

PERMIT ISSUED UNDER the authority of clause 17(2)(d) of the *Endangered Species Act, 2007*

Issued to: Her Majesty the Queen in
right of Ontario as
represented by the Ontario
Ministry of Transportation
Windsor Borders Initiative Group
Implementation Group
659 Exeter Road
London, ON, N6E 1L3

Permit No: AY-D-001-09

Effective Date:

Expiry Date: December 31,
2021

Project Title: Construction of the Windsor-Essex Parkway (WEP) Portion of the Detroit River International Crossing (DRIC) Project

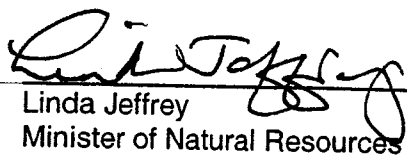
Project Description: The Windsor-Essex Parkway will be the new highway connection between Highway 401 and the proposed plaza and bridge between the Cities of Windsor and Detroit. It consists generally of: a six-lane urban freeway connecting existing Highway 401 to the proposed plaza, a four-lane service road connecting existing Highway 3 to existing Huron Church Road, a multi-use trail network, greenspace, tunnels, bridges, interchanges and all associated features such as lighting, ATMS, signs, etc.

Authorization: This Permit authorizes Her Majesty the Queen in right of Ontario, as represented by the Ministry of Transportation ("MTO"), to engage in the activities specified in Schedule A attached to the Permit that would otherwise be prohibited by section 9 and section 10 of the Endangered Species Act, 2007 in relation to Eastern Foxsnake (Carolinian population) (*Elaphe gloydi*), Butler's Gartersnake (*Thamnophis butleri*), Dense Blazing Star (*Liatris spicata*), Willowleaf Aster (*Symphotrichum praealtum*), Colicroot (*Aletris farinosa*), Dwarf Hackberry (*Celtis tenuifolia*), Common Hoptree (*Ptelea trifoliata*) and Kentucky Coffee-tree (*Gymnocladus dioicus*).

The authorizations provided by this Permit do not apply unless the holder complies with Schedules A and B, which are attached to and form part of this Permit.

Location: Permit Lands in the City of Windsor, Town of Tecumseh, Town of LaSalle and County of Essex as identified in Appendix A.

Issued by:


Linda Jeffrey
Minister of Natural Resources

Date of Issuance: Feb 9, 2010
(dd/mm/yr)

Schedule A: Detailed Description of Authorization:

This Permit authorizes the MTO to engage in the activities described below in respect of the species and numbers of individuals identified below.

Species	Number of Individuals	Authorized Activity
Butler's Gartersnake	Not limited	Kill, harm, harass, capture, take, possess and transport as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 11 and 22.
Colicroot	Not limited	Kill, harm, take, possess, transport, collect and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 12 and 20.
Common Hoptree	Not limited	Kill, harm, take, possess, transport and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 15 and 21.
Dense Blazing Star	Not limited	Kill, harm, take, possess, transport collect and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 14 and 20.
Dwarf Hackberry	Not limited	Kill, harm, take, possess, transport and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 15 and 21.
Eastern Foxsnake (Carolinian population)	Not limited	Kill, harm, harass, capture, take, possess and transport as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 16 and 22.
Eastern Foxsnake (Carolinian population)	N/A	Damage and destroy habitat, carry out activities authorized by this Permit, and to fulfill Conditions 16, 17 and 22.
Willowleaf Aster	Not limited	Kill, harm, take, possess, transport collect and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 13 and 20.

Species	Number of Individuals	Authorized Activity
Kentucky Coffee-tree	Not limited	Kill, harm, take, possess, transport and buy as necessary to carry out activities authorized by this Permit, and to fulfill Conditions 15 and 21.

Schedule B: Conditions

General

1. Definitions. In this Permit, the following words shall have the following meanings:
 - a. "Active Construction Site" means any area within the Permit Lands where any construction activity associated with the Windsor-Essex Parkway is currently occurring or will occur within the next 24 hours.
 - b. "construction" means erection, alteration, repair, dismantling, demolition, structural maintenance, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with the Windsor-Essex Parkway, but does not include the erection of fencing or temporary snake barriers.
 - c. "ESA Footprint" means the lands within the Permit Lands on which there will be an impact on eight endangered and threatened species (identified in Schedule A) from construction and related activities associated with the construction of the Windsor-Essex Parkway, designated in Appendix A.
 - d. "MTO" means the Ministry of Transportation of Ontario and its agents.
 - e. "Permit" means Permit number AY-D-001-09, issued under Section 17(2)d of the *Endangered Species Act*, 2007 for the "Construction of the Windsor-Essex Parkway (WEP) Portion of the Detroit River International Crossing (DRIC) Project".
 - f. "Permit Lands" means the lands on which activities authorized by this Permit shall be carried out, including activities related to construction, mitigation and restoration, designated in Appendix A.
 - g. "pre-construction" means foundation investigations, geotechnical investigations, soil investigations, legal surveying, archaeology surveying and salvage, fisheries surveying, and demolishing or removing human-made structures prior to the approval of a Management Plan required by this Permit.

2. The following Appendices form part of this Permit:

Appendix A – Permit Lands and ESA Footprint

Appendix B – Butler's Gartersnake Impact Sites

Appendix C – Butler's Gartersnake Restoration Site

Appendix D – Colicroot Impact Sites

Appendix E – Colicroot Candidate Restoration Sites

Appendix F – ██████████ Colicroot Sites

Appendix G – Willowleaf Aster Candidate Restoration Sites

Appendix H – Dense Blazing Star Candidate Restoration Sites

Appendix I – Kentucky Coffee-tree, Dwarf Hackberry and Common Hoptree Impact Site

Appendix J – Toronto Zoo Snake Hibernacula Construction Plans & Instructions

3. The designated representative of the Ministry of Natural Resources ("MNR") Aylmer District office, for the purposes of the activities outlined within this Permit, will be:

Mitch Wilson
District Manager
Ministry of Natural Resources, Aylmer District
615 John Street North
Aylmer, ON N5H 2S8
Tel: 519-773-4710 Fax: 519-773-9014
Email: Mitch.Wilson@ontario.ca

4. If MNR Aylmer District office changes its designated representative for the purposes of the activities authorized or required by this Permit, MNR will provide notice in writing to the Permit holder.
5. A copy of this Permit shall be kept in a location at the Active Construction Site, where it can be produced immediately upon request.
6. A designated MTO representative shall be identified to MNR in writing, to the attention of the designated representative of the MNR Aylmer District

office, a minimum of seven days prior to carrying out any activity authorized by this Permit.

7. Any changes to the designated MTO representative shall be identified to MNR in writing, to the attention of the designated representative of the MNR Aylmer District office, within 72 hours of the change.
8. Before any person begins working on any aspect of the construction of the Windsor-Essex Parkway within the Permit Lands, MTO shall provide that person with a fact sheet identifying each of the species at risk named by this Permit and providing general species-specific guidance with respect to appropriate actions to be taken whenever a member of these species is encountered.
9. Before any person begins carrying out any mitigation or monitoring activities authorized by this Permit, MTO shall ensure that the person receives training on relevant species at risk by persons authorized by MNR.
 - a. MTO shall keep records indicating who has received species at risk training.
 - b. MTO shall make these records available to MNR upon request.
10. MTO may undertake pre-construction activities prior to the approval of a Management Plan required by this Permit if,
 - the pre-construction activity is screened according to MNR-approved criteria for potential impacts to the species identified in Schedule A, and
 - the result of the screening indicates that the pre-construction activity will not impact any individual members of those species.
 - a. Despite Condition 10, MTO shall not undertake pre-construction activities at the Butler's Gartersnake Impact Sites (Appendix B), the Butler's Gartersnake Restoration Site (Appendix C), or the [REDACTED] Colicroot Site (Appendix F), prior to the development and approval of the applicable Management Plan required by Conditions 11(b) or 12(b).

Butler's Gartersnake (*Thamnophis butleri*)

11. Activities authorized by this Permit in relation to Butler's Gartersnake, including activities required to mitigate impacts on Butler's Gartersnake individuals, shall occur in accordance with this Condition:

a. In this Condition the following words shall have the following meanings:

- i) "Butler's Gartersnake Impact Sites" (the "Impact Sites") means the sites identified in Appendix B.
- ii) "Butler's Gartersnake Restoration Site" (the "Restoration Site") means the site identified in Appendix C.
- iii) "relocate" means to move to a new location.
- iv) "key habitat feature" means hibernaculum or live birthing site suitable for Butler's Gartersnake.
- v) "targeted salvage operation" means a concerted effort to capture all Butler's Gartersnakes in an area using specified capture methodologies over a specified period of time, as detailed in the approved Butler's Gartersnake Management Plan.
- vi) "incidental encounter" means any encounter with a Butler's Gartersnake that does not occur as part of a targeted salvage operation.

b. MTO shall develop a Butler's Gartersnake Management Plan, which must be approved by MNR, prior to undertaking any construction activity that will have an impact on Butler's Gartersnake individuals within the ESA Footprint. The approved Butler's Gartersnake Management Plan shall provide detailed information with respect to the goals, methods and techniques that MTO shall adopt for activities relating to Butler's Gartersnake and shall, at a minimum, address each of the following:

- i) Construction timing windows
- ii) Capture and release protocols and methodologies
- iii) Capture and release timing windows
- iv) Methodologies and timelines for the enhancement, restoration, and creation of habitat

- v) Key habitat feature creation protocols and designs
 - vi) Adaptive management strategies
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- c. MTO shall carry out activities described in the approved Butler's Gartersnake Management Plan in accordance with that plan.
 - d. Prior to June 30th 2010, MTO shall create a minimum of one hibernaculum, in accordance with the directions and plans developed by the Toronto Zoo (Appendix J) to serve as a hibernation site for Butler's Gartersnake individuals captured during hibernation staging periods in accordance with Condition 11(k)(v).
 - i) MTO shall create the hibernaculum within the Restoration Site, in habitat that is suitable to support Butler's Gartersnake.
 - ii) MTO shall ensure that the created hibernaculum is adjacent to naturally occurring features that could serve as natural hibernacula for Butler's Gartersnake individuals.
 - iii) MTO shall enclose both the created hibernaculum and adjacent natural hibernacula features, within the same temporary snake barrier, which shall have no openings by which Butler's Gartersnake individuals might escape.
 - iv) MTO shall adjust the temporary Butler's Gartersnake barrier identified in Condition 11(d)(iii) by March 31st of each year to allow for the natural dispersal of Butler's Gartersnake, and shall, after natural dispersal is complete for that year, reinstall the barrier in accordance with Condition 11(d)(iii) unless otherwise authorized by MNR,
 - e. Despite Condition 11(d), MTO may use hibernaculum creation plans that provide equal or greater protection to Butler's Gartersnake individuals than the methods described in that condition, if outlined in the approved Butler's Gartersnake Management Plan or as approved by MNR.
 - f. Prior to any construction activities occurring within the Impact Sites, and prior to any targeted salvage operation, MTO shall erect effective temporary Butler's Gartersnake barriers at the Impact Sites.

