VISUAL IMPACT ASSESSMENT
JULY 2010 / 9061V

DUFFERIN AGGREGATES
PROPOSED EXTENSION
OF THE ACTON QUARRY
CONTENTS

1.0 Introduction 3
1.1 Description of the Proposed Extension 3
1.2 Purpose 3
1.3 Description and Character of Property and Surrounding Land Uses 4
   1.3.1 Phase Four 4
   1.3.2 Phases Five, Six, and Seven 4

2.0 Background 6
2.1 The Provisions of the Niagara Escarpment Planning and Development Act 6
2.2 Development Criteria 6

3.0 Viewshed Analysis 8
3.1 Methodology for the Visual Impact Assessment 8
3.2 Description of Views 9
   3.2.1 Phase Four 9
   3.2.2 Phases Five and Six 11
   3.2.3 Phase Seven 12
3.3 Vegetative Inventory 13
3.4 Observations and Recommendations 17
   3.4.1 Observations 17
   3.4.2 Recommendations 17

4.0 Conclusions 19
LIST OF FIGURES

Figure 1: Location Map
Figure 2: Niagara Escarpment Plan
Figure 3: Phase Four: Operational Plan
Figure 4: Phases Five, Six, and Seven: Operational Plan
Figure 5: Bruce Trail System Map
Figure 6: Phase Four: Viewshed Plan
Figure 7: Phase Four: Viewpoint Plan
Figure 8: Phase Four: Viewpoint 1
Figure 9: Phase Four: Viewpoint 2
Figure 10: Phase Four: Viewpoint 3
Figure 11: Phase Four: Viewpoint 4
Figure 12: Phase Four: Viewpoint 5
Figure 13: Phases Five, Six, and Seven: Viewshed Plan
Figure 14: Phases Five and Six: Viewpoint Plan
Figure 15: Phases Five and Six: Viewpoint 1
Figure 16: Phases Five and Six: Viewpoint 2
Figure 17: Phases Five and Six: Viewpoint 3
Figure 18: Phase Six: Viewpoints 4 and 5
Figure 19: Phase Five: Viewpoint 6
Figure 20: Phase Seven: Viewpoint Plan
Figure 21: Phase Seven: Viewpoints 1, 2, and 3
Figure 22: Phase Four: Vegetative Inventory
Figure 23: Phases Five, Six, and Seven: Vegetative Inventory
Figure 24: Phase Four: Visual Mitigation
Figure 25: Phases Five, Six, and Seven: Visual Mitigation
1.0 Introduction

Dufferin Aggregates currently owns and operates the Acton Quarry in the Town of Halton Hills, Regional Municipality of Halton. An application has been made for the approval of a proposed extension to the existing Quarry and an amendment to the Niagara Escarpment Plan that includes a proposed licence area of 124.4 ha (307.4 ac) and proposed extraction area of 99 ha (244.6 ac). See Figure 1 for a Location Map.

1.1 Description of the Proposed Extension

The proposed extension has been divided into four Phases, referred to as Phases 4, 5, 6, and 7 respectively in this report. Phase four is located in Part of Lot 24, Concession 3 north of the existing Quarry. It has a total proposed licence area of 36.1 ha (89.2 ac) and proposed extraction area of 27.7 ha (68.4 ac). These lands are currently designated as Escarpment Rural Area under the Niagara Escarpment Plan, being used for agriculture.

Phases 5 through 7 are located in Part of Lots 19, 20, 21 and 22, Concession 3, and Part of Lots 21 and 22, Concession 4 to the south and south west of the existing Quarry. These three Phases have a proposed combined licence area of 88.3 ha (218.2 ac) and proposed combined extraction area of 71.3 ha (176.2 ac). A portion of these lands are within both the Greenbelt Plan and the Niagara Escarpment Plans. The lands within the Niagara Escarpment are designated as Escarpment Rural Area. The remainder of the land is designated Protected Countryside, Natural Heritage System in the Greenbelt Plan. See Figure 2 for a NEC Map.

