



VERTICALITY



LANDSCAPING



MATERIALS

## UNDERSTANDING THE ISSUES

Traffic noise is an issue that should be considered in the earliest stages of a road project. Careful route selection, including horizontal and vertical alignment, can help minimise the need for noise walls. Noise walls are costly and can have significant visual impacts. Other noise control methods such as

low noise road surfaces, design speed, solid safety barriers, earth mounds and the use of buildings as noise barriers should be considered as alternatives to the use of noise walls. Planning can assist in directing major highways away from residential areas or encouraging the development of less noise-sensitive land uses near the road corridor, thereby

reducing the need for noise mitigation. Determining what represents the most appropriate noise mitigation solution for any given project requires a range of expert input, including advice from acoustic engineers and urban designers.

# NOISE WALL DESIGN

The following principles should guide the location and design of noise walls:

- // **INTEGRATION:** Noise walls should integrate with the design of the overall road corridor and complement the road structures, landscape, roadscape and any public art elements of the project. A long term strategy for the design of the entire corridor should be formulated early on, especially if noise walls may be added later.
- // **PROXIMITY:** Noise walls should avoid overshadowing properties and blocking sight lines for surveillance purposes. A balance needs to be struck between reducing traffic noise from the road and potential impacts on personal security.
- // **LOCATION:** In suburban or rural environments, landscaped noise mounds can offer a more attractive solution than noise walls. Mounds can be used on their own or with a low noise wall on top. They also provide an opportunity to utilise excess fill from a project and to locate and integrate pedestrian and cycleways into a project.
- // **SAFETY:** It is inappropriate to design the road face of a wall with detail that could distract a driver. However, over-simplification and monotony should also be avoided. A system of simple, abstract, linear patterns can be very effective.
- // **HEIGHT:** Consider limiting the height of the noise wall to balance noise and visual impacts. Separating and overlapping walls can accommodate any necessary changes in height, horizontal alignment, form and material. Angles and sharp changes in direction should be avoided.

- // **VERTICALITY:** A slight lean outwards can bring a considerable improvement in the visual impact of the wall on road users, reducing the 'tunnel' effect. Care needs to be taken to avoid reducing the 'effective' height of the wall and reducing its acoustic performance.
- // **VIEWS:** Noise walls should avoid blocking significant views of the surrounding area both towards and from the road. In special circumstances transparent walls can be used to open up views to landmarks and special vistas. Competing demands to maintain views and provide appropriate noise mitigation need to be balanced.
- // **FORM:** Consider noise walls as three-dimensional pieces of design with two faces performing different functions. The inner-face is viewed at speed by road users. Their perception is fleeting and only bold designs, geometric patterns and the overall shape of the wall will be viewed. The outer face is viewed from the landscape or surrounding urban area. The noise wall will form a static, permanent feature in the environment and depending on the proximity of viewers, construction and design details may be visible.
- // **MATERIALS:** When selecting materials, consideration should be given to their acoustic performance, durability, weathering, ease of maintenance, vandal and graffiti resistance. Noise walls should be designed to retain their noise attenuation performance for a minimum of 20 years.
- // **DETAILING:** If a noise wall will be viewed from an adjacent residence or pedestrian route, it requires quality detailing and an attractive composition of wall and landscape. Consider tapering the ends of walls into adjacent landforms.

- // **CONSISTENCY:** Noise walls should be consistent (in materials, general form, colour and detailing) along the length of a road corridor. Avoid frequent changes in design or stepping of the top of the wall as these may be distracting for road users and visually have a jarring effect. If steps are required, ensure they are small and regular.
- // **LANDSCAPING:** Planting can be used to complement or screen a noise wall. Planting is especially important on the outer-face of the noise wall where it can help integrate the wall with the wider landscape or provide an attractive interface with nearby properties, public spaces, footpaths and cycleways. Tall planting behind the wall can break down the dominant effect of the top of the wall. Landscape designs must allow for access to the wall for maintenance. Ensure there is sufficient space for plant growth and soil nutrition.
- // **SURFACES:** If artworks are to be included these should be integral to the design of the noise walls and not be regarded as an applied finish to a wall designed purely on engineering grounds. Surface finishes are very important for amenity and maintenance reasons. They include a combination of colours, textures and patterns.
- // **LENGTH:** Excessively long sections of noise wall on both sides of the road should be avoided.
- // **ALIGNMENT:** Generally the wall should follow the geometry of the road surface. The top edge of the wall is one of the strongest visual elements and requires careful consideration. Horizontal alignment with the carriageway is also important, however curved walls can help to create a sense of place and manage changes in alignment. Care needs to be taken to ensure effective acoustic performance of the wall is maintained.



INTEGRATION



VIEWS



FORM



DETAILING