

APPENDIX I: TRCA COMMENTS ON Draft Plan of Subdivision SP-2018-12 FSSR (TRCA File # CFN 41742).

To assist TRCA staff with a timely review, please ensure the applicant includes a cover letter with the next submission that describes how the comments have been addressed.

The following drawings and information received on January 11, 2022 were reviewed in support of the application:

- Lebovic Whitevale North Subdivision (Phase 1 - SWMF 23 and SWMF 24) FSSR, prepared by GEI Consultants, dated January 7, 2022.

First Submission		Second Submission	
TRCA Comments	Proponent Response ¹	TRCA Comments	Proponent Response ¹
Water Resources Comments			
<p>1. It appears that the area north of Whitevale Road that was to drain to SWMF 40 and ultimately to reach GB7 in the MESPA is now being directed to SWMF 23/24 which drains to reach G11. Please revise catchment areas so that they follow the Seaton MESPA catchments for SWMFs as the MESPA, Drawing B5.4, studied the water balance and flow to watercourses based on these SWMF locations, and diverting large areas from one SWMF to another may have adverse impacts to water balance and flow to watercourses. Please revise calculations and design accordingly.</p>	<p>Comment addressed via a technical memo prepared by GEI Consultants, and accepted in concept by the City (as per email correspondence from Irina Marouchko dated August 18th, 2021- included as an attachment to the response matrix). A dual system analysis for Alexander Knox Road design has been provided in the SWM report prepared for Alexander Knox Road. Please note that dual drainage modelling for major flow capture points within the subdivision will be completed during the detailed design stage of the Whitevale North Phase 1 subdivision.</p>	<p>Comment partially addressed. Please note that the stormwater management facilities and low impact development measures proposed on the project site should take into account the water balance for the natural heritage features including, but not limited to, wetlands and woodlots that are entirely fed via overland flow and surface runoff. As such, please revise the supporting memorandum to include the wetlands, watercourses, woodlots and all other natural heritage features to understand how the overland flow and volume (surface water, and overland flow runoff and volume), and infiltration (groundwater flow and volume) are to be matched for these areas with the proposed stormwater management strategy. This supporting memorandum should be inclusive of the water balance for natural features under proposed conditions. Please note that some natural features may be adjacent to a watercourse, but the shape and size is such that they are not linear natural features and may be overland flow fed via surface runoff, as such, all the various components under existing conditions should be detailed at this stage, and proposed conditions stormwater management measures should match the existing condition hydroperiod and water balance for all</p>	<p>RJ Burnside's ecology team has identified existing natural features abutting the subject site. These features primarily include Reaches G11-1, G 11-3 and Wetland G5.</p> <p>Conceptual calculations determining the volumes to discharge in the post development conditions (A X C) calcs to the identified natural features are provided in the Function Servicing and Stormwater Management Report.</p> <p>Grading of the proposed park area and clean-water collector system are designed to direct 25mm flows to Reaches G11-1 and G13. A 150mm pipe set at the NWL at SWMF 24 will supplement flows directly to Wetland G5. Details are included in Section 7 of the report. FBWB calculations are included in Appendix C-4.</p> <p>According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to confirm that the proposed approach is sufficient to support the ecological functions of the features.</p>

¹ Response to TRCA Comments must include what revisions were made and reference where in the document or which drawings were adjusted.

		natural features within the subject area.	
2. Please use the 2012 DCHU hydrology design storms for rainfall input and update designs and calculations accordingly.	Noted and applied.	Comment partially addressed. Please add the reference for the 2012 DCHU hydrology design storm input files within the report and ensure that the designs/calculations reflect this.	Reference for the 2012 DCHU hydrology design storm has been added in the Report and is reflected in the modelling.
3. The erosion peak flow of 0.6L/s/ha should be based on pre-development drainage area. Please revise calculations and designs accordingly.	Addressed. The erosion peak flow of 0.6L/s/ha has been utilized and the revised calculations have been provided in the updated FSSR included in the submission package.	Comment partially addressed. Please add the pre-development catchment area to Table 6.5 and include the figure reference within this table for the pre-development catchment areas to confirm that the erosion peak flow is based on 0.6L/s/ha as per the pre-development catchment area for SWMF 23, 24 and Burkholder drive.	Pre-development areas are added to Table 6.5 and the erosion peak flow for SWMF 24 meets the 0.6L/s/ha criteria. Erosion control is not applicable for SWMF 23 and the SWM design of Burkholder SWM facility will be further refined during the design of Burkholder Drive North submission package.
4. It appears that the tables provided in Section 6 of the report do not exactly match the stage storage discharge rating curves provided in the appendices; but appear to match the output from the VO model. Please note that iteration of the rating curves in the appendices is required to match the output of the VO model, and this should be input into the summary tables, so that all values from the rating curve, VO model and tables match. Also, the VO model rating curve should include the 2-year to 100-year design storm values outflow and storage values. Please revise the model, rating curves and tables, and designs accordingly.	SWMP rating curves have been updated according to the SSD calculations.	Please clarify how stacked storage is provided for SWMF 23, SWMF 24 and Burkholder Drive within the stage storage discharge curves provided in Appendix C-0. In addition, SWMF 23 appeared to be only for major flows; however, the stage storage discharge curve includes extended detention and minor design storms, please clarify.	Extended detention is provided for SWMF 24, while quantity storage for the 2- to 100-year storage is stacked above the extended detention level. Extended detention has been removed for SWMF 23 however, there is still a small amount of minor drainage from Burkholder Drive that is conveyed to SWMF 23. The SWM design of Burkholder SWM facility will be further refined during the design of Burkholder Drive North submission package, carried out under a separate project number.
5. The submission for Burkholder Drive should address the outstanding TRCA comments on the EA.	No TRCA comments on the EA were found on record. It is requested to forward a copy of the EA comments to our attention in order for our review and consideration during detailed design stage.	This comment is deferred to detailed design.	Acknowledged. No action item.
6. For Burkholder Drive, please provide 120 hour duration as required per Seaton MESPA.	The draw-done time for the Burkholder has been maximized using the minimum 75mm orifice plate. The 120-hr draw-down time is not feasible in this case.	Please explore opportunities for greater on-site retention (10mm if feasible) of runoff volumes from Burkholder Drive to mitigation erosion downstream as the 120hr drawdown time is not feasible at this location.	Burkholder Drive swale not part of the subdivision works, and shall be addressed under a separate cover (GEI Proj # 2205577)
7. Please revise the rating curve for Burkholder Drive so that it includes the	Noted and revised accordingly.	Comment addressed.	Acknowledged. No action item.

