

PROSPECT HIGHWAY UPGRADE DETAILED DESIGN, INVESTIGATION AND PREPARATION OF CONSTRUCTION DOCUMENTATION

SUPPLEMENTARY LANDSCAPE CHARACTER AND VISUAL IMPACT ASSESSMENT

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I. INTRODUCTION

I.1 PURPOSE OF THIS REPORT

Roads and Maritime Services (Roads and Maritime) is intending to upgrade the 3.6 kilometre section of Prospect Highway between Reservoir Road at Prospect in the south, and St Martins Crescent in Blacktown in the north, in the Blacktown Local Government Area (LGA), located about 28 kilometres west of Sydney.

The Project REF and Submission Report identified the potential need for noise walls at four locations with further consideration to take place during detailed design. Noise modelling undertaken during detailed design has identified the need for three additional noise walls. The additional noise walls are proposed to meet the noise mitigation commitments made in the Approved Project.

The Project REF also identified the requirements for utility adjustments. This Addendum report has been prepared to assess and document the potential landscape character and visual impacts of the four noise walls identified in the Project REF, the three additional noise walls, and the resulting utility adjustments.

I.2 ASSESSMENT METHODOLOGY

The method used to undertake this assessment of the proposed noise walls (the 'Proposal') follows the 'Guideline for Landscape Character and Visual Impact Assessment' (Roads and Maritime Services, 2013).

A desktop review was carried out to identify the potential impacts of the proposed additional noise walls on landscape character and visual amenity. The Proposal would affect five landscape character zones (LCZ) and 17 of the 27 viewpoints assessed in Section 6.4 of the REF and the Landscape Character, Visual Impact Assessment and Urban Design Study technical paper (HBO + EMTB, 2014) (Appendix G of the REF). The implications of the Proposal are discussed below.

I.3 DESCRIPTION OF PROPOSAL

Seven noise walls are proposed (refer in Figure 1.1). The noise walls vary in height from 2.5 to 4.5m. The noise walls are typically comprised of 3 x panels, with the lower 2/3 being a precast concrete panel and the top 1/3 being a transparent material. The exceptions are noise walls NW_NB03b and NW_SB02a (roadside panels at the Pedestrian Underpass Bridge) which are a clear transparent material for their full height. The transparent panels reduce potential shading impacts on adjacent properties and are aimed at improving the urban design outcome by reducing the overall bulk and scale of the wall. With the exception of noise walls NW_NB01, NW_NB03b and NW_SB02a (roadside panels), all other noise walls are offset approximately 1.5m from the property boundary. The space between the existing property boundary, and the noise wall would be treated with a low maintenance surface treatment, such as gravel. It is anticipated that a 5m wide area would be required for construction access along the proposed locations of noise walls. This area would be turfed to match the existing site conditions following installation of the noise walls.

The utility adjustments proposed as part of the project, included the relocation of Endeavour Energy electricity power lines from the western side of Prospect Highway to the eastern side between Bungaribee Road/Leabons Lane and Blacktown Road, Seven Hills.

During detailed design it was identified that relocation would require the pruning or removal of a number of trees on the eastern side of the road to accommodate the power lines and to meet Endeavour Energy's safe clearance requirements.

