SLR Consulting (Canada) Ltd.
300 Town Centre Blvd., Suite 200, Markham, ON L3R 5Z6

August 11, 2023

Attention: Chris Lorenz
Grand River Conservation Authority
400 Clyde Road, Box 729
Cambridge, ON N1R 5W6

SLR Project No.: 209.30125.00003

RE: Proposed Conditions of Draft Plan Approval for Part of Lots 225 and 226, Concession 2 W, Dundalk, Ontario

SLR Consulting (Canada) Ltd. (SLR) is pleased to submit this memorandum on behalf of Flato Developments Inc. outlining proposed tasks and rationale to support a Scoped Environmental Impact Study (EIS), Tree Inventory and Preservation Plan (TIPP) and Draft Plan Approval for part of Lots 225 and 226, Concession 2 W in Dundalk, Ontario (the "Site"). The memorandum has been prepared to support Draft Plan approval for the Site. A condition of Draft Plan approval will be to update the current EIS with the findings of the assessments outlined in this memorandum.

1.0 Project Understanding

The Site is proposed for development into a residential subdivision and is subject to a Ministerial Zoning Order (MZO). Natural features on the site include (shown on Figure 1):

- One tributary to the Grand River (headwater drainage features [HDF]) and associated floodplain
- Unevaluated wetlands on site (MAS2, SWM1-1 and SWD3-1/MAM2-2) and immediately adjacent to the site (SWD)

SLR understands that although the southeast half of the Site falls under the jurisdiction of the Grand River Conservation Authority (GRCA) and the northwest half of the Site is under the jurisdiction of Saugeen Conservation (SVCA), the GRCA will be undertaking review of the application on behalf of the SVCA. Features within the Site that are regulated by GRCA include the previously noted natural features and two municipal drains (98- -L227C1W_A [tiled/closed] and 98- -L227C1W_B [open]). Permits under Ontario Regulations (O. Reg.) 150/06 (GRCA) and 169/06 (SVCA): Development, Interference with Wetlands and Alterations to Shorelines and Watercourses are required for any development within regulated areas.

2.0 Proposed Tasks and Rationale

The tasks and rationale presented here are intended to provide an additional degree of confidence in the studies undertaken to date to support the proposed Draft Plan of Subdivision and ensure that applicable policies are applied and respected but are also informed through the analysis of collected data and the application of sound environmental planning principles.

2.1 Wetland Buffer Reduction

GRCA policy 8.4.9 indicates that development within an area of interference of less than or equal to 30 meters from a wetland may be permitted in accordance with the policies in section 7.1.2-7.1.3 – General Policies, and where an EIS demonstrates that:

a) there are no negative or adverse hydrological or ecological impacts on the wetland,

b) all development is located outside of the wetland and maintains as much setback as feasible,

c) development is located above the water table, except as specified in Section 8.4.11, and

d) septic systems are located a minimum of 15 metres (50 feet) from the wetland and 0.9 metres (3 feet) above the annual maximum water table.

Field studies indicate that hydrologic conditions on the Site are influenced by tile drainage and that cultivation of the agricultural lands has been occurring up to within a few meters of the wetland boundaries. to SLR has proposed additional studies (see attached ToR dated May 23, 2023) to address GRCA comments regarding wetland significance and sensitivity provided on the first submission of the EIS, as a condition of Draft Plan Approval.

According to GRCA policies, development within an area less than or equal to 30 m from a wetland can occur provided that an EIS is prepared that demonstrates no negative or adverse impacts to the wetland. Our experience with other development projects associated with wetlands in the Dundalk area has assisted in the rationalization and application of sufficient, reduced buffers through the analysis of site-specific data (see attached SLR memorandum to GRCA dated May 23, 2019). Pre and post water balance details are being reassessed as part of these investigations.

