



Bloom Resorts Sandbanks

37-38 Lake Avenue, Cherry Valley

Prince Edward County

Functional Servicing Report

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Ministry of the Environment, Conservation and Parks Guidelines for Sewage Works, 2016

Ministry of the Environment, Conservation and Parks Design Guidelines for Drinking - Water Systems, 2016

Ministry of the Environment, Conservation and Parks Procedure F-6-1: Procedures to Govern Separation of Sewers and Watermains

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1. INTRODUCTION

1.1 Report Purpose

This Functional Servicing Report is prepared in support of a Site Plan Application submission for the re-approval of a 24-trailer site development expansion at Bloom Resorts Sandbanks, located at 37-38 Lake Avenue Lane, Cherry Valley, ON.

The intent of this Functional Servicing Report is to examine the servicing, including upgrades and replacement to, and of, the existing services for Bloom Resorts Sandbanks. The focus of this report will be the 24-site expansion as it relates to:

1. Sanitary Servicing
2. Water Servicing
3. Utility Servicing
4. Stormwater Management (Stormwater Management Brief)
5. Grading and Roads
6. Erosion and Sediment Control
7. Fire Suppression

Gunnell Engineering Ltd. has been retained by Castle Amalco Inc. to provide engineering support for the Bloom Resorts Sandbanks expansion of 24 additional sites.

1.2 Property Description

Bloom Resorts Sandbanks is a 25 acre (10 ha) seasonal RV Resort development which consists of 132 RV sites, three seasonal park model rental units (formerly 2-bedroom cottages), a dwelling unit and uses accessory to the park. The site is located at 37-38 Lake Avenue Lane in Cherry Valley, Prince Edward County, Ontario situated on the northwest side of Highway 18. Access to the site is through Lake Avenue Lane which intersects the central portion of the property. Bloom Resorts Sandbanks abuts four (4) private properties, each developed with a cottage and accessed by an existing right-of-way (ROW) within the Resort.

Legally, the site is located on Part Lot 17 Concession 1 south Side of East Lake, Parts 1, 2, 3 & 4 47R2627 together with PE8895 subject to PE133655, Ward of Athol. The subject property boundary and location is detailed on Drawings SPCA-1 (Appendix B) prepared by Gunnell Engineering Ltd.

1.3 Current Zoning

The current zoning for Bloom Resorts Sandbanks is split-zoned as Special Trailer Park Commercial (TPC-9) Zone and Special Rural 1 (RU1-103) zone (Appendix E). Refer to drawings in Appendix B for zoning boundaries. Permitted uses within the TPC-9 zone are limited to a seasonal travel trailer, tent and recreational vehicle park containing a maximum of three (3) two-bedroom seasonal rental cabins, one

(1) single detached dwelling and 156 fully serviced seasonal sites as well as uses accessory thereto. Permitted use within the RU1-103 Zone include uses incidental to the RV park as well as those permitted within the RU1 zone.

Sun Retreat Sandbanks is currently developed with 132 travel trailer sites, three seasonal park model rental units, one (1) single detached dwelling and uses accessory to the park. In 2021, Castle Amalco Inc. submitted a Site Plan Control Application for the development of lands northeast of the park to accommodate an additional 24 travel trailer sites.

1.4 Planning Application History

In March 2011, a Zoning By-Law Amendment (ZBLA) was applied for in conjunction with a Site Plan Application to recognize existing uses at the Site and approve conditions not permitted under the TPC-9 zoning. The ZBLA was approved in 2012 and Site-Specific Zoning By-law 23.5.9 was included in the Prince Edward County Comprehensive Zoning By-Law 1816-2006 with the following provisions:

- i. The Permitted Uses shall be limited to the following:*
 - *Seasonal Travel trailer, tent and recreational vehicle park consisting of a maximum of 156 fully serviced sites; and*
 - *Maximum of 3 two-bedroom seasonal rental cabins;*
 - *Maximum of 1 single detached dwelling as an accessory use to the foregoing permitted non-residential uses; and*
 - *Uses, buildings or structures normally incidental and accessory to the foregoing non-residential uses, including the sale of prefilled propane tanks and a retail commercial establishment/convenience store.*
- ii. Lot Frontage (Minimum) 0 m (0 ft.)*
- iii. The requirements of Section 41 of the Planning Act R.S.O.1990, c.P.13, as amended, relating to Site Plan Control shall apply to the lands zoned TPC-9.*
- iv. For the purpose of this by-law “Seasonal” shall mean a use not exceeding ten (10) months per year, with an annual shut down and park closure for a continuous sixty (60) day period, in accordance with the Ministry of the Environment Compliance Approval.*

All other provisions of the TPC Zone and By-law No. 1816-2006, as amended, shall apply to the lands zoned TPC-9.

A Site Plan Agreement for the Subject Property was executed July 24, 2012 (By-Law No. 3104-2012). Amongst other conditions of Site Plan Approval, all proposed on-site and off-site works shown on the approved plan were to be constructed within two years of the date of the Agreement.

Due to the sale of the property in early 2014, the proposed works were not completed and a Site Plan Extension was applied for in June 2014. The letter requested an extension until spring of 2017 for completion of the proposed works. All of the off-site works and a portion of the on-site works were completed by 2016.

In 2016 the property was sold again and purchased by the current owner. Construction of the remaining on-site works commenced in 2020. During the application for a building permit, Prince Edward County (PEC) notified the Owner that the Site Plan Agreement had expired and that all construction activities must cease until a new Site Plan Agreement is executed. A new site plan application was submitted in June 2021 to re-approve the remaining on-site works previously approved under the 2012 Site Plan Agreement.

During the review of the submitted site plan application drawings, it was discovered that a portion of the re-aligned Lake Avenue Lane was proposed outside of the registered Right-of-Way (ROW). A Consent Application was filed in 2022 to relocate the ROW. Approval was granted on June 25, 2024 in accordance to Consent File No. B29-22 to create a Right-of-Way, being 7.0m in width, and aligned to accommodate proposed storm works and buffering along the common lot line between the cottages and Bloom Resorts Sandbanks.

2. NEW SERVICING REQUIREMENTS

A building permit application for plumbing works was submitted to Prince Edward County in 2021, for the installation of a new gravity sewer pipe to replace an existing one as well as the replacement of an old pump station. Approval for these works was not granted on account of the site plan agreement having expired.

2.1 Sanitary Servicing

2.1.1 Environmental Compliance Approval No. 2426-B4HJN5, September 28, 2018

The current sewage system was installed in accordance to Environmental Compliance Approval (ECA) No. 2426-B4HJN5, issued September 28, 2018 (Appendix A). The new sewage system, commissioned in 2020 was designed to service 156 seasonal campground sites, three (3) 2-bedroom cottages, the existing office / laundry / recreation hall, the comfort station and the manager's residence. The three (3) 2-bedroom cottages have since been replaced with three (3) 2-bedroom park model units. All sewage flows from the existing RV sites as well the as proposed 24 additional sites and the 2-bedroom park model units will be pumped and treated at the Sewage Treatment System located on the southeastern part of the property.

2.1.2 Sanitary Servicing and Sewage Design Flows

Table 1 outlines the sewage design flow allocations for the various uses within the Resort. The daily design sewage flows are not expected to increase from historical averages and are not anticipated to exceed the permitted sewage treatment system capacity of 44,000 L/day as the total number of sites is not increasing beyond the approved number of sites.

Table 1 – Daily Design Sewage flows

Item	Quantity	Daily Flow (L/unit)	Total Flow (L/day)
Seasonal Sites	156	250	39,000
Park Model Units (formerly 2-bedroom cottages)	3	1,100	3,300
Manager’s Residence	1	1,600	1,600
Total			44,000 (rounded)

**We note that the park model unit design flow rate is less than that for a two-bedroom cottage.*

Since the resort is not open to the public, the daily sewage flows for the operating season associated with the resort office / laundry / recreational hall building and existing comfort station have already been accounted for through the daily sewage flow rates associated with the resort patrons under seasonal sites and park model units.

Currently, sewage flows from the 2-bedroom park model units are treated through a conventional septic system, via septic tank and septic bed. There is one septic tank and bed servicing each of the three (3) individual units. In accordance with the ECA, these septic beds are to be decommissioned and sewage from the park model units are to be treated at the sewage treatment system. We note that sanitary collection and conveyance systems are no longer under the purview of the MECP and the proposed connections to the sewage treatment system will require a building permit from the PEC Building Department.

2.1.3 Sewage Treatment System

The existing sewage treatment system was installed in accordance with the Ministry of the Environment, Conservation and Parks (MECP) Amended Environmental Compliance Approval (ECA) No. 2426-B4HJN5, dated September 28, 2018 and has a rated treatment capacity of 44,000 L / day.

The sewage treatment plant for Bloom Resorts Sandbanks consists of one (1) equalization tank, a pre-treatment system, a WSB® Clean Pro moving bed bioreactor (MBBR), a flocculation system, one (1) Final Clarifier, one (1) tertiary sand filtration system, one (1) secondary sludge storage tank, and all other mechanical, electrical, implementation and control systems. Refer to drawing SPCA-5 in Appendix B detailing the location of the sewage treatment system and proposed servicing plan.

Raw sewage first enters an equalization tank (41,000 L) which is fitted with timed dosing into a pre-treatment system consisting of a primary sludge storage tank (34,000 L) and a primary clarifier tank (11,500 L). Following pre-treatment, the sewage is discharged and flows by gravity to Bioreactor 1 (28.2 m³) where wastewater goes through carbon oxidation and discharges to an intermediate clarifier (22 m³) equipped with a skimmer and solid pump. Floating scum is removed and sewage enters Bioreactor 2 (26.8 m³) for nitrification. From here, a portion of the sewage is recirculated into the primary sludge storage tank for denitrification. Remaining effluent from Bioreactor 2 then flows into a flocculation system consisting of a flocculation reactor (2.0 m³) where polyaluminum chloride (PAC) is injected for

flocculation, a chemical container for PAC storage and a chemical meter pump which then pumps the effluent to a final clarifier (7.7 m³). Sludge from final clarifier enters a secondary sludge storage tank (34,000 L) which then discharges the supernatant by gravity to the primary storage tank. After final clarification, effluent flows to a tertiary sand filtration system for phosphorous reduction and into an Ultraviolet (UV) disinfection system.

As described in the ECA and project drawings, the current septic systems servicing the three (3) 2-bedroom park model units are to be decommissioned in which two (2) of the septic tanks will be converted into pump stations to pump sewage from the park model units to the sewage treatment plant. Septic tanks STA 2a and STA 4a will be converted into pump stations SPS 12 and SPS 13, respectively. As the treatment system was designed and installed with these flows accounted for, there will be no planned increases in daily sewage flows that would require an expansion of the sewage treatment system or additional treatment processes.

2.1.4 Sanitary Pipe Materials and Bedding

Sanitary forcemains from the sewage pump stations will be constructed of SDR 26 PVC Piping, rated to 160 PSI. Bedding will be constructed consisting of the PVC pipes overlain on 150mm of 19 mm clear stone enclosed by a layer of non-woven geotextile fabric and overlain by approved cobble free sand/gravel. Backfill to be compacted in place followed by a layer of existing topsoil to grade. Construction details and notes are located on Drawing SPCA-8, Appendix B.

2.1.5 Sanitary Pipe Sizes, Capacities, and Velocities

The gravity flow sanitary piping will consist of 100mm Ø SDR35 PVC for private drains (laterals) and both 100mm Ø and 150mm Ø SDR35 PVC for sanitary mains. Both sizes of piping meet the minimum requirements of 100mm, in the MECP Design Guidelines for Sewage Works 2016 (s. 5.7.2.). The proposed piping sizes are consistent with typical on-site sanitary collection systems in RV development sites and are appropriate for the proposed system due to the low flow capacities within the pipes, which require smaller diameter pipes to maintain minimum velocities for a development of this style.

The MECP Design Guidelines for Sewage Works 2016 suggest minimum velocities of 0.6 m/s (5.7.6). Sewer cleanouts for the 100mm Ø piping are required every 15m. Velocities through the sanitary mains will exceed the minimum full flow velocity of 0.6m/s. The design velocities for the sanitary mains are detailed on the Sanitary Sewer Design sheets (Appendix G).

Where possible, minimum pipe slopes will be greater than 1.5% for the sanitary laterals, however some instances will require lesser slopes. In all cases, slopes for lateral sanitary drains exceed 1% and are above the minimum slope recommendations of 1% (MECP Design Guidelines for Sewage Works 2016 s. 5.7.11.2). Minimum slopes for 100mm Ø sewer mains are 1.0%, which meets the minimum slope recommendations.

Sanitary forcemain sizes will be based on the required pumping rates as determined by the design peak instantaneous flow rates for the sanitary pumping stations. All velocities within the forcemains will be between 0.6 m/s and 3.0 m/s, as recommended in the MECP Design Guidelines Section 7.9.1, in order to maintain minimum scouring and self-cleansing velocities.

2.1.6 Sewer Depths

Due to bedrock in some areas in the of the resort, the proposed sanitary lateral piping will connect to the sanitary main at a minimum depth of 0.3m to 0.6m below grade. Cleanouts will be provided every 15m or 30m, as required by pipe diameters, on the sanitary main to facilitate maintenance. This approach is consistent with existing depths for lateral piping serving the seasonal RV sites and is supported by the MECP Design Guidelines for Sewage Works 2016. Additionally, the RV units do not and will not have basements, which reduces the need for deeper sewers. All sanitary forcemains will be buried at minimum depths of 300mm below grade.

2.1.7 Sanitary Pumping Stations

Currently, ten (10) sewage pumping stations receive sewage from the 132 seasonal RV sites and buildings before pumping to the sewage treatment system. Proposed works will consist of the decommissioning of three (3) septic fields (SFL3a, SFL2a and SFL4a), one (1) septic tank (STA3a), the conversion of two (2) septic tanks to pump stations (STA2a and STA3a) as well as the replacement of two (2) existing pump stations (SPS8 and SPS2). With the additional development of 24 RV sites, a total of twelve (12) sewage pumping stations will direct all sewage flows generated at the resort to the treatment system. Appendix B, Drawing SPCA-2 details locations of the proposed pump stations as well as septic tanks to be decommissioned.

All sanitary pump stations will be equipped with both audible and visual high-level alarms and child resistant riser lids. Each alarm panel will be adjacent the tank with electrical disconnect located in lockable weather proof box with conduit for wiring. Details including sewage inlet, outlet, float locations as well as other details are located on Drawing I-6, Appendix B. All existing and proposed pumps are / will be capable of pumping the peak hourly sewage flow rates and will be fitted with check valves on each pump.

2.1.8 Separation Distances and Crossings

The conversion of two (2) septic tanks (STA2a and STA3a) to pumping stations along with the installation of new sanitary mains, sanitary laterals, and pressurized forcemains that will serve the 24 expansion sites will result in pipe crossings with the existing and new underground water services.

The MECP Procedure F-6-1: Procedures to Govern Separation of Sewers and Watermains addresses the minimum required separation distances between sewers and watermains.

Field verification of the existing water services and other underground utilities will occur prior to the installation of new services. In instances where the horizontal separation distance of 2.5m is

unachievable it will be necessary to follow the procedures outlined in Procedure F-6-1 s 4(a); ensuring the crown of the sewer is a minimum 0.5m below the invert of the watermain, or (b); where this vertical separation cannot be achieved, ensuring the sewer piping materials and joints that are equivalent to watermain material standards and pressure tested to 350 kPa with no leakage and in accordance with current Ontario Provincial Standard Specifications (OPSS).

In instances where sewer and water crossings occur, MECP Procedure F-6-1 s. 5.0 will be followed. Where it is not possible to install sewer mains below the watermain with sufficient vertical separation, s 5.2 outlines the following procedures for installation:

a) A vertical separation of at least 0.5 metres between the invert of the sewer and the crown of the watermain.

b) Adequate structural support for the sewers to prevent excessive deflection of joints and settling.

c) That the length of water pipe shall be centred at the point of crossing so that the joints will be equidistant and as far as possible from the sewer.

Details reflecting the procedures outlined in MECP Procedure F-6-1 are detailed on drawings SPCA-6 and drawing I-6, located in Appendix B.

In areas where sewage collection lines are to cross roadways, proper road crossing protection will be constructed. Road crossing protection consists of 300mm concrete cover over pipe, 20MPa, 6 - 8% air entrained, c/w 15M green epoxy coated rebar @ 300mm o/c each way with minimum of 3 rebar lengths along the longitudinal axis. Clear stone will encase half of the pipes for drainage. More details are located on drawings SPCA-8 and I-6.

2.1.9 Sub-Surface Disposal Fields

There are currently three (3) sub-surface disposal fields at Bloom Resorts Sandbanks, with each field servicing a 2-bedroom park model unit. In accordance to ECA No. 2426-B4HJN5, dated September 28, 2018 the current sub-surface disposal fields (SFL3a, SFL2a and SFL4a) are to be decommissioned and sewage flows generated from the three (3) park model units will be directed towards the existing sewage treatment system on site where treated effluent is directly discharged to a neighbouring wetland.

2.2 Water Servicing

The Resort currently obtains raw water from one (1) on-site groundwater well that supplies the water treatment system. The system is regulated by the Health Unit under O. Reg. 319/08. All sites and buildings within the Resort are serviced by this water treatment system, which will also service the proposed additional 24 sites. Water from the well is pumped and treated through both UV disinfection and chlorine disinfection prior to discharge into a 65 m³ treated water storage tank and distribution to resort patrons. Treated water storage is required to meet peak demand. The approval of the site plan

application will not change the total number of sites permitted for the property or increase the water demand requirements beyond the existing treatment capacity.

The manager's residence is supplied with water by a separate dedicated dug well and independent water treatment system.

2.2.1 Water Demand

Metered data from 2021, 2023, and 2024 was analyzed to determine the daily water demand. Data from 2022 was excluded from the data set as the meter readings are inconsistent and largely anomalous when compared against historical data. The metered data contains all extraneous flow, including irrigation at individual sites and the Park itself, water leaks and daily pool filling volumes. It is estimated that only 70% – 75% of all water use enters the sewage works.

Based on the analyzed data, the site produces an average daily flow (ADF) of 47,830 L and a maximum daily flow (MDF) of 149,172 L, which occurred in 2021. Peak hourly demand was estimated at 8,231 L (137 L/min) using the MECF peaking factor of 4.13 (Table 3-1: Peaking Factors, MECF Design Guidelines for Drinking Water 2016). The addition of 24 sites, an 18% increase, is expected to raise the ADF to 56,439 L/day, MDF to 176,023 L/day, and estimated peak hourly flow rate to 9,712 L (56,439 * 4.13 / 24) or 161.8 L/min. The treated water storage tank is capable of supplying the required peak hourly flow demands.

2.2.2 Water Supply and Treatment

The Bloom Resorts Sandbanks water treatment system is supplied by one (1) drilled well equipped with a submersible well pump. Water Well Record No. 5300652 provides details on the supply well and has been included in Appendix H. The supply well yield is 720 gph (54.5 lpm) however, recovery time information is not provided in the record.

The well pump feeds water to the treatment system prior to entering the distribution system for delivery to the resort's serviced sites. Water pressure is maintained within the distribution network through an online pressure tank as well as a treated 65 m³ water storage tank with pumps operated by variable frequency drives.

The existing water treatment system, which will service the additional proposed sites at Bloom Resorts Sandbanks, consists of filtering the groundwater through three (3) sequential filters at 20-micron, 5 micron and 1 micron, prior to UV disinfection. The water is then subjected to chlorine disinfection via sodium hypochlorite before it is conveyed to the 65 m³ treated water storage tank and distributed through the supply network for potable use at Bloom Resorts Sandbanks. A flow diagram detailing the water treatment system is located and can be referenced in Appendix F.

The water distribution building is stick built with asphalt shingled roofs. The building is ventilated and equipped with a flow meter, pressure reducing valve, pressure tank and water distribution manifold with isolation valves and has adequate heating to prevent freezing in the winter months.

2.2.3 Water Distribution System

Currently, potable water is pumped from the treated water storage tank. Pressure within the distribution system is within an operating range of 50 – 70 psi, in accordance with Section 10.2.2 of the MECP Design Guidelines for Drinking Water Systems, 2016.

In 2020, a 65 m³ pre-cast concrete treated water storage tank was installed. The tank consists of all pumping equipment, including valves, pressure tank and gauges as well as electrical equipment and controls. A 50mm Ø High Density Polyethylene (HDPE) trunk main was also installed from the storage tank and connecting to all existing 25mm Ø watermains.

It is acknowledged that the existing well cannot meet current or future peak demand, and the water treatment system is not designed for surface water intake. A 65m³ treated water storage tank is capable of supplying the required peak hourly flow demands. During some maximum daily flow (MDF) events, the storage tank may need to be supplemented with water from an outside supplier, typically around long weekends during the peak camping season in July and August. Each distribution building is equipped with a pressure tank and distribution manifold and each private water service connected to the manifold is equipped with an isolation valve.

2.2.4 Watermain Pipe Materials, Bedding and Depth

Original watermain piping at Bloom Resorts Sandbanks consists of 25mm Ø polyethylene waterlines. In 2020, a 50mm Ø High Density Polyethylene (HDPE) trunk main was installed at a maximum depth of 1.2 m to service the resort during peak flows. Additional distribution piping is required to service the proposed 24 additional sites and will be constructed with 38mm Ø HDPE piping (rated at 160 psi) and installed at a minimum depth of 600 mm. Bedding includes a minimum of 150 mm layer of clear stone overlain by cobble free sand/gravel backfill and topsoil. Pipes and clear stone will be covered and wrapped by non-woven geotextile fabric. Refer to Appendix B, Drawing SPCA-8 for more details.

2.2.5 Separation Distance and Crossings

As previously noted, the installation of new sanitary mains and private sanitary drains may require the relocation of private water services in order to achieve the minimum vertical separation distance of 0.5 m from the sewage crown to the bottom of the water pipe in a parallel installation. Where this vertical separation cannot be obtained, the sewer shall be constructed of materials equivalent to watermain standards of construction in accordance to Division 701 of the Ontario Provincial Standard Specification (OPSS) as detailed in the MECP Procedure F-6-1.

When sewer and watermains crossings are required, MECP Procedure F-6-1 s.5.0 will be followed and is discussed previously in section 2.1.8 of this report. Drawing SPCA-8 and drawing I-6 provide construction details for the crossings that include a 1 m horizontal distance after crossing that will be maintained in the distribution piping before any pipe deflection is introduced, structural support in the form of compacted granular material for the sewers to prevent deflection of joints and settling as well as centering of water pipes at the point of crossing to ensure joints are as far as possible from the sewer.

In areas where water distribution lines are to cross roadways, proper road crossing protection will be constructed. Road crossing protection consists of 300mm concrete cover over pipe, 20MPA, 6 - 8% air entrained, c/w 15M green epoxy coated rebar @ 300mm o/c each way with minimum of 3 rebar lengths along the longitudinal axis. Clear stone will encase half of the pipes for drainage. Additional details are located on drawings SPCA-8 and I-6.

2.3 Utility Servicing

New electrical infrastructure upgrades will be completed as required and will be permitted, designed and installed in accordance with all applicable regulatory bodies' regulations and codes. Wireless internet service will also be provided and installed as part of the site servicing. All upgrades will be designed and installed after execution of the site plan agreement.

2.4 Solid Waste Collection

Waste collection for the resort is located on the east side of Lake Avenue Lane and south of the sewage treatment system. Patrons of Bloom Resorts Sandbanks drop off items to be disposed of including garbage and recycling which is removed from the Site by a private operator.

3. STORMWATER MANAGEMENT

Drainage issues are present at the boundary between Bloom Resorts Sandbanks and the neighbouring properties northwest towards East Lake. A stormwater management brief was prepared in support of the Site Plan Application for the proposed development of the 24 additional sites. Proposed solutions to address drainage issues and manage stormwater runoff quality and quantity will include the construction and implementation of a grassed swale, storm grates with catch basin sumps and shields, subsurface storm pipes with a final discharge to a bioswale outlet as well as an earthen berm along Lake Avenue Lane. These elements will aid to prevent ponding of stormwater and reduce overland flow to the neighbouring properties through means of infiltration and conveyance of surface runoff through the proposed storm works and towards East Lake via the Bloom Resorts Sandbanks property. The stormwater management brief and works to be implemented is appended to this report and can be seen in Appendix D.

4. FIRE SUPPRESSION

Confirmation with the local fire department determined that the current existing development at Bloom Resorts Sandbanks does not require any additional fire suppression infrastructure. With the proposed 24 sites, additional water for fire suppression will be provided by East Lake. The main gate system at Bloom Resorts Sandbanks by the recreation hall is equipped with a siren operated sensor and will open in the case of an emergency in the presence of sirens. A secondary entrance with a breakaway gate is also proposed to provide an additional access to the site in the event of an emergency. Breakaway gate details are located on drawing SPCA-8 in Appendix B.

A fire access route is identified with a proposed hammerhead at Beach Lane to facilitate turning of fire trucks. No parking is allowed along the fire access route and appropriate no parking / fire route signage will be installed at a minimum of 15 m intervals along the access route. Minor widening of the access route, in places, is required in order to meet the 6 m in width and 12.5 m turning radii in order to meet the minimum requirements outlined in Ontario Building Code Section 3.2.5.6. Road construction along the fire access route is designed to support the use and expected loads of firefighting equipment.

5. ROADS / PARKING, GRADING

5.1 Roads / Parking

Existing road configurations will be maintained with minor realignment and widening, in places, required to accommodate the fire access route and ROW. Proposed roads will be constructed of 200mm granular B overlain with 150mm granular A material. Roads will be crowned at centerline with a 2% slope to the edge of road and 3% from the edge of shoulder to toe of slope. Refer to Appendix B, Drawing SPCA-8 for typical road construction details.

Lake Avenue Lane will also be reconstructed along the east/west axis to reflect the adjusted right-of-way for the four (4) neighbouring properties northwest of Bloom Resorts Sandbanks, as detailed in Appendix B, drawing SPCA-3. The reconstructed road will be graded as an inverted crown with a 2% slope from the edge of road to the centre line. The road will be constructed of 200mm granular B overlain with 150mm granular A material. The road will be finished with 50mm HL4 pavement which will be applied on Lake Avenue Lane south to Green Lane. Refer to Appendix B, Drawing SPCA-5 for road construction details.

The fire access route at the resort requires minor widening in order to achieve minimum OBC requirement as stated in Section 4.0 and above. In addition, a hammerhead turnaround is also proposed on Beach Lane. The second emergency entrance to the park will have a breakaway gate as detailed on drawing SPCA-8.

Vehicle parking at Bloom Resorts Sandbanks is limited to one parking space on each individual site. Three (3) visitor parking spaces currently exist south of the office / store with no additional visitor parking being proposed.

5.2 Grading

Referencing Appendix B, Drawing SPCA-4.1 and SPCA-4.2, with the development of additional sites, due to the steep sloping on the east side of the resort, minor grading work will be conducted. The scope of work will focus on reducing the steepness of the current slope and will not alter current surface water flow directions.

Storm works are proposed at the resort to address current drainage issues present at the boundary between Bloom Resorts Sandbanks and the neighbouring properties northwest towards East Lake. Grading works here will be comprised of a drainage swale, a section of Lake Avenue Lane with an inverted centreline and corresponding grates and catchbasins, and an earthen berm on the west side of neighboring cottage 59 Lake Avenue Lane. As stated in Section 3.0, the construction of a swale and earthen berm will manage drainage issues and aid in discharging overland flow towards the neighbouring properties.

6. EROSION AND SEDIMENT CONTROL

Erosion and Sediment Control (ESC) is required during any construction activities to minimize the potential for movement and discharge of sediment. Erection of heavy-duty siltation fencing will be in accordance to the Ontario Provincial Standards (OPSD 219.130) along multiple areas for sediment control along the extents of construction areas. ESC fencing is to be implemented at the northwest boundary between the site and four (4) neighbouring cottages and north west of the hammerhead construction. Additional details are provided on Drawing SPCA-6 in Appendix B.

7. CONCLUSIONS AND RECOMMENDATIONS

This report identifies and describes the servicing of the subject property, and confirms that the site can adequately be serviced to accommodate the development of 24 additional seasonal sites at Bloom Resorts Sandbanks, subject to the following recommendations:

- The existing sewage treatment system can adequately accommodate the sewage disposal requirements for the existing 132 sites, manager's residence, three (3) 2-bedroom park model units, accessory uses thereto, and the proposed 24 additional sites
- New sanitary collection lines will be required to collect and convey sewage from the proposed 24 additional sites to the sewage treatment system, subject to the provisions identified in sections 2.1.4 and 2.1.5 of this report;
- New water distribution lines will be required to service the proposed 24 additional sites with treated potable water, subject to the provisions identified in sections 2.2.4 and 2.2.5 of this report;
- Implementation of a grassed swale, storm grates with sumps and sediment shields, storm pipes with discharge overland to a bioswale outlet, as well as an earthen berm along Lake

Avenue Lane all to mitigate and address ponding and stormwater runoff through means of infiltration and re-direction of overland flow, subject to the provisions identified in section 3.0 of this report;

- Roads and Grading of the proposed development area be constructed subject to the provisions identified in Section 5.0 of this report;
- Construction of a Hammerhead on Beach Lane, minor widening of the fire access route and installation of second emergency entrance with breakaway gate to allow for firetruck access and turning, subject to the provisions identified in sections 5.1 of this report.

Based on the aforementioned and enclosed information it can be concluded that Bloom Resorts Sandbanks can be adequately serviced for the proposed seasonal use.

Please contact our office directly should you have any queries regarding this report.

Sincerely,

GUNNELL ENGINEERING LTD.



Brock Cross, Dipl. ET
Senior Project Manager



Dominic Bauer, P.Eng.
Project Engineer

APPENDIX A

**Amended Environmental Compliance Approval No. 2426-B4HJN5,
dated September 28, 2018**

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2426-B4HJN5

Issue Date: September 28, 2018

Castle Amalco Inc.
199 Bay Street, Suite 4000, Commerce Court West
Toronto, Ontario
M5L 1A9

Site Location: 37-38 Lake Avenue Lane
R.R. #1 Cherry Valley, Prince Edward County,
K0K 1P0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

Installation of a new WSB® Clean Pro MBBR sewage treatment system with Rated Capacity of 44,000 L/d to replace an BIONEST treatment system in an existing sewage treatment plant, to service 156 seasonal fully serviced campground sites (124 existing and 32 in future), three (3) existing 2-bedroom rental cottages, an existing office / laundry / recreation hall building, an existing comfort station, and an existing manager's residence at an seasonally operated (from May to October) Lake Avenue RV Resort & Campground, for the collection, transmission, treatment and disposal of sanitary sewage to an existing onsite drainage ditch that flows to a wetland located on the shores of East Lake. The sewage Works comprises the following:

Proposed Works

- **Sewage Pump Stations SPS11, SPS12 and SPS13**, with pumping chambers repurposed from the existing 3,600 L concrete septic tanks dedicated to the existing sewage systems No.2, No.3 and No.6. Each pump chamber to be equipped with Liberty LE50 Series 0.5 hp duplex submersible sewage pump (SPS 11 rated for 2.0 L/s at 6.7 m TDH, 1 duty 1 standby; SPS 12 rated for 2.6 L/s at 6.0 m TDH, 1 duty 1 standby; SPS rated for 3.4 L/s at 5.9 m TDH, 1 duty 1 standby), a duplex control panel, floats, audible and visible high level alarm, with effluent pumped via dedicated forcemains to an existing pump station SPS 8, then pumped to existing pumping stations SPS6 and SPS7 from which discharges to the proposed WSB® Clean Pro MBBR treatment system.
- One (1) low profile **Pump Station SPS 10**, equipped with duplex 0.5 hp submersible sewage pumps (Liberty model LE50, or approved equivalent, with capacity of 3.4 L/s at 4.8 m TDH) in a single new compartment 4,500 L concrete chamber, receiving gravity

flow from the southeast portion of the existing campground sites and future campground sites as well as from the existing manager's residence, complete with two (2) access risers, a duplex control panel, floats, audible and visible high level alarm, with effluent pumped via a 50 mm diameter forcemain to a Equalization Tank;

- One (1) **Equalization Tank** (MacGregor Model MAC-41000-2P), repurposed from an existing 41,000 L tank of the existing BIONEST treatment system, receiving sewage flow from all the existing Pumping Stations SPS 1 - SPS 9, and the proposed Pump Stations SPS10 - SPS 13. The Equalization Tank to be equipped with duplex 0.5 hp pumps (BMJ model SV400, or approved equivalent, rated for 220 L/m at 3 m TDH, 1 duty 1 standby), timed dosing flow at rate of up to 1.84 m³/h over a 24-hour period to a pre-treatment system;
- A pre-treatment system, consisting of the following:
 - one (1) **Primary Sludge Storage Tank** (MacGegor Model MAC-34000-2P), repurposed from an existing 34,000 L BIONEST bioreactor treatment tank, receiving pumped sewage from the Equalization Tank for preliminary settlement of coarse solids, receiving returned mixed liquor for sewage alkalinity recovery, and receiving the supernatant from a Secondary Sludge Storage Tank;
 - one (1) **Primary Clarifier** (MacGregor Model MAC-11500-1P), repurposed from an existing 11,500 L tank of the existing BIONEST treatment system, following the Primary Sludge Storage Tank, for sewage conditioning and additional solids settlement, discharging flow by gravity to a Bioreactor 1;
- A WSB[®] Clean Pro biological treatment system utilizing a fluidized floating bed biofilm process, consisting of the following:
 - one (1) new **Bioreactor 1**, having a working volume of approximately 28.2 m³, receiving wastewater from the Primary Clarifier, primarily performing carbon oxidation, and discharging flow by gravity to an Intermediate Clarifier;
 - One (1) new **Intermediate Clarifier**, having a working volume of approximately 22 m³, equipped with a skimmer and a solid pump (Goulds model LSP0311F, or approved equivalent) to remove floating scum, and complete with triplex sloped-wall hoppers with secondary sludge being pumped (Goulds model LSP0311F, or approved equivalent) to a Secondary Sludge Storage Tank; flow travels by gravity to a Bioreactor 2;
 - one (1) new **Bioreactor 2**, having a working volume of approximately 26.8 m³, primarily performing nitrification, equipped with a recirculation pump (Goulds model LSP0311F, or approved equivalent) in a perforated sleeve to recirculate mixed liquor at a rate up to 5.5 m³/h back into the Primary Sludge Storage Tank for denitrification;

Each bioreactor tank is filled with free-floating neutral-buoyancy plastic **MBBR carrier media** having a specific surface area of 500 m²/m³ for a total 24.8 m³ for two (2) reactors, each bioreactor complete with a 6" media retention screen to ensure no MBBR carrier

media loss to other tanks / chambers;

Both bioreactor tanks are equipped with **Fine Bubble Diffusers** (MRS20, or approved equivalent) for process aeration. Air supplied by two (2) **Side Channel Air Compressors** (FPZ model SCL K07R-WD-5.5-3, or approved equivalent), having a total rated air flow of 125 Nm³/h at 310 mbar;

- A flocculation system, consisting of the following:
 - One (1) new **Flocculation Reactor** having a working volume of approximately 2.0 m³, equipped with four (4) new coarse bubble diffusers (TideFlex-0.75, or approved equivalent) for mixing, a new PAC (polyaluminum chloride) injector, and new baffle plate. Air supplied by one of the existing Hiblow HP200 blowers;
 - A **Chemical Container** for PAC storage, repurposed from an existing chemical tank equipped with a low level alarm switch;
 - A **Chemical Metering Pump** (ProMinent model Concept Plus, or approved equivalent), dosing the Flocculation Reactor with PAC on a flow-proportional basis for phosphorus initial reduction;
- One (1) new **Final Clarifier**, having a working volume of approximately 7.7 m³, complete with duplex sloped-wall hoppers and a surface skimmer pump (Goulds model LSP0311F, or approved equivalent), provides final clarification of flocculated effluent, chemical sludge wasted via two (2) sludge return pumps (Goulds model LSP0311F, or approved equivalent) from the bottom of the hoppers to the Secondary Sludge Storage Tank;
- One (1) new tertiary sand filtration system for phosphorus final reduction, receiving flow from the existing 11,500 L Dosing Tank / Pump Chamber No. 1 (MacGregor model MAC-11500-1P) and discharging filtered effluent to Ultraviolet (UV) disinfection system. The filtration system consists of the following:
 - A **Chemical Metering Pump**, dosing PAC coagulant on a flow – proportional basis into a static mixer;
 - Duplex **Nextsand™ Pressurized Media Filter Units** (Watergroup model Nextsand NXT-ANS14-1”-S80P, or approved equivalent, 1 duty 1 standby) having nominal pore size of 5 µm, running in parallel, each unit rated at 49 L/min average flow and 78 L/min peak flow, equipped with one (1) backwash pump (Goulds model 1ST1E4C4, or approved equivalent), one (1) 1,362 L backwash tank (Aco model CT300-CH), and one (1) differential pressure switch to automatically initiate backwash cycles;
 - One (1) provisional items: an Effluent Flow Meter (Endress & Hauser model ProMag 10LD-50) to be installed on the inlet to the Duplex Nextsand™ Pressurized Media Filter Units if the existing one is found in substandard condition or unfit for repurposing; and
- One (1) **Secondary Sludge Storage Tank** (MacGregor model MAC-34000-2P),

repurposed from an existing 34,000 primary septic tank No. 1, receiving secondary sludge from the Intermediate Clarifier and chemical sludge from the Final Clarifier, and discharging supernatant by gravity to the Primary Sludge Storage Tank.

