

**STAFF REPORT:      ENGINEERING AND PUBLIC WORKS DEPARTMENT**

**REPORT TO:**                    Infrastructure and Recreation  
Committee

**MEETING DATE:**            July 10, 2012

**REPORT NO.:**                EPW.12.042

**SUBJECT:**                    Proposed Highway 26 Sound  
Attenuation

**PREPARED BY:**            Reg Russwurm, Director of  
Engineering and Public Works

**A.      Recommendations**

THAT Council receive Staff Report EPW.12.042, "Proposed Highway 26 Sound Attenuation" for their information.

**B.      Background**

The purpose of this Report is to provide Council some background on a noise wall that is planned to be constructed along Highway 26 adjacent to the Neighbourhood of Delphi Point (Delphi) and the Residences of Peaks Bay (Peaks Bay) Developments that EPW Staff feel will garner some feedback from the public. This Report will examine the needs for sound attenuation when considering development, alternatives to mitigate noise and the anticipated impacts of the proposed noise wall.

**Introduction**

The respective developers of the Delphi and the Peaks Bay are in the process of developing their lands. Both developments have achieved plan registration. Homes are being constructed within the Peaks Bay development while the Delphi development expects to build homes later this year.

As part of the expected development works to be constructed are sound attenuation barriers (noise walls) to mitigate the traffic noise from the Highway 26 corridor. Given the potential impact of 736m of 2.4m (8') high noise wall along 875m of the highway, EPW Staff felt it is important to inform Council on the proposed noise walls, the reasons for their installation and the possible future impact. The noise walls will potentially impair the aesthetic enjoyment of the area from the perspective of both the travelling public and the future home owners whose view of the escarpment will be impacted. EPW Staff have concerns that the height of the proposed wall and berm will generate opposition among both residents and visitors, given it will block historical views of the surrounding area and act to form a highway "tunnel" effect. To mitigate this effect, the noise wall is proposed to be screened by landscape trees to soften the look and distract from the "barrier" impression.

Attachment 1 provides an overall map of the location of the noise walls for both developments. The walls will have architectural features to enhance the look of the walls (Attachment 2). The wall is discontinuous at road openings, lands not under development and at lands subject to lot severances where a noise wall was not required by the Town.

To illustrate the proposed barrier, a mock noise wall was constructed by the developer at the Delphi site at the location and height required. A photograph is provided in Attachment 3 facing the development. Attachment 4 is a view from the backyards of the proposed residential units towards the Georgian Peaks Ski Club at the anticipated ground height at the rear wall of the house.

### **Noise Assessment Studies**

During the technical review phase of the developments, the proponents of both developments prepared Noise Assessment Studies (Studies) in support of the proposed Plan of Subdivisions. The Studies were prepared by the developer's consultant to consider the question of land use compatibility in support of the Provincial Policy Statement under the Planning Act and in accordance with the MOE Guideline D-1 Land Use Compatibility. The Province of Ontario through the Ministry of the Environment (MOE) has published Guideline LU-131, "Noise Assessment Criteria in Land Use Planning", and its associated Annex.

Specifically, J.E. Coulter Associates Limited prepared a Noise Impact Study for the Peaks Bay Development dated December 6, 2006 and C.F. Crozier and Associates prepared a Noise Impact Assessment Study for the Delphi Development dated July 2008. The assessments were based on the expected traffic load 10 years hence, that is 2016 and 2018.

The Studies document by which the MOE guidelines determined acceptable noise levels and how these guidelines were implemented and in these cases, in particular, what noise mitigation measures could be proposed. It should be noted that the guidelines are not enforced by regulation but are instead a tool that a municipality can use to mitigate noise levels if it so chooses. There are planning implications to not installing the recommended sound attenuation that will be discussed later.

Subsection A.2.2 of the Annex notes the allowable road traffic noise level in residential development are 55 decibels (dBA) or less measured in an outdoor living area during daytime and 50 dBA or less measured at bedroom windows during the night-time.

