

7.0 Environmental assessment

7.6 Biodiversity

This section provides a summary of the biodiversity assessment completed for the proposed modification. The full Biodiversity Development Assessment Report (BDAR) is provided in **Appendix H**. The BDAR assesses the potential biodiversity impacts of construction and operation the proposed modification, and identifies appropriate mitigation measures to avoid, minimise, then manage these impacts.

7.6.1 Introduction

Table 7-48 sets out the SEARs relevant to biodiversity and identifies where the requirements have been addressed in this section.

Table 7-48 SEARs - Biodiversity

Desired Performance Outcome	SEAR	Where addressed within the Modification Report
Biodiversity The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity. Offsets and/or supplementary measures are assured which are equivalent to any residual impacts of project construction and operation.	1. Prepare a Biodiversity Development Assessment Report (BDAR) that assess biodiversity impacts in accordance with s7.9 of the <i>Biodiversity Conservation Act 2016</i> (BC A7ct) and the Biodiversity Assessment Method (BAM).	A BDAR was prepared by Niche (2022) in accordance with s7.0 of the BC Act and is included as Appendix H (Biodiversity development assessment report), and summarised in this Section.
	2. The BDAR must document the application of the avoid, minimise and offset framework in accordance with the BAM.	The avoid, minimise and offset framework is documented in Section 3.1 of Appendix H (Biodiversity development assessment report).
	3. The BDAR must include information in the form detailed in s6.12 of the BC Act, cl6.8 of the <i>Biodiversity Conservation Regulation 2017</i> and the BAM, including details of the measures proposed to address the offset obligation as follows: <ul style="list-style-type: none"> (a) the total number and classes of biodiversity credits required to be retired for the developments/project; (b) the number of classes of like-for-like biodiversity credits proposed to be retired; (c) the number and classes of biodiversity credits proposed to be retired in accordance with the variation rules; (d) any proposal to fund a biodiversity conservation action; (e) any proposal to make a payment into the Biodiversity Conservation Fund; and (f) any stage retirement of credits based on when the development is 	Biodiversity credits required for the proposed modification are detailed in Section 7.6.6 and further detailed in Section 3.3 and Section 4 of Appendix H (Biodiversity development assessment report).

Desired Performance Outcome	SEAR	Where addressed within the Modification Report
	<p>carried out that would impact on biodiversity values.</p> <p>Note: <i>If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.</i></p>	
	<p>4. The BDAR must be submitted with all digital spatial data associated with the survey and assessment required by the BAM and as detailed in various guidelines, practice notes, updates and other advice issued by the Environment and Heritage Group of DPE (EHG) to BAM accredited assessors (see: https://www.environment.nsw.gov.au/topic-s/animals-and-plants/biodiversity-offsets-scheme/accredited-assessors/assessor-resources).</p>	Digital spatial data will be provided to the Department of Planning and Environment (DPE)
	<p>5. The BDAR must be prepared by a person accredited in accordance with the <i>Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017</i> under s6.10 of the BC Act.</p>	The BDAR was prepared by a relevant accredited person (refer Appendix H (Biodiversity development assessment report)).
	<p>6. The BDAR must include details of the measures proposed to address offset obligations.</p>	Measures proposed to address offset obligations are detailed in Section 7.6.6 and further detailed in Section 3.3 and Section 4 of Appendix H (Biodiversity development assessment report). Mitigation measures to reduce identified impacts are detailed in Section 7.6.6 .
	<p>7. Impacts on biodiversity values not covered by the BAM must be assessed. This includes a threatened aquatic species assessment (Part 7A <i>Fisheries Management Act 1994</i>) to address whether there are likely to be any significant impact on listed threatened species, populations or ecological communities listed under the <i>Fisheries Management Act 1994</i> (FM Act).</p>	Biodiversity values not covered by the BAM have been assessed in Appendix H (Biodiversity development assessment report).

Desired Performance Outcome	SEAR	Where addressed within the Modification Report
	8. Identify whether the project, or any component of the project, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the BC Act, FM Act and the <i>Environmental Protection and the Biodiversity Conservation Act 2000</i> (EPBC Act).	KTPs in relation to the proposed modification are addressed in Section 7.6.5

7.6.2 Method of assessment

Legislative and policy context

The biodiversity assessment was prepared in accordance with the following legislation and policies:

- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act)
- *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act)
- *Biodiversity Conservation Act 2016* (NSW) (BC Act)
- *Fisheries Management Act 1994* (NSW) (FM Act)
- *Biosecurity Act 2015* (NSW)
- *State Environmental Planning Policy (Resilience and Hazards) 2021*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
- *Biodiversity Assessment Methodology* (BAM) (DPIE, 2020).

Further details on how the aforementioned legislation and policies relate to the biodiversity assessment are provided in to **Appendix H** (Biodiversity development assessment report).

Method of assessment

The biodiversity impact assessment for the proposed modification identifies biodiversity values within the Westlink M7 construction footprint, assesses the potential impacts of the proposed modification on these biodiversity values and identifies appropriate mitigation measures to avoid, minimise and offset impacts.

The scope of the biodiversity assessment included the following:

1. Desktop assessment including a review of relevant databases within the locality (within a 10 kilometre radius around the study area (refer **Section 7.6.3**)
2. An assessment of the likelihood of occurrence to determine whether a particular species would be present in the study area to guide and inform field surveys to be carried out
3. Field surveys undertaken between 12-13 July, 7-10 and 23 September and 15 October 2021 to identify the biodiversity values within the study area including:
 - Native vegetation and flora surveys, including plant community mapping, flora species surveys and high threat weed species surveys, to determine presence of threatened ecological communities (TECs) and threatened flora in the study area
 - It is noted that post-survey, the construction footprint for the proposed modification was reduced to avoid impacts to areas of potential Aboriginal heritage sensitivity. As such, four of the biodiversity survey plots associated with these areas of the construction footprint are no longer located within the biodiversity assessment study area. As a result, the plot requirement for the Plant Community Type (PCT) 849_poor vegetation zone, as per the BAM, will not be satisfied. However, the values recorded from all four plots have

been applied throughout the BDAR and are used within the BAM-C to determine the offset requirement for the proposed modification.

- Fauna survey including a habitat assessment, a targeted microbat habitat assessment for the bridges, recording hollow-bearing trees, and an aquatic habitat assessment
- 4. Assessment of the potential impacts to biodiversity values during construction and operation of the proposed modification
- 5. Identification of appropriate measures, including any offsetting required, to avoid or mitigate the potential impacts of the proposed modification.

7.6.3 Study area

The study area for the biodiversity assessment is depicted in Figure 7-37 to Figure 7-41, as the 'Construction footprint' and includes the following features:

- The median strip
- Areas below the bridges that require widening
- Areas adjacent to bridges where pylons and supports are proposed
- Construction ancillary facilities (e.g. stockpile sites) and associated access tracks
- Named and unnamed creek lines below the bridges proposed to be widened.

To calculate native vegetation cover in the vicinity of the proposed modification, an additional 500 metre buffer around the construction footprint was used as shown in Figure 7-42 to Figure 7-46.

