



GEOHYDROCYCLE, INC.

HAZARDOUS WASTE
WATER SUPPLY

ASSESSMENT
REMEDATION
ANALYSES
PERMITTING
MODELING
SOFTWARE

April 8, 2016

Mr. Gene F. Couch
Ashland Conservation Commission
101 Main Street
Ashland, MA 01721

re: Response to PSC Comments
GHC Groundwater Modeling Report, 3/4/16
133 West Union Street
Ashland, MA
GHC #15036

Dear Mr. Couch:

GeoHydroCycle, Inc. (GHC) has been retained by Capital Properties to provide groundwater modeling services to answer questions from the Ashland Conservation Commission concerning impacts to lower wetlands adjacent to an intermittent stream due to a development proposed by Capital Properties. GHC conducted the modeling and presented the results of our report to the Commission on April 1, 2016.

As a result of the April 1st meeting, the Commission requested that Professional Consulting Services, PC (PSC), review and comment on the report. The letter presents GHC's responses to the PSC comment letter dated 4/6/16.

PSC Comments

To summarize their comments, PSC was in general agreement with GHC's conclusion that any groundwater related impacts to the lower wetlands due to the proposed drainage and recharge are minimal. PSC did request that GHC provide backup items for the report, including:

1. Input and output volumes from the drains and into the recharge facilities;
2. A figure showing groundwater drawdown and mounding contours;
3. Confirm the calibrated hydraulic conductivity;
4. A copy of the Aldinger report;

151B California Street
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02458

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5. A statement of the adequacy of the infiltration system; and
6. MODFLOW analysis data.

GHC Responses

Items 1 and 2 - Responses to these two comments are shown in the attached Figure 9, which shows contours of the drawdown and mounding based on GHC's modeling of the proposed drains and recharge facilities. The amount of water being transferred between the drain and the infiltration system is 11,023 gallons per day, and is shown on Figure 9.

Item 3 - The range in hydraulic conductivity used to calibrate the model was between 9.6 and 26.4 feet per day. Hydraulic conductivity was varied during calibration and a value of 20 feet per day was used to achieve calibration. More information on how hydraulic conductivity was distributed throughout the aquifer is shown in the attached Figure A.

Item 4 - A copy of the Aldinger report is attached to this response letter.

Item 5 - The proposed infiltration basins were originally sized by assuming 20,000 GPD of groundwater. This assumption was determined by testing performed by Guerriere & Halnon, Inc. The 20,000 gallons was then divided equally by the two wall sites and each basin was sized to handle 10,000 GPD of groundwater.

Each proposed infiltrator basin consists of 48 StormTech chambers in crushed stone. Each basin has a storage volume of 9,882 CF. The proposed exfiltration factor is 2.41 inch/hour. GHC calculated the groundwater at a total of 11,000 GPD for the entire site. The proposed basins are over-designed for the amount of groundwater determined by GHC, which gives the basins a factor of safety for additional volume.

The proposed infiltration trench will collect the groundwater, provide additional infiltration and direct the groundwater to the underground basins.

Item 6 - the input data for the MODFLOW model included several parameters that are shown in the following figures:

Figures A, B and C present aquifer hydraulic conductivity, storage properties and a cross-section along the intermittent stream. The cross-section shows how the aquifer base followed the contours of the bottom of intermittent stream. It should be noted that because the model was run steady-state no storage properties were used by the model.

Figure 3 shows the locations of the site features.

Figure 4 shows the extent of the model, the location of the intermittent stream, and the property lines.

Figure 5 shows all the different model features, including: the drains, trenches and basins. The table within the figure presents the length, width and elevations of the drains and trenches.




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I hope our responses answer the PSC comments. However, if you have any questions, please feel free to call me.

Sincerely,
GeoHydroCycle, Inc.


Stephen W. Smith, P.E., P.HGW.

Enclosures: Figures A, B, C, 3, 4, 5, and 9.
Aldinger Report

Response Ltr.lwp

Figure A - Hydraulic Conductivity Value.

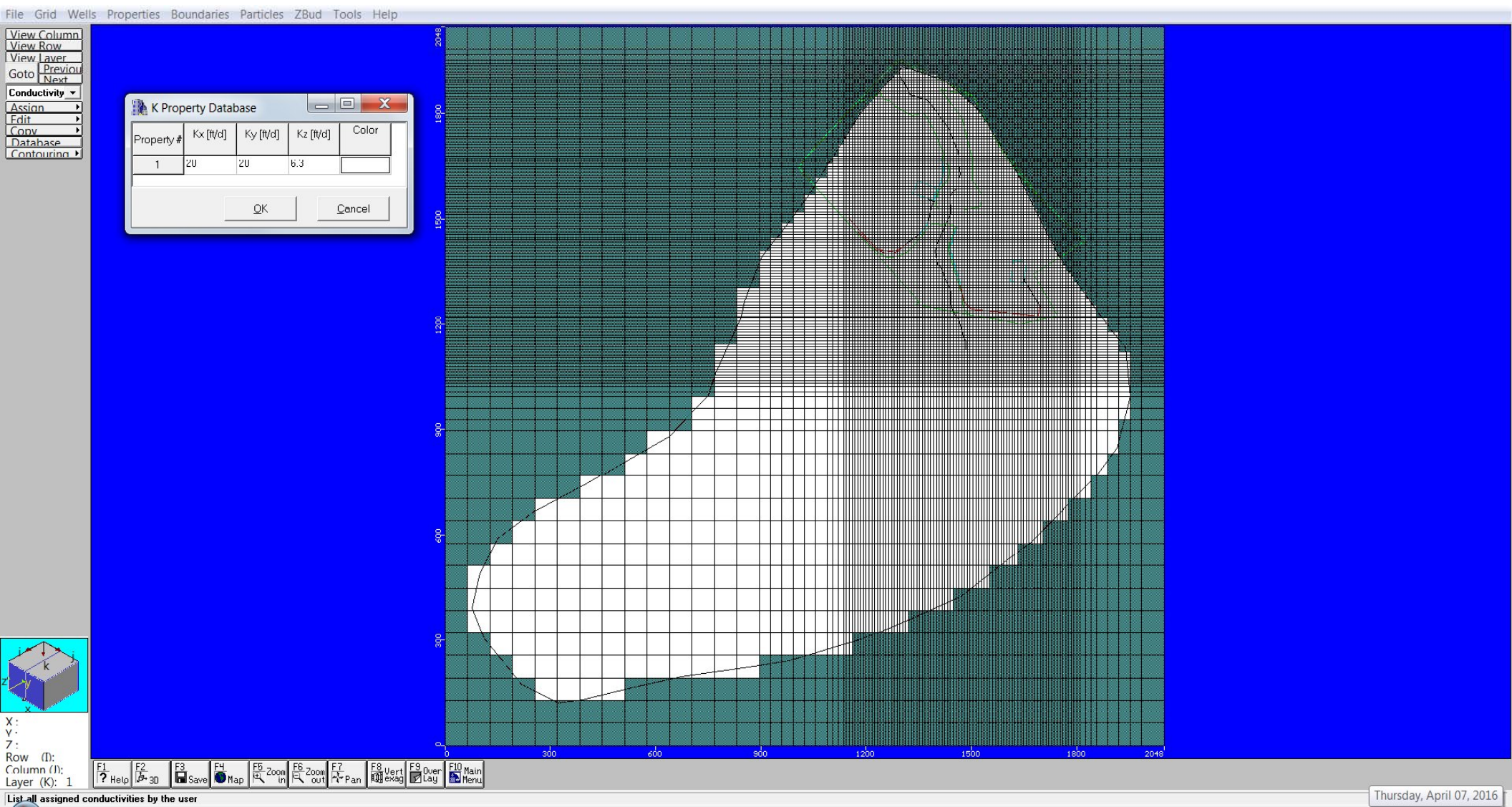


Figure B - Aquifer Storage Properties.

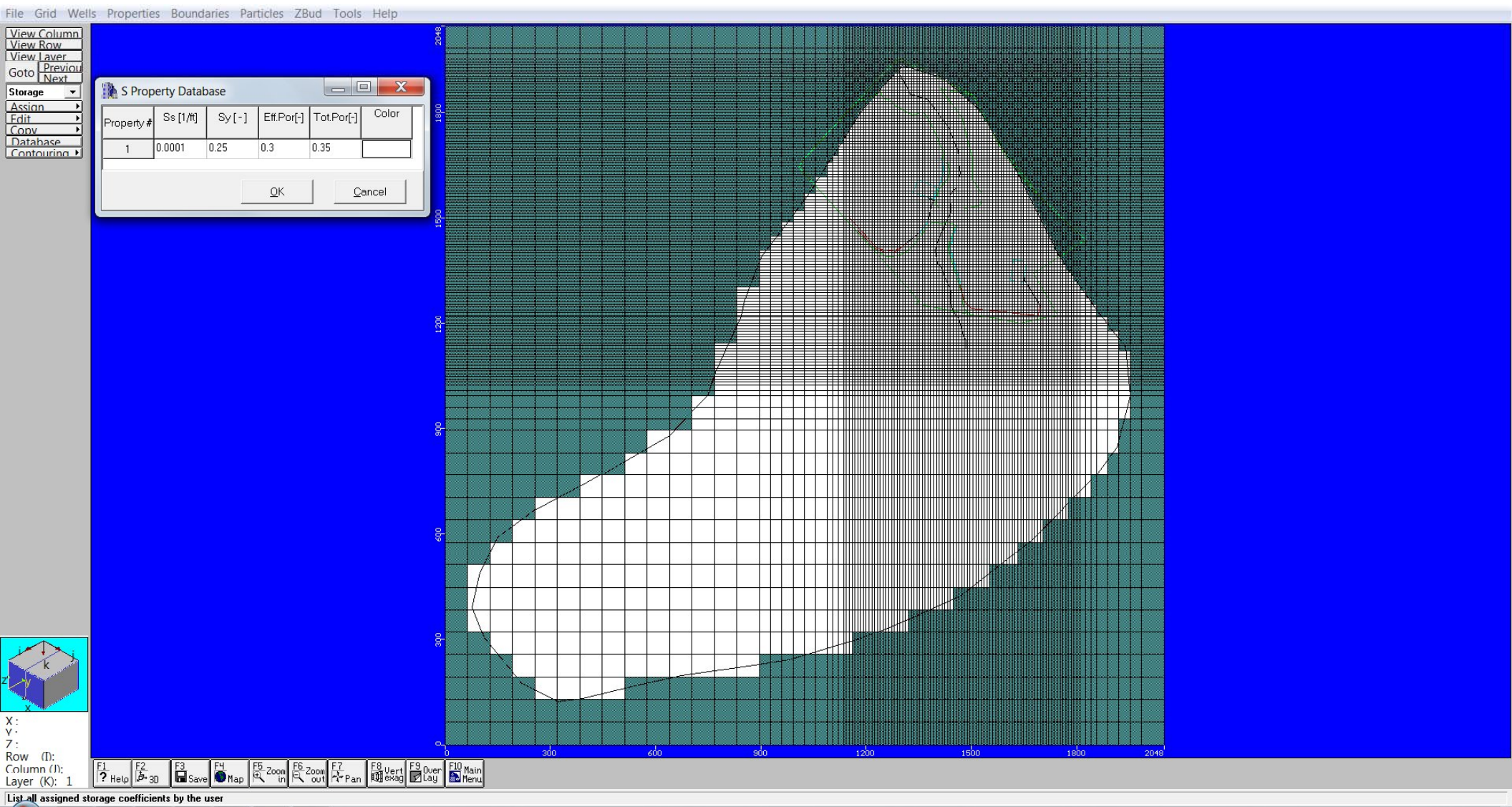
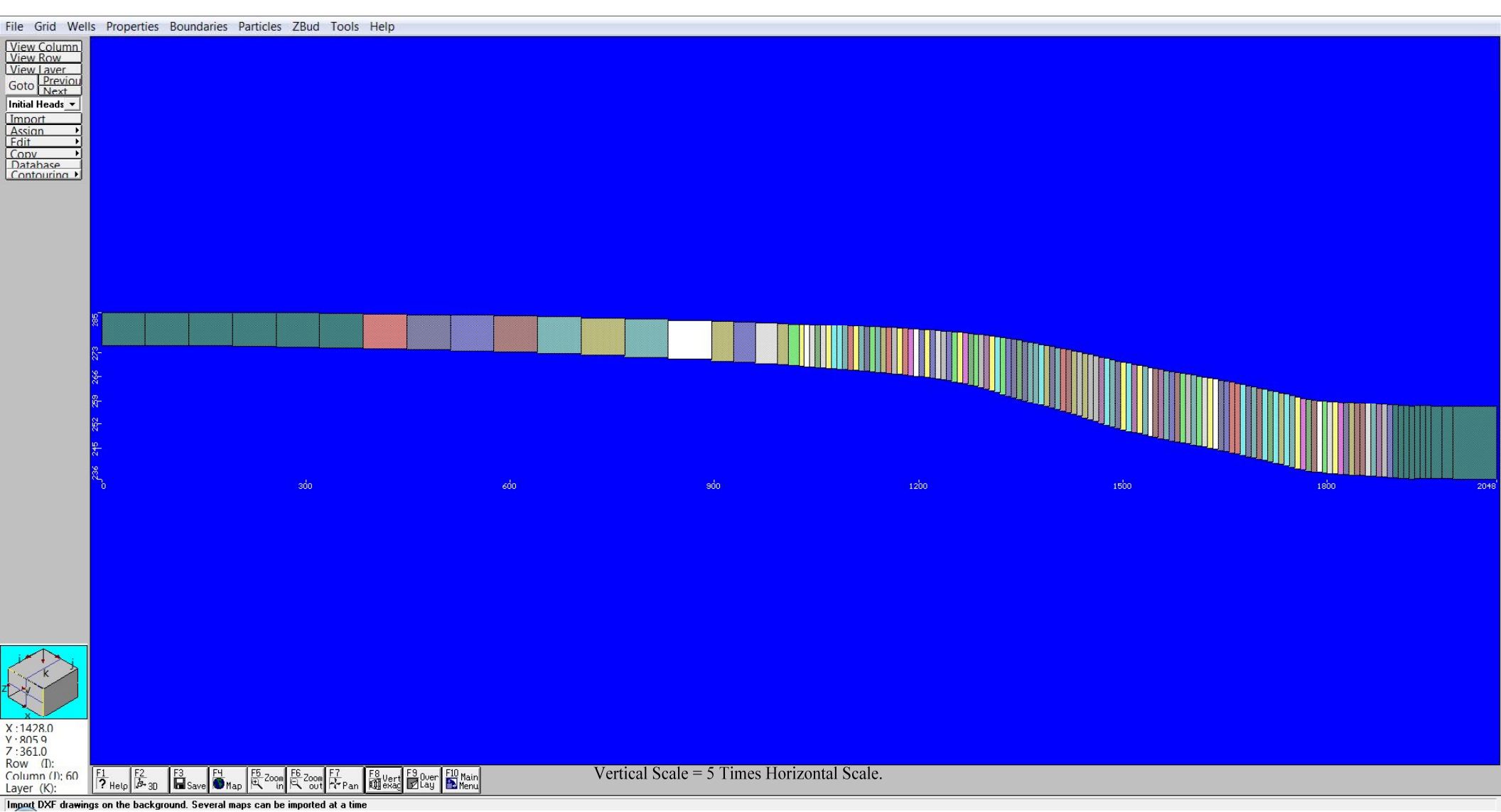
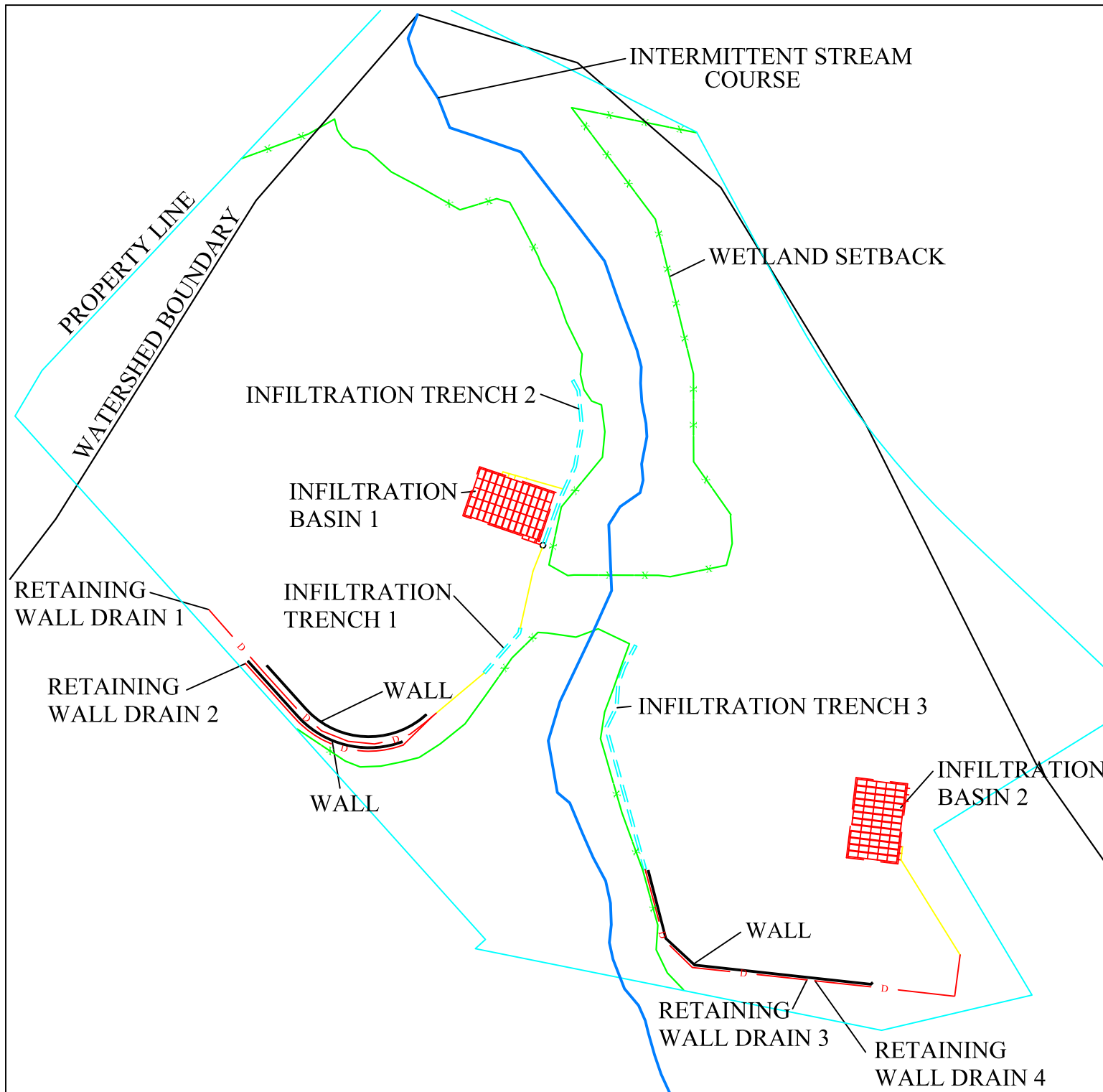


