Viewpoint 40 - Princes Motorway

Viewpoint 40 is located along the Princes Motorway, looking north towards the project boundary. Being located along an existing major road featuring an attractive backdrop and mature framing vegetation, the visual sensitivity of motorists is considered moderate - refer *Plate 3-1*.

The current design proposes to replace existing noise walls with noise barriers up to 8 meters high along the northbound carriageway and up to 7.5 meters high along the southbound carriageway - refer *Plates 3-1 and 3-2*. This would result in the removal of existing vegetation which is unlikely to be replaced due to safety and maintenance requirements within the road corridor. In addition there would be a notable increase in the height of the barriers framing the corridor, creating an effect of driving along a sunken road amongst walls in excess of 2.5 storeys tall. The magnitude of the proposed change is assessed as high and therefore the visual impact rated as **moderate-high**.

Plate 3-1: New viewpoint 40 - Princes Motorway looking north (source: Google StreetView)

Plate 3-2: New viewpoint 40 - Photomontage illustrating the proposed changes to the existing Princes Motorway corridor in southern Dapto including noise barriers (source: Spatial Media)

Viewpoint 41 - Mount Brown Road, Dapto

Viewpoint 41 is located at the eastern end of Mount Brown Road, a residential cul-de-sac in southern Dapto, west of the Princes Motorway - refer *Plate 3-3*.

The proposed Dapto northbound noise barrier would be located along residential property boundaries and terminate the view at the eastern end of the street. The wall is proposed to be up to 6.5m high above existing ground level and would include a combined drainage and maintenance access apron between the wall and private properties, leaving little space for vegetative screening - refer *Plate 3-4*.

The barrier may result in the removal of additional existing mature vegetation currently located between residential properties and the Princes Motorway that potentially may not have been affected by construction of the EIS design.

Construction of the barrier would fundamentally alter the outlook along the street and from residential properties as the currently tree-lined backdrop would be replaced by a noise barrier in excess of two storeys tall.

The barrier may also affect attractive long-distance views across the Macquarie Valley, currently enjoyed from an a number of properties. Depending on design resolution and the level of transparency of the barrier, it has the potential to block the eastern sun and create over-shadowing effects on residential properties, affecting both internal living spaces and backyards.

Viewers of the barrier would be predominantly local residents. Their sensitivity to change in their home environment and its visual setting is likely to be **high**. The visual impact on the view has been assessed as **high**. It is unlikely to reduce over time due to the lack of available space for vegetative screening or the like.

3.2.2. South of the Illawarra Regional Airport

The revised design has reduced the footprint of the works, as a result of the removal of the northbound exit lane to Albion Park via the Illawarra Highway. It has also moved the project boundary away from the airport precinct north of Tongarra Road. The angle of the bridge (BR09) over Frazers Creek has been slightly changed to the north-west. The northbound exit has been relocated to south of and exiting onto Tongarra Road.

Viewpoints potentially affected by these changes are viewpoints 14, 15, 16 and 18.

Viewpoint 14

The visual impact from viewpoint 14 would be reduced as a result of the removal of the northbound exit lane, reducing roadworks in this area and enabling retention of existing vegetation along the Illawarra Highway. The magnitude of the proposed upgrade is revised to low, reducing the visual impact on viewpoint 14 to **moderate-low**.

Viewpoint 15

Due to the oblique angle of the viewpoint and a distance in excess of 500 metres, the removal of the northbound exit would be difficult to discern from this viewpoint. However, the resulting retention of existing vegetation would somewhat reduce the visual changes to this view relative to the EIS. However in the context of the scale of the proposed upgrade this change is only small and would not reduce the overall magnitude of the change in this view.

Plate 3-3: New viewpoint 41 - eastern end of Mount Brown Road (source: HCJV)

Plate 3-4: New viewpoint 41 - Photomontage illustrating the proposed Dapto northbound noise barrier (source: Spatial Media)

Viewpoint 16

Viewpoint 16 from Albion Park Showground would retain the same visual impact rating due to the angle and distance of the view which would render the removal of the northbound exit difficult to discern.