2-year to 100-year design storms and revise the VO model and design accordingly.			
8. Please provide a digital copy of the Visual Ottymo (VO) model for review. Please provide supporting calculations and additional clarification for SWMF dual hydrographs used in the VO model. Please also provide Peter Matthews Drive and SWMF 14 supporting VO files.	Peter Matthews major flows were accounted for in SWMF 14 design, and model output for SWMF 14 (from Mid-lot East design) is included in Appendix C-1.	Comment addressed.	Acknowledged. No action item.
9. For SWMFs 23 and 24, and the Burkholder Drive swale, please provide 0.3m freeboard above the 100-year elevation, and then provide the emergency spillway with minimum 0.3m depth. Please revise design and calculations accordingly.	Noted and confirmed that a minimum 0.3 m free board was provided for all the SWMFs.	Comment partially addressed. Please provide supporting calculations for the emergency spillway design. This comment is deferred to detailed design.	Burkholder Drive swale not part of the subdivision works, and shall be addressed under a separate cover (GEI Proj # 2205577)
10. Please ensure that the location of SWMF 24 outfall is supported by a fluvial geomorphologist and meets TRCA's criteria for new outfalls provided in Appendix E.2 of the TRCA Stormwater Management Criteria.	The required geomorphologic investigation will be provided in the detailed design stage as the SWM pond outlet size and discharge rates are finalized.	This comment is deferred to detailed design. The outfall location for SWMF 24 should take into the natural features that also need to be fed via the stormwater management strategy for the site.	Comment deferred to detailed design. The proposed SWM strategy has been designed such that the abutting natural features are fed. The outfall channel will be coordinated and designed with the help of a fluvial geomorphologist.
11. The TIMP and XIMP values used in the Post-Development Conditions do not exactly match the City of Pickering guidelines; however, supporting information for the TIMP and XIMP values is provided. This comment is deferred to City of Pickering.	Noted and the TIMP and XIMP were revised as per the City standard.	No further comment.	Acknowledged. No action item.
12. As this is the functional servicing stage, please note that details on SWMF control manholes and other such SWMF details are deferred to detailed design.	Noted.	Comment deferred to detailed design.	Acknowledged. No action item.
<i>5mm On-Site Retention</i>			
13. Please provide supporting calculations and discussion in the report to confirm that the 5mm retention (above the initial abstraction for impervious areas) is met as per Seaton MESPA requirements.	The details LID measures will be provided in the next design stage as the HydroG investigation, including in-situ tests are completed.	Comment not addressed. Please provide this for review so that the LID design can be informed and updated accordingly.	Functional LID design has been completed and details are provided in section 5.2.1 of the report and Appendix C-3.
14. All three proposed LIDs designed for 5mm appear to be within groundwater, as such please revise the location of these LIDs such that there is minimum	The details LID measures will be provided in the next design stage as the HydroG investigation, including in-situ tests are	Comment not addressed. Please provide this for review so that the LID design can be informed and updated accordingly. Please also note that	LID design has been revised and details are provided in Section 5.2.1 of the report. Please note that the SWMF 23 is a dry pond, and LID feature within this dry pond is supported by the City.

<p>1m separation from the seasonally high groundwater table.</p>	<p>completed.</p>	<p>LIDs within SWMF 23 are not supported as they should capture the first 5mm on rainfall above the initial abstraction from all impervious areas in order to be effective and provide the necessary erosion control for watercourses. Please revise the design to ensure that LIDs are not within stormwater management facilities, and dispersed throughout the site, and all natural features are fed accordingly via the stormwater management approach including but not limited to LIDs.</p>	
<p>15. Please provide in-situ testing as per Appendix C.2 of the TRCA SWM Criteria (2012) and groundwater levels below LID locations at this stage in the next submission, in order to determine the location and conceptual footprints of the LIDs with 24-48hour drawdown time.</p>	<p>The details LID measures will be provided in the next design stage as the HydroG investigation, including in-situ tests are completed.</p>	<p>Comment not addressed. Please provide this for review so that the conceptual LID design can be informed and updated accordingly.</p>	<p>Groundwater levels and estimated hydraulic conductivity rates as per the supplemental HydroG report were used to size the LID infiltration gallery.</p>
<p><i>Water Balance for Natural Features</i></p>			
<p>16. The report mentions a third pipe system, but no further information appears to have been provided. It is unclear how the stormwater management strategy ensures that water balance requirements are met for the various natural features (Wetland G5, Woodland FC20 and Head Water Feature HDFC26 on G11-1, G11-2). The MESPA provided an estimate of roof areas that would drain to dry swales or bioswales within the features buffer and ultimately feed these features. Please discuss the hydroperiod of these features and refine the areas and mitigation plan to maintain water balance to wetlands and natural features in accordance with Appendix D of the <u>TRCA SWM Criteria (2012)</u>. Please ensure that a contingency is applied to the mitigation plan, so that adjustments can be made during post-development monitoring. The mitigation plan needs to be integrated with the stormwater management strategy for the development site. Please also discuss the interim mitigation plan; this should be based on duration of construction, and</p>	<p>The feature-based WB calculations will be provided in the next design stage as the HydroG investigation is available</p>	<p>Comment not addressed. Please provide this for review so that the stormwater management, LID design including water balance for natural features can be informed and updated accordingly.</p>	<p>Conceptual feature-based water balance design for the identified natural features was completed and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4.</p> <p>RJ Burnside's Response: According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to confirm that the proposed approach is sufficient to support the ecological functions of the features.</p>

