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EXPERT OPINION
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PEER REVIEW
RESEARCH
EDUCATION

August 23, 2023

Our Project No.: AA23-082A
Sent by Email: nick@harperdell.ca

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c/o

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**Re: 2935 & 2955 Mississauga Road, Mississauga
Landscape Restoration Plan Memorandum**

About & Associates Inc. was retained by Harper Dell & Associates Inc. to complete a landscape restoration plan in support of official plan amendment and zoning by-law amendment approvals for 2935 & 2955 Mississauga Road in the City of Mississauga (Project Site).

Overview

The proposed landscape restoration area covers a total of 0.56 ha (5,590 square meters). The restoration areas have been divided into three 'zones' to achieve planning policy objectives. The zones are as follows:

Ecological Restoration Buffer – located on lands to be conveyed to the City of Mississauga. Approximate area - 2330 sq.m.

Naturalistic Landscape Buffer – 4.5m wide buffer within the boundary of the subject site to protect adjacent woodland feature and ecological restoration buffer. Approximate area - 1460 sq.m.

Scenic Route Forest Preservation / Restoration Area – located within the City's Mississauga Road Scenic Route, as identified in the official plan. Approximate area - 1800 sq.m.

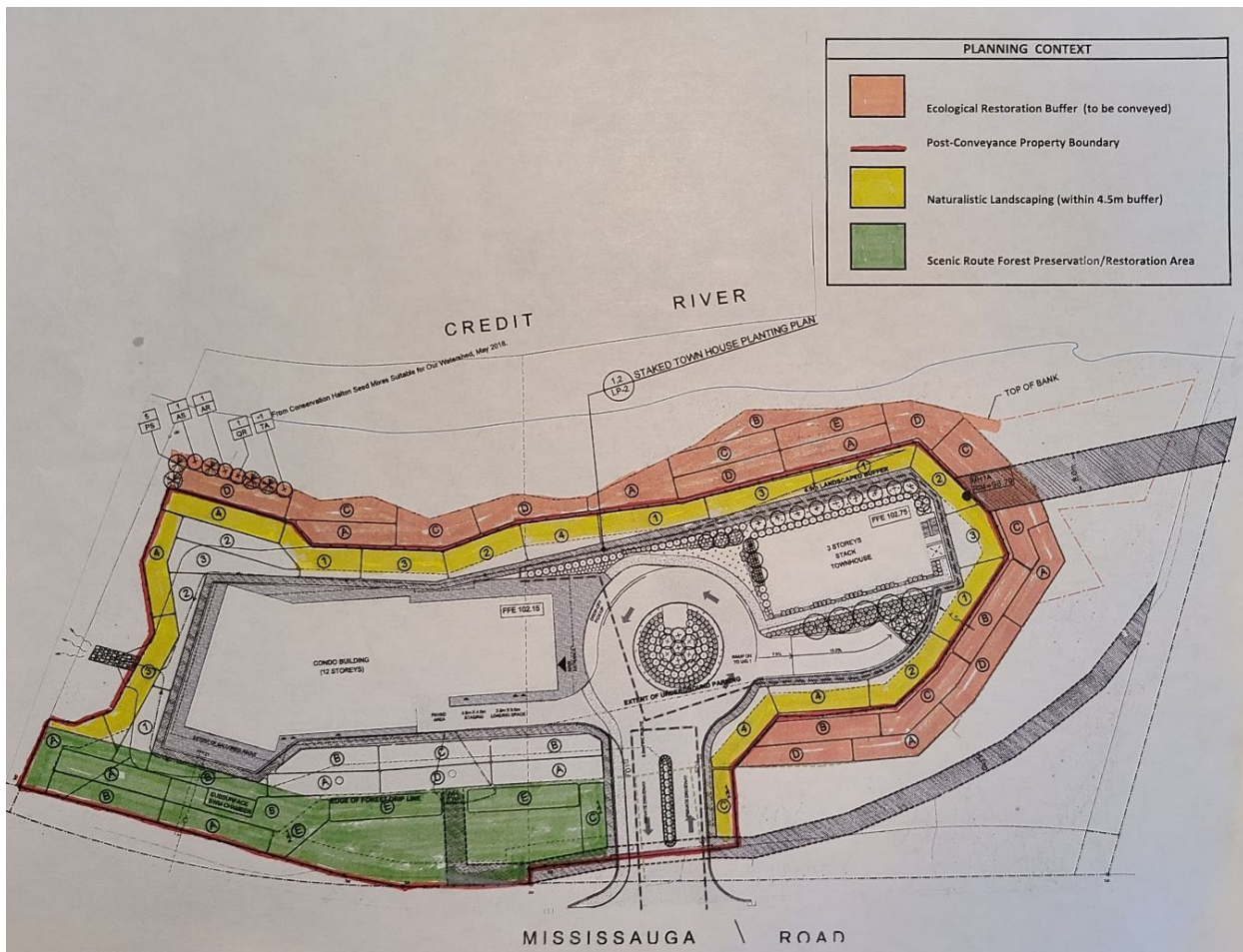


Figure 1. PLACEHOLDER

The following document provides an overview of the restoration approach for the site, with key design considerations for each of the restoration zones.

Site Preparation

Erosion Control and Tree Protection

Before commencing landscape restoration, Erosion and Sediment Control (ESC) measures shall be in place at the limits of the woodland and the Ecological Restoration Buffer. Tree protection measures, including tree protection fence per City of Mississauga standards, shall also be installed prior to the commencement of any construction activities. Tree protection zones shall be delineated by the consulting arborist. Landscape restoration measures to be completed within tree protection areas shall be completed by hand to limit compaction and injury to existing trees to be retained.