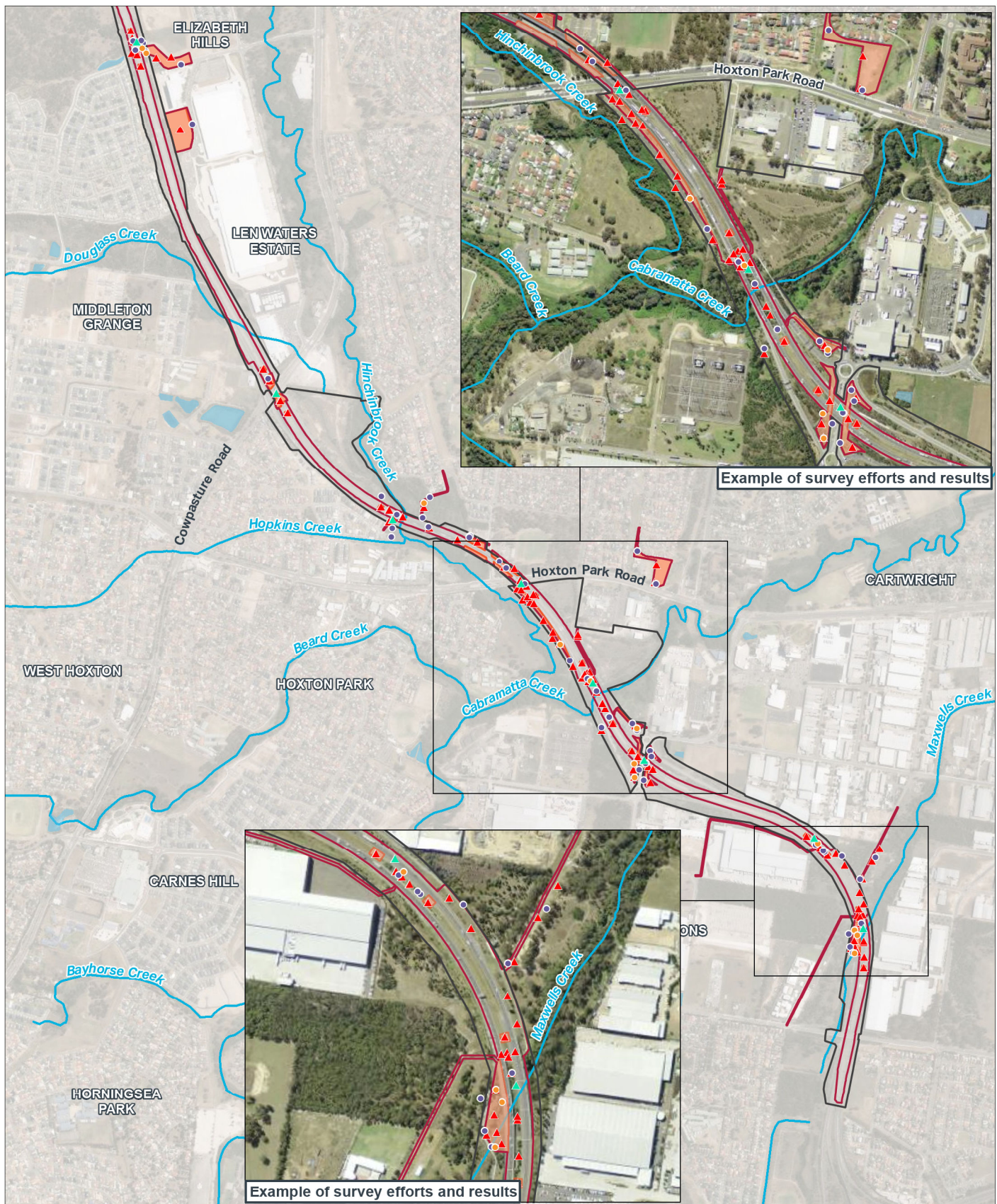


FIGURE 7-37: BIODIVERSITY ASSESSMENT STUDY AREA AND SURVEY EFFORT (SHEET 1 OF 5)

Legend

- Construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse
- Survey effort - flora**
- BAM plot
- RDP

Survey effort - fauna

- ▲ Cumberland Plain Land Snail survey
- ▲ Microbat habitat survey

Flora and fauna identified

- Hollow-bearing tree/stag identified
- ▲ Southern Myotis habitat identified



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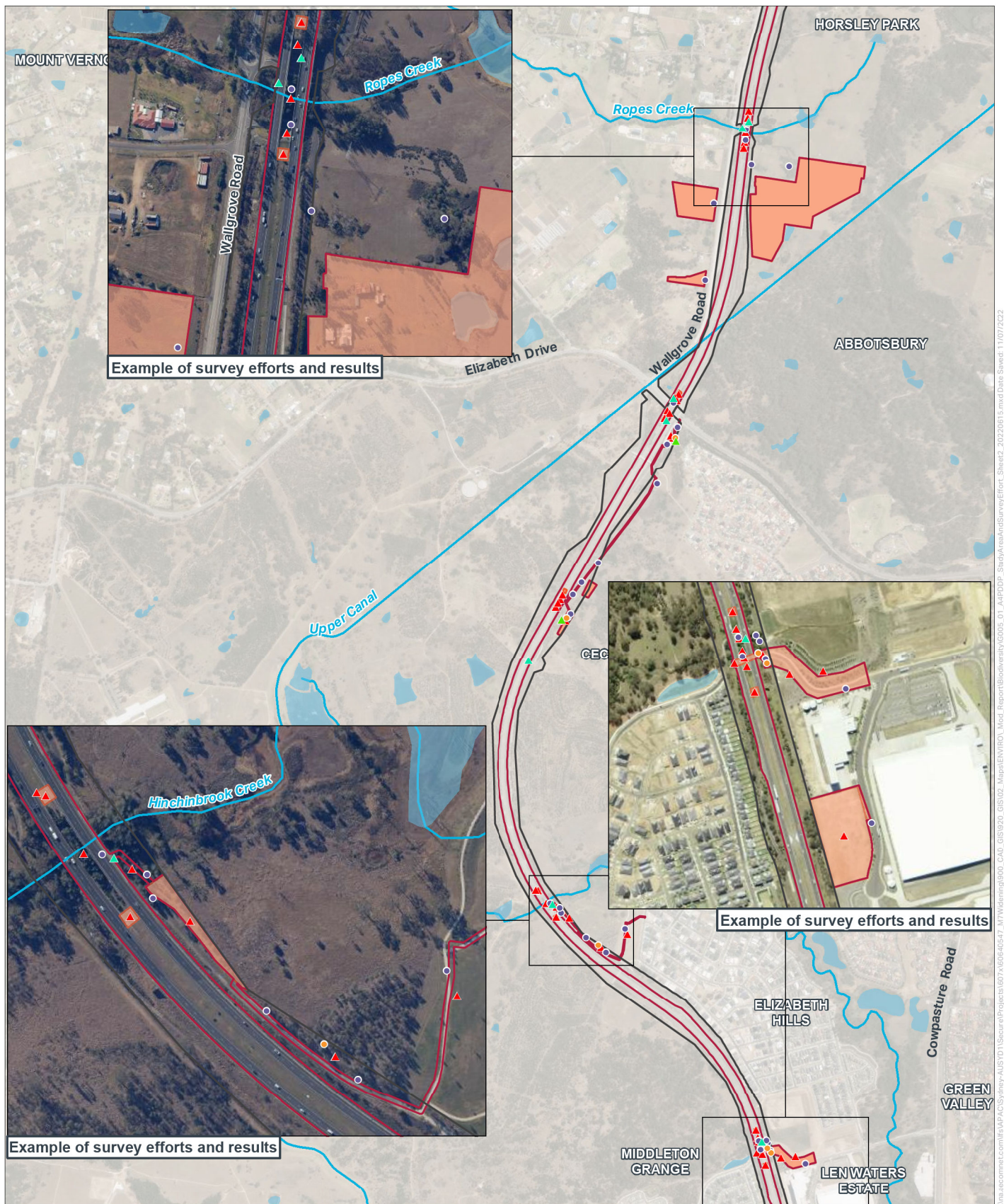


FIGURE 7-38: BIODIVERSITY ASSESSMENT STUDY AREA AND SURVEY EFFORT (SHEET 2 OF 5)

Legend

- Construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

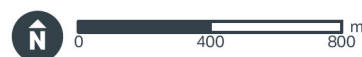
- Survey effort - flora**
- BAM plot
 - RDP

Survey effort - fauna

- ▲ Cumberland Plain Land Snail survey
- ▲ Microbat habitat survey

Flora and fauna identified

- Hollow-bearing tree/stag identified
- ▲ Southern Myotis habitat identified



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FIGURE 7-39: BIODIVERSITY ASSESSMENT STUDY AREA AND SURVEY EFFORT (SHEET 3 OF 5)

Legend

- Construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Survey effort - flora