- i) The temporary Butler's Gartersnake barriers shall be of a nature that they will not pose a risk of entanglement for Butler's Gartersnake individuals and shall be secure so that Butler's Gartersnake individuals may not pass under the barrier or between any openings to enter or re-enter the Impact Sites.
 - ii) MTO shall erect all temporary Butler's Gartersnake barriers by March 30th of the first year in which construction activities are scheduled within the Impact Sites.
 - iii) MTO shall inspect the temporary Butler's Gartersnake barriers a minimum of twice daily, during periods when Butler's Gartersnake individuals are active, and shall capture and release any Butler's Gartersnake individuals found inside the snake barrier in accordance with Conditions 11(j) and (k).
 - iv) MTO shall leave the temporary Butler's Gartersnake barriers in place for the entire period during which active construction is occurring, and shall maintain the temporary Butler's Gartersnake barriers to ensure that the barrier does not harm Butler's Gartersnake individuals, and that there are no openings by which Butler's Gartersnake individuals might enter or re-enter the Impact Sites.
- g. Prior to any construction activities occurring within the Impact Sites, MTO shall ensure that there is a mix of cover objects, that are appropriate for providing shelter to Butler's Gartersnake individuals, placed outside the Active Construction Site and directly adjacent to the area outside of the temporary Butler's Gartersnake barriers.
- i) Cover objects may include particle board, plywood, asphalt shingle, wood, corrugated tin, other materials outlined in the approved Butler's Gartersnake Management Plan or as approved by MNR.
 - ii) Cover objects shall be of an appropriate size and spaced to provide adequate shelter to Butler's Gartersnake individuals.
 - iii) MTO shall place cover objects at a maximum of every fifteen metres of temporary snake barrier or as detailed in

the approved Butler's Gartersnake Management Plan, or as approved by MNR.

- h. MTO shall make every reasonable effort to capture Butler's Gartersnake individuals whenever they are encountered within the Impact Sites through a targeted salvage operation, in accordance with Condition 11(j), and whenever incidentally encountered within all Active Construction Sites, in accordance with Conditions 11(j)(iii-vii). MTO shall release all captured Butler's Gartersnake individuals in accordance with Condition 11(k).
- i. All persons who will be engaged in targeted salvage operations, or in the release of Butler's Gartersnake individuals shall be trained in proper snake handling procedures prior to conducting any activity authorized by Condition 11.
 - i) MTO shall keep records of this training on file and shall make these records available to MNR upon request.
- j. Prior to the commencement of any construction activities within the Impact Sites, and between the dates of April 1st and June 30th, MTO shall conduct targeted salvage operation(s) to capture Butler's Gartersnake individuals within the Impact Sites. MTO shall capture all Butler's Gartersnake individuals in accordance with the following conditions:
 - i) MTO shall use coverboards that provide for the protection of Butler's Gartersnake individuals and are approved by MNR as the primary method for capture of Butler's Gartersnake individuals, and shall place coverboards at an appropriate density for successful snake salvage throughout the Impact Sites no later than March 30th of the year in which the targeted salvage operation is to occur.
 - ii) MTO shall inspect underneath all cover boards for Butler's Gartersnake individuals at least twice every day, once between the hours of 6:00 a.m. and 9:00 a.m. and once between the hours of 6:00 p.m. and 9:00 p.m., unless otherwise directed by MNR.
 - iii) MTO shall transfer all Butler's Gartersnake individuals captured into individual, light-coloured, drawstring cotton sacks before placing them into a non-airtight Butler's Gartersnake Storage Tub described in Condition 11(v), and shall store them out of direct sunlight for a maximum

of 24 hours before releasing them in accordance with Condition 11(k).

- iv) Despite Condition 11(j)(iii), if captured Butler's Gartersnake individuals will be used for radio telemetry monitoring, they may be stored for a period of up to 72 hours, unless otherwise specified by a member of the College of Veterinarians of Ontario.
 - v) MTO shall ensure that Butler's Gartersnake Storage Tubs are light in colour and have lids, and that each lid has multiple small punctures.
 - vi) Despite Condition 11(j)(v), MTO may use Storage Tubs that provide equal or greater protection for Butler's Gartersnake individuals than the tubs described in that Condition, as outlined in the approved Butler's Gartersnake Management Plan or as approved by MNR.
 - vii) MTO shall make the Storage Tubs mentioned in Conditions 11(j)(v) or 11(j)(vi) and the cotton sacks mentioned in Condition 11(j)(iii) available for use within the Active Construction Sites at all times.
- k. MTO shall release all Butler's Gartersnake individuals captured within the Permit Lands in accordance with the following conditions:
- i) All Butler's Gartersnake individuals captured as a result of a targeted salvage operation conducted in accordance with Condition 11(j), and all Butler's Gartersnake individuals that are incidentally encountered and captured within Active Construction Sites between April 1st and August 31st of any year, shall be released in the Restoration Site or other areas outside of Active Construction Sites and outside of the Impact Sites suitable to support Butler's Gartersnake individuals.
 - ii) Despite Condition 11(k)(i), MTO may capture and release Butler's Gartersnake individuals other than at a time falling between April 1st and August 31st of any year, if:
 - doing so would result in equal or greater protection to Butler's Gartersnake individuals than if the capture and release occurred between those dates, and

- the capture and release is conducted in accordance with the approved Butler's Gartersnake Management Plan, or
 - MTO receives prior approval by MNR.
- iii) All adult Butler's Gartersnake individuals shall be released in an area that is outside the Active Construction Site and is still within the range of their current habitat and distribution. No adult Butler's Gartersnake individuals shall be relocated more than 50m from the capture site, unless otherwise authorized by MNR or in accordance with the approved Butler's Gartersnake Management Plan.
 - iv) Juvenile Butler's Gartersnake individuals that have not previously over-wintered (hibernated) may be released in an area outside the Active Construction Site that is still within the range of their current habitat and distribution or may be relocated to a new location outside the Active Construction Site in habitat that is suitable to support Butler's Gartersnake individuals.
 - v) Should Butler's Gartersnake individuals be incidentally encountered within the ESA Footprint between September 1st and October 31st of any year, MTO shall capture the snakes and release them at the site outlined in Condition 11(d).
 - vi) Should Butler's Gartersnake individuals be incidentally encountered within the Permit Lands, or should an active hibernaculum be uncovered, between November 1st and March 31st of any two consecutive years, MTO shall capture the Butler's Gartersnake individuals and then contact the designated representative of the MNR Aylmer District office immediately to seek direction, or MTO shall follow the appropriate course of action identified in the approved Butler's Gartersnake Management Plan.
 - vii) MTO shall ensure that all captured Butler's Gartersnake individuals are released within 0.5 metres of a suitable natural or artificial cover object and encouraged to take shelter under that object or, shall place the snake under the cover object if it is possible to do so in such a manner as to avoid any potential injury to the Butler's Gartersnake individuals.

- I. MTO shall develop a Habitat Restoration and Management Plan for the Butler's Gartersnake Restoration Site, which may be included as a component of the approved Butler's Gartersnake Management Plan, prior to undertaking any construction activity that will have an impact on Butler's Gartersnake individuals within the ESA Footprint. MTO shall have this Plan approved by MNR prior to undertaking any habitat restoration, enhancement or creation activities at the Restoration Site. At a minimum, this plan shall address how MTO will accomplish the following:
 - i) MTO shall create new key habitat features sufficient to support the Butler's Gartersnake individuals captured from within the Impact Sites and released at the Restoration Site, in accordance with the approved Butler's Gartersnake Management Plan, or as otherwise authorized by MNR.
 - ii) MTO shall restore, enhance or create 10.75 hectares of habitat suitable to support Butler's Gartersnake individuals within the Restoration Site. The restored or enhanced habitat must include open foraging habitat, thermoregulating sites, cover for concealment, suitable live birthing and hibernation sites, and natural corridors linking all of these habitat elements.
 - iii) Prior to relocating any snakes from the Impact Sites to the Restoration Site and prior to any construction within the Impact Sites, MTO shall ensure that Butler's Gartersnake habitat at the Restoration Site has been restored, enhanced or created in accordance with Condition 11(l)(ii).
- m. MTO shall immediately transport Butler's Gartersnake individuals that have been injured beyond the possibility of unassisted recovery to a member of the College of Veterinarians of Ontario for treatment or euthanasia.
 - i) MTO shall select a member of the College of Veterinarians of Ontario who is trained to handle and treat or euthanize snakes.
 - ii) MTO shall report such incidents to the designated representative of the MNR Aylmer District office within 24 hours or the end of the next working day, whichever occurs first.

- n. MTO shall contact the designated representative of the MNR Aylmer District office within 72 hours if a Butler's Gartersnake individual is killed as a result of any activity authorized by this Permit, or if any person conducting an activity authorized by this Permit should find a deceased Butler's Gartersnake.
 - i) MTO shall transport the carcasses of all deceased Butler's Gartersnake individuals encountered to the MNR Aylmer District office within 72 hours of contacting the designated representative.
- o. MTO shall ensure that fencing surrounds the Butler's Gartersnake Restoration Site and the adjacent Impact Site prior to March 31st, 2010 to deter trespassing. MTO shall ensure that the fencing does not preclude the movement of Butler's Gartersnake individuals. Any alterations to the fencing as defined in Appendix C must be approved by MNR.

Long-term protection of the Butler's Gartersnake Restoration Site

- p. Before the expiry of this Permit, MTO shall provide for the long-term protection of Butler's Gartersnake individuals and their habitat within the Restoration Site by granting a conservation easement to a conservation body under the *Conservation Land Act*, R.S.O. 1990, c, C. 28. The conservation body and the terms of the conservation easement must be approved by MNR.
- q. Despite Condition 11(p), MTO may provide for the long-term protection of Butler's Gartersnake individuals and their habitat located within the Restoration Site by a method other than by granting a conservation easement, if that method is approved by MNR as providing equal or greater long-term protection than a conservation easement.

Colicroot (*Aletris farinosa*)

12. Activities authorized by this Permit in relation to Colicroot, including activities required to mitigate impacts on Colicroot individuals, shall occur in accordance with this Condition:

- a. In this Condition the following words shall have the following meanings:

- i) "Colicroot Candidate Restoration Sites" (the "Candidate Restoration Sites") means any of the areas identified within Appendix E that have the potential to contain habitat suitable to support Colicroot.
- ii) "Colicroot Final Restoration Sites" (the "Final Restoration Sites") means those sites among the Candidate Restoration Sites in which MTO shall undertake planting and habitat enhancement and/or creation, as approved by MNR and in accordance with this Permit.
- iii) "Colicroot Impact Sites" (the "Impact Sites") means the areas identified in Appendix D.
- iv) "scrapes" means areas in which topsoil or fill has been scraped away to expose the sandy substrate beneath.