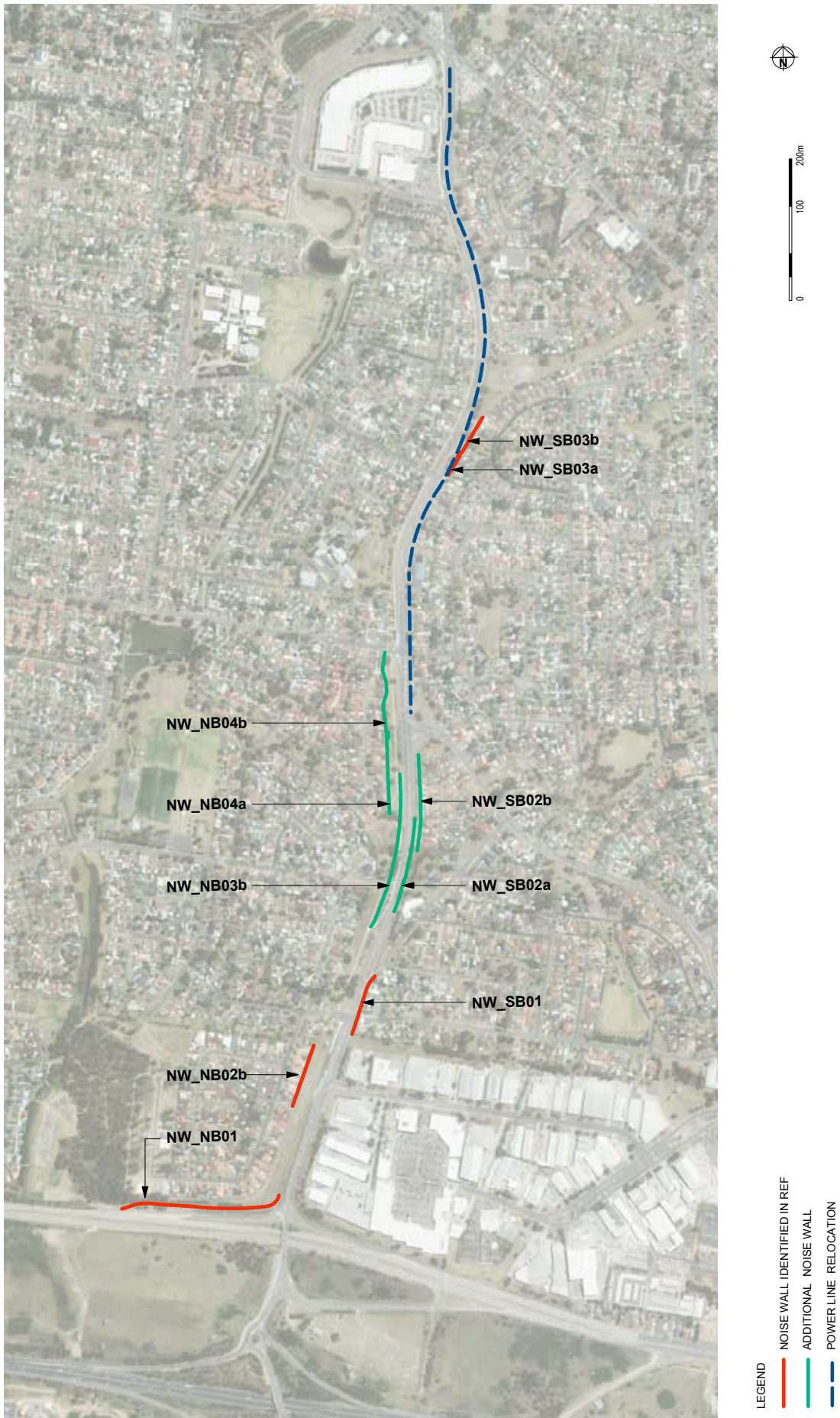


Figure 1.1: Proposed Noise Wall Locations

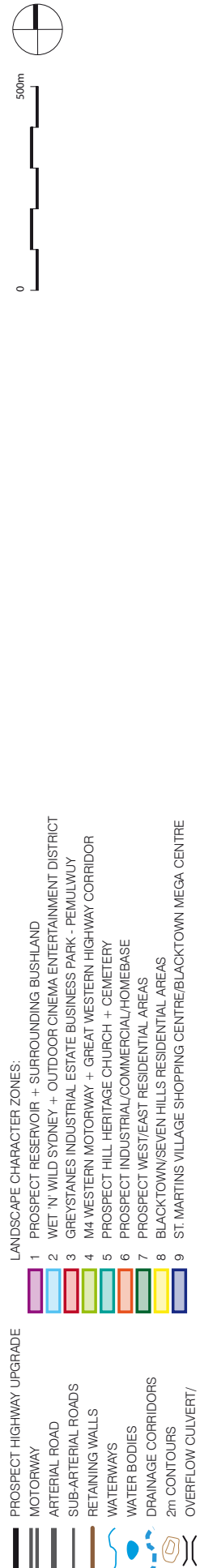
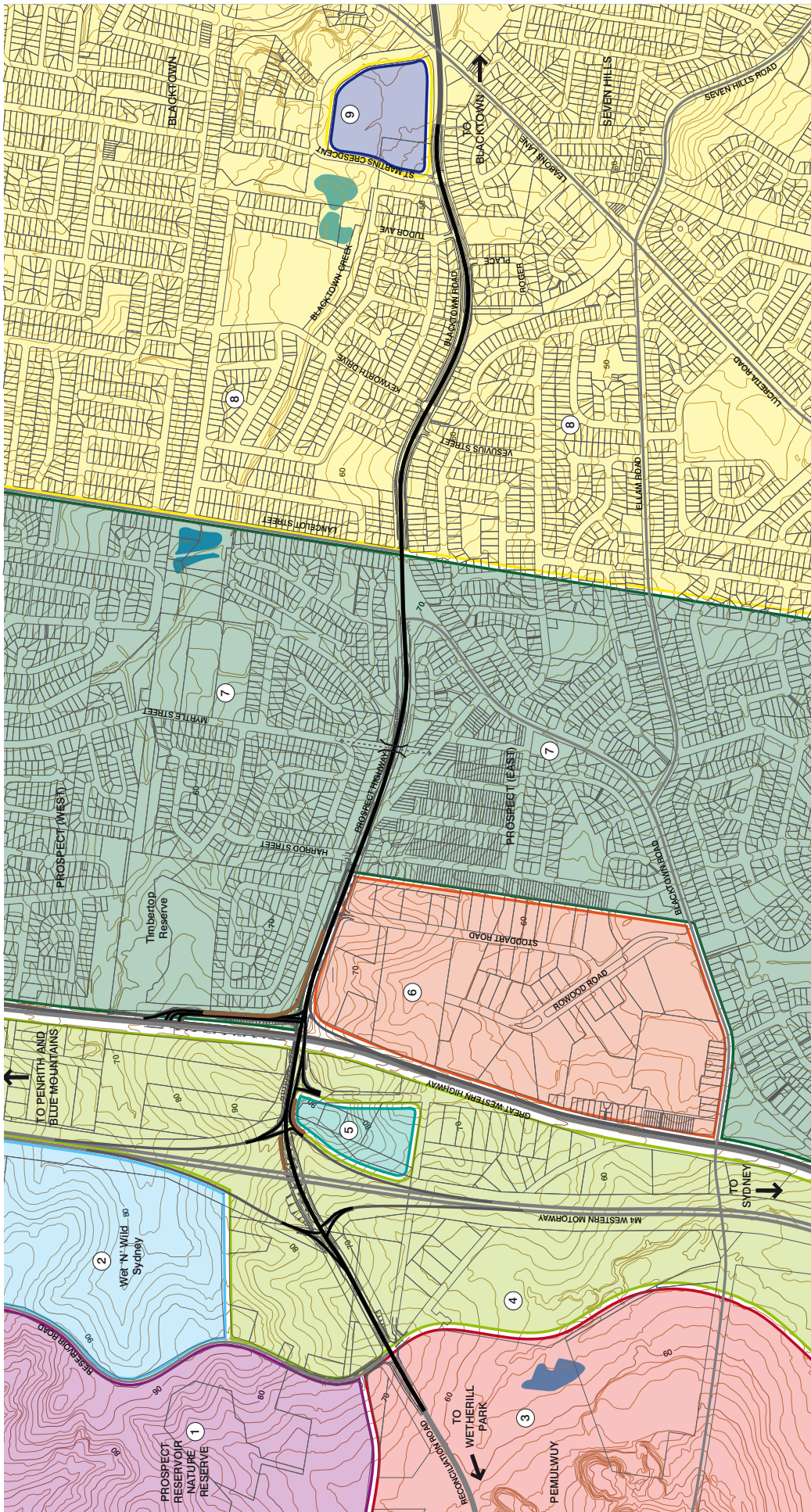


Figure 2.1 Landscape Character Zones

Source: HBO + EMTB Urban and Landscape Design

2. LANDSCAPE CHARACTER AND VISUAL IMPACT

2.1 LANDSCAPE CHARACTER IMPACT

Nine landscape character zones (LCZ) were identified in the REF (Figure 2.1). The desktop assessment found that the Proposal would impact on five LCZs. These are discussed below.