Subsection A.3.2.1.(a) of the Annex notes that where it can be demonstrated that it is not technically feasible to achieve the MOE outdoor living area sound level criterion for road traffic, a tolerance of not more than 5 dBA may be allowed, for a total of not more than 60 dBA. It is further noted the tolerance is not allowable for the bedroom window/indoor sound level criteria, i.e., it remains at 50 dBA. The Annex further notes that any application of the 5 dBA tolerance requires that prospective occupants of the new land use are notified by means of a warning clause within the subdivision agreement to which they are a party.

Table 1 below provides a summary of the expected noise levels without (w/o) the proposed noise walls at each development and phase. The maximum noise levels described within the MOE Guidelines are given for reference.

<b>Table 1 – Expected Sound Levels Without Noise Wall</b>		
<b>Development</b>	<b>Day Time (dBA) (Max 60 dB – MOE Guidelines)</b>	<b>Night Time (dBA) (Max 55 dB – MOE Guidelines)</b>
Delphi Ph 1	62.9	54.2
Delphi Ph 2	62.7	58.9
Peaks Bay West (lot 6-9 & 15)	60	56
Peaks Bay East (lot 9)	59	57
Peaks Bay East (lot 10-15)	63	58

For reference, 60 dB is approximately the sound loudness associated with office or restaurant conversation. Sound is measured on a logarithmic scale. Therefore, a sound loudness of 70 dB is double that of 60 dB. One decibel (1 dB) represents the smallest change in volume a human ear can perceive. The average ear, however, can only detect a 3 dB change<sup>1</sup>.

The expected noise levels appear to be only slightly over the MOE Guidelines. Regardless, the projected loudness does exceed the requirements. Furthermore, these noise calculations were based on estimates traffic counts already over 4 years old.

<sup>1</sup> Travis Ludwig © 1996 Internet Sound Institute (www.soundinstitute.com)

The future noise levels are to be estimated on expected traffic volumes 10 years after the development is completed. It then can be expected that the noise levels will be higher than those projected in the Studies.

### **Means of Sound Attenuation**

The goal of sound attenuation when the expected noise levels exceed the MOE Guidelines is to reduce the impact of noise between the generator (road traffic in this instance) and the receiver (future residents). This can be accomplished by either separation distance or the insertion of a solid barrier. A solid barrier can be achieved by an earthen berm, a noise wall, or a combination of both. The noise wall can be constructed of whether proprietary specially-made products or by solid wooden fencing.

During the draft plan development for these sites, the issue of sound attenuation was not considered by means of separation. Therefore, given the proximity of Hwy 26 to the developments, the construction of a combination of earthen berm and wooden wall of varying height was specified by the developers' engineers. The proposed noise wall on top of a berm is to be 2.4m (8') high and is to be made of 50mm (2") thick tongue and groove wood to achieve a finished elevation.

### **Land Use Planning Implications**

The warrants for sound attenuation come from the concept of separating incompatible land uses. In this case, it is the construction of residential units in close proximity to a highway whereby the units will be exposed to noise levels higher than the MOE Guidelines. Had the issue of sound attenuation been considered fully during the draft plan stage, the development may not have been supported in its present form without sound attenuation.

The Town's Planning Services Division has advised that the Planning Act, and the policies made pursuant to the Act, require that Council make decisions that are consistent with the Provincial Policy Statement (PPS). The PPS indicates that it is to be read in its entirety and that all relevant policies are to be applied to each situation. Sections 1.1.1 c) and 1.7.1 e) of the PPS indicate the following:

1.1.1 Healthy, liveable and safe communities are sustained by:

c) avoiding development and land use patterns which may cause environmental or public health and safety concerns

1.7.1 Long-term economic prosperity should be supported by:

e) planning so that major facilities (such as airports, transportation/transit/rail infrastructure and corridors...) and sensitive land uses are appropriately designed, buffered, and/or separated from each other to prevent adverse effects from odours, noise and other contaminants..."

