



May 19, 2023
File No.: G22459-Rev1

BelCal Inc.
2907 Upper James Street
Mount Hope, Ontario
L0R 1W0

Attention: Mr. Steve Schiedel

Re: Preliminary Geotechnical Characterization
Proposed Residential Subdivision
6640 Wellington Road 19, Belwood, Ontario

CHUNG & VANDER DOELEN ENGINEERING LTD. has been retained by BelCal Inc. to conduct a preliminary geotechnical characterization for a residential subdivision proposed to be developed at 6640 Wellington Road 19 in Belwood, Ontario.

It is understood that the 39± hectare site is being considered to be developed with a residential subdivision serviced with onsite private wastewater treatment systems.

The purpose of this investigation has been to determine the subsurface conditions and relevant soil properties at the subject site in order to provide preliminary geotechnical recommendations for the design and construction of site grading operations, internal roadways, site servicing, and residential foundations. Estimates of hydraulic conductivity and percolation "T"-times of the encountered soils will also be provided.

FIELD AND LABORATORY WORK

Twenty-seven (27) test pits were advanced to depths between 2.4 and 5.2 m below existing grade to investigate and characterize the subsurface conditions across the site. The test pit locations are illustrated on the Test Pit Location Plan, Drawing No. 1. The development concept plan as shown on the background of Drawing No. 1 was not available at the time of the field investigation program. The ground surface elevations at the test pit locations were provided to CVD by Stovel and Associates Inc.

The field work was conducted on June 22 and 23, 2022 under the supervision of a member of our engineering team who logged the subsurface conditions encountered during the advancement of the test pit excavations, effected the subsurface sampling, and monitored the groundwater conditions. The test pits were advanced using a track-mounted excavator.

Soil samples retrieved from the test pit locations were delivered to our laboratory for detailed visual and tactile examination. Moisture content determination of all retrieved samples occurred. Fourteen (14) grain size distribution analyses were performed on the encountered soil deposits to confirm field classification and to assist estimate hydraulic conductivity and percolation T-times of the encountered soil deposits.

EXISTING SITE CONDITIONS

The majority of the site is comprised of cultivated cropland with occasional tree clusters/rows on generally rolling topography. Thick bush and wetlands exist in the northwest and southeast areas of the property, respectively, with a number of drainage ditches traversing the site.

The site is topographically high in the north central area of the site near Elevation 456 m and is topographically low in the southeast area of the site near Elevation 430 m, thus providing 26± m of relief across the site. Ground surface elevations at the test pit locations ranged between 451.20 and 434.48 m.

SUBSURFACE CONDITIONS

The subsurface conditions encountered at the test pits are detailed on the Test Pit Log Sheets, Enclosures 1 to 27, inclusive. The following notes are intended to amplify and comment on the subsurface data.

Topsoil

Topsoil was encountered at the ground surface of all test pit locations with measured thicknesses between 150 and 500 mm tick.

Silty Sand to Gravelly Sand

The topsoil at Test Pits 3 to 8, 19, 21 and 23 to 27 was underlain by orangy brown to brown sand deposits varying from silty sand to gravelly sand. The deposits extended to depths between 0.6 and 4.3 m below existing grade at Test Pits 3, 5 to 8, 19, 21, 24, 26 and 27. Test Pits 4 and 25 were terminated within the sand deposits at depths of 4.3 and 2.7 m below existing grade, respectively.

Eight (8) grain size distribution analyses were conducted on representative samples retrieved from Test Pits 4, 7, 19, 24, 25, 26 and 27 and the results are graphically illustrated on Enclosures 29, 31, 38, 39, and 41 to 44.

The sand deposits generally exhibited a loose to compact compactness condition. Natural moisture contents were measured between 2 and 171%, indicating a variable damp to saturated moisture condition.



Sandy Silt to Silt

The topsoil at Test Pits 9, 11, 12, 14, 15 and 18 and the sand deposits at Test Pit 7, 19, 21 and 23 were underlain by brown to grey silt deposits varying from sandy silt to silt with varying percentages of clay and sand. These deposits extended to depths between 0.8 and 4.6 m below existing grade at Test Pits 9, 11, 14, 15, 18 and 21. Test Pits 7, 12, 19 and 23 were terminated within the silt deposits at depths between 4.3 and 5.0 m below existing grade.

Four (4) grain size distribution analyses were conducted on representative samples retrieved from Test Pits 12, 14, 15 and 17 and the results are graphically illustrated on Enclosures 33, 35, 36 and 37.

The sandy silt and silt deposits exhibited a loose to compact compactness condition and/or a stiff to hard consistency. Natural moisture contents were measured between 12 and 22%, indicating a variable moist to saturated moisture condition.

Clayey Silt

The topsoil at Test Pits 1, 16 and 20 and the sand deposits at Test Pits 3 and 8 were underlain by brown to grey clayey silt which contained varying percentages of sand and gravel. The clayey silt extended to depths between 1.5 and 2.7 m below existing grade at Test Pits 1, 8, 16 and 20. Test Pit 3 was terminated within the clayey silt deposit at a depth of 4.6 m below existing grade.

One (1) grain size distribution analysis was conducted on a representative sample retrieved from Test Pit 3 and the results are graphically illustrated on Enclosure 28.

The deposit exhibited a firm to very stiff consistency. Natural moisture contents were measured between 12 and 22%, indicating a variable moist to wet moisture condition.

Glacial Till

The above described deposits at twenty (20) of the twenty-seven (27) test pits were underlain by glacial till varying from sandy silt till to clayey silt till with varying percentages of sand, silt, clay and gravel which extended to at least the test pit termination depths between 2.4 and 5.2 m below existing grade. Occasional cobbles, boulders, sand lenses/seams and silt lenses/seams were observed within the till at various test pit locations.

Four (4) grain size distribution analyses were conducted on representative samples retrieved from Test Pits 5, 10, 13 and 22 and the results are graphically illustrated on Enclosures 30, 32, 34 and 40.

The till deposits exhibited a compact to very dense compactness condition and/or a stiff to hard consistency. Natural moisture contents were measured between 8 and 22%, indicating a variable damp to wet moisture condition.



Groundwater

Groundwater conditions were monitored during and at completion of each test pit excavation.

Subsurface seepage was encountered at Test Pits 3, 4, 7, 8 and 21 at depths between 1.8 and 4.5 m below existing grade. Twenty-one (21) of the twenty-seven (27) test pits remained dry at completion of their excavation, however, it is likely that visible groundwater seepage would have been present at some test pit locations if given sufficient time to develop prior to backfilling the excavations.

It is noted that the groundwater table will fluctuate seasonally and in response to major weather events.

DISCUSSION AND RECOMMENDATIONS

It is understood that the 39± hectare site is being considered to be developed with a residential subdivision serviced with onsite private wastewater treatment systems. The conceptual development includes 107 residential lots, a roadway network, two storm water management blocks, future parkland and existing woodlots.

Native soil conditions capable of supporting a future residential development were generally encountered at the test pits, however, some loose and/or firm zones were encountered in the uppermost deposits at some test pit locations. Groundwater conditions were observed to vary across the site at the time of investigation. Strategic installation of monitoring wells across the site along with a seasonal groundwater monitoring program is recommended and would allow the groundwater conditions to be properly determined and assessed for future development purposes.

The following sections are based upon the preliminary geotechnical characterization performed during the test pit investigation. Additional geotechnical investigation and assessment may be required when design details become available. CVD would be pleased to assist at that time.

General Site Grading

No grading plan was available at the time of reporting, however, cut and fill grading procedures would be anticipated with the development of a future subdivision. Materials to be used as fill during site grading operations should be suitably handled and placed according to their final use needs. **Earth fill to support future dwelling structures and roadways is to be constructed significantly different than earth fill to be used to raise grade in wastewater treatment leaching bed envelopes.**

It should be noted that the thickness of the organic soil layer could vary drastically across the site from those reported at the test pit locations. Topsoil stripping operations should be conducted when the ground is not wet and can support construction equipment. Over-stripping can result when the ground conditions are wet and unstable.



Site Grading for Engineered Fill Construction

Inorganic onsite native soil deposits from “cut” areas may potentially be reused to construct engineered fill capable of supporting future buildings/foundations, roadways, and municipal infrastructure servicing. The natural moisture content of the “cut” soils to be used as engineered fill should be within 3% below their optimum moisture contents in order to achieve the specified degree of compaction.

Any shortfall of fill material required for engineered fill operations may be made with similarly graded imported soils. It is recommended that any proposed borrow source materials be tested prior to importing in order to ensure that the environmental quality of the imported fill meets all environmental approval criteria and to ensure that the natural moisture content of the fill is suitable for compaction. Should similarly graded soils not be able to meet the requirements for use as engineered fill, imported Granular B may be considered for such purposes.

It is recommended that engineered fill construction be conducted during the summer and early fall months when drier warmer weather conditions typically exist as onsite fine grained soils are sensitive to moisture and will become difficult to handle and compact to the specified degree of compaction when wet. Conversely, judicious addition of water may be required if the soils are to dry.

The onsite deposits are generally considered to be frost-susceptible. Constructing engineered fill using the onsite finer grained soils during the winter months is to be avoided.

The onsite fine grained soils are susceptible to softening and deformation when exposed to excessive moisture and construction traffic. As a result, it is imperative that the grading/filling operations are planned and maintained to direct surface water run-off to low points and then be positively drained by suitable means. Construction traffic should be directed along the designated construction routes so as not to disturb and rut the exposed subgrade soil during periods of wet weather. Temporary construction roads consisting of clear crushed material (such as crushed stone or recycled concrete) may be required during poor weather conditions such as wet Spring or Fall.

The following procedures are recommended for the construction of engineered fill to specifically support future dwellings, roadways and municipal infrastructure servicing. Specific recommendations for site grading procedures within wastewater treatment leaching bed envelopes will be provided in the following subsequent section.

1. All topsoil, fill materials and deleterious materials should be stripped from building envelope and roadway areas. These excavated materials should be placed in non-structural areas and beyond future wastewater treatment leaching bed envelopes as well as storm water management features;
2. The exposed subgrade surface should be thoroughly recompacted with a heavy vibratory compactor and inspected by a qualified geotechnical inspector. Should the subgrade react adversely, the recompaction process should be ceased and the geotechnical engineer is to be contacted to assess the condition. Any soft spots encountered during the recompaction process should be excavated to the level of competent soil;



3. The required grades can then be achieved by placing approved soil in maximum 200 to 300 mm thick lifts which should be compacted to 98% standard Proctor maximum dry density (SPMDD) in building envelope and roadway areas. The limits of the engineered fill to be placed to support future structural loads/foundations, roadways and municipal infrastructure servicing should extend horizontally a distance at least equal to the depth of fill to be placed on pre-approved subgrade;
4. Inorganic onsite soils maybe considered as suitable engineered fill material provided the natural moisture content of the soil is within 3% below the optimum moisture content in order to achieve the specified degree of compaction. Overly wet and organic materials are to be placed in non-structural areas and beyond future wastewater treatment leaching bed envelopes and storm water management features where 90% SPMDD is considered adequate. Overly wet inorganic soil may be mixed with drier soils to produce a suitable moisture content to allow appropriate compaction to occur;
5. All fill placement and compaction operations must be supervised on a full-time basis by qualified geotechnical personnel to approve fill material and ensure the specified degrees of compaction have been achieved.

Engineered fill comprised of fine grained soils and located beneath future building structures should not be constructed upon until a three (3) month waiting period has lapsed to allow any secondary consolidation of the soil fill to occur. Structural reinforcement of footings and foundation walls is also recommended.

Vibration could be generated from various construction equipment during construction, such as compactors and rollers, which could be harmful to surrounding structures and buildings. Peak particle velocity (PPV) of ground motion is widely accepted as the best descriptor of potential for vibration damage to structures. The safe vibration limit can be set to 10 to 20 mm/s PPV, depending on the sensitivity of surrounding structures to vibration.