Viewpoint 18

Viewpoint 18 from Ravensthorpe would retain the same visual impact rating due to the angle and distance of the view which would render the change in location of the northbound exit and the change in the Frazers Creek bridge angle difficult to discern. The visual impact on this view is primarily a result of the bridge structure over Tongarra Road which has not changed from the EIS design.

In summary, changes to the design south of the Illawarra Regional Airport would only alter the visual impact rating for viewpoint 14, reducing the impact from previously moderate to moderate-low.

3.2.3. Stapleton's Bridge/ Tongarra Road

The new location of the northbound exit lane from the proposed bypass to Tongarra Road increases the footprint of the proposed works south of Tongarra Road, with flow-on effects on the landscape design.

The current design moves the works boundary slightly to the east, closer toward Ravensthorpe and now includes the Stapleton Bridge fully within the works boundary. The Tongarra Road alignment has moved slightly to the south, away from Ravensthorpe, to tie back into the existing road prior to reaching Stapleton's Bridge. Other changes include the relocation of the northbound Albion Park exit to the southern side of and connecting to Tongarra Road.

Viewpoints potentially affected by these changes are viewpoints 16, 17, 18, 19, 20, 21, 22 and 23. Viewpoints 16 and 18 were discussed in section 3.2.2 above. The remaining viewpoints are discussed below.

Viewpoint 17

Viewpoint 17 looking east along Tongarra Road would retain the same visual impact rating. Due to the distance, topography and intervening vegetation the new northbound exit would not be discernible.

Viewpoint 19

Viewpoint 19 looking south-west from Tongarra Road towards Terrys Reserve would retain the same visual impact rating. Being located on the far side of the mainline and with an elevation lower than the bypass itself, the proposed relocated northbound exit ramp would not be discernible.

Viewpoint 20

Viewpoint 20 looking north-east from Frazer Crescent would retain the same visual impact rating. Being located on the far side of the mainline and with an elevation lower than the bypass itself, the proposed relocated northbound exit ramp would not be discernible.

Viewpoint 21

Viewpoint 21 looking west from the BMX track would retain the same visual impact rating. Due to the viewing distance in excess of 500 metres and intervening vegetation, the proposed relocated northbound exit ramp would not be discernible.

Viewpoint 22

Viewpoint 22 looking north-east from the new underpass would retain the same visual impact rating. Due to the viewing distance in excess of 400 metres and intervening vegetation, the proposed relocated northbound exit ramp would not be discernible.

Viewpoint 23

Viewpoint 23 looking north from the Pony Club in Terry Reserve would retain the same visual impact rating. With a viewing distance in excess of 450 metres, the proposed increase in road infrastructure associated with the relocated northbound exit ramp would not be discernible. It would not alter the magnitude of the proposal within the view which was previously assessed as high. The visual impact rating remains the same, namely high.

In summary, changes to the design south of Tongarra Road would not alter the visual impact rating for any of the nearby viewpoints.

3.2.4. Swansea Dairy Site And Farmhouse

Design changes in the vicinity of the Swansea Dairy site and farmhouse include the extension of the temporary works boundary towards the Swansea farmhouse to create larger ancillary sites for use during construction activities. As a result, the temporary works boundary has been extended towards the Swansea farmhouse. This adjustment would lead to a larger temporarily disturbed area which would need to be rehabilitated following construction.

Viewpoints potentially affected by these changes are viewpoints 27 and 28.

Viewpoint 27

Viewpoint 27 looking south from Croome Road would retain the same visual impact rating. The major change to this view would result from the 5 meter high stockpile mound in the foreground of the view. The mound has not changed since the EIS and would block views of the bypass itself as well as of much of the bridge approach. Therefore any changes to the design would not be able to be perceived from this view.

Viewpoint 28

Viewpoint 28 looking south-west from the east-west link road would retain the same visual impact rating. The new boundary adjustments would lead to an increase in temporary visual impacts during construction. However, long term, the impacts on the view and on the Swansea farmhouse and dairy site would be minimal due to the minor impact of clearing of the existing grassy vegetation, which would be easy to restore to its current condition.