Decommissioning and / or Removal

- Decommissioning the entire existing BIONEST Sewage Treatment systems; removal of the process tanks, equipment and piping where necessary (but utilizing some existing tankage where feasible for new WSB® Clean Pro MBBR treatment system as described in Proposed Works);
- Decommissioning the existing phosphorus removal system; removal of associated process equipment and piping as well as instrumentation and control where necessary (but utilizing the existing 41,300 L settling tank for new WSB® Clean Pro MBBR treatment system as described in Proposed Works);
- Decommissioning of the existing Class IV system (a 3,600-L septic tank and a dedicated tile bed) servicing the Manager's Residence, located to the east of the residence;
- Decommissioning of the existing Laundry Grey Water Pit, and abandoned on site.
- Decommissioning of the existing septic sewage systems No.2, No.3 and No.6: disconnection of the distribution pipes from the existing septic tanks and abandoned in place.

Previous Works

Phase I (approved under ECA No. 6791-8LXSWT, issued on January 13, 2012) sewage works with a design capacity of 22,000 L/d, including:

- Dosing Tank / Pump Chamber No. 1 (MacGregor model MAC-11500-1P), a single compartment 11,500 litre dosing tank, receiving effluent flow by gravity from the proposed new Final Clarifier, equipped with duplex 0.4 hp effluent pumps (Hydromatic SHEF 40, or approved equivalent) and an SJE Rhombus IFS duplex control panel complete with an audible and visible high level alarm set at 75 % of the pump tank working volume. Pumps operated continuously on alternating mode or operated singularly in the event of one pump breakdown, discharging to the proposed new Duplex Nextsand™ Pressurized Media Filter Units;
- One (1) Ultraviolet (UV) Disinfection Unit for Phase I, Trojan Model UVMax 'F4' with a maximum capacity to disinfect at a rate of 27 L/min, located in the controls building, discharging final effluent after disinfection to the existing on-site drainage ditch that flows to a wetland located on the shores of East Lake;
- One (1) Controls Building, a vented 10' x 10' controls / treatment building housing control panels, blowers, chemical dosing, UV disinfection and electrical components and alarm;

Phase II (approved under ECA No. 6791-8LXSWT, issued on January 13, 2012) sewage works (expansion to Phase I with additional design capacity of 22,000 L/d), including:

- One (1) additional ultraviolet (UV) disinfection unit (Trojan Model UVMAX 'F4', or

approved equivalent) with a disinfection maximum capacity of 27 L/min, to be located in the Controls Building and running in parallel to the existing Phase I UV Disinfection Unit, discharging final effluent after disinfection to the existing on-site drainage ditch that flows to a wetland located on the shores of East Lake.

including all other mechanical system, electrical system, instrumentation and control system, piping, pumps, valves and appurtenances essential for the proper, safe and reliable operation of the aforementioned sewage works in accordance with this Approval, in the context of process performance and general principles of wastewater engineering only;

all in accordance with supporting documents listed in **Schedule A**.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" means this entire document and any schedules attached to it, and the application;

"BOD5" (also known as TBOD₅) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demand;

"CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

"District Manager" means the District Manager of the Kingston District Office and Belleville Area Office;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19, as amended;

"*E. coli*" refers to the thermally tolerant forms of *Escherichia coli* that can survive at 44.5 degrees Celsius;

"Event" means an action or occurrence, at a given location within the Works that causes a Overflow. An Event ends when there is no recurrence of Overflow in the 12-hour period following the last Overflow.

"Final Effluent" means effluent that are discharged to the environment through the approved Final Effluent outfall, including all bypasses, that are required to comply with the effluent limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent compliance sampling point;

"Geometric Mean Density" is the nth root of the product of multiplication of the results of n number of samples over the period specified;

"Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

"mg/L" means milligrams per Litre;

"Overflow" means a discharge to the environment from the Works at a location downstream of the Final

Effluent compliance sampling point, other than the approved Final Effluent outfall or into the outfall;

"Owner" means Castle Amalco Inc. and its successors and assignees;

"OWRA" means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended

"Previous Works" means those portions of the sewage works previously constructed and approved under an Approval;

"Proposed Works" means the sewage works described in the Owner's application, this Approval, to the extent approved by this Approval;

"Sewage Treatment Plant" means the entire sewage treatment and effluent discharge facility; and

"Works" means the sewage works described in the Owner's application, and this Approval, and includes Proposed Works and Previous Works.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

- (1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) The Owner shall design, construct, operate and maintain the Works in accordance with the conditions of this Approval.
- (3) Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.
- (4) This Approval is granted based upon a review of the Works in the context of its effect on the environment, its process performance and general principles of wastewater engineering. The review did not include a consideration of the architectural, mechanical, electrical or structural components and minor details of the Works except to the extent necessary to review the Works.
- (5) The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

2. CHANGE OF OWNER

- (1) The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:
 - (a) change of address of the Owner;
 - (b) change of Owner, including address of new Owner;
 - (c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c.B17* , as amended, shall be included in the notification;
 - (d) change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act, R.S.O. 1990, c. C39* , as amended, shall be included in the notification to the District Manager;
- (2) In the event of any change in ownership of the Works, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the District Manager and the Director.
- (3) The Owner shall ensure that all communications made pursuant to this condition refer to the number at the top of this Approval.

3. CONSTRUCTION OF PROPOSED WORKS

- (1) All the Proposed Works in this Approval shall be completed and commissioned within **five (5) years** of issuance of this Approval.
- (2) **One (1) week** prior to commissioning of the Proposed Works, the Owner shall notify the District Manager, in writing, of the pending start up date. The notification shall include a statement, certified by a Professional Engineer, that the Proposed Works are constructed in accordance with this Approval, and upon request, shall make the written statement available for inspection by Ministry personnel.
- (3) Within **one (1) year** of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.
- (4) In the event that completion and commissioning of any portion of the Proposed Works is anticipated to be delayed beyond **five (5) years** of issuance of this Approval, the Owner shall submit to the Director an application of extension to the Approval, at least **twelve (12) months** prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review whether the standards applicable at the time of Approval of the Works are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

(5) A set of record drawings of the Works shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.

4. OVERFLOWS

(1) Any Overflow is prohibited, except:

(a) in an emergency situation when a structural, mechanical or electrical failure that causes a temporary reduction in the capacity of the Sewage Treatment Plant or in unexpected and/or unavoidable circumstance(s) that are likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset;

(b) where the Overflow is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the District Manager at least **fifteen (15) days** prior to the occurrence of the Overflow, including an assessment of the potential adverse effects on the environment and the anticipated duration of the Overflow and the mitigation measures, and the District Manager has given written consent of the Overflow.

(2) For any Overflow Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information for each Event:

(a) the date and time of the Overflow;

(b) the location of the Overflow and the receiver;

(c) the reason(s) for the Overflow;

(d) the level of treatment the Overflow has received and disinfection status of same.

(3) After any Overflow Event, the Owner shall collect and record the following information:

(a) the duration of the Overflow Event;

(b) the measured or estimated volume of the Overflow;

(c) the impact of Overflow on the receiver.

(4) For each Overflow Event, the Owner shall collect samples, representative of the Event, consisting of a minimum of two (2) grab samples of the Overflow, one at the beginning of the Event and one approximately near the end of the Event, and **every 8 hours** for the duration of the Event, and have them analyzed for effluent parameters outlined in Compliance Limits condition. For raw sewage and primary treated effluent Overflow, BOD5

shall be monitored instead of CBOD5.

- (5) The Owner shall submit a summary report of the Overflow Event(s) to the District Manager on a **quarterly basis**, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary report shall be in an electronic format, which shall contain, at a minimum; the types of information set out in Subsections (2), (3) and (4).

5. DESIGN OBJECTIVES

- (1) The Owner shall design and operate the Works in accordance with the following objectives:

Table 1. Final Effluent Objectives		
Effluent Parameter	Objective (maximum permissible value unless otherwise indicated)	Averaging Calculator
CBOD5	8 mg/L	Monthly Average Concentration
Total Suspended Solids (TSS)	8 mg/L	Monthly Average Concentration
Total Phosphorus (TP)	0.1 mg/L	Monthly Average Concentration
Total Ammonia Nitrogen (TAN)	3 mg/L	Monthly Average Concentration
pH	6.5 - 8.5 inclusive	Single Sample Result
<i>E. coli</i>	<100 organisms per 100 millilitres of effluent	Monthly Geometric Mean Density

- (2) The Owner shall use best efforts to:

- (a) operate the works within the Rated Capacity of 44,000 L/d; and
- (b) ensure that the effluent from the Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

- (3) The Owner shall include in all reports submitted in accordance with Condition 10 Reporting, a summary of the efforts made and results achieved under this Condition.

6. COMPLIANCE LIMITS

- (1) The Owner shall operate and maintain the Works such that the compliance limits for the Final Effluent parameters listed in Table 2 are met.

Table 2. Final Effluent Compliance Limits		
Column 1	Column 2	Column 3
Effluent Parameter	Limit (maximum permissible value unless otherwise indicated)	Averaging Calculator
CBOD5	10 mg/L	Monthly Average Concentration
Total Suspended Solids	10 mg/L	Monthly Average Concentration
Total Phosphorus (TP)	0.3 mg/L	Monthly Average Concentration
Total Ammonia Nitrogen (TAN)	5 mg/L	Monthly Average Concentration
pH	6.0 - 9.0 inclusive	Single Sample Result
<i>E. coli</i>	100 organisms per 100 millilitres of effluent	Monthly Geometric Mean Density

(2) For the purposes of determining compliance with and enforcing Subsection (1):

- (a) Non-compliance with respect to concentrations of CBOD5, Total Suspended Solids, Total Phosphorus and Total Ammonia Nitrogen in the effluent is deemed to have occurred when the monthly average concentration of any of these parameters, as defined in this Approval, based on all samples taken in accordance with Condition 8(3) below, supplemented by spot sampling by the Ministry's staff as necessary, during any calendar year, exceeds its corresponding concentration in final effluent specified above in Subsection (1) Table 2 Column 2.
- (b) Non-compliance with respect to pH in the effluent is deemed to have occurred when any single grab sample analysed for pH is beyond the corresponding range specified in Column 2 of Table 2.
- (c) Non-compliance with respect to *E. coli* in the effluent is deemed to have occurred when the monthly Geometric Mean Density as defined in this Approval, based on all the samples taken in accordance with Condition 8(3) below, supplemented by spot sampling by the Ministry's staff as necessary, during any calendar month, exceeds its corresponding density in final effluent specified above in Subsection (1) Table 2.

(3) Subsections (1) and (2) shall apply upon the issuance of this Approval.

7. OPERATION AND MAINTENANCE

- (1) The Owner shall exercise due diligence in ensuring that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate operator staffing and training, including training in all procedures and other requirements of this Approval and the Act and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.
- (2) The Owner shall prepare an operations manual within **six (6) months** of Substantial Completion of

the Proposed Works, that includes, but not necessarily limited to, the following information:

- (a) operating procedures for routine operation of the Works;
 - (b) inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
 - (c) repair and maintenance programs, including the frequency of repair and maintenance for the Works;
 - (d) procedures for the inspection and calibration of monitoring equipment;
 - (e) a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the District Manager;and
 - (f) procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.
- (3) The Owner shall maintain the operations manual current and retain a copy at the location of the Works for the operational life of the Works. Upon request, the Owner shall make the manual available to Ministry staff.
- (4) The Owner shall provide for the overall operation of the Works with an operator who holds a licence that is applicable to that type of facility and that is of the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

8. MONITORING AND RECORDING

The Owner shall, upon commencement of operation of the Works, carry out the following monitoring program:

- (1) All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.
- (2) For the purposes of this condition, the following definitions apply:
 - (a) Weekly means once each week; and
 - (b) Monthly means once every month.
- (3) Samples shall be collected at the following sampling points, at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 3 - Influent Monitoring [at Equalization Tank (MacGregor Model MAC-41000-2P)]		
Parameters	Sample Type	Frequency*
BOD5	grab	monthly
Total Suspended Solids	grab	
Total Phosphorus	grab	
Total Kjeldahl Nitrogen	grab	

* during the operating season (when the treatment system is in use)

Table 4 - Final Effluent Monitoring [at Dosing Tank / Pump Chamber No. 1 (MacGregor model MAC-11500-1P)]		
Parameters	Sample Type	Frequency*
CBOD5	grab	weekly
Total Suspended Solids	grab	weekly
Total Phosphorus	grab	weekly
Total Ammonia Nitrogen	grab	weekly
pH	grab	weekly
<i>E. coli</i>	grab	weekly

* during the operating season (when the treatment system is in use)

- (4) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
- (a) the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;
 - (b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02 Ontario.ca/Environment, as amended from time to time by more recently published editions;
 - (c) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions;
 - (d) for any parameters not mentioned in the documents referenced in (a) and (b), the written approval of the District Manager shall be obtained prior to sampling.
- (5) The measurement frequencies specified in subsection (3) in respect to any parameter are minimum requirements which may, after **twenty four (24) months** of monitoring in accordance with this Condition, be modified by the District Manager in writing from time to time.
- (6) The Owner shall install and maintain continuous flow measuring device(s), to measure the flowrate of the effluent from the Works with an accuracy to within plus or minus 15 per cent (+/- 15%) of the

actual flowrate for the entire design range of the flow measuring device, and record the flowrate.

- (7) The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

9. REPORTING

- (1) The Owner shall report to the District Manager orally as soon as reasonably possible any non-compliance with the final effluent compliance limits outlined in Condition 6, and in writing within **seven (7) days** of non-compliance.
- (2) The Owner shall, within **ten (10) working days** of occurrence of a spill within the meaning of Part X of the EPA, submit a full written report of the occurrence to the Water Supervisor describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, in addition to fulfilling the requirements under the EPA and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges".
- (3) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
- (4) The Owner shall prepare, and submit to District Manager, a performance report, on an annual basis, within **ninety (90) days** following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:
- (a) a summary and interpretation of all monitoring data and a comparison to the Final Effluent compliance limits outlined in Condition 6, including an overview of the success and adequacy of the Works;
 - (b) a description of any operating problems encountered and corrective actions taken;
 - (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
 - (d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
 - (e) a summary of the calibration and maintenance carried out on all Final Effluent monitoring equipment;
 - (f) a description of efforts made and results achieved in meeting the Design Objectives of Condition 5;
 - (g) a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated

volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;

(h) a summary of any complaints received during the reporting period and any steps taken to address the complaints;

(i) a summary of all Overflow, spill or abnormal discharge events; and

(j) any other information the District Manager requires from time to time.

SCHEDULE A

1. Environmental Compliance Approval Number 6791-8LXSWT, issued on January 13, 2012; and
2. Environmental Compliance Approval Application submitted by and signed by John B. McLaren of Castle Amalco Inc. , dated September 24, 2018 and all supporting documentation and design package prepared by Gunnel Engineering Ltd., certified by Eric Gunnel dated May 14 and May 15, 2018.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this Approval the existence of this Approval.
2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
3. Condition 3 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction to ensure the ongoing protection of the environment, and also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.
4. Condition 4 is included to indicate that Overflow of untreated or partially treated sewage to the receiver is prohibited, except in circumstances where the failure to Overflow could result in greater damage to the environment than the Overflow itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow Events.
5. Condition 5 is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 6 are exceeded.
6. Condition 6 is imposed to ensure that the Final Effluent discharged from the Works to the on-site Irrigation Reservoir meets the Ministry's effluent quality requirements.
7. Condition 7 is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.
8. Condition 8 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and compliance limits.
9. Condition 9 is included to provide a performance record for future references, to ensure that the Ministry is

made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6791-8LXSWT issued on January 13, 2012

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

- a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
- b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

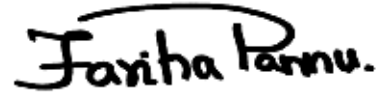
The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from**

the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 28th day of September, 2018



Fariha Pannu, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

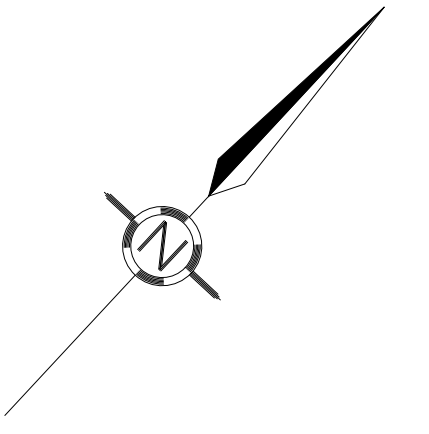
YD/

c: Area Manager, MECP Belleville

c: District Manager, MECP Kingston - District
Eric Gunnell, Gunnell Engineering Ltd.

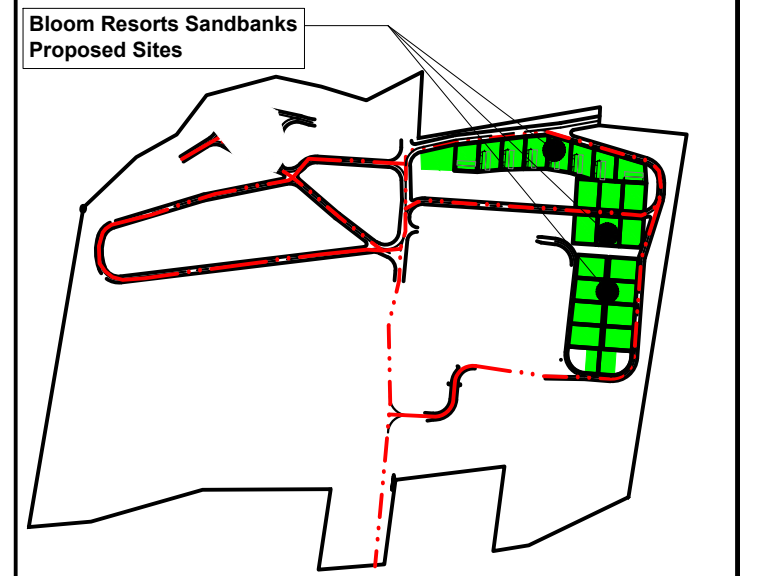
APPENDIX B

**Gunnell Engineering Drawings SPCA-1 to SPCA-8 Rev: 10, dated
February 19, 2026**



Site Statistics Notes:

Site Legal Description:	55076-0212 LT
PT LT 17 CON 1 South Side of East ATHOL PT 1, 2, 3, 4	
47R2627 AN S/T PE88945; ST PE133655; Prince Edward	
Site Area:	10.12 Ha
Lot Frontage:	73.08 m
Swimming Pool:	226 m ²
Shelter:	217 m ²
Office:	121 m ²
Manager's Residence:	228 m ²
Controls Building:	9 m ²
Comfort Station No. 2:	40 m ²
Water Treatment / Pump House:	31 m ²
Total:	872 m ²
Proposed Lot Coverage:	0.86 %
Number of Dwelling Units:	1
Open Space:	39.5 %
156 Seasonal RV Sites + 3 Park Models:	159 Sites
Number of Parking Spaces:	161
Number of Barrier Free Parking Spaces:	1
Number of Loading Spaces:	0
Refer to drawing SPCA 6 for typical trailer site zoning regulations	



KEY PLAN

LEGEND

- Proposed Internal Gravel Road
- Existing Internal Gravel Road
- Proposed Right of Way (ROW)
- Fire Access Route with 12.5m (MIN) centreline radii
- Proposed Silt Fence OPSD 219.130 (See drawing SPCA 6)
- Fire route to be signed as fire route signs on both sides of road with a maximum spacing of 15m.

Note:
 The total site count for Bloom Resorts Sandbanks is 156 with an additional three (3) Park model seasonal sites. Totalling 159 Seasonal Sites.

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way	JR
Rev. 3	30-OCT-2023	Revised Right of Way (Cottages)	JR
Rev. 4	17-JUN-2024	Revised Right of Way (Cottages)	JR
Rev. 5	10-SEP-2024	New Site Dimensions	JR
Rev. 6	24-FEB-2025	Sediment Control Address	JR
Rev. 7	17-APR-2025	PEC Comments Addressed	JR
Rev. 8	12-JUN-2025	Update Drainage Area	JR
Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:



Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Proposed Overall Site Plan

Scale: 1:750	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
D3858	Drawing No.: SPCA-3



Privacy Fence Note:
 Opening of 3m on either side of driveway except for lots 61 and 73 where cottage owner advised in writing that an opening of one metre each side was preferred as per 4.14.3 of the existing by-law 1816-2006

Note:
 Vegetation features and buildings shown outside of the park area were produced using ortho aerial photography provided by MDA. Image provided is for 2006 Aerial Photography.

Existing vegetation note:
 The property owner shall undertake to preserve existing vegetation in its current state wherever possible.

Notes:
 • The owner will ensure that all lighting facilities on the Subject Lands or on the buildings or structures to be constructed thereon are designed and constructed so as to divert light away from adjacent lands and buildings and are in accordance with the requirements of all applicable legislation and regulations.
 • The Owner acknowledges that the Subject Lands will be subject to the Municipality's Parking By-laws, including the By-laws regulating barrier free parking on private property. The Owner hereby agrees that it will install at its expense appropriate signage for the barrier free spaces which will include pavement marking and signage installed at a minimum of 1 metre above the ground and a maximum of 1.5 metres above the ground. The Owner shall be responsible for installing this signage prior to occupancy of the building and to maintain such signage to the satisfaction of the Chief Building Official or designate.

Site Statistics Notes:

Note:
 Lake Avenue Lane is an access easement and right of way for the neighbouring waterfront cottages.

Note:
 Dock repositioned 11 ft off existing property line.
 Note: Floating dock - No QC Permit Required

Note:
 Proposed vegetative barrier 1.5m high and 1.5m wide in accordance with section 4.14 of By-law No. 1816-2006

Note:
 Proposed wood board on board privacy fence 1.8m (See Drawing SPCA-8)
 Note: Fence to be offset 0.3m off the property boundary on the Bloom Resorts Sandbanks.

Note:
 3.0m offset to 1.8m privacy fence from road edge

Note:
 Proposed 6.0m driveway access

Note:
 Proposed Staghorn Sumac (*Rhus typhina*) plantings along proposed privacy fence line

Note:
 Road Surface 150 mm Granular 'A' over 200 mm Granular 'B' Base

Note:
 Lake Avenue Lane is an access Easement for the neighbouring waterfront cottages

Note:
 Lake Avenue Lane is an access easement and right of way for the neighbouring waterfront cottages

Note:
 All existing internal roadways are gravel surfaced and/or grass and vary in width and therefore minimum width on site is currently not detailed.

Note:
 All proposed single lane road works to have a minimum road width of 3.75 and two lane road works have a minimum road width of 7.5 metres. All proposed inside turning radii to be 12.5 (MIN) metres.

Note:
 All proposed fire route access roads to be upgraded to meet the minimum standards for width and turning radius as noted above.

Note:
 6m clearance to be maintained along fire route where already exists.

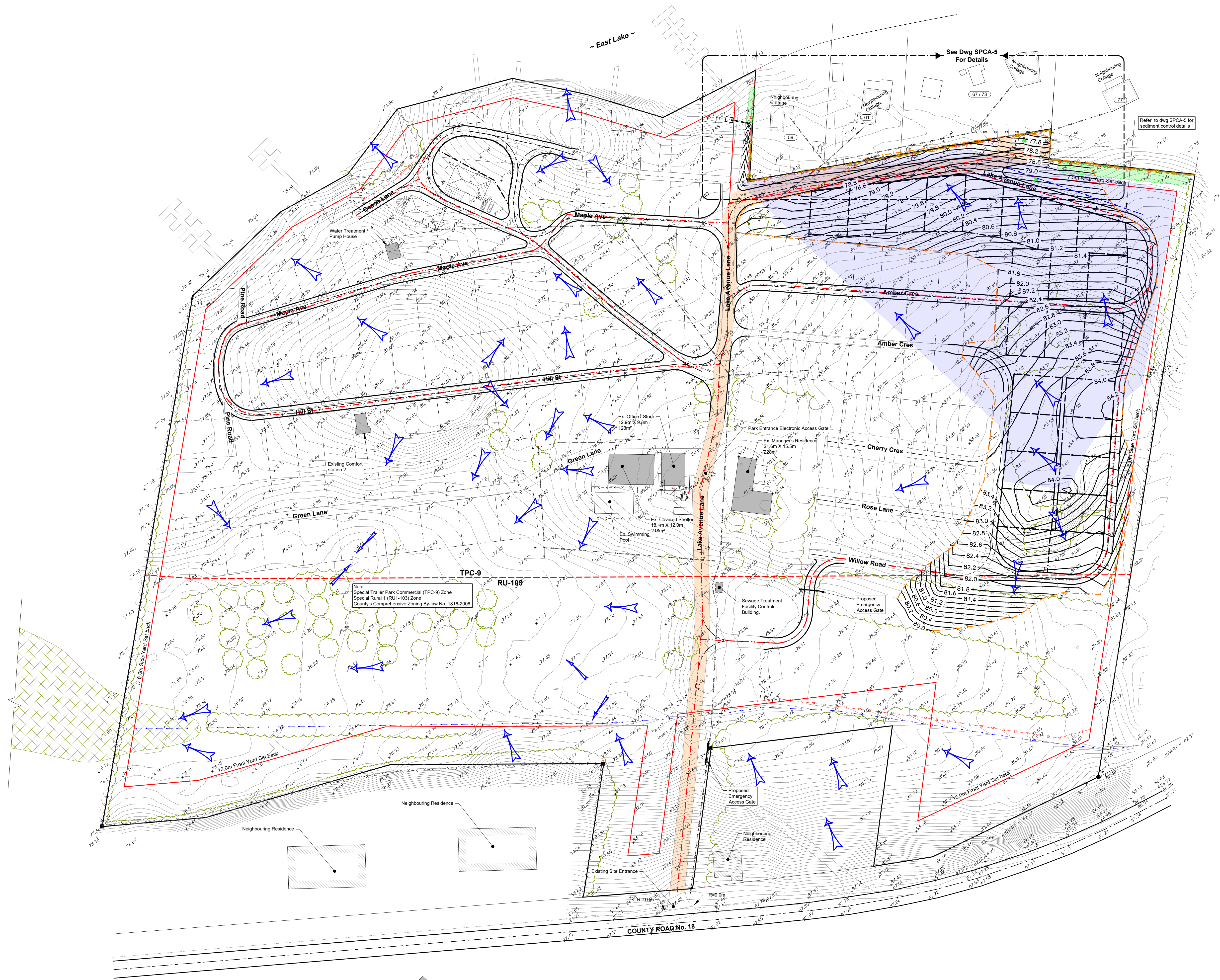
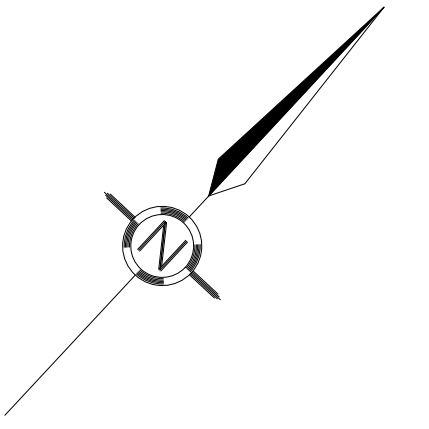
Note:
 Fire route to be signed as fire route signs on both sides of road with a maximum spacing of 15m.

