7.4 NEWINGTON & LIDCOMBE

OPPORTUNITIES AND CONSTRAINTS

KEY ISSUES:

- Disturbance to vegetation beside north verge to on-ramp.
- Existing strong vegetation for the majority of this area, enclosing the motorway experience.
- Reinforce presence of Haslams Creek for motorists.
- Assess ways of reducing impacts to threatened vegetation an significant vegetation in open space/road verge adjacent on-ramp for Hill Road. Ch. 6220-6400.
- Minimise impacts to threatened Shale-Gravel Transition Forest species, south verge, in vicinity of new loop ramp.

KEY OPPORTUNITIES:

- Reinforce existing vegetation communities, and ensure woodland plantings reflect higher biodiversity than the existing, to reflect Shale-Gravel Transition Forest species.
- Introduce median plantings where space is wide enough for safety with wire rope barriers.
- In identified compound areas, and wherever possible, assess potential to provide additional planting for visual mitigation and spatial definition to corridor after construction.
- Provide tree protection fencing to significant treed areas within future compound sites to minimise visual mitigation for project.

Figure 7.45 Minimise impacts on the existing open space on the north side of the motorway at Hill Road including to remnant vegetation where possible

Figure 7.46 The existing significant Sydney Blue Gums in the vicinity of the new on-ramp from Hill Road.

Figure 7.47 The existing tree planting on the north side of the motorway in the vicinity of the loop ramp extension. Minimise impacts to threatened vegetation species.

Figure 7.48 Existing remnant Shale-Gravel Transition Forest to the west of Hill Road intersection with Parramatta Road and Bombay Street. Vegetation to be protected during construction works.

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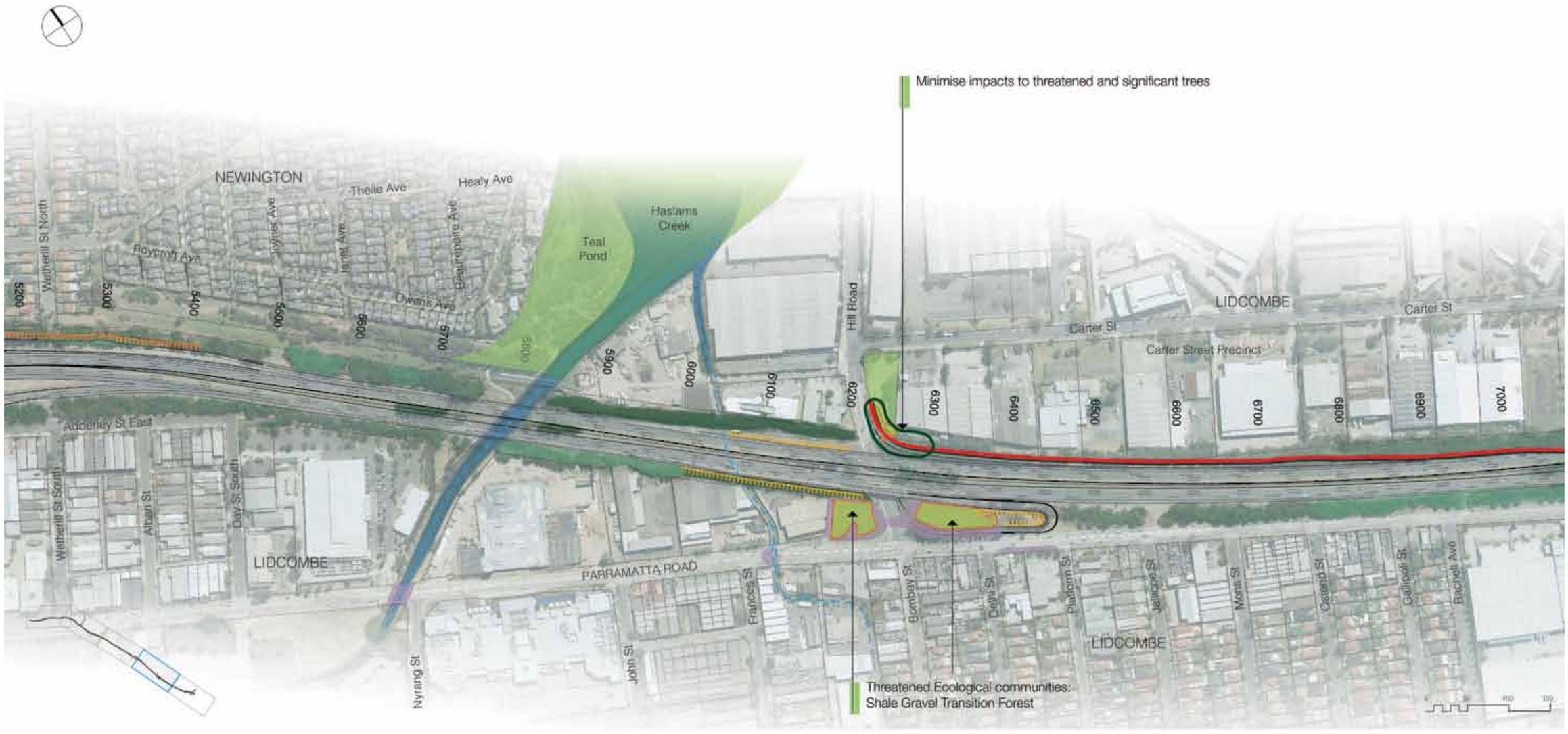

