THE CITY OF VAUGHAN

CORPORATE PROCEDURE

PROCEDURE TITLE: **MUNICIPAL NON-CONVENTIONAL STORMWATER MANAGEMENT FACILITIES ACCEPTANCE PROCEDURE**

PROCEDURE NO.: **PRC.45**

Section:	Development & Planning		
Effective Date:	June 25, 2024	**Date of Last Review:**	Click or tap to enter a date.
Policy Parent: 08.C.03 – Municipal Non-Conventional Stormwater Management		**Procedure Owner:** DCM, Infrastructure Development	

PROCEDURE STATEMENT

The City's acceptance process for Non-Conventional Stormwater Management facilities (SWMFs) is a comprehensive guidance document that can be used by City Staff for the review, acceptance, and implementation of Non-Conventional SWMFs within land intended for municipal ownership, in support of development planning applications.

PURPOSE

The purpose of this procedure is to outline requirements for the evaluation, approval, and feasible implementation of Non-Conventional SWMFs.

The objectives of this procedure are to:

1. Establish a transparent process for internal and external stakeholders to evaluate acceptable Non-Conventional SWMF requests.

2. Establish a method for financial impact assessments, to accurately determine an Offset Fee.

3. Ensure the long-term financial viability of Non-Conventional Stormwater Management Facilities.

4. Define where Non-Conventional SWMFs can and cannot be integrated within City parkland and right-of-ways.

PROCEDURE TITLE:	**MUNICIPAL NON-CONVENTIONAL STORMWATER MANAGEMENT FACILITIES ACCEPTANCE**
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SCOPE

This procedure document replaces the existing guidance found in the *City Interim Approach on Non-Conventional Stormwater Management Infrastructure* procedure.

This procedure applies to internal and external stakeholders involved in the design, acceptance, implementation, and operation/maintenance of municipally owned and operated Non-Conventional SWMFs, assumed through the land development process for Development Applications which may include but are not limited to Block Plan, Secondary Plan, Official Plan Amendment, Zoning By-law Amendment, and Draft Plan of Subdivision.

The acceptance of these facilities and confirmation of the Offset Fee(s) is the responsibility of the City Manager of the City of Vaughan and/or their delegate acting on their behalf.

LEGISLATIVE REQUIREMENTS

1. *Planning Act*, R.S.O. 1990, c P.13.
2. *Places to Grow Act*, 2005, S.O. 2003, c. 13.
3. *Bill 23, More Homes Built Faster Act*, 2022, S.O, 2022, c. 21.
4. *Ontario Water Resources Act*, R.S.O. 1990, c. O.40.
5. *Clean Water Act*, 2006, S.O. 2006, c. 22.
6. *Environmental Protection Act,* R.S.O. 1990, c. E.19.

DEFINITIONS

1. **City:** The Corporation of the City of Vaughan, including all departments, employees, and administrative divisions.
2. **Clean Condition:** Without visual accumulation of sediment or debris.
3. **CLI-ECA:** Consolidated Linear Infrastructure Environmental Compliance Approval.
4. **Conventional SWMF:** End-of-pipe stormwater management practice consisting of a wet or dry Stormwater Management Pond to provide water quantity control and/or water quality treatment, and/or erosion control of tributary area runoff.

5. **Council:** Council of the City of Vaughan.

6. **Development Application (or Development)** Proposal put forward by a Landowner to the City for review and decision, pertaining to a change of land use, construction of a new building, or the creation of a parcel of land, as governed under the *Planning Act*. The applicable types of Development Applications which apply to this procedure may include but are not limited to Block Plan, Secondary Plan, Official Plan Amendment, Zoning By-law Amendment, and Draft Plan of Subdivision.

7. **Greenfield Development:** The development of a property, site, or area on undeveloped land in an urban or rural area.

8. **Infill Development:** The development or redevelopment of a vacant, underutilized, or previously developed property, site, or area where the surrounding area is already developed.

9. **Infrastructure:** Physical assets developed and used by a municipality to support its social, cultural, and economic services (Source: FCM, 2017)

10. **Initial Submission:** The stage of a Development Application process whereby an applicant submits documents for the first time to the City for staff review.

11. **Landowner:** The party who owns the property or is the representative of the party who owns the land.

12. **LID:** Low Impact Development.

13. **Offset Fee:** A one-time cost contribution to be paid by the Landowner to the City for the implementation of the Non-Conventional SWMF to compensate for any increase in cost when compared to a conventional SWMF, calculated by a formula. Is the differential between the calculated fees for a Conventional and Non-Conventional Facility. Inspection/Monitoring Costs + Maintenance Costs=offset fee.

14. **Manufactured Treatment Devices (MTD's):** Devices used to target the treatment and removal of pollutants from stormwater runoff from development sites, to achieve regulatory water quality objectives.

15. **Non-Conventional SWMF:** All end-of-pipe stormwater management facilities outside the Conventional SWMF, as defined above, that are designed to provide quantity control and extended detention.

16. **O&M:** Operations and Maintenance.

17. **OGS:** Oil-Grit Separator.

18. **Park Recreation Facility:** A public facility designed and equipped for the conduct of sports, leisure activities, and other customary and usual recreation activities, used by the public for active and/or passive recreation.

19. **Permanent Pool:** A volume of water that is retained within a conventional SWMF to provide for the settling and dilution of sediments and pollutants; provides water quality control.

20. **Pre-treatment:** treatment of stormwater upstream of/prior to entering the quantity control area of a Non-Conventional SWMF or a Conventional SWMF via a single or multiple measures in series. Facilities do not require confined space entry for maintenance. This single or treatment train provides the removal of large to micro size debris.

21. **Qualified Engineer:** Licensed Professional Engineer, licensed to practice in Ontario, and competent to practice in a specified engineering discipline.

22. **Qualified Engineer of Record**: Licensed Professional Engineer who has sealed any submitted drawings or reports.

23. **ROW**: Right-of-way.

24. **Sealed:** Documents that have been stamped using the rubber stamp/impression of the rubber stamp issued by Professional Engineers Ontario (PEO) to all license holders. The seal (or stamp) identifies the Engineer taking personal and professional responsibility for the content of the documents. The seal must be signed and dated by the license holder.

25. **SWMF**: Stormwater Management Facility.

