Township of Russell

Municipal Stormwater Management System - Annual Performance Report

ECA Number: 184-S701

Reporting Period: January 1st, 2024, to December 31st, 2024

Municipalité de
RUSSELL
Township

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OVERVIEW

This Annual Performance Report is issued in accordance with Schedule E, Section 5.2 of Environmental Compliance Approval (ECA) Number 184-S701, issued by the Ontario Ministry of the Environment, Conservation and Parks (MECP) for the Township of Russell Stormwater Management System, as part of the Consolidated Linear Infrastructure (CLI) process, dated January 11th, 2023.

As described in the CLI-ECA document, the Township's Municipal Stormwater Management System includes stormwater collection elements (storm sewers, ditches, and swales) as well as stormwater management facilities.

This report covers the period of January 1st, 2024, to December 31st, 2024.

MONITORING DATA

Reference ECA 185-S701, Schedule E, Section 5.2.2:

Includes a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the Authorized System and any Adverse Effects on the Natural Environment.

The Township of Russell has developed its Stormwater Monitoring Plan in accordance with Schedule E, Section 4.0 of Environmental Compliance Approval (ECA) Number 184-S701. This plan is intended to verify the operational performance of the stormwater management system, assess environmental impacts, and guide corrective actions if deficiencies are identified.

However, the Township has encountered challenges in fully implementing the monitoring requirements due to difficulties in establishing representative sampling locations within the Castor River, which receives both rural and urban runoff. The mixed flow characteristics of the river, along with issues related to right-of-way access, slope stability and employee safety, have made it difficult to ensure proper monitoring locations that provide meaningful and representative data.

Despite these challenges, the Township has identified four primary monitoring locations:

- Russell – Upstream: Hamilton Road/Craig Street
- Russell – Downstream: Wade Road Bridge
- Embrun – Upstream: Dog Park Road
- Embrun – Downstream: St. Joseph Road Bridge

These locations were chosen based on MECP guidance. While they may not entirely exclude runoff from rural lands, they were selected to minimize the risk of contamination from rural sources and reduce the quantity of rural run off that could negatively impact the monitoring data in respect to the condition and operational performance of the Authorized System. Water quality parameters such as Total Suspended Solids (TSS), Total Phosphorous (TP), Total Nitrogen (TN), Chloride (Cl), and Dissolved Oxygen (DO) will be assessed through seasonal grab sampling under various flow conditions (dry, wet, and snowmelt events).

Implementation Status & Next Steps

The first full season of monitoring was expected to begin in Summer 2024, with results to be documented in the 2024 Annual Performance Report. However, before full implementation, additional work is required to stabilize sampling locations and construct proper access to ensure safe and repeatable monitoring. The Township is also exploring alternative locations.

OPERATING ISSUES

Reference ECA 185-S701, Schedule E, Section 5.2.4:

Includes a summary of any operating problems encountered and corrective actions taken.

No new operating issues were identified within the reporting year of 2024. However, previous concerns remain unresolved and are being actively monitored. These ongoing issues continue to be prioritized as part of our ongoing commitment to improving the stormwater network's efficiency and reliability. The status and progress of these matters are outlined in the "STATUS OF PREVIOUS ACTIONS" section, where further details can be reviewed.

OPERATING ISSUES

Reference ECA 185-S701, Schedule E, Section 5.2.4:

Includes a summary of any operating problems encountered and corrective actions taken.

No new issues or unplanned emergencies occurred or were identified in 2024.

INSPECTION, MAINTENANCE AND REPAIRS

Reference ECA 185-S701, Schedule E, Section 5.2.5:

Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.

- Please refer to **Appendix B** for a summary of inspections, maintenance, and repairs out on the Stormwater Collection System.
- Please refer to **Appendix C** for a summary of inspections, maintenance, and repairs out on the Stormwater Management Facilities.
- Please refer to **Appendix E** for inspection reports carried on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.

COMPLAINTS

Reference ECA 185-S701, Schedule E, Section 5.2.7:

Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.

- Please refer to **Appendix D** for a summary of complaints received on the Authorized System.

ACTIONS TAKEN

Reference ECA 185-S701, Schedule E, Section 5.2.10:

Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.

- Please refer to **Appendix B** for actions carried out on the Stormwater Collection System.
- Please refer to **Appendix C** for actions carried out on the Stormwater Management Facilities.

CALIBRATION AND MAINTENANCE OF MONITORING EQUIPMENT

Reference ECA 185-S701, Schedule E, Section 5.2.6:

Includes a summary of the calibration and maintenance carried out on all monitoring equipment.

N/A. No specific calibration or maintenance required for current monitoring activities.

SYSTEM ALTERATIONS

Reference ECA 185-S701, Schedule E, Section 5.2.8:

Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.

Stormwater Collection System

Date	Location	Description
Summer 2024	Rochon Lands Subdivision	The proposed minor storm sewer system for the Rochon Lands Subdivision consists of various sizes of PVC DR-35 and concrete pipes, sized for the 1:5 year storm event, complete with inlet control devices on road catch basins. In addition, a combination of rear yard catch basins and swales are proposed to convey the 1:5 year storm event to the minor system, which outlets to a downstream end-of-pipe wet pond facility, where both quantity and quality control are provided.
Fall 2024	Honey South West Subdivision	Construction of PVC and concrete storm sewer varies in diameter based on street location and characteristics within Phase 1 of Southwest Park Subdivision, as follows: 1)Dove House Gardens - approx. 109m of 525mm diameter storm sewer, 21m of 250mm diameter, 58m of 375mm diameter & 5m of 825mm diameter. 2)Peacock Drive - approx. 99m of 750 mm diameter storm sewer, 14m at 375mm diameter, 38m at a 525mm diameter, 69m at a 600mm diameter & 8m at a 675mm diameter. 3)South West Promenade - approx. 119m of 900mm diameter storm sewer, 46m at 300mm diameter, 87m at a 1200mm diameter , 92m at a 1350mm diameter & an 87M section at a diameter of 2400mm x 1200mm. 4)Falcon Lane - approx. 104m of 675mm diameter storm sewer, 68m at 600mm diameter, 60m at a 525mm diameter , 66m at a 375mm diameter, 14m at a 300mm diameter & an 80M section at a diameter of 450mm. 5)Bluebird Street - approx. 135m of 750mm diameter storm sewer, 12m at 600mm diameter, 169m at a 825mm diameter & a 5M section at a diameter of 1050mm. 6)Park Entrance via Southwest Promenade - approximately 18m of 900mm diameter storm sewer. 7)Entrance to "Street 2" via Southwest Promenade - approximately 15m of 100mm diameter storm sewer. **Storm sewers outlet to a Stormwater Management Facility,located on the north end of South West Promenade.

Stormwater Management Facilities

Date	Location	Alterations
Summer 2024	Rochon Lands	Stormwater generated from the proposed Rochon Lands will be captured by a local storm sewer system and will be conveyed to the SWM Facility where an enhanced protection level treatment (80% TSS removal) will be provided. Following treatment, the storm effluent will ultimately be discharged to the York Creek, the receiving stream.
Fall 2024	Honey Southwest Subdivision	Stormwater generated from the Southwest Park Subdivision will be captured by a local storm sewer system and will conveyed to the Stormwater Management Facility (SMF). The SMF is located on the north end of Southwest Promenade. The stormwater pond is designed to achieve both quantity and quality control objectives. The stormwater will be ultimately discharged to the Castor River.

Please refer to **Appendix F** for Form SW1 and/or SW2 for further details of the above noted alterations.

SPILLS AND ABNORMAL DISCHARGE EVENTS

Reference ECA 185-S701, Schedule E, Section 5.2.9:

Includes a summary of all spills or abnormal discharge events.

No spills or abnormal discharge events were reported during the designated reporting period.

Date	Location	Details

STATUS OF PREVIOUS ACTIONS

Reference ECA 185-S701, Schedule E, Section 5.2.11:

Includes a summary of the status of actions for the previous reporting year.

In **2023,** operating issues were identified at the following facilities:

- **Pond PND1, Abbey – 61% TSS Removal Achieved**
  - Target levels for the pond aim for an 80% TSS removal rate. Further sampling will be conducted in 2024 to confirm the pond's effectiveness, especially after achieving a 92% removal rate in October 2022. However, the forebay has been identified for clean-out in 2021 by the South Nation Conservation Authority. Please refer to Labelle, Radisson, Abbey and Olde Towne Stormwater Management Facilities Inspection Report by South Nation Conservation Authority (February 2022), found in **Appendix E** for additional background on issues.
  - ***Status: No corrective actions have been taken for pond clean-out, apart from routine vegetation management. Future sampling will be conducted in accordance with monitoring plan.***

- **Pond PND2, Old Towne – Significant Overgrowth of Unwanted and Invasive Vegetation**
  - Unwanted vegetation within the pond embankment was removed as advised by the South Nation Conservation Authority. Subsequently, the Township of Russell engaged the services of the South Nation Conservation Authority to apply herbicides to prevent the regrowth of unwanted vegetation following physical removal.
  - ***Status: Routine vegetation management was completed in 2024.***

- **Pond PND2, Old Towne – Increase in TSS Observed at Outlet**
  - Refer to Olde Towne Stormwater Management Facilities Inspection Report by South Nation Conservation Authority (February 2022), found in **Appendix E** for additional background on issues.
  - ***Status: No corrective actions have been taken for pond clean-out, apart from routine vegetation management.***

- **Pond PND5, Sportsplex – Muskrat Infestation**
  - In October 2023, water levels remained consistent at the 100-year level, prompting an investigation. It was discovered that the outlet pipe was obstructed by vegetation, including weeds and cattails. Subsequent visits revealed recurring blockages, which were determined to

be caused by muskrats. The issue was resolved after 14 muskrats were removed from the facility by a licensed trapper.

- ***Status: The issue appears to have been addressed.***

- **Pond PND9, Labelle – Unsuccessful Sampling**
  - Efforts to collect a sample from the outlet of the pond were unsuccessful on July 13, 2023, due to safety concerns related to the embankment slope. Vegetation obstructed the safe passage to the outlet which is also experiencing an ongoing erosion within the natural watercourse. In an effort to address this issue, sampling will be attempted in the spring of 2024 when the vegetation is dormant and flattened by the snow.
  - ***Status: No corrective actions have been taken for pond clean-out, apart from routine vegetation management. Future sampling will be conducted in accordance with monitoring plan.***

- **Pond PND10, Radisson – Significant overgrowth of unwanted and invasive vegetation**
  - Unwanted vegetation within the pond embankment was removed as advised by the South Nation Conservation Authority. Subsequently, the Township of Russell engaged the services of the South Nation Conservation Authority to apply herbicides to prevent the regrowth of unwanted vegetation following physical removal.
  - ***Status: No corrective actions have been taken for pond clean-out, apart from routine vegetation management.***

- **Pond PND10, Radisson – Pond Failure**
  - During an inspection on May 1, 2023, it was noted that pond levels had reached the 100-year mark, prompting ongoing monitoring efforts. Initially, it was assumed that water levels in the creek were hindering pond drainage.
  - On July 14, 2023, it was determined that the sub-drains installed for pond drainage were no longer functioning effectively. Consequently, the Township enlisted Tylin, a third-party consultant, to conduct an independent investigation and commence pond redesign to ensure compliance with current industry standards and original design objectives.
  - By December 20, 2023, Tylin presented a concept plan to the Township, proposing an expansion to meet project objectives. The Township endorsed the concept and instructed Tylin to proceed with further evaluation to confirm the feasibility of the concept plan.
  - ***Status: The Township has completed the concept design for the reconstruction of the pond. The final design timeline will be determined based on budget availability.***

- **Pond PND12, Domaine-Versaille – Unsuccessful Sampling**
  - Efforts to collect a sample from the inlet of the pond were unsuccessful due to safety concerns related to falling and tripping hazards along the retaining wall. The area is beginning to become overgrown with woody vegetation, exacerbating the risk. Plans are in place to address this issue by removing the hazardous vegetation in 2024.
  - ***Status: Vegetation management has addressed the hazard concerns. Future sampling will be conducted in accordance with monitoring plan.***

- **Oil Grit Seperators (x5) – de la Rive Drive**
  - An attempt was made to clean out the four catch basin oil/grit separators (Model STC-300) on September 14, 2023. However, the cleaning port of the catch basin OGS was unusually small, rendering common hydrovac equipment ineffective for cleaning the catch basins. As a solution, a custom hose will be fabricated in 2024 to fit on a hydrovac.
  - ***Status: The issue has been addressed. All OGS were cleaned in 2024.***

APPENDIX A

Effluent Monitoring Results

APPENDIX B

Stormwater Collection System - Operations & Maintenance Log

Stormwater Collection System - Operations & Maintenance Log

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
S1-2024-01	May 1, 2024	December 31, 2024	Maintenance	CB Cleaning	HydroCam	P. Armstrong	2026	Cleaning of all catchbasins within the township of Russell, excluding catch basins under the current ownership of developpers.
S1-2024-02	May 1, 2024	December 31, 2024	Maintenance	Storm Sewer Flushing	HydroCam	P. Armstrong	2025	Cleaning of various storm sewer mains in preparation for CCTV inspections.
S1-2024-03	May 1, 2024	December 31, 2024	Inspection	Storm Sewer CCTV Inspection	HydroCam	P. Armstrong	2025	CCTV of various storm sewer mains.

APPENDIX C

SWM Facility Operations & Maintenance Log

SWM Facility Operations & Maintenance Log

Pond PND1 - Abbey

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND1-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		Pond appears to be operating as intended. Still frozen.
PND1-2024-02	May 1, 2024	October 31, 2024	Maintenance	Grass Cutting	Third-Party	J. Goulet	2025	Routine grass cutting as required
PND1-2024-03	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND1-2024-04	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns observed

SWM Facility Operations & Maintenance Log

Pond PND2 - Olde Towne

Reporting Period: 2024

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Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND2-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND2-2024-02	May 1, 2024	October 31, 2024	Maintenance	Grass Cutting	Third-Party	J. Goulet	2025	Routine grass cutting as required
PND2-2024-03	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND2-2024-04	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns observed

SWM Facility Operations & Maintenance Log

Pond PND3 - Campbell

Reporting Period: 2024

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Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND3-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND3-2024-02	May 1, 2024	October 31, 2024	Maintenance	Grass Cutting	Third-Party	J. Goulet	2025	Routine grass cutting as required
PND3-2024-03	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND3-2024-04	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns observed

SWM Facility Operations & Maintenance Log

Pond PND5 - Sportsplex

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND5-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed. Partially frozen.
PND5-2024-02	May 22, 2024	May 22, 2024	Maintenance	Grass cutting, removal of woody vegetation	Public Works	P. Armstrong		No concerns.
PND5-2024-03	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns.
PND5-2024-04	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns.

SWM Facility Operations & Maintenance Log

Pond PND7 - Quatre-Saisons

Reporting Period: 2024

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Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND7-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND7-2024-02	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND7-2024-03	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns observed
PND7-2024-04	September 9, 2024	September 9, 2024	Maintenance	Grass cutting, tree removal	Public Works	P. Armstrong		No concerns observed

SWM Facility Operations & Maintenance Log

Pond PND9 - Labelle

Reporting Period: 2024

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Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND9-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed. Partially frozen.
PND9-2024-02	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns.
PND9-2024-03	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns.

SWM Facility Operations & Maintenance Log

Pond PND10 - Radisson

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND10-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		Water levels remain high.
PND10-2024-02	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns observed.
PND10-2024-03	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns observed.

SWM Facility Operations & Maintenance Log

Pond PND12 - Domaine-Versaille

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
PND12-2024-01	February 28, 2024	February 28, 2024	Inspection	Snow Melt Inspection	P. Armstrong	P. Armstrong		No concerns observed
PND12-2024-02	March 19, 2024	March 19, 2024	Maintenance	Removal of unwanted vegetation	Public Works	P. Armstrong		No concerns.
PND12-2024-03	May 28, 2024	May 28, 2024	Inspection	Significant Storm Event, Annual Inspection	P. Armstrong	P. Armstrong		No concerns.
PND12-2024-04	August 12, 2024	August 12, 2024	Inspection	Significant Rainfall Event	P. Armstrong	P. Armstrong		No concerns.

SWM Facility Operations & Maintenance Log

Oil Grit Seperators (x5) - de la Rive Drive

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
	August 1, 2024	August 1, 2024	Maintenance	OGS Cleaning	HydroCam	P. Armstrong	Per manufacturer recommendations	Clean out the four catch basin oil/grit separators (Model STC-300)

SWM Facility Operations & Maintenance Log

Oil Grit Seperators - Stiver Street

Reporting Period: 2024

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Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
	August 1, 2024	August 1, 2024	Maintenance	OGS Cleaning	HydroCam	P. Armstrong	Per manufacturer recommendations	Cleanout of of OGS.

SWM Facility Operations & Maintenance Log

Oil Grit Seperators - Louis-Riel Street

Reporting Period: 2024

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Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
	August 1, 2024	August 1, 2024	Maintenance	OGS Cleaning	HydroCam	P. Armstrong	Per manufacturer recommendations	Cleanout of of OGS.

SWM Facility Operations & Maintenance Log

Oil Grit Seperators - 371 New York Central Ave

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
	August 1, 2024	August 1, 2024	Maintenance	OGS Cleaning	HydroCam	P. Armstrong	Per manufacturer recommendations	Cleanout of of OGS.

SWM Facility Operations & Maintenance Log

Oil Grit Seperators - 371 New York Central Ave

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions

SWM Facility Operations & Maintenance Log

Oil Grit Seperators - 1128 Route 300

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Next Planned	Comments/Observations/Actions
	August 1, 2024	August 1, 2024	Maintenance	OGS Cleaning	HydroCam	P. Armstrong	Per manufacturer recommendations	Cleanout of of OGS.