TPC-9
 Special Trailer Park Commercial (TPC-9) Zone
 Special Rural 1 (RU-103) Zone
 County's Comprehensive Zoning By-law No. 1816-2006

RU-103
 Special Rural 1 (RU-103) Zone
 County's Comprehensive Zoning By-law No. 1816-2006

LOT 17

County Road No. 18



LEGEND

- - - Existing Contour Interval
- 78.48 Existing Spot Elevation
- - - Proposed Contour Interval 0.2m
- 79.6 Proposed Contour Label
- Blue Arrow Surface Water Flow Direction
- Light Blue Area Drainage Area
- Red Dashed Line Proposed Silt Fence OPSD 219.130 (See drawing SPCA 6)

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way	JR
Rev. 3	30-OCT-2023	Revised Right of Way (Cottages)	JR
Rev. 4	17-JUN-2024	Revised Right of Way (Cottages)	JR
Rev. 5	10-SEP-2024	New Site Dismissals	JR
Rev. 6	24-FEB-2025	Sediment Control Added	JR
Rev. 7	11-APR-2025	PEC Comments Addressed	JR
Rev. 8	12-JUN-2025	Update Drainage Area	JR
Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:



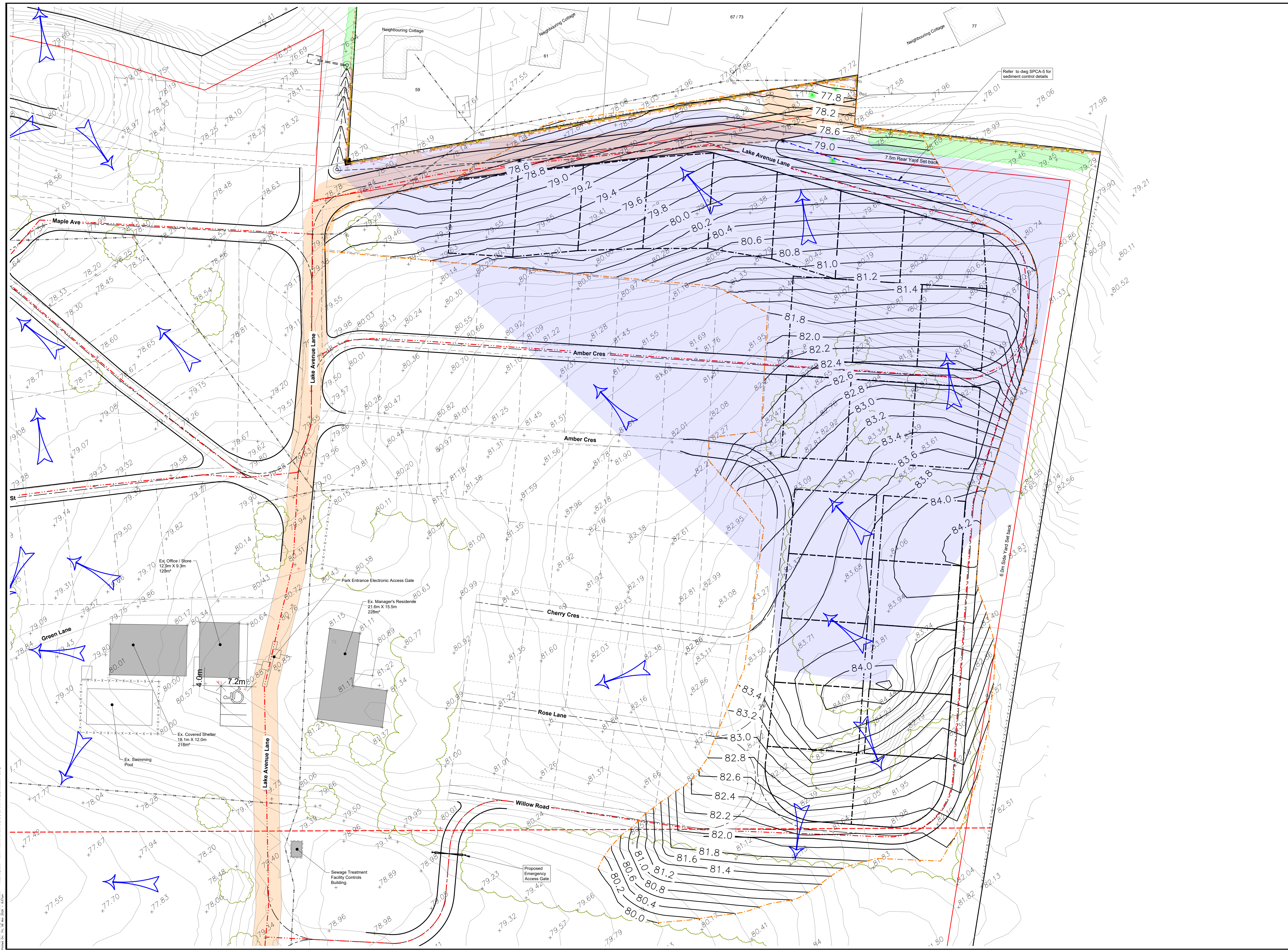
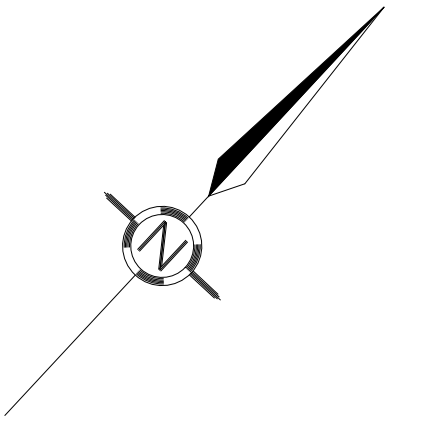
Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Overall Site Plan:
Proposed Grading Plan

Scale: 1:750	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

D3858 SPCA-4-1

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LEGEND

- - - Existing Contour Interval
- + Spot Elevation
- - - Proposed Contour Interval 0.2m
- 79.6 Proposed Contour Label
- Blue Arrow Surface Water Flow Direction
- Blue Shaded Area Drainage Area
- - - Proposed Silt Fence OPSD 219.130 (See drawing SPCA 5)

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way	JR
Rev. 3	30-OCT-2023	Revised Right of Way (Cottages)	JR
Rev. 4	17-JUN-2024	Revised Right of Way (Cottages)	JR
Rev. 5	10-SEP-2024	New Site Dimensions	JR
Rev. 6	24-FEB-2025	Sediment Control Addressed	JR
Rev. 7	12-APR-2025	PEC Comments Addressed	JR
Rev. 8	12-JUN-2025	Update Drainage Area	JR
Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:

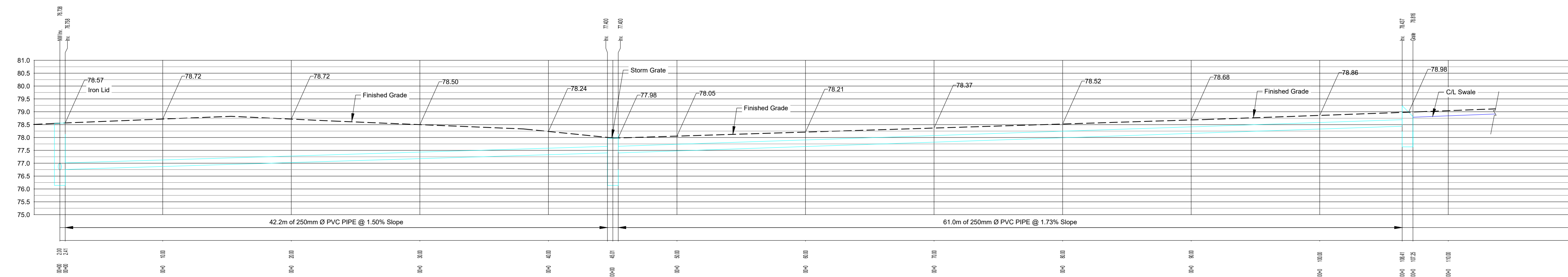
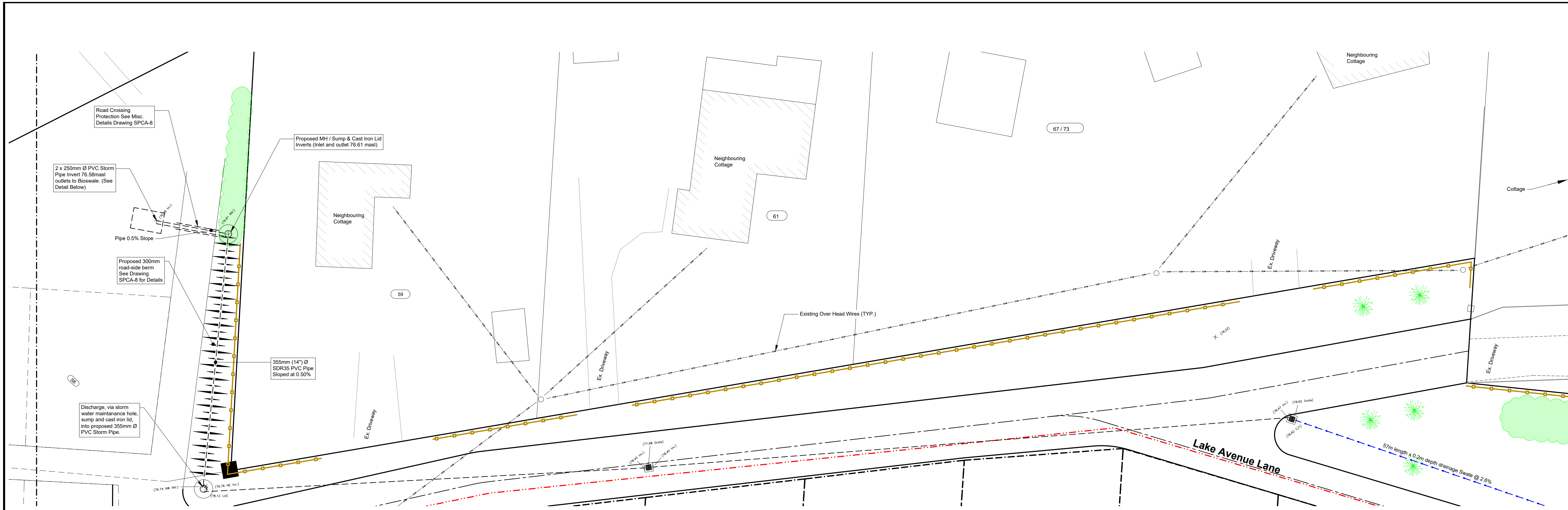
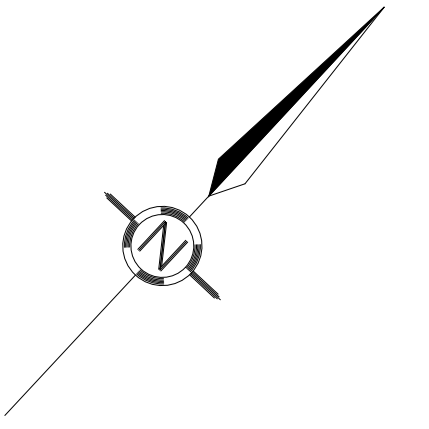


Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

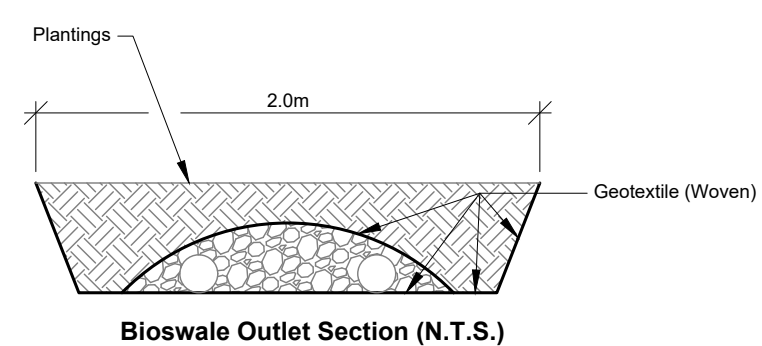
Part Site Plan:
Proposed Grading Plan

Scale: 1:400	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

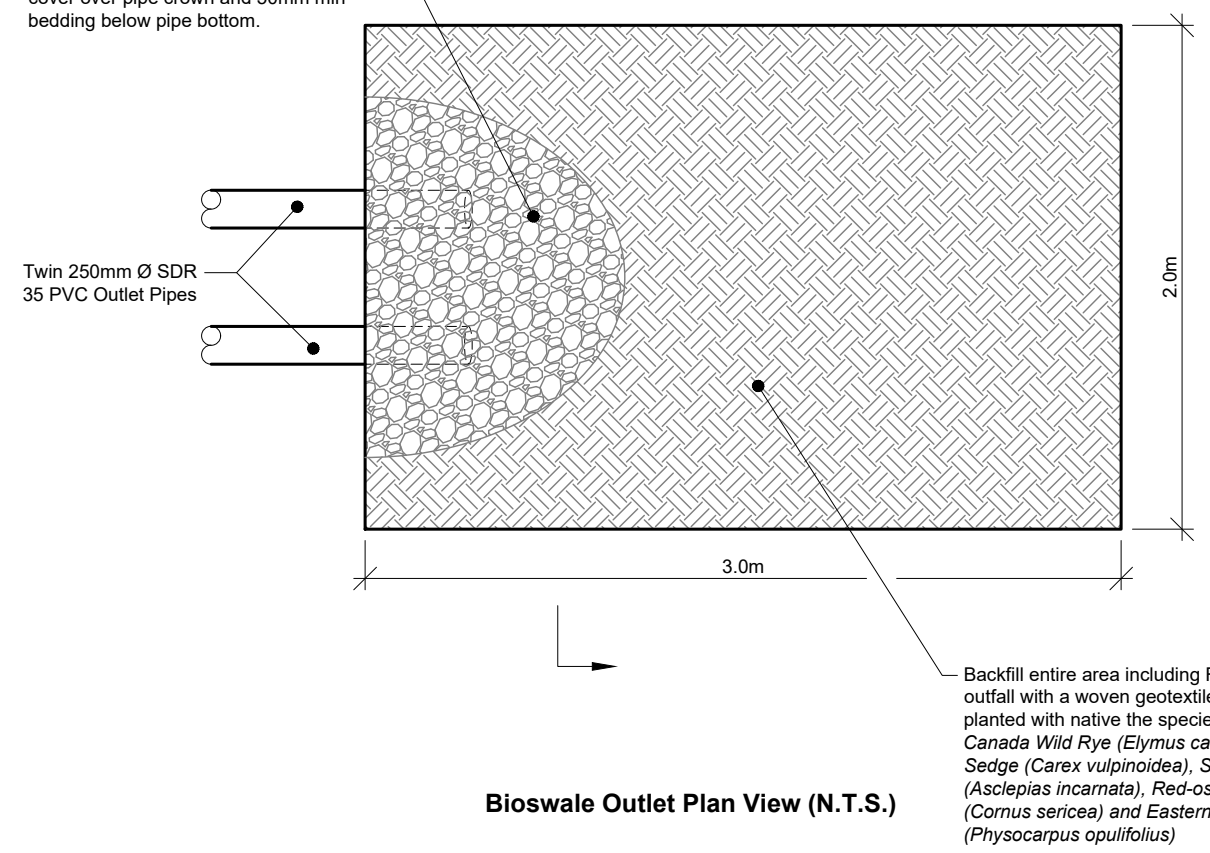
D3858 SPCA-4-2



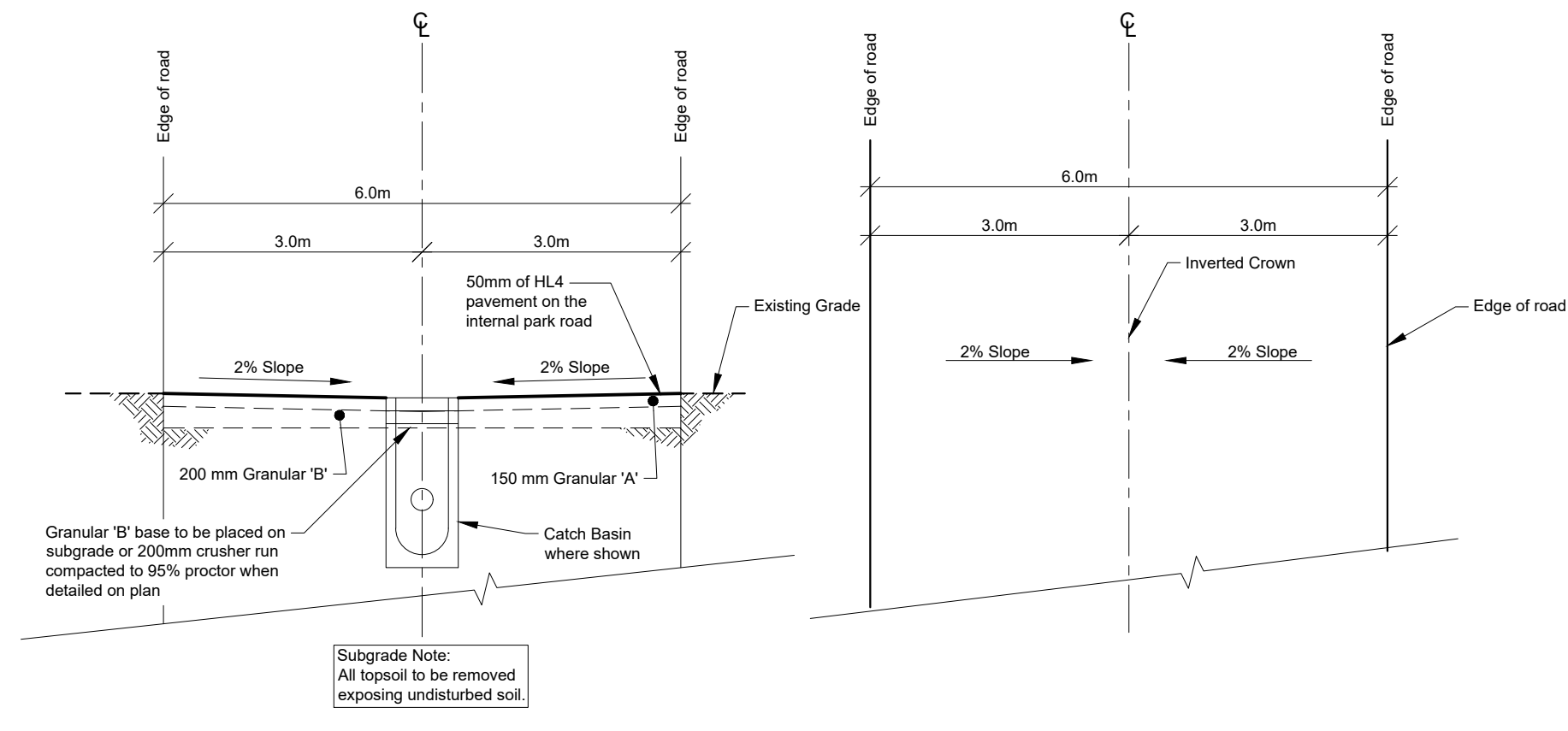
*Storm Pipe Note:
 Proposed swales to discharge
 into 250 mm Ø storm pipe
 through surface grate connection
 OPSD 705.040



Final Effluent outlet into Rip-Rap
 over Filter cloth to protect against
 erosion.
 Note: Rip-Rap to be 50mm minimum
 cover over pipe crown and 50mm min
 bedding below pipe bottom.

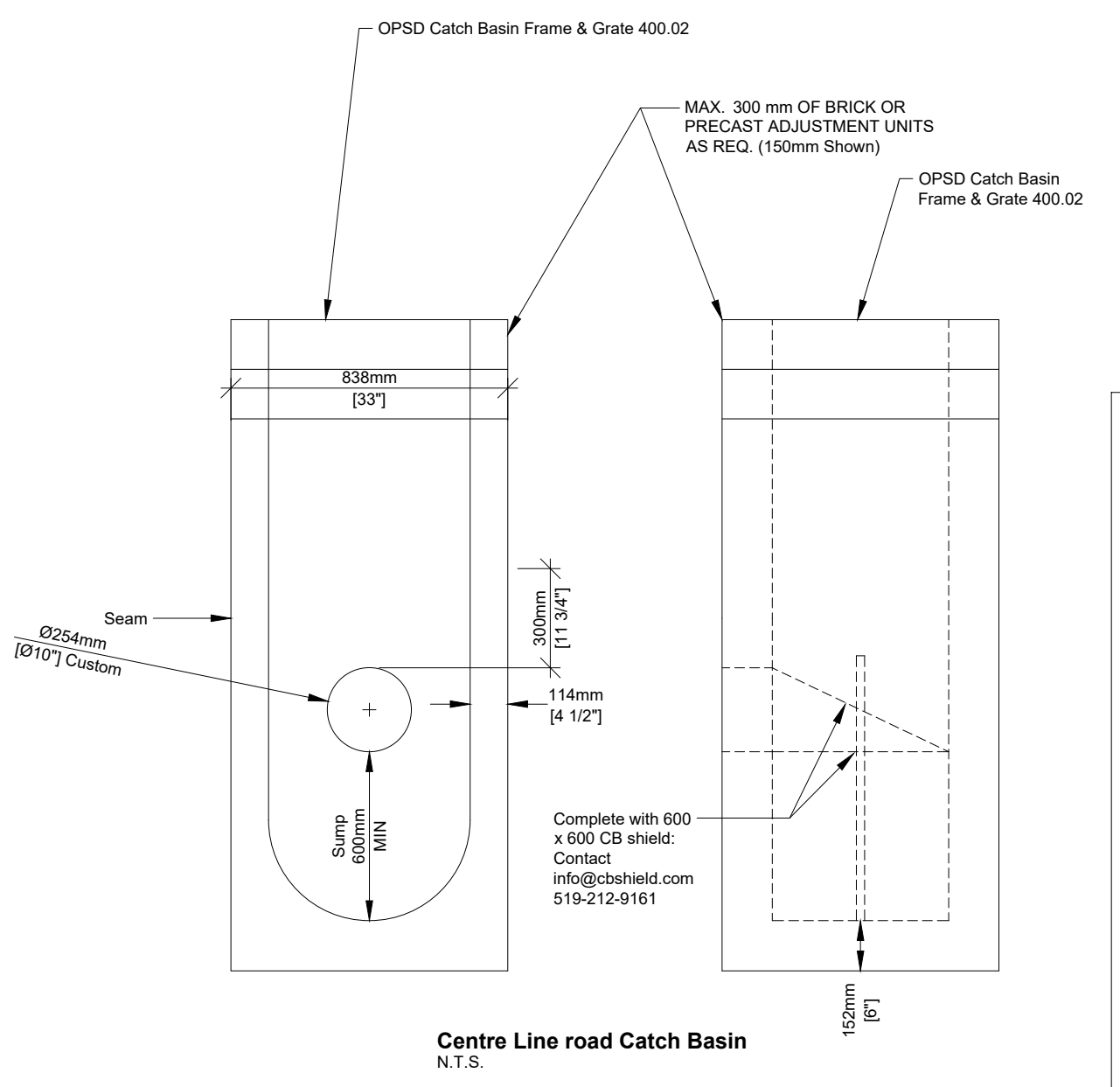


Backfill entire area including Rip-Rap at the
 outlet with a woven geotextile under triple mix
 planted with native the species:
 Canada Wild Rye (*Elymus canadensis*), Fox
 Sedge (*Carex vulpinoidea*), Swamp Milkweed
 (*Asclepias incarnata*), Red-osier Dogwood
 (*Cornus sericea*) and Eastern Ninebark
 (*Physocarpus opulifolius*)

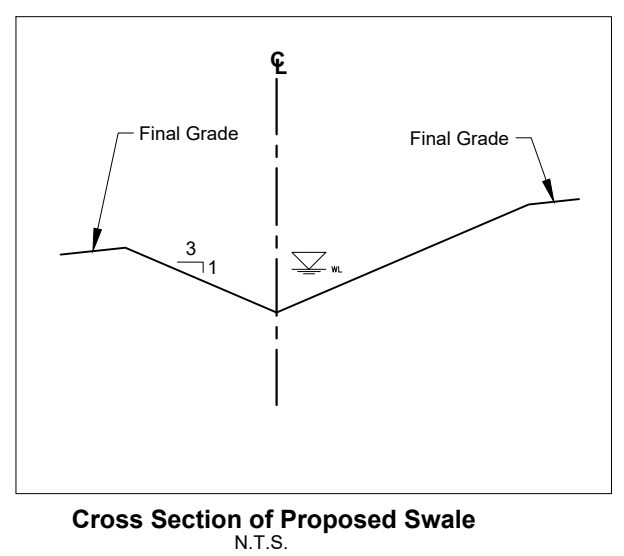


TYPICAL TWO INVERTED PAVED LANE SECTION
 Scale N.T.S.

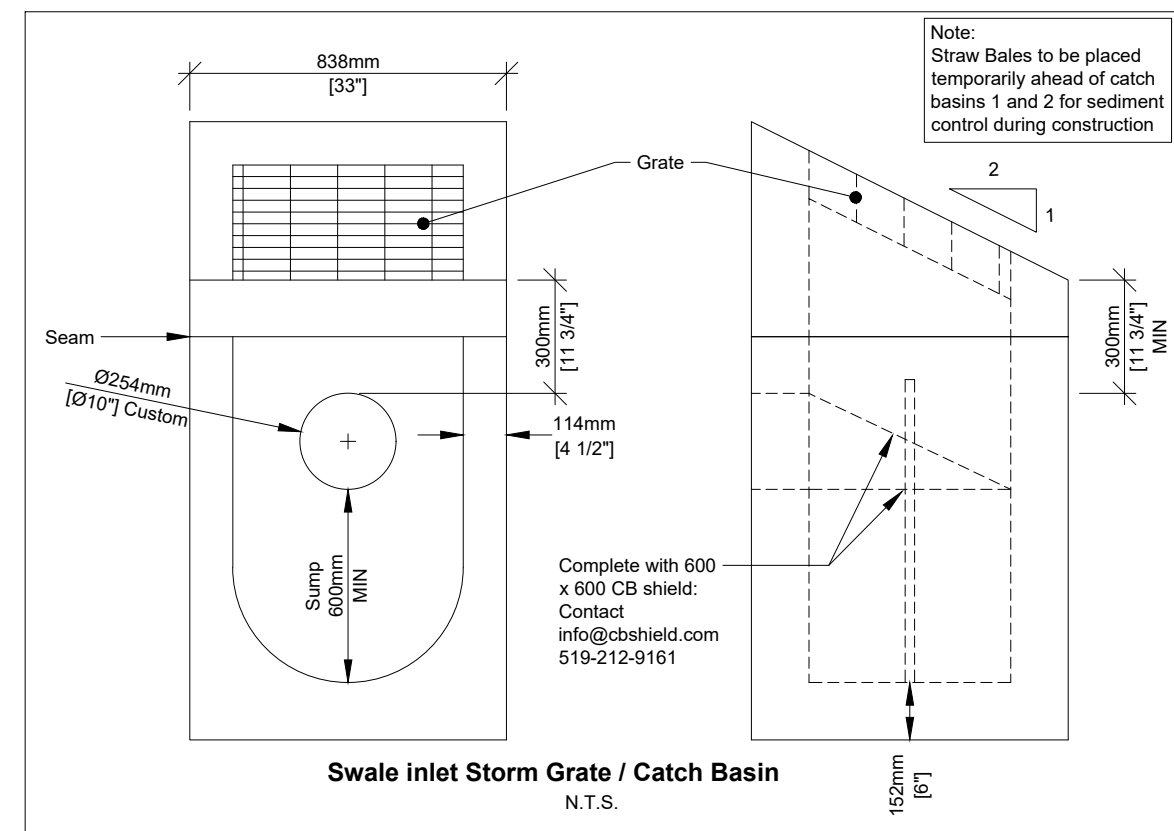
Subgrade Note:
 All topsoil to be removed
 exposing undisturbed soil.



Centre Line road Catch Basin
 N.T.S.



Cross Section of Proposed Swale
 N.T.S.



Swale Inlet Storm Grate / Catch Basin
 N.T.S.

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way (Cottages)	JR
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Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:

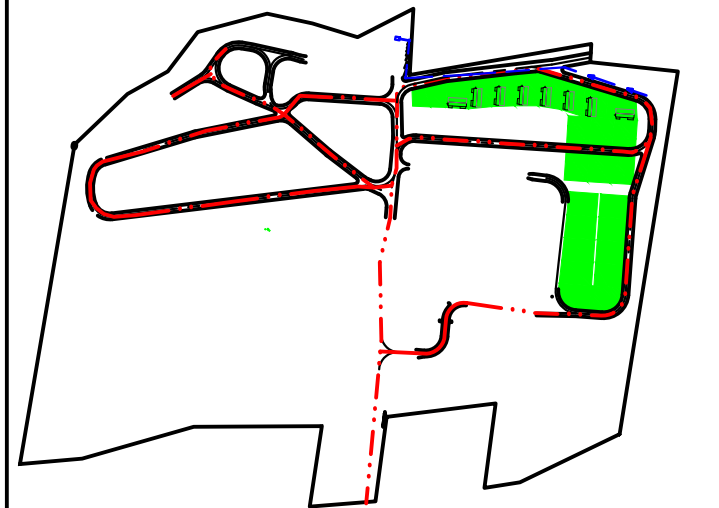
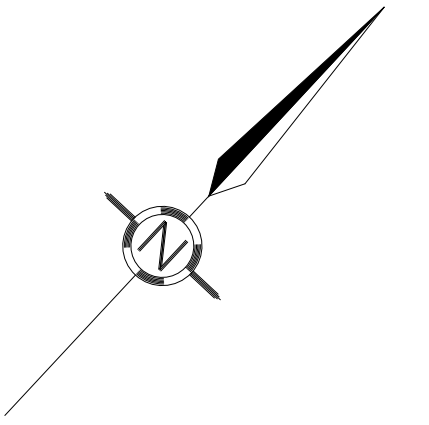


Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Proposed Stormwater Drainage Works

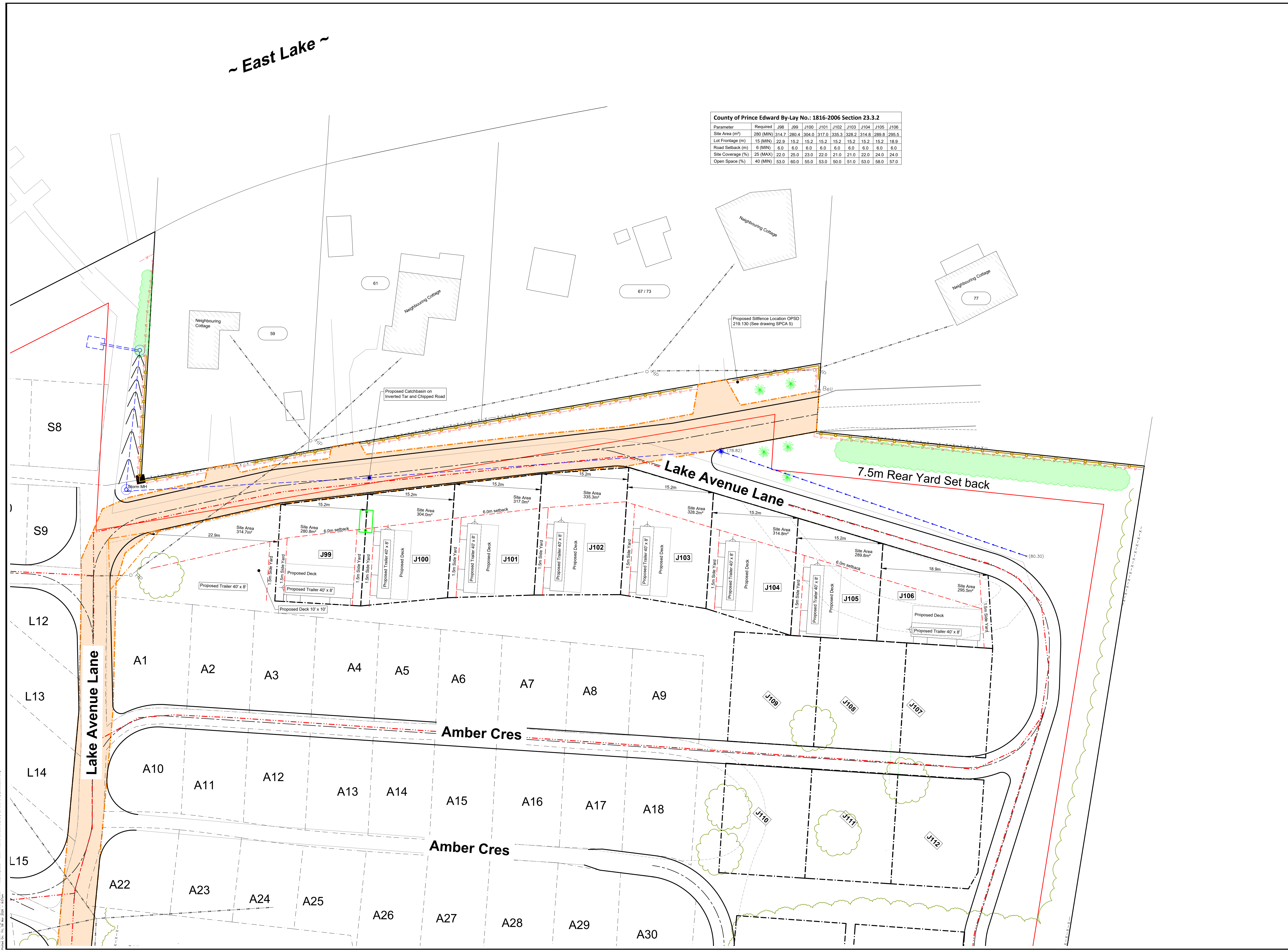
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Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

D3858 SPCA-5



County of Prince Edward By-Law No.: 1816-2006 Section 23.3.2

Parameter	Required	J98	J99	J100	J101	J102	J103	J104	J105	J106
Site Area (m ²)	280 (MIN)	314.7	280.4	304.0	317.0	335.3	328.2	314.8	289.8	295.5
Lot Frontage (m)	15 (MIN)	22.9	15.2	15.2	15.2	15.2	15.2	15.2	15.2	18.9
Road Setback (m)	6 (MIN)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Site Coverage (%)	25 (MAX)	22.0	25.0	23.0	22.0	21.0	21.0	22.0	24.0	24.0
Open Space (%)	40 (MIN)	53.0	60.0	55.0	53.0	50.0	51.0	53.0	58.0	57.0



Note:
 The total site count for Bloom Resorts Sandbanks is 156 with an additional three (3) Park model seasonal sites. Totalling 159 Seasonal Sites.