LCZ 4: M4 Western Motorway and Great Western Highway Corridor

LCZ 4 is a flat to gently undulating area of generally open pasture with scattered remnant trees and shrubs, located between Reservoir Road and the Great Western Highway. This area excludes Prospect Hill Heritage Church and Cemetery zone. A few scattered, low density rural residential dwellings are located within the zone.

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The Proposal adds a noise wall (NW_B01) next to the two-way link road that would be visible to motorists on the Great Western Highway within this LCZ. However, the change would not be sufficient to increase the assessed magnitude rating, which would remain Moderate. Therefore, the landscape character impact rating would remain **Moderate**.

LCZ 5: Prospect Hill Heritage Church and Cemetery

LCZ 5 comprises the heritage listed St Bartholomew's Anglican Church and Cemetery situated on the summit of Prospect Hill. The landform consists of grassed embankments with a number of established cultural tree planting around the church.

The Proposal would not change the sensitivity rating assessed in the REF, which would remain High. The noise wall next to the two-way link road (NW_NB01) would be visible from this LCZ, however, due to the distance of the Proposal, this would not change the magnitude rating, which would remain Moderate. Therefore, the overall landscape character impact would remain **Moderate to High**.

LCZ 6: Prospect Industrial / Commercial / Retail Centre

This zone is generally flat, located between Prospect Highway and Blacktown Road, with the Great Western Highway forming its southern boundary. It is made up of commercial, light-industrial, and retail buildings.

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Low. The noise walls next to the two-way link road (NW_NB01), and along the back fences of residents on Hampton Crescent (NW_NB02b) would be visible from this LCZ. However, due to the commercial nature of this LCZ, they would not be sufficient to change the magnitude rating, which would remain Low. Therefore, the overall landscape character impact would remain **Low**.

LCZ 7: Prospect West / East Residential Areas

LCZ 7 is a large, gently undulating zone, encompassing the suburb of Prospect on both sides of Prospect Highway, and consists of single and double storey residential dwellings on generally tree lined streets. A wide, grassed drainage corridor runs parallel to the western side of Prospect Highway with two distinctly different sections - a generally regular profile with a steep grassed embankment between the Great Western Highway and Harrod Street, progressing to a narrow and gently sloping grassed area north to Lancelot Street.

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The Proposal adds a number of noise walls to the zone including next to the two-way link road (NW_NB01), along the back fences of residents on Hampton Crescent (NW_NB02b), along the back fences of residents on Aldgate Street (NW_SB01), next to Prospect Highway near the underpass (NW_NB03b and NW_SB02a), along the back fences of residents on Hollydale Place (NW_SB02b), and along the back fences of residents on Fife Street (NW_NB04a and NW_NB04b). Further to the proposed noise walls a minor portion of roadside vegetation (three trees) would be cleared in this Zone in order to relocate utility powerlines to the eastern side of Prospect Highway, next to Lancelot Street. The Proposal would increase the magnitude of work in the LCZ, however, it was assessed as High in the REF, the highest rating available in the Guideline. Therefore, the overall landscape character impact would remain **Moderate to High**.

LCZ 8: Blacktown / Seven Hills Residential Areas

This zone covers the Blacktown and Seven Hills residential areas, on gently undulating land, consisting of one and two storey residences and other mixed land uses including a public school. Properties on the eastern side of Prospect Highway generally address the highway directly, while those to the west are accessed by a service road.

The Proposal would not change the sensitivity rating assessed in the REF, which would remain moderate. However, the magnitude rating assessed by the REF of Moderate would increase to High. This increase is due to the relocation of Endeavour Energy powerlines from the western side of Prospect Highway to the eastern side between Bungarribee Road/Leabons Lane and Blacktown Road, Seven Hills and the additional removal of significant vegetation on the eastern corridor. In addition to these changes a noise wall would be constructed in this zone, next to the back fences of resident on Topaz Crescent (NW_SB03a and NW_SB03b).

The Proposal would increase the magnitude of work in the LCZ, which was assessed as Moderate in the REF, to High. Therefore, the overall landscape character impact would increase to **Moderate to High**.

Table 2.1: Summary of the five landscape character impacts

| LANDSCAPE CHARACTER ZONE | PROJECT SENSITIVITY | PROPOSAL SENSITIVITY | PROJECT MAGNITUDE | PROPOSAL MAGNITUDE | PROJECT IMPACT RATING | PROPOSAL IMPACT RATING |
|---|---------------------|----------------------|-------------------|--------------------|-------------------------|-------------------------|
| LCZ 4: M4 Western Motorway and Great Western Highway Corridor | Moderate | No change | Moderate | No change | Moderate | No change |
| LCZ 5: Prospect Hill Heritage Church and Cemetery | High | No change | Moderate | No change | Moderate to High | No change |
| LCZ 6: Prospect Industrial / Commercial / Retail Centre | Low | No change | Low | No change | Low | No change |
| LCZ 7: Prospect West / East Residential Areas | Moderate | No change | High | No change | Moderate to High | No change |
| LCZ 8: Blacktown / Seven Hills Residential Areas | Moderate | No change | Moderate | High | Moderate | Moderate to High |

Overall, the Proposal is considered to have a slightly higher impact on landscape character than the Project. However, the overall landscape character impact remains the same for all landscape character zones except LCZ 8 which increases from Moderate to **High**. Sensitivity ratings remain the same for all landscape character zones. Magnitude ratings increase in zone 8, as greater amounts of vegetation would be removed, particularly in the grass verges, to accommodate the relocation of utility power lines from the western side of Prospect Highway to the eastern side. When combined with sensitivity, the overall impact in zone 8 increase from Moderate to **Moderate to High**.

