Appendix A: Natural Environment Report – Terrestrial Brief

Lachance Drain Relocation and Railway Spur Line Construction C. P. Rail to C. S. Wind Property

TERRESTRIAL DESIGN BRIEF

Prepared for:
Corporation of the City of Windsor

ecoplans
A member of MMM GROUP

March 2012

LACHANCE DRAIN RELOCATION AND RAILWAY SPUR LINE CONSTRUCTION

C.P. RAIL TO C.S. WIND PROPERTY

TERRESTRIAL DESIGN BRIEF

Prepared For:
Corporation of the City of Windsor

March 2012

ecoplans
A member of MMM GROUP

Our File: 3211128

Terrestrial Design Brief

Introduction

The Corporation of the City of Windsor has retained MMM Group Limited to provide consulting services for the proposed Railway Spur Line to be constructed northward from the Canadian Pacific Railway (CPR) main track to the south side of the C.S. Wind property limits, located in the Town of Tecumseh, Ontario (see Figure 1). This proposed railway spur construction also requires the relocation of the Lachance Municipal Drain. In this *Terrestrial Design Brief*, Ecoplans, a member of MMM Group, is addressing the terrestrial resources component of the project. Aquatic resources are discussed under a separate cover (*Fish Habitat Compensation Plan for the Proposed Realignment of the Lachance Drain,* MRC 2012).

The subject property is an L-shaped parcel of land north of the CPR main track. Approximately 2/3 of the site is under industrial land use (C.S. Wind property) while most of the reaming land is agricultural. Several short, narrow hedgerows occur on site with one sparse hedgerow extending from the south to the north limits of the property. There are several small cultural meadow communities on site as well as one very small and disturbed Mineral Thicket Swamp and one Mineral Meadow Marsh (both near the north limits of the property).

The Lachance Municipal Drain crosses the site approximately 260 metres (m) north of the CPR main track then makes a 90 degree turn southwards and another 90 turn westwards before eventually converging with the Little River, off property and west of the study area. Given the site topography (very flat) and soil characteristics (clay-based), small, intermittent drainage features also occur along the hedgerows and field edges, where water collects after precipitation events.

Terrestrial Design Brief Objectives

Although the above general description refers to the entire subject property, this *Terrestrial Design Brief* focuses on the smaller south portion of the property where the first phase of the work is proposed for 2012 (see 'study area' boundaries delineated on Figure 1). This first phase of construction involves the Lachance Drain relocation and railway spur construction. Future work on the subject lands (grading and site servicing) will be addressed at some future date. This *Terrestrial Design Brief* addresses potential impacts to *known* and *potential* terrestrial resources (including Species at Risk [SAR]) that may result from the first phase of the proposed works.

The following are the main components covered by this report:

- The study approach and rationale;
- Biophysical features of the site;
- Proposed works;
- Environmental management and monitoring approach; and
- Conclusions and recommendations.

Study Approach and Rationale

The study approach was largely dictated by the aggressive project schedule which was initiated in November, 2011. The natural environment review has consisted of the following activities:

- Collection and review of relevant mapping, soils reports, Official Plans, Natural Heritage Information Centre (MNR – NHIC) database;
- Review of studies completed on adjacent lands including:
    - Waldron G. and Leadley T. 2009. *Sandwich South Employment Lands Trunk Sanitary Sewer Habitat Evaluation and Species at Risk Survey*.
    - South Sandwich Secondary Plan and Lauzon Parkway Study (extensive Ecoplans field work completed in 2011, on bordering lands to west and south, study in progress on behalf of MTO).
- Field surveys on the following dates:
    - Breeding Bird Surveys on May 10th, May 24th, May 27th and July 14th 2011 on the adjacent property to the south. The CPR tracks were walked and any significant bird observations made on the subject property to the north were recorded.
    - General Wildlife and SAR habitat review on **November 10th and 11th, 2011**. Given the timing of the field work, breeding bird and snake surveys were not feasible. Rather, field surveys focused on evaluating habitat potential, with an emphasis on habitat potential for Butler's Gartersnake (*Thamnophis butleri,* END) and Eastern Foxsnake (Carolinian population, *Pantherophis gloydi,* END), two species known from the vicinity of the subject property.
    - Preliminary ELC classification, late-season botanical inventory and rare species habitat review on **November 15th and November 25th, 2011**. Vegetation communities were classified using the *Ecological Land Classification (ELC) for Southern Ontario* (Lee et al. 1998). Vegetation community significance was evaluated using *Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario* (Bakowsky 1996; NHIC website). Plant species status was evaluated using *Plants of Essex County* (Botham 1981) for regional significance; the NHIC website for provincial rarity ranks (i.e. S-Ranks); the Species at Risk in Ontario list (MNR January 2012) for provincial status designations; and the Canadian Species at Risk list (COSEWIC November 2011) for national status designations. Nomenclature generally follows Newmaster et. al. (1998).
    - Follow-up review of drain vegetation conditions and SAR flora potential on **February 1st, 2012**.

- Agency liaison as follows:
    - The Essex Region Conservation Authority (ERCA) and Ministry of Natural Resources (MNR), Aylmer District office were contacted for natural environment data.
    - An Agency Meeting was held on January 30th at the MNR Aylmer District office. Meeting minutes have been prepared (Appendix A) in consultation with attendees.
- Collaboration with the Design Team (including engineers, landscape architects, biologists/ecologists).

The aggressive project schedule has not enabled any 'in-season' field surveys prior to the design of the drain relocation. As a result, the project team has utilized late-season field information, our extensive familiarity with SAR flora and fauna in the area collected during the South Sandwich Secondary Plan and Lauzon Parkway work (2011), background data and agency input. These resources, have led to the development of an environmental management approach that the team believes is appropriate and proactive in the protection of potential SAR habitat and the natural environment in general. Our design approach is also consistent with the measures employed (and approved by MNR) for the sanitary sewer installation and Lachance Drain relocation on the immediately adjacent off-property area to the west. Further details of the proposed environmental management approach and rationale follow.

Biophysical Features of the Site

Soils, Physiography and Drainage

The subject property is generally flat with poor drainage and clay soils (Richards et. al. 1989). Surface water pools on site or is directed to shallow drains at the field edges which drain to the Lachance Drain and eventually to the Little River to the west. According to the MMM Water Resources Design Brief (February 2012), the catchment area of the Lachance Drain has an average gradient of 0.1% in a westerly direction.

Vegetation and Flora

The review of the *Sandwich South Employment Lands Trunk Sanitary Sewer Habitat Evaluation and Species at Risk Survey* (*SSEL Study*, Waldron and Leadley 2009) revealed the following:

- Several rare species were recorded along the north side of the CPR tracks from Banwell Road to Little River (which encompasses the section of railway within the subject lands). Rare species observed include:
    - Shellbark Hickory (*Carya laciniosa*, S3)
    - Shumard Oak (*Quercus shumardii*, S3, SC)
    - Climbing Prairie Rose (*Rosa setigera*, S3, SC)
    - Rough Dropseed (*Sporobolus asper*, S3)
    - Missouri Ironweed (*Vernonia missurica*, S3?)

- The Lachance Drain was reviewed and noted to be of low value with weedy herbaceous vegetation and a mix of native and exotic woody plants (Waldron and Leadley 2009). No SAR or other significant features were noted along the Lachance Drain.

During Ecoplans' November 2011 field surveys, 7 semi-natural vegetation communities were delineated on the subject property. The majority of these communities are located towards the northern limits of the property.