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
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Engineer's Stamp:



Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

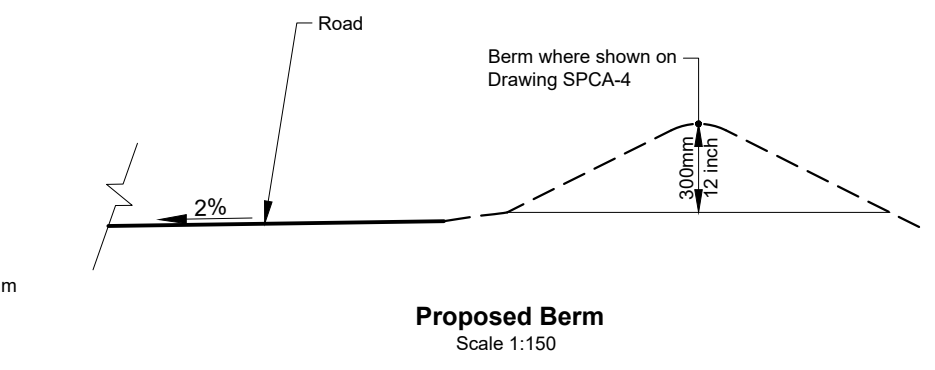
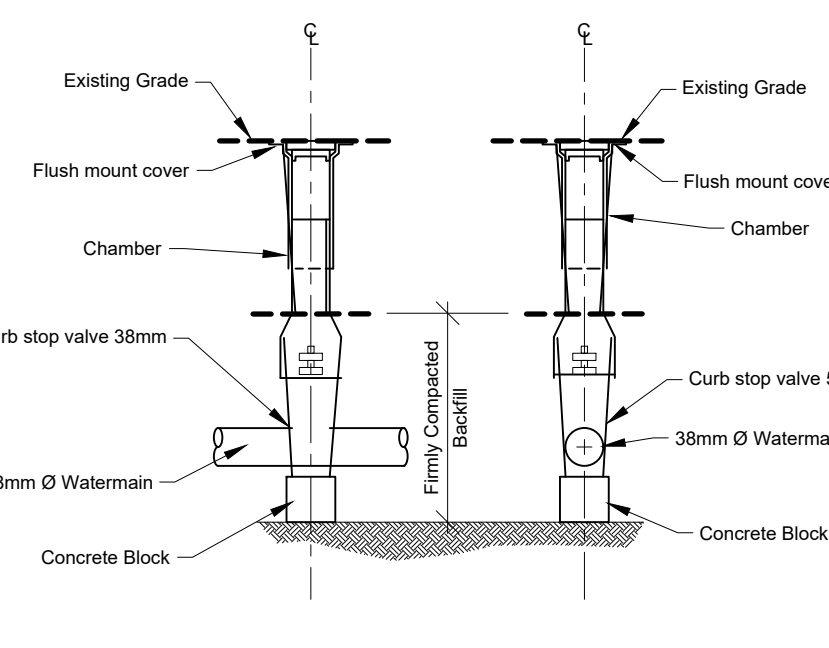
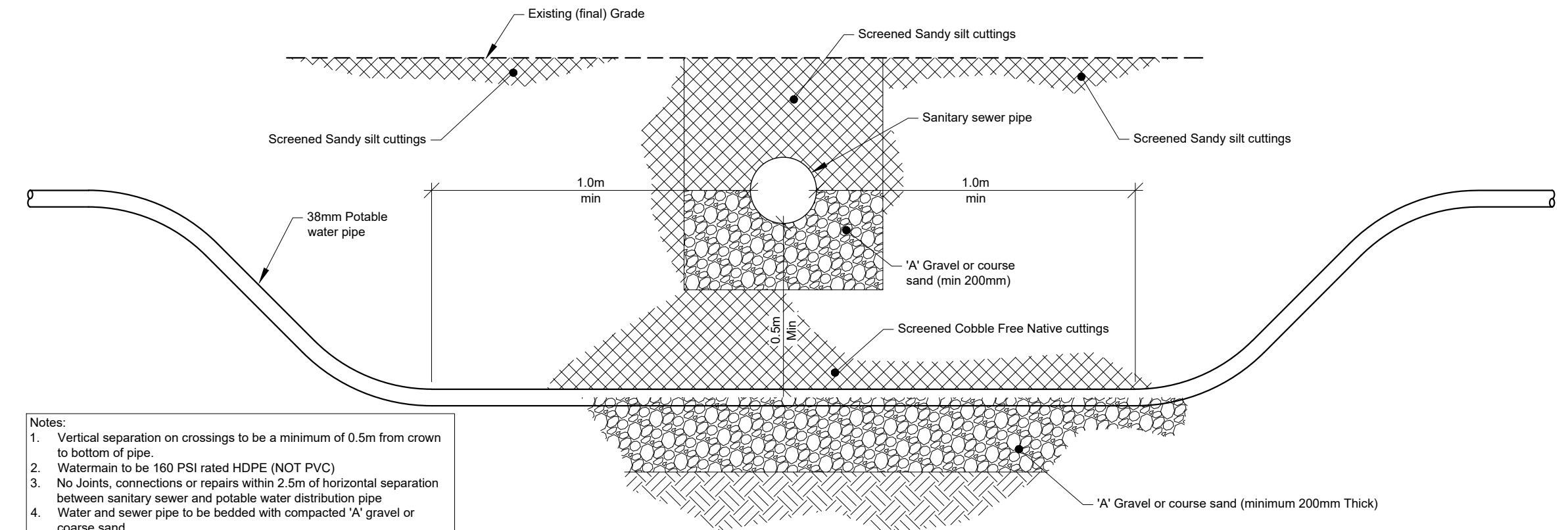
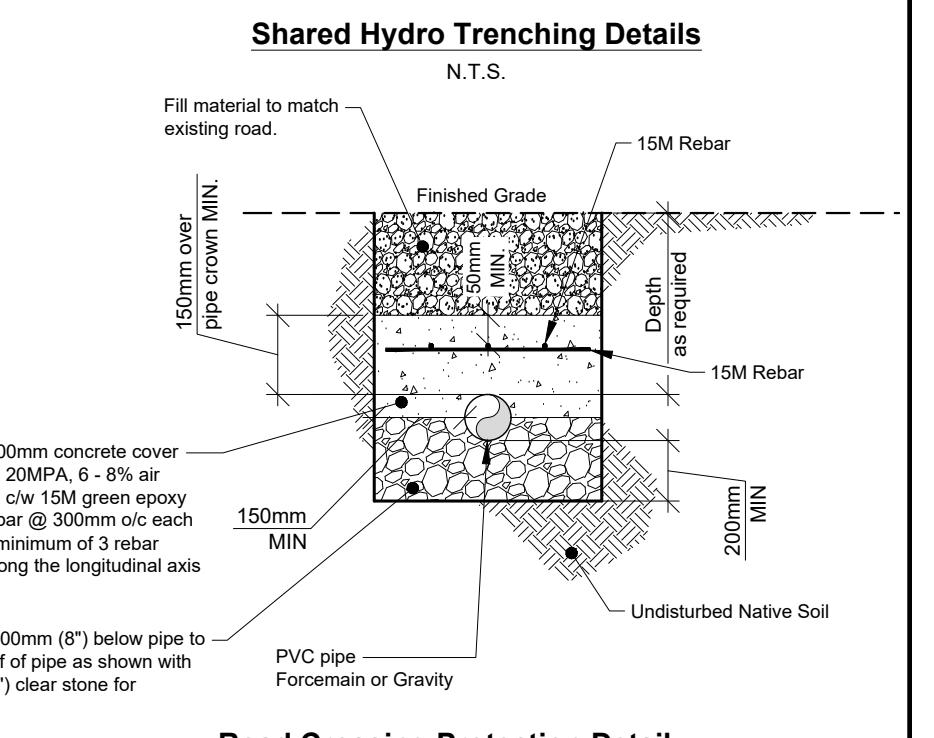
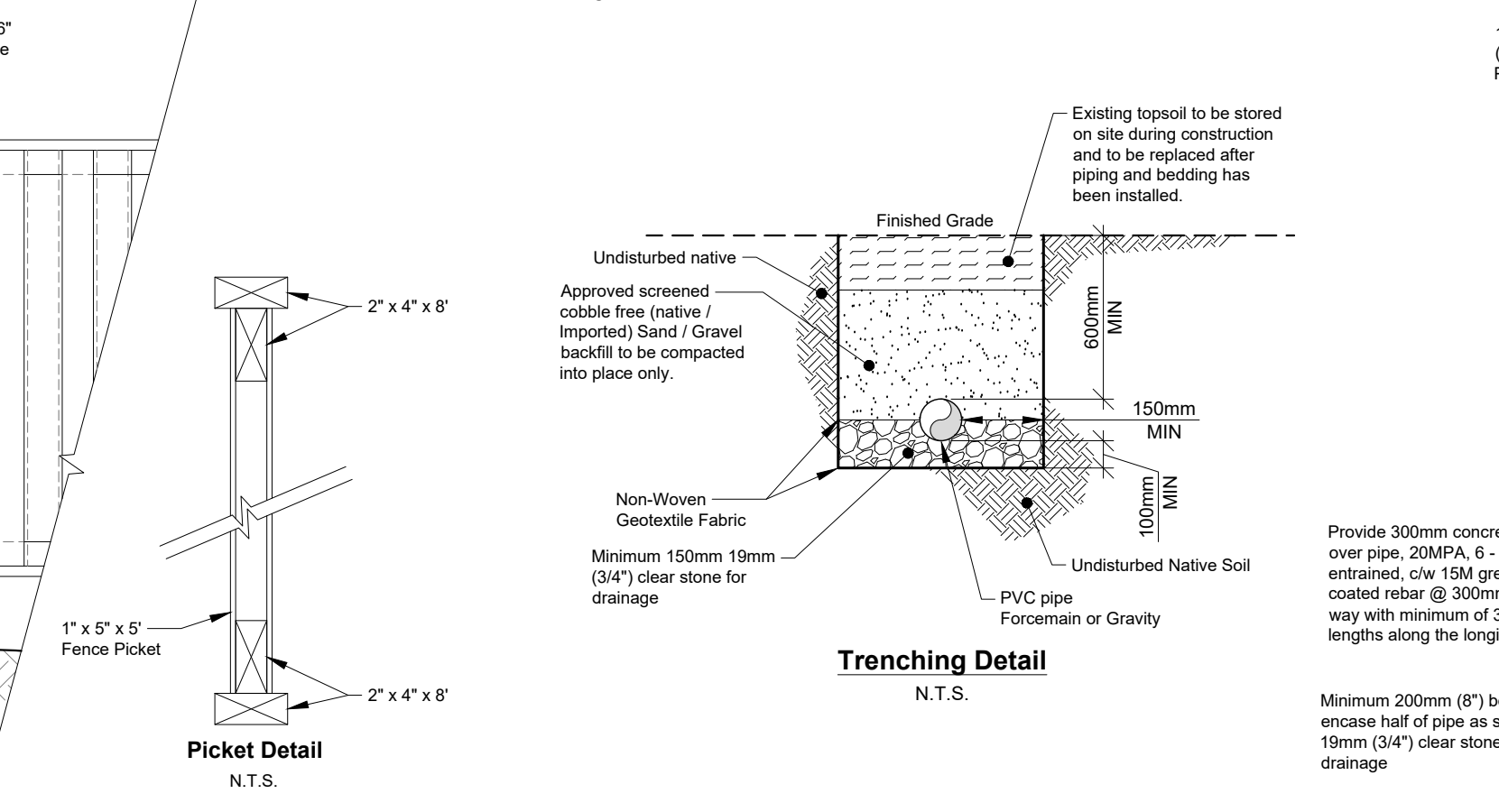
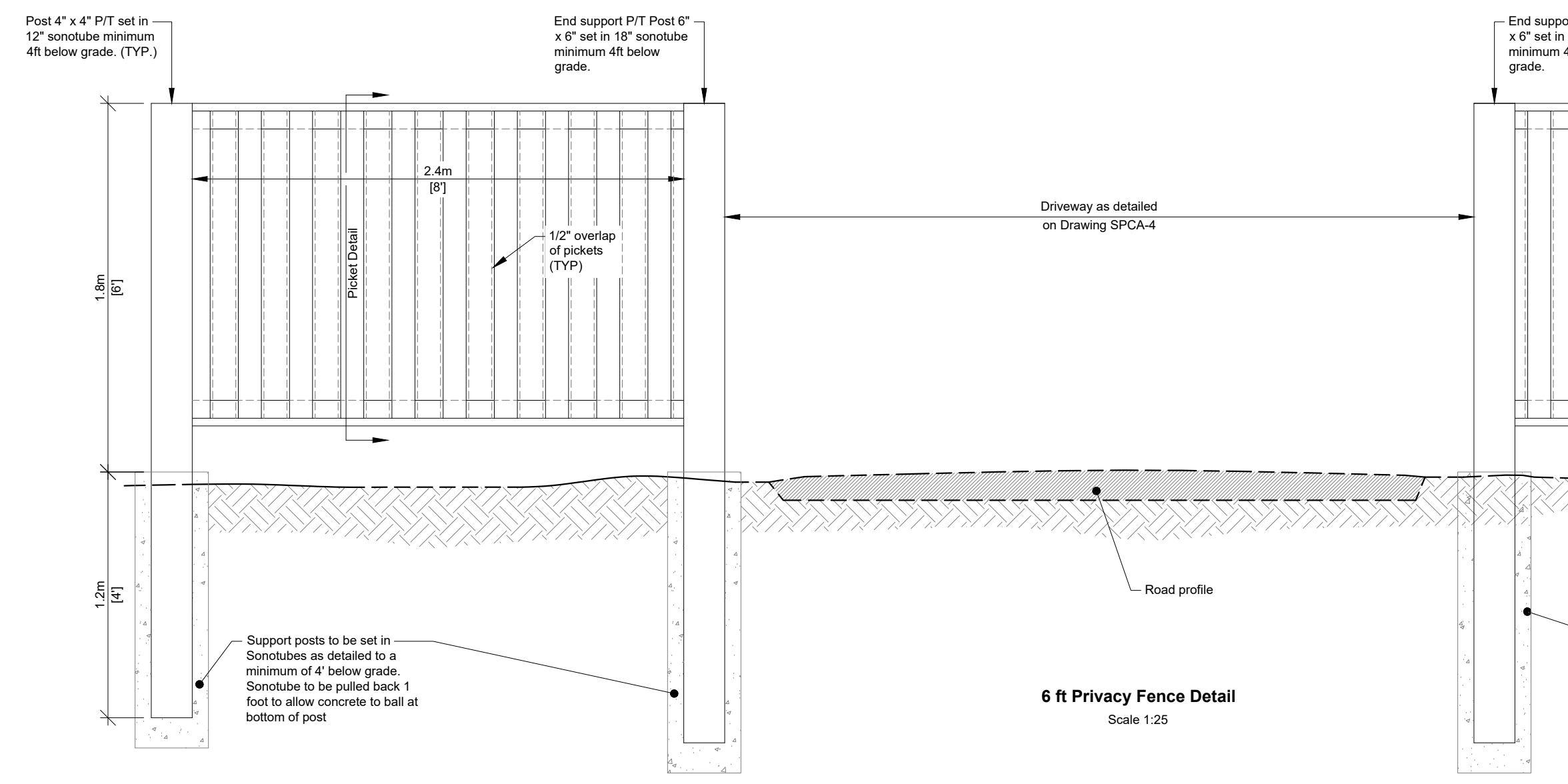
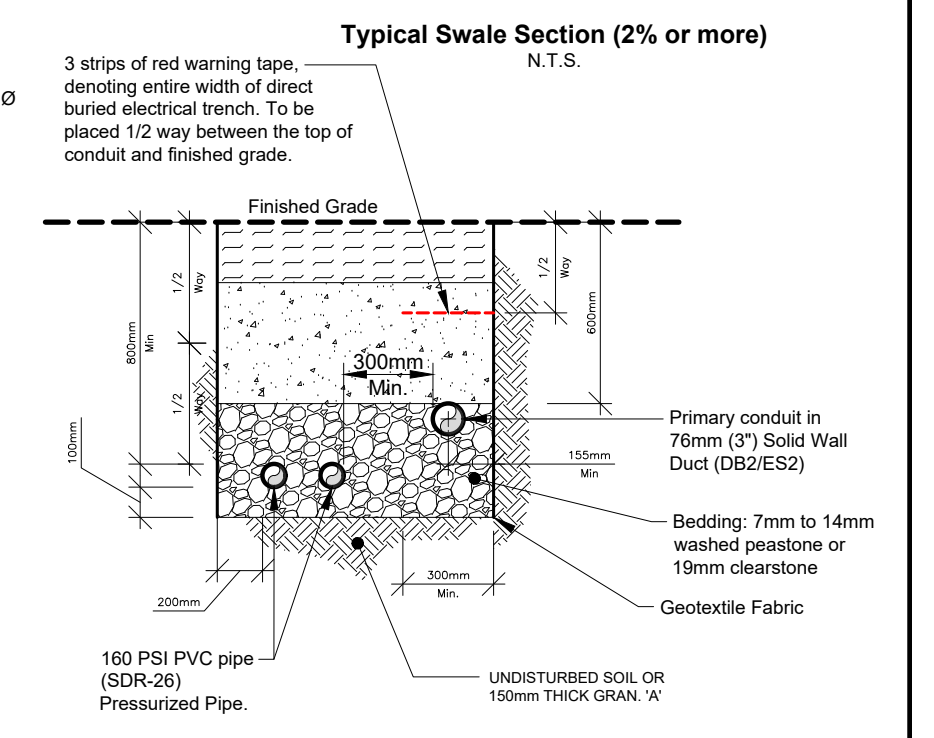
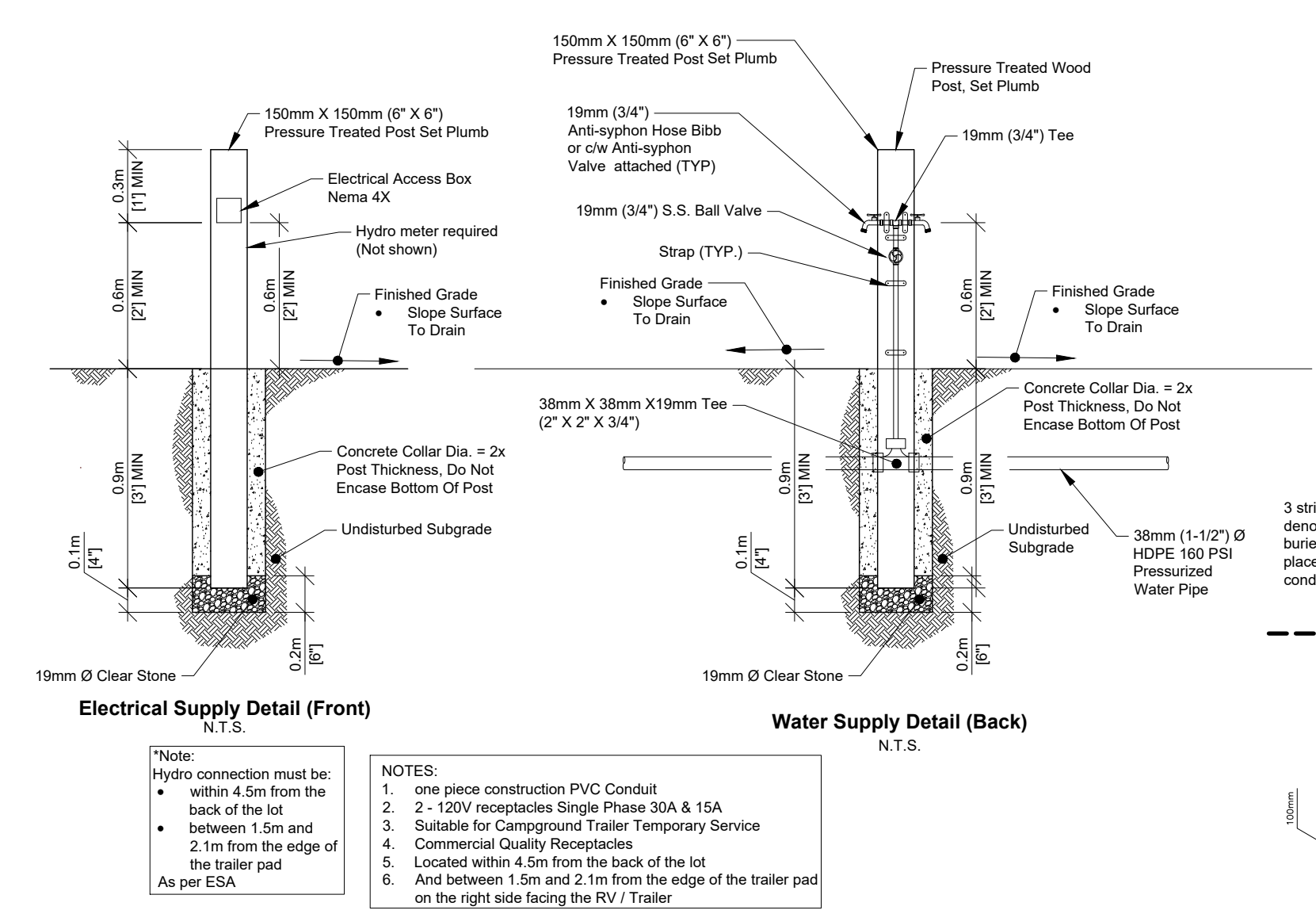
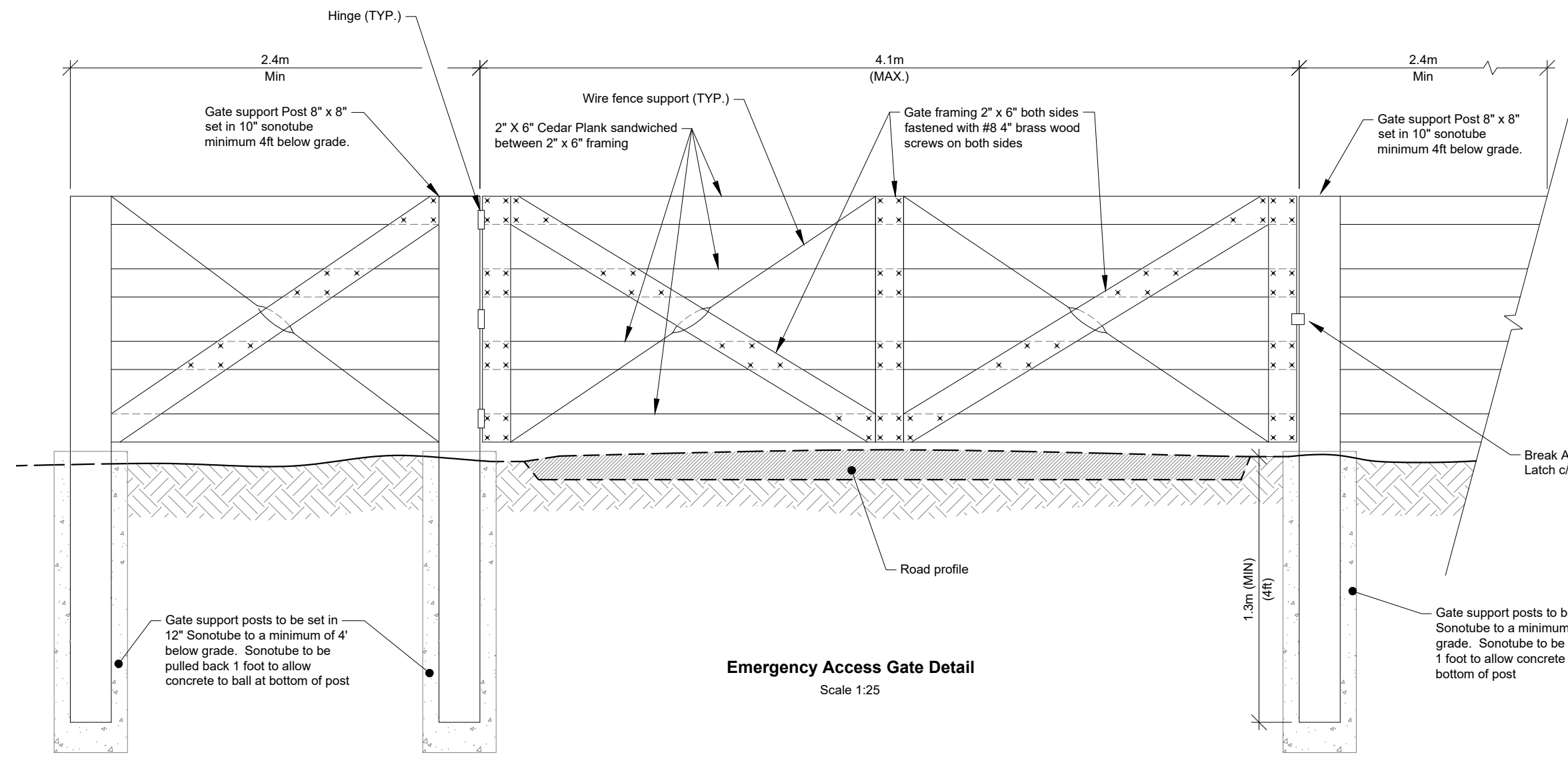
Part Site Plan: Proposed Trailer 40' x 8'
Site Dimensions & Swale C/L Elevations

Scale: 1:300	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

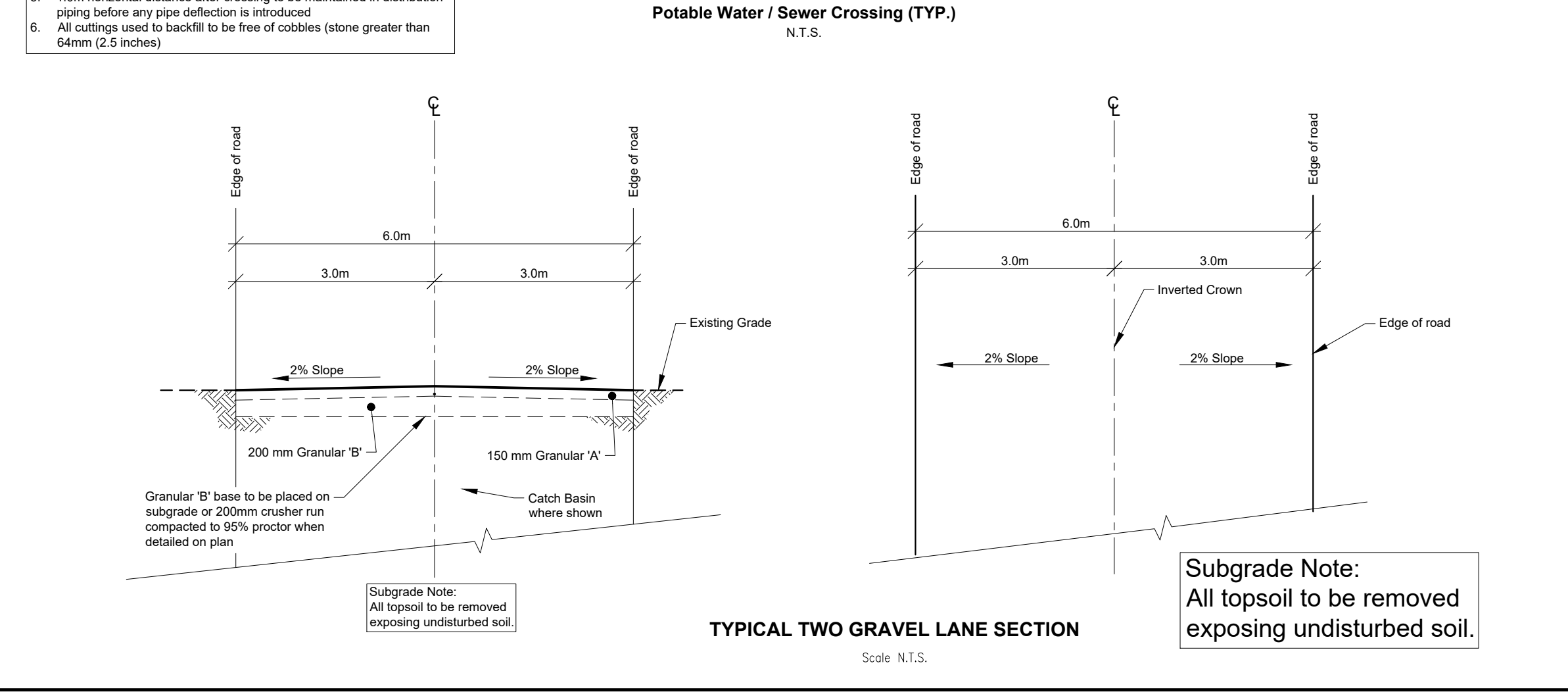
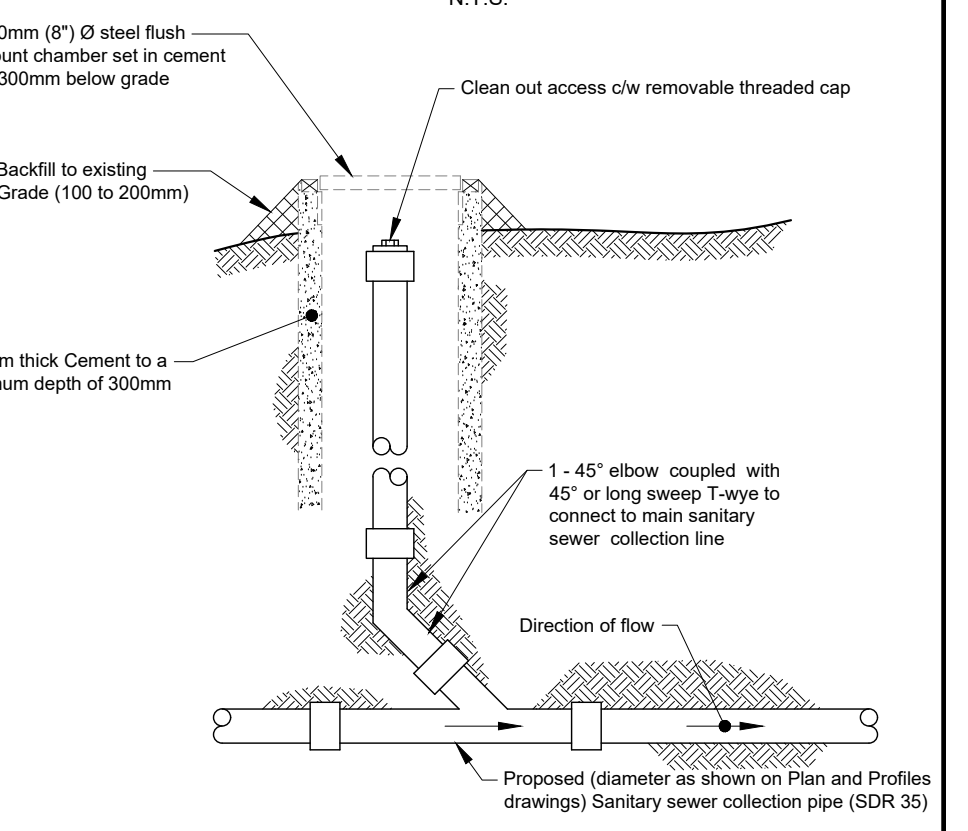
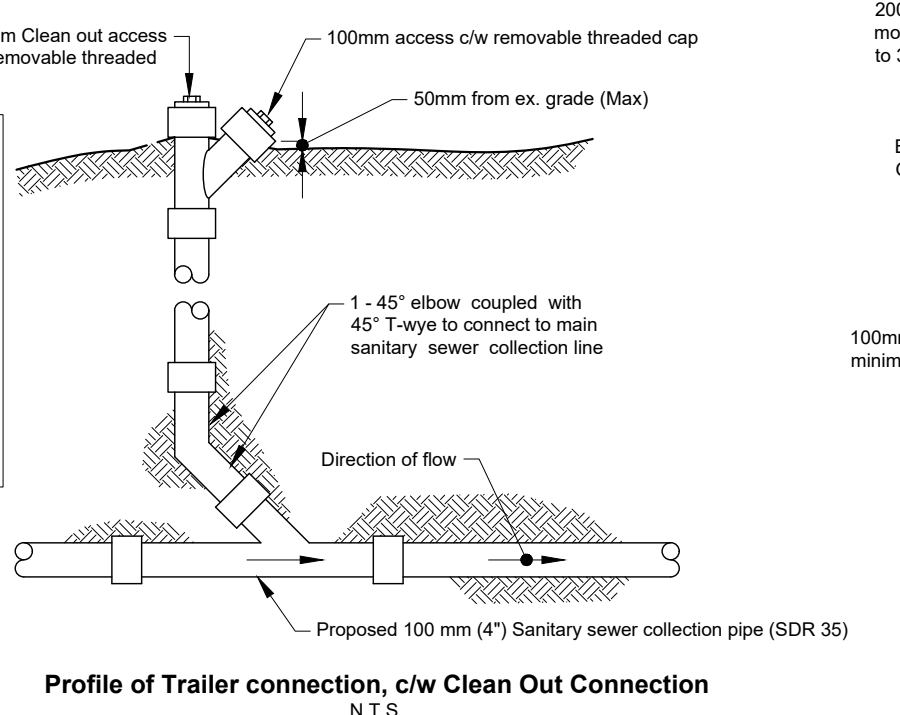
D3858 SPCA-7



Privacy Fence



- Notes:
 • All new sanitary trailer connections to have cleanout access.
 • All sewerage gravity collection pipes less than or equal to 100mm (4") diameter to have a cleanout access locations spaced of no more than 15m (50ft). All gravity sewers greater than 100mm (4") diameter pipes to have access spacing of no more than 30m (100ft).
 • Where cleanout connections are to be directional the direction will be downstream.
 • All new cleanout locations to be placed on or near trailer lot lines in compliance with spacing requirements above.

