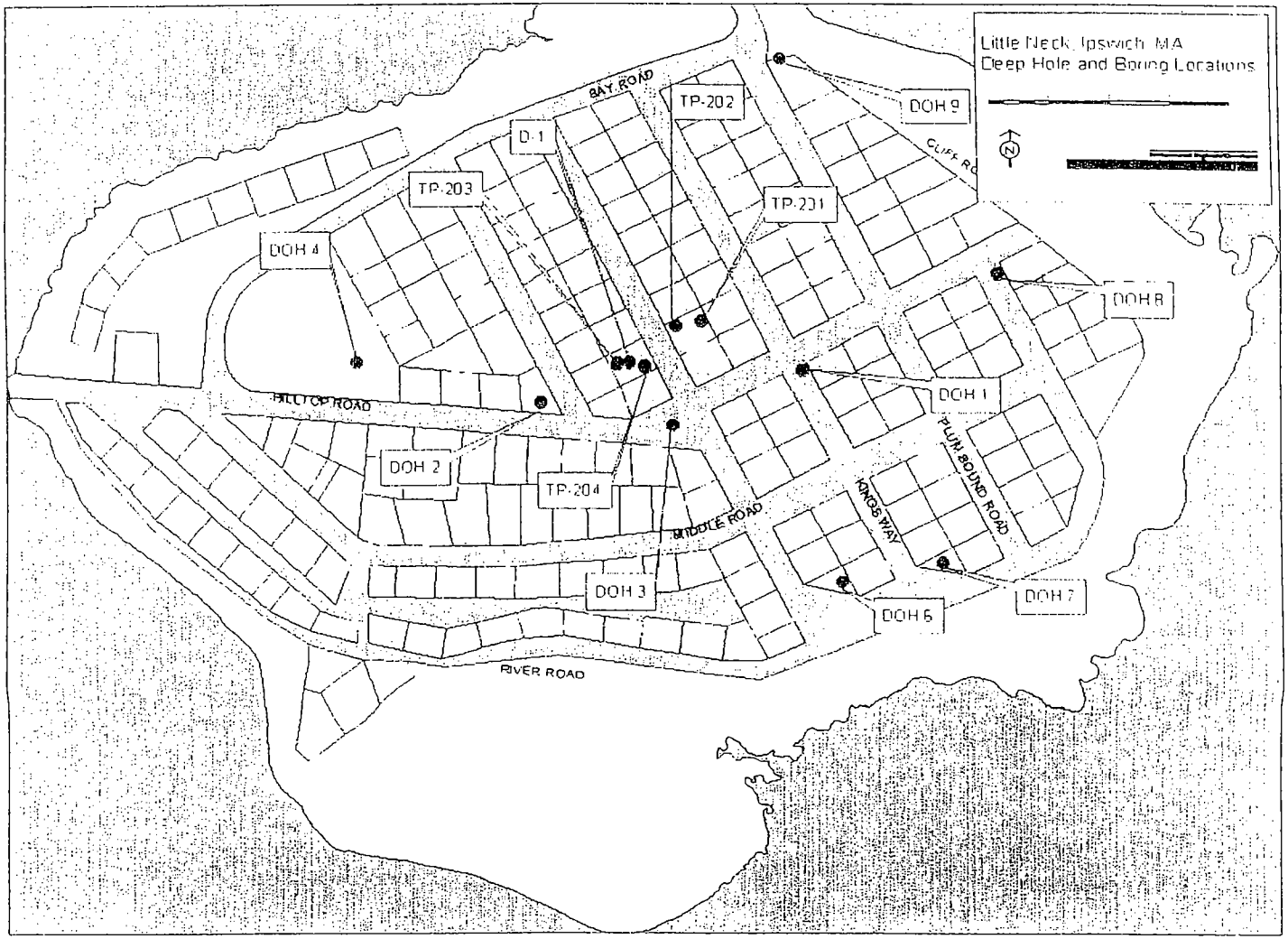
Little Neck Wastewater Collection System
Foefees of the Grammer School, Ipswich, MA
BID SCHEDULE A

Item	Description	Unit	Quantity	Price	Extension
1.	8 inch PVC Gravity Sewers, 0–4 ft. deep	LF	500		
2.	8 inch PVC Gravity Sewers, 4–12 ft. deep	LF	7,800		
3.	Pavement Demo & Repair	SY	5,400		
4.	Manholes 0-4 ft. deep	Ea	5		
5.	Manholes 4-12 ft. deep	Ea	43		
6.	Clean Outs	Ea	6		
7.	4 inch PVC Force Main	LS	1,300		
8.	Pump Station, 100 gpm	LS	1		
9.	Utility Relocation, Water	LS	800		
10.	Utility Relocation, Electric	LS	600		
11.	Utility Relocation, Cable/Phone	LS	600		
12.	Dewatering	DAY	20		
13.	Boulder Excavation	CY	15		
14.	Bedrock Excavation	CY	5		
15.	House Laterals	Ea	167		
16.	House Plumbing Changes	Ea	167		
17.	Mobilization	Ls	1		
18.	Demobilization	Ls	1		
	TOTAL				

TOTAL (IN WORDS) BID SCHEDULE A:

_____

FIGURE 1-2: DEEP HOLE AND BORING LOCATION



APPENDIX A: INVITATION TO BID

Sealed Bids will be received by The Feoffees of the Grammar School (hereinafter referred to as the Owner), at the Offices of Attorney Donald Greenough, 2 Depot Square, Ipswich, MA 01938 until 2:00 p.m., local time, on December 7, 2004 for Construction of the Little Neck Wastewater Collection System.

At said place and time, and promptly thereafter, all Bids that have been duly received will be publicly opened and read aloud.

The Contract Agreement will provide for the Construction of the Little Neck Wastewater Collection System, as described in the following Description of Work, hereinafter referred to as the Work.

A Little Neck Project Overview package, complete with maps and all presently available data may be obtained after October 8, 2004 from Lombardo Associates, Inc., 49 Edge Hill Road, Newton, MA 02467 upon payment of a non-refundable fee of ten dollars ($ 10.00). (Send an additional $ 15.00 per set if overnight mailing is requested). Checks shall be made payable to Lombardo Associates, Inc.

