

**WELTI GEOTECHNICAL, P.C.**

Formerly Dr. Clarence Welti, PE. PC.

227 Williams Street · P.O. Box 397  
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

November 13, 2017

Mr. John D. Ritson, Esq  
146 Hopmeadow Street  
Simsbury, CT 060899

**Re: Geotechnical Study for Proposed Apartment Building  
894 Hopmeadow Street, Simsbury, CT**

Dear Mr. Ritson:

**1.0** Herewith are the boring data pertaining to the above. Eight borings were drilled at the proposed building footprint to a maximum depth of 61.5 feet. A water level observation well was placed in one of the borings. The boring locations are shown on the attached plan. *The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.* Grain size gradation and water content tests were performed on 5 soil samples and permeability tests on 3 soil samples. The results of those tests are in the Appendix.

**2.0** The **Subject Project** will include an apartment building with a ground floor parking level and three levels of apartments above the garage level. The building will have a footprint of about 28,000 sf. There is about 20 feet of topographic relief across the building footprint (Elev. 160 to Elev. 180). The lowest floor (garage level) will range from about Elev.170 to Elev.172. The west end of the lowest floor will be about 10 feet below the existing and finish grades. The building footprint is close to a wetlands area at the east end of the site. There is an existing retail (ice cream) store on the Hopmeadow side of the site, which will be removed. There is a requirement to infiltrate storm water into the soils beneath the structure.

**3.0** The **Geologic Origin** of the natural inorganic soils at the site and environs is from glacial lake deposits. These deposits consist generally of medium compact stratified sand with trace to little silt and gravel to about 18 to 36 feet overlying a silt and fine sand to 60+ feet below grade. There will be fills around the existing structure and utilities.

**3.1** The **Soils Cross Sections** from the borings are generally as follows:

Topsoil to 5" to 12"; or Asphalt to 2" to 3" atop Processed base to 6" to 8"

Locally FILL; fine to medium SAND, little to some Silt, trace Roots to 3 to 4 feet, loose  
*Note: There will be existing fills around the existing structure and utilities.*

Fine to coarse SAND, trace to little Silt, trace Gravel, with a few layers of fine Sand and Silt to 18 to 36 feet, medium compact

SILT and fine SAND, trace Clay, trace (in thin strata) fine to medium Sand to 61.5+ feet, loose to medium compact

**3.2** The **Water Table** in the water level observation well placed at boring B-4 was at 25.3 feet below grade (Elev. 155±) at the completion of the boring. At boring B-7 (i.e., proposed infiltration area) the water table was at about Elev. 154 at boring completion. At the low end of the site water table was at about Elev.150. The water table should normally not effect the construction or long term performance of the building. The proposed recharge of storm water beneath part of the building may cause temporary mounding of the water table.

**4.0** The **Criteria for Foundation Type and Loading** are as follows:

1. The maximum total settlement should not exceed 3/4" and the maximum differential settlement shall not exceed 1/2 the maximum settlement.
2. The Foundations and Structures must address the seismic section of the building code
3. Slab at Grade floors should not settle differentially more than 1/4" in excess of the main structure subsidence.

**4.1** Regarding item 2 (above), the seismic site soil profile classification can be **“D”**. The mapped MCE spectral response acceleration values for Simsbury, CT are  $S_1 = 0.064$  for a one second period and  $S_s = 0.179$  for short period. For transfer of ground shear from footings into the soil, the ultimate friction factor is **0.60**.

**5.0** Regarding **Foundation Type**, the building can be supported on spread footings. The footings should be on the natural inorganic soils, or on a controlled fill placed after the removal of any existing fills, structures, topsoil or subsoils. There should be a minimum 4" thick layer of compacted 3/8" crushed stone beneath the footings falling on the natural soils to provide a uniformly stiff surface to receive the footings. Controlled fills should conform to section 6.0 and should extend beyond the footings for a horizontal distance equal to the depth of fill beneath the footings.

**5.0.1** At the proposed storm water mitigation area there may be a requirement for an increased depth of crushed stone under the footings and the slab on grade, dependent on the depth and influence zone of the storm water infiltration system. The crushed stone layer (with substantial voids) would minimize seepage pressures on the soil beneath the foundation.

