Integrated Management System

Planning Approval Consistency Assessment Form

SM ES-FT-414

Sydney Metro Integrated Management System (IMS)

Assessment Name:	Fine scale mapping of Native Plant Community Types extents
Prepared by:	Lucas Dobrolot (JHLOR)
Prepared for:	Sydney Metro
Assessment number:	SMC007 SMCSWSSJ-JHL-WEC-EM-REC-000039 Rev C
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The Planning Approval Consistency Assessment Form should be completed in accordance with the Sydney Metro Planning Approval Consistency Assessment Procedure (SM ES-PW-314) and Sydney Metro Environmental Planning and Approval Manual (SM ES-ST-216)

1.0 Existing Approved Project

Planning approval reference details (Application/Document No. (including modifications)):

Sydney Metro City & Southwest - Sydenham to Bankstown (SSI 8256)

Sydney Metro City & Southwest - Sydenham to Bankstown Modification 1 (Determined 22 October, 2020)

Date of determination:

Sydney Metro City & Southwest - Sydenham to Bankstown (SSI 8256) (Planning Approval Date – 12/12/2018)

Sydney Metro City & Southwest - Sydenham to Bankstown Modification 1 (Determined 22 October, 2020)

Type of planning approval:

Critical State Significant Infrastructure

Description of existing approved project you are assessing for consistency:

Sydney Metro City and Southwest – Sydenham to Bankstown works includes the following;

- Station upgrades;
  - Installation of platform screen doors
  - Provision of operational facilities, such as station service buildings
  - Upgrades of 10 stations from Marrickville to Bankstown to provide lifts and level access where not available.
  - Accessibility upgrades for buildings
  - Works related to integration with other modes of transport
- Track and rail systems;
  - Upgrades of track at Bankstown
  - Rail cross-over at Campsie
- Other Project elements;
  - Security measures, such as fencing
  - Noise barriers
  - Augmentation of existing power supply, including new traction sub-stations
  - Bridge protection works

- Combined Service Route
- Drainage
- Utility and rail system protection

- Temporary works during construction;
  - Provision of temporary facilities to support construction, including construction compounds and work sites

It is assumed that construction activities would occur along the length of the rail corridor within the Project area. Construction areas would be generally accessed via existing corridor gates along the rail corridor.

Relevant background information (including EA, REF, Submissions Report, Director General's Report, MCoA):

- The Sydney Metro City & Southwest – Sydenham to Bankstown – State Significant Infrastructure Assessment (SSI 8256), 12th December 2018
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Environmental Impact Statement, 7th September 2017;
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Submissions and Preferred Infrastructure Report, June 2018;
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Submissions Report, September 2018;
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Instrument of Approval, 12th December 2018
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Modification 1 – Bankstown Station, determined 22nd October 2020

All proposed works identified in this assessment would be undertaken in accordance with the mitigation measures identified in the EIS, Submissions and Preferred Infrastructure Report, the Submission Report and the conditions of approval.

2.0 Description of proposed development/activity/works

Describe ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities/authorities, wastes generated, or hazardous substances/dangerous goods used.

Changes are proposed to the mapping for Threatened Ecological Communities (TEC) and Native Plant Community Plant Types (PCT) to more accurately represent the vegetation at nine locations between Dudley St Marrickville to South Terrace Bankstown (no changes are proposed to the design). This would demonstrate security fencing proposed as part of Design Package 340 would be consistent with Revised Environmental Management Measure (REMM) B1:

Detailed design and construction planning would avoid direct impacts to vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box.

An assessment was completed to identify the discrepancies between existing vegetation and existing PCT & TEC mapping (Fine scale mapping of PCT extents to inform security fence design and alignment – DPK 330 and 340, draft 24/03/22 (referred to as the clash report).

The methodology consisted of a survey 'pick up' of the EIS mapped Threatened Ecological Communities (TEC) and native plant community types (PCT) against the survey 'set out' of the security fence alignment. The TEC/PCT areas were checked against the respective criteria. The ecologist identified some discrepancies with the TEC/PCT as identified in the EIS. The discrepancies can be accounted for as follows;

- High accuracy of survey equipment (error +/-0.2mm)
- Lower accuracy of handheld gps unit or desktop assessment as conducted as part of the EIS (error +/-0.5m to 1m).
- Environmental changes such as life cycle of members of TEC/PCT

The main findings from the clash report, including confirmation of PCT and/or vegetation zones along with justification for changes in extents and clashes, are presented in Table 1 below.