Contract Documents, complete with Plans and Specifications may be obtained after November 2, 2004 from Lombardo Associates, Inc., 49 Edge Hill Road, Newton, MA 02467 upon payment of a non-refundable fee of Seventy-five dollars ($ 75.00). (Send an additional $ 15.00 per set if overnight mailing is requested). All parties who request a Little Neck Project Overview package will be notified when the Contract Documents are available. All Bids must be in accordance with the Contract Documents. Checks shall be made payable to Lombardo Associates, Inc. The contract will be awarded to the successful Bidder on or about December 15, 2004. The Owner reserves the right to select the successful Bidder based upon price and non-price considerations.

A pre-bid conference will be held at 10:00 a.m. on November 16, 2004 at The Little Neck Community Center located on Bay Road, Little Neck, Ipswich, MA. Prospective Bidders are invited to present their questions relative to their Bid at this meeting. Attendance at this meeting is not a requirement for submitting a Bid for the Work.

The Work is expected to commence within ten (10) days after the Notice to Proceed is issued, with an estimated construction start date of January 2, 2005. The work shall be completed by April 15, 2004.

Bid Security in the amount of five (5) percent of the total Bid Price must accompany each Bid in the form specified in the Instructions to Bidders.

Within ten (10) days of the date of the Notice of Award, the successful Bidder will be required to furnish Performance Bond and a Payment Bond in the amount of one hundred (100) percent of the Contract Amount, guaranteeing faithful performance and the payment of all bills and obligations arising from the performance of the Agreement.

No Bid may be withdrawn within a period of sixty (60) days after the date fixed for opening Bids.

The OWNER reserves the right to reject any and all bids or to accept that bid or combination of bids, if any, which in its sole and absolute judgment will under all circumstances best serve the OWNER'S interest. No Bid will be accepted from any firm, person, or corporation, who is a defaulter as to surety or otherwise, or is deemed incompetent, irresponsible, or unreliable by the OWNER.

No Bids will be considered which are received after the time indicated, and any Bids so received after said time shall be returned to the Bidder unopened.

Description of work

The Work, as herein defined, will consist of the following Scope:

- Furnish and install 4,000 feet of 6-in. PVC house lateral sewers
- Furnish and install house plumbing discharge rerouting as needed for 167 houses
- Furnish and install 8,075 ft. of 8-in. SDR 35 PVC gravity sewer within private roads
- Furnish and install 37 manholes, 0 – 8 feet deep
- Furnish and install six pressure sewer (6) cleanouts
- Furnish and install 1,300 ft. of 3-in. ductile iron force main
- Furnish and install 3 house grinder pump systems
- Furnish and install on 21 gpm pumping station

In addition, utility relocations, road restoration and landscape restoration shall be provided.

NOTICE TO CONTRACTORS: AMENDMENT TO INVITATION TO BID
Little Neck Wastewater Collection System
Ipswich, MA

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APPENDIX B: SOILS AND BORING LOGS

Graham Deep Hole Tests (May 19-20, 1999)

GRAHAM ASSOCIATES, INC.
JOB NAME: FEOFFEES OF THE GRAMMAR SCHOOL
JOB NO: 97-00309

FORM 11 - SOIL EVALUATOR FORM
Page 1 of 7

No. _____ Date May 21, 1999

Commonwealth of Massachusetts
Ipswich, Massachusetts

Soil Suitability Assessment for On-site Sewage Disposal

Performed by: Chris Dasch, P.E. of H.L. Graham Associates, Inc. Date: May 19, 20, 1999

Witnessed By: _____

Location Address or Lot # Little Neck New Construction Repair	Owner's Name: Feoffees of the Grammar School Address and Telephone # 2 Jeffrey's Neck Road Ipswich, MA 01938 (978) 356-4873

Office Review

Published Soil Survey Available: No ____ Yes X
Year Published May 1984 Publication Scale 1:15,840 Soil Map Unit Paxton
Drainage Class 3-Well Drained Soil Limitations _____

Surficial Geologic Report Available: No ____ Yes ____
Year Published _____ Publication Scale _____
Geologic Material (Map Unit) Glacial Till
Landform Drumlin
Flood Insurance Rate Map:
Above 500 year flood boundary No ____ Yes X
Within 500 year flood boundary No X Yes ____
Within 100 year flood boundary No X Yes ____
Wetland Area:
National Wetland Inventory Map (map unit) _____
Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS): Month March'99
Range: Above Normal ____ Normal X Below Normal ____
Other References Reviewed: _____

Location Address or Lot No. Little Neck, Ipswich, MA

On-site Review

DOH 1
Deep Hole Number: DOH 2 Date: 5/19/99 Time A.M. Weather: 65°F, Rain

Location (identify on site plan) See Attached Sketch

Land Use Lawn Slope (%) 3%-15% Surface Stones None

Vegetation Turf Lawn Grass

Landform Drumlin

Position on landscape (sketch on the back) See Attached Sketch

Distances from:

Open Water Body 50± feet
Possible Wet Area 50± feet
Drinking Water Well N/A feet
Drainage Way 50± feet
Property Line N/A feet
Other _____

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
DOH 1					
0"-10"	A	Sandy Loam	10YR 3/2		
10"-24"	B	Sandy Loam	10YR 5/6		
24"-120"	C	Silt Loam	2.5Y 4/4	@ 54"	
DOH 2					
0"-10"	A	Sandy Loam	10YR 3/2		
10"-22"	B	Sandy Loam	10YR 5/6		
22"-122"	C	Silt Loam	2.5Y 4/4	@ 53"	

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: Not Encountered

Depth to Groundwater: Standing Water in the Hole: None Observed Weeping from Pit Face: None Observed

Estimated Seasonal High Groundwater: DOH 1 @ 54"; DOH 2 @ 53"

Location Address or Lot No. Little Neck, Ipswich, MA

On-site Review

Deep Hole Number: DOH 3 / DOH 4 Date: 5/19/99 Time: A.M. Weather: 65°F Rain

Location (identify on site plan): See Attached Sketch

Land Use: Lawn Slope (%): 3%-15% Surface Stones: None

Vegetation: Turf Lawn Grass

Landform: Drumlin

Position on landscape (sketch on the back): See Attached Sketch

Distances from:

- Open Water Body: 50± feet
- Possible Wet Area: 50± feet
- Drinking Water Well: N/A feet
- Drainage Way: 50± feet
- Property Line: N/A feet
- Other: _____

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
DOH 3					
0"-10"	A	Sandy Loam	10YR 3/2		
10"-20"	B	Sandy Loam	10YR 5/6		
20"-120"	C	Silt Loam	2.5Y 4/4	@ 40"	
DOH 4					
0"-10"	A	Sandy Loam	10YR 3/2		
10"-18"	B	Sandy Loam	10YR 5/6	@ 14"	
18"-120"	C	Silt Loam	2.5Y 4/4		Angular stones to 6"

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic): Glacial Till Depth to Bedrock: Not Encountered

Depth to Groundwater: None Standing Water in the Hole: Observed Weeping from Pit Face: DOH 3: None, DOH 4 @ 80"

Estimated Seasonal High Groundwater: DOH 3 @ 40"; DOH 4 @ 14"

GRAHAM ASSOCIATES, INC.

