Ganaraska Region Conser	vation Authority (GRCA)	
LEGEND:	DEFINITIONS:	
<u>Hazard Mapping:</u>	100 Year Flood LevelThe 100 Year Combined Flood Level considers both static lake levelstorm surge, having a combined probability of being equalled orexceeded during any year of 1% (i.e., probability, P =0.01). The 10Year Combined Flood Level elevation for GRCA is +76.01 m IGLI(+75.55 m to+75.60 m CGVD2013).Flood Hazard Limit	
// 100 Year Flood Level		
Flood Hazard Limit		
Erosion Hazard Limit		
Dynamic Beach Setback	The Flood Hazard Limit is defined as the 100-Year Flood Level plu 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:		
Geographical Names	Toe of BluffThe Toe of Bluff is the transition from the gently sloping beach to tsteep portion of the bank or bluff slope.	
• Dynamic Beach (Start Pt)		
• Dynamic Beach (End Pt)	Stable Slope AllowanceThe Stable Slope Allowance is defined as a horizontal setbackequivalent to 3.0 times the height of the bank or bluff.	
✓ Road Network		
 ✓ GRCA Administrative Boundary 	Erosion Hazard Limit The landward extent of the Erosion Hazard is the sum of the 100 ye erosion rate plus the Stable Slope Allowance, measured horizontall 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 and implications for any proposed work.	 The Erosion Hazard Limit is not mapped in sheltered waters, howe localized shoreline/riverine erosion may occur and is subject to rev 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 eroding, an additional erosion allowance is included and a separate Erosion Hazard Limit is not shown. Refer to the Lake Ontario Sho Management Plan report for additional details. 	
DATA SOURCES: 2018 Orthophotography and Digital Surface Model (DSM) provided by the Ministry of Natural Resources and Forestry	Datums: Horizontal: UTM 17N NAD1983, metres. Vertical: CGVD2013, metresDatum Conversion: IGLD1985 - CGVD2013 = 0.42 m (average To convert from IGLD85 to CGVD2013, st 0.42 m.	
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 r within GRCA. Refer to the Lake Ontario SN 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	
Inset Map: © OpenStreetMap contributors	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
PREPARED BY: <u>Zuzekinc</u> . ONE WORLD	S. J. LOGAN 100189144 MAR 31, 2020 100189144	
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, GRCA, Zuzek Inc., SJL Engineering, or any other affiliated party assume any liabilit arising from its use. This map is provided without warranty of any kind, either expressinglied.	
RR 42 Orono 315 Newtonville 20 21 22	$\begin{array}{c} 10 \\ 601 \\ $	
RR2 401 19 19	Reach 7	

1 2 3 4 5 6 7 8 9 10 11

Reach 5

LAKE ONTARIO

level and 100 LD85

4863800

4863600

plus an , wave onal

o the

) year ally

wever, review

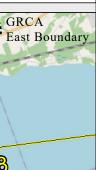
Flood each is ate Shoreline

rage) , subtract

the reaches o SMP for Ε

4863200

ver, neither bility pressed or





Mapping prepared by Zuzek Inc. for the Ganaraska Region Conservation Authority.





695400



696000



695800

696000

GRCA Map 5 of 43

GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca

	AN JIALAND MAIS
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 level and
✓ 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 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+75.55 m to+75.60 m CGVD2013).
Constant Erosion Hazard Limit	Flood Hazard Limit
Dynamic Beach Setback	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:	Toe of Bluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the steep portion of the bank or bluff slope.
• Dynamic Beach (Start Pt)	Stable Slope Allowance
• Dynamic Beach (End Pt)	The Stable Slope Allowance is defined as a horizontal setback equivalent to 3.0 times the height of the bank or bluff.
\sim Road Network	Erosion Hazard Limit
 GRCA Administrative Boundary 	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 and implications for any proposed work.	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 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	Datums: Horizontal: UTM 17N NAD1983, metres. Vertical: CGVD2013, metresDatum Conversion: IGLD1985 - CGVD2013 = 0.42 m (average) To convert from IGLD85 to CGVD2013, subtract 0.42 m.
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 reaches within GRCA. Refer to the Lake Ontario SMP for additional details.
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X	$0 \qquad 50 \qquad 100 \qquad 200 \qquad \dots \qquad N$
Inset Map: © OpenStreetMap contributors	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
PREPARED BY: Zuzek inc. ONE WORLD	S. J. LOGAN BOILESSIONAL S. J. LOGAN 100189144 HAR 31, 2020 DUMCE OF OWNER
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.
RR 12 RR 42 Orono 401 401 401	10 467 467 467 467 467 467 467 467
35 115 RR 2 401 RR 4 RR 2 401 RR 2 401 RR 2 401 RR 2 401 RR 2 401 RR 2 401	23 24 25 26 27 28 Hormanized and Cavit 23 24 25 26 27 Reach 8 Reach 7

