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FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

FOR

3 WASHAGO BAY LANE

TOWNSHIP OF SCUGOG

PROJECT NO. 123113

DATE: September 2025

CIVIL

STRUCTURAL

MECHANICAL

ELECTRICAL

PLANNING

September 25, 2025

Jeff Cunningham
11332 Amos Drive
Campbellville, ON. L0P 1B0
Golfon61@hotmail.com

Attention: Mr. Jeff Cunningham

**Re: Functional Servicing and Stormwater Management Report
3 Washago Bay Lane, Part Lot 22, Concession 11
Draft Plan of Subdivision
Township of Scugog
Our File: 123113**

Dear Mr. Jeff Cunningham:

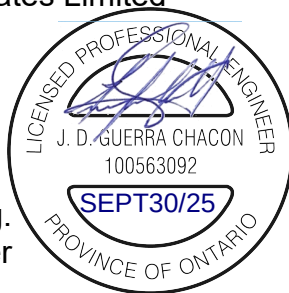
In support of the Draft Plan of Subdivision application for the above-referenced proposal, we herewith submit the following Functional Servicing and Stormwater Management Report. This report has been prepared to identify the method in which the proposed development will meet the stormwater management requirements for the Township of Scugog and Kawartha Conservation Authority and identify the infrastructure required to service the proposed development.

We trust the Township of Scugog will concur with our recommendations. Please provide positive comments on the Draft Plan of Subdivision to facilitate development. Should you have any questions on the foregoing, please do not hesitate to contact our office.

Yours Truly,

D.G. Biddle & Associates Limited

Jesus Guerra, P. Eng.
Intermediate Engineer
Civil Group
DDM/jgc
Encl.



A handwritten signature in blue ink that reads "David McNaull".

David McNaull, P. Eng.
Senior Project Engineer, Associate
Civil Group

X:\Staff\Job Files\123000\123113 3 Washago Bay\123113 Reports\123113 20250826 Functional Servicing and SWM Report.doc

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1.0 INTRODUCTION

- 1.1 Purpose:** This Functional Servicing and Stormwater Management Report has been prepared to recommend and illustrate the infrastructure required to provide municipal services for the proposed Draft Plan of Subdivision. It will address sanitary services, watermain services, stormwater drainage works, and site grading required to proceed with the development. This report will also discuss the stormwater quality and quantity control objectives for the site in accordance with the requirements of the Township of Scugog and the Kawartha Conservation Authority (KCA).
- 1.2 Site Location and Description:** The subject property is located on the south side of Washago Bay Lane, Part of Lot 22, Concession 11, in the Geographic Township of Cartwright, now in the Township of Scugog, Regional Municipality of Durham, locally known as 3 Washago Bay Lane. The site is bounded on the north and west by Washago Bay Lane, on the east by View Lake Road, and on the south by existing residential properties and vacant lands. The site encompasses an area of approximately 1.84ha. A Site Location Plan is attached as Figure 1.
- 1.3 Land Use and Planning Context:** The site consists of steep rolling topography sloping north-west towards Lake Scugog. The site is currently occupied by 2 existing residential dwellings which will remain with the proposed development. There is also an existing woodlot on the south-west side of the property which will be used to establish the developable limits of the Draft Plan.

The Draft Plan of Subdivision proposes 5 residential lots for single detached houses and 2 road widenings on Washago Bay Lane and View Lake Road. Lots 1 and 4 will hold the existing dwellings which front Washago Bay Lane and View Lake Road, respectively. Both roads are fully constructed rural roads. A copy of the Draft Plan is attached as drawing 123113 DP-1.



3 WASHAGO BAY LANE, TOWNSHIP OF SCUGOG

SITE LOCATION PLAN



481 Taunton Rd W, Oshawa ON
150 King St, Peterborough ON

Phone: 905-576-8500

info@dgbiddle.com
dgbiddle.com

SCALE	N.T.S.
DRAWN	M.R.W
DESIGN	M.R.W.
CHECKED	D.D.M.
DATE	AUG 2025

PROJECT
123113

DWG
FIG 1

2.0 WATER SUPPLY AND DISTRIBUTION

- 2.1 Existing System:** Currently, the site is not serviced with a connection to a municipal water system. There is no municipal water infrastructure present on Washago Bay Lane or View Lake Road. Domestic water supply for the existing dwellings on the property is currently supplied by individual water wells.
- 2.2 Proposed System:** The domestic water supply will be provided privately on-site. Domestic water for each dwelling will be supplied by individual water wells located on each lot installed by a well driller who has been licensed by the Ministry of Environment and Climate Change. The existing water wells serving the existing houses located on Lots 1 and 4 will remain. Further details and locations of the wells will occur at building permit submission. The approximate location of the proposed individual water wells is illustrated on the Preliminary Grading and Servicing Plan, drawing 123113 LG-1, attached at the end of this report.

3.0 SANITARY SERVICING

- 3.1 Existing System:** Currently, the site is not serviced with a connection to a municipal sanitary system. There is no municipal sanitary infrastructure present on Washago Bay Lane or View Lake Road. Treatment of sanitary sewage from the existing dwellings on the property is currently supplied by individual septic systems.
- 3.2 Proposed System:** Individual on-site septic systems will provide treatment of the sanitary sewage from the proposed dwellings. Due to the existing septic system on Lot 4 being located partially within the proposed Washago Bay Lane road widening, the existing property at 3 Washago Bay Lane will disconnect from the existing private sewage system and connect to a new septic system provided with the proposed development. The existing septic system serving the existing house located on Lot 1 will remain. Detailed sizing of the individual septic systems will occur at building permit submission. The approximate layout of the proposed individual septic systems is illustrated on the Preliminary Grading and Servicing Plan, drawing 123113 LG-1, attached at the end of this report.

4.0 STORM SERVICING

4.1 Existing System: Currently, the site is not serviced with a connection to a municipal storm system. There is no municipal storm infrastructure present on Washago Bay Lane or View Lake Road.

The entire subject property drains via overland sheet flow to the north-west across Washago Bay Lane, through the side yards of a single row of lakeside cottages and ultimately outfalls at the shoreline of Lake Scugog.

4.2 Proposed System: Stormwater runoff will continue draining to Lake Scugog as per pre-development conditions. The proposed direction of stormwater drainage is illustrated on the attached Preliminary Grading and Servicing Plan, drawing 123113 LG-1.

5.0 STORMWATER QUANTITY CONTROL

As illustrated on the Preliminary Grading and Servicing Plan, drawing 123113 LG-1, the subject development will consist predominately of landscaped area. Post-development flows from the site are proposed to drain directly into Lake Scugog as per the existing drainage pattern. The minor increase in flow to Lake Scugog due to the addition of the proposed dwellings and driveways is considered negligible and will not adversely impact overland flow routes and Lake Scugog. Therefore, stormwater quantity controls are not required for this development.