Vibration monitoring can be carried out to measure the PPV of ground motion from vibration generated from typical compaction equipment at the beginning of the project in potentially critical areas. This will set criteria and establish the type of equipment to be used for this project. It is also recommended that a pre-construction condition survey be conducted to document the condition of the existing structures within the possible zone of influence.

Site Grading for Wastewater Treatment Leaching Bed Envelopes

Proper control during site grading procedures will be paramount to ensure that satisfactory soil conditions are maintained and created in the future wastewater treatment leaching bed envelopes. Earth moving equipment such as scrapers, trucks and compactors are not to be allowed into the future leaching bed envelope areas as they will over-compact the soil and will consequently densify the soil to a percolation rate higher than expected.



The following procedures are recommended during the planning stages and when site grading operations are occurring.

1. Carefully plan out the stages of site grading operations, routes of construction, topsoil stockpile areas and cut and fill areas;
2. Stake out the leaching bed envelopes and restrict all access of unwanted construction traffic from these areas;
3. Topsoil stripping and excavation “cut” procedures can be conducted using a track-mounted excavator within the leaching bed envelopes. The exposed subgrade must be fully scarified once construction equipment is no longer crossing leaching bed envelopes;
4. Leaching bed envelope areas to be raised with inorganic soil fill will require full removal of topsoil by track-mounted equipment and the exposed subgrade should be scarified and inspected to ensure that no unwanted compaction exists. Any fill used to raise grade within leaching bed envelopes is recommended to consist of similar soil as that exposed at the inorganic subgrade soil level. The soil should be end-dumped at the edge of the leaching bed envelopes and then pushed into place with a track-mounted dozer in 0.5 m thick lifts. No other compaction should be applied. An estimated percolation time of 50 min/cm may be used to preliminarily size the leaching bed envelopes;
5. Filled and cut areas must ultimately be re-assessed to establish the “T” time for the design of individual wastewater treatment systems;
6. The finished leaching bed envelopes should be fenced off to prevent unwanted traffic.

Pavement Design

The earth subgrade soil could vary between clayey silt and gravelly sand soil. Cognizant of the expected traffic volume and the varying subgrade soils, the following pavement component thicknesses are considered suitable and comply with Section B.3 (Road Pavement Design) of the Township of Centre Wellington Development Manual (March 2018) for local residential roads.

Pavement Component	Granular Base Pavement (mm)
HL3 Surface Asphaltic Concrete	40
HL4 Binder Asphaltic Concrete	50
Granular “A” Base Course	150
Granular “B” Type II Sub-base Course	450
Granular Base Equivalency (GBE)	632

Note: GBE denotes Granular Base Equivalency which is calculated using factors of 2 for asphaltic concrete, 1 for Granular “A” base and 0.67 for Granular “B” sub-base.



The pavement design considers that pavement construction will be carried out during the drier time of the year and that the subgrade is stable, not heaving under construction equipment traffic. If the subgrade is wet or unstable, additional granular sub-base may be required.

Prior to placement of the granular base layers, the subgrade is to be stripped of existing topsoil and deleterious materials. The exposed subgrade should be thoroughly recompacted with a heavy vibratory compactor and inspected by a qualified geotechnical inspector. Any soft spots encountered during the process should be excavated to competent soil levels. The required grades can be achieved by placing approved on-site soils in maximum 200 to 300 thick lifts which should be compacted to 98% SPMDD.

The Granular "A" base and Granular "B" Type II sub-base should meet OPSS 1010 requirements and be compacted to 100% SPMDD. The placing and rolling of the asphalt mixture should conform to OPSS.MUNI 310 Table 10 and should be compacted to no less than 92% of the Marshall Density (BRD). The surface course of the asphaltic concrete should be placed at least one (1) year after base course is placed to allow minor settlements of the trench backfill to complete. The incomplete pavement structure may not be capable of supporting the anticipated traffic. Consequently, minor repairs of the sub-base, base and asphaltic concrete may be required prior to paving the surface course asphaltic concrete.

Frequent in situ density testing by this office should be carried out to verify that the specified degree of compaction is being achieved and maintained.

Longitudinal sub-drains with positive drainage outlets are recommended to be installed at the subgrade level along the edges of the roadway reconstruction to enhance the performance of the pavement. Systematic drainage of the granular base materials will promote the longevity of the pavement structure.

Excavation and Site Servicing

Excavations for site servicing and house construction will generally be made in Type 3 soils as per the Regulations for Construction Projects Under The Ontario Occupational Health and Safety Act. Excavations are expected to remain stable during the construction period provided that side slopes are shaped to 1H:1V from the bottom of the excavation and suitably protected from erosion processes. Should unstable and/or wet conditions be encountered, side slopes to excavations are to be flattened to a stable configuration. The side slopes should be suitably protected from erosion processes.

Uncontrollable groundwater flows are not expected to be encountered within construction excavations located within 0.5 m below the encountered groundwater table. Subsurface seepage and surface water runoff into the excavations may be handled by conventional sump pumping techniques, as and where required. The sump pits should be filtered.

The subgrade is expected to be competent for the support of flexible or rigid pipes if founded in the compact or stiff native deposits or approved engineered fill. Any loose, unstable and/or organic soils encountered at the pipe invert should be sub-excavated and replaced with well compacted Granular "A" which should be placed in 150 mm thick layers and compacted to at least 95% Standard Proctor



Maximum Dry Density (SPMDD). The support of pipes in these areas can also be achieved with non-shrinkable fill if poor soil is encountered at the subgrade level and fully removed.

Pipe bedding should be in accordance with Ontario Provincial Standard Drawings OPSD - 802 series. The bedding shall be Class "B" and consist of at least 150 mm thick Granular "A" compacted to at least 95% SPMDD. Granular "A" should be used to backfill around the pipe to at least 150 mm above the top of the pipe. Particular attention should be given to ensure material placed beneath the haunches of the pipe is adequately compacted.

Excavated inorganic soil is considered suitable for reuse as trench backfill. If necessary, potential mixing of drier and wetter excavated soils in proper ratios can be done to produce a suitable mixture near the material's optimum moisture content in order to achieve the required compaction specification.

Servicing trench backfill should be placed in thin layers, 300 mm thick or less dependant on the demonstrated success of compaction based on in-situ density test results. Other types of materials such as organic soils, overly wet soils, boulders, and frozen materials (if work is carried out in the winter months) should not be used for backfilling. All backfill should be compacted to at least 95% SPMDD. Backfilling operations should follow closely after excavation so that only a minimal length of trench slope is exposed at any one time to minimize potential problems. This will potentially minimize over-wetting of the subgrade material.

Building Foundations

The compact to very dense and stiff to hard soil deposits encountered at the site are competent to support building foundations, however, some loose and/or firm zones were encountered in the uppermost deposits at some test pit locations. Building foundations founded on native inorganic compact to very dense or stiff to hard soil deposits, or well-compacted monitored engineered fill constructed as per the procedures in the Site Grading for Engineered Fill Construction section can be used to support footing foundations designed to a net soil bearing pressure of up to 100 kPa (2000 psf).

Footing subgrade inspections are recommended to verify the bearing capacity of the soil prior to placement of the forms and concrete for the building foundations.

Structural reinforcement of footings and foundation walls is recommended if buildings are constructed on engineered fill as presented in Site Grading for Engineered Fill Construction section.

Lateral Earth Pressure

House basement walls and other soil retaining structures should be designed to resist the lateral earth pressure acting against these walls. The following formula may be used for these calculations. The following formula may be used to calculate the unfactored earth pressure distribution. The factored resistance can be calculated by using a factor of 0.8.



$$P = K (\gamma H + q)$$

where:

P =	Lateral earth pressure	kPa
K =	earth pressure coefficient, 0.5 for non-yielding foundation wall earth pressure coefficient, 0.3 for yielding retaining wall	
γ =	unit weight of granular backfill, compacted to 95% SPMDD	21 kN/m ³
H =	unbalanced height of wall	m
q =	surcharge load at ground surface	kPa

The soils encountered during the investigation were variable in composition and are generally not considered to be free-draining materials. A drainage core layer should be installed against basement walls in accordance with OBC requirements. The basement walls should be damp-proofed.

A perimeter drainage system is required to ensure hydrostatic pressure does not build up in the backfill against the foundation wall. The perimeter weeping tile system is to be installed at the base of the footing to direct the collected waters to sump pump installations or the storm sewer.

Percolation Time

Onsite private wastewater treatment systems are proposed to service the proposed residential development. An estimate of hydraulic conductivity (K) and percolation time (T) of the inorganic native undisturbed soil deposits encountered at the site are presented in the table below and were estimated using the following methodology:

- Grain size distribution analysis testing to determine soil classification using the Unified Soil Classification System;
- Correlation of soil classification to permeability and percolation time as outline in OBC Supplemental Standard SB-6 "Percolation Time and Soils Descriptions"; and
- Incorporation of physical characteristics encountered during the subsurface investigation (i.e., structure, density, etc.) and past CVD experience.



MATERIAL	HYDRAULIC CONDUCTIVITY (cm/sec)	PERCOLATION TIME (T) (min/cm)
Clayey Silt	1×10^{-6}	>50
Sandy Silt Till to Clayey Silt Till	1×10^{-6}	>50
Silt, trace to some sand and clay	3×10^{-6} to 1×10^{-6}	40 to >50
Sandy Silt	3×10^{-6}	40
Silty Sand	1×10^{-4} to 1×10^{-5}	12 to 20
Fine to Medium Sand, trace silt	8×10^{-3} to 1×10^{-3}	5 to 8

The percolation T-times presented in the table above apply to soils lying in their undisturbed insitu state only and do not apply when the materials are moved from their insitu state and placed as fill.

CLOSURE

The Limitations of Report, as quoted in Appendix "A", is an integral part of this report.

We trust this report is sufficient for your immediate requirements. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,
CHUNG & VANDER DOELEN ENGINEERING LTD.



Rob Vander Doelen, P. Eng.
Senior Engineer

encls.



APPENDIX A

Limitations of Report



APPENDIX “A”

LIMITATIONS OF REPORT

The conclusions and recommendations given in this report are based on information determined at the testhole locations. Subsurface and groundwater conditions between and beyond the testholes may differ from those encountered at the testhole locations, and conditions may become apparent during construction which could not be detected or anticipated at the time of the site investigation. It is recommended practice that the Soils Engineer be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the testholes.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of testholes and their respective depths may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusion as to how the subsurface conditions may affect their work.

The benchmark and elevations mentioned in this report were obtained strictly for use in the geotechnical design of the project and by this office only, and should not be used by any other parties for any other purposes.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. CHUNG & VANDER DOELEN ENGINEERING LIMITED accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final design stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

This report does not reflect the environmental issues or concerns unless otherwise stated in the report.