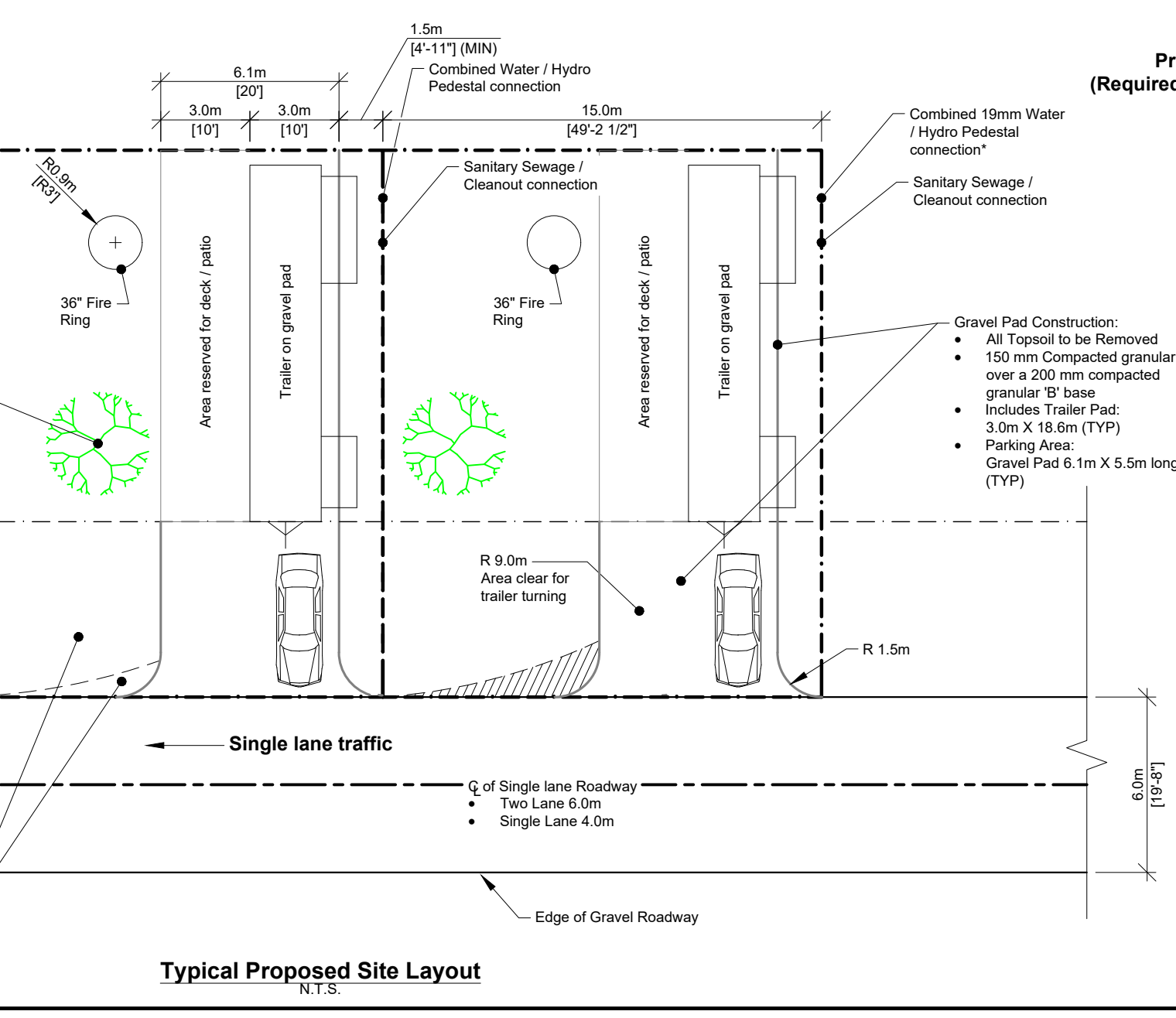


County of Prince Edward By-Law No.: 1816-2006 Section 23.3.2

Site Legal Description:
 PIN: 55076-0212 LT
 PTLT 17 CON 1 South Side of East ATHOL PT 1, 2, 3, 4 47R2627 AN S/T PE88945; ST PE133655; Prince Edward

	Required	Provided
Min. Site Area:	280.0 m ²	280.8 m ²
Min. Lot Frontage:	15.0 m	15.2 m
Min. Road setback 6m (19.69ft)	6.0 m	6.0 m
Maximum Site Coverage:	25.0 %	23.8 %
Min. Open Space:	40 %	62.7 %
Max. Trailers per Site:	1 UN	1 UN

Maximum Trailer Height will be 5m and under



Rev. No.	Date	Description	CAD
Rev. 4	17-JUN-2024	Revised Right of Way (Cottages)	JR
Rev. 5	10-SEP-2024	New Site Dimensions	JR
Rev. 6	24-FEB-2025	Sediment Control Address	JR
Rev. 7	17-APR-2025	PEC Comments Addressed	JR
Rev. 8	12-JUN-2025	Update Drainage Area	JR
Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Drainage Plan	JR

Engineer's Stamp:

Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Miscellaneous Notes & Details
 Scale: As Shown
 Date: 21-JUN-2021
 Project No.:
 Designed By: EG
 Drawn By: JR
 Checked By: BC
 Drawing No.:
D3858 SPCA-8

APPENDIX C

**Gunnell Engineering Sanitary Collection System Upgrades Drawings I-1
to I-6 Rev: 1, dated February 24, 2025**

D2429 - Sanitary Collection System Upgrades

Application Drawing Set


Gunnell Engineering Ltd.
 1110 Stellar Drive, Unit 106
 Newmarket, ON L3Y 7B7
 bus: 905-888-9400
 fax: 905-853-5734
 www.septicdesign.ca

Full Site Plan: Sanitary Sewage Collection System Upgrades	Drawing I-1
Part Site Plan (South-West Quadrant): Sanitary Collection System Upgrades	Drawing I-2
Part Site Plan (North-East Quadrant): Sanitary Collection System Upgrades	Drawing I-3
Part Site Plan (North-West Quadrant): Sanitary Collection System Upgrades	Drawing I-4
Sanitary Gravity Sewer Profiles: 01+000 to 01 +120.29 / 02+000 to 02+120.29	Drawing I-5
Miscellaneous Details	Drawing I-6



Rev. No.	Date	Description	CAD
Rev. 1	24-FEB-2023	Proposed Boat Storage Removed	JR

Engineer's Stamp:



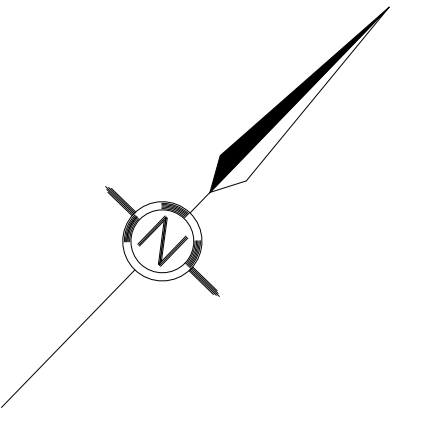
Lake Avenue RV Resort & Campground
37 - 38 Lake Avenue Lane
Cherry Valley, Prince Edward County

Drawing Index / Cover Sheet

Scale: N.T.S.	Designed By: BC
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: EG
	Drawing No.:

D2429 I-NDX

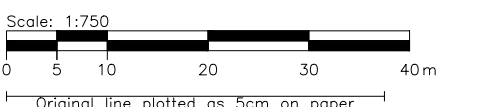
File: I:\Project\02429 - Lake Avenue RV Resort & Campground\02429-01.dwg
 Plot Date: 2023-02-24 10:00:00 AM
 Plot Scale: 1:1
 Plot Size: 11x17 inches



SEWAGE SYSTEMS DECOMMISSIONING NOTES:
 1. Existing sewage systems (septic tanks, holding tanks and pump tanks) to be decommissioned as specified.
 2. All electrical, pumps, equipment to be removed from pump tanks & wiring terminated to ESA requirements.
 3. For sewage pump tank (SPS2), pump out sewage, break top & bottom lids, fill with sand.
 4. For decommissioned sewage pump tank (SPS8), pump out waste, remove tank, dispose of sewage at accredited waste facility and provide receipt validating disposal.
 5. Provide 150mm topsoil.
 6. Cap and abandon redundant sewer lines and ties.

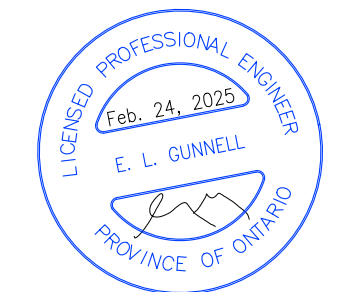
LEGEND
 Existing Sewage Pump Station
 Existing Sanitary Sewage Gravity Pipe
 Proposed 100mm Ø SDR35 Sanitary Sewage Gravity Pipe
 Existing Sewage Force mains
 Proposed Sewage Force mains
 Proposed Trailer Site ID's
 Existing Trailer Site ID's
 Proposed Road (Gravel)

*Note:
 Water and sewer lines to maintain a minimum horizontal separation distance of 3.05m



Rev. No.	Date	Description	CAD
Rev. 1	24-FEB-2022	Proposed Boat Storage Removed	JR

Engineer's Stamp:

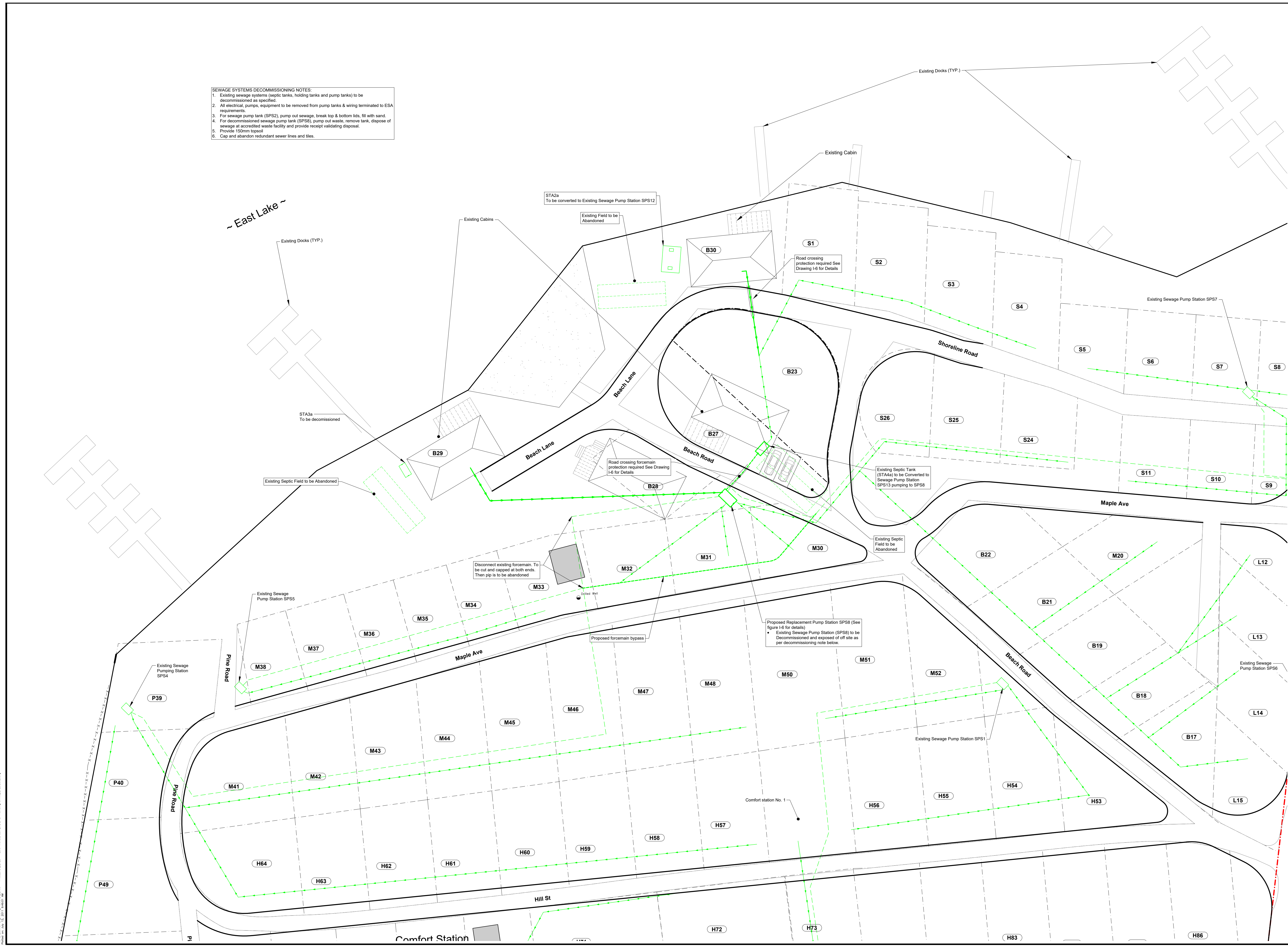


**Lake Avenue RV Resort & Campground
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County**

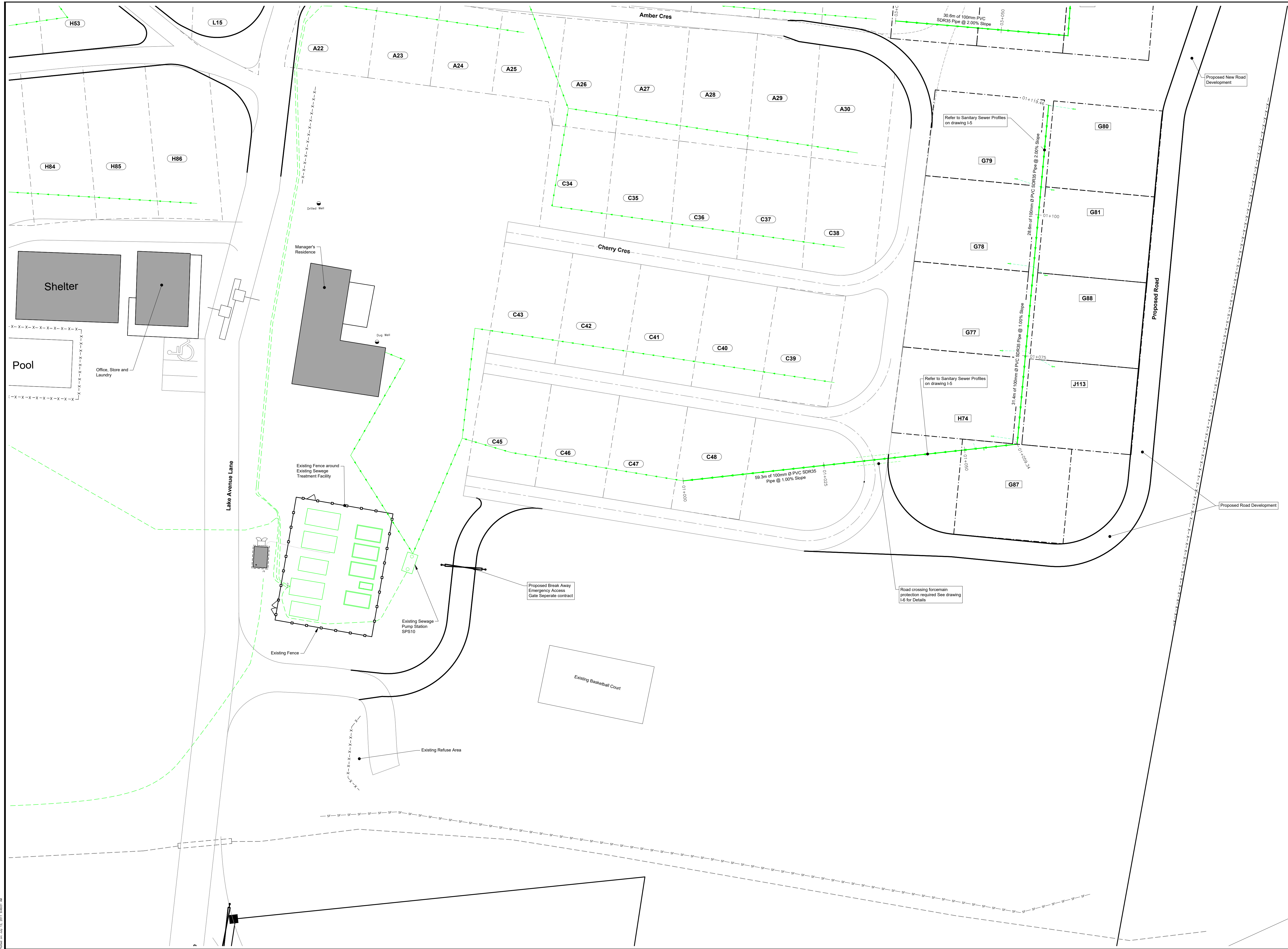
**Part Site Plan (South-West Quadrant):
 Sanitary Collection System Upgrades**

Scale: 1:300	Designed By: BC
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: EG
	Drawing No.:

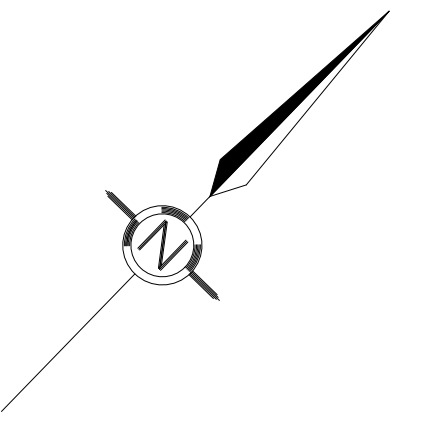
D2429 I-2



This drawing is the property of Gunnell Engineering Ltd. and is not to be used for any other project without the written consent of Gunnell Engineering Ltd.

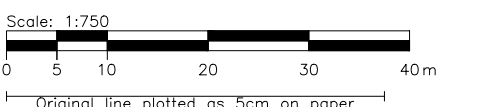


Gunnell Engineering Ltd.
 1110 Stellar Drive, Unit 106
 Newmarket, ON L3Y 7B7
 bus: 905-888-9400
 fax: 905-853-5734
 www.septoidesign.ca



- LEGEND**
- Existing Sewage Pump Station
 - Existing Sanitary Sewage Gravity Pipe
 - Proposed 100mm Ø SDR35 Sanitary Sewage Gravity Pipe
 - Proposed Sanitary Sewage Lateral
 - Existing Sewage Force mains
 - Proposed Sewage Force mains
 - G81 Proposed Trailer Site ID's
 - C37 Existing Trailer Site ID's
 - Proposed Road (Gravel)

*Note:
 Water and sewer lines to
 maintain a minimum horizontal
 separation distance of 3.05m



Rev. No.	Date	Description	CAD
Rev. 1	24-FEB-2022	Proposed Boat Storage Removed	JR

Engineer's Stamp:

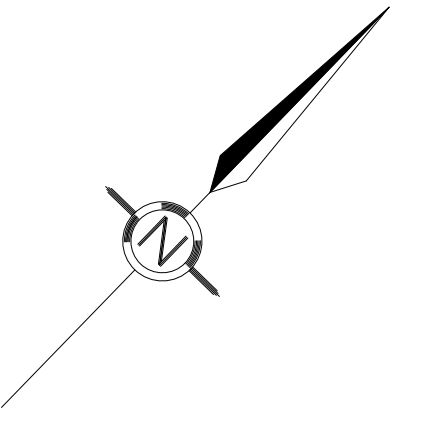


Lake Avenue RV Resort & Campground
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

**Part Site Plan (North-East Quadrant):
 Sanitary Collection System Upgrades**

Scale: 1:300	Designed By: BC
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: EG
	Drawing No.:

D2429 I-3



- LEGEND**
- Existing Sewage Pump Station
 - Existing Sanitary Sewage Gravity Pipe
 - Proposed 100mm Ø SDR35 Sanitary Sewage Gravity Pipe
 - Proposed Sanitary Sewage Lateral
 - Existing Sewage Force mains
 - Proposed Sewage Force mains
 - G81 Proposed Trailer Site ID's
 - C37 Existing Trailer Site ID's
 - Proposed Road (Gravel)

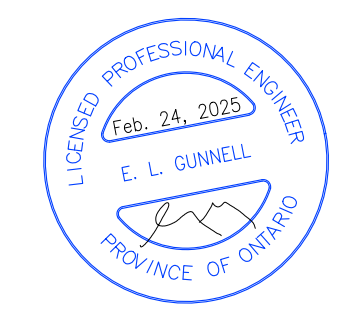
*Note:
 Water and sewer lines to
 maintain a minimum horizontal
 separation distance of 3.05m

- SEWAGE SYSTEMS DECOMMISSIONING NOTES:**
1. Existing sewage systems (septic tanks, holding tanks and pump tanks) to be decommissioned as specified.
 2. All electrical, pumps, equipment to be removed from pump tanks & wiring terminated to ESA requirements.
 3. For sewage pump tank (SPS2), pump out sewage, break top & bottom lids, fill with sand.
 4. For decommissioned sewage pump tank (SPS8), pump out waste, remove tank, dispose of sewage at accredited waste facility and provide receipt validating disposal.
 5. Provide 150mm topsoil.
 6. Cap and abandon redundant sewer lines and ties.



Rev. No.	Date	Description	CAD
Rev. 1	14-FEB-2023	Proposed Boat Storage Removed	JR

Engineer's Stamp:

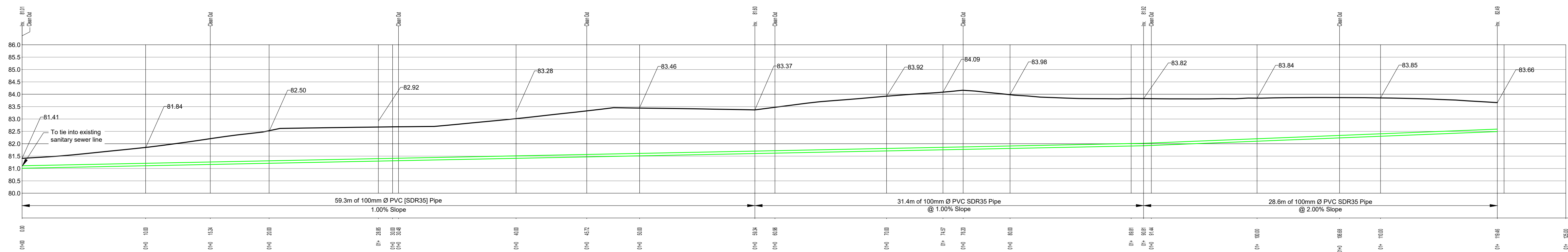


**Lake Avenue RV Resort & Campground
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County**

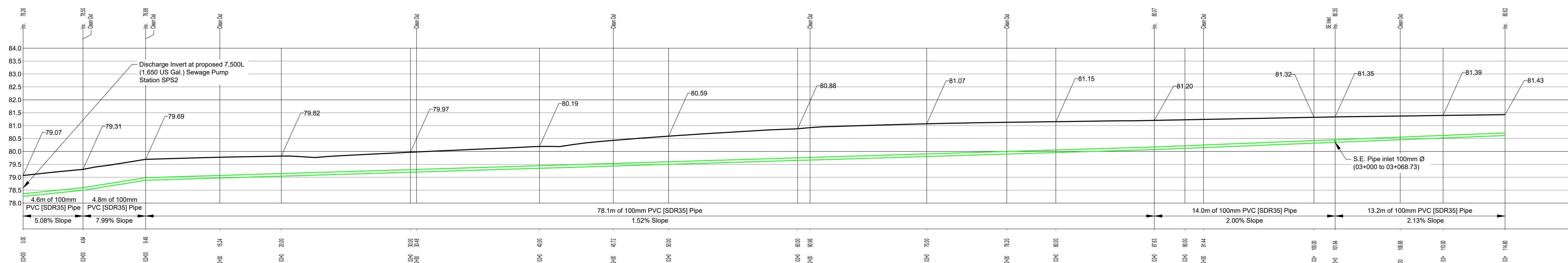
**Part Site Plan (North-West Quadrant):
 Sanitary Collection System Upgrades**

Scale: 1:300	Designed By: BC
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: EG
	Drawing No.:

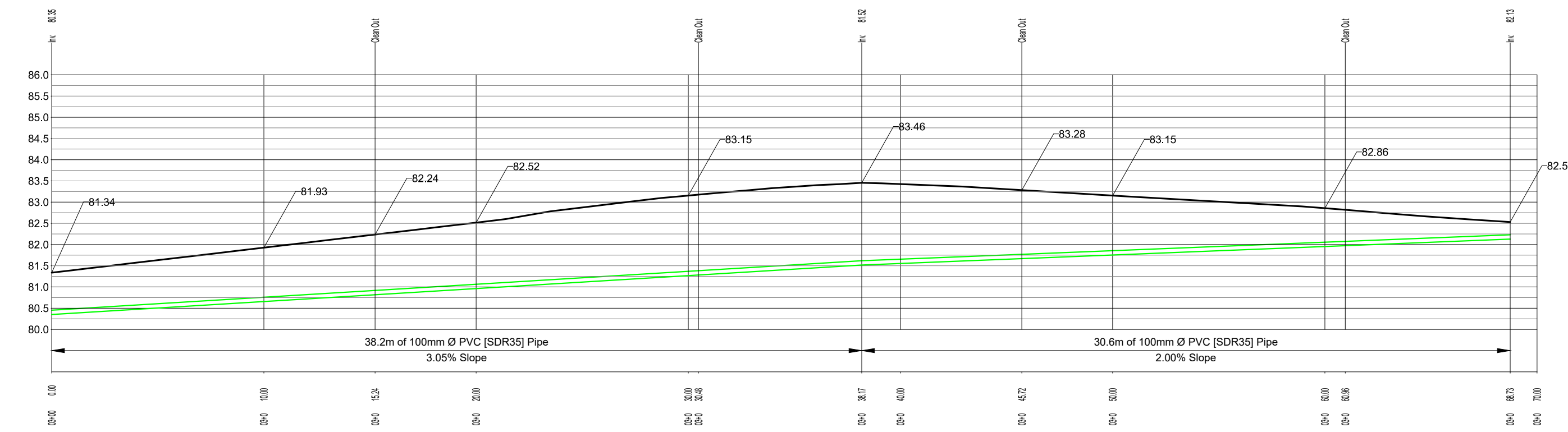
D2429 I-4



Sewer Profile Chainage 01+000.00 to 01+125.00 Refer to Drawing I-3
 Horizontal Scale: 1:200
 Vertical Scale: 1:100



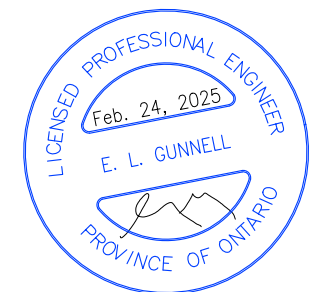
Sewer Profile Chainage 02+000.00 to 02+120.00 Refer to Drawing I-4
 Horizontal Scale: 1:200
 Vertical Scale: 1:100



Sewer Profile Chainage 03+000.00 to 03+070.00 Refer to Drawing I-4
 Horizontal Scale: 1:200
 Vertical Scale: 1:100

Rev. No.	Date	Description	CAD
Rev. 1	24-FEB-2023	Proposed Boat Storage Removed	JR

Engineer's Stamp:

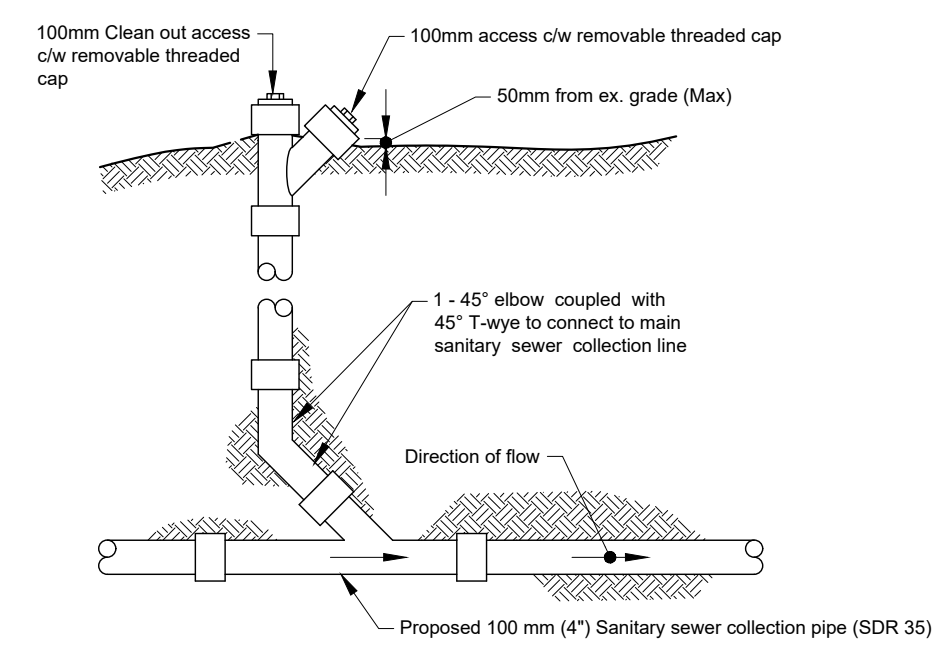


Lake Avenue RV Resort & Campground
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

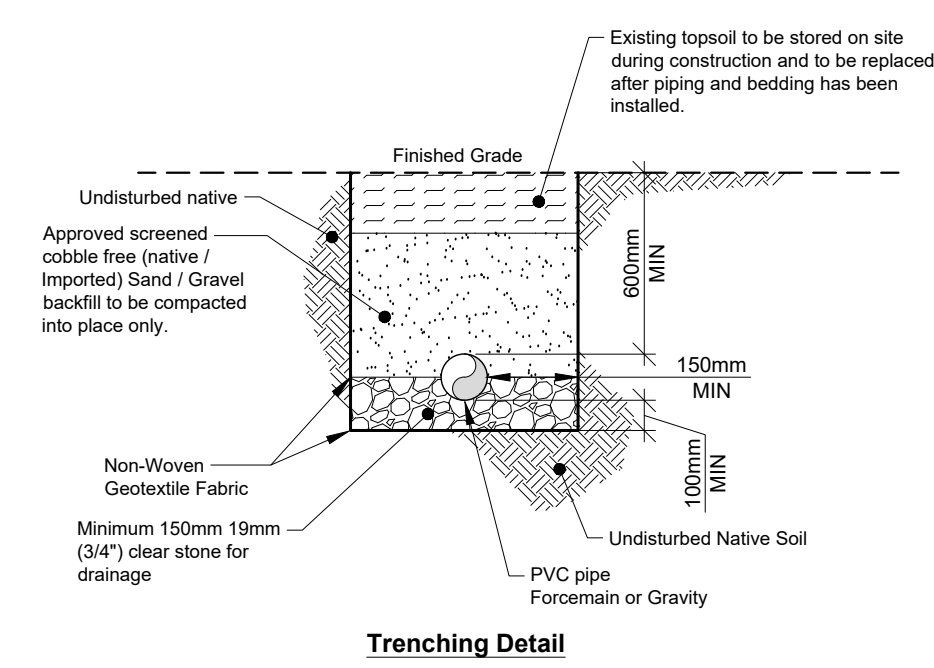
Sanitary Gravity Sewer Profiles:
 01+000 to 01 +120.29 / 02+000 to 02+120.29

Scale: 1:200	Designed By: EG
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

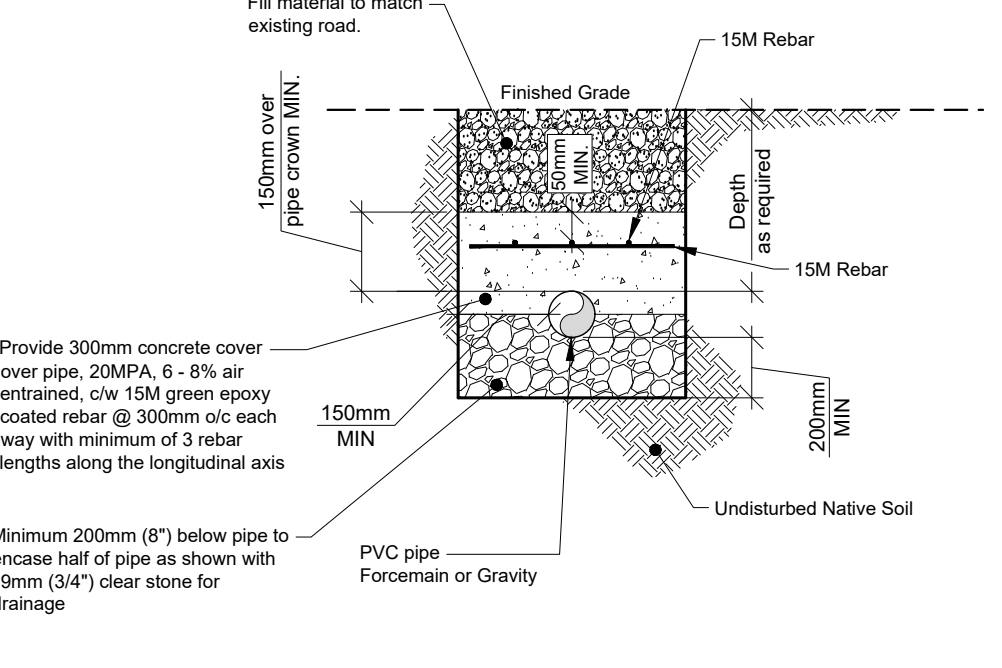
D2429 I-5



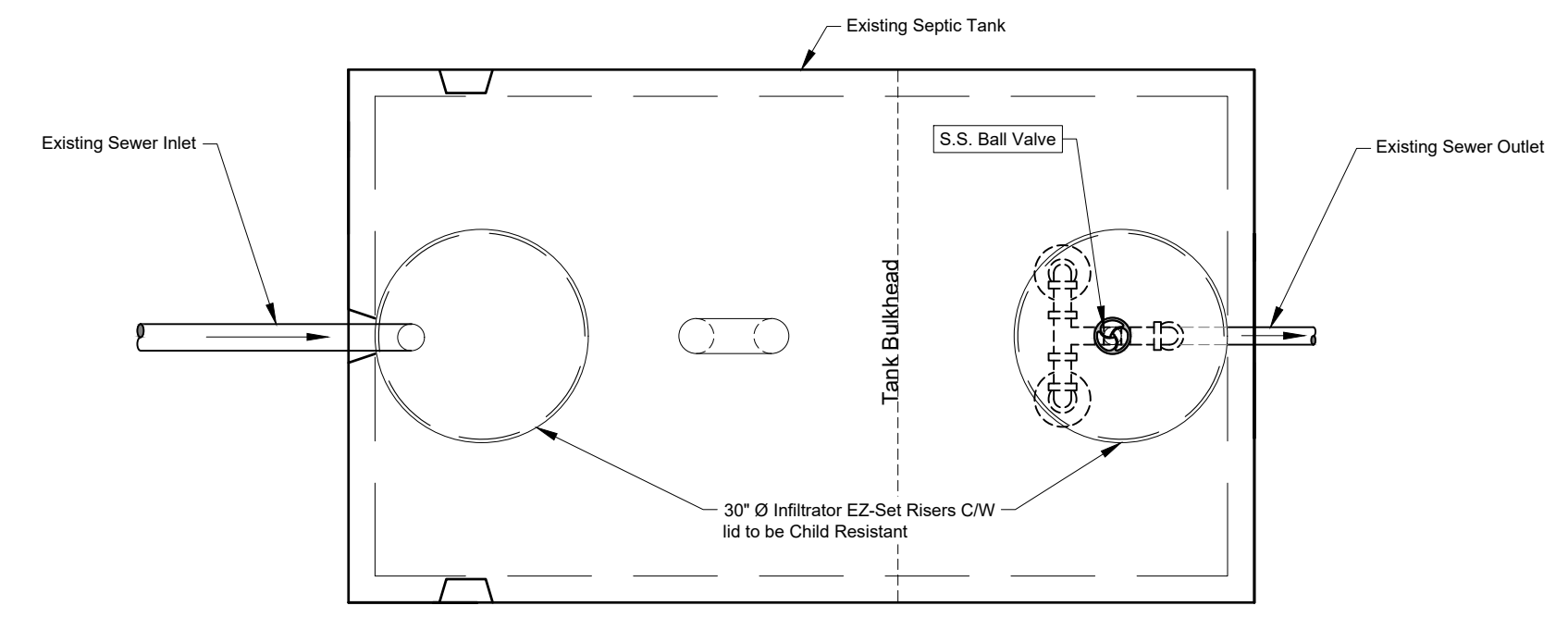
Profile of Trailer connection CW Clean Out Connection
 N.T.S.