opportunities and constraints

Existing Vegetation:

- Eucalypt dominant
- Casuarina dominant
- Ficus dominant
- Exotic areas / weed dominant
- Opportunity to establish riparian corridor
- 1:100 year flood level
- Creeks / Rivers
- Stormwater channel: potential to integrate WSUD long term
- Above ground (new viaducts)
- Retaining walls
- On high ground
- In cutting
- European heritage items/areas
- Aboriginal heritage sites
- Areas with high visual impact
  Refer to chapter 9.0
- Visually detracting elements
- Proposed partial property acquisition areas with opportunity for enhancing green corridor

NOTE: Property acquisitions as at time of documentation

Figure 7.49 Opportunities and Constraints - Sheet 4

STRATEGIC DESIGN

KEY DESIGN ELEMENTS:

- Reinforce *Ficus* trees on batter, north verge, Ch. 5200-5400.
- Introduce medium scale tree planting with shrub and native tussock understory in wide sections of median to reinforce Haslams Creek crossing.
- Investigate ways of minimising impacts to threatened vegetation and significant Sydney Blue Gums in vicinity of new on-ramp, north verge, adjacent Hill Road, Ch. 6250.
- Streetscape plantings beside extended ramp, south corridor, beside Parramatta Road.
- Infill planting to southern verge, Platform Street to Ostend Street.
- Introduce new plantings of native grasses/tussocks in median to mark the proposed Carter Street Precinct.
- Ensure impacts to threatened areas of Shale-Gravel Transition Forest are minimised.

Figure 7.50 Model view looking east along the motorway toward Haslams Creek with the Newington residential area on the left hand side of the image.

Figure 7.51 Model view looking west, with Parramatta Road in the foreground and the extended on-ramp to the motorway in the middleground.