Table 1: PCT and/or vegetation zones changes in extents and constructability

Location	Changes to PCT extent or vegetation zones in extent*
Dudley Street, Dulwich Hill	**Yes** – The extent of PCT 1281 at this location has decreased in area by approximately 82m^2. Areas below the sandstone escarpment were previously mapped as native vegetation, however upon inspection this area was observed to be supporting exotic plant species. The change in extent is captured in Figure 1 of the clash report.
Garnett Street, Dulwich Hill	**Yes** – the extent of PCT 1281 is proposed to be reduced in area by approximately 204m^2. Previous mapping for PCT 1281 at this location was conservative, including areas of exotic grassland between patches of the community and towards the rail corridor fencing (see photographs in Figure 2 of the clash report). The proposed changes in extent are captured in Figure 2 of the clash report.
South Parade and Wairoa Street, Campsie	**No** - Vegetation at this location is comprised of planted street trees with an exotic ground layer of grasses and forbs.
Moreton Street and Railway Parade, Lakemba	**Yes** – the extent of PCT 1281 is proposed to increase in area by approximately 123m^2. Ground-truthing the assemblage of PCT1281 identified that the patch extended higher on the batter than has been historically mapped (see photographs in Figure 3 of the clash report). The proposed changes in extent are captured in Figure 3 of the clash report.

Alice Street North and Railway Parade , Wiley Park	**Yes** – the extent of PCT 1281 is proposed to decrease in area by approximately 162m². Previous mapping for PCT 1281 at this location included areas which support an exotic scrub/forest comprising *Acacia saligna* (Golden Wreath Wattle), *Ligustrum sinense* (Narrow-leaved Privet), *Cestrum parqui* (Green Cestrum), *Ochna serrulata* (Ochna) and *Ligustrum lucidum* (Broad-leaved Privet). The proposed changes in extent are captured in Figure 4 of the clash report.
Urunga Parade and Robinson Street, Punchbowl	**No** - The extent of PCT 1281 at this location is consistent with mapping.
Breust Place, Punchbowl	**No** – The extent of PCT 724 at this location is consistent with mapping.
South Terrace (east), Bankstown	**No** - The extent of PCT 724 at this location is consistent with mapping.
South Terrace (west), Bankstown›	**Yes** – The extent of PCT 724 is proposed to increase in area by approximately 134m². The assemblage of PCT 724 extends slightly closer to the rail track than was previously mapped and minor changes to the extent of the western patch were recorded. The proposed changes in extent are captured in Figure 5 of the clash report.

* Refer to Appendix A of the Arcadis Clash Report for proposed refined vegetation extents at the five locations.

No change from EIS in regards to ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities/authorities, wastes generated, or hazardous substances/dangerous goods used.

3.0 Timeframe

When will the proposed change take place? For how long?

Timeframe is not the subject of this Consistency assessment.

4.0 Site description

Provide a description of the site on which the proposed works are to be carried out, including, Lot and Deposited Plan details, where available. Map to be included here or as an appendix. Detail of landowner.

The location of the TEC/PCT areas and key elements of the project subject to this consistency assessment are located within the existing rail corridor, from about 800 metres west of Sydenham Station in Marrickville, to about one kilometre west of Bankstown Station in Bankstown. The project is located in the Inner West and Canterbury-Bankstown local government areas.

Refer to Appendix A of the Arcadis Clash Report for exact locations.

5.0 Site Environmental Characteristics

Describe the environment (i.e., vegetation, nearby waterways, land use, surrounding land use), identify likely presence of protected flora/fauna and sensitive area.

A desktop review of the proposed security fencing alignment was conducted to identify areas where a potential clash could occur with threatened species, PCTs, TECs and existing trees. Nine locations were identified which are located within the existing rail corridor from Marrickville to Bankstown. Land uses adjoining the subject area consist primarily of urban streetscapes and residential, commercial and industrial developments, interspersed with urban parklands.

Native vegetation in the study area matches two PCTs according to the Framework for Biodiversity Assessment (FBA):

- Turpentine - Grey Ironbark open forest on shale (PCT ID 1281, Biometric vegetation type HN604)
- Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest (PCT ID 724, Biometric vegetation type HN512)

Table 2: Key protected flora

Location	Chainage	protected flora/fauna and sensitive area.
Dudley Street, Marrickville	Chainage 8km 550 – 8km 300 (westbound)	PCT 1281 (ME041, moderate/good-poor)
Garnett Street, Dulwich Hill	Chainage 9km 100 – 9km 200 (westbound)	PCT 1281 (ME041, moderate/good-poor) and the TEC Sydney Turpentine Ironbark Forest
South Parade and Wairoa Street, Campsie	Chainage 11km 400 – 11km 900 (westbound)	PCT 1281 (no change)

Moreton Street and Railway Parade, Lakemba	Chainage 14km 550 – 14km 700 (eastbound	PCT 1281 (ME041, moderate/good-poor) & (ME041, moderate/good-medium)
Alice Street North and Railway Parade, Wiley Park	Chainage 15km 850 – 15km 600 (northbound)	PCT 1281 (ME041, moderate/good-poor)
Urunga Parade and Robinson Street, Wiley Park	Chainage 16km 400 – 16km 550 (eastbound)	PCT 1281 (no change)
Breust Place, Punchbowl	Chainage 17km 300 – 17km 100 (eastbound)	PCT 724 (no change)
South Terrace (east), Bankstown	Chainage 17km 450 – 17km 550 (westbound)	PCT 724 (no change)
South Terrace (west), Bankstown	Chainage 18km 000 – 18km 400 (westbound)	PCT 724 (ME004, moderate/good) & *Acacia Pubescens* (patch).

