

PROGRESSIVE AND FINAL REHABILITATION MONITORING STUDY

MILTON QUARRY EAST EXTENSION

Part of Lots 11 & 12, Concession 1 (Geographic
Township of Esquesing), Town of Halton Hills
Regional Municipality of Halton

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Prepared for:

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1.0 INTRODUCTION

Dufferin Aggregates, a division of CRH Canada Group Inc. (Dufferin), operates the Milton Quarry located on Part of Lots 8 to 14, Concession 7, Town of Milton (former geographic Township of Nassagaweya), Halton Region and Part of Lots 8 to 10, 13 and 14, Concession 1, Town of Halton Hills (former geographic Township of Esquesing), Halton Region.

Dufferin, is applying for an extension to the existing Milton Quarry, referred to herein as the proposed Milton Quarry East Extension (MQEE). The proposed extension is located at Part Lots 11 and 12, Concession 1, Town of Halton Hills (former geographic Township of Esquesing), Halton Region. **See Figures 1 and 2.**

The proposed licence area is 30.2 hectares, with a proposed extraction area of 15.9 hectares. Adjacent to the proposed MQEE, the application includes the removal of the extraction setback in the East Cell (Part Lot 13, Concession 1, Town of Halton Hills) to allow for an integrated operational and rehabilitation plan. The extension represents a 4% increase to the overall extraction area of the Milton Quarry operation.

The proposed extraction area for the MQEE includes vacant lands that are predominately open fields and two small woodland areas. The area outside of the extraction area, located within the licenced area, includes predominately open fields, a wetland and a woodland. These lands will be used for environmental protection, the water management system, access routes and areas of ecological enhancement.

As part of the pre-consultation process, the review agencies required that a “Progressive and Final Rehabilitation Monitoring Study” be submitted with the applications for the proposed MQEE.

As outlined in the Region of Halton Aggregate Resource Reference Manual, the purpose of the study is to:

- Demonstrate how the subject lands will be rehabilitated to a land use that is compatible with the land use of the area and in conformity with Provincial, Regional and Local policy; and
- Identify requirements for monitoring and rehabilitation to ensure that the rehabilitation of the site is consistent with the requirements of applicable policy documents.

The objectives of the study are to:

- Identify and document the specific elements of a plan for the progressive and timely rehabilitation of the site;
- Recommend a rehabilitation strategy for progressive rehabilitation, monitoring and post development rehabilitation;

- Prepare a strategy to rehabilitate the site to a state of greater or equal ecological value;
- Identify potential after-uses that are compatible with surrounding land uses;
- Identify ongoing monitoring milestones for monitoring site impacts and rehabilitation requirements; and
- Identify any further planning approvals that may be necessary to facilitate after uses.

The “Progressive and Final Rehabilitation Monitoring Study” is a summary document that cross references information already contained in the following reports prepared for the proposed MQEE:

- Addendum to Updated Adaptive Environmental Management and Protection Plan (AMP) Milton Quarry East Extension, GHD and Goodban Ecological Consulting Inc. (GEC), December 2021;
- Geology and Water Resources Assessment Report Dufferin Aggregates Milton Quarry East Extension, GHD, December 2021;
- Level 1 And 2 Natural Environment Technical Report (NETR) and Environmental Impact Assessment (EIA) Dufferin Aggregates Milton Quarry East Extension, Goodban Ecological Consulting Inc. (GEC), December 2021;
- Ecological Enhancement Plan (EEP) & Rehabilitation Plan Report, Dufferin Aggregates Milton Quarry East Extension, Goodban Ecological Consulting Inc. (GEC), December 2021;
- Planning Report and Aggregate Resources Act Summary Statement, MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC), December 2021.
- Aggregate Resources Act Site Plan, Milton Quarry East Extension, MHBC, December 2021.

The Progressive and Final Rehabilitation Monitoring Study includes:

- An overview of the application and a summary of the proposed rehabilitated landform and ecological enhancement plan;
- An analysis of the rehabilitation policies in the Niagara Escarpment Plan, Provincial Policy Statement, Region of Halton Official Plan and Town of Halton Hills Official Plan to determine if the land use is compatible with surrounding land uses and appropriate;
- The monitoring and rehabilitation requirements for the site based on the technical recommendations from the water resources report and natural environment report;
- A ecological enhancement plan and rehabilitation plan that includes woodlands, shallow and deep wetlands, lake, islands, rocky shoal, and cliff face to rehabilitate the site to a state of greater or equal ecological value;

- An after use plan that is designed to be compatible with surrounding land uses. The after use plan includes a proposal to convey the lands into public ownership; and
- A summary of further planning approvals that may be necessary to facilitate the final end use will be included.

2.0 OVERVIEW OF THE PROPOSED MILTON QUARRY EAST EXTENSION

Dufferin is seeking an extension to the existing Milton Quarry to ensure that it can continue to supply high quality crushed stone within the Region of Halton and the broader GTA market.

The proposed MQEE is located at Part Lots 11 and 12, Concession 1, Town of Halton Hills (former geographic Township of Esquesing), Halton Region. The proposed licence area is 30.2 hectares, with a proposed extraction area of 15.9 hectares. Adjacent to the proposed MQEE, the application includes the removal of the extraction setback in the East Cell of the existing Milton Quarry Extension to allow for an integrated operational and rehabilitation plan located at Part Lot 13, Concession 1, Town of Halton Hills. **See Figures 1 and 2.**

The proposed MQEE contains 15 million tonnes of the same high quality aggregate resource extracted at the existing Milton Quarry. The MQEE is proposed to have an unlimited tonnage limit and hours of operation consistent with the existing Milton Quarry operation.

The proposed extraction area for the MQEE includes vacant lands that are predominately open fields and two small woodland areas. The area outside of the extraction area, located within the proposed licenced area, includes predominately open fields, a wetland and a woodland. These lands will be used for environmental protection, the water management system, access routes and areas of ecological enhancement.

Extraction of the MQEE is proposed to proceed south from the existing Milton Quarry Extension, East Cell. The proposed MQEE has been designed to occur in two phases. **See Figure 3.**

In Phase 1, extraction will proceed in a southerly direction to a maximum extraction depth of 302.5 masl. In Phase 2, extraction will proceed in an easterly direction to a maximum extraction depth of 302.5 masl.

Within the proposed MQEE, there will be no processing. All aggregate extracted from the proposed MQEE will be transported to the existing processing plant in the main quarry for processing or shipping using existing internal haul routes to the existing entrance/exit on

Dublin Line. This extraction scenario assumes 5.5 million tonnes of aggregate is shipped each year, consistent with current production levels.

If the main processing plant in the main quarry is decommissioned when extraction commences at the proposed MQEE, aggregate extracted from the extension will be transported to the Milton Quarry Extension, East Cell for processing and shipping using existing internal haul routes to the existing entrance/exit on Dublin Line. This extraction scenario assumes 2 million tonnes of aggregate is shipped each year, based on the reduced production capacity of a smaller plant that would be located within the East Cell.

Dufferin currently utilizes a portable processing plant to recycle concrete and asphalt at the existing Milton Quarry and blends this material with aggregate resources to conserve mineral aggregate resources. This use is proposed to continue at the existing quarry in conjunction with the proposed extension under both scenarios.

As part of the proposed application, Dufferin proposes to utilize accessory and associated uses located in the Milton Quarry and Milton Quarry Extension in conjunction with the proposed MQEE. In addition to the use of the water management system, processing areas, aggregate recycling area, internal haul routes and the entrance/exit referenced in this section, other uses such as the office, maintenance buildings, facilities for washing and truck washing facility are proposed to be used.

These uses would be directly associated with extraction from an integrated mineral aggregate operation. They are designed to be temporary and not be utilized and removed after extraction has ceased. These uses are located in a manner that does not affect the final rehabilitation or enhancement of the site in accordance with the approved plans.

To application includes a proposed Ecological Enhancement Plan and Rehabilitation Plan. **See Figure 4.**

The proposed MQEE Ecological Enhancement Plan includes short-term enhancements on 10.55 hectares of land that will not be extracted. The Ecological Enhancement Plan includes tree planting, woodland restoration, habitat enhancement, and enhancement of wetland hydrology for Wetlands U1 and W36.

The 15.9 hectare MQEE extraction area will be rehabilitated to include 7.7 hectares of deep lake, 5.1 hectares of forested areas, 2.7 hectares of shoreline wetlands, 0.4 hectares of islands, 203 metres of shoreline shoals, and 673 metres of cliff faces.

The MQEE is proposed to be integrated into the state-of-the-art water management system and Adaptive Environmental Management and Protection Plan (AMP) that is already in place and has been operating at the Milton Quarry and Milton Quarry Extension since 2007 to protect surrounding water resources including water dependent ecological features. The water management system for the MQEE will be a straightforward addition to the existing system using the same proven techniques for mitigation.