Vegetation in the southern portion of the subject property (the 'study area') is limited to narrow strips of cultural meadow vegetation along the railway tracks, narrow riparian vegetation zones along the existing Lachance Drain and 'scrubby' hedgerows at the field edges (dominated by shrubs including Gray Dogwood [*Cornus racemosa*], Sweetbrier Rose [*Rosa eglanteria*], Staghorn Sumac [*Rhus typhina*], Riverbank Grape [*Vitis riparia*] and hawthorns [*Crataegus sp*]). There are a few scattered young trees (e.g. Eastern Cottonwood [*Populus deltoides ssp. monilifera*], Trembling Aspen [*Populus tremuloides*], Shagbark Hickory [*Carya ovata*]) along the drain and hedgerows as well as some wetland-associated species within the drain itself (e.g. Broad-leaved Water-plantain [*Alisma plantago-aquatica*], Soft Rush [*Juncus effusus var. solutus*], Woolgrass Bulrush [*Scirpus atrovirens*], Common Reed [*Phragmites australis*], Narrow-leaved Cattail [*Typha angustifolia*] and Blue Vervain [*Verbena hastata*]).

According to the *SSEL Study* (Waldron and Leadley 2009) the vegetation along the CPR corridor consists of shrubs, vines and small trees with Dogwood-Prickly Ash thickets being the dominant vegetation. There is a shallow swale that parallels the tracks where wetland vegetation including sedges, grasses and forbs were observed. The CPR corridor also supports a few scattered trees (Pin Oak [*Quercus palustris*], hawthorns, Staghorn Sumac). The remainder of the site consists of agricultural fields that were fallow in 2011 and dominated by the non-native Giant Foxtail (*Setaria faberi*).

There were 57 vascular plant species recorded in the south portion of the subject property, in the very small, remnant habitats described above. The preliminary vascular plant list for the drain, hedgerows and CPR corridor is provided in Appendix B. The following bullets summarize the findings:

- 33% of the species observed during the November field surveys are non-native in Ontario.
- The majority (91%) of the species observed are 'Secure' or 'Apparently Secure' in Ontario (i.e. ranked S5, S4, SE5 or SE4).
- Two (2) provincially rare vascular plants have been recorded in the south portion of the subject property, along the CPR corridor (Tall Boneset[1] [S1, *Eupatorium altissimum*] and Missouri Ironweed [S3?, *Vernonia missurica*]).
- No SAR flora were observed in the south portion of the subject property.

[1]Although ranked S1, Tall Boneset is only considered native on Pelee Island. All other populations in Ontario are considered adventive (particularly along railroads)

The potential for SAR flora along the existing drain has been reviewed and found to be very low given the lack of observations (recognizing the timing of the field surveys) and nature of the existing vegetation (dominated by non-native and weedy species). That said, given the proximity of Climbing Prairie Rose (recorded in the north portion of the subject property) and a SAR aster (Willowleaf Aster [THR, S2, *Symphyotrichum praealtum*]) in a moist cultural meadow community to the south of the CPR tracks, there is the potential for these species (or others) to be found on site in the summer period.

Wildlife Resources and Habitat

Wildlife habitat in the south portion of the subject property is generally limited, with little cover and habitat diversity. As noted above, vegetation is limited to narrow strips of cultural meadow vegetation along the railway tracks, narrow riparian vegetation zones along the existing drain and 'scrubby' hedgerows at the field edges (dominated by shrubs and a few young trees). At the time of the November 2011 field surveys, the agricultural fields had been idle for at least one growing season and as a result are reverting to cultural meadow with an abundance of weedy grasses (predominately Giant Foxtail).

Given the above site characteristics, the availability of breeding bird habitat is limited. Small numbers of common, generalist species are expected to breed on site. Furthermore, during the May and July 2011 Breeding Bird surveys conducted by Ecoplans on the adjacent property to the south, no significant bird species were observed in the south portion of the subject property.

Several days of herpetofaunal surveys were conducted in September and October 2009, for the *SSEL Study*. These surveys incorporated lands to the west of the subject property as well as the south portion of the subject property. These surveys yielded observations of one reptile (Butler's Gartersnake – see following section) and one amphibian species (Northern Leopard Frog [*Rana pipiens*]). Amphibian breeding habitat is very limited on the subject property, with only the swale on the north side of the CPR line providing marginal potential in the deeper pooled areas (Waldron and Leadley 2009).

Species at Risk

The MNR indicated in an email dated December 30th, 2011 (Appendix A) that there are no known occurrences of SAR within the subject property (MNR 2011). Two species, Butler's Gartersnake and Climbing Prairie Rose, were noted to occur south and west of the site, respectively (MNR 2011). Eastern Foxsnake (Carolinian population) was also noted to regularly inhabit agricultural lands in the Windsor area (MNR 2011).

No SAR fauna were recorded by Ecoplans during the November 2011 field surveys. It is recognized that these surveys were outside the optimal period. However, the focus of the field surveys was to evaluate the *habitat potential* for SAR, with a focus on SAR species that are known to occur in proximity to the subject property.

Ecoplans' field surveys found that the majority of the subject property (all of the field area from the edge of the industrial block to the west - Anchor drive to the north - the CPR line to the south

and east to the property limits) are fields that had been idle for at least one growing season. As noted above, these fields are reverting to cultural meadow dominated by monotypic growth of Giant Foxtail. These site conditions are not at present suitable for Bobolink (*Dolichonyx oryzivorus*, THR) or Eastern Meadowlark (*Sturnella magna*, THR).

The vegetation surrounding the CPR line to the south is up to 4 m in width. According to the *SSEL Study* (Waldron and Leadley 2009) the vegetation along the track consists of shrubs, vines and small trees with Dogwood-Prickly Ash thickets being the dominant vegetation. There is a shallow swale that parallels the tracks where wetland vegetation including sedges, grasses and forbs were observed. This area likely provides good foraging habitat for Butler's Gartersnake and Eastern Foxsnake, and also has connectivity to confirmed Butler's Gartersnake habitat to the west.

The east-west reach of the Lachance Drain is fairly wide, moderately well buffered in places (up to 4 m to the south) and had observed flow during Ecoplans' November field surveys. This habitat likely provides a movement corridor with potential foraging habitat for both Butler's Gartersnake and Eastern Foxsnake, which have been confirmed off-site[2].

The north-south reach of the Lachance Drain is wider still [5 m+], with a good mix of grasses, weeds and Common Reed. This is directly connected to confirmed Butler's Gartersnake habitat to the west and could provide habitat for both SAR snakes.

Hibernation habitat potential for both snake species was also considered. Butler's Gartersnake hibernation in Canada has not been well documented, but it is believed that they hibernate in small mammal burrows, ant mounds, loose fill and/or crayfish burrows (COSEWIC 2010). During Ecoplans' November 10th, 2011 field visit, 5 crayfish burrows were located along the mud banks, in scattered locations, along a length of 400 m of the east-west reach of the Lachance Drain. The placement and density of these burrows, in the context of the local landscape, would be characterized as *low* density and less than ideal habitat for this species of crayfish. Much greater numbers of burrows were recorded along wet ditches on adjacent lands. In these off-property areas as many as 30-40 burrows were counted in sections of ditch not exceeding 400 m (Ecoplans, 2011 South Sandwich Secondary Plan field observations). Crayfish burrows appear more frequent along gently sloped ditches, with some 'shoreline' mud, as opposed to steep slopes and virtually no 'shoreline' habitat, as is typical along the existing Lachance Drain. No other hibernation features were noted in the study area.

