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**Peer Review of**

**Visual Impact Assessment**

Prepared by IBI Group in support of  
Hunder Development Ltd. Aggregate  
Extraction License Application for:

**Hunsberger Pit**

Township of Woolwich  
Region of Waterloo

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Prepared for:

**Township of Woolwich**

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February 2010

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Appendix 1	Section 10 “Visual Impacts”
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## 1.0 Introduction

Walker, Nott, Dragicevic Associates Limited has been retained by the Township of Woolwich to conduct a peer review of the Visual Impact Assessment (VIA) contained in the Planning Summary prepared by IBI Group and submitted by Hunder Development Limited to the Township of Woolwich as part of an application for a Zoning By-Law Amendment to allow for a gravel pit.

As part of this Peer Review we will assess the technical completeness of the VIA in accordance with the draft Township Official Plan Policies (OPA 13) Section 11.11.4, Provincial Policy Statement, provincial standards, and any other applicable standards. We will also evaluate the accuracy of the conclusions and mitigation procedures recommended in the VIA report. Further, in accordance with the Township's terms of reference, we will review and recommend on the appropriateness of the application at this location, amendments to be made, issues that need to be addressed and impacts of the proposal as it pertain to the consideration of visual impacts.

## 2.0 The Application

The application submitted by Hunder Development Ltd. ("Hunder") is an application to amend the Township of Woolwich Zoning By-Law pursuant to Section 34 of the Planning Act. The application seeks to rezone lands from the Agriculture-A Zone to the Extractive-E Zone, to also include importation of asphalt and concrete for the purpose of recycling. The applicant has also filed an application to the Ministry of Natural Resources pursuant to the Aggregate Resources Act to seek approval of an above water table sand and gravel extraction operation.

The lands subject to this application, (the "Subject Properties") are located in the eastern portion of the Township of Woolwich, south of the community of Winterbourne and immediately east of the community of Conestoga.

The location of the site is shown in the area context map **Figure 1**.

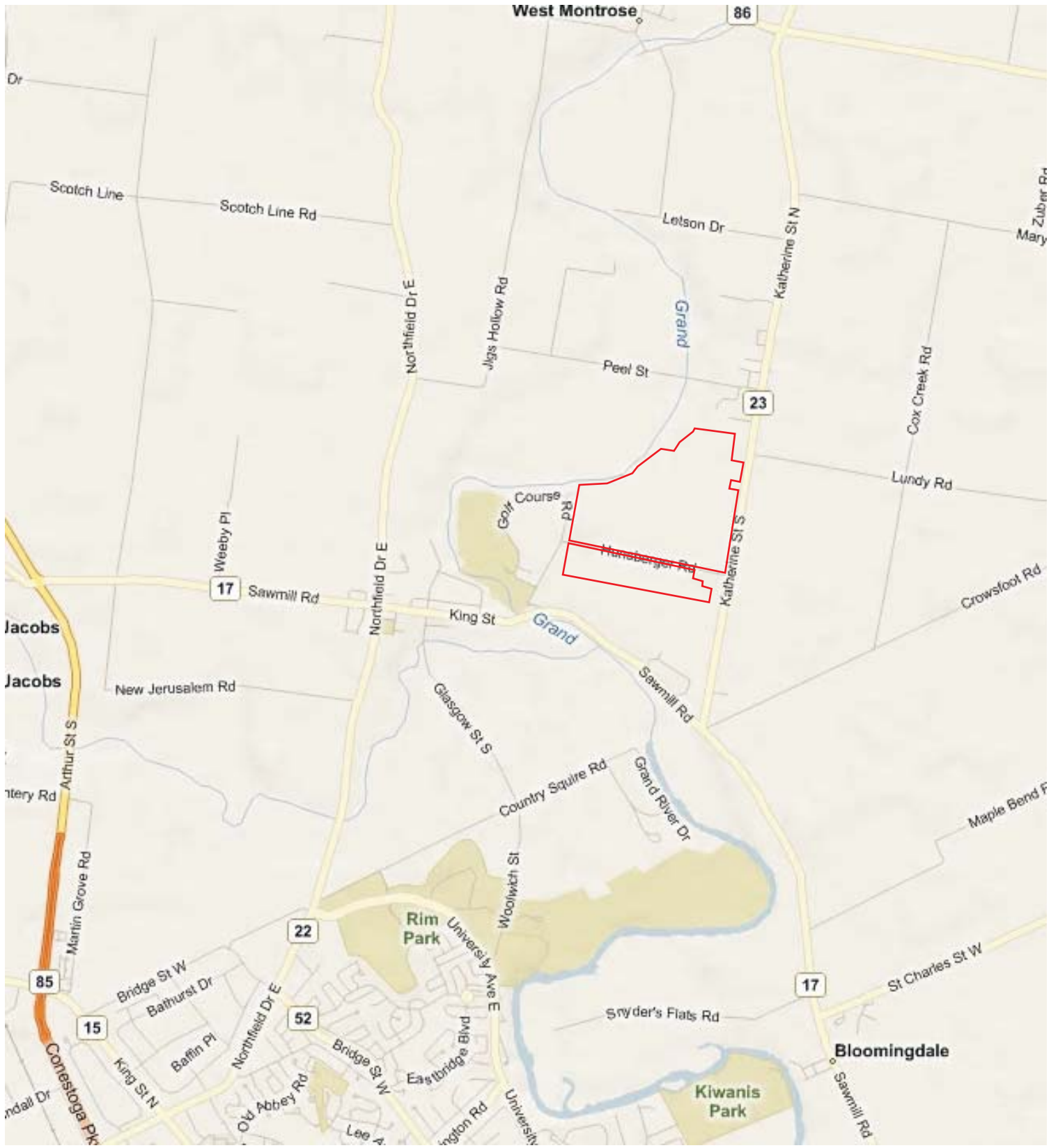
The Subject Properties are composed of two separate ownerships with a total area of 166.6 hectares (411.6 acres):

- Lands north of Hunsberger Road (135 ha, 334 ac) with frontage on the east on Katherine Road (Regional Road 23) and Hunsberger Road on the South; and
- Lands south of Hunsberger Road (35 ha, 86 ac) with north frontage on Hunsberger Road.

An aerial photograph of the Subject Properties is illustrated in **Figure 2**.

### 2.1 Proposed Development - Hunsberger Pit

The Subject Properties comprised of approximately 166.6 hectares (411.6 acres) located both north and south of Hunsberger Road. The request for aggregate license is for an area of land of 88.3 hectares (218.0 acres) with extraction occurring on an area of 62.0 hectares (153.2 acres).