Colicroot Restoration and Management Plan

- b. MTO shall develop a Colicroot Restoration and Management Plan for the Final Restoration Sites, which must be approved by MNR before MTO may undertake any activity that will have an impact on Colicroot individuals within the ESA Footprint. The approved Colicroot Restoration and Management Plan must provide detailed information with respect to the goals, methods and techniques MTO will adopt for activities relating to Colicroot, and must, at a minimum, address each of the following:
 - i) Seed collection techniques
 - ii) Seed propagation techniques
 - iii) Seed distribution and planting techniques
 - iv) Plug planting techniques and management
 - v) Transplanting techniques and management
 - vi) Detailed site assessments of Candidate Restoration Sites
 - vii) Goals, objectives, milestones and timelines for each Final Restoration Site
 - viii) Habitat restoration, enhancement and creation techniques for each Final Restoration Site

- ix) Invasive species management techniques for each Final Restoration Site
 - x) A long term protection strategy for Colicroot individuals and populations within the Final Restoration Sites
 - xi) Adaptive management strategies
- c. MTO shall carry out activities described in the approved Colicroot Restoration and Management Plan in accordance with that plan.
- d. Prior to the commencement of any construction activities that will impact Colicroot individuals occurring within the ESA Footprint, and prior to selection of any Candidate Restoration Sites as a Final Restoration Site, MTO shall conduct a detailed site assessment of Candidate Restoration Sites, to determine which sites are suitable for receiving planted and transplanted Colicroot individuals. Detailed site assessments must, at a minimum, involve the following activities:
- i) Taking soil cores for analysis of soil composition
 - ii) Conducting detailed analysis of the vegetation community present at the site and the vegetative structure of that community, including the location and population numbers for any existing Colicroot individuals.
 - iii) Identifying existing linkages to other protected areas and Colicroot habitat
 - iv) Identifying and analyzing past disturbance regimes for the purpose of assessing management requirements.
- e. Additional Candidate Restoration Sites may be considered subject to the determination of their suitability to support Colicroot and subject to approval by MNR.

Tallgrass Prairie Creation, Enhancement and Restoration

- f. In addition to Condition 12(o)(iv), MTO shall create, enhance or restore a minimum of two hectares of Tallgrass Prairie, with emphasis on creating, enhancing or restoring Moist-Fresh Tallgrass Prairie on lands directly adjacent to existing Colicroot populations within the Permit Lands, to serve as natural Colicroot population expansion areas and as Final Colicroot Restoration Sites.

Removal and transplanting of Colicroot

- g. Prior to the commencement of any construction activities within the Impact Sites, MTO shall conduct trials of the following techniques, at a minimum, within the Final Restorations Sites. Other techniques may be included in the trials, as approved by MNR.
- i) Trial 1 – MTO shall remove and transplant Colicroot individuals when they are dormant, between October 1st and March 31st of consecutive years, excluding any time of the year when the ground is frozen. MTO shall ensure that Colicroot individuals are temporarily stored in a pail with some water, to avoid desiccation of rootlet hairs, before being transplanted. MTO shall ensure that topsoil is scraped from the removal site and collected for transfer and spreading around transplanted Colicroot individuals at the Final Restoration Site;
 - ii) Trial 2 - MTO shall remove and transplant Colicroot individuals when they are dormant and the ground is frozen. Colicroot individuals shall be attached to a mass of earth, and removed in such a way as to ensure their full root systems remain intact, and shall be transplanted immediately into habitat that is suitable to support Colicroot.
 - iii) Trial 3 - MTO shall remove and transplant Colicroot individuals between July 1st and August 31st. MTO shall ensure that all removed Colicroot individuals have mature fruit but that removal occurs prior to seed dispersal. MTO shall immediately transplant removed Colicroot individuals into habitat that is suitable to support Colicroot;
 - iv) Trial 4 – MTO shall collect seed from Colicroot individuals located within the Impact Sites, in accordance with Condition 12(l), and disperse that seed within scrapes, and habitat that is suitable to support Colicroot; and
 - v) Trial 5 – MTO shall collect seed from Colicroot individuals within the Impact Sites in accordance with Condition 12(l), and shall sow and plant the collected seed in accordance with Conditions 12(n)(iii) – (v).
- h. For the purpose of conducting the technique trials required by Conditions 12(g)(i) – (v), MTO may take individuals from within the Impact Sites in accordance with methods set out in the approved

Colicroot Management and Restoration Plan, or as approved by MNR.

- i. Prior to the commencement of any construction activities within the Impact Sites, MTO shall remove and transplant all Colicroot individuals within the ESA Footprint that will be impacted into a Final Restoration Site. MTO shall employ the technique(s) identified as a result of the trials conducted under Condition 12(g) as the technique(s) providing for the highest survival rates for removed and transplanted Colicroot individuals.
- j. MTO shall remove and transplant Colicroot individuals at the [REDACTED] Site using the technique identified pursuant to Condition 12(i), and in accordance with Condition 12(o),
- k. MTO shall create scrapes at the Final Restoration Sites, and shall transplant Colicroot individuals into these scrapes.

Seeding and Planting of Colicroot

- l. MTO shall collect Colicroot seed from within the Impact Sites, other sites as identified in the approved Colicroot Restoration and Management Plan, or as otherwise identified by MNR in accordance with Conditions 12(n)(i) – (ii), for the purpose of immediate dispersal into scrapes and habitat within the Final Restoration Sites that is suitable to support Colicroot.
- m. If MTO has Colicroot seed in excess of what is required to meet the requirements in Condition 12(n), MTO shall disperse the excess seed into habitat within the Final Restoration Sites that is suitable to support Colicroot.
- n. MTO shall plant a minimum of 1.5 Colicroot plugs or plants for each Colicroot individual within the ESA Footprint that is impacted by construction of the Windsor-Essex Parkway. This planting shall occur within the Final Restoration Sites in habitat that is suitable to support Colicroot, or within other sites as approved by MNR.
 - i) When collecting Colicroot seeds from the Impact Sites, MTO shall collect as much of the available seed from the Colicroot individuals as possible.
 - ii) When collecting Colicroot seeds from the Candidate or Final Restoration Sites, MTO shall collect no more than 50% of the available seed from any one stand, in accordance with the Environment Canada publication

the [REDACTED] Site, in-situ, and shall cordon off Colicroot individuals or groups of Colicroot individuals within the Impact Avoidance Area so that these plants are not harmed by construction of the Windsor-Essex Parkway.

- iii) If required, MTO shall collect Colicroot seed from the lands identified in Condition 12(o)(ii), in accordance with Condition 12(n)(ii).
- iv) MTO shall create, enhance or restore 1 hectare of Tallgrass Prairie within the Permit Lands and directly adjacent to the in-situ population of Colicroot identified in Condition 12(o)(ii) to serve as a natural Colicroot population expansion area and a Final Restoration Site. MTO shall endeavour to create, enhance or restore Tallgrass Prairie that is Moist-Fresh Tallgrass Prairie.
- v) MTO may, in accordance with Conditions 12(n)(i) and (ii), collect, possess and transport Colicroot seed from the Impact Avoidance Area for the purpose of propagation at a greenhouse approved by MNR and for the purpose of planting and direct seeding in the Final Restoration Sites.

Long-term protection of the [REDACTED] Colicroot Impact Avoidance Area

- p. Before the expiry of the Permit, MTO shall provide for the long-term protection of Colicroot individuals and their habitat, with respect to the lands pertaining to the Impact Avoidance Area, by granting a conservation easement to a conservation body under the *Conservation Land Act*, R.S.O. 1990, c. C. 28. The conservation body and the terms of the conservation easement must be approved by MNR.
- q. Despite Condition 12(p), MTO may provide for the long-term protection of Colicroot individuals and their habitat, with respect to lands pertaining to the Impact Avoidance Area, by a method other than by granting a conservation easement, if that method is approved by MNR as providing equal or greater long-term protection than a conservation easement.

Willowleaf Aster (*Symphotrichum praealtum*)

13. Activities authorized by this Permit in relation to Willowleaf Aster, including activities required to mitigate impacts on Willowleaf Aster individuals, shall occur in accordance with this Condition:

- a. In this Condition the following words shall have the following meanings:
 - i) "Willowleaf Aster Candidate Restoration Sites" (the "Candidate Restoration Sites") means the sites identified in Appendix G that have the potential to contain habitat suitable to support Willowleaf Aster.
 - ii) "Willowleaf Aster Final Restoration Sites" (the "Final Restoration Sites") means those sites among the Candidate Restoration Sites in which MTO shall undertake mitigation and habitat enhancement and/or creation activities, as approved by MNR, and in accordance with this Permit.
- b. MTO shall develop a Willowleaf Aster Restoration and Management Plan, which must be approved by MNR before MTO may undertake any activity that will have an impact on Willowleaf Aster individuals within the ESA Footprint. The approved Willowleaf Aster Restoration and Management Plan must provide detailed information with respect to the goals, methods, and techniques MTO will adopt for activities relating to Willowleaf Aster, and must, at a minimum, address the following:
 - i) Planting techniques
 - ii) Transplanting techniques and management
 - iii) Detailed site assessments of the Candidate Restoration Sites
 - iv) Goals, objectives, milestones and timelines for the enhancement and creation of habitat within each of the Final Restoration Sites
 - v) Habitat restoration, enhancement and creation techniques for each of the Final Restoration Sites
 - vi) Invasive species management techniques for each of the Final Restoration Sites
 - vii) Adaptive management strategies

- c. MTO shall carry out activities described in the approved Willowleaf Aster Restoration and Management Plan in accordance with that plan.
- d. Prior to the commencement of any construction activities which will impact Willowleaf Aster individuals occurring within the ESA Footprint, and in order to be selected as a Final Restoration Site, MTO shall conduct detailed site assessments of the Candidate Restoration Sites to determine which sites are suitable for receiving planted and transplanted Willowleaf Aster individuals. Detailed site assessments must, at a minimum, involve the following activities:
 - i) Taking soil cores for analysis of soil composition
 - ii) Conducting detailed analysis of the vegetation community present at the site and the vegetative structure of that community including the location and population numbers of any existing Willowleaf Aster individuals
 - iii) Identifying existing linkages to other protected areas and Willowleaf Aster habitat
 - iv) Identifying and analyzing past disturbance regimes for the purpose of assessing management requirements.
- e. Prior to the commencement of any construction activities which would impact Willowleaf Aster individuals occurring within the ESA Footprint, habitat suitable to support Willowleaf Aster must be available in the Final Restoration Sites, or other sites approved by MNR.
- f. MTO shall remove and transplant two out of every three Willowleaf Aster individuals within the ESA Footprint, with their full root systems intact, into habitat within the Final Restoration Sites that is suitable to support Willowleaf Aster.
- g. The removal and transplanting of existing Willowleaf Aster individuals shall occur after all plants have become dormant, and between October 1st and April 30th of two consecutive years, excluding any time of the year when the ground is frozen, and shall include the entire depth of the root.
 - i) MTO shall immediately transplant all Willowleaf Aster individuals that have been removed from within the ESA

Footprint in accordance with Condition 13(f), into habitat within the Final Restoration Sites that is suitable to support Willowleaf Aster.