26. **Treatment Train Approach:** Providing stormwater treatment first, at the lot level, then in conveyance, followed by “end-of pipe” (where stormwater gets discharged). A treatment train is required to meet the multiple objectives of water balance, water quality, erosion control and flood control in an overall stormwater management strategy.

PROCEDURE

The following steps provide comprehensive guidance and information on the review of acceptable Non-Conventional SWMFs proposed as part of a Development Application. Refer to appended flow charts and checklists for each step for additional guidance on this process.

1) PROCEDURAL STEPS

a) Step 1: Initial Submission

i) Non-Conventional SWMF Justification Report

(1) A Non-Conventional SWMF Justification Report must be submitted by the Landowner to the City for review and acceptance, at the initial stages of the development process, which may include but is not limited to the submission of a Master Environmental Servicing Plan, Block Plan, Secondary Plan, or Official Plan Amendment/Zoning By-law Amendment. However, if possible, intent to use a Non-Conventional SWMF should be identified as soon as possible in the development process, prior to any formal submissions as listed above, during any pre-consultation with the City. The Non-Conventional SWMF Justification Report must clearly demonstrate the benefits to the City of implementing a Non-Conventional SWMF solution compared to a Conventional SWMF. The Non-Conventional SWMF Justification Report must be reviewed and accepted by the City prior to proceeding to a Technical Report to the Committee of the Whole.

(2) At the discretion of the Director of Development Engineering of the City of Vaughan and/or their delegate acting on their behalf, submitted Non-Conventional SWMF Justification Reports may be subject to an external peer review, with costs to be paid for by the Landowner. The option to undertake an external peer review will be on a case-by-case basis, based on factors including but not limited to the size and type of the Non-Conventional SWMF, the complexity of its incorporation into the proposed development, and availability of City resources.

(3) The Non-Conventional SWMF Justification Report must, at minimum, meet the following requirements:

(a) Must be prepared and sealed by a Qualified Engineer.

(b) Must provide sufficient evidence that the Non-Conventional SWMF can be implemented to meet SWM criteria for the site, without infringing on other design criteria or site-specific constraints.

(c) Must identify the conceptual design of the proposed Non-Conventional SWMF, including but not limited to, the proposed location and functions over the Non-Conventional SWMF, surface grades, sub-surface infrastructure elevations, outlet elevations,

potential impacts to natural heritage, and overview of existing underground utilities.

(d) Must provide overview of existing site-specific conditions such as soil type and group, existing topography, and any known groundwater concerns or historical groundwater data, to be later confirmed through Geotechnical and/or Hydrogeological Investigations to ensure adequate subsurface conditions for the conceptual design.

(e) Must document the social, environmental, and economic benefits of implementing a Non-Conventional SWMF within the development, as well as any potential impacts to above ground programming; and,

(f) Must provide a high-level overview of the anticipated operation and maintenance (O&M) requirements to maintain the facility, including the equipment required.

(4) Financial Compensation Consideration

(a) To be included in the Non-Conventional SWMF Justification Report, an estimate of the required financial compensation for implementation of the Non-Conventional SWMF must be prepared for the City, including the estimated Offset fee costs of the facility over a 50-year period.

Refer to Appendix A – Checklist and Appendix B - Initial Submission Flow Chart for additional guidance.

b) Step 2: Draft Plan of Subdivision Submission/Functional Servicing

i) Coordination of Park Requirements

(1) Where Non-Conventional SWMFs are proposed under a park, coordination is required between the City of Vaughan Parks Infrastructure Planning and Development Department and the Landowner to identify the required features and programming that should be protected for during design of the Non-Conventional SWMF. This coordination should take place prior to City staff bringing forward a Technical Report to the Committee of the Whole for the proposed Draft Plan of Subdivision.

(2) The City of Vaughan Parks Infrastructure Planning and Development shall provide direction to the Landowner as to the needs of the park block, based on location, demographic, and the size of the proposed

park block, as guided by existing City Policies, any relevant Master Plans, and existing City Guidelines.

(3) The Landowner is to reference the City's Parks Design Criteria for Non-Conventional SWMF to ensure all applicable criteria are achieved, including but not limited to, minimum cover depth, offset distances, static and dynamic loads, access requirements, etc.

(4) Prior to City Staff bringing forward a Technical Report to the Committee of the Whole, the Landowner is required to indicate if their intentions are to achieve full Parkland Dedication of the parkland location above the Non-Conventional SWMF. The Landowner must illustrate; that all criteria to achieve full Parkland Dedication is met and in accordance with By-Law-168-2022, as amended or superseded; that park criteria can be met based on the proposed park block; and that the proposed Non-Conventional SWMF, inclusive of maintenance, will not impact the intended function of the park and park recreation facilities.

(5) Parkland dedication credit continues to be determined and issued by the Parks Infrastructure Planning and Development Department through By-Law-168-2022, as amended or superseded.

(6) City Acceptance of Stormwater Management Strategy & Non-Conventional SWMF Technology

(7) At this stage, the Landowner shall determine whether the proposed Non-Conventional SWMF meets the requirements of Schedule D in the CLI-ECA and is therefore qualified for pre-authorization.

(8) Review of the overall SWM scheme for the proposed development is to be completed in accordance with the City of Vaughan's standard engineering review process, ensuring that all control targets are achieved by the stormwater infrastructure proposed for the development. The Functional Servicing Report (FSR) submitted to the City for review and acceptance shall include details on the Non-Conventional SWMF proposed for the development site. City Staff shall be in general agreement with the overall SWM scheme prior to bringing a Technical Report to the Committee of the Whole for the Draft Plan of Subdivision.

(9) The City shall consider the proposed Non-Conventional SWMF to achieve only the water quantity control and erosion control through extended detention targets for the development. Water quality control

and water balance targets must be achieved by SWM infrastructure provided independently from and upstream of the Non-Conventional SWMF for the overall SWM scheme to be accepted by the City. An 'Isolator' and 'Separator' Row type pre-treatment at the inlet of the Non-Conventional SWMF, in combination with other upstream pre-treatment for water quality controls, is acceptable to achieve the required 80% TSS removal.

(10) A Treatment Train approach upstream of a Non-Conventional SWMF for quality control is required prior to discharging runoff into the Non-Conventional SWMF. The implementation of treatment measures located downstream of the Non-Conventional SWMF will not be accepted by the City.