 Subject Properties

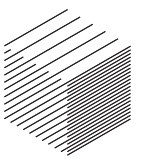
Figure 1  
Context Map

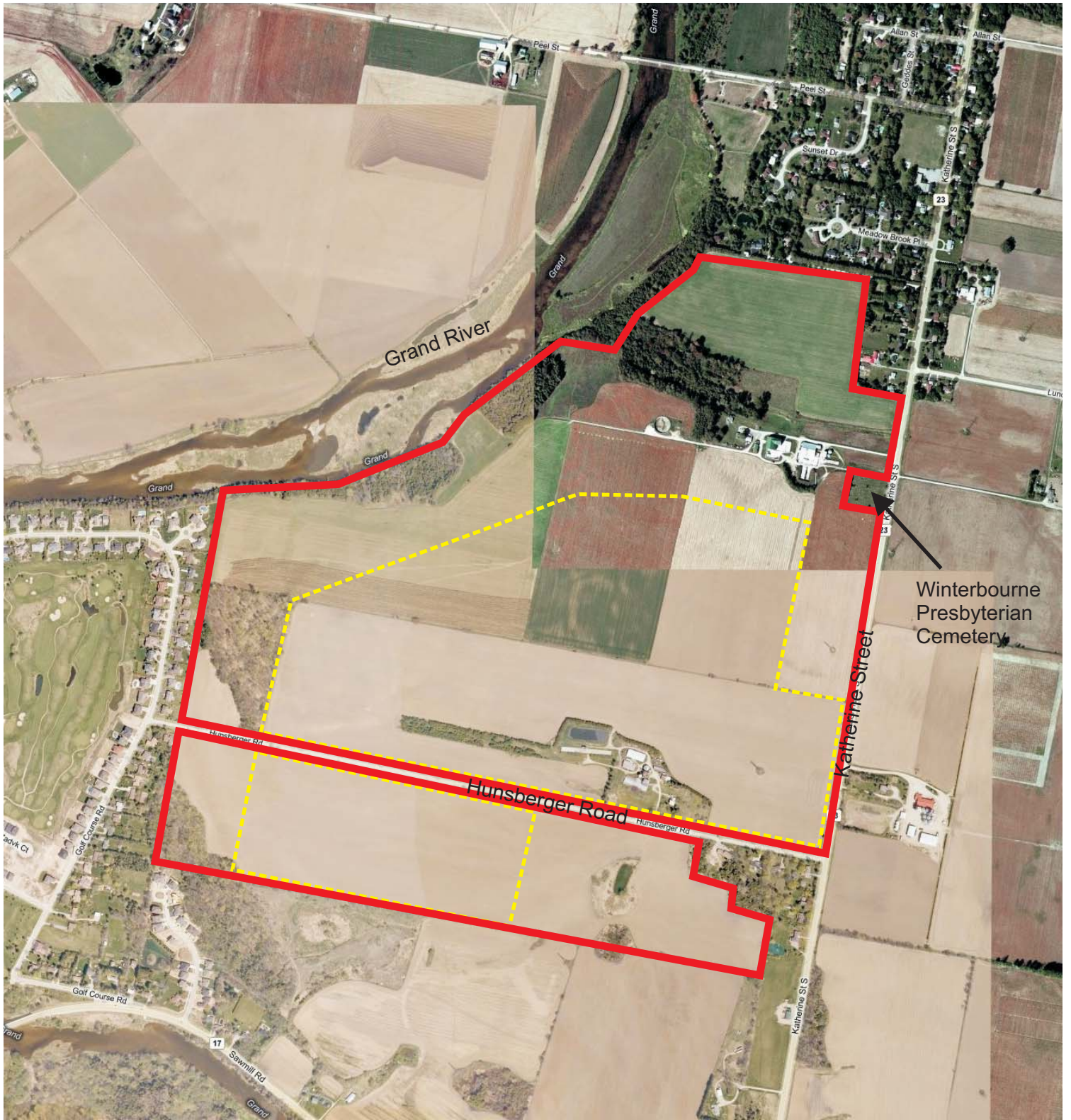
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Proposed  
Hunsberger Pit  
Licensed Area



Subject Properties

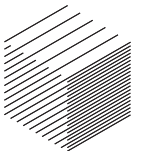
Figure 2  
Aerial Photograph

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The proposed pit has an estimated potential for extraction of 4,285,000 tonnes (annual production of 500,000 tonnes) as per the documentation provided within the IBI Group Planning Summary.

Extraction will be undertaken in 9 separate phases to be conducted sequential order. Phase 1 will be located central to the extraction and north of Hunsberger Road. This is identified as the lowest elevation for extraction and will serve as the main processing area for sand and gravel products and recycled materials for the duration of the pit operation.

Phases 2 and 3 are then proposed to occur in the southern portion of the Subject Properties. Extraction in these two phases will commence at a central point and then move east to and west to the ultimate limits of the extraction area.

After the Phases 2 and 3, excavation in the subsequent phases of extraction (Phases 4-9), located north of Hunsberger Road, will be excavated from the pit floor elevation reached at Phase 1 moving outwardly to the limits of the extraction area.

The proposed phasing for Hunsberger Pit is illustrated in **Figure 3**.

A weigh scale, scale house and refuelling area will be located beyond the extraction area along Katherine Street.

Three access points to the pit operation are proposed consisting of: The main entrance to the operation on Katherine Street north of Hunsberger Road; Phase 1 will have a second access to Hunsberger Road at approximately the mid point of the excavation area. A third access to the south side of Hunsberger Road essentially to create a 't' intersection link to Phase 1. All entrances will be paved near the public roadways and gated.

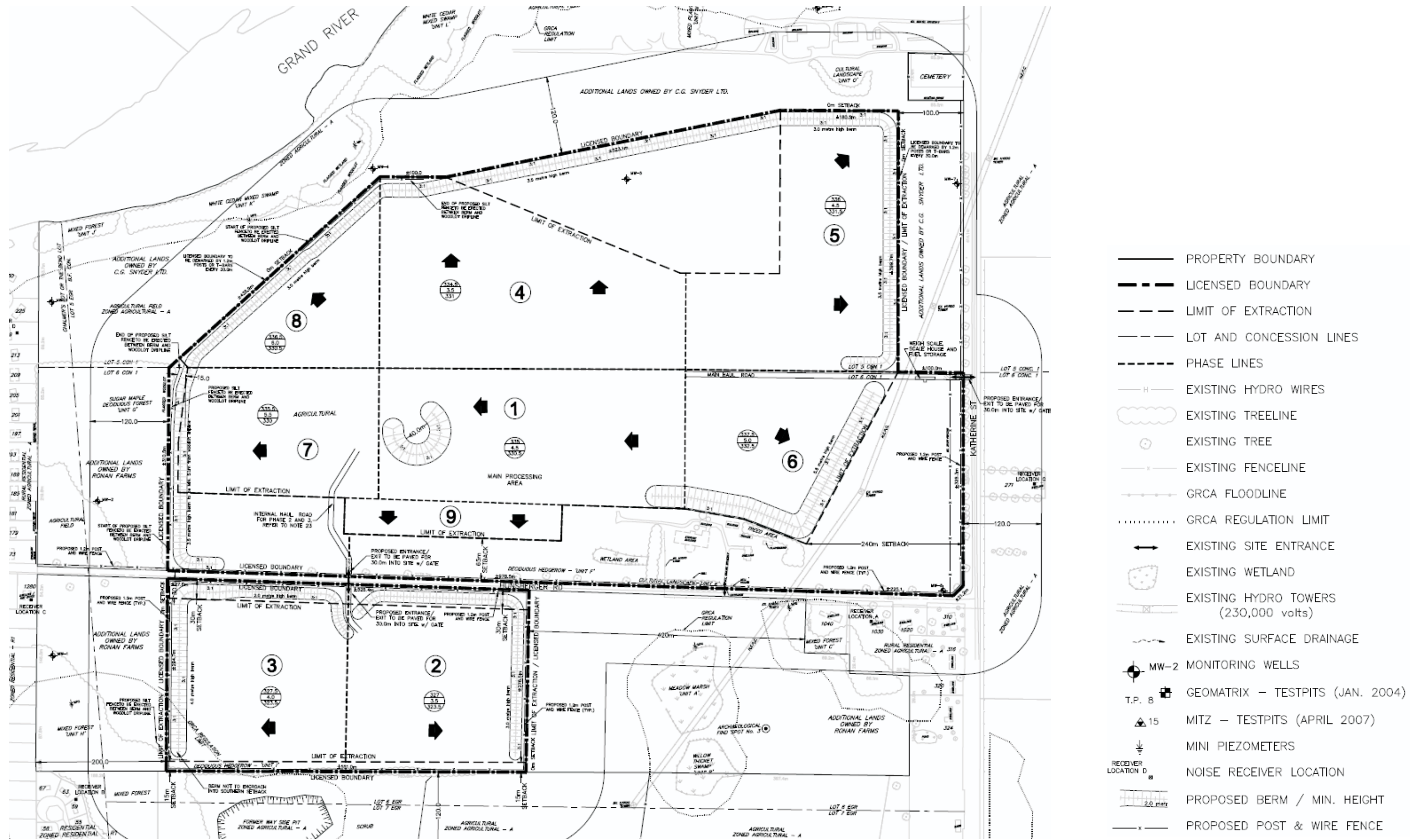
## **2.2 Planning Summary Report Prepared by IBI Group**

