



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

March 2, 2016

Project 1374B

Mr. Andrew Lambden
Carrington Farm Trust
45 Speedvale Avenue East, Unit #5
Guelph, ON
N1H 1J2

**Re: Hart Village, Guelph ON
Draft Environmental Implementation Report Terms of Reference**

On behalf of Natural Resource Solutions Inc. (NRSI), I am pleased to provide the following Terms of Reference (TOR) to prepare an Environmental Implementation Report (EIR) for the subject property located at the legal address of 132 Hart's Lane, Lot 4, Concession 7 (Geographic Township of Puslinch), City of Guelph.

The subject property (12.65ha) is bordered by Kortright Road West to the north, Gordon Street to the east, Rickson Avenue to the west and Darnell Road to the south. The Hanlon Creek Swamp PSW overlaps with the east portion of the subject property as well as along the entire eastern boundary.

An EIR will be completed and submitted to the Environmental Advisory Committee (EAC) for review. The EIR will then be prepared to outline implementation regulations and conditions as they relate to the Draft Plan of Subdivision 23T-14502. The following TOR outlines the steps required to complete the EIR.

Sincerely,

Natural Resource Solutions Inc.

David Stephenson
Senior Project Manager

CC: April Nix, City of Guelph, Environmental Planner

**635 Woodlawn Road, Guelph Lake Residential Development
Environmental Implementation Report
Terms of Reference
March 2, 2016**

Introduction

The subject property is located at 132 Hart's Lane, Guelph Ontario (12.65ha in size) and is bordered by Kortright Road West to the north, Gordon Street to the east, Rickson Avenue to the west and Darnell Road to the south.

As per Schedule 10A of Official Plan Amendment (OPA) 42 (City of Guelph 2014), the Hanlon Creek PSW overlaps with the eastern side of the subject property and a permit from the Grand River Conservation Authority (GRCA) is required to build adjacent to this natural feature, as per Ontario Regulation 150/06.

The property is within the Grand River watershed and the Hanlon Creek subwatershed. The subject property is presently comprised primarily of agricultural land. The lands proposed for development are largely agricultural, containing a rural property as well as various stands of Common Buckthorn (*Rhamnus cathartica*). Adjacent lands associated with the Hanlon Creek PSW are comprised of marsh, forest and meadow habitat (Map 1).

NRSI, along with Astrid J. Clos Planning Consultants and GMBluePlan, were retained by Carrington Farm Trust to complete an EIR which will be submitted to the City of Guelph Environmental Advisory Committee (EAC). The EIR is being prepared to outline implementation regulations and conditions as they relate to the Draft Plan of Subdivision 23T-14502.

Proposed Undertaking

Carrington Farm Trust is proposing to build a mixed residential neighbourhood including single-detached and semi-detached residences, a townhouse block and an apartment block. The proposed neighbourhood will also include a road network, stormwater facility, open space, and park (Astrid Clos Planning 2013). A trail system is proposed to connect from Harts Lane to the roadside in the proposed subdivision and ultimately Kortright Road West.

Associated Studies

Reports and mapping to be summarized and appended to the EIR include:

- Hydrogeological Monitoring – GMBluePlan
- Stormwater Management Report & Grading Plans – GMBluePlan
- Landscape Plans – Architect to be determined
- Draft Plan of Subdivision – Astrid J. Clos Consulting

Environmental Implementation Report

The following is an outline of the components to be included and discussed in the EIR:

1. **Introduction** – provide information on natural features based on the EIS, overview of the TOR and proposed undertaking.
2. **Natural Feature Monitoring** – provide information on the methods and findings from the pre-construction, during and post construction monitoring.
3. **Tree Inventory and Preservation Plan** – Tree Preservation Plan (TPP) prepared as part of the EIS, will be updated as necessary associated with the details of the trail alignment (prepared by a Landscape Architect). A landscape plan will be prepared detailing hazard trees to be removed along the trail system and within residential properties.
Detailed Trail Design – a detailed design of the trail system on the subject property will be provided.
4. **Property Demarcation** – text and mapping of fencing to be implemented in accordance with the EIS.
5. **Habitat Management Plan** – As per the EIS report, the EIR will detail buffer protection and enhancement including buffer restoration plantings and invasive species management (primarily for Common Buckthorn). In addition, the final location of the Barn Swallow nesting structure (currently proposed for Block 121) will also be determined at the EIR stage.
6. **Debris Management** – the removal of debris from the subject property will be included in the EIR. Currently, no debris is located on the subject property.
7. **Education and Outreach** - provide the City's EnviroGuide to each property owner. Educational natural feature signage will be in the EIR.
8. **Hydrogeology and Stormwater Management** – summary of baseline hydrogeology and SWM findings and monitoring strategy will be appended to the EIR as per the EIS.
9. **Salt Management Plan** – for Apartment Block 121 and Condominium Block 120 will be appended to the EIR and incorporated into future plans of the condominium.
10. **Phasing of Development and Servicing** – will be provided in the EIR.

Monitoring Plan

Methods for pre, during and post construction monitoring are described in Table 1. Thresholds and recommendations for adaptive management should thresholds be reached/exceeded will be provided in the EIR.

Pre-Construction Baseline Monitoring

A pre-construction monitoring program was initiated in 2015, and will continue into 2016.

Construction Monitoring

Construction monitoring will be carried out in accordance with the EIS and will focus on the sediment and erosion control and tree protection/natural feature measures.

Post-Construction Monitoring

Post-construction monitoring will be in accordance with the EIS and will focus on the maintenance of water regime and natural features.

Success of Restoration Plantings

Inspection of Restoration Plantings

Native tree species installed within the buffers between wetlands and development will be inspected during the fall of each year of the 2-year warranty period.

Monitoring Program Timeline

The project timeline for monitoring will be carried out based on project phasing. The details of specific monitoring methodologies are described below.

Pre-Construction Period (2015-2016)

A pre-construction monitoring program was initiated in 2015 and will continue into 2016.

Construction Period

Construction monitoring will be in accordance with the EIS and will focus on the sediment and erosion control and tree protection/natural feature measures.

Phase 1 will include the construction of the southern portion of the development from Rodgers Road to Carrington Place, including lots 90-101. Lots 51-54 adjacent to SWM Block 123 will be included in Phase 1. This phase will also include the construction of the SWM Blocks 123-124 and the Open Space Block 126.

Phase 2 will include lots 78-89 and further north to the edge of the townhouse Block 120 and will include the construction of the Park Block 122 and the Walkway Block 127.

Phase 3 will include the construction of the Townhouse Block 120 and the Apartment Block 121.

Post-Construction Period

Post-construction monitoring will follow 90% build-out of each phase, and will occur in years 1, 3 and 5.

