Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Metronet - Noranda Station - Lot 461 (DP P021673) Benara Road

Site visit: Yes ☑ No ☐

Date of site visit (if applicable): Day 22 Month September Year 2021

Report author or reviewer: Linden Wears

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☐ Level 3 practitioner ☑

If accredited please provide the following.

BPAD accreditation number: 19809 Accreditation expiry: Month June Year 2022

Bushfire management plan version number: Rev 0

Bushfire management plan date: Day 29 Month October Year 2021

Client/business name: Perth Transport Authority

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		✔
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		✔

Is the proposal any of the following (see SPP 3.7 for definitions)?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)		✔
Strategic planning proposal (including rezoning applications)		✔
High risk land-use		✔
Vulnerable land-use	✔	

None of the above ☐

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

Vulnerable land use due to public transport use of the station

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer 

Date 29 October 2021

Metronet – Noranda Station

Benara Road, Noranda

Bushfire Management Plan

Date: 29 October 2021

Prepared For: Public Transport Authority

Linfire Ref: 20210416136LOR-BMP-003_0

Linfire Consultancy

ABN: 577 930 47299

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Revision	Issue Date	Revision Description	Approved By
A	10 Oct 2021	Issued for Approval	Linden Wears (Level 3 BPAD 19809)
0	29 Oct 2021	Issued for Approval	Linden Wears (Level 3 BPAD 19809)

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1.0 Proposal details

1.1 Background

1.1.1 Proposed development

Melconnx, on behalf of Public Transport Authority (PTA; the Proponent) is lodging a Development Application (DA) in relation to proposed development of Noranda Train Station, on the Morley-Ellenbrook line, within a portion of Lot 461 (DP P021673) Benara Road (the project area), located in the City of Bayswater.

The Precinct Master Plan (see Figure 1) identifies that the proposed development will comprise the following elements:

- Station building with platform and concourse areas located within the Tonkin Highway reservation, between the northbound and southbound lanes
- Vertical Transport (VT) building
- Pedestrian bridge from the VT building to the station, over Tonkin Highway southbound lanes (eastern overpass)
- Pedestrian bridge from Benara Road to the station (southern overpass)
- Pedestrian underpass on Benara Road
- Signalling Equipment Compound (SER) building
- Bike store and services enclosure buildings (including Western Power transformer, generator, pumps and tanks)
- Fire booster connection and DFES hardstand
- Irrigation and isolator compounds
- Motorbike parking shelter
- Carparking bays
- Canopy shelter/covered walkway
- Kiss n Ride drop off area
- Welcome Place outdoor plaza
- Seating nook
- Perimeter fencing
- Onsite roads consisting of internal access and services roads
- Pedestrian shared path (PSP), including realignment of a portion of the existing PSP
- Onsite landscaping, drainage and revegetation
- Drainage and revegetation external to the station development site – to the west of Tonkin Highway and south of Benara Road.

Development of the train station will also involve construction of the Metronet railway track and associated batters within the Tonkin Highway road reservation. Construction of the rail alignment does not form part of this DA and it has been assumed that this will be completed prior to occupancy of the station and commencement of station operations. Revegetation along both sides of the Tonkin Highway road reservation is also proposed, as shown in Figure 1.

1.1.2 Project area

The project area extends around the portion of Lot 461 that lies to the north of Benara Road and

east of Tonkin Highway which contains the majority of the train station precinct. The project area also includes the station building, platform and concourse within the Tonkin Highway road reservation as well and the two pedestrian overpasses (eastern and southern), as shown in Figure 2.

1.1.3 Train station operations

The station will be operated by PTA and will be manned at all times that it is open to the public.

1.1.4 Access

Vehicular access to the station for the public will be via Benara Road which lies to the south of the project area. An internal loop road exists in the south of the station precinct, providing access to the Kiss'n'Drop area and services enclosure (including bike shelter). The internal road also extends north to the carpark, which comprises a series of loop roads with no dead-ends. This road also provides access to the SER building at the northern tip of the project area.

Access to the SER building will be provided on the small service road from the carpark, which is access-controlled to prevent unauthorised access or use by the public.

Pedestrian access will be via an underpass on Benara Road which leads to the main site entrance. A pedestrian overpass will also be constructed from Benara Road to enable direct access to the station buildings and platform. A pedestrian overpass will be constructed from the VT building (within the project area) over the Tonkin Highway southbound lane, to enable access from the carpark to the station buildings and platform.

1.1.5 Emergency management

Given the nature of the facility, this station has its own onsite fire hydrant system which consists of dedicated fire water tanks, pump room and booster connection located in the services enclosure building. Emergency management provisions, including evacuation, are expected to be conducted in accordance with the PTA Emergency Management Manual (EMM). Linfire notes that while the PTA EMM details the response to a variety of onsite emergencies, including station fires, there isn't any specific information in the EMM relating to bushfire emergencies, which may require different responses and evacuation protocols to other emergencies. As outlined in Section 1.4, it is proposed that bushfire emergency management measures be incorporated into the PTA EMM to satisfy bushfire policy requirements.

1.2 Site description

The project area is located within a predominantly built-up residential area, with the nearest significant area of remnant vegetation being located within Lightning Swamp Bushland reserve, approximately 400 m to the northwest.

The project area consists of vacant land that has been subject to historical clearing and is now predominantly non-vegetated, aside from a planted screen along the eastern site boundary.

Land uses surrounding the project area include:

- Existing residential development on Bluegum Drive to the east.
- Benara Road and remnant wooded vegetation associated with the Tonkin Highway/Benara Road interchange to the south. Residential properties also exist to the south of Benara Road.
- Tonkin Highway to the west and a small area of remnant bushland within the Tonkin Highway road reservation. Residential properties exist to the west of the Tonkin Highway reserve.
- Tonkin Highway and residential properties located within the City of Swan to the north.

1.3 Habitable buildings and assets

Review of the proposed development has identified the following proposed habitable buildings and assets that Linfire considers requires protection from bushfire impact:

- Main station rooms and infrastructure (beneath the main station canopy) on both the platform and concourse levels including toilets, staff crib, kiosk, offices, cleaners room, electrical and communications rooms and other infrastructure. This also includes the Toilets/Tea Prep/Communications/Electrical/Mechanical building on the northern part of the platform, not located beneath the main canopy.
- Vertical Transport (VT) building
- Signalling Equipment Room (SER) building
- Services building, housing the bike store, and fire pumps, tank and booster.

Linfire note that the fire pumps, tank and booster are not considered habitable buildings, however given the importance of these assets and their location near proposed revegetation, it is considered appropriate that they are provided a level of protection from bushfire, especially given loss of this infrastructure would result in a lack onsite water supply.

1.4 Purpose

The project area contains proposed habitable development located within a designated bush fire prone area that is subject to a BAL rating above BAL-Low. On this basis, this Bushfire Management Plan (BMP) has been prepared to address requirements under Policy Measures 6.2 and 6.5 of *State Planning Policy 3.7 Planning in Bushfire-Prone Areas* (SPP 3.7; WAPC 2015) and *Guidelines for Planning in Bushfire-Prone Areas* (the Guidelines; WAPC 2017).

The proposed development is considered a vulnerable land use which triggers additional requirements under Policy Measure 6.6 of SPP 3.7. In accordance with Policy Measure 6.6.1 and Section 5.5 of the Guidelines, development applications for vulnerable land uses require a Bushfire Emergency Evacuation Plan (BEEP) detailing the emergency management provisions for the facility, accompanies the BMP.

For this project, it is proposed that a BEEP is not prepared at this time, but is included as a future

implementation measure within this BMP and conditioned as part of the DA approval. Linfire consider the most appropriate approach is to have the proposed bushfire emergency management arrangements for this station incorporated into the existing PTA Emergency Management Manual (EMM) to standardise the procedures across the Metronet network. To achieve this, there is a significant liaison process required with PTA and given occupation of the station by vulnerable occupants (i.e. the public) isn't likely until 2024, there is considerable time to define these bushfire emergency management arrangements. This BMP will provide some guidance in relation the overall strategy in order to provide decision-makers with some information regarding the anticipated emergency management measures. Notwithstanding, a standalone BEEP for the station may still be an option if this is PTA's preference, however it should be aligned with and referenced in the EMM.

1.5 Other plans/reports

There are no known bushfire or environmental assessments or reports that have been prepared previously for the project area.

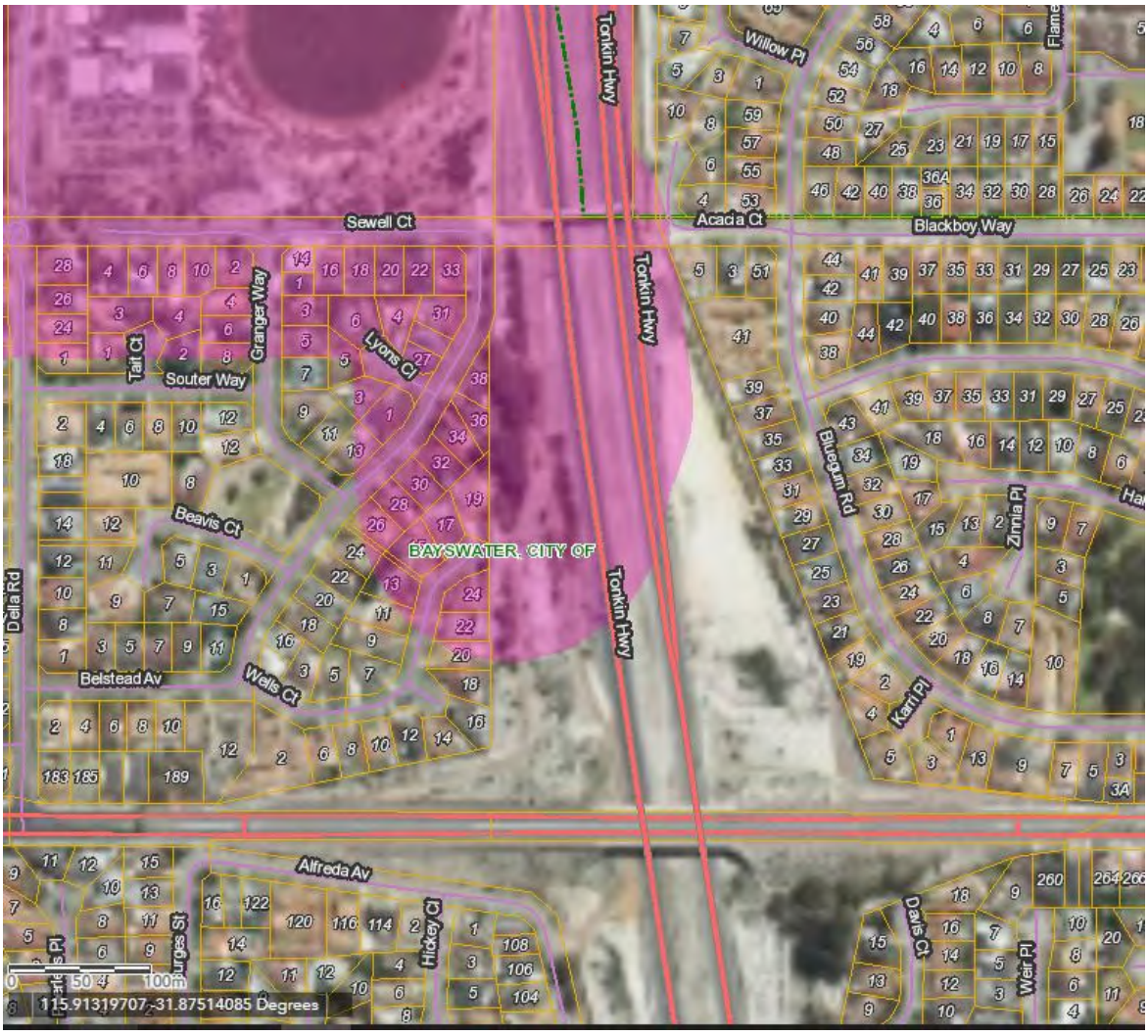

Plate 1: Map of Bush Fire Prone Areas (DFES 2019)