1.2 Purpose

The purpose of this scoped Visual Impact Assessment is to evaluate the potential visual impacts of the proposed extension of the Acton Quarry in accordance with the Niagara Escarpment Planning and Development Act and the Niagara Escarpment Plan. The report will also include recommendations for mitigation measures that will minimize visual impacts to surrounding land uses that may result from the proposed quarry extension.
This report shall be read in conjunction with the following plans and reports, and all observations and recommendations included herein shall be interpreted in the context of the same:


1.3 Description and Character of Property and Surrounding Land Uses

1.3.1 Phase Four

Phase four is currently an agricultural field with rolling hills and minimal vegetation within the limit of extraction, except for an internal hedgerow running east-west dividing the property. There is an existing house within the proposed extraction limits, and a second house located within the setback along the north south portion of 3rd Line. The property is accessible via 3rd Line that runs along the south and east property limits. To the east of Phase 4 and north of the existing quarry, there are five rural residences which are owned by Dufferin. The north limits of Phase four include an existing significant woodlot that ends outside the proposed limit of extraction, and some additional agricultural lands to the west, and as such, only the south and east limits of this phase will be studied for visual impacts as the other areas are well screened.

A portable processing plant is not proposed within the limits of Phase four. Extracted materials will be brought into the existing quarry for processing via a proposed at grade crossing that will serve to link the two areas. Shipping to market will continue to occur via the existing 4th Line and 22nd Sideroad access points and established haul routes. See Figure 3 for details on Phase four.

Views for this Phase were studied primarily from the vantage point of the road and from the Bruce Trail or side trail adjacent to the site.

1.3.2 Phases Five, Six, and Seven

Phases five, six, and seven are all located south of 22nd Sideroad and currently exist as a combination of woodlots, wetlands, and open fields. There is a row of five residential
properties that have frontage along the west side of 3rd Line and are situated within the proposed licence area dividing Phases six and seven. There is also a set of four residential properties that are situated outside the 120m boundary of influence on the east side of 3rd Line. The surrounding lands to the west, south, and east of these residential properties are for the most part existing woodlots that will be preserved during extraction, and enhanced during rehabilitation; therefore, potential views were studied primarily from 22nd Sideroad, 3rd Line and from the closest Bruce Trail or side trail adjacent to the site. See Figure 4 for details on Phases five, six, and seven.

Phases five and six include the option to operate a portable processing plant including a wash plant, however this is currently not being considered for these phases. If processing were to occur within the limits of Phases five or six, it is anticipated that material will be shipped directly to market by truck using the established haul routes. Should a portable processing plant be considered for these phases, it is recommended that the visual impacts of this be reviewed at that time.

Phase seven will be extracted using a portable processing plant, including a wash plant. Material will be shipped directly to market by truck, travelling north on 3rd Line to 22nd Sideroad.
2.0 Background

2.1 The Provisions of the Niagara Escarpment Planning and Development Act

The following objectives of the Niagara Escarpment Planning and Development Act have been translated into the objectives and designation criteria, and the permitted uses of the Niagara Escarpment Plan:

The Purpose of the Niagara Escarpment Planning and Development Act is:

“To provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment and to ensure only such development occurs as is compatible with that natural environment.”

Objective 8(d) of the Act specifically refers to an assessment of the landscape:

“To maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving the natural scenery.”

2.2 Development Criteria

Section 2.11 of the Niagara Escarpment Plan states “The objective is to minimize the impact of new mineral extraction operations and accessory uses on the Escarpment environment.

The Development Criteria includes the following specific policies related to screening:

2.11.3 – As a condition of the licence the extractive operation shall be screened while it is in progress and, where possible, prior to extraction in a manner compatible with the surrounding visual environment.”
2.11.4 – Screening shall incorporate the following:

a) Overburden material supplemented with native tree and shrub plantings should be utilized for screening purposes.
b) Tree screen plantings are to be of compatible species and sizes to permit only very limited visual contact from the surrounding landscape.
c) All planting should be properly maintained to ensure continued survival and good growth rates.
d) Where the existing forest is adequate to be considered as an effective screen along the perimeter of the site, no additional artificial berming or stock piling of overburden materials will be permitted within the forested area being used as a natural screen.