As to buffering and/or separation of sensitive land uses, the Province of Ontario has published Guideline LU-131. The “guideline outlines the position of the Ministry of the Environment (MOE) on noise criteria for planning of sensitive land uses, in support of the Provincial Policy Statement under the Planning Act and in accordance with the MOE Guideline D-1 Land Use Compatibility”.

Planning Services therefore advises that any decision which is made with respect to this issue that Council must be satisfied that same is consistent with the direction of the PPS. With respect to this, Planning Services are of the opinion that the developments as currently proposed are not supportable from a land use planning perspective without appropriate noise mitigation measures being implemented.

### **Implications of Not Installing of Noise Wall**

EPW Staff have researched the flexibility that the Town has in requiring the construction of a noise wall. Other than the planning implications as outlined, the decision whether or not to install the noise wall rests with the approval authority, being Town Council. There are however implications with not installing a noise wall that otherwise is required by implementing the MOE Guidelines.

1. The residents will be exposed to noise levels higher than that recommended by the MOE. Via the purchase and sale agreements, the Town can ask that any future owners be informed that a noise wall is required to satisfy the MOE Guidelines but that it was deferred for the betterment of the area for aesthetic or other reasons. Few buyers will read and understand this clause. The Town should expect complaints from the future residents who feel the highway noise is too loud. In the extreme the residents will want the Town to install the noise wall as originally contemplated. Council will need to decide at that time whether or not to install a noise wall that otherwise would have been installed by the developer.
2. The design for the proposed noise wall will provide a consistent architectural look and feel to the area. Without a developer constructed noise wall, the residents will most likely build privacy fences, albeit shorter, that will be mismatched and non-continuous.

### **Other Considerations**

1. The noise fence will have a 20 – 25 year design life at which time the wall should be replaced. The noise wall is planned to be placed on private property and therefore the responsibility to maintain and replace the noise wall falls to the property owner. A significant problem being experienced by other municipalities is that replacement coordination of noise walls is very difficult. Often times the municipalities is asked to step in to either assist in the re-construction or assume the works in their entirety.

2. Another challenge that the Town should expect is intentional damage. This could be from outsiders vandalizing the wall facing the highway given the accessibility to a Town trail adjacent to the south side of the noise wall. The other concern is residents who want access to the trail installing a door or cut out in the wall. Any such opening will compromise the integrity of the sound attenuation. The Town may be required to step into a disagreement between neighbours to keep the integrity of the noise walls, not unlike drainage difficulties.

### **Engineer's Opinion**

A letter from C.F. Crozier and Associates who prepared the noise assessment for the Delphi development is attached for reference as Attachment #5. They concluded "that outdoor sound attenuation at this development is a quality of life issue, as opposed to a health and safety issue". They state that "the height (of the noise wall) is well in excess of normal privacy walls and may be seen as aesthetically excessive".

### **Input from MTO**

In an email received from Mr. Ian Smyth, Corridor Management Planner, he stated that the Ministry of Transportation (MTO) is not responsible for noise attenuation, except when it is constructing a new facility or expanding an existing facility in the vicinity of existing subdivisions. The Ministry does not review or comment on noise assessments provided by developers, as that is the purview of MOE. Municipalities are responsible for ensuring that MOE and MMAH policies are followed when developers plan residential subdivisions near provincial highways. He further stated that a developer who builds a residential subdivision must provide noise mitigation if sound levels are expected to exceed 60 decibels in the outdoor recreational areas within 10 years after development approval.

Mr. Smyth indicated the decision of whether or not to have the developer construct a noise barrier along the highway frontage of the property lies with the approval authority. He also stated that if a noise wall is not constructed, the MTO will not construct one due to resident complaints.

### **Conclusion**

This report has been provided for the benefit of Council to be aware of and understand why a noise wall is being planned adjacent Highway 26 fronting the Neighbourhood of Delphi Point and Residences of Peaks Bay Developments.