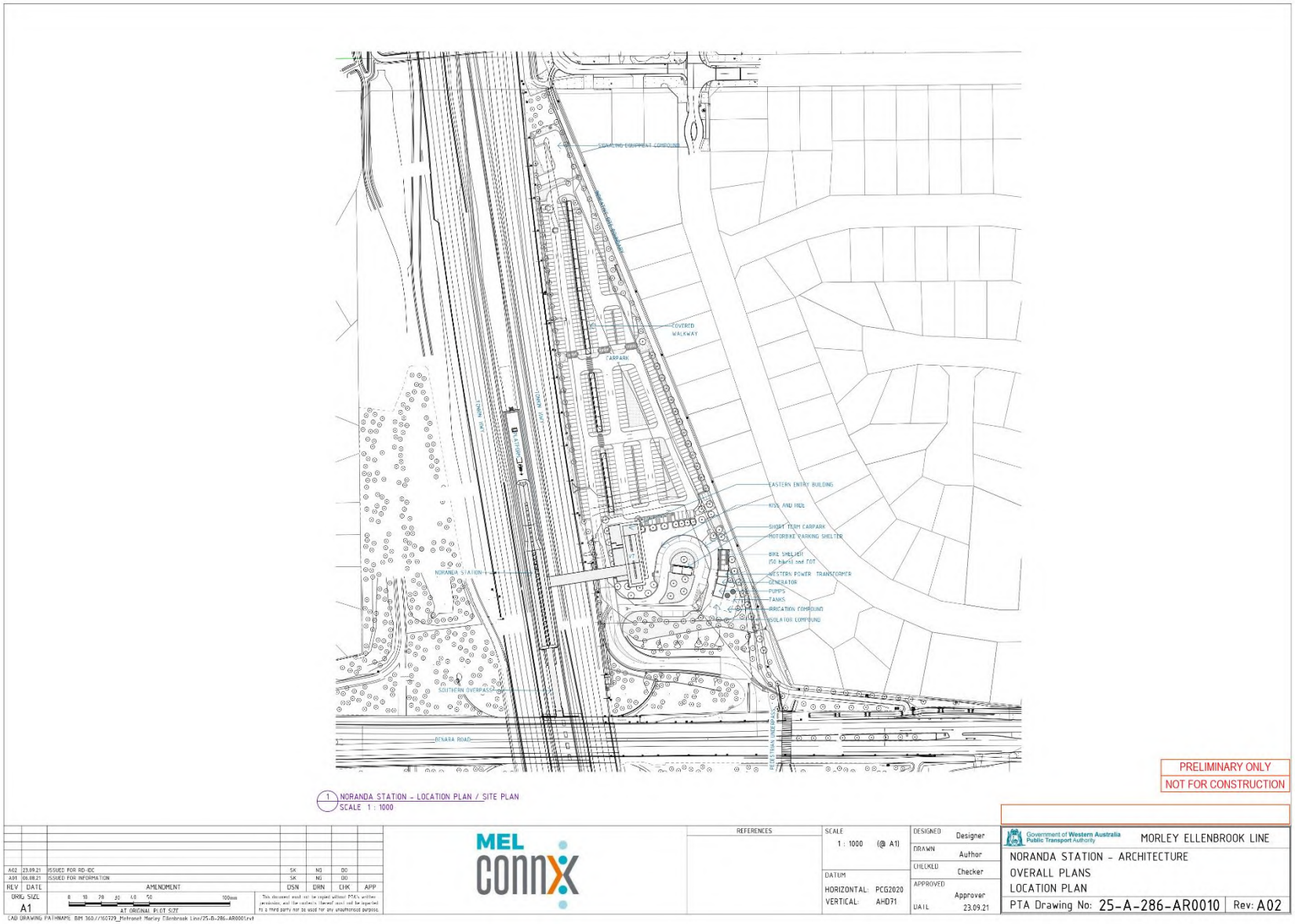

Figure 1: Development Plan

Legend

- Proposed Development
- Project Area
- 100m Assessment Area
- 150m Assessment Area
- Building Outline
- Cadastre

Scale 1: 4,000

0 50 100 150 Metres

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Figure 2: Site Overview

2.0 Environmental considerations

2.1 Native vegetation - modification and clearing

The project area was historically vegetated but was fully cleared and subjected to site earthworks in 2016. Following clearing, a vegetated screen was planted along the eastern site boundary (adjacent to the cycle path at the rear of the properties on Bluegum Road). The only clearing of on-site vegetation proposed is that of revegetating plant species within the previously cleared area. The screen is expected to be retained.

A desktop assessment of publicly available environmental information has been conducted in order to identify any environmentally significant values within the project area and immediate surrounds that may be impacted by the proposed development. As demonstrated in Table **1**, and by virtue of the site being fully cleared, there are no environmental values within or adjacent to the project area that are expected to be impacted by the development.

Linfire understands that any environmental impacts resulting from implementation of the proposal have been addressed at previous planning stages.

Table 1: Summary of environmental values

Environmental value	Mapped as occurring within or adjacent to the project area		Description
	Within	Adjacent	
Environmentally Sensitive Area		✓	The project area is not mapped as being within an Environmentally Sensitive Area (ESA). The nearest ESA is mapped as occurring approximately 400 m to the west of the project in associated with a Conservation Category Wetland (Lightning Swamp Bushland reserve) No Environmentally Sensitive Area have been identified within the project area but has been immediately to the north of Beechboro Rd North
Swan Bioplan Regionally Significant Natural Area			The project area is not located within a Swan Bioplan Regionally Significant Natural Area.
Ecological linkages	N/A	N/A	This layer not publicly available at the time of document preparation.
Wetlands	✓	✓	The southern portion of the project area is mapped as Resource Enhancement wetland. However, given the site has been cleared and subjected to earthworking, this wetland is no longer considered to be present within the project area. A Conservation Category as mapped as occurring within the Lightning Swamp Bushland reserve, approximately 400 m to the west of the project area.
Waterways			No waterways or lakes are present within or adjacent to the project area.
Threatened Ecological Communities listed	✓	✓	Threatened Ecological Communities are mapped as occurring within and adjacent to the project area. However, given the project area and immediate

Environmental value	Mapped as occurring within or adjacent to the project area		Description
	Within	Adjacent	
under the EPBC Act			surrounds are cleared, no TECs are considered to exist.
Threatened and priority flora	N/A	N/A	This layer was not publicly available at the time of document preparation.
Fauna habitat listed under the EPBC Act	✓	✓	The project area is mapped as containing confirmed roosting sites for the Endangered Carnaby's Black Cockatoo. However, given no remnant trees remain within the project area, this habitat is no longer considered to exist.
Threatened and priority fauna	N/A	N/A	This layer not available at the time of document preparation.
Bush Forever Site		✓	The project area is not identified as a Bush Forever site. The nearest Bush Forever site is located approximately 400 m to the west of the project area, within Lightning Swamp Bushland reserve (BF307).
DBCA managed lands and waters (includes legislated lands and waters and lands of interest)			There are no DBCA managed or legislated land and waters within or adjacent to the project area.
Conservation covenants			No information has been provided by the client regarding Conservation Covenants.
Aboriginal Heritage		✓	The project area does not contain any Aboriginal Heritage Places. A 'Registered Site' is located within Lightning Swamp Bushland reserve, approximately 400 m to the west of the project area.
Crown Reserves			No Crown Reserves were identified within or adjacent to the project area.

2.2 Revegetation and Landscaping

A landscaping strategy has been developed for the proposed development as shown on the landscaping plans in Appendix 1.

Revegetation is proposed to occur on the western side of Tonkin Highway, both north and south of Benara Road, and will be planted with a combination of trees with understorey non-irrigated tubestock. The structure of the mature vegetation is considered to be consistent with Class A Forest, due to canopy coverage exceeding 30% and understorey ground cover and shrub vegetation creating a tiered fuel profile. Revegetation to the east of Tonkin Highway but south of Benara Road will be subject to the same treatments and resultant classification as Class A Forest.

Landscaping within the station precinct itself will comprise a combination of managed landscaping and revegetation and is to achieve the following outcomes:

- proposed revegetation planting in the south of the station precinct, to the north of Benara

Road and south of the VT building and services compounds, is to achieve a Class B Woodland vegetation structure, being low understorey species <0.5 m high with trees between 10% - 30% canopy cover.

- proposed revegetation at the northern tip of the station precinct, to the north of the SER building, is to achieve a Class C Shrubland classification, being shrubs up to 2 m height scattered overhead trees maintaining no more than 10% canopy coverage at maturity.
- landscaping within the remainder of the station precinct, including the carparks and road verges is to be instated and managed as low threat vegetation which complies with provisions of *AS 3959-2018 Construction of buildings in bushfire prone areas* (AS 3959) Clause 2.2.3.2 (f).

Asset Protection Zones (APZs) are to be implemented around nominated buildings which are exposed to proposed onsite revegetation, to the dimensions detailed in this BMP, and in accordance with the APZ standards of the Guidelines (see Schedule 1 in Appendix 2). Outside the APZs, the managed landscaping around the station is to consist of either non-vegetated elements or low threat landscaping in accordance with AS 3959 Clauses 2.2.3.2 (e) and (f).

As the rail alignment lies central within the Tonkin Highway road reservation, there are minimal batters and no revegetation occurring within direct proximity of the rail tracks

3.0 Bushfire assessment results

3.1 Assessment inputs

3.1.1 Vegetation classification

Linfire assessed classified vegetation and exclusions within the project area and surrounding 150 m through on-ground verification on 22 September 2021 in accordance with AS 3959 and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix 3 and depicted in Figure 3 and Table 2.

The following vegetation classifications were identified during the site inspection within the project area and adjacent 150 m assessment area:

- Class C Shrubland
  - within the revegetation area to the north of the SER building, comprising low shrubs (0.5 m to 2 m) with tree canopy coverage less than 10% at maturity (Plot 1).
- Class D Scrub
  - Remnant scrub vegetation fringing Tonkin Highway west (northbound lanes) consisting of vegetation with a continuous vertical and horizontal fuel structure, 2-4 m high (Plots 2 and 3).
- Class B Woodland
  - Within the revegetation areas in the southern portion of the station precinct, comprising low shrub understorey and open canopy of trees (10-30%) (Plots 7,8).
- Class A Forest
  - within the revegetation areas to the west of Tonkin Highway and south of Benara road to the east of Tonkin Highway (Plots 4, 5, 6).

The project area and adjacent 150 m assessment area also contains land excluded from classification, including:

- vegetation that is more than 100 m from the proposed development area which is excluded under Clause 2.2.3.2 (a) (Plot 10).
- existing non-vegetated areas and low threat vegetation including residential lots, roads and managed verges, cultivated gardens and the future rail alignment, excluded under Clauses 2.2.3.2 (e) and (f) (Plot 11).
- areas of existing vegetation to be modified to non-vegetated areas and low threat vegetation as part of the proposed development in accordance with Clauses 2.2.3.2 (e) and (f) (Plot 12) include:
  - the APZs around the nominated buildings, which are to be managed in accordance with APZ standards of the Guidelines.
  - areas of the station precinct that are not proposed for revegetation which are to be managed as non-vegetated or low threat vegetation.

3.1.2 Effective slope

Linfire assessed effective slope under classified vegetation through on-ground verification on 22 September 2021 in accordance with AS 3959. Results were cross-referenced with Landgate 5m contour data and are depicted in Table 2 and Figure 3.

Site observations indicate that land within the project area and adjoining 150 m assessment area is predominantly flat/upslope or with a slight effective downslope of between 5-10º in relation to the project area. A steep but relatively short incline exists to the south of Benara Road and the Class A Forest vegetation has been mapped accordingly as having an effective downslope of >10-15º, with respect to onsite assets.

3.1.3 Summary of inputs

Table 2 illustrates the anticipated post-development vegetation classifications and exclusions following completion of development works, modification of applicable existing vegetation to a non-vegetated or low threat state and establishment of proposed revegetation treatments. The post-development vegetation classifications/exclusions and effective slope are summarised in Table 2.

Table 2: Post-development vegetation classifications/exclusions and effective slope

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class C Shrubland	Downslope >0–5°	Revegetation area to the north of the SER building.
2	Class D Scrub	Flat/upslope (0°)	Remnant scrub to the west of Tonkin Highway, <6 m height.
3	Class D Scrub	Downslope >0–5°	Remnant scrub to the west of Tonkin Highway, <6 m height.
4	Class A Forest	Flat/upslope (0°)	Revegetation areas consisting of canopy trees and understorey planting with an effective flat/upslope in relation to the project area.
5	Class A Forest	Downslope >0–5°	Revegetation areas consisting of canopy trees and understorey planting with an effective >0-5º downslope in relation to the project area.
6	Class A Forest	Downslope >10–15°	Revegetation area to the south of Benara Road with a steep downslope.
7	Class B Woodland	Flat/upslope (0°)	On-site revegetation in the south of the station precinct which will comprise shrubland understorey and overstorey trees with canopy coverage >30%.
8	Class B Woodland	Downslope >0–5°	On-site revegetation in the southeast of the station precinct with an effective downslope which will comprise shrubland understorey and overstorey trees with canopy coverage >30%.
10	Excluded – Clause 2.2.3.2 [a]	N/A	Remnant scrub vegetation located more than 100 m to the northwest of the project area.
11	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated elements (buildings, roads etc) and low threat vegetation (managed verges, cultivated residential lots), adjacent to the project area.
12	Excluded – Non-vegetated and Low	N/A	Vegetation within the project area that will be modified to and maintained in a non-

Vegetation plot	Vegetation classification	Effective slope	Comments
	threat (Clause 2.2.3.2 [e] and [f])		vegetated/low threat state as part of the development.

Legend

- Site Photo
- Proposed Development
- Project Area
- 100m Assessment Area
- 150m Assessment Area
- Building Outline

Asset Protection Zone

- 10m
- 14m
- Vegetation Plot
- Cadastre

Classified Vegetation

- A.F orest
- B.W oodland
- C.S hrubland
- D.S crub
- Excluded Clause 2.2.3.2(a)
- Excluded Clause 2.2.3.2(e&f)
- Modified to non vegetated or low threat vegetation

Scale 1: 3,000

0 40 80 120 Metres

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Figure 3: Post-development vegetation classification and effective slope

3.2 Assessment outputs

3.2.1 Bushfire Attack Level (BAL) contour assessment

Linfire has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (see Figure 4). The Method 1 procedure incorporates the following factors:

- state-adopted FDI 80 rating
- vegetation classification
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed future development and subsequently informs the standard of building construction and/or setbacks required for proposed habitable development to potentially withstand such impacts.