ENCLOSURES



FILE No: G22459

TEST PIT No. 1



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE		SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS		
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80				W _p	W
Ground Elevation: 439.59 m																
439.09 0.50	500 mm TOPSOIL	0.5														
	stiff brown CLAYEY SILT trace sand moist	1.0														
	----- very stiff	2.0		1	GS								○			
437.19 2.40	dense grey SILT TILL trace to some sand and clay trace gravel moist	3.0		2	GS								○			
		3.5														
		4.0														
		4.5														
434.89 4.70	End of Test Pit	4.5		3	GS								○			
		5.0														
		5.5														
																test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 2



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
437.16 0.30	300 mm TOPSOIL															
	stiff to very stiff mottled brown	0.5														
	SILT TILL trace to some sand and clay trace gravel	1.0														
	moist	1.5		1	GS											
		2.0														
		2.5														
		3.0														
434.06 3.40	End of Test Pit	3.5														test pit open and dry at completion
		4.0														
		4.5														
		5.0														
		5.5														

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 3



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 434.48 m																
434.20 0.28	280 mm TOPSOIL															
434.03 0.45	loose, brown SAND AND GRAVEL, trace silt moist	0.5														
	loose to compact brown Fine to Medium SAND trace to some silt moist	1.0		1	GS								○			
	----- saturated	2.0														moderate to heavy seepage below 1.8 m depth
		2.5														sidewalls frequently collapsing
431.08 3.40	stiff grey CLAYEY SILT trace sand moist to wet	3.5		2	GS								○			
429.88 4.60	End of Test Pit	4.5														
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

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FILE No: G22459

TEST PIT No. 4



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
434.76 0.30	300 mm TOPSOIL															
	loose to compact brown SILTY SAND occ. silt lenses moist	0.5 1.0		1	GS											
	----- wet to saturated	1.5 2.0 2.5 3.0														some seepage below 1.8 m depth
431.66 3.40	loose to compact brown Fine to Coarse SAND trace silt saturated	3.5 4.0														sidewalls frequently collapsing
430.76 4.30	End of Test Pit	4.5 5.0 5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

311 Victoria Street North
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FILE No: G22459

TEST PIT No. 5



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 435.77 m																
435.27 0.50	500 mm TOPSOIL	0.5		1	GS											
434.57 1.20	loose, orangey brown GRAVELLY SAND trace silt moist	1.0														
	compact to dense brown SANDY SILT TILL trace clay and gravel occ. cobbles and boulders moist	1.5 2.0		2	GS											
	----- very dense	2.5 3.0 3.5														
431.67 4.10	End of Test Pit	4.0														test pit open and dry at completion
		4.5														
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 6



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 436.57 m																
436.17 0.40	400 mm TOPSOIL															
435.47 1.10	compact, orangey brown Fine SAND some silt moist	0.5 1.0		1	GS								○			
	compact to dense brown SANDY SILT TILL trace gravel, trace clay occ. cobbles and boulders moist	1.5 2.0		2	GS								○			
	----- very dense ----- grey	2.5 3.0 3.5														
432.57 4.00	End of Test Pit	4.0														test pit open and dry at completion
		4.5														
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 7



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
438.12	300 mm TOPSOIL	0.30														
	loose dark brown to brown SILTY SAND trace gravel moist	0.5		1	GS								○			
437.22	compact mottled brown SILT trace clay, trace sand wet to saturated	1.20		2	GS								○			
	grey	2.5														
	occ. saturated sand seams/pockets	3.0														
		3.5														
		4.0														
		4.5														
433.42	End of Test Pit	5.00														
		5.5														

▼ moderate seepage at 3.3 m depth

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 8



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 445.70 m																
445.30 0.40	400 mm TOPSOIL															
444.80 0.90	loose, brown SILTY SAND trace clay moist	0.5														
	stiff brown CLAYEY SILT trace gravel, trace sand occ. sand pockets moist grey	1.0 1.5 2.0		1	GS											trace seepage at 1.2 m depth
443.00 2.70	compact brown Fine to Medium SAND trace silt saturated	2.5 3.0 3.5		2	GS											moderate seepage at 2.7 m depth sidewalls collapsing
441.70 4.00	compact grey SANDY SILT TILL trace gravel and clay occ. sand seams/layers moist	4.0 4.5 5.0		3	GS											
440.50 5.20	End of Test Pit	5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 9



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 446.10 m																
445.77 0.33	330 mm TOPSOIL															
	loose, dark brown SAND AND SILT moist	0.5		1	GS											
445.20 0.90	compact mottled brown SILT TILL trace to some sand and clay trace gravel moist to wet	1.0														
		1.5		2	GS											
		2.0														
		2.5														
		3.0														
		3.5														
	----- dense, grey	4.0														
		4.5														
	----- very dense	4.5		3	GS											
441.10 5.00	End of Test Pit	5.0														test pit open and dry at completion
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 441.49 m																
441.19 0.30	300 mm TOPSOIL															
	stiff mottled brown CLAYEY SILT TILL some sand, trace gravel moist	0.5 1.0		1	GS								○			
		1.5 2.0														
438.79 2.70	dense grey SILT TILL trace to some sand and clay trace gravel moist	2.5 3.0 3.5		2	GS								○			
437.49 4.00	End of Test Pit	4.0														test pit open and dry at completion
		4.5 5.0 5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
439.61 0.50	500 mm TOPSOIL	0.5														
438.71 1.40	compact brown SANDY SILT moist	1.0		1	GS								○			
	compact mottled brown SILT TILL trace to some sand and clay trace gravel moist dense grey	1.5 2.0 2.5 3.0 3.5		2	GS								○			
436.11 4.00	End of Test Pit	4.0														test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
437.98 0.28	280 mm TOPSOIL															
	stiff to very stiff brown SILT sand, trace clay moist to wet	0.5														
		1.0		1	GS											
		1.5														
		2.0														
		2.5														
		3.0														
		3.5														
	hard	4.0														
433.96 4.30	End of Test Pit	4.5														test pit open and dry at completion
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE		SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				W _p				W
Ground Elevation: 438.98 m							PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80								
438.58 0.40	400 mm TOPSOIL	0.5													
	compact brown SILT TILL trace to some sand and clay trace gravel occ. cobbles moist	1.5		1	GS							○			
436.88 2.10	very stiff to hard brown CLAYEY SILT TILL trace gravel and sand occ. cobbles damp to moist	3.5		2	GS							○			
434.08 4.90	End of Test Pit	5.0													test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 434.92 m																
434.64 0.28	280 mm TOPSOIL															
	stiff brown SILT trace clay moist	0.5 1.0														
				1	GS								○			
		1.5 2.0														
432.42 2.50	compact to dense brown SILT TILL trace to some sand and clay trace gravel occ. cobbles moist	2.5 3.0 3.5														
	----- very dense, grey	4.0														
430.22 4.70	End of Test Pit	4.5 5.0 5.5														test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 15



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 22 22 TO Jun 22 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 443.58 m																
443.28 0.30	300 mm TOPSOIL															
	loose, brown SANDY SILT trace gravel moist	0.5		1	GS											
442.78 0.80	stiff brown CLAYEY SILT TILL trace gravel and sand occ. cobbles and boulders moist	1.0		2	GS											
		1.5														
441.58 2.00	dense grey SILT TILL trace sand, trace clay trace gravel moist	2.0		3	GS											
		2.5														
		3.0														
439.88 3.70	dense grey SANDY SILT wet to saturated	3.5		4	GS											
		4.0														
		4.5														
438.68 4.90	End of Test Pit	5.0														
		5.5														

clay tile encountered at 0.9 m depth

test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 16



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE		SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS		
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80				W _p	W
Ground Elevation: 444.84 m																
444.49 0.35	350 mm TOPSOIL															
	firm brown CLAYEY SILT trace sand moist to wet	0.5														
443.34 1.50	compact mottled brown SILT TILL trace to some sand and clay trace gravel moist with wet seams	1.5		1	GS											
	dense	2.0		2	GS											
	very dense, grey	3.5														
440.24 4.60	End of Test Pit	4.5													test pit open and dry at completion	

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
442.86 0.35	350 mm TOPSOIL															
	compact to dense mottled brown SILT TILL trace to some sand and clay trace gravel occ. cobbles moist	0.5 1.0		1	GS											
	----- very dense occ. silt seams ----- grey	1.5 2.0 2.5 3.0 3.5		2	GS											
438.61 4.60	End of Test Pit	4.5														test pit open and dry at completion
		5.0 5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 439.60 m																
439.35 0.25	250 mm TOPSOIL															
	compact brown	0.5														
	SANDY SILT trace clay	1.0														
	moist to wet			1	GS											
438.20 1.40	compact brown	1.5														
	SILTY SAND	2.0														
	wet															
	occ. mottled brown silt seams	2.5														
		3.0														
		3.5														
436.40 3.20	dense grey	4.0														
	SILT TILL trace to some sand and clay trace gravel	4.5														
	moist															
	very dense	5.0														
434.60 5.00	End of Test Pit	5.5													test pit open and dry at completion	

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 20



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 444.27 m																
443.92 0.35	350 mm TOPSOIL															
	firm brown CLAYEY SILT trace to some sand trace gravel occ. cobbles wet	0.5 1.0 1.5		1	GS											
442.27 2.00	dense brown SILT TILL trace to some sand and clay trace gravel occ. cobbles moist	2.0 2.5 3.0 3.5		2	GS											
	----- very dense, grey	4.0 4.5														
439.27 5.00	End of Test Pit	5.0													test pit open and dry at completion	
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

**CHUNG & VANDER DOELEN
ENGINEERING LTD.**
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Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
 Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 441.21 m																
440.86	350 mm TOPSOIL															
0.35																
440.61	loose, brown Fine SAND trace to some silt moist	0.5		1	GS								○			
0.60																
	stiff brown	1.0														
	SILT trace clay, trace sand			2	GS								○			
	occ. clayey layers	1.5														
	moist			3	GS								○			
		2.0														
	----- occ. sand seams	2.5														
		3.0														
		3.5														
	----- grey	4.0														
		4.5														
436.61	very dense, grey SILT TILL trace to some sand and clay trace gravel moist	4.5		4	GS								○			
4.60																
436.01	End of Test Pit	5.20														
5.20																
		5.5														

plastic drainage tile encountered at 0.9 m depth

seepage from sand seam at 4.5 m depth

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 435.54 m																
435.29 0.25	250 mm TOPSOIL															
	dense to very dense brown	0.5														
	SANDY SILT TILL trace to some gravel trace clay	1.0		1	GS											
	occ. cobbles and boulders															
	damp to moist	1.5														
		2.0														
		2.5														
		3.0														
		3.5														
		4.0														
	grey	4.0		2	GS											
431.14 4.40	End of Test Pit	4.5														
		5.0														
		5.5														

clay tile encountered at 0.6 m depth

test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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FILE No: G22459

TEST PIT No. 23



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 445.99 m																
445.64 0.35	350 mm TOPSOIL															
445.19 0.80	loose, brown Fine SAND trace to some silt moist	0.5		1	GS											
	stiff mottled brown SILT trace clay, trace sand occ. cobbles occ. clayey pockets moist	1.0		2	GS											
	----- very stiff to hard	2.5														
	----- grey	3.0														
441.39 4.60	End of Test Pit	4.5														test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 24



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 450.92 m																
450.67 0.25	250 mm TOPSOIL															
	loose to compact brown SILTY SAND trace gravel damp	0.5 1.0														
				1	GS								○			
449.12 1.80	compact brown SILT TILL trace to some sand and clay trace gravel moist	2.0 2.5														
448.22 2.70	End of Test Pit	3.0 3.5 4.0 4.5 5.0 5.5														
																test pit open and dry at completion

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 25



Client: **BelCal Inc.**
 Project: **Potential Residential Subdivision**
 Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
 Method: **Excavator**
 Size:
 Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
450.86	150 mm TOPSOIL	0.15														
	loose to compact brown Fine to Medium SAND trace gravel, trace silt damp	0.5		1	GS											
		1.0														sidewalls occasionally collapsing
		1.5														
		2.0														
		2.5														
448.31	End of Test Pit	2.70														test pit open and dry at completion
		3.0														
		3.5														
		4.0														
		4.5														
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: RVD

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FILE No: G22459

TEST PIT No. 26



Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA

Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 451.20 m																
450.75 0.45	450 mm TOPSOIL	0.5														
	loose to compact brown	1.0														
	Fine to Medium SAND trace gravel, trace silt	1.5		1	GS										sidewalls occasionally collapsing	
	damp to moist	2.0														
449.10 2.10	compact, brown SILT TILL	2.5														
448.80 2.40	moist															
	End of Test Pit	2.5													test pit open and dry at completion	
		3.0														
		3.5														
		4.0														
		4.5														
		5.0														
		5.5														