Figure C - Cross-Section Along Intermittent Stream.



Proposed Development
133 West Union Street
Ashland, MA 01721

Figure 3. Site Features.



0 100

Scale in feet



Project No. GHC #15036
Drafted SWS Checked
Date 4/7/16 Rev
Base Map: CAD file from
G&H.

GeoHydroCycle, Inc.

Proposed Development
133 West Union Street
Ashland, MA 01721

Figure 4. Calibration
Model Layout.

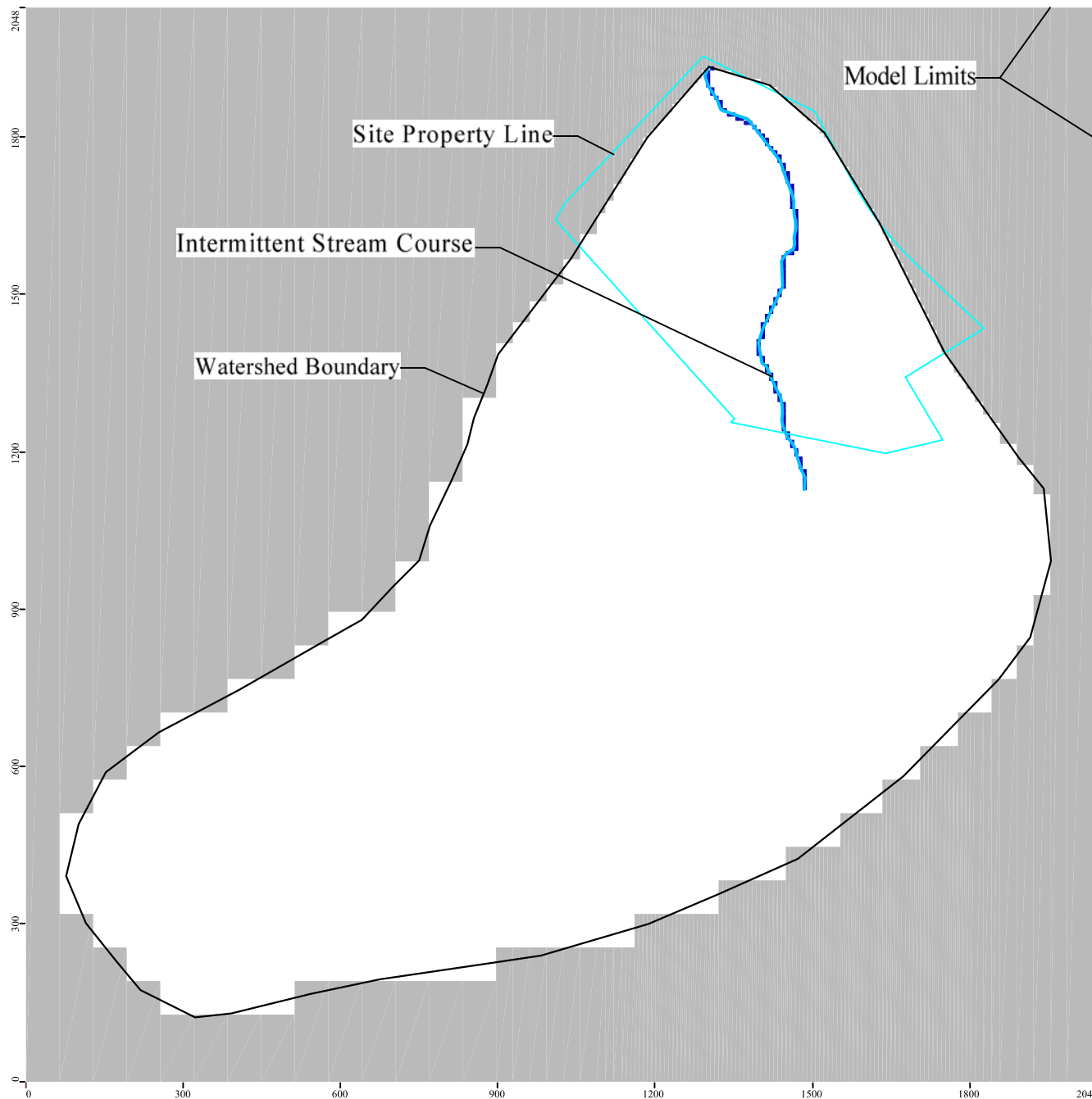
0 300

Scale in feet



Project No. GHC #15036
Drafted SWS Checked
Date 4/7/16 Rev

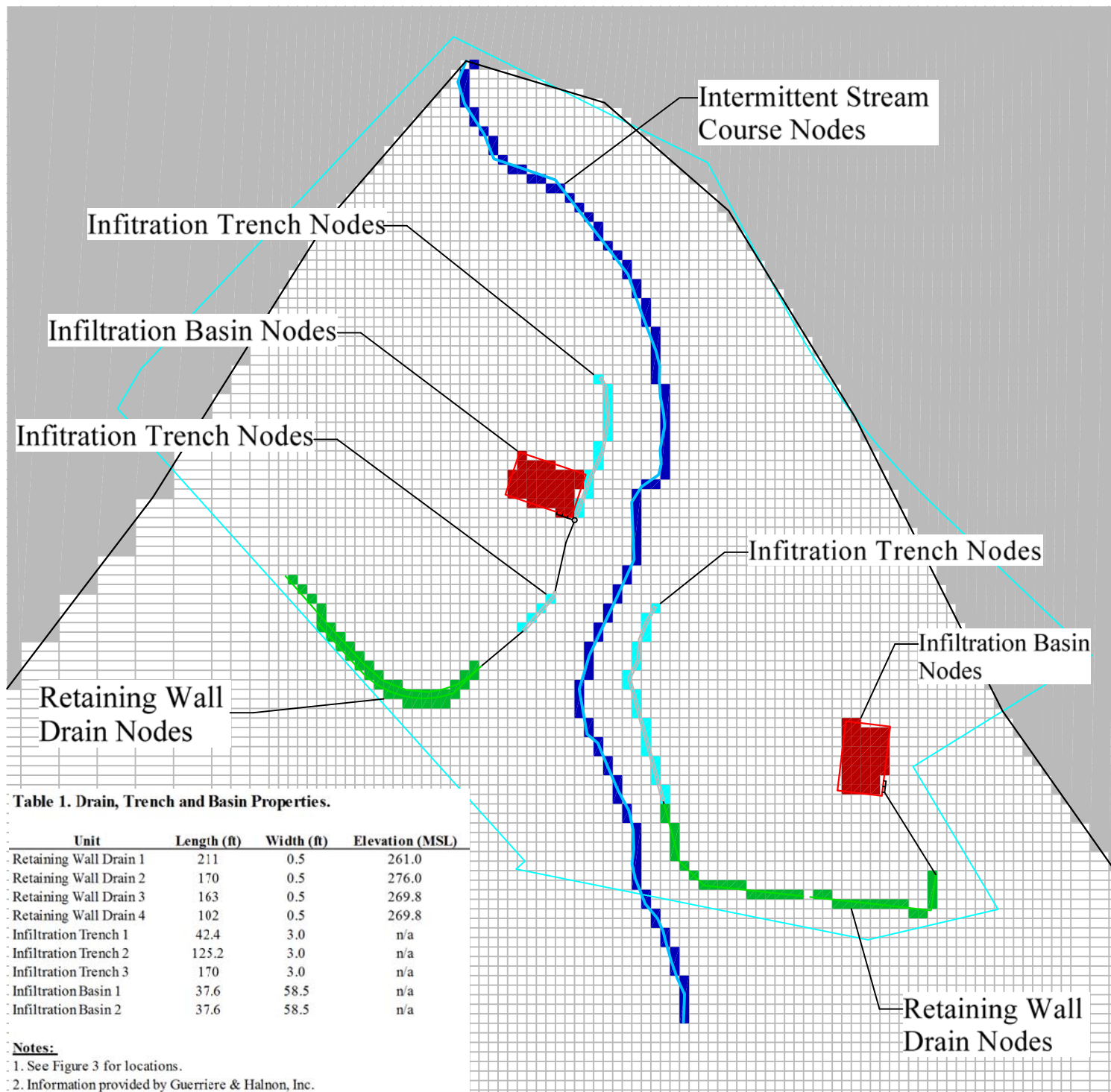
GeoHydroCycle, Inc.



Grey Denotes Inactive Portions of the Model
Open or Color Shaded are Active Portions of the Model

Proposed Development
133 West Union Street
Ashland, MA 01721

Figure 5. Prediction
Model Features.



0 80

Scale in feet




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GeoHydroCycle, Inc.

Proposed Development
133 West Union Street
Ashland, MA 01721

Figure 9. Simulated
Groundwater
Drawdown (Drains)
and Mounding
(Basins) Contours.

LEGEND:

 Contours of Simulated Changes in
Groundwater. Interval = 0.5 foot.

NOTES:

1. Simulated groundwater contour data are calculated and interpreted as described in the text.
2. See text for MODFLOW model descriptions.
3. Drains withdrawing, and trenches/basins infiltrating equal amounts (11,023 gallons per day).
4. Minus contours levels indicate groundwater drawdown due to drains, and positive contour levels indicate groundwater mound heights due to recharge.



Scale in feet



Project No. GHC #15036
Drafted SWS Checked
Date 4/7/16 Rev

GeoHydroCycle, Inc.



PAUL B. ALDINGER & ASSOCIATES, INC.
Consulting in Geotechnical Engineering & Groundwater Hydrology
860A Waterman Avenue, Suite 9 East Providence, R.I. 02914 (401) 435-5570

August 6, 2014

Mr. Thomas J. Hayden
Director of Development
LeCesse Development Corporation
650 S. Northlake Suite 450
Altamonte Springs, Florida 32701

Re: Preliminary Geotechnical Engineering Letter
133 West Union Street
Ashland, MA
PBA Job No. 14030

Dear Mr. Hayden:

Paul B. Aldinger & Associates Inc. (PBA) conducted a preliminary geotechnical subsurface investigation at 133 West Union Street in Ashland, MA. The proposed project will consist of construction of two 4 story buildings (Building A with 40 units), two 3-story- buildings (Building B with 29 units), and one 2-unit single story structure. We have reviewed the preliminary site plan dated February 21, 2014 developed by Guerriere & Halnon, Inc. which indicates the location of the new buildings as well as the existing site features. The development will also include associated parking areas and access roadways. The site is currently occupied by two existing residential structures with the remainder of the site predominantly wooded with areas of wetlands.

The purpose of this letter is to provide our preliminary findings from the explorations to assist you in developing earthwork costs for the project. This letter is subject to the limitations that are outlined in Appendix A.

SUBSURFACE EXPLORATION PROGRAM

The subsurface exploration program completed to date consisted of four test borings (B-4 through B-7) and seven test pits (TP-1 through TP-7). The test borings and test pits were completed by Northern Drill Service, Inc. of Northborough, MA on July 21, 2014 through July 24, 2014. The explorations were laid out by a handheld gps. The borings were generally completed in the northern portion of the site. Additional borings are planned at a later date in the southern section in the vicinity of the existing structure. Figure 1, Subsurface Exploration Plan, presents the approximate locations of these explorations, and the logs are included in Appendix B. Elevations provided on the logs were approximated based on the project site plan.

The test borings were drilled to depths between 14.2 and 24.2 feet below the ground surface

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utilizing casing and using the wash and drive method of drilling. Split spoon soil samples were obtained at 5-foot intervals using a 2-foot long, 1 $\frac{3}{8}$ -inch inside diameter split spoon sampler in substantial conformance with ASTM D-1586, the Standard Penetration Test (SPT). The standard ASTM method of driving the sampler was employed using a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler for each 6 inches of penetration was recorded. The number of blows required to drive the sampler from 6 to 18 inches of penetration is the SPT blow count (N-value), a commonly-used indicator of soil density.

The test pits were excavated from 10 to 12 feet below the ground surface. The purpose of the test pits were to visually observe the underlying strata and to collect representative soil samples for laboratory analyses.

SUBSURFACE CONDITIONS

Generalized soil conditions encountered in the explorations include the following strata from the ground surface downward. Refer to the boring logs in Appendix B for more detailed descriptions of the conditions encountered. A summary of the subsurface conditions is also provided in the following two tables.

Soil & Bedrock Conditions

- ▶ **Topsoil/Forest Mat & Non-Engineered Fill** - The ground surface within the majority of the explorations consisted of approximately 0.5 to 1.5 feet of topsoil/forest mat material. Within test pit TP-2, approximately 3.5 feet of non-engineered granular fill characterized as sand and gravel with little silt and mixed with trace amounts of debris was encountered at the ground surface. The non-engineered fill was underlain by a thin 6-inch layer of topsoil. Where encountered, the topsoil/forest mat material was underlain by:
- ▶ **Subsoil** - An orange brown subsoil consisting of silt with little fine sand and various amounts of root matter was encountered to a depth ranging from 2 to 6 feet below grade. This stratum was underlain by;
- ▶ **Glacial Till** - Dense glacial till consisting of an unsorted deposit of grey to brown fine to coarse sand and gravel with varying amounts of silt, cobbles and boulders was encountered to the bottom of the explorations except in test borings B-5, B-6 and B-7. This stratum was underlain by;
- ▶ **Probable Bedrock** - Refusal within the test borings was encountered in test borings B-5, B-6 and B-7 at depths ranging from 14.2 to 19 feet (El. +230 to +250.8). Refusal is often indicative of bedrock or possibly a large boulder. No bedrock was cored in the test borings however, the borings were advanced a few feet with a rollerbit into the rock in

borings B-6 and B-7. Fragments of the rock collected from the split spoon samples were classified as granite.