The BAL contours are based on:

- the vegetation classifications and effective slope observed at the time of inspection
- consideration of the post-development conditions resulting from on-site clearing and landscaping and resultant exclusions and separation distances achieved in line with the Development Plan and Sections 2.2 and 3.1.1.
- proposed revegetation within and external to the station precinct.
- ongoing management of on-site low-threat landscaping to enable exclusion as non-vegetated and low threat vegetation under Clauses 2.2.3.2 (e) and (f).

Should there be any changes in development design or classified vegetation extent that results in a modified BAL outcome, then the BAL contours will need to be reassessed.

The results of the BAL contour assessment are detailed in Table 3 and illustrated in Figure 4. Following implementation of low-threat/non-vegetated landscaping and Asset Protection Zones, the highest BAL applicable to the proposed habitable buildings and elements is BAL-29.

Table 3: BAL contour assessment results to proposed buildings and assets

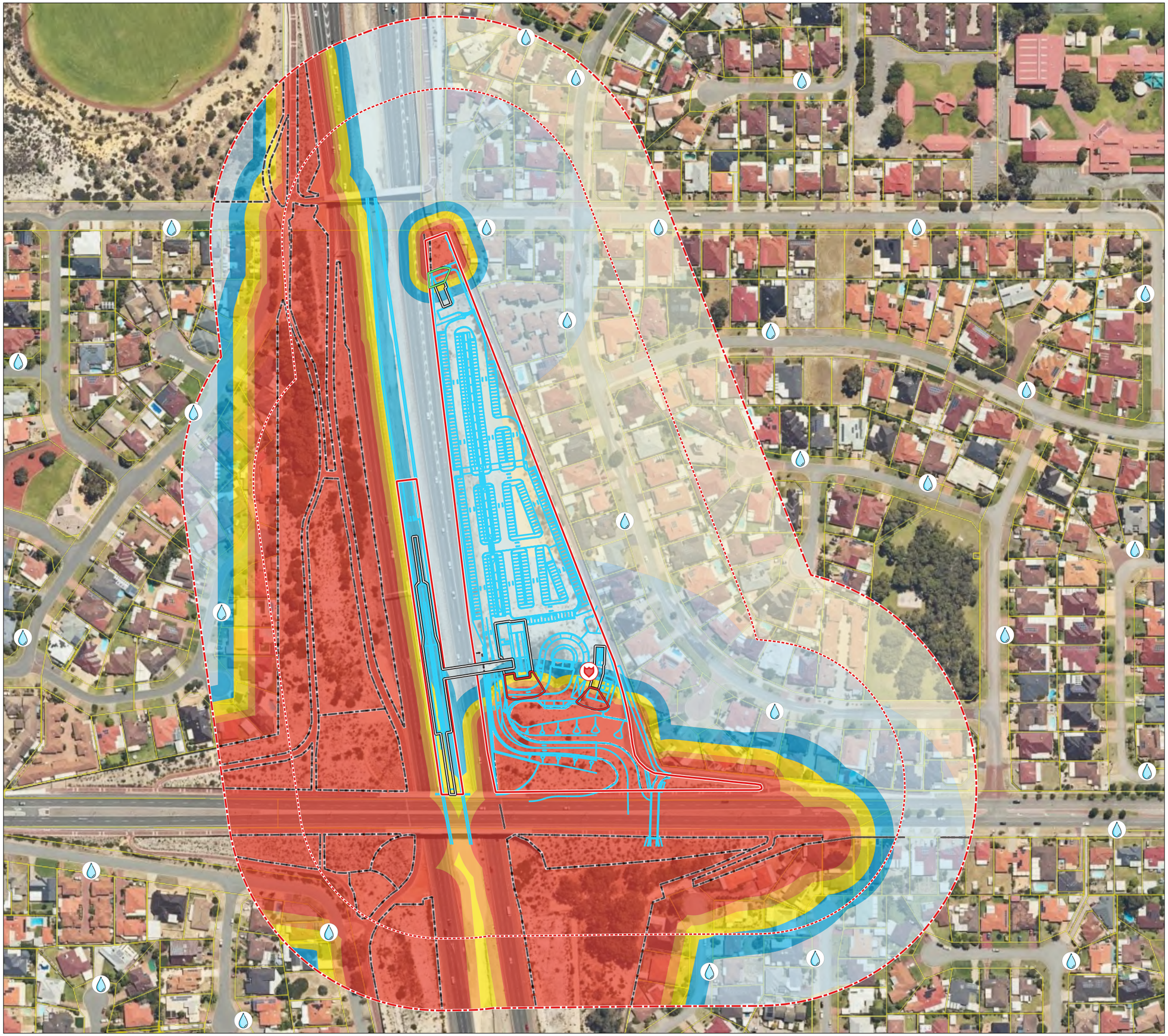
	Method 1 BAL determination			
Plot	**Vegetation classification**	**Effective slope**	**Separation distance**	**Highest BAL**
1	Class C Shrubland	Downslope >0–5°	10 m	BAL–29
2	Class D Scrub	Flat/upslope (0°)	21 m	BAL–19
3	Class D Scrub	Downslope >0–5°	>100 m	BAL–Low
4	Class A Forest	Flat/upslope (0°)	26 m	BAL–29
5	Class A Forest	Downslope >0–5°	32 m	BAL–29
6	Class A Forest	Downslope >10–15°	44 m	BAL–29
7	Class B Woodland	Flat/upslope (0°)	14 m	BAL–29
8	Class B Woodland	Downslope >0–5°	79 m	BAL–19
10	Excluded – Clause 2.2.3.2 [a]	N/A	N/A	BAL–Low

Table 4 lists the BAL applicable to each individual building or element within the proposed

development.

Table 4: BAL applicable to each building/element

Building / element	Initial BAL (no management)	Proposed vegetation management	Revised BAL
Station building including lift lobby building (south of the main station canopy)	BAL–29	Permanent separation afforded by Tonkin Highway road reservation and dual use path	BAL–29
Signalling Equipment Room (SER) building	BAL–FZ	10 m wide APZ to the north of the building (clipped to the project area), toward the Class C Shrubland revegetation area.	BAL–29
Vertical Transport (VT) Building	BAL–FZ	14 m wide APZ to the south of the building, toward the Class B Woodland revegetation area.	BAL–29
Services building (including Fire Pumps, Tanks, Booster)	BAL–FZ	14 m wide APZ to the south of the building, toward the Class B Woodland revegetation area.	BAL–29



Legend

Fire Pumps, Tank, Booster

Street Hydrant

Proposed Development

Project Area

100m Assessment Area

150m Assessment Area

Building Outline

Asset Protection Zone

10m

14m

Vegetation Plot

Cadastre

BAL Contours

BAL FZ

BAL 40

BAL 29

BAL 19

BAL 12.5

BAL Low

Scale 1: 3,000

0 40 80 120 Metres

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Figure 4: BAL Contour Map and Bushfire Management Measures

4.0 Identification of bushfire hazard issues

4.1 Bushfire context

The project area is located within a predominantly built-up area, being surrounded by residential properties, managed parklands and major vehicular transport routes, including Tonkin Highway and Benara Road.

The nearest potential bushfire hazard is Lightning Swamp Bushland reserve which is located approximately 400 m to the northwest of the station precinct, across Tonkin Highway. This area of banksia dominated woodland is approximately 71 ha and has potential fire runs of up to 1.5 km toward the project area. The reserve is relatively isolated from any other areas of remnant vegetation but does have potential continuity with a narrow corridor of bushland running east-west between Mirrabooka Avenue (in the west) and Malaga Drive (in the east). However, the risk of landscape scale bushfire within the local area is very low, considering the developed landscape and limited areas of largely fragmented vegetation. In the instance of a bushfire occurring within Lightning Swamp Bushland to the north-west of the station, bushfire impact on the project area (most likely to be limited to ember attack) would be highest during summer northerly winds, which are uncommon but generally stronger than the predominant easterly and southwesterly winds for the locality.

The revegetation proposed within the project area and verges of the Tonkin Highway/Benara Road interchange will increase the bushfire hazards in proximity to the station precinct, however, this vegetation is isolated in nature, with limited potential to reach a fully developed state. As such, any bushfire occurring within the revegetation areas is expected to be limited to localised low-scale bushfire behaviour which would be easily contained by attending firefighting crews. Landscaping and revegetation proposed as part of the development has been designed to ensure that all habitable development will be located within an area subject to BAL-29 or lower.

Based on the above, bushfire impact to the proposed development is expected to be limited to localised fire behaviour from the surrounding freeway revegetation areas that would be easily managed through a direct fire suppression response. Notwithstanding, the habitable elements of the station precinct will be further protected from potential bushfire impacts through the provision of APZs to achieve BAL-29 and separation afforded by the public road network and low threat/non-vegetated landscaping and will be voluntarily constructed to meet AS 3959 BAL-12.5, where practicable.

4.2 Bushfire hazard issues

Examination of the environmental considerations (Section 2.0) and the bushfire risk assessment (Section 3.0) has identified the following bushfire hazard issues:

1. On-site revegetation in proximity to the proposed VT building, services building, and SER building will result in these buildings being subject to potential impact from a fire occurring within the woodland and shrubland type vegetation. Separation between the buildings and adjacent vegetation is to required to be provided by APZs, low threat vegetation or permanent non-vegetated elements.
2. Sufficient vehicular access is required to the proposed development, to enable egress by onsite occupants and to facilitate access for the fire brigade and emergency services.
3. Access to a sufficient bushfire fighting water supply is required to limit travel times to water supplies for appliance refills.
4. The proposed development constitutes a vulnerable land use, due to the presence of the public who may not be familiar with the facility or what to do in a bushfire emergency, potential evacuation challenges associated with the station and platform design, need

for provision of alternative transportation for passengers, and potential for occupants to have mobility or cognitive impairments.

4.3 Bushfire safety strategy

The following bushfire safety strategy is proposed to demonstrate compliance with the Bushfire Protection Criteria of the Guidelines and address the bushfire hazards identified above:

1. Create sufficient separation from on-site classified vegetation, by ensuring appropriately sized APZs are implemented around proposed buildings and assets to achieve BAL-29 or lower and comply with the APZ standards of the Guidelines. Given the low level of bushfire risk to the proposed development, an APZ to achieve BAL-29 will be implemented, with the buildings being constructed voluntarily to BAL-12.5, in recognition of the likely low levels of radiant heat impact and ember attack
2. Provision of compliant vehicular access within, to and from the proposed development, consisting of public roads and private driveways, to enable occupant egress and facilitate firefighter access to the project area and in particular the firewater supply.
3. Provision of a secure bushfire fighting water supply through installation of the proposed on-site fire hydrant system to provide hydrant coverage to the station building. Static water tanks on the hydrant system will also enable refill of bushfire fighting appliances from the fire booster connection.
4. Ensure appropriate bushfire emergency management procedures are incorporated into the overarching PTA EMM, to enable onsite staff to appropriately manage a bushfire event impacting the proposed development including:
    a. Monitoring of forecast Fire Danger Rating during bushfire season, and Total Fire Ban Days, to anticipate bushfire risk for the next day and consider pre-emptive actions
    b. Maintaining situational awareness during day in bushfire season by monitoring emergency services information
    c. Emergency management procedures for bushfire events including ceasing train and bus services and evacuating the train station.

Based on the above, Linfire considers the bushfire hazards within and adjacent to project area and the associated bushfire risks are manageable through standard management responses outlined in the Guidelines. These responses will be factored into proposed development as early as possible at all stages of the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

5.0 Assessment against the bushfire protection criteria

5.1 Compliance table

An assessment against the bushfire protection criteria is provided in Table 5.