PROJECT MANAGER: **RVD**

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Client: **BelCal Inc.**
Project: **Potential Residential Subdivision**
Location: **6640 Wellington Road 19, Belwood, Ontario**

EQUIPMENT DATA
Machine: **Excavator**
Method: **Excavator**
Size:
Date: **Jun 23 22 TO Jun 23 22**

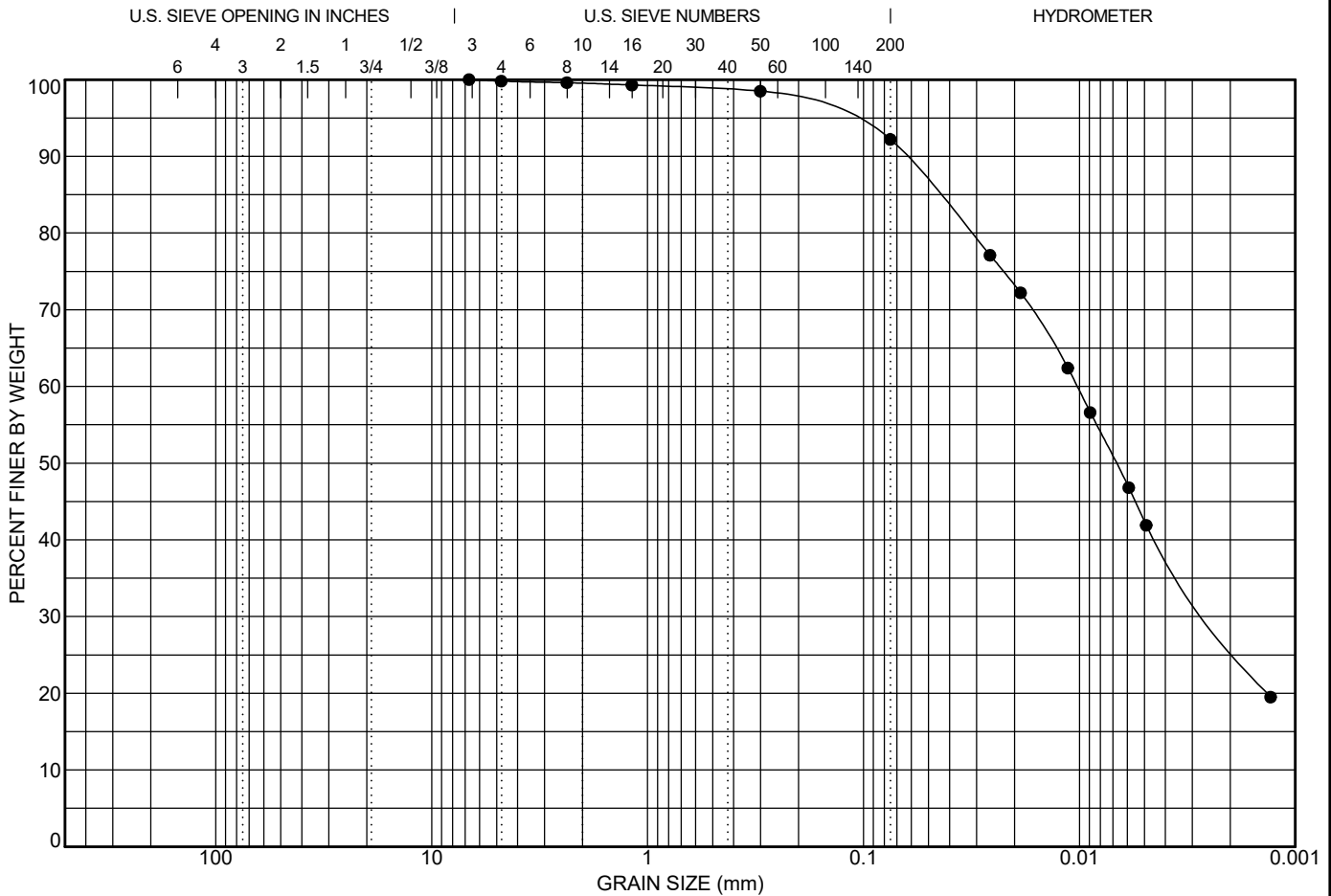
SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80					W _p
Ground Elevation: 451.11 m																
450.86 0.25	250 mm TOPSOIL															
	compact brown	0.5														
	Fine to Medium SAND trace silt	1.0														
	damp	1.0		1	GS											sidewalls frequently collapsing
		1.5														
		2.0														
		2.5														
		3.0														
		3.5														
	----- wet to saturated	4.0														
		4.0		2	GS											
446.81 4.30	compact, brown SILT TILL moist	4.5														
446.51 4.60	End of Test Pit															test pit open and dry at completion
		5.0														
		5.5														

CVD TEST PIT G22459 7TH LINE, BELWOOD.GPJ CVD_ENG.GDT 22-9-15

PROJECT MANAGER: **RVD**

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COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
					6.7	0.01	0.002		0.2	7.6	92.2	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 3 - SA 2, 3.5 to 3.8 m depth
Sample No.: 3-2
Date Sampled: Jun. 22 - 2022
Sampled By: BC
Lab No.: 0743
Date Tested: Jul. 04 - 2022
Type of Material: Clayey Silt, trace sand

Sieve Size (mm)	Percent Passing	No Specifications

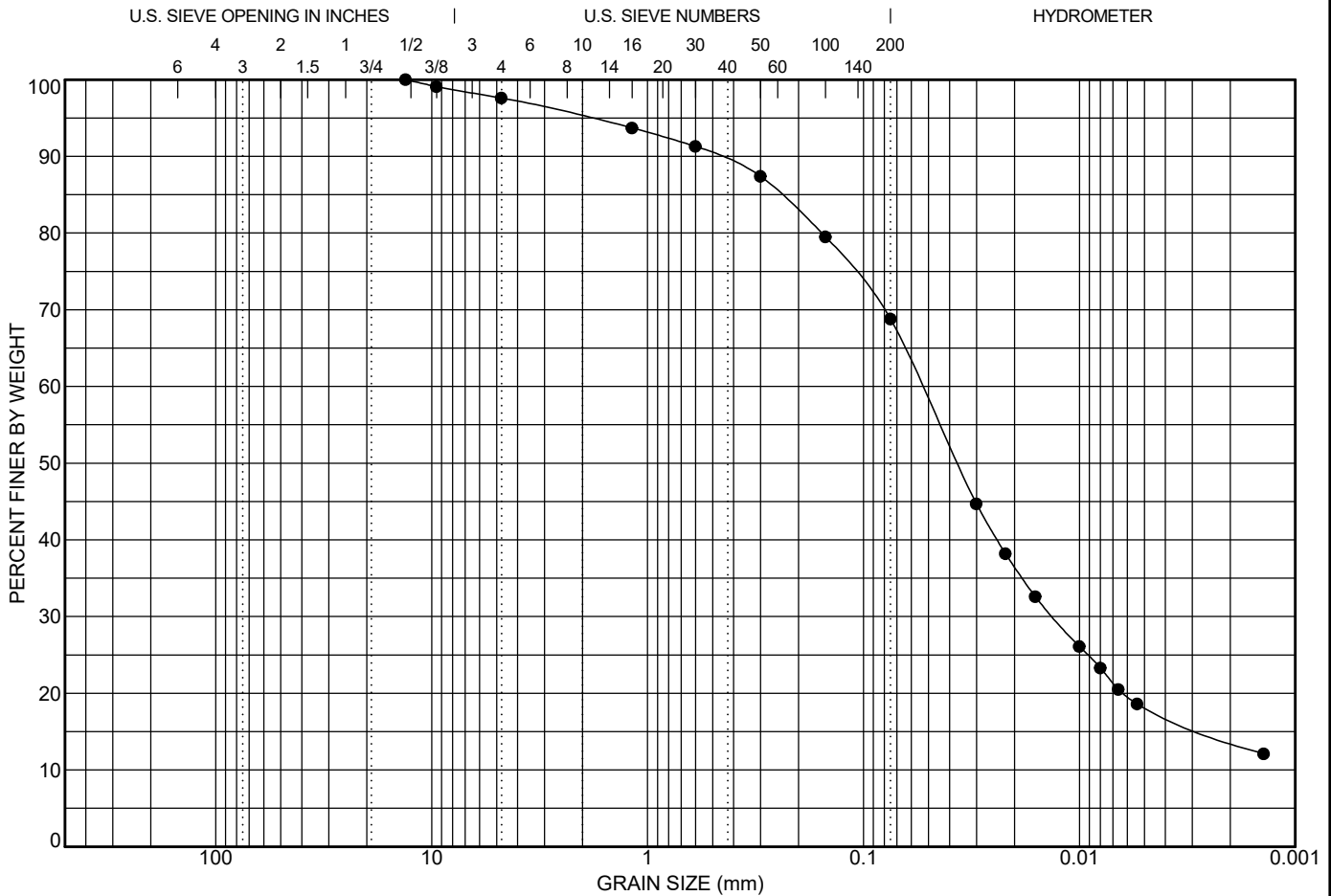
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LNDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 28



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
					13.2	0.054	0.013		2.4	28.8	68.8	

Date: Sep. 14 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 5 - SA 2, 1.5 to 1.8 m depth
Sample No.: 5-2
Date Sampled: Jun. 22 - 2022
Sampled By: BC
Lab No.: 1150
Date Tested: Sep. 06 - 2022
Type of Material: Sandy Silt Till, some clay, trace gravel

Sieve Size (mm)	Percent Passing	No Specifications

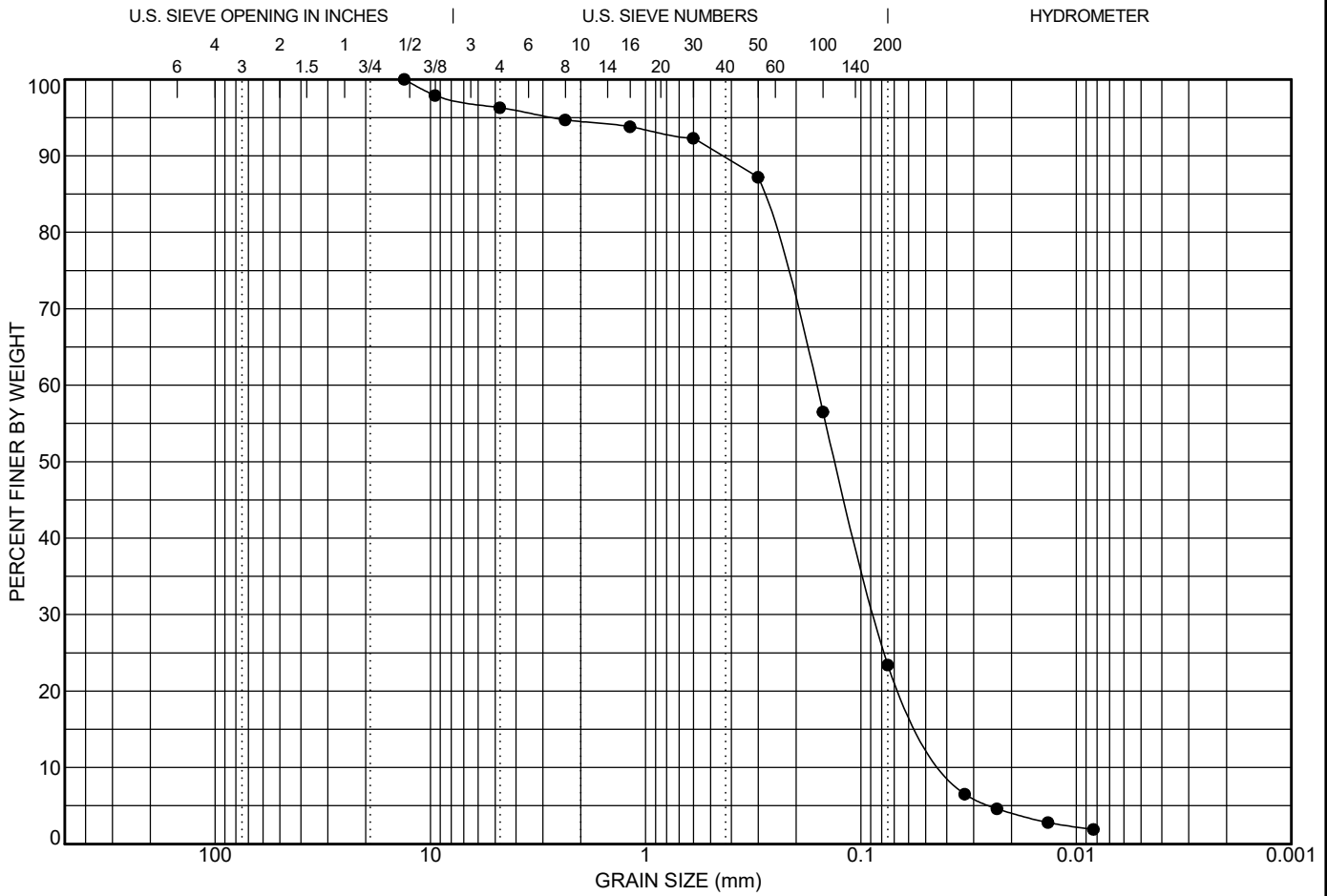
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LNDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 30