TABLE 1 - SUMMARY OF SOIL CONDITIONS

Boring and Test Pit Number	Approx. Ground Surface Elevation (ft)	Approx. Depth to Bottom of Non-Engineered Fill (ft) & Elev.	Approx. Depth of to Bottom of Topsoil (ft) & Elev.	Approx. Depth to Bottom of Subsoil (ft) & Elev.
B-4	+279	Not Encountered	1 (El. +278)	3 (El. +276)
B-5	+265	Not Encountered	0.5 (El. +264.5)	2.5 (El. +262.5)
B-6	+251	Not Encountered	1 (El. +250)	4 (El. +247)
B-7	+249	Not Encountered	1 (El. +248)	4 (El. +245)
TP-1	+274	Not Encountered	0.5 (El. +273.5)	2.5 (El. +271.5)
TP-2	+265	3.5 (El. +261.5)	4 (El. +261)	6 (El. 259)
TP-3	+269	Not Encountered	1.5 (El. +267.5)	3 (El. +266)
TP-4	+268	Not Encountered	1 (El. +267)	3 (El. +265)
TP-5	+281	Not Encountered	1 (El. +280)	3 (El. +278)
TP-6	+264	Not Encountered	1 (El. +263)	2 (El. +262)
TP-7	+259	Not Encountered	1 (El. +258)	2.5 (El. +256.5)

TABLE 2 - SUMMARY OF BEDROCK CONDITIONS

Boring and Test Pit Number	Approx. Ground Surface Elevation (ft)	Approx. Depth to Refusal/Probable Bedrock (ft)	Approx. Refusal/Probable Bedrock Elev.
B-4	+279	Not Encountered to 21'	< El. +258
B-5	+265	14.2	El. +250.8
B-6	+251	14.5	El. +236.5
B-7	+249	19	El. +230
TP-1	+274	Not Encountered to 12'	< El. +262
TP-2	+265	Not Encountered to 12'	< El. +253
TP-3	+269	Not Encountered to 12'	< El. +257
TP-4	+268	Not Encountered to 12'	< El. +256
TP-5	+281	Not Encountered to 12'	< El. +269
TP-6	+264	Not Encountered to 12'	< El. +252
TP-7	+259	Not Encountered to 12'	< El. +247

Groundwater Conditions

The groundwater level within the test borings and test pits was recorded at the time the explorations were completed. It should be noted that fluctuations in the levels of the groundwater, especially within the glacial till, will likely occur due to variations in rainfall, temperature, and other factors occurring since the time measurements were made. It is not uncommon for groundwater levels to rise to near the surface of glacial till during the spring season. A summary of the groundwater conditions is provided in the following Table 3:

TABLE 3 - SUMMARY OF GROUNDWATER CONDITIONS

Boring and Test Pit Number	Approx. Ground Surface Elevation (ft)	Approx. Depth to Groundwater (ft) & Elev.	Comments
B-4	+279	8 (+271)	Measured at the completion of drilling
B-5	+265	Not Encountered 14.2 (< +250.8)	Measured at the completion of drilling
B-6	+251	7.5 (+243.5)	Measured at the completion of drilling
B-7	+249	9 (+240)	Measured at the completion of drilling
TP-1	+274	Not Encountered to 12' (< +262)	Measured at the completion of excavation
TP-2	+265	Not Encountered 12' (< +263)	Measured at the completion of excavation
TP-3	+269	8.5 (+260.5)	Measured at the completion of excavation
TP-4	+268	8 (+260)	Measured at the completion of excavation
TP-5	+281	Not Encountered to 12' (+269)	Measured at the completion of excavation
TP-6	+264	8 (+256)	Measured at the completion of excavation
TP-7	+259	Not Encountered to 10' (< +249)	Measured at the completion of excavation

LABORATORY TESTING DATA

Seven grain size analyses were conducted in accordance with ASTM D-422 on samples collected from the test borings to further classify the soils and assess their suitability for reuse. The results of the grain size analyses are included in Appendix C and a brief description is included in the

following table.

TABLE 4 - LABORATORY TEST DATA

Boring & Sample Number	Depth	Soil Stratum	Percent Finer than No. 200 sieve	Soil Description with USCS Classification
TP-1 S-1	7'	Glacial Till	9.2	Fine to Coarse SAND and GRAVEL, trace Silt some Cobbles, Boulders (GW)
TP-2 S-2	4-6'	Subsoil	80.1	Brown SILT, little fine to medium Sand, trace coarse Sand, trace Gravel (SM)
TP-4 S-1	1-3'	Subsoil	65.2	SILT, some fine Sand, trace medium to coarse Sand, trace Gravel (SM)
TP-4 S-2	6'	Glacial Till	9.7	Fine to Coarse SAND and GRAVEL, trace Silt, some Cobbles, Boulders (GW)
TP-5 S-1	5'	Glacial Till	8.3	Fine to Coarse SAND and GRAVEL, trace Silt, some cobbles, Boulders (GW)
TP-6 S-1	4'	Glacial Till	9.7	Fine to Coarse SAND and GRAVEL, trace Silt, some Cobbles, Boulders (GW)
TP-7 S-3	5'	Glacial Till	13.8	Fine to Coarse SAND and GRAVEL, little Silt, some Cobbles, Boulders (GW)

Assessment of Site Soil Reuse

The existing site generally slopes from the north to the south toward the existing wetland area along Union Street. Given the slope of the site, it is anticipated that the upper portion of the development will be a cut of approximately 10 to 16 feet below existing grade and the lower portion of the development will generally require filling. The excavation for these structures will generally encounter topsoil, subsoil, and occasional areas of non-engineered fill underlain by the glacial till stratum.

Based on our preliminary review of the subsurface information, we believe that spread footings bearing on structural fill supported over the natural glacial till will provide an adequate foundation. All non-engineered fill, subsoil, topsoil, or other deleterious soil should be removed from below the entire footprint of the proposed structures. Boulders that extend within the limits of the excavation should be removed and the resulting voids filled with compacted structural fill. Based on our understanding of the project, we have the following comments in regards to reuse of the onsite soils:

- The onsite topsoil and subsoil with root material should be stripped and either reused in

PAUL B. ALDINGER & ASSOCIATES, INC.

landscape areas or legally disposed of off site. Based on the results of the sieve analyses, the subsoil layer contains trace amounts of root matter and greater than 65 percent by weight finer than the No. 200 sieve (fines). This soil is not recommended for reuse as fill below any of the onsite structures. Soils with elevated percentages of fines drain slowly and the control of the water content and compaction becomes difficult. When the moisture content exceeds the optimum compaction moisture content, the water in the pore spaces of the soil tends to absorb the compaction energy rather than the soil particles. During cooler, wet weather, soils with an elevated percentage of fines tend to remain saturated or near saturation for long periods of time, and adequate compaction is not achieved.

- ▶ We anticipate that the non-engineered fill onsite will likely contain varying amounts of silt and mixed with construction debris (concrete, asphalt, glass, etc.) and is therefore not recommended for reuse as structural fill. The amount of non-engineered fill appeared limited to the area of the existing structures. Additional explorations to confirm the extent of the non-engineered fill is recommended in this area.
- ▶ The glacial till across the site is generally well graded and appears relatively close to meeting our typical specification for structural fill. However, given that till is unsorted, portions of this soil may contain excessive silt layers which may not be appropriate for reuse. The deposit also contains a number of boulders and cobbles which will need to be either crushed or removed from the material used as backfill.
- ▶ We recommend that any soil considered for reuse as structural fill should first be tested to ensure that it meets the recommended gradation requirement for structural fill. Onsite soils which does not meet the recommended gradation requirement for use as structural fill, could be considered for reuse in areas not intended for the support of buildings, pavements, or other structures.

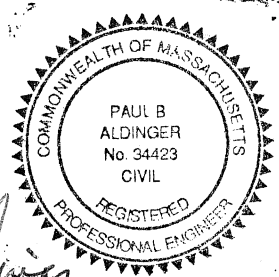
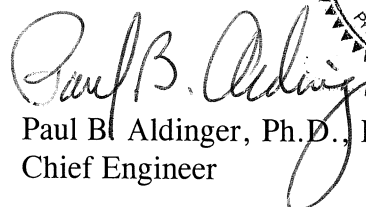
We appreciate the opportunity to have been of service to you and we trust that the information contained in this preliminary report is adequate for your needs at this time. We plan additional field explorations, analysis and a final geotechnical report will be completed in the near future. Please contact the undersigned if there are questions on these recommendations or if you need additional information.

Very truly yours,

PAUL B. ALDINGER & ASSOCIATES, INC.



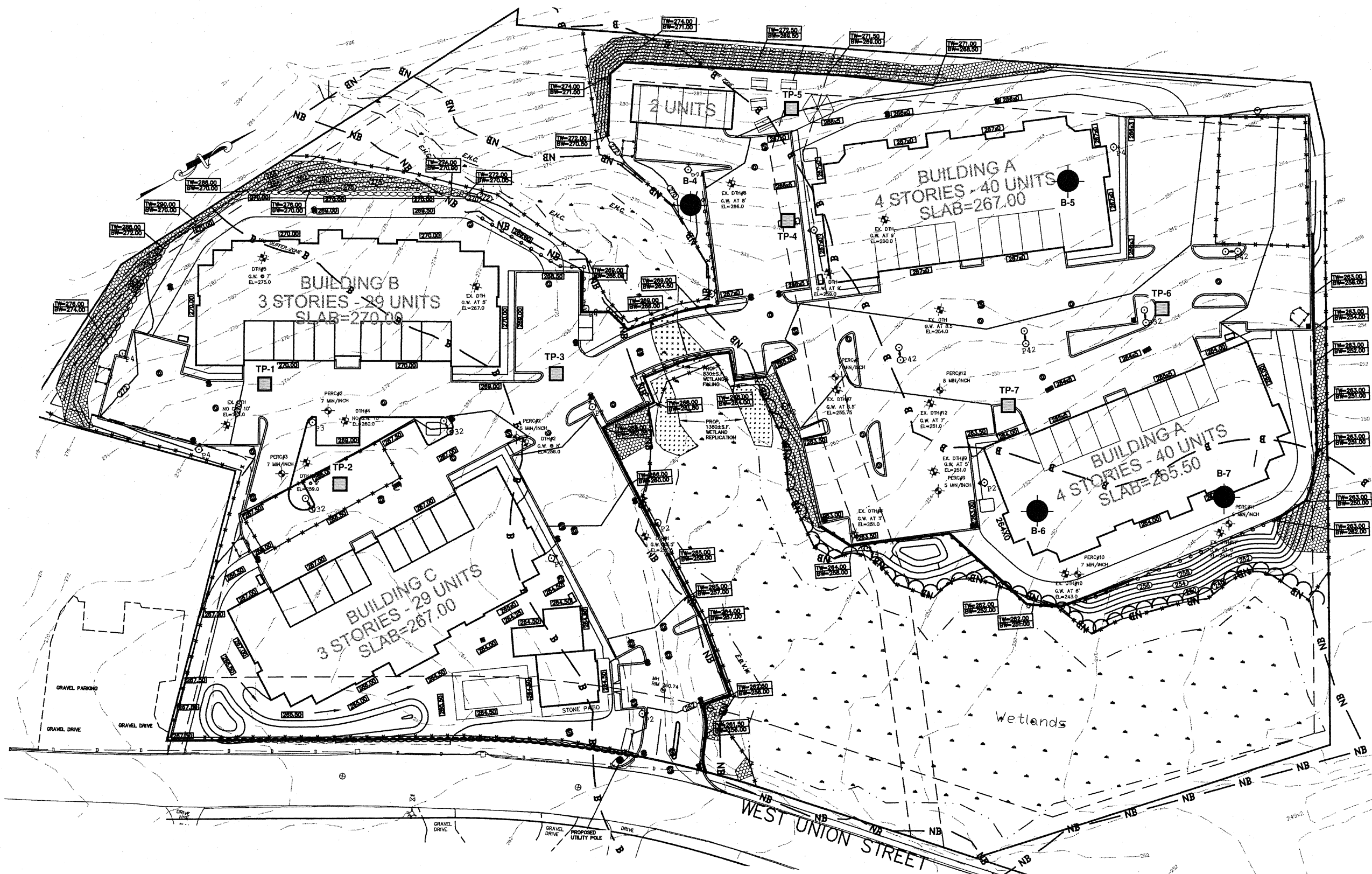
Jody S. Richards
Senior Geotechnical Engineer



Paul B. Aldinger, Ph.D., P.E.
Chief Engineer

PAUL B. ALDINGER & ASSOCIATES, INC.

FIGURES



DATE: _____ DATE: _____

CONSTRUCTION ON THIS LOT IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY AN EXAMINATION OF THE TITLE.

WARNING: EXISTING UTILITY LINES INDICATED OR NOTED ON THESE DRAWINGS ARE SHOWN AS OBTAINED FROM EXISTING INFORMATION AND ARE ONLY APPROXIMATE IN LOCATION. THE CONTRACTOR SHALL TAKE CAUTION IN THESE AREAS TO AVOID DAMAGE TO EXISTING UTILITY LINES AND/OR HARM TO PERSONNEL ENGAGED IN WORKING IN THESE AREAS. CALL "DIG SAFE" 1-888-DIG-SAFE (1-888-344-7233).

EXISTING LINES OTHER THAN THOSE INDICATED ON THESE DRAWINGS MAY BE ON THE SITE. THE CONTRACTOR IS WARNED TO PROCEED WITH CAUTION WITH ALL WORK, ESPECIALLY EXCAVATION WORK, AND TO MAKE ALL POSSIBLE INVESTIGATIONS AS TO POSSIBLE UNMARKED UTILITY LINES.

NOTES

APPROVED DATE: _____
ASHLAND PLANNING BOARD

SIGNATURE DATE: _____
BEING A MAJORITY

- LEGEND:**
- EXISTING TREELINE
 - - - EXISTING CONTOUR
 - - - PROPOSED CONTOUR
 - - - OVERHEAD WIRE
 - - - DRAIN LINE
 - - - SEWER LINE
 - - - WATER LINE
 - - - UNDERGROUND ELECTRIC
 - - - ROOF DRAIN
 - - - PROPOSED FENCE
 - - - PROPOSED SILT FENCE
 - ⊗ EXISTING SEWER MANHOLE
 - ⊙ EXISTING DRAIN MANHOLE
 - ⊠ EXISTING CATCH BASIN
 - ⊕ EXISTING UTILITY POLE
 - ⊙ PROPOSED DRAINAGE MANHOLE

1	5/23/14	FINALIZE DESIGN PER COMMENTS.	PM
#	DATE	DESCRIPTION	INIT
OWNER/APPLICANT			

133 WEST UNION STREET

**FIGURE 1 -
SUBSURFACE
EXPLORATION PLAN**

SCALE: 1"=30'
DATE: FEBRUARY 21, 2014

NOTE: Base plan developed by Guerrier & Halnon, Inc. dated February 24, 2014.

SHEET
C-3.0

APPENDIX A

LIMITATIONS

APPENDIX A

LIMITATIONS

A. Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.
2. The generalized soil profiles described in the text and shown on the figures are intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.
3. Water level readings have been made in the drill holes at times and under conditions stated on the boring logs. These data have been reviewed and interpretations have been made in the text of this report; however, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, tide and other factors occurring since the time measurements were made.

B. Review

In the event that any changes in the nature, design, or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report are modified or verified in writing by Paul B. Aldinger & Associates, Inc. It is recommended that this firm be provided the opportunity for a general review of final design and specifications, in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

C. Construction

It is recommended that this firm be retained to provide soil engineering services during construction of the excavation and foundation phases of the work. This is to observe compliance with the design concepts, specifications, or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

D. Use of Report

1. This report has been prepared for the exclusive use of LeCesse Development Corporation

PAUL B. ALDINGER & ASSOCIATES, INC.

for specific application to the proposed 133 West Union Street Development in Ashland, Massachusetts in accordance with generally accepted soil and foundation engineering practices. No warranty, express or implied, is made.

2. This geotechnical engineering report has been prepared for this project by Paul B. Aldinger & Associates, Inc. This report is for design purposes only and is not sufficient to prepare an accurate bid.
3. This report may contain comparative cost estimates for the purpose of evaluating alternative construction schemes. These estimates may also involve approximate quantity evaluations. It should be noted that quantity estimates may not be accurate enough for construction bids. Since Paul B. Aldinger & Associates, Inc. has no control over labor and materials cost and design, the estimates of construction costs have been made on the basis of experience. We cannot guarantee the accuracy of cost estimates as compared to contractors' bids for construction costs.