- BAM plot
- RDP

Survey effort - fauna

- ▲ Cumberland Plain Land Snail survey
- ▲ Microbat habitat survey

Flora and fauna identified

- Hollow-bearing tree/stag identified
- ▲ Southern Myotis habitat identified



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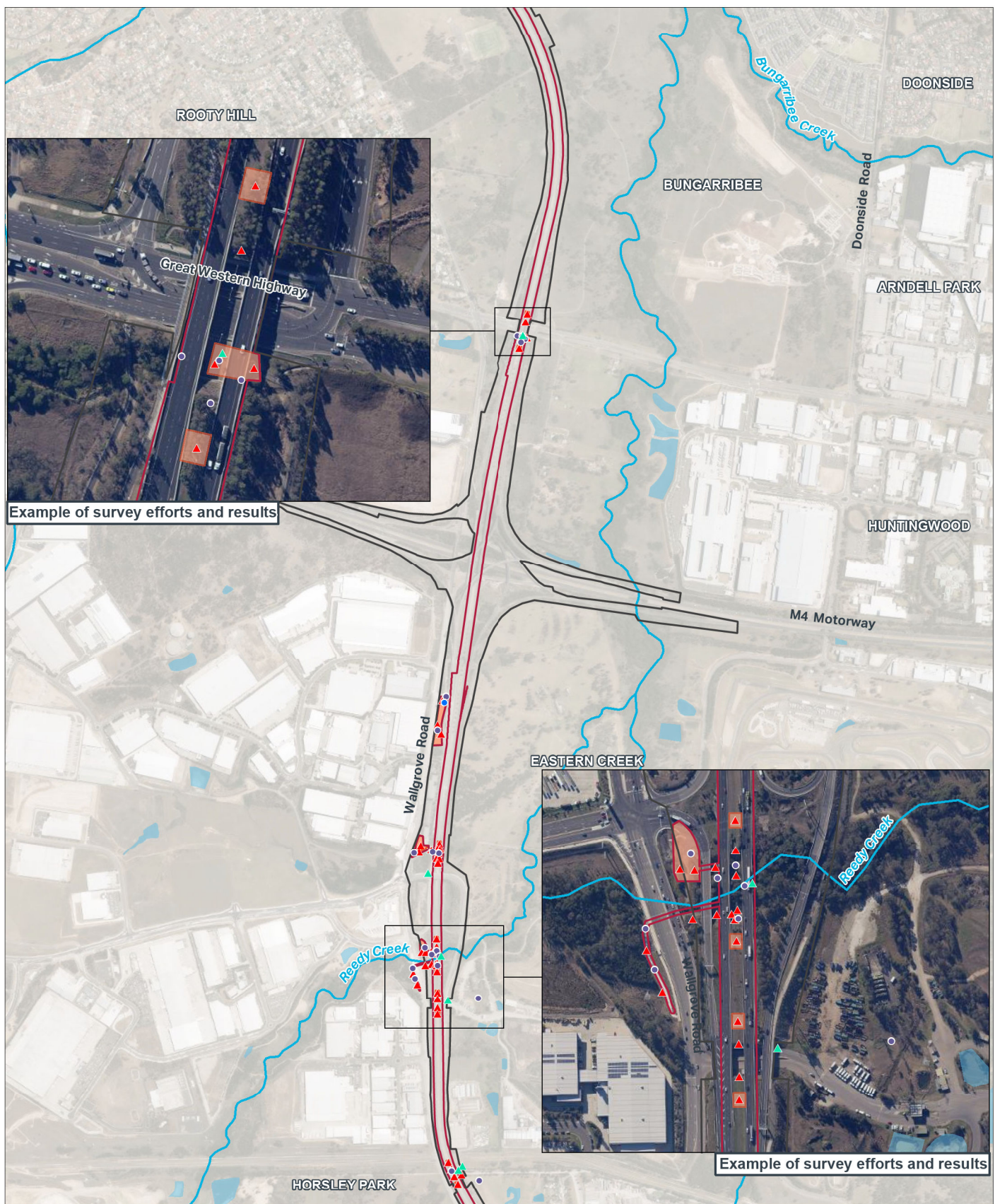


FIGURE 7-40: BIODIVERSITY ASSESSMENT STUDY AREA AND SURVEY EFFORT (SHEET 4 OF 5)



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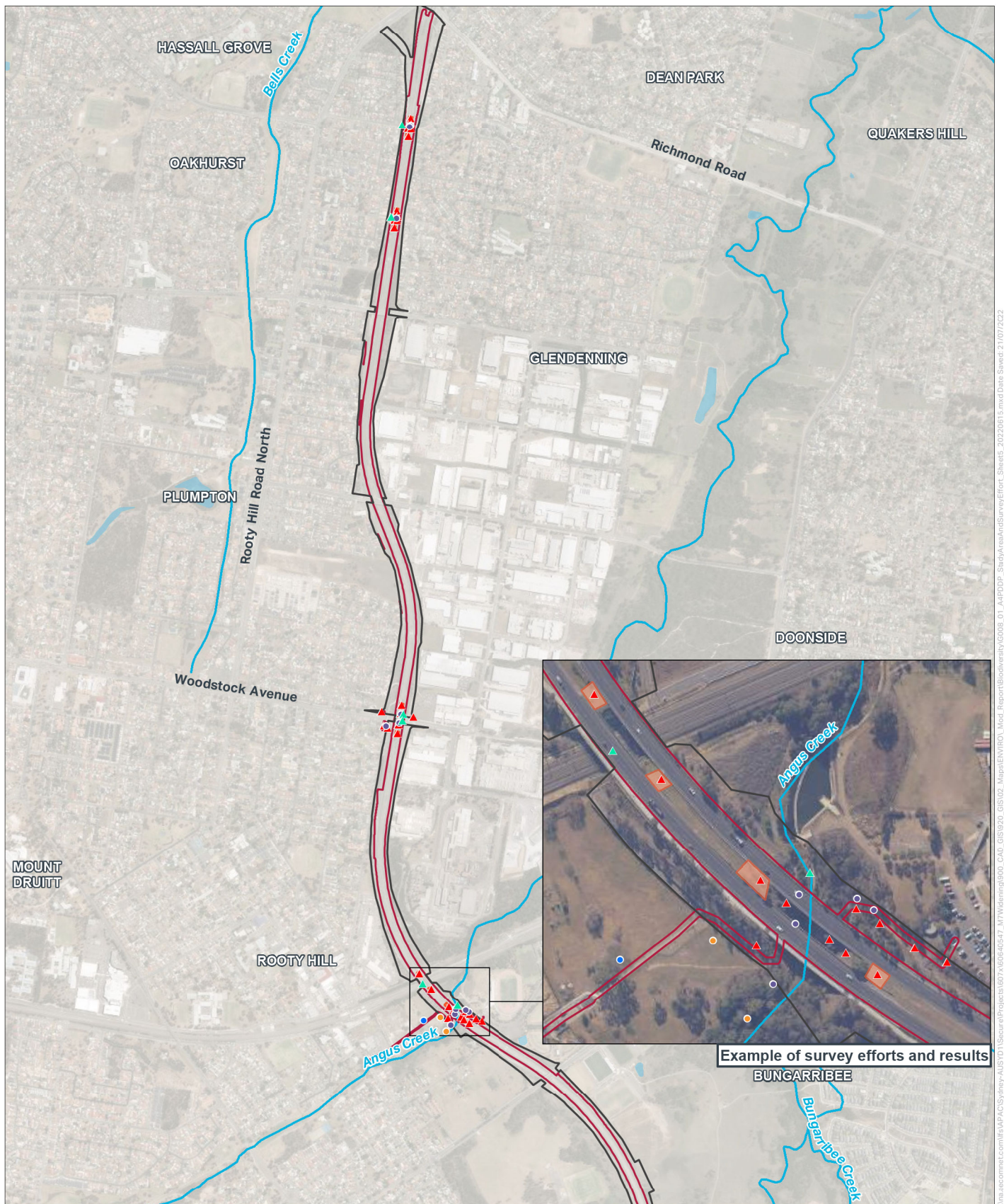


FIGURE 7-41: BIODIVERSITY ASSESSMENT STUDY AREA AND SURVEY EFFORT (SHEET 5 OF 5)

Legend

- Construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Survey effort - flora

- BAM plot
- RDP

Survey effort - fauna

- ▲ Cumberland Plain Land Snail survey
- ▲ Microbat habitat survey

Flora and fauna identified

- Hollow-bearing tree/stag identified
- ▲ Southern Myotis habitat identified



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7.6.4 Existing environment

Landscape features and values

The landscape features of the study area were determined in accordance with the requirements of the *Framework for Biodiversity Assessment* (OEH, 2018). Key findings for the study area include:

- The study area is located in the Cumberland subregion of the Sydney Basin region under the Interim Biogeographic Rationalisation for Australia (IBRA)
- The study area is within the Cumberland Plain Landscape
- The study area is located within the Hawkesbury-Nepean catchment and the Georges River catchment and includes 18 waterways
- There are small coastal wetlands¹ present within the vicinity of the southern section of the study area within the Liverpool City Council and the proximity area buffer to three of these wetlands intersects with the proposed construction footprint
- High, moderate and low potential groundwater dependant ecosystems are mapped within, and adjacent to, the study area (BoM, 2021)
- There is a small portion of State significant biodiversity links in the study area. Vegetation within the construction footprint of the proposed modification, associated with Eastern Creek, Cabramatta Creek, Gough Park, Cecil Hill and Cecil Park is mapped as 'Regional Corridors' as part of the EESG Biodiversity Investment Opportunities Map (BIOMAP) for the Cumberland IBRA subregion
- Construction of the modification would avoid impact to the Regional Corridors. The proposed modification would avoid further impact to the Regional Corridors near the M12 Motorway south of Elizabeth Drive given this area is within a construction footprint used to access zone construction ancillary facility AF8 (both approved under the M12 Motorway Project)
- The current condition of these regional corridors is disjointed, due to the existing Westlink M7 and Elizabeth Drive which already create significant barriers to habitat connectivity and impact regional habitat corridors
- The percentage of native vegetation cover within the study area was calculated in the BAM and is estimated to be about 25 percent with varying patch size from one hectare to 138 hectares, depending on vegetation zones
- There are no karst, caves, crevices, cliffs or other areas of geological significance within the study area.