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.17	4.16	13.2	0.162	0.086	0.039	3.7	72.9	23.4	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 7 - SA 1, 0.7 to 0.9 m depth
Sample No.: 7-1
Date Sampled: Jun. 22 - 2022
Sampled By: BC
Lab No.: 0745
Date Tested: Jul. 04 - 2022
Type of Material: Silty Sand, trace gravel

Sieve Size (mm)	Percent Passing	No Specifications

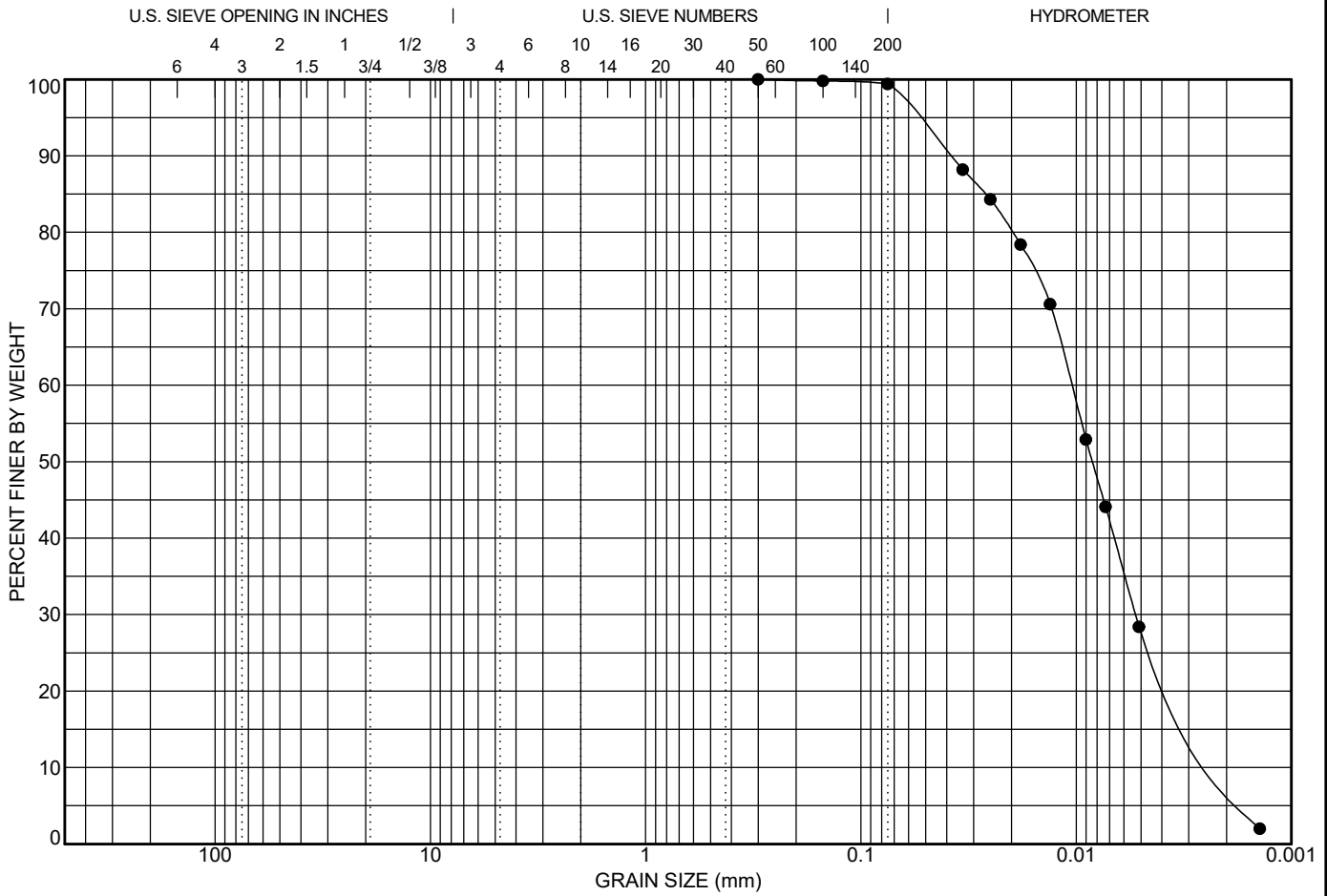
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LNDN.GDT 22-9-15

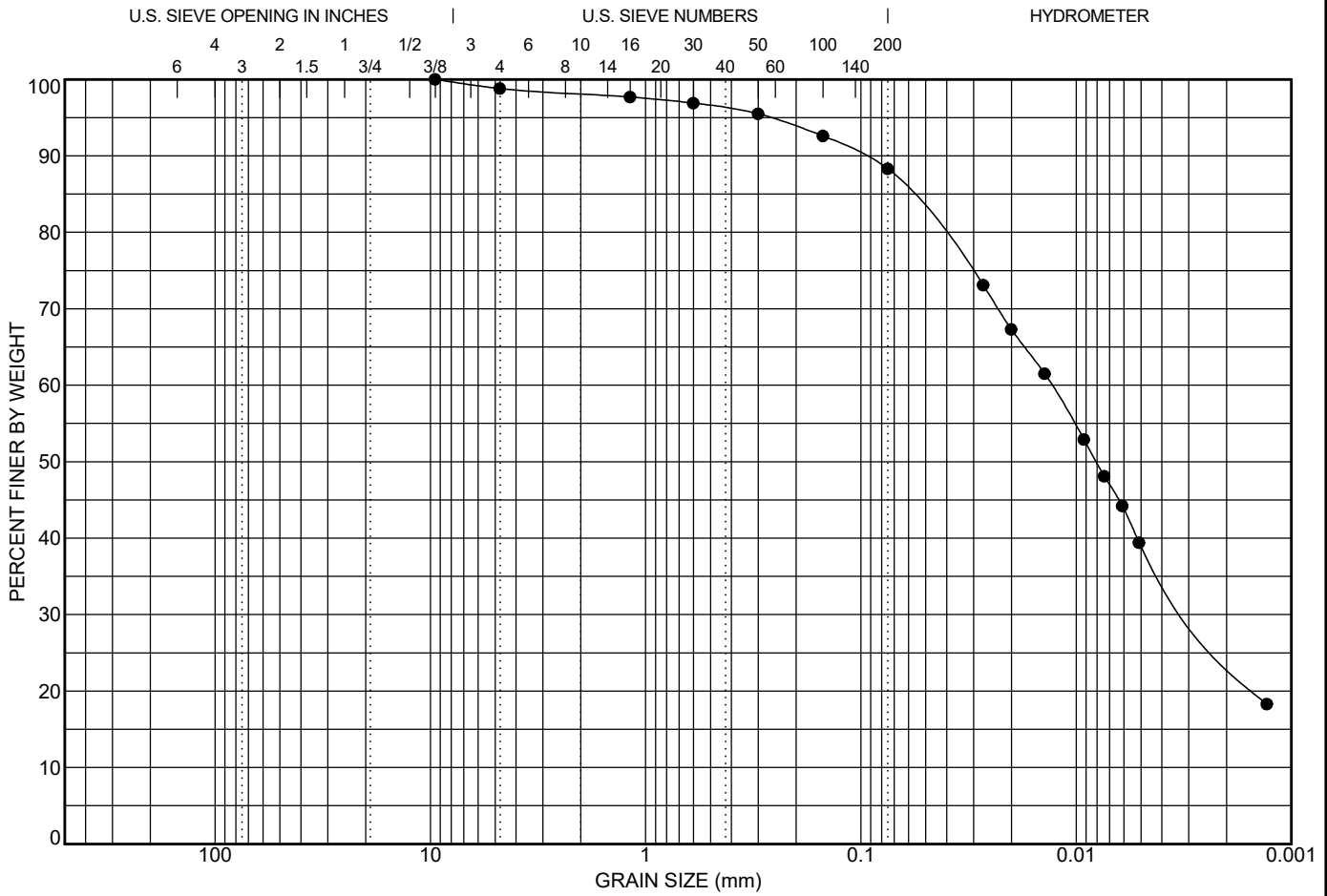


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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 31





COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
					9.5	0.013	0.003		1.2	10.5	88.3	

Date: Sep. 14 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 13 - SA 2, 3.2 to 3.4 m depth
Sample No.: 13-2
Date Sampled: Jun. 22 - 2022
Sampled By: BC
Lab No.: 1151
Date Tested: Sep. 06 - 2022
Type of Material: Clayey Silt Till, trace sand and gravel