(11) Captured runoff must be pre-treated to a minimum 80% TSS removal prior to entering the main cell of the Non-Conventional SWMF, using the ETV Canada particle size distribution, or as defined by current City standards, whichever is more stringent. All pre-treatment measures must be easily maintained by City staff and must not require confined space entry. Infrastructure considered acceptable by the City for treatment train implementation include:

(a) LID Measures;

(b) OGS Units; and

(c) Pre-Treatment Cells (isolator/separator row).

(12) The following information related to the proposed Non-Conventional SWMF must be included within the FSR / Draft Plan of Subdivision Submission for the City's review and acceptance prior to City staff bringing forward a Technical Report to the Committee of the Whole:

(a) Location of the proposed facility, including justification for the selected location (i.e., in parkland, open space, ROW, etc.). The FSR must confirm that there is no conflict with proposed surface features, underground utilities, and planned park programming;

(b) Confirmation that the proposed volume of the facility meets the defined targets for water quantity control and extended detention, including preliminary design of any proposed flow control structure(s);

(c) Confirmation that the proposed water quality control strategy adheres to the specified TSS removal rate prior to runoff entering the quantity control component of the Non-Conventional SWMF;

(d) Confirmation that all retention requirements are satisfied independently from and upstream of the Non-Conventional SWMF;

(e) Supporting Geotechnical and Hydrogeological Investigations to demonstrate adequate conditions for the Non-Conventional SWMF and the upstream Treatment Train facilities;

(f) Preliminary grading above the facility, and facility access locations to confirm adequate O&M access for City crews;

(g) All supporting calculations and/or models for the design of the Non-Conventional SWMF; and

(h) Outlet controls must be of gravity type. No pumping will be accepted.

(13) A list of City of Vaughan Acceptable Technologies for Non-Conventional SWMFs is available within the City of Vaughan Engineering Standard Criteria for Non-Conventional SWMF. The proposed technology for the subject development must adhere to these standards.

(14) The Landowner is to indicate their intent to provide a 25-year Manufacturer's extended warranty on concrete SWMFs. In the event that a warranty cannot be provided, the City will require the Landowner to provide a rehabilitation cost as a component of the Maintenance cost Acceptance of these warranty plans is solely at the discretion of the City and requires a legal agreement between the City and the supplier, to the satisfaction of the City Solicitor.

(15) Once the proposed Non-Conventional SWMF technology category has been accepted by Council through the acceptance of Technical Report to the Committee of the Whole for the associated Draft Plan of Subdivision or Site Plan (i.e., Cast-In-Place Modular System, Superpipes, Plastic Arch Chamber etc.), substitution for an alternative form of technology will not be accepted. A proposed alternative to the accepted Non-Conventional SWMF technology category may require a full Draft Plan of Subdivision or Site Plan resubmission.

Refer to Appendix A – Checklist and Appendix C - Draft Plan of Subdivision/FSR Flow Chart for additional guidance.

c) Step 3: Detailed Design/Perfect Submission

i) City Acceptance of SWM Report and Design Drawings

(1) Review of the detailed design of the Non-Conventional SWMF and all pre-treatment water quality measures are to be completed in accordance with the City of Vaughan's standard engineering review process. Following Draft Plan of Subdivision Approval, a detailed Stormwater Management (SWM) Report is to be submitted by the Landowner to the Development Engineering Department for review and acceptance, in addition to detailed design and shop drawings for the proposed facility prior to the execution of a Subdivision Agreement or other Development related Agreement, as applicable.

(2) The replacement or substitution of Non-Conventional SWMF technology shall not be acceptable during review of the detailed design submission. Should the Landowner propose a replacement or substitution for the proposed Non-Conventional SWMF technology or product, they may be required to resubmit a new Draft Plan of Subdivision for acceptance by Council.

(3) Landscape Plans and Park Design Drawings completed by a Landscape Architect shall be provided to the Parks Department for review and acceptance.

ii) City Acceptance of Operations & Maintenance Manual for the Non-Conventional SWMF

(1) An Operation and Maintenance (O&M) Manual detailing the requirements of the Non-Conventional SWMF and any pre-treatment systems that are to be assumed by the City shall be submitted by the Landowner to City of Vaughan Development Engineering Department for circulation to Environmental Services Department for review and acceptance prior to the execution of a Subdivision or other Development related Agreement, as applicable.

(2) The O&M Manual shall detail the required operation and maintenance procedures and efforts, required equipment and certifications, the maintenance frequency on all related infrastructure, and associated costs to perform the required operation and maintenance.

(3) Maintenance procedures with a high disruption level (i.e., Multi-day operations, earth moving, ground disturbance, traffic impacts, etc.) to

the public must be highlighted during the preparation of this manual and considered during development of the annual O&M costs.

(4) Frequent/regular inspection and maintenance of the Non-Conventional SWMF and pre-treatment infrastructure must not have confined space entry and shall be maintained with conventional equipment such as vacuum and flushing trucks.

(5) The O&M Manual is to be prepared in accordance with the requirements of the Consolidated Linear Infrastructure Environmental Compliance Approval, or other applicable Environmental Compliance Approvals, including development and implementation of a monitoring program.

(6) At a minimum, the O&M Manual shall include:

(a) Maintenance procedure and frequency of the facility and treatment devices based on the sediment loading rate from the development.

(b) Detailed breakdown of the time, equipment required and estimated cost for each inspection/maintenance item with cost, as well as any expected disruption to surface features.

(c) O&M costs that include provisions for the current Regulations based removal and disposal of sediment from the Non-Conventional SWMF.

iii) Offset Fee Calculation & City Acceptance

(1) An Offset Fee calculation for the proposed Non-Conventional SWMF and all pre-treatment facilities is to be completed by the Landowner based on a 50-year time period. The Offset Fee calculation can be included within the O&M Manual or provided as a separate standalone document. City staff must review and accept the Offset Fee calculation prior to the registration of the Subdivision Agreement or other Development related Agreement, as applicable.

(2) The Offset Fee and calculation will be finalized and provided by the Landowner to the Development Engineering Department, prior to executing the Subdivision and/or other Development related Agreement, as applicable.

(3) The Offset Fee is included to quantify the operation and maintenance costs associated with the Non-Conventional SWMF over a time period of 50 years.

(4) The values provided must be based on the current value of the works included in the Fee.

(5) The Offset Fee is calculated to determine the additional costs for operations and maintenance of the Non-Conventional SWMF (and all pre-treatment facilities) compared to a conventional SWMF of equivalent function.