6.0 STORMWATER QUALITY CONTROL

Stormwater runoff from the site is conveyed to Lake Scugog through landscaped areas and grassed side yard swales, allowing for extended contact of clean stormwater runoff and the promotion of stormwater infiltration. Quality control measures have been proposed for the development to address the slight increase in imperviousness and further enhance the quality of the stormwater. Roof downspouts from all dwelling units will discharge directly onto splash pads at grade level. The downspouts will drain to side and rear yard swales which are conducive to the settling of sediment. A Low Impact Development practice in the form of sand bars will be implemented at the rear yard swale locations to promote further groundwater recharge and mitigate nitrate runoff to Lake Scugog. The sand bars have been sized to capture a 15mm rainfall event from the individual building rooftops which would then percolate into the native soils. Excess rainfall would drain via overland sheet flow into Lake Scugog. The total volume of storage for water to be infiltrated from sand bars is 10.7m^3 – refer to Appendix 1 for supporting sizing calculations. The locations and details of the sand bars are shown on the Preliminary Grading and Servicing Plan, drawing 123113 LG-1.

7.0 ROAD NETWORK AND SITE GRADING

The proposed draft plan includes required road widenings for road allowances on both Washago Bay Lane and View Lake Road. The proposed road widenings on Washago Bay Lane and View Lake Road are 6.95m to the south and 4.95m to the west, respectively. Residential driveways for the proposed development will match into the existing 6.0m wide gravel roadways on Washago Bay Lane maintaining the existing grade as cross slope to facilitate for storm runoff sheet flowing towards Scugog Lake, while the residential driveway for the proposed lot on View Lake Road will be graded at 2% to account for the future road widening cross slope.

In general, the site will be graded in a manner which will achieve the Township of Scugog lot grading criteria, which includes the following:

- Minimum Landscape Area Grade: 2.0%
- Maximum Landscape Area Grade: 5.0%

The lot grades have been conceptually designed to provide continuous grades for overland flow conveyance while minimizing the cut/fill differential. Details of the site grading design are illustrated on the Preliminary Grading and Servicing Plan, drawing 123113 LG-1, attached at the end of this report.

8.0 TEMPORARY SEDIMENT AND EROSION CONTROLS

During the construction period, the removal of natural vegetation causes the transport of large amounts of sediment during rainfall events. To minimize the sediment laden storm water leaving the site during construction, it is recommended the following sediment control techniques be implemented.

1. Construction Vehicle Access Route (Mud Mat)
2. Perimeter Enviro Fence
3. Rock Check Dams
4. Good Housekeeping Practices

The above techniques will be illustrated on an Erosion and Sediment Control Plan during detailed design.

9.0 CONCLUSIONS

The preceding report identifies the functional servicing and stormwater management requirements for the development proposal. The investigations into these requirements have resulted in the following conclusions for the development proposal:

- Domestic water supply for each dwelling will be supplied by individual water wells located on each lot installed by a well driller who has been licensed by the Ministry of Environment and Climate Change.
- Sanitary servicing for each dwelling will be provided through individual septic systems on each lot. Detailed sizing of the individual septic systems will occur during the building permit process.
- Stormwater runoff will drain directly into Lake Scugog. Stormwater quantity controls are not required for this development.
- Stormwater quality controls are implemented through the use of sand bars located in rear yard drainage swales.
- Temporary sediment controls during construction can be managed by the use of perimeter enviro fence, construction vehicle access route, rip rap check dams and good engineering practices.