We are confident that a reduced proposed buffer can effectively be applied to wetlands associated with the Site based on similar technical observations as those identified in the 2019 memorandum, specifically:

1. Water level control in wetlands
2. Effects of tile drain – draw down of the high water table during the growing season, but has minimal overall effect on a wetland
3. Present surface water drainage pattern
4. The difference in runoff and infiltration between a 15m and a 30m buffer is typically negligible within natural variation
5. Groundwater will be maintained through matching pre to post infiltration rates

The key factors controlling the width of the buffer include:

- Digger Crayfish habitat (5 m);
- Water quality control (10 – 15 m); and
- Increased human disturbance (noise, light, vibration)

The Draft Plan of Subdivision has been amended to provide a reduced proposed buffer adjacent to the wetland (Figure 2).

With respect to the buffer the EIS (SLR 2023) recommends:

- Permanent post and page wire or chain-link fence is recommended along the limits of proposed buffers. This fencing should be sturdy beyond the typical rebar and sediment

fabric fence. Prior to the commencement of construction, the limits of protection areas (buffers) are to be delineated and fenced to avoid inadvertent intrusion of machinery or other activities such as stockpiling of materials. Temporary sediment control fencing can be attached to the fencing and must be maintained and remain in place until final grading and landscaping has been completed.

- Restoration of the buffer is proposed. A restoration landscape plan is to be prepared under separate cover. Native Milkweed (*Asclepias* sp.) should be incorporated into any buffer planting seed mix and where possible other natural areas on the property. The proposed restoration plan should also include construction areas not being developed by structures or hardscaped (i.e., servicing infrastructure).
- All outdoor lighting (including any new street lighting and external lighting on buildings) should have cut-off optics and be directed towards the ground and away from the natural areas.

Further details pertaining to hydrologic conditions on site will be determined following the proposed additional studies (attached ToR dated May 23, 2023) and data will be used to update the EIS as a condition of Draft Plan Approval.

2.2 East Wetland Sensitivity Assessment

The proposed future road right-of-way on the east side of the Site will bisect the wetland to fulfill the Town requirement for road access out to Highway 10. Selection of a preferred alignment will occur via an assessment of alternatives that considers planning, engineering, and environmental factors as well as relevant policies, including GRCA policies 8.4.6 and 8.4.7.

We propose to present the assessment in a tabular format for ease of comparison and suggest the following as a template:

Table 1: Alternatives Assessment Example Template

Road Alignment Option	Features and Area of Impact	Benefits	Openness Ratio and Wildlife Passage	Negatives/Impacts	Level of Impact to be Mitigated	Preferred Option
"1" or "A"	Discussion of feature (wetland) and calculation of impacted area	Benefits of the proposed alignment option (planning and environmental perspectives)	Details regarding crossing/culvert size	Details on the potential impacts of the proposed alignment	"Low," "medium," "high"	"Yes" or "No"

With respect to GRCA policies 8.4.6 and 8.4.7 it is anticipated that assessment will demonstrate that alternatives have been considered, minimize wetland loss or interference, and that features and functions will be adequately restored or enhanced. The alternatives assessment will be supported by an updated EIS that outlines an appropriate wetland boundary and discuss how the hydrologic and ecological functions will be restored and enhanced. It is intended that this updated EIS will be a condition of Draft Plan Approval.

2.3 North Wetland Sensitivity Assessment

As discussed in section 2.1, additional studies have been proposed to address GRCA concerns regarding the significance and sensitivity of the north wetland feature that is proposed to receive additional stormwater inputs. The proposed studies as outlined in the attached ToR (SLR May 23, 2023) seek to further characterize and better understand the existing site conditions of the wetland and hydrologic regimes to determine the level of change that can be sustained without negatively impacting the ecological function. This is to be achieved through assessment of the current ecological conditions, the potential changes to ecology and hydrology from the proposed development, monitoring of the hydroperiod and hydrologic regime, comparison of modeled pre to post development conditions, and an assessment of outlet options for stormwater management facilities (SWMF) and propose mitigation for any anticipated impacts to receiving wetlands.