Terrestrial biodiversity

Native vegetation and threatened ecological communities

Native vegetation and the condition of the vegetation within the study area was identified and verified through desktop review and field surveys. Seven PCTs were identified, classified into vegetation zones, and aligned with six TECs at risk of potential serious and irreversible impacts (SAIL), as detailed in Table 7-51 and depicted in Figure 7-42 to Figure 7-54. The vegetation in the study area has a long history of disturbance and some areas have been replanted. Due to past disturbance, fragmented vegetation, lack of remnant native vegetation, non-native understorey dominance and other conditions, most of the TECs in the study area were determined as ineligible to be considered endangered under the EPBC Act.

Planted native vegetation habitat

A habitat assessment of the median of the Westlink M7 was undertaken to assess its suitability for use by threatened species. The median consists of mainly exotic grassland, eucalypts and shrubs and is continuously mowed during maintenance of the Westlink M7. The habitats present were not considered suitable for use by any threatened species credit species (flora or fauna) that have been previously

¹ As defined under State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021

recorded, or are considered to have habitat, in the locality, and therefore no offsetting requirement was attributed to the removal of the planted median vegetation.

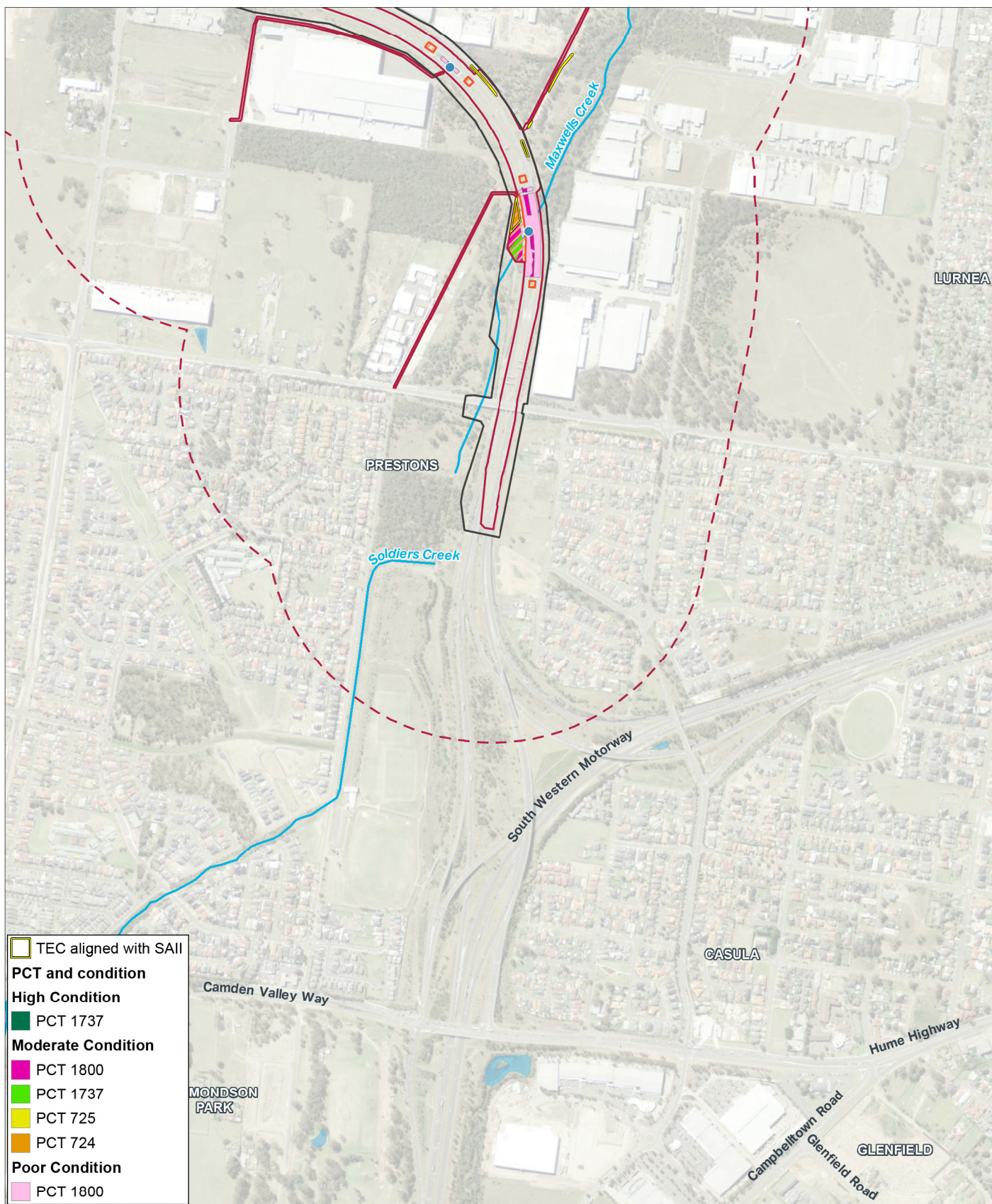


FIGURE 7-42: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAI
(SHEET 1 OF 13)



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Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound

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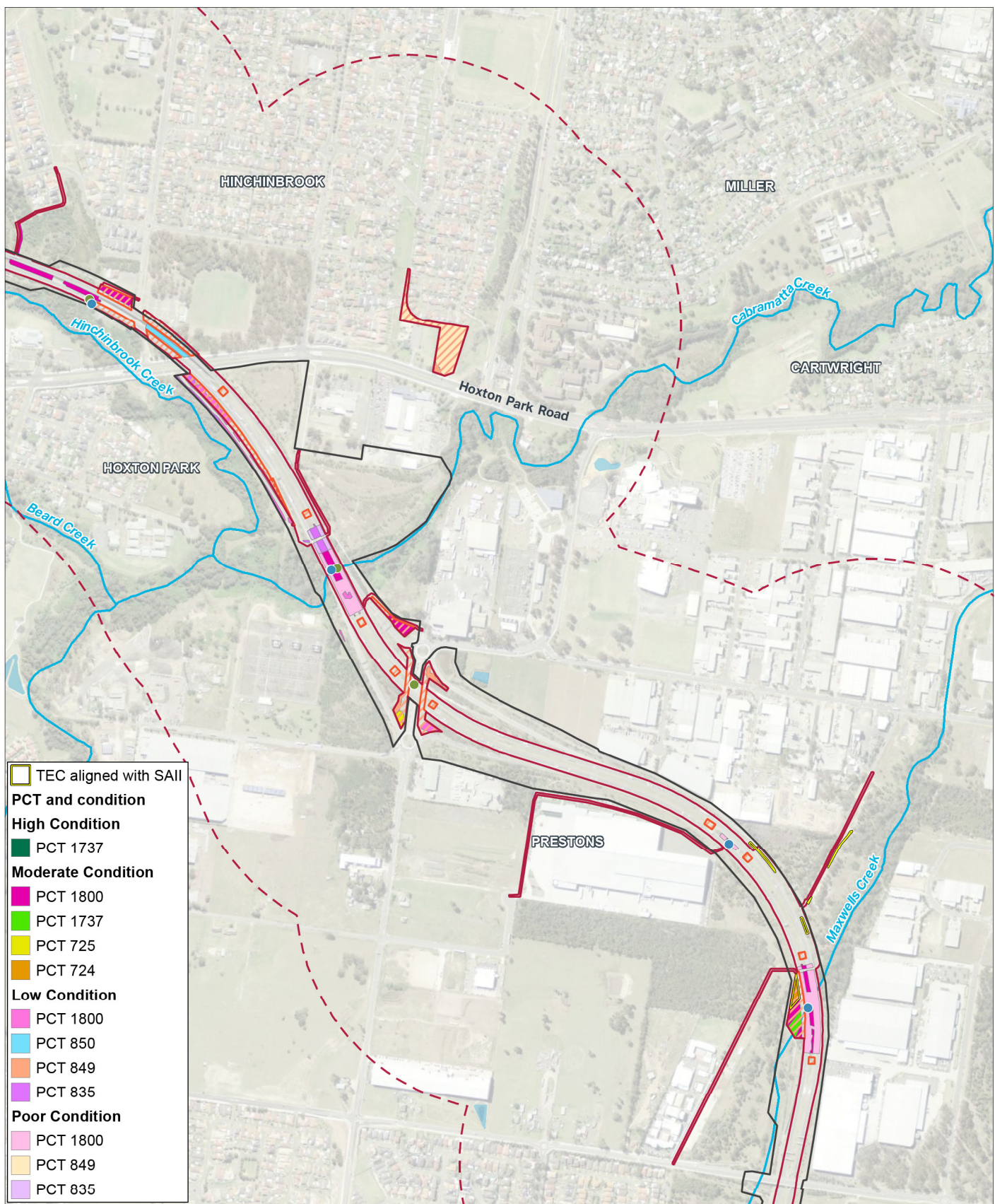