(6) The Offset Fee will be composed of two components, calculated separately, over the specified time period of 50 years:

(a) Inspection/monitoring costs; and

(b) Maintenance costs.

(7) The inspection (with no confined space entry or CCTV) and monitoring cost considered in the final financial compensation formula shall be the delta between the number of inspections required for a Conventional SWMF and number of inspections required for the Non-Conventional SWMF over the specified time period of 50 years. Each pre-treatment device shall be considered to require an individual inspection. Inspection and Monitoring costs include the fees associated with routine visual inspection including inspection reporting and debris removal. The frequency of this inspection is to be completed at the frequency specified in the approved O&M manual based on recommendations from the facility supplier and/or design engineer.

(8) Maintenance costs include the fees associated with sediment removal and disposal from all components of the Non-Conventional SWMF (i.e., including OGS units, isolator/separator rows). The routine maintenance cost fee is based on the differential in cost between a Conventional and Non-Conventional SWMF for sediment removal. Sediment loading for the specified period is to be calculated based on sediment loading rates specified for various levels of imperviousness as described in the MECP 2003 Stormwater Management Planning and Design Manual.

(9) Maintenance costs shall also consider unit rates for various inspections (i.e., Confined space entry) and maintenance procedures which are available within the City of Vaughan Engineering Standard Criteria for Non-Conventional SWMF. The maintenance cost is to include provisions for rehabilitation or replacement, where applicable, of key SWM features (i.e., treatment train approach).

(10) The assumption for the lifecycle of all SWMF's is to be 100 years. Should the 100-year lifecycle requirement not be met, additional approval will need to be provided including rehabilitation costs.

(11) A 25-year Manufacturer's extended warranty from the product supplier of SWMFs shall be required and supported by a legally binding agreement to the satisfaction of the City Solicitor.

(12) Should a 25-year Manufacturer's extended warranty not be provided for the SWMFs, rehabilitation costs shall be provided.

(13) Rehabilitation and replacement costs are to consider increased cost of material and construction, disposal of the facility to be replaced, and other site-specific considerations such as available staging area, re-use of material, tree/vegetation replacement, ground cover (i.e., softscape compared to hardscape) and environmental conditions.

(14) If the contributing drainage area to a superpipe Non-Conventional SWMF is <2ha, rehabilitation and replacement costs are not required for the SWMF regardless of an extended warranty. Operations and maintenance costs will still apply.

(15) The unit rates used in the calculation of the Offset Fee shall be subject to annual indexing per Statistics Canada Non-Residential Construction price index, beginning from the year of the Non-Conventional SWMF Design Criteria. Adjustments to the unit rates may be made by the City through updates of the Design Criteria to maintain accuracy to current typical industry rates.

(16) Sealed engineering opinions by a Qualified Engineer for the service life of the Non-Conventional SWMF are to be provided.

i. Parkland dedication credit is assessed independently of the Offset Fee and continues to be determined and issued by the Parks Department through By-Law-0168-2022, as amended or superseded.

Refer to Appendix A – Checklist and Appendix D – Detailed Design/Perfect Submission Review Flow Chart additional guidance.

d) Step 4: City Assumption

i) Steps for assumption should be read in conjunction with the Subdivision Agreement. The City may request any other details and information

required by the Director of Development Engineering.

ii) Prior to assumption of a Non-Conventional SWMF, the City requires that all infrastructure to be assumed is operating as designed and has been maintained as specified by the O&M Manual. To ensure this, the following information is required to be submitted to the Development Inspection and Grading Division of Development Engineering Department:

i. The Landowner shall ensure that all stormwater infrastructure to be assumed by the City is in clean, functioning condition using methods to the satisfaction of the City.

ii. The Landowner shall provide records of inspection and maintenance reports demonstrating procedures as outlined in the approved O&M Manual.

iii. The Landowner shall provide record drawings for the Non-Conventional SWMF, sealed by the Qualified Engineer of Record, certifying that construction was carried out as per the approved design.

iv. The Landowner shall demonstrate, through completion of a monitoring program to the satisfaction of the City, that the Non-Conventional SWMF and all associated stormwater management system(s) are functioning as designed.

v. Once Assumption takes place, sign off on the Director Notification form of the CLI-ECA is required to be completed and submitted to the MECP.

Refer to Appendix A – Checklist and Appendix E – Assumption Stage Review Flow Chart for additional guidance.

2) REFERENCES

- MECP Stormwater Management Planning and Design Manual, March 2003.
- MECP Low Impact Development Stormwater Management Guidance Manual (Draft), January 2022.
- City of Vaughan Official Plan 2010 and Update.
- CVC/TRCA Low Impact Development Stormwater Management Planning and Design Guide, 2010.
- TRCA Stormwater Management Criteria, August 2012.
- City of Vaughan Engineering Design Criteria & Standard Drawings, 2020.
- City of Vaughan Parkland Dedication Guideline, January 2022.

- City of Vaughan MECP's CLI-ECA for Municipal Stormwater Management Systems, April 2022.

ADMINISTRATION			
Administered by the Office of the City Clerk.			
Review Schedule:	Other (specify) Annual	**Next Review Date:**	June 25, 2025
Related Procedure(s):			
Related By-Law(s):	168-2022		
Supporting Documentation:	Appendix A – Review Checklist, Appendix B – Initial Submission Flow, Appendix C – Draft Plan of Subdivision/FSR Flow Chart, Appendix D – Detailed Design/Perfect Submission Review Flow Chart, Appendix E – Assumption Stage Review Flow Chart		

Revision History	
Date:	**Description:**
Jun. 25, 25	Approved at Council. Report No. 24 Item No. 1
Click or tap to enter a date.	

THE CITY OF VAUGHAN

APPENDIX

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

Each reviewer from the Development Engineering, Planning and Park's Department shall assess the submission for completeness based on the items outlined below (where applicable for each department). Each reviewer shall provide their sign off that all relevant material has been provided and is deemed acceptable. If only one Department is responsible for the approval of a listed item, the required Department approval is indicated per the below key.

☐ = Approval required for Sign-Off

▢ = Approval not required for Sign-Off, review recommended.

\- = Approval not required for Sign-Off.