APPENDIX B

TEST BORING & TEST PIT LOGS

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: 133 WEST UNION STREET TOWN, STATE <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET <u>1</u> OF <u>1</u> LOCATION: _____ HOLE NO.: <u>B-4</u> BORING TYPE: <u>Cased</u> LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: _____ PBA _____		

GROUND WATER OBSERVATIONS AT <u>8.0</u> FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	AUGER CASING SAMPLER CORE BAR. TYPE <u>HSA</u> <u>S/S</u> SIZE, I.D. _____ <u>1 3/8"</u> HAMMER WT. <u>300#</u> <u>140#</u> BIT HAMMER FALL <u>24"</u> <u>30"</u>	SURFACE ELEV.: <u>279.0</u> DATE STARTED: <u>7/24/14</u> DATE FINISHED: <u>7/24/14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>B. Deserit</u>
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LOCATION OF BORING: _____

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 8" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-8	8-12	12-18	18-24			NO.	PEN.	REC.
		<u>0 - 2'</u>	<u>D</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>5</u>	<u>1.0</u>	<u>LOOSE, DK. Brown TOPSOIL</u>	<u>1</u>	<u>24</u>	<u>14</u>
								<u>3.0</u>	<u>Loose to M. Dense, Orange/Brown Silty Fine SAND, trace gravel.</u>	<u>1A</u>		
<u>5</u>		<u>4' - 5.7'</u>	<u>D</u>	<u>15</u>	<u>28</u>	<u>36</u>	<u>100</u>	<u>5.7'</u>	<u>V. Dense, Gray/Brown F-C SAND and GRAVEL, little silt, trace cobbles (Refusal on spoon 5.7')</u>	<u>2</u>	<u>20</u>	<u>12</u>
								<u>8.5'</u>	<u>Roller Bit thru Boulder</u>			
<u>10</u>		<u>9' - 11'</u>	<u>D</u>	<u>28</u>	<u>21</u>	<u>12</u>	<u>12</u>	<u>10.0</u>	<u>Dense, Gray/Brown F-C SAND & GRAVEL</u>	<u>3</u>	<u>24</u>	<u>14</u>
									<u>M. Dense, Lt Gray, F-M SAND some silt, some C. sand and F-C Gravel, tr. cobbles</u>	<u>3A</u>		
<u>15</u>		<u>14' - 16'</u>	<u>D</u>	<u>20</u>	<u>38</u>	<u>37</u>	<u>31</u>		<u>V. Dense, Gray/Brown F-C SAND & GRAVEL, little silt, trace cobbles, boulders.</u>	<u>4</u>	<u>24</u>	<u>16</u>
<u>20</u>		<u>19' - 21'</u>	<u>D</u>	<u>23</u>	<u>48</u>	<u>62</u>	<u>63</u>		<u>V. Dense, Gray/Brown F-C SAND & GRAVEL, little silt, trace cobbles</u>	<u>5</u>	<u>24</u>	<u>18</u>
									<u>Bottom of Boring 21'</u>			
<u>25</u>												
<u>30</u>												
<u>35</u>												
<u>40</u>												

GROUND SURFACE TO _____ FT., USED _____" CASING: THEN _____		COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE	FOOTAGE IN EARTH: _____ FOOTAGE IN ROCK: _____ WELL FOOTAGE: _____ NO. OF SAMPLES: _____ HOLE NO.: <u>B-4</u> TYPE: _____
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY	PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%		

BORING CONTRACTOR: Northern Drill Service, Inc.		PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: 133 WEST UNION STREET TOWN, STATE Ashland, MA PBA NO.: 14021 OFFICE:		SHEET <u>1</u> OF <u>1</u> LOCATION: HOLE NO.: <u>B-5</u> BORING TYPE: <u>Cased</u> LINE & STA.: OFFSET:	
LOG PREPARED BY: PBA		AUGER CASING SAMPLER CORE BAR. TYPE HSA NW S/S SIZE, I.D. 4" 1 3/8" HAMMER WT. 300# 140# BIT HAMMER FALL 24" 30"		SURFACE ELEV.: <u>265.0</u> DATE STARTED: <u>7/23/14</u> DATE FINISHED: <u>7/24/14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>E. Dessert</u>	
GROUND WATER OBSERVATIONS AT <u>Dry</u> FT AFTER HRS AT FT AFTER HRS		LOCATION OF BORING:			

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
		0-2	D	2	3	4	6	0.5	Loose D.K. Brown TOP SOIL	1	24	12
								2.5'	Loose to M. Dense, Tan F-M SAND some silt, trace gravel	1A		
5		4' - 6'	D	22	29	26	35		V. Dense, Gray/Brown, F-C SAND & GRAVEL, little silt, trace cobbles	2	24	12
10		9' - 11'	D	23	26	54	52		V. Dense Gray/Brown, F-C SAND & GRAVEL, little silt, trace cobbles	3	24	16
15		14' - 14.25	D	100/3"					Refusal on Spoon @ 14.25' Bottom of Boring 14.25'	4	3	3
20												
25												
30												
35												
40												

GROUND SURFACE TO FT., USED " CASING: THEN		COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE		FOOTAGE IN EARTH: FOOTAGE IN ROCK: WELL FOOTAGE: NO. OF SAMPLES: HOLE NO.: <u>B-5</u> TYPE:	
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY		PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%			

BORING CONTRACTOR: Northern Drill Service, Inc.		PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI				SHEET 1 OF 1									
		BORING LOG				LOCATION:									
LOG PREPARED BY:		PROJECT NAME: 133 WEST UNION STREET				HOLE NO.: B-6									
PBA		TOWN, STATE Ashland, MA				BORING TYPE: Cased									
		PBA NO.: 14021 OFFICE:				LINE & STA.:									
						OFFSET:									
GROUND WATER OBSERVATIONS						AUGER CASING SAMPLER CORE BAR.		SURFACE ELEV.: 251.0							
AT 7.5' FT AFTER HRS						TYPE HSA NW S/S		DATE STARTED: 7/23/14							
AT FT AFTER HRS						SIZE, I.D. 4" 1 3/8"		DATE FINISHED: 7/23/14							
						HAMMER WT. 300# 140# BIT		FOREMAN: T. Tucker							
						HAMMER FALL 24" 30"		INSPECTOR: E. Dessert							
LOCATION OF BORING:															
DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO 0-6 6-12 12-18 18-24				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE NO. PEN. REC.					
		0 - 2	D	1	1	2	2	1.0	Loose, Dk. Brown TOPSOIL	1	24	16			
									Loose, Orange Br. to Tan, Silty Fine SAND, trace m-c sand.	1A					
5		4 -	D	100%				4.0							
		5 - 7	D	52	48	35	30	5.0	Refusal - Roller bit thru Boulder	2	0	0			
									V. Dense, Gray/Brown F-C SAND and GRAVEL, trace silt, Cobbles, boulders.	3	24	18			
10		9 - 11	D	4	5	7	14		M. Dense, Gray/Brown F-C SAND & GRAVEL, trace silt	4	24	4			
15		14 - 14.5	D	100				14.5	V. Dense, Gray/Brown F-C SAND & GRAVEL, Refusal on spoon.	5	6	4			
									Roller Bit from 14.5 to 16' into Boulder / possible Bedrock						
20									Bottom of Boring 16'						
25															
30															
35															
40															
GROUND SURFACE TO FT., USED " CASING:										COHESIONLESS DENSITY:			FOOTAGE IN EARTH:		
THEN										0-4 VERY LOOSE			FOOTAGE IN ROCK:		
TYPE OF SAMPLE										5-9 LOOSE			WELL FOOTAGE:		
D=DRY W=WASHED C=CORED										10-29 MED. DENSE			NO. OF SAMPLES:		
TP=TEST PIT A=AUGER V=VANE TEST										30-49 DENSE			HOLE NO.: B-6		
UP=UNDISTURBED, PISTON										50 + VERY DENSE			TYPE:		
US=UNDISTURBED, SHELBY															

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: 133 WEST UNION STREET TOWN, STATE <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET <u>1</u> OF <u>1</u> LOCATION: HOLE NO.: <u>B-7</u> BORING TYPE: <u>Cased</u> LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: PBA <u>E. H. Dessert</u>		

GROUND WATER OBSERVATIONS AT <u>9.0</u> FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>AUGER</th> <th>CASING</th> <th>SAMPLER</th> <th>CORE BAR.</th> </tr> <tr> <td>TYPE <u>HSA</u></td> <td><u>NW</u></td> <td><u>S/S</u></td> <td></td> </tr> <tr> <td>SIZE, I.D.</td> <td><u>4"</u></td> <td><u>1 3/8"</u></td> <td></td> </tr> <tr> <td>HAMMER WT.</td> <td><u>300#</u></td> <td><u>140#</u></td> <td>BIT</td> </tr> <tr> <td>HAMMER FALL</td> <td><u>24"</u></td> <td><u>30"</u></td> <td></td> </tr> </table>	AUGER	CASING	SAMPLER	CORE BAR.	TYPE <u>HSA</u>	<u>NW</u>	<u>S/S</u>		SIZE, I.D.	<u>4"</u>	<u>1 3/8"</u>		HAMMER WT.	<u>300#</u>	<u>140#</u>	BIT	HAMMER FALL	<u>24"</u>	<u>30"</u>		SURFACE ELEV.: <u>249.0</u> DATE STARTED: <u>7/23/14</u> DATE FINISHED: <u>7/23/14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>E. Dessert</u>
AUGER	CASING	SAMPLER	CORE BAR.																			
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HAMMER FALL	<u>24"</u>	<u>30"</u>																				

LOCATION OF BORING:

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
	Push	0-2	D	1	1	2	2	1.0	Dark Brown TOPSOIL	1	24	18
									Loose, Tan, Silty Fine SAND	1A		
5		4-5	D	3	5	7	8	4.0	Med. Dense, Tan, silty Fine SAND, trace m-c sand trace gravel.	2	24	12
10		9-11	D	5	12	13	14	8.0	Dense, Gray/Brown F-C SAND & GRAVEL, cobbles little silt, (TILL)	3	24	10
								11.0				
								12.5	Boulder			
15		14-16	D	13	17	31	26		Dense, Gray/Brown F-C SAND & GRAVEL, cobbles. little silt. (TILL) (Roller bit thru boulders)	4	24	16
20		19-19.45	D	100	5			19.0				
									Orange Brown Weathered GRANITE	5	5	2
25		24-24.2	D	100	2				Refusal on spoon 24.2'	6	2	2
									Bottom of Boring 24.2'			
30												
35												
40												

GROUND SURFACE TO _____ FT., USED _____" CASING: THEN _____		COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE	FOOTAGE IN EARTH: _____ FOOTAGE IN ROCK: _____ WELL FOOTAGE: _____ NO. OF SAMPLES: _____ HOLE NO.: <u>B-7</u> TYPE: _____
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY	PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%		

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-1
FILE NO. 14021
DATE 7/21/14

ENGINEER/ TECH
E. H. Dessert

EXCAVATION EQUIPMENT
CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 274.0
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
	6" Dark Brown TOPSOIL, Roots.			
1'	Orange Brown, Silty Fine SAND (SURSOIL)	E		
2'	trace roots, trace fine gravel			
2.5'				
3'	Lt. Gray/Brown F-C SAND			
4'	and GRAVEL, few cobbles	M		
5'	and boulders, trace silt.			
6'			1-A	
7'				
8'				S-1
9'				
10'	(same as above)	M		
11'			1-A	
12'				
13'	Bottom of Pit 12'			
14'				
15'				

REMARKS:

TEST PIT PLAN VOLUME = _____ cu yds	LEGEND: BOULDER COUNT <table border="1"> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>CLASSIFICATION</td> <td>DESIGNATION</td> </tr> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36"+</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	CLASSIFICATION	DESIGNATION	6"-18"	A	18"-36"	B	36"+	C	PROPORTIONS USED: <table border="1"> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (ll)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (ll)	10-20%	SOME (so)	20-35%	AND	35-50%	ABBREVIATIONS: <table border="1"> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	EXCAVATION EFFORT: <table border="1"> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> GROUNDWATER <u>Dry</u> FT. AT _____ HRS.	E	EASY	M	MODERATE	D	DIFFICULT
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-2
FILE NO. 14021
DATE 7/21/14

ENGINEER/ TECH

E.H. Dessert

EXCAVATION EQUIPMENT

CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 265.0

TIME STARTED _____

TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Brown, F-C SAND & GRAVEL, little silt; trace debris (FILL)	E		S-1
2'				
3'				
3.5				
4'	4.0 Dark Brown TOPSOIL trace roots	E		S-2
5'	Orange Brown SILT & Fine SAND Moist. (SUBSOIL)			
6'	6.0			
7'	Moist, Lt Gray SILT & Fine SAND	E		S-3
8'	8.0			
9'	Moist, Lt. Brown, Fine to Med SAND, Some f-c gravel, trace silt few cobbles			
10'				
11'				
12'				
13'				
14'				
15'		M		S-4
	Bottom of Pit 12'			

REMARKS:

TEST PIT PLAN

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V



VOLUME = _____ cu yds

LEGEND:

BOULDER COUNT

SIZE RANGE	LETTER
CLASSIFICATION	DESIGNATION
6"-18"	A
18"-36"	B
36"+	C

PROPORTIONS USED:

TRACE (tr)	0-10%
LITTLE (ll)	10-20%
SOME (so)	20-35%
AND	35-50%

ABBREVIATIONS:

F	FINE
M	MEDIUM
C	COARSE
F/M	FINE TO MED
F/C	FINE TO COARSE
V	VERY
GR	GREY
BR	BROWN

EXCAVATION EFFORT:

E	EASY
M	MODERATE
D	DIFFICULT

GROUNDWATER
Dry FT.
AT _____ HRS.

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-3
FILE NO. 14021
DATE 7/21/14

ENGINEER/ TECH
E. H. Dessert

EXCAVATION EQUIPMENT
CONTRACTOR Northern Drill Service
OPERATOR Dave Edilberti
MAKE Komatsu MODEL PC120
CAPACITY 1 CY REACH 15'

GROUND ELEV. 269.0
TIME STARTED
TIME COMPLETED

Andy

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Dark Brown, silty F-M SAND. little gravel.	E		
1.5'	Roots. some debris on surface (TOPSOIL)			
2'	Orange Brown, Silty Fine SAND, trace	E		S-1
3'	f-c sand, trace roots (SUBSOIL)			
3.0				
4'	Moist, Gray/Tan. Fine SAND some silt	E		S-2
5'				
6'	Wet, Gray Brown, F-C SAND & GRAVEL,	M		S-3
7'	some silt, many cobbles, few			
8'	small boulders			
9'				
10'	(same as above)	M		
11'				
12'				
13'	Bottom of Pit 12'			
14'				
15'				

REMARKS:

TEST PIT PLAN VOLUME = _____ cu yds	LEGEND: BOULDER COUNT <table border="1"> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36"+</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	6"-18"	A	18"-36"	B	36"+	C	PROPORTIONS USED: <table border="1"> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (ll)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (ll)	10-20%	SOME (so)	20-35%	AND	35-50%	ABBREVIATIONS: <table border="1"> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	EXCAVATION EFFORT: <table border="1"> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> GROUNDWATER 8.5 FT. AT _____ HRS.	E	EASY	M	MODERATE	D	DIFFICULT
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-4
FILE NO. 14021
DATE _____

ENGINEER/ TECH
E. H. Dessert

EXCAVATION EQUIPMENT
CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 268.0
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Dark Brown TOPSOIL, Roots	E		
2'	Orange Brown silty Fine SAND	E		S-1
3'	trace F-C Sand, trace roots SUBSOIL			
4'				
5'	Lt. Gray/Brown F-C SAND	M		S-2
6'	and Gravel, few cobbles			
7'	and small boulders, trace silt		2-A	
8'				
9'				
10'	(same as above)	M		
11'				
12'				
13'	Bottom of Pit 12'			
14'				
15'				

REMARKS:

<p>TEST PIT PLAN</p> <p>Λ I V</p> <p>← →</p> <p>VOLUME = _____ cu yds.</p>	<p>LEGEND:</p> <p>BOULDER COUNT</p> <table> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>CLASSIFICATION</td> <td>DESIGNATION</td> </tr> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36" +</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	CLASSIFICATION	DESIGNATION	6"-18"	A	18"-36"	B	36" +	C	<p>PROPORTIONS USED:</p> <table> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (ll)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (ll)	10-20%	SOME (so)	20-35%	AND	35-50%	<p>ABBREVIATIONS:</p> <table> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	<p>EXCAVATION EFFORT:</p> <table> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> <p>GROUNDWATER</p> <p><u>8.0</u> FT.</p> <p>AT _____ HRS.</p>	E	EASY	M	MODERATE	D	DIFFICULT
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-5
FILE NO. 14021
DATE 7/21/14

ENGINEER/ TECH
E.H. Dessert

EXCAVATION EQUIPMENT

CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 281.0
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Dark Brown, TOPSOIL, Roots	E		
2'	Orange Brown, Silty F-C SAND, little gravel, trace roots	E		
3'				
4'	Lt. Gray/Brown F-C SAND and GRAVEL, many cobbles, some small to medium boulders	E	2-A	S-1
5'				
6'				
7'				
8'	(Same as above)	M	1-A	
9'				
10'				
11'				
12'	Bottom of Pit 12'	M	3-A	
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN 	LEGEND: BOULDER COUNT SIZE RANGE LETTER CLASSIFICATION DESIGNATION 6"-18" A 18"-36" B 36"+ C	PROPORTIONS USED: TRACE (tr) 0-10% LITTLE (ll) 10-20% SOME (so) 20-35% AND 35-50%	ABBREVIATIONS: F FINE M MEDIUM C COARSE F/M FINE TO MED F/C FINE TO COARSE V VERY GR GREY BR BROWN	EXCAVATION EFFORT: E EASY M MODERATE D DIFFICULT GROUNDWATER AT <u>Dry</u> FT. HRS.
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-6
FILE NO. 14021
DATE 7/24/14

ENGINEER/ TECH

EXCAVATION EQUIPMENT
CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 264.0
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	1.0 Dark Brown TOPSOIL, Roots	E		
2'	2.0 Orange Brown silty F-C SAND, some gravel, cobbles & small boulders	E		
3'		M		
4'				
5'				S-1
6'		D	10-B	
7'				
8'				
9'				
10'				
11'		D		
12'				
13'				
14'				
15'				

Lt. Gray Brown F-C SAND and GRAVEL. Many nested cobbles and boulders. (Difficult excavating.)