APPENDIX D

Complaints

Stormwater Collection System - Complaints

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Comments/Observations/Actions
SR-6202	February 9, 2024	October 10, 2024	Complaint	Culvert	9 BOLS ST	P. Armstrong	Resident called to inquire about the culvert replacement process. Mentioned concerns about neighbor's water draining onto their lawn. Stated that the neighboring property lacks a culvert, potentially requiring installation. Resident's culvert needs to be lowered for proper drainage and extended for a wider laneway. Concerned about neighbor's downspouts draining onto their property. Noted that sump pump discharge from the neighboring property also drains through their property. Requested a proper ditch to be dug to improve drainage at the neighboring property. Reviewed site with resident and confirmed there were no concerns on our end. Resident applied for a permit and replaced the culvert.
SR-6216	February 21, 2024	February 21, 2024	Complaint	Drainage - Rear Yard	321 CENTRALPARK BLVD	P. Armstrong	Details: Water is pooling at the back of the property instead of flowing to the storm sewer at the back left of the yard. Issue has worsened over time and is expected to be significant in the spring after snowmelt. Resident requests an inspection of the grading to ensure proper water flow to the storm sewer. Water has also pooled on the walking path behind the middle townhouse, forming a small pond. Action Taken: The concern about ponding in the rear yard swale falls under the developer's responsibility. The issue has been forwarded to the Township Engineer for review to determine if it must be addressed before final grading approval and road ownership transfer to the Township.
SR-6246	March 12, 2024	May 7, 2024	Complaint	Sewage Backup	127 RADISSON DR	P. Armstrong	Inquiry: Resident's daughter called at 1 PM requesting a check for blockage in the storm sewer due to water entering the basement. Inspection: Site visit conducted with Wes. Confirmed that both sanitary and storm sewers are flowing properly. No blockages found in the sewers. Additional Information: A contractor confirmed that water was entering through the storm clean-out with black water. Advice Given: Main sewer reviewed for concerns. No concerns observed. Resident advised to contact a plumber for further investigation.
SR-6349	April 16, 2024	October 10, 2024	Complaint	Drainage - Rear Yard	144 BOXCAR CRES	P. Armstrong	Resident reported a recurring issue with a sinking storm drain in the backyard at 144 Boxcar Crescent, Russell. This is the third year the issue has occurred, with previous repairs done by the developers. Repaired on October 10.
SR-6377	April 29, 2024	April 30, 2024	Complaint	Drainage	46 OASIS ST	P. Armstrong	Resident reported that the road catch basin has been draining poorly. Site review confirmed that filter was still in place from the the development stage and was removed accordginly.
SR-6386	May 2, 2024	May 6, 2024	Complaint	Storm Sewer - Repairs	26 PARKLANDS AVE	P. Armstrong	Resident reported that storm sewer between 26-28 Parkland dropped 8 inches. Inspected by Township on May 6, 2024 at 8:30AM. No concerns observed.

Stormwater Collection System - Complaints

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Comments/Observations/Actions
SR-6463	May 17, 2024	May 21, 2024	Complaint	Storm Sewer - Repairs	111 STATION TRAIL	P. Armstrong	Resident reported that at the back of property at 111 Station Trail, Russell, there is a drain for water run-off. The earth on one side is sinking. In case Township wanted to check the drain, attaching a picture. Site was reviewed, repair deemed necessary and completed.
SR-6471	May 21, 2024	May 22, 2024	Complaint	Drainage - Rear Yard	79 CASTLEBEAU ST	P. Armstrong	Resident reported a potentially burried catch basin at 79 Castlebeau, It was confirmed that catch basin was buried under garbage (i.e shingles) from previous owner. It was exposed and cleared.
SR-6493	May 28, 2024	May 29, 2024	Complaint	Roads - Drainage	35 GEORGE ST	P. Armstrong	Resident reported Mass pool of water at the corner of that intersection. No water pooling during visit on the morning of May 29.
SR-6514	May 31, 2024	June 4, 2024	Complaint	Drainage - Rear Yard	184 BOXCAR CRES	P. Armstrong	A resident reported concerns about backyard drainage, stating that their neighbor was unhappy about water flowing into their yard and planned to build a wall to stop it. An inspection was conducted, confirming that the resident's downspout was directing water into a swale as intended. The resident was advised to redirect the downspout toward a catch basin, and to report any obstruction attempts by the neighbor. Later, another inspection was conducted after a report that the neighbor was adding stone to the swale. The neighbor explained they were filling in settlement with stone dust, but no evidence of obstruction was found. A conversation followed, where the resident expressed disagreement with the findings, citing insurance requirements for downspout placement. Further discussions addressed concerns about property grading, drainage, and fence placement. The township confirmed that the swale was a shared drainage feature and advised cooperation between neighbors or consultation with a surveyor. The township clarified that maintaining proper drainage was the homeowners' responsibility and that no by-law violations had occurred. After additional rainfall, an inspection showed no water pooling. The residents expressed their intent to work with the neighbor to restore the swale and relocate their downspout as needed.
SR-6534	June 10, 2024	June 11, 2024	Complaint	Storm Sewer	1 DOLLARD STREET	P. Armstrong	Resident called, stormwater backflow not working, storm water is back flowing into his units. Told him to check his backwater valves and explained they need routine maintenance and exercising., Resident came in around 1:30PM on July 3, 2024, indicating that there was about a bucket of water in the basement following rain last Wednesday night. Water appears to be coming through the floor of the basement. He is concerned that the storm sewers do not have capacity. I explained that sewers do have a limit to capacity, however a home that is engineered and constructed according to modern standards, water should not be coming through the floor.
SR-6622	June 25, 2024	June 25, 2024	Complaint	Sinkhole	189 PIONEER RD	P. Armstrong	Resident reported sinkhole around catch basin. Catch Basin is currently under ownership of the developper and was sent to the developper for repair.

Stormwater Collection System - Complaints

Reporting Period: 2024

Reference ECA 185-S701, Schedule E, Section 5.2.4: *Includes a summary of any operating problems encountered and corrective actions taken.*

Reference ECA 185-S701, Schedule E, Section 5.2.5: *Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System.*

Reference ECA 185-S701, Schedule E, Section 5.2.7: *Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.*

Reference ECA 185-S701, Schedule E, Section 5.2.10: *Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System.*

Ref.	Date From	Date To	Type	Description	Performed By	Verified By	Comments/Observations/Actions
SR-6634	June 27, 2024	June 27, 2024	Complaint	Sewage Backup	337 BELFORT ST	P. Armstrong	Resident reported back within home following significant rainfall event last night. Review of the storm sewers and no obstruction were present.
SR-6635	June 27, 2024	June 27, 2024	Complaint	Sewage Backup	52 LOUIS RIEL ST	P. Armstrong	Resident reported back within home following significant rainfall event last night. Review of the storm sewers and no obstruction were present.
SR-6636	June 27, 2024	June 27, 2024	Complaint	Sewage Backup	127 RADISSON DR	P. Armstrong	Resident reported back within home following significant rainfall event last night. Review of the storm sewers and no obstruction were present.
SR-6638	June 27, 2024	June 27, 2024	Complaint	Sewage Backup	56 LA PRAIRIE ST	P. Armstrong	Resident reported back within home following significant rainfall event last night. Review of the storm sewers and no obstruction were present.
SR-6659	July 9, 2024	July 9, 2024	Complaint	Drainage	23 DOLLARD ST	P. Armstrong	Spoke with resident on July 9 at 11:30AM. He indicated water has been finding it's way in his basement during heavy down pours. He indicated that he has a backwater valve and has just checked the seal on his cleanout. Told him there's not much we can do and that it appears he has taken the necessary precautions to reduce the flood risk.
SR-6662	July 9, 2024	July 11, 2024	Complaint	Drainage	70 OASIS ST	P. Armstrong	Resident called about a drain in the front of the yard, between the two property lines to his neighbor. Causing flooding and quite the mess. is wondering if someone can come and investigate, Confirmed CB is not blocked. Spoke with resident, no further concerns.
SR-6707	July 16, 2024	July 17, 2024	Complaint	Drainage	23 LOUISE CRES	P. Armstrong	Resident reported that during heavy rain events storm drain overflows in the street. Suspecting a blockage. Response to resident: We have reviewed the situation and can confirm that no immediate issues were observed. The Township acknowledges that the storm sewer system serving your road is approaching its intended service life and has been identified for replacement and modernization. The noted concerns will be addressed as part of the planned replacement of the storm sewers and subsequent resurfacing of the asphalt surface.
SR-6749	July 30, 2024	July 31, 2024	Complaint	Drainage	36 mill	P. Armstrong	Resident reported after last heavy rain, her basement backed up with water, and the ditch on the left of her house between her and the neigbourss looks blocked. Site was checked out site, no evidence of blockages. Called her back and told her.
SR-7072	November 14, 2024	November 14, 2024	Complaint	Storm Sewer	243 BELFORT ST	P. Armstrong	The resident reported that they witnessed a contractor dumping a brown sludge into a storm drain in front of my house. Response to resident: I wanted to inform you that the contractor has taken responsibility for the situation and has addressed the issue at their own expense. Thank you for bringing this to our attention.

APPENDIX E

Inspection Reports

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND-1 - Abbey	Dry	Wet	2023	28-May	9:10AM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 18C		39.9	68.91 (2yr-5yr Level)	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	2	Forebay identified for clean-out.
Are there any odours?	0	
Is the algae growth present?	0	
Are there signs of erosion?	0	
Are there signs of pollution?	2	Debris (2x4 wood) to be removed from pond.
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	2	Obstructed with vegetation and sediment build up.
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	0	
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/A	
Condition of aquatic vegetation	2	Identified for clean-out.
Condition of bank vegetation	1	Small amount of woody vegetation has started to grow.
Condition of surrounding area vegetations	0	
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	N/A	
Turbidity in the pond	0	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	2	Obstructed with vegetation and sediment build up.
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

1. WO-3208 created for removal of debris and vegetation at inlet.

2. As per the SNCA Labelle, Radisson, Abby and Olde Towne Stormwater Management Facilities Inspection Report Stormwater Management Facility Inspection Report dated February 2022, it is recommended that the sediment and dense vegetation be removed from the forebay and reinstated to designed grades. Additionally, the gabion berm and low flow deflector should be repaired as per the design. The SNCA was unsuccessful in surveying sediment in the main pond. A sediment measurement should be performed prior to the forebay clean-out.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND3 - Campbell	Dry	Wet	2023	28-May	10:00AM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18		39.9	N/A	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	2	Subdrain remains exposed, showing signs of additional damage.
Is there any noticeable sediment accumulation?	0	
Are there any odours?	0	
Is the algae growth present?	0	
Are there signs of erosion?	1	Embankment on the east side of the pond, where trees were recently removed, should be monitored until vegetation is reestablished.
Are there signs of pollution?	0	
Are the grates secured and locked?	N/A	
Are the grates clear of debris?	N/A	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	2	Debris buildup in the DICB is obstructing flow from the main storm sewer.
Is the outlet blocked?	N/A	
Is the orifice blocked?	N/A	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	0	
Are waterfowl present?	0	
Are invasive plants present?	N/A	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	2	Damaged fencing at 2 areas
Condition of aquatic vegetation	0	
Condition of bank vegetation	1	Embankment on the east side of the pond, where trees were recently removed, should be monitored until vegetation is reestablished.
Condition of surrounding area vegetations	0	
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	0	Resident has trimmed cedar hedge.
Turbidity in the pond	N/A	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	2	Debris buildup in the DICB is obstructing flow from the main storm sewer.
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	N/A	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

1. WO-3209 created for removal of debris in DICB.
2. WO-3210 created to repair subdrain.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND12 - Domaine-Versaille	Dry	Wet	2023-11-23 (SNCA)	28-May	1:55PM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18C		39.9	135cm below outlet TOW	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	2	
Is there any noticeable sediment accumulation?	2	
Are there any odours?	0	
Is the algae growth present?	2	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	0	
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	0	
Condition of aquatic vegetation	2	
Condition of bank vegetation	N/A	Developer replaced designed 3:1 embankment with stone wall.
Condition of surrounding area vegetations	1	Some woody vegetation remains inaccessible areas following a recent clean-out.
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	0	
Turbidity in the pond	2	
Condition of downstream rip rap	0	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

1. According to the drawings, there is supposed to be a maintenance ramp in the South-East corner of the SWMF. This ramp does not exist.
2. Damage was noted on the gabion berm and low flow deflector.
3. As per the SNCA Domaine-Versailles Stormwater Management Facility Inspection Report dated February 2024, it is recommended that the vegetation and silt be removed from the pond and reinstated to approved grades. Additionally, the gabion berm and low flow deflector should be repaired as per the design.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND9 - Labelle	Dry	Wet	2023	28-May	11:00AM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18C		39.9	N/I	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	N/I	
Is there any noticeable sediment accumulation?	2	
Are there any odours?	0	
Is the algae growth present?	N/I	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	N/I	Will return once grass has been cut.
Is the orifice blocked?	N/I	Will return once grass has been cut.
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	Will return once grass has been cut.
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	N/I	Will return once grass has been cut.
Turbidity in the pond	2	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	N/I	Will return once grass has been cut.
Condition of outlet no. 2	N/I	Will return once grass has been cut.

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

1. As per the SNCA Labelle, Radisson, Abby and Olde Towne Stormwater Management Facilities Inspection Report Stormwater Management Facility Inspection Report dated February 2022, it is recommended that the sediment and dense vegetation be removed from the pond and reinstated to designed grades. Additionally, It is recommended to investigate the erosion identified along the East York Creek and mitigated accordingly to prevent future structural concerns with the pond.

2. Annual inspection will be performed once remainder of grass has been cut.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND2 - Olde Towne	Dry	Wet	2023	28-May	9:35AM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18C		39.9	69.02	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	2	The pond has been identified for a clean-out.
Is there any noticeable sediment accumulation?	2	The pond has been identified for a clean-out.
Are there any odours?	0	
Is the algae growth present?	2	The pond has been identified for a clean-out.
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	2	Unable to open inlet grate to remove PVC pipe. The pond has been identified for a clean-out.
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	Unable to open inlet grate to remove PVC pipe. The pond has been identified for a clean-out.
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	0	
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	2	Fencing at 101 Olde Towne has damage.
Condition of aquatic vegetation	2	
Condition of bank vegetation	0	Maintained in 2023.
Condition of surrounding area vegetations	0	Maintained in 2023.
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	N/A	
Turbidity in the pond	2	The pond has been identified for a clean-out.
Condition of downstream rip rap	0	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	2	The Forced Road berm shown on the approved drawings has not been constructed. The PVC pipes from the pond to the DICB are currently exposed to sunlight and are damaged as a result.
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

1. As per the SNCA Labelle, Radisson, Abby and Olde Towne Stormwater Management Facilities Inspection Report Stormwater Management Facility Inspection Report dated February 2022, it is recommended that the sediment and dense vegetation be removed from the pond and reinstated to designed grades. Additionally, The outlet structure and design plans should be reviewed by qualified professional to determine the effectiveness of the current construction as well as to provide recommendations on how best to remedy the outlet structure.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND7 - Quatre-Saisons	Dry	Wet	2023	28-May	10:45AM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18C		39.9	N/A	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	0	
Are there any odours?	0	
Is the algae growth present?	0	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	0	
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	0	
Condition of aquatic vegetation	1	
Condition of bank vegetation	0	
Condition of surrounding area vegetations	0	
Condition of signage present	N/A	Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route	N/A	
Turbidity in the pond	N/A	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	2	Vegetation clippings should be raked to ensure they do not obstruct the DICB outlet.
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

WO-3211 created to remove vegetation clippings.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND10 - Radisson	Dry	Wet	2023	28-May	1:20PM
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
Patrick Armstrong	Cloudy, 18C		39.9	100 Year	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?		
Is there any noticeable sediment accumulation?		
Are there any odours?		
Is the algae growth present?		
Are there signs of erosion?		
Are there signs of pollution?		
Are the grates secured and locked?		
Are the grates clear of debris?		
Is there ponding water? (dry pond, see section 5.6)		
Is the inlet blocked?		
Is the outlet blocked?		Debris removed during inspection
Is the orifice blocked?		
Are there signs of vandalism?		
Are there animal burrows in the embankments?		
Are waterfowl present?		
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail		
Condition of aquatic vegetation		
Condition of bank vegetation		
Condition of surrounding area vegetations		
Condition of signage present		Signs have been ordered and will be installed according to ECA guidelines.
Condition of access route		
Turbidity in the pond		
Condition of downstream rip rap		
Condition of inlet no. 1		
Condition of inlet no. 2		
Condition of outlet no. 1		
Condition of outlet no. 2		

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

The pond no longer functions as intended and is currently being redesigned to restore its proper function using modern outlet structures. The concept plan submitted by the engineer has been approved, and the final design is underway.

Patrick Armstrong
Signature

May 28, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND-1 - Abbey	Dry	Wet	28-May	12-Aug	
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	N/I	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	It is too early in the season to confirm the presence of invasive species.

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	Identified for clean-out.
Condition of bank vegetation	N/I	Small amount of woody vegetation has started to grow.
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	0	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND3 - Campbell	Dry	Wet	28-May	12-Aug	7:28
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	0	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/A	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND12 - Domaine Versaille	Dry	Wet	28-May	12-Aug	9:54
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	2	
Are there signs of erosion?	N/A	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	2	Aquatic vegetation identified for clean out.
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	1	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	Identified for clean-out.
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/I	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	1	Monitor aquatic vegetation.
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND9 - Labelle	Dry	Wet	28-May	12-Aug	10:20
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	2	
Are there signs of erosion?	N/I	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	Identified for clean-out.
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/I	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND2 - Olde Towne	Dry	Wet	28-May	12-Aug	7:35
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	N/I	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	N/I	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/I	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND7 - Quatre-Saisons	Dry	Wet	28-May	12-Aug	8:24
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	N/A	
Are there signs of erosion?	0	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/A	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND10 - Radisson	Dry	Wet	28-May	12-Aug	10:06
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	1	Odours observed at DICB
Is the algae growth present?	N/I	
Are there signs of erosion?	N/I	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	1	Debris removed from DICB
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	1	Debris removed from DICB
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	2	
Condition of access route	N/A	
Turbidity in the pond	N/I	
Condition of downstream rip rap	N/A	
Condition of inlet no. 1	0	
Condition of inlet no. 2	0	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

Inspection Form - Stormwater Management Maintenance

Township of Russell

Facility Name	Pond Type		Last Inspection	Date	Time
PND4 - Sportsplex	Dry	Wet	28-May	12-Aug	7:59
Inspected by	**Weather Conditions**		**Precip last 5 days (mm)**	**Water Level**	
P. Armstrong	Cloudy, 15C		49.6	Not Measured	
Purpose of Inspection					
Routine	Significant Storm Event	Emergency	Complaint	Other:	

Observations	Rating	Comments
Are there any obvious structural defects?	0	
Is there any noticeable sediment accumulation?	N/I	
Are there any odours?	0	
Is the algae growth present?	1	
Are there signs of erosion?	N/I	
Are there signs of pollution?	0	
Are the grates secured and locked?	0	
Are the grates clear of debris?	0	
Is there ponding water? (dry pond, see section 5.6)	0	
Is the inlet blocked?	0	
Is the outlet blocked?	0	
Is the orifice blocked?	0	
Are there signs of vandalism?	0	
Are there animal burrows in the embankments?	N/I	
Are waterfowl present?	0	
Are invasive plants present?	N/I	

Conditions	Rating	Comments
Condition of the fencing/guardrail	N/I	
Condition of aquatic vegetation	N/I	
Condition of bank vegetation	N/I	
Condition of surrounding area vegetations	N/I	
Condition of signage present	0	
Condition of access route	N/A	
Turbidity in the pond	N/I	
Condition of downstream rip rap	0	
Condition of inlet no. 1	0	
Condition of inlet no. 2	N/A	
Condition of outlet no. 1	0	
Condition of outlet no. 2	N/A	

Rating Descriptions:

N/A - Not applicable N/I - Not investigated

0 - No problems 1 - Monitor for future repairs 2 - Routine repairs needed 3 - Immediate action needed

Additional comments/recommendations:

Patrick Armstrong
Signature

August 12, 2024
Date

APPENDIX F

System Alteration

Ontario

Ministry of the Environment, Conservation and Parks

Form SW1 - Record of Future Alteration Authorized for Storm Sewers/Ditches/Culverts

Retain Completed Form - Do Not Send to the Ministry

Part 1 - Environmental Compliance Approval Number

(Insert the Environmental Compliance Approval number authorizing the alteration of Storm Sewers, Ditches or Culverts)

CLI-ECA # 184-S701

Part 2 - Description of storm sewer/ditch/culvert alteration (Use attachments if required)

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name); and
2) An attachment including plan and profile drawings identifying at a minimum:
   a) location(s) of the undertaking (e.g. showing street names, easements, discharge points, slope, etc.); and
   b) nominal diameter of the sewer/culvert(s), associated with the alteration.

