

Planning Justification Report

Township of Cavan Monaghan Public Works Operation Centre
1470 County Road 10
Part of Lot 12, Concession 8, Cavan Ward
Township of Cavan Monaghan

1.0 Objectives

This Planning Justification Report has been prepared to support a zoning by-law amendment application (ZBA) for the Township of Cavan Monaghan Public Works Operation Centre at 1470 County Road 10 in part of Lot 12, Concession 8 of the Cavan Ward. The ZBA application is required to permit the construction of a new public works garage on the property.

This Report provides a description of the property, outlines the planned development, and provides justification as to how the proposed zoning by-law amendment deals with the policy framework within the Provincial Policy Statement 2020, A Place to Grow: Growth Plan for the Greater Golden Horseshoe, the Peterborough County Official Plan, and the Township of Cavan Monaghan Official Plan.

2.0 Proposal Summary

Cavan Monaghan Township Public Works needs a new public works garage. The existing garage is in bad shape and the roof has started to leak. Storage and movement of trucks inside the garage is challenging given the tight quarters. There are also health and safety issues regarding the connection of plows to the trucks and the loading of materials during the winter months.

Staff explored a number of location options for the new garage. The options included expanding the existing site to the west, sharing space at the Peterborough County Public Works Depot at 1111 County Road 10, purchasing a new site within the Township and sharing space with the Parks Department at the Millbrook Yard at 70 King Street West in Millbrook. As per Public Works Report 2020-22, the most viable option is to use the existing Public Works Operations Centre site.

As proposed, the new Public Works Garage is a 7-bay rectangular building that will be located 9 metres from the northern property line. The design includes 6 bays for parking vehicles and one (1) wash bay. The building will be a steel frame building with steel siding and an interior slab on grade. The site development will also include the installation of water tanks for the provision of an on-site water supply for firefighting purposes, the installation of a stormceptor for stormwater management quality and the refurbishments of the existing fuel tanks and pumps. The existing garage will remain and will be used for storage for the Public Works and Parks and Facilities Departments. The existing entrances to the site will be removed and one (1) new entrance will be constructed in the middle of the property frontage. Existing stockpiles of materials will be relocated on site.

Given that the subject lands are located adjacent to the Cavan Creek Provincially Significant Wetland, a Buffer Enhancement Plan was prepared Cambium in June of 2021. The Plan addresses natural heritage wetland policies.

A complete copy of the Buffer Enhancement Plan is provided as Appendix 1 to this Report.

3.0 Proposed Zoning By-law Amendment

The subject lands are currently zoned Institutional (I), Natural Core (NC) and Natural Linkage (NL) on Map D-2 to By-law No. 2018-58, as amended.

The subject lands are proposed to be rezoned to the Institutional Exception Four (I-4) Zone. The special Institutional (I) Zone is being proposed to implement the findings of the Buffer Enhancement Plan, to recognize the height of the current sand dome, and to recognize the location of the existing frame garage.

The permitted uses in the I-4 Zone will be limited to a municipal public works operation centre. For the purposes of the I-4 Zone, a municipal public works operation centre shall be defined as “land, buildings and structures, owned and operated by a public authority and used for the maintenance, repair, and storage of vehicles, equipment and/or construction materials, fuel storage and accessory office space.”

All of the Institutional (I) Zone standards will apply to the I-4 Zone except for the following:

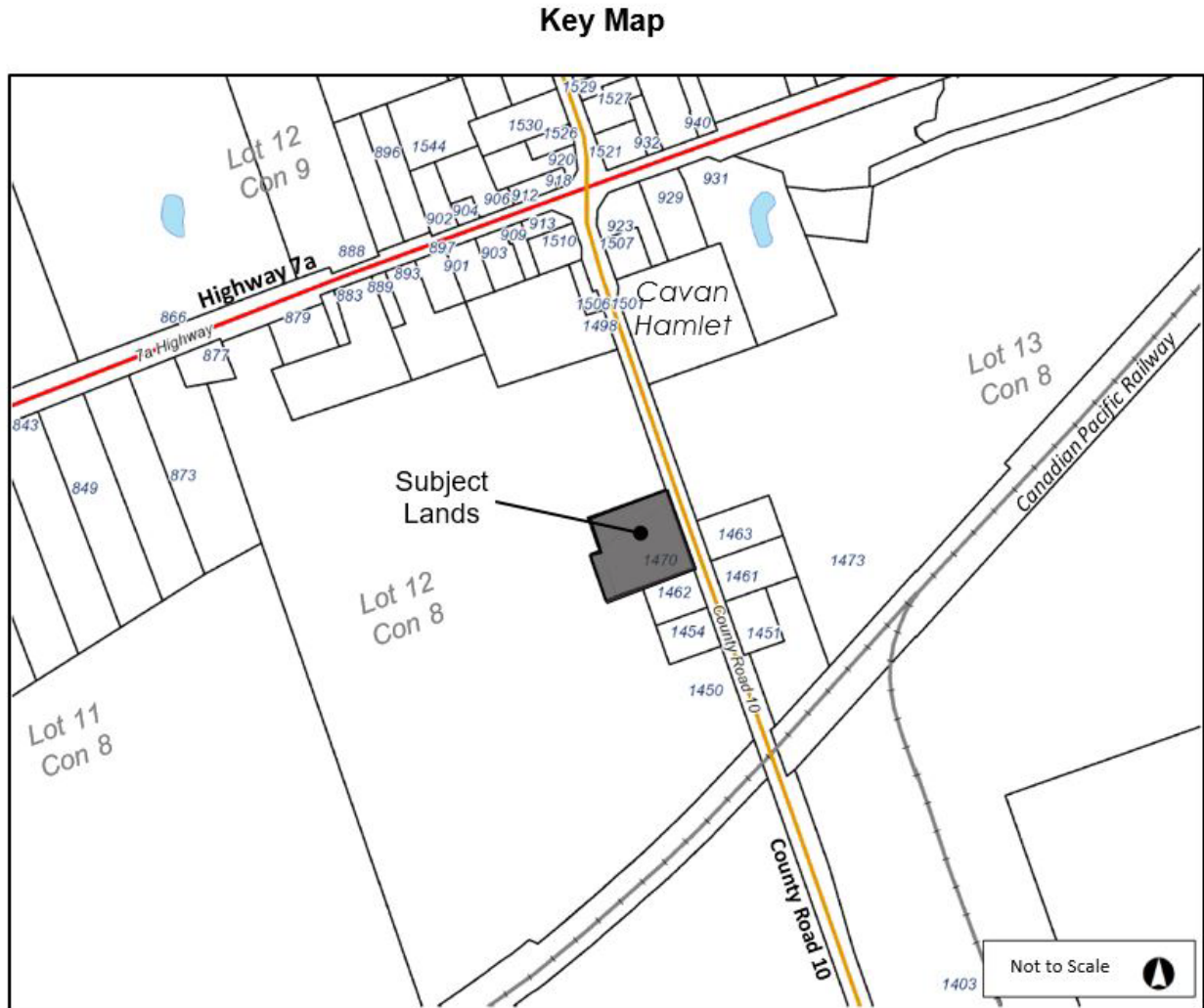
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|----|---|--------|
| a) | Minimum Interior Side Yard (north side only) | 9 m |
| b) | The northern interior side yard shall be enhanced with landscaping as per the June 28, 2021 Buffer Enhancement Plan, prepared by Cambium; | |
| c) | Maximum Height (sand dome only) | 13 m |
| d) | Minimum Interior Side Yard for existing frame garage only | 1.49 m |
| e) | Minimum Rear Yard for existing frame garage only | 1.62 m |

A complete copy of the proposed By-law is provided as Appendix No. 2 to this Report.