The preliminary monitoring results of water levels in the wetland north of the Site range from 0.57 m above ground surface to 1.20 m below ground surface (mbgs). The attached Figure 1 presents all monitoring locations associated with the Site. Image 1 below displays a plot of the preliminary monitoring results**.**

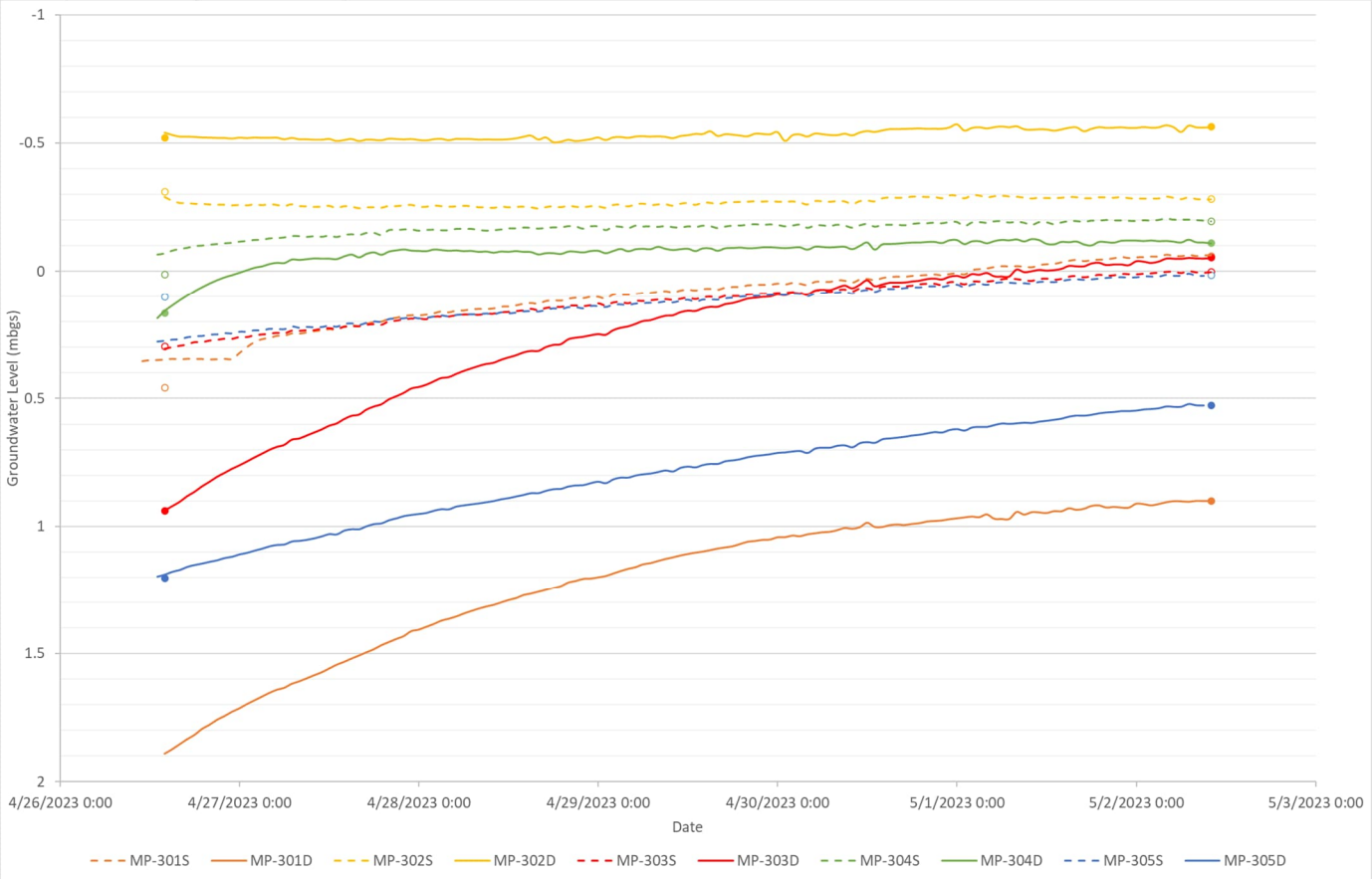

Image 1: Hydrograph - North Wetland Monitoring Piezometers

3.0 Recommended Conditions of Draft Plan Approval

Based on the attached ToR and the current EIS and Draft Plan application, SLR is of the opinion that the following can be made conditions of Draft Plan Approval and that redline revisions can be made if needed to ensure that environmental impacts are adequately mitigated.