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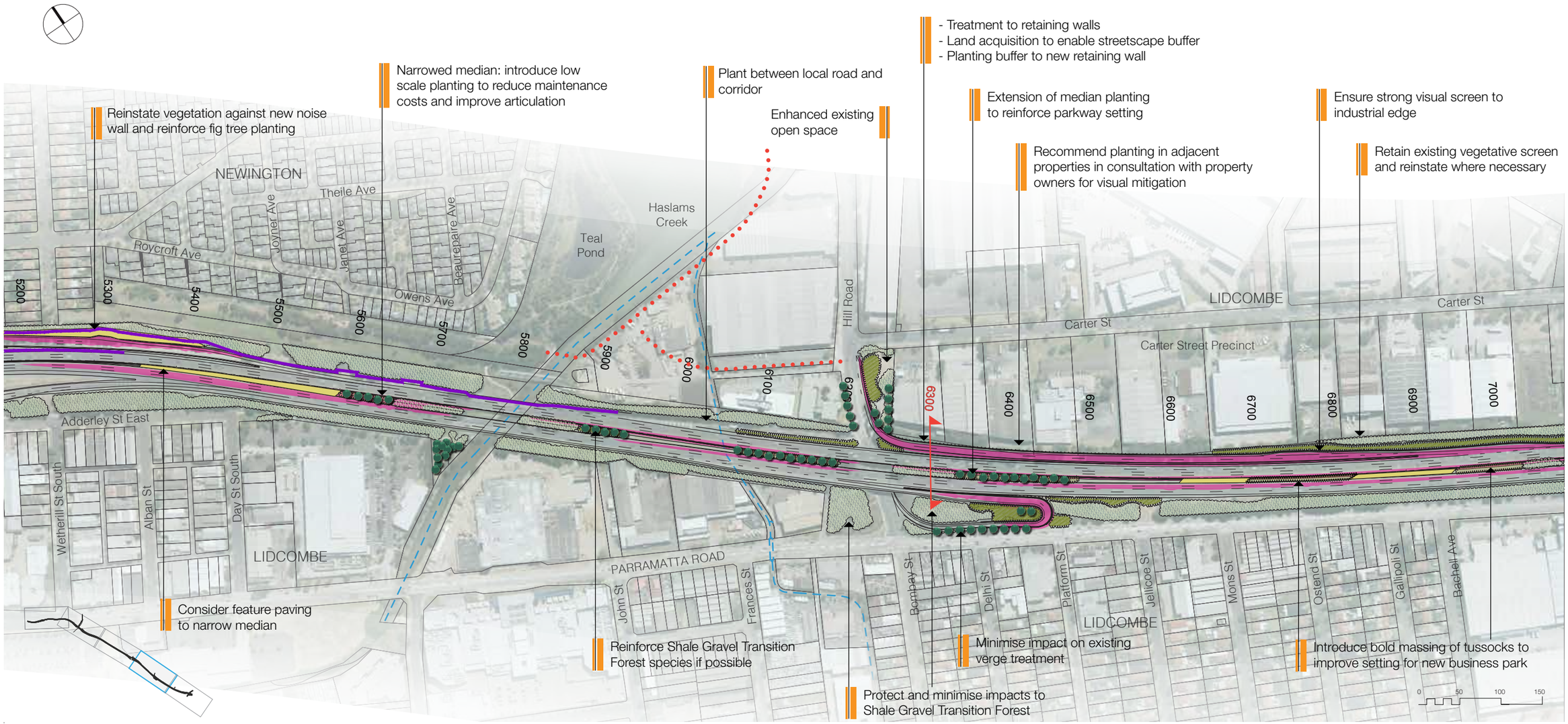

design strategies

- Existing vegetation
- Woodland / Cumberland Plains Woodland
- Riparian / River Flat forest
- Eucalypt dominant tree planting
- Indigenous shrubs
- Native grasses & tussocks

BUILT ELEMENTS

- New pavement
- New viaduct
- Noise walls

NOTE:

For noise wall types and positions refer to the Noise Wall Plans, Sheets 1 to 4 within this report. For more definitive information on noise walls, refer to the project *Draft WestConnex M4 Widening Pitt St Parramatta to Homebush Bay Drive, Homebush Construction and Operational Road Traffic Noise and Vibration Impact Assessment* (SLR, 2014).

Figure 7.52 Design Strategies - Sheet 4

Noise Walls

The five sections of existing wall which incorporate a depiction of an athlete should be retained.

Further east, over Haslams Creek, a new wall would be required as an extension of the existing noise wall. Where feasible, this wall would be finished in transparent acrylic panels to allow for contextual views towards the creek.

Figure 7.53 View of the noise wall east of Silverwater Road (eastbound on-load ramp), showing feature panels of athletes. These panels would be protected and reinstated if required.

Figure 7.54 View from Haslam Creek bridge (eastbound). Acrylic panels are proposed for the new noise wall in this location to retain contextual views towards the creek.