Bottom of Pit 10'

REMARKS:

<p>TEST PIT PLAN</p>	<p>LEGEND:</p> <p>BOULDER COUNT</p> <table border="1"> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>CLASSIFICATION</td> <td>DESIGNATION</td> </tr> <tr> <td>0"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36"+</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	CLASSIFICATION	DESIGNATION	0"-18"	A	18"-36"	B	36"+	C	<p>PROPORTIONS USED:</p> <table border="1"> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (ll)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (ll)	10-20%	SOME (so)	20-35%	AND	35-50%	<p>ABBREVIATIONS:</p> <table border="1"> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	<p>EXCAVATION EFFORT:</p> <table border="1"> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> <p>GROUNDWATER</p> <p><u>8.0</u> FT.</p> <p>AT _____ HRS.</p>	E	EASY	M	MODERATE	D	DIFFICULT
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 WEST UNION STREET
LOCATION Ashland, MA

TEST PIT NO. TP-7
FILE NO. 14021
DATE _____

ENGINEER/ TECH
E. H. Dessert

EXCAVATION EQUIPMENT
CONTRACTOR _____
OPERATOR _____
MAKE _____ MODEL _____
CAPACITY _____ REACH _____

GROUND ELEV. 259.0
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Dark Brown TOPSOIL, Roots	E		S-1
2'	Orange Brown silty F-C SAND, some gravel, few cobbles.	E		S-2
3'				
4'		M		
5'				
6'		D	1-C 2-B 15-A 2-C	S-3
7'				
8'				
9'		D	10-A 1-C	
10'				
11'	Bottom of Pit 10'			
12'				
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN VOLUME = _____ cu yds	LEGEND: BOULDER COUNT <table border="1"> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>0"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36"+</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	0"-18"	A	18"-36"	B	36"+	C	PROPORTIONS USED: <table border="1"> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (ll)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (ll)	10-20%	SOME (so)	20-35%	AND	35-50%	ABBREVIATIONS: <table border="1"> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	EXCAVATION EFFORT: <table border="1"> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> GROUNDWATER <u>Dry</u> FT. AT _____ HRS.	E	EASY	M	MODERATE	D	DIFFICULT
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APPENDIX C

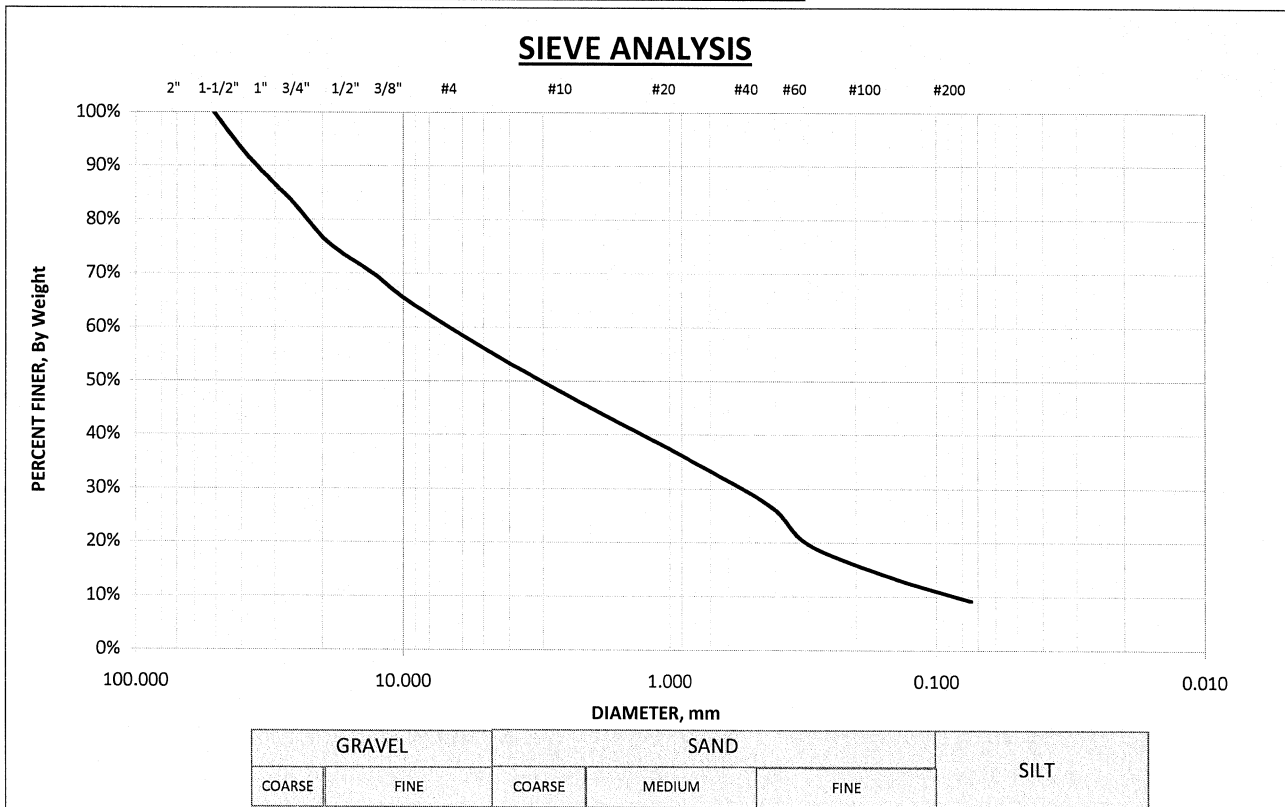
LABORATORY TESTING

SIEVE ANALYSIS

DESCRIPTION:	Light Gray-Brown, Fine to Coarse SAND and GRAVEL, trace Silt, some cobbles and boulders.	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
USCS:	GW	CONTAINER #:	40
TEST PIT NO.:	TP-1	CONT.+ WET SOIL:	1958.47
DEPTH:	7'	CONT.+ DRY SOIL:	1927.74
SAMPLE #:	S-1	WGT WATER:	30.73
WASH SIEVE	yes	CONT WGT:	177.51
		DRY SOIL:	1750.23
		% MOIST:	1.76%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	0.00	0.00%	100.00%	
1 1/2"	37.500	0.00	148.19	8.47%	91.53%	
1"	25.400	0.00	300.59	17.17%	82.83%	
3/4"	19.100	121.52	422.11	24.12%	75.88%	
1/2"	12.700	107.51	529.62	30.26%	69.74%	
3/8"	9.525	86.80	616.42	35.22%	64.78%	
4	4.750	163.77	780.19	44.58%	55.42%	
10	2.000	181.58	961.77	54.95%	45.05%	
20	0.840	169.47	1131.24	64.63%	35.37%	
40	0.420	148.19	1279.43	73.10%	26.90%	
50	0.300	126.55	1405.98	80.33%	19.67%	
100	0.149	105.36	1511.34	86.35%	13.65%	
200	0.074	78.45	1589.79	90.83%	9.17%	
Pan	0.000	160.44	1750.23	100.00%	0.00%	
TOTAL DRY WT.			1750.23			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	44.6%	46.3%	9.2%
COARSE	17.2%	10.4%	
MEDIUM		18.1%	
FINE	27.4%	17.7%	

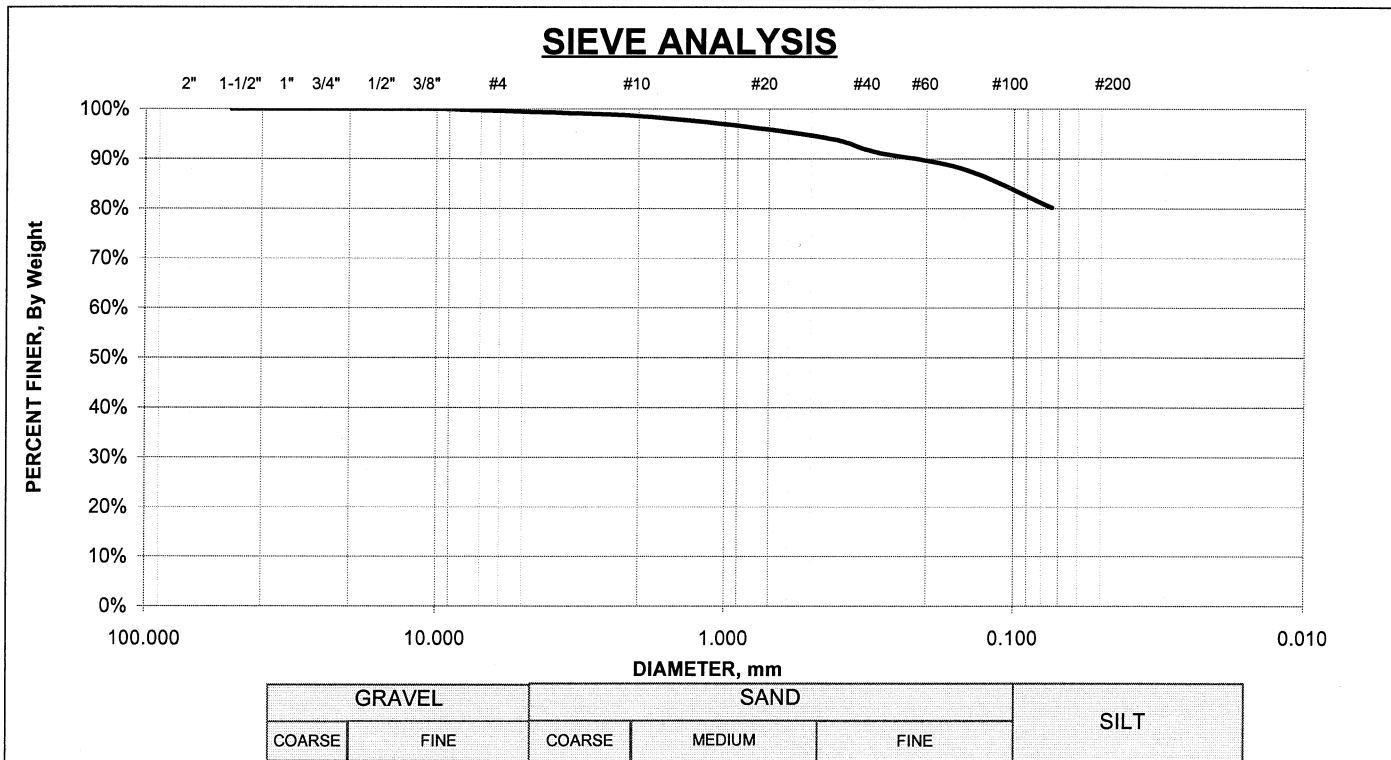


SIEVE ANALYSIS

DESCRIPTION:	Orange Brown SILT, little fine to medium Sand, trace coarse Sand, trace Gravel (Subsoil)	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
		CONTAINER #:	101
USCS:	SM	CONT.+ WET SOIL:	607.25
TEST PIT NO.:	TP-2	CONT.+ DRY SOIL:	489.41
DEPTH:	4' to 6'	WGT WATER:	117.84
SAMPLE #:	S-2	CONT WGT:	109.65
WASH SIEVE	yes	DRY SOIL:	379.76
		% MOIST:	31.03%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	0.00	0.00%	100.00%	
1 1/2"	37.500	0.00	0.00	0.00%	100.00%	
1"	25.400	0.00	0.00	0.00%	100.00%	
3/4"	19.100	0.00	0.00	0.00%	100.00%	
1/2"	12.700	0.00	0.00	0.00%	100.00%	
3/8"	9.525	0.00	0.00	0.00%	100.00%	
4	4.750	2.23	2.23	0.59%	99.41%	
10	2.000	3.06	5.29	1.39%	98.61%	
20	0.840	8.24	13.53	3.56%	96.44%	
40	0.420	9.43	22.96	6.05%	93.95%	
50	0.300	9.79	32.75	8.62%	91.38%	
100	0.149	13.08	45.83	12.07%	87.93%	
200	0.074	29.59	75.42	19.86%	80.14%	
Pan	0.000	304.34	379.76	100.00%	0.00%	
TOTAL DRY WT.			379.76			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	0.6%	19.3%	80.1%
COARSE	0.0%	0.8%	
MEDIUM		4.7%	
FINE	0.6%	13.8%	

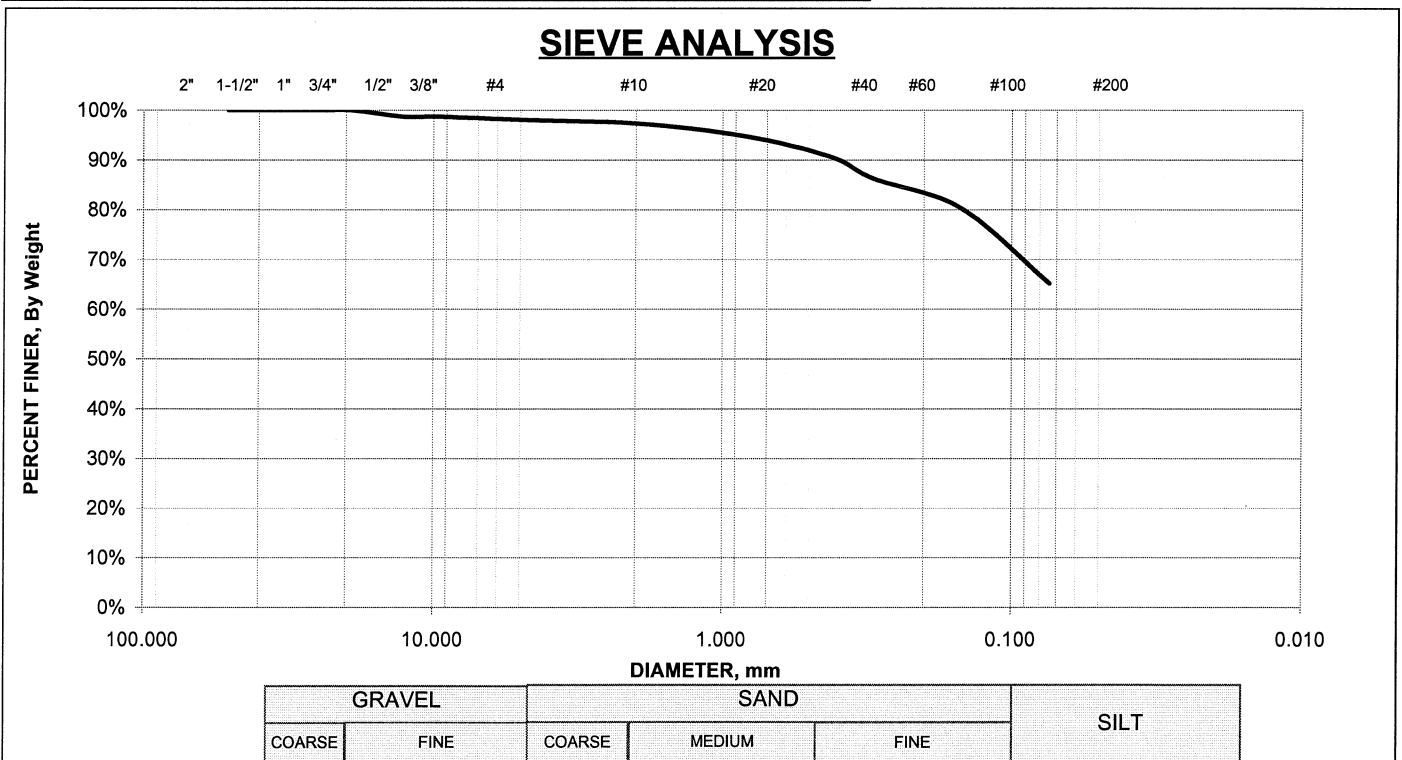


SIEVE ANALYSIS

DESCRIPTION:	Orange Brown SILT, some fine Sand, trace medium to coarse Sand, trace Gravel (Subsoil)	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
USCS:	SM	CONTAINER #:	102
TEST PIT NO.:	TP-4	CONT.+ WET SOIL:	546.61
DEPTH:	1' to 3'	CONT.+ DRY SOIL:	458.47
SAMPLE #:	S-1	WGT WATER:	88.14
WASH SIEVE	yes	CONT WGT:	108.7
		DRY SOIL:	349.77
		% MOIST:	25.20%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	0.00	0.00%	100.00%	
1 1/2"	37.500	0.00	0.00	0.00%	100.00%	
1"	25.400	0.00	0.00	0.00%	100.00%	
3/4"	19.100	0.00	0.00	0.00%	100.00%	
1/2"	12.700	4.41	4.41	1.26%	98.74%	
3/8"	9.525	0.00	4.41	1.26%	98.74%	
4	4.750	2.26	6.67	1.91%	98.09%	
10	2.000	2.68	9.35	2.67%	97.33%	
20	0.840	8.63	17.98	5.14%	94.86%	
40	0.420	14.71	32.69	9.35%	90.65%	
50	0.300	15.08	47.77	13.66%	86.34%	
100	0.149	21.12	68.89	19.70%	80.30%	
200	0.074	52.90	121.79	34.82%	65.18%	
Pan	0.000	227.98	349.77	100.00%	0.00%	
TOTAL DRY WT.			349.77			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	1.9%	32.9%	65.2%
COARSE	0.0%	0.8%	
MEDIUM		6.7%	
FINE	1.9%	25.5%	