JOB NAME: FEOFFEES OF THE GRAMMAR SCHOOL
JOB NO: 97-00309

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. Little Neck, Ipswich, MA

On-site Review

Deep Hole Number: DOH 5 Date: 5/19/99 Time: P.M. Weather: 65°F, Rain

Location (identify on site plan) See Attached Sketch

Land Use Lawn Slope (%) 3%-15% Surface Stones None

Vegetation Turf Lawn Grass

Landform Glacial Till Upland Slope

Position on landscape (sketch on the back) See Attached Sketch

Distances from:

Open Water Body 50+ feet
Possible Wet Area 50+ feet
Drinking Water Well N/A feet
Drainage Way 50+ feet
Property Line N/A feet
Other

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
DOH 5					
0"-15"	A	Sandy Loam	10YR 3/2		
10"-30"	B	Loamy Sand	10YR 5/6		
30"-82"	C1	Sand	10YR 4/6	@ 33"	Very fine
82"-130"	C2	Silt Loam	2.5Y 4/4		

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: Not Encountered

Depth to Groundwater: None Standing Water in the Hole: Observed Weeping from Pit Face: @ 39"

Estimated Seasonal High Groundwater: DOH 5 @ 33"

GRAHAM ASSOCIATES, INC.

JOB NAME: FEOFFEES OF THE GRAMMAR SCHOOL
JOB NO: 97-00309

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot No. Little Neck, Ipswich, MA

On-site Review

DOH 6
Deep Hole Number: DOH 7 Date: 5/20/99 Time: A.M. Weather: 65°F, Rain

Location (pentify on site plan) See Attached Sketch

Land Use Lawn Slope (%) 2%-15% Surface Stones None

Vegetation Turf Lawn Grass

Landform Drumlin

Position on landscape (sketch on the back) See Attached Sketch

Distances from:

Open Water Body 50± feet
Possible Wet Area 50+ feet
Drinking Water Well N/A feet
Drainage Way 50+ feet
Property Line N/A feet
Other

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
DOH 6					
0"- 8"	A	Sandy Loam	10YR 3/2		
10"-24"	B	Sandy Loam	10YR 5/6		
24"-58"	C1	Silty Clay Loam	5Y 5/2	@ 25"	
58"-120"	C2	Silt Loam	2.5Y 4/4		
DOH 7					
0"- 8"	A	Sandy Loam	10YR 3/2		
8"-12"	B	Sandy Loam	10YR 5/6		
12"-39"	C1	Silty Clay Loam	5Y 5/2	@ 33"	
39"-120"	C2	Silt Loam	2.5Y 4/4		

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till

Depth to Bedrock: Not Encountered

Depth to Groundwater: None

Standing Water in the Hole: Observed

Weeping from Pit Face: None Observed

Estimated Seasonal High Groundwater: DOH 6 @ 25"; DOH 7 @ 33"

Location Address or Lot No. Little Neck, Ipswich, MA

On-site Review

DOH 8
Deep Hole Number: DOH 9 Date: 5/20/99 Time: A.M. Weather: 65°F, Rain

Location (identify on site plan) See Attached Sketch

Land Use Lawn Slope (%) 2%-15% Surface Stones None

Vegetation Turf Lawn Grass

Landform Drumlin

Position on landscape (sketch on the back) See Attached Sketch

Distances from:

Open Water Body 50+ feet Drainage Way 50+ feet

Possible Wet Area 50+ feet Property Line N/A feet

Drinking Water Well N/A feet Other

DEEP OBSERVATION HOLE LOG*

Depth from Surface (Inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling	Other (Structure, Stones, Boulders, Consistency, % Gravel)
DOH 8					
0"-24"	Fill				
24"-32"	A	Sandy Loam	10YR 3/2		
32"-48"	B	Loamy Sand	10YR 5/6		
48"-72"	C	Loamy Sand	10YR 5/6		Medium sand
DOH 9					
0"- 8"	A	Sandy Loam	10YR 3/2		
8"-26"	B	Loamy Sand	10YR 5/6		
26"-110"	C	Silt Loam	2.5Y 4/4	@ 48"	

* MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: Not Encountered

Depth to Groundwater: None Standing Water in the Hole: Observed None Weeping from Pit Face: Observed

Estimated Seasonal High Groundwater: DOH 8 @ 72"; DOH 9 @ 48"

GRAHAM ASSOCIATES, INC.

JOB NAME: FEOFFEES OF THE GRAMMAR SCHOOL
JOB NO: 97-00309

FORM 11 - SOIL EVALUATOR FORM
Page 7 of 7

Location Address or Lot No. Little Neck, Ipswich, MA

Determination for Seasonal High Water Table

Method Used:

_____ Depth observed standing in observation holes ____ inches

_____ Depth weeping from side of observation holes ____ inches

__X__ Depth to soil mottles ____ inches

_____ Ground water adjustment ____ feet

Index Well Number _____ Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted ground water level _____

Depth of Naturally Occuring Pervious Material

Does at least four feet of naturally occuring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? _____