interim conditions. Please provide all supporting analysis for review.			
<i>Continuous Erosion Threshold Analysis</i>			
17. Please discuss continuous erosion threshold analysis requirements for this site. It appears that the MESPA provided some erosion threshold analysis for existing conditions, but not for proposed conditions. Please provide continuous erosion threshold analysis for the post-development conditions to assess long term erosion impacts on the downstream receiving watercourse due to the minor design storms and their runoff volumes and inform mitigation measures.	Erosion Threshold Analysis will be provided in the next design stage as the detailed SWM drainage scheme and SWM pond design are available	Comment not addressed. Please provide this for review so that the stormwater management design and mitigation measures can be informed and updated accordingly.	Please note that given the Erosion Threshold Analysis will be sensitive to the pond staged storage rating curve, completing this analysis during the FSSR stage might be premature, and will be subject to multiple revisions. As such, it is proposed that the Erosion Threshold Analysis be updated during the detailed design stage. The Erosion Threshold Analysis completed in the previous stages (MESPA) will be followed in this submission.
<i>Crossings</i>			
18. The review for Crossing i81 is being completed as part of the Alexander Knox Road Assignment 7B review. For all other crossings, please provide the following information for review:	Provided in the Hydraulic Analysis Report for Alexander Knox Road Design. Note Crossing 12B on Burkholder Drive will be separated from the subdivision design during detailed design. The information requested below will be the subject of a subsequent report in support of a standalone Burkholder Drive detailed design package, submitted by GEI on behalf of NPCMI. No other crossings exist within this development.	Noted. Comments are being provided separately under Alexander Knox Road Assignment 7B review. And it is noted that Crossing 12B on Burkholder Drive is also separate from this subdivision as per proponent's response, and there are no crossings within this development. As such, please exclude from this submission any information pertaining to crossings, as the comments for all crossings including Crossing i81, 12B and i26 are, again, being reviewed under separate submissions as per the proponent's response and the subject area limit.	Acknowledged. No action item.
a. Please also provide a digital copy of the HEC-RAS model for review in order to confirm the hydraulic analysis and corresponding culvert design drawings.	Same as above	Please see response to Comment no.18 above.	Acknowledged. No action item.
b. We are not able to locate the crossing checklist. Please provide the crossing checklist in order to confirm the design and drawings. Please also ensure that supporting information for the crossing checklist is provided as part of the submission (for	Same as above	Please see response to Comment no.18 above.	Acknowledged. No action item.

example, studies that inform the crossing checklist).			
c. Please provide supporting calculations for the ineffective flow areas.	Same as above	Please see response to Comment no.18 above.	Acknowledged. No action item.
d. Please provide a comparison of existing and proposed floodplain elevations for all design storms (2-year to 100-year, and Regional), the right bank, left bank and channel velocities in table format, and on two separate drawing (one for existing and one for proposed conditions).	Same as above	Please see response to Comment no.18 above.	Acknowledged. No action item.
19. The crossings need to be reconfirmed through field surveys. Please ensure that the latest TRCA HEC-RAS model is being used. Please update the model using field survey for the stream geometry in the upstream and downstream vicinity of the crossings. Also, it is noted in the report that adjacent floodplains have been updated in AutoCAD Civil 3D using the latest topographic survey. Please clarify the reference for this source. Please include this information in Section 7.0 of the report.	Same as above	Noted. Comments are being provided separately under Alexander Knox Road Assignment 7B review. And it is noted that Crossing 12B on Burkholder Drive is also separate from this subdivision as per proponent's response, and there are no crossings within this development. As such, please exclude from this submission any information pertaining to crossings, as the comments for all crossings including Crossing i81, 12B and i26 are, again, being reviewed under separate submissions as per the proponent's response and the subject area limit.	Acknowledged. No action item.
Hydrogeology Comments			
Feature Based Water Balance			
20. Further discussion and detail are required regarding how feature-based water balance requirements are being achieved, with emphasis on demonstrating that the hydrological function of the features will not be adversely affected, how pre-development drainage conditions will be matched, how MESPA recommendations will be met, how clean water (i.e. roof-tops, PDWS, etc.) will be directed to each feature, and how the ecological function of each feature will be maintained. Discussion should focus	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Acknowledged. However, in addition to the original comment no.20 which will be fully addressed at the next design stage, in the next submission and at this stage, at minimum, please provide the conceptual feature-based water balance calculations tied in with comment no.1 follow-up response above, at this stage to ensure that all natural heritage features (including but not limited to wetlands and woodlots) are properly defined to be fed via stormwater and groundwater; and will be properly fed via the stormwater	RJB provided a figure identifying all environmental constraints. Conceptual feature-based water balance design for the identified natural features was completed and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4. RJ Burnside's Response: According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to

on all features identified for a feature-based water balance, including wetlands and HDF's.		management strategy including but not limited to rooftop drainage, stormwater pond outfalls, and low impact development measures throughout the site as required to ensure the functionality and match existing hydroperiods for all natural heritage features within the subject area.	confirm that the proposed approach is sufficient to support the ecological functions of the features.
a. Please clarify which climate data station (nearest available preferred) and duration of climate record that was used (30-year preferred) was used.	Same as above	Same as above.	Climate data was gathered from the Climate Normals for Toronto Buttonville Airport, collected between 1981 to 2010.
Low Impact Development			
21. Please refer to Conservation Authority Guidelines for Development Applications: Hydrogeological Assessment dated June 2013. The submission would be improved with the inclusion of: 1) a plan view drawing illustrating the location of all boreholes (2011 and 2013); 2) an interpretation of the shallow groundwater flow direction; 3) two-cross sections (oriented along the groundwater flow path and across the groundwater flow path); and 4) an overview of regional stratigraphy including thicknesses of the formation and the unit name.	A draft hydrogeology report including the requested information has been prepared by Golder and included in the submission package. Please note that the hydrogeology report will be finalized during the detailed design stage.	Acknowledged.	A supplemental hydroG report has been prepared by GEI and will be enclosed in the submission package.
22. TRCA is concerned with the functionality of all three LIDs proposed as the groundwater level contours appear to indicate that there would be no infiltration and the LIDs would not function as intended. Please consider alternative placements where the groundwater elevations are more conducive for infiltration. not that TRCA would accept a separation Please of 0.6 m in area where it's difficult to achieve the 1 m separation. Infiltration testing should be carried out at the proposed LID locations after site grading has been completed.	The details for proposed LID measures will be provided in the next design stage as the HydroG investigation, including in-situ tests.	Acknowledged.	A supplemental hydroG report has been prepared by GEI and will be enclosed in the submission package.
a. LID D – Base Elevation 180.77 masl. Groundwater Elevation 183.7 masl as stated on Soakaway Pit Sizing Table. Assumed based upon January	The details for proposed LID measures will be provided in the next design stage as the HydroG	Acknowledged. Please confirm if LID-D is located within an HVA as identified by the CTC Source Protection Plan and, if located within	LID-D is not located within a HVA area.

