

Part 1 General

1.1 SECTION INCLUDES

- .1 This specification covers the design, manufacture, delivery and construction of a ground-mounted, precast concrete, noise barrier system to minimize the propagation of generator noise.
- .2 The noise barrier system shall be a post and panel configuration. Adequate drainage shall be provided at the base of the panels.
- .3 The noise barrier system shall be designed in accordance with the requirements of the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA S6 and the CSA Standard for Certification of Noise Barriers CSA Z107.9, and OPSS 760, November 2014.
- .4 The manufacturer of the noise barrier system must be listed in the Ministry of Transportation (MTO) Designated Sources for Materials (DSM) manual as an approved manufacturer of absorptive type Noise Barriers (ref. DSM List #5.50.20).
- .5 The Contractor shall perform site investigations to determine soil parameters, water tables, location of underground services and above grade obstructions. The Manufacturer shall use these parameters to determine the depths, sizes and locations of the noise barrier post footings.
- .6 The Contractor shall establish the alignment of the wall, the top of noise barrier elevations and final ground line elevations at the bottom of the wall. The Manufacturer shall use these elevations to develop the layout and fabrication drawings indicating top and bottom of wall elevations. The final ground elevations and wall alignments that are established in the field shall be protected by the Contractor for the duration of the project and shall not be adjusted without the prior approval of the Engineer.
- .7 The Contractor shall perform all site preparation, rough and final grading, noise barrier marking and staking showing station number, bottom of wall elevation, cut or fill dimension and offset to the centerline of the noise barrier wall along the wall length. Below grade services shall also be clearly marked on site by the Contractor.

1.2 RELATED SECTIONS

- .1 Section 01330 - Submittal Procedures.

1.3 MEASUREMENT PROCEDURES

- .1 Measure supply and erection of barrier.

1.4 REFERENCES

This specification refers to the latest editions of the following standards and specifications:

- .1 Canadian Standards Association
CAN/CSA S6 Canadian Highway Bridge Design Code (CHBDC)
CSA Z107.9 Standard for Certification of Noise Barriers
- .2 ASTM International (ASTM)
ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method
ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C672 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E90 Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests
ASTM G155 Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials
- .3 International Organization for Standardization
ISO 9001 Quality Management Standards
- .4 National Precast Concrete Association
NPCA Plant Certification Quality Control for Precast Concrete Plants
- .5 Ontario Provincial Standard Specification
OPSS 760 Noise Barrier Systems

1.5 SUBMITTALS

- .1 The Contractor shall submit a copy of certified test data prior to commencement of manufacture and construction, showing compliance with the design requirements.
- .2 *The Contractor shall submit shop drawings and specifications for approval at least six (6) weeks prior to commencement of manufacture and construction. This extended time period will be used to confirm finish type/details with local residents.* The shop drawings shall show full details of noise barrier related items and include construction procedures. The shop drawings shall list the available wall colour and surface finish options. All submissions shall bear the seal and signature of a professional engineer registered with the Professional Engineers of Ontario (PEO). **Submit RAL color number and surface coating and finish details for final approval during the shop drawing review stage.**

1.6 HEALTH AND SAFETY

- .1 Do construction occupational health and safety in accordance with Section 01705 – Contract Work Health and Safety Clauses.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Store and manage materials according to manufacturer's requirements. Protect panels during storage.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01355 - Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

- .1 Wall to be Durisol PVC or Aluminum Precast Noise Barrier (or approved equivalent)
 - .1 1.8 m high
 - .2 Sound absorptive on both sides
 - .3 Steel posts
 - .4 minimum surface density of 20 kg/m²

2.2 FINISHES

- .1 The Engineer will select a wall colour and finish from those provided on the submittal and notify the Contractor prior to wall manufacture. **Wall colour and finish will be non-standard, custom.**

Part 3 Execution

3.1 GRADING

- .1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts.

3.2 ERECTION OF FENCE

- .1 Erect fence along lines as indicated and as directed by Engineer and to CAN/CGSB-138.3.
- .2 Excavate post holes to dimensions indicated.
- .3 Space line posts as required to support wall, measured parallel to ground surface.
- .4 Place concrete in post holes then embed posts into concrete as per manufacturers requirements.
- .5 Install panels.
- .6 Complete surface grading to ensure surface is flush with base of wall.

3.3 VERIFICATION

- .1 Engineer will review and inspect barrier panels prior to installation. Damage to the wall may result in rejection of the product for installation. Inspection by the Engineer does not relieve the Contractor of the Contractor requirements to ensure proper quality control of the barrier system.

3.4 CLEANING

- .1 Clean areas disturbed by operations.
 - .1 Dispose of surplus material and perform surface restoration.

END OF SECTION