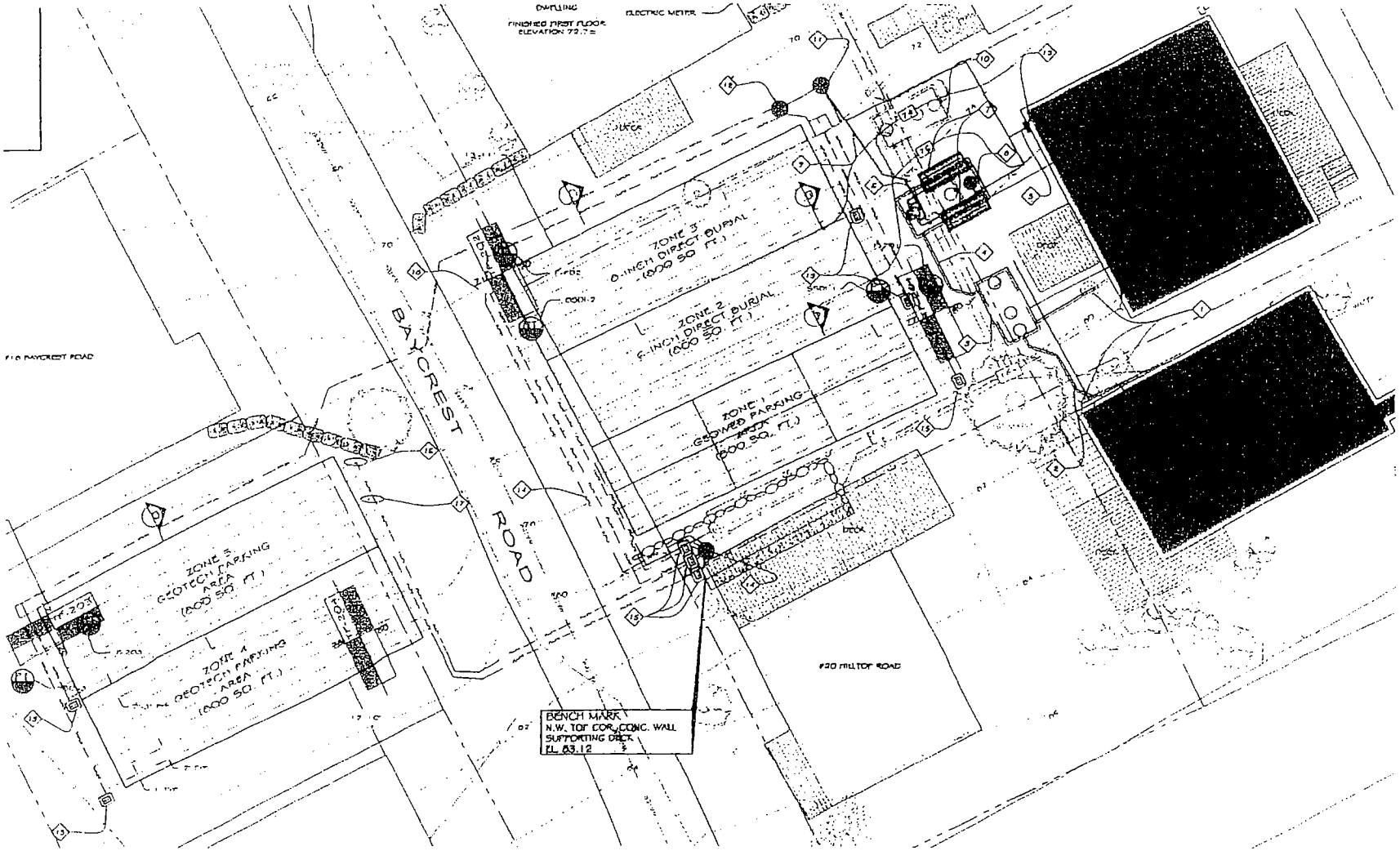
If not, what is the depth of naturally occuring pervious material? _____

Certification

I certify that on 10/23/98 (date) I have passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017.

Signature _____ Date May 21, 1999

FIGURE B-1: LOT 115 DEEP HOLE LOCATION MAP



Lot 115 Little Neck Deep Hole Tests (April 22, 2004)

FORM 11 - SOIL EVALUATOR FORM

No. _____ Date: *23-Apr-04*

Commonwealth of Massachusetts
Ipswich, Massachusetts

Soil Suitability Assessment for On-site Sewage Disposal

Performed By: *Paul Carey, Lombardo Associates* Date: *22-Apr-04*

Witnessed By: *Not Witnessed*

Location Address of	Owner's Name
Lot # *Lot 115* *14 & 16 Kings Way* *Ipswich, MA*	Address & Phone No *Foeffees of the Grammar School* *c/o Mr. Donald Wilson* *2 Jeffrey's Neck Road* *Ipswich, MA 01938*
New Construction ☐ Repair ■	

Office Review

Published Soil Survey Available No ☐ Yes ■ *Essex County, Northern Part*

Year Published _____ Publication Scale _____ Soil Map Unit *PbD*

Drainage Class Well Drained Soil Limitations *Moderate*

Surficial Geologic Report Available No ■ Yes ☐

Year Published _____ Publication Scale _____

Geologic Material (Map Unit) _____

Landform _____

Flood Insurance Rate Map

Above 500 year flood boundary No ☐ Yes ■

Within 500 year flood boundary No ■ Yes ☐

Within 100 year flood boundary No ■ Yes ☐

Wetland Area

National Wetland Inventory Map (map unit) _____

Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS) Month *Mar-04*

Range Above Normal ■ Normal ☐ Below Normal ☐

Other References Reviewed _____

Location Address or Lot No *Lot 115 Little Neck Ipswich MA*

On-site Review

Deep Hole Number *TP 201* Date *4/22/2004* Time *9:00 AM* Weather *Sunny 50's*
Location (identify on site plan) *See Site Plan*
Land Use *Residential* Slope (%) *3-18* Surface Stones *Stone wall*
Vegetation *Lawn*
Landform *Drumlin*
Position on landscape (sketch on the back)
Distances from

Open Water Body	*100+ feet*	Drainage way	*50+ feet*
Possible Wet Area	*100+ feet*	Property Line	*N/A*
Drinking Water Well	*N/A*	Other	

DEEP OBSERVATION HOLE LOG - 201

Depth from Surface Inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Stones, Boulders, Consistence, % Gravel)
0" - 6"	*FILL*	*Sandy Loam*			
6" - 17"	*Ab*	*Loamy Sand*	*10 YR 3/3*	*NONE*	*friable*
17" - 21"	*B*	*Sandy Loam*	*10 YR 5/4*		*friable, so cobbles & gravel*
21" - 45"	*C1*	*Sandy Loam*	*2.5 Y 5/4*		*so gravel*
45" - 75"	*C2d*	*Sandy Loam*	*2.5 Y 5/6*		*v firm, so stones, cobbles & gravel*