- ii) Despite Condition 13(g)(i), if immediate transplanting is not possible, MTO may store removed Willowleaf Aster individuals in a cold storage facility under temperature and environmental conditions that will ensure that the Willowleaf Aster individuals remain dormant until they can be planted in the following year in accordance with the planting regime detailed in the approved Willowleaf Aster Management and Restoration Plan, or as otherwise approved by MNR.
 - iii) If over-winter storage is necessary, MTO shall ensure that each removed Willowleaf Aster individual has the majority of aboveground biomass cut back, so that each over-wintering Willowleaf Aster individual consists of an entire root mass and a portion of the aerial shoots.
- h. MTO shall divide one out of every three Willowleaf Aster rhizomes removed from the ESA Footprint and plant the resulting rhizome portions into habitat within the Final Restoration Sites that is suitable to support Willowleaf Aster.
- i) Division of Willowleaf Aster rhizomes shall occur with a sharp knife and shall be into small portions of the rhizome, no less than 10 cm long, with a short length of aerial shoot attached.
 - ii) Despite Condition 13(h)(i), MTO may divide rhizomes in accordance with a method that provides equal or greater protection to Willowleaf Aster than the method described in that condition, as outlined in the approved Willowleaf Aster Management Plan or as approved by MNR.
 - iii) Rhizome portions shall be immediately planted at a depth of 7 to 8 cm, or at a depth that is sufficient to cover the base of the rhizome.
 - iv) Despite Condition 13(h)(iii), if the ground is frozen or conditions are unsuitable for immediate planting, rhizome portions shall be planted into large pots, which must be at least 10 inches in diameter, and stored in a greenhouse approved by MNR over the winter of any year. All

rhizomes shall be planted in the spring of the following year.

- v) Despite Conditions 13(h)(iii) and (iv), MTO may plant rhizomes in accordance with a method that provides equal or greater protection to Willowleaf Aster individuals than the method described in those conditions, as outlined in the approved Willowleaf Aster Management Plan or as approved by MNR.
- i. Where Willowleaf Aster individuals are found growing in close association to one another (i.e. within 30 centimetres of each other, to a maximum size of 1 metre squared), MTO shall remove individuals as a clump, with earth and associated plants attached, and transplant the entire mass into the Final Restoration Sites, unless otherwise authorized by MNR.
 - i) MTO shall not transplant individuals as a clump, with earth and associated plants attached, if there are invasive species present in the clump, unless the invasive species can be killed or otherwise removed prior to transplanting.

Dense Blazing Star (*Liatris spicata*)

14. Activities carried out under this Permit in relation to Dense Blazing Star, including activities required to mitigate impact on Dense Blazing Star individuals, shall occur in accordance with this Condition:

- a. In this Condition the following words shall have the following meanings:
 - i) "Dense Blazing Star Candidate Restoration Sites" (the "Candidate Restoration Sites") means the sites identified in Appendix H that have the potential to contain habitat suitable to support Dense Blazing Star.
 - ii) "Dense Blazing Star Final Restoration Sites" (the "Final Restoration Sites") means those sites among the Candidate Restoration Sites in which MTO shall undertake mitigation and habitat enhancement or creation activities, as approved by MNR, and in accordance with this Permit.

- b. MTO shall develop a Dense Blazing Star Restoration and Management Plan for the Final Restoration Sites, which must be approved by MNR before MTO may undertake any activity that will have an impact on Dense Blazing Star individuals within the Permit Lands. The approved Dense Blazing Star Management Plan must provide detailed information with respect to the goals, methods and techniques MTO will adopt for activities relating to Dense Blazing Star, and must, at a minimum, address the following:
 - i) Seed collection
 - ii) Seed propagation techniques
 - iii) Plug planting techniques and management
 - iv) Transplanting techniques and management
 - v) Detailed site assessments of the Candidate Restoration Sites
 - vi) Goals, objectives, milestones and timelines for habitat enhancement and/or creation at each Final Restoration Site
 - vii) Habitat restoration, enhancement and creation techniques for each Final Restoration Site
 - viii) Invasive species management techniques for each Final Restoration Site
 - ix) Adaptive management strategies
- c. MTO shall carry out activities described in the approved Dense Blazing Star Management Plan in accordance with that plan.
- d. Prior to the commencement of any construction activities that will impact Dense Blazing Star individuals occurring within the ESA Footprint, and in order to be selected as a Final Restoration Site, MTO shall conduct detailed site assessments of the Candidate Restoration Sites to determine which sites are suitable for receiving propagated plugs and transplanted Dense Blazing Star individuals. Detailed site assessments must, at a minimum, include the following activities:
 - i) Collecting soil cores for analysis of soil composition

- ii) Conducting detailed analysis of the vegetation community present at the site and the vegetative structure of that community including the location and population numbers of any existing Dense Blazing Star individuals
 - iii) Identifying existing linkages to other protected areas and Dense Blazing Star habitat
 - iv) Identifying past disturbance regimes and management requirements
- e. MTO shall remove all Dense Blazing Star individuals within the ESA Footprint that will be impacted and shall transplant them within the Final Restoration Sites, in accordance with Conditions 14(f) and (g).
- f. The removal and transplanting of Dense Blazing Star individuals within the ESA Footprint shall occur after individuals have become dormant, between October 1st and April 30th of any two consecutive years, excluding any time of the year when the ground is frozen, and shall be accomplished in accordance with the following:
- i) Prior to the commencement of any construction activities which would impact Dense Blazing Star individuals occurring within the ESA footprint, habitat suitable to support Dense Blazing Star must be available in the Final Restoration Sites, or other sites as approved by MNR.
 - ii) Dense Blazing Star individuals shall be removed with their root systems intact.
 - iii) All Dense Blazing Star individuals shall be placed in the ground at a soil depth of 35 centimetres or at a depth that is sufficient to cover the base of the corm, and shall be covered with soil.
 - iv) Despite Condition 14(f)(iii) MTO may plant Dense Blazing Star individuals in the ground at a depth which provides equal or greater protection to Dense Blazing Star than the method described in that condition, as outlined in the approved Dense Blazing Star Management Plan or as approved by MNR.
 - v) If immediate transplanting is not possible, MTO may store removed Dense Blazing Star individuals in a cold

storage facility under temperature and environmental conditions that will ensure that the Dense Blazing Star individuals remain dormant until they can be planted in the following year in accordance with the planting regime detailed in the approved Dense Blazing Star Management and Restoration Plan, or as otherwise approved by MNR.

- g. Where Dense Blazing Star individuals are found growing in close association to one another (i.e. within 30 centimetres of each other, up to a maximum size of 1 metre squared), MTO shall remove individuals as a clump, with earth and associated plants attached, and transplant the entire mass, unless otherwise authorized by MNR.
 - i) MTO shall not transplant individuals as a clump, with earth and associated plants attached, if there are invasive species present in the clump, unless the invasive species can be killed or otherwise removed prior to transplanting.
- h. MTO shall collect a sufficient amount of seed from Dense Blazing Star individuals from within the ESA Footprint, for the purpose of propagating a minimum of 5 new Dense Blazing Star plugs for every 1 Dense Blazing Star individual impacted, for propagation and planting in accordance with Conditions 14(i) and (j).
 - i) If MTO is unable to collect enough Dense Blazing Star seed to fulfill Condition 14(h), MTO shall contact the designated representative of the MNR Aylmer District office immediately to seek direction, or follow the course of action required by the approved Dense Blazing Star Restoration and Management Plan.
 - ii) All excess Dense Blazing Star seed collected from within the ESA Footprint shall be scattered within the Final Restoration Sites across habitat that is suitable to support Dense Blazing Star, or other locations as approved by MNR, prior to the expiry of this Permit.
- i. MTO shall propagate Dense Blazing Star plugs in accordance with the following conditions:
 - i) Seeds shall be properly cleaned and sown as soon as they are ripe, stratified and stored in a greenhouse approved by MNR, which provides conditions that will

optimize germination as detailed in the approved Dense Blazing Star Restoration and Management Plan.

- ii) Dense Blazing Star seedlings will be placed into individual pots in a combination of well-drained sandy soils and fertile peat potting soils when they are large enough, and subsequently grown in a local greenhouse.
 - iii) Despite Conditions 14(i)(i) and (ii), MTO may propagate Dense Blazing Star plugs for planting in accordance with a method that provides equal or greater protection to Dense Blazing Star than the method described in those conditions, as outlined in the approved Dense Blazing Star Management Plan or as approved by MNR.
- j. MTO shall plant the seed-propagated Dense Blazing Star plugs, identified in Condition 14(h), in habitat within the Final Restoration Sites, or other sites upon approval from MNR, that is suitable to support Dense Blazing Star. MTO shall plant and transplant individuals in accordance with the following conditions:
- i) Plugs shall be planted in areas of full sunlight and shall be targeted for planting in early spring, after the ground has thawed but prior to the active growing season, in accordance with the approved Dense Blazing Star Restoration and Management Plan.
 - ii) Dense Blazing Star plugs shall be placed in the ground at a soil depth of 35 centimetres, or at a depth that is sufficient to cover the base of the corm, and shall be covered with soil.
 - iii) Despite Conditions 14(i) and (ii), MTO may plant Dense Blazing Star plugs in habitat that provides equal or greater protection to Dense Blazing Star individuals than the methods described in those conditions, if outlined in the approved Dense Blazing Star Management Plan or as approved by MNR.

Kentucky Coffee-tree (*Gymnocladus dioicus*), Common Hoptree (*Ptelea trifoliata*) and Dwarf Hackberry (*Celtis tenuifolia*)

15. The removal of two Kentucky Coffee-trees, two Common Hoptrees and one Dwarf Hackberry, as well as activities required to mitigate impacts on these species, shall occur accordance with this Condition:

- a. MTO shall remove two Kentucky Coffee-trees, two Common Hoptrees, and one Dwarf Hackberry from within the ESA Footprint (Appendix I) and shall transplant these trees in a demonstration garden setting located within the Permit Lands.
- b. For each tree referred to in Condition 15(a) that dies within the lifetime of this Permit, or if transplanting does not prove to be feasible, MTO shall replace the tree in the following manner:
 - i) By purchasing Kentucky Coffee-tree, Common Hoptree or Dwarf Hackberry individuals confirmed to be of known local genetic stock and planting it in the demonstration garden referred to in 15(a) or in another suitable area as approved by MNR; or
 - ii) By collecting seeds of Kentucky Coffee-tree, Common Hoptree or Dwarf Hackberry and propagating those seeds at a greenhouse approved by MNR for the purpose of planting a seedling or sapling in the demonstration garden referred to in Condition 15(a) or in another suitable area as approved by MNR. MTO shall first attempt to collect seeds from the County Essex, and if none are available, MTO shall collect them from within the same seed zone.

