Ganaraska Region Conser	vation Authority (GRCA)
LEGEND:	DEFINITIONS:
Hazard Mapping:	<u>100 Year Flood Level</u>
\sim 100 Year Flood Level	The 100 Year Combined Flood Level considers both static lake level a storm surge, having a combined probability of being equalled or exceeded during any year of 1% (i.e., probability P =0.01). The 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD8 (+75.55 m to+75.60 m CGVD2013).
Erosion Hazard Limit	Flood Hazard Limit
Dynamic Beach Setback	The Flood Hazard Limit is defined as the 100-Year Flood Level plus a allowance for wave runup and uprush. For the exposed shoreline, way effects are calculated based on localized nearshore conditions and waves. For embayments, the standardized 15 m setback is applied. Refer to the Lake Ontario Shoreline Management Plan for additional details
Base Mapping:	details.
 Geographical Names 	Toe of BluffThe Toe of Bluff is the transition from the gently sloping beach to thesteep portion of the bank or bluff slope
 Dynamic Beach (Start Pt) 	
• Dynamic Beach (End Pt)	Stable Slope Allowance The Stable Slope Allowance is defined as a horizontal setback
A Pood Network	equivalent to 3.0 times the height of the bank or bluff.
 ✓ GRCA Administrative Boundary 	<u>Erosion Hazard Limit</u> The landward extent of the Erosion Hazard is the sum of the 100 year erosion rate plus the Stable Slope Allowance, measured horizontally from the toe of the bank or bluff.
INTERPRETATION OF THE HAZARD MAPS: The hazard maps were prepared to support the Lake Ontario Shoreline Management Plan. Wetland and riverine floodplains are not included on these hazard maps. The Dynamic Beach Setback is the onshore limit of the shaded pink polygon. The offshore limit in the lake highlights the linkages between overall beach stability and health, nearshore sediment resources, and longshore sediment transport. The hazard limit(s) are not the official regulatory limits of the Conservation Authority. Please contact the Conservation Authority for details on the regulatory limit	 The Erosion Hazard Limit is not mapped in sheltered waters, however localized shoreline/riverine erosion may occur and is subject to review by the Conservation Authority. <u>Dynamic Beach Hazard Limit</u> The Dynamic Beach Hazard Limit is defined as the sum of the Flood Hazard plus 30 metres measured horizontally. If the dynamic beach is eroding, an additional erosion allowance is included and a separate Erosion Hazard Limit is not shown. Refer to the Lake Ontario Shorel
DATA SOURCES: 2018 Orthophotography and Digital Surface Model (DSM) provided by the Ministry of Natural Resources and Forestry 2016-2017 LiDAR Digital Terrain Model obtained from the Ministry of Natural Resources and Forestry. Contains information licensed under the Open Government Licence – Ontario. Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X	Datums: Datum Conversion: Horizontal: UTM 17N NAD1983, metres. IGLD1985 - CGVD2013 = 0.42 m (average) Vertical: CGVD2013, metres To convert from IGLD85 to CGVD2013, subtra 0.42 m. Note: There are local variations along the reac within GRCA. Refer to the Lake Ontario SMP f additional details. 0 50 100 200
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PREPARED BY: <u>Zuzek inc.</u> ONE WORLD	S. J. LOGAN 100189144 MAR 31, 2020 100100189144
This map was published March 2020 for the Ganaraska Region Conservation Authority (GRCA). The mapping of hazardous lands, including erosion, flooding, and dynamic beach areas, is subject to change. The proponent of a proposed development on or adjacent to the hazardous lands should contact GRCA to discuss permit requirements.	Every reasonable effort has been made to ensure the accuracy of this map. However, neit GRCA, Zuzek Inc., SJL Engineering, or any other affiliated party assume any liability arising from its use. This map is provided without warranty of any kind, either expressed implied.
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Ganaraska Region Conser	vation Authority (GRCA)
LEGEND: <u>Hazard Mapping:</u> 100 Year Flood Level Flood Hazard Limit	DEFINITIONS:100 Year Flood LevelThe 100 Year Combined Flood Level considers both static lake level and storm surge, having a combined probability of being equalled or exceeded during any year of 1% (i.e., probability, P =0.01). The 100 Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+75.55 m to+75.60 m CGVD2013).
 Erosion Hazard Limit Dynamic Beach Setback 	<u>Flood Hazard Limit</u> The Flood Hazard Limit is defined as the 100-Year Flood Level plus an allowance for wave runup and uprush. For the exposed shoreline, wave effects are calculated based on localized nearshore conditions and waves. For embayments, the standardized 15 m setback is applied. Refer to the Lake Ontario Shoreline Management Plan for additional details.