Initial Submission/Justification Report

	Development Engineering	Planning	Parks	Environmental Services
General				
Prepared and sealed by a Qualified Professional Engineer (P.Eng.), licensed to practice in Ontario;	☐	▢	▢	-
Report has been submitted in "Initial Submission" to the City (accompanying whatever materials are provided for first official submission). For example, the Justification Report should accompany one of the following submissions: • Master Environmental Servicing Plan (MESP); • Block Plan; • OPA/ZBA; • Draft Plan.	☐	☐	☐	-
Identification of Benefits				

Social benefits have been identified. These may include, but are not limited to: • Additional recreational space (i.e., Parkland Dedication) • Reduce risks of safety hazards	☐	☐	☐	-

	Development Engineering	Planning	Parks	Environmental Services
Environmental benefits have been identified. These may include, but are not limited to: • Reduction in pests/bugs • Reduction in presences of invasive species	☐	☐	☐	-
Economics benefits have been identified. These may include: • Economic growth	☐	☐	☐	-
Conceptual Design				
The Non-Conventional SWMF drains through gravity drainage and does not require a pump.	☐	☐	☐	-
The Non-Conventional SWMF design does not provide any permanent pool volume.	☐	☐	☐	-
The Non-Conventional SWMF is a watertight concrete structure, or plastic structure wrapped with sufficient impermeable liner.	☐	☐	☐	-
The quantity control portion of the Non-Conventional SWMF achieves water quantity control and extended detention targets only, with additional SWM controls measures provided elsewhere on site	☐	☐	☐	-
Pre-treatment measures are provided upstream of the Non-Conventional SWMF with 80% TSS removal achieved prior to runoff entering the quantity control portion of the Non-Conventional SWMF.	☐	☐	☐	-
The conceptual design is in accordance with the City of Vaughan Design Criteria and Standard Drawings for Non-Conventional SWMF.	☐	☐	☐	-

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

The report identifies any potential impacts to above ground programming.	☐	☐	☐	-
The conceptual design does not create any obvious obstructions or challenges for land use above the Non-Conventional SWMF.	☐	☐	☐	-
Operation and Maintenance Requirements				
Anticipated O&M requirements of the Non-Conventional SWMF have been identified.	☐	☐	☐	☐

	Development Engineering	**Planning**	**Parks**	**Environmental Services**
Requirements are in accordance with the City of Vaughan's O&M standards	☐	☐	☐	☐
O&M be completed using equipment and technology currently owned by or available to the City.	☐	☐	☐	☐
Conceptual design of Non-Conventional SWMF allows for easy access for frequent O&M.	☐	☐	☐	☐
Financial				
An estimate of the financial requirements for the facility is included in the Justification Report.	☐	☐	☐	-
Development Engineering Sign-off:			**Date:**	
Planning Department Sign-off:			**Date:**	
Parks Department Sign-off:			**Date:**	
Environmental Services Sign-Off			**Date:**	

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

Draft Plan/ Functional Servicing Submission

	Development Engineering	Planning	Parks
General			
Justification Report has been submitted and accepted (Refer to Initial Submission Checklist if Justification Report has been submitted in conjunction with Draft Plan Submission.)	☐	☐	☐
The proposed technology is included on the City of Vaughan's Acceptable Technology for Non-Conventional SWMF's List.	☐	☐	☐
Preliminary Design			
Sufficient details been provided to assess the preliminary design of the Non-Conventional SWMF.	☐	☐	☐
All overall SWM targets have been achieved per City of Vaughan's standard engineering review process and most recent design criteria.	☐	☐	☐
Location and justification for park placement has been provided.	☐	☐	☐
FSR confirms there is no conflict with: • Surface features • Underground utilities • Maintenance/access requirements	☐	☐	☐
Proposed Non-Conventional SWMF meets defined targets for quantity control and extended detention, and preliminary design of flow controls has been provided.	☐	☐	☐

Preliminary grading above facility and access locations have been provided and are acceptable.	☐	☐	☐
A treatment train approach has been proposed to treat runoff prior to it entering the main cell of the SWMF, treating it to a minimum of 80% TSS removal, using a City defined particle size distribution. Acceptable measures include: • LID Measures (Bioswale, infiltration gallery, etc.); • OGS Units; and • Pre-treatment Cells (Isolator Row, etc.).	☐	☐	☐
Park's Considerations			

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

City of Vaughan has provided direction regarding requirements for Parkland Block (i.e., programming) which has been incorporated into design.	☐	☐	☐
Owner has indicated intention to apply for Parkland Dedication for parkland above SWMF	☐	☐	☐
Owner has illustrated all criteria to achieve full Parkland Dedication has been met, in accordance with By-Law 168-2022.	☐	☐	☐
FSR confirms there is no conflict with planned Park programming.	☐	☐	☐
Financial Considerations			
FSR outlines cost of proposed facility.	☐	☐	☐
Intent to provide an extended warranty plan for SWMFs has been confirmed.	☐	☐	☐
Development Engineering Sign-off		**Date:**	
Planning Department Sign-off		**Date:**	
Parks Department Sign-off		**Date:**	

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

Detailed Design/ Perfect Submission

	Development Engineering	Planning	Parks
General Submission			
A detailed Stormwater Management Report and detailed design drawings have been received, prepared, and sealed by a Qualified Professional Engineer (P.Eng.), including:	☐	☐	☐
• SWM Report;	☐	☐	☐
• Detailed Engineering drawings; and	☐	☐	☐
• Shop Drawings.	☐	☐	☐
Complete O&M Manual has been received.	☐	☐	☐
Review & Acceptance of SWM Report & Detailed Design Drawings			
Proposed Non-Conventional SWMF technology has not changed since Draft Plan/ Functional Servicing Submission.	☐	☐	☐
Proposed overall SWM design and drawings meet City of Vaughan's standard engineering review process and Engineering Design Criteria.	☐	☐	☐
Proposed Non-Conventional SWMF design meets City's Non-Conventional SWMF Facility Design Criteria.	☐	☐	☐
Non-Conventional SWMF only provided quantity control and extended detention controls within quantity control portion of facility (not in isolator/separator rows).	☐	☐	☐
Parks Considerations			
Proposed Non-Conventional SWMF design and associated grading meets Parks criteria.	☐	☐	☐
Proposed Non-Conventional SWMF does not infringe on Park programming.	☐	☐	☐
Parkland Dedication Credit has been finalized and applied.	☐	☐	☐
Review & Acceptance of Operations & Maintenance Requirements			
Complete Operations & Maintenance (O&M) Manual has been submitted for Non-Conventional SWMF and any pre-treatment technology, which includes:	☐	☐	☐
• Any required equipment and certifications for O&M.	☐	☐	☐
• Maintenance frequency and costs on all structures involved in SWM solution, based on development's sediment loading rate.	☐	☐	☐
• Consideration and planning for high disruption maintenance activities.	☐	☐	☐
• Consideration and planning for frequent inspection and maintenance.	☐	☐	☐