Construction of PVC and concrete storm sewer varies in diameter based on street location and characteristics within Phase 1 of Southwest Park Subdivision, as follows:
1)Dove House Gardens - approx. 109m of 525mm diameter storm sewer, 21m of 250mm diameter, 58m of 375mm diameter & 5m of 825mm diameter.
2)Peacock Drive - approx. 99m of 750 mm diameter storm sewer, 14m at 375mm diameter, 38m at a 525mm diameter, 69m at a 600mm diameter & 8m at a 675mm diameter.
3)South West Promenade - approx. 119m of 900mm diameter storm sewer, 46m at 300mm diameter, 87m at a 1200mm diameter , 92m at a 1350mm diameter & an 87M section at a diameter of 2400mm x 1200mm.
4)Falcon Lane - approx. 104m of 675mm diameter storm sewer, 68m at 600mm diameter, 60m at a 525mm diameter , 66m at a 375mm diameter, 14m at a 300mm diameter & an 80M section at a diameter of 450mm.
5)Bluebird Street - approx. 135m of 750mm diameter storm sewer, 12m at 600mm diameter, 169m at a 825mm diameter & a 5M section at a diameter of 1050mm.
6)Park Entrance via Southwest Promenade - approximately 18m of 900mm diameter storm sewer.
7)Entrance to "Street 2" via Southwest Promenade - approximately 15m of 100mm diameter storm sewer.
**Storm sewers outlet to a Stormwater Management Facility,located on the north end of South West Promenade.

Drawings and details of the proposed sewers are shown on the General Plan of Services submitted as part of the subdivision approvals.

Part 3 - Verification by Licensed Engineering Practitioner

I hereby verify that I am a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario and the design of the storm sewer/ditch/culvert alteration:

1) Has been prepared by a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario;
2) Has been documented in a design report and any other applicable design forms;
3) Has been designed only to collect and transit stormwater, and not designed to collect or treat any sanitary sewage, nor designed to collect, store, treat, control, or manage groundwater, unless for the purpose of foundation drains, road subdrains, or LIDs;
4) Satisfies the design criteria set out in the Ministry's publication "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval", as amended, and have documented the reasons for this opinion;
5) Satisfies the standards as set in Ontario Provincial Standard Specifications and Ontario Provincial Standard Drawings, as applicable to ditches and culverts;

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6) Is consistent with, or otherwise addresses, the design objectives, as applicable, contained within the Ministry of the Environment, Conservation and Parks publication “Design Guidelines for Sewage Works, 2008”, as amended;

7) Has been planned, designed and built to be consistent with the Ministry’s publication “Stormwater Management Planning and Design Guidance Manual, 2003”, as amended;

8) Does not increase stormwater flow of an existing storm sewer, unless the existing downstream municipal SWM system has sufficient residual conveyance and treatment capacity to accommodate the additional stormwater, and have documented the reasons for this opinion; and

9) Does not increase local hydraulic capacity of an existing storm sewer or ditch to accommodate new stormwater flows unless the existing downstream municipal SWM system has sufficient residual hydraulic capacity to accommodate the additional stormwater, and have documented the reasons for this opinion.

Name	PEO Licence Number
Charissa Hampel	100223712
Signature C. Hampel	Date (yyyy/mm/dd) 2024/12/03

Part 4 - Verification by Owner

I hereby verify that:

1) Alteration of the stormwater system’s storm sewers/ditches/culverts, and/or appurtenances will not result in:
   a) Adverse effects; or
   b) A deterioration on the approved quantity of downstream stormwater management facilities which results in not being able to achieve the overall stormwater performance criteria per Appendix A of the ECA identified in Part 1 of this form.

2) The storm sewer, ditch or culvert alteration will not adversely affect the municipal stormwater management (SWM) system’s ability to maintain a gravity flow without overflowing or increasing surcharging any maintenance holes as per design, or provide smooth flow transition to existing gravity storm sewers.

3) The alteration does not establish or alter any outlets that discharge to land not owned by the Owner without the expressed written consent of the owner(s) of such private land(s) that the works will discharge to;

4) An assessment of the proposed works has been completed to determine if the works pose a Significant Drinking Water Threat. The proposed works do not pose any threats to sources of drinking water or design includes features that mitigate the threat to sources of drinking water, such as those included in: Ministry’s Standard Operating Policy for Sewage Works, as amended from time to time; and Source Protection Plan policies pertaining to the works;

5) The proposed works are wholly located within the municipal boundary over which the owner has jurisdiction except where there is an agreement existed between municipalities;

6) The owner consents to the storm sewer/ditch/culvert alteration;

7) The owner has consulted with the local Conservation Authority and obtained necessary clearance, as required;

8) Any works that establish new or increase discharges to a municipal drain have obtained written approval by the Owner and a signed engineer’s drainage report, in accordance with the *Drainage Act*; and

9) I am an authorized representative of the owner to complete this verification.

Name of Owner	Name of Owner Representative
Signature	Date (yyyy/mm/dd)

Part 5 - Post Construction Verification by Owner for Inspection and Testing

I hereby verify that:

1) The storm sewer alteration has complied with inspection and testing requirements set out in the Ministry of the Environment, Conservation and Parks publication “Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval”, as amended, and have documentation of the inspection and testing results.

Name of Owner	Name of Owner Representative

Signature	Date (yyyy/mm/dd)

Note: Parts 1 to 4 above shall be completed before construction.
Part 5 is to be completed after the inspection and testing have been undertaken.

Ontario

Ministry of the Environment, Conservation and Parks

Form SW2 - Record of Future Alteration Authorized for Stormwater Management Facilities

Retain Completed Form - Do Not Send to the Ministry

Part 1 - Environmental Compliance Approval Number

(Insert the Environmental Compliance Approval number authorizing the alteration of Stormwater Management Facilities)

CLI-ECA # 184-S701

Part 2 - Description of stormwater management facility alteration (Use attachments if required)

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name); and
2) An attachment including plan and cross-section drawing identifying at a minimum:
   a) location(s) of the undertaking (e.g. showing street names, easements, discharge points, etc.); and
   b) components of the alteration of the stormwater management facility.

Stormwater generated from the Southwest Park Subdivision will be captured by a local storm sewer system and will be conveyed to the Stormwater Management Facility (SMF). The SMF is located on the north end of South West Promenade. The stormwater pond is designed to achieve both quantity and quality control objectives. The stormwater will be ultimately be discharged to the Castor River.

Drawings and details of the proposed Stormwater Management Facility are shown on the Stowmwater Managment Facility Drawings and SWM Report submitted as part of the subdivision approvals.

Part 3 - Verification by Licensed Engineering Practitioner (as applicable to the undertaking)

I hereby verify that I am a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario and the design of the stormwater management facility alteration:

1) Has been prepared by a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario;
2) Has been documented in a design report and any other applicable design forms;
3) Has been designed to collect, receive, treat, or control only stormwater, and not designed to collect, receive, treat, or control sanitary sewage;
4) Has been planned, designed and built to be consistent with the Ministry of the Environment, Conservation and Parks publication “Stormwater Management Planning and Design Guidance Manual, 2003”, as amended;
5) Satisfies the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval”, as amended, and have documented the reasons for this opinion;

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6) Satisfies the requirements outlined in Appendix A of the ECA identified in Part 1 of this form, and have documented the reasons for this opinion;

7) Includes an outlet or an emergency overflow for the works, with the verification of the location, route, and capacity of the receiving major system to accommodate overflows; and

8) If adding new Manufactured Treatment Devices, has met the requirements of the conditions of the ECA identified in Part 1 of this form which authorizes the alteration.

Name	PEO Licence Number
Charissa Hampel	100223712
Signature C. Hampel	Date (yyyy/mm/dd) 2024/12/03

Part 4 - Verification by Owner

I hereby verify that:

1) Any alteration by adding, modifying, replacing, or extending stormwater management facilities will not result in:
   a) Adverse effects; or
   b) A deterioration on the approved quantity of downstream stormwater management facilities which results in not being able to achieve the overall stormwater performance criteria per Appendix A of the ECA identified in Part 1 of this form.
2) The alteration does not establish or alter any outlets that discharge to land not owned by the Owner without the expressed written consent of the owner(s) of such private land(s) that the works will discharge to;
3) If privately owned stormwater works have been used in the stormwater treatment train to achieve Appendix A criteria of the ECA identified in Part 1 of this form, then the Owner has met the requirements of the conditions of the ECA identified in Part 1 of this form which authorizes the use of privately owned stormwater works;
4) An assessment of the proposed works to determine if the works pose a significant drinking water threat has been completed and where applicable, mitigation measures are incorporated to protect water sources in accordance with the Ministry's Standard Operating Policy for Sewage Works, as amended; and Source Protection Plan policies pertaining to the works;
5) The proposed works are wholly located within the municipal boundary over which the owner has jurisdiction except where there is an agreement existed between municipalities;
6) The owner consents to the stormwater management facility alteration;
7) The owner has consulted with the local Conservation Authority and obtained necessary clearance, as required;
8) Any works that fall under the Drainage Act has obtained approval of a petition for the works under the *Drainage Act*;
9) Any works that establish new or increase discharges to a municipal drain have obtained written approval by the Owner and a signed engineer's drainage report, in accordance with the *Drainage Act*; and
10) I am an authorized representative of the owner to complete this verification.

Name of Owner	Name of Owner Representative
Signature	Date (yyyy/mm/dd)

Clear Form | Print Form

Ontario

Ministry of the Environment, Conservation and Parks

Form SW1
Record of Future Alteration Authorized for Storm Sewers/Ditches/Culverts

RETAIN COMPLETED FORM - DO NOT SEND TO THE MINISTRY

Part 1 - Environmental Compliance Approval Number

(Insert the Environmental Compliance Approval number authorizing the alteration of Storm Sewers, Ditches or Culverts)

184-S701

Part 2 - Description of storm sewer/ditch/culvert alteration (Use attachments if required)

The proposed minor storm sewer system for the Rochon Lands Subdivision consists of various sizes of PVC DR-35 and concrete pipes, sized for the 1:5 year storm event, complete with inlet control devices on road catch basins. In addition, a combination of rear yard catch basins and swales are proposed to convey the 1:5 year storm event to the minor system, which outlets to a downstream end-of-pipe wet pond facility, where both quantity and quality control are provided.

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name); and
2) An attachment including plan and profile drawings identifying at a minimum:
   a) location(s) of the undertaking (e.g. showing street names, easements, discharge points, slope, etc.); and
   b) nominal diameter of the sewer/culvert(s), associated with the alteration.

Part 3 - Verification by Licensed Engineering Practitioner

I hereby verify that I am a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario and the design of the storm sewer/ditch/culvert alteration:

1) Has been prepared by a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario;
2) Has been documented in a design report and any other applicable design forms;
3) Has been designed only to collect and transit stormwater, and not designed to collect or treat any sanitary sewage, nor designed to collect, store, treat, control, or manage groundwater, unless for the purpose of foundation drains, road subdrains, or LIDs;
4) Satisfies the design criteria set out in the Ministry's publication "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval", as amended, and have documented the reasons for this opinion;
5) Satisfies the standards as set in Ontario Provincial Standard Specifications and Ontario Provincial Standard Drawings, as applicable to ditches and culverts;
6) Is consistent with, or otherwise addresses, the design objectives, as applicable, contained within the Ministry of the Environment, Conservation and Parks publication "Design Guidelines for Sewage Works, 2008", as amended;
7) Has been planned, designed and built to be consistent with the Ministry's publication "Stormwater Management Planning and Design Guidance Manual, 2003", as amended;
8) Does not increase stormwater flow of an existing storm sewer, unless the existing downstream municipal SWM system has sufficient residual conveyance and treatment capacity to accommodate the additional stormwater, and have documented the reasons for this opinion; and
9) Does not increase local hydraulic capacity of an existing storm sewer or ditch to accommodate new stormwater flows unless the existing downstream municipal SWM system has sufficient residual hydraulic capacity to accommodate the additional stormwater, and have documented the reasons for this opinion.

Name (Print)	PEO Licence Number
Annie Williams	100218983

Signature	Date (yyyy/mm/dd)
	2024/01/12

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Part 4 - Verification by Owner

I hereby verify that:

1) Alteration of the stormwater system's storm sewers/ditches/culverts, and/or appurtenances will not result in:
   a) Adverse effects; or
   b) A deterioration on the approved quantity of downstream stormwater management facilities which results in not being able to achieve the overall stormwater performance criteria per Appendix A of the ECA identified in Part 1 of this form.

2) The storm sewer, ditch or culvert alteration will not adversely affect the municipal stormwater management (SWM) system's ability to maintain a gravity flow without overflowing or increasing surcharging any maintenance holes as per design, or provide smooth flow transition to existing gravity storm sewers.

3) The alteration does not establish or alter any outlets that discharge to land not owned by the Owner without the expressed written consent of the owner(s) of such private land(s) that the works will discharge to;

4) An assessment of the proposed works has been completed to determine if the works pose a Significant Drinking Water Threat. The proposed works do not pose any threats to sources of drinking water or design includes features that mitigate the threat to sources of drinking water, such as those included in: Ministry's Standard Operating Policy for Sewage Works, as amended from time to time; and Source Protection Plan policies pertaining to the works;

5) The proposed works are wholly located within the municipal boundary over which the owner has jurisdiction except where there is an agreement existed between municipalities;

6) The owner consents to the storm sewer/ditch/culvert alteration;

7) The owner has consulted with the local Conservation Authority and obtained necessary clearance, as required;

8) Any works that establish new or increase discharges to a municipal drain have obtained written approval by the Owner and a signed engineer's drainage report, in accordance with the Drainage Act; and

9) I am an authorized representative of the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)
Signature	Date (yyyy/mm/dd)

Part 5 - Post Construction Verification by Owner for Inspection and Testing

I hereby verify that:

1) The storm sewer alteration has complied with inspection and testing requirements set out in the Ministry of the Environment, Conservation and Parks publication "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval", as amended, and have documentation of the inspection and testing results.

Name of Owner (Print)	Name of Owner Representative (Print)
Signature	Date (yyyy/mm/dd)

Note: Parts 1 to 4 above shall be completed before construction.
Part 5 is to be completed after the inspection and testing have been undertaken.

Print Form

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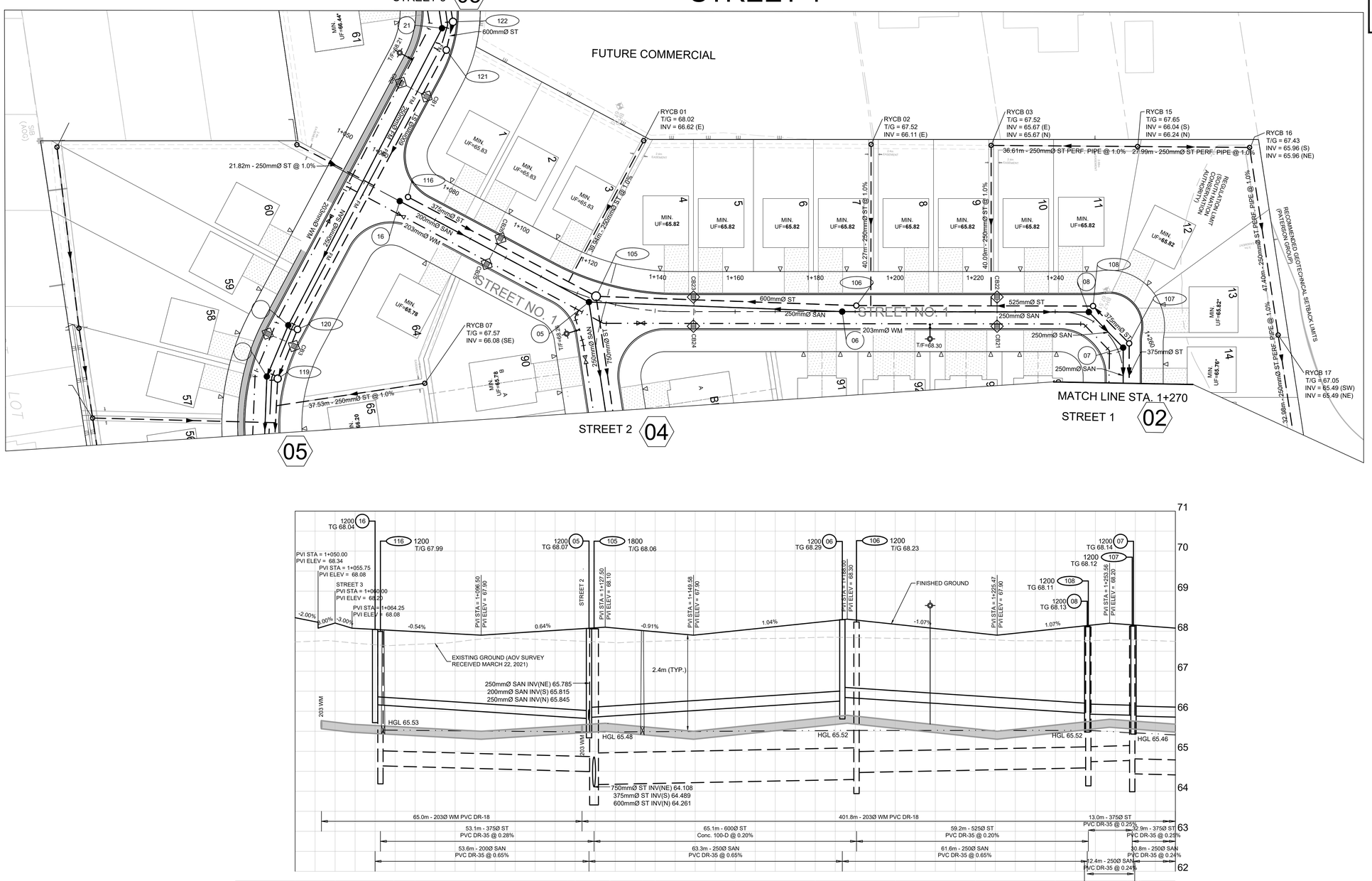
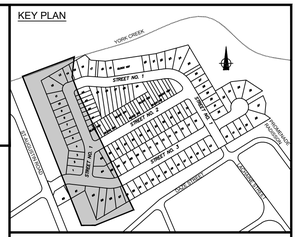
STREET 1



PROJECT NORTH

KEY PLAN



LEGEND

- PROPOSED WATERMAIN, VALVE & HYDRANT
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED SANITARY SEWER & MANHOLE
- PROPOSED STORM SEWER & MANHOLE
- PROPOSED FORCE MAIN
- HYDRAULIC GRADE LINE (HGL)
- PROPOSED CULVERT
- UF = 90.65* — UNDERSIDE OF FOOTING ELEVATION *FROST FOOTINGS OR STEPPED FOOTINGS REQUIRED
- 02 — DRAWING NUMBER
- RIP-RAP TO OPSD 810.010 (TYPE B)
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN c/w ICD
- PROPOSED CATCH BASIN & LEAD
- PROPOSED TEE CATCHBASIN
- PROPOSED 3-WAY CATCHBASIN
- MH 2400 SP — MANHOLE NUMBER AND SIZE (mm) C/W SAFETY PLATFORM PER OPSD 404.020
- 2 LATERAL - SERVICE CONNECTION (135 mm SAN, 19 mm Water)
- 3 LATERAL - SERVICE CONNECTION (100mm ST, 135 SAN, 19 mm Water)
- CONC. SIDEWALK
- ASPHALT

* CONCEPTUAL DESIGN ELEVATIONS/LOCATIONS/FOOTPRINTS. ALL APPLICABLE BUILDING AND ENVIRONMENTAL CODES AND REQUIREMENTS TO BE FOLLOWED.