Eastern Foxsnakes use a variety of natural and anthropogenic features for hibernation including "limestone bedrock fissures, small mammal burrows, bases of utility poles, canals, wells, cisterns and building foundations" (COSEWIC 2008 p.15). None of these features were observed in the

[2] Two Butler's Gartersnakes were recorded by Waldron and Leadley (2009) near the Munich Court Cul-de-sac. Ecoplans also had 2 Butler's Gartersnake observations in this same habitat area in May and July 2011. Eastern Foxsnake was observed by Ecoplans in 2011 approximately 1.5 km from the subject property.

study area. Furthermore, additional desirable habitat features such as downed trees, brush piles, hay piles, table rocks, or tree stumps were not observed.

Considering the habitat characteristics described above and the proximity of Confirmed Butler's Gartersnake and Eastern Foxsnake records nearby, the potential for these species utilizing the subject lands for foraging and movement is ***high*** (Lachance Drain) however hibernation habitat potential is ***low***. The habitat potential for Bobolink and Eastern Meadowlark is ***low***, given the current characteristics of the fields. A mono-type of Giant Foxtail would be considered unsuitable habitat for either species.

Proposed Works

Works will include the relocation of a 480 m long section of the Lachance Municipal Drain, which is located in the vicinity of the proposed track alignment. The relocation is required by the City to optimize the future wind turbine storage and railway access for C.S. Wind, as well as future land uses contemplated by the City in this area.

The Lachance Drain is a regulated waterway that is under the jurisdiction of ERCA. A permit will be required (Section 28 of the Conservation Authorities Act) prior to undertaking works on the drain. For the new alignment, the proposed drain will be approximately 550 m long and will include the construction of two (2) new culvert crossings to carry the proposed spur line over the drain. In addition to these two main culverts, two drainage culverts are required below the spur tracks to maintain drainage within the CPR right-of-way (ROW). A temporary culvert across the existing Lachance Drain alignment will be required to stage construction of the project, this culvert will be abandoned once the drain has been relocated.

The proposed drain will have a trapezoidal cross-section with a 1 m shelf located 0.25 m above the drain invert to provide additional snake habitat. The attached Landscape Restoration Plan drawings illustrate the proposed Lachance Drain design (see Appendix C).

Environmental Management and Monitoring Approach

The proposed Environmental Management Approach has been developed with a focus on the protection of SAR and SAR habitat. Although no SAR have been observed within the limits of the proposed works, there is potential for SAR to occur. At each stage of the construction a number of proactive protection measures are proposed. These are outlined in the table below with further details found on the attached Landscape Restoration Plan (Appendix C). The general principles of the environmental management approach were discussed during the agency meeting on January 30, 2012, and MNR indicated approval in principle with the approach in the meeting minutes subject to review of the application material. ERCA staff have also reviewed the minutes and support the approach in principle subject to the same caveat.

Table 1. Environmental Management and Monitoring Approach for 2012 Rail Spur Construction and Lachance Drain Relocation

Proposed Works (in anticipated order of occurrence)	**Anticipated Timing**	**Potential Impacts**	**Mitigation Measures and Monitoring Requirements**
New Culvert installation and Rail Spur Construction • A new (temporary) culvert crossing of the Lachance Drain will be installed to support equipment during the rail spur construction. The culvert will be filled once the realigned drain is opened. • Access for rail spur construction will be from north of the Lachance Drain.	**To begin after June 30th, 2012** (to avoid the in-water works timing window)	**Vegetation** DIRECT IMPACTS • A small section of the existing Lachance Drain and its associated riparian habitat (estimated at 0.04 ha) will be disturbed by the construction of the temporary culvert crossing. Vegetation along the drain is known to be a mix of herbaceous, graminoid and shrub material with a few young trees. No species of significance have been recorded to date along the drain. • A north-south 'hedgerow' dominated by shrubs and very young trees will be removed by the rail spur construction. No species of significance have been recorded to date in this 'hedgerow' INDIRECT IMPACTS • Potential for damage to vegetation outside the work zone; sedimentation; spills of contaminants/fuels; root pruning; damage to limbs; and soil compaction. **Wildlife** DIRECT IMPACTS • Loss of wildlife habitat within a small (approximately 0.04 ha) area of the existing drain and its riparian zone, as well as in the north-south 'hedgerow' • Loss of potential (marginal) SAR snake foraging and movement habitat along the 'hedgerow'. • Potential for disturbance of individual snakes during construction. INDIRECT IMPACTS • Potential for temporary disturbances to species occupying adjacent habitats during construction. • Potential for damage to habitat outside the work zone (as noted above in relation to vegetation impacts)	**Vegetation** • Salvage herbaceous vegetation within the working zone and stockpile adjacent to the new drain alignment. • Install temporary erosion control measures along the salvaged zone (The MNR recommends Curlex® Net Free™ 100% biodegradable erosion control blankets to avoid snake entanglement. However an alternate product may be utilized upon approval by the MNR). • Install sediment and erosion control measures prior to the commencement of construction and maintain until the site has been stabilized. Construction phasing will be scheduled to minimize the extent and period to which disturbed soils are exposed to weathering. **Wildlife** In order to protect nesting migratory birds, in accordance with the Migratory Birds Convention Act (MBCA), the following guidance is provided: • Ensure that timing constraints are applied to avoid vegetation clearing (including grubbing) and/or structure works (construction, maintenance) during the breeding bird season (approximately May 1st to August 8th). Occasionally bird species will precede (e.g. mid-April nesting) or exceed (e.g. September) the approximate breeding bird season window. **If clearing cannot be timed to avoid this window, the contractor is advised to contact John Fischer at Environment Canada (Burlington – Phone: 905-336-4961) for advice on appropriate / acceptable mitigation.** • The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the Provincial Endangered Species Act (ESA 2007). If any such nests are encountered the Contractor Administrator must be contacted. • If a nesting migratory bird (or SAR protected under ESA 2007) is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA, or ESA (2007), **all activities will stop and MNR and Environment Canada will be contacted to discuss mitigation options.** In order to protect SAR snakes during construction (including Butler's Gartersnake and Eastern Foxsnake) the following measures are recommended: • Erect temporary snake barrier fencing around the construction zone prior to the initiation of works, and maintain throughout construction. • A Biologist (familiar with snake identification) shall be on site during the culvert installation to monitor for snake encounters and inspect the snake barrier fencing. • While it is not expected that Butler's Gartersnake or Eastern Foxsnake individuals will migrate into the active construction zone, the contractor shall conduct daily external and internal inspections of all pieces of equipment on the active construction site prior to start up or operation to ensure that there are no snakes in or on the equipment. • Should individuals of any endangered or threatened snake species be encountered within or on any equipment, or within the active construction site enclosed by the snake barrier, the contractor shall maintain a minimum operating distance of 30 m from the individual until the following day in order to allow the individual to disperse out of the active construction site on its own ability. • Should the contractor be unable to allow an incidentally encountered individual of any endangered or threatened snake species to disperse from the active construction site under its own ability, **the contractor shall immediately contact the MNR Aylmer District Species at Risk Biologist to seek direction (Catherine Jong – Phone 519-773-4736)**