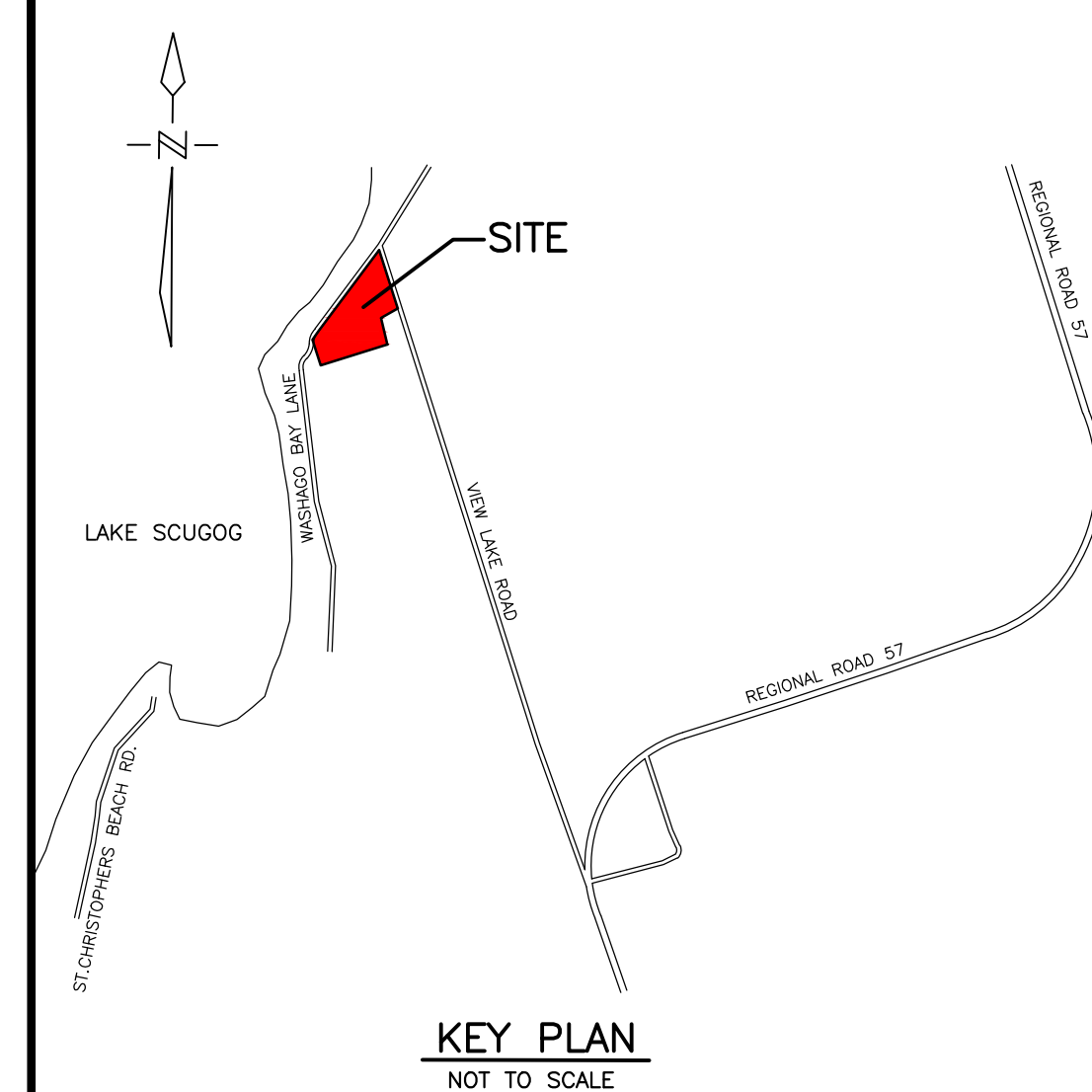
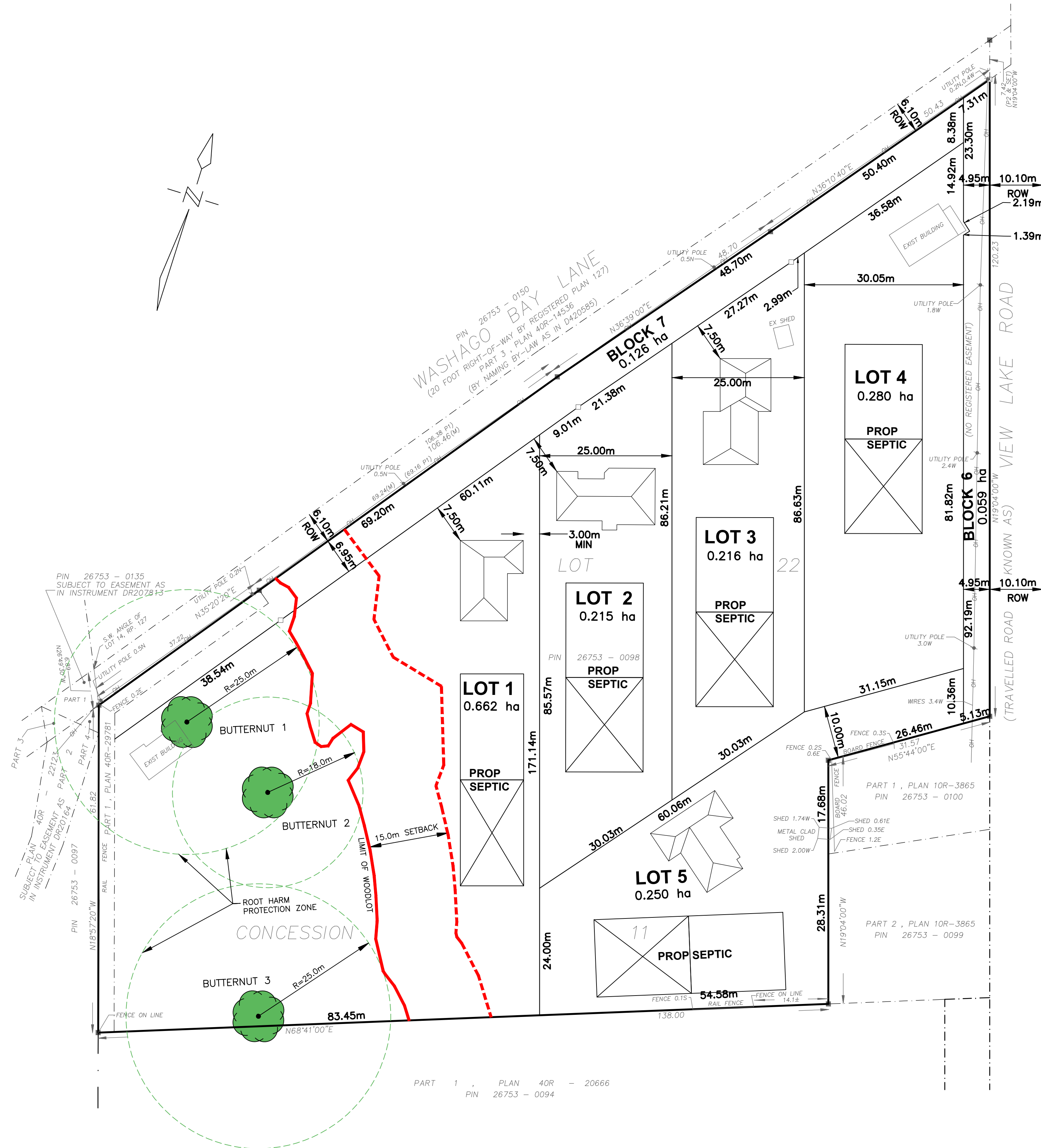
DRAWINGS

-123113-DP-1 DRAFT PLAN OF SUBDIVISION

**-123113-LG-1 PRELIMINARY LOT GRADING AND
SERVICING PLAN**

**-123113-ES-1 PRELIMINARY EROSION AND
SEDIMENT CONTROL PLAN**





LAND USE SCHEDULE				
PROPOSED USE	LOT/BLK #	# OF LOTS/BLKS	# OF UNITS	AREA (ha)
LOW DENSITY RESIDENTIAL				
SINGLE DETACHED	BLOCKS 1-5	5	5	1.765
NON RESIDENTIAL				
ROAD WIDENING	BLOCKS 6	1	0	0.071
TOTALS		6	5	1.836

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT	
E NORTH - RESIDENTIAL	
SOUTH - ESTATE RESIDENTIAL/ENVIRONMENTAL PROTECTION	
EAST - AGRICULTURE	
WEST - RESIDENTIAL	
H - PRIVATE WELLS	
I - TILL	
K - ALL PRIVATE SERVICING	
L - NONE	

OWNER'S AUTHORIZATION	SURVEYOR'S CERTIFICATE
I/WE LAND OWNER	I HEREBY CERTIFY THAT THE BOUNDARY OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN
BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE D.G.BIDDLE AND ASSOC. LTD. TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL	ONTARIO LAND SURVEYOR
SIGNED _____	SIGNED _____
TITLE _____	O.L.S.
DATE _____	DATE _____