IBI Group has prepared a Planning Summary Report in support of the application, for review by the pertinent land use authorities and government agencies.

## **2.3 Section 10 “Visual Impacts”**

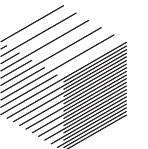
The Planning Summary Report compiled by the IBI Group includes a section entitled “Visual Impacts”, to provide an analysis of the potential visual impacts generated by the operation of the Hunsberger Pit. This section sets out to: (Page 42 of Planning Summary, see **Appendix 1**) “satisfy the requirements of:

- *The Provincial Policy Statement (Section 2.5.2.2) whereby, “Extraction shall be undertaken in a manner which minimizes social and environmental impacts”; and*
- *The (adopted Township OPA 13) Official Plan Policy (Sections 11.11.1d and 11.11.4) whereas,*  
  
*11.11.1 d): “a Visual Impact Study as described by Section 11.11.4 which satisfactorily demonstrates that the proposal will not have any unacceptable impacts,”*



Source: Hunder Development LTD. – Hunsberger Pit Planning Summary Report, "Operational Plan," IBI Group, April 3, 2009

Figure 3  
Hunsberger Pit Phasing Plan



*11.11.4 “The Visual Impact Study required by Section 11.11.1 (d) shall provide the following information:*

- a) “an assessment of the significant views and how they might be impacted by the proposed operation;”*
- b) “an assessment of the changes to the natural landscape and the cultural landscape that would result from the operation; and”*
- c) “the nature of the visual impacts, how they can be mitigated, the feasibility of the mitigation, the risks associated with mitigation, and the remaining impacts after mitigation.”*

Our review of the “Visual Impacts” section of the IBI Group report is based in these policies.

For the Section 10 “Visual Impacts” of the Planning Summary see **Appendix 1**.

### **3.0 Our Review**

The purpose of this peer review is to examine and provide the Township of Woolwich with advice on the validity of the methodology employed, the assumptions, inputs and conclusions. Given the criteria set out by the Provincial Policy Statement and the Township’s Official Plan for new aggregate pit applications Visual Impact Assessment, the analysis is structured around the following issues:

- Potential Visual Impact of aggregate operation to the existing and future development as well as to scenic views and cultural landscape;
- Compliance with relevant provincial and local policies; and
- The extent by which impact can be mitigated in the context of the various components to IBI’s Planning Summary

To address these key issues, our peer review is intended to answer the following questions:

1. Is the methodology and approach appropriate?
2. Are the baseline assumptions/data utilized, including points of reference, potential view corridors and view shed identified and dealt with so as to support the conclusions of the visual impact assessment?
3. Do the conclusions logically reflect the data provided and the analysis?
4. What is the sensitivity of the conclusions to adjustments in the assumptions?
5. Has the visual impact assessment sufficiently addressed the issues of importance to the Township and are there additional matters to be examined?

In conducting this review we have considered the various supporting studies to the Hunder application along with our own field work (July 22, 2009) and mapping review. This approach would allow the considerations of distance, intervening existing vegetation,

proposed vegetation, and proposed physical alterations, (e.g. berms) which will determine visual impact.

### 3.1 Visual Impact Assessment

Typically, any visual impact assessment will identify a viewshed or study area in and from which an analysis would be undertaken. The delineation of this study area would be determined by a review of aerial photography, contour mapping and a field assessment within the study area. The determination of the viewsheds is an important consideration for identification of potential negative impacts and opportunity for mitigation. Also of importance are the proposed physical changes to the site and area which will alter or mitigate the views.

As part of our review of the IBI analysis we have identified a viewshed area that includes the surrounding sensitive receptors such as residential dwellings found to the west, south and east of the Subject Properties; adjacent roads such as Katherine Street (Regional Road 23) and Hunsberger Road; and significant natural and cultural features we consider important to the overall character of the area such as the Grand River, The Grand Valley Trail, and the Winterbourne Presbyterian Cemetery

### 3.2 IBI Methodology

The criteria used in the IBI analysis is specifically limited to the following: (Page 43 of Planning Summary – See **Appendix 1**)

- *“The potential sight line issues between the existing nearest residents and each extraction phase, and how they might be impacted, and*
- *The recommendations to mitigate the impacts.”*

The Visual Impact section does not specifically speak of a methodology used in the assessment of the significant views that may be impacted by the proposed operation; the assessment of the changes to the natural landscape; or the nature of the visual impact.

### 3.3 Area of Consideration

The area of consideration under Section 10 “Visual Impacts” has been limited to views from residences adjacent to the Subject Properties and views from vehicular traffic along Hunsberger Road.

Three additional areas should also have included based on the natural, cultural and social value to the community and residents of the area:

- The Grand River;
- The Grand Valley Trail; and
- Winterbourne Presbyterian Cemetery.

Views from these areas should include those represented by individuals standing/walking in these locations.

### 3.3.1 The Grand River

Appendix I, Section 7.1 “The Grand River” of the IBI Planning Summary acknowledges the importance of the Grand River:

*The Grand River has already been identified as a candidate cultural heritage landscape in a previous study commissioned by the Region of Waterloo (Scheinman 2006:20). This study concurs with the results of the previous assessment. In one way or another, it fulfils A through F of the significance criteria applied by the Township of Waterloo. Simply put, the Grand River is a unique cultural landscape feature within southwestern Ontario. The river perfectly exemplifies the concept of a continuing or organically evolved landscape as defined by UNESCO and PPS2005. Its impact on human settlement, and the impacts of human settlement upon it, have shaped the historical and ongoing settlement of the Region.*

In relation to the Subject Properties the Grand River runs along the north west edge of the northern portion of the Subject Properties. Given the elevation of the riverbed at approx 320 metres and that of the pit operation at approx. 335 metres, it is unlikely that any direct line of sight will occur. Nevertheless the close proximity of the river to the operation (approx. 150 metres), as well as the cultural and natural significance of the Grand River merits the inclusion and proper evaluation as part of the Visual Impact analysis.