Table 5: Compliance with the bushfire protection criteria of the Guidelines

Bushfire protection criteria				Development response		
Element	**Intent**	**Performance Principle**	**Acceptable solutions**	**Method of compliance**	**Proposed bushfire management measures**	**Compliance Comment**
Element 1: Location	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.	Performance Principle P1 Development location The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL-29 or below, and the risk can be managed. For unavoidable development in areas where BAL-40 or BAL-FZ applies, demonstrating that the risk can be managed to the satisfaction of the Department of Fire and Emergency Services and the decision-maker.	A1.1 Development location The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.	**Acceptable Solution**	The BAL contour map (see Figure 4) indicates that all proposed buildings and infrastructure can be sited in an area of BAL-29 or lower, upon completion of development and implementation of the proposed Asset Protection Zones (APZs) and other onsite landscaping. Although the main station building and VT building are located in BAL-29, the decision has been made to voluntarily construct these buildings to achieve BAL-12.5, where practical, in recognition of the minimal risk of steady state bushfire impacting the project area, with the main risk being ember attack. The Proponent will incorporate BAL-12.5 construction elements to the station and VT buildings, where practicable given the building design.	Compliance with the Performance Principle and Intent of Element 1 is achieved through compliance with Acceptable Solution A1.1
Element 2: Siting and design of developme nt	To ensure that the siting and design of development minimises the level of bushfire impact.	Performance Principle P2 The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. That it incorporates a defendable space and significantly reduces the heat intensities at the building surface thereby minimising the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.	A2.1 Asset Protection Zone (APZ) Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements: **Width**: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL–29) in all circumstances. **Location:** the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes) **Management:** the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (see Guidelines Schedule 1).	**Acceptable Solution**	On completion of development, the following APZs are to be implemented as non-vegetated elements and/or maintained low threat vegetation: • SER building: 10 m APZ to the north (clipped to the project area boundary) • VT building: 14 m APZ to the south. • Services building (housing fire pumps tank and booster). The station building and platform are subject to BAL-29 impacts through the permanent separation already afforded by Tonkin Highway and do not require formal separate APZs. The APZs are to be implemented and maintained in accordance with Schedule 1 of the Guidelines (see Appendix 2). All proposed APZs are located within the station precinct bounds.	Compliance with the Performance Principle and Intent of Element 2 is achieved through compliance with Acceptable Solution A2.1
Element 3: Vehicular access	To ensure that the vehicular access serving a subdivision/develop ment is available and safe during a bushfire event.	Performance Principle P3 The internal layout, design and construction of public and private vehicular access and egress in the subdivision / development allow emergency and other vehicles to move through it safely and easily.	A3.1 Two access routes Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.	**Acceptable Solution**	The station precinct is directly accessed from Benara Road, which enables access to surrounding urban areas which are at low risk of bushfire impact. Benara Road provides direct access to destinations to the west and east and being a major arterial road, has multiple connections to the public road network to the north and south. In this regard, the proposed development is provided with multiple access routes to multiple destinations.	Compliance with the Performance Principle and Intent of Element 2 is achieved through compliance with Acceptable Solution A3.1, and A3.5.
			A3.2 Public road	**Not applicable**	No new public roads are proposed as part of the development. The	

Bushfire protection criteria				Development response		
Element	**Intent**	**Performance Principle**	**Acceptable solutions**	**Method of compliance**	**Proposed bushfire management measures**	**Compliance Comment**
			A public road is to meet the requirements in Table 2, Column 1.		existing public roads sighted around the project area appeared compliant with public road specifications of the Guidelines and are considered sufficient for emergency egress or firefighter access to the site.	
			A3.3 Cul-de-sac (including a dead-end-road) A cul-de-sac and/or a dead-end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved (refer to the Guidelines for detailed cul-de-sac requirements).	**Not applicable**	No cul-de-sacs are proposed as part of the development and the project area is not serviced by an existing cul-de-sac.	
			A3.4 Battle-axe Battle-axe access leg's should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved (refer to the Guidelines for detailed battle-axe requirements).	**Not applicable**	No battle-axe legs are proposed as part of the development and the project area is not serviced by an existing battle-axe.	
			A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements (refer to the Guidelines for detailed private driveway requirements).	**Acceptable Solution**	The proposed internal road network is depicted in Figure 2, and comprise: • entrance from Benara Road • loop road servicing services enclosure and kiss'n'ride drop off area • access roads to and around the carpark and to the SER building. The internal road network will be constructed in accordance with technical requirements of the Guidelines for private driveways (see Appendix 4). Most proposed roads will exceed 6 m in width, so passing bays are not considered to be required within the project area. Similarly compliant turning arrangements are provided and no dead-ends are proposed. Keys to any locked access gates (e.g. to the SER compound) are to be made available to onsite PTA staff and to local DFES brigades, to enable them to be unlocked in an emergency.	
			A3.6 Emergency access way An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements (refer to the Guidelines for detailed EAW requirements).	**Not applicable**	Emergency access ways (EAWs) are not required to provide through access to a public road. The project area is serviced by compliant public road arrangements.	
			A3.7 Fire service access routes (perimeter roads) Fire service access routes are to be established to provide access within and around the edge of the subdivision and	**Not applicable**	The internal road network will provide perimeter access around the project area. In this regard, the proposed development does not require fire service access routes (FSARs).	

Bushfire protection criteria				Development response		
Element	**Intent**	**Performance Principle**	**Acceptable solutions**	**Method of compliance**	**Proposed bushfire management measures**	**Compliance Comment**
			related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for firefighting purposes. Fire service access routes are to meet detailed requirements (refer to the Guidelines for detailed fire service access route requirements).			
			A3.8 Firebreak width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government.	**Not applicable**	On completion of development, the project area will be developed with non-vegetated surfaces, low-threat landscaping and will be provided with an access road in proximity to the external boundaries of the station precinct. In this regard, formal firebreaks are not considered to be required.	
Element 4: Water	To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from busfire.	Performance Principle P4 The subdivision, development or land use is provided with a permanent and secure water supply that is sufficient for firefighting purposes.	A4.1 Reticulated areas The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.	**Not applicable**	The proposed development is located within an existing reticulated area, with the nearest fire hydrant being located on Bluegum Drive, to the east, approximately 520 m driving distance from the station precinct. Whilst the project area is located near these street hydrants, the main bushfire fighting water supply is likely to be accessed from the dedicated onsite fire hydrant system detailed below in A4.2 below.	Compliance with the Performance Principle and Intent of Element 4 is achieved through compliance with Acceptable Solution A4.2
			A4.2 Non-reticulated areas Water tanks for firefighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas).	**Acceptable Solution**	The proposed development is to have an on-site fire hydrant system, designed, installed and maintained in accordance with the National Construction Code and relevant Australian Standards. The fire hydrant system is expected to include dedicated firewater storage tanks and duty/standby and booster connection situated near the services enclosure in the east of the site and serviced by the internal loop road. Onsite fire hydrants will be sited throughout the development and will provide attending fire fighters with fire hydrant coverage of the railway station, including the platform and concourse levels. Given the onsite water storage (and infill) associated with the proposed wet fire systems, the addition of an extra 50 kL to the proposed storage capacity for bushfire fighting purposes is considered appropriate. This static water supply will be available for attending firefighters from the firewater storage tanks, via the booster connection. Appliance turnaround will be achieved using the loop road within the bus interchange. The firewater tank/s are to be installed, filled and maintained for the life of the project by the Proponent.	
			A4.3 Individual lots within non-reticulated areas (Only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 m^2 need a dedicated static water supply on the lot that has the effective capacity of 10,000 L.	**Not applicable**	The proposed development is being addressed in accordance with A4.2	

5.2 Additional management strategies

Linfire makes the following specific/additional bushfire management recommendations to inform ongoing planning stages of the development and increase the level of bushfire risk mitigation across the site.

5.2.1 Onsite landscaping and revegetation

The BAL contour assessment is reliant on all landscaping and revegetation being implemented in accordance with the endorsed Landscape Plan and in accordance with provisions with this BMP.

Proposed revegetation to the north of the SER building is to be established as a shrubland vegetation structure and revegetation in the south of the project area is to be maintained as a woodland vegetation structure as per AS 3959.

Repsonsiblities for maintenance of landscaping are discussed in Table 6.

5.2.2 Road verge fuel management

Existing and proposed public road verges that have been excluded as low threat are to be managed to ensure the understorey and surface fuels remain in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Ongoing management of proposed internal road verges is the responsibility of the Proponent, until handed over to the City, with management of any existing road verges to continue to be the responsibility of the City.

5.2.3 Building construction standards

The proposed development does not include any Class 1, 2, or 3 residential buildings and associated Class 10a structures, and as such, there is no statutory requirement for proposed buildings to meet the construction requirements of AS 3959.

However, in recognition for the potential bushfire risk to the project area, limited as it is, the Proponent has agreed to review the construction of the main station building and VT building, and where practical for buildings of this nature, voluntarily incorporate BAL-12.5 construction measures. where practical for buildings of this nature. Although these buildings are situated within a location of BAL-29, BAL-12.5 construction is considered appropriate given the risk to the buildings from bushfire attack is low and likely limited to low levels of radiant heat and ember attack.

5.2.4 Vulnerable land use and recommended development condition

The proposed development constitutes a vulnerable land use. On this basis, a Bushfire Emergency Evacuation Plan (BEEP) is required to address the requirements of Policy Measure 6.6.1 of SPP 3.7.

The preference is that the BEEP is not prepared at this time but is included as a future implementation measure within this BMP and conditioned as part of the DA approval. Instead of producing a standalone BEEP for the station, the ideal approach is to incorporate the proposed bushfire emergency management arrangements for this station into the existing PTA Emergency Management Manual (EMM) to standardise the procedures. To achieve this, there is a significant liaison process to be undertaken with PTA and given occupation of the station by vulnerable occupants (i.e the public) is to be in 2024, there is considerable time to define these arrangements.

Based on the above, the following is proposed:

- The preparation, endorsement, and implementation of the bushfire emergency

management arrangements (preferably within the PTA EMM) is specifically nominated as a condition of development approval (see Section 5.2.4.1)

- The bushfire emergency management arrangements consider the proposed philosophies outlined in Section 5.2.4.2, which have been included to provide some guidance about the overall strategy.

5.2.4.1 Recommended development condition

The following condition is recommended for the development application approval (subject to WAPC wording):

Bushfire emergency management procedures, detailing the management of vulnerable occupants at the proposed station, is to be prepared, endorsed by WAPC and implemented prior to occupation by any vulnerable occupants (i.e. the public). The proposed emergency management procedures will preferably be incorporated into the overarching PTA Emergency Management Manual (EMM) as standardised procedures, however it may also be documented within a standalone BEEP for the station that is aligned with the EMM.

5.2.4.2 Indicative Bushfire Emergency Management Procedures

It is expected that the bushfire emergency management procedures or arrangements would consider the following, to be incorporated into the PTA EMM (or a standalone BEEP that aligns with the EMM):

- Monitor the forecast Fire Danger Rating (FDR) each day (at 4pm) to enable consideration of any pre-emptive actions including
    - Heighten alertness for staff and public, including warnings when FDR is Extreme or Catastrophic
    - Consider adding extra staff to manage a bushfire emergency
    - Buses on standby for evacuation
    - DFES liaison
- Consider similar pre-emptive actions to the above, when a Total Fire Ban is declared and ensure no hot works or no other activities that may start a fire are conducted.
- Monitor emergency services information during the day (especially during bushfire season or days with elevated FDR) and conduct regular visual assessments, to maintain situation awareness during these days.
- Consider triggers for:
    - Alerting DFES
    - Ceasing train and bus services to train stations
    - Evacuating train station
    - This above would likely be station specific triggers
- Consider using Transperth buses for offsite evacuation of occupants
- Otherwise utilising the existing relevant PTA emergency management procedures and infrastructure as much as possible from the EMM, to manage bushfire emergencies.
- Ensure sufficient training for staff and regular exercise drills are conducted

5.2.5 BAL compliance and/or BAL assessment report

A BAL compliance and/or BAL assessment report may be prepared at the discretion of the City following completion of construction works and prior to issue of certificate of occupancy to validate

and confirm the accuracy of the BAL contour assessment.

5.2.6 Compliance with annual firebreak notice

The Proponent or landowner is to comply with the current City of Bayswater annual firebreak notice as amended (refer Appendix 5).

6.0 Responsibilities for implementation and management of the bushfire measures

Implementation of the BMP applies to the Proponent (landowner, facility manager) and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A bushfire responsibilities table is provided in Table 6 to drive implementation of all bushfire management works associated with this BMP.

Table 6: Responsibilities for implementation and management of the bushfire measures

Implementation/management table	
Decision maker – prior to development approval	
No.	*Implementation action*
1	Condition the preparation of the Bushfire Emergency Management Procedures for the station prior to occupation as part of the development approval
Proponent – prior to development occupation	
No.	*Implementation action*
1	Establish the Asset Protection Zones (APZs) around nominated buildings and infrastructure assets to the dimensions and standards stated in the BMP and Appendix 2.
2	Establish low threat landscaping throughout the project area in accordance with provisions of this BMP and endorsed Landscaping Plan
3	Establish on-site revegetation to Class C Shrubland or Class B Woodland structure (at maturity) to the standards stated within this BMP.
4	Install the private internal road network to the relevant technical requirements under the Guidelines (refer to Appendix 4). Ensure keys for any access gate keys are made available to onsite PTA staff and local DFES brigades.
5	Construct proposed onsite fire hydrant system for the proposed development, including the additional 50 kL firewater capacity in the tanks for bushfire fighting purposes as stated in this BMP.
6	Implement AS 3959 BAL-12.5 construction measures for the main station building and VT buildings, where practical for buildings of this nature.
7	Develop the Bushfire Emergency Management Procedures for the station, ideally incorporated into the PTA EMM, as documented in this BMP
8	Comply with the City of Bayswater annual firebreak notice issued under s33 of the Bush Fires Act 1954.
9	If required by the City, individual BAL assessment prior to issuing of building permits.
Proponent – ongoing	
No.	*Implementation action*
1	Maintain the Asset Protection Zones (APZs) around the nominated buildings and assets to the dimensions and standards stated in the BMP and Appendix 2.
2	Maintain low threat landscaping throughout the project area in accordance with provisions of this BMP and endorsed Landscaping Plan
3	Maintain on-site revegetation to Class C Shrubland or Class B Woodland structure (at maturity) to the standards stated within this BMP.
4	Maintain the private internal road network to the relevant technical requirements under the Guidelines
5	Maintain the onsite fire hydrant system in accordance with relevant Australian Standards and the standard stated in the BMP.

Implementation/management table	
6	Conduct ongoing review of the Bushfire Emergency Management Procedures to ensure they remain appropriate to the facility
7	Comply with the City of Bayswater annual firebreak notice issued under s33 of the Bush Fires Act 1954.
Local government – ongoing management	
No.	*Implementation action*
1	Maintain road verges in a low threat minimal fuel condition as per Clause 2.2.3.2 (f) of AS 3959.