No.	REVISION	DATE	BY	APPROVED

PROPOSED

DRAFT PLAN

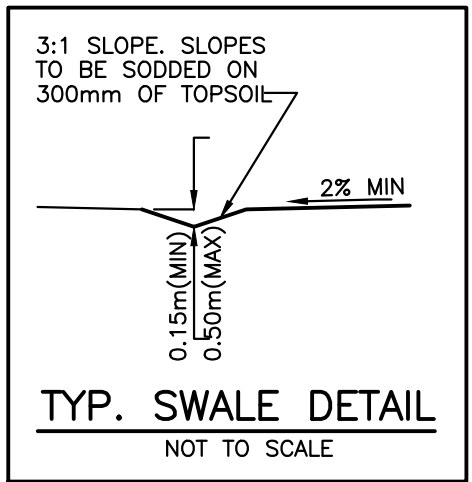
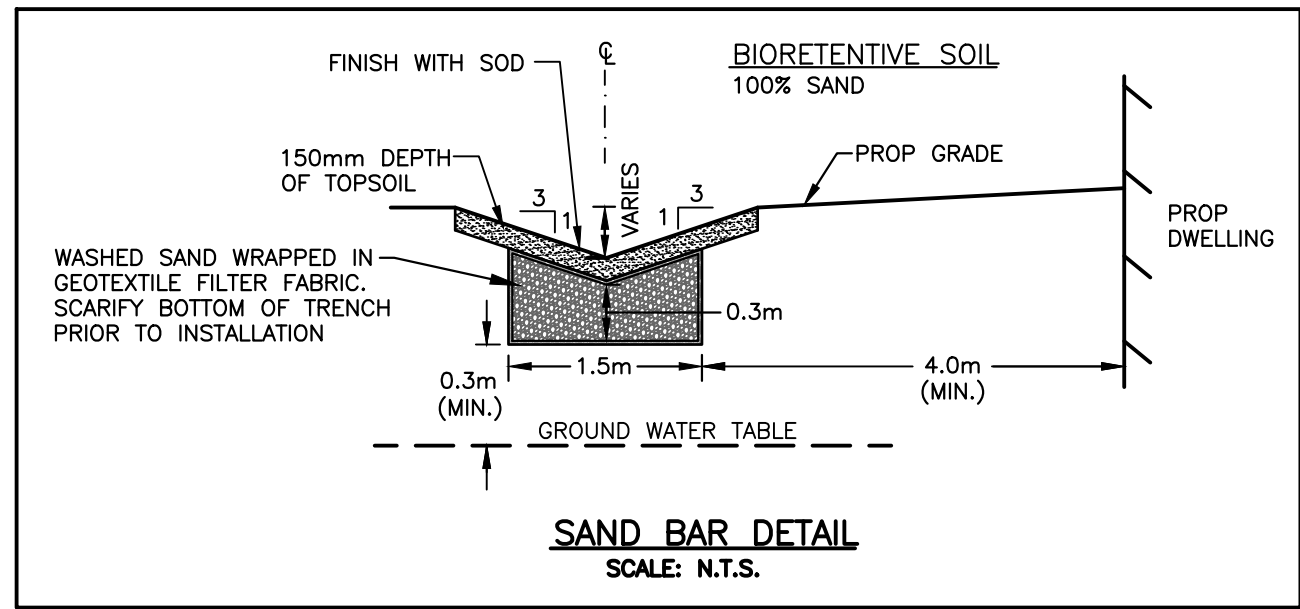
PART OF LOT 22, CONCESSION 11
GEOGRAPHIC TOWNSHIP OF CARTWRIGHT
NOW IN THE
TOWNSHIP OF SCUGOG
REGIONAL MUNICIPALITY OF DURHAM

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

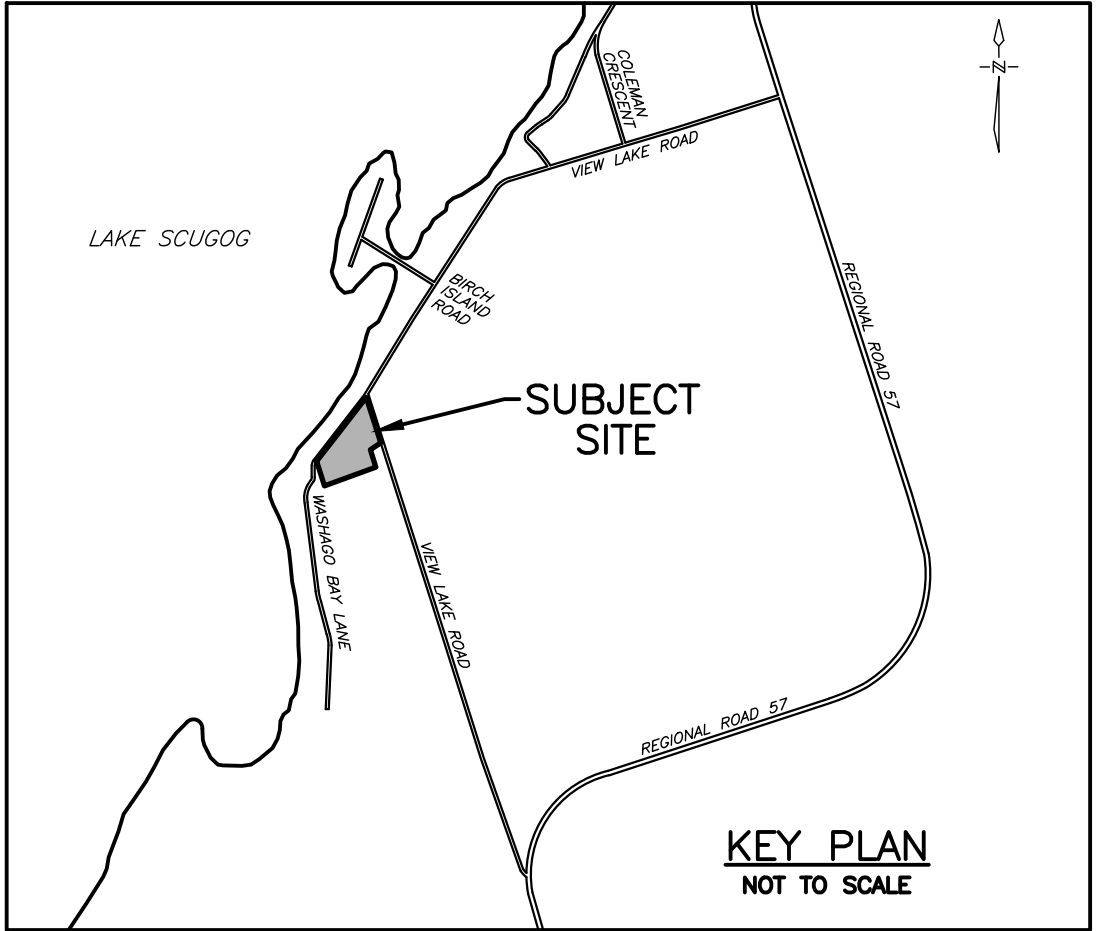
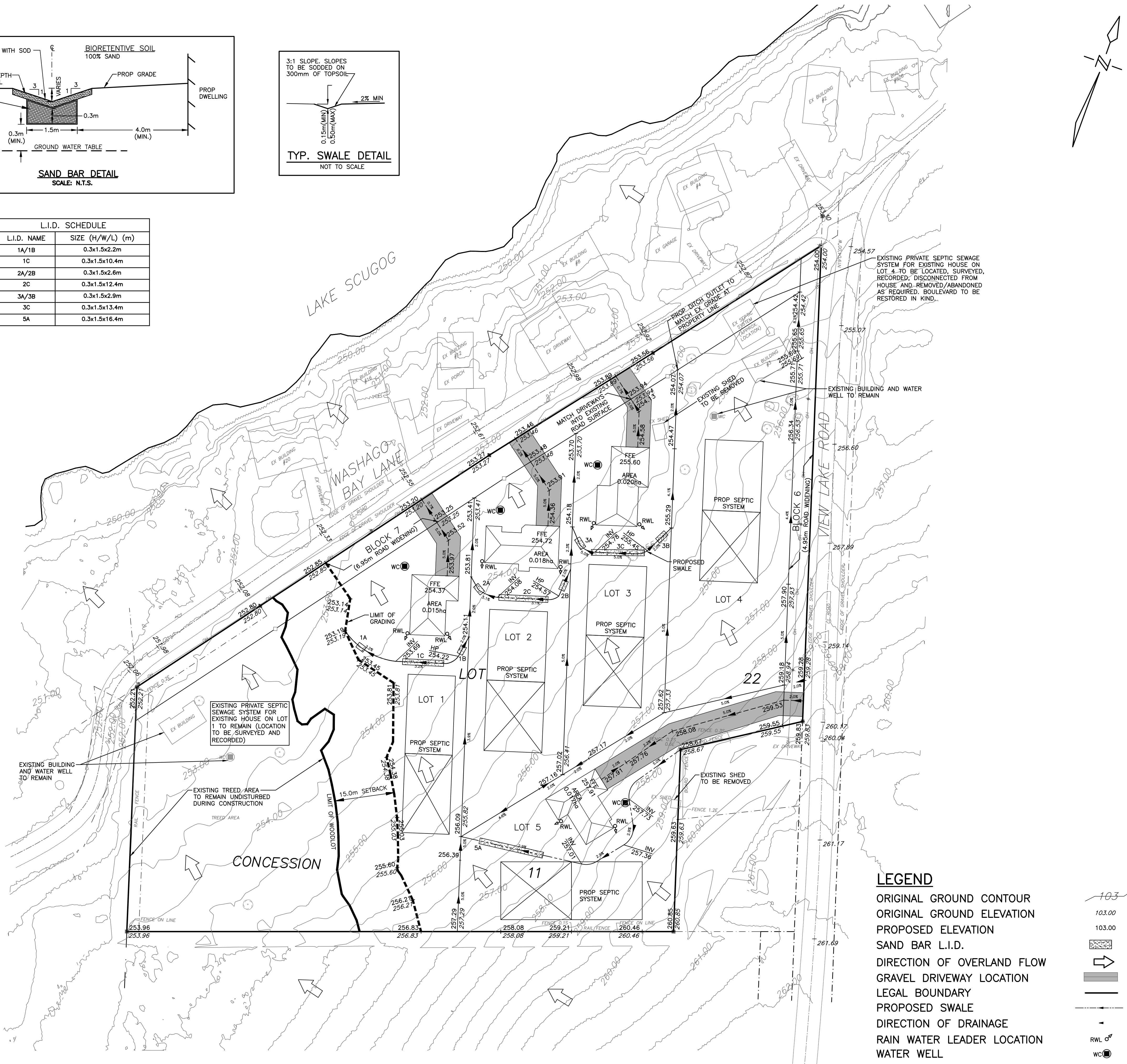
481 Taunton Rd W, Oshawa ON
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Phone: 905-576-8500
info@dgbiddle.com
dgbiddle.com