The Grand River is illustrated in **Figure 1**.

### 3.3.2 Grand Valley Trail

The main Grand Valley Trail is a marked footpath (hiking trail) stretching about 275 km from Rock Point Provincial Park on Lake Erie, south of Dunnville to the town of Alton, near Orangeville.

The Grand Valley Trail is illustrated in **Figure 4**.

In relation to the Subject Properties the Grand Valley Trail, runs along the entire east edge of the northern portion of the Subject Properties along Katherine Street (Regional Road 23), and along the entirety of the Hunsberger Road frontages of the pit operation.

Trail hikers traveling south will be exposed to a direct line of sight of Phase 2 and 3 of the operation as well as the traffic generated by material being hauled to the main processing area in Phase 1. The elevation of Hunsberger Road west of Katherine Street at an approximate elevation of 335 metres provides a clear view of Phases 2 and 3 which will occur at an elevation approximately 10-15 metres lower. The rural character of Hunsberger Road along this segment and the visual impact to the trail users should be addressed by the applicant.

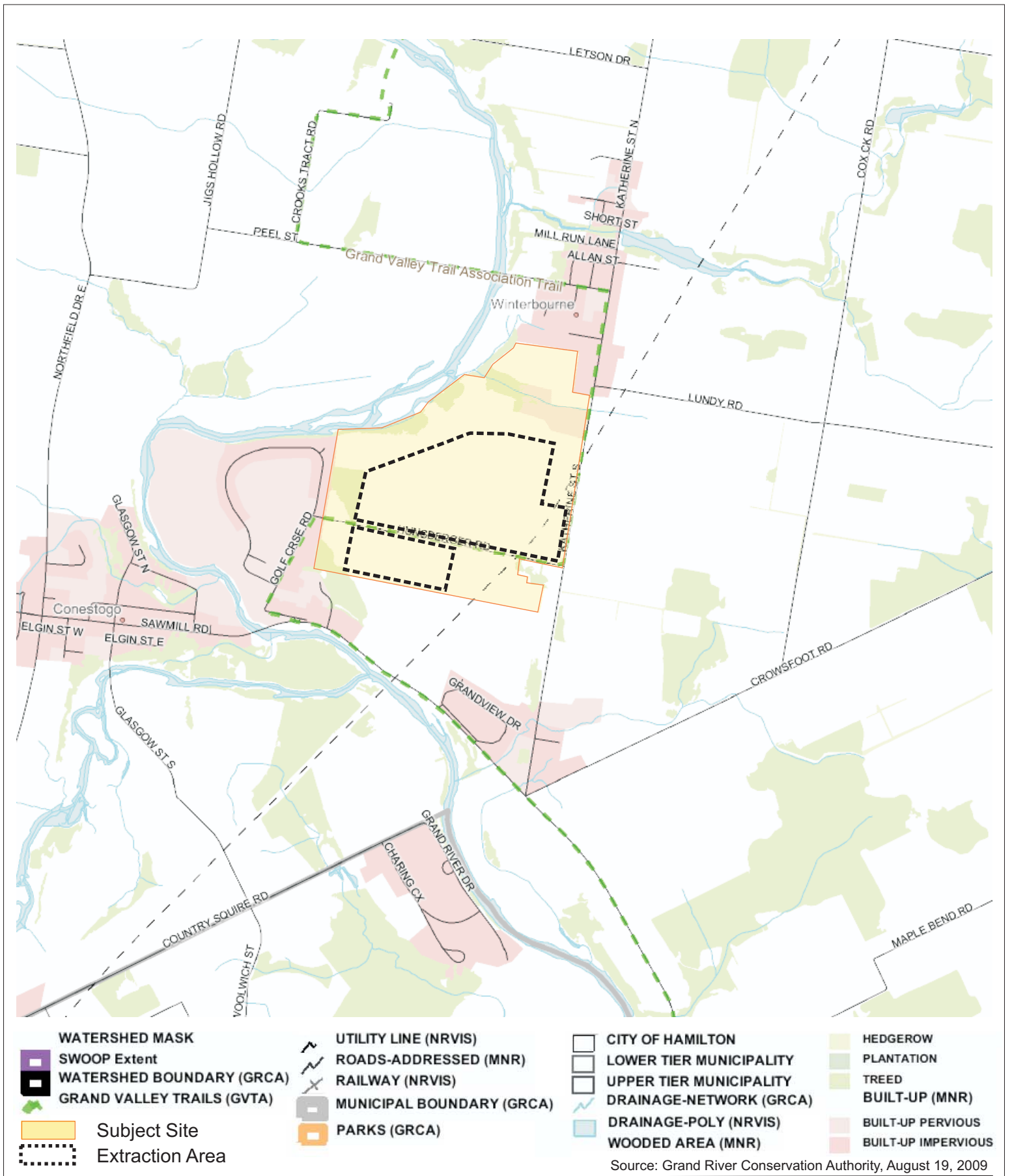
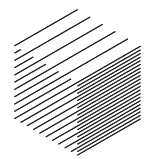


Figure 4  
 Grand River Conservation Authority  
 Grand River Trail  
 Township of Woolwich  
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**Photo 1** - Taken from the north edge of Hunsberger Road across from 1040 Hunsberger Road looking west toward southern portion of proposed pit.



**Photo 2** - Taken from the east edge of Katherine Street near the intersection with Hunsberger Road looking north toward Winterbourne.

### 3.3.3 Winterbourne Presbyterian Cemetery

The Winterbourne Presbyterian Cemetery is located south of the Winterbourne community at 148 Katherine Street. The cemetery continues to serve the community.

The Winterbourne Presbyterian Cemetery is partially owned and maintained by the Township of Woolwich. The cemetery, dating back to the 1850's, has not been designated under the Ontario Heritage Act, but is significant to the history of English and Scottish settlements of the area in the 1850's.

The cemetery is of approximately 0.6 hectares in size and immediately north of the Subject Properties.

The Winterbourne Presbyterian Cemetery is illustrated in **Figure 1**.



**Photo 3** - Taken from the west edge of Katherine Street at 148 Katherine street looking west at the Winterbourne Presbyterian Cemetery.

From a visual impact perspective, there should be consideration to the views from the cemetery to both the extraction area as well as entering haulers and operations.

## 4.0 Information gaps found in Section 10.1 “Screening of Visual Impacts”

There were a number of information gaps found in the phase by phase analysis section of the report. These are described below:

Section 10.1 “Visual Impacts” of the IBI Report can be found in **Appendix 1**.

As a general note, this section does not reference the dates of field work, or how distances or elevations were established or confirmed. References to the specific maps, reports or figures from the Planning Summary to support and/or illustrate the findings presented should be provided.