Sieve Size (mm)	Percent Passing	No Specifications

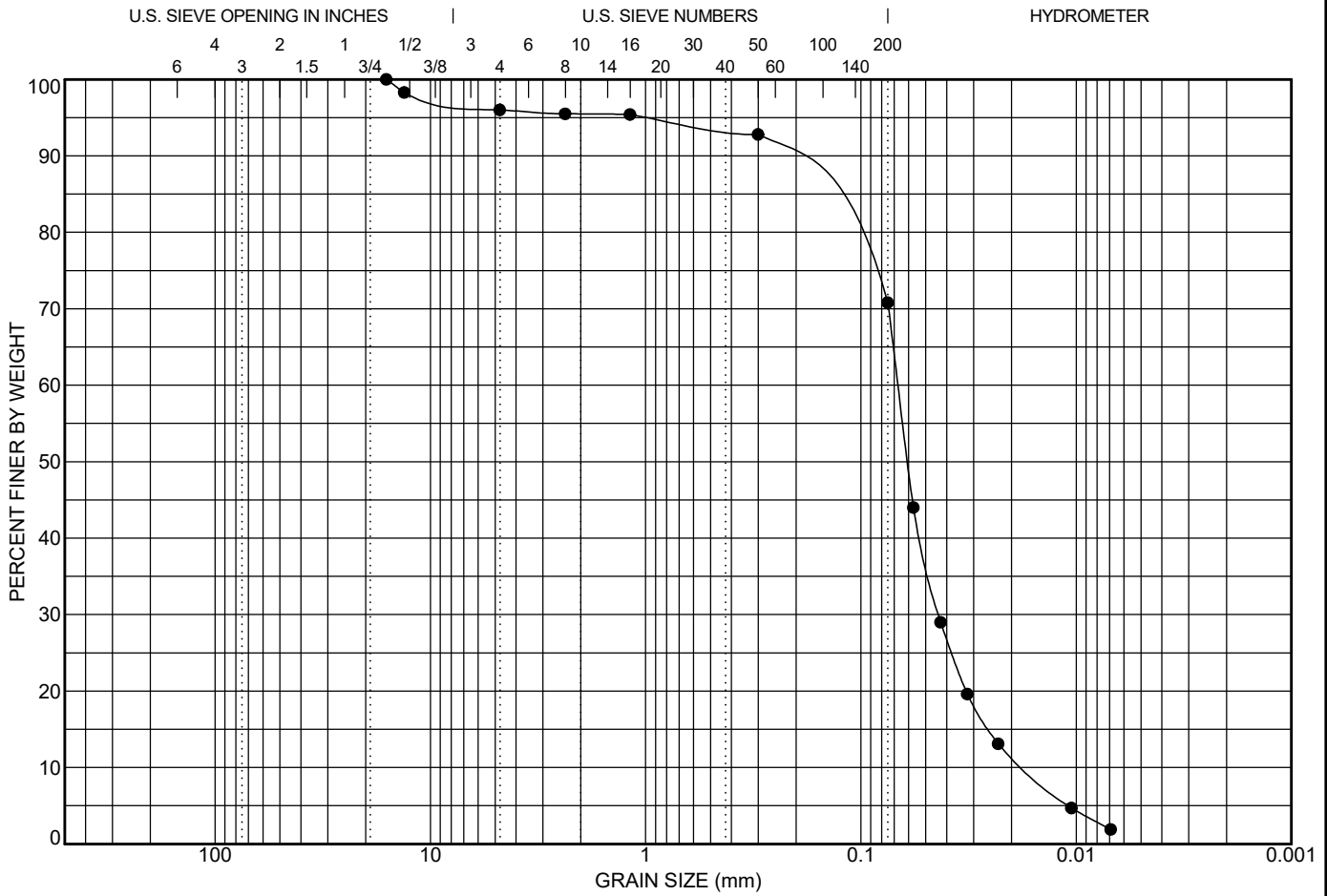
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 34



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.63	3.90	16	0.067	0.043	0.017	4.0	25.2	70.8	

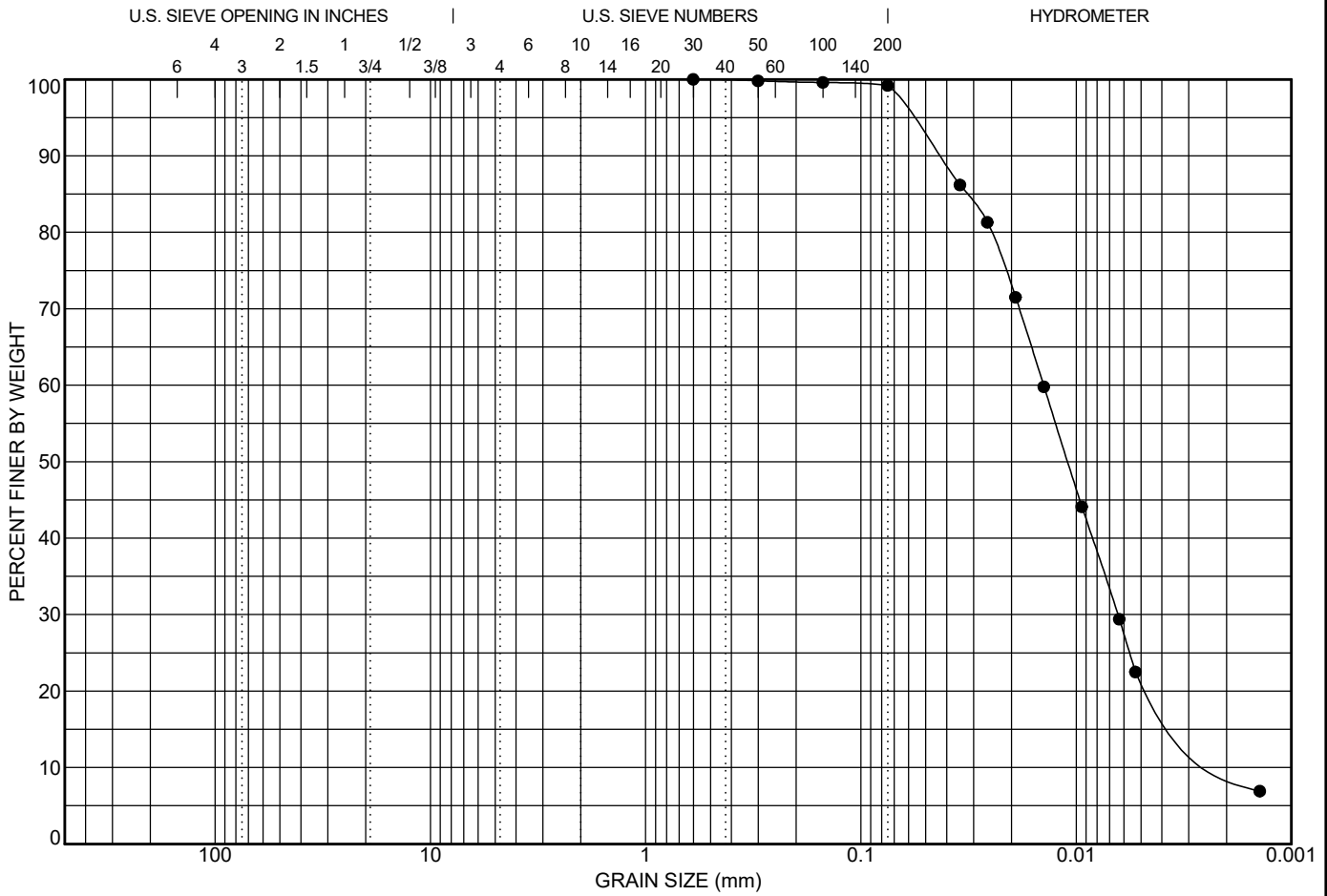
Date: Jul. 20 - 2022 Client: BelCal Inc. Contractor: Source: Sampled From: TP 15 - SA 1, 0.45 to 0.6 m depth Sample No.: 15-1 Date Sampled: Jun. 22 - 2022 Sampled By: BC Lab No.: 0749 Date Tested: Jul. 04 - 2022 Type of Material: Sandy Silt, trace gravel	Sieve Size (mm) 	Percent Passing 	No Specifications
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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 36



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.59	7.77	0.6	0.014	0.006	0.002	0.0	0.8	99.2	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 17 - SA 2, 2.9 to 3.05 m depth
Sample No.: 17-2
Date Sampled: Jun. 23 - 2022
Sampled By: BC
Lab No.: 0750
Date Tested: Jul. 04 - 2022
Type of Material: Silt, trace clay

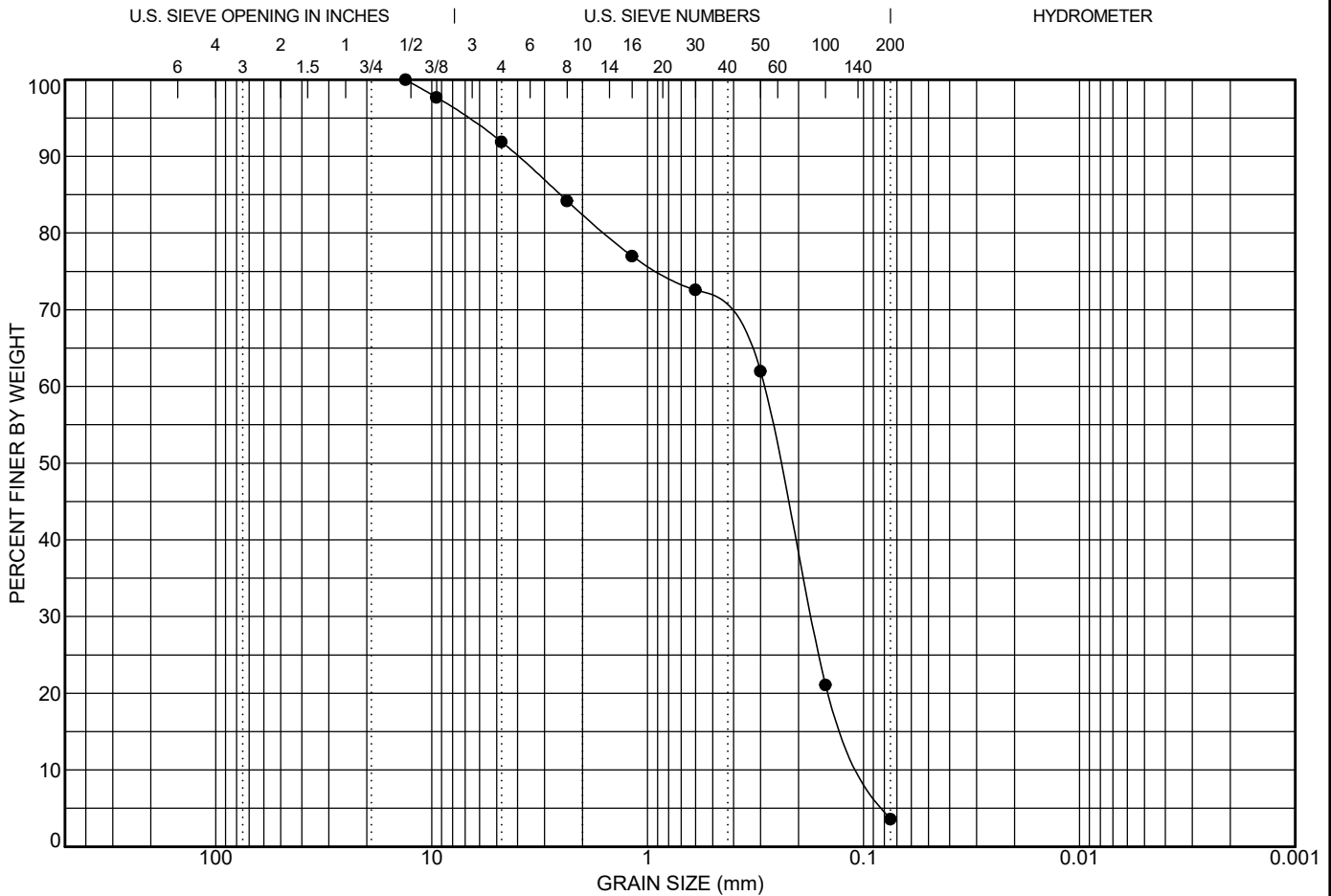
Sieve Size (mm)	Percent Passing	No Specifications



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 37



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.09	3.00	13.2	0.29	0.174	0.097	8.1	88.3	3.6	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 19 - SA 2, 2.0 to 2.15 m depth
Sample No.: 19-2
Date Sampled: Jun. 23 - 2022
Sampled By: BC
Lab No.: 0753
Date Tested: Jul. 04 - 2022
Type of Material: Fine to Medium Sand, trace gravel and silt