4.0 Property Description

The subject property is located in part of Lot 12, Concession 8 of the Cavan Ward and is municipally identified as 1470 County Road 10. The property is located in Cavan Hamlet, approximately 340 metres south of the intersection of Highway 7A and County Road 10 and approximately 1 kilometre north of Highway 115. Currently, two (2) entrances provide access to the property from County Road 10. A key map showing the location of the lands is provided as Figure No. 1 below.

Figure 1: Key Map



The property is owned and used by the Township of Cavan Monaghan as the Public Works Operation Centre. The property is developed with a 4 bay garage, a sand dome, a frame garage, a solar panel, fuel storage and fuel pump areas. There are also outdoor areas for the storage of vehicles, equipment and supplies.

The main garage contains vehicle storage and repair space, office space, a lunchroom and washroom facilities. Private well and septic systems service the building.

The entire property is developed with buildings, parking areas, and outdoor storage. There is little to no greenspace on the property.

5.0 Surrounding Land Uses

The subject property is located within Cavan Hamlet. The land uses in the Hamlet include residential, commercial, recreational, environmental and institutional uses.

Immediately to the north of the property is a portion of the Cavan Creek Provincially Significant Wetland. This area is privately owned together with the agricultural lands to the west of the subject property.

A small row of existing single detached dwellings is located south of the property. Maple Leaf Park, a Township owned property, is located on the east side of County Road 10, directly across from the Operations Centre. The Park is a recreational open space where soccer and baseball activities are played and where children's playground equipment is available.

There are no active livestock operations in the immediate area.

6.0 Policy Framework

Provincial and municipal documents contain policies and regulations related to the development of land in Ontario. These policies include the Provincial Policy Statement (PPS), A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Growth Plan), the County of Peterborough Official Plan, the Township of Cavan Monaghan Official Plan and the Township of Cavan Monaghan Zoning By-law No. 2018-58, as amended.

The following sections outline how the proposed Zoning By-law Amendment conforms to and/or is consistent with the regulatory framework currently in place.

6.1 Provincial Policy Statement, 2020 (PPS)

The Provincial Policy Statement provides policy direction on matters of provincial interest related to land use planning and development. The PPS sets the policy foundation for regulating the development and use of land.

In rural areas, rural settlement areas are the focus of growth and development and their vitality and regeneration must be promoted (S. 1.1.4.2). Cavan Hamlet is one of several rural settlement areas in the Township of Cavan Monaghan where a variety of land uses are permitted and encouraged.

The PPS indicates that rural settlement areas should be supported by using rural infrastructure and public service facilities efficiently (S. 1.1.4.1 e)). In addition, infrastructure and public service facilities are to be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs (S. 1.6.1.). Before consideration is given to developing new infrastructure and public service facilities, the use of existing public service facilities should be optimized and opportunities for adaptive re-use should be considered, wherever feasible (S. 1.6.3).

As per the comments in the Proposal Summary section and information provided in Public Works Report 2020-22, Township Staff investigated a number of alternatives for the Public Works Operation Centre. The use of the existing site was deemed to be the most efficient, cost effective and environmentally sound option. A portion of the subject lands is proposed to be rezoned so that the Township can optimize the use of the existing Operations Centre lands.

The proposed works will improve the existing conditions on site with the implementation of a vegetated buffer between the developed portion of the site and the adjacent provincially significant wetland. In addition, the installation of a stormceptor will improve the quality of stormwater runoff.

Natural features and areas are to be protected for the long term (S. 2.1.1). Development and site alteration are not permitted in significant wetlands (S. 2.1.4). Development and site alteration are not permitted in significant areas of natural and scientific interest (S. 2.1.5 e) unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. Development and site alteration are not permitted on adjacent lands to the natural heritage features unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions (S. 2.1.8).

As per the Buffer Enhancement Plan prepared by Cambium, the Cavan Creek Wetland boundary is located at the base of a steep slope along the northern and western property boundaries of the subject property. The adjacent lands have already been disturbed with the placement of historical fill on site. Ground cover is sparse and consists of pioneer species that take advantage of disturbed areas. Surface soils are variable due to the historical fill and aggregate stockpiles.

With the proposed development plan, the buffer enhancement will provide a visual and physical buffer between the Public Works garage and the adjacent Cavan Creek Wetland. The buffer will act as a barrier to erosion and sedimentation resulting from potential runoff from the Operations Centre. In addition, the ecological value of the buffer area will be improved with the addition of foraging and shelter opportunities for wildlife.

The proposed Zoning By-law Amendment is consistent with the PPS.

6.2 A Place to Grow - Growth Plan for the Greater Golden Horseshoe (2020)

A Place to Grow is the Ontario government's initiative to plan for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life.

Public service facilities in rural settlements should be co-located and integrated in community hubs, and priority should be given to maintain and adapting existing public service facilities in community hubs to meet the needs of the community where feasible. (S. 2.2.9 #2).

Public service facilities should also be co-located in community hubs and integrated to promote cost-effectiveness (S. 3.2.8 #2). Priority should be given to maintaining and adapting existing public service facilities and spaces as community hubs to meet the needs of the community and optimize the long-term viability of public investments (S. 3.2.8 #3).

The site is located in a rural hamlet that is centrally located within the Township of Cavan Monaghan. The proposed improvements to the Public Works Operation Centre maintain, adapt and improve an existing public service while meeting the longer-term needs of the Community. The site improvements will provide both the Public Works and Parks and Facilities Departments with additional space to store, repair and maintain existing vehicles, equipment, and supplies.

The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017. The Cavan Operations Centre lands have been included in the Cavan Hamlet settlement area since the Township of Cavan Monaghan Official Plan was approved in January of 2015. The Policies for Protecting What is Valuable (S. 4.2) do not apply to this application.

The proposed Zoning By-law Amendment does not conflict with the policies of the Growth Plan.

6.3 Peterborough County Official Plan

The County Official Plan provides direction and guidance to the Township of Cavan Monaghan in policy planning and physical planning on a very broad basis. The Plan sets out the general direction for planning and development in Peterborough County with strategic goals, objectives and policies.

The Cavan Monaghan Public Works Operation Centre is located on lands within the Hamlet of Cavan. One of the objectives of the Hamlet designation policies is to promote the efficient utilization of existing services and facilities and reduce the need for new infrastructure development, where possible. (4.2.2).

By utilizing the existing Public Works Operation Centre site, the Township is planning to make the most efficient use of the existing resources available to the Township. No new property is required and no new potentially incompatible land use is being introduced in an area. The existing Operations Centre has been located on the property for decades and has functioned well for the Township. The proposed ZBA merely permits the construction of an additional building on site. The land use is not changing.

With the addition of the new building and infrastructure, additional protections for life and building safety are provided – i.e. firefighting water supply. Enhancements to the wetland are provided with the implementation of the vegetative buffer between the proposed building and the wetland boundary. A stormceptor is being installed to improve the stormwater runoff quality.

Section 5.5 speaks to Land Use Compatibility. The County wants to ensure that new land uses and new developments are compatible with existing built form. The protection of existing sensitive land uses from impacts of new industrial, transportation or utility uses is important. In this regard, measures such as land use separation, buffers and intervening land uses must be provided where required between incompatible land uses.

The site plan for the Operations Centre project indicates that a landscaped buffer between the adjacent residential land use and the Operations Centre property is provided. The new works garage is being constructed at the north end of the site – away from the adjacent residential land uses to the south. The Cavan Creek provincially significant wetland to the north provides a natural buffer between the Operations Centre and the residential land uses to the north. The proposed buffer enhancement plan will establish vegetation to provide a visual and physical buffer between the Operations Centre and the Wetland. The buffer will also act as a barrier to erosion and sedimentation resulting from runoff from the Operations Centre site.