FIGURE 7-43: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAI
(SHEET 2 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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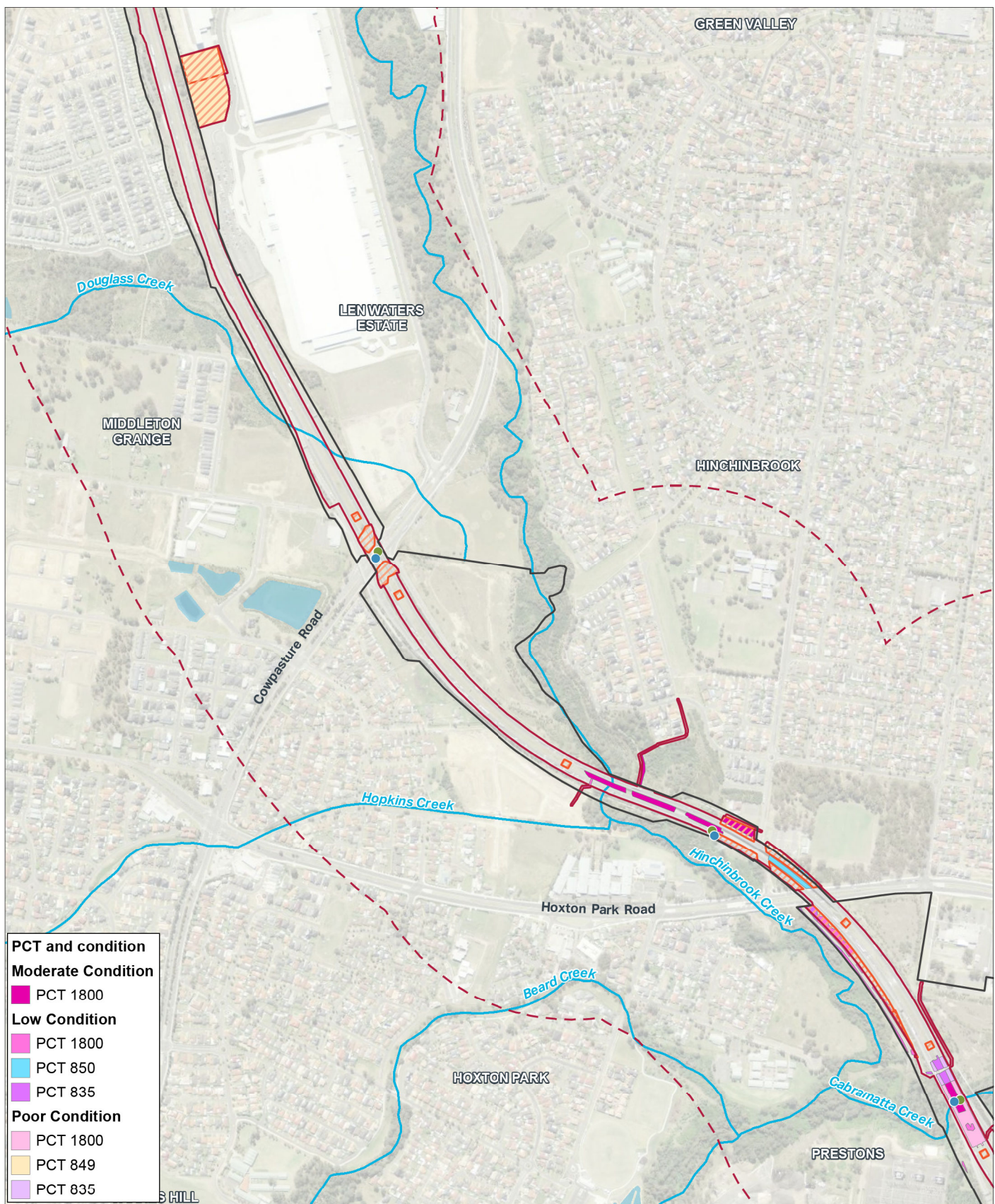


FIGURE 7-44: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 3 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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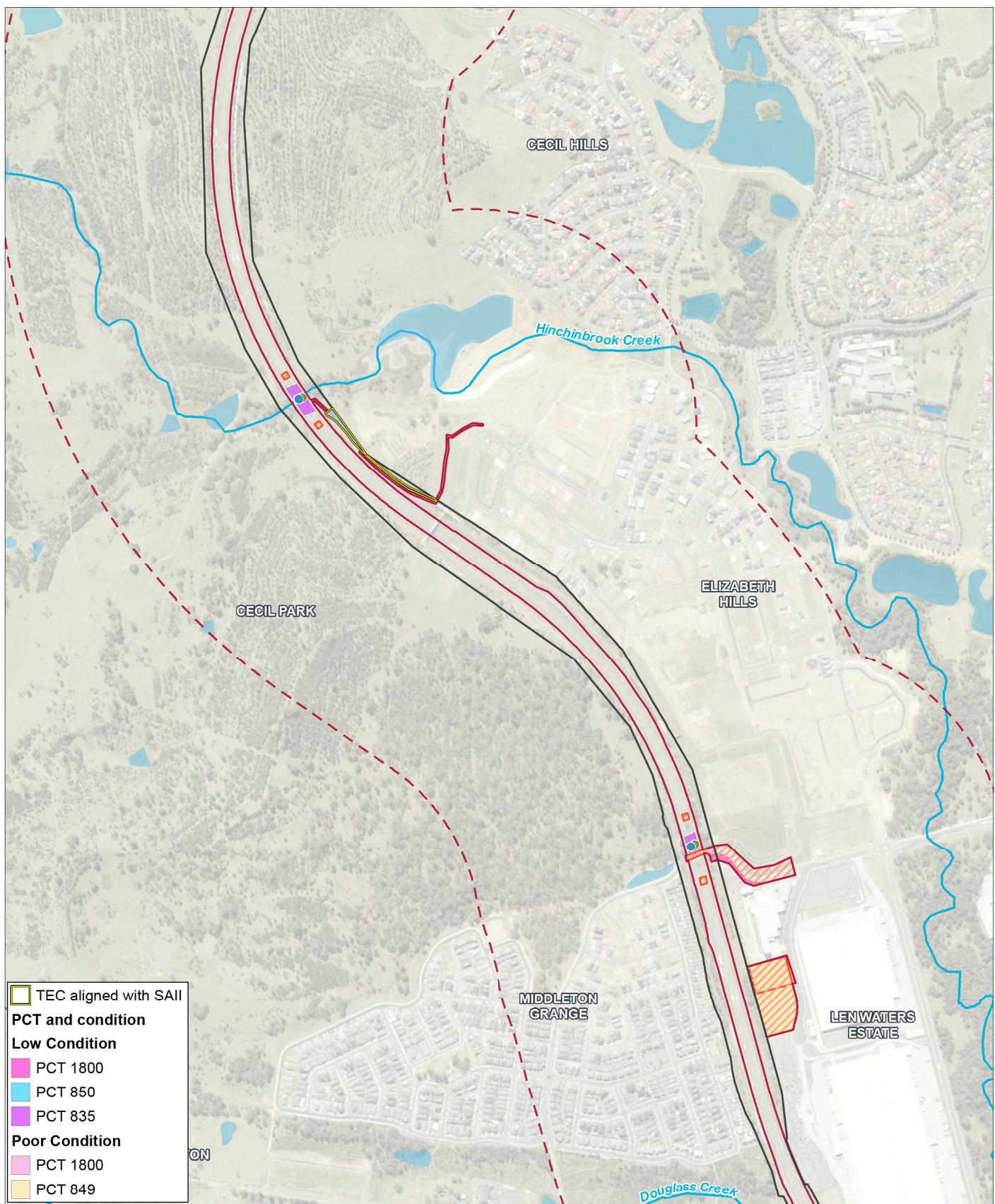


FIGURE 7-45: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAI
(SHEET 4 OF 13)