**C. The Blue Mountains' Strategic Plan**

Preserving and enhancing natural and environmental features and cultural heritage of the community.

**D. Environmental Impacts**

None

**E. Financial Impact**

None

**F. In Consultation With**

Troy Speck, CAO  
David Finbow, Director of Planning and Building  
John Metras, Town solicitor

**G. Attached**

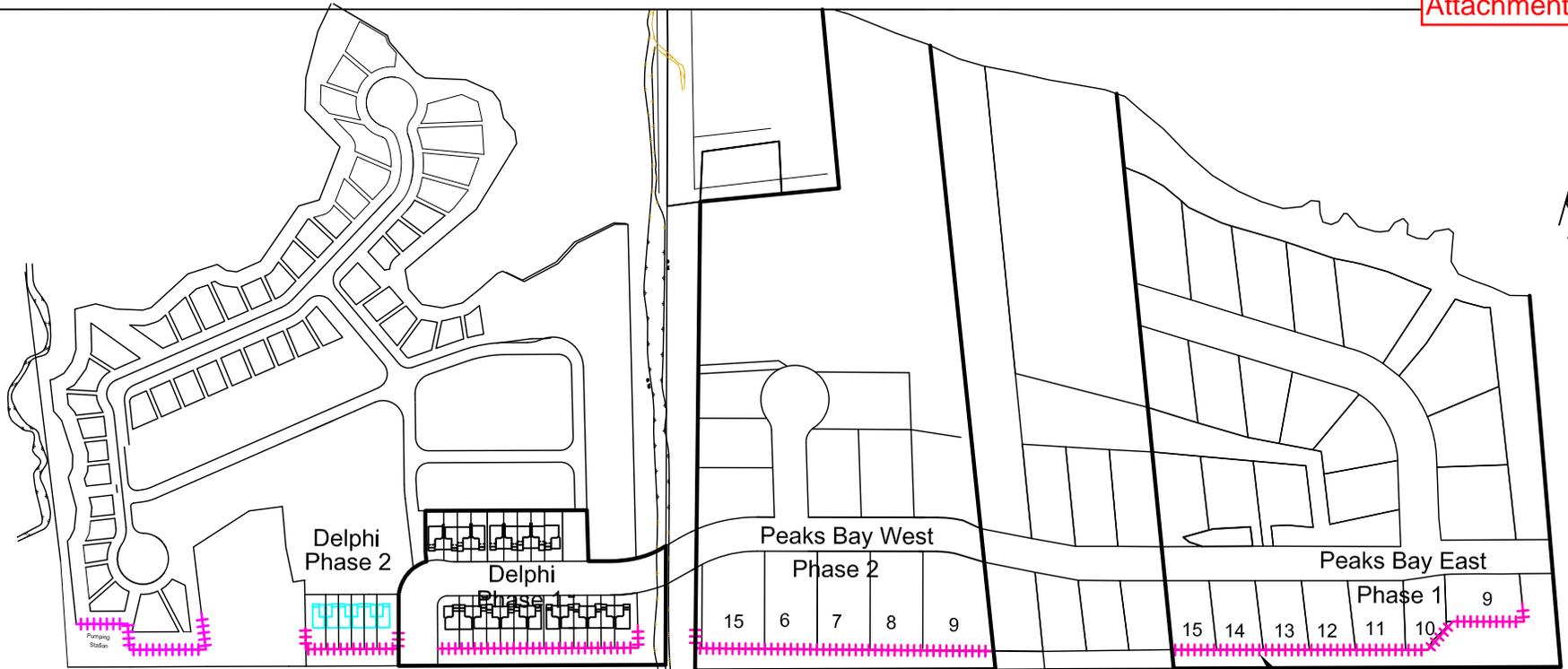
1. Highway 26 Sound Attenuation Barriers – Location Map
2. Proposed Noise Barrier Architectural Details
3. Photograph of Mock Noise Wall from Intersection of Peaks Road and Highway 26.
4. Photograph of Mock Noise Wall towards Georgian Peaks Ski Club
5. Opinion Letter, C.F. Crozier and Associates, May 18, 2012