The existing building is to remain on site to be used for storage. The Township is attempting to be efficient in the utilization of existing facilities and resources.

The Zoning By-law Amendment conforms to the County of Peterborough Official Plan.

6.4 Cavan Monaghan Township Official Plan

The Cavan Monaghan Township Official Plan defines the intent of Township Council regarding the direction of growth and development in the Township.

In accordance with Section 2.2. of the Plan, natural heritage features are to be protected to provide long term and sustainable environmental, economic and social benefits. A continuous natural heritage system is to be identified to provide for the preservation of important ecological functions and features. The northern portion of the subject property is part of the Natural Heritage System identified in the Official Plan because the lands are adjacent to the Cavan Creek Wetland.

The General Development Criteria outlined in Section 3.1 of the Plan apply to all lands within the Township. Prior to development occurring or any zoning by-law amendment is made, the Township must be satisfied that:

- a) Soil and drainage conditions are suitable to permit the proper siting of buildings and other site improvements such as driveways, parking, and accessory structures and meet any applicable requirements of this Plan including Source Water Protection policies;
- b) Suitable arrangements have or can be made for water supply, sewage disposal, storm drainage and all other necessary public services;
- c) No traffic hazards will ensue because of excess traffic generation, or limited sight lines on curves or grades;
- d) The development fronts on a road that is maintained year round and meets standards of design and safety established by the Township or authority having jurisdiction over the road;
- e) The potential impact of the proposed use on adjacent lands and uses has been considered, and adequate mitigation, including design, buffers and setbacks are provided between the proposed use and adjacent uses in accordance with the policies of the Plan;

- f) The Minimum Distance Separation formulae are complied with, if required as outlined in Section 3.27;
- g) There will be no negative impacts on significant natural features or their ecological functions; and,
- h) The potential impact on public health and public safety from water related hazards such as flooding and erosion have been considered.

A Geotechnical Investigation Report for the site was prepared by Cambium to address on-site soil conditions. Site preparation for the construction of the new building and the buffer slope/berm will be completed in accordance with the recommendations of that Report.

The existing sewage disposal system will be decommissioned. A new leaching bed area is proposed to be located at the north end of the site between the new building and County Road 10. A permit from Peterborough Public Health will be required to permit the decommissioning of the existing system and the construction of the new system. The existing well will continue to service the site. The quality of stormwater runoff will be enhanced with the addition of a stormceptor system.

The improvements to the Operation Centre are required to address the existing fleet of vehicles. Additional traffic to the site will be limited to the Parks and Facilities Department vehicles accessing the storage space that will be available in the existing building.

The site is located on County Road 10, a public road maintained year round by the County of Peterborough.

The impact of the new buildings on the adjacent lands has been considered and a Buffer Enhancement Plan prepared to address the Cavan Creek Wetland to the north. An enhanced buffer between the new building and travelled portions of the site are proposed and the recommendations of the Plan are included in the proposed zoning for the site. Existing material stockpiles will be relocated on site, away from the Wetland boundary. A 3 metre wide buffer between the residential use to the south and the subject property is also proposed.

Minimum Distance Separation requirements do not apply to this site.

While the location of the new building, the implementation of a 9 metre setback from the Cavan Creek Wetland, the required buffer landscaping and the relocation of material stockpiles, fewer impacts to the adjacent Cavan Creek Wetland are expected. The new building together with the proposed plantings will also discourage future encroachment into the Wetland.

The subject property is not subject to flooding. Erosion and sedimentation controls will be in place during construction and after construction. The implementation of the buffer landscaping will also help limit erosion issues post construction.

Section 3.7 of the Plan outlines detailed policies for the completion of an Environmental Impact Study (EIS) when such a study is required. A formal EIS has not been prepared for this Application. Given the location and extent of development on the property at this time, a Buffer Enhancement

Plan was prepared by Cambium. The goal of the Plan is to establish vegetation that provides both a visual and physical buffer between the new building and the Wetland. The buffer and vegetation will act as a barrier to erosion and sedimentation resulting from runoff from the Operations Centre. The ecological value of the buffer area should be enhanced with the provision of potential foraging and shelter opportunities for wildlife.

The Buffer Enhancement Plan contains a number of recommendations. The proposed Zoning By-law has been drafted to implement the proposed recommendations. The northern interior side yard (buffer) is required to be enhanced with landscaping as per the June 28, 2021 Buffer Enhancement Plan, prepared by Cambium. Staff are satisfied that the information contained in the Buffer Enhancement Plan, together with the implementation of landscaping requirements in the Zoning By-law satisfactorily addresses the intent of the Official Plan policy with regard to the EIS requirement.

Policies related to the Natural Heritage System and Environmental Constraints are found in Section 3.8 of the Plan. In accordance with this Section, the Township must consult the Conservation Authority where development occurs adjacent to environmental. Otonabee Conservation Staff have been involved in discussions about the proposed development and will be circulated notice of the ZBA in accordance with the standard Planning Act notice requirements.

The subject lands are located within the Cavan Hamlet. Permitted uses in the Hamlet designation include public institutional uses.

Natural Heritage System policies are contained in Section 6 of the Official Plan. Subsection 6.2 states that all existing, expanded or new infrastructure subject to and approved under the Planning Act is permitted within the Natural Heritage System designation subject to the policies of the section and provided it meets one of the following two objectives:

- i) It supports agriculture, recreation and tourism, rural settlement areas, resource use or the rural economic activity that exists and is permitted; or,
- ii) It serves the significant growth and economic development expected in Southern Ontario by providing for the appropriate infrastructure connections among urban growth centres and between these centres and Ontario's borders.

This ZBA will permit the expansion of the existing Operations Centre for the Township of Cavan Monaghan. The Operations Centre is essential infrastructure that supports all activities within the Township and connections between the Township and other jurisdictions.

A portion of the site is designated Natural Core. In accordance with subsection 6.3.2 of the Plan, transportation, infrastructure, and utilities are permitted uses but only if the need for the project has been demonstrated and there is no reasonable alternative. As discussed in previous sections of this Report, Township Staff have demonstrated the need for a new Public Works Department garage. A number of locations were investigated and the current Public Works Operation Centre site was deemed to be the best alternative.

Subsections 6.3.3 and 6.7.1 g) of the Plan require the preparation of an Environmental Impact Study (EIS) or natural heritage evaluation (NHE) to identify planning, design, and construction practices that ensure that no buildings or other site alterations will impede the movement of plants and animals among Key Natural Heritage Features, Hydrologically Sensitive Features and adjacent lands. The study must also demonstrate no adverse impacts on the features and functions. The site subject to the ZBA application is home to the Township's Public Works Operation Centre. Fill has been placed on site, buildings erected, vehicles stored and material stockpiled on land adjacent to the Cavan Creek Wetland for decades.

As previously indicated, an EIS or NHE has not been prepared for this Application. Impacts to the Wetland have already occurred. To identify ways to improve the existing situation, a Buffer Enhancement Plan was prepared to identify and recommend measures to provide a net benefit to the Wetland. The 9 metre wide setback for the new building together with the buffer enhancements recommended in the Report are included in the proposed Zoning for the property.