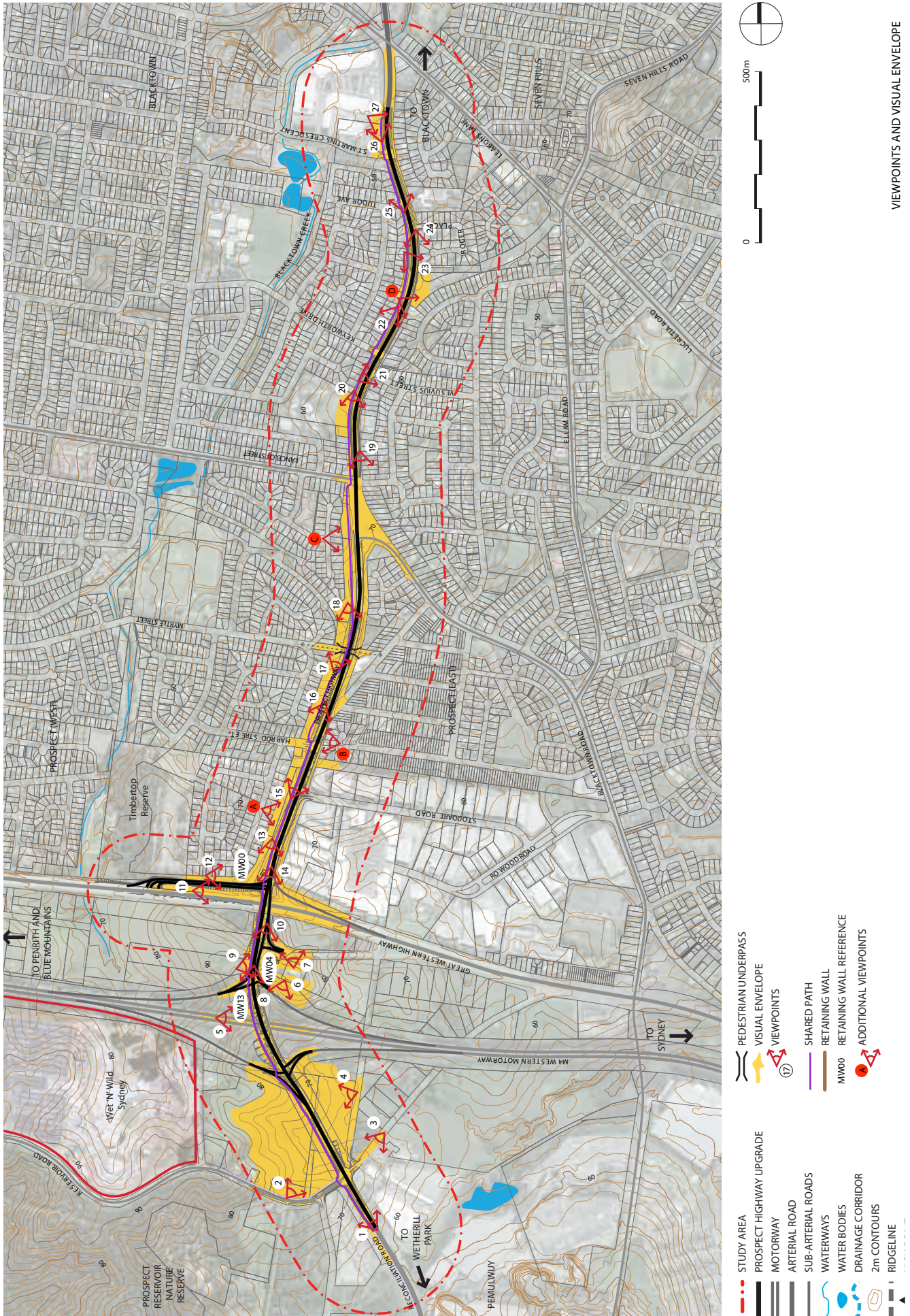


Figure 2.2- Viewpoints and Visual Envelope

Source: HBO + EMTB Urban and Landscape Design

2.2 VISUAL IMPACT

The desktop assessment found that the Proposal would affect 17 of the 27 viewpoints for the Proposal, namely: Viewpoints 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and 27. Additional viewpoints assess the impact of the noise walls from the perspective of residential properties, namely A, B, C and D. These are shown in Figure 2.2 with the additional viewpoints marked in red.

Viewpoint 7

Location

Prospect Hill Cemetery, looking north-west.

Description

This viewpoint looks over the Ponds Road and Prospect Highway intersection.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain High. Due to the distance from the viewpoint, and screening from existing vegetation, the Proposal (NW_NB01) would only be marginally visible, therefore, the magnitude rating would remain Moderate. Accordingly, the overall visual impact rating would remain **Moderate to High**.

Viewpoint 11

Location

Great Western Highway eastbound exit ramp, looking east.

Description

This viewpoint looks over the Prospect Highway bridge, eastbound exit ramp, and the drainage corridor between the exit ramp and residential properties to the north.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Low. The Proposal would add a highly visible noise wall (NW_NB01) next to the two-way link road, which would increase the cumulative visual impact of the project, however, resulting in a High magnitude assessed in the REF. This magnitude would not be changed and therefore, the visual impact would remain **Moderate**.

Viewpoint I2

Location

Drainage corridor between the residences in Hampton Crescent and the Great Western Highway eastbound exit ramp, looking east.

Description

This viewpoint looks along the drainage corridor that includes a generally flat grassed area next to the back fences of the residential properties in Hampton Crescent, to the vegetated embankment leading to the eastbound exit ramp.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain High. The Proposal would slightly increase the magnitude by adding a highly visible noise wall (NW_NB01) next to the two-way link road. However, the magnitude would still be rated Moderate, as assessed in the REF, once the replacement screen planting within the drainage corridor establishes. Therefore, the visual impact would remain **Moderate to High**.

Viewpoint I3

Location

Drainage corridor between the residences in Hampton Crescent and Prospect Highway, looking south.

Description

This viewpoint looks along the grassed drainage corridor, that consists of a generally flat area next to the back fences of the residential properties in Hampton Crescent, sloping up to Prospect Highway. There is a line of small trees at the bottom of the embankment.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain High.