1. An updated EIS is to be provided following 1 year of water level monitoring in the north adjacent wetland and an updated water balance has been completed. An assessment of impacts to the natural features with acceptable mitigation will also be required for the updated EIS.
2. An assessment of road right-of-way alternatives to ensure the least impactful route is chosen for the Town's required access to Highway 10 from the Site will be included in the updated EIS.

Closure

We trust this memorandum meets your expectations regarding concerns raised pertaining to the proposed Draft Plan of Subdivision. Should you have any further questions or concerns, please do not hesitate to contact us.

Regards,

SLR Consulting (Canada) Ltd.

Matthew Ross, B.Sc.
Terrestrial Ecologist
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Kim Logan, B.Sc., P.Biol., P.Geo. (Limited)
Senior Ecologist
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Attachments Figure 1: Wetland Monitoring Locations; Figure 2: Development Limit and Site Plan; Evidence Based Buffer Discussion (SLR memorandum May 23, 2019); Terms of Reference for Additional Studies (SLR, May 23, 2023)

547220 547720 548220

4891532

MW22-311
MW22-310
MP3
MW22-313 S/D
WTL2
MP-304
WTL3
MP-305
MW22-312
Saugeen River Watershed
Upper Grand River Watershed
MW22-314
MW22-315 D
MW22-316
Todd Cres
Pine Crt
Bradley St
Highpoint St
Grey St E
Osprey St N
Artemesia St N
Doyle St

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

N

LEGEND

- SITE BOUNDARY
- WETLAND MONITORING LOCATION
- WETLANDS
- PERMANENT WATERCOURSE
- DRAINAGE DIVIDE

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 25 50 100 150 m

SCALE 1:3,500
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY
AND SHOULD NOT BE USED FOR NAVIGATION

MHBC PLANNING, URBAN DESIGN & LANDSCAPE ARCHITECTURE
GLENELG PHASE 3
DUNDALK, ONTARIO, CANADA

WETLANDS AND MONITORING LOCATIONS

SLR

FIGURE NO:
1

DATE: August 4, 2023

PROJECT NO: 209.V30125.00003

547220 547720 548220

4891532

N

29.5m 20.3m 14.0m 41.7m 6.0m 12.4m 10.4m 24.8m 26.0m 38.1m 32.8m 13.8m 15.9m 10.8m 14.6m 9.6m 10.4m

Saugeen Valley Conservation Authority

Grand River Conservation Authority

Pine Crt Pine Crt Bradley St Highpoint St Todd Cres Grey St E Osprey St N Artemesia St N Doyle St

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

547220 547720 548220

4891532

LEGEND

- SITE BOUNDARY
- SITE PLAN (MHBC, AUGUST 14, 2023)
- DEVELOPMENT LIMIT
- PROPOSED BUFFER AREA
- BUFFER GAINED
- BUFFER REMOVAL
- CONSERVATION AUTHORITY ADMIN AREA
- SURVEYED WETLAND LIMIT (2023)
- WETLAND LIMIT BUFFER (15M)
- WATERBODIES
- PERMANENT WATERCOURSE

	Area (m2)
Wetland Buffer Area	8086
Proposed Buffer Area	9047
Buffer Gained	1879
Buffer Removal	918

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 25 50 100 150 m

SCALE 1:3,500
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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MHBC PLANNING, URBAN DESIGN & LANDSCAPE ARCHITECTURE
GLENELG PHASE 3
DUNDALK, ONTARIO, CANADA