As part of the application, Dufferin also proposes to amend the following agreements to include the MQEE lands:

- Dufferin agreement with Conservation Halton for the future conveyance of land. **See Figure 5;**

- Dufferin agreement with Conservation Halton for the long-term operation of the water management system; and
- Dufferin agreement with the Region of Halton and Conservation Halton for the implementation of the AMP to protect the surrounding natural environment and water resources.

3.0 REHABILITATION & AFTER USE POLICIES

The following is a summary of the objectives and policies from the Niagara Escarpment Plan, Provincial Policy Statement, Region of Halton Official Plan and Town of Halton Hills Official Plan regarding rehabilitation and after use for mineral aggregate operations.

3.1 Niagara Escarpment Plan

Objectives of the Niagara Escarpment Plan include:

3. *to provide adequate opportunities for outdoor recreation;*
6. *to provide for adequate public access to the Niagara Escarpment;*

1.2.2.3 In evaluating applications for amendments to the Niagara Escarpment Plan to re-designate Escarpment Rural Area to Mineral Resource Extraction Area, the following matters, in addition to all other relevant policies of this Plan, will be considered:

- b) opportunities for achieving the objectives of the Niagara Escarpment Planning and Development Act through the final rehabilitation of the site;*
- c) the protection of prime agricultural areas, the capability of the land for agricultural uses, and its potential for rehabilitation for agricultural uses; and*
- d) opportunities to include rehabilitated lands in the Niagara Escarpment Parks and Open Space System.*

1.2.2.4 Amendment applications must be accompanied by:

- c) information on the ultimate use of the site in conformity with the applicable land use designations.*

Section 1.9.1 of the Niagara Escarpment Plan includes the following Objectives for the Mineral Resource Extraction Area:

- 3. To encourage progressive rehabilitation of mineral aggregate operations.*
- 4. To encourage rehabilitated mineral aggregate operations to be restored to a state that is of equal or greater ecological or agricultural value than the original characteristics of the site.*

5. *To ensure that, after a licence is surrendered, the land is re-designated to a land use designation that is compatible with the rehabilitation of the site, the designation criteria of adjacent lands, the surrounding Escarpment environment and existing land uses in the area.*
6. *To encourage, where possible, the integration of rehabilitated lands into the Niagara Escarpment Parks and Open Space System.*

1.9.5 After Uses – Following the surrender of the licence issued pursuant to the Aggregate Resources Act, an amendment to the Niagara Escarpment Plan is required. The amendment will change the land use designation of the lot from Mineral Resource Extraction Area to a land use designation that has designation criteria consistent with the rehabilitation completed on the property, and will be processed in accordance with Part 1.2.

2.7.10 Any forest management activities shall include natural regeneration or rehabilitation through reforestation, using native tree species where necessary.

2.9.3 In addition to all other relevant policies of this Plan, proposals for mineral aggregate operations including wayside pits and quarries, accessory uses, accessory facilities and haul routes shall:

- h) complete progressive and final rehabilitation of the licensed site to provide equal or greater ecological values, including utilizing native species, in order to accommodate subsequent land use designations compatible with the surrounding land uses;*

2.9.7 Progressive rehabilitation may include the use of off-site material, where on-site material is not available. Off-site material shall only be used where required to stabilize and revegetate disturbed areas. The use of off-site material shall be minimal and shall not be used for any major regarding toward a planned after-use with the deposition of off-site material.

2.9.8 The use of off-site material for progressive rehabilitation shall meet the applicable provisions of Part 2.13 (Scenic Resources and Landform Conservation) of this Plan and such material shall also meet the relevant standards of the Ministry of the Environment and Climate Change, the Ministry of Natural Resources and Forestry and the municipality where it has approved such standards.

2.9.9 The use of off-site material shall not be permitted unless it is determined through appropriate environmental, technical and planning studies that doing so will achieve greater long-term ecological and land use compatibility (e.g., the importation of topsoil to improve site capability for agriculture, forestry or habitat diversity) and the implementing authority is satisfied that the use of off-site material does not constitute a commercial fill or landfill operation.

2.9.10 All accessory uses to the Mineral Resource Extraction Area operation shall be discontinued and be required to vacate the property as soon as extraction ceases, including any on-site processed aggregate material.

2.9.11 Rehabilitation shall incorporate the following:

- a) *natural heritage and hydrologic features and functions shall be restored or enhanced;*
- b) *aquatic areas remaining after extraction shall be rehabilitated as representative of the natural ecosystem in that particular setting or ecodistrict, and the combined terrestrial and aquatic rehabilitation shall protect and where possible enhance the ecological value of the site;*
- c) *excess topsoil and overburden are to be retained and stabilized for future rehabilitation;*
- d) *all excavated pit and quarry walls are to be sloped and rehabilitated in accordance with best practices. On sites where a higher standard of rehabilitation is justified (e.g., to improve land use compatibility) or on sites where topsoil and/or land fill material is scarce, alternative approaches to slope standards may be applied. Sections of pit or quarry faces may be left exposed for aesthetic or educational purposes or to create habitat diversity in an approved rehabilitation plan;*
- e) *vegetation, including seeding, crops, trees and shrubs, shall be planted as soon as possible as part of progressive rehabilitation of the pit or quarry;*
- f) *rehabilitation of the site shall contribute to the open landscape character and be compatible with the surrounding scenic resources;*
- g) *in prime agricultural areas, other than specialty crop areas, Mineral Resource Extraction Areas shall be rehabilitated to a condition in which substantially the same areas and same average soil capability for agriculture are restored;*
- h) *in specialty crop areas, Mineral Resource Extraction Areas shall be returned or rehabilitated to a condition in which substantially the same areas and same average soil capability for agriculture are restored, the same range and productivity of specialty crops common in the area can be achieved, and, where applicable, the microclimate on which the site and surrounding area may be dependent for specialty crop production are maintained or restored;*
- i) *in prime agricultural areas, where rehabilitation to the conditions set out in (g) and (h) above is not possible or feasible due to the depth of planned extraction or due to the presence of a substantial deposit of high quality mineral aggregate resources below the water table warranting extraction, agricultural rehabilitation in the remaining areas will be maximized as a first priority;*
- j) *in areas with below-water table extraction, mineral aggregate operations requiring perpetual water management after rehabilitation is complete should be avoided but may be considered where it can be demonstrated that such actions would support other public water management needs; and*
- k) *comprehensive rehabilitation shall be considered and encouraged where feasible.*

3.1 *The Niagara Escarpment Parks and Open System*

3.1.1 *Objectives*

1. *To protect the Niagara Escarpment's natural heritage resources and conserve its cultural heritage resources;*
2. *To provide opportunities for outdoor education and recreation;*
3. *To provide for public access to the Niagara Escarpment;*
4. *To complete a public system of major parks and open spaces through land acquisition and Master/Management planning;*
5. *To secure a permanent route for the Bruce Trail;*
6. *To protect and enhance the natural environment of the Niagara Escarpment, including the protection of natural heritage and hydrologic features and functions;*
7. *To support tourism by providing opportunities on public land for discovery and enjoyment by Ontario's residents and visitors;*
8. *To provide a common understanding and appreciation of the Niagara Escarpment; and*
9. *To show leadership in supporting and promoting the principles of the Niagara Escarpment's UNESCO World Biosphere Reserve designation through sustainable park planning, ecological management, community involvement, environmental monitoring, research and education.*

3.2.1 *The Bruce Trail is an essential component of the NEPOSS, linking parks, open spaces and natural heritage features through the establishment of the Bruce Trail corridor, in conjunction with Bruce Trail access points and overnight rest areas. The long-term goal is to secure a permanent route for the Bruce Trail along its entire length.*

3.2.5 *Securing a permanent continuous route for the Bruce Trail will be accorded the same priority as establishing and completing the other parks and open spaces in the NEPOSS.*

3.2 **Provincial Policy Statement**

1.1.5.2 *On rural lands located in municipalities, permitted uses are:*

- b) *resource-based recreational uses (including recreational dwellings);*

1.1.5.3 *Recreational, tourism and other economic opportunities should be promoted.*

1.5.1 *Healthy, active communities should be promoted by:*

- b) *planning and providing for a full range and equitable distribution of publicly- accessible built and natural settings for recreation, including facilities, parklands, public spaces, open space areas, trails and linkages, and, where practical, water-based resources;*

1.7.1 *Long-term economic prosperity should be supported by:*

- c) *optimizing the long-term availability and use of land, resources, infrastructure and public service facilities;*
- h) *providing opportunities for sustainable tourism development;*

2.5.3.1 Progressive and final rehabilitation shall be required to accommodate subsequent land uses, to promote land use compatibility, to recognize the interim nature of extraction, and to mitigate negative impacts to the extent possible. Final rehabilitation shall take surrounding land use and approved land use designations into consideration.

2.5.3.2 Comprehensive rehabilitation planning is encouraged where there is a concentration of mineral aggregate operations.