7.0 References

Department of Fire and Emergency Services (DFES) 2019, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: https://maps.slip.wa.gov.au/landgate/bushfireprone/,.

Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.

Standards Australia (SA) 2018, Australian Standard *AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth.

Western Australian Planning Commission (WAPC) 2017, *Guidelines for Planning in Bushfire Prone Areas*, Version 1.3 August 2017, Western Australian Planning Commission, Perth.

Appendix 1: Landscaping Plans

LEGEND

P2-01A — P2-01A In-situ Coloured Concrete Pavement, Exposed-Aggregate
Refer Engineer's Documentation and Material Schedule.

P2-21B — P2-21B In-situ Standard Grey Concrete Pavement, Broom Finished
Refer Engineer's Documentation and Material Schedule.

P3-04A — P3-04A Stone Unit Pavement
Refer Engineer's Documentation and Material Schedule.

P6-01A — P6-01A Asphaly, Red
Refer PTA Specification and Material Schedule.

P6-01A — P6-01A Asphaly, Red
Refer PTA Specification and Material Schedule.

PV04A — PV04A Tactile Concrete Unit Pavement - Dot
Refer Detail and Material Schedule.

PV04B — PV04B Tactile Concrete Unit Pavement - T-Bar
Refer Detail and Material Schedule.

P7-01A — P7-01A Cement Stablised Granitic Gravel
Refer Detail and Material Schedule.

W2-00A — W2-00A Concrete Wall, 450mm Wide, Honed
Refer Detail and Material Schedule.

W4-00A — W4-00A Concrete Wall, 150mm Wide, Honed
Refer Detail and Material Schedule.

Landscape Works Boundary.

Cadastral Boundary.

Fenceline
Refer Civil Engineers' Documentation.

Overhead Architecture Canopy
Refer Architecture Documentation.

F1-01A — F1-01A Bike Hoop
Refer Material Schedule

F2-01A — F2-01A Dual Bin Enclosure
Refer Material Schedule.

F3-01A — F3-01A Drinking Fountain with 'Dog Watering Bowl'
Refer Material Schedule.

F4-01A — F4-01A Bench Seat
Refer Material Schedule.

F5-01A — F5-01A Maintenance Pillar - Dual Use Multiple GPO / Water Outlet
Refer Material Schedule.

F7-01A — F7-01A Core Drilled SS Bollard
Refer Material Schedule.

F7-01B — F7-01B Removable SS Bollard
Refer Material Schedule.

Existing Street Light Pole

LU01 Light Unit 01 - Pole-top Light
Refer Material Schedule and Public Realm Decorative Lighting Strategy.

E4-01A — 20-100mm Laterite Gravel Anti-Scour Edge
Refer Material Schedule and Civil Engineer's Documentation

E5-01A — Standard Softscape Maintenance Edge (sub-surface, concealed. between pavement and softscape)
Refer Material Schedule.

RL 47000 — Spot Height (mm)
Refer Grading Plans.

G1-00A — G1-00A High Quality Amenity Planting
Refer Detail and Planting Schedule.

G2-00A — G2-00A Standard Amenity Planting
Refer Detail and Planting Schedule.

G3-00A — G3-00A Basic Amenity Planting
Refer Detail and Planting Schedule.

G4-00A — G4-00A Basin
Refer Detail and Planting Schedule.

G7-00A — G7-00A Tubestock Revegetation
Refer Detail and Planting Schedule.

G8-00A — G8-00A Mulch Only
Refer Detail and Planting Schedule.

LAWN — Irrigated Lawn
Refer Detail and Material Schedule.

T1-00A 1500L Tree
Refer Detail and Planting Schedule.

T2-00A 500L Tree
Refer Detail and Planting Schedule.

T3-00A 200L Tree
Refer Detail and Planting Schedule.

T4-00A 100L Tree
Refer Detail and Planting Schedule.

T5-00A 45L Tree
Refer Detail and Planting Schedule.

NOTES:

1. DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DOCUMENTATION (INCLUDING THAT OF DISCIPLINES INTERFACING WITH LANDSCAPE WORKS) PRIOR TO COMMENCEMENT OF WORKS. RELEVANT DOCUMENTATION SHALL INCLUDE BUT IS NOT LIMITED TO:
   - THE CONTRACT;
   - RELEVANT LEGISLATION, STANDARDS AND CODES OF PRACTICE;
   - LANDSCAPE AND IRRIGATION DRAWINGS, TECHNICAL SPECIFICATONS, SCHEDULES AND REPORTS;
   - ARCHITECTURAL DRAWINGS, TECHNICAL SPECIFICATONS, SCHEDULES AND REPORTS;
   - STRUCTURAL, CIVIL, SERVICES ENGINEERING DRAWINGS, TECHNICAL SPECIFICATONS, SCHEDULES AND REPORTS;
   - INSTRUCTIONS, CONSULTANT ADVICE NOTES AND ANY OTHER CONTRACTUAL NOTIFICATIONS FROM THE MANAGING CONTRACTOR;
   - REPORTS AND STUDIES, INCLUDING ENVIRONMENTAL, ARBORICULTURAL, GEOTECHNICAL, BUSHFIRE, HERITAGE, ETC;
   - BILLS OF QUANTITIES (WHERE PROVIDED);
   - ANY OTHER INFORMATION DEEMED PERTINENT BY THE MANAGING CONTRACTOR.
2. THESE DRAWINGS HAVE BEEN BASED ON A COMPILATION OF INFORMATION AND BASE DATA (INCLUDING DRAWINGS AND MODELS PROVIDED BY OTHER DISCIPLINES) AVAILABLE AT THE TIME OF PRODUCTION. THE LANDSCAPE DESIGN AND DOCUMENTATION IS RELIANT ON THE ACCURACY AND COMPLETENESS OF INFORMATION PROVIDED BY OTHERS. NO RESPONSIBILITY IS TAKEN FOR THE QUALITY OR COMPLETENESS OF INFORMATION FROM OTHERS ON WHICH THE LANDSCAPE DESIGN IS RELIANT.
3. ANOMALIES, OMISSIONS, ERRORS OR DISCREPENCIES IN THE PROJECT DOCUMENTATION ARE TO BE REFERRED TO THE MANAGING CONTRACTOR AND RELEVANT DISCIPLINE SRE'S IMMEDIATELY UPON DISCOVERY FOR DETERMINATION OF RESOLUTION AND SUBSEQUENT INSTRUCTION PRIOR TO CONTINUATION OF WORKS.
4. THE CONTRACTOR AND SUB-CONTRACTORS SHALL VERIFY ALL DIMENSIONS, SET-OUT, LEVELS, EXISTING AND PROPOSED INTERFACING WORKS (INCLUDING SERVICES AND SUB-SURFACE WORKS) PRIOR TO COMMENCEMENT ON SITE, PREPARATION OF DETAIL/SHOP DRAWINGS, AND FABRICATION OF CONSTRUCTION / BUILDING COMPONENTS
5. SET-OUT OF ALL WORKS SHALL BE UNDERTAKEN BY LICENSED SURVERYOR UTILISING 'ISSUE FOR CONSTRUCTION' DIGITAL FILES. LEVELS TO BE VERIFIED AGAINST THE 'ISSUE FOR CONSTRUCTION' DRAWINGS.
6. ALL DIMENSIONS ARE IN MM. DO NOT SCALE OFF DRAWINGS.
7. THE CONTRACTOR IS TO PROVIDE SHOP DRAWINGS (CAD DRAFTED TO SCALE WITH ADEQUATE NOTES AND DIMENSIONS FOR REVIEW AND FABRICATION) TO THE MANAGING CONTRACTOR FOR REVIEW PRIOR TO FABRICATION. FIXING AND FASTENING SELECTIONS ARE TO BE CONFIRMED VIA THE SHOP DRAWING PROCESS IN ACCORDANCE WITH THE AESTHETIC AND STRUCTURAL REQUIREMENTS OF THE DESIGN DOCUMENTATION.
8. WHERE STRUCTURAL FIXINGS AND CONNECTIONS AND / OR THEIR SET-OUT HAVE NOT BEEN NOMINATED IN THE DOCUMENTATION, THE CONTRACTOR IS TO VERIFY SUITABLE SELECTIONS AND SET-OUT WITH THE MANAGING CONTRACTOR PRIOR TO FABRICATION.
9. CONSTRUCTION WORKS SHALL ONLY BE UNDERTAKEN ON RECEIPT OF 'ISSUE FOR CONSTRUCTION' DOCUMENTATION.
10. TREES IDENTIFIED FOR RETENTION IN THE DOCUMENTS SHALL BE PROTECTED FOR THE DURATION OF CONSTRUCTION WORKS IN ACCORDANCE WITH TREE PROTECTION SPECIFICATIONS. *[NB. TREE SPECIFICATIONS ARE SUBJECT TO DEVELOPMENT AND CONFIRMATION IN THE NEXT DESIGN STAGE].*
11. ALL PAVED SURFACES ARE TO BE CONSTRUCTED IN COMPLIANCE WITH PROJECT 'DESIGN FOR DISABLED ACCESS' (DDA) REQUIREMENTS AND AS1428. DISCREPENCIES IN THE DOCUMENTATION PERTAINING TO PAVEMENT DESIGN AND DDA REQUIREMENTS ARE TO BE REFERRED TO THE MANAGING CONTRACTOR FOR RESOLUTION.
12. ALL SURFACES SHALL BE FREE-DRAINING. THE CONTRACTOR SHALL ENSURE SURFACES GRADES FALL AWAY FROM BUILDINGS, STRUCTURES, FURNITURE, KERB RAMPS AND PATHS OF TRAVEL.
13. SET-OUT AND SELECTION OF LIGHT FITTINGS ARE A WORK IN PROGRESS AND ARE NOT YET CAPTURED IN THE LANDSCAPE DOCUMENTATION FOR REFERENCE DESIGN. LIGHTING DETAILS WILL BE CONFIRMED IN THE NEXT PHASE OF DESIGN. IN THE INTERIM, PLEASE REFER TO PRELIMINARY LIGHTING STRATEGIES RD_LA_SK035 / RD_LA_SK038 FOR LIGHTING INTENT.
14. UNIT PAVING HEADER COURSES ARE NOT SHOWN DISTINCTLY ON FINISHES PLANS, REFER MATERIAL SCHEDULE FOR REQUIREMENTS.

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A04	04/11/21	Issue for RD	TCL	EL	SL	SL
A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 100 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

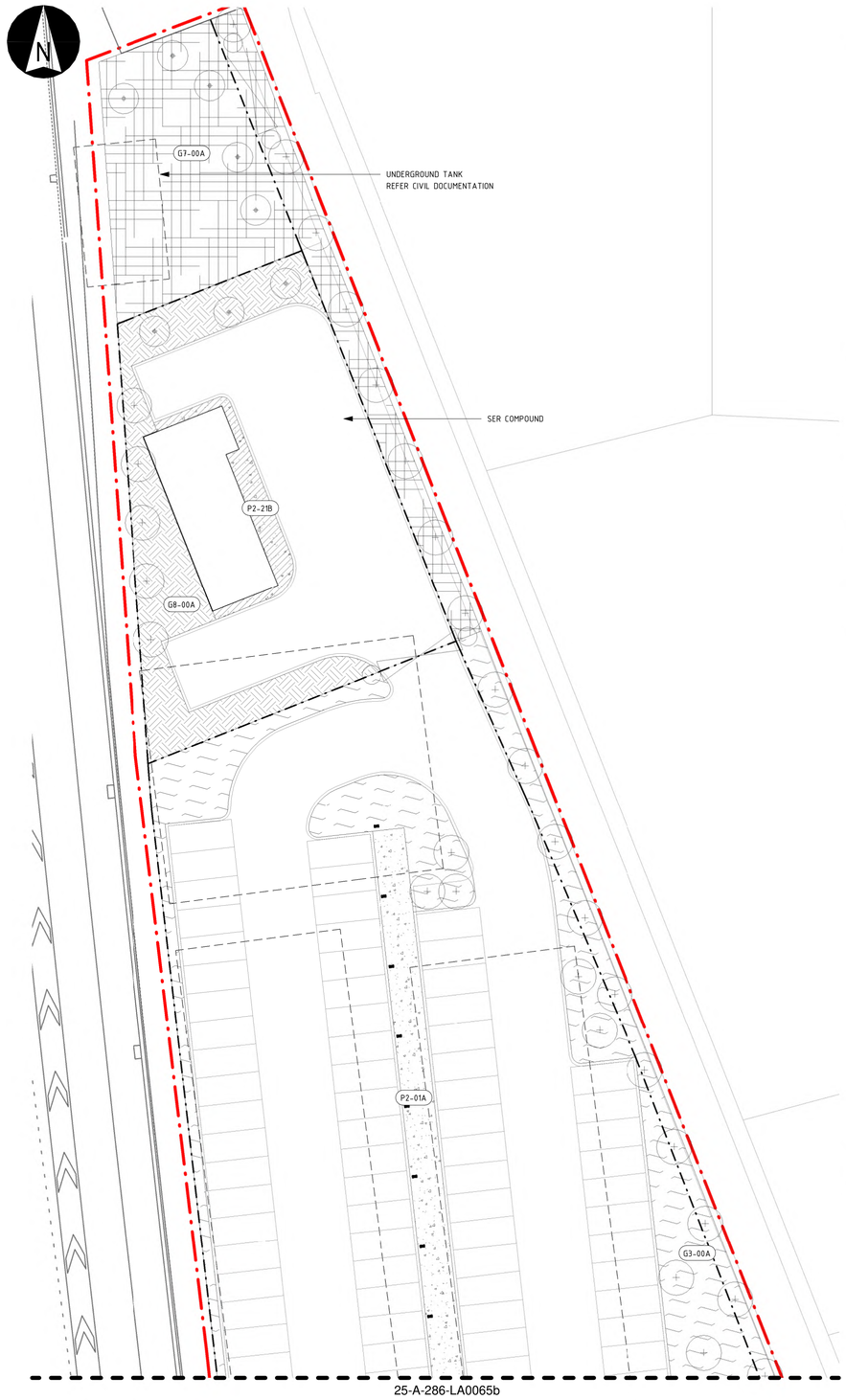
Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