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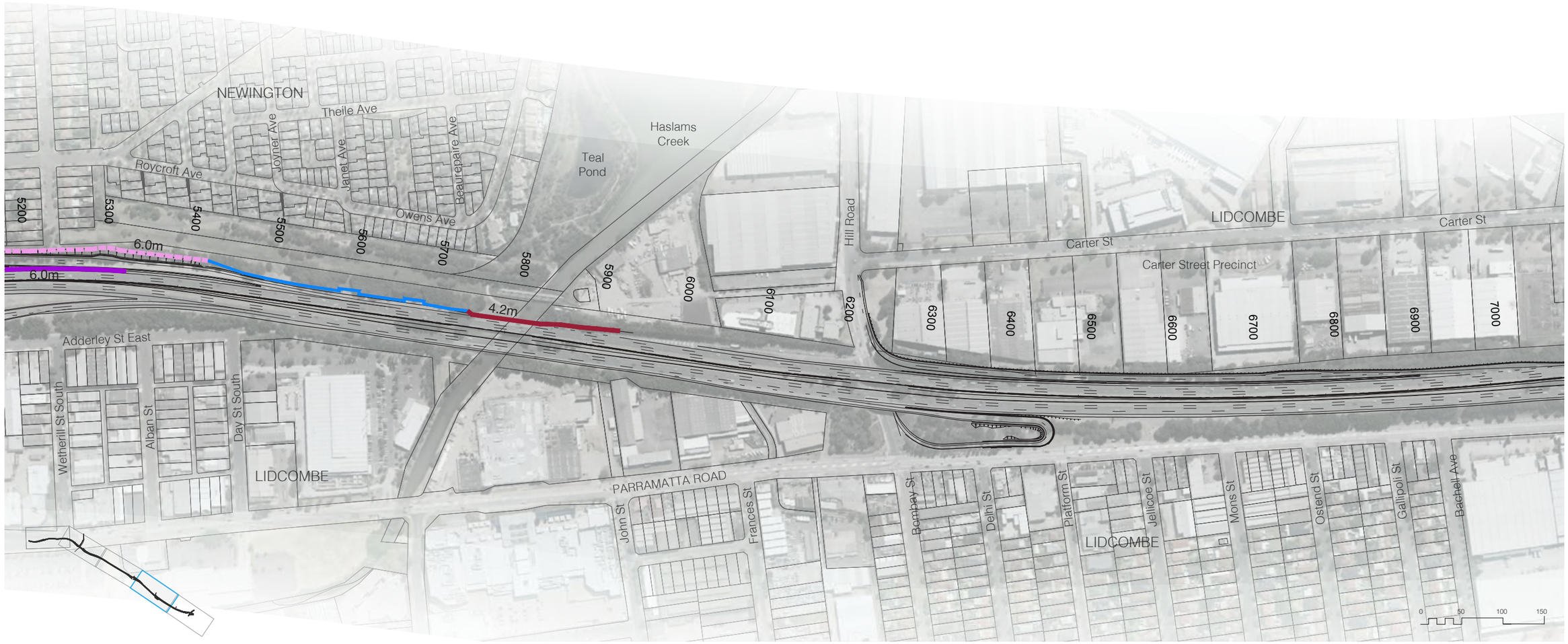

noise walls

EXISTING NOISE WALLS RETAINED

- Precast concrete panel
- Transparent panel on viaduct
- Precast panels with artistic motifs

PROPOSED NOISE WALLS

- CFC or Acrylic panel
- Precast concrete panel
- Existing precast concrete wall - height increased
- Existing precast concrete wall to be replaced
- 6.5m Proposed heights of new or modified noise wall

NOTE:

The information on the proposed noise wall locations and heights is indicative only, subject to change, and is produced only for the purposes of visual assessment. For more defintive noise attenuation information, refer to the project *Draft WestConnex M4 Widening Pitt St Parramatta to Homebush Bay Drive, Homebush Construction and Operational Road Traffic Noise and Vibration Impact Assessment* (SLR 2014).

Figure 7.55 Noise Wall Plan - Sheet 4

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SECTION - CH 6300

The section below is indicative of the proposed planting treatments to soften and screen the retaining walls either side of the new on-ramp from Hill Road to the M4 Motorway.