**Phase 1:** (Page 43 of Planning Summary - See **Appendix 1**)

The height and elevation of stockpiles of all extraction and recyclable material and associated equipment should be incorporated into the analysis of significant views.

Second Bullet: Addresses of properties should be provided to confirm location and distances.

**Phase 2:** (Page 44 of Planning Summary - See **Appendix 1**)

The height and elevation of stockpiles of all extraction and recyclable material and associated equipment should be incorporated into the analysis of significant views. Analysis should be provided for the initial excavation which will occur at an approximate elevation of 327.0 metres. This initial area of extraction is likely to create a negative visual impact to surrounding residences and to vehicular and trail related traffic along Hunsberger Road.

First Bullet: Further information should be provided regarding the nature of the vegetation providing visual screening and how this vegetation will be maintained for the duration of the pit operation’ i.e., forest management plan.

Second Bullet: The residence at 316 Katherine Street was not included in the analysis.

Third Bullet: Refers to “Phase 1” instead of “Phase 2”

Fourth Bullet: Refers to “Phase 1” instead of “Phase 2”; the address 1280 Hunsberger Road should be 280 Hunsberger Road; further information should be provided regarding the nature of the vegetation providing visual screening and whether this vegetation will be maintained for the duration of the pit operation.

Fifth Bullet: Elevation at Hunsberger Road or the elevation at which the proposed 2 metre berm will be constructed along the frontage of Phase 2 has not been provided. The height of the berm should be sufficient to mitigate the potential visual impact from the proposed operation to passing vehicle passenger or hiker.

**Phase 3:** (Page 44 of Planning Summary - See **Appendix 1**)

First Bullet: This bullet simply refers the reader to Phase 2; our comments for the first bullet of Phase 2 are valid as well.

Fourth Bullet: The Separation distance from the residence at 1280 Hunsberger Road property line to the limit of extraction is 200 metres, not between 200 and 300 metres. This same residence is referred to as 280 Hunsberger Road instead of 1280 Hunsberger Road. The berm referenced to in this paragraph as being 2.0 metres in height is shown on the “Operational Plan” as being 4.0 metres in height.

**Phase 5:** (Page 45 of Planning Summary - See **Appendix 1**)

Second Bullet: Analysis of the potential visual impact from the proposed operation on Phase 5 should include the Winterbourne Presbyterian Cemetery, which is located less than 100 metres from the limit of extraction on the west side of Katherine Street, just north of the Subject Properties.

**Phase 6:** (Page 46 of Planning Summary - See **Appendix 1**)

First and Second Bullet: With regards to screening, Phase 6 has a different factor of distance to the surrounding residences and extraction than Phase 1. This Phase will also occur at a higher pit floor elevation than Phase 1. Analysis of this phase should be prepared with appropriate elevation information.

**Phase 9:** (Page 47 of Planning Summary - See **Appendix 1**)

Introduction refers to extraction being worked from east to west, while the first bullet of this section refers to it from north to south.

Further analysis should be provided with regards to “the trees topsoil and subsoil being removed (from their existing location) and being stockpiled adjacent to the southern limit of the extraction limit to augment screening” (Section 7.2 of The Planning Summary “Proposed Extraction Operation”)

The height and elevation of stockpiles of all extraction and recyclable material and associated equipment should be incorporated into the analysis of significant views.

**5.0 Conclusions**

Table 1 provides a summary as to the strengths and weaknesses of the IBI visual impact study.

**Table 1: Policy Requirements for a Visual Impact Assessment**

<b>Policy Section</b>	<b>Criteria</b>	<b>Our assessment</b>
<b>The Provincial Policy Statement</b>		
2.5.2.2	“Extraction shall be undertaken in a manner which minimizes social and environmental impacts”	The Hunsberger Pit operation as proposed does not provide adequate measures to minimize the social and environmental impact to the surrounding lands. This requirement has not been appropriately addressed.
<b>Township of Woolwich Official Plan Section</b>		
11.11.1d)	“a Visual Impact Study as described by Section 11.11.4 which satisfactorily demonstrates that the proposal will not have any unacceptable impacts,”	Areas of potential visual impact that may arise from the pit operation have not been addressed by the IBI study. Additional consideration must be incorporated in this area.

11.11.4	“The Visual Impact Study required by Section 11.11.1 (d) shall provide the following information:	
11.11.4a)	“an assessment of the significant views and how they might be impacted by the proposed operation;”	No methodology was provided to the assessment of significant views. The analysis provided was limited to the visual impact of each phase of the operation or either residential dwellings directly adjacent to the ownership or vehicular traffic on Hunsberger Road. This requirement has not been appropriately addressed.
11.11.4b)	“an assessment of the changes to the natural landscape and the cultural landscape that would result from the operation; and”	The analysis provided did not address natural or cultural landscapes. This requirement has not been appropriately addressed
11.11.4c)	“the nature of the visual impacts, how they can be mitigated, the feasibility of the mitigation, the risks associated with mitigation, and the remaining impacts after mitigation.”	No information was provided to the risk associated with mitigation. This requirement has only partially being addressed. Additional consideration must be incorporated in this area.

The above analysis demonstrates that the Section 10 “Visual Impacts” of the Planning Summary provided by IBI group in support of the Aggregate license application by Hunder Development for the Hunsberger Pit does not address the requirements as a Visual Impact Assessment under the Township’s proposed policy.

The IBI analysis provided as part of the Planning Summary requires technical augmentation. The proposed mitigation measures proposed need to be reassessed and augmented with an analysis of the visual impact to the natural and cultural features along Hunsberger road, views from the Grand River, Grand Valley Trail, and the Winterbourne Presbyterian Cemetery.

Summarized below are the key information this report recommends should be incorporated or revised:

**5.1 Revisions suggested to the Section 10 “Visual Impact”**

- Incorporate and reference the corresponding maps, reports or figures used from the supporting studies to corroborate the findings presented;
- Correct and add information listed under Section 4.0 of this report regarding information gaps;
- Provide measures by which natural features such as the sugar maple trees found between Phase 7 of the pit operation and residences along Golf Course Road will be retained;
- Cross sections contained in the applicant’s submission should be specifically included in the visual impact assessment and addressed into the analysis;
- Cross sections should be revised to include berm information from the “Operational Plan”;


- Cross Sections should be extended to include the relevant sensitive receptors such as 129 Golf Course Road to the west, 320 Katherine Road to the east for Cross Section A-A' and 209 Golf Course Road for Cross Section BB';
- Provide the anticipated/proposed height and elevation of stockpiles aggregates and recycled material and all processing equipment to be used as part of the operation to conduct a further visual assessment; and
- Asses the height of the berm along the south side of Hunsberger Road during operation of Phases 2 and 3, along with landscape or other treatments of the berm and intervening area along the roadway.

We trust this review is sufficient to your needs. We would be pleased to review additional material which may be provided by the applicant.

If you have any questions with respect to this peer review, please do not hesitate to contact us.

Respectfully submitted,

WALKER, NOTT, DRAGICEVIC ASSOCIATES LIMITED  
Planning · Urban Design

A handwritten signature in black ink, appearing to read "Robert A. Dragicevic". The signature is fluid and cursive, with a large, sweeping initial "R" that loops back over the rest of the name.