Eastern Foxsnake (Carolinian population) (*Elaphe gloydi*)

16. Activities authorized by this Permit in relation to Eastern Foxsnake (Carolinian population), ("Eastern Foxsnake") as well as activities required to mitigate impacts on Eastern Foxsnake individuals, shall occur in accordance with this Condition:

- a. In this Condition the following words shall have the following meanings:
 - i) "key habitat feature" means hibernacula, egg-laying nest or brush pile
 - ii) "relocate" means to move to a new location.
 - iii) "targeted salvage operation" means a concerted effort to capture all Eastern Foxsnake individuals in a given area by repeating specified capture methodologies over a specified period of time.

- iv) "active search" means a concerted effort to capture all Eastern Foxsnake individuals in a given area by walking through suitable habitat and actively lifting or deconstructing suitable habitat features and searching known or suitable basking sites.
 - v) "incidental encounter" means whenever an Eastern Foxsnake individual is encountered outside of a targeted salvage operation.
- b. MTO shall develop an Eastern Foxsnake Restoration and Management Plan, which must be approved by MNR prior to undertaking any activity that will have an impact on Eastern Foxsnake individuals within the ESA Footprint. The approved Eastern Foxsnake Management Plan must provide detailed information with respect to the goals, methods and techniques MTO will adopt for activities relating to Eastern Foxsnake and must, at a minimum, address the following:
- i) Site alternation timing windows
 - ii) Capture and release protocols and methodologies
 - iii) Capture and release timing windows
 - iv) Eastern Foxsnake habitat enhancement, restoration, creation and management methodologies and timelines
 - v) Eastern Foxsnake key habitat feature creation protocols and designs
 - vi) Adaptive management strategies
- c. MTO shall carry out activities described in the approved Eastern Foxsnake Management Plan in accordance with that plan.
- d. Prior to June 30th 2010, MTO shall create a minimum of one hibernaculum, in accordance with the directions and plans developed by the Toronto Zoo (Appendix J) to serve as an emergency hibernation site for snakes captured in accordance with Condition 16(k)(iv).
- i) MTO shall create the hibernaculum within the Permit Lands, in an area that is outside the ESA Footprint and that is suitable to support Eastern Foxsnake, in

accordance with the requirements of this Permit and the approved Eastern Foxsnake Management and Restoration plan.

- ii) The created hibernaculum shall be located within a suitable distance of naturally occurring features that may serve as natural hibernacula for Eastern Foxsnake individuals.
 - iii) MTO shall enclose both the created hibernaculum and adjacent natural hibernacula features by September 1st of any year, within the same temporary snake barrier, which shall have no openings by which Eastern Foxsnake individuals might escape.
 - iv) MTO shall adjust the temporary Eastern Foxsnake barrier identified in Condition 16(d)(iii) by March 31st of each year to allow for natural dispersal, and shall, after natural dispersal is complete for that year, reinstall the barrier in accordance with Condition 16(d)(iii) unless otherwise authorized by MNR.
- e. Despite Condition 16(d), MTO may use hibernaculum creation plans that provide equal or greater protection to Eastern Foxsnake individuals than the methods described in that condition, as outlined in the approved Eastern Foxsnake Management Plan or as approved by MNR.
- f. MTO shall erect temporary Eastern Foxsnake barriers at Active Construction Sites that are within or adjacent to Eastern Foxsnake habitat.
 - i) The temporary Eastern Foxsnake barrier shall be effective and shall be designed to prevent Eastern Foxsnake individuals from entering or re-entering the Active Construction Sites, in accordance with the approved Eastern Foxsnake Restoration and Management Plan
 - ii) MTO shall ensure that temporary Eastern Foxsnake barriers are erected, by April 15th of any year, at all sites where construction will be occurring in that year.
 - iii) During construction, MTO shall inspect all temporary Eastern Foxsnake barriers daily when the snakes are not hibernating, and shall capture, transport and

release any Eastern Foxsnake individuals found inside the barriers in accordance with Conditions 16(i) and (j).

- iv) The temporary Eastern Foxsnake barriers shall remain in position until all construction activities have ceased and will be maintained to ensure that there are no openings by which Eastern Foxsnake individuals may enter or re-enter the Active Construction Site.
- g. MTO shall make every reasonable effort to capture Eastern Foxsnake individuals in accordance with Condition 16(i), whenever they are encountered within the ESA Footprint through a targeted salvage operation in accordance with Condition 16(i) or, when incidentally encountered within the Active Construction Sites. MTO shall release all captured Eastern Foxsnake individuals in accordance with Condition 16(j).
- h. Before any person may be involved in a targeted salvage operation or in the release of Eastern Foxsnakes, MTO shall ensure that the person receives training in proper snake handling procedures.
 - i) MTO must keep records of this training on file and must make these records available to MNR upon request.
- i. Prior to the commencement of any construction activities within Active Construction Sites that are within or adjacent to Eastern Foxsnake habitat and between the dates of April 15th and October 15th of any year, MTO shall conduct targeted salvage operations to capture Eastern Foxsnake individuals in accordance with the approved Eastern Foxsnake Restoration and Management Plan and in accordance with the following conditions:
 - i) MTO shall use both cover boards and active searching methods to assist with the capture of all Eastern Foxsnake individuals encountered in Active Construction Sites.
 - ii) MTO shall conduct active searching operations involving:
 - Daily searches of the Active Construction Sites at which temporary Eastern Foxsnake barriers have been erected shall occur from 1 hour after dawn until 1 hour before dusk, over a minimum of five consecutive days.

- Examination and deconstruction of all known or suspected key habitat features as well as other point source features, including but not limited to debris piles, woodpiles, brush piles, logs, tree stumps, compost piles and leaf piles, within the Active Construction Sites.
- iii) MTO shall conduct cover board salvage operations as follows:
- Coverboards approved by MNR shall be placed at an appropriate density for snake salvage, throughout the Active Construction Sites, no later than March 15th in any year.
 - The underside of all cover boards shall be inspected for Eastern Foxsnake individuals every day for the duration of the salvage operation, between the hours of 6:00 p.m. to 9:00 p.m., unless otherwise directed by MNR.
- iv) MTO shall transfer any captured Eastern Foxsnake individuals into an individual, light-coloured, drawstring cotton sack, before placing it into an Eastern Foxsnake Storage Tub (described in Condition 16(i)(v)).
- v) MTO shall ensure that Eastern Foxsnake Storage Tubs are light in colour and have non-airtight lids that latch closed.
- vi) Despite Condition 16(i)(v) MTO may use tubs that provide equal or greater protection for Eastern Foxsnake individuals than the tubs described in that condition, if identified in the approved Eastern Foxsnake Management Plan or as approved by MNR.
- vii) MTO shall make the Storage Tubs mentioned in Conditions 16(i)(v) or (vi) and the cotton sacks mentioned in Condition 16(i)(iv) available for use within Active Construction Sites at all times.
- viii) MTO shall store captured Eastern Foxsnake individuals out of direct sunlight, for a maximum of 24 hours before releasing them in accordance with Condition 16(j).

- ix) Despite Condition 16(i)(viii), if Eastern Foxsnake individuals will be used for radio telemetry monitoring, Eastern Foxsnake individuals may be stored for a period of up to 72 hours, unless otherwise specified by a member of the College of Veterinarians of Ontario.
- j. MTO shall release all Eastern Foxsnake individuals captured within Active Construction Sites in accordance with the following conditions:
 - i) All Eastern Foxsnake individuals captured as a result of the salvage operation outlined in Condition 16(i) and all Eastern Foxsnake individuals that are incidentally encountered and captured within Active Construction Sites between April 1st and August 31st of any year, shall be released in an area outside the Active Construction Site that is associated with a natural linkage to suitable habitat features and shall not be more than 250m from the capture site.
 - ii) Any Eastern Foxsnake individuals incidentally encountered within Active Construction Sites between September 1st and October 31st of any year shall be captured and released at the created hibernacula required by Condition 16(d).
 - iii) Should Eastern Foxsnake individuals be incidentally encountered within the Active Construction Site between November 1st and March 31st of any two consecutive years, or should an active hibernacula be uncovered, MTO shall capture the snakes, store them in individual, light-coloured, drawstring cotton sacks which are placed into an Eastern Foxsnake Storage Tub described in Condition 16(i)(v) or (vi), and then immediately contact the designated representative of the MNR Aylmer District office immediately to seek direction. MTO shall ensure that the Eastern Foxsnake Storage Tub with the captured snakes is stored in a building or vehicle at a temperature between 4 and 10 degrees Celsius until the Eastern Foxsnake individuals are retrieved. Alternatively, MTO may follow the appropriate course of action identified in the approved Eastern Foxsnake Management Plan.
 - iv) MTO shall ensure that all captured Eastern Foxsnake individuals are released within 0.5 metres of a suitable natural or artificial cover object and encouraged to take

shelter under that object or, shall place the Eastern Foxsnake individual under the cover object if it is possible to do so in such a manner as to avoid any potential injury to the Eastern Foxsnake individual.

- k. Subject to Condition 10, the demolition or removal of any house, shed, barn or other building, culvert or dug well located within the ESA Footprint shall only occur in accordance with the following conditions:
- i) Prior to demolition or removal, structures shall be screened, as per the criteria identified in the approved Eastern Foxsnake Management Plan, by a person considered to be an expert on Eastern Foxsnake, to determine whether the structure may serve as Eastern Foxsnake habitat. Other human-made structures will be identified and screened in accordance with the protocol identified in the approved Eastern Foxsnake Management Plan, or as approved by MNR.
 - ii) Prior to demolition or removal, all structures that have been determined through the screening in Condition 16(k)(i) to be suitable habitat for Eastern Foxsnake shall be examined by a person considered to be an expert on Eastern Foxsnake, to determine whether the structure does serve as Eastern Foxsnake habitat and whether there are Eastern Foxsnake individuals present within or under the structure.
 - iii) If the expert determines that Eastern Foxsnake individuals are present within or under the structure between April 1st and August 31st of any year, MTO shall capture, transport and release the snakes to a location outside the Active Construction Site in accordance with Conditions 16(i) and (j).
 - iv) If the expert determines that Eastern Foxsnake individuals are present within or under the structure between September 1st and October 31st of any year, MTO shall capture, transport and release the snakes at the site identified in Conditions 16(d) or (e).
 - v) If the expert determines that Eastern Foxsnake individuals are present within or under the structure between November 1st and March 31st of any year, MTO shall leave the structure undisturbed until after April 1st, at

which time MTO shall capture, transport and release the individuals in accordance with Conditions 16(i) and (j). Thereafter, MTO may demolish or remove the structure.