In summary, visual impacts on viewpoints in this area (27, 28) would remain the same as assessed in the EIS. Temporary visual impacts during construction would increase due to larger ancillary sites and higher visual exposure of the Swansea dairy site.

Viewpoint 29

Viewpoint 29 would retain the same visual impact rating. The amended project boundary would not be discernible from this view.

3.3 SUMMARY OF VISUAL IMPACT ASSESSMENT

15 of the 39 viewpoints used to assess the visual impact in *Technical Paper 10* are potentially affected by the revised road design and adjustments to the project boundary, representing about one third of all viewpoints. Those viewpoints are summarised in *Table 3-3* below. The table shows the visual impact identified in *Technical Paper 10* and the amended visual impact based on the revised design.

There are two areas where the revised road design has changed to a degree where it would affect the visual impact ratings identified in the EIS: in southern Dapto and south of the Illawarra Regional Airport.

South of the Illawarra Regional Airport the northbound exit lane onto the Illawarra Highway has been removed and the footprint of the proposed bypass has been reduced. As a result, the visual impact of the proposed bypass on viewpoint 14 would be lower than that identified in the EIS.

Two new views were introduced to assess the visual impact of the revised new noise mitigation measures in southern Dapto on motorists and residents. The assessment has found that there is an increase in visual impact as a result of the noise barriers that produce a moderate-high and high visual impact respectively.

Table 3-3: Summary of viewpoints affected by the revised road design and project boundary adjustments.

	EIS DESIGN VISUAL IMPACT (*TECHNICAL PAPER 10*)			**VISUAL IMPACT OF REVISED DESIGN**		
VIEWPOINT	Sensitivity	Magnitude	Impact	Sensitivity	Magnitude	Impact
VP 1	H	M	**HIGH-MODERATE**	H	M	**HIGH-MODERATE**
VP 2	H	M	**HIGH-MODERATE**	H	M	**HIGH-MODERATE**
VP 14	M	M	**MODERATE**	M	L	**MODERATE-LOW**
VP 15	M	M	**MODERATE**	M	M	**MODERATE**
VP 16	H	H	**HIGH**	H	H	**HIGH**
VP 17	M	H	**HIGH-MODERATE**	M	H	**HIGH-MODERATE**
VP 18	H	H	**HIGH**	H	H	**HIGH**
VP 19	M	M	**MODERATE**	M	M	**MODERATE**
VP 20	M	M	**MODERATE**	M	M	**MODERATE**
VP 21	**H**	**H**	**HIGH**	**H**	**H**	**HIGH**
VP 22	**H**	**H**	**HIGH**	**H**	**H**	**HIGH**
VP 23	**H**	**H**	**HIGH**	**H**	**H**	**HIGH**
VP 27	M	H	**HIGH-MODERATE**	M	H	**HIGH-MODERATE**
VP 28	M	M	**MODERATE**	M	M	**MODERATE**
VP 29	M	H	**HIGH-MODERATE**	M	H	**HIGH-MODERATE**
VP 40	N/A - new viewpoint			M	H	**HIGH-MODERATE**
VP 41	N/A - new viewpoint			H	H	**HIGH**

TABLE LEGEND

Reduced visual impact relative to EIS

Increased or new visual impact relative to EIS

3.4 REFINEMENT OF NOISE MITIGATION MEASURES

The Dapto northbound and Dapto southbound noise barriers discussed in this Addendum have been determined following the Roads and Maritime *Noise Criteria Guidelines*, however, these need to be confirmed during detailed design.