SCALE: 1:500	123113
DRAWN BY: B.B.	DP-1
DESIGN BY: M.J.F.	
CHECKED BY: M.J.F.	
PLOT DATE: 20/08/2025	

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L.I.D. SCHEDULE	
L.I.D. NAME	SIZE (H/W/L) (m)
1A/1B	0.3x1.5x2.2m
1C	0.3x1.5x10.4m
2A/2B	0.3x1.5x2.6m
2C	0.3x1.5x12.4m
3A/3B	0.3x1.5x2.9m
3C	0.3x1.5x13.4m
5A	0.3x1.5x16.4m

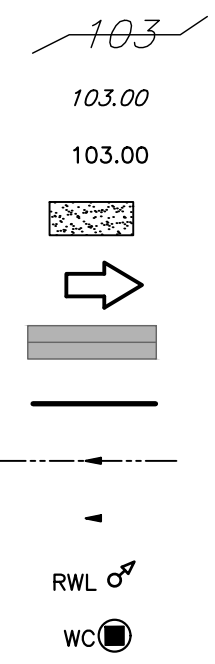


BENCHMARK #0011919U247G
TOWNSHIP: CAESAREA CONCRETE BOX CULVERT (1906) UNDER ABANDONED C.P.R. GRADE, 6.4 KM NORTHEAST OF MAIN CORNERS, 1.1 KM NORTHEAST OF CROSSING OF ROAD ALLOWANCE BETWEEN CONCESSIONS IX AND X, TOWNSHIP OF POINT CARTWRIGHT, 640 M SOUTH OF POINT WHERE RIGHT-OF-WAY CROSSES NORTH-SOUTH SHORE ROAD IN CONCESSION X, BOLT IN WEST FACE OF CULVERT, 94 CM FROM NORTH FACE, 36 CM BELOW TOP, 30 CM NORTH OF WATER PASSAGE.
ELEV = 267.966m

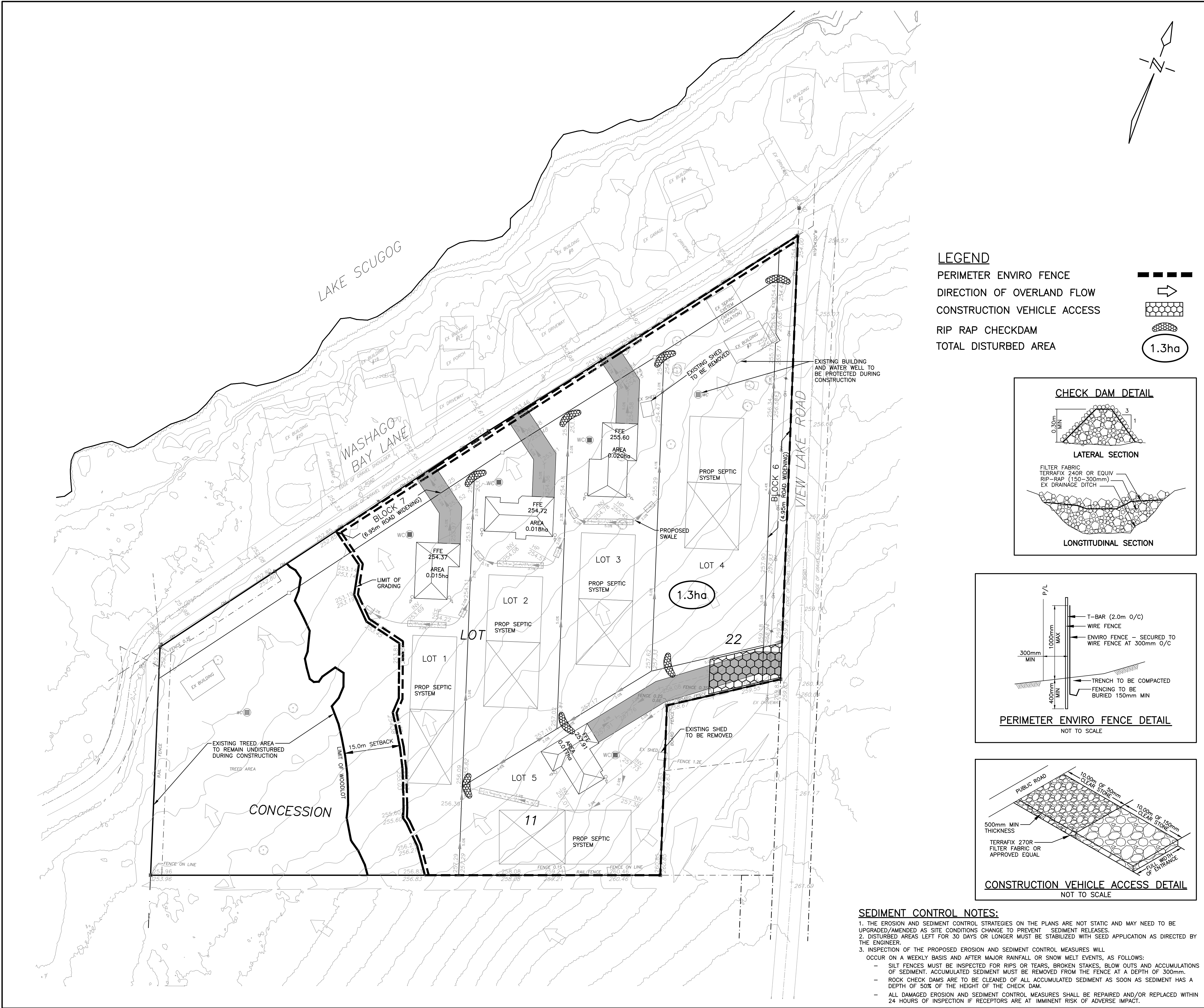
- SITE GRADING NOTES**
- A ROAD OCCUPANCY PERMIT WILL BE REQUIRED FOR ANY WORKS WITHIN THE MUNICIPAL RIGHT OF WAY.
 - ALL WORKS OR RESTORATION WITHIN THE MUNICIPAL RIGHT OF WAY SHALL BE COMPLETED AS PER CITY OF TOWNSHIP OF SCUGOG FIELD STAFF DIRECTION.
 - THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND SERVICES TO BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. CONCERNED UTILITIES TO BE GIVEN ADVANCED NOTICE FOR STAKE OUT. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITIES SHOWN ON THE DRAWINGS.
 - QUANTITIES, DIMENSIONS AND ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
 - ALL SLOPES SHALL BE CONSTRUCTED AT 3:1 (MAXIMUM) UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - ALL SWALES SHALL BE CONSTRUCTED WITH 2% MINIMUM GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - ALL SLOPES, SWALES AND OPEN SPACE AREAS SHALL BE SODDED ON A MINIMUM OF 150mm OF TOPSOIL.
 - ALL DISTURBED AREAS ABUTTING MUNICIPAL RIGHT OF WAYS SHALL BE SODDED ON A MINIMUM OF 150mm OF TOPSOIL.
 - RAIN WATER LEADERS TO DISCHARGE TO GRADE.

