V R O O M + A S S O C I A T E S
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SUBJECT: LETTER OF OPINION - ACORN VALLEY - SOUTHEAST SERVICING CONSTRUCTION

1. Overview

A new sanitary servicing pipe is proposed to cross the Rath-Harris Drain corridor within a SWT3 Mineral Thicket Swamp community. This memo outlines potential impacts, mitigation, and restoration measures to ensure that the function and integrity of the wetland and drain are maintained.

2. Existing Conditions

_The Rath-Harris Drain is a Municipal Drain that conveys surface flows from primarily agricultural land to the Mill Pond, characterized by seasonal flow and moderate channel stability.

_The corridor supports a Mineral Deciduous Thicket Swamp Ecosite (SWT2) dominated by shrub Willows (*Salix spp.)* and Dogwoods (*Cornus spp.)* with drifts of Reed Canary Grass (*Phalaris arundinacea*) and a diverse sedge-grass understory that is medium-high quality with low levels of invasives, and a medium coefficient of conservation.

_The community contains a number of Black Ash [Endnagered] 300+ meters upstream of this location. No identified Species at Risk or regulated SAR habitat were discovered in the area of the servicing corridor.

_As noted, invasive cover is currently low, with areas of Garlic Mustard, Tatarian Honeysuckle, Purple Loosestrife and Multiflora Rose.

3. Scope of Works

_Temporary clearing width: approximately 12 m to accommodate trench excavation, safety offsets, and equipment access.

_Pipe installation: by open-cut or trench excavation across the drain and wetland corridor.

_Duration: short-term disturbance (< 2 weeks).

_Area of impact: 100 x 12 meter path, 0.13 ha.

4. Potential Impacts

Category	Description
Vegetation removal	Temporary loss of vegetative cover within the 12 m corridor.
Soil compaction and rutting	Heavy equipment operation could compact saturated mineral soils, reducing hydrological infiltration and root aeration.
Hydrology alteration	Temporary dewatering or flow redirection may locally change soil saturation or channel stability.
Sedimentation and turbidity	Excavation could introduce fine sediments to the drain during construction.
Invasive species colonization	Exposed mineral soils may be susceptible to colonization by *Phragmites australis* ssp. *australis*, or *Lythrum salicaria*.
Wildlife disturbance	Temporary loss of cover for amphibians, mammals and wetland birds; low long-term significance.

5. Mitigation Measures

_Timing: Conduct clearing and excavation outside of the restricted activity timing windows during low-flow or frozen conditions where possible (November–March) to reduce rutting and sediment transport.

_Erosion & Sediment Control:

_Minimal footprint for in-water works in an efficient and timely manner. Install silt fencing or coir logs on both sides of the corridor and along the top of bank of the adjacent fields prior to excavation.

_Use trench plugs or straw wattles to prevent channelized flow along the trench.

_Equipment Access:

_Restrict machinery to a defined construction corridor

_Soil Management:

_Segregate and store topsoil/organic horizon separately; replace in original order during backfilling.

_Avoid soil mixing or contamination with granular fill.

_Invasive Species Prevention:

_Clean machinery before site entry at a location off site; ensure no residual mud or seedbanks.

_Use weed-free straw and soil amendments.
_Implement post-construction invasive species monitoring (1st, 3rd, and 5th growing seasons).

_Hydrology Protection:

_Maintain pre-existing surface grades; ensure backfilled trench matches natural microtopography.
_Install pipe at proper depth to avoid long-term impedance of shallow groundwater flow.
_If there is any de-watering the Ontario Water Resources Act (R.S.O. 1990) requires that a Permit to Take Water (PTTW) be obtained for water taking/movement in excess of 50,000 litres per day. The PTTW, which is issued by the MECP, would be required during some dewatering activities common on construction projects, where more than 50,000 L/day is being moved from a ground or surface water system, which may also include sediment control ponds (Erosion and Sediment Control Guidelines for Urban Construction TRCA 2019).

_Restoration & Revegetation:

_Immediately upon backfill, replant all bare soil areas with herbaceous native wetland species to avoid future woody-root interference with the pipe.
_Recommended seed mix (native, local genotype):

- *Joe Pye Weed*
- *Swamp Milkweed*
- *Carex lacustris, Carex stricta* (sedges)
- *Scirpus atrovirens* (Dark-green Bulrush)
- *Glyceria striata* (Fowl Manna Grass)

_Apply straw mulch or coir matting to stabilize soils until germination.
_Conduct follow-up planting if cover < 70 % by end of second growing season.

_Monitoring:

_Annual inspection for the first three years for vegetation cover, invasive presence, and erosion control measures plus integrity.
_Re-seeding or spot planting of native vegetation as required.

6. Residual Effects and Conclusion

With the implementation of the above measures, disturbance to the SWT2 community will be temporary and reversible. However, given the medium–high ecological quality of the corridor and the intact hydrological and vegetative structure, the width of vegetation clearing should be reduced to the smallest safe working width practicable.
The current 12 m clearing limit is considered excessive for a single sanitary servicing pipe. Industry practice for open-cut installations of this scale typically requires only 4 – 6 m, including excavation and equipment access. A narrower corridor will substantially reduce loss of shrub and sedge cover, limit compaction of mineral soils, and maintain micro-topography important for wetland hydrology.

Where feasible, directional drilling or auger boring should be evaluated as the preferred installation technique. Trenchless methods are recognized by MECP, Conservation Authorities,

and DFO Codes of Practice as the preferred avoidance measure for wetland and drain crossings because they:

_Avoid direct vegetation and root disturbance within the wetland;
_Preserve soil structure and anaerobic horizons critical to hydrologic function;
_Prevent sediment and turbidity release to the Rath-Harris Drain (a medium/good-quality watercourse);
_Minimize the potential for introduction of invasive species such as Phragmites australis; and
_Eliminate the need for long-term herbaceous restoration of a wide corridor.

If open-cut excavation is deemed technically necessary, the contractor should document the rationale and demonstrate why trenchless methods were not feasible. The corridor should then be restricted to a maximum 6 m width, with all spoil storage and equipment staging located outside the wetland boundary on timber mats or stabilized pads.

Following construction, the corridor will be revegetated with a native sedge–grass assemblage to restore cover and prevent woody-root conflict with the sanitary infrastructure. With these avoidance and minimization measures in place, the risk of long-term functional loss to the SWT2 wetland is low, and the natural heritage function of the Rath-Harris Drain corridor will be maintained.