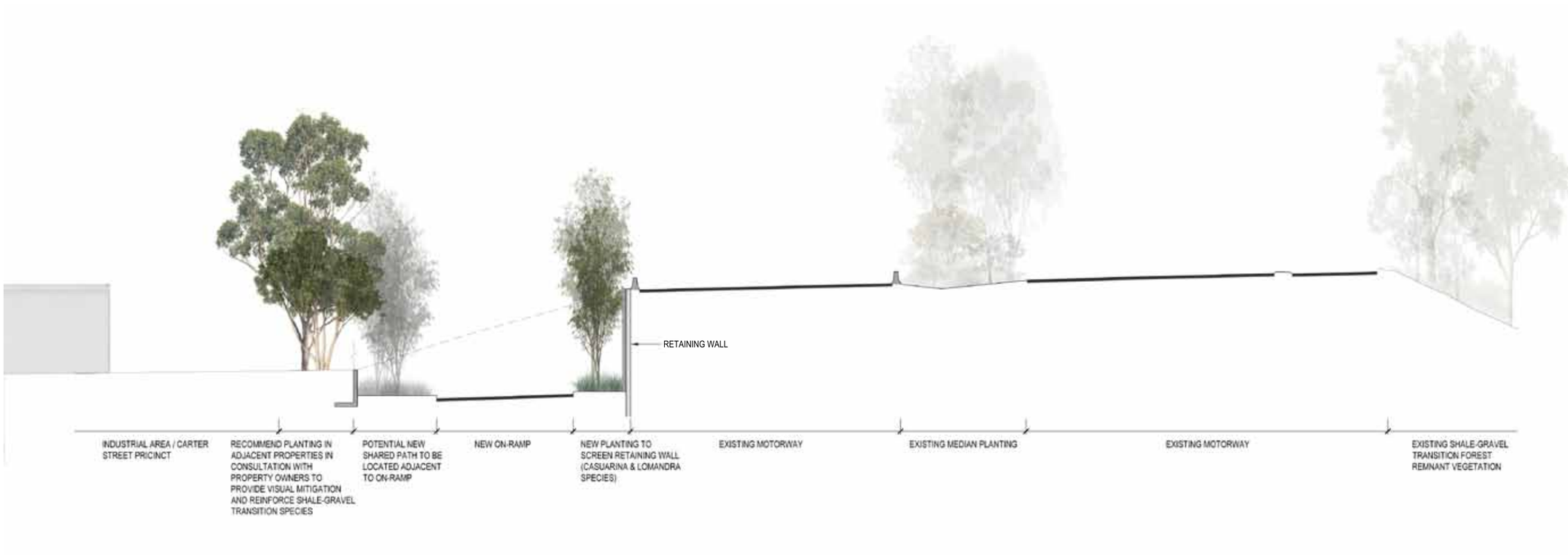

Figure 7.56 Section at Ch 6300

7.5 LIDCOMBE & HOMEBUSH

OPPORTUNITIES AND CONSTRAINTS

KEY ISSUES:

- There are minimal impacts in this zone, with the only construction element being the new G-loop on-ramp east of Homebush Bay Drive.

KEY OPPORTUNITIES:

- Minimise impacts to existing vegetation in area of steep batter where the G-loop on-ramp is proposed.

Figure 7.57 View looking west along the motorway towards Homebush Bay Drive overpass. The verge to the left would be impacted upon by a new G-loop on-ramp.

Figure 7.58 View looking east along the motorway towards Homebush Bay Drive overpass. The grass median would be narrowed to accommodate the widening works.

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opportunities and constraints

Existing Vegetation:

- Eucalypt dominant
- Casuarina dominant
- Ficus dominant
- Exotic areas / weed dominant

- Opportunity to establish riparian corridor
- 1:100 year flood level
- Creeks / Rivers
- Stormwater channel: potential to integrate WSUD long term

- Above ground (new viaducts)
- Retaining walls
- On high ground
- In cutting

- European heritage items/areas
- Aboriginal heritage sites

- Areas with high visual impact
  Refer to chapter 9.0
- Visually detracting elements
- Proposed partial property acquisition areas with opportunity for enhancing green corridor

NOTE: Property acquisitions as at time of documentation

Figure 7.59 Opportunities and Constraints - Sheet 5

STRATEGIC DESIGN

KEY DESIGN ELEMENTS:

- Introduce a low retaining wall in vicinity of the G-loop on-ramp to minimise impacts to woodland trees on already steep batter, east of Homebush Bay Drive.
- Opportunity to consider future pedestrian/cycle link, through utilising section of disused railway bridge, west of the Olympic Park Railway Line.

Figure 7.60 Model view looking west along the motorway towards Homebush Bay Drive overpass and the new G-loop on-ramp. Construction methods to minimise impact to existing trees.

Figure 7.61 Model view looking east along the motorway from approximate Ch 7400. The widening works are contained within the existing road corridor.