Performed By Paul Carey, P.E
Witnessed By Not Witnessed
Soil Evaluation Date 4/21/2004

Parent Material (geology) *Glaciated till* Depth to Bedrock *N/A*
Depth to Groundwater Standing Water in the Hole *None* Weeping from Pit Face *75"*
Estimated Seasonal High Ground Water *75" - Weeping*

Location Address of Lot No: Lot 115 Little Neck Ipswich MA

On-site Review

Deep Hole Number: TP-202 Date: 4/22/2004 Time: 10:00 AM Weather: Sunny 50's
Location (identify on site plan): See Site Plan
Land Use: Residential Slope (%): 3-18 Surface Stones: Stone wall
Vegetation: Lawn
Landform: Drumlin
Position on landscape (sketch on the back):
Distances from:

Open Water Body	100+ feet	Drainage way	50+ feet
Possible Wet Area	100+ feet	Property Line	N/A
Drinking Water Well	N/A	Other	

DEEP OBSERVATION HOLE LOG - 202

Depth from Surface inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Stones, Boulders, Consistence, % Gravel)
0" - 10"	Ab	Sandy Loam	10 YR 3/3		friable
10" - 16"	B	Sandy Loam	10 TR 5/4	NONE	friable so cobbles & gravel
16" - 25"	C1	Sandy Loam	2.5 Y 5/4		so gravel
25" - 81"	C2d	Sandy Loam	2.5 Y 5/6		v firm so stones, cobbles & gravel

Performed By: Paul Carey, P.E. Soil Evaluation Date: 4/21/2004
Witnessed By: Not Witnessed
Parent Material (geologic): Lodgement Depth to Bedrock: N/A
Depth to Groundwater: Standing Water in the Hole: 79" Weeping from Pit Face: 48"
Estimated Seasonal High Ground Water: 48" - Weeping

Location Address or Lot No *Lot 115 Little Neck Ipswich MA*

On-site Review

Deep Hole Number *TP-203* Date *4/22/2004* Time *12:00 PM* Weather *Sunny 50's*
Location (identify on site plan) *See Site Plan*
Land Use *Residential* Slope (%) *3-18* Surface Stones *Stone wall*
Vegetation *Lawn*
Landform *Drumlin*
Position on landscape (sketch on the back)
Distances from

OpenWater Body	*100+ feet*	Drainage way	*50+ feet*
Possible Wet Area	*100+ feet*	Property Line	*N/A*
Drinking Water Well	*N/A*	Other	

DEEP OBSERVATION HOLE LOG - 203

Depth from Surface Inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure Stones Boulders, Consistency % Gravel)
0" - 10"	*FILL*				
10" - 24"	*Ab*	*Loamy Sand*	*10 YR 3/3*	*NONE*	*friable*
24" - 30"	*B*	*Sandy Loam*	*10 YR 5/4*		*friable so cobbles & gravel*
30" - 48"	*C1*	*Sandy Loam*	*2.5 Y 5/4*		*so gravel*
48" - 120"	*C2d*	*Sandy Loam*	*2.5 Y 5/6*		*v. firm so stones cobbles & gravel*

Performed By Paul Carey, P.E. Soil Evaluation Date 4/21/2004
Witnessed By Not Witnessed
Parent Material (geology) *Glaciofluvial* Depth to Bedrock *N/A*
Depth to Groundwater Standing Water in the Hole *115"* Weeping from Pit Face *74"*
Estimated Seasonal High Ground Water *74" - Weeping*

Location Address or Lot No *Lot 115 Little Neck Ipswich MA*

On-site Review

Deep Hole Number *TP-204* Date *4/22/2004* Time *2:00 PM* Weather *Sunny 50's*
Location (identify on site plan) *See Site Plan*
Land Use *Residential* Slope (%) *3-18* Surface Stones *Stone wall*
Vegetation *Lawn*
Landform *Drumlin*
Position on landscape (sketch on the back)
Distances from

OpenWater Body	*100+ feet*	Drainage way	*50+ feet*
Possible Wet Area	*100+ feet*	Property Line	*N/A*
Drinking Water Well	*N/A*	Other	

DEEP OBSERVATION HOLE LOG - 204

Depth from Surface inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0" - 5"	*FILL*				
5" - 12"	*Ab*	*Loamy Sand*	*10 YR 3/3*	*NONE*	*friable*
12" - 16"	*B*	*Sandy Loam*	*10 YR 5/4*		*friable, so cobbles & gravel*
16" - 32"	*C1*	*Sandy Loam*	*2.5 Y 5/4*		*so gravel*
32" - 103"	*C2c*	*Sandy Loam*	*2.5 Y 5/6*		*v firm, so stones, cobbles & gravel*

Performed By Paul Carey, P.E
Witnessed By Not Witnessed
Soil Evaluation Date 4/21/2004

Parent Material (geologic) *Compact till* Depth to Bedrock *N/A*

Depth to Groundwater: Standing Water in the Hole *96"* Weeping from Pit Face *70"*

Estimated Seasonal High Ground Water *70" - Weeping*

PRECOLATION TEST DATA LOG

LOCATION ADDRESS OR LOT NO	LOT 115, BAYCREST ROAD, IPSWICH, MA		
COMMONWEALTH OF MASSACHUSETTS			
PERFOMED BY	PAUL CAREY, P.E.		
WITNESSED BY	NOT WITNESSED		
DATE	4/22/2004	TIME	10:00 AM
OBSERVATION HOLE ID	201	202	203
DEPTH OF TEST	25" + 18"	30" + 18"	52" + 18"
START PRE-SOAK	10:48 AM	12:27 PM	3:04 PM
END PRE-SOAK	11:03 AM	12:42 PM	3:19 PM
TIME AT 12-INCHES	11:03 AM	12:42 PM	3:19 PM
TIME AT 9-INCHES	11:33 AM	1:46 PM	4:20 PM
TIME AT 6-INCHES	12:53 PM	4:19 PM	@10"
ELAPSED TIME, MIN (9"-6")	80	153	61
RATE, MIN/IN	27	51	31
SITE PASSED	YES	SITE FAILED	NO
COMMENTS	INSUFFICIENT TIME TO COMPLETE P-203		