Both the ARA site plans and recommendations outlined in this report address the development criteria policies specific to screening. Where possible, preservation of the existing vegetation and enhanced screening of the proposed extension have been incorporated in the recommendations of this visual impact assessment to ensure that the extraction process is visually minimized.
3.0 VIEWSHED ANALYSIS

A viewshed analysis takes inventory of the existing conditions within the landscape and describes the character and quality of the view of the surface area visible from the viewpoint of an observer. For the purposes of this study, significant viewpoints as determined through comprehensive on site reviews were inventoried, documented photographically and assessed. Significant viewpoints were considered to be any clear, open views into the proposed quarry extension areas from major roads (limited to 3rd Line and 22nd Sideroad as agreed with the NEC), existing residential properties and from the Bruce Trail including any side trails adjacent to the subject lands. See Figure 5 for Bruce Trail System Map.

The viewshed mapping contained in this document reflects the results of an on-site assessment completed in the month of April in the spring 2010 which was conducted in leaf-off condition in order to represent a worst case scenario for views into the subject lands. Due to trespassing restrictions, no viewpoints were taken from within the private property of neighbouring land owners, however, viewpoints were taken from the ends of the respective driveways as required for the purposes of this report. The viewpoints identified were photographed in both leaf-off condition (April 2010) and leaf-on condition (May 2010) and are included in the figures which accompany this report. See Figures 6 and 13 for Viewshed Plans as verified on site and Figures 7, 14 and 20 for locations of Viewpoints.

3.1 Methodology for Visual Impact Assessment

Upon review of the requirements under the Niagara Escarpment Commission Visual Assessment Guidelines, November 21, 2006 JART comments and discussions with the NEC, MHBC Planning has developed the following methodology specific to the visual impact assessment for the proposed quarry extension.

- On site reviews were conducted with the intention of identifying the visibility of any proposed physical changes to the landscape relating to the proposed quarry extension.
- The on site investigation included identification of significant viewpoints, mapping of viewshed extents and the collecting of relevant photographs of the existing conditions along the roads (3rd Line, 22nd Sideroad) and trails (Bruce Trail main trail and secondary trails) in accordance with the NEC guidelines. This has been carried out through on-site verification and photography of individual viewpoints which have been mapped and form part of this report.
A general inventory of existing vegetated areas was completed using the information contained within the Environmental Report (Stantec), and was complemented by on-site verification. This general vegetation inventory is summarized in section 3.3 of this report. The preservation of significant plant material will be given priority for use in visual screening. Recommendations for a management plan and edge management plan were included as part of this exercise.

The report identifies key plant species to be used for screening and outlines key considerations including sample planting arrangements, density/spacing and sizes of plant material. As much as possible, the mitigation planting is suggested in areas where it can become part of the rehabilitation planting. The proposed mitigation takes seasonal changes into consideration to ensure that views are mitigated throughout the year.

Existing and proposed noise and/or visual berming have been taken into account while preparing this report and these are factored into the proposed recommendations for mitigation.

Recommended mitigation measures have been illustrated with a combination of photographs and plans to illustrate the intent of the respective proposal.

### 3.2 Description of Views

#### 3.2.1 Phase Four

Site investigations and viewshed mapping for Phase four revealed five locations that could be potential areas of visibility into the proposed extraction area. Filtered views into the proposed extraction area were evident looking west from 3rd Line in proximity to the existing residential properties, and looking south west when driving south on 3rd Line and looking north east when driving north on 3rd Line. From our on-site review, views from the Guelph Trail (Bruce Trail) to Phase four were not evident, however photographs of the existing views from within the trail area have been provided.

**Viewpoint #1A, B, and C - From 3rd Line - Figure 8**

Driving west from the last residential property on 3rd Line, one will have a filtered view between two layers of deciduous vegetation, one along the north side of 3rd Line and the other that runs north south along the internal property boundary of Phase four. The perimeter of the proposed extension sits level with 3rd Line along this area. The existing deciduous vegetation along the east property boundary is very sparse and exists primarily along the licenced boundary, leaving the proposed 30m setback area very open. A 5.0m high noise berm is proposed along the east setback, north of the proposed entrance that will eliminate views into the site along its length. In addition, the French Residence currently sits almost a metre below the level of 3rd Line, allowing for only a very restricted view into the proposed extension lands at the present time. The existing grade in the middle of the proposed extraction area is currently higher.
than the level of the road, thereby creating a ridge condition which blocks the view to the north west area of the subject lands. In the background there is a view to the existing woodlot to the north and west of Phase four.