Sieve Size (mm)	Percent Passing	No Specifications

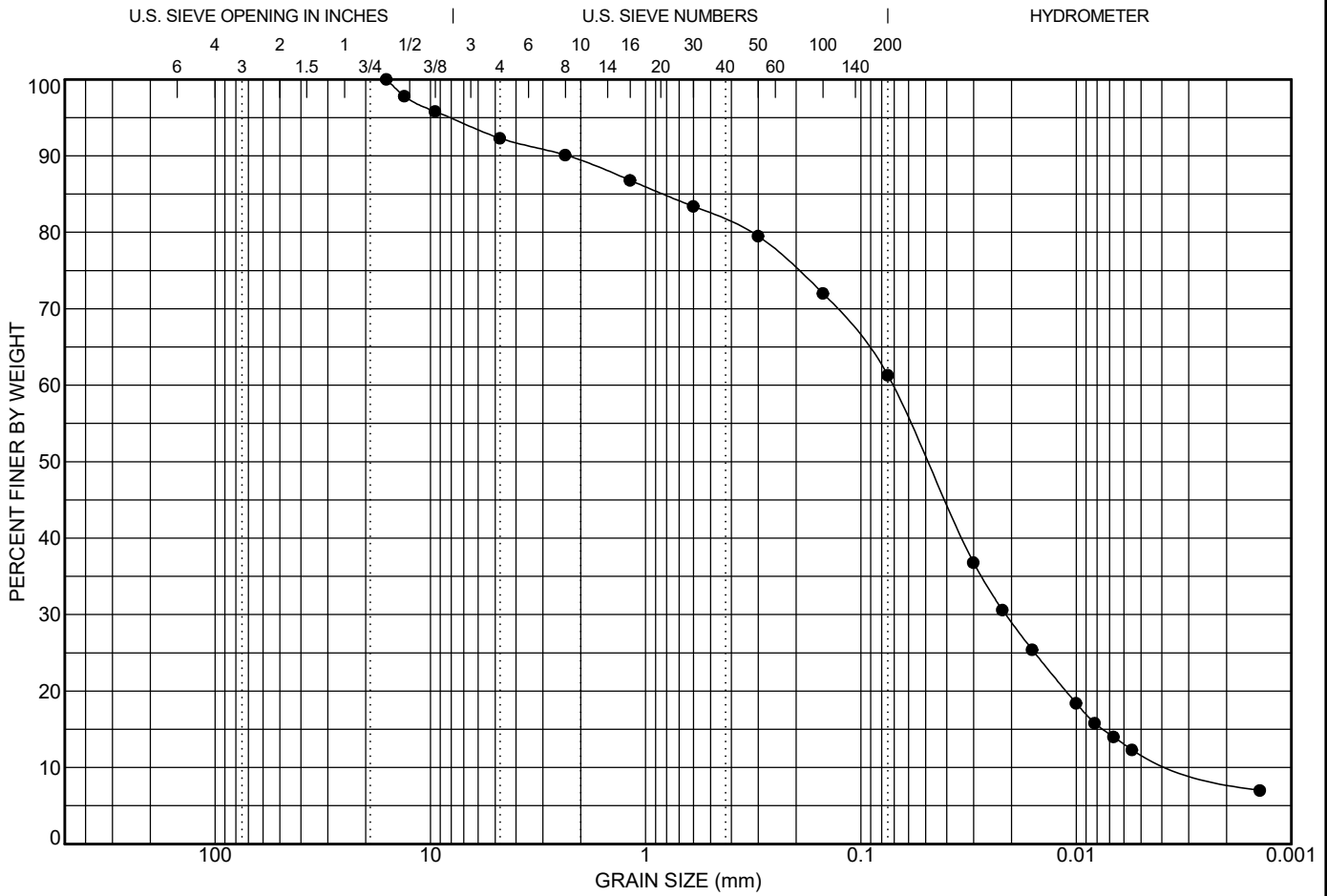
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 39



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			2.07	23.52	16	0.071	0.021	0.003	7.7	31.0	61.3	

Date: Sep. 14 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 22 - SA 1, 0.9 to 1.1 m depth
Sample No.: 22-1
Date Sampled: Jun. 23 - 2022
Sampled By: BC
Lab No.: 1152
Date Tested: Sep. 06 - 2022
Type of Material: Sandy Silt Till, trace gravel and clay

Sieve Size (mm)	Percent Passing	No Specifications

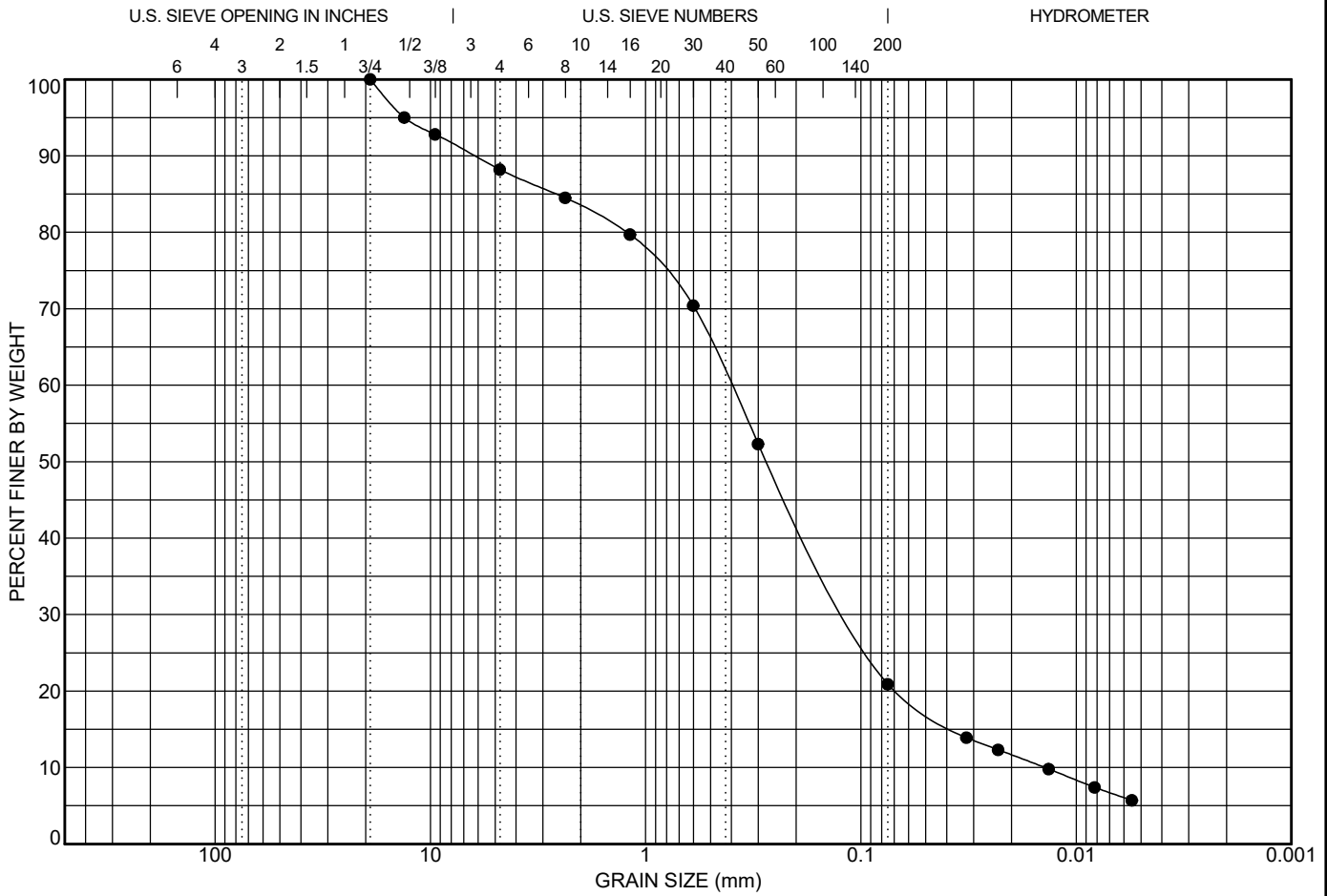
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 40



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			2.23	28.79	19	0.403	0.112	0.014	11.8	67.3	20.9	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 24 - SA 1, 1.2 to 1.4 m depth
Sample No.: 24-1
Date Sampled: Jun. 22 - 2022
Sampled By: BC
Lab No.: 0751
Date Tested: Jul. 04 - 2022
Type of Material: Silty Sand, trace gravel

Sieve Size (mm)	Percent Passing	No Specifications

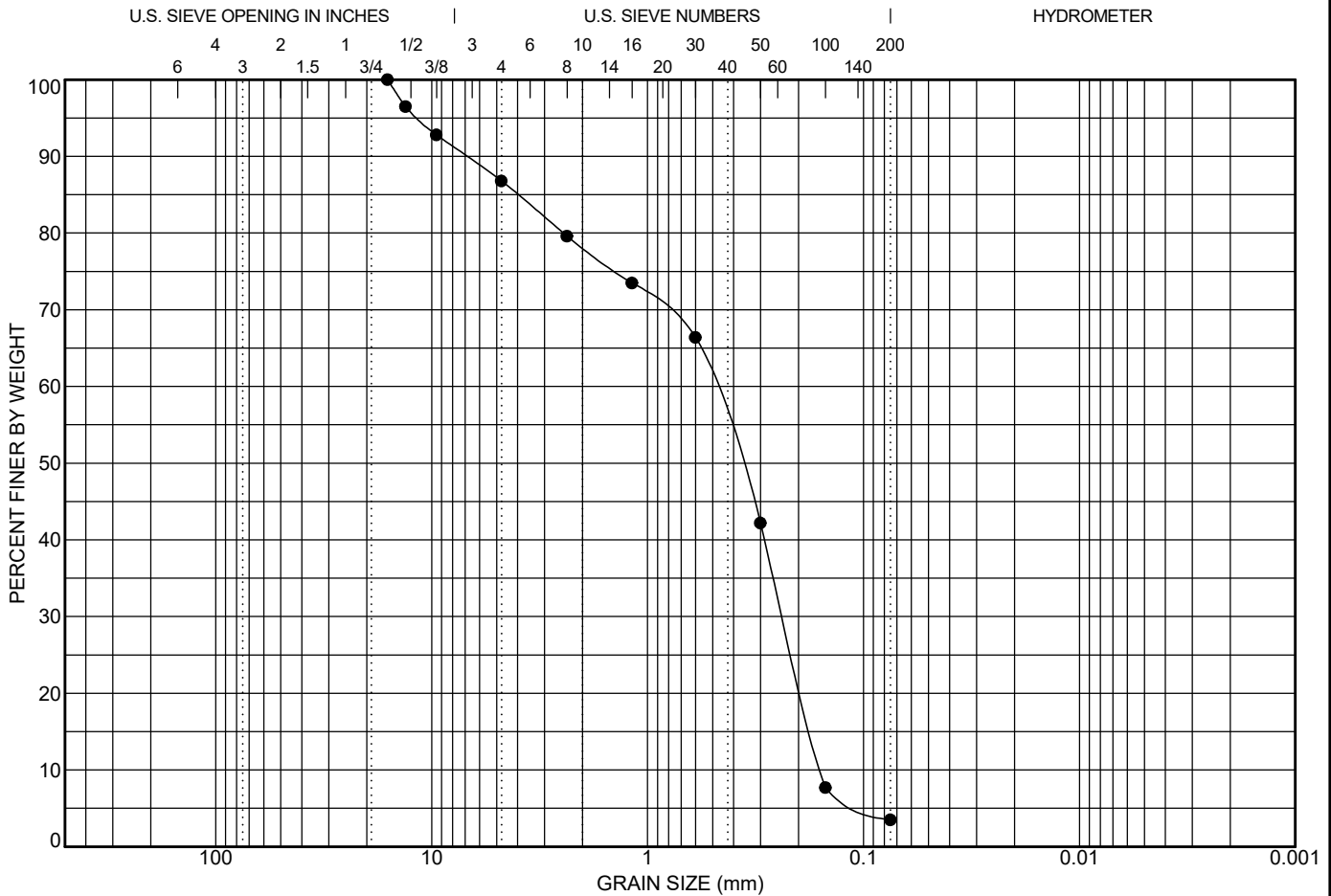
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 41



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			0.70	3.18	16	0.5	0.235	0.157	13.2	83.3	3.5	