2.5.4.1 In prime agricultural areas, on prime agricultural land, extraction of mineral aggregate resources is permitted as an interim use provided that the site will be rehabilitated back to an agricultural condition.

Complete rehabilitation to an agricultural condition is not required if:

- a) *outside of a specialty crop area, there is a substantial quantity of mineral aggregate resources below the water table warranting extraction, or the depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible;*
- b) *in a specialty crop area, there is a substantial quantity of high quality mineral aggregate resources below the water table warranting extraction, and the depth of planned extraction makes restoration of pre-extraction agricultural capability unfeasible;*
- c) *other alternatives have been considered by the applicant and found unsuitable. The consideration of other alternatives shall include resources in areas of Canada Land Inventory Class 4 through 7 lands, resources on lands identified as designated growth areas, and resources on prime agricultural lands where rehabilitation is feasible. Where no other alternatives are found, prime agricultural lands shall be protected in this order of priority: specialty crop areas, Canada Land Inventory Class 1, 2 and 3 lands; and*
- d) *agricultural rehabilitation in remaining areas is maximized.*

3.3 Region of Halton Official Plan

107. *The objectives of the Mineral Resource Extraction Areas are:*

- (5) *To ensure the progressive and final rehabilitation of mineral aggregate operations to the appropriate after use.*

109. *Subject to other policies of this Plan, applicable policies of the Greenbelt Plan and Niagara Escarpment Plan, applicable Local Official Plan policies and Zoning By-laws, and site plan and conditions of the licence under the Aggregate Resources Act, the following uses may be permitted:*

- (4) *associated facilities to a mineral aggregate operation used in extraction, transport, beneficiation, processing or recycling of mineral aggregate resources and derived products such as asphalt and concrete, or the*

production of secondary related products, provided that such associated facilities are:

- d) located in a manner that does not affect the final rehabilitation or enhancement of the site in accordance with an approved rehabilitation and enhancement plan.*

110. It is the policy of the Region to:

- (6) Consider mineral aggregate resource extraction as an interim use and require the rehabilitation of all such sites to form part of the Greenbelt or Regional Natural Heritage System or the Agricultural Area, with the proposed after-uses being in conformity with the applicable policies of that land use designation.*
- (6.1) Require the rehabilitation of mineral aggregate operations on prime agricultural lands, within Prime Agricultural Areas to be carried out so that substantially the same areas and same average soil quality for agriculture are restored.*

On prime agricultural lands, complete agricultural rehabilitation is not required if:

- a) There is a substantial quantity of mineral aggregate resources below the water table warranting extraction, or the depth of planned extraction in a quarry makes restoration of pre-extraction agricultural capability unfeasible;*
- b) Other alternative locations have been considered by the applicant and found unsuitable. The consideration of other alternatives shall include resources in areas of Canada Land Inventory Class 4 to 7 soils, resources on lands identified as designated growth areas, and resources on prime agricultural lands where rehabilitation is feasible. Where no other alternatives are found, prime agricultural lands shall be protected in this order of priority: specialty crop areas, and Canada Land Inventory Class 1, 2 and 3 lands; and*
- c) Agricultural rehabilitation in remaining areas is maximized.*

(7.2) In accordance with Section 118(3)d), apply the following systems based approach in the assessment of the impact of a new or expanded mineral aggregate operation on the Region's Natural Heritage System:

- d) Where the proponent has satisfied the requirements of Sections 110(7.2)a) through 110(7.2)c) as applicable, require any application for a new or expanded mineral aggregate operation to consider a "net environmental gain" approach to the preservation and enhancement of the Greenbelt and/or Regional Natural Heritage System based on the following principles:*
 - A) Outside Prime Agricultural Areas, or where agricultural rehabilitation is not required in accordance with Section 110(6.1), the site is to be rehabilitated to function as part of the Greenbelt and/or Regional Natural Heritage Systems.*
 - B) The Key Features and ecological functions of the Greenbelt and/or Regional Natural Heritage Systems will, where possible, be enhanced both in the short and long terms as a result of implementing the*

rehabilitation plan of the proposed extractive operation and/or an off-site enhancement plan. Such enhancements may include but not necessarily be limited to:

- [i] increase in the spatial extent of the Greenbelt and/or Regional Natural Heritage Systems,*
 - [ii] increase in biological and habitat diversity,*
 - [iii] enhancement of ecological system function,*
 - [iv] enhancement of wildlife habitat,*
 - [v] enhancement of natural succession,*
 - [vi] creation of new wetlands or woodlands, [vii] enhancement of riparian corridors,*
 - [viii] enhancement of groundwater recharge or discharge areas, and*
 - [ix] establishment or enhancement of linkages between significant natural heritage features and areas.*
- C) Priorities for restorations or enhancements to the Greenbelt and/or Regional Natural Heritage Systems through post-extraction rehabilitation shall be based on the following in descending order of priority:*
- [i] restoration to the original features and functions on the areas directly affected by the extractive operations,*
 - [ii] enhancements to the Greenbelt and/or Regional Natural Heritage Systems by adding features and functions on the balance of the site,*
 - [iii] enhancements to the Greenbelt and/or Regional Natural Heritage Systems by adding features and functions in areas immediately surrounding the site,*
 - [iv] enhancements to that part of the Greenbelt and/or Regional Natural Heritage Systems in the general vicinity of the site, and*
 - [v] enhancements to other parts of the Greenbelt and/or Regional Natural Heritage Systems in Halton.*
- D) Restorations or enhancements shall proceed immediately after extraction in a timely fashion.*
- E) Consideration should be given to the transfer of the ownership of any privately owned rehabilitated or enhanced lands to a public body.*
- F) A detailed implementation plan of the proposed restorations and enhancements shall form part of the rehabilitation plan in the site plan or be included as a condition of the licence under the Aggregate Resources Act.*
- (8) Evaluate each proposal to designate new or expanded Mineral Resource Extraction Areas based on its individual merits and consideration of all the following factors:*
- d) proposed rehabilitation plan and compatibility of the proposed after-use with the goals and objectives of this Plan, and*

- e) *risk of public financial liability during and after extraction where continuous active on-site management is required.*
- (8.1) *Support the progressive and final rehabilitation of extractive operations that:*
 - a) *takes place in a timely fashion;*
 - b) *limits the amount of disturbed area on an on-going basis ;*
 - c) *adopts prevailing best management practices; and*
- (8.2) *Discourage the use of adaptive management plans or similar measures that will require continuous or perpetual active on-site management post rehabilitation.*
- 118. *It is the policy of the Region to:*
 - (9) *Promote, in conjunction with other public agencies and through stewardship programs, the donation of privately owned lands in the Regional Natural Heritage System to public agencies or charitable organizations, or the transfer of the responsibilities for the protection of the ecological functions and features on such lands to a public agency or charitable organization through a conservation easement agreement.*
- 146. *The objectives of the Region are:*
 - (5) *To promote the concept of a Regional trail system by providing the needed connections, through acquisitions or easements, between local trails and/or interregional trails such as the Bruce Trail and the Waterfront Trail.*
- 147. *It is the policy of the Region to:*
 - (3) *Adopt and maintain, in consultation with the Halton community and in collaboration with the appropriate agencies, a Land Securement Strategy that would identify how the overall environmental quality of Halton can be enhanced through acquisitions of land ownership or land management rights through purchases, conservation easements, or private-public partnership agreements.*

3.4 Town of Halton Hills Official Plan

A2.10.2 STRATEGIC OBJECTIVES

- i) *To ensure that all operations are progressively rehabilitated in an environmentally responsible fashion.*

E6 MINERAL RESOURCE EXTRACTION AREA

E6.1 OBJECTIVES

It is the objective of this designation to:

- h) *ensure the progressive rehabilitation of pits and quarries to an appropriate after use.*

E6.4.3.4 APPLICATION REQUIREMENTS

Any application for Amendment to the Official Plan and/or the zoning by-law shall be supported by studies that are based on predictable, measurable, objective effects on people and the environment. Such studies will be based on Provincial standards, regulations and guidelines, where they exist and will consider and identify methods of addressing the anticipated impacts in the area affected by the extractive operation. All applications shall be supported by information that address:

- e) how the policy of no negative impact on significant natural heritage features and related ecological functions on the site and in the area can be satisfied taking into account the net environmental gain provisions of this Plan. This may be achieved, for example, through the progressive rehabilitation or design of a pit or quarry.*
- g) how the site will be progressively rehabilitated to accommodate subsequent land uses after the extraction is completed; and,*

E.6.4.3.5 ASSESSMENT OF IMPACTS

Where a policy in this Plan requires that mineral aggregate extraction not have a negative impact on a significant natural heritage feature or related ecological function in accordance with the principle of net environmental gain, the Town shall consider compensation and enhancements to be initiated by the proponent prior to and/or during extraction and the proposed progressive and final rehabilitation of the site.