PRELIMINARY NOT FOR CONSTRUCTION			
NO.	DATE	REVISION	BY
ACCEPTED TO BE IN ACCORDANCE WITH THE TOWNSHIP OF SCUGOG STANDARDS, THE ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT		APPROVED	
TOWNSHIP ENGINEER		DEPARTMENT OF WORKS REGIONAL MUNICIPALITY OF DURHAM	
DATE		DATE	
CORPORATION OF THE TOWNSHIP OF SCUGOG PUBLIC WORKS DEPARTMENT			
3 WASHAGO BAY LANE			
PRELIMINARY GRADING AND SERVICING PLAN			
		CONSULTING ENGINEERS & PLANNERS	
		SCALE: 1:500	PROJECT NO. 123113
DRAWN BY: M.W.		DRAWING NO. LG-1	
DESIGN BY: J.G.C.			
CHECKED BY: D.D.M.			
DATE: AUGUST 2025			

- LEGEND**
- ORIGINAL GROUND CONTOUR
 - ORIGINAL GROUND ELEVATION
 - PROPOSED ELEVATION
 - SAND BAR L.I.D.
 - DIRECTION OF OVERLAND FLOW
 - GRAVEL DRIVEWAY LOCATION
 - LEGAL BOUNDARY
 - PROPOSED SWALE
 - DIRECTION OF DRAINAGE
 - RAIN WATER LEADER LOCATION
 - WATER WELL



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September 25, 2025



LEGEND

PERIMETER ENVIRO FENCE

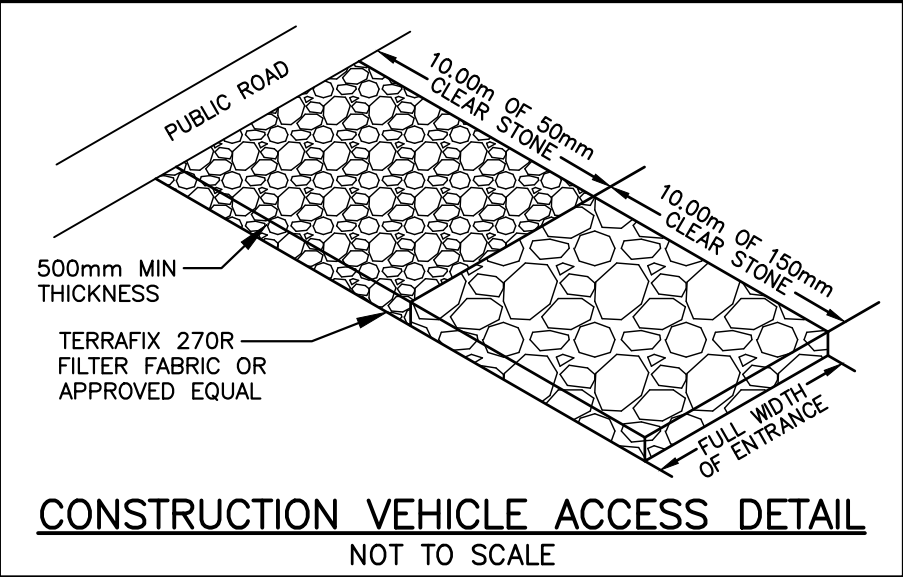
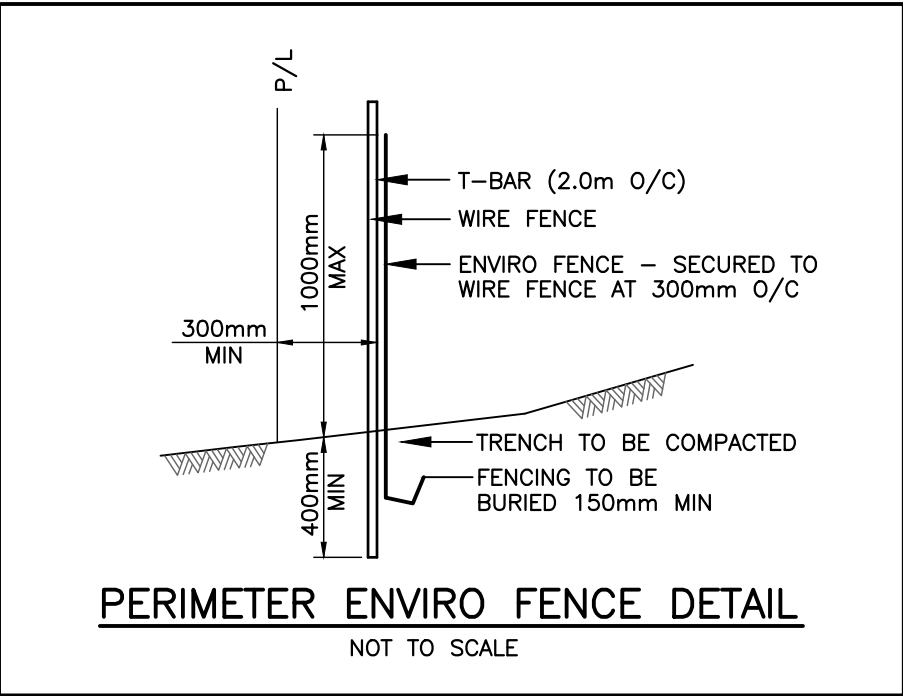
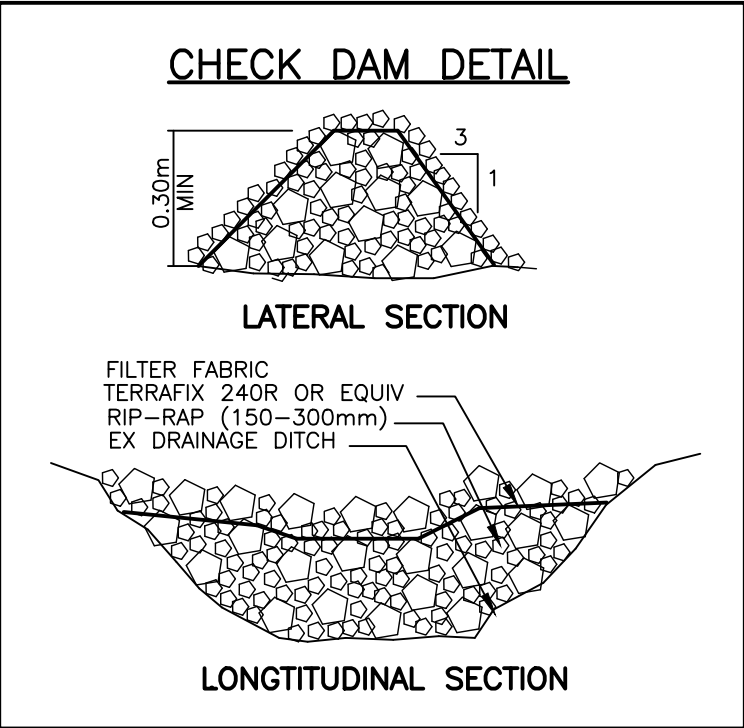
DIRECTION OF OVERLAND FLOW