• An annual maintenance cost based on detailed breakdown of inspection/maintenance and associated time and costs.	☐	☐	☐
• Cost provisions for disposal/treatment of sediment per current Regulations.	☐	☐	☐
O&M manual meets requirements outlined in CLI-ECA.	☐	☐	☐
Frequent/regular inspection does not require confined space entry.	☐	☐	☐
A maintenance cost assessment has been provided based on a 50-year period (which can be provided as standalone document), which includes:	☐	☐	☐
• Quantification of O&M costs over a 50-year period.	☐	☐	☐
• Offset Fee has been calculated correctly per Criteria (refer to next section).	☐	☐	☐
• Unit rates to calculate the Offset Fee have been indexed appropriately.	☐	☐	☐
• Sealed engineering opinion regarding service life of SWMF.	☐	☐	☐

Financial Considerations			
Offset Fee has been calculated using the City's unit rates specified in the criteria, based on the sum of:	☐	☐	☐
• Inspection and monitoring costs (visual inspection, inspection report, and debris removal, and monitoring as required by CLI-ECA), is the delta between Non-Conventional and Conventional SWMF.	☐	☐	☐
• Maintenance costs (including fees associated with sediment removal, confined space entry, component replacement), is the delta between Non-Conventional and equivalent Conventional SWMF.	☐	☐	☐
• An extended warranty from SWMF Manufacturer's has been provided with appropriate legal documentation to the City's satisfaction.	☐	☐	☐
• If an extended warranty is not provided or accepted by the City, SWMF rehabilitation costs have been calculated and added to the Total Offset Fee. SWMF rehabilitation / replacement costs are not required for development areas <2ha using a superpipe facility, regardless of an extended warranty.	☐	☐	☐

APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

Unit rates for various inspection, monitoring, maintenance procedures align with rates outlined in the Design Criteria for Non-Conventional SWMF and have been indexed appropriately.	☐	☐	☐
The Final Compensation Value has been quantified and will be issued through a subdivision / site plan agreement between the City and Landowner.	☐	☐	☐
Development Engineering Sign-off		**Date:**	
Planning Department Sign-off		**Date:**	
Parks Department Sign-off		**Date:**	