Robert A. Dragicevic, MCIP, RPP  
Senior Principal

## **Appendix 1**

## 9.2 Summary of Noise Attenuation

In terms of conformity with Provincial Policy 2.5.2.2, through the integration of the recommendations of the Acoustical Assessment, the operational noise levels will be maintained at or below Provincial standards, and therefore minimize social and environmental impacts.

In terms of the Aggregate Resources Act, since extraction and processing will occur within 150 metres of sensitive receptors, a noise assessment report has been completed.

Under the provincial one-window review approach, the Region has the delegated authority and expertise to review noise studies and therefore, in terms of addressing ROPP Section 5.3.14 b, the Acoustical Assessment has been provided to the Region as part of this application submission.

In terms of the Township Official Plan (Section 11.11.8), this has been addressed either via the above section and/or within the Acoustical Assessment. Specifically, the noise report has identified noise sources and receptors, documented the nature of noise impacts, how these impacts can be mitigated, and provided for a proposed monitoring program which includes an appropriate amount and duration of baseline data and which addresses changes in the proposed operation associated with phasing, and the relocation of noise emitting equipment.

## 10. VISUAL IMPACTS

In order to satisfy the requirements of:

- The Provincial Policy (Section 2.5.2.2) whereby; *Extraction shall be undertaken in a manner which minimizes social and environmental impacts*, and
- The (adopted Township OPA 13) Policy 11.11.1 d and 11.11.4) whereas:
  - 11.11.1 d): “a Visual Impact Study as described by Section 11.11.4 which satisfactorily demonstrates that the proposal will not have any unacceptable impacts,” and
  - 11.11.4 “The Visual Impact Study required by Section 11.11.1(d) shall provide the following information:
    - a) “an assessment of the significant views and how they might be impacted by the proposed operation;”
    - b) “an assessment of the changes to the natural landscape and the cultural landscape that would result from the operation; and”
    - c) “the nature of the visual impacts, how they can be mitigated, the feasibility of the mitigation, the risks associated with mitigation, and the remaining impacts after mitigation.”

### 10.1 Screening of Visual Impacts

Aggregate deposits are found in fixed locations as a result of being deposited where glacial action left them, which in most circumstances, are now only available in rural areas, and since pit related activities tend to be industrially focused, there is a preference to provide visual screening for existing sensitive land uses. Typically the simplest manner to provide an immediate and temporary visual screen is through the construction of perimeter berms that are built from topsoil and/or subsoil

stripped from the subject lands. This material is stored in the berms during extraction and then replaced back onto the final pit floor as part of the rehabilitation of the lands.

With extraction being undertaken in a series of small phases to promote progressive rehabilitation, and because the preference is to retain the balance of the non-active extraction lands in agricultural crop use, the result is that the use and logistical locations of berms using stripped material must be done in a staged and judicious manner and be in concert with the operational phasing plan. Based on the above, the following is a review of:

- The potential sight line issues between the existing nearest residents and each extraction phase, and how they might be impacted, and
- The recommendations to mitigate the impacts.

### **Phase 1**

Phase 1 will occur north of Hunsberger Road and reflect extraction generally in the southern half of the mid-northern portion of the site. This area was specifically chosen as the starting location since according to the geotechnical investigations, the deposit is deepest here and as such, processing equipment will ultimately be able to be placed at a much lower elevation relative to the remainder of the site. Therefore, this Phase will serve as the main processing area for the duration of the pit life. Furthermore, the topsoil and subsoil stripped from this Phase will not be required to be used for rehabilitation until the final rehabilitation of site occurs.

In terms of visual sight lines, the nearest residents are:

- To the west, within Conestoga Estates, they are just over 0.5 kilometres distant. The rear yard area of these homes are at an elevation of +/-327 masl with the intervening lands rising over 10 metres (+/-337 masl) and the highest elevation of Phase 1 being about 2.0 metres lower than the intervening lands at +/-325.0 masl. Therefore, the sight lines are restricted. Furthermore, for the majority of these homes (173 to 209 Golf Course Road), an existing heavily treed wood lot exists between their rear yards and the nearest limit of extraction.
- To the southeast, fronting onto Hunsberger Road (near Katherine Street), the nearest home is +/-275 metres distant. The front elevation at the house is +/- 326 masl and the intervening lands rising over 12 metres (+/-338 masl) and the highest elevation of Phase 1 is about 3.0 metres lower than the intervening lands at +/-325.0 masl. Therefore, the sight lines are restricted to this house. The additional three houses along Hunsberger Road are at a higher elevation (+/-335 – 336 masl), but the intervening lands are still higher. Although there are no direct sightlines to the phase, these homes would view the haul route proposed to be about 300 metres distant. In order to provide long-term visual screening for these residents for the duration of the extraction and haulage, a minimum 3.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 1 start up stage and be located parallel to the hydro towers along the eastern edge of Phase 6.
- To the east, across Katherine Street is a single house (271 Katherine Street) being just over 0.5 kilometres distance, with the front yard elevation estimated at 337 masl, being just lower than the intervening lands at 338 masl. As such, notwithstanding the distance factor and the existing vegetation in their front yard, this resident would have a line of sight to i) the Phase 1 pit activities until the extraction of the Phase was such that it was below their line of sight, and ii) the haul road. In order to provide visual screening for this resident, and as noted above, a 3.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 1 start up stage and be located parallel to the hydro towers. This berm will also provide immediate screening for the haul road and long-term visual screening for Phase 6. The only visual impact to this resident might be the view of the top of product stockpiles over the 3.0 metre berm during the initial excavation of this phase, which will diminish when the pit floor is lowered sufficiently to allow stockpiles to be also lowered.
- To the northeast, within Winterbourne, the nearest resident is about 0.75 kilometres distant, and therefore beyond a distance that visual screening should be considered required.

### **Phase 2**

Phase 2 will occur south of Hunsberger Road and reflect extraction from the mid-point of the parcel, eastward toward the pond. Activity within this phase will be limited to extraction and some limited at-the-pit-face processing, (screening). As extraction will be worked from west to east, and as extraction activity will be kept at the lowest pit floor elevation to attenuate noise, there will be no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the east, there are homes fronting onto Hunsberger Road, with the nearest home being about 420 metres distant. However, there is a thick mature vegetation screen currently existing between these four homes and the proposed Phase 2 area.
- Also to the east are homes fronting onto Katherine Street and with potential sight-lines from their rear yards. These residents (320, 324, and 410 Katherine Street) are about 580 to 620 metres distant and each have existing vegetation on their rear lot line which, in addition to the sizable distance factor, provides a visual barrier, although 320 Katherine Street does sit +/-3 metres above the proposed extraction area. In order to provide visual screening for these residents, a 3.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 2 start up stage and be located along the eastern limit of Phase 2. The only visual impact to this resident might be the view of the top of temporary stockpiles of screened material waiting to be hauled to the main processing area.
- To the south, there are homes on Grandview Drive with rear yards toward the proposed Phase 1. However, the existing topography between Phase 1 and the existing homes does not permit a direct sight line since these intervening lands rise about 5 metres between.
- To the west are existing homes on Golf Course Road and one fronting onto Hunsberger Road which back onto the subject lands, and are +/-570 metres from Phase 1. Currently all these lots have existing vegetation that blocks any line of sight with the exception of the 280 Hunsberger Road. This residence is at an elevation of +/-324 masl and the intervening lands rise approximately 3.5 metres (327.5 masl), and therefore, combined with the distance factor, this resident would not have a direct line of sight to the Phase 2 pit activities. Furthermore, the pit activities will be at the lowest pit floor elevation which will be +/-5.0 metres below grade.
- Hunsberger Road: In order to retain the rural vista and character along Hunsberger Road, and therefore to screen the general pit activities for users of this road, a 2.0 metre high topsoil/subsoil berm will be constructed along the full Phase 2 frontage to reduce the direct line of sight into the active pit area. A 2.0 metre berm will provide a sufficient break in the line of sight given that the eye height for a typical passenger vehicle is 1.05 metres (as per MTO - *Geometric Design Standards for Ontario Highways*), and that the pit activities will be a further 5.0 metres below grade. This berm is being proposed to be off-set at the entrance to further reduce sight lines into the pit.