6.0 Justification for the proposed works

Address the need for the proposed works, whether there are alternatives to the proposed works (and why these are not appropriate), and the consequences with not proceeding with the proposed work.

To permit the operation of the Sydenham to Bankstown Project, new security fencing along the length of the rail corridor must be installed. Due to the absence of drivers to react to unforeseen conditions (such as corridor intrusion by a member of the public), maintaining the integrity and security of the rail corridor is critical to maintaining safe operations. The current Sydney Trains corridor boundary fencing does not provide sufficient protection for the most part, and as such requires upgrading to anti-climb security fencing in accordance with BS 1722:2017 “Specification for Anti-intruder fences in chain link and welded mesh”.

The extent of mapped threatened species, PCTs, TECs as per the EIS and amendments are proposed to be updated to assist with the design alignment of the security fencing. This would contribute to avoiding impacts to remnant native vegetation (PCTs and vegetation zones), TECs and threatened species; and impacts to non-native or planted trees would be minimised as much as practicable.

7.0 Environmental Benefit

Identify whether there are environmental benefits associated with the proposed works. If so, provide details:

No changes further environmental benefits compared to the approved project.

8.0 Control Measures

Will a project and site specific EMP be prepared? Are appropriate control measures already identified in an existing EMP?

Construction of the corridor elements would be undertaken in accordance with the JHLOR's approved CEMP.

9.0 Impact Assessment – Construction

Attach supporting evidence in the Appendices if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No changes from the approved project. Perceived impacts to TEC and PCTs have been reduced from confirming existing mapping differences with existing vegetation (refer to Table 1, Section 2 for details of the proposed update). Of the nine areas investigated, five PCT extents were adjusted accordingly. Refer to Appendix A for further information.	No additional measures required Any construction impacts will continue to be managed through the implementation of JHLOR's Construction Environmental Management Plan.	Y	Y	
Water	No changes from the approved project.	No additional measures required.	Y	Y	
Air quality	No changes from the approved project.	No additional measures required.	Y	Y	
Noise vibration	No changes from the approved project.	No additional measures required.	Y	Y	
Indigenous heritage	No changes from the approved project.	No additional measures required.	Y	Y	
Non-indigenous heritage	No changes from the approved project.	No additional measures required.	Y	Y	
Community and stakeholder	No changes from the approved project.	No additional measures required.	Y	Y	
Traffic	No changes from the approved project.	No additional measures required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Waste	No changes from the approved project.	No additional measures required.	Y	Y	
Social	No changes from the approved project.	No additional measures required.	Y	Y	
Economic	No changes from the approved project.	No additional measures required.	Y	Y	
Visual	No changes from the approved project.	No additional measures required.	Y	Y	
Urban design	No changes from the approved project.	No additional measures required.	Y	Y	
Geotechnical	No changes from the approved project.	No additional measures required.	Y	Y	
Land use	No changes from the approved project.	No additional measures required.	Y	Y	
Climate Change	No changes from the approved project.	No additional measures required.	Y	Y	
Risk	No changes from the approved project.	No additional measures required.	Y	Y	
Other	No changes from the approved project.	No additional measures required.	Y	Y	
Management and mitigation measures	The relevant mitigation measures identified in the approval documentation would continue to apply to Proposed activity.	No additional measures required.	Y	Y	

10.0 Impact Assessment – Operation

Attach supporting evidence in the Appendix if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No changes from the approved project.	N/A		Y	
Water	No changes from the approved project.	N/A		Y	
Air quality	No changes from the approved project.	N/A		Y	
Noise vibration	No changes from the approved project.	N/A		Y	
Indigenous heritage	No changes from the approved project.	N/A		Y	
Non-indigenous heritage	No changes from the approved project.	N/A		Y	
Community and stakeholder	No changes from the approved project.	N/A		Y	
Traffic	No changes from the approved project.	N/A		Y	
Waste	No changes from the approved project.	N/A		Y	
Social	No changes from the approved project.	N/A		Y	
Economic	No changes from the approved project.	N/A		Y	

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Visual	No changes from the approved project.	N/A		Y	
Urban design	No changes from the approved project.	N/A		Y	
Land use	No changes from the approved project.	N/A		Y	
Climate Change	No changes from the approved project.	N/A		Y	
Risk	No changes from the approved project.	N/A		Y	