No.	ISSUE / REVISION	DD/MM/YY
02	RE-ISSUED FOR AGENCY REVIEW SECOND ENGINEERING SUBMISSION	21/12/23
01	ISSUED FOR AGENCY REVIEW FIRST ENGINEERING SUBMISSION	12/09/23

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VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:500 H, 1:50 V

0 5 10 20 30 40m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

TOPOGRAPHIC SURVEY
PREPARED BY:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
DATED: 2021-03-22, SUPPLEMENTAL 2023-01-16
HORIZONTAL DATUM: MTM ZONE 9, NAD 83 (CSRS)
VERTICAL DATUM: CGVD1928:1978

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K.R. FERREY MORENO 100122432 2023-12-21 PROVINCE OF ONTARIO

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT:

ROCHON LANDS

EMBRUN, ONTARIO

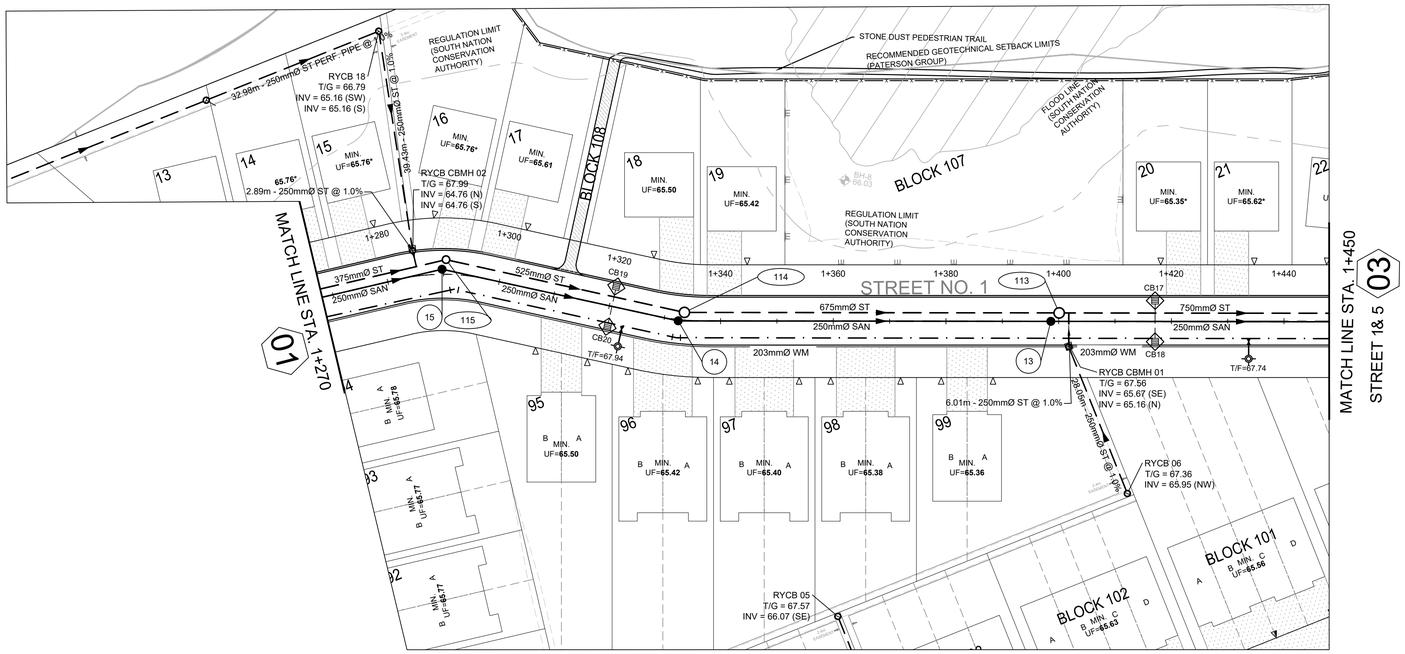
DRAWING:

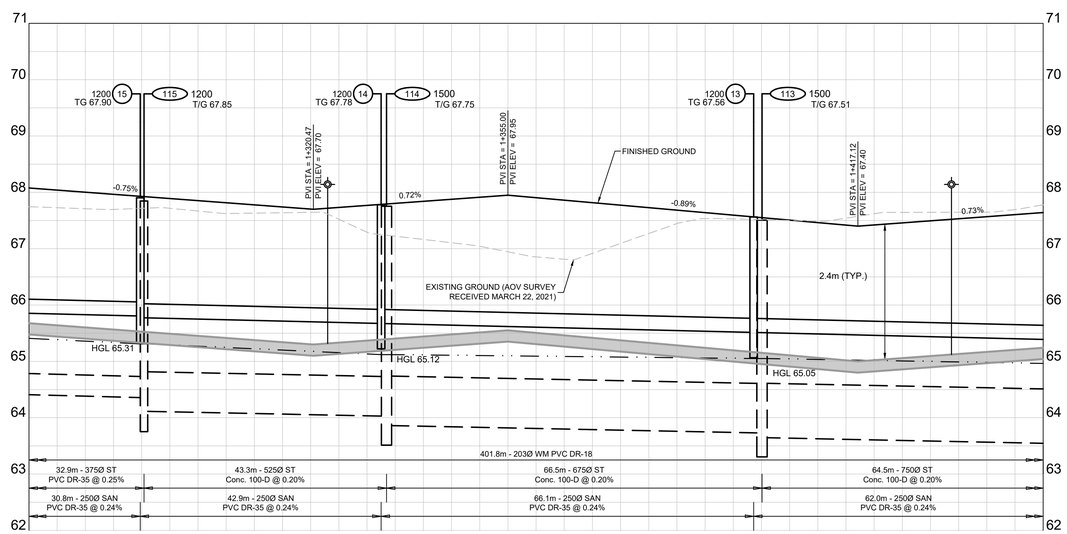
PLAN & PROFILE
STREET 1
STA. 1+050 TO 1+270.00

DESIGN:	SP
DRAWN:	FA
CHECKED:	AW/KF
JLR #:	31104
DRAWING #:	01

PLOT DATE: December 21, 2023 3:52:21 PM

STREET 1

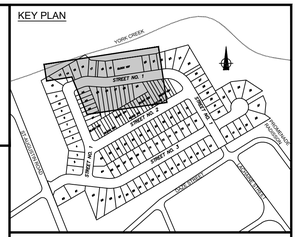




DESIGN PROFILE	67.90 68.077	67.71 68.002			67.912	67.87 67.853			67.65 67.704	67.718	67.797	67.16 67.841			66.95 67.906		67.77 67.729			67.14 67.562			67.03 67.421		67.522	67.01 67.568		67.078 67.641
	65.677	65.602			65.512	65.453			65.304	65.318	65.307	65.441			65.506		65.329			65.152			65.021		65.122	65.168		65.241
					22.5° HORIZ. BEND				67.718 HYDRANT, VALVE & TEE		11.25° HORIZ. BEND														HYDRANT, VALVE & TEE			
STORM SEWER INV. ELEVATION	64.437			64.355 64.203							64.116 63.964									63.831 63.754								63.625
SANITARY SEWER INV. ELEVATION	65.879			65.805 65.775							65.672 65.672									65.514 65.514								65.365
	1+270.00	1+280.00	1+289.75	1+290.41 1+292.05		1+300.00			1+320.00 1+323.01		1+332.50 1+332.49	1+333.45	1+340.00		1+360.00		1+380.00			1+398.61 1+400.00	1+400.00 1+400.09		1+420.00		1+433.72	1+440.00		1+450.00

PROJECT NORTH

KEY PLAN



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SCALE: 1:500 H, 1:50 V

0 5 10 20 30 40m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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PROJECT:

ROCHON LANDS

EMBRUN, ONTARIO

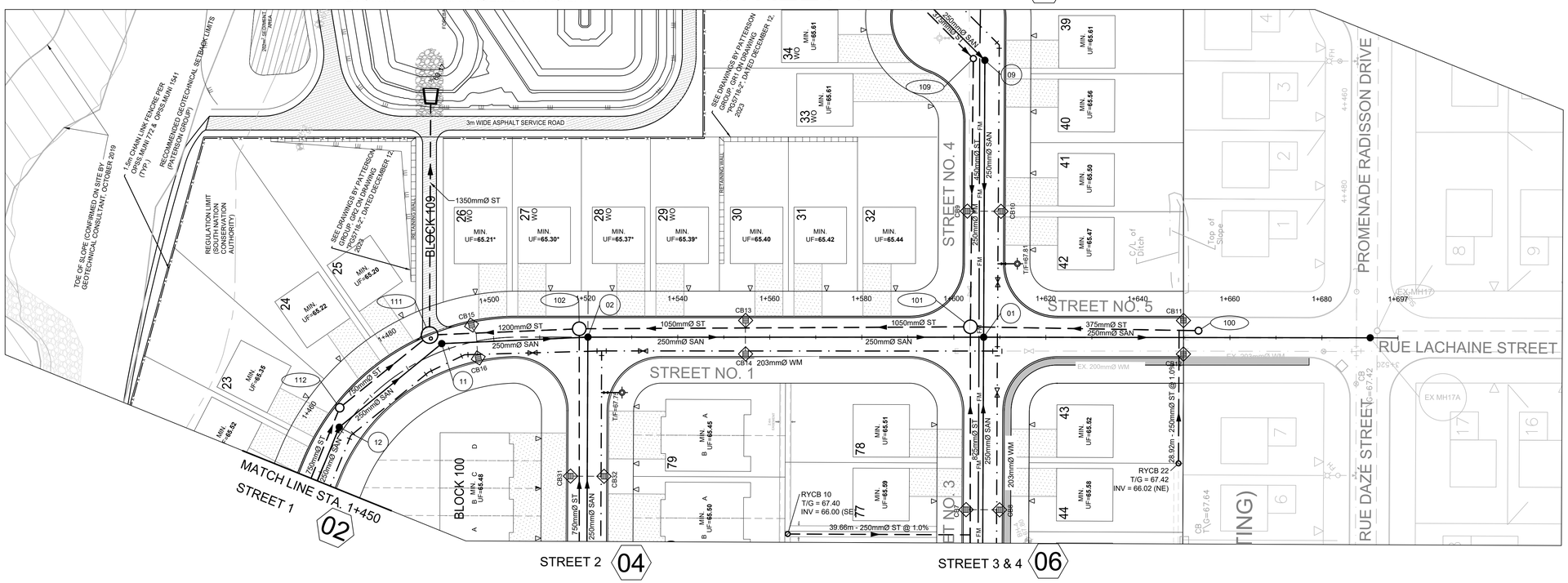
DRAWING:

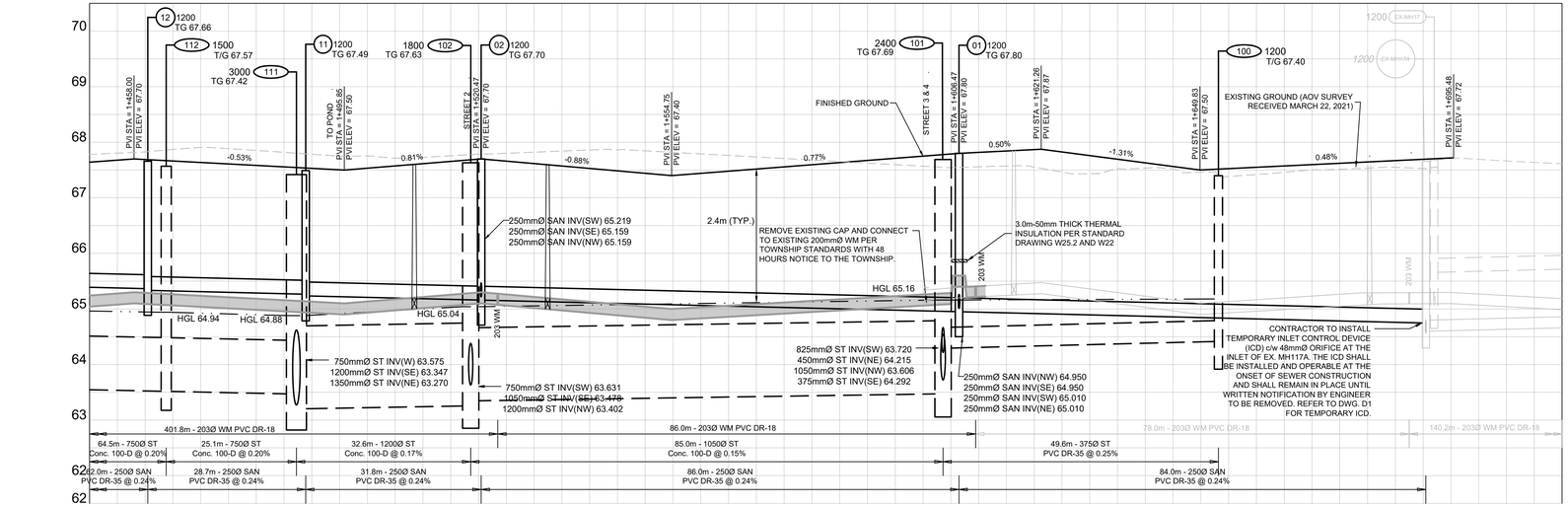
PLAN & PROFILE
STREET 1
STA. 1+270.00 TO 1+450.00