**5.1 The Allowable Bearing Pressure** for foundations on the natural inorganic soils or on controlled fill can be 4,000 psf. The allowable bearing pressure can be increased by 1/3 for seismic or wind loading. At retaining walls the maximum pressure on the toe can be 50% higher than the average pressures, cited above.

**5.2 The Static Lateral Soil Loading** on retaining walls that are part of the building should be based on at-rest pressure using the coefficient  $K_O = 0.45$ , to be multiplied by unit weight of backfill. Lateral soil loading on retaining walls apart from the building can be designed with active pressure using the active coefficient  $K_A = 0.28$  (for level backfill). The ultimate sliding coefficient for concrete on crushed stone or on controlled fill is **0.60**.

**5.2.1** Seismic lateral loading for retaining walls that are part of the building should be with a total lateral force (seismic plus static at-rest pressure) equal to  $24H^2$  lb/ft located at  $\frac{1}{2}H$  above the bottom. The above value is based on the Mononobe-Okabe solution for the case with level backfill, no wall friction and no hydrostatic pressure. This value excludes the inertia of the soil and wall mass. The requirements for the seismic analyses of earth retention structures as part of the building shall be determined from the Connecticut Building Code (IBC) or the ASCE-7.

**5.3 The Frost Protection Depth** in the Building Code is 3.5 feet below finish grades in areas, which are exposed to weather.

**5.4 Summary of Foundation Design Parameters:**

Parameter	Value
Allowable Bearing Pressure for footings on crushed stone layer atop natural soils or footings on controlled fill	4,000 psf
Soil Unit Weight (Backfill) *	125 pcf
Internal Friction Angle (Backfill) *	34°
At-Rest Pressure Coefficient, $K_O$	0.45
Active Pressure Coefficient, $K_A$ (level backfill)	0.28
Ultimate Sliding Coefficient, concrete on controlled fill, or on crushed stone over soil	0.60
Seismic Site Soil Profile Classification	D
Mapped MCE Spectral Response Acceleration for 1 second period, $S_1$	0.064

Mapped MCE Spectral Response Acceleration for short period, $S_s$	0.179
Frost Protection Depth	3.5 feet

\* Backfill material conforming to section 6.0 below

**6.0 Regarding Controlled Fill, Backfill for Retaining Walls and Excavations at Columns and Walls, plus Slab at Grade Underlayment** (to within 8" of the slab bottom), the material should conform to the following or should be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 75	No.4

The fraction, passing the No.4 sieve should have less than 15%, passing the No. 200 sieve.

All backfill and controlled fill must be compacted to at least 95% of modified optimum density.

**6.1** Based on the proposed requirement of infiltrating storm water beneath the slab on grade, it is recommended that there be at least 8" of crushed 3/8" stone beneath the floor slab. While normally the highly permeable sands would not require footing drains, the possibly of temporary mounding of the water table from storm water infiltration should dictate the drains to avoid water in proximity to the slab.

**6.1.1 As noted in section 5.0.1 above** there may be special requirements for the slab on grade and pavement underlay at the storm water infiltration area.

**7.0 Regarding Earthwork,** excavations in soil will largely fall in OSHA Class C. This will require sloping excavations, which are unshored and exceed 5 feet in height, to be cut back to slopes less than 34° from the horizontal.

**8.0 Regarding New Pavements outside the building** the soils at subgrade are generally non-frost susceptible and pavement design can be based on vehicle load and load repetition. It is assumed that the pavement subgrade is either on the natural fine to coarse sand or on a controlled fill. The proposed driveway between Hopmeadow Street and Ironhorse Boulevard would probably be accessible to trucks. The recommended pavement section above the sub grade is as follows:

For truck Access; 4.5" of bituminous concrete on 8" of processed stone base.

**9.0** The **permeability testing** indicated an average permeability value of about 40 feet/day.

**10.0** This report has been prepared for specific application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions, please call our office.