DEVELOPMENT LIMIT AND SITE PLAN

SLR

FIGURE NO: **2**

DATE: August 15, 2023 PROJECT NO: 209.V30125.00003

SLR Consulting (Canada) Ltd.
300 Town Centre Blvd., Suite 200
Markham, ON L3R 5Z6

Tel: 905-415-7248
Fax: 905-415-1019

Memorandum

To:	Ryan Hamelin	**From:**	Dale Leadbeater, Gordon Wichert
Company:	Grand River Conservation		
cc:		**Date:**	23 May 2019
Subject:	**EVIDENCE-BASED BUFFER DISCUSSION**		

This memo has been prepared in response to the request from GRCA for a summary of the meeting discussion, and clarification of the expected outcomes for the buffer adjacent to the wetland on the lands affected by Subdivision Application 42T-2018-12, Part of Lots 225, 226, 227 and 228, Dundalk. Those attending included Ryan Hamelin, Dale Leadbeater, Gordon Wichert, Brandon Powers (Crozier Engineering) and Kory Chisholm (MBHC). This memo was revised to reflect a small change to the buffer at Block 137 as shown in the attached figure.

The averaged buffer was developed based on the following technical observations by the study team:

- Water levels in the wetland are controlled by surface water that decants to the north as controlled by the existing topography;
- Groundwater levels are high, but there is little groundwater flow due to the fine texture of the soil;
- Tile drains function to draw down the high water table during the growing season, but have no effect on groundwater levels in the wetland, nor on potential flooding;
- Surface water in storm events may deliver a large volume of water associated with potential flooding, but this can be controlled through good design;
- Digger Crayfish occur within 5 metres of the staked wetland and suitable habitat occurs in meadow marsh, thicket swamp and deciduous swamp; they do not require an upland refuge;
- Most surface water runoff from the agricultural fields currently flows toward Glenelg Street; only a portion flows toward the wetland (see slides attached);
- The difference in runoff between a 15m and a 30m buffer is ~3.6% in a dry year which is within natural variation and will not affect groundwater levels;
- Groundwater will be maintained through matching pre to post infiltration. The hydrogeology opinion letter has been provided to GRCA under separate cover (SLR 3 Oct. 2018), and will be updated when additional data are available.

The key factors controlling the width of the buffer include:

- Digger Crayfish habitat (5 m);
- Water quality control (10 – 15 m); and
- Increased human disturbance (noise, light, vibration).

The Draft Plan of Subdivision has been amended to provide a buffer adjacent to the wetland that varies between 26 m behind Lot 6 to 13.9 m behind Lot 22. A 10m buffer has been provided adjacent to the neighbouring residence and woodland.

Permitted uses within the buffer are limited to ecological restoration. It is the intention of the stormwater management design to meet existing grades at the boundary between the buffer and the rear yards to maintain habitat opportunities for Digger Crayfish specifically, and other wetland associated wildlife generally. No trail is anticipated within the buffer and Block 134 Walkway will be removed from the Draft Plan.

In addition, with respect to the buffer the Environmental Impact Study (SLR 2018) recommends:

- Prior to the commencement of construction, the limit of the buffer is to be delineated and fenced with a permanent post and page wire or chain-link fence to avoid inadvertent intrusion of machinery or other activities such as stockpiling of materials. Temporary sediment control fencing can be attached to the fencing and must be maintained and remain in place until final grading and landscaping has been completed;

- Ecological restoration of the buffer is proposed to create a maintenance free area for pollinators, bird species that favour woodland/swamp edge, Digger Crayfish and in wet years, amphibians including Western Chorus Frog. This is to be seeded with a native species meadow mix (suitable for this growing region and soils). Native Milkweed (*Asclepias* sp.) should be incorporated into the buffer planting seed mix and where possible other natural areas on the property;
- All outdoor lighting (including any new street lighting and external lighting on buildings) should be directed towards the ground with cut-off optics and away from the natural areas.