**Viewpoint #2 – Looking north towards the proposed entrance - Figure 9**

Views into the proposed extension area as one drives along 3rd Line are moderately filtered, and begin to open up towards the proposed entrance in the south east corner of the subject lands. There is very minimal vegetation that exists within the proposed 30m setback to provide a screen for the traffic nearing the proposed entrance. The proposed 5.0m high noise berm that is to be installed within the east setback, north of the proposed entrance will provide sufficient screening for that area.

**Viewpoint #3A and B – Looking north east and west at 3rd Line - Figure 10**

While one follows 3rd Line west, the grade of the road begins to drop, but at the highest point, the road remains at an elevation that is lower than that along the property line. Existing plant material along the north side of 3rd Line sits on a berm with a ditch running along the base leading to the low area. Within this low area is an existing remnant woodlot that, where possible, will be retained within the limits of the proposed 30m setback. A filtered view into the subject lands exists along this south property boundary. As per the ARA plan, a 3.0m high visual berm is proposed along the south east corner within the setback that will provide mitigation as drivers approach the proposed entrance. There is currently a slight ridge (approximately 5 metres above the level of the road) within the proposed extraction area, towards the west that currently limits visibility to the north end of the subject lands.

**Viewpoint #4 – Looking north east on 3rd Line – Figure 11**

Driving north along 3rd Line from 22nd Sideroad one approaches an easterly bend on 3rd line that serves to slow down vehicular traffic enough that one could be provided the opportunity to redirect their view towards the subject lands through the deciduous vegetation that currently sits along the licenced boundary, leaving the proposed 30m setback area open. As per the ARA plan, a 3.0m high visual berm is proposed within the setback at the south west corner of the proposed extension area to provide mitigation as drivers approach from the south.

**Viewpoint #5A, B, C, and D – Looking south from the Guelph Trail – Figure 12**

The entrance to the Guelph Radial Line Side Trail is located at the at the east end of 3rd Line at the entrance to the existing Acton quarry offices. Walking north west along the Trail, one is approximately 350m away from the north east limits of Phase four at which point there is a clearing in the vegetation towards the an existing agricultural field and hedgerow. Continuing on the trail, approximately 1km from the entrance, the existing woodlot provides a heavy screen that serves to make the subject site indistinguishable due to the heavy cover. Further along, approximately 1.2-1.5km from the entrance to the trail, one will approach an agricultural field that is situated north of the subject lands. The review from the trail determined that there was no apparent view to any part of Phase four, and that no further investigation is required.
3.2.2 Phases Five and Six

Site investigations and viewshed mapping for Phases five and six revealed five locations that could be potential areas of visibility into the proposed extraction area. As both Phase five and six share frontage on the east and west sides of 3rd Line, the viewpoints along these frontages were studied concurrently. All truck traffic will be internal to the existing Phases two and three, and therefore, no new entrance will be proposed along 3rd Line.

Although there is a significant amount of coniferous vegetation along the property boundary of both the east and west sides of 3rd Line, there are segments of deciduous vegetation that provide filtered views into the proposed extraction area. Both open and filtered views are gained at certain points along both the east and west sides of 3rd Line as one drives either north or south. There are no apparent views from 22nd Sideroad, as an existing woodlot occupies the frontage just west of the existing Phase three extraction area. There are no apparent views from the new Canada Goose Side Trail into Phase six as the tree cover is extensive. The full length of the trail was not accessible at the time site work was completed, and as such, only portions of the trail were accessed. A photograph of the entrance has been provided in this report.

**Viewpoint #1A and B – Looking east west driving south on 3rd Line – Figure 15**

As one approaches the existing at grade crossing on 3rd Line, a window into the existing quarry is apparent as is the ongoing movement of trucks. This area will remain as the main truck access for proposed future processing. The view towards the north limits of Phase five east and west provide a clear view of the existing vegetated area that will become part of the proposed extension. The ARA plans show planted visual berms at the partial clearings on the west side of 3rd Line.

**Viewpoint #2A and B – Looking north on 3rd Line – Figure 16**

Each of the five existing residential properties within the proposed licence limits faces east and has a view towards the south end of Phase six east. As one looks north from the existing residential properties, there is a change in vegetation from a dense deciduous mass to a clearing on the east frontage which would become the south limits of the proposed Phase six east extension. An 8.0m high noise berm is proposed to be installed just inside the limits of extraction for Phase 6 east, and a second 8.0m high noise berm is proposed within the limit of extraction just north of the residential properties that will provide sufficient screening behind the existing vegetation.