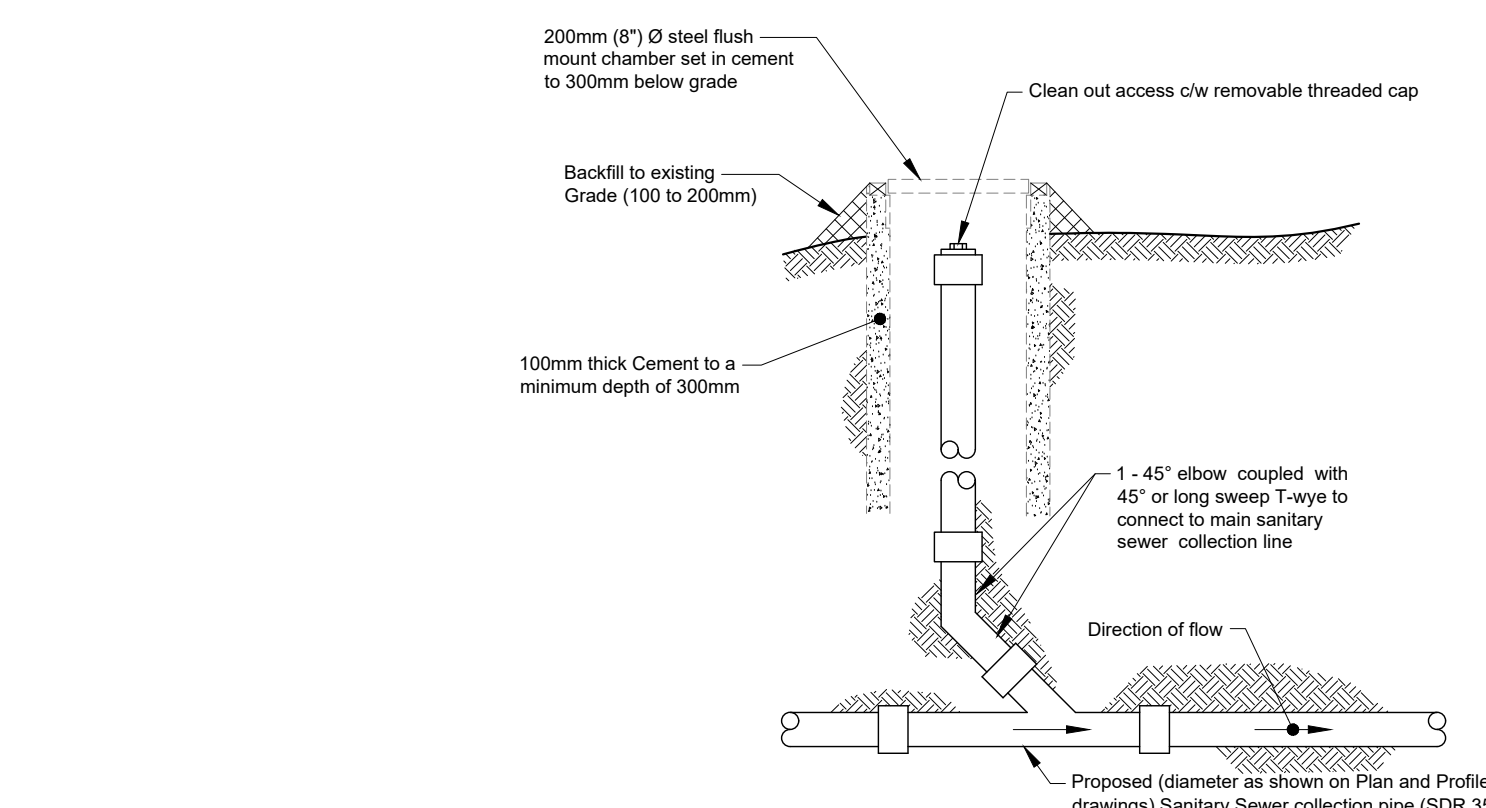
Trenching Detail
 N.T.S.



Road Crossing Protection Detail
 N.T.S.

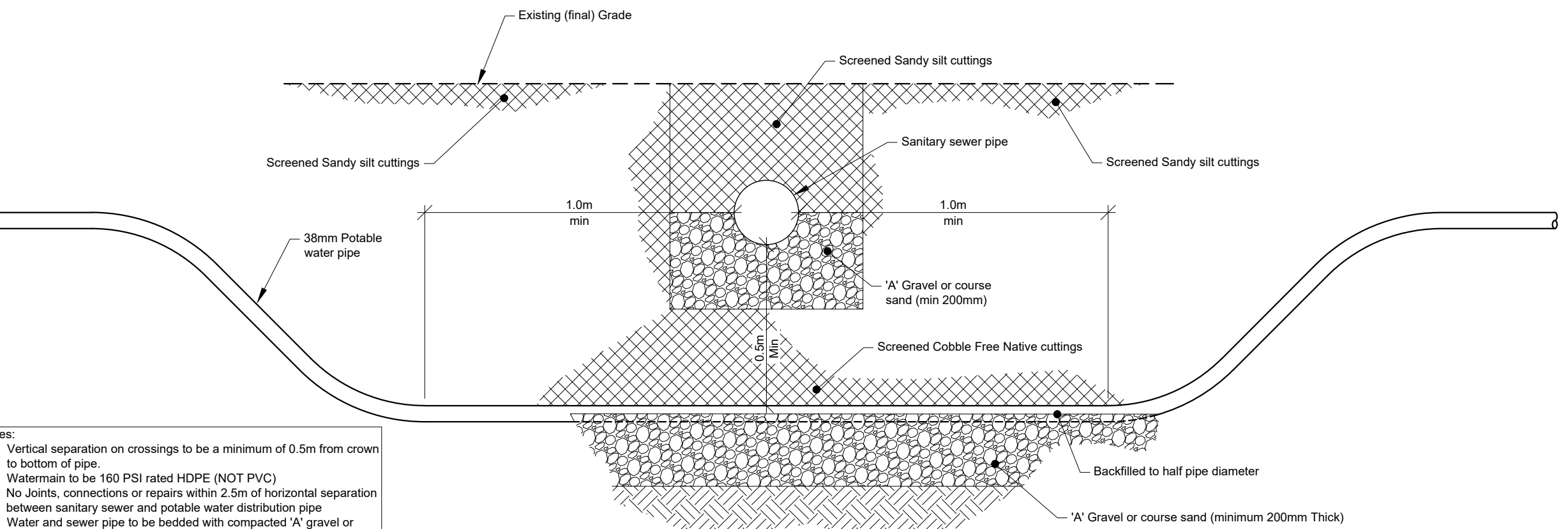


Existing Septic Tank Conversion to Sewage Pump Station (SPS13)
 N.T.S.



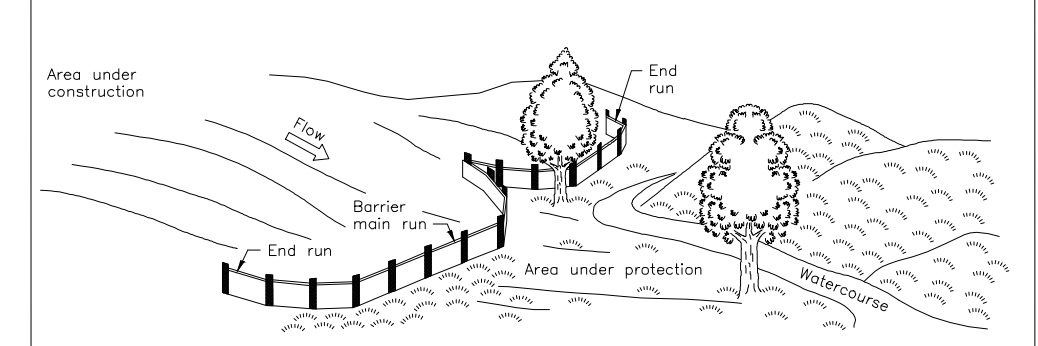
Profile of Typical Flush Mount Clean Out Connection
 (Required within 1m of roadside, in road or within 1m of driveway)
 N.T.S.

- Note:
- All new sanitary trailer connections to have cleanout additional access.
 - All sewage gravity collection pipes less than or equal to 100mm (4") diameter to have a cleanout access point spaced of no more than 15m (50ft). All gravity sewers greater than 100mm (4") diameter pipes to have access spacing of no more than 30m (100ft).
 - Where cleanout connections are to be directional the direction will be downstream.
 - All new cleanout locations to be placed on or near trailer lot lines in compliance with spacing requirements above.
 - All forceman to be installed with tracer wire.

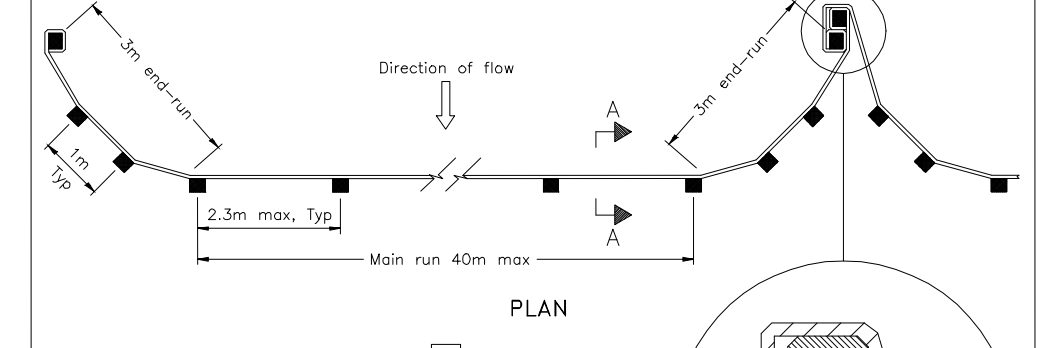


Potable Water / Sewer Crossing (TYP.)
 N.T.S.

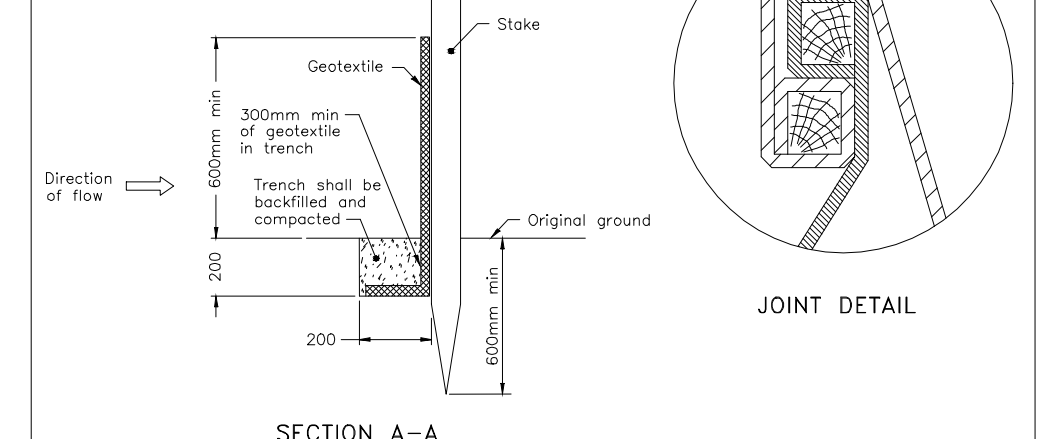
- Notes:
- Vertical separation on crossings to be a minimum of 0.5m from crown to bottom of pipe.
 - Watermain to be 160 PSI rated HDPE (NOT PVC).
 - No Joints, connections or repairs within 2.5m of horizontal separation between sanitary sewer and potable water distribution pipe.
 - Water and sewer pipe to be bedded with compacted 'A' gravel or coarse sand.
 - 1.0m horz. distance after crossing to be maintained in distribution piping before any pipe deflection is introduced.
 - All cuttings used to backfill to be free of cobbles (stone greater than 64mm (2.5 inches)).



PERSPECTIVE VIEW



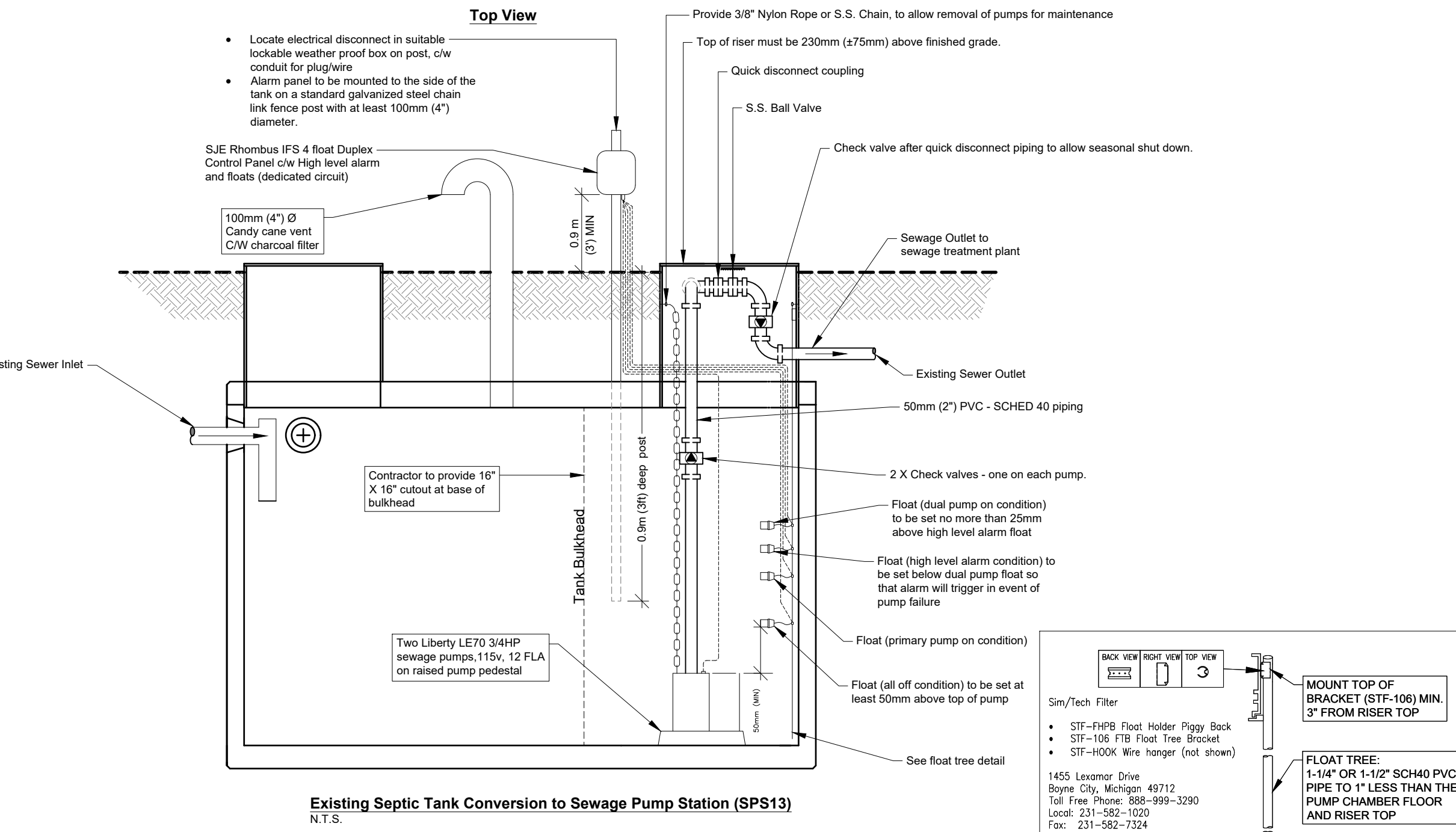
PLAN



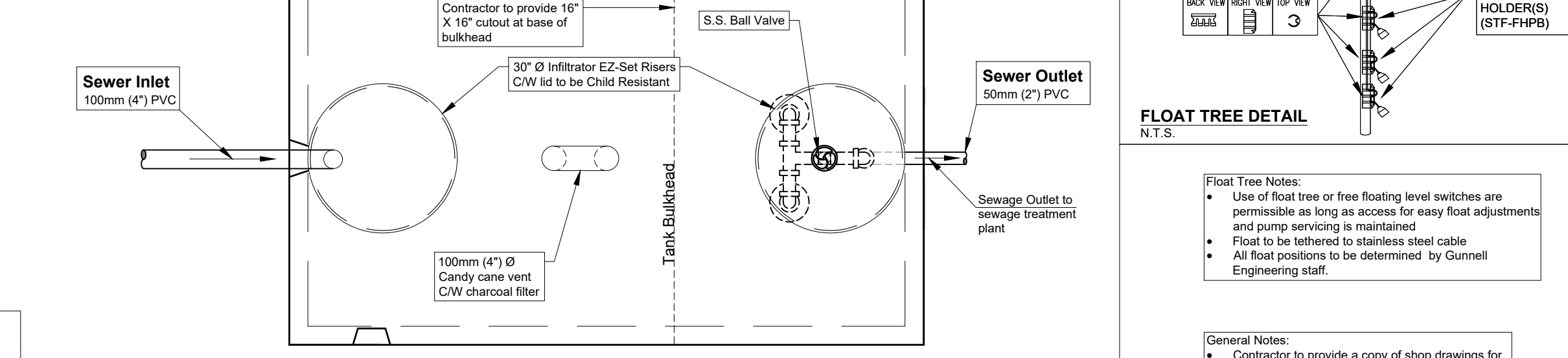
SECTION A-A

NOTE:
 A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING
 LIGHT-DUTY SILT FENCE BARRIER
 Nov 2015 Rev 2
 OPSD 219.110



Duplex Pump Station Details for (SPS2 7,500L) and (SPS8 4,500L)
 N.T.S.



Duplex Pump Station Details for (SPS2 7,500L) and (SPS8 4,500L)
 N.T.S.

- Float Tree Notes:
- Use of float tree or free floating level switches are permissible as long as access for easy float adjustments and pump servicing is maintained.
 - Float to be tethered to stainless steel cable.
 - All float positions to be determined by Gunnell Engineering staff.

- General Notes:
- Contractor to provide a copy of shop drawings for control panels, prior to installation.
 - All pipe seals use High Pressure Seal.
 - Filled with one Infiltrator 30° access riser at the outlet side of tank.
 - For recommended installation procedures refer to supplier's installation guidelines.
 - A maximum of 1 metre burial depth is allowable on top of the pump station tank in non-traffic areas (verify with manufacturer). Extra reinforcement is required for use in areas with vehicular traffic and/or burial depths over 1 metre.

Rev. No.	Date	Description	CAD
Rev. 1	24-FEB-2020	Proposed Boat Storage Removed	JR

Engineer's Stamp:

 E. L. GUNNELL
 PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO

Lake Avenue RV Resort & Campground
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Miscellaneous Details

Scale: As Shown	Designed By: BC
Date: 15-JAN-2021	Drawn By: JR
Project No.:	Checked By: EG
	Drawing No.:

APPENDIX D

Site Plan Control Application

FOR OFFICE USE ONLY

File No(s) _____

	Site Plan Agreement	Removal of Holding 'H'	Condominium Exemption
Planning	\$3,774.00	\$510.00	\$510.00
Cost Acknowledgement Agreement	\$2,000.00		
Public Works Review - Peer Review (if applicable)	\$1,020 plus peer review costs + HST		
Legal Fee (if applicable)	At Cost + HST	N/A	N/A

Note: External agencies may also bill for their services.

SITE PLAN CONTROL APPLICATION FORM

This form is designed for Site Plan Applications, Removal of Holding 'H' Symbols and Requests for Condominium Exemption Applications. If applying for more than one at a time, please note they are separate processes under the Planning and Condominium Acts.

Please check which Application(s) you are applying for:

- Site Plan Agreement
 Removal of Holding 'H' Symbol
 Request for Condominium Exemption

PLEASE INCLUDE: a current Parcel Register (PIN Page) for the subject property with the application.

PLEASE NOTE: if any of the requested information is found to be missing and required for processing, the application may be deemed to be *incomplete and will not be processed*. The application form, site plan drawings, processing fees and any required studies, constitute part of a complete application.

PLEASE TYPE OR PRINT CLEARLY

1.a) **Registered Owner's Name and Address:**

Name: John McLaren / Castle Amalco Real Estate Holdings ULC
 Address: 27777 Franklin Road, Suite 200, Southfield, Michigan USA
 Postal Code: 48034 Phone No. 248 208-2500 Fax No. _____
 Email Address: jmclaren@suncommunities.com Cell Phone No. _____

b) **Registered Mortgagee's Name and Address (if applicable):**

Name: _____
 Address: _____
 Postal Code: _____ Phone No. _____ Fax No. _____
 Email Address: _____ Cell Phone No. _____

c) **Agent's Name and Address (if applicable):**

Name: Brock Cross / Gunnell Engineering Ltd.
 Address: 1110 Stellar Drive, Newmarket, Ontario
 Postal Code: L3Y 7B7 Phone No. 905-868-9400 Fax No. _____
 Email Address: brock@gunnellengineering.com Cell Phone No. _____

2. **Legal Description of Property & Civic Address within the County of Prince Edward**

Civic Address (911 Street No.) 37 - 38 Lake Avenue Lane, RR#1, Cherry Valley, ON K0K 1P0

Ward: Athol Assessment Roll No.: 135040801501500
Lot: Part Lot 17 Concession: 1, South Side of East Lake

Registered Plan No.: 47R-2627 Lot/Block: _____
(if applicable)

Reference Plan No.: _____ Part No: Parts 1, 2, 3 and 4
(if applicable)

3. Total Lot Area of Subject Land 25 acres Total Lot Frontage of Subject Land 73.08m
4. What is the Official Plan designation(s) of the subject land? Shore Lands
5. What is the Zoning of the subject land? TPC-9 Trailer Park Commercial & Special Rural
6. What is the Existing Use of subject lands? Campground
7. What is the Proposed Use of subject lands? Campground

8. **Site Statistics as Proposed:**

Lot Coverage (%): 0.86%
Number of Dwelling Units (if applicable): N/A
Landscaped Open Space Area (%): 39.5%
Number of Parking Spaces: 161
Number of Barrier-Free (Handicap) Parking Spaces: one (1)
Number of Loading Spaces: N/A
Height of Proposed Building(s) or Structure(s): N/A

9. Are the subject lands presently the subject of any other applications under the *Planning Act* (e.g. Official Plan Amendment, Consent, Rezoning, Minor Variance, or Plan of Subdivision?)

Yes () No (x)

If you checked Yes, please state the file number(s) of the application(s) and their status:

10. Is the proposed use/building or structure presently the subject of a Building Permit (or Conditional Building Permit) application(s)?

Yes (x) No ()

If you checked Yes, please state the status of the application(s):

Building Permit Application submitted for proposed sanitary collection system

11. *Additional information* can be provided below or as an attachment. (*Additional Information* may include background information, photographs and/or supporting studies that may assist in the processing of this application, such as Stormwater Management Reports, Traffic Impact Studies, Engineering/Service Reports, EIS, Hydrogeological Studies, etc.)

14. **Declaration:**

NOTE: This must be completed by the Owner(s). If more than one Owner is listed in item #1 of this application, then all owners must sign this application form and the affidavit section in the presence of the Commissioner of Oaths.

I (We), John McLaren, President and Chief Operating Officer of the _____
City Southfield of Southfield in the County / Region of
Oakland, Michigan solemnly declare that all of the statements contained in this application
for (property description) 37-38 Lake Avenue Lane and all the supporting
documents are true, and I (we), make this solemn declaration conscientiously believing it to be true
and complete, and knowing that it is of the same force and effect as if made under oath, by virtue of
the **CANADA EVIDENCE ACT**. I agree to allow the Municipality, its employees and agents to enter
upon the subject land for the purpose of conducting a site inspection that may be necessary to
process this application.

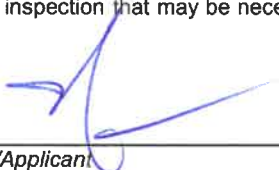
DECLARED before me at the

City of Southfield

in the State

of Michigan, USA

this 22nd day of July 20 21



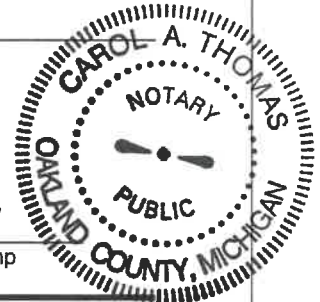
Owner/Applicant

Owner/Applicant



Commissioner of Oaths

CAROL A. THOMAS
NOTARY PUBLIC, STATE OF MI
COUNTY OF OAKLAND
MY COMMISSION EXPIRES May 4, 2025
ACTING IN COUNTY OF Oakland
Printed Commissioner's Name/Stamp



OWNER'S AUTHORIZATION IF THE OWNER IS USING AN AGENT FOR REPRESENTATION

I (We), John McLaren, President and Chief Operating Officer of the _____
City Southfield of Southfield in the County/Region of
Oakland, Michigan solemnly declare that (agent's name)
Gunnell Engineering Ltd. is authorized to submit an application for the lands that
I/We own, located in (property description) 37 - 38 Lake Avenue Lane and to
act as our agent in the completion of the matters related to the processing thereof.


DECLARED before me at the

City of Southfield

in the State


of Michigan, USA

this 22nd day of July 20 21



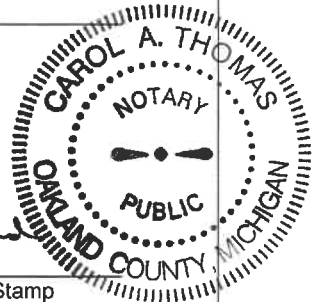
Owner/Applicant

Owner/Applicant



Commissioner of Oaths

CAROL A. THOMAS
NOTARY PUBLIC, STATE OF MI
COUNTY OF OAKLAND
MY COMMISSION EXPIRES May 4, 2025
ACTING IN COUNTY OF Oakland
Printed Commissioner's Name/Stamp



Personal information on this form is collected under the Planning Act and Condominium Act for the purpose of processing a site plan application, removal of holding 'H' symbol and/or requests for condominium exemption applications. All information on this form is considered to be part of the public record. Questions related to the collection of this information should be referred to the Commissioner of Planning at 613.476.2148.

Cost Acknowledgement Agreement

THIS AGREEMENT made in duplicate this 22nd day of July , 20 21

BETWEEN:

THE CORPORATION OF THE COUNTY OF PRINCE EDWARD

(hereinafter called the "Municipality")

PARTY OF THE FIRST PART

-AND -

Castle Amalco Real Estate Holdings ULC

(hereinafter called the "Owner")

PARTY OF THE SECOND PART

WHEREAS the Owner proposes to amend the Municipality's Official Plan, amend or vary the Municipality's Zoning By-law, seek site plan approval and/or to sever and/or subdivide certain lands in the Municipality (herein referred to as "the Application(s)");

AND WHEREAS the Municipality may incur expenses for services or activities which are not covered by the initial fee for the basic processing of the Application(s) as described on Schedule "A" hereto;

AND WHEREAS the Municipality has authorized the entering into of this Agreement by By-law 2817-2011 being a by-law to establish a tariff of fees for the processing of applications made in respect of planning matters pursuant to Section 69 of the *Planning Act*, as amended;

NOW THEREFORE in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which is acknowledged by the parties hereto, the parties hereto agree as follows:

1. In consideration of the other provisions of this Agreement, the Commissioner of Planning for the Municipality shall instruct such of the Municipality's staff, solicitor, planning, engineering and other consultants as the Commissioner of Planning deems necessary or advisable to:
 - (a) review on behalf of the Municipality the Application(s) and to undertake such studies, investigations, analysis, research as may be reasonably necessary to properly advise the Municipality, including, without limitation, the provision of written reports and opinions; and
 - (b) provide representation/appearances at any and all meetings and/or proceedings relating to the Application(s).
2.
 - (a) The Owner hereby covenants and agrees to reimburse the Municipality forthwith on demand for all expenses whatsoever incurred by the Municipality relating to or arising out of the Application(s).
 - (b) In this Agreement, the word "expenses" includes:
 - (i) fees, costs, expenses, and disbursements incurred by or on behalf of the Municipality for services or activities related to or arising out of the Application(s) but not described in Schedule "A" hereto, including but not limited to fees, costs, expenses, and disbursements for items such as: additional public meetings, notices of public meetings, external agency fees, extensions or amendments to Application(s), plans or the conditions of approval, peer reviews, additional studies and/or evaluations, site inspections, meetings, and all attendances and preparation related to any and all appeal(s) to any tribunal and/or court, including without limitation all legal and consultant fees and disbursements.

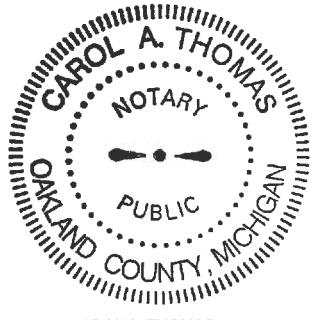
- (c) For purposes of this Agreement, the Owner acknowledges and agrees that the "processing" of the Application(s) includes any additional public meetings, notices of public meetings, extensions or amendments to Application(s), plans or the conditions of approval, peer reviews, additional studies and/or evaluations, site inspections, meetings, and all representation, attendances and preparation related to any and all appeal(s) to any tribunal and/or court.
3. The Owner hereby agrees to deposit with the Municipality, at the time of signing this Agreement, a certified cheque in the amount of \$ 5,774.00 payable to the Municipality as an advance on all expenses that may be incurred by the Municipality. The said sum of \$ 5,774.00 shall hereinafter be referred to as the "Deposit". As accounts, invoices, statements, etc. are received by the Municipality, they shall be paid by the Municipality and the Municipality shall be entitled to deduct the amounts so paid from the Deposit. The Municipality shall then submit to the Owner a statement of all monies paid and the Owner shall pay to the Municipality forthwith a sufficient sum to reinstate the Deposit to the initial sum of \$ 5,774.00 in order that the full sum of \$ 5,774.00 is available for subsequent accounts, statements, invoices, etc. Neither the Deposit nor anything in this Agreement shall limit or be deemed to limit the obligation of the Owner to reimburse the Municipality in full for all expenses incurred by the Municipality.
 4. In the event that the Owner fails to reimburse the Municipality within thirty (30) days of demand so as to fully reinstate the Deposit as contemplated by this Agreement, the Municipality's Commissioner of Planning may, in his or her sole and absolute discretion, direct municipal staff, planner, solicitor, engineer and any other consultants to cease all work on or relating to the Application(s) and the Municipality shall be entitled to apply the balance of the Deposit towards all outstanding accounts.
 5. The Deposit or any portion thereof shall be retained by the Municipality until all accounts, statements, invoices, etc., submitted or to be submitted to the Municipality and relating to the Owner's Application(s) have been paid in full and all matters relating to the Owner's Application(s) have been completed. Upon completion or in the event the Owner indicates that it desires to cease all work relating to the Owner's Application(s), then the balance, if any, of the Deposit shall be returned by the Municipality to the Owner after the payment of all accounts, statements, invoices, etc., submitted or to be submitted to the Municipality and relating to the Owner's Application(s) have been paid in full.
 6. In the event that any matter relating to the Owner's Application(s) is appealed to the Ontario Municipal Board, other tribunal and/or Court, and the Municipality, in its sole and absolute discretion, determines it necessary or appropriate to attend at the hearing or proceeding to defend Council's decision [whether the decision is to support or refuse the Owner's Application(s)], then in such case the provisions of this Agreement shall also apply to all expenses incurred by the Municipality with respect to such hearing and/or proceeding, including without limitation, legal, planning and engineering costs and disbursements.
 7. Interest and municipal administrative fees shall be payable by the Owner to the Municipality on all sums of money payable by the Owner to the Municipality which are not paid in full within thirty (30) days of demand or otherwise satisfied from the Deposit, which interest and municipal administration fees shall be calculated from the date of such demand at the rate established from time to time by the Municipality for overdue accounts. Any and all expenses that may remain unpaid to the Municipality constitute a debt of the Owner to the Municipality. The Owner agrees that the Municipality in its sole and absolute discretion shall be entitled to add such expenses to the tax roll for the property of the Owner and collect them in the same manner as municipal taxes.
 8. The failure of the Municipality to insist on strict performance of any of the terms, provisions, covenants or obligations herein shall not be deemed to be a waiver of any rights or remedies that the Municipality may have, and shall not be deemed to be a waiver of any subsequent breach or default of the terms, provisions, covenants and obligations herein contained.
 9. The Owner shall not call into question, directly or indirectly, in any proceedings whatsoever in law or in equity or before any administrative tribunal, the right of the Municipality to enter into this Agreement and to enforce each and every term, covenant and condition herein contained, and this clause may be pleaded as an estoppel against the Owner in any such proceedings.

- 10. This Agreement shall not be construed as acceptance or approval by the Municipality of the Application(s).
- 11. This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective heirs, administrators, executors, successors and assigns.

IN WITNESS WHEREOF the parties hereto have hereunto affixed their corporate seals attested to by the hands of their proper officers authorized in that behalf.

SIGNED, SEALED AND DELIVERED
In the presence of:

Carol A. Thomas



CAROL A. THOMAS
NOTARY PUBLIC, STATE OF MI
COUNTY OF OAKLAND
MY COMMISSION EXPIRES May 4, 2025
ACTING IN COUNTY OF *Oakland*

) THE CORPORATION OF THE
) COUNTY OF PRINCE EDWARD

) PER: _____

) NAME OF OWNER

) PER: _____

) NAME OF OWNER

) PER: _____

[Signature]

John McHaren

Schedule 'A' to Cost Acknowledgement Agreement

Basic Processing Of Application(s)

File Intake and Acceptance:

- initial acceptance and review of application for completeness, consistency, conformity, and technical correctness

Reporting and Review:

- agency circulation and consultation (1)
- correspondence related to consultation
- site plan reviews (2) – initial plan plus 1 revised plan
- site plan agreement review (1) – after initial agreement preparation

Documents:

- preparation of one report (including mapping) and consultation with Owner, municipal departments, and any other party necessary respecting the Application(s) and any associated conditions
- notice of decision
- administration and notice (including draft official plan amendment and zoning by-law amendment document)

Meetings:

- preparation for and attendance of one (1) public meeting
- preparation of initial notices of public meetings
- presentation and discussion at Committee/Council
- internal meetings and consultation
- consultation prior to municipal decision

Other Expenses:

- one site inspection by a development planner
- general inquiries

Final Approval:

- clearance administration
- final review, signing, and registration

Administration:

- general administration
- postage (two (2) agency circulations), courier/fax

Development Services - Site Plan Control Checklist

To assist applicants in applying for a site plan review or site plan agreement the following Checklist is provided as a guide. Before submitting an application for site plan approval, please make sure that all applicable questions on this Checklist are "Included" on the submitted site plan drawings.

Please note: If any of the requested information is found to be missing and required for processing, the application may be deemed to be incomplete and will not be processed. The application form, site plan drawings, processing fees and any required studies, constitute part of the complete application.

Please note: All of the County's legal costs related to preparation of a Site Plan Agreement shall be paid by the applicant.