In order to maintain groundwater levels in the wetland the hydrogeology report recommends:

- Pre-development groundwater recharge must be maintained to protect the wetland and to prevent adverse effects on the bedrock aquifer.
- Deflection of clean rooftop water to yards and open areas be included in the site design to maintain groundwater recharge
- A detailed water balance be undertaken to inform the location and extent of this mitigation measure (and to confirm no other measures are necessary).

In conclusion, based on the identified functions and applicable mitigation measures, we suggest that the buffer as illustrated on the accompanying figure provides the necessary protection to the natural heritage features at this location.

LEGEND

0 25 50 100 Meters

SCALE: 1:1,750
WHEN PLOTTED CORRECTLY AT 11 x 17
NAD 1983 UTM Zone 17N

NOTES

This map is for conceptual purposes only and should not be used for navigational purposes.

Basedata: Digiglobe, (Oct 22, 2014)

FLATO DEVELOPMENT INC.

GLENELG DEVELOPMENT

DRAFT PLAN OVERLAY

May 23, 2019	Rev **0.0**	Figure No. **3**
Project No. 209.40385.00000		

SLR global environmental solutions

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SLR Consulting (Canada) Ltd.
300 Town Centre Boulevard, Suite 200, Markham, ON L3R 5Z6

May 23, 2023

Chris Lorenz, Resource Planner
Grand River Conservation Authority
400 Clyde Road, Box 729
Cambridge, ON N1R 5W6

Michael Oberle, Environmental Planning Coordinator
Saugeen Conservation
261123 Grey Road 28 RR1
Hanover, ON N4N 3B8

SLR Project No.: 209.30125.00003

RE: Terms of Reference – Additional Studies: Scoped Environmental Impact Study Lots 223, 224, 225, and 226, Concessions 1 and 2 W, Dundalk, Ontario

SLR Consulting (Canada) Ltd. (SLR) is pleased to submit this Terms of Reference (ToR) in collaboration with Geomorphix on behalf of Flato Developments Inc. outlining the tasks required to complete additional studies required to support a Scoped Environmental Impact Study (EIS) and Tree Inventory and Preservation Plan (TIPP) for Lots 223, 224, 225, and 226, Concessions 1 and 2 W in Dundalk, Ontario (Site). The southeast half of the Site falls under the jurisdiction of the Grand River Conservation Authority (GRCA) and the northwest half of the Site is under the jurisdiction of Saugeen Conservation (SVCA). This ToR is considered a draft until approved by the applicable agencies.

Project Understanding

It is understood that the Site is proposed for development into a residential subdivision and is subject to a Ministerial Zoning Order (MZO). Natural features on the site include:

- Three tributaries to the Grand River (headwater drainage features [HDF]) and their associated floodplains
- Three unevaluated wetlands on site (MAS2, SWM1-1 and SWD3-1/MAM2-2, Figure 1) and one immediately adjacent to the site (SWD, Figure 1)

Most of the Site is within GRCA or SVCA regulated lands. Features within the Site that are regulated by GRCA include unevaluated wetlands, a watercourse of unknown thermal regime, and an estimated associated floodplain. GRCA also identified the presence of two municipal drains (98- -L227C1W_A [tiled/closed] and 98- -L227C1W_B [open]). Permits under *Ontario Regulations (O. Reg.) 150/06 (GRCA) and 169/06 (SVCA): Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* are required for any development within regulated areas.

The GRCA (2015) *Policies for the Administration of O. Reg. 150/06* and SVCA (2017) *Environmental Planning and Regulations Policies Manual* state that any development within 30 m of unevaluated or locally significant wetlands (also known as the area of interference) requires permission from the appropriate conservation authority. Setback distances for development near regulated areas surrounding HDF typically require in-field

assessment to determine riverine flooding and erosion hazard allowances and valley slopes or meander belt allowance. Staking of the unevaluated wetlands is also typically required.

Objectives for Additional Studies

The additional studies are proposed to further characterize the existing site conditions with respect to the subject wetlands and their hydrologic regimes.