PRECOLATION TEST DATA LOG

LOCATION ADDRESS OR LOT NO	LOT 115, BAYCREST ROAD, IPSWICH, MA		
COMMONWEALTH OF MASSACHUSETTS			
PERFOMED BY	PAUL CAREY, P.E.		
WITNESSED BY	NOT WITNESSED		
DATE	4/22/2004	TIME	10:00 AM
OBSERVATION HOLE ID	SSDI-1	SSDI-2	SSDI-3
DEPTH OF TEST	8"	8"	8"
START PRE-SOAK	11:18 AM	1:46 PM	2:34 PM
END PRE-SOAK	11:33 AM	2:01 PM	2:49 PM
TIME AT 6-INCHES	11:33 AM	2:01 PM	2:49 PM
TIME AT 5-INCHES	11:35 AM	2:10 PM	MISSED
TIME AT 4-INCHES	11:40 AM	2:23 PM	2:53 PM
TIME AT 3 INCHES	11:45 AM	2:30 PM	2:55 PM
ELAPSED TIME, MIN (6"-3")	12	38	6
RATE, MIN/IN	4	13	3
SITE PASSED	YES	SITE FAILED	NO
COMMENTS			

Location Address or Lot No *Lot 115 Little Neck Ipswich MA*

Determination for Seasonal High Water Table

Method Used.

- ☐ Depth observed standing in observation hole ______ inches
- ☐ Depth weeping from side of observaqtion hole 48 inches
- ☐ Depth to soil mottles __________ inches
- ☐ Ground water adjustment __________ feet

Estimated Seasonal High Groundwater Varies by Weeping @ 48" - 75" Below Grade

Index Well Number __________ Reading Date __________ Index well level __________

Adjustment factor __________ Adjusted ground water level __________

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? YES

If not, what is the depth of naturally occurring pervious material? __________

Certification

I certify that in JULY 1997 I passed the soil evaluator examination approved by the Department of Environmetal Protection and that the above analysis was performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017.

Signature: [signature] Date April 23, 2004

Lot 115 Little Neck Deep Hole Tests (May 27, 2004)

FORM 11 - SOIL EVALUATOR FORM
Page 1 of 5

No. _____ Date: 26-May-04

Commonwealth of Massachusetts
Ipswich, Massachusetts

Soil Suitability Assessment for On-site Sewage Disposal

Performed By: Paul Carey, Lombardo Associates Date: 27-May-04

Witnessed By: Ron White, Massachusetts DEP

Location Address of	Owner's Name
Lot # Lot 115 14 & 16 Kings Way Ipswich, MA	Address & Phone No. Footfoos of the Grammar School c/o Mr. Donald Wilson 2 Jeffrey's Neck Road Ipswich, MA 01938
New Construction ☐ Repair ■	

Office Review

Published Soil Survey Available No ☐ Yes ■ Essex County, Northern Part

Year Published _____ Publication Scale _____ Soil Map Unit PbD

Drainage Class Well Drained Soil Limitations Moderate

Surficial Geologic Report Available No ■ Yes ☐

Year Published _____ Publication Scale _____

Geologic Material (Map Unit) _____

Landform _____

Flood Insurance Rate Map

Above 500 year flood boundary No ☐ Yes ■

Within 500 year flood boundary No ■ Yes ☐

Within 100 year flood boundary No ■ Yes ☐

Wetland Area

National Wetland Inventory Map (map unit) _____

Wetlands Conservancy Program Map (map unit) _____

Current Water Resource Conditions (USGS) Month Apr-04

Range Above Normal ■ Normal ☐ Below Normal ☐

Other References Reviewed _____

Location Address or Lot No *Lot 115, Little Neck, Ipswich, MA*

On-site Review

Deep Hole Number *TP-301* Date *5/27/2004* Time *10:30 AM* Weather *Sunny, 70's*
Location (identify on site plan) *See Site Plan*
Land Use *Residential* Slope (%) *3-18* Surface Stones *Stone wall*
Vegetation *Lawn*
Landform *Drumlin*
Position on landscape (sketch on the back)
Distances from

Open Water Body	*100+ feet*	Drainage way	*50+ feet*
Possible Wet Area	*100+ feet*	Property Line	*N/A*
Drinking Water Well	*N/A*	Other	

DEEP OBSERVATION HOLE LOG - 201

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0" - 10"	*FILL*	*Sandy Loam*			
10" - 29"	*Ab*	*Loamy Sand*	*10 YR 3/3*	*NONE*	*friable*
29" - 33"	*B*	*Sandy Loam*	*10 YR 5/4*		*friable, so. cobbles & gravel*
33" - 44"	*C1*	*Sandy Loam*	*2.5 Y 5/4*		*so. gravel*
44" - 108"	*C2d*	*Sandy Loam*	*2.5 Y 5/6*		*v. firm, so. stones, cobbles & gravel*

Performed By Paul Carey, P.E. Soil Evaluation Date 5/27/2004
Witnessed By Ron White, Massachusetts DEP
Parent Material (geologic) *Compact till* Depth to Bedrock *N/A*
Depth to Groundwater Standing Water in the Hole *None* Weeping from Pit Face *65"*
Estimated Seasonal High Ground Water *60" - Weeping*

Location Address of Lot No *Lot 115 Little Neck Ipswich MA*

On-site Review

Deep Hole Number *TP-302* Date *5/27/2004* Time *11:30 AM* Weather *Sunny 70's*
Location (identify on site plan) *See Site Plan*
Land Use *Residential* Slope (%) *3-18* Surface Stones *Stone wall*
Vegetation *Lawn*
Landform *Drumlin*
Position on landscape (sketch on the back)
Distances from

OpenWater Body	*100+ feet*	Drainage way	*50+ feet*
Possible Wet Area	*100+ feet*	Property Line	*N/A*
Drinking Water Well	*N/A*	Other	

DEEP OBSERVATION HOLE LOG - 202

Depth from Surface - Inches	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Redoximorphic Features	Other (Structure, Stones, Boulders, Consistency, % Gravel)
0" - 11"	*Ab*	*Sandy Loam*	*10 YR 3/3*		*friable*
11" - 24"	*C1*	*Sandy Loam*	*2.5 Y 5/4*		*so gravel*
24" - 67"	*C2d*	*Sandy Loam*	*2.5 Y 5/6*		*v. firm so. stones, cobbles & gravel*