In addition to the above, the required studies for a proposed pit or quarry, that address the matters identified in Section E6.4.3.4 of this Plan shall take into account the impacts from pits or quarries that are operating or undergoing rehabilitation in the area.

E6.4.4 CRITERIA FOR APPROVAL

Prior to the approval of an Official Plan Amendment and/or Zoning By-law for a new or expanded mineral aggregate operation the applicant shall demonstrate that:

- f) the quality of sensitive groundwater and sensitive surface water features in the area will be protected, improved or restored taking into account any mitigative measures initiated by the proponent prior to and/or during extraction and the proposed rehabilitation plan, in accordance with the recommendations of appropriate studies;*
- g) the quantity of water available for other uses in the area and as base flow for sensitive surface water features will be protected, improved or restored taking into account any mitigative measures that are initiated by the proponent prior to and/or during extraction and the proposed rehabilitation plan, in accordance with the recommendations of appropriate studies;*

- h) there is no negative impact on significant natural heritage features or related ecological functions in accordance with the principle of net environmental gain taking into account any compensation and enhancements that are recommended in an EIS and initiated by the proponent prior to and/or during extraction and the proposed progressive and final rehabilitation of the site;*
- i) as much of the site as possible will be rehabilitated by establishing or restoring natural self-sustaining vegetation; and,*

E6.4.7 REHABILITATION

It is the policy of this Plan to encourage the progressive rehabilitation of all pits and quarries within the Town. Council will work with pit and quarry operators and the Ministry of Natural Resources to ensure that all new licences have appropriate progressive rehabilitation plans. If the site to be rehabilitated is in the area of the Niagara Escarpment Plan Area, rehabilitation shall take place in accordance with the objectives of the applicable redesignation of the Niagara Escarpment Plan. The rehabilitation measures taken will be compatible with, and have minimal impact upon, the surrounding natural and visual environment and existing uses.

If a site is to be rehabilitated to a natural state, it is the policy of this Plan that natural self-sustaining vegetation and, where possible, hydrologic features be established and restored. The rehabilitation of prime agricultural lands shall be in accordance with Section E6.4.3 of this Plan.

4.0 REHABILITATION AND AFTER USE POLICY ANALYSIS

The proposed MQEE includes a 30.2 hectare licence area and a 15.9 hectare extraction area. The Aggregate Resources Act (ARA) site plans include a progressive and final rehabilitation plan for the 15.9 hectare extraction area and an ecological enhancement plan (EEP) for 10.55 hectare of land that will not be extracted. The two plans have been designed to provide a net ecological gain and to enlarge/enhance the Regional Natural Heritage System in the long-term. The after use plan for the MQEE is to convey the site to Conservation Halton. The objectives for final rehabilitation, the ecological enhancement plan and after use of the MQEE lands are to:

- Create a naturalized, ecologically productive landscape;
- Enhance existing abandoned agricultural areas to expand adjacent natural heritage features;
- Promote biodiversity;
- Promote features and functions that are compatible with the surrounding landscape; and
- Create a recreational, environmental and water management asset within the Niagara Escarpment Plan Area.

The proposed MQEE EEP includes the following short-term enhancements (within 5 years of license issuance) on 10.55 hectares of land that will not be extracted:

- Tree planting – Reforestation: 10.271 hectares of land will be reforested;
- Woodland Restoration: Patches of existing woody vegetation will be managed, enhanced and interplanted with suitable native woody species;
- Habitat Enhancement: Approximately 215 rock piles and 215 woody debris piles/features will be installed within enhanced areas;
- Wetland U1 Habitat Enhancements: Wetland U1 and the surrounding habitat will be enhanced through vegetation management, plantings, installation of habitat features, and addition of egg attachment sites;

- Enhancement of Wetland Hydrology (Wetlands U1 and W36): The water management system mitigation measures will be used to enhance wetland hydrology in Wetland U1 and the upper portion of Wetland W36; and
- Disturbed Area Restoration: A 0.062 hectares formerly excavated area will be restored and several potential snake hibernacula will be created.

The progressive and final rehabilitation plan for the 15.9 hectare extraction area will be rehabilitated to include the following features, utilizing native species that will be complementary to the surrounding landscape and is integrated with the rehabilitation plan for the existing Milton Quarry:

- 7.7 hectares of deep lake that will be integrated with the Milton Quarry Extension, East Cell rehabilitated lake. The lake will incorporate aquatic features such as varied shorelines with shallow nearshore habitats and shoals to provide spawning and foraging habitat for fish and other wildlife. The deep water areas will also provide habitat for a variety of top predator and game species that utilize deeper water habitats;
- 5.1 hectares of forested areas will be created with forest types that are targeted to be complementary and reflective of the surrounding landscape. The forested area will improve connectivity between the surrounding woodland areas and aquatic features;
- 2.7 hectares of shoreline wetlands will be inter-connected with terrestrial and aquatic habitats. The shoreline wetlands will have water depths ranging from areas that are seasonally inundated to permanently inundated areas up to 2.0 metres deep in some locations;
- 0.4 hectares of islands will be created and planted with suitable shoreline and tallgrass prairie species and include patches of boulders and cobbles. Each island will include ten (10) logs and/or stumps/root wads and at least three (3) turtle nesting sites;
- 203 metres of shoreline shoals will be created that rise up to within 1-2 metres of the lake surface, with various exposures. The shoals will be comprised of boulder and cobble material. The addition of patches of cobble/smaller rock, logs and root masses shall also be included; and
- 673 metres of cliff faces will be created woody vegetation will become established along the cliff rims and on the cliffs themselves. The cliffs will provide habitat for a variety of nest bird species and they are complementary to the Escarpment landscape.

The proposed MQEE lake will be integrated with the Milton Quarry Extension, East Cell rehabilitated lake and form part of the long-term water management system for the Milton Quarry operation. The existing Milton Quarry and Milton Quarry Extension rehabilitation plan already require the long-term operation of the water management system to manage lake levels within the rehabilitated quarries. In addition, the water management system will be used to provide diffuse discharge to some wetlands adjacent to the Milton Quarry Extension and potentially some recharge wells to maintain groundwater levels to the east.

Dufferin has entered into agreements with Conservation Halton for the future conveyance of this system and for the management of the system by Conservation Halton at Dufferin's expense. The landform and water management system is considered a public asset. It creates increased reservoir capacity should Conservation Halton require this water for low flow augmentation for the downstream Sixteen Mile Creek system to protect the stream and fish habitat during drought conditions. The reservoir function also provides flood management capacity for the downstream system. As part of the MQEE, Dufferin proposes to amend the existing agreements with Conservation Halton to add the MQEE site and convey these lands for long-term public use.

The Niagara Escarpment Plan promotes below water quarries to be rehabilitated to avoid the need for long-term water management after rehabilitation is complete. Long-term management may be considered where it can be demonstrated that such actions would support other public water management needs.

The existing Milton Quarry water management system supports public water management needs and the proposed MQEE will be connected to this system. The water management system for the MQEE has also been designed to provide diffuse discharge to two of the surrounding wetlands to enhance the water regime and ecological conditions. The extension of the water management system to include the MQEE and add two additional diffuse discharge locations is a straightforward and minor addition to the existing system.

The MQEE rehabilitation plan requires the importation of soil to create the proposed landform. The Niagara Escarpment Plan includes the following Development Criteria related to the use of off-site material to complete rehabilitation:

- Progressive rehabilitation may include the use of off-site material, where on-site material is not available. Off-site material shall only be used where required to stabilize and revegetate disturbed areas. The use of off-site material shall be minimal and shall not be used for any major regrading toward a planned after-use with the deposition of off-site material;
- The use of off-site material for progressive rehabilitation shall meet the applicable provisions of Part 2.13 (Scenic Resources and Landform Conservation) of this Plan and such material shall also meet the relevant standards of the Ministry of Environment, Conservation and Parks, the Ministry of Natural Resources and Forestry and the municipality where it has approved such standards; and
- The use of off-site material shall not be permitted unless it is determined through appropriate environmental, technical and planning studies that doing so will achieve greater long-term ecological and land use compatibility (e.g., the importation of topsoil to improve site capability for agriculture, forestry or habitat diversity) and the implementing authority is satisfied that the use of off-site material does not constitute a commercial fill or landfill operation.

The proposed design of the rehabilitation plan is based on environmental, water and planning assessment to design a site that will achieve greater long-term ecological and land use compatibility. Utilizing off-site material allows the rehabilitation plan to be

designed to include a greater diversity of features including larger wetlands, islands, and forested areas. The use of excess soils to improve the proposed MQEE final rehabilitated landform also presents a greater opportunity to link the MQEE to adjacent natural heritage features.

The use of excess soils has resulted in rehabilitation at the existing Milton Quarry that enhances overall ecological conditions and contributes to the overall purpose and objectives of the Niagara Escarpment Plan. In 2007, 159 hectares of the rehabilitated quarry was redesignated from Mineral Resource Extraction Area to Escarpment Natural Area and Escarpment Protection Area, which are the two highest environmental designations in the Niagara Escarpment Plan.