In general, the Site Plan Control Application Drawing Set shall include a minimum of nine (9) pages detailing the required elements as noted on Schedule 'B' attached. By providing this level of information and keeping it separate and organized as outlined in the schedule, will greatly assist staff in their review of your application which will translate into fewer revisions and quicker processing times. Smaller projects on small sites may be able to consolidate some of the noted drawings, but applicants are advised to confirm this prior to submission.

Checklist:

1. Are all sections of the site plan control application form filled in? []
2. Have five (5) folded hard copies of the full sized Site Plan Control Application drawing sets been provided (8 copies if property fronts onto a Provincial Highway)? []
3. Have six (6) reduced hard copies of Site Plan Control Application drawing sets (11" x 17") been provided? []
4. Has an electronic version of the Site Plan Control Application drawing set been provided? []
5. Has a copy of the legal survey, prepared by an O.L.S., been provided? []
6. Has a copy of the current Parcel Register (PIN Page) for the subject property been provided? []
7. Does the location of the new building(s) comply with the Minimum Distance Separation (MDS) Formulae (*you may wish to discuss with planning staff*)? []
8. Has one (1) copy of your Works Costs Estimate been provided? []
9. Has a copy of any necessary documents/permits from, but not limited to, the Ministry of the Environment, Ministry of Transportation, Ministry of Culture and/or Ministry of Natural Resources been provided? []

SCHEDULE 'B' - to the Site Plan Control Checklist

LIST OF REQUIRED DRAWINGS

Drawing No.	Drawing Name	Elements to be Shown on Drawing
SPCA-1	Existing Site Plan	<ol style="list-style-type: none"> 1. North Arrow 2. Key Map 3. Scale 4. Property Lines 5. Easements, if any 6. Existing Servicing; water, sewer, storm, hydro, gas, communications). 7. Existing Structures 8. Existing Entrances 9. Existing <u>natural features</u> such as trees, water courses, drainage ditches, etc.
SPCA-2	Demolition Plan	<ol style="list-style-type: none"> 1. Show all work that will see the removal or decommissioning of any existing feature.
SPCA-3	Proposed Overall Site Plan	<ol style="list-style-type: none"> 1. North Arrow 2. Key Map 3. Scale 4. Title block showing the name of the firm or person who prepared the plan and date when plan was prepared/revised. 5. Property Lines. 6. Setbacks from lot lines and between buildings/structures. 7. Site Statistics to confirm compliance with zone requirements such as: gross commercial/residential floor area; parking (including barrier free parking), loading; % of lot coverage; and % of landscaped/open space. 8. Building footprint(s) with dimensions. 9. Points of ingress and egress to the subject property from adjoining streets with dimensioned length, width and radii with proposed surface treatment type. 10. Parking lots with dimensioned lengths and widths and indications of the size of each individual parking space and the total number of parking spaces provided with proposed surface treatment type. 11. Sidewalks, walkways and curbs with dimensioned lengths and widths with proposed surface treatment type. 12. Internal driveways with dimensioned lengths and widths with proposed surface treatment type. 13. Fire routes (if applicable) with dimensioned widths and radii including all necessary signage and surface demarcation (<i>you may discuss with Fire Chief</i>). 14. Location of all existing and proposed fire hydrants on or near the subject property with dimension to critical points on building. 15. Proposed & existing fences, including height and construction material. 16. Location of <u>garbage collection and/or storage areas</u>.
SPCA-4	Proposed Grading Plan	<ol style="list-style-type: none"> 1. Illustrate all surface features (without dimensions) with existing and proposed elevations. 2. Show flow arrows to indicate direction of surface water flow.
SPCA-5	Proposed Site Servicing Plan	<ol style="list-style-type: none"> 1. Water supply, sanitary sewer, storm sewer including manholes and catch basins, electrical service (and transformers, if required) and communications. 2. Include separate details page as necessary (SPCA-5b).
SPCA-6	Proposed Landscaping Plan	<ol style="list-style-type: none"> 1. Show all proposed landscape features such as plantings, beds, retaining structures and surface types.
SPCA-7	Proposed Exterior Lighting Plan	<ol style="list-style-type: none"> 1. Show with light intensity distribution expressed in lumens.
SPCA-8	Proposed Signage Plan	<ol style="list-style-type: none"> 1. Include all proposed signage on site and building, including pavement markings, signage details and type of illumination proposed.
SPCA-9	Proposed Building Elevations	<ol style="list-style-type: none"> 1. Include all faces of proposed building(s) in sufficient detail.

Revised January 2017

APPENDIX E

**Stormwater Management Brief: Drainage System
Adjacent to Neighbouring
Properties, Revised February 2026**

BLOOM RESORTS SANDBANKS

**37-38 LAKE AVENUE LANE, CHERRY VALLEY, ONTARIO,
PRINCE EDWARD COUNTY**

STORMWATER MANAGEMENT BRIEF: DRAINAGE SYSTEM ADJACENT TO NEIGHBOURING PROPERTIES

Prepared for:
Bloom Resorts Sandbanks

Prepared by:
**Gunnell Engineering Ltd.
1110 Stellar Drive, Unit 106
Newmarket, Ontario
L3Y 7B7**

**Revised February 2026
Revised April 2025
June 2024
File No. D3858**

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2 PRE AND POST DEVELOPMENT FLOWS.....	1
3 MITIGATION PLAN AND LOW IMPACT DESIGN.....	2
4 QUANTITY AND QUALITY CONTROL.....	3
5 MAINTENANCE	4
6 CONCLUSION.....	5

APPENDICES

APPENDIX A	GUNNELL ENGINEERING DRAWINGS SPCA-4.1, SPCA-4.2, SPCA-5, REVISION #10 FEBRUARY 19, 2026
APPENDIX B	SWALE CALCULATIONS
APPENDIX C	RUNOFF COEFFICIENT CALCULATIONS
APPENDIX D	SHORT DURATION RAINFALL INTENSITY – DURATION – FREQUENCY DATA FOR PICTON ONTARIO, DATED OCTOBER 31, 2022
APPENDIX E	CATCH BASIN SHIELD DETAIL

1 INTRODUCTION

This stormwater management brief has been prepared by Gunnell Engineering Ltd. to support the Site Plan Application and address any current and potential drainage issues at 37-38 Lake Avenue Lane, Cherry Valley, Ontario, specifically in the vicinity of the four (4) neighbouring properties - 59, 61, 67/73, 77 Lake Avenue Lane, adjacent to Bloom Resorts Sandbanks – formerly known as Sun Retreats Sandbanks. The proposed solution to managing stormwater runoff will include the construction and implementation of a grass swale, storm grates with catch-basin shields, sumps, subsurface piping, an earthen road-side berm to prevent ponding and overland flow towards the adjacent neighbouring properties as well as an outlet bioswale ahead of the final receiver – East Lake. Currently there are no stormwater management practices in place in this area and the proposed works provide safe, re-directed conveyance of stormwater and an improved level of treatment of ahead of East Lake utilizing the minimal area available.

2 PRE AND POST DEVELOPMENT FLOWS

The rational method ($Q = CIA$) was used to calculate runoff volumes. These calculations were completed in order to determine the size and appropriate strategies to re-direct and mitigate stormwater runoff in the specified area of re-development.

Pre-Development Flows

The overall area contributing to potential surface runoff towards the adjacent properties was calculated to be 10,057 m². Of that total area, 1,719 m² is already developed with eight (8) trailer lots / units. Areas were calculated for each surface type with their corresponding runoff coefficients to get an average surface runoff coefficient for the pre-development (existing conditions) of 0.337. Refer to drawing SPCA-4.1 indicating the drainage area (shaded blue) as well as areas broken down into road area, trailer area, driveway, grassed areas, etc. (Appendix C).

The time of concentration (t_c) was referenced using *Airport Drainage, Federal Aviation Administration, 1965 – Figure for Overland Time of Flow* chart based on average coefficient, distance and slope. Based on $C = 0.34$, distance of 119.5 m (392 ft), slope of 5.3%, a t_c of 18 minutes was estimated. Referencing *Short Duration Rainfall Intensity-Duration-Frequency Data* chart dated October 31, 2022 for nearby Picton, Ontario (Appendix D) the maximum rate of runoff (Q) for a 5-year storm, was calculated to be approximately 196.7 m³/hr or 0.054 m³/s.

$$Q = CIA = 0.337 \times 0.058 \text{ m/hr} \times 10,057 \text{ m}^2 = 196.7 \text{ m}^3/\text{hr}.$$

Post Development Flows

Utilizing the same overall area and adjusting the calculations for the added trailer lots / units, roads and grassed areas that are part of the minor re-development, a revised average surface runoff coefficient was calculated to be 0.421 due to the increase in impervious area. Appendix C provides the breakdown of these areas and calculations.

Similar methodology was used to determine the post development flows and based on a $C = 0.42$, distance of 119.5 m (392 ft), and slope of 4.9% (regrading), a t_c of 15 minutes was estimated. Referencing *Short Duration Rainfall Intensity-Duration-Frequency Data* chart dated October 31, 2022 for nearby Picton, Ontario (Appendix D) the maximum rate of runoff (Q) for a 5-year storm, was calculated to be approximately 284.2 m³/hr or 0.078 m³/s. The 5-year storm was selected as the Quinte Conservation Stormwater Management Submission Guidelines 2012 provides that minor systems must be capable of handling post development flows up to the 5-year frequency.

$$Q = CIA = 0.421 \times 0.067 \text{ m/hr} \times 10,057 \text{ m}^2 = 284.2 \text{ m}^3/\text{hr}.$$

3 MITIGATION PLAN AND LOW IMPACT DESIGN

Drawings SPCA-4.1, SPCA-4.2 and SPCA-5 (Appendix A), included in this report detail information on the proposed mitigation elements for the stormwater management works that will re-direct and provide treatment to the runoff generated in this area. The proposed plan provided here has been expanded to include mitigation and re-direction of overland flows away from all four (4) of the adjacent properties.

Grassed Swale

One (1) grassed swale (0.20m deep with slope of 2.6%) is to be constructed between Lake Avenue Lane and the adjacent neighbouring property boundary, as detailed on drawing SPCA-5. The swale has been designed with a trapezoidal shape (with a very low “b” value, making it essentially triangular). The maximum volume of flow in the 2.6% swale has been calculated to carry a flow of 160 L/s which is adequate for the 5-year post development flow of 78 L/s, as referenced in the previous section and also in Appendix B. The flow from the swale will drain into one (1) storm grate / catch basin with a sump and catch basin shield (TSS removal) which then outlets into smooth walled PVC storm piping to maintain gravity flow as there are limitations on existing site grades.

Storm Grates / Catch Basins and Piping

Two (2) storm grates are to be provided which will allow water to discharge into the PVC storm piping. Grates detailed on Drawings SPCA-4.1, SPCA-4.2 and SPCA-5 will have a sump and catch basin shield insert (Appendix E) to collect and separate any sediment and suspended solids that may be present within the flow. Storm piping to be installed is 250 to 355 mm PVC smooth walled piping with slopes ranging from 0.5% to 1.73%. The water within the storm pipes will be carried to the central western part of the property where the piping will outlet into a constructed bioswale with native vegetation for additional total suspended solids removal ahead of the final receiver, East Lake.

Bioswale

The subsurface piping will outlet to a small constructed bioswale west of trailer Lot S8. The bioswale construction will consist of stone, piping, geotextile filter fabric, native grasses, sedges and plantings. This end-of-pipe discharge is considered more appropriate versus a typical pipe to daylight as there is some water uptake by native vegetation as well as quality control in the form of total suspended solids removal.

Earthen Berm

Above the portion of PVC storm pipe travelling northwest towards the Lake, a proposed 300 mm (12") high road-side earthen berm is to be constructed adjacent to south-west property boundary of 59 Lake Avenue Lane. This berm will aid as a prevention barrier for any overland flow, including the discharged stormwater, from reaching 59 Lake Avenue Lane. Any surface water flowing towards this neighbouring property will reach the berm and either infiltrate into the soils and/or be redirected from the berm.

4 QUANTITY AND QUALITY CONTROL

Quantity Control

Quinte Conservation previously provided comment that quantity control is not required if safe conveyance to East Lake can be demonstrated.

Quality Control

Previous correspondence from Prince Edward County Engineering provided that Total Suspended Solids (TSS) would require an enhanced level of protection with an average of 80% removal before entering East Lake. Quinte Conservation has previously provided that lot level controls and best management practices are normally sufficient.

This level of protection will be achieved through the use of the following features. The development area provides intermittent grassed areas on individual lots and there is also a grassed strip ahead of the proposed swale which receives water from the drainage area. These areas are estimated to remove 15-20% of TSS from the runoff. The swale and road grading re-directs the stormwater into two (2) storm grates where catch basin shields will be provided and help promote sediment settlement within the sumps. These shields provide up to 50% of TSS retainment and with portions of the catchment area feeding each catch basin, the runoff through each catch basin is only a portion of the overall runoff from the drainage area.

Subsurface piping then transfers the stormwater through a maintenance hole with a sump adjacent to the south corner of lot 59 which receives the full flow of stormwater and then into one final maintenance hole with a sump also receiving the full flow of stormwater. Additional settlement will occur in both maintenance hole sumps. After the final maintenance hole and sump, the stormwater flows will outlet to a constructed bioswale, approximately 2m in width and 3m in length. This bioswale will provide the final 15-20% of TSS removal through stone, piping, geotextile filter fabric, native grasses, sedges and plantings ahead of the final receiver, East Lake.

These proposed works will provide the desired outcomes of re-directing overland stormwater flows away from the four (4) adjacent neighbouring properties, achieve significantly improved stormwater quality versus the existing measures in place and provide safe conveyance to East Lake.

5 MAINTENANCE

Sediment and debris will accumulate over time and with use of the system. It is important that cleaning and removal of the sediment accumulation from the swale, storm grates / catch basins, maintenance holes, and the bioswale is undertaken on a regular basis. If not properly maintained and serviced, the quality of the stormwater discharged may, over time, become unacceptable to the municipality and conservation authority.

6 CONCLUSION

The proposed stormwater management and mitigation strategies, as described in this brief are a significant improvement and will provide the desired outcomes of re-directing overland stormwater flows away from the four (4) adjacent neighbouring properties, achieve significantly improved stormwater quality versus the existing measures in place and safe conveyance to East Lake.

Please contact our office directly should you have any queries regarding this report.

Sincerely,

GUNNELL ENGINEERING LTD.

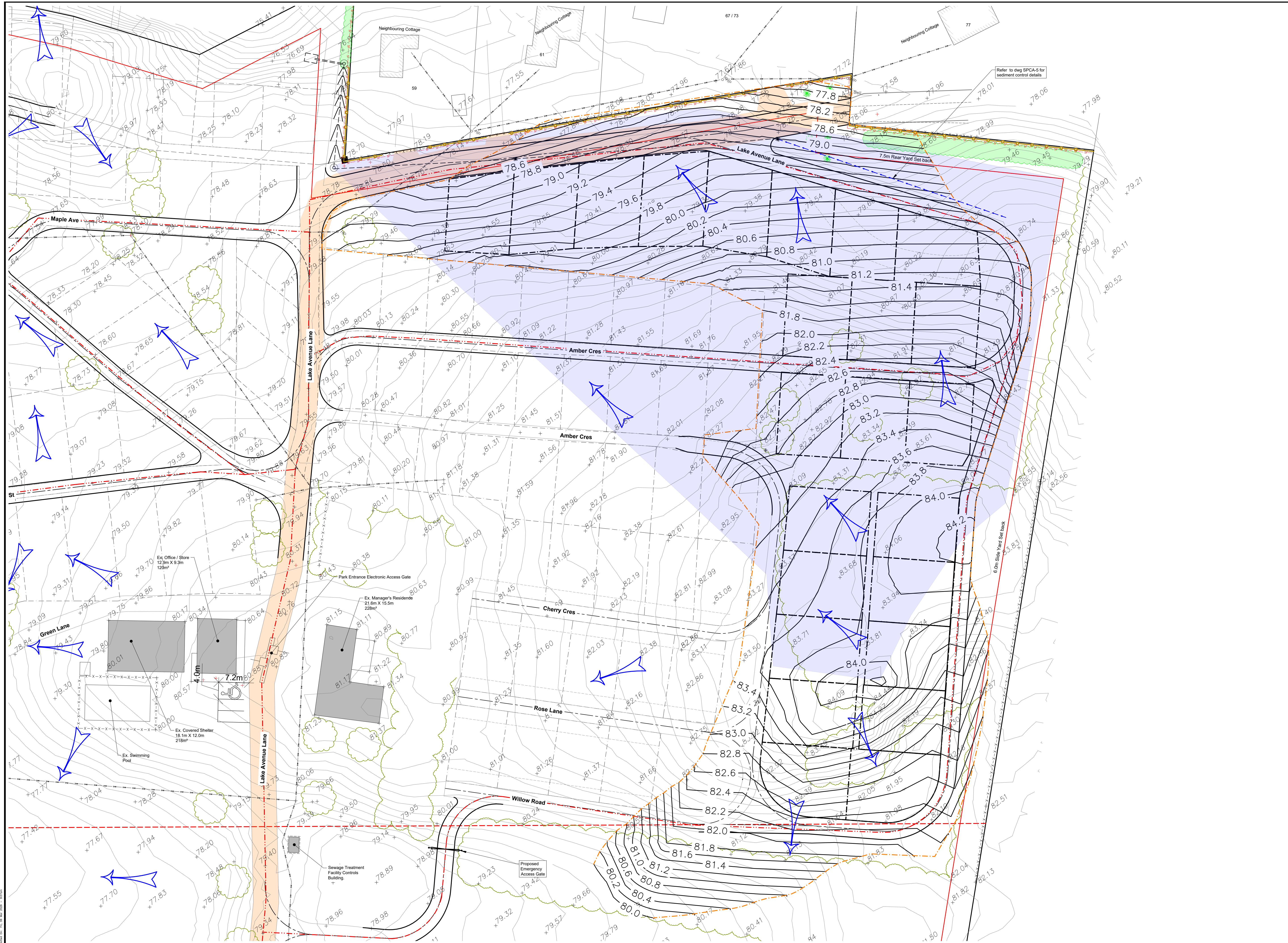
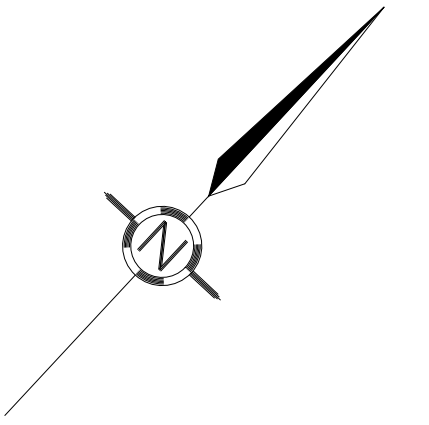
Brock Cross, Dipl. ET
Senior Project Manager

Dominic Bauer, P.Eng
Project Engineer

APPENDIX A

GUNNELL ENGINEERING DRAWINGS

SPCA-4.1, SPCA-4.2, SPCA-5, REVISION #10 FEBRUARY 19, 2026

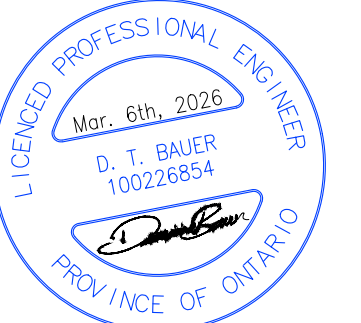


LEGEND

- - - Existing Contour Interval
- + Existing Spot Elevation
- - - Proposed Contour Interval 0.2m
- - - Proposed Contour Label
- Surface Water Flow Direction
- Drainage Area
- - - Proposed Silt Fence OPSD 219.130 (See drawing SPCA 5)

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way	JR
Rev. 3	30-OCT-2023	Revised Right of Way (Cottages)	JR
Rev. 4	17-JUN-2024	Revised Right of Way (Cottages)	JR
Rev. 5	10-SEP-2024	New Site Dimensions	JR
Rev. 6	24-FEB-2025	Sediment Control Added	JR
Rev. 7	12-APR-2025	PEC Comments Addressed	JR
Rev. 8	12-JUN-2025	Update Drainage Area	JR
Rev. 9	11-NOV-2025	Update Drainage Catchment Design	JR
Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:

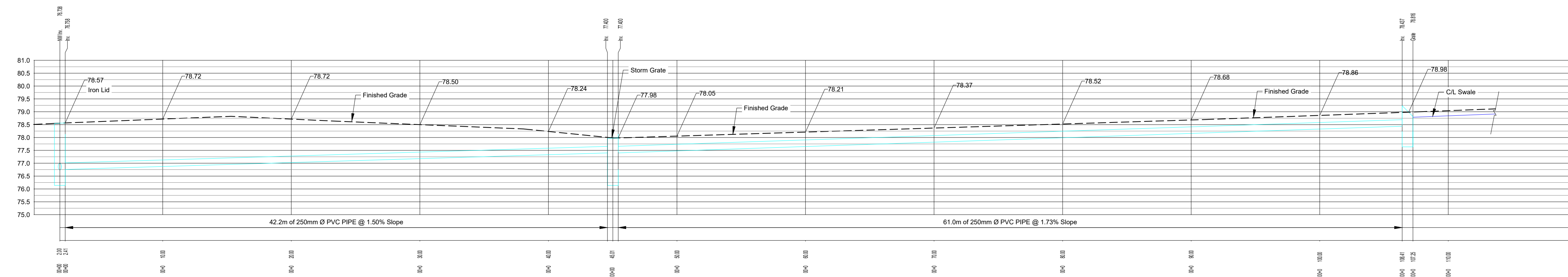
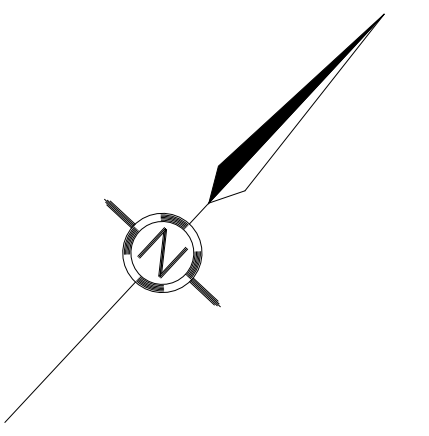


Bloom Resorts Sandbanks
37 - 38 Lake Avenue Lane
Cherry Valley, Prince Edward County

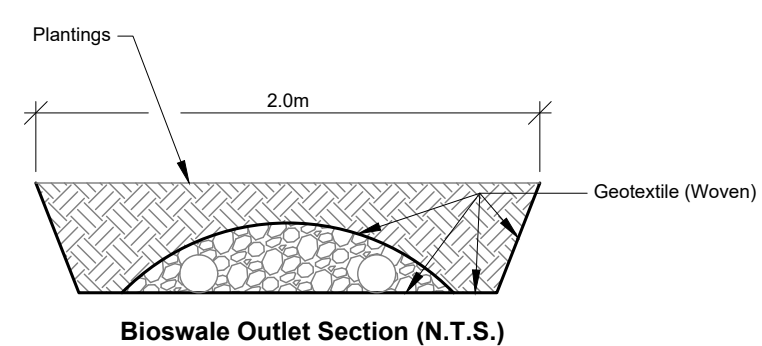
Part Site Plan:
Proposed Grading Plan

Scale: 1:400	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

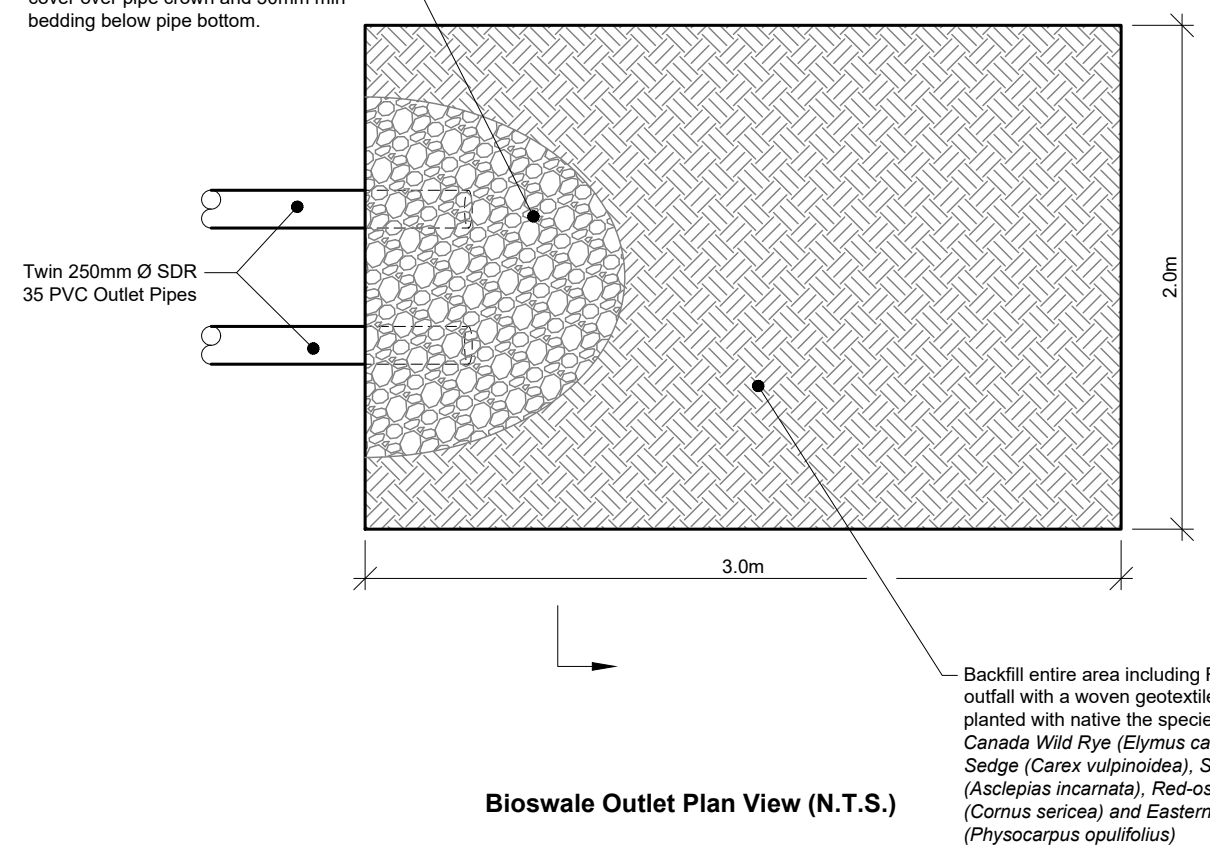
D3858 SPCA-4-2



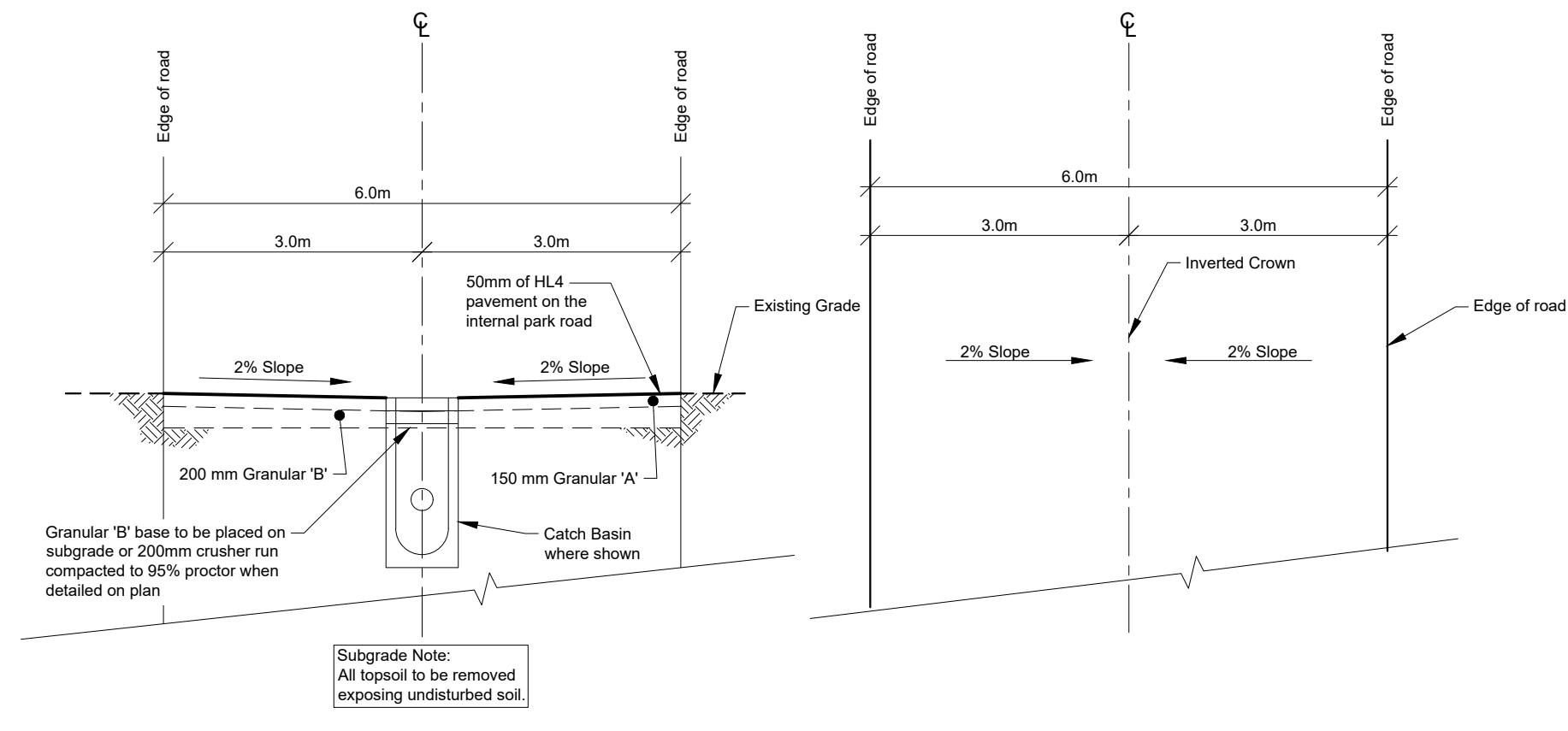
*Storm Pipe Note:
 Proposed swales to discharge
 into 250 mm Ø storm pipe
 through surface grate connection
 OPSD 705.040



Final Effluent outlet into Rip-Rap
 over Filter cloth to protect against
 erosion.
 Note: Rip-Rap to be 50mm minimum
 cover over pipe crown and 50mm min
 bedding below pipe bottom.

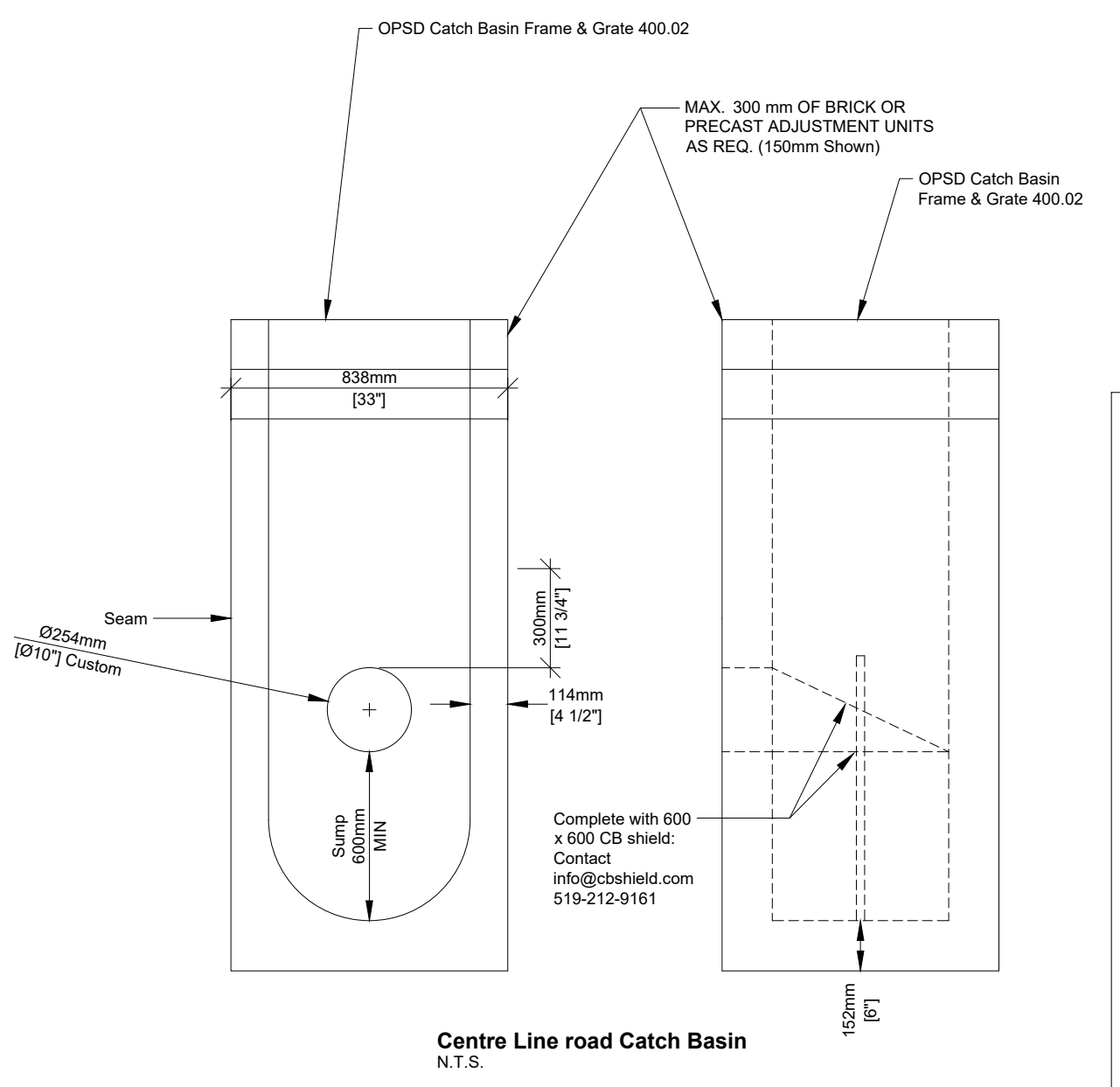


Backfill entire area including Rip-Rap at the
 outlet with a woven geotextile under triple mix
 planted with native the species:
 Canada Wild Rye (*Elymus canadensis*), Fox
 Sedge (*Carex vulpinoidea*), Swamp Milkweed
 (*Asclepias incarnata*), Red-osier Dogwood
 (*Cornus sericea*) and Eastern Ninebark
 (*Physocarpus opulifolius*)

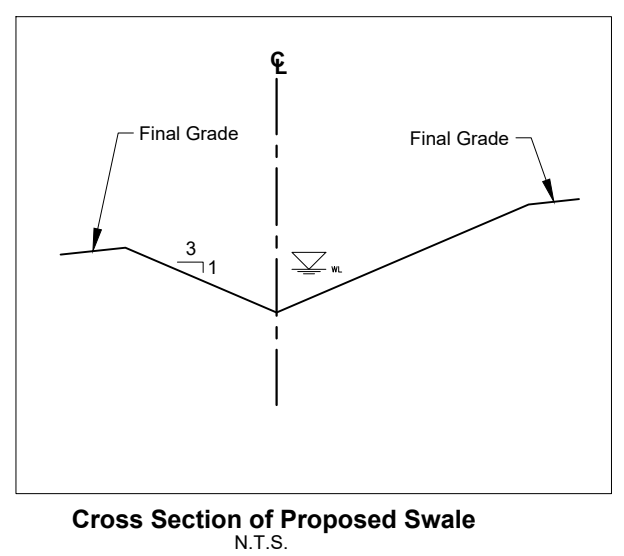


TYPICAL TWO INVERTED PAVED LANE SECTION
 Scale N.T.S.