Table 1: Mitigation Effectiveness Monitoring

Survey Type	Methods
Ground/Surface water Monitoring	<p>A groundwater monitoring program has been established through the Hydrogeological Investigation with baseline information available from 9 monitoring wells and 6 piezometers. Background data has been collected since April 2013.</p> <p>Water level measurements will continue to be collected via data loggers at two monitoring well locations and one piezometer throughout the course of the development process to ensure ease of comparison between pre, during and post construction conditions. Two of the data loggers are in the vicinity of wetland and proposed stormwater management works. Manual measurements at the remaining locations will be conducted on a quarterly basis to supplement the detailed information collected by the loggers.</p> <p>Monitoring at the locations with dataloggers will continue for 5 years and will follow the same schedule as wetland vegetation monitoring.</p> <p>Recommendations for post-construction groundwater and surface water monitoring will be made as part of the EIR and the site water balance and mitigation measures, pursuant to final stormwater management designs, will be evaluated.</p>
Vegetation Plot Monitoring	<p>4 permanent vegetation monitoring plots have been established and monitored within the adjacent wetlands.</p> <p>Within each 10 x 10m vegetation plot, 3 sub-samples of herbaceous vegetation (1 x 1m quadrats) will be inventoried twice per year (spring and summer). Shrubs and trees (≥10cm DBH) will be inventoried in the 10 x 10m plot. A photo inventory of each plot will also be completed. Locations for the permanent monitoring plots are identified on Map 2.</p>