Dufferin monitors rehabilitation results in the existing quarry to measure the success of their ongoing rehabilitation program. Information is continuously collected in order to better inform future rehabilitation work. Overall, these programs provide sound baseline documentation to allow rehabilitation success to be measured and findings to be applied to benefit future rehabilitation efforts.

To date, over 150,000 trees have been planted as part of the rehabilitation plan at the Milton Quarry. Additionally, monitoring of the rehabilitated area has confirmed 340 species of vascular plants, 155 species of birds, including at least 61 species of breeding birds, 6 species of breeding amphibians, 34 species of butterflies, 30 species of dragonflies and damselflies, and other wildlife in the rehabilitated portions of the quarry.

Not only does the proposed MQEE landform provide greater ecological diversity, it also improves land use compatibility by providing an opportunity to create additional public trails to enhance the Bruce Trail system and connect areas that will be in long-term public ownership.

The long term vision by Dufferin to add the proposed MQEE to the 391 hectares of land that Dufferin has already committed to convey to Conservation Halton, represents a total land conveyance of 421 hectares. **See Figure 5.**

Adjacent to the 421 hectares of land to be conveyed to public ownership is 1,100 hectares of existing publicly owned land, which is presently used for passive recreation and resource management. This area, coupled with Dufferin's land holdings, provides an exciting opportunity for future recreational, tourism, conservation, educational and water management after uses. Creating a 1,521 hectare area of contiguous public lands is an important public asset and increasingly valuable when the following factors are taken into consideration:

- The site is located within the GTA and the current population of the GTA is 6.8 million and it is expected to grow to 10.4 million over the next 30 years. The existing and projected increase in population will create additional demand for recreational and tourism uses; and
- The landscape of Southern Ontario has changed over the years with the conversion of land to residential and other urban type uses, division of larger tracts of land into smaller parcels, and the fragmentation of forest and agricultural lands. Overall, these land use changes have made it increasingly difficult to find large tracts of land to provide for recreational and tourism opportunities.

The progressive and final rehabilitation plan and EEP for the MQEE as outlined in the ARA site plans require a landform to be created but does not permit after uses to occur. Any subsequent after uses cannot occur until the ARA Licence is surrendered and required approvals are obtained for after uses.

Since the lands are proposed to be conveyed to Conservation Halton the land will ultimately form part of the Niagara Escarpment Parks and Open Space System. Within the Niagara Escarpment Plan each of the land use designations permit “uses permitted in the Parks and Open Space Master / Management Plans that are not in conflict with the Niagara Escarpment Plan”.

If the Parks and Open Space Master / Management Plan is approved by the Niagara Escarpment Commission and the Ministry of Northern Development, Mines, Natural Resources and Forestry, Regulation 828 / 90, under the Niagara Escarpment Planning and Development Act provides exemptions for the need for a Niagara Escarpment Development Permit subject to certain requirements.

Following conveyance of the land to Conservation Halton, the lands will be managed in a manner complementary to the objectives for the Niagara Escarpment Parks and Open Space System, which are:

- “To protect unique ecological and historical areas;
- To provide adequate opportunities for outdoor education and recreation;
- To provide for adequate public access to the Niagara Escarpment;
- To complete a public system of major parks and open space through additional land acquisition and park and open space planning;
- To secure a route for the Bruce Trail;
- To maintain and enhance the natural environment of the Niagara Escarpment;
- To support tourism by providing opportunities on public land for discovery and enjoyment by Ontario’s residents and visitors; and
- To provide a common understanding and appreciation of the Niagara Escarpment.”

5.0 IMPLEMENTATION OF THE REHABILITATION PLAN

The ARA site plans for the MQEE includes comprehensive monitoring and rehabilitation requirements to ensure the site is rehabilitated in accordance with the requirements of the applicable policy documents.

To achieve this, the proposed MQEE ARA site plans include all of the rehabilitation recommendations from the EIA and EEP and the requirement to operate the site in accordance with the AMP.

The EIA and EEP includes detailed recommendations related to the creation of the proposed landforms, timing of plantings, species composition, monitoring and reporting requirements.

The requirement for the site to be integrated into the existing state-of-the-art water management system and AMP protects and enhances surrounding water resources, including water dependent ecological features. The water management system and AMP has been operating at the Milton Quarry and Milton Quarry Extension since 2007. The water mitigation system has effectively maintained groundwater levels around the perimeter of the Milton Quarry Extension protecting surrounding water resources, including water dependent ecological feature.

All approval agencies are familiar with the AMP, and the hydrologic and natural environment data collection and assessment that is provided through annual reports and the online data sharing system (WebDT) allows agencies direct access to hydrogeological data at any time. The AMP also requires a comprehensive 5-year review to make any adjustments necessary to ensure that the groundwater is maintained to an acceptable level, thereby protecting the ecological features dependent upon it.

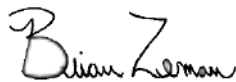
The long term operation of the water management system will ensure surrounding water resources, including water dependent ecological features, are protected and enhanced following rehabilitation.

6.0 CONCLUSION

The proposed MQEE rehabilitation plan, EEP and after use plan complements existing surrounding land uses and is integrated with the existing Milton Quarry rehabilitation plan. Overall the MQEE results in an overall enhancement and expansion of the Regional Natural Heritage System and the ARA site plans include the appropriate monitoring and rehabilitation requirements to ensure the site is rehabilitated in accordance with the requirements of the applicable policy documents.

In conclusion, the proposed rehabilitation plan and after use vision for the MQEE conforms to the Niagara Escarpment Plan, Region of Halton Official Plan and the Town of Halton Hills Official Plan, and is consistent with the Provincial Policy Statement.

Respectfully Submitted,
MHBC



Brian Zeman, BES, MCIP, RPP
President

Figures

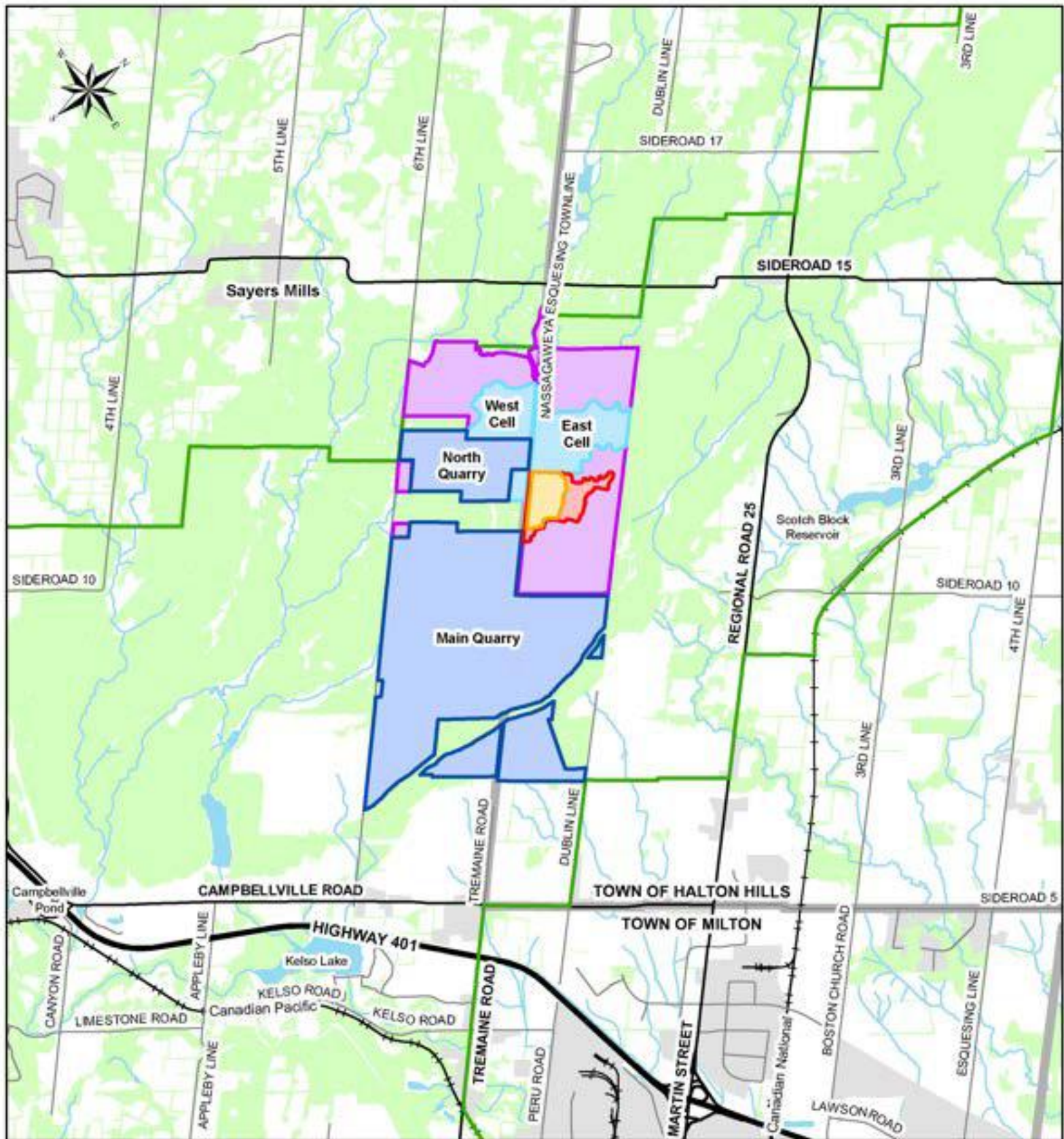


Figure # 1
Location

Milton Quarry East Extension
Part of Lots 11 and 12, Concession 1
(Geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