Proposed Works (in anticipated order of occurrence)	**Anticipated Timing**	**Potential Impacts**	**Mitigation Measures and Monitoring Requirements**
Construct Realigned Drain Section • The realigned Lachance Drain will be constructed following ERCA approval of the design drawings.	**Flexible timing (June to August)**	**Vegetation** DIRECT IMPACTS • Limited to the agricultural fields. No anticipated impacts to native vegetation or species of significance. INDIRECT IMPACTS • Potential for damage to vegetation outside the work zone; sedimentation; spills of contaminants/fuels; root pruning; damage to limbs; and soil compaction. **Wildlife** DIRECT IMPACTS • Potential loss of snake movement habitat within the agricultural fields. • Potential for disturbance of individual snakes during construction. INDIRECT IMPACTS • Potential for temporary disturbances to species occupying adjacent habitats during construction. • Potential for damage to habitat outside the work zone (as noted above in relation to vegetation impacts)	**Vegetation** • Provide temporary erosion control measures along the realigned drain (The MNR recommends Curlex® Net Free™ 100% biodegradable erosion control blankets to avoid snake entanglement. However an alternate product may be utilized upon approval by the MNR). • Implement proposed landscape plantings including the placement of the stockpiled plant material according to the specifications outlined in the Landscape Restoration Plan (see Appendix C). • Salvage herbaceous material from the existing east-west Lachance Drain and place strategically within the newly constructed and realigned drain following the procedures identified in the Landscape Restoration Plan (Appendix C). Salvaged material will have been staked by a botanist in June/July 2012 incorporating suitable salvage zones and additional SAR plants that may be evident at that time. Salvage and reinstatement is identified over a 5 day period commencing no later than September 1, 2012. This timing is identified to allow sufficient time for plants to become established before opening the realigned channel (see further below). • The realigned drain will remain plugged at both ends until all plant material has had >30 days to become established. **Wildlife** • As previously documented above
Fill the east-west reach of the Existing Lachance Drain	**After October 2012** (following opening of the new drain channel)	**Vegetation** DIRECT IMPACTS • The east-west portion of the existing Lachance Drain and its associated riparian vegetation will ultimately be filled, graded and removed. Vegetation is known to be a mix of herbaceous, graminoid and shrub material with a few young trees. No species of significance have been recorded to date. INDIRECT IMPACTS • Potential for damage to vegetation outside the work zone; sedimentation; spills of contaminants/fuels; root pruning; damage to limbs; and soil compaction. **Wildlife** DIRECT IMPACTS • Loss of wildlife habitat within the existing drain and its riparian zone. • Potential loss of SAR foraging and movement habitat along the existing drain. • Potential for disturbance of individual snakes during grading. INDIRECT IMPACTS • Potential for temporary disturbances to species occupying adjacent habitats during construction. • Potential for damage to habitat outside the work zone (as noted above in relation to vegetation impacts)	**Vegetation** • Ecoplans Botanist shall review the existing Lachance Drain in June/July 2012. The intent of this review is to search for threatened or endangered plant species and identify plant zones that are suitable for salvage and transplant (i.e. limited woody plant material and no trees). The Botanist shall flag areas for subsequent salvage in September 2012. • **Should individuals of any endangered or threatened plant species be observed along the existing drain, or elsewhere on the subject property, no disturbance to the plants or their habitat will occur until an appropriate mitigation plan has been developed in cooperation with the MNR Aylmer District SAR Biologist**. • Sediment and erosion controls will be maintained until all construction activity is completed and disturbed areas have been properly stabilized. **Wildlife** • As previously documented above Additional habitat for Butler's Gartersnake and Eastern Foxsnake will be provided as follows: • A 1m shelf located 0.25 m above the new drain invert will provide additional foraging and movement habitat for both target snake species as well as increased habitat for chimney crayfish, a species whose burrows are believed to provide hibernation sites for Butler's Gartersnake. • The realigned drain (550 m) will add more length (70 m) of foraging and movement habitat for snakes than the current east-west drain (480 m). In addition, the realigned drain will be wider, with a larger vegetated tableland component (22 m row compared with about 4-10 m along current drain) and will provide a "net benefit" in terms of both potential hibernation and foraging/cover habitat than is currently available along the existing east-west drain.

Construction Monitoring Program

Standard construction monitoring will be carried out to ensure that environmental protection and erosion controls are implemented during construction are in good working order and are performing as expected.

Monitoring should consist of the following activities that are the responsibility of the Contractor:

- Periodic inspection of the temporary sediment storage locations and other erosion control works;
- Inspection of the temporary sediment storage locations after significant rainfall events or weekly, whichever is shorter;
- Inspection of sediment control fencing to ensure that it is in good repair;
- Removal of construction debris that may accumulate along, and damage, the above fencing;
- Implementation of remedial measures, where required, as quickly as possible (e.g. erosion stabilization; repair/replacement of damaged/fallen fencing; pruning, fertilization or irrigation of retained trees).

Regular monitoring reports will be prepared to document the performance of the erosion and sediment control measures, addressing: 1) integrity and effectiveness of controls; 2) condition of temporary sediment storage locations; and 3) any recommendation for action or additional monitoring.

On completion of construction, the Engineering Consultant will submit a Letter of Certification to the City and the ERCA indicating that all drainage works have been constructed in accordance with Engineering Drawings.

Landscape Planting Monitoring

The landscape plantings along the realigned drain are to be monitored and replaced as necessary, for a period of 2 years. See Landscape Restoration Plan (Appendix C) for further details.

Conclusions and Recommendations / Follow-up Work

It is our opinion that with the implementation of the recommended mitigation measures, the proposed works can proceed without harm to the natural environment. The measures recommended for the protection of SAR will ensure that endangered and threatened species or their habitat will not be harmed. In fact, we believe that an overall net benefit will be provided with the creation and naturalization of the realigned drain.

Furthermore, the proposed relocated drain and its associated top of bank habitat (22 m wide) is substantially wider than the existing linear habitat (approximately 4-10 m wide) which will provide more foraging areas for snakes and improve snake movement opportunities. The 1 m shelf located 0.25 m above the new drain invert will also provide additional foraging and

movement habitat for both target snake species as well as increased habitat availability for chimney crayfish, a species whose burrows are believed to provide hibernation sites for Butler's Gartersnake. These proposed measures should provide an overall net benefit to potential snake habitat on the subject property.

The salvage of herbaceous vegetation zones from the existing drain and the restoration planting plan also ensures an overall net benefit to vegetation quality in the study area. No SAR flora have been recorded in the study area and none are expected given the known habitat characteristics. A due diligence flora inventory in June or July 2012 is proposed to confirm the absence of SAR flora. The Landscape Restoration Plan allows for the additional salvage of any identified SAR plants, supplementary to the other salvage zones, and in consultation with MNR.

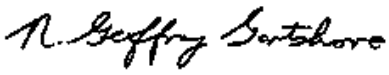
We trust that this approach, which mirrors that taken on the adjacent lands to the west (drain relocation and sanitary sewer construction in recorded Butler's Gartersnake habitat), will provide sufficient grounds for MNR to conclude there will be no contravention of Sections 9 or 10 of the ESA (2007) for the proposed works,

It should be noted once again that this *Terrestrial Technical Brief* relates only to the south portion of the property and the proposed works described herein. Any future servicing or development of the subject property will be subject to additional natural environmental review, reporting and agency approval.

All of which is respectfully submitted by,

ECOPLANS | A Member of MMM Group

Heather Drost, B.Sc.
Botanist/Biologist



Geoffrey Gartshore, M.Sc.
Senior Ecologist

K:\Projects\2011\32 (MRC_MIS)\3211128 Windsor Spur Line (MMM and MRC)\Ecology\Reports\Terrestrial Design Brief\Drafts\3211128 Windsor Spur Line Terrestrial Brief March 21 2012 DRAFT for submission.docx

REFERENCES

Bakowsky, W.D. 1996. *Natural Heritage Resources of Southern Ontario: Vegetation Communities of Southern Ontario*. Ontario Ministry of Natural Resources, Natural Heritage Information Centre.

Botham, W. 1981. *Plants of Essex County: A Preliminary List*. Essex Region Conservation Authority.

Chapman, L.J. and D.F. Putnam. 1984. *The Physiography of Southern Ontario*. Ontario Geologic Survey, Special Volume 2, 270 pp. Accompanied by Map P.2226.