### **Phase 3**

Phase 3 will occur south of Hunsberger Road and reflect extraction from the mid-point of the parcel westward. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). As extraction will be worked from east to west, and as extraction activity will be kept at the lowest pit floor elevation to attenuate noise, there will be no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the east, refer to Phase 2.
- To the south, there is a house on Sawmill Road, but it is +/-12.0 metres below the intervening height of land, and therefore, no visual line of sight is possible.
- To the southwest, there are homes on River Run Place which although may be within 120 metres of the proposed limit of extraction, the intervening lands are heavily treed, and therefore, no visual line of sight is possible.
- As noted under Phase 2, to the west are existing homes on Golf Course Road and a single home fronting onto Hunsberger Road, all which back lot or side lot onto the subject lands. The homes on these lots have a separation distance ranging from 200 metres to 300 metres, and with the exception of 280 Hunsberger Road, all these lots have existing vegetation that blocks any line of sight. 280 Hunsberger is lower than the Phase 3 lands, but there are areas where a line from of sight into the pit activities would be possible. In order to provide visual screening for this resident, a 2.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 3 start up stage and be located along the western limit of the Phase. The only visual impact to this resident might be the view of the top of temporary stockpiles of screened material waiting to be hauled to the main processing area.
- Hunsberger Road (Refer to Phase 2).

#### **Phase 4**

Phase 4 will occur within the G. Snyder lands and reflect extraction generally in the northern half of the mid-northern portion of the site. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). As extraction will be worked from south to north, and as extraction activity will be kept at the lowest pit floor elevation to attenuate noise, there will be no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the west, within Conestoga Estates, they are just over 0.5 kilometres distant. The rear yard area of these homes are at an elevation of +/-327 masl with the intervening lands rising over 10 metres (+/-337 masl) and the highest elevation of Phase 4 being about 2.0 metres lower than the intervening lands at +/-325.0 masl. Therefore, any sight lines are restricted.
- To the southeast, for those homes fronting onto Hunsberger Road, refer to Phase 1.
- Also to the southeast is 271 Katherine Street, referred to under Phase 1, which will be just over 0.5 kilometres distance from this Phase. Similar to the Phase 1 scenario and notwithstanding the distance factor, this resident would have a line of sight to the Phase 4 pit activities until the extraction of the Phase was such that it was below their line of sight. In order to provide visual screening for this resident, a 3.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 4 start up stage and be located along the Katherine Street frontage between the proposed pit entrance northward. This berm will also provide long-term visual screening for Phase 5. The only visual impact to this resident might be the view of the top of product stockpiles over the 3.0 metre berm during the initial excavation of this phase, which will diminish when the pit floor is lowered sufficiently to allow stockpiles to be also lowered.
- To the northeast, within Winterbourne, the nearest resident is about 0.65 kilometres distant (100 Katherine Street) with the intervening lands rising +/-3.0 metres in height as well as the presence of some existing hedgerow and numerous farm buildings, and with the pit activities being restricted to +/-4.0 metres below grade, the sight lines would be restricted.

#### **Phase 5**

Phase 5 will also occur within the G. Snyder portion of the lands and reflect extraction generally in the north east corner near Katherine Street. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). Extraction will be worked from south to north,

and extraction activity will be kept at the lowest pit floor elevation to attenuate noise with no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the northeast across Katherine Street, is a single house (135 Katherine Street) being just over 0.5 kilometres distance, and this residence would have sight-lines into the pit activities. To provide visual screening. A 3.0 metre high topsoil/subsoil berm will be constructed along the Katherine Street frontage between the proposed pit entrance northward. The only visual impact to this resident might be the view of the top of product stockpiles over the 3.0 metre berm during the initial excavation of this phase, which will diminish when the pit floor is lowered sufficiently to allow stockpiles to be also lowered.
- To the northeast, within Winterbourne, the nearest resident is about 280 metres distant (100 Katherine Street) but the intervening lands rise approximately 5.0 metres and there is non-continuous vegetation or buildings within the line of sight. However, to provide additional visual screening for this resident (and others along Katherine Street within Winterbourne) a 3.0 metre high topsoil/subsoil berm will be constructed as part of the Phase 5 start up stage and be located along the northern limit of Phase 5. The only visual impact to this resident might be the view of the top of product stockpiles over the 3.0 metre berm during the initial excavation of this phase, which will diminish when the pit floor is lowered sufficiently to allow stockpiles to also be lowered.

### **Phase 6**

Phase 6 will occur north of Hunsberger Road and reflect extraction generally in the south east corner of the Hunsberger lands, east of the existing site buildings. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). Extraction will be worked from west to east, and extraction activity will be kept at the lowest pit floor elevation to attenuate noise with no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the east across Katherine Street, is a single house (135 Katherine Street), refer to Phase 1 for screening.
- To the south, fronting onto Hunsberger Road, refer to Phase 1 for screening.

### **Phase 7**

Phase 7 will occur generally in the western portion of the Hunsberger lands. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). Extraction will be worked from east to west, and extraction activity will be kept at the lowest pit floor elevation to attenuate noise, and there will be no active extraction operation at grade. The sand and gravel from this phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the west, within Conestoga Estates, they are just over 200 metres distant with the rear yard area of these homes at an elevation of +/-325 to 327 masl. However, because extraction will be initiated on the east side where an existing pit face will exist (Phase 1), the pit activities will always be generally 4.0 metres below grade. Refer to Figure 7 (extraction activity at the toe of pit face moving towards nearest resident). Furthermore, for the homes directly to the west (173 to 209 Golf Course Road), the existing heavily treed woodlot exists

between their rear yards and the nearest limit of extraction, and therefore, there will be no direct line of sight.

### **Phase 8**

Phase 8 will occur generally in the western portion of the G. Snyder lands. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). Extraction will be worked from east to west, and extraction activity will be kept at the lowest pit floor elevation to attenuate noise, and there will be no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

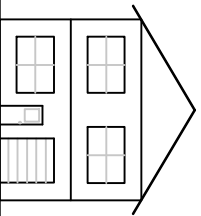
- To the west, within Conestoga Estates, the closest home (213 Golf Course Road) is just over 220 metres distant with the rear yard area at an elevation of +/-327 masl. However, because extraction will be initiated on the east side of the Phase where an existing pit face will exist (Phase 4), the pit activities will always be over 5.0 metres below grade, and therefore, there will be no direct line of sight. Refer to Figure 7 (extraction activity at the toe of pit face moving towards nearest resident).