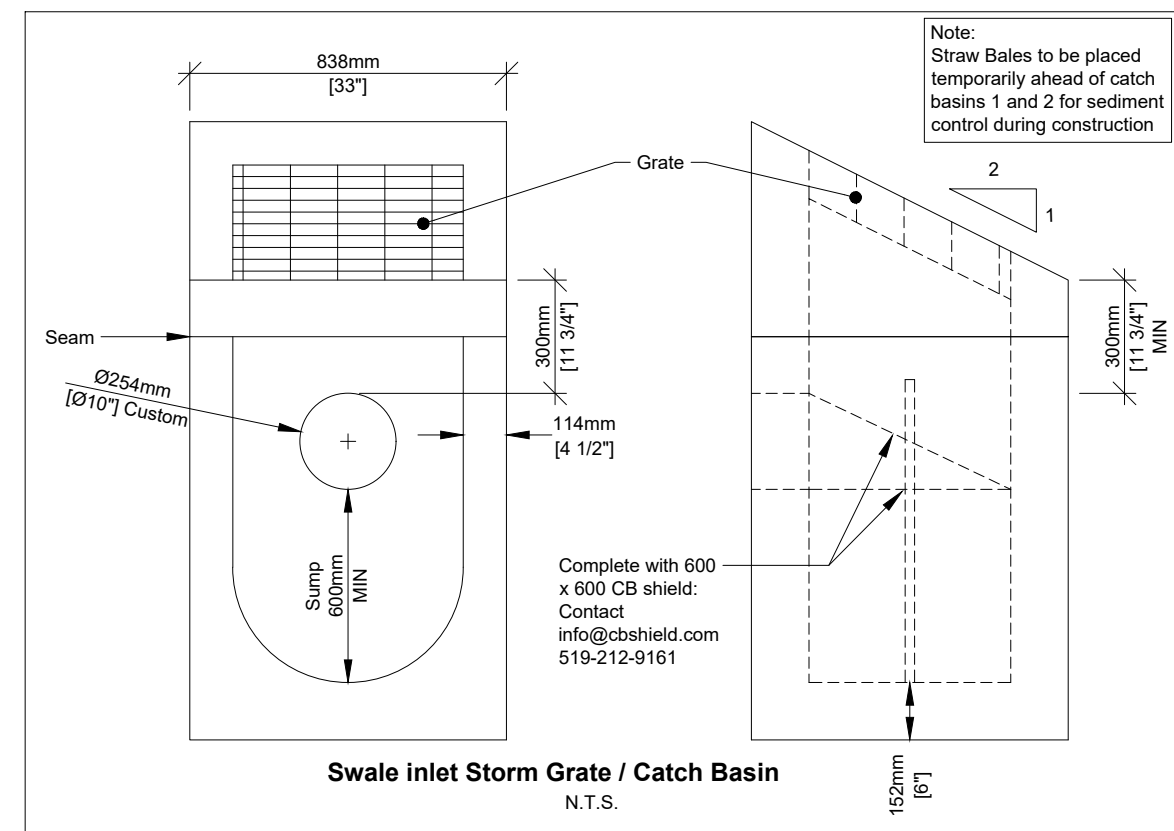
Subgrade Note:
 All topsoil to be removed
 exposing undisturbed soil.



Centre Line road Catch Basin
 N.T.S.



Cross Section of Proposed Swale
 N.T.S.



Swale Inlet Storm Grate / Catch Basin
 N.T.S.

Rev. No.	Date	Description	CAD
Rev. 1	11-FEB-2022	Storm drainage updates from review comments	JR
Rev. 2	30-AUG-2023	Revised Right of Way (Cottages)	JR
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Rev. 10	19-FEB-2026	New Revised Drainage Plan	JR

Engineer's Stamp:



Bloom Resorts Sandbanks
 37 - 38 Lake Avenue Lane
 Cherry Valley, Prince Edward County

Proposed Stormwater Drainage Works

Scale: 1:200	Designed By: EG
Date: 21-JUN-2021	Drawn By: JR
Project No.:	Checked By: BC
	Drawing No.:

D3858 SPCA-5

APPENDIX B

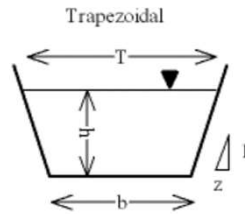
SWALE CALCULATIONS

Trapezoidal Channel

Flow Area

$$A = h(b+T)/2$$

h =	0.2	m	depth of water
b =	0.01	m	width of base
T =	1.4	m	width of to water level
A =	0.141	m ²	Cross Sectional Area



Wetted Perimeter

$$P = b + 2(((T - b)/2)^2 + h^2)^{1/2}$$

P = 1.456409 m

Hydraulic Radius

$$Rh = (h(b+T)/2) / (b + 2(((T - b)/2)^2 + h^2)^{1/2})$$

Rh = 0.096813 m

Manning's Formula and Gravity Flow

(Calculate Cross Sectional Average Velocity Flow in Open Channels

$$v = (kn/n) * Rh^{2/3} S^{1/2}$$

kn =	1.0	For SI Units (1.486 for Imperial Units)
n =	0.030	Manning's Roughness Coefficient (Use Table to the right →)
Rh =	0.096813	m Hydraulic Radius (Use based on type of channel you have, calculated above ↑)
S =	0.026	m/m Slope or gradient
v =	1.133242	m/s Cross-Sectional Mean Velocity

Volume of Flow in the Channel can be Calculated as Follows:

$$q = A * v$$

q = 0.159787 m³/s Channel Flow Volume
159.7871 L/s

Manning's Roughness Coefficients vs. Channel Type

Surface Material	Manning's Roughness Coefficient -n-
Asbestos cement	0.011
Asphalt	0.016
Brass	0.011
Brick and cement mortar sewers	0.015
Canvas	0.012
Cast or Ductile iron, new	0.012
Clay tile	0.014
Concrete - steel forms	0.011
Concrete (Cement) - finished	0.012
Concrete - wooden forms	0.015
Concrete - centrifugally spun	0.013
Copper	0.011
Corrugated metal	0.022
Earth, smooth	0.018
Earth channel - clean	0.022
Earth channel - gravelly	0.025
Earth channel - weedy	0.03
Earth channel - stony, cobbles	0.035
Floodplains - pasture, farmland	0.035
Floodplains - light brush	0.05
Floodplains - heavy brush	0.075
Floodplains - trees	0.15
Galvanized iron	0.016
Glass	0.01
Gravel, firm	0.023
Lead	0.011
Masonry	0.025
Metal - corrugated	0.022
Natural streams - clean and straight	0.03
Natural streams - major rivers	0.035
Natural streams - sluggish with deep pools	0.04
Natural channels, very poor condition	0.06
Plastic	0.009
Polyethylene PE - Corrugated with smooth inner walls	0.009 - 0.015
Polyethylene PE - Corrugated with corrugated inner walls	0.018 - 0.025
Polyvinyl Chloride PVC - with smooth inner walls	0.009 - 0.011
Rubble Masonry	0.017 - 0.022
Steel - Coal-tar enamel	0.01
Steel - smooth	0.012
Steel - New unlined	0.011
Steel - Riveted	0.019
Vitrified clay sewer pipe	0.013 - 0.015
Wood - planed	0.012
Wood - unplaned	0.013
Wood stave pipe, small diameter	0.011 - 0.012
Wood stave pipe, large diameter	0.012 - 0.013

APPENDIX C

RUNOFF COEFFICIENT CALCULATIONS

Pre-Development Conditions

Areas	Units	m ²	C	Ac	%
Total Drainage Basin Area		10057	Various	#N/A	1
Road Area		1090	0.8	872	0.108382
Trailer Unit Area (37.16m ² /unit)	8	297.28	0.95	282.416	0.02956
Gravel Driveway + Trailer Pad		578.4	0.5	289.2	0.057512
Gravel Driveway + Trailer Pad less Trailer Unit		281.12	0.5	140.56	0.027953
Grassed Area		8388.6	0.25	2097.15	0.834106
Check		10057			Average C 0.33729

37.16 Trailer Unit Area (37.16m²/unit)
72.3 m² gravel pad area (driveway + trailer pad):

Post-Development Conditions

Areas		m ²	C	Ac	%
Total Drainage Basin Area		10057	Various	#N/A	1
Road Area		1591	0.8	1272.8	0.158198
Trailer Unit Area (37.16m ² /unit)	24.5	910.42	0.95	864.899	0.090526
Gravel Driveway + Trailer Pad		1771.35	0.5	885.675	0.176131
Gravel Driveway + Trailer Pad less Trailer Unit		860.93	0.5	430.465	0.085605
Grassed Area		6694.65	0.25	1673.663	0.665671
Check		10057			Average C 0.421779

Pre-Development Conditions

time of concentration (tc) Kirpich Equation
 $tc = 0.0078 * L^{(0.77)} * S^{-(-0.385)}$
 tc = time of concentration, min
 L = length of travel (ft)
 S = slope of the flow path from the most remote part of the basin to the calculation point divided by the horizontal distance between the two points, ft/ft

	m	ft
Length	119.5	392.0604
Slope	5.3	
tc =	2.399552	

*Note tc cannot be less than 5 minutes, therefore:
 Reference Airport Drainage, Federal Aviation Administration, 1965 - Figure for Overland Time of Flow chart which was used based on the average C, distance, and slope.
 tc = 18mins estimated based on chart using C = 0.34, distance = 392ft, and slope of 5.3%

Post-Development Conditions

time of concentration (tc) Kirpich Equation
 $tc = 0.0078 * L^{(0.77)} * S^{-(-0.385)}$
 tc = time of concentration, min
 L = length of travel (ft)
 S = slope of the flow path from the most remote part of the basin to the calculation point divided by the horizontal distance between the two points, ft/ft

	m	ft
Length	119.5	392.0604
Slope	4.9	
tc =	2.473152	

*Note tc cannot be less than 5 minutes, therefore:
 Reference Airport Drainage, Federal Aviation Administration, 1965 - Figure for Overland Time of Flow chart which was used based on the average C, distance, and slope.
 tc = 15mins estimated based on chart using C = 0.42, distance = 392ft, and slope of 4.9%

Pre-Development Conditions

Rational Formula
 $Q = CIA$
 Q = Max rate of runoff, (m3/hr or cfs)
 C = runoff coefficient
 I = avg rainfall intensity for a duration equal to the time of concentration, in (m/hr or in./hr)
 A = Drainage area contributing to the design location, (m2 or acres)

C =	0.33729		
I =	58	0.058	2.2834658
A =	10057	2.485134985	
Q =	196.7433	1.914026826	
	0.054651	0.054199176	

Post-Development Conditions

Rational Formula
 $Q = CIA$
 Q = Max rate of runoff, (m3/hr or cfs)
 C = runoff coefficient
 I = avg rainfall intensity for a duration equal to the time of concentration, in (m/hr or in./hr)
 A = Drainage area contributing to the design location, (m2 or acres)

C =	0.421779		
I =	67	0.067	2.6377967
A =	10057	2.485134985	
Q =	284.2024	2.764876611	
	0.078945	0.078292546	

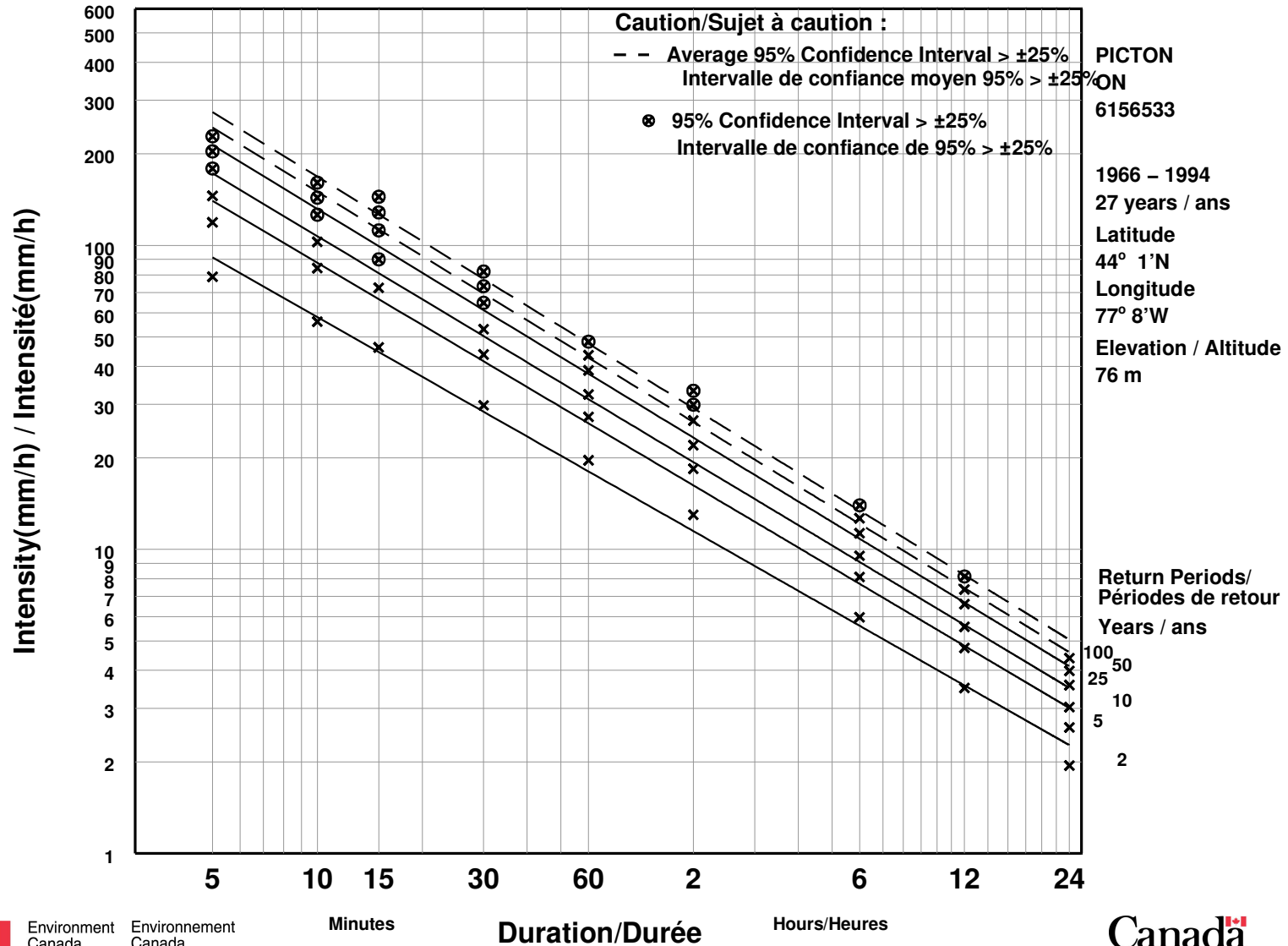
APPENDIX D

**SHORT DURATION RAINFALL INTENSITY – DURATION – FREQUENCY
DATA FOR PICTON ONTARIO, DATED OCTOBER 31, 2022**

Short Duration Rainfall Intensity–Duration–Frequency Data

2022/10/31

Données sur l'intensité, la durée et la fréquence des chutes de pluie de courte durée



APPENDIX E

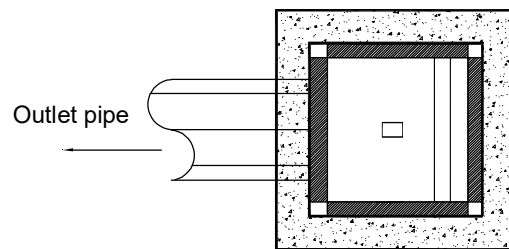
CATCH BASIN SHIELD DETAIL

Notes

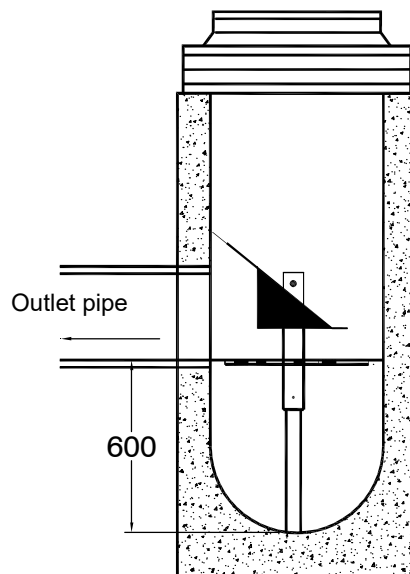
1 Recommended depth t/g - invert = 1.2m

Maximum depth t/g - invert = 2.4m

1. CB Shield to be installed in non frozen conditions.
2. The frame and cover should be well aligned with the catchbasin.
3. The sump must be clean before installation
4. The grate is at the same elevation as pipe invert.
5. Pipes must be cut flush with inside walls



Top view



Profile view



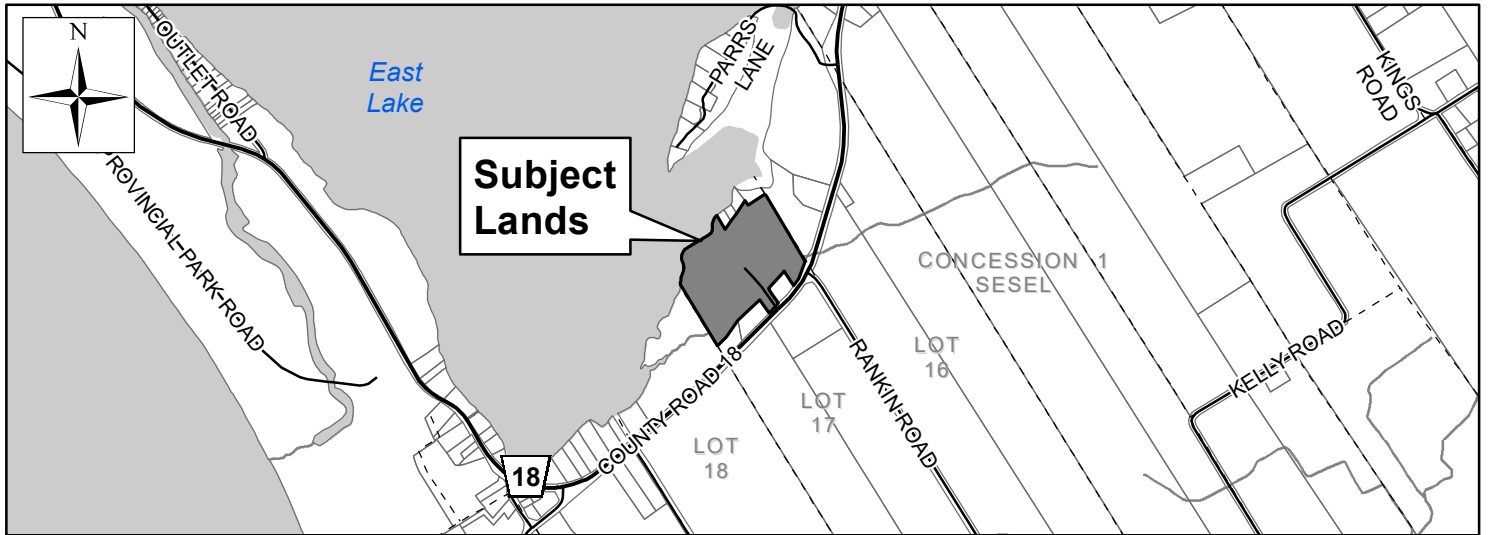
600 x 600 CB
CB Shield (600mm Sump)

APPENDIX F


Prince Edward County Notice of Decision Consent File No.: B29-22

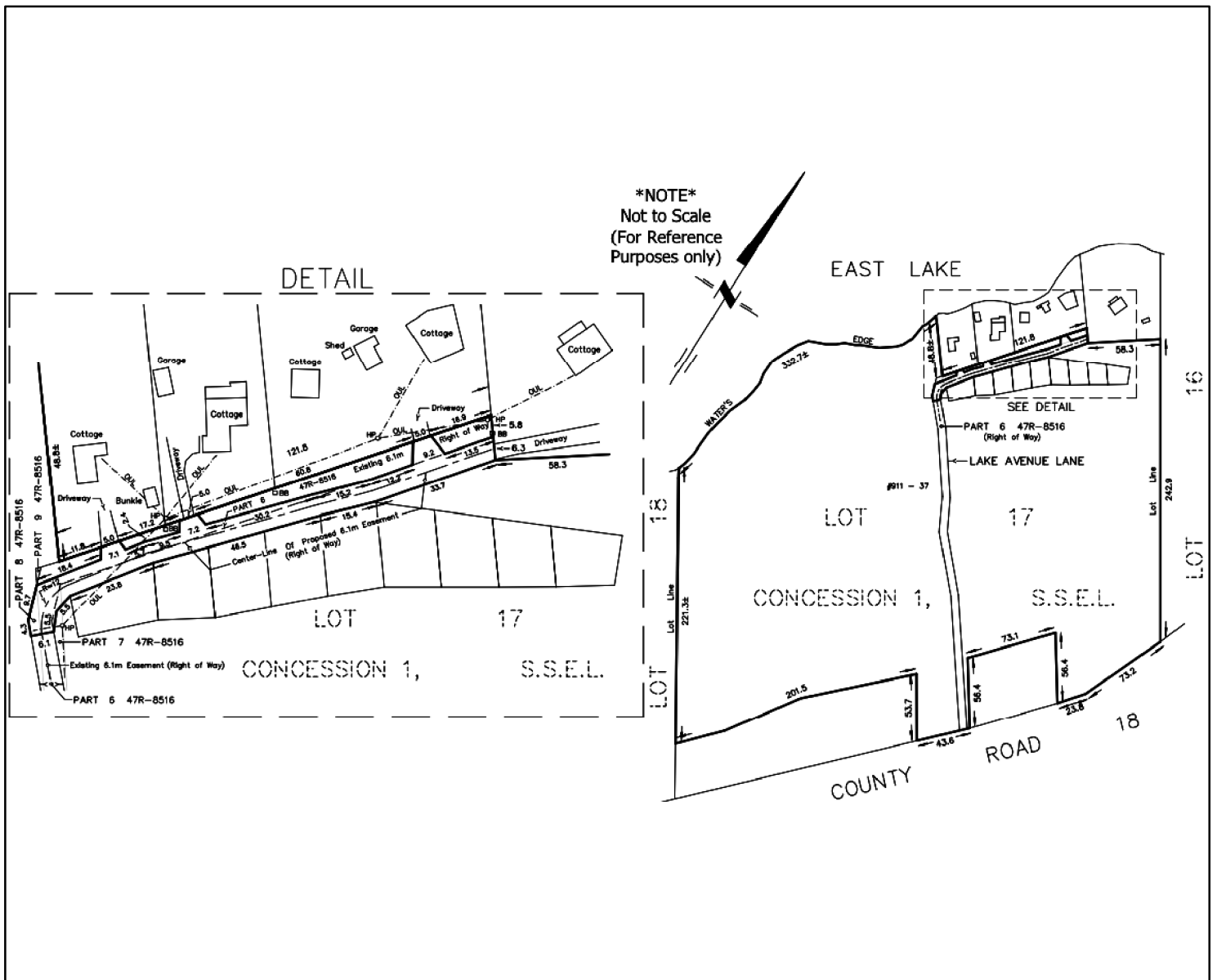
CORPORATION OF THE COUNTY OF PRINCE EDWARD
WARD OF ATHOL

KEY MAP File No. B29-22



SKETCH

 Area Subject to Application



*Distances shown are in Meters

CONDITIONS OF PROVISIONAL CONSENT

Owner:	Castle Amalco Real Estate Holdings ULC (Lake Avenue RV Resort)
Consent File No.:	B29-22
Legal Address:	Part Lot 17 Concession 1 South Side of East Lake Parts 1, 2, 3 & 4 47R2627 together with PE88945 subject to PE133655, Ward of Athol
Civic Address:	37-38 Lake Avenue Lane
Date of Decision:	June 25, 2024
Date of Mailing of Decision:	July 9, 2024
Last Appeal Day:	July 29, 2024

Conditions:

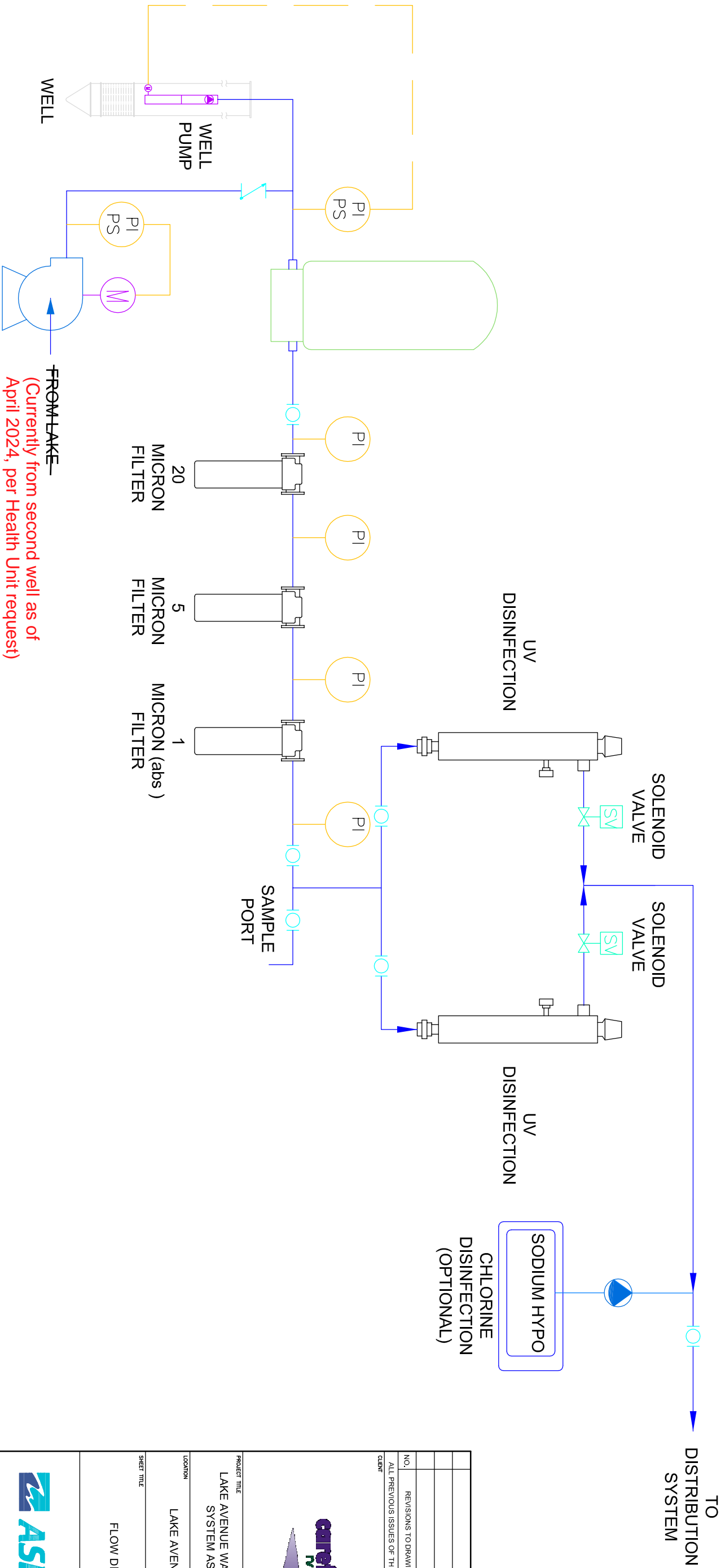
1. THAT each condition shall be fulfilled no later than two years from the date of mailing of the decision;
2. The applicant provides a Right of Way for access purposes of the lands owned by Castle Amalco Inc. (Roll No. 135040801501500) in favour of the lands owned by John & Anne Wolff (Roll No. 135040801501700) and Wendy-Ann Tryhorn (Roll No. 135040801501600) and Henry Tryhorn (Roll No. 135040801501800) and Kathrin Schaecke & Robert Juricevic (Roll No. 135040801501501) to be registered on title;
3. For Technical Consent File Nos. B29-22 the owner shall provide two (2) white prints of a deposited plan of reference of the lands displaying the right of ways(s) which conform substantially to the application as approved to the Municipality's Development Services and a digital copy of the final survey also be provided in a suitable format (preferably .dwg) to the Municipality's GIS Department at gis@pecounty.on.ca referencing the Development Services file number, the name of the client, and the registered plan number (if appropriate) in the subject line;
4. The owner applies for and obtains an entrance permit and civic address to each of the cottages along Lake Avenue Lane;
5. The owner shall enter into and execute a Site Plan Control Agreement with the municipality to address, among other things:
 - a. The establishment of buffering (i.e. fencing and/or vegetation) between the subject lands and neighbouring waterfront properties;
 - b. Grading and drainage to demonstrate that stormwater resulting from redevelopment shall be conveyed to a legal drainage outlet;
6. That the laneway benefitting the properties located at: 59 Lake Avenue Lane, 61 Lake Avenue Lane, 67-73 Lake Avenue Lane & 77 Lake Avenue Lane be reconstructed in accordance with the Site Plan as approved by the municipality through a Site Plan Control Agreement which shall be established in advance of the laneway's reconstruction;
7. The owner shall apply for and obtain a permit from Quinte Conservation for any site alteration required to construct the laneway; alternatively, the proponent shall provide written confirmation from staff from Quinte Conservation stating that a permit shall not be required to permit site alteration required to construct the laneway; and
8. That the width of the right-of-way (ROW) be increased from 6.1 metres to 7.0 metres and the laneway be shifted to accommodate the stormwater management infrastructure.

Notes:

1. If within 20 days of giving notice of the decision no notice of appeal is received, the decision of the Council is final and binding.
2. If there is no appeal to the OLT and all of the conditions associated with the provisionally approved Consent are not fulfilled in two years from the date of the mailing of the decision (July 9, 2024) the Consent is deemed to be refused (Section 53(41) of the *Planning Act*).
3. In accordance with Section 53(43) of the *Planning Act*, as amended, you have a maximum of 2 years from the date of the consent certificate to register your deed, otherwise the consent will lapse.
4. Please note that it is the Owner's responsibility to follow up with the County to ensure that all necessary conditions have been met prior to the consent being finalized and the deed being stamped.
5. The County requires that final deeds be provided a minimum of three (3) working days prior to stamping.

APPENDIX G

ASI Water Treatment System Flow Diagram



FROM LAKE
 (Currently from second well as of
 April 2024, per Health Unit request)

PRODUCT TITLE LAKE AVENUE WATER TREATMENT SYSTEM ASSESSMENT	ENGINEER'S STAMP
LOCATION LAKE AVENUE RESORT	ENGINEER'S STAMP
SHEET TITLE FLOW DIAGRAM	ENGINEER'S STAMP
DESIGNED JL SCALE N/A DIMENSION N/A ASI PROJECT No.	DRAWN DB DATE 03/02/2015 DWG. No. FD01 CHECKED DM REV. 00

NO.	REVISIONS TO DRAWING	BY	Y/M/D	APP
ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED				

APPENDIX H

Sanitary Sewer Design Sheets

APPENDIX I

Water Well Record No. 5300652

TEM 18 Z 323230 E
 9 R 4862372 N
 Elev. 99 R 0263
 Basin ED. ST. LAKE SOUTH SIDE
 Con I
 10 + 17



30N14G

53 No 652

GROUND WATER BOARD
 SEP 3 1957
 ONTARIO WATER
 RESOURCES BOARD

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District Prince Edward Township, Village, Town or City Athol
 in Village, Town or City
 Address Cherry Valley R.P. 1
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter (s) <u>6"</u>	Static level <u>16</u>
Length (s) <u>15</u>	Pumping rate <u>720 GPH</u>
Type of screen	Pumping level <u>38</u>
Length of screen	Duration of test <u>15 min</u>

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Loam</u>	<u>0</u>	<u>15'</u>	<u>40'</u>	<u>24'</u>	<u>fresh</u>
<u>Gray limestone</u>	<u>15"</u>	<u>45"</u>			

For what purpose(s) is the water to be used? house
 Is water clear or cloudy? clear
 Is well on upland, in valley, or on hillside? Valley
 Drilling firm Harold Potator
 Address Bloomfield
 Name of Driller Ralph Potator
 Address Bloomfield
 Licence Number 205

I certify that the foregoing statements of fact are true.
 Date Sept 20, 1957 Ralph Potator
 Signature of Licensee