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Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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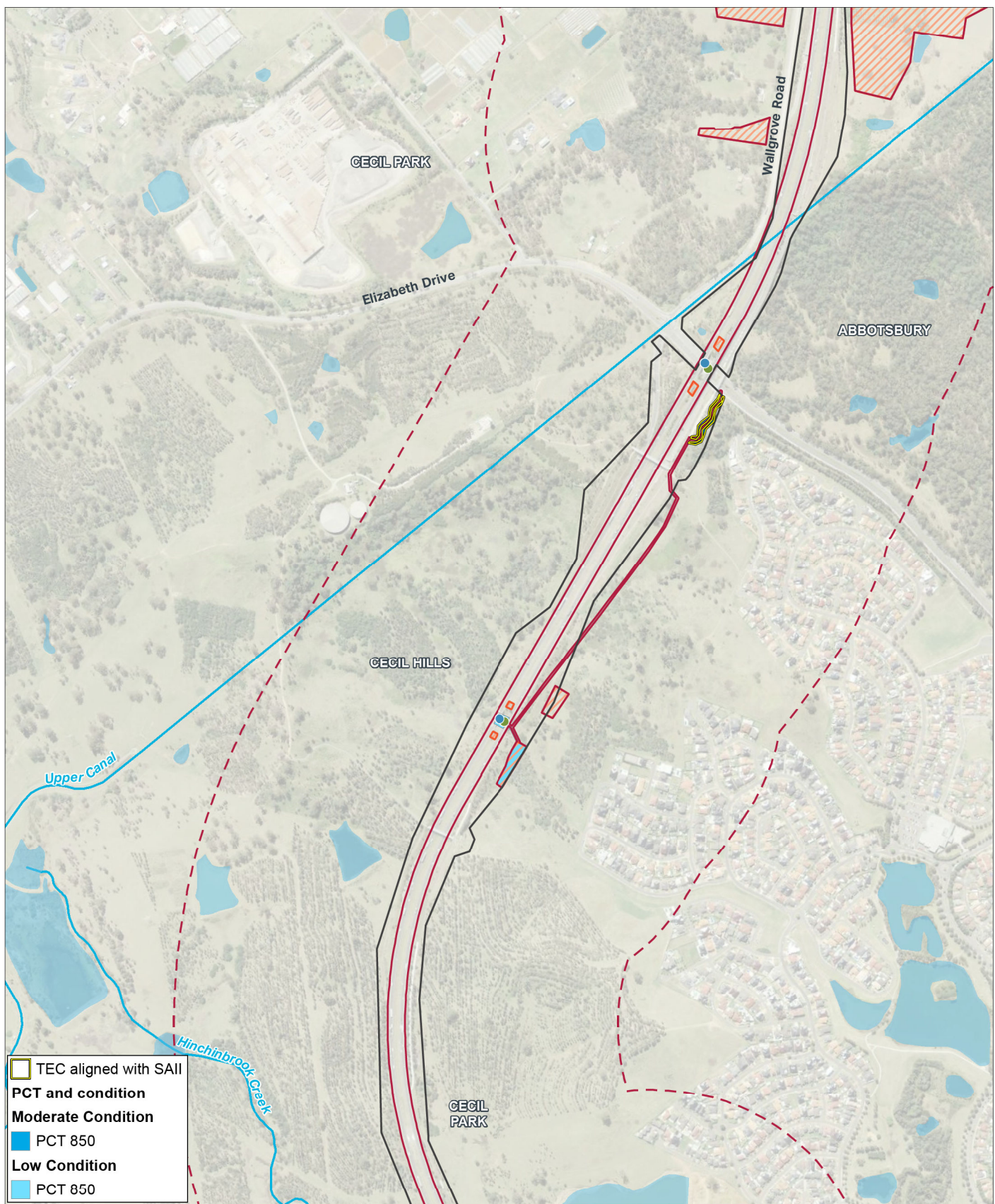


FIGURE 7-46: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAI
(SHEET 5 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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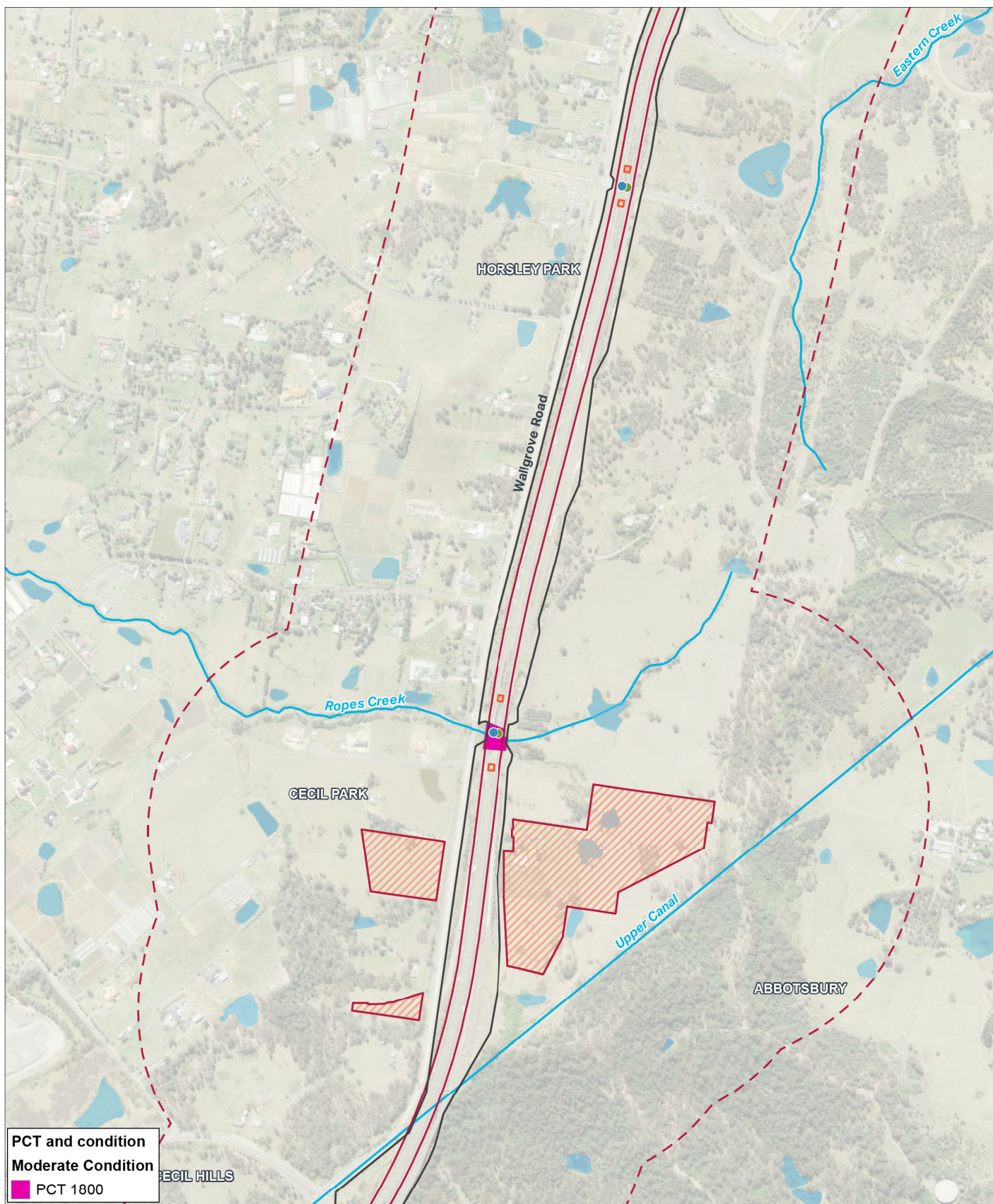


FIGURE 7-47: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 6 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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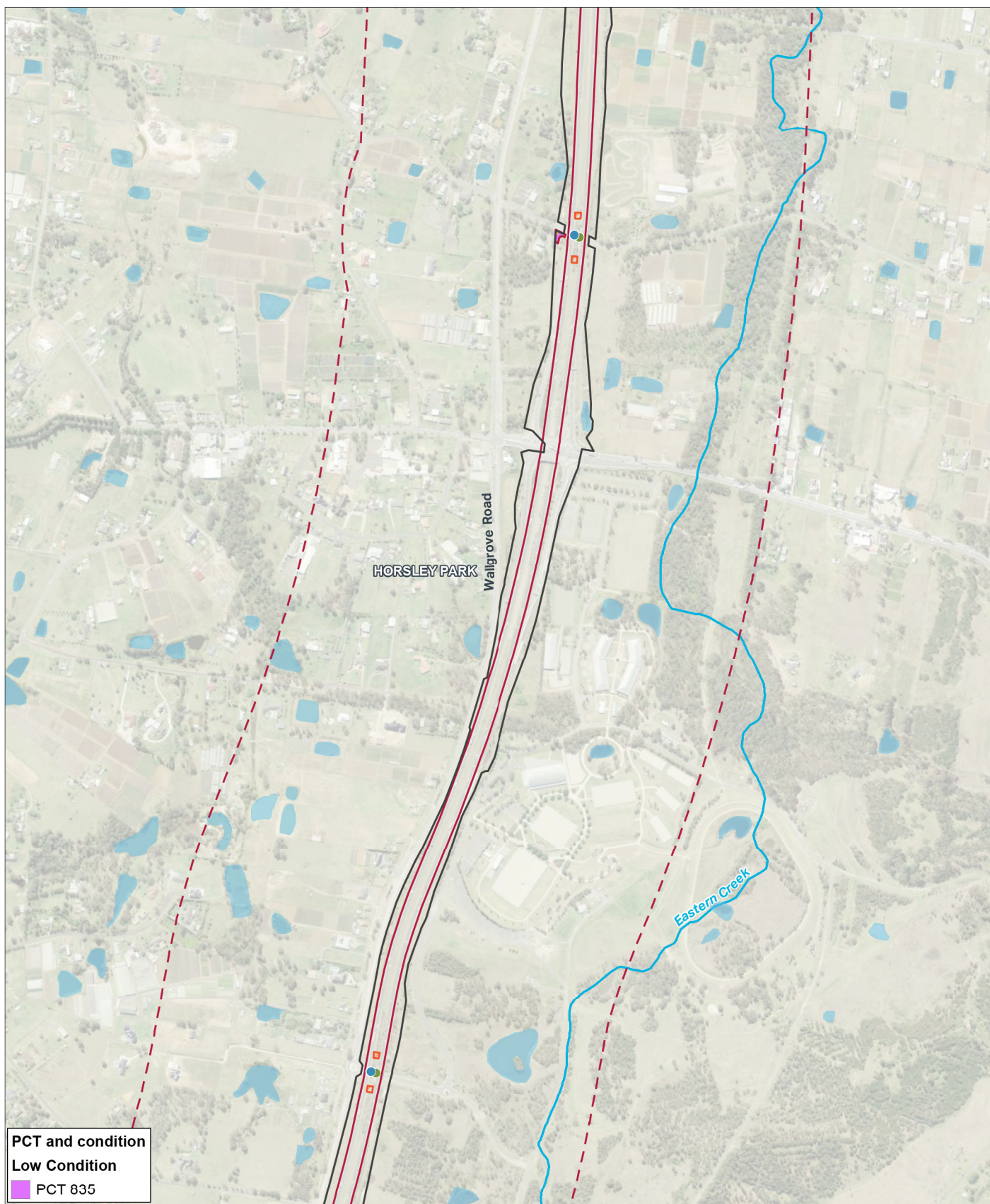