Terms of Reference

This ToR has been prepared to frame the study requirements for review by the Township of Southgate, Grey County, SVCA, and GRCA. The ToR was prepared in the context of the following:

- *Provincial Policy Statement, 2020*
- Federal *Fisheries Act, 2019*
- *Migratory Birds Convention Act, 1994*
- *Endangered Species Act, 2007*
- Federal *Species at Risk Act, 2002*
- *Greenbelt Plan, 2017*
- *O. Regs. 150/06 and 169/06*
- GRCA Planning and Permitting Policies, including GRCA (2015) *Policies for the Administration of O. Reg. 150/06*
- SVCA (2017) *Environmental Planning and Regulations Policies Manual*
- Township of Southgate and Grey County Official Plans
- GRCA (2005) *Environmental Impact Study Guidelines and Submission Standards for Wetlands*
- *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (Toronto and Region Conservation Authority and Credit Valley Conservation, 2014
- Preliminary site-wide water balance calculations completed by Crozier Consulting Engineers
- Comments on the first submission of the EIS (September 2022) received from the GRCA dated November 25, 2022 and from Triton Engineering dated December 13, 2022.

Specifically, the tasks to be included within the ToR are:

1. Characterize existing conditions
2. Description of the proposed development and potential changes to the hydrology and ecology of the subject wetlands that may result from the proposed development
3. Assess wetland sensitivity to potential changes
4. Alternatives assessment for proposed east-west arterial road alignment
5. Monitor the hydroperiod and hydrologic regime of the subject wetlands
6. Comparison of modeled post to pre hydrologic conditions based on site-wide water balance calculations
7. Provide input to aid in refinement of the site-wide water balance already prepared by Crozier to try and ensure that there is a site-wide balance for pre- to post conditions (a feature based water balance is not proposed)
8. Assessment of outlet options for stormwater facilities and suggest means of mitigating any anticipated impacts to the subject wetlands

Closure

Please confirm that these Terms of Reference for a Scoped EIS meet the intent of the information and study requirements for the subject property as referenced above. If you have any further questions or comments, we look forward to discussing them with you at your earliest convenience.

Yours sincerely,

SLR Consulting (Canada) Ltd.

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LEGEND

- SITE BOUNDARY
- ECOLOGICAL LAND CLASSIFICATION (SLR CONSULTING, 2022)
- WATERBODIES
- PERMANENT WATERCOURSE
- RAILWAY

ELC Code	ELC Description
Ag	Agriculture
CUM1-1	Cultural Meadow
FOD5-2	Dry-Fresh Sugar Maple-Beech Deciduous Forest
HR	Hedgerow
MAM2-2/SWT2-	Reed Canary Grass Mineral Meadow Marsh with Willow Thicket Swamp inclusion
MAS2	Mineral Shallow Marsh Ecosite
MAS2/SWC1-1	Mineral Shallow Marsh with White Cedar Coniferous Swamp inclusion
SWC1-1	White Cedar Mineral Coniferous Swamp
SWD	Mineral Deciduous Swamp
SWD3-1/MAM2-2	Red Maple Mineral Deciduous Swamp with Reed Canary Grass Mineral Meadow Marsh inclusion
SWM1-1	White Cedar - Hardwood Mineral Mixed Swamp
SWT2-2	Willow Mineral Thicket Swamp

NOTES:
BASEDATA:
ONTARIO MINISTRY OF NATURAL RESOURCES, LAND INFORMATION ONTARIO (LIO)

0 25 50 100 150 m

SCALE 1:3,500
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N

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MHBC PLANNING, URBAN DESIGN & LANDSCAPE ARCHITECTURE
GLENELG PHASE 3
DUNDALK, ONTARIO, CANADA

ENVIRONMENTAL IMPACT STUDY

ECOLOGICAL LAND CLASSIFICATION

SLR

FIGURE NO: 1

DATE: May 10, 2023

PROJECT NO: 209.V30125.00003