

Noise barriers

Visual treatment by planting

CASE STUDY

Issue 16, May 2016

MOUNT HOBSON ROAD, AUCKLAND

As part of the Newmarket Viaduct Replacement Project, a noise wall was installed between SH1 and Mt Hobson Road. Landscape planting was implemented to soften the view for residents on their local road side, and a creeper was selected on the state highway and to minimise the likelihood of graffiti. This case study discusses factors that influenced plant selection, and discusses other lessons learnt from this project.

DESIGN PROCESS

The noise barrier design and plant selection was guided by the urban design framework for the project and consultation with the community.

On the confined state highway side of the concrete noise wall, Boston Ivy was used as a climber to deter graffiti. In other open sections where ivy wasn't suitable pattern was applied to the concrete face, to relate to the adjacent Greenlane noise wall.

The wall is set back from Mt Hobson Road to allow space for planting of a mixed border (trees, shrubs and grasses)

to provide a green edge to the motorway for residents. This is also effective at deterring vandals.

PLANT SELECTION

Fast growing, hardy, predominately native plant species which reflect the historic lava flow forest environment of the area were used. Boston Ivy as a fast growing vertical planting. Consideration was given to ongoing maintenance issues such as die back from weed spraying and drought conditions Below is a list of the plant species used.



Fast facts

Location

Eastern side of SH1 along Mt Hobson Road, south of the Remuera Rackets Club and St Marks on-ramp

Construction

2m high, steel I beams with 100mm thick and 2.5m wide concrete pre-cast panel inserts

Length

Approximately 550m

Completed

2010

Botanical name	Common name	PB size	Centers	% Mix	Quantity
RESIDENTIAL STREET FRONTAGE					
Pittosporum eugeoides	Tarata	3.5m high	Specimen tree	100	7
Pittosporum eugeoides	Tarata	5	1.2m	20	30
Phormium Tenax	Flax	5	1.0m	80	133
Griselinia littoralis	Kapuka	12	1.2m	30	25
Dodonea viscosa	Akeake	12	1.2m	20	14
Cordyline australis	Tikouka	12	1.2m	10	7
Corynocarpus laevigatus	Karaka	12	1.2m	20	14
Corynocarpus laevigatus	Karaka	18	Specimen tree	100	27
Corynocarpus laevigatus	Karaka	95	10m	100	14
Pittosporum 'Mountain Green'	Kohuhu	12	1.2m	20	14
Muehlenbeckia complexa	Pohuehue	5	1.0m	100	10
Tanika lomandra longifolia	Tanika	5	500mm	100	1019
HIGHWAY FRONTAGE					
Parthenocissus tricuspidata	Boston Ivy	3	2.0m	100	194

NOTE: Only in confined areas to avoid spread.

Soil preparation

The landscape specification had a minimum soil depth of 300mm with further requirements around organic makeup of top soil, ground preparation/ripping, top soil spreading and mulching. The success of the planting is due to appropriate ground preparation, plant species selection, adequate drainage and by providing suitable growing medium depth and quality if top soil as per the specification. This approach aligns with the Transport Agency's P39 Standard Specification for Highway Landscape Treatments.

Vegetation growth rate

A 'green' outlook for residents along Mt Hobson Road was achieved with most of the wall being covered or screened by planting within 2 years of construction. The vigorous Ivy planting has also grown over the top of the wall, and has good coverage on the motorway side.



Directly before planting, topsoil and mulch implemented



1 year after planting, mix of trees, shrubs and grasses



2 years after planting



5 years after planting, achieving coverage to reduce ongoing maintenance of planting



Boston ivy (winter state) climbing over wall



Patterned section of the wall

Delivery Model

The process for plant selection and integration can vary depending on the delivery model for the project. On this project which was delivered as an Alliance, the funder for both capital and operational expenses was part of the design team.

With design and construct contracts, the contractor's focus is on minimising capital cost. Requirements must therefore be specified in the principal's requirements, to capture whole-of-life maintenance considerations.

OPERATIONAL COSTS

Graffiti removal is a significant cost for maintaining the urban motorway network in Auckland. Unscheduled lane closures are often necessary to safely access noise walls for timely removal of graffiti.

The Auckland Motorway Alliance commented that graffiti was initially an issue on the motorway side of this wall, but now that the ivy has achieved good coverage this is no longer an issue.

Similarly on the Mt Hobson Road side, graffiti is no longer an ongoing concern and the high level of plant coverage has kept weeding requirements to a minimum.

This demonstrated the value of landscape in achieving whole-of-life maintenance outcomes.

LESSONS LEARNT

- Planting is an effective way of minimising and deter graffiti on noise walls and significantly reduces ongoing maintenance costs
- Ensure there is adequate space, soil depth and drainage in front and behind any walls to be planted, and select hardy species
- The project delivery model can influence the level of innovation and desire to minimise whole-of-life costs
- Consult early with adjoining land owners



If you require any additional information, please contact:

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