<p>23, 2014 at BH13-17A/B. Base Elevation appears to be below groundwater table. Please provide a cross-section showing groundwater contour in relation to base of LID.</p>	<p>investigation, including in-situ tests.</p>	<p>an HVA, discuss how stormwater discharge will be directed outside of the vulnerable area where possible in accordance with SAL-10.</p>	
<p>b. LID E – Base Elevation 185.67 masl. Groundwater Elevation 185.81 masl as stated on Soakaway Pit Sizing Table. Please clarify if a borehole was installed at location of LID. Base Elevation appears to be below groundwater table. In addition, please provide a cross-section showing groundwater contour in relation to base of LID.</p>	<p>Please note that LID E has been removed in the updated design.</p>	<p>Acknowledged.</p>	<p>No action item.</p>
<p>c. LID F – Base elevation 171.84 masl. Groundwater Elevation 180.69 masl as stated on Soakaway Pit Sizing Table. Assumed based upon May 11, 2011 at BH11-12A/B. Base Elevation appears to be below groundwater table. Please provide a cross-section showing groundwater elevation contour in relation to base of LID.</p>	<p>Please note that LID F has been removed in the updated design.</p>	<p>Acknowledged.</p>	<p>No action item.</p>
<p>23. As an advisory comment, TRCA supports the Golder recommendation that where basements are founded in wet silty sands or sands the design consider additional water-proofing and/or under slab drains. One note of caution is that it is generally TRCA policy to recommend against any proposed active permanent dewatering (e.g. sumps in underfloor drainage system) of the Oak Ridge Aquifer Complex and/or Thorncliffe Aquifer Complex.</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Acknowledged.</p>	<p>No action item.</p>

<p>24. One note of caution is Section 7.2 Stormwater Management Facilities of TRCA's Stormwater Management Criteria states: "In order to determine whether a liner should be included in the SWM pond design, it is important to collect appropriate subsurface information directly at the proposed SWM pond location. In order to identify soil conditions underlying the SWM pond location, a borehole should be drilled deeper than the proposed pond bottom with logging of appropriate soil and/or bedrock information. A monitoring well should be installed in the borehole to allow for measurement of groundwater levels so that the high groundwater level condition can be accurately identified to inform the pond design... The soil/bedrock and high groundwater level information is to be included on SWM pond cross-section drawings, and if a liner is not recommended then a supporting rationale must be provided. Liners should typically extend from the pond bottom up to the higher of the permanent pool elevation or the high groundwater elevation."</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Acknowledged.</p>	<p>No action item.</p>
<p>25. For detailed design, please note that TRCA considers discharge to the NHS system as a high-risk factor towards determining the significance of impact. Please see Figure 2 Factors in the Determination of the Significance of Impact included in TRCA Technical Guidelines for the Development of Environmental Management Plans for Dewatering, September 2013.</p> <ul style="list-style-type: none"> • This factor in conjunction with other considerations such as the potential need for a PTTW at SWMF #46C warrants further investigation as early in the process as possible. • It is worth noting that, should larger volumes of dewatering/depressurization be required, and the discharge is to be released to the NHS, TRCA would 	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Acknowledged.</p>	<p>No CURRENT action item.</p>

<p>appreciate the opportunity to provide input on the mitigation and monitoring requirements.</p> <ul style="list-style-type: none"> • If discharge is to be directed towards the NHS, the water quality parameters should be evaluated against the Provincial Water Quality Objectives (PWQO) and the Canadian Guideline of the Protection of Aquatic Life (for parameters such as Chloride not covered by the PWQO). • A plan view map illustrating the zone of influence for both dewatering and depressurization showing the natural heritage features in relationship to dewatering and/or depressurization as well as discharge locations. 			
<p>26. For detailed design, infrastructure construction below the water table should involve the use of cut-off collars or clay plugs to provide barriers to flow to prevent groundwater movement along granular bedding and erosion of the backfilled material.</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Acknowledged.</p>	<p>No CURRENT action item.</p>
<p>Ecology Comments</p>			
<p>Section 4.1 – Grading and Road Network</p>			
<p>27. The FSSR states that "...grading is proposed within the 30m NHS buffer. This grading respects the identified natural heritage feature limits". As per OPA 22, stormwater management facilities and related works should not encroach into natural features and should be set back a minimum of 10 metres from all natural heritage features. Please demonstrate that all required setbacks have been met, specifically:</p>	<p>All required setbacks and feature limits have been identified on the drawings.</p>	<p>Addressed.</p>	<p>No action item.</p>
<p>a. Please show all feature limits on grading plans where grading is proposed in the NHS.</p>	<p>All required setbacks and feature limits have been identified on the drawings.</p>	<p>Addressed.</p>	<p>No action item.</p>
<p>b. A 10 m buffer from the greatest feature limit or hazard should be included on the grading plans.</p>	<p>All required setbacks and feature limits have been identified on the drawings.</p>	<p>Addressed.</p>	<p>No action item.</p>
<p>c. The full extent of the drip line near the SWMF #24 forebay should be provided.</p>	<p>All required setbacks and feature limits have been identified on the drawings.</p>	<p>Addressed.</p>	<p>No action item.</p>