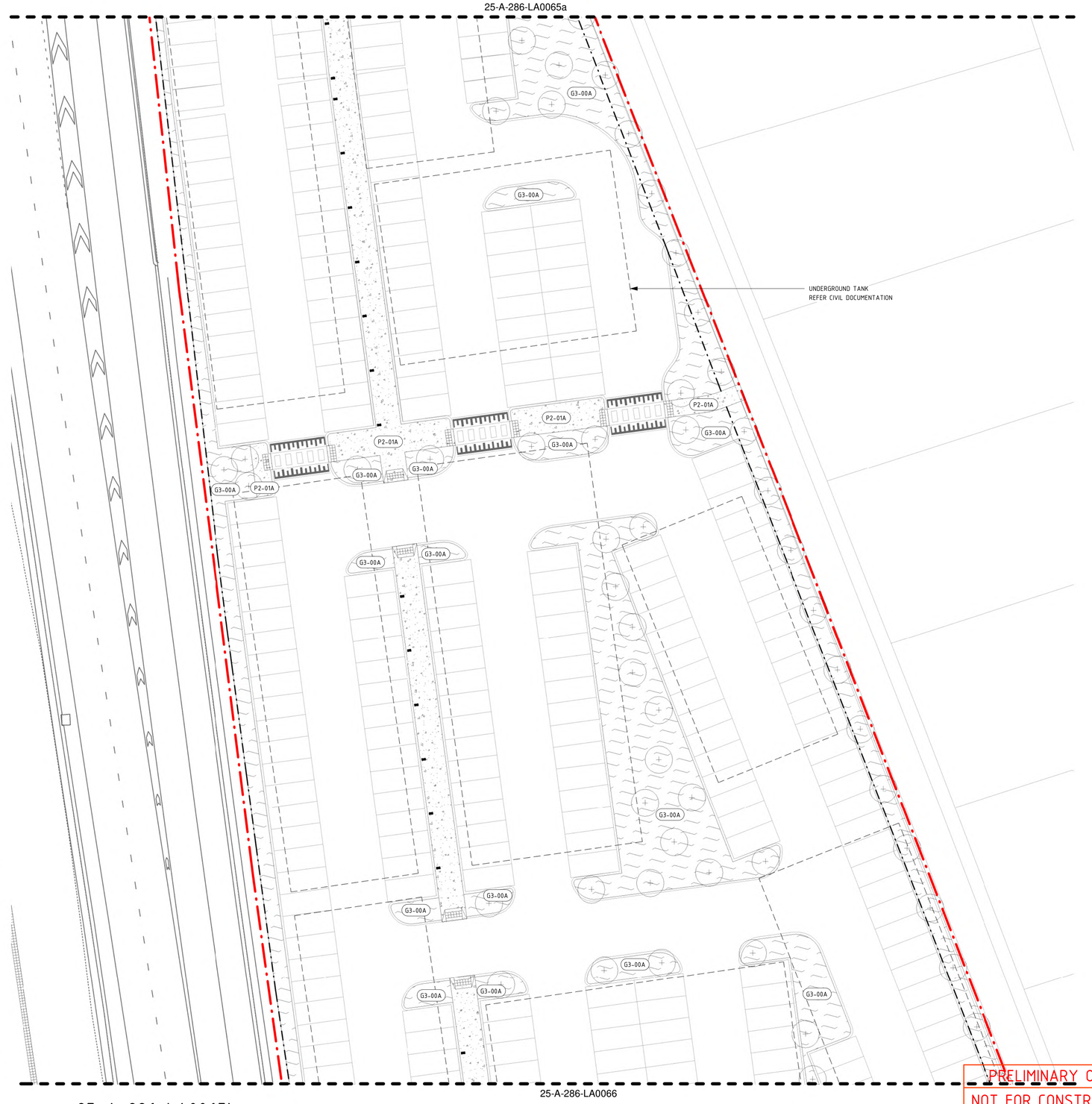
NORANDA STATION - LANDSCAPE ARCHITECTURE
LEGEND & NOTES

PTA Drawing No: 25-A-286-LA0002 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt



1 25-A-286-LA0065a
1 : 250



2 25-A-286-LA0065b
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PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
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A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

PTA Drawing No: 25-A-286-LA0065 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt

25-A-286-LA0065b

UNDERGROUND TANK
REFER CIVIL DOCUMENTATION

LAWN

25-A-286-LA0069

25-A-286-LA0070

1 25-A-286-LA0066
1 : 250

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A04	04/11/21	Issue for RD	TCL	EL	SL	SL
A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

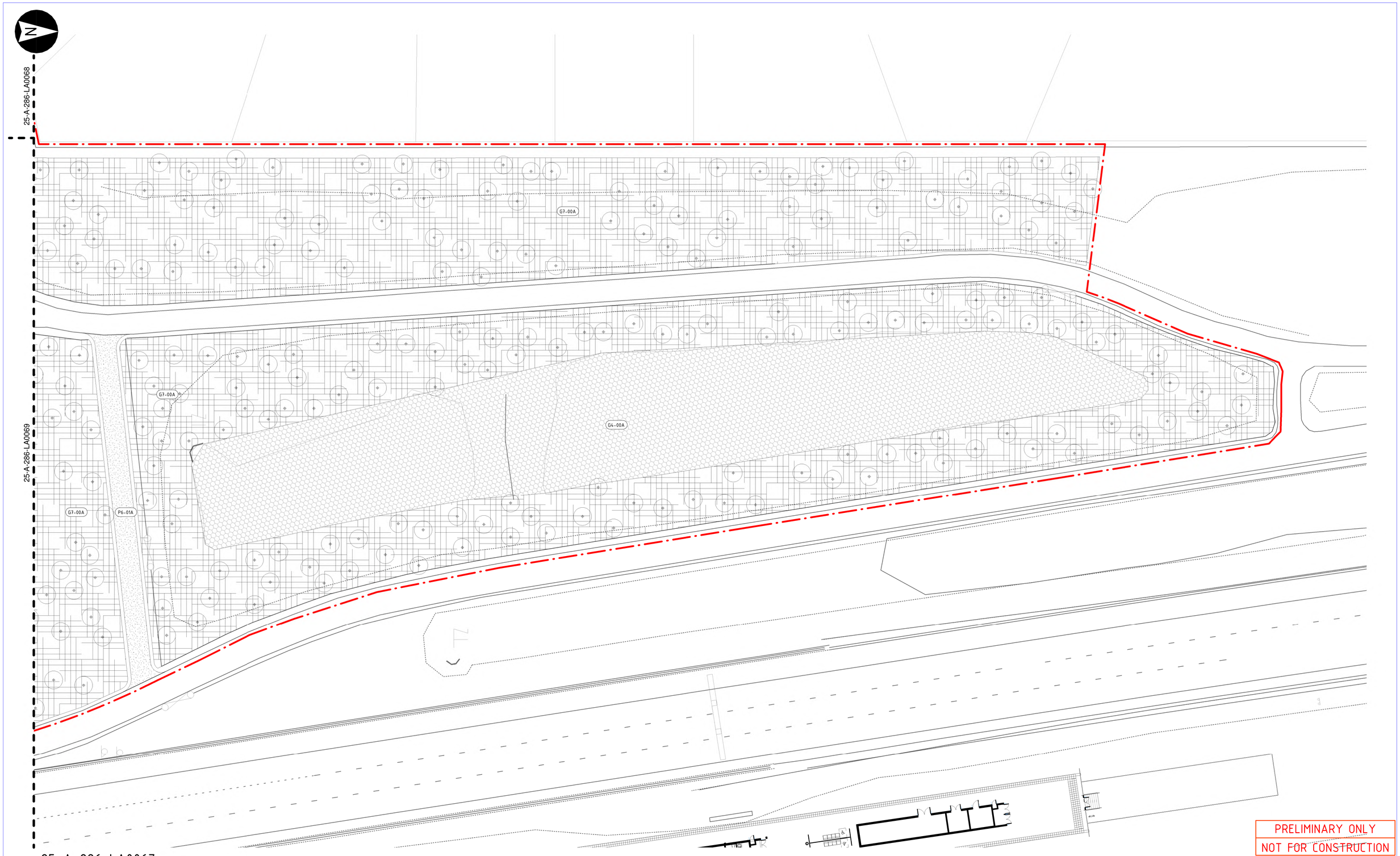
Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

PTA Drawing No: 25-A-286-LA0066 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt



1 25-A-286-LA0067

1 : 250

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A04	04/11/21	Issue for RD	TCL	EL	SL	SL
A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm

AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

PTA Drawing No: 25-A-286-LA0067 Rev: A04

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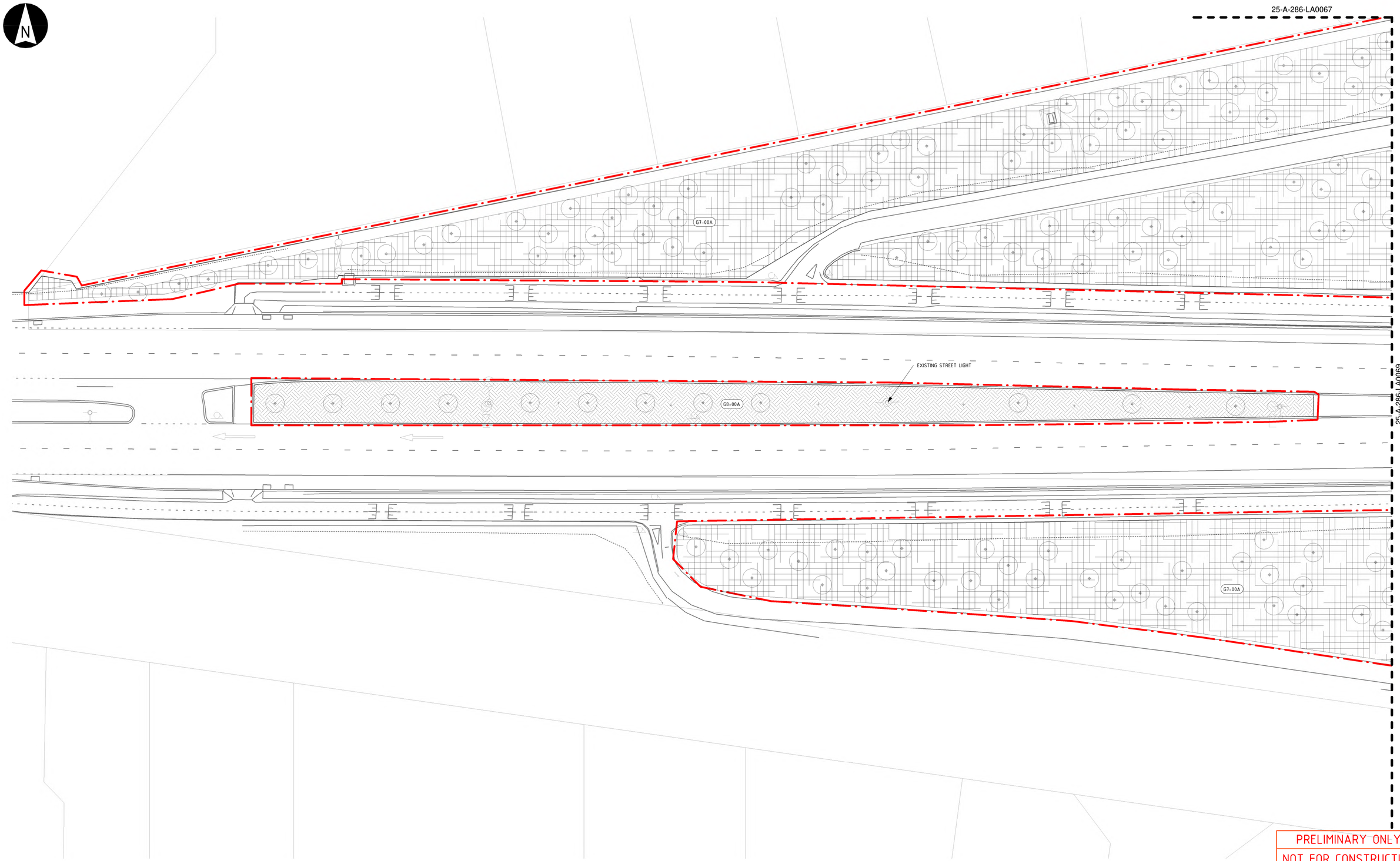

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

1 25-A-286-LA0068
1 : 250

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
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A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