- I. The damage, destruction or removal of any known or suspected natural hibernation site located within the ESA Footprint shall only occur after the following screening measures have been taken:
 - i) The natural hibernation site shall be examined by a person considered to be an expert on Eastern Foxsnake to determine whether there are Eastern Foxsnake individuals present.
 - ii) If the expert determines there are no Eastern Foxsnake individuals are present within or under the known or suspected natural hibernation site, MTO may damage, destroy or alter the hibernation site.
 - iii) If the expert determines there are Eastern Foxsnake individuals present within or under the known or suspected natural hibernation site between April 1st and August 31st, MTO shall capture, transport and release the snakes in accordance with Conditions 16(i) and (j).
 - iv) If the expert determines there are Eastern Foxsnake individuals present within or under the feature, and it is between September 1st and October 31st of any year, MTO shall capture, transport, and release the individuals at the site identified in Conditions 16(d) or (e).
 - v) If the expert determines there are Eastern Foxsnake individuals present within or under the feature between November 1st and March 31st of any year, MTO shall leave the feature undisturbed until after April 1st, at which time MTO shall capture, transport and release the individuals in accordance with Conditions 16(i) and (j). Thereafter, MTO may demolish or removed the hibernation site.
- m. The damage, destruction or removal of any known or suspected Eastern Foxsnake nesting site located within the ESA Footprint shall occur in accordance with the following conditions:
 - i) The known or suspected nesting site shall be carefully examined by a person considered to be an expert on Eastern Foxsnake to determine whether there are

Eastern Foxsnake individuals or Eastern Foxsnake eggs present.

- ii) If the expert determines there are no Eastern Foxsnake individuals or Eastern Foxsnake eggs present within the known or suspected nesting site, the site may be damaged, destroyed or altered.
 - iii) If the expert determines there are Eastern Foxsnake individuals present within the known or suspected nesting site, MTO shall capture, store and release the individuals into a created or natural nesting site outside the Active Construction Site in accordance with Conditions 16(i) and (j).
 - iv) If the expert determines Eastern Foxsnake eggs are present within the known or suspected nesting site, the site shall be enclosed with temporary Eastern Foxsnake barriers, monitored on a daily basis and left undisturbed until the eggs have hatched. The hatched juvenile Eastern Foxsnake individuals shall be captured and released in accordance with Conditions 16(i) and (j).
- n. MTO shall install permanent barriers adjacent to habitat of Eastern Foxsnake that are suitable for preventing Eastern Foxsnake individuals from accessing the freeway and service roads of the Windsor Essex Parkway. The barrier will be designed to allow Eastern Foxsnake individuals to access ecopassages and other natural linkages. Barrier locations, specifications and installation methods shall be approved by MNR.
 - o. MTO shall conduct an external and internal visual inspection of all pieces of equipment on the active construction site prior to start-up or operation.
 - p. MTO shall use Curlex® NetFree™ 100% biodegradable erosion control blankets for all erosion control.
 - q. Despite Condition 16(p), MTO may use alternative erosion control blankets that provide equal or greater protection to Eastern Foxsnake individuals than the blankets described in that condition, as approved by MNR.
 - r. MTO shall immediately transport any Eastern Foxsnake individuals that have been injured beyond possibility of self-recovery to a

member of the College of Veterinarians of Ontario for treatment and/or euthanasia.

- i) MTO shall select a member of the College of Veterinarians of Ontario who is trained to handle and treat or euthanize snakes.
 - ii) MTO shall report such incidents to the designated representative of the MNR Aylmer District office within 24 hours or the end of next business day, whichever occurs first.
- s. MTO shall contact the designated representative of the MNR Aylmer District office within 72 hours if an Eastern Foxsnake individual is killed as a result of any activity authorized under this Permit, or if any person conducting an activity authorized under this Permit finds a deceased Eastern Foxsnake individual.
- i) MTO shall transport the carcasses of all deceased Eastern Foxsnake individuals encountered to the MNR Aylmer District office within 72 hours of contacting the designated representative.

17. MTO shall carry out activities for the mitigation of impacts on the habitat of Eastern Foxsnake individuals, in accordance with this Condition:

- a. MTO shall develop an Eastern Foxsnake Habitat Creation, Restoration and Management Plan, which must be approved by MNR.
- b. Prior to the expiry of this Permit, MTO shall enhance or create habitat that is suitable to support Eastern Foxsnake across 110 hectares.
 - i) MTO shall select areas for habitat enhancement or creation that provide natural linkages between existing and created habitat features, foraging opportunities and cover opportunities.
- c. MTO shall create new key habitat features at a ratio of 3 to every 1 that is damaged or destroyed.
 - i) MTO shall create all new hibernacula in accordance with the directions and plans developed and implemented by the Toronto Zoo (Appendix J), unless otherwise directed by MNR.

- d. MTO shall create new key habitat features required by this Permit within 50 – 250 meters of the existing features that will be destroyed by construction of the Windsor-Essex Parkway, unless otherwise authorized by MNR. The new key habitat features must be directly adjacent to, and connected with a natural linkage to other Eastern Foxsnake habitat.
 - i) All created key habitat feature locations and designs must be approved by MNR.

Invasive Species Control

18. MTO shall actively control invasive species where necessary, for the purpose of habitat enhancement within the Final Restoration Sites.

19. Activities authorized by this Permit in relation to the control of invasive species through application of an herbicide, shall occur in accordance with this Condition:

- a. All persons applying an herbicide under the authority of this Permit must be licensed under the *Pesticides Act, 2009*.
- b. Upon MNR's request, MTO shall produce proof of their receipt of a letter, issued by the Ministry of Natural Resources, which states that the MNR has identified the use of an herbicide for this project as an appropriate means to protect or manage natural resources, under section 33 of O. Reg. 63/09.
- c. MTO shall use only Roundup Ultra herbicide containing glyphosphate to control invasive species on the Permit Lands, unless otherwise directed by MNR.
- d. When removing *Phragmites australis australis* adjacent to any of the eight species identified in Schedule A, MTO shall remove or control *Phragmites* or other invasive species by hand wicking. Hand wicking must involve direct contact with each individual stalk using a fleece glove wetted with Roundup Ultra herbicide.
- e. Despite Condition 19(d), MTO may apply Roundup Ultra herbicide in a manner that provides equal or greater protection to the eight species identified in Schedule A, if detailed in the appropriate approved Management Plan or as approved by MNR.
- f. All application of Roundup Ultra herbicide shall occur a minimum of four to six hours prior to any rainfall, to ensure proper absorption of

the herbicide by the invasive species and prevent runoff into surface water.

- g. Mowing and/or cutting of *Phragmites* in an area shall be carried out a minimum of two weeks after the area was sprayed to ensure that *Phragmites* individuals are deceased and not spread by mowing or cutting.
- h. MTO shall dispose of all mown or cut organic matter, trimmings, clippings and other debris in a municipal staging or disposal location.
- i. MTO shall clean all equipment on site prior to the equipment's removal, to reduce transfer of soil or other organic matter that may contain invasive species

Monitoring and Reporting

20. MTO shall retain a qualified botanist to monitor and report on the growing progress of the Colicroot, Willowleaf Aster, and Dense Blazing Star in their respective Final Restoration Sites from the time of issuance of this Permit. Monitoring and reporting shall occur throughout each stage of construction, and for a period of five years post construction, as follows:

- a. Prior to the commencement of any construction activities occurring in the Permit Lands, MTO shall develop a Plant Monitoring Plan which must be approved by MNR. The Plant Monitoring Plan shall include detailed information and at a minimum, require MTO to carry out the following monitoring activities:
 - i) MTO shall visually assess all transplanted and planted individuals of the species mentioned in this Condition twice annually, once in July and once in August, from the time the Permit is issued until five years after construction is completed.
 - ii) MTO shall set up permanent photo monitoring stations and shall check these stations in June and July of each year for Colicroot, from mid-July to September for Dense Blazing Star, and in October for Willowleaf Aster. The photo monitoring stations shall be set up in every Final Restoration Site where the habitat of these species is present.

- iii) MTO shall carry out quadrat vegetation surveys in areas where Dense Blazing Star, Colicroot or Willowleaf Aster individuals have been transplanted or planted. MTO shall use 10 x 10 metre plots in accordance with the methodology outlined in the Ecological Land Classification System for Southern Ontario: First Approximation and Its Application (Lee *et al.* 1998. Published by the Ontario Ministry of Natural Resources. ISBN 0-7778-7263-3 OMNR# 51146), unless otherwise authorized by MNR.
 - iv) MTO shall monitor the Colicroot plants left in-situ at the [REDACTED] Impact Avoidance Area, in accordance with Condition 12(o)(ii).
- b. MTO shall carry out activities described in the approved Plant Monitoring and Reporting Plan in accordance with that plan.
 - c. MTO shall provide annual monitoring reports to MNR, starting one year after the Permit is in force. The monitoring report shall contain the following information with respect to each seeded, planted or transplanted Dense Blazing Star, Colicroot, and Willowleaf Aster individual:
 - i) Date of seeding, planting or transplanting;
 - ii) Date and type of tending;
 - iii) Health status of planted or transplanted individuals, i.e., good, poor, or dead;
 - iv) Number of stems of planted or transplanted individuals;
 - v) Whether or not natural reproduction is occurring in planted or transplanted individuals;
 - vi) List of all species identified through quadrat studies;
 - vii) Status of all habitat restoration, enhancement or creation efforts occurring in compliance with the conditions of this Permit;
 - viii) Photographic record;
 - ix) Current distribution of invasive species across site (with mapping);

- x) Status of invasive species removal;
- xi) Effectiveness of invasive species control methodologies;
- xii) Health status of restored, enhanced or created habitat;
- xiii) Cause of damage to habitat i.e., by wildlife, vandalism or unusual natural events.