### **Phase 9**

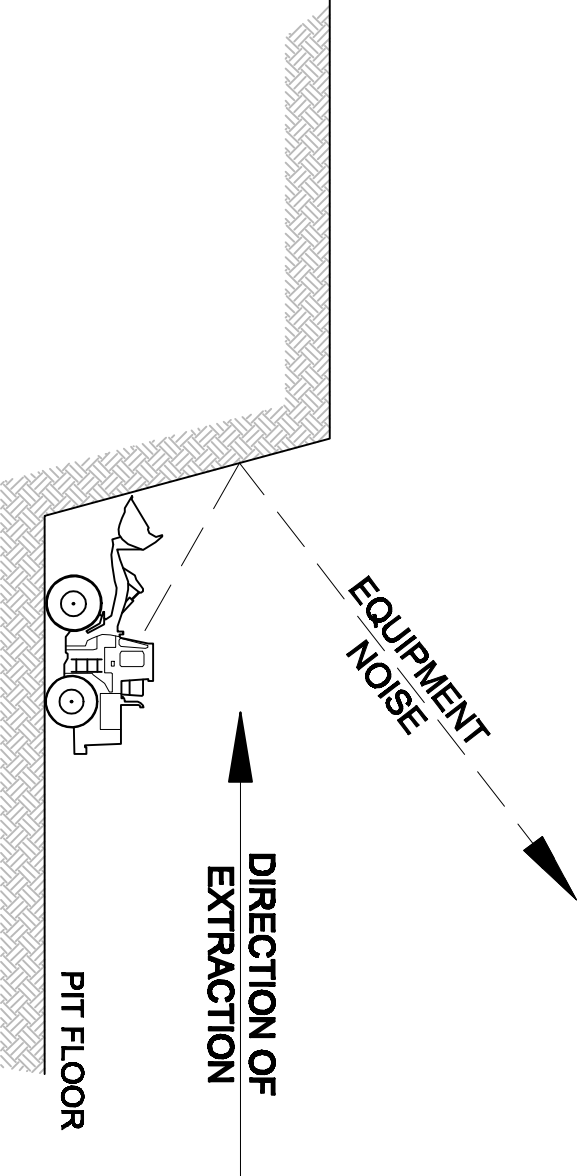
Phase 9 is a small phase generally between Hunsberger Road and Phase 1 and is partially being undertaken to create a final site that blends in better with the overall area character. Activity within this Phase will be limited to extraction and some limited at-the-pit-face processing (screening). Extraction will be worked from east to west, and extraction activity will be kept at the lowest pit floor elevation to attenuate noise, and there will be no active extraction operation at grade. The sand and gravel from this Phase will be hauled to Phase 1 to the main processing area (crushing, screening, and blending) which will continue throughout the pit life.

In terms of visual sight lines, the nearest residents are:

- To the west, within Conestoga Estates, they are just over 450 metres distant with the rear yard area of these homes at an elevation of +/-325 to 326 masl. However, because extraction will be initiated on the north side of the Phase where an existing pit face will exist (Phase 1 and 7), the pit activities will always be generally below grade. Furthermore, for the homes directly to the west (173 to 209 Golf Course Road), the existing heavily treed woodlot exists between their rear yards and the nearest limit of extraction, and therefore, there will be no direct line of sight.
- To the southwest is the single home fronting onto Hunsberger Road (280 Hunsberger), which is +/-360 metres distant, and is about 5.0 metres below the elevation of the proposed Phase 9 extraction activities, and therefore there is no direct line of sight.
- To the southeast is 1040 Hunsberger Road, being +/-400 metres distant. There is currently existing mature vegetation along their western property limit that fully restricts the line of sight.



SENSITIVE  
NOISE  
RECEIVERS



**FIGURE 7**  
**TYPICAL EXTRACTION TECHNIQUE TO REDUCE NOISE**

**HUNDER DEVELOPMENT LTD.**  
**TOWNSHIP OF WOOLWICH**

SCALE  
DATE  
PROJECT No.

NTS  
MARCH 2009  
19872 (RP-2053)



379 QUEEN STREET SOUTH  
KITCHENER, ONTARIO  
(519) 745-9455  
www.ibigroup.com

Lastly, and as a general comment regarding all the proposed berms that will be constructed, they will be constructed with the subsoil and topsoil stripped from each applicable phase and be built with sideslopes of 3 (h):1 (v), and be seeded with a grass type legume. If portions of the berm vegetation seeding die, or if rutting or gulling occur on the berms from erosion, the licensee will be required to repair and reseed during the next appropriate planting season. Slopes of 3:1 will be sufficiently shallow to allow for ongoing maintenance of the berms where they are within the setback limits.

Therefore, when the subsoil and topsoil are stripped from each phase sequentially, and used to construct strategically located berms at appropriate height, it is our opinion that such screening techniques will optimized any potential visual impacts. Furthermore, the majority of the berms are low (3.0 to 3.5 metres), and as such, will not be out of character with the surrounding setting. In most cases, the berms (both visual and acoustical) will also be sited back from the property limit, with the exception of the berms along the south side of Hunsberger Road, and it will be the lowest at 2.0 metres. The only berm (acoustical) that might be considered visually 'out of character' with the surrounding lands is the proposed 5.5 metres berm to be located adjacent to Phase 6. However, this berm is set a significant distance from Katherine Street (125 metres to 225 metres) and will not impair the existing easterly sight lines of the residences on Hunsberger Road.

Notwithstanding the above, and in keeping with the recommendations of the Acoustical Study, all of the recommended berm heights for visual screening are achieved through the construction of the proposed noise attenuation berms with the exception of the 2.0 metres visual berm proposed on the south side of Hunsberger Road, however, of note, that specific berm is not being located for the benefit of existing permanent residents, but rather for passing users of Hunsberger Road.

## 10.2 Summary of Visual Impacts

Based on the above, Provincial Policy Section 2.5.2.2 is satisfied by minimizes social and environmental impacts through the strategic location of berms to provide visual screening of the operation.

The Township OP issues [Section 11.11.4] have been addressed as noted above.

## 11. MITIGATING FUGITIVE DUST

In order to satisfy the requirements of:

- The Provincial Policy (Section 2.5.2.2) "Extraction shall be undertaken in a manner which minimizes social and environmental impacts", and
- The Aggregate Resources Act, Prescribed Condition 3.1 for Category 3 Licenses whereby "Dust will be mitigated on site".
- The Region of Waterloo ROPP (Section 5.3.14 b) whereas: "confirmation from the Ministry of Environment that all requirements of the Ministry with respect to noise, vibration and dust-related concerns have been addressed to their satisfaction;"
- The (adopted Woolwich OPA 13) Policy 11.11.1 i) and 11.11.9), whereas: 11.11.1 i) A "Dust and Air Quality Impact Study as described by Section 1.11.9 which satisfactorily demonstrates that there will not be unacceptable impacts".