- Proposed Milton Quarry East Extension - Licence Boundary
- Proposed Milton Quarry East Extension - Limit of Extraction
- Milton Quarry (1962)
- Milton Quarry Extension (2007)
- Other Lands Owned by Dufferin
- Niagara Escarpment Plan Boundary
- Built up Area

DATE December 2021

SOURCES
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Meters (1:50,000)

MHBC PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE

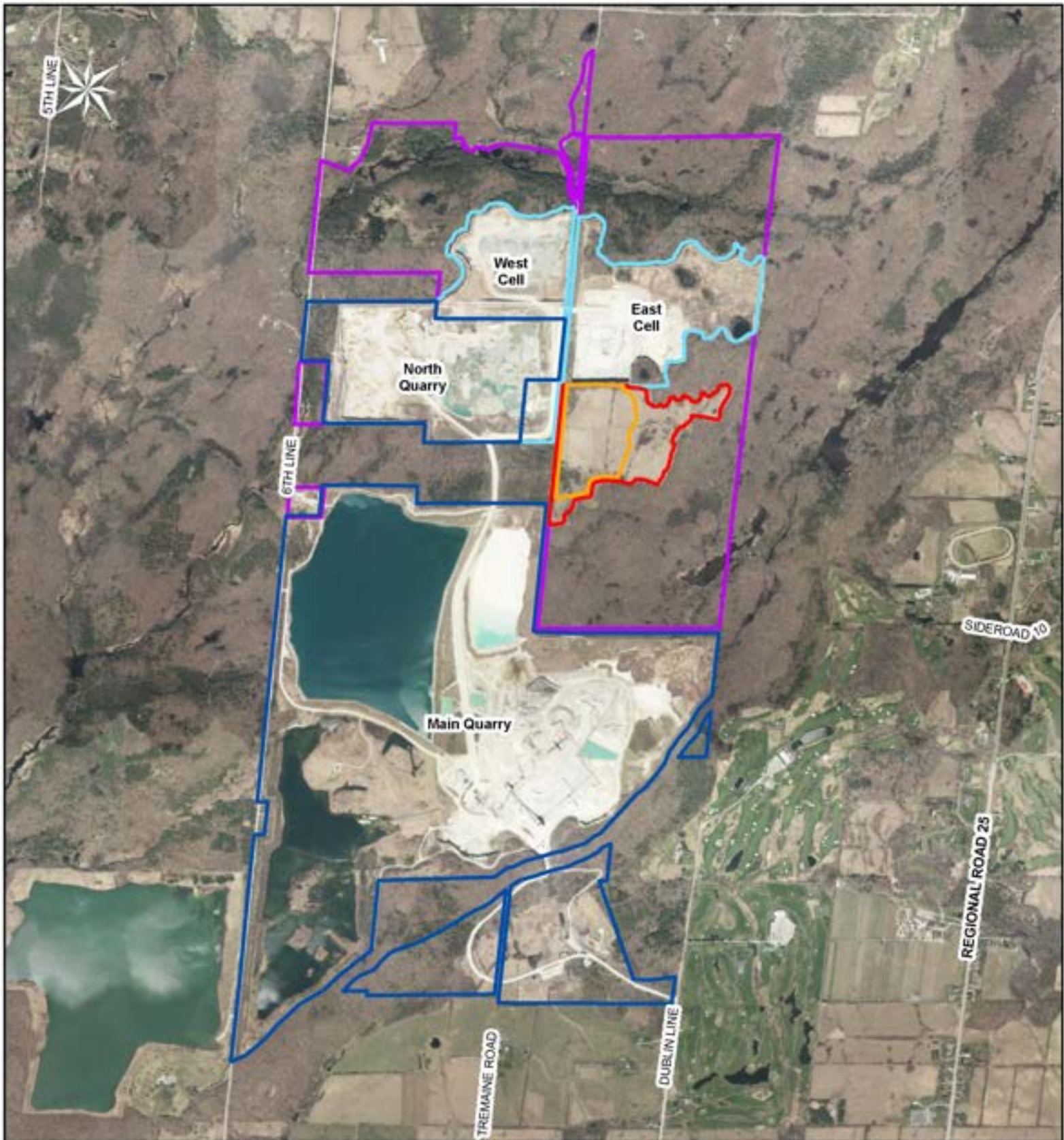


Figure # 2
Overview of Dufferin Aggregates Landholdings

Milton Quarry East Extension
 Part of Lots 11 and 12, Concession 1
 (Geographic Township of Esquesing)
 Town of Halton Hills
 Regional Municipality of Halton

Legend

- Proposed Milton Quarry East Extension - Licence Boundary
- Proposed Milton Quarry East Extension - Limit of Extraction
- Milton Quarry (1962)
- Milton Quarry Extension (2007)
- Other Lands Owned by Dufferin

DATE	December 2021
SOURCES	Land Information Ontario Contains information licensed under the Open Government Licence - Ontario
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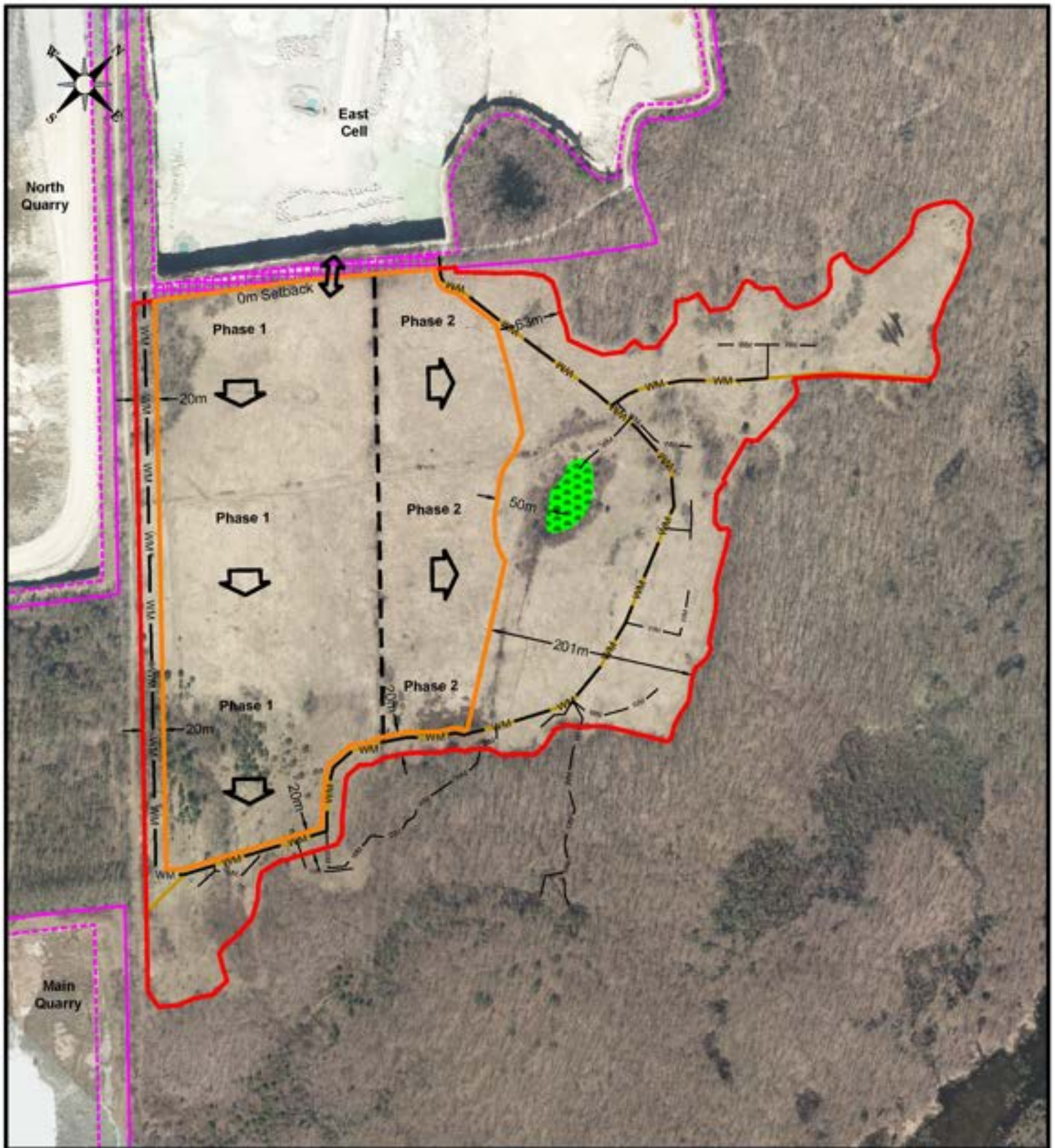