LAKE ONTARIO

1 2 3 4 5 6 7 8 9 10 1

Reach 5

level and 100 LD85

48638

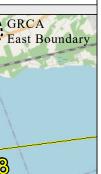
3600

486

863400

the reaches o SMP for E

ever, neither bility pressed or



000

696200

696400

Ganaraska Region Conservation Authority.





GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca

696800

697000

696600

	AN IIAZAND MAIS
Ganaraska Region Conser	vation Authority (GRCA)
LEGEND:	DEFINITIONS:
<u>Hazard Mapping:</u>	100 Year Flood LevelThe 100 Year Combined Flood Level considers both static lake level and
/// 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 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+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 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:	Toe of Bluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the steep 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
✓ Road Network	equivalent to 3.0 times the height of the bank or bluff.
GRCA Administrative Boundary	Erosion Hazard LimitThe landward extent of the Erosion Hazard is the sum of the 100 yearerosion rate plus the Stable Slope Allowance, measured horizontallyfrom 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 and implications for any proposed work.	 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 Shorelin 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	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 reached
Forestry. Contains information licensed under the Open Government Licence – Ontario.	within GRCA. Refer to the Lake Ontario SMP for additional details.
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X Inset Map: © OpenStreetMap contributors	$\begin{bmatrix} 0 & 50 & 100 & 200 \\ \vdots & \vdots & \vdots & \vdots & \vdots & m \end{bmatrix} \xrightarrow{W \longrightarrow E}_{S} E$
PREPARED BY: <u>Zuzekinc</u> . <u>ONE WORLD</u>	S. J. LOGAN 100189144 HMK 31, 2020 00100189144
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, neith 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 of implied.
RR 42 Orono 456 456 401	ID ID <thid< th=""> ID ID ID<!--</td--></thid<>
B B A A B B A A A A A A A A A A A A A	23 24 25 26 27 Reach 8 Reach 7

LAKE ONTARIO

1 2 3 4 5 6 7 8 9 10 1

Reach 5

level and 100 LD85

4863800

plus an , wave onal

Flood each is ate Shoreline

rage) , subtract

the reaches o SMP for E

4863200

ver, neither bility pressed or





000



Mapping prepared by Zuzek Inc. for the Ganaraska Region Conservation Authority.



697400



697600

GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca

697800

698000

GRCA Map 7 of 43

	AN IIALAND MAIS
Ganaraska Region Conser	vation Authority (GRCA)
LEGEND:	DEFINITIONS:
<u>Hazard Mapping:</u>	<u>100 Year Flood Level</u> The 100 Year Combined Flood Level considers both static lake level an
/// 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 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+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 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:	Toe of Bluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the steep 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
\sim Road Network	equivalent to 3.0 times the height of the bank or bluff.
GRCA Administrative Boundary	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.
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 and implications for any proposed work.	 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 Shorelin 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	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 reached
Forestry. Contains information licensed under the Open Government Licence – Ontario.	within GRCA. Refer to the Lake Ontario SMP for additional details.
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X Inset Map: © OpenStreetMap contributors	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
PREPARED BY: <u>Zuzek inc.</u> ONE WORLD	S. J. LOGAN 100189144 MAR. 31, 2020 0010000000000000000000000000000000
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.
RR 42 Orono 401 401 401 400 400 400 400 400 400 400	10 461 461 461 461 461 461 461 461
BU 1 1 20 21 22	23 24 25 26 27 sorthumberland Color Reach 8 Reach 7

LAKE ONTARIO

1 2 3 4 5 6 7 8 9 10 11

Reach 5

level and 100 LD85

4864000

plus an , wave onal

Flood each is ate Shoreline

rage) 3, subtract

the reaches o SMP for E

4863400

ver, neither bility pressed or GRCA East Bounda

4863200

Mapping prepared by Zuzek Inc. for the Ganaraska Region Conservation Authority.