The noise wall next to the two-way link road (NW_NB01) would be visible in the background of the view, however the magnitude would not be sufficient to increase the magnitude rating from Moderate. Screen tree planting within the drainage corridor would reduce the visual impact once established. Therefore the visual impact would remain **Moderate to High**.

Viewpoint I4

Location

Footpath on the western side of Prospect Highway, looking south.

Description

This viewpoint looks south over the drainage corridor from the temporary shared path on the western side of Prospect Highway. The residential properties on Hampton Crescent to the right of the view, adjoin the drainage corridor.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall (NW_NB01) next to the two-way link road would be visible, therefore, the magnitude would remain High and the visual impact would also remain to **Moderate to High**.

Viewpoint 15**Location**

Footpath on the western side of Prospect Highway, looking north.

Description

Viewpoint 15 looks north from the temporary shared path on the western side of Prospect Highway.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall next to the back fences of residents on Aldgate Street (NW_SB01) would be visible to the right of the view, however the magnitude would not be sufficient to increase the magnitude rating from Moderate. Therefore, the visual impact would remain **Moderate**.

Viewpoint 16**Location**

Footpath on the western side of Prospect Highway, looking south.

Description

This view looks south along Prospect Highway toward the Harrod Street intersection. The area is slightly higher than Prospect Highway and consists of a grassed area with a stand of Eucalypts in the foreground.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall next to the back fences of residents on Aldgate Street (NW_SB01) would be visible to the left of the view, however the magnitude would not be sufficient to increase the magnitude rating from Moderate. Therefore, the visual impact would remain **Moderate**.

Viewpoint 17

Location

Footpath on the western side of Prospect Highway, looking north.

Description

Viewpoint 17 looks north along the drainage corridor from the shared path on the western side of Prospect Highway. The grassed corridor sits below Prospect Highway with a number of Eucalypts both on the embankment and the floor of the corridor, north of the pedestrian underpass.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall on the western side of Prospect Highway (NW_NB03b) would be highly visible at the top of the embankment to the right of the view. This has the potential to increase the magnitude rating to High, however, screen tree planting, once established, would retain the Moderate rating. Therefore, the visual impact would remain **Moderate**.

Viewpoint 18

Location

Footpath on the western side of Prospect Highway, south of Blacktown Road intersection, looking south-west.

Description

Viewpoint 18 looks south-west from the shared path on the western side of Prospect Highway. It looks over a grassed area that forms a shallow detention basin, towards the Prospect residential area.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall on the western side of Prospect Highway (NW_NB03b) would be highly visible at the top of the embankment to the left of the view. Despite new tree planting, once established, providing screening to the wall, the magnitude rating would increase from Low to Moderate. Therefore, the visual impact rating would increase to **Moderate**.

Viewpoint 19

Location

Footpath on the eastern side of Prospect Highway, north of Lancelot Street intersection, looking south.

Description

This viewpoint adjoins a number of single storey residential properties that face Prospect Highway and includes a number of exotic and native trees along the property boundary.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The magnitude of the proposed noise wall along the back fences of residents on Fife Street (NW_NB04b) and the removal of vegetation and trees for the proposed relocation of utility power lines would be visible from this viewpoint. The Proposal would be sufficient in magnitude to increase the rating from Moderate to High. Therefore the visual impact would increase to **Moderate to High**.

Viewpoint 20**Location**

Informal Service road on the western side of Prospect Highway north of Keyworth Drive intersection, looking south.

Description

Viewpoint 20 looks south over the service road on the western side of Prospect Highway, towards adjacent Shelley Public School. The right side of the view consists of a shared path and Shelley Public School grounds. Prospect Highway is seen on the left of the view.

Visual impact assessment

The sensitivity rating assessed in the REF is Moderate, which would remain at Moderate. The noise wall on the eastern side of Prospect Highway, along the back fences of residents on Topaz Crescent (NW_SB03a and NW_SB03b) would be visible from this viewpoint. In addition, the removal of mature tree species for the relocation of utility power lines on the eastern side of Prospect Highway would be visible. These changes culminate in the magnitude rating increasing from Moderate to High. Therefore, the visual impact would increase to **Moderate to High**.

Viewpoint 21**Location**

Informal service road on the western side of Prospect Highway south of Vesuvius Street intersection, looking north.

Description

This viewpoint looks over the informal gravel service road that is separated from Prospect Highway by a narrow grassed verge. The left side of the view consists of a shared path and single storey residential dwellings with exotic and native trees along the property boundary. Shelley Public School is located behind the viewer.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The relocation of power lines and proposed noise walls on the eastern side of Prospect Highway, along the back fences of residents on Topaz Crescent (NW_SB03a and NW_SB03b), and the subsequent removal of large mature trees and vegetation, would be visible from this viewpoint. Despite the distance from the viewer, magnitude would increase from Moderate to High. Therefore the visual impact would increase to **Moderate to High**.

Viewpoint 22

Location

Service road on the western side of Prospect Highway north of Keyworth Drive intersection, looking south.

Description

Viewpoint 22 looks south over the service road on the western side of Prospect Highway, towards the Keyworth Drive intersection. The right side of the view consists of a shared path and single storey residential dwellings with exotic and native trees along the property boundary. The back fences of residents of Topaz Crescent are seen to the left of the view.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall on the eastern side of Prospect Highway, along the back fences of residents on Topaz Crescent (NW_SB03a and NW_SB03b) would be visible from this viewpoint. This would slightly increase the magnitude rating, however, new tree planting, once established, would provide screening to the wall, maintaining the Moderate magnitude rating. Therefore, the visual impact would remain **Moderate**.

Viewpoint 23

Location

Service road on the western side of Prospect Highway south of Tudor Avenue intersection, looking south

Description

This view is similar to Viewpoint 22 and overlooks the future Seven Hills Road Corridor Link. A number of large Eucalypts are located on the western side of Prospect Highway, dominating the view.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall on the eastern side of Prospect Highway, along the back fences of residents on Topaz Crescent (NW_SB03a and NW_SB03b) and the relocation of power lines from the western side to the eastern side of Prospect Highway would be visible from this viewpoint. The visual impact would also increase by the removal of native vegetation. Despite the distance of the viewer, the Moderate magnitude rating would increase to High. Therefore, the visual impact would increase to **Moderate to High**.