<p>28. There appear to be opportunities to reduce grading impacts into the NHS. The stormwater management pond outfall channel and access road associated with SWMF 23 and 24 create a large area of disturbance in a very ecologically sensitive location. Given the sensitivity of this area, ways to minimize the disturbance should be examined. Consider designing outfall channels that can also support maintenance requirements rather than constructing a separate 4 m wide access road.</p>	<p>Please note that the SWMF outfall location and design will be coordinated with Geo Morphix during the detailed design stage and finalized to ensure all City and TRCA requirements are met.</p>	<p>Partially addressed. The FSSR needs to address the high-level compensation and restoration requirements, the feature-based water balance, and SWM design including the access route connection between SWMF 23 and SWMF 24 which impacts reaches G11-1 and G11-2.</p>	<p>Conceptual feature-based water balance design for the identified natural features was completed and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4.</p> <p>Please note that the SWMF outfall location and design will be coordinated with a fluvial geomorphologist during the detailed design stage.</p> <p>RJB Response: Areas of encroachment (temporary and permanent) where grading is proposed into the NHS and compensation locations are depicted in Appendix B-2 of this FSSR submission. High-level compensation and restoration measures are discussed in Section 8 of the FSSR.</p> <p>According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to confirm that the proposed approach is sufficient to support the ecological functions of the features.</p>
<p>29. Specific drawings and plans should be provided for the outfall channel into the valley at the SWMF 24 outfall. The ecological impacts and benefits of constructing the outfall channel in this location need to be further discussed, considering the extent of impacts proposed within this sensitive forest community and the regulated habitat of the provincially endangered Redside Dace. While this outfall location was discussed during the September 2017 site walk, there remains outstanding analysis of this outfall location as per the site walk meeting minutes.</p>	<p>Please note that the SWMF outfall location and design will be coordinated with Geo Morphix during the detailed design stage and finalized to ensure all City and TRCA requirements are met.</p>	<p>Partially addressed. See Comment #28.</p>	<p>Please note that the SWMF outfall location and design will be coordinated with a fluvial geomorphologist during the detailed design stage.</p>
<p>30. Section 4.1.2 of the FSSR briefly addresses the Burkholder Drive Crossing 12 of the NHS at Ganatsekiagon Creek. Burkholder Drive should be addressed comprehensively under separate submission. Within the Burkholder Drive submission, outstanding comments through the EA process should be addressed.</p>	<p>It is requested to forward a copy of the EA comments to our attention for our review and consideration during detailed design stage.</p>	<p>Partially addressed. The FSSR needs to address the swale design along Burkholder Drive including the outlet of the bioswale and Crossing 12.</p>	<p>Burkholder Drive swale not part of the subdivision works, and shall be addressed under a separate cover (GEI Proj # 2205577)</p>
<p>Section 4.4 – Construction Practices Recommendations, Groundwater Dewatering</p>			
<p>31. Section 4.4.2 of the FSSR must better describe where groundwater dewatering</p>	<p>Comment noted to be addressed during detailed design stage once</p>	<p>Not addressed. At the FSSR stage the potential areas of impact should be</p>	<p>Conceptual feature-based water balance design for the identified natural features was completed and the details of the design are</p>

is anticipated, and a mitigation strategy recommended to protect aquifers and sensitive features.	final HydroG report is available.	identified and high-level mitigation measures proposed. Additionally, a feature-based water balance is required.	included in section 7 of the report. FBWB calculations are included in Appendix C-4.
Section 4.5 – Requirements for Erosion and Sediment Control			
32. Section 4.5.1 outlines that no in-water works are planned; however, it is not clear if channel works will be required at SWMF outfalls or at the crossing of Ganatsekiagon Creek. Please ensure the document accurately reflects planned works within features and adjacent to watercourse features.	Comment noted to be addressed during detailed design stage.	Acknowledged. Can be addressed at detailed design.	No current action item.
Section 5 – Stormwater Management			
33. Section 5 of the FSSR outlines quantity / erosion control criteria which is based on the MESPA and studies undertaken by Aquafor Beech in 2012. However, additional study has been recommended for Ganatsekiagon Creek (Feature G11) and Feature G11-2 (HDFC26). Please include additional studies and further refine erosion control criteria as necessary.	Comment noted to be addressed during detailed design stage.	Not addressed. An erosion analysis threshold should be completed as an access route is proposed over the headwater connection of G11-2 and G11-1.	<p>Please note that given the Erosion Threshold Analysis will be sensitive to the pond staged storage rating curve, completing this analysis during the FSSR stage might be premature, and will be subject to multiple revisions. As such, it is proposed that the Erosion Threshold Analysis be updated during the detailed design stage.</p> <p>The Erosion Threshold Analysis completed in the previous stages (MESPA) will be followed in this submission.</p> <p>RJB: Burnside has examined the surface water features on site. HDFC26 is not groundwater-fed; the proposed outlet design demonstrates that the pre-development flows towards the HDF are maintained in the interim condition. With regards to the ecological functionality, the management recommendation of the HDF would be Mitigation, with no flows or standing water observed during any site visit. It was noted to be dry even after a 27.7 mm and 20.8 mm rainfall events during recent site visits on July 25th, and August 22, 2022. As such, given the interim condition discharge rates and volumes are equivalent to the pre-development conditions, the outlet flows will continue to feed the feature and serve its primary function as an HDF, directing flows towards downstream reaches.</p>
Section 5.2.1 – Low Impact Development Measures			
34. Section 5.2.1 states that “subsurface soil conditions are not generally considered to be suitable for effective application of enhanced infiltration measures”. Three infiltration facilities are proposed. Please expand this section to discuss in more detail the water balance requirements for the site. Discuss the anticipated effectiveness of these facilities to	Please note that further details pertaining to the LID design and operations will be provided during the detailed design stage once the hydrogeological investigation report is finalized.	Not addressed. The LIDs are meant to support hydrological features, completion of a feature-based water balance is required for watercourses and wetlands in order to move forward with the site configuration.	Grading of the park area and clean-water collector system are designed to direct 25mm flows to the reach G11-1 and G13. A 150mm pipe set at the NWL at SWMF 24 will supplement flows directly to Wetland G5. Details are included in Section 7 of the report.

achieve water balance requirements.			
35. Two of the proposed LID facilities are proposed within or adjacent to stormwater management facilities. It is preferred that only clean water be directed to LID features. Discuss in more detail how the LID feature within the SWMF 23 will function.	Please note that further details pertaining to the LID design and operations will be provided during the detailed design stage once the hydrogeological investigation report is finalized.	Not addressed. See response to Comment #34.	LID design has been revised and details are provided in Section 5.2.1 of the report. One LID is proposed at SWMF 23 for the development. Please note that the SWMF 23 is a dry pond, and LID feature within this dry pond is supported by the City.
Section 6 – Stormwater Management Facilities			
36. Section 6.3.1 outlines that at 4 m wide access road will be provided for full access to the outlet structure. This is a significant impact to the NHS. Consistent with grading plan comments, please reconsider this design. The outlet channel should be designed to also accommodate maintenance access rather than have an additional access road.	Comment noted to be addressed during detailed design stage.	Not addressed. The same design is presented in a number of drawings and should be investigated as part of the FSSR stage.	A combined outlet for SWMF 23 and 24 is proposed to minimize the disturbance within the NHS. The proposed access road alongside the channel is for maintenance of the outfall structure and headwall from the SWM facility. Products such as Terraform Ecoraster (or equivalent) will be considered for the proposed access road as an alternative to paved/granular access road.
37. Section 6.3.1 should be updated to include details on how the outlet channel to Ganatsekiagon Creek will be designed, to include preliminary plans and drawings for review. Currently, SWM drawings defer the natural channel design to Geomorphix and the channel terminates midway through the valley. Please update the report to include a comprehensive natural channel plan and design for SWMF 24 outfall in order to support review and verification of outfall location and design.	Please note that the SWMF outfall location and design will be coordinated with Geo Morphix during the detailed design stage and finalized to ensure all City and TRCA requirements are met.	Partially addressed. See Comment #28.	Conceptual feature-based water balance design for the identified natural features was completed and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4. Please note that the SWMF outfall location and design will be coordinated with a fluvial geomorphologist during the detailed design stage. RJB Response: Areas of encroachment (temporary and permanent) where grading is proposed into the NHS and compensation locations are depicted in Appendix B-2 of this FSSR submission. High-level compensation and restoration measures are discussed in Section 8 of the FSSR. According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to confirm that the proposed approach is sufficient to support the ecological functions of the features.
38. During interim conditions, swales will direct water from the roads to the SWM ponds. Please include design details for the swales.	Swale design details have been included in Appendix C of the FSSR.	Not addressed. A number of comments are noted for the ESC drawings including: a. All stockpiles need to be reduced to 3 m maximum height. b. Temporary ponds may require	Please note that the following comments will be addressed through the earthworks permit application submission package: a) All topsoil stockpiles will be limited to a maximum of 3m height. b) A three cell treatment, in accordance with the TRCA guidelines will be provided with the addition of turbidity curtains where necessary for the ESC ponds. c) Intercepting swale at the west end of the subject site is