FIGURE 7-48: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
 (SHEET 7 OF 13)



Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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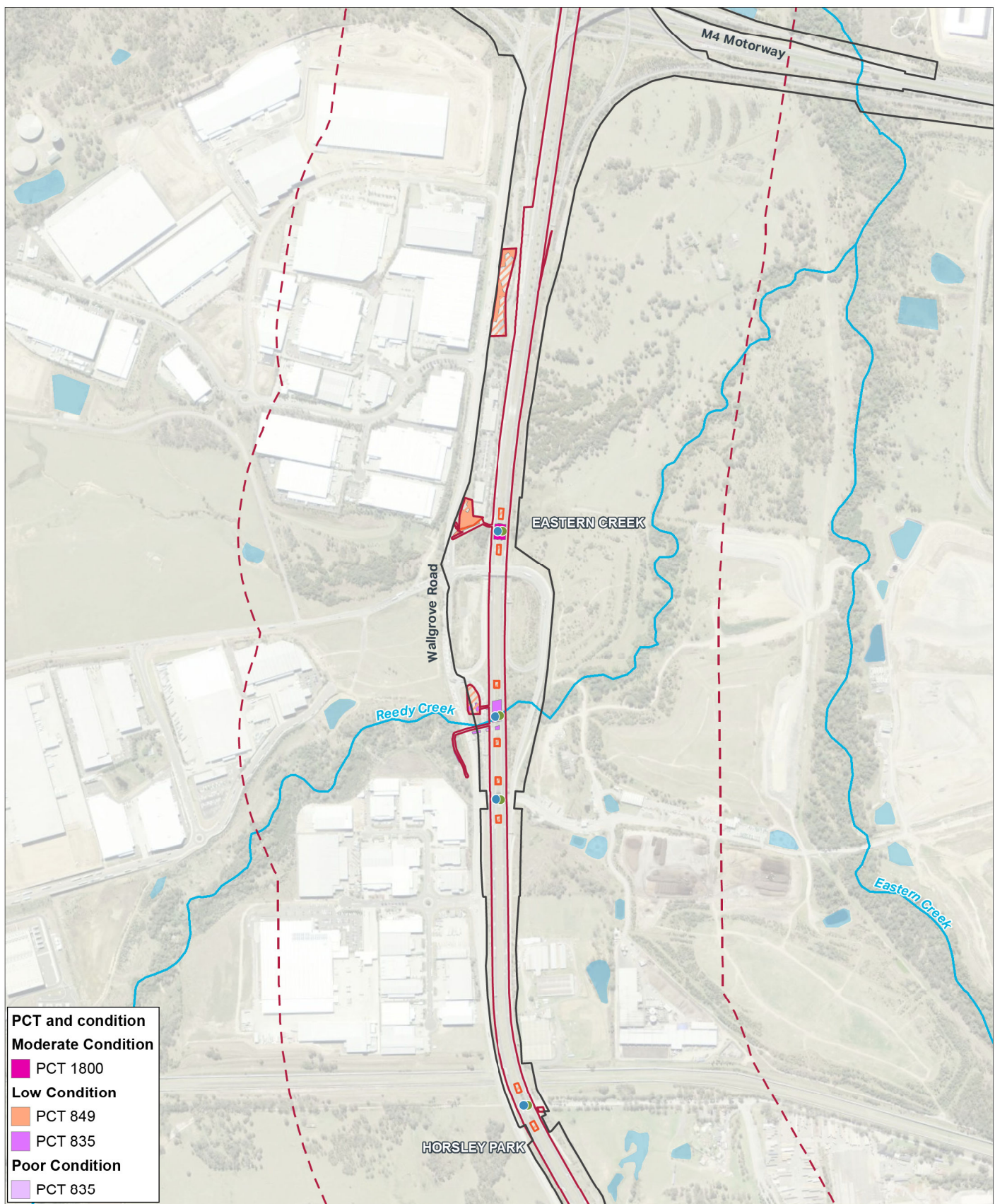


FIGURE 7-50: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 9 OF 13)

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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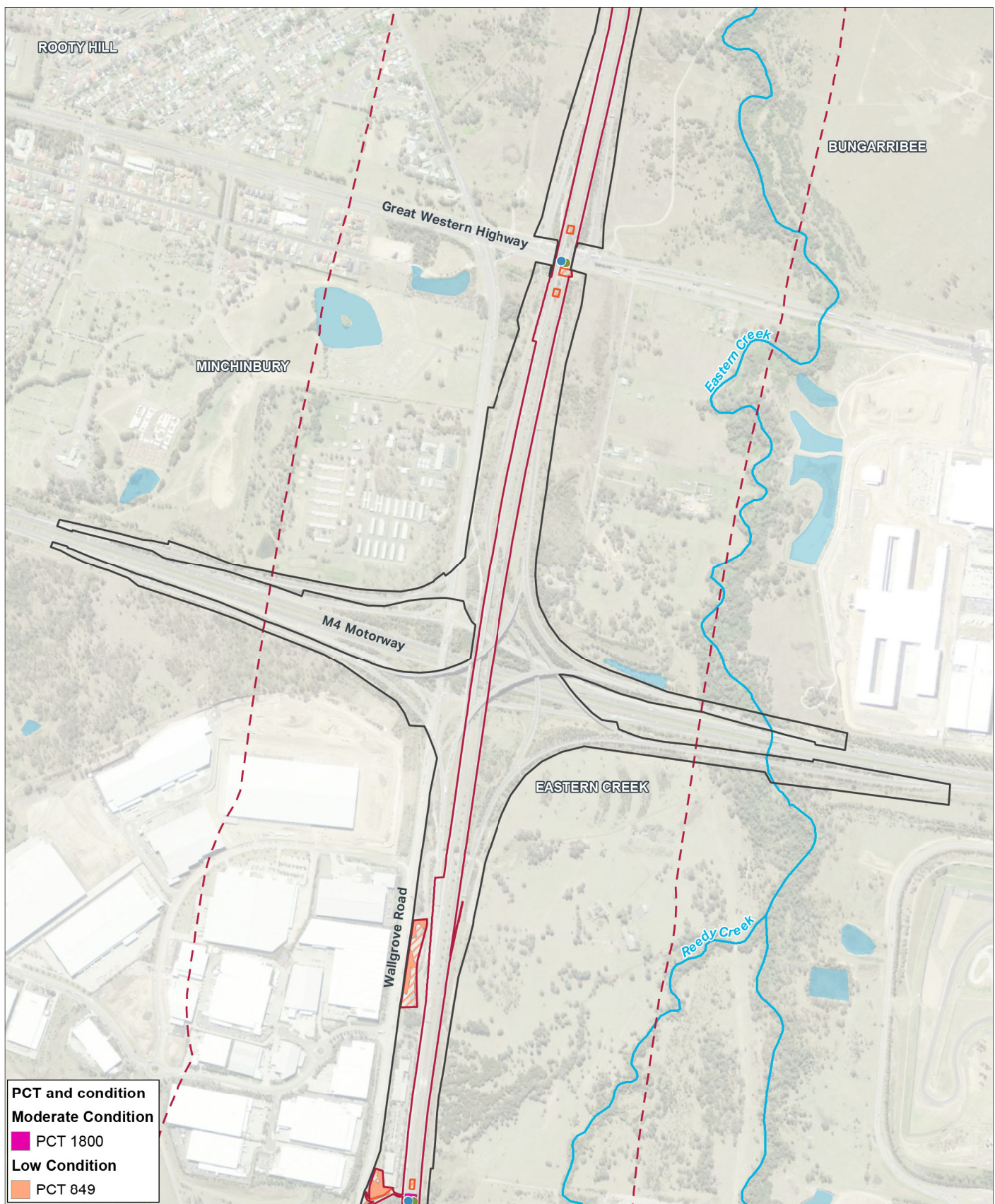