CONSTRUCTION VEHICLE ACCESS

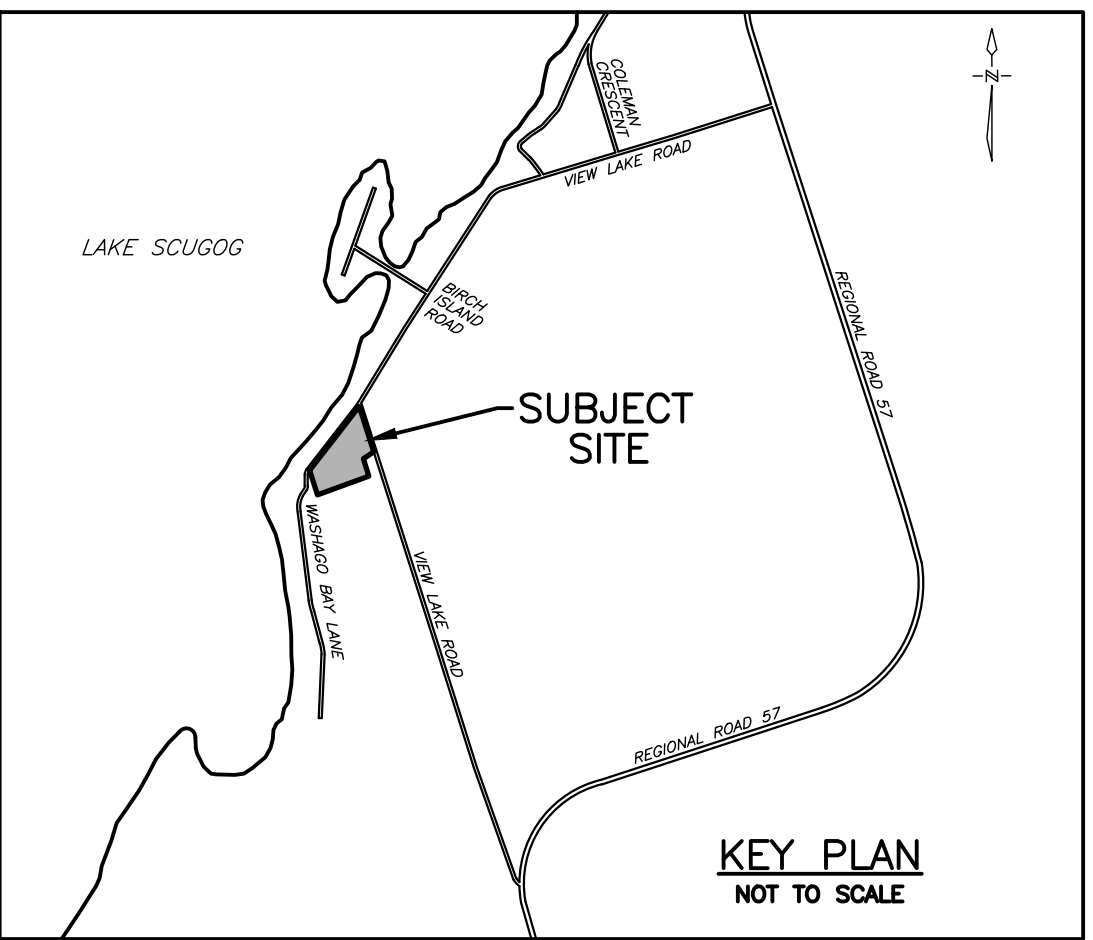
RIP RAP CHECKDAM

TOTAL DISTURBED AREA

1.3ha



- SEDIMENT CONTROL NOTES:**
- THE EROSION AND SEDIMENT CONTROL STRATEGIES ON THE PLANS ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO PREVENT SEDIMENT RELEASES.
 - DISTURBED AREAS LEFT FOR 30 DAYS OR LONGER MUST BE STABILIZED WITH SEED APPLICATION AS DIRECTED BY THE ENGINEER.
 - INSPECTION OF THE PROPOSED EROSION AND SEDIMENT CONTROL MEASURES WILL OCCUR ON A WEEKLY BASIS AND AFTER MAJOR RAINFALL OR SNOW MELT EVENTS, AS FOLLOWS:
 - SILT FENCES MUST BE INSPECTED FOR RIPS OR TEARS, BROKEN STAKES, BLOW OUTS AND ACCUMULATIONS OF SEDIMENT. ACCUMULATED SEDIMENT MUST BE REMOVED FROM THE FENCE AT A DEPTH OF 300mm.
 - ROCK CHECK DAMS ARE TO BE CLEANED OF ALL ACCUMULATED SEDIMENT AS SOON AS SEDIMENT HAS A DEPTH OF 50% OF THE HEIGHT OF THE CHECK DAM.
 - ALL DAMAGED EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REPAIRED AND/OR REPLACED WITHIN 24 HOURS OF INSPECTION IF RECEPTORS ARE AT IMMINENT RISK OF ADVERSE IMPACT.