COSEWIC. 2010. *COSEWIC assessment and status report on the Butler's Gartersnake Thamnophis butleri in Canada*. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 51 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COSEWIC. 2008. *COSEWIC assessment and update status report on the Eastern Foxsnake Elaphe gloydi, Carolinian population and Great Lakes/St. Lawrence population, in Canada.* Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 45 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COSSARO. 2011. COSSARO *Candidate Species at Risk Evaluation Form for Butler's Gartersnake (Thamnophis butleri)*. February 2011. Final.

Ecoplans. 2011. Field notes and observations – South Sandwich Secondary Plan and Lauzon Parkway Class EA (in progress).

Lee, H.T, W.D. Bakowsky, J.L. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and its Application*. Ontario Ministry of Natural Resources, Southcentral Region, Science Development and Transfer Branch. Technical Manual ELC-005.

Ministry of Natural Resources. 2011. *Email Correspondence from Amanda McCloskey, MNR Aylmer District*. Email dated December 30th, 2011.

Ontario Ministry of Natural Resources. 2000. *Significant Wildlife Habitat Technical Guide.* Fish and Wildlife Branch, Wildlife Section. Science Development and Transfer Branch, Southcentral Sciences Section.

Richards, N.R, A.G. Caldwell and F.F. Morwick. 1989. *Soil Survey of Essex County. Report No. 11 of the Ontario Soil Survey*. Ontario Ministry of Agriculture and Food.

Waldron G. and Leadley T. 2009. *Sandwich South Employment Lands Trunk Sanitary Sewer Habitat Evaluation and Species at Risk Survey*. December 23, 2009.

FIGURES

L:\projects\20111321128_WindsorRailSpur\Maps\3321111128_WindsorRailSpur_EnvironmentalFeatures_March2012.mxd 2012\03\19

Legend

- Subject Property
- Study Area
- Reach of LaChance Drain that has been re-aligned
- Vegetation Units (1-7)
- Hedgerow Units (HR)
- Active Grading (approx.)

Unit	ELC Code	Description
1	CUM1-1	Dry-Moist Old Field Cultural Meadow
2	CUM1-1	Dry-Moist Old Field Cultural Meadow
3	MAM2-10	Forb Mineral Meadow Marsh
4	SWT2-2	Willow Mineral Thicket Swamp
5	CUM1-1	Dry-Moist Old Field Cultural Meadow
6	CUM1-1	Dry-Moist Old Field Cultural Meadow
7	CUM1-1	Dry-Moist Old Field Cultural Meadow

Notes:
Species at risk have been recorded in the study area but are not mapped due to the sensitivity of this information

AURORA DR
AVERY LANE
IVY LANE
PINEVIEW CRES
ASPEN LANE
LONSDALE CRES
DEERBROOK DR
E.C. ROW AVE
HEMLOCK RD
E.C. ROW EXPY
ANCHOR DR
C.S. Wind
TWIN OAKS DR
VALTEC CRT
INTERSECTION RD
Little River
LaChance Drain
MUNICH CRT
Previously re-aligned LaChance Drain
Sanitary Sewer Installation
CP RAILWAY
LAUZON RD
BANWELL RD
HR1
HR2
HR3
HR6
1
2
3
4
5
6
7

ecoplans
A member of MMM GROUP

Windsor Railway Spur Line
Environmental Features

Bing, Airphoto, 2006

0 40 80
metres
1:5,000

N

Date: March 2012
Project No: 3211128
Figure No: 1

Appendix A – Agency Meeting Minutes and Agency Correspondence

ecoplans
A member of MMM GROUP

72 Victoria Street, Suite 100
Kitchener, Ontario N2G 4Y9
Tel: (519) 741-8850
Fax: (519) 741-8884
E-mail hdrost@ecoplans.com
Website: www.ecoplans.com

MINUTES OF MEETING

PROJECT:	Windsor Spur Line Class EA and Rail Spur Design	
FILE NO.:	3211128	
DATE:	January 30th, 2012 10:00am	
LOCATION:	MNR Aylmer District Office	
PRESENT:	Mike Nelson	MNR (Management Biol)
	Catherine Jong	MNR SAR Biologist
	Cristal Heintzman	MNR Planning
	Scott Bowers	MRC
	Geoff Gartshore	Ecoplans
	James Holdsworth	Ecoplans
	Heather Drost	Ecoplans
	By telephone:	
	Fahd Mikhael	City of Windsor
	Rebecca Belanger (*signed out after ~15 minutes)*	ERCA
PURPOSE:	Project Overview; SAR and Environmental Management Discussion	

ITEM	PROCEEDINGS:	ACTION BY:
1.0	**Project Overview / Construction Schedule - Fahd Mikhael (FM) and Scott Bowers (SB)**	
1.1	FM gave an overview of the project with the following highlights: • The project is progressing as a Municipal Class EA (Schedule B) • A Public Meeting was held last week which will be the only PIC but comments will continue to be accepted until February 9th • The City is trying to complete the EA as soon as possible • The design will be proceeding immediately following approval of the EA with the intention to start construction in May 2012, with contract documents ideally tendered in April. • There are two main construction components for 2012: 1) construction of Rail spur to CS Wind; and 2) the relocation of the LaChance Drain. The extension of Twin Oaks Drive will not likely proceed this year. At a future date it will be extended along with associated servicing.	

ITEM	PROCEEDINGS:	ACTION BY:

1.2 SB indicated that there are 4 main components to the study:

1) Railway Spur line off the CP rail to service the CS Wind site (this is a critical element that the client is hoping to have in place by August 2012)
2) Relocation of LaChance Drain along the east and south property limits
3) Road extension of Twin Oak Drive (still 2 options being considered)
4) Site servicing along road alignment

1.3 SB noted that PIC attendance was limited to owners from the industrial park to the west, a few concerned citizens from north of EC ROW Expressway and a few representatives from Lil' Reg (Little River Enhancement Group). The Lil' Reg group requested that the LaChance Drain work be conducted carefully to mitigate impacts and enhance the future channel, given its connection to Little River to the west. No other environmental matters specific to the present undertaking were raised

2.0 Field Work Overview (including adjacent lands and subject property) - James Holdsworth (JH), Geoff Gartshore (GG) and Heather Drost (HD)

2.1 JH noted that extensive 3 season wildlife surveys have been undertaken on the surrounding lands and to the south as part of the Windsor Lauzon EA and South Sandwich Secondary Plan, which has been previously discussed with MNR and ERCA. That work included snake emergence surveys in April 2011, Breeding Bird surveys from Late May into July 2011, and insect surveys into August 2011. Four Butler's Gartersnakes were observed on lands to the southwest of the subject lands in habitat surrounding Little River (near Munich Court). An Eastern Foxsnake has been recorded within 1.5km of the subject lands. During field work for the adjacent lands, the current subject lands were reviewed from the south limits of the property (CP rail tracks) and breeding bird diversity was noted to be low with no suitable habitat for SAR birds.

2.2 GG also noted that an Ecoplans Botanist has reviewed the adjacent lands extensively during multi-season surveys, and we have documented rare flora species in similar hedgerow and drain features as found on site. This extensive experience in the area has been helpful in our review of the current site.

2.3 JH noted that the NHIC database only has 2 SAR wildlife records (both Five-lined Skink) within the two 1km squares that cover the subject lands. There is no skink habitat on site or in the surrounding landscape that has been reviewed. (Skink habitat potential in the area was previously discussed with Ron Gould – MNR SAR Biologist - who agreed with our assessment).