FIGURE 7-51: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 10 OF 13)

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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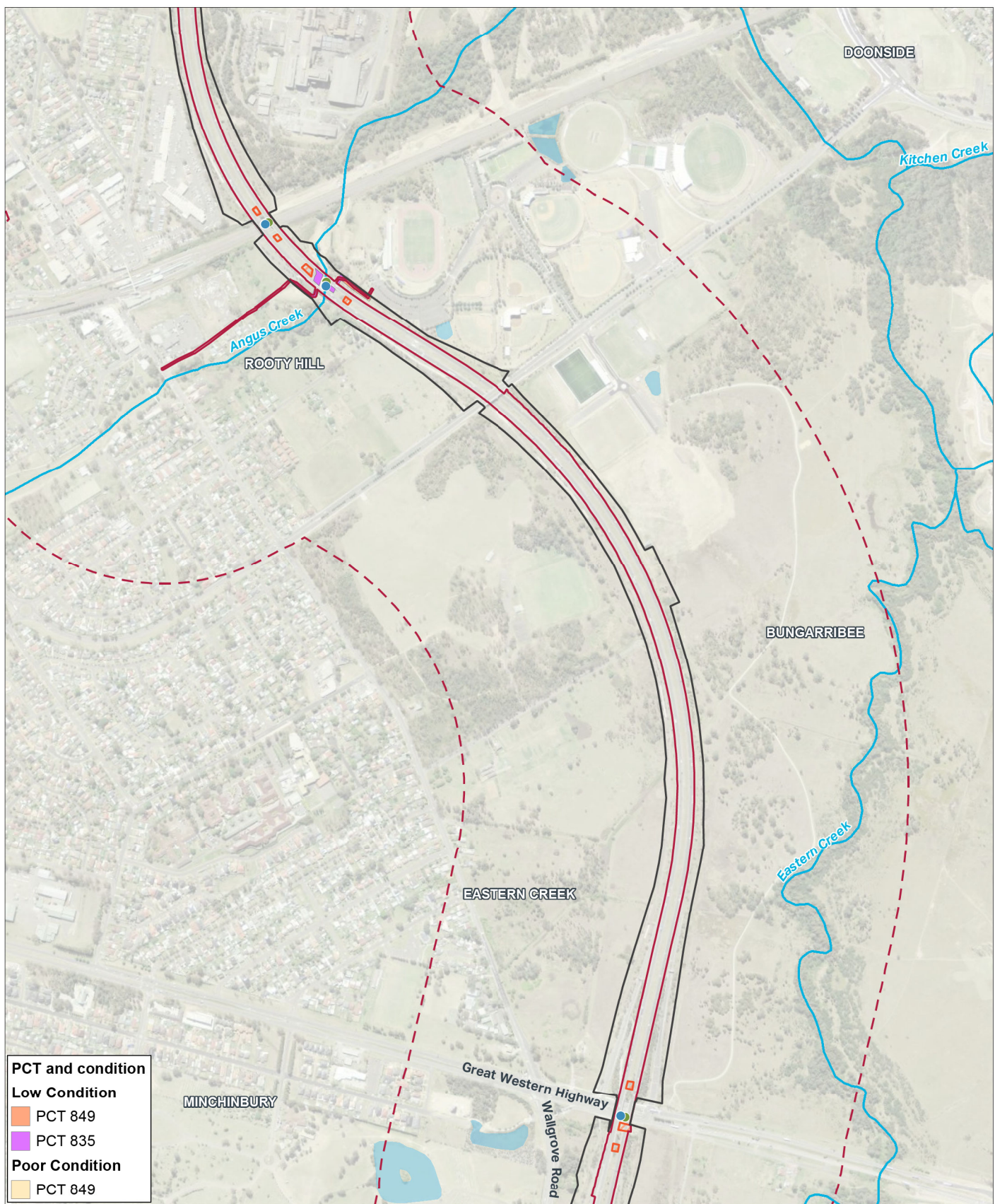


FIGURE 7-52: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 11 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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FIGURE 7-53: PCTs, VEGETATION ZONES AND TECs AT RISK OF SALE
(SHEET 12 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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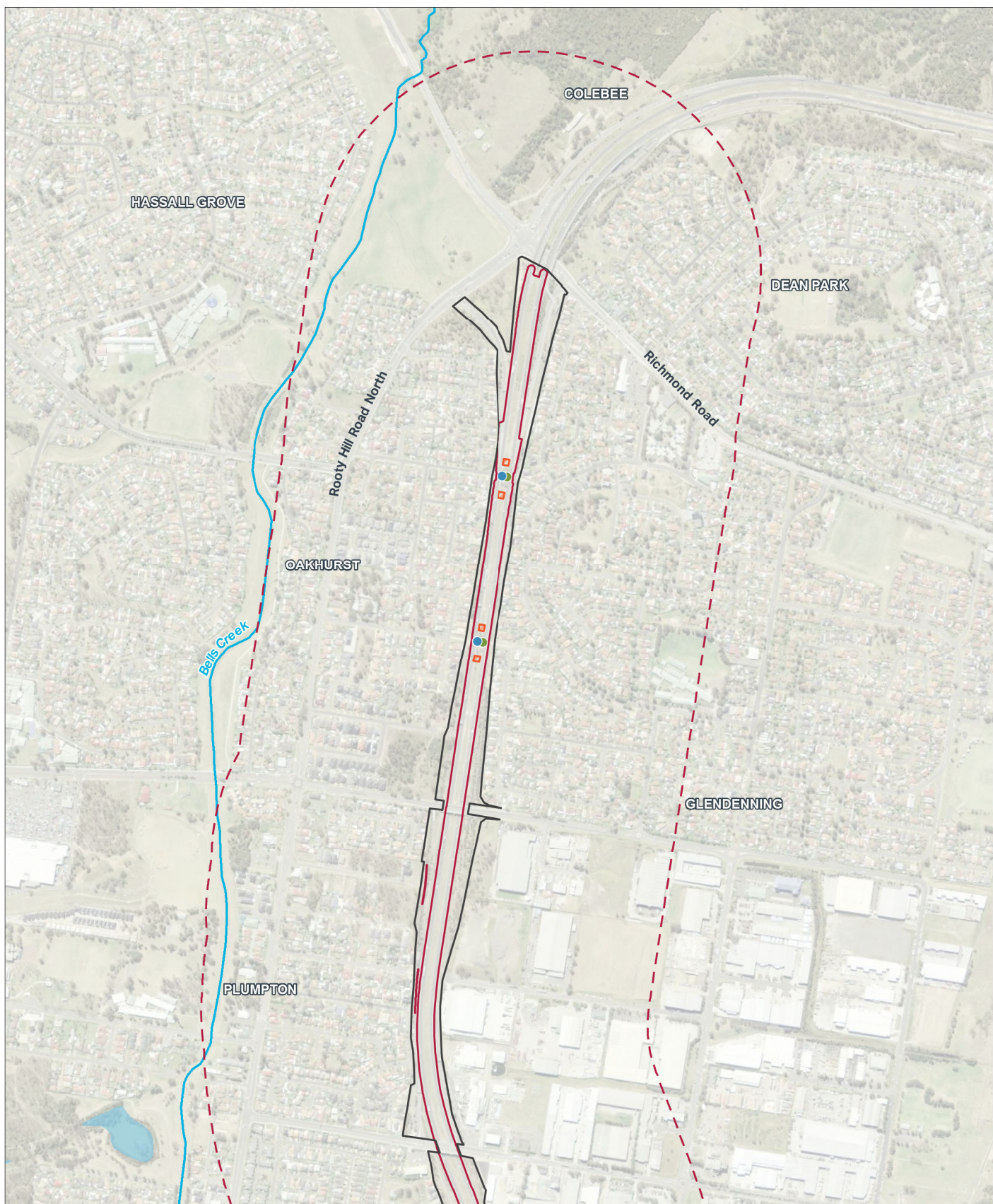


FIGURE 7-54: PCTs, VEGETATION ZONES AND TECs AT RISK OF SAIL
(SHEET 13 OF 13)



AECOM

Legend

- Construction footprint
- 500m buffer from construction footprint
- Operational footprint (maintenance boundary)
- Construction ancillary facility
- Waterbody
- Watercourse

Proposed bridge widening

- Northbound
- Southbound

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