Respectfully submitted,

***Reg Russwurm***

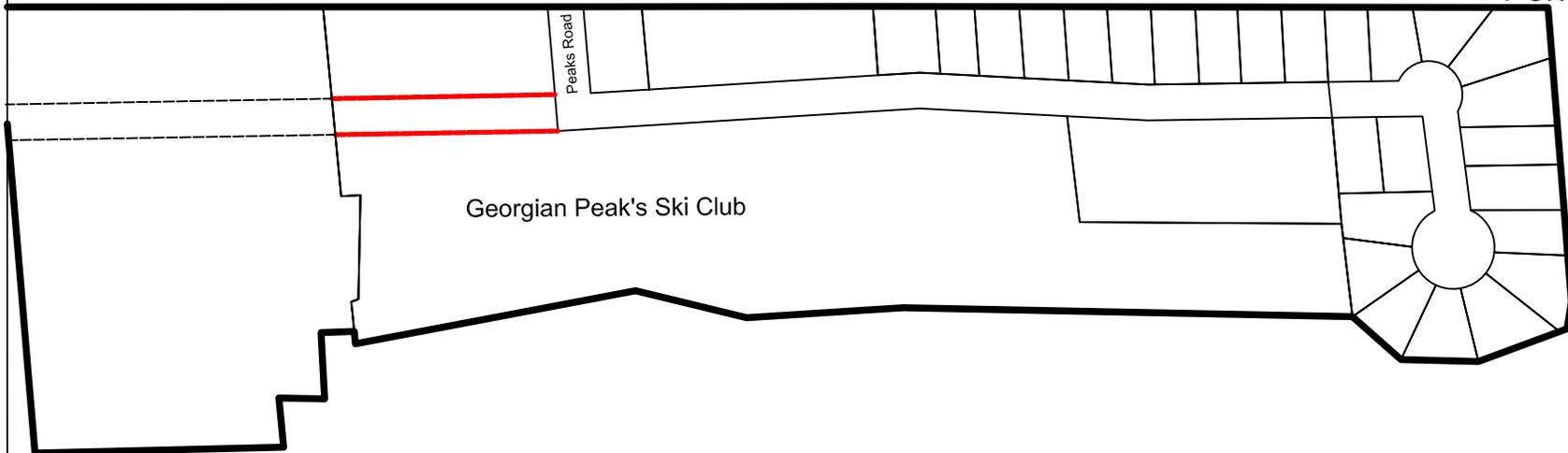
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Hwy 26