DESIGN: SP
DRAWN: FA
CHECKED: AW/KF
JLR #: 31104
DRAWING #: 02

PLOT DATE: December 21, 2023 3:52:50 PM

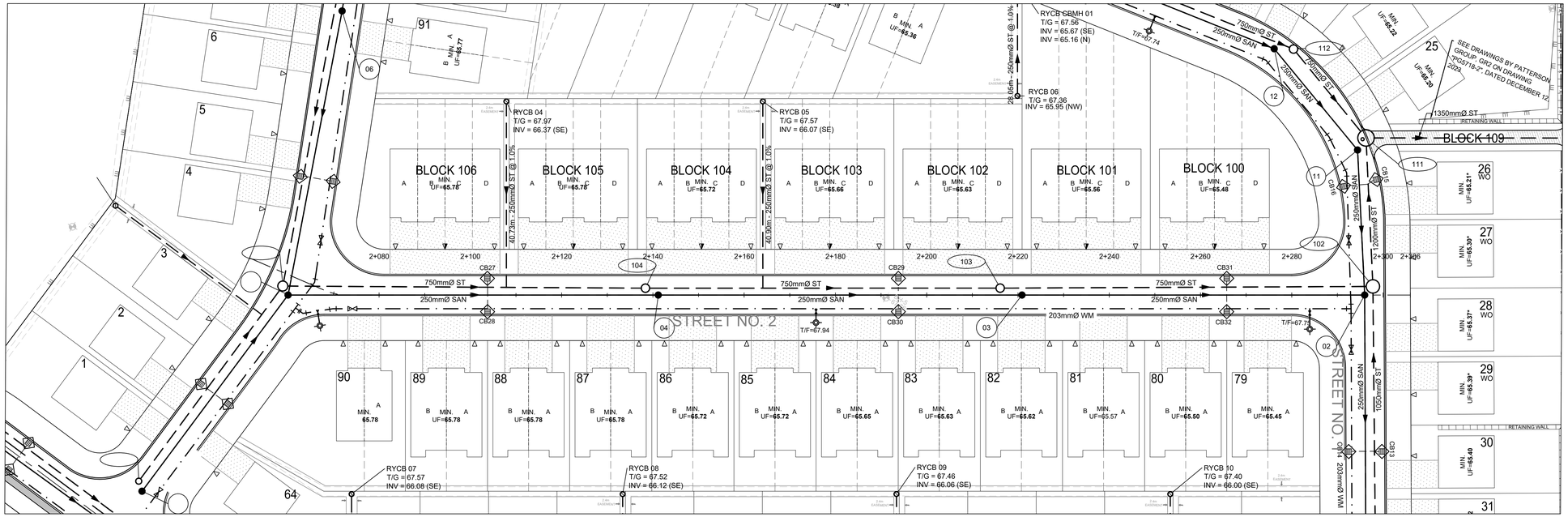
STREET 1 & 5

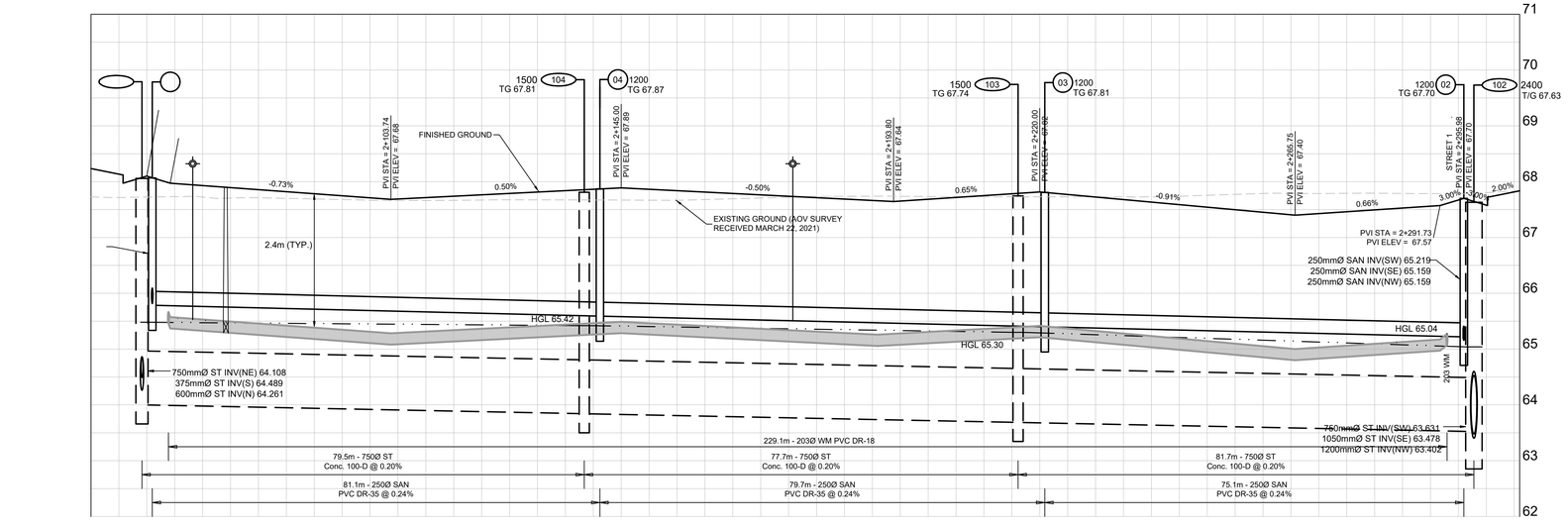

STORMWATER MANAGEMENT FACILITY
STREET 3 & 4 06
3m WIDE ASPHALT SERVICE ROAD
BLOCK 109
BLOCK 100
STREET NO. 1
STREET NO. 3
STREET NO. 4
STREET NO. 5
PROMENADE RADISSON DRIVE
RUE LACHAINE STREET
RUE DAZÉ STREET
MATCH LINE STA. 1+450
STREET 1
02
STREET 2 04
STREET 3 & 4 06
1350mmØ ST
1200mmØ ST
1050mmØ ST
375mmØ ST
250mmØ SAN
250mmØ ST
203mmØ WM
RYCB 10
T/G = 67.40
INV = 66.00 (SE)
39.66m - 250mmØ ST @ 1.0%
RYCB 22
T/G = 67.42
INV = 66.02 (NE)
28.92m - 250mmØ ST @ 1.0%
REGULATION LIMIT (SOUTH NATION CONSERVATION AUTHORITY)
TOE OF SLOPE (CONFIRMED ON SITE BY GEOTECHNICAL CONSULTANT, OCTOBER 2019
1.5m CHAIN LINK FENCE PER OPSS.MUNI 774 & OPSS.MUNI 1541 (TYP.)
RECOMMENDED GEOTECHNICAL SETBACK LIMITS (PATTERSON GROUP)
SEE DRAWINGS BY PATTERSON GROUP, GRP ON DRAWING "PGG19-5-2", DATED DECEMBER 12, 2023
SEE DRAWINGS BY PATTERSON GROUP, GRP ON DRAWING "PGG19-5-1", DATED DECEMBER 12, 2023
RETAINING WALL
C/L of Ditch
Top of Slope
EX. 200mmØ WM
EX MH17
EX MH17A
EX. 203mmØ WM


70
69
68
67
66
65
64
63
62
12 1200 TG 67.66
112 1500 T/G 67.57
3000 TG 67.42
111
11 1200 TG 67.49
1800 TG 67.63
102
02 1200 TG 67.70
2400 TG 67.69
101
01 1200 TG 67.80
100 1200 T/G 67.40
PVI STA = 1+458.00 PVI ELEV = 67.70
TO POND PVI STA = 1+495.85 PVI ELEV = 67.50
STREET 2 PVI STA = 1+520.47 PVI ELEV = 67.70
PVI STA = 1+554.75 PVI ELEV = 67.40
STREET 3 & 4 PVI STA = 1+608.47 PVI ELEV = 67.80
PVI STA = 1+621.26 PVI ELEV = 67.87
PVI STA = 1+649.83 PVI ELEV = 67.50
PVI STA = 1+695.48 PVI ELEV = 67.72
-0.53%
0.81%
-0.88%
0.77%
0.50%
-1.31%
0.46%
FINISHED GROUND
EXISTING GROUND (AOV SURVEY RECEIVED MARCH 22, 2021)
250mmØ SAN INV(SW) 65.219
250mmØ SAN INV(SE) 65.159
250mmØ SAN INV(NW) 65.159
2.4m (TYP.)
REMOVE EXISTING CAP AND CONNECT TO EXISTING 200mmØ WM PER TOWNSHIP STANDARDS WITH 48 HOURS NOTICE TO THE TOWNSHIP.
3.0m-50mm THICK THERMAL INSULATION PER STANDARD DRAWING W25.2 AND W22
HGL 65.16
HGL 64.94
HGL 64.88
HGL 65.04
750mmØ ST INV(W) 63.575
1200mmØ ST INV(SE) 63.347
1350mmØ ST INV(NE) 63.270
750mmØ ST INV(SW) 63.631
~~1050mmØ ST INV(SE) 63.479~~
1200mmØ ST INV(NW) 63.402
825mmØ ST INV(SW) 63.720
450mmØ ST INV(NE) 64.215
1050mmØ ST INV(NW) 63.606
375mmØ ST INV(SE) 64.292
250mmØ SAN INV(NW) 64.950
250mmØ SAN INV(SE) 64.950
250mmØ SAN INV(SW) 65.010
250mmØ SAN INV(NE) 65.010
CONTRACTOR TO INSTALL TEMPORARY INLET CONTROL DEVICE (ICD) c/w 48mmØ ORIFICE AT THE INLET OF EX. MH117A. THE ICD SHALL BE INSTALLED AND OPERABLE AT THE ONSET OF SEWER CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL WRITTEN NOTIFICATION BY ENGINEER TO BE REMOVED. REFER TO DWG. D1 FOR TEMPORARY ICD.
401.8m - 203Ø WM PVC DR-18
86.0m - 203Ø WM PVC DR-18
78.0m - 203Ø WM PVC DR-18
140.2m - 203Ø WM PVC DR-18
64.5m - 750Ø ST Conc. 100-D @ 0.20%
25.1m - 750Ø ST Conc. 100-D @ 0.20%
32.6m - 1200Ø ST Conc. 100-D @ 0.17%
85.0m - 1050Ø ST Conc. 100-D @ 0.15%
49.6m - 375Ø ST PVC DR-35 @ 0.25%
22.0m - 250Ø SAN PVC DR-35 @ 0.24%
28.7m - 250Ø SAN PVC DR-35 @ 0.24%
31.8m - 250Ø SAN PVC DR-35 @ 0.24%
86.0m - 250Ø SAN PVC DR-35 @ 0.24%
84.0m - 250Ø SAN PVC DR-35 @ 0.24%

| | | |

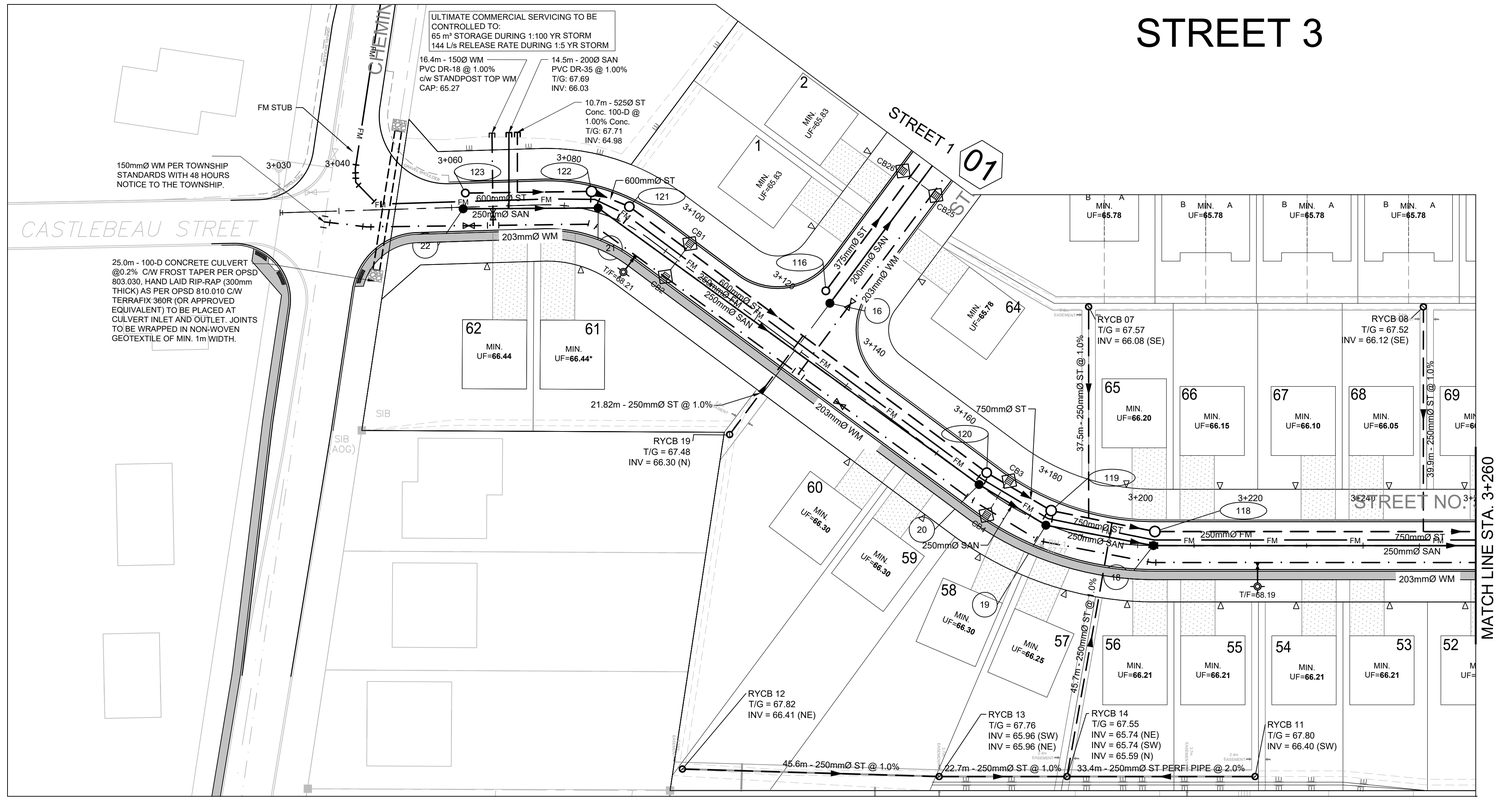
STREET 2

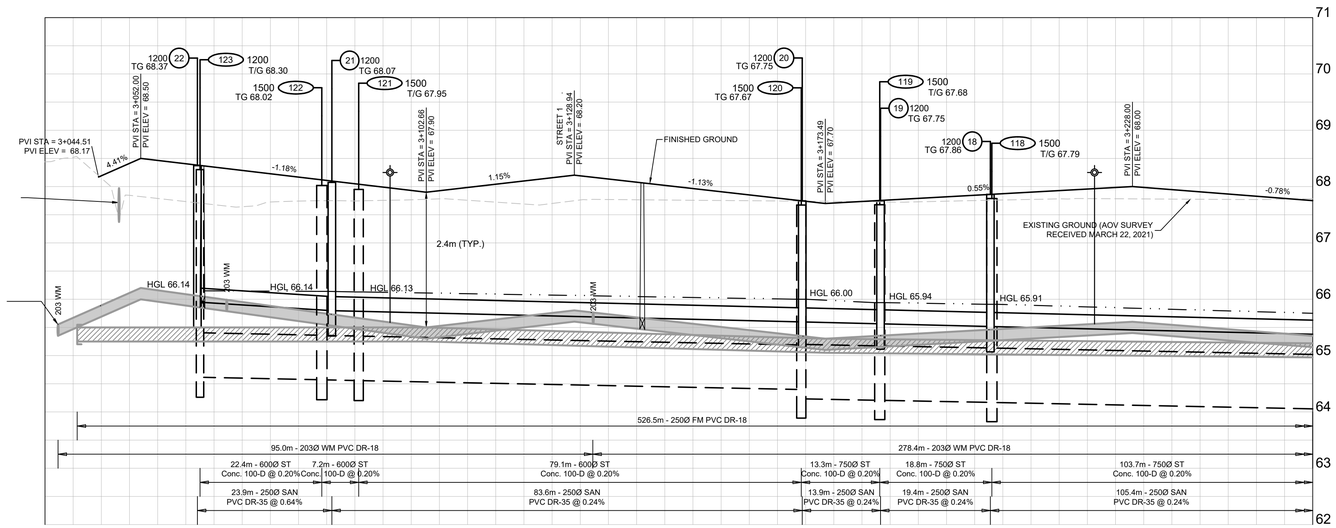

01
STREET 1 & 5 03
BLOCK 106
BLOCK 105
BLOCK 104
BLOCK 103
BLOCK 102
BLOCK 101
BLOCK 100
BLOCK 109
STREET NO. 2
STREET NO. 1
750mmØ ST
250mmØ SAN
203mmØ WM
1050mmØ ST
1200mmØ ST
1350mmØ ST
RETAINING WALL
RYCB 04
T/G = 67.97
INV = 66.37 (SE)
RYCB 05
T/G = 67.57
INV = 66.07 (SE)
RYCB 06
T/G = 67.36
INV = 65.95 (NW)
RYCB CBMH 01
T/G = 67.56
INV = 65.67 (SE)
INV = 65.16 (N)
RYCB 07
T/G = 67.57
INV = 66.08 (SE)
RYCB 08
T/G = 67.52
INV = 66.12 (SE)
RYCB 09
T/G = 67.46
INV = 66.06 (SE)
RYCB 10
T/G = 67.40
INV = 66.00 (SE)
40.75m - 250mmØ ST @ 1.0%
40.90m - 250mmØ ST @ 1.0%
28.06m - 250mmØ ST @ 1.0%
SEE DRAWINGS BY PATTERSON GROUP, GRZ ON DRAWING "P2037IB-2", DATED DECEMBER 12, 2023
STORMWATER MANAGEMENT FACILITY


1500 TG 67.81
1200 TG 67.87
1500 TG 67.74
1200 TG 67.81
1200 TG 67.70
2400 T/G 67.63
FINISHED GROUND
EXISTING GROUND (AOV SURVEY RECEIVED MARCH 22, 2021)
PVI STA = 2+103.74 PVI ELEV = 67.68
PVI STA = 2+145.00 PVI ELEV = 67.89
PVI STA = 2+193.80 PVI ELEV = 67.64
PVI STA = 2+220.00 PVI ELEV = 67.46
PVI STA = 2+265.75 PVI ELEV = 67.70
PVI STA = 2+291.73 PVI ELEV = 67.57
STREET 1 PVI STA = 2+295.98 PVI ELEV = 67.70
-0.73%
0.50%
-0.50%
0.65%
-0.91%
0.66%
3.00%
2.00%
2.4m (TYP.)
HGL 65.42
HGL 65.30
HGL 65.04
250mmØ SAN INV(SW) 65.219
250mmØ SAN INV(SE) 65.159
250mmØ SAN INV(NW) 65.159
750mmØ ST INV(NE) 64.108
375mmØ ST INV(S) 64.489
600mmØ ST INV(N) 64.261
750mmØ ST INV(SW) 63.631
1050mmØ ST INV(SE) 63.478
1200mmØ ST INV(NW) 63.402
203 WM
229.1m - 203Ø WM PVC DR-18
79.5m - 750Ø ST Conc. 100-D @ 0.20%
77.7m - 750Ø ST Conc. 100-D @ 0.20%
81.7m - 750Ø ST Conc. 100-D @ 0.20%
81.1m - 250Ø SAN PVC DR-35 @ 0.24%
79.7m - 250Ø SAN PVC DR-35 @ 0.24%
75.1m - 250Ø SAN PVC DR-35 @ 0.24%
71
70
69
68
67
66
65
64
63
62

| | | |

STREET 3

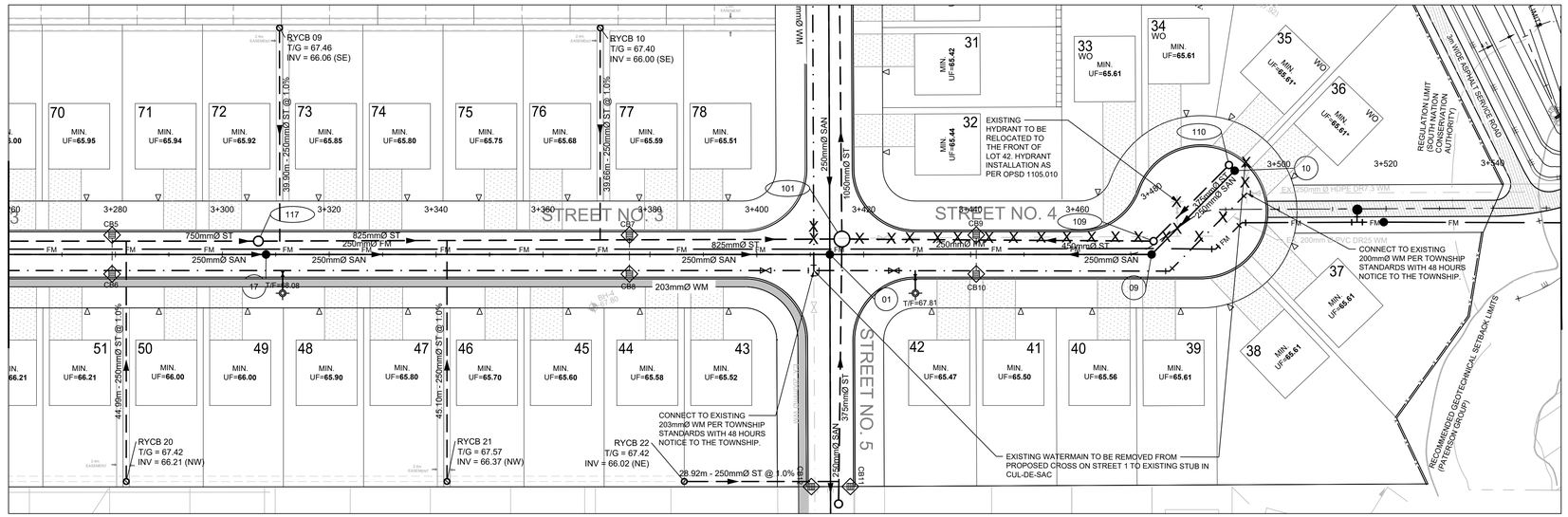

ULTIMATE COMMERCIAL SERVICING TO BE CONTROLLED TO:
65 m³ STORAGE DURING 1:100 YR STORM
144 L/s RELEASE RATE DURING 1:5 YR STORM
16.4m - 150Ø WM PVC DR-18 @ 1.00% c/w STANDPOST TOP WM CAP: 65.27
14.5m - 200Ø SAN PVC DR-35 @ 1.00% T/G: 67.69 INV: 66.03
10.7m - 525Ø ST Conc. 100-D @ 1.00% Conc. T/G: 67.71 INV: 64.98
FM STUB
150mmØ WM PER TOWNSHIP STANDARDS WITH 48 HOURS NOTICE TO THE TOWNSHIP.
CASTLEBEAU STREET
25.0m - 100-D CONCRETE CULVERT @0.2% C/W FROST TAPER PER OPSD 803.030, HAND LAID RIP-RAP (300mm THICK) AS PER OPSD 810.010 C/W TERRAFIX 360R (OR APPROVED EQUIVALENT) TO BE PLACED AT CULVERT INLET AND OUTLET. JOINTS TO BE WRAPPED IN NON-WOVEN GEOTEXTILE OF MIN. 1m WIDTH.
STREET 1
01
600mmØ ST
250mmØ SAN
203mmØ WM
375mmØ ST
203mmØ SAN
203mmØ WM
750mmØ ST
250mmØ SAN
203mmØ WM
21.82m - 250mmØ ST @ 1.0%
RYCB 19 T/G = 67.48 INV = 66.30 (N)
RYCB 07 T/G = 67.57 INV = 66.08 (SE)
RYCB 08 T/G = 67.52 INV = 66.12 (SE)
37.5m - 250mmØ ST @ 1.0%
39.9m - 250mmØ ST @ 1.0%
STREET NO. 1
STREET NO. 3
MATCH LINE STA. 3+260 STREET 3
06
RYCB 12 T/G = 67.82 INV = 66.41 (NE)
RYCB 13 T/G = 67.76 INV = 65.96 (SW) INV = 65.96 (NE)
RYCB 14 T/G = 67.55 INV = 65.74 (NE) INV = 65.74 (SW) INV = 65.59 (N)
RYCB 11 T/G = 67.80 INV = 66.40 (SW)
45.6m - 250mmØ ST @ 1.0%
22.7m - 250mmØ ST @ 1.0%
33.4m - 250mmØ ST PERFI PIPE @ 2.0%
45.7m - 250mmØ ST @ 1.0%