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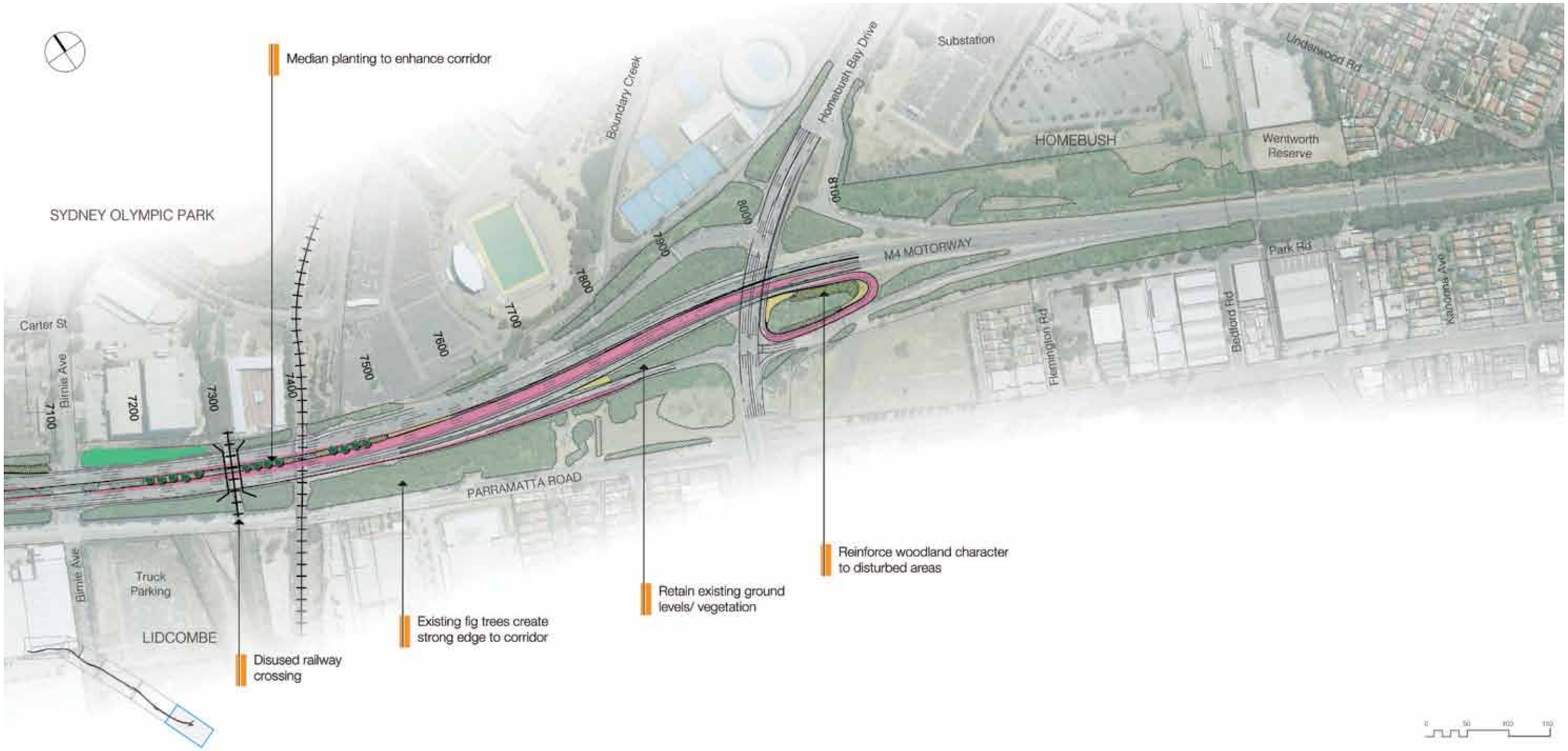

design strategies

- Existing vegetation
- Woodland / Cumberland Plains Woodland
- Riparian / River Flat forest
- Eucalypt dominant tree planting
- Indigenous shrubs
- Native grasses & tussocks

BUILT ELEMENTS

- New pavement
- New viaduct
- Noise walls

NOTE:

For noise wall types and positions refer to the Noise Wall Plans, Sheets 1 to 4 within this report. For more definitive information on noise walls, refer to the project *Draft WestConnex M4 Widening Pitt St Parramatta to Homebush Bay Drive, Homebush Construction and Operational Road Traffic Noise and Vibration Impact Assessment* (SLR, 2014).

Figure 7.62 Design Strategies- Sheet 5

7.6 PLANTING DESIGN

APPROACHES

SOIL LANDSCAPES INFLUENCE

The adjacent plan of Soil Landscapes identifies the reduced version of the plan in Chapter 2.0 - *Contextual Analysis* of this report. This illustrates the original, natural soil landscapes of the area, and drainage lines. This mapping reflects the indigenous landscapes on natural soils, that we believe should drive the species selection for planting design, where space permits, to ensure a sustainable landscape evolves, with low maintenance. The indigenous species also support local fauna/bird species, hence promoting biodiversity.

The soil landscapes information also provides useful background information in terms of landscape planning, open space system connections, and water sensitive design suitability.

In the previous section 2.4 the existing vegetation character of the project area was outlined and has directly influenced the design strategies.

ASSESSING MONOCULTURE PLANTINGS

The *Biodiversity Assessment* outlined five sub types of Planted Monocultures occurring within the project area. Generally where the works would impact on existing vegetation where one individual species is present, the design strategy for new planting in these areas is to emulate the existing vegetation. For example, adjacent the Holroyd Sportsground where Ficus species are dominant. Elsewhere, for example, in areas of dominant *Casuarinas* such as along A'Beckett Creek, new vegetation should set out to emulate the indigenous plant communities for creeklines/watercourses- to improve habitat/biodiversity.