Viewpoint 24

Location

Footpath on the eastern side of Prospect Highway south of Roger Place intersection, looking south.

Description

Viewpoint 24 looks south from the footpath on the eastern side of Prospect Highway towards the future Seven Hills Road Corridor Link. To the left of the view are the back fences of the residential properties in Roger Place. Dwellings adjoining the service road on the western side of Prospect Highway are to the right. Large Eucalypts on the western side of Prospect Highway, dominate the centre of the view.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The noise wall on the eastern side of Prospect Highway, along the back fences of residents on Topaz Crescent (NW_SB03a and NW_SB03b) and the relocation of power lines from the western side to the eastern side of Prospect Highway would be visible from this viewpoint. Despite the distance of the viewer and new tree planting, once established, providing screening to the wall, the Moderate magnitude rating would increase to High, due to the removal of existing native vegetation for the utility relocation. Therefore, the visual impact would increase to **Moderate to High**.

Viewpoint 25

Location

Informal service road on the western side of Prospect Highway south of Tudor Avenue, looking north.

Description

Viewpoint 25 looks north along Prospect Highway towards Tudor Avenue intersection and the Army Reserve Depot to the east across Prospect Highway. The residential areas of Tudor Avenue (west) and Blacktown (east) are visible in the distance. A number of large mature Eucalypts are seen in the distance that screen the residence on the eastern side of Prospect Highway.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Moderate. The relocation of utility power lines from the western side of Prospect Highway to the eastern side between Leabons Lane and Blacktown Road requires the removal of existing vegetation. New tree planting, would be provided, however, they would be a smaller species, due to height restrictions and therefore would provide less screening potential. This would result in the Moderate magnitude rating increasing to High. Therefore, the visual impact would increase to **Moderate to High**.

Viewpoint 27

Location

View looking southeast towards Prospect Highway from St Martin's Village Shopping Centre/Blacktown Mega Centre.

Description

The St Martin's Village Shopping Centre/Blacktown Mega Centre carpark is located on the western side of Prospect Highway between St. Martins Crescent and Bungarribee Road. A number of large Eucalypts are located adjacent the carpark, providing a sense of scale to the area.

Visual impact assessment

The Proposal would not change the sensitivity rating assessed in the REF, which would remain Low. The main receptors of the changes to Prospect Highway would be shoppers, and therefore transient viewers. Vegetation removed for electrical utility relocation on the eastern side of Prospect Highway may be visible from this area. However, visibility would significantly be reduced due to the current presence of low shrubs and vegetation in the carpark. In addition, low shrubs and native grass planting in the central median, once established, would provide additional screening. However, the viewpoint would have an increase magnitude rating from Low in the REF to Moderate. Therefore the visual impact would increase from Low in the REF to **Moderate to Low**.

ADDITIONAL VIEWPOINTS

Four additional viewpoints have been identified to assess the impact of the noise walls from the perspective of residential properties. Desktop assessment was carried out to assess these viewpoints as access to private property was not considered feasible.

Viewpoint A

Location

View looking east towards Prospect Highway from Hampton Crescent towards Prospect industrial and commercial estate.

Description

Hampton Crescent is a residential road located to the western side of Prospect Highway. The residential estate is a mix of one and two storey dwellings with large front and back gardens. The gardens are mostly planted with a mix of palm and multi-stemmed trees.

Visual impact assessment

The sensitivity of residents would be High due to the current buffer provided by the grassed reserve to the residential backyards from Prospect Highway and the pedestrian access connection to Hampton Crescent. The proposed widening of Prospect Highway and the construction of a noise wall (NW-NB02b) next to the back fences of residents (to the north of the pedestrian access) would be highly visible. The magnitude of change for residents (north of the pedestrian access) of Hampton Crescent would be Moderate. Screen tree planting within the reserve

would provide a backdrop once established, and the upper transparent panel would allow more light into backyards, however, the visual impact would be **Moderate to High**.

Viewpoint B

Location

View looking west towards the intersection of Harrod Street and Prospect Highway from Prospect East from Aldgate Street.

Description

Aldgate Street is a residential cul-de-sac to the eastern edge of Prospect Highway, with mainly one storey dwellings. Gardens are informal with low planting and medium sized grassed front gardens. The back gardens border the existing Prospect Highway alignment.

Visual impact assessment

The sensitivity of residents would be Moderate as the current back gardens are bordering the existing alignment of Prospect Highway. The proposed widening of Prospect Highway and the construction of noise wall (NW_SB01) to the back fences of residents would be highly visible. The magnitude of change for residents of Aldgate Street would be Moderate. Screen tree planting would not be possible due to the proximity of the proposed road alignment to the backyard fences, therefore the visual impact would be **Moderate**.

Viewpoint C

Location

View looking east towards Prospect Highway from Fife Street towards the intersection of Blacktown Road and Prospect Highway.

Description

Fife Street is a residential road to the western edge of Prospect Highway, with one and two storey dwellings. The tree-lined street has informal front gardens with very few fences delineating space, backyards are mostly taken up by the footprint of the dwelling and are quite narrow. The backyards are separated by 2 meter tall fences that face onto the Prospect Highway.

Visual impact assessment

The sensitivity of residents would be High due to the current buffer provided by the grassed reserve to the residential backyards from Prospect Highway. The construction of noise walls (NW_NB04a and NW_NB04b) next to the back fences of residences would be highly visible. The magnitude of change for residents of Fife Street would be Moderate. Screen tree planting within the reserve would provide a backdrop once established, and the upper transparent panel would allow more light into backyards and the visual impact would be **Moderate to High**.

Viewpoint D

Location

View looking east towards Prospect Highway from the informal service road of Blacktown Road.

Description

Viewpoint D looks east over the service road on the western side of Prospect Highway, towards Blacktown Road. The residential dwellings of Blacktown Road have front gardens that are embanked below the current road alignment of Blacktown Road and Prospect Highway. Front gardens are informal in style, with no fencing or walls and grassed lawns with a mixture of exotic and native trees, dispersed inconsistently along the roadside.