PVI STA = 3+044.51
PVI ELEV = 68.17
4.41%
-1.18%
1.15%
-1.13%
0.55%
-0.78%
FINISHED GROUND
EXISTING GROUND (AOV SURVEY RECEIVED MARCH 22, 2021)
2.4m (TYP.)
HGL 66.14
HGL 66.14
HGL 66.13
HGL 66.00
HGL 65.94
HGL 65.91
526.5m - 250Ø FM PVC DR-18
95.0m - 203Ø WM PVC DR-18
278.4m - 203Ø WM PVC DR-18
22.4m - 600Ø ST Conc. 100-D @ 0.20%
7.2m - 600Ø ST Conc. 100-D @ 0.20%
79.1m - 600Ø ST Conc. 100-D @ 0.20%
13.3m - 750Ø ST Conc. 100-D @ 0.20%
18.8m - 750Ø ST Conc. 100-D @ 0.20%
103.7m - 750Ø ST Conc. 100-D @ 0.20%
23.9m - 250Ø SAN PVC DR-35 @ 0.64%
83.6m - 250Ø SAN PVC DR-35 @ 0.24%
13.9m - 250Ø SAN PVC DR-35 @ 0.24%
19.4m - 250Ø SAN PVC DR-35 @ 0.24%
105.4m - 250Ø SAN PVC DR-35 @ 0.24%

| | | |

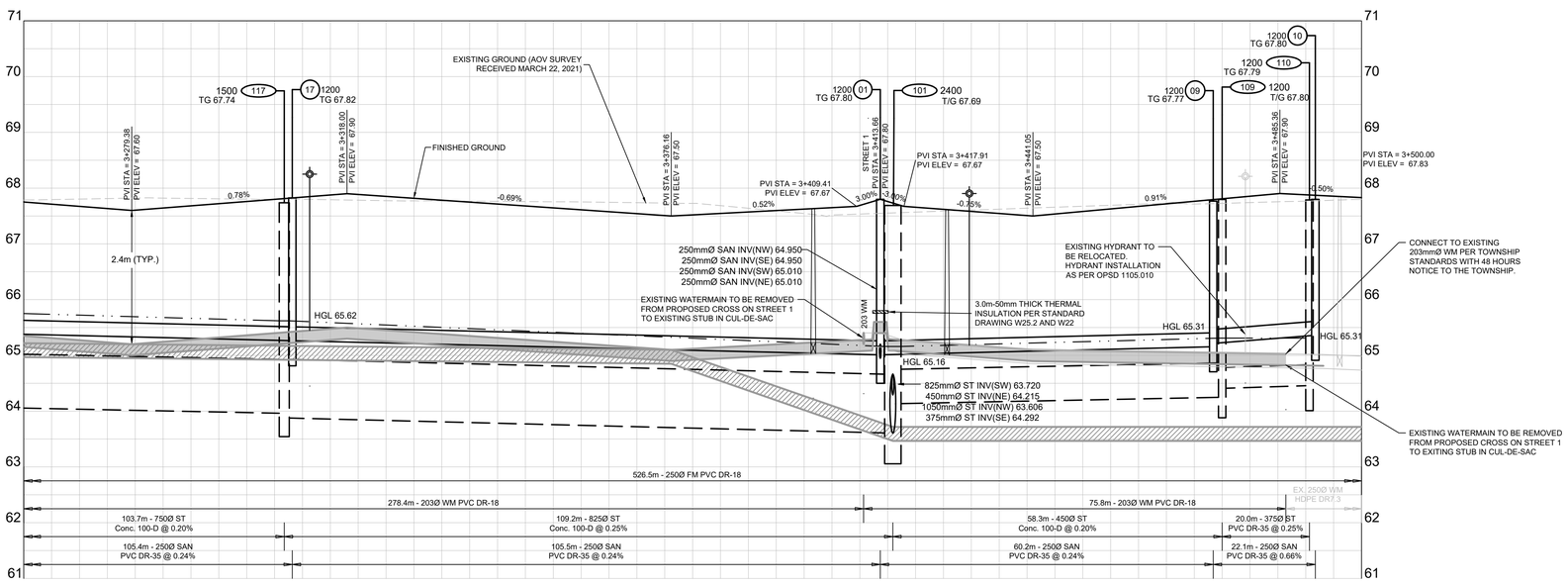
STREET 3 & 4

STREET 1 & 5 (03)



STREET 1 & 5

MATCH LINE STA. 3+260
STREET 3
(05)



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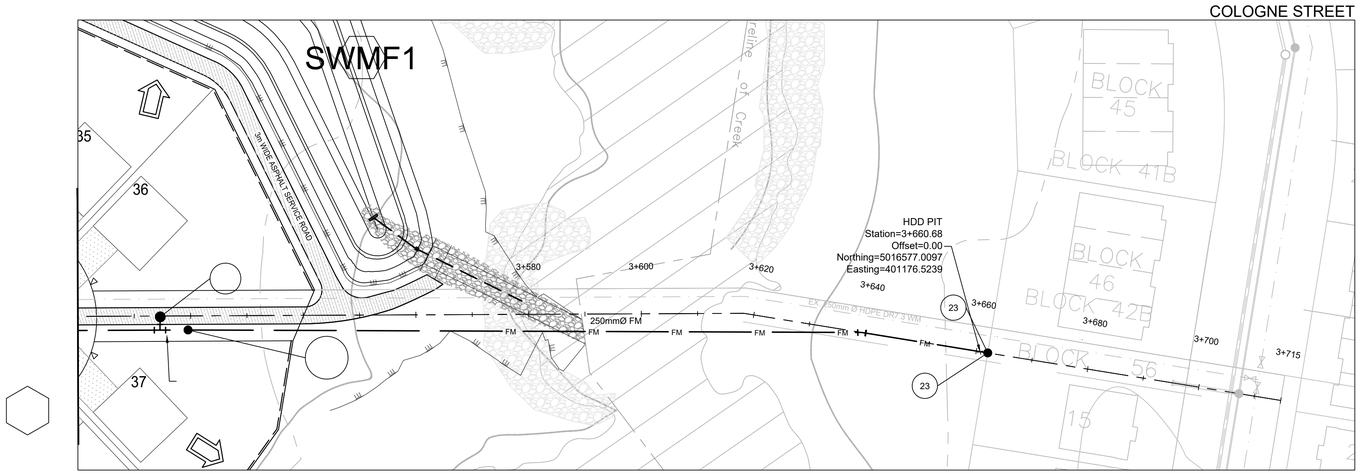
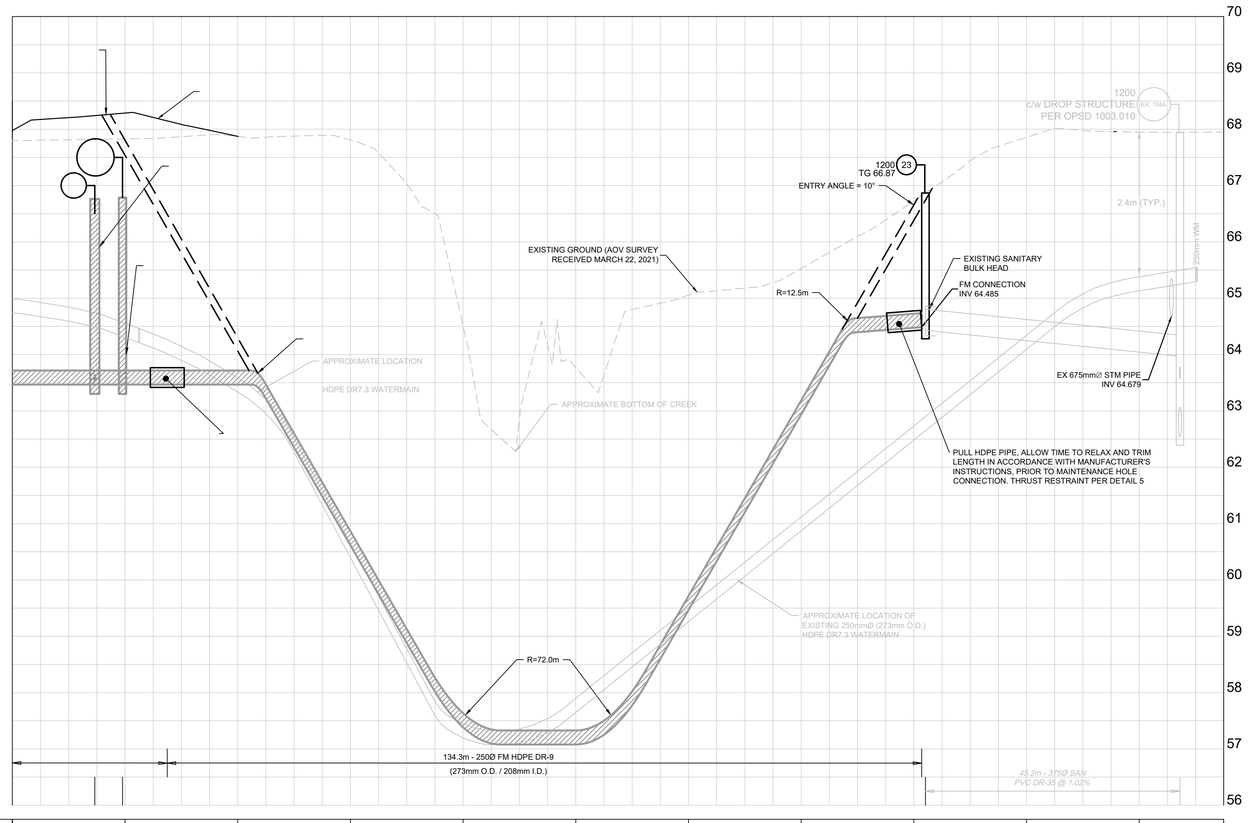
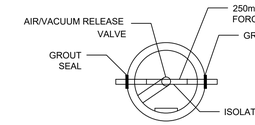


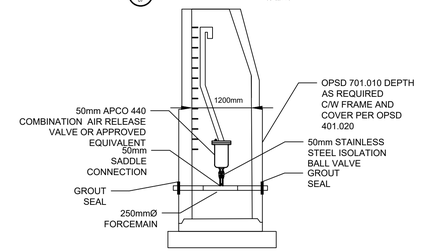
CREEK CROSSING



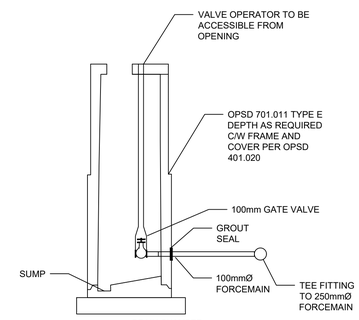
				64.51	63.77	66.56	67.03	67.23	67.35	67.35	
				57.445	57.896	59.508	61.119	62.731	64.343	65.379	
				57.632	57.327	59.712	63.185	64.725			
											64.640 / 62.660
				3+580.00	3+600.00	3+620.00	3+640.00	3+660.00 / 3+662.65	3+680.00	3+700.00	3+707.22 / 3+715.00



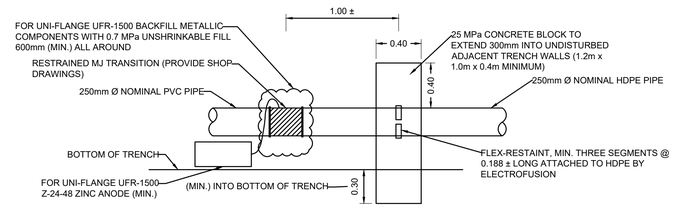
1 AIR RELEASE - VACUUM BREAKING VALVE CHAMBER PLAN
SCALE: NTS



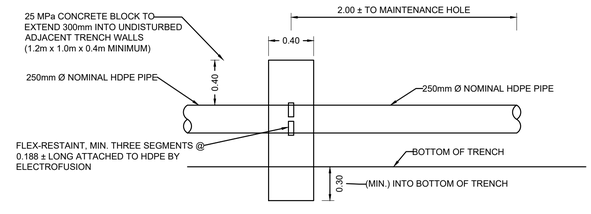
2 AIR RELEASE - VACUUM BREAKING VALVE CHAMBER SECTION
SCALE: NTS



3 DRAIN CHAMBER SECTION VIEW
SCALE: NTS



4 DETAIL 4 SECTION VIEW
SCALE: 1:25



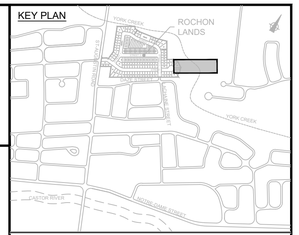
5 DETAIL 5 SECTION VIEW
SCALE: 1:25

PROJECT NORTH

NOTES:

1. CONTRACTOR TO PROVIDE DETAILED DRAWINGS FOR HORIZONTAL DIRECTIONAL DRILLING FOR THE CREEK CROSSING FOR REVIEW BY THE CONTRACT ADMINISTRATOR.

KEY PLAN



LEGEND

- PROPOSED WATERMAIN, VALVE & HYDRANT
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED SANITARY SEWER & MANHOLE
- PROPOSED STORM SEWER & MANHOLE
- PROPOSED FORCE MAIN
- HYDRAULIC GRADE LINE (HGL)
- PROPOSED CULVERT
- UNDERSIDE OF FOOTING ELEVATION *FROST FOOTINGS OR STEPPED FOOTINGS REQUIRED
- DRAWING NUMBER
- RIP-RAP TO OPSD 810.010 (TYPE B)
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN c/w ICD
- PROPOSED CATCH BASIN & LEAD
- PROPOSED TEE CATCHBASIN
- PROPOSED 3-WAY CATCHBASIN
- MANHOLE NUMBER AND SIZE (mm) C/W SAFETY PLATFORM PER OPSD 404.020
- 2 LATERAL - SERVICE CONNECTION (135 mm SAN, 19 mm Water)
- 3 LATERAL - SERVICE CONNECTION (100mm ST, 135 SAN, 19 mm Water)
- CONC. SIDEWALK
- ASPHALT

* CONCEPTUAL DESIGN ELEVATIONS/LOCATIONS/FOOTPRINTS. ALL APPLICABLE BUILDING AND ENVIRONMENTAL CODES AND REQUIREMENTS TO BE FOLLOWED.

No.	ISSUE / REVISION	DD/MM/YY
02	RE-ISSUED FOR AGENCY REVIEW SECOND ENGINEERING SUBMISSION	21/12/23
01	ISSUED FOR AGENCY REVIEW FIRST ENGINEERING SUBMISSION	12/09/23

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VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:500 H, 1:50 V
0 5 10 20 30 40m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca
J.L.Richards ENGINEERS • ARCHITECTS • PLANNERS

TOPOGRAPHIC SURVEY
PREPARED BY:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
DATED: 2021-03-22, SUPPLEMENTAL 2023-01-16
HORIZONTAL DATUM: MTM ZONE 9, NAD 83 (CSRS)
VERTICAL DATUM: CGVD1928:1978

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K.R. FERREY MORENO 100122432 2023-12-21 PROVINCE OF ONTARIO

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT:
ROCHON LANDS
EMBRUN, ONTARIO

DRAWING:
PLAN & PROFILE
CREEK CROSSING
STA. 3+500.00 TO 3+707.22

DESIGN:	SP
DRAWN:	FA
CHECKED:	AW/KF
JLR #:	31104
DRAWING #:	07

PLOT DATE: December 21, 2023 3:59:24 PM

Clear Form Print Form

Ontario

Ministry of the Environment, Conservation and Parks

Form SW2
Record of Future Alteration Authorized for Stormwater Management Facilities

RETAIN COMPLETED FORM - DO NOT SEND TO THE MINISTRY

Part 1 - Environmental Compliance Approval Number

(Insert the Environmental Compliance Approval number authorizing the alteration of Stormwater Management Facilities)

184-S701

Part 2 - Description of stormwater management facility alteration (Use attachments if required)

Stormwater generated from the proposed Rochon Lands will be captured by a local storm sewer system and will be conveyed to the SWM Facility where an enhanced protection level treatment (80% TSS removal) will be provided. Following treatment, the storm effluent will ultimately be discharged to the York Creek, the receiving stream.