This process to confirm the final noise barrier layout and heights would be:

- Consideration of the protrusions into the operational and aspirational OLS that are identified in the Aviation Impact Assessment addendum report. In the event that the protrusion is deemed unacceptable, this may restrict the maximum height of the noise barriers
- Confirmation that there are no engineering feasibility issues preclude the construction of the noise barriers discussed in this Addendum
- Establish a community groups for each corresponding noise barrier at Dapto which consists of the residents from properties identified as exceeding, without mitigation, the *Noise Criteria Guideline* (Roads and Maritime, 2015) in the adjoining noise catchment area and any residents otherwise impacted by the construction of the noise wall
- Develop feasible options for each noise barrier including the associated potential impacts for each options such as visual, noise and overshadowing. Visual impacts include both changes to the urban character and setting and potential impacts on long-distance views. A “no change” to existing barrier or “no barrier” option would be included in each option series
- Present the options to the relevant community groups allowing the opportunity for the group members to provide feedback on the preferred option to be utilised in the short listing of the two preferred options
- Select the preferred noise barrier option with the majority community support from the consultation process undertaken.

Technical Paper 10 identified a range of management measures designed to reduce or remove the landscape character and visual impacts that would result from the proposed bypass. In response to the additional impacts identified in this Addendum, the following modified management measure is proposed for inclusion in the project approval:

The need for operational phase noise management measures, including low noise pavement, noise barriers or architectural treatments, will be confirmed during detailed design. The chosen noise barrier design will be selected following investigations into engineering feasibility of the proposed mitigation measures and community consultation with residents from properties identified as exceeding, without mitigation, the Noise Criteria Guideline (Roads and Maritime, 2015) in the adjoining noise catchment area. The mitigation measures will be provided as early as practicable in the construction program to reduce potential noise impacts associated with construction.

From an urban design and visual perspective, were noise barriers found to be the preferred noise mitigation strategy during future detailed design studies and consultation, the design of the barriers should seek to minimise the identified visual and amenity impacts.

Any noise barriers required along the proposed upgrade is to be designed and developed in accordance with the Roads and Maritime *Noise wall design guideline* to maximise urban

design and visual outcomes. This may involve refinements to both the design and the alignment of the barrier. The latter may provide opportunities to provide for a landscaped strip between noise barriers and residential properties, in order to reinstate a vegetated outlook over time.

4. CONCEPT DESIGN DRAWINGS

The general approach to the landscape design as identified in *Technical Paper 10* is to

- Provide a well vegetated road corridor that aims to integrate the proposed bypass with the surrounding landscape
- Provide motorists with a sense of place along the journey.