2.4 JH noted that a site visit to the property was conducted on November 10th 2011 to review wildlife habitat conditions, in particular SAR habitat potential (recognizing the presence of Butler's Gartersnake, Eastern Foxsnake, Eastern Meadowlark and Bobolink in the surrounding and adjacent habitats). Although no snakes were observed, the LaChance Drain and railway ROW were noted as having good potential as movement and foraging habitat for both Butler's and

ITEM	PROCEEDINGS:	ACTION BY:

Foxsnake. A few crayfish burrows were noted along the east-west portion of LaChance Drain – however crayfish evidence was limited compared with our observations in the drain and Little River area immediately off site to the west. Accordingly, JH considers the subject lands to have very limited hibernation or breeding habitat potential for the two target snakes (i.e.; no brush piles, concrete, debris piles etc.). At best, JH is of the opinion that the Lachance Drain and the railway ROW could provide movement and some foraging opportunities for the snakes, if in fact they are even present.

2.5 In addition to the wildlife habitat assessment, HD indicated that Ecoplans spent two additional days on site (November 15th and 25th) under snow free conditions documenting all plant species in evidence at that time, with a particular focus on rare species. Although survey timing was out of the ideal in-season period (due to schedule constraints), Ecoplans still had good coverage of the subject lands and recorded 120 vascular plant species, including 4 species of conservation concern (Climbing Prairie Rose [SC], Bushy Aster [S2], Missouri Ironweed [S3] and Tall Boneset [S1]). A questionable Mulberry specimen was also collected and sent to the University of Guelph Biodiversity Institute for DNA analysis and was confirmed to be White Mulberry. HD also noted that a number of additional rare species are recorded in MNRs Biodiversity Explorer database as being recorded in the general vicinity and Ecoplans recognizes that there is the possibility that additional rare species could be present on site.

2.6 Ecoplans has also completed fisheries work on the LaChance Drain on site, during additional visits in November 2011. The work entailed dip netting, installation of minnow traps, and walking the drain to record aquatic habitat and riparian conditions. Central Mudminnows and one Centrarchid (YOY – Green Sunfish?) were recorded. HD gave a brief overview of the fisheries field work and agency liaison that has occurred. The key points noted below:

1) The LaChance Drain is classified by ERCA as a Level 'F' drain (intermittent watercourse) and by MNR as a warmwater system.
2) Although DFO's SAR mapping initially indicated that there are aquatic SAR in the system, subsequent liaison with DFO clarified that this is incorrect and the mapping has been revised. ~~ERCA has confirmed that there are no aquatic SAR present~~. Correction: ERCA confirmed that the current DFO SAR screening maps no longer identify this watercourse as having federally listed aquatic SAR.
3) Previous downstream work on the drain was permitted through a letter of advice (LOA) but ERCA has indicated they wish to review the design to make a final determination if an LOA or Fisheries Act Authorization will be required for the drain relocation on the subject property.

ITEM	PROCEEDINGS:	ACTION BY:

3.0 Environmental Management / Mitigation Plan – GG, JH, HD, SB

3.1 GG reviewed the proposed environmental management / mitigation plan which included the following:

1) Keep existing LaChance Drain culvert crossing as a temporary crossing for Contractor to access lands south of the drain (construction to start Mid-March)
2) Install additional CSP culvert at LaChance Drain to support rail spur construction – install either before March 15 (and monitor for snakes) or after June 30 (and monitor for snakes) to avoid in-water works timing window. CSP to be backfilled once drain is re-routed. HD noted that vegetation from this disturbance zone would be salvaged in sod mats and stockpiled for use in the new drain restoration plan.
3) Leave rest of LaChance Drain as is, for now, and fence construction zone to restrict contractor access / disturbance of adjacent natural areas. We recommend environmental monitoring (Ecoplans staff) during construction to address/manage snake issues (if they arise) with protocols to contact MNR and protect any snakes encountered following MNR accepted procedures.
4) Following agency approval of the design plans (combined aquatic and terrestrial), construct the realigned Lachance Drain section (along east and south property limit, but outside CR Rail ROW), but do not connect to existing LaChance Drain at that time (timing subject to agency approval).
5) Provide temporary erosion measures along realigned drain (summer 2012).
6) Review existing LaChance Drain in summer 2012 and assess/flag salvage areas for restoration of realigned drain.
7) Transplant selected sod sections to realigned drain in Sept 2012 (to be incorporated in zones as indicated on the creek realignment / landscape plans).
8) Open new channel for water flow in Oct 2012.
9) Fish culverts at realignment channel to be suitable for both fish passage and snake use.
10) Fill in/grade former LaChance drain after realignment drain is opened (Oct/Nov 2012).

3.2 GG noted that the above measures will be supplemented by a similar suite of protection measures identified by MNR in their ESA Letter of Advice (2010) for the sewer work and channel realignment work on the adjacent lands to the west. These measures would include temporary snake fencing around all work zones, monitoring of snake presence during construction and employing snake management protocols as per MNR direction for the adjacent sewer works.

3.3 GG also noted that the realigned drain would have a 22m wide ROW which considerably exceeds the current drain dimensions. The realigned channel will be restored with salvaged and planted vegetation (compatible species) and will also have a wider cross section allowing for more grassed tableland, all of which will provide enhanced movement and foraging opportunities for SAR snakes (if in fact they are using the current drain) to access the prime habitats offsite to the west. The salvaged sod material will provide a repository of plant material,

ITEM	PROCEEDINGS:	ACTION BY:
	seeds and rootstalks which will conserve rare plants on site and hasten the regeneration process.	
3.4	Catherine Jong (CJ) asked if we were planning to conduct any April snake emergence surveys in the spring to see if snakes are using the observed crayfish burrows as hibernacula.	
3.5	JH replied that this was not planned – however, Ecoplans would be on site in March if initial culvert placement is undertaken in the drain at that time, to address any snake encounters and mitigation that might be required, in consultation with MNR.	
4.0	**Discussion and Next Steps - ALL**	
4.1	The design and preparation of the drain realignment plan (fisheries requirements) and terrestrial SAR protection measures (flora and snakes) will now be initiated, and will be submitted as a consolidated package to both ERCA and MNR for concurrent review. MNR staff (CJ) have committed to a 3-5 week review period for the assessment of the ESA status of the work after their receipt of the plan. Correction: MNR indicated that a *general timeline* for ESA reviews are 3-5 weeks; this was not a commitment made, although it is the usual timeline MNR tries to follow.	**MMM Group, Ecoplans**
4.2	CJ suggested adding a timeline or sequence of events to the submission to make it very clear how the construction and mitigation measures will be implemented. CJ also recommended adding observation / response statements to the plan to provide explicit instructions for if/when snake encounters occur.	**Ecoplans**
4.3	CJ also requested that we submit information on the Butler's Gartersnake observations that we recorded in 2011 near Munich Court (photos, UTMs, etc.). Additional request: CJ has requested that the information on Butler's Gartersnake be provided for both species observations **and habitat** for the project area. It is also recommended these observations be related back to the proposed locations of project activities on the site for potential impacts to be addressed.	**Ecoplans**
4.4	SB asked if we could submit a separate application for the temporary culvert across the existing drain to expedite approval of this one portion of the work.	
4.5	Mike Nelson (MN) requested that we submit as much as possible at once and that we make our submission as complete as possible to expedite their review. This avoids the back and forth that is sometimes required when information is missing.	
4.6	Cristal Heintzman will review the Letter of Advice (LOA) that was prepared for the adjacent drain works in 2010 as a guide for MNR when they assess ESA implications of the present undertaking. MNR noted that the Letter to Proponent (LOA) AYL-L-042-10 is not the most current MNR letter for the adjacent	**MNR**

ITEM	PROCEEDINGS:	ACTION BY:
	project, the Sandwich South Employment Lands Trunk Sanitary Sewer Project. LOA Ayl-L-125-11 dates June 27, 2011 is an update to the February 5, 2010 letter and therefore both should be referred to.	
4.7	MN suggested at the close of the meeting that Ecoplans prepare and distribute minutes to MNR and ERCA, and perhaps follow up with ERCA through a phone call, given that their staff member had to be called away from the tele-conference. Accordingly a draft copy of the minutes will be sent to John Henderson and Rebecca Belanger (ERCA) for their review.	**Ecoplans**
4.8	MN indicated that MNR has agreed in principle with the Environmental Management Plan / Mitigation recommendations discussed today.	