Soil Preparation

Post Conveyance Property Boundary

Lands within the post-conveyance property boundary (excluding areas within the woodlot) will receive 450mm depth of imported topsoil to establish healthy soil conditions and to create a soil profile that will sustain the growth of proposed plant materials to maturity. Where imported topsoil is proposed, the following process should be followed, per Section 2.3 of Credit Valley Conservation's Healthy Soil Guideline, 2017:

1. Prior to importing new topsoil, till and/or scarify the existing subsoil to address any compaction to a depth of 450mm.
 - a. Tilling and scarifying should not be done within the minimum tree protection zone for trees to be preserved.
 - b. Loosening soil shall be done under dry conditions. Do not till or scarify soils in wet or frozen conditions.
2. Import new topsoil that meets the specifications in Table 2 of Appendix A of CVC's Healthy Soil Guideline and City of Mississauga material specifications for Topsoil and Finish Grading. Add required amendments as recommended in topsoil testing results from OMAFRA accredited soil testing laboratory.
3. Spread topsoil over the entire area to a settled depth of 450mm for a final uncompacted soil depth of 900mm (i.e. 450mm scarified topsoil + 450mm imported topsoil).
4. Place topsoil in 150mm depth lifts and use only low ground pressure machinery (e.g. rated to <4 PSI) to apply the topsoil in order to avoid additional compaction.
5. Ensure that topsoil has been wetted after machinery has ceased operation on the site. Topsoil must be allowed to settle for at least one week prior to verification tests.
6. Depth and compaction must be verified in the field at the completion of the works, prior to planting. Post-installation depths are best measured using soil pits. Post-installation soil compaction is best measured on-site using cone-penetrometer tests. A minimum of five sample locations per area should be tested to verify both depth and compaction.

All imported topsoil must meet the requirements outlined in O. Reg. 406/19: On-Site and Excess Soil Management.