Terrestrial Crayfish Plot Monitoring	<p>NRSI has carried out a baseline survey of terrestrial crayfish and their habitat on site (September 2015) which will be compared to during and post-construction conditions.</p> <p>During terrestrial crayfish monitoring, all locations of terrestrial crayfish chimneys have been mapped. Detailed notes on any observable changes to crayfish distribution within the ample area of suitable habitat on the subject property will be recorded.</p>
Buffer Monitoring	<p>Three visual inspections of the buffers between natural features and development will be completed during each monitoring year to document potential evidence of natural or anthropogenic disturbances.</p>


References

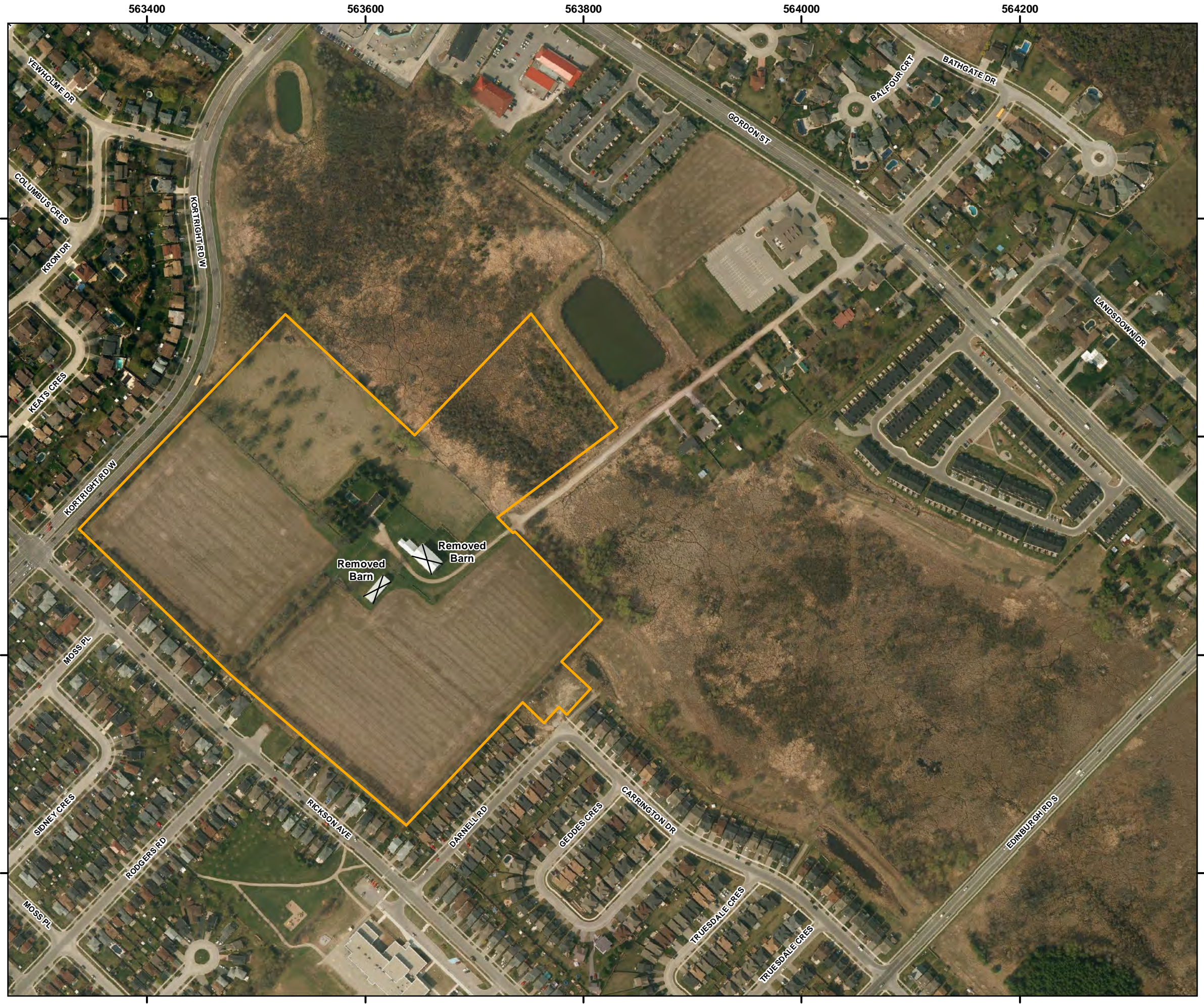
- City of Guelph. 2008. Draft Tree Protection Policies and Guidelines. June 2008.
- City of Guelph. 2010. The Corporation of the City of Guelph By-law Number (2010) – 19058.
- City of Guelph. 2012. The City of Guelph Official Plan 2001 – December 2012 Consolidation. <http://guelph.ca/wp-content/uploads/OfficialPlan-December2012Consolidation.pdf>
- City of Guelph. 2014. Amendment Number 42 to the Official Plan for the Corporation of the City of Guelph: Natural Heritage System Amendment. Adopted by Guelph City Council July 27, 2010 – OMB approved June 4, 2014. http://www.guelph.ca/uploads/PBS_Dept/planning/PDF/OP%20Update/OPA%2042%20-%20final.pdf
- Natural Resource Solutions Inc. (NRSI). 2014. Hart Property Environmental Impact Study. Prepared for Terra View Homes. April 8, 2014.
- Natural Resource Solutions Inc. (NRSI). 2015. Hart Lane Environmental Impact Study Addendum. Prepared for Terra View Homes. December 2015.