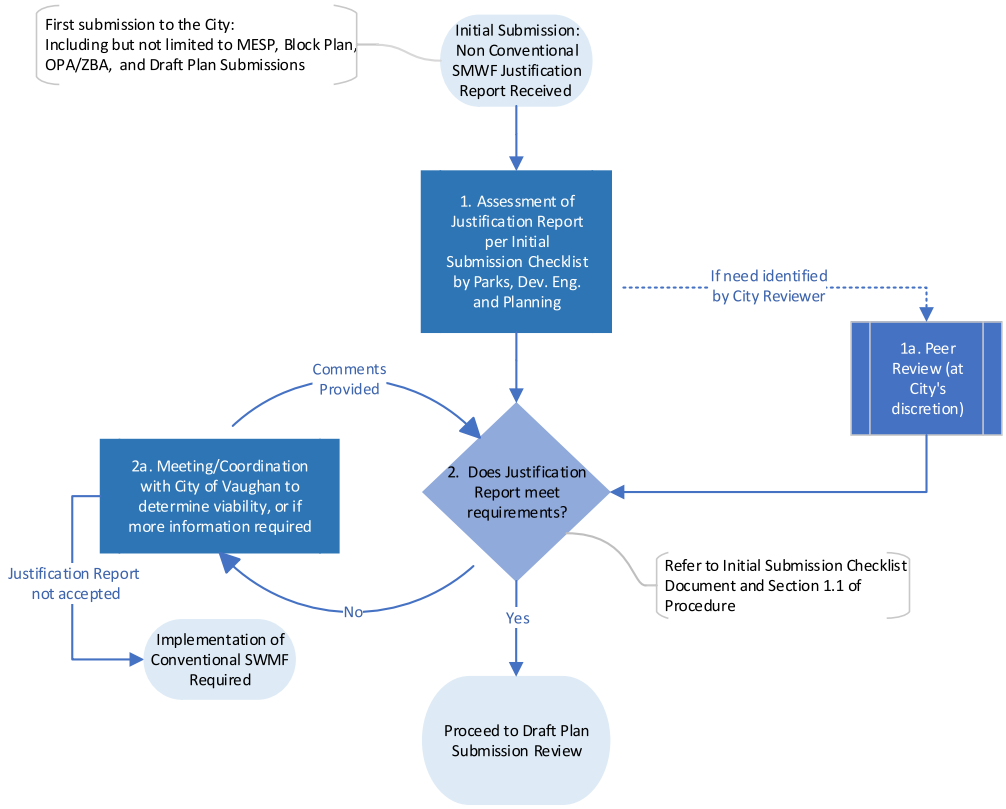
APPENDIX TITLE: REVIEW CHECKLISTS

APPENDIX NO.: A

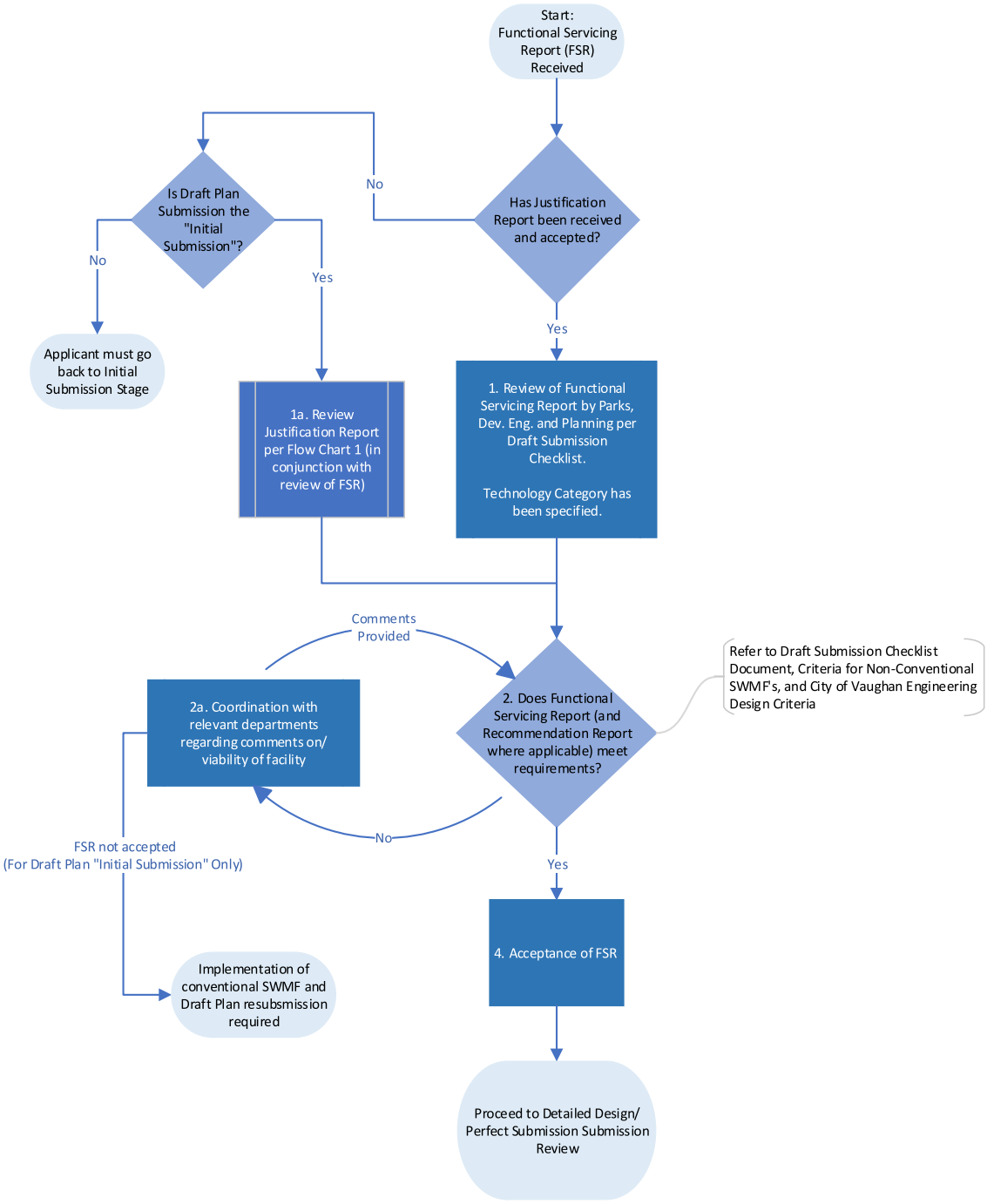
City Assumption

	Development Engineering	Planning	Parks
Assumption Requirements			
Sealed record drawings of Non-Conventional SWMF have been provided, which certify infrastructure was constructed per approved design, as per PEO Guidelines on Preparing As-builts and Record Documents.	☐	☐	☐
Records of inspection and maintenance have been provided and are in compliance with practices outlined in approved O&M manual.	☐	☐	☐
• Infrastructure has been maintained per approved O&M manual.	☐	☐	☐
• Infrastructure is free of debris and sediment build up (determined through methods agreed upon by City)	☐	☐	☐
Records for monitoring program as agreed upon by the City have been provided.	☐	☐	☐
• Monitoring program records, per CLI-ECA if applicable, indicate infrastructure is functioning as designed.	☐	☐	☐
Development Engineering Sign-off		**Date:**	
Planning Department Sign-off		**Date:**	
Parks Department Sign-off		**Date:**	

