

Noise Attenuation Walls Along Rail Lines

Purpose

This Design Reference Note provides guidelines for the design and construction of noise attenuation walls along rail lines to minimize the opportunity for graffiti. The guidelines were developed in conjunction with the Mississauga Crime Prevention Through Environmental Design (CPTED) Advisory Committee and endorsed by Council on November 26, 1997.

Introduction

In an effort to maintain the City's character and development at their highest level, noise walls along rail lines need to be designed to minimize the opportunity for graffiti.

New residential developments may require walls along rail lines for safety purposes in case of train derailments or for noise attenuation. Blank wall along a highly visible route in the City represents an opportunity for graffiti, new residential developments adjacent to rail lines should be designed to eliminate or significantly reduce the need for noise walls along rail lines.



Example of graffiti on noise attenuation walls *

* http://raisethehammer.org/blog/2313/talking_walls:_graffiti_in_hamilton

Noise Attenuation Wall Criteria

The City of Mississauga specifies that all noise attenuation walls along rail lines be constructed using only precast concrete, concrete block or brick, or approved composite materials with a maximum height of 2.4 m (8.0 ft.).

Design Solutions

To minimize the blank flat surface, the noise attenuation walls should be designed to incorporate the following:

- ◆ Different textures with the use of patterns such as ribbed pre-cast concrete panels;
- ◆ There should be no blank flat surfaces within the first 2.0 m (6.5 ft.) of the height of a noise wall measured from the base of the wall
- ◆ The use of different color patterns such as accent banding.

Access Control

To further reduce the potential for graffiti on noise attenuation walls, access should be prevented or hindered by the use of landscaping and berming.

Landscaping should consist of a variety of types of large shrubs planted in a continuous row near the base of the noise attenuation wall on the rail line side. Since landscaping will be located in a harsh environment with little possibility for maintenance, the plant material must be hardy, medium to fast growing and maintenance free.

Landscape Requirements

The landscaping should consist of:

- ◆ Various types of shrubs with minimum height of 0.6 m (2.0 ft.) when installed;
- ◆ When choosing the type of plant material, consideration should be given to the provision of diversity and interest through the use of different leaf and twig colors, flowers, growth rates, heights and shrub or tree forms;
- ◆ Shrubs should be mass planted in groups of five to fifteen with double rows occasionally to add interest and diversity, if possible;
- ◆ Shrubs should be planted in continuous row spaced approximately 1.5 m (5.0 ft.) apart and located 1m (3.2 ft.) out from the base of the noise attenuation wall on the side of the berm adjacent to the rail line.
- ◆ When a berm is required along with a noise attenuation wall, the berm must be constructed with a 3:1 slope on the rail line side.

- ◆ Yellowtwig Dogwood(Cornus Sericea "Flaviramea")
- ◆ Arrowwood (Viburnum Dentatum)
- ◆ Wayfaring Tree (Viburnum Iantana)
- ◆ Nannyberry (Viburnum Lentago)
- ◆ High Bush Cranberry (Viburnum Trilobum)

How to apply this Reference Note

The use of these solutions are encouraged for new and existing developments as well as already existing areas of concern (see figure 1).

This Design Reference Note is to be applied in conjunction with any other requirements, guidelines and/or policies for noise attenuation walls and for rail safety noted in Mississauga Official Plan and from the City's Transportation and Works Department, Ministry of the Environment and Climate Change and the applicable rail line authorities.

Plant Species Alternatives

The following is a recommended list of plant material for these situations:

- ◆ Russian Olive (Eleagnus Angustifolia)
- ◆ Staghorn Sumac (Rhus Typhina)
- ◆ Elderberry (Sambucus Canadensis)
- ◆ Shadblow Serviceberry (Amelanchier Canadensis)
- ◆ Allegheny Serviceberry (Amelanchier Laevis)
- ◆ Red Osier Dogwood (Cornus Sericea)

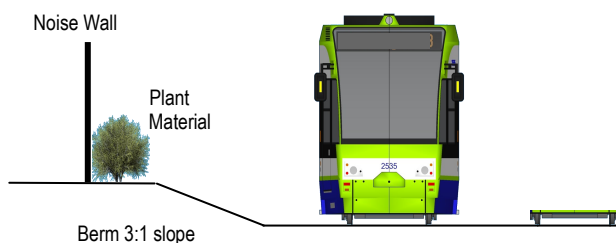


Figure 1: Configuration of noise wall with planting

For additional information, please contact the City of Mississauga Planning and Building Department, Development and Design Division, 6th floor, 300 City Centre Drive, Mississauga, ON L5B 3C1
Tel.: 311 (outside the City of Mississauga (905) 615- 4311) or visit www.mississauga.ca