PTA Drawing No: 25-A-286-LA0068 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt

25-A-286-LA0067

25-A-286-LA0066

25-A-286-LA0068

25-A-286-LA0070

G7-00A

EXISTING STAIRS

SS

P6-01A

G4-00A

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

1 25-A-286-LA0069
1 : 250

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A04	04/11/21	Issue for RD	TCL	EL	SL	SL
A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

PTA Drawing No: 25-A-286-LA0069 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt

25-A-286-LA0066

25-A-286-LA0069

G7-00A

P6-01A

P7-01A

RETAINING WALL
REFER ENGINEER'S DOCUMENTATION

G8-00A

1 25-A-286-LA0070
1 : 250

PRELIMINARY ONLY
NOT FOR CONSTRUCTION

Model Rev:A09 Issued:21.10.21

REV	DATE	AMENDMENT	DSN	DRN	CHK	APP
A04	04/11/21	Issue for RD	TCL	EL	SL	SL
A03	30/09/21	Issue for IDC	TCL	EL	SL	SL
A02	02/09/21	Issue for IDC	TCL	EL	SL	SL
A01	04/08/21	Issue for 50% RD	TCL	EL	SL	SL

ORIG SIZE A1

0 10 20 30 40 50 100mm
AT ORIGINAL PLOT SIZE

MEL connx

REFERENCES

SCALE 1 : 250 (@ A1)

DATUM
HORIZONTAL: PCG2020
VERTICAL: AHD71

DESIGNED UDLA & TCL
DRAWN Enoch Liew
CHECKED Scott Lang
APPROVED Manoj Aravind
DATE 04/11/21

Government of Western Australia Public Transport Authority

MORLEY ELLENBROOK LINE

NORANDA STATION - LANDSCAPE ARCHITECTURE
GENERAL ARRANGEMENT & FINISHES PLAN

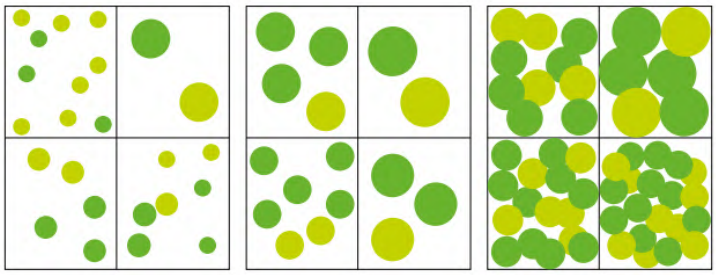
PTA Drawing No: 25-A-286-LA0070 Rev: A04

CAD DRAWING PATHNAME S:\JOB-LIVE\M2012\08 Doc\08-08 CAD\NORANDA\RVT\25-B-286-LA0001.rvt

Appendix 2: APZ standards (Schedule 1 of the Guidelines)

Schedule 1: Standards for Asset Protection Zones

- **Fences:** within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.
- **Objects:** within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- **Fine Fuel load:** combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **Trees (> 5 metres in height):** trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.



- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5 m^2 in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- **Ground covers (<0.5 metres in height):** can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- **Grass:** should be managed to maintain a height of 100 millimetres or less.

Appendix 3: Vegetation plot photos and description

Photo ID: 1a

Plot number		Plot 1
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class C Shrubland
Description / justification		Shrub vegetation less than 2 m high at maturity

Photo ID: 2a (note 1.2m fence for scale)

Photo ID: 2b (note 1.2m fence for scale)

Plot number		Plot 1
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity

Photo ID: 2c (note 1.2m fence for scale)

Photo ID: 2d (note 1.2m fence for scale)

Plot number		Plot 2
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity

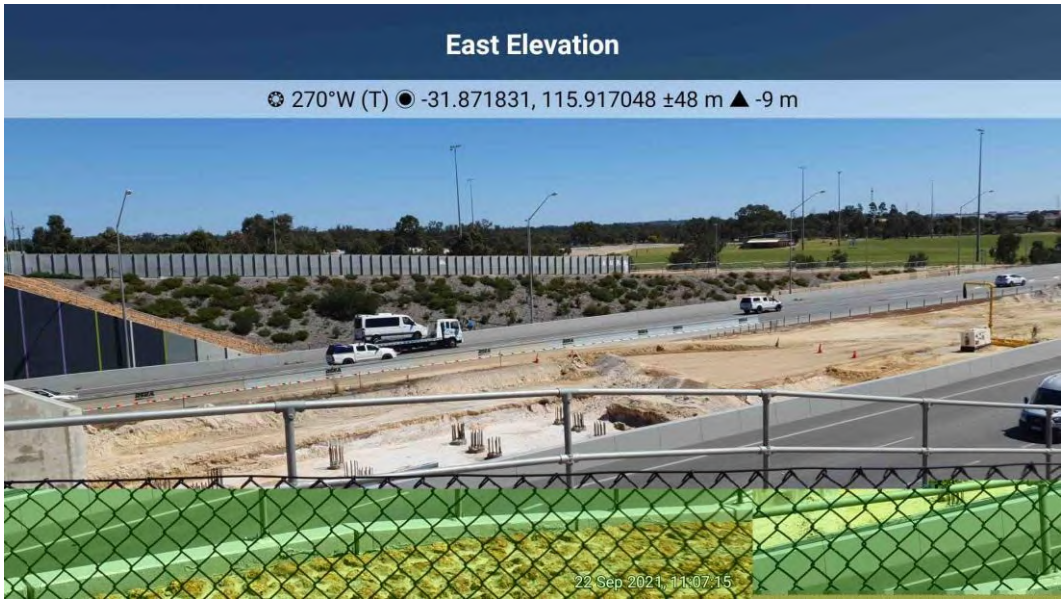


Photo ID: 3a

Plot number		Plot 3
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity

Photo ID: 4a

Photo ID: 4b

Photo ID: 4c

Plot number		Plot 4
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

Photo ID: 4d

Photo ID: 4e

Plot number		Plot 4
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

Photo ID: 5a

Photo ID: 5b

Plot number		Plot 5
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

Photo ID: 5c

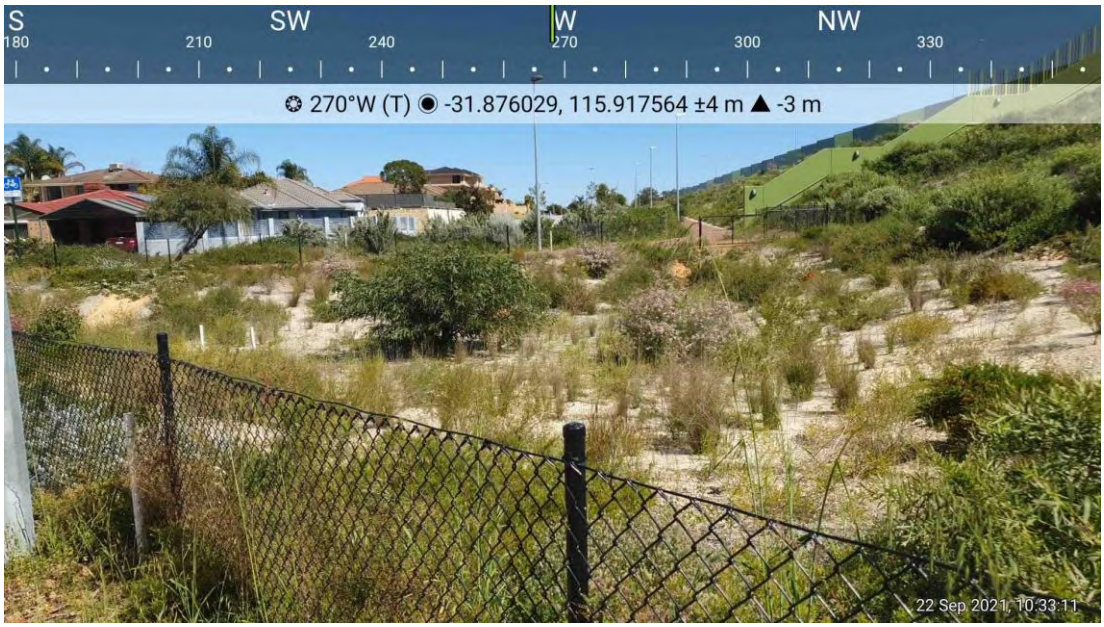


Photo ID: 5d

Plot number		Plot 5
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

Photo ID: 5e

Photo ID: 5f

Plot number		Plot 5
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

Photo ID: 5g

Plot number		Plot 5
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey

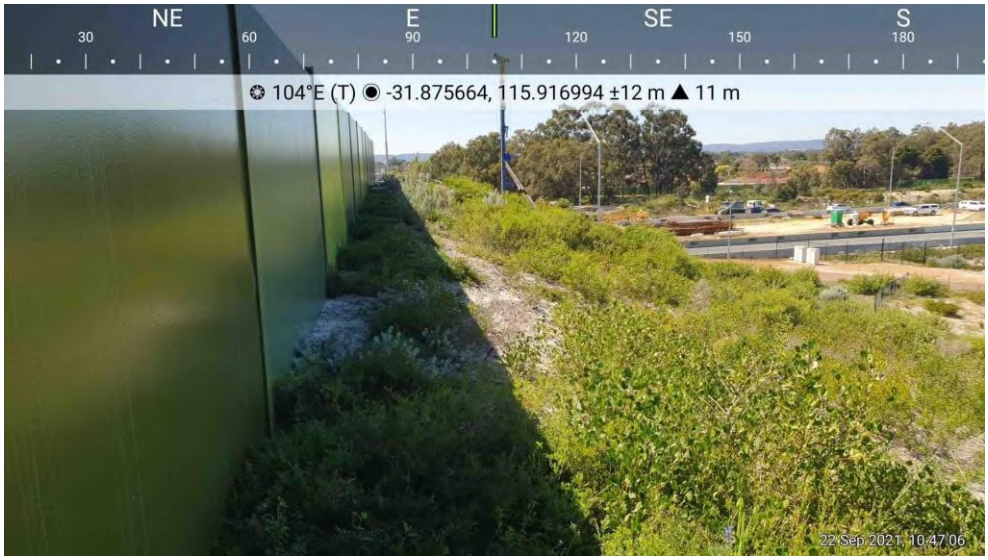


Photo ID: 6a

Plot number		Plot 6
Vegetation classification	Pre-development	Class C Shrubland
	Post-development	Class A Forest
Description / justification		Shrubland on embankment conservatively classified as forest

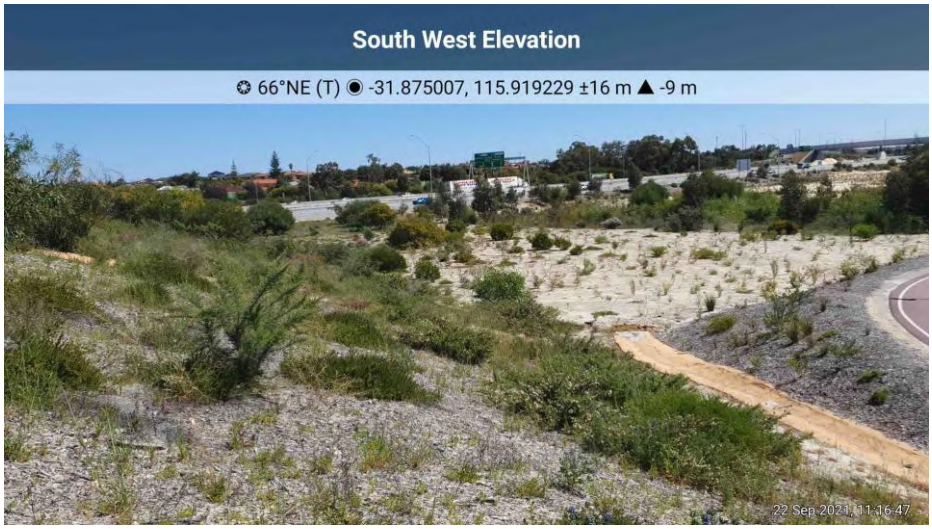


Photo ID: 7a

Plot number		Plot 7
Vegetation classification	Pre-development	Class C Shrubland
	Post-development	Class B Woodland
Description / justification		Revegetated with low understorey species (<0.5 m high) and trees that will be between 10% - 30% canopy cover

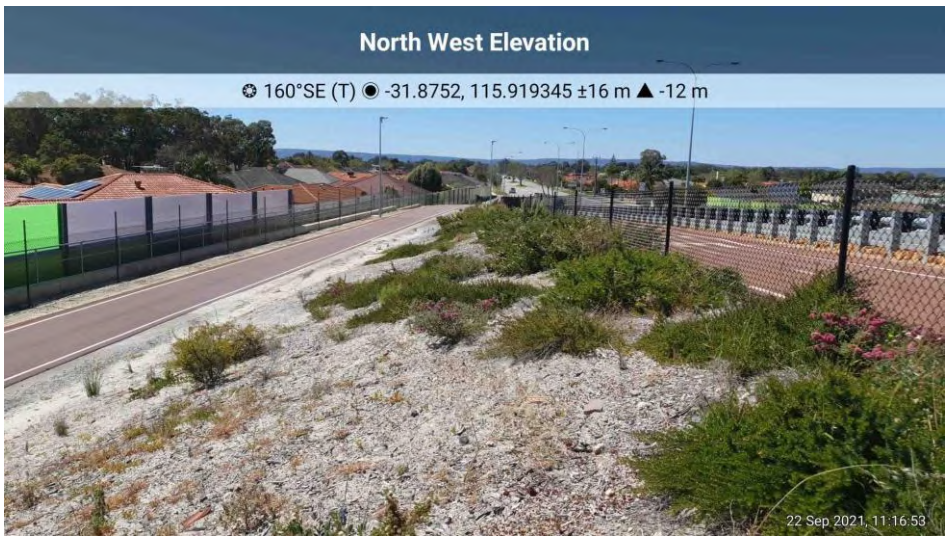


Photo ID: 8a

Plot number		Plot 8
Vegetation classification	Pre-development	Class C Shrubland
	Post-development	Class B Woodland
Description / justification		Revegetated with low understorey species (<0.5 m high) and trees that will be between 10% - 30% canopy cover