Date: Jul. 20 - 2022 Client: BelCal Inc. Contractor: Source: Sampled From: TP 25 - SA 1, 0.6 to 0.76 m depth Sample No.: 25-1 Date Sampled: Jun. 22 - 2022 Sampled By: BC Lab No.: 0754 Date Tested: Jul. 04 - 2022 Type of Material: Fine to Medium Sand, trace gravel and silt	Sieve Size (mm) 	Percent Passing 	No Specifications
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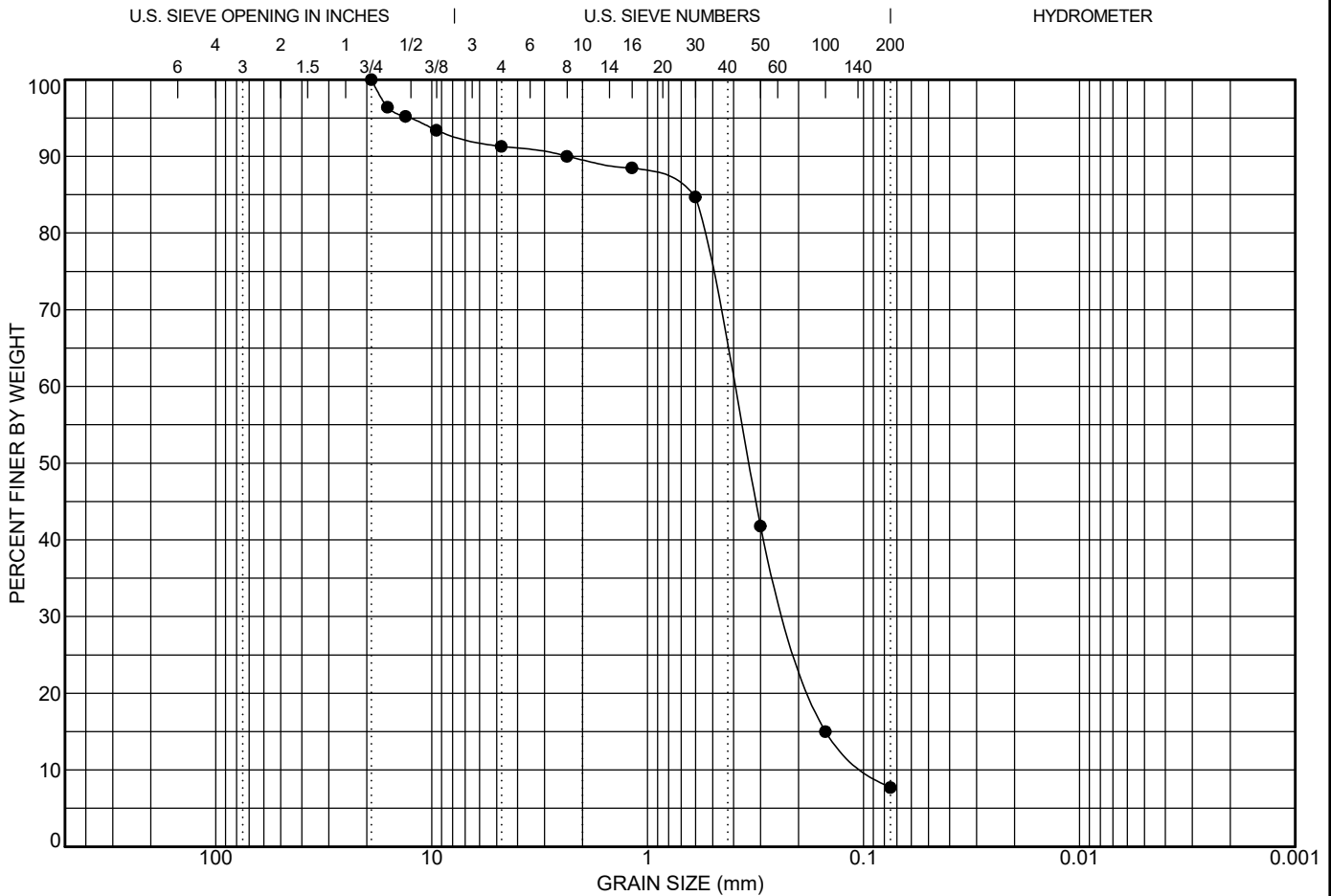
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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 Fax: 519-742-7739
 e-mail: info@cvdengineering.com

GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 42



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.30	4.31	19	0.403	0.221	0.093	8.7	83.6	7.7	

Date: Jul. 20 - 2022 Client: BelCal Inc. Contractor: Source: Sampled From: TP 26 - SA 1, 1.5 to 1.7 m depth Sample No.: 26-1 Date Sampled: Jun. 22 - 2022 Sampled By: BC Lab No.: 0755 Date Tested: Jul. 04 - 2022 Type of Material: Fine to Medium Sand, trace gravel and silt	Sieve Size (mm) 	Percent Passing 	No Specifications
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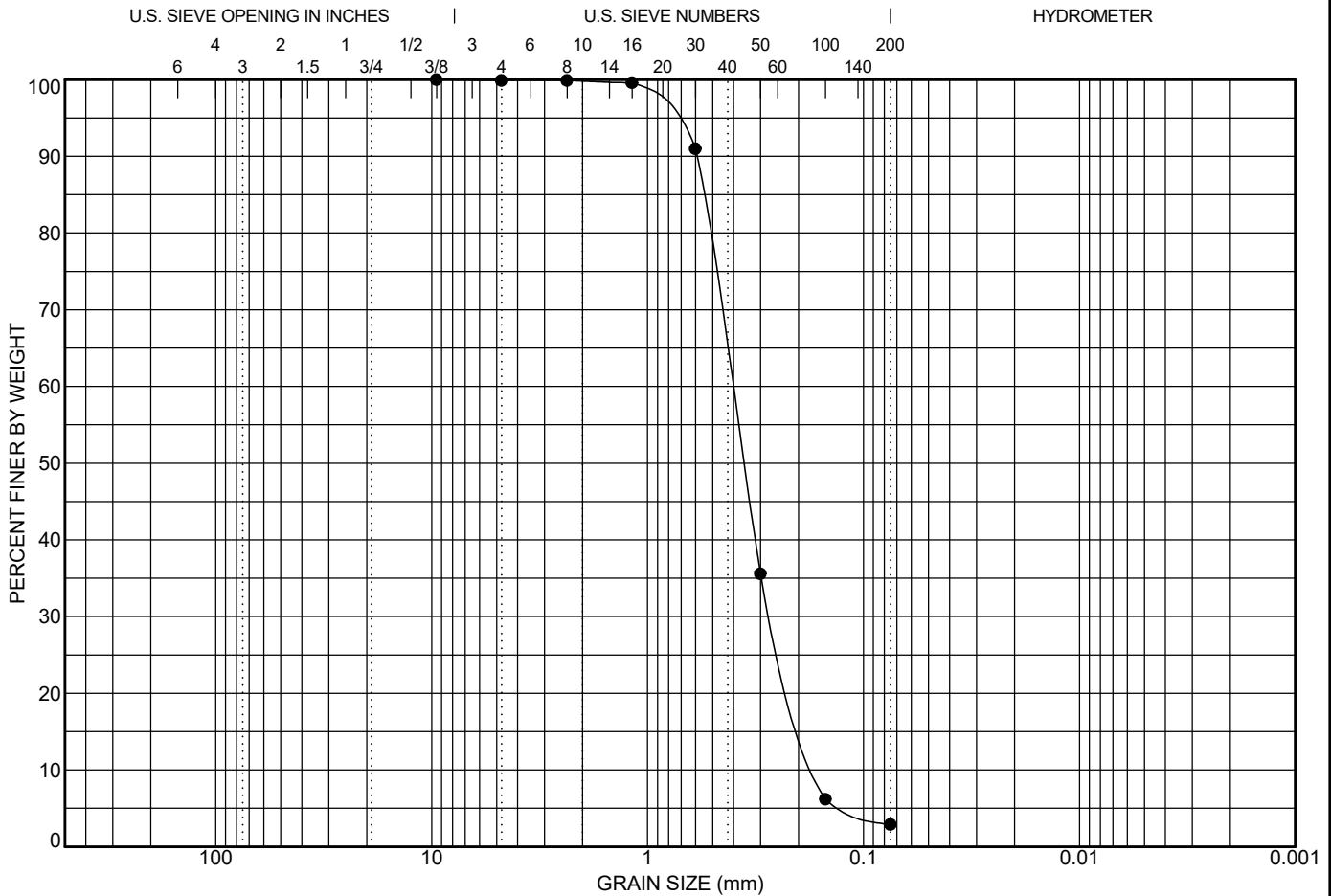
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 43



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.03	2.48	9.5	0.407	0.263	0.164	0.1	97.0	2.9	

Date: Jul. 20 - 2022
Client: BelCal Inc.
Contractor:
Source:
Sampled From: TP 27 - SA 1, 1.05 to 1.2 m depth
Sample No.: 27-1
Date Sampled: Jun. 23 - 2022
Sampled By: BC
Lab No.: 0756
Date Tested: Jul. 04 - 2022
Type of Material: Fine to Medium Sand, trace silt

Sieve Size (mm)	Percent Passing	No Specifications

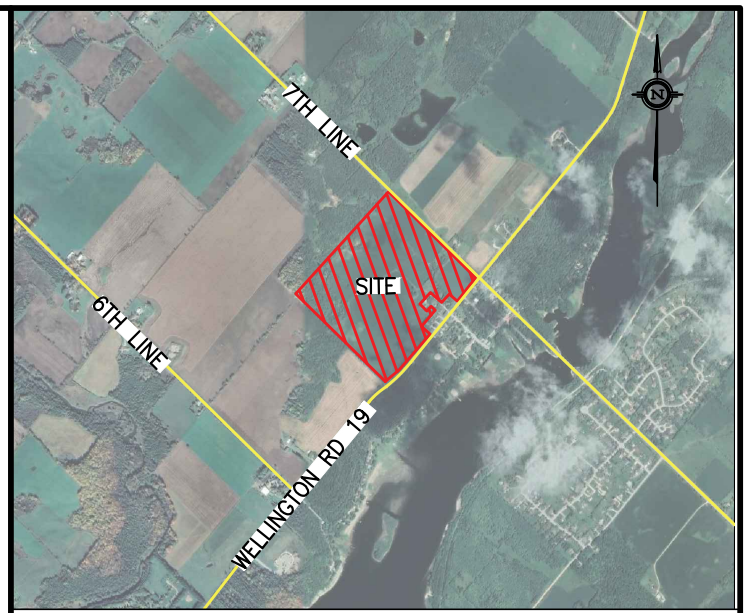
DM - NO SPECIFICATIONS G22459 7TH LINE, BELWOOD.GPJ LAW LINDN.GDT 22-9-15



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GRAIN SIZE DISTRIBUTION

Project: Potential Residential Subdivision
Location: 6640 Wellington Road 19, Belwood, Ontario
File No.: G22459
Enclosure No.: 44



KEY PLAN SOURCE: Google Earth

LEGEND

Test Pit Location

DWG Ref.: Stovel and Associates Inc.; "Conceptual Plan"; 6640 Seventh Line Belwood, Ontario, Lot 12, Concession 7, Township of Centre Wellington, County of Wellington; Dated: 05/15/2023. Elevations provided by Stovel and Associates Inc.

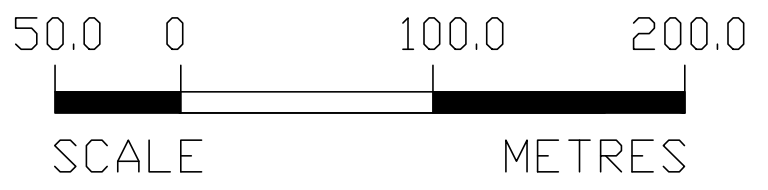
TEST PIT LOCATION PLAN

Potential Residential Subdivision

6640 Wellington Road 19
Belwood, Ontario

CHUNG & VANDER DOELEN
ENGINEERING LTD.

311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1 / 519-742-8979



Drawn By: BC	Date: May, 2023 (Revised)	File No.: G22459
Checked By: RVD	Scale: see Scalar Bar	Drawing No.: 1