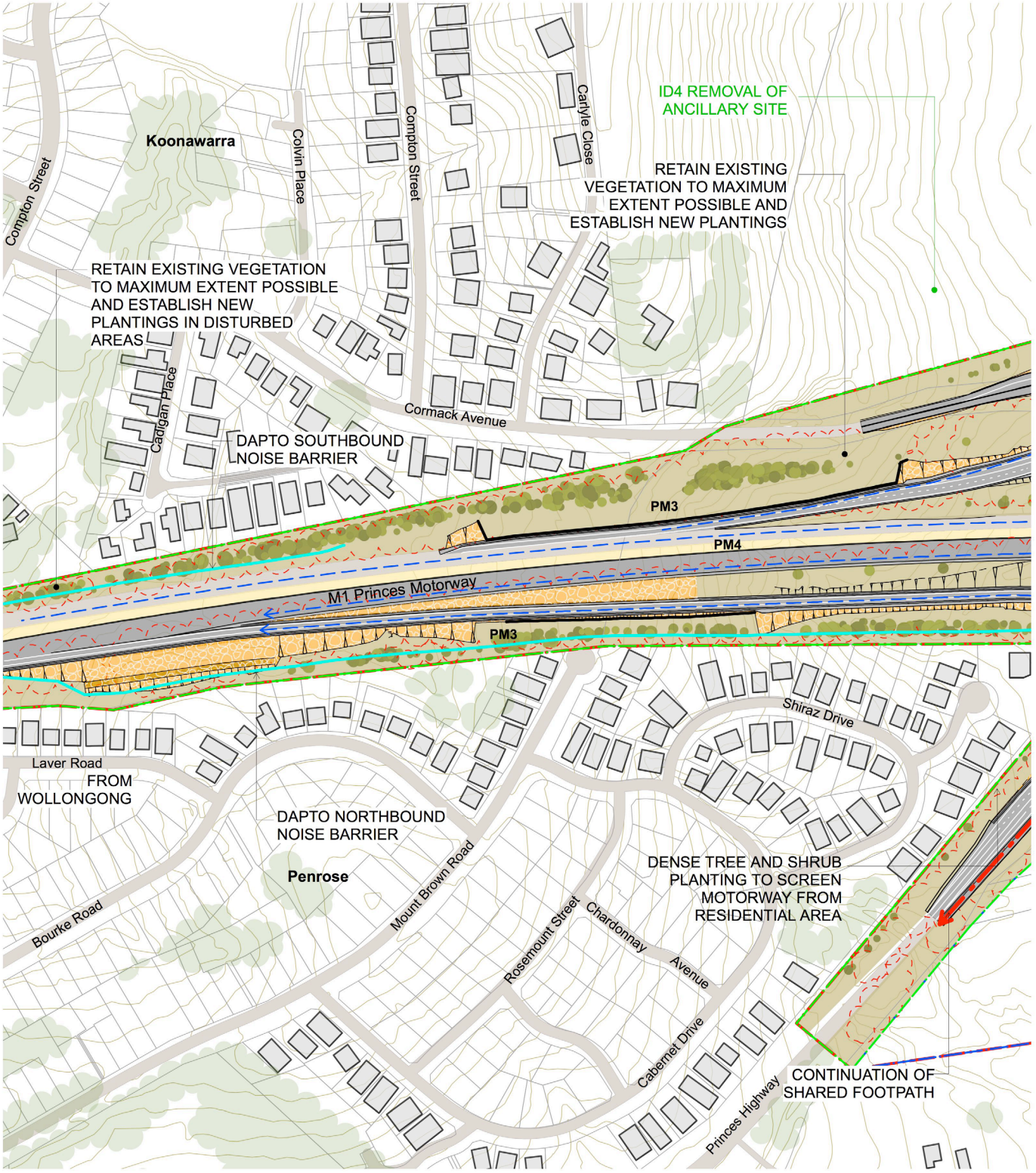
In order to achieve this, the design of vegetation along the bypass must strike a balance between screening the bypass from sensitive views and maintaining key views for motorists from the bypass to the surrounding landscape.

In addition, the landscape design aims to minimise the potential ecological impacts of the proposed bypass by stabilising earthworks to prevent erosion and by reinforcing existing habitats and ecological corridors through integration of endemic species.

The following pages present the concept design for the Albion Park Rail bypass as revised in response to feedback from stakeholder consultation and EIS exhibition. The drawings reflect the design refinements made including

- Reconfiguration of the central interchange
- Reduction in the project footprint within agricultural land,
- Refinements to intersection arrangements in response to further detailed traffic modelling
- Integration of additional noise barriers.

The revised road design does not alter the landscape design strategy, the aims of which as per *Technical Paper 10*. As a result of the revised road design some adjustments to the landscape design are required. They primarily involve a reduction in feature planting and vegetated areas due to the smaller footprint relative to the EIS design and to suit the surrounding rural landscape character.



LEGEND

- PROJECT FOOTPRINT
- PERMANENT ROAD BOUNDARY
- TEMPORARY WORKS AREA
- PROPOSED ROAD BARRIERS
- PROPOSED RETAINING WALLS
- CADASTRAL BOUNDARIES
- PROPOSED NOISE BARRIER
- POTENTIAL VEGETATION CORRIDOR
- OFF ROAD PEDESTRIAN AND CYCLIST LINKS
- ON ROAD/SHOULDER CYCLIST LINKS ALONG THE MOTORWAY
- PROPOSED ACCESS MAINTENANCE TRACK
- EXISTING BUILDINGS
- EXISTING BUILDINGS TO BE REMOVED
- EXISTING VEGETATION TO BE RETAINED OUTSIDE THE ROAD CORRIDOR BOUNDARY
- EXISTING VEGETATION TO BE REMOVED