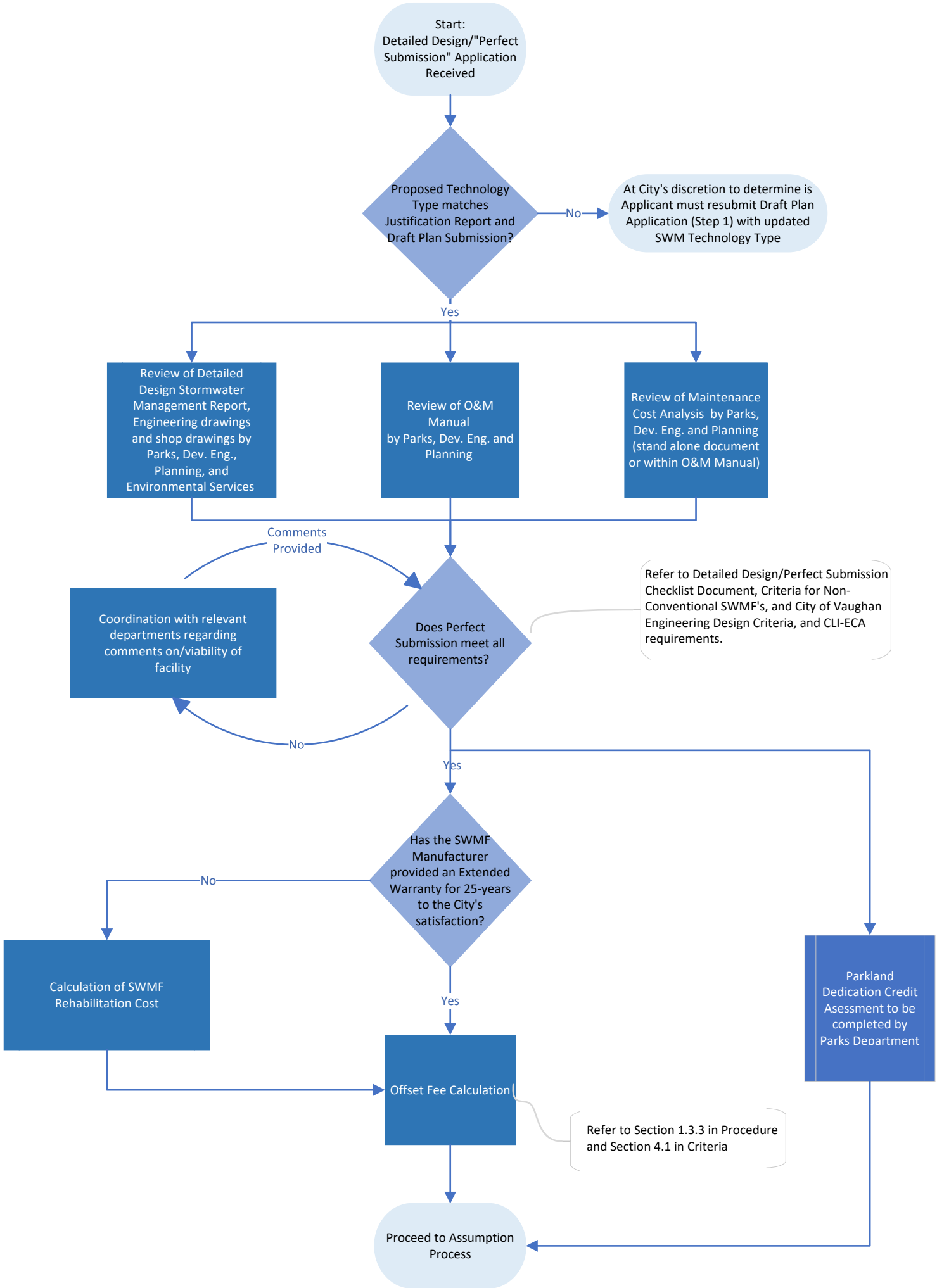
Appendix B


First submission to the City:
Including but not limited to MESP, Block Plan, OPA/ZBA, and Draft Plan Submissions
Initial Submission: Non Conventional SMWF Justification Report Received
1. Assessment of Justification Report per Initial Submission Checklist by Parks, Dev. Eng. and Planning
If need identified by City Reviewer
1a. Peer Review (at City's discretion)
Comments Provided
2a. Meeting/Coordination with City of Vaughan to determine viability, or if more information required
2. Does Justification Report meet requirements?
Refer to Initial Submission Checklist Document and Section 1.1 of Procedure
Justification Report not accepted
No
Yes
Implementation of Conventional SWMF Required
Proceed to Draft Plan Submission Review

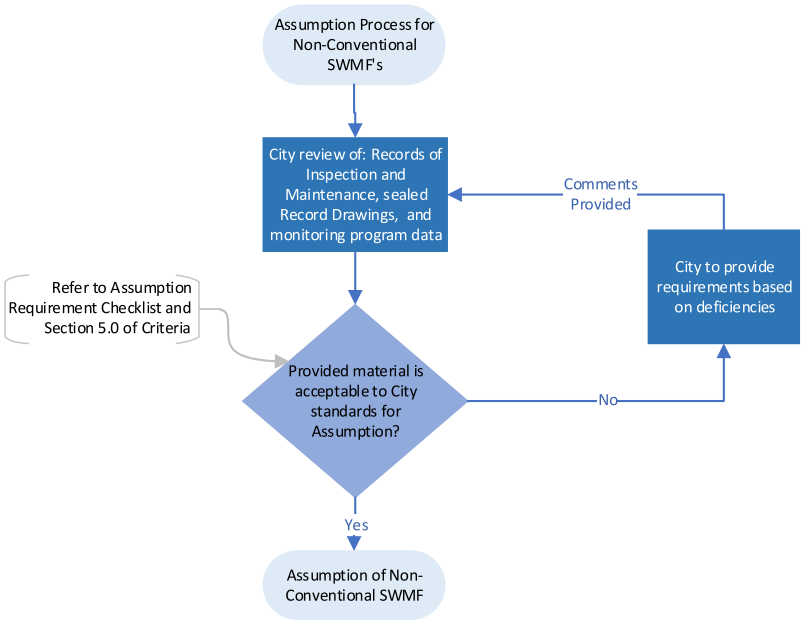
Appendix C


Start: Functional Servicing Report (FSR) Received
Has Justification Report been received and accepted?
No
Yes
Is Draft Plan Submission the "Initial Submission"?
No
Yes
Applicant must go back to Initial Submission Stage
1a. Review Justification Report per Flow Chart 1 (in conjunction with review of FSR)
1. Review of Functional Servicing Report by Parks, Dev. Eng. and Planning per Draft Submission Checklist.
Technology Category has been specified.
Comments Provided
2. Does Functional Servicing Report (and Recommendation Report where applicable) meet requirements?
Refer to Draft Submission Checklist Document, Criteria for Non-Conventional SWMF's, and City of Vaughan Engineering Design Criteria
2a. Coordination with relevant departments regarding comments on/ viability of facility
No
Yes
FSR not accepted
(For Draft Plan "Initial Submission" Only)
Implementation of conventional SWMF and Draft Plan resubmission required
4. Acceptance of FSR
Proceed to Detailed Design/ Perfect Submission Submission Review

Appendix D


Start:
Detailed Design/"Perfect Submission" Application Received
Proposed Technology Type matches Justification Report and Draft Plan Submission?
No
At City's discretion to determine is Applicant must resubmit Draft Plan Application (Step 1) with updated SWM Technology Type
Yes
Review of Detailed Design Stormwater Management Report, Engineering drawings and shop drawings by Parks, Dev. Eng., Planning, and Environmental Services
Review of O&M Manual by Parks, Dev. Eng. and Planning
Review of Maintenance Cost Analysis by Parks, Dev. Eng. and Planning (stand alone document or within O&M Manual)
Comments Provided
Coordination with relevant departments regarding comments on/viability of facility
Does Perfect Submission meet all requirements?
Refer to Detailed Design/Perfect Submission Checklist Document, Criteria for Non-Conventional SWMF's, and City of Vaughan Engineering Design Criteria, and CLI-ECA requirements.
No
Yes
Has the SWMF Manufacturer provided an Extended Warranty for 25-years to the City's satisfaction?
No
Yes
Calculation of SWMF Rehabilitation Cost
Parkland Dedication Credit Asessment to be completed by Parks Department
Offset Fee Calculation
Refer to Section 1.3.3 in Procedure and Section 4.1 in Criteria
Proceed to Assumption Process

Appendix E


Assumption Process for Non-Conventional SWMF's
City review of: Records of Inspection and Maintenance, sealed Record Drawings, and monitoring program data
Comments Provided
City to provide requirements based on deficiencies
Refer to Assumption Requirement Checklist and Section 5.0 of Criteria
Provided material is acceptable to City standards for Assumption?
No
Yes
Assumption of Non-Conventional SWMF