- d. MTO shall provide monitoring reports annually for the duration of construction of the Project, and for a period ending five years after the completion of all stages of construction of the Project.
- e. The designated representatives for MNR and MTO, identified in Conditions 3 and 6 shall organize annual meetings to discuss the annual reports and discuss opportunities for adaptive management.
 - i) The designated representatives for MNR and MTO may invite additional persons to attend the meetings

21. MTO shall retain a qualified botanist to monitor and report on the growing progress of the Kentucky Coffee-tree, Dwarf Hackberry and Common Hoptree individuals planted or transplanted in accordance with Condition 15. Expert monitoring and reporting with respect to an individual shall occur from the time the individual is planted or transplanted until the fifth anniversary of the completion of construction as follows:

- a. All transplanted and planted individuals shall be visually assessed twice annually, once in May and once in September, from the time they are planted until the fifth anniversary of the completion of construction.
- b. MTO shall provide annual monitoring reports to MNR, starting one year after the Permit is in force. The monitoring report shall contain the following information with respect to each planted Kentucky Coffee-tree, Dwarf Hackberry and Common Hoptree individual:
 - i) Date of planting
 - ii) Date and type of tending
 - iii) Health status of planted individuals: good, poor, or dead
 - iv) Whether or not natural reproduction is occurring

v) Damage by wildlife, people or events

vi) Photographic record

22. MTO shall retain a qualified biologist to monitor and report on the capture and release of Butler's Gartersnakes and Eastern Foxsnakes occurring under this Permit, and to monitor and report on the progress of habitat enhancement and creation for Butler's Gartersnakes and Eastern Foxsnakes occurring under this Permit. The qualified biologist must monitor and report on these activities throughout all stages of construction, and for a period of five years post construction, as follows:

- a. Prior to March 31st 2010, MTO shall develop a Snake Monitoring Plan, which must be approved by MNR. The Snake Monitoring Plan shall include detailed information on the following, at a minimum:
 - i) Mark-recapture (through cover board use) survey methodologies and timelines for Butler's Gartersnake.
 - ii) Radio telemetry survey methodologies and timelines for Butler's Gartersnake.
 - iii) Active survey methodologies and timelines for Eastern Foxsnake.
 - iv) Radio telemetry survey methodologies and timelines for Eastern Foxsnake.
 - v) Monitoring methodologies and timelines for captured Butler's Gartersnakes and captured Eastern Foxsnakes that were released within the Permit Lands outside the Active Construction Site(s).
 - vi) Monitoring methodologies and timelines for captured Butler's Gartersnakes released into the created Butler's Gartersnake hibernacula site, in accordance with Condition 11(d), and for captured Eastern Foxsnakes released into the created Eastern Foxsnake hibernacula site, in accordance with Condition 16(d).
- b. MTO shall carry out activities described in the approved Snake Monitoring Plan in accordance with that plan.
- c. MTO shall provide annual monitoring reports to MNR, starting one year after the Permit is in force. The monitoring reports shall

contain the following information with respect to Butler's Gartersnake and Eastern Foxsnake:

- i) Date of capture and release
 - ii) Date and type of tending
 - iii) Health status of released individuals: good, poor, or dead
 - iv) Number of captured, released, relocated, injured and deceased individuals
 - v) Whether or not natural reproduction is occurring
 - vi) Status of all habitat restoration, enhancement or creation efforts occurring in compliance with the conditions of this Permit
 - vii) Health status of restored, enhanced or created habitat
 - viii) Damage to habitat by wildlife, people or events
 - ix) Photographic record of restored, enhanced or created habitat
- d. The designated representatives for MNR and MTO, identified in Conditions 3 and 6 shall organize annual meetings to discuss the annual reports and discuss opportunities for adaptive management.
- i) The designated representatives for MNR and MTO may invite additional persons to attend the meetings.

23. MTO shall submit a Final Report, no later than December 31st 2021, which summarizes all monitoring activities conducted throughout the entire construction and post-construction monitoring periods and summarizes the status and success or failure of all mitigation actions.

Long Term Land Protection

24. Should MTO plan to divest of any of the Final Restoration Sites within the Permit Lands, MTO shall, before the expiry of the Permit, provide for the long-term protection of the species specified in this Permit that are relevant to the Final Restoration Site by granting a conservation easement to a conservation body under the *Conservation Land Act*, R.S.O. 1990, c,



C. 28. The conservation body and the terms of the conservation easement must be approved by MNR.

25. Despite Condition 24, MTO may provide for the long-term protection of the species specified in this Permit that are relevant to the Final Restoration Site by a method other than by granting a conservation easement, if that method is approved by MNR as providing equal or greater long-term protection than a conservation easement.

Appendix A – Permit Lands and ESA Footprint

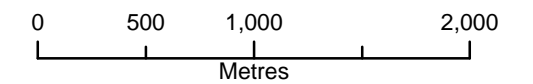
(1 of 5)

LEGEND

-  ESA Footprint
-  Permit Lands



SCALE: 1:35,000



UTM NAD83 CNT Zone 17.

'ESA Footprint' data provided by The Ontario Ministry of Transportation.

Base data derived from the Natural Resource Values Information System (NRVIS), Scale 1:10 000 and 2008 Essex Orthophotography Project.

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Appendix A – Permit Lands and ESA Footprint

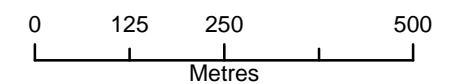
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LEGEND

-  ESA Footprint
-  Permit Lands



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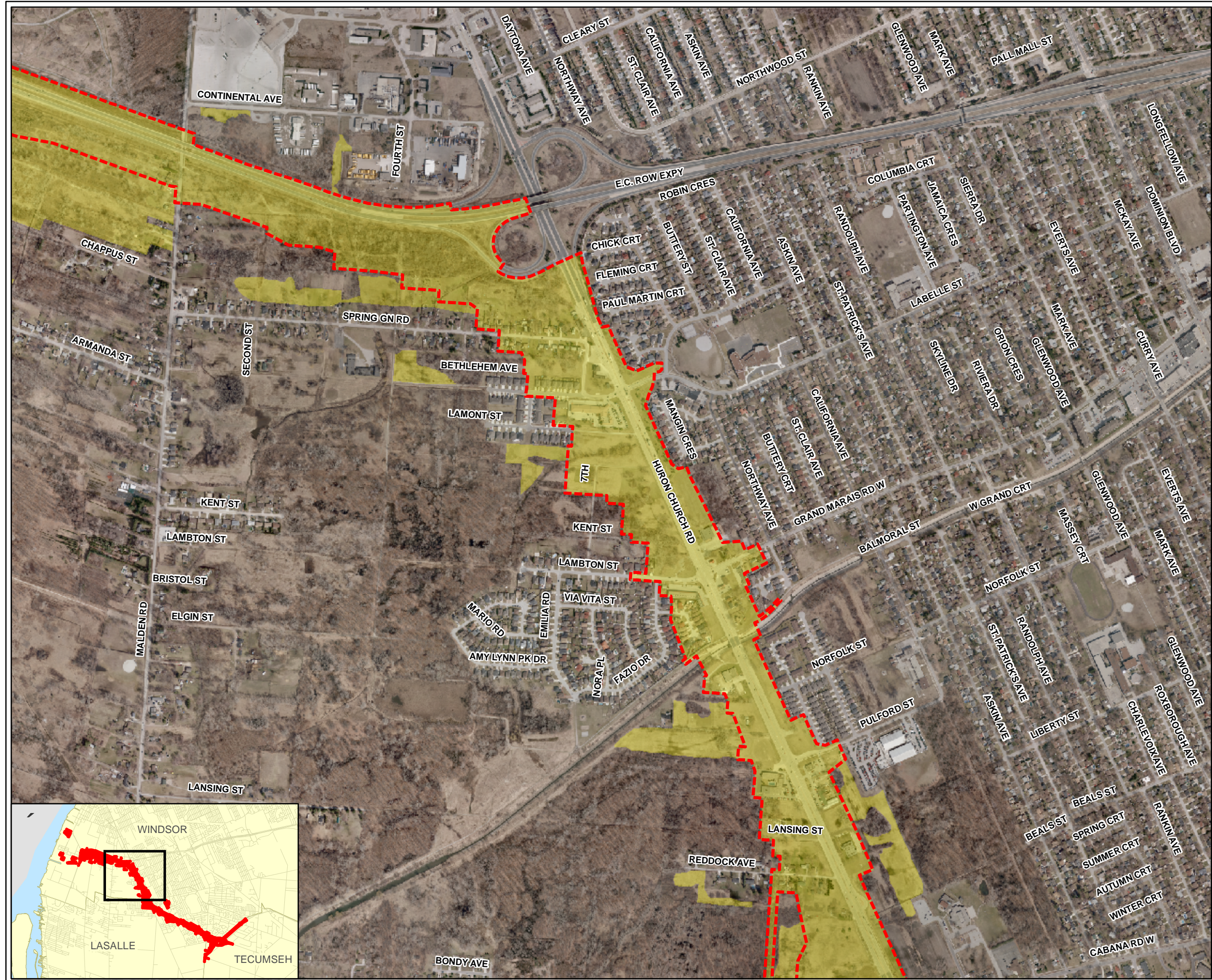
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Appendix A – Permit Lands and ESA Footprint

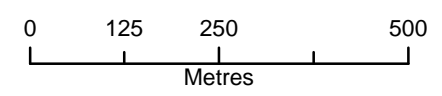
(3 of 5)

LEGEND

-  ESA Footprint
-  Permit Lands



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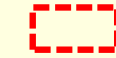

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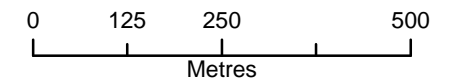
Appendix A – Permit Lands and ESA Footprint

(4 of 5)