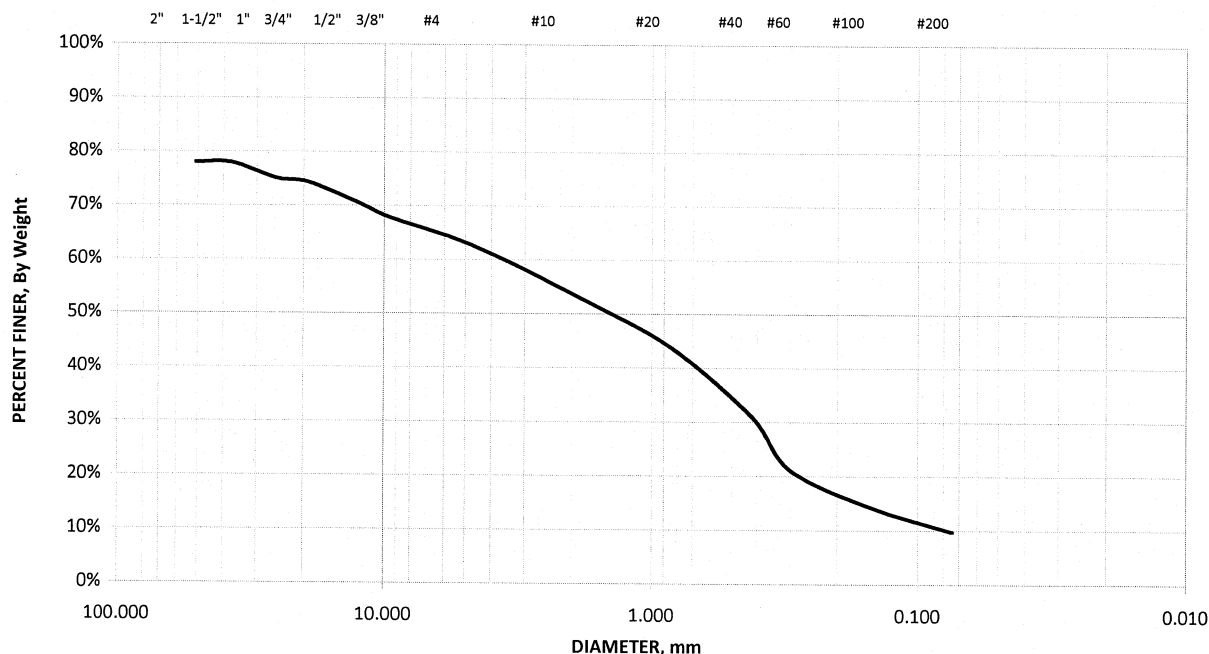
SIEVE ANALYSIS

DESCRIPTION:	Light Gray-Brown, Fine to Coarse SAND and GRAVEL, trace Silt, some cobbles and boulders.	PROJ:	133 West Union Street
Sample Location:		LOCATION:	Ashland, MA
USCS:	GW	JOB #:	14021
TEST PIT NO.:	TP-4	DATE:	7/31/2014
DEPTH:	6'	CONTAINER #:	41
SAMPLE #:	S-2	CONT.+ WET SOIL:	1942.05
WASH SIEVE	yes	CONT.+ DRY SOIL:	1845.13
		WGT WATER:	96.92
		CONT WGT:	173.77
		DRY SOIL:	1671.36
		% MOIST:	5.80%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	368.28	22.03%	77.97%	
1 1/2"	37.500	0.00	368.28	22.03%	77.97%	
1"	25.400	0.00	416.71	24.93%	75.07%	
3/4"	19.100	12.30	429.01	25.67%	74.33%	
1/2"	12.700	60.39	489.40	29.28%	70.72%	
3/8"	9.525	48.96	538.36	32.21%	67.79%	
4	4.750	84.31	622.67	37.26%	62.74%	
10	2.000	151.07	773.74	46.29%	53.71%	
20	0.840	167.72	941.46	56.33%	43.67%	
40	0.420	212.33	1153.79	69.03%	30.97%	
50	0.300	165.55	1319.34	78.94%	21.06%	
100	0.149	114.56	1433.90	85.79%	14.21%	
200	0.074	75.66	1509.56	90.32%	9.68%	
Pan	0.000	161.80	1671.36	100.00%	0.00%	
TOTAL DRY WT.			1671.36			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	37.3%	53.1%	9.7%
COARSE	24.9%	9.0%	
MEDIUM		22.7%	
FINE	12.3%	21.3%	

SIEVE ANALYSIS

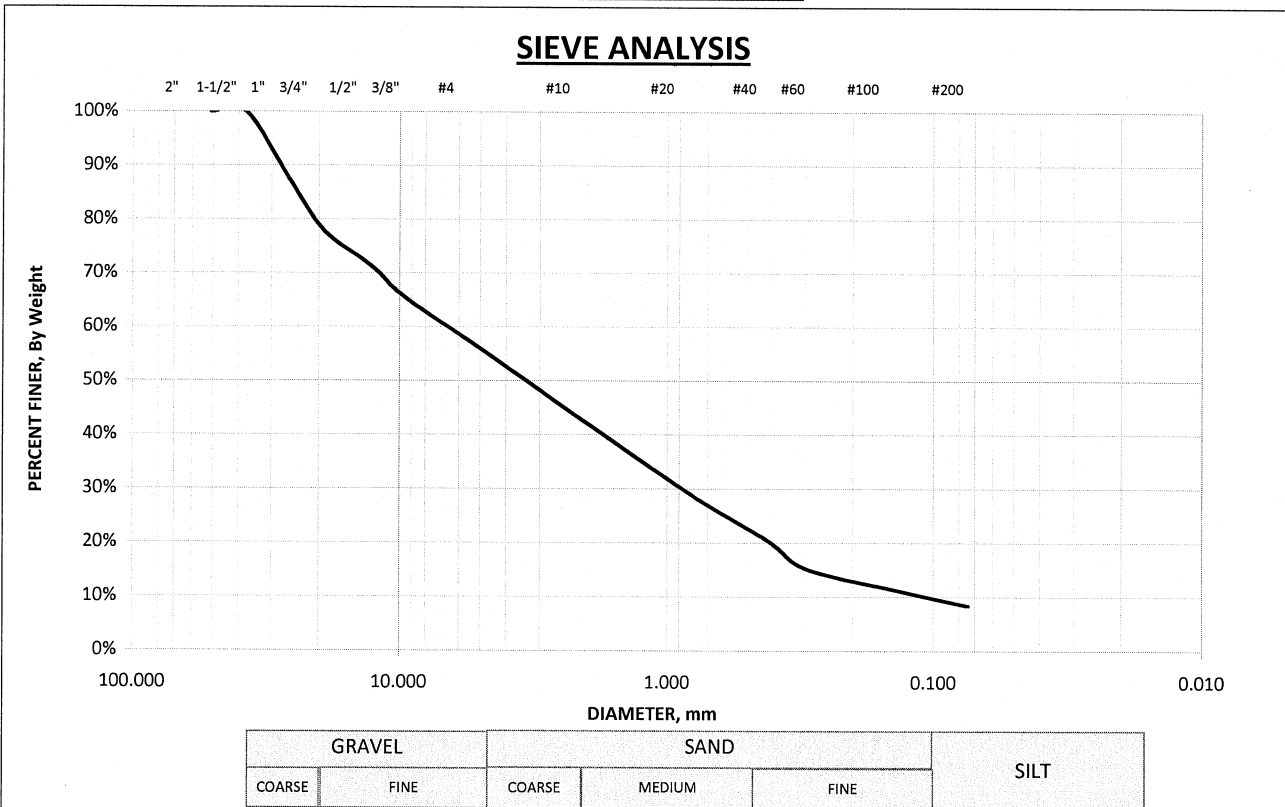


SIEVE ANALYSIS

DESCRIPTION:	Light Gray-Brown, Fine to Coarse SAND and GRAVEL, trace Silt, some cobbles and boulders.	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
		CONTAINER #:	42
USCS:	GW	CONT.+ WET SOIL:	1951.09
TEST PIT NO.:	TP-5	CONT.+ DRY SOIL:	1910.79
DEPTH:	5'	WGT WATER:	40.3
SAMPLE #:	S-1	CONT WGT:	177.89
WASH SIEVE	yes	DRY SOIL:	1732.9
		% MOIST:	2.33%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	0.00	0.00%	100.00%	
1 1/2"	37.500	0.00	0.00	0.00%	100.00%	
1"	25.400	0.00	226.20	13.05%	86.95%	
3/4"	19.100	157.72	383.92	22.15%	77.85%	
1/2"	12.700	113.74	497.66	28.72%	71.28%	
3/8"	9.525	102.09	599.75	34.61%	65.39%	
4	4.750	176.77	776.52	44.81%	55.19%	
10	2.000	226.51	1003.03	57.88%	42.12%	
20	0.840	220.40	1223.43	70.60%	29.40%	
40	0.420	152.91	1376.34	79.42%	20.58%	
50	0.300	92.45	1468.79	84.76%	15.24%	
100	0.149	62.80	1531.59	88.38%	11.62%	
200	0.074	57.79	1589.38	91.72%	8.28%	
Pan	0.000	143.52	1732.90	100.00%	0.00%	
TOTAL DRY WT.			1732.9			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	44.8%	46.9%	8.3%
COARSE	13.1%	13.1%	
MEDIUM		21.5%	
FINE	31.8%	12.3%	

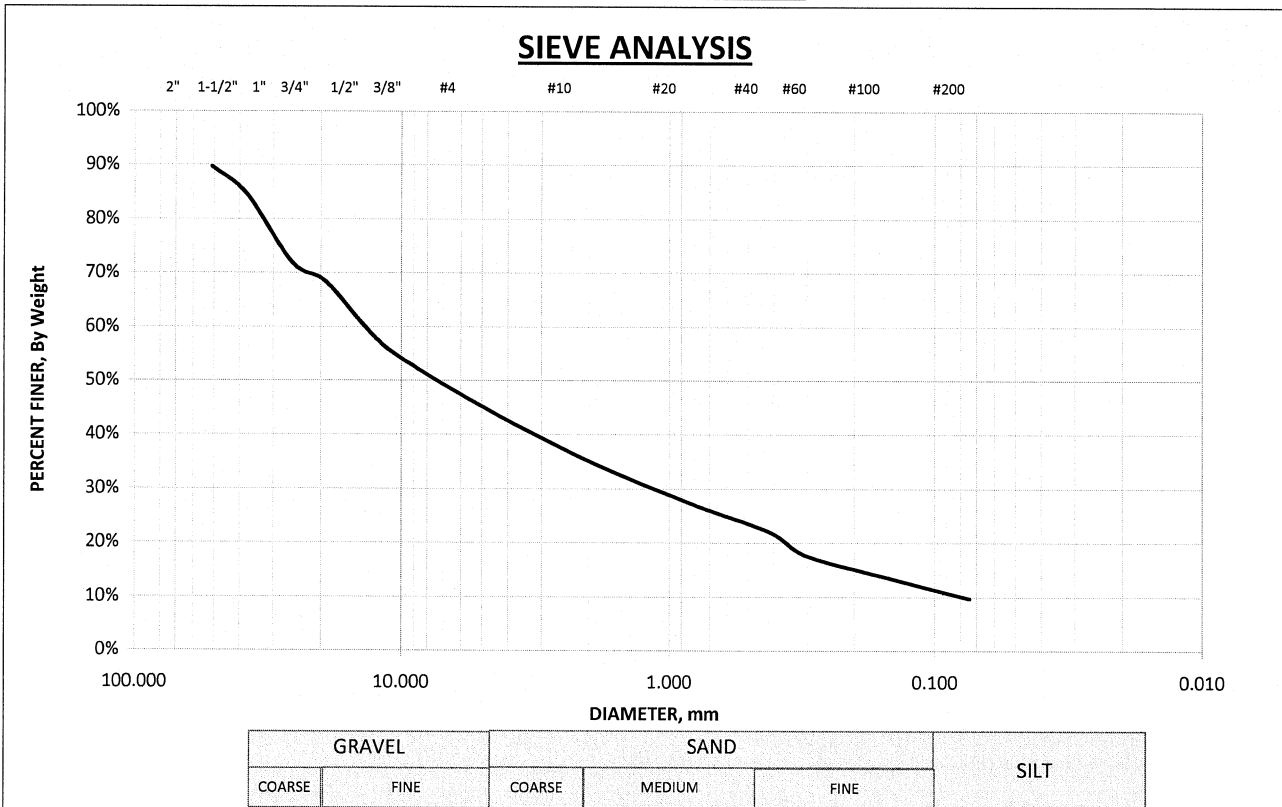


SIEVE ANALYSIS

DESCRIPTION:	Light Gray-Brown, Fine to Coarse SAND and GRAVEL, trace Silt, some cobbles and boulders.	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
USCS:	GW	CONTAINER #:	43
TEST PIT NO.:	TP-6	CONT.+ WET SOIL:	1923.77
DEPTH:	4'	CONT.+ DRY SOIL:	1852.63
SAMPLE #:	S-1	WGT WATER:	71.14
WASH SIEVE	yes	CONT WGT:	102.43
		DRY SOIL:	1750.2
		% MOIST:	4.06%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	181.26	10.36%	89.64%	
1 1/2"	37.500	0.00	271.64	15.52%	84.48%	
1"	25.400	0.00	493.32	28.19%	71.81%	
3/4"	19.100	60.56	553.88	31.65%	68.35%	
1/2"	12.700	175.88	729.76	41.70%	58.30%	
3/8"	9.525	85.11	814.87	46.56%	53.44%	
4	4.750	155.69	970.56	55.45%	44.55%	
10	2.000	165.37	1135.93	64.90%	35.10%	
20	0.840	134.58	1270.51	72.59%	27.41%	
40	0.420	93.25	1363.76	77.92%	22.08%	
50	0.300	79.53	1443.29	82.46%	17.54%	
100	0.149	69.92	1513.21	86.46%	13.54%	
200	0.074	67.77	1580.98	90.33%	9.67%	
Pan	0.000	169.22	1750.20	100.00%	0.00%	
TOTAL DRY WT.			1750.2			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	55.5%	34.9%	9.7%
COARSE	28.2%	9.4%	
MEDIUM		13.0%	
FINE	27.3%	12.4%	