The meeting adjourned at 11:40 a.m.

The forgoing represents the writer's understanding of the major items of discussion and the decisions reached and/or future actions required. If the above does not accurately represent the understanding of all parties attending, please notify the undersigned immediately upon receiving these minutes (519-741-8850).

Minutes Prepared by:
Ecoplans (a member of MMM Group)

Heather Drost

cc: Attendees
Mark Cece, MMM Group
Alex Stettler, MMM Group
John Henderson, ERCA

K:\Projects\2011\32 (MRC_MIS)\3211128 Windsor Spur Line (MMM and MRC)\Ecology\Agency meetings\MINUTES OF MNR MEETING January 30 2012 revised February 10.docx

Heather Drost

From: Heintzman, Cristal (MNR) <Cristal.Heintzman@ontario.ca>
Sent: December-30-11 10:52 AM
To: Geoffrey Gartshore
Cc: Heintzman, Cristal (MNR); McCloskey, Amanda (MNR)
Subject: FW: Data Request - Windsor Spur Line Project
Attachments: 3211128 Windsor Spur MNR Data Request Final Letterhead Dec 5 2011.pdf; 321128 Windsor Spur Rail Concept and Lands to be Serviced.pdf; Windsor Spur Line Key Plan 3211128.pdf; MTO Fisheries Background Request - Windsor Spur Rail.doc; Windsor Spur Rail - Fish Query (2011-12-21).xls; Windsor - Spur Line (Fish Query Map).pdf

Hi Geoffrey,

Thank you for your email regarding the Windsor Spur Line project site just east of the Lauzon Parkway and the Windsor airport. The MNR has reviewed the site and have the following information to provide. Below references known and identified information; please note information may exist for which the MNR does not hold records.

Species at Risk
There are no known occurrences of species at risk (SAR) within the identified area but there is a known occurrence of Butler's Gartersnake 1 km south of the site as well as Climbing Prairie Rose west of the site. Butler's Gartersnake is an endangered species with both species and habitat protection under the Endangered Species Act, 2007 (ESA 2007). Climbing Prairie Rose is a species of special concern under the ESA 2007 and can be found in clearings, edge habitats, and along drainage corridors.

Eastern Foxsnake (Carolinian population) and its habitat are protected under the ESA 2007. This species regularly inhabits agricultural lands throughout the Windsor area, and so, woodlands, farm hedgerows, and drainage corridors can be important habitats as well as seasonal migration linkages. Eastern Foxsnake may also utilize old bridges, culverts, and foundations as communal over-wintering sites. It is recommended that netting type erosion control measures not be used for projects over drains and rivers. At these locations an alternative product such as Curlex Netfree® blankets should be used for erosion control to prevent entanglement of Eastern Foxsnake.

Please note that the absence of species and/or habitat occurrences during MNR's information request screening does not indicate the absence of SAR. A preliminary site investigation could aid in identifying SAR species and/or habitats that may be present within the project footprint.

Fisheries
Please find attached the aquatics information requested. MNR does not have fish records for the Lachance Drain (which runs in a western direction off of Little River drain). However we have provided the fish information for the area in the vicinity of the project location. The Lachance Drain thermal regime is warm water with similar fish community presence to the other 3 sites where information was provided.

Please note that the DFO SAR screening mapping is 'Red' indicating presence of endangered, threatened, extirpated species in the surrounding watercourses.

The Windsor Airport Swamp is also within 1.5km from the subject lands. Please let me know if you are interested in obtaining a copy of the wetland evaluation file.

MNR is also aware that Essex Region Conservation Authority (ERCA) has additional fish records within this vicinity (2004 vintage at least). MNR recommends that ERCA is also contacted to obtain additional information.

For your information
There has been some significant fish habitat compensation work done in this area to accommodate some of the development already – ERCA as the Level III DFO Fish habitat agreement will have more information on this. The only other information I have is that the Jamieson plant on Twin Oaks Drive is looking at naturalizing the rear portion of their property abutting Little River. This is the area immediately north of the CPR main line and west of Little River.

If you have any questions please let me know.

Thank you,

Amanda McCloskey
District Planner

From: Geoffrey Gartshore [mailto:GGartshore@ecoplans.com]
Sent: December 6, 2011 10:08 AM
To: McCloskey, Amanda (MNR)
Subject: FW: Data Request - Windsor Spur Line Project

Hello Amanda:

Message re-sent as I made an error in your e-mail address.

Please see below.

Regards,

Geoff Gartshore, M.Sc.
Associate Partner/Senior Ecologist

Ecoplans Limited
72 Victoria St. South
Suite 100
Kitchener, Ontario
N2G 4Y9

O - (519) 741-8850
C - (519) 240-3474
email: ggartshore@ecoplans.com

From: Geoffrey Gartshore
Sent: December-06-11 9:32 AM
To: 'Amanda.McClosky@ontario.ca'
Cc: 'ron.gould@ontario.ca'; Heather Drost ; James Holdsworth ; Bill Draper - Ecoplans; Scott Bowers; Mark Cece - MMM
Subject: Data Request - Windsor Spur Line Project

Hello Amanda:

Please find the attached request for information for the Windsor Spur Line project site just east of the Lauzon Parkway and the Windsor airport.

Please do not hesitate to call us if you have any questions.

Regards,

Geoff Gartshore, M.Sc.
Associate Partner/Senior Ecologist

Ecoplans Limited
72 Victoria St. South
Suite 100
Kitchener, Ontario
N2G 4Y9

O - (519) 741-8850
C - (519) 240-3474
email: ggartshore@ecoplans.com

Appendix B – Preliminary Vascular Plant List (South Study Area Only)