LEGEND

-  ESA Footprint
-  Permit Lands

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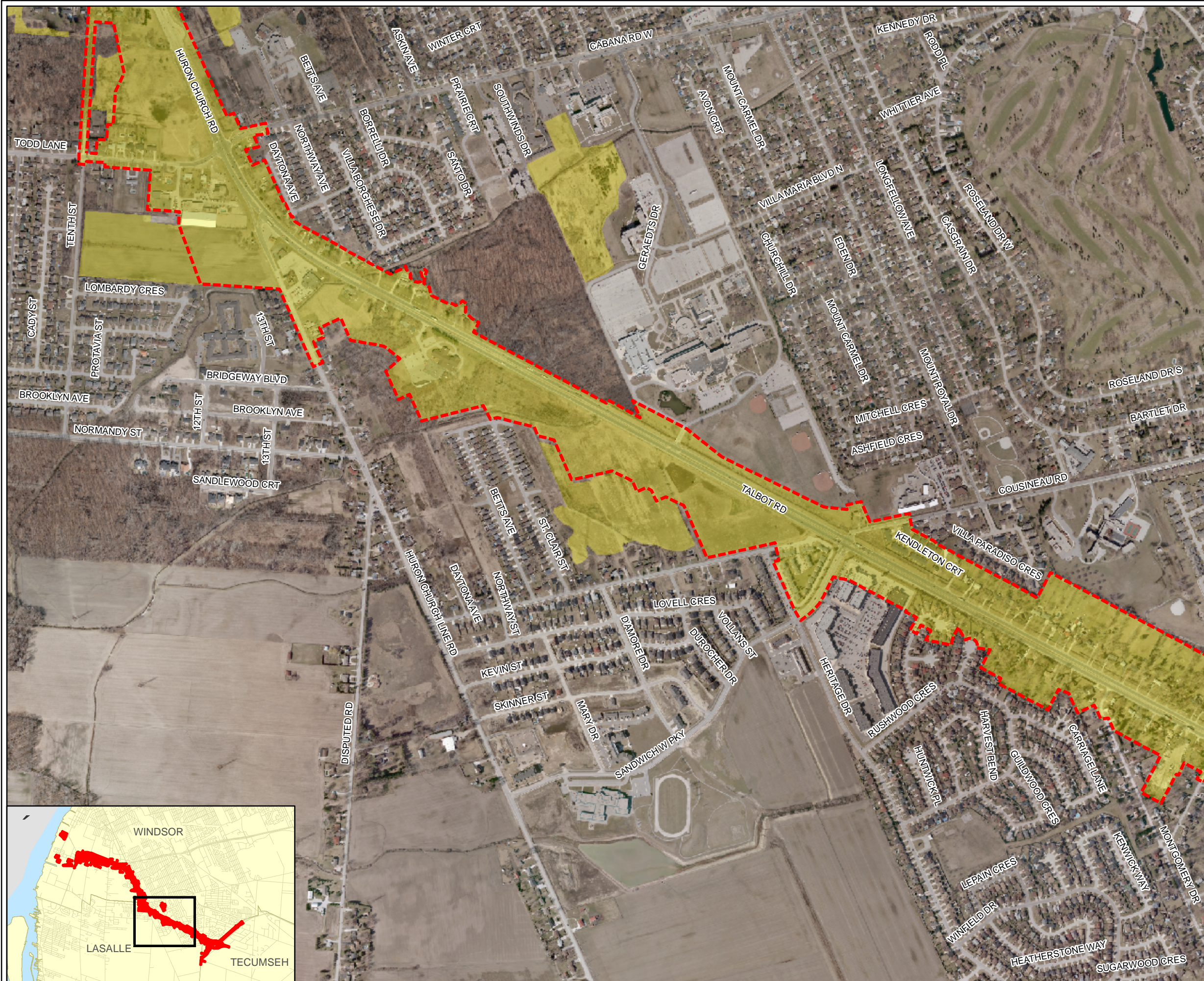
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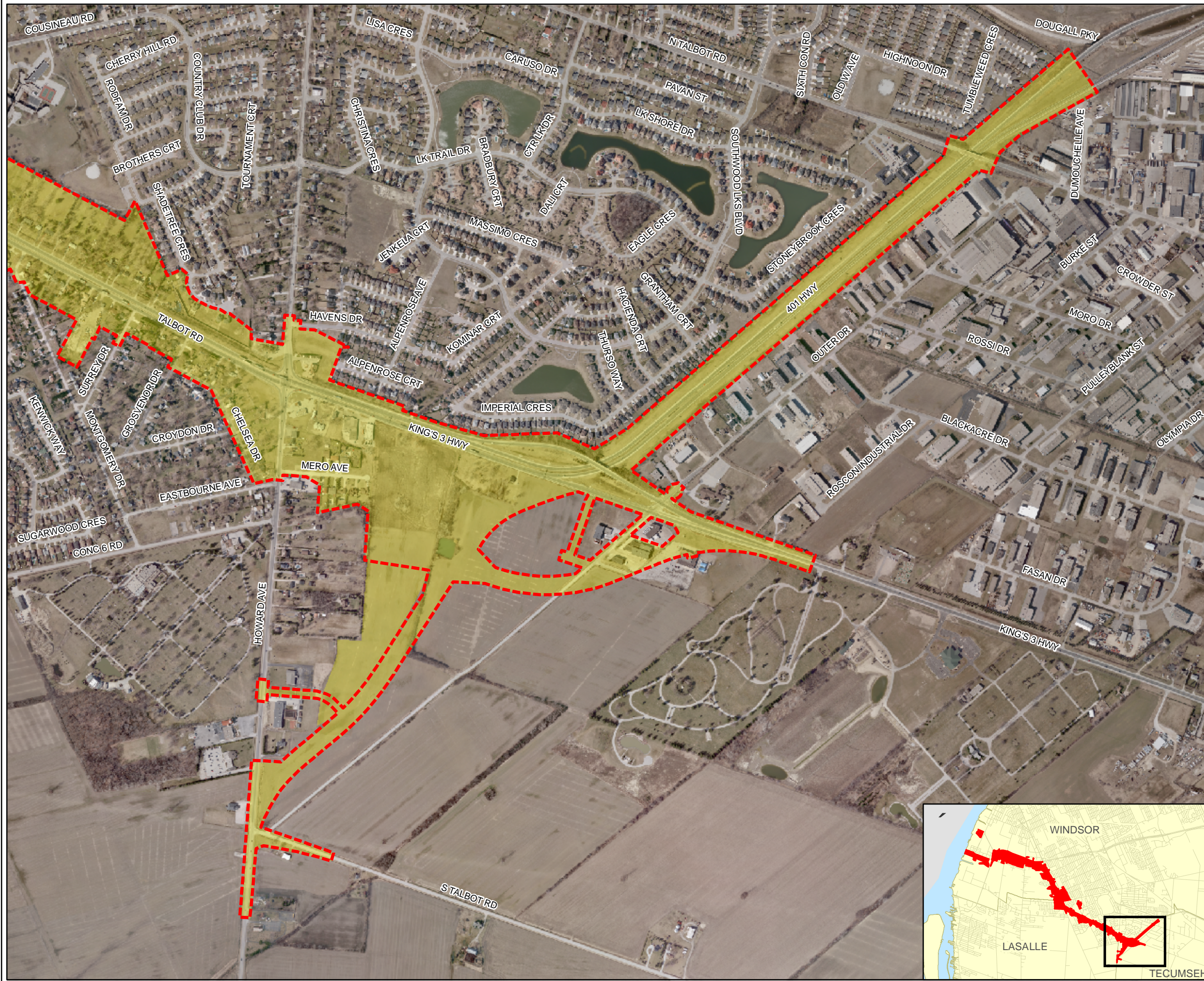
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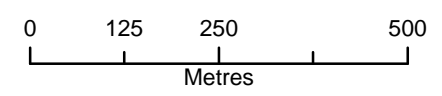
(5 of 5)



LEGEND

-  ESA Footprint
-  Permit Lands

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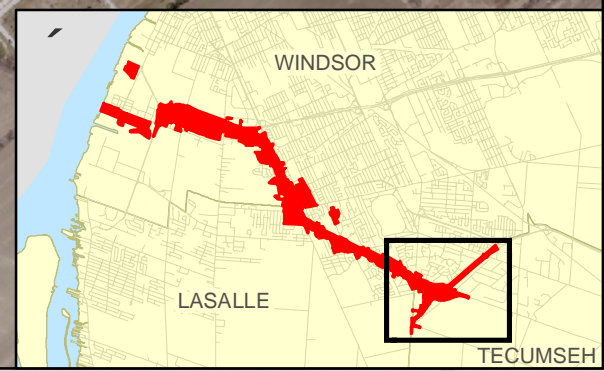
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Appendix B

This appendix has been removed as it indicates location of sensitive species.

Appendix C

This appendix has been removed as it indicates location of sensitive species.

Appendix D

This appendix has been removed as it indicates location of sensitive species.

Appendix E

This appendix has been removed as it indicates location of sensitive species.

Appendix F

This appendix has been removed as it indicates location of sensitive species.

Appendix G

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Appendix H

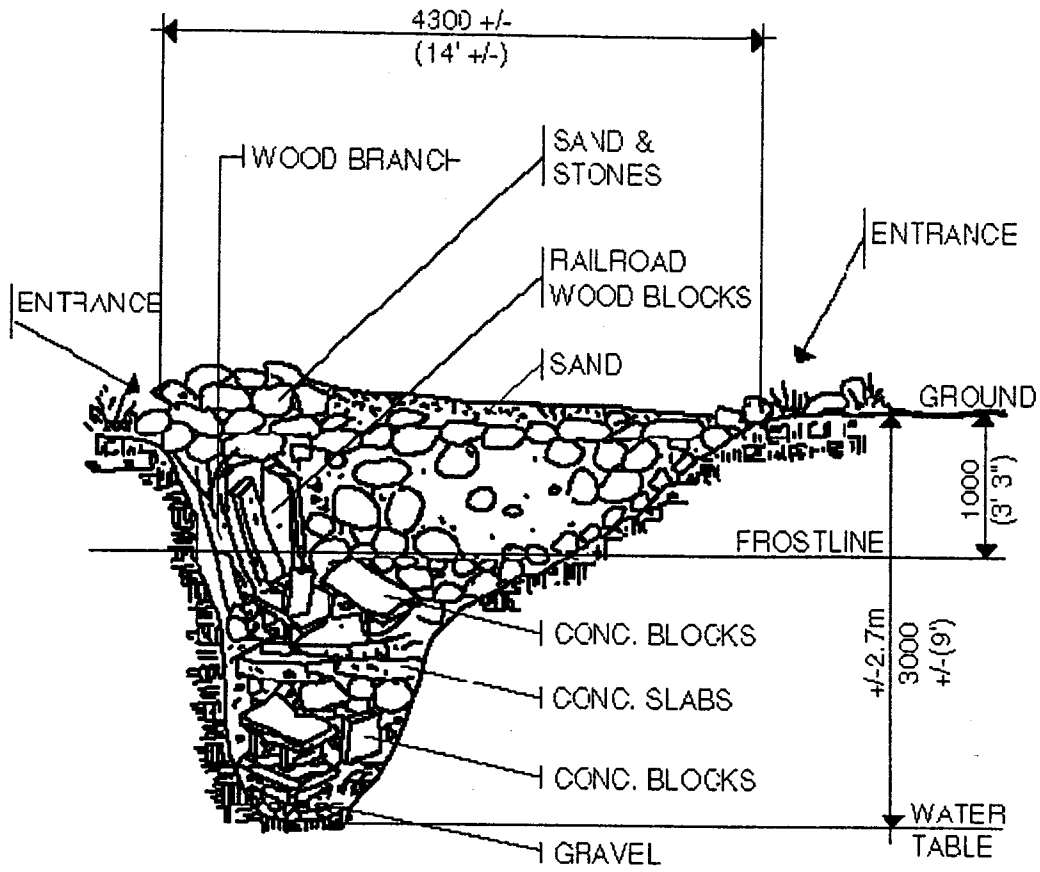
This appendix has been removed as it indicates location of sensitive species.

Appendix I

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Appendix J – Toronto Zoo Hibernacula Construction Plans and Instructions

1. Select a well-drained site protected from cold winds, with good sun exposure (south-facing). Ensure that surface and ground water flows away from the site (i.e. build on upland areas). If not, drainage pipes below the frost line may be required to prevent flooding.
2. Your snake hibernaculum can be sized to fit the available space, but it must be deeper than the frost line (at least 2 meters deep). Snakes prefer an overwintering site that is close to the water table, but not flooded. Moist air ensures that snakes do not dehydrate over the dry winter months.
3. Place rubble in the bottom to create chambers for the snakes. Chambers created at different depths allow the snakes to move vertically and horizontally to select a preferred temperature/humidity microhabitat.
4. Concrete blocks or PVC drain pipes (with holes cut into the sides along the length of the pipe) can be used for entrances and passages to allow the snakes multi-level access. Snakes use these passage ways to move to the bottom of the pit and into the underground chambers. It is necessary to hand place the concrete blocks to ensure that a space or tunnel extends down into the bottom of the pit at each of the corners. Continue to fill the pit with larger rocks, old concrete blocks and slabs, maintaining as many openings and chambers as possible.
5. Cap with an insulating layer of smaller rock rubble. Be sure to leave the entrances open and keep the top clear of shrubs that may grow as the site matures.
6. Protect emerging snakes from predators by having cover objects such as logs, rock piles, brush and uncut grass nearby.
7. In the spring (mid April to late May), monitor your site to determine if wildlife are using the hibernaculum.



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