11.0 Consistency with the Approved Project

Based on a review and understanding of the existing Approved Project and the proposed modifications, is there is a transformation of the Project?	No. The proposed works would not transform the Project. The Project would continue to provide a metro line between Sydenham and Bankstown.
Is the project as modified consistent with the objectives and functions of the Approved Project as a whole?	Yes. The proposed works would be consistent with the objectives and functions of the Approved Project.
Is the project as modified consistent with the objectives and functions of elements of the Approved Project?	Yes. The changes identified in this assessment are consistent with the objectives and functions of elements of the Approved Project.
Are there any new environmental impacts as a result of the proposed works/modifications?	No. The Project's design does not result in any new environmental impacts beyond those considered in the Approved Project.
Is the project as modified consistent with the conditions of approval?	Yes, the Project would be consistent with the Conditions of Approval.
Are the impacts of the proposed activity/works known and understood?	Yes. The impacts of the proposed works are known and understood.
Are the impacts of the proposed activity/works able to be managed so as not to have an adverse impact?	Yes. The impacts of the proposed works can be managed so as to avoid an adverse impact.

12.0 Other Environmental Approvals

Identify all other approvals required for the project:	• NA

Author certification

To be completed by person preparing checklist.

I certify that to the best of my knowledge this Consistency Checklist: • Examines and takes into account the fullest extent possible all matters affecting or likely to affect the environment as a result of activities associated with the Proposed Revision; and • Examines the consistency of the Proposed Revision with the Approved Project; is accurate in all material respects and does not omit any material information.			
Name:	Lucas Dobrolot	Signature:	
Title:	Environment Manager		
Company:	JHLOR	Date:	06/06/2022

This section is for Sydney Metro only.

Application supported and submitted by			
Name:	Yvette Buchli	Date:	08/06/2022
Title:	Associate Director, Planning Approvals	Comments:	
Signature:			

Based on the above assessment, are the impacts and scope of the proposed activity/modification consistent with the existing Approved Project?

Yes ☒ The proposed activity/works are consistent and no further assessment is required.

No ☐ The proposed works/activity is not consistent with the Approved Project. A modification or a new activity approval/ consent is required. Advise Project Manager of appropriate alternative planning approvals pathway to be undertaken.

Endorsed by			
Name:	Fil Cerone	Date:	9 June 2022
Title:	Director, City & Southwest, Sustainability Environment and Planning	Comments:	
Signature:			

Appendix A – Arcadis: Fine scale mapping of PCT extents to inform security fence design and alignment – DPK 330 and 340, 27/05/22

Memo

DATE
27/05/2022

TO
Lucas Dobrolot (JHLOR JV)

COPY TO
Andre Kruize (SSJ); Ketan Patel (Arcadis); Maria Enri Rodriguez (Arcadis)

DISCIPLINE
Environmental Management: Biodiversity

SUBJECT
Fine scale mapping of PCT extents to inform security fence design and alignment – DPK 330 and 340

Dear Lucas

As requested (by Daniel Keegan (JHLOR JV former Environment Manager)) in our fortnightly meetings, Arcadis have undertaken a ground truthing survey of the security fence alignment in the rail corridor between Sydenham to Bankstown for Southwest Metro Corridor Services, to determine any potential clashes between the proposed security fencing alignment and threatened species, Plant Community Types (PCTs), Threatened Ecological Communities (TECs) and existing trees.

The main objective of this survey and investigation was to accurately map the extent of PCTs so that the security fencing could be designed to avoid impacts and remain compliant with Revised Environmental Management Measure (REMM) B1:

Detailed design and construction planning would avoid direct impacts to vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box

Where potential clashes were identified, alternative alignments were investigated. This memorandum provides a summary of the methodology undertaken, results and design amendments associated with the investigation.

It was anticipated that remapping the extents of native vegetation in the study area (GHD 2017) to a finer scale using a qualified and trained surveyor would result in differences to existing mapping (GHD 2017, Arcadis 2021) which was likely collected using less accurate survey equipment by field ecologists. Minor changes to vegetation extents is consistent with the initial approval provided the construction of the security fencing remains compliant with REMM B1.