Very truly yours,



Max Welti, P. E.  
President, Welti Geotechnical, PC



Clarence Welti, PhD, P.E.  
Vice President

**APPENDIX**

**BORING LOCATION PLAN**

**+**

**TEST BORING LOGS**

**+**

**LABORATORY TEST RESULTS**



<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME PROPOSED APARTMENT BUILDING	
						LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	<b>HOLE NO. B-1</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT none FT. AFTER 0 HOURS	START DATE 11/1/18
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 11/1/18
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0	1	1-1-2-2	0.0'-2.0'		TOPSOIL	0.80	
					BR.FINE-MED.SAND, SOME SILT, TRACE ROOTS - FILL		
	2	2-3-6-6	2.0'-4.0'				
					BR.FINE-CRS.SAND, TRACE SILT & GRAVEL	3.0	
5	3	11-10-11-13	4.0'-6.0'				
10	4	6-9-11	10.0'-11.5'				
15	5	6-10-12	15.0'-16.5'				
20	6	8-12-15	20.0'-21.5'		BR.FINE SAND, TRACE SILT & GRAVEL	20.5	
					BOTTOM OF BORING @ 21.5'	21.5	
25							
30							
35							
<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER	
						INSPECTOR:	
						SHEET 1 OF 1	HOLE NO. <b>B-1</b>



<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME PROPOSED APARTMENT BUILDING	
						LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. <b>B-2</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT none FT. AFTER 0 HOURS	START DATE 10/31/18
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 10/31/18
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0					ASPHALT		0.25
	1	7-5-4-3	1.0'-3.0'		GREY FINE-CRS.SAND AND GRAVEL, TRACE SILT BR.FINE-MED.SAND, TRACE TO LITTLE SILT		0.66
	2	2-4-4-5	3.0'-5.0'				
5							
	3	3-4-3-4	5.0'-7.0'				
10							
	4	5-7-8	10.0'-11.5'				
15							
	5	8-10-8	15.0'-16.5'				
					BR.SILT, LITTLE FINE SAND		18.0
20							
	6	7-8-10	20.0'-21.5'				
					BOTTOM OF BORING @ 21.5'		21.5
25							
30							
35							
<b>LEGEND: COL. A:</b> SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:	
						SHEET 1 OF 1	HOLE NO. <b>B-2</b>

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME	
						PROPOSED APARTMENT BUILDING	
				LOCATION		894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. <b>B-3</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT 12.0 FT. AFTER 0 HOURS	START DATE 11/1/18
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 11/1/18
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0	1	2-1-2-3	0.0'-2.0'		TOPSOIL	0.60	
					BR.FINE-MED.SAND, LITTLE SILT, TRACE ROOTS - FILL		
	2	3-3-4-5	2.0'-4.0'				
5	3	6-5-6-7	4.0'-6.0'		BR.FINE-MED.SAND, TRACE SILT	4.0	
10	4	10-10-14	10.0'-11.5'				
15	5	7-7-10	15.0'-16.5'				
20	6	4-8-12	20.0'-21.5'		BR.FINE SAND, TRACE TO LITTLE SILT	21.0	
					BOTTOM OF BORING @ 21.5'	21.5	
25							
30							
35							
<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER	
						INSPECTOR:	
						SHEET 1 OF 1	HOLE NO. <b>B-3</b>

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>			PROJECT NAME PROPOSED APARTMENT BUILDING		
							LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT		
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.		<b>HOLE NO. B-4</b>	
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS		START DATE 10/31/18	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT 25.3 FT. AFTER 0 HOURS			
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS		FINISH DATE 10/31/18	
HAMMER FALL			30"						
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS				ELEV.
	NO.	BLOWS/6"	DEPTH						
0	1	1-1-2-1	0.0'-2.0'		TOPSOIL				0.75
					BR.FINE-MED.SAND, SOME SILT, TRACE ROOTS				
5	2	1-3-3-4	2.0'-4.0'		BR.FINE-CRS.SAND, TRACE SILT				2.0
10	3	3-5-5-6	4.0'-6.0'						
15	4	5-7-8	10.0'-11.5'						
20	5	5-5-6	15.0'-16.5'						
25	6	4-6-10	20.0'-21.5'						
30	7	3-5-7	25.0'-26.5'						
35	8	4-5-8	30.0'-31.5'						
<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:			
						SHEET 1 OF 2		HOLE NO. <b>B-4</b>	

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT  JOHN RITSON	PROJECT NAME PROPOSED APARTMENT BUILDING
		LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT

DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
	9	5-6-7	35.0'-36.5'		BR.SILT AND FINE SAND, TRACE CLAY, TRACE LAYERS OF FINE-MED.SAND <div style="text-align: right;">36.0</div>		
40	10	2-5-5	40.0'-41.5'				
45	11	2-2-2	45.0'-46.5'				
50	12	2-3-2	50.0'-51.5'				
55	13	2-3-3	55.0'-56.5'				
60	14	3-3-3	60.0'-61.5'				
						BOTTOM OF BORING @ 61.5' <div style="text-align: right;">61.5</div>	
65						2" DIA. WELL SET @ 58' 10' OF (.010 SLOT) SCREEN 48' OF RISER SAND FROM 61.5' TO 46.0' BENTONITE SEAL FROM 46.0' TO 44.0' BACKFILLED FROM 44.0' TO 0.5' CONCRETE FROM 0.5' TO SURFACE 7" DIA. ROADWAY BOX COVER	
70							
75							

<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%	DRILLER: J. BREWER INSPECTOR:
	SHEET 2 OF 2      HOLE NO. <b>B-4</b>

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033	CLIENT  <b>JOHN RITSON</b>	PROJECT NAME PROPOSED APARTMENT BUILDING
		LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT

	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO.	<b>B-5</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS		START DATE
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT 11.3 FT. AFTER	0 HOURS	11/1/18
HAMMER WT.			140lbs		E. COORDINATE	AT	FT. AFTER	HOURS
HAMMER FALL			30"					FINISH DATE
								11/1/18

DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.
	NO.	BLOWS/6"	DEPTH			
0	1	1-2-1-2	0.0'-2.0'		TOPSOIL	0.40
					BR.FINE-MED.SAND, LITTLE SILT, TRACE ROOTS - FILL	
	2	2-2-2-3	2.0'-4.0'			
5	3	3-2-3-4	4.0'-6.0'		BR.FINE-MED.SAND, TRACE SILT, LITTLE LAYERS OF FINE SAND AND SILT	3.5
10	4	5-4-5	10.0'-11.5'			
15	5	4-3-8	15.0'-16.5'			
20	6	9-10-10	20.0'-21.5'		BR.FINE SAND, TRACE TO LITTLE SILT	21.0
					BOTTOM OF BORING @ 21.5'	21.5
25						
30						
35						

<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%	DRILLER: J. BREWER
	INSPECTOR:
SHEET 1 OF 1	HOLE NO. <b>B-5</b>

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME PROPOSED APARTMENT BUILDING	
						LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. <b>B-6</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT none FT. AFTER 0 HOURS	START DATE 10/31/18
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 10/31/18
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0					ASPHALT	0.10	
	1	2-1-1-2	1.0'-3.0'		GREY FINE-CRS.SAND AND GRAVEL, TRACE SILT DARK BR.FINE-MED.SAND, SOME SILT	0.50	
	2	1-2-3-4	3.0'-5.0'				
5					BR.FINE-MED.SAND, TRACE TO LITTLE SILT	4.0	
10							
	3	5-6-7	10.0'-11.5'				
15							
	4	9-9-10	15.0'-16.5'				
20							
	5	8-10-7	20.0'-21.5'				
25							
30							
35							
					BOTTOM OF BORING @ 21.5'	21.5	
<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:	
						SHEET 1 OF 1	HOLE NO. <b>B-6</b>

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME PROPOSED APARTMENT BUILDING	
						LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. <b>B-7</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS AT 12.0 FT. AFTER 0 HOURS  AT FT. AFTER HOURS START DATE 11/1/18 FINISH DATE 11/1/18	
SIZE I.D.	3.75"		1.375"		N. COORDINATE		
HAMMER WT.			140lbs		E. COORDINATE		
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0	1	1-5-5-6	0.0'-2.0'		TOPSOIL	0.50	
					BR.FINE-MED.SAND, LITTLE TO SOME SILT, TRACE ROOTS - FILL		
	2	4-5-3-6	2.0'-4.0'				
	3	4-7-7-8	4.0'-6.0'		BR.FINE-MED.SAND, TRACE SILT, TRACE LAYERS OF FINE SAND WITH SOME SILT	4.0	
5							
10	4	7-10-12	10.0'-11.5'				
15	5	14-13-12	15.0'-16.5'				
20	6	11-14-13	20.0'-21.5'		BOTTOM OF BORING @ 21.5'	21.5	
25							
30							
35							