		<p>two turbidity curtains where proposed holding cells.</p> <p>c. An interceptor swale is recommended along the west extent in Phase 1.</p> <p>d. In the interim SWM scenario, please demonstrate that the sediment basins and/or areas of impounded water within the work area are actively pumped after rain events or once the pond has reached a trigger level into a filter bag/ring on the other side of the continuous silt fence/barrier.</p> <p>e. Interim SWM scenarios appear to sever the flow path of G11-2. An interim scenario to support the features needs to be demonstrated.</p> <p>f. Drawings will be reviewed for ESC plans once the SWM design is agreed upon.</p>	<p>proposed.</p> <p>d) A note has been added on the ESC plans to note that the ESC measures, including sediment basins and ponds shall be monitored weekly, and after every significant rainfall event. Dewatering measures/pumps shall be in place to direct discharge via a filter bag/ring 30m away from a watercourse.</p> <p>e) A temporary outlet from the interim ponds are proposed to feed the existing natural features.</p> <p>f) Noted. ESC plans will be submitted as part of the earthworks submission package.</p>
39. Please update the FSSR to thoroughly discuss outlet details associated with any proposed LID measures to address water balance requirements.	Comment noted to be addressed during detailed design stage.	Not addressed. Feature-based water balance details are required at the FSSR stage in order to support proposed lot development and drainage diversions.	Conceptual feature-based water balance design for the identified natural features G11-1, G13, and Wetland G5 was completed, and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4.
Scoped Site Investigation Report, prepared by Beacon Environmental			
40. The Scoped Site Investigation Report outlines that the 10 m buffer to the dripline will be provided between all woodland features with the exception of one area and the SWM facilities. It also states that a 30 m minimum buffer will be provided between wetlands and proposed SWM facilities. SWM facility intrusions into the NHS and features are proposed in three locations. New figures should be provided that show the impacts from the stormwater management pond outfalls and access roads as well as any development impacts into NHS or features within the NHS. Please show the area of disturbance overlaid on aerial photography with the ELC communities, seepage areas and the locations of	Comment noted to be addressed during detailed design stage.	Not addressed. The compensation needs to be addressed in the FSSR including the preliminary grading noted and can be refined at the detailed design stage. This will assist in assessing impacts and finding compensation opportunities within the site plan prior to detailed design.	RJB: Areas of encroachment (temporary and permanent) where preliminary grading is proposed into the NHS along with features and constraints (i.e., setbacks) are depicted on Figure 1 of this FSSR submission. Compensation locations are depicted on Figure 2. These will be refined during the detailed design stage.

species of conservation concern. Ensure all relevant features and buffers are shown.			
41. As per OPA 22, SWMF 24 should be pulled out of the feature – specifically consider reconfiguration of the facility to avoid intrusion into the CUT 1-A1 community.	Comment noted to be addressed during detailed design stage.	Not addressed. The encroachment into CUT-1A1 is not supported as it is a feature in the NHS, please relocate to within the setbacks.	Not applicable.
42. Please update the report to provide a comprehensive discussion on impacts to the NHS and features, including a quantification of all development impacts to various features at the ELC community level. Through this discussion, document how OPA 22 is being respected.	Comment noted to be addressed during detailed design stage.	Not addressed. See response to Comment #40.	RJB: Areas of encroachment (temporary and permanent) where preliminary grading is proposed into the NHS along with features and constraints (i.e., setbacks) are depicted on Figure 1 of this FSSR submission. Compensation locations are depicted on Figure 2. These will be refined during the detailed design stage and will include a quantification of impacts at the ELC community level.
43. Wetland G5, located to the east of the SWM facility 24, may be impacted by some loss of overland flow directed to the wetland. The potential impacts are mitigated through recommendations in the Wetland Water Balance Assessment for Wetland G5. Please include feature-based water balance report details in the FSSR.	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Not addressed. The feature-based water balance needs to be addressed in the FSSR stage.	GEI: A proposed 150mm pipe with an invert set at the normal water level at SWMF24, is designed to feed the existing wetland G5. This pipe will be installed at the east side of SWMF24, adjacent to the wetland. Details of the design and water balance of the wetland are included in Section 7.2. RJB: According to the conceptual calculations provided in this FSSR, the stormwater management measures closely match the existing condition hydroperiod and water balance for all natural features within the subject area. A detailed FBWB will be completed during the detailed design stage for the SWM ponds following TRCA's Wetland Water Balance Risk Evaluation (2017) to confirm that the proposed approach is sufficient to support the ecological functions of the features.
44. Crossing 12 (Burkholder Drive) is discussed in the Scoped Site Investigation Report. This information should be carried forward into a separate submission for the construction of Burkholder Drive. TRCA comments through the Burkholder Drive EA process should be addressed. Ongoing coordination is recommended to ensure that the design recommendations of the Design Checklist and this Crossing Analysis are considered in the final crossing design.	Comment noted.	Acknowledged.	No action item.
45. Please discuss all proposed restoration associated with NHS impacts, including the type of restoration proposed.	Comment noted to be addressed during detailed design stage.	Partially addressed. The FSSR needs to identify all areas of impact and quantify the preliminary impact zone to determine opportunities for restoration within the block prior to detailed design. Details on how	Compensation locations are depicted on Figure 2 prepared by RJ Burnside. These will be refined during the detailed design stage. High-level compensation and restoration measures are discussed in Section 8 of the FSSR.