1.0 Desktop review and ground-truthing surveys

A desktop review of the proposed security fencing alignment was conducted to identify areas where a potential clash could occur with threatened species, PCTs, TECs and existing trees. These locations were prioritised for field inspection by an ecologist and design engineer to determine whether a clash was likely and to collect fine scale data to inform designers of the most appropriate locations to position the security fence. A potential clash was identified at nine locations during desktop assessment and subsequently ground-truthing surveys were conducted at the following locations:

- Chainage 8km 550 – 8km 300 (westbound): Dudley Street, Marrickville
- Chainage 9km 100 – 9km 200 (westbound): Garnett Street, Dulwich Hill
- Chainage 11km 400 – 11km 900 (westbound): South Parade and Wairoa Street, Campsie
- Chainage 14km 550 – 14km 700 (eastbound): Moreton Street and Railway Parade, Lakemba
- Chainage 15km 850 – 15km 600 (northbound): Alice Street North and Railway Parade, Wiley Park
- Chainage 16km 400 – 16km 550 (eastbound): Urunga Parade and Robinson Street, Wiley Park
- Chainage 17km 300 – 17km 100 (eastbound): Breust Place, Punchbowl
- Chainage 17km 450 – 17km 550 (westbound): South Terrace (east), Bankstown
- Chainage 18km 000 – 18km 400 (westbound): South Terrace (west), Bankstown

Arcadis ecologist Nathan Banks attended the SWMC project site on Wednesday 9 February 2022 accompanied engineer Maria Enri Rodriguez (Arcadis) and surveyor Mick Smith-Wildey (Veris). The following actions were conducted at each location:

- Ground-truth the mapping of PCTs at the location and identify if the extents required update.
- Where the PCT extents differed from mapping, the ecologist instructed the surveyor to spatially record the new extent of the PCT at each location. The ecologist provided direction on which assemblages of vegetation should be mapped as the PCT to increase accuracy.
- Review of the proposed security fence alignment (Is it suitable? Is it likely to result in impacts to PCTs, TECs, threatened species or existing trees during construction?)
- Where a potential clash was identified, alternative routes were discussed. Notes and photographs were collected, identifying the most suitable areas to construct the fence.

Where a potential clash was identified, the ecologist and designer discussed and identified alternative alignments to avoid biodiversity values whilst maintaining constructability.

2.0 Results

2.1 Refined PCT extents

Ground-truthing of existing vegetation mapping identified PCTs and vegetation zones mapped at each location to be consistent. Minor changes to the extent of PCTs and vegetation zones was recorded at five of the investigated locations as identified in Table 1; no changes were observed at the following four locations:

- Chainage 11km 400 – 11km 900 (westbound): South Parade and Wairoa Street - Vegetation does not constitute a PCT, rather supporting planted street trees as has been identified in existing mapping.
- Chainage 16km 400 – 16km 550 (eastbound): Urunga Parade and Robinson Street - The extent of *PCT 1281 Turpentine - Grey Ironbark open forest on shale* is consistent with mapping
- Chainage 17km 300 – 17km 100 (eastbound): Breust Place, Punchbowl - The extent of *PCT 724 Castlereagh shale - gravel transition forest* is consistent with mapping
- Chainage 17km 450 – 17km 550 (westbound): South Terrace (east) - The extent of *PCT 724 Castlereagh shale - gravel transition forest* is consistent with mapping

A summary of findings following ground-truthing the extent of PCTs at each of the nine locations is described in Table 1.

Table 1. Confirmation of PCT and/or vegetation zones and justification for changes in extents

Location	Is the mapped PCT and/or vegetation zone present?	Is there a change in extent? If so, why?
Dudley Street	Yes	**Yes** – The extent of PCT 1281 at this location has decreased in area by approximately 71m^2. Areas below the sandstone escarpment were previously mapped as native vegetation, however upon inspection this area was observed to be supporting exotic plant species. The change in extent is captured in Figure 1.
Garnett Street	Yes	**Yes** – the extent of PCT 1281 has decreased in area by approximately 210m^2. Previous mapping for PCT 1281 at this location was conservative, including areas of exotic grassland between patches of the community and the rail corridor fencing (see photographs in Table 2). The changes in extent are captured in Figure 2.
South Parade and Wairoa Street	Yes	**No** - Vegetation at this location is comprised of planted street trees with an exotic ground layer of grasses and forbs.
Moreton Street and Railway Parade	Yes	**Yes** – the extent of PCT 1281 has increased in area by approximately 38m^2. Ground-truthing the assemblage of PCT1281 identified that the patch extended higher on the batter than has been historically mapped (see photographs in Table 2). The changes in extent are captured in Figure 3.
Alice Street North and Railway Parade	Yes	**Yes** – the extent of PCT 1281 has decreased in area by approximately 252m^2. Previous mapping for PCT 1281 at this location included areas which support an exotic scrub/forest comprising *Acacia saligna* (Golden Wreath Wattle), *Ligustrum sinense* (Narrow-leaved Privet), *Cestrum parqui* (Green Cestrum), *Ochna serrulata* (Ochna) and *Ligustrum lucidum* (Broad-leaved Privet). The extent has been updated to exclude these areas. The changes in extent are captured in Figure 4.
Urunga Parade and Robinson Street	Yes	**No** - The extent of PCT 1281 at this location is consistent with mapping.
Breust Place	Yes	**No** – The extent of PCT 724 at this location is consistent with mapping.
South Terrace (east)	Yes	**No** - The extent of PCT 724 at this location is consistent with mapping.
South Terrace (west)	Yes	**Yes** – The extent of PCT 724 has increased in area by approximately 146m^2.