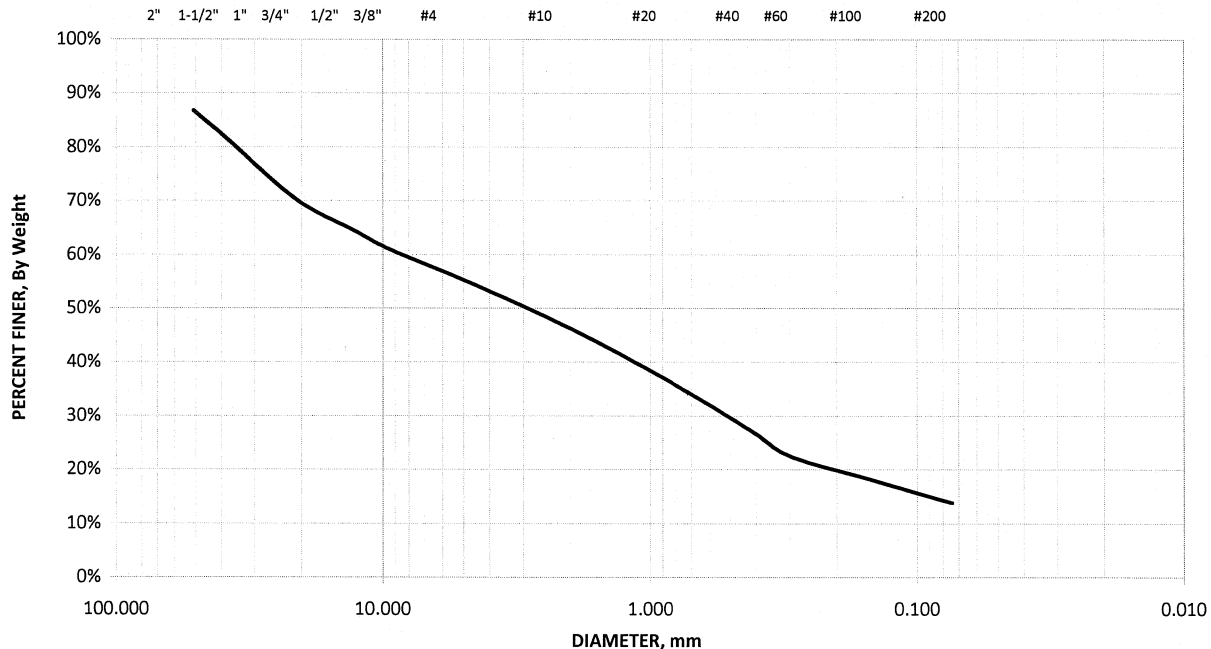
SIEVE ANALYSIS

DESCRIPTION:	Light Gray-Brown, Fine to Coarse SAND and GRAVEL, little Silt, some cobbles and boulders.	PROJ:	133 West Union Street
		LOCATION:	Ashland, MA
Sample Location:		JOB #:	14021
		DATE:	7/31/2014
USCS:	GW	CONTAINER #:	44
TEST PIT NO.:	TP-7	CONT.+ WET SOIL:	1967.76
DEPTH:	5'	CONT.+ DRY SOIL:	1883.31
SAMPLE #:	S-3	WGT WATER:	84.45
WASH SIEVE	yes	CONT WGT:	104.3
		DRY SOIL:	1779.01
		% MOIST:	4.75%

SIEVE	OPENING (MM)	WEIGHT RETAINED	ACCUM. RETAINED	PERCENT RETAINED	TOTAL % FINER/WGT	PROJECT SPEC.
2"	50.800	0.00	236.16	13.27%	86.73%	
1 1/2"	37.500	0.00	334.01	18.78%	81.22%	
1"	25.400	0.00	469.78	26.41%	73.59%	
3/4"	19.100	83.18	552.96	31.08%	68.92%	
1/2"	12.700	80.35	633.31	35.60%	64.40%	
3/8"	9.525	59.54	692.85	38.95%	61.05%	
4	4.750	111.47	804.32	45.21%	54.79%	
10	2.000	152.51	956.83	53.78%	46.22%	
20	0.840	176.55	1133.38	63.71%	36.29%	
40	0.420	160.68	1294.06	72.74%	27.26%	
50	0.300	84.58	1378.64	77.49%	22.51%	
100	0.149	77.30	1455.94	81.84%	18.16%	
200	0.074	77.41	1533.35	86.19%	13.81%	
Pan	0.000	245.66	1779.01	100.00%	0.00%	
TOTAL DRY WT.			1779.01			

	% GRAVEL	% SAND	% SILT & CLAY
TOTAL	45.2%	41.0%	13.8%
COARSE	26.4%	8.6%	
MEDIUM		19.0%	
FINE	18.8%	13.5%	

SIEVE ANALYSIS



GRAVEL		SAND			SILT
COARSE	FINE	COARSE	MEDIUM	FINE	

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: <u>133 West Union Street</u> TOWN, STATE: <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET ____ OF ____ LOCATION: _____ HOLE NO.: <u>B-8</u> BORING TYPE: _____ LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: PBA <u>BDD</u>		
GROUND WATER OBSERVATIONS AT _____ FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	AUGER CASING SAMPLER CORE BAR. TYPE <u>HW</u> <u>S/S</u> SIZE, I.D. <u>4"</u> <u>1 3/8"</u> HAMMER WT. <u>300#</u> <u>140#</u> BIT HAMMER FALL <u>24"</u> <u>30"</u>	SURFACE ELEV.: _____ DATE STARTED <u>9-25-14</u> DATE FINISHED <u>9-25-14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>B. Deely</u>

LOCATION OF BORING: DPW RESERVOIR

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
		0-2'	D	1	2	4	4			1	24	18
								3'	Loose light brown fine to coarse SAND, some Silt, little Gravel with roots (subsoil)			
5		4-6'	D	25	38	42	34		Very Dense brown fine to coarse SAND & GRAVEL, little Silt	2	24	5
								8'				
10		9-11'	D	10	13	16	29		Medium dense light brown fine to medium SAND, some Silt, little Gravel (Glacial Till)	3	24	10
15												
									Rollerbit throuh Glacial Till			
20									Several Cobbles, Occasional Boulder			
25												
30								29'				
									Bottom of Boring 29 feet			
35												
40												

GROUND SURFACE TO _____ FT., USED _____" CASING: THEN _____	COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE	FOOTAGE IN EARTH: <u>29'</u> FOOTAGE IN ROCK: _____ WELL FOOTAGE: _____ NO. OF SAMPLES: <u>3</u> HOLE NO.: <u>B-8</u> TYPE: _____
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY	PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%	

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: <u>133 West Union Street</u> TOWN, STATE: <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET ____ OF ____ LOCATION: _____ HOLE NO.: <u>B-9</u> BORING TYPE: _____ LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: PBA <u>BDD</u>		
GROUND WATER OBSERVATIONS AT _____ FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	AUGER CASING SAMPLER CORE BAR. TYPE <u>HW</u> <u>S/S</u> SIZE, I.D. <u>4"</u> <u>1 3/8"</u> HAMMER WT. <u>300#</u> <u>140#</u> BIT HAMMER FALL <u>24"</u> <u>30"</u>	SURFACE ELEV.: _____ DATE STARTED <u>9-25-14</u> DATE FINISHED <u>9-25-14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>B. Deely</u>

LOCATION OF BORING: DPW RESERVOIR

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
		0-2'	D	2	3	5	16	3"	Topsoil	1	24	11
								3'	Light brown fine to medium SAND, some Silt, little Gravel			
5		4-5'4"	D	27	92	100/4"			Very Dense brown fine to coarse SAND & GRAVEL, little Silt, cobbles, boulders	2	16	16
10		9-11'	D	23	18	15	14		Medium dense light brown fine to medium SAND, some Silt, little Gravel (Glacial Till)	3	24	12
15		14-16'	D	25	25	28	44	16'		4	24	17
20									Bottom of Boring 16 feet			
25												
30												
35												
40												

GROUND SURFACE TO _____ FT., USED _____ " CASING: THEN _____	COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE	FOOTAGE IN EARTH: <u>16'</u> FOOTAGE IN ROCK: _____ WELL FOOTAGE: _____ NO. OF SAMPLES: <u>3</u> HOLE NO.: <u>B-9</u> TYPE: _____
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY	PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%	

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: <u>133 West Union Street</u> TOWN, STATE: <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET ____ OF ____ LOCATION: _____ HOLE NO.: <u>B-10</u> BORING TYPE: _____ LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: PBA <u>BDD</u>		
GROUND WATER OBSERVATIONS AT _____ FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	AUGER CASING SAMPLER CORE BAR. TYPE <u>HW</u> <u>S/S</u> SIZE, I.D. <u>4"</u> <u>1 3/8"</u> HAMMER WT. <u>300#</u> <u>140#</u> BIT HAMMER FALL <u>24"</u> <u>30"</u>	SURFACE ELEV.: _____ DATE STARTED <u>9-25-14</u> DATE FINISHED <u>9-26-14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>B. Deely</u>

LOCATION OF BORING: DPW RESERVOIR

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
		0-2'	D	1	2	2	2	5"	Topsoil	1	24	14
								3'	Loose light brown SILT and fine SAND, with roots (Subsoil)			
5		4-6'	D	20	43	23	21		Very Dense brown fine to coarse SAND & GRAVEL, little Silt	2	24	15
								9'				
10		9-11'	D	30	18	14	15		Dense light brown fine to medium SAND, some Silt, little Gravel (Glacial Till)	3	24	14
15												
									Rollerbit throuh Glacial Till			
20									Several Cobbles, Boulders			
25												
30								29'				
									Bottom of Boring 29 feet			
35												
40												

GROUND SURFACE TO _____ FT., USED _____" CASING:			COHESIONLESS DENSITY:		FOOTAGE IN EARTH: <u>29'</u>
THEN _____					FOOTAGE IN ROCK: _____
TYPE OF SAMPLE		PROPORTIONS USED:	0-4 VERY LOOSE		WELL FOOTAGE: _____
D=DRY W=WASHED C=CORED		TRACE=0-10%	5-9 LOOSE		NO. OF SAMPLES: <u>3</u>
TP=TEST PIT A=AUGER V=VANE TEST		LITTLE=10-20%	10-29 MED. DENSE		HOLE NO.: <u>B-10</u>
UP=UNDISTURBED, PISTON		SOME=20-35%	30-49 DENSE		TYPE: _____
US=UNDISTURBED, SHELBY		AND=35-50%	50 + VERY DENSE		

BORING CONTRACTOR: Northern Drill Service, Inc.	PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI BORING LOG PROJECT NAME: <u>133 West Union Street</u> TOWN, STATE: <u>Ashland, MA</u> PBA NO.: <u>14021</u> OFFICE: _____	SHEET ____ OF ____ LOCATION: _____ HOLE NO.: <u>B-11</u> BORING TYPE: _____ LINE & STA.: _____ OFFSET: _____
LOG PREPARED BY: PBA <u>BDD</u>		

GROUND WATER OBSERVATIONS AT _____ FT AFTER <u>0</u> HRS AT _____ FT AFTER _____ HRS	<table style="width:100%;"> <tr> <td style="width:15%;">AUGER</td> <td style="width:15%;">CASING</td> <td style="width:15%;">SAMPLER</td> <td style="width:15%;">CORE BAR.</td> </tr> <tr> <td>TYPE</td> <td>HW</td> <td>S/S</td> <td></td> </tr> <tr> <td>SIZE, I.D.</td> <td>4"</td> <td>1 3/8"</td> <td></td> </tr> <tr> <td>HAMMER WT.</td> <td>300#</td> <td>140#</td> <td>BIT</td> </tr> <tr> <td>HAMMER FALL</td> <td>24"</td> <td>30"</td> <td></td> </tr> </table>	AUGER	CASING	SAMPLER	CORE BAR.	TYPE	HW	S/S		SIZE, I.D.	4"	1 3/8"		HAMMER WT.	300#	140#	BIT	HAMMER FALL	24"	30"		SURFACE ELEV.: _____ DATE STARTED <u>9-26-14</u> DATE FINISHED <u>9-26-14</u> FOREMAN: <u>T. Tucker</u> INSPECTOR: <u>B. Deely</u>
AUGER	CASING	SAMPLER	CORE BAR.																			
TYPE	HW	S/S																				
SIZE, I.D.	4"	1 3/8"																				
HAMMER WT.	300#	140#	BIT																			
HAMMER FALL	24"	30"																				

LOCATION OF BORING: DPW RESERVOIR

DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO				STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE		
				0-6	6-12	12-18	18-24			NO.	PEN.	REC.
		0-2'	D	1	2	3	3	3"	Topsoil	1	24	16
								3'	Loose light brown SILT and fine SAND, with roots (Subsoil)			
5		4-6'	D	25	36	49	46		Very Dense brown fine to coarse SAND & GRAVEL, little Silt	2	24	15
10		9-11'	D	15	17	19	14		Dense light brown fine to coarse SAND & GRAVEL, little Silt	3	24	9
								13'				
15		14-15.3'	D	41	38	100/3"			Very Dense light brown fine to coarse SAND, some Silt, little Gravel (Glacial Till)	4	15	10
20									Rollerbit Ahead			
									Glacial Till - Several Cobbles, Boulders			
25												
								29'				
30									Bottom of Boring 29 feet			
35												
40												

GROUND SURFACE TO _____ FT., USED _____ " CASING: THEN _____	COHESIONLESS DENSITY: 0-4 VERY LOOSE 5-9 LOOSE 10-29 MED. DENSE 30-49 DENSE 50 + VERY DENSE	FOOTAGE IN EARTH: <u>29'</u> FOOTAGE IN ROCK: _____ WELL FOOTAGE: _____ NO. OF SAMPLES: <u>4</u> HOLE NO.: <u>B-11</u> TYPE: _____
TYPE OF SAMPLE D=DRY W=WASHED C=CORED TP=TEST PIT A=AUGER V=VANE TEST UP=UNDISTURBED, PISTON US=UNDISTURBED, SHELBY	PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%	

BORING CONTRACTOR: Northern Drill Service, Inc.		PAUL B. ALDINGER & ASSOCIATES, INC. 860A WATERMAN AVENUE, SUITE 9 EAST PROVIDENCE, RI		SHEET ____ OF ____					
LOG PREPARED BY: PBA BDD		BORING LOG PROJECT NAME: 133 West Union Street TOWN, STATE: Ashland, MA PBA NO.: 14021 OFFICE: _____		LOCATION: _____ HOLE NO.: B-12 BORING TYPE: _____ LINE & STA.: _____ OFFSET: _____					
GROUND WATER OBSERVATIONS AT _____ FT AFTER 0 HRS AT _____ FT AFTER ____ HRS		AUGER CASING SAMPLER CORE BAR. TYPE HW S/S SIZE, I.D. 4" 1 3/8" HAMMER WT. 300# 140# BIT HAMMER FALL 24" 30"		SURFACE ELEV.: _____ DATE STARTED 9-26-14 DATE FINISHED 9-26-14 FOREMAN: T. Tucker INSPECTOR: B. Deely					
LOCATION OF BORING: DPW RESERVOIR									
DEPTH BELOW SURFACE	CASING BLOWS/ FOOT	SAMPLE DEPTH FROM - TO	TYPE OF SAMPLE	BLOWS PER 6" ON SAMPLER FROM-TO 0-6 6-12 12-18 18-24	STRATA CHANGE DEPTH	FIELD IDENTIFICATION OF SOIL & ROCK INCL. COLOR, LOSS OF WASH WATER, JOINTS IN ROCK, ETC.	SAMPLE NO. PEN. REC.		
5		0-2'	D	1 2 2 4	5"	Topsoil	1	24	14
					3'	Loose light brown SILT and fine SAND, with roots (Subsoil)			
		4-6'	D	11 15 14 18		Medium dense light brown fine to coarse SAND & GRAVEL, little Silt	2	24	10
10									
		9-11'	D	20 22 27 28		Dense light brown fine to coarse SAND & GRAVEL, little Silt	3	24	15
					13'				
15						Rollerbit Ahead into Glacial Till - Occasional Cobbles and Boulders			
					19'				
20						Bottom of Test Boring 19'			
25									
30									
35									
40									
GROUND SURFACE TO _____ FT., USED _____" CASING: _____						COHESIONLESS DENSITY:			
THEN _____						0-4 VERY LOOSE			
TYPE OF SAMPLE						5-9 LOOSE			
D=DRY W=WASHED C=CORED						10-29 MED. DENSE			
TP=TEST PIT A=AUGER V=VANE TEST						30-49 DENSE			
UP=UNDISTURBED, PISTON						50 + VERY DENSE			
US=UNDISTURBED, SHELBY						FOOTAGE IN EARTH: 19			
PROPORTIONS USED:						FOOTAGE IN ROCK: _____			
TRACE=0-10%						WELL FOOTAGE: _____			
LITTLE=10-20%						NO. OF SAMPLES: 4			
SOME=20-35%						HOLE NO.: B-12			
AND=35-50%						TYPE: _____			

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.