Visual impact assessment

The residents would have a Moderate sensitivity as their properties adjoin Prospect Highway via a service road and have a direct view onto Prospect Highway. The noise wall on the eastern side of Prospect Highway, along the rear boundaries of Topaz Crescent (NW_SB03a and NW_SB03b) and the relocation of power lines from the western side to the eastern side of Prospect Highway would be visible from this viewpoint. The visual impact would also increase by the removal of native vegetation. Despite the distance of the viewers from the noise walls and power line relocation there would be a magnitude rating of Moderate. Therefore, the visual impact would be **Moderate**.

Table 2.2: Summary of visual impacts

| VIEWPOINT | PROJECT SENSITIVITY | PROPOSAL SENSITIVITY | PROJECT MAGNITUDE | PROPOSAL MAGNITUDE | PROJECT IMPACT RATING | PROPOSAL IMPACT RATING |
|--------------|---------------------|----------------------|-------------------|--------------------|-----------------------|------------------------|
| Viewpoint 7 | High | No change | Moderate | No change | Moderate to High | No change |
| Viewpoint 11 | Low | No change | High | No change | Moderate | No change |
| Viewpoint 12 | High | No change | Moderate | No change | Moderate to High | No change |
| Viewpoint 13 | High | No change | Moderate | No change | Moderate to High | No change |
| Viewpoint 14 | Moderate | No change | High | No change | Moderate to High | No change |
| Viewpoint 15 | Moderate | No change | Moderate | No change | Moderate | No change |
| Viewpoint 16 | Moderate | No change | Moderate | No change | Moderate | No change |
| Viewpoint 17 | Moderate | No change | Moderate | No change | Moderate | No change |
| Viewpoint 18 | Moderate | No change | Low | Moderate | Moderate to low | Moderate |
| Viewpoint 19 | Moderate | No change | Moderate | High | High | Moderate to High |
| Viewpoint 20 | Moderate | No change | Moderate | High | Moderate | Moderate to High |
| Viewpoint 21 | Moderate | No change | Moderate | High | Moderate | Moderate to High |
| Viewpoint 22 | Moderate | No change | Moderate | No change | Moderate | No change |
| Viewpoint 23 | Moderate | No change | Moderate | High | Moderate | Moderate to High |
| Viewpoint 24 | Moderate | No change | Moderate | High | Moderate | Moderate to High |
| Viewpoint 25 | Moderate | No change | Moderate | High | Moderate | Moderate to High |
| Viewpoint 27 | Low | No change | Low | Moderate | Low | Moderate to Low |
| Viewpoint A | N/A | High | N/A | Moderate | N/A | Moderate to High |
| Viewpoint B | N/A | Moderate | N/A | Moderate | N/A | Moderate |
| Viewpoint C | N/A | High | N/A | Moderate | N/A | Moderate to High |
| Viewpoint D | N/A | Moderate | N/A | Moderate | N/A | Moderate |

The Proposal has increased the magnitude ratings for a number of viewpoints, including viewpoints 18, 19, 20, 21, 23, 24, 25 and 27. The assessment has also considered the additional four viewpoints A, B, C, and D with a Moderate magnitude. The magnitude rating combined with the viewpoints sensitivity resulted in views having a Moderate or Moderate to High visual impact rating.

Overall, the visual impact ratings for the Proposal generally increased compared to those in the REF. Viewpoints 18, 19, 20, 21, 23, 24, 25 and 27 increased in impact ratings.

2.3 OVERSHADOWING

This section considers the potential overshadowing impacts as part of the overall Proposal on the public domain and private residences along the eastern and western sides of Prospect Highway. The noise walls which would overshadow residences are as follows:

- NW_NB02b
- NW_SB01
- NW_NB03b
- NW_SB02a and NW_SB02b
- NW_NB04a and NW_NB04b
- NW_SB03a and NW_SB03b

The noise walls vary in height from 2.5 to 4.5 metres and would require some existing vegetation to be removed either side of Prospect Highway for their construction. They are typically comprised of 3 x precast panels, with the lower 2/3 being a precast concrete panel and the top 1/3 being a transparent material.

Hampton Crescent southwest of Prospect Highway

The residences of Hampton Crescent back onto the western side of Prospect Highway, and the Great Western Highway exit ramp. The verge in this location currently consists of semi-mature trees screening Prospect Highway and the Great Western Highway from adjacent properties. Three noise walls are proposed in this area, one (NW_NB02b) of the two noise walls are offset at approximately 1.5 metres from property boundaries and the other (NW_NB01) is aligned with the roadside of the Great Western Highway exit ramp. The proposed construction works for Prospect Highway would require removal of a small number of trees where noise walls are proposed and in the adjoining areas where earthworks and construction zones are required.

The current overshadowing of Hampton Crescent is caused by a small number of trees on the western side of Prospect Highway that adjoins the Great Western Highway. The remainder of Hampton Crescent residences are not overshadowed by the adjacent trees. The longest shadow would occur in Winter during the early morning when the noise walls lower solid panels would obscure the low winter sun rise. Overshadowing would be less in summer mornings and would diminish by later in the morning. However, much of the overshadowing in late morning and afternoon would be reduced by the noise walls upper transparent panel.

Aldgate Street southeast of Prospect Highway

Several residences of Aldgate Street back onto the eastern side of Prospect Highway. The noise wall NW_SB01 would cast a direct shadow onto the properties in the afternoon. Much of the overshadowing would be mitigated against by the clear upper panels of the noise wall. However, properties would be overshadowed

in the late afternoon as the sun tracks to the west. The shadow would continue moving east becoming increasingly concentrated as the sun sets.

Keyne Street southwest of Prospect Highway

Noise wall NW_NB03b is located next to the shared path to the east of Prospect Highway approximately 35m from the rear fence of the residential properties along Keyne Street, Sher Place and the southern end of Fife Street. Overshadowing from this noise wall would be minimal due to the distance the wall is from these properties and the clear transparent material used for the full height of the wall.