PLANTING THEMES

The design strategy drawings in section 7.1 to 7.5 outline six new vegetation themes which are summarised below:

Woodland/Cumberland Plains Woodland - planted on new battered slopes and areas beyond the floodplain/creek area.

Figure 7.63 Soil Landscapes- influence planting themes
Source: this information has been sourced from the Soil Landscapes of Sydney, Soil Conservation Service of NSW (1989).

Refer to section 2.3 for larger map and legend.

Riparian/River Flat Forest - this community would be used to reinforce creek and river lines.

Ficus - new planting of Ficus is proposed at key locations to reinforce the existing planting and maintain local identity.

Indigenous shrubs - on batters, in narrow planting beds, and areas where trees cannot be planted in close proximity to the motorway.

Native grasses and tussocks - proposed as mass planting in key locations and as part of median enhancements to improve the overall setting.

Median enhancement - includes streetscape improvements, enhancing existing median treatments and on new medians within the M4 corridor. Consisting of Eucalypt plantings with an understorey of native shrubs, groundcovers and or tussocks as appropriate to the location.

The existing vegetation within the motorway corridor which is not impacted by the works is to be protected and retained with the exception of areas noted as exotic, weed infested and degraded.

In addition those areas to be revegetated alongside the watercourses should take into consideration the management plans prepared by the three local Councils. The plans to be referred to are the *Lower Duck River Riparian Management Plan* (November 2002) and the *Upper Duck River Wetlands & Management* (May 2012).

Overall the planting design should set out to reinforce the following indigenous plant communities of the Cumberland Plain, in the broader planting areas known on the soil landscapes:

Cumberland Plains Woodland, Shale Plains Woodlands - widely distributed on the Cumberland Plain, on higher ground.

River Flat Forest, Alluvial Woodland - planted in the vicinity of watercourses and on the floodplains.

Shale-Gravel Transition Forest - a transitional plant community which grades into Cumberland Plains Woodlands where the influence of gravel soil declines. This vegetation community is intended for use within the project to reinforce the existing remnant vegetation in the vicinity of Hill Road.

The classification of vegetation types has been sourced from *The Native Vegetation of the Cumberland Plain, Western Sydney: systematic classification and field identification of communities* (Tozer 2003).

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PLANT SPECIES MIXES

Following are indicative species lists appropriate for use in areas where the intent is to reflect the original indigenous plant communities of the area. Species lists need to be further assessed in detail design stage for appropriateness to area, microclimate, function, maintenance etc.

The selected species for revegetation also need to take into consideration the locality for new planting and the existing dominant species present to ensure there is appropriate integration with adjacent planting.

SHALE-GRAVEL TRANSITION FOREST

Trees	
Acacia parramattensis	Sydney Green Wattle
Eucalyptus fibrosa	Broad-leaved Ironbark
Eucalyptus molucanna	Grey Box
Eucalyptus tereticornis	Forest Red Gum
Melaleuca decora	White Feather Honeymyrtle
Shrubs/ Grasses	
Acacia falcate	Hickory Wattle
Bursaria spinosa	Australian Blackthorn
Daviesia ulicifolia	Gorse Bitter Pea
Dianella longifolia	Spreading Flax Lily
Echinopogon ovatus	Forest Hedgehog Grass
Goodenia hederacea	Ivy Goodenia
Lissanthe strigosa	Peach Heath
Microleana stipoides	Weeping Grass
Lomandra multiflora	Many Flowered Mat-Rush
Pultenaea villosa	Hairy Pea Bush
Themeda australis	Kangaroo Grass
Wahlenbergia gracilis	Australian Bluebell