BENCHMARK #0011919U247G

TOWNSHIP: CAESAREA CONCRETE BOX CULVERT (1906) UNDER ABANDONED C.P.R. GRADE, 6.4 KM NORTHEAST OF MAIN CORNERS, 1.1 KM NORTHEAST OF CROSSING OF ROAD ALLOWANCE BETWEEN CONCESSIONS IX AND X, TOWNSHIP OF POINT CARTWRIGHT, 640 M SOUTH OF POINT WHERE RIGHT-OF-WAY CROSSES NORTH-SOUTH SHORE ROAD IN CONCESSION X, BOLT IN WEST FACE OF CULVERT, 94 CM FROM NORTH FACE, 36 CM BELOW TOP, 30 CM NORTH OF WATER PASSAGE.

ELEV = 267.966m

- DUST CONTROL MEASURES:**
- A. PRE-GRADING PLANNING**
- THE SITE SERVING FOR THE SITE SHALL BE SCHEDULED SUCH THAT THE OVERALL TIME THE AREAS ARE LEFT OPEN TO WIND THAT CREATE BLOWING DUST FROM THE EARTHWORK OPERATIONS IS MINIMIZED.
 - THE TOPSOIL STOCKPILE (IF APPLICABLE) SHALL BE STABILIZED WITHIN 30 DAYS OF STOCKPILING MATERIALS IN ACCORDANCE WITH CITY'S CRITERIA. ALL DISTURBED LANDS OUTSIDE THE PHASE OF WORK SHALL BE STABILIZED/VEGETATED.
 - THE CONTRACTOR SHALL APPLY WATER TO HAUL ROADS AND STOCKPILES (IF APPLICABLE) BY WAY OF WATER TRUCK.
- B. WATERING (POST GRADING)**
- WITHIN AREAS WHERE EARTHWORKS AND/OR UNDERGROUND MUNICIPAL SERVICING IS ON-GOING, WATER IS TO BE UTILIZED AT SUFFICIENT QUANTITY TO PREVENT VISIBLE EMISSIONS FROM EXTENDING MORE THAN 30m FROM THE POINT OF ORIGIN.
- C. REDUCE VEHICLE SPEED**
- THE ON-SITE SPEED LIMIT FOR CONSTRUCTION VEHICLES SHALL BE MINIMIZED AND TO BE USED IN CONJUNCTION WITH WATERING TO PREVENT VISIBLE DUST EMISSIONS.
- D. RESTRICT ACTIVITIES DURING HIGH WIND PERIODS**
- THE HIGH VISIBILITY OF CERTAIN WORKS AND THE CLOSE PROXIMITY AND POPULATION IMPACT SHOULD BE TAKEN INTO CONSIDERATION WHEN SCHEDULING DUST-PRODUCING WORK. APPROPRIATE DUST CONTROL MEASURES SHALL BE IN PLACE IN SUCH SITUATIONS.
- E. ROAD CLEANING**
- SPILLAGE, EROSION OR MATERIALS "TRACKED OUT" ON A ROAD TO BE CLEANED USING MECHANICAL STREET SWEEPERS OR FLUSHER TRUCK AT LEAST BY THE END OF THE WORK DAY. HOWEVER, IF SPILLAGE EXTENDS MORE THAN 15m ALONG A PAVED PUBLIC ROADWAY, IT MUST BE CLEANED UP IMMEDIATELY.
 - IMPORTING AND EXPORTING OF MATERIALS ON AND OFF-SITE WILL BE SHUT DOWN DURING AND FOLLOWING INCLEMENT WEATHER UNTIL THE ROAD SURFACES HAVE BEEN CLEANED.

NO.	DATE	REVISION	BY

ACCEPTED TO BE IN ACCORDANCE WITH THE TOWNSHIP OF SCUGOG STANDARDS, THE ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT	APPROVED
TOWNSHIP ENGINEER	DEPARTMENT OF WORKS REGIONAL MUNICIPALITY OF DURHAM
DATE	DATE

CORPORATION OF THE TOWNSHIP OF SCUGOG
PUBLIC WORKS DEPARTMENT

3 WASHAGO BAY LANE

PRELIMINARY EROSION CONTROL PLAN

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

	SCALE:	1:500	PROJECT NO.	123113
	DRAWN BY:	B.A.	DRAWING NO.	ES-1
	DESIGN BY:	J.D.G.		
	CHECKED BY:	D.D.M.		
	DATE:	SEPT 2025		

APPENDIX 1

-SAND BAR SIZING CALCULATIONS



PROJECT 3 Washago Bay Lane, Township of Scugog
PROJECT # 123113

Sand Bar Sizing

Location	<u>LOT 1</u>	<u>LOT 2</u>	<u>LOT 3</u>	<u>LOT 5</u>	
Drainage (Roof) Area	154	182	200	169	m2
Storm event	15	15	15	15	mm
Porosity	0.35	0.35	0.35	0.35	
Volume of Water	2.3	2.7	3.0	2.5	m3
Vol. of Water & Sand Needed	6.6	7.8	8.6	7.2	m3
Max Ponding	5	5	5	5	mm
*Infiltration Rate	14	14	14	14	mm/hr (Interpolated)
Drainage Time	48	48	48	48	hr
Max LID Depth	$\frac{(infiltration\ rate) \times (drainage\ time - \frac{ponding}{infiltration\ rate})}{porosity}$				
Max LID Depth	1.9	1.9	1.9	1.9	m
<u>Dimensions</u>					
Depth**	0.3	0.3	0.3	0.3	m
Length	7.4	8.8	9.6	8.2	m
Width	1.5	1.5	1.5	1.5	m
Vol. Provided	3.3	4.0	4.32	3.7	m3
Sand Bars Provided	2	2	2	2	
***Total Volume	6.7	7.9	8.6	7.4	m3

* The hydraulic conductivity of the silty sand till/sandy silt till within the subject site, according to Section 1.0 of the Hydrogeological Assessment for Proposed Residential Development - 3 Washago Bay Lane prepared by Soil Engineers Ltd. (July 2025), is 1.18×10^{-6} m/sec which translates to an infiltration rate of approximately 14 mm/hr.

**Due to shallow groundwater levels it is recommended reported in section 7.1 of the Hydrogeological Assessment, a maximum depth of 0.30m for the sandbars will be utilized

**Equivalent volume as if two identical sand bars had been provided for each lot.

Total volume of drainage to be infiltrated from Sand Bars during a single storm event up to 15mm = **10.7 m3**