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name); and
2) An attachment including plan and cross-section drawing identifying at a minimum:
   a) location(s) of the undertaking (e.g. showing street names, easements, discharge points, etc.); and
   b) components of the alteration of the stormwater management facility

Part 3 - Verification by Licensed Engineering Practitioner (as applicable to the undertaking)

I hereby verify that I am a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario and the design of the stormwater management facility alteration:

1) Has been prepared by a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario;
2) Has been documented in a design report and any other applicable design forms;
3) Has been designed to collect, receive, treat, or control only stormwater, and not designed to collect, receive, treat, or control sanitary sewage;
4) Has been planned, designed and built to be consistent with the Ministry of the Environment, Conservation and Parks publication “Stormwater Management Planning and Design Guidance Manual, 2003”, as amended;
5) Satisfies the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval”, as amended, and have documented the reasons for this opinion;
6) Satisfies the requirements outlined in Appendix A of the ECA identified in Part 1 of this form, and have documented the reasons for this opinion;
7) Includes an outlet or an emergency overflow for the works, with the verification of the location, route, and capacity of the receiving major system to accommodate overflows; and
8) If adding new Manufactured Treatment Devices, has met the requirements of the conditions of the ECA identified in Part 1 of this form which authorizes the alteration.

Name (Print)	PEO Licence Number
Bobby Pettigrew	100207693

Signature	Date (yyyy/mm/dd)
	2024/01/12

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Part 4 - Verification by Owner

I hereby verify that:

1) Any alteration by adding, modifying, replacing, or extending stormwater management facilities will not result in:
   a) Adverse effects; or
   b) A deterioration on the approved quantity of downstream stormwater management facilities which results in not being able to achieve the overall stormwater performance criteria per Appendix A of the ECA identified in Part 1 of this form.
2) The alteration does not establish or alter any outlets that discharge to land not owned by the Owner without the expressed written consent of the owner(s) of such private land(s) that the works will discharge to;
3) If privately owned stormwater works have been used in the stormwater treatment train to achieve Appendix A criteria of the ECA identified in Part 1 of this form, then the Owner has met the requirements of the conditions of the ECA identified in Part 1 of this form which authorizes the use of privately owned stormwater works;
4) An assessment of the proposed works to determine if the works pose a significant drinking water threat has been completed and where applicable, mitigation measures are incorporated to protect water sources in accordance with the Ministry's Standard Operating Policy for Sewage Works, as amended; and Source Protection Plan policies pertaining to the works;
5) The proposed works are wholly located within the municipal boundary over which the owner has jurisdiction except where there is an agreement existed between municipalities;
6) The owner consents to the stormwater management facility alteration;
7) The owner has consulted with the local Conservation Authority and obtained necessary clearance, as required;
8) Any works that fall under the Drainage Act has obtained approval of a petition for the works under the Drainage Act;
9) Any works that establish new or increase discharges to a municipal drain have obtained written approval by the Owner and a signed engineer's drainage report, in accordance with the Drainage Act; and
10) I am an authorized representative of the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)
Signature	Date (yyyy/mm/dd)

Part 5 - Post Construction Verification by Owner for Inspection

I hereby verify that:

1) Any alterations to low impact development or end-of-pipe stormwater management facilities have been inspected before operation to ensure that the works as constructed will continue to conform to the Design Criteria and the ECA, and have documentation of the inspection results.

Name of Owner (Print)	Name of Owner Representative (Print)
Signature	Date (yyyy/mm/dd)

Note: Parts 1 to 4 above shall be completed before construction.
Part 5 is to be completed after the inspection and testing have been undertaken.

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J.L. Richards
ENGINEERS · ARCHITECTS · PLANNERS

J.L. Richards
& Associates Limited
343 Preston Street
Tower II, Suite 1000
Ottawa Ontario K1S 1N4
613 728 3571
www.jlrichards.ca

January 12, 2024
Our File No.: 31104-000

VIA: E-MAIL

Jonathan Bourgon, B.Eng
Executive Director Infrastructure Services
Russell Township

Dear Jonathan:

Re: Form SW2 - Record of Future Alteration Authorized for Stormwater Management Facilities – Rochon Lands Subdivision

Further to our virtual meeting held on January 9, 2024 between Russell Township and J.L. Richards in regards to the applicability of Appendix A of CLI-ECA 184-S701, specifically the Water Balance Performance Criteria in Table A1, it was agreed that implementing either recharge to pre-development conditions or controlling runoff from the 90th percentile storm event was not feasible due to site conditions present as per site constraints listed in Table A2. However, we wish to note that servicing of the above-noted subject lands was designed to meet MECP's latest design criteria described in their publication entitled "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval, MECP, v.1 April 22, 2022".

In addition to the site constraint issues, the CLI-ECA 184-S701 was shared at a late stage of approvals of the Rochon Lands Subdivision. A copy of the CLI ECA requirements was provided while an early-servicing agreement was in the process of being developed and the amount of securities being estimated.

Based on the above, it was agreed during the meeting that the conventional Stormwater Management solutions (wet pond) designed for the site are to remain for this development application. As discussed during our virtual meeting noted above, the Township will contact the Manager, Municipal Water and Wastewater at the MECP to confirm that an exemption of the Rochon Lands from Appendix A will be provided to the Township.

Noted for future development are lands which expanded into the village of Embrun's Official Plan to the north of the Rochon Lands Subdivision, owned by the same developer, which are proposed to implement water balance performance measures and fully adhere to the criteria in Appendix A of ECA 184-S701.

CANADA BEST MANAGED COMPANIES Platinum member

Jonathan Bourgon, B.Eng, Russell Township

Best Regards,

J.L. RICHARDS & ASSOCIATES LIMITED

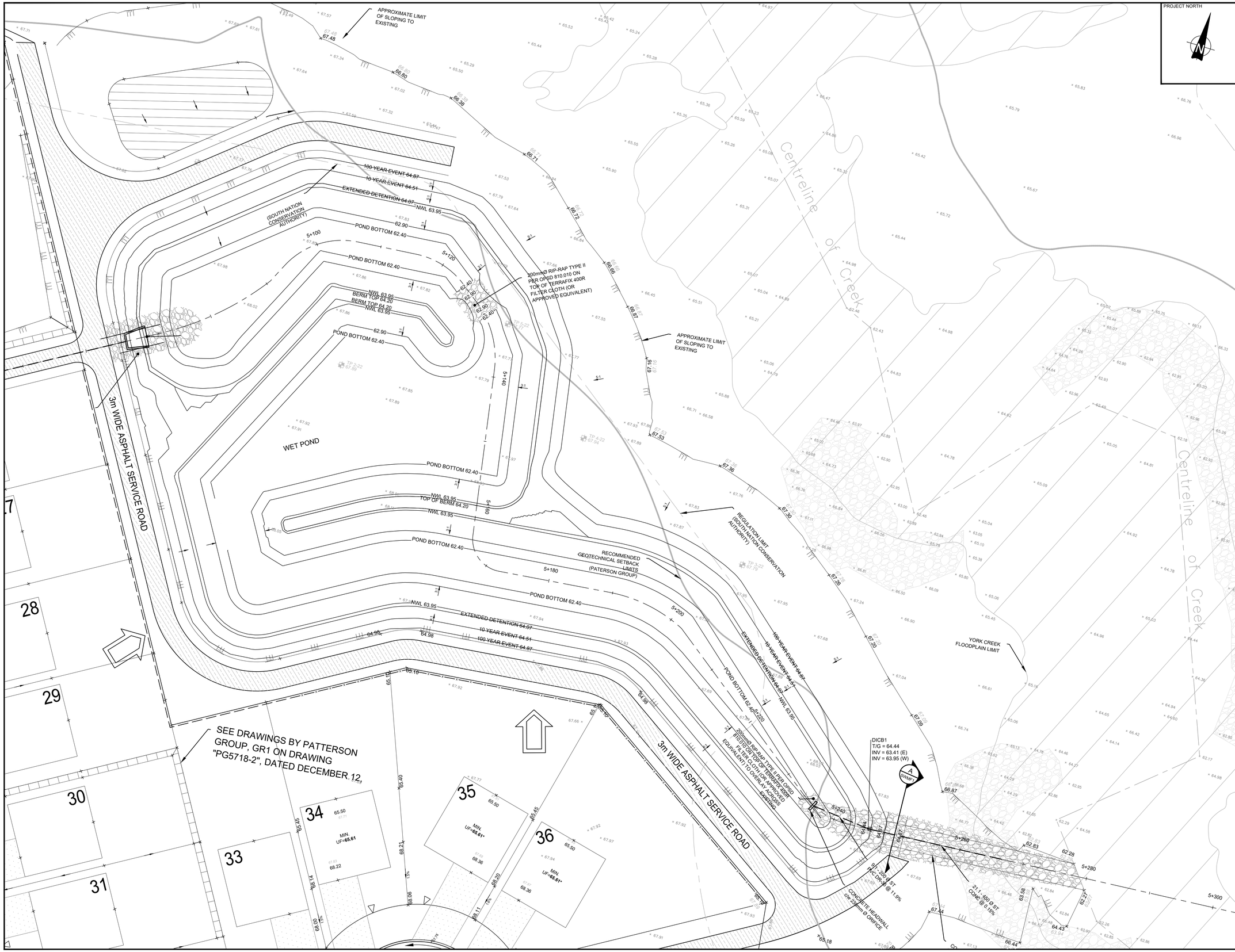
Prepared by:

Steve Picken, C.Tech.
Civil Technician

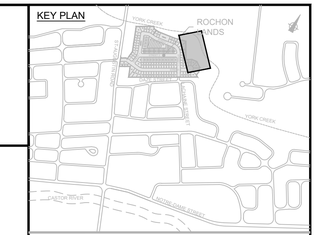
Reviewed by:

Bobby Pettigrew, P.Eng.
Associate, Senior Water Resources Engineer

SP:sp



KEY PLAN



LEGEND

- CONTOUR
- PROPOSED ELEVATION
- ORIGINAL GROUND ELEVATION INTERPOLATED FROM SURVEY
- EXISTING ELEVATION FROM SURVEY COMPLETED BY AOV, DATED MARCH 22, 20221
- PROPOSED CL ROAD HIGH/LOW POINT
- SURFACE SLOPE
- MAJOR/EMERGENCY OVERLAND FLOW DIRECTION (1:100 YR)
- UNDERSIDE OF FOOTING ELEVATION *FROST FOOTINGS OR STEPPED FOOTINGS REQUIRED
- SWALE / TOE OF SLOPE
- DITCH CENTERLINE
- 3:1 TERRACING
- YORK CREEK FLOODPLAIN LIMIT
- FULL DEPTH ROAD WIDENING/REINSTATEMENT
- LIMIT OF ASPHALT REMOVAL AND REINSTATEMENT

* CONCEPTUAL BUILDING DESIGN ELEVATIONS/LOCATIONS/FOOTPRINTS. ALL APPLICABLE BUILDING AND ENVIRONMENTAL CODES AND REQUIREMENTS TO BE FOLLOWED.

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VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:250

0 5 10 15 20m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

TOPOGRAPHIC SURVEY
PREPARED BY: ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
DATED: 2021-03-22, SUPPLEMENTAL 2023-01-16
HORIZONTAL DATUM: UTM ZONE 18, NAD 83 (CSRS)
VERTICAL DATUM: CGVD1928:1978

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K.R. FERREY MORENO 100122432 2023-12-21 PROVINCE OF ONTARIO

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT:

ROCHON LANDS

EMBRUN, ONTARIO

DRAWING:

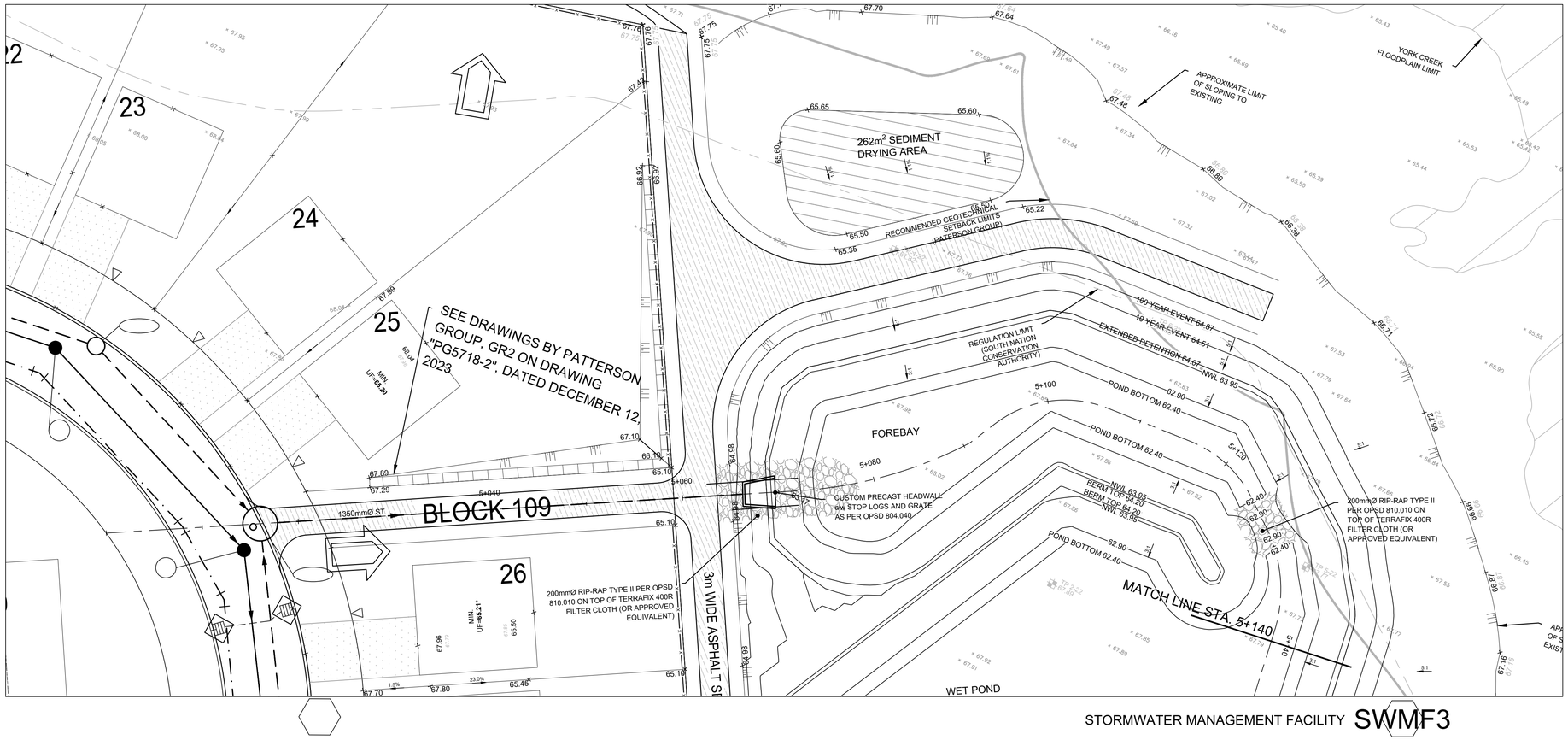
STORMWATER MANAGEMENT FACILITY

DESIGN:	SP
DRAWN:	FA
CHECKED:	BP/KF
JLR #:	31104

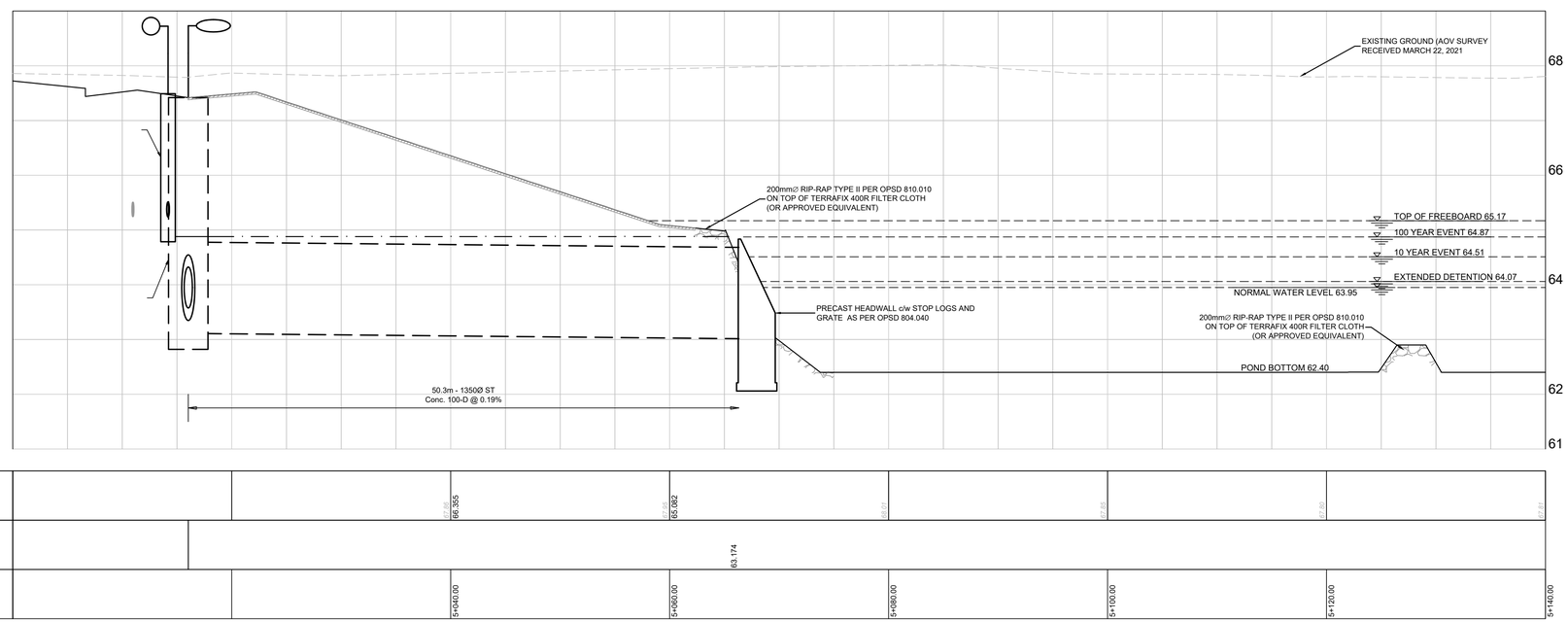
DRAWING #: SWMF1

PLOT DATE: December 21, 2023 3:59:11 PM

STORMWATER MANAGEMENT FACILITY

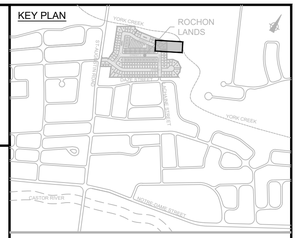


STORMWATER MANAGEMENT FACILITY SWMF3



PROJECT NORTH

KEY PLAN



LEGEND

- CONTOUR
- PROPOSED ELEVATION
- ORIGINAL GROUND ELEVATION INTERPOLATED FROM SURVEY
- EXISTING ELEVATION FROM SURVEY COMPLETED BY AOV, DATED MARCH 22, 20221
- PROPOSED CL ROAD HIGH/LOW POINT
- SURFACE SLOPE
- MAJOR/EMERGENCY OVERLAND FLOW DIRECTION (1:100 YR)
- UNDERSIDE OF FOOTING ELEVATION *FROST FOOTINGS OR STEPPED FOOTINGS REQUIRED
- SWALE / TOE OF SLOPE
- DITCH CENTERLINE
- 3:1 TERRACING
- YORK CREEK FLOODPLAIN LIMIT
- FULL DEPTH ROAD WIDENING/REINSTATEMENT
- LIMIT OF ASPHALT REMOVAL AND REINSTATEMENT