Maps

Hart Village Subject Property

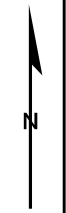
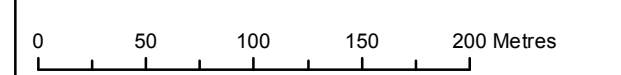
Legend

 Subject Property



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNR© Copyright: Queen's Printer Ontario. Imagery: First Base Solution, 2010

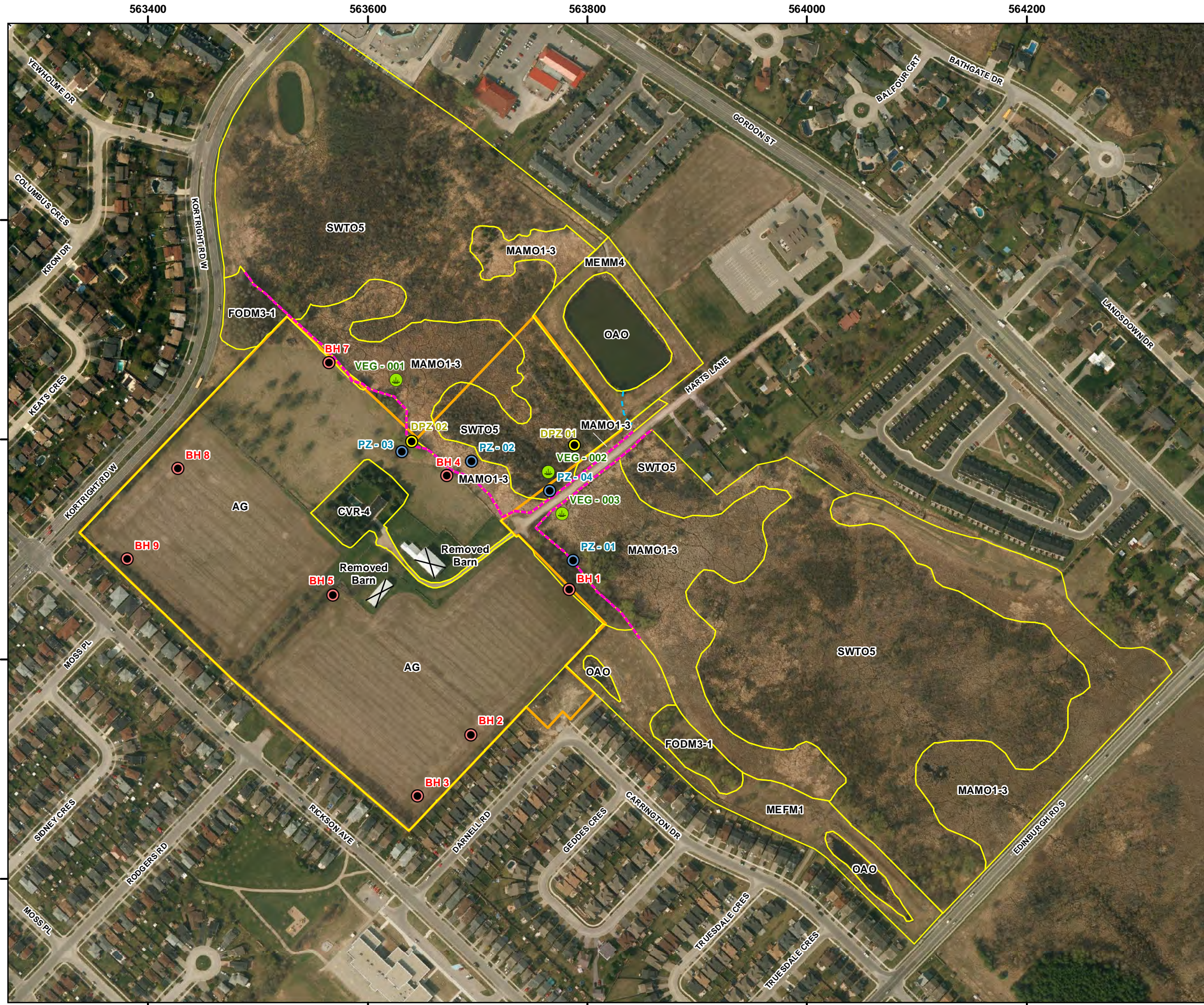
Project: 1374 Date: February 29, 2016	NAD83 - UTM Zone 17 Size: 11x17" 1:3,500
--	--



Hart Village Monitoring Locations

Legend

- Subject Property
- Monitoring Locations**
- Vegetation Plot
- Bore Hole
- Piezometer
- Drive Point Piezometer
- Wetland Boundary (Van Harten) (confirmed by GRCA May 21, 2013)
- Stormwater Outlet
- Ecological Land Classification (ELC)
- (AG) Agriculture
- (CVR-4) Rural Property
- (FODM3-1) Dry-Fresh Poplar Deciduous Forest Type
- (MAMO1-3) Reed-Canary Grass Graminoid Organic Meadow Marsh Type
- (MEFM1) Dry-Fresh Forb Meadow Ecosite
- (OAO) Open Aquatic
- (SWTO5) Organic Deciduous Thicket Swamp



Map Produced by Natural Resource Solutions Inc. This map is proprietary and confidential and must not be duplicated or distributed by any means without express written permission of NRSI. Data provided by MNR© Copyright: Queen's Printer Ontario. Imagery: First Base Solution, 2010

Project: 1374 Date: March 2, 2016	NAD83 - UTM Zone 17 Size: 11x17" 1:3,500
--------------------------------------	--