Location	Is the mapped PCT and/or vegetation zone present?	Is there a change in extent? If so, why?
		The assemblage of PCT 724 extends slightly closer to the rail track than was previously mapped and minor changes to the extent of the western patch were recorded. The changes in extent are captured in Figure 5.

Table 2. Photographs of two locations where updates to PCT extents were recorded

	
Location: Chainage 9km 100 – 9km 200 (westbound): Garnett Street, Dulwich Hill **Description:** Areas supporting exotic grassland (mainly *Pennisetum clandestinum* (Kikuyu)) between GST and *Syncarpia glomerulifera* (Turpentine) were previously mapped as PCT 1281, however have since been removed following ground-truthing.	**Location**:Chainage 14km 550 – 14km 700 (eastbound): Moreton Street and Railway Parade, Lakemba **Descripton**: Strip of PCT 1281 previously mapped as having a smaller extent, contained to below the top of batter has been remapped to include vegetation appoximatley one mete past the top of batter due to the presence of native grasses and forbs including *Chloris truncata* (Windmill Grass), *Chloris ventricosa* (Tall chloris), *Bothriochloa macra* (Red Grass) and *Desmodium varians* (Slender Tick-trefoil).

2.2 Potential clashes between security fencing and biodiversity values

At each location the ecologist and design engineer discussed the potential for clashes between the security fencing and biodiversity values, including existing trees. At majority of sites the proposed alignment was well suited and would likely not result in a clash. At sites where potential clashes were identified alternative alignments were considered; they are presented in Table 3.

Table 3. Review of potential clashes between security fencing and biodiversity values, and suggested alternative alignments.

Location	Chainage	Potential clash identified	Description of alternative alignment
Dudley Street	Chainage 8km 550 – 8km 300 (westbound)	Original security fencing alignment required alterations due to constructability issues; currently designed to traverse a rock escarpment greater than four metres in height. No clash identified with PCT.	An alternative alignment was identified whereby the security fencing would cross from being located next to the GST through a gap beneath two large Camphor Laurel trees (Tree ID #89; #88) at approximate Chainage 8km 340 (westbound) to continue along the alignment of the existing rail corridor boundary fence. This alignment would avoid the need to navigate a steep rock escarpment and avoid any clashes arising with the present PCT. This solution was discussed and agreed upon with the design engineer. Minor removal of branches from Camphor Laurel trees (Tree ID #89; #88) would likely be required to maintain security. Both these trees have been identified for removal in the project Arboricultural Impact Assessment Report (Urban Arbor 2021). This security fence would tie in with Dulwich station.
Garnett Street	Chainage 9km 100 – 9km 200 (westbound):	If the security fencing alignment is proposed inside (track side) of the GST a clash is likely to occur with vegetation characteristic of PCT 1281 and the TEC Sydney Turpentine Ironbark Forest. One Turpentine tree was identified overhanging the gap between the GST and PCT where the security fence could otherwise	To avoid impact to PCT 1281 and the TEC it was decided that the most suitable alignment is along the existing rail corridor boundary fence on the southern side of the GST.

Location	Chainage	Potential clash identified	Description of alternative alignment
		feasibly be installed (Table 4).	
South Parade and Wairoa Street	Chainage 11km 400 – 11km 900 (westbound)	No clash identified between the proposed security fencing alignment and biodiversity values. The fencing alignment is proposed to fall within the existing rail corridor and is unlikely to clash with street trees.	Not required
Moreton Street and Railway Parade	Chainage 14km 550 – 14km 700 (eastbound)	No clash identified. The proposed security fencing alignment will not impact areas mapped as PCT 1218 and is unlikely to clash with existing trees or other biodiversity values	Not required
Alice Street North and Railway Parade	Chainage 15km 850 – 15km 600 (northbound)	No clash identified. The patch size of PCT 1281 at this location is less than has been previously mapped. Subsequently the fencing alignment has sufficient space at the top of the batter to be constructed without impacting native vegetation comprising this	Not required