Performed By Paul Carey, P.E. Soil Evaluation Date 5/27/2004
Witnessed By Ron White, Massachusetts DEP
Parent Material (geologic) *Compact till* Depth to Bedrock *N/A*
Depth to Groundwater Standing Water in the Hole *33"* Weeping from Pit Face *33"*
Estimated Seasonal High Ground Water *33" - Weeping*

PRECOLATION TEST DATA LOG

LOCATION ADDRESS OR LOT NO	LOT 115, BAYCREST ROAD, IPSWICH, MA		
COMMONWEALTH OF MASSACHUSETTS			
PERFOMED BY	PAUL CAREY, P.E.		
WITNESSED BY	RON WHITE, MASACHUSETTS DEP		
DATE	5/27/2004	TIME	11:00 AM
OBSERVATION HOLE ID	301	302	
DEPTH OF TEST	54" + 18"	3" + 18"	
START PRE-SOAK	11:32 AM	12:13 PM	
END PRE-SOAK	11:47 AM	12:28 PM	
TIME AT 12-INCHES		12:28 PM	
TIME AT 8-INCHES	Abandoned -	12:36 PM	
TIME AT 6-INCHES	dropped only 1/4"	12:45 PM	
ELAPSED TIME, MIN (9"-6")	in 10 Min	9	
RATE, MIN/IN		5	
SITE PASSED	YES	SITE FAILED	NO
COMMENTS	302 rate calculated over last 2 mins (e.g. from 8" - 6")		

PRECOLATION TEST DATA LOG

LOCATION ADDRESS OR LOT NO	LOT 115, BAYCREST ROAD, IPSWICH, MA		
COMMONWEALTH OF MASSACHUSETTS			
PERFOMED BY	PAUL CAREY, P.E.		
WITNESSED BY	RON WHITE, MASACHUSETTS DEP		
DATE	5/27/2004	TIME	11:00 AM
OBSERVATION HOLE ID	SSDI-303		
DEPTH OF TEST	grade + 9"		
START PRE-SOAK	11:11 AM		
END PRE-SOAK	11:26 AM		
TIME AT 6-INCHES	11:26 AM		
TIME AT 3-INCHES	11:30 AM		
TIME AT 0 INCHES	11:45 AM		
ELAPSED TIME, MIN (3"-0")	15		
RATE, MIN/IN	5		
SITE PASSED	YES	SITE FAILED	NO
COMMENTS			

Location Address or Lot No *Lot 115 Little Neck, Ipswich, MA*

Determination for Seasonal High Water Table

Method Used

- ☐ Depth observed standing in observation hole _____ inches
- ☐ Depth weeping from side of observation hole 33 inches
- ☐ Depth to soil mottles _____ inches
- ☐ Ground water adjustment _____ feet

Estimated Seasonal High Groundwater Varies by Weeping @ 33" - 65" Below Grade

Index Well Number _____ Reading Date _____ Index well level _____

Adjustment factor _____ Adjusted ground water level _____

Depth of Naturally Occurring Pervious Material

Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? YES

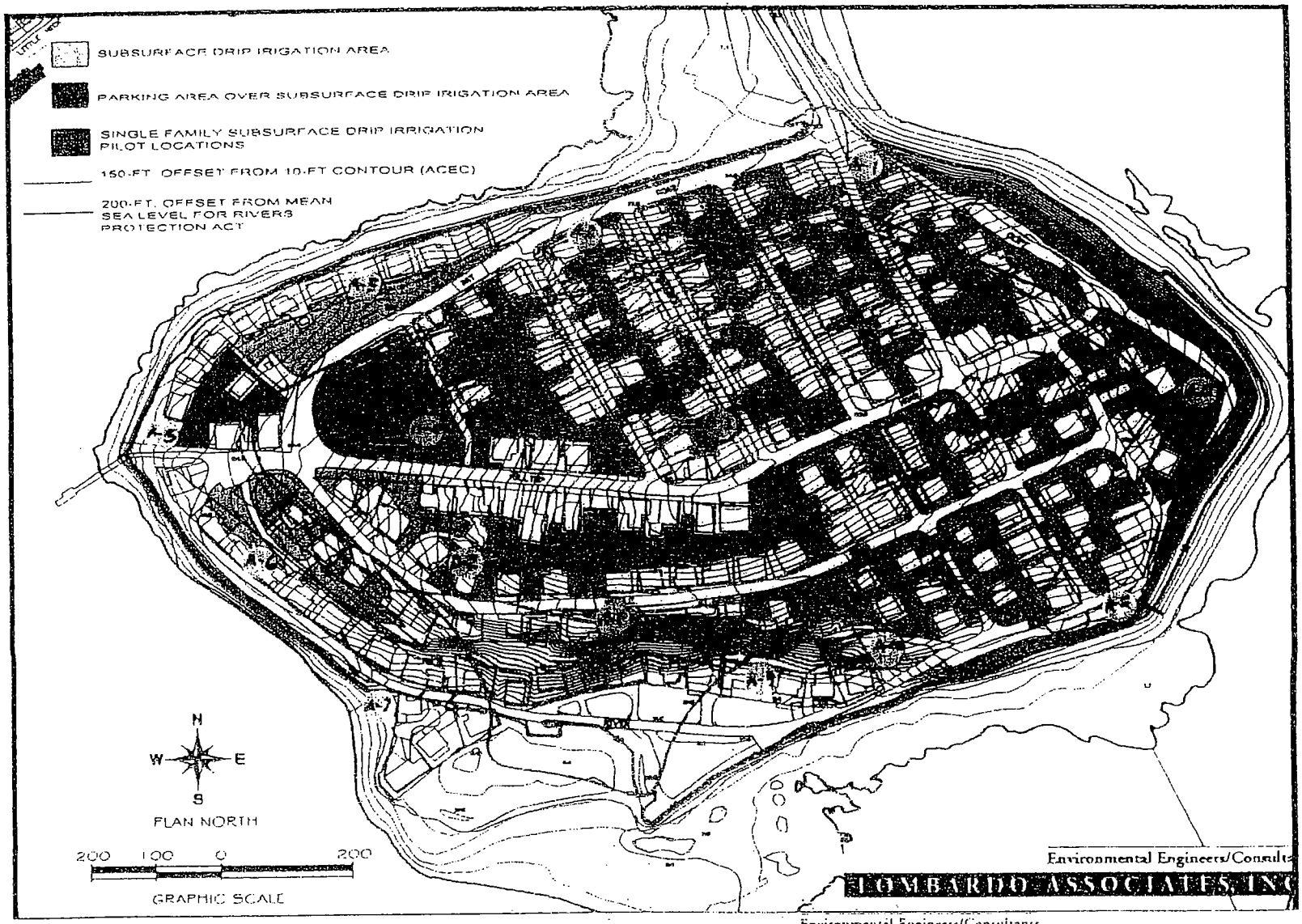
If not, what is the depth of naturally occurring pervious material? _____

Certification

I certify that in JULY 1997 I passed the soil evaluator examination approved by the Department of Environmental Protection and that the above analysis was performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017.