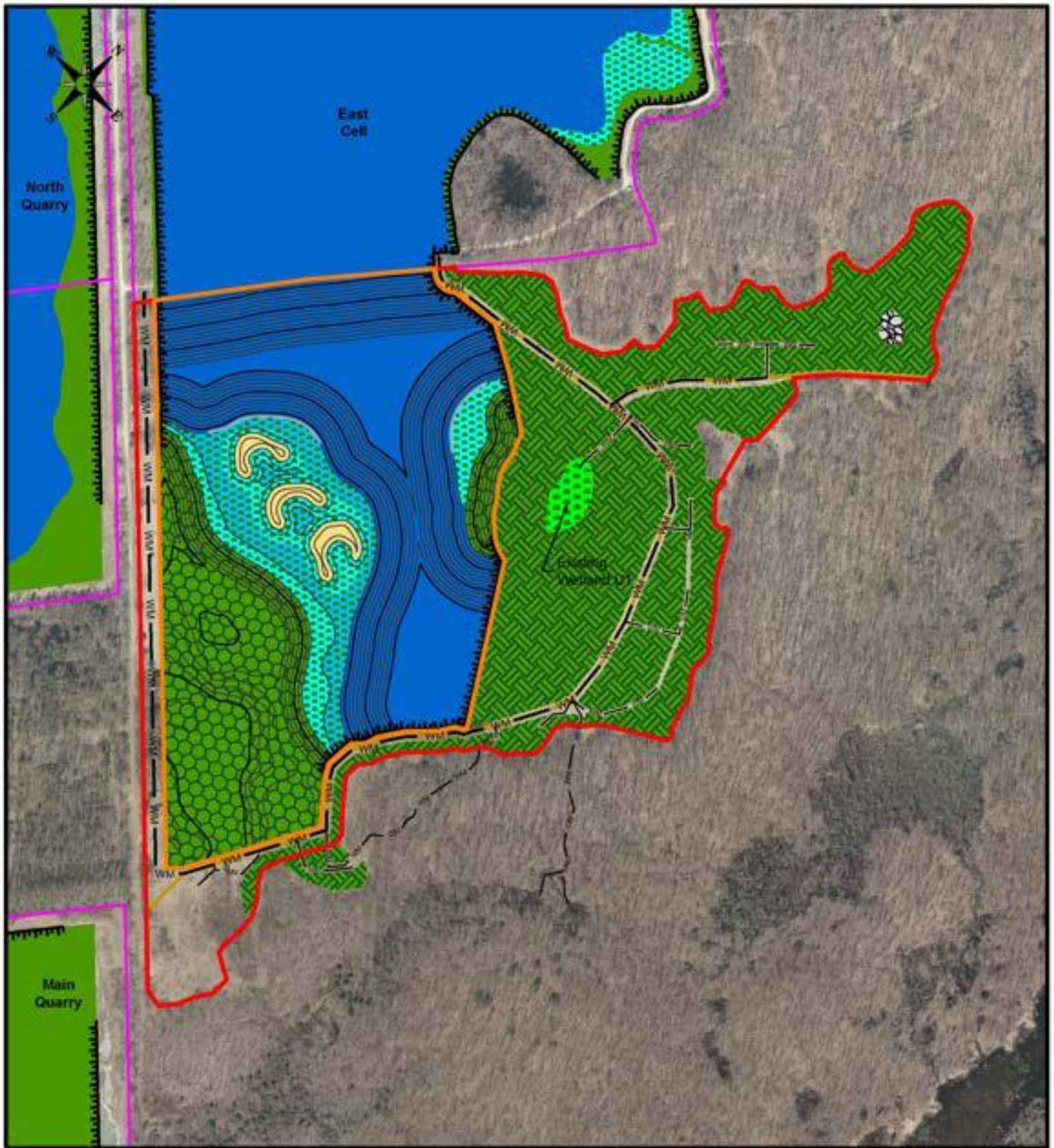
Figure # 3
Operations Sequence

Milton Quarry East Extension
Part of Lots 11 and 12, Concession 1
(Geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

- Proposed Milton Quarry East Extension - Licence Boundary
- Proposed Milton Quarry East Extension - Limit of Extraction
- Existing Licence Boundaries
- Existing Limits of Extraction
- East Cell Setback Removal
- Main Watermain / Service Access
- Feeder Line
- Site Entrance
- Phase Direction
- Phase Boundary
- Existing Wetland U1

Date	December 2021
Sources	Milton Quarry East Extension Operational Plan prepared by MHBC dated December 2021
Scale - 1:5000	



**Figure # 4
Rehabilitation and
Ecological Enhancement
Plan Schematic**

Milton Quarry East Extension
Part of Lots 11 and 12, Concession 1
(Geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

- Proposed Milton Quarry East Extension - Licence Boundary
- Proposed Milton Quarry East Extension - Limit of Extraction
- Main Watermain / Service Access
- Feeder Line
- Rocky Shoal
- Shallow / Deep Wetland
- Deep Lake
- Islands
- Forested Area - Within Extraction Limit
- Forested Area - Outside Extraction Limit
- Snake Hibernaculum
- Cliff Face

Date: December 2021

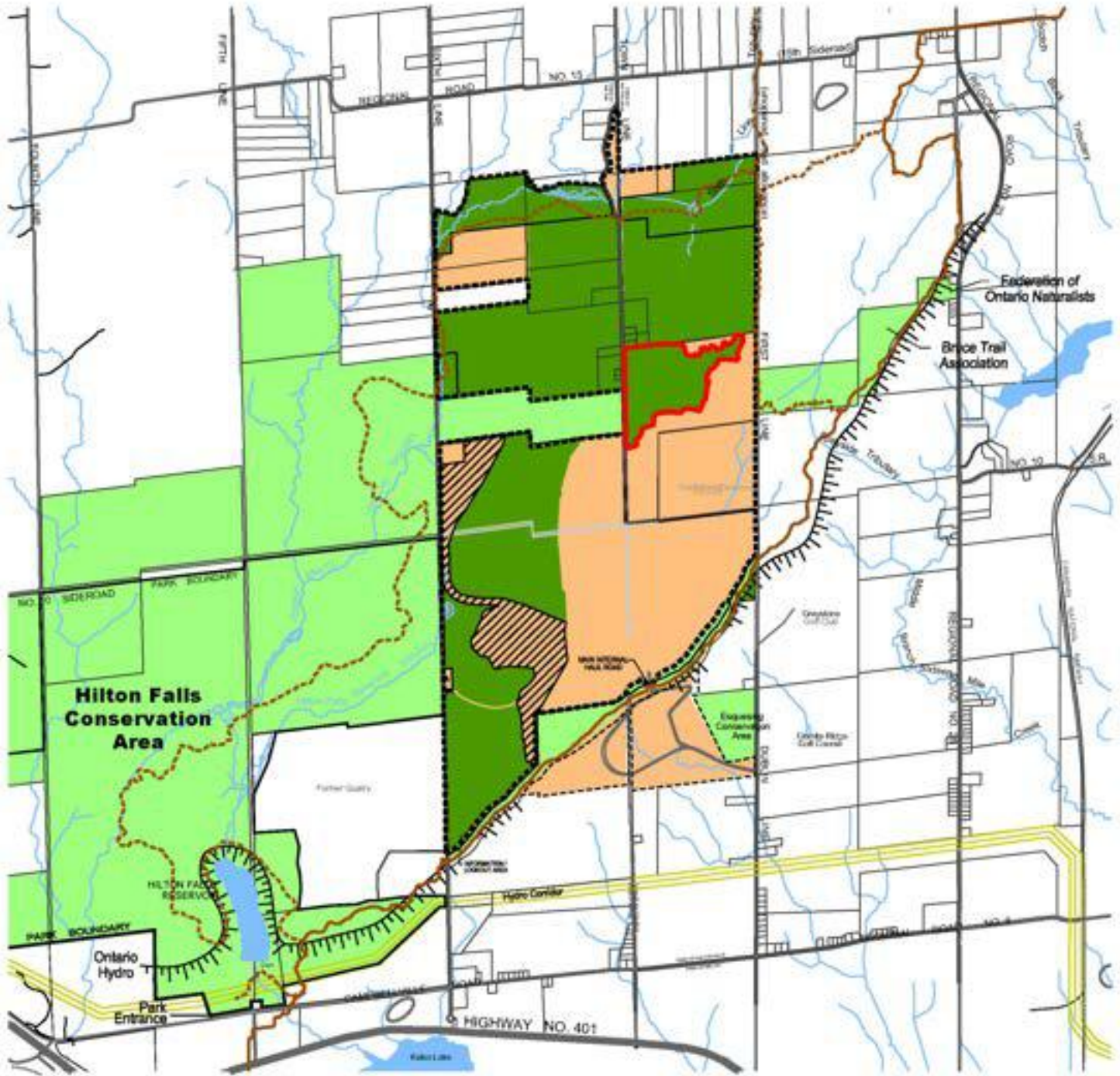
Sources:
Milton Quarry East Extension Rehabilitation Plan
prepared by MHBC dated December 2021