Location	Chainage	Potential clash identified	Description of alternative alignment
		PCT. The current fencing alignment will only impact exotic grasses and herbaceous weeds.	
Urunga Parade and Robinson Street	Chainage 16km 400 – 16km 550 (eastbound)	Potential clash with existing, planted *Lophostemon confertus* (Brush Box) trees.	Security fencing alignment will be positioned to reduce impact to planted trees (Tree ID #1959; #1963; #1965; #1967; #1969; #1971; 1974). These trees were identified in the Arboricultural Impact Assessment Report (Urban Arbor 2021) to be 'Retain and Protect'. Minor trimming of branches is required but it is anticipated that an alignment can be set out which does not require the removal of existing trees. Structural Root Zones (SRZ) of present trees will be considered during design to avoid impacts which would result in the entire tree requiring removal. The patch of PCT 1281 is located on a sloped batter parallel to the GST and is not anticipated to be in proximity or impacted by the security fencing alignment.
Breust Place	Chainage 17km 300 – 17km 100 (eastbound)	No clash identified. The proposed security fencing alignment will avoid impacts to PCT and threatened flora species at this location.	Not required
South Terrace (east)	Chainage 17km 450 – 17km 550 (westbound)	Potential clash. Security fencing alignment will be prioritized as close to track as possible. It is anticipated that the fencing can be constructed without	Two alignment options were discussed for security fencing at this location: 1) Security fencing alignment will be positioned as close to the track as possible on the westbound side. 2) Security fencing alignment joins the current rail corridor boundary fencing prior to reaching the patch of PCT 724 at its

Location	Chainage	Potential clash identified	Description of alternative alignment
		impact to vegetation comprising PCT 724 or the threatened flora species Downy Wattle.	eastern extent. The security fencing will follow this alignment until reaching the SWMC asset approximately 200 metres to the west. Option 1 is considered to be the most suitable fencing alignment to avoid impacts to biodiversity. However, during the field inspection Downy Wattle was observed growing very close to the tracks (Plate 1). Further feasibility investigations are required to determine whether the security fencing can be constructed track side without impacts to this threatened flora species or other native plant species which are characteristic of PCT 724. Note: This fencing alignment option may require a track possession during construction due to the proximity of works with the live rail.  *Plate 1. Threatened plant Downy Wattle and other plants characteristic of PCT 724 observed growing in close proximity to rail track*
South Terrace (west)	Chainage 18km 000 – 18km 400 (westbound)	Potential clash.	The most suitable location for the security fence to avoid impacts to PCTs, TECs and other biodiversity values is track side.

Location	Chainage	Potential clash identified	Description of alternative alignment
		Security fencing alignment will be prioritized as close to track as possible. It is anticipated that the fencing can be constructed without impact to vegetation comprising PCT 724.	The present PCT extends towards the track however it was discussed that there would be sufficient room to construct the fencing between the rail and the present vegetation. Note: This fencing alignment option may require track possession during construction due to the proximity of works with the live rail

Table 4. Examples where clashes could occur between the security fence and biodiversity values

Location: Chainage 17km 450 – 17km 550 (westbound): South Terrace (east)

Potential clash: Two juvenile *Acacia pubescens* (Downy Wattle) were identified during field survey growing on the informal access tracks on the westbound side of the track. It would be difficult to construct the security fencing alignment along the informal access track without impact to individuals of Downy Wattle, vegetation characteristic of PCT 724 or a large *Eucalyptus robusta* (Swamp Mahogany) (Tree ID #1261). The Arboricultural Impact Assessment (Urban Arbor 2021) recommends for Tree #1261 to be retained and protected.

Location: Chainage 9km 100 – 9km 200 (westbound): Garnett Street

Potential clash: Sydney Turpentine tree overhanging the area between the GST and the mapped PCT. If the security fence was to be constructed inside (track side) of the GST it is likely that impacts would occur to this tree (Tree ID #143) and so to PCT 1281 and the TEC Sydney Turpentine Ironbark Forest.

Location: Chainage 16km 400 – 16km 550 (eastbound): Urunga Parade and Robinson Street

Potential clash: Security fencing alignment to be positioned between the patch of PCT 1281 (left) and existing rail corrior fencing (right), with consideration for SRZ of Brush Box trees (Tree ID #1959; #1963; #1965; #1967; #1969; #1971; 1974). Minor trimming is anticipated to Brush Box trees during fence construction and to maintain secuirty of the rail corrior.

3.0 Review of findings and considerations

Ground-truthing investigations for nine locations where a potential clash was identified between the security fencing alignment and biodiversity values during desktop review found:

- Plant Community Types and vegetation zones are consistent with existing mapping (GHD 2017, Arcadis 2021)
- Patches of PCTs at five of the investigated locations recorded changes in extent following mapping by a qualified and trained surveyor
- Potential clashes between security fencing alignment and biodiversity values at five locations required review

Where clashes were identified alternative alignments were discussed on-site between the engineer and ecologist to determine a more appropriate alignment which would minimise/avoid impacts to biodiversity. Alternative alignments were identified for all potential clashes and are discussed in this memorandum. It is anticipated that the revised fencing alignment will now avoid impacts to remnant native vegetation (PCTs and vegetation zones), TECs and threatened species; and impacts to non-native or planted trees will be minimised as much as practicable.

Minor changes and updates recorded for PCT and vegetation zone extents has not resulted in additional impacts to biodiversity, remains compliant with REMM B1 and is considered to be consistent with the original approval.