		restoration and compensation will be addressed need to be provided at the high-level.	
46. Please discuss how unavoidable impacts to features will be compensated for.	Comment noted to be addressed during detailed design stage.	Partially addressed. See Comment #45.	Compensation locations are depicted on Figure 2. These will be refined during the detailed design stage. High-level compensation and restoration measures are discussed in Section 8 of the FSSR.
47. The Woody Vegetation Assessment and Tree Preservation Report, North-lot Subdivision and IO Lands should discuss the proposed woodlot impacts associated with SWMF 24 and any other impacts not discussed.	Comment noted to be addressed during detailed design stage.	Partially addressed. See Comment #45.	Compensation locations are depicted on Figure 2. These will be refined during the detailed design stage. High-level compensation and restoration measures are discussed in Section 8 of the FSSR.
Additional comments to be addressed in the FSSR and / or Scoped Site Investigation			
48. Please provide fencing between the private lots and the natural heritage system to limit encroachment following development.	Fencing has been proposed between the private lots and NHS limits as required.	Fencing appears to occur within portions of the NHS rather than at the development limit. Please ensure that all NHS is connected continuously.	Fencing is shown within the draft plan limits. Please note that detailed fencing plan will be prepared by a landscape architect during the detailed design stage.
49. HDFC26 (Feature G11-2) is a feature requiring further study as per MESPA recommendations. Impacts to HDFC26 are proposed at the SWMF 23 outfall and the development block. Please detail how this feature has been further studied and assessed per TRCA Headwater Drainage Feature Classification guidance and discuss associated management recommendations and proposed mitigation.	Comment noted to be addressed during detailed design stage.	Not addressed. Impacts need to be mitigated at the FSSR stage in order to support the site configuration.	GEI: Feature based water balance analysis and calculations for Feature G11-2 is provided in Section 7.1 of the FSSR. RJB: Burnside provided input to TRCA's comments for the Earthworks Permit (dated August 31, 2022); Burnside has examined the surface water features on site. HDFC26 is not groundwater-fed; the proposed outlet design demonstrates that the pre-development flows towards the HDF are maintained in the interim condition. With regards to the ecological functionality, the management recommendation of the HDF would be Mitigation, with no flows or standing water observed during any site visit. It was noted to be dry even after a 27.7 mm and 20.8 mm rainfall events during recent site visits on July 25th, and August 22, 2022. As such, given the interim condition discharge rates and volumes are equivalent to the pre-development conditions, the outlet flows will continue to feed the feature and serve its primary function as an HDF, directing flows towards downstream reaches.
50. The FSSR proposes to discharge SWMF 23 and 24 at one location to Feature G11. As per the September 2017 Site Walk Meeting Minutes, " <i>based on a preliminary review of the outfall options, the second outfall option will require more valley disturbance and potential for higher tree loss, but would appear to have a better outfall alignment and less erosion potential in the downstream receiving watercourse</i> ". GEO Morphix is to review the SWMF 24 outfall options with CEG staff and provide feedback re	Please note that the proposed design will be coordinated with Geo Morphix during the detailed design stage to ensure best practices are implemented to mitigate any potential erosion near the SWMF outfall.	Not addressed. Please see all previous comments on outfall location and design.	Please note that given the Erosion Threshold Analysis will be sensitive to the pond staged storage rating curve, completing this analysis during the FSSR stage might be premature, and will be subject to multiple revisions. As such, it is proposed that the Erosion Threshold Analysis be updated during the detailed design stage. The Erosion Threshold Analysis completed in the previous stages (MESPA) will be followed in this submission

<p>erosion potential. This discussion is missing from the FSSR. Please update the report to document how the erosion potential of Feature G11 has been studied and how impacts to this feature will be mitigated through SWMF outfall design. Confirmation of the outfall location cannot be completed until the impacts and associated mitigation of the outfall are fully understood.</p>			
<p>51. HDFC26 (Feature G11-2) is a feature requiring further study as per MESPA recommendations. Impacts to HDFC26 are proposed at the SWMF 23 outfall and the development block. Please detail how this feature has been further studied and assessed per TRCA Headwater Drainage Feature Classification guidance and discuss associated management recommendations and proposed mitigation.</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Not addressed. All studies are to be completed at the FSSR stage in order to guide detailed design.</p>	<p>GEI: Feature based water balance analysis and calculations for Feature G11-2 are provided in Section 7.1 of the FSSR.</p> <p>RJB: Burnside provided input to TRCA's comments for the Earthworks Permit (dated August 31, 2022); Burnside has examined the surface water features on site. HDFC26 is not groundwater-fed; the proposed outlet design demonstrates that the pre-development flows towards the HDF are maintained in the interim condition. With regards to the ecological functionality, the management recommendation of the HDF would be Mitigation, with no flows or standing water observed during any site visit. It was noted to be dry even after a 27.7 mm and 20.8 mm rainfall events during recent site visits on July 25th, and August 22, 2022. As such, given the interim condition discharge rates and volumes are equivalent to the pre-development conditions, the outlet flows will continue to feed the feature and serve its primary function as an HDF, directing flows towards downstream reaches.</p>
<p>52. The FSSR proposes to discharge SWMF 23 and 24 at one location to Feature G11. As per the September 2017 Site Walk Meeting Minutes, "based on a preliminary review of the outfall options, the second outfall option will require more valley disturbance and potential for higher tree loss, but would appear to have a better outfall alignment and less erosion potential in the downstream receiving watercourse". GEO Morphix is to review the SWMF 24 outfall options with CEG staff and provide feedback re erosion potential. This discussion is missing from the FSSR. Please update the report to document how the erosion potential of Feature G11 has been studied and how impacts to this feature will be mitigated through SWMF outfall design. Confirmation of the outfall location cannot be completed until the</p>	<p>Please note that the proposed design will be coordinated with Geo Morphix during the detailed design stage to ensure best practices are implemented to mitigate any potential erosion near the SWMF outfall.</p>	<p>Not addressed. The report needs to be updated to document how the erosion potential of Feature G11 has been studied and how impacts to this feature will be mitigated through SWMF outfall design,</p>	<p>Please note that given the Erosion Threshold Analysis will be sensitive to the pond staged storage rating curve, completing this analysis during the FSSR stage might be premature, and will be subject to multiple revisions. As such, it is proposed that the Erosion Threshold Analysis be updated during the detailed design stage.</p> <p>The Erosion Threshold Analysis completed in the previous stages (MESPA) will be followed in this submission</p>