698200

698200

698400

698400



MAP PUBLISHED MARCH 2020



GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca

GRCA Map 8 of 43

	AN HALAND MAIS
Ganaraska Region Conser	vation Authority (GRCA)
LEGEND:	DEFINITIONS:
<u>Hazard Mapping:</u>	100 Year Flood LevelThe 100 Year Combined Flood Level considers both static lake level an
/// 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 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+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 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:	Toe of Bluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the steep portion of the bank or bluff slope.
• Dynamic Beach (Start Pt)	Stable Slope Allowance
• Dynamic Beach (End Pt)	The Stable Slope Allowance is defined as a horizontal setback equivalent to 3.0 times the height of the bank or bluff.
\sim Road Network	Erosion Hazard Limit
GRCA Administrative Boundary	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 and implications for any proposed work.	 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 Shorelin Management Plan report for additional details.
DATA SOURCES: 2018 Orthophotography and Digital Surface Model (DSM) provided by the Ministry of Natural Resources and Forestry	Datums: Horizontal: UTM 17N NAD1983, metres. Vertical: CGVD2013, metresDatum Conversion: IGLD1985 - CGVD2013 = 0.42 m (average) To convert from IGLD85 to CGVD2013, subtract 0.42 m.
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 reached within GRCA. Refer to the Lake Ontario SMP for additional details.
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census. Statistics Canada Catalogue no. 92-500-X Inset Map: © OpenStreetMap contributors	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
PREPARED BY: <u>Zuzek inc.</u> ONE WORLD	S.J.LOGAN BOITS9144 MAR. 31, 2020 MCE 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, neithe 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 o implied.
RR 17 CR 00000 0 0000 0 000000	10 467 467 467 467 467 467 467 467
35	25 26 27 Northumberland Court
B 20 21 22 115 RR 2 401 18 19	23 Reach 7

LAKE ONTARIO

1 2 3 4 5 6 7 8 9 10 11

Reach 5

level and 100 GLD85

1200

plus an , wave onal

Flood each is ate Shoreline

rage) , subtract

the reaches o SMP for E

4863600

4863400

ver, neither bility pressed or



Mapping prepared by Zuzek Inc. for the Ganaraska Region Conservation Authority.

MAP PUBLISHED MARCH 2020



699600

699800

700000

699400

GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca

Ganaraska

GRCA Map 9 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 level and
✓ 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 100
Flood Hazard Limit	Year Combined Flood Level elevation for GRCA is +76.01 m IGLD85 (+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 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:	Toe of Bluff
Geographical Names	The Toe of Bluff is the transition from the gently sloping beach to the steep portion of the bank or bluff slope.
• Dynamic Beach (Start Pt)	Stable Slope Allowance
• Dynamic Beach (End Pt)	The Stable Slope Allowance is defined as a horizontal setback equivalent to 3.0 times the height of the bank or bluff.
✓ Road Network	Erosion Hazard Limit
 ✓ GRCA Administrative Boundary 	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 and implications for any proposed work.	 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 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. 	Datums: Horizontal: UTM 17N NAD1983, metres. Vertical: CGVD2013, metresDatum Conversion: IGLD1985 - CGVD2013 = 0.42 m (average) 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
Geographical Names obtained from Natural Resources Canada Road Network File, 2016 Census.	additional details.
Statistics Canada Catalogue no. 92-500-X Inset Map: © OpenStreetMap contributors	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
PREPARED BY: <u>Zuzek inc.</u> ONE WORLD	S.J.LOGAN 100189144 MAR 31, 2020 BOWINGE OF ON THIS
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.
RR 42 Orono 401 401 401 401	Image: State of the set of the s
B 4 2 401 Newtonville 20 21 22	23 24 25 26 27 Reach 8 Reach 7

1 2 3 4 5 6 7 8 9 10 11

Reach 5

LAKE ONTARIO

Mapping prepared by Zuzek Inc. for the Ganaraska Region Conservation Authority.



Ganaraska





700800

GRCA Main Office 2216 County Road 28 Port Hope, Ontario L1A 3V8 Phone: (905) 885-8173 Web: www.grca.on.ca