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SCALE: 1:250 H, 1:50 V

0 5 10 15 20m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

TOPOGRAPHIC SURVEY
PREPARED BY:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
DATED: 2021-03-22, SUPPLEMENTAL 2023-01-16
HORIZONTAL DATUM: UTM ZONE 18, NAD 83 (CSRS)
VERTICAL DATUM: CGVD1928:1978

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K.R. FERREYMORENO 100122432 2023-12-21 PROVINCE OF ONTARIO

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT:

ROCHON LANDS

EMBRUN, ONTARIO

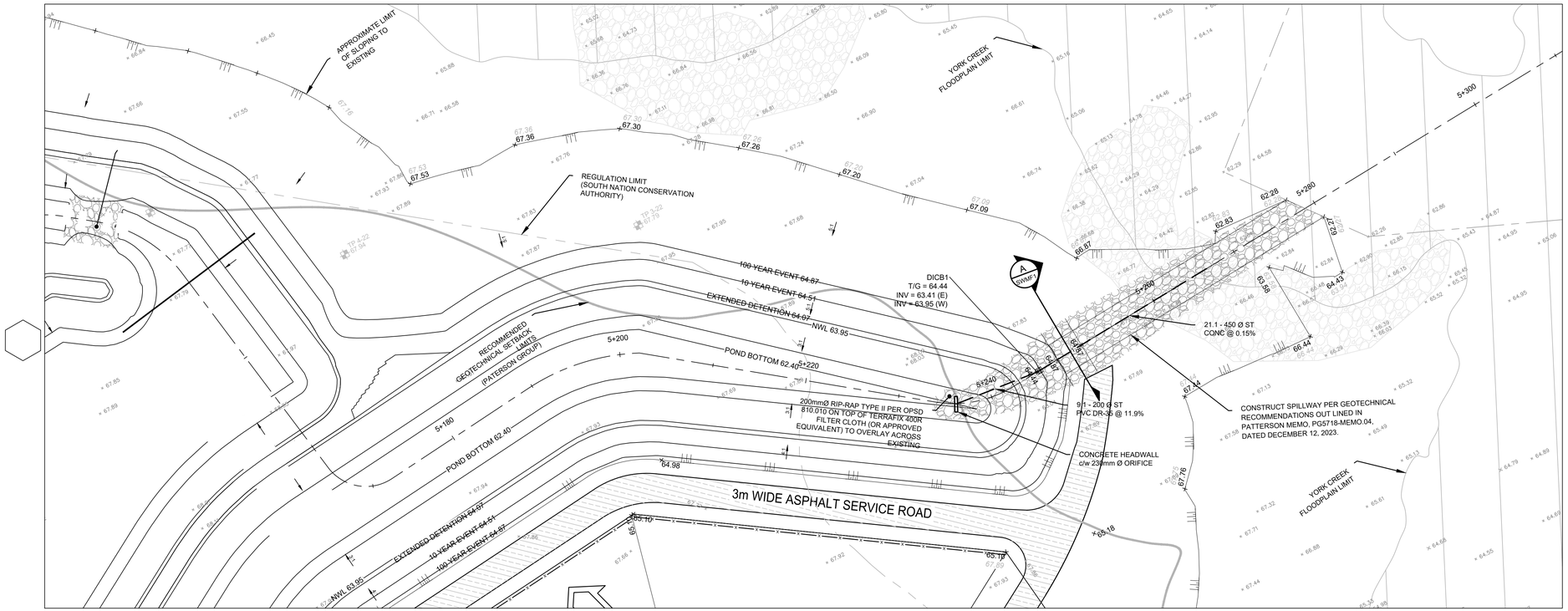
DRAWING:

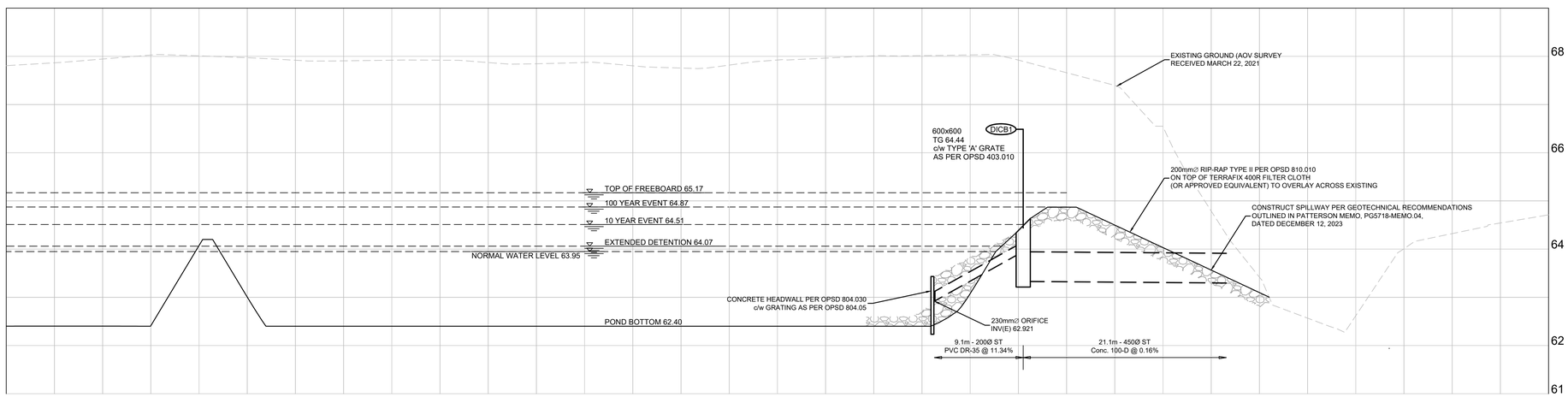
PLAN & PROFILE
STORMWATER MANAGEMENT FACILITY
STA. 5+000 TO 5+150

DESIGN:	SP
DRAWN:	FA
CHECKED:	BP/KF
JLR #:	31104
DRAWING #:	SWMF2

PLOT DATE: December 21, 2023 3:59:35 PM

STORMWATER MANAGEMENT FACILITY

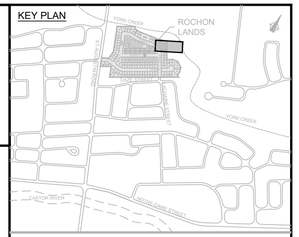




		67.92	67.87	67.92	66.03	65.04	65.25	64.21		
					62.921	63.560 63.413	63.380			
		5+180.00	5+200.00	5+220.00	5+240.00	5+260.00	5+280.00	5+300.00		

PROJECT NORTH

KEY PLAN



LEGEND

- CONTOUR
- PROPOSED ELEVATION
- ORIGINAL GROUND ELEVATION INTERPOLATED FROM SURVEY
- EXISTING ELEVATION FROM SURVEY COMPLETED BY AOV, DATED MARCH 22, 20221
- PROPOSED CL ROAD HIGH/LOW POINT
- SURFACE SLOPE
- MAJOR/EMERGENCY OVERLAND FLOW DIRECTION (1:100 YR)
- UNDERSIDE OF FOOTING ELEVATION *FROST FOOTINGS OR STEPPED FOOTINGS REQUIRED
- SWALE / TOE OF SLOPE
- DITCH CENTERLINE
- 3:1 TERRACING
- YORK CREEK FLOODPLAIN LIMIT
- FULL DEPTH ROAD WIDENING/REINSTATEMENT
- LIMIT OF ASPHALT REMOVAL AND REINSTATEMENT

* CONCEPTUAL BUILDING DESIGN ELEVATIONS/LOCATIONS/FOOTPRINTS. ALL APPLICABLE BUILDING AND ENVIRONMENTAL CODES AND REQUIREMENTS TO BE FOLLOWED.

No.	ISSUE / REVISION	DD/MM/YY
02	RE-ISSUED FOR AGENCY REVIEW SECOND ENGINEERING SUBMISSION	21/12/23
01	ISSUED FOR AGENCY REVIEW FIRST ENGINEERING SUBMISSION	12/09/23

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VERIFY SHEET SIZE AND SCALES, BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING. 0 25mm

SCALE: 1:250 H, 1:50 V

0 5 10 15 20m

CLIENT: Robert Excavating

CONSULTANT: www.jlrichards.ca

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

TOPOGRAPHIC SURVEY
PREPARED BY: ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
DATED: 2021-03-22, SUPPLEMENTAL 2023-01-16
HORIZONTAL DATUM: UTM ZONE 18, NAD 83 (CSRS)
VERTICAL DATUM: CGVD1928:1978

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER K.R. FERREY MORENO 100122432 2023-12-21 PROVINCE OF ONTARIO

PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT:

ROCHON LANDS

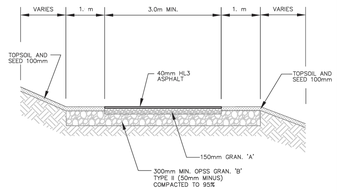
EMBRUN, ONTARIO

DRAWING:

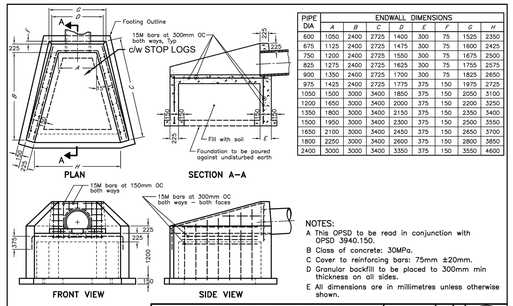
PLAN & PROFILE
STORMWATER MANAGEMENT FACILITY
STA. 5+150 TO 5+317.31

DESIGN:	SP
DRAWN:	FA
CHECKED:	BP/KF
JLR #:	31104
DRAWING #:	SWMF3

PLOT DATE: December 21, 2023 4:00:00 PM



Project Title	STORMWATER MANAGEMENT FACILITY DESIGN GUIDELINES	Dwg No.	FIGURE 7.2
Drawing Title	TYPICAL ASPHALT SERVICE ROAD	Scale	N.T.S.

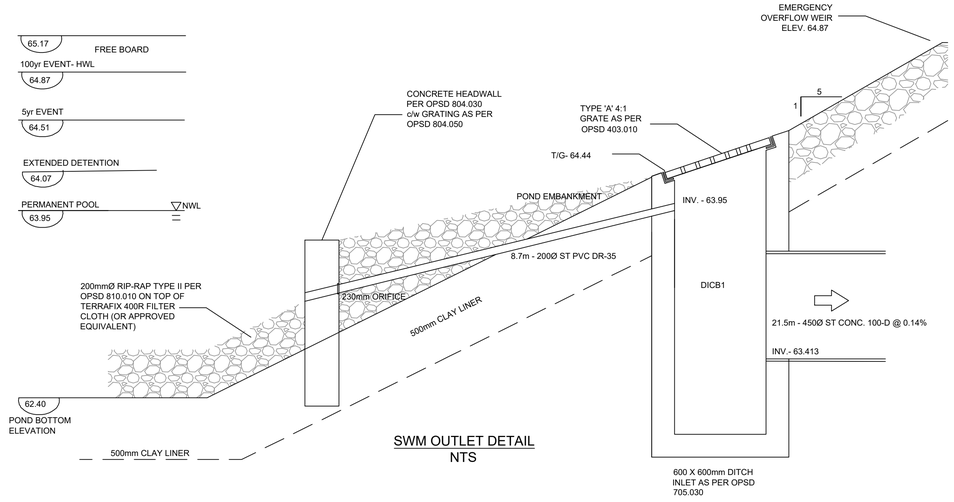


PIPE DIA	ENDWALL DIMENSIONS							
	A	B	C	D	E	F	G	H
600	1050	2400	2725	1400	300	75	1525	2350
675	1125	2400	2725	1475	300	75	1600	2425
750	1200	2400	2725	1550	300	75	1675	2500
825	1275	2400	2725	1625	300	75	1750	2575
900	1350	2400	2725	1700	300	75	1825	2650
975	1425	2400	2725	1775	375	150	1975	2725
1050	1500	3000	3400	1850	375	150	2050	3100
1200	1650	3000	3400	2000	375	150	2200	3250
1350	1800	3000	3400	2150	375	150	2350	3400
1500	1950	3000	3400	2300	375	150	2500	3550
1650	2100	3000	3400	2450	375	150	2650	3700
1800	2250	3000	3400	2600	375	150	2800	3850
2400	3000	3000	3400	3350	375	150	3550	4600

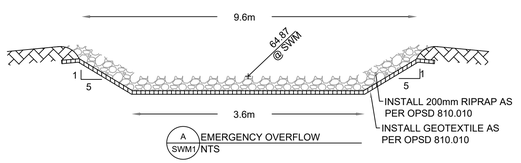
NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B Class of concrete: 30MPa.
C Cover to reinforcing bars: 75mm ±20mm.
D Granular backfill to be placed to 300mm min thickness on all sides.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 1
CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE OUTLET		OPSD 804.040

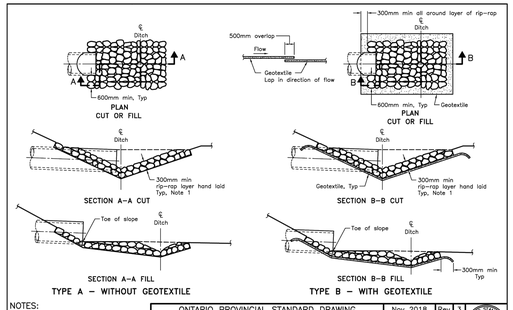
NOTE: CONTRACTOR TO REQUEST MODIFIED OPSD 804.040 TO INCLUDE STOP LOGS



SWM OUTLET DETAIL
NTS

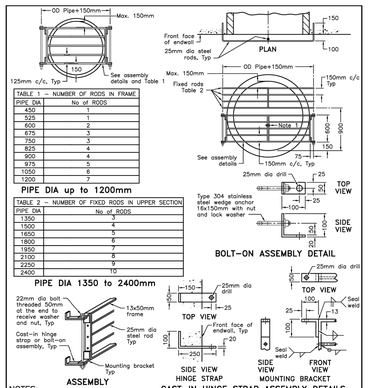


A EMERGENCY OVERFLOW
SWM1 NTS



NOTES:
1 The thickness of the rip-rap layer shall be at least 1.5 times the rip-rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
GENERAL RIP-RAP LAYOUT FOR SEWER AND CULVERT OUTLETS		OPSD 810.010



PIPE DIA	No. of RODS
450	1
525	1
600	2
675	3
750	3
825	4
900	4
975	5
1050	6
1200	7

TABLE 1 – NUMBER OF RODS IN FRAME

PIPE DIA up to 1200mm

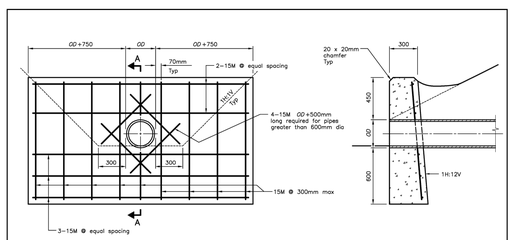
PIPE DIA	No. of RODS
1350	4
1500	5
1650	5
1800	6
1950	7
2100	8
2250	9
2400	10

TABLE 2 – NUMBER OF FIXED RODS IN UPPER SECTION

PIPE DIA 1350 to 2400mm

NOTES:
1 Grates shall be secured by either a bolt and nut or a locking device as specified.
A Metal surfaces shall be either painted with 2 coats of self priming abrasion resistant immersion grade epoxy or hot dip galvanized as specified.
B Frame, hinge strap, mounting bracket, and steel rods shall be medium grade steel.
C All welding shall be according to CSA W59.
D All dimensions are in millimetres unless otherwise shown.

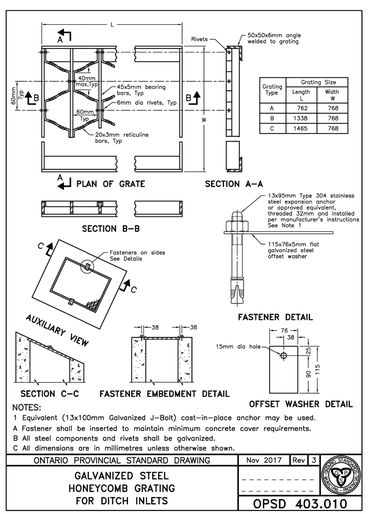
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
GRATING FOR CONCRETE ENDWALL		OPSD 804.050



LEGEND:
OD – Outside diameter of pipe

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B If a steel grate is required, refer to OPSD 804.05.
C Class of concrete: 30MPa.
D Cover to reinforcing bars 70mm ± 20mm.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 2
CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER		OPSD 804.030

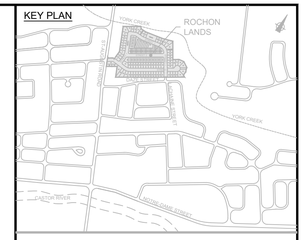


Grating Type	Grating Size	
	Length L	Width W
A	762	768
B	1338	768
C	1465	768

NOTES:
1 Equivalent (13x100mm Galvanized J–Bolt) cast–in–place anchor may be used.
A Fastener shall be inserted to maintain minimum concrete cover requirements.
B All steel components and rivets shall be galvanized.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS		OPSD 403.010

KEY PLAN



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SCALE: AS SHOWN

CLIENT: Robert Excavating

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PROFESSIONAL STAMP: LICENSED PROFESSIONAL ENGINEER A. WILLIAMS 100218983 2023-12-21 PROVINCE OF ONTARIO

PROJECT: ROCHON LANDS
EMBRUN, ONTARIO

DRAWING: SECTIONS & DETAILS

DESIGN: SP	DRAWING #: SWMF4
DRAWN: FA	
CHECKED: BP/KF	
JLR #: 31104	

PLOT DATE: December 21, 2023 4:00:27 PM