**Viewpoint #3A and B – Looking north on 3rd Line– Figure 17**

Continuing north on 3rd Line, one approaches a low area with clearing in the vegetation, with an open agricultural field on the west side and a wet swamp area on the east side. This open area is entirely within Phase 6 west and east and will require screening along the entire frontage. The ARA plans currently show 3.0m high planted visual berms in these areas. North of this clearing is a background of dense coniferous vegetation that lines both sides of 3rd Line. This vegetation sits on an existing berm along the west frontage and is slightly lower than the elevation of the road along the
east frontage. As one approaches the open field from the north, the views appear more filtered, however the proposed berm will provide appropriate screening in this area.

**Viewpoint #4A, B, and C – Main Bruce Trail – Figure 18**

Access to the main Bruce Trail is located approximately 150m south of the end of 3rd Line. The vegetation along the trail is predominantly deciduous but is quite dense and provides a heavy screen from any activity to the north. Walking east along the main Bruce Trail, approximately 1km away from the south limits of Phase six east, the woodlot provides a generous vegetative screen between a trail user and the subject lands. There were no apparent views towards either of the proposed extension areas.

**Viewpoint #5 - Canada Goose Side Trail – Figure 18**

At the time this site investigation was completed, portions of the Canada Goose Side trail were not accessible. No apparent views towards either of the proposed extension areas were observed.

**Viewpoint #6 – Looking south towards Phase 5 east from 22nd Sideroad – Figure 19**

At the intersection of 3rd Line and 22nd Sideroad one approaches the north limits of existing Phase 3. There is a filtered view towards the extraction with a background of the existing woodlot that will become the future extraction areas (Phases 5 and 6). Views of the tree line in the background will be minimized through extraction although final rehabilitation will provide a newly vegetated background to connect the escarpment.

### 3.2.3 Phase Seven

Site investigations and viewshed mapping for Phase seven revealed three locations that could be potential areas of visibility into the proposed extraction area. The proposed extraction limits are approximately 150m from 3rd Line. The remnant woodlots existing between the proposed licence limit and the right of way will be preserved and will provide a sufficient screen for observers. The entrance into Phase 7 will be screened by a proposed noise berm that will be installed south of the entrance to provide mitigation for the existing residential properties to the south. Views from the Main Bruce Trail to Phase seven were not apparent, but photographs of the existing views have been provided in this report.

This phase will include a portable processing plant, including wash plant. This equipment is approximately 10 metres in height, and the final location of this equipment is not yet known. At the time this report was written, it is anticipated that the portable plant will not create any visual impacts given the existing vegetative screening surrounding Phase seven. Dufferin will continue to review the mine plan and potential visual impacts as more information becomes available over the course of
the approval / implementation process and will work to address potential visual impacts at that time.

Viewpoint #1 – Looking north from existing residential properties – Figure 21

Looking north towards Phase seven there is an extensive coniferous screen behind which is a dense deciduous stand which serve to divide the existing residential properties and the proposed Phase seven. No additional study or screening is required in this area.

Viewpoint #2 – Looking north from 3rd Line – Figure 21

Continuing north, approximately 200m from the south end of 3rd Line, directly south of the proposed Phase seven entrance, the vegetation remains predominantly coniferous. This vegetation will be preserved and provides a dense screen. No additional study or screening is required in this area.

Viewpoint #3 - Looking North from the Vanderleck Side Trail – Figure 21

Walking east or west along the Vanderleck Side Trail would put a trail user approximately 400m away from the south limits of Phase seven, surrounded by a significant woodlot that provides a generous vegetative screen between a trail user and the subject lands. There was no apparent view towards Phase seven from this area.

3.3 Vegetative Inventory

See Figures 22 and 23 for Vegetative Inventory Mapping.

Site investigations have concluded that it will be possible to have areas of significant preservation of existing vegetation within both the interior and the perimeter of the proposed extension lands. For the purposes of this report, only the vegetation to be preserved within the proposed setback areas and those areas that impact visual mitigation are have been documented.