Hollydale Place central east

Hollydale Place is located south of Blacktown Road and to the east of Prospect Highway. Two noise walls are proposed (NW_SB02a and NW_SB02b) to the rear of the properties. The overshadowing of properties would be directly affected by NW_SB02b that is located 1.5m west of the boundary fence. A small proportion of semi-mature trees are growing along the rear of the properties currently, which result in a minor amount of overshadowing. The proposed noise wall would replace this overshadowing with an increased and constant level of shadowing in from mid-afternoon year round, however, it will be more prominent in Winter during periods of low sun.

Fife Street Central west

Fife Street is located to the south of Lancelot Street on the western side of Prospect Highway. To the rear of Fife Street, the proposed NW_NB04a and NW_NB04b would have a direct overshadowing impact.

There are a number of existing trees on the land between Prospect Highway and the Fife Street boundary, and provide the properties with dappled overshadowing from early morning until the afternoon. Overshadowing would occur from noise walls in areas without mature trees to the rear of the properties, however, this would be less in areas with mature trees.

The overshadowing caused by the noise walls would gradually decrease from early morning until mid afternoon. However, most of the overshadowing in late morning and afternoon would be mitigated by the noise walls upper clear transparent panel. The longest shadow would occur in Winter during the early morning.

Topaz Crescent North East

Much of the overshadowing from the noise walls would occur on the eastern side of Prospect Highway at the rear of the Topaz Crescent residences. The area is currently overshadowed by a scattering of mature trees. However, these trees would be removed due to utilities relocation, therefore the dappled shadow would be replaced with a smaller solid shadow from the noise wall, which would become longer as the sun sets and lower panels are exposed.

Conclusion

Overshadowing would occur of all residences adjoining the proposed noise walls, however, its impact would vary depending on existing vegetation within the road reserve. The impact on the western side of Prospect Highway would occur in the

morning, while on the eastern side it would occur in the afternoon. In both cases, the impact would be greatest in Winter. The transparent upper panel of the noise wall would mitigate against the impact of overshadowing on properties where the proposed noise walls are located in close proximity to rear boundary fences.

3. MITIGATION MEASURES

The REF identified design criteria for Noise walls, these include;

- Limit the number of new noise barrier types to simplify and provide a consistency and identity for the Highway.
- Noise barriers on bridges are to be transparent panels to provide views and openness.
- Noise barriers are to be streamlined in plan. All angles to be smoothed off to create soft sinuous curves.
- Noise barriers are to run parallel to road edge. If this is not possible a smooth exit and return curve is required.
- Barrier heights to be rationalised to limit the number of height changes. A consistent top edge line is required.
- Avoid stepping of the top edge wherever possible. Tilt panels so that they run parallel to the ground plane.
- Consider impacts of fixing details at the post.
- The appearance of both sides of the noise barrier should be equivalent in design quality.
- Fixing systems and footings must be concealed.
- Provide an end treatment which is integral with the barrier design and responsive to the context of the termination point.

These design criteria identified in the REF have been adopted and developed through the detail design process. The following design criteria has been applied for the proposed noise walls to minimise their visual impact:

- Establish an identity along Prospect Highway for the road user which reflects the southern entry to Blacktown
- The noise wall panel design has considered both the road user's and road neighbour's views
- A concrete panel base with a transparent top section has been adopted. The wall is to consist of three equal parts:
 - The top third is to be a transparent panel to minimise overshadowing of residences and visibility
 - The bottom two thirds are to consist of two colours of similar shades to reduce the visibility of the solid panels. Any variation in the height of the wall is to be taken up in the bottom third
 - Panels to have a sand blasted or bead blasted finish to discourage graffiti. The same finish is proposed on both sides of the panels
- Noise wall heights have been rationalised to limit the number of height changes. A consistent top edge line has been provided
- Stepping of the top edge has been avoided wherever possible. Panels would generally run parallel to the ground plane
- Steel 'T' section posts are proposed between the panels of the noise walls. The design intent of these posts include;

4. CONCLUSION

In summary, the qualitative assessment concluded that while the Proposal would marginally increase the magnitude, the additional noise walls and removal of vegetation for the relocation of utility power lines were sufficient to increase the magnitude ratings in zone 8. Therefore, the proposed ratings for impacts to the landscape character have increase in zone 8 to that identified in Section 6.4 of the REF, from Moderate to **Moderate to High**.

The proposed changes would increase the visual impact of the majority of the viewpoints. However, the proposed rating for visual impacts are mostly unchanged with the exception of 18, 19, 20, 21, 23, 24, 25 and 27

These changes were sufficient to increase visual impact ratings in the above mentioned viewpoints. The visual impact rating increased in seven viewpoints due to the proximity of the viewer to the Proposal:

- Viewpoint 18 increased from Moderate to low to **Moderate**
- Viewpoint 19 increased from Moderate to **Moderate to High**
- Viewpoint 20 increased from Moderate to **Moderate to High**
- Viewpoint 21 increased from Moderate to **Moderate to High**
- Viewpoint 23 increased from Moderate to **Moderate to High**
- Viewpoint 24 increased from Moderate to **Moderate to High**
- Viewpoint 25 increased from Moderate to **Moderate to High**
- Viewpoint 27 increased from Low to **Moderate to Low**.

Additionally the visual impacts assessment was undertaken at four new Viewpoints A, B, C and D. This resulted in a general rating of **Moderate** or **Moderate to High** visual impact for these viewpoints.

The greatest overshadowing impacts would be most likely experienced on the western side of Prospect Highway, due to orientation, height and length of the proposed noise walls. The clear transparent upper panel of the noise wall would assist in reducing the impact of overshadowing on properties.

Mitigation measures have been adopted in the design process to minimise the visual impact of the noise walls and the relocation of utilities and to integrate with the surrounding landscape. Appropriate species selection and planting densities of trees and understory planting will reinforce the 9 identified Landscape Character Zones as well as meet the design outcomes identified in Blacktown City Council's strategic document 'Eyes on Blacktown' 2014 whereby establishing a coherent unified design solution and creating a functional street with an attractive identity.

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