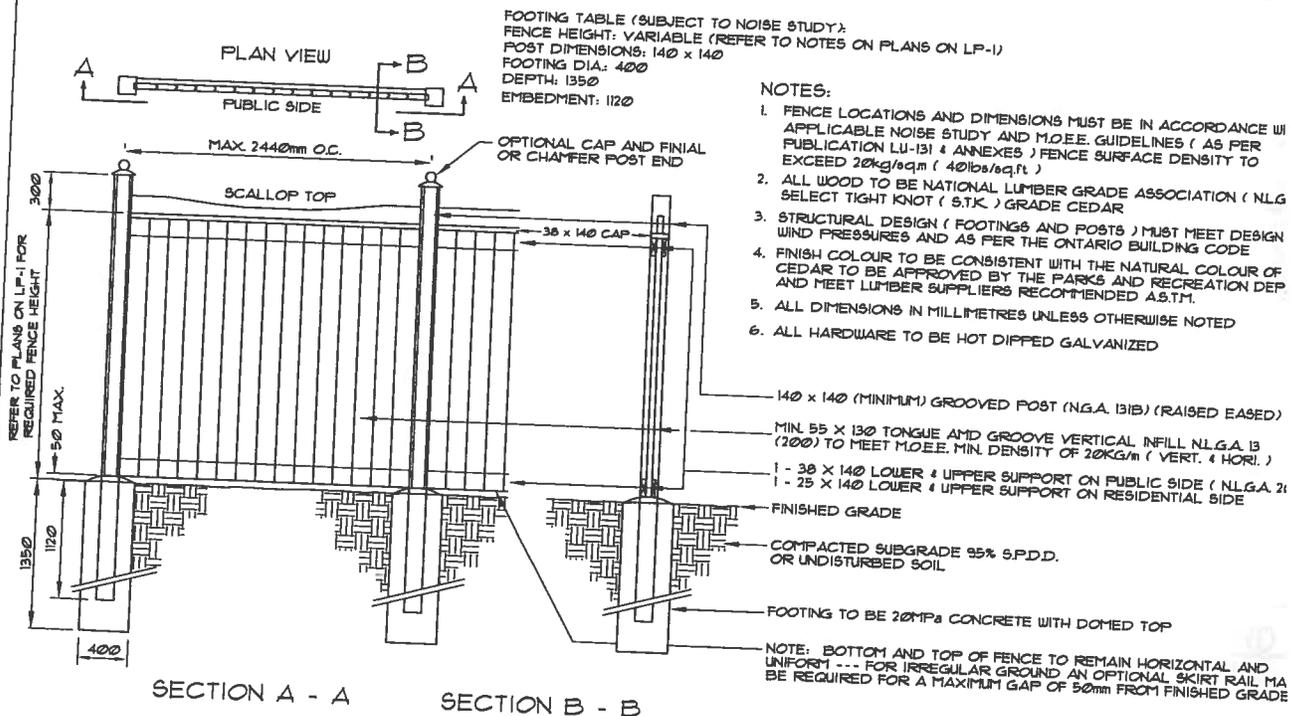
Proposed Noise Fence Locations



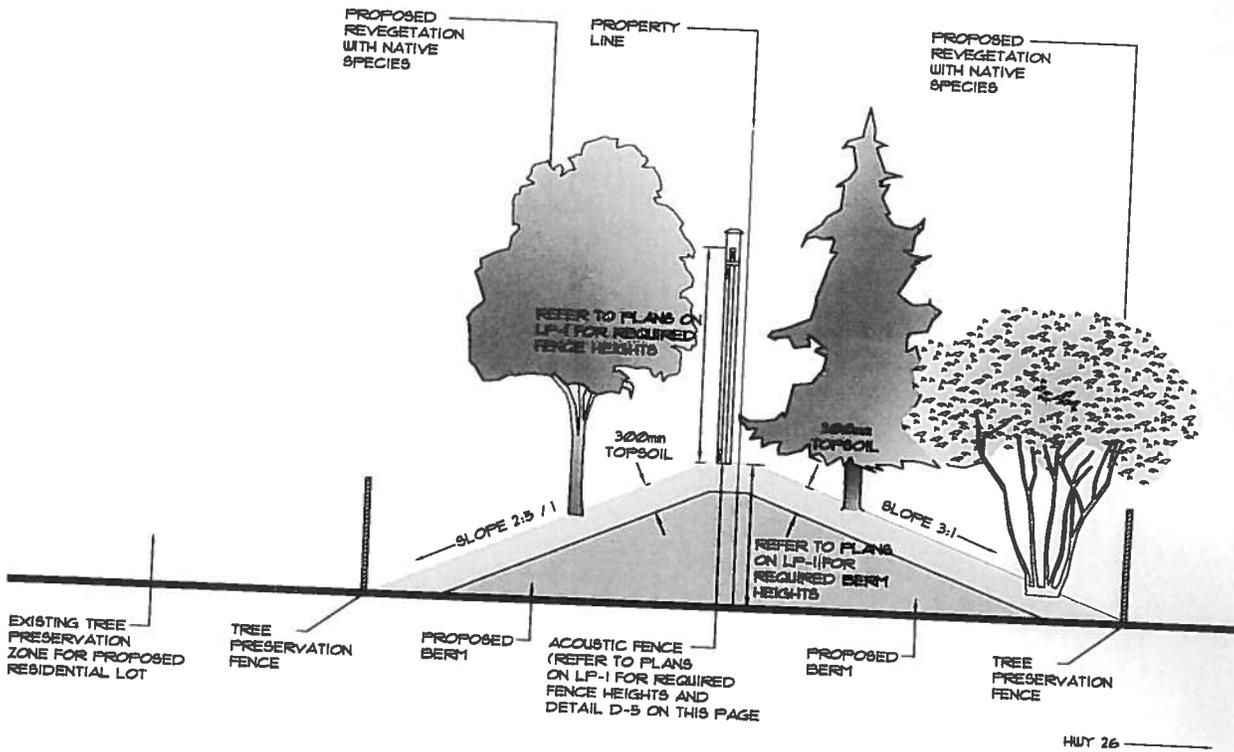
NOTE 1) LOCATIONS OF UTILITIES ARE APPROXIMATE.