**LEGEND: COL. A:**  
**SAMPLE TYPE:** D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON  
**PROPORTIONS USED:** TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: J. BREWER  
 INSPECTOR:

<b>CLARENCE WELTI ASSOC., INC.</b> P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT  <b>JOHN RITSON</b>		PROJECT NAME PROPOSED APARTMENT BUILDING	
						LOCATION 894 HOPMEADOW STREET, SIMSBURY, CT	
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.	HOLE NO. <b>B-8</b>
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT 11.0 FT. AFTER 0 HOURS	START DATE 11/1/18
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS	FINISH DATE 11/1/18
HAMMER FALL			30"				
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS	ELEV.	
	NO.	BLOWS/6"	DEPTH				
0	1	2-2-2-3	0.0'-2.0'		TOPSOIL	0.75	
					BR.FINE-MED.SAND, TRACE SILT		
	2	2-3-3-4	2.0'-4.0'				
5	3	4-5-7-7	4.0'-6.0'				
10	4	5-6-11	10.0'-11.5'		BR.FINE-CRS.SAND, TRACE SILT	10.5	
15	5	4-7-9	15.0'-16.5'				
20	6	6-9-11	20.0'-21.5'		BOTTOM OF BORING @ 21.5'	21.5	
25							
30							
35							
<b>LEGEND: COL. A:</b> <b>SAMPLE TYPE:</b> D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON <b>PROPORTIONS USED:</b> TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:	
						SHEET 1 OF 1	HOLE NO. <b>B-8</b>



# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines		
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
○				6.5	49.4	30.8	4.9		
□					34.8	59.5	5.1		
△			2.8	33.3	54.0	9.2			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
○		1.9899	0.7599	0.5973	0.3658	0.2218	0.1722	1.02	4.41
□		0.7743	0.3856	0.3169	0.2156	0.1490	0.1205	1.00	3.20
△		0.7680	0.3938	0.3090	0.1812	0.1017	0.0784	1.06	5.03

Material Description							USCS	AASHTO
○								
□								
△								

**Project No.** \_\_\_\_\_ **Client:** JOHN RITSON  
**Project:** PROPOSED APARTMENT BUILDING

○ **Source of Sample:** B-1      **Depth:** 10.0      **Sample Number:** 4  
 □ **Source of Sample:** B-3      **Depth:** 10.0      **Sample Number:** 4  
 △ **Source of Sample:** B-4      **Depth:** 20.0      **Sample Number:** 6

**Remarks:**  
 ○ water content = 4.9%  
 □ water content = 6.8%  
 △ water content = 8.9%

CLARENCE WELTI ASSOCIATES, INC.

Figure

# Particle Size Distribution Report



% +3"		% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="radio"/>					8.1	86.9		4.9
<input type="checkbox"/>					19.7	75.8		3.7

  

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
<input type="radio"/>		0.3623	0.2436	0.2113	0.1548	0.1090	0.0919	1.07	2.65
<input type="checkbox"/>		0.4868	0.3124	0.2740	0.2111	0.1673	0.1507	0.95	2.07

Material Description	USCS	AASHTO
<input type="radio"/>		
<input type="checkbox"/>		

<b>Project No.</b> <b>Project:</b> PROPOSED APARTMENT BUILDING	<b>Client:</b> JOHN RITSON  <b>Source of Sample:</b> B-5 <b>Depth:</b> 10.0 <b>Sample Number:</b> 4 B-8      20.0      6	<b>Remarks:</b> <input type="radio"/> water content = 24.4% <input type="checkbox"/> water content = 24.0%
---	---	--

CLARENCE WELTI ASSOCIATES, INC.

Figure

Proposed Apartment Building  
894 Hopmeadow Street, Simsbury, CT

Permeability Tests 11/6/18

<b>Boring /Depth</b>	<b>Permeability (feet/day)</b>
B-1@ 15 to 16 feet	40.6
B-4 @ 10 to 11 feet	33
B-4 @ 15 to 16 feet	52.5