Phase Four

Area A:

As one approaches the southwest corner of the subject lands, 3rd Line sits at the same elevation as the property boundary. The existing vegetation provides a heavy screen and includes a combination of the following species:

- White Pine
- Hemlock
- Sugar maple
- Ash
- Elm
- Black Cherry
- Poplar
Area B:
The 30m setback along the south property boundary contains a deciduous swamp area that sits lower than the elevation along the frontage of 3rd Line. This area provides a filtered view and includes a combination of the following species:

- Silver Maple
- Sugar maple
- White Elm
- White Ash
- Black Cherry
- Ironwood

Area C:
The existing vegetation along the east property boundary of Phase four remains as a remnant hedgerow to delineate the agricultural boundary and will remain. This area provides a filtered view and includes a combination of the following species:

- Sugar Maple
- Black Cherry
- White Ash
- Beech
- Chokecherry

Phases Five and Six

Area D:
This area of existing vegetation is a stand that appears to have been used as agricultural at one point. This existing vegetation provides a filtered view and includes a combination of the following species:

- White Cedar
- Poplar
- White Birch
- Sugar Maple
- Black Cherry
- White Ash
- Hawthorn

Area E:
This area is a portion of a remnant woodlot that sits on an existing berm along the 3rd Line frontage. The existing vegetation provides a solid heavy screen and includes a combination of the following species:

- Sugar Maple
- Beech
- Black Cherry
- White Ash
- White Elm
- Common Buckthorn
- Dogwood
- Hawthorn
- White Cedar
- Poplar
Area F:
This area is an existing swamp area that sits lower than 3rd Line. With the very sparse tree cover there is a clear view into this area and includes a combination of the following species:
- Willow
- Dogwood
- Trembling Aspen
- Balsam Poplar
- White Elm

Area G:
This open field area has little to no screening within the setback area but does include a combination of the following species:
- Hawthorn
- Dogwood
- Chokecherry
- Poplar

Area H:
This area is has very minimal existing vegetation along the frontage and sits level with 3rd Line. The existing vegetation provides a screen south of the proposed Phase six east and includes a combination of the following species:
- Poplar
- White Cedar
- Sugar Maple
- Hawthorn
- Chokecherry
- Dogwood

Area I:
The existing woodlot south of the proposed extension is to be preserved. The vegetation provides a heavy screen from the existing residential properties on the west frontage of 3rd Line and where 3rd Line terminates. This block of vegetation includes a combination of the following species:
- Sugar Maple
- White Cedar
- Silver Maple
- Black Cherry
- Birch
- Balsam Fir
- Beech
- Ash
- Poplar
- Chokecherry
- Dogwood
Phase Seven

**Area J:**  
This area of existing vegetation is a stand that appears to have been used as agricultural at one point. This existing vegetation provides a filtered view and includes a combination of the following species:
- Sugar Maple
- White Ash
- Poplar
- Hawthorn
- Dogwood
- Chokecherry

**Area K:**  
This block of existing vegetation is the edge of the a woodlot and provides a heavy screen from the existing residential area to the proposed limits of the Phase seven extension and includes a combination of the following species:
- Sugar Maple
- White Elm
- Buckthorn
- Hawthorn
- White Cedar
- Poplar
- Chokecherry
- Dogwood

**Area L:**  
This area of existing vegetation provides a very heavy coniferous screen between the existing residential area and Phase seven and includes a combination of the following species:
- White Cedar
- Poplar
- White Birch
- Elm
- Silver Maple
- Ash
- Black Cherry

**Management Plan / Edge Management Plan:**  
In order to ensure the ongoing health and viability of the vegetated areas that will be key in mitigating visual impacts, the following recommendations should be considered:
- Wooded areas should be reviewed and documented every two to five years as deemed necessary to ensure that any changes can be documented.
- Saplings or understory materials should be planted within vegetated areas where necessary in order to ensure desirable succession where older vegetation is present and where existing vegetation is sparse.
- Where a new edge condition is created by the partial cutting of a woodlot, the new edge shall be reviewed such that individual trees can be cut or retained in an effort to create a sustainable edge. The new edge should be planted with saplings and
understory materials (a combination of fast growing and long lived native species is recommended).

- Where the ground cover of a wooded area has been disturbed, a combination of mulched plant material and seed is recommended. This may be augmented with saplings and/or shrubs as deemed necessary.