SCALE: N.T.S.  
DESIGN:  
DRAWN: TJO  
CHECKED:  
DATE: JUNE 2012

TOWN OF THE BLUE MOUNTAINS  
NEIGHBOURS OF DELPHI  
AND PEAKS BAY  
NOISE FENCE

D-6 NOISE ATTENUATION FENCE DETAIL



D-7 BERM / FENCE SECTION





**MAY 18, 2012**

**PROJECT NO.: 226-2678**

**SENT VIA EMAIL**

Town of The Blue Mountains  
32 Mill Street, P.O. Box 310  
Thornbury, ON N0H 2P0

**Attention: Reg Russwurm, MBA, P.Eng.  
Director of Engineering & Public Works Department**

**RE: TECHNICAL COMMENTS ON SOUND BARRIER WALL  
THE NEIGHBOURHOODS AT DELPHI POINT PHASE 1A  
TOWN OF THE BLUE MOUNTAINS**

Dear Reg,

This letter will serve to address and comment on engineering issues associated with the recommended sound barrier wall for The Neighbourhoods at Delphi Point Phase 1A development.

A Noise Impact Assessment (Crozier, July 2008) was undertaken for the development as part of the planning applications. The purpose of a noise impact assessment is to quantify sound intensity levels inside a residential unit (daytime and nighttime) as well as outside (daytime). The Ministry of the Environment Publication LU-131 provides the applicable guidelines for conducting a noise impact assessment, as well as detailing the sound intensity criteria to be achieved. Mitigation of indoor sound intensity levels can be accomplished through building materials that provide enhanced reduction of sound transmission. Outdoor sound intensity levels are mitigated through the construction of a sound barrier wall.

To provide a sound intensity level consistent with the outdoor requirements of 60 dBA or less, a 2.4 metre sound barrier wall is required to provide outdoor sound attenuation of roadway transportation noise for the Phase 1A townhouse units backing onto the Highway 26 road allowance.

Section 1.3 of Publication LU-131 states that "it is the developer's responsibility to ensure that the applicable sound level criteria are met." Thus the engineering drawings for the Phase 1A development include the sound barrier system.

The unmitigated sound levels in the backyards of the Phase 1A townhouses are forecast to be 62.9 dBA in the 2018 horizon year, assuming summer level traffic volumes. This sound level is not associated with hearing damage, and is more in line with a typical conversation at one metre (60 dBA).

Thus, it is our opinion that outdoor sound attenuation at this development is a quality of life issue, as opposed to a health and safety issue. We are also of the opinion that the construction of the 2.4 metres sound barrier wall is a quality of life issue, as the height is well in excess of normal privacy fences and may be seen as aesthetically excessive.



We trust the above is of assistance to the Town in determining the necessity and desirability of installing the sound barrier wall.

Yours truly,

**C.F. CROZIER & ASSOCIATES INC.**



Alexander Fleming, MBA, P.Eng., PTOE  
Traffic Engineer  
AF/let

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