Base Mapping: □ Geographical Names ● Dynamic Beach (Start Pt) ● Dynamic Beach (End Pt) ~ Road Network ~ GRCA Administrative Boundary INTERPRETATION OF THE HAZARD MAPS: The hazard maps were prepared to support the Lake Ontario Shoreline Management Plan. Wetland and riverine floodplains are not included on these hazard maps. The Opynamic Beach Setback is the onshore limit of the shaded pink polygon. The offshore limit in the lake highlights the linkages between overall beach stability and health, nearshore sediment resources, and longshore sediment transport. The hazard limit(s) are not the official regulatory limits of the Conservation Authority. Please contact the Conservation Authority for details on the regulatory limit and implications for any proposed work.	Toe of Bluff The Toe of Bluff is the transition from the gently sloping beach to the steep portion of the bank or bluff slope. Stable Slope Allowance The Stable Slope Allowance is defined as a horizontal setback equivalent to 3.0 times the height of the bank or bluff. Erosion Hazard Limit The landward extent of the Erosion Hazard is the sum of the 100 year erosion rate plus the Stable Slope Allowance, measured horizontally from the toe of the bank or bluff. The Erosion Hazard Limit is not mapped in sheltered waters, however, localized shoreline/riverine erosion may occur and is subject to review by the Conservation Authority. Dynamic Beach Hazard Limit The Dynamic Beach Hazard Limit is defined as the sum of the Flood Hazard plus 30 metres measured horizontally. If the dynamic beach is eroding, an additional erosion allowance is included and a separate Erosion Hazard Limit is not shown. Refer to the Lake Ontario Shoreline Management Plan report for additional details.
DATA SOURCES: 2018 Orthophotography and Digital Surface Model (DSM) provided by the Ministry of Natural Resources and Forestry 2016-2017 LiDAR Digital Terrain Model obtained from the Ministry of Natural Resources and Forestry. Contains information licensed under the Open Government Licence – Ontario. Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X Inset Map: © OpenStreetMap contributors	Datums: Datum Conversion: Horizontal: UTM 17N NAD1983, metres. IGLD1985 - CGVD2013 = 0.42 m (average) Vertical: CGVD2013, metres To convert from IGLD85 to CGVD2013, subtract 0.42 m. Note: There are local variations along the reaches within GRCA. Refer to the Lake Ontario SMP for additional details. 0 50 100 200 1 1 1 1
PREPARED BY: <u>Zuzek inc.</u> ONE WORLD	S.J.LOGAN 100189144 WAR 31, 2020 BOUNCE OF ON THE
This map was published March 2020 for the Ganaraska Region Conservation Authority (GRCA). The mapping of hazardous lands, including erosion, flooding, and dynamic beach areas, is subject to change. The proponent of a proposed development on or adjacent to the hazardous lands should contact GRCA to discuss permit requirements.	Every reasonable effort has been made to ensure the accuracy of this map. However, neither GRCA, Zuzek Inc., SJL Engineering, or any other affiliated party assume any liability arising from its use. This map is provided without warranty of any kind, either expressed or implied.
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GRCA Map 2 of 43

Ganaraska Region Conser	vation Authority (GRCA)
LEGEND:	DEFINITIONS:
Hazard Mapping:	<u>100 Year Flood Level</u> The 100 Year Combined Flood Level considers both static lake le
// 100 Year Flood Level	storm surge, having a combined probability of being equalled or exceeded during any year of 1% (i.e., probability, $P = 0.01$). The 2 Very Combined Flood Level elevation for CPCA is $+76.01$ m ICI
Flood Hazard Limit	(+75.55 m to+75.60 m CGVD2013).
Frosion Hazard Limit	Flood Hazard Limit
Dynamic Beach Setback	The Flood Hazard Limit is defined as the 100-Year Flood Level p allowance for wave runup and uprush. For the exposed shoreline effects are calculated based on localized nearshore conditions and waves. For embayments, the standardized 15 m setback is applied Refer to the Lake Ontario Shoreline Management Plan for addition details
Base Mapping:	Too of Dluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to
 Dvnamic Beach (Start Pt) 	steep portion of the bank or bluff slope.
 Dynamic Beach (End Pt) 	Stable Slope AllowanceThe Stable Slope Allowance is defined as a horizontal setback
\sim Road Network	equivalent to 3.0 times the height of the bank or bluff.
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2016-2017 LiDAR Digital Terrain Model obtained from the Ministry of Natural Resources and Forestry. Contains information licensed under the Open Government Licence – Ontario.	Note: There are local variations along the within GRCA. Refer to the Lake Ontario L additional details
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X	0 50 100 200 N
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GRCA Map 3 of 43

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Ganaraska Region Conser	vation Authority (GRCA)
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Base Mapping:	
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the
• Dynamic Beach (Start Pt)	steep portion of the bank or bluff slope.
 Dynamic Beach (End Pt) 	Stable Slope Allowance The Stable Slope Allowance is defined as a horizontal setback
\sim Road Network	equivalent to 3.0 times the height of the bank or bluff.
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ORCA Administrative Doundary	erosion rate plus the Stable Slope Allowance, measured horizontally from the toe of the bank or bluff.
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resources, and longshore sediment transport. The hazard limit(s) are not the official regulatory limits of the Conservation Authority. Please	Hazard plus 30 metres measured horizontally. If the dynamic beach i eroding, an additional erosion allowance is included and a separate
contact the Conservation Authority for details on the regulatory limit and implications for any proposed work	Erosion Hazard Limit is not shown. Refer to the Lake Ontario Shorel Management Plan report for additional details
DATA SOURCES: 2018 Orthophotography and Digital Surface Model (DSM) provided by the Ministry of Natural	Datums: Horizontal: UTM 17N NAD1983, metres.Datum Conversion: IGLD1985 - CGVD2013 = 0.42 m (average)
Resources and Forestry	Vertical: CGVD2013, metres To convert from IGLD85 to CGVD2013, subtr 0.42 m.
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Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X	
Inset Map: © OpenStreetMap contributors	$\begin{bmatrix} 0 & 50 & 100 & 200 \\ \hline & & & \\ \end{bmatrix} $
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