Scale - 1:5000

0 25 100
Metres

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**Figure # 5
Future Public
and Private Lands**

Milton Quarry East Extension
Part Lots 11 and 12, Concession 1
(Geographic Township of Esquesing)
Town of Halton Hills
Regional Municipality of Halton

Legend

-  Proposed Milton Quarry East Extension - Licence Boundary
-  Bruce Trail
-  Hilton Falls Side Trail
-  Public Lands (±1,100 ha)
-  Future Public Lands (±421 ha) *
-  Private Lands (±324 ha)
-  Future Ownership/Use Determined by Master Plan (±50 ha)

Note: Calculations based on MPAC parcel fabric

* Future public lands includes 391 hectares already being conveyed to Conservation Halton and the additional 30 hectares associated with the MQEE proposed to be added to these lands.

Date: December 2021

Sources: Land Information Ontario
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Scale: 1:40,000



MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

Appendices

Appendix 1



CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

EDUCATION

1998
Bachelor of Environmental Studies,
Honours, Urban and Regional
Planning, University of Waterloo

Brian Zeman, President of MHBC, joined MHBC as a Planner in 1998 after graduating from the University of Waterloo with a Bachelors Degree in Urban and Regional Planning.

Mr. Zeman provides planning services for all aspects of the firm's activities including residential, commercial and industrial uses while specializing in aggregate resource planning. He has experience in aggregate site planning and licensing and processes relating to aggregate applications.

Mr. Zeman is a member of the Canadian Institute of Planners and Ontario Professional Planners Institute.

PROFESSIONAL ACCREDITATIONS / ASSOCIATIONS

- Full Member, Canadian Institute of Planners
- Full Member, Ontario Professional Planners Institute
- Member, Ontario Expropriation Association
- Certified by the Province of Ontario to prepare Aggregate Resources Act Site Plans

PROFESSIONAL HISTORY

- 2014 - Present **President**, MacNaughton Hermsen Britton Clarkson Planning Limited
- 2010 - 2014 **Vice President and Partner**, MacNaughton Hermsen Britton Clarkson Planning Limited
- 2005 - 2009 **Partner**, MacNaughton Hermsen Britton Clarkson Planning Limited
- 2004 - 2005 **Associate**, MacNaughton Hermsen Britton Clarkson Planning Limited
- 2001 – 2004 **Senior Planner**, MacNaughton Hermsen Britton Clarkson Planning Limited
- 1998 - 2001 **Planner**, MacNaughton Hermsen Britton Clarkson Planning Limited

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bzeman@mhbcplan.com
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CURRICULUM VITAE

Brian A. Zeman, BES, MCIP, RPP

PUBLICATIONS

- Co Author of the “State of the Aggregate Resource in Ontario Study Paper 2 – Future Aggregate Availability & Alternatives Analysis, Prepared for the Ministry of Natural Resources dated December 2009.

SELECTED PROJECT EXPERIENCE

- Research, preparation and co-ordination of reports / applications under the Planning Act, Niagara Escarpment Planning and Development Act, Oak Ridges Moraine Conservation Act, and the Aggregate Resources Act.
- Facilitate public meeting on major development applications.
- Project management for major development applications.
- Undertake aggregate Compliance Assessment Report inspections and preparation of reports.
- Planning evaluations and analysis for mineral aggregate development and resource management.
- Conduct notification and consultation procedures under the Aggregate Resources Act.
- Aggregate Resources Act site plan amendments.
- Planning evaluations for residential developments.
- Registration and planning of residential developments.
- Planning assessment for commercial, retail, office and industrial developments.
- Restoration planning for pits and quarries and preparation of recreational afteruse plans.
- Research and preparation of reports /evidence for hearings before the Ontario Municipal Board, Environmental Review Tribunal, Joint Board.
- Provide expert planning evidence before the Ontario Municipal Board, Environmental Review Tribunal and the Joint Board.

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SAMPLE PROJECT LIST

- Activa Group - Laurentian Subdivision, Kitchener
- Adventure Farm – Kirkwall Subdivision, Hamilton
- Aecon - Oliver Pit - Site Plan Amendment/Compliance Assessment Report
- Aggregate Producers Association of Ontario - Caledon Official Plan
- Aggregate Producers Association of Ontario - PPS Review
- Aggregate Producers Association of Ontario - Region of Halton Official Plan
- Blue Mountain Aggregates-Pit Deepening and Expansion
- Brampton Brick - Cheltenham Quarry Site Plan Amendment
- Brampton Brick - Niagara Escarpment Development Permit
- Cayuga Material & Construction - Property Investigation
- Cliff's Natural Resources – Chromite Aggregate Project
- Crisdawn Construction Inc. – Barrie Annexation Lands
- Dufferin Aggregates - Acton Quarry Afteruse Plan
- Dufferin Aggregates - Acton Quarry Expansion
- Dufferin Aggregates – City of Hamilton Official Plan
- Dufferin Aggregates - Milton Comprehensive Zoning By-law
- Dufferin Aggregates - Milton Quarry Afteruse Plan
- Dufferin Aggregates - Milton Quarry Extension
- Dufferin Aggregates - Property Investigations
- Dufferin Aggregates - Region of Halton Official Plan
- Dufferin Aggregates - Town of Halton Hills Official Plan
- Dufferin Aggregates – Town of Halton Hills Zoning By-law
- E.C. King Contracting - Sydenham Quarry Expansion Erie Sand & Gravel - Pelee Quarries
- Gies Construction - Old Chicopee Drive, Waterloo
- Hazad Construction - Conestoga Golf Course Subdivision Hallman Construction Limited - Consent for Church Site
- Home Depot - Barrie, Kitchener, Markham, Mississauga, Richmond Hill and Whitby
- J.C. Duff - Property Investigations
- Kulmatycky Rezoning/Plan of Subdivision/Area Study - Town of Paris
- Lafarge Canada – Brechin Quarry Site Plan Amendment
- Lafarge Canada – City of Hamilton Official Plan
- Lafarge Canada - Dundas Quarry Expansion
- Lafarge Canada - Lawford Pit
- Lafarge Canada – Limbeer Pit
- Lafarge Canada – Mosport Pit Site Plan Amendments
- Lafarge Canada - Oster Pit

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CURRICULUM VITAE

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- Lafarge Canada - Property Investigations
- Lafarge Canada - Warren Merger Due Diligence
- Lafarge Canada-Wawa Site Plans
- Lincoln Village Subdivision - Phase 2 and 3, Waterloo
- Livingston Excavating - Simcoe Pit
- Nelson Aggregates Co., Burlington Quarry Extension
- Ontario Stone, Sand & Gravel Association – Region of Halton Aggregate Strategy
- Ontario Stone, Sand & Gravel Association - Region of Halton Official Plan
- Paris Land Development Limited - Subdivision
- Pitway Holdings - Brillinger Pit
- Pitway Holdings - Naylor/Forman Pit
- Pine Valley Homes - Ainsley Estates, Town of Wasaga Beach
- Pioneer Construction-Aggregate Resources Act Licensing-Thunder Bay
- Region of Durham - Homefounders Subdivision Riverbank Estates Inc. - Subdivision, Kitchener
- St. Marys Cement – Alternative Fuels
- St. Marys Cement - Bowmanville Quarry Deepening
- St. Marys Cement - Bowmanville Quarry Site Plan Amendment
- St. Marys Cement - Clarington Comprehensive Zoning By-law
- St. Marys Cement – Westside Marsh Project
- Steed & Evans - Contractor's Yard/Site Plan Amendment
- Tanem Developments - Bridge Street Subdivision University of Guelph - Canadian Tire
- University of Guelph - Commercial Centre University of Guelph - Office/Research Park
- YMCA – Redevelopment of Site, Barrie
- Zavarella Construction Ltd. - Consent/Rezoning/Plan of Subdivision/Area Study, Town of Paris

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