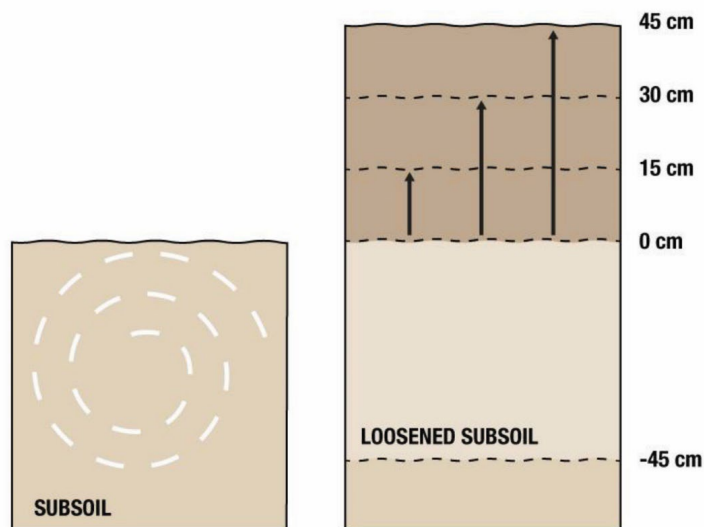


Figure 2. Imported Topsoil Diagram (CVC Healthy Soils Guideline, 2017)

Ecological Restoration Buffer (Lands to be conveyed)

Lands within the ecological restoration buffer, that will ultimately be conveyed to the City of Mississauga, will require scarification and soil amendments to increase soil health. To amend the compacted topsoil, deficiency in organic material and subsoil compaction, the following steps are recommended:

1. Loosen subsoil by deep tilling/subsoiling/ripping to a depth of 450mm.
 - a. Tilling and scarifying should not be done within the minimum tree protection zone for trees to be preserved.
 - b. Loosening soil shall be done under dry conditions. Do not till or scarify soils in wet or frozen conditions.
2. Spread 80mm of organic matter compost on the surface of the tilled soil and till the compost into the loosened soil.

Compost used for organic matter amendments must meet Ontario Compost Quality Standards (MOE, 2012). Use compost that meets category AA for amending site subsoil, or category AA or A for amending site topsoil. Compost should be obtained from a supplier certified by the Compost Council of Canada's Compost Quality Assurance (CQA) program and meet the CQA program requirements for use as a soil amendment. All imported compost must also meet the requirements outlined in O. Reg. 406/19: On-Site and Excess Soil Management.

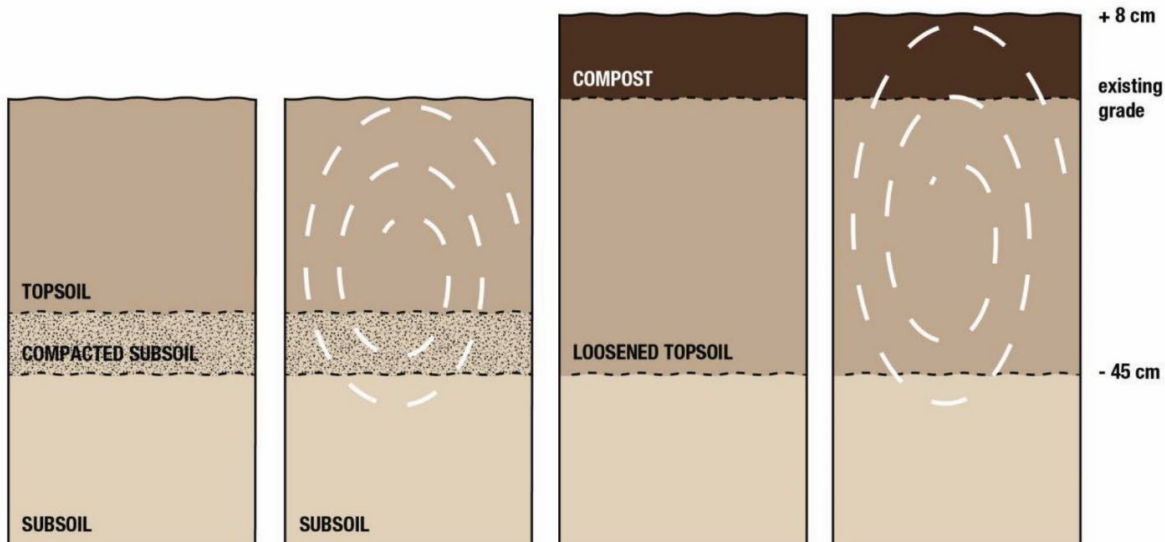


Figure 3. Amending Existing Soil Diagram (CVC Healthy Soils Guideline, 2017)