General Development Criteria for lands within the Natural Heritage System are included in subsection 6.7.1 of the Plan. The subject lands are not part of the Cavan Creek provincially significant wetland; the site is, however, located immediately adjacent to the Wetland and within the 30 metre minimum vegetation protection zone. Development and site alteration are generally prohibited within Key Natural Heritage Features and Hydrologically Sensitive Features and their related minimum vegetation protection zones (s.s. 6.7.1. e). Transportation, infrastructures and utility uses may, however, be permitted if the need for the project has been demonstrated. As discussed previously in this Report, Township Staff have demonstrated the need for a new Public Works Department garage at this location. The development of the new building, the increased setback from the wetland, the relocation of material stockpiles away from the property boundary and the proposed buffer landscaping buffer are all expected to provide a net benefit to the Wetland.

Transportation and Infrastructure policies are found in Section 7.2 of the Plan. All new and reconstructed transportation and utility facilities must be designed and located to minimize the impact on the environment and be consistent with the objectives and the land use designations in this Plan. The site plan for the Operations Centre project has been designed to limit impacts to the Wetland and adjacent land use. The location of the new building will be a deterrent to encroachments into the Wetland. A 9 metre wide landscaped buffer and improved stormwater management will significantly reduce erosion of and sedimentation from the site.

The subject property is located within the area identified in the Plan as Special Study Area No. 1 (S.2.6). The policies in Section 2.6 permit Council to consider small-scale zoning by-law amendments without the need to address all of the requirements of Section 2.6.

The proposed Zoning By-law Amendment conforms to the Cavan Monaghan Township Official Plan.

7.0 Planning Rationale

The Township of Cavan Monaghan needs a new public works garage. The Township considered a number of locations for the Operations Centre. The investigations and evaluations determined that the existing Public Works Operation Centre site at 1470 County Road 10 is the best option.

The subject lands are the home of the existing Cavan Monaghan Township Public Works Operation Centre. The site is strategically located in Cavan Hamlet. Settlement areas are the intended focus of growth and development.

The continued use of the site for the Operations Centre represents an efficient use of land; the existing sand dome, storage garage, and well will remain on site and continue to be utilized. The existing vehicle garage will remain and provide storage for both the Public Works and Parks and Facilities Departments. The proposal satisfies provincial policy with regard to the optimizing of existing facilities and maintaining and adapting public service facilities.

The biggest issue with the location of the new garage is the adjacent Cavan Creek Provincially Significant Wetland. Several policies in the Official Plan policies speak to the protection and enhancement of the natural environment and natural heritage features.

Normally, a minimum 30 metre wide vegetation protection zone is required between new development and a wetland. As proposed, the new building location will be located 9 metres from the Wetland boundary. The setback area will, however, be an improvement to the current state of the site where there is no setback between the wetland and aggregate material and vehicle storage areas. The current aggregate material storage area have slumped down the slope toward the Wetland in some locations. With the implementation of the 9 metre landscaped buffer, sedimentation and erosion control plans and stormwater management enhancements, the ecological value of the buffer area will be enhanced and potential impacts to the Wetland will be reduced.

Notwithstanding the requirement for a 30 metre wide vegetation protection zone, transportation and infrastructure are permitted in the vegetation protection zone if the need for the project can be demonstrated. The need for the new building at this location has been demonstrated and the development has been designed and located to minimize the impact on the environment and be consistent with the objectives and the land use designations in this Plan. The location of the new building will be a deterrent to encroachments into the Wetland. A 9 metre wide landscaped buffer and improved stormwater management will significantly reduce erosion of and sedimentation from the site.

The Zoning By-law has been drafted to require the northern interior side yard landscaped enhancements as per the recommendations of the Buffer Enhancement Plan prepared by Cambium.

8.0 Discussion and Conclusions

The Public Works Operation Centre is a vital component of the Township's service delivery program. The infrastructure currently in place is significant but a new garage is required. After much investigation and evaluation, Township Staff determined that the existing site at 1470 County Road 10 is the best site on which to build the new garage. Constructing the new building and completing site improvements at this location make efficient use of existing infrastructure and will help improve the environment.

A Buffer Enhancement Plan has been prepared by qualified professionals to recommend measures to improve the buffer area and provide a net benefit to the wetland. Those recommendations are included in the proposed Zoning By-law Amendment.

Based upon a review of the policy framework outlined in this Report, I am of the opinion that the proposed Zoning By-law Amendment application is consistent with the PPS, does not conflict with Growth Plan, and conforms to County and Township Official Plans.

Prepared By:

Karen Ellis, B.A.A.
Director of Planning

Dated: April 25, 2022

Appendix 1: Buffer Enhancement Plan – 1470 County Road 10, Cavan, Ontario
Cambium Reference: 9988-001
June 28, 2021

Appendix 2: Site Plan
Greenview Environmental Management
February 28, 2022

Appendix No. 1

Buffer Enhancement Plan – 1470 County Road 10, Cavan, Ontario
Cambium Reference: 9988-001
June 28, 2021



Environmental

Geotechnical

Building Sciences

Construction Quality
Verification

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Locations
Peterborough
Kingston
Barrie
Oshawa
Calgary

Laboratory
Peterborough



June 28, 2021

Township of Cavan-Monaghan
988 Peterborough County Rd 10
Millbrook, ON L0A 1G0

Attn: Tyler Peters, Greenview Environmental Management
Wayne Hancock, Township of Cavan-Monaghan

Re: Buffer Enhancement Plan 1470 County Road 10, Cavan, Ontario
Cambium Reference: 9988-001

Dear Tyler Peters,

Cambium Inc. (Cambium) is pleased to provide Township of Cavan-Monaghan (the Client) with the following Buffer Enhancement Plan for 1470 County Road 10, Cavan, Ontario (the Site). We understand that the Client is pursuing redevelopment of the Public Works facility located at the Site. The Site is directly south of the Cavan Creek Provincially Significant Wetland (PSW) and Cavan Creek flows through this PSW. The entire site is currently developed with buildings, parking area, and outdoor storage. As such, a Buffer Enhancement Plan (the Study) is required in consideration of natural heritage wetland policies in order to provide a net benefit to the wetland from the proposed redevelopment.

As the Site is adjacent to wetlands and watercourses, the Study will also consider regulations on development as imposed by the local Conservation Authority's Regulation under the Conservation Authorities Act (1990): Otonabee Region Conservation Authority (ORCA). Policy 7.2(5) of ORCA's Watershed Planning & Regulation Policy Manual states:

7.2(5) Expansion, reconstruction or relocation of an existing building or structure within an area of interference [i.e., within 120 m of a PSW] will be permitted provided that there will be no negative impact on the hydrologic function of the wetland. Submitted plans will be required to demonstrate the following:

- disturbance to natural vegetation communities will be minimized;
- disturbed area and soil compaction will be minimized;

9988-001

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June 28, 2021

- impervious areas will be minimized;
- development will be located above the high water table;
- overall existing drainage patterns will be maintained; and,
- best management practices will be used to:
 - maintain water balance;
 - control sediment and erosion; and,
 - maintain or enhance as much of a wetland buffer as is feasibly possible.

Field investigations were conducted to confirm the presence of the mapped features and investigate the growing conditions of the proposed buffer lands. Recommendations regarding suitable soil removal/replacement and grading, and plant species, densities, and locations for the enhancement of the butter lands are provided based on the site plans dated April 22, 2021.

CURRENT SITE CONDITIONS

A site investigation was conducted on May 13, 2021 to investigate current conditions of the proposed buffer lands. This included the confirmation of the PSW boundary, a survey of vegetation species currently in the area, and soil characterization.

The Ecological Land Classification (ELC) System for Southern Ontario (Lee, 1998) was used to classify vegetation communities on the Site. Definitions of vegetation types are derived from the ELC for Southern Ontario First Approximation Field Guide (Lee, 1998) and the revised 2008 tables. The wetland boundary was delineated based on methods provided in the Ontario Wetland Evaluation System (OWES) (Ministry of Natural Resources, 2013). According to OWES, wetlands are delineated based on the dominance of wetland vegetation (> 50% relative cover).

The wetland to the north and west of the proposed buffer area was classified as a Cattail Organic Shallow Marsh (MAS3-1). The wetland boundary was located at



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the base of a steep slope (approximately 1:1) along the full extent of the northern property boundary and along the northern part of the western property boundary. This boundary is mapped on the enclosed Site Plan based on the toe of slope contour, which is an accurate representation of the wetland edge. Wetland species did extend to the property boundary, growing within the historical fill that has been placed on the property. This community was dominated by cattail species (*Typha spp.*) and contained standing water at the time of the field investigations. A patch of invasive *Phragmites* was identified to the north of the buffer area within the MAS3-1 community. Cavan Creek flows from west to east within the PSW, north of the Site, and crosses under County Road 10 approximately 55 m from the Site.

The proposed buffer area consisted of cultural thicket (CUT) growing on an area of historical fill, presumably used to raise the property above the floodplain and facilitate the original construction on the Site. Ground cover was sparse, and consisted of pioneer species that readily take advantage of disturbed areas. Species included Balsam Poplar, Eastern White Cedar, Willow, Staghorn Sumac, Red-osier Dogwood, Goldenrod, and grasses. The area adjacent to the buffer lands is currently used as a storage area for aggregates (i.e. gravel, screenings, etc.), which have slumped down the slope toward the wetland boundary in some locations. Surface soils within the proposed buffer area were variable due to the historical fill and aggregate stockpiles. Sampling with a hand-held soil auger was attempted and where cores were obtained the soils consisted of hard-packed sand and gravel with coarse fragments (cobble). Cambium also completed a Geotechnical Investigation Report (dated June 24, 2021) which provides detailed information on the soils on the Site.

BUFFER ENHANCEMENT PLAN

The goal of the buffer enhancement is to establish vegetation that will provide both a visual and physical buffer between the Public Works facility and the adjacent PSW. The buffer will also act as a barrier to erosion and sedimentation resulting from potential runoff from the works yard. Finally, the established buffer should enhance the ecological value of the buffer area by providing potential



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June 28, 2021

foraging and shelter opportunities for wildlife. A Conceptual Planting Plan (the Plan) is enclosed with this letter.

SITE PREPARATION

During the Site Preparation phase, erosion and sediment control (ESC) measures should be put into place that provide protection to the adjacent PSW during construction. This can be accomplished through the installation of light-duty silt fence at the base of the slope. Light-duty silt fence is recommended in order to avoid entanglement risk to wildlife. If deemed necessary by the ESC designer, this light-duty silt fence could be further stabilized using straw bales. The silt fence should remain in place until the buffer area has been stabilized through the establishment of vegetation.

The slope/berm should be constructed following the recommendations of the Geotechnical Investigation Report (Cambium, 2021). Areas with stockpiles of aggregate (cobble, gravel, etc.) should be removed and disposed/re-used as appropriate to construct the berm.

To reduce the instances of erosion due to runoff from the works yard and to allow for access to the north and west sides of the building, a 2 m wide herbaceous (i.e., grasses/flower mix) strip should be seeded at the top of the slope (shown in pink on the Plan). This herbaceous strip would cover the 1 m flat area next to the building and 1 m of the top of the slope. Clean topsoil should be brought in and placed on the strip to a depth of 15 cm. Details regarding appropriate seed mixes are provided in the following sections.

Clean topsoil should be brought in and placed on the remainder of the slope such that there is the equivalent of 20 cm depth over the area of the slope. The top soil does not need to be graded but can be roughly distributed on the slope.

Given the current state of the buffer area, soils will need to be modified to allow for the establishment of vegetation. Following the slope/berm construction, compaction within the buffer area with heavy equipment should be avoided, as hard surfaces can increase the instances of runoff events, erosion and sedimentation. Erosion and sedimentation can effectively mitigated by leaving



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the surface rough and loose. A rough and loose soil surface will slow the travel of water down the slope and allow it to easily infiltrate into the soil surface. In addition, a rough and loose soil surface provides diverse topographic conditions for the establishment of a higher diversity of vegetation species. As such, the slope should be constructed such that topographic diversity is maximized, and the potential for erosion is minimized. This can be accomplished using the pit and mound technique (Polster, 2011)(see enclosed Technical Note). Briefly, an excavator using a digging bucket takes a bucket of soil and places it to the left of the hole that was just opened, half a bucket width from the hole so it is half in and half out of the hole. A second hole is then excavated half a bucket width to the right of the first hole. Material from this hole is then placed between the first and second holes. These steps are repeated until a line of pits and mounds are created along the length of the slope. The excavator then backs up the width of a hole and repeats this process, being sure to line up the holes in a new row with the mounds in the previous row. The end result is a 'checkerboard' of pits and mounds on the slope. The combination of top soil and pits/mounds will provide the soil depths of at least 30 cm that are generally tolerable for most tree species (OMAFRA, 2008).

RESTORATION PLANTINGS

In order for restoration to be successful, it is essential that appropriate vegetation materials are selected. All vegetation materials should be native to the area and sourced as locally as possible. As such, species for the buffer enhancement were selected based on those observed during the field investigations. A conceptual planting plan is provided appended to this letter.

In order to create a physical and visual barrier between the works yard and the buffer area, a coniferous hedgerow should be planted at the top end of the slope next to the vegetated strip. The establishment of a coniferous hedgerow will help prevent encroachment into the buffer area. Given the abundance of Eastern White Cedar in the area, cedar trees can be sourced and transplanted from local sources or obtained from a local nursery. Trees should be planted along the entire length of the buffer area (approximately 113 m long) and spaced 2 m apart



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(55 trees total) to allow for future growth. If required, these trees can be trimmed once established (i.e., after 5 years) in order to allow access to the building's exterior and roof.

The slope beyond the hedgerow should be planted with a mixture of native shrub species. Shrubs should be planted in groups of 3 (of the same species), and randomly placed on the slope to create a naturalized appearance. Shrub species and quantities are provided in Table 1.

On areas of the buffer lands where access is easier and there is more space to grow, tree species can also be planted. Areas suitable for trees could include the southwest corner and the northeast corner of the buffer lands. Trees have not been shown on the Conceptual Planting Plan as their placement would be subject to access needs of the Township. If space permits, deciduous tree species could also be included in the buffer plantings as provided in Table 1.

Bare root and transplanted trees are best planted in the spring. Potted stock can be planted at any time of year; however, watering would be required during dry periods.

All tree and shrub plantings should be mulched to limit competition using a partially composted seed-free mulch with no dye. Mulch application rates should be a max depth of 5-7cm and a radius of 30-40 cm.

Finally, the entire area should be seeded using a native seed mixture. The seed mixture should consist of native species, and contain species that prevent erosion. The native seed mix is best sowed in the fall (between October 15th and November 15th). The native seed mixture can also be sown in the spring; however, temperature variability in the spring may cause the seed to remain dormant until spring of the following year. To prevent the establishment of invasive species while the native species are getting established, a quick-germinated native nurse crop of Annual Rye (*Lolium multiflorum*) should be used. The nurse crop can be seeded at the same time as the native seed mixture. This will reduce the potential for soil/wind erosion and seed movement, reduce weed competition, and provide shelter for the native seed mix during the early establishment period. Due to the aggressive nature of Annual Rye, it is important



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that it is not applied at a greater rate than what is recommended by the supplier, or it may outcompete the desired native species. Seed mixes and application rates are provided in Table 1.

Table 1 Recommended Plant Materials and Seed Mixes

Plant Species/Seed Mix	Scientific Name	Quantity	Stock/Size Application Rate
Eastern White Cedar	<i>Thuja occidentalis</i>	55	Transplants/bare root
Red-osier Dogwood	<i>Cornus sericea</i>	30	Bare root (40-80 cm)
Willow varieties	<i>Salix petiolaris</i> ; <i>S. bebbiana</i> ; <i>S. discolor</i>	30	Rooted cuttings and bare root
Staghorn Sumac	<i>Rhus typhina</i>	30	Bare root (45-60 cm)
Red Maple	<i>Acer rubrum</i>	TBD	Potted stock
Bur Oak	<i>Quercus macrocarpa</i>	TBD	Potted stock
American Elm	<i>Ulmus Americana</i>	TBD	Potted stock
Stormwater Pond Native Seed Mixture (8190)	<i>Variety of species</i>	TBD	500g/180 m ² or 25 kg/ha
Annual Rye Seed (7115)	<i>Lolium multiflorum</i>	TBD	22 kg/ha or 20 lbs/acre

ADAPTIVE MONITORING PLAN

It is recommended that an adaptive monitoring plan be implemented for the buffer enhancement area. The buffer should be monitored once a year for the next two growing seasons after installation to ensure plantings have established, and determine the need for replacement plantings. An 80% survival rate for planted trees and shrubs should be obtained. Replacement plantings should be



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completed after two years in order to bring the total number of living plants to 80%, ensuring survival is spread between trees and shrubs. Given the local seed source available from adjacent wetland areas, it is anticipated that other native species will establish on their own within the buffer. The buffer enhancement area should also be monitored for the presence of invasive species. Should invasive species be found, recommendations regarding methods for removal and management will be provided. Monitoring results should be reported to ORCA at the end of each of the two growing seasons.

PLANT MATERIAL SUPPLIERS

Below is a list of potential supplies – these are provided as guidance and other sources of native stock can be used.

Trees and Shrubs:

- Richardson's Pineneedle Farms: Pontypool, ON: 705.277.9993
- Kobes Nursery: Bowmanville, ON: 905.263.8814
- Uxbridge Nurseries: Brooklin, ON: 905.655.3379

Seed Mixtures:

- Ontario Seed Company: Kitchener, ON: 226.210.3704

Note: Seed mixture species composition and pricing can be viewed online at: www.oscseeds.com (Search via OSC Product Number).

SUMMARY OF RECOMMENDATIONS

1. Prior to commencement of work, heavy duty silt fence should be installed at the bottom of the slope to prevent erosion and sedimentation into the adjacent PSW during site preparations. Silt fence should remain in place until the buffer area has been stabilized through the establishment of vegetation.
2. Areas with abundant coarse stony material (i.e. cobble, rip rap, gravel) should be removed as part of the site preparation phase.



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3. A 2 m wide herbaceous strip should be established at the top of the slope to slow any runoff that may drain towards the edge of the slope. Clean topsoil should be brought in and placed on the strip to a depth of 15 cm.
4. Clean topsoil should be brought in and placed on the slope such that there is the equivalent of 20 cm depth over the area of the slope.
5. Soil compaction should be avoided on the slope to allow for the quick establishment of roots. The implementation of the pit and mound method described herein will reduce compaction and minimize the potential for erosion.
6. A coniferous hedgerow should be established along the top end of the slope next to the vegetated strip. Tree species and quantities are provided in Table 1.
7. The area below the coniferous hedgerow should be planted with native shrubs at a density as described herein. Shrub species and quantities are provided in Table 1.
8. If space permits, deciduous tree species could also be included in the buffer plantings as provided in Table 1
9. Bare root/transplanted trees should be planted in the spring for best results.
10. All tree and shrub plantings should be mulched to limit competition using a partially composted seed-free mulch with no dye. Mulch application rates include a max depth of 5-7cm and a radius of 30-40 cm.
11. The entire buffer enhancement area should be seeded with a native seed mix and a nurse crop. Recommended seed mixes and application rates are provided in Table 1. The native seed mix is best sowed in the fall (between October 15th and November 15th).
12. The buffer enhancement area should be monitored for two full growing seasons to ensure overall success as described herein. Planting success



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should be reported to ORCA at the end of each of the two growing seasons.

CLOSING

Cambium trusts that this Buffer Enhancement Plan meets ORCA's requirements for the subject property. Should any of the involved parties have any questions or require clarification on any aspect of this submission, please do not hesitate to contact the undersigned at (705) 742-7900.

Best regards,

Cambium Inc.

Andrea Hicks, M.Sc.
 Natural Science Group Manager

Tyler Jamieson, B.Sc. (Hons), M.Sc.
 Ecological/biological Technologist

TJ/alh

Encl. Conceptual Planting Plan
Technical Note: Making Sites Rough and Loose: A Soil Adjustment Technique

P:10000 to 99999988-001 Top of Cavan-Monaghan - EIS - 1470 County Road 10, Cavan\Deliverables\REPORT - Buffer Plan\2021-06-28 LTR Buffer Enhancement Plan - 1470 CR 10, CM FINAL.docx

CONCEPTUAL PLANTING PLAN

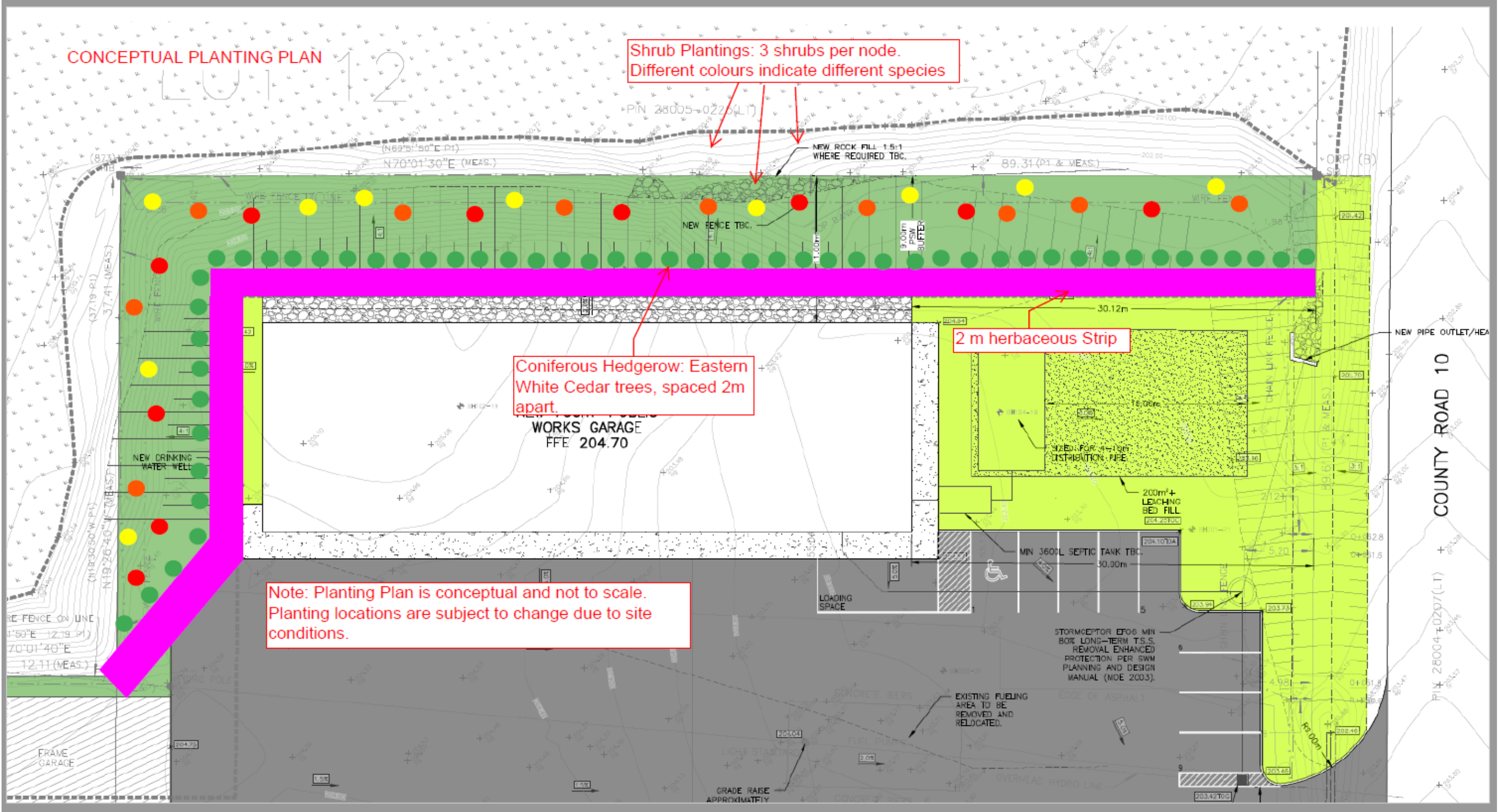
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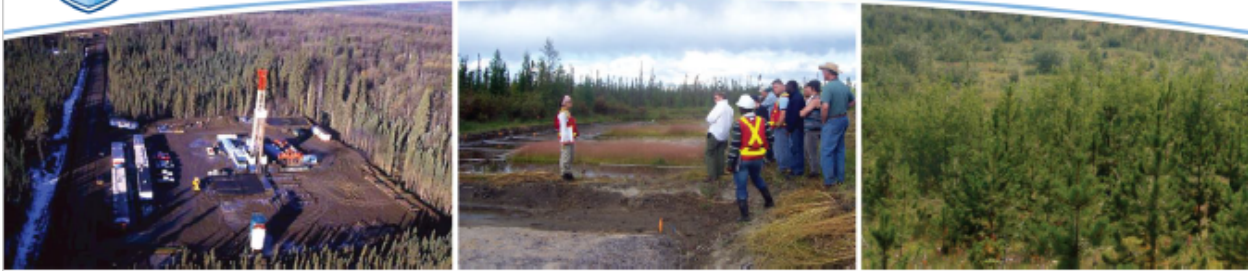
Shrub Plantings: 3 shrubs per node.
Different colours indicate different species

Coniferous Hedgerow: Eastern
White Cedar trees, spaced 2m
apart.

2 m herbaceous Strip

Note: Planting Plan is conceptual and not to scale.
Planting locations are subject to change due to site
conditions.





Technical Note, June 2013

Making Sites Rough and Loose: A Soil Adjustment Technique

DAVID POLSTER

Rough and loose surface treatments (Polster 2009) provide an effective way to control erosion and create conditions that promote the revegetation of the site. By creating topographic heterogeneity (Larkin et al. 2008) the rough and loose surface configurations provides increased diversity of habitats therefore improves ecological resilience (Holling 1973). This brief document shows how sites can be made rough and loose to gain these ecosystem benefits and initiate natural successional processes (Polster 1989).

Rough and loose surface configurations (Photographs 1 and 2) can be achieved by using an excavator to open holes on the slope, dumping the material that is generated from the holes in mounds between the holes. The excavator, using a digging bucket (not clean-up), takes a large bucket full of soil and places it to the left of the hole that was just opened, half a bucket width from the hole so it is half in and half out of the hole. A second hole is then excavated half a bucket width to the right of the first hole. Material from this hole is then placed between the first and second holes. A third hole is now opened half a bucket width to the right of the second hole, with the excavated soil placed between the second and third holes. Care should be taken when excavating the holes to shatter the material between the holes as the hole is dug. The process of making holes and dumping soil is continued until the reasonable operating swing of the excavator is reached. The excavator then backs up the width of a hole and repeats this process, being sure to line up the holes in the new row with the space between the holes (mounds) on the previous row.



Photograph 1 (left) and 2 (right). Rough and loose surface configurations can be made using an excavator on slopes up to 2:1 or 26°. Large areas can be treated for a cost of about \$700/ha.

Rough and loose surface treatments can be used in confined areas as well as in large open areas (Photograph 3). These treatments are ideal for recovering hydrologic integrity on resource access roads and where unauthorized access by motor vehicles (“quads” and “dirt bikes”) is causing ecological degradation. The rough and loose treatments can be used on coarse textured substrates and can be applied in areas where potentially droughty conditions dictates that planting be conducted on north facing slopes (Photograph 4).



Photograph 3 (left) and 4 (right). Forest access roads and other small areas can be treated using the rough and loose technique (left) as well as areas with coarse substrates (right) such as this old dam site with alluvial boulders, cobbles and gravels.

The rough and loose treatment provides ideal conditions for live staking (Polster 2006) as the soils are loose so the stakes can be planted deeply and roots can grow unencumbered by compaction (Photographs 5 and 6). Live staking can be used to establish pioneering species such as Balsam Poplar and Willow. Two meter long cuttings inserted one meter into the substrate allows substantial root systems to develop and fosters successful establishment of these species.



Photograph 5 (left) and 6 (right). Live staking in the rough and loose soils of this tailings pond is easy and allows the cuttings to grow rapidly (right, start of 2nd year growth for cuttings)

The rough and loose surface treatments provide ideal microsites for seeds to lodge in and for seedlings to grow (Photograph 7, 8 and 9). Where local conditions provide ample seed, a diversity of native species will naturally establish. In general, these species will be appropriate for the sites where they establish so that moisture loving species will establish in the bottoms of the holes while species that favour dry sites will be found on the tops of the mounds. This species diversity enhances ecosystem resilience.



Photograph 7 (left), 8 (centre) and 9 (right). A variety of local forest species have established within a year of treatment on a rough and loose forest road on Salt Spring Island.

LITERATURE CITED

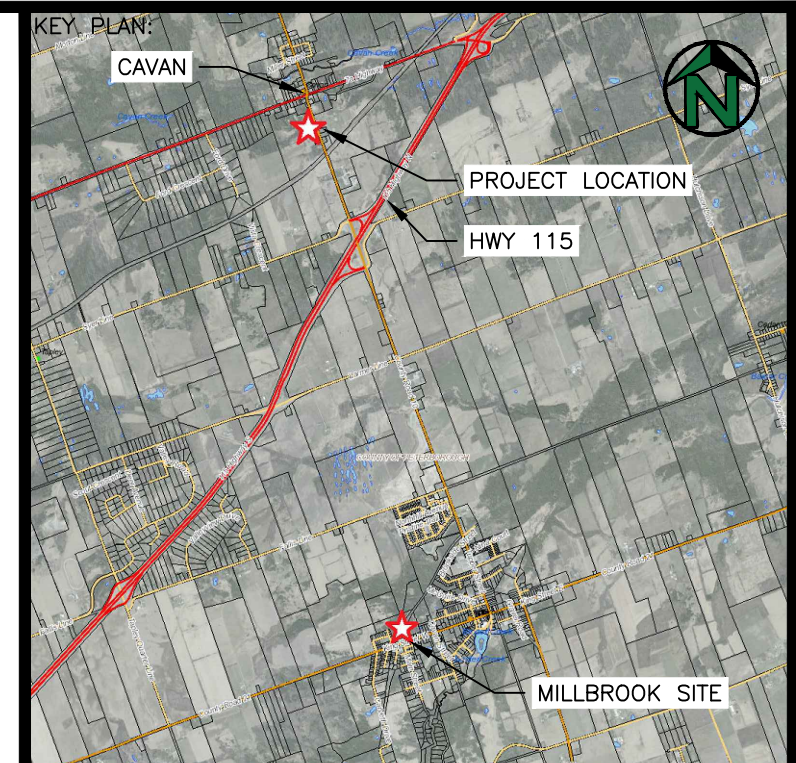
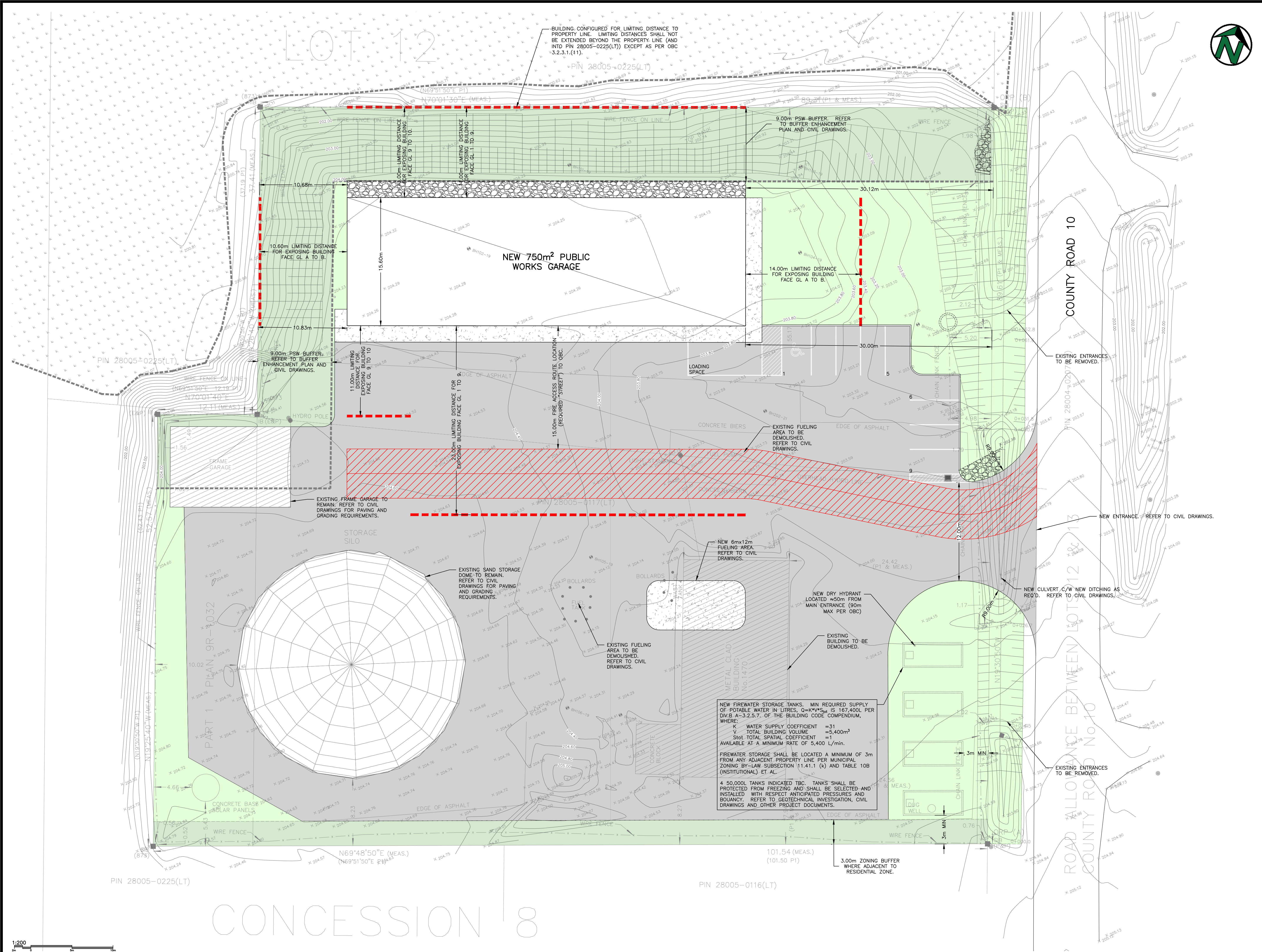
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Appendix No. 2

Site Plan

Greenview Environmental Management

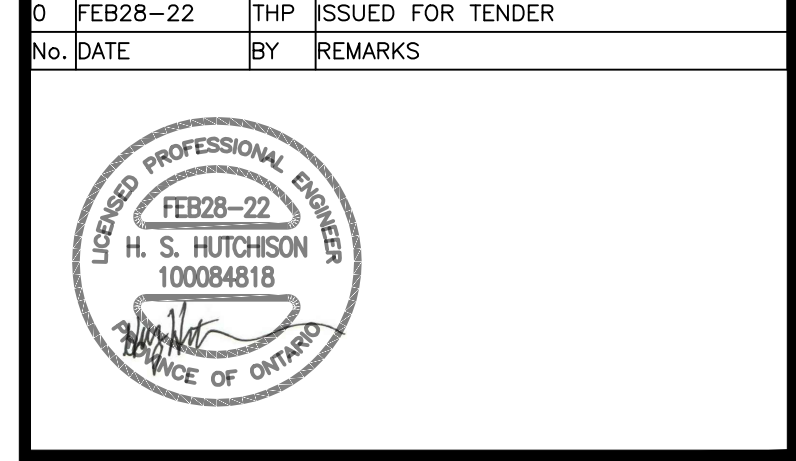
February 28, 2022



GENERAL NOTES

1. THE CONTRACTOR SHALL ENSURE THAT ALL WORK IS IN CONFORMANCE WITH THE ONTARIO BUILDING CODE, THE OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL OTHER GOVERNING REGULATIONS IN FORCE AT THE TIME OF CONSTRUCTION.
2. THE CONTRACTOR SHALL CONFIRM ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. THE CONTRACTOR SHALL NOTIFY ALL REQUIRED PARTIES OF ANY INCONSISTENCIES PRIOR TO COMMENCING THE WORK.
3. THE CONTRACTOR SHALL EXAMINE EXISTING SITE CONDITIONS AND REPORT ANY ISSUES PRIOR TO COMMENCING THE WORK.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO COMMENCING THE WORK.
5. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR THE DESIGN, ERECTION, OPERATION, MAINTENANCE AND REMOVAL OF TEMPORARY BRACING, SHORING, HOARDING, AND ANY FACILITIES OR METHODS REQUIRED TO KEEP THE CONSTRUCTION SAFE, PLUMB, LEVEL AND IN TRUE ALIGNMENT AT ALL PHASES OF THE WORK UNTIL COMPLETION.

No.	DATE	BY	REMARKS
0	FEB28-22	THP	ISSUED FOR TENDER



PROJECT:
NEW CAVAN PUBLIC WORKS OPERATIONS CENTRE
 1470 COUNTY ROAD 10
 CAVAN, ON

TITLE:
SITE PLAN
 1:200



13 Commerce Court
 Cavan, Ontario
 613.332.0057
 greenview-environmental.ca

DESIGNED BY: HSH	DRAWN BY: HSH	APPROVED BY: THP	DATE: JAN-21
PROJECT: 164.21.004	PLOT DATE: MAR01-22		

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