Table 1. Preliminary Vascular Plant List

#	Common Name	Accepted Name (Nature Serve Explorer - August 2010)	Unit 6 (Lachance Drain)	Unit 7 (Rail Corridor)	HR6	cc[1]	cw[1]	Grank[2]	Srank[3]	COSEWIC[4]	MNR[5]	SARA Status[6]	Sched.[6]
1	Velvet-leaf	*Abutilon theophrasti*	x			*	4	G?	SE5				
2	Common Yarrow	*Achillea millefolium ssp millefolium*			x	*	3	G5T?	SE?				
3	Small-flower Agrimony	*Agrimonia parviflora*	x			4	-1	G5	S4				
4	Broad-leaved Water-plantain	*Alisma plantago-aquatica*	x			3	-5	G5	S5				
5	Garlic Mustard	*Alliaria petiolata*			x	*	0	G?	SE5				
6	Great Ragweed	*Ambrosia trifida*	x	x		0	-1	G5	S5				
7	Musk Thistle	*Carduus nutans ssp. nutans*			x	*	5	G?T?	SE?				
8	Hop Sedge	*Carex lupulina*		x		6	-5	G5	S5				
9	Shagbark Hickory	*Carya ovata*	x			6	3	G5	S5				
10	Chicory	*Cichorium intybus*	x			*	5	G?	SE5				
11	Bull Thistle	*Cirsium vulgare*	x			*	4	G5	SE5				
12	Silky Dogwood	*Cornus amomum ssp obliqua*		x		5	-4	G5T?	S5				
13	Gray Dogwood	*Cornus racemosa*			x	2	-2	G5	S5				
14	Red-osier Dogwood	*Cornus sericea*	x	x		2	-3	G5	S5				
15	Queen Anne's Lace	*Daucus carota*	x			*	5	G?	SE5				
16	Barnyard Grass	*Echinochloa crus-galli*	x			*	-3	G?	SE5				
17	Field Horsetail	*Equisetum arvense*	x			0	0	G5	S5				
18	Variegated Horsetail	*Equisetum variegatum var. variegatum*		x		5	-3	G5T	S5				
19	White-top Fleabane	*Erigeron annuus*		x		0	1	G5	S5				
20	Tall Boneset	*Eupatorium altissimum*		x		3	3	G5	S1				
21	Grass-leaved Goldenrod	*Euthamia graminifolia*	x	x		2	-2	G5	S5				
22	Virginia Strawberry	*Fragaria virginiana ssp virginiana*			x	2	1	G5T?	S5				
23	Rough Avens	*Geum laciniatum*	x			4	-3	G5	S4				
24	Fowl Manna Grass	*Glyceria striata*		x		3	-5	G5	S5				
25	Dudley's Rush	*Juncus dudleyi*		x		1	0	G5	S5				
26	Soft Rush	*Juncus effusus var. solutus*	x			4	-5	G5T?	S5				
27	Butter-and-eggs	*Linaria vulgaris*		x		*	5	G?	SE5				
28	Purple Loosestrife	*Lythrum salicaria*		x		*	-5	G5	SE5				
29	Catnip	*Nepeta cataria*			x	*	1	G?	SE5				
30	Common Evening-primrose	*Oenothera biennis*	x			0	3	G5	S5				

#	Common Name	Accepted Name (Nature Serve Explorer - August 2010)	Unit 6 (Lachance Drain)	Unit 7 (Rail Corridor)	HR6	cc[1]	cw[1]	Grank[2]	Srank[3]	COSEWIC[4]	MNR[5]	SARA Status [6]	Sched. [6]
31	Wild Parsnip	*Pastinaca sativa*	x		x	*	5	G?	SE5				
32	Common Reed	*Phragmites australis*	x			0	-4	G5	SE5				
33	Eastern Cottonwood	*Populus deltoides ssp. monilifera*	x		x	4	-1	G5T?	S5				
34	Quaking Aspen	*Populus tremuloides*	x			2	0	G5	S5				
35	Virginia Mountain-mint	*Pycnanthemum virginianum*		x		8	-4	G5	S4				
36	Pin Oak	*Quercus palustris*		x		9	-3	G5	S4				
37	Staghorn Sumac	*Rhus typhina*		x	x	1	5	G5	S5				
38	Sweetbrier Rose	*Rosa eglanteria*			x	*	5	G?	SE4				
39	Red Raspberry	*Rubus idaeus ssp. idaeus*		x			0	G5T5	SE1				
40	Curly Dock	*Rumex crispus*	x			*	-1	G?	SE5				
41	Heart-leaved Willow	*Salix eriocephala*		x		4	-3	G5	S5				
42	Common Elderberry	*Sambucus nigra ssp. canadensis*	x			5	-2	G5	S5				
43	Woolgrass Bulrush	*Scirpus atrovirens*	x			3	-5	G5?	S5				
44	Giant Foxtail	*Setaria faberi*	x	x	x	*	2	G?	SE4				
45	Tall Goldenrod	*Solidago altissima*		x	x	1	3	G?	S5				
46	Canada Goldenrod	*Solidago canadensis*	x	x		1	3	G5	S5				
47	Panicled Aster	*Symphyotrichum lanceolatum ssp. lanceolatum*	x	x	x	3	-3	G5T?	S5				
48	Calico Aster	*Symphyotrichum lateriflorum var. lateriflorum*			x	3	-2	G5T5	S5				
49	Hairy Aster	*Symphyotrichum pilosum var. pilosum*	x	x		4	2	G5T?	S5				
50	Common Dandelion	*Taraxacum officinale*	x			*	3	G5	SE5				
51	Narrow-leaved Cattail	*Typha angustifolia*	x			3	-5	G5	S5				
52	Broad-leaf Cattail	*Typha latifolia*		x		3	-5	G5	S5				
53	Common Mullein	*Verbascum thapsus*		x		*	5	G?	SE5				
54	Blue Vervain	*Verbena hastata*	x	x		4	-4	G5	S5				
55	White Vervain	*Verbena urticifolia*	x			4	-1	G5	S5				
56	Ironweed	*Vernonia missurica*		x				G	S3?				
57	Riverbank Grape	*Vitis riparia*			x	0	-2	G5	S5				

Legend

[1]**Coefficient of Conservatism and Coefficient of Wetness** (Oldham et al., 1995).

CC = Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.

CW = Coefficient of Wetness. -Value between 5 and –5. A value of –5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories.

[2]**G-Rank (global)**

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety. *(Global Status from MNR Biodiversity Explorer May 2011*)

G1 Extremely rare—usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.
G2 Very rare—usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to extinction.
G3 Rare to uncommon—usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
G4 Common—usually more than 100 occurrences; usually not susceptible to immediate threats.
G5 Very common—demonstrably secure under present conditions.

[3]**S-Ranks (provincial)**

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario. *(Provincial Status from MNR Biodiversity Explorer May 2011*)

S1 Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Secure—Common, widespread, and abundant in the nation or state/province.
S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.
SE Exotic; not believed to be a native component of Ontario's flora.

[4]**COSEWIC (Committee on the Status of Endangered Wildlife in Canada)** *(federal status from COSEWIC May 2011)*

EXT Extinct - A species that no longer exists.
EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
END Endangered - A species facing imminent extirpation or extinction.
THR Threatened - A species likely to become endangered if limiting factors are not reversed.
SC Special Concern (formerly vulnerable) - A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
NAR Not At Risk - A species that has been evaluated and found to be not at risk of extinction given the current circumstances.
DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.
* - Species on Schedule 1 of Species At Risk Act (SARA)

[5]**MNR (Ontario Ministry of Natural Resources)** (*provincial status from MNR June 8, 2011)*
The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO).

EXT Extinct—A species that no longer exists anywhere.
EXP Extirpated—A species that no longer exists in the wild in Ontario but still occurs elsewhere.
END Endangered - A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA).
THR Threatened—A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.
SC Special Concern (formerly Vulnerable) —A species with characteristics that make it sensitive to human activities or natural events.
NAR Not at Risk—A species that has been evaluated and found to be not at risk.
DD Data Deficient (formerly Indeterminate) —A species for which there is insufficient information for a provincial status recommendation.

[6] **SARA (Species at Risk Act) Status and Schedule**
The Act establishes Schedule 1, as the official list of species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented. http://www.sararegistry.gc.ca/sar/listing/listing_e.cfm
EXT Extinct - A species that no longer exists.
EXP Extirpated **-** A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END Endangered - A species that is facing imminent extirpation or extinction.
THR Threatened - A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
SC Special Concern - A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Appendix C – Landscape Restoration Plan (Drawings L1 – L3)

ecoplans

A member of MMM GROUP

72 Victoria St. South, Suite 100, Kitchener, ON N2G 4Y9
phone: (519) 741-8850 fax: (519) 741-8884
www.ecoplans.com