### 3.4 Observations and Recommendations

#### 3.4.1 Observations

There are a variety of conditions along the visible perimeter of the proposed extension Phases four through seven. For the most part, the proposed extension lands are at the same elevation as the adjacent access roads which provides for a number of opportunities to view the proposed extraction areas.

Phase four provides for several short range views into the proposed extraction area. The addition of the proposed acoustic berm as well as the proposed visual berms along the south and east property boundaries will provide adequate visual screening.

The most visible Phases of this proposed extension are Phases five and six, both east and west sides. As these two phases are an extension of the existing Acton Quarry Phases two and three, the minimal screening that exists will allow for scattered filtered views into these proposed extraction areas.

Phase seven of the proposed extension is the least visually accessible with its increased setback from 3rd Line and the extensive preservation of existing plant material along the east, south and west limits of the proposed licence area.

#### 3.4.2 Recommendations

Following our detailed field study and photographic review relating to the potential visual impacts of the proposed extension areas of the existing Acton Quarry, we have the following comments and recommendations:

See Figures 24 and 25 for Visual Mitigation Mapping

- Existing vegetation within the setback zone should be retained insofar as is possible. No additional berming shall occur within existing wooded or forested areas being used as a natural screen unless required for air quality or noise attenuation. Infill plantings of coniferous trees or understory saplings or shrubs shall occur where necessary to create an effective, year-round visual screen.

- Any berms and/or plantings used to mitigate visual impacts should be installed as early as possible following issuance of the licence, to ensure sufficient time to establish a solid planting base and optimum plant growth (i.e. according to phasing timelines and prior to commencement of extraction on next phase).
• Berms and planting shall be installed within the appropriate setbacks for the purposes of air quality, noise attenuation and visual screening (where there is no existing vegetation). Berms shall be constructed in a smooth, organic fashion with diversity in the highpoints to create a more organic landform.

• Planting on berms shall include a combination of wildflower and grass seed mix to stabilize the slopes. Additional trees and shrubs will be installed close to the base of the berms in order to allow for the retention of a portion of the planting in the long term.

• Where planting exists along the perimeter of a proposed extension area, planting shall be augmented for visual mitigation where required. Any additional planting should be coordinated with the final rehabilitation planting process where possible in such a way that it would act as screening in the short term and fulfill a part of the rehabilitation requirement for the long term. This would also allow for the rehabilitation planting to become established during the time that the quarry is still under operation.

• Setbacks (including proposed berms) should be planted with a mix of coniferous trees from a minimum 0.6 metres to a maximum 1.5 metres in height, deciduous trees from a minimum 1.5 metre sapling whip to a maximum 40 mm caliper tree, and shrubs from a minimum 1 gallon pot to a maximum 2 gallon pot, or bare root stock (availability and sizes varying depending on season of installation). Plantings should be randomly spaced, in terms of species sizes, to create a natural-appearing arrangement. Vegetation shall be selected for hardiness, salt and wind tolerance, and conformance with the rehabilitation plan. Native plant materials that are complementary to the regional and local landscape shall be utilized where possible. These may include, but are not limited to, the following species:

<table>
<thead>
<tr>
<th>Trees</th>
<th>Shrubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Pine</td>
<td>Common Hackberry</td>
</tr>
<tr>
<td>White Spruce</td>
<td>Paper Birch</td>
</tr>
<tr>
<td>Silver Maple</td>
<td>Trembling Aspen</td>
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<td></td>
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</tr>
<tr>
<td>Sumac</td>
<td>Nannyberry</td>
</tr>
<tr>
<td>American Elder</td>
<td>Dogwood</td>
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• Vegetative screening be maintained to ensure survival and good growth rate, and managed to ensure that it remains effective over time for screening purposes while allowing natural succession to occur in keeping with rehabilitation objectives.
4.0 CONCLUSIONS

It is our opinion that if the mitigation measures identified in this report are implemented, views from roadways and neighbouring receptor homes will be adequately screened year-round in a manner that is compatible with the surrounding natural and open landscape of the Niagara Escarpment Lands. Screening measures are also outlined on the operations and rehabilitation site plans submitted with the applications and these shall be referenced in conjunction with this report.

Respectfully submitted,

MHBC PLANNING

Nick Miele BLA, OALA, CSLA, ISA
Senior Landscape Architect / Partner