Updated PCT and vegetation zone extents will be integrated with the existing vegetation mapping data set (GHD 2017, Arcadis 2021) for the ecological study area.

Following on from the ecological investigation, a tree survey will be undertaken to reflect the new fence alignment and identify impacts to the trees we have now identified as requiring trimming/removal.

Appendix A. Refined vegetation extents at five locations

Figure 1. Chainage 8km 550 – 8km 300 (westbound): Dudley Street, Marrickville

Figure 2. Chainage 9km 100 – 9km 200 (westbound): Garnett Street, Dulwich Hill

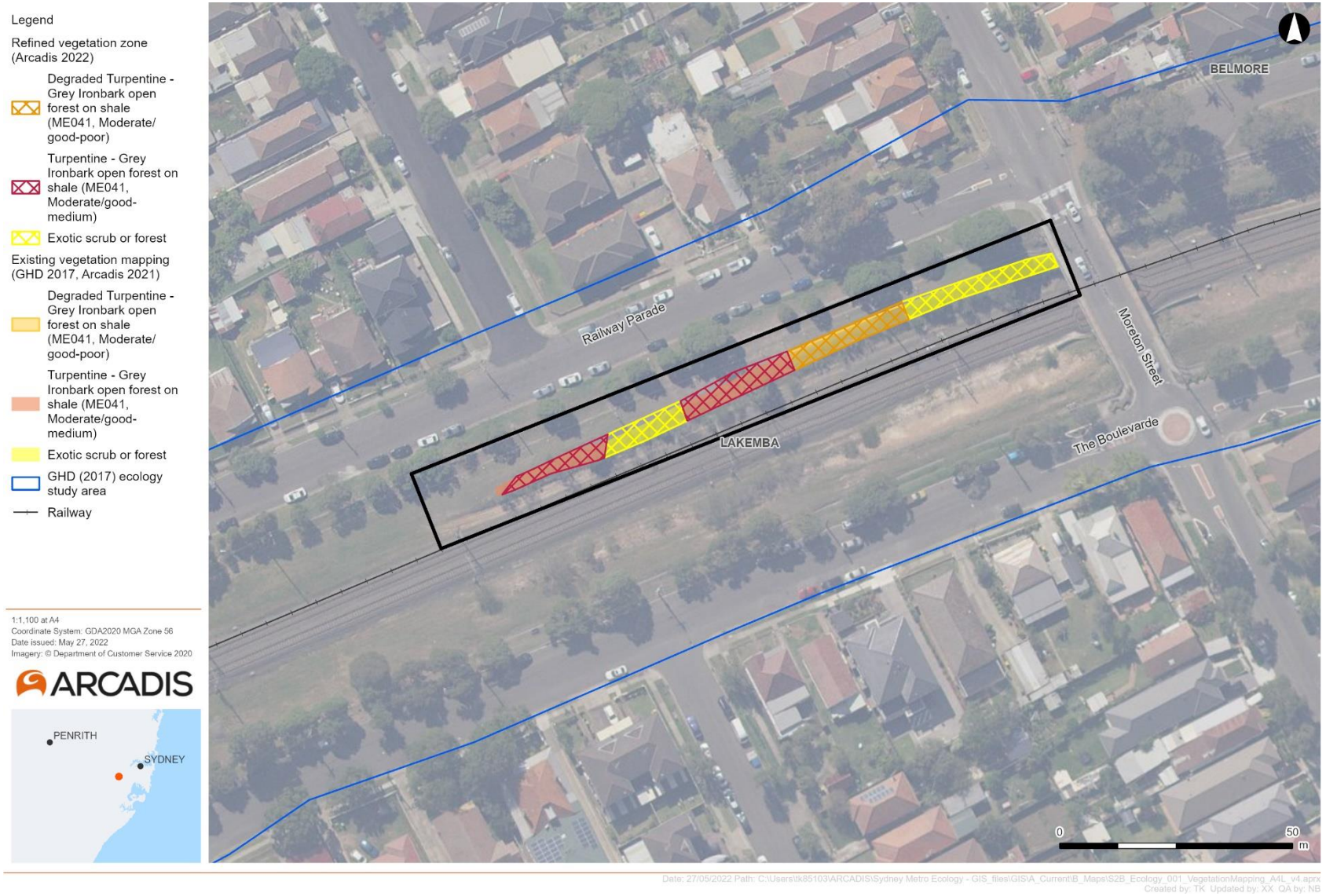

Figure 3. Chainage 14km 550 – 14km 700 (eastbound): Moreton Street and Railway Parade, Lakemba

Figure 4. Chainage 15km 850 – 15km 600 (northbound): Alice Street North and Railway Parade, Wiley Park

Figure 5. Chainage 18km 000 – 18km 400 (westbound): South Terrace (west), Bankstown