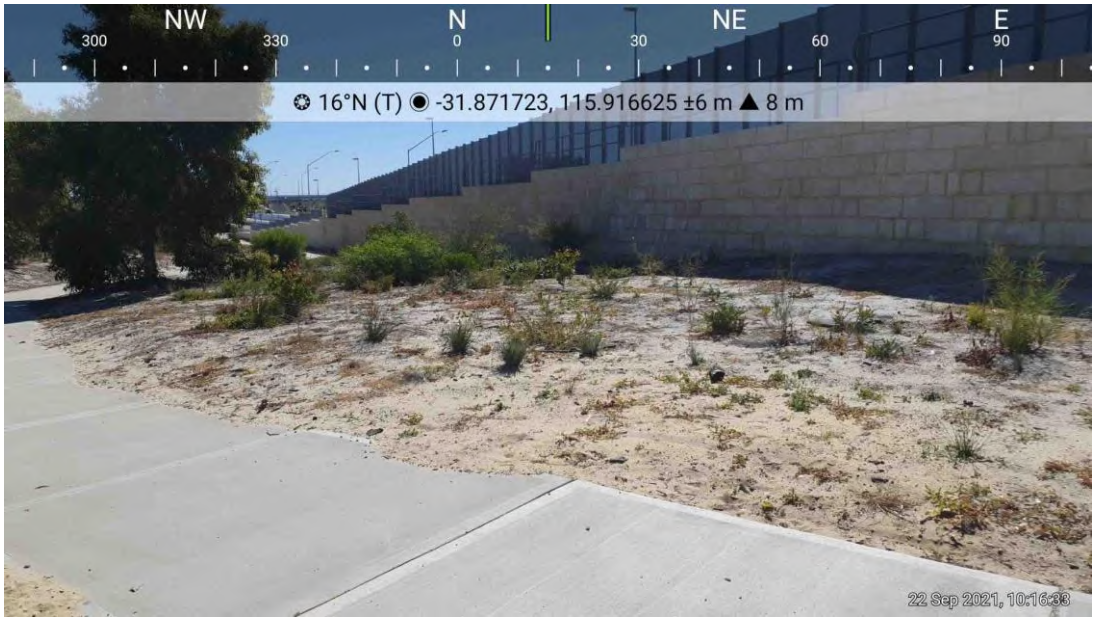


Photo ID: 10a

Photo ID: 10b

Plot number		Plot 10
Vegetation classification	Pre-development	Excluded – Clause 2.2.3.2 [a]
	Post-development	Excluded – Clause 2.2.3.2 [a]
Description / justification		Vegetation further than 100m from project area

Photo ID: 11a

Photo ID: 11b

Plot number		Plot 11
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Photo ID: 11c

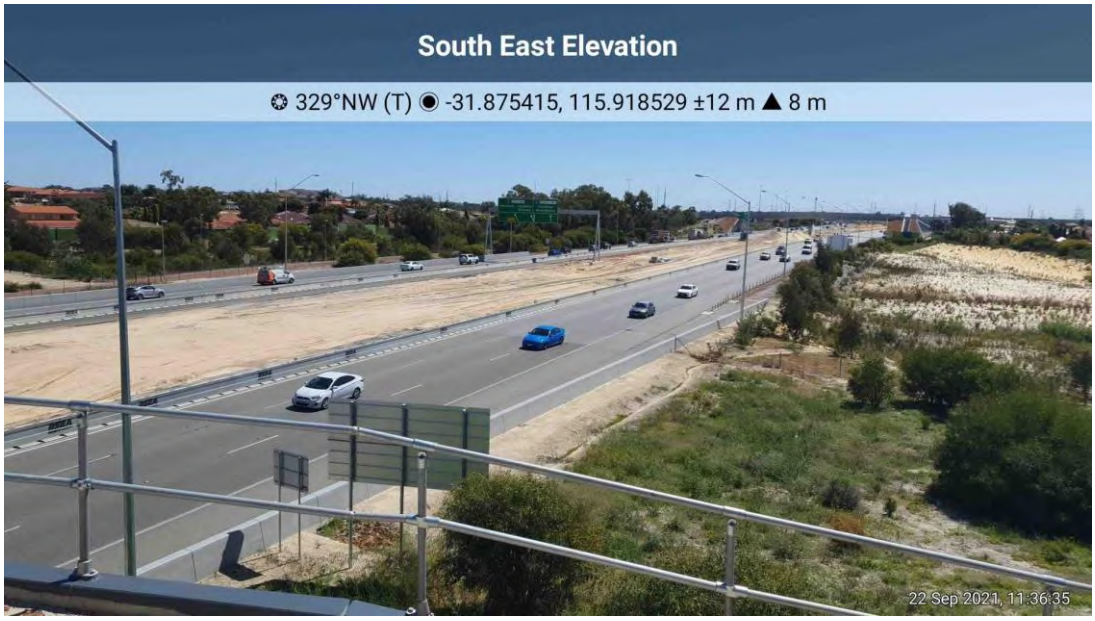


Photo ID: 11d

Plot number		Plot 11
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Photo ID: 11e

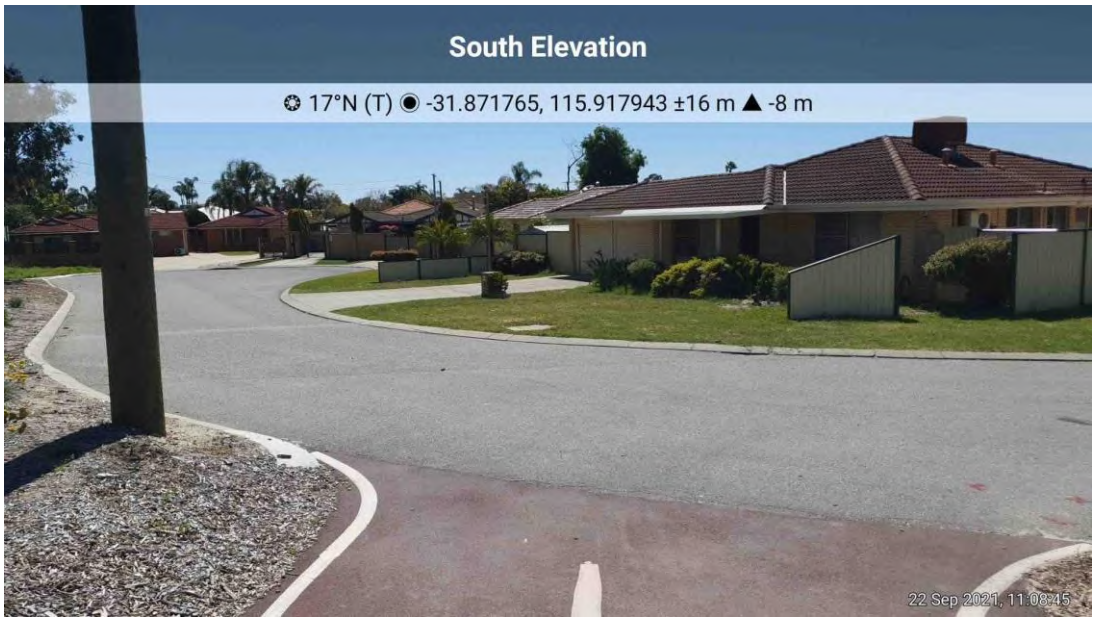


Photo ID: 11f

Plot number		Plot 11
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Photo ID: 11g

Photo ID: 11h

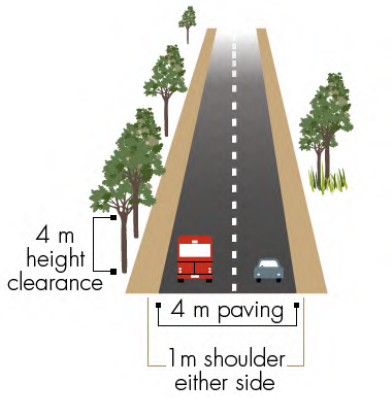
Plot number		Plot 11
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Photo ID: 11i

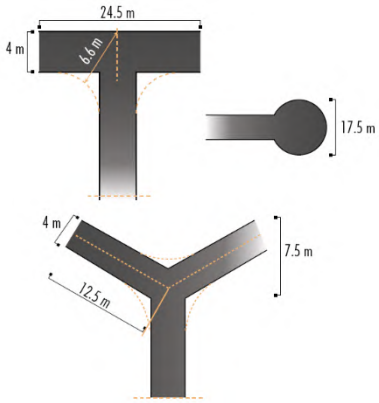
Photo ID: 11j

Plot number		Plot 11
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints

Appendix 4: Vehicular access technical standards of the Guidelines

Public roads	
Acceptable solution A3.2	A public road is to meet the requirements in Table 1, Column 1.
Explanatory note E3.2	**Trafficable surface:** Widths quoted for access routes refer to the width of the trafficable surface. A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metre wide paving one metre wide constructed road shoulders. In special circumstances, where eight lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of 90 metres may be provided subject to the approval of both the local government and Department of Fire and Emergency Services. **Public road design:** All roads should allow for two-way traffic to allow conventional two-wheel drive vehicles and fire appliances to travel safely on them. 

Private driveway longer than 50 metres	
Acceptable solution A3.5	A private driveway is to meet all of the following requirements: • **Requirements in Table 1, Column 3** • **Required where a house site is more than 50 metres from a public road** • **Passing bays:** every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres) • **Turn-around areas:** designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house • **Any bridges or culverts:** are able to support a minimum weight capacity of 15 tonnes • **All-weather surface (i.e. compacted gravel, limestone or sealed).**
Explanatory note E3.5	For a driveway shorter than 50 metres, fire appliances typically operate from the street frontage however where the distance exceeds 50 metres, then fire appliances will need to gain access along the driveway in order to defend the property during a bushfire. Where house sites are more than 50 metres from a

Private driveway longer than 50 metres	
	public road, access to individual houses and turnaround areas should be available for both conventional two-wheel drive vehicles of residents and type 3.4 fire appliances. Turn-around areas should be located within 50 metres of a house. Passing bays should be available where driveways are longer than 200 metres and turn-around areas in driveways that are longer than 500 metres. Circular and loop driveway designs may also be considered. These criteria should be addressed through subdivision design. Passing bays should be provided at 200 metre intervals along private driveways to allow two-way traffic. The passing bays should be a minimum length of 20 metres, with the combined width of the passing bay and the access being a minimum of six metres. Turn-around areas should allow type 3.4 fire appliances to turn around safely (i.e. kerb to kerb 17.5 metres) and should be available at the house sites and at 500 metre intervals along the driveway. 

Technical requirement	1	2	3	4	5
	Public road	Cul-de-sac	Private driveway longer than 50 m	Emergency access way	Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5

Technical requirement	1	2	3	4	5
	Public road	Cul-de-sac	Private driveway longer than 50 m	Emergency access way	Fire service access routes
* Refer to E3.2 Public roads: Trafficable surface					

Appendix 5: City of Bayswater Firebreak Notice

BUSH FIRES ACT 1954
SECTION 33
FIREBREAK NOTICE
City of Bayswater

Notice to all landowners and occupiers of land in the City of Bayswater.

All landowners and occupiers of land within the City of Bayswater are advised that, on or before the 1 November 2021 or within fourteen days of the date of becoming an owner or occupier up to and including 31 March 2022 must ensure compliance with the following firebreak conditions-

All land which is 2000 square metres or less in area-

Remove all inflammable matter from the whole of the land, except living trees and shrubs; plants under cultivation and lawn, by means of ploughing, cultivating or slashing to a height of no more than 50mm

All other land within the City of Bayswater;

i. Firebreaks of a minimum width and height of 3 metres are to be cleared immediately inside all external boundaries of the land;

ii. Firebreaks of a minimum width of 3 metres and height of 3 metres are to be cleared immediately surrounding all buildings situated on the land; and any place where inflammable liquids and gas products are kept.

If for any reason an owner and/or occupier consider it impractical to clear firebreaks or comply with other fire protection measures in accordance with this Notice, the owner and/or occupier may apply in writing to Council no later than 31 October 2021.

Where an owner and/or occupier of land fails or neglects to comply with any requirement of this Notice, Council may undertake the work and recover the costs and expenses from the owner and/or occupier pursuant to the Act, in addition to any penalty which might be imposed. A Penalty of not more than $5,000 applies.

Burning off within the City of Bayswater is prohibited. All clearing and disposal of waste should be carried out by methods other than burning.

Andrew Brien
Chief Executive Officer