impacts and associated mitigation of the outfall are fully understood.			
53. There is no discussion in the FSSR on how feature-based water balance is being addressed. Please update the report to include a thorough feature-based water balance assessment, documenting background data collection and how water balance requirements will be met and monitored. Specifically:	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Not addressed. The feature-based water balance needs to be addressed during the FSSR stage as the current site design severs a number of features both wetlands and watercourses within the NHS.	Conceptual feature-based water balance design for the identified natural features G11-1, G13, and Wetland G5 was completed, and the details of the design are included in section 7 of the report. FBWB calculations are included in Appendix C-4.
a. As per MESPA recommendations, HDFC26 (Feature G11-1) requires water augmentation with roof area of 2.5 ha being directed to this feature (MESPA Table B10.7 and B11.5). Please provide thorough water augmentation discussion for G11-1.	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Not addressed. The feature-based water balance needs to be addressed during the FSSR stage as the current site design severs a number of features both wetlands and watercourses within the NHS. Further it would appear the LIDs is within SWMF 23 where both storm and roof drainage will be mixed together.	Grading of the park area is designed to direct 25mm flows to the reach G11-2 and G11-1. In addition, 0.73 ha of residential area drainage from the clean-collector and rear yard drainage will be conveyed to G11-1 for water balance. Details of the design are included in section 7 of the report.
b. As per MESPA recommendations, roof and/or rear yard runoff of 0.20 ha should be directed to wetland G5. Please provide thorough feature-based water balance discussion for Wetland G5 and ensure appropriate background data and modelling is included in the FSSR.	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Not addressed. The feature-based water balance needs to be addressed during the FSSR stage as the current site design severs a number of features both wetlands and watercourses within the NHS.	A 150mm pipe with an invert set at the normal water level at SWMF24, is designed to feed the existing wetland G5. This pipe will be installed at the east side of SWMF24, adjacent to the wetland. Details of the design and water balance of the wetland are included in Section 7.2.
c. As per MESPA recommendations, Woodlot Feature FC20 in Neighbourhood 19 requires water augmentation via roof and / or rear yard drainage from 1.5 ha. Please discuss if drainage to this feature will be addressed through Whitevale North Phase 1 or other works within Neighbourhood 19.	The feature-based WB calculations will be provided in the next design stage once the HydroG investigation is available.	Not addressed. The feature-based water balance needs to be addressed during the FSSR stage as the current site design severs a number of features both wetlands and watercourses within the NHS.	Please refer to Section 7 of the FSSR included in the submission package for conceptual FBWB calculations.
54. The Seaton NHS Management Plan and Trails Master Plan illustrates a proposed Secondary Neighbourhood Connector Trail running east-west along the south boundary of the subdivision in the vicinity of SWMF 23 and 24. As such, grading relating to these developments in the areas adjacent to the proposed trail should be considered in the detailed	Comment noted to be addressed during detailed design stage.	Partially addressed. Grading intrusions and placement of trails currently severe hydrological inputs into watercourses and wetlands. Feature-based water balances need to be addressed during the FSSR stage.	Stormwater released to watercourse features for water balance purposes will be conveyed through CWC pipes and outletted through outfalls adjacent to features G13 and G11-2. Grading and placement of trails will not interfere with the water balance of the watercourse features.

<p>design going forward. There may be an opportunity to combine the pond access roads with the trail system. At a minimum the grading should not negate the ability to accommodate a trail outside of the natural features and their buffers.</p>			
Geotechnical			
<p>55. The geotechnical assessment by Golder including 2011, 2013 and 2014 reports recommended a side slope of 4H:1V for the SWM Pond below the permanent water level; however, the drawings for SWMF 24 shows a side slope of 3H:1V below the permanent water level, which is not consistent with the recommendations with the geotechnical reports. Please have Golder confirm in writing that the proposed side slopes are acceptable and meet long-term stability.</p>	<p>Slope stability assessment for proposed SWMFs 24 and 25 prepared by Golder dated July 22,2020 has been included in the submission package for your review and reference. The SWMF side slopes have been revised to have a flatter slope of 4:1 or more in accordance with the recommendations provided by the geotechnical engineer. Please note that the proposed design and recommendations will be finalized during the detailed design stage.</p>	<p>Comment addressed.</p>	<p>No action item.</p>
<p>56. The stability analysis for the SWM Pond as shown in the geotechnical report by Golder (Dated May 9, 2014) are required to be revised to ensure that it is consistent with the SWM Pond and berm geometry shown within the current FSSR. Additionally, it appears that the berm has not been modelled for slope stability. Please revise the stability analyses to confirm that the proposed geometry for the berms within the FSSR meets the long-term stability under various scenarios for the berm including the 100-year highwater level (example: Section A-A).</p>	<p>Slope stability assessment for proposed SWMFs 24 and 25 prepared by Golder dated July 22,2020 has been included in the submission package for your review and reference. Please note that the proposed design and recommendations will be finalized during the detailed design stage.</p>	<p>Comment addressed.</p>	<p>No action item.</p>
<p>57. At detailed design, please add a note to SWMF drawings referring to the geotechnical specifications for the berm materials as outlined within the geotechnical report by Golder.</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Deferred to detailed design.</p>	<p>No action item.</p>
<p>58. The drawings for the SWM Pond show riprap materials placed on geotextile. There are concerns that the riprap materials will be dislodged from the geotextile by flowing water. At detailed design, please clarify how such risk has been mitigated. Alternatively, the</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Deferred to detailed design.</p>	<p>No action item.</p>

<p>designer may consider the option of a layer of suitable granular filter material underneath the riprap materials instead of the geotextile to improve the longevity of the riprap revetment against water</p>			
<p>59. The SWMF 24 drawings shows an outlet headwall. At detailed design, please clarify if this is a standard OPSD or municipality specifications headwall. If not, please provide an engineer-stamped cross-section for the headwall as per the design by a civil engineer.</p>	<p>Comment noted to be addressed during detailed design stage.</p>	<p>Deferred to detailed design.</p>	<p>No action item.</p>