SHALE PLAINS WOODLANDS

Trees	
Acacia parramattensis ssp. Parramattensi	Sydney Green Wattle
Corymbia maculata	Spotted Gum
Elaeocarpus reticulatus	Blueberry Ash
Eucalyptus crebra	Narrowleaf Ironbark
Eucalyptus eugenioides	Thin-leafed stringybark
Eucalyptus moluccana	Grey Box
Eucalyptus punctata	Grey Gum
Eucalyptus tereticornis	Forest Red Gum
Exocarpos cupressiformis	Cherry Ballart
Syncarpia glomulifera	Turpentine
Shrubs/Grasses	
Acacia linifolia	Flax Leafed Wattle
Breynia oblongifolia	Coffee Bush
Banksia spinulosa	Hairpin Banksia
Bursaria spinosa	Australian Blackthorn
Ceratopetalum gummiferum	NSW Christmas Bush
Dianella longifolia	Spreading Flax Lily
Dianella revoluta	Mauve Flax Lily
Dodonea triquetra	Common Hopbush
Echinopogon caespitosus	Tufted Hedgehog Grass
Grevillea juniperina	Juniper Grevillea
Hakea sericea	Bushy Needlewood
Imperata cylindrica	Blady Grass
Indigofera australis	Austral Indigo
Kunzea ambigua	Tickbush
Leptospermum juniperinum	Prickly Tea Tree
Leptospermum polygalifolium	Lemon Scented Tea Tree
Lomandra multiflora	Many Flowered Mat-Rush
Microleana stipoides	Weeping Grass
Persoonia linearis	Narrow Leaved Geebung
Pimelia linifolia	Rice Flower
Pultenaea micropylla	Spreading Bush Pea

RIVER FLAT FOREST

Trees	
Acacia parramattensis ssp. Parramattensi	Sydney Green Wattle
Angophora floribunda	Rough-barked Apple
Casuarina cunninghamiana	River She-Oak
Casuarina glauca	Swamp She-Oak
Eucalyptus amplifolia	Cabbage Gum
Eucalyptus molucanna	Grey Box
Eucalyptus tereticornis	Forest Red Gum
Melaleuca linariifolia	Flax-leaved Paperbark
Shrubs/ Grasses	
Acacia floribunda	White Sallow Wattle
Adiantum aethiopicum	Madenhair Fern
Bursaria spinosa	Australian Blackthorn
Callistemon linearifolius	Netted Bottlebrush
Dianella caerulea	Blue Flax Lily
Echinopogon ovatus	Forest hedgehog grass
Kunzea ambigua	Tickbush
Imperata cylindrica	Blady Grass
Leptospermum polygalifolium	Lemon Scented Tea Tree
Leucopogon juniperinus	Bearded Heath
Lomandra longifolia	Spiny-headed Mat-rush
Microleana stipoides	Weeping Grass
Ozothamnus diosmifolius	Everlasting
Poa labillardieri	Large Tussock Grass

Building for the future

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INDICATIVE PALETTE OF KEY PLANT SPECIES WITHIN VARIOUS RE-VEGETATION COMMUNITIES:

Shale Plains Woodlands

Trees

Acacia decurrens ‘Sydney Wattle’ | Eucalyptus moluccana ‘Grey Box’ | Eucalyptus punctata ‘Grey Gum’ | Eucalyptus tereticornis ‘Forest Red Gum’ | Syncarpia glomulifera ‘Turpentine’

Shrubs

Bursaria spinosa ‘Sweet Bursaria’ | Daviesia ulicifolia ‘Gorse Bitter Pea’ | Dodonea triquetra ‘Common Hopbush’ | Indigofera australis ‘Austral Indigo’ | Pultenaea micropyhlla ‘Spreading Bush Pea’

Grasses and Groundcovers

Dianella longifolia ‘Spreading Flax Lily’ | Hardenbergia violaceae ‘False Sarsparilla’ | Imperata cylindrica ‘Blady Grass’ | Lomandra multiflora ‘Many Flowered Mat- Rush’ | Microleana stipoides ‘Weeping Grass’ | Themeda australis ‘Kangaroo grass’

River Flat Forest - Alluvial Woodlands

Trees

Acacia parramattensis subsp. Parramattensi ‘Sydney Green Wattle’ | Angophora floribunda ‘Rough Barked Apple’ | Casuarina glauca ‘River She Oak’ | Eucalyptus amplifolia ‘Cabbage Gum’ | Eucalyptus moluccana ‘Grey Box’ | Eucalyptus tereticornis ‘Forest Red Gum’ | Melaleuca linariifolia ‘Flax-leaved Paperbark’

Shrubs and Grasses

Acacia floribunda ‘White Sallow Wattle’ | Adiantum aethiopicum ‘Madenhair Fern’ | Bursaria spinosa ‘Sweet Bursaria’ | Callistemon linearifolius ‘Netted Bottlebrush’ | Lomandra longifolia ‘Spiny- headed Mat-rush’ | Microleana stipoides ‘Weeping Grass’

Figure 7.64 Key species for re-vegetation communities - species images