860A Waterman Avenue

East Providence, RI 02914

(401) 435-5570

PROJECT

DESCRIPTION133 Union Street

LOCATIONASHLAND, MA

TEST PIT NO. TP-8

FILE NO. 14021

DATE9-24-14

ENGINEER/ TECH

Bryan Deely

EXCAVATION EQUIPMENT

CONTRACTORNorthern Drill Service

OPERATORD. Edilberti

MAKEKomatsu

CAPACITY

GROUND ELEV. +248

TIME STARTED

TIME COMPLETED

MODEL

REACH

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.	
1'	6" TOPSOIL	E			
2'	Orange brown fine to medium SAND, some Silt with Roots (Subsoil)				
3'					
4'					
5'	Light brown fine to coarse SAND and GRAVEL, little Silt, Cobbles, Boulders	M	1B		
6'					
7'		M			
8'	BOTTOM OF TEST PIT 6'				
9'					
10'					
11'					
12'					
13'					
14'					
15'					

REMARKS:

TEST PIT PLAN

Λ

4 I

V

8

cu yds

VOLUME =

LEGEND:

BOULDER COUNT

SIZE RANGE	LETTER
6"-18"	A
18"-36"	B
36" +	C

PROPORTIONS USED:

TRACE (tr)	0-10%
LITTLE (li)	10-20%
SOME (so)	20-35%
AND	35-50%

ABBREVIATIONS:

F	FINE
M	MEDIUM
C	COARSE
F/M	FINE TO MED
F/C	FINE TO COARSE
V	VERY
GR	GREY
BR	BROWN

EXCAVATION EFFORT:

E	EASY
M	MODERATE
D	DIFFICULT

GROUNDWATER

None

AT

FT.

HRS.

TEST PIT FIELD LOG					
Paul B. Aldinger & Associates, Inc. 860A Waterman Avenue East Providence, RI 02914 (401) 435-5570		PROJECT DESCRIPTION 133 Union Street LOCATION ASHLAND, MA		TEST PIT NO. TP-9 FILE NO. 14021 DATE 9-24-14	
ENGINEER/ TECH Bryan Deely		EXCAVATION EQUIPMENT CONTRACTOR Northern Drill Service OPERATOR D. Edilberti MAKE Komatsu CAPACITY		GROUND ELEV. +248 TIME STARTED TIME COMPLETED	
SOIL DESCRIPTION					
DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.	
1'	6" FOREST MAT	M			
2'	Light brown fine to coarse SAND, some Silt with Roots (Subsoil)	M			
3'					
4'					
5'	Light brown fine to coarse SAND, little GRAVEL, little Silt, Cobbles	M	1C		
6'					
7'					
8'					
9'					
10'	BOTTOM OF TEST PIT 8'				
11'					
12'					
13'					
14'					
15'					
REMARKS: S-1 SOIL SAMPLE OBTAINED					
TEST PIT PLAN Λ 4 V VOLUME = 8 cu yds		LEGEND: BOULDER COUNT SIZE RANGE LETTER CLASSIFICATION DESIGNATION 6"-18" A 18"-36" B 36" + C		PROPORTIONS USED: TRACE (tr) 0-10% LITTLE (li) 10-20% SOME (so) 20-35% AND 35-50%	
		ABBREVIATIONS: F FINE M MEDIUM C COARSE F/M FINE TO MED F/C FINE TO COARSE V VERY GR GREY BR BROWN		EXCAVATION EFFORT: E EASY M MODERATE D DIFFICULT GROUNDWATER None FT. AT HRS.	

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-10
FILE NO. 14021
DATE 9-24-14

EXCAVATION EQUIPMENT

ENGINEER/ TECH
Bryan Deely

CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY REACH

GROUND ELEV. +272
TIME STARTED
TIME COMPLETED

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
	4" TOPSOIL	E		
1'	Brown fine to coarse SAND, some Gravel little Silt (Non-Engineered Fill)	M		
2'				
3'				
4'				
5'	Light brown fine to coarse SAND, little GRAVEL, little Silt, Cobbles	M		
	Buried TOPSOIL/ ROOTS			
6'	Light brown fine to coarse SAND, some Gravel, little Silt			
7'				
8'				
9'	BOTTOM OF TEST PIT 8'			
10'				
11'				
12'				
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN

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VOLUME = 8 cu yds

LEGEND:

BOULDER COUNT
SIZE RANGE LETTER
CLASSIFICATION DESIGNATION
6"-18" A
18"-36" B
36" + C

PROPORTIONS USED:

TRACE (tr) 0-10%
LITTLE (li) 10-20%
SOME (so) 20-35%
AND 35-50%

ABBREVIATIONS:

F FINE
M MEDIUM
C COARSE
F/M FINE TO MED
F/C FINE TO COARSE
V VERY
GR GREY
BR BROWN

EXCAVATION EFFORT:

E EASY
M MODERATE
D DIFFICULT

GROUNDWATER

None FT.
AT HRS.

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-11
FILE NO. 14021
DATE 9-24-14

EXCAVATION EQUIPMENT

ENGINEER/ TECH
Bryan Deely

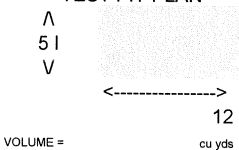
CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY REACH

GROUND ELEV. +271
TIME STARTED
TIME COMPLETED

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Light brown fine to coarse SAND, some Silt, little Gravel (Non-engineered Fill)	E		
2'		D		
3'				
4'	3.5' Buried TOPSOIL with roots	E		
5'	Brown fine to coarse SAND, little Silt, little Gravel (Non-engineered Fill)	M	1C	
6'			2B	
7'				
8'	6.5' Buried TOPSOIL with roots	M		
9'	Brown fine to coarse SAND & GRAVEL, some cobbles, trace Silt	M	2B	
10'			2A	
11'				
12'	BOTTOM OF TEST PIT 8'			
13'				
14'				
15'				
16'				

REMARKS:

TEST PIT PLAN  <p>VOLUME = 12 cu yds</p>	LEGEND: <table> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36" +</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	6"-18"	A	18"-36"	B	36" +	C	PROPORTIONS USED: <table> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (li)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (li)	10-20%	SOME (so)	20-35%	AND	35-50%	ABBREVIATIONS: <table> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	EXCAVATION EFFORT: <table> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> GROUNDWATER None FT. AT HRS.	E	EASY	M	MODERATE	D	DIFFICULT
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Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
133 Union Street
ASHLAND, MA

TEST PIT NO. **TP-12**
FILE NO. 14021
DATE 9-24-14

ENGINEER/ TECH
Bryan Deely

EXCAVATION EQUIPMENT
CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY REACH

GROUND ELEV. +271
TIME STARTED
TIME COMPLETED

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
	3"	E		
1'	FOREST MAT			
2'	Orange brown fine to medium SAND, some Silt, little Gravel with Roots (SUBSOIL)			
3'				
4'				
	3.5'	M		
5'	Brown fine to coarse SAND and GRAVEL, little cobbles, trace Silt			
6'				
7'				
8'	8'	M		
9'	BOTTOM OF TEST PIT 8'			
10'				
11'				
12'				
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN

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10'

cu yds

LEGEND:

BOULDER COUNT

SIZE RANGE LETTER

CLASSIFICATION DESIGNATION

6"-18" A

18"-36" B

36" + C

PROPORTIONS USED:

TRACE (tr) 0-10%

LITTLE (li) 10-20%

SOME (so) 20-35%

AND 35-50%

ABBREVIATIONS:

F FINE

M MEDIUM

C COARSE

F/M FINE TO MED

F/C FINE TO COARSE

V VERY

GR GREY

BR BROWN

EXCAVATION EFFORT:

E EASY

M MODERATE

D DIFFICULT

GROUNDWATER

None FT.

AT HRS.

<p>TEST PIT PLAN</p> <p>VOLUME = _____ cu yds</p>		<p>LEGEND:</p> <p>BOULDER COUNT</p> <table border="1"> <thead> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> </thead> <tbody> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36" +</td> <td>C</td> </tr> </tbody> </table>		SIZE RANGE	LETTER	6"-18"	A	18"-36"	B	36" +	C	<p>PROPORTIONS USED:</p> <table border="1"> <thead> <tr> <th>TRACE (tr)</th> <th>0-10%</th> </tr> </thead> <tbody> <tr> <td>LITTLE (li)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </tbody> </table>		TRACE (tr)	0-10%	LITTLE (li)	10-20%	SOME (so)	20-35%	AND	35-50%	<p>ABBREVIATIONS:</p> <table border="1"> <tbody> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </tbody> </table>		F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	<p>EXCAVATION EFFORT:</p> <table border="1"> <tbody> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </tbody> </table> <p>GROUNDWATER</p> <table border="1"> <tbody> <tr> <td>None</td> <td>FT.</td> </tr> <tr> <td>AT</td> <td>HRS</td> </tr> </tbody> </table>		E	EASY	M	MODERATE	D	DIFFICULT	None	FT.	AT	HRS
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT

DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-14

FILE NO. 14021

DATE 9-24-14

EXCAVATION EQUIPMENT

ENGINEER/ TECH
Bryan Deely

CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY REACH

GROUND ELEV. +264

TIME STARTED

TIME COMPLETED

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	6" FOREST MAT	E		
2'	Orange brown fine to medium SAND, some Silt, little Gravel with Roots (SUBSOIL)	M		
3'				
4'				
5'	3.5' Light brown fine to coarse SAND & GRAVEL, little Silt	M		
6'				
7'				
8'	6' BOTTOM OF TEST PIT - 6'			
9'				
10'				
11'				
12'				
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN

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VOLUME = _____ cu yds

LEGEND:

BOULDER COUNT	
SIZE RANGE	LETTER
CLASSIFICATION	DESIGNATION
6"-18"	A
18"-36"	B
36" +	C

PROPORTIONS USED:

TRACE (tr)	0-10%
LITTLE (li)	10-20%
SOME (so)	20-35%
AND	35-50%

ABBREVIATIONS:

F	FINE
M	MEDIUM
C	COARSE
F/M	FINE TO MED
F/C	FINE TO COARSE
V	VERY
GR	GREY
BR	BROWN

EXCAVATION EFFORT:

E	EASY
M	MODERATE
D	DIFFICULT

GROUNDWATER

None FT.
AT HRS.

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT

DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-15
FILE NO. 14021
DATE 9-24-14

EXCAVATION EQUIPMENT

ENGINEER/ TECH
Bryan Deely

CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY _____ REACH _____

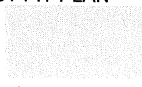
GROUND ELEV. +267
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Brown fine to coarse SAND & GRAVEL, little Silt, with Glass, cobbles, boulders (Miscellaneous Fill)	M	5B 1C	S-1
2'				
3'				
4'				
5'	Light brown fine to coarse SAND, little Gravel, little Silt, Cobbles, Boulders	M	1C	
6'				
7'				
8'	BOTTOM OF TEST PIT - 7'			
9'				
10'				
11'				
12'				
13'				
14'				
15'				

REMARKS: S-1 SAMPLE TAKEN

TEST PIT PLAN


 VOLUME = _____ cu yds

LEGEND:

BOULDER COUNT

SIZE RANGE	LETTER
CLASSIFICATION	DESIGNATION
6"-16"	A
16"-36"	B
36" +	C

PROPORTIONS USED:

TRACE (tr)	0-10%
LITTLE (li)	10-20%
SOME (so)	20-35%
AND	35-50%

ABBREVIATIONS:

F	FINE
M	MEDIUM
C	COARSE
F/M	FINE TO MED
F/C	FINE TO COARSE
V	VERY
GR	GREY
BR	BROWN

EXCAVATION EFFORT:

E	EASY
M	MODERATE
D	DIFFICULT

GROUNDWATER

None	FT.
AT	HRS.

TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-16
FILE NO. 14021
DATE 9-24-14

EXCAVATION EQUIPMENT

ENGINEER/ TECH
Bryan Deely

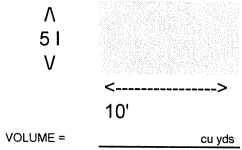
CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY _____ REACH _____

GROUND ELEV. _____
TIME STARTED _____
TIME COMPLETED _____

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
1'	Brown fine to medium SAND, some Silt, little Gravel (Non-engineered Fill)	E		
2'				
3'				
4'				
5'	Brown fine to medium SAND, some Silt, little Gravel (Non-engineered Fill)	E		
6'				
7'				
8'				
8.5'	TOPSOIL/ROOTS	E		
9'	Light brown fine to coarse SAND, some Gravel, little Silt	M		
10'				
11'	BOTTOM OF TEST PIT - 10'			
12'				
13'				
14'				
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REMARKS:

TEST PIT PLAN  VOLUME = _____ cu yds	LEGEND: BOULDER COUNT <table> <tr> <th>SIZE RANGE</th> <th>LETTER</th> </tr> <tr> <td>6"-18"</td> <td>A</td> </tr> <tr> <td>18"-36"</td> <td>B</td> </tr> <tr> <td>36" +</td> <td>C</td> </tr> </table>	SIZE RANGE	LETTER	6"-18"	A	18"-36"	B	36" +	C	PROPORTIONS USED: <table> <tr> <td>TRACE (tr)</td> <td>0-10%</td> </tr> <tr> <td>LITTLE (li)</td> <td>10-20%</td> </tr> <tr> <td>SOME (so)</td> <td>20-35%</td> </tr> <tr> <td>AND</td> <td>35-50%</td> </tr> </table>	TRACE (tr)	0-10%	LITTLE (li)	10-20%	SOME (so)	20-35%	AND	35-50%	ABBREVIATIONS: <table> <tr> <td>F</td> <td>FINE</td> </tr> <tr> <td>M</td> <td>MEDIUM</td> </tr> <tr> <td>C</td> <td>COARSE</td> </tr> <tr> <td>F/M</td> <td>FINE TO MED</td> </tr> <tr> <td>F/C</td> <td>FINE TO COARSE</td> </tr> <tr> <td>V</td> <td>VERY</td> </tr> <tr> <td>GR</td> <td>GREY</td> </tr> <tr> <td>BR</td> <td>BROWN</td> </tr> </table>	F	FINE	M	MEDIUM	C	COARSE	F/M	FINE TO MED	F/C	FINE TO COARSE	V	VERY	GR	GREY	BR	BROWN	EXCAVATION EFFORT: <table> <tr> <td>E</td> <td>EASY</td> </tr> <tr> <td>M</td> <td>MODERATE</td> </tr> <tr> <td>D</td> <td>DIFFICULT</td> </tr> </table> GROUNDWATER None _____ FT. AT _____ HRS.	E	EASY	M	MODERATE	D	DIFFICULT
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TEST PIT FIELD LOG

Paul B. Aldinger & Associates, Inc.
860A Waterman Avenue
East Providence, RI 02914
(401) 435-5570

PROJECT
DESCRIPTION 133 Union Street
LOCATION ASHLAND, MA

TEST PIT NO. TP-17
FILE NO. 14021
DATE 9-24-14

ENGINEER/ TECH
Bryan Deely

EXCAVATION EQUIPMENT
CONTRACTOR Northern Drill Service
OPERATOR D. Edilberti
MAKE Komatsu MODEL DC 120
CAPACITY REACH

GROUND ELEV. +266
TIME STARTED
TIME COMPLETED

SOIL DESCRIPTION

DEPTH		EXC. EFFORT	BOULDER COUNT	REMARK NO.
	4" TOPSOIL	E		
1'				
2'	Brown fine to coarse SAND, little Silt, trace Gravel (Non-engineered Fill)			
2.5'		M		
3'				
4'	Light brown fine to coarse SAND, little Gravel, little Silt, Cobbles, Boulders			
5'				
6'				
	BOTTOM OF TEST PIT - 5.5'			
7'				
8'				
9'				
10'				
11'				
12'				
13'				
14'				
15'				

REMARKS:

TEST PIT PLAN

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VOLUME = _____ cu yds

LEGEND:

BOULDER COUNT	
SIZE RANGE	LETTER
CLASSIFICATION	DESIGNATION
6"-18"	A
18"-36"	B
36" +	C

PROPORTIONS USED:

TRACE (tr)	0-10%
LITTLE (li)	10-20%
SOME (so)	20-35%
AND	35-50%

ABBREVIATIONS:

F	FINE
M	MEDIUM
C	COARSE
F/M	FINE TO MED
F/C	FINE TO COARSE
V	VERY
GR	GREY
BR	BROWN

EXCAVATION EFFORT:

E	EASY
M	MODERATE
D	DIFFICULT

GROUNDWATER

None	FT.
AT	HRS.