Signature: Paul Lombardo Date May 28, 2004

FIGURE B-2: BORING LOGS (MAY 11, 2004)



Environmental Engineers/Consultants
LOMBARDO ASSOCIATES, INC.

TEST BORING LOG — SHEET 1

Soil Exploration Corp. [illegible]	Lombardo Associates, Inc. Site: Off Hilltop - Littleneck Area Ipswich, MA	BORING D-1 (1 of 3) PROJECT NO 04-0501 DATE: May 11, 2004

Ground Elevation:
Date Started: May 5, 2004
Date Finished: May 6, 2004
Driller: [illegible]
Soil Engineer/Geologist: [illegible]

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth ft	Casing bl/ft	Sample No.	Pen/Rec	Depth	Blows/6"	Strata	Visual Identification of Soil and/or Rock Sample
		1		0'0"-2'0"	5-4-5-4		Dry, loose to medium dense, fine to medium sand, some organic silt, trace fine gravel
		2		2'0"-4'0"	7-8-11-14		
		3		4'0"-6'0"	13-21-62-100/6"	4'0"	
5		4		6'0"-6'8"	67-100/2"		Moist, very dense, fine to medium sand, some inorganic silt, trace fine gravel
		5		8'0"-10'0"	8-16-42-14	8'0"	
10		6		10'0"-12'0"	13-13-14-42		Moist to wet, very fine to fine sand and inorganic silt, trace fine gravel, cobbles, boulders, trace clay, till
		7		12'0"-14'0"	31-46-49-61		
15		8		15'0"-16'6"	22-70-100/0"		
20		9		20'0"-22'0"	17-34-42-32		
25		10		25'0"-27'0"	14-58-16-18		
30		11		30'0"-32'0"	12-26-31-26		
35		12		35'0"-37'0"	11-22-26-26		
39							

Notes: Hollow Stem Auger Size [illegible]

			CASING	SAMPLE	CORE TYPE
Cohesionless: [illegible]	Trace 0 to 10%	ID SIZE (IN)		SS	
[illegible]	Little 10 to 20%	HAMMER WEIGHT (LB)		140lb	
Cohesive: [illegible]	Some 20 to 35%	HAMMER FALL (IN)		30"	
[illegible]	And 35 to 50%				

TEST BORING LOG — SHEET 2

Soil Exploration Corp.	Lombardo Associates, Inc. Site: Off Hilltop - Littleneck Area Ipswich, MA	BORING D-1 (2 of 3) PROJECT NO 04-0501 DATE May 11 2004

Ground Elevation:
Date Started: May 5 2004
Date Finished: May 6 2004
Driller: EP & DI
Soil Engineer/Geologist: S. Thayer - W&C

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth Ft	Casing	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and/or Rock Sample
38							
39							
40		13		40'0"-40'9"	29-100/0"		Moist to wet, very fine to fine sand and inorganic silt, trace fine gravel, cobbles, boulders, trace clay, fill
45		14		45'0"-47'0"	18-41-68-75		
50		15		50'0"-52'0"	7-26-40-71		
55		16		55'0"-57'0"	18-31-46-49		
60							
		17		64'0"-66'0"	20-65-55-76		
65							
		18		69'0"-70'6"	17-26-100/6"		
70							
		19		74'0"-76'0"	30-30-46-48		
75							
		20		76'0"-78'0"	33-50-52-68		
79		21		79'0"-81'0"	25-37-56-57		

Notes: Hollow Stem Auger Size: 4-1/4"

Cohesionless: [illegible]	Trace [illegible]		CASING	SAMPLE	CORE TYPE
[illegible]	Little [illegible]	ID SIZE (IN)		SS	
[illegible]	Some [illegible]	HAMMER WEIGHT		140 lb	
[illegible] Hard	And [illegible]	HAMMER FALL (IN)		[illegible]	

TEST BORING LOG — SHEET 3

Soil Exploration Corp. [illegible]	Lombardo Assoicates, Inc. Site: Off Hilltop - Littleneck Area Ipswich, MA	BORING D-1 (3 of 3) PROJECT NO. 04-0501 DATE May 11, 2004

Ground Elevation
Date Started May 5, 2004
Date Finished May 6, 2004
Driller LP & DL
Soil Engineer Geologist A. Thayer - W&C

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING	STABILIZATION

Depth	Casing	Sample No.	Pen/Rec	Sample Depth	Blows/6"	Strata	Visual Identification of Soil and/or Rock Sample
78							
79		21		79'0"-81'0"	25-37-56-57		
80							Moist to wet, very fine to fine sand and inorganic silt, trace fine gravel, cobbles, boulders, trace clay, till
		22		81'0"-83'0"	25-51-58-100/4"		
85		23		84'0"-86'0"	36-59-80-98		
90		24		90'0"-92'0"	35-60-88-100/3"		
95							
100							
105							
110							
115	Run	1		113'0"-114'0" 114'0"-115'0" 115'0"-116'0" 116'0"-117'0" 117'0"-118'0"		113'0"	Run 1 - rock core 113'0" to 118'0" Recovery 37"/60"
120						120'0"	End of boring at 120'0" Water level at 13'0" upon completion Set well point at 118'0"

Notes: Hollow Stem Auger Size - 4-1/4"

			CASING	SAMPLE	CORE TYPE
Cohesionless: 0-4 V. Loose, 4-10 Loose	Trace 0 to 10%				
10-30 Medium, 30-50 Dense, 50+ V. Dense	Little 10 to 20%	I.D. SIZE (IN.)		SS	
Cohesive: 0-2 V. Soft, 2-4 Soft, 4-8 M. Stiff	Some 20 to 35%	HAMMER WGT (LB)		140 lb	
8-15 Stiff, 15-30 V. Stiff, 30+ Hard	And 35% to 50%	HAMMER FALL (IN.)		30"	