Soil Stabilization

Contingent on timing between fine grading activities and the installation of woody plant material, interim soil stabilization and erosion control measures may be required. Should there be a delay between fine grading and planting, it is recommended that soils be stabilized with a nurse crop, seeded at a rate of 15kg/ha as follows:

Common Name	Scientific Name	% Mix	Timing
Oats	<i>Avena sativa</i>	40	Spring/Summer (May-September)
Barley	<i>Hordeum vulgare</i>	45	
Canada Wild Rye	<i>Elymus canadensis</i>	15	
Winter Wheat	<i>Triticum aestivum</i>	100	Fall (October-November)

Cover crop and native seed mix application is not recommended in mid-summer (July-August) unless appropriate maintenance (i.e. regular watering in dry conditions) can be provided.

Planting Specifications

Plantings within the ecological restoration buffer are comprised of native trees, shrubs, and ground covers of a variety of species selected to suit the growing conditions of the site. All species are native to the Credit Valley Conservation’s lower watershed. Where possible, plant material should be sourced from local stock and/or native plant nurseries.

Both caliper (60mm cal.) and whip-sized trees (150-200cm height) are proposed to create both a size, genetic source, and age variation across the restoration areas. Shrubs are specified as container grown and range from 50-125cm in height.

Generally, a ratio of approximately five shrubs to one tree is being proposed for an area of twenty (20) square meters. In areas where existing trees are to be retained, shrubs will be planted below, by hand, to restore the mid and under-storey of wooded areas. Herbaceous vegetation will be established throughout the restoration areas with the application of CVC’s Upland Seed Mixture combined with a nurse crop.

The density of plantings, combined with the species selected will help to stabilize soils on slopes and provide some measure of erosion control, once plants are established.

Scenic Route Forest Preservation / Restoration Area

The same planting approach as described above will be taken within the Scenic Route area. Existing trees will be preserved and augmented with new understory landscape plantings comprised of native shrubs and herbaceous perennials. Where gaps and open spaces exist within the Scenic Route area, landscape restoration plantings incorporate deciduous and coniferous trees at a variety of sizes to establish canopy cover. Tree species for this area have been selected based on the existing vegetation community. Overall, the restoration planting within the Scenic Route area will provide increased canopy cover and habitat, as well as improve the scenic quality along Mississauga Road.

Timing

Potted, balled and burlap, and wire basket plant material should be installed in the spring, between April 1 – June 30, or in the fall, between September 1 – October 31. Plant stock should be reviewed upon delivery to the site to observe that materials are in good condition and are installed at the approved quantities.

Seeding of the CVC Upland Seed Mixture should take place immediately after the planting of woody vegetation. Seed mix application is not recommended in July or August unless appropriate maintenance (i.e. regular watering in dry conditions) can be provided.

Establishment and Maintenance

Restoration plantings shall be watered to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion. An invasive species management plan should be developed and employed to manage weeds within restoration areas. If required to insects, fungus and disease, should be controlled using appropriate control methods in accordance with Federal, Provincial and Municipal regulations.

Maintenance of the restoration plantings should be carried out for two years following installation.

Monitoring

Landscape plantings and seeding should be warranted and monitored for a period of two years following the completion of all restoration plantings. Plant material should be reviewed upon installation and then in the subsequent spring or fall to review plant growth and establishment. Observations should be documented and corrective action taken, as needed, to address mortality, plant health, and weed growth. Spring and fall inspections should take place during the following year and documented as in year one. The restoration target should be less than 10% tree mortality and 20% shrub mortality in the fall of the second year after planting.

Yours truly,

ABOUD & ASSOCIATES INC.

Issued for Coordination

Marc Garon-Nielsen . BLA